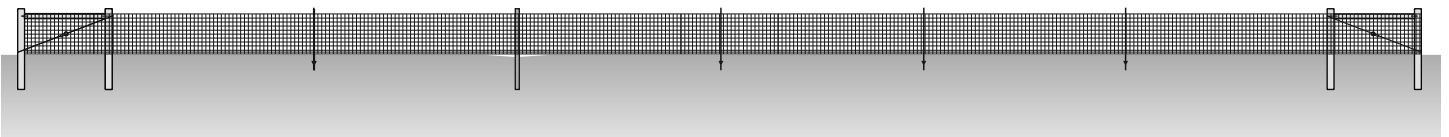


High Tensile Fixed-Knot Fence **Planning & Installation Guide** Using Wood Braces



How to Use this Planning and Installation Guide

This guide will help you to understand and plan your STAY-TUFF® Fixed Knot High Tensile Fence, as well as provide you with step-by-step installation guidelines.

The guide is divided into two distinct sections: Planning and Installation. There is also an Appendix with tools to help you plan and install your fence.



The Fixed Knot resists slipping vertically or horizontally. Solid vertical Stay Wires resist bending or folding.

An important and unique feature of the Stay-Tuff high tensile fence that you should keep in mind as you read the Guide is that it is supported and held under tension by braces at the beginning and end of each run. The Line Posts between the braces are intended only to hold the fence wire vertically in place.

In this Guide, we will describe how to install the high tensile fence with wooden braces.

Planning Section

In this section, we will use an Example Map to walk you through the process of Planning. What you learn here will help you plan and map your own fence.

Together, we will:

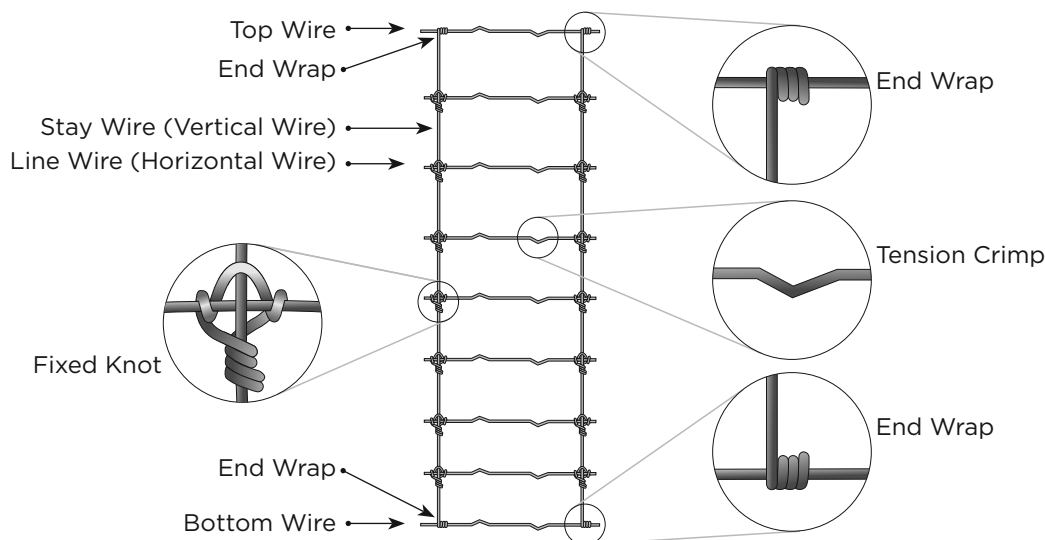
- Create a sample map of a completed fence line
- Determine the types and number of support elements that will be needed, including Braces and Line Posts
- Create a Checklist of the Materials needed to install the fence based on the map

Installation Section

Using a straight run of fence taken from the Example Map, we will take you through the installation process:

- Preparing the fence line
- Installing Braces and Line Posts
- Attaching, tensioning, splicing and trimming out the fence

Fixed Knot Fence Anatomy



For Your Safety



- Always wear protective gloves, boots and clothing to prevent serious cuts and punctures when handling fence components and tools.
- Protective eye wear is a must. Sharp edges and ends on fencing wire, staples and other components can cause serious eye injury.
- Coiled fence rolls are packaged under tension. Be cautious and stay clear of the roll as releasing the strapping to prevent injuries when the tension is released. Be cautious—the release of tension can be sudden.
- Always use a Spinning Jenny Smooth Wire Payout when unreeling high tensile smooth wire from coils.

- Use the recommended tools suggested in the Installation Section of this manual.
- Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.
- Inspect all tools and equipment before use to be sure that they are functioning properly and are safe to use.
- Any tools or equipment that appear to be damaged, worn, or not functioning correctly should be taken out of service immediately and should not be used.
- Know and respect local building codes where applicable.
- Work with a partner to make the job easier and safer.
- Take your time and be cautious.

Need More Information?

Contact a **STAY-TUFF Fence Specialist** at:

STAY-TUFF Fence
2700 Central Avenue
Poplar Bluff, MO 63901

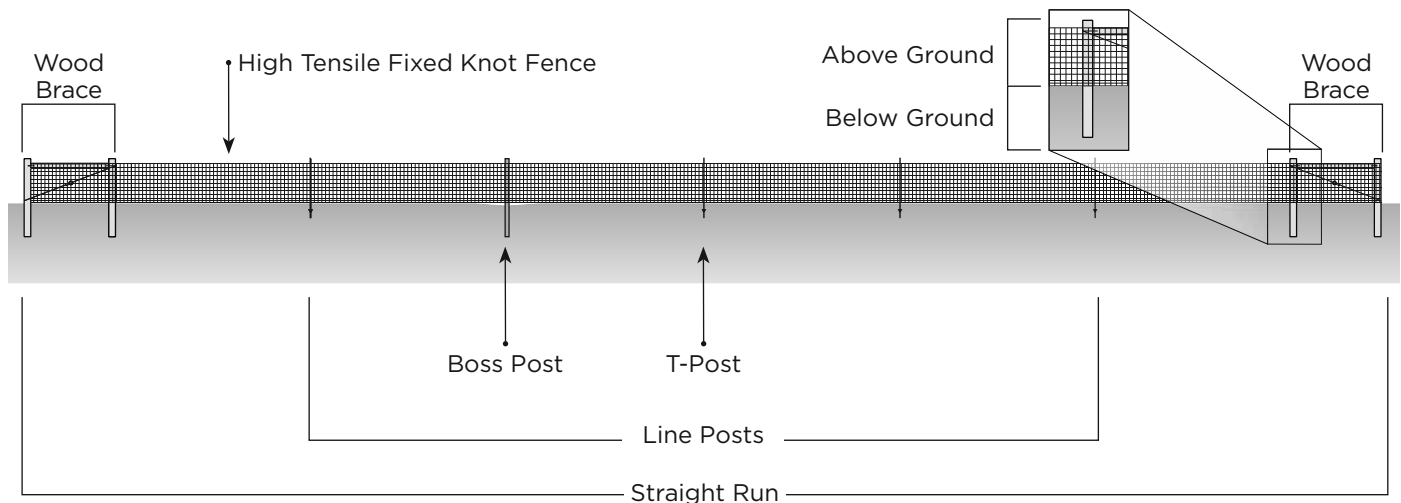
Website: **www.staytuff.com**

Toll Free: **1-800-867-6245**

Email: **sales@staytuff.com**

If you have any comments or ideas on how to improve this Guide, please let us know.

Basic Fence Anatomy


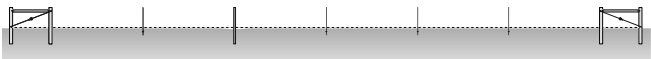

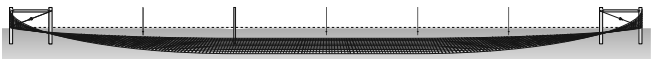

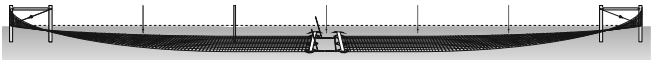
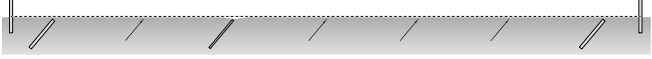


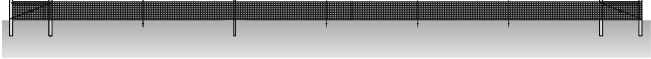
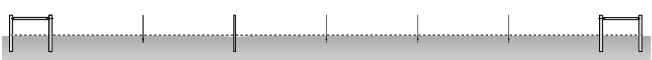


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1) PLAN & LAYOUT YOUR FENCE ON PAPER

A) Have a Total Plan

Thoroughly planning and mapping your fence is the easiest way to ensure that your fencing project goes as smoothly and economically as possible.

This is also your chance to plan for the long term use of your property and future developments you would like to make.

Throughout the Planning section, we will discuss the steps involved in making a Map, and to demonstrate the various steps, we will create an Example Map. At the end of the section, you will have a completed Example Map. By then, you should have a very good idea as to how to make your own map for determining the following:

- How to map of the fence line
- The number, size and types of materials you will need to construct the wood braces that will support the fence at the beginning and end of each straight run
- The number and type of Line Posts you will need
- Additional materials you will need such as Guide Wires, Staples, etc.
- The number, size and type of Stay-Tuff fence rolls you will need

B) Getting Started

To begin, we suggest sketching a map of your property.

Some helpful tools to use as a basis for your map are:

- A copy of the current survey of the property available from:
 - A survey company
 - Your local Tax Assessor
- Aerial photography available from:
 - The Natural Resources Conservation Service (NRCS), formerly known as the

Soil Conservation Service (SCS). Find a local service center at:
<http://offices.sc.egov.usda.gov/locator/app>

- The local Agricultural Extension Office. Find your local Extension Office at
<http://www.csrees.usda.gov/Extension/>
- Online sources such as Google Earth at
www.earth.google.com.



Property Lines: It is very important that you know the location of all property lines with absolute certainty BEFORE you begin fence construction. Be sure to consult the most recent survey of the property no matter how sure you are of property lines!



Underground Utilities & Easements: It is critical to know where any underground utilities such as water, phone, electrical, and gas lines are BEFORE you dig.

In the United States, contact your state's 'Call Before You Dig' number by dialing 811. You will be automatically connected to the 811 service for your state. You can also visit www.call811.com for more information.

If any underground utilities do exist, the appropriate utility company will mark your property to show the locations and types of existing lines free of charge.

Never fence across easements such as above-ground gas pipelines and power lines without notifying and getting approval from the necessary authorities.

Use a scaled graph paper* to sketch a map of your property, especially the area to be fenced, land use features and natural features.

*You can also copy the sample graph paper in the Appendix located in the back of this manual.

C) Map Land-Use, Natural Features & Fence Line

Sketch a map of your property that includes:

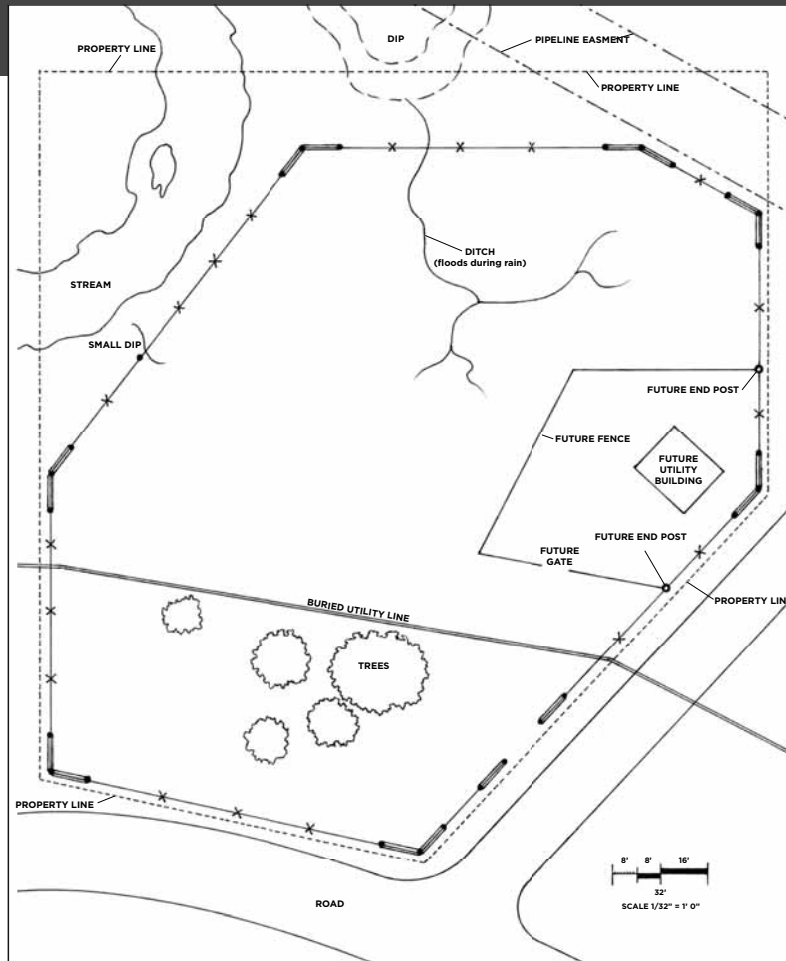
Land Use Features:

- Property lines (See previous page)
- Underground utility lines, if any (See previous page)
- Easements, if any (See previous page)
- Grazing acreage, pens and stalls
- Cultivated fields and forage/breeding areas
- Feeding and hunting areas
- Roadways
- Turning radiuses and gate widths for equipment
- Be sure to consider changes in land use and facilities over the next 5, 10, 20+ years and plan your fence installation accordingly

Natural Features:

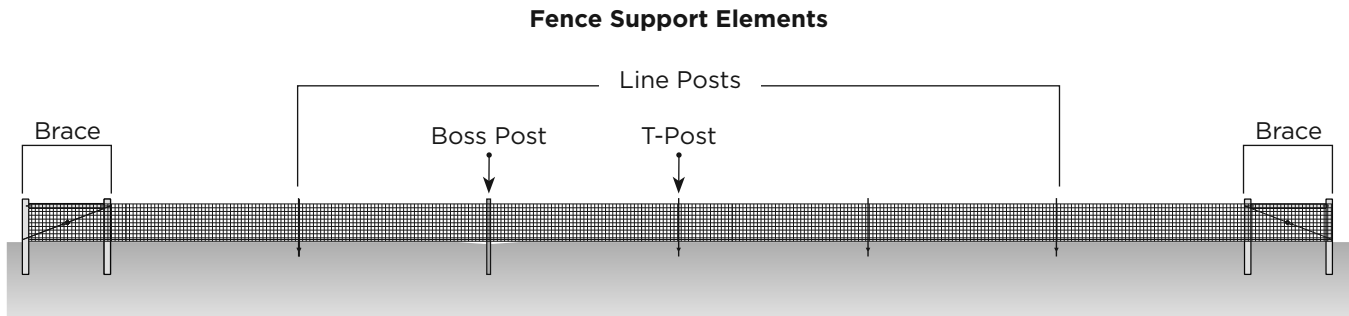
- Natural obstacles such as stream-beds or other dips
- Rough terrain: Avoid if possible when adding fence line
- Trees: Do not plan to use a tree as a post. If the tree falls, your fence will fall with it.
- Water gaps:
 - Avoid if at all possible
 - Run the fence parallel to streams, above the flood line whenever possible
 - For small, shallow water gaps, build a solid fence over the top
 - If you cannot avoid a large water gap, see Large Water Gap Solutions on page 8

ADD LAND-USE ELEMENTS, NATURAL FEATURES & FENCE LINE TO MAP



For completed
Example Map,
see page 12

D) Map Fence Support Elements



Fence elements are comprised of:

- **Braces** (pages 3 - 6) that are designed to anchor a high tensile fence and support its weight
- **T-Posts** (page 7) which hold the fence vertical
- **Bosses** (page 7) which also hold the fence vertical, but provide extra support along the fence where there are severe dips, hips (humps) and ledges in the fence line

a) BRACES

i) Brace Components

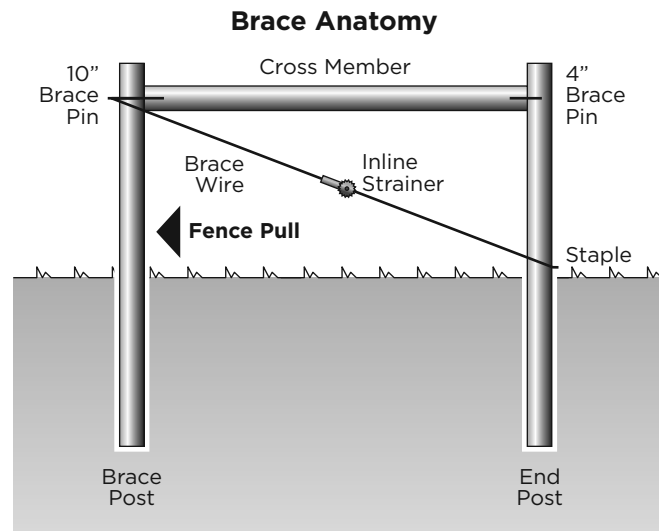
The Brace is designed to keep the fence tensioned (tightened) and support its weight. For this reason, Braces must be at the beginning and end of each straight run of fence. Braces are the key to a solidly built fence.

End Posts are the anchors of your fence. The fence wire is attached to these posts at the beginning and end of each straight run.

Brace Posts are used in conjunction with the Cross Member to hold the End Post in place and increase the amount of surface area of post that is in contact with the soil.

Cross Members connect End and Brace Posts to allow them to distribute the force of the fence.

Important: Do not use T-Posts as cross members.



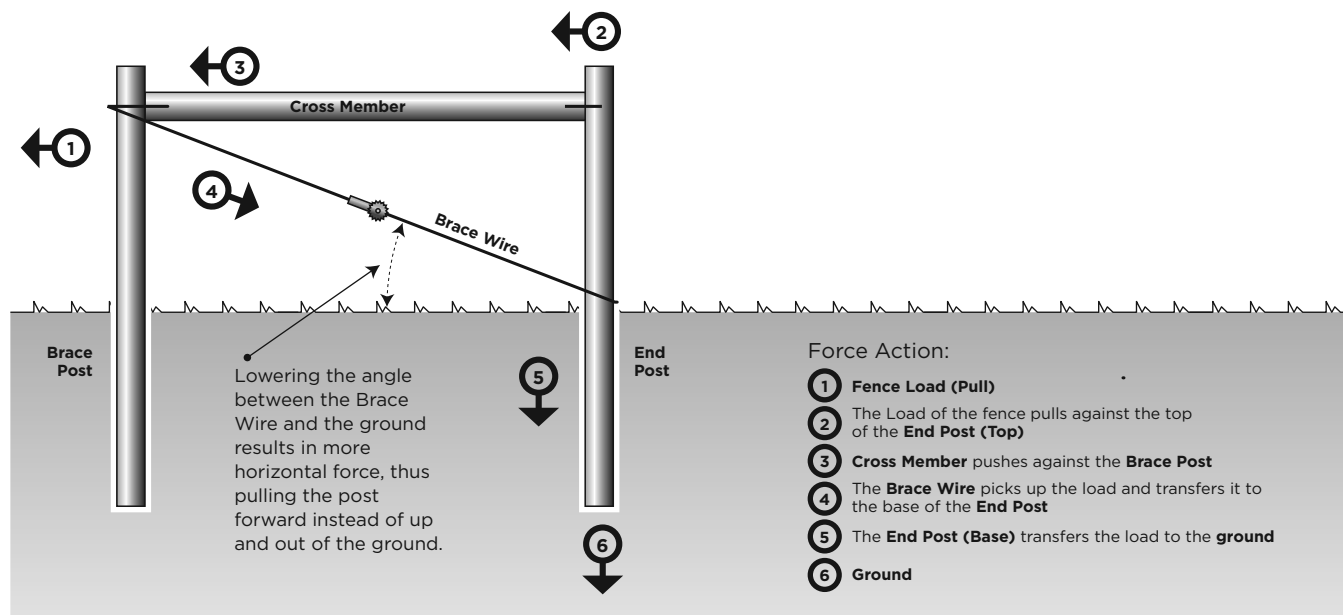
Brace Pins (4" and 10") hold the Cross Member in place on wood braces. Use 1/2" or larger Galvanized Pins. Nails and screws are not recommended.

Brace Wires (aka Twitch Wire) are used on wood Braces to transfer force between the posts of the brace. Without a Brace Wire, the entire brace will lean in the direction of the pull of the fence. Typically, the Brace Wire is made from two wraps of 12.5 gauge high tensile wire or 9 gauge low tensile wire. The 12.5 gauge high tensile wire is recommended because it does not stretch.

Inline Strainers tighten the Brace Wire on wood Brace assemblies. These can be used to retighten the Brace at any time should the Brace become loose due to factors such as changes in seasons or soil movement.

D) Map Fence Support Elements (cont'd)

ii) How a Brace Works



The Brace distributes the load of the fence.

Wood Braces are designed so that ultimately, the End Posts will transfer the full force of the tension and weight of the fence to the ground. This also applies to additional loads from animal pressure and objects impacting the fence.

The tops of End Posts, pulled in the direction of the fence, transfer the load via the Cross Member to the Brace Posts. This, by way of the Brace Wires, transfers the load to the base of the End Posts and from there to the ground.

For this transfer to work, the angle of the Brace Wire to the ground must be 30 degrees or less. If the angle is too steep the Brace Wire will create an upward force pulling the End Post out of the ground. At a proper angle the force will be horizontal and transferred to the surrounding soil. The only way to decrease the angle is to widen the Brace.

Softwood posts used for Braces need to be pressure treated with a preservative to resist damage from termites or other insects and decay. Chromate copper arsenate (CCA) is the most common preservative on the market and a minimum treatment level of 0.40% is advised for most conditions. In wet or boggy soils 0.60% is recommended.

Hardwood posts do not require treatment.

It is not recommended to use landscape timbers or other sawn lumber for brace posts or cross members. Landscape timbers typically have only 0.28% CCA treatment, making them unsuitable for burying. Sawn lumber will warp and bend under the forces that exist in the Brace.

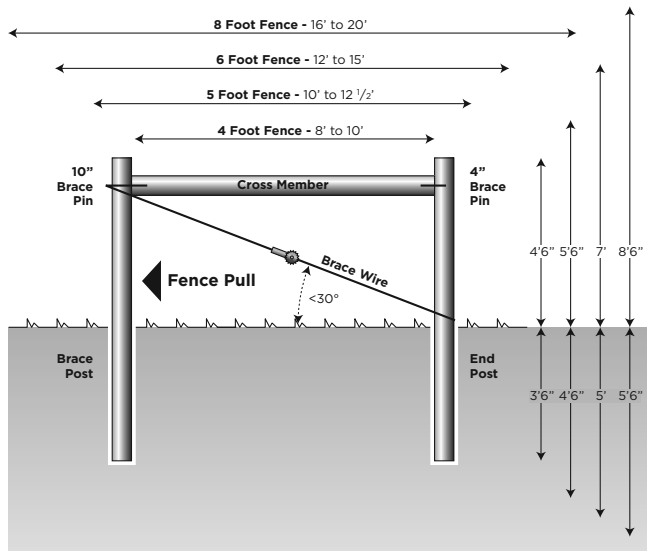
Wood posts should be a minimum of 6" in diameter for 4' fences and 7" in diameter for taller fences. See Chart in Wood Brace Configuration (on the next page) for more information on post sizes.

D) Map Fence Support Elements (cont'd)

iii) Brace Configurations

Use the Wood Braces in the configuration that is appropriate for the fence you are building.

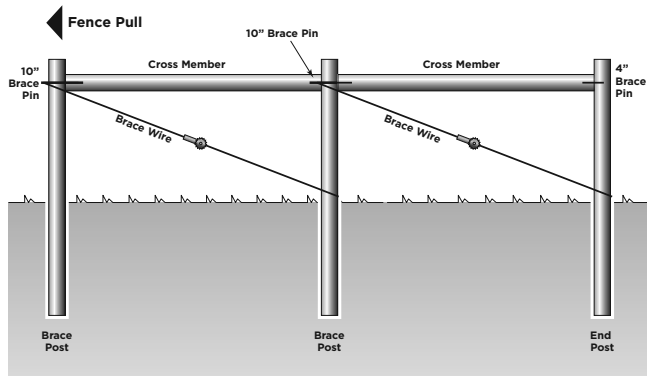
Single-H End Braces



Use Single-H End Braces at the ends of a straight run.

Single-H End Braces can withstand a force of between 1,500 and 3,000 pounds, depending on width, depth of posts, and soil type.

Double-H End Brace

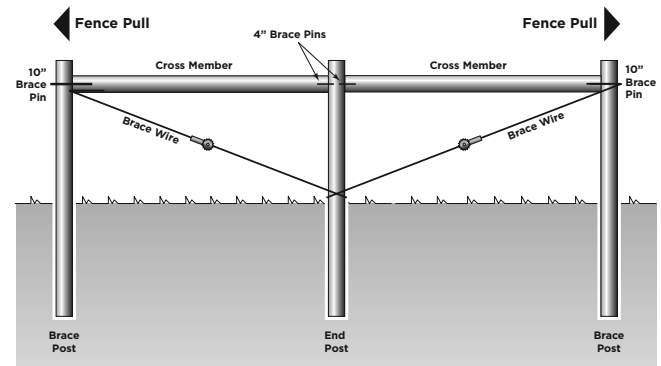


Double-H End Braces will support 40 to 50% more force than a Single-H Brace.

Double H Braces can be used where a wider Brace is needed or where the forces of the fence pulling on the Brace will be stronger than normal.

Double-H Inline Brace Assembly

Use as anchor/tie off points where the fence changes directions 15 degrees or more, or where the End Braces are more than 1,320' apart.



The Impact of Soil Type on the Brace Design You Choose

Soil type is the key aspect of determining which brace design to use. The presence of sandy soils, rocks or frost lines are a few of the factors in determining the type of brace (Double-H vs. Single-H) and the diameter and depth of the posts.

Sandy and light soils require larger diameter posts and deeper post depths. Double H End Braces (utilizing 3 posts driven into the ground) are often required in these cases.

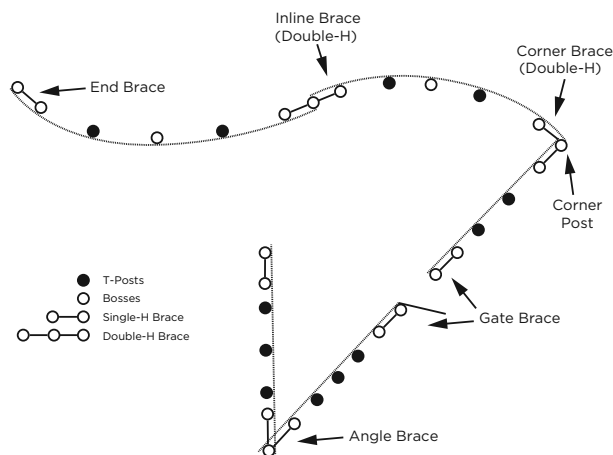
In regions with severe freezing and thawing cycles, it is often necessary to utilize deeper post depths as well. In these instances, the posts must be set below the frost line to prevent them being heaved out of the ground.

If it is not possible to set posts to the desired depth, an alternative is to use larger diameter posts and/or make the brace wider. Both of these options will increase the strength of the brace. Note that these options should only be used when absolutely necessary and should not be seen as a way to "cheat" on post depth.

D) Map Fence Support Elements (cont'd)

Brace Placement

- A Brace is required every time a fence starts, stops, or changes direction, regardless of the length of the run
- The ideal width of the Brace should be 2 1/2 times the height of the fence
- The spacing between Single-H Braces can be up to 1,320' apart. Fence runs longer than 1,320' will require an Inline Brace for additional support.
- For curves, add an Inline Brace or Boss Post depending on the size of the curve
- On corners of 15 degrees or more, a full Corner Brace is required
- If there is a possibility that other fence lines will connect to your new fence in the future, install the required End Posts for the future fence while you lay out the fence you are currently planning

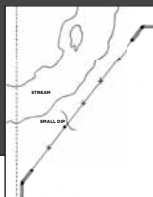


Fence wire should be on the side from which the most pressure will come: facing in for livestock or facing out for exclusion fencing.

On curves, the fence wire should be on the outside edge of curves as shown. This is so the fence is pulled against the Posts instead of away from them.

ADD BRACES TO YOUR MAP

For a completed Example Map, see page 12



iv) Brace Specifications

Single-H Wood End Braces

Minimum Specifications

POSTS & CROSS MEMBERS: Single-H

Item	Quantity	4' Fence	5' Fence	6' Fence	8' Fence
End & Brace Posts*	2	8' x 6"	10' x 6"	12' x 6"	14' x 7"
Cross Members	1 Wood*	10' x 5"	12' x 5"	16' x 5"	16' x 5"
	Or 1 Tubing**	10' x 2 3/8"	12' x 2 3/8"	16' x 2 7/8"	16' x 2 7/8"

* Hardwood or CCA Treated Softwood

** SS-40 H.T. Tubing

HARDWARE: Single-H Braces

Item	Quantity	Description
Brace Pins	1	4" X 1/2" Galvanized Pin
	1	10" X 1/2" Galvanized Pin
Brace Wire	1	Double Wrap 12 1/2 Ga. Cl.3 Hi-Tensile Wire
	or 1	Double Wrap 9 Ga. Cl. 3 Wire
Wire Strainer	1	Ratchet Type Inline Strainer
Staples	1	1 3/4" Cl. 3 Double Barbed

Double-H Wood Braces

Minimum Specifications

POSTS & CROSS MEMBERS: All Double-H

Item	Quantity	4' Fence	5' Fence	6' Fence	8' Fence
End & Brace Posts*	3	8' x 6"	10' x 6"	12' x 6"	14' x 7"
Cross Members	2 Wood*	10' x 5"	12' x 5"	16' x 5"	16' x 5"
	or 2 Tubing**	10' x 2 3/8"	12' x 2 3/8"	16' x 2 7/8"	16' x 2 7/8"

* Hardwood or CCA Treated Wood Softwood

** SS-40 H.T. Tubing

HARDWARE: Double-H End Braces

Item	Quantity	Description
Brace Pins	1	4" X 1/2" Galvanized Pin
	2	10" X 1/2" Galvanized Pin
Brace Wire	2	Double Wrap 12 1/2 Ga. Cl.3 Hi-Tensile Wire
	or 2	Double Wrap 9 Ga. Cl. 3 Wire
Wire Strainer	2	Ratchet Type Inline Strainer
Staples	2	1 3/4" Cl. 3 Double Barbed

HARDWARE: Inline, Corner & Angle Braces

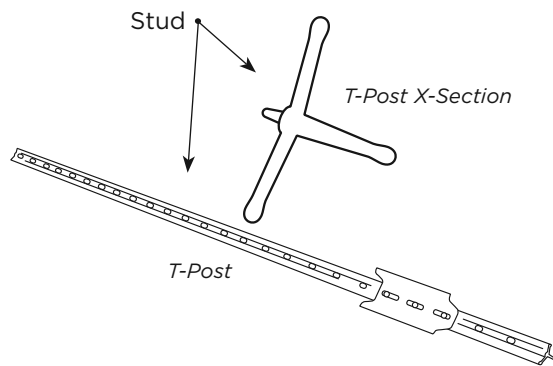
Item	Quantity	Description
Brace Pins	2	4" X 1/2" Galvanized Pin
	2	10" X 1/2" Galvanized Pin
Brace Wire	2	Double Wrap 12 1/2 Ga. Cl.3 Hi-Tensile Wire
	or 2	Double Wrap 9 Ga. Cl. 3 Wire
Wire Strainer	2	Ratchet Type Inline Strainer
Staples	2	1 3/4" Cl. 3 Double Barbed

D) Map Fence Support Elements (cont'd)

b) LINE POSTS: T-POSTS & BOSSES

Line Posts consist of T-Posts and Bosses. For a STAY-TUFF High Tensile Fixed Knot Fence, they are set using 20' to 25' spacing depending on:

- Terrain: In rough terrain, place Line Posts closer and use line bosses in dips and on humps
- Soil: In light or sandy soils, place Line Posts closer
- Turns in fence line: Place Line Posts closer and use line bosses
- Animal pressure: place Line Posts closer in high animal pressure applications



T-Posts

Steel T-Posts are commonly used as Line Posts. T-Posts are so named because they have cross-sections in the shape of the letter T.

Typically, T-Posts have raised Studs on the flat side to help hold fence wire in place and a spade at the bottom to help hold the post in the ground.

T-Posts are an economical alternative to heavier wood or steel Line Bosses.

T-Posts are available in a range of heights and weights. Be sure to purchase heights appropriate for the fence you are building.

T-Post Sizes:

At minimum, use painted 1.33 lbs-per-foot weight T-Posts. Galvanized T-Posts are more expensive, but provide longer protection against rust and corrosion.

Fence Ht.	Size
4'	6' 6"
5'	8'
6'	8'
8'	10' 4"

- T-Post center spacing should be on 20' to 25' centers for most applications
- A combination of Line Bosses and T-Posts will give the best results. When using a combination of T-Posts and Line Bosses, use a 4:1 ratio, so that you have 4 T-Posts to every 1 Line Boss.

Bosses/Strength Posts

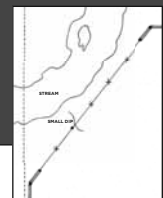
- Bosses are larger than T-Posts and can be made of one of the following materials:
 - Hardwood
 - CCA treated softwood
 - Structural tubing
 - Galvanized pipe
- Bosses are used for additional strength in the fence line
- Place at the lowest point in a dip and at the crown of a hump to hold the fence up or down as required. HINT: Standing on a guide wire in a dip will show you where to place the Boss.

Boss Sizes:

	Wood	Steel
Fence Ht.	Size H x Dia	Size H x Dia
4'	8' x 6"	7' x 2 3/8"
5'	10' x 6"	8' x 2 3/8"
6'	12' x 6"	9' x 2 3/8"
8'	14' x 7"	12' x 2 3/8"

ADD T-POSTS AND BOSSES TO YOUR MAP

For a completed Example Map, see page 12



D) Map Fence Support Elements (cont'd)

c) GATES

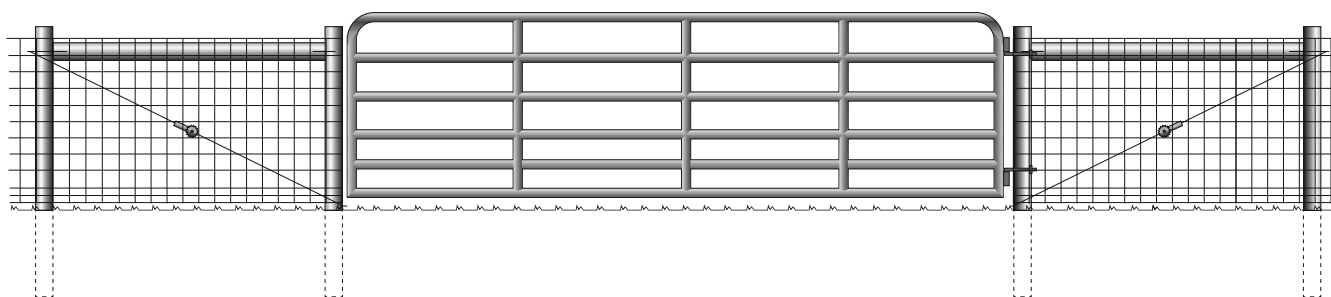
- For optimum Gate placement, take into account livestock and equipment access and traffic.
- Try not to set gates perpendicular to the fence line. If a gate must be perpendicular, use a gate foot
- Gates must have close tolerances
- Set gates so that they swing back against the fence, not through
- Plan for equipment height in facilities if you use an overhead gate

Hint:

Slam-latches (self-locking latches) are advisable for working stock

ADD GATES TO YOUR MAP

For a completed Example Map, see page 12



d) LARGE WATER GAP GATES

Large water gaps in fence lines usually require a more complex fence solution from a fence professional or engineer.

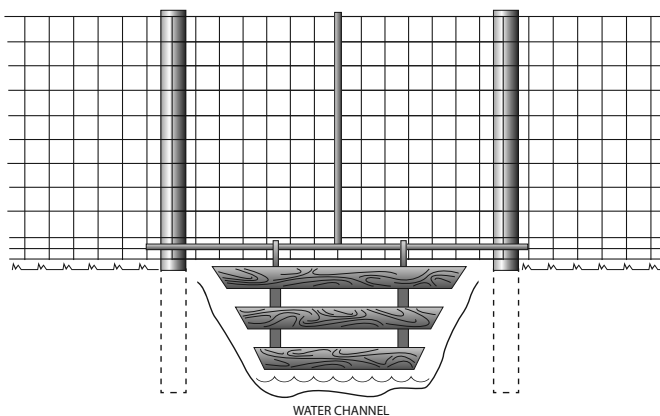
In a typical water gap fence solution, a Water Gate (aka Flood Gate or Swing Gate) is suspended from a firm support and its shape conforms to the shape of the channel into which it is suspended. The Water Gate swings or pivots on the support when under pressure from high water, without impeding water flow. It returns to vertical when the water subsides. The wider the gap and deeper the channel, the more complex the Gate will have to be. Very wide gaps may require multiple Water Gates.

Before consulting with a professional fencing company, have the following ready:

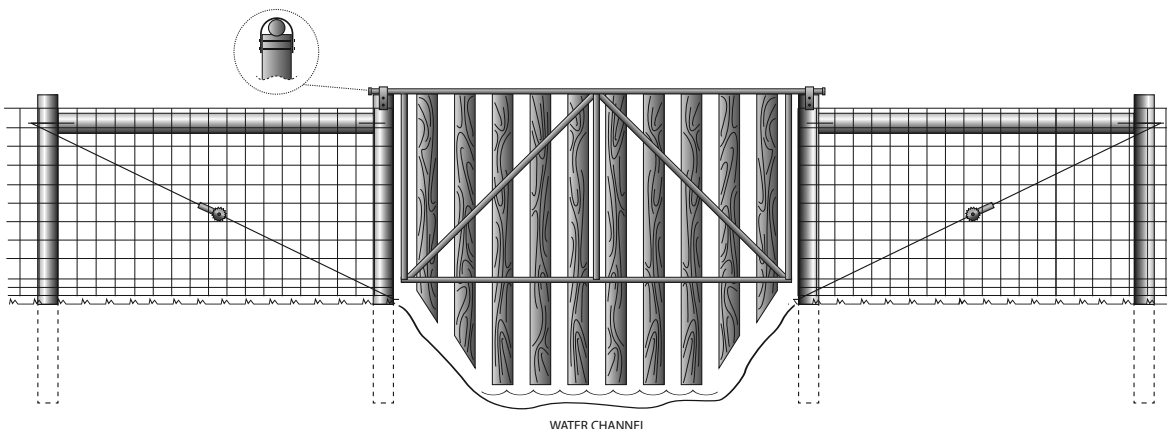
- Digital photos from upstream and downstream and from both sides of the gap
- The type of fence you plan on using up to the gap
- The dimensions of the gap
- Purpose of the fence: What are you keeping in or out?
- Nature of the water: river, constantly flowing stream or stagnant water, frequent flooding, etc.

STAY-TUFF does not engineer or build large water gap fences, but we can guide you to reputable professionals who do. For more information, please contact STAY-TUFF at 1 800 867-6245 or email sales@staytuff.com.

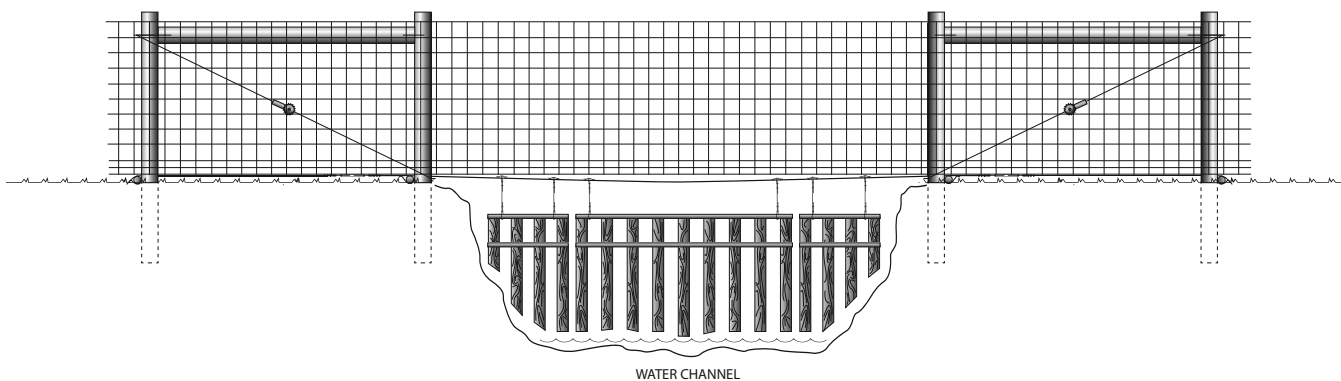
Examples of Water Gate Construction



Typical Single Water Crossing Gate.



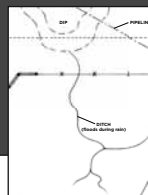
Typical Double Water Crossing Gate



Typical Large Water Crossing Gate

ADD LARGE WATER GAPS TO YOUR MAP

For a completed Example Map, see page 12



2) HOW MUCH FENCE TO ORDER

A) Length of Fence Line

There are a number of ways to determine the length of fence you need.

- Count off your paces the old fashion way
- Track your walk with a smartphone GPS app which are free on iPhones and Android OS phones (Samsung, LG, HTC, etc.)
- Use a measuring wheel or tape measure
- Use measurements from an aerial map or graph paper that has been created to scale



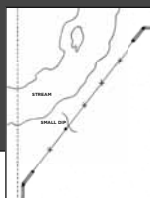
GPS apps are available free on smartphones.



Measuring wheel

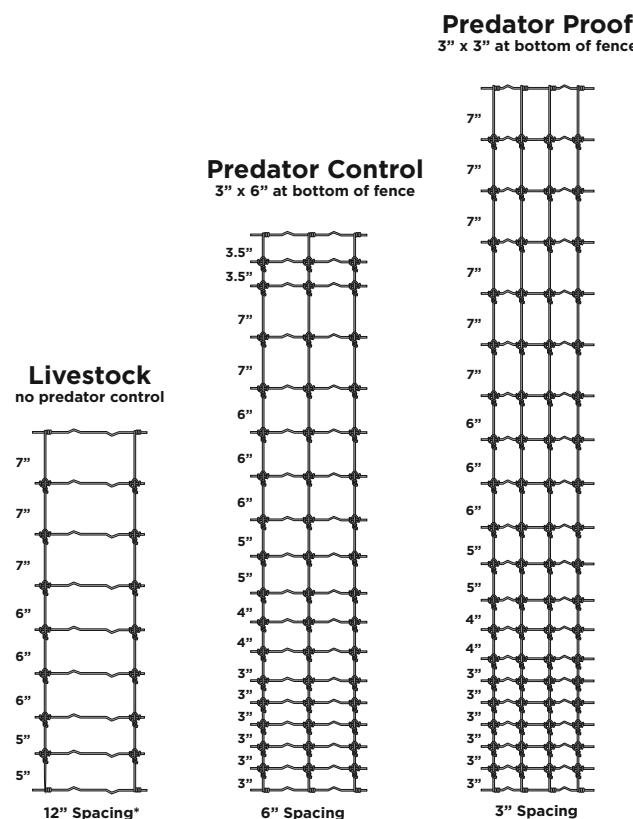
ADD MEASUREMENTS TO YOUR MAP

For a completed Example Map, see page 12



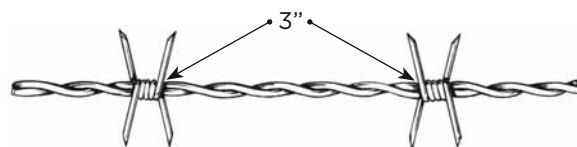
B) Livestock & Predator Profiles

STAY-TUFF Fixed Knot Fencing comes with varying wire spacings to help in predator control as per the illustration below. Select the one appropriate for your needs.



* Spacing between Vertical Wire (stays) is nominal and may vary slightly from the examples shown.

For additional predator control consider a high-tensile Class 3 Galvanized Barbed Wire with 4-point barbs every 3" as a bottom and/or top strand to your fence. This will discourage predators from digging under the fence or climbing over the top.



Predator Control High-Tensile Barbed Wire

C) Calculate the Number of Fence Rolls You will Need

FENCE NOMENCLATURE

EXAMPLE: 2096-6-330 is a fence with:

- 20 line wires (horizontal)
- 96" height
- 6" spacing between verticals (stays)
- 330' feet in length



Total Fence Length Needed/Roll Length Feet* = Number of Rolls Rounded Up

Any extra fence can be used for repairs in the future.

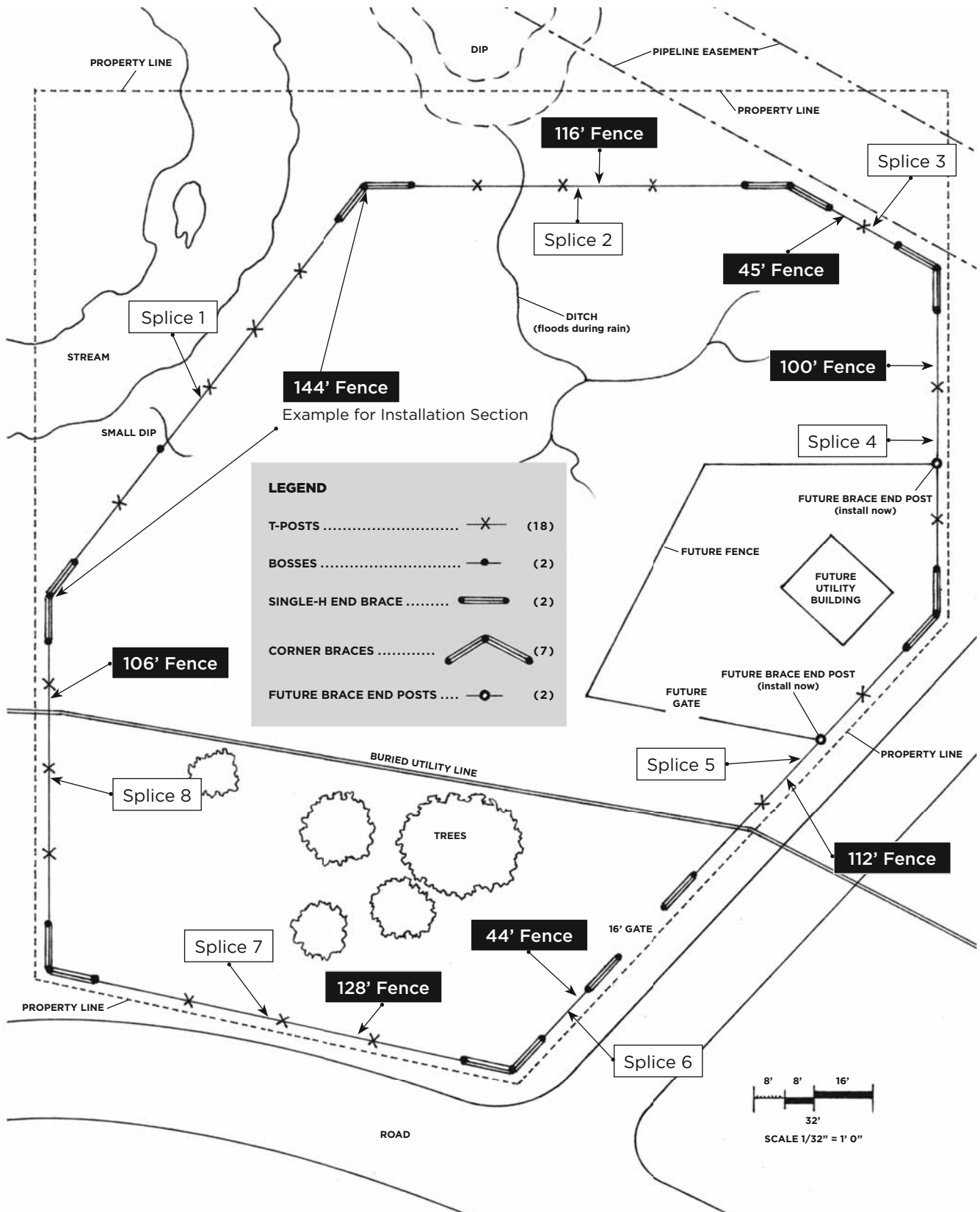
*For roll lengths, see table below.

FENCE SPECIFICATIONS

RECOMMENDED APPLICATIONS

FENCE	ROLL LENGTH																				
# Line Wires; Height inch; Spacing Stays inch	200'	330'	660'	Bison	Cattle	Deer	Elk	Goats	Horses	Hogs	Sheep	Dogs	Airport	Security	Exclusion	Residential	Roadway	Garden	Sports	Race Track	Chain Link Alt.
2572-3	✓											x	x	x	x	x		x	x	x	x
1748-3	✓							x	x			x	x	x		x			x		x
23120-3	✓					x								x				x	x	x	x
23120-6		✓				x	x						x	x			x	x			x
23120-12		✓	✓			x	x						x		x						
2096-3	✓					x							x	x				x	x	x	x
2096-6		✓				x	x						x	x			x	x			x
2096-12		✓	✓			x	x						x		x						
1775-3	✓			x					x			x		x				x	x	x	x
1775-6		✓		x								x		x				x			x
1661-3	✓			x					x			x				x		x	x		x
1661-6		✓		x	x							x				x					
1661-12		✓	✓	x	x			x										x			
949-6		✓		x	x					x	x						x				
949-12		✓	✓	x	x												x				
949-24		✓	✓	x	x												x				
1348-3	✓							x	x		x	x				x		x	x		x
1348-6		✓						x		x	x	x				x					
1348-12		✓	✓		x			x			x	x									
842-3	✓							x		x	x	x				x			x		
842-6		✓			x					x	x	x					x				
842-12		✓	✓		x			x									x				
735-3	✓									x		x									
735-6		✓								x											









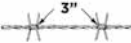






3. EXAMPLE MAP COMPLETED - 4' Fence with Predator Control



4. MATERIALS CHECKLIST

Now that you have completed the plan map, it is a good idea to summarize the materials you need such as in the Checklist below, that is based on the Example Map on page 12.

For a blank checklist that you can copy, see page 38.

STAY-TUFF Fixed Knot Fence						Qty.	Guide Page(s)	
Fence Product Num. 1348-6	Height x Length, ft. 4' X 795'	Stay Wire Spacing <input type="checkbox"/> 24" <input type="checkbox"/> 12" <input checked="" type="checkbox"/> 6" <input type="checkbox"/> 3"	Num. of Line Wires 13	Feet/Roll ____ 200' 3 ____ 330' ____ 660'	Rolls 3	10-11		
Braces								
End & Brace Posts (wood) 	Length, ft. 8'	Dia., in. 6"		Ea. 27	6			
Brace Pins, 4" X 1/2" 	Sgl. H End (1 ea.) + Dbl. H End (1 ea.) + Corner/Angle (2 ea.) + Inline (2 ea.) 2 X 1 = 2 ____ X 1 = ____ 7 X 2 = 14 ____ X 2 = ____	Ea. 16		24				
Brace Pins, 10" X 1/2" 	Sgl. H End (1 ea.) + Dbl. H End (2 ea.) + Corner/Angle (2 ea.) + Inline (2 ea.) 2 X 1 = 2 ____ X 2 = ____ 7 X 2 = 14 ____ X 2 = ____	Ea. 16						
Cross Members <input type="checkbox"/> Wood <input checked="" type="checkbox"/> Steel Tubing 	Length, ft. 10'	Dia., in. 2 3/8"		Ea. 16	6			
Brace Wire <input type="checkbox"/> Smooth 9 Ga. Cl. 3 <input checked="" type="checkbox"/> Smooth HT 12.5 Ga. Cl. 3 * 	Length/Brace = 4 x Distance A to B (A/B) plus <input type="checkbox"/> 12" or <input type="checkbox"/> 18" Total Brace Wire = Length/Brace 48' x Num. of Strainers 16 = 768 ft.			Coils SEE BELOW	25			
Ratcheted Inline Strainer 	One Strainer Per Brace Wire Installed			Ea. 16				
Ratcheted Inline Strainer Handle 	One Handle minimum. More for crews working on multiple Braces at the same time			Ea. 2				
Guide Wire								
<input checked="" type="checkbox"/> Smooth HT 12.5 Ga. Cl. 3 * 	Length, ft. + <input checked="" type="checkbox"/> Brace Wire 795 + 768 = 1,563 ft.	<input type="checkbox"/> 10 lb. Coil = 440' <input checked="" type="checkbox"/> 50 lb. Coil = 2,200'		Coils 1	18			
<input type="checkbox"/> Predator Control HT Barbed Wire 	Length, ft.	1,320'/Roll		Rolls				
Inline Posts, Splicing & Affixing Fence								
T-Posts 	Post Centers 25'	Length 6' 6"	Weight 1.33	Ea. 18	7			
Boss/Strength Posts 	<input checked="" type="checkbox"/> Wood <input type="checkbox"/> Steel	Length 8'	Dia. 6"	Ea. 1				
Long Crimp Sleeves 12 to 16 Ga. 	Num. of Sleeves = Num. Line Wires 13 x Num. Splices 8			Ea. 104	31			
T-Post Clips 	Use: <input checked="" type="checkbox"/> Normal	Num. of Clips = Num. of Clips/T-Post 6 x Num. of T-Posts 18		Ea. 108				
Steel Pipe/Tubing Clips 	<input type="checkbox"/> Heavy <input type="checkbox"/> Feral Hog Resistant	Num. of Clips = Num. of Clips/Steel Post ____ X Num. of Steel Posts ____		Size ____				Ea.
Staples, Double Barbed, 8 Ga. Cl.3 	Num. of Staples = Num. of Staples/Wood Post 6 X Num. of Wood Line & Brace Posts (optional) 19 = 114 Add Num. End/Corner Posts 9 x 3 = 27		Size 1 3/4"	Ea. 141				

* If you are using Smooth HT Wire 12.5 Ga. Cl.3 for both Guide Wire and Brace Wire, add those two lengths together to determine the total number of Coils you will need for both.

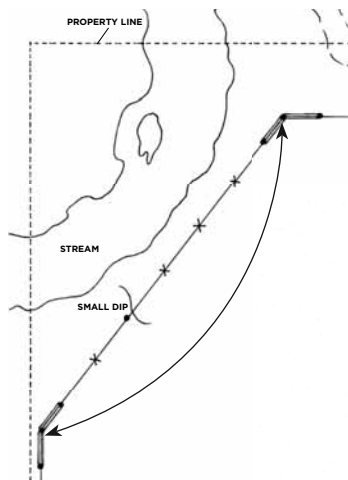
HOW TO USE THE INSTALLATION SECTION

In this section, you will learn how to install your STAY-TUFF High Tensile Wire Fence.

Before you begin this section, you must review the Planning section first.

Is Your Map of the Fence Line Completed?

Your fence plan map should be completed before you begin the installation of the fence. It is an important tool for the installation. Your map should show the fence line and indicate where Braces, Line Posts and Gates are to be placed. See page 12 for an example of a Completed Map.



For instructional purposes, we will construct this single section of fence (above) taken from the Example Map on page 12.

See below for how the finished example fence will look for this section of fence line.

The Materials Checklist

In the Appendix on page 38 is a Materials Checklist form that you can copy and use to make sure you have all the fence elements that you will need before you begin the installation. See page 13 for an example of a completed Materials Checklist

Quick Overview

Using a single straight run of fence taken from the Example Map, we will take you through the installation process:

- Preparing the fence line
- Installing Braces and Line Posts
- Attaching, Tensioning, Splicing and Trimming out the fence

In practice when building a fence line with multiple Braces, it is usually best to:

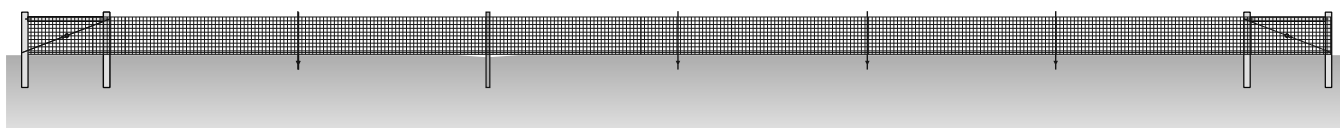
- 1) First install all of the End/Corner Posts and Guide Wires
- 2) Then lay out and install all the Brace Posts and Line Posts for the entire fence
- 3) Then assemble all of your Braces
- 4) Finally install, tension and affix the fence wire to Brace Posts and Line Posts

Tools Checklist

Make sure you first read through the entire Installation section. In part, this is so you will know what tools you will need. Each Installation step begins with a recommended tool list.

To help you with your own tool list, see the Appendix on page 38 for a Tools Checklist that you can copy and use.

This will be the finished fence example.





1. PREPARE THE FENCE LINE AREA

Prepare the Fence Line Area

The fence line area as determined by your plan should be cleared and cleaned before starting the fence installation.

The optimum width for your cleared fence line path should be wide enough to drive along.

Remove all deadfall, brush or other obstacles along the path of the fence.

Fill, level, and tamp any holes along the path of the fence to minimize predator incursions.



For Your Safety

- Always wear protective gloves, boots and clothing to prevent serious cuts and punctures when handling fence components and tools.
- Protective eyewear is a must. Sharp edges and ends on fencing wire, staples and other components can cause serious eye injury.
- Coiled fence rolls are packaged under tension. Be cautious and stay clear of the roll when releasing the strapping to prevent injuries as the tension is released. Be cautious—the release of tension can be sudden.
- Always use a Spinning Jenny Smooth Wire Payout to payout coils of High Tensile Smooth Wire.
- Use the recommended tools suggested in the Installation Section of this manual.
- Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.
- Inspect all tools and equipment before use to be sure that they are functioning properly and are safe to use.
- Any tools or equipment that appear to be damaged, worn, or not functioning correctly should be taken out of service immediately and should not be used.
- Know and respect local building codes where applicable.
- Work with a partner to make the job easier and safer.
- Take your time and be cautious.



2. SET END POSTS

Components Needed:

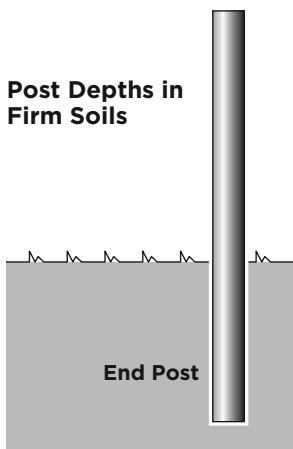
End Posts (2)
Concrete (optional)

Tools/Equipment:

Map of Fence Line
Depending on the post setting method you plan to use:

- Post Driver/Pounder
- Post Hole Driller
- Portable Self-Powered Auger

Post Depths in Firm Soils



Fence Height	Post Size	Setting Depths
4'	8' x 6" (dia.)	3' 6"
5'	10' x 6" (dia.)	4' 6"
6'	12' x 6" (dia.)	5' 0"
8'	14' x 7" (dia.)	5' 6"

For sandy soils and consistently wet soils, you need additional depth.



Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

End Posts mark the beginning and end of a straight fence run.

Spacing between End Posts of a straight, uninterrupted run can be up to 1,320' without the need for additional Inline Braces.

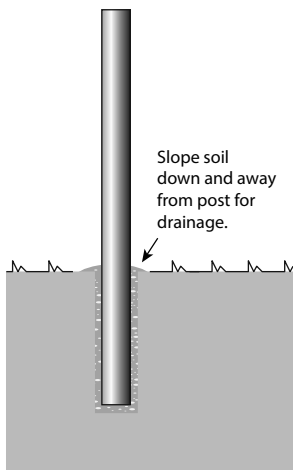
Wood posts in firm soils should be driven into the soil 3 1/2' to 5 1/2' depending on soil type and fence height.

Wood posts can be pounded into place or set in pre-drilled holes.

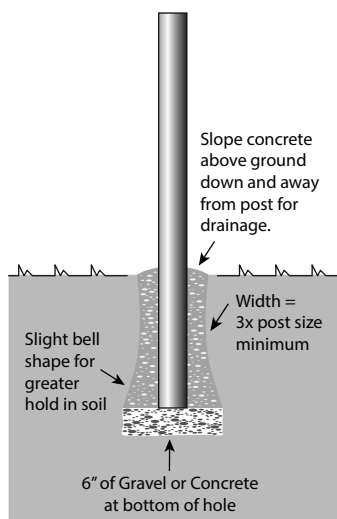
Driven Posts: In most cases, a driven post is the best option as it can withstand greater force than one placed in a pre-drilled hole. The undisturbed soil around a driven post enables the post to handle higher loads.

Slope ground soil down and away from post for drainage.

Drilled Holes: If you dig the post holes with a portable auger or drill, tamp small amounts of dirt at a time. For best results, be sure to return all of the excavated soil back into the hole and tamp it down firmly.



Setting Post in Firm Soil



Setting Post in Concrete

HINT:

Mark the depth you need to dig the hole on your auger so you know when you have reached the right depth.

Concrete Setting

Using concrete to set End Posts has the effect of making the post larger in diameter. This will create more surface area for interaction with the surrounding soils. Even with concrete, the posts must be placed deep enough or movement will still occur. When using concrete it is suggested to have the bottom of the hole belled-out to anchor the concrete under undisturbed soil.

The top of the concrete footer should be sloped so that water can runoff away from the post.

Allow two days for cement to cure before pulling on any posts set in concrete.



Important

Do not notch wooden posts – this weakens the post and can expose untreated wood in a treated post.

Do not cut the tops of wood posts. The ends of the post are fully treated during the pressure treatment process and cutting them off leaves an opening in the protection.

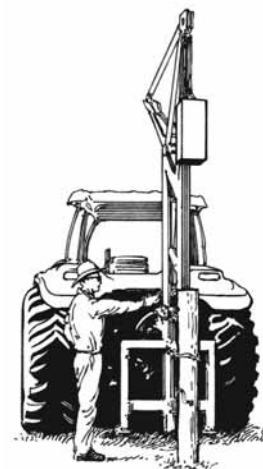
Post Setting Methods



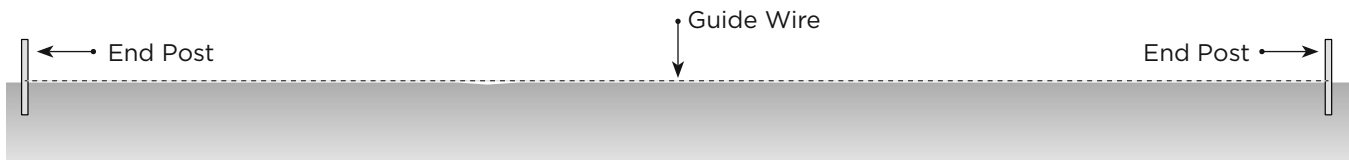
Portable
Self-Powered Auger



Post Hole Driller



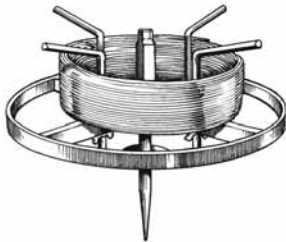
Post Driver/Pounder



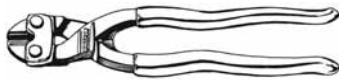
3) RUN THE GUIDE WIRE

Components Needed:

Code No.	Type	Description	Coil Wt./ Approx. Length
GW 398	Smooth Wire	12.5 Ga. Cl. 3 HT	10 lb./440'
GW-399			50 lb./2,200'
STDW-573	Predator Control Barbed Wire	15.5 Ga. Cl. 3 HT with 4-Point Barbs every 3"	1,320'



Use a Spinning Jenny to payout smooth high tensile Guide Wire.



High Tensile Wire Cutter



Smooth Wire Puller and Chain

Tools:

Hammer

Spinning Jenny Smooth Wire Payout (SAFC-100)

High Tensile Wire Cutter (KN-570)

Smooth Wire Puller (RE-560)



Safety Note: Always use a Spinning Jenny to payout High Tensile Smooth Wire from coils.



Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

Run the Guide Wire

Although optional, a Guide Wire pulled between the two End Posts makes setting the Line Posts and Brace Posts much easier. The Guide Wire can be temporary or permanent.

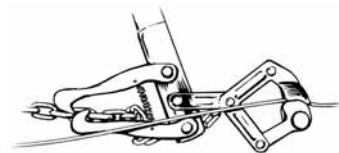
Use a High-Tensile Wire for best results.

Tie-off the Guide Wire on one of the End Posts using a High Tensile Wire Slip Knot. (See page 41 of the Appendix: “**How to Tie a High-Tensile Wire Slip Knot**”.)

Position the knot on the side of the End Post where the fence will be. Do not position the knot in the center of the End Post. (See page 19 Illustration: Guide Wire Installed)

Run the Guide Wire to the second End Post where it will be tightened first before tying off.

For extra predator control consider using a High-Tensile 15.5 Ga. Class 3 Galvanized Barbed Wire with 4-point barbs every 3”, which will discourage predators from digging under the fence. Position this wire very near or on the ground.



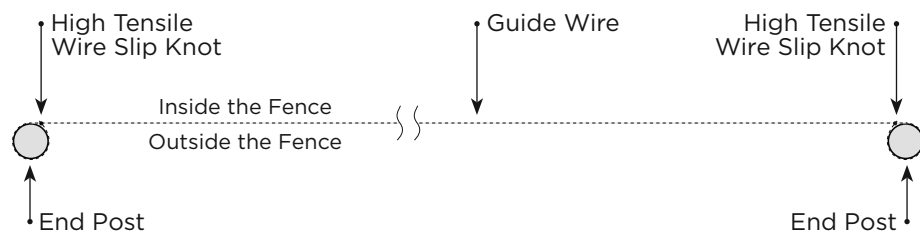
Tightening the Guide Wire with a Smooth Wire Puller

Using a Smooth Wire Puller is the easiest way to tighten the Guide Wire.*

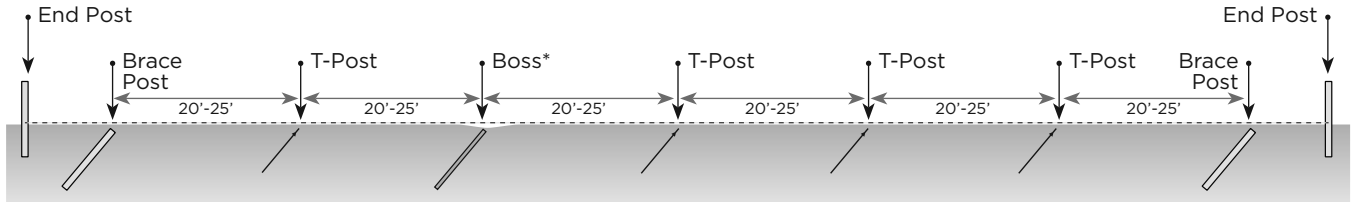
- 1) Wrap the Smooth Wire Puller chain around the second End Post and then back through the clamping jaws on the end of the chain.
- 2) Place the end of the chain into the chain walking jaws of the Puller.
- 3) Manually pull the Guide Wire until it is relatively tight and then place the wire into the clamping jaws on the handle of the Smooth Wire Puller. These jaws lock onto the wire as tension is applied.
- 4) Tighten the Guide Wire by cranking the handle to walk the jaws up the chain.
- 5) Once the Guide Wire is tight, wrap it around the End Post and cut it with High-Tensile Wire Cutters, leaving roughly 2' of extra wire to make a knot.
- 6) We recommend using a special high-tensile slip knot to tie-off the Guide Wire. (See Appendix page 41 for “**How to Tie a High-Tensile Wire Slip Knot**”.)
- 7) Once the Guide Wire is tied off, release the tension on the Guide Wire by walking the jaws of the Smooth Wire Puller back down the chain.
- 8) Pick up the Guide Wire and drop it. This snaps the guide wire to its natural position between the two End Posts, giving you a straight fence line to use for accurate post placement.

*Alternatively, you can use a conventional Come-along or Line Puller.

Guide Wire Installed

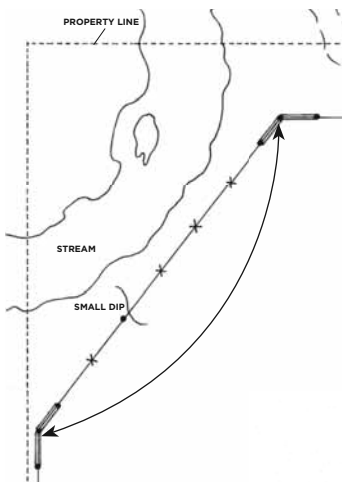


Overhead view of the two End Posts with Guide Wire
on same side of End Posts



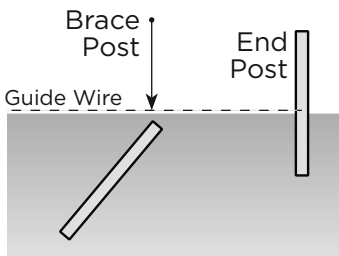
Position (but do not set) the Brace Posts and Inline Posts according to the plan for this section of fence.

* Note small dip needing a Boss.



We will construct this section of fence taken from the Example Map on page 12.

Brace Post Spacing



Position (but do not set) the Brace Posts according to the plan for this section of fence from the map.

4) POSITION BRACE POSTS AND LINE POSTS

Components Needed:

Two wood Brace Posts

T-Posts

Bosses

Tools:

Map of Fence Line

Measuring device:

- Measuring Wheel or Tape Measure
- Smartphone Walking App

Fence Height	Brace Post to End Post Spacing
4'	8' - 10'
5'	10' - 12 1/2'
6'	12' - 15'
8'	16' - 20'



Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

We recommend laying out all fence support elements – Brace Posts, T-Posts and Bosses - along the Guide Wire for correct spacing before you set them into the ground.

For the two End Posts you will of course need two Brace Posts, one for each Brace.

From your Map of the Fence Line done during Planning stage (see page 12), you will have a very good idea of how many T-Posts and Bosses you will need.

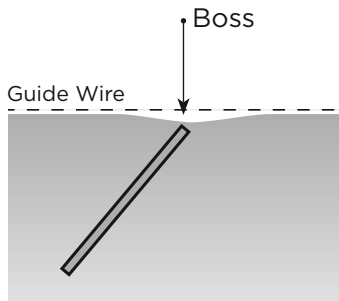
Brace Posts: Ideal width between an End Post and the Brace Post of a Brace should be a minimum 2 times the height of the fence to about 2 1/2 times (preferable) the height of the fence (e.g. for a 6' fence, spacing should be between 12' to 15').

Posts: T-Post center spacing should be 20' to 25'.

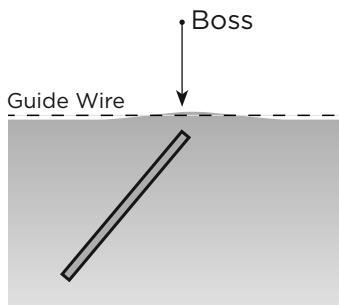
Using all Line Bosses or Strength Posts will make a stronger but more costly fence.

When using a combination of T-Posts and Bosses, use a 4:1 ratio, so that you have 4 T-Posts to every 1 Boss.

Instead of T-Posts, use Bosses in all dips, hips (bumps), and ledges for extra support.



Place a Boss in any Small Dips



Place a Boss on top of any Small Humps

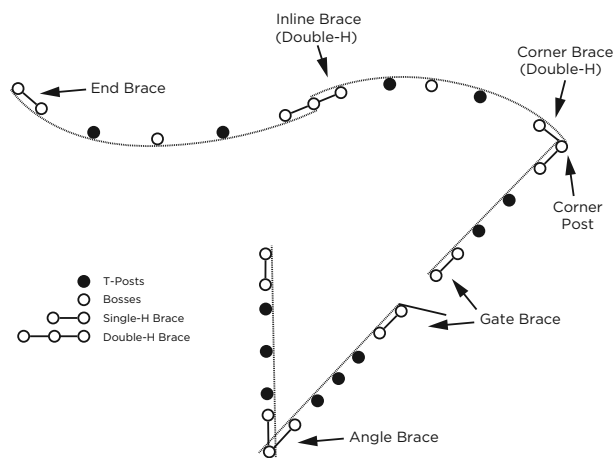


Important

Do not notch the wood Brace Posts or wood Line Bosses - this opens up the protection from the preservative and weakens the post.

Do not cut the tops of wood posts— the ends of the post are full treated during the pressure treatment process and cutting them off leaves an opening in the protection. Set them deeper instead.

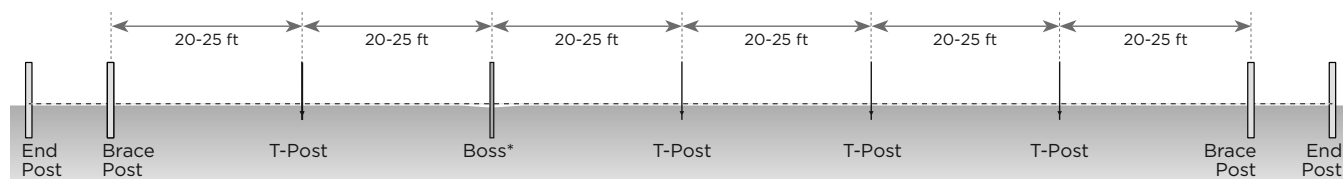
Other Brace Types



Fence wire should be on the side from which the most pressure will come: facing in for livestock or facing out for exclusion fencing.

On curves, the fence wire should be on the outside edge of curves as shown. This is so the fence is pulled against the Posts instead of away from them.

Once you are satisfied with the spacing of the fence supports, you can set the Brace Posts.



5) SET BRACE POSTS AND LINE POSTS

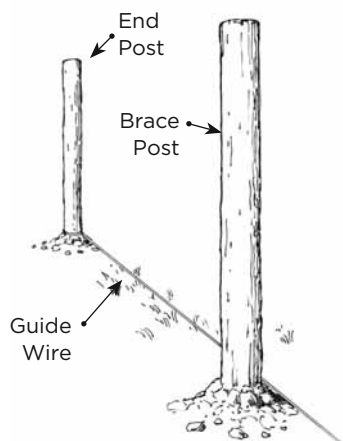
Set all Brace Posts, End Posts, T-Posts and Bosses on the same side of the Guide Wire. (See illustration below)

Set Brace Posts

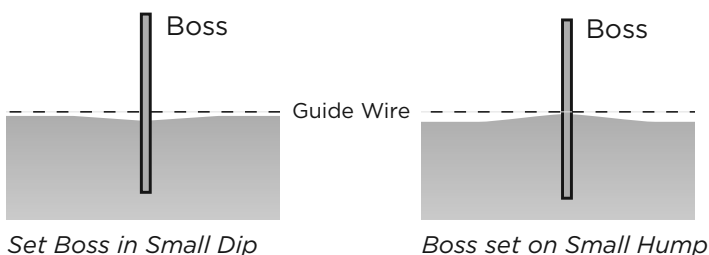
Set Brace Posts in the same way you set the End Posts.

Set Line Posts

- 1) Be sure to set the T-Posts with the Studs facing the Guide Wire. The Studs prevent the fence from sliding up or down the post once the fence is Trimmed Out.
- 2) A Boss should be set on the top of every hump and in the bottom of all dips, regardless of spacing. This will help anchor the fence at all high and low points.

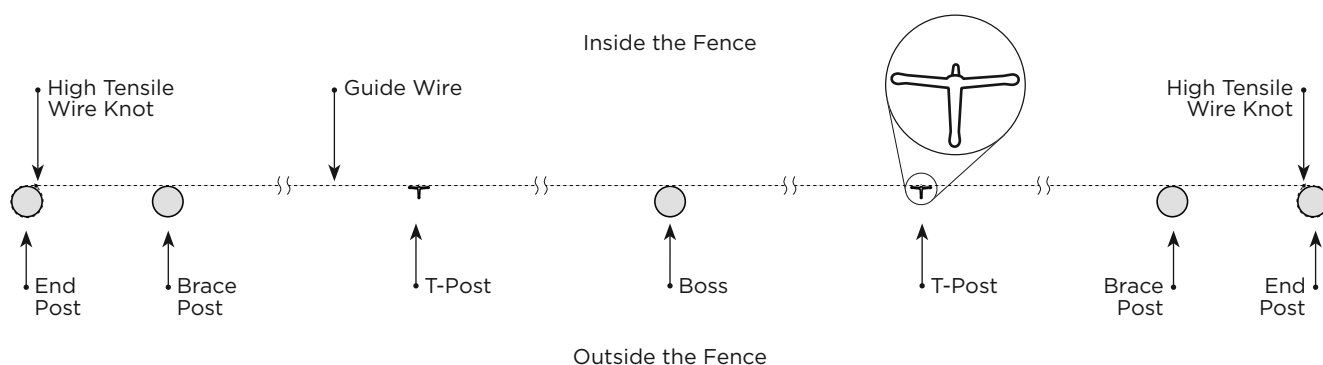


Brace Post is set on same side of Guide Wire as the End Post

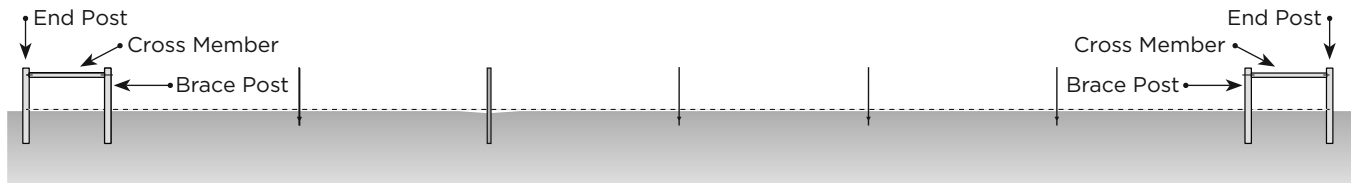


Set Boss in Small Dip

Boss set on Small Hump



Overhead view of the two Braces with Guide Wire and Line Posts. Note that all Posts are on the same side as the Guide Wire.



6) INSTALL CROSS MEMBERS

Components Needed for two Single-H End Braces

Cross Members of either:

- Hardwood or CCA Treated Softwood
- SS-40 Tubing

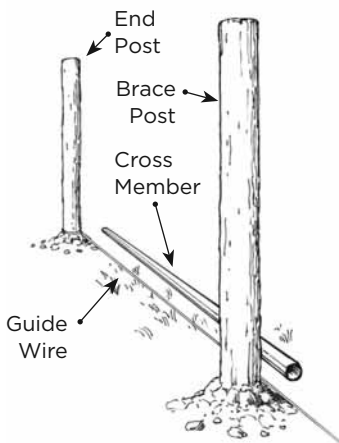
Brace Pins of two sizes:

- 4" X 1/2" Galvanized Pins for End Posts (HS-203)
- 10" X 1/2" Galvanized Pins for Brace Posts (HS-204)

Tools:

Tape measure, Marker, Hammer

Drill and 1/2" Wood Drill Bit long enough to drill through the Brace Post



SS-40 Tubing Cross Member measured and cut, ready for installation



Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

In this section, we will position how high off the ground we want the Cross Members to be between the End Posts and Brace Posts and cut them to fit. Then, we will install the Brace Pins that will hold the Cross Members in place and finally, install the Cross Members themselves.

Positioning Cross Members

We will measure and cut the Cross Members so they fit between the tops of the End Posts and Brace Posts.

To do this, measure the fence wire from the bottom wire up to midway between the 2nd and 3rd wire from the top. (Figure 1)

If you are not setting the bottom wire of the fence at ground level and want the fence raised, add the extra height off the ground to the measurement.

Record this measurement and mark it on the center of the inside (facing) surfaces of the Brace Post and End Post. (Figure 2)

These two marks are where the Brace Pin holes will be drilled and where the Cross Members will be positioned.

This measurement places the Cross Member between the 2nd and 3rd line wire of the fence, making it easier to tie off.

Measure the distance between the two marks and cut the Cross Member to fit.

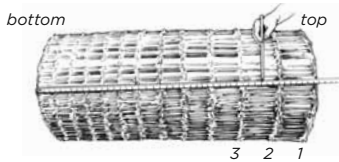


Figure 1

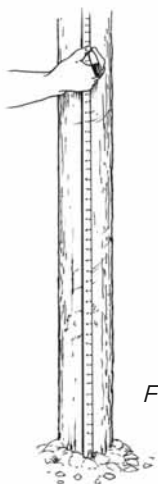
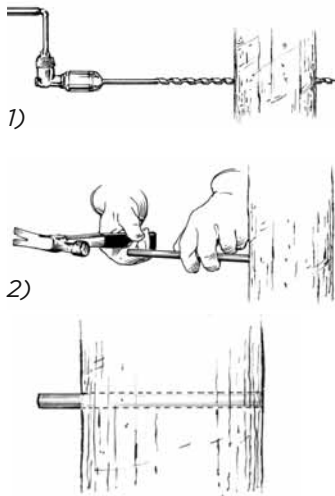


Figure 2

Brace Post 10" Pin Installation



Brace Pin is flush on inside face of Post

End Post 4" Pin Installation



Brace Pin in End Post with 2" exposed

Cross Member Installation



1) Place Cross Member on the 4" Brace Pin in End Post before final positioning



2) Tap the 10" Pin into the Cross Member. Leave 1" exposed.

NOTE: Never use milled lumber for a Cross Member, as it will warp.

Install Brace Pins

The Brace Pins support the Cross Member between the End Post and Brace Post.

Use a drill bit that is the same diameter as the Pins and long enough to drill through the Brace Post.

BRACE POST 10" PIN INSTALLATION:

- 1) Drill the hole for the 10" Brace Pin completely through the Brace Post.
- 2) Drive the 10" x 1/2" Brace Pin into the Brace Post from the outside of the Brace until it is flush with the inside surface of the Brace Post.

END POST 4" PIN INSTALLATION:

- 1) Mark a 2" depth on the bit and drill a 2" deep hole at the mark on End Post
- 2) Drive the 4" Brace Pin into the End Post, leaving 2" exposed.

If you are using a wood Cross Member, drill pilot holes in the center of both end faces into which to set the Brace Pins during installation.

The End Post may not always require a single 4" Brace Pin. See the table below where the End Post needs two 4" Brace Pins depending on the Brace configuration.

Brace Pin Use

Brace	Brace Config.	Overhead Pin View	4" Pins	10" Pins
Single-H End Brace			1	1
Double-H End Brace			1	2
Inline Brace			2	2
Corner/Angle Braces			2	2

— 4" Pin — 10" Pin < > Fence Pull

Cross Member Installation

- 1) Place one end of the Cross Member over the 4" Pin on the End Post. Then move the other end of the Cross Member into position over the flush 10" Brace Post Pin.
- 2) Using your hammer, drive the 10" Brace Post Pin into the Cross Member, leaving 1" exposed on the outside of the Brace. The protruding end of the Brace Pin will hold the Brace Wire in place.

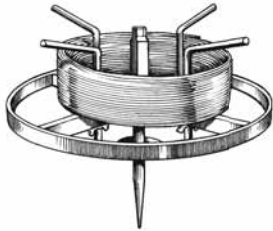
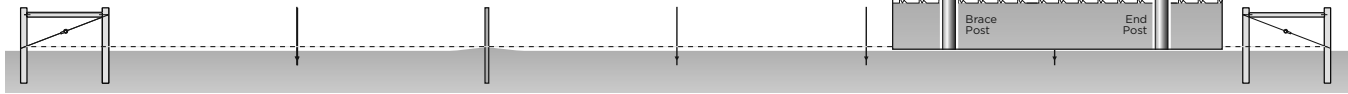
The Cross Member should fit snugly between the End Post and Brace Post. A small gap between the Cross Member and Posts is okay. The Brace will tighten up when the Brace Wire is installed and tensioned.

Brace Wire Calculation

The Brace Wire is Looped Twice

Length = 4 X Distance Between (A) and (B) plus 12" to 18" for tying off and take-up on the Inline Strainer

Total Wire for all Braces = Num. of Strainers X Length from above

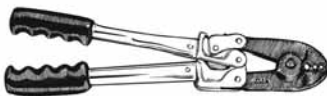


Use a Spinning Jenny to pay out high tensile Guide Wire.



X-section

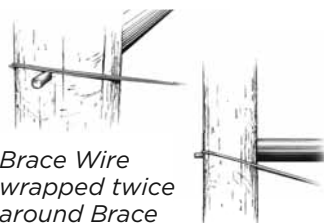
Crimp Sleeve



Multi-Crimp Tool



Staples at outside bottom of End Post. Brace wire is double wrapped.



Brace Wire wrapped twice around Brace Post Pin

7) INSTALL THE BRACE WIRE AND INLINE STRAINER

Components Needed for Single H-Brace:

Brace Wire of either:

Code No.	Type	Description	Coil Wt. / Length
GW-402	Smooth Wire	9 Ga. Cl. 3	10 lb./170'
GW-403			50 lb./850'
GW 398		12.5 Ga. Cl. 3 HT	10 lb./440'
GW-399			50 lb./2,200'

Ratcheted Inline Strainer and Handle

Staples 1 3/4" Double Barbed 8 Ga. Cl. 3
Long Crimp Sleeves 12 - 16 Ga. (JM-593)

Tools:

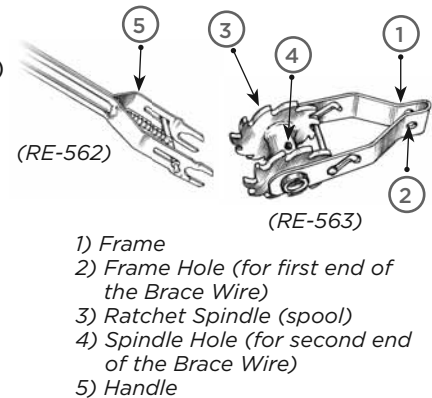
Spinning Jenny Smooth Wire
Payout (SAFC-100)

High Tensile Wire Cutters (KN-570)

Ratcheted Inline Strainer (RE-563)
and Handle (RE-562)

Multi-Crimp Tool (JM-592)

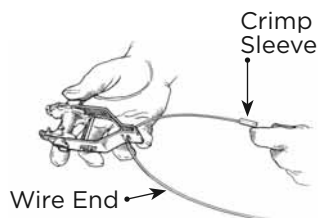
Hammer



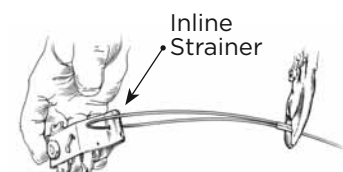
Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

Install the Brace Wire

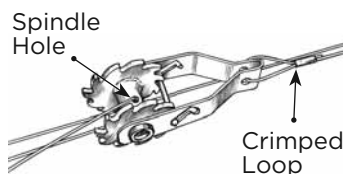
- 1) Drive a Double Barbed Staple into the outside of the End Post on a downward angle about 2" above the ground. Leave about 3/8" of the staple exposed so the Brace Wire can be passed under the staple.
- 2) Hang two buffer staples from the Staple (Step 1) and position the Brace Wire over them. These staples will stop the wire from digging into the post and allow the wire to slide freely when it is tightened.
- 3) Measure off enough High Tensile Wire to loop twice UNDER the staple at the bottom of the End Post and OVER the protruding Brace Post Pin on the Brace Post. Add 12" to 18" for tying off and take-up on the Inline Strainer (see illustration above).
- 4) Loop the cut Brace Wire UNDER the staple at the bottom of the End Post and OVER the protruding Brace Post Pin on the Brace Post.



1) Put the Crimp Sleeve on the Brace Wire before looping the wire through the hole in the Strainer Frame



2) Loop the end of the Wire into the Sleeve and Crimp



3) Inline Strainer fully wired and ready for the Handle



4) Use the Strainer Handle to ratchet the Inline Strainer Spindle



5) Pull the Wire sideways to equalize the tension

Install the Inline Strainer

Position the Strainer about two-thirds up the Brace and on the opposite side from that of the fence fabric. Otherwise, it will be very difficult to access the Strainer after the fence is installed. See image (6) below.

- 1) Place a 12.5 Ga. Long Crimp Sleeve on the Brace Wire before looping it through the hole in the Strainer Frame.
- 2) Loop the Wire through the hole in the Strainer Frame, and then loop the Wire back into the Crimp Sleeve. Crimp the Crimp Sleeve to hold one end of the Brace Wire and Strainer together.
- 3) Feed the other end of the Brace Wire through the hole in the center of the Spindle.

Make sure that the Wire is not crossed at the Pin or the Staple before tightening the Brace Wire completely.

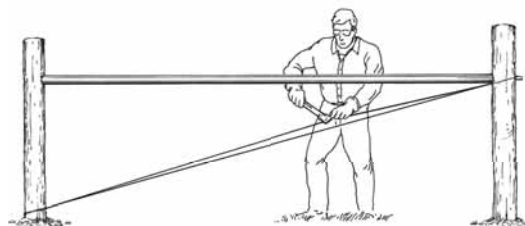
- 4) Apply tension to the Brace Wire using the Strainer Handle.
- 5) Continue to tighten the Strainer and periodically equalize the Brace Wire by pulling it sideways a couple of times.

SAFETY NOTE:

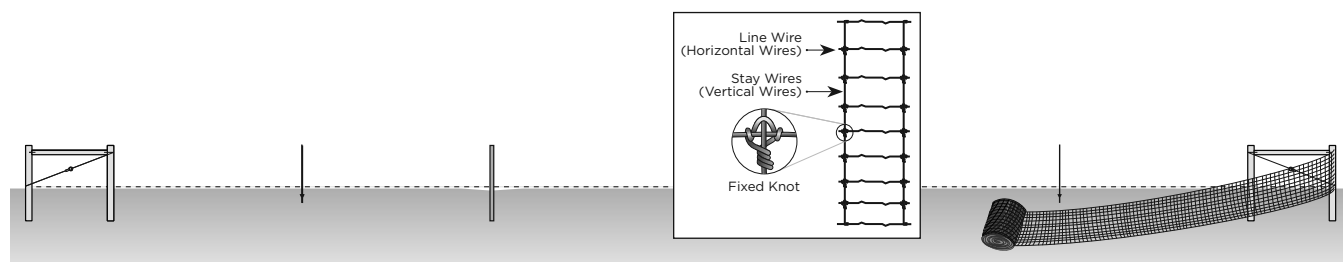
Use only a Ratchet Handle specifically designed for the Inline Strainer you are using.

- 6) Tighten the Brace Wire until the Brace Post is pulled about a quarter-inch toward the End Post. At that point, the Wire will be very tight, and your Brace is now ready to use.

NOTE: You can also tension the Brace Wire with the RE-560 Smooth Wire Puller (see pages 18 and 19). Once you have tightened the Wire, splice it with one long or three short Crimp Sleeves to hold it fast. The disadvantage of this method is that, if the Brace Posts move slightly at any time after the fence is installed, you won't be able to re-tighten the Brace as easily as you could using the Inline Strainer.



6) Tighten until the Brace Post has moved $\frac{1}{4}$ " in the soil toward the End Post

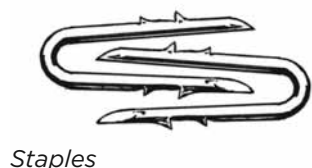


8) ROLL OUT AND ATTACH FENCE TO END POSTS

Components Needed:

Fence Rolls

Double Barbed Fencing Staples 8 Ga. Gal. Cl. 3 (staples will also be used to trim the fence out. See pages 34 and 35.)



Number of Staples by Weight and Code No.

Staple Size	2 lb.	10 lb.	40 lb.
2"	94 (STS-460)	470 (STS-490)	1880 (STS-484)
1 3/4"	112 (STS-461)	560 (STS-491)	2240 (STS-485)
1 1/2 "	126 (STS-462)	630 (STS-492)	2520 (STS-486)
1 1/4"	144 (STS-463)	720 (STS-493)	2880 (STS-487)

Tools:

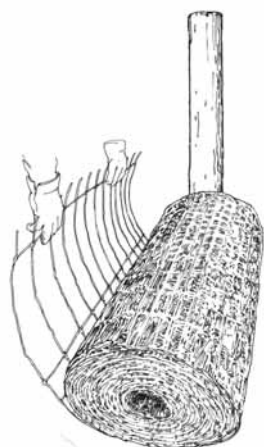
High-Tensile Wire Cutter (KN-570)

Tape measure

Hammer



Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.



Roll out 50' of wire beginning at an End Post

SAFETY NOTE:

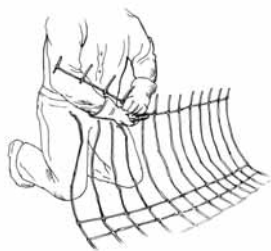
Coiled fence rolls are under tension. Be cautious and stay clear of the roll to prevent wire from hitting and injuring you when the tension is released. The release of tension can be sudden.



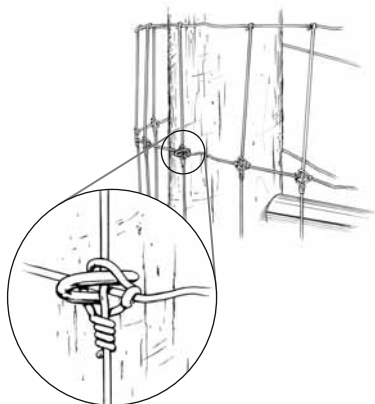
1) Roll out the Fence

Position the roll of fence wire near one of the End Posts. Roll out about 50' of fence.

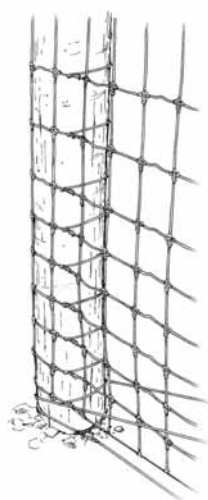
Put something heavy on the free end of the wire as you roll it out to keep it from rolling back up from that end.



Redi-Roll: Cut off the end Stay to get to the 18" of pre-stripped wire. Need more stripped wire? See page 39.



Hammer a temporary staple to hold the wire loosely in position while you align it



The fence correctly tied around the End Post

2) Strip off the Stay Wires

With STAY-TUFF High-Tensile Fixed Knot Fence, you can skip this step, because all of our fencing is made with our patent-pending Redi-Roll feature. We pre-strip the last 18" of the stay wires, giving you plenty of clear wire to tie off around the End Brace. Cut off the End Stay to get to the stripped portion of the fencing.

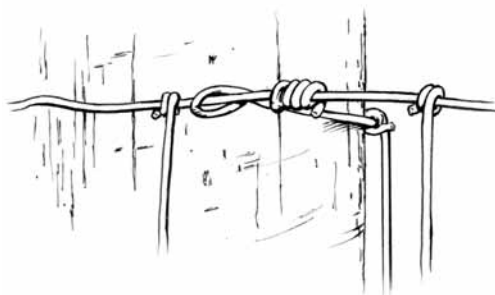
If for any reason you need more than 18" of stripped wire, see **"How to Strip Fixed Knots From High-Tensile Fixed Knot Wire Fence"** on page 39.

3) Align the Fence

- Lift the rolled-out portion of the fence up toward the End Post.
- While holding the fence roughly in the position where it will ultimately be tied off, partially hammer a Fence Staple into the knot one Horizontal Wire down from the top.
- This temporary staple helps hold the fence in position as you tie the wire off.
- Now align the fence to the End Post, squaring the vertical stay wires with the post.

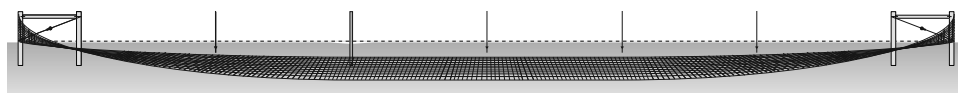
4) Tie the Fence to the End Brace

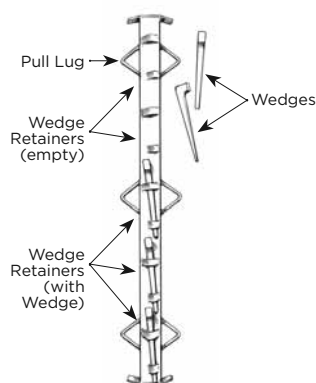
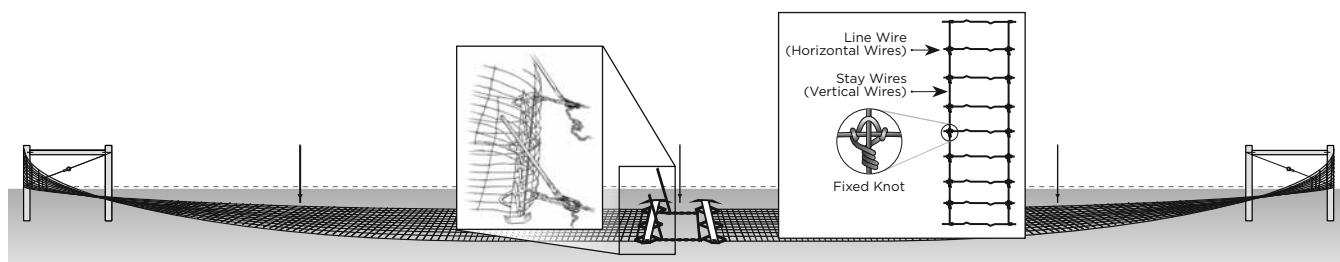
We recommend that you first tie-off several of the Horizontal Wires in the middle of the Fence to the End Post. Once this is done, remove the temporary staple. This will allow you to move the Fence Wire up or down the End Post to the desired height off the ground before tying off the remaining wires.



A High-Tensile Wire Slip Knot is the best way to tie off High-Tensile STAY-TUFF Fencing. See instructions in the Appendix (page 41) on **"How to Tie a High-Tensile Wire Slip Knot"**.

Now roll-out the fence to the second End Post and attach the Fence to it. When you have finished, the fence so far should look like this:





Stretcher Bar



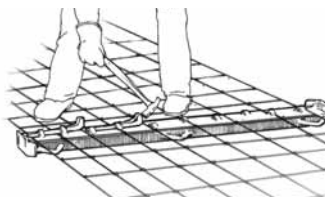
Stretcher Bar Puller and Chain



1) Position the Stretcher Bars under the Fence

2a) Align Stay and

2b) Line Wires in both bars



3) Hammer Wedges into Retainers to lock Fence



4) Cut the Line Wires Between the Stretcher Bars

9) TENSION THE FENCE

Tools:

Stretcher Bars (2)

Stretcher Bar Pullers (RE-561)

2 for fences up to 5'

3 for fences 6' and higher

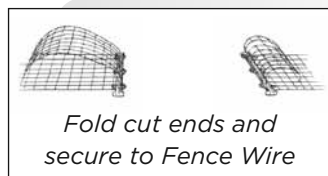


Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

In this section, we will tension the fence by stretching it using Stretcher Bars and Stretcher Bar Pullers with Chains. A minimum of two workers are needed for fences under 8' and three workers for fences 8' to 10' high. First, determine where you will place the Stretcher Bars. Typically, they are placed at a location around the middle of the fence run as in the illustration above.

Install the Stretcher Bars

- 1) Position two Stretcher Bars under the fence between 10' to 19' apart, depending on the length of the pull. The longer the pull, the further apart you will need to space the stretchers. On a 1,320' pull you can expect to pull out around 15' of slack fence, so you will need to space the stretchers about 18'-19' apart. The Stretcher Bar Pullers come with 19' of chain to accommodate for this.
- 2) a) Align the Stretcher Bars so that they are parallel with and centered between the Stay wires.
b) Position the Line Wires between the wedge retainers. Ensure that each Line Wire is held firmly by a wedge so that they will not slip and lose tension.
- 3) Insert the wedges into the Wedge Retainers on top of the wires and drive each wedge home firmly to lock the fence fabric on the Stretcher Bar.
- 4) Cut the Line Wires in the middle between the Stretcher Bars.



Fold cut ends and secure to Fence Wire

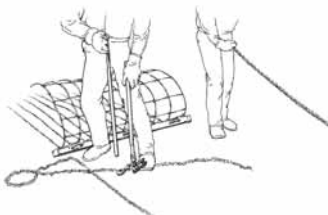
Fold the two end pieces out of the space between the two Stretcher Bars and secure them temporarily with wire ties to the remaining fence. This prevents them from falling back and causing possible injury.

Stretcher Bars

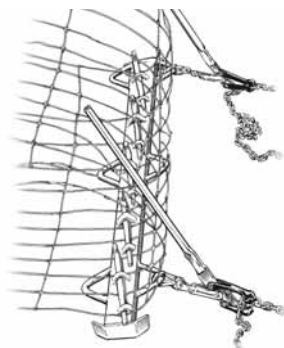
Code No.	Stretcher Bar	For Fences
FW-553	52"	Up to 4'
FW-552	66"	Up to 5'
FW-551	84"	5' - 6'
FW-550	102"	6', 7' & 8'
FW-549	124"	8' - 10'



5) Clip Stretcher Bar Puller Chains to Lugs on one Bar



6) Extend the Chains to the Second Stretcher Bar



7) Clip the Stretcher Bar Pullers to the Second Stretcher Bars. Insert Chain Links into Bar Puller jaws, ensuring that chain links are aligned.



8) Crank the Puller Handle to Tighten the Fence



9) As you tension, the fence will rise

Install the Chains

- 5) Attach two Stretcher Bar Puller Chains to one of the Stretcher Bars by clipping the snap clips on the end of the Chains to the top and bottom Pull Lugs on the Stretcher Bar.

When stretching a 5' fence or shorter, 2 Bar Pullers should be used: one on the top and one on the bottom.

When stretching a 6' fence or taller, 3 Bar Pullers should be used: one on the top, one in the middle and one on the bottom.

- 6) Extend the Chains in parallel to the second Stretcher Bar.

Install the Puller

- 7) Clip the snap clip on the Stretcher Bar Puller to the corresponding Pull Lugs on the second Stretcher Bar. Place the Chain Links closest to the Pullers into the jaws of the Puller.



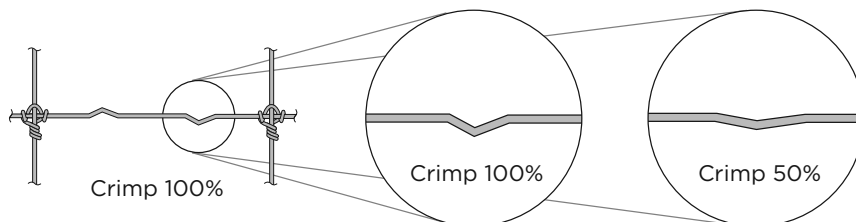
It is extremely important that the chain links are straight and aligned when placing them into the Stretcher Bar Puller jaws. If the chain links are twisted, the jaws will not be able to grip the links properly and the jaws could slip out, potentially causing injury.

- 8) When the Handle of the Stretcher Bar Puller is cranked, the Puller jaws will "walk" up the chain links, tightening the fence.

Tension the Fence

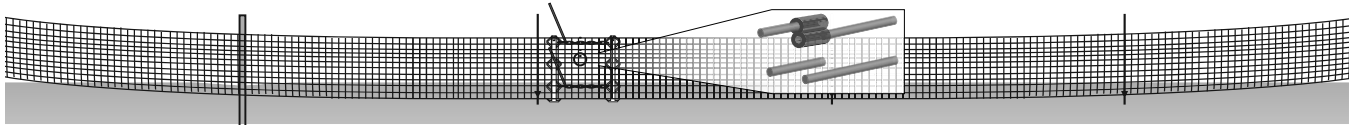
- 9) As you continue to tension the fence, it will be slowly pulled upright.

Continue tensioning until approximately 50% of the crimp in the line is removed. Tension can be adjusted to loosen or tighten the fence depending on the needs of your particular application.



Finally, stand the fence up completely and tie or staple to Line Posts as needed to temporarily hold it in place.

Next we will splice the cut portions of the fence together with the Stretcher Bars still in place.



10) SPLICE THE FENCE

Tools:

Long Crimp Sleeves 12 Ga. – 16 Ga. (JM-593)

Multi-Crimp Tool (JM-592) or Ultra-Crimp Tool (JM-578)

High Tensile Wire Cutters (KN-570)

A minimum of two workers are needed to splice the fence when using crimp sleeves.



Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

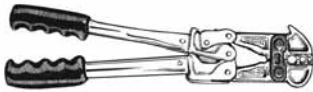


X-section

Crimp Sleeve



Multi-Crimp Tool



Ultra-Crimp Tool



1) Untie and fold the excess fence back between the Stretcher Bars

At this point, the fence is tensioned and standing upright with temporary help from T-Posts or Bosses. The two pieces of fence are being held together by the two Stretcher Bars, Pullers and Chains.

The Stretcher Bars should be 3' or 4' apart (down from 10' to 19' at the beginning of the stretching process).

The two fence ends need to be trimmed, cut and spliced before the Stretcher Bars are released.

After splicing the fence, the Stretcher Bars will be released.

Splicing a high tensile fence is best done with Crimp Sleeves. We recommend using the long Crimp Sleeves and the Multi-Crimp Tool or Ultra-Crimp Tool to splice your STAY-TUFF fence.

The STAY-TUFF Long Crimp Sleeve is designed to work specifically with high-tensile fence, and have a holding capacity of up to 1500 lb.

Trim Off the Excess Wire

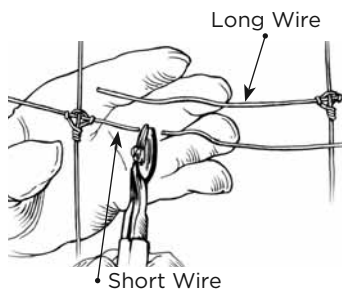
1) Detach the excess fence wire that you folded back and tied to the wire during Tensioning.

Tighten the top and/or bottom Stretcher Bar as needed to square-up the Stays in the fence.

2) Trim the excess wire from the stretching process, leaving enough length to overlap the two complete Stays on each end of the fence. This will be used for splicing.



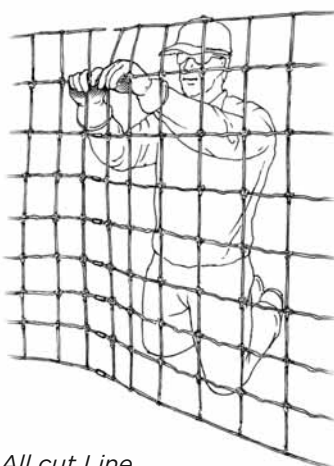
2) Overlap a couple of the Stays for splicing. See page 32.



Cut the line wire



Crimp Sleeves Placed on all Short Line Wires



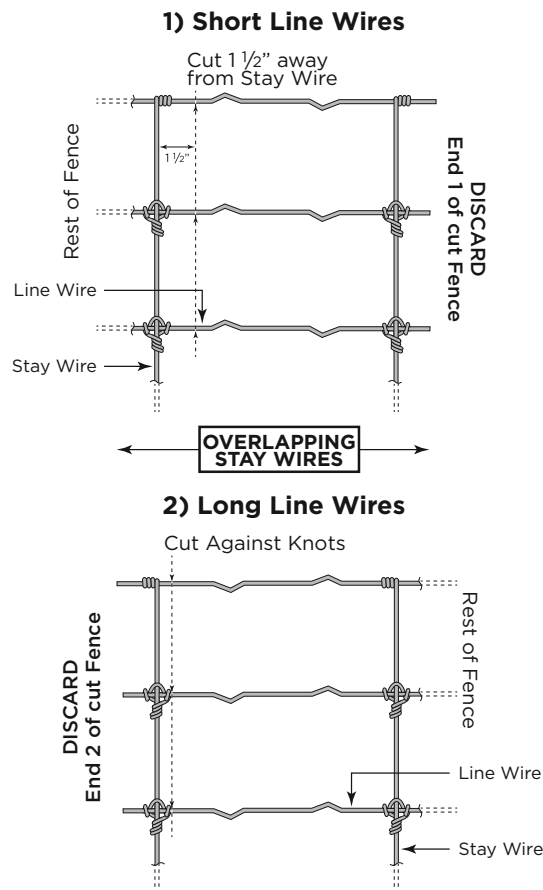
All cut Line Wires positioned in Crimp Sleeves

Cut the Line Wires

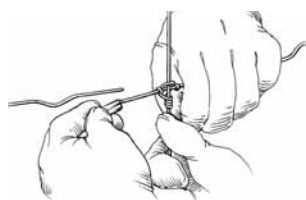
Overlap both Ends of the fence between the Stretcher Bars to determine where to cut the Line Wires for splicing.

- 1) Cut all the Line Wires on one of the Cut Ends approximately 1 1/2" from the Stay Wire. These are called Short Line Wires
- 2) Cut all the Line Wires on the second End against the knots on all the Stay Wires. These are called Long Line Wires.

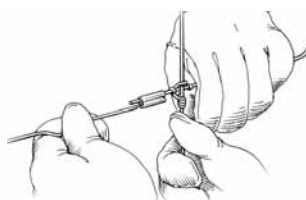
You will use the Long Line Wires as a measure for even alignment as you crimp. Long Wires should just touch the knots on the Short Wire side.



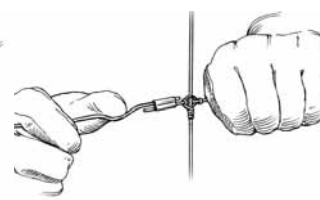
Insert Line Wires into Crimp Sleeves



Insert each Short Line Wire into a Crimp Sleeve



Insert the matching Long Wire into the second hole of the Crimp Sleeve



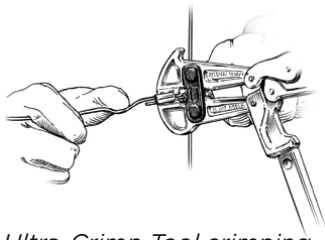
The Long Wire should almost touch the Knot on the Short Line Wire side

The tail ends of wire should overlap through the Crimp Sleeve completely, but only need to stick out 1/8" to 1/4". Any excess can be trimmed off later.

Work your way down (or up) the fence fabric, inserting Short Line Wires and their respective Long Line Wires into Crimp Sleeves.

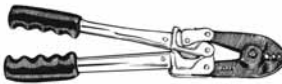


Ultra-Crimp Tool

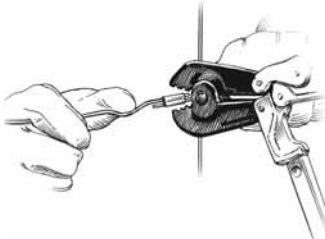


Ultra-Crimp Tool crimping

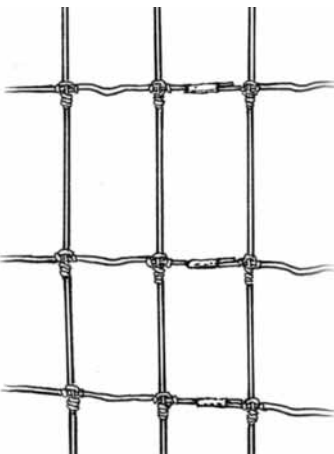
Splice the Long and Short Wires with your choice of Crimping Tool. Squeeze 4 to 6 times along the full length of the Crimp Sleeve.



Multi-Crimp Tool



Multi-Crimp Tool crimping



The Completed Spliced Fence

Splice

All Short and Long Line Wires should be positioned correctly in Crimp Sleeves before you start crimping the sleeves.

Use either the Multi-Crimp Tool or the Ultra-Crimp Tool to crimp the sleeves.

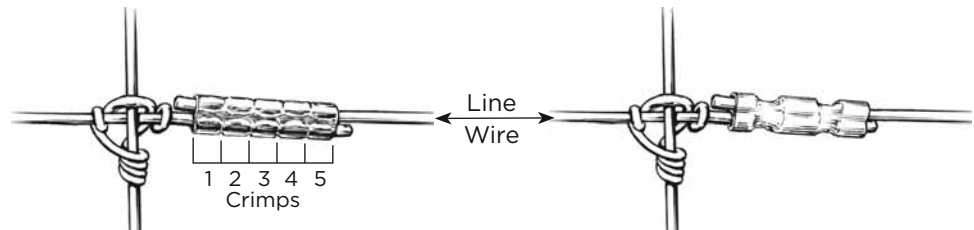
Use the notch on each tool appropriate for the Crimp Sleeve and gauge of wire you are using. Each tool has two Crimp notches, one for 12.5 Ga. wire sleeves, and one for larger gauge wire and barbed wire sleeves.

To splice, squeeze the Crimp Tool along the full length of each Crimp Sleeve 4 to 6 times. The finished Sleeve should be crimped across the entire length of the Sleeve.

Carefully trim off any wire overhanging the Crimp Sleeve.

When done correctly, this splice will hold to 1500 lb. The wire will break before the crimp gives way. When joined evenly, from a distance the splice will not be easily noticed.

Correct vs. Incorrect Crimp Sleeve Crimping



CORRECT

Crimp Sleeve is flattened all the way across by crimping 4-6 times

INCORRECT

Crimp Sleeve is crimped only twice

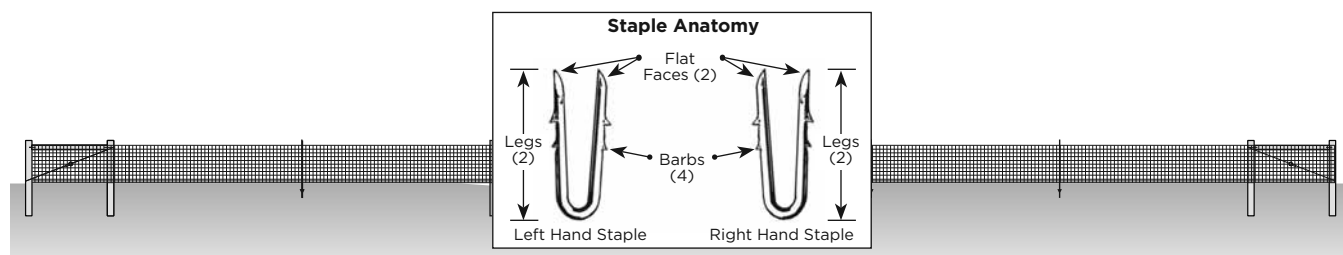


It is easiest to do this job with two people, one person holding the wire and the crimp sleeve while the other does the splicing.

Release the Stretcher Bar Pullers

Once all your splices are complete, loosen the Stretcher Bar Pullers by using the handle to "walk" the jaws of the Bar Puller backwards down the chain.

Once the tension is released, remove the Stretcher Bar Pullers, Chains and Stretcher Bars (in that order) from the fence by knocking the Wedges out of each Retainer. Take special care when knocking out the Stretcher Bar Wedges and releasing the Stretcher Bars.



11) TRIM OUT THE FENCE

Components Needed:

Double Barbed Fencing Staples 8 Ga., Gal. Cl. 3 (see table below)

Number of Staples by Weight and Code Number

Staple Size	2 lb.	10 lb.	40 lb.
2"	94 (STS-460)	470 (STS-490)	1880 (STS-484)
1 3/4"	112 (STS-461)	560 (STS-491)	2240 (STS-485)
1 1/2 "	126 (STS-462)	630 (STS-492)	2520 (STS-486)
1 1/4"	144 (STS-463)	720 (STS-493)	2880 (STS-487)

T-Post Clips Cl. 3 Gal. (STC-589 pack of 600)

Steel Post Clips Cl. 3 Gal.

Code No.	Size	Ga.	Pack
STC-585	1 5/8"	11	400
STC-584	1 7/8"	11	400
STC-583	2 3/8"	11	400
STC-582	3"	11	350
STC-586	3 1/2"	11	200

Tools:

11 Ga. Clip Tightening Chuck (LC-580)

Drill

Hammer

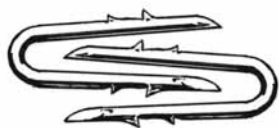


Always read and follow the instruction manuals supplied by the manufacturers of the tools and equipment you use.

At this stage in the fence building process the fence is spliced and tensioned from one Brace to the next. Now, it is time to attach the fence to the Line Posts.

Remember that with a high tensile fence system the purpose of the Line Posts and Brace Posts is to hold the fence upright and NOT to hold it rigidly in place. The fence must have some "wobble room" under the Staples and Clips to allow the fence Line Wire (horizontal wires) to slide back and forth:

- To respond to tension adjustments
- To absorb animal impact
- To respond to changes in temperature.



Top Staple: Right Hand Staple; Bottom Staple: Left Hand Staple



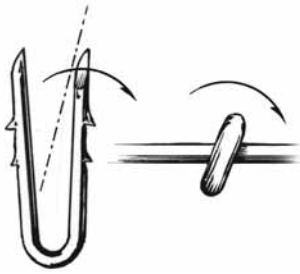
T-Post Clips



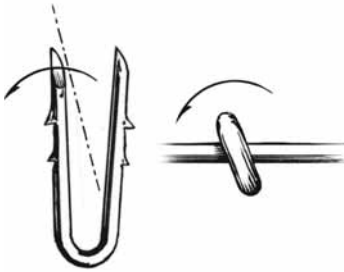
Steel Post Clips



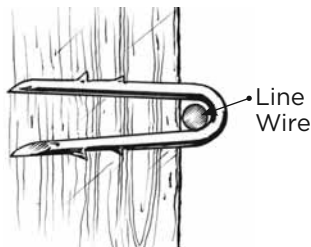
11 Ga. Clip Tightening Chuck



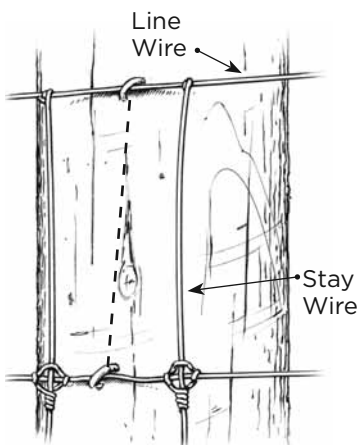
Right Hand Staple:
Rotate to the right



Left Hand Staples:
Rotate to the left



Allow some "wobble room"
so the fence fabric can
slide freely



Staples are set at an angle
to the wood grain. Stagger
staples vertically.

Stapling to Wood Posts

When Staples are driven into wood correctly, the Legs will curve out, resulting in maximum holding strength for the Staple. This also helps to reduce any potential splitting of the wood.

Rotate the staple to the vertical (about 45 degrees) before you drive it in. Rotate Right Hand staples to the right and Left Hand Staples to the left.

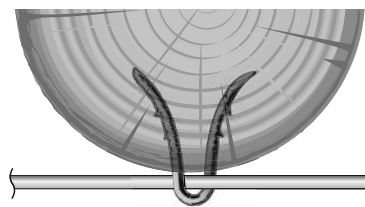
NOTE: Rotating the staples in the opposite direction from that described above can cause the Legs to cross. This can result in the wood grain splitting, compromising the holding strength of the staple. See "Correct vs. Incorrect Stapling" illustration below.

Do not hammer the staples completely into the wood. Instead, leave enough "wobble room" to allow the wire fence fabric to slide freely under the Staple.

Staple only Line wires and not too close to a Knot. Stagger them vertically up and down the post. Driving them all in a perfectly vertical line can split the wood.

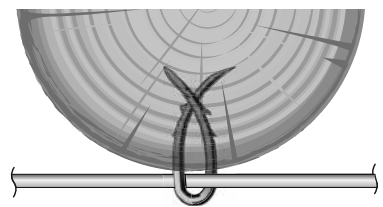
Do not staple Stay Wires.

Correct vs. Incorrect Stapling



Correct

Driven into the wood
properly the legs
will curve out

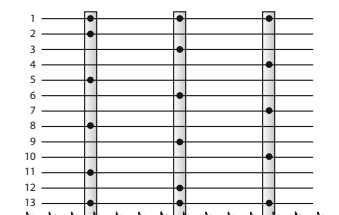


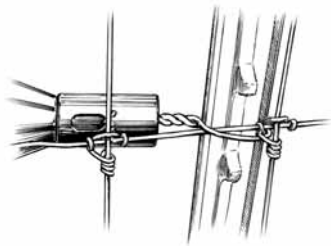
Incorrect

Staple angled incorrectly.
Legs will cross each other and
reduce the holding strength
of the staple.

How many Staples Per Post?

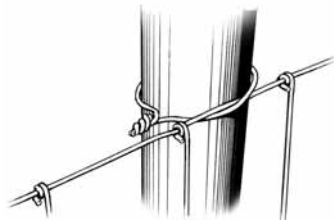
See page 36 for stapling and Post clipping patterns and the recommended number of Staples or Clips per Post in the fence line, depending on the pressure on the fence.





1) Applying clip to steel T-Post with Clip Tightening Chuck

Position the clips so that the tail ends run parallel to the fence. Allowing clips to stick out can cause injuries to live-stock or people walking close to the fence.



2) Clip applied to Steel Tubing Post

Clipping to Line Posts

We recommend using our LC-580 Clip Tightening Chuck attached to your drill for fastening fence wire to Line Posts. It works with T-Posts, Steel Pipe and Tubing Posts.

(1) Clipping to T-Posts

Be sure to use only Class-3 Galvanized T-Post Clips to fasten our High-Tensile Wire to steel T-Posts.

To fasten the Clips on the Post, slide the Clip around the Post and over the Fence Wire. Then slide the tails of the Clip into the hole at the tip of the special Clip Tightening Chuck.

Make sure both tail ends of the clip seat into the bottom of the drill chuck.

Use your drill to twist the ends of the clip tightly around the post.

Hold down the drill's trigger completely until the clips are fully tightened. This will cause the tips of tail ends to break off and the drill will spin freely.

(2) Clipping to Steel Pipe and Tubing Posts

If you use Structural Tubing or Galvanized Pipe for Bosses/Strength Posts, attach the fence to them using Class-3 Galvanized Steel Post Clips. Use the Clip Tightening Chuck as described above to fasten the Steel Post Clips to the Steel Posts.

Staples or Post Clips Per Post

# Line Wires	Normal Duty	Heavy Duty	Feral Hog
7	4	5	5
8	4	5	6
9	5	6	6
13	6	8	7
16	7	9	8
17	7	10	9
20	8	11	10
23	9	13	11
25	10	11	11

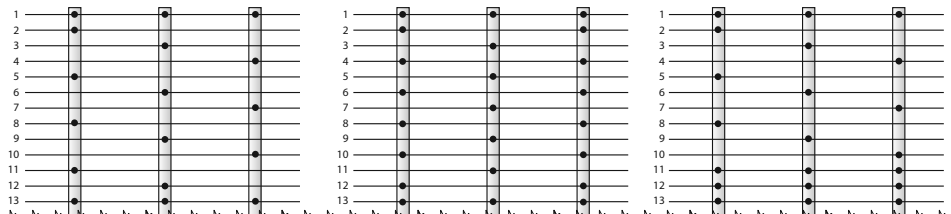
Never staple or clip Fence to End or Corner Posts.

It is optional to staple or clip wire to Brace Posts.

In your Staples count include 3 Staples/End or Corner Post for the Brace Wire.

Stapling and Post Clipping Patterns

Staples or clips are applied to top and bottom line (horizontal) wires on wood posts or T-Posts respectively. On internal line wires, they are applied to every second or third line wire depending on the expected use of the fence. The example below is for a 4' fence with 13 Line Wires.



Normal Duty Applications

Additional staples or clips are applied on every third internal line wire. Pattern repeats after every third post.

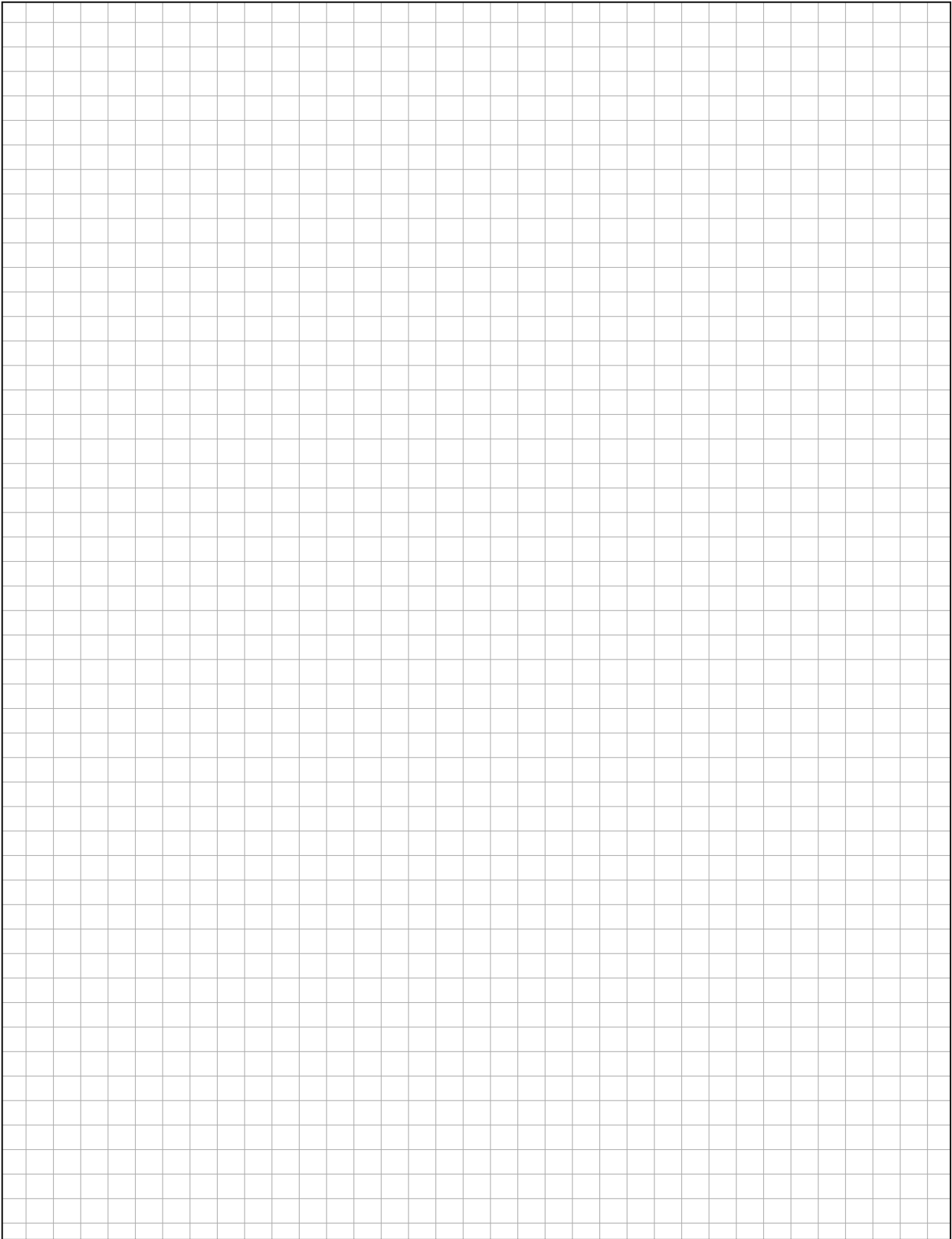
Heavy Duty Applications

Additional staples or clips are applied on every second internal line wire. Pattern repeats after every second post.

Feral Hog Resistant

Additional clips are applied to two more bottom wires (3 total) and every third internal line wire. Pattern repeats after every third post.










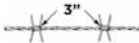






Make a rough drawing of your fence plan. Indicate all Brace Posts, Gates, and Line Posts. After completing the drawing, transfer material needs to the Materials Check List (page 38).



Use the Brace Drawings (pages 3 to 6) to design your Braces. Remember, the Braces are the foundation of your fence. **Bad Braces = a bad fence!**

STAY-TUFF® FENCE MATERIALS, TOOLS & ACCESSORIES CHECKLIST

All STAY-TUFF fence and wire products, accessories and tools can be purchased from our authorized dealers.

STAY-TUFF Fixed Knot Fence					Qty.	Guide Page(s)
Fence Product Num.	Height x Length, ft.	Stay Wire Spacing <input type="checkbox"/> 24" <input type="checkbox"/> 12" <input type="checkbox"/> 6" <input type="checkbox"/> 3"	Num. of Line Wires	Feet/Roll ____ 200' ____ 330' ____ 660'	Rolls	10-11
Braces						
End & Brace Posts (wood) 	Length, ft.	Dia., in.		Ea.	6	
Brace Pins, 4" X 1/2" 	Sgl. H End (1 ea.) + Dbl. H End (1 ea.) + Corner/Angle (2 ea.) + Inline (2 ea.) ____ X 1 = ____ ____ X 1 = ____ ____ X 2 = ____ ____ X 2 = ____			Ea.	24	
Brace Pins, 10" X 1/2" 	Sgl. H End (1 ea.) + Dbl. H End (2 ea.) + Corner/Angle (2 ea.) + Inline (2 ea.) ____ X 1 = ____ ____ X 2 = ____ ____ X 2 = ____ ____ X 2 = ____			Ea.		
Cross Members <input type="checkbox"/> Wood <input type="checkbox"/> Steel Tubing 	Length, ft.	Dia., in.		Ea.	6	
Brace Wire <input type="checkbox"/> Smooth 9 Ga. Cl. 3  <input type="checkbox"/> Smooth HT 12.5 Ga. Cl. 3 *	Length/Brace = 4 x Distance A to B () plus <input type="checkbox"/> 12" or <input type="checkbox"/> 18" Total Brace Wire = Length/Brace ____ x Num. of Strainers ____ = ____ ft.			Coils	25	
Ratcheted Inline Strainer 	One Strainer Per Brace Wire Installed			Ea.		
Ratcheted Inline Strainer Handle 	One Handle minimum. More for crews working on multiple Braces at the same time			Ea.		
Guide Wire						
<input type="checkbox"/> Smooth HT 12.5 Ga. Cl. 3 * 	Length, ft. + <input type="checkbox"/> Brace Wire ____ + ____ = ____ ft.		<input type="checkbox"/> 10 lb. Coil = 440' <input type="checkbox"/> 50 lb. Coil = 2,200'		Coils	18
<input type="checkbox"/> Predator Control HT Barbed Wire 	Length, ft.		1,320'/Roll		Rolls	
Inline Posts, Splicing & Affixing Fence						
T-Posts 	Post Centers		Length	Weight	Ea.	7
Boss/Strength Posts 	<input type="checkbox"/> Wood <input type="checkbox"/> Steel		Length	Dia.	Ea.	
Long Crimp Sleeves 12 to 16 Ga. 	Num. of Sleeves = Num. Line Wires ____ x Num. Splices ____				Ea.	31
T-Post Clips 	Use: <input type="checkbox"/> Normal <input type="checkbox"/> Heavy <input type="checkbox"/> Feral Hog Resistant	Num. of Clips = Num. of Clips/T-Post ____ x Num. of T-Posts ____			Ea.	34-36
Steel Pipe/Tubing Clips 		Num. of Clips = Num. of Clips/Steel Post ____ X Num. of Steel Posts ____		Size	Ea.	
Staples, Double Barbed, 8 Ga. Cl.3 		Num. of Staples = Num. of Staples/Wood Post ____ X Num. of Wood Line & Brace Posts (optional) ____ = ____ Add Num. End/Corner Posts ____ x 3 = ____		Size	Ea.	

* If you are using Smooth HT Wire 12.5 Ga. Cl.3 for both Guide Wire and Brace Wire, add those two lengths together to determine the total number of Coils you will need for both.

STAY-TUFF TOOLS & Code Num.	Qty.
High Tensile Wire Cutters (KN-570)	
Spinning Jenny Smooth Wire Payout (SAFC-100)	
Smooth Wire Puller (RE-560)	
Multi-Crimp Tool (JM-592)	
Ultra-Crimp Tool (JM-578)	
Stretcher Bar Pullers (RE-561)	
Stretcher Bars (see page 29)	
Drill Chuck for 11 Ga. Wire Post Clips (LC-580)	

OTHER TOOLS	Qty.		Qty.
Drill		Pencil/Marker/Pen	
Hammer		Measuring Tape	
Map of Fence Line			

FOR YOUR SAFETY	Qty.		Qty.
Safety Gloves		Knee Pads	
Safety Glasses		First Aid Kit	
Work Boots			

HOW TO STRIP FIXED KNOTS FROM HIGH-TENSILE WIRE FENCES

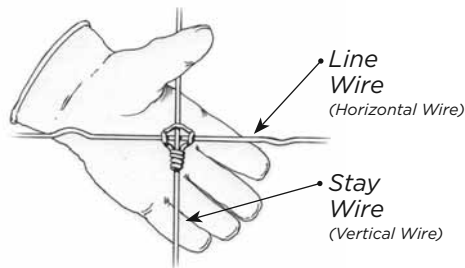
When tying off your High Tensile Wire Fence to End Posts or Corner Posts during fence installation, you sometimes need to strip knots off the Line Wires to have enough loose wire to tie.

Follow the steps outlined in the illustrations below. You may also access our video on the subject by scanning the QR code on this page.

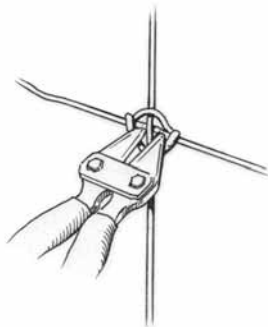
For a step-by-step YouTube.com video on How to Strip Fixed Knots from a High-Tensile wire Fence, scan:



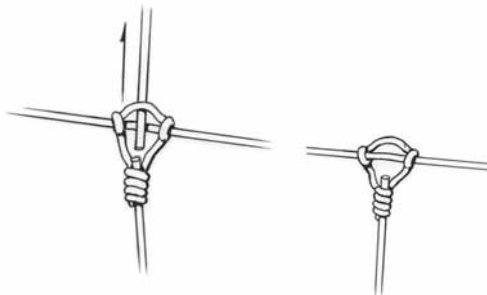
Cut the Stay Wire



Hold the Stay Wire so that it runs IN FRONT of the Line Wire.



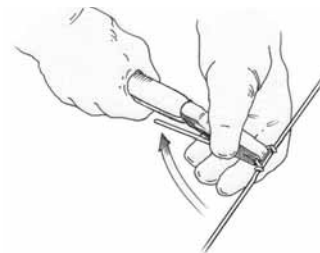
Use a High Tensile Wire Cutter to cut ONLY the Stay Wire inside the Knot JUST BELOW the Line Wire



Pull Out the cut piece of Stay Wire and Repeat for All Knots on the Stay Wire.

Open the Knot with Linesman Pliers (1 - below) OR Flat Nose Screw Driver (2 - next page)

1) Using a Linesman Pliers

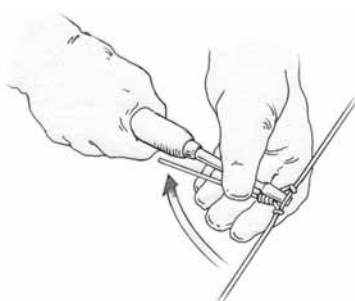
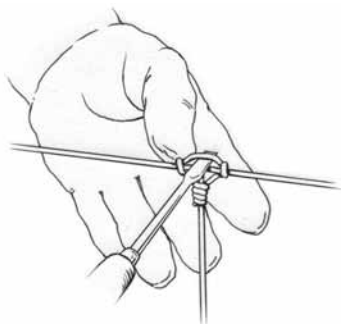


Using Linesman Pliers, grip the top part of the knot. With the palm of your hand pushing on the twisted tail ends of the knot, close your hand and pliers together. This will rotate the top twists on the knot and release the knot from the Line wire. Repeat this step for every knot on the Stay Wire.

For a
 step-by-step
 YouTube.com
 video on How to
 Strip Fixed
 Knots from a
 High-Tensile
 wire Fence, scan:

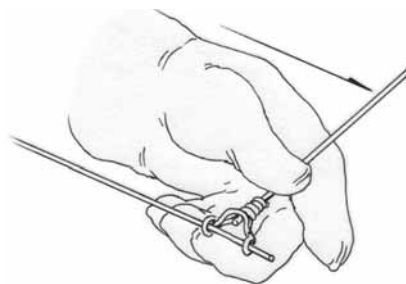
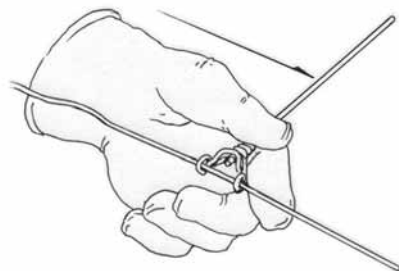


2) Using a Flat Nose Screw Driver



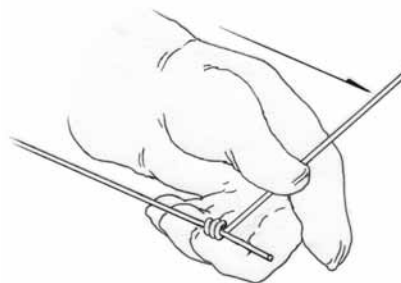
If you are using a screw driver, place the tip of the screw driver into the top of the knot. Push on the bottom of the knot and Stay Wire with your palm and rotate to open up the knot.

Slide Knots off Line Wire



Slide the knot and attached portion of Stay Wire off the Line Wire by twisting them back and forth to slide them off.

Twist off End Wraps



Twist and slide End Wraps off.

How to Tie a High Tensile Wire Slip Knot

Below are instructions for tying a High-Tensile Wire Slip Knot. This is the preferred way to tie-off High-Tensile Wire for End Posts and corners as well as tying off Guide Wires.

For step-by-step YouTube.com videos on How to Tie a High-Tensile Wire Slip Knot, scan:

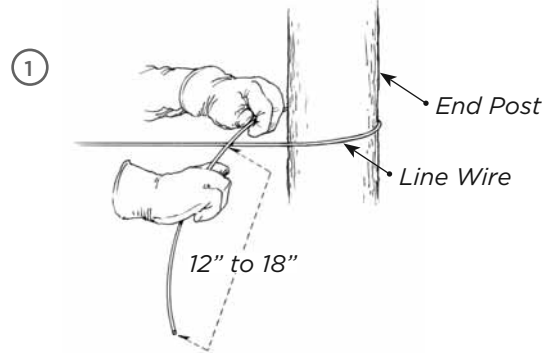


Tying off High Tensile Wire (Perspective 1)

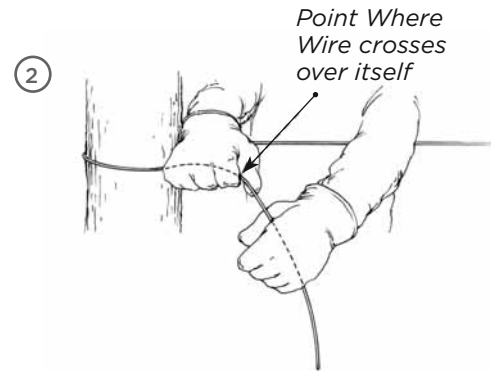


Tying Off High Tensile Wire (Perspective 2)

Use 'Z' Bend to create a loop

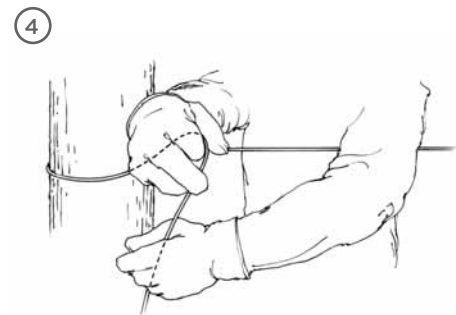
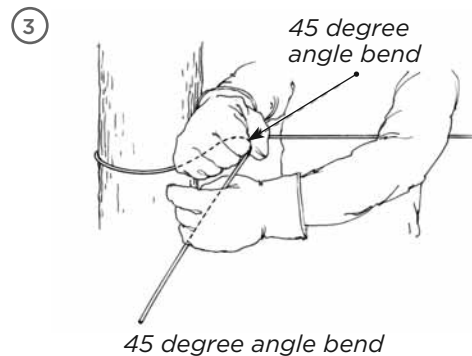


Wrap the horizontal wire around the End Brace Post and mark where it crosses itself

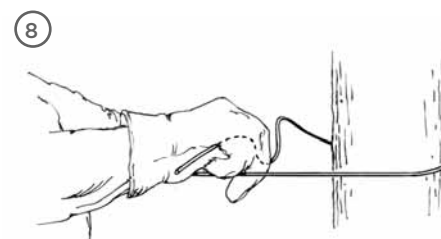
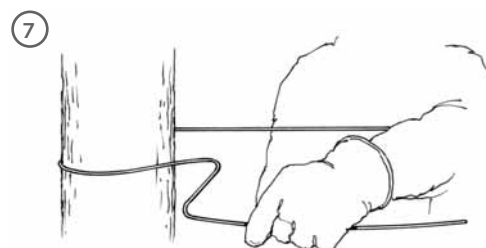
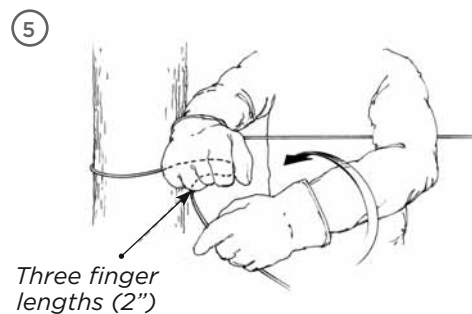


1) First Bend

Bend the wire twice to create a 'Z'



2) Second Bend



Place first bend of the 'Z' over the top of the horizontal wire

CONTINUED ON
NEXT PAGE

How to Tie a High Tensile Wire Knot (continued)

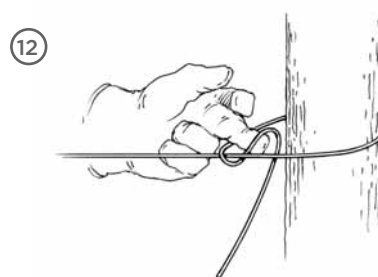
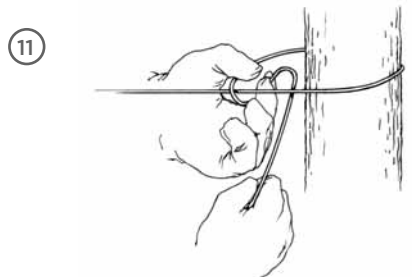
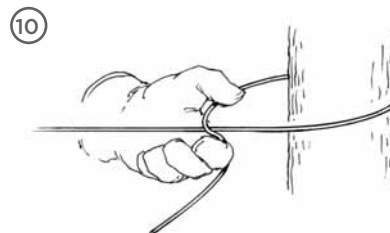
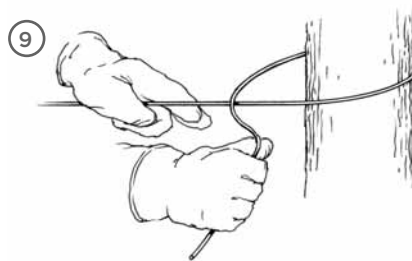
For
step-by-step
YouTube.com
videos on
How to Tie a
High-Tensile Wire
Slip Knot, scan:



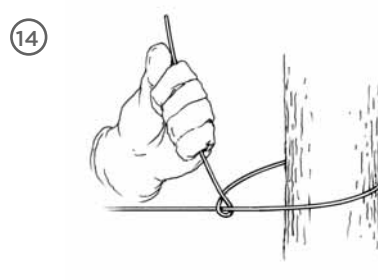
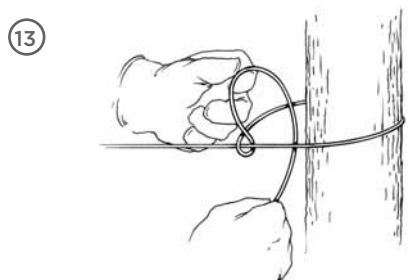
*Tying off High
Tensile Wire
(Perspective 1)*



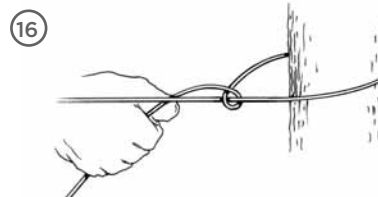
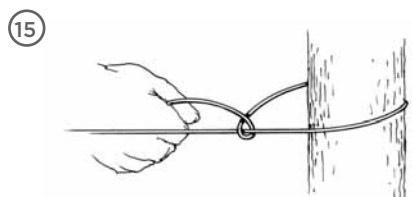
*Tying Off High
Tensile Wire
(Perspective 2)*



Push the second bend of the 'Z' in between Wire and Post

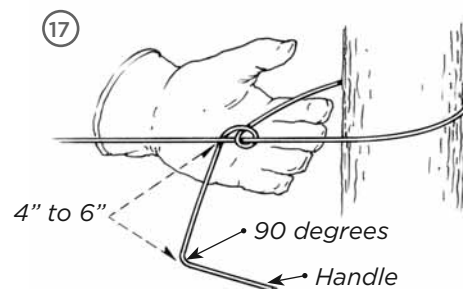


Bring end through and up over the top of the Horizontal Wire and straighten

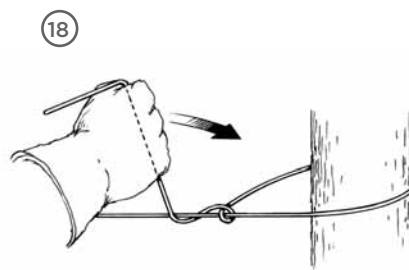


Bend the wire over itself... and down behind the Horizontal Wire

Use a 'Handle' to create the Wraps



*Pull the Wire down and bend
90 degrees to form a handle*



*Using the bend in the handle for leverage, push
the tail end up and over the Horizontal Wire.*

CONTINUED ON
NEXT PAGE

For
step-by-step
YouTube.com
videos on
How to Tie a
High-Tensile Wire
Slip Knot, scan:

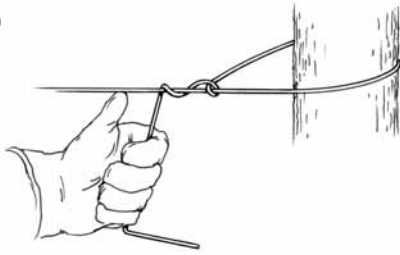


Tying off High
Tensile Wire
(Perspective 1)



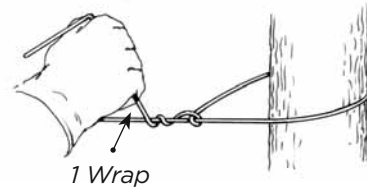
Tying Off High
Tensile Wire
(Perspective 2)

19



Pull the Wire down and up towards you to complete one wrap

20

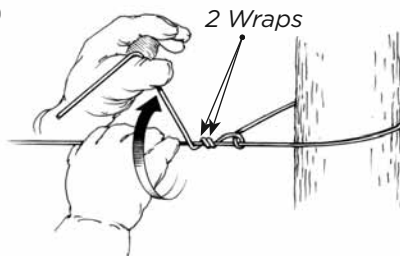


1 Wrap

Make 2 or 3 tight wraps around the Horizontal Wire

Complete the Knot 1-2-3

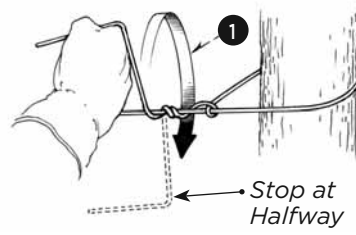
21



2 Wraps

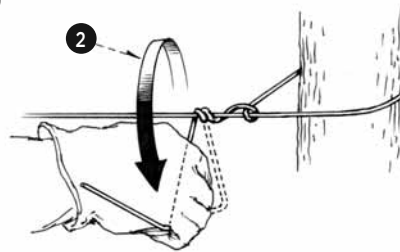
After 2 to 3 tight wraps, 1) make another wrap about half way around the wire...

22



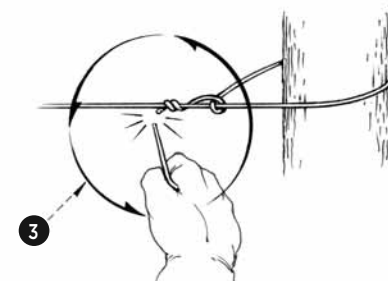
Stop at
Halfway

23



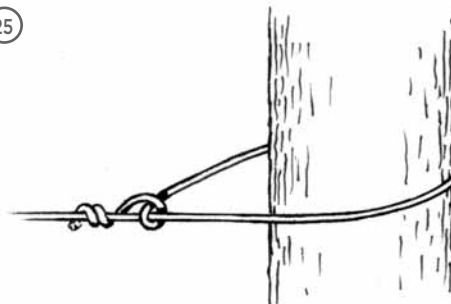
2) Pull it back around (reverse rotation)

24



3) Crank the Handle in a circle parallel to the horizontal Wire several times to break it off. If the handle does not break off, clip with the High Tensile Wire Cutters.

25



Finished Knot



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If you have any comments or ideas on how to improve this Guide, please let us know.