



Form GSOP I-PIN (04/98)

STATE OF CALIFORNIA
 Department of General Services - Office of Procurement
PURCHASE ORDER

Purchase Order No. **62126** Rev. **6/30/2008** Date

Supplier No. 811516	Solicitation No. 56912	Delivery Date 45 Days ARO	FOB Point Destination	Invoice Terms
S DEPT. OF TRANSPORTATION h SACRAMENTO WAREHOUSE i 2001 EVERGREEN STREET p SACRAMENTO, CA 95818 		C CALTRANS-ASC/OFC B-15 h OPAC-WHSE PURCHASING a P.O. BOX 168018 T SACRAMENTO, CA 95816-8018 r o g e		
Agency Billing 60006	Agency Purchase Estimate 22-W1341JW	Purchase Estimate 67122	Revision 0	
Agency Contact JOHN WILLIAMS		Phone 916-227-6031	Date Received	

S & S FENCE COMPANY INC.
 7448 REESE ROAD
 SACRAMENTO, CA 95828
 Attn: STEPHEN B. STWERT

 Phone: 916-682-1100

Item No.	Quantity	Unit	Commodity Code	Description	Unit Price	Extension
THE GENERAL PROVISIONS FOR NON-IT COMMODITIES ARE HEREBY INCORPORATED BY REFERENCE. THESE GENERAL PROVISIONS CAN BE OBTAINED BY PHONING (916) 375-4400 OR BY ACCESSING OUR WEBSITE AT: www.documents.dgs.ca.gov/pd/modellang/GPnonIT0407.pdf						
THE FOLLOWING INFORMATION IS PROVIDED FOR AGENCY USE ONLY: PRIME CONTRACTOR: SB;DVBE FISCAL YEAR: 2007/2008 APPLICATION OF DVBE INCENTIVE RESULTED IN AWARD: YES						
1	8037	EA	5660-157-2128-1	POST FENCING METAL	9.3800	75,387.06
STEEL "T" SECTION POST, 2.1-M (7') LONG, 1.33 LBS. PER FOOT, COMPLETE WITH ANCHOR PLATE AND FIVE (5) WIRE CLIPS FOR EACH POST. ALL POSTS MUST CONFORM TO SECTION 80-3.01A "METAL POSTS AND BRACES" OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS DATED MAY 2006 AND WITH STANDARD DRAWING NO. A-86, DATED MAY 2006. POSTS TO BE GALVANIZED AND MUST CONFORM WITH SECTION 75-1.05 "GALVANIZING" PER THE ABOVE REFERENCED SPECIFICATIONS. PACKAGING: 50 POSTS PER BUNDLE, SECURED ON 4" X 4" WOODEN DUNNAGE WITH TWO (2) EACH, 5/8" STEEL BANDS. (CT# 5660-0110-7) PROPOSED BRAND: <u>REMINGTON</u> MODEL: <u>R13384</u>						
2	13000	EA	9705-600-0270-2	POST METAL GUIDE	10.3300	134,290.00
METAL GUIDE POST, 6' LONG GALVANIZED WITH 6 SLOT HOLES FOR PLATES PER DEPARTMENT OF TRANSPORTATION SPECIFICATION DATED OCTOBER 2002 ATTACHED. PROPOSED BRAND: <u>REMINGTON</u> MODEL: <u>R1372</u>						

Sales and/or use tax to be extra unless noted above

Buyer LONNIE WILLIAMS	Phone 916-375-4586	BOC Number
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STATE OF CALIFORNIA

Department of General Services - Office of Procurement

PURCHASE ORDER CONTINUATION

Form GSOP 2-PIN (04/98)

<i>Purchase Order No.</i> 62126	<i>Revision</i>	<i>Date</i> 6/30/2008	<i>Supplier No.</i> 811516	<i>Supplier Name</i> S & S FENCE COMPANY INC.
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<i>Item No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Commodity Code</i>	<i>Description</i>	<i>Unit Price</i>	<i>Extension</i>
3	7000	EA	9705-600-0270-2	POST METAL GUIDE	8.6400	60,480.00
<p>METAL GUIDE POST, 5' LONG GALVANIZED WITH 6 SLOT HOLES FOR PLATES PER DEPARTMENT OF TRANSPORTATION SPECIFICATION DATED OCTOBER 2002 ATTACHED.</p> <p>PROPOSED BRAND: <u>REMINGTONR</u></p> <p>MODEL: <u>R1360</u></p>						
4	260	EA	9705-600-0270-2	POST METAL GUIDE	6.8900	1,791.40
<p>METAL GUIDE POST, 4' LONG GALVANIZED WITH 6 SLOT HOLES FOR PLATES PER DEPARTMENT OF TRANSPORTATION SPECIFICATION DATED OCTOBER 2002 ATTACHED.</p> <p>PROPOSED BRAND: <u>REMINGTON</u></p> <p>MODEL: <u>R1348</u></p>						
5	2996	EA	5660-157-2128-1	POST FENCING METAL	19.0800	57,163.68
<p>GALVANIZED STEEL POST FOR CHAIN LINK FENCE 1.83-M (6') HIGH. CONFORMING TO SECTION 80-4.01A "POST AND BRACES", AND 75-1.05 "GALVANIZING", OF THE CALIFORNIA DEPT. OF TRANSPORTATION, STANDARD SPECIFICATIONS DATED JULY 2002. POSTS MUST ALSO CONFORM TO THE ATTACHED DRAWING NO. A-85, OF THE CALIF. DEPT. OF TRANSPORTATION, STANDARD PLANS DATED JULY 2004, EXCEPT AS FOLLOWS:</p> <p>1. ROLL FORMED POSTS SHALL BE 44-MM (1-3/4") X 44-MM (1-3/4") X 2.74-M (108") (-4" NOMINAL) OR 48-MM (1-7/8") X 41-MM (1-5/8") X 2.74-M (108") (-4" NOMINAL) (slot shall be 3/32" wide)</p> <p>2. The 0.25-inch maximum deflection limitation has been deleted.</p> <p>PACKAGING: 25 POSTS PER BUNDLE, SECURED ON 4" X 4" WOODEN DUNNAGE WITH TWO (2) EACH, 5/8" STEEL BANDS. (CT# 5660-0105-7)</p> <p>PROPOSED BRAND: <u>REMINGTON</u></p> <p>MODEL: <u>RSP104</u></p>						
Total Value:						329,112.14

STATE OF CALIFORNIA

Department of General Services - Office of Procurement

PURCHASE ORDER CONTINUATION

Form GSOP 2-PIN (04/98)

<i>Purchase Order No.</i> 62126	<i>Revision</i>	<i>Date</i> 6/30/2008	<i>Supplier No.</i> 811516	<i>Supplier Name</i> S & S FENCE COMPANY INC.
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<i>Item No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Commodity Code</i>	<i>Description</i>	<i>Unit Price</i>	<i>Extension</i>
<p><u>THE FOLLOWING ATTACHED DOCUMENTS ARE PART OF THIS PURCHASE ORDER</u></p> <p>1. SPECIFICATIONS:</p> <ul style="list-style-type: none"> * STATE OF CALIFORNIA SPECIFICATION POST, STEEL FENCE #9520-08BS-001 OF (2) PAGES DATED APRIL 2008. * CALIFORNIA DOT SPECIFICATIONS FOR ROLL FORMED LINE POST OF ONE (1) PAGE DATED MAY 2006. * CALIFORNIA DOT SPECIFICATIONS FOR METAL DRIVE TYPE GUIDE POST OF FOUR (4) PAGES DATED OCTOBER 2002. * CALIFORNIA DOT STANDARD SPECIFICATIONS OF NINE (9) PAGES DATED MAY 2006. * ASTM STANDARD SPECIFICATION FOR STEEL FENCE POST AND ASSEMBLIES, HOT WROUGHT OF FOUR (4) PAGES. <p>2. CALTRANS WAREHOUSE RECEIVING FORM</p> <p><u>F.O.B. Destination:</u></p> <p>For the purpose of this order only F.O.B. Destination will be accepted.</p> <p><u>CALTRANS ADMINISTRATIVE REQUIREMENTS</u></p> <p>ALL METAL POSTS SHALL BE PACKAGED AND BUNDLED PER SPECIFICATION.</p> <p><u>DELIVERY REQUIREMENTS</u></p> <p>THERE SHALL BE <u>TWO</u> DELIVERIES ON THIS PROCUREMENT</p> <p>FIRST DELIVERY SHALL BE 45 DAYS ARO FOR THE INITIAL 30% OF THE ORDER AMOUNT.</p> <p>SECOND DELIVERY SHALL BE 45-60 DAYS AFTER DELIVERY OF FIRST SHIPMENT WITH THE BALANCE OF 70% OF THE PURCHASE ORDER.</p> <p>DELIVER TO: DEPARTMENT OF TRANSPORTATION SACRAMENTO WAREHOUSE 2001 EVERGREEN STREET SACRAMENTO, CA 95818</p> <p>SUPPLIER SHALL BE REQUIRED TO NOTIFY CALTRANS RECEIVING OF SHIPPING DATE, CARRIER ETC. VIA FACSIMILE USING THE ATTACHED FORM.</p> <p>THE TWO SHIPMENTS SHALL BE INVOICED SEPARATELY.</p> <p><u>CERTIFICATE OF COMPLIANCE :</u></p> <p>TO BE FURNISHED IN ACCORDANCE WITH SECTION 6-1.07 OF THE CALTRANS STANDARD SPECIFICATIONS DATED JULY 2006. CERTIFICATE SHALL BE SIGNED BY THE MANUFACTURER OF THE MATERIAL OR THE MANUFACTURER OF ASSEMBLED MATERIALS AND SHALL STATE THAT THE MATERIALS INVOLVED COMPLY IN ALL RESPECTS WITH THE REQUIREMENT OF THE SPECIFICATION. ALL MATERIALS USED ON THE BASIS OF A CERTIFICATE OF COMPLIANCE MAY BE SAMPLED AND TESTED AT ANY TIME. ANY SUCH MATERIAL NOT CONFORMING TO SUCH REQUIREMENTS WILL BE SUBJECT TO REJECTION WHETHER IN PLACE OR NOT.</p>						

STATE OF CALIFORNIA

Department of General Services - Office of Procurement

PURCHASE ORDER CONTINUATION

Form GSOP 2-PIN (04/98)

<i>Purchase Order No.</i>	<i>Revision</i>	<i>Date</i>	<i>Supplier No.</i>	<i>Supplier Name</i>
62126		6/30/2008	811516	S & S FENCE COMPANY INC.

<i>Item No.</i>	<i>Quantity</i>	<i>Unit</i>	<i>Commodity Code</i>	<i>Description</i>	<i>Unit Price</i>	<i>Extension</i>
<p><u>NOTE TO VENDOR:</u> ALL INQUIRIES, REGARDING PAYMENT OR INVOICE STATUS ONLY. FOR PURCHASE ORDERS WITH CALTRANS SHOULD BE DIRECTED TO CALTRANS ACCOUNTS PAYABLE IN SACRAMENTO AT 1-800/303-1160 (LOCAL OR OUTSIDE CALIFORNIA CALL 916/227-8946). ALL OTHER CALLS SHOULD BE DIRECTED EITHER TO THE AGENCY CONTACT AT THE NUMBER LISTED ABOVE, OR TO THE BUYER ISSUING THE PURCHASE ORDER.</p> <p><u>NOTE TO ACCOUNTS PAYABLE:</u> FOR QUESTIONS ABOUT RECEIVING DOCUMENTS, CONTACT RECEIVING REPRESENTATIVE AT (916) 445-2557.</p> <p><u>AWARD DATE</u> This purchase order is being awarded on AUGUST 25, 2008 pursuant to Government Code Section 13332.17. Any encumbrances made pursuant to this purchase order shall be construed to have been made on the last day of the preceding fiscal year.</p> <p><u>SCPRS REGISTRATION</u> This Purchase order has been registered into the state contract and procurement registration system (https://www.scprs.dgs.ca.gov/). The registration number is 26600808330009.</p> <p><u>CHANGE ORDERS</u> Any Purchase Order may be amended, modified, or terminated at any time by mutual agreement of the parties in writing. Change orders amending, modifying or terminating the Purchase Order, including any modifications of the compensation payable may be issued only by the State Procurement Officer. All such change orders shall be in writing and issued only upon written concurrence of the supplier. Termination, as that term is used in this section, does not include termination for default of the supplier.</p>						



1 SCOPE

This document establishes the requirements for posts to be furnished to the California Department of Transportation.

2 APPLICABLE SPECIFICATIONS / STANDARDS / CODES

Specifications, standards and codes referenced in this document in effect on the opening of the 'Invitation For Bid', form a part of this specification. The posts furnished under these specifications shall conform to all of the requirements of the specific sections and drawings of the following publications attached in references:

- 2.1 California Department of Transportation Specifications for Roll-Formed Line Posts for Caltrans Stock number CT#5660-0105-7 dated May 2006
- 2.2 California Department of Transportation Specifications for Metal Drive Type Guide Posts for Caltrans stock number CT#5660-0270-5(4'), 5660-0280-6(5'), 5660-0290-7(6') dated October 2002
- 2.3 California Department of Transportation Standard Drawing "Metal Guide Posts" dated 12/79
- 2.4 California Department of Transportation Standard Drawing "Packaging & Bundling of Metal Posts" Rev. 1-71
- 2.5 California Department of Transportation Standard Specification dated May 2006, Section 82-1.02B "Metal Posts"
- 2.6 California Department of Transportation Standard Specification dated May 2006, Section 80-3.01A "Metal Posts and Braces"
- 2.7 California Department of Transportation Standard Specification dated May 2006, Section 80-4.01A "Posts and Braces"
- 2.8 California Department of Transportation Standard Specification dated May 2006, Section 75-1.05 "Galvanizing"
- 2.9 2006 Standard Plan A85 titled as California Department of Transportation "Chain Link Fence" Drawing No. A 85 dated May 2006
- 2.10 2006 Standard Plan A86 titled as California Department of Transportation "Barbed Wire and Wire Mesh Fences" Drawing No. A 86 dated May 2006
- 2.11 ASTM Designation: A 702 Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought

3 REQUIREMENTS

3.1 Tolerance

Post length specified shall be no more than -1.0 inches or +2.0 inches; and placement of anchor plate shall not vary from the nominal by more than +/- 3 inches as specified in ASTM Designation A 702 section 6 "Dimension, Mass and Permissible Variations".

3.2 Material

3.2.1 Steel "T" section post shall conform to the following requirements:

- Seven (7') feet (2.1 meters) long
- Nominally weighed 1.33 pounds per linear foot as specified in ASTM Designation A 702 section 6 "Dimensions, Mass and Permissible Variations"
- Complete with anchor plate and five (5) wire clips for each post per 2006 Standard Plan A86 "Barbed Wire and Wire Mesh Fences"
- Conform to the specification of California Department of Transportation Standard Specification, section 80-3.01A "Metal Posts and Braces"
- Galvanized in conformance with the California Department of Transportation Standard Specification, section 75-1.05 "Galvanizing"

3.2.2 Galvanized steel roll formed post for six-foot high chain link fence shall conform to the following requirements:

- Roll formed posts shall be either 1 3/4" x 1 3/4" x 108" (-4" nominal) or 1 7/8" x 1 5/8" x 108" (-4" nominal)
- Conform to the Department of Transportation Specifications for Roll-Formed Line Posts for Caltrans stock number CT#5660-0105-7
- Conform to the specification of California Department of Transportation Standard Specification, section 80-4.01A "Posts and Braces"
- Conform to 2006 Standard Plan A85 "Chain Link Fence"
- Galvanized in conformance with the California Department of Transportation Standard Specification, section 75-1.05 "Galvanizing"

3.2.3 Metal Guide posts shall conform to the following requirements:

- Four (4') foot metal guide post shall be four (4') feet long.
- Five (5') foot metal guide post shall be five (5') feet long.
- Six (6') foot metal guide post shall be six (6') feet long.
- All posts shall be galvanized with six slot holes for plates, manufactured, constructed and packaged conforming to the Department of Transportation Specifications for Metal Drive Type Guide Posts for Caltrans Stock Number CT#5660-0270-5(4'), 5660-0280-6(5'), 5660-0290-7(6').

References: (Applicable Specifications/Standard/Codes)

- 2.1 California Department of Transportation Specifications for Roll Formed Line Posts for Caltrans Stock number CT#5660-0105-7 dated May 2006
- 2.2 California Department of Transportation Specifications for Metal Drive Type Guide Posts for Caltrans stock number CT#5660-0270-5(4'), 5660-0280-6(5'), 5660-0290-7(6') dated October 2002
- 2.3 California Department of Transportation Standard Drawing "Metal Guide Posts" dated 12/79
- 2.4 California Department of Transportation Standard Drawing "Packaging & Bundling of Metal Posts" Rev. 1-'71
- 2.5 California Department of Transportation Standard Specification dated May 2006, Section 82: Markers and Delineations, 82-1.02B "Metal Posts"
- 2.6 California Department of Transportation Standard Specification dated May 2006, Section 80-3 Type BW and WM Fence, 80-3.01A "Metal Posts and Braces"
- 2.7 California Department of Transportation Standard Specification dated May 2006, Section 80-4 Chain Link Fence, 80-4.01A "Posts and Braces"
- 2.8 California Department of Transportation Standard Specification dated May 2006, Section 75 Miscellaneous Metal, 75-1.05 "Galvanizing"
- 2.9 2006 Standard Plan A85 titled as California Department of Transportation "Chain Link Fence" Drawing No. A 85 dated May 2006
- 2.10 2006 Standard Plan A86 titled as California Department of Transportation "Barbed Wire and Wire Mesh Fences" Drawing No. A 86 dated May 2006
- 2.11 ASTM Designation: A 702 Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought

May 2006

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF PROCUREMENT AND CONTRACTS
1727 30TH STREET
SACRAMENTO, CA 95816

SPECIFICATIONS FOR ROLL FORMED
LINE POSTS

CALTRANS STOCK NUMBER (CT#)

5660-0105-7

I. Specifications:

Galvanized steel line posts for chain link fence six feet high or less, conforming to the Department of Transportation Standard Plans drawing #A85 dated May 2006, and the applicable portion of Section 80-4 of the Department of Transportation Standard Specifications dated May 2006, excepting as follows:

- A. Roll formed posts shall be either 1-3/4" x 1-3/4" x 108" (-4" nominal) or 1-7/8" x 1-5/8" x 108" (-4" nominal).
- B. The 0.25-inch maximum deflection limitation has been deleted.
- C. Roll form posts shall be slotted on one side of the length of the post to accept staples for holding fence fabric. This slot shall be on a side at right angle to the side containing provision for the top tension wire, and be a nominal width of 2.4-MM (3/32")

II. Packaging:

Post shall be packaged in bundles of 25 posts, secured on 4" x 4" wooden dunnage with (2) each 5/8" steel bands.

**CERTIFICATE OF COMPLIANCE TO BE FURNISHED PER SECTION 6-1.07
OF THE DEPARTMENT OF TRANSPORTATION STANDARD
SPECIFICATIONS, DATED May 2006.**

OCTOBER 2002

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ADMINISTRATIVE SERVICE CENTER
OFFICE OF PROCUREMENT AND CONTRACTS
1900 ROYAL OAKS DRIVE
SACRAMENTO, CA 95815-3800
Phone: (916) 322-2137

SPECIFICATIONS FOR
METAL DRIVE TYPE GUIDE POSTS

CALTRANS STOCK NUMBER (CT #)

5660-0270-5 (4')

5660-0280-6 (5')

5660-0290-7 (6')

I. DESCRIPTION

Metal posts, conforming to the dimensions and details shown on the attached drawing(s) and identified as either Metal Guide or Sign Post (for guide plates and markers) shall be furnished in accordance with the following provisions:

The material and workmanship shall conform with Section 82-1.02B, Metal Posts, of the most current issued Department of Transportation Standard Specifications.

The Metal Post shall be manufactured of 13 gauge steel. The posts shall be either fabricated of pregalvanized material which conforms to the requirements of ASTM Designation A-526, Coating Designation A-90 or, shall be a mild, commercial quality weldable steel, galvanized after fabrication in accordance with the requirements of ASTM Designation A-123. The posts shall be straight, shall be manufactured as one continuous piece of metal with no welded joints, and shall be free of sharp corners or rough or burred surfaces or edges.

II. GENERAL REQUIREMENTS

A. Construction:

The bottom and top ends of all posts shall be properly formed or pointed as shown on drawing. The slots on the Guide Posts shall be within the tolerances shown. The posts shall be constructed to permit nesting and stacking in order that a minimum of space will be required for storage and shipping.

B. Metal posts to be per attached drawing, except that minor variations in design and dimensions will be permitted to meet manufacturer's standards. Hole and slot dimensions shown may vary plus or minus 1/32" from position shown on sketch.

C. **Finishing:**

Any evidence of damage or removal of zinc coating shall be cause for rejection of the entire lot.

III. **PACKAGING**

A. All posts shall be nested and bundled in packages of five (5) each. The packages of 5 posts shall be then packaged into bundles of 100 posts (20 5-post packages), 2 packages high and 10 packages wide, all to be strapped with 2 steel straps and seals 3/4" wide.

B. Each bundle shall be bound with at least two steel straps.

C. Flat steel strapping and seals, 1/2" minimum by 0.020" conforming to the following requirements shall be used for tying the bundles of 5 posts.

1. The steel strapping shall have a minimum tensile strength of 800 pounds for 1/2"; 1200 pounds for 3/4".

D. Each large bundle shall be packaged as shown on attached drawing.

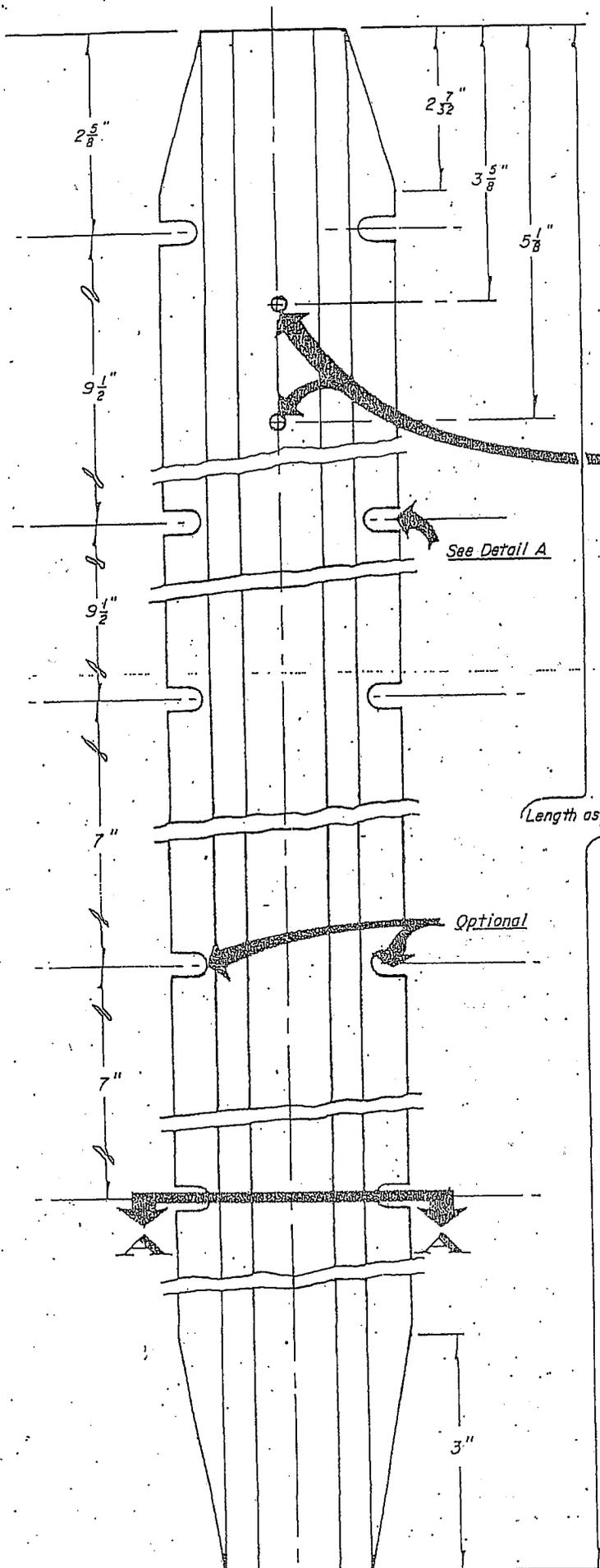
IV. **CERTIFICATE OF COMPLIANCE**

In accordance with Section 6-1.07 of the Department of Transportation Standard Specifications, a certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the specifications. All materials used on the basis of a Certificate of Compliance may be sampled and tested at anytime. Any such material not conforming to such requirements, will be subject to rejection whether in place or not.

V. **DELIVERY**

Posts shall be loaded in such a manner that they can be readily unloaded by means of a forklift.

Drawing(s) Attached

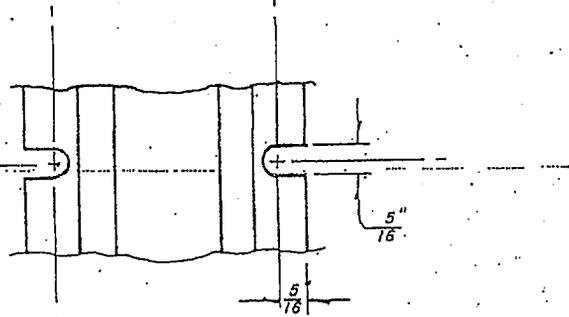


0.196" dia. holes for mounting 3 1/4" reflector bracket to post

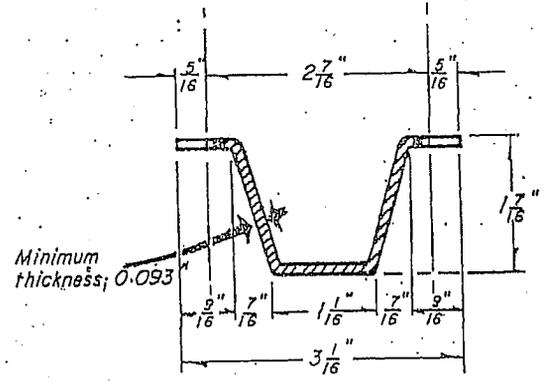
See Detail A

Length as specified

Optional



DETAIL A



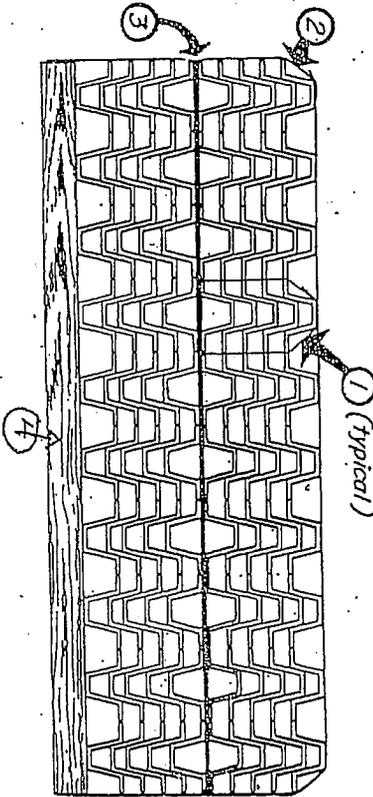
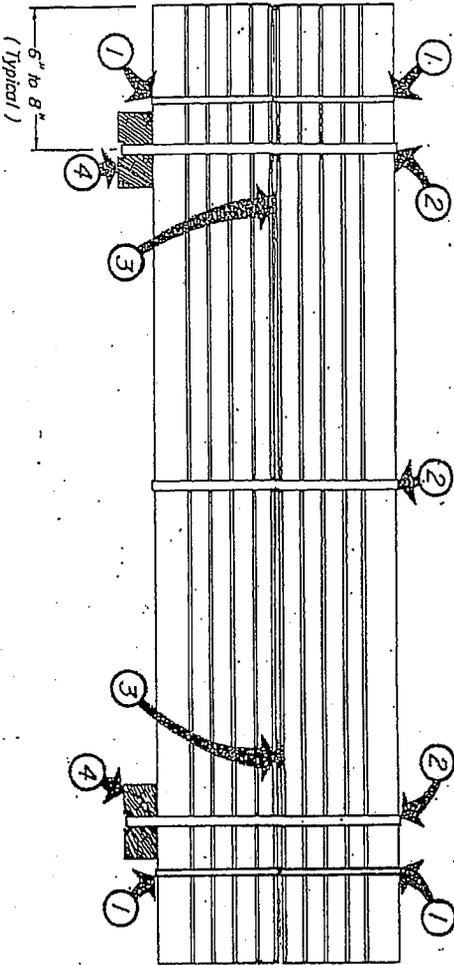
SECTION A-A

NOTE:
 Metal Marker Post to be as shown except that minor variations in design and dimensions will be permitted to meet manufacturer's standards.

STATE OF CALIFORNIA DEPT. OF TRANSPORTATION
 DIVISION OF ADMINISTRATIVE SERVICES
 O.B.M. MATERIAL OPERATIONS

METAL GUIDE POSTS

Drawn By	Checked By	MMS No.	Date
whl	B. J. Chaney	5550	12/79



- ① Nest and package five posts with $\frac{1}{2}$ " x .020 galv. flat steel strapping.
- ② Use $\frac{3}{4}$ " x .020 galv. flat steel strapping for bundles of 20—five post packages. (Bundles of posts of six feet or less in length may be strapped at two locations instead of the three as shown.)
- ③ Lath
- ④ $\frac{1}{4}$ " x $\frac{1}{4}$ " Dunnage with centered slot on bottom $\frac{7}{8}$ " to 1" wide by $\frac{1}{4}$ " deep.

Rev. 1-71

STATE OF CALIFORNIA — DIVISION OF HIGHWAY
 SERVICE & SUPPLY DEPT.
**PACKAGING & BUNDLING OF
 METAL POSTS**

Drawn By WHT	Checked By G.H.F.	Draw. No. 326	Date 5-68
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SECTION 82: MARKERS AND DELINEATORS**82-1.01 DESCRIPTION**

- This work shall consist of furnishing and installing markers and delineators at the locations shown on the plans or where directed by the Engineer.
- The markers and delineators shall conform to the details shown on the plans and as specified in these specifications and the special provisions.

82-1.02 MATERIAL

- The markers and delineators shall conform to the following material requirements:

82-1.02A Wood Posts

- Wood posts shall conform to the provisions in Section 56-2.02B, "Wood Posts and Braces."

82-1.02B Metal Posts

- Steel for metal posts shall conform to the requirements in ASTM Designation: A 36/A 36M. The posts shall be galvanized in conformance with the requirements in Section 75-1.05, "Galvanizing."
- Completed posts shall be free from injurious defects and shall have a workmanlike finish.
- Galvanized surfaces which are damaged shall be cleaned and repaired as provided in Section 75-1.05, "Galvanizing."

82-1.02C Flexible Posts

- Flexible posts shall conform to the provisions in the special provisions.

82-1.02D Target Plates

- Target plates for highway post markers and Type L object markers installed on a metal post, shall be manufactured from zinc-coated steel sheet or aluminum sheet.
- Target plates for Type K object markers shall be of the same color and material as the flexible post.
- The zinc-coated steel sheet shall conform to the requirements in ASTM Designation: A 653/A 653M, Classification: Commercial Steel (CS Types A, B and C). The steel sheets shall be galvanized in conformance with the requirements in Section 75-1.05, "Galvanizing." The zinc-coated surface shall be prepared for painting in a manner designed to produce optimum paint adherence. The surface preparation shall be accomplished without damaging or removing the zinc coating. Any evidence of damage or removal of the zinc coating shall be cause for rejection of the entire lot.
- Aluminum target plates shall be fabricated of Alloy 3003-H14. Other alloys having equivalent properties may be used provided prior approval is obtained.
- The aluminum sheet shall be prepared for painting by suitable cleaning to remove contaminants and by the uniform application of an acid-chromate-fluoride, acid-chromate-fluoride phosphate or equivalent chemical conversion coating.
- The minimum nominal thickness of zinc-coated steel sheet shall be 0.038-inch, and the minimum nominal thickness of aluminum sheet shall be 0.050-inch.

SECTION 80

FENCES

80-2 (BLANK)

80-3 TYPES BW AND WM FENCE

80-3.01 MATERIALS

- Materials for Type BW and Type WM fences shall conform to the following:

80-3.01A Metal Posts and Braces

- Line posts shall conform to the requirements in ASTM Designation: A 702, except that packaging of posts will not be required. Posts shall be Class B steel and not less than 7 feet long. The anchor plate may be omitted provided the post is set in a portland cement concrete footing with a minimum cross sectional dimension of 6 inches and a depth equal to full penetration of the post.

- End, latch, pull and corner posts shall have a minimum resisting section modulus of 0.32 cubic inch in any direction. The posts shall be not less than 7 feet long and shall be not less than 3.1 pounds per foot. Braces and brace posts shall be not less than 7 feet long and shall be not less than 1.93 pounds per foot. Gate posts shall conform to the details shown on the plans.

80-3.01B Wood Posts and Braces

- Wood posts and braces shall be treated unless otherwise provided in the special provisions.

80-3.01B(1) Untreated Wood Posts and Braces

- Untreated wood posts and braces shall be redwood, cedar, Douglas fir or Southern Yellow Pine, shall be cut from sound timber, and shall be straight and free from loose or unsound knots, shakes in excess of one third the thickness of the post, splits longer than the thickness of the post, or other defects which would render them unfit structurally for the purpose intended. Knots in posts shall be sound, tight, well spaced, and shall not exceed 2 inches in size on any face. Sweep shall not exceed 0.08 foot in 6 feet.

- Untreated wood line posts and braces may be split material and shall not be less than 7 feet long with a perimeter of not less than 16 inches and no dimension less than 4 inches.

- Untreated wood end, corner and brace posts shall be sawed or hewed and shall be not less than 8 feet long and not less than 6" x 6" nominal size.

80-3.01B(2) Treated Wood Posts and Braces

- Treated wood posts and braces shall be sawed rectangular, free of heart center, Douglas fir, Hem-Fir, Southern yellow pine, round fir or pine. Sawed Douglas fir, Hem-Fir and Southern yellow pine posts and braces shall be graded in conformance with the provisions in Section 57-2, "Structural Timber." The minimum grades and species allowed for sawed 4" x 4" nominal size treated posts and braces shall be construction light framing Douglas fir, No. 1 structural light framing Hem-Fir or No. 2 structural light framing Southern yellow pine. The minimum grades and species allowed for sawed 6" x 6" nominal size or larger treated posts and braces shall be select structural posts and timbers No. 1 (also known as No. 1 structural) Douglas fir, select structural posts and timbers Hem-Fir or No. 1 timbers Southern yellow pine. The timber for round posts shall be sound and free from decay, shakes

SECTION 80**FENCES****80-3.04 PAYMENT**

Quantities of barbed wire and wire mesh fence, measured as specified in Section 80-3.03, "Measurement," will be paid for at the contract price per linear foot, or per mile, for fence (Type BW or WM, wood or metal posts), and the contract unit price per wire mesh gate, of the size or sizes required.

Full compensation for clearing the line of the fence and disposing of the resulting material, excavating high points in the existing ground, excavating and backfilling holes, disposing of surplus excavated material, and furnishing and placing concrete footings and deadmen, and connecting new fences to structures and existing cross fences, and constructing temporary fences for the protection of stock, shall be considered as included in the contract price paid per linear foot or per mile for the fence and no additional compensation will be allowed therefor.

The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing fences, complete in place, as shown on the plans and as specified in these specifications and the special provisions, and as directed by the Engineer.

80-4 CHAIN LINK FENCE**80-4.01 MATERIALS**

All ferrous materials shall be protected by galvanizing or other specified coatings. Imperfectly galvanized or coated material or material with serious abrasions shall not be used.

80-4.01A Posts and Braces

The base metal for the manufacture of posts and braces shall be commercial quality, or better, weldable steel.

Posts and braces shall be galvanized in conformance with the provisions in Section 75-1.05, "Galvanizing," or, if the Contractor elects, tubular posts and braces shall have protective coating conforming to the following:

Exterior surfaces of tubular posts and braces shall have a combination coating consisting of a hot-dip galvanized primer followed by a chromate conversion coating, followed by a finish coat of clear, cross-linked organic coating. The thickness of the zinc coating shall be a minimum of 0.9 mil as determined from the average results of 2 or more specimens and not less than 0.8 mil on an individual specimen. The chromate conversion coating shall be a minimum of 15 micrograms per square inch. The total thickness of the combination coating shall be a minimum of 1.7 mils. The exterior clear coated surface of the pipe shall have a demonstrated ability to resist 1000 hours of exposure to salt fog with a maximum of 5 percent red rust when tested in conformance with the requirements in ASTM Designation: B 117. The clear finish coat shall not have any film cracking after 500 hours of exposure in an artificial weathering device in conformance with the requirements in ASTM Designation: G 152, cycles 1 or 3 Carbon Arc artificial weathering device, or G 155, cycles 1 or 2 Xenon Arc artificial weathering device. The clear finish coat shall not have any blistering or cracking after 500 hours of exposure to

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100 percent relative humidity in conformance with the requirements in ASTM Designation: D 2247. Interior surfaces shall have a zinc coating or a cross-linked organic coating containing a corrosion inhibitor. The minimum coating thickness shall be 0.3 mil. The interior coated surface shall have a demonstrated ability to resist 300 hours of exposure to salt fog with a maximum of 5 percent red rust when tested in conformance with the requirements in ASTM Designation: B 117.

The protective coating system to be used shall be approved by the Engineer prior to the intended use of the posts and braces. Any change of a coating system once approved will be considered a new system and will be subject to reapproval.

The manufacturer shall supply a certification that the protective coatings comply with the above requirements. The certification shall be in conformance with the provisions in Section 6-1.07, "Certificates of Compliance."

Line, end, latch, and corner posts shall have not less than the following Minimum Resisting Moments:

	Minimum Resisting Moments (foot-pounds)*		
	Line Posts		End, Latch, and Corner posts
	Perpendicular to Fence Line	Parallel to Fence Line	Any Direction
Fence height 6 ft and less	800	400	1,400
Fence height over 6 ft (but not to exceed 10 ft)	1,400	700	2,400

* Resisting moment is defined as the product of the member's Section Modulus about the designated axis and its yield strength.

Braces shall have a Minimum Resisting Moment of not less than 400 foot-pounds about the major axis and not less than 300 foot-pounds about the minor axis.

End, latch and corner posts shall have a midpoint deflection about either axis not greater than 0.25-inch and posts and braces shall have a permanent set about either axis not greater than 0.01-inch when tested in conformance with the requirements in California Test 674.

One post from each lot of 1500 posts or less and one brace from each lot of 500 braces or less shall be tested in conformance with the requirements in California Test 674. If that post or brace fails, then 2 additional posts or braces from the same lot shall be sampled and tested. The entire lot of posts or braces will be rejected if either one of the additional sampled posts or braces fails.

The material of which posts and braces are fabricated shall have a nominal thickness, before galvanizing, of not less than 0.105-inch for posts and 0.075-inch for braces.

If the line posts being used have a resisting moment about the weaker axis which is less than 75 percent of the required minimum resisting moment

perpendicular to the fence line, the posts shall not be used at angle points in the fence line where the deflection angle exceeds 10 degrees. If the line posts being used have a resisting moment about the weaker axis which is not less than 75 percent of the required minimum resisting moment perpendicular to the fence line, the posts may be used at angle points in the fence line up to a deflection angle of 30 degrees. Changes in line where the angle of deflection exceeds 30 degrees shall be considered as corners and corner posts shall be installed.

- Gate posts shall be fabricated from pipe conforming to the requirements shown on the plans.

- The length of posts, exclusive of fitted top fixtures or other methods of supporting the top tension wire which are integral with the post, shall not be less than the depth of the concrete footings shown on the plans plus the height of the fabric as shown on the plans or specified in the special provisions, less 4 inches.

- Posts shall have provisions to securely hold the top tension wire in position and allow for removal and replacement of a post without damaging the top tension wire. Tubular posts shall be fitted with rainproof tops.

- Post tops, extension arms, stretcher bars and other required fittings and hardware shall be steel or malleable iron or wrought iron and shall be galvanized after fabrication in conformance with the provisions for posts and braces in Section 75-1.05, "Galvanizing." All required fittings and hardware shall be fastened to the posts in the proper manner.

80-4.01B Fabric

- Chain link fabric shall conform to the requirements in AASHTO Designation: M 181 for Type I zinc coated fabric with a Class C coating. The wire used in the manufacture of the fabric shall be 11-gage for fence 84 inches or less in height and shall be 9-gage for fence over 84 inches in height.

- Chain link fence fabric shall be woven into approximately 2-inch mesh such that there shall be at least 7 meshes in a vertical dimension of 23 inches along the diagonals of the openings. Chain link fence fabric shall have knuckled finish on top and bottom edges.

80-4.01C Miscellaneous

- Between posts, chain link fabric shall be fastened to a top and bottom tension wire. The tension wire shall be at least 7-gage (0.177-inch dia.) coil spring steel of good commercial quality and shall be galvanized in conformance with the requirements in ASTM Designation: A 116, Coating Class 3.

- Tie wires and hog rings shall be at least 9-gage (0.148-inch dia.) steel and post clips shall be at least 6-gage (0.192-inch dia.) steel; all tie wires, hog rings and post clips shall be galvanized in conformance with the requirements in ASTM Designation: A 116, Coating Class 3.

- Turnbuckles and truss tighteners shall be fabricated of commercial quality steel, malleable iron or wrought iron and shall be galvanized as provided in Section 75-1.05, "Galvanizing." The truss tighteners shall have a strap thickness of not less than 1/4 inch.

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MISCELLANEOUS METAL

75-1.04 PUMPING PLANT METAL WORK

Pumping plant metal work shall conform to the provisions in Section 75-1.02, "Miscellaneous Iron and Steel," and the provisions in this section. Pumping plant metal work consisting of fabricated and cast metal parts involved in the construction of pumping plants, including metal parts in the pumphouse, outside stairway, storage box and discharge box and the roadway type inlet frames and grates at the pumping plant site; but excluding bar reinforcing steel, metal parts furnished and installed as provided in Section 74, "Pumping Plant Equipment," and excluding roadway type inlet frames and grates listed and paid for under the contract item of miscellaneous iron and steel, shall be furnished and installed in accordance with the details shown on the plans and as required in these specifications.

Pipe handrailing shall conform to the provisions in Section 83-1.02A, "Pipe Handrailing."

Anchorage devices for attaching pumping plant metal work to concrete shall be hot-dip or mechanically galvanized or fabricated from stainless steel, and shall conform to the provisions for concrete anchorage devices in Section 74-2.05, "Bracing and Hardware."

Cast iron manhole covers and frames and cast iron grates and frames (except in walkway areas) and other items as shown on the plans shall be dipped in commercial quality asphaltum.

Manhole covers and frames for pumping plant discharge boxes shall be watertight and certified by the manufacturer to be rated to the pressure shown on the plans. Modifications to the manhole cover and frame by the Contractor to achieve pressure rating will not be allowed.

75-1.05 GALVANIZING

Galvanizing of products fabricated from rolled, pressed and forged steel shapes, plates, bars and strip $\frac{1}{8}$ inch thick or thicker, shall conform to the requirements in ASTM Designation: A 123/A 123M, except that complete seal welding of tightly contacting surfaces of these products prior to galvanizing is required only where seal welding is shown on the plans or specified in the special provisions. Except for pregalvanized standard pipe, galvanizing of material $\frac{1}{8}$ inch thick or thicker shall be performed after fabrication into the largest practical sections.

At the option of the Contractor, material thinner than $\frac{1}{8}$ inch shall be galvanized either before fabrication in conformance with the requirements of ASTM Designation: A 653/A 653M, Coating Designation Z600, or after fabrication in conformance with the requirements of ASTM Designation: A 123/A 123M, except that the weight of zinc coating shall average not less than 1.2 ounce per square foot of actual surface area with no individual specimen having a coating weight of less than 1.0 ounce per square foot.

Galvanizing of standard pipe shall conform to the requirements of ASTM Designation: A 53/A 53M, except that the zinc coating for pipe used in fence work as provided in Section 80, "Fences," shall average not less than 1.2 ounces per square foot of actual surface area with no individual specimen having less than

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1.0 ounce per square foot of actual surface area. The zinc coating for any structural shape used in fence work, except for metal line posts for barbed wire and wire mesh fence, shall conform to the above requirement for pipe used in fence work. Galvanizing will not be required for stainless steel, monel metal and similar corrosion resistant parts.

Fabrication shall include all operations such as shearing, cutting, punching, forming, drilling, milling, bending, welding and riveting.

Welded areas shall be thoroughly cleaned prior to galvanizing to remove slag or other material that would interfere with the adherence of the zinc. When it is necessary to straighten any sections after galvanizing, the work shall be performed without damage to the zinc coating.

Galvanizing of iron and steel hardware and nuts and bolts, when specified or shown on the plans, shall conform to the requirements in ASTM Designation: A 153/A 153M, except whenever threaded studs, bolts, nuts, and washers are specified to conform to the requirements in ASTM Designation: A 307, A 325, A 325M, A 449, A 563, A 563M, or F 436 and zinc coating is required, they shall be hot-dip zinc coated or mechanically zinc coated in conformance with the requirements in the ASTM Designations. Unless otherwise specified, galvanizing shall be performed after fabrication.

Components of bolted assemblies shall be galvanized separately before assembly.

Tapping of nuts or other internally threaded parts to be used with zinc coated bolts, anchor bars or studs shall be done after galvanizing and shall conform to the requirements for thread dimensions and overtapping allowances in ASTM Designation: A 563 or A 563M.

When specified, painting of zinc coated surfaces shall be in conformance with the provisions in Section 59-3, "Painting Galvanized Surfaces."

Galvanized surfaces that are abraded or damaged at any time after the application of the zinc coating shall be repaired by thoroughly wire brushing the damaged areas and removing loose and cracked coating, after which the cleaned areas shall be painted with 2 applications of unthinned zinc-rich primer (organic vehicle type) conforming to the provisions in Section 91, "Paint." Aerosol cans shall not be used.

75-1.06 MEASUREMENT

Miscellaneous iron and steel, miscellaneous bridge metal, miscellaneous metal (restrainer) and pumping plant metal work will be measured by the pound as determined from scale weighings. The weight of non-metallic materials involved in constructing restrainer units will not be included in the weight of miscellaneous metal (restrainer).

Scale weighings will not be required when miscellaneous iron and steel, miscellaneous bridge metal, miscellaneous metal (restrainer), or pumping plant metal work are designated as final pay items in the Engineer's Estimate.

Metal frames, covers, and grates and other metal required by the plans, except as provided in Sections 51-1.23, "Payment," 70-1.05, "Payment," 75-1.03, "Miscellaneous Bridge Metal," 75-1.035, "Bridge Joint Restrainer Units," and 75-1.04, "Pumping Plant Metal Work," will be measured by the pound as



Designation: A 702 – 89 (Reapproved 2006)

Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought¹

This standard is issued under the fixed designation A 702; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers steel fence posts and assemblies manufactured from hot-wrought sections and intended for use in field and line fencing.

1.2 The posts are available in tee, channel, or U and Y-bar shapes or angle shapes and are furnished painted or galvanized, unless otherwise specified.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 ASTM Standards:²

A 29/A 29M Specification for Steel Bars, Carbon and Alloy, Hot-Wrought, General Requirements for

A 36/A 36M Specification for Carbon Structural Steel

A 123/A 123M Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

A 153/A 153M Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

A 499 Specification for Steel Bars and Shapes, Carbon Rolled from "T" Rails

A 641/A 641M Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Shipment

2.2 Federal Standards:

FED-STD-123 Marking for Shipments (Civil Agencies)³

2.3 Military Standards:

MIL-STD-129 Marking for Shipment and Storage³

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage³

3. Terminology

3.1 Definitions:

3.1.1 *assemblies*—angel section post components for installation of gates, fence ends or corners, and intermediate bracing.

3.1.2 *line posts*—posts that support the straight-line body of the fence.

4. Ordering Information

4.1 Orders for products under this standard should include the following information:

4.1.1 Quantity (number of pieces) of line posts, end or gate assemblies, corner or intermediate brace assemblies (it is customary to order line posts in multiples of five of the required length and the required number of end or corner assemblies),

4.1.2 Type of section (if a specific section is required) (see 5.2 and Fig. 1),

4.1.3 Length or lengths required (see 6.2),

4.1.4 Finish: galvanized or painted,

4.1.5 ASTM designation and date of issue,

4.1.6 Anchor plates, if required (see 5.4.3), and

4.1.7 Wire fasteners (state weight of zinc coating if other than Class 1) (see 5.6.2 and 5.6.3).

Note 1—A typical ordering description is as follows: 500 line posts; 8 ft long; painted; ASTM A 702 dated ____; omit anchor plates.

5. Materials and Manufacture

5.1 Material:

5.1.1 Line posts shall be fabricated from Steels A or B and assemblies from Steels A, B, or C as specified in Table 1.

5.1.2 Except as provided in 6.1.3, the finished line post and assemblies shall conform to the tensile properties specified in Table 1 for the applicable steel.

5.1.3 At the manufacturer's option, a Brinell or Rockwell B hardness test may be substituted for the tensile requirements in Table 1. In such cases the material shall conform to the Brinell or Rockwell B hardness specified in Table 2.

¹ This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.15 on Bars. This standard is a revision of Commercial Standard CS 184-51, Steel Fence Posts—Field Line Type, formerly published by the United States Department of Commerce.

Current edition approved March 1, 2006. Published March 2006. Originally approved in 1974. Last previous edition approved in 2000 as A 702 – 89 (2000).

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.



FIG. 1 Typical Cross Sections of Line Post Types

5.2 Line Post Section:

5.2.1 The posts shall be furnished as T, channel or U, or Y sections as illustrated in Fig. 1. The cross section of T posts shall be approximately 1 3/8 in. (35 mm) wide, 1 3/8 in. deep, and 1/8 in. (3.2 mm) thick. Unless otherwise specified by the purchaser, the line post type is at the manufacturer's option.

5.2.2 Dimensions may vary slightly in individual design in maintaining the control weight per foot.

5.3 Wire Attachments—Line posts shall have corrugations, knobs, notches, holes, or studs so placed and formed as to engage a substantial number of fence line wires in proper positions.

5.4 Anchor Plates:

5.4.1 Each line post shall be manufactured with an anchor plate, unless otherwise specified. The anchor plate shall be made from carbon steel and shall be swaged or riveted to the post in such a manner as to prevent displacement when the posts are driven.

5.4.2 The placement of the anchor plate shall be nominally 14 in. (350 mm), 16 in. (400 mm), or 18 in. (450 mm) from the bottom of the post to the uppermost portion of the anchor plate.

5.4.3 Anchor plates shall be tapered to facilitate driving, shall have a minimum area of 18 in.² (11600 mm²) and shall weigh 0.67 lb (0.3 kg) ± 5%.

5.4.4 When specified, line posts may be furnished without anchor plates.

5.4.5 Anchor plates shall be manufactured from Type A or B materials.

5.5 Post Assemblies:

5.5.1 Uprights shall consist of angles with a nominal size 2 1/2 by 2 1/2 by 1/4 in. (65 by 65 by 6.4 mm) weighing approximately 4.10 lb/ft (6.1 kg/m) prior to fabrication.

5.5.2 Braces shall consist of angles with a nominal size 2 by 2 by 1/4 in. (50 by 50 by 6.4 mm) weighing approximately 3.19 lb/ft (4.75 kg/m) prior to fabrication, or an alternative angle of equivalent weight.

5.5.3 Uprights and braces shall be furnished with the necessary holes and galvanized hardware for the required assembly.

5.5.4 All assemblies shall be furnished with one upright. End and gate assemblies shall be furnished with one brace, and corner and intermediate braces with two braces.

5.6 Wire Fasteners:

5.6.1 Unless otherwise specified by the purchaser, each line post shall be provided with not less than five suitable fasteners for attaching fence wire to the posts.

5.6.2 The fasteners shall be formed from zinc-coated steel wire not less than 0.120 in. (3.05 mm) diameter zinc coated in accordance with Specification A 641/A 641M. Class 1 coating shall be furnished unless otherwise specified by purchaser.

5.6.3 When line posts are intended for range type western fencing using three line wires, it is satisfactory to provide only three fasteners for each post.

6. Dimensions, Mass and Permissible Variations

6.1 Nominal Weights and Tolerances:

6.1.1 Nominal Weight—Prior to fabrication by punching, drilling, attaching anchors, or finish coating, the line post sections shall have a nominal weight of 1.33 lb/ft of the length.

6.1.2 The weight of line posts plus anchor plates (if specified), prior to fabrication, drilling, or finish coating shall not vary from nominal weights specified in Table 3 by more than ±5%. Weight shall be determined in lots of five line posts.

6.1.3 The weight of assembly components prior to fabrication, drilling, or finish coating shall not vary from the nominal weights specified in Table 4 by more than ±5%. Single assembly components shall be used to determine weight.

6.2 Standard Lengths and Tolerances:

6.2.1 Line posts shall be furnished in standard lengths of 5 to 10 ft (1525 to 3050 mm) inclusive, as specified by the purchaser. Standard length increments are shown in Table 3.

6.2.2 The length of line posts, uprights, and braces shall not vary from that specified more than -1.0 in. (-25 mm) or +2 in. (+50 mm).

6.2.3 The placement of the anchor plate shall not vary from the nominal by more than ±3 in. (±76 mm).

7. Workmanship, Finish, and Appearance

7.1 Line posts, uprights, and braces shall be furnished painted, or galvanized as specified by the purchaser.

7.2 When specified to be painted, the posts shall be cleaned of all loose scale prior to finishing, and painted with one or more coats of weather resistant, air drying or baking paint or enamel.

7.3 When specified to be galvanized, the posts and post assemblies shall be zinc coated by the hot-dip process in accordance with Specification A 123/A 123M. The assembly hardware (see 5.5.3) shall be zinc coated in accordance with Specification A 153/A 153M.

8. General Requirements

8.1 Material furnished under this specification shall conform to the general requirements of the current edition of Specification A 29/A 29M unless otherwise provided herein.

9. Sampling

9.1 One item from each lot shall be selected at random for testing. A lot shall consist of all posts or assemblies or both, of the same length offered for delivery at the same time.

9.2 The post or assembly selected in accordance with 7.1 shall be tested for tensile strength or hardness, weight, and zinc coating, if applicable.

9.3 For purposes of visual inspection, length determinations, and dimensional examination, one post or assembly from each 400, or a total of seven, or whichever is less, shall be selected at random.

9.4 Visual inspection shall include examination for such features as excessive bow, camber, twist, or other injurious

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TABLE 1 Materials for Line Posts and Assemblies

Steel	Steel Description	Line Posts		Assemblies	
		Yield Point, min, ksi (MPa)	Tensile Strength, min, ksi (MPa)	Yield Point, min, ksi (MPa)	Tensile Strength, min, ksi (MPa)
A	hot-wrought carbon steel, 0.35 % carbon, min	40 (275)	70 (485)	40 (275)	70 (485)
B	hot-wrought carbon steel, or hot-wrought rail steel ^A	50 (345)	80 (550)	50 (345)	80 (550)
C	structural steel ^B	36 (250)	58 (400)

^A Hot wrought rail steel in accordance with Specification A 499.
^B In accordance with Specification A 36/A 36M.

TABLE 2 Brinell Hardness

Steel	Steel Description	Brinell Hardness, min	Rockwell B Hardness, min
A	hot-wrought carbon steel, 0.35 % carbon, min	143	79
B	hot-wrought carbon steel or rail steel ^A	156	83
C	structural steel ^B	116	68

^A Hot wrought rail steel in accordance with Specification A 499.
^B In accordance with Specification A 36/A 36M.

TABLE 3 Nominal Weights of (Raw) Line Posts

Post Length		Weight ^A	
ft	m	lb	kg
5	1.52	7.32	3.32
5½	1.68	7.99	3.61
6	1.83	8.65	3.92
6½	1.98	9.32	4.22
7	2.13	9.98	4.53
7½	2.28	10.64	4.83
8	2.44	11.31	5.13
9	2.74	12.64	5.74
10	3.05	13.97	6.34

^A Includes weight of anchor plate.

TABLE 4 Nominal Weights of (Raw) Assemblies

	Length		Weight ^A	
	ft	m	lb	kg
Upright and one brace, each (end or gate)	7	2.13	51	23
Upright and two braces, each (corner or intermediate brace)	7	2.13	73	33
Upright and one brace, each	8	2.44	58	26
Upright and two braces, each	8	2.44	84	38
Upright and one brace, each	9	2.74	66	30
Upright and two braces, each	9	2.74	94	43

^A Includes weight of bolts.

imperfections in surface or coating. Such imperfections may be considered cause for rejection of individual posts or assemblies.

10. Rejection and Retests

10.1 Should the post or assembly fail to meet any of the requirements of 10.2, the lot size shall become 400. One test shall be selected from each lot, and failure of the test shall result in rejection of that particular lot.

10.2 Should two or more posts or assemblies fail to meet any of the requirements of 10.3, the lot size shall become 400. Seven items shall be examined from each lot for compliance to

the requirements of 10.3 causing initial failure. If two of more items fail, the entire lot shall be rejected.

10.3 Any individual post or assembly failing to meet the requirements of 10.2 or 10.3 shall be rejected.

11. Inspection

11.1 Unless otherwise specified in the purchase order or contract, the manufacturer is responsible for the performance of all inspection and test requirements specified in this specification. Except as otherwise specified in the purchase order or contract, the manufacturer may use his own or any other suitable facilities for the performance of the inspection and test requirements unless disapproved by the purchaser at the time the order is placed. The purchaser shall have the right to perform any of the inspection and tests set forth in this specification when such inspection and tests are deemed necessary to ensure that the material conforms to prescribed requirements.

12. Rejection and Rehearing

12.1 Material that fails to conform to the requirements of this specification may be rejected. Rejection should be reported to the producer or supplier promptly and in writing. In case of dissatisfaction with the results of the test, the producer or supplier may make claim for a rehearing.

13. Certification

13.1 When specified in the purchase order or contract, a producer's or supplier's certification shall be furnished to the purchaser that the material was manufactured in accordance with this specification and has been found to meet the requirements.

14. Packaging

14.1 Line posts shall be bound in bundles of 5 posts, and by agreement with the purchaser, may be supplied in master bundles containing up to 250 posts.

14.2 Orders are customarily on piece count rather than on weight of posts or assemblies. The nominal weights establish the basis for weight tolerance and transportation data (see Table 3 and Table 4 for nominal weights).

15. Packaging, Marking, and Loading for Shipment

15.1 Unless otherwise specified, packaging, marking, and loading for shipment shall be in accordance with Practices A 700.

15.2 When specified in the contract or order, and for direct procurement by or direct shipment to the U.S. Government.

when Level A is specified, preservation, packaging, and packing shall be in accordance with Level A requirements of MIL-STD-163.

15.3 When specified in the contract or order, and for direct procurement by or direct shipment to the U.S. Government, marking for shipment, in addition to requirements specified in

the contract or order, shall be in accordance with MIL-STD-129 for U.S. Military agencies and in accordance with FED-STD-123 for U.S. Government civil agencies.

16. Keywords

16.1 hot wrought steel bars; steel bars

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