

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

**HIGH-TENSILE SMOOTH WIRE FENCE (HTSWF)
(Feet)**

CODE 382

I. MATERIALS

A. Wire

Use only new wire that meets the following minimum specifications:

- Class 3 galvanized
- 12.5 gauge
- 170,000 psi tensile strength

B. Line Posts

1. Steel

- Only new "T" or "U" posts, constructed of high carbon steel, and weighing a minimum of 1.25 lbs/foot exclusive of anchor plate.
- Minimum 6-feet long, studded, notched, or punched for wire attachment.

2. Wood

- Acceptable species include black locust, red cedar, Osage orange, and Australian ironwood (eucalyptus). All bark must be removed. At least one-half the diameter of red cedar posts must be heartwood.
- All other wood posts must be treated with a minimum of 0.4 lbs/ft³ of chromate copper arsenate (CCA-Type A, B or C), or equivalent.

- Minimum 6-feet long, and 3-inch diameter (2½-inch diameter for Osage orange; 1½-inch for eucalyptus).

3. Other

- Trees may be used for line posts in rocky or frequently flooded areas where holes cannot be dug or fences are difficult to maintain. Use low value trees for posts. Trees should be properly aligned, and have a diameter breast height of at least 4-inches. When trees are used, a treated or hardwood buffer board should be installed between the wire and the tree. In places where a buffer cannot be attached, the staples driven directly into the tree must penetrate at least 1-inch below the bark.

C. Corner, Brace, End, and Gate Posts

1. Wood

- Acceptable species include black locust, red cedar, and Osage orange. All bark must be removed. At least one-half the diameter of red cedar posts must be heartwood.
- All other wood posts must be treated with a minimum of 0.4 lbs/ft³ of chromate copper

- arsenate (CCA-Type A, B or C), or equivalent.
- Corner, brace, end, and gate posts must be at least 8' X 5".
 - Horizontal brace members must be at least 8' X 4".
 - Landscape timbers cannot be used for posts or brace members.

2. Steel

- Minimum 3-inch diameter high-carbon steel pipe weighing at least 7 lbs/foot, is galvanized or coated with a rust-resistant metal paint. Pipe ends must have a water-tight cap.
- Horizontal brace pipe can be 2-inch diameter high carbon steel that weighs at least 3.6 lbs/foot, is galvanized or coated with a rust-resistant metal paint.

D. Fasteners

1. For wood posts, use staples that are at least 9 gauge, class 3 galvanized. Minimum length for softwoods is 1½-inch, and for hardwoods is 1-inch.
2. Use manufactured clips, or minimum 14 gauge wire for steel line posts.

II. CONSTRUCTION

(See Georgia Fence Drawings)

A. Corners, Braces, Ends, and Gates

1. Posts

- Set posts for all fence assemblies at least 36-inches deep. The top

of posts should be at least 2-inches above the top wire.

- Backfill wooden posts by thoroughly tamping soil around the post after every 4-inches of depth.
- Set steel pipe in concrete that extends 1-inch below the bottom of the pipe, and slightly above the soil surface.

2. Braces (See GA Fence Drawing Nos.1&2)

- Bracing is required at all end, corner, gate, and pull assemblies.
- Single H-braces or floating angle braces are required for all end and gate assemblies. (See **Figures 1.1 and 1.2**)
- Use double H-braces in deep sands, or where soil remains saturated more than 6 months during the year. (See **Figures 2.1 and 2.2**)
- Set the center line of all horizontal brace members 6 – 9-inches below the top of the post.
- Anchor horizontal brace members to brace posts with a minimum 3/8" galvanized pin or spike driven through the post that penetrates the horizontal member at least 4-inches.
- H-braces must have a tension member consisting of 2 complete loops of 9 gauge smooth single strand, 12 gauge double strand, or 12.5 gauge high-tensile wire. One end of the loop is attached to

the anchor (corner, end, or gate) post 4-inches above the soil surface, and the other end is attached to the brace post at the same height as the top of the horizontal brace member. Twist the loops to provide rigidity to the brace assembly, or use in-line strainers on high-tensile wire.

3. Corner and in-line pull assemblies

- Use a single H-brace corner post assembly for any angle where fence alignment changes more than 20 degrees. (See **Figure 1.3**)
- Corners where fence alignment changes 20 degrees or less will use a 5-inch diameter post installed 48-inches deep. Lean the corner post 2-4 inches toward the outside of the curve.
- Use a double H-brace pull assembly with tension members at intervals not to exceed 1320-feet in straight line fence sections. Use braces at shorter distances in uneven terrain. (Typically, grade changes of > 15%). Terminate and tie off wire at the center anchor post of the pull assembly. (See **Figure 2.3**)

B. Line Posts

1. Steel

- The maximum distance between steel line posts is 16-feet without the use of stays, or 24-feet with stays between the posts.
- Drive posts at least 20-inches into the ground. The top of the post

must be at least 1-inch above the top wire.

2. Wood

- The maximum distance between wood line posts is 16-feet without the use of stays, or 24-feet with stays between the posts.
- Drive or bury wood posts at least 24-inches into the ground. The top of the post must be at least 2-inches above the top wire. If post holes are dug, backfill by tamping the soil around the post at every 4-inch depth.

3. Other

- If trees are used instead of line posts they should be closely aligned with the fence, and be spaced at distances no greater than the line posts.

C. Wire

1. Perimeter Fence

- A minimum of six strands with the top wire at least 42-inches above the soil surface.
 - Place the bottom wire no more than 16-inches above the soil surface. Space the remaining wires to ensure control of the animals of interest. Typically, wires are spaced closer toward the bottom of the fence than at the top.

2. Interior Fence

- A minimum of four strands with the top wire at least 38-inches above the soil surface.

- Space the wires with the bottom no more than 16-inches above the soil surface, and the top wire at least 2-inches below the top of wooden posts and at least 1-inch below the top of steel posts.

3. Fastening and Tension

- On boundary fence, attach wires to the side of the post closest to the livestock, except at corners and curves as needed.
- Avoid driving staples in-line with the wood grain. When using slash cut staples, place the staple parallel to the grain then rotate in the direction away from the cut face.
- Use in-line strainers on each wire to maintain 200 lbs. tension.
- To monitor tension, install a tension spring in the second wire from the top before applying tension to all the wires.
- Wires may be attached to steel posts by use of manufacturer's clips or by two turns of 14 gauge galvanized smooth wire.
- Wire should be able to move freely between the fastener and the line posts.

Two Loops Twisted Of Either A 9-Gauge Smooth Malleable Galvanized Wire, 12-Gauge Double-Stranded Or A 12 1/2-Gauge Galvanized High-tensile Wire. (Refer to Georgia Fence Standard 382)

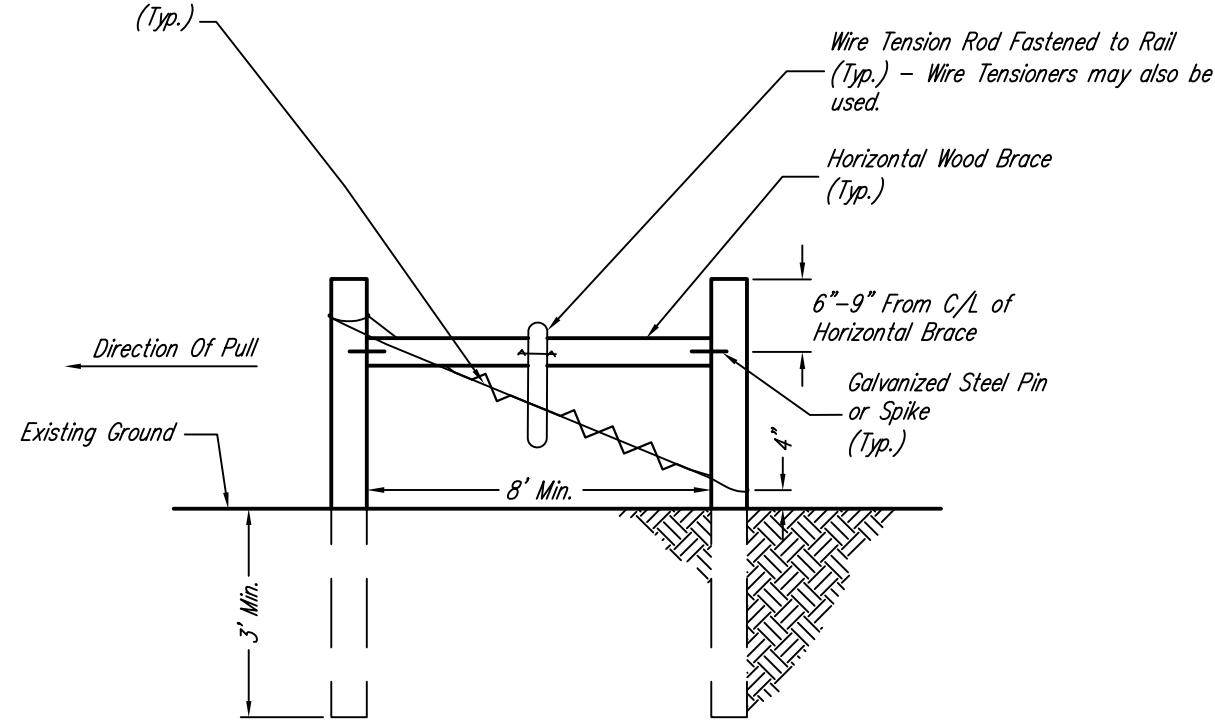


FIG 1.1 SINGLE H-BRACE END POST DETAIL
Not to Scale

Notes for Floating Brace:

- Use 1-5/8" dia. galvanized tubing or 4" dia. wood. Landscape timbers are not permitted.
- Use 10" spike nail or brace pin at connection to post.
- Use 15" min. disc blade or flat stone as shown.
- Tension wire is 12.5 gauge High Tensile
- Notch brace member 3/8" at lower end to accept tension wire
- Cinch tension wires both directions with wire or crimping sleeve.

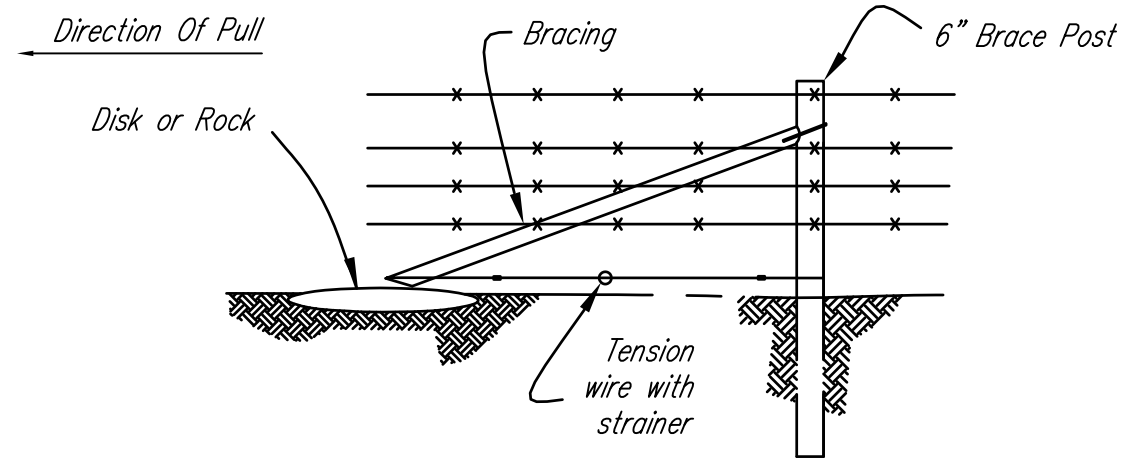


FIG 1.2 FLOATING BRACE
Not to Scale

Two Loops Twisted Of Either A 9-Gauge Smooth Malleable Galvanized Wire, 12-Gauge Double-Stranded Or A 12 1/2-Gauge Galvanized High-tensile Wire. (Refer to Georgia Fence Standard 382)

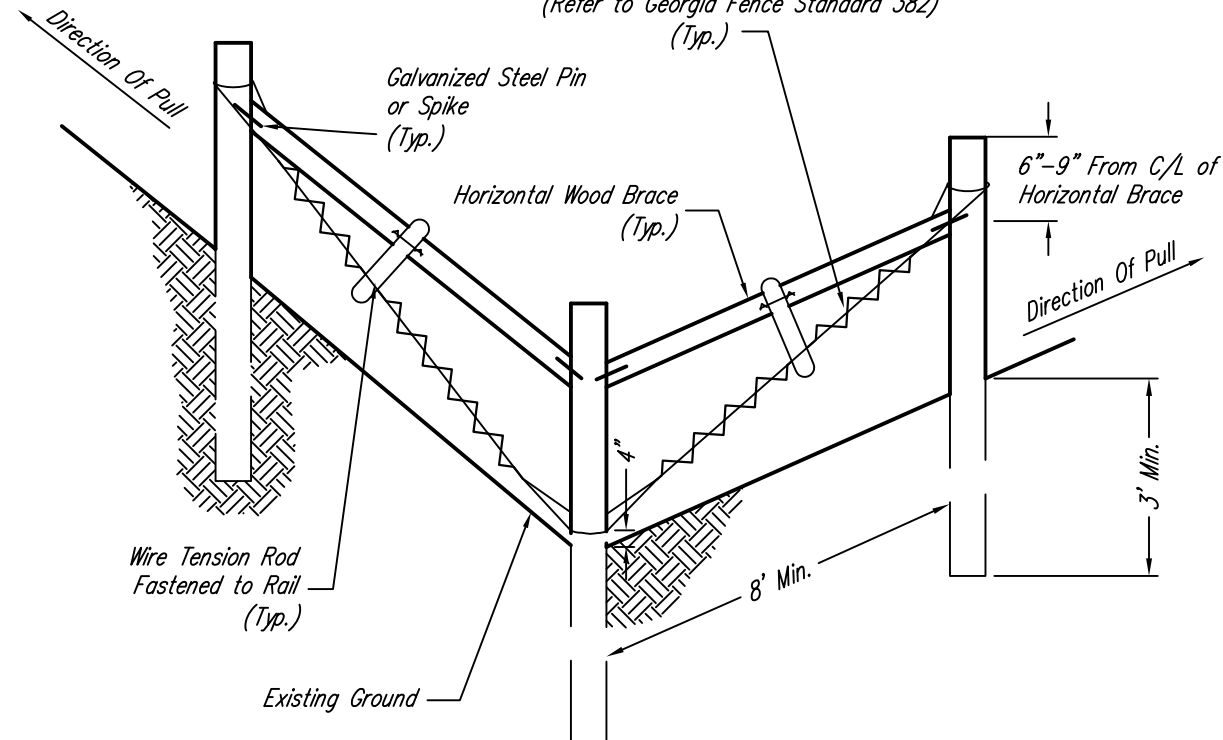


FIG 1.3 SINGLE H-BRACE CORNER DETAIL
Not to Scale

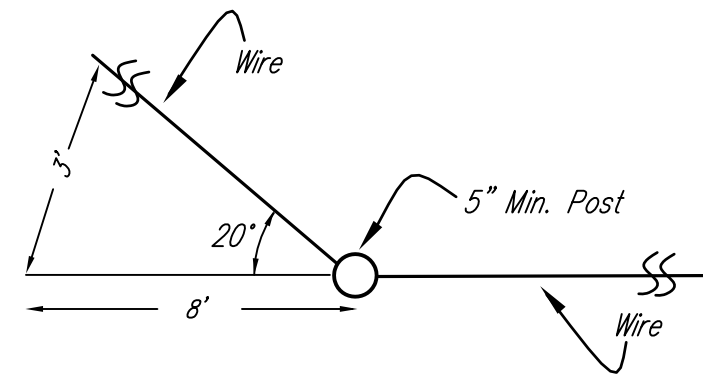


FIG 1.4 TOP VIEW - 20° OR LESS CORNER DETAIL
Not to Scale

Use a double H-brace corner post assembly for any angle where fence alignment changes more than 20 degrees.

FENCING - GEORGIA

DOUBLE H-BRACE

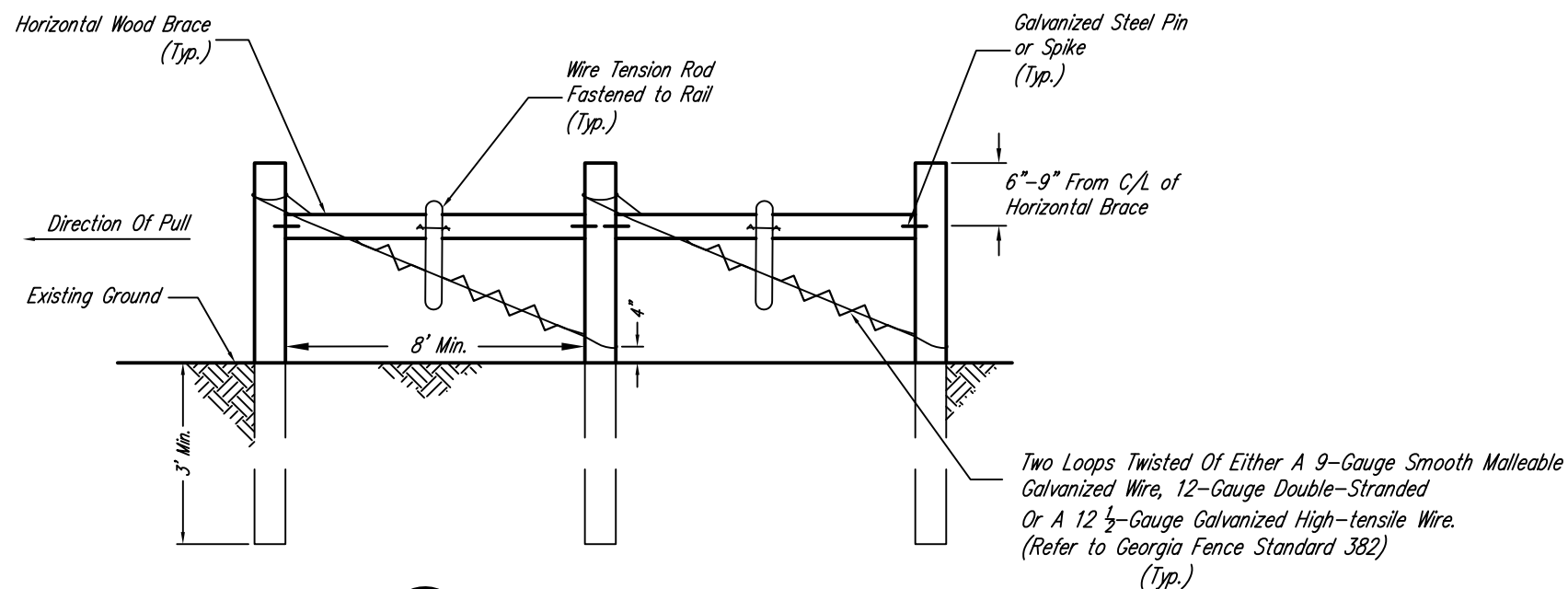


FIG 2.1 DOUBLE H-BRACE END POST DETAIL
Not to Scale

Two Loops Twisted Of Either A 9-Gauge Smooth Malleable Galvanized Wire, 12-Gauge Double-Stranded Or A 12 1/2-Gauge Galvanized High-tensile Wire. (Refer to Georgia Fence Standard 382) (Typ.)

Two Loops Twisted Of Either A 9-Gauge Smooth Malleable Galvanized Wire, 12-Gauge Double-Stranded Or A 12 1/2-Gauge Galvanized High-tensile Wire. (Refer to Georgia Fence Standard 382) (Typ.)

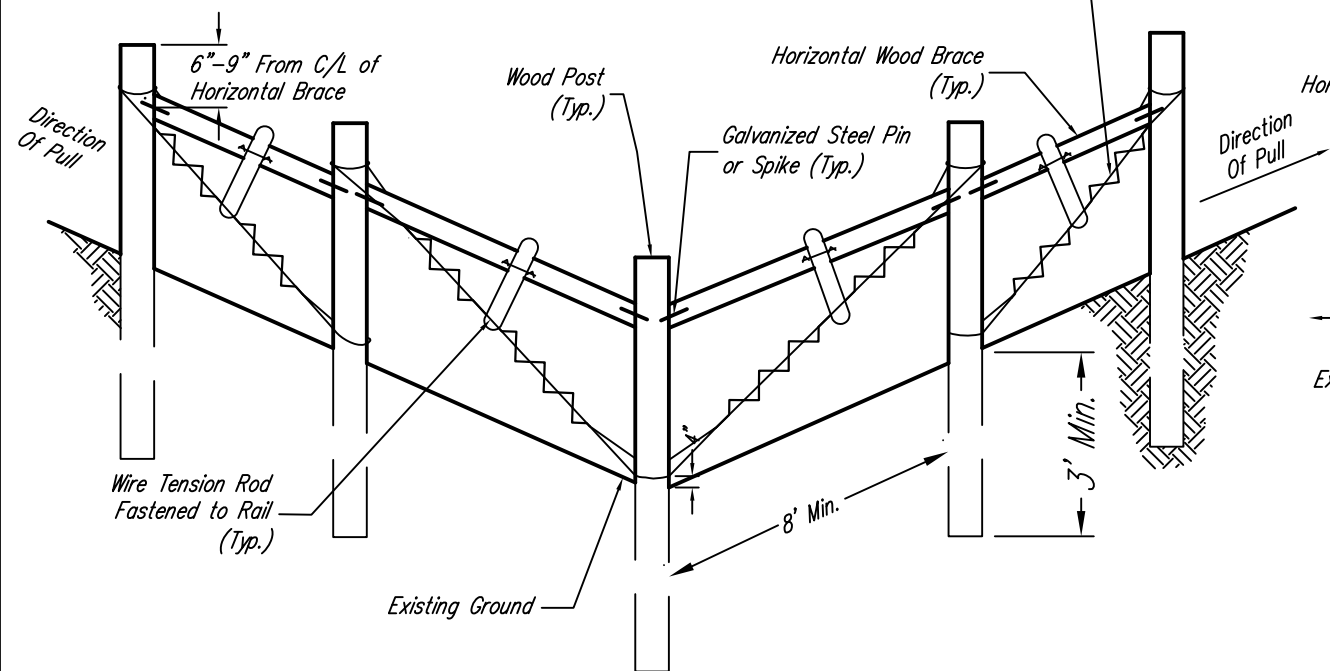


FIG 2.2 DOUBLE H-BRACE CORNER DETAIL
Not to Scale

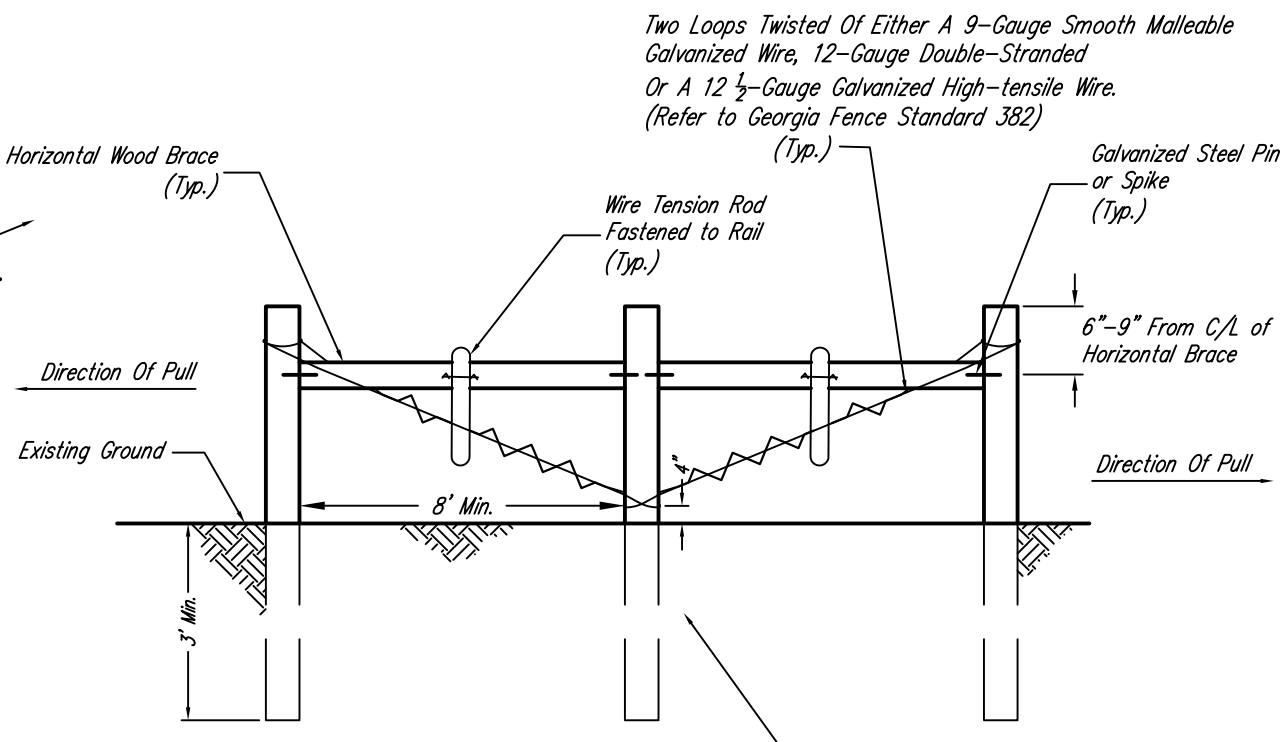


FIG 2.3 DOUBLE H-BRACE PULL ASSEMBLY DETAIL
Not to Scale

Terminate and Tie-off wire in both directions of pull.

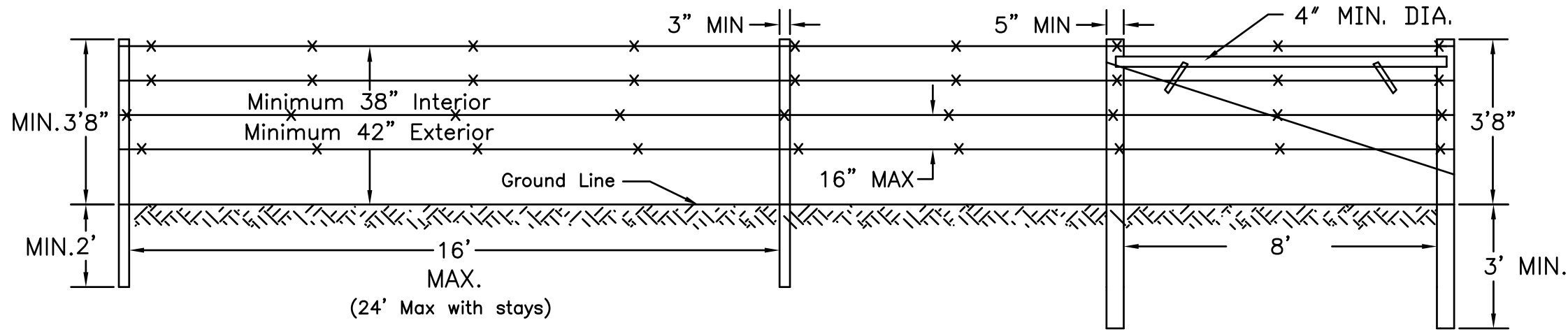


FIG 3.1 TYPICAL BARBED WIRE FENCE

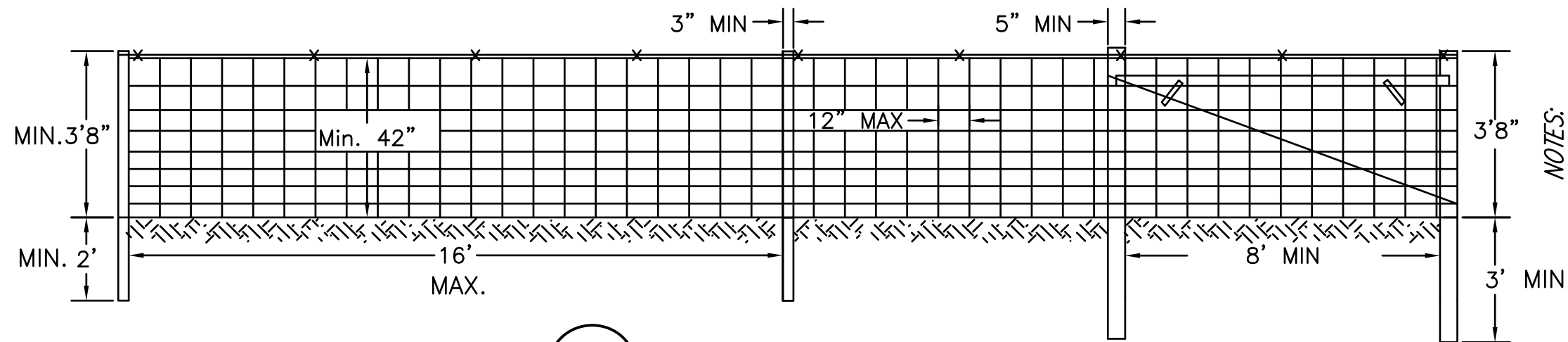


FIG 3.2 TYPICAL WOVEN WIRE FENCE

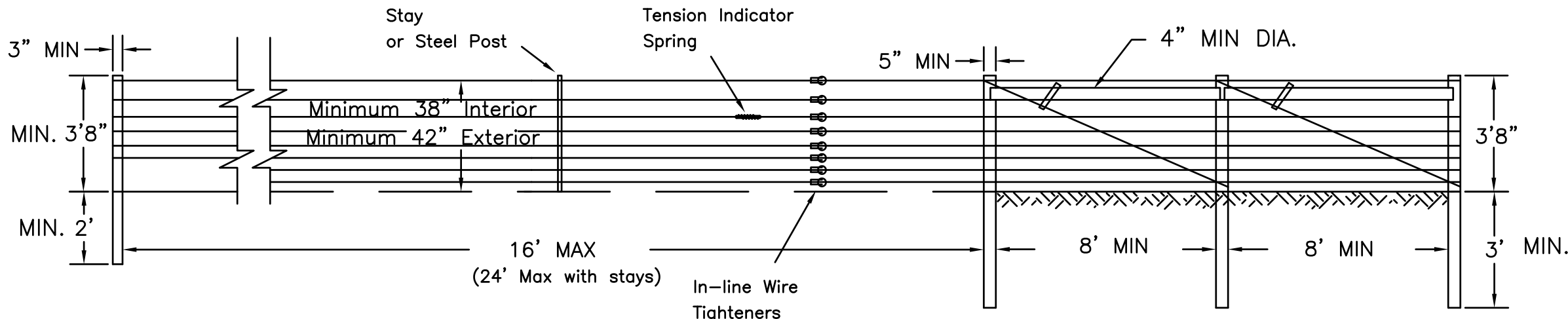


FIG 3.3 TYPICAL HIGH TENSILE FENCE (NON-ENERGIZED)
FOR ENERGIZED FENCE SEE NOTE FOR WIRE SPACING

- NOTES:
- For energized high tensile fence interior wire spacing shall be based on animal of interest.
 - Steel posts can be used instead of wood line posts. See Georgia Fence Standard – Code 382 for specifications.
 - Refer to Fence Standard – Code 382 for material and construction details.
 - Drawings are not to scale.

FENCING – GEORGIA
BARBED, WOVEN, & HIGH-TENSILE

