NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATION

382A - FENCE - BARBED, WOVEN, OR WOODEN

1. SCOPE

The work shall consist of furnishing and installing permanent non-electrified fences and related essential components.

2. MATERIALS

Unless otherwise shown on the drawings or specified in Section 7, materials for barbed, woven, or wooden fencing shall conform to the following requirements:

Wire

Fencing wire shall be galvanized barbed wire or woven wire. Where high-tensile metal is utilized it shall have Class III galvanization. Gauge required as a minimum shall be as listed in Table 1.

Table 1 – Gauge Wire Required for Conventional Barbed or Woven and High-Tensile Wire

Material	Conventional	High-Tensile
Barbed Wire	12-1/2 g.	15-1/2 g.
Barbs	4 pt – 14 g.	16-1/2
Top & Bottom Woven	10-1/2g.	10-1/2
Remaining Woven	11 g.	12-1/2g.
Stay Wires	11 g.	12-1/2 g.

Where electrified wire is used, refer to NRCS NY Construction Specification 382B FENCE – HIGH TENSLIE SMOOTH AND COATED WIRE AND BRAIDED ELECTRIFIED ROPE

Note: Under no circumstances shall barbed or woven wire be intentionally electrified. All reasonable measures shall also be taken to ensure such wires will not be accidentally electrified.

Fasteners

The staples shall be; Class III galvanized, slash cut point, minimum of 9 gauge wire staples. When used for fastening to hardwoods, staples will have a minimum length of 1¼ inches. For softwood posts, staples must have barbs and have a minimum length of 1½ inches.

Where preservative pressure treated wood (0.40 lbs. /cubic foot CCA or equivalent non-CCA treatment) is used, the fasteners shall be either hot-dipped galvanized, stainless steel, or other material recommended by the hardware manufacturer.

For steel, fiberglass and composite posts the fasteners shall be a minimum of 16 gauge galvanized wire.

Posts

All brace, corner, and gate posts - shall be black locust, larch, red or white cedar, preservative pressure treated softwood (0.40 lbs./cubic foot CCA or equivalent non-CCA treatment)*. In mineral soils, post diameter shall be a minimum of 5 inches for hardwood and 7 inches for softwood, square post shall be a minimum of 5-1/2 inches in both directions. The length of the post shall be a minimum of 7-1/2 feet. In organic soils, contact the State Grazinglands Specialist. Wood posts shall be structurally sound, predominantly straight throughout their length, with all limbs trimmed flush with the body of the post.

Line posts - shall be black locust, larch, red or white cedar, preservative pressure treated wood (0.40 lbs./cubic foot CCA or equivalent non-CCA treatment)*, galvanized steel "T" or "U" posts, fiberglass or composite posts, or other material of equivalent longevity and strength. In mineral soils wooden line posts diameter shall be a minimum of 3-1/2 inches, square post shall be a minimum of 3-1/2 in both directions. The minimum length shall be 5-1/2 feet. In organic soils, contact the State Grazinglands Specialist. All steel, fiberglass or composite line posts shall have a minimum length of 5-1/2 feet, fiberglass or composite ”T” posts shall have a minimum width of 1.2 inches, and round posts a minimum of 3/4 inch diameter. When steel posts are used, they shall be 1.3 pounds per foot of length.

Landscaping lumber is not acceptable wood.

Brace rails - shall be a minimum 4 inches in diameter for hardwood and 5 inches for other softwood. Square rails with the equivalent cross section may be used. Length of brace rails shall be a minimum of 8 feet long with a maximum of 10 feet long where horizontal and a minimum of 10 feet long where diagonal.

Landscaping lumber is not acceptable wood.

*Organically certified operations will need to check with certifying organizations on acceptable treatment materials and location of use before selecting treated wood posts.

Wooden planks

Wooden planking shall be well seasoned or kiln-dried Douglas fir, western larch, southern yellow pine, white oak or other wood of equal life or strength. All wooden planking shall be chemically preserved*. All planks shall be a minimum of 1 inch by 6 inches nominal.

Where chemically preserved wood is used, level of treatment shall be as recommended by the wood treatment industry for that type of preservative and the component’s intended use.

*Organically certified operations will need to check with certifying organizations on acceptable treatment materials and location of use before selecting treated wood planks.

Gates

Gates shall be the types, sizes, and quality needed to achieve the level of control required. All hardware necessary for the proper functioning of the gate shall be included. Gate and associated hardware shall be installed according to the manufacturer's

recommendations.

3. SETTING POSTS

Spacing

Unless otherwise shown on the drawings or specified in Section 7, line post for barbed wire and woven wire shall be a maximum of 16 feet apart. For board fencing, line post spacing shall be a maximum of 8 feet apart.

Method of Installation

In mineral soils, the minimum depth of corner, gate, and end assembly posts will be 3½ feet. Line posts shall be 1½ feet deep. In situation where post are not able to have the minimum depth or in organic soils, contact the State Grazinglands Specialist. When posts are driven, the top of the post shall be protected from splitting by applying driving pressure uniformly over the entire post end area. Posts that are damaged during driving shall be removed from the fence and replaced.

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Where posts are set in hand-dug or augured holes:

- Postholes shall be at least 6 inches larger than the diameter or side dimensions of the posts.
- Earth backfill around the posts shall be thoroughly tamped in layers not thicker than 4 inches and backfill shall be tamped firm to the ground surface. When concrete is used, backfill around the posts shall be rodded into place in layers not thicker than 12 inches and shall completely fill the posthole to the ground surface. Backfill, either earth or concrete, shall be crowned up around the posts to 2 inches above the ground surface.
- No stress shall be applied to posts set in concrete until at least 24 hours after the concrete has set. Posts for gates shall be allowed to set for at least 48 hours

Brace Assemblies

In mineral soils a single brace assembly - ‘H’ brace - may be used with 6 or fewer strands of wire or rope on corners, gates, ends, changes in topography and at watercourse crossings. Single corner posts with a diagonal brace may be used for 2 or less strands of wire or rope provided posts are set by power post driver and installed with a 3-4 inch lean away from the resultant pull of wires. A double brace assembly shall be used in similar instances with fences where more than 6 strands of wire are used. In organic soils contact the State Grazinglands Specialist.

Line brace assemblies shall be used with barbed and woven wire, and shall be installed at intervals of not more than 700 feet on continuous straight reaches. If double braces are used at corners or ends, a line brace assembly shall be installed at intervals of not more than 1300 feet on continuous straight reaches.

Where the fence line changes horizontal direction greater than 10 degrees, vertically greater than 20 degrees, and on both sides of watercourse crossing, brace assemblies shall be installed.

Additional instances needing brace assemblies will be specified in Section 6.

ATTACHING FENCE TO POSTS

The fence shall be attached to posts as follows:

a. The fencing shall be placed on the side of the post opposite the area being protected, except on curves and corners where the fencing will be placed on the outside.

b. Barbed wire and woven wire shall be fastened to each brace and corner assembly by wrapping each horizontal strand around the post and tying it back on itself with no less than 3 tightly wound wraps. If manufactured fasteners are used, they shall be labeled for such application and installed according to manufacturer's recommendations.

c. Barbed wire and woven wire shall be fastened to each line post. Use staples for wooden posts and use wire for steel posts. Woven wire fencing shall be attached at alternate horizontal strands to each post. Each strand of barbed wire shall be attached to each post. Staples shall be driven diagonally to the grain of the wood and shall not be driven so tightly as to bind the wire against the post.

d. Wooden fencing shall be fastened to each steel post by using pipe clamps as shown on the site-specific drawings. The clamps shall fit snugly around the post and the carriage bolt head shall be on the same side as the livestock. Each wooden plank shall be long enough to span 3 posts so as to stagger the joints on one post, except at fence corners and ends.

e. Wooden fencing shall be fastened to wooden post using galvanized screws or galvanized nails with a minimum of 2.5 inches in length .A minimum of 2 screws or nails shall be used to fasten the wooden boards to each post.

4. FENCING AT DEPRESSIONS

Where fencing is installed parallel to the ground surface, the line posts subject to upward pull shall be anchored by means of extra embedment or by special anchors as detailed on the site-specific drawings or in Section 7.

Where the fence is installed with the top wire straight across the depression, extra length posts shall be used to allow normal post embedment. Unless otherwise specified in Section 7, extra space between the bottom of the fence and ground shall be closed with additional strands of barbed wire, woven wire or wooded planks and properly anchored.

5. CROSSING WATERCOURSES

Where fence crosses small watercourses, end the fence at the top of the streambank on each side with an appropriate brace assembly. From separate posts driven next to the brace assembly but not wired to it, construct a separate section of fence across the

watercourse.

Where the fence crosses larger watercourses or areas prone to frequent flooding capable of carrying debris that could lodge on the fence, a special structure, such as a swing gate, will be installed. Provisions will be made as shown on the site-specific drawings or as specified in Section 7.

6. PROJECT WORK ITEMS TO BE PERFORMED IN CONFORMANCE WITH THIS SPECIFICATION AND ADDITIONAL CONSTRUCTION DETAILS ARE: