

May 11, 2005

OKLAHOMA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR FLANGED U-CHANNEL POST AND DELINEATOR POSTS

1.0 SCOPE

This specification is for galvanized steel delineator posts and ground mounted breakaway post system that incorporates Flanged U-Channel posts spliced at ground level by means of special bolt-splice hardware. The breakaway post system shall meet National Cooperative Highway Research Program Report 350, Test Level 3.

2.0. MATERIAL - FLANGED U-CHANNEL POSTS

Sign posts and base posts shall be flanged U-channel section, hot rolled from high strength carbon steel meeting the material requirements of ASTM A499-76 Specifications, Modified, in that the material shall meet the minimum yield strength of 80,000 psi and minimum tensile strength of 100,000 psi.

The post system shall consist of two parts, an upright sign post and a base post.

The weight of each **upright sign post** before punching shall be as required by the user with a weight tolerance of plus or minus 5.0 percent. The post shall be punched with continuous 7/16" diameter holes on 1" centers for the entire length of the post. The first hole shall be 1" from the top. The length of the upright sign post shall be supplied in 12" increments up to 20'-0", as required for the installation location, with a length tolerance of plus or minus 1".

The weight of each **base post** before punching shall be as required by the user with a weight tolerance of plus or minus 5.0 percent. The base post shall be 42" in length and tapered at one end. Punching shall consist of at least 18 holes with 7/16" diameter on 1" centers, starting 1" from the top and continuing at 1" increments.

The posts shall be machine straightened to have a smooth uniform finish, free from defects affecting their strength, durability, or appearance. Bolt holes of 7/16" diameter shall be carefully spaced vertically and horizontally so that holes will align for easy assembly. All bolt holes and sheared ends shall be commercially free from burrs.

Bolts and nuts shall be hex head-integral type. The bolt shall be 5/16" x 1-1/2" 16 UNC fully threaded bolt, with a self-locking, flange nut.

3.0 BOLT SPLICE HARDWARE

Spacer bars will be colored coded for use with different post weights. A 3/4" wide x 5" long x (0.5") or (0.375") thick plated spacer bar shall be used, per post, to stiffen the splice connection. The 0.5" thick anodized spacer bar shall be used with the 3 LB and 4 LB posts. The 0.375" thick anodized spacer bar will be used with the 2 LB and 2.5 LB posts.

Two bolt holes in the spacer bar shall be spaced 4" on center. Each spacer bar shall be drilled and tapped with 5/16" x 18 UNC threads. The spacer bar hardware shall consist of two (2) fully threaded 5/16" x 1 1/2", Grade 9 plated, hex head bolts with flat washers, and Grade 3 flanged, plated, self-locking nuts.

The spacer bars shall be fabricated from hot rolled carbon steel bars conforming to ASTM A 36 or M 1020.

4.0 FINISH - FLANGED U-CHANNEL POSTS

The finish for the base post and sign post shall be hot-dip galvanized meeting the requirements of ASTM A123. Galvanization shall be applied after fabrication is completed.

Bolts, nuts, washers and spacer bars shall be cadmium plated in accordance with the requirements of ASTM A 165 or zinc plated in accordance with the requirements of ASTM B633.

5.0 MATERIAL - GALVANIZED STEEL DELINEATOR POSTS

This item shall consist of furnishing, cutting, drilling, punching, fabricating, and galvanizing a finished channel-type or hat-shaped delineator post, according to these requirements and Plans.

The galvanized channel-type post shall be fabricated from 1 1/2 x 1/2 x 1/8 inch (38 x 12 x 3 mm) steel bar channel, cut to the specified length, and drilled, or punched, as required; it shall be suitable for mounting the approved type delineator and installed on guard rail posts when so intended. The basic steel channel employed in the fabrication shall meet dimensional tolerances for the specified size above according to Table 28 of ASTM A 6 for bar-size shapes less than 3 inches (75 mm).

An alternate galvanized steel hat-shaped section type post may be used. It shall be rolled from sheet steel to the dimensions and shape shown on current Department standard drawings. The post shall have a mass of 1.12 pounds +/- 3.5% per linear foot (1.67 kg +/- 3.5 percent per meter) before galvanizing.

All galvanized steel delineator posts shall meet ODOT Standard DU1-1 (Attached).

Perform all cutting and hole drilling or punching prior to galvanizing.

6.0 FINISH - GALVANIZED STEEL DELINEATOR POSTS

The finish for the channel-type and hat-shape posts shall be hot-dip galvanized meeting the requirements of ASTM A123. Galvanization shall be applied after fabrication is completed.

7.0 TESTING - GALVANIZED STEEL DELINEATOR POSTS

One or more samples will be required for determination of zinc coating, according to ASTM A 123, and compliance with dimensional requirements of ASTM A 6 and these specifications.