

Appendix A

Iowa DOT Standard Road Plans

MI-103 - Deer Fence and Field Fence Construction

TC-273 - Construction Site Entrance

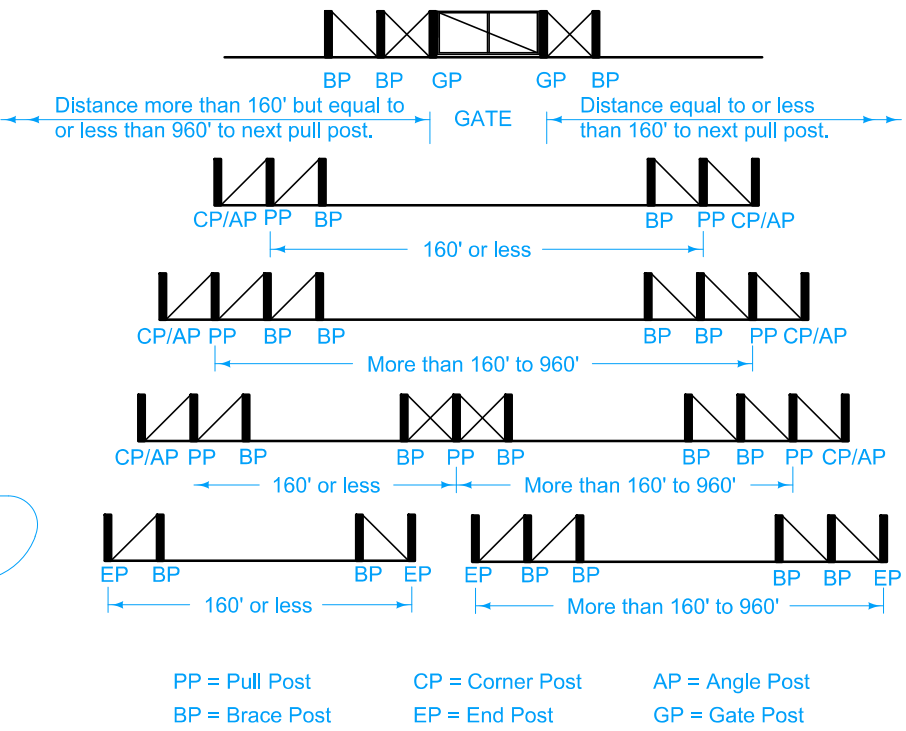
IDALS Water Quality Test Results

Double wrap barbed wire and tie off at end posts, corner posts, and line brace posts. Single wrap woven wire and tie off. Restart fence to be continued, in like manner.

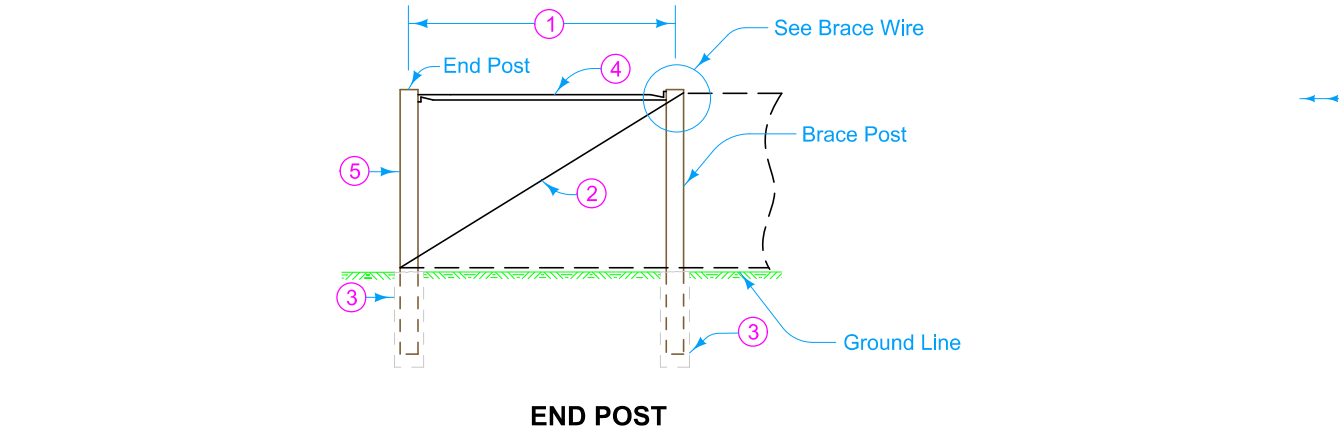
Fence wire fabric may be placed on either the road side or the field side of posts, depending on local conditions; i.e., on curves, the wire should be placed on the side which would result in the least amount of tension on the staples. This will also apply where wind, drift, or other conditions would exert unusual pressure against the wire.

Refer to MI-104 for fencing at Channel Crossings, Minor Groud Depressions, and Flood Plains.

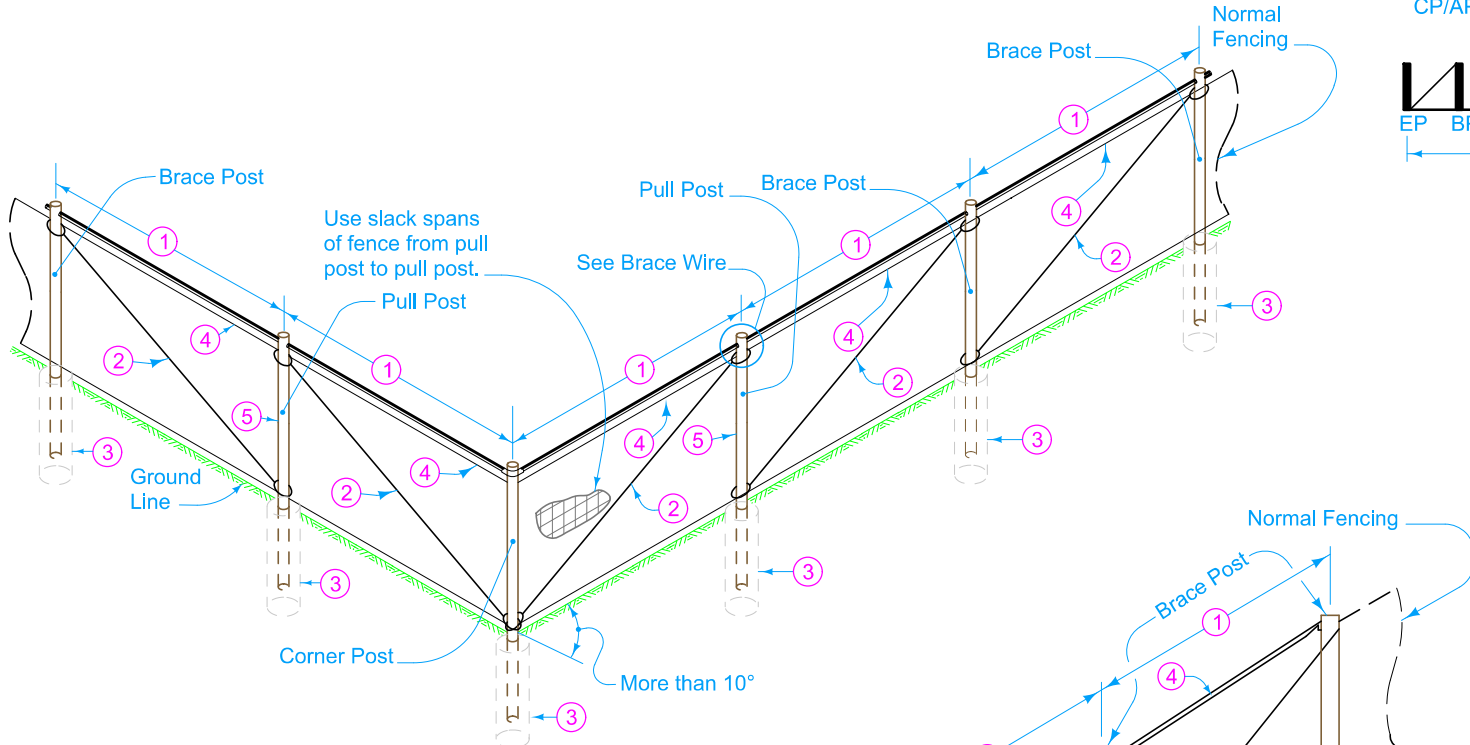
- 1 Brace Panel.
- 2 Brace Wire: 4 strands of No. 9 wire.
- 3 Details indicate placement of granular material for certain posts. The Contractor has the option to drive posts if method demonstrated is satisfactory to the Engineer. Granular material will not be required for driven posts.
- 4 Metal brace 8 feet long.
- 5 Wrap wire fabric around post.
- 6 Pull Post Assembly is required when the distance between pull posts is greater than 960 feet in straight lines of fence.



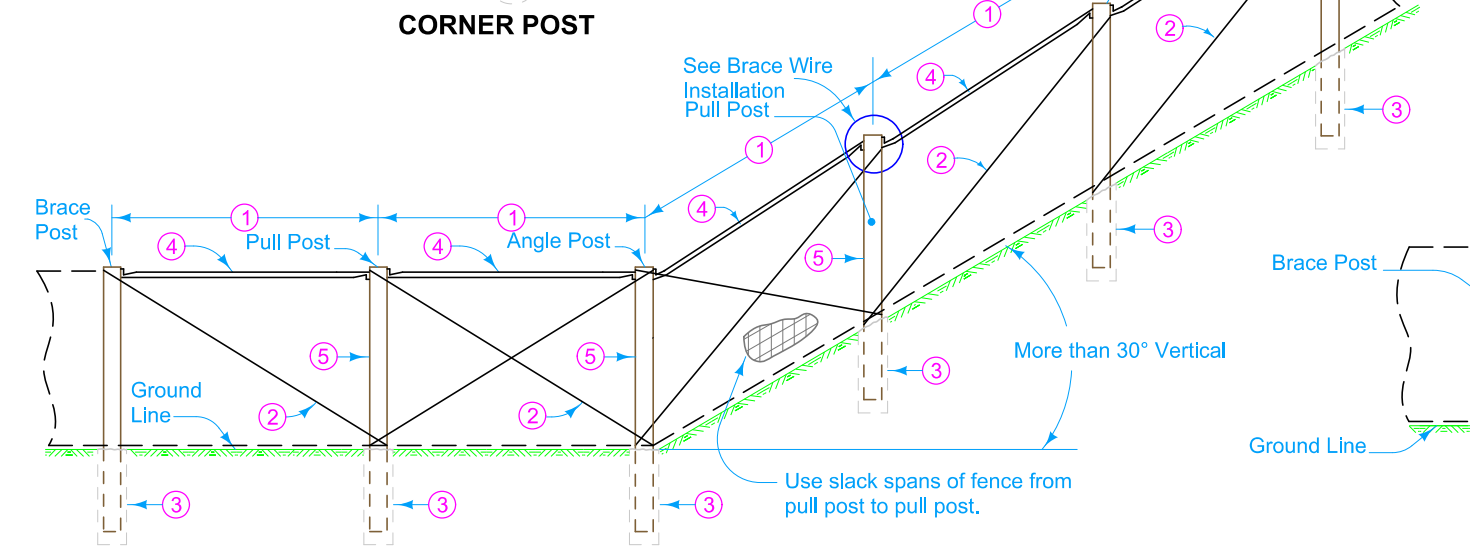
BRACE PANEL LAYOUT



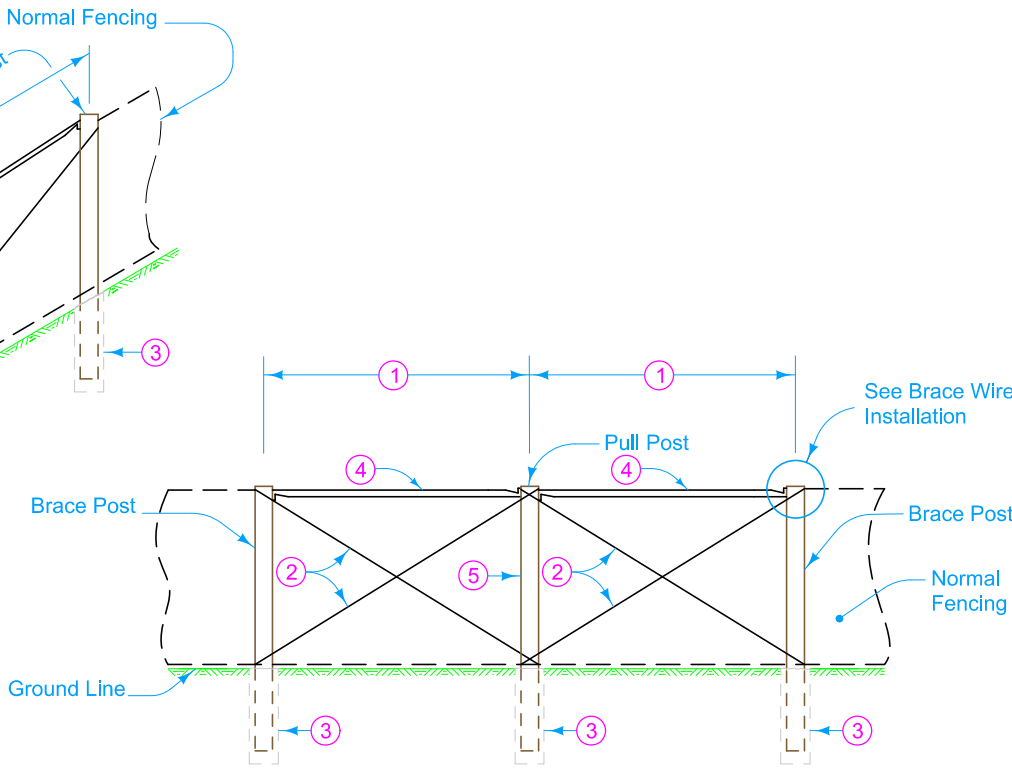
END POST



CORNER POST





ANGLE POST

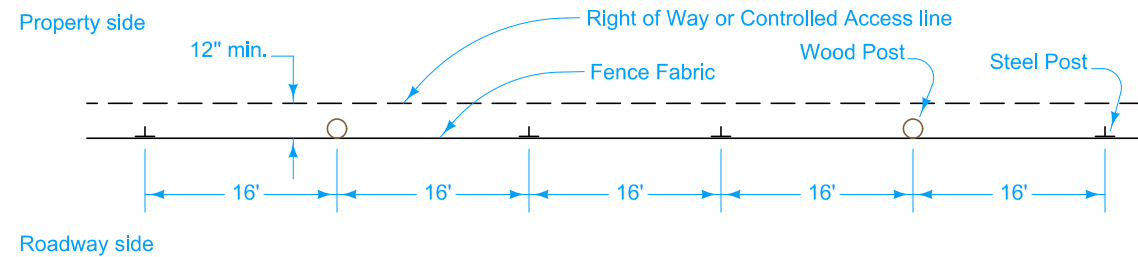


PULL POST

- Possible Contract Items:
- Deer Fence
 - Deer Fence Brace Panels
 - Deer Fence Gate
 - Field Fence
 - Field Fence Brace Panel
 - Field Fence Gate

Possible Tabulation:
100-7

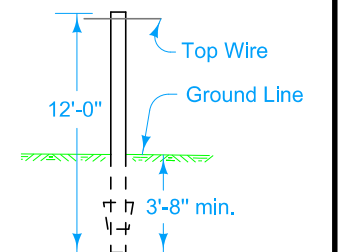
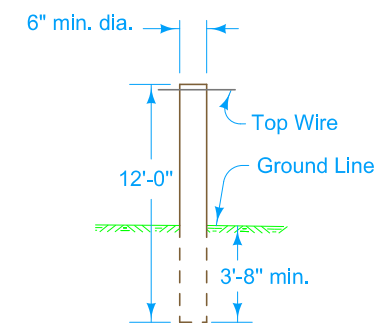
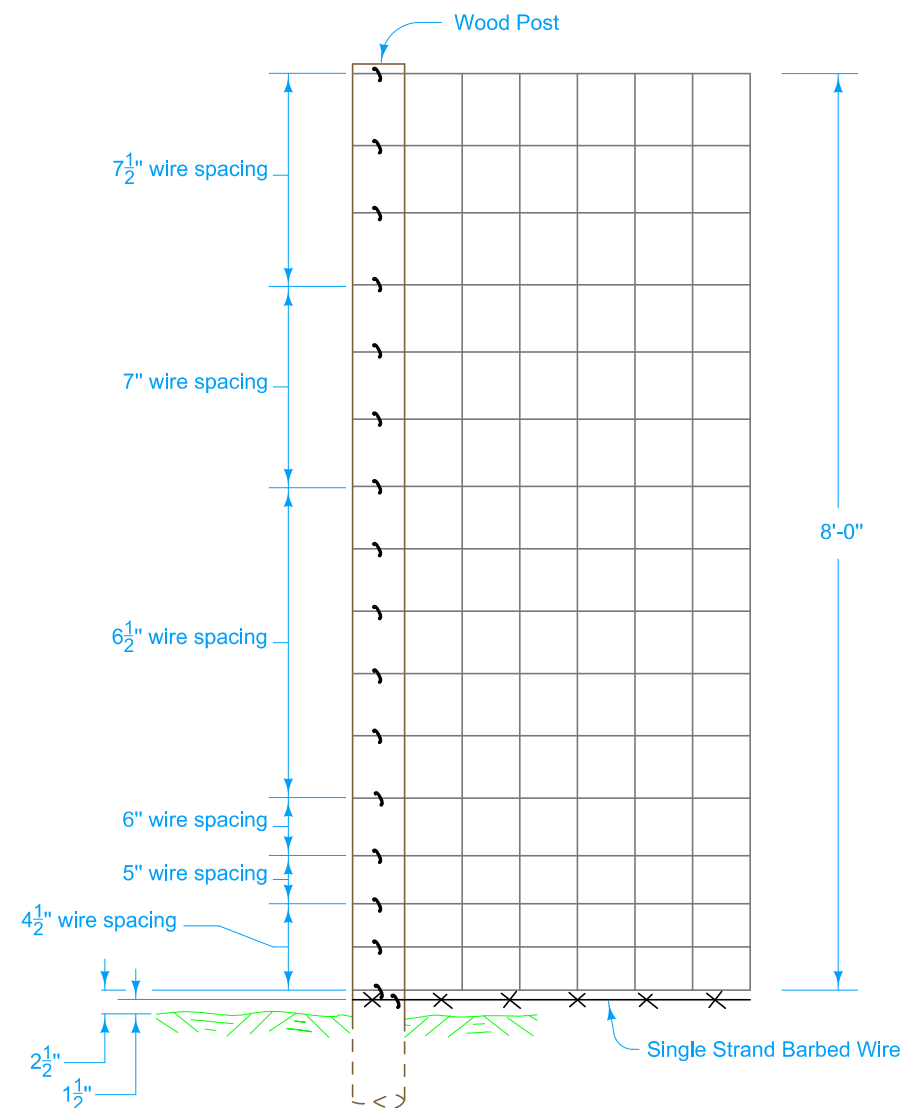
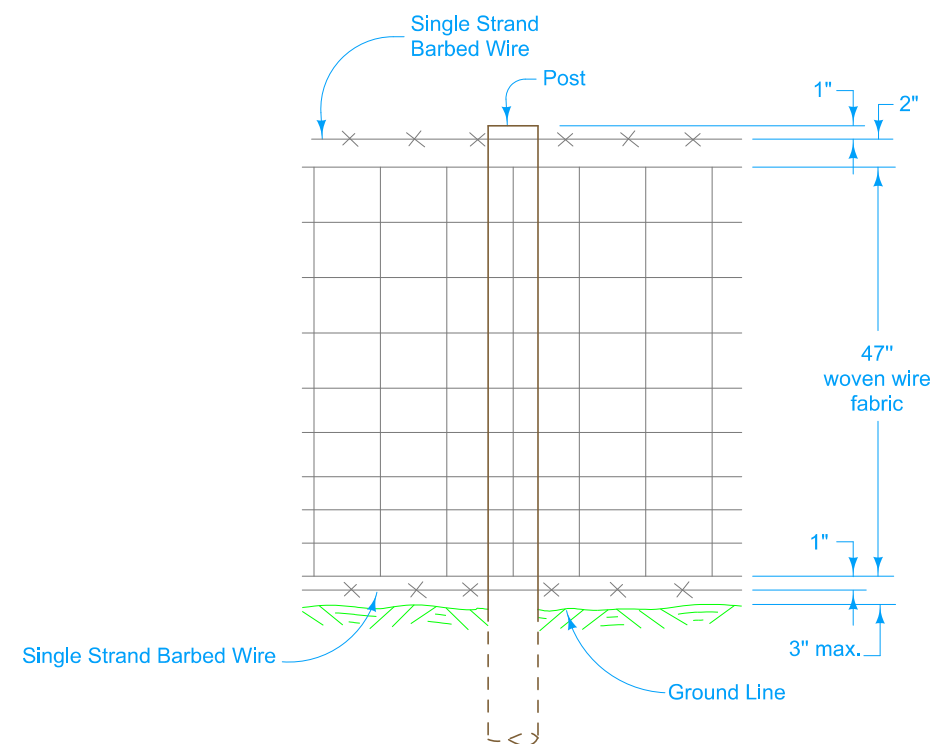
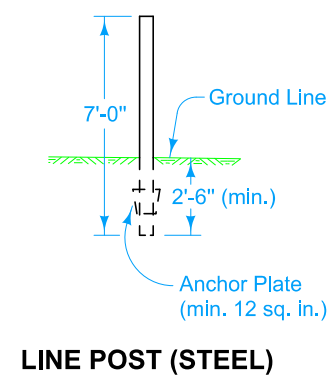
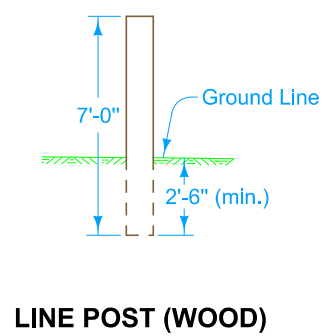
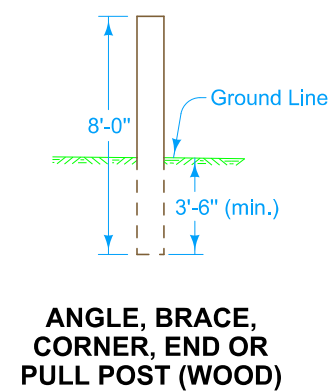
 STANDARD ROAD PLAN	REVISION	
	2	10-20-15
	MI-103 SHEET 1 of 7	
REVISIONS: Added Designer Info button.		
 APPROVED BY DESIGN METHODS ENGINEER		
DEER FENCE AND FIELD FENCE CONSTRUCTION		


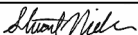


PLAN

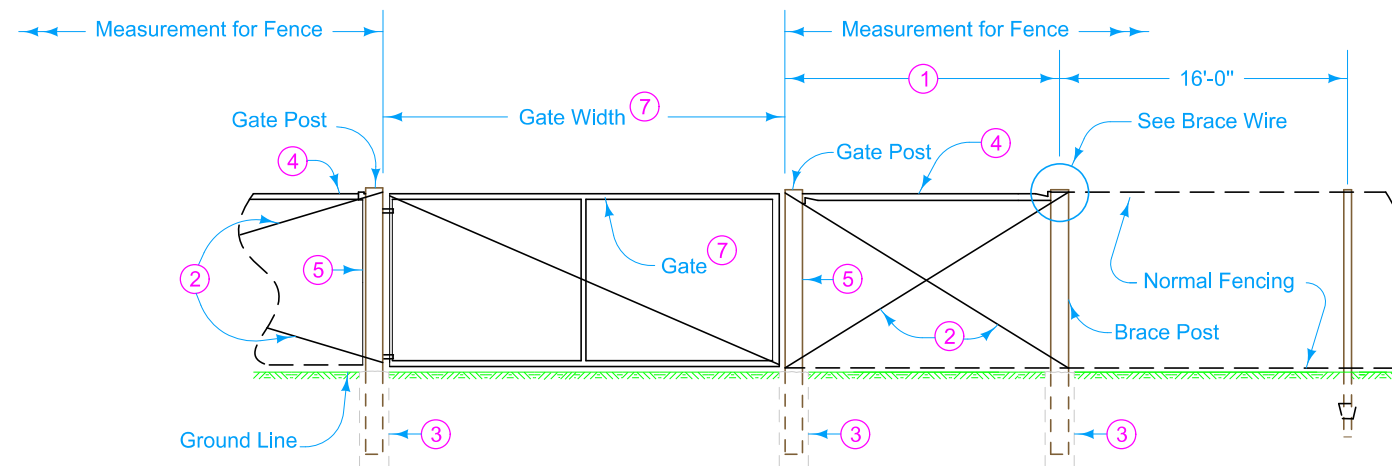
FIELD FENCE

DEER FENCE





 IOWA DOT	REVISION	
	2	10-20-15
	MI-103	
	SHEET 2 of 7	
STANDARD ROAD PLAN		
REVISIONS: Added Designer Info button.		
		
APPROVED BY DESIGN METHODS ENGINEER		

DEER FENCE AND FIELD FENCE CONSTRUCTION





FIELD FENCE GATE

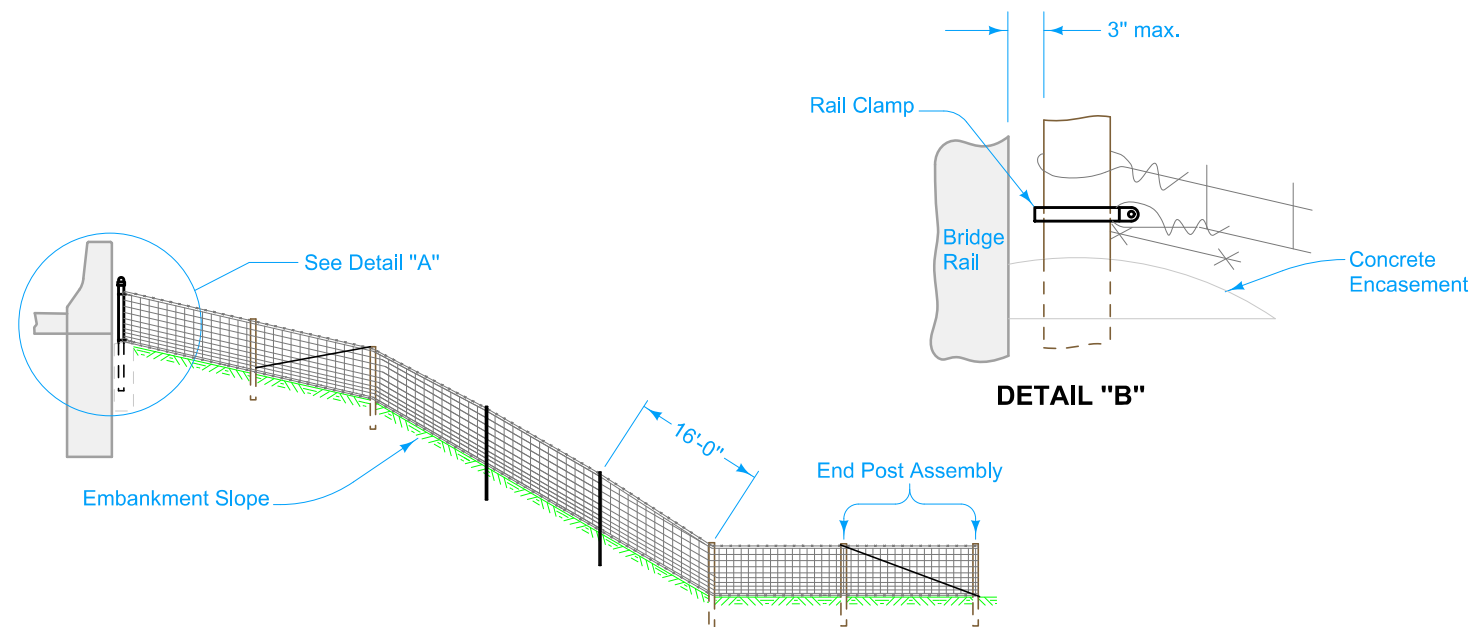
- ① Brace Panel.
- ② Brace Wire: 4 strands of No. 9 wire.
- ③ Details indicate placement of granular material for certain posts. The Contractor has the option to drive posts if method demonstrated is satisfactory to the Engineer. Granular material will not be required for driven posts.
- ④ Metal brace 8 feet long.
- ⑤ Wrap wire fabric around post.
- ⑦ Unless specified otherwise, install a 16 foot gate. Double gate is required only for widths more than 16 feet. Exact details of gate design are subject to the approval of the Engineer. Install as recommended by the manufacturer.

 IOWA DOT	REVISION	
	2	10-20-15
	MI-103	
STANDARD ROAD PLAN	SHEET 3 of 7	
REVISIONS: Added Designer Info button.		
		
APPROVED BY DESIGN METHODS ENGINEER		
DEER FENCE AND FIELD FENCE CONSTRUCTION		

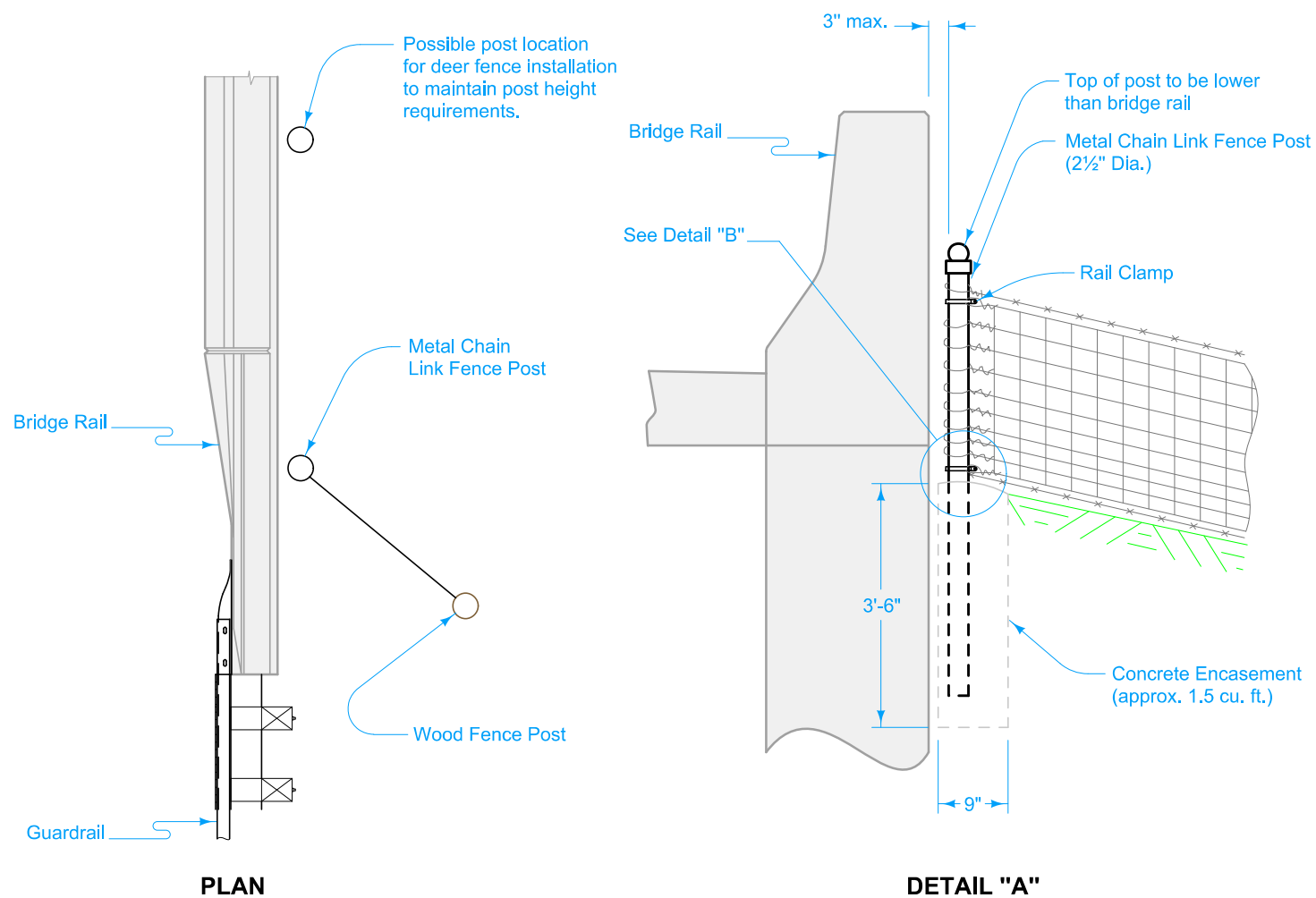


- ⑧ Spring loaded hinge allows flues to spread apart and return to original position.
- ⑨ Two 2 in. x 2 in. x $\frac{1}{8}$ in. L top braces held by $\frac{1}{2}$ inch diameter bolts.
- ⑩ Attach nut and washer to each bolt.
- ⑪ Support Plate 3 in. x $\frac{5}{16}$ in. x 37 in.
- ⑫ 2 in. x 2 in. x 54 in. structural steel tubing welded to Hinge Plate.
- ⑬ $\frac{3}{4}$ in. diameter x 8 in. bolt welded to Support Plate

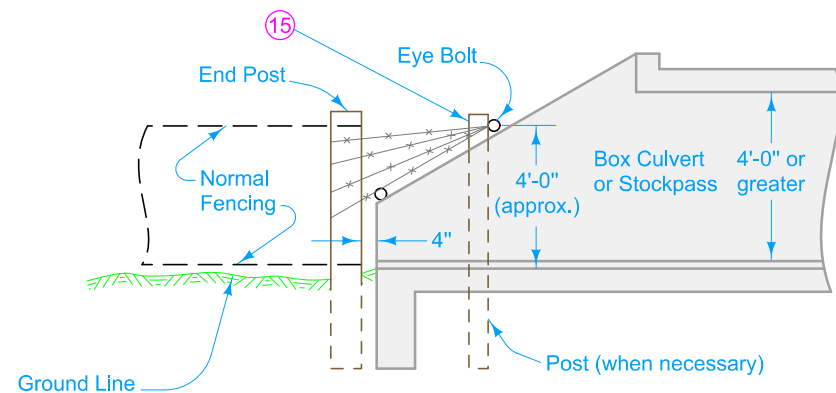
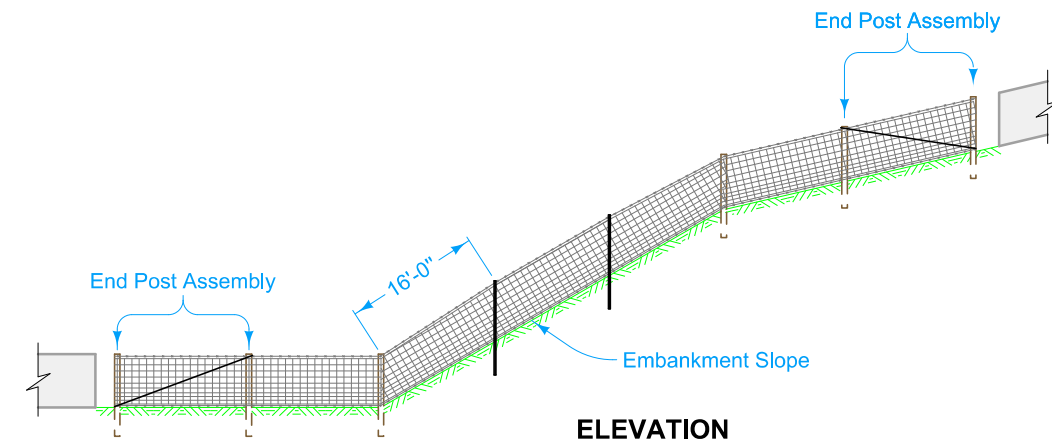
 IOWA DOT	REVISION	
	2	10-20-15
	MI-103	
STANDARD ROAD PLAN		
SHEET 4 of 7		
REVISIONS: Added Designer Info button.		
		
APPROVED BY DESIGN METHODS ENGINEER		
<div style="text-align: center;"> DEER FENCE AND FIELD FENCE CONSTRUCTION </div>		



ELEVATION





FENCE TERMINATION AT BRIDGES ⁽¹⁴⁾

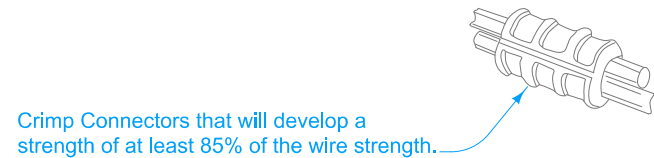


BOX CULVERTS OR STOCK PASSES 4 FEET OR LARGER

FENCE TERMINATION AT STRUCTURES ⁽¹⁵⁾

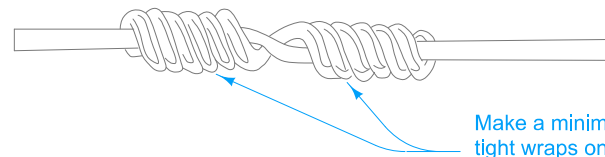
- (14) Fence termination at bridges, culverts, and other structures as detailed hereon will not be paid for separately but will be considered incidental to the bid item "Deer Fence" or "Field Fence."
- (15) Place minimum of four (4) barbed wires fan shaped, connected to eye bolt on culvert wall or set 4 inch post when necessary.

 IOWA DOT	REVISION	
	2	10-20-15
	MI-103	
	SHEET 5 of 7	
REVISIONS: Added Designer Info button.		
		
APPROVED BY DESIGN METHODS ENGINEER		
DEER FENCE AND FIELD FENCE CONSTRUCTION		



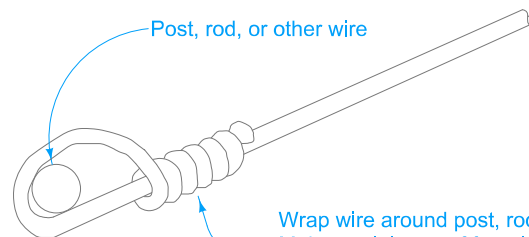
Crimp Connectors that will develop a strength of at least 85% of the wire strength.

CRIMP CONNECTION



Make a minimum of four tight wraps on the connecting wire. Ends of the wrap to be trimmed flush.

IN-LINE CONNECTION



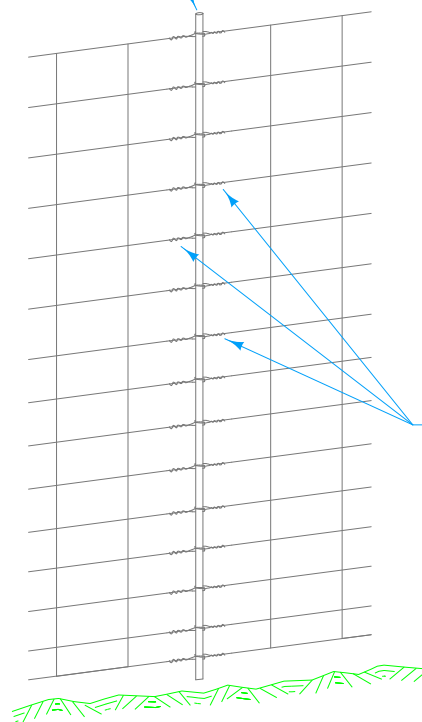
Post, rod, or other wire

Wrap wire around post, rod or other wire. Make a minimum of four tight wraps back around itself. Ends of the wrap to be trimmed flush.

SELF-WRAP CONNECTION

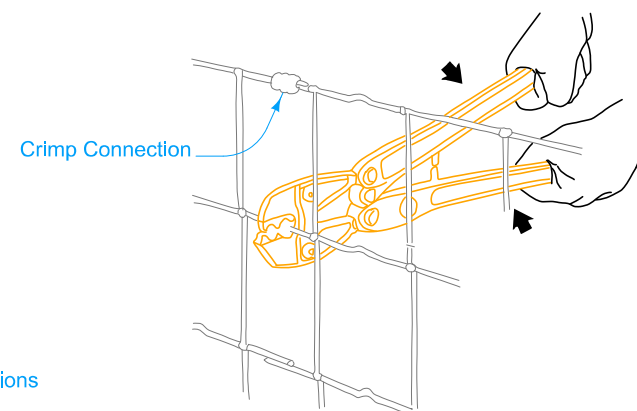
APPROVED WIRE CONNECTIONS

1/2" Galvanized Rod
(Fabric height plus 2" min. length)



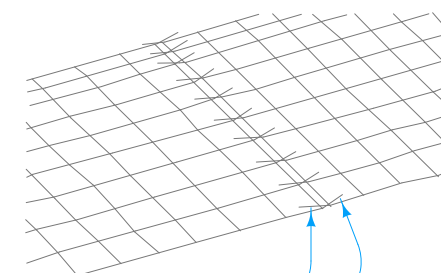
Self-Wrap Connections

SPLICE WITH ROD

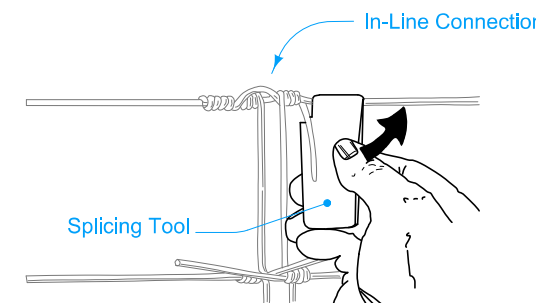


Crimp Connection

CRIMP SPLICE



End of Stay Wires

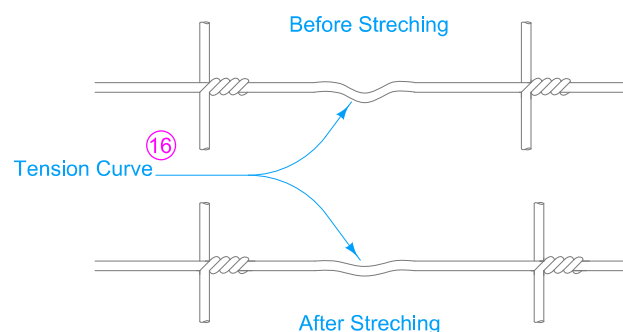


In-Line Connection

Splicing Tool

OVERLAP SPLICE

FABRIC SPLICES

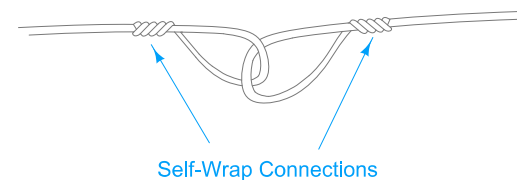


Before Stretching

16
Tension Curve

After Stretching

STRETCHING DETAILS

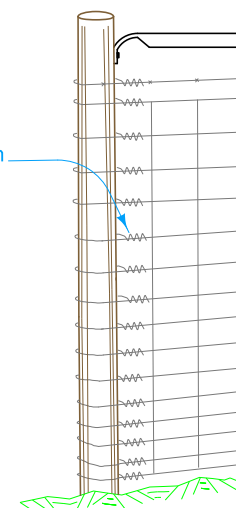


Self-Wrap Connections

BRACE WIRE SPLICE 17



FENCE ASSEMBLY

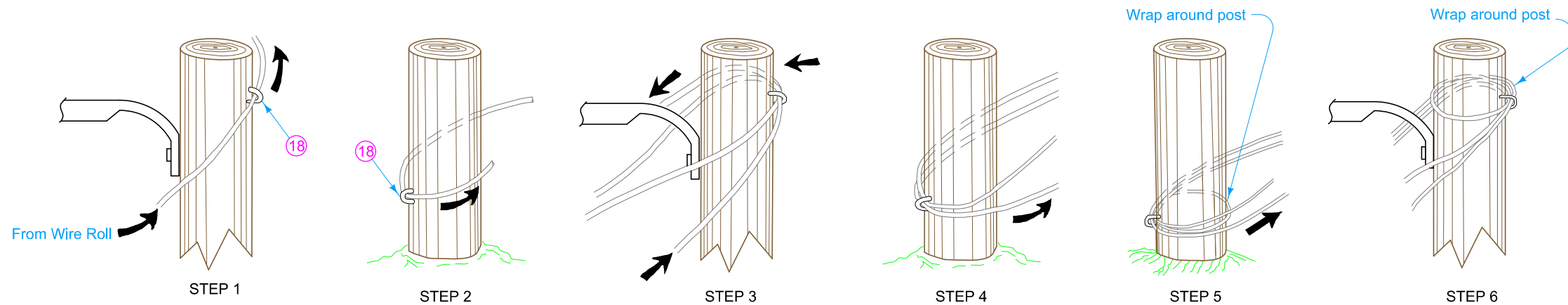
Self Wrap Connection



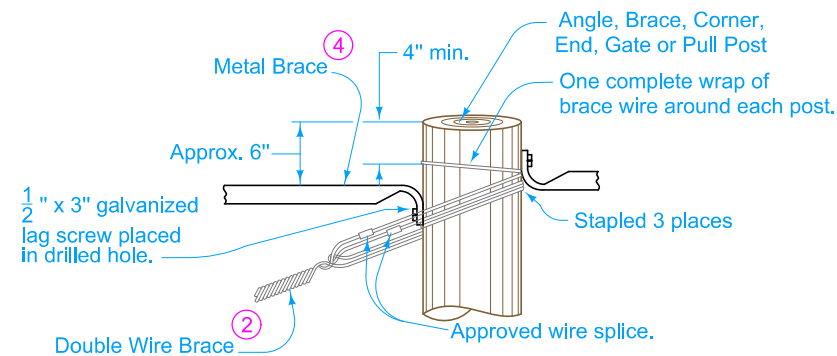
END POST CONNECTION

- 16 Tension curve consists of a "U" shaped crimp in the fence wires and has the same effect as a spring. Stretch to 50% removal of the factory crimp.
- 17 Crimp connection and in-line connection are also acceptable brace wire splices.

 IOWA DOT	REVISION	
	2	10-20-1
	MI-103	
STANDARD ROAD PLAN	SHEET 6 of 7	
REVISIONS: Added Designer Info button.		
		
APPROVED BY DESIGN METHODS ENGINEER		
DEER FENCE AND FIELD FENCE CONSTRUCTION		

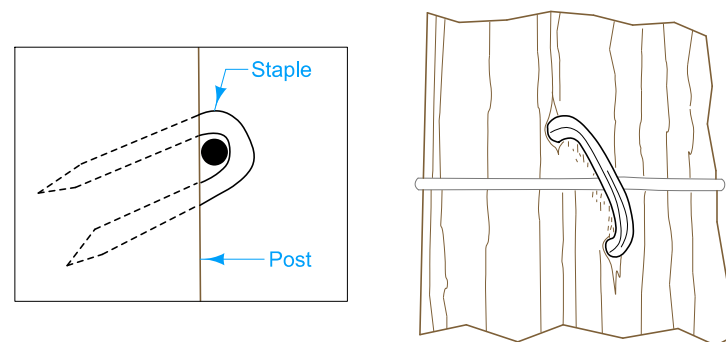


- ② Brace Wire: 4 strands of No. 9 wire.
- ④ Metal brace 8 feet long.
- ⑱ Set staples cross-wise to the grain. Drive staples tight at pull posts. Drive all other staples firm, but loose enough to allow lateral movement of the wire.
- ⑲ Twist the two brace wires together to produce proper tension in the brace assembly.





BRACE WIRE INSTALLATION ⑲

(Brace wire wrapped the same at the bottom of post.)



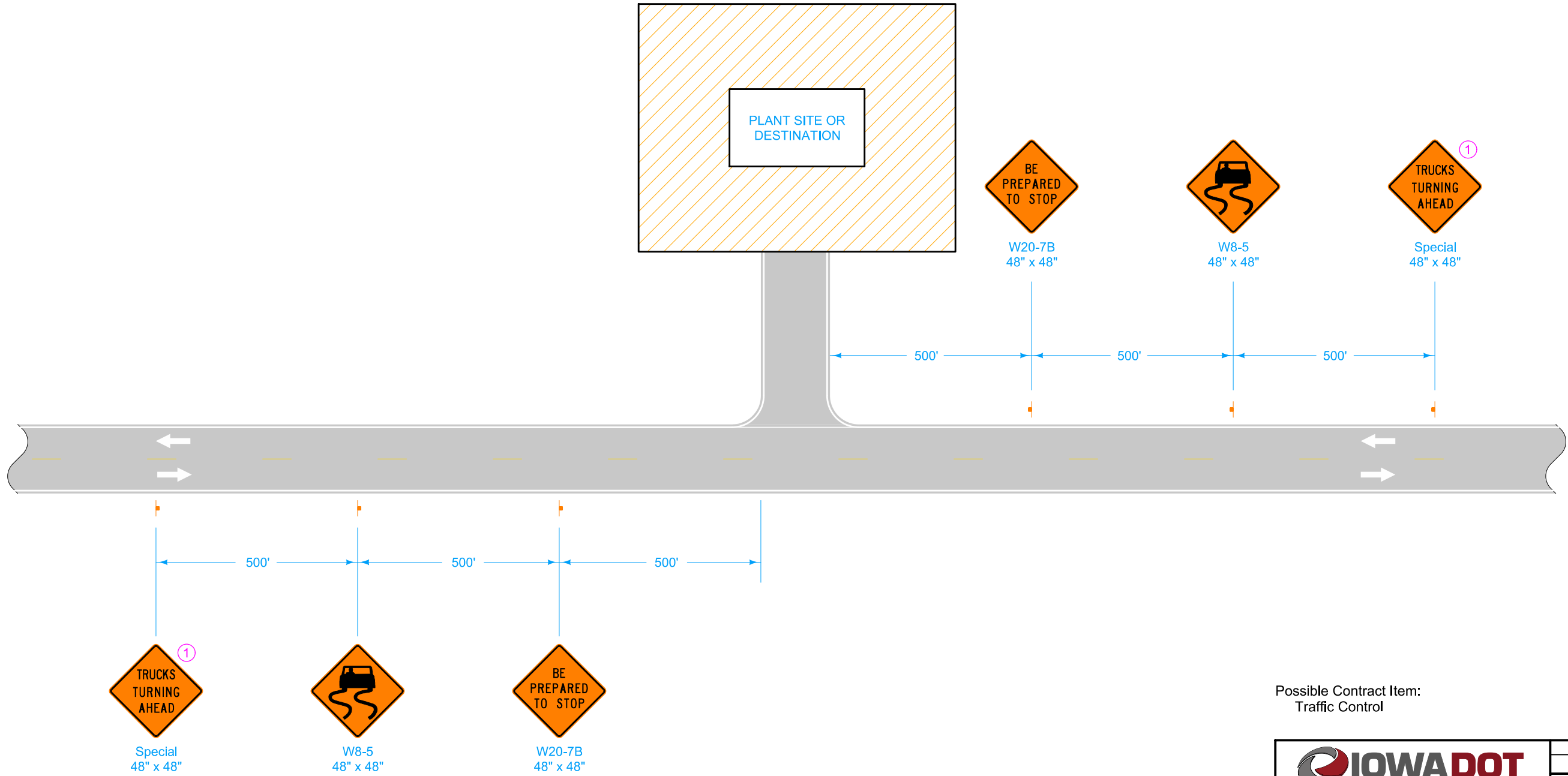
STAPLES ⑱

WIRE ASSEMBLY

 IOWA DOT	REVISION	
	2	10-20-15
	MI-103	
SHEET 7 of 7		
STANDARD ROAD PLAN		
REVISIONS: Added Designer Info button.		
		
APPROVED BY DESIGN METHODS ENGINEER		
DEER FENCE AND FIELD FENCE CONSTRUCTION		


Construction traffic shall yield the right-of-way to mainline traffic.


① Refer to [SI-881](#) for details.





Possible Contract Item:
Traffic Control

LEGEND

 Traffic Sign

 Direction of Traffic

 STANDARD ROAD PLAN	REVISION	
	2	10-15-19
	TC-273	
SHEET 1 of 1		
REVISIONS: New logo.		
 APPROVED BY DESIGN METHODS ENGINEER		
CONSTRUCTION SITE ENTRANCE		

ANALYTICAL REPORT

PREPARED FOR

Attn: Angie Sebastian
Iowa Department of Agriculture
Mines and Minerals Bureau
502 E. 9th St
Des Moines, Iowa 50319

Generated 10/16/2024 3:54:38 PM

JOB DESCRIPTION

B-Caves
IA-255

JOB NUMBER

310-292069-1

Eurofins Cedar Falls

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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10/16/2024 3:54:38 PM

Authorized for release by
Bob Michels, Project Manager I
Bob.Michels@et.eurofinsus.com
(319)277-2401

Case Narrative

Client: Iowa Department of Agriculture
Project: B-Caves

Job ID: 310-292069-1

Job ID: 310-292069-1

Eurofins Cedar Falls

Job Narrative 310-292069-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The sample was received on 10/3/2024 4:45 PM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.1°C.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Metals

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

General Chemistry

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Eurofins Cedar Falls

Sample Summary

Client: Iowa Department of Agriculture
Project/Site: B-Caves

Job ID: 310-292069-1
SDG: IA-255

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-292069-1	B-Caves (2)	Water	10/01/24 10:30	10/03/24 16:45

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Client Sample Results

Client: Iowa Department of Agriculture
Project/Site: B-Caves

Job ID: 310-292069-1
SDG: IA-255

Client Sample ID: B-Caves (2)

Lab Sample ID: 310-292069-1

Date Collected: 10/01/24 10:30

Matrix: Water

Date Received: 10/03/24 16:45

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac	Analyst
Sulfate	943		50.0		mg/L		10/10/24 09:42	50	HE7K

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac	Analyst
Iron	41.4		0.500		mg/L		10/16/24 14:23	1	ZRI4
Aluminum	3.14		0.100		mg/L		10/16/24 14:23	1	ZRI4
Manganese	4.24		0.0100		mg/L		10/16/24 14:23	1	ZRI4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Analyzed	Dil Fac	Analyst
Acidity as CaCO3 to pH 8.3 (2310B-2011)	54.3		5.00		mg/L		10/09/24 14:08	1	WZC8
Total Alkalinity as CaCO3 to pH 4.5 (SM 2320B)	<5.00		5.00		mg/L		10/10/24 19:52	1	WZC8
Analyte	Result	Qualifier	RL	RL	Unit	D	Analyzed	Dil Fac	Analyst
pH (SM 4500 H+ B)	4.1	HF	1.0		SU		10/03/24 17:12	1	W9YR

Accreditation/Certification and Definitions Summary

Client: Iowa Department of Agriculture
Project/Site: B-Caves

Job ID: 310-292069-1
SDG: IA-255

Laboratory: Eurofins Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-25

Qualifiers

General Chemistry

Qualifier	Qualifier Description
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
MRL	Method Reporting Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
SDL	Sample Detection Limit
SDL	Sample Detection Limit
SDL	Sample Detection Limit
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method Summary

Client: Iowa Department of Agriculture
Project/Site: B-Caves

Job ID: 310-292069-1
SDG: IA-255

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET CF
200.7 Rev 4.4	Metals (ICP)	EPA	EET CF
2310B-2011	Acidity	SM	EET CF
SM 2320B	Alkalinity	SM	EET CF
SM 4500 H+ B	pH	SM	EET CF
200.7	Preparation, Total Metals	EPA	EET CF

Protocol References:

EPA = US Environmental Protection Agency
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401



Environment Testing
America



310-292069 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information			
Client: <u>IDA/S</u>			
City/State: <u>CHM</u>	STATE	Project:	
Receipt Information			
Date/Time Received:	DATE: <u>10/3/21</u>	TIME: <u>1645</u>	Received By: <u>XB</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> Lab Courier <input type="checkbox"/> Lab Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____			
Condition of Cooler/Containers			
Sample(s) received in Cooler?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes: Cooler ID: _____
Multiple Coolers?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler # _____ of _____
Cooler Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes: Which VOA samples are in cooler? ↓
Temperature Record			
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE			
Thermometer ID: <u>P</u>		Correction Factor (°C): <u>0</u>	
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature			
Uncorrected Temp (°C): <u>2.1</u>		Corrected Temp (°C): <u>2.1</u>	
• Sample Container Temperature			
Container(s) used:	<u>CONTAINER 1</u>		<u>CONTAINER 2</u>
Uncorrected Temp (°C):			
Corrected Temp (°C):			
Exceptions Noted			
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No			
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No			
NOTE: If yes, contact PM before proceeding. If no, proceed with login			
Additional Comments			

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613

Phone 319-277-2401 or 800-750-2401
Fax 319-277-2425

To assist us in using the proper analytical methods,
is this work being conducted for regulatory purposes?
Compliance Monitoring

Client Name **IDALS** Client #

Address 502 E. 9th St

City/State/Zip Code Des Moines, IA, 50319

Project Manager Angie Sebastian

Email Address angie.sebastian@iowaagriculture.gov

Telephone Number 515-822-1538 Fax

Sampler Name (Print Name) Abbie Williams

Sampler Signature *Bob Williams*

Project Name B-Caves

Project # 1A-255

Site/Location ID Van Buren County State Iowa

Report To

Invoice To IDALS

Quote # PO#

[illegible]

TAL-0033 (0708)