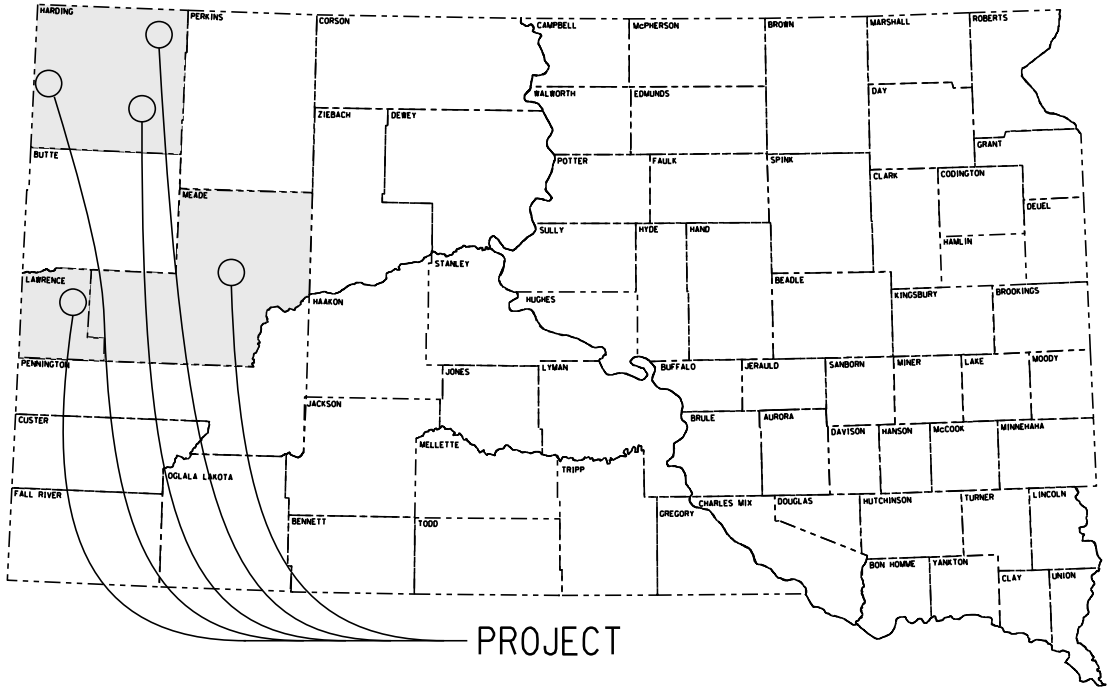


PLOT SCALE - 1:200

PLOTTED FROM - TRRC11951



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
**PROJECTS 000P-471, 000N-471
& 000N-472**
SD HIGHWAYS 20, 34, & 79
**HARDING, LAWRENCE,
& MEADE COUNTIES**

SNOW FENCE REPAIR
PCNS i5a4, i5a5, & i5a6

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-471, 000N-471 & 000N-472		
		1	8

Plotting Date: 05/15/2018

000P-471, PCN i5a4

① SD34, MRM 24.5 to MRM 25.3

000N-471, i5a5

② SD20, MRM 0.0 to MRM 0.1

SD20, MRM 1.6 to MRM 1.7

SD20, MRM 1.9 to MRM 2.2

③ SD79, MRM 179.2 to MRM 179.3

SD79, MRM 179.8 to MRM 180.0

SD79, MRM 180.8 to MRM 180.9

SD79, MRM 180.9 to MRM 181.1

SD79, MRM 192.6 to MRM 192.7

SD79, MRM 193.4 to MRM 193.6

SD79, MRM 196.2 to MRM 196.3

000N-472, i5a6

④ SD34, MRM 86.7 to MRM 87.1

SD34, MRM 91.8 to MRM 92.3

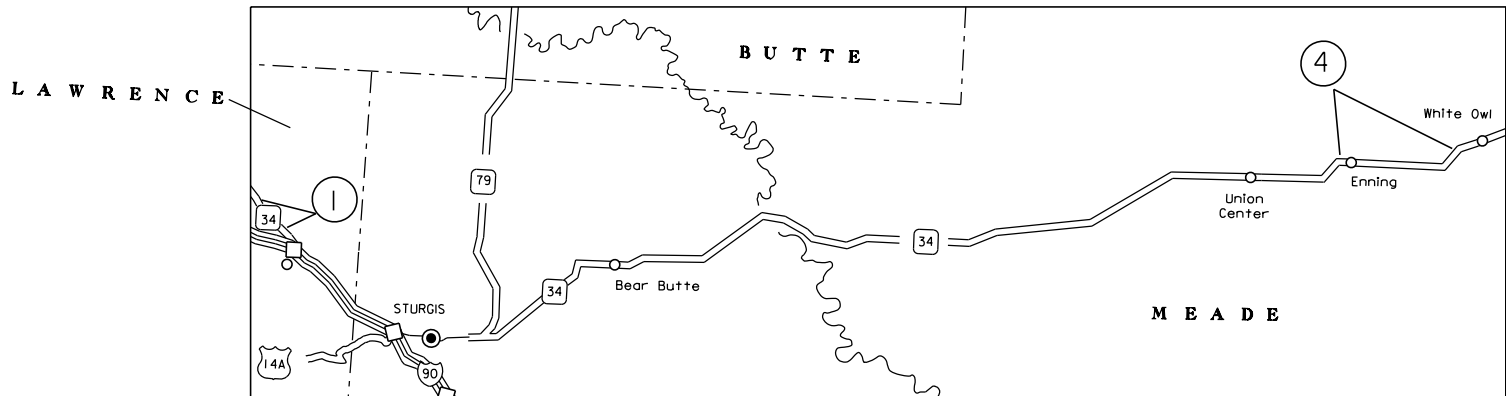
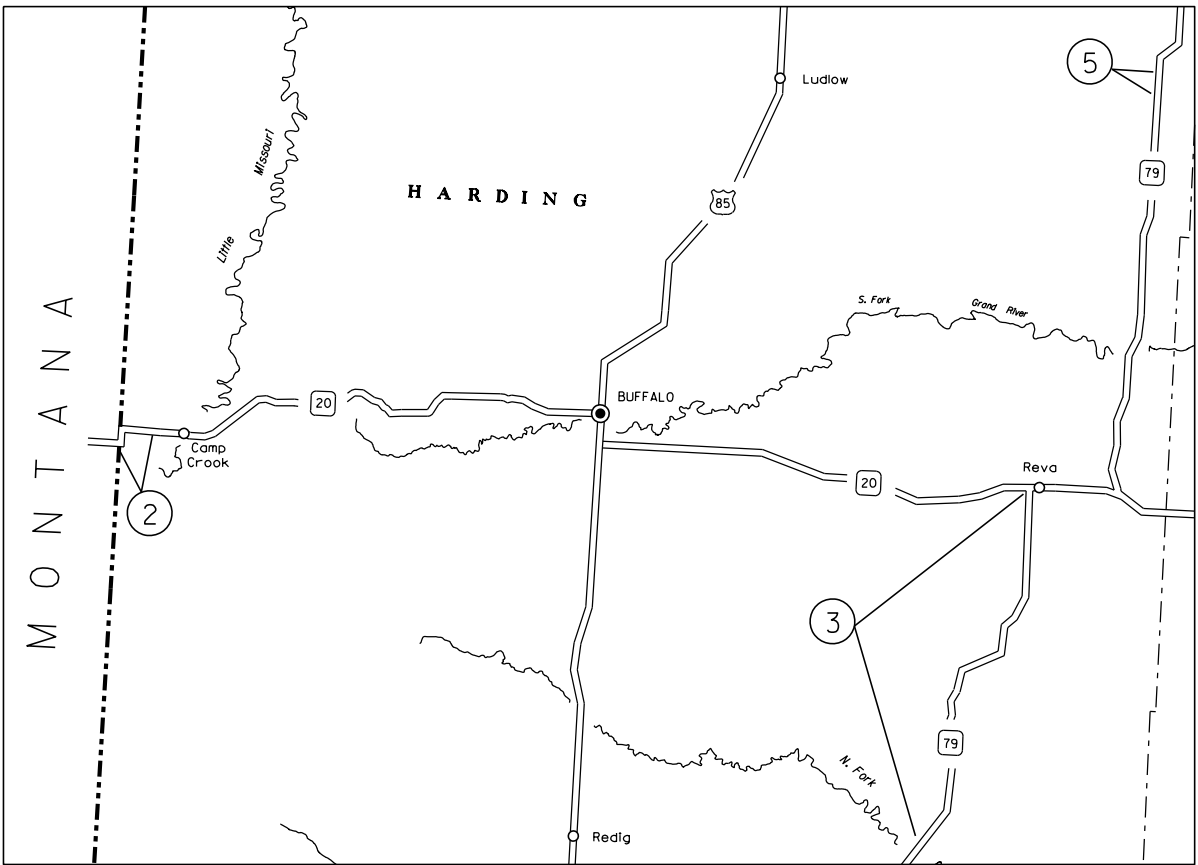
⑤ SD79, MRM 224.2 to MRM 224.5

INDEX OF SHEETS

Sheets 1: Title Sheet

Sheet 2-4: Estimate of Quantities & Plan Notes

Sheets 5-8: Snow Fence Installation Details



Storm Water Permit
No Permit Required

PLOT NAME - 1

FILE - ...\\1544_TITLE.DGN

ESTIMATE OF QUANTITIES (PCN i5a4)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
900E1116	1"x6" Snow Fence Board	2,960.0	Ft
900E1126	2"x6" Snow Fence Board	21.0	Ft
900E1128	2"x8" Snow Fence Board	7.0	Ft

ESTIMATE OF QUANTITIES (PCN i5a5)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
900E1116	1"x6" Snow Fence Board	17,072.0	Ft
900E1126	2"x6" Snow Fence Board	660.0	Ft
900E1128	2"x8" Snow Fence Board	312.0	Ft

ESTIMATE OF QUANTITIES (PCN i5a6)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
250E0010	Incidental Work	Lump Sum	LS
900E1116	1"x6" Snow Fence Board	3,712.0	Ft
900E1126	2"x6" Snow Fence Board	4.0	Ft
900E1128	2"x8" Snow Fence Board	312.0	Ft

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Section A Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified 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.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <http://www.sddot.com/resources/Manuals/EnvironProcManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Office at 605-773-3098 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

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 pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-471, 000N-471 & 000N-472	2	8

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

The waste disposal site(s) will 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 Environmental Office and the Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with 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) will be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

State Historical Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. 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 if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view of 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 will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. 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.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

INCIDENTAL WORK

All snow fence bolts shall be checked and tightened as needed.

Prior to slat replacement, cross braces shall be removed and the vertical supports reset perpendicular to the ground. Add cross braces as needed to help keep the fence perpendicular to the ground.

All existing slats shall be re-nailed to the vertical supports to prevent future loss of slats.

The snow fence along SD20, MRM 0.0 to 0.1 and MRM 1.6 to 1.7 as shown in the table of quantities shall be removed. The Contractor has the option to use this material to repair fence at other locations along the project or furnish new boards to make the repairs. All removed fence shall become the property of the Contractor and removed from the project.

All costs associated with this work shall be incidental to the contract lump sum price for “Incidental Work”

SNOW FENCE REPAIR

Snow fence repair quantities and locations are provided in table shown in these plans. The 8’ or 14’ Wood Snow Fence detail sheets are provided for information only and have the necessary information to repair the fence. The Contractor may use removed wood to make repairs. There is not enough removed wood on the project to make all repairs, so the Contractor will be required to furnish new wood.

Access to the snow fence sites shall be made thru existing field entrance gates or by temporarily removing and resetting the right of way fence. The Contractor shall keep livestock out of the highway right-of-way. Upon completion of the work, the Contractor shall restore the fence to the original condition. This work shall be incidental to the contract unit price bid per foot for snow fence.

The Contractor shall not damage the existing ground and minimize damage to the existing vegetation. Work will not be allowed when the ground is wet and unstable.

The SDDOT Area Office will obtain the permission from the private landowners prior to starting the work. Landowners shall be contacted prior to beginning snow fence repairs, so they know repairs are being made to the snow fence. The Contractor shall provide the State a 2 week notice prior to beginning work.

The State will mark out locations for repair prior to construction. Inspection reports are available at the Rapid City Region design office for helping mark locations.

The 14’ wood snow fence has been modified in some locations with the removal of the top 2 slats. The top 2 slats will not require replacement.

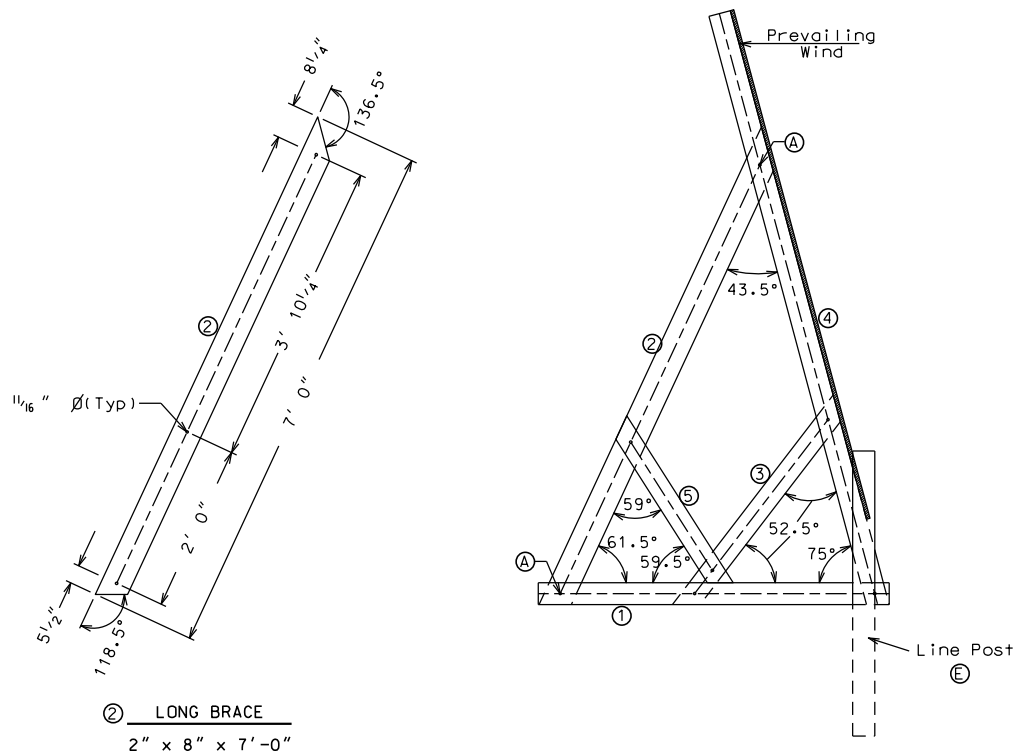
SUMMARY OF SNOW FENCE REPAIR QUANTITIES

Hwy	MRM to	MRM	Fence Height	Total Length of Fence	2"x 6"	2"x 8"	1"x 6"
			(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)
000P-471, PCN i5a4							
SD34	24.5	25.3	8	2414	21	7	2960
000N-471, PCN i5a5							
SD20	1.9	2.2	14	1268	30.5	12	2016
SD79	179.2	179.3	14	486	8	0	992
SD79	179.8	180	14	344	0	0	608
SD79	180.8	180.9	14	948	288.5	156	2848
SD79	180.9	181.1	14	760	18	36	848
SD79	192.6	192.7	14	952	91.5	36	3968
SD79	193.4	193.6	14	998	209.5	72	3488
SD79	196.2	196.3	14	525	14	0	2304
					660	312	17072
000N-472, PCN i5a6							
SD34	86.7	87.1	8	2144	4	0	1776
SD34	91.8	92.3	8	2036	0	0	544
SD79	224.2	224.5	14	1478	0	0	1392
					4	0	3712
Snow Fence Removal (Incidental Work)							
000N-471, PCN i5a5							
SD20	0.0	0.1	14	309	1098	432	1408
SD20	1.6	1.7	14	405	2013	792	2496
					3111	1224	3904

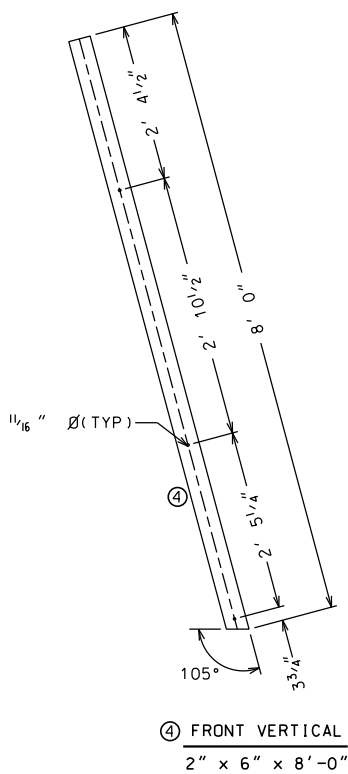
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-471, 000N-471 & 000N-472	5	8

Plotting Date: 05/14/2018

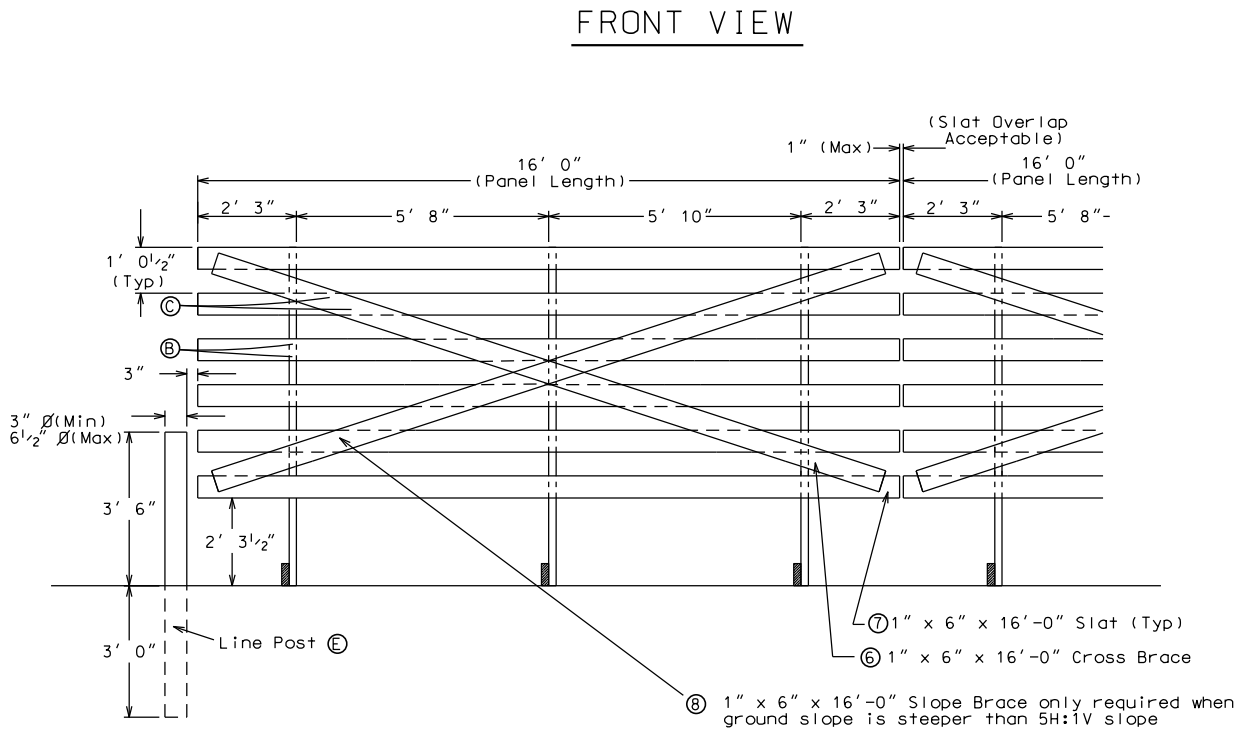
8' WOOD
SNOW FENCE



END VIEW



FRONT VERTICAL
2" x 6" x 8'-0"



NOTES

A FRAME CONNECTIONS

Sill and Frame Assembly Connections shall be made with 1 5/8" Ø machine bolt with nylon insert locknut. Bolt length shall be 6" with Anchor Angles. All other bolts shall be 5" long.

B SLAT FASTENING

Slats shall be attached to the front vertical frame with 2-10D ring shank or screw shank nails. The use of nailing guns is acceptable.

C CROSS BRACE FASTENING

Cross Brace shall be fastened to each slat with 2/8D common nails and shall be clinched. Slope Brace shall be fastened the same. Install Slope Brace when ground slope is steeper than 5H:1V.

D ANCHORS

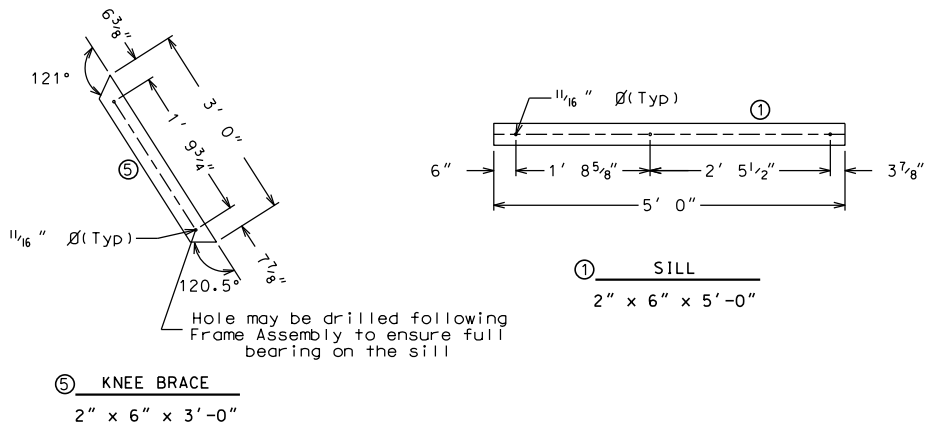
The ends of each sill shall be anchored with a driven #6 rebar clamped to the sill with the anchor angle as shown.

E LINE POSTS

Line Posts (6' 6" long) shall be placed at the ends of each line of Snow Fence as shown.

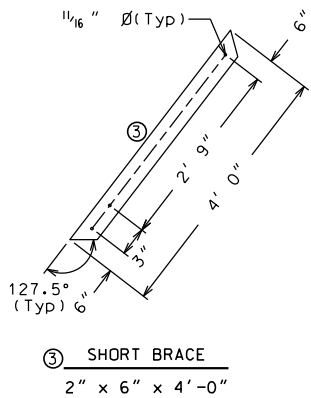
F HOLE LOCATIONS

All hole locations shown on this diagram are to be verified by the Contractor for correctness. It will be the Contractor's responsibility to make adjustments needed for assembly.



KNEE BRACE
2" x 6" x 3'-0"

SILL
2" x 6" x 5'-0"



SHORT BRACE
2" x 6" x 4'-0"

8' WOOD SNOW FENCE

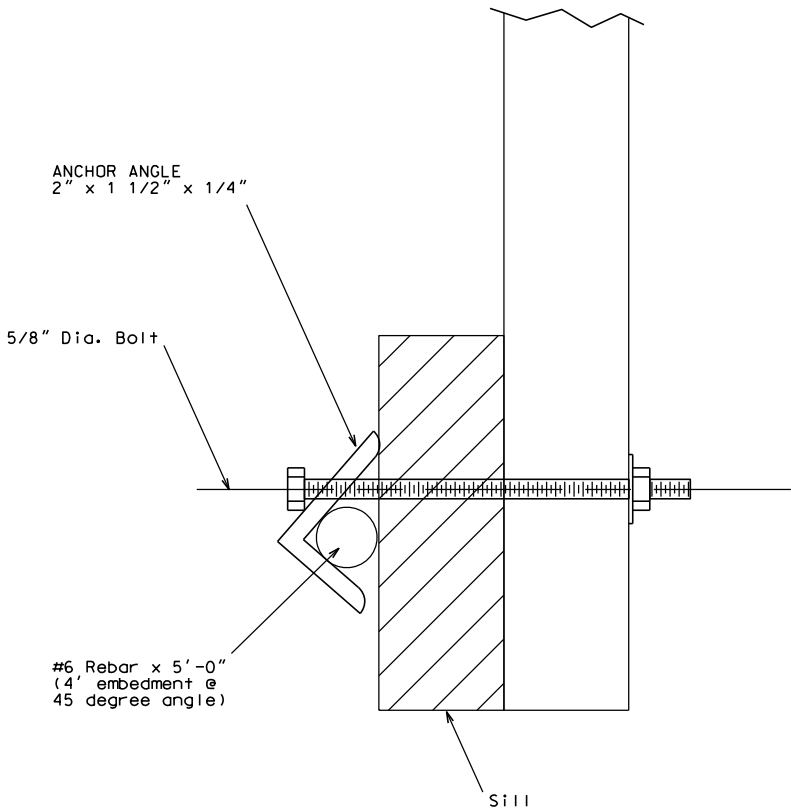
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-471, 000N-471 & 000N-472	6	8

Plotting Date: 05/14/2018

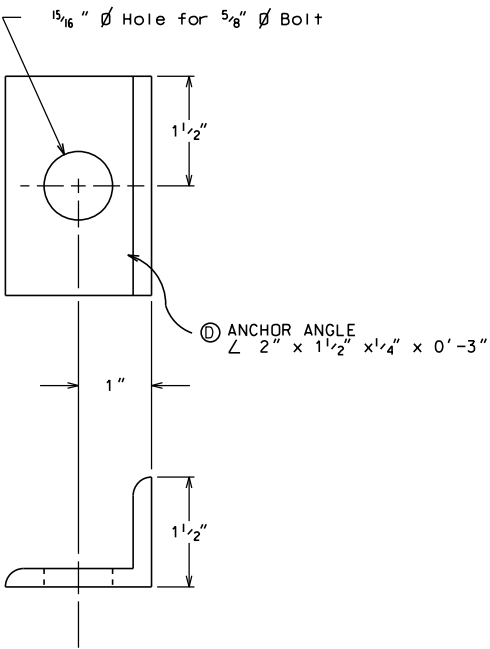
HARDWARE FOR ONE 16 FOOT PANEL		
NOTE	QUANTITY	DESCRIPTION
Ⓐ	6	5/8" Ø x 6" machine bolt w/1 flat washer and 1 nylon insert locknut
Ⓐ	15	5/8" Ø x 5" machine bolt w/2 flat washers and 1 nylon insert locknut
Ⓑ	1 lb.	10D (3") ring shank or screw shank nails
Ⓒ	1/2 lb.	8D (2.5") common nails
Ⓓ	6	∠ 2" x 1 1/2" x 1/4" x 0'-3" anchor angle
Ⓔ	6	#6 x 5'-0" rebar

NOTE: All machine bolts used to anchor the fence to the rebar shall be continuously threaded to allow for tightening at a future date

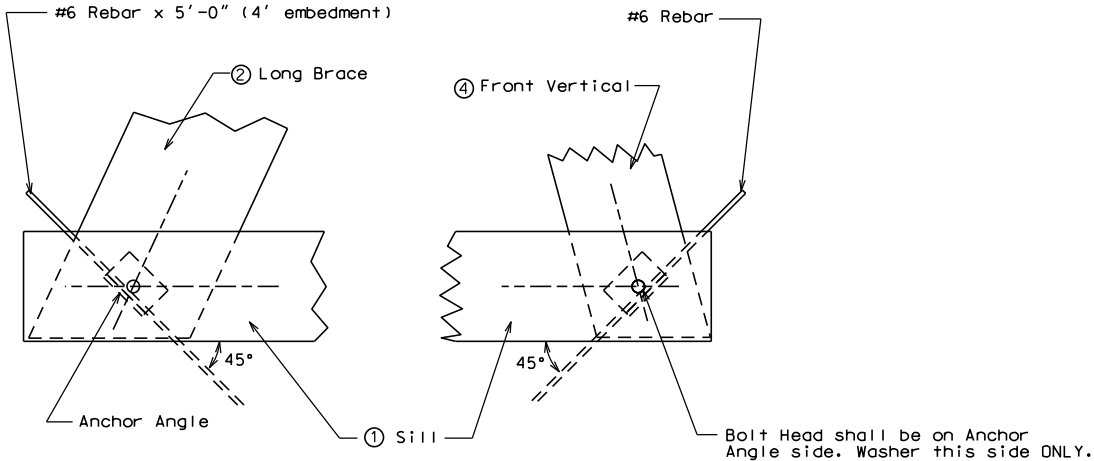
LUMBER FOR ONE 16 FOOT PANEL			
NOTE	QUANTITY	SIZE	DESCRIPTION
①	3	2" x 6" x 5'-0"	SILL
②	3	2" x 8" x 7'-0"	LONG BRACE
③	3	2" x 6" x 4'-0"	SHORT BRACE
④	3	2" x 6" x 8'-0"	FRONT VERTICAL
⑤	3	2" x 6" x 4'-0"	KNEE BRACE
NOTE: All above frame members shall be pressure treated in accordance with Section 950 of the Standard Specifications and shall meet applicable AWPA Standards.			
⑥	1	1" x 6" x 16'-0"	CROSS BRACE
⑦	6	1" x 6" x 16'-0"	SLAT
⑧	1	1" x 6" x 16'-0"	SLOPE BRACE



Ⓓ ANCHOR DETAIL



Ⓔ ANCHOR ANGLE



Ⓓ ANCHOR DETAIL

Plot Scale - 1:4200

Plotted From - trc11951

14' WOOD
SNOW FENCE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-471, 000N-471 & 000N-472	8	8

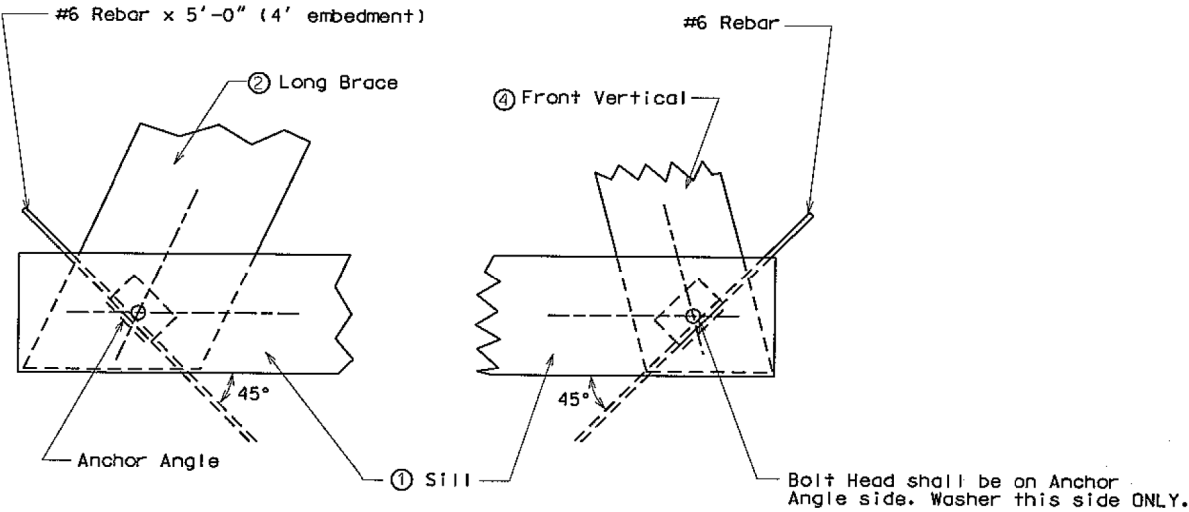
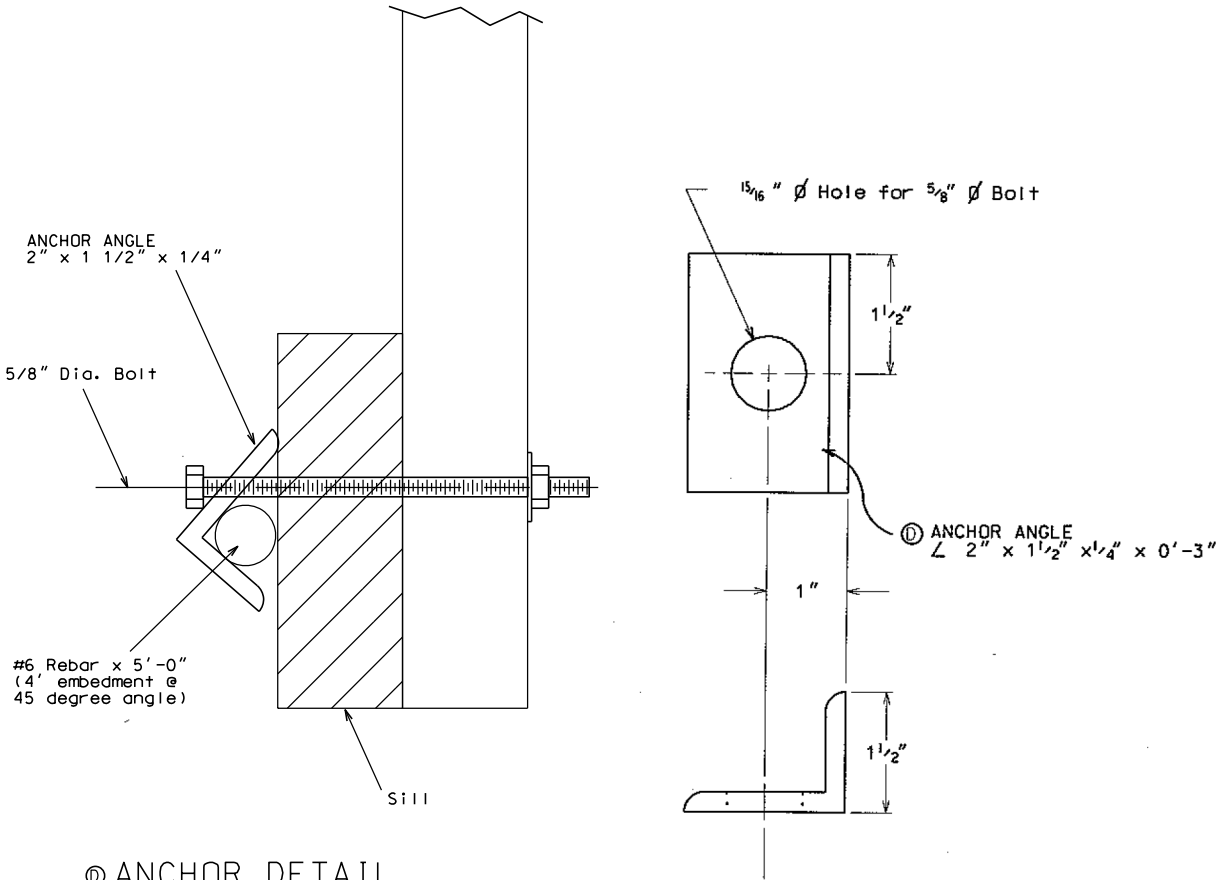
Plotting Date: 05/14/2018

HARDWARE FOR ONE 16 FOOT PANEL		
NOTE	QUANTITY	DESCRIPTION
Ⓐ	6	5/8" Ø x 6" machine bolt w/1 flat washer and 1 nylon insert locknut
Ⓐ	15	5/8" Ø x 5" machine bolt w/2 flat washers and 1 nylon insert locknut
Ⓑ	1 lb.	10D ring shank or screw shank nails
Ⓒ	* 1/4 lb.	8D common nails
Ⓓ	6	∠ 2" x 1 1/2" x 1/4" x 0'-3" anchor angle
Ⓔ	6	#6 x 5'-0" rebar

* 1/2 lb. if Slope Brace is used

LUMBER FOR ONE 16 FOOT PANEL			
NOTE	QUANTITY	SIZE	DESCRIPTION
①	3	2" x 6" x 8'-0"	SILL
②	3	2" x 8" x 12'-0"	LONG BRACE
③	3	2" x 6" x 6'-0"	SHORT BRACE
④	3	2" x 6" x 14'-0"	FRONT VERTICAL
⑤	3	2" x 6" x 4'-6"	KNEE BRACE
Note: All above Frame Members shall be pressure treated			
⑥	1	1" x 6" x 16'-0"	CROSS BRACE
⑦	12	1" x 6" x 16'-0"	SLAT
⑧	1	1" x 6" x 16'-0"	SLOPE BRACE

NOTE: Slope Brace ⑧ shall be used only when ground slope is 5:1 or steeper



Ⓐ ANCHOR DETAIL