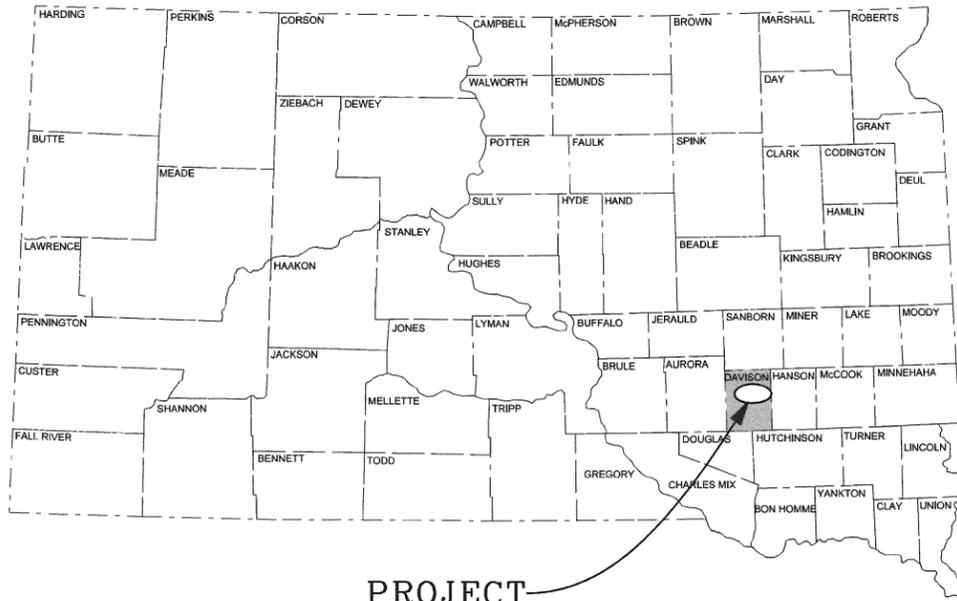


STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	1	77
Plotting Date: 09/19/12			
Revised Date: 05/21/13			
Initials: LDH			



PROJECT

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED
PROJECT BRF 3630(02)
NORTH HARMON DRIVE
CITY OF MITCHELL
 STRUCTURE AND APPROACH GRADING
 STR. NO. 18-129-061
 PCN 00YW

INDEX OF SHEETS

SHEET NO. 1	TITLE AND LAYOUT MAP
SHEET NO. 2-7	ESTIMATE OF QUANTITIES AND GENERAL NOTES
SHEET NO. 8-11	TYPICAL SECTIONS
SHEET NO. 12-13	TRAFFIC CONTROL
SHEET NO. 14-16	PERMANENT SIGNING
SHEET NO. 17-19	SWPPP PLAN NOTES
SHEET NO. 20-23	EROSION CONTROL
SHEET NO. 24	CONTROL DATA / ALIGNMENT DATA
SHEET NO. 25	TOPOGRAPHY SYMBOLY AND LEGEND
SHEET NO. 26	PERMANENT EASEMENT PLAN
SHEET NO. 27	PLAN & PROFILE
SHEET NO. 28	STANDARD PLATE (GRADING)
SHEET NO. 29-50	126'-0" PRESTRESSED GIRDER BRIDGE
SHEET NO. 51-77	MAINLINE (CROSS SECTIONS)



END PROJECT BRF 3630(02)

At Sta. 13+00 - A Point Approx. 122' North and 805' West of the NE Corner of Section 6, T103N, R60W.

BEGIN PROJECT BRF 3630(02)

At Sta. 6+50 - A Point Approx. 525' South and 862' West of the NE Corner of Section 6, T103N, R60W.

DESIGN DESIGNATION

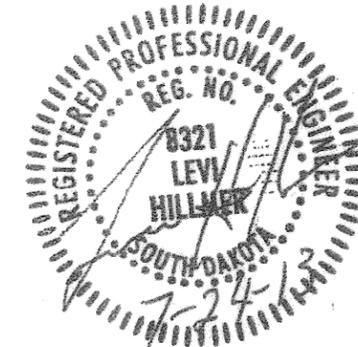
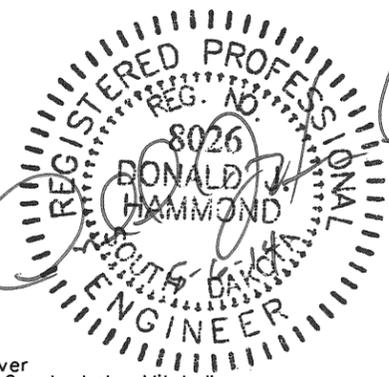
ADT (2007)	640
ADT (2027)	795
DHV	120
D	50%
T DHV	4.6%
T ADT	10.1%
V	35 mph

STORM WATER PERMIT

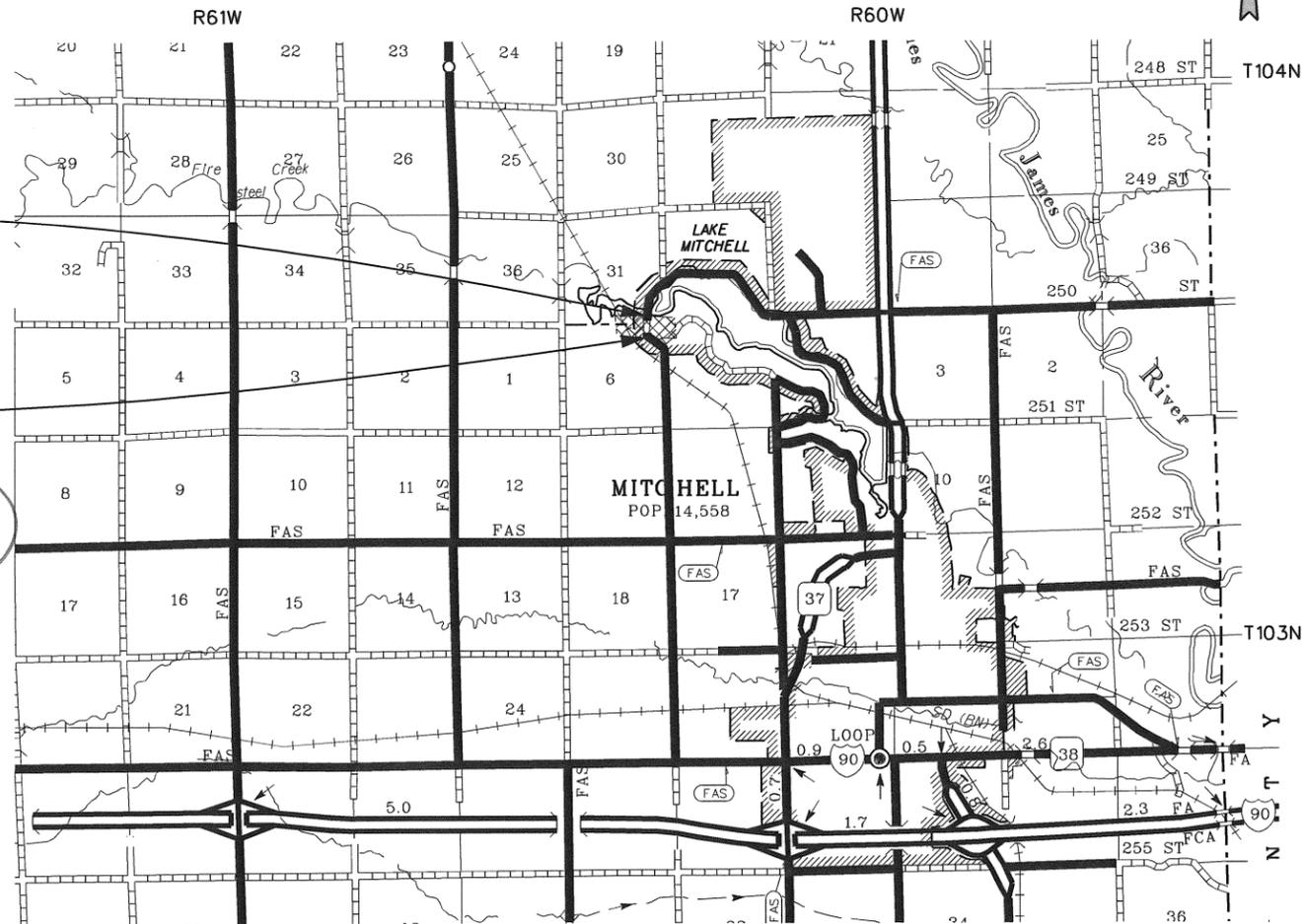
Major Receiving James River
 Body of Water: Firesteel Creek, Lake Mitchell
 Area Disturbed: 2.0 Acre
 Total Project Area: 3.0 Acre
 Latitude: 43° 59' 59.78130" N
 Longitude: 99° 05' 11.87649" W

SCALES

PLAN	1 INCH = 100 FT.
PROFILE	HORIZONTAL: 1 INCH = 100 FT. VERTICAL: 1 INCH = 20 FT.
CROSS SECTION	HORIZONTAL: 1 INCH = 20 FT. VERTICAL: 1 INCH = 10 FT.



PLANS BEI#: S09-P535
Survey by: Brosz Engineering, Inc. Pierre, SD
Plans by: Brosz Engineering, Inc. Pierre, SD



[DAVISON COUNTY]

**ESTIMATED QUANTITIES
GRADING**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
100E1010	Remove Asphalt Concrete Pavement	1962	SqYd
110E1140	Remove Concrete Sidewalk	210	SqYd
110E1693	Remove Erosion Control Wattle	75	Ft
120E0010	Unclassified Excavation	370	CuYd
120E0600	Contractor Furnished Borrow	3037	CuYd
120E9000	Pit Run Material	1423.0	Ton
230E0010	Placing Topsoil	220	CuYd
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	1124	Ton
630E1010	Straight Class A W Beam Guardrail with Wood Post	75	Ft
630E2020	W Beam Guardrail Tangent End Terminal	6	Each
632E1320	2.0"x2.0" Perforated Tube Post	190	Ft
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	8	Each
632E2220	Guardrail Delineator	32	Each
632E2530	Type 3 Object Marker	8	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	80.5	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	47.5	SqFt
634E0100	Traffic Control	736	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
651E0050	5" Concrete Sidewalk	2283	SqFt
651E7000	Type I Detectable Warnings	40	SqFt
730E0202	Type B Permanent Seed Mixture	36	Lb
732E0100	Mulching	4	Ton
734E0132	Type 2 Turf Reinforcement Mat	1891	SqYd
734E0154	12" Diameter Erosion Control Wattle	300	Ft
734E0165	Remove and Reset Erosion Control Wattle	75	Ft
734E0602	Low Flow Silt Fence	350	Ft
734E0630	Floating Silt Curtain	1560	Ft
734E5010	Sweeping	10	Hour
831E0110	Type B Drainage Fabric	1950	SqYd
831E0300	MSE Geotextile Fabric	95	SqYd
900E1320	Construction Entrance	1	Each

STRUCTURE

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	700	SqYd
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
420E0100	Structure Excavation, Bridge	295	CuYd
460E0030	Class A45 Concrete, Bridge Deck	176.7	CuYd
460E0060	Class A45 Concrete, Bridge	82.8	CuYd
470E0040	Steel Pedestrian Railing	63	Ft
470E0280	Reset Steel Railing	243	Ft
470E0380	Modify Bridge Railing	111	Ft
470E0420	Type T101 Bridge Railing	252	Ft
480E0106	Reinforcing Steel	18,257	Lb
480E0200	Epoxy Coated Reinforcing Steel	35,266	Lb
510E0200	Pre-boring Piling	200	Ft
510E3120	HP 10 Pile Tip Reinforcement	20	Each
510E3365	HP 10x42 Steel Bearing Pile, Furnish And Drive	600	Ft
560E8054	54" Minnesota Shape Prestressed Concrete Beam	1,243	Ft
700E0310	Class C Riprap	5789.8	Ton
831E0110	Type B Drainage Fabric	2827	SqYd

SPECIFICATIONS

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

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 15 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 98 MGal. No separate payment will be made for the Water for Embankment and all costs associated shall be incidental to the contract unit price per cubic yard of "Contractor Furnished Borrow".

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

Temporary fence and/or permanent fence shall be placed ahead of the grading operation by the City, unless otherwise directed by the Engineer.

City of Mitchell will be responsible for the proper and timely placement of the final surfacing on the completed subgrade. The contractor shall notify the City when the subgrade is ready for final surfacing. Subgrade damage caused by either improper or delayed final surfacing placement will be the responsibility of the City of Mitchell.

Compaction of Earth Embankment and Bridge Berm Material shall be governed by the Ordinary Compaction Method, Section 120.3.B.3.b of the Standard Specification.

Included in the estimate of quantities for Unclassified Excavation are 220 cubic yards of Topsoil which shall be removed and stockpiled at the site. Payment for placing the Topsoil shall be at the contract unit price per cubic yard for "Placing Topsoil".

Plans quantity shall be the basis for payment for Unclassified Excavation and Placing Topsoil unless the Engineer orders additional excavation. No separate measurement shall be made.

TEMPORARY WORKS

Refer to sheet 7 for Environmental Note Commitment J: Construction Practices for Temporary Works in Protected Waterways of the U.S.

Contractors Site Plan

It is the Contractors responsibility to inspect and verify the actual field conditions and necessary dimensions affecting the satisfactory completion of the bridge work required to complete this project. The Contractor shall then submit a detailed Bridge Removal and Bridge Construction Plan at the Pre-Construction Meeting. The plan shall include all temporary work which may include the following: work platforms, temporary water crossings, caissons, cofferdams, and cribs. The Contractor shall also provide detailed notes on all the materials involved. The plan shall conform to the notes on Water Quality shown on sheet 2. The plan shall be approved by the SDDOT Office of Bridge Design before construction begins.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF 3630(02)	2	77

Payment Details

All costs associated with temporary works for bridge removal and bridge construction, including Bridge Construction Plans, labor, materials and all incidentals necessary shall be incidental to the item of work for which it is required.

SEQUENCE OF OPERATIONS

The Contractor shall utilize the following sequence unless an alternative sequence is submitted in writing and approved by the Engineer.

1. Install Traffic Control devices as shown on the plans.
2. Close the project to through traffic.
3. Install Erosion Control measures.
4. Dismantle and remove existing structures.
5. Construct the new structure and grade the roadway.
6. Install new permanent signing & delineation.
7. Open the roadway to through traffic.
8. Complete the miscellaneous cleanup under traffic.

CITY OF MITCHELL RESPONSIBILITIES

The City will be responsible for the following items without federal participation.

1. Obtain Right-of-way and permanent and temporary easements.
2. Coordination of any utility adjustments.
3. Furnish and install Final Surfacing.
4. Furnish and install permanent pavement markings.
5. Remove silt fence and wattles protecting areas that have been permanently seeded, after vegetation has been established.

UTILITIES

The Contractor shall be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor shall contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

SD 1 Call: 1-800-781-7474

The City Engineer is Terry Johnson 1-605-995-8435

CONTRACTOR FURNISHED BORROW

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

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

HAZARDOUS WASTES

Should any hazardous waste be generated during the implementation of this project, the generator must abide by all applicable hazardous waste regulations found in ARSD 74:28 and 40 CFR Part 262.

If any contamination is encountered during construction activities, the contractor, owner, or party responsible for the release must report the contamination to the Department of Environment and Natural Resources at (605) 773-3296. Any contaminated soil encountered must be temporarily stockpiled and sampled to determine disposal requirements.

CLEARING

Before clearing activities begin, the Contractor shall contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are to remain within the limits of work are damaged or destroyed by the Contractor, the Contractor shall replace them with the same size and type at the Contractor's expense.

GENERAL MAINTENANCE OF TRAFFIC

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

Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the City, and to the satisfaction of the Engineer.

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

For informational purposes only, the notes and detail layout for the permanent signing are shown on sheets 14 thru 16 of 77. Contractor shall remove existing signing, furnish and install signs at the location and direction shown on detail sheets. All incidentals shall be included under the unit bid price per square foot of "Flat Aluminum Sign, Nonremovable Copy High Intensity".

INCIDENTAL WORK, GRADING

Station	L/R	Remarks
6+00 to 8+87	R	Remove and Reset Existing Guard Rail
8+95 to 9+45	L/R	Remove and Reset Existing Guard Rail
9+36	L	Remove Drop Inlet, Piping
8+90	L	Install Single 6"x8" Guard Rail Post
8+91.5 to 9+45	L	Remove, Salvage Timber Retaining Wall
8+91.5 to 9+45	L	Remove, Salvage Bridge Railing
9+25 to 9+45	R	Remove, Salvage Timber Retaining Wall
10+65 to 11+18	L	Remove and Reset Existing Guard Rail

10+66 to 11+19	R	Remove and Reset Existing Guard Rail
10+67 to 11+19	R	Remove and Reset Existing Guard Rail
10+68 to 11+18	L	Install Split Rail Fence
11+19 to 12+50	R	Remove and Reset Existing Guard Rail
11+20	L/R	Install Single 6"x8" Guard Rail Post
11+23	R	Install Single 6"x8" Guard Rail Post

FOR BIDDING PURPOSES ONLY

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
6+50		9+37	L/R	997.0
10+63		13+00	L/R	965.0
Total:				1962.0

TABLE OF SIDEWALK REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
8+30		9+45	R	89.0
8+92		9+45	L	36.0
10+67		11+23	L	37.0
10+65		11+23	R	48.0
Total:				210.0

SHRINKAGE FACTOR: Embankment 35%

EARTHWORK BALANCE

Excavation	150	CuYd	Embankment	1970	CuYd
Topsoil	220	CuYd	35% Shrinkage	690	CuYd
Subtotal				2660	CuYd
Excavation				150	CuYd
Other Excavation				227	CuYd
Total	370	CuYd	Cont. Furnished Borrow	3037	CuYd

Excavation is the quantity of Unclassified Excavation less the quantity of Topsoil and Surfacing.

Other Excavation includes the sum of the quantities for the following: Structural Excavation, Bridge (295 CuYd.) These quantities are for information purposes only, compensation for these are accounted for within various bid items.

The Contractor may, at the discretion of the Engineer, use the material from Other Excavation in the inslopes and as subbase with the condition that said material meets all requirements as set forth in the Standard Specifications.

It is assumed (for the purposes of earthwork balance) that the Contractor will be able to use 50% of the material from Other Excavation and will have to waste the remaining material at (a) site(s) provided by the Contractor and approved by the Engineer. All costs for labor, materials, and equipment necessary to waste material as well as restoration of the waste site(s) shall be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

CONCRETE SIDEWALK

The concrete sidewalk shall be constructed in accordance with Section 651 of the Standard Specifications. The sidewalk details are shown on the typical sections and the plan and profile sheet.

TABLE OF 5" CONCRETE SIDEWALK

Station	to	Station	L/R	Quantity (SqFt)
8+30		9+37	R	1062.0
8+91.5		9+37	L	433.0
10+63		11+20	L	550.0
10+63		11+33	R	776.0
Total:				2821.0

TYPE 1 DETECTABLE WARNINGS

Detectable warnings shall be in compliance with the Americans with Disability Act regulations.

The detectable warnings shall be installed according to the manufacturer's installation instructions.

A concrete thickness equal to the adjacent concrete sidewalk thickness and 2 inches of granular cushion material shall be placed below the Type 1 Detectable Warnings. When concrete is placed below the detectable warnings then the concrete thickness shall be transitioned at the rate of 1" per foot to match the adjacent concrete sidewalk thickness.

The detectable warnings shall be a brick red color for application in concrete curb ramps. Cast iron plates may be a natural patina (weathered steel).

When Type 1 Detectable Warnings are specified, the Contractor shall furnish and install only one of the products listed in the Type 1 Detectable Warnings table.

Type 1 Detectable Warnings

Product	Manufacturer
Detectable Warning Plate Cast Iron Plate	Neenah Foundry Company Neenah, WI 800-558-5075 http://www.neenahfoundry.com/
Detectable Warning Plate Cast Iron Plate	Deeter Foundry Lincoln, NE 800-234-7466 http://www.deeter.com/
Detectable Warning Plate Cast Iron Plate	East Jordan Iron Works, Inc. 301 Spring Street East Jordan, MI 49727 800-626-4653 http://www.ejiw.com

FOR BIDDING PURPOSES ONLY

CAST-DWD
Cast Iron Plate

Key 3 Casting (Northern Foundry)
555 West 25th Street
Hibbing, MN 55746
218-263-8871
<http://key3casting.com>

Pre-Manufactured
Detectable Warning Paver
Concrete Panel

M.R. Castings, Inc.
PO Box 34232
Omaha, NE 68134
402-510-3279
<http://mrcastings.com/>

ADA Arcis Tactile
Detectable Warning Tile
Concrete Panel Reinforced
with Stainless Steel
Prestress Strands

Arcis Corporation
10680 NW 289th Place
PO Box 1250
North Plains, Oregon 97133
503-647-5042
<http://www.arcis-corp.com/#/tactile/>

CASTinTACT
Concrete Panel Reinforced
with Stainless Steel
Prestress Strands

MASCO Mason Supply
6018 234th St SE
Woodinville, Washington 98072
425-487-6161
<http://www.castintact.com>

CASTinTACT 3
Concrete Panel Enhanced
with Microsilica and Fiber
Reinforced

MASCO Mason Supply
6018 234th St SE
Woodinville, Washington 98072
425-487-6161
<http://www.castintact.com>

Alertcast
Composite
Replaceable Cast in Place

Cape Fear Systems, III, LLC
215 South Water Street, Suite 103
Wilmington, NC 28401
877-232-6287
<http://www.alerttile.com/>

Detectable Warning Tile
Composite
Replaceable Wet-Set

ADA Solutions, Inc.
North Billerica, MA 01862
800-372-0519
<http://www.adatale.com>

Access Tile
Composite
Replaceable Cast in Place

Access Products Inc.
241 Main Street, Suite 100
Buffalo, NY 14203
888-679-4022
<http://www.accesstile.com/>

Armorcast Detectable
Warning Tile
Composite
Replaceable Wet-Set

Armorcast Products Company
13230 Saticoy Street
North Hollywood, CA 91605
818-982-3600
<http://www.armorcastprod.com/>

TABLE OF TYPE 1 DETECTABLE WARNINGS

Station	L/R	Quantity (SqFt)
9+00	15.0' L	10
9+00	18.0' R	10
11+00	15.0' L	10
11+00	15.0' R	10
Total:		40

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

FERTILIZING

Application of fertilizer will not be required on this project.

PERMANENT SEEDING

The areas to be seeded comprise of all newly graded areas within the project limits except for the top of roadways and temporary easements under cultivation.

All permanent seed shall be planted in the topsoil at a depth of 1/4" to 1/2". All seed broadcast must be raked or dragged in (incorporated) within the top 1/4" to 1/2" of topsoil when possible. This requirement may be waived by the Engineer during construction when raking or dragging is deemed not feasible by conventional methods.

Type B Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Flintlock, Rodan, Rosana	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk	3
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	3
Canada Wildrye	Mandan	2
Total:		18

DRILLS

In addition to the drills specified in Section 730 of the Standard Specifications, other types of drills including no-till drills will be allowed as long as they have baffles, partitions, agitators, or augers which keep the seed distributed throughout the seed box and the seed is planted at a depth of 1/4" to 1/2" .

MULCHING (GRASS HAY OR STRAW)

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

EROSION CONTROL WATTLE

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

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

Erosion control wattles shall remain on the project until vegetation has been established.

An additional 100 feet of 12" Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control in highway ditch channels and as an alternative to low flow or high flow silt fence at wetland areas adjacent to the highway.

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

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

REMOVE EROSION CONTROL WATTLE

Erosion control wattles shall be removed when vegetation is established. Some or all of the erosion control wattles may be left on the project until vegetation is established.

REMOVE AND RESET EROSION CONTROL WATTLE

Erosion control wattles may be removed and reset as necessary as work progresses. The erosion control wattles removed and reset shall be in useable condition. All costs for removing and resetting the erosion control wattles shall be incidental to the contract unit price per foot for "Remove and Reset Erosion Control Wattle".

FLOATING SILT CURTAIN

Floating silt curtains shall be installed at locations noted in the table and at locations determined by the Engineer during construction.

The Contractor shall determine the water depth and other waterway characteristics such as stream flow velocity and seek technical advice from the manufacturer before ordering the floating silt curtain so that the floating silt curtain installed is the correct type for the individual sites.

The Contractor shall install the floating silt curtain according to the manufacturer's installation instructions or as directed by the Engineer.

The Contractor shall maintain the floating silt curtains for the duration of the project to ensure continuous protection of the waterway.

A list of known manufacturers of floating silt curtain is shown below for informational purpose. Contractors may use floating silt curtain from manufacturers that are not included in the list as well.

ABASCO, LLC
Houston, TX
Phone: 1-800-242-7745

Aer Flo, Inc.
Bradenton, FL
Phone: 1-800-823-7356

www.abasco.net

www.aerflo.com

American Boom and Barrier Corp.
Cape Canaveral, FL
Phone: 1-800-843-2110
www.abbcoboom.com

ENVIRO-USA, LLC
Cocoa, FL
Phone: 1-321-222-9551
www.enviro-usa.com

Elastec/American Marine, Inc.
Carmi, IL
Phone: 1-618-382-2525
www.turbiditycurtains.com

Geo-Synthetics, LLC (GSI)
Waukesha, WI
Phone: 1-800-444-5523
www.geosynthetics.com

Parker Systems, Inc.
Chesapeake, VA
Phone: 1-866-472-7537
www.parkersystemsinc.com

An additional 150 feet of Floating Silt Curtain has been added to the Estimate of Quantities for temporary sediment control. The table and location for Floating Silt Curtain is shown on sheet 20 of 77.

TYPE 2 TURF REINFORCEMENT MAT

Turf Reinforcement Mat shall be installed at locations shown in the table at the widths specified, and at locations determined by the Engineer during construction. The Contractor shall use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

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

Installation of the Turf Reinforcement Mat shall be according to the manufacturer's installation instructions. The table and location for Turf Reinforcement Mat is shown on sheet 21 of 77.

MSE GEOTEXTILE FABRIC

An estimated 95 SqYd is to be used at the contractor's discretion to stabilize the timber retaining wall during back filling. This work shall be done to the engineer's approval.

STREET SWEEPING

Vehicle tracking of sediment from the construction site shall be minimized. Street sweeping shall be used if erosion and sediment control best management practices are not adequate to prevent sediment from being tracked onto the street.

The Contractor shall use a pickup broom having integral self-contained storage to clean the roadway. The pickup broom used shall be a minimum of 6 feet wide and have working gutter brooms.

All costs for cleaning the roadway with a pickup broom shall be incidental to the contract unit price per hour for "Sweeping".

CONSTRUCTION ENTRANCE

The Contractor shall install a Construction Entrance at locations where there is a potential for mud tracking and sediment flow from the construction site and work area onto a paved public roadway.

It is the Contractor's option to use the SDDOT Construction Entrance (See SDDOT Construction Entrance notes and details), a product from the list

provided in these notes, or other products or processes as approved by the Engineer during construction.

If the Contractor elects to use one of the products listed in the table, then the Contractor shall install the construction entrance product in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor shall maintain the construction entrance such that mud tracking and sediment flow will not enter the roadway or adjacent drainage areas. The construction entrance shall be routinely inspected and the Contractor shall repair or replace material as deemed necessary by the Engineer.

All costs for furnishing, installing, maintaining, and removal of the construction entrance including equipment, labor, materials, and incidentals shall be included in the contract unit price per each for "Construction Entrance".

The following table is a list of known construction entrance products available for use:

<u>Product</u>	<u>Manufacturer</u>
Grizzly Rumble Grate (10' width and 24' length required)	Trackout Control, LLC Tempe, AZ Phone: 1-800-761-0056 www.trackoutcontrol.com
Rumble Grid (12' width and 24' length including combination of grids and ramps required)	Pro-Tec Equipment, Inc. Charlotte, MI Phone: 1-800-292-1225 www.pro-tecequipment.com

SDDOT CONSTRUCTION ENTRANCE

If the SDDOT Construction Entrance is utilized, then the Contractor shall install the SDDOT Construction Entrance in accordance with these notes and the detail drawings.

Pit run material shall be obtained from a granular source and shall conform to the following gradation:

<u>Sieve Size</u>	<u>Percent Passing</u>
6"	100%
#4	0-60%
#200	0-20%

The pit run material shall be compacted to the satisfaction of the Engineer.

The aggregate for the granular material shall conform to the following gradation requirements:

<u>Sieve Size</u>	<u>Percent Passing</u>
3"	100%
2 1/2"	90-100%
1 1/2"	25-60%
3/4"	0-10%
1/2"	0-5%

The granular material shall be placed in 6" maximum lifts.

It is anticipated that the granular material will need to be periodically removed and replaced as it becomes inundated with mud and sediment.

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF 3630(02)	5	77

The MSE geotextile shall conform to Section 831 of the Standard Specifications. The MSE geotextile shall be on the Approved Products List for this material or will be certified by the supplier to meet this specification prior to installation.

The MSE geotextile should be kept as taut as possible prior to placing.

Equipment shall not be allowed on the MSE geotextile until the first lift of granular material is in place.

All seams in the MSE geotextile shall be overlapped at least 2' and shingled.

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.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

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 D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

The Firesteel Creek is classified as a warm water permanent fishery with a total suspended solids standard of 90 milligrams/liter.

Action Taken/Required:

The Contractor is advised the South Dakota Surface Water Quality Standards, administered by the Department of Environment and Natural Resources (DENR), apply to this project. Special construction measures shall be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The Firesteel Creek is classified as a warm water permanent fishery with a Surface Water Discharge standard of 90 milligrams/liter total suspended solids.

The Firesteel Creek is classified as fish and wildlife propagation, recreation, irrigation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

If construction dewatering is required, the Contractor shall obtain a Temporary Discharge Permit from the DENR and provide a copy to the Project Engineer. Contact the DENR Surface Water Program at 605-773-3351 to apply for a permit.

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

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

be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

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

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

SDDOT:
<http://sddot.com/transportation/highways/environmental/stormwater/Default.aspx>

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

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

Contractor Certification Form:

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

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

The online form can be found at:
<http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf>

COMMITMENT F: SEASONAL WORK RESTRICTION

The State of South Dakota has designated a warm water fishery associated with this project.

Action Taken/Required:

Construction or demolition activities should not take place during the Seasonal Work Restriction listed in the below table to avoid conflicts with spawning fish. If flows during this time are nonexistent or extremely low, the seasonal use restriction may not be applicable. The Contractor shall not conduct in-stream work during the Seasonal Work Restriction without prior approval from the SDDOT Environmental Office.

Stream Name	Stream Classification	Seasonal Work Restriction
Firesteel Creek	Warm Water	April 1 to June 30

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.

FOR BIDDING PURPOSES ONLY

Action Taken/Required:

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

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10.06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

FOR BIDDING PURPOSES ONLY

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

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

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

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

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

COMMITMENT J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

The Contractor is advised that special construction measures have to be taken to ensure that the waterways of the U.S. are not impacted.

Action Taken/Required:

No excavation shall be made below the ordinary high water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting; and the natural streambed shall not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high water elevations.

All dredged or excavated materials shall be placed at a site above the ordinary high water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway.

The construction of temporary work platforms, crossings, or berms below the ordinary high water elevation will be allowed provided that all material placed below the ordinary high water elevation consists of Class B or larger riprap.

All temporary caissons, cribs, cofferdams, steel piling, sheeting, work platforms, crossings, and berms shall be removed with minimal disturbance to

the streambed. Proper construction practices shall be used to minimize increases in suspended solids and turbidity in the waterway.

Bridge berms, wing dams, traffic diversions, channel reconstruction, grading, etc. shall be constructed in close conformity with the plans to ensure that the hydraulic capacity of the waterway is not changed.

Temporary waterway crossings required for the Contractors construction operations shall be constructed with an adequate drainage structure size and minimum fill height to reduce the potential for upstream flooding. The Contractor will be responsible for sizing the temporary drainage structure for these crossings.

If an on-site traffic diversion or construction crossing is used at Sta. 10+00, the temporary crossing will need to be designed so it will not increase the Q_{100} water surface elevation. The Contractor shall submit the proposed temporary crossing geometric layout and structure size at Sta. 10+00 to the Project Engineer during the project preconstruction meeting. This information shall be forwarded to the SDDOT Hydraulics Office for review. Construction of the temporary crossing is not allowed until approval of the proposal is obtained from the Hydraulics Office.

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High Water Elevation
10+00	Firesteel Creek	1264.5

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the US Army Corps of Engineers for the permanent actions associated with this project.

Action Taken/Required:

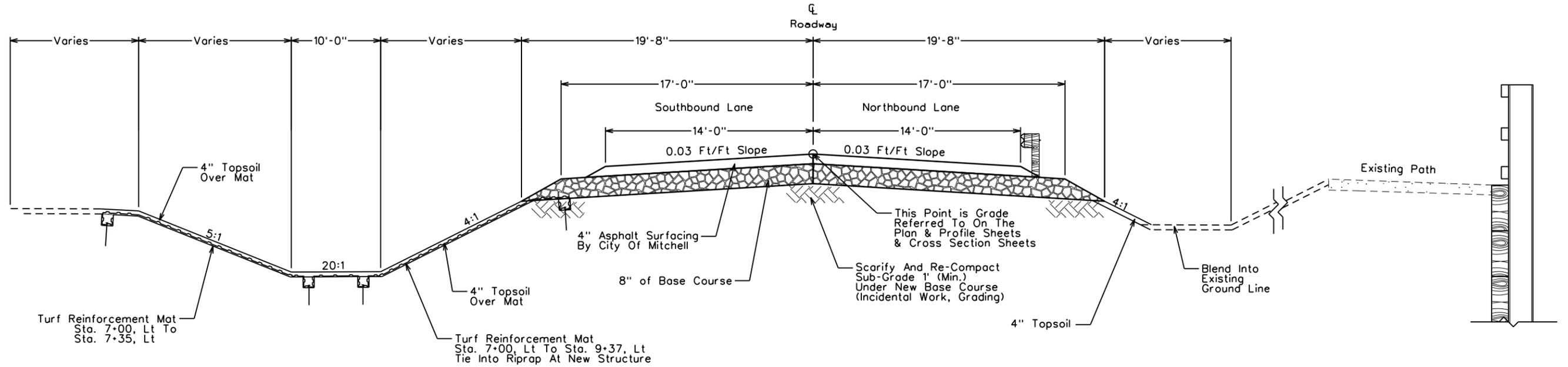
The Contractor shall comply with all requirements contained in the Section 404 permit.

The Contractor shall also be responsible for obtaining a Section 404 permit for any dredge, excavation, or fill activities associated with staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands or waters of the United States.

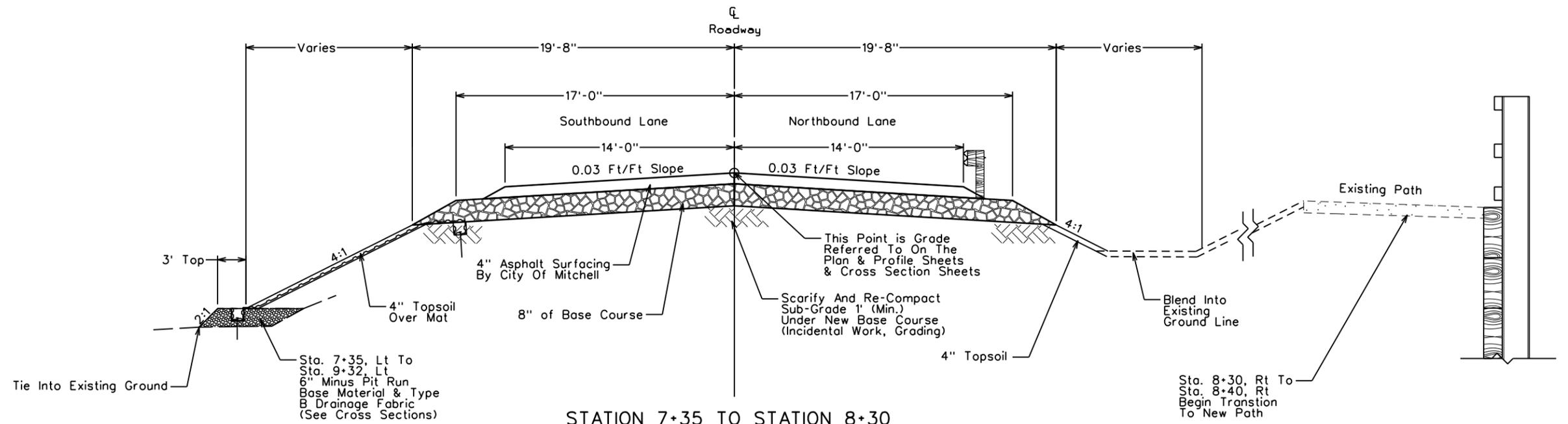
FOR BIDDING PURPOSES ONLY

GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET	TOTAL
		NO.	SHEETS
		8	77
Plotting Date: 09/19/12		Revised Date: 05/28/14 CVS	
Initials: SS			



STATION 7+00 TO STATION 7+35

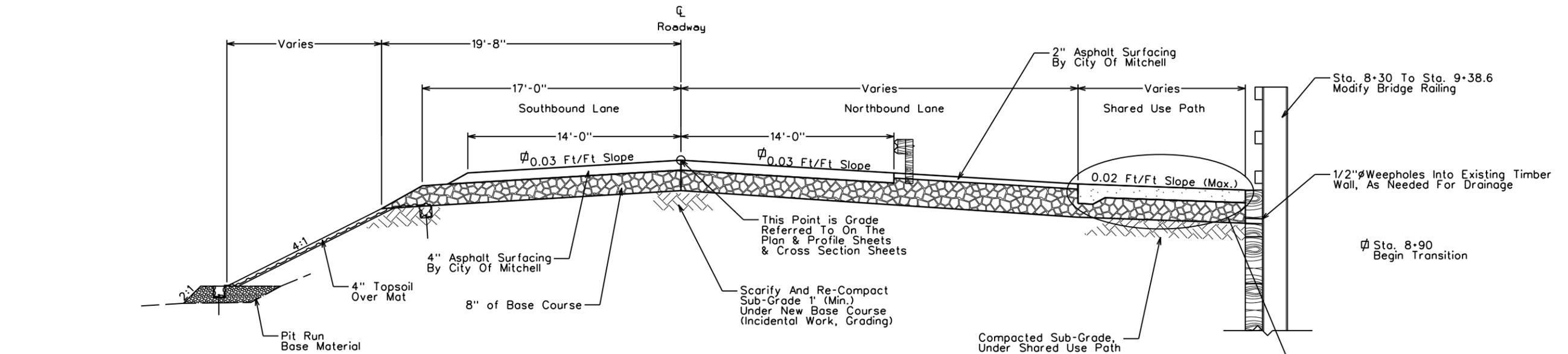


STATION 7+35 TO STATION 8+30

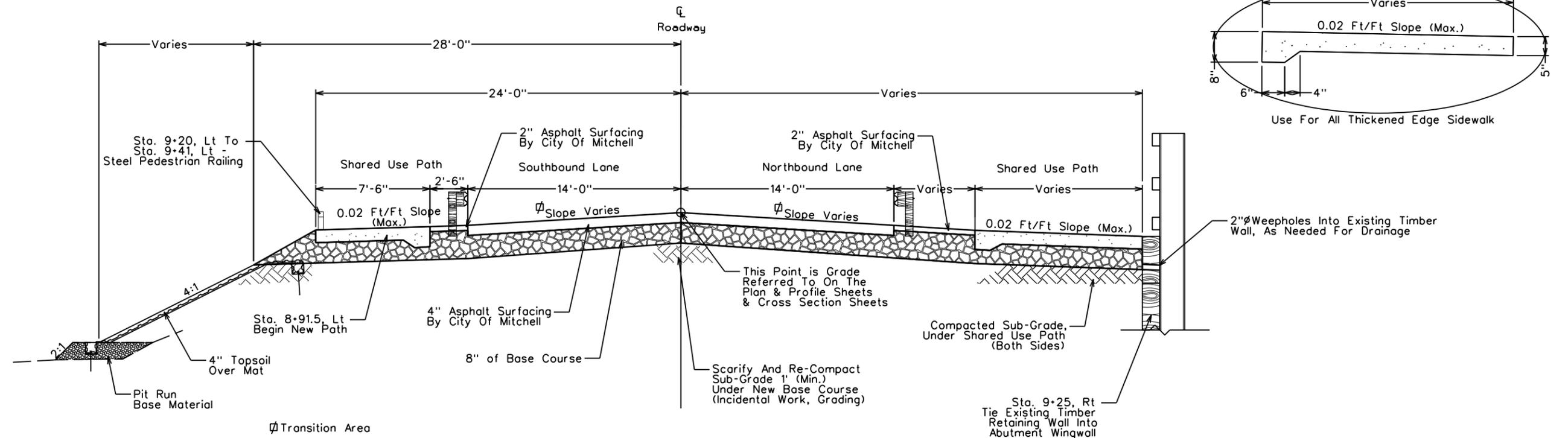
FOR BIDDING PURPOSES ONLY

GRADING SECTION

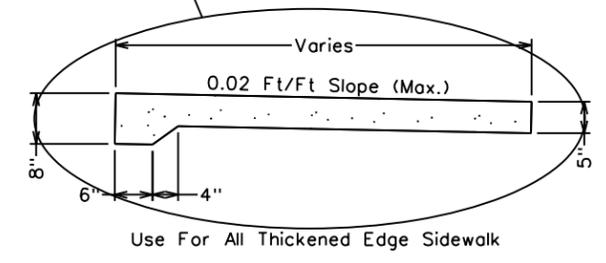
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	BRF 3630(02)	NO.	SHEETS
Plotting Date: 09/19/12		9	77
Revised Date: 05/28/14 CVS			
Initials: SS			



STATION 8+30 TO STATION 8+86



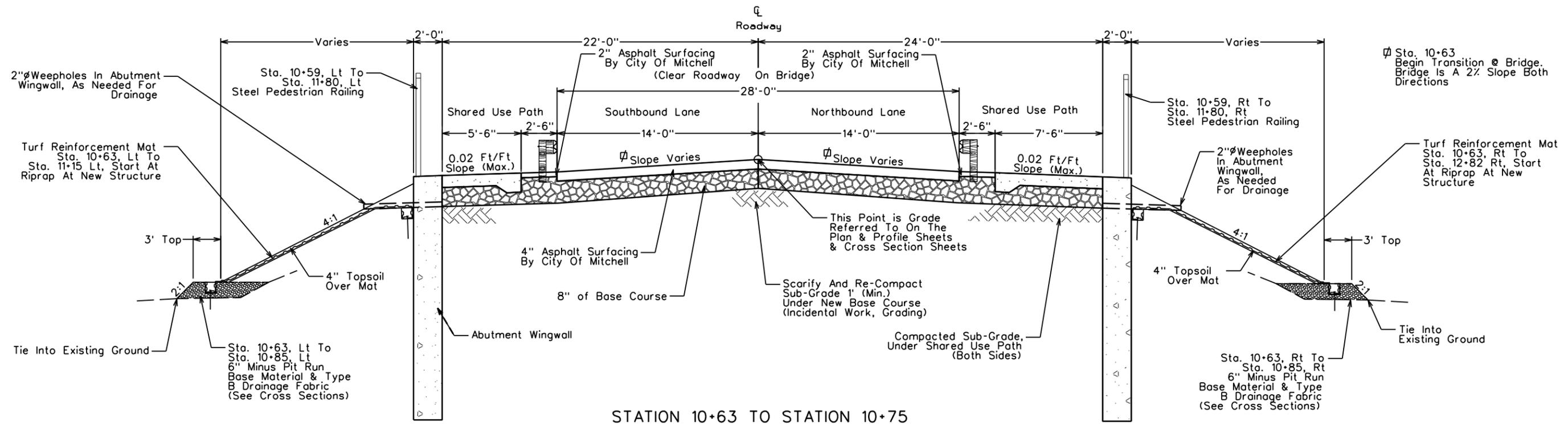
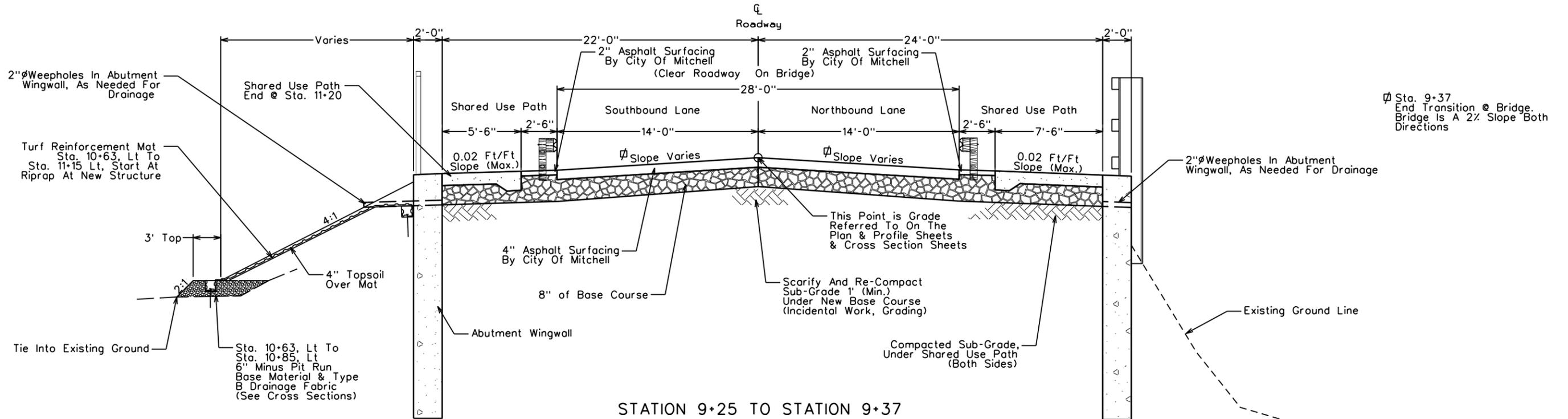
STATION 8+86 TO STATION 9+25



FOR BIDDING PURPOSES ONLY

GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	BRF 3630(02)	NO.	SHEETS
Plotting Date: 09/19/12		10	77
Revised Date: 05/28/14 CVS			
Initials: SS			



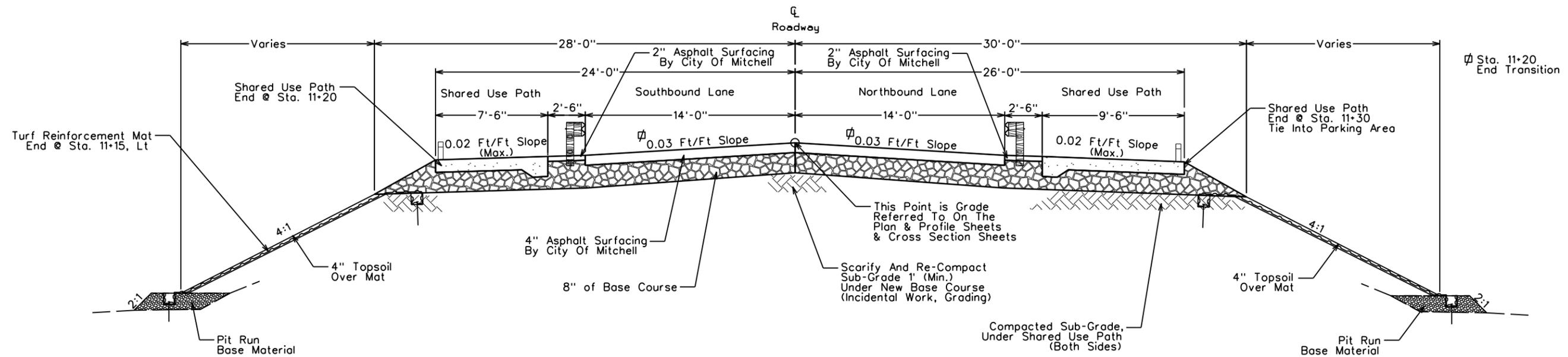
∅ Sta. 9+37
End Transition @ Bridge.
Bridge Is A 2% Slope Both
Directions

∅ Sta. 10+63
Begin Transition @ Bridge.
Bridge Is A 2% Slope Both
Directions

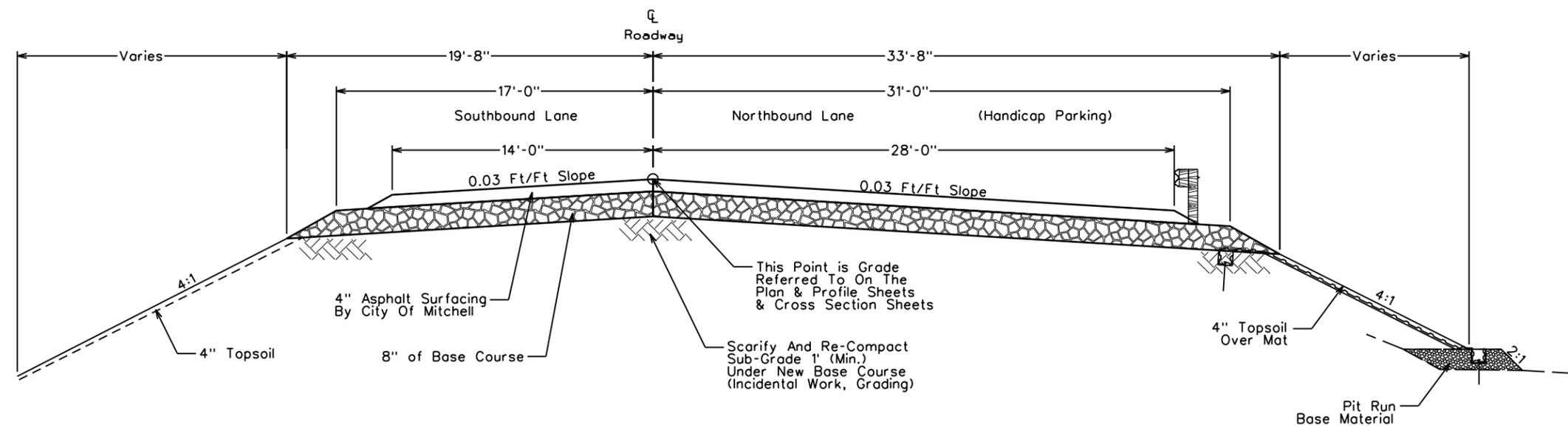
FOR BIDDING PURPOSES ONLY

GRADING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	BRF 3630(02)	NO.	SHEETS
		11	77
Plotting Date: 09/19/12			
Revised Date: 05/28/14 CVS			
Initials: SS			



STATION 10+75 TO STATION 11+21



STATION 11+30 TO STATION 13+00

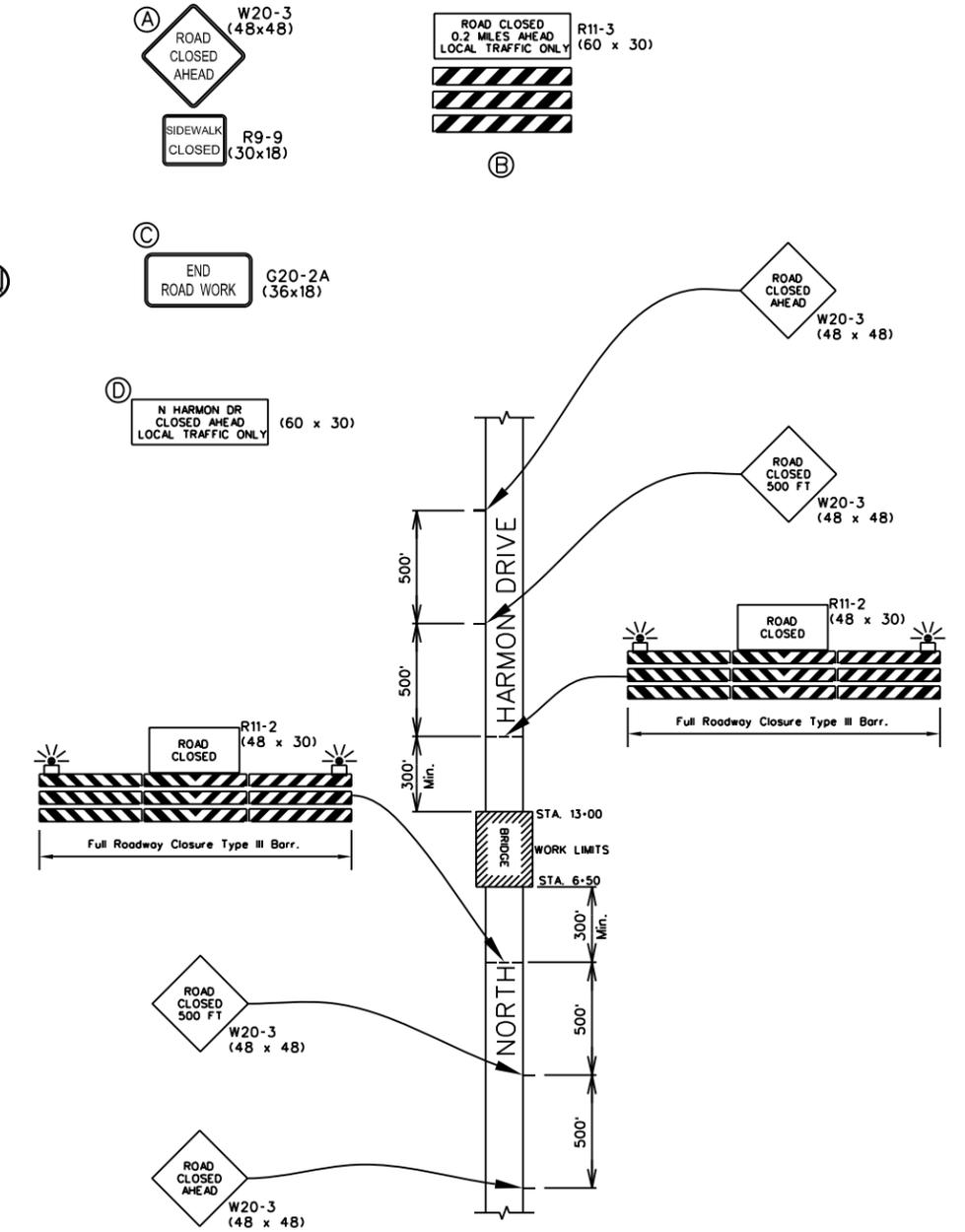
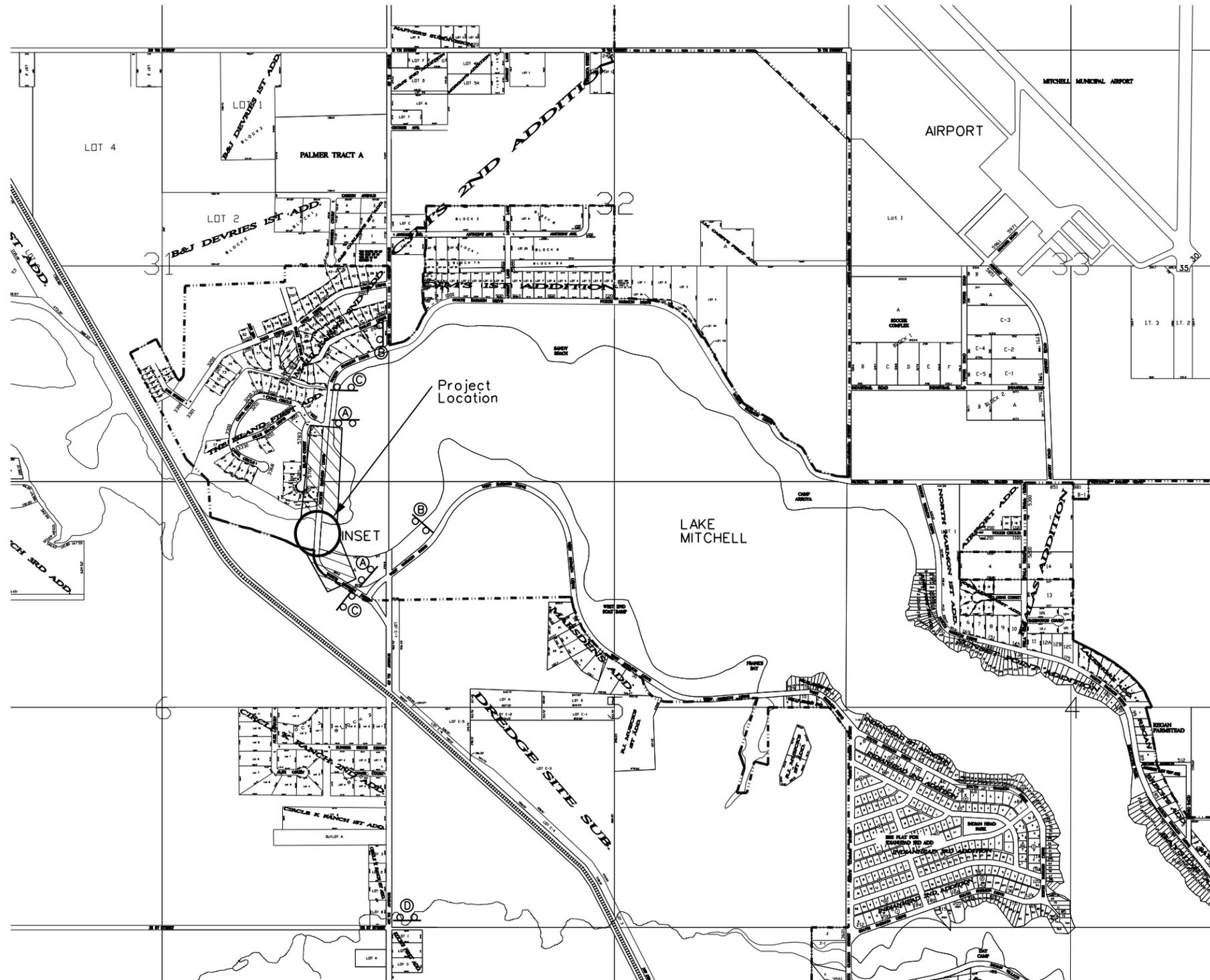
FOR BIDDING PURPOSES ONLY

TRAFFIC CONTROL

Fixed Location Signs
(Ground Mounted Supports)
City of Mitchell

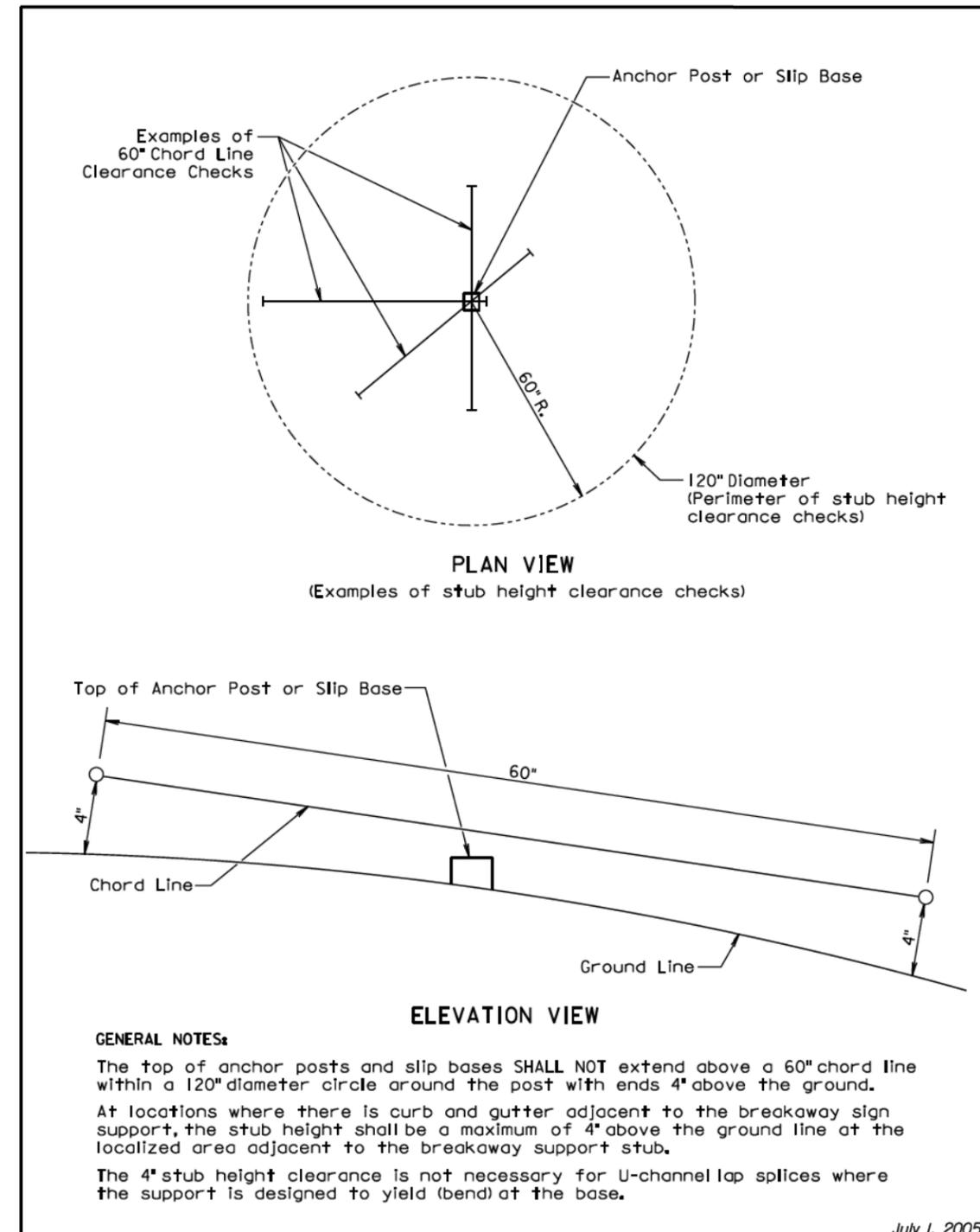
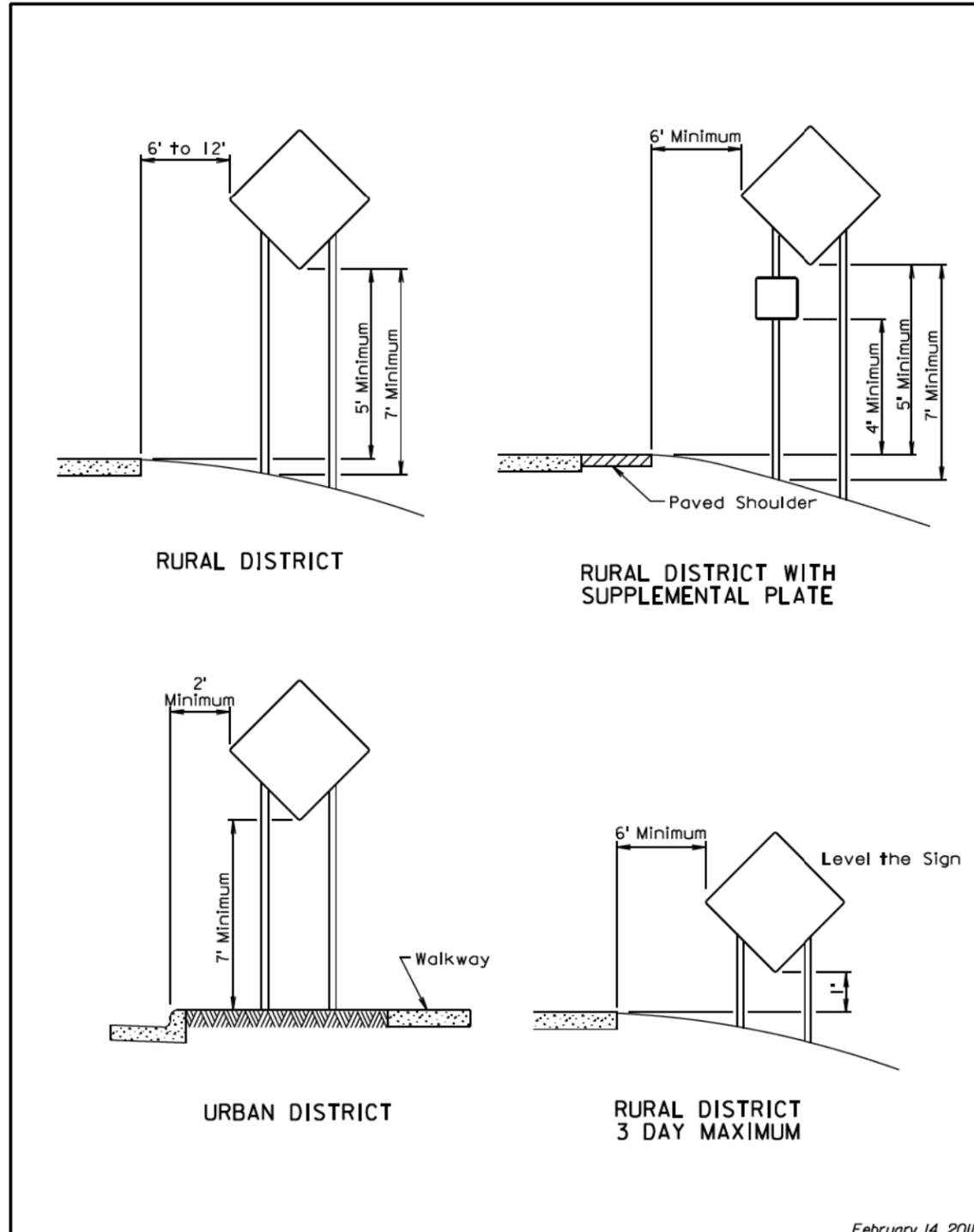
STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 12	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
R9-9	30" x 18"	SIDEWALK CLOSED	2	15	30
R11-2	48" x 30"	ROAD CLOSED	2	27	54
R11-3	60" x 30"	ROAD CLOSED ## MILES AHEAD LOCAL TRAFFIC ONLY	2	30	60
W20-3	48" x 48"	ROAD CLOSED ### FT. OR AHEAD	6	34	204
SPECIAL	60" x 30"	N HARMON DRIVE CLOSED AHEAD	1	30	30
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	6	40	240
*****	*****	TYPE III BARRICADE - 6 FT. DOUBLE SIDED	2	42	84
TOTAL UNITS					736



Notes:
 All Fixed Location Signs shall remain in-place until the permanent pavement marking is complete.
 All Fixed Location Signs shall be placed 200' to 300' from intersection. Exact location to be approved by the Engineer.
 Construction Signs shall not obscure existing signs and must be installed a minimum of 200' from an existing sign.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	BRF 3630(02)	NO. 13	SHEETS 77
Plotting Date: 09/19/12			
Revised Date: 05/05/14 CVS			
Initials: LDH			



Published Date: 2nd Qtr. 2014	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	February 14, 2011
			PLATE NUMBER 634.85
			Sheet 1 of 1

Published Date: 2nd Qtr. 2014	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	July 1, 2005
			PLATE NUMBER 634.99
			Sheet 1 of 1

PERMANENT SIGNING LAYOUT

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 14	TOTAL SHEETS 77
Plotting Date: 09/19/14		Revised Date: 05/05/14 CVS	
Initials: LDH			

Permanent Signing Notes:

All existing signs, posts, delineators and hardware shall be removed as per these plans, by the Contractor, and salvaged & stockpiled for the City of Mitchell.

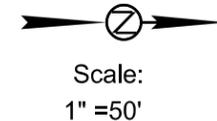
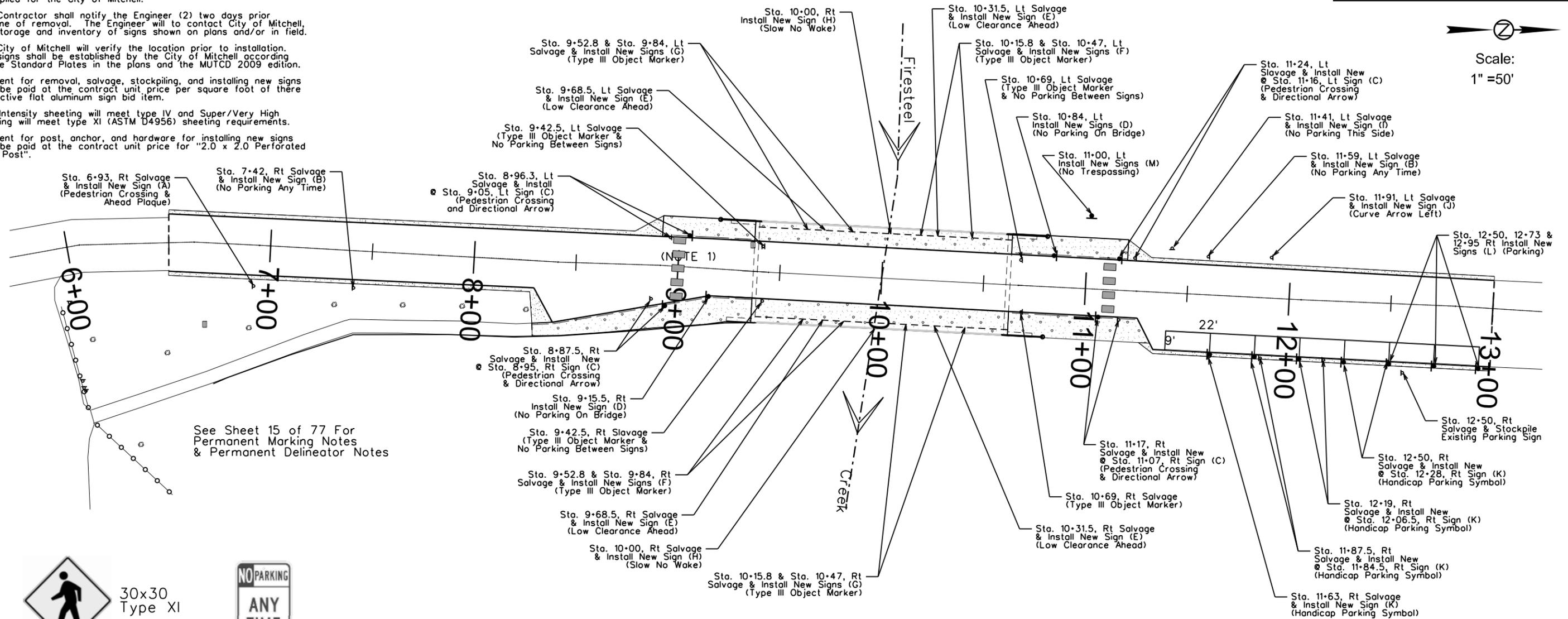
The Contractor shall notify the Engineer (2) two days prior to time of removal. The Engineer will to contact City of Mitchell, for storage and inventory of signs shown on plans and/or in field.

The City of Mitchell will verify the location prior to installation. The signs shall be established by the City of Mitchell, according to the Standard Plates in the plans and the MUTCD 2009 edition.

Payment for removal, salvage, stockpiling, and installing new signs shall be paid at the contract unit price per square foot of these respective flat aluminum sign bid item.

High Intensity sheeting will meet type IV and Super/Very High sheeting will meet type XI (ASTM D4956) sheeting requirements.

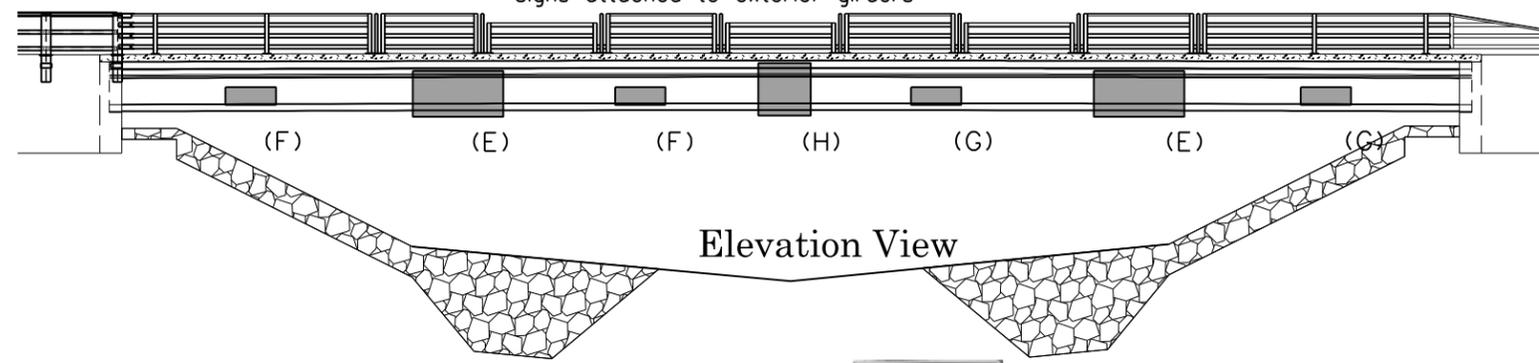
Payment for post, anchor, and hardware for installing new signs shall be paid at the contract unit price for "2.0 x 2.0 Perforated Tube Post".



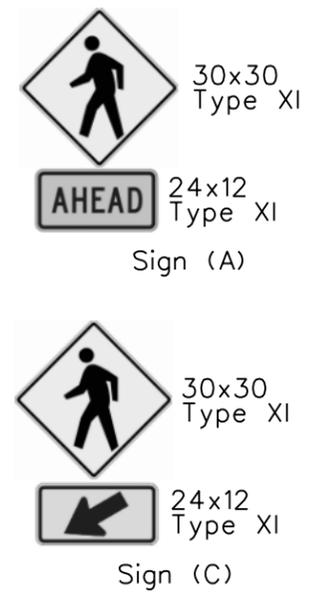
See Sheet 15 of 77 For Permanent Marking Notes & Permanent Delineator Notes

(NOTE 1)

See Sheet 40 of 77 for placement of signs attached to exterior girders



Elevation View



Sign (F)
30x30
Type XI



Sign (E)
48x24
Type IV



Sign (H)
30x30
Type IV



Sign (G)
30x30
Type XI



Sign (L)
24x18
Type IV



Sign (M)
18x24
Type IV



Sign (I)
18x24
Type IV



Sign (J)
30x30
Type XI



Sign (K)
18x18
Type IV

PERMANENT DELINEATOR LOCATIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	15	77
Plotting Date: 09/19/12		Revised Date: 05/05/14 CVS	
Initials: LDH			



Scale:
1" = 50'

Permanent Marking Notes: (See Previous Sheet For Location)

This work consists of the furnishing and application of cold applied plastic pavement marking tape on concrete pavement and pavement marking paint and beads on all asphalt concrete pavements. The work shall comply with Section 633 of the SDDOT Standard Specifications.

The cold applied plastic pavement marking tape shall comply with Section 983 of the SDDOT Standard Specifications and Associated Supplemental Specifications.

Note 1:
The Crosswalk markings shall be placed according to the MUTCD 2009 edition, 24" wide White Pavement Markings (clear space between the longitudinal crosswalk markings shall be 2') and 8' Min. in length. Crosswalks shall be centered on new Type (2) curb ramps (See Standard Plate 651.02) for details.

Note 2:
The Parking Space markings shall be placed according to the MUTCD 2009 edition, 4" wide White Pavement Markings (9' x 22' spaces).

Furnishing & Installation, by City Of Mitchell.

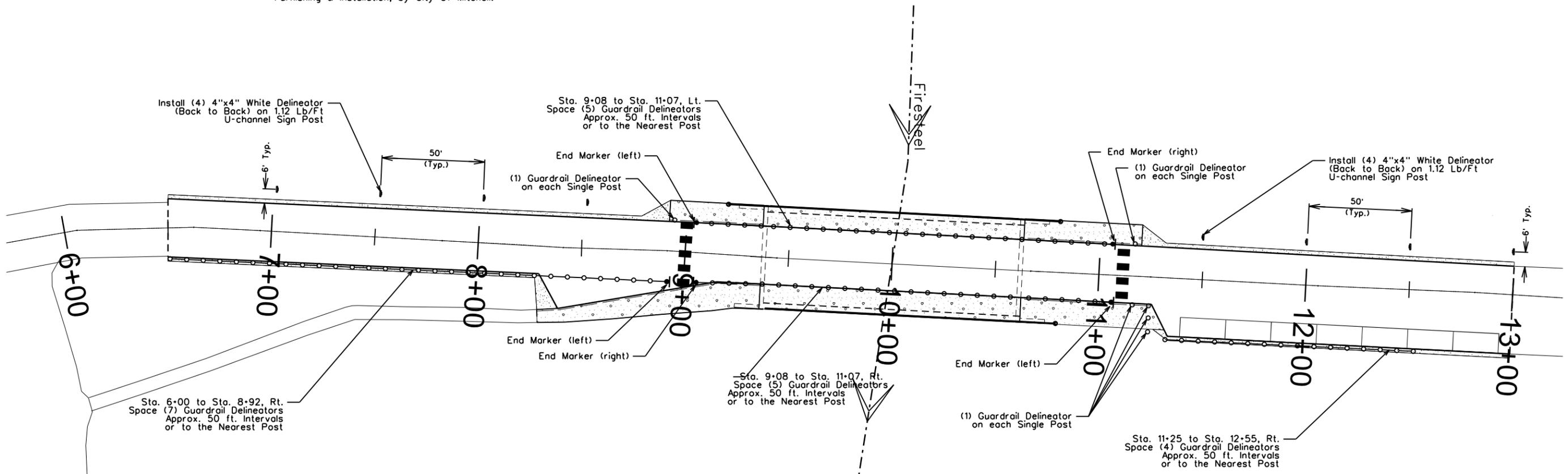
Permanent Delineator Notes:

Delineator spacing and distance from shoulder shall be placed in accordance with the Manual of Uniform Traffic Control Devices (M.U.T.C.D.) 2009 Edition and the standard plates.

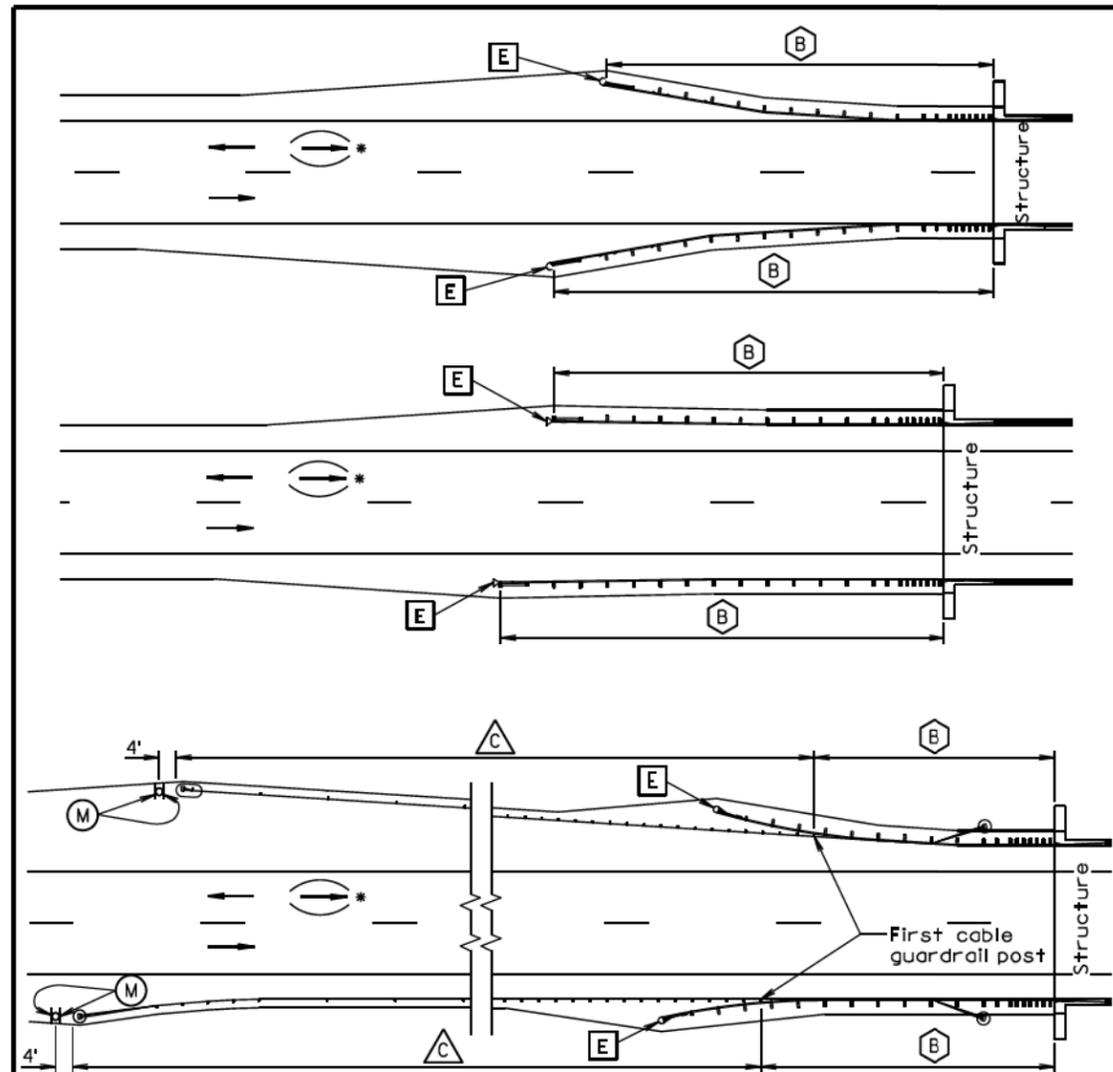
Guardrail Terminal End Makers and Guardrail Delineators shall be paid at the unit price per each "Guardrail Delineator". This includes any hardware to install.

Eight (8) Type D4-S Delineators are required and shall be paid at the unit price per each "4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post".

All delineators shall meet type XI (ASTM D4956) reflectivity requirements.



Guardrail (right) End Marker is Shown



TYPICAL GUARDRAIL LAYOUTS

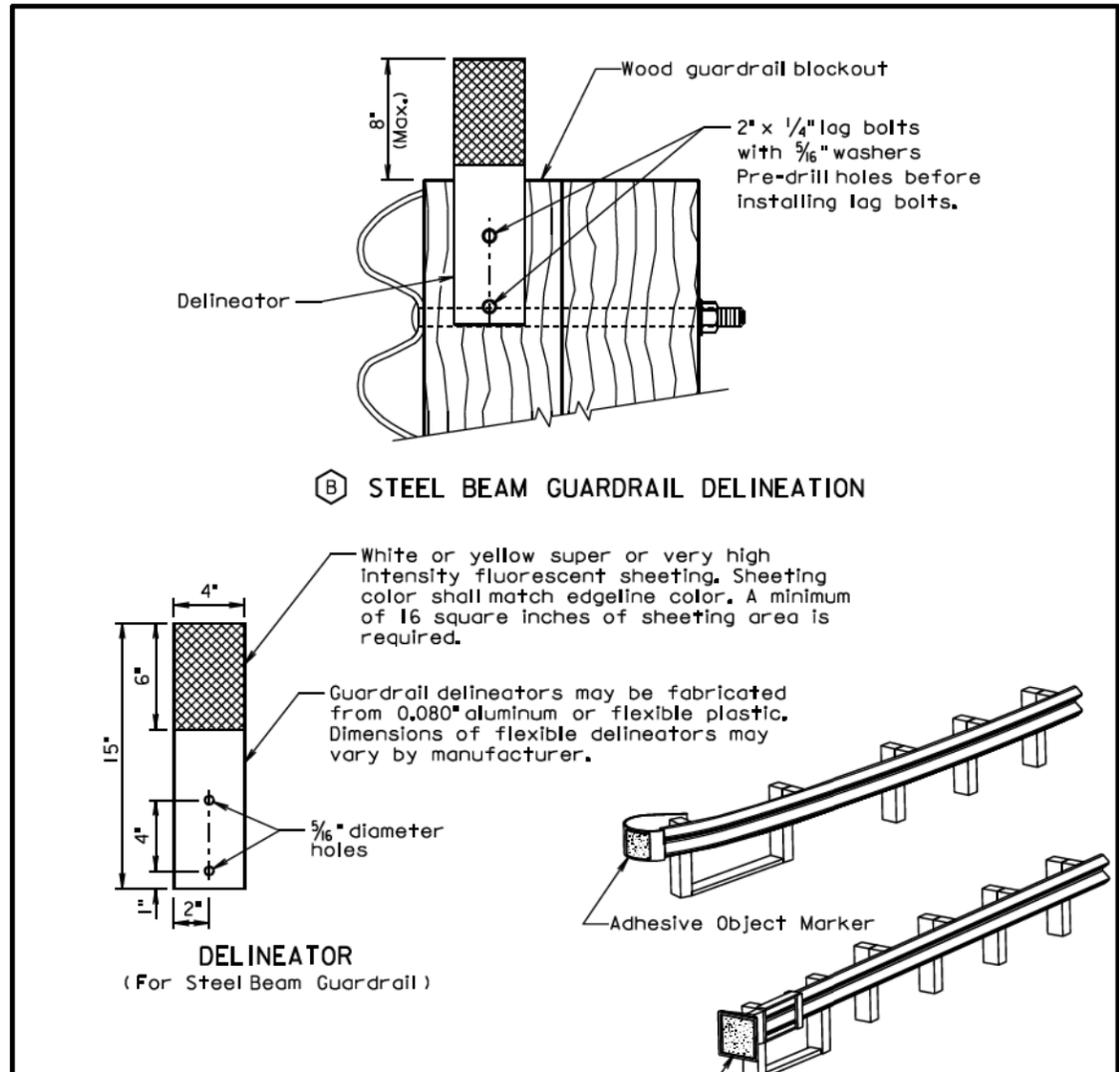
- (B) Steel Beam Guardrail Delineation
- (E) Guardrail Terminal End Object Marker
- (C) 3 Cable Guardrail Delineation
- (M) Type 2 Object Marker

* For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 1 of 4

Published Date: 2nd Qtr. 2014



(B) STEEL BEAM GUARDRAIL DELINEATION

DELINEATOR
(For Steel Beam Guardrail)

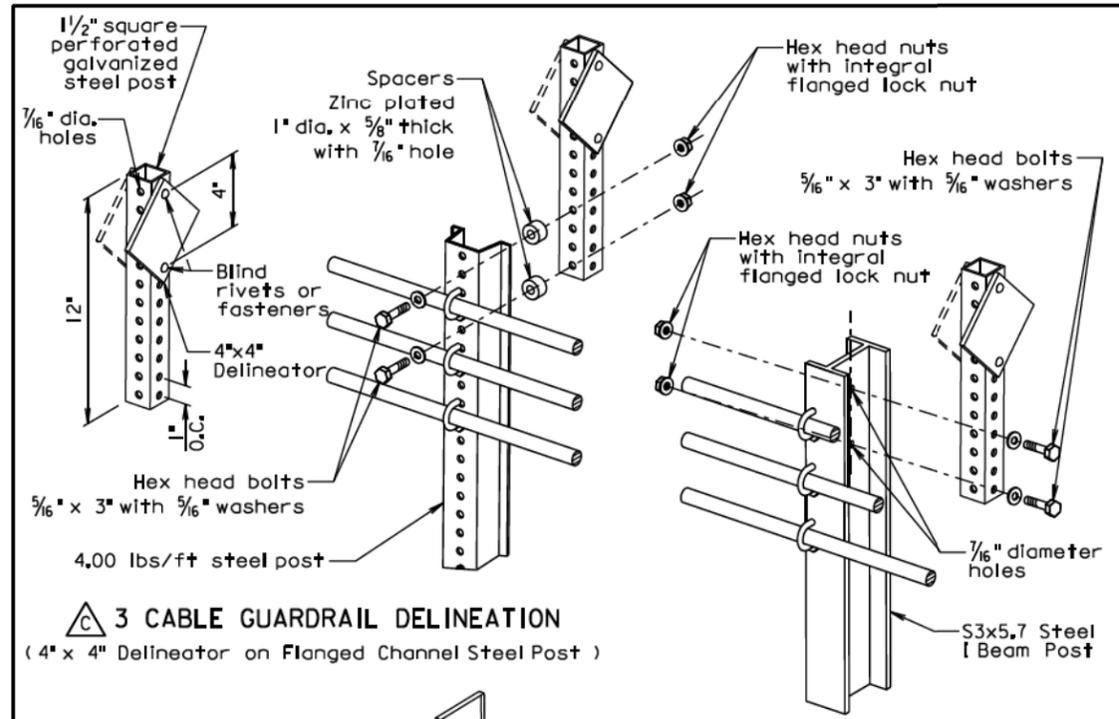
ADHESIVE OBJECT MARKER

(E) GUARDRAIL TERMINAL END OBJECT MARKER

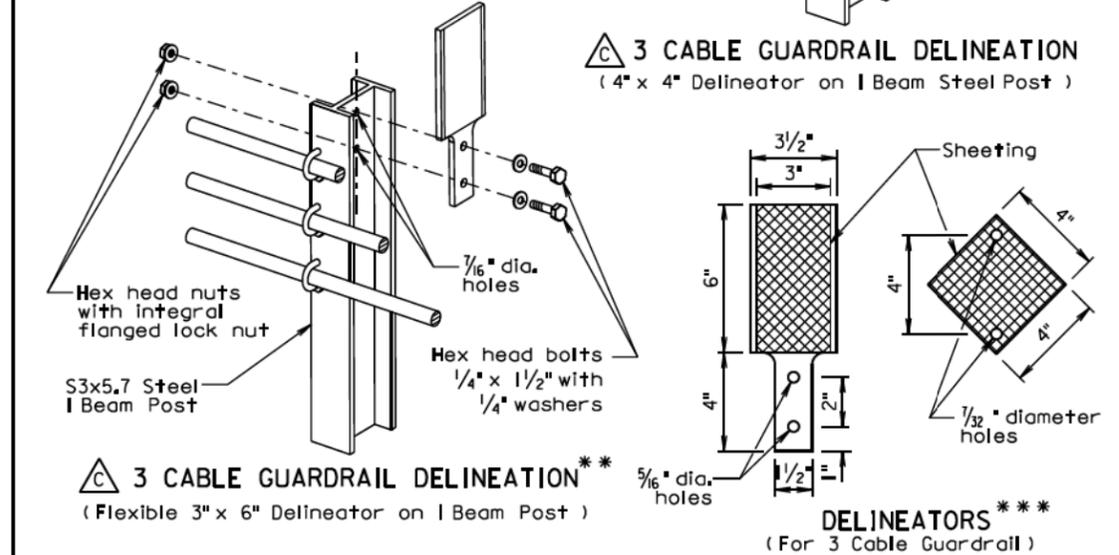
June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 2 of 4

Published Date: 2nd Qtr. 2014



△ 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on Flanged Channel Steel Post)



△ 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on I Beam Steel Post)

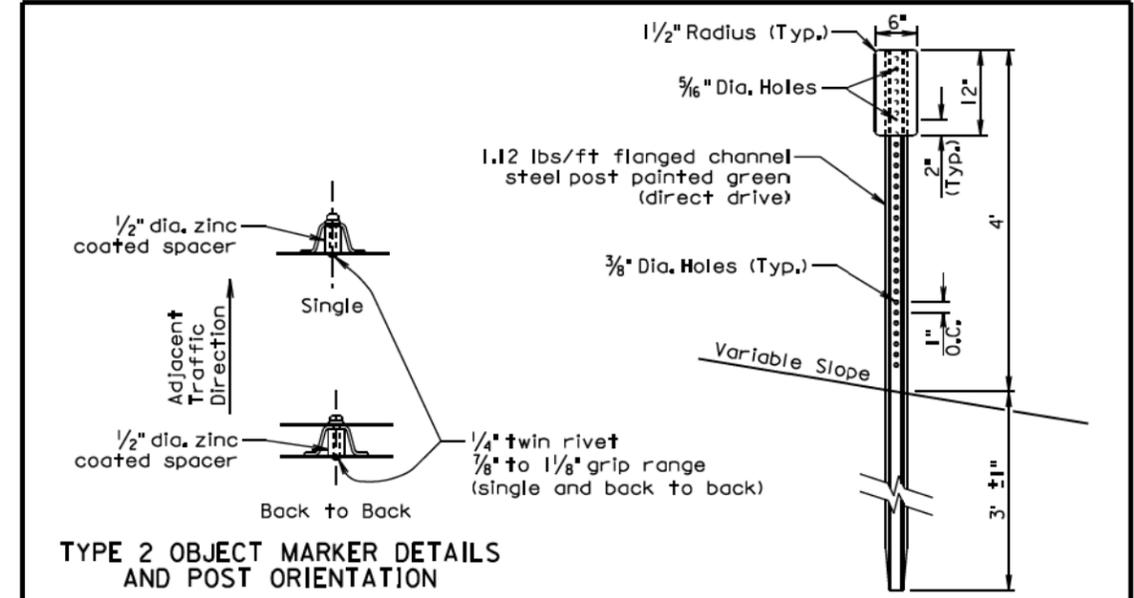
△ 3 CABLE GUARDRAIL DELINEATION**
(Flexible 3" x 6" Delineator on I Beam Post)

DELINEATORS***
(For 3 Cable Guardrail)

** Flexible delineators may be attached to post with manufacturer approved adhesive instead of bolts.
*** Dimensions of flexible delineators may vary by manufacturer. A minimum of 16 square inches of sheeting area is required. The sheeting shall be white or yellow super or very high intensity fluorescent sheeting. The sheeting color shall match the edgeline color.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
	Published Date: 2nd Qtr. 2014	Sheet 3 of 4



TYPE 2 OBJECT MARKER DETAILS AND POST ORIENTATION

Ⓜ TYPE 2 OBJECT MARKER
(For Marking 3 Cable Guardrail Anchor)

GENERAL NOTES:

The delineators shall be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting shall be of either very high intensity or super high intensity material. For bridges along two-way roadways the sheeting shall be on both sides of the delineator and shall be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

The first delineator shall be attached to the post nearest the bridge with additional delineators spaced in advance of the bridge at approximately 50 foot intervals. At bridges with short lengths of guardrail, less than 200 feet, a minimum of 4 delineators shall be placed in addition to the yellow object marker. The spacing between the delineators shall be approximately one third of the length of the guardrail. This will provide for a shorter spacing. At bridges with longer lengths of guardrail, greater than 200 feet, including bridges that have cable guardrail transitioning into the steel beam guardrail, the delineators will be placed at a spacing of approximately 50 feet. Delineation shall extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation shall be included in the contract unit price per each for "Guardrail Delineator".

An adhesive object marker shall be placed on the end of the W beam guardrail end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

A type 2 object marker shall be placed adjacent to the 3 cable guardrail anchor at the location noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") shall have a fluorescent yellow very high or super high intensity reflective sheeting. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware shall be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
	Published Date: 2nd Qtr. 2014	Sheet 4 of 4

FOR BIDDING PURPOSES ONLY

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

❖ **SITE DESCRIPTION (4.2 1)**

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Cutting and filling
 - Other (describe):
- **Total Project Area 3.0 (4.2 1.b.)**
- **Total Area To Be Disturbed 2.0 (4.2 1.b.)**
- **Existing Vegetative Cover (%) 30**
- **Soil Properties: AASHTO Soil A-1,A-2,A-4, A-6 & A-7 Classification**
Loam, Silt Loam, Clay Loam, Gravelly Loam & Cobbly Clay Loam
(4.2 1. d.)
- **Name of Receiving Water Body/Bodies** Firesteel Creek **(4.2 1.e.)**

❖ **ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)**

- (Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)
- **Install stabilized construction entrance(s).**
 - **Install perimeter protection where runoff sheets from the site.**
 - **Install channel and ditch bottom protection.**
 - **Clearing and grubbing.**
 - **Remove and store topsoil.**
 - **Stabilize disturbed areas.**
 - **Install inlet and culvert protection after completing storm drainage and other utility installations.**
 - **Complete final grading.**
 - **Complete final paving.**
 - **Complete traffic control installation and protection devices.**
 - **Reseed areas disturbed by removal activities.**

❖ **EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))**

- (Check all that apply)
- **Stabilization Practices (See Detail Plan Sheets)**
 - Temporary Seeding (Cover Crop Seeding)
 - Permanent Seeding
 - Sodding
 - Planting (Woody Vegetation for Soil Stabilization)
 - Mulching (Grass Hay or Straw)
 - Hydraulic Mulch (Wood Fiber Mulch)
 - Soil Stabilizer
 - Bonded Fiber Matrix
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Dust Control
 - Other:

➤ **Structural Temporary Erosion and Sediment Controls**

- Silt Fence
- Floating Silt Curtain
- Straw Bale Check
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Turf Reinforcement Mat
- Rip Rap
- Gabions
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection (Area Drain)
- Curb Inlet Protection
- Stabilized Construction Entrances
- Entrance/Exit Equipment Tire Wash
- Interceptor Ditch
- Concrete Washout Area
- Temporary Diversion Channel
- Work Platform
- Temporary Water Barrier
- Temporary Water Crossing
- Other:

➤ **Wetland Avoidance**

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes No If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

➤ **Storm Water Management (4.2 2.b., (1) and (2))**

Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.

➤ **Other Storm Water Controls (4.2 2.c., (1) and (2))**

- **Waste Disposal**
All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
- **Hazardous Waste**
All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the contractor's on-site representative will be responsible for seeing that these practices are followed.
- **Sanitary Waste**
Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management contractor or as required by any local regulations.

❖ **Maintenance and Inspection (4.2 3. and 4.2 4.)**

➤ **Maintenance and Inspection Practices**

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and contractor's site superintendent are responsible for inspections. Maintenance, repair activities are the responsibility of the contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

❖ **Non-Storm Water Discharges (3.0)**

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

❖ **Materials Inventory (4.2. 2.c.(2))**

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

❖ **Spill Prevention (4.2 2.c.(2))**

➤ **Material Management**

- Housekeeping
 - Only needed products will be stored on-site by the contractor.
 - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
 - Products must be stored in original containers and labeled.
 - Material mixing will be conducted in accordance with the manufacturer's recommendations.
 - When possible, all products will be completely used before properly disposing of the container off site.
 - The manufacturer's directions for disposal of materials and containers will be followed.
 - The contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
 - Dust generated will be controlled in an environmentally safe manner.
 - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.
- Hazardous Materials
 - Products will be kept in original containers unless the container is not resealable.
 - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
 - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
 - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
 - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
 - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

➤ **Product Specific Practices (6.8)**

- Petroleum Products
All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Fertilizers
Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
- Paints
All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the

manufacturer's instructions and any applicable state and local regulations.

- Concrete Trucks
Contractors will provide designated truck washout areas on the site. These areas must be self contained and not connected to any storm water outlet of the site. Upon completion of construction washout areas will be properly stabilized.
- **Spill Control Practices (4.2 2 c.(2))**
In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.
 - For all hazardous materials stored on site, the manufacturer's recommended methods for spill clean up will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
 - Appropriate cleanup materials and equipment will be maintained by the contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for clean up purposes.
 - All spills will be cleaned immediately after discovery and the materials disposed of properly.
 - The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
 - After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
 - The contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.
- **Spill Response (4.2 2 c.(2))**
The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.
 - The contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
 - If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
 - Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the contractor at the site.
 - If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.

- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

❖ **Spill Notification**

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

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately if **any one of the following** conditions exists:
 - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
 - The discharge causes an immediate danger to human health or safety.
 - The discharge exceeds 25 gallons.
 - The discharge causes a sheen on surface water.
 - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
 - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
 - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
 - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

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

❖ **Construction Changes (4.4)**

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

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF 3630(02)	19	77

❖ **CERTIFICATIONS**

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

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

➤ **South Dakota Department of Transportation**

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



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

➤ **Prime Contractor**

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

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

Authorized Signature

❖ **CONTACT INFORMATION**

➤ **Contractor Information:**

- Prime Contractor Name:
- Contractor Contact Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **Erosion Control Supervisor**

- Name:
- Address:
- Address:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **SDDOT Project Engineer**

- Name:
- Business Address:
- Job Office Location:
- City: State: Zip:
- Office Phone: Field:
- Cell Phone: Fax:

➤ **SD DENR Contact Spill Reporting**

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

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

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

EROSION CONTROL

FOR BIDDING PURPOSES ONLY

(Floating Silt Curtain, Erosion Control Wattle & Low Flow Silt Fence)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	20	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: LDH			

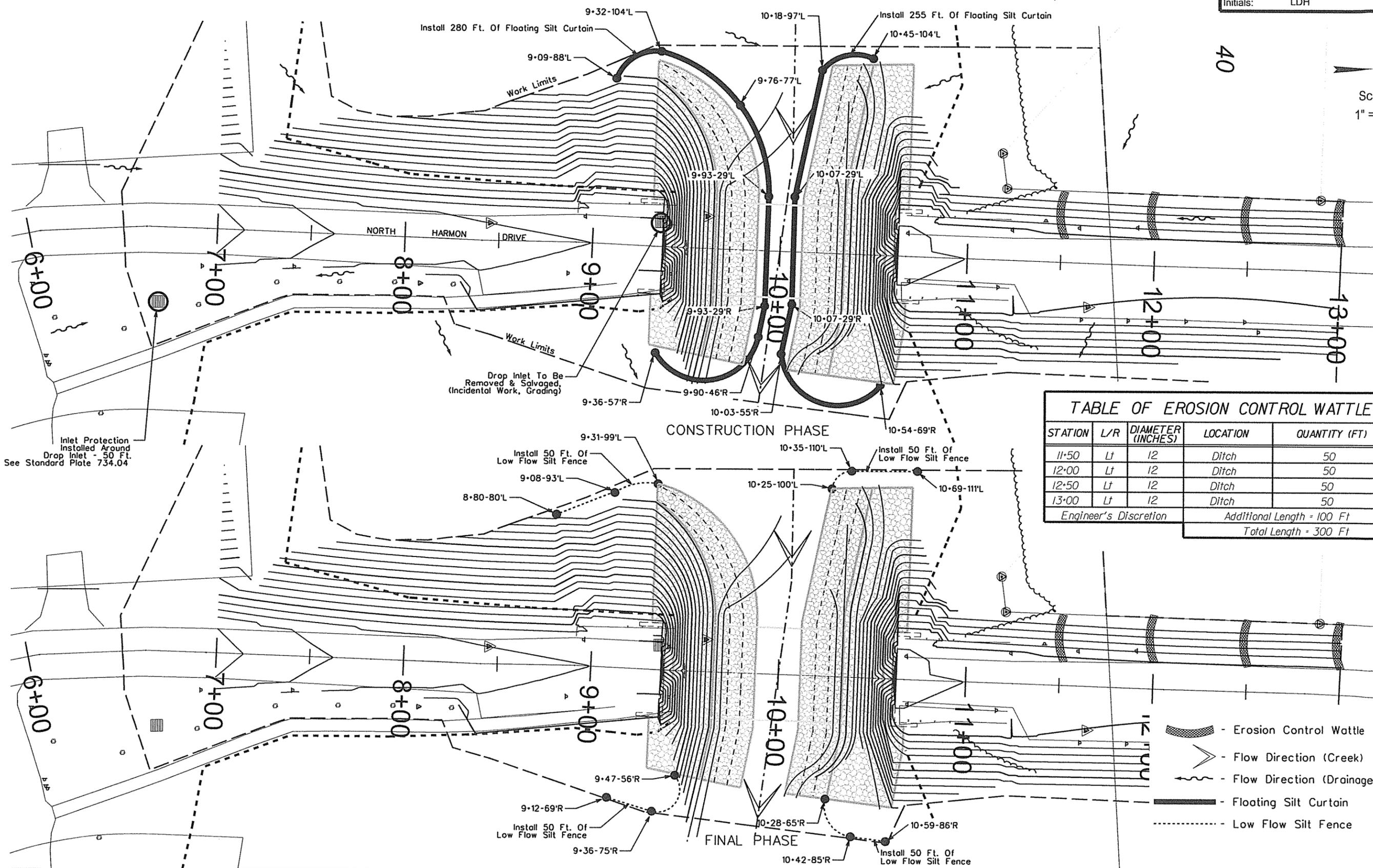


TABLE OF EROSION CONTROL WATTLE

STATION	L/R	DIAMETER (INCHES)	LOCATION	QUANTITY (FT)
11+50	Lt	12	Ditch	50
12+00	Lt	12	Ditch	50
12+50	Lt	12	Ditch	50
13+00	Lt	12	Ditch	50
Engineer's Discretion				Additional Length = 100 Ft
				Total Length = 300 Ft

- Erosion Control Wattle
- Flow Direction (Creek)
- Flow Direction (Drainage)
- Floating Silt Curtain
- Low Flow Silt Fence

Inlet Protection Installed Around Drop Inlet - 50 Ft. See Standard Plate 734.04

Drop Inlet To Be Removed & Salvaged, (Incidental Work, Grading)

CONSTRUCTION PHASE

FINAL PHASE

EROSION CONTROL

(Turf Reinforcement Mat & Pit Run Base Material)

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 21	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: mm/dd/yy Initials: LDH			

Albert A. Rust
1506 Bridle Drive
Mitchell, SD 57301
N. 209.76' of S. 2074.00' of W. 209.76' of E. 1107.93' of
NE 1/4 of Sec 6, T103N, R60W of 5th P.M.

Sta. 10+63 To 10+85, Lt
Install 10 Ton Of 6" Minus
Pit Run Base Material & 150
SqYd Of Type 2 Drainage
Fabric Installed Between Pit
Run Material & Embankment.

Robert P. & Bonita A. Martin
5600 Island Ct.
Mitchell, SD 57301
Lots 39 & 40 of the Island Frist Addition,
a Subdivision of the SE 1/4
of Sec 31, T104N, R60W of 5th P.M.

Riprap Size & Dimensions
Shown On Sheet 35 of 77.

Sta. 7+35 To 9+37, Lt
Install 1106 Ton Of 6"
Minus Pit Run Base
Material & 1200 SqYd
Of Type 2 Drainage
Fabric Installed Between
Pit Run Material &
Embankment.

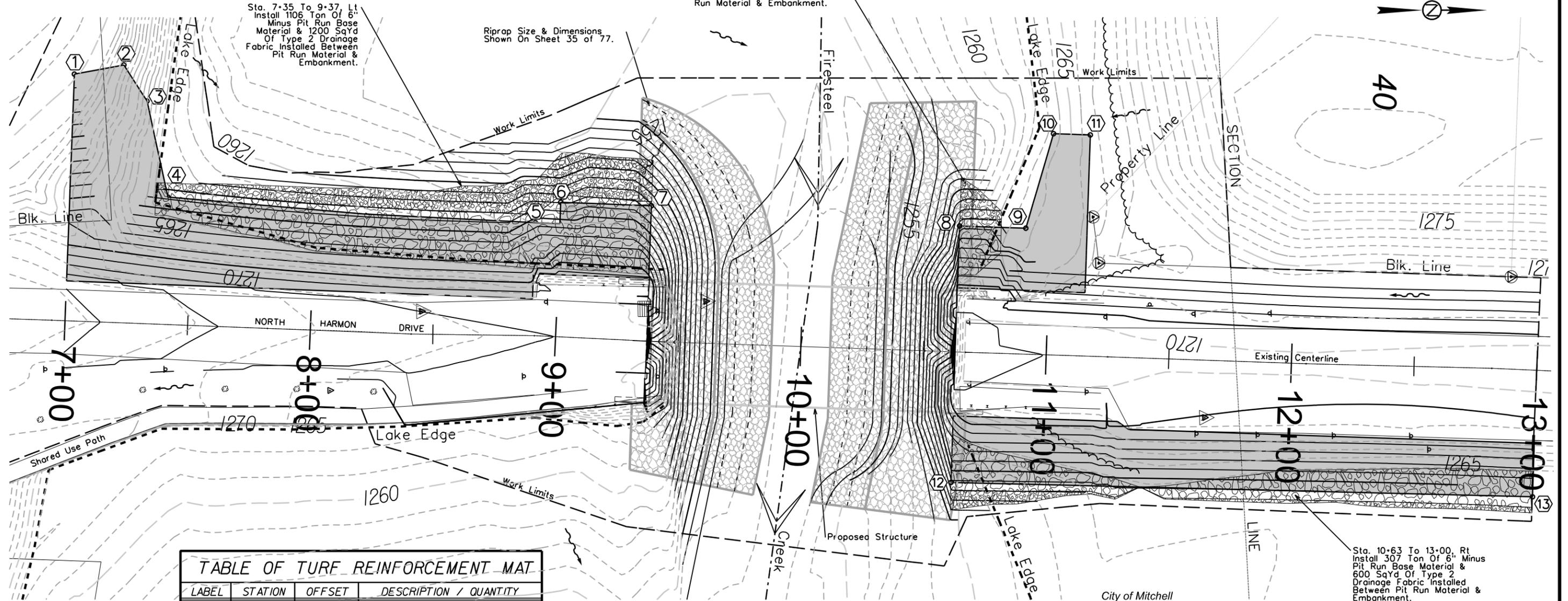


TABLE OF TURF REINFORCEMENT MAT			
LABEL	STATION	OFFSET	DESCRIPTION / QUANTITY
1	7+00	100.3' Lt	From 1 thru 7 Approx. Area = 1031.6 SqYd
2	7+20	104.8' Lt	
3	7+30	90.5' Lt	
4	7+40	51.8' Lt	
5	8+90	46.3' Lt	
6	9+00	54.6' Lt	
7	9+37	53.7' Lt	
8	10+63	51.2' Lt	From 8 thru 11 Approx. Area = 232.2 SqYd
9	10+90	51.2' Lt	
10	11+00	90.0' Lt	
11	11+15	90.0' Lt	From 12 thru 13 Approx. Area = 626.8 SqYd
12	10+63	53.1' Rt	
13	13+00	52.8' Rt	
Total Area = 1890.6 SqYd.			

LAKE MITCHELL

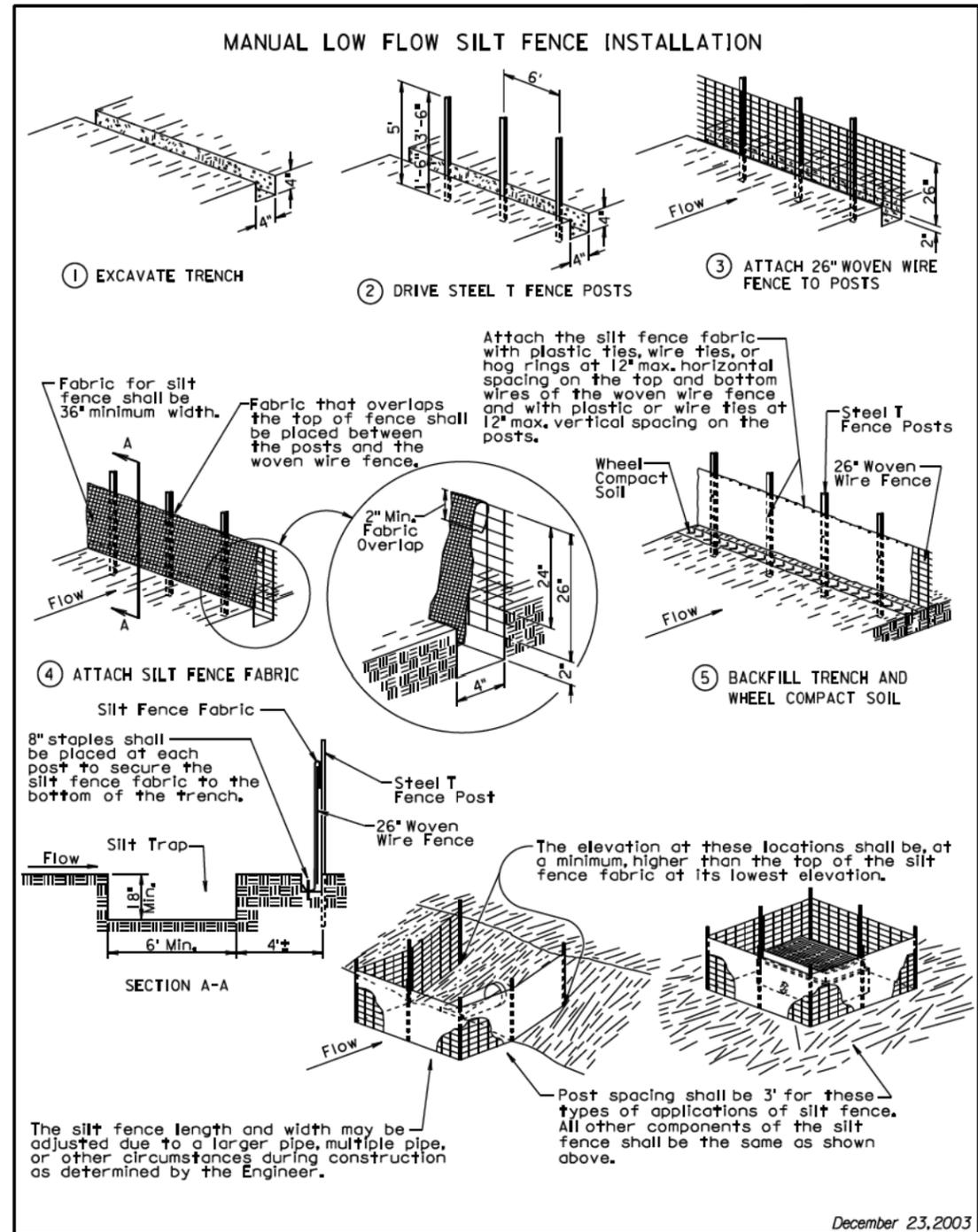
Note:
Turf Reinforcement Mat &
Pit Run Base Material,
See Cross Sections

Contour Lines
The Contour Lines Shown Depict The Original
Ground (Dashed) As Well As The Proposed
Contours (Solid)

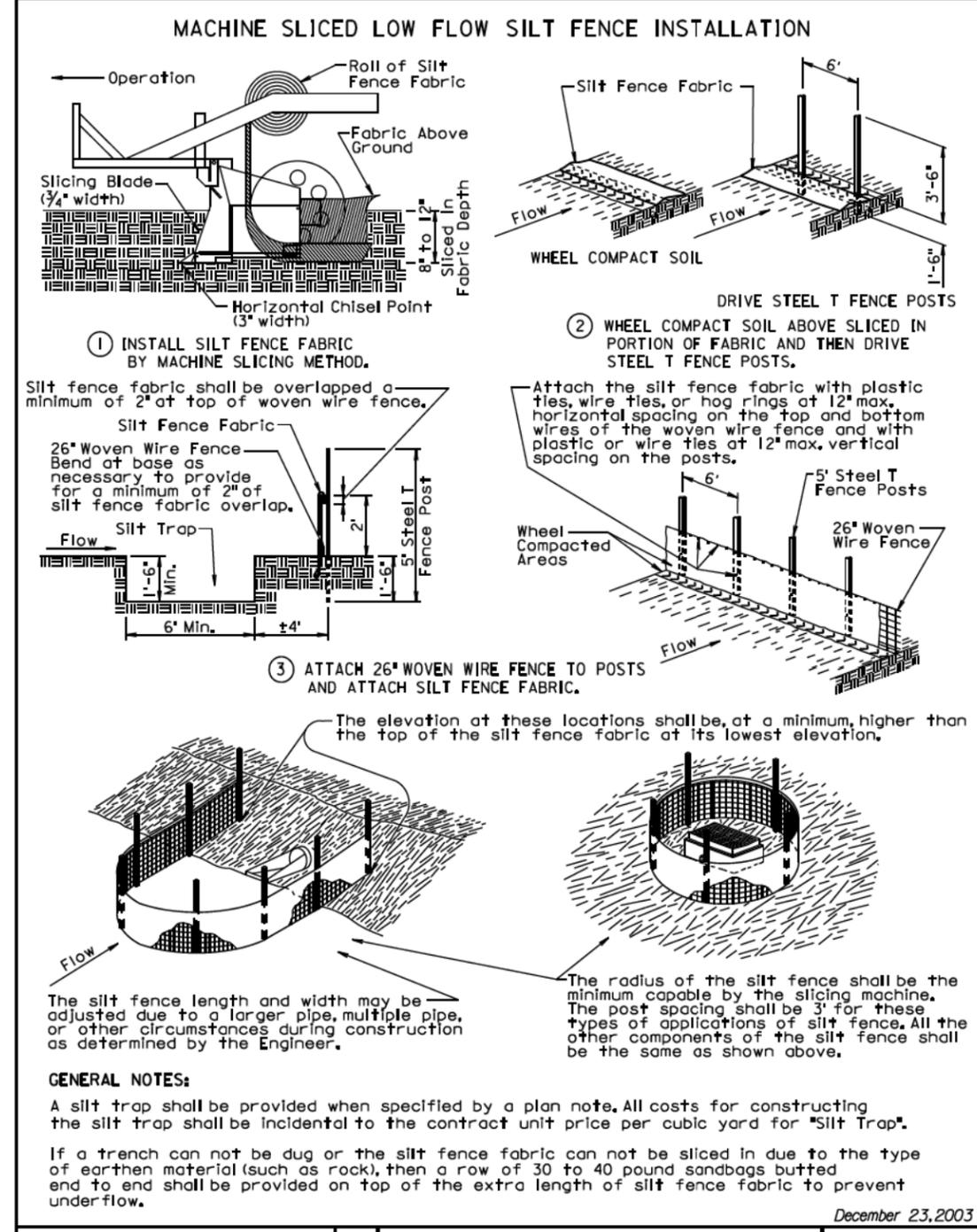
- Flow Direction (Creek)
- Flow Direction (Drainage)
- Turf Reinforcement Mat
- 6" Minus Pit Run Base Material

Sta. 10+63 To 13+00, Rt
Install 307 Ton Of 6" Minus
Pit Run Base Material &
600 SqYd Of Type 2
Drainage Fabric Installed
Between Pit Run Material &
Embankment.

City of Mitchell
Irregular Tract #4

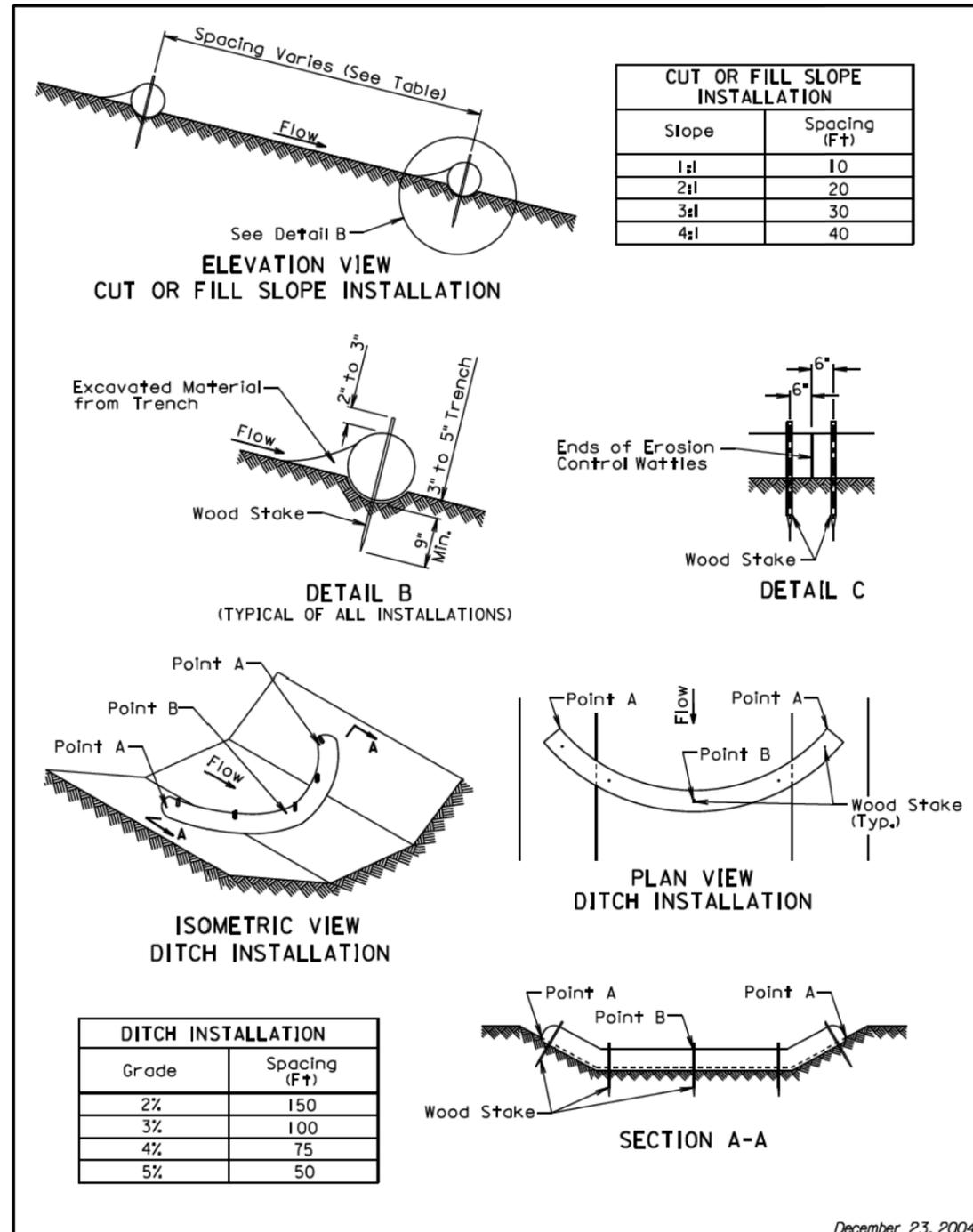


S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
	Published Date: 2nd Qtr. 2014	Sheet 1 of 2



S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
	Published Date: 2nd Qtr. 2014	Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	23	77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			



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'.

When 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 1/2". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

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

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

Published Date: 2nd Qtr. 2014	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

December 23, 2004

Published Date: 2nd Qtr. 2014	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF 3630(02)	24	77

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1	18+06.0	82.97' L	Nail \ Rooster	528661.46	2566068.97	1281.08
CP2	4+66.4	56.00' R	Nail \ Rooster	527367.55	2566186.97	1278.27
CP3	8+45.3	9.27' L	Nail \ Rooster	527697.60	2566094.13	1271.27
CP4	12+87.9	37.52' L	Rebar\Cap (Property Corner)	528141.74	2566087.83	1268.59
CP5	11+20.2	38.02' L	Rebar\Cap (Property Corner)	527973.85	2566079.36	1268.81
CP6	8+08.9	24.17' R	Nail \ Rooster	527659.62	2566125.58	1270.96
CP7	9+60.7	17.00' L	Nail \ Rooster	527813.50	2566092.13	1270.01
CP8	11+56.0	155.43' L	Nail \ Rooster	528015.50	2565963.95	1276.65

HORIZONTAL ALIGNMENT DATA

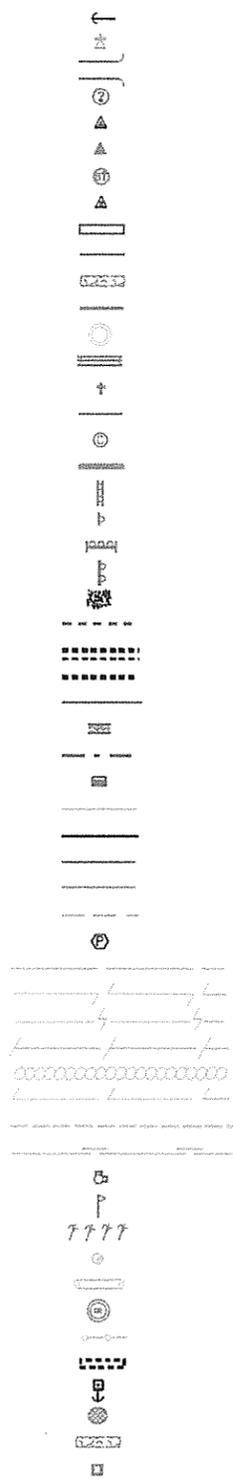
<u>Type</u>	<u>Station</u>	<u>Northing</u>	<u>Easting</u>
POB	-5+16.85	526765.71	2566936.57
PC	-4+81.02	526797.30	2566919.67
PI	-4+40.51	526830.84	2566896.94
PT	-4+00.07	526856.49	2566865.60
PI	-0+35.18	527058.24	2566562.92
PC	3+60.39	527257.43	2566221.21
PI	4+89.66	527347.99	2566129.56
PT	6+06.09	527458.44	2566094.95
PI	8+91.32	527743.36	2566104.82
PI	17+70.93	528621.71	2566149.77
PC	24+36.26	529285.34	2566196.46
PI	25+35.06	529382.96	2566211.67
PT (POE)	26+25.62	529467.61	2566243.86

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD 83/96) SF = 0.99983359 The elevations shown on this sheet are based on NAVD 88.

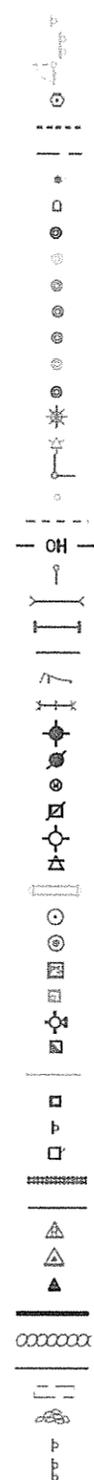
EXISTING TOPOGRAPHY SYMBOLOLOGY AND LEGEND

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	25	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: LDH			

Anchor
Antenna
Approach
Assumed Corner
Azimuth Marker
Bbq Grill/ Fireplace
Bearing Tree
Bench Mark
Box Culvert
Bridge
Brush
Buildings
Bulk Tank
Cattle Guard
Cemetery
Centerline
Cistern
Clothes Line
Commercial Sign Double Face
Commercial Sign One Post
Commercial Sign Overhead
Commercial Sign Two Post
Concrete Symbol
Creek Edge
Curb/Gutter
Curb
Dam Grade/Dike/Levee
Ditch Block
Drainage Profile
Drop Inlet
Edge Of Asphalt
Edge Of Concrete
Edge Of Gravel
Edge Of Other
Edge Of Shoulder
Elec. Trans./Power Jct. Box
Fence Barbwire
Fence Chainlink
Fence Electric
Fence Misc.
Fence Rock
Fence Snow
Fence Wood
Fence Woven
Fire Hydrant
Flag Pole
Flower Bed
Gas Valve Or Meter
Gas Pump Island
Grain Bin
Guardrail
Gutter
Guy Pole
Haystack
Hedge
Highway R.O.W. Marker

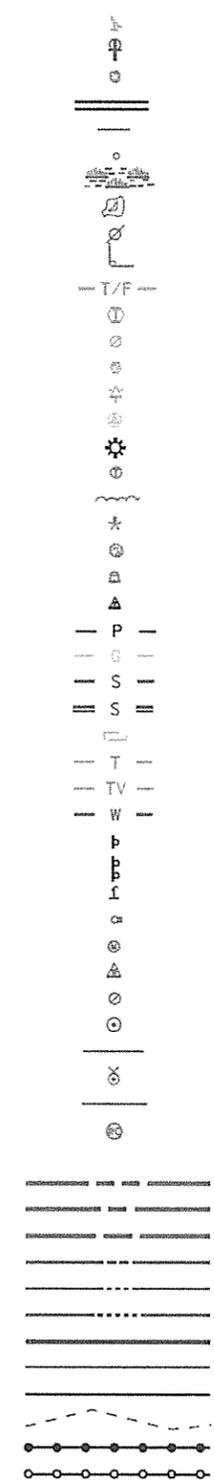


Information Sign One Post
Information Sign Two Post
Interstate Close Gate
Iron Pin
Irrigation Ditch
Lake Edge
Lawn Sprinkler
Mailbox
Manhole Electric
Manhole Gas
Manhole Misc
Manhole Sanitary Sewer
Manhole Storm Sewer
Manhole Telephone
Manhole Water
Merry-Go-Round
Microwave Radio Tower
Misc. Property Corner
Misc. Post
Overhang Or Encroachment
Overhead Utility Line
Parking Meter
Pipe With End Section
Pipe With Headwall
Pipe Without End Section
Playground Slide
Playground Swing
Power And Light Pole
Power And Telephone Pole
Power Meter
Power Pole
Power Pole And Transformer
Power Tower Structure
Propane Tank
Property Pipe
Property Pipe With Cap
Property Stone
Public Telephone
Railroad Crossing Signal
Railroad Milepost Marker
Railroad Profile
Railroad R.O.W. Marker
Railroad Signs
Railroad Switch
Railroad Track
Railroad Trestle
Rebar
Rebar With Cap
Reference Mark
Retaining Wall
Riprap
River Edge
Rock And Wire Baskets
Rockpiles
Route Sign One Post
Route Sign Two Post



Satellite Dish
Septic Tank
Shrub Tree
Sidewalk
Sign Face
Sign Post
Slough Or Marsh
Spring
Stream Gauge
Street Marker
Telephone Fiber Optics
Telephone Junction Box
Telephone Pole
Television Cable Jct Box
Television Tower
Test Wells/Bore Holes
Traffic Signal
Trash Barrel
Tree Belt
Tree Coniferous
Tree Deciduous
Tree Stumps
Triangulation Station
Underground Electric Line
Underground Gas Line
Underground Sanitary Sewer
Underground Storm Sewer
Underground Tank
Underground Telephone Line
Underground Television Cable
Underground Water Line
Warning Sign One Post
Warning Sign Two Post
Water Fountain
Water Hydrant
Water Meter
Water Tower
Water Valve
Water Well
Weir Rock
Windmill
Wingwall
Witness Corner

State and National Line
County Line
Section Line
Quarter Line
Sixteenth Line
Property Line
Construction Line
R. O. W. Line
New R. O. W. Line
Cut and Fill Limits
Control of Access
New Control of Access



PERMANENT EASEMENT PLAN

FOR BIDDING PURPOSES ONLY

(Temporary and Permanent Easement Shown for Information Purposes Only)

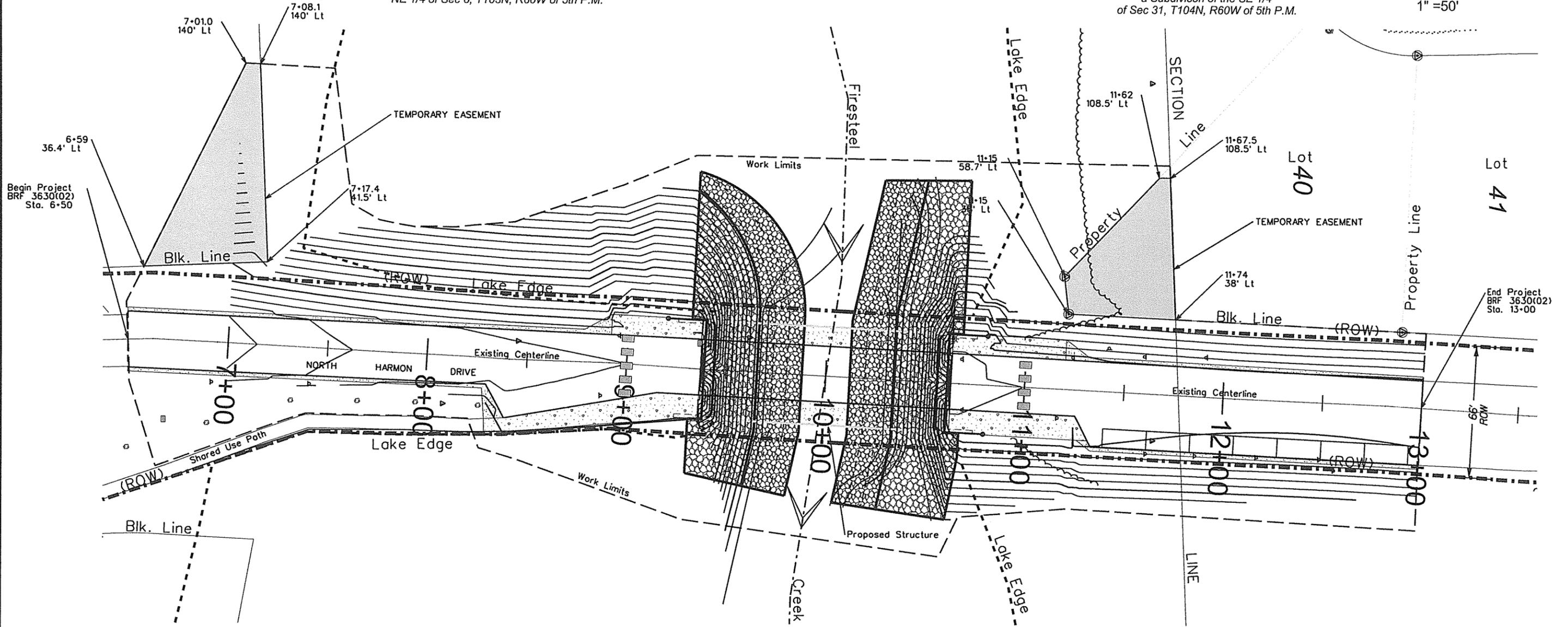
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	26	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: LDH			

Albert A. Rust
1506 Bridle Drive
Mitchell, SD 57301
N. 209.76' of S. 2074.00' of W. 209.76' of E. 1107.93' of
NE 1/4 of Sec 6, T103N, R60W of 5th P.M.

Robert P. & Bonita A. Martin
5600 Island Ct.
Mitchell, SD 57301
Lots 39 & 40 of the Island Frist Addition,
a Subdivision of the SE 1/4
of Sec 31, T104N, R60W of 5th P.M.



Scale:
1" = 50'



CJM Consulting
30 North Harmon Dr.
Mitchell, SD 57301
Lot A of Sec 6, T103N, R60W of 5th P.M.

LAKE MITCHELL

City of Mitchell
Irregular Tract #4

TEMPORARY EASEMENT
Sta. 6+59, 36.4' Lt To
Sta. 7+17.4, 41.5' Lt
Purpose For Cut & Fill
0.16 Acres More or Less

TEMPORARY EASEMENT
Sta. 11+15, 38' Lt To
Sta. 11+74, 38' Lt
Purpose For Cut & Fill
0.12 Acres More or Less

PLAN AND PROFILE

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	BRF 3630(02)	27	77
Plotting Date: 04/08/14		Revised Date: 06/10/14 CVS	
Initials: LDH			

Sta. 6+50 to Sta. 8+87.14' Rt
Remove & Reset Approx. 237 Ft.
Of Existing W-Beam Guardrail.
(Incidental Work, Grading)

Sta. 8+95 to Sta. 9+45.14' Rt
Remove & Reset Approx. 50 Ft.
Of Existing W-Beam Guardrail.
(Incidental Work, Grading)

Sta. 8+91.5 to Sta. 9+45, 20' Lt
Remove & Salvage Approx. 60 Ft.
Of Existing Bridge Railing.
Stockpile For City Of Mitchell.
(Incidental Work, Grading)

Sta. 6+50 to Sta. 9+37, 14' Lt & Rt
Remove Existing Asphalt Pavement,
Approx. 997 SqYds And Existing Base
Course, Incidental To (Remove Asphalt
Concrete Pavement)

Note:
All reset guardrail shall be installed
using new post, hardware, spacer
blocks, and attenuator ends.
Contractor shall include 13'-6" of
extra railing to replace sections
of damaged railing.

Sta. 10+65 to Sta. 11+18, 14' Lt
Remove & Reset Approx. 53 Ft.
Of Existing W-Beam Guardrail.
(Incidental Work, Grading)

Sta. 11+19, to Sta. 12+50, 28' Rt
Remove & Reset Approx. 131 Ft.
Of Existing W-Beam Guardrail.
(Incidental Work, Grading)

Sta. 8+95 to Sta. 9+45.14' Lt
Remove & Reset Approx. 50 Ft.
Of Existing W-Beam Guardrail.
(Incidental Work, Grading)

Sta. 8+92 to Sta. 9+45, Lt
Remove Approx. 36 SqYds Of
Existing Concrete Sidewalk.
(Remove Concrete Sidewalk)

Sta. 9+25 to Sta. 9+45, Rt
Remove & Salvage Approx. 20 Ft.
Of Timber Retaining Wall.
Stockpile For City Of Mitchell.
(Incidental Work, Grading)

Sta. 9+00 to Sta. 9+50, Lt
Clear Trees Near Existing
Timber Wall & Structure.
(Clearing)

Bridge railing is shown on page
29 of 77. Approach railing shall
blend into bridge railing.

Sta. 10+65 to Sta. 11+18, 22' Lt
Remove & Salvage Approx. 53 Ft.
Of Existing W-Beam Guardrail,
City Of Mitchell.
(Incidental Work, Grading)

Sta. 10+67 to Sta. 11+23, Lt
Remove Approx. 37 SqYds Of
Existing Concrete Sidewalk.
(Remove Concrete Sidewalk)

Sta. 8+30 to Sta. 9+45, Rt
Remove Approx. 89 SqYds Of
Existing Concrete Sidewalk.
(Remove Concrete Sidewalk)

Sta. 9+36, Lt
Remove Existing
Drop Inlet, Remove Piping.
(Incidental Work, Grading)

Sta. 9+43.5 to Sta. 10+70.5, CL
Remove Existing Two Span Concrete
Deck Girder Bridge. See Structure
Notes For Detailed Description &
Removal. (Incidental Work, Structure)

Sta. 9+41 to Sta. 10+61, 24' Lt & Rt
Remove & Salvage Approx. 240 Ft. Of
Steel Bridge Pedestrian And Handicap
Fishing Railing. For Re-Installation,
See Structural Plans And Notes.
(Reset Steel Railing)

Sta. 10+66 to Sta. 11+19, 14' Rt
Remove & Reset Approx. 53 Ft.
Of Existing W-Beam Guardrail.
(Incidental Work, Grading)

Sta. 10+65 to Sta. 11+23, Rt
Remove Approx. 48 SqYds Of
Existing Concrete Sidewalk.
(Remove Concrete Sidewalk)

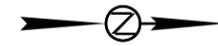
Sta. 8+91.5 to Sta. 9+45, Lt
Remove & Salvage Approx. 60 Ft.
Of Timber Retaining Wall.
Stockpile For City Of Mitchell.
(Incidental Work, Grading)

Sta. 9+41 to Sta. 10+61, 24' Lt & Rt
Remove & Salvage Approx. 240 Ft. Of
Steel Bridge Pedestrian And Handicap
Fishing Railing. For Re-Installation,
See Structural Plans And Notes.
(Reset Steel Railing)

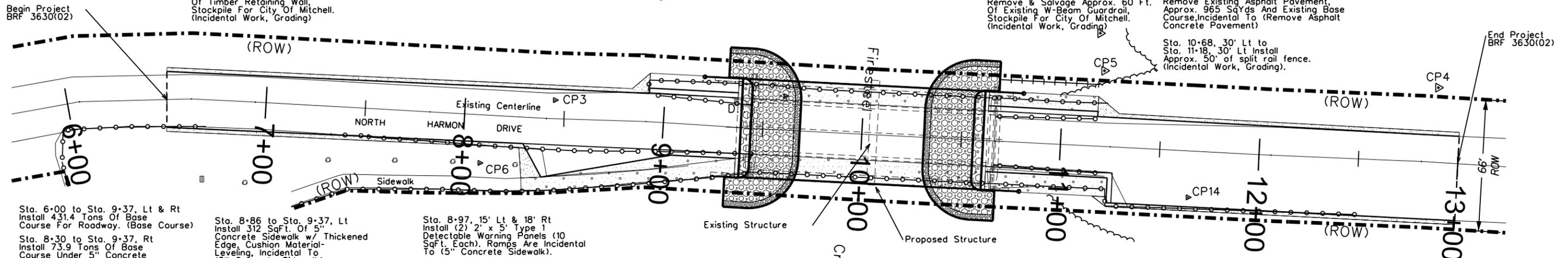
Sta. 10+67 to Sta. 11+19, 22' Rt
Remove & Salvage Approx. 60 Ft.
Of Existing W-Beam Guardrail,
Stockpile For City Of Mitchell.
(Incidental Work, Grading)

Sta. 10+63, 14' Lt & Rt to
Sta. 13+00, 14' Lt & 30' Rt
Remove Existing Asphalt Pavement,
Approx. 965 SqYds And Existing Base
Course, Incidental To (Remove Asphalt
Concrete Pavement)

Sta. 10+68, 30' Lt to
Sta. 11+18, 30' Lt Install
Approx. 50' of split rail fence.
(Incidental Work, Grading).



Scale:
1" = 50'



Sta. 6+00 to Sta. 9+37, Lt & Rt
Install 431.4 Tons Of Base
Course For Roadway. (Base Course)

Sta. 8+86 to Sta. 9+37, Lt
Install 312 SqFt. Of 5"
Concrete Sidewalk w/ Thickened
Edge, Cushion Material -
Leveling, Incidental To
(5" Concrete Sidewalk).

Sta. 8+97, 15' Lt & 18' Rt
Install (2) 2' x 5' Type 1
Detectable Warning Panels (10
SqFt Each). Ramps Are Incidental
To (5" Concrete Sidewalk).

Sta. 8+30 to Sta. 9+37, Rt
Install 73.9 Tons Of Base
Course Under 5" Concrete
Sidewalk w/ Thickened Edge.
(Base Course)

Sta. 9+20 to Sta. 9+41, 24' Lt
Install 21 Ft. Of Steel Ped-
estrian Railing At End Of The
Reset Steel Bridge Pedestrian
And Handicap Fishing Rail.
See Sheet 47 & 48 Of 77.
(Steel Pedestrian Railing).

Sta. 9+37 to Sta. 10+63, CL
Install 126'-0" Prestressed
Concrete Girder Bridge.
(See Structural Plans)

Sta. 8+91.5 to Sta. 9+37, Lt
Install 16.8 Tons Of Base
Course Under 5" Concrete
Sidewalk w/ Thickened Edge.
(Base Course)

Sta. 8+30 to Sta. 9+41, 25' Rt
Remove & Reset Approx. 111 Ft. Of
Existing Steel Bridge Pedestrian
And Handicap Fishing Rail To
Achieve Minimum Rail Ht. Of 42
Inches. See Sheet 44 Thru 46 Of 77.
(Modify Bridge Rail)

Sta. 10+59 to Sta. 9+80, 24' Lt & Rt
Install 21 Ft. (Each Side) Of Steel
Pedestrian Railing At End Of The
Reset Steel Bridge Pedestrian
And Handicap Fishing Rail.
See Sheet 47 & 48 Of 77.
(Steel Pedestrian Railing)

Sta. 9+40 to Sta. 10+60, 25' Lt & Rt
Re-Install 120 Ft. (Each Side)
Of Salvaged Steel Bridge Pedestrian
And Handicap Fishing Railing. See
Sheet 43 Of 77 For Details.
(Reset Steel Railing)

Sta. 10+63 to Sta. 11+20, Lt
Install 389 SqFt. Of 5"
Concrete Sidewalk w/ Thickened
Edge, Cushion Material -
Leveling, Incidental To
(5" Concrete Sidewalk).

Sta. 10+63 to Sta. 11+33, Rt -
Install 613 SqFt. Of 5"
Concrete Sidewalk w/ Thickened
Edge, Cushion Material -
Leveling, Incidental To
(5" Concrete Sidewalk).

Sta. 10+63 to Sta. 13+00, Lt & Rt
Install 552.8 Tons Of Base
Course For Roadway. (Base Course)

Sta. 10+63 to Sta. 11+21, Lt
Install 20.8 Tons Of Base
Course Under 5" Concrete
Sidewalk w/ Thickened Edge.
(Base Course)

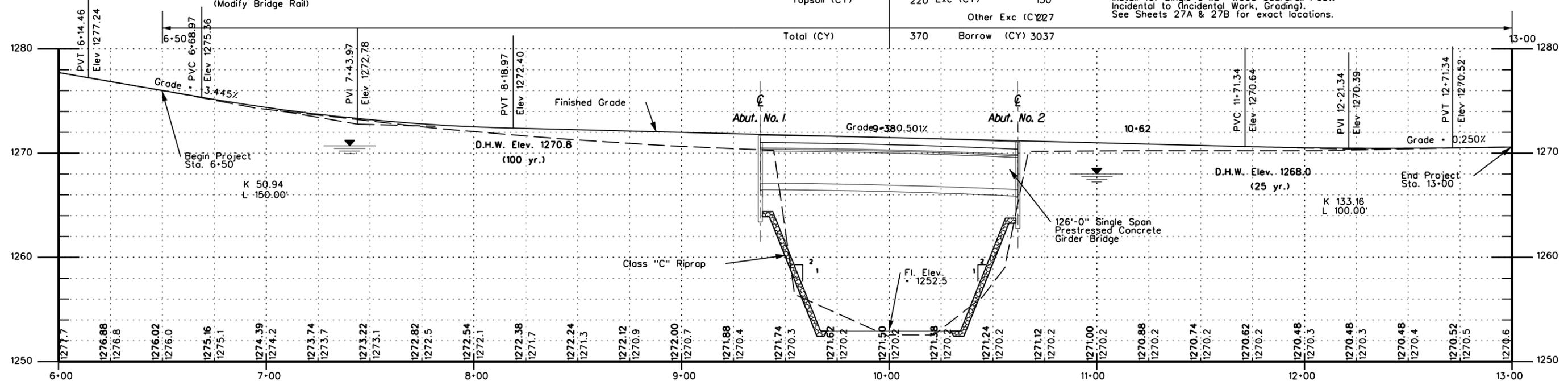
Sta. 10+63 to Sta. 11+33, Rt
Install 28.2 Tons Of Base
Course Under 5" Concrete
Sidewalk w/ Thickened Edge.
(Base Course)

Sta. 8+30 to Sta. 9+37, Rt
Install 1024 SqFt. Of 5"
Concrete Sidewalk w/ Thickened
Edge, Base Material -
Leveling, Incidental To
(Base Course).

Dirtwork Quantities			
Exc (CY)	150	Emb (CY)	1970
		+35% (CY)	690
		Subtotal (CY)	2660
Topsoil (CY)	220	Exc (CY)	150
		Other Exc (CY)	27
Total (CY)	370	Borrow (CY)	3037

Sta. 11+13, 15' Lt & Rt
Install (2) 2' x 5' Type 1
Detectable Warning Panels (10
SqFt. Each). Ramps Are Incidental
To (5" Concrete Sidewalk).

Sta. 8+90, 16' Lt. & Sta. 11+20, 16' Lt. &
Sta. 11+20, 16' Rt. to Sta. 11+23, 26' Rt.
Install (6) Single 6"x8" Wood Guardrail Post.
Incidental to (Incidental Work, Grading).
See Sheets 27A & 27B for exact locations.



GUARDRAIL POST INSTALLATION LAYOUT

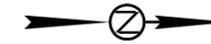
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 27A	TOTAL SHEETS 77
Plotting Date: 04/08/14			
Revised Date: 06/10/14 CVS			
Initials: LDH			

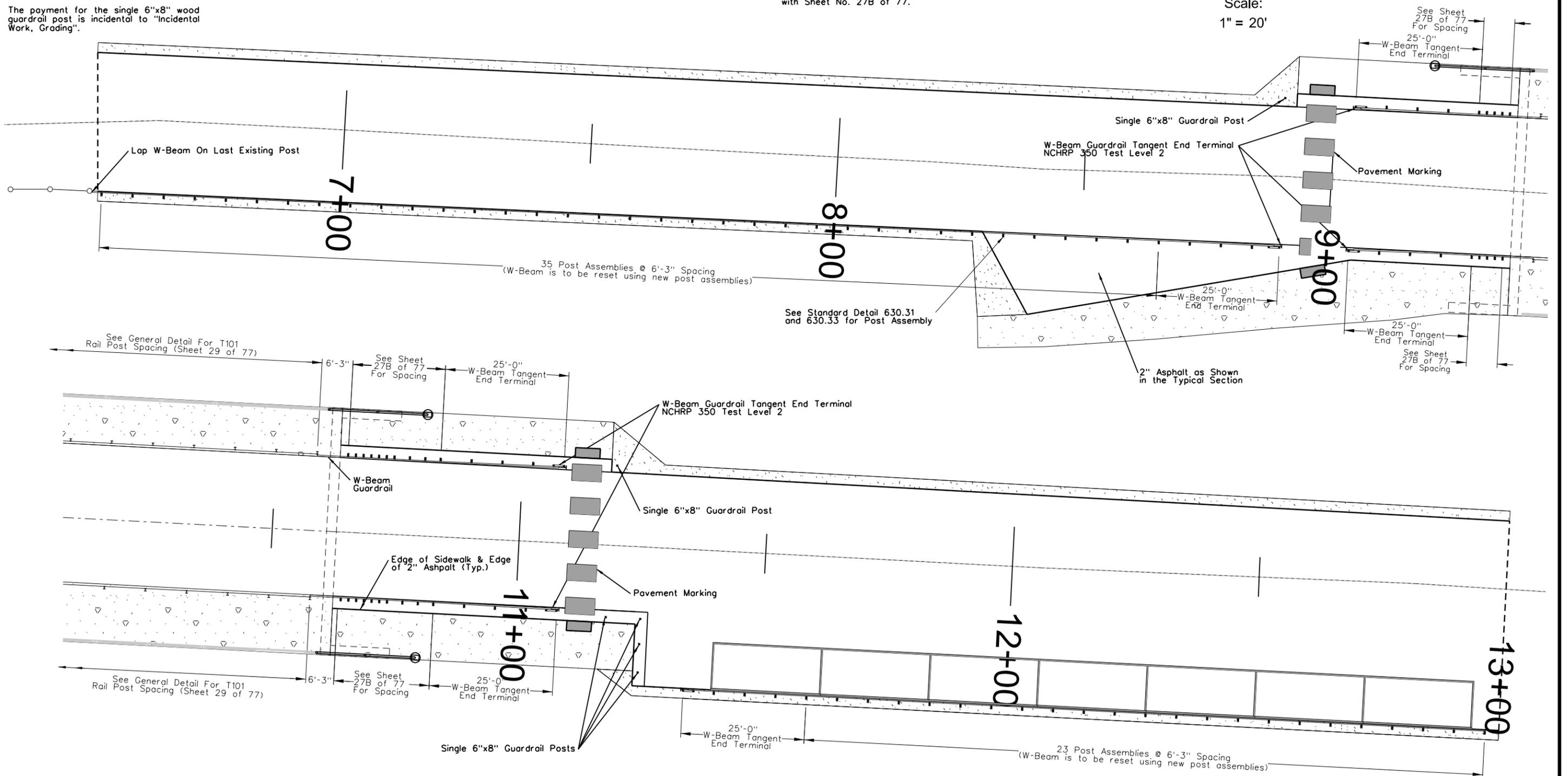
Note:
The posts & spacer blocks, in the areas where the rail is to be salvaged for reset, shall be replaced with new spacer blocks and posts. For informational purposes (108) new post with spacer blocks will be needed. All post and hardware will be incidental to "Incidental Work, Grading".

The payment for the single 6"x8" wood guardrail post is incidental to "Incidental Work, Grading".

Note:
This sheet is to be used in conjunction with Sheet No. 27B of 77.



Scale:
1" = 20'



GUARDRAIL POST INSTALLATION LAYOUT

FOR BIDDING PURPOSES ONLY

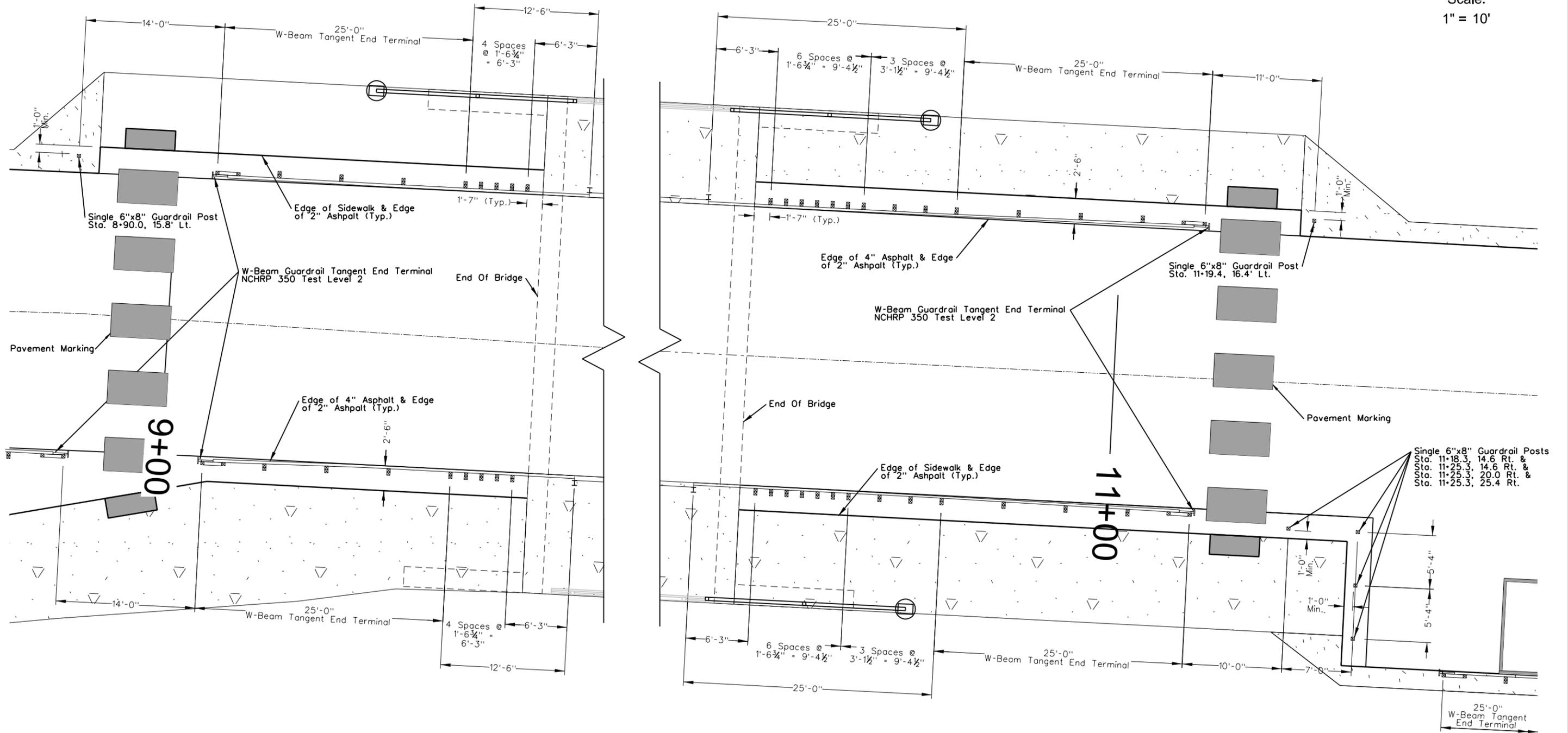
STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 27B	TOTAL SHEETS 77
Plotting Date: 04/08/14 Revised Date: 06/10/14 CVS Initials: LDH			

Note:
This sheet is to be used in conjunction with Sheet No. 27A of 77.

Note:
Railing end terminal shall be tapered to allow the tangent end terminal to remain outside the 28' roadway.
W-Beam tangent end terminals may be ET-PLUS and shall meet all requirements of NCHRP350 Test Level 2.

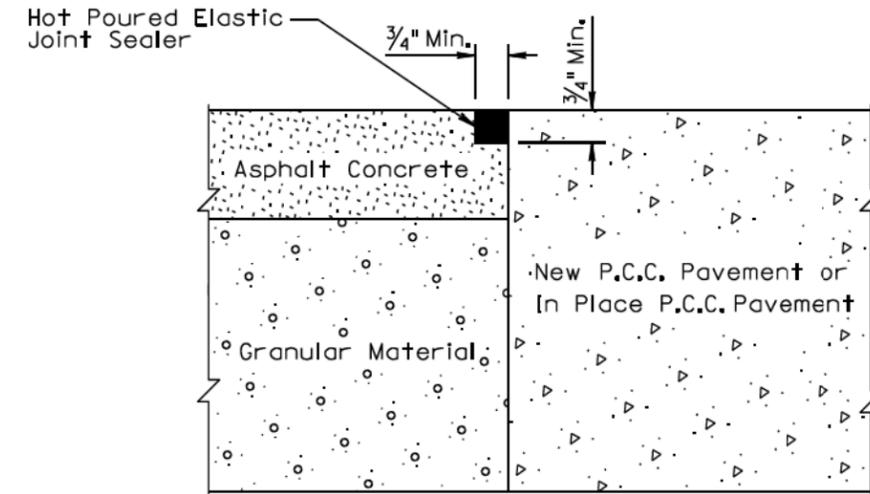


Scale:
1" = 10'



(Shown for Information Purposes Only, City Of Mitchell)

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET	TOTAL
		NO.	SHEETS
		28	77
Plotting Date: 09/19/12		Revised Date: 05/05/14 CVS	
Initials: LDH			



March 31, 2000

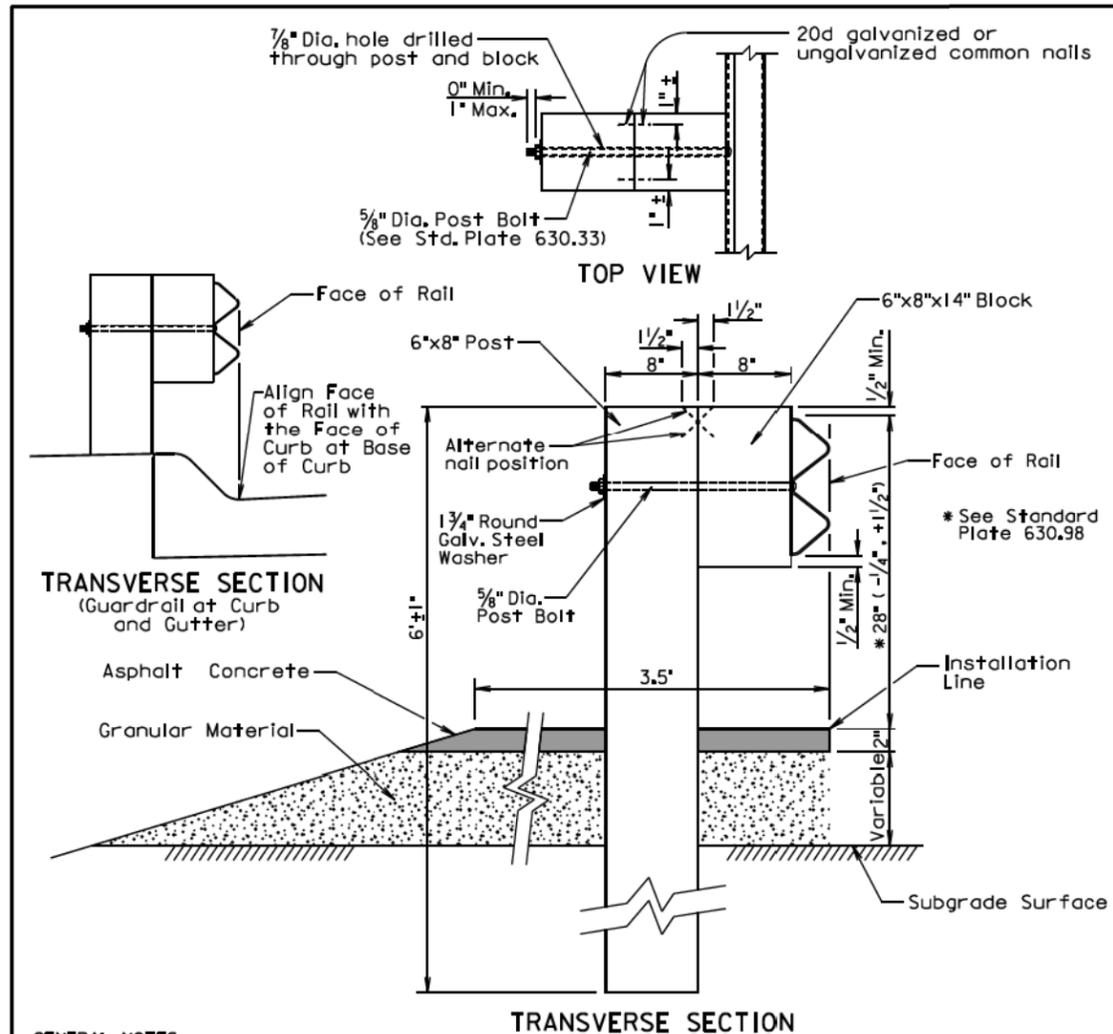
Published Date: 2nd Qtr. 2014

S
D
D
O
T

ASPHALT CONCRETE SHOULDER JOINT
ADJACENT TO PCC PAVEMENT

PLATE NUMBER
320.15

Sheet 1 of 1



GENERAL NOTES:

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the SD Standard Specifications for "Asphalt Concrete Composite." For informational purposes, the Rate of Materials for the 3.5' wide section of asphalt concrete as shown above shall be 4.80 Tons per Station.

Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the SD Standard Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

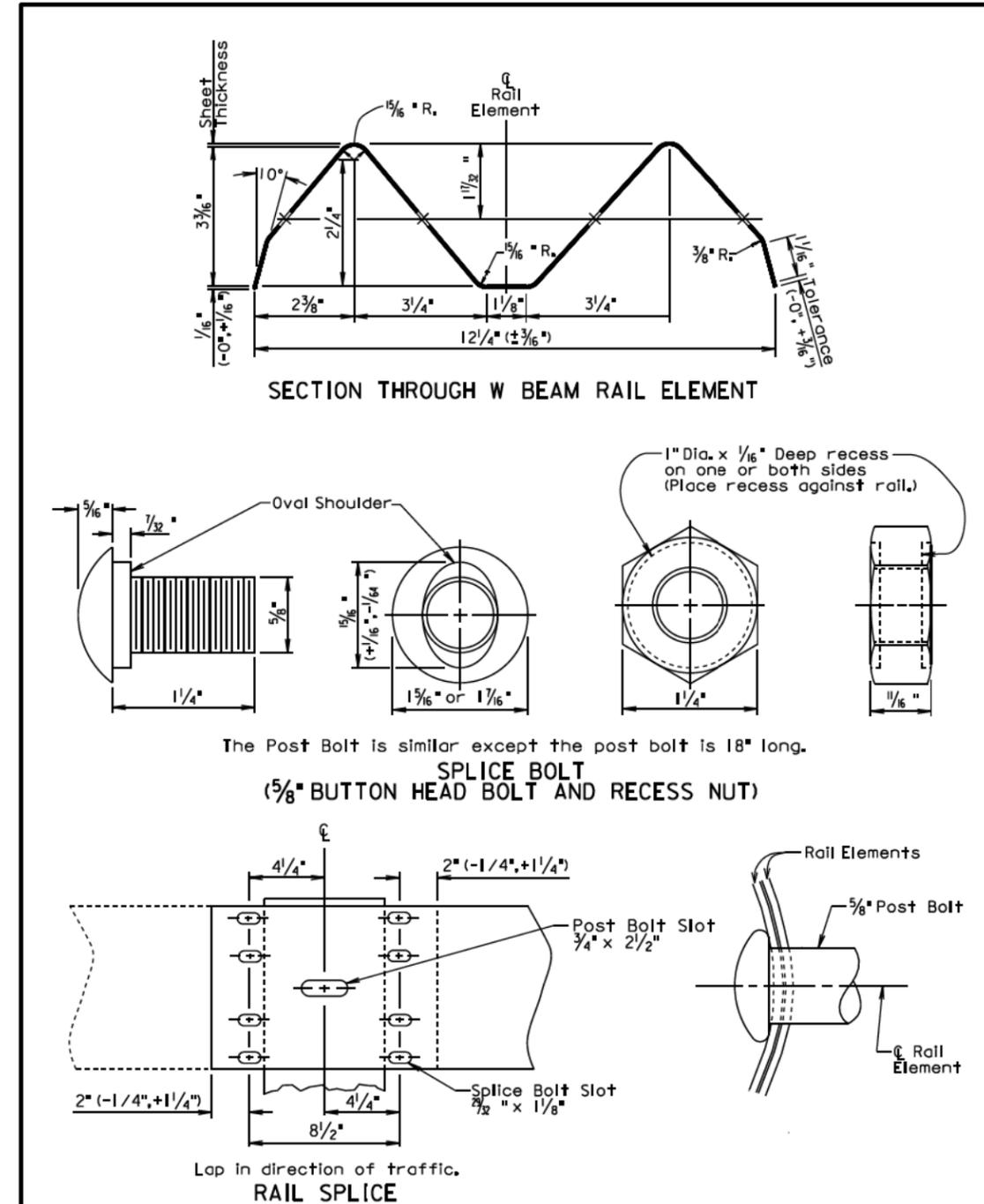
Surfacing and embankment quantities will be paid for separately and will NOT be incidental to the "W Beam Guardrail" bid item.

The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

The top of posts and top of block shall have a true square cut. The top of post and top of block shall be flush.

December 23, 2010

S D D O T	W BEAM GUARDRAIL POST INSTALLATION	PLATE NUMBER 630.31
		Sheet 1 of 1
Published Date: 2nd Qtr. 2014		



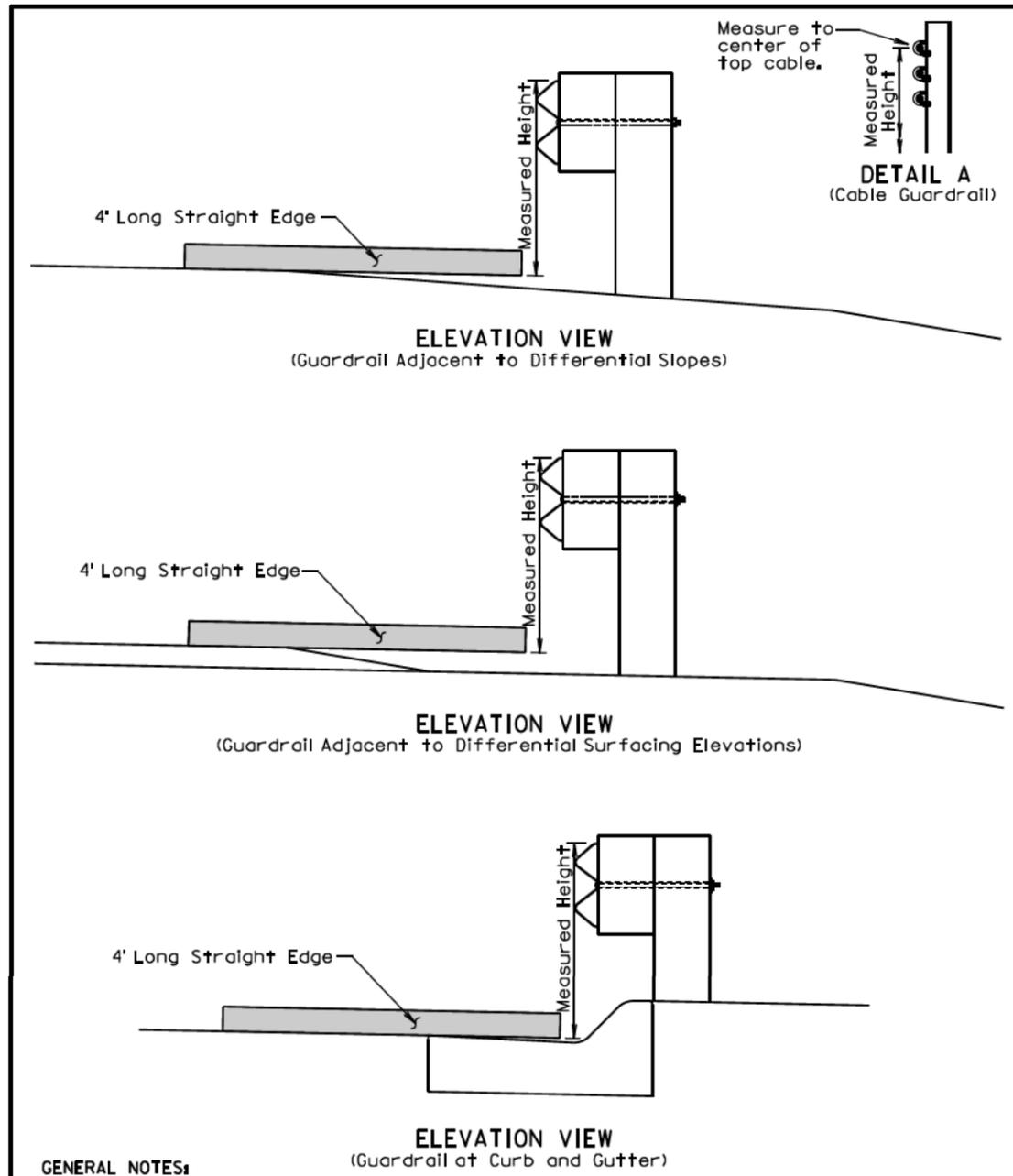
The Post Bolt is similar except the post bolt is 18" long.

**SPLICE BOLT
(5/8" BUTTON HEAD BOLT AND RECESS NUT)**

December 23, 2004

S D D O T	W BEAM RAIL, RAIL SPLICE, AND HARDWARE	PLATE NUMBER 630.33
		Sheet 1 of 1
Published Date: 2nd Qtr. 2014		

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	28B	77
Plotting Date: 09/19/12 Revised Date: 05/28/14 CVS Initials: LDH			



GENERAL NOTES:

The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems shall be measured in accordance with this standard plate.

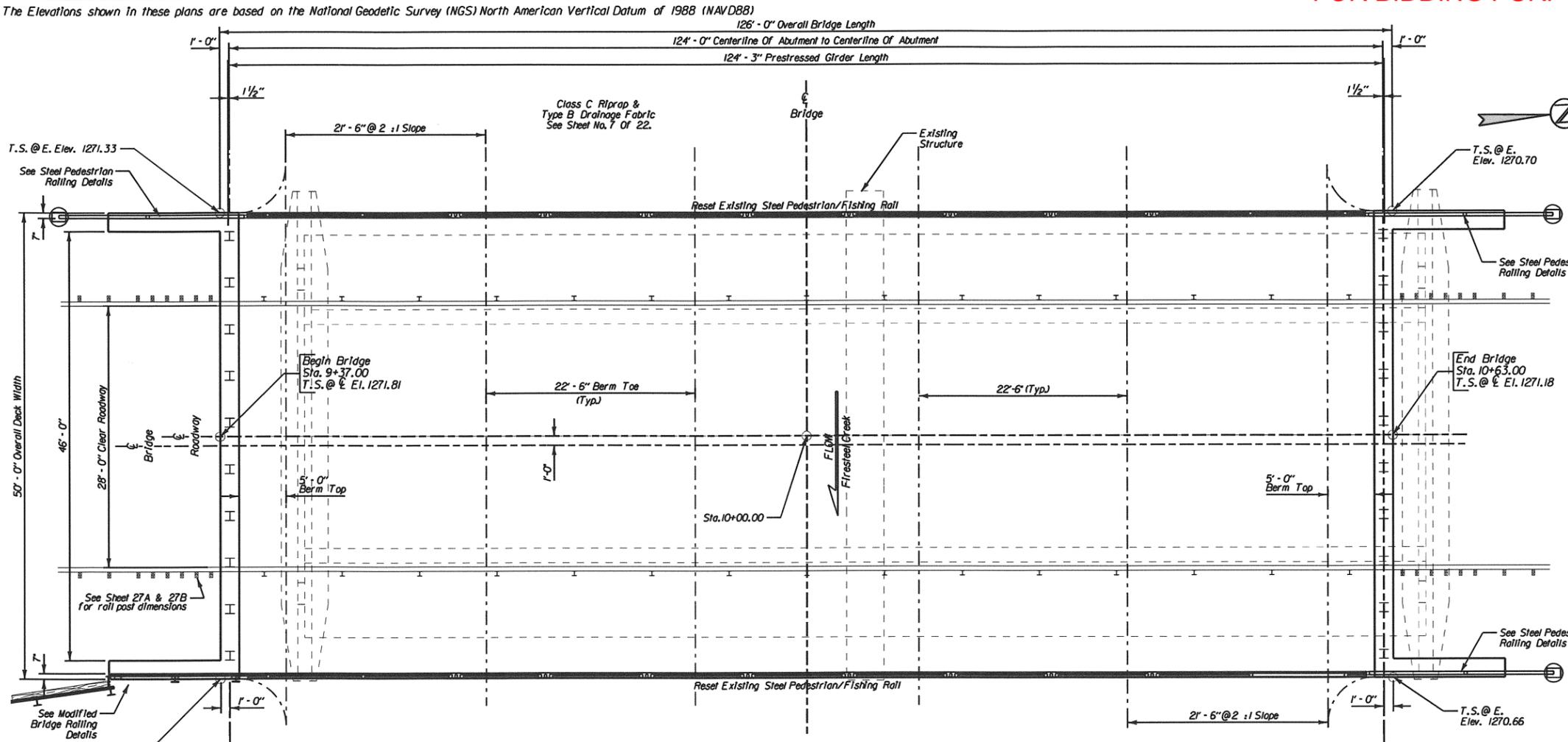
When measuring height of cable guardrail or cable barrier the height shall be measured to the center of the top cable. See Detail A.

June 26, 2010

Published Date: 2nd Qtr. 2014	S D D O T	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.98
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 29	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			



- X081 - INDEX OF BRIDGE SHEETS-

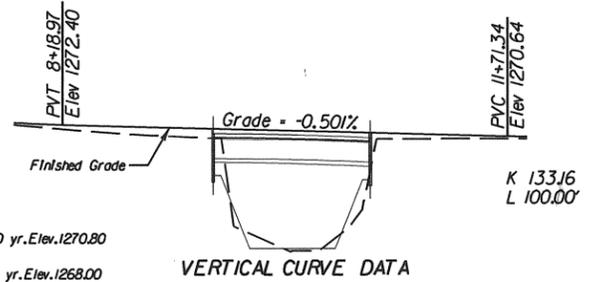
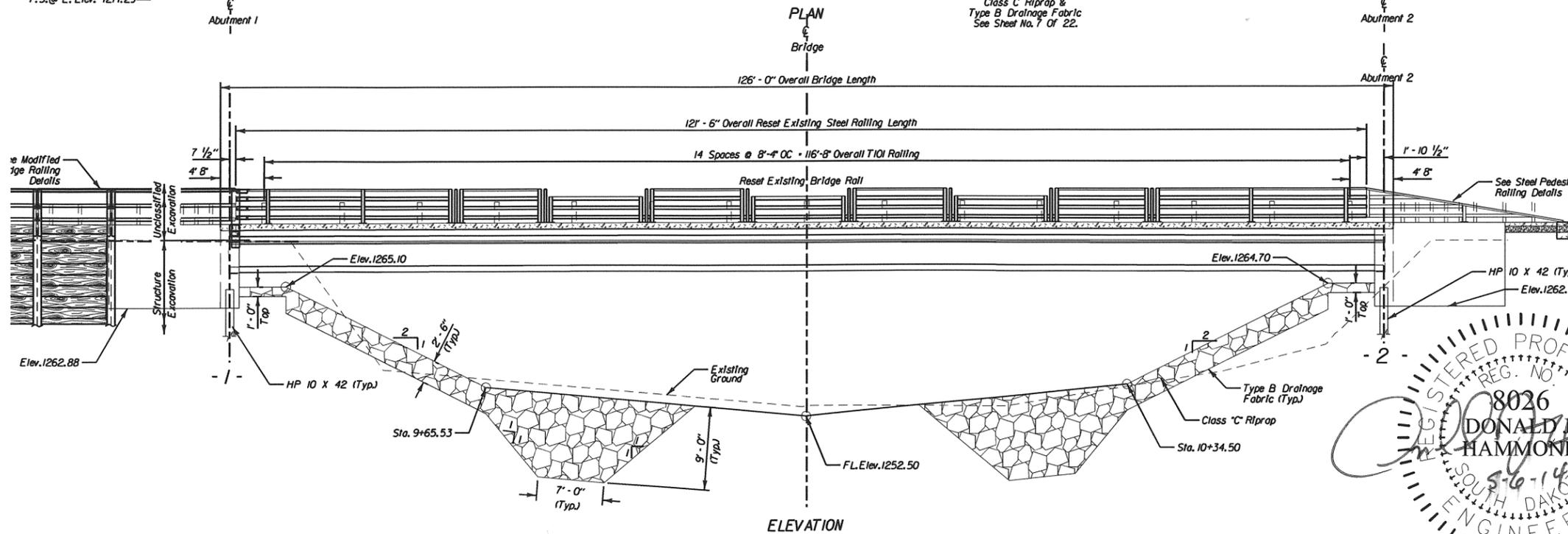
Sht. No. 1	General Drawing
Sht. No. 2 thru 5	Estimate of Structure Quantities & Notes
Sht. No. 6	Subsurface Investigation & Piling Layout
Sht. No. 7	Riprap And Drainage Fabric Layout
Sht. No. 8 & 9	Abutment No. 1 & No. 2 Layout
Sht. No. 10	Abutment Details
Sht. No. 11	Superstructure Details
Sht. No. 12	Girder Details
Sht. No. 13	Erection Data & Slab Form Elevations
Sht. No. 14	Steel Diaphragm Details
Sht. No. 15	Reset Steel Railing Details
Sht. No. 16 thru 18	Modify Bridge Railing Details
Sht. No. 19 & 20	Steel Pedestrian Railing Details
Sht. No. 21	Details of Standard Plate No's 460.02 & 460.05
Sht. No. 22	Details of Standard Plate No's 510.30 & 510.40

HYDRAULIC DATA

Qd	7445 cfs
A _d	1136 sq.ft.
V _d	6.55 fps
Q _F	7445 cfs
Q ₁₀₀	12658 cfs
Q _{OTfr}	12050 cfs
V _{Max}	11.13 fps

NOTE: T.S.@ C.E.I. = Top of Slab at Centerline Elevation.
T.S.@ E.E.I. = Top of Slab at Edge Elevation.

Q_d = design discharge for the proposed bridge based on 25 year frequency. EL. 1268.0
Q_{OT fr} = overtopping discharge and frequency 88 year recurrence interval. EL. 1270.5 Station: 11+60.
Q_F = designated peak discharge for the basin approaching proposed project based on 25 year frequency.
Q₁₀₀ = computed discharge for the basin approaching proposed project based on 100 year frequency. EL. 1270.8
V_{max} = maximum computed outlet velocity for the proposed bridge, based on a 100 year frequency.
The Hydraulic data contained in these plans is valid only if the overflow section is maintained. Alteration of the overflow section will require re-analysis of the hydraulics at this site to determine its effect on public safety.



GENERAL DRAWING FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY
OVER FIRESTEEL CREEK
SEC. 6 - T103N-R60W
STA. 9+37 TO 10+63
STR. NO. 18-129-061
PCN 00YW
0° SKEW
BRF 3630(02)
HL-93



DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

- X081 -

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI*509-P535			1 of 22

ESTIMATE OF STRUCTURE QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	700	SqYd
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
420E0100	Structure Excavation, Bridge	295	CuYd
460E0030	Class A45 Concrete, Bridge Deck	176.7	CuYd
460E0060	Class A45 Concrete, Bridge	82.8	CuYd
470E0040	Steel Pedestrian Railing	63	Ft
470E0280	Reset Steel Railing	243	Ft
470E0380	Modify Bridge Railing	111	Ft
470E0420	Type T101 Bridge Railing	252	Ft
480E0106	Reinforcing Steel	18,257	Lb
480E0200	Epoxy Coated Reinforcing Steel	35,266	Lb
510E0200	Pre-boring Piling	200	Ft
510E3120	HP 10 Pile Tip Reinforcement	20	Each
510E3365	HP 10x42 Steel Bearing Pile, Furnish And Drive	600	Ft
560E8054	54" Minnesota Shape Prestressed Concrete Beam	1,243	Ft
700E0310	Class C Riprap	5789.8	Ton
831E0110	Type B Drainage Fabric	2827	SqYd

SPECIFICATIONS FOR BRIDGE

- Design Specifications: AASHTO LRFD Bridge Design Specifications, 2010 Edition with Interim Revisions.
- South Dakota Standard Specifications for Roads and Bridges, 2004 Edition and required provisions, supplemental specifications and special provisions as included in the proposal.

BRIDGE DESIGN LOADING

- AASHTO HL-93.
- Dead Load includes 22 psf for future wearing surface on the roadway.

DESIGN MATERIAL STRENGTHS*

Concrete $f_c = 4,500$ psi
 Reinforcing Steel $f_y = 60,000$ psi
 Piling (ASTM A572 Grade 50) $f_y = 50,000$ psi

*For prestressed beams, see notes regarding Prestressed Girders.

GENERAL CONSTRUCTION

- All mild reinforcing steel shall conform to ASTM A615, Grade 60.
- All exposed concrete corners and edges shall be chamfered 3/4" unless noted otherwise.
- Use 2" clear cover on all reinforcing steel except as shown.
- Contractor shall imprint on the structure the date of new construction as specified and detailed on Standard Plate No. 460.02.
- Request for construction joints or resteel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of resteel.
- The elevation of the bridge deck is 1 foot above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

- The in place structure is a 122' long 2 span girder bridge with a 24'-0" clear roadway. The superstructure consists of concrete girders with a concrete deck and pigeon hole railing continuous across the bridge. The substructure consists of 2 column reinforced concrete bents supported by spread footings, and reinforced concrete abutments supported on timber piling. Riprap is along the sides of the abutment. The bridge has been modified to include sidewalk/bike path and handicap fishing rail on either side of the bridge. They consist of a reinforced concrete deck with steel stringers and supported by H-pile bents. The wing dam is made up of steel piling and treated timber pile.

- Break down and remove the existing bridge, wing dam and pile of concrete, to 1 foot below flow line, or as required to construct the new structure in accordance with Section 110 of the South Dakota Standard Specifications. All portions of the existing bridges not salvaged for future highway related use shall be removed and disposed of by the Contractor on a site obtained by the Contractor and approved by the Engineer in accordance with the WASTE DISPOSAL NOTES found elsewhere in these plans.
- The existing steel railings shall be salvaged for reuse on the new structure. Care shall be taken during the dismantling and stockpiling operations not to damage the structural properties of the salvaged items.
- The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid it shall be the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved.

NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure may contain lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

DESIGN MIX OF CONCRETE

- All structural concrete shall be Class A45 unless otherwise indicated.
- Type II cement is required, except Type III may be used for the prestressed beams.
- Coarse aggregate to be used in concrete shall consist of either crushed quartzite or other crushed ledge rock. If crushed ledge rock other than quartzite is to be used, it shall be from a source approved by the Engineer.
- Grout design mix shall be as specified in the South Dakota Standard Specifications Section 460.3S. A compressive strength of 2000 psi shall be attained by the grout prior to erection of any beams. Chamfer edges of grout pads 3/4". The quantity of grout is included in and shall be paid for at the contract unit price per cubic yard for "Class A45 Concrete, Bridge."

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 126' - 0" PRESTR. GIRDER BRIDGE Str. No. 18-129-061

SEPTEMBER 2012

DESIGNED BY	DRAWN BY:	CHECKED BY:	APPROVED:
LDH	EJC	DH	
BRIDGE ENGINEER			

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF 3630(02)	31	77

ABUTMENTS

1. Preboring piling at each abutment is required to whichever is greater, ten feet or to natural ground.
2. The HP 10x42 Piling were designed using a factored bearing resistance of 77 tons per pile. Piling shall develop a field verified nominal bearing resistance of 192 tons per pile. It is anticipated that 10X42 piling will encounter the Codell Sandstone member of the Carlile Shale at an elevation between 1241 ft. and 1245 ft., depending on the location. The sandstone is extremely hard and most likely impenetrable. The Site Plan & Subsurface profile sheet should be reviewed to obtain the anticipated sandstone elevation prior to pile driving operations. Extreme care should be taken during pile driving operations not to over-stress the piles when the tips encounter the Codell Sandstone.
3. The contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No. 510.40.
4. Piles shall not be driven out of position by more than two inches in the direction normal to the abutment centerline. A pile-driving template shall be used to insure this accuracy.
5. The concrete used for the backwalls and wings shall be Class A45 Concrete. All abutment and bridge deck concrete shall have attained design strength prior to backfilling. The cost of furnishing and placing class A45 concrete for abutments shall be paid under the contract unit price per CuYd for "Class A45 Concrete, Bridge."
6. Each finished abutment shall include a Bridge Survey Marker. See Standard Plate No. 460.05

ABUTMENT BACKWALL COATING

The material for waterproofing the abutment backwall shall be one of the products from the approved products list. The acceptable abutment backwall coating suppliers are listed on the approved products list at the following Internet address:

<http://www.sddot.com/pe/materials/certification.asp>

The cost of furnishing and applying the coating shall be incidental to the contract unit price per cubic yard for "Class A45 Concrete, Bridge."

SDDOT's MODIFIED ENR EQUATIONS FOR LFRD

To determine the field verified nominal pile bearing resistance of driven piles the SDDOT uses the formulas below for timber, concrete, steel H-piling and shell type piles.

For double action steam or air hammers and closed cylinder top diesel hammers:

$$Q \text{ (drive)} = \frac{10.5E}{S + 0.1} \times \frac{W}{W + M}$$

For single action steam or air hammers and open cylinder top diesel hammers:

$$Q \text{ (drive)} = \frac{10.5WH}{S + 0.1} \times \frac{W}{W + M}$$

Where:

- Q = the field verified nominal pile bearing resistance, in tons.
- W = the weight of a gravity hammer, or the ram of an energy hammer in tons.
- H = the height of free fall of the hammer or ram in feet.
- M = the weight in tons of the driven mass and shall include the weight of the pile, the weight of the driving cap and the weight of the anvil, if used.
- E = the energy per blow in foot-tons.
- S = the average penetration in inches of the pile per blow for the last five blows for gravity hammers and last 10 blows for energy hammers.

PILE DRIVING

A drivability analysis was performed using the wave equation analysis program (GRLWEAP). The following pile hammers were evaluated and found to produce acceptable driving stresses:

Delmag D12-42 Delmag D16-32 Delmag D19-42
 ICE 42S FEC 1500 Delmag D19-32
 MVE M-19

Pile hammers not listed will require evaluation and approval prior to use from the SDDOT Geotechnical Engineering Activity.

PRESTRESSED GIRDERS

1. Minimum concrete compressive strength f'c = 8000 psi at 28 days for all girders, and fci = 7500 psi for all Girders.
2. All mild reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60.
3. Individual tendons in all pretensioned sections shall consist of seven wire uncoated Type 270K Strands having a nominal diameter of 0.6" and a minimum ultimate strength of 58,600 lbs. per cable. An initial tensile force of 44,000 lbs. shall be applied to all 0.6" cables in all girders. All prestressing steel shall conform to AASHTO M203. (low lax strands).

4. All prestressed girders within a span shall be cast within an 8 day period. If not, the newest girder shall be at least 6 weeks old before the deck slab is poured. The girders shall be poured in all steel forms.
5. Prestressed concrete girders shall always be lifted by the devices provided in the top flanges near the ends of the girders. Types of lifting devices other than those shown on the plans may be used provided they are approved by the Office of Bridge Design. The design of the lifting devices shall be the responsibility of the Fabricator.
6. Each beam shall be marked showing structure number, casting date, and beam number. Marking shall be on the face of the beam near the end and so located that they will be exposed after the diaphragms have been cast. Facia beams shall be marked on an inside face. All markings shall be stenciled and clearly legible. For beam designations and locations, see superstructure layout plan and Erection Data sheet.
7. The physical properties of the elastomeric bearing pads shall conform to the requirements of Section 18.2 of the AASHTO LFRD Bridge Construction Specification and the AASHTO Materials Specification M251. The elastomeric bearing pads shall conform to Grade 70 (durometer). The cost of the pads shall be incidental to the contract unit price per cubic yard for "Class A45 Concrete, Bridge." Certification that pads are 70 durometer and meet the requirements of AASHTO LFRD Bridge Construction Specification Section 18.2 and AASHTO Materials Specification M251 shall be furnished to the Engineer with the shop drawings. No laminated bearing pads will be allowed.
8. All exposed corners shall be chamfered 3/4" or rounded to 3/4" radius.
9. Dead Load of girder taken as effective at transfer. Cut strands, except those extended and bent, flush with end of girder and coat end of strands with mortar.
10. The Contractor shall be responsible for ensuring that transportation stresses, handling and erection do not cause damage to the girders.

STRUCTURE NOTES CONTINUED
 FOR
126' – 0" PRESTR. GIRDER BRIDGE
 Str. No. 18-129-061

DESIGNED BY	DRAWN BY:	CHECKED BY:	APPROVED:
LDH	EJC	DH	
			BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF 3630(02)	32	77

SUPERSTRUCTURE

- Girder lifting hooks shall be cut off before placement of concrete deck slab.
- The deck-finishing machine shall be adjusted and operated in such a manner that the roller screed or screeds are parallel with the centerline of the bridge and the finish machine is parallel to the skew of the bridge. Concrete placement in front of the finish machine shall be kept parallel to the machine.
- The bridge deck must be placed and finished continuously at a minimum rate of 40 ft. of deck per hour measured along Centerline Roadway. If concrete cannot be placed and finished at this rate, the Engineer shall order a header installed and operations stopped. Notify the Bridge Construction Engineer if deck pour operations are stopped. Operations may resume only when the Engineer is satisfied that a rate of 40 ft. of deck per hour can be achieved and the concrete in the previous pour has attained a minimum compressive strength of 2000 psi.

CLASS A45 CONCRETE, BRIDGE DECK

- Concrete used in the bridge deck slab shall be in accordance with the requirements for bridge deck concrete as specified in Section 460.3A of the South Dakota Standard Specifications. In addition, the concrete used in the bridge deck shall have Class F Modified Fly Ash substituted for a portion of the cement in accordance with Section 605 of the South Dakota Standard Specifications. The amount of cement to be replaced shall be 20 percent by weight. The ratio of substitution of fly ash to cement shall be 1:1 by weight.
- The bridge deck concrete shall be placed and cured in accordance with the Special Provision for Bridge Deck Curing and Finishing.
- See Special Provision for Concrete Penetrating Sealer.

FALL PROTECTION

- The Contractor shall install a Fall Protection System conforming to OSHA Regulations. When working on the girders prior to decking installation, a Horizontal Lifeline – or other OSHA approved system shall be installed. The Contractor shall have one Personal Fall Arrest System (PFAS) available for use by a Department Inspector. The PFAS shall be compatible with the installed Fall Protection System.
- Modifications to any bridge components used to accommodate the Fall Protection System shall be shown on the Falsework Plans and/or the appropriate Shop Plans. Field welding to bridge components will not be allowed. Field placed concrete inserts or drilled-in anchor bolts will be allowed if approved by the Engineer. All costs associated with providing the Fall Protection System shall be incidental to the other contract items.

RESET STEEL RAILING

- All salvaged existing exterior pedestrian/handicap fishing railing shall be removed and reset. Rail shall be centered on bridge. Posts shall be cut and field welded to galvanized base plates as detailed in these plans.

- New rail will be set and connected to the existing approach pedestrian railing and the reset steel pedestrian/handicap fishing rail.
- All rail posts shall be built vertical.
- All new structural steel parts for railing shall conform to ASTM A500, Grade B. Material less than 1/4" thick may be ASTM A1011, Grade 36 and rail post base plates may be ASTM A709, Grade 36.
- Modification of all posts, galvanized plates, metal studs, welding, galvanizing, and re-installing existing steel railing, including repairs for galvanized wire (chain link) shall be incidental to the contract unit price per foot for "Reset Steel Railing."
- Welding & Weld Inspection shall be done in accordance with the current edition of AWS D1.1 Structural Welding Code-Steel.
- The costs of structural steel, welding, weld inspection, galvanizing shall be incidental to the contract unit price per foot for "Reset Steel Railing."
- 1/2" dia. Weepholes shall be drilled at locations shown in the typical sections. All cost shall be incidental to "Modify Bridge Railing".

MODIFY BRIDGE RAILING

- All new structural steel parts for railing shall conform to ASTM A500, Grade B. Material less than 1/4" thick may be ASTM A1011, Grade 36 and rail post base plates may be ASTM A709, Grade 36.
- All modified steel railing shall be painted in accordance with Section 411 of the South Dakota Standard Specifications and the color shall be an approved green (Federal Standard 595B Color 24108).
- Welding & Weld Inspection shall be done in accordance with the current edition of AWS D1.1 Structural Welding Code-Steel.
- The costs of structural steel, welding, weld inspection, painting and galvanizing shall be incidental to the contract unit price per foot for "Modify Bridge Railing."
- All salvaged existing exterior wing dam railing be removed and reset. Rail shall be built as per plans or at the direction of the engineer. H-Piles shall be cut and field welded to galvanized plates as shown in details in these plans. New rail will be set (built) and connected to the existing H-pile of the wing dam and tied into the reset steel railing as detail in the plans.
- The item "Reset Steel Railing" and "Modify Bridge Railing" shall be paid for by the linear foot. This payment shall be full compensation for furnishing all material, labor, tools and equipment necessary or incidental to the construction of the chain link fence fabric, wire ties, miscellaneous hardware, painting and welding, all to satisfactorily complete this work.

CHAIN LINK

- The chain link fence fabric and supports shall conform to Section 930 of the South Dakota Standard Specifications as modified by the following notes.
- The chain link fence fabric, wire ties and miscellaneous hardware shall be galvanized and conform to AASHTO M181. The fence fabric shall be Type IV 9 gauge wire woven in a 2 inch diamond mesh. Knuckled selvage shall be used on the top and bottom of the fence fabric.
- A green (Federal Standard 595B Color 24108) thermally extruded polyvinyl coating shall be applied to the fence fabric, wire ties and all miscellaneous hardware.

STEEL PEDESTRIAN RAILING

- All rail posts shall be built vertical.
- All structural steel parts for railing shall conform to ASTM A500, Grade B. Material less than 1/4" thick may be ASTM A1011, Grade 36 and rail post base plates may be ASTM A709, Grade 36. After all shop welding of the rail segments, the entire fabricated rail segment shall be shop painted in accordance with Section 411 of the Standard Specifications. Erection of the railing will require field welding. The procedures for preparing the steel surfaces for welding and repairing the paint after welding shall be included in the shop plans. Repair of paint shall be in accordance with Section 411.3.B.5 of the Standard Specifications. The paint color shall be an approved green color (Federal Standard 595B, Color No. 24325). Prior to ordering the paint, a paint chip of the green color shall be submitted to the City for color approval.
- The anchor rods for the pedestrian rail on the wingwalls shall be doveled into the wingwalls. The anchor rods for the pedestrian rail repair shall be cast in the new concrete patch.
- Anchor rods for the traffic rail shall be 7/8" diameter x 1'-0" long fully threaded rods furnished with one hardened washer and one heavy hex nut. All new anchor rods shall conform to ASTM F1554, Grade 36. Washers shall conform to ASTM F436 and all components shall be galvanized in accordance with ASTM A153 or ASTM F2329, as applicable.
- All nuts shall be tightened to a torque of 120 ft.-lbs. (approximated without the use of a calibrated torque wrench).

STRUCTURE NOTES CONTINUED
FOR
126' – 0" PRESTR. GIRDER BRIDGE
Str. No. 18-129-061

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
LDH	EJC	DH	
BRIDGE ENGINEER			

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF 3630(02)	33	77

6. The non-shrink grout used to fill the recess beneath the rail post base and level the area beneath the rail post base plates shall be a commercially available non-shrink grout containing no metallic particles and capable of attaining a 28 day compressive strength of 3000 psi. The non-shrink grout shall be mixed according to the manufacturer's recommendations. The cost of furnishing and placing the non-shrink grout shall be incidental to the contract unit price per foot for "Steel Pedestrian Railing."
7. Welding & Weld Inspection shall be done in accordance with the current edition of AWS D1.1 Structural Welding Code-Steel.
8. The costs of structural steel, welding, weld inspection, painting and repairing the paint after field welding shall be incidental to the contract unit price per foot for "Steel Pedestrian Railing."
9. Galvanizing Repair shall be according to ASTM A 780. The three options will be allowed:
1) Zinc rich paint 2) Zinc solder 3) molten zinc (metalizing). If spraying is chosen, a minimum of two coats will be required. The surface of the steel shall be properly prepared prior to placing the galvanizing. At a minimum the surface shall be dry and free from all contamination, and all weld splatter shall be removed prior to galvanizing. All costs associated with Galvanizing Repair shall be incidental to the contract unit price per Ft of the bid item: "Steel Pedestrian Railing".

responsibility of the Contractor to notify the bolt supplier of these requirements.

SHOP DRAWINGS:

Shop plans are required for all steel bridge railings, girders, and diaphragms. The fabricator shall submit shop plans in accordance with the Standard Specifications in Adobe PDF format to: Brosz Engineering, Inc., 3500 S. Phillips Ave. Ste 201, Sioux Falls, South Dakota 57785 for review. After review, corrections (if necessary), and approval by Brosz Engineering Inc., the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

FALSEWORK

The Contractor shall be required to include with his Falsework Plans, details for the construction of an adequate "Walk-Way" including railing.

CLASS B COMMERCIAL TEXTURE FINISH

1. A Class B commercial texture finish shall be applied to the following areas:
 - a. **Abutments:** all exposed surfaces to an elevation 1-foot below finished ground line.
 - b. **Exterior** girder face.
 - c. **Slab:** edge of slab.
2. The Class B commercial texture finish shall be applied in accordance with Section 460.3M.1.c of the South Dakota Standard Specifications.
3. Where the Class B commercial texture finish is to be applied, concrete curing shall be accomplished with cotton or burlap mats and polyethylene sheeting. Curing shall continue for not less than seven days after placing concrete before the commercial texture finish is applied. The commercial texture finish shall be applied in accordance with the manufacturer's recommendations. The commercial texture finish itself does not require a specific cure except for drying.
4. The cost of the Class B Commercial Texture Finish applied to the fascia girders shall be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge Deck.

BOLT TESTING

The certified mill test reports for all bolts used on the project shall include the test results for all of the testing specified in section 972.2.D of the South Dakota Standard Specifications. Some of these tests are supplemental tests that must be requested at the time the bolts are ordered. It is the

STRUCTURE NOTES CONTINUED
FOR
126' - 0" PRESTR. GIRDER BRIDGE
Str. No. 18-129-061

SEPTEMBER 2012 5 OF 22

DESIGNED BY: LDH	DRAWN BY: EJC	CHECKED BY: DH	APPROVED: BRIDGE ENGINEER
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STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	34	77
Plotting Date: 09/19/12 Revised Date: mm/dd/yy Initials: LDH			

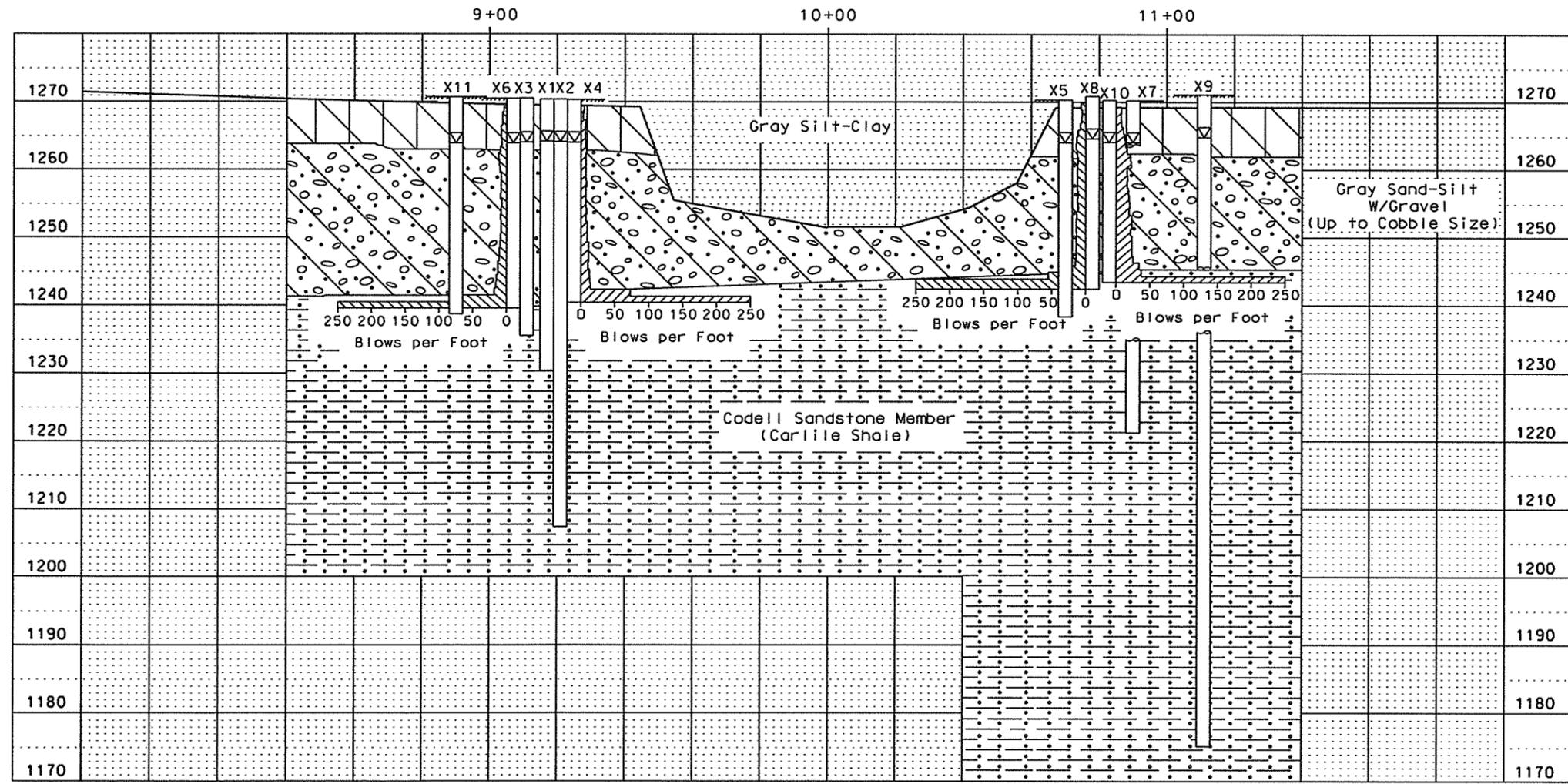
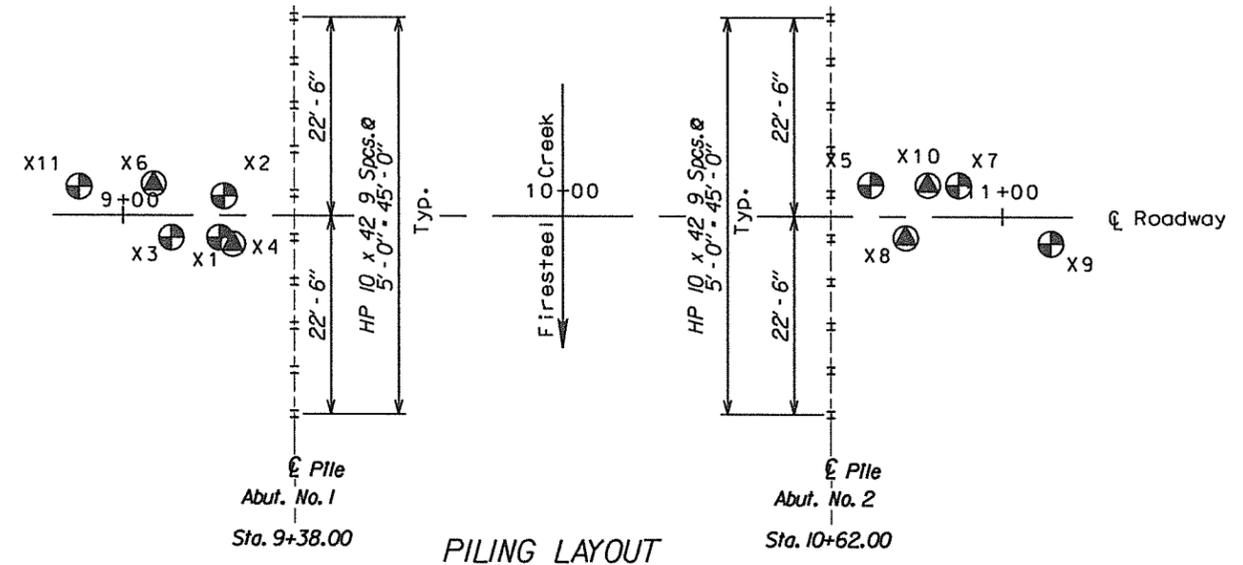
Carlile Shale is a marine shale with a textural classification that varies from silt-clay to sandy clay. Color varies from dark-gray to black. The formation contains large fossiliferous concretions, interbedded layers of buff colored sandstone and sandy calcareous marl.

The Geotechnical Engineering Activity has on file all of the boring logs for this project. These logs and additional results of laboratory test, if any, are available for review at the Central Office in Pierre.

LEGEND

- ⊕ Auger Test
- ⊖ Drive Test
- ▽ Water
- ⊖ Caved
- █ Sample Zone

Drive test are conducted by dropping a 490 pound hammer 30 inches to drive a 2 1/8 inch drill stem with attached retractable plug sampler for taking undisturbed samples and to measure the resistance to penetration of the soil.



GROUND WATER ELEVATIONS		MEASURED SKIN FRICTION	
as of August 2009			
	Elev		psf
X1	1264.2	X4	1240.4
X2	1264.1	X6	1239.6
X3	1264.0	X8	1242.4
X4	1264.0	X10	1243.4
X5	1264.0		
X6	1263.9		
X7	1264.1		
X8	1264.6		
X9	1264.8		
X10	1264.1		
X11	1263.9		

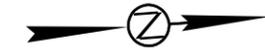
SUBSURFACE INVESTIGATION AND PILING LAYOUT FOR
 126'- 0" PRESTRESSED GIRDER BRIDGE
 28'-0" ROADWAY SEC. 6 - T103N-R60W
 OVER FIRESTEEL CREEK 0 SKEW
 STA. 9+37 TO 10+63 BRF 3630(02)
 STR. NO. 18-129-061 HL-93

DAVISON COUNTY
 S.D. DEPT OF TRANSPORTATION
 SEPTEMBER 2012

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-509-P535			

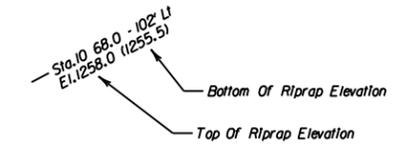
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 35	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			

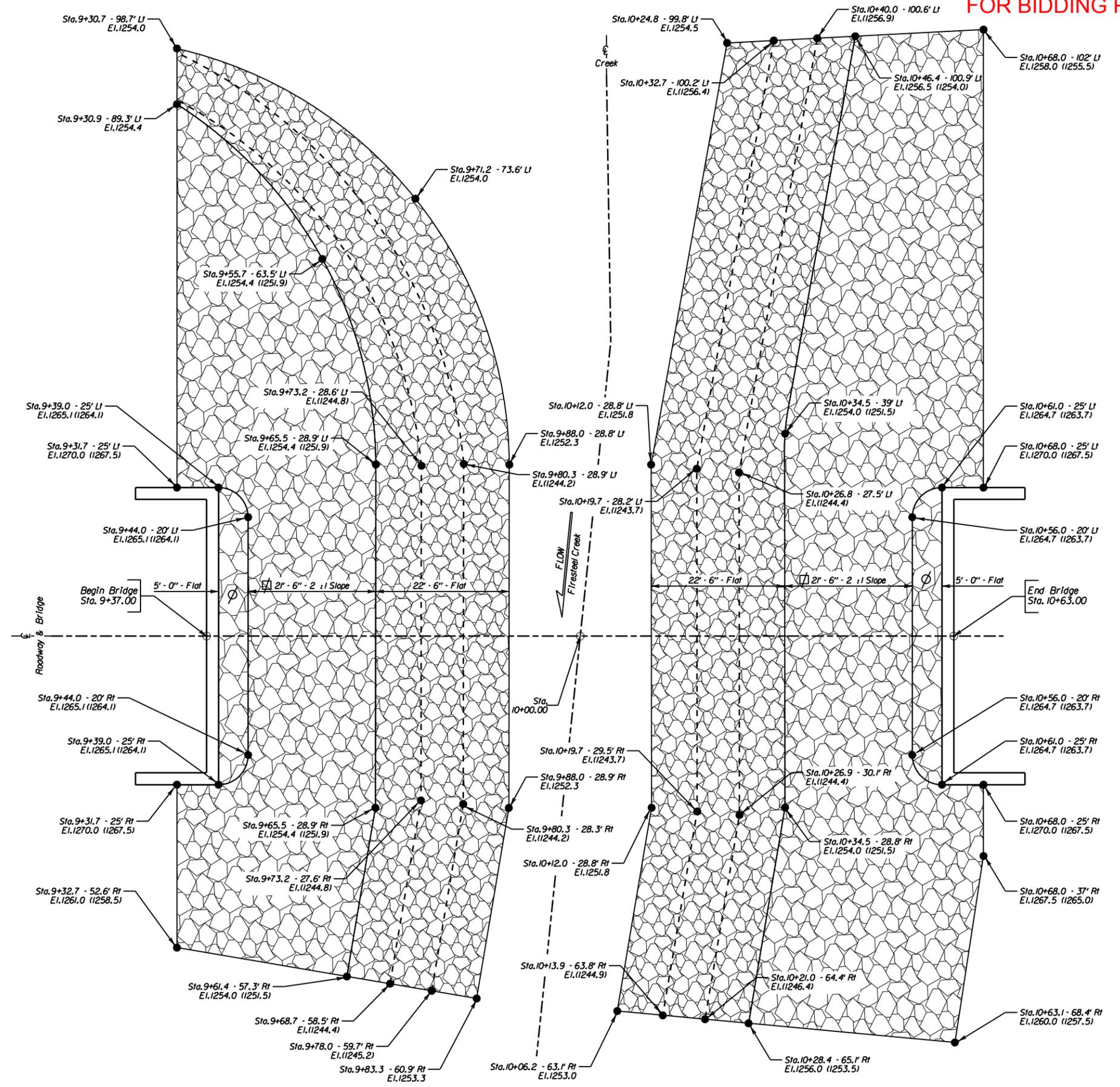


ESTIMATE QUANTITIES		
ITEM	UNIT	QUANTITY
Class C Riprap	Ton	5789.8
Type B Drainage Fabric	SqYd	2827

LEGEND:



- ⊘ Class "C" Riprap Shall Be Installed 1' - 0" Thick
- ⊠ Class "C" Riprap Shall Be Installed 2' - 6" Thick



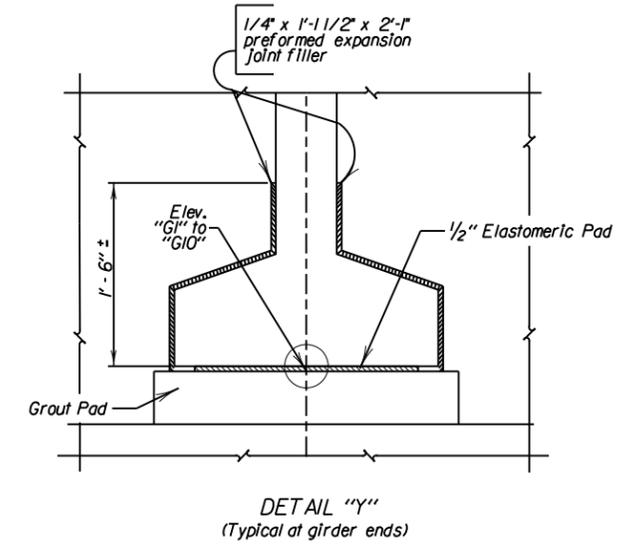
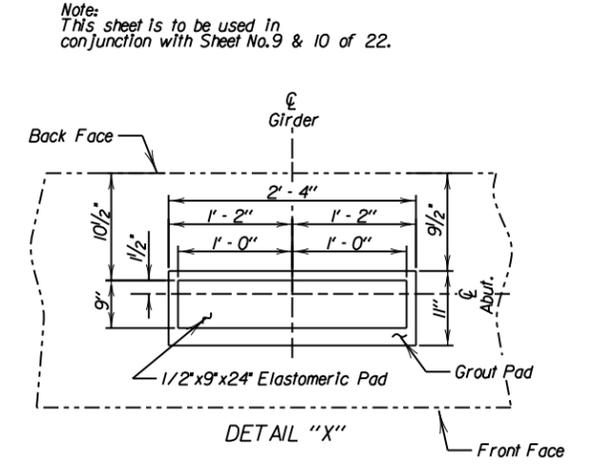
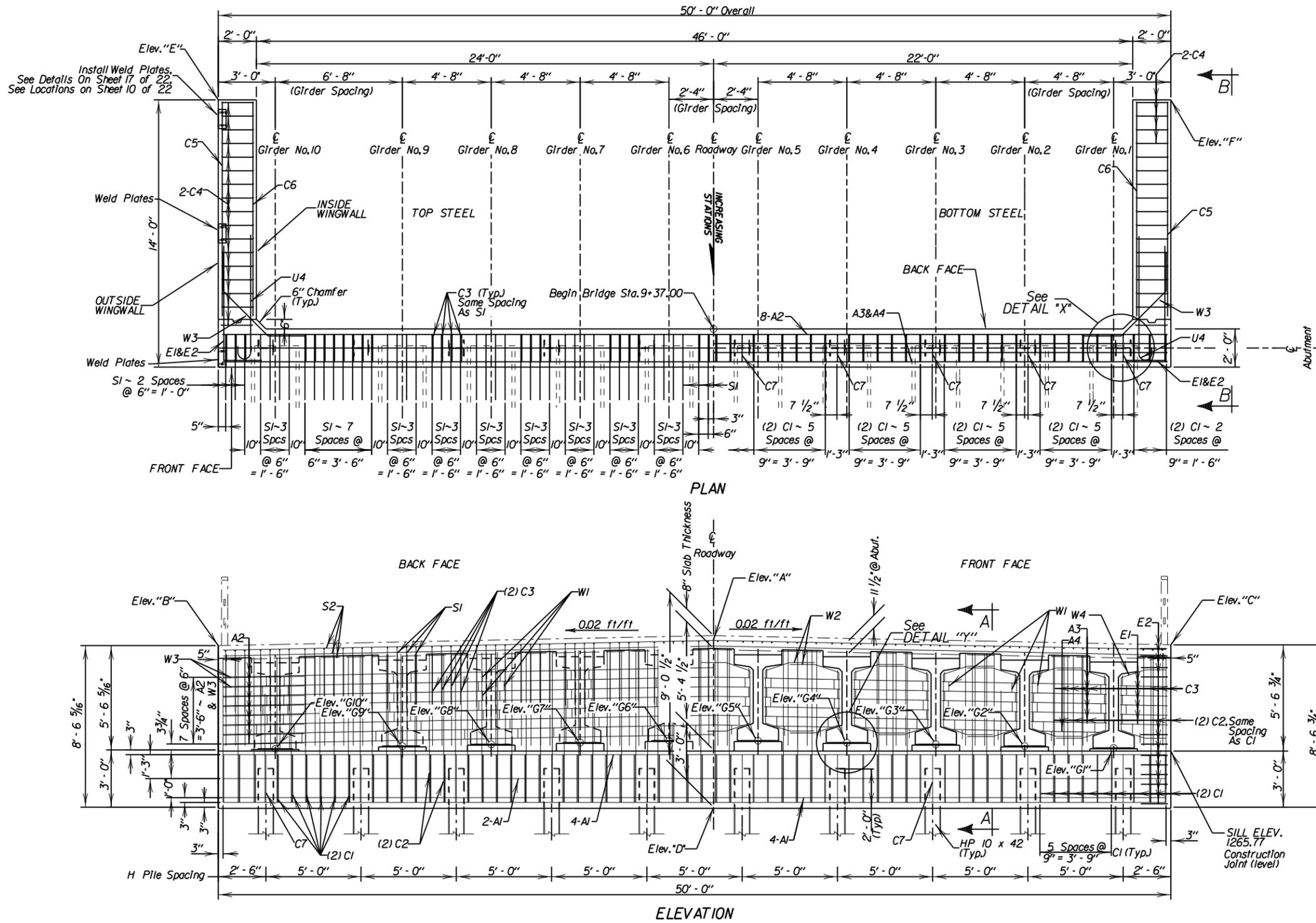
RIPRAP AND DRAINAGE FABRIC LAYOUT
FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY SEC. 6 - T103N-R60W
OVER FIRESTEEL CREEK 0 SKEW
STA. 9+37 TO 10+63 BRF 3630(02)
STR. NO. 18-129-061 HL-93

DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 36	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			



ABUTMENT NO.1 LAYOUT FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY OVER FIRESTEEL CREEK
STA. 9+38
STR. NO. 18-129-061

SEC. 6 - T103N-R60W
0 SKEW
BRF 3630(02)
HL-93

TABLE OF ELEVATIONS

ABUTMENT NO. 1	EL. "A"	EL. "B"	EL. "C"	EL. "D"	EL. "E"	EL. "F"	EL. "G1"	EL. "G2"	EL. "G3"	EL. "G4"	EL. "G5"	EL. "G6"	EL. "G7"	EL. "G8"	EL. "G9"	EL. "G0"
	1271.81	1271.29	1271.33	1262.77	1271.36	1271.40	1265.89	1265.98	1266.08	1266.17	1266.26	1266.26	1266.17	1266.08	1265.98	1265.85

NOTE -
Elevations "A", "B" and "C" are top of slab at centerline of abutment. Elevations "E" and "F" are top of abutment wall at outside edge.
Elevations "G1", "G2", "G3", "G4", "G5", "G6", "G7", "G8", "G9", AND "G0" are top of grout pad at centerline of abutment.

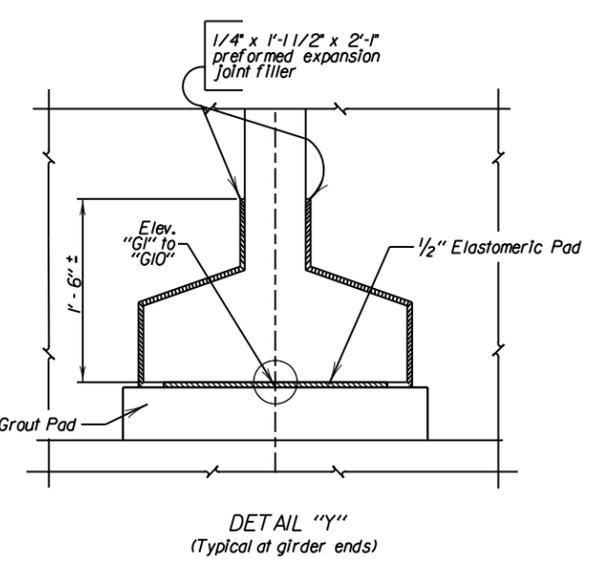
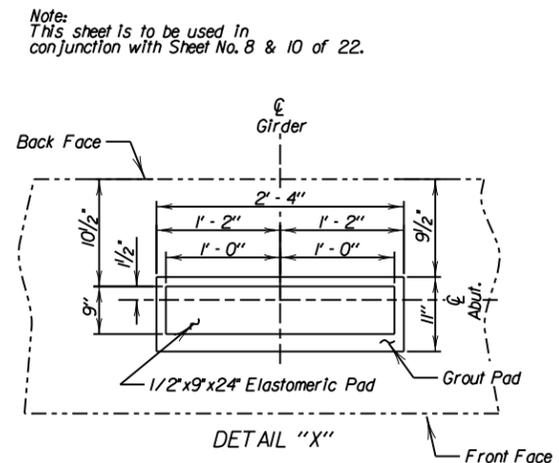
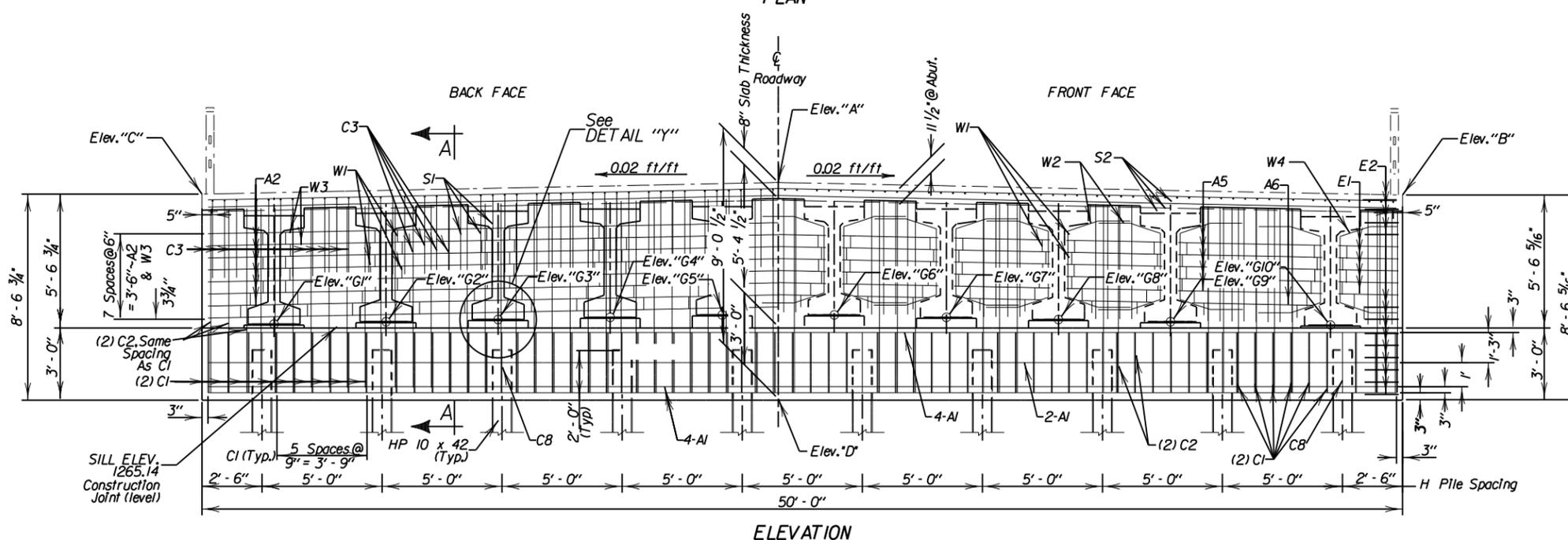
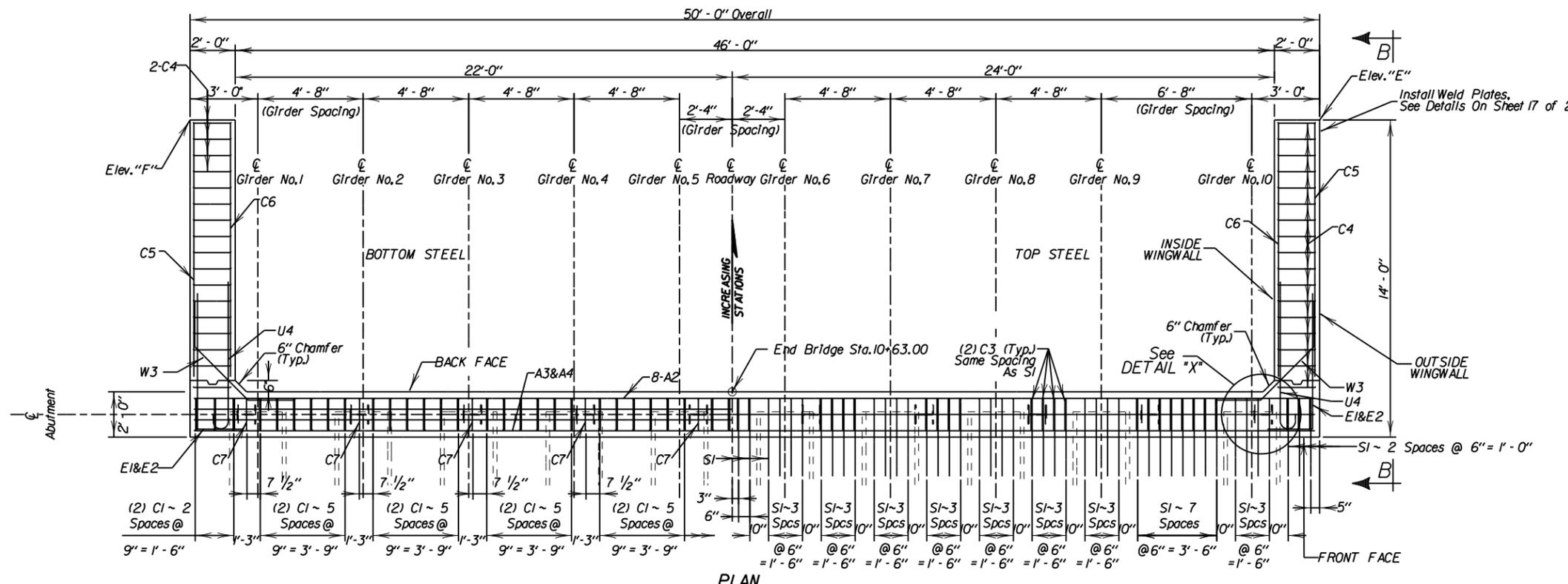
DAVISON COUNTY
S.D. DEPT. OF TRANSPORTATION
SEPTEMBER 2012

(8) of (22)

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 37	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			



ABUTMENT NO.2 LAYOUT FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY OVER FIRESTEEL CREEK
STA. 10+62 STR. NO. 18-129-061
SEC. 6 - T103N-R60W 0 SKEW
BRF 3630(02) HL-93

TABLE OF ELEVATIONS

ABUTMENT	EL. "A"	EL. "B"	EL. "C"	EL. "D"	EL. "E"	EL. "F"	EL. "G1"	EL. "G2"	EL. "G3"	EL. "G4"	EL. "G5"	EL. "G6"	EL. "G7"	EL. "G8"	EL. "G9"	EL. "G0"
NO. 2	127118	127066	127070	126214	127059	127063	126526	126535	126545	126554	126563	126563	126554	126545	126535	126522

NOTE - Elevations "A", "B", and "C" are top of slab at centerline of abutment. Elevations "E" and "F" are top of abutment wall at outside edge. Elevations "G1", "G2", "G3", "G4", "G5", "G6", "G7", "G8", "G9", AND "G0" are top of grout pad at centerline of abutment.

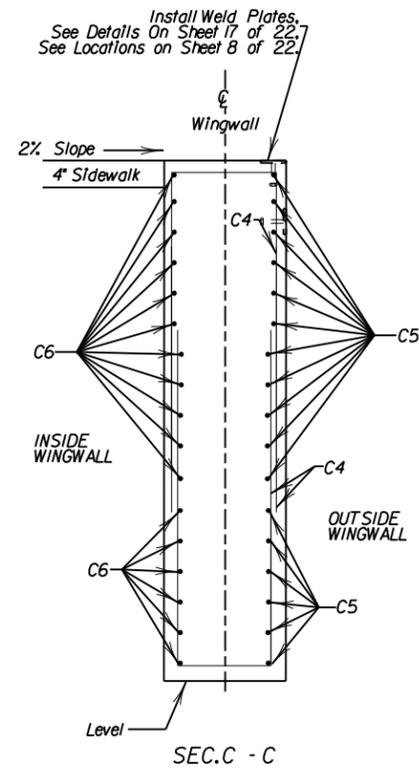
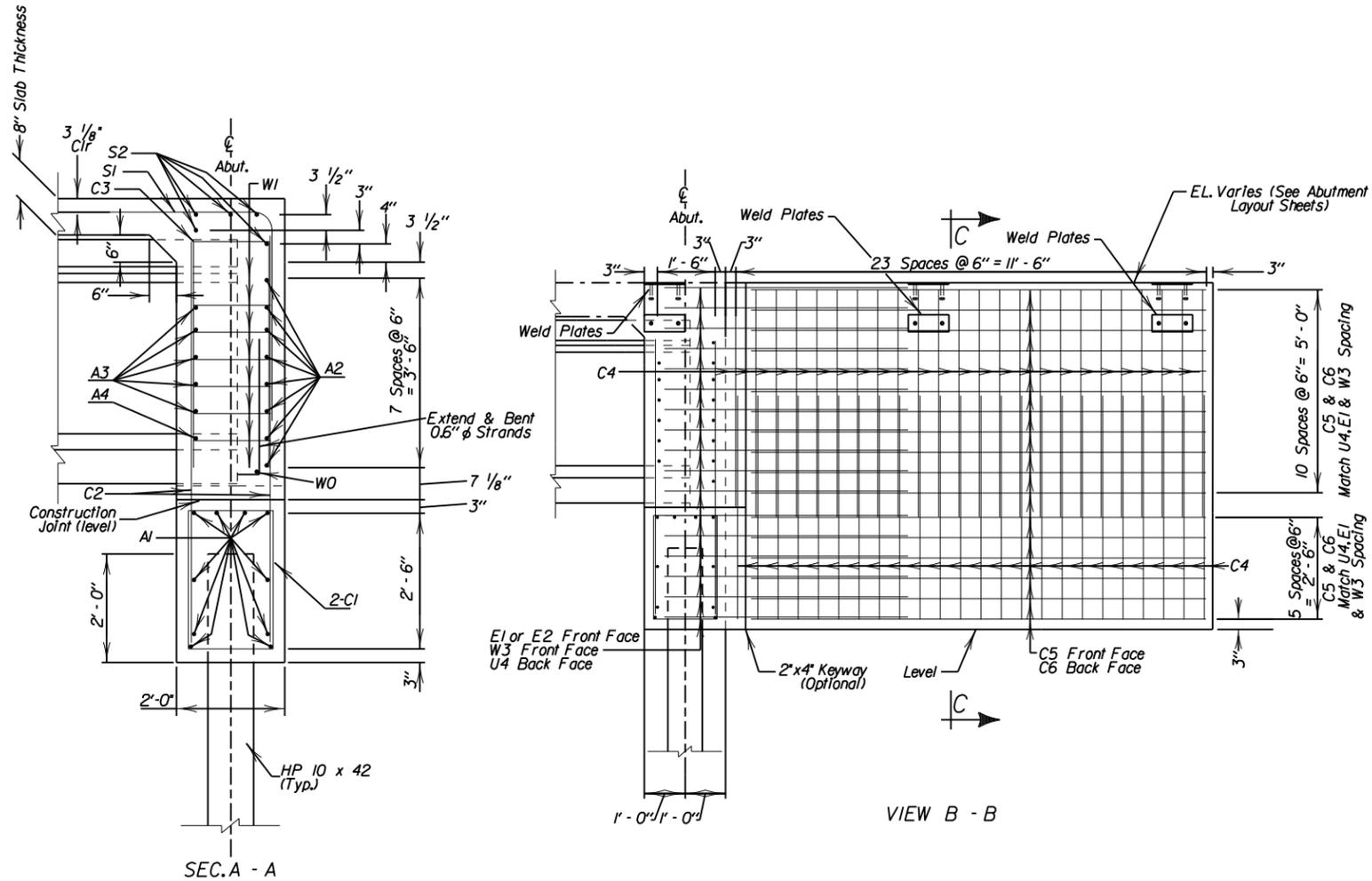
DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 38	TOTAL SHEETS 77
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Plotting Date: 09/19/12
 Revised Date: 05/5/14 CVS
 Initials: LDH



REINFORCING SCHEDULE (For One Abutment)

MK.	No.	Size	Length	Type
A1	10	9	49'-6"	Str.
A2	8	5	49'-6"	Str.
A3	40	5	3'-10"	Str.
A4	8	5	2'-10"	Str.
A5	5	5	5'-10"	Str.
A6	1	5	4'-10"	Str.
C1	120	5	6'-3"	17
C2	103	5	7'-5"	Str.
C3	46	5	12'-9"	17
C4	96	5	12'-11"	17
C5	34	5	11'-6"	17A
C6	34	5	11'-6"	17A
C7	10	6	8'-3"	S6
E1	10	5	7'-10"	17A
E2	24	5	6'-11"	17A
W0	10	5	4'-6"	Str.
W1	140	5	2'-8"	17
W2	18	5	8'-3"	14A
W3	34	8	9'-0"	13
W4	2	5	7'-7"	14A
* S1	88	8	9'-0"	17A
* S2	5	9	49'-6"	Str.
* S3	20	5	4'-0"	Str.
U4	34	8	7'-10"	1A

NOTE: All dimensions are out to out of bars.
 * Epoxy Coated

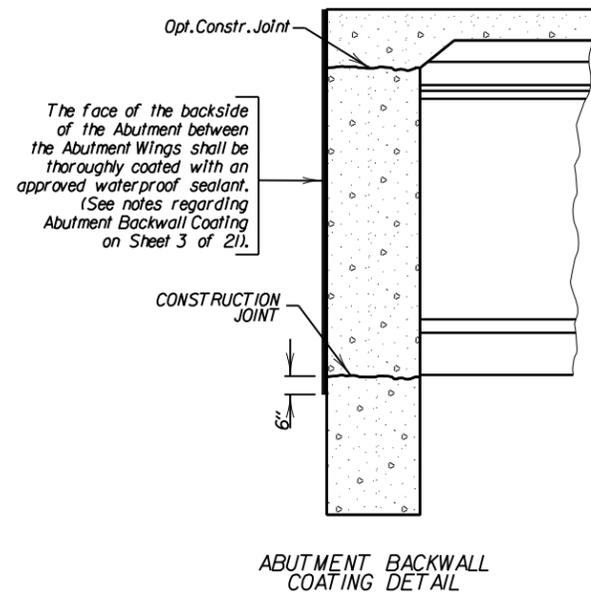
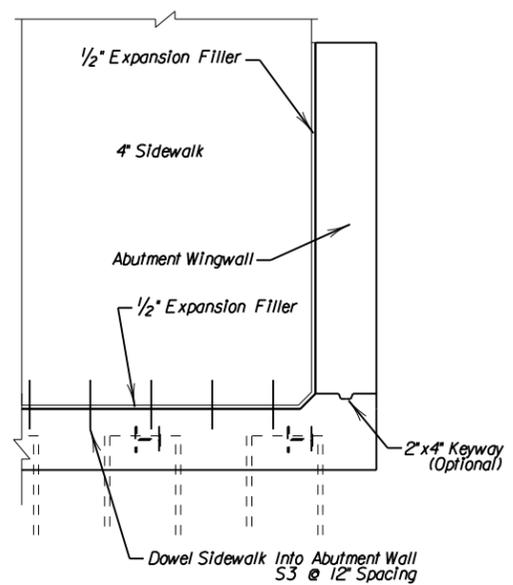
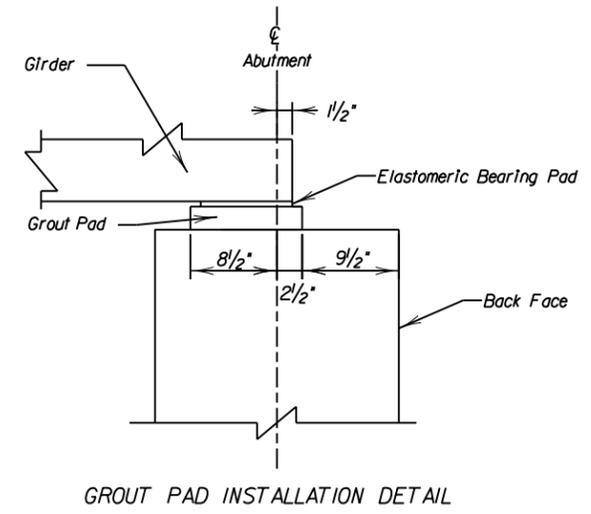
ESTIMATE QUANTITIES

ITEM	UNIT	QUANTITY	
		Abut No.1	Abut No.2
Class A45 Concrete, Bridge	CuYd	41.4	41.4
Reinforcing Steel	Lb	9,129	9,129
Epoxy Coated Reinforcing Steel	Lb	3,040	3,040
Structure Excavation, Bridge	CuYd	147.5	147.5
Prebaring Piling	Ft	100	100

Note: This sheet is to be used in conjunction with Sheet No. 8 and No. 9 of 22.
 Concrete shall be placed in the space under the beams (within the backwall width) during the pour. Care shall be taken to get the concrete vibrated into the area. If upon form removal the space is not completely filled and consolidated, the Contractor shall grout in the remaining voids.

ABUTMENT DETAILS FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
 28'-0" ROADWAY
 OVER FIRESTEEL CREEK
 STA. 9+38 & STA. 10+62
 STR. NO. 18-129-061

SEC. 6 - T103N-R60W
 0 SKEW
 BRF 3630(02)
 HL-93



SIDEWALK TO ABUTMENT DETAIL

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI*S09-P535			

TABLE OF SLAB FORM ELEVATIONS & CALCULATIONS

FOR BIDDING PURPOSES ONLY

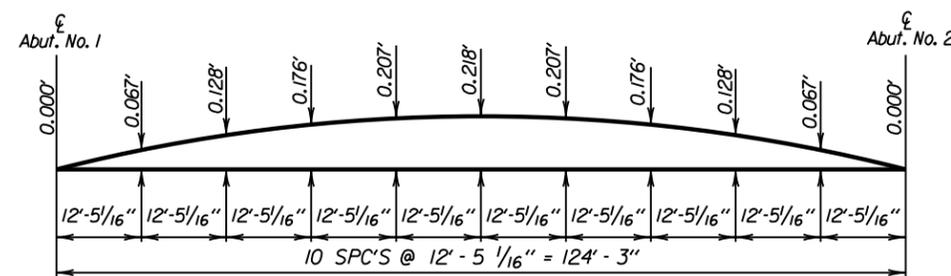
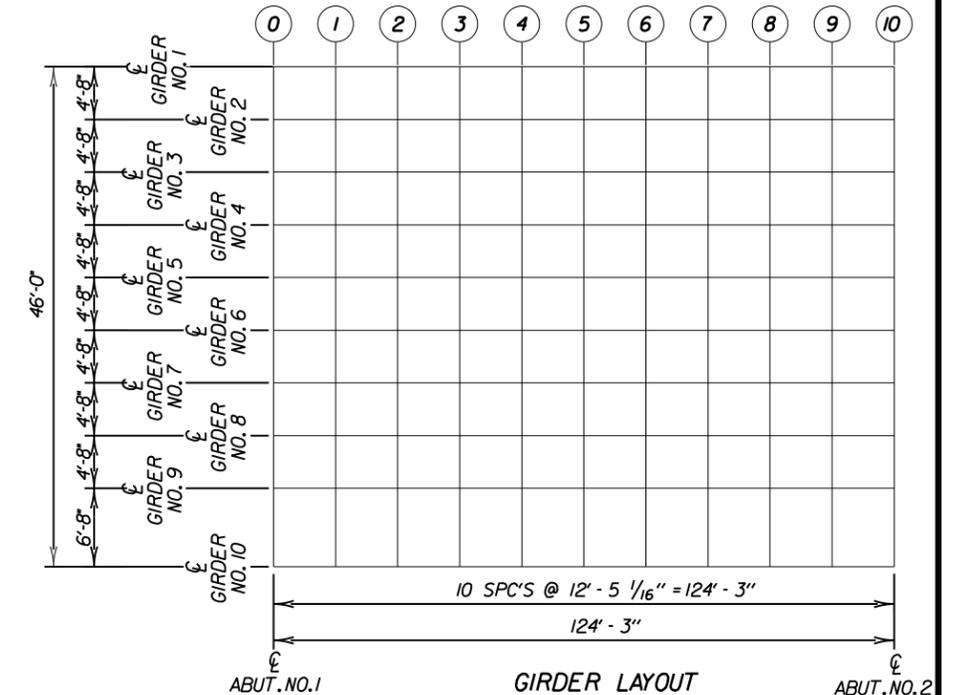
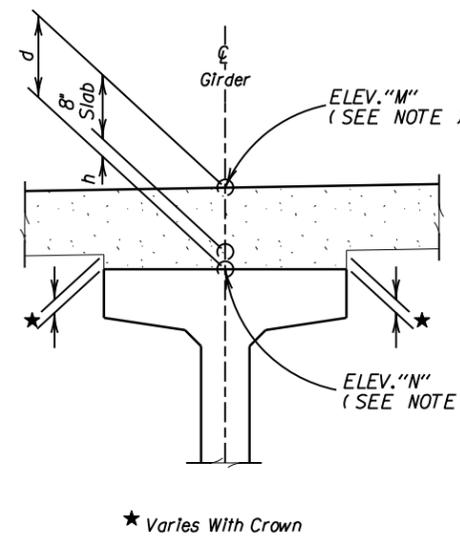
STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 41	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/01/14 DC Initials: LDH			

		0	1	2	3	4	5	6	7	8	9	10
Girder No. 1	ELEV. "M"	1271.39	1271.38	1271.36	1271.34	1271.30	1271.24	1271.17	1271.08	1270.98	1270.87	1270.76
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 2	ELEV. "M"	1271.48	1271.47	1271.46	1271.43	1271.39	1271.33	1271.26	1271.18	1271.08	1270.97	1270.85
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 3	ELEV. "M"	1271.58	1271.57	1271.55	1271.52	1271.48	1271.43	1271.36	1271.27	1271.17	1271.06	1270.95
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 4	ELEV. "M"	1271.67	1271.66	1271.64	1271.62	1271.58	1271.52	1271.45	1271.36	1271.26	1271.15	1271.04
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 5	ELEV. "M"	1271.76	1271.75	1271.74	1271.71	1271.67	1271.61	1271.54	1271.46	1271.36	1271.25	1271.13
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 6	ELEV. "M"	1271.76	1271.75	1271.74	1271.71	1271.67	1271.61	1271.54	1271.46	1271.36	1271.25	1271.13
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 7	ELEV. "M"	1271.67	1271.66	1271.64	1271.62	1271.58	1271.52	1271.45	1271.36	1271.26	1271.15	1271.04
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 8	ELEV. "M"	1271.58	1271.57	1271.55	1271.52	1271.48	1271.43	1271.36	1271.27	1271.17	1271.06	1270.95
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 9	ELEV. "M"	1271.48	1271.48	1271.47	1271.45	1271.42	1271.37	1271.29	1271.20	1271.10	1270.98	1270.85
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											
Girder No. 10	ELEV. "M"	1271.35	1271.35	1271.35	1271.34	1271.30	1271.25	1271.18	1271.08	1270.97	1270.85	1270.72
	(-) ELEV. "N"											
	(=) d											
	(-) 0.667'											
	(=) h											

NOTES:

The table contains the information necessary to determine the depth of concrete over the girders at points shown. Calculations may be carried in the spaces provided. Elev. "M" is the Design Elevation of the top of slab before any concrete has been poured. This elevation includes correction for Camber and Dead Load Deflection. Elev. "N" is a Field Measured Elev. taken on top of girders at the points shown with the girders in their positions. This elevation must be taken after erection is completed, but prior to placing any of the concrete. Girders shall not be supported between bearings when elevations are taken.

Based on a "d" of 11 1/2" at the centerline of each Abutment. It is anticipated that the Midspan Haunch Dimension "h" over the centerline of Girders #1 - #8 will be 1 5/8" Girder #9 will be 1-1/4", and Girder #10 will be 1". If when computing the dimensions in the table, it is found that any dimension "h" is less than Zero or greater than 3-1/2" the Office of Bridge Design of the SDDOT must be notified immediately. After the "Table of Slab Form Elevations and Calculations" has been completely filled out and approved for Deck Forming, a copy must be forwarded to the office of Bridge Design for review and analysis for the purpose of securing information relative to Camber Growth in the Beams. This information is necessary for preparing plans for future structures of this type.

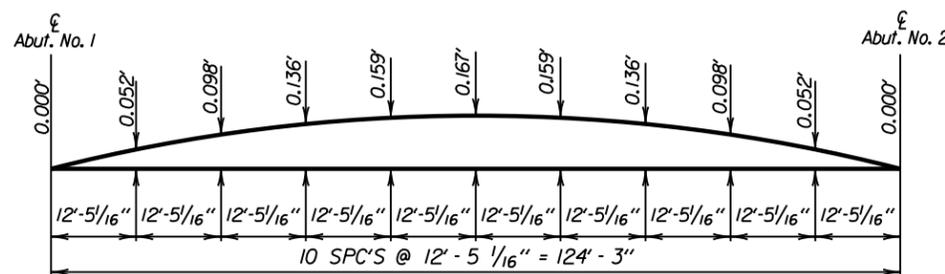


The Camber diagrams shown is the amount which has been added to the Theoretical Slab Elevations to get slab elevations shown in the table of Slab Form Elevations and Calculations. Camber shown is for D.L. of Slab, Traffic Barrier, Diaphragms and Camber Growth, but does not include D.L. of Beams.

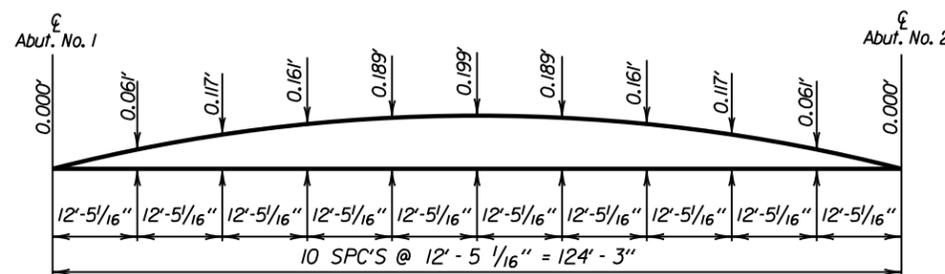
ERECTION DATA AND SLAB FORM ELEVATIONS FOR

126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY SEC. 6 - T103N-R60W
OVER FIRESTEEL CREEK 0 SKEW
STA. 9+37 To STA. 10+63 BRF 3630(02)
STR. NO. 18-129-061 HL-93

DAVISON COUNTY
S.D. DEPT. OF TRANSPORTATION
SEPTEMBER 2012



CAMBER DIAGRAM - GIRDERS 1-8

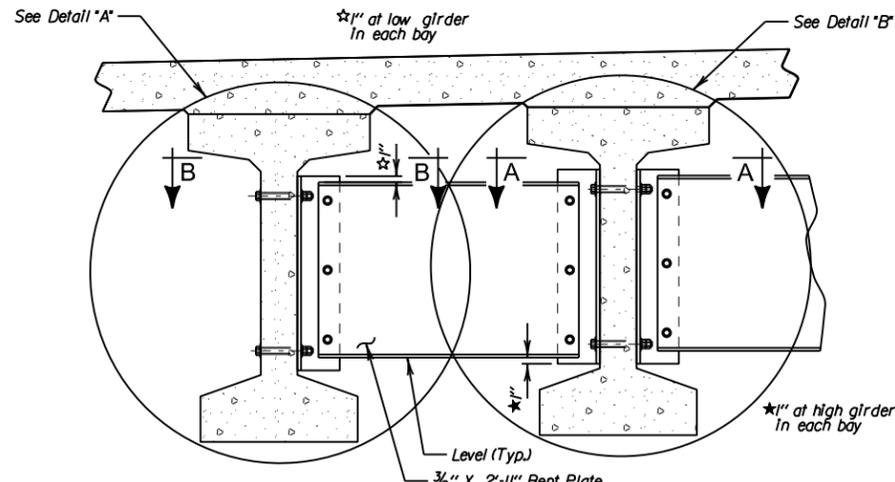


CAMBER DIAGRAM - GIRDER 9

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 42	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			



SECTION AT DIAPHRAGM

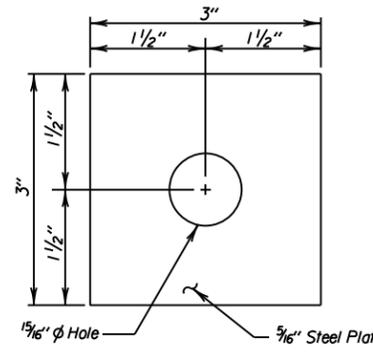


PLATE WASHER DETAILS

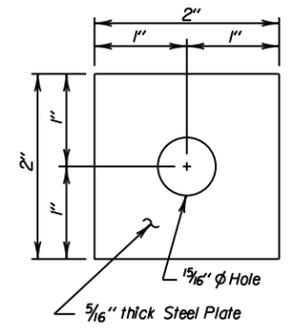
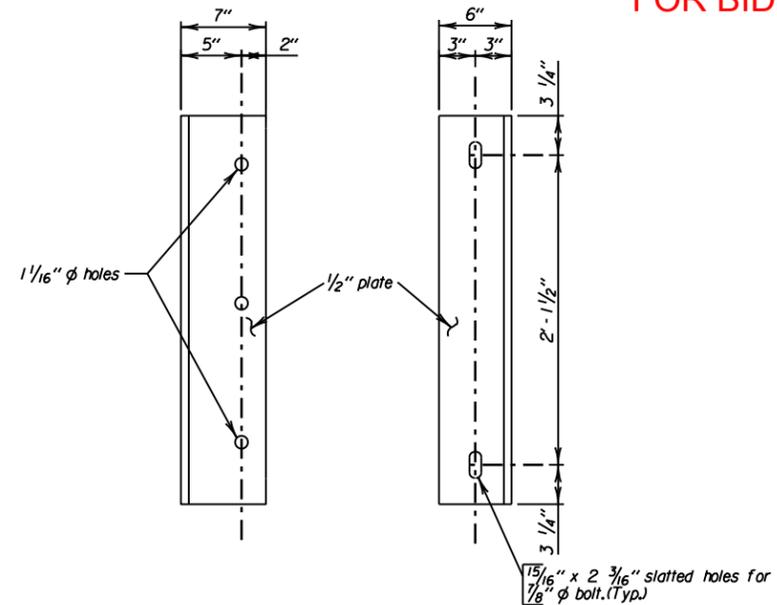
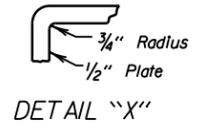


PLATE WASHER DETAILS

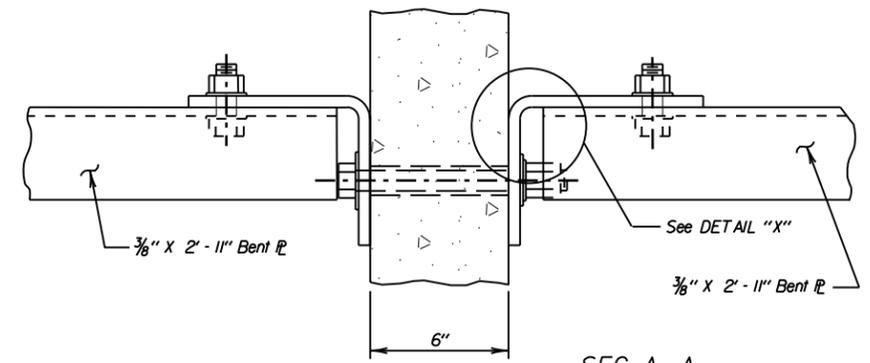
* Bolt head shall be adjacent to the Exterior Face of the Exterior Girder



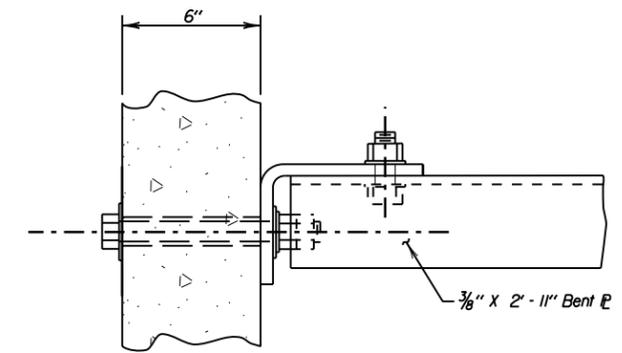
DIAPHRAGM SUPPORT PLATE



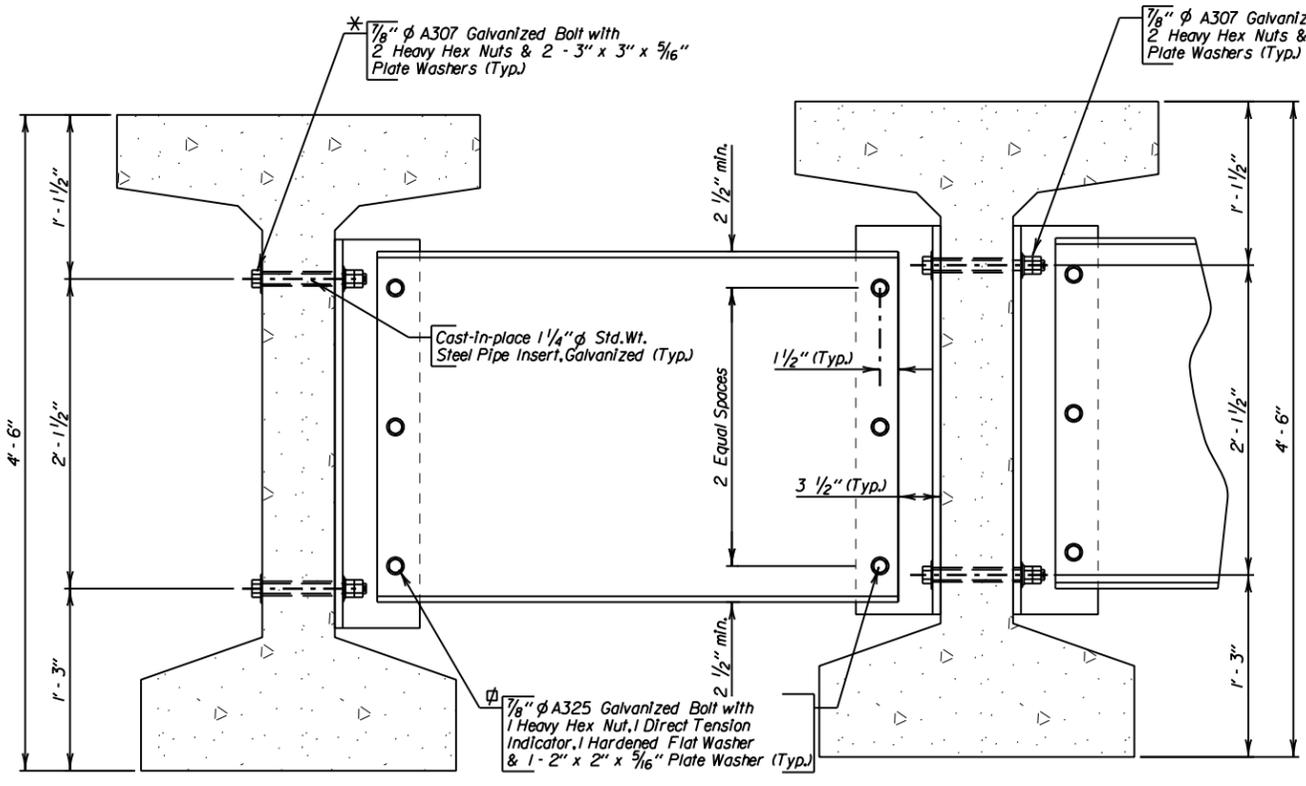
DETAIL "X"



SEC. A - A



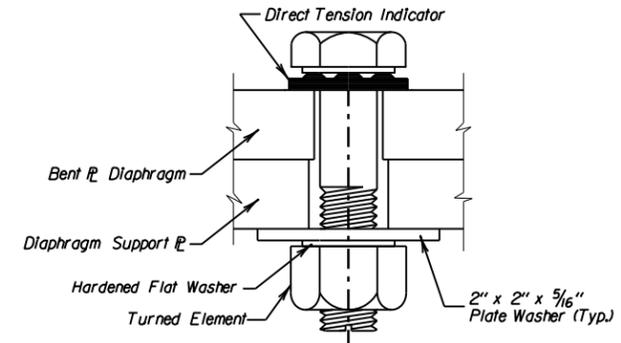
SEC. B - B



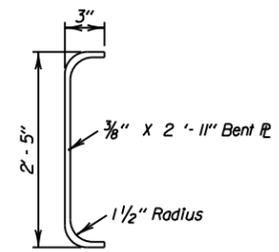
DETAIL "A" (Typ. Exterior Girder)

φ Bolt head & direct tension Indicator shall be adjacent to 1 5/16" diameter holes in Bent PL Diaphragm

DETAIL "B" (Typ. Interior Girder)



DIRECT TENSION INDICATOR DETAIL



END VIEW BENT PLATE DIAPHRAGM

NOTES:

- All steel for the diaphragms including plate washers shall conform to ASTM A36, and shall be galvanized in accordance with ASTM A123. Bolts, nuts, & washer shall be galvanized in accordance with ASTM A153.
- The steel diaphragms between adjacent girders shall be installed as soon as possible and in conjunction with girder erection.
- All costs associated with furnishing, fabricating, assembly and installation of diaphragms shall be incidental to the contract lump sum price for Structural Steel, Miscellaneous.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Δ Structural Steel (Misc.)	L.S.	Lump Sum

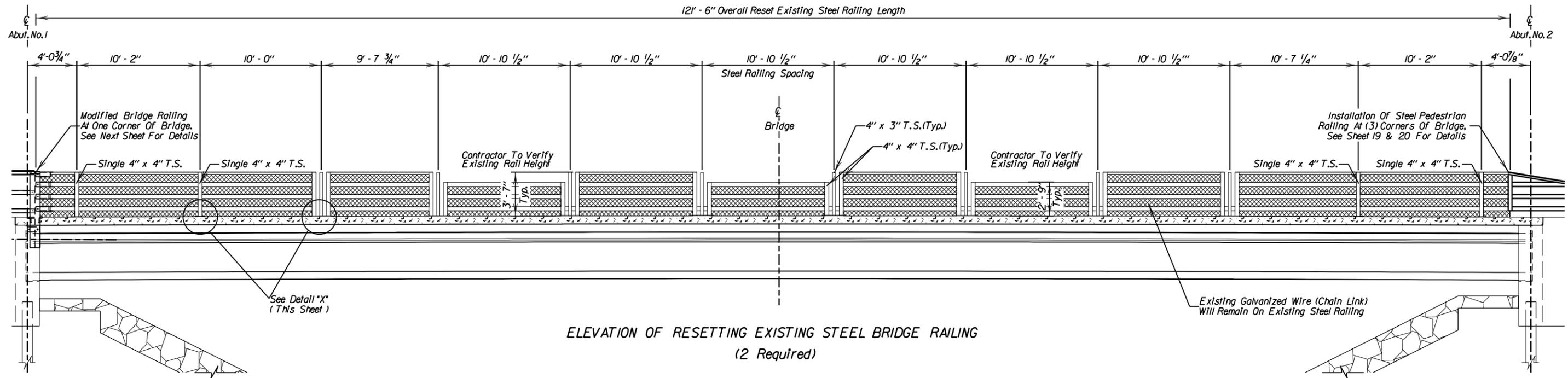
Δ For information purposes, the estimated wt. of structural steel is 4930 Lbs. for 18 diaphragms.

STEEL DIAPHRAGM DETAILS FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY SEC. 6 - T103N-R60W
OVER FIRESTEEL CREEK 0 SKEW
STA. 9+37 To STA. 10+63 BRF 3630(02)
STR. NO. 18-129-061 HL-93

DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

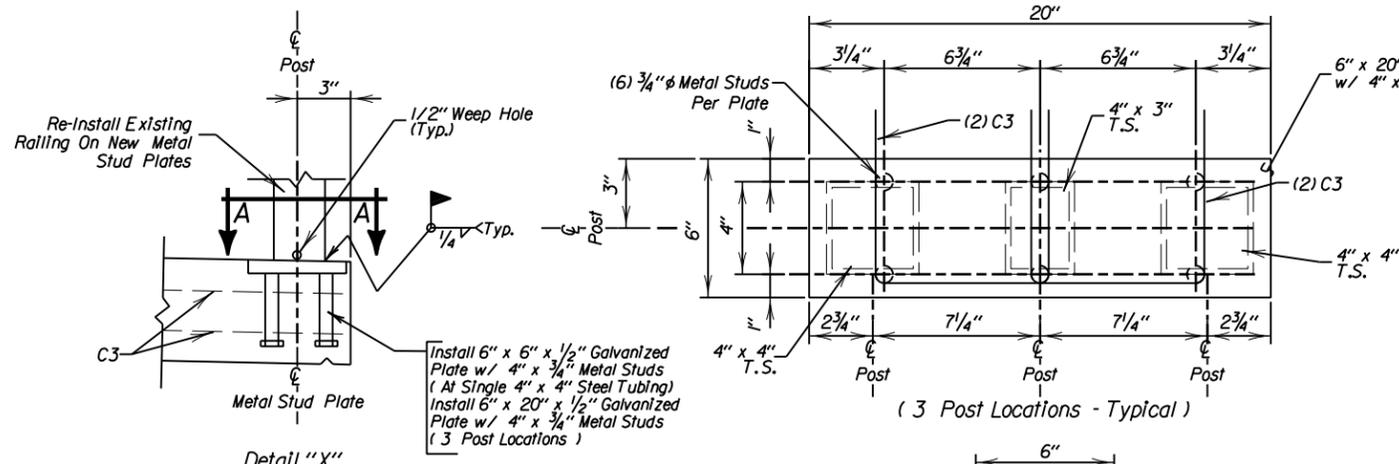
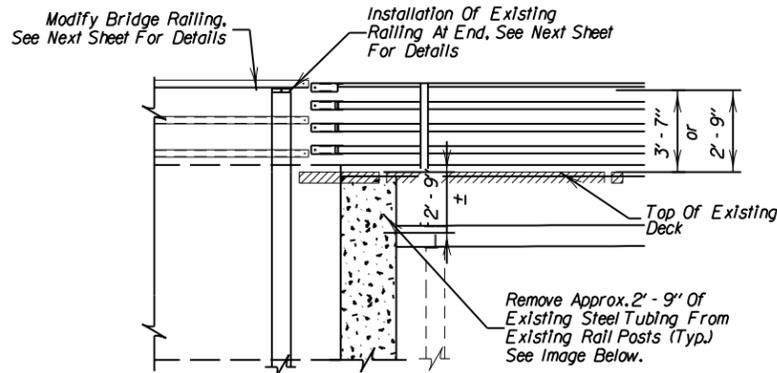
DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 43	TOTAL SHEETS 77
Plotting Date: 09/19/12			
Revised Date: 05/05/14 CVS			
Initials: LDH			



ELEVATION OF RESETTING EXISTING STEEL BRIDGE RAILING
(2 Required)

Note:
This sheet is to be used in conjunction with sheet No. 17 of 22.

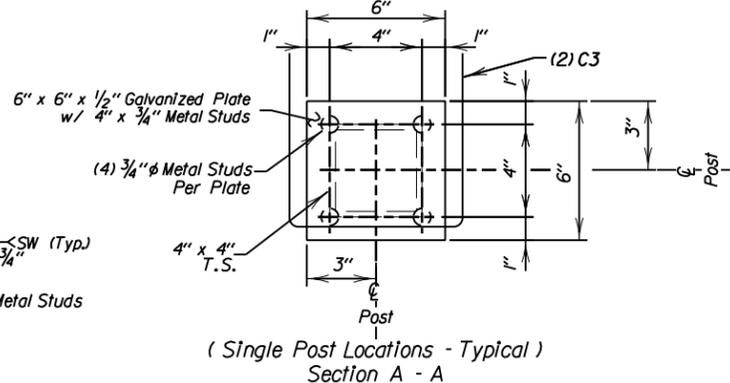
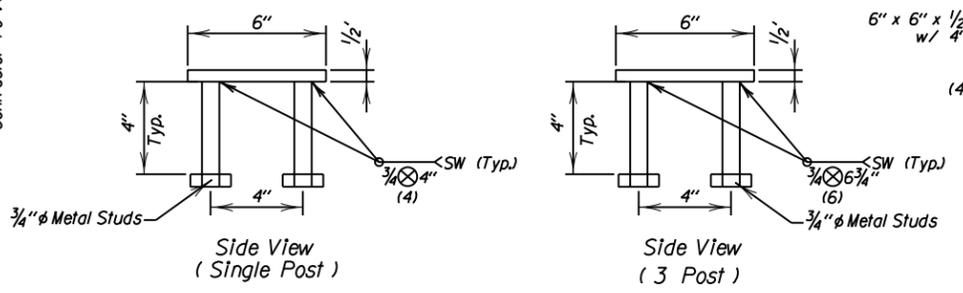
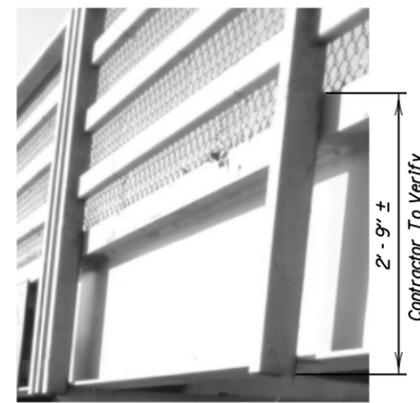


ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Reset Steel Railing	Ft.	243

RESET STEEL RAILING DETAILS FOR

126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY SEC. 6 - T103N-R60W
OVER FIRESTEEL CREEK 0 SKEW
STA. 9+37 To STA. 10+63 BRF 3630(02)
STR. NO. 18-129-061 HL-93

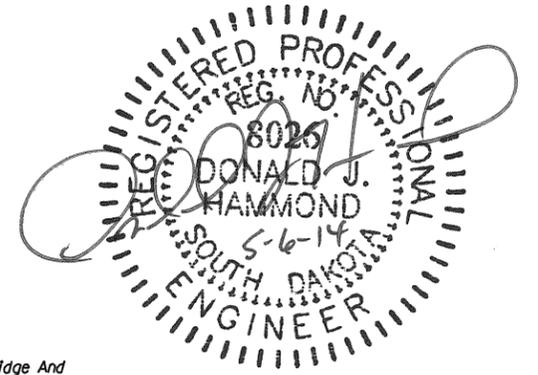
DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012



DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI*S09-P535			

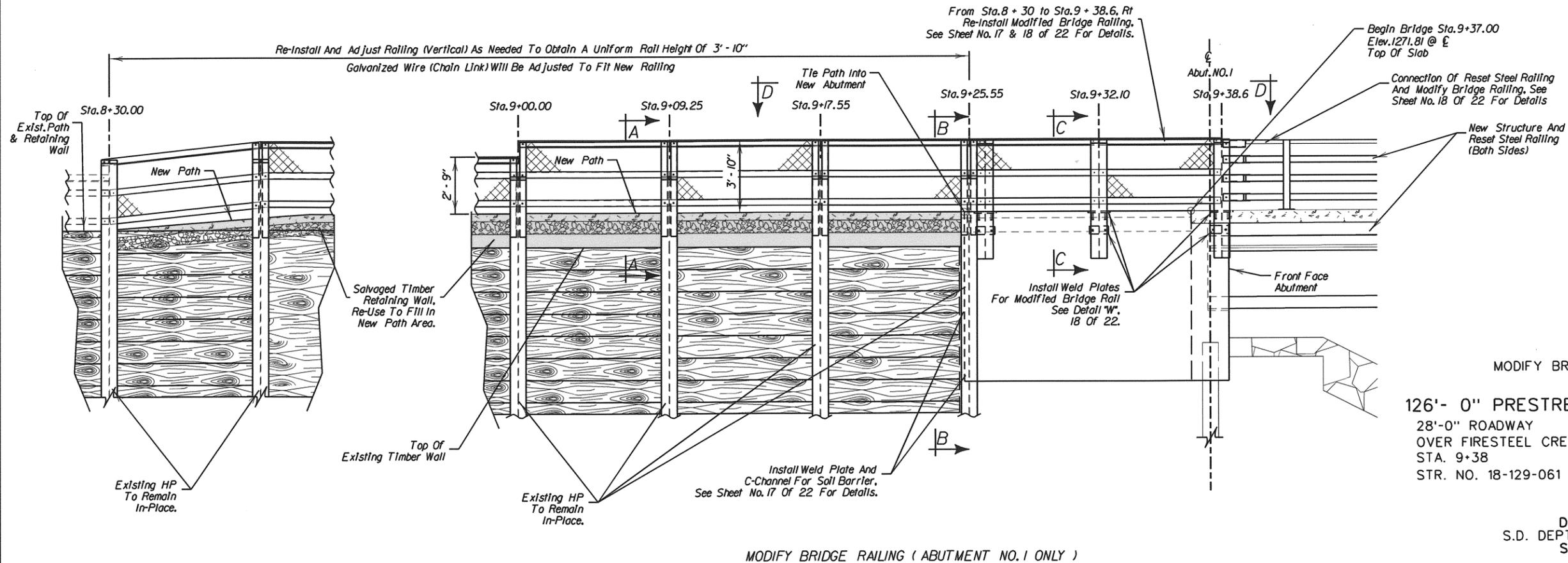
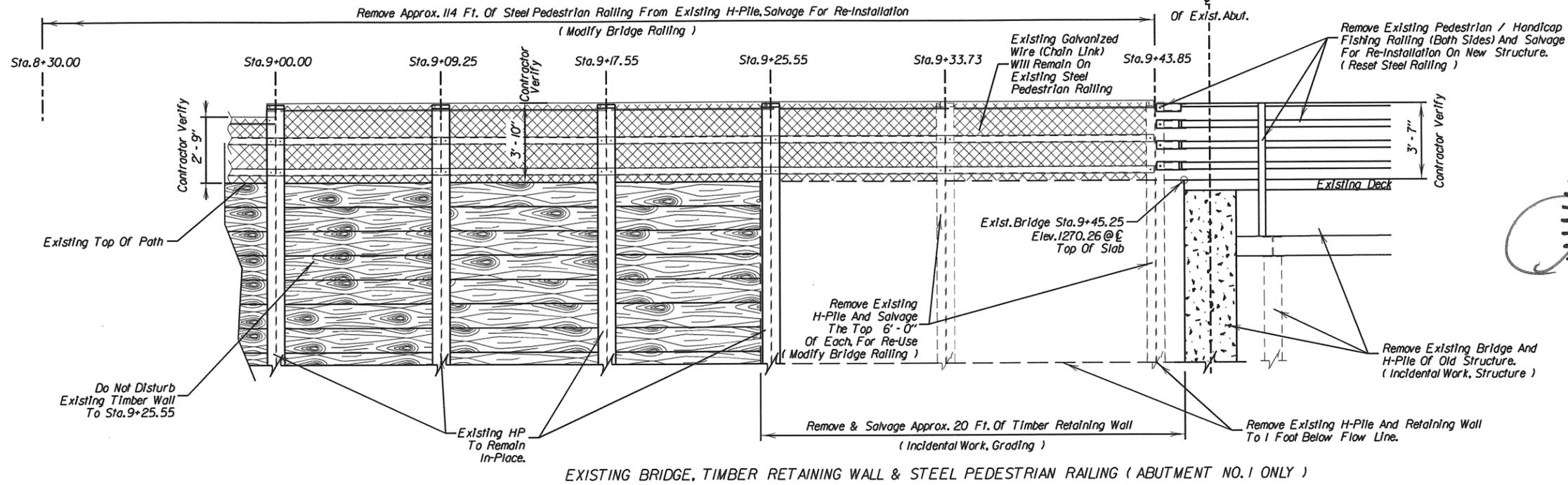
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 44	TOTAL SHEETS 77
Plotting Date: 09/19/12		Revised Date: 05/05/14 CVS	
Initials: LDH			



Note:
Contractor to verify all spacing of H-Pile, spacing between all horizontal cross members and vertical height's to top rail.

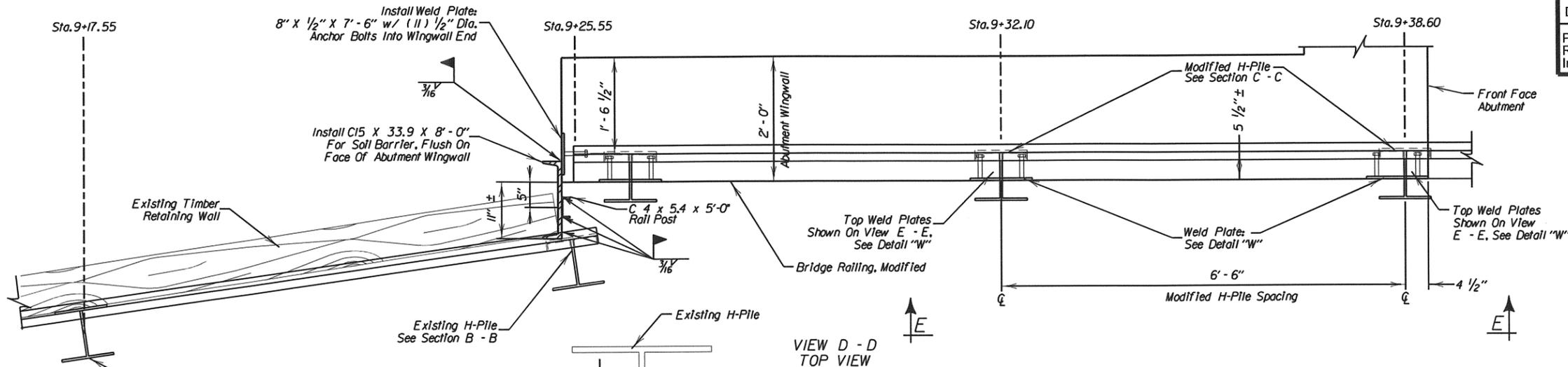
This sheet is to be used in conjunction with sheet No.'s 15, 17 & 18 of 22.



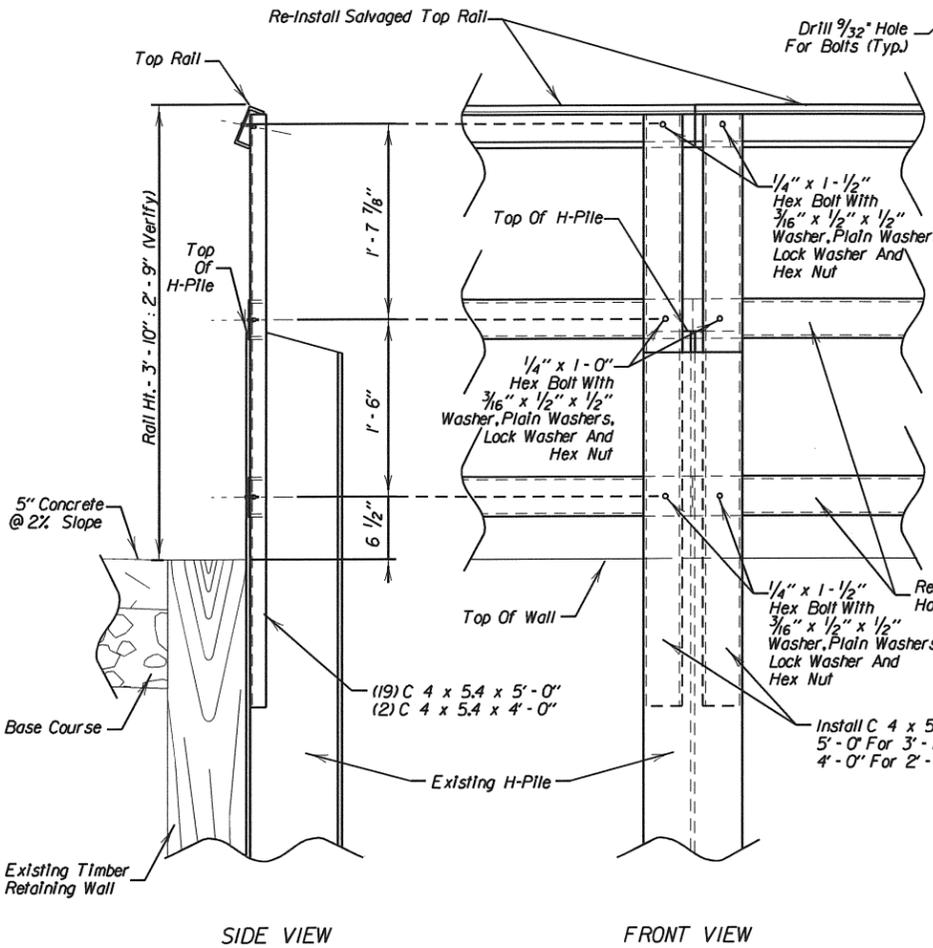
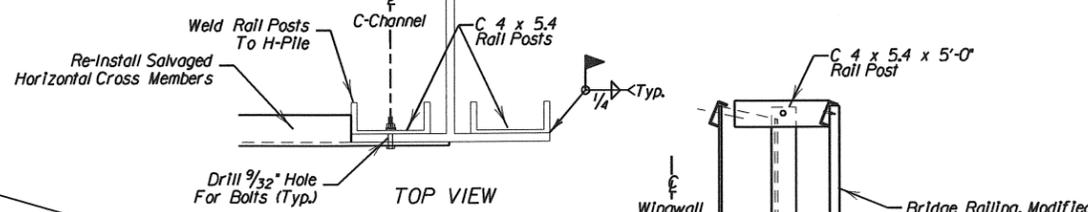
DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI::S09-P535			

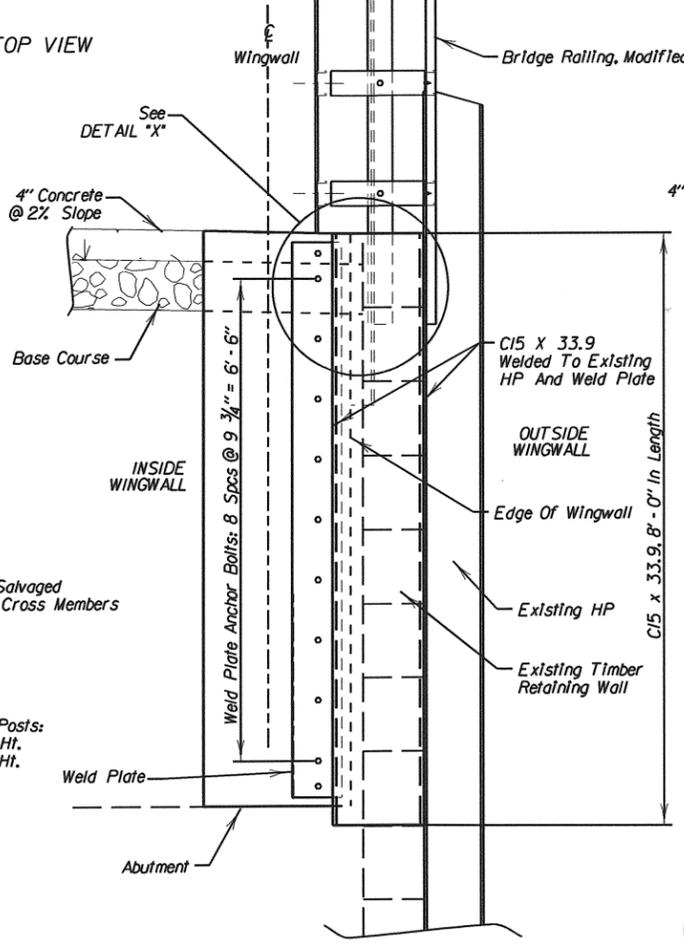
STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 45	TOTAL SHEETS 77
Plotting Date: 09/19/12		Revised Date: 05/05/14 CVS	
Initials: LDH			



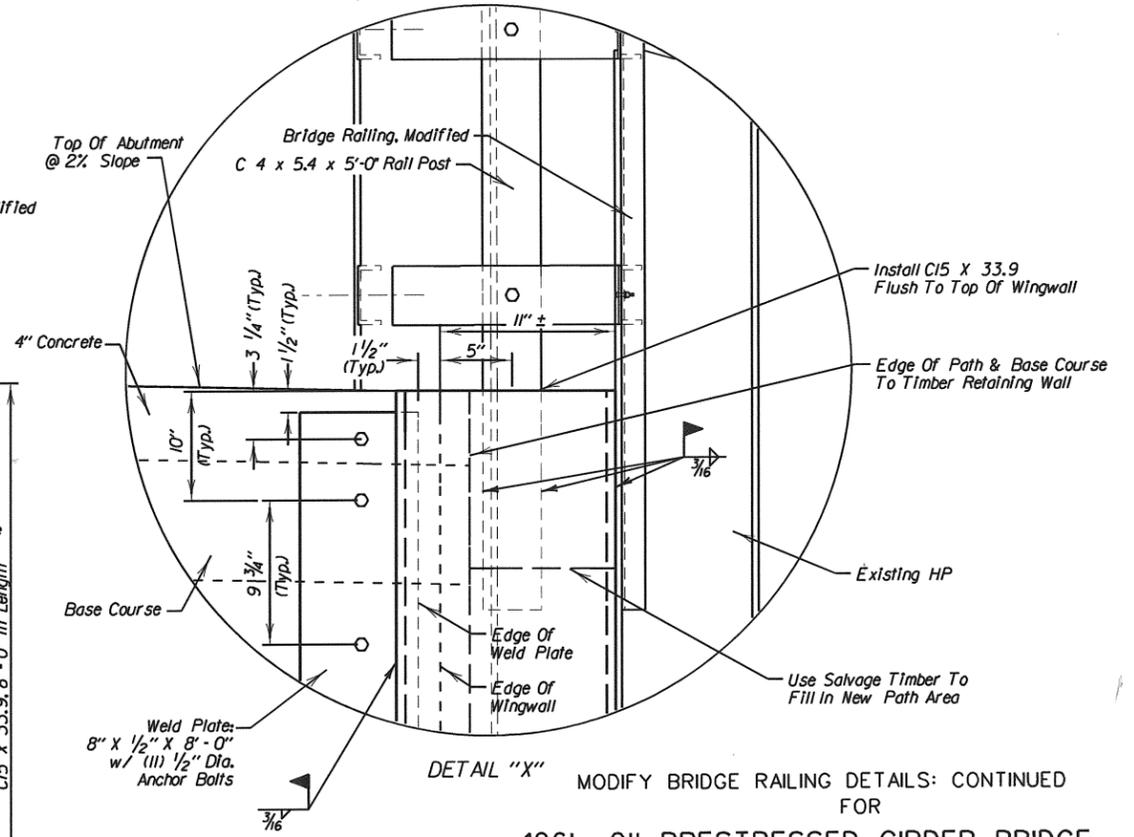
Note:
This sheet is to be used in conjunction with sheet No.s 15, 16 & 18 of 22.



SEC. A - A
BRIDGE RAILING, MODIFIED

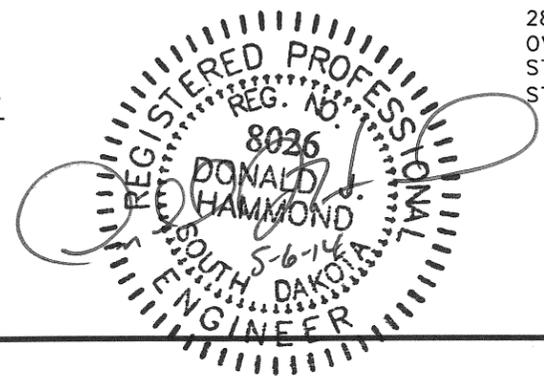


SEC. B - B
WELD PLATE & C-CHANNEL



DETAIL "X" MODIFY BRIDGE RAILING DETAILS: CONTINUED FOR

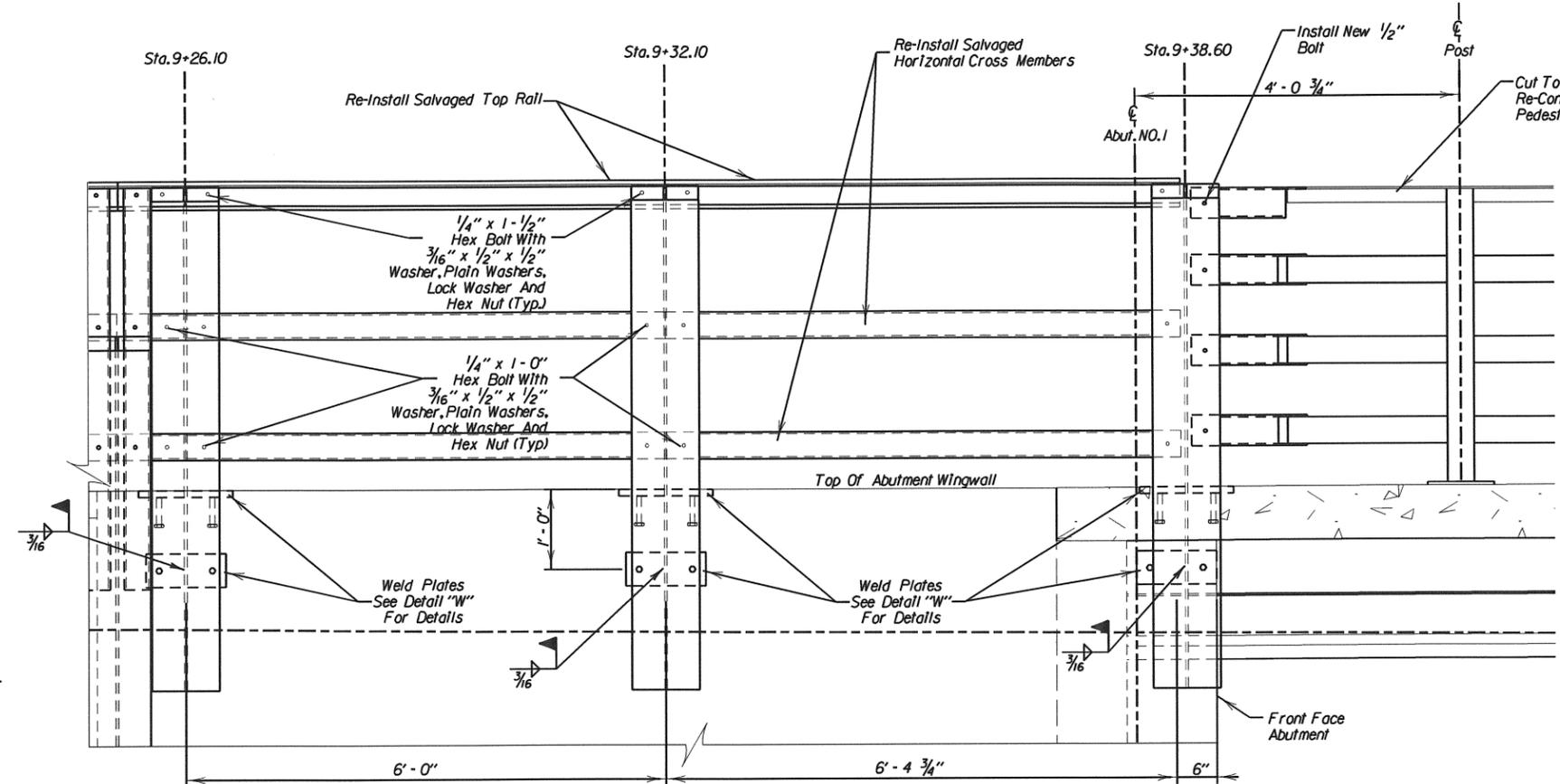
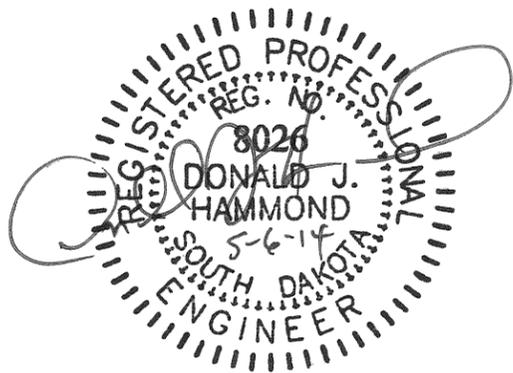
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY SEC. 6 - T103N-R60W
OVER FIRESTEEL CREEK 0 SKEW
STA. 9+38 BRF 3630(02)
STR. NO. 18-129-061 HL-93



DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

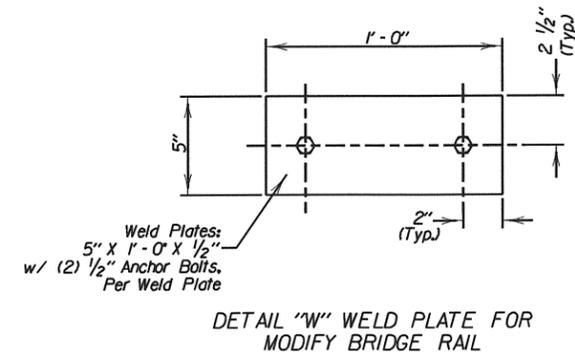
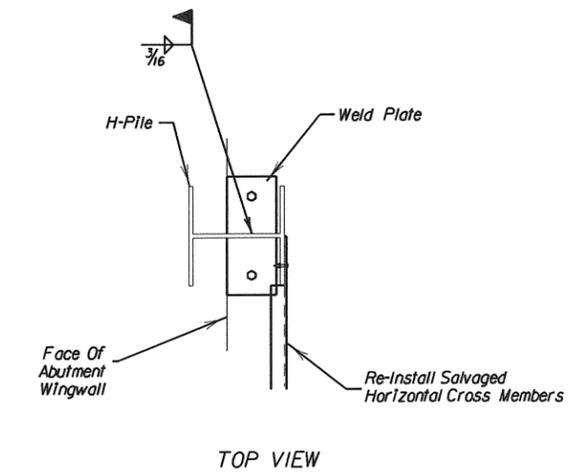
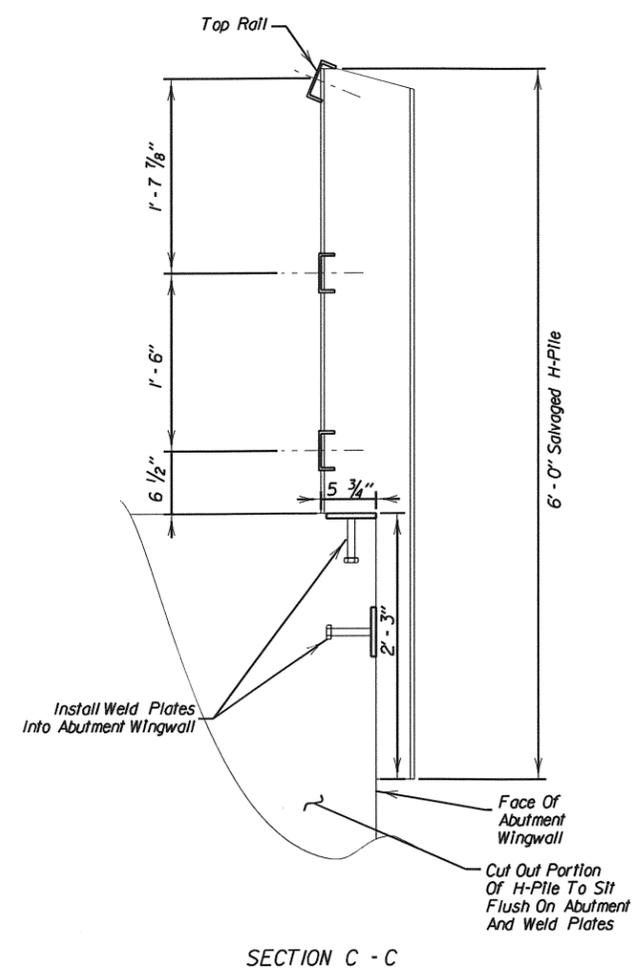
STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 46	TOTAL SHEETS 77
Plotting Date: 09/19/12		Revised Date: 05/05/14 CVS	
Initials: LDH			



- GENERAL NOTES:**
- FOR THE STEEL PEDESTRIAN BRIDGE RAILING (RAILING ON THE BRIDGE AND THE THREE END SECTIONS) THE NUTS, BOLTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. THE WELD PLATES AND C15X33 SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. ALL BOLTS, NUTS, WASHERS, WELD PLATES, WELDING, GALVANIZING, INSTALLATION AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR "RESET BRIDGE RAILING".
 - FOR THE MODIFIED PEDESTRIAN BRIDGE RAILING (RAILING ALONG THE WALKWAY) THE NUTS, BOLTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. THE WELD PLATES AND C15X33 SHALL BE PAINTED. ALL BOLTS, NUTS, WASHERS, WELD PLATES, WELDING, GALVANIZING, PAINTING, INSTALLATION AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR "MODIFY BRIDGE RAILING".

Note:
This sheet is to be used in conjunction with sheet No.'s 15, 16 & 17 of 22.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Modify Bridge Railing	Ft.	111



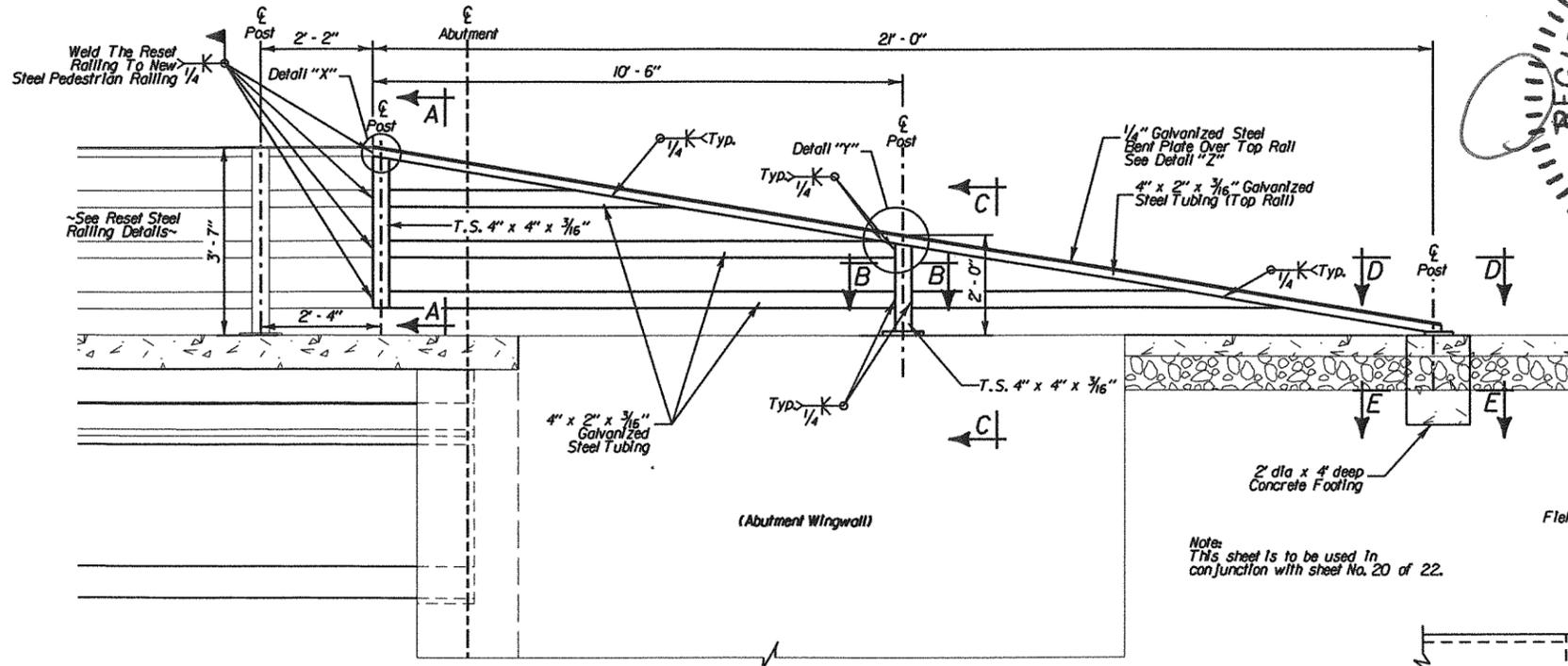
MODIFY BRIDGE RAILING DETAILS: CONTINUED FOR
 126'- 0" PRESTRESSED GIRDER BRIDGE
 28'-0" ROADWAY SEC. 6 - T103N-R60W
 OVER FIRESTEEL CREEK 0 SKEW
 STA. 9+38 BRF 3630(02)
 STR. NO. 18-129-061 HL-93

DAVISON COUNTY
 S.D. DEPT. OF TRANSPORTATION
 SEPTEMBER 2012

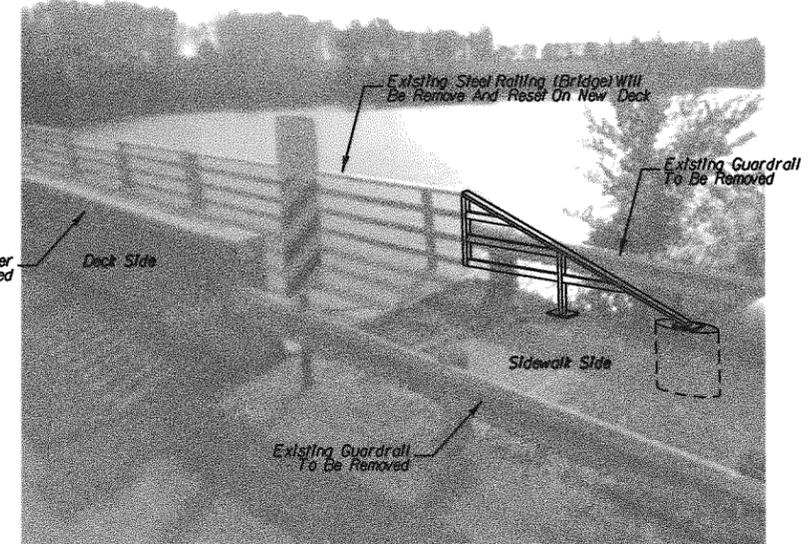
DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

FOR BIDDING PURPOSES ONLY

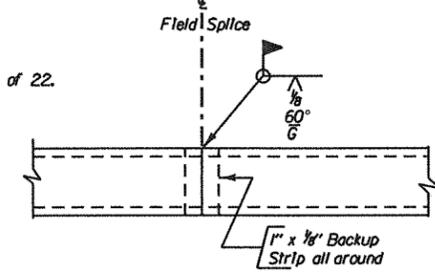
STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 47	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			



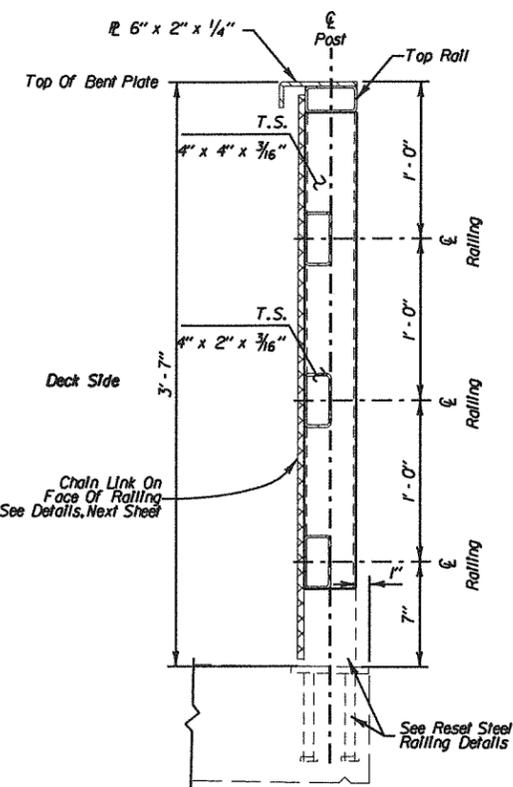
ELEVATION OF STEEL PEDESTRIAN RAILING AT BRIDGE ENDS
(3 Required)



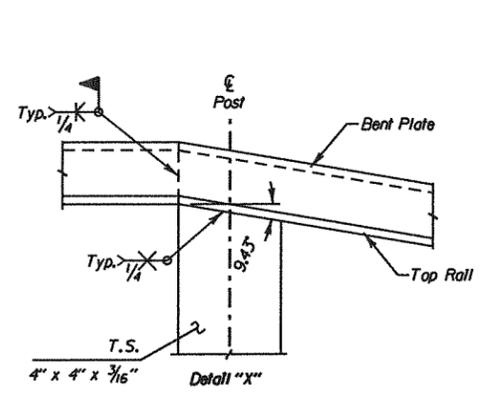
CONCEPTUAL VIEW OF STEEL PEDESTRIAN RAILING (AT BRIDGE ENDS)



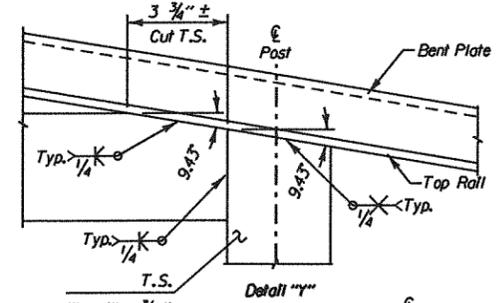
RAIL FIELD SPLICE



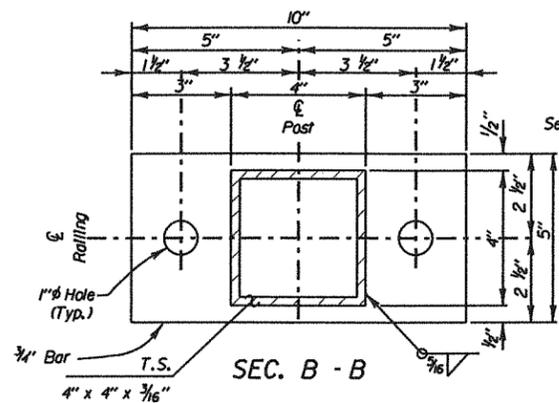
SEC. A - A



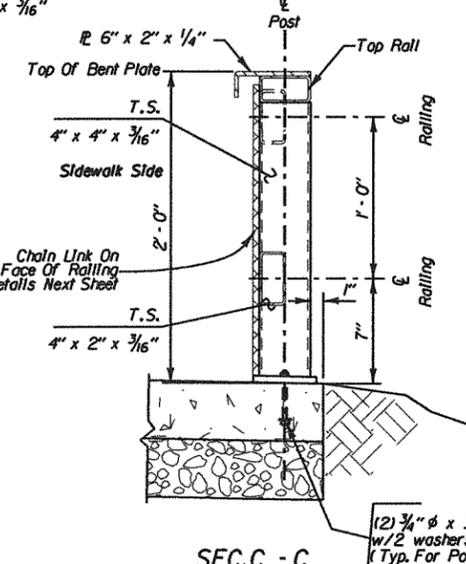
Detail "X"



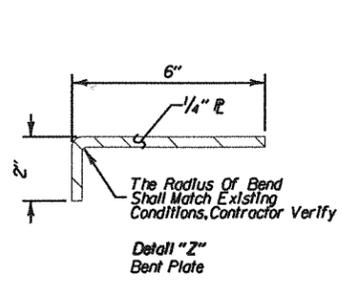
Detail "Y"



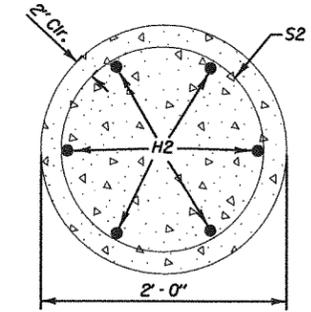
SEC. B - B



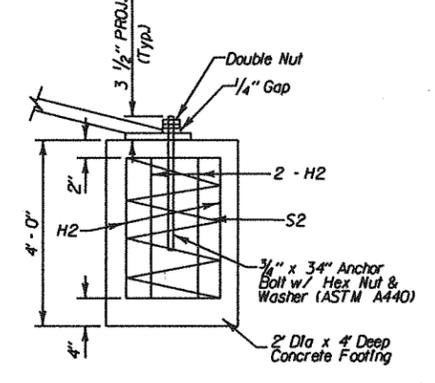
SEC. C - C



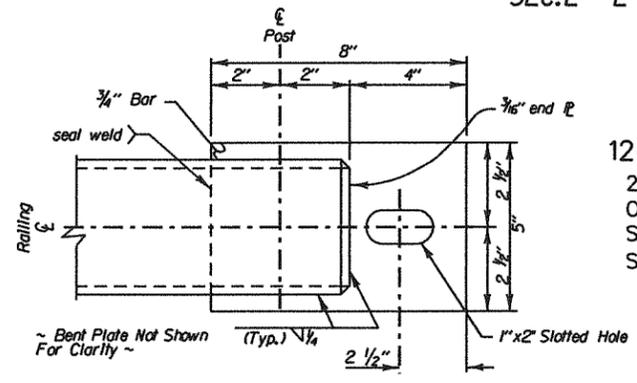
Detail "Z" Bent Plate



SEC. E - E



CONCRETE FOOTING



VIEW D - D

STEEL PEDESTRIAN RAILING DETAILS FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY
OVER FIRESTEEL CREEK
STA. 9+37 To STA. 10+63
STR. NO. 18-129-061

SEC. 6 - T103N-R60W
0 SKEW
BRF 3630(02)
HL-93

DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 48	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			

REINFORCING SCHEDULE (Informational)					
Mk.	No.	Size	Length	Type	Bending Details
S2	3	3	5' - 7"	SPIRAL	
H2	18	5	3' - 6"	Str.	

NOTE --All dimensions are out to out of bars.
Spiral - 6" pitch and 1/2" turns at each end. Use 1/2" turns for lap splices as required.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Steel Pedestrian Railing	Ft.	63

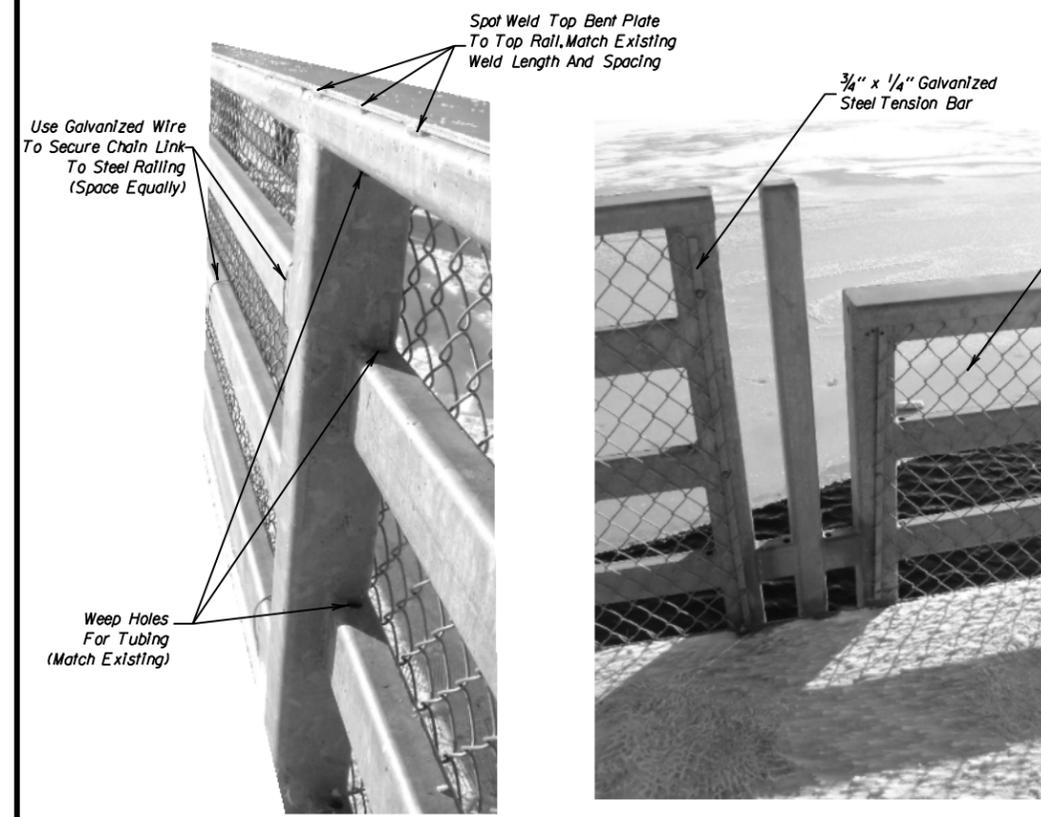
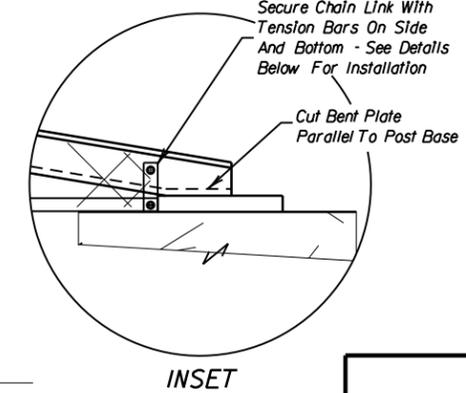
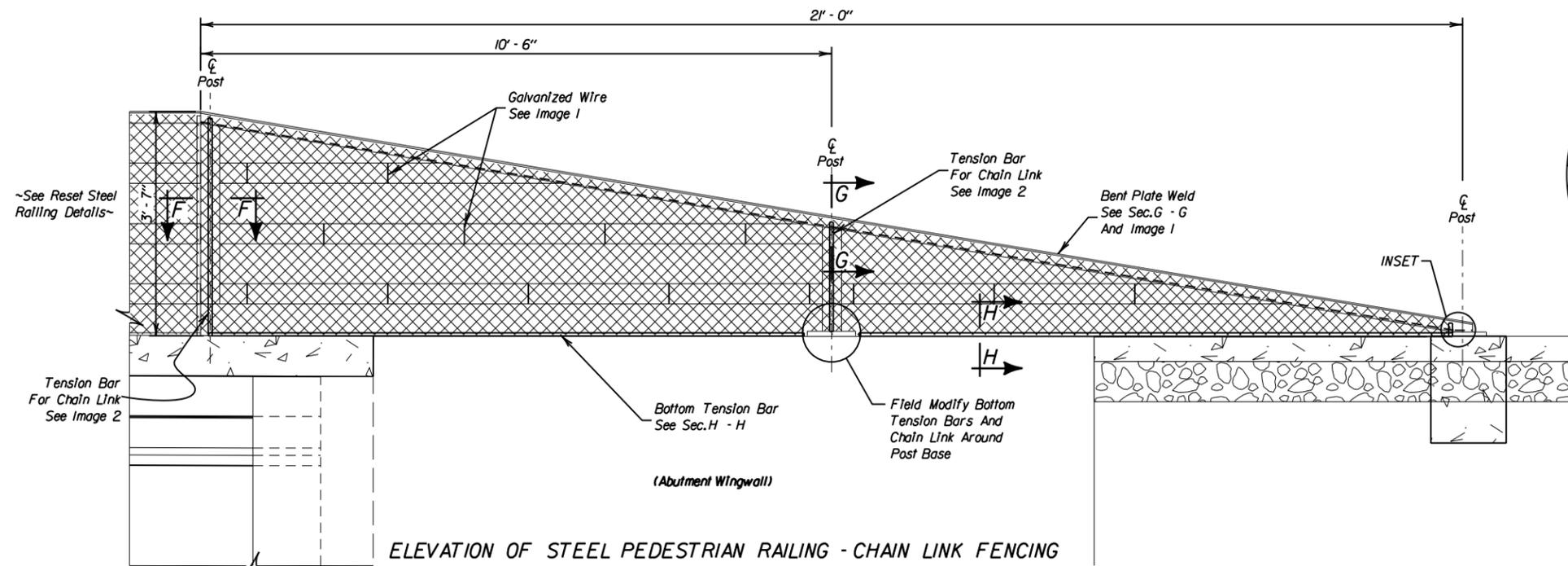
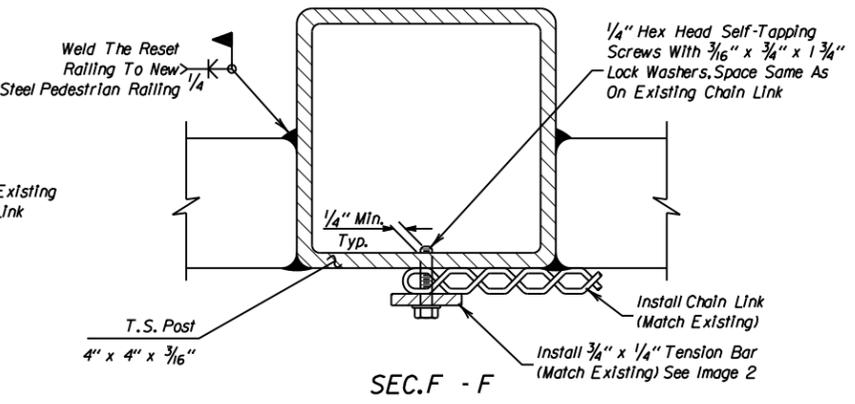
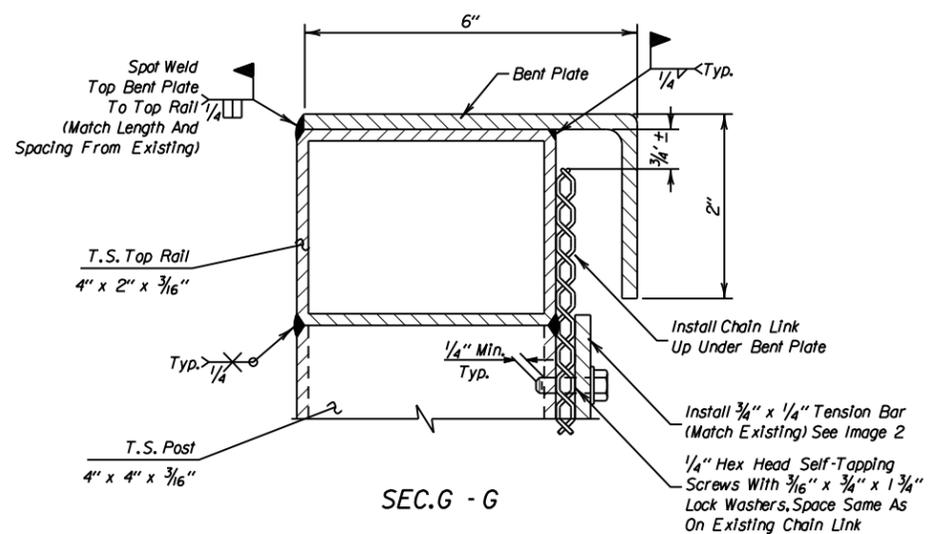


Image 1

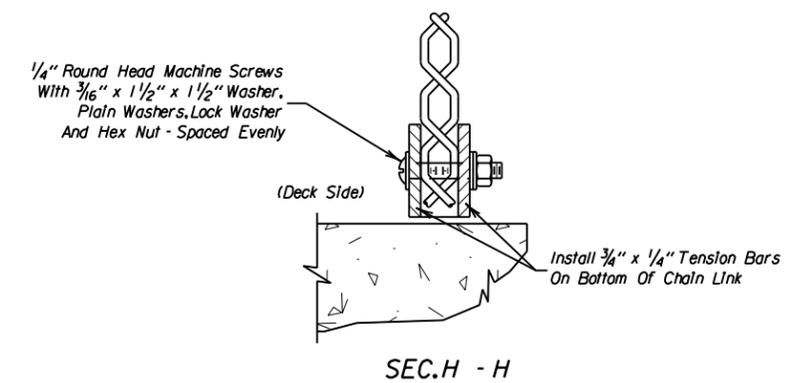
Image 2



SEC.F - F



SEC.G - G



SEC.H - H

STEEL PEDESTRIAN RAILING DETAILS: CONTINUED FOR
126'- 0" PRESTRESSED GIRDER BRIDGE
28'-0" ROADWAY SEC. 6 - T103N-R60W
OVER FIRESTEEL CREEK 0 SKEW
STA. 9+37 To STA. 10+63 BRF 3630(02)
STR. NO. 18-129-061 HL-93

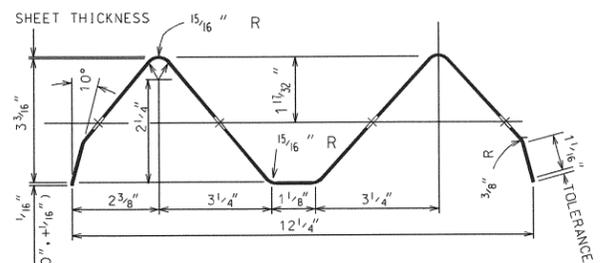
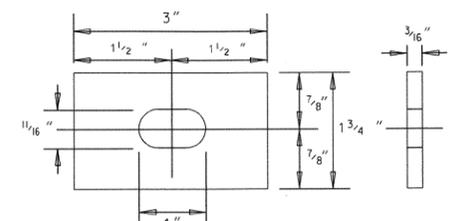
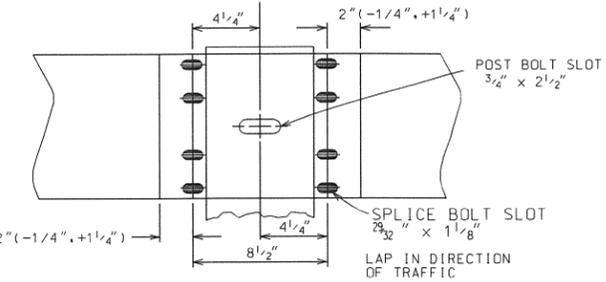
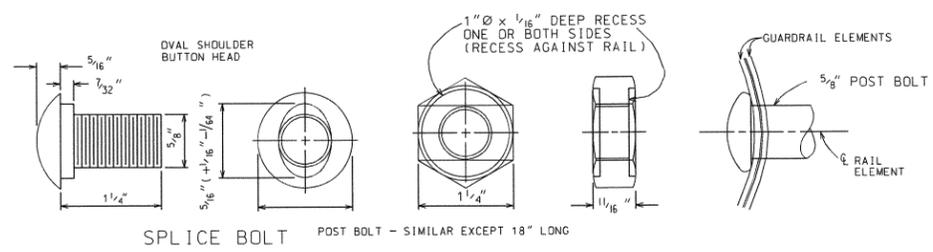
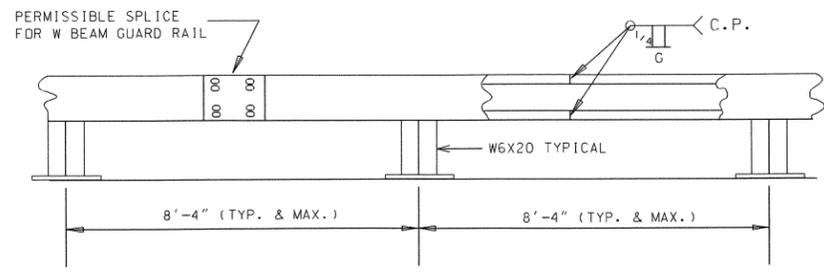
DAVISON COUNTY
S.D. DEPT OF TRANSPORTATION
SEPTEMBER 2012

DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI:S09-P535			

STATE OF SOUTH DAKOTA	PROJECT P 6253(02)	SHEET NO. 48A	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: CVS			

GENERAL NOTES:

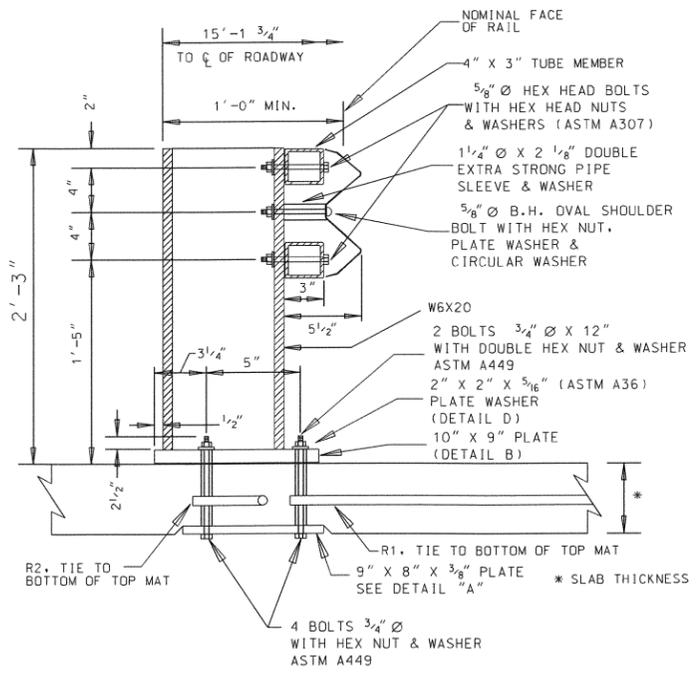
- RAIL DESIGN SHALL BE ACCORDING TO THE MOST CURRENT EDITION OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AND INTERIM SPECIFICATIONS.
- RAIL POSTS SHALL BE PERPENDICULAR TO CENTERLINE OF ROADWAY.
- W-BEAM GUARD RAIL, PIPE SLEEVES NUTS, WASHERS, AND PLATE WASHERS THAT GO WITH THESE SHALL BE GALVANIZED. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED ACCORDING TO ASTM A153. PIPE SLEEVES SHALL BE GALVANIZED ACCORDING TO ASTM A123.
- POST BOLTS SHALL BE 3/4" DIAMETER A325 OR A449. EACH BOLT SHALL HAVE ONE HARDENED AND ONE 2" X 2" X 5/16" ASTM A36 PLATE WASHER. NUTS SHALL BE A563.
- STEEL W BEAM GUARD RAIL SHALL BE CLASS A, TYPE 1, CONFORMING TO AASHTO M180 AND SHALL BE FABRICATED FROM STANDARD 12.5' OR 25' NOMINAL W-BEAM SECTIONS.
- THE RAIL POSTS, 4" X 3" TUBE MEMBERS, BASE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED ACCORDING TO ASTM A123.
- ALL STRUCTURAL STEEL PARTS FOR THE TYPE T101 STEEL RAILING SHALL CONFORM TO ASTM A709 GR. 36. TUBES SHALL CONFORM TO ASTM A500 GR. B.
- PROVIDE 1 1/2" DRAIN HOLES IN THE TUBES NEAR ENDS OF RAIL AND NEAR SPLICES.
- ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GR 60.
- ALL BOLTS, NUTS, WASHERS, POSTS, PLATES, PIPE SLEEVES, STEEL W BEAM GUARD RAIL, WELDING, PAINTING OR GALVANIZING, AND ALL COSTS OF INSTALLING AND SUPPLYING THE REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT FOR T101 STEEL RAILING.
- MEASUREMENT FOR PAYMENT SHALL BE FROM END TO END OF THE BRIDGE FOR EACH SIDE.



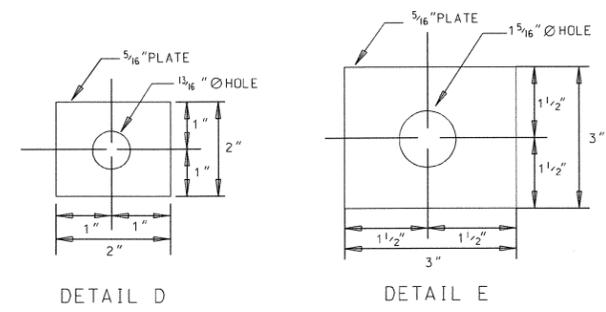
RAIL SPLICE

RECTANGULAR PLATE WASHER

RAIL MEMBER

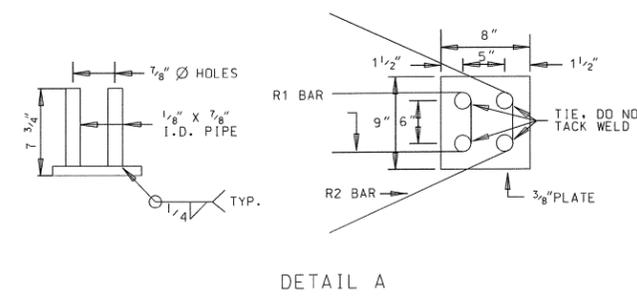


RAIL POST CROSS SECTION DETAIL



DETAIL D

DETAIL E



DETAIL A

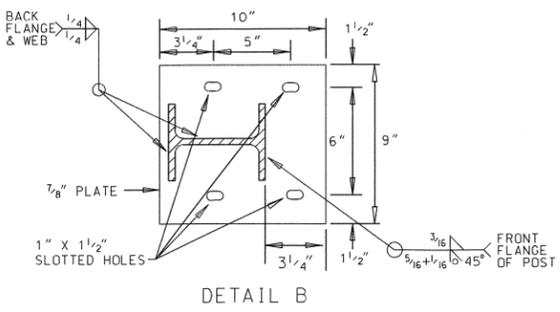
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE T101 STEEL RAILING	Ft.	252

REINFORCING SCHEDULE				
MK.	NO.	SIZE	LENGTH	TYPE
R1	30	4	3'-9"	17
R2	30	4	4'-9"	17A

NOTE: ALL DIMENSIONS ARE OUT TO OUT OF BARS.

TYPE T101 BRIDGE RAILING DETAIL FOR

126'- 0" PRESTRESSED GIRDER BRIDGE
 28'-0" ROADWAY SEC. 6 - T103N-R60W
 OVER FIRESTEEL CREEK 0 SKEW
 STA. 9+37 To STA. 10+63 BR# 3630(02)
 STR. NO. 18-129-061 HL-93



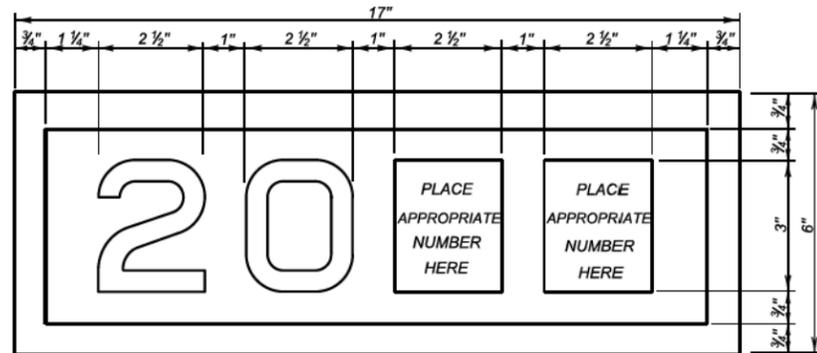
DETAIL B



DESIGNED BY LDH	DRAWN BY EJC	CHECKED BY DH	APPROVED
BEI-S09-P535			

DAVISON COUNTY
 S.D. DEPT OF TRANSPORTATION
 SEPTEMBER 2012

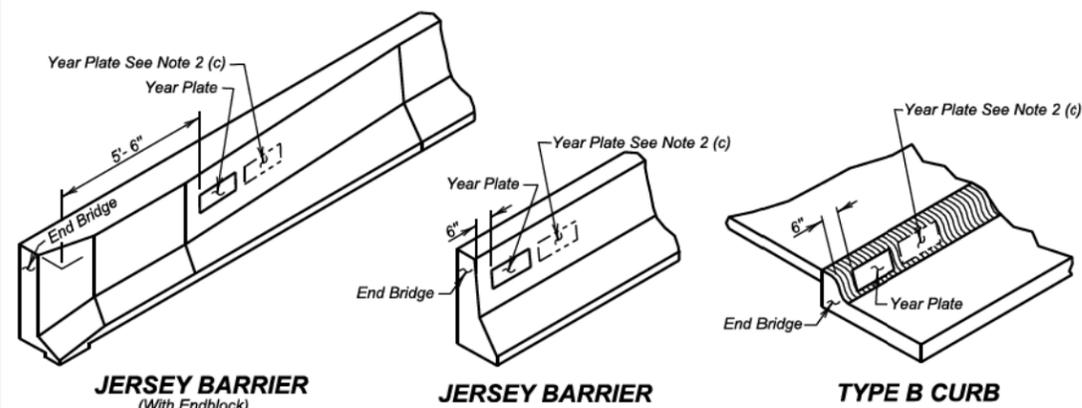
STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET NO. 49	TOTAL SHEETS 77
Plotting Date: 09/19/12 Revised Date: 05/05/14 CVS Initials: LDH			



YEAR PLATE DETAILS

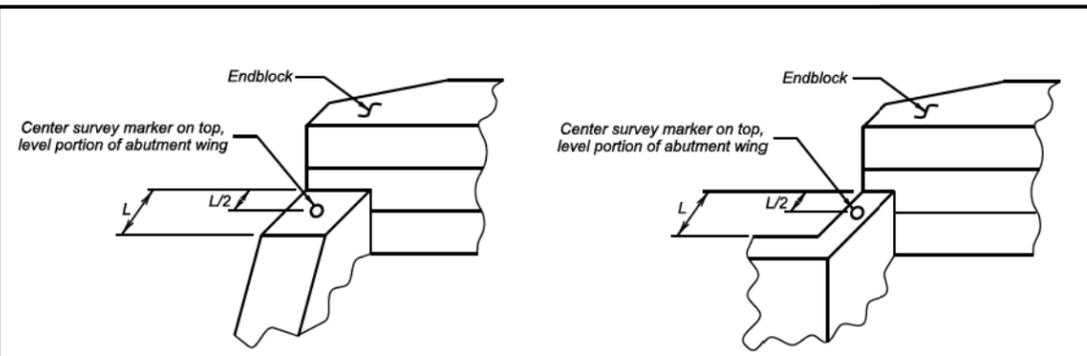
GENERAL NOTES:

- Year plates of the general dimensions shown shall be constructed on all box culverts and bridges. The year plates shall be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.
- Year plates shall be located on structure (s) as follows:
 - On cast-in-place box culverts the year plates shall be four and one-half (4 1/2) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate shall be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate shall be centered in an adjacent barrel.
 - On bridges with six (6) inch curbs or "Jersey" shaped barriers with no endblocks, the year plate shall be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with "Jersey" shaped barrier endblocks, the year plate shall be centered on the upper sloped portion of the barrier approximately 5'-6" from the end of the bridge, or as designated by the Engineer. There shall be one year plate at each end of the bridge on opposite sides.
 - When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date shall be placed as listed above and the other located adjacent to it. Both year plates shall be shown at each end of the bridge on opposite sides.
- There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work shall be incidental to other contract items.



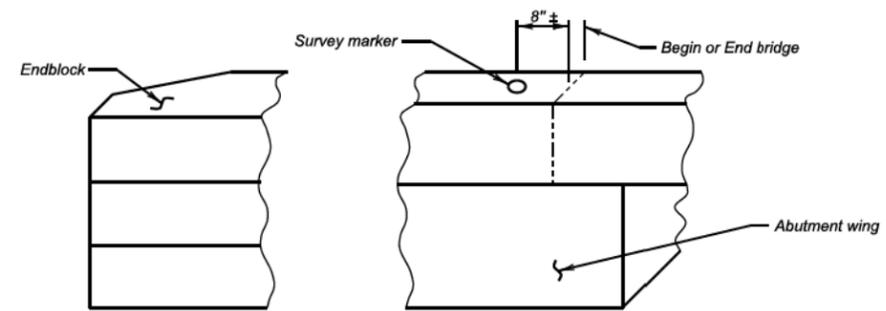
June 26, 2012

Published Date: 2nd Qtr. 2014	S D D O T	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



ABUTMENT WITH "STRAIGHT" WINGS

ABUTMENT WITH "SWEEP BACK" WINGS



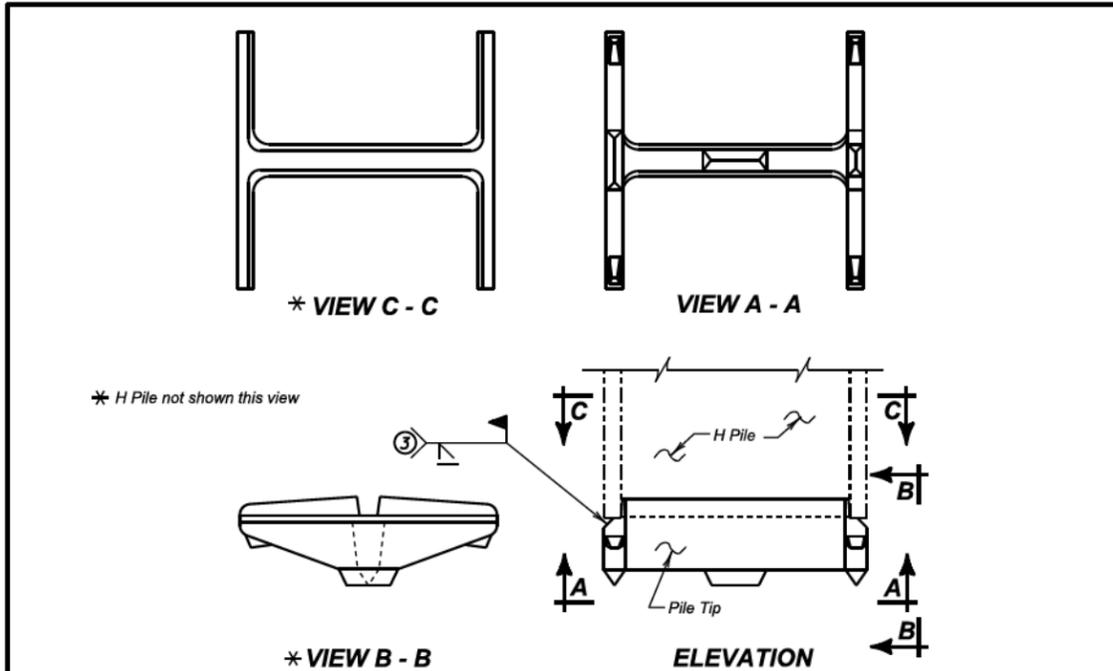
ABUTMENT WITH "SWEEP BACK" WINGS
(Endblock on top of wings)

GENERAL NOTES:

- Survey markers shall be located at each abutment on the same side of the bridge as the year plate. Place survey markers on abutment wings as shown. Two survey markers will be required at each bridge.
- Survey markers shall be of a type intended for installation in concrete, be made of solid brass or bronze, have a domed top and be either a 3" top diameter (with a 3/4" X 2" long ribbed shank), or a US Army Corps of Engineers Type C Disc with a 3 1/2" top diameter.
- There will be no separate measurement or payment made for survey markers. All costs for this work shall be incidental to the other contract items.

June 26, 2012

Published Date: 2nd Qtr. 2014	S D D O T	BRIDGE SURVEY MARKER	PLATE NUMBER 460.05
			Sheet 1 of 1



- ② See Table 1
- ③ Typical Both Flanges

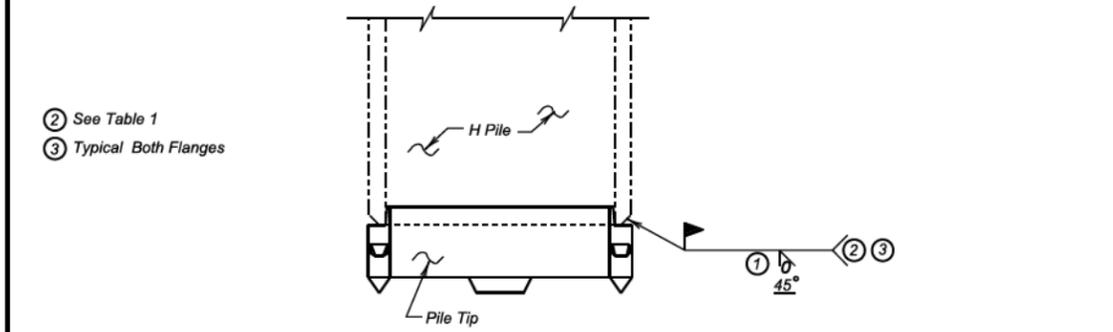


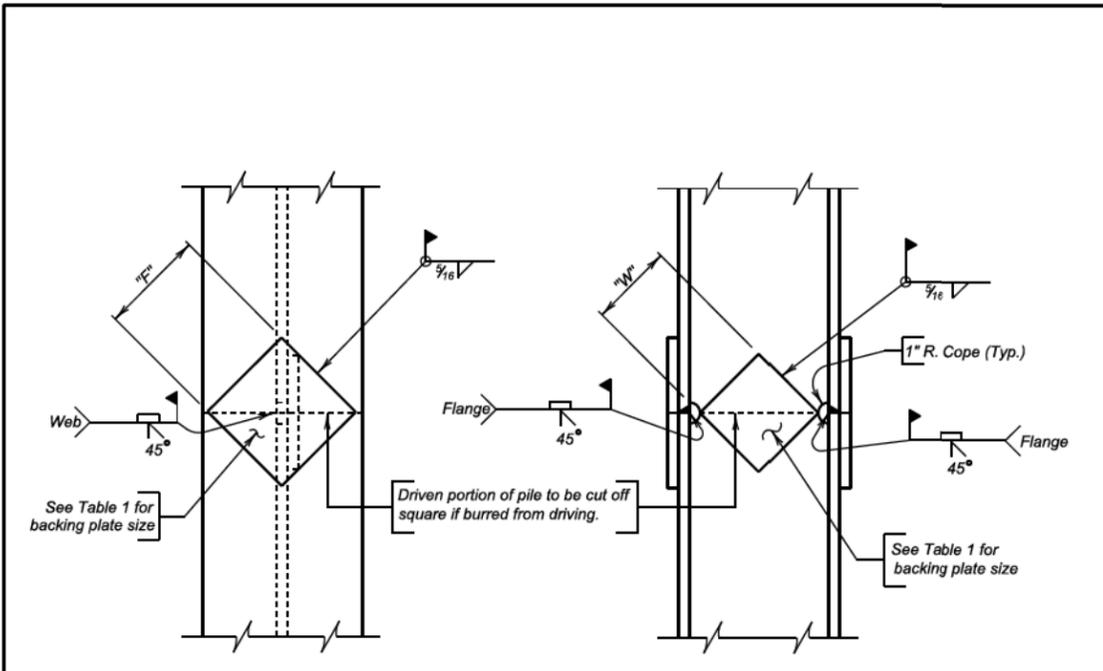
TABLE 1

① DEPTH OF PREPARATION	PILE
3/8	HP 14 X 102
	HP 14 X 89
	HP 12 X 74
5/16	HP 14 X 73
	HP 12 X 63
	HP 10 X 57
1/4	HP 12 X 53
	HP 10 X 42
	HP 8 X 36

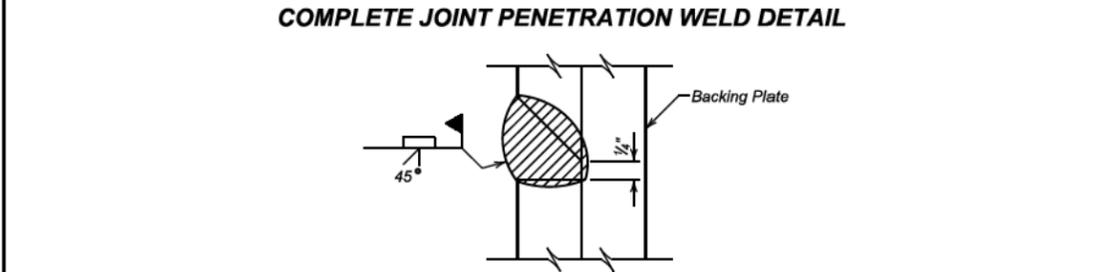
- GENERAL NOTES:**
- Pile tip reinforcement shall be one-piece cast steel points commercially available and produced by a manufacturer who regularly produces pile points as a production item available to the public.
 - Material for pile points shall conform to ASTM A27, Grade 65-35, Class 2.
 - Pile points shall contain teeth designed to dig into obstructions and bearing materials in order to develop the maximum carrying capacity of the materials encountered.
 - Welding and weld inspection shall be in conformance with AWS D1.5 - (Current Year) Bridge Welding Code - Steel.

December 23, 2012

S D D O T	H PILE TIP REINFORCEMENT	PLATE NUMBER 510.30
	Published Date: 2nd Qtr. 2014	Sheet 1 of 1



NOTE:
Prepare joint surfaces lower end of upper section on the ground and weld on backing plates; then place upper section on lower section and weld.



- GENERAL NOTES:**
- Steel for backing plates shall conform to ASTM A709 Grade 50.
 - Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
 - Welder must be certified and registered with the SDDOT.
 - Backing plate shall at a minimum be as thick as the web of the pile being spliced.
 - Web must be coped with 1 inch radius.
 - Submit Welding Procedure Specification (WPS) to Bridge Construction Engineer for approval prior to pile driving.

TABLE 1 (BACKING PLATES)

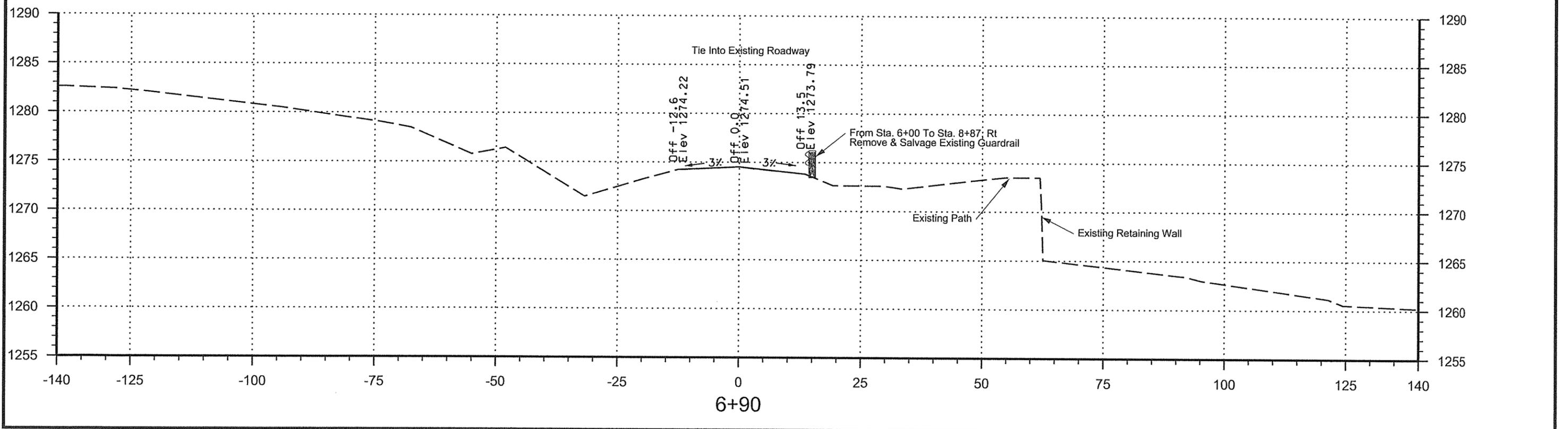
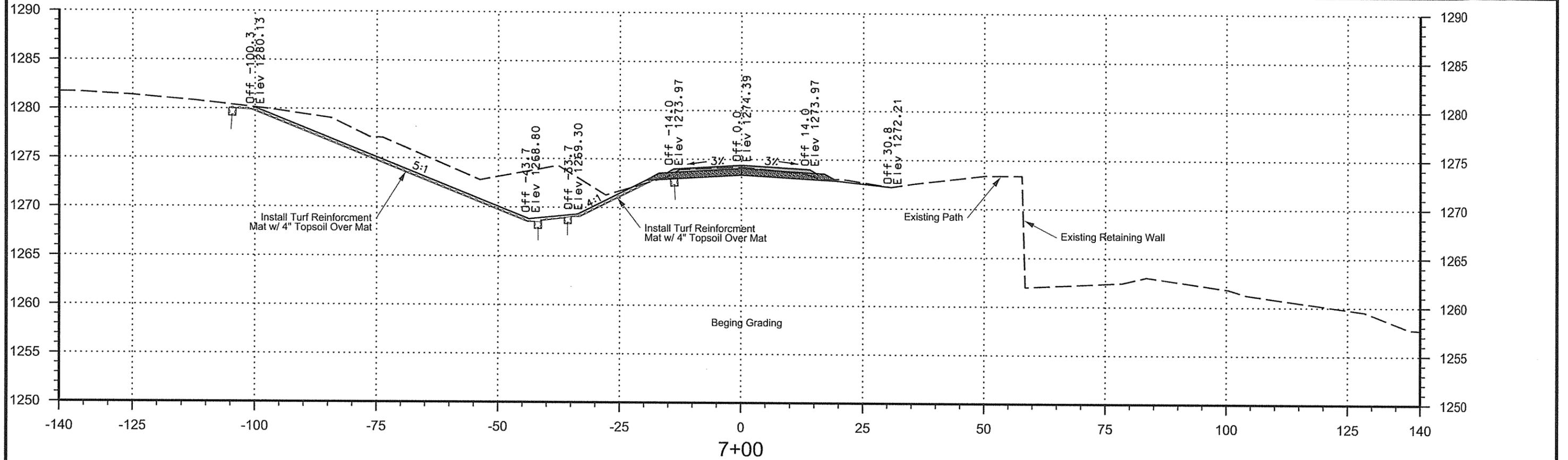
PILE	10"	12"	14"
"F" FLANGE	6 1/2"	8"	10"
"W" WEB	4 3/4"	6 1/4"	7 1/2"

December 23, 2012

S D D O T	STEEL PILE SPLICE DETAILS	PLATE NUMBER 510.40
	Published Date: 2nd Qtr. 2014	Sheet 1 of 1

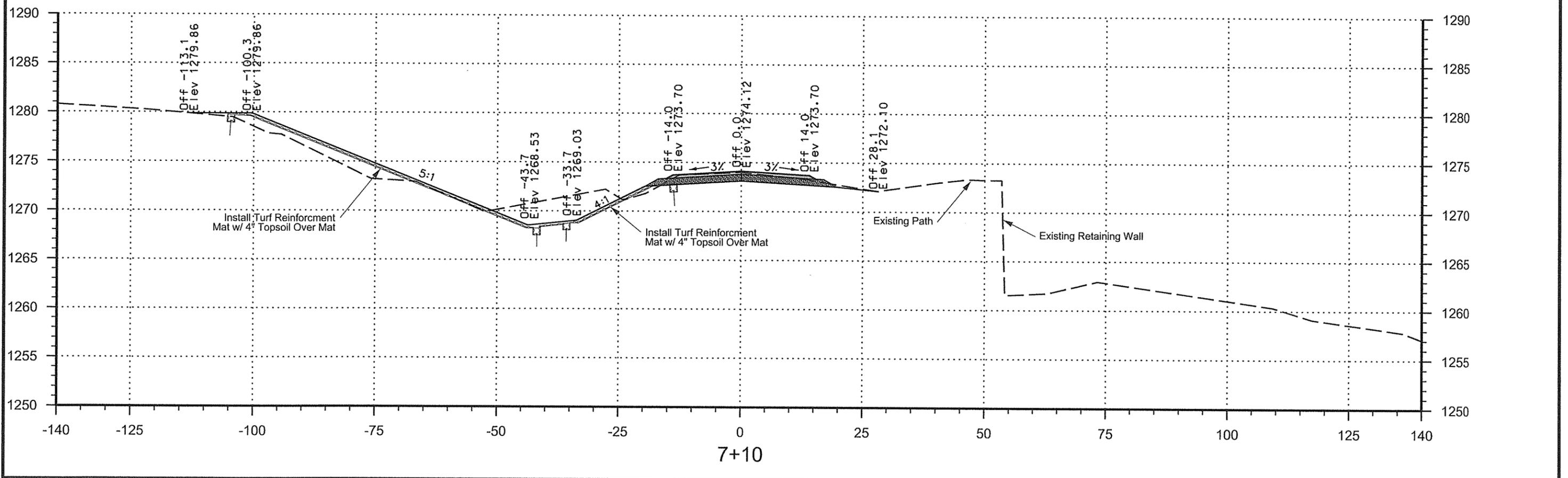
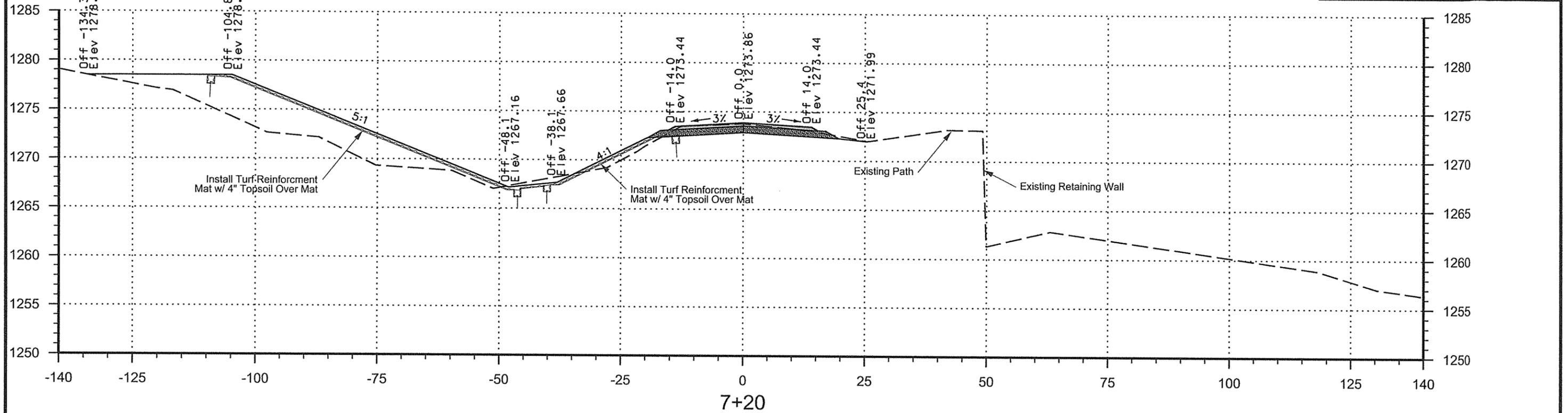
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL
	BRF 3630(02)	NO. 51	SHEETS 77
Plotting Date: 09/19/12		Revised Date: mm/dd/yy	
Initials: SS			



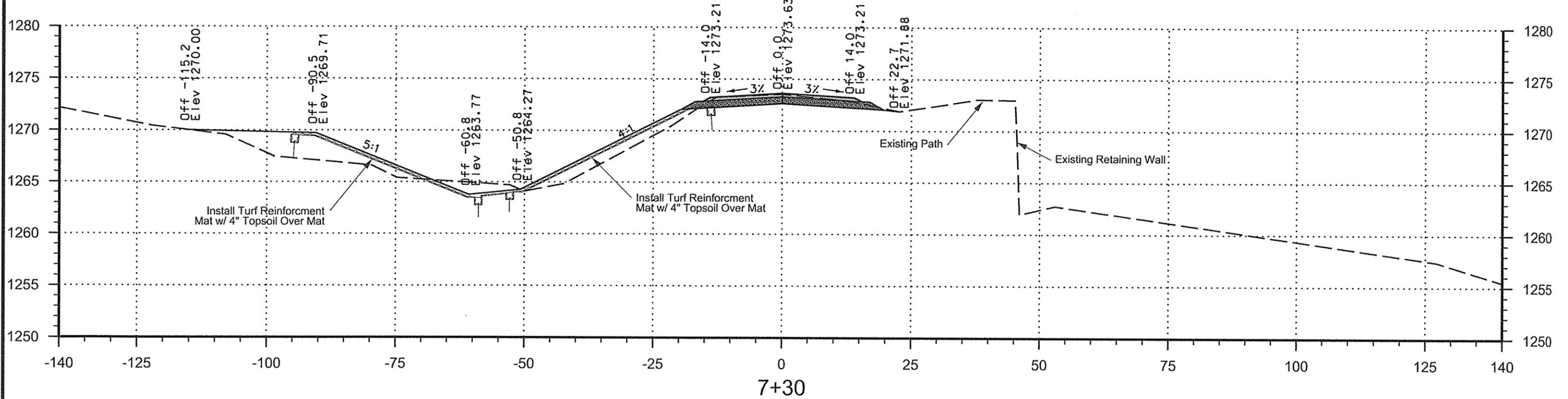
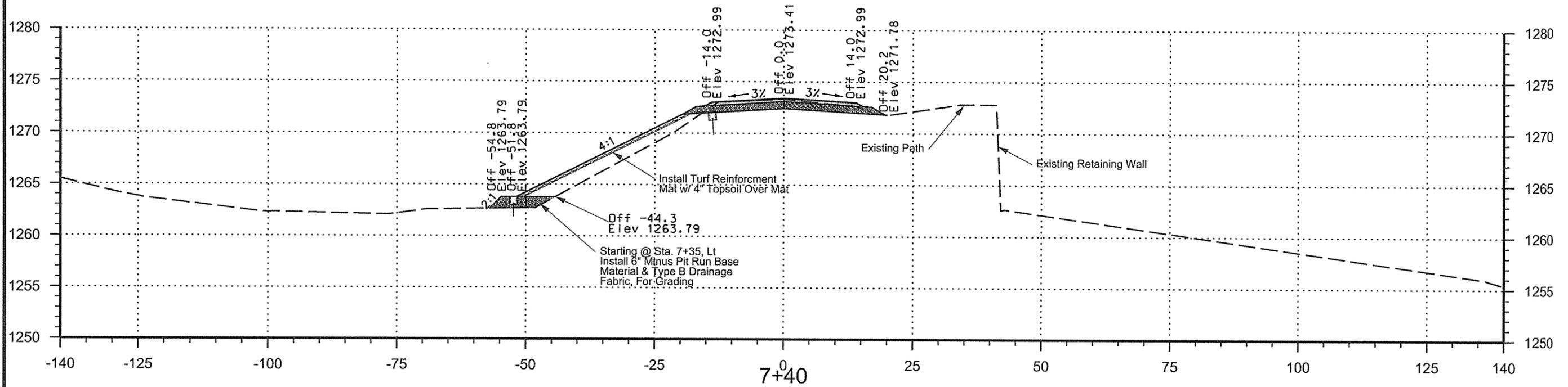
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	52	77
Plotting Date: 09/19/12		Revised Date: mm/dd/yy	
Initials: SS			



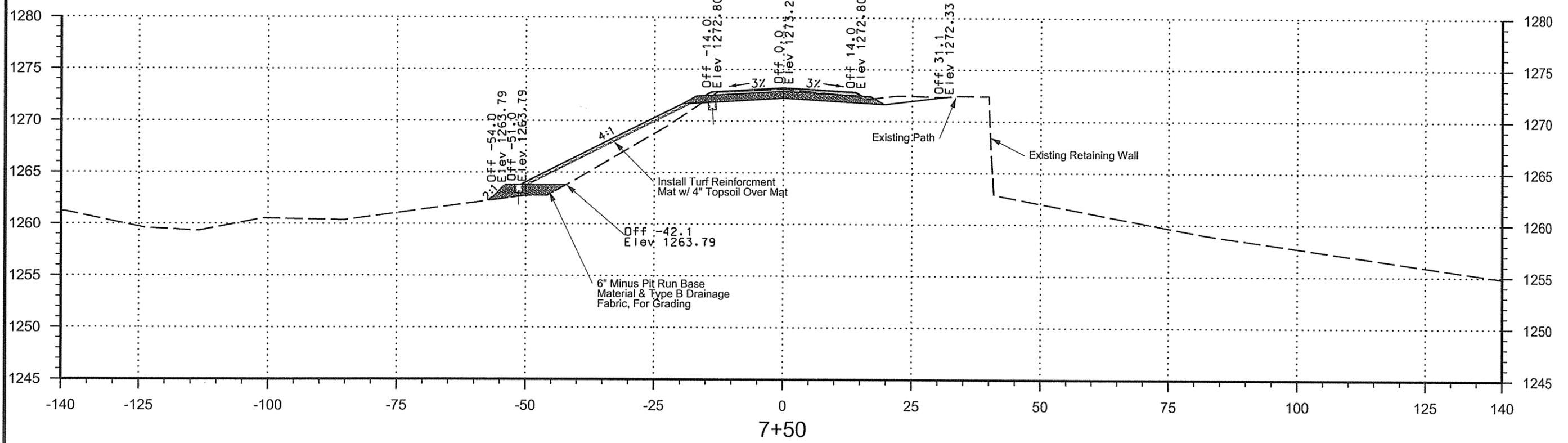
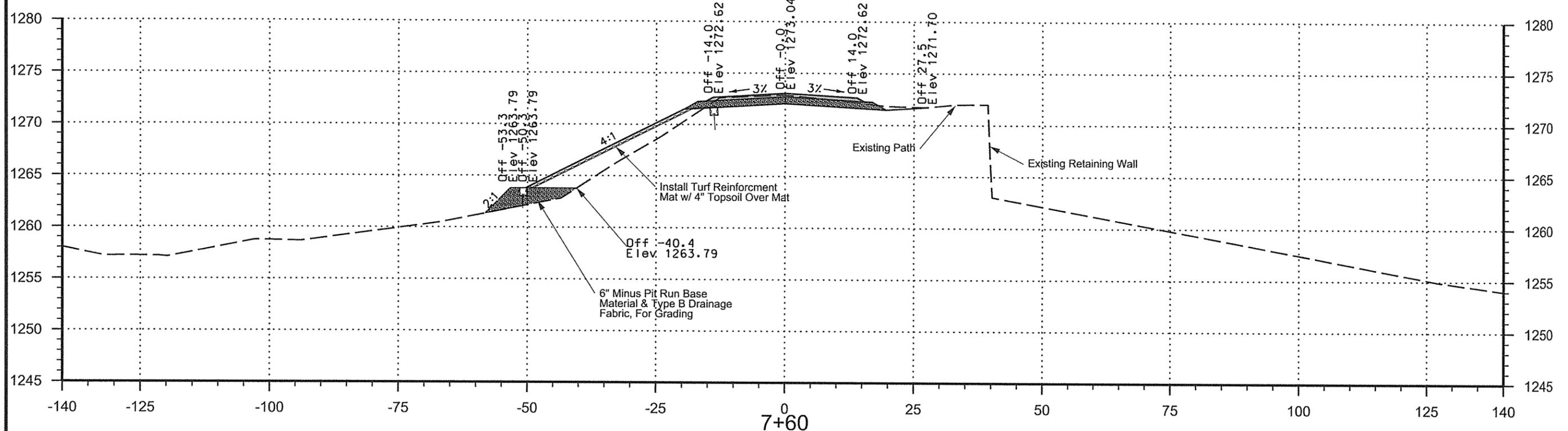
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	53	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



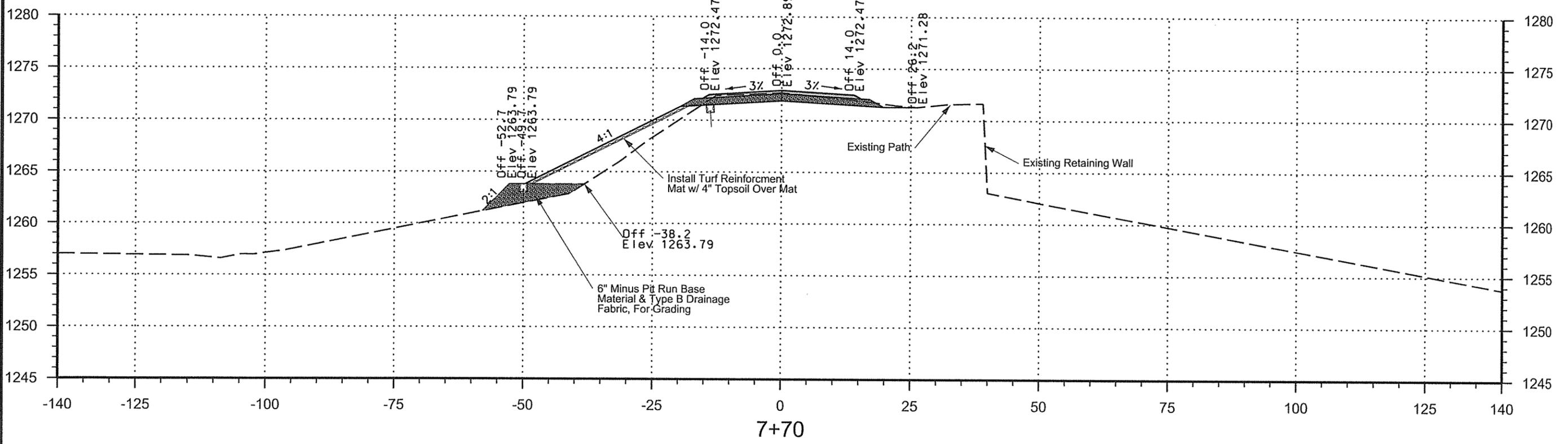
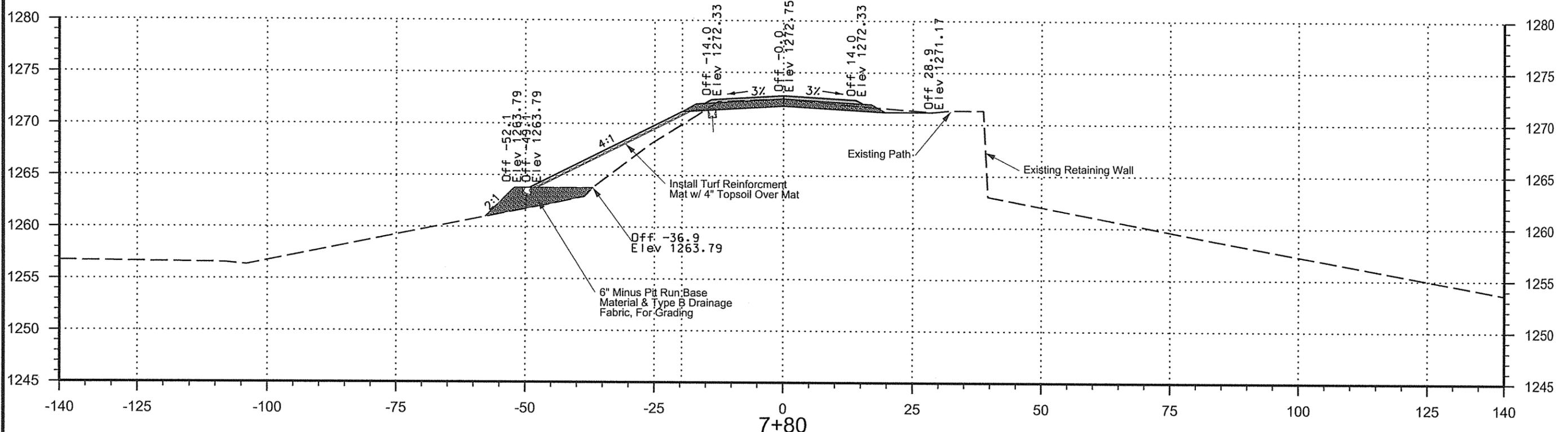
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	54	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



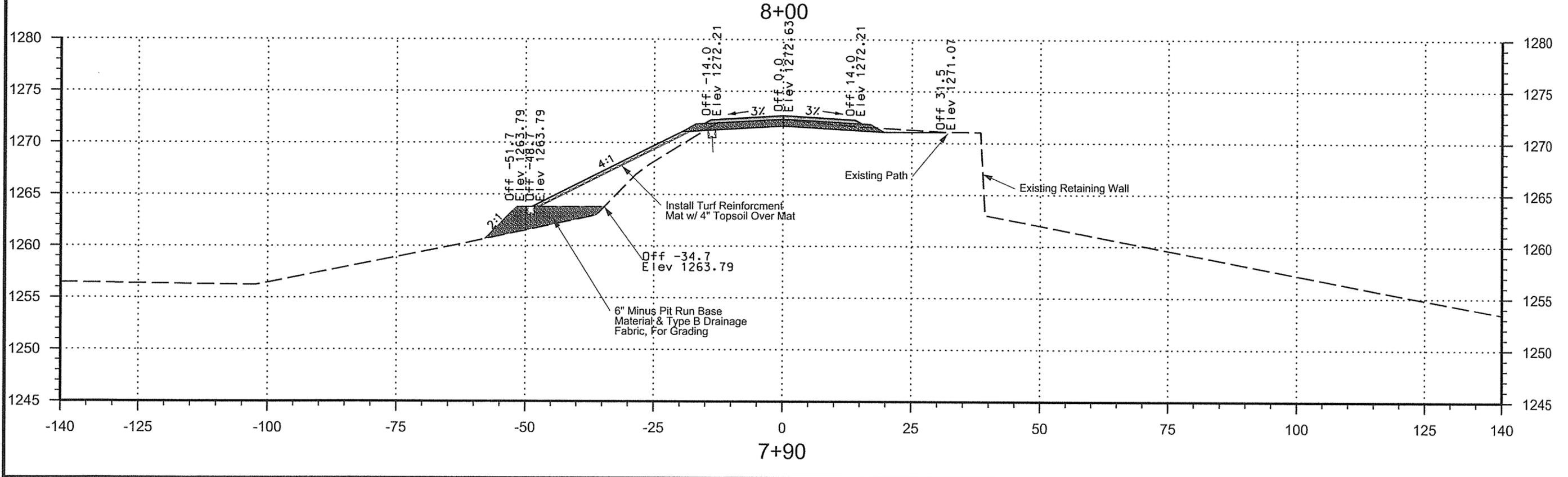
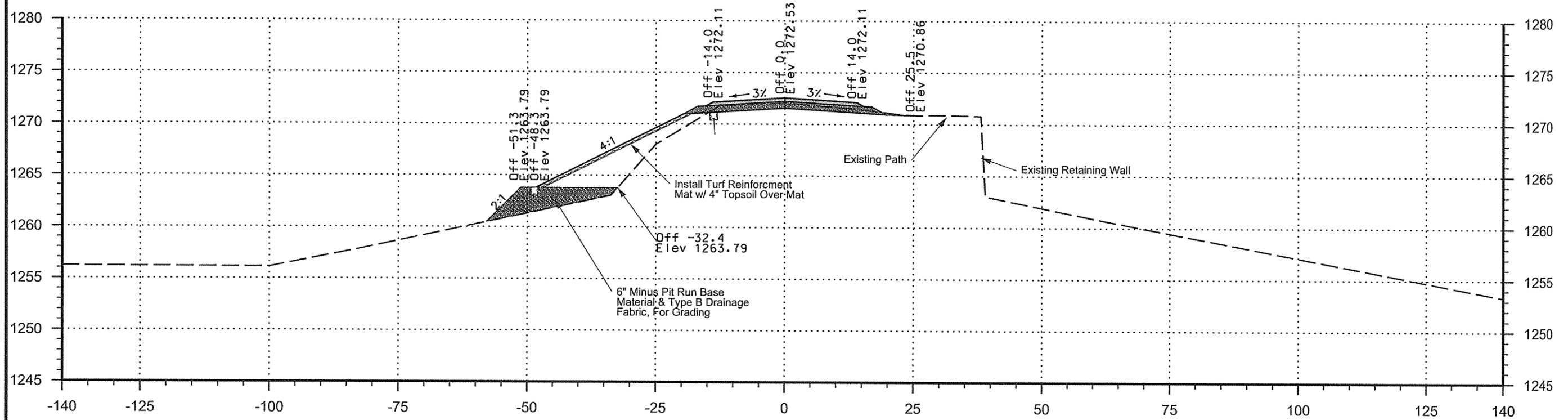
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	55	77
Plotting Date: 09/19/12		Revised Date: mm/dd/yy	
Initials: SS			



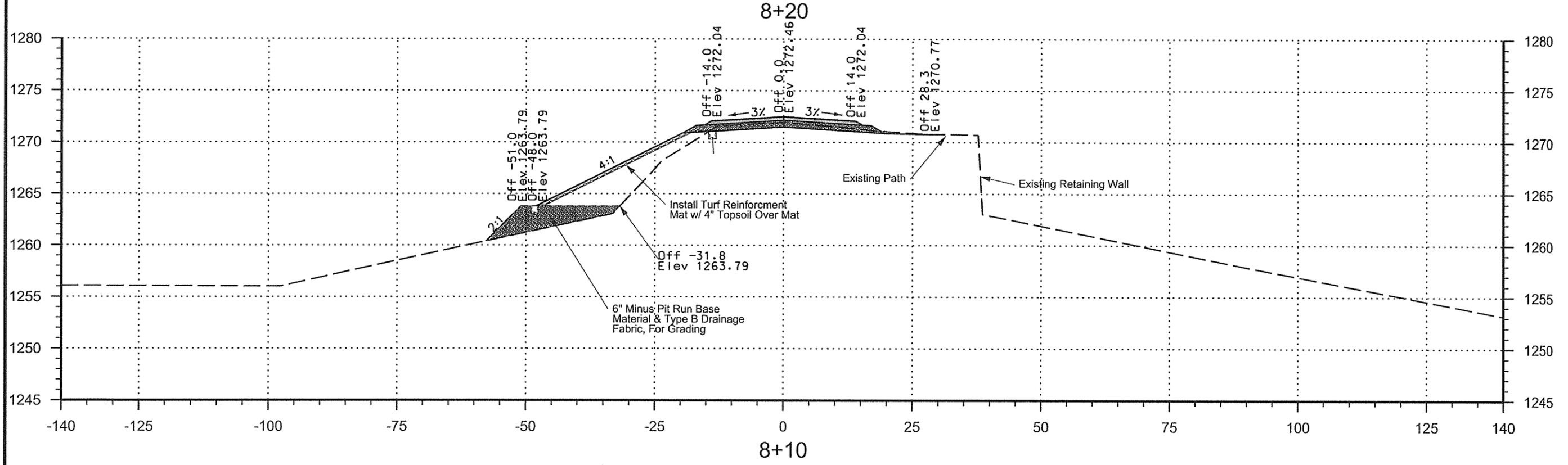
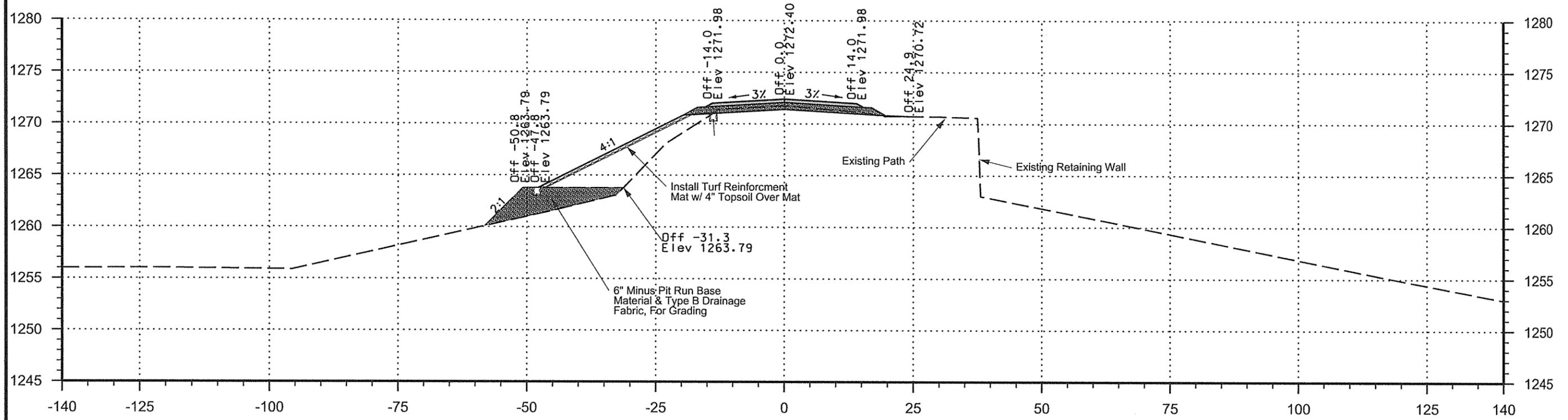
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	56	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



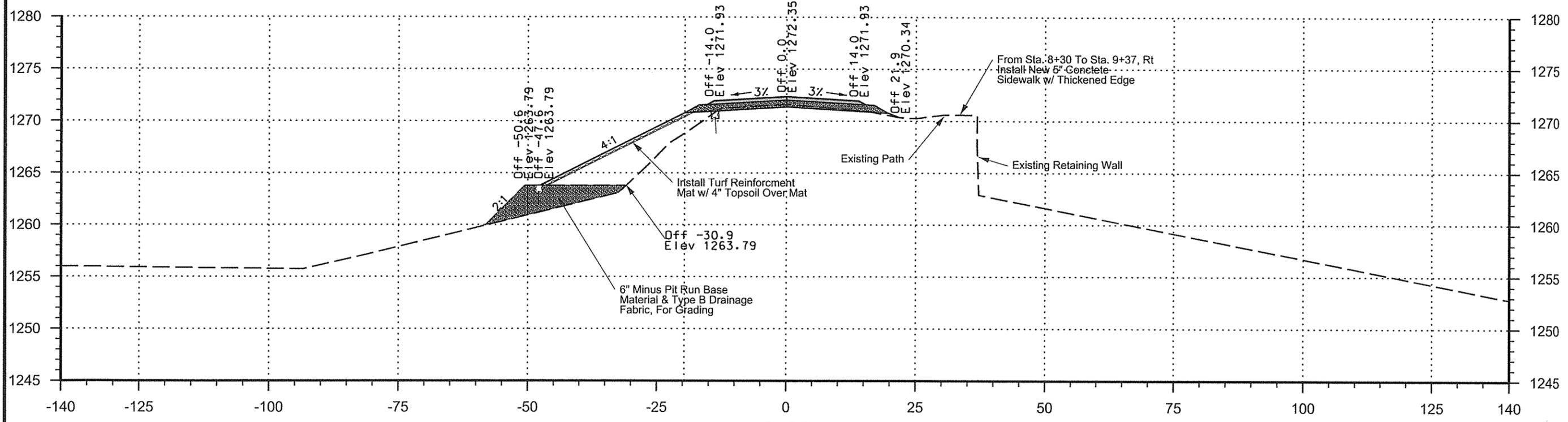
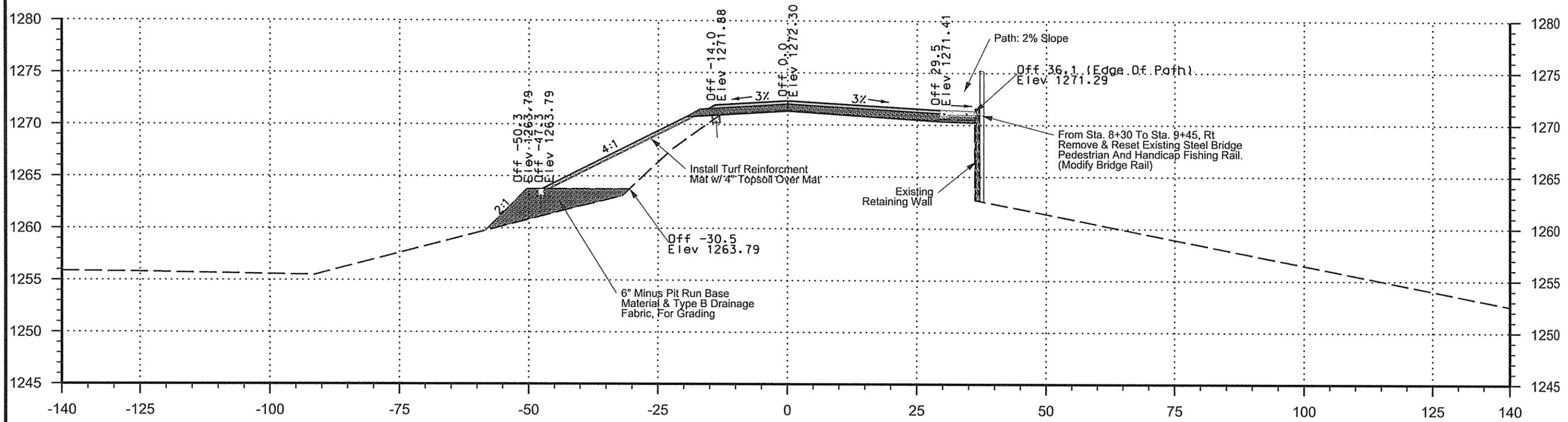
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	57	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



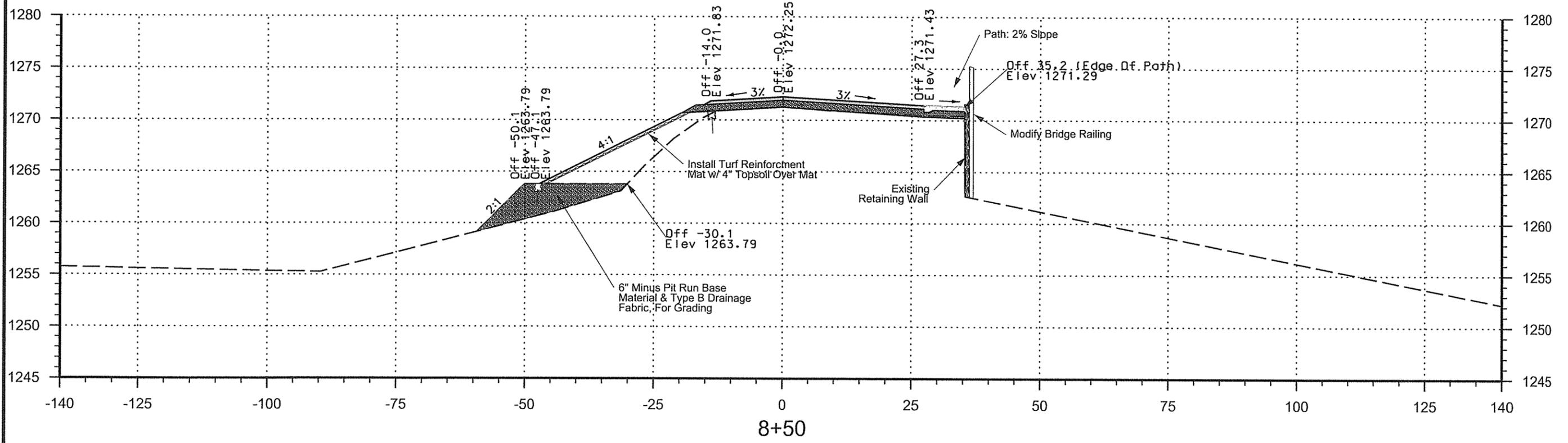
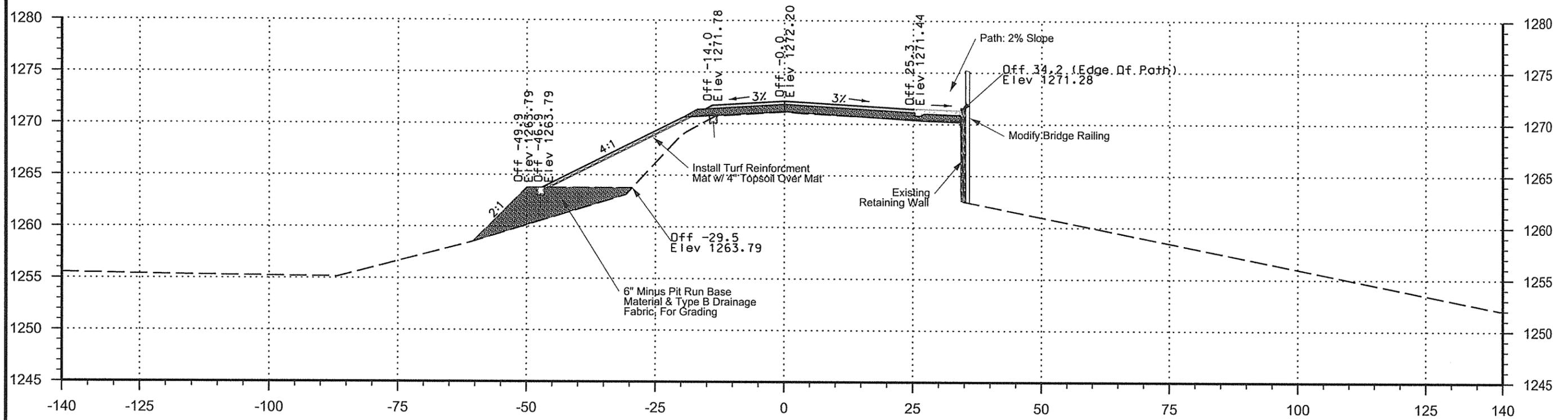
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	58	77
Plotting Date: 09/19/12 Revised Date: mm/dd/yy Initials: SS			



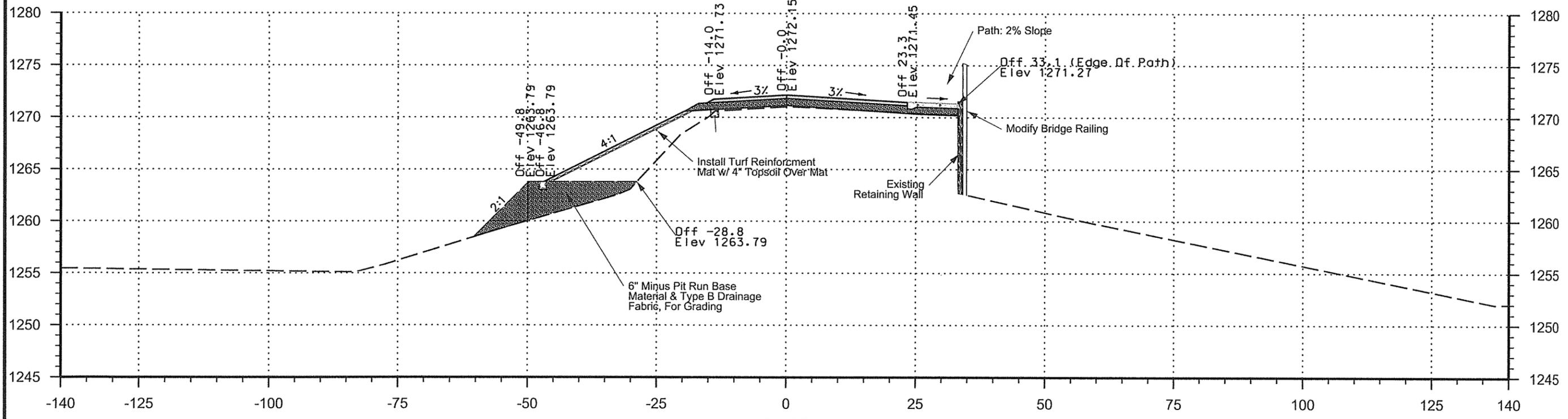
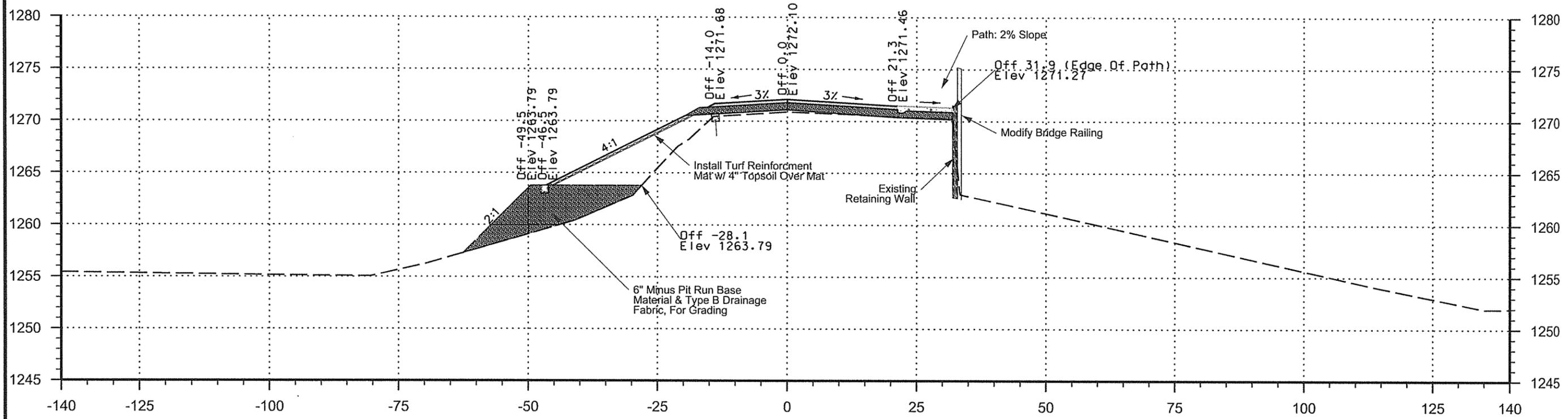
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	59	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



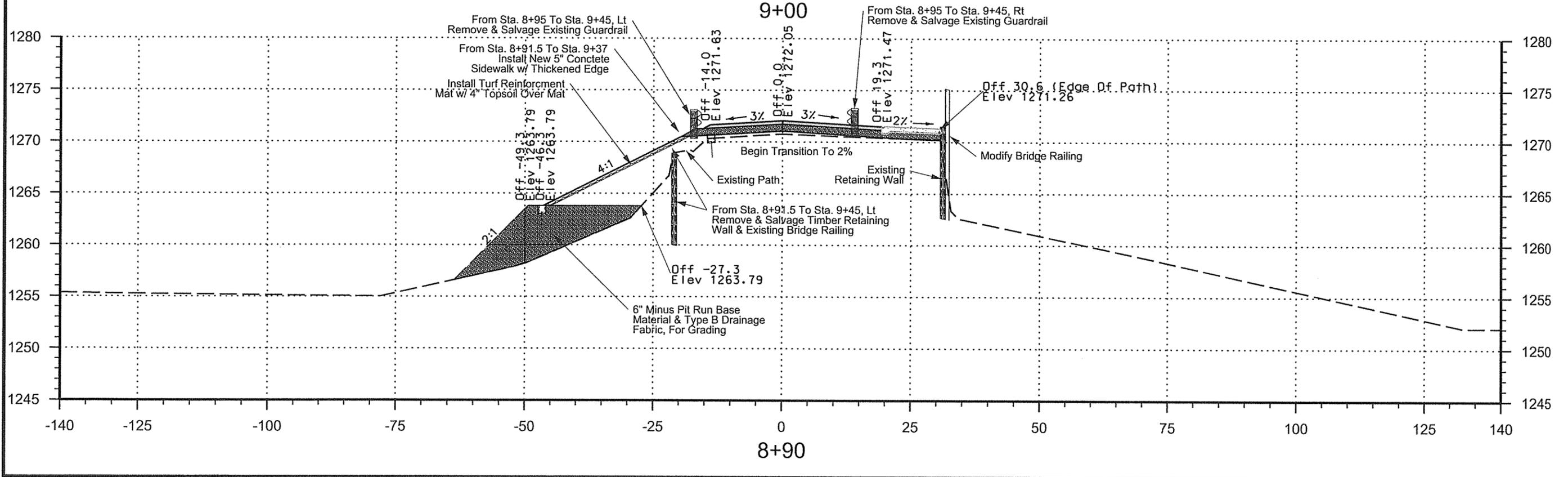
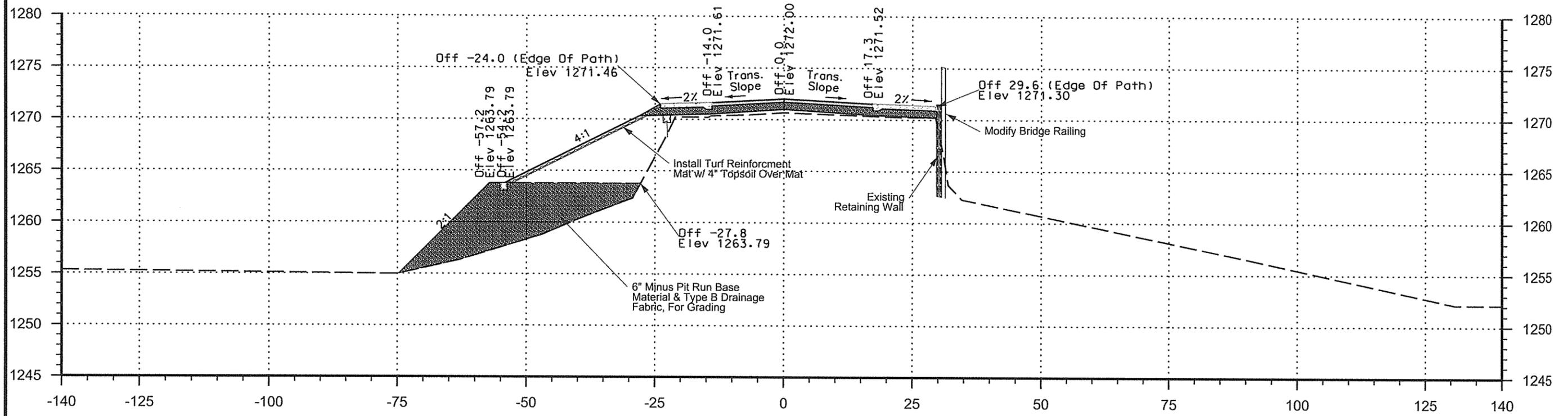
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	60	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



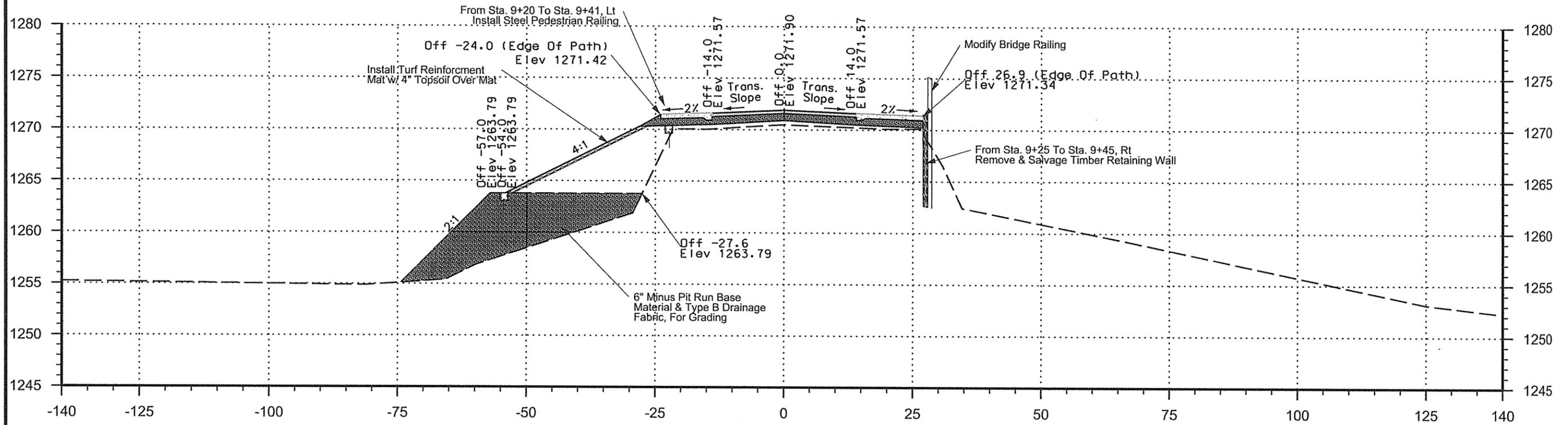
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	61	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			

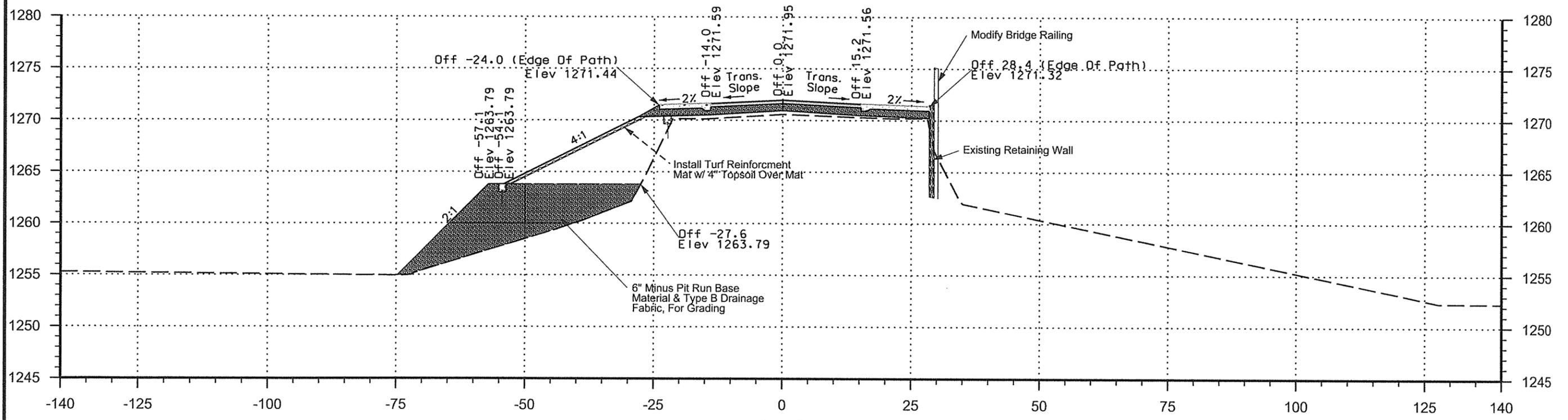


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	62	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



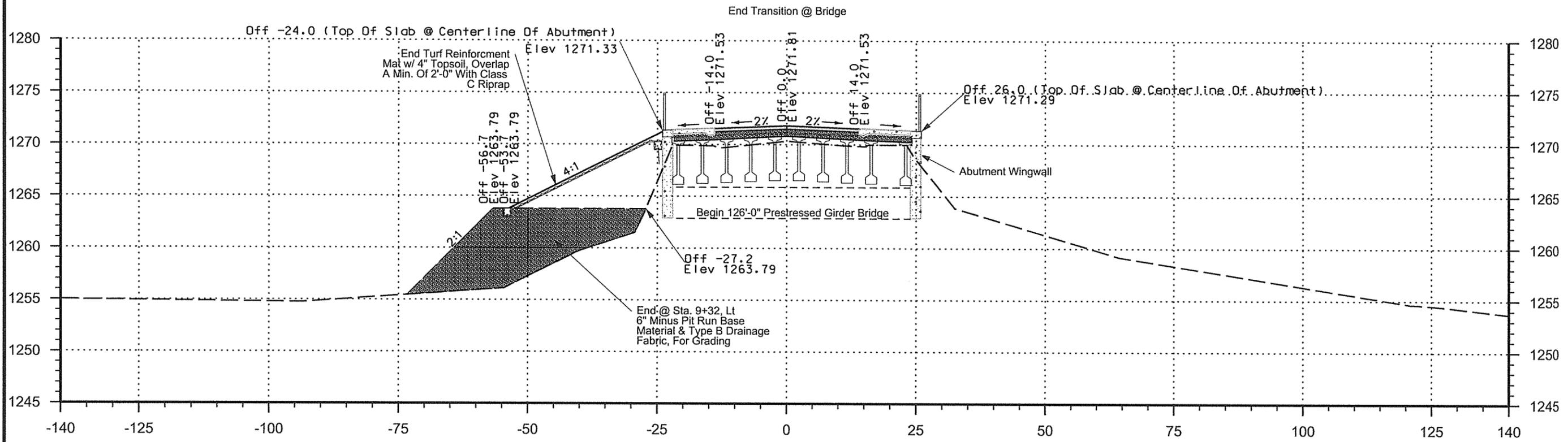
9+20



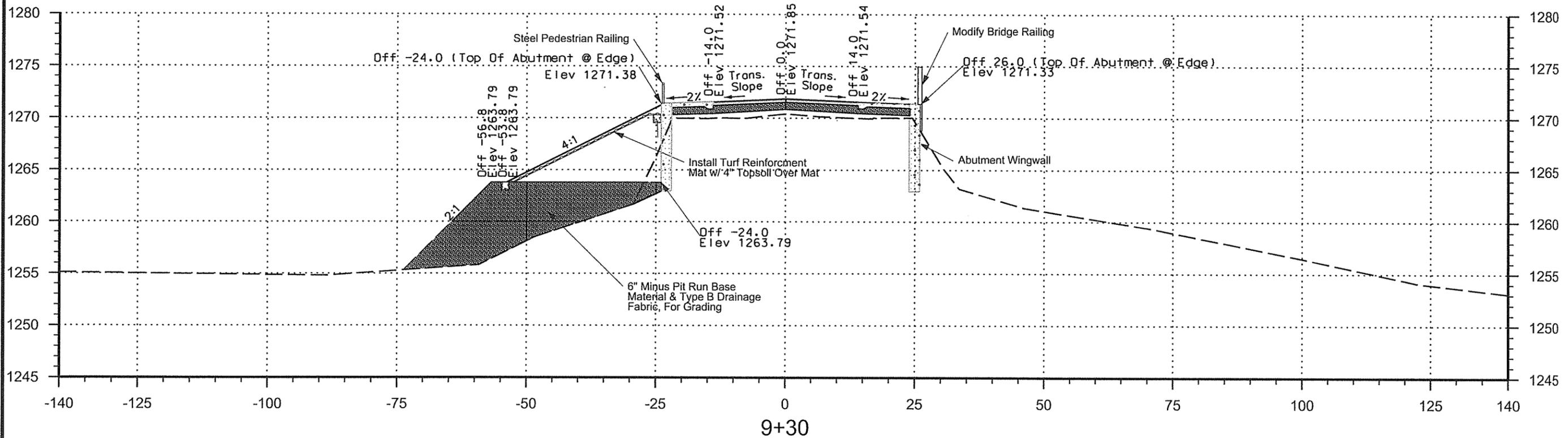
9+10

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	63	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



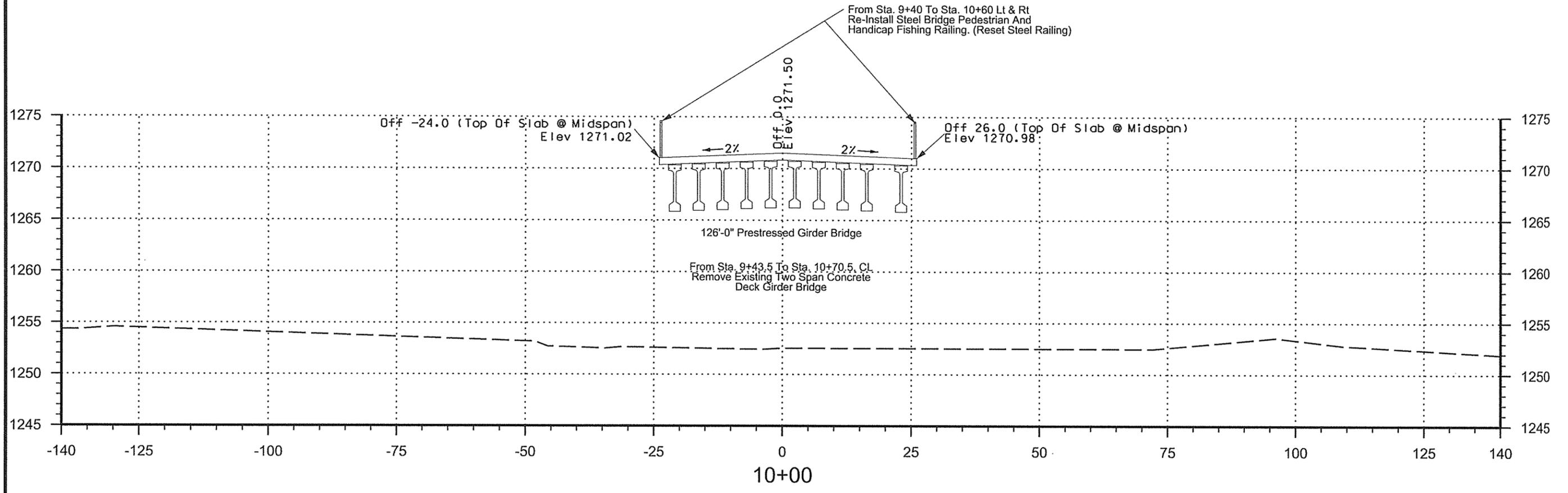
9+37



9+30

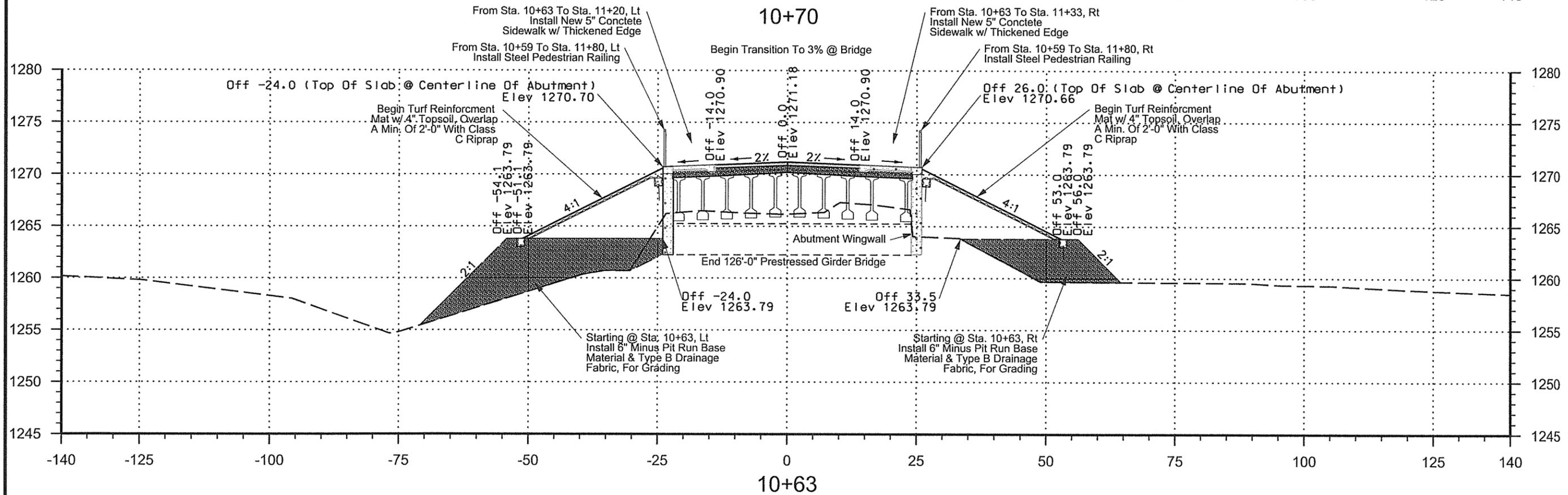
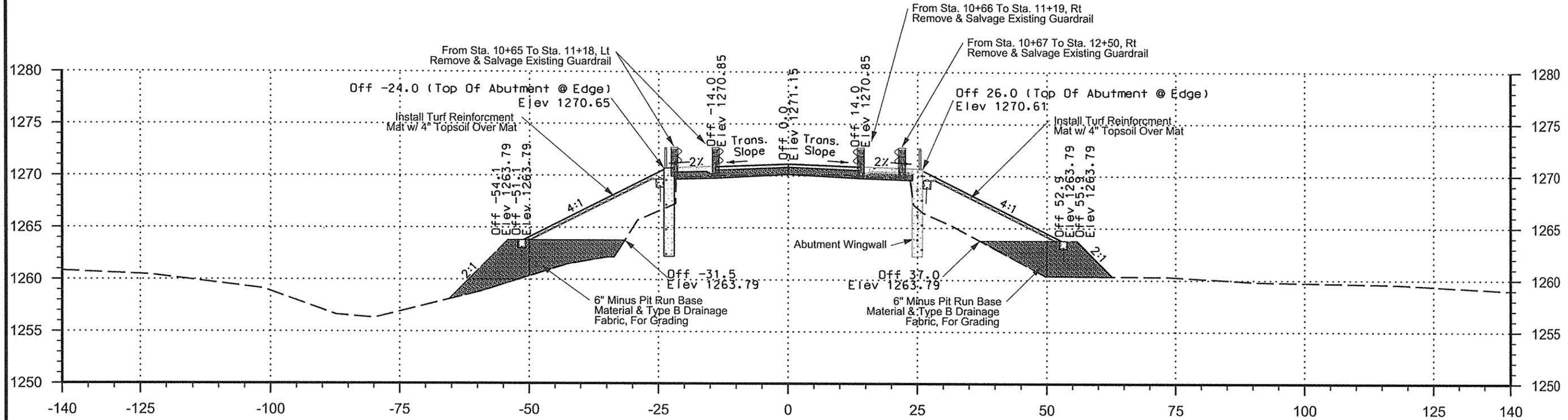
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	64	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



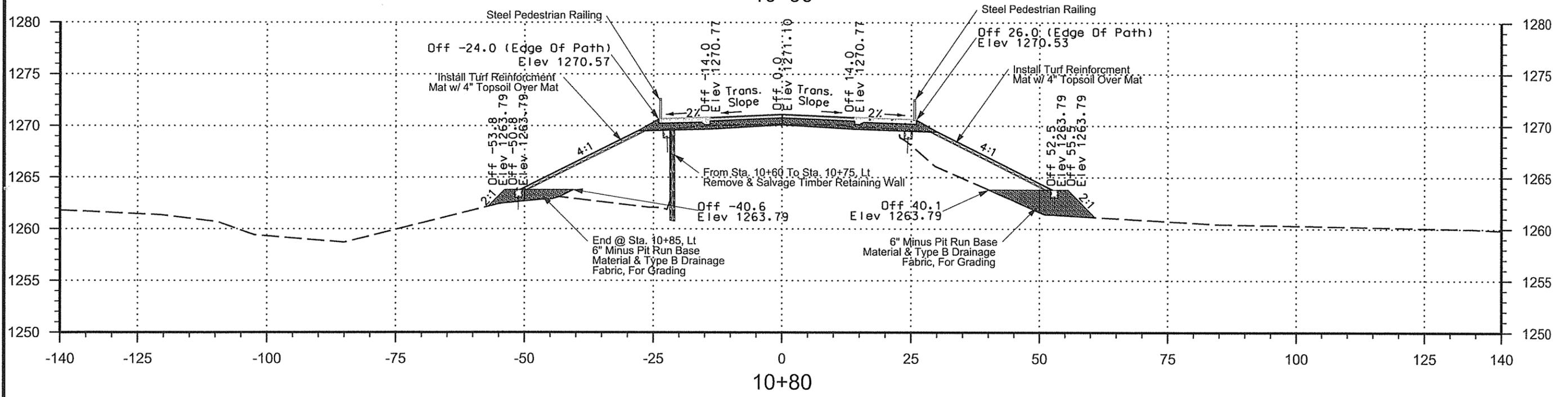
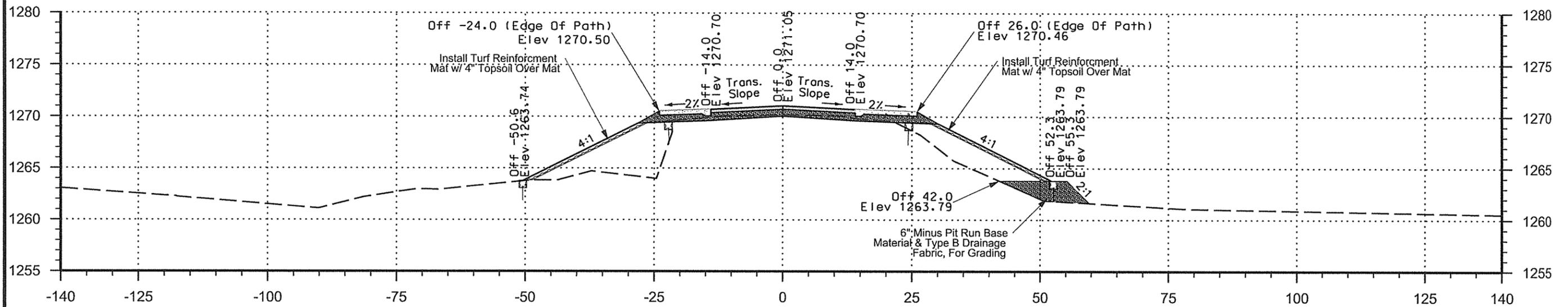
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	65	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



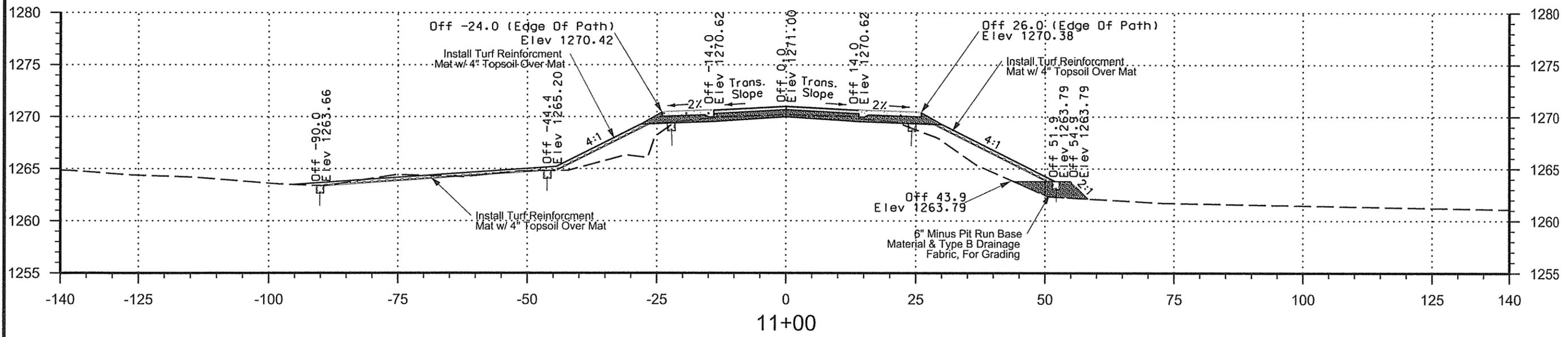
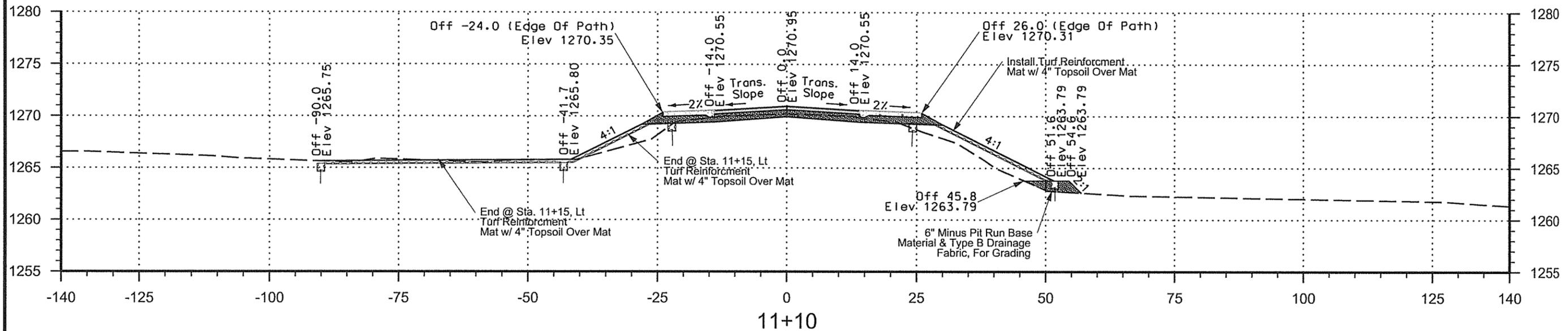
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET	TOTAL
		NO.	SHEETS
		66	77
Plotting Date: 09/19/12		Revised Date: mm/dd/yy	
Initials: SS			



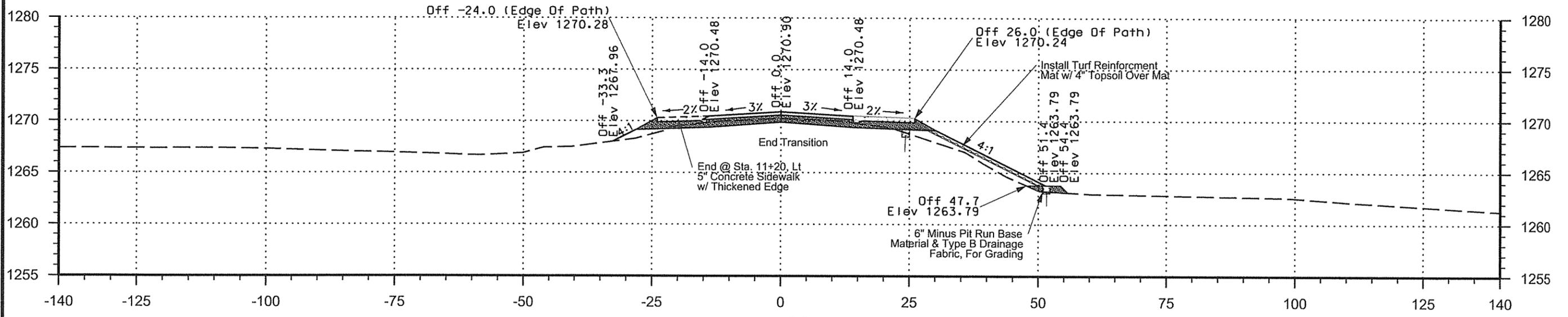
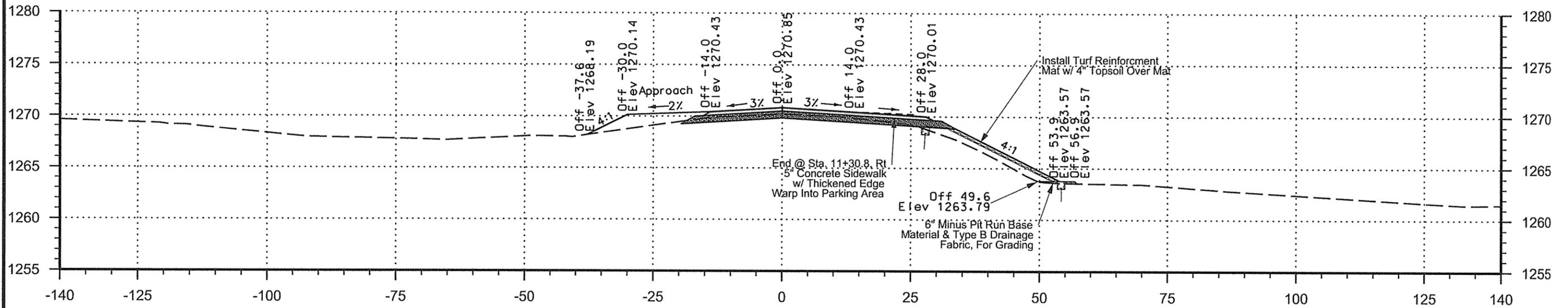
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	67	77
Plotting Date: 09/19/12 Revised Date: mm/dd/yy Initials: SS			



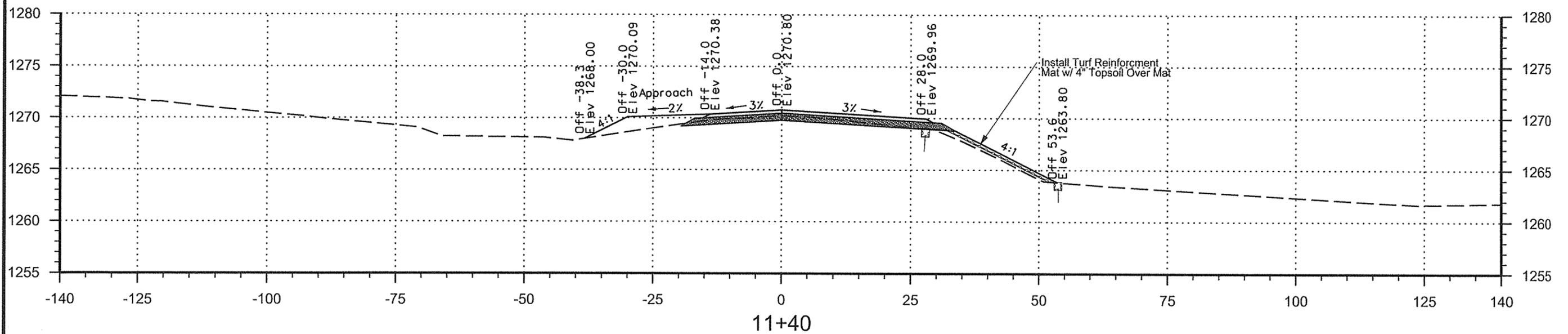
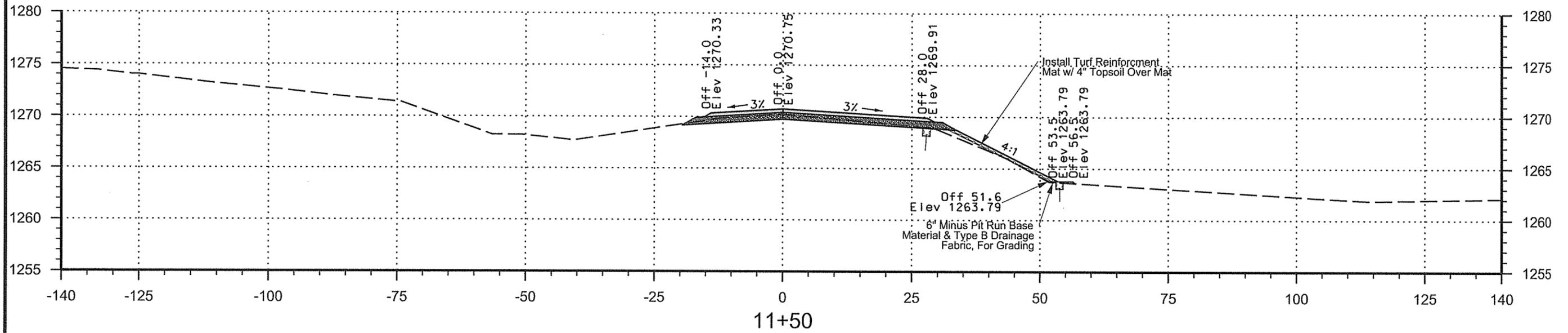
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	68	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



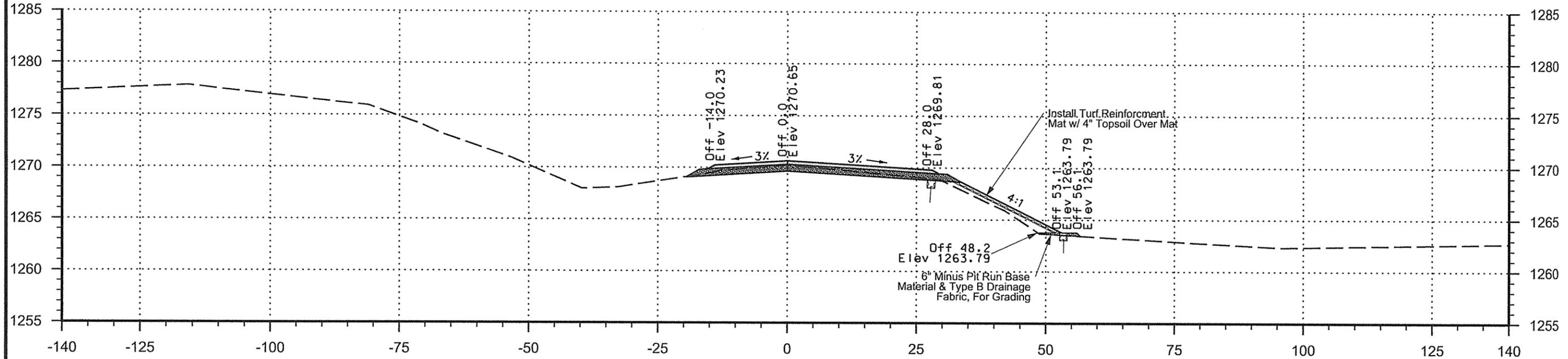
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	69	77
Plotting Date: 09/19/12 Revised Date: mm/dd/yy Initials: SS			

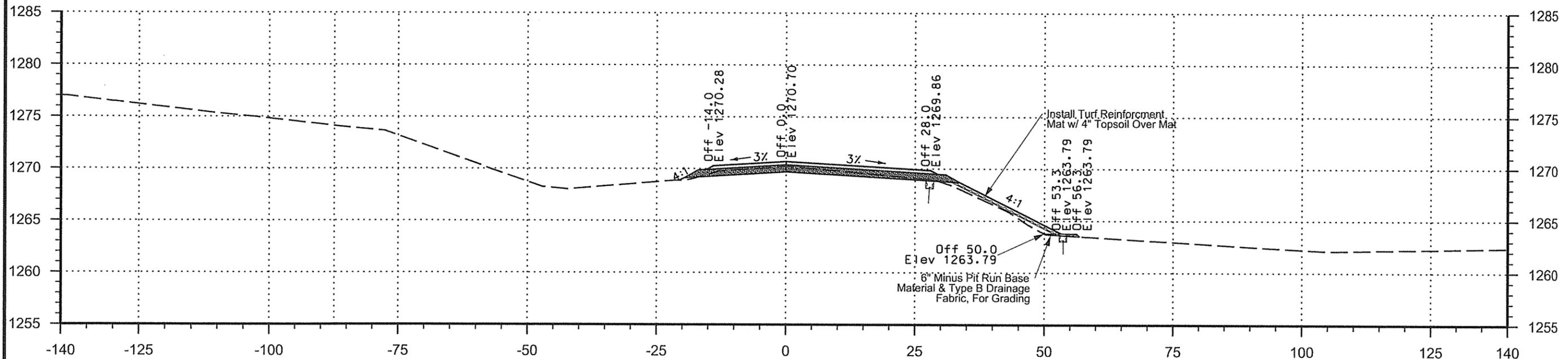


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	70	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



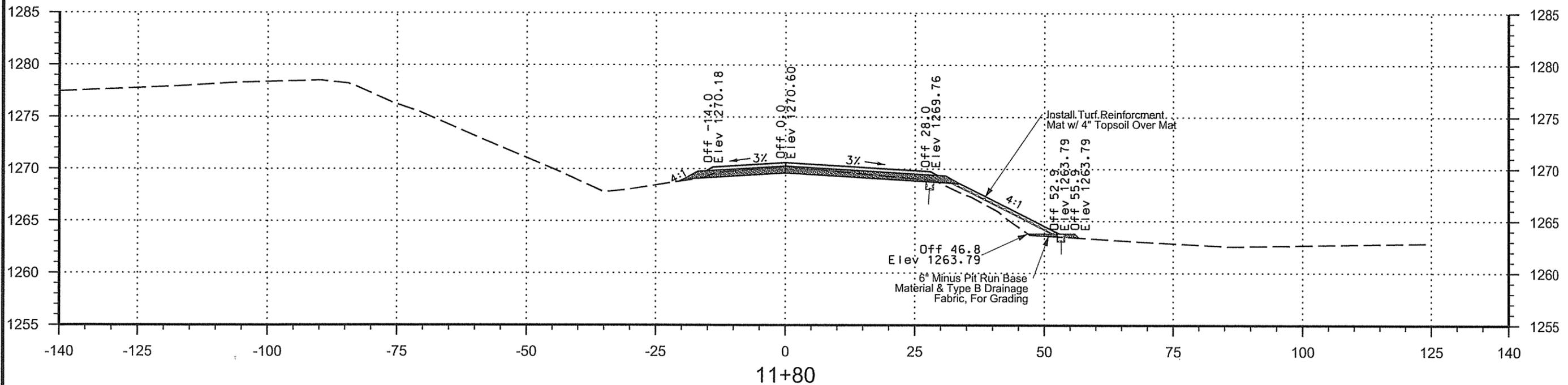
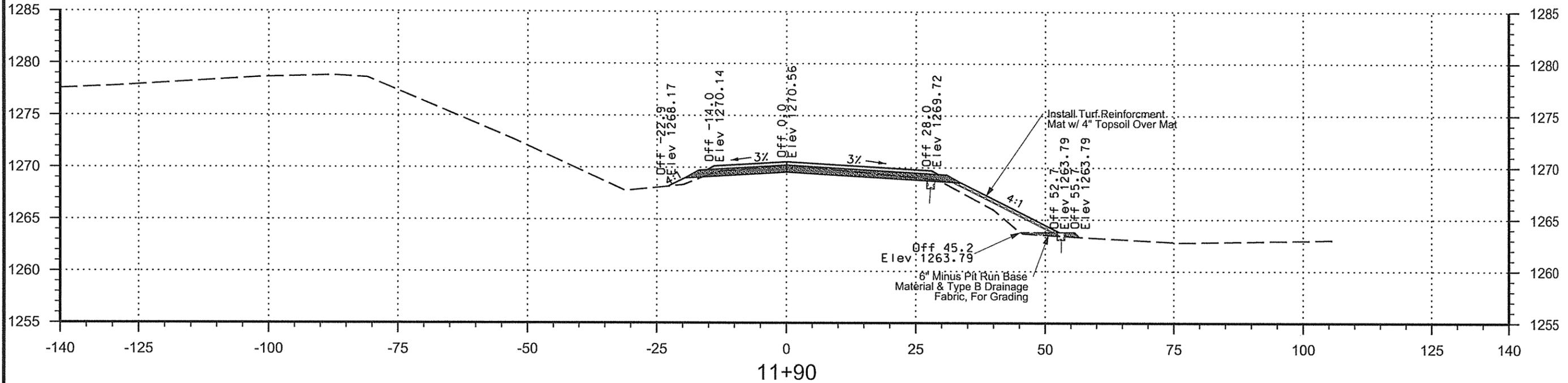
11+70



11+60

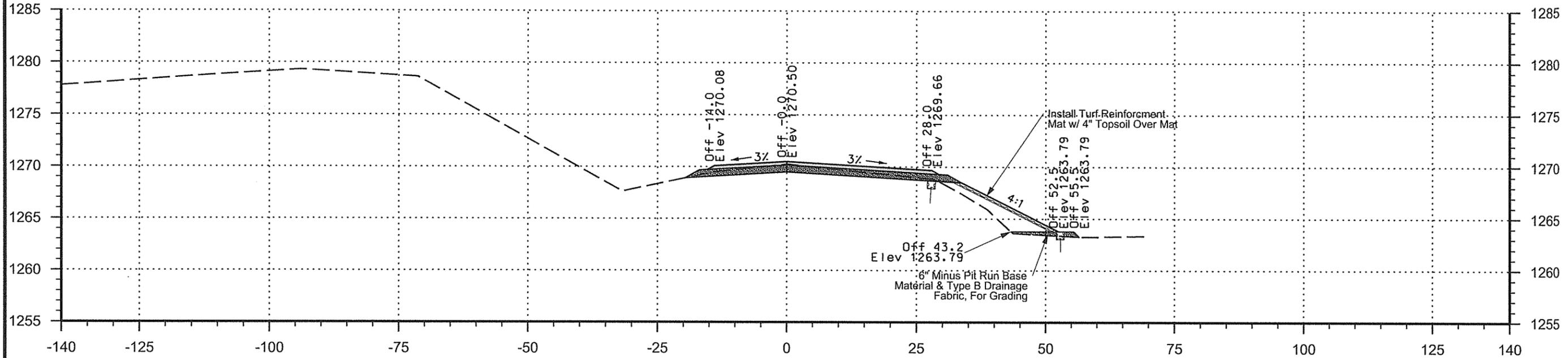
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET	TOTAL
		NO.	SHEETS
		71	77
Plotting Date: 09/19/12		Revised Date: mm/dd/yy	
Initials: SS			

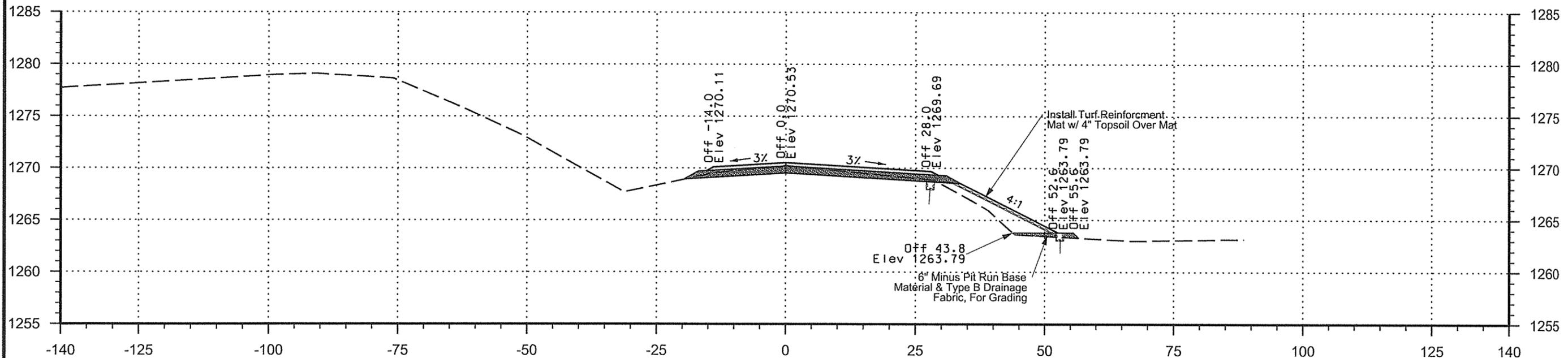


FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	72	77
Plotting Date: 09/19/12 Revised Date: mm/dd/yy Initials: SS			



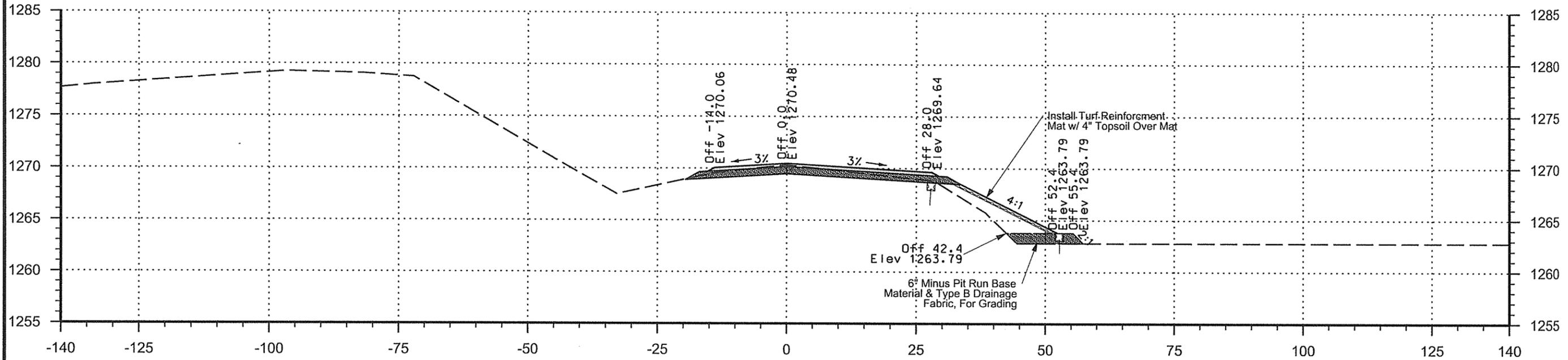
12+10



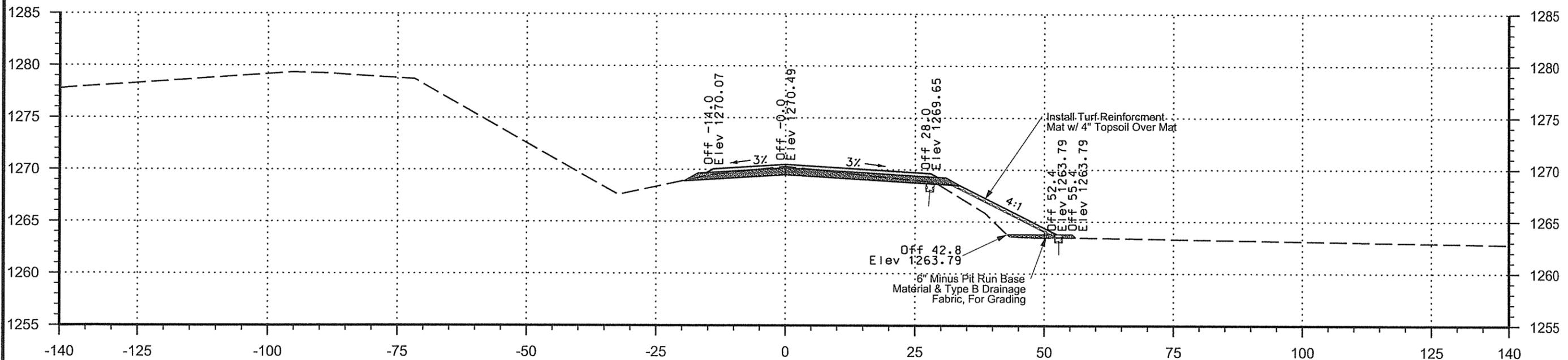
12+00

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET	TOTAL
		NO.	SHEETS
		73	77
Plotting Date: 09/19/12		Revised Date: mm/dd/yy	
Initials: SS			



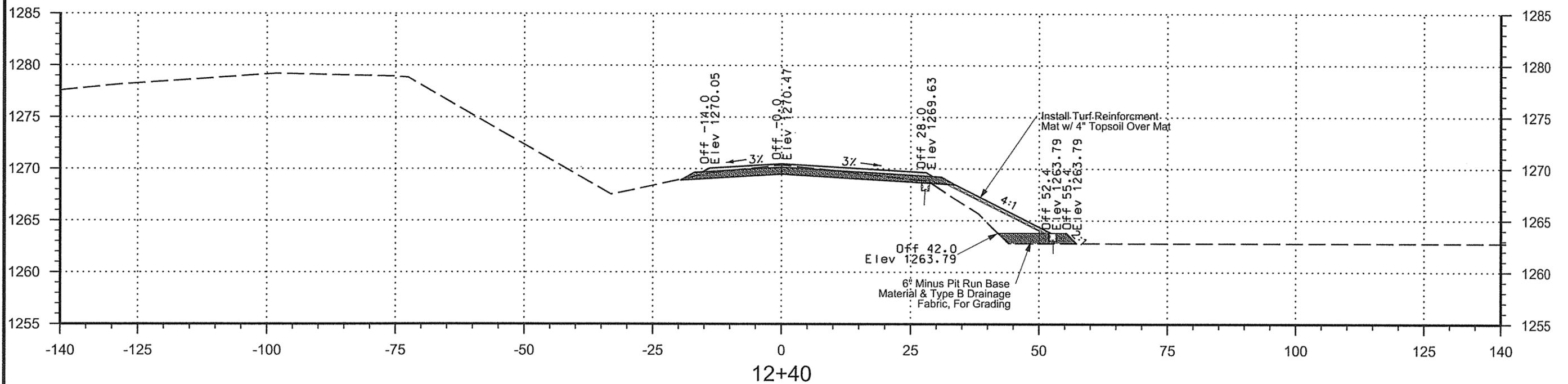
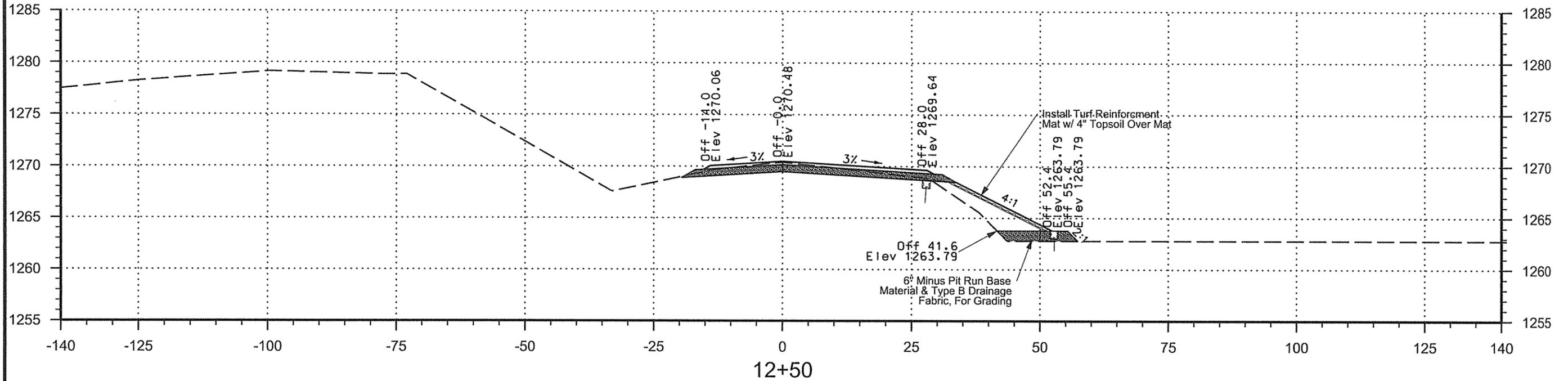
12+30



12+20

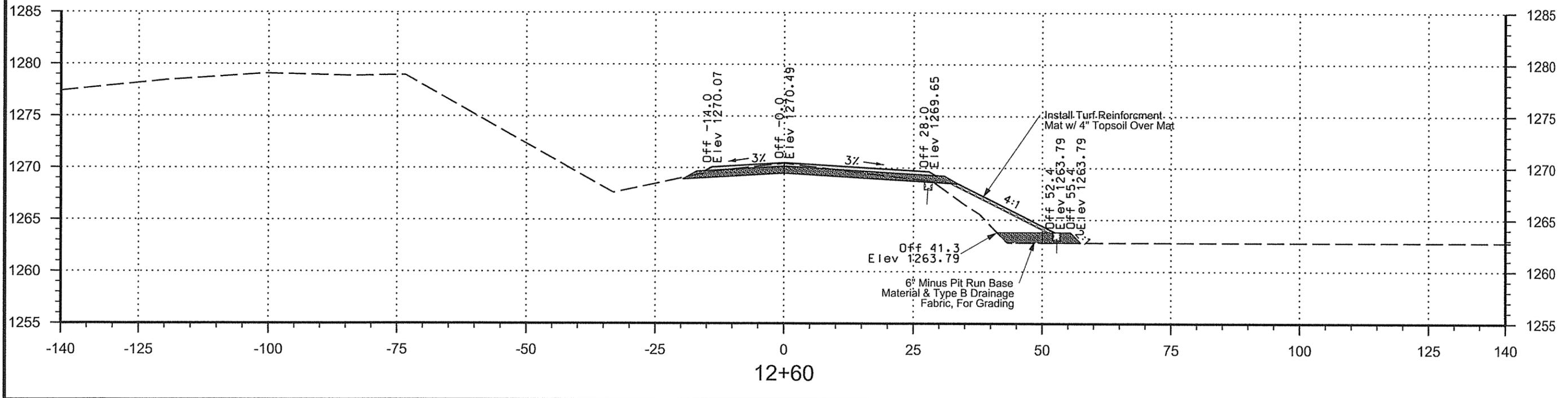
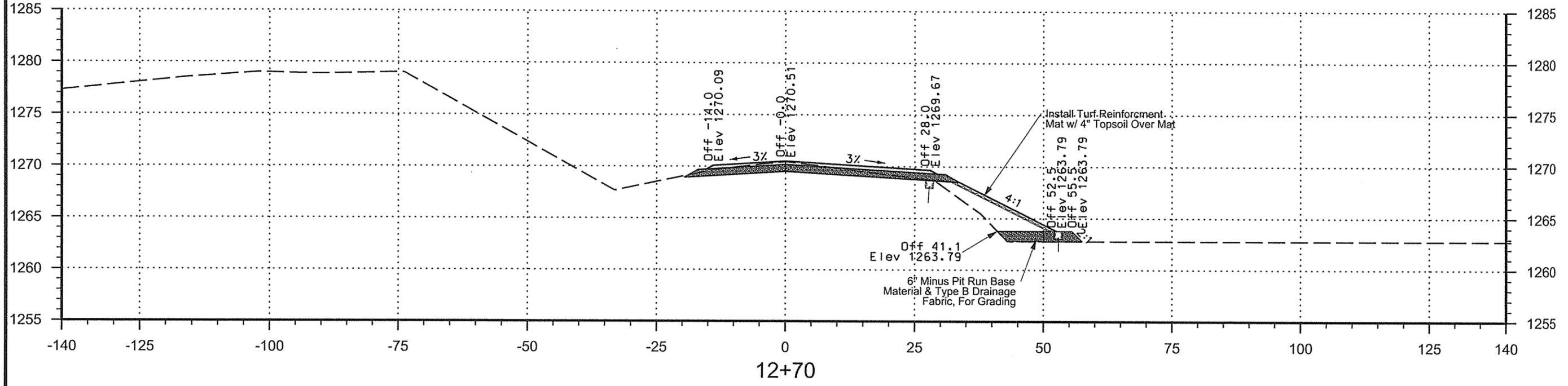
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	74	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



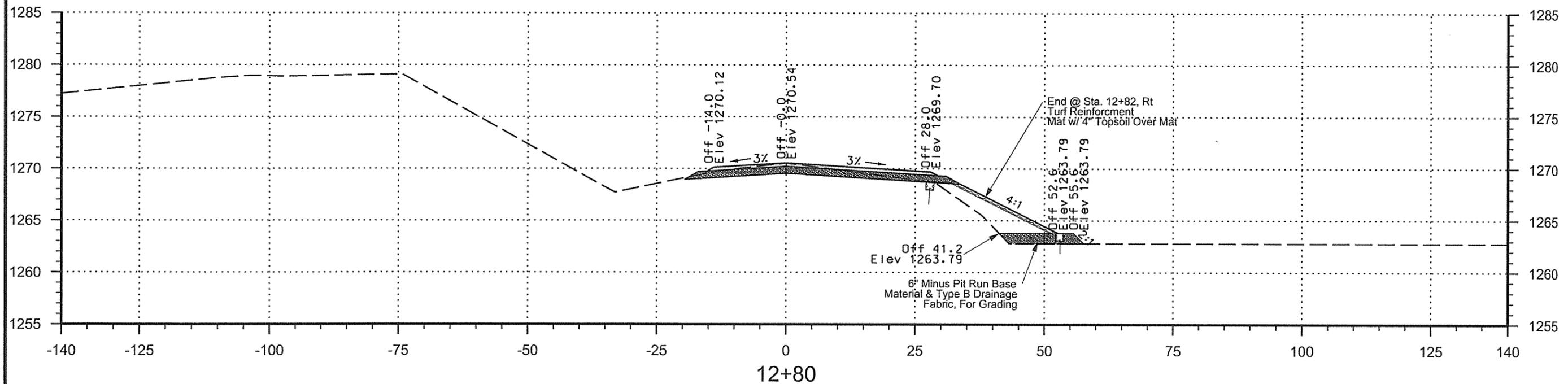
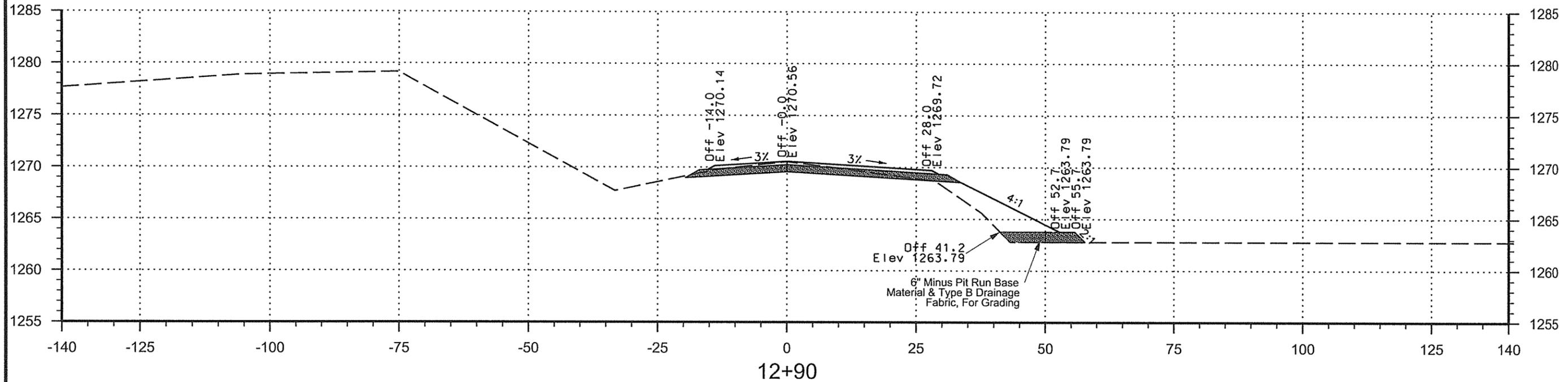
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	75	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRF 3630(02)	SHEET	TOTAL
		NO.	SHEETS
		76	77
Plotting Date: 09/19/12		Revised Date: mm/dd/yy	
Initials: SS			



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 3630(02)	77	77
Plotting Date: 09/19/12			
Revised Date: mm/dd/yy			
Initials: SS			

