

**SECTION 32 17 23**  
**PAVEMENT MARKINGS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. This work shall consist of furnishing and applying paint, reflective glass beads, and other pavement marking materials on pavement surfaces, in the form of traffic lanes, parking bays, areas restricted to handicapped persons, crosswalks, and other detail pavement markings, in accordance with the details as shown or as prescribed by the COTR. Conform to the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the U.S. Department of Transportation, Federal Highway Administration, for details not shown.

**1.2 SUBMITTALS**

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish manufacturer's product data sheets, certifications and Material Safety Data Sheets (MSDS) indicating that the following materials conform to the requirements specified.
1. Pavement marking materials.
  2. Reflective glass beads

**1.3 APPLICABLE PUBLICATIONS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Federal Specifications (Fed. Spec.):  
TT-P-1952D.....Paint, Traffic Black, and Airfield Marking,  
Waterborne
- C. Texas Department of Transportation - TDOT Standard Specifications.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Traffic paint shall be stored in the manufacturer's original, unopened, sealed containers or in other approved sturdy containers capable of being tightly sealed. Containers shall be clearly and legibly labeled.
- B. All pavement marking materials shall be stored in accordance with the manufacturers' recommendations.
- C. Comply with all applicable health and safety regulations for storage, handling and use of the paint materials.

**PART 2 - PRODUCTS**

**2.1 PAVEMENT MARKING MATERIALS**

- A. Materials used for temporary and permanent pavement marking shall conform to Section 246 of the TDOT Standard Specifications and the following requirements:
1. Traffic paint marking material (TDOT Type A) shall be used only for temporary striping, unless otherwise approved by the COTR.
  2. Permanent pavement marking material applied to asphalt concrete pavement shall be thermoplastic (TDOT Type B, Class I), unless otherwise approved by the COTR.
  3. Furnish and apply reflective beads as required for reflectivity in accordance with the above referenced TDOT Standard Specifications.
  4. Furnish the type and color of pavement markings and reflectivity as indicated on the Drawings and in accordance with applicable regulations.

**2.2 PAVEMENT MARKING APPLICATORS**

- A. Apply all marking by approved mechanical equipment in conformance with Section 704 of the TDOT Standard Specifications. The equipment shall provide constant agitation of paint and travel at controlled speeds. Synchronize one or more paint "guns" to automatically begin and cut off paint flow in the case of skip lines. The equipment shall have manual control to apply continuous lines of varying length and marking widths as shown. Provide pneumatic spray guns for hand application of paint in areas where a mobile paint applicator cannot be used. An experienced technician that is thoroughly familiar with equipment, materials, and marking layouts shall control all painting equipment and operations.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. The pavement surface shall be prepared for application of pavement markings in accordance with Section 704 of the TDOT Standard Specifications and as specified in the following paragraphs.
- B. Allow new pavement surfaces to properly cure prior to applying permanent pavement markings.
- C. Thoroughly clean all surfaces to be marked before application of paint. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
- D. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement with scrapers, wire brushings, sandblasting, mechanical abrasion, or approved chemicals as directed by the COTR.
- E. The application of paint conforming to Fed. Spec. TT-P-1952D is an option to removal of existing paint markings on asphalt pavement. Apply the black paint in as many coats as necessary to completely obliterate the existing markings. Where oil or grease are present on old pavements to be marked, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application. After cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- F. Pavement marking shall follow as closely as practicable after the surface has been cleaned and dried, but do not begin any marking until the COTR has inspected the surface and gives permission to proceed. The Contractor shall establish control points for marking and provide templates to control pavement marking application by type and color at necessary intervals. The Contractor is responsible to preserve and apply markings in conformance with the established control points.

**3.2 APPLICATION**

- A. Apply uniformly painted and reflective pavement marking of required color(s), length, and width with true, sharp edges and ends on properly cured, prepared, and dried surfaces in conformance with the details shown on the Drawings and established control points. Conform to the requirements of Section 704 of the TDOT Standard Specifications and as specified in the following paragraphs.
- B. The length and width of lines shall conform within a tolerance of plus or minus 3 inches and plus or minus 1/8 inch, respectively, in the case of skip markings. The length of intervals shall not exceed the line length tolerance.
- C. Temperature of the surface to be marked and the atmosphere shall be above 10°C (50°F) and less than 35°C (95°F), unless otherwise approved by the COTR.

- D. Apply the paint at a wet film thickness of 15 mils (0.015 inch). Apply paint in one coat.
- E. Apply thermoplastic and other pavement marking materials in conformance with Section 704.03 of the TDOT Standard Specifications.
- F. At the direction of the COTR, markings showing light spots may receive additional coats. The maximum drying time requirements of the pavement marking specifications will be strictly enforced, to prevent undue softening of asphalt, and pick-up, displacement, or discoloration by tires of traffic. If there is a deficiency in drying of the markings, discontinue pavement marking operations until cause of the slow drying is determined and corrected. Remove and replace markings that are applied at less than minimum material rates, deviate from true alignment, exceed stipulated length and width tolerances, or show light spots, smears, or other deficiencies or irregularities.
- G. Use carefully controlled sand blasting, approved grinding equipment, or other approved method to remove marking so that the surface to which the marking was applied will not be damaged.

### **3.3 PROTECTION**

- A. Conduct operations in such a manner that necessary traffic can move without hindrance. Protect the newly applied pavement markings so that, insofar as possible, the tires of passing vehicles will not pick up paint. Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic. Efface and replace damaged portions of markings at no additional cost to the Government.

### **3.4 DETAIL PAVEMENT MARKING**

- A. Use Detail Pavement Markings, exclusive of actual traffic lane marking, at exit and entrance islands and turnouts, on curbs, at crosswalks, at parking bays, and at such other locations as shown on the Drawings.
- B. Show the International Handicapped Symbol at indicated parking spaces. Color shall be as shown. Apply paint for the symbol using a suitable template that will provide a pavement marking with true, sharp edges and ends.
- C. Place detail pavement markings of the color(s), width(s) and length(s), and design pattern at the locations shown.

### **3.5 TEMPORARY PAVEMENT MARKING**

- A. When shown or directed by the COTR, apply Temporary Pavement Markings of the color(s), width(s) and length(s) shown or directed.
- B. After the temporary marking has served its purpose and when so ordered by the COTR, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that the surface to which the marking was applied will not be damaged.
- C. As an option, an approved preformed pressure sensitive, reflective, adhesive tape type of temporary pavement marking of the required color(s), width(s) and length(s) may be furnished and used in lieu of temporary painted and reflective markings.
- D. The Contractor shall be fully responsible for the continued durability and effectiveness of such marking during the period for which its use is required. Remove any unsatisfactory tape type marking and replace with painted and reflective markings at no additional cost to the Government.

### **3.6 FINAL CLEAN-UP**

- A. Remove all debris, rubbish and excess material from the work areas.

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