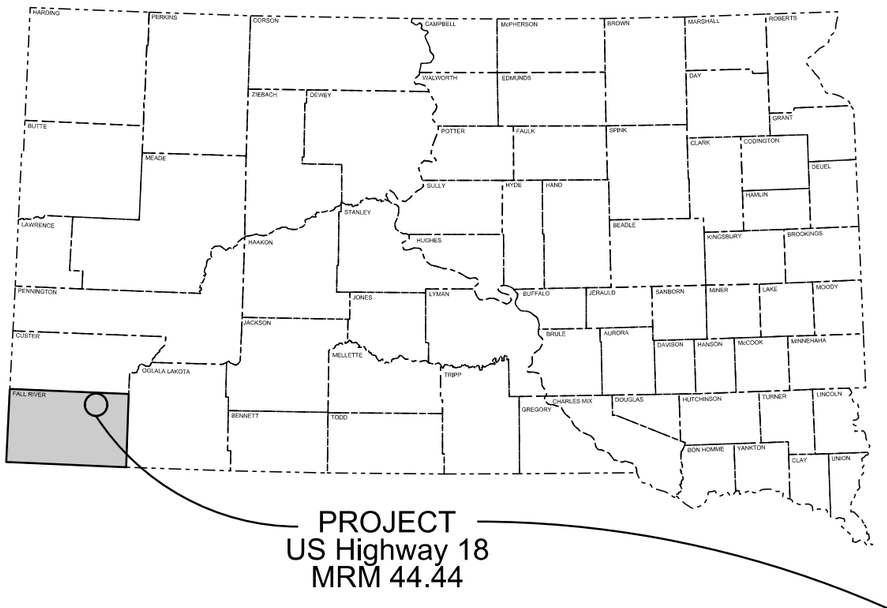
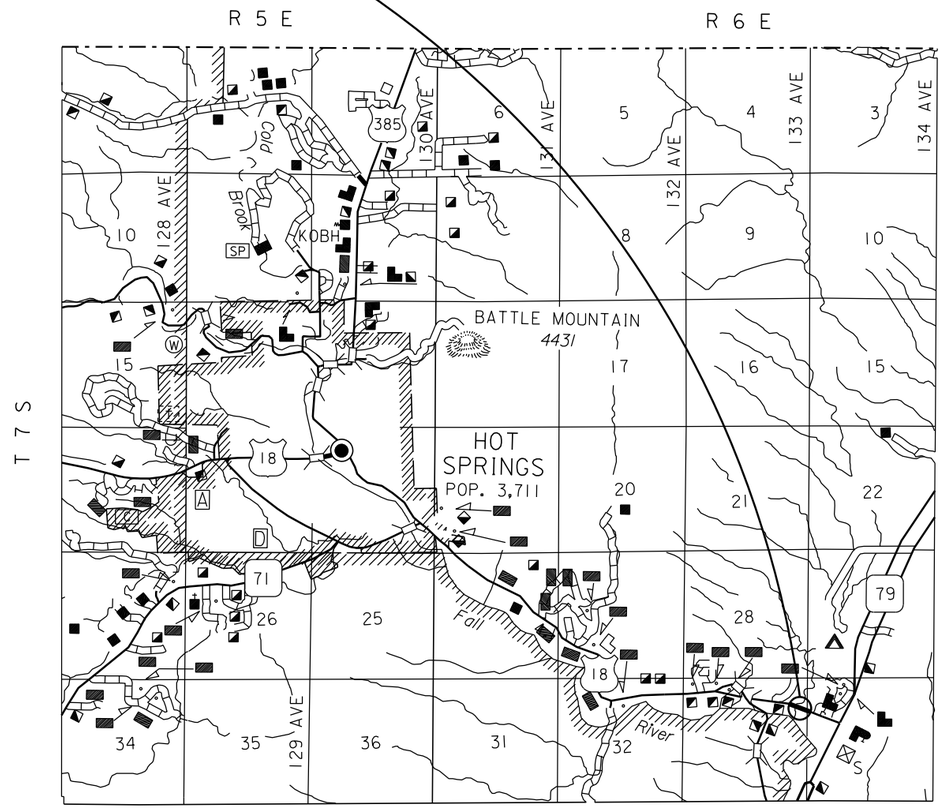


PROJECT
US Highway 18
MRM 44.44



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT 018-492
US HIGHWAY 18
FALL RIVER COUNTY

EROSION CONTROL
PCN i4kn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	1	21

Plotting Date: 04/06/2017

INDEX OF SHEETS

DESIGN DESIGNATION

ADT (2016)	4702
ADT (2036)	5957
DHV	1513
D	51%
T DHV	5.4%
T ADT	11.9%
V	50 mph

STORM WATER PERMIT

None Required

Plot Scale - 1:200
Plotted From - trrc12608
File - ...title.dgn

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E7802	Remove Fence for Reset	263	Ft
120E0010	Unclassified Excavation	388	CuYd
120E6100	Water for Embankment	11.0	MGal
230E0100	Remove and Replace Topsoil	Lump Sum	LS
620E1020	2 Post Panel	2	Each
620E4100	Reset Fence	263	Ft
634E0010	Flagging	20.0	Hour
634E0110	Traffic Control Signs	116.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Board	1	Each
720E1015	Bank and Channel Protection Gabion	140.0	CuYd
* 730E0210	Type F Permanent Seed Mixture	6	Lb
731E0100	Fertilizing	400	Lb
732E0250	Fiber Mulching	850	Lb
734E0133	Type 3 Turf Reinforcement Mat	720.0	SqYd
734E0154	12" Diameter Erosion Control Wattle	110	Ft
831E0110	Type B Drainage Fabric	500	SqYd

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 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 Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for 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 Public 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 Public 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.

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 ditches is 534 CuYds.

permanent fence shall be placed as directed by the Engineer.

UTILITIES

The Contractor shall be responsible for locating and protecting any utility that would conflict with any work. Utilities are not planned to affected on this project. If utilities are identified to be affected 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.

SEQUENCE OF OPERATIONS

The intent of the plan sequence of operations is to have the least amount of impact on the traveling public and adjacent landowners. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of two weeks prior to potential implementation. Work shall proceed according to the following sequence or as approved by the Engineer:

1. Set up temporary traffic control.
2. Remove existing fence for reset.
3. Place wattles.
4. Excavate ditch.
5. Place embankment.
6. Place Bank and Channel Protection Gabions..
7. Place erosion control measures.
8. Reset fence.
9. Remove temporary traffic control.

HORIZONTAL ALIGNMENT DATA

Mainline Horizontal Alignment

Type	Station			Northing	Easting
POB	61+00.00			404387.743	1152752.590
		TL=600.00	S 67^20'57" E		
POE	67+00.00			404156.673	1153306.319

Ditch Horizontal Alignment

Type	Station			Northing	Easting
POB	0+00.00			404133.843	1153128.662
		TL= 53.05	N 69^53'55" W		
PC	0+53.05			404152.075	1153078.843
PI	1+23.91	R = 190.00	Delta = 40^54'28" L	404176.430	1153012.296
PT	1+88.71			404151.259	1152946.054
		TL=0.69	S 69^11'38" W		
PC	1+89.40			404151.010	1152945.407
PI	2+05.33	R = 85.00	Delta = 21^13'46" L	404145.355	1152930.516
PT	2+20.89			404134.688	1152918.685
		TL=41.37	S 47^57'52" W		
PC	2+62.26			404106.989	1152887.960
PI	2+97.72	R = 500.00	Delta = 8^06'45" R	404083.247	1152861.625
PT	3+33.05			404063.459	1152832.203
		TL=8.65	S 56^04'37" W		
PC	3+41.7			404058.630	1152825.022
PI	3+51.22	R = 100.00	Delta = 10^52'02" R	404053.321	1152817.129
PT	3+60.67			404049.596	1152808.377
		TL=5.11	S 66^56'40" W		
PC	3+65.79			404047.595	1152803.675
PI	3+76.16	R = 50.00	Delta = 23^27'00" R	404043.531	1152794.127
PT	3+86.25			404043.602	1152783.750
		TL=13.75	N 89^36'21" W		
POE	4+00.00			404043.697	1152770.002

SHRINKAGE FACTOR: Embankment +20%

UNCLASSIFIED EXCAVATION

Unclassified Excavation is provided on the project for constructing the armored ditch in accordance with the typical section and cross-sections.

Plans quantity shall be the basis of payment for the Unclassified Excavation quantity. If changes are made in the field during construction, measurements shall be taken and the quantity shall be adjusted accordingly.

The Contractor shall salvage gabion rock and stockpile approximately 200 yards south of the project on the landowner's property as directed by the Engineer.

Table of Earthwork Quantities				
Ditch		Unclassified Excavation	*Embankment	Water for Embankment
Station	to Station	(CuYd)	(CuYd)	(Mgal)
0+00	4+00	388	534	11
* For informational purposes only				

Table of Bank and Channel Gabion Quantities			
Ditch		Bank And Channel Protection Gabions	Type B Drainage Fabric
Station	to Station	(CuYd)	(SqYd)
0+00	4+00	140	500

Table of Fence Quantities				
Mainline		Remove Fence for Reset	Reset Fence	2 Post Panel
Station	to Station	(Ft)	(Ft)	(Each)
63+01	65+64	263	263	2

TRAFFIC CONTROL – GENERAL NOTES

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

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.

Non-applicable traffic control devices shall be completely covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 2 calendar days.

All regulatory signs shall have a minimum mounting height of 5’ in rural locations, even when mounted on portable supports.

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

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

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.

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

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.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	3	48" x 48"	16.0	48.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	1	48" x 48"	16.0	16.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
W21-5	SHOULDER WORK	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	36" x 18"	4.5	4.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			116.5

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

REMOVE AND REPLACE TOPSOIL

Topsoil shall be salvaged from the work area and stockpiled prior to construction activities 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 223 CuYd.

All costs 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.

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 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% (P2O5) available phosphate, a minimum of 4% (K2O) 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 fertilizer shall be applied at a rate of 2,000 pounds per acre in accordance with the manufacturer’s recommended method of application.

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 www.sustane.com

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the areas where bank and channel protection gabions have been placed.

If Permanent Seeding fails to grow, the project limits shall be re-seeded until adequate vegetation is re-established. All costs for re-seeding shall be the responsibility of the Contractor.

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

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations shown on the plan sheet 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

TURF REINFORCEMENT MAT

Turf reinforcement mat shall be installed 8 feet wide at the locations shown on the plan sheet and at locations determined by the Engineer during construction.

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

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

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 3,000 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 Quantities

Ditch		Fertiizing	Type F Permanent Seed Mixture	Fiber Mulching	12" Diameter Erosion Control Wattle	Type 3 Turf Reinforcement Mat
Station	to Station	(Lb)	(Lb)	(Lb)	(Ft)	(SqYd)
0+00	4+00	400	6	850	110	720

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	6	21

Plotting Date: 04/06/2017

63+01 - 65+64
Remove Fence for Reset

63+01 - 65+64
Reset Fence with
2 - 2Post Panels
flanking the Gabion
lined ditch.

0+00 - 4+00 Install
Bank and Channel
Protection Gabions
(140.0 CuYd)

0+00 - 4+00 Install
Type 3 Turf Reinforcement Mat
(720.0 SqYd)

3+40 - 4+00 Install
12" Erosion Control Watle
(110.0 Ft)

US Highway 18 Mainline Alignment

1+00 62+00 63+00 64+00 65+00 66+00 67+0

Sec. 33 - T7s - R6E

Sec. 34 - T7s - R6E

Section Line

66+39.51

33'

Ditch Alignment

00+0

00+57

00+72

00+86

01+00

ROW Line

ROW Line

65+64
100'

65+15
139'

64+11
161'

62+94
302'

63+34
304'

Parcel 1
63+01 to 65+64 R
Temporary Easement
containing
0.55 ac more or less

Type 3 Turf Reinforcement Mat

12" Erosion Control Wattle

Plot Scale - 1:40

Plotted From - trrc12608

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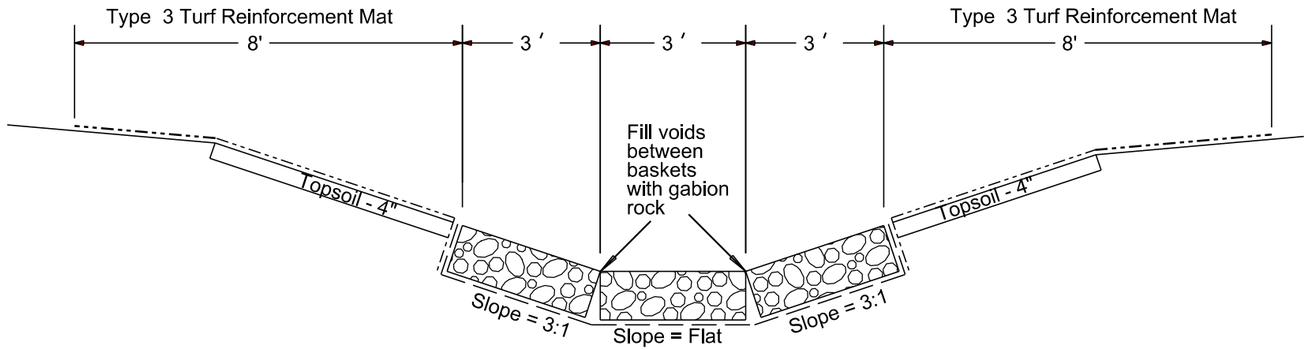
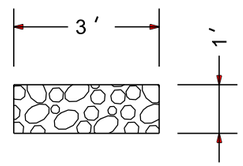
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	7	21

Plotting Date: 04/06/2017

GABION LINED CHANNEL DETAILS





Gabion Basket Cell

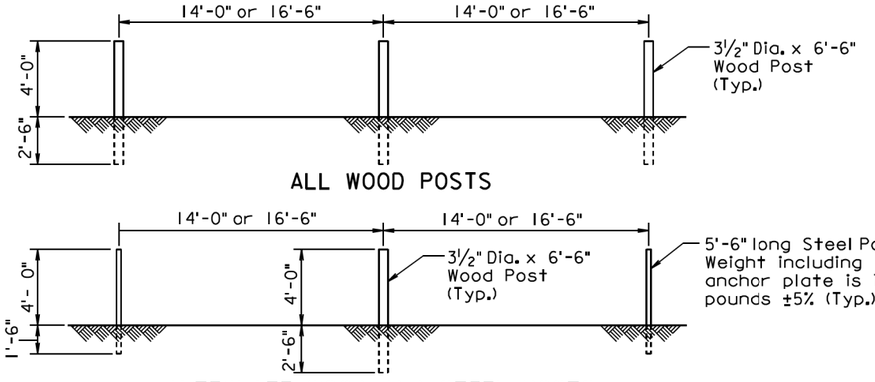
Type B Drainage Fabric

Type 3 Turf Reinforcement Mat

Plot Scale - 1:3.125

Plotted From - trnc12608

File - ...\eErosionRepair.dgn



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

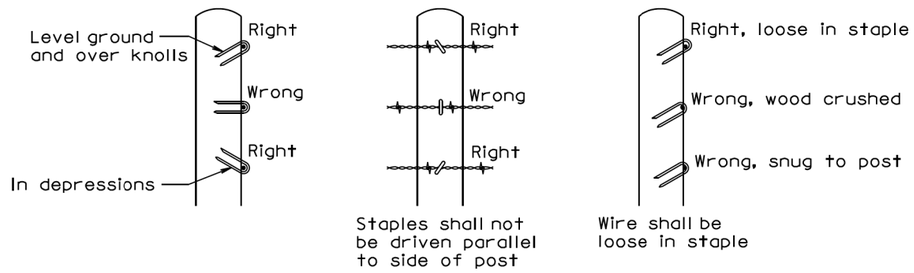
Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

September 14, 2009

Published Date: 1st Qtr. 2017	SDDOT	**RIGHT-OF-WAY FENCE**	*PLATE NUMBER* 620.01 *Sheet 1 of 1*



STAPLE INSTALLATION

GENERAL NOTES:

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

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

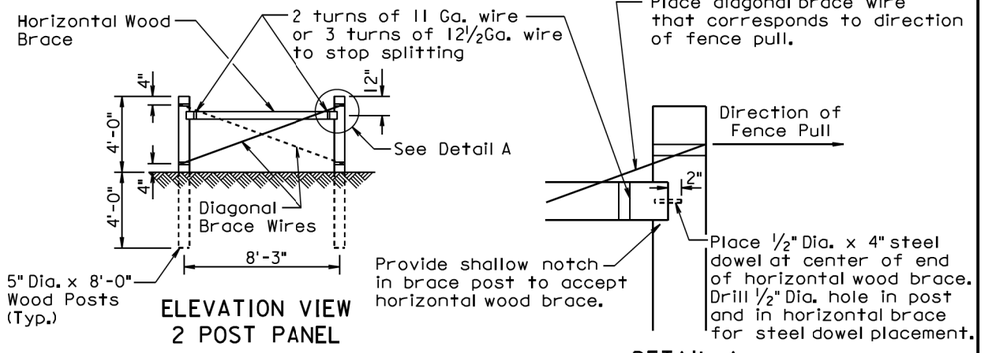
Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

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

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

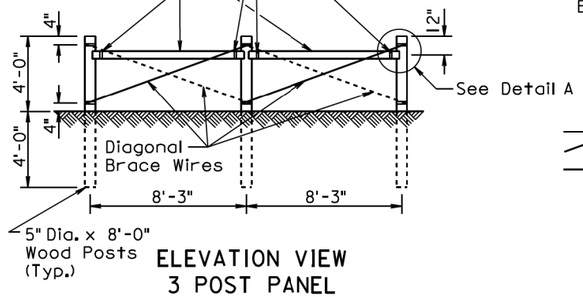
December 23, 2004

Published Date: 1st Qtr. 2017	SDDOT	**STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES**	*PLATE NUMBER* 620.02 *Sheet 1 of 1*

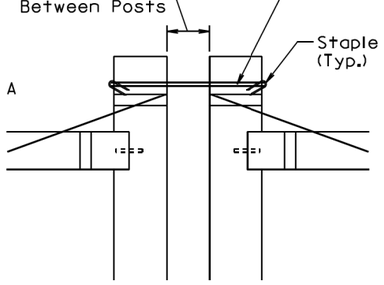


ELEVATION VIEW
2 POST PANEL

DETAIL A



ELEVATION VIEW
3 POST PANEL



DETAIL B

GENERAL NOTES:

Two Post Panels shall be installed at least every 1320' between corners.

Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

December 23, 2004

Published Date: 1st Qtr. 2017	SDDOT	**BRACE PANELS AND APPLICATIONS OF BRACE PANELS**	*PLATE NUMBER* 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	**At P.C., P.T., and at every 1320' between P.C. and P.T.

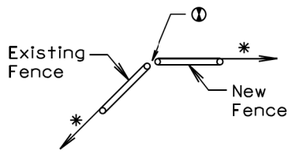
GENERAL NOTE:

All degrees of curvature stated for fence are at centerline of roadway.

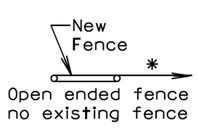
* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

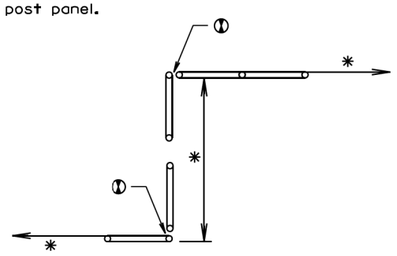
** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

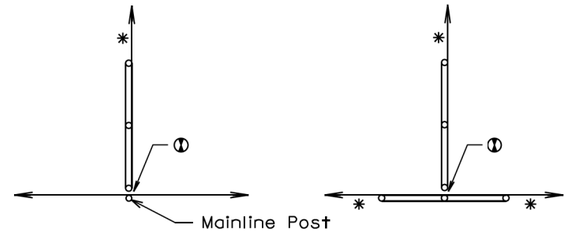


BEGIN OR END FENCE
(where new fence ties into existing fence)

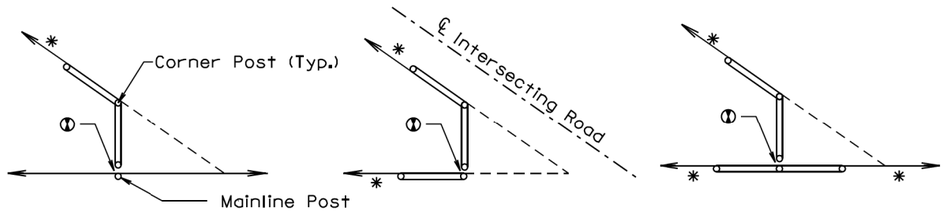




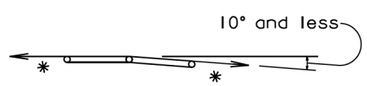
SHORT JOGS IN FENCE



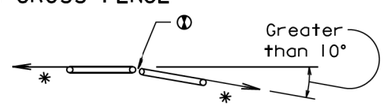
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

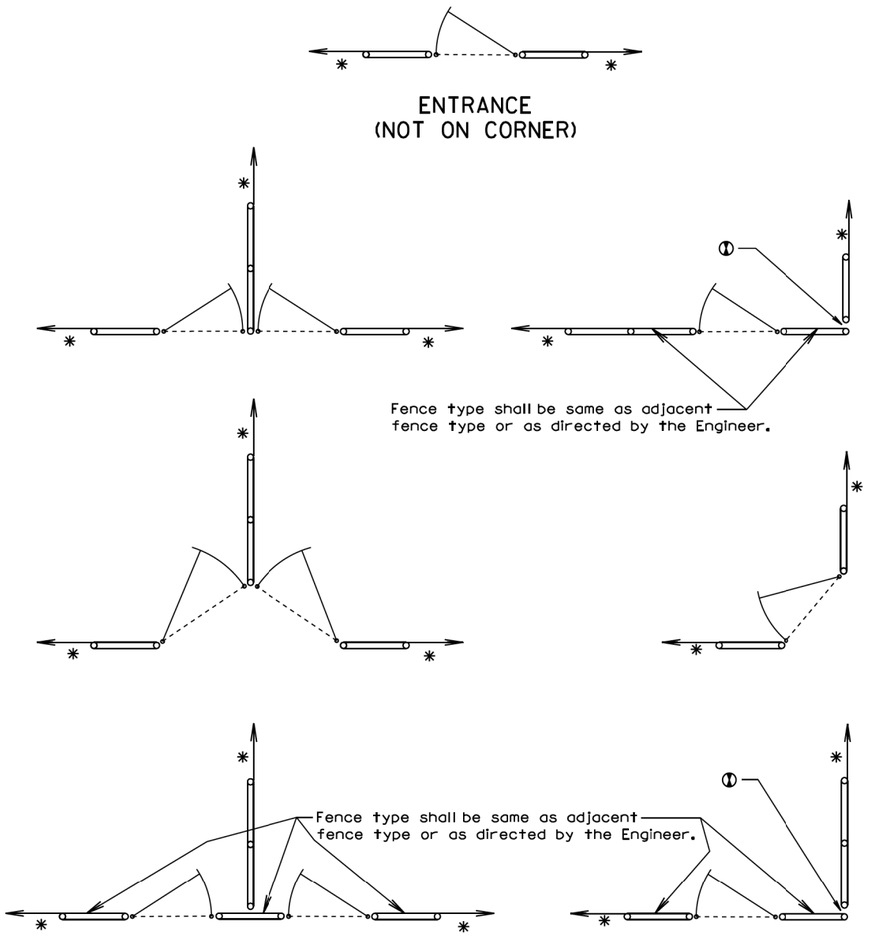


Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

December 23, 2004

Published Date: 1st Qtr. 2017	SDDOT	**BRACE PANELS AND APPLICATIONS OF BRACE PANELS**	*PLATE NUMBER* 620.03
			Sheet 2 of 3



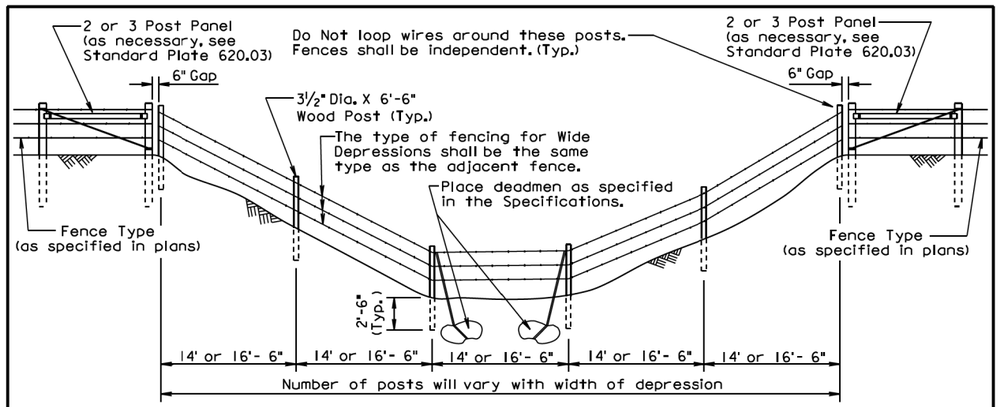
GATES

* If fence length is less than 600' to next corner use a 2 post panel.
  If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

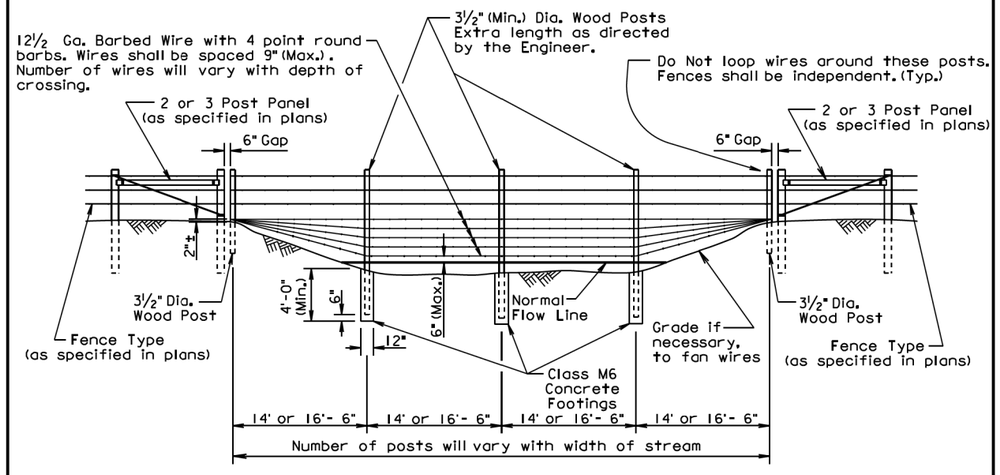
December 23, 2004

Published Date: 1st Qtr. 2017	**SDDOT**	***BRACE PANELS AND APPLICATIONS OF BRACE PANELS***	*PLATE NUMBER* 620.03 *Sheet 3 of 3*



This installation shall be made when requested by the Engineer.

FENCING AT WIDE DEPRESSION (SUBJECT TO FLOODING)



This installation shall be made only when stated in the plans.

FENCING AT STREAM CROSSING

GENERAL NOTES:

There will be no extra payment for the additional work and materials required to construct the fencing at the wide depression(s) and/or the fencing at the stream crossing(s). The deadmen shall be paid for in accordance with 620.5 A. of the Specifications.

Measurement and payment for the fencing at the wide depression(s) and/or the fencing at the stream crossing(s) shall be at the contract unit price per foot for the corresponding Right-of-Way fence bid item.

February 14, 2015

Published Date: 1st Qtr. 2017	**SDDOT**	***FENCING AT WIDE DEPRESSION(S) AND STREAM CROSSING(S)***	*PLATE NUMBER* 620.10 *Sheet 1 of 1*

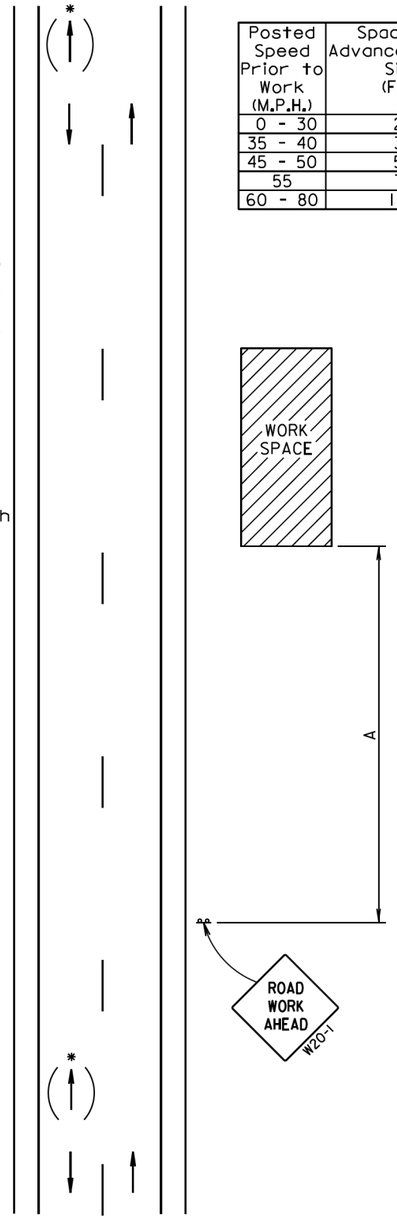
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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

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

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

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



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

April 15, 2015

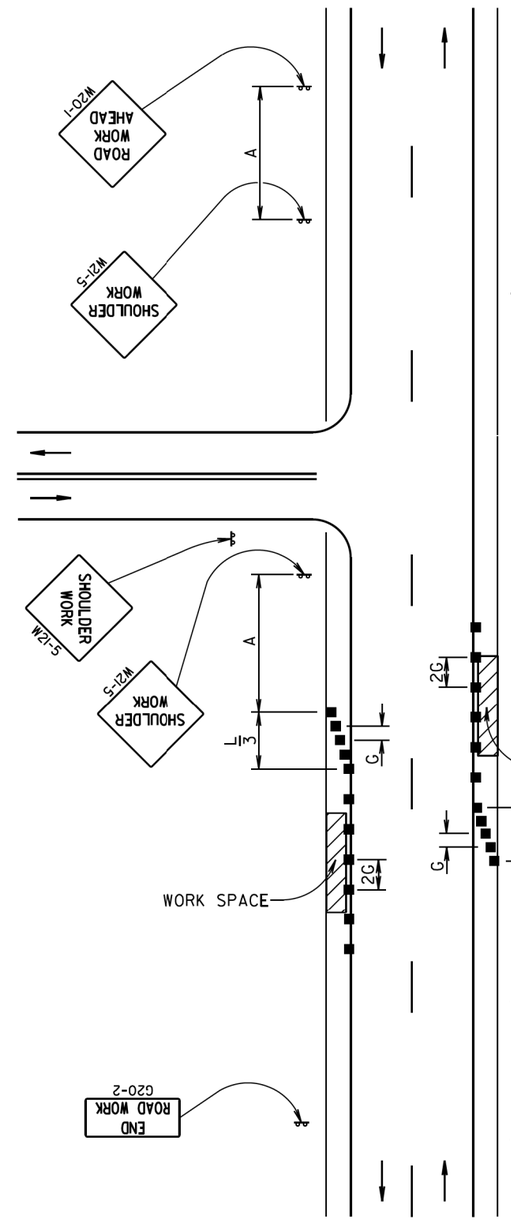
Published Date: 1st Qtr. 2017

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	500	600	25
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.

June 3, 2016

Published Date: 1st Qtr. 2017

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)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

■ Channelizing Device

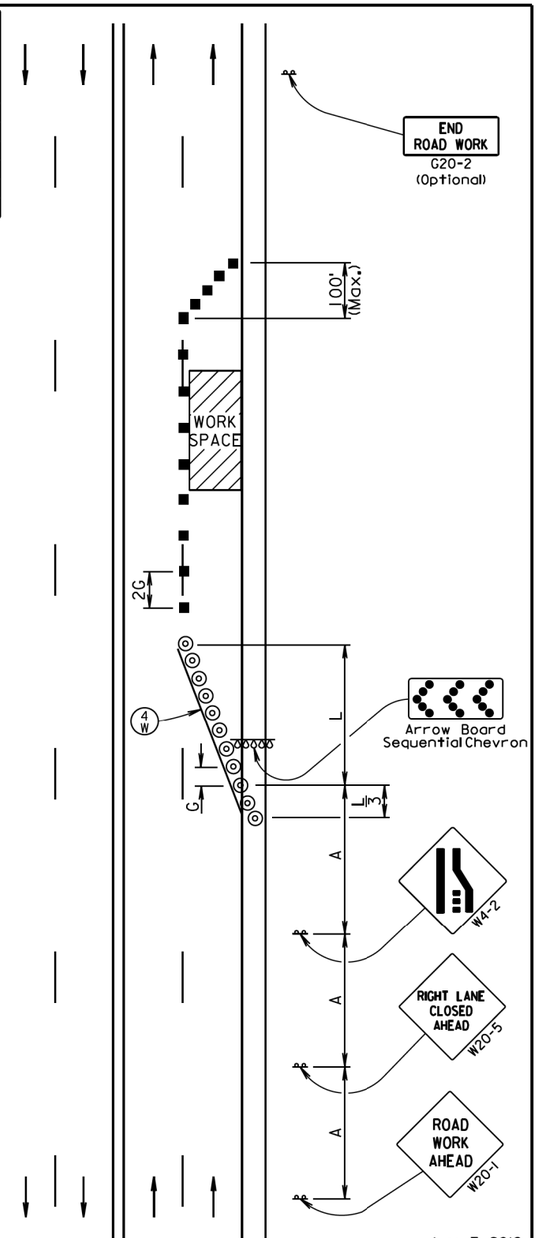
(4W) 4" White Temporary Pavement Marking

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.

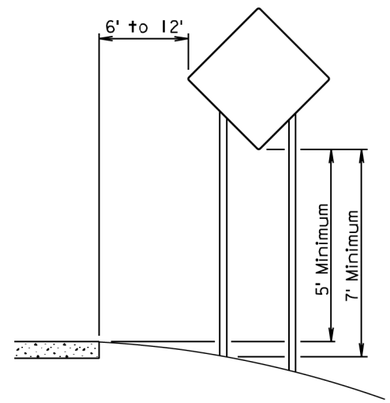
Temporary pavement markings shall be used if traffic control must remain overnight.

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

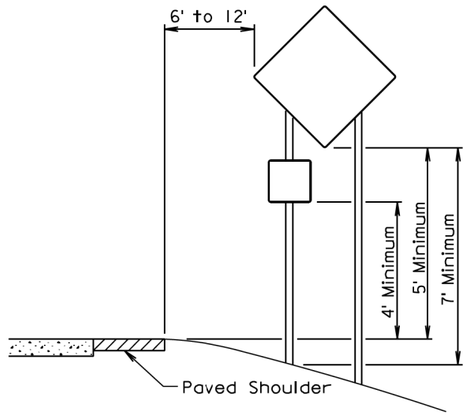


June 3, 2016

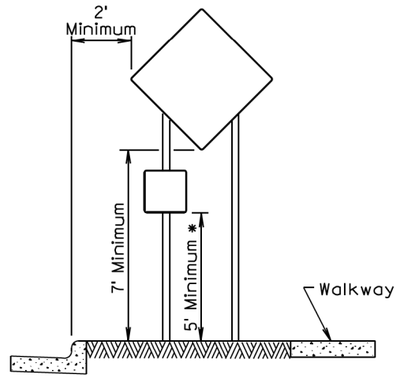
Published Date: 1st Qtr. 2017	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES 4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47
			Sheet 1 of 1



RURAL DISTRICT

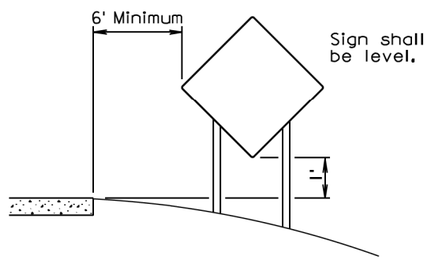


RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

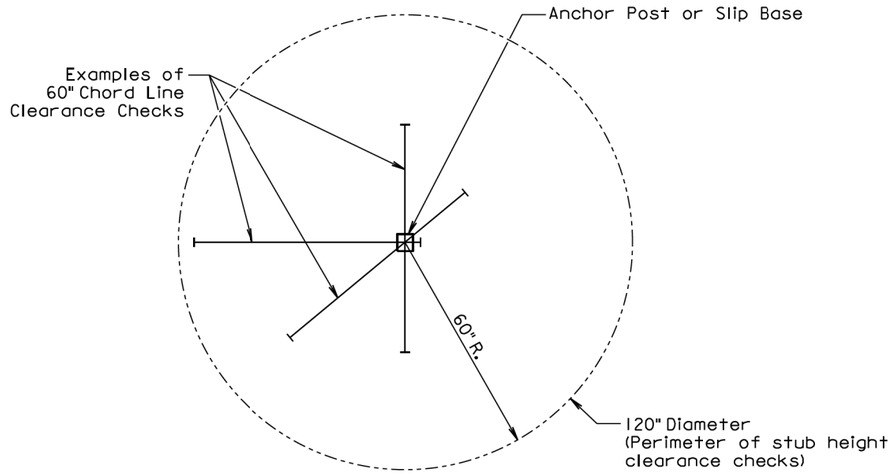
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



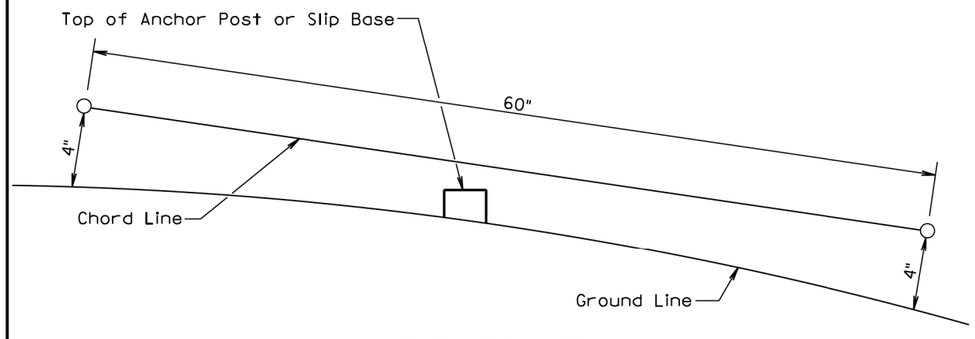
RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 1st Qtr. 2017	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:

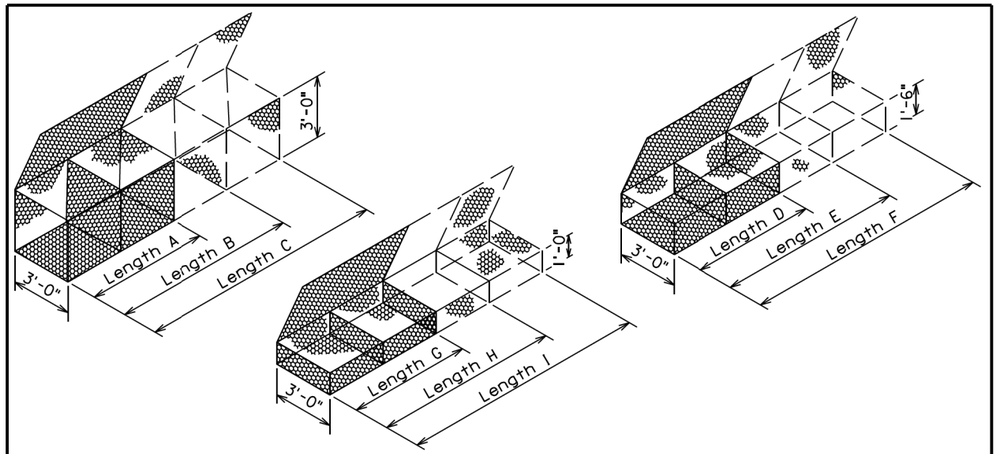
The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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: 1st Qtr. 2017	SDDOT	**BREAKAWAY SUPPORT STUB CLEARANCE**	*PLATE NUMBER* 634.99
			Sheet 1 of 1



GABION DETAILS
STANDARD SIZES

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

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

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

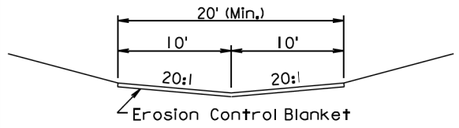
The lacing procedure is as follows:
1. Cut a length of lacing wire approximately 1 ½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.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

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

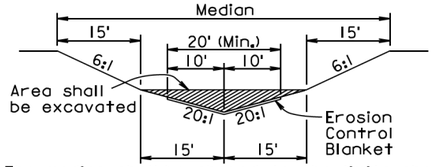
Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches. All fasteners shall be placed where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

June 26, 2001

Published Date: 1st Qtr. 2017	SDDOT	**BANK AND CHANNEL PROTECTION GABIONS**	*PLATE NUMBER* 720.01
			Sheet 1 of 1

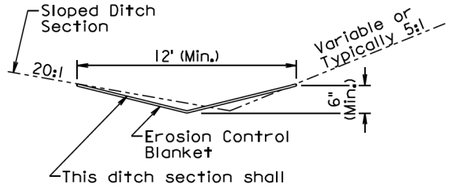


STANDARD DITCH SECTION

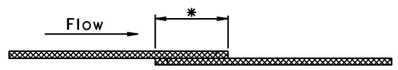


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



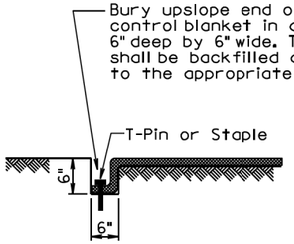
SLOPED DITCH SECTION



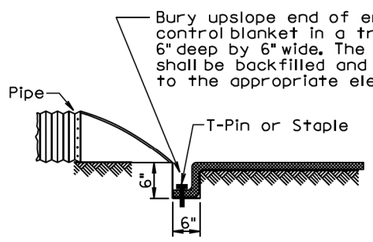
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

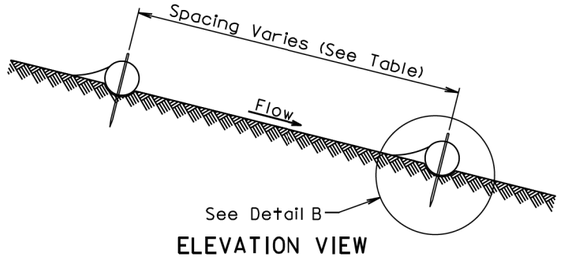
All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

December 23, 2004

Published Date: 1st Qtr. 2017	SDDOT	***EROSION CONTROL BLANKET***	*PLATE NUMBER* 734.01
			Sheet 1 of 1

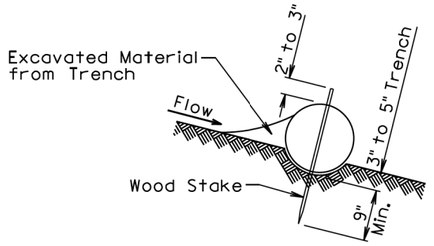
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	018-492	15	21

Plotting Date: 04/06/2017

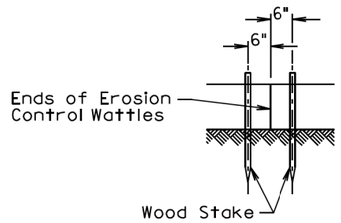


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

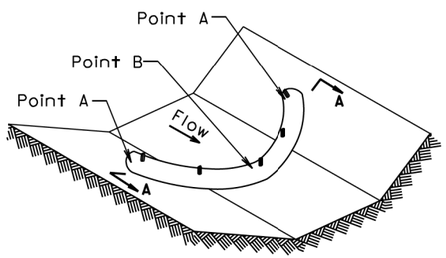
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



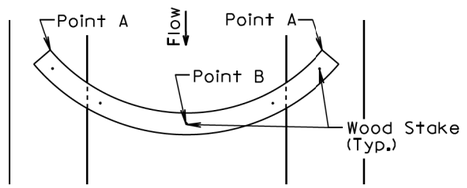
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

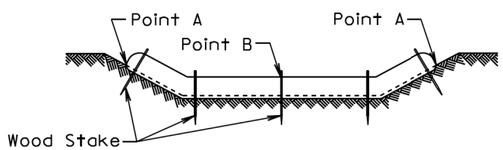


ISOMETRIC VIEW
DITCH INSTALLATION



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: 1st Qtr. 2017	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: 1st Qtr. 2017	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

Plot Scale - 1:200
- Plotted From - trrc12608
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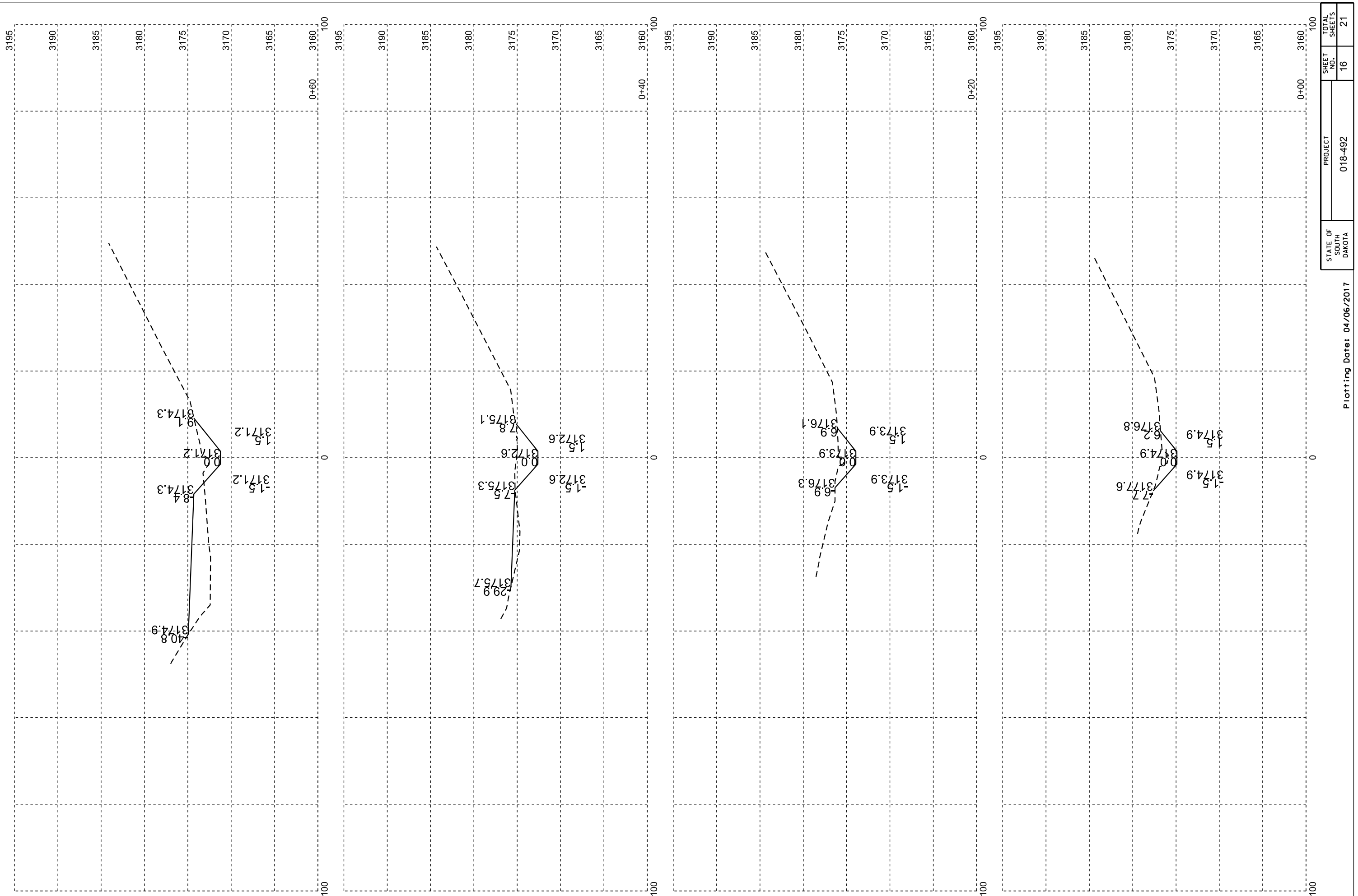
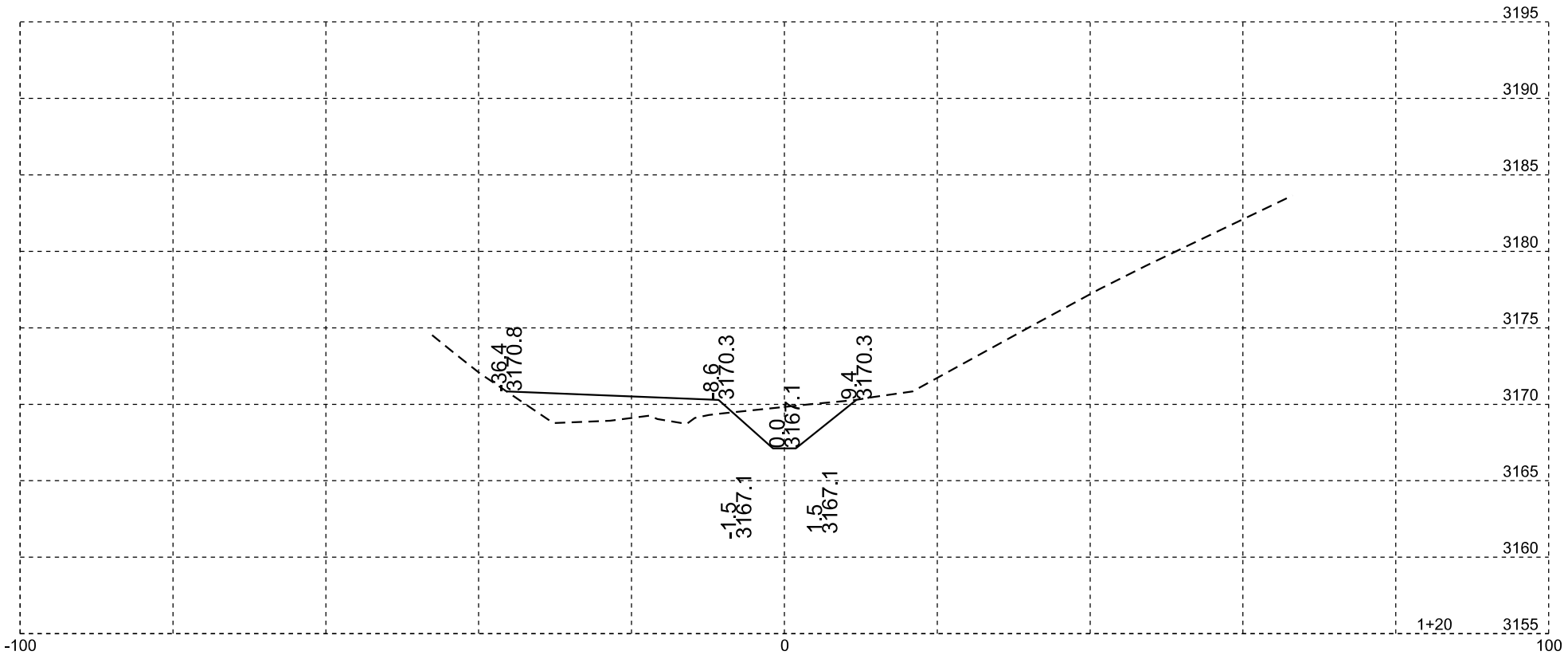
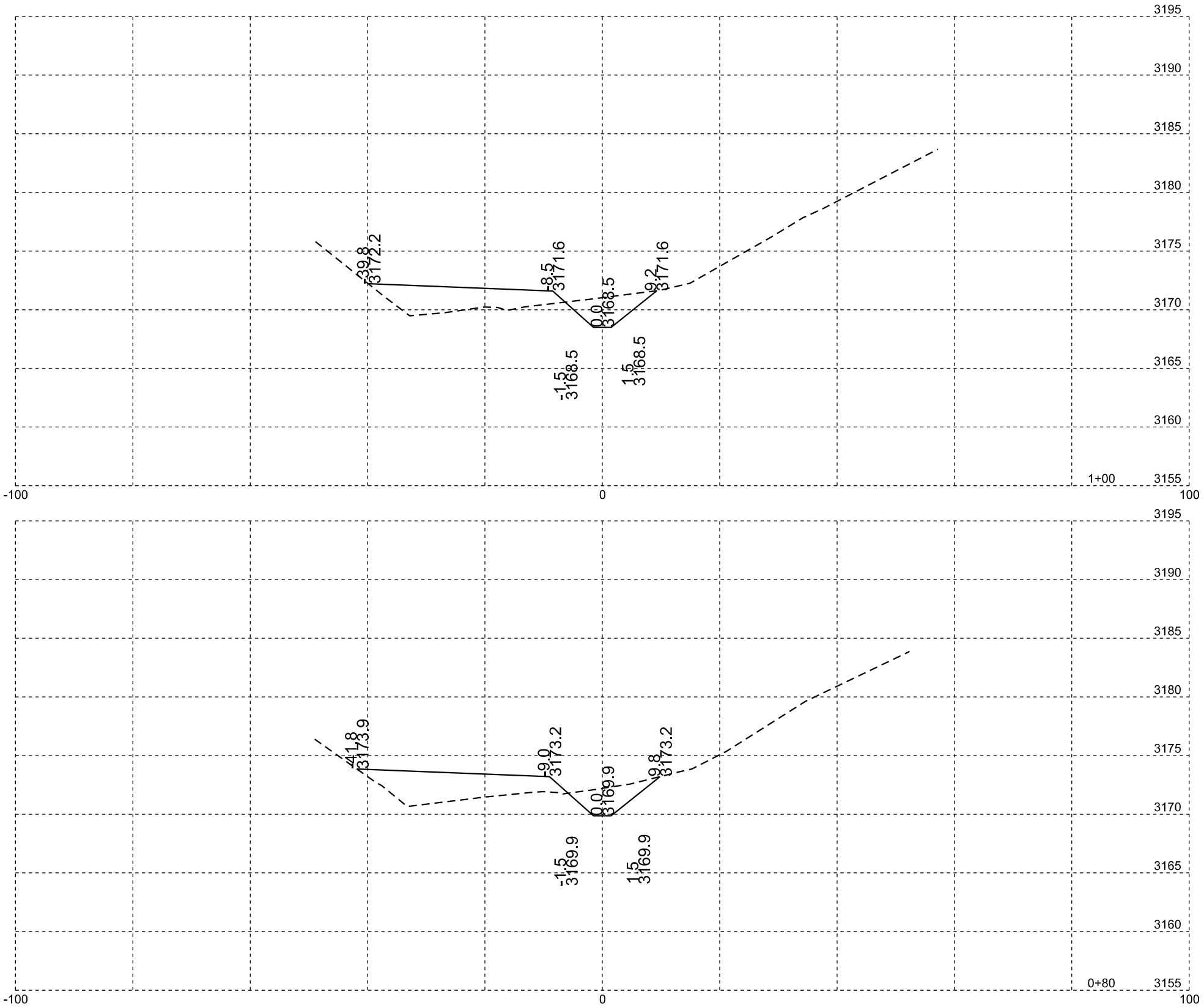


STATE OF SDUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	018-492	16	21

Plotting Date: 04/06/2017





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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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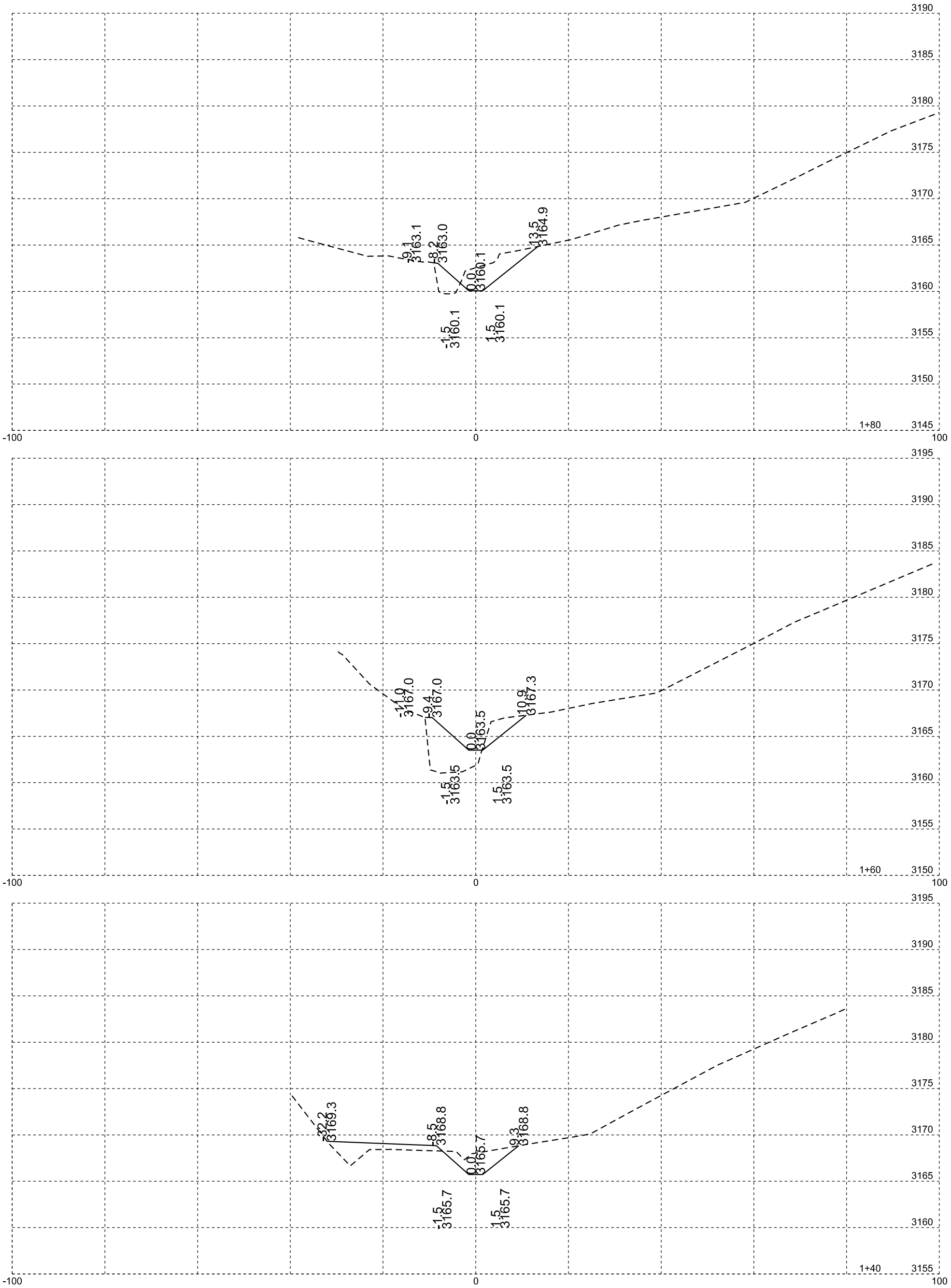

Plotting Date: 04/06/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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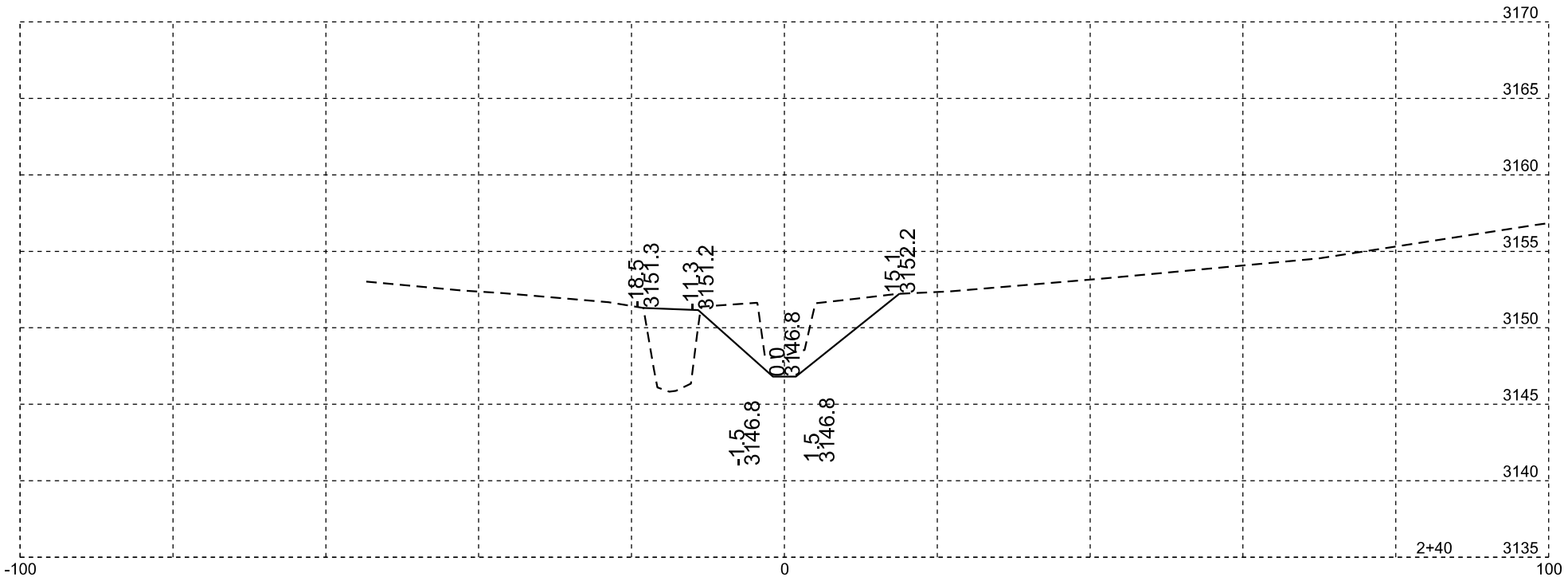

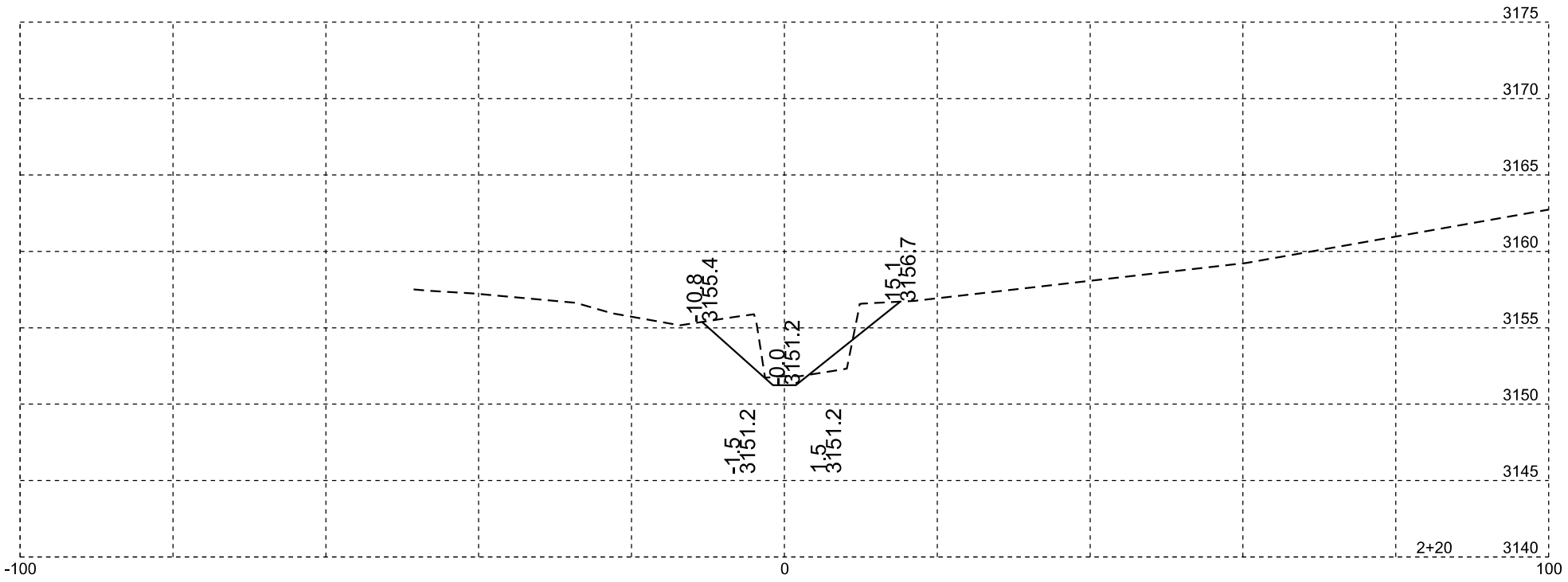

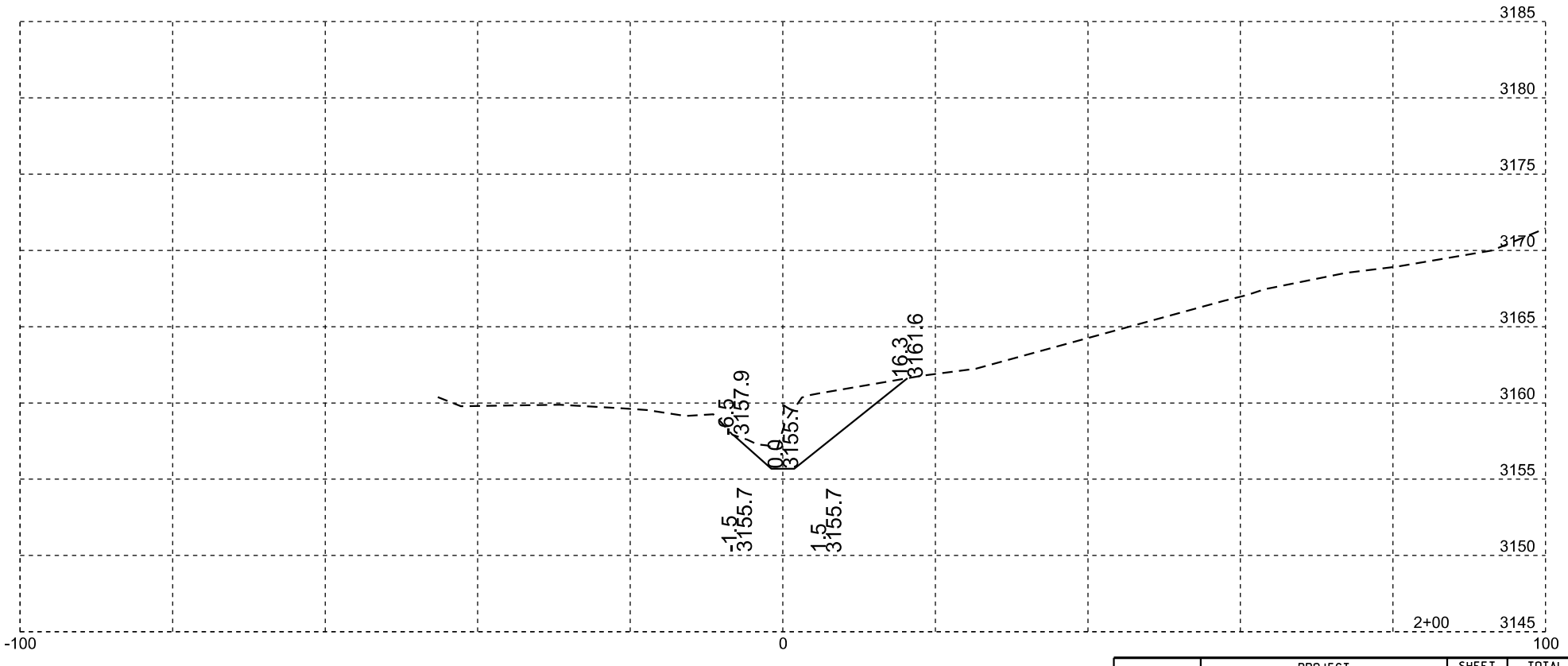

Plotting Date: 04/06/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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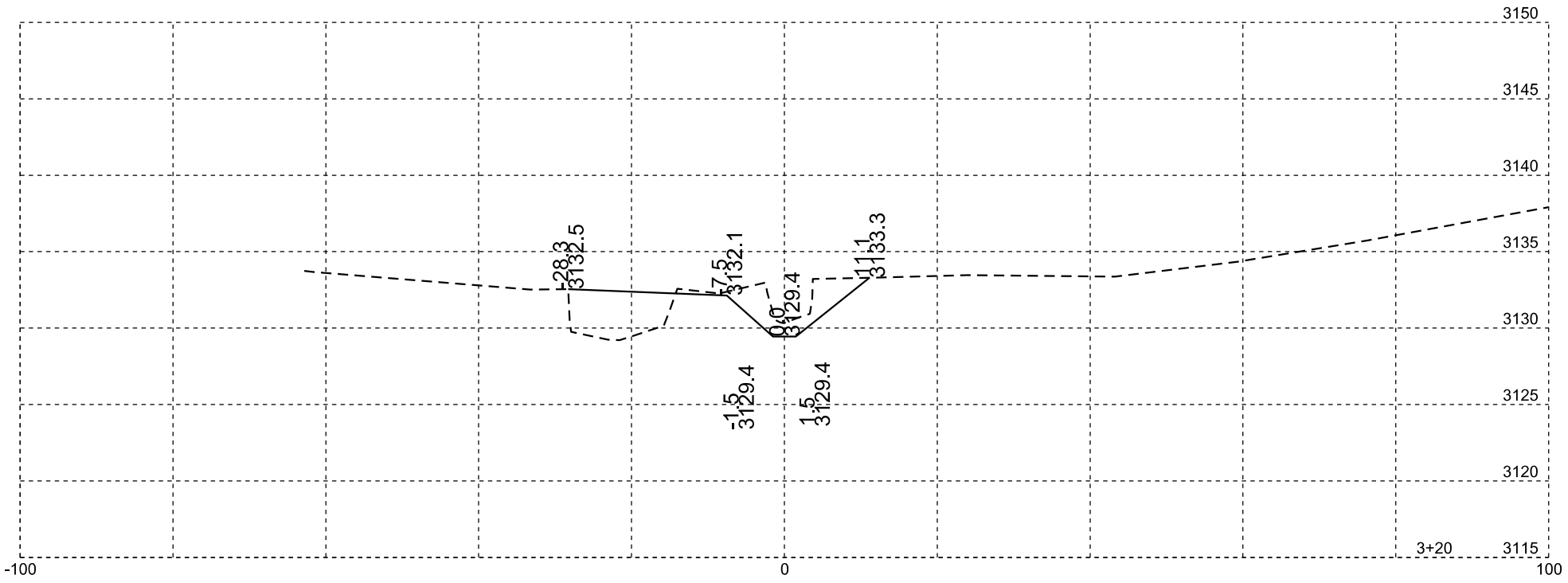

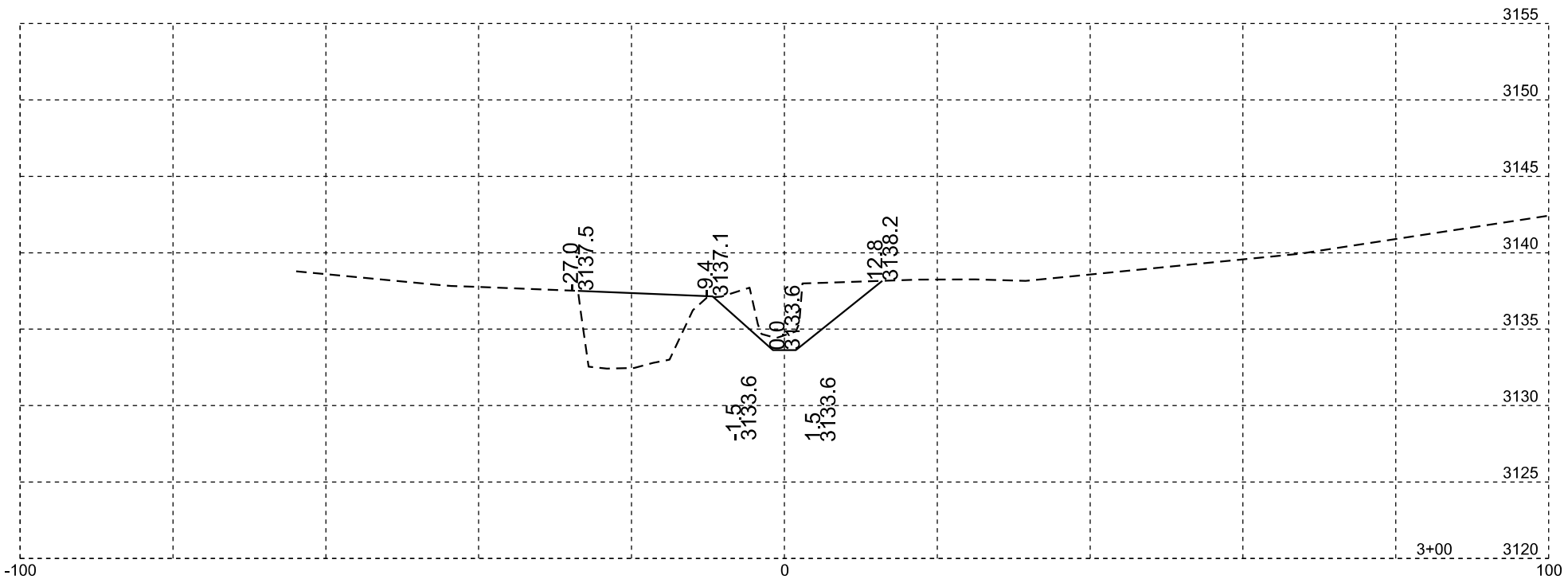

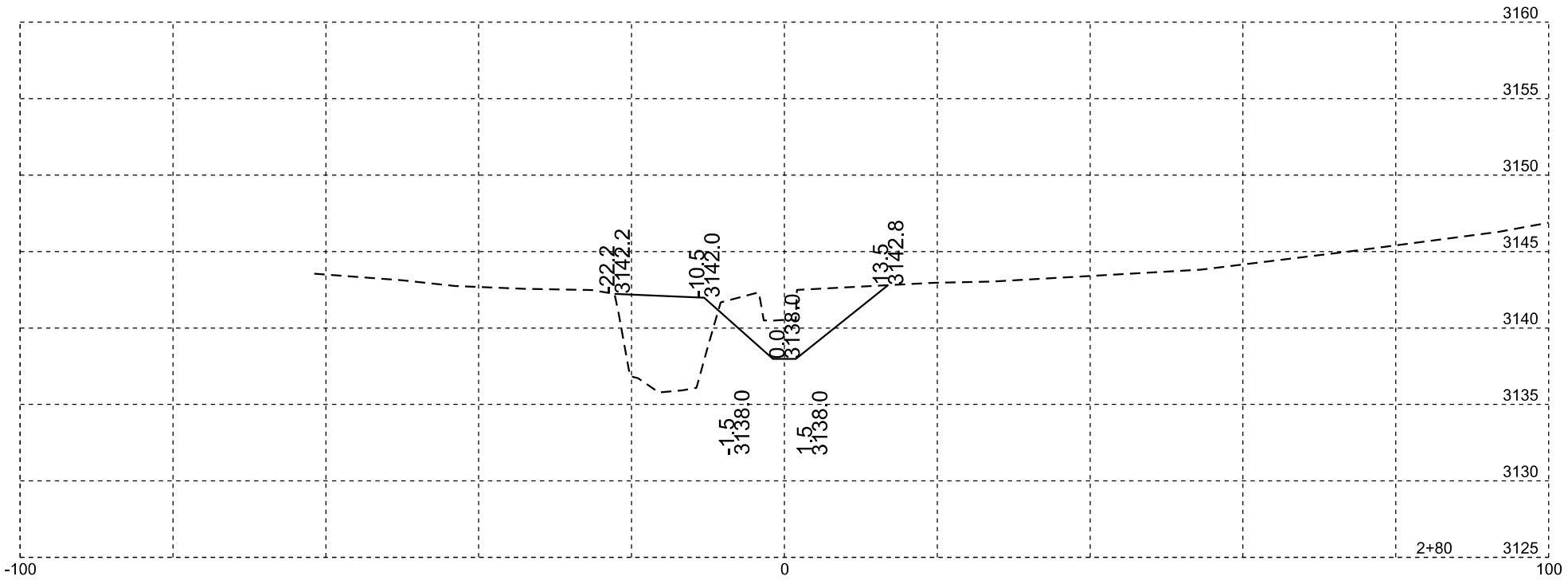

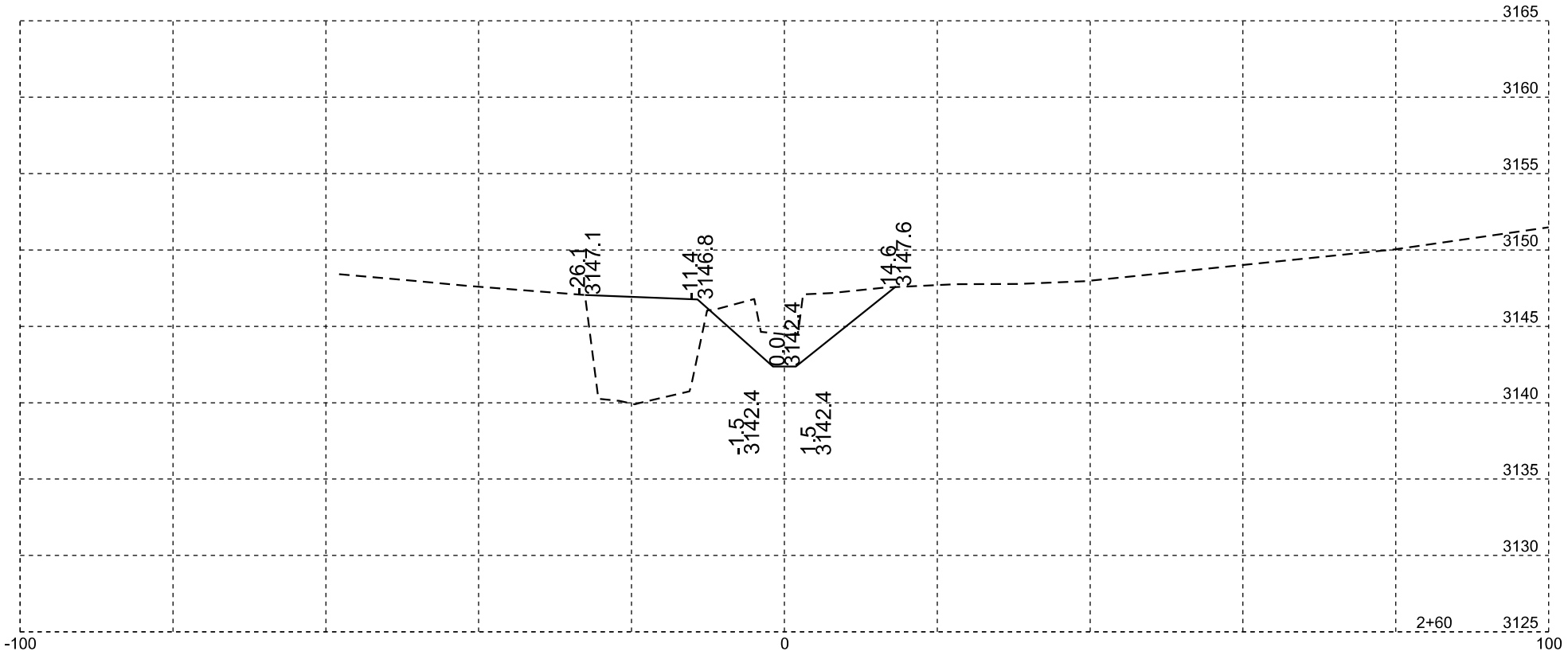

Plotting Date: 04/06/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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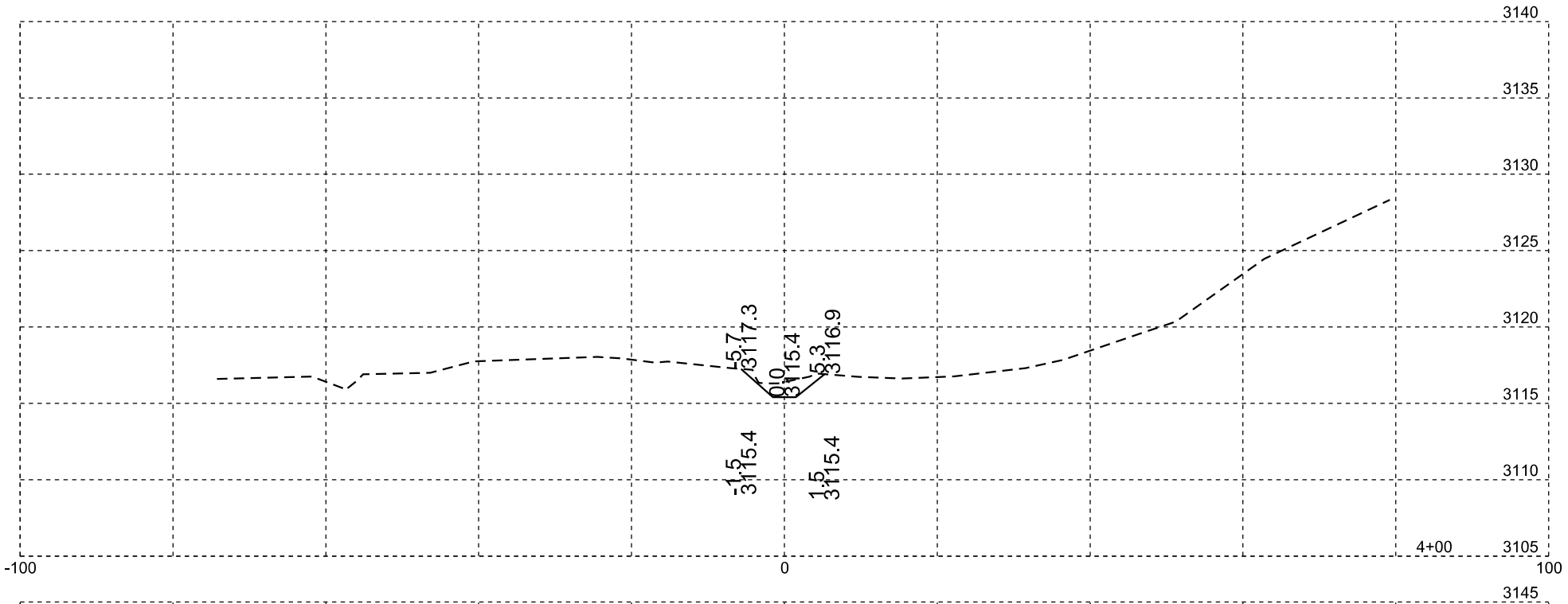

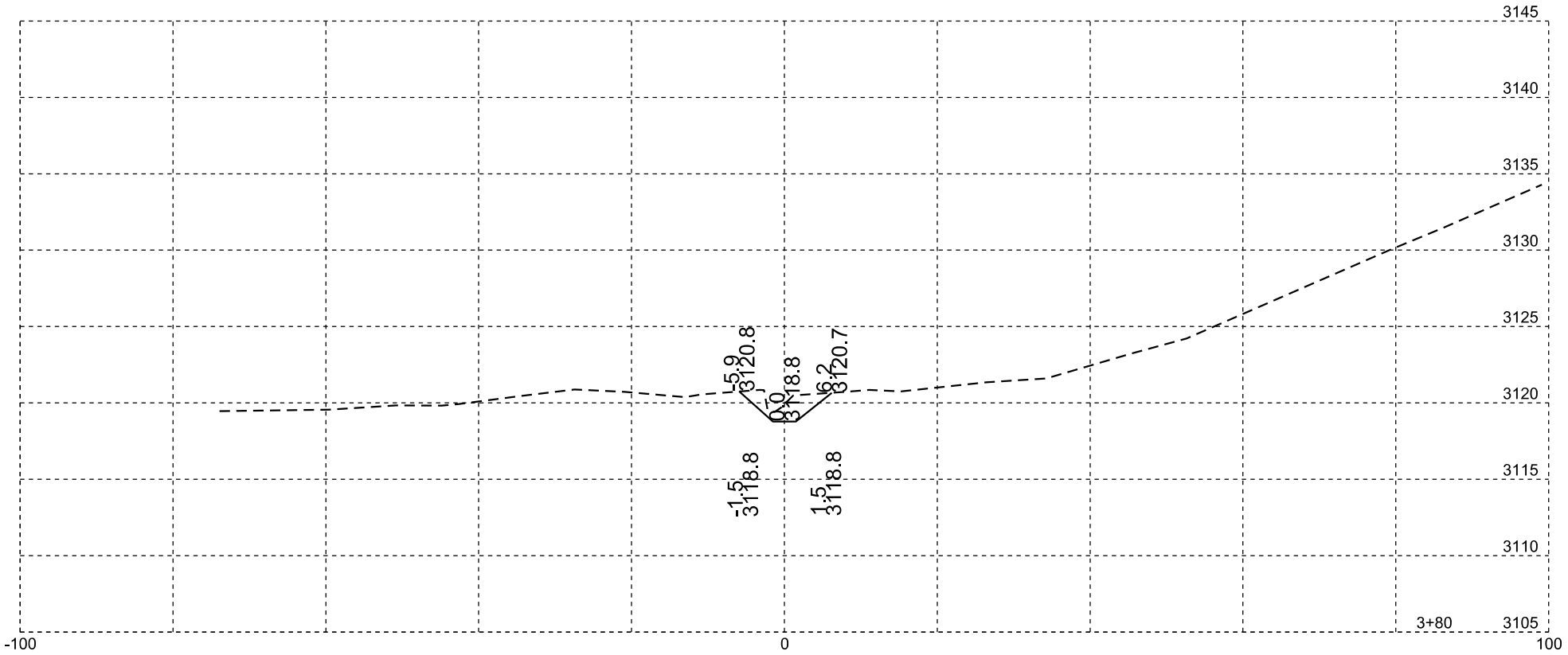

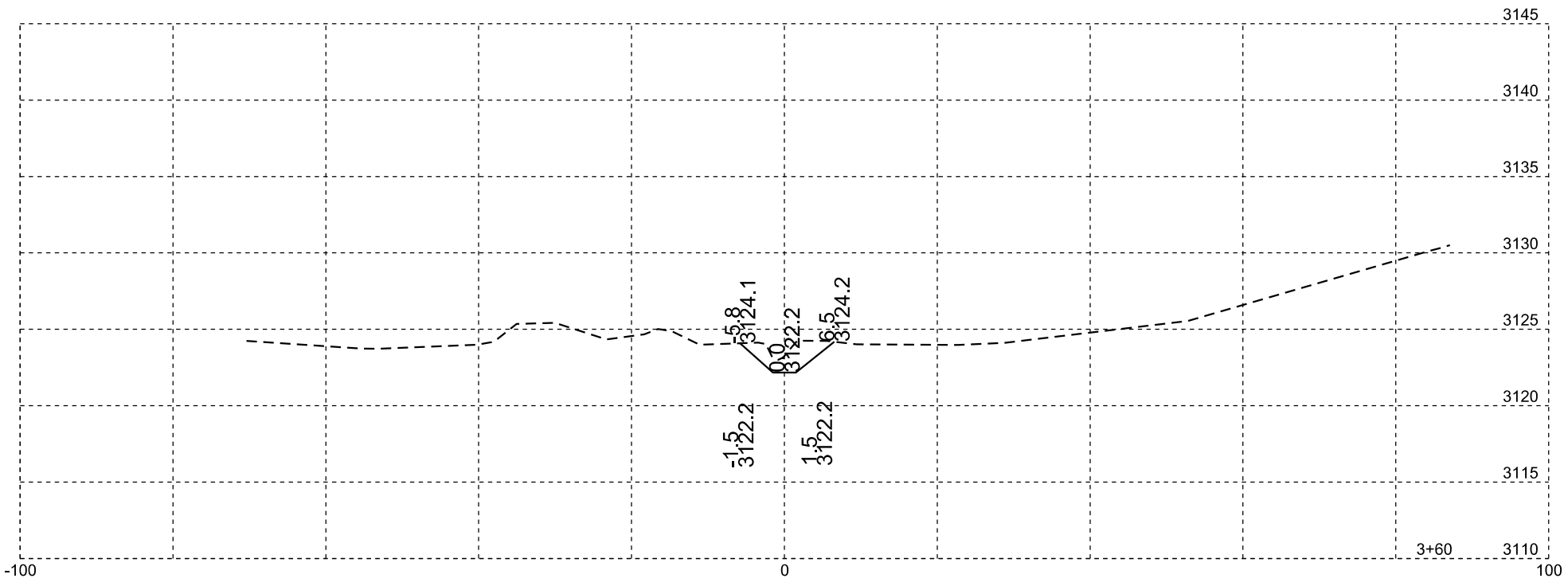

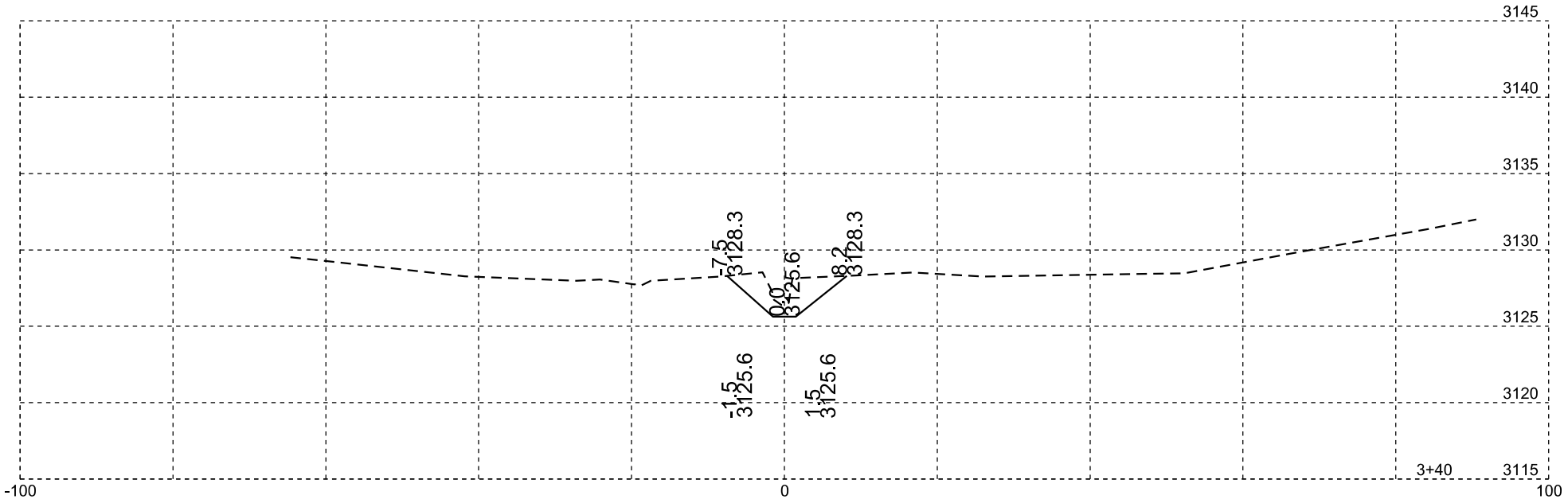

Plotting Date: 04/06/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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