

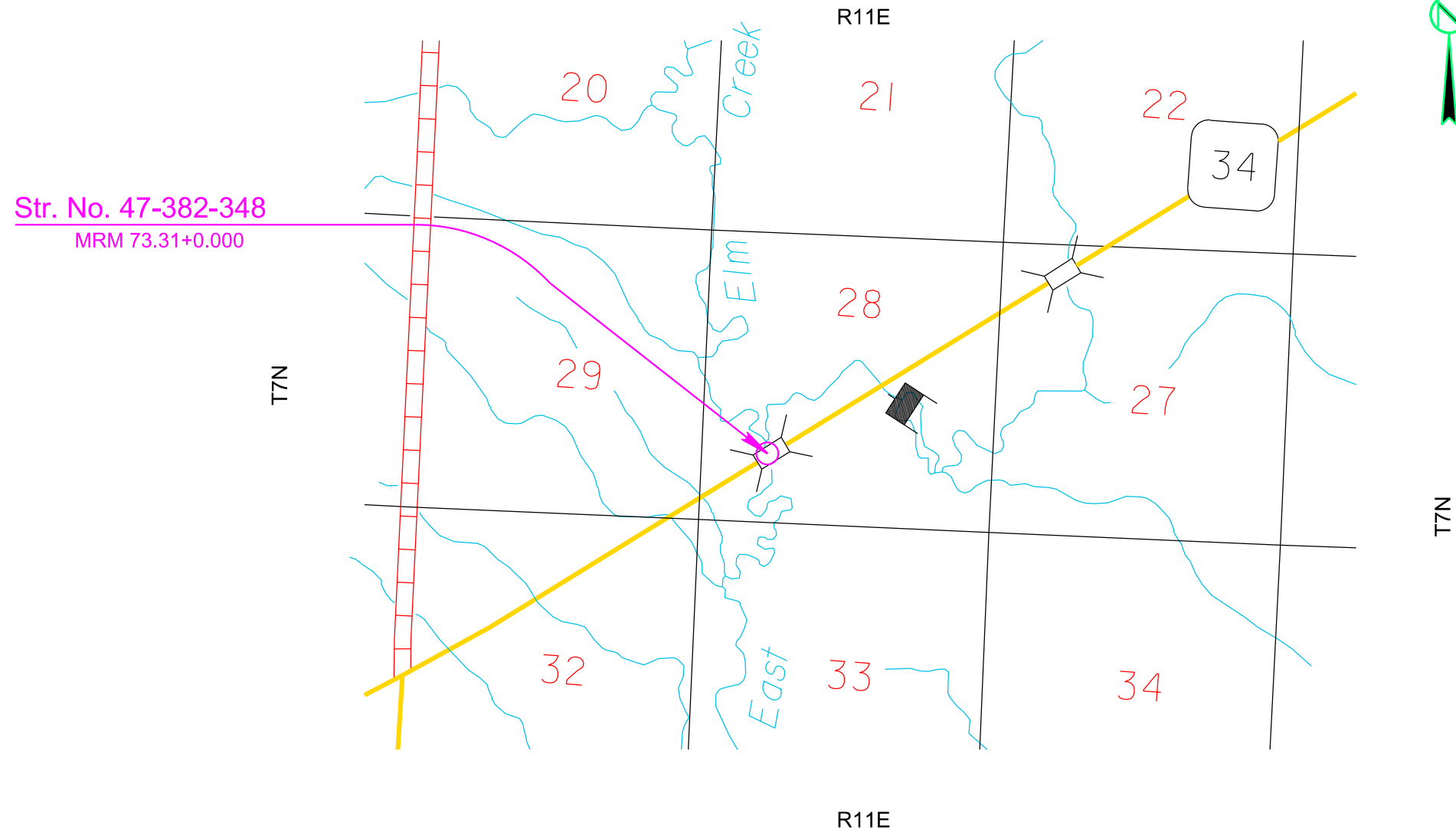
SECTION B: GRADING PLANS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT NH 0034(201)73	SHEET B1	TOTAL SHEETS B18
Plotting Date: 1/31/2024		Revised By: RS 1/31/2024	

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SECTION B ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0030	Maintenance of Traffic Diversion(s)	Lump Sum	LS
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.348	Mile
009E3250	Miscellaneous Staking	0.240	Mile
009E3280	Slope Staking	0.240	Mile
009E3290	Structure Staking	1	Each
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	2,030	Ft
110E1010	Remove Asphalt Concrete Pavement	2,098.1	SqYd
110E4290	Salvage Beam Guardrail	806.0	Ft
120E0010	Unclassified Excavation	3,914	CuYd
120E0600	Contractor Furnished Borrow Excavation	9,723	CuYd
120E2000	Undercutting	1,903	CuYd
600E0200	Type II Field Laboratory	1	Each
620E0020	Type 2 Right-of-Way Fence	946	Ft
620E0230	Modified Type 3 Right-of-Way Fence	974	Ft
620E0520	Type 2 Temporary Fence	834	Ft
620E1020	2 Post Panel	19	Each
620E1030	3 Post Panel	2	Each
700E0210	Class B Riprap	716.2	Ton
831E0110	Type B Drainage Fabric	1,120	SqYd

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 116 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

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

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

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

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

TYPE II FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior

to installing the wireless router, the Contractor will submit the wireless router technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for "Type II Field Laboratory".

UTILITIES

The Contractor will 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 will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided in the plans.

UTILITY CONTACTS

Overhead Utility Line
West River Electric Association (WREA)
Matt Schmahl
3520 East Highway 44
Rapid City, SD 57703
Office: 605-391-6512
Cell: 605-391-1956

TRAFFIC DIVERSION

The traffic diversion is located at Sta. 915+37. The traffic diversion will be constructed according to Section 4.5 A of the Specifications. Installation and removal of the traffic diversion will meet all requirements as set forth in the South Dakota Surface Water Quality Standards.

The traffic diversion(s) located at Station 915+37 will be constructed according to the geometric layouts shown in the plans with the temporary drainage structure(s) provided in the following table. The temporary structure sizes are designed to pass the design flood frequency flows without overtopping the traffic diversion grade, to minimize potential upstream flooding, and are sized to meet FEMA (Federal Emergency Management Agency) requirements where applicable. The structure(s) will be placed at the flowline elevation and location as stated in the "Table of Temporary Drainage Structures in Traffic Diversions". If the Contractor proposes to use a different size drainage structure and/or a different geometric layout for the temporary diversion, the proposal must be submitted to the Engineer during the project preconstruction meeting. This information will be forwarded to the DOT Hydraulics Office for review. Construction of the traffic diversion(s) will not be allowed until approval of the proposal is obtained from the Hydraulics Office.

Table of Temporary Drainage Structures in Traffic Diversions

Traffic Diversion Location	Design Flood Frequency	* Flowline Elevation	Ordinary High Water Elevation	Temporary Structure
915+37	2 year	2693.3	2699.1	2-54" CMP

* The flowline elevation is at the inlet of the traffic diversion.

Costs to provide temporary drainage structures will be incidental to the contract lump sum price for "Maintenance of Traffic Diversion(s)". For information only the temporary drainage structures will be 2 – 54" diameter 16 Gauge CMP, 48' long each, with sloped ends.



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Traffic diversions in waterways will be constructed such that any material placed below the ordinary high water elevation will conform to the requirements of class B riprap. Type B drainage fabric will be placed under the riprap and under any diversion embankment that is placed in a wetland as shown in the construction plans. Type B drainage fabric will also be placed above riprap. A portion of the quantity of riprap used in the traffic diversion is included in the quantity for "Class B Riprap" as shown in the Section E-Structures estimate of quantities. The quantity of riprap for the permanent installation at the structure is less than the quantity needed at the traffic diversion, then the additional quantity of riprap is included in the quantity for "Class B Riprap" in the Section B-Grading estimate of quantities. At the Contractor's discretion, the riprap used for the traffic diversion may be reused as riprap for the structure and all costs incurred to place and remove the riprap at the traffic diversion and subsequently place the riprap at the structure will be incidental to the contract unit price per ton for "Class B Riprap". If the Contractor elects not to reuse the riprap from the traffic diversion the Contractor can retain ownership of the riprap or waste the riprap at a site as approved by the Project Engineer. The traffic diversions will be built in close conformity to the plan gradeline. Unless otherwise shown in the plans, the traffic diversions will be removed such that the original ground surface contours and elevations are restored and the hydraulic capacity of the waterway is maintained. The removal will be done in such a manner that there is minimal disturbance to the channel bed.

The traffic diversion must remain in place during the construction of the roadway embankment. The removed traffic diversion embankment will be disposed of offsite unless otherwise approved by the Engineer.

The Traffic Diversion Excavation as shown on the plans profile sheet is the excavation required to construct the traffic diversion portion that is located outside the mainline cross section work limits. The Traffic Diversion Excavation quantity is added to the unclassified excavation quantity in the Table of Unclassified Excavation.

TABLE OF TRAFFIC DIVERSION RIPRAP AND DRAINAGE FABRIC

Station	L/R	Ordinary High Water Elevation	Traffic Diversion Riprap (Ton)	Section E Class B Riprap (Ton)	Section B Class B Riprap (Ton)	Type B Drainage Fabric (SqYd)
915+37	L	2699.1	812	95.8	716.2	1120
Totals			812	95.8	716.2	1120

INSLOPE TRANSITIONS

Inslope transitions will be required at various drainage structures. Refer to Standard Plate 120.05 for details.

TABLE OF INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

Station	L/R	Type
915+37	L & R	1

Plot Scale - 1:200

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SHRINKAGE FACTOR: Embankment +30%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Undercut (CuYd)	* Contractor Furnished Borrow Exc. (CuYd)	Total Excavation (CuYd)
913+00	918+70	638	1903	5038	7,579
	Traffic Diversion 2+32	12	0	4129	4,141
	Totals:	638	1903	9167	11,720

* The quantities for these items are in the Estimate of Quantities under their respective contract items.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	638
Added Traffic Diversion Excavation	12
Undercut	1903
Topsoil	1361
Total	3914

GENERAL GEOLOGY

The project alignment traverses Quaternary Alluvium overlying Pierre Shale. These deposits/formations are described by the South Dakota Geologic Survey as:

Quaternary Alluvium deposits consist of clay to boulder sized clasts with locally abundant organic material.

The Pierre Shale consists of blue-gray to dark gray, fissile to blocky shale with persistent beds of bentonite, black organic shale, and light-brown chalky shale. Contains minor sandstone, conglomerate, and abundant carbonate and ferruginous concretions.

CLASSIFICATION OF EXCAVATION

Most of the material encountered should be able to be excavated using conventional methods associated with normal Unclassified Excavation.

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Topsoil quantity in the Table of Unclassified Excavation is an estimate. When finaling a project, the total quantity of field measured Topsoil will be used in place of the estimated Topsoil quantity. The quantity of Topsoil

from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The volume of in place Asphalt Surfacing removed will NOT be paid for as Unclassified Excavation.

The Excavation quantities from individual balances and the table above have been reduced by the volume of in place asphalt pavement that will be removed.

When finaling a project, the estimated quantity of 102 cubic yards of Asphalt Pavement removed from the cut sections will be subtracted from the Unclassified Excavation quantity for final payment. The quantity of Asphalt Pavement from cut sections subtracted from the Unclassified Excavation quantity will be plans quantity and will not be adjusted according to field measurements.

UNDERCUTTING

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

Shallow embankment sections, fills less than 2 feet in height measured at the finished subgrade shoulders, will be undercut to ensure a minimum 2 foot height of earth embankment for the entire width of roadbed. The upper 6 inches of undercut material that consists of topsoil with a high humus content will be used as topsoil, placed in the fill slopes outside the shoulders of the earthen subgrade, or placed in the lower portion (below 4 foot depth) in fills which are greater than 4 feet in height. The remaining undercut soil and soil obtained from adjacent excavation (excluding the upper 6 inches) will then

be replaced and compacted to the density specified for the section being constructed.

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

TABLE OF UNDERCUTTING RURAL

Station to	Station	Quantity (CuYd)
913+00	918+70	1903
	Total:	1903

CONTRACTOR FURNISHED BORROW EXCAVATION

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

The landowner located along the south side of the project is willing to provide the Contractor with the required borrow excavation. The approximate borrow pit location is a hill side adjacent to the project between stations 918+00 to 925+00 R.

The landowner, Lyle Wilcox's phone number is 605-985-5972.



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CONTRACTOR FURNISHED BORROW EXCAVATION, Continued

Environmental clearances of the borrow area discussed above have been obtained.

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

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	L/R	Quantity (SqYd)
913+00		914+92		903.0
916+08		918+70		1195.1
Total:				2098.1

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to installation of the fence.

TABLE OF GUARDRAIL

Location	Salvage Beam Guardrail (Ft)
Structure No. 47-382-348	806
Totals:	806

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking			Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)	
					Length (Mile)	Lane Factor	*Sets of Stakes				
SD 34 (2 Lanes AC Pavement)	913+00	918+70	2	570	0.108	1	2	0.216	0.108	0.108	
Traffic Diversion	2+40	9+38	2	698	0.132	1	1	0.132	0.132		
US 14 (RCBC Installation)	915+37									1	
Totals:								0.348	0.240	0.240	1

* Blue Top Stakes and Top of Base Course Stakes

** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16" x 3" lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following is the contact regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

RIGHT OF WAY FENCE – PARCEL A1

The Contractor and the Engineer will coordinate with the owner of Parcel A1 for the placement of the proposed right-of-way fence connection with the box culvert wingwalls. The location of the fence and brace panels may have to be adjusted to account for contour break lines and ensure they are not located within the creek.

FOR BIDDING PURPOSES ONLY

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SALVAGE BEAM GUARDRAIL

Straight Steel beam rail, end terminals, hardware items, blocks and posts will become the property of the State and will be removed, hauled, and neatly stacked at Sturgis Maintenance Yard, 1100 Otter Rd. as approved by the Engineer.

Payment for removing, hauling, and stacking the guardrail items will be incidental to the contract unit price per foot for "Salvage Beam Guardrail".



FENCE QUANTITIES FOR BIDDING PURPOSES ONLY

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Station to Station		Side (L/R)	Remove Fence		Right-of-Way Fence				Temporary Fence			Post Panels		Gates				
			Remove Fence (Ft)		Type 2 (Ft)	Modified Type 3 (Ft)				Type 2 (Ft)			2 Post Panel (Each)	3 Post Panel (Each)		Barbed Wire Gate N.A.B.I. (Each)		
909+57	918+21	R	870		870							5			1			
909+72	917+91	L	898			820				834		6						
914+79	915+05	R			40							2						
914+82	914+86	L				57						1	1					
914+82	914+93	L	147															
914+82	914+92	R	41															
915+05	915+06	L				50						1	1					
915+56	915+75	R			36							2						
915+80	915+92	L				47						2						
916+07	916+10	R	32															
916+09	916+09	L	42															
TOTALS:			2030		946	974				834		19	2		1			

Post Type and Sequence:

Type 2 Right-of-way fence shall be constructed using alternating wood and steel posts except as noted.

Modified Type 3 Right-of-way fence shall be constructed using 2 steel and 1 wood alternating posts.



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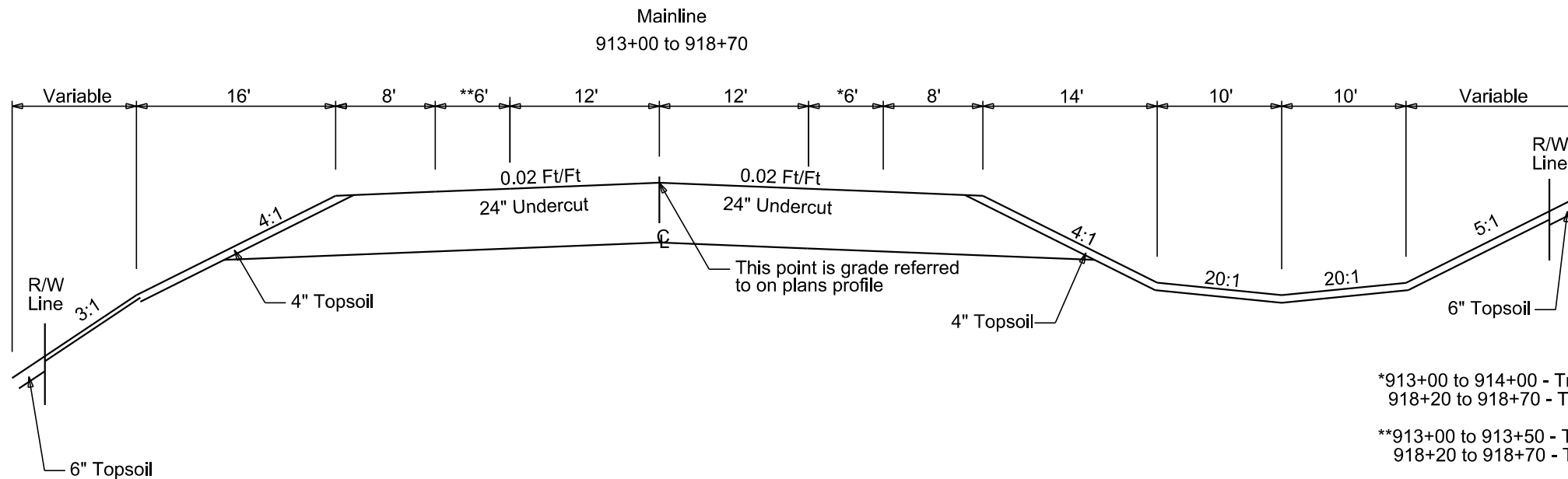
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

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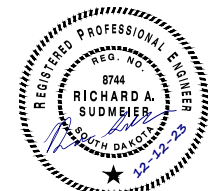
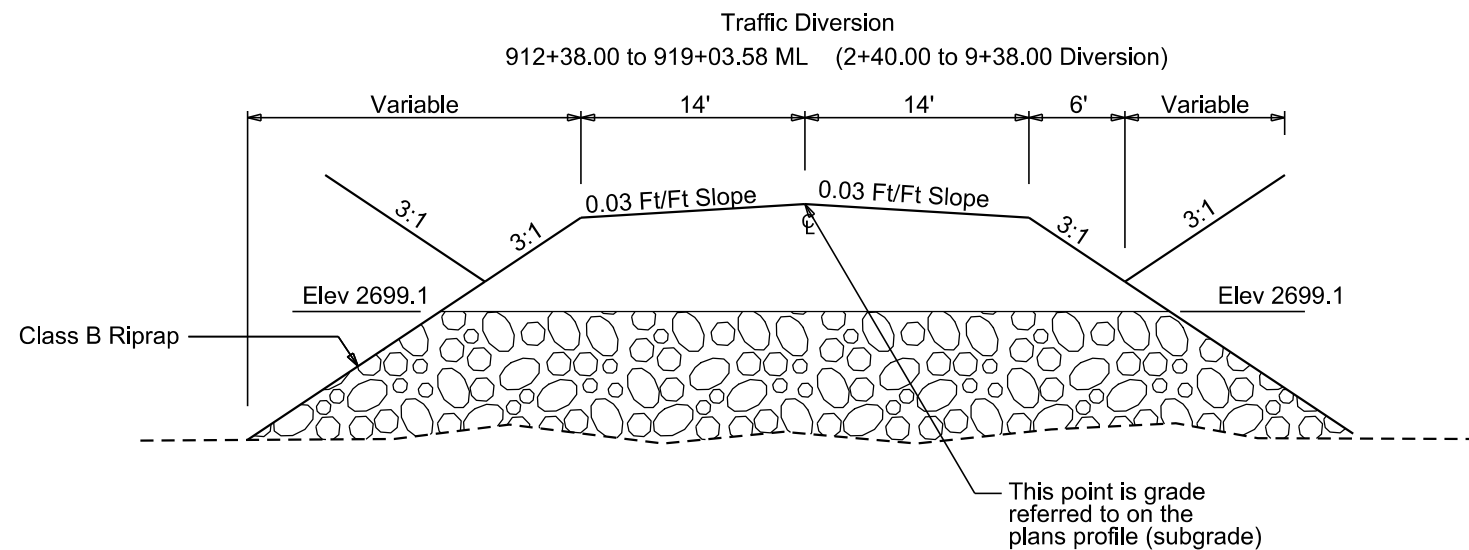
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*913+00 to 914+00 - Transition from 13.8' to 6'
918+20 to 918+70 - Transition from 6' to 4.1'

**913+00 to 913+50 - Transition from 4.2' to 6'
918+20 to 918+70 - Transition from 6' to 4.8'



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HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

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MAINLINE

<u>Type</u>	<u>Station</u>		<u>Northing</u>	<u>Easting</u>
POB	900+00.00		267617.989	1237377.325
		TL= 6528.40 N 57°45'05" E		
POE	965+28.40		271101.508	1242898.657

DIVERSION

<u>Type</u>	<u>Station</u>		<u>Northing</u>	<u>Easting</u>
POB	1+00.00		268204.940	1238307.640
		TL= 23.81 N 57°44'58" E		
PC	1+23.81		268217.644	1238327.774
PI	1+90.05	R= 353.00 Delta = 21°15'25" L	268252.993	1238383.798
PT	2+54.77		268516.184	1238423.194
		TL = 197.37 N 36°29'33" E		
PC	4+52.14		268306.249	1238423.194
PI	5+83.43	R= 353.00 Delta = 40°48'05" R	268570.466	1238618.652
PT	7+03.52		268599.342	1238746.722
		TL= 199.67 N 85°03'36" E		
PC	9+39.48		268651.241	1238976.905
PI	10+00.27	R= 353.00 Delta = 19°32'34" L	268664.612	1239036.209
PT	10+59.89		268697.050	1239087.623
		TL = 6.63 N 57°45'05" E		
POE	10+66.51		268700.588	1239093.230

Plot Scale - 1:200

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The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83); epoch 2010; Geoid 12A; SF = 0.9998494179

CONTROL DATA

FOR BIDDING PURPOSES ONLY

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HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP 1	917+89.95	24.744'L	5/8" Rebar	268594.0240	1238877.9510	2710.67

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (NAD 83); epoch 2010 Geoid 12A; SF = 0.998494179
The elevations shown on this sheet are based on NAVD 88.



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LEGEND

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Anchor		Hedge		Septic Tank		State and National Line	
Antenna		Highway ROW Marker		Shrub Tree		County Line	
Approach		Interstate Close Gate		Sidewalk		Section Line	
Assumed Corner		Iron Pin		Sign Face		Quarter Line	
Azimuth Marker		Irrigation Ditch		Sign Post		Sixteenth Line	
BBQ Grill/ Fireplace		Lake Edge		Slough Or Marsh		Property Line	
Bearing Tree		Lawn Sprinkler		Spring		Construction Line	
Bench Mark		Mailbox		Stream Gauge		ROW Line	
Box Culvert		Manhole Electric		Street Marker		New ROW Line	
Bridge		Manhole Gas		Subsurface Utility Exploration Test Hole		Cut and Fill Limits	
Brush		Manhole Miscellaneous		Telephone Fiber Optics		Control of Access	
Buildings		Manhole Sanitary Sewer		Telephone Junction Box		New Control of Access	
Bulk Tank		Manhole Storm Sewer		Telephone Pole		Proposed ROW	
Cattle Guard		Manhole Telephone		Television Cable Jct Box		(After Property Disposal)	
Cemetery		Manhole Water		Television Tower			
Centerline		Merry-Go-Round		Test Wells/Bore Holes		Drainage Arrow	
Cistern		Microwave Radio Tower		Traffic Signal			
Clothes Line		Miscellaneous Line		Trash Barrel			
Commercial Sign Double Face		Miscellaneous Property Corner		Tree Belt		Detectable Warning	
Commercial Sign One Post		Miscellaneous Post		Tree Coniferous		Pedestrian Push Button Pole	
Commercial Sign Overhead		Overhang Or Encroachment		Tree Deciduous		and 30" x 48" Clear Space	
Commercial Sign Two Post		Overhead Utility Line		Tree Stumps		with 1.5% slope	
Concrete Symbol		Parking Meter		Triangulation Station			
Control Point		Pedestrian Push Button Pole		Underground Electric Line			
Creek Edge		Pipe With End Section		Underground Gas Line			
Curb/Gutter		Pipe With Headwall		Underground High Pressure Gas Line			
Curb		Pipe Without End Section		Underground Sanitary Sewer			
Dam Grade/Dike/Levee		Playground Slide		Underground Storm Sewer			
Deck Edge		Playground Swing		Underground Tank			
Ditch Block		Power And Light Pole		Underground Telephone Line			
Doorway Threshold		Power And Telephone Pole		Underground Television Cable			
Drainage Profile		Power Meter		Underground Water Line			
Drop Inlet		Power Pole		Warning Sign One Post			
Edge Of Asphalt		Power Pole And Transformer		Warning Sign Two Post			
Edge Of Concrete		Power Tower Structure		Water Fountain			
Edge Of Gravel		Propane Tank		Water Hydrant			
Edge Of Other		Property Pipe		Water Meter			
Edge Of Shoulder		Property Pipe With Cap		Water Tower			
Electric Transformer/Power Junction Box		Property Stone		Water Valve			
Fence Barbwire		Public Telephone		Water Well			
Fence Chainlink		Railroad Crossing Signal		Weir Rock			
Fence Electric		Railroad Milepost Marker		Windmill			
Fence Miscellaneous		Railroad Profile		Wingwall			
Fence Rock		Railroad ROW Marker		Witness Corner			
Fence Snow		Railroad Signs					
Fence Wood		Railroad Switch					
Fence Woven		Railroad Track					
Fire Hydrant		Railroad Trestle					
Flag Pole		Rebar					
Flower Bed		Rebar With Cap					
Gas Valve Or Meter		Reference Mark					
Gas Pump Island		Regulatory Sign One Post					
Grain Bin		Regulatory Sign Two Post					
Guardrail		Retaining Wall					
Guide Sign One Post		Riprap					
Guide Sign Two Post		River Edge					
Gutter		Rock And Wire Baskets					
Guy Pole		Rockpiles					
Haystack		Satellite Dish					

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FOR BIDDING PURPOSES ONLY

915+50.00
Take Out Bridge
(Incidental Work, Structure)

915+37 (48.30 Sq. Mi)
Alternate A
Install 4 - 12' x 10' Box Culvert (CIP)
Alternate B
Install 4 - 12' x 10' Box Culvert (Precast)
(See Section E)

DIVERSION
PI 5+83.43
N 268570.47
E 1238618.65
Del 40°48'05"R
Dc 16°13'52"
T 131.28'
L 251.38'
R 353.00'

DIVERSION
PI 10+00.27
N 268664.61
E 1239036.21
Del 19°32'34" L
Dc 16°13'52"
T 60.79'
L 120.40'
R 353.00'

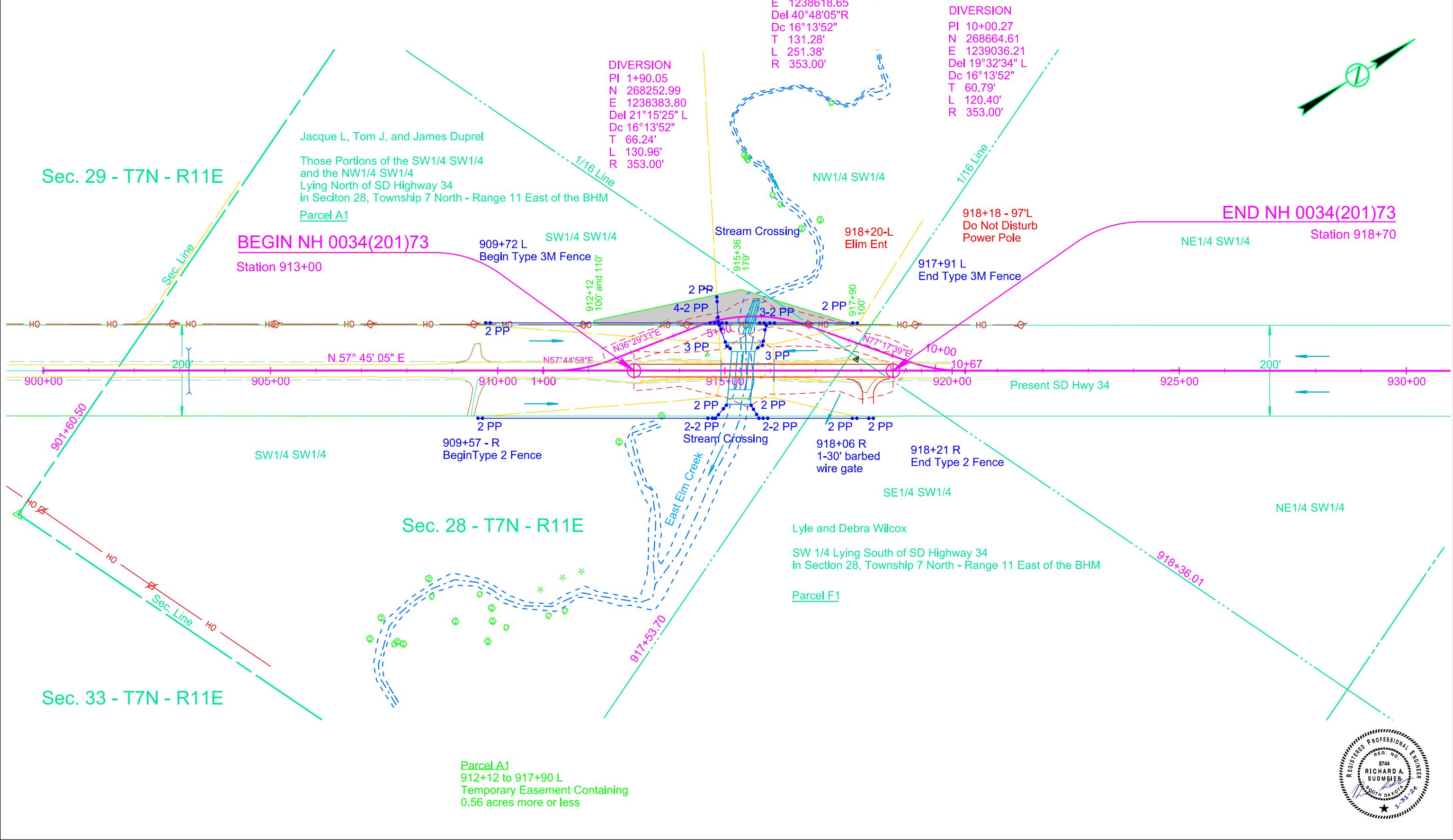
DIVERSION
PI 1+90.05
N 268252.99
E 1238383.80
Del 21°15'25" L
Dc 16°13'52"
T 66.24'
L 130.96'
R 353.00'

Jacque L, Tom J, and James Duprel
Those Portions of the SW1/4 SW1/4
and the NW1/4 SW1/4
Lying North of SD Highway 34
in Section 28, Township 7 North - Range 11 East of the BHM
Parcel A1

Sec. 29 - T7N - R11E

BEGIN NH 0034(201)73
Station 913+00

END NH 0034(201)73
Station 918+70



Plot Scale - 1:200

Plotted From - R Sudmeier

File - ...ICAD\Design Drawings\910.dgn



FOR BIDDING PURPOSES ONLY

Traffic Diversion Excavation
Contractor Furnished Borrow
Riprap Class B

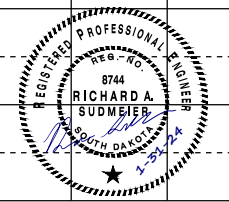
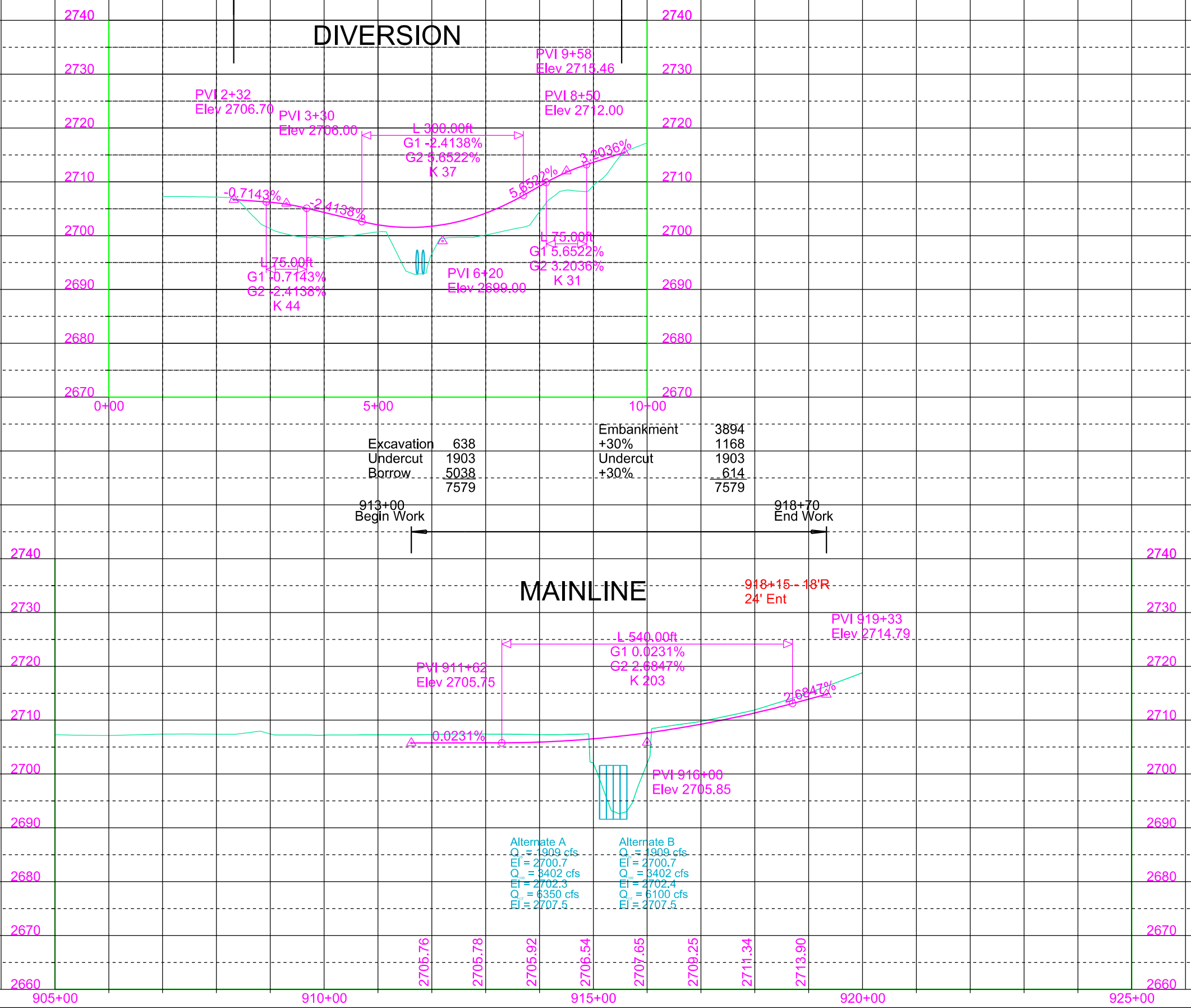
12
4129
812
5509

Traffic Diversion Embankment
+30%
Riprap Class B

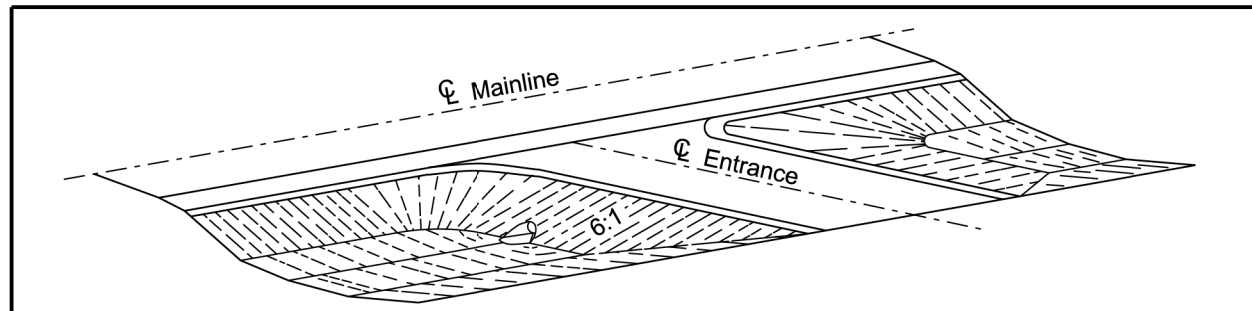
3613
1084
812
5509

Plot Scale - 1:200.001

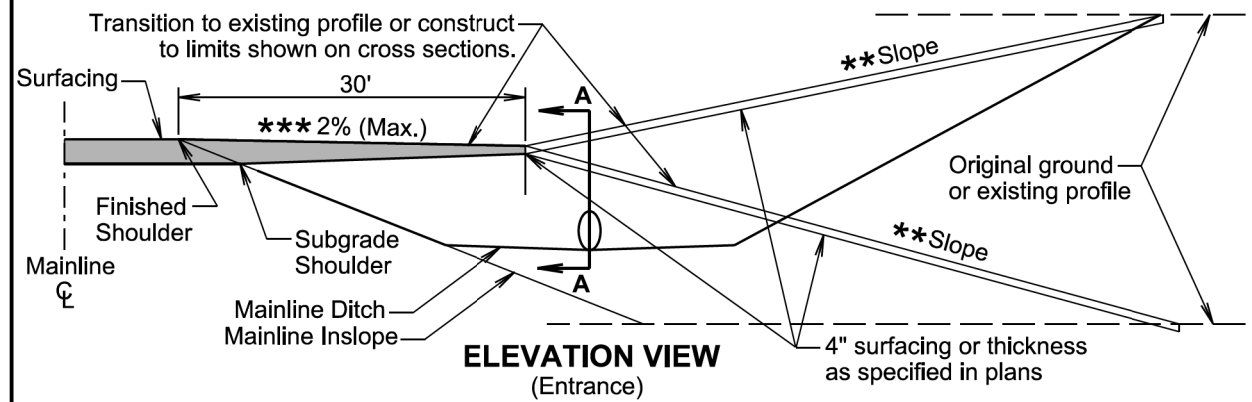
Plotted From - R:Sudmeier



File - ...CAD\Design Drawings\910v.dgn



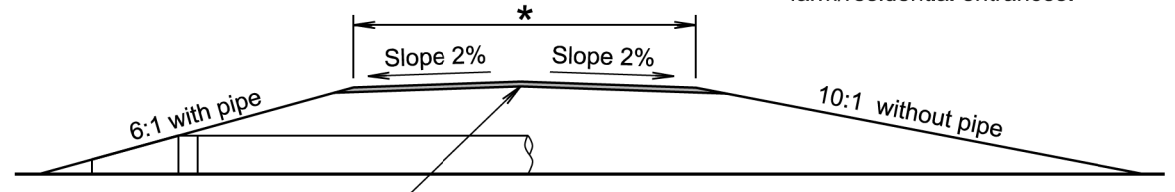
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW (Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A (Entrance and Intersecting Road)

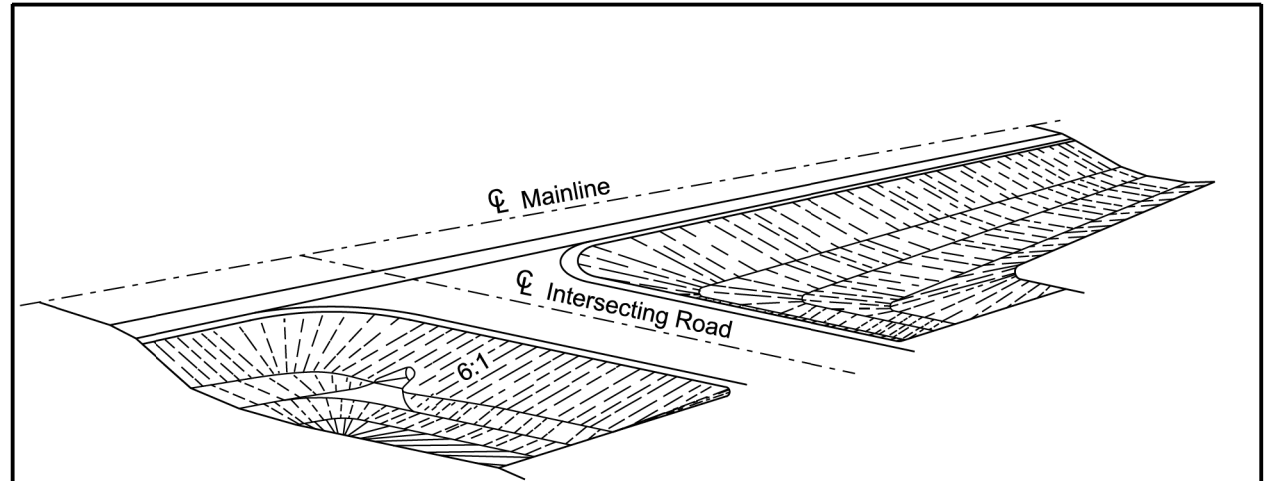
* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

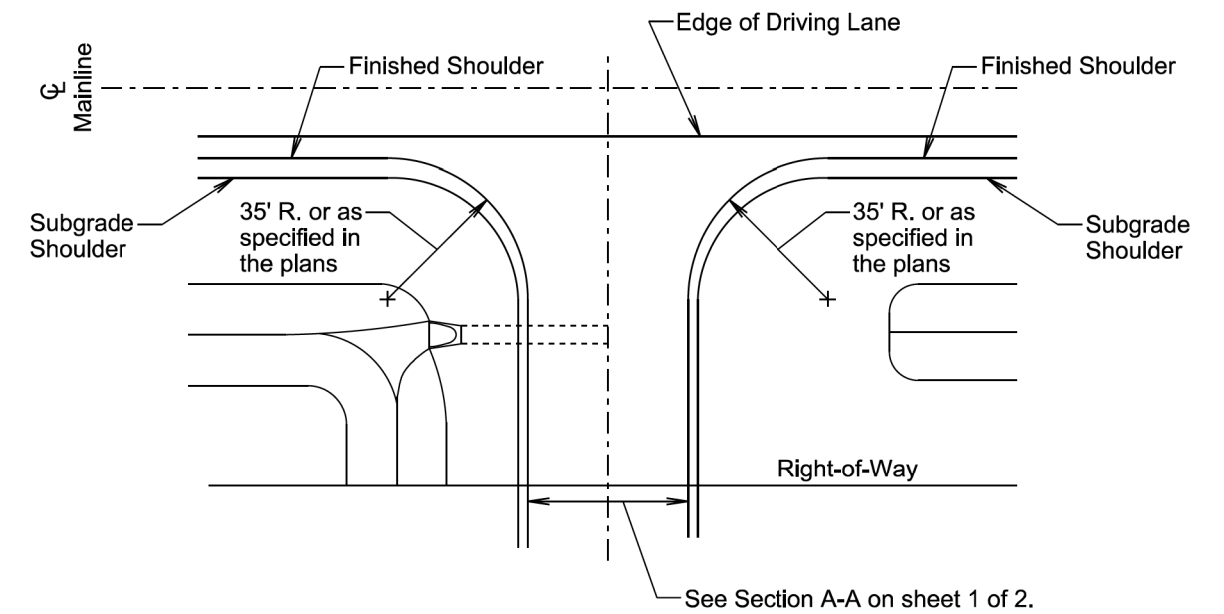
- The ditch section shown above in the perspective view is only for illustrative purpose.
- The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.
- Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.
- The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.
- The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

<i>Published Date: 2024</i>	S D D O T	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

GENERAL NOTES:

- The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

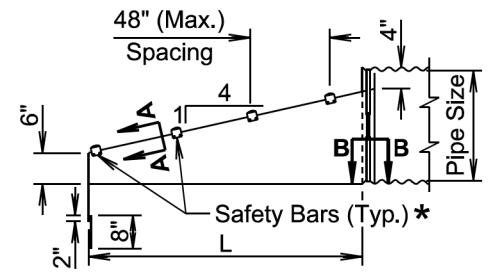
November 19, 2021

<i>Published Date: 2024</i>	S D D O T	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

Plot Scale - 1:200

Plotted From - R: Sudmeier

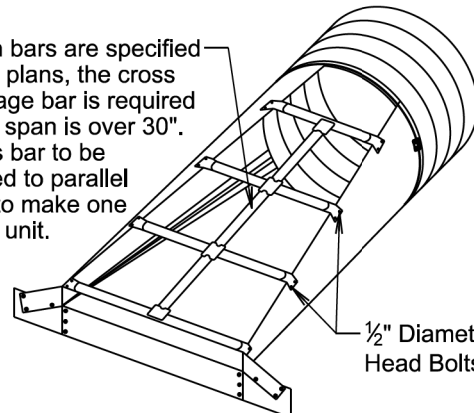
File - ...1063XN_SurfPlates.dgn



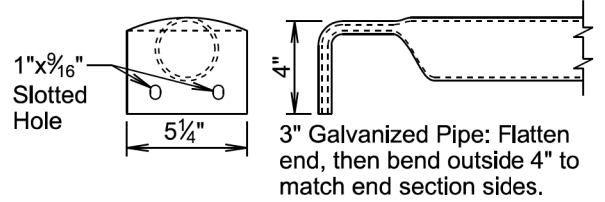
* Number of bars required will vary depending on the length of the end section.

ELEVATION VIEW

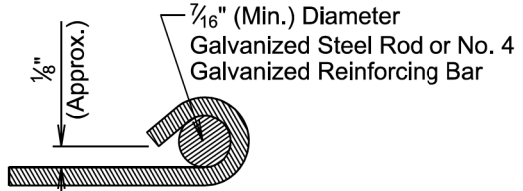
When bars are specified in the plans, the cross drainage bar is required when span is over 30". Cross bar to be welded to parallel bars to make one piece unit.



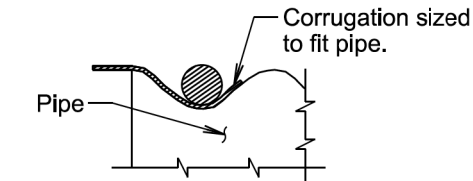
ISOMETRIC VIEW



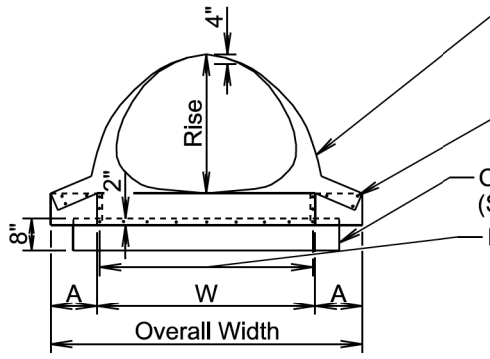
DETAIL OF SAFETY BARS



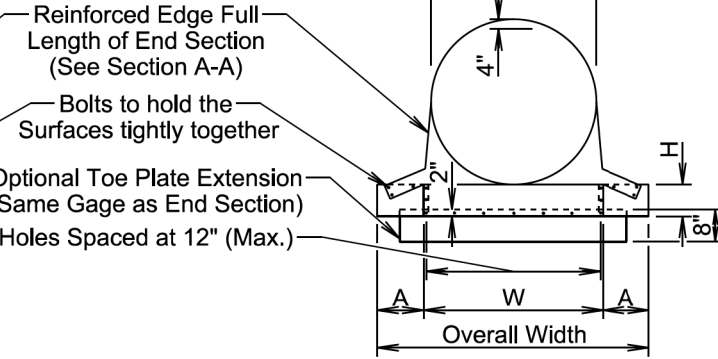
SECTION A-A



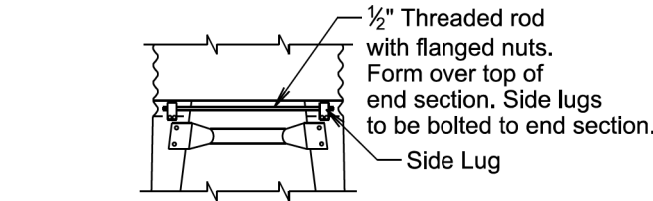
SECTION B-B



FRONT VIEW

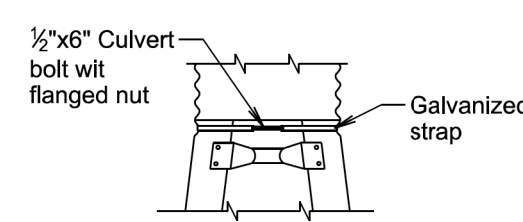


FRONT VIEW



TYPE #2 CONNECTOR DETAIL

(For 30" and Larger)
(For 21"x15" and Larger)



TYPE #1 CONNECTOR DETAIL

(For 15" Through 24")

August 31, 2022

ARCH C.M.P. SLOPED ENDS										
Equiv. Dia. (Inch)	(Inches)		(Min.) Thick. Inch	Dimensions (Inches)			L Dimensions			
	Span	Rise		Gage	A	H	W	Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	4:1	20
21	24	18	.064	16	8	6	30	46	4:1	32
24	28	20	.064	16	8	6	34	50	4:1	40
30	35	24	.079	14	12	9	41	65	4:1	56
36	42	29	.109	12	12	9	48	72	4:1	76
42	49	33	.109	12	16	12	55	87	4:1	92
48	57	38	.109	12	16	12	63	95	4:1	112
54	64	43	.109	12	16	12	70	102	4:1	132
60	71	47	.109	12	16	12	77	109	4:1	148
72	83	57	.109	12	16	12	89	121	4:1	188

CIRCULAR C.M.P. SLOPED ENDS									
Pipe Dia. (Inch)	(Min.) Thick. Inch	Dimensions (Inches)			L Dimensions				
		Gage	A	H	W	Overall Width	Slope	Length (Inch)	
15	.064	16	8	6	21	37	4:1	20	
18	.064	16	8	6	24	40	4:1	32	
21	.064	16	8	6	27	43	4:1	44	
24	.064	16	8	6	30	46	4:1	56	
30	.109	12	12	9	36	60	4:1	80	
36	.109	12	12	9	42	66	4:1	104	
42	.109	12	16	12	48	80	4:1	128	
48	.109	12	16	12	54	86	4:1	152	
54	.109	12	16	12	60	92	4:1	176	
60	.109	12	16	12	66	98	4:1	200	

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Sloped ends will be fabricated from galvanized steel and will conform to the requirements of the Specifications.

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

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

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

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

Installation will be performed in accordance with the Specifications.

Cost of all work and materials required for fabrication and installation of sloped ends will be incidental to the bid items for the various sizes of sloped ends.

August 31, 2022

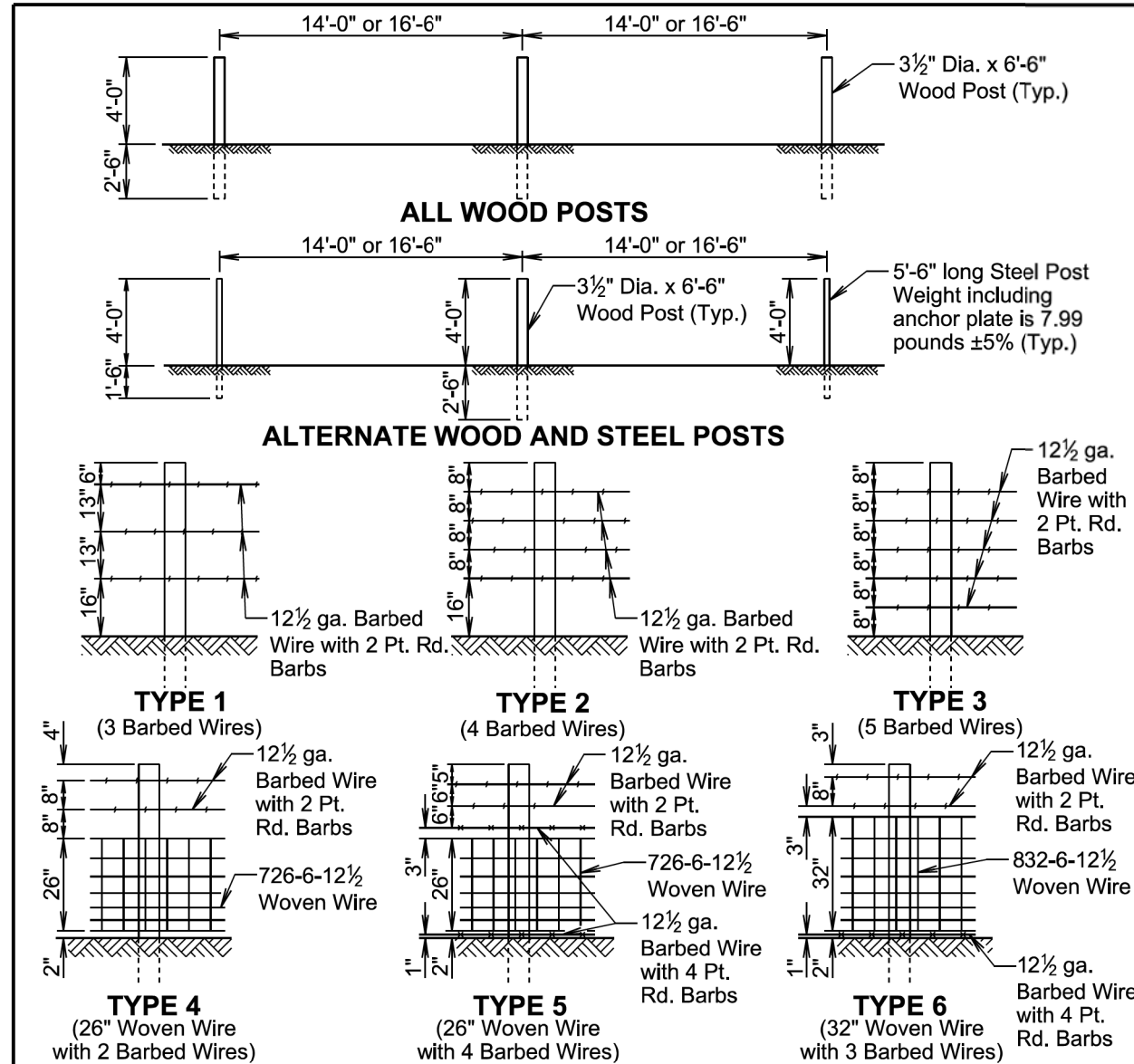
Published Date: 2024	S D D O T	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 1 of 2

Published Date: 2024	S D D O T	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 2 of 2

Plot Scale - 1:200

Plotted From - R:sdmmeier

File - ...1063XN_SloPlates.dgn



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

GENERAL NOTES:

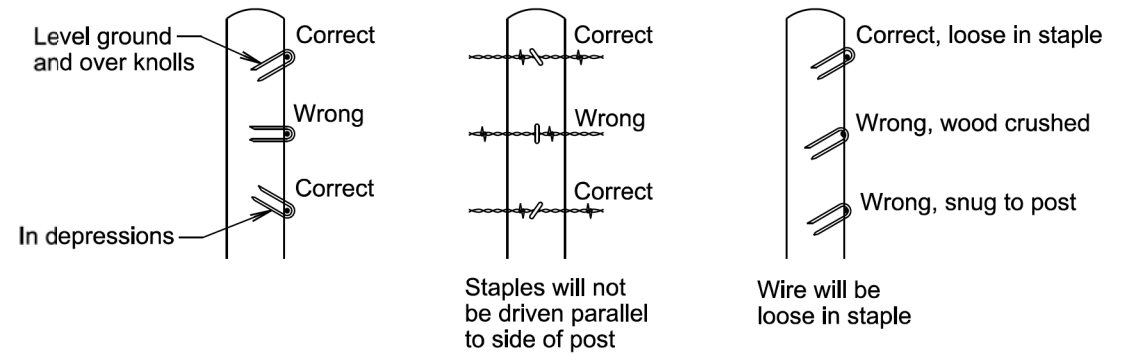
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

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

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

June 26, 2019

Published Date: 2024	S D D O T	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01
			Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

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

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

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

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

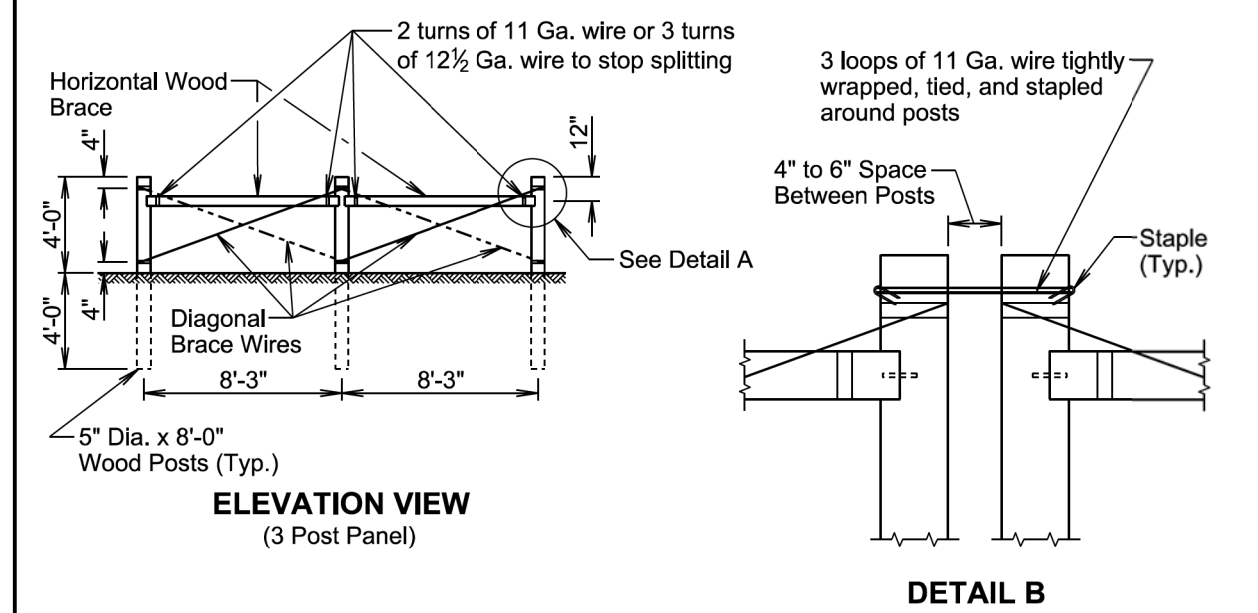
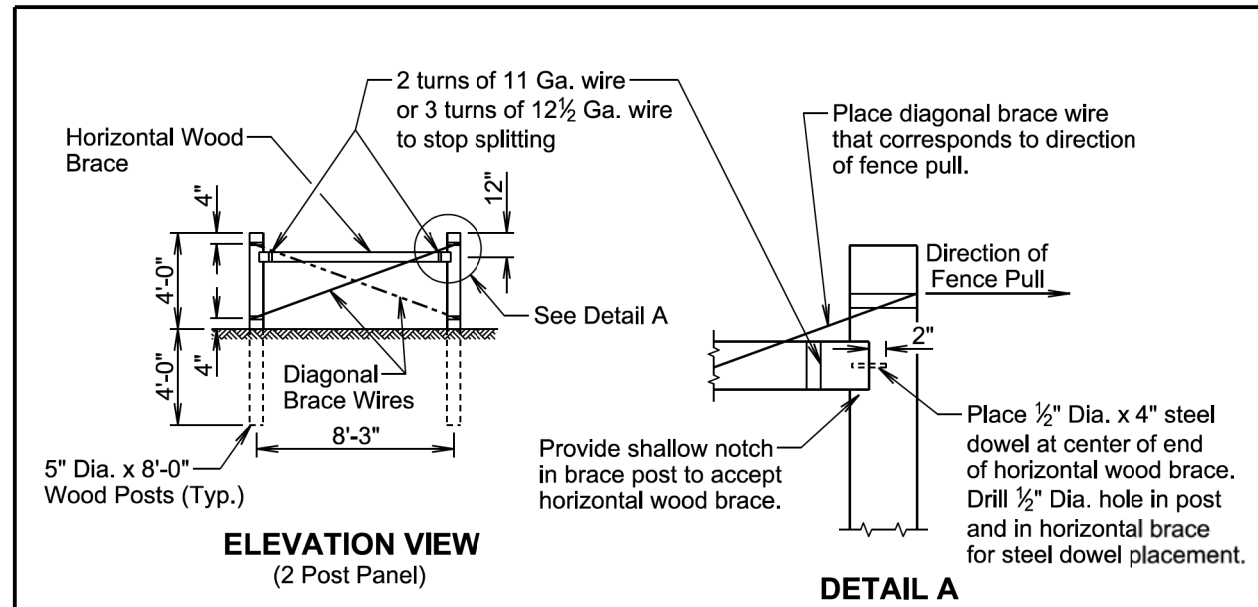
The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

Published Date: 2024	S D D O T	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - R Sudmeier

File - ...1063XN_StdPlates.dgn



GENERAL NOTES:

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

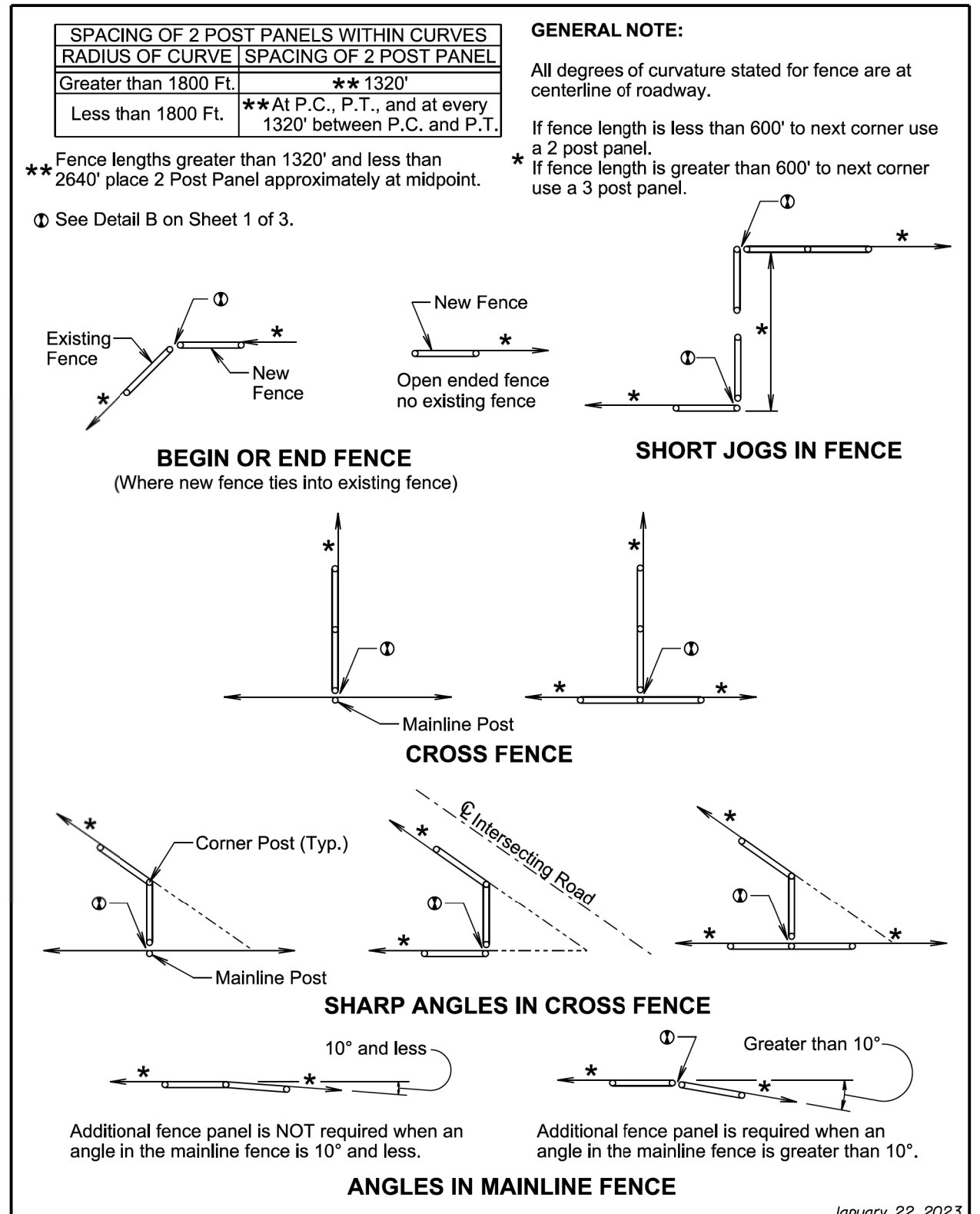
Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

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

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

January 22, 2023

Published Date: 2024	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3



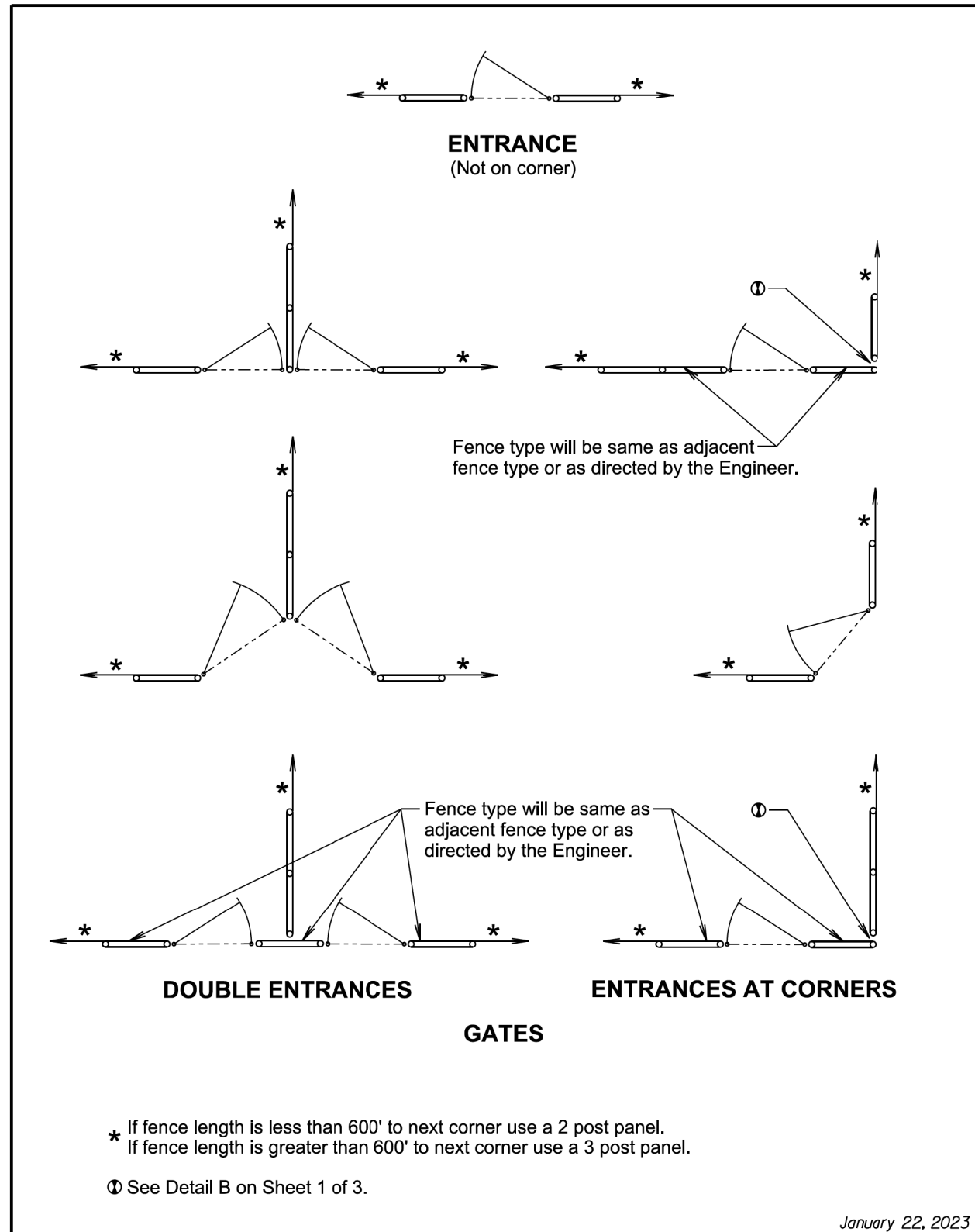
January 22, 2023

Published Date: 2024	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3

Plot Scale - 1:200

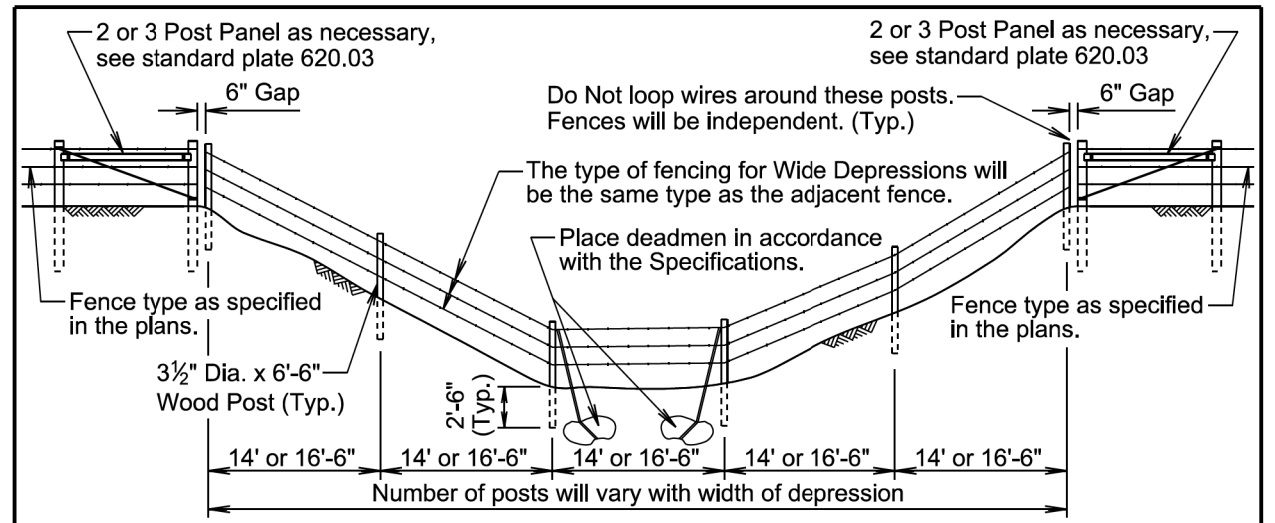
Plotted From - R Sudmeier

File - ...1063XN_StdPlates.dgn



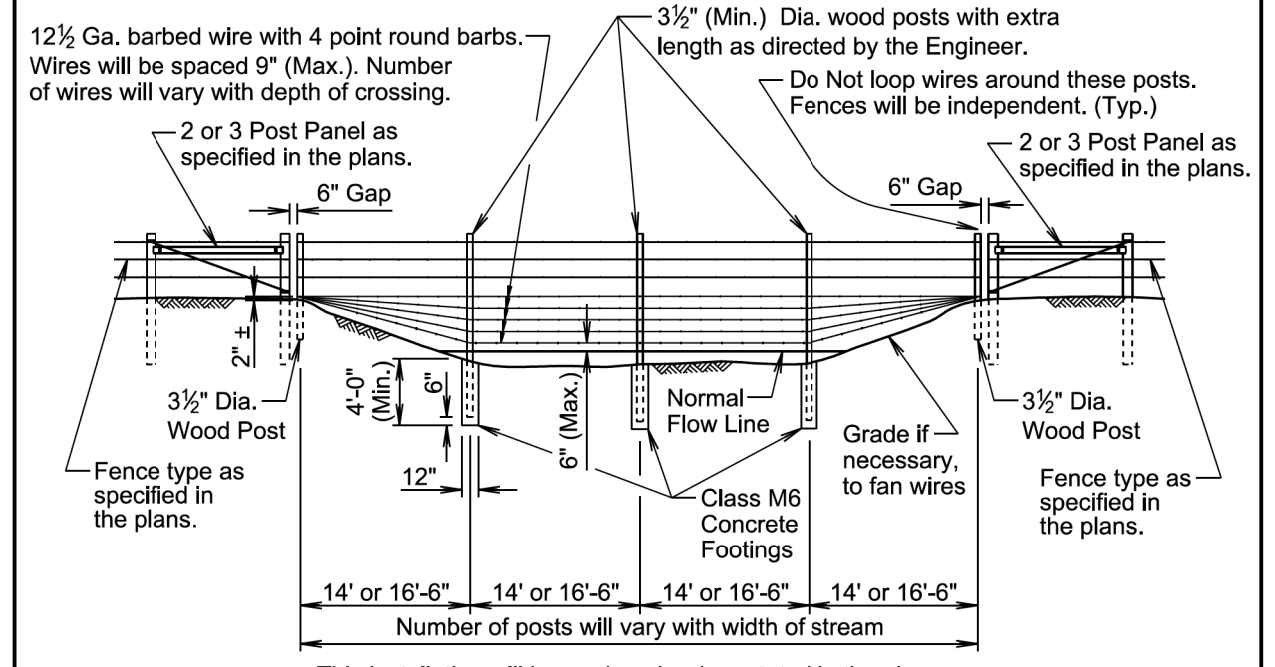
January 22, 2023

Published Date: 2024	S D D O T	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 3 of 3



This installation will be made when requested by the Engineer.

FENCING AT WIDE DEPRESSION
(Subject to Flooding)



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

FENCING AT STREAM CROSSING

GENERAL NOTES:

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

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

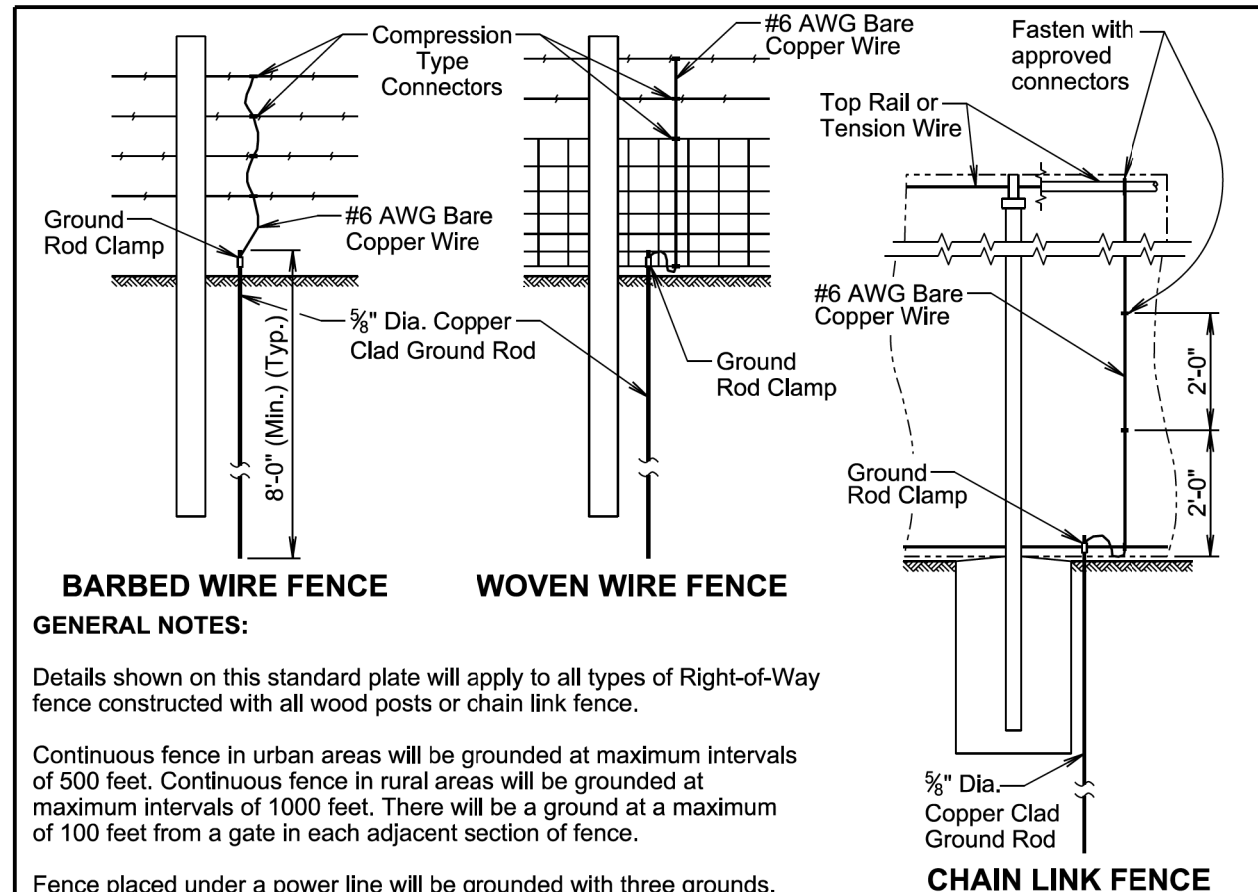
June 26, 2019

Published Date: 2024	S D D O T	FENCING AT WIDE DEPRESSION(S) AND STREAM CROSSING(S)	PLATE NUMBER 620.10
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - R Sudmeier

File - ...1063XN_StdPlates.dgn



BARBED WIRE FENCE

WOVEN WIRE FENCE

CHAIN LINK FENCE

GENERAL NOTES:

Details shown on this standard plate will apply to all types of Right-of-Way fence constructed with all wood posts or chain link fence.

Continuous fence in urban areas will be grounded at maximum intervals of 500 feet. Continuous fence in rural areas will be grounded at maximum intervals of 1000 feet. There will be a ground at a maximum of 100 feet from a gate in each adjacent section of fence.

Fence placed under a power line will be grounded with three grounds. One ground will be placed directly below the crossing and the other two will be placed 25 feet to 50 feet away, one on each side.

One ground will be placed directly below each telephone or cable crossing.

Ground rods will be located on the post side of the fence and will be as close as possible to the post and fence.

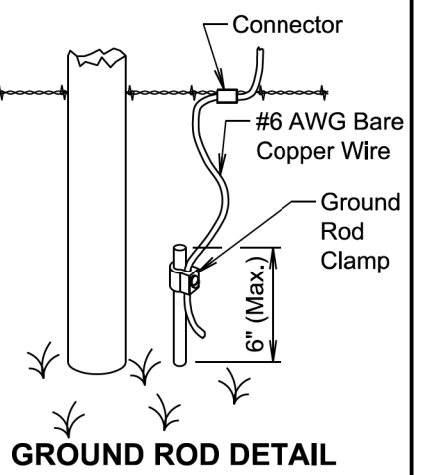
The cost of furnishing and placing all materials for grounding will be incidental to the contract unit price per foot for the respective Right-of-Way fence or chain link fence contract item.

The approximate quantities of materials per each installation of a ground are:

- 1 ground rod clamp.
- 1 5/8" diameter x 8' long copper clad ground rod
- 1 #6 AWG bare copper wire; 7' long for Right-of-Way fence or 10' long for chain link fence.

Compression type or other type of connectors:

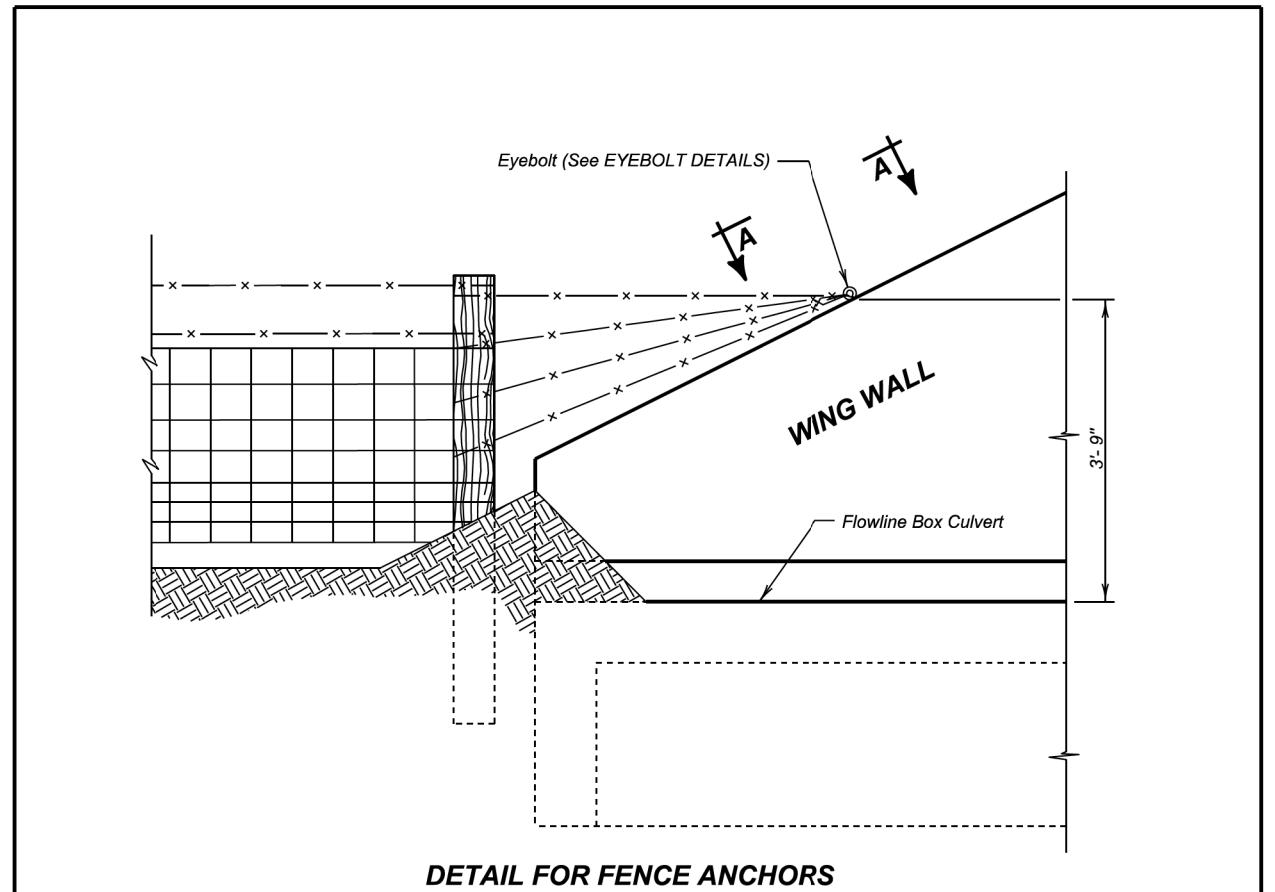
- 26" woven wire will have a total of two connectors, one secured to the top and one secured to the bottom.
- 32" woven wire will have a total of three connectors, one secured to the top, one secured to the middle, and one secured to the bottom.
- One connector will be used for each strand of barbed wire.
- A minimum of 3 connectors will be installed on chain link fence, the connectors will be placed vertically at every 2-foot increment and connectors will be placed on the top and bottom tension wires or top rail.



GROUND ROD DETAIL

June 26, 2019

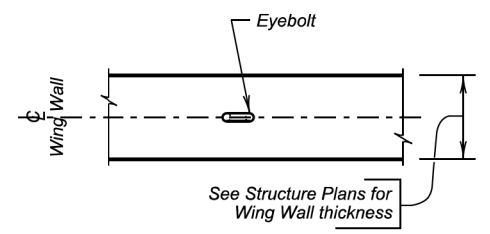
Published Date: 2024	S D D O T	FENCE GROUNDING	PLATE NUMBER 620.11
			Sheet 1 of 1



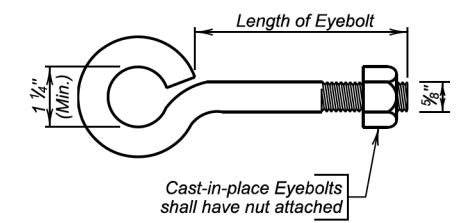
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the box culvert wing walls.
3. Eyebolts shall be 5/8 inch diameter and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
5. Cast-in-place eyebolts shall have a nut attached, be 4 1/2 inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the 5/8 inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



VIEW A - A



EYEBOLT DETAILS

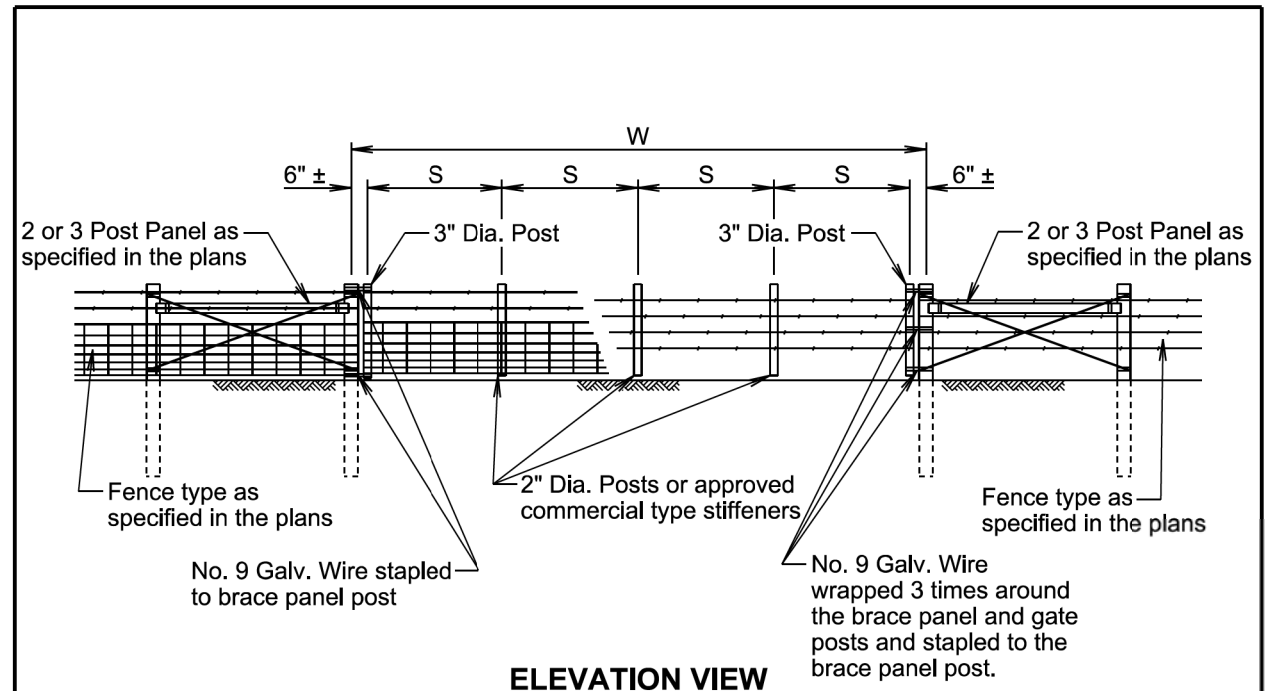
December 23, 2012

Published Date: 2024	S D D O T	FENCE ANCHORS FOR BOX CULVERT WING WALLS	PLATE NUMBER 620.16
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - R Sudmeier

File - ...1063XN_StdPlates.dgn



W Gate Width (Ft.)	S Post Spacing
16	3 @ 5'-0" ±
20	4 @ 4'-9" ±
24	4 @ 5'-9" ±
30	5 @ 5'-10" ±
40	6 @ 6'-6" ±

GENERAL NOTES:

Creosote treatment of the gate posts will not be accepted.

The type of fencing in the gate will be of the same type as specified for the adjacent Right-of-Way fence.

All costs for furnishing and constructing the wire gate(s) will be incidental to the contract unit price per foot for the respective Right-of-Way fence contract item.

June 26, 2019

Published Date: 2024	S D D O T	WIRE GATES	PLATE NUMBER 620.20
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - R Sudmeier

File - ...106XN_SidPlates.dgn