

SECTION 02842

DELINEATORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Delineators, Type I and Type II.
- B. Culvert and maintenance markers.
- C. Freeway turnaround markers.

1.2 RELATED SECTIONS

- A. Section 02765: Pavement Marking Paint

1.3 REFERENCES

- A. AASHTO M 111: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- B. AASHTO M 268: Retroreflective Sheeting for Traffic Control
- C. ASTM A 570: Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality
- D. ASTM D 638: Tensile Properties of Plastics
- E. ASTM G 23: Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials
- F. Military Specification MIL-M 43719B
- G. Standard Specifications for Construction of Road and Bridges on Federal Highway Projects, FP-92, Type III

PART 2 PRODUCTS

2.1 STEEL POSTS

- A. Supply and galvanize posts as specified. ASTM A 570, Grade C, and AASHTO M 111.
- B. Use flanged, channel-shaped steel posts that weight 2 lbs/ft.
- C. Make all cuts before galvanizing posts. Follow GW series Standard Drawings.

2.2 FLEXIBLE POSTS

- A. Free of burns, discoloration, contamination, and other defects.
- B. Remains flexible at temperatures from -5 degrees F to +140 degrees F.
- C. Capable of being driven into an earth shoulder with or without a pilot hole.
- D. Tensile strength of 1100 psi. ASTM D 638.

2.3 QUALITY CONTROL - FLEXIBLE POST TESTING

- A. Meet Cold Bend Test:
 - 1. Subject two posts to a temperature of -10 degrees F, \pm 5 degrees F for at least four hours.
 - 2. Immediately bend each post four times through a 90 degree angle around a 2 inch mandrel.
 - 3. Each post must return to its original straight configuration within a \pm 10 degree angle within five minutes at the end of the four bends.
 - 4. Any cracking or significant loss of rigidity are grounds for failure.
- B. Meet Hot Bend Test:
 - 1. Subject two posts to a temperature of 100 degrees F \pm 5 degrees F for at least four hours.
 - 2. Satisfy all bending and physical requirements specified in the Cold Bend Test.
- C. Meet Impact Resistance Test:
 - 1. Subject post to impacts by a typical sedan as follows:
 - a. Three hits - 0 degree angle at 0 degrees F.
 - b. Three hits - 0 degree angle at 100 degrees F.

- c. Ten hits - 0 degree angle at 35 mph.
 - d. Five hits - 15 degree angle at 55 mph.
 - 2. Acceptable results:
 - a. Installed post remain intact, securely anchored and within ± 10 degrees of vertical orientation.
 - b. Installed post shows minimal signs of cracking or loss of rigidity.
 - c. Installed post retains at least 50 percent of its reflective sheeting.
 - d. Impact vehicle suffers little or no damage during the impact test.
- D. Exposure:
 - 1. Expose the specimens for 500 hours in a carbon arc-type apparatus following ASTM G 23, Method 1.
 - 2. Acceptable results:
 - a. Exposure does not result in delamination, distress, or discoloration.
 - b. Sheeting is not removable from the specimens without damage.
 - c. Post is resistant to ultraviolet light, ozone, hydrocarbons, and other weathering.

2.4 SHEETING

- A. Select from Accepted Products Listing (APL) maintained by the UDOT Research Division.
- B. Reflective sheeting: Encapsulated lens sheeting or encapsulated lens (flexible) as specified. Standard Specifications for Construction of Road and Bridges on Federal Highway Projects, FP-92, Type III. Refer to AASHTO M 268.
- C. Non-reflective sheeting: As specified. Military Specification MIL-M 43719B, Type I, Class I.

2.5 PAINT

- A. Refer to Section 02765.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Posts: visibly free of bends or twists both before and after installation.

END OF SECTION