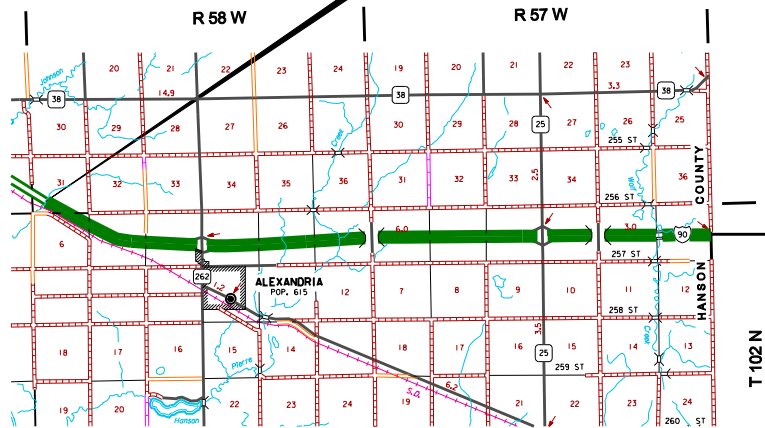


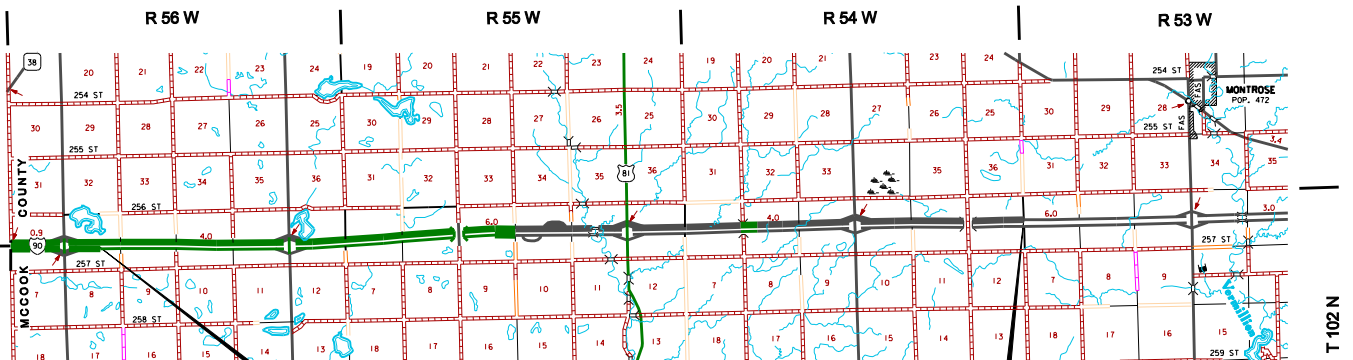
**000I-252**  
**HANSON & McCOOK COUNTIES**  
**FENCE REPLACEMENT**  
**EB LENGTH: 18.139 MILES**  
**WB LENGTH: 29.314 MILES**  
**PCN I2J3**



**BEGIN PROJECT (EB & WB)**  
 MRM 340.00 +0.000  
 EB MILEAGE 340.524  
 WB MILEAGE 341.194



IDENTICAL POINTS



**DESIGN DESIGNATION**

ADT(2011)	10432
ADT(2030)	12050
DHV	1374
D	51%
T DHV	11.0%
T ADT	24.3%
V	75 MPH

**END PROJECT (EB)**  
 MRM 358.00 +0.156  
 EB MILEAGE 358.663

**END PROJECT (WB)**  
 MRM 371.00 +0.000  
 WB MILEAGE 370.508

**STORM WATER PERMIT**  
 (None required)

**0001-252  
HANSON & MCCOOK COUNTIES**

**INDEX OF SHEETS**

Sheet 1	Layout Map
Sheet 2	Index of Sheets
Sheet 3	Estimate of Quantities
Sheets 4 – 6	Table of Fence Quantities
Sheets 7 – 9	Plan Notes
Sheet 10	Traffic Control
Sheets 11 & 12	Details for Right-of-Way Fence
Sheets 13 – 20	Standard Plates

**0001-252  
HANSON & MCCOOK COUNTIES**

**ESTIMATE OF QUANTITIES**

<b>Bid Item Number</b>	<b>Item</b>	<b>Quantity</b>	<b>Unit</b>
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	78,307	Ft
620E0030	Type 3 Right-of-Way Fence	57,874	Ft
620E0230	Modified Type 3 Right-of-Way Fence	7,291	Ft
620E0260	Modified Type 6 Right-of-Way Fence	13,142	Ft
620E1020	2 Post Panel	133	Each
620E1030	3 Post Panel	97	Each
620E1110	Wood Fence Post	525	Each
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

**0001-252  
HANSON & MCCOOK COUNTIES**

**TABLE OF FENCING QUANTITIES**

LANE	INTERSTATE 90 MRM to MRM	REMOVE FENCE FT	TYPE 3 R/W FENCE FT	MOD. TYPE 3 R/W FENCE FT	MOD. TYPE 6 R/W FENCE FT	2 POST PANEL EACH	3 POST PANEL EACH	WIRE GATE EACH NABI*	WOOD FENCE POST EACH	NOTES
EB	340.524 to 340.637	597	597			2	2			
EB	340.637 to 340.688	269		269		1	1		20	
EB	340.688 to 341.075	2043	2043			2	2	1		
EB	341.075 to 341.100	132		132					10	
EB	341.100 to 341.978	4636	4636			9	2			
EB	341.978 to 341.978	200	200					1		Tie into bridge & median
EB	341.980 to 341.980	200	200			2		1		Tie into bridge & median
EB	343.819 to 343.959	739			739	1	3			
EB	343.959 to 344.038	417	417			1				
EB	344.038 to TD	665	665			2				TD is at Shell gas station entrance
EB	TD to 344.073	705	705			1	1			
EB	344.073 to 344.781	3738	3738			3	3			
EB	344.781 to 344.855	391			391	1				
EB	344.855 to 344.855	100			100	2				Tie into box culvert
EB	344.863 to 344.863	100			100	2				Tie into box culvert
EB	345.085 to 345.463	1996	1996			3				
EB	349.740 to 349.887	776	776			1	1			
EB	349.887 to 349.985	517		517		3			37	
EB	349.985 to 350.132	776	776			1	1			
EB	350.132 to TD	670	670			1	2			TD is at first approach
EB	TD to 350.167	670			670	5				TD is at first approach
EB	351.554 to 351.675	639	639			1				
EB	354.006 to TD	315	315			1				TD is at first brace
EB	354.995 to 355.086	480	480			2	1	1		
EB	355.086 to 355.132	243		243			1		18	
EB	355.132 to 355.878	3939	3939			6	1			
EB	358.478 to 358.538	317			317	1	2			
EB	358.538 to 358.663	660	660				1			
<b>I90 EBL TOTALS:</b>		<b>26930</b>	<b>23452</b>	<b>1161</b>	<b>2317</b>	<b>54</b>	<b>24</b>	<b>4</b>	<b>85</b>	

\* NABI = Not a Bid Item

TD = Touch Down Point

All Wire Gates Must be At Least 18' Wide

**0001-252  
HANSON & MCCOOK COUNTIES**

**TABLE OF FENCING QUANTITIES**

LANE	INTERSTATE 90 MRM to MRM	REMOVE FENCE FT	TYPE 3 R/W FENCE FT	MOD. TYPE 3 R/W FENCE FT	MOD. TYPE 6 R/W FENCE FT	2 POST PANEL EACH	3 POST PANEL EACH	WIRE GATE EACH NABI*	WOOD FENCE POST EACH	NOTES
WB	370.508 to 370.040	2471		2471		2	3		177	
WB	370.040 to 370.040	140	140				1			Tie into bridge
WB	370.030 to 370.030	140	140			1				Tie into bridge
WB	369.957 to 369.890	354		354		1			26	
WB	369.080 to 369.035	238		238		2			17	
WB	368.010 to 367.260	3960	3960			5	4			
WB	366.778 to 366.545	1230	1230			1	2			
WB	366.545 to 366.447	517			517		1			
WB	365.540 to 365.312	1204	1204			4	2			
WB	364.011 to 364.008	16	16			1	1			Start at and replace the 3- post brace
WB	364.008 to TD	560	560			2				
WB	TD to 363.958	500	500			1	2			
WB	363.958 to 363.856	539	539			1	2			
WB	363.855 to 363.688	882			882		1			
WB	362.110 to 361.943	882		882			4		63	Go around waterway & merge into east brace post
WB	359.805 to 359.557	1309		1309		1	3		94	Go around waterway
WB	353.462 to 353.036	2249	2249			3	2	1		
WB	353.036 to 352.866	898			898	1	1			
WB	352.866 to 352.590	1457	1457			4	1			
WB	352.480 to 352.140	1795			1795	4	2			
WB	352.140 to 352.140	140			140	2				Tie into bridge
WB	352.100 to 352.100	140			140	1	1			Tie into bridge
WB	352.100 to 352.050	264			264	1	1			
WB	351.890 to 351.783	565			565	1	1			
WB	351.160 to 351.060	528	528			2	2	1		Tie into bridge
WB	351.060 to 350.520	2851	2851			4	4	1		Tie into bridge
WB	TD to 349.985	420	420			1	1			Tie into first brace post
WB	349.985 to 349.895	475	475			1				
WB	349.650 to 349.452	1045	1045			2		1		
WB	349.520 to 349.520	300	300			1	4			150ft on each side of cattle pass
WB	349.452 to 349.000	2387	2387			3	4			
WB	348.890 to 348.562	1732	1732			1	1			
WB	348.170 to 347.719	2381			2381	2	2			
WB	347.545 to 347.040	2666	2666			7		1		Tie into bridge
WB	346.282 to 346.110	908			908	1	1			
WB	346.110 to 346.015	502	502			1		1		
WB	344.896 to 344.790	560			560		1			
WB	344.790 to 344.790	260			260		4			130ft on each side of cattle pass
WB	344.790 to 344.503	1515			1515	2				
WB	344.503 to 343.995	2682	2682			2	2			

\* NABI = Not a Bid Item

TD = Touch Down Point

All Wire Gates Must be At Least 18' Wide

**000I-252  
HANSON & MCCOOK COUNTIES**

**TABLE OF FENCING QUANTITIES**

LANE	INTERSTATE 90 MRM to MRM	REMOVE FENCE FT	TYPE 3 R/W FENCE FT	MOD. TYPE 3 R/W FENCE FT	MOD. TYPE 6 R/W FENCE FT	2 POST PANEL EACH	3 POST PANEL EACH	WIRE GATE EACH NABI*	WOOD FENCE POST EACH	NOTES
WB	TD to 343.962	140	140			2				
WB	343.005 to 342.482	2761	2761			2	3			
WB	342.482 to 342.316	876		876			5		63	If dry put back in place.
WB	342.316 to 341.980	1774	1774			3	1	1		
WB	341.980 to 341.980	200	200			1	1	1		Tie into bridge
WB	341.970 to 341.970	200	200				1	1		Tie into bridge
WB	341.528 to 341.194	1764	1764			2	1			
<b>I90 WBL TOTALS:</b>		<b>51377</b>	<b>34422</b>	<b>6130</b>	<b>10825</b>	<b>79</b>	<b>73</b>	<b>9</b>	<b>440</b>	
<b>TOTALS:</b>		<b>78307</b>	<b>57874</b>	<b>7291</b>	<b>13142</b>	<b>133</b>	<b>97</b>	<b>13</b>	<b>525</b>	

\* NABI = Not a Bid Item

TD = Touch Down Point

All Wire Gates Must be At Least 18' Wide

**0001-252  
HANSON & MCCOOK COUNTIES**

**SPECIFICATIONS**

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

**UTILITIES**

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

**HISTORICAL PRESERVATION OFFICE CLEARANCES**

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC 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 no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.

To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

**WASTE DISPOSAL SITE**

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

Construction/demolition debris may not be disposed of within the State ROW.

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

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

**0001-252  
HANSON & MCCOOK COUNTIES**

**WASTE DISPOSAL SITE (CONTINUED)**

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.

Cost 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.

**RESTORATION OF INSLOPES AND DITCHES**

Any slope area or ditch that is rutted or otherwise unduly disturbed during fencing operations shall be restored and seeded by the Contractor, at no expense to the State. Cost for this work shall be incidental to the contract unit prices for the various items.

**REMOVE FENCE**

The Contractor shall remove the existing right-of-way fence that is to be replaced as designated in the plans and/or as ordered by the Engineer.

Limited Access Security - All fence removed during any one working day is to be replaced during the same day if livestock are being restrained.

**CLEARING**

Prior to installing right-of-way fence, the fence alignment shall be cleared of all trees, tree branches, tree stumps, brush, vegetation, debris, bladed and leveled to the satisfaction of the Engineer. Sod cleared from the fence alignment may be disposed on the interstate ditch back slope. Lumps or clods over 3 inches in diameter shall be broken up.

Clearing will be paid for at the contract lump sum price. Payment shall be full compensation for labor and equipment necessary to clear the entire line for fence and smooth ground irregularities.

**FENCE ALIGNMENT**

Where fence is being removed and replaced, fence shall be installed on the same alignment as existing. It shall be the Contractor's responsibility to preserve the fence alignment.

**TYPE 3 RIGHT-OF-WAY FENCE**

The Contractor shall furnish new posts. Install alternate wood and steel posts at 16'-6" spacing for Type 3 Right-of-Way Fence.

**MODIFIED TYPE 3 RIGHT-OF-WAY FENCE**

Modified Type 3 Right-of-Way Fence shall be installed at wide depressions subject to flooding.

The Contractor shall furnish new 5" x 8' wood posts. Install wood posts at 14' spacing for Modified Type 3 Right-of-Way Fence. Cost for 5" x 8' wood posts shall be included in the contract unit price per each for Wood Fence Post.

**MODIFIED TYPE 6 RIGHT-OF-WAY FENCE**

The Contractor shall furnish new posts. Install alternate wood and steel posts at 14' spacing for Modified Type 6 Right-of-Way Fence.

Note specification change for Modified Type 6 Woven Wire Fence to Design No. 832-6-11.



**0001-252  
HANSON & MCCOOK COUNTIES**

**NEW POST PANELS**

Existing post panels shall be replaced. Existing 5 Post and 4 Post Panels shall be replaced with a combination of 2 Post and 3 Post Panels as determined by the Engineer.

The number of 2 Post and 3 Post Panels will be the actual number installed and will be paid for at the contract unit price per each.

**GENERAL MAINTENANCE OF TRAFFIC**

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including 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 State.

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 State, and to the satisfaction of the Engineer.

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

Cost for traffic control, including signs, shall be included in the contract lump sum price for Traffic Control, Miscellaneous.

**0001-252  
HANSON & MCCOOK COUNTIES**

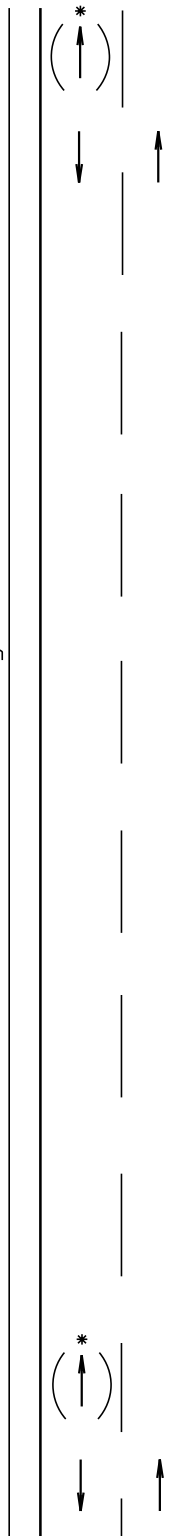
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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

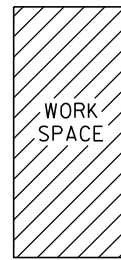
The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

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

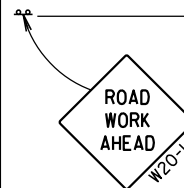
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 75	1000



A



July 1, 2005

*Published Date: 1st Qtr. 2012*

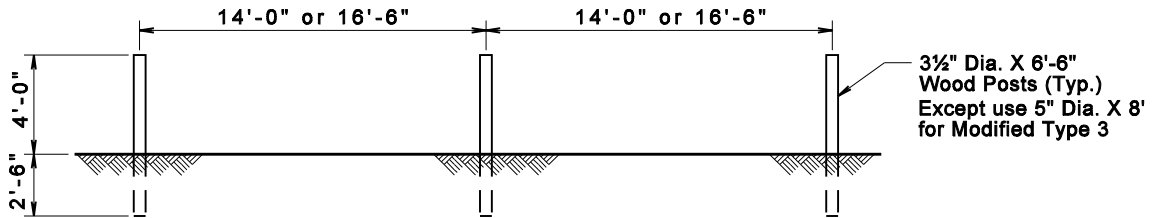
**S  
D  
D  
O  
T**

**GUIDES FOR TRAFFIC CONTROL DEVICES  
WORK BEYOND THE SHOULDER**

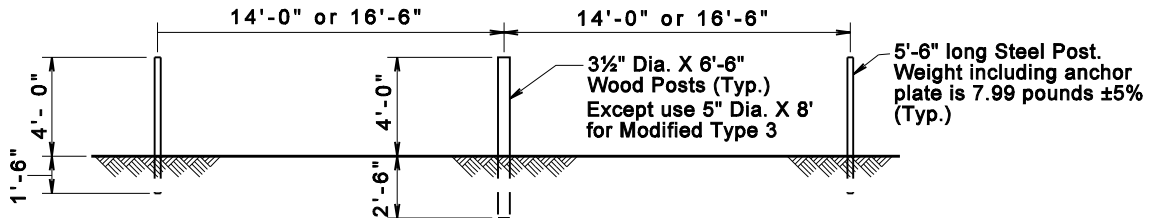
**PLATE NUMBER  
634.01**

*Sheet 1 of 1*

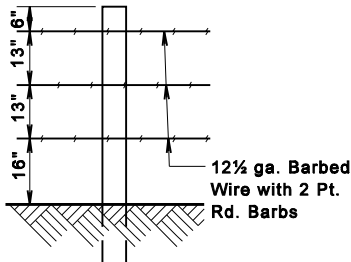
0001-252  
HANSON & MCCOOK COUNTIES



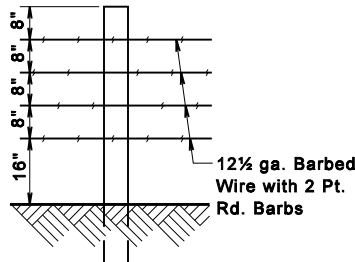
**ALL WOOD POSTS**



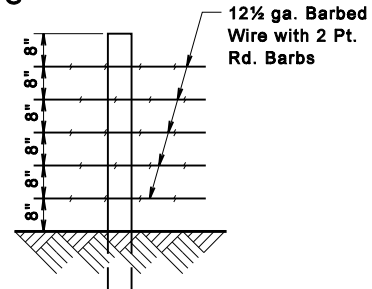
**ALTERNATE WOOD AND STEEL POSTS**



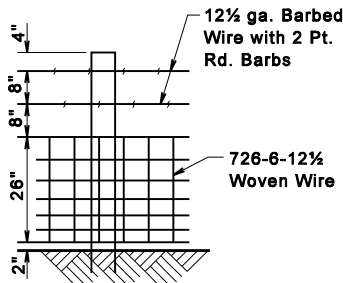
**TYPE 1  
3 BARBED WIRES**



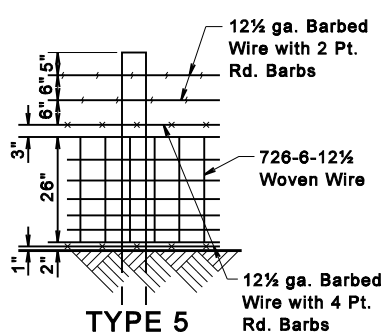
**TYPE 2  
4 BARBED WIRES**



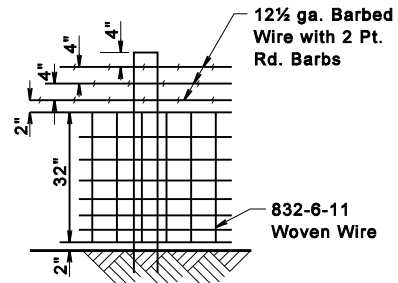
**TYPE 3 / MODIFIED TYPE 3  
5 BARBED WIRES**



**TYPE 4  
26" WOVEN WIRE  
WITH 2 BARBED WIRES**



**TYPE 5  
26" WOVEN WIRE  
WITH 4 BARBED WIRES**



**MODIFIED TYPE 6  
32" WOVEN WIRE  
WITH 3 BARBED WIRES**

TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12 1/2	2 Point Round	---
2	4 Barbed Wires	16'-6"	12 1/2	2 Point Round	---
3	5 Barbed Wires	16'-6"	12 1/2	2 Point Round	---
MOD 3	5 Barbed Wires	14'-0"	12 1/2	2 Point Round	---
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12 1/2	2 Point Round	726-6-12 1/2
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12 1/2	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12 1/2
MOD 6	32" Woven Wire with 3 Barbed Wires	14'-0"	12 1/2	3 wires with 2 Pt. Rd.	832-6-11

**GENERAL NOTES:**

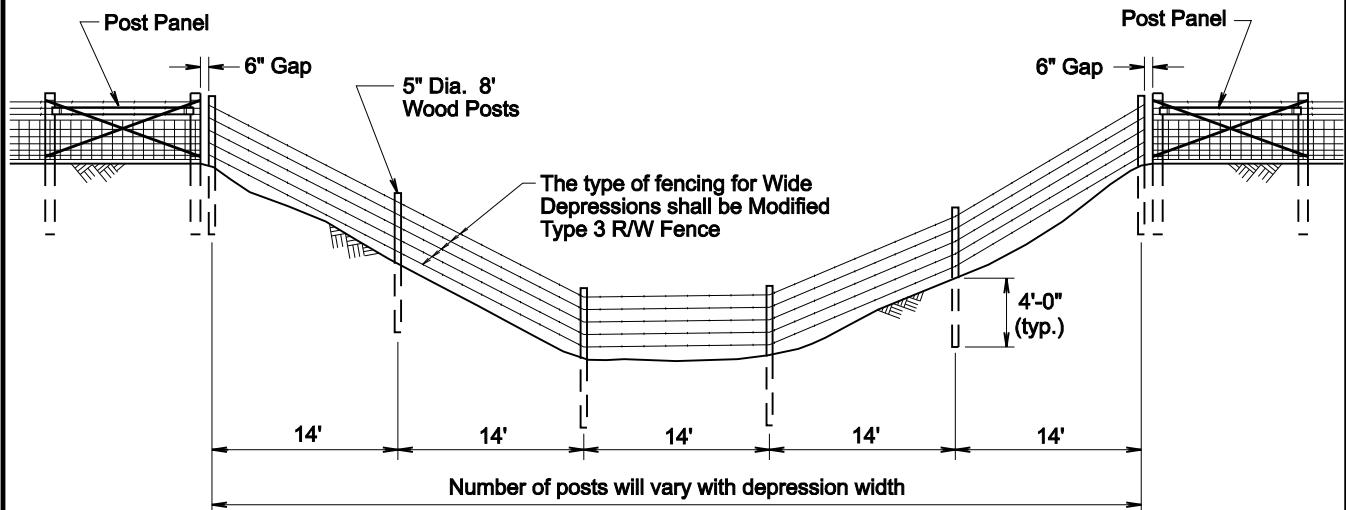
Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.

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

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

**RIGHT-OF-WAY FENCE**

## Fencing At Wide Depression/Stream Crossing (Subject to Flooding)



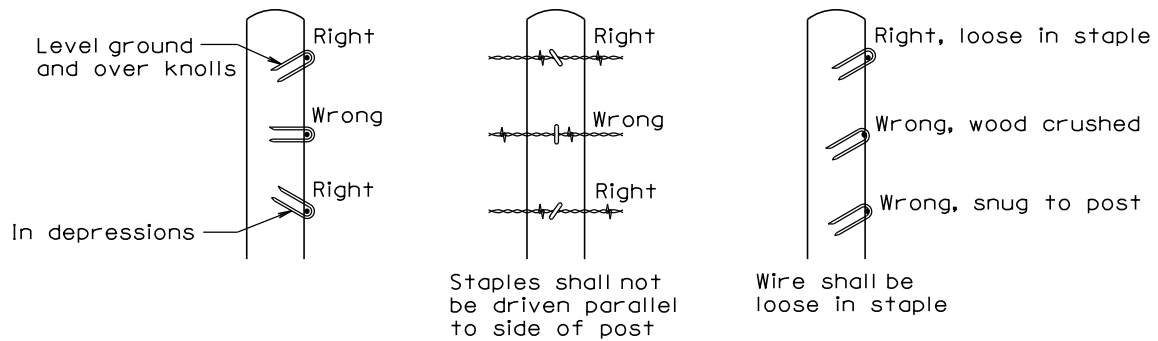
### GENERAL NOTES:

Cost for fencing through stream crossing(s) and/or wide depression(s) shall be included in the contract unit price per foot for Modified Type 3 Right-of-Way Fence.

The Wood Fence Posts used in stream crossing(s) and/or wide depression(s) shall be 5" x 8' Wood Fence Posts. The designated fencing location(s) for the stream crossing(s) and/or wide depression(s) will be directed by the Engineer.

Cost for furnishing and installing the 5" x 8' Wood Fence Posts in stream crossing(s) and/or wide depression(s) shall be included in the contract unit price per each for Wood Fence Post.

**0001-252  
HANSON & MCCOOK COUNTIES**



### STAPLE INSTALLATION

#### GENERAL NOTES:

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

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

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

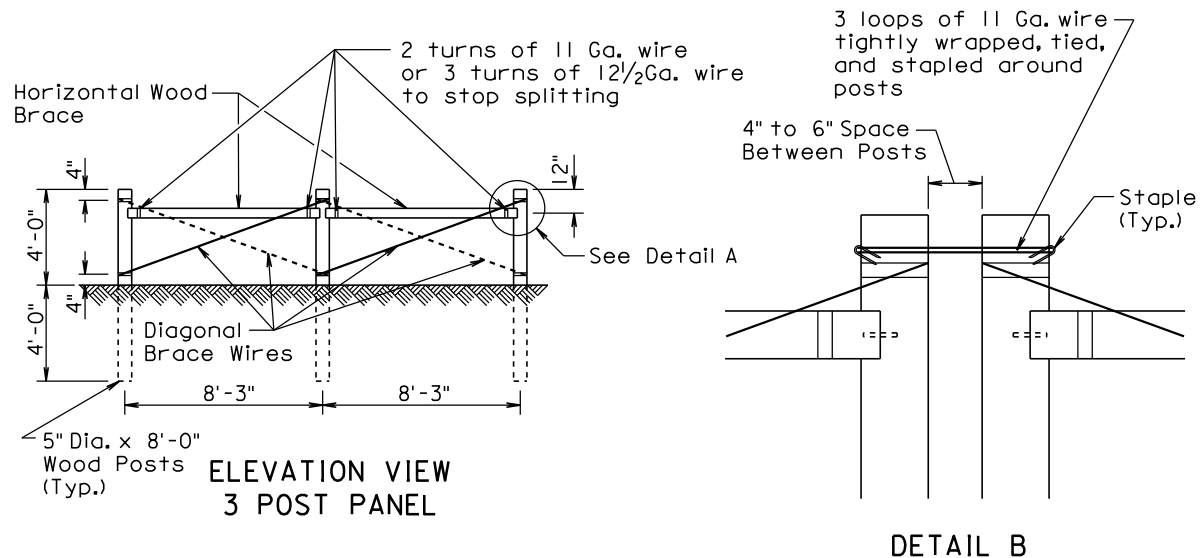
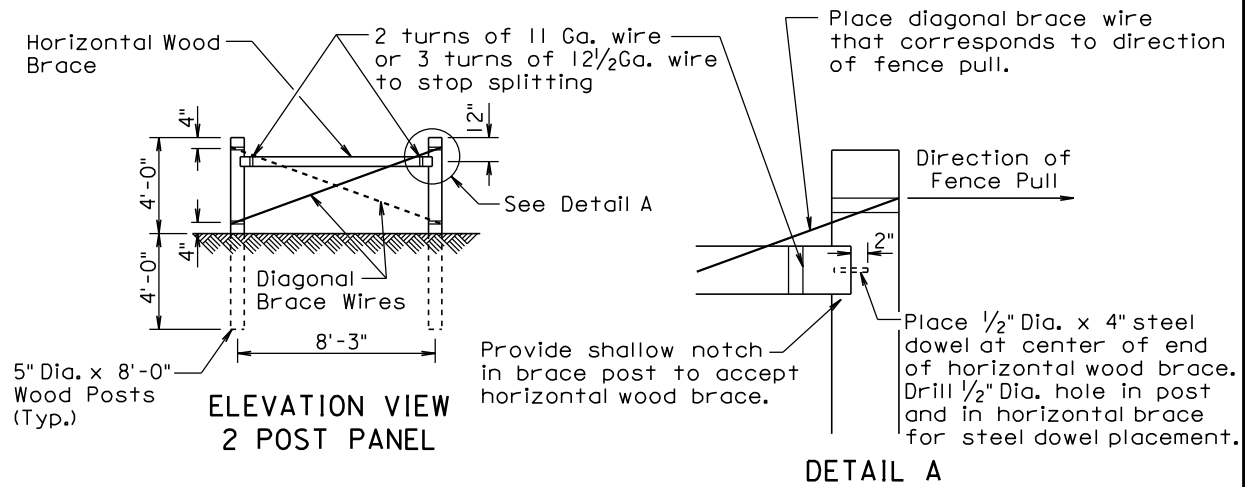
Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

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

December 23, 2004

<p><i>Published Date: 1st Qtr. 2012</i></p>	<p><b>S D D O T</b></p>	<p><b>STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES</b></p>	<p><b>PLATE NUMBER</b> <b>620.02</b></p>
			<p><i>Sheet 1 of 1</i></p>

**0001-252  
HANSON & MCCOOK COUNTIES**



**GENERAL NOTES:**

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

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

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

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

December 23, 2004

*Published Date: 1st Qtr. 2012*

**S  
D  
D  
O  
T**

**BRACE PANELS  
AND APPLICATIONS OF BRACE PANELS**

**PLATE NUMBER  
620.03**

Sheet 1 of 3

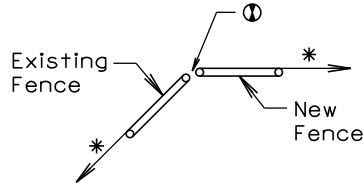
**0001-252  
HANSON & MCCOOK COUNTIES**

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

**GENERAL NOTE:**

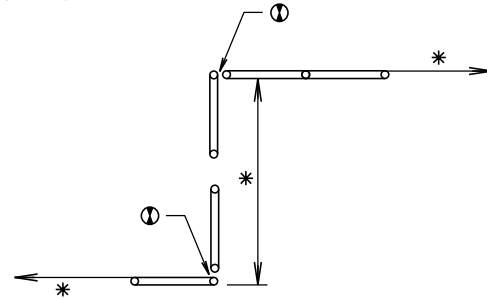
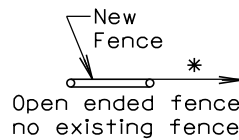
All degrees of curvature stated for fence are at centerline of roadway.

- \* If fence length is less than 600' to next corner use a 2 post panel.
- If fence length is greater than 600' to next corner use a 3 post panel.
- \* \* Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.
- ① See Detail B on Sheet 1 of 3.

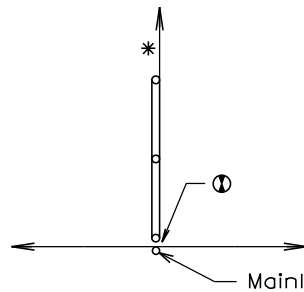


**BEGIN OR END FENCE**

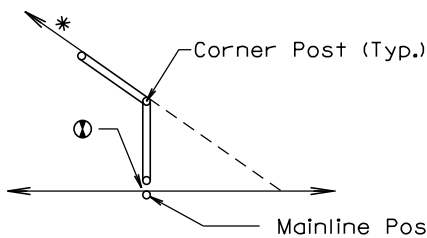
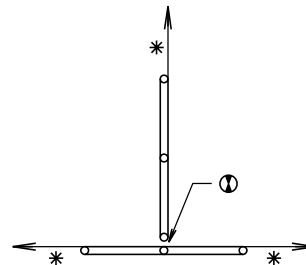
(where new fence ties into existing fence)



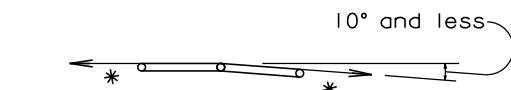
**SHORT JOGS IN FENCE**



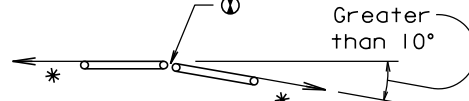
**CROSS FENCE**



**SHARP ANGLES IN CROSS FENCE**



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



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

**ANGLES IN MAINLINE FENCE**

December 23, 2004

*Published Date: 1st Qtr. 2012*

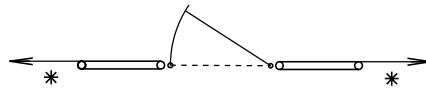
**S  
D  
D  
O  
T**

**BRACE PANELS  
AND APPLICATIONS OF BRACE PANELS**

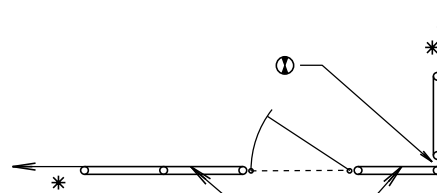
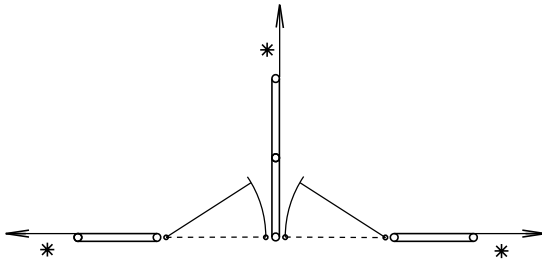
**PLATE NUMBER  
620.03**

Sheet 2 of 3

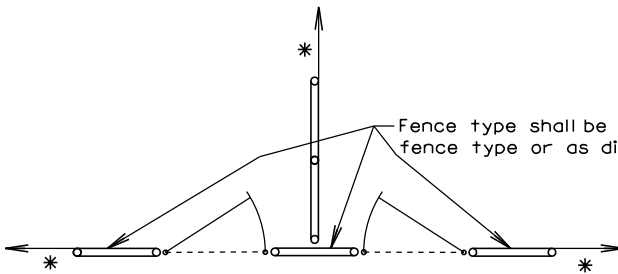
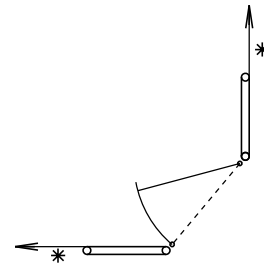
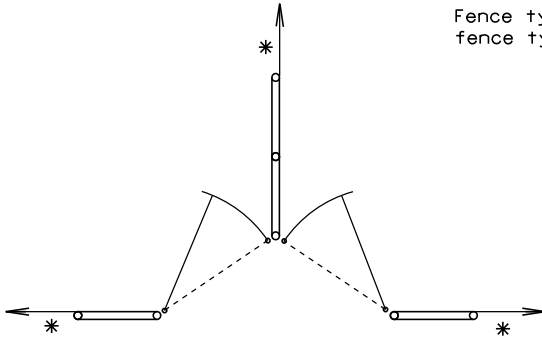
0001-252  
HANSON & MCCOOK COUNTIES



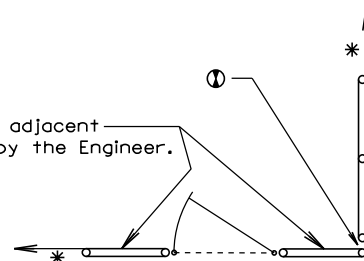
ENTRANCE  
(NOT ON CORNER)



Fence type shall be same as adjacent  
fence type or as directed by the Engineer.



DOUBLE ENTRANCES



ENTRANCES AT CORNERS

GATES

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

① See Detail B on Sheet 1 of 3.

December 23, 2004

Published Date: 1st Qtr. 2012

**S  
D  
D  
O  
T**

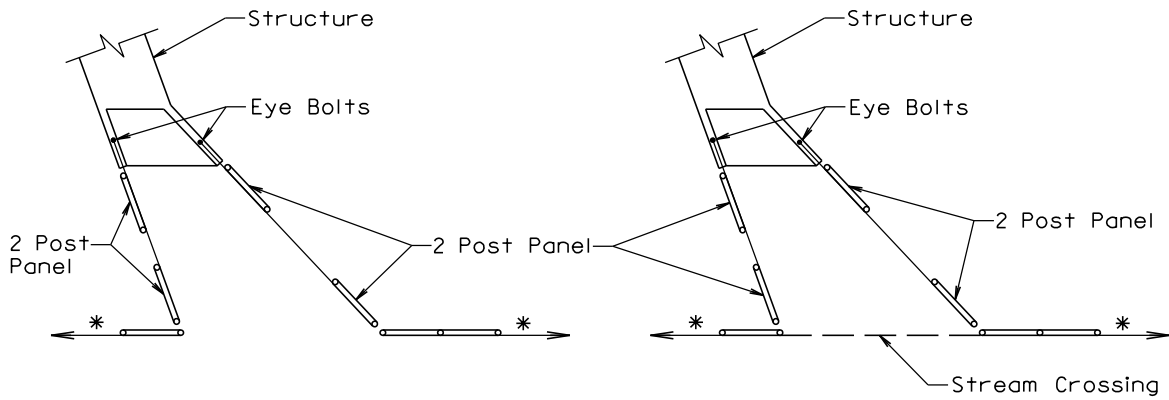
**BRACE PANELS  
AND APPLICATIONS OF BRACE PANELS**

**PLATE NUMBER  
620.03**

Sheet 3 of 3

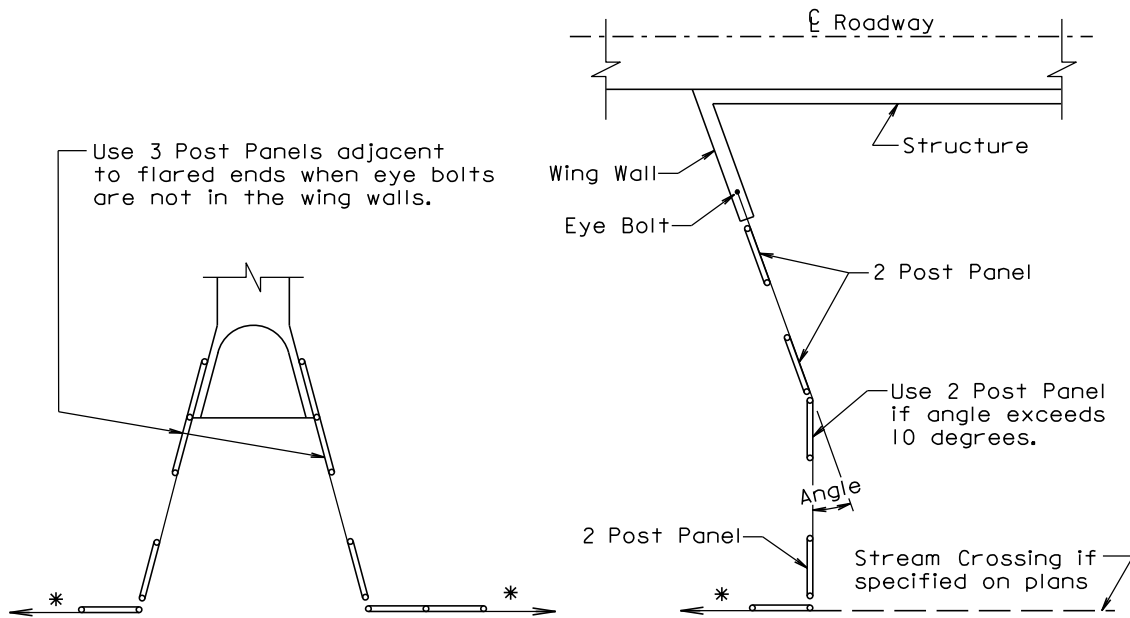


0001-252  
HANSON & MCCOOK COUNTIES



R.C. BOX CULVERT  
OR CATTLE PASS

STRUCTURE WITH STREAM  
CROSSING FENCE



R.C. BOX CULVERT  
OR CATTLE PASS

BRIDGE

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

December 23, 2010

Published Date: 1st Qtr. 2012

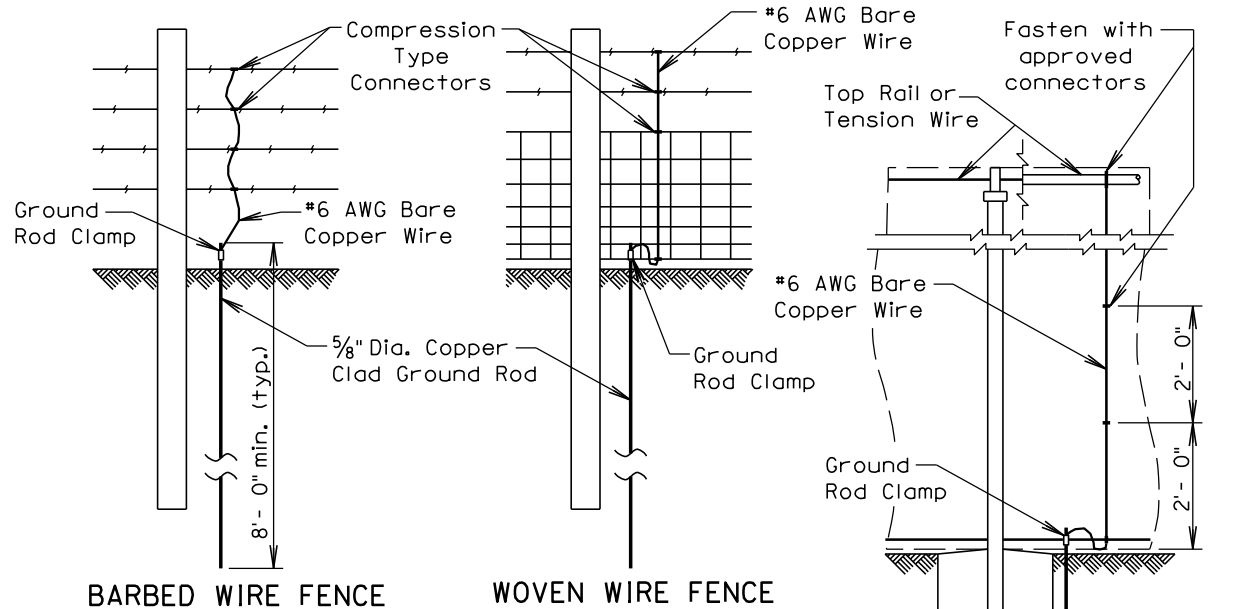
**S  
D  
D  
O  
T**

**BRACE PANEL APPLICATIONS AT STRUCTURES**

**PLATE NUMBER  
620.04**

Sheet 1 of 1

**0001-252  
HANSON & MCCOOK COUNTIES**



**GENERAL NOTES:**

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

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

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

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

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

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

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

- 1 ground rod clamp.
- 1 5/8" dia. 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:

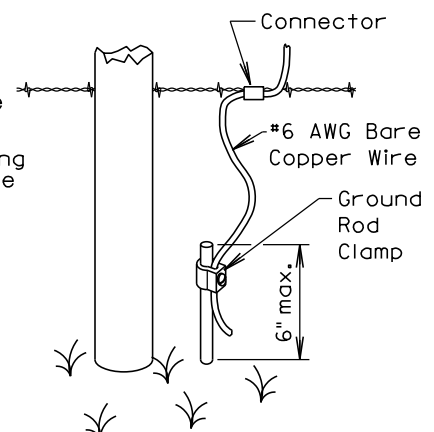
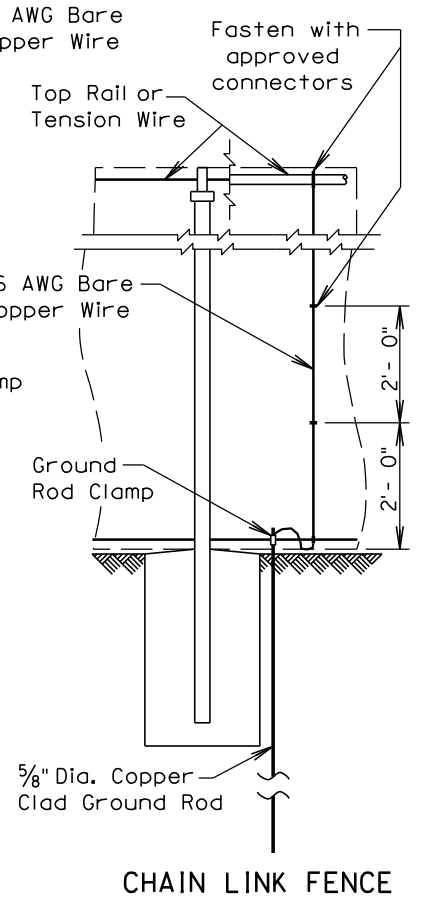
26" woven wire shall have a total of two connectors,

one secured to the top and one secured to the bottom.

32" woven wire shall have a total of three connectors, one secured to the top, one secured to the middle, and one secured to the bottom.

One connector shall be used for each strand of barbed wire.

A minimum of 3 connectors shall be installed on chain link fence, the connectors shall be placed vertically at every two foot increment and connectors shall be placed on the top and bottom tension wires or top rail.



**GROUND ROD DETAIL**

March 31, 2000

*Published Date: 1st Qtr. 2012*

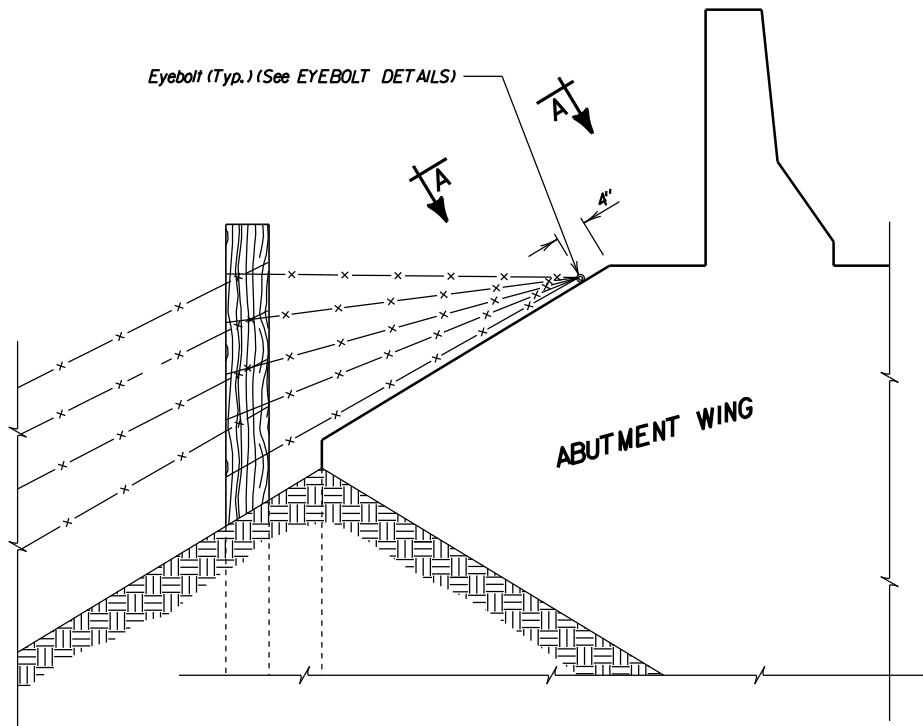
**S  
D  
D  
O  
T**

**FENCE GROUNDING**

**PLATE NUMBER  
620.11**

Sheet 1 of 1

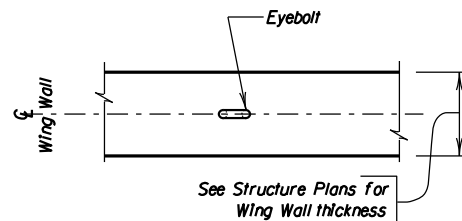
0001-252  
HANSON & MCCOOK COUNTIES



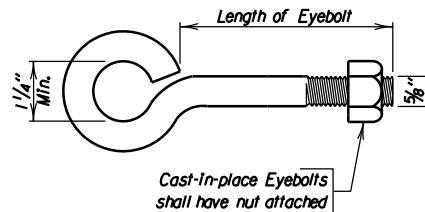
DETAILS FOR FENCE ANCHORS

**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 bridge abutment wings.
3. Eyebolts shall be  $\frac{5}{8}$ " dia. 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  $4\frac{1}{2}$ " (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  $\frac{5}{8}$ " 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 the contract unit price per pound for "Reinforcing Steel".



VIEW A - A



EYEBOLT DETAILS

December 23, 2004

Published Date: 1st Qtr. 2012

**S  
D  
D  
O  
T**

**FENCE ANCHORS FOR BRIDGE ABUTMENT WINGS  
(WINGS 6' AND SHORTER)**

**PLATE NUMBER  
620.18**

Sheet 1 of 1

The diagram illustrates the construction of a wire gate. It shows a side elevation with a gate of width 'W' and post spacing 'S'. Key components and labels include:

- 2 or 3 Post Panel (as specified in plans)**: Located at both ends of the gate.
- 3" Dia. Post**: The main vertical posts supporting the gate.
- 2" Dia. Posts or approved commercial type stiffeners**: Additional vertical supports within the gate panels.
- Fence Type (as specified in plans)**: The type of fencing used on the adjacent Right-of-Way.
- No. 9 Galv. Wire stapled to brace panel post**: Detail on the left side.
- No. 9 Galv. Wire wrapped 3 times around the brace panel and gate posts and stapled to the brace panel post.**: Detail on the right side.
- Dimensions**: 6"± at the ends, and S (Post Spacing) repeated across the gate width W.

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 shall be of the same type as specified for the adjacent Right-of-Way fence.

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

March 31, 2000

**S  
D  
D  
O  
T**

# **WIRE GATES**

**PLATE NUMBER**  
**620.20**

**Published Date: 1st Qtr. 2012**

Sheet 1 of 1