STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

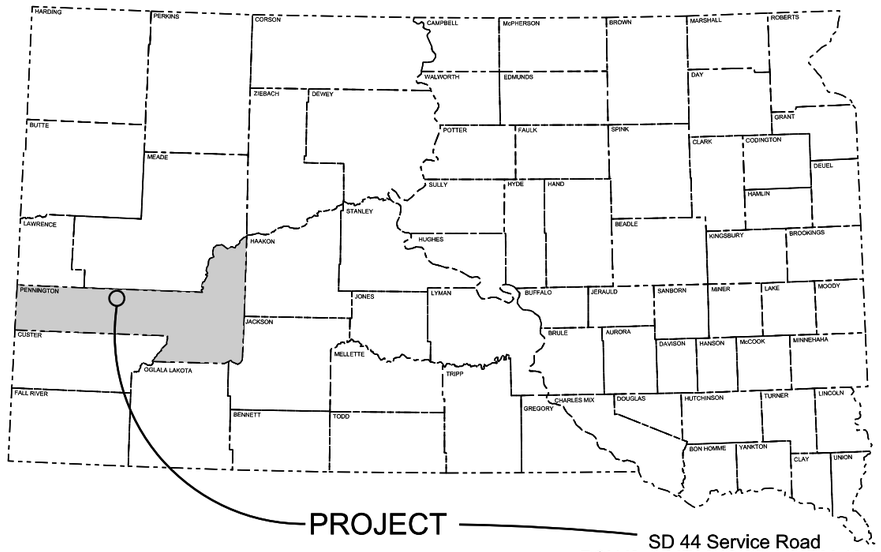
PLANS FOR PROPOSED

PROJECT 044 WF-452
SD HIGHWAY 44
PENNINGTON COUNTY

RECONSTRUCT SERVICE ROAD, AC RESURFACING,
INSTALL SPEED HUMPS, AND ACCESS CONSOLIDATION

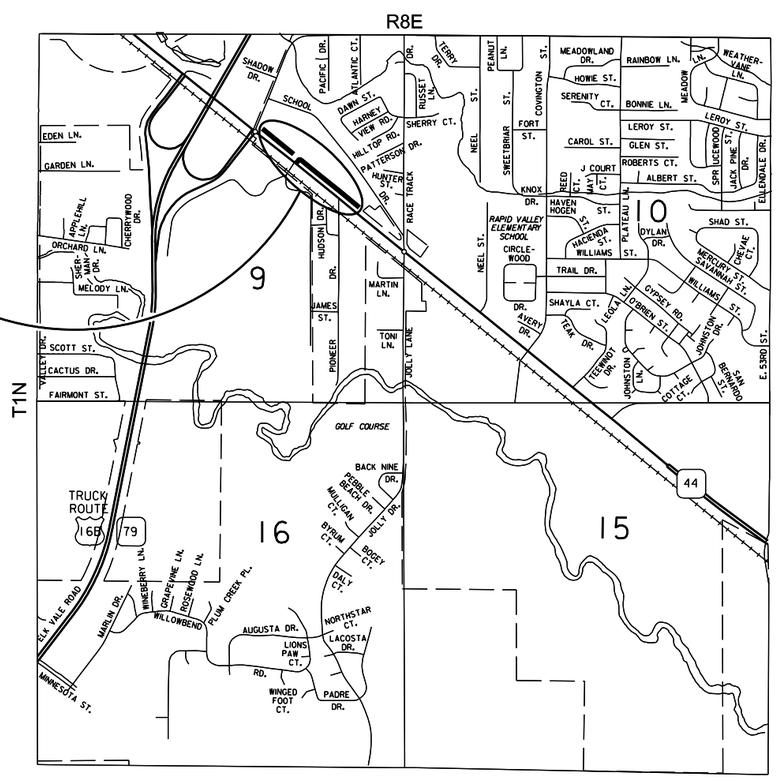
PCNS i3y1 & i3y2

INDEX OF SHEETS



PROJECT

SD 44 Service Road
PCN i3y1 MRM 49.06 to MRM 49.16
PCN i3y2 MRM 49.20 to MRM 49.41



GROSS LENGTH	1778.00 FEET	0.34 MILES
LENGTH OF EXCEPTIONS	0.00 FEET	0.00 MILES
NET LENGTH	1778.00 FEET	0.34 MILES

STORM WATER PERMIT

Major Receiving
Body of Water: Rapid Creek
Area Disturbed: 2.6 ac
Total Project Area: 2.6 ac
Approx. Begin Lat,Long: 44°03'49.35"N, 103°09'33.25"W

Plot Scale - 1:200

Plotted From - TRRC12608

File - ...\Design\title.dgn

ESTIMATE OF QUANTITIES

I3y1

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
320E1200	Asphalt Concrete Composite	140.5	Ton
332E0010	Cold Milling Asphalt Concrete	1,266	SqYd
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	180	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
900E0010	Refurbish Single Mailbox	2	Each
900E0012	Refurbish Double Mailbox	4	Each

I3y2

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and Gutter	220	Ft
110E0600	Remove Fence	100	Ft
120E0010	Unclassified Excavation	5,409	CuYd
120E2000	Undercutting	2,415	CuYd
120E6200	Water for Granular Material	36.6	MGal
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	1,824.9	Ton
320E1200	Asphalt Concrete Composite	778.8	Ton
332E0010	Cold Milling Asphalt Concrete	22	SqYd
450E4759	18" CMP 16 Gauge, Furnish	72	Ft
450E4760	18" CMP, Install	72	Ft
450E5406	18" CMP Safety End, Furnish	2	Each
450E5407	18" CMP Safety End, Install	2	Each
451E6080	Adjust Water Valve Box	1	Each
632E1320	2.0"x2.0" Perforated Tube Post	56.0	Ft
632E2535	Type 4 Object Marker	3	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	45.2	SqFt
633E0010	Cold Applied Plastic Pavement Marking, 4"	150	Ft
633E0025	Cold Applied Plastic Pavement Marking, 12"	64	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	1	Each
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	150	Ft
633E5010	Grooving for Cold Applied Plastic Pavement Marking, 12"	64	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	1	Each
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	192	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
650E0100	Type B610 Concrete Curb and Gutter	125	Ft
650E4700	Type P10 Concrete Gutter	95	Ft
730E0210	Type F Permanent Seed Mixture	45	Lb
731E0100	Fertilizing	2,607	Lb
732E0250	Fiber Mulching	3,477	Lb
734E0154	12" Diameter Erosion Control Wattle	342	Ft
900E0010	Refurbish Single Mailbox	8	Each

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
900E0012	Refurbish Double Mailbox	2	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT:
http://www.sddot.com/business/environmental/stormwater/Default.aspx

DENR: http://www.denr.sd.gov/des/sw/stormwater.aspx

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The "Department of Environmental and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at:

http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

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

The Contractor shall provide ARC 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 artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT K: RAPID CITY AREA AIR QUALITY CONTROL ZONE

Administrative Rule of South Dakota (ARSD) 74:36:18:03 states that "no state facility or state contractor may engage in any construction activity or continuous operation activity within the Rapid City air quality control zone which may cause fugitive emissions of particulate to be released into the ambient air without first obtaining a permit issued by the board or the secretary."

Construction activity is defined as any temporary activity at a state facility, which involves the removal or alteration of the natural or pre-existing cover of one acre or more of land. One acre of surface area is based on a cumulative area of disturbance to be completed for the entire project. Construction activity shall include, but not be limited to, stripping of topsoil, drilling, blasting, excavation, dredging, ditching, grading, street maintenance and repair, or earth moving. Construction activity is generally completed within one year. It also includes stockpiles, access roads, and disposal areas. An off-site disposal area of excess material will require an additional permit.

Action Taken/Required:

In order to be considered eligible for authorization to conduct a construction activity under the terms and conditions of this permit, the owner operator must submit a Notice of Intent (NOI) form. The form must be submitted to the address below at least seven business days prior to the anticipated date of beginning the construction activity.

South Dakota Department of Environment and Natural Resources Air Quality Program
523 East Capitol, Joe Foss Building
Pierre, SD 57501-3181
Phone: 605-773-3151

The permit requires the Contractor to use reasonably available technology to control fugitive dust emissions. The Contractor is required to use control measures for track out, paved areas, unpaved roads, unpaved parking lots, disturbed areas, and for material handling and storage. The control measures that the Contractor is required to use are listed in the permit.

SEQUENCE OF OPERATIONS

1. Construct 1/2 width to maintain access for adjacent landowners
2. Provide access to property owners via existing approach at Sta. 12+85. Access shall be maintained at all times.
3. Complete Cold Milling of station 0+00 to 4+00.
4. Strip topsoil.
5. Perform undercut and grading of service road.
6. Install service road surfacing & resurfacing and tie into existing property entrances.
7. Install new curb and gutter and approach pavement adjacent to SD Highway 44.
8. Remove existing approaches.as shown in these plans and complete grading of ditch area
9. Restore disturbed areas affected by construction.
10. Seed, fertilize, and mulch.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 20 gallons of water per cubic yard of Embankment minus Waste.

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

Special ditch grades and other sections of the roadway different than the typical sections shall be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer shall contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets shall be cut with a 10-foot wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

UTILITIES

The Contractor shall be responsible for locating and protecting any utility that would conflict with any work. 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.

Any damage done to a utility will be the Contractor's responsibility to repair.

HORIZONTAL ALIGNMENT DATA

Type	Station			Northing	Easting
POB	0+00.00			643328.060	1225874.324
		TL= 894.63	S 49°07'44" E		
PI	8+94.63			642742.652	1226550.827
		TL= 883.07	S 50°12'20" E		
POE	17+77.70			642177.454	1227229.330

INCIDENTAL WORK (GRADING)

Incidental Work, Grading				
Station	to	Station	L/R	Remarks
6+80		7+30	R	Remove 50' - 18" CMP Approach Pipe and 2 Ends
9+43		10+03	R	Remove 60' - 18" CMP Approach Pipe and 2 Ends
10+95		11+45	R	Remove 50' - 18" CMP Approach Pipe and 2 Ends

TABLE OF UNCLASSIFIED EXCAVATION

Excavation	2493.9
Undercut	2415.4
Topsoil	500.0
Total	5409.3

For informational purposes only:

Waste

it is estimated that 2395.3 tons of waste will be generated.

UNDERCUTTING

In all cut sections the earthen subgrade shall be undercut 2 feet below the earthen subgrade surface. The undercut material or other suitable material, as directed by the Engineer, shall then be replaced and compacted to the density specified for the section being constructed.

The plan shown quantity will be the basis of payment. However, if there are additional areas of undercut other than what is shown in the plans, the Engineer shall direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNDERCUTTING

Station	to	Station	Quantity (CuYd)
4+00		17+78	2415.4
		Total:	2415.4

SAWING EXISTING ASPHALT CONCRETE

Where new asphalt concrete is placed adjacent to existing asphalt concrete or portland cement concrete the existing asphalt concrete or portland cement concrete shall be sawed full depth to a true line with a vertical face. Saw cutting will not be required at locations where cold milling is used to match existing surfacing elevations.

No separate payment shall be made for sawing and shall be incidental to the various asphalt concrete bid items on the project.

SURFACING THICKNESS DIMENSIONS

Plans tonnage shall 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 tonnage may be varied to achieve the required elevation.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, milled and compacted prior to placement of mainline surfacing. This work shall be considered incidental to the various bid items on the project.

COLD MILLING ASPHALT CONCRETE

Loose material resulting from the cold milling shall be immediately picked up.

Cold Milling Asphalt Concrete shall be performed as shown in the typical sections and as necessary at the limits of the project or at structures, so that the top mat of the new asphalt surfacing can match existing surface elevations. The cold milling depth shall be transitioned over a distance of 100' per inch of surfacing depth when matching existing surface elevations. The milling depths might vary along the transition distance due to irregularities in the surface to obtain smoothness.

Cold Milling on entrances, intersecting roads, and mailbox turnouts shall match the cross slope of mainline.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete was 26 percent. This value was obtained from testing during construction of the in place asphalt concrete.

Cold milling asphalt is estimated to produce 140.7 tons of asphalt concrete millings. The asphalt concrete millings shall be treated as waste material.

Table of Cold Milling Asphalt

Station	to	Station	Cold Milling Asphalt Concrete (SqYd)
0+00		4+00	1266
Speed Humps			22

ASPHALT CONCRETE COMPOSITE

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

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

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

Table of Material Quantities

Section	Sta.	to	Sta.	Length	Water for Granular Material	Base Course	Asphalt Concrete Composite
				Ft	Mgal	Ton	Ton
i3y1	0+00.0		4+00.0	400.0			140.5
Total							140.5
i3y2	4+00.0		17+78.0	1378.0	25.6	1,279.1	540.9
Intersecting roads					8.4	417.7	176.6
Approaches					2.6	128.1	54.2
Speed Humps							7.1
Total					36.6	1,824.9	778.8

SPEED HUMP INSTALLATION

The Contractor shall clean the existing asphalt street prior to the installation of speed humps. Placement of the asphalt speed hump shall be to within ¼" of the dimensions shown on the speed hump profile detail. All costs for milling for the speed humps shall be incidental to the contract unit price per square yard for Cold Milling Asphalt Concrete. All costs for placing the speed hump shall be incidental to the contract unit price per ton for Asphalt Concrete Composite.

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.

The gauge of the corrugated metal elbows, tees, crosses, wyes, and ends shall match the thickest gauge of corrugated metal pipe it is connected to.

Pipe Table

Station	to	Station	L/R	Furnish 18" CMP (Ft)	Install 18" CMP (Ft)	Furnish 18" CMP Safety End (Each)	Install 18" CMP Safety End (Each)
9+19		10+03	R	72	72	2	2
			Total	72	72	2	2

ADJUSTMENT OF WATER VALVES

Adjust water valve boxes to match finish grade.

Adjust Water Valve Box

Station	L/R	Remarks
5+17	L	Adjust Water Valve Box

MAILBOXES

The Contractor shall reset the existing mailboxes on new posts with the necessary support hardware for single or double mailbox assemblies. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

If large mailboxes are located at double mailbox installations, a single post may need to be used for the large mailbox.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for "Refurbish Single Mailbox" or "Refurbish Double Mailbox".

TABLE OF REFURBISH MAILBOX

Table of Mailbox Refurbishing - PCN i3y1			
Station	L/R	Single (Each)	Double (Each)
0+20	L	1	
0+55	L	1	
3+08	L		4
Total		2	4

Table of Mailbox Refurbishing - PCN i3y2			
Station	L/R	Single (Each)	Double (Each)
7+30	L	2	
10+05	L	1	
10+55	L	1	
10+79	L	1	
11+41	L	1	
13+71	L	1	
14+67	L	1	
16+49	L		2
Total		8	2

REMOVE FENCE

Table of Remove Fence	
Station	Remove Fence
	(Ft)
5+50	50
6+45	50
Total	100

COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor shall apply the Cold Applied Plastic Pavement Marking material as per manufacturer's instructions.

Cold Applied Plastic Pavement Markings shall be placed into recessed groove on the surface.

GROOVE PAVEMENT FOR COLD APPLIED PLASTIC MARKINGS

The grooving shall be completed within the following tolerance:

Depth of Groove: 100 mils, ± 10 mils.

The bottom of the groove shall be uniform and free of loose material. The groove shall be flat and of uniform depth for the entire width of the groove.

The Contractor shall establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving shall be vacuumed. Solid residue shall be removed from the pavement surfaces before being blown by traffic action or wind. Residue from wet grooving shall not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, shall be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. All costs for removal of grinding and/or grooving residue shall be included in the contract unit price per foot for Grooving for Cold Applied Plastic Pavement Marking.

.PERMANENT SIGNING

The Contractor shall furnish all signs, posts, stiffeners, bases, hardware, and labor for installation of permanent signs in size, type, and quantity as shown in these plans and/or as required by the Engineer.

The Contractor shall provide all labor and equipment necessary to install permanent signing, remove existing signs, and reset existing signs as detailed in these plans and/or as required by the Engineer. Payment for furnishing and installing permanent signs will be paid for the contract unit price for each type of sign based on sheeting requirements per square foot of sign. All signs shall have Type XI (Super/Very High Intensity) sheeting as noted on the sign detail sheets. Payment for new signposts, hardware, bases, and labor will be made at the contract unit price per foot for 2.0" x 2.0" perforated tube post. Breakaway post details regarding posts, hardware, and bases shall be followed as per the manufacturers recommendations. The sign post contract items shall include post bases and all hardware. The lengths of the posts in the sign tables are approximate lengths only. The post lengths shall be verified by the Contractor. The Contractor is urged to cut posts to length on job site after site by site verification of post length.

The Contractor shall use Telespar brand (or equivalent) posts and bases on all new standard highway signs as approved by the Engineer. All post materials shall conform to Section 982 of the Specifications, and be in accordance with ASTM specifications. The height of the post shall not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign shall be cut off. No separate payment will be made for cutting the post or for that length cut off. All posts and bases shall by accompanied by Certificates of Compliance and shall meet all safety standards as set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

The Contractor shall stake the signs and the Engineer will verify the location prior to installation. The lateral distance from the roadway and the height of the sign shall be established by the Contractor according to the Permanent Signing Typicals, as well as the Standard Plates in the plans and the MUTCD.

The Contractor shall coordinate the removal of signs with Section C of these plans. Existing signing shall be replaced, left in place, or temporarily covered as needed to safely direct traffic through the project or as directed by the Engineer.

HARDWARE

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than or equal to 36" in width and shall conform to Alloy 6063-T6 or 6061-T6. The U-Channel shall be 2 inches in width and free of holes. The U-Channel stiffeners shall also be used to connect various signs and perforated tube posts together so that an entire sign can be erected as a single installation. Stiffeners may be fastened to signs by use of 1/4" drive rivets with a minimum of one on each end and one centered between each post. Installation of the stiffeners shall be incidental to other contract items.

A 3/8" diameter straight bolt (Grade 8) shall be used in all breakaway shear bases for the 2.5" perforated tube posts. All other perforated tube signpost base material shall be fastened with 5/16" diameter corner bolts (Grade 2).

All perforated tube signposts shall have a soil stabilizer attached to the base. Soil stabilizers shall be MPJ sign wedge style or equivalent.

PERFORATED TUBE POST

Payment for 2.0" x 2.0" perforated tube post shall include all cost for labor, equipment, and materials necessary to complete the following work:

1. Furnish all posts, stiffeners, breakaway bases, soil stabilizers, and hardware.
2. Assembly and installation of breakaway base sign supports as per details shown in these plans.
3. Assembly of sign(s) to sign post as per erection details for Highway Signs as shown in these plans.
4. Installation of signpost and sign(s).

FURNISH & INSTALL FLAT ALUMINUM SIGNS / NON-REMOVABLE COPY HIGH INTENSITY & SUPER/VERY HIGH INTENSITY

Measurement of sign areas will include payment for the entire sign blank before trimming for rounded corners. The square unit measurement for each sign shall be as shown in the table of permanent signing. The payment shall include all labor (including installing date decals), equipment, and materials to complete the work, and shall be paid for at the contract unit price per square foot for Flat Aluminum Sign/Non-Removable Copy Super/Very High Intensity.

SHEETING REQUIREMENTS

All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All other legend and border shall be of same type of sheeting as the background of the same sign. All signs in the table for permanent signing that call for "SUPER/VERY HIGH" sheeting shall have micro-cube corner prismatic reflectorized background, Type XI as per AASHTO designation M 268 (ASTM D4956).

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	7	45

PERMANENT SIGNING - SD Hwy 44 Service Rd

EXISTING MRM (Approx.)	NEW MRM (Approx.)	SIGN								POST					SIGN DESCRIPTION	WORK TO BE DONE
		Number	Width (in)	Height (in)	Facing Traffic	New Sign	Remove Existing	Square Footage	Sheeting Type	New Post	Length (ft)	Size (in)	# of Posts	Shear Slip Base		
N/A	4+00	W17-1	36	36	EASTBOUND	FLAT ALUM	N/A	9.0	XI	YES	14	2.0	1	NO	SPEED HUMP	INSTALL NEW SIGN & POST
N/A	4+00	W13-1P	18	18	EASTBOUND	FLAT ALUM	N/A	2.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (10 MPH)	INSTALL NEW SIGN ON NEW "SPEED HUMP" POST
N/A	6+00	W17-1	36	36	WESTBOUND	FLAT ALUM	N/A	9.0	XI	YES	14	2.0	1	NO	SPEED HUMP	INSTALL NEW SIGN & POST
N/A	6+00	W13-1P	18	18	WESTBOUND	FLAT ALUM	N/A	2.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (10 MPH)	INSTALL NEW SIGN ON NEW "SPEED HUMP" POST
N/A	12+00	W17-1	36	36	EASTBOUND	FLAT ALUM	N/A	9.0	XI	YES	14	2.0	1	NO	SPEED HUMP	INSTALL NEW SIGN & POST
N/A	12+00	W13-1P	18	18	EASTBOUND	FLAT ALUM	N/A	2.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (10 MPH)	INSTALL NEW SIGN ON NEW "SPEED HUMP" POST
N/A	13+00	W17-1	36	36	WESTBOUND	FLAT ALUM	N/A	9.0	XI	YES	14	2.0	1	NO	SPEED HUMP	INSTALL NEW SIGN & POST
N/A	13+00	W13-1P	18	18	WESTBOUND	FLAT ALUM	N/A	2.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (10 MPH)	INSTALL NEW SIGN ON NEW "SPEED HUMP" POST

SIGN LEGEND, BORDER, BACKGROUND, AND MOUNTING

All sign material shall comply with Section 982 of the Specifications for Roads & Bridges, 2004 Edition.

The sign colors shall be as stipulated in the MUTCD.

When signs are vertically mounted in succession, they shall be 1-2 inches apart. Lateral placement of signs shall be determined by the Engineer.

TRAFFIC CONTROL – GENERAL NOTES

1. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.

2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness.

3. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of 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.

4. Existing guide, route, informational logo, regulatory, warning signs and delineation shall be temporarily reset and maintained during construction as directed by the Engineer. Removing, relocating, salvaging and resetting of the above items shall be the responsibility of the Contractor.

5. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours.

6. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.

7. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

8. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.

9. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

10. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.

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

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

13. Temporary Flexible Vertical Markers (Tabs) shall be used for lane closure tapers or lane shift tapers and shall be installed at 5' spacing. Tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

INVENTORY OF TRAFFIC CONTROL DEVICES

PCN i3y1

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	4	48" x 48"	16	64
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	4	36" x 18"	5	20
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			180

PCN i3y2

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	1	30" x 30"	6	6
W4-2	LEFT or RIGHT LANE ENDS (symbol)	1	48" x 48"	16	16
W20-1	ROAD WORK AHEAD	3	48" x 48"	16	48
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16	32
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	1	48" x 48"	16	16
W20-7	FLAGGER (symbol)	2	48" x 48"	16	32
W21-5	SHOULDER WORK	2	48" x 48"	16	32
G20-2	END ROAD WORK	2	36" x 18"	5	10
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			192

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

TABLE OF CONCRETE CURB AND GUTTER REMOVAL

Table of Concrete Curb & Gutter Removal				
Station	to	Station	L/R	Quantity (Ft)
4+60.32		4+93.18	R	33
6+88.75		7+24.37	R	36
9+05.39		10+12.42	R	107
10+98.30		11+42.37	R	44
Total				220

TABLE OF CONCRETE CURB AND GUTTER

Table of Type B610 Concrete Curb & Gutter				
Station	to	Station	L/R	Quantity (Ft)
4+60.32		4+93.18	R	32.9
6+88.75		7+24.37	R	35.6
9+05.39		9+11.39	R	6.0
10+06.42		10+12.42	R	6.0
10+98.30		11+42.37	R	44.1
Total				124.6

Table of Type P10 Concrete Gutter				
Station	to	Station	L/R	Quantity (Ft)
9+11.39		10+06.42	R	95.0
				95.0

REMOVE AND REPLACE TOPSOIL

Prior to beginning grading operations, a 4" depth of topsoil shall be salvaged. Following completion of surfacing operations, topsoil shall be replaced to the point indicated on the typical section.

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

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

Glomus intraradices 25%
Glomus aggregatu 25%
Glomus mosseae 25%
Glomus etunicatum 25%

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

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

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 http://www.mycorrhizae.com/

FERTILIZING

The Contractor shall apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer shall have a minimum guaranteed analysis of 4-6-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 3.2%, a minimum of 6% (P_2O_5) available phosphate, a minimum of 4% (K_2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer shall be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer shall have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer shall also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The all-natural slow release fertilizer shall be applied according to the manufacturer's application recommendations.

The application rate is 1,500 pounds per acre.

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

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 http://www.sustane.com/

PERMANENT SEEDING

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

Type F Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, 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

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 approved product list. 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 provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx\

TABLE OF EROSION CONTROL ITEMS

Table of Erosion Control Items

Station	to	Station	L (Ft)	W (Ft)	Acres	Type F Permanent Seed Mixture (Lb)	Fiber Mulching (Lb)	Fertilizing (Lb)
4+00		9+32	532	60	0.7	19.1	1465.6	1099
9+87		17+17	730	60	1.0	26.1	2011.0	1508
17+34		17+78	44	60	0.1	1.6	121.2	91
				Total		45.2	3476.6	2607

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles shall remain on the project until vegetation has been established and then they shall be removed in accordance with the Engineer.

An additional quantity of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

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

http://sddot.com/business/certification/products/Default.aspx

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	10	45

TABLE OF EROSION CONTROL WATTLE

Table of Erosion Control Wattle				
Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
4+44	R	12	Pipe Inlet	48
6+50	R	12	Ditch Bottom	12
8+00	R	12	Ditch Bottom	12
9+19	R	12	Pipe Inlet	48
11+50	R	12	Ditch Bottom	12
13+00	R	12	Ditch Bottom	12
14+40	R	12	Pipe Inlet	48
16+50	R	12	Ditch Bottom	12
17+63	R	12	Pipe Inlet	48
17+75	R	12	Perimeter	90
			Total	342

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST
*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES*

❖ **SITE DESCRIPTION (4.2 1)**
- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☐ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area** 2.6 ac **(4.2 1.b.)**
- **Total Area To Be Disturbed** 2.6 ac **(4.2 1.b.)**
- **Existing Vegetative Cover 10 (%)**
- **Soil Properties:** AASHTO Soil Classification A-7-6, A-1-a, A-1-b, A-2-4, A-4, A-6 **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Murphy Irrigation Ditch **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**
(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)
- **Special sequencing requirements (**see sheet).
- **Install perimeter protection where runoff sheets from the site.**
- **Install channel and ditch bottom protection.**
- **Remove and store topsoil.**
- **Stabilize disturbed areas.**
- **Install utilities, storm sewers, curb and gutter.**
- **Install inlet and culvert protection after completing storm drainage and other utility installations.**
- **Complete final grading.**
- **Complete final paving and sealing of concrete.**
- **Complete traffic control installation and protection devices.**
- **Reseed areas disturbed by removal activities**.

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**
(Check all that apply)
- **Stabilization Practices (See Detail Plan Sheets)**
  - ☐ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☐ Mulching (Grass Hay or Straw)
  - ☒ Hydraulic Mulch (Wood Fiber Mulch)
  - ☐ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☐ Erosion Control Blankets or Mats
  - ☐ Vegetation Buffer Strips
  - ☐ Roughened Surface (e.g. tracking)
  - ☐ Dust Control (See Section F – Surfacing Plans)
  - ☐ Other:
- **Structural Temporary Erosion and Sediment Controls**
  - ☐ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☒ Straw Wattles or Rolls
  - ☐ Turf Reinforcement Mat
  - ☐ Rip Rap
  - ☐ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☐ Inlet Protection
  - ☐ Outlet Protection
  - ☐ Surface Inlet Protection (Area Drain)
  - ☐ Curb Inlet Protection
  - ☐ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☐ Concrete Washout Area
  - ☐ Temporary Diversion Channel
  - ☐ Work Platform
  - ☐ Temporary Water Barrier
  - ☐ Temporary Water Crossing
  - ☐ Other:
- **Wetland Avoidance**
  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☒ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.
- **Storm Water Management (4.2 2.b., (1) and (2))**
  Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**
    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
  - **Hazardous Waste**
    All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.
  - **Sanitary Waste**
    Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**
- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^{1}/_{3}$ of the height of the silt fence.
  - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
  - Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
  - All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
  - Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
  - The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**
The following non-storm water discharges are anticipated during the course of this project (check all that apply).
- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

❖ **Materials Inventory (4.2. 2.c.(2))**
The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).
- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☐ Metals
- ☒ Bituminous Materials
- ☒ Petroleum Based Products
- ☐ Cleaning Solvents
- ☐ Wood
- ☐ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

❖ **Spill Prevention (4.2 2.c.(2))**

➢ **Material Management**

▪ Housekeeping

- Only needed products will be stored on-site by the contractor.
- Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.
- Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

▪ Hazardous Materials

- Products will be kept in original containers unless the container is not resealable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➢ **Product Specific Practices (6.8)**

▪ Petroleum Products
All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

▪ Fertilizers
Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

▪ Paints
All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.

▪ Concrete Trucks
Contractors will provide designated truck washout areas on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.

➢ **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean-up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

➢ **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean-up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

➢ A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:

- The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
- The discharge causes an immediate danger to human health or safety.
- The discharge exceeds 25 gallons.
- The discharge causes a sheen on surface water.
- The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
- The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
- The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
- The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

❖ **Construction Changes (4.4)**

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

❖ CERTIFICATIONS

➢ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➢ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

____

Authorized Signature (See the General Permit, Section 6.7.1.C.)

➢ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

____

Authorized Signature

❖ CONTACT INFORMATION

➢ **Contractor Information**:

- Prime Contractor Name: ______________________________
- Contractor Contact Name: ______________________________
- Address: ______________________________
- ______________________________
- City: ____________________State: _________Zip: _________
- Office Phone: _________________Field: __________________
- Cell Phone: ___________________Fax: ___________________

➢ **Erosion Control Supervisor**

- Name: ______________________________
- Address: ______________________________
- ______________________________
- City: ____________________State: _________Zip: _________
- Office Phone: _________________Field: __________________
- Cell Phone: ___________________Fax: ___________________

➢ **SDDOT Project Engineer**

- Name: ______________________________
- Business Address: ______________________________
- Job Office Location: ______________________________
- City: ____________________State: _________Zip: _________
- Office Phone: _________________Field: __________________
- Cell Phone: ___________________Fax: ___________________

➢ **SD DENR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ **SD DENR Contact for Hazardous Materials.**

- (605) 773-3153

➢ **National Response Center Hotline**

- (800) 424-8802.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	14	45

Plotting Date: 11/03/2015

0+00 to 4+00
Mill and Overlay
In-Place AC Concrete

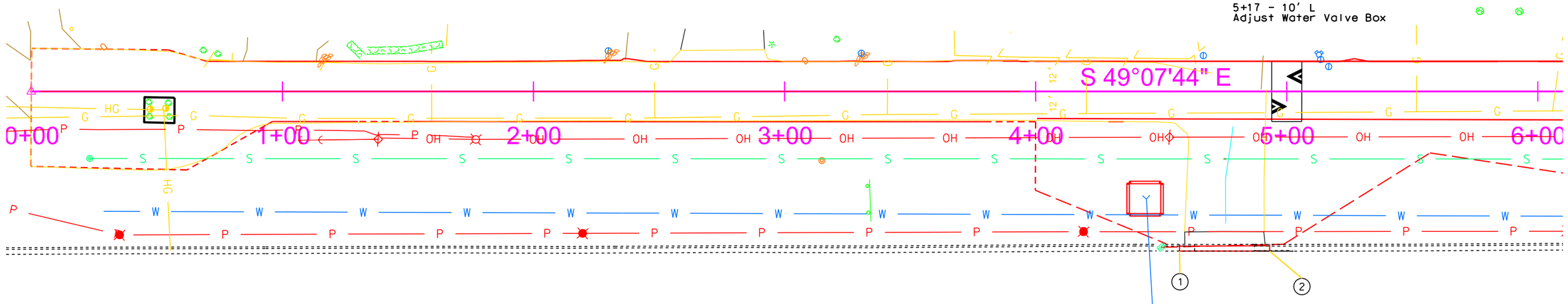
4+00 to 17+79
Reconstruct roadway

5+00
Install Speed Hump

Do Not Disturb Power Poles

5+17 - 10' L
Adjust Water Valve Box

POB
0+00.00



1 4+60.32 - 64' R
Begin Str B610 C & G
TC El Match Existing

2 4+93.18 - 64' R
End Str B610 C & G
TC El Match Existing

4+76 - R
Eliminate Approach

12" Erosion Control Wattle

Place 12" Erosion Control Wattle:
4+44 - 43' L - 48'

Plot Scale - 1:40

Plotted From - TRRC12608

File - ...\Design\plan1.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	15	45

Plotting Date: 11/03/2015

Plot Scale - 1:40

PVI 0+01
Elev 3121.24

PVI 4+00
Elev 3116.51

-1.19%

-0.79%

3155
3150
3145
3140
3135
3130
3125
3120
3115
3110
3105
3100
3095
3090
3085
3080
3075
3070

0+00 1+00 2+00 3+00 4+00 5+00 6+00

Plotted From - TRRC12608

File - ...\Design\pro1.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	16	45

Plotting Date: 11/03/2015

6+80 to 7+30 - 32' R
Remove 50' - 18" CMP
Approach Pipe and 2 Ends
(Incidental Work, Grading)

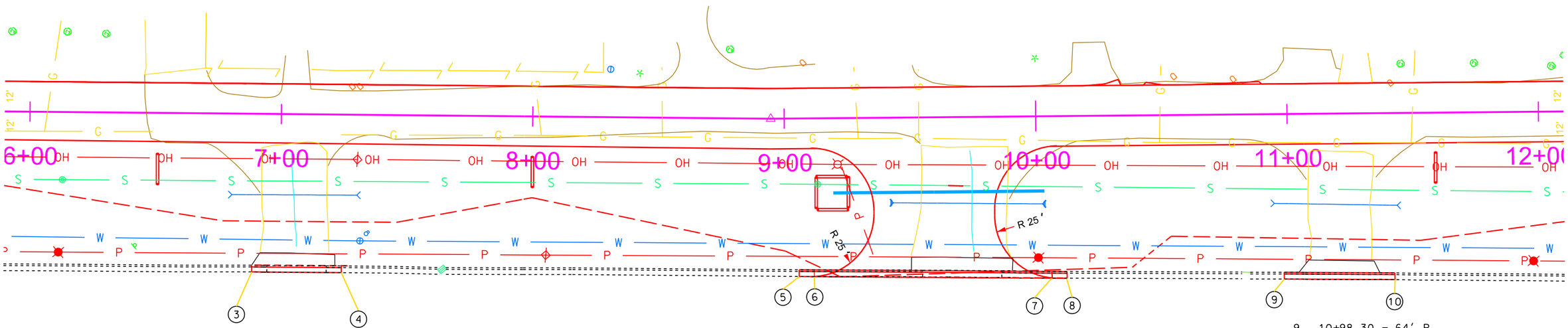
PI
8+94.63

9+43 to 10+03 - 34' R
Remove 60' - 18" CMP
Approach Pipe and 2 Ends
(Incidental Work, Grading)

9+19 to 10+03 - 29.9' R
Install 72' - 18" CMP
and 2 Safety Ends

10+95 to 11+45 - 37' R
Remove 50' - 18" CMP
Approach Pipe and 2 Ends
(Incidental Work, Grading)

Do Not Disturb Power Poles



6+42 - 52' R
Remove Sign for Reset
and Reset Sign

3 6+88.75 - 64' R
Begin Str B610 C & G
TC El Match Existing

4 7+24.37 - 64' R
End Str B610 C & G
TC El Match Existing

5 9+05.39 - 64' R
Begin Str B610 C & G
TC El Match Existing

6 9+11.39 - 64' R
End Str B610 C & G
Begin Str P6 Gutter
TC El Match Existing

7 10+06.42 - 64' R
End Str P6 Gutter
Begin Str B610 C & G
TC El Match Existing

8 10+12.42 - 64' R
End Str B610 C & G
TC El Match Existing

9 10+98.30 - 64' R
Begin Str B610 C & G
TC El Match Existing

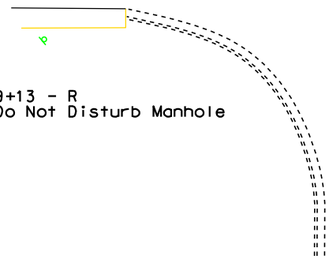
10 11+42.37 - 64' R
End Str B610 C & G
TC El Match Existing

12" Erosion Control Wattle

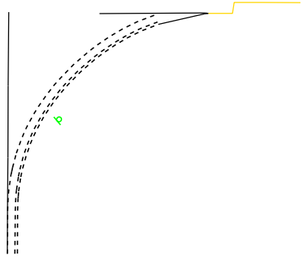
Place 12" Erosion Control Wattle:
6+50 - 22' L - 12'
8+00 - 22' L - 12'
9+19 - 29.9' L - 48'
11+50 - 22' L - 12'

6+13 - R
Do Not Disturb Manhole

7+06 - R
Eliminate Approach



9+13 - R
Do Not Disturb Manhole



11+21 - R
Eliminate Approach

Plot Scale - 1:40

Plotted From - TRRC12608

File - ...\Design\plan2.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	17	45

Plotting Date: 11/03/2015

Plot Scale - 1:40

3155
3150
3145
3140
3135
3130
3125
3120
3115
3110
3105
3100
3095
3090
3085
3080
3075
3070

L 100.00ft
G1 -0.79%
G2 -0.58%
K 482

L 100.00ft
G1 -0.58%
G2 -0.50%
K 1212

-0.79%
-0.58%
-0.50%

PVI 8+00
Elev 3113.36

PVI 10+00
Elev 3112.20

L 600.00ft
G1 -0.50%
G2 -0.62%
K 4712

6+00
7+00
8+00
9+00
10+00
11+00
12+00

Plotted From - TRRC12608

File - ...\Design\pro2.dgn

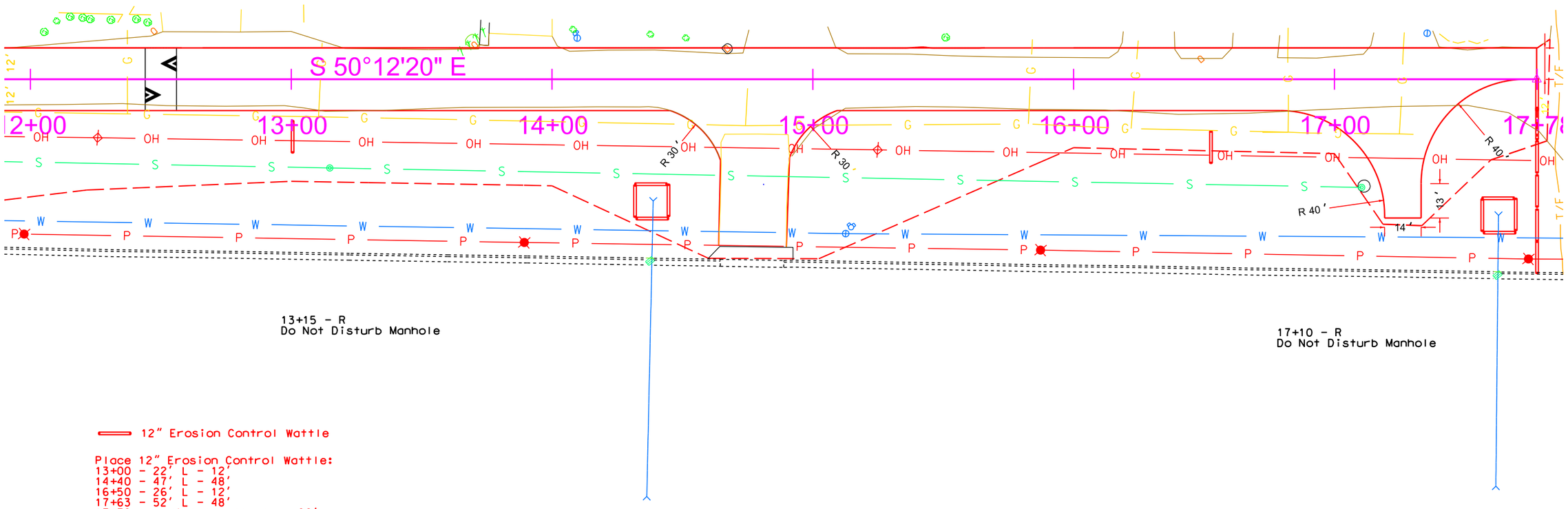
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	18	45

Plotting Date: 11/03/2015

12+50
Install Speed Hump

Do Not Diturb Power Poles

POE
17+77.70



13+15 - R
Do Not Disturb Manhole

17+10 - R
Do Not Disturb Manhole

12" Erosion Control Wattle

Place 12" Erosion Control Wattle:
13+00 - 22' L - 12'
14+40 - 47' L - 48'
16+50 - 26' L - 12'
17+63 - 52' L - 48'
17+78 - perimeter control - 90'

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	19	45

Plotting Date: 11/03/2015

Plot Scale - 1:40

PVI 14+00
Elev 3110.21

-0.62%

L 600.00ft

G1 -0.50%
G2 -0.62%
K 4712

3150
3145
3140
3135
3130
3125
3120
3115
3110
3105
3100
3095
3090
3085
3080
3075
3070
3065

12+00
13+00
14+00
15+00
16+00
17+00
17+78

Plotted From - TRRC12608

File - ...\Design\pro3.dgn

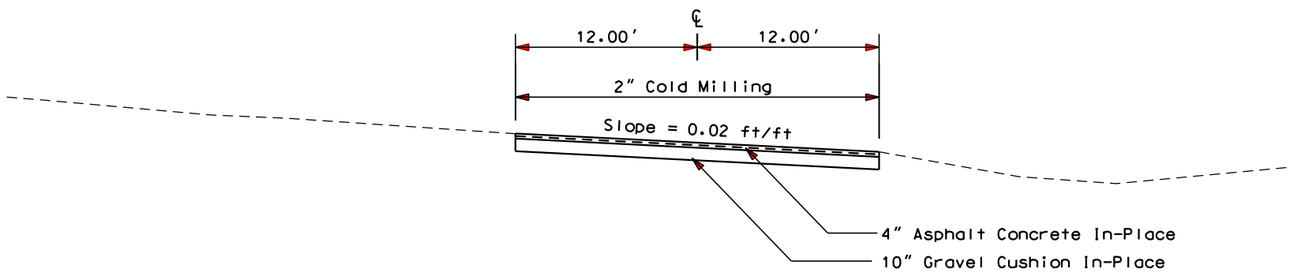
TYPICAL SECTIONS

Staion 0+00 to Station 4+00

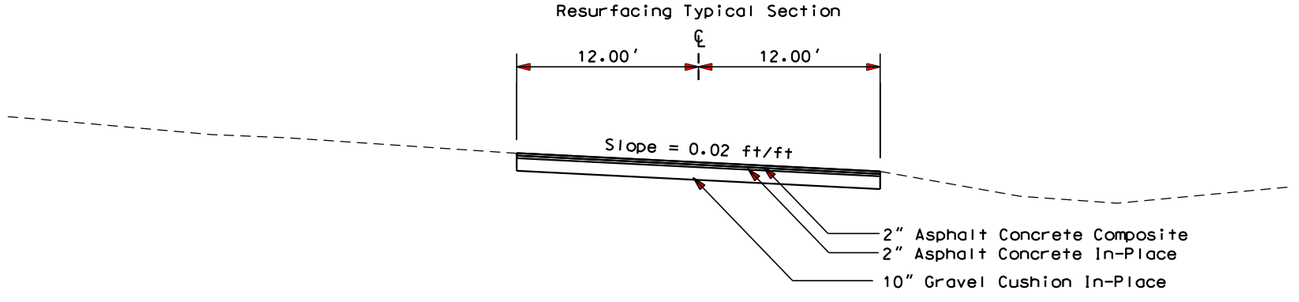
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	20	45

Plotting Date: 11/03/2015

In-Place and Milling Typical Section



Resurfacing Typical Section



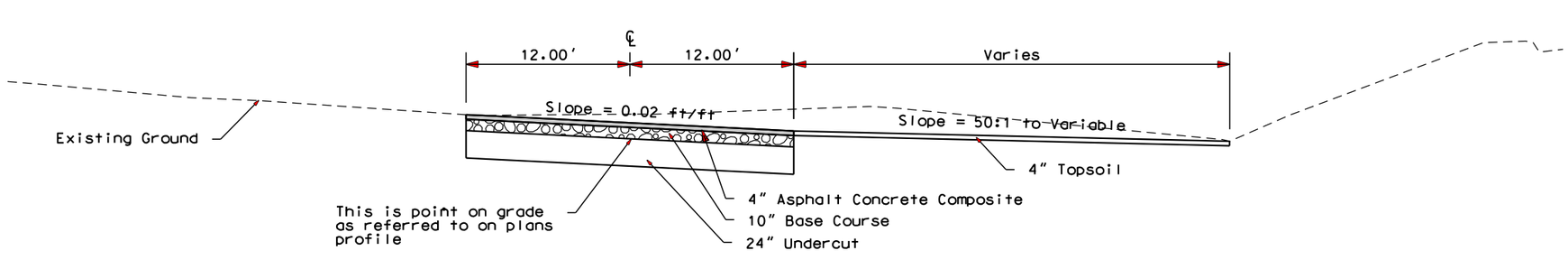
TYPICAL SECTIONS

Staion 4+00 to Station 17+78

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	21	45

Plotting Date: 11/03/2015

Reconstruction Typical Section



PAVEMENT MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	22	45

Plotting Date: 11/03/2015

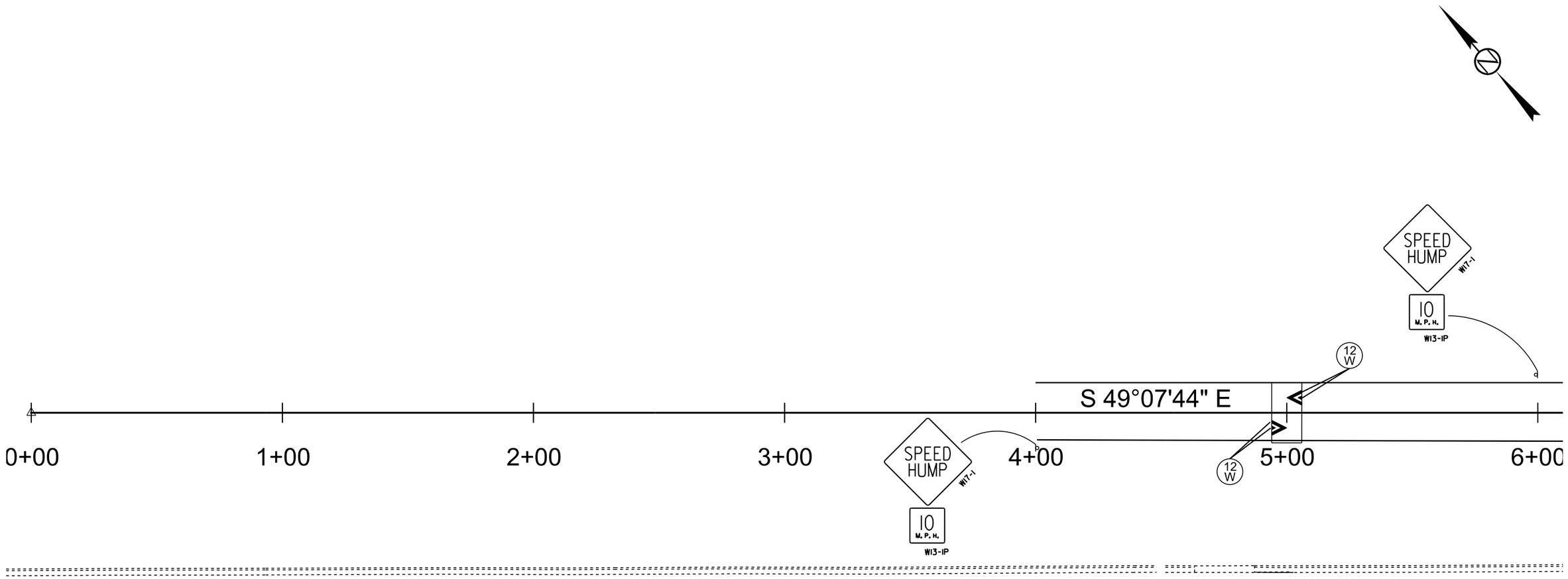


Table of Cold Applied Pavement Marking Items			
Item		Quantity	Unit
(12 W)	Cold Applied Plastic Pavement Marking, 12" White	32	Ft
	Grooving For Cold Applied Plastic Pavement Marking, 12"	32	Ft

Plot Scale - 1:40

Plotted From - TRRC12608

File - ...\Design\PM1.dgn

PAVEMENT MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	23	45

Plotting Date: 11/03/2015

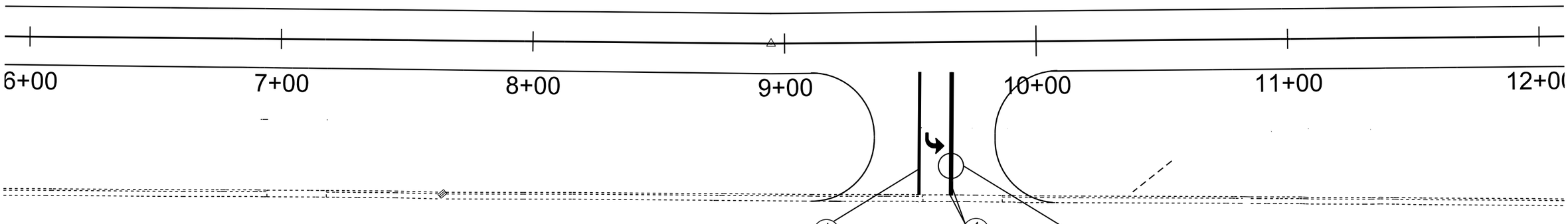
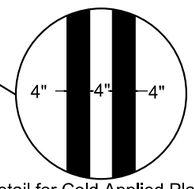


Table of Cold Applied Pavement Marking Items			
	Item	Quantity	Unit
4 W	Cold Applied Plastic Pavement Marking, 4" White	50	Ft
4 Y	Cold Applied Plastic Pavement Marking, 4" Yellow	100	Ft
↰	Cold Applied Plastic Pavement Marking, Arrow (Left)	1	Each
	Grooving for Cold Applied Plastic Pavement Marking, 4"	150	Ft
	Grooving For Cold Applied Plastic Pavement Marking, Arrow	1	Each



Detail for Cold Applied Plastic Pavement Marking, 4" Yellow

Plot Scale - 1:40

Plotted From - TRRC12608

File - ...\Design\PM2.dgn

PAVEMENT MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	24	45

Plotting Date: 11/03/2015

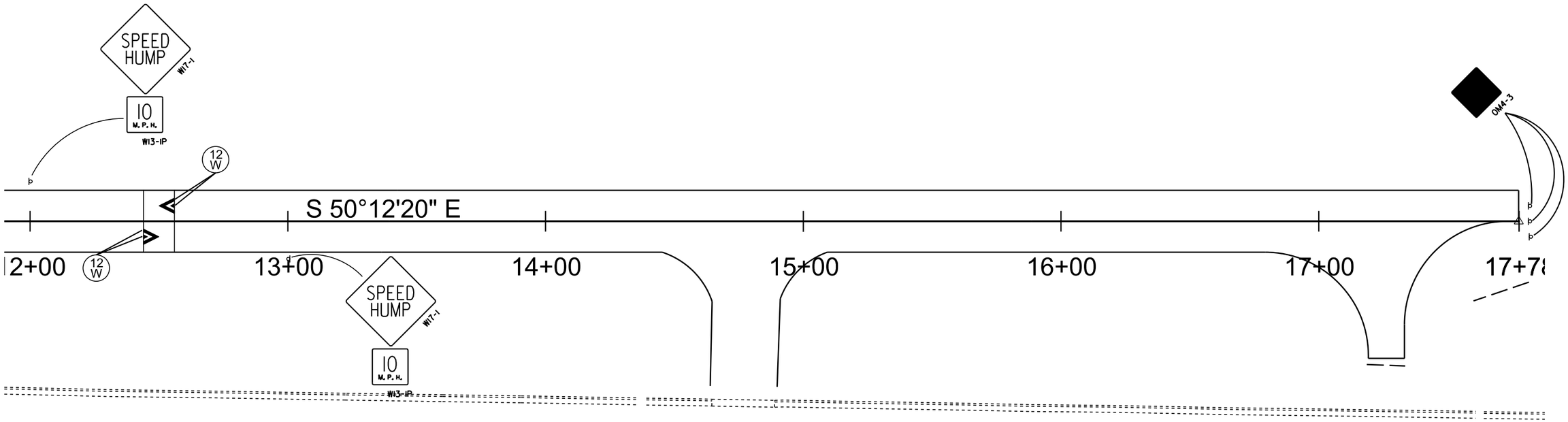


Table of Cold Applied Pavement Marking Items			
Item		Quantity	Unit
(12 W)	Cold Applied Plastic Pavement Marking, 12" White	32	Ft
	Grooving for Cold Applied Plastic Pavement Marking, 12"	32	Ft

Plot Scale - 1:40

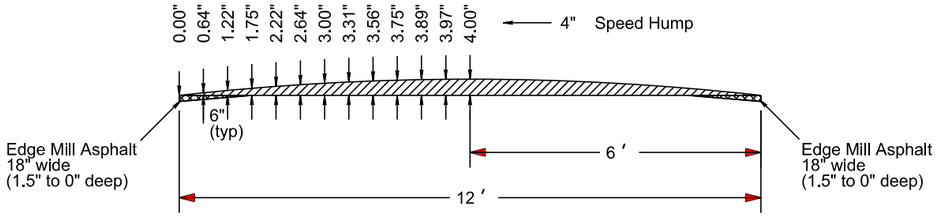
Plotted From - TRRC12608

File - ...\Design\PM3.dgn

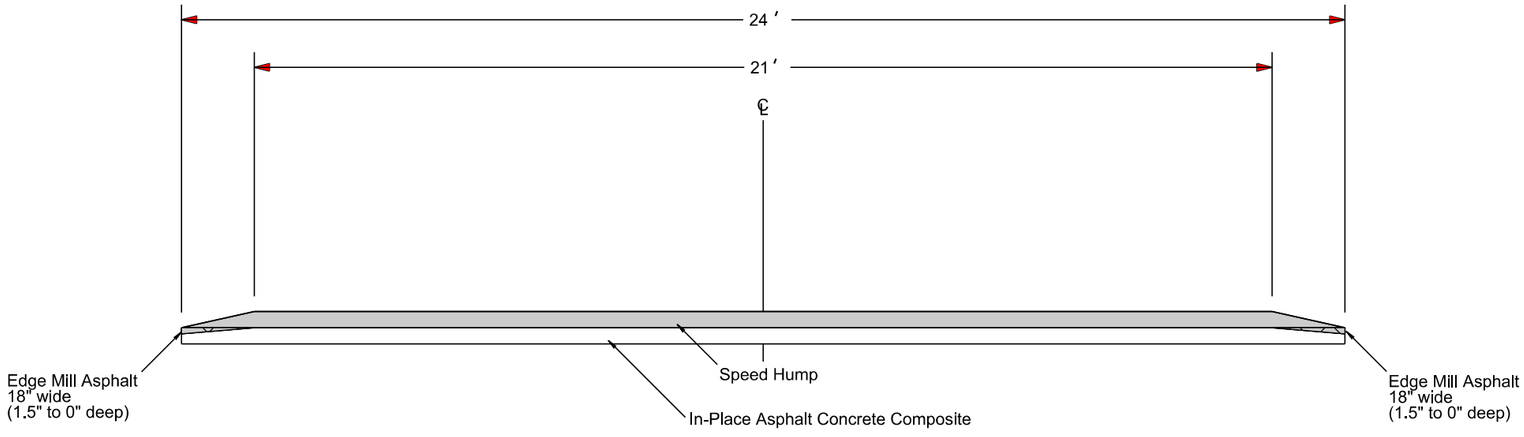
SPEED HUMP DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	25	45

Plotting Date: 11/03/2015



SPEED HUMP PROFILE



SPEED HUMP CROSS SECTION

Plot Scale - 1:3.125

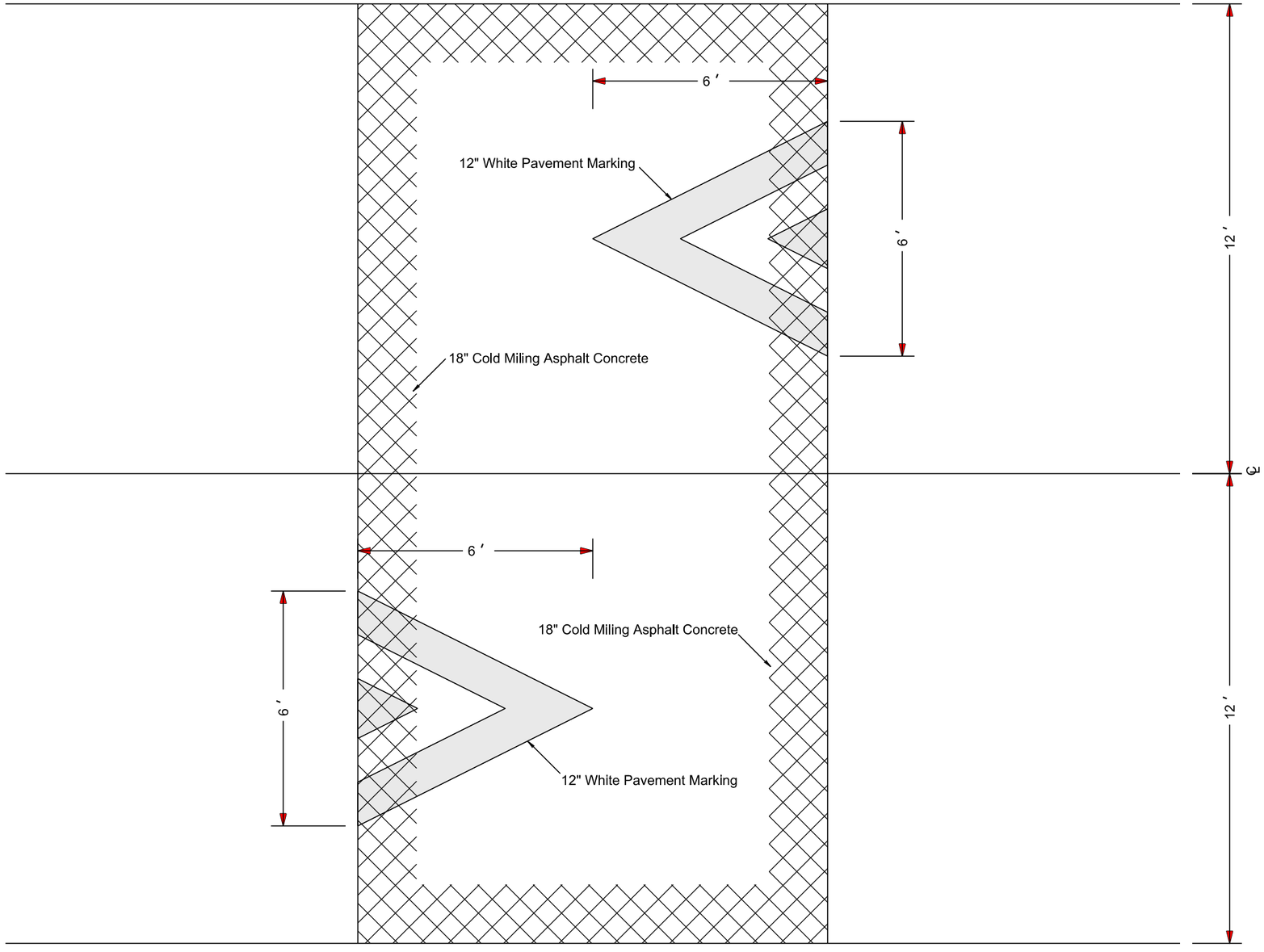
Plotted From - TRRC12608

File - ...\Design\Speed Calming.dgn

SPEED HUMP DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	26	45

Plotting Date: 11/03/2015

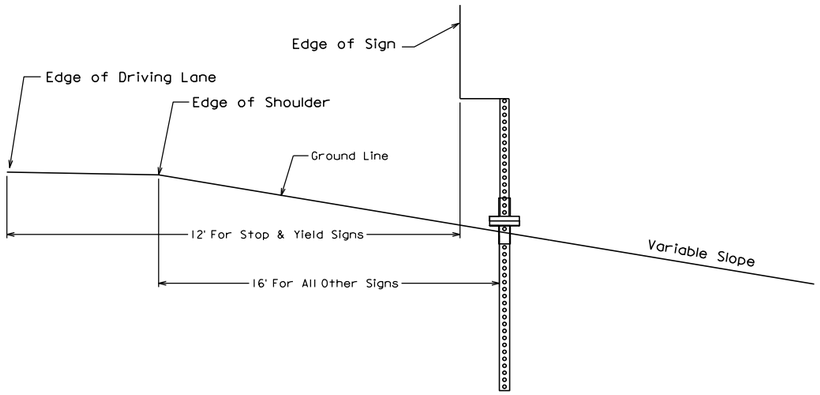


SPEED HUMP PLAN VIEW

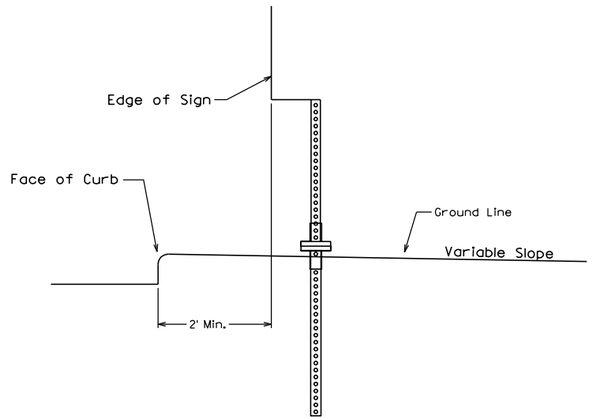
Plot Scale - 1:3.125

Plotted From - TRRC12608

File - ...\Design\Speed Calming.dgn

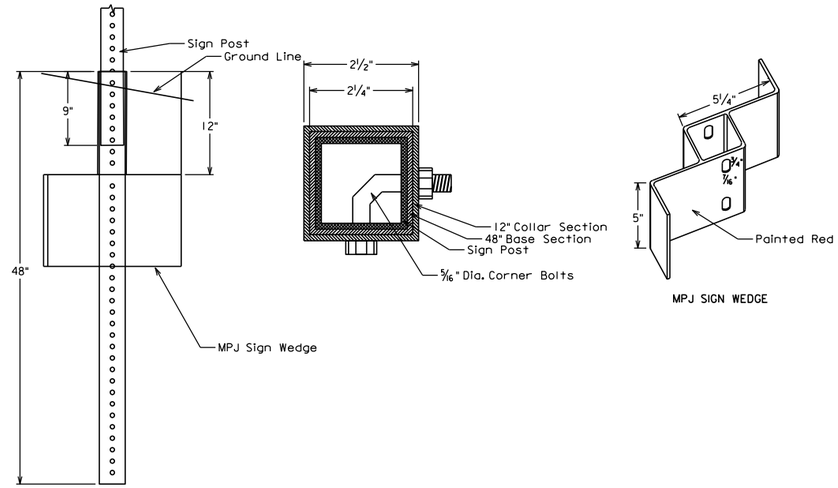


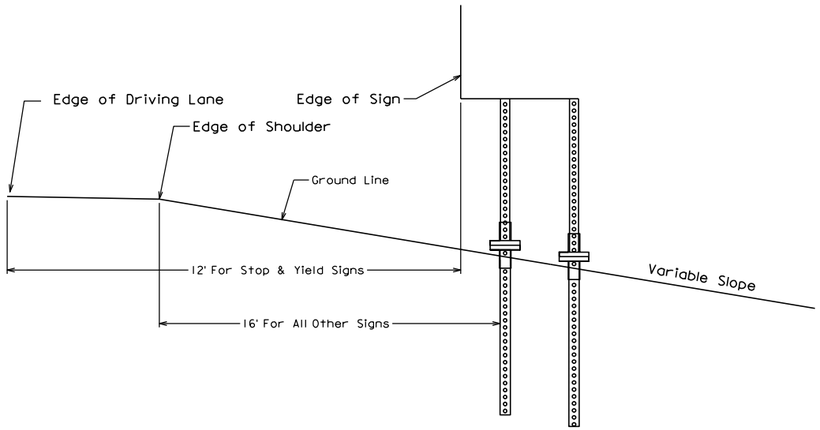
RURAL LOCATION WITH 1 POST
(Drawing shown from face of sign)



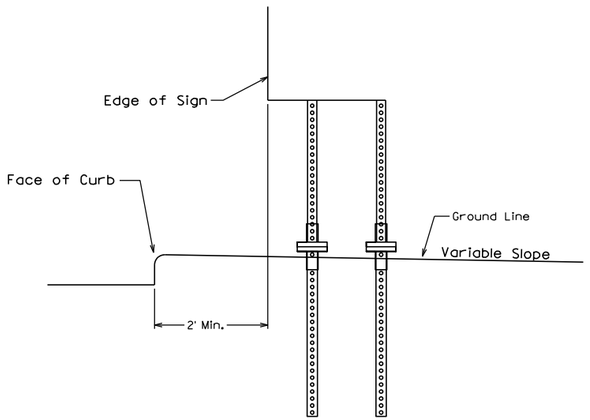
URBAN LOCATION WITH 1 POST
(Drawing shown from face of sign)

SIGN BASE DETAILS FOR A 2" SIGN POST





RURAL LOCATION WITH 2 POSTS
(Drawing shown from face of sign)



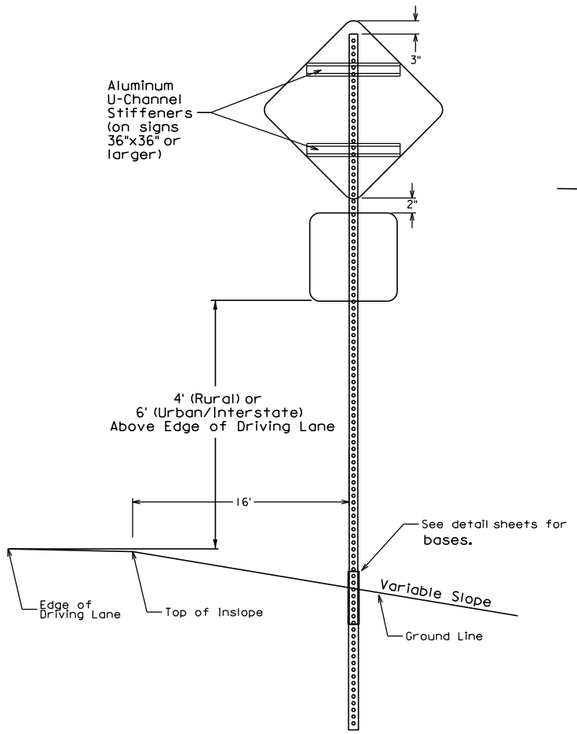
URBAN LOCATION WITH 2 POSTS
(Drawing shown from face of sign)

LATERAL LOCATION FOR RURAL SIGNS

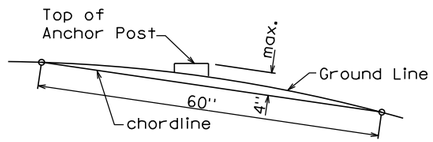
LATERAL LOCATION FOR URBAN SIGNS

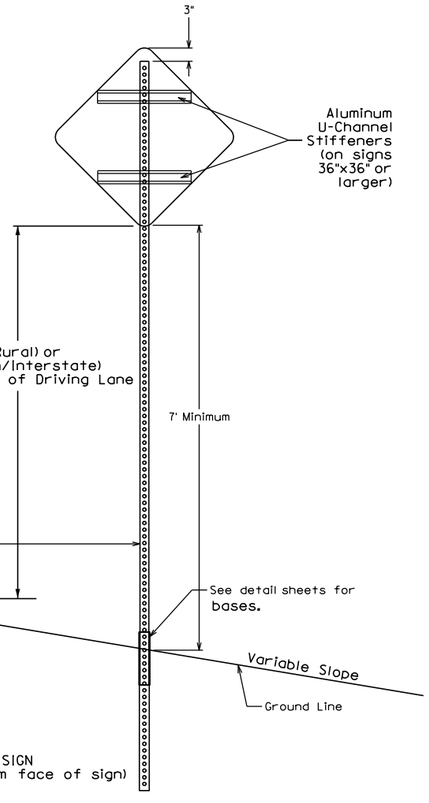
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	28	45

Plotting Date: 11/03/2015



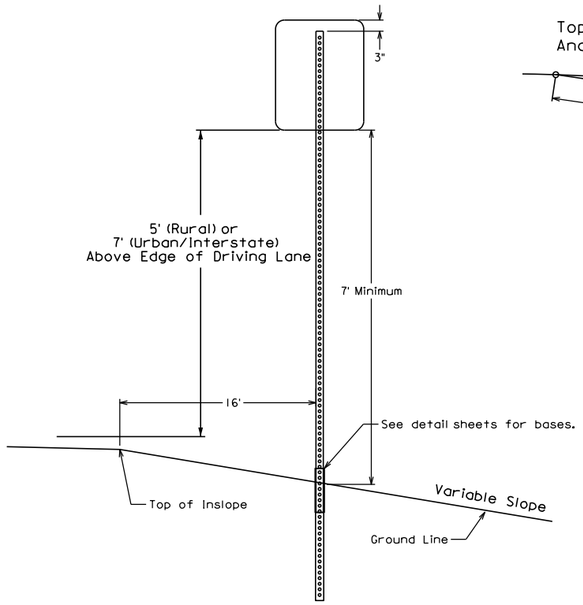
WARNING SIGN WITH SUPPLEMENTAL SIGN
(Drawing shown from face of sign)



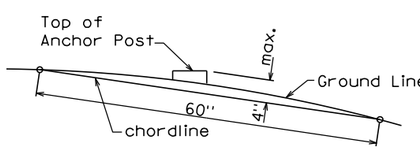


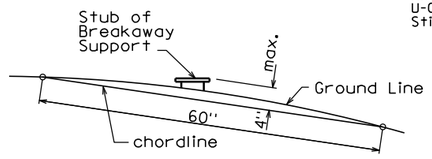
WARNING SIGN
(Drawing shown from face of sign)

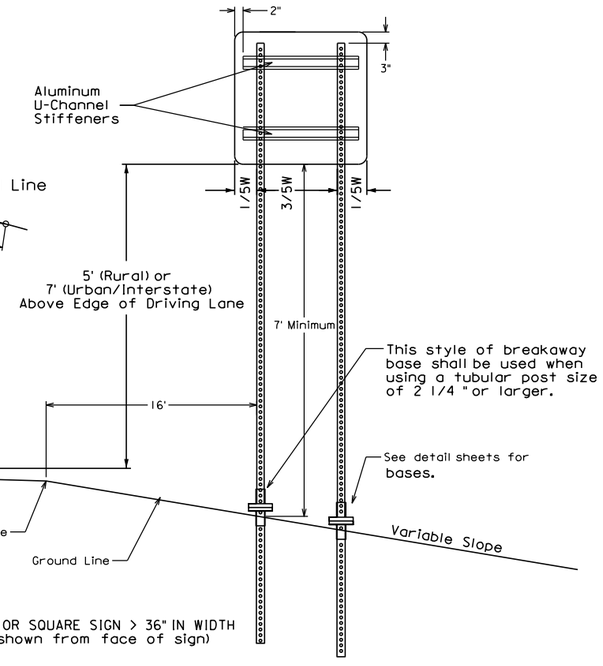
TYPICAL ERECTION DETAILS FOR WARNING SIGNS



RECTANGULAR OR SQUARE SIGN < 36" IN WIDTH
(Drawing shown from face of sign)







RECTANGULAR OR SQUARE SIGN > 36" IN WIDTH
(Drawing shown from face of sign)

TYPICAL ERECTION DETAILS FOR SQUARE OR RECTANGULAR SIGNS

Plot Scale - 1:200

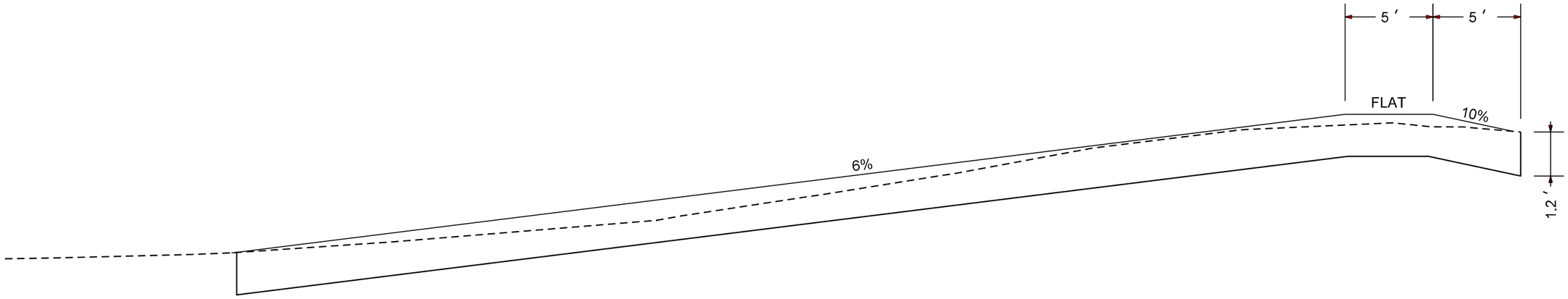
Plotted From - trrc12695

File - ...\lawr03rv-Sign Support Standards.dgn

CROSS SECTION DETAIL FOR ENTRANCE AT STATION 9+62

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	29	45

Plotting Date: 11/03/2015



PLOT SCALE - 1:6.25

PLOT NAME - 17

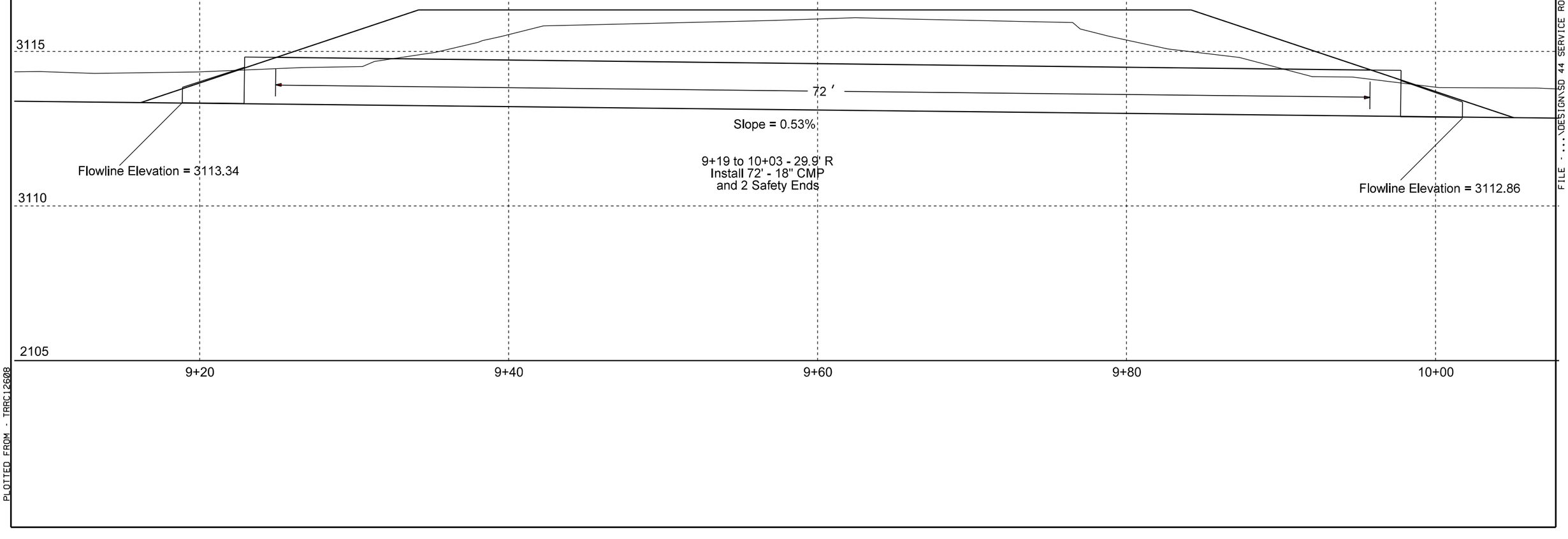
FILE - ...\DESIGN\SD 44 SERVICE ROADE.DGN

PLOTTED FROM - TRRC12608

APPROACH PIPE DETAIL FOR ENTRANCE AT STATION 9+62

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	30	45

Plotting Date: 11/03/2015

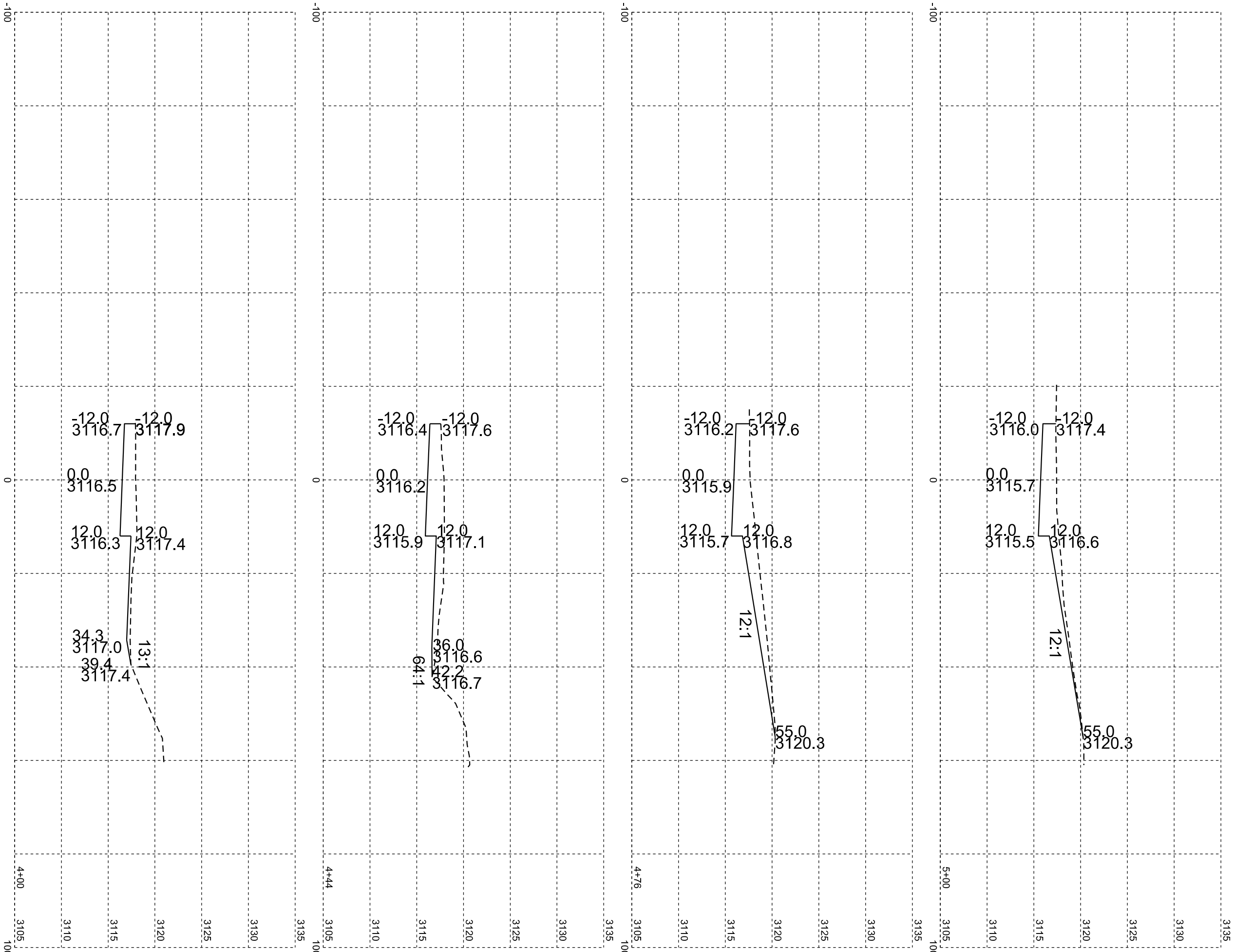


PLOT SCALE - 1:6.25

PLOT NAME - 18

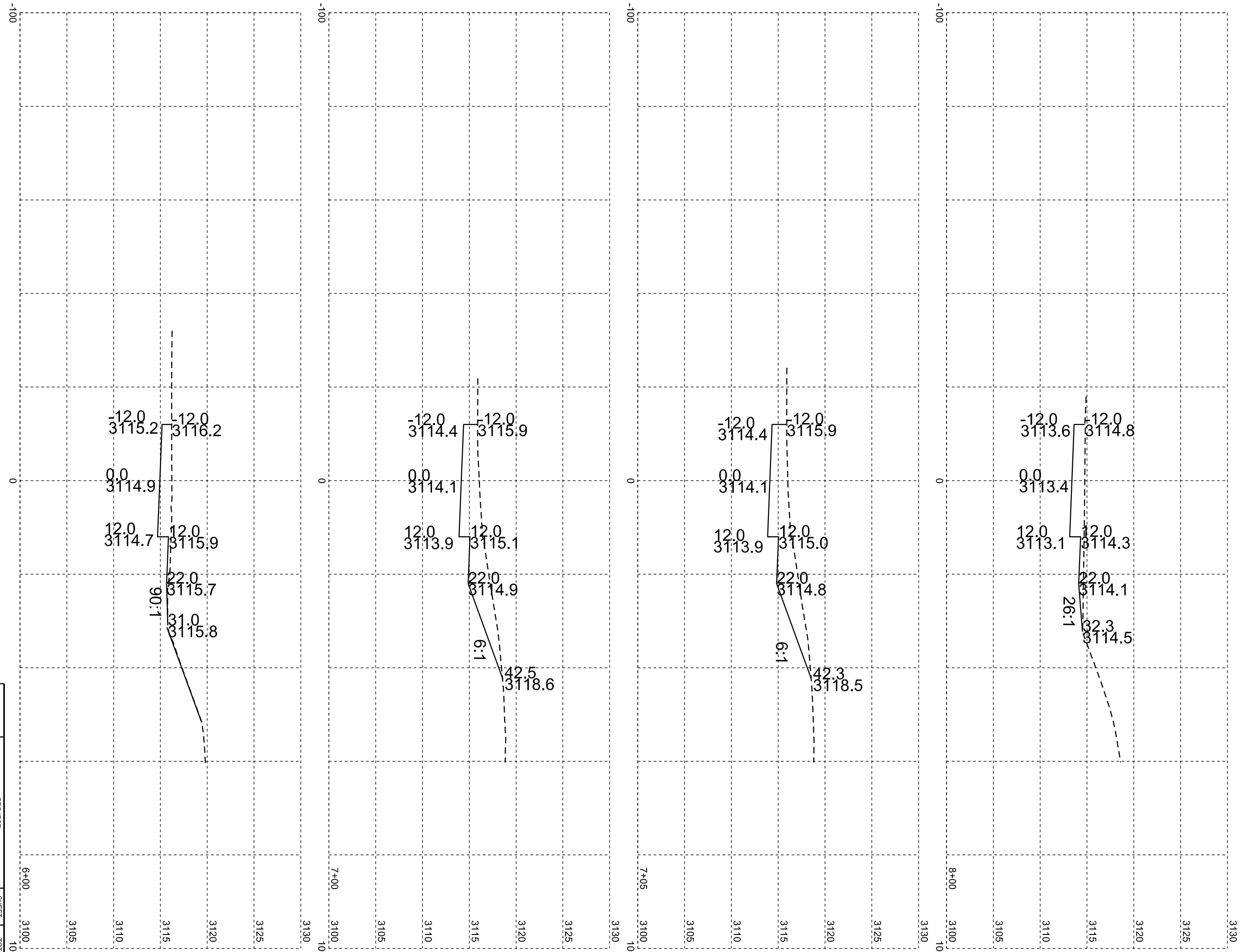
FILE - ...\DESIGN\SD 44 SERVICE ROADE.DGN

PLOTTED FROM - TRRC12608



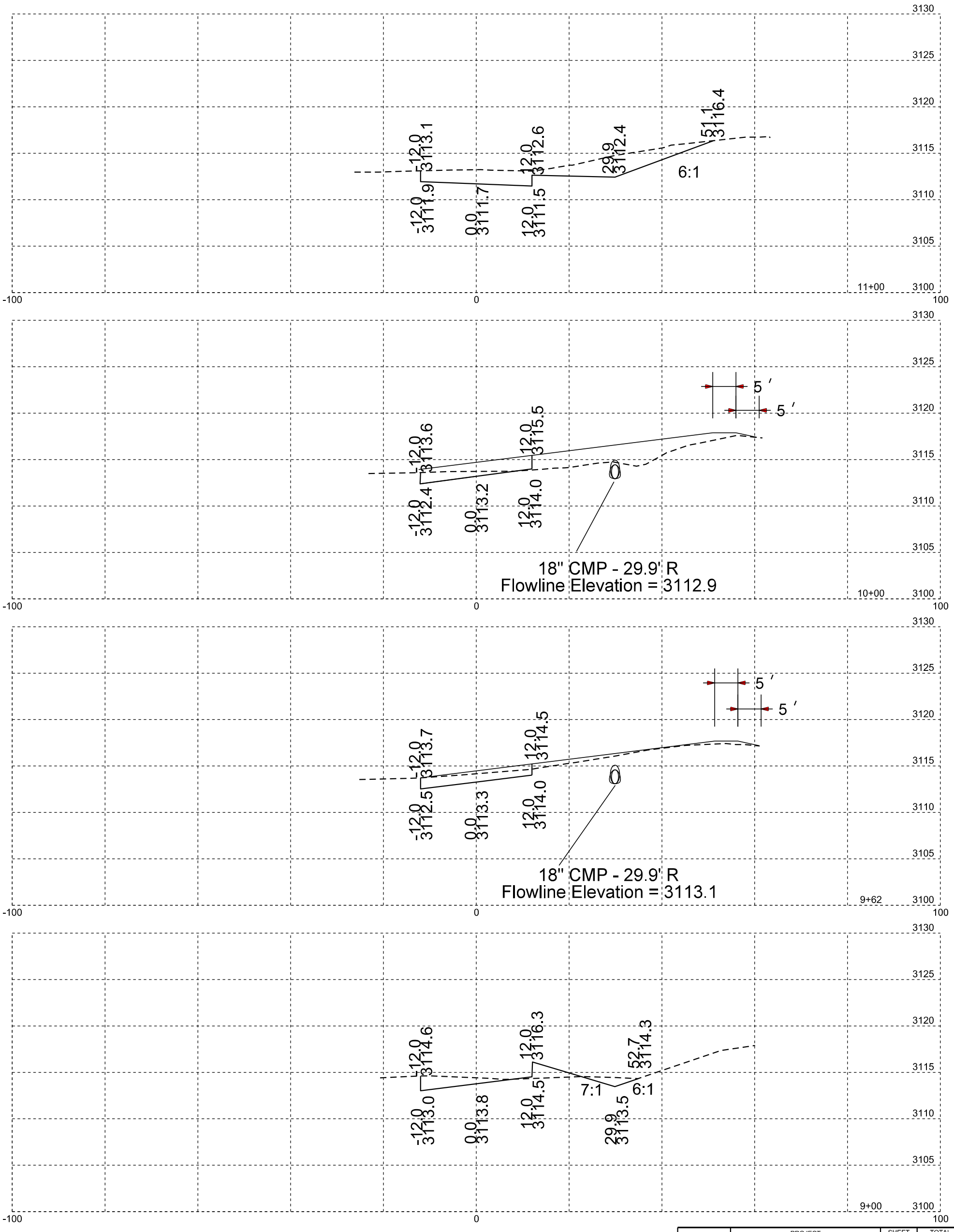
Plotting Date: 11/03/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	31	45



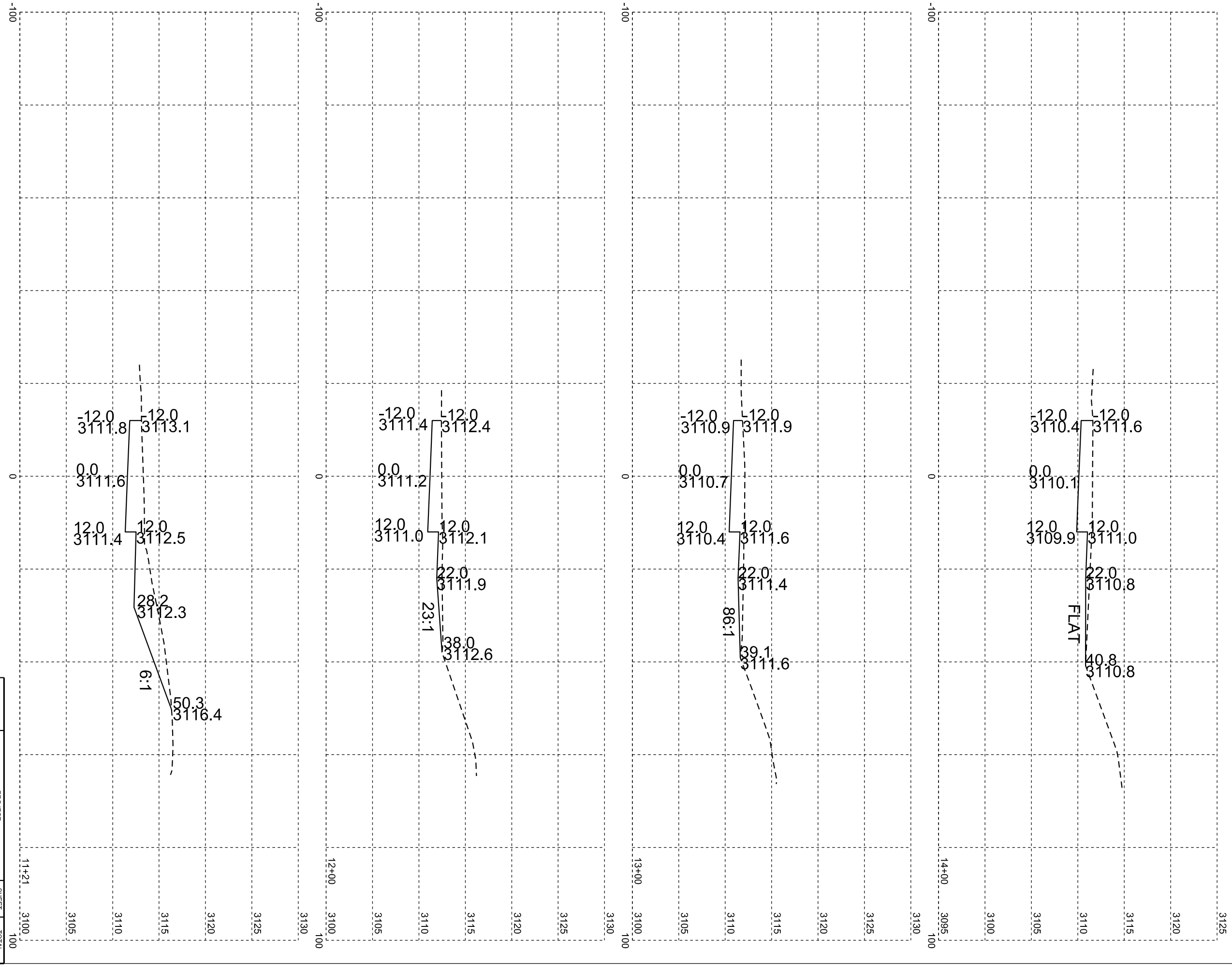
Plotting Date: 11/03/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	32	45



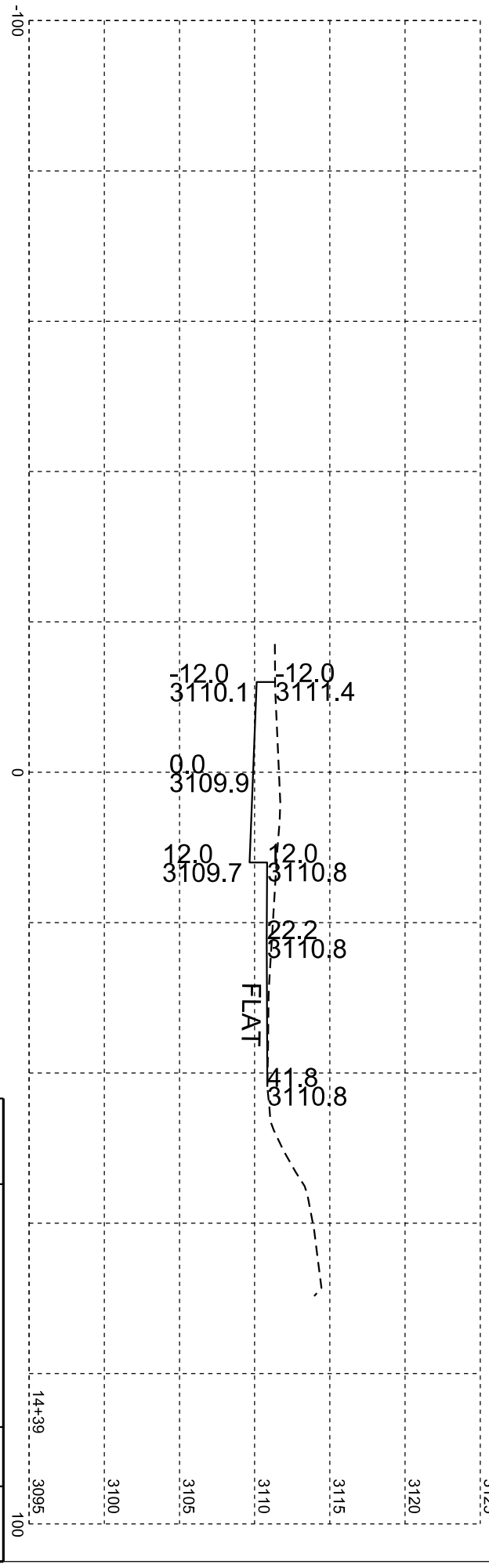
Plotting Date: 11/03/2015

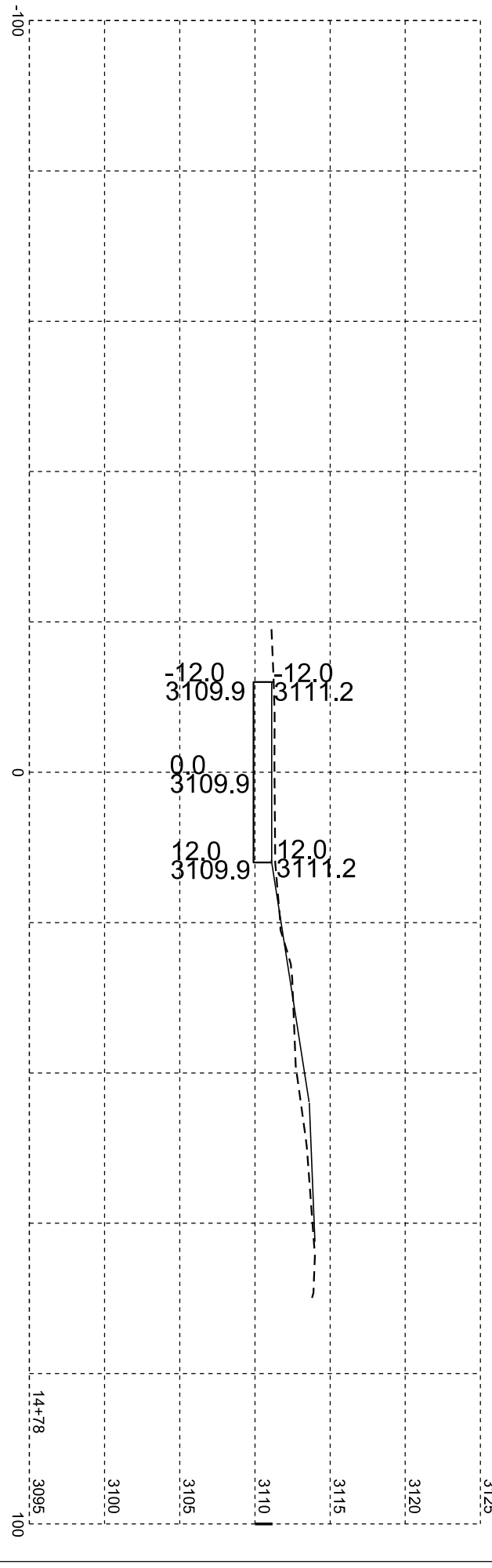
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	33	45

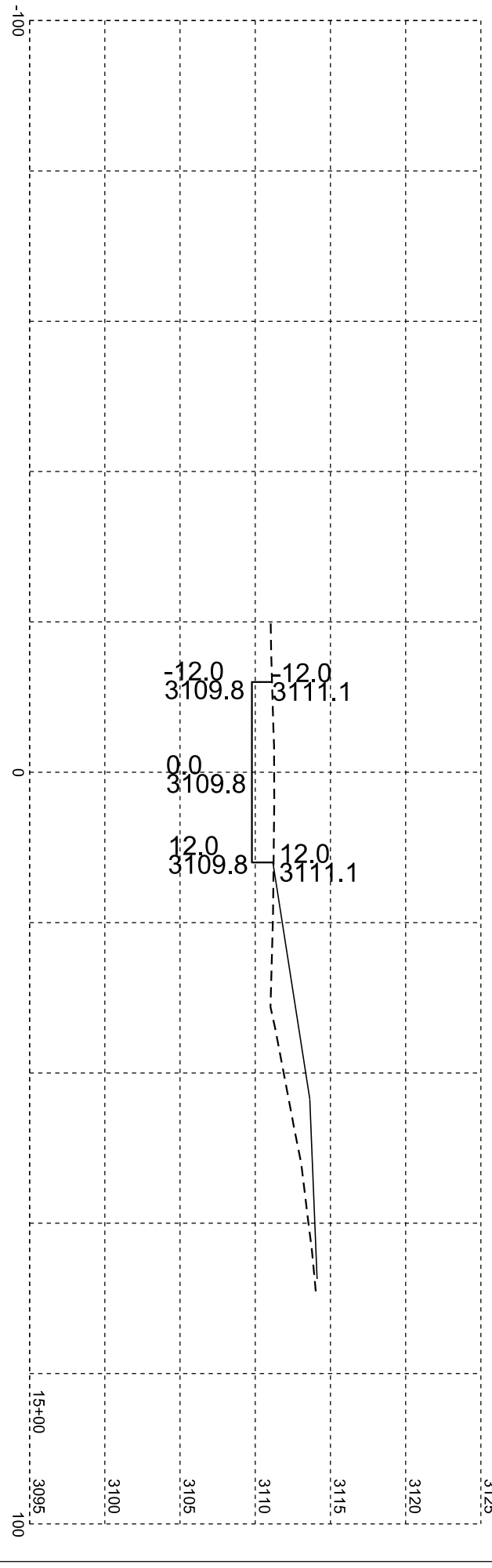


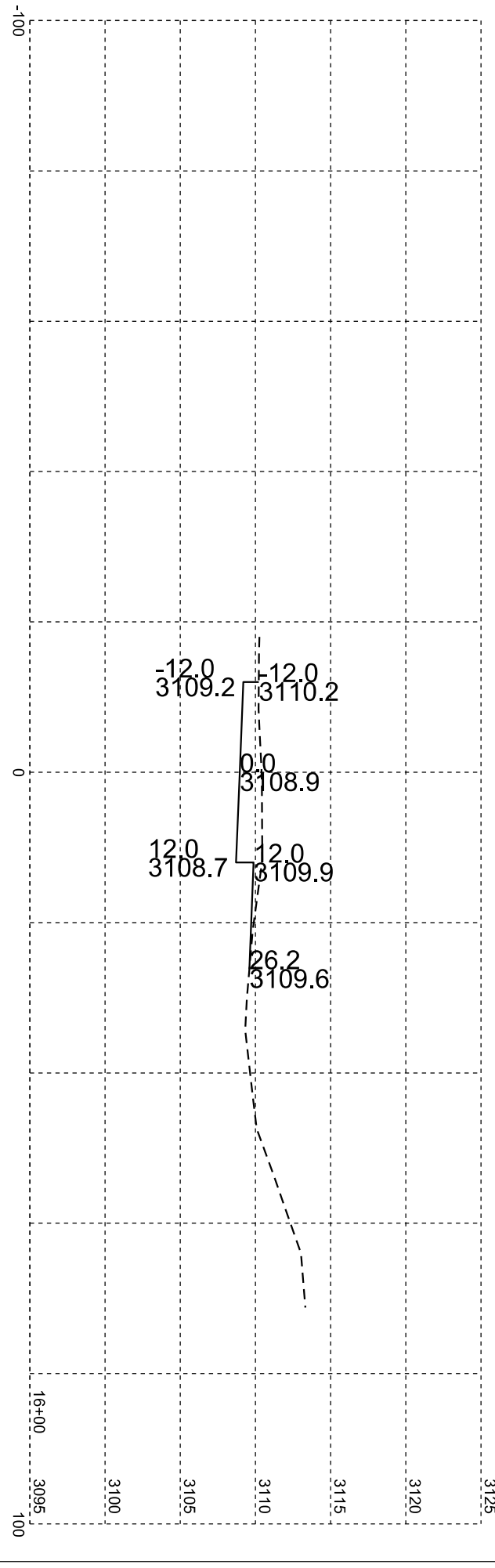
Plotting Date: 11/03/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	34	45



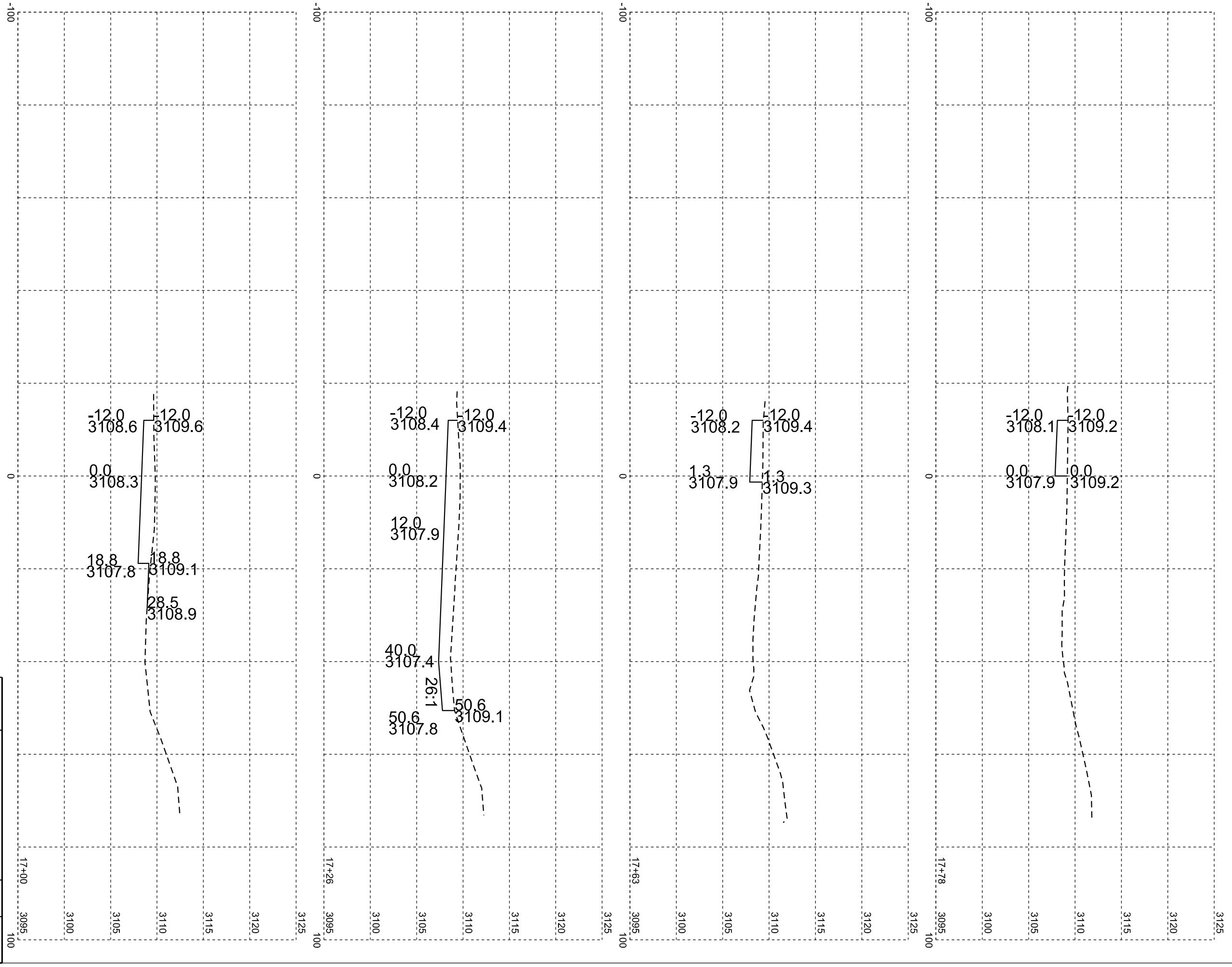






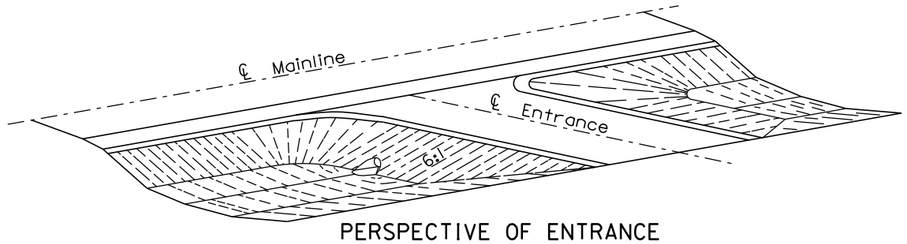
Plotting Date: 11/03/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	35	45

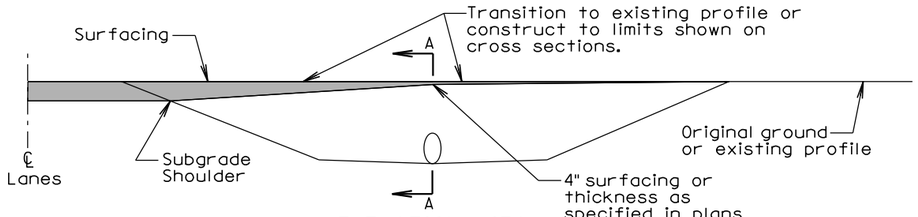


Plotting Date: 11/03/2015

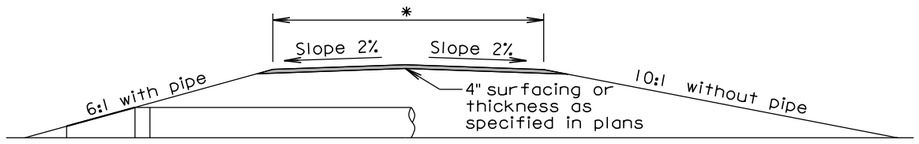
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	044 WF-452	36	45



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.

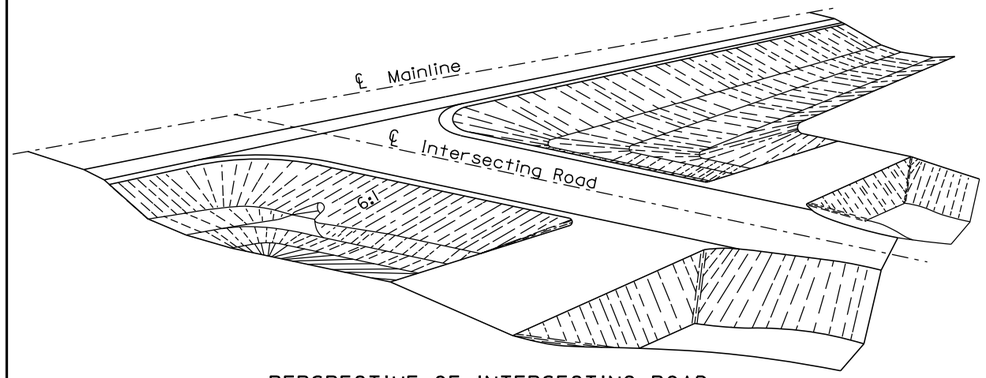
Pipe lengths shall be adjusted if necessary during construction to obtain the 6:1 slopes. For grading projects, the pipe lengths are estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

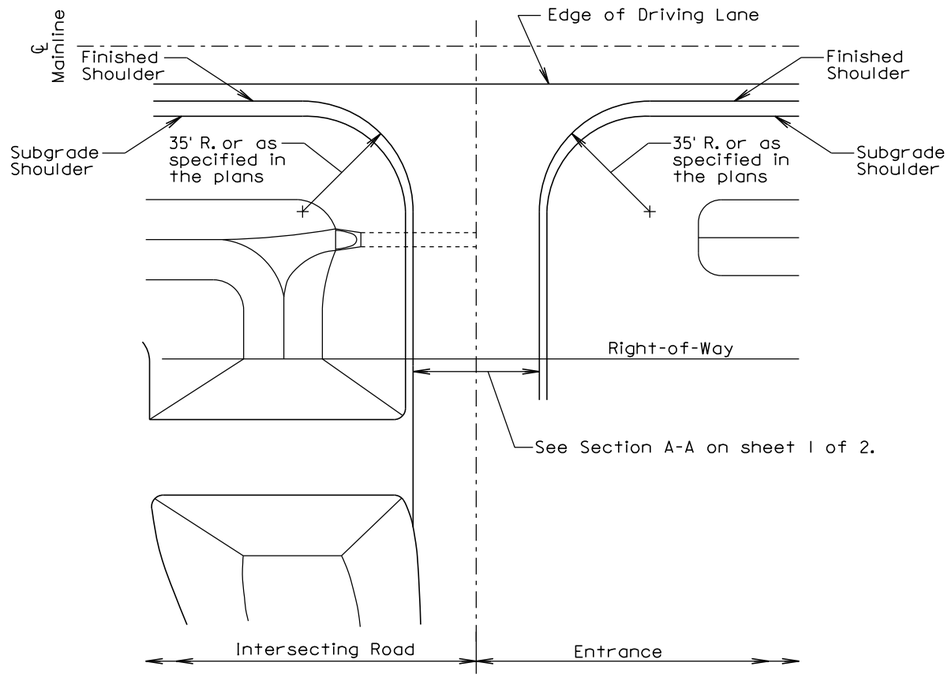
The turning radii shall be 35' for intersecting roads and entrances unless stated otherwise in the plans.

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



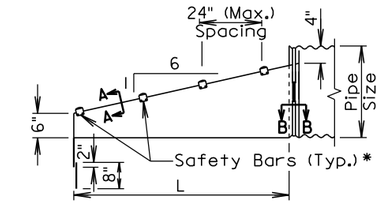
PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

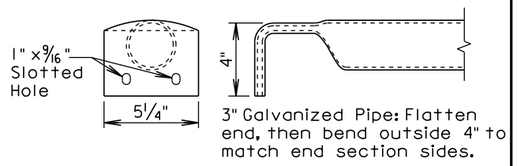
September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

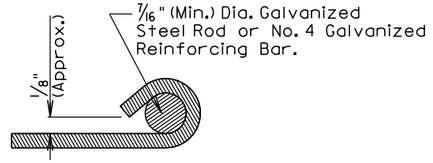


ELEVATION VIEW

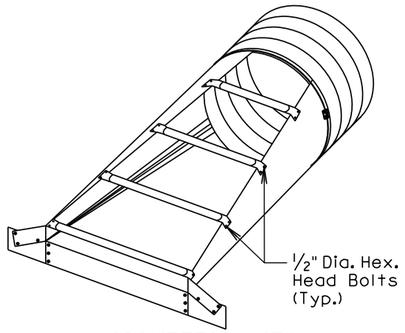
* Number of bars required will vary depending on the length of the end section.



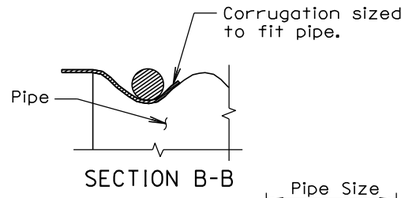
DETAIL OF SAFETY BARS



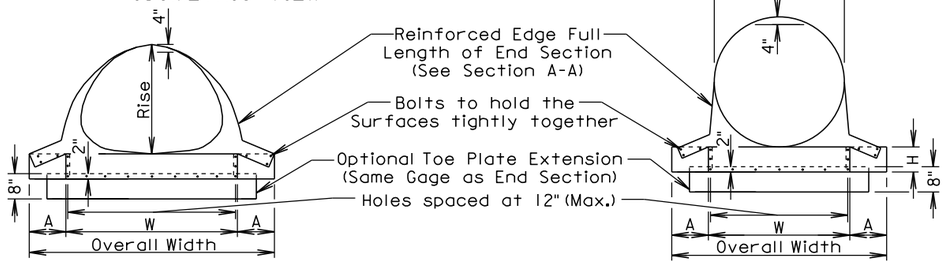
SECTION A-A



ISOMETRIC VIEW

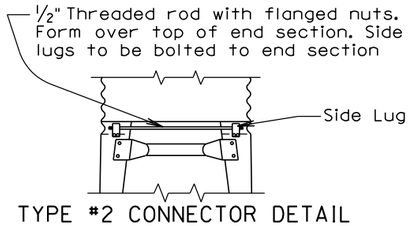


SECTION B-B

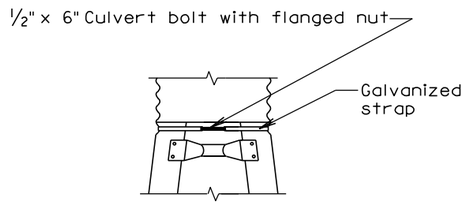


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21" X 15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

Equv. Dia. (Inch)	(Inches) Span	Rise	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
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. (Inch)	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
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 ends shall be fabricated from galvanized steel conforming to the requirements of the Specifications.

Safety bars shall be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5X.216 in conformance with ASTM A500, grade B.

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 Specifications.

Cost of 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.

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2

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.

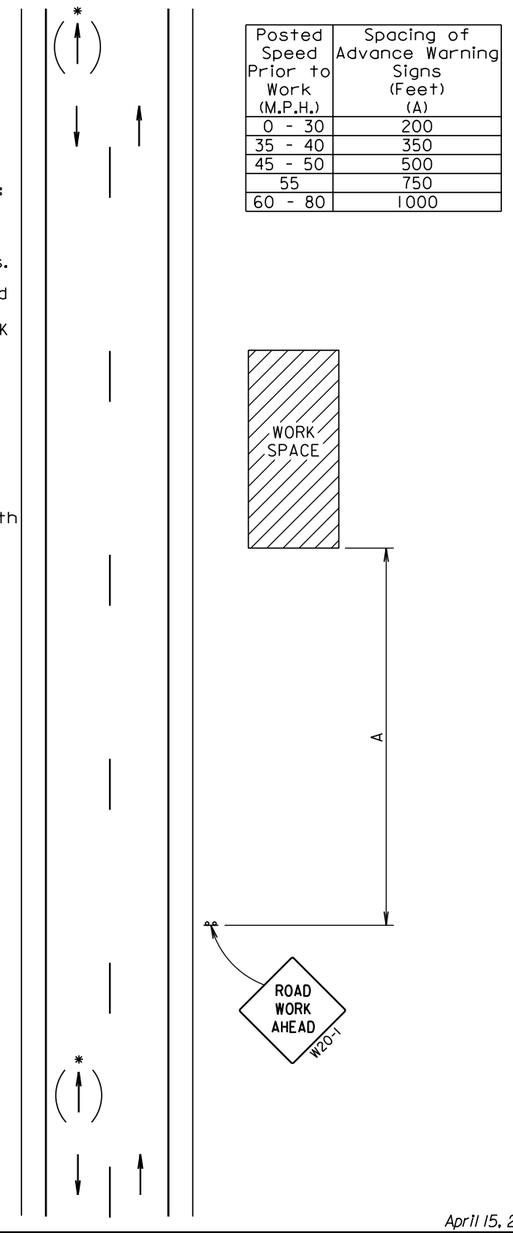
The signs illustrated shall be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

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 - 80	1000



April 15, 2015

Published Date: 4th Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 Of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50
55	750	660	50
60 - 65	1000	780	50

■ Channelizing Device

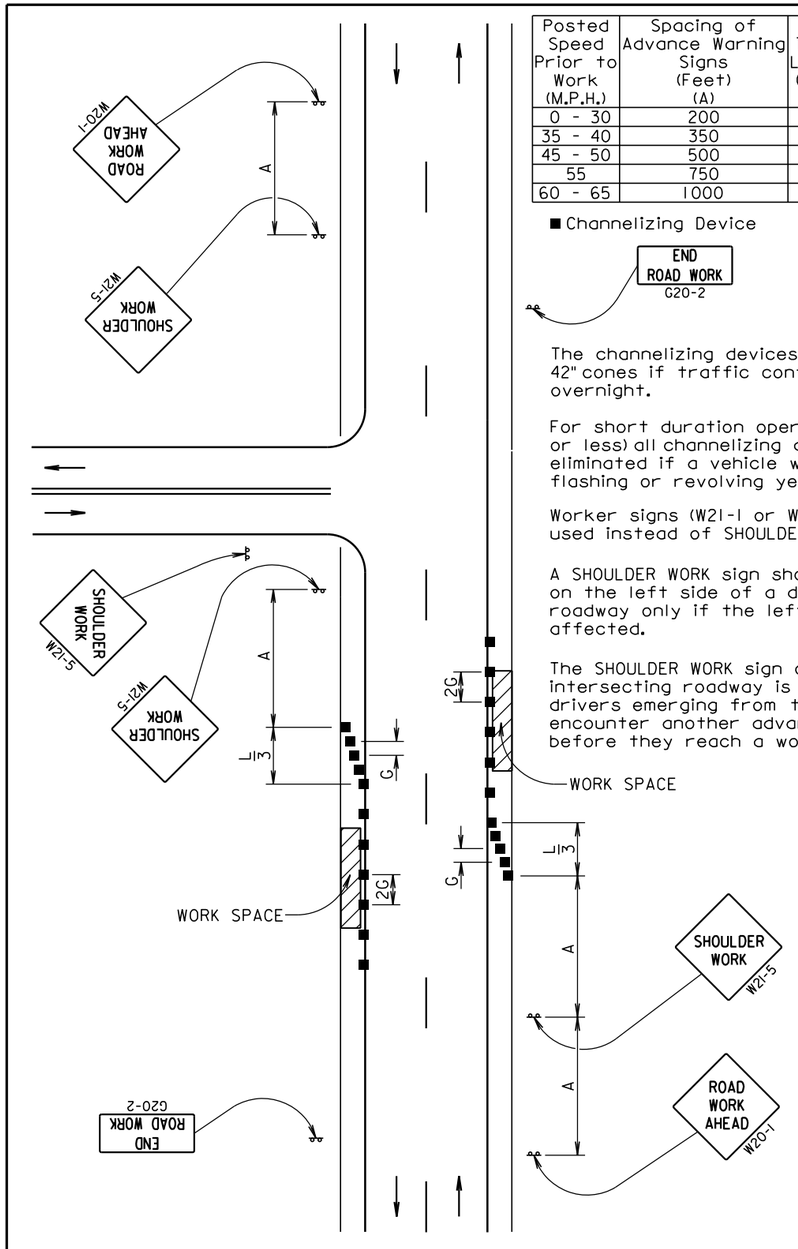
The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.



September 22, 2014

Published Date: 4th Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45 - 50	500	50
55	750	50
60 - 65	1000	50

Flagger

Channelizing Device

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

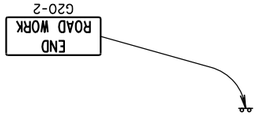
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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

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

The channelizing devices shall be drums or 42" cones.

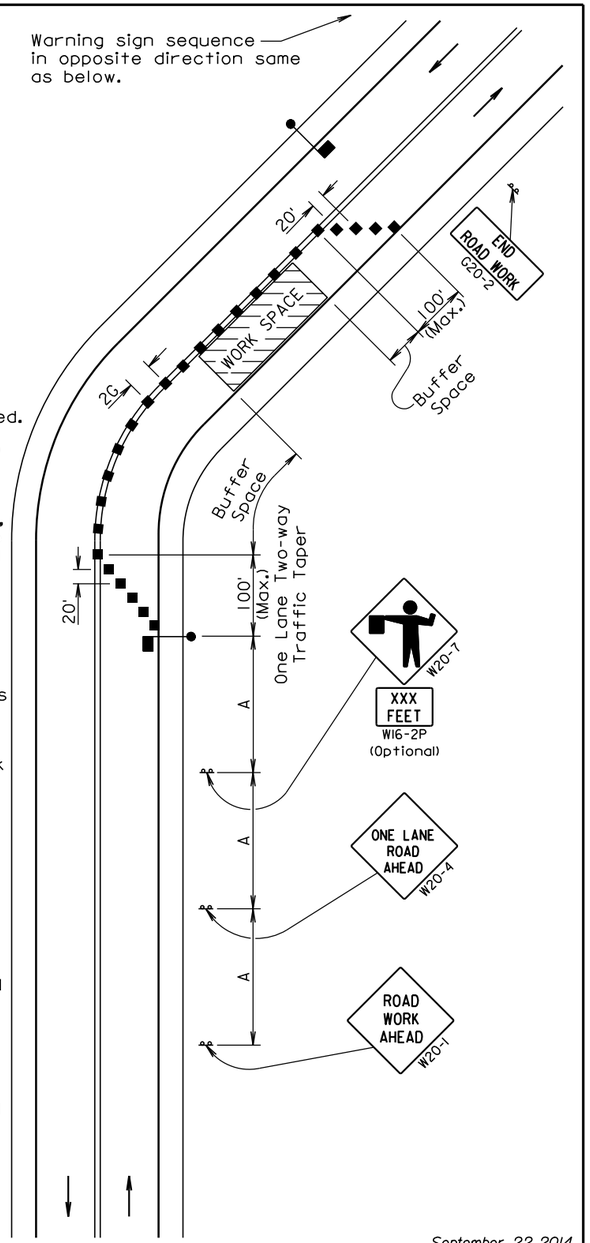
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

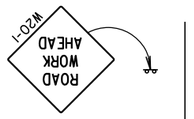
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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



September 22.2014

Published Date: 4th Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1



Reflectorized Drum

Channelizing Device

4W 4" White Temporary Pavement Marking

Urban areas and intersecting streets may limit sign spacing.

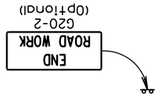
The length of A and L may be adjusted to fit field conditions.

Temporary pavement markings shall be used if traffic control must remain overnight.

The channelizing devices shall be 42" cones or drums.

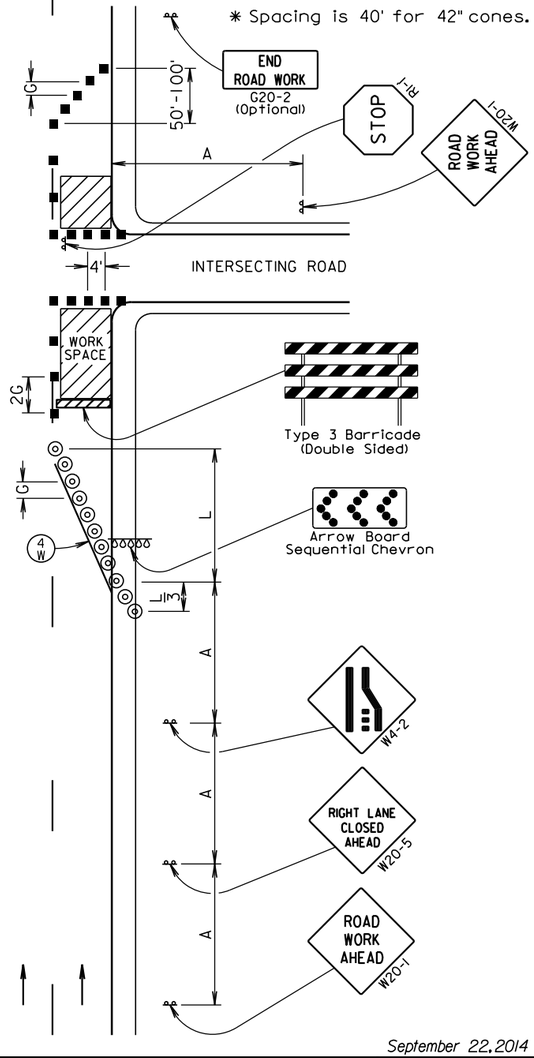
42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Additional channelizing devices at 4' spacing may be needed to control traffic entering and leaving intersections.



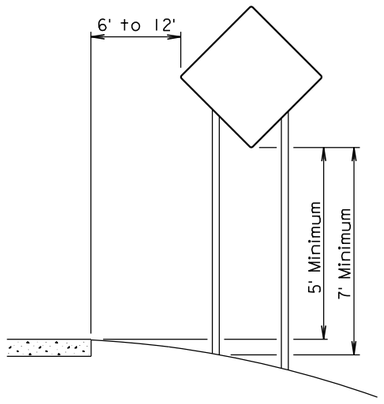
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45 - 50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

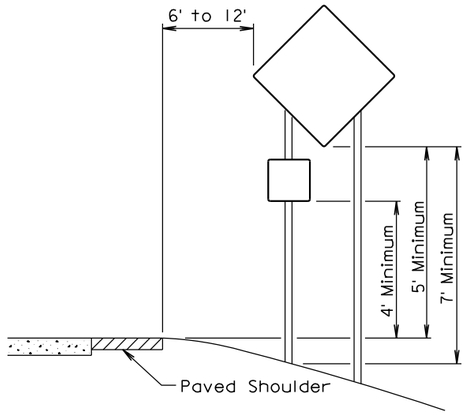


September 22.2014

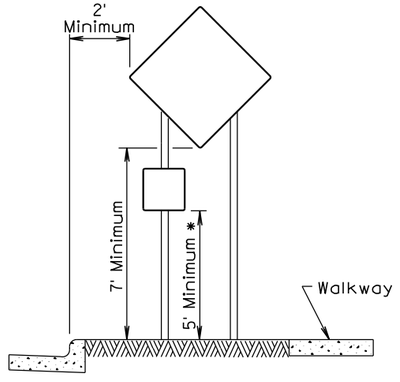
Published Date: 4th Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 5-LANE, OUTSIDE LANE CLOSED	PLATE NUMBER 634.60
			Sheet 1 of 1



RURAL DISTRICT

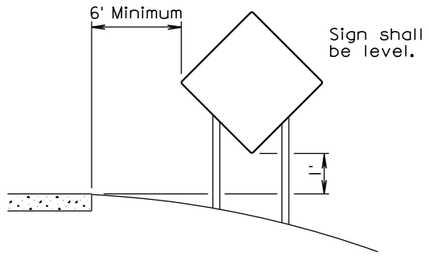


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

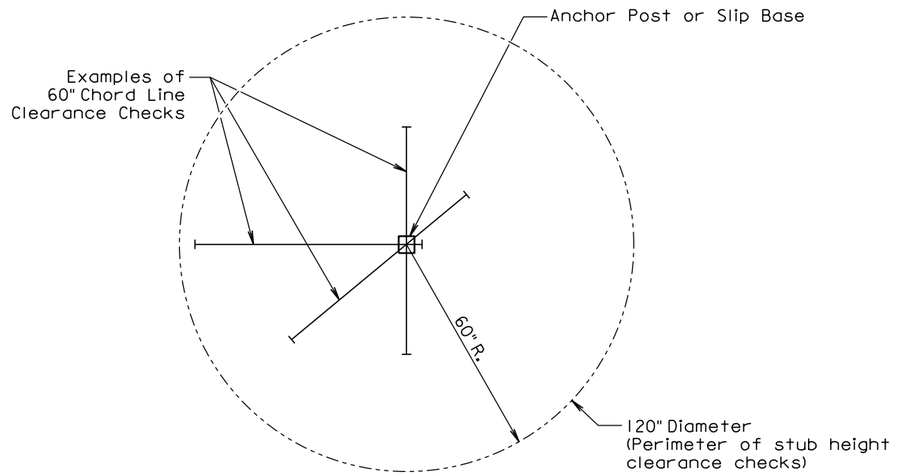
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



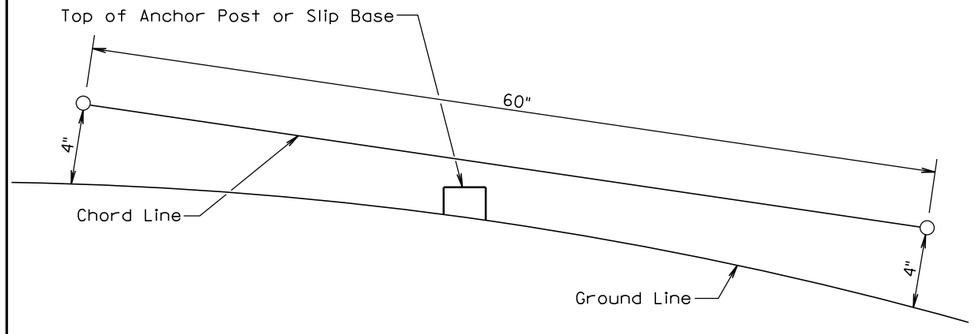
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 4th Qtr. 2015	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

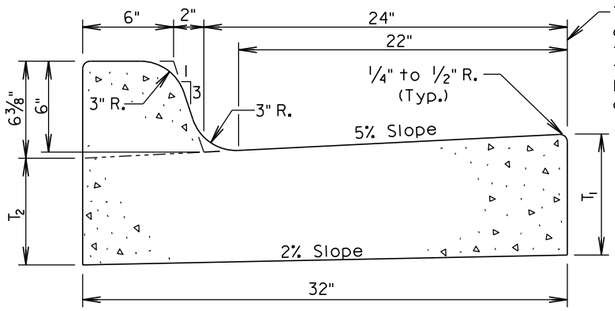
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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: 4th Qtr. 2015	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
B66	6	5 1/16	0.057	17.7
B67	7	6 1/16	0.065	15.4
B68	8	7 1/16	0.073	13.7
B68.5	8.5	7 9/16	0.077	13.0
B69	9	8 1/16	0.081	12.3
B69.5	9.5	8 9/16	0.085	11.7
B610	10	9 1/16	0.090	11.2
B610.5	10.5	9 9/16	0.094	10.7
B611	11	10 1/16	0.098	10.2
B611.5	11.5	10 9/16	0.102	9.8
B612	12	11 1/16	0.106	9.4

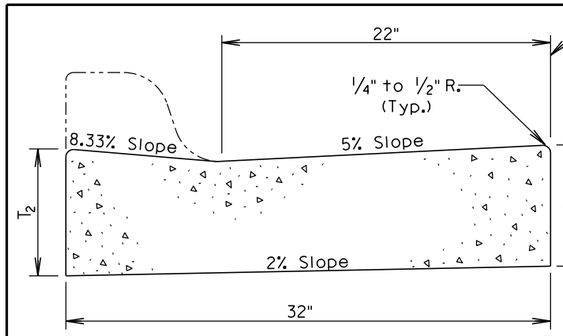
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

See Standard Plate 650.90 for expansion and contraction joints in the curb and gutter.

September 6, 2008

Published Date: 4th Qtr. 2015	SDDOT	TYPE B CONCRETE CURB AND GUTTER	PLATE NUMBER 650.01
			Sheet 1 of 1

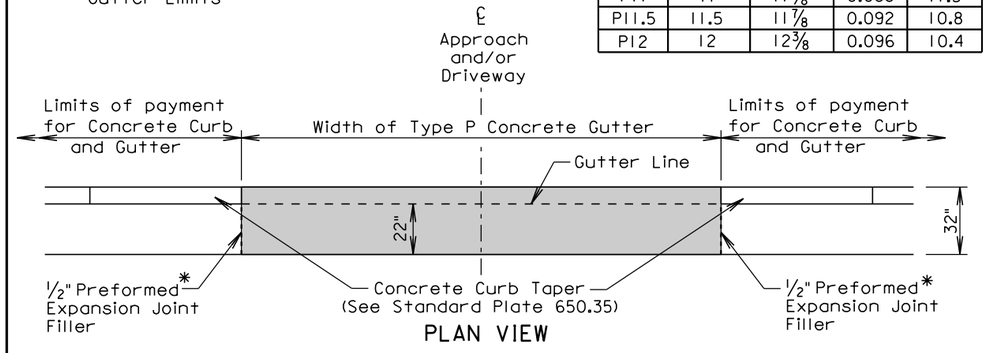


The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

TRANSVERSE SECTION

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 3/8	0.047	21.2
P7	7	7 3/8	0.055	18.1
P8	8	8 3/8	0.064	15.7
P8.5	8.5	8 7/8	0.068	14.8
P9	9	9 3/8	0.072	13.9
P9.5	9.5	9 7/8	0.076	13.2
P10	10	10 3/8	0.080	12.5
P10.5	10.5	10 7/8	0.084	11.9
P11	11	11 3/8	0.088	11.3
P11.5	11.5	11 7/8	0.092	10.8
P12	12	12 3/8	0.096	10.4

Type P Concrete Gutter Limits



PLAN VIEW

* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the 1/2" Preformed Expansion Joint Filler is provided, then the joint shall be sealed in accordance with Standard Plate 650.90.

GENERAL NOTES:

The concrete for the Type P Concrete Gutter shall comply with the requirements of the Specifications for Class M6 Concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

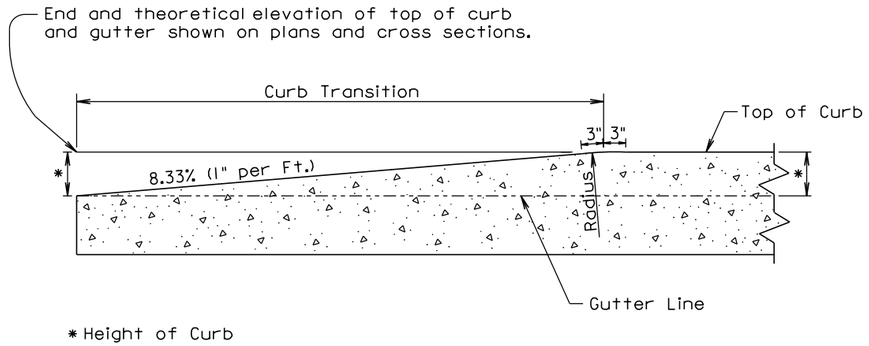
Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete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

When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter shall be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

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

June 26, 2015

Published Date: 4th Qtr. 2015	SDDOT	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
			Sheet 1 of 1

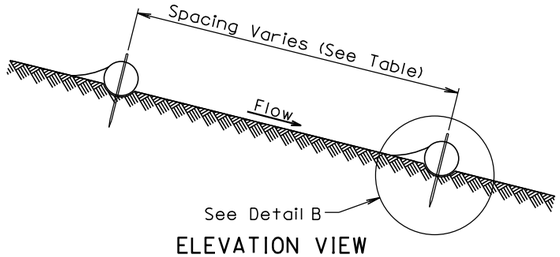


* Height of Curb

LONGITUDINAL SECTION OF CONCRETE CURB TAPER

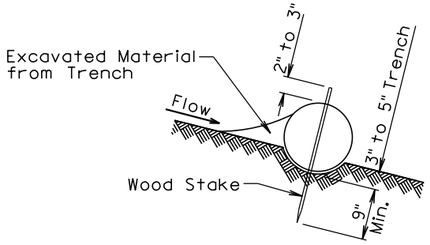
September 14, 2005

Published Date: 4th Qtr. 2015	SDDOT	CONCRETE CURB TAPER	PLATE NUMBER 650.35
			Sheet 1 of 1

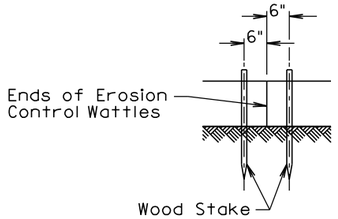


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

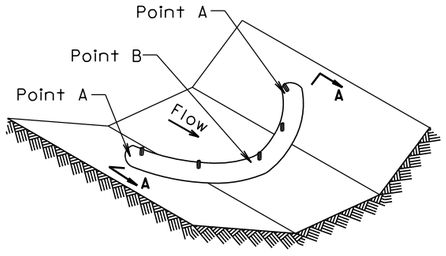
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



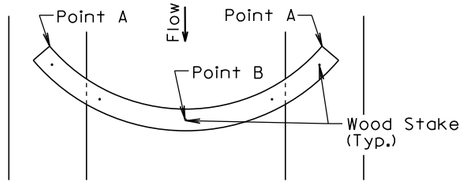
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

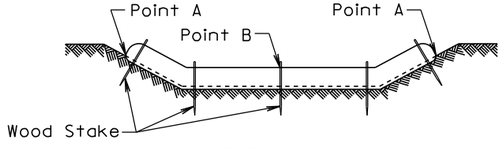


ISOMETRIC VIEW
DITCH INSTALLATION



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. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

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 ½". 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".

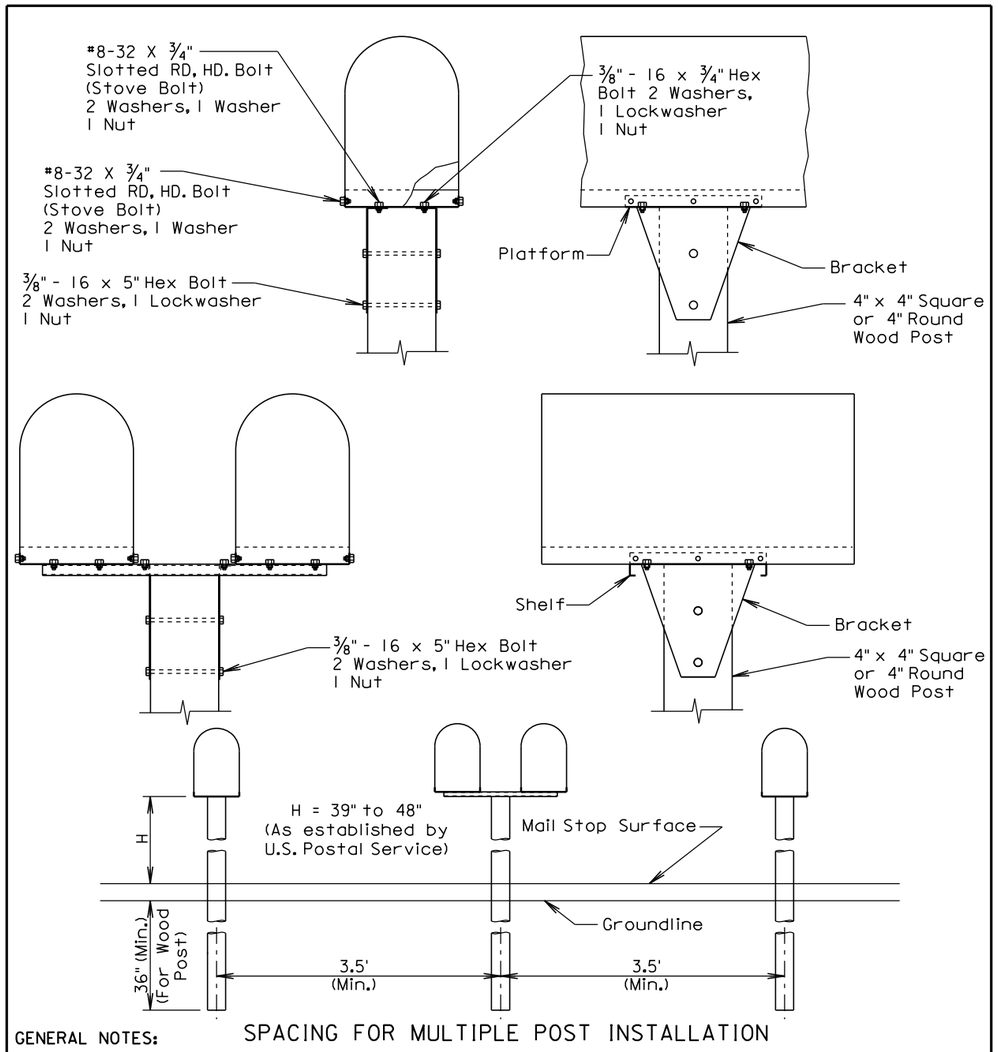
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	044 WF-452	45	45



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

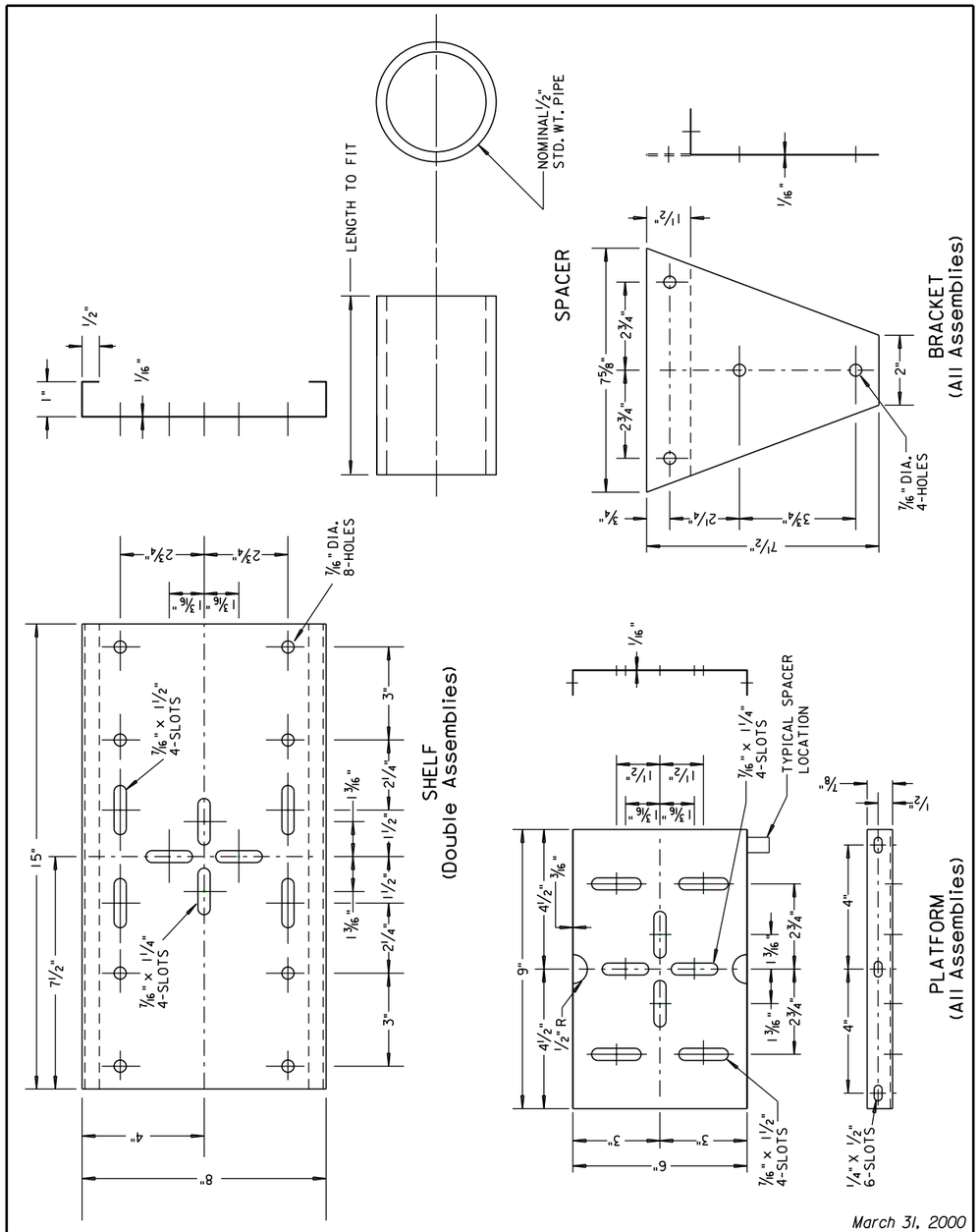
Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 4th Qtr. 2015	SDDOT	**SINGLE AND DOUBLE MAILBOX ASSEMBLIES**	PLATE NUMBER 900.02 Sheet 1 of 1



March 31, 2000

Published Date: 4th Qtr. 2015	SDDOT	**MAILBOX SUPPORT HARDWARE**	PLATE NUMBER 900.03 Sheet 1 of 1