



City of St. Augustine Beach
Request for Proposals
Canal Fence Installation
RFP 24-01

The City of St. Augustine Beach is soliciting proposals from qualified Suppliers to install approximately 3,400 linear feet of fencing to be install on the north side of the drainage canal the runs from SR A1A to Mizell Road. The Contractor shall provide a proposal for a standard FDOT "Type A" fencing with modification (*see Attachment A*) and **clear and remove all brush** necessary to install the fence. Contractor shall also remove existing fence.

PROPOSALS MUST BE SUBMITTED TO: DARIANA FITZGERALD, CITY CLERK, CITY HALL, 2200 A1A SOUTH, ST. AUGUSTNE BEACH, FL 32080, WITH RETURN ADDRESS IN TOP LEFT HAND CORNER TO RECITE: BID NO. 24-01 – SEALED BID FOR CANAL FENCE REMOVAL AND INSTALLATION, CITY OF ST. AUGUSTINE BEACH FLORIDA.

Sealed bids will be received until 2:00 pm on Thursday March 7, 2024, by the City Manager, City of St. Augustine Beach, located at City Hall, 2200 A1A South, St. Augustine Beach, Florida 32080, for the **SEALED BID FOR CANAL FENCE REMOVAL AND INSTALLATION, CITY OF ST. AUGUSTINE BEACH FLORIDA**. Bids will be opened promptly after the 2:00 P.M. deadline. **Note:** Bids delivered or received at City of St. Augustine Beach City Hall after the 2:00 P.M. deadline shall not be given consideration and shall be returned to the sender unopened.

In submitting a response to this Request for Proposals, Contractors shall provide the information below along with any and all additional documentation or information necessary to verify qualifications (licenses, certifications, ect.) experience and/or other pertinent information associated with responding to the Request for Proposals.

Contractor must disclose any contractual or employment relationship with any City officer or employee, as well as any ownership interest in the Contractor held by any City officer or employee. Failure to disclose this information may result in cancellation of award, termination of contract, suspension, or debarment.

Full Legal Company Name: _____

Mailing Address: _____

Authorized Representative Printed Name & Title: _____

Authorized Representative Signature: _____

*By signing above, Representative certifies that he/she is an authorized representative of the responding firm, and that all information submitted with this proposal is true and complete. Representative also certifies that the responding firm meets any and all qualifications required to perform the required services associated with this request.

Phone #: _____ E-mail: _____

Mandatory Pre-Bid Inspection:

Bidders must conduct a mandatory pre-bid inspection of the property in order to qualify to submit a bid. During their inspection, prospective bidders will be provided access to the site to conduct their inspection and measure the proposed fencing as necessary to prepare their bid. Inspections will be scheduled through the Assistant Director Russell Adams (email: radams@cityofsab.org); or by phone: (904) 471-1119. **Pre-Bid Inspections must be scheduled on February 21st, February 22nd or February 28th, February 29th between the hours of 8am – 2pm.** The city will not answer any verbal bidder questions during pre-bid inspections. All bidder questions must be presented in writing or by email to the Assistant Director as specified in herein.

Minimum Qualifications

Suppliers must be fully licensed and authorized to perform the specified Work in the State of Florida, and St. Johns County, and must provide a current and valid copy of each of the following:

- Business License for the State of Florida; and
- Active Registration with the State of Florida, Department of State, Division of Corporations (Sunbiz); and

Schedule/Contract Time:

The Contractor shall have five (5) business days from receipt of Notice of Award, to sign and return the awarded contract. The City intends to sign and return a fully executed contract no later than five (5) business days from receipt of all required documents from the awarded contractor, but no later than ten (10) consecutive calendar days from issuance of Notice of Award. The City reserves the right to extend these timeframes, as needed, in order to serve the best interest of the City. However, the City is under no obligation to extend these timeframes, and reserves the right to cancel any award, where the awarded Contractor fails to return the required documents within the timeframes specified above.

The work under the awarded contract shall be commenced within ten (10) business days of the date provided in the Notice to Proceed. Construction of the project shall reach Final Completion within forty-five (45) consecutive calendar days of the date provided in the Notice to Proceed.

If Contractor fails to achieve Final Completion of the Work by its applicable date, then the City shall be entitled to withhold any amounts otherwise due Contractor or to be paid as a debt due, as liquidated damages, in accordance with the following FDOT Standard Specifications for Road and Bridge.

Construction FY 2023-24 schedule:

Original Contract Amount Daily Charge Per Calendar Day

\$299,999 and under..... \$980

\$300,000 but less than \$2,000,000..... \$1,699

\$2,000,000 but less than \$5,000,000..... \$2,650

\$5,000,000 but less than \$10,000,000.....	\$3,819
\$10,000,000 but less than \$20,000,000.....	\$4,687
\$20,000,000 but less than \$40,000,000.....	\$7,625
\$40,000,000 and over.....	\$10,467 plus 0.00005 of any amount over \$40 million (Round to nearest whole dollar)

The parties agree that such Liquidated Damages are not a penalty but rather a genuine pre-estimate of monetary damages sustained by the City for loss of revenue and/or increased project administration expenses related to this contract because the contractor failed to perform and complete work within the time fixed for completion or additional time granted pursuant to the provisions hereof. The assessment of Liquidated Damages is without prejudice to the City's rights of termination and Contractor's obligation to complete the Work.

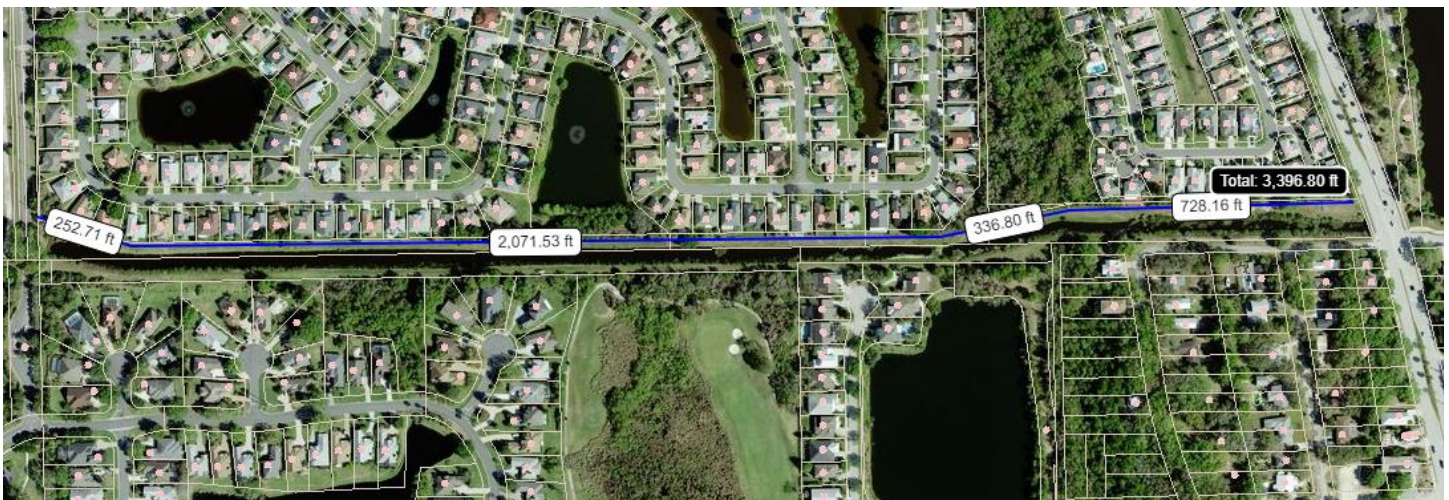
Should Contractor fall behind the approved Work schedule; the City reserves the right to deduct Liquidated Damages based on an estimated period of late completion. The City need not wait until the completion of work to withhold Liquidated Damages from the Contractor's progress payments.

Scope of Work

Contractors Responsibilities:

- Provide all licenses, permits, and insurance as required.
- Mandatory Pre-bid Site Inspection
- Minimum 15-year product warranty. The Contractor will provide the City with a copy of the product warranty.
- Contractor is to provide a Craftsmanship warranty as part of their quote.
- Clear and remove all debris necessary for fence installation.
- Remove all existing fence materials.
- Install FDOT Type A Fence with modification to barbed wire. (See Attachment A)
- Contractor is responsible for any damages to existing structures caused in the course of the work and shall repair/or replace as necessary, at no additional cost to the City.

Site Map



Cleaning the Jobsite

Contractor shall keep the Jobsite neat, secure and orderly during performance of the Work and shall clean up and remove all waste, rubbish and construction debris from the Jobsite as they accumulate. Upon Final Completion of the Work, Contractor shall remove all waste, rubbish and construction debris from and about the Jobsite as well as all tools, appliances, construction equipment, temporary utilities, temporary construction and machinery and surplus materials. Contractor shall restore to original condition all property not designated for alteration by the Solicitation Documents.

Substitutions

The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution. No substitution will be considered unless written request for approval has been submitted by the Bidder and has been received by the Owner at least ten (10) days prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute, including drawings, cuts, performance and test data any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or work that incorporation of the substitute would require, shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Owner's approval or disapproval of a proposed substitution shall be final.

If the Owner approves any proposed substitution, such approval will be set forth in an Addenda. Bidders shall not rely upon approval made in any other manner.

Payment

All invoices will be paid upon final acceptance of the project.

PROPOSED PRICING

Contractors: Having become familiar with requirements of the project, and having carefully examined the Quote Documents entitled Canal Fence Removal and Installation in the City of St. Augustine Beach, Florida, the undersigned proposes to furnish all labor, permits, materials, equipment, services and all other requirements necessary to complete the required Work for the following Lump Sum Price:

BID ITEM NO. 1 FOR: Install FDOT Type A Fencing w/modificaitons, Remove Existing, and Clear and Remove all Brush and Tree Trimming Necessary

\$ _____

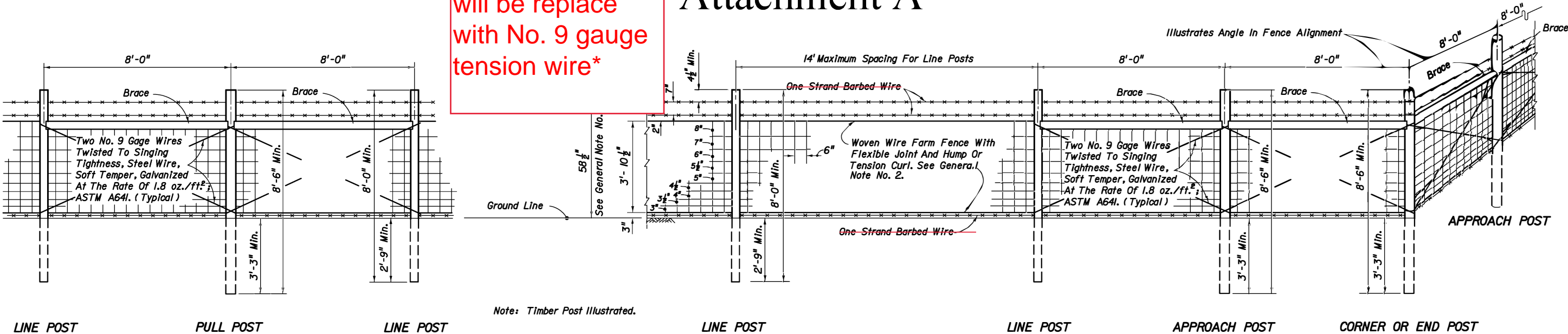
Total Lump Sum Price (Numerical)

_____/100
Dollars

(Amount written or typed in words)

Attachment A

All Barbed Wire will be replace with No. 9 gauge tension wire

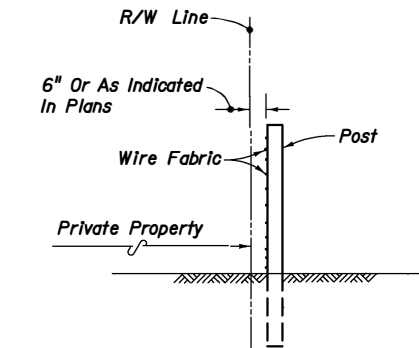


Note: Timber Post Illustrated.

GENERAL NOTES

1. This fence to be provided generally in rural areas. For supplemental information see Section 550 of the FDOT Specifications.
2. Fabric shall be woven wire, either galvanized steel, meeting the requirements of ASTM A16, No. 9 Farm, Design Number 1047-6-9, with Class 3 zinc coating, or aluminum coated steel, meeting the requirements of ASTM A584, No. 9 Farm, Design Number 1047-6-9, with a minimum coating weight of 0.40 oz./ft.². For additional information see payment note below.
3. Fence shall be installed with wire side to private property except on horizontal curves greater than 3° the fence shall be installed so as to pull against all posts.
4. Posts may be either timber, steel, recycled plastic or concrete. Unless a specific post material is called for in the plans, the Contractor may elect to use either a single material or a combination of timber, steel, recycled plastic or concrete materials. Line posts of one material may be used with corner, pull and end post assemblies of a different material. Line posts of only one optional material and pull post assemblies of only one optional material will be permitted between corner and end post assemblies. Within individual corner and end post assemblies only one optional material will be permitted.
5. Timber posts shall meet the material requirements of Specification Section 954. Timber line posts are to be minimum 4" diameter. Timber corner, pull, approach and end posts are to be a minimum 5" diameter. Timber braces are to be minimum 4" diameter.
 - (A) Staples for line posts to be 1 1/4" minimum length; for approach, corner and pull posts 1 1/2" minimum length. At approach, corner and pull posts, staple every line wire. At line posts, staple every line wire in top half and alternate line wires in bottom half. Staples shall be driven diagonally across the line wire with the points in separate grains.
 - (B) Connections between timber posts and braces to be provided by dowels as shown in fastener details.
 - (C) Wire to be wrapped and tied, as shown in the splice details, at the following locations:
 - (a) All end posts, (b) Corner post, including the assemblies at vertical breaks of 15° or more and (c) Pull posts where the wire is not spliced and pulled through the assembly; see General Note 18.
6. Steel posts and braces shall be standard steel posts, galvanized at the rate of 2 oz./ft.², together with necessary hardware and wire clamps meeting the following requirements:
 - (A) Line posts: 8' long; 1.33 lbs./ft.; roll formed studding; anchor plate attached (23 in.²).
 - (B) Approach posts: 2 1/2" x 2 1/2" x 1/4" angles, 8' long; fabricated for attaching brace; with necessary hardware, clamps, etc.
 - (C) Pull, end and corner posts: 2 1/2" x 2 1/2" x 1/4" angles, 8' long; fabricated for attaching brace; with necessary hardware, clamps, etc.
 - (D) Braces: 2" x 2" x 1/4" angles with necessary hardware and fabricated for attaching to post.
 - (E) The pull, corner, approach and end posts are to be set in concrete as per detail. (Also see Note No. 15)
7. Recycled plastic posts shall meet the material requirements of specification Section 972 and be one of the products included on the Qualified Products List current at the time of installation. Line posts shall have a minimum section of 4" round or 4" square. Plastic posts shall not be used as corner, pull, end or approach posts unless such use specifically detailed in the plans. Plastic posts can be set by either digging and tamped backfill or by driving into full depth preformed holes 1/4" to 1/2" smaller than cross section of post. Staples for fabric and barbed wire connection to plastic line posts shall be the same size, count and location as that for timber posts.
8. The Contractor, at his option, may use any suitable precast or prestressed concrete posts; however, approval by the Engineer, of posts not shown on this index, will be required prior to construction of the fence. Precast posts shall be Class I concrete. Prestressed posts shall be Class III concrete. Lengths of concrete post to be as indicated for timber posts.
9. Aluminum post, braces and accessory framing hardware shall not be used unless the plans specifically detail their application or the Engineer specifically approves their incorporation in fence construction or repair. Aluminum framed gates are permitted as described in General Note 19.

10. The woven wire shall be attached to steel and concrete posts by a minimum of five tie wires. The single wire ties shall be applied to the top, bottom and three intermittent line wires. The ends of each tie wire shall have a minimum of two tight turns around the line wire. Tie wires shall be steel wire not less than 0.120" diameter, zinc coating Class 3, soft temper, in accordance with ASTM A641.
11. ~~Steel Barbed Wire can be either of the following types:~~
~~Type I- This type shall conform to the requirements of ASTM A121, with two strands of 12 1/2 gage wire; four-point barbs, wire size 14 gage, twisted around both line wires, and, Class 3 coating.~~
~~Type II- This type same as Type I except the two strand wires are twisted in alternating directions between consecutive barbs.~~
~~Aluminum Barbed Wire shall be fabricated of two strands of 0.110-inch wire with 0.08-inch diameter four-point barbs spaced at approximately 5 1/2", and at a maximum spacing of 6". The wire for the strands and for the barbs shall be of ASTM B211M Alloy 5052-H38 or equal.~~
12. The woven wire shall be stretched only until one-half the tension curl has been pulled out of the line wires.
13. Posts to be set by driving or digging. If by digging, the posts shall be set at the center of the hole and the soil tamped securely on all sides.
14. Longer posts than those indicated above may be required by the plans or for deeper installations.
15. Concrete bases for angular steel posts (pull, corner, end and approach) shall be Class I as specified in Section 347. Materials for Class I concrete may be proportioned by volume and/or by weight.
16. Pull post assemblies shall be installed at approximately 330' centers except that this maximum interval may be reduced by the Engineer on curves where the radius is less than 3°.
17. Corner post assemblies are to be installed at all horizontal and vertical breaks in fence of 15° or more.
18. A maximum length of 1320' of wire may be installed as a unit. For pulls through a pull post assembly the fabric shall be spliced by crimping sleeves only. Pulls through a corner post assembly will not be permitted.
19. Unless otherwise called for in the plans gates shall be commercially available metal swing gates assembled and installed in accordance with the manufacturer's specifications as approved by the Engineer. Chain link swing gates in accordance with Index No. 802 may be substituted for metal swing gates as approved by the Engineer. Gate size is full opening width whether single leaf or double leaves. Payment for gates shall include the gate, single or double, all necessary hardware for installation and any additional length and/or size for posts at the opening. Gates shall be paid for under the contract unit price for Fence Gates, EA.
20. For construction purposes, assemblies are defined as follows: End post assemblies shall consist of: one end post, one approach post, two braces, four diagonal tension wires and all necessary fittings and hardware. Pull post assemblies shall consist of: one pull post, two braces, four diagonal tension wires and necessary fittings and hardware. Corner post assemblies shall consist of: one corner post, two approach posts, four braces, eight diagonal tension wires and all necessary fittings and hardware.
21. All posts, braces, tension wires, fabric, tie wires, Class I concrete, and all miscellaneous fittings and hardware to be included in the cost for Fencing, LF. Fencing shall be inclusive of the lengths of pull, end and corner post assemblies, but exclusive of gate widths.



FENCE POSITION AT LOCATIONS WITHOUT FRONTAGE ROADS
(REFER TO DETAIL PLANS FOR FENCE POSITION AT LOCATIONS WITH FRONTAGE ROADS)

DESIGN NOTE

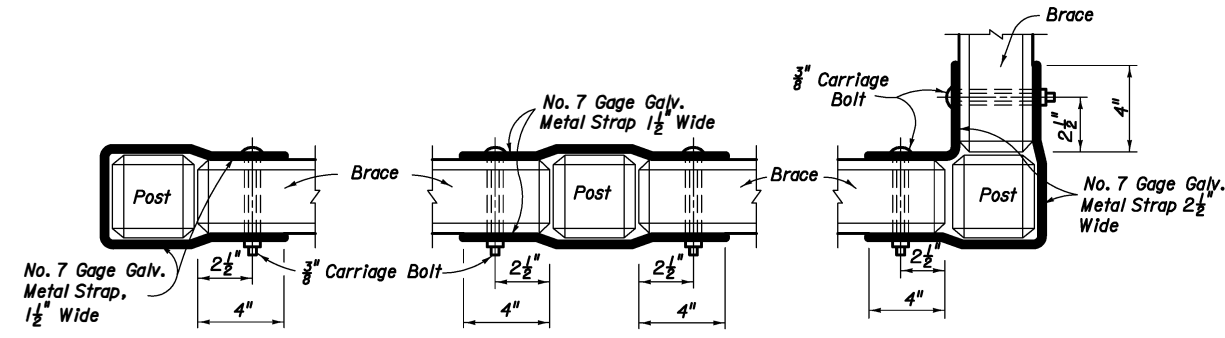
This index details fencing that is constructed with farm fabric 46 1/2" (47" nominal) in height and with specific ground clearance and specific barbed wire spacings. For fencing of different height or installation details, the fence shall be fully detailed in the Contract plans.



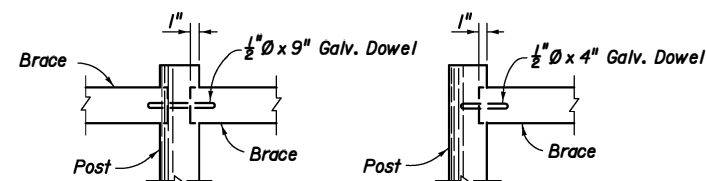
2008 FDOT Design Standards

FENCE TYPE A

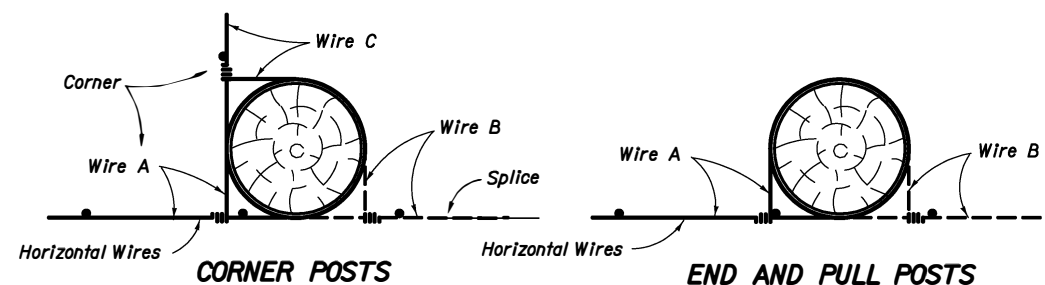
Last Revision
07/01/05
Sheet No.
1 of 2
Index No.
801



BRACE AND POST BRACE TO BRACE ON LINE BRACE TO BRACE AT CORNER
FASTENER FOR CONCRETE POST AND BRACES

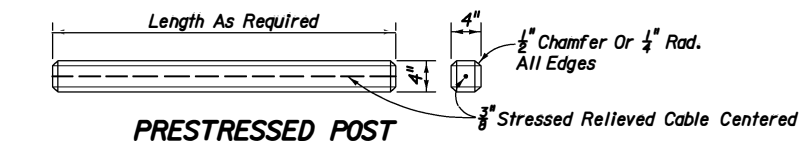


FASTENER FOR TIMBER POST AND BRACE

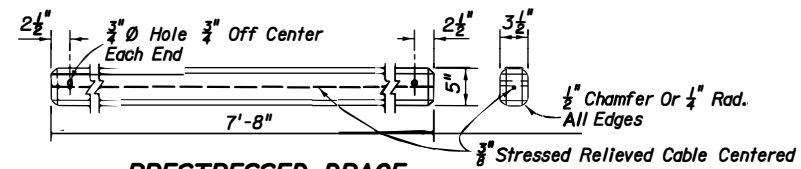


Each horizontal wire to be wrapped around corner, end and pull posts and tied to same wire. See General Notes 5 and 17. Timber post illustrated. These methods also apply to steel and concrete post illustrations.

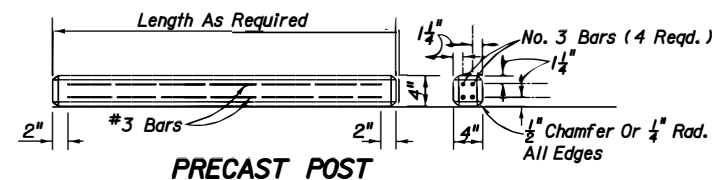
SPLICES



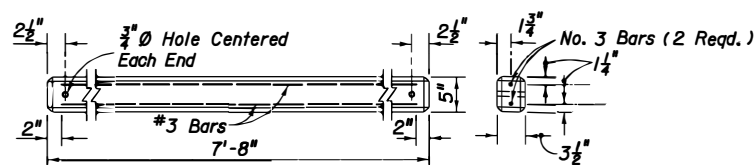
PRESTRESSED POST



PRESTRESSED BRACE

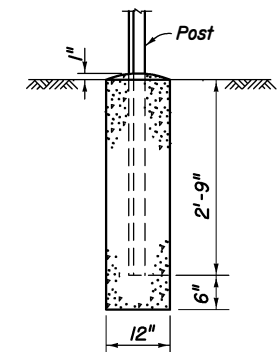


PRECAST POST



PRECAST BRACE

ALTERNATE CONCRETE POSTS AND BRACES



(Pull, Corner, End And Approach Posts)
CONCRETE BASE FOR ANGULAR STEEL POST



2008 FDOT Design Standards

FENCE TYPE A

Last Revision	Sheet No.
07/01/05	2 of 2
Index No.	
801	

SECTION 550 FENCING

550-1 Description.

Furnish, erect and reset metal fence of the type and at the locations shown in the Plans.

550-2 Types of Fence.

The types of fence are designated as follows:

Type A (Farm Fence).

Type B (Chain-Link Fence).

Type R (Chain-Link Fence for Pedestrian Overpass).

550-3 Materials.

550-3.1 Type A Fence (Farm Fence): Meet the requirements of Section 954 for timber posts and braces. For metal posts and braces, and for recycled plastic fence posts, meet the requirements of the Design Standards.

For the fabric and all other accessories, meet the requirements of the Design Standards.

550-3.2 Type B Fence (Chain-Link): For the posts, braces, fabric and all accessories other than the concrete for bases, meet the requirements of the Design Standards.

Use concrete as specified in Section 347, or a premix approved by the Engineer for bases. The requirements contained in 347-2.2, and 347-3 will not apply.

550-3.3 Type R Fence (Chain-Link for Pedestrian Overpass): Use the fabric and accessories specified in the Plans.

550-3.4 Resetting Fence: Use material from the existing fence. For any additional materials required, provide the same type of material as in the existing fence and as specified herein, including gates when applicable.

550-3.5 Optional Use of Materials: For Type A Fence, a combination of steel, aluminum, timber, recycled plastic or concrete posts may be used. Unless otherwise called for in the Plans, line posts of one material may be used with corner, pull and end post assemblies of a different material. The Engineer will permit the use of line posts of only one optional material and pull posts assemblies of only one optional material between corner and end post assemblies. Within individual corner and end post assemblies, the Engineer will allow the use of only one optional material.

For Type B Fence, a combination of zinc-coated steel fence members, aluminum coated fence members and aluminum alloy fence members may be used. Unless otherwise indicated in the Plans, the Engineer will allow the use of only one type of fabric material, one type of line post material and one type of pull assembly material between corner and end post assemblies.

550-3.6 Certification: Provide the Engineer with certified test reports from the manufacturer confirming that all materials (posts, braces, fabric and all other accessories) conform to the requirements of this Section, Section 6 and the Design Standards. Provide the Engineer a copy of the certification at least ten days prior to fence construction.

Also furnish the Engineer a Certificate of Compliance certifying that the fencing system, materials and construction practices comply with the applicable Design Standards and Specifications.

Acceptance of furnished material will be based on the Certificate of Compliance, accompanying test reports and visual inspection by the Engineer.

550-4 Construction Methods.

550-4.1 General: Install the fence in accordance with the specific requirements of this Article and with the details shown on the Design Standards for the particular type of fence called for, except for Type R Fence which shall be detailed in the Plans. Construct the fence in close proximity to the right of way line except as otherwise detailed in the Plans. Assume responsibility for obtaining satisfactory permits or permission from property owners for any encroachments required to perform the work, and for proper scheduling of the fence installation with the removal of existing fence where it is necessary to provide continuous security to adjacent areas already fenced. In order to meet this requirement, where necessary for maintaining security of livestock on adjacent property during construction of the new fence, the Engineer may require the erection and subsequent removal of temporary fencing.

550-4.2 Spacing of Posts: Space posts as shown in the Design Standards, within a tolerance of 12 inches, except where definite spotting of corner posts is required. Ensure that in any line of fence, the over-spacings and the under-spacings shall approximately compensate. Set additional line posts at abrupt changes in grade.

550-4.3 Clearing: Where the clearing and grubbing for the project includes the area occupied by the fence, clear the area to the limits shown in the Plans. If the limits are not shown in the Plans, clear the area at least 2 feet wide on each side of the fence line. The Engineer may direct that desirable trees be left in place and may restrict clearing where permission from the property owners cannot be obtained.

550-4.4 Construction Over Irregular Terrain and Other Obstructions:

550-4.4.1 Clearance of Bottom of Fence: Install the fence such that the bottom of the fence, in general, follows the contour of the ground. The fence is detailed in the Plans at approximately 3 inches above ground line. Over irregular ground, however, the Engineer will permit a minimum clearance of 1 inch and a maximum of 6 inches for a length not to exceed 8 feet, and, for Type A fence, with the barbed wire spaced midway between ground and bottom of fabric.

550-4.4.2 Grading: Where necessary to secure proper vertical alignment and to meet the clearance requirements, fill depressions (except where filling would obstruct proper drainage) and cut down knolls and ridges. Provide a substantial and permanent foundation for the fence.

550-4.4.3 Use of Extra-Length Posts. At locations where it is impracticable to adjust the ground level, the Engineer may require that posts of additional length be set and that the opening at the bottom be closed by additional barbed wire, stretched taut between poles, with no vertical distance between wires greater than 3 inches. For all such posts requiring a concrete base, extend the concrete downward to the bottom of the extra-length post.

550-4.5 Setting Posts: If rock occurs within the required depth of the post hole, or pavement which is to remain in place exists at the location of a post, drill a hole of a diameter slightly larger than the greatest dimension of the post or footing and grout in the post or footing. Set timber posts either by digging or by driving. Set recycled plastic fence posts in accordance with the Design Standards.

550-4.6 Placing Fabric: Do not place fabric and barbed wire until the posts have been permanently positioned and concrete foundations have attained adequate strength. Place the

fabric by securing one end and applying sufficient tension to remove all slack before making permanent attachments at intermediate points. Fasten the fabric to all end, corner and pull posts by approved means. Fasten the fabric using tools designed for the purpose, in accordance with the manufacturer's recommendations. Apply the tension for stretching by mechanical fence stretchers or with single-wire stretchers designed for the purpose.

550-4.7 Electrical Grounds: Wherever a power line passes over the fence, install a ground directly below the point of crossing. Install a ground rod consisting of a galvanized rod with connection of similar metal if required, or of other appropriate material, 8 feet in length and at least 5/8 inch in diameter. Drive the rod vertically until the top of the rod is approximately 6 inches below the ground surface. Use a No. 6 conductor to connect the rod and all fence elements. Connect the conductor to each fence element and the ground rod by means of non-corrosive electrical-type clamps.

550-5 Method of Measurement.

550-5.1 General: The quantities to be paid for will be plan quantity for the number of gates and the length of each type of fence constructed and accepted. In addition, extra payment will be made, in accordance with 550-6.2, for additional lengths of post approved by the Engineer for the crossing of depressions in accordance with 550-4.4.3, muck areas, or other areas of inadequate support for a post of standard length.

550-5.2 Measurement of Fence Length, and Payment: The length of fence to be paid for will be plan quantity completed and accepted. Measurement for resetting fence will be the actual length of existing fence reset, including gates when applicable.

550-6 Basis of Payment.

550-6.1 Basic Items of Fencing: The Contract unit price per foot for the item of fencing, will be full compensation for all work and materials necessary for the complete installation, including line posts, corner, end, and pull posts. Such price and payment will include, but not be limited to, the following specific incidental work.

1. Any work required to level and prepare the terrain along the line of the fence.
2. Any additional clearing incidental to construction of the fence.
3. All preparation for post holes, in whatever type of material, as specified herein.
4. Any furnishing and installing of electrical grounds.
5. Any additional work or materials required for special construction over irregular terrain, or terrain of inadequate support for the posts, including the additional barbed wire, but not including the extra lengths of posts ordered by the Engineer.
6. Any cost of erection and removal of any temporary fencing, which may be necessary for maintaining security of livestock, etc., on adjacent property during construction of the new fence.

550-6.2 Payment Rates for Extra-Length Posts: Any extra length posts added to complete installation of the fence will require an invoice. The Contractor will be compensated for invoice price plus 10% as payment for any extra length posts.

The standard length of steel, recycled plastic and aluminum posts will be the required length as indicated in the Plans or Design Standards for each type and case.

The payment for additional length of post will include the cost of additional concrete to extend concrete bases, as applicable.

550-6.3 Gate Payment: The quantities to be paid for will be full compensation for all labor, materials, posts, and associated hardware for the complete installation of the type gate specified in the Plans, and accepted by the Engineer.

550-6.4 Payment Items: Payment shall be made under:

Item No. 550- 10- Fencing - per foot.

Item No. 550- 60- Gates - each.

SECTION 954 TIMBER FENCE POSTS AND BRACES

954-1 Types of Timber, and Treating Requirements.

Timber fence posts and braces shall be of southern yellow pine and shall be treated in accordance with Section 955.

Prior to the treatment, all knots on the posts shall be trimmed close to the body of the post.

954-2 Requirements for Cutting.

Round or square posts will be permitted but all posts on a single project shall be the same. The posts shall be cut from sound and solid trees and shall contain no unsound knots. The butt shall be cut at a sufficient distance above the ground swell of the tree that there will be no abrupt change in cross-section of the post.

The butts shall be sawn square. The post tops shall be sawn neatly and at right angles to the vertical axis of the post.

954-3 Knots, etc.

Sound knots will be permitted provided the diameter of the knot does not exceed one-third of the diameter of the piece at the point where it occurs.

Peck (in cypress posts) shall be limited as provided for knots; the area of permissible peck not exceeding the area occupied by permissible knots, and a combination of peck and knots not exceeding the aggregate of knots allowed.

The posts shall be free from decayed wood, rot, and red heart, and of ring shake or season checks which penetrate at any point more than one fourth the diameter of the piece, or are greater than 1/4 inch wide.

954-4 Peeling.

All posts shall be peeled for their full length, and all inner and outer bark removed, except that isolated strips of inner bark which do not exceed 1/2 inch in width or 3 inches in length will be permitted.

954-5 Straightness.

The straightness of the post shall be such that for any 8 foot post (or for any 8 feet of length, for longer posts) a straight line from the center of the tip to the center of the butt (or from center of the cross sections at the extremes of the 8 foot lengths) shall not fall outside the center of the mid-section of the 8 foot length by more than 2 inches.

954-6 Dimensions.

954-6.1 Minimum Lengths Allowable:

Line posts - 8 feet.

Corner and pull posts - 8 feet, 6 inches.

Braces - As required by the Plans.

(A tolerance of minus 1 inch to plus 2 inches will be allowed in the lengths shown for the posts.)

954-6.2 Minimum Allowable Cross Section:

Round line posts - 4 inch diameter.

Round braces, corner and pull posts - 5 inch diameter.

Square line posts - 4 inches by 4 inches.

Square braces, corner and pull posts - 5 inches by 5 inches.

The minimum diameters specified for round posts are applicable before preservative treatment. When the treated post is inspected at the job site a tolerance of $\frac{3}{8}$ inch under such diameters will be allowed, to compensate for shrinkage resulting from treatment and storage.