STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(00)68	1	27

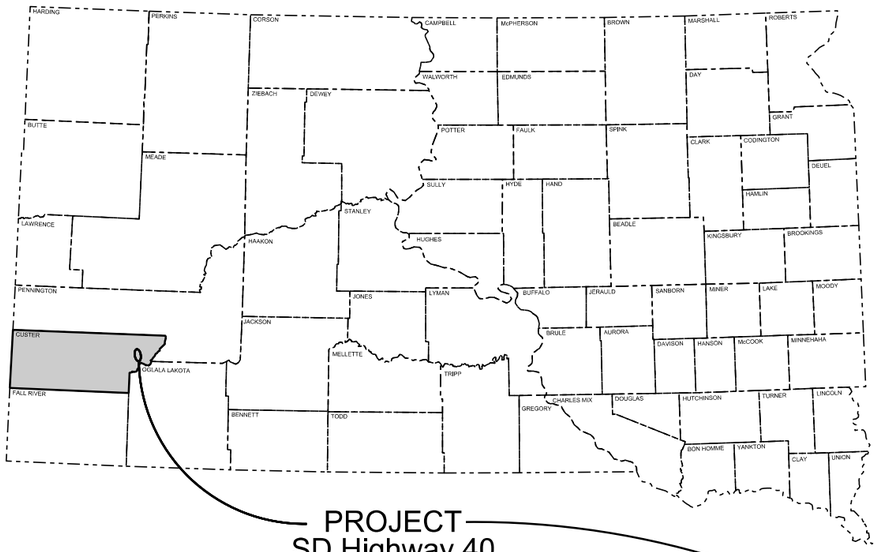
Plotting Date: 10/26/2015

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

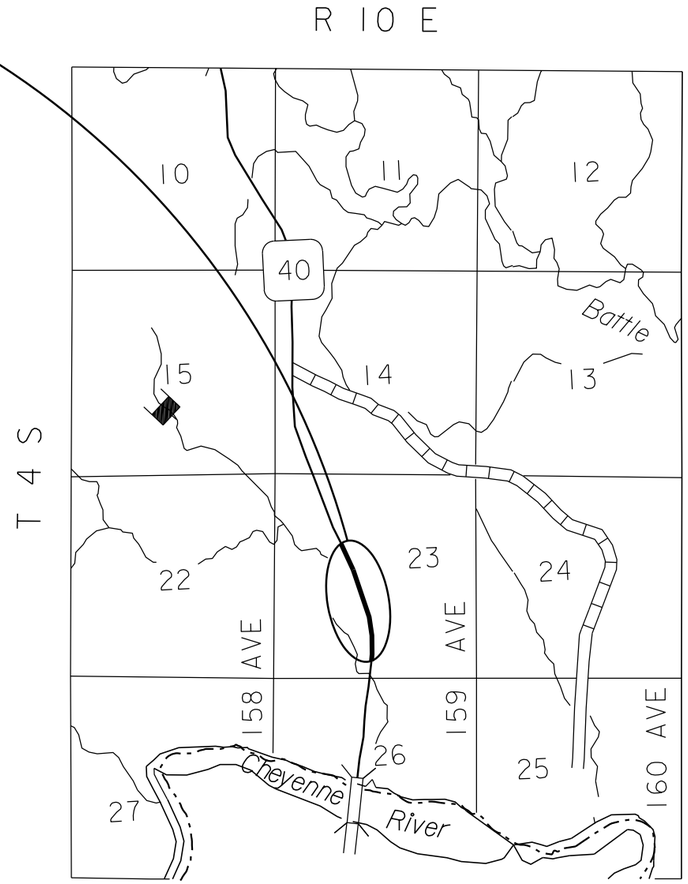
PLANS FOR PROPOSED

PROJECT P 0040(00)68
SD HIGHWAY 40
CUSTER COUNTY

TRAFFIC DIVERSION
PCN 05M5



PROJECT
SD Highway 40
MRM 68.2 to MRM 68.4



INDEX OF SHEETS

DESIGN DESIGNATION

ADT (2014)	480
ADT (2034)	583
DHV	72
D	52%
T DHV	2.8%
T ADT	6.1%
V	65 MPH

STORM WATER PERMIT
None Required

Plot Scale - 1:200
Plotted From - TRRC12608
File - ...\Design\05KH_Titledgn.dgn

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow Excavation	1,380	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E3010	Gravel Surfacing	248.0	Ton
632E1320	2.0"x2.0" Perforated Tube Post	240.0	Ft
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	209.2	SqFt
632E4000	Type 3 Double Sided Barricade	48.0	Ft
634E0010	Flagging	100.0	Hour
634E0110	Traffic Control Signs	212	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0525	Linear Delineation System Panel, Barrier Mounted	67	Each
634E0700	Traffic Control Movable Concrete Barrier	67	Each
732E0200	Fiber Mulching	0.7	Ton
734E0154	12" Diameter Erosion Control Wattle	318	Ft
734E0325	Surface Roughening	0.3	Acre

SPECIFICATIONS

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

CONTRACT TIME

The Contractor shall complete the Contractor Furnished Borrow Excavation and Gravel Surfacing by the substantial completion requirement of December 23, 2015. The remaining work items shall be completed by the field work completion requirement.

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 less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

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 department designated sources and designated option material sources, stockpile sites, storage areas, and waste 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: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

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 Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas 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.

SEQUENCE OF OPERATIONS

Variations from this sequence shall be submitted to the Engineer for approval.

1. Place traffic control.
2. Construct embankment and place surfacing.
3. Complete Surface Roughening.
4. Place erosion control.
5. Remove traffic control.

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.

CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

Water for Embankment is estimated at the rate of 20 gallons of water per cubic yard of Embankment. All costs for Water for Embankment shall be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

Table of Contractor Furnished Borrow Excavation

Station	to	Station	Contractor Furnished Borrow Excavation (CuYd)
0+00		10+72	1380

HORIZONTAL ALIGNMENT DATA

Type	Station			Northing	Easting
PT	0+00.00			504303.74	1291664.884
		TL= 99.96	S 16°37'39" E		
PC	0+99.96			504207.957	1291693.488
PI	1+38.47	R = 1040.00	Delta = 04°14'36" L	504171.063	1291704.506
PT	1+76.94			504135.085	1291718.222
		TL= 38.50	S 16°37'39" E		
PC	3+58.10			503965.808	1291782.754
PI	4+18.43	R = 1040.00	Delta = 06°38'25" R	503909.433	1291804.245
PT	4+78.63			503850.951	1291819.073
		TL= 60.33	S 30°52'05" E		
PC	5+78.92			503753.737	1291843.723
PI	6+38.53	R = 1040.00	Delta = 06°33'40" R	503695.954	1291858.374
PT	6+98.01			503636.875	1291866.326
		TL= 59.61	S 14°13'40" E		
PC	8+64.19			503472.18	1291888.497
PI	9+18.40	R = 1040.00	Delta = 05°58'03" L	503418.456	1291895.728
PT	9+72.51			503365.776	1291908.506
		TL= 54.21	S 07°40'00" E		

SURFACING THICKNESS DIMENSIONS

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

GRAVEL SURFACING

The gravel surfacing shall be placed on the project as closely following completion of grading the roadbed proper as feasible.

Water for Granular Material is estimated at the rate of 20 gallons of water per cubic yard of Gravel Surfacing All costs for Water for Granular Material shall be incidental to the contract unit price per ton for Gravel Surfacing.

Table of Gravel Surfacing (4" Depth)			
			Gravel
Station	to	Station	Sufacing
			(Ton)
3+45	to	7+38	248

REMOVE AND REPLACE TOPSOIL

Topsoil in the ditch area shall be salvaged and stockpiled prior to constructing the traffic diversion. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction, topsoil shall be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 192 CuYd.

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

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

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-7	LOOSE GRAVEL	2	48" x 48"	16	32
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			212

CONCRETE BARRIERS AND TRAFFIC DIVERSION SIGNS INSTALLED "AS NEEDED"

All items pertaining to the placement of Traffic Control Movable Concrete Barrier, traffic diversion signing, and Type 3 Barricades are being bid "as needed". If the slide moves to the point that makes the highway impassable, concrete barriers and traffic diversion signs shall be installed.

If the Traffic Control Movable Concrete Barriers, associated signing, and barricades for the traffic diversion are required during this project, or prior to the subsequent slide repair project, the contractor shall have a 48 hour time frame in which to install the barriers, signs, and place traffic on the diversion. Signs for the traffic diversion shall be installed in accordance with Standard Plate 634.26 and as directed by the Engineer.

If the signs for the traffic diversion are not installed the State will purchase the signs.

TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS

Concrete barriers will be provided by the State and are available for pickup from the DOT South Maintenance Yard located south of Rapid City adjacent to Highway 79. Barriers to be adjusted or moved shall be disconnected from adjacent barriers to minimize damage to connecting pins. Pins damaged by the Contractor shall be replaced at no cost to the Department. All costs associated with picking up from the South Yard, transporting, and installing shall be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier.

If the Traffic Control Movable Concrete Barriers are installed, the barriers shall be left in-place and utilized for the subsequent slide repair project.

Concrete barrier sections shall be placed as depicted in the plans. The barriers shall be pinned and bolted together as directed by the Engineer.

BARRIER MOUNTED LINEAR DELINEATION SYSTEM PANELS

A linear delineation system panel shall be attached to each side of the barrier section. One panel shall be white and the other panel shall be yellow. The color shall be the same as the nearest pavement marking, white along outside edgelines or yellow for the left side on one way traffic sections. The linear delineation system shall be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It shall be sheeted with super high or very high intensity sheeting. The panels shall be installed at the center of the barrier when measured along the length, with the top of the panel 4 inches below the top of the barrier. Installation shall be as per the manufacturer's recommendation using stainless steel inserts and bolts. This will allow for easy removal for replacement of damaged panels or to replace with an alternate color. The Contractor shall furnish, and install one panel along each side of the barrier if any panels are missing from the barriers. Replacement of damaged linear delineation system panels shall be furnished and replaced by the Contractor. All costs associated with furnishing, and installing the linear delineation system shall be included in the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

All linear delineation system panels shall remain attached to the barrier sections and shall become the property of the State of South Dakota upon completion of the project.

The Contractor shall verify the number of LDS panels that will need to be installed or replaced on the Traffic Control Movable Concrete Barriers. The contract amount of LDS panels is an estimate and the full contract amount may not be required.

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 at the contract unit price per square foot for each type of sign based on sheeting requirements. All signs shall have ASTM D4956 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 the associated size Perforated Tube Post. Breakaway post details regarding posts, hardware, and bases shall be followed as per the manufacturer's 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 be 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 the temporary traffic control portion 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 costs 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, NONREMOVABLE COPY 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 for 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, Nonremovable Copy Super/Very High Intensity.

SIGN LEGEND, BORDER, BACKGROUND, AND MOUNTING

All sign material shall comply with Section 982 of the Specifications.

All W-series warning signs and plaques shall be fluorescent yellow.

All other 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.

PERMANENT SIGNING - SD Hwy 40

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	N/A	W3-5	48	48	EASTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	REDUCED SPEED LIMIT AHEAD (35 MPH)	INSTALL NEW SIGN & POST
N/A	N/A	R2-1	30	36	EASTBOUND	FLAT ALUM	N/A	7.5	XI	YES	10	2.0	1	NO	SPEED LIMIT (35 MPH)	INSTALL NEW SIGN & POST
N/A	N/A	W17-1	48	48	EASTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	ROAD WORK AHEAD	INSTALL NEW SIGN & POST
N/A	N/A	W17-2	48	48	EASTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	REVERSE CURVE L	INSTALL NEW SIGN & POST
N/A	N/A	W13-1P	30	30	EASTBOUND	FLAT ALUM	N/A	6.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (35 MPH)	INSTALL NEW SIGN ON NEW "REVERSE CURVE" POST
N/A	N/A	W1-4R	48	48	EASTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	REVERSE CURVE R	INSTALL NEW SIGN & POST
N/A	N/A	W13-1P	30	30	EASTBOUND	FLAT ALUM	N/A	6.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (35 MPH)	INSTALL NEW SIGN ON NEW "REVERSE CURVE" POST
N/A	N/A	w1-6	48	24	EASTBOUND	FLAT ALUM	N/A	8.0	XI	YES	10	2.0	1	NO	LARGE ARROW (one direction)	INSTALL NEW SIGN & POST
N/A	N/A	W1-6	48	24	EASTBOUND	FLAT ALUM	N/A	8.0	XI	YES	10	2.0	1	NO	LARGE ARROW (one direction)	INSTALL NEW SIGN & POST
N/A	N/A	G20-2	36	18	EASTBOUND	FLAT ALUM	N/A	4.5	XI	YES	10	2.0	1	NO	END ROAD WORK	INSTALL NEW SIGN & POST
N/A	N/A	W3-5	48	48	WESTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	REDUCED SPEED LIMIT AHEAD (35 MPH)	INSTALL NEW SIGN & POST
N/A	N/A	R2-1	30	36	WESTBOUND	FLAT ALUM	N/A	7.5	XI	YES	10	2.0	1	NO	SPEED LIMIT (35 MPH)	INSTALL NEW SIGN & POST
N/A	N/A	W17-1	48	48	WESTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	ROAD WORK AHEAD	INSTALL NEW SIGN & POST
N/A	N/A	W17-2	48	48	WESTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	REVERSE CURVE L	INSTALL NEW SIGN & POST
N/A	N/A	W13-1P	30	30	WESTBOUND	FLAT ALUM	N/A	6.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (35 MPH)	INSTALL NEW SIGN ON NEW "REVERSE CURVE" POST
N/A	N/A	W1-4R	48	48	WESTBOUND	FLAT ALUM	N/A	16.0	XI	YES	10	2.0	2	NO	REVERSE CURVE R	INSTALL NEW SIGN & POST
N/A	N/A	W13-1P	30	30	WESTBOUND	FLAT ALUM	N/A	6.3	XI	N/A	-	-	-	-	ADVISORY SPEED PLAQUE (35 MPH)	INSTALL NEW SIGN ON NEW "REVERSE CURVE" POST
N/A	N/A	w1-6	48	24	WESTBOUND	FLAT ALUM	N/A	8.0	XI	YES	10	2.0	1	NO	LARGE ARROW (one direction)	INSTALL NEW SIGN & POST
N/A	N/A	W1-6	48	24	WESTBOUND	FLAT ALUM	N/A	8.0	XI	N/A	10	2.0	1	NO	LARGE ARROW (one direction)	INSTALL NEW SIGN & POST
N/A	N/A	G20-2	36	18	WESTBOUND	FLAT ALUM	N/A	4.5	XI	YES	10	2.0	1	NO	END ROAD WORK	INSTALL NEW SIGN & POST

FIBER MULCHING.

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 ton 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 Fiber Mulching

Location	Area (Acres)	Fiber Mulching (Ton)
Ditch & Surface Roughening Area	0.67	0.7

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 to decompose.

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

Table of Erosion Control Wattle

Station	L/R	Diameter (Inch)	Location	Quantity (Ft)
1+75 to 3+00	L	12	Perimeter	140
8+00 to 9+13	L	12	Perimeter	130
4+00	L	12	Ditch	12
5+00	L	12	Ditch	12
6+00	L	12	Ditch	12
7+00	L	12	Ditch	12
			Total	318

SURFACE ROUGHENING

Surface Roughening shall be applied to the slide area as shown in these plans.

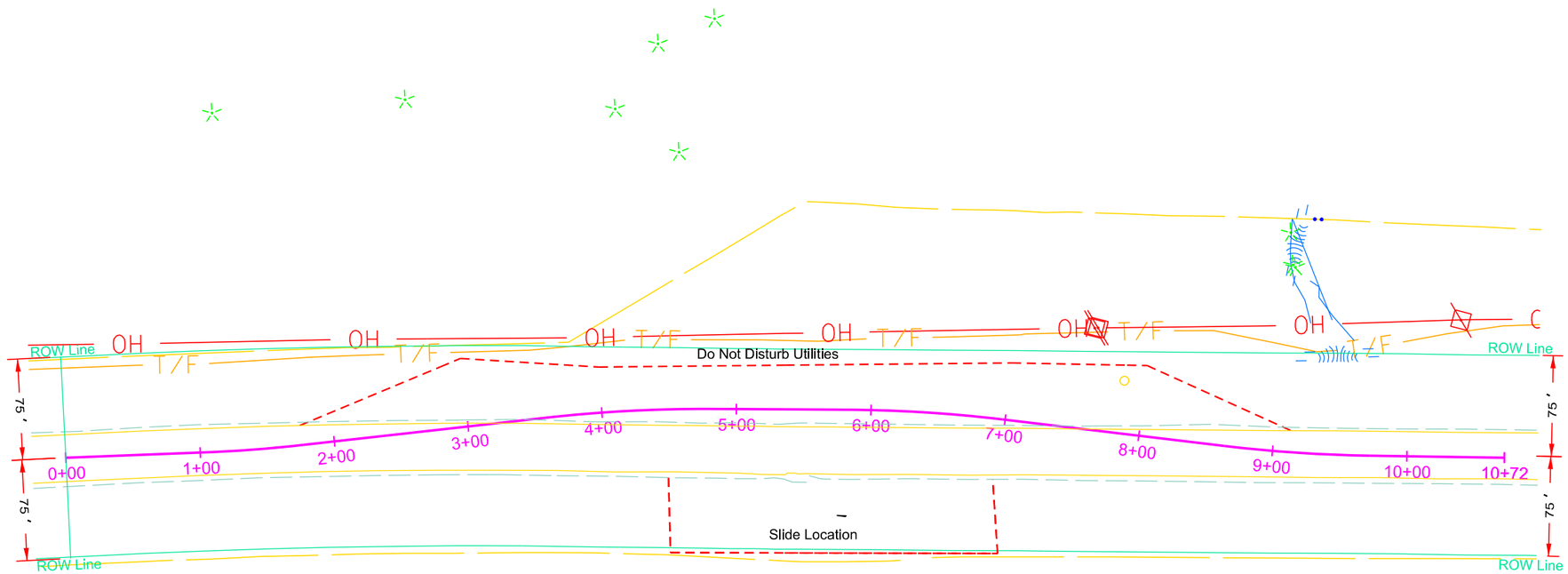
The slopes shall be shaped so that positive drainage is provided down the slope and erosion ruts are filled in prior to placement of mulch. Refer to Standard Plate 734.25 for details.

A quantity of 0.3 acres of Surface Roughening shall be required.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(00)68	8	27

Plotting Date: 10/22/2015

T4S R10E Sec. 23



POB 0+00.00
N 504303.740
E 1291664.884

PI 1+38.47
N 504171.063
E 1291704.506
Del 4°14'26" L
Dc 5°30'33"
T 38.50
L 76.97
R 1040.00

PI 4+18.43
N 503909.433
E 99562.313
Del 6°38'25" R
Dc 5°30'33"
T 60.33
L 120.53
R 1040.00

PI 6+38.53
N 503695.954
E 1291858.374
Del 6°33'40" R
Dc 5°30'33"
T 59.61
L 119.09
R 1040.00

PI 9+18.40
N 503418.456
E 1291895.728
Del 5°58'03" L
Dc 5°30'33"
T 54.21
L 108.32
R 1040.00

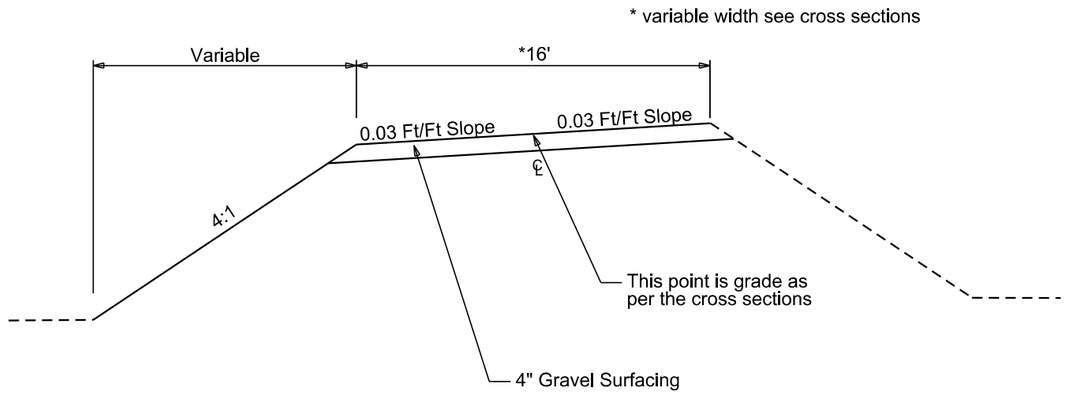
POE 10+72.46
N 503268.645
E 1291932.066

TYPICAL GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(00)68	9	27

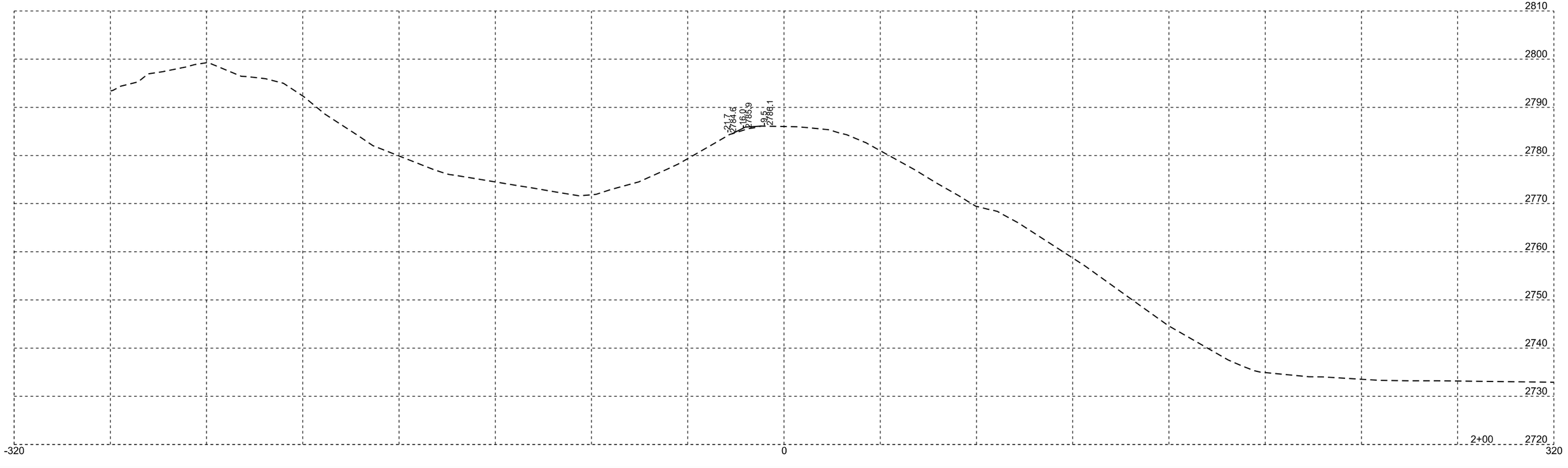
Plotting Date: 10/22/2015

Traffic Diversion
0+00 to 10+72



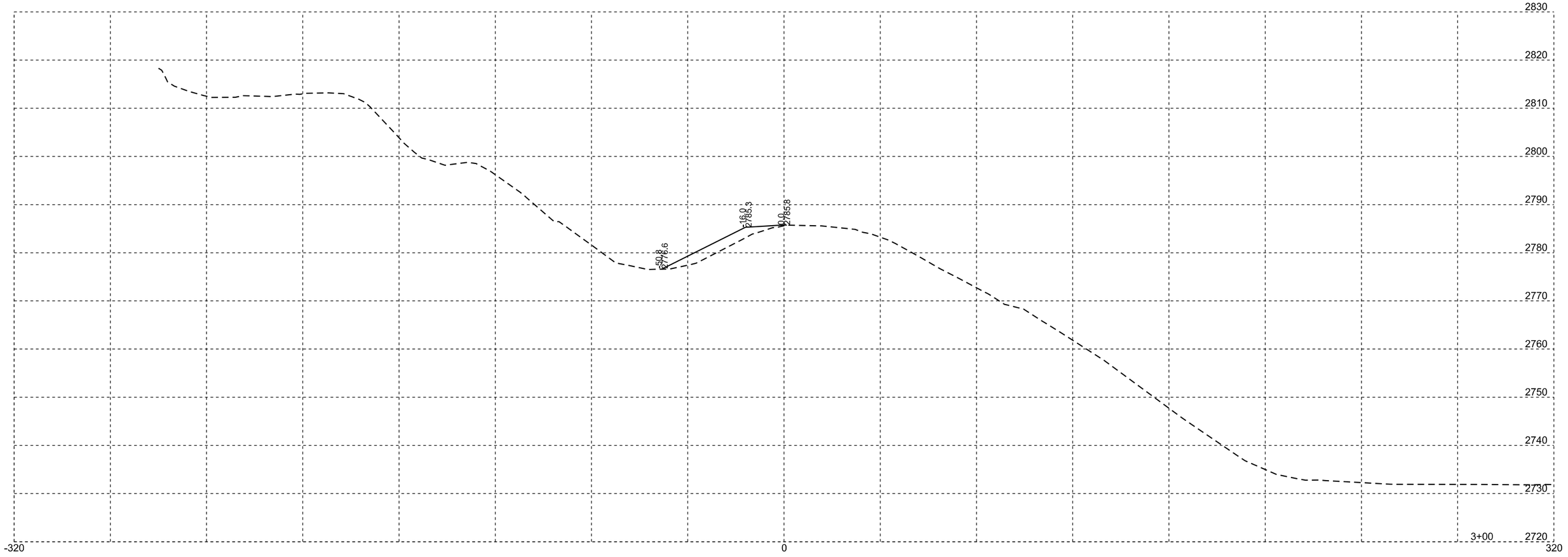
Plotting Date: 10/22/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	10	27



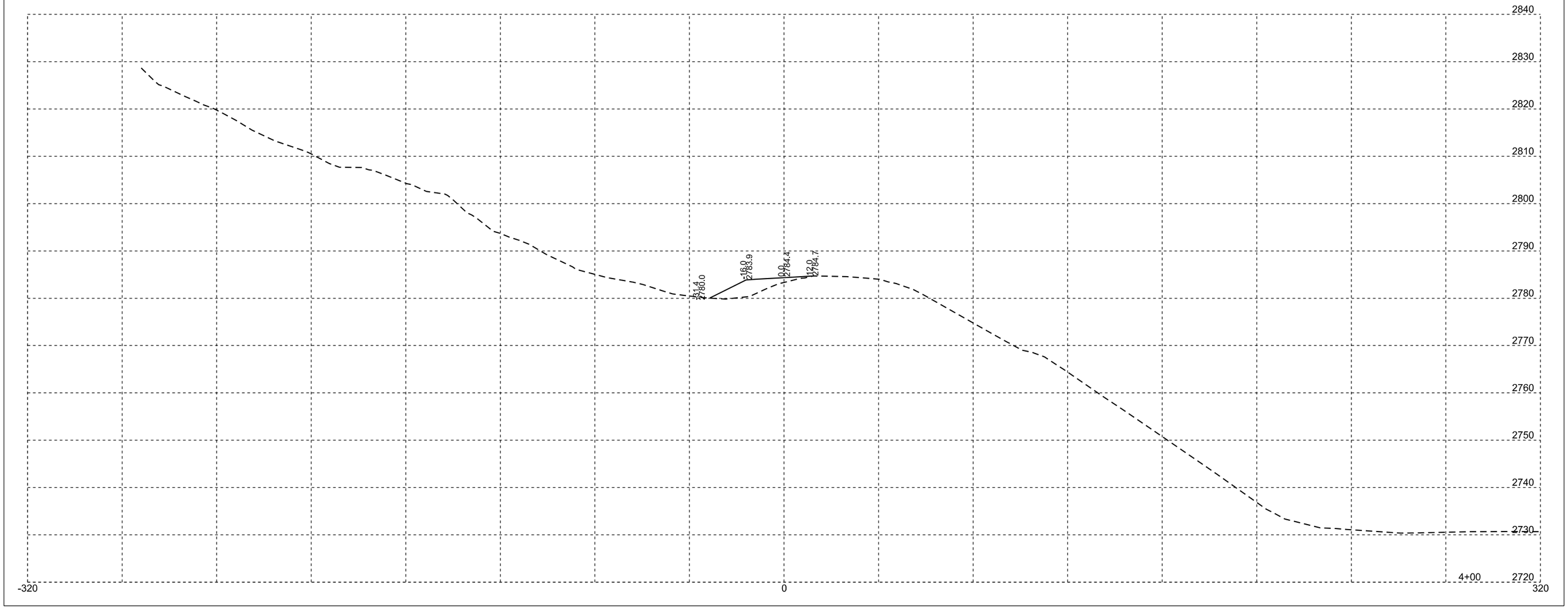
Plotting Date: 10/22/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	11	27



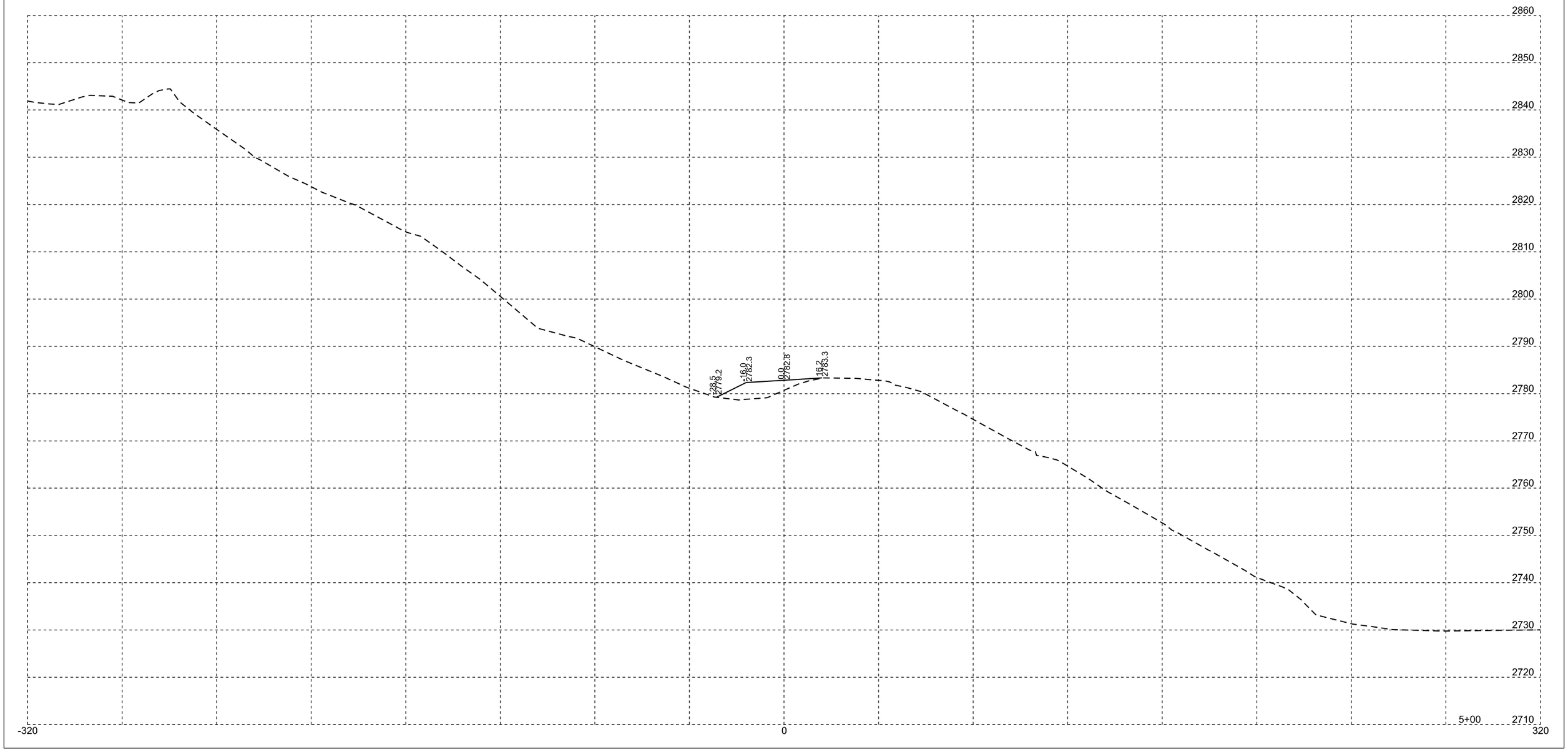
Plotting Date: 10/22/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	12	27



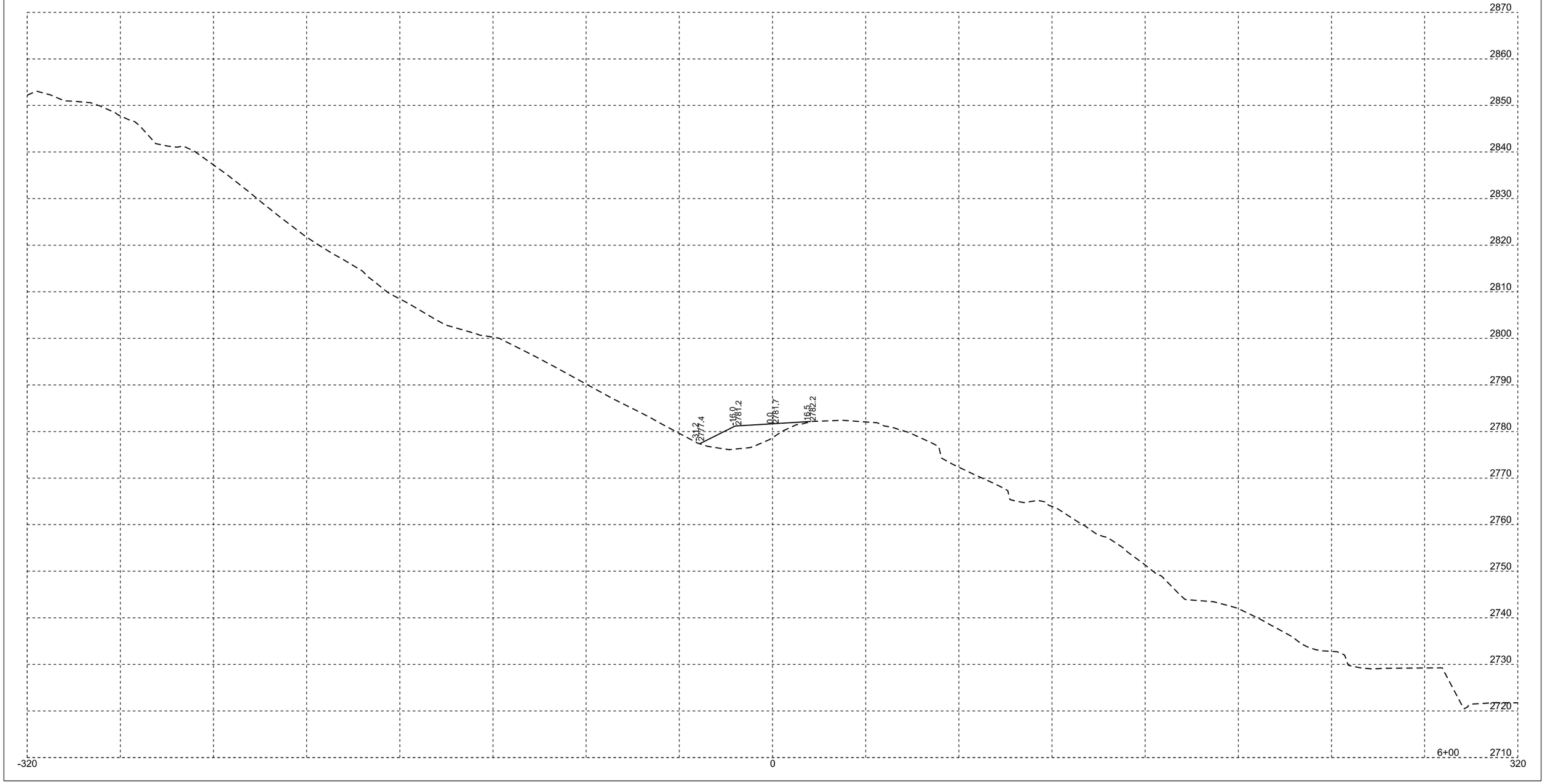
Plotting Date: 10/22/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	13	27



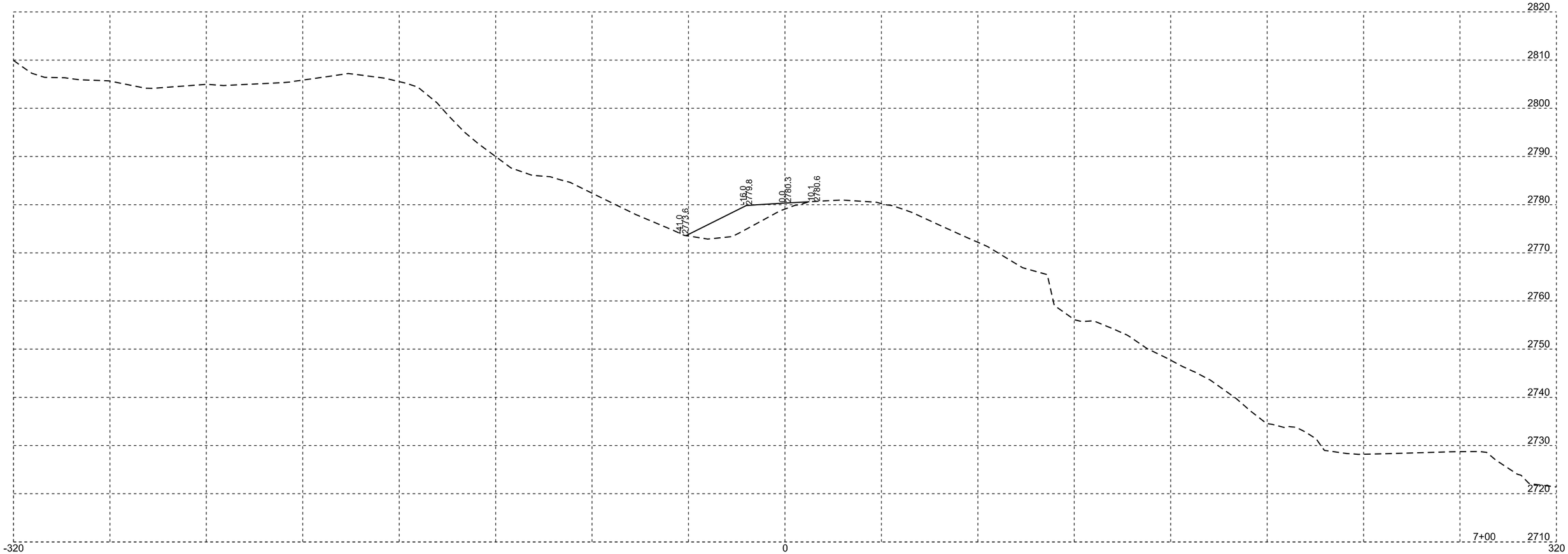
Plotting Date: 10/22/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	14	27



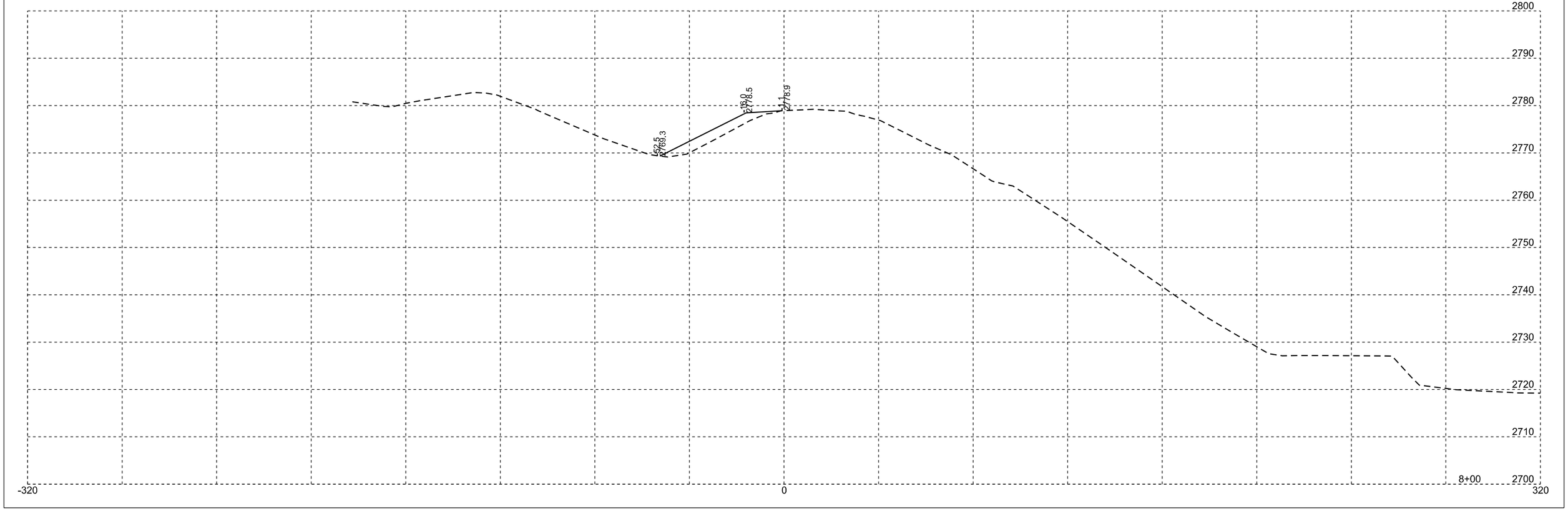
Plotting Date: 10/22/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	15	27



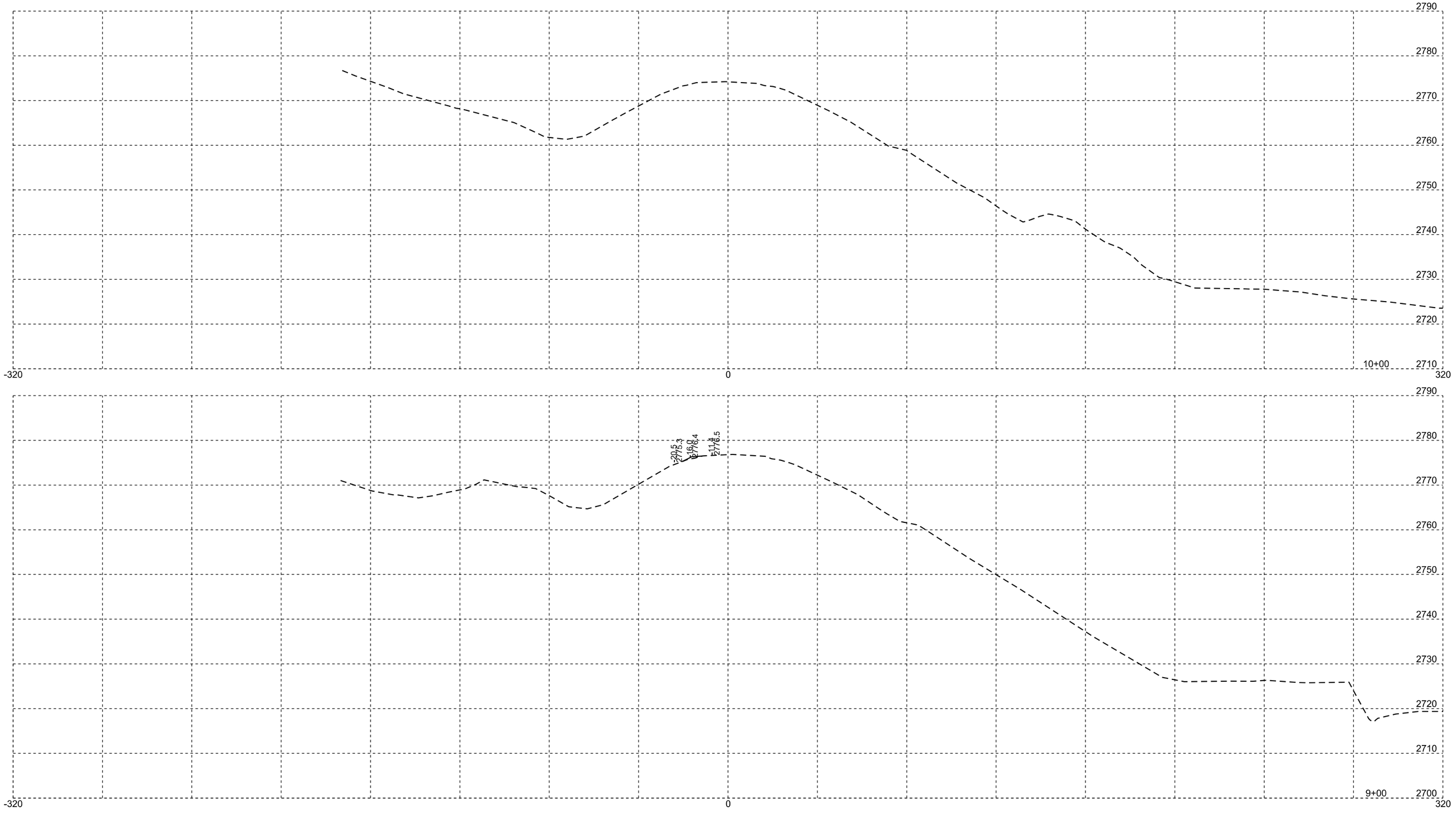
Plotting Date: 10/22/2015

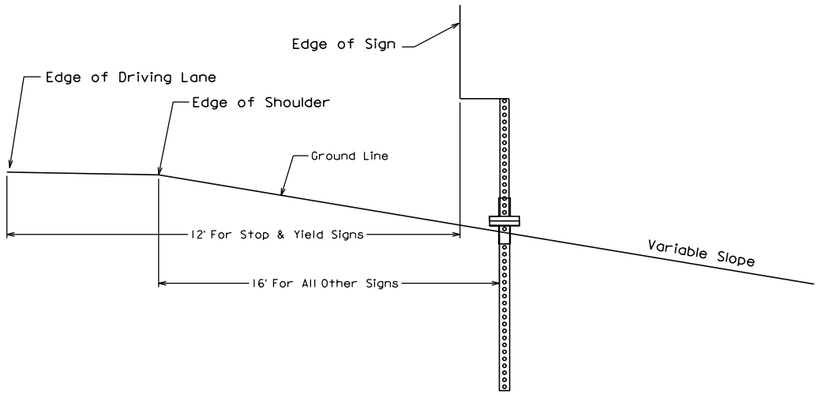
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	16	27



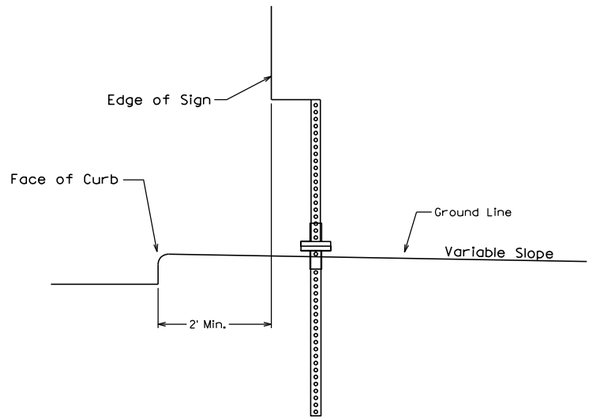
Plotting Date: 10/22/2015

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	17	27



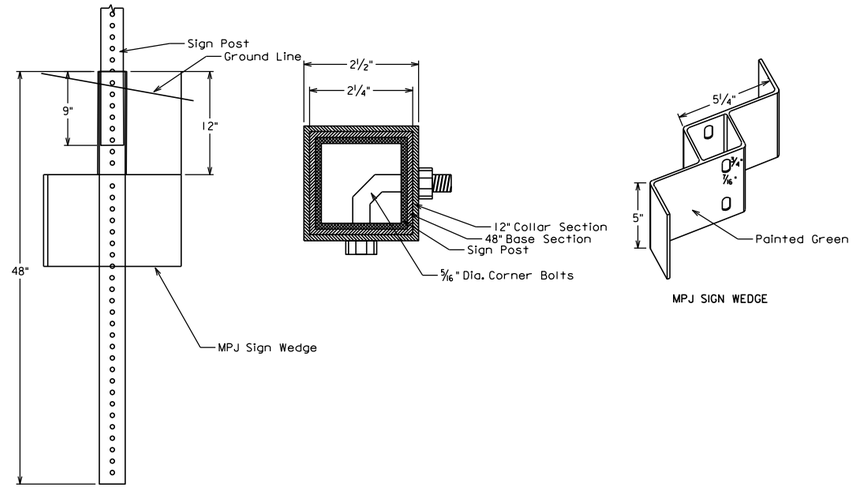


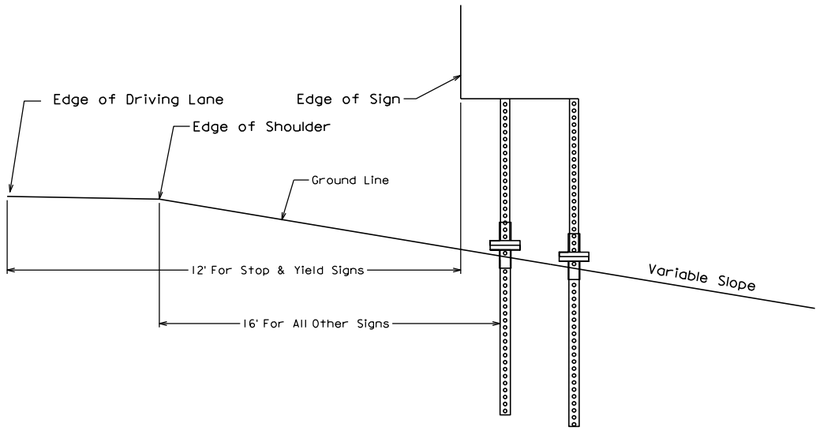
RURAL LOCATION WITH 1 POST
(Drawing shown from face of sign)



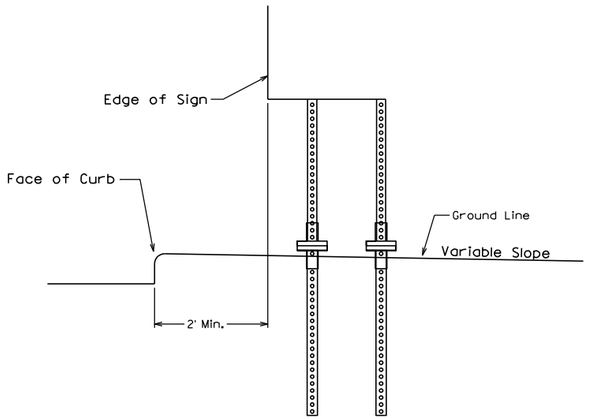
URBAN LOCATION WITH 1 POST
(Drawing shown from face of sign)

SIGN BASE DETAILS FOR A 2" SIGN POST





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



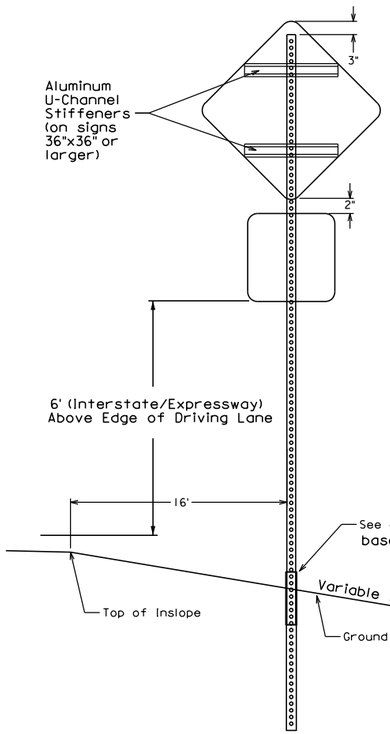
URBAN LOCATION WITH 2 POSTS
(Drawing shown from face of sign)

LATERAL LOCATION FOR RURAL SIGNS

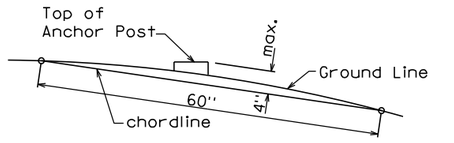
LATERAL LOCATION FOR URBAN SIGNS

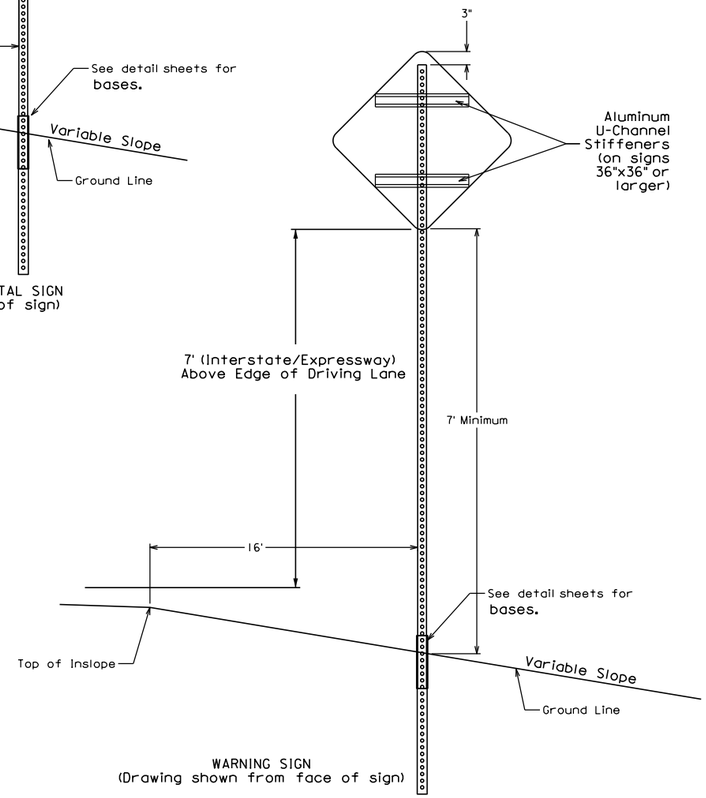
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0040(00)68	19	27

Plotting Date: 10/20/2015



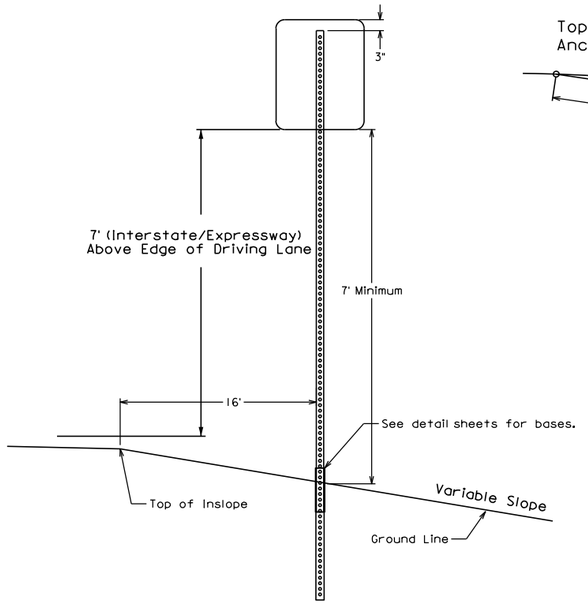
WARNING SIGN WITH SUPPLEMENTAL SIGN
(Drawing shown from face of sign)



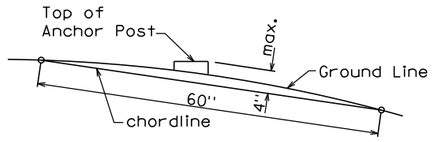


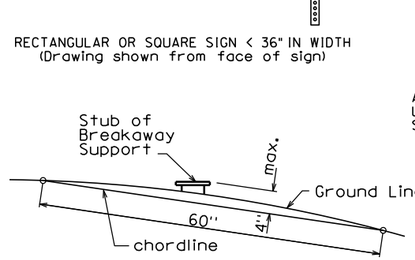
WARNING SIGN
(Drawing shown from face of sign)

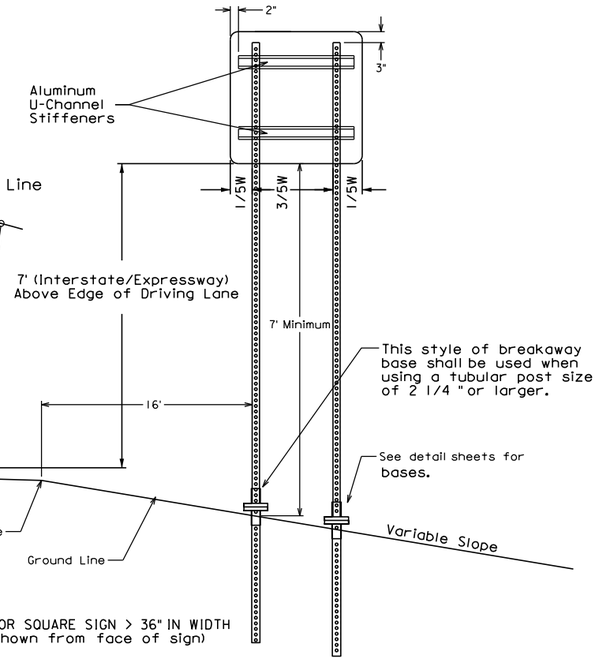
TYPICAL ERECTION DETAILS FOR WARNING SIGNS



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

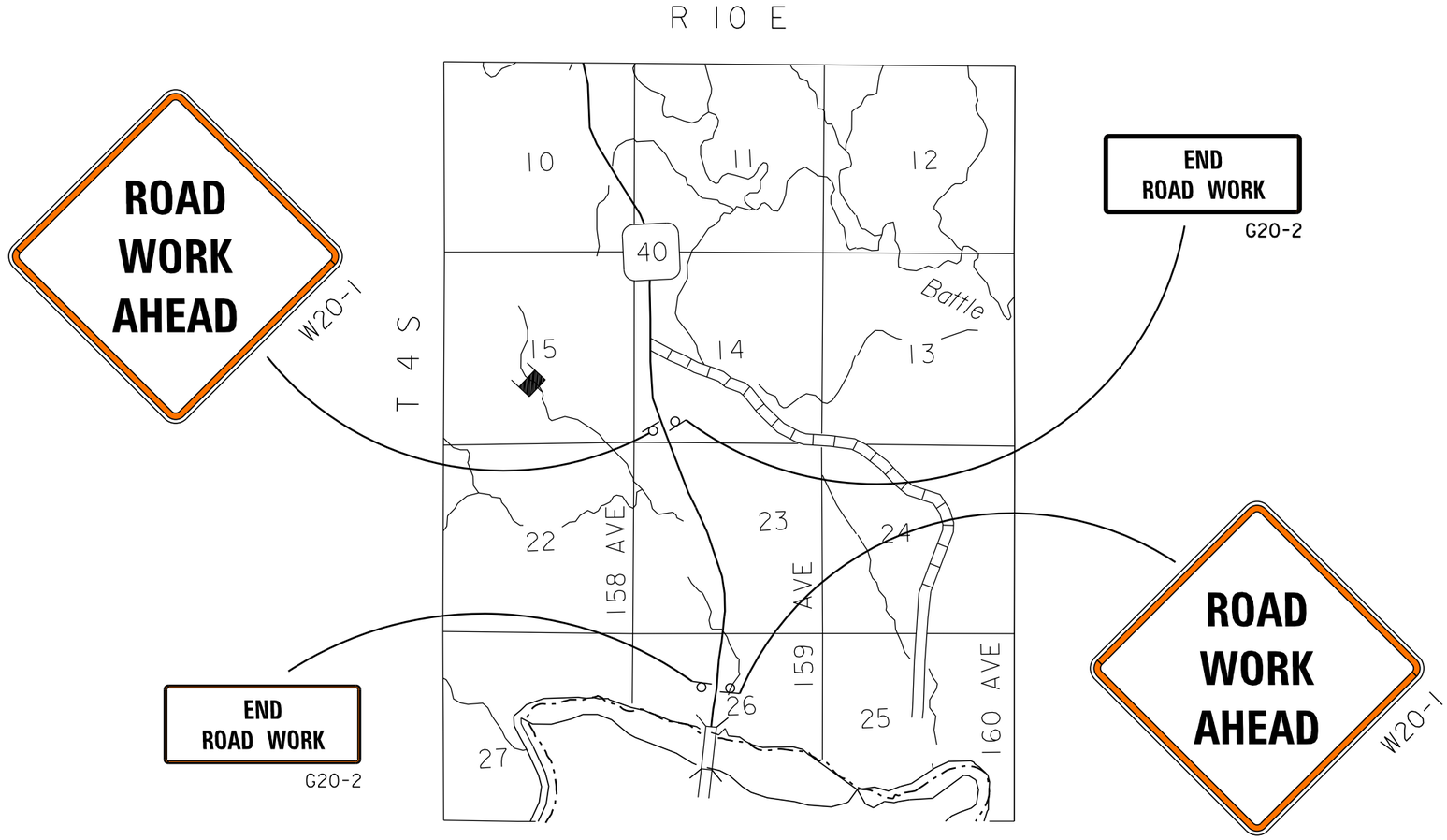
Plotted From - trrc12695

File - ...\tawr03\rv-Sign Support Standards.dgn

FIXED LOCATION SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(00)68	20	27

Plotting Date: 10/22/2015



Plot Scale - 1:200

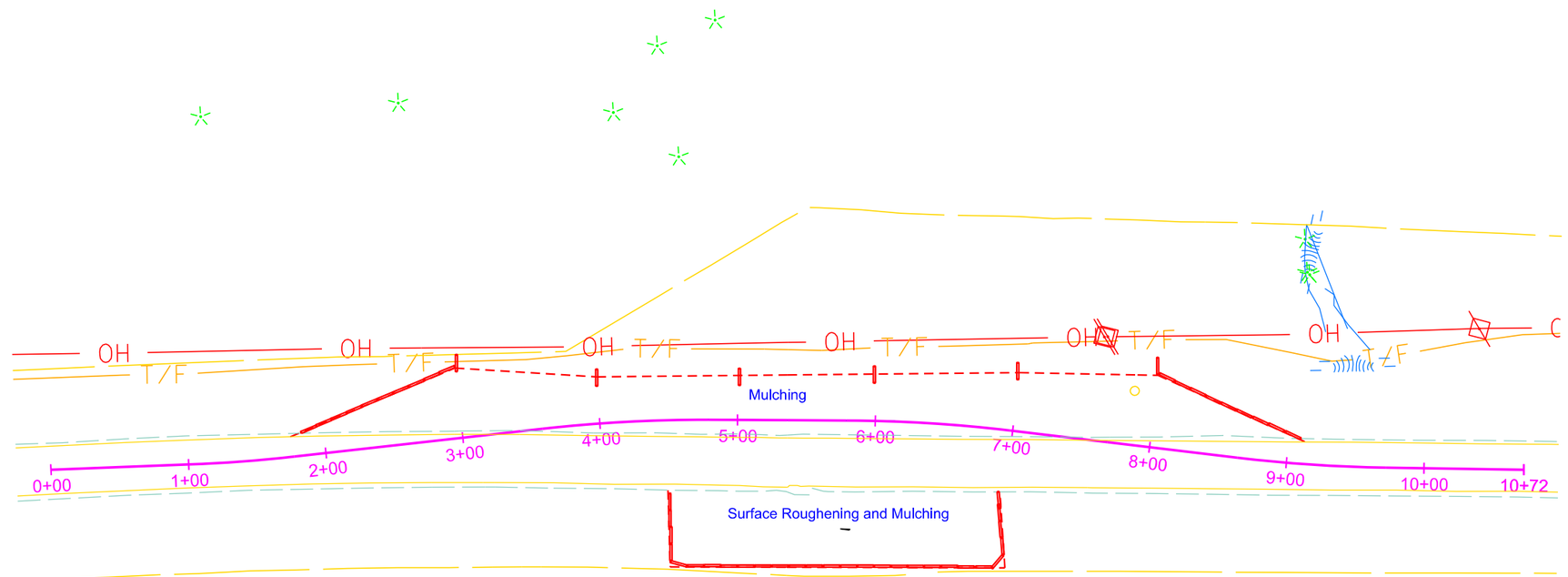
Plotted From - TRRC12608

File - ...\Design\05KH_Titledgn.dgn

EROSION CONTROL

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(00)68	21	27

Plotting Date: 10/22/2015



POB 0+00.00
N 504303.740
E 1291664.884

PI 1+38.47
N 504171.063
E 1291704.506
Del 4°14'26" L
Dc 5°30'33"
T 38.50
L 76.97
R 1040.00

PI 4+18.43
N 503909.433
E 99562.313
Del 6°38'25" R
Dc 5°30'33"
T 60.33
L 120.53
R 1040.00

PI 6+38.53
N 503695.954
E 1291858.374
Del 6°33'40" R
Dc 5°30'33"
T 59.61
L 119.09
R 1040.00

PI 9+18.40
N 503418.456
E 1291895.728
Del 5°58'03" L
Dc 5°30'33"
T 54.21
L 108.32
R 1040.00

POE 10+72.46
N 503268.645
E 1291932.066

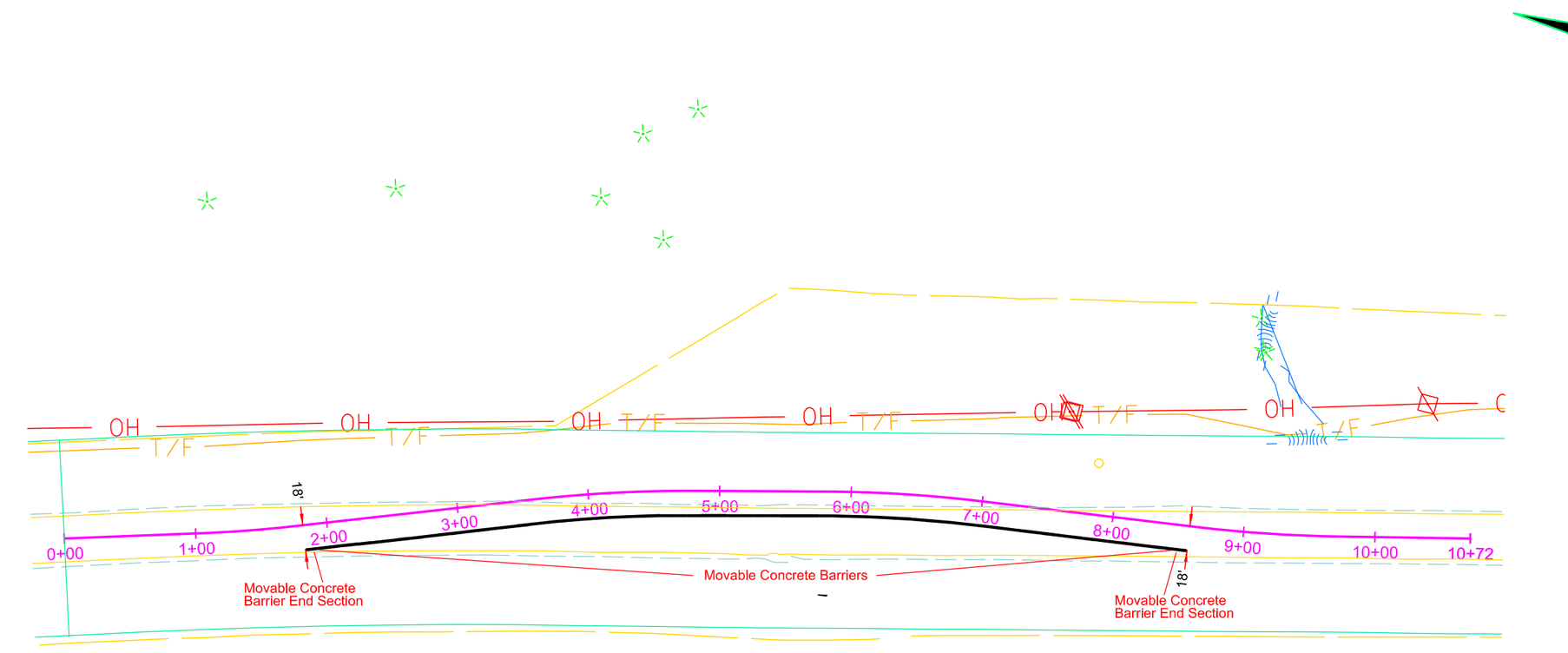
12" Erosion Control Wattle

12" Erosion Control Wattle	
1+75 16' L to 3+00 51' L	140 Ft
4+00 L	12 Ft
5+00 L	12 Ft
6+00 L	12 Ft
7+00 L	12 Ft
8+00 53' L to 9+13 16' L	130 Ft
4+50 R to 6+90 R	352 Ft

MOVABLE CONCRETE BARRIER LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(00)68	22	27

Plotting Date: 10/22/2015



POB 0+00.00
N 504303.740
E 1291664.884

PI 1+38.47
N 504171.063
E 1291704.506
Del 4°14'26" L
Dc 5°30'33"
T 38.50
L 76.97
R 1040.00

PI 4+18.43
N 503909.433
E 99562.313
Del 6°38'25" R
Dc 5°30'33"
T 60.33
L 120.53
R 1040.00

PI 6+38.53
N 503695.954
E 1291858.374
Del 6°33'40" R
Dc 5°30'33"
T 59.61
L 119.09
R 1040.00

PI 9+18.40
N 503418.456
E 1291895.728
Del 5°58'03" L
Dc 5°30'33"
T 54.21
L 108.32
R 1040.00

POE 10+72.46
N 503268.645
E 1291932.066

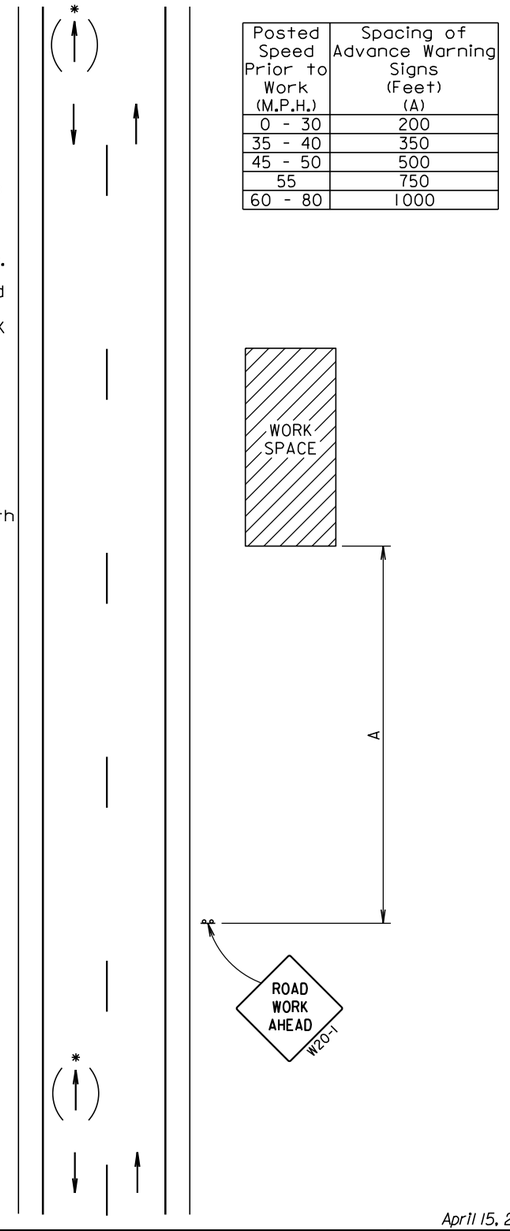
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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

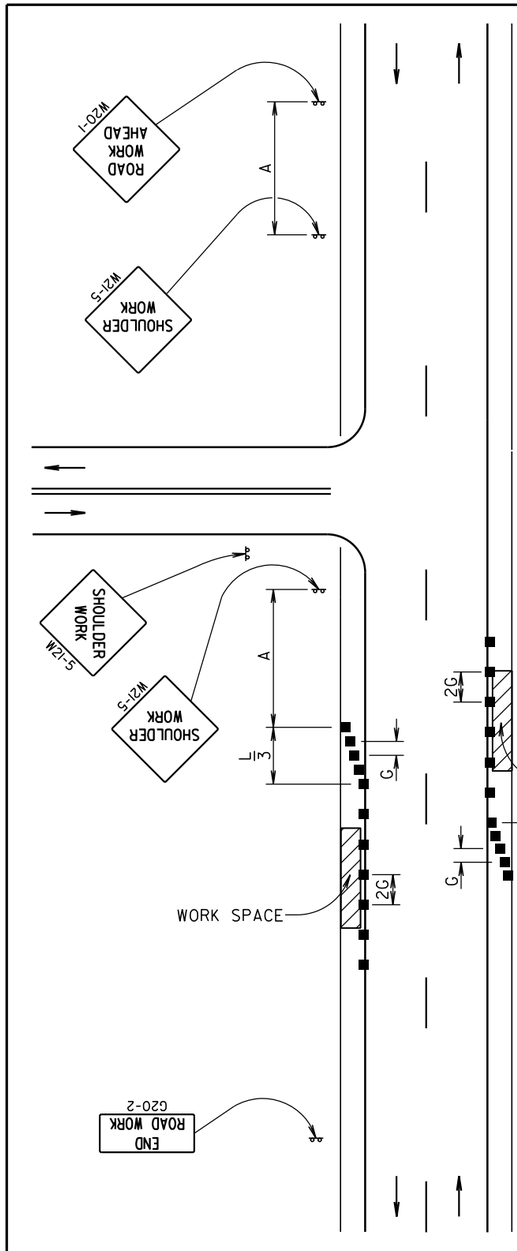
Published Date: 3rd Qtr. 2015

SDDOT

GUIDES FOR TRAFFIC CONTROL DEVICES
WORK BEYOND THE SHOULDER

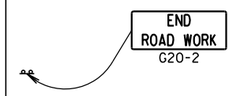
PLATE NUMBER 634.01

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: 3rd 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.

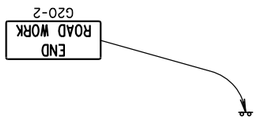
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

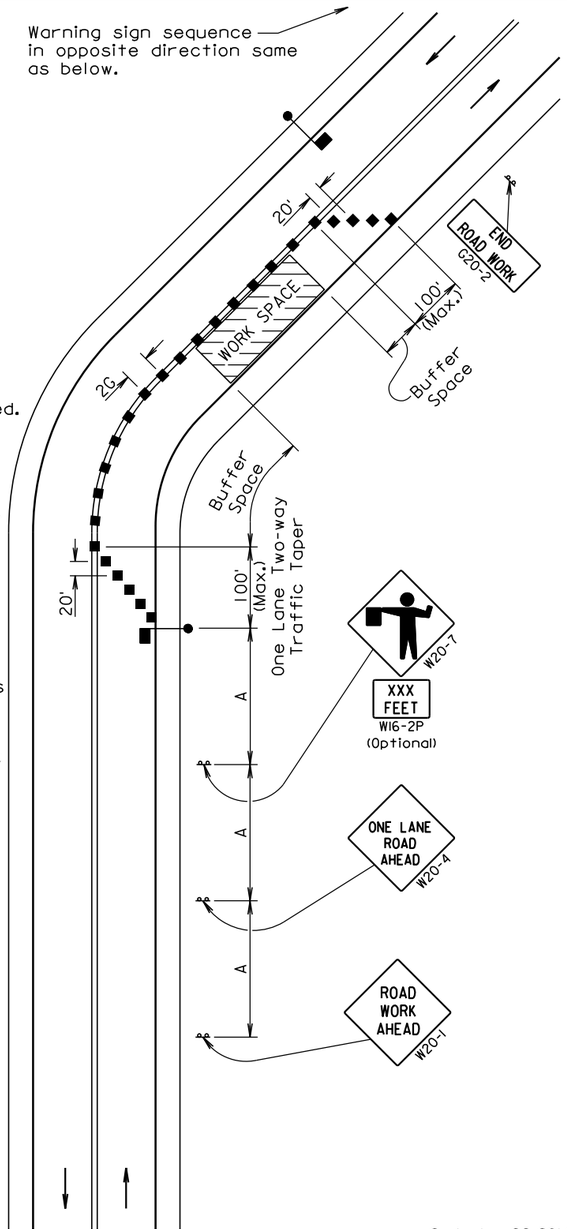
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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.

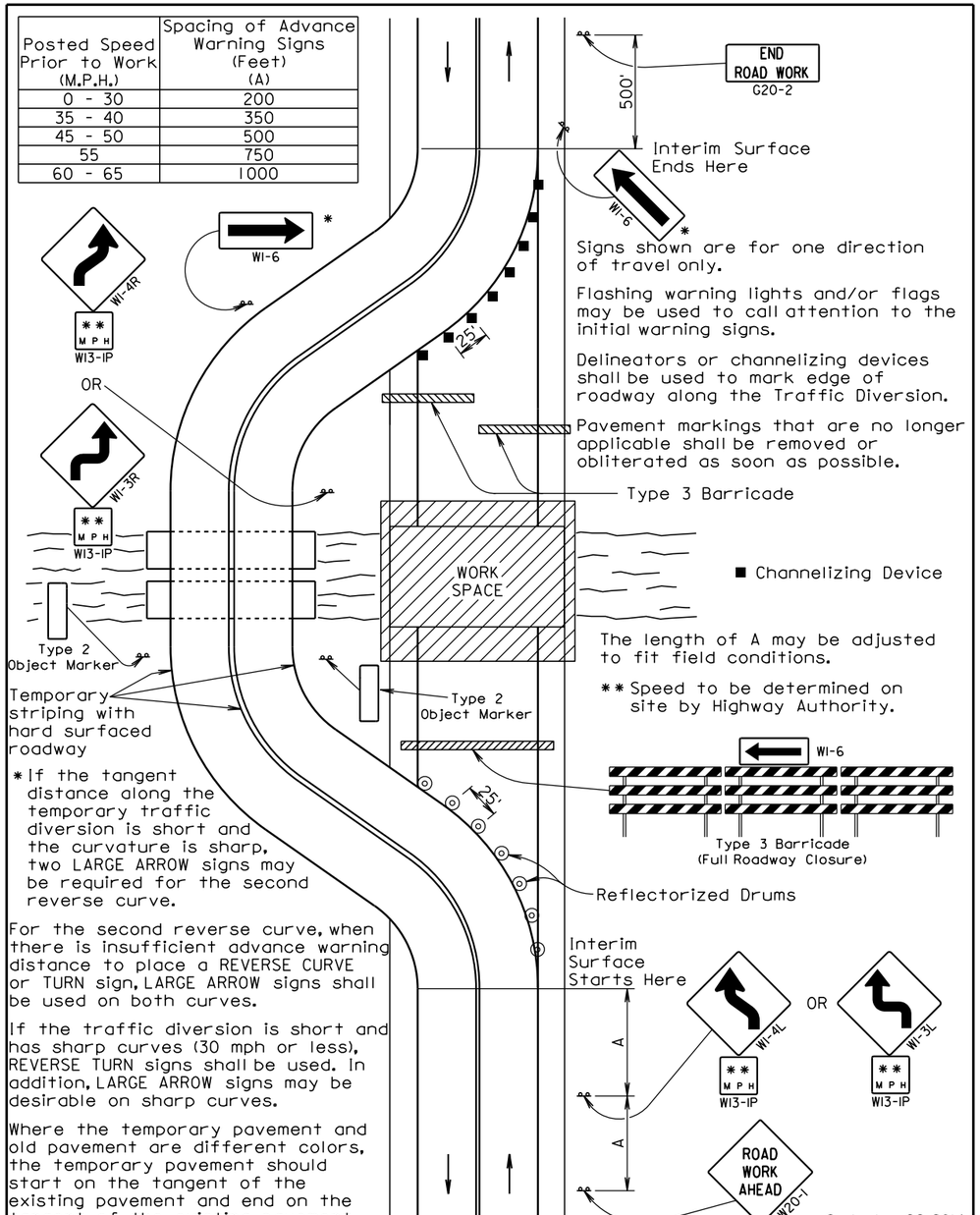
The length of A may be adjusted to fit field conditions.



September 22, 2014

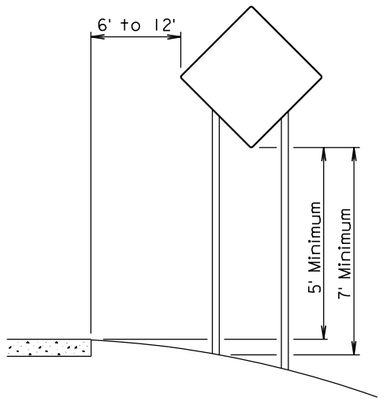
Published Date: 3rd Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

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 - 65	1000

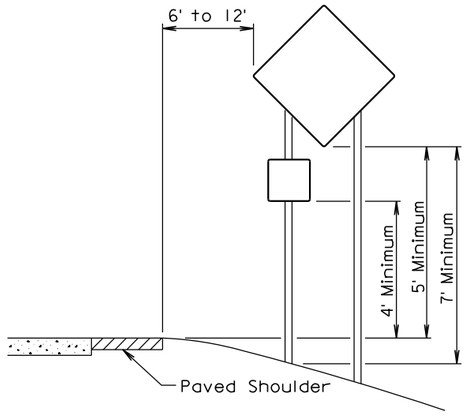


September 22, 2014

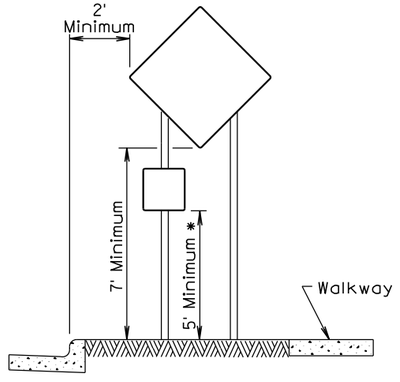
Published Date: 3rd Qtr. 2015	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES ROAD CLOSED WITH TRAFFIC DIVERTED	PLATE NUMBER 634.28
			Sheet 1 of 1



RURAL DISTRICT

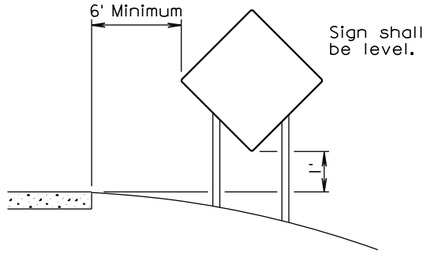


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

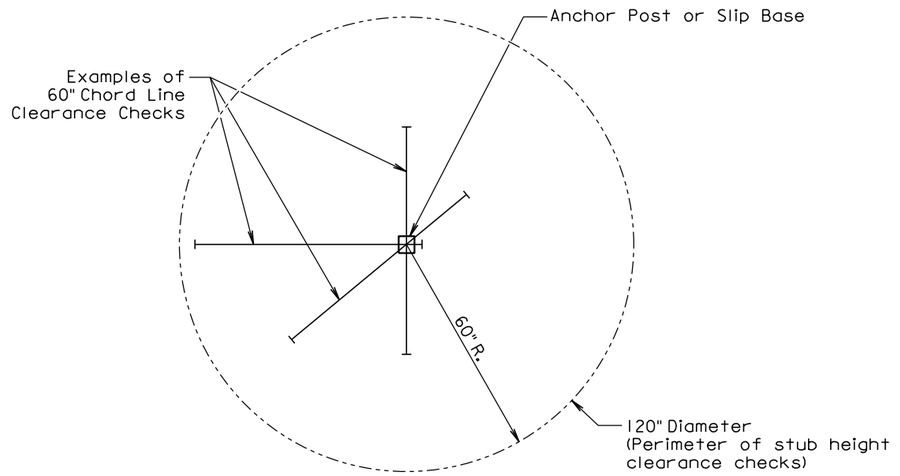
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



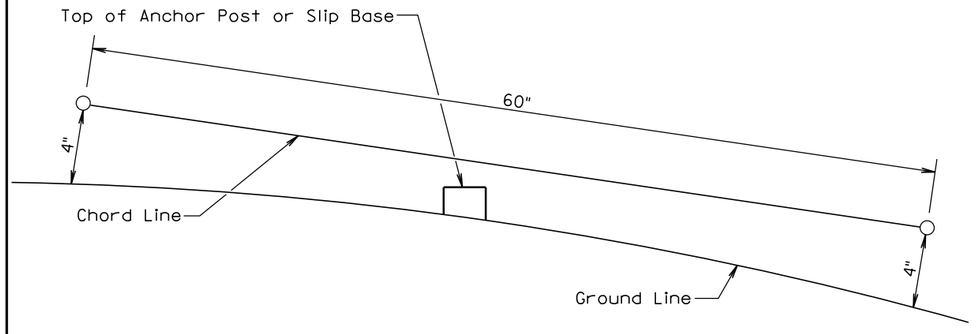
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 3rd 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:

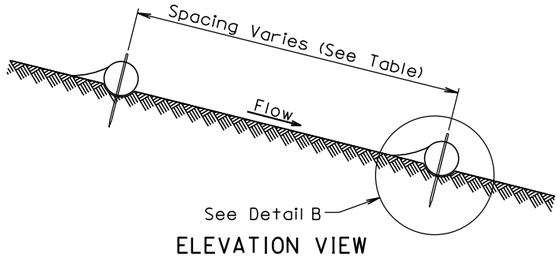
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

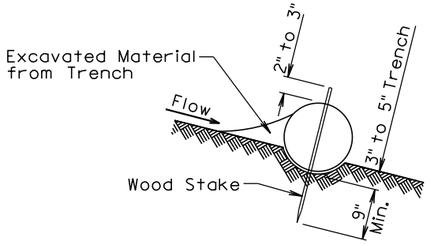
July 1, 2005

Published Date: 3rd Qtr. 2015	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

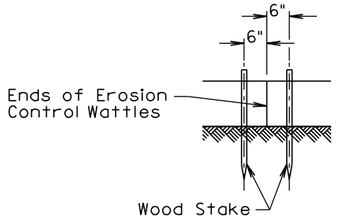


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

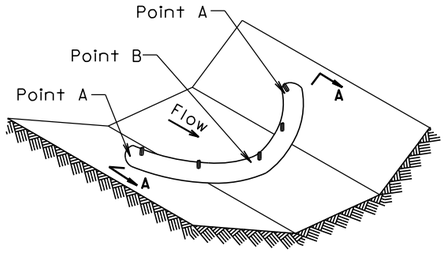
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



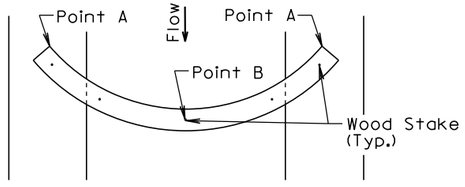
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

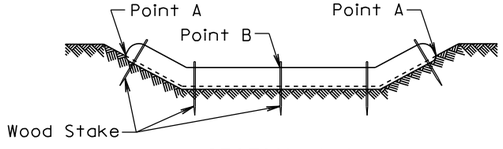


ISOMETRIC VIEW
DITCH INSTALLATION



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: 3rd 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".

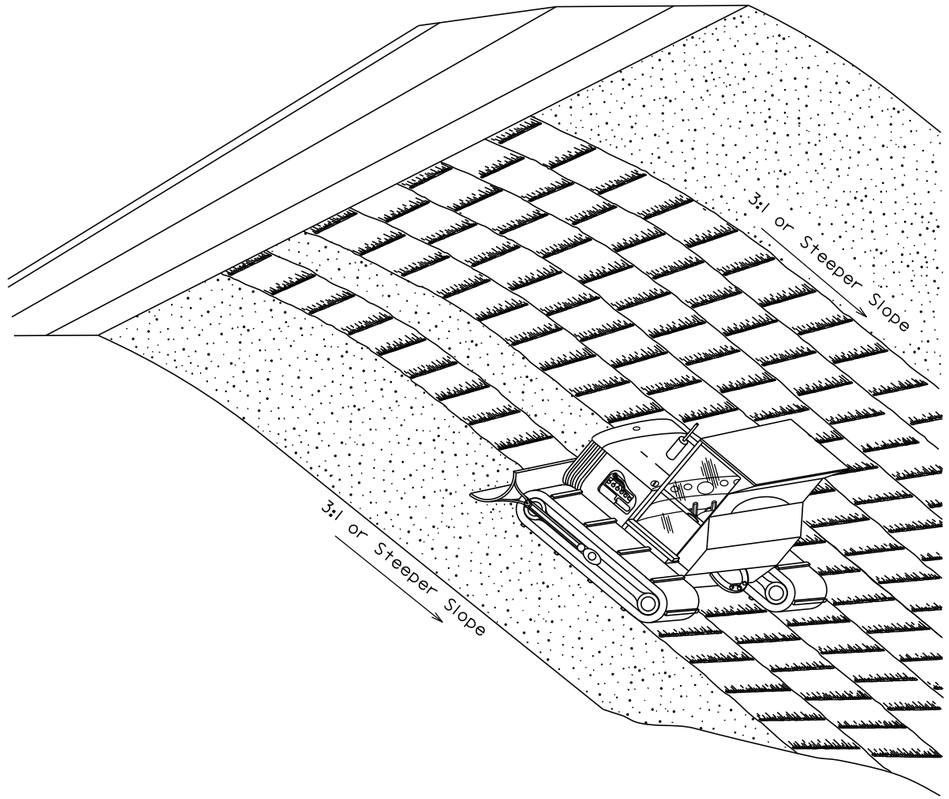
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

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: 3rd Qtr. 2015	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0040(00)68	27	27



GENERAL NOTES:

Where practical, surface roughening shall be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

The equipment used for surface roughening shall be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening shall be approved by the Engineer.

Measurement for surface roughening shall be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials shall be incidental to the contract unit price per acre for "Surface Roughening".

June 26, 2009

Published Date: 3rd Qtr. 2015	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25
			Sheet 1 of 1