

SECTION 20

TRAFFIC STRIPING, SIGNING AND PAVEMENT MARKINGS

20.01 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS

Thermoplastic traffic stripes and pavement markings shall conform to the provisions in Section 84-1, "General", and Section 84-2, "Thermoplastic Traffic Stripes and Pavement Markings", of the State Standard Specifications, unless otherwise noted herein.

Thermoplastic traffic stripes and pavement markings, where applicable, shall conform to the most current approved prequalified and tested signing and delineation materials and products list maintained by the California Department of Transportation.

Thermoplastic material shall conform to the requirements of State Specification No. 8010-21C-19, and shall be of the Alkyd Thermoplastic type, manufactured by Pavemark Corporation, or approved equal. All primer shall be per the manufacturer's specifications.

The State Specification No. for glass beads in Section 84-2.02, "Materials", of the State Standard Specifications is amended to read "8010-21C-22 (Type II)".

Thermoplastic material for traffic stripes shall be applied at a minimum thickness of 0.080 inch. Thermoplastic material for pavement legends and markings shall be applied at a minimum thickness of 0.125 inch.

20.02 PAVEMENT MARKERS

Pavement markers shall conform to the provisions in Section 85, "Pavement Markers", of the State Standard Specifications and the most current approved prequalified and tested signing and delineation materials and products list maintained by the California Department of Transportation, unless otherwise noted herein.

The second paragraph in Section 85-1.02, "Type of Markers", of the State Standard Specifications shall not apply. Certificates of Compliance shall be furnished for pavement markers to be used.

Non-reflective pavement markers shall be, at the option of the Contractor, either polyester or acrylonitrile butadiene-styrene (ABS) plastic type. Ceramic markers shall not be allowed.

Hot melt bitumen adhesive shall be used to cement the pavement markers to the existing pavement. The rapid set type epoxy adhesive shall not be used.

Hot melt bitumen adhesive shall be heated indirectly in an applicator with continuous agitation and shall be applied at a temperature between 400° F and 425° F. Pavement markers shall be placed immediately after application of the adhesive.

Blast cleaning of clean, new asphalt concrete surfaces will not be required.

20.03 MARKERS

Markers shall conform to the provisions in Section 82, “Markers and Delineators”, of the State Standard Specifications, unless otherwise noted herein.

Markers on flexible posts shall be furnished by the Contractor and shall be as specified in the most current prequalified and tested signing and delineation materials and products list maintained by the California Department of Transportation. Flexible posts shall be made from a flexible white plastic which shall be resistant to impact, ultraviolet light, ozone and hydrocarbons. Flexible posts shall resist stiffening with age and shall be free of burns, discoloration, contamination, and other objectionable marks and defects, which affect appearance or serviceability.

Reflective sheeting for metal and flexible target plates shall be the reflective sheeting designated for channelizers, markers, and delineators specified in the most current prequalified and tested signing and delineation materials and products list maintained by the California Department of Transportation.

20.04 REMOVAL OF EXISTING TRAFFIC STRIPING AND PAVEMENT MARKINGS

Removal of existing traffic striping and pavement markings shall conform to the provisions in Section 15, “Existing Highway Facilities”, of the State Standard Specifications, unless otherwise noted herein.

Nothing in these Specifications shall relieve the Contractor from his responsibilities as provided in Section 7-1.09, “Public Safety”, of the State Standard Specifications.

Conflicting striping and pavement markings shall be removed before the installation of new striping and pavement markings. All traffic striping and pavement markings shall be removed in a rectangular shape. New striping and pavement markings shall be installed within 24 hours of removal of old striping and pavement markings.

Where grinding or sand-blasting is used for the removal of existing traffic striping and pavement markings, and such removal operation is being performed within 10 feet of a lane occupied by public traffic, the residue including dust shall be removed immediately after contact between the grinding or sand-blasting material and the surface being treated. Such removal shall be by a vacuum attachment operating concurrently with the grinding or sand-blasting operation. After the removal of existing traffic striping and pavement markings on asphalt concrete pavement, a fog seal coat shall be applied to the surface of grinding or sand-blasting areas in accordance with the provisions in Section 37, “Bituminous Seals”, of the State Standard Specifications.

20.05 REMOVAL OF EXISTING PAVEMENT MARKERS

Removal of existing pavement markers shall conform to the provisions in Section 15, “Existing Highway Facilities”, of the State Standard Specifications unless otherwise noted herein.

Existing pavement markers, when no longer required for traffic lane delineation as shown on the plans, or as directed by the City Engineer, shall be removed and disposed of.

Existing pavement markers, which are to be removed, shall be done so in such a manner as to leave the existing asphalt concrete pavement undamaged. Damage to

the asphalt concrete resulting from the removal of pavement markers shall be considered as any depression more than one-fourth inch (1/4") deep. Should any asphalt concrete pavement be damaged or removed, it shall be patched using Type A, No. 4 maximum asphalt concrete.

20.06 ROADSIDE SIGNS

Roadside signs shall conform to the provisions of Section 56-2, "Roadside Signs", of the State Standard Specifications, Traffic Manual, Signs Specifications Manual and the most current approved prequalified and tested signing and delineation materials and products list maintained by the California Department of Transportation.

The aluminum sign blank shall be a 0.080" inch gauge anodized aluminum sheet, and shall conform to the "Aluminum Substrate Requirements" section of the Caltrans Specifications for Reflective Sheeting Signs, dated October 1993.

All signs furnished shall be 3M Scotchlite Reflective Sheeting Diamond Grade Visual Impact Performance (VIP), or approved equal. Protective graffiti sheeting may be required by the City Engineer.

20.07 NON-ILLUMINATED STREET NAME SIGNS

Non-illuminated street name signs mounted on traffic signal mast arms shall be furnished and installed at signalized intersections of streets other than major arterials. Non-illuminated street name signs shall be Type G7 or G8 series double-faced 0.080" inch aluminum panel with 3M Scotchlite Reflective Sheeting Diamond Grade Visual Impact Performance (VIP), or approved equal. Letter size shall be 6 inches high upper case and 4 1/2 inches high lower case. Sign colors shall be white lettering on green background.

Non-illuminated street name signs shall be installed on traffic signal mast arms at the locations shown on the Signal and Lighting plans. The hanger assembly is similar to that shown for internally illuminated street name signs on State Standard Plan ES-33. The mounting hardware and sign shall be assembled and the assembly shall be attached to the mast arm using 3/4-inch x 0.03-inch stainless steel band in a manner similar to the strap and saddle bracket method shown on State Standard Plan RS4. The band shall be wrapped at least twice around the mast arm, tightened and secured with a stainless strap seal in the same manner as for strap and saddle bracket sign mounting. All mounting hardware shall be furnished by the Contractor. The sign panel shall be leveled and all hardware tightened securely.

20.08 INTERNALLY ILLUMINATED STREET NAME SIGNS

Internally illuminated street name signs shall be furnished and installed per these specifications and details and shall conform to State Standard Plan ES-33 and its modifications. The mounting hardware and sign shall be assembled and the assembly shall be attached to the mast arm using heavy duty 3/4 x 0.03-inch stainless steel band, instead of clamps, bolts, nuts and lockwashers shown on the State Standard Plan ES-33. The band shall be wrapped at least twice around the mast arm, tightened and secured with a stainless strap seal. The 1/2" inch stainless steel mounting bolt shall use four 1/2" inch stainless steel NY-lock hex nuts with center double nutted, instead of three nuts shown on the State Standard Plan ES-33. The cotter pin shall be 3/32" x 1" stainless steel. All mounting hardware shall be furnished by the Contractor. The sign panel shall be leveled and all hardware tightened securely.

Internally illuminated street name signs shall be Type A, with double-faced messages. Letter size shall be 6 inches high upper case and 4-1/2 inches lower case. Sign colors shall be white lettering on green background.

20.09 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The California Department of Transportation maintains a trade name list of approved prequalified and tested signing and delineation materials and products. Approval of prequalified and tested products and materials shall not preclude the City Engineer from sampling and testing any of the signing and delineation materials or products at any time.

Listing of approved prequalified and tested signing and delineation materials and products cover the following:

MATERIALS and PRODUCTS:

- Temporary pavement markers
- Striping and pavement marking tape
- Pavement markers, reflective and non-reflective
- Flexible Class 1 delineators and channelizers
- Railing and barriers delineators
- Sign sheeting and base materials
- Reflective sheeting for barricades
- Reflective sheeting for channelizers
- Reflective sheeting for markers and delineators
- Reflective sheeting for traffic cone sleeves
- Reflective sheeting for barrels and drums

None of the above listed signing and delineation materials and products shall be used in the work unless such material or product is listed on the California Department of Transportation List of Approved Traffic Products.

A Certificate of Compliance shall be furnished as specified in Section 6-1.07, "Certificates of Compliance", of the State Standard Specifications for signing and delineation materials and products. Said certificate shall also certify that the signing and delineation material or product conforms to the prequalified testing and approval of the California Department of Transportation, Division of Traffic Operations and was manufactured in accordance with the approved quality control program.

20.10 MEASUREMENT AND PAYMENT

All thermoplastic traffic stripes shall be measured by the linear foot along the line of the traffic stripe, without deductions for gaps in broken (skipped) traffic stripes. Payment for all thermoplastic traffic stripes of the widths designated in the contract documents, shall be per linear foot and shall include full compensation for furnishing all labor, material, tools, equipment, primer, incidentals and establishing alignment to completely install the thermoplastic traffic stripes.

All thermoplastic pavement markings and legends shall be measured by the square foot of the actual area covered. All thermoplastic pavement markings and legends shall be paid for by the square foot of actual area covered and shall include full compensation for furnishing all labor, material, tools, equipment, primer, incidentals and lay-out work to completely install the thermoplastic pavement markings and legends.

All pavement markers shall be measured per each for reflective and non-reflective types. Payment for all pavement markers shall include full compensation for furnishing all labor, material, tools, equipment, adhesive and all other incidentals to completely install the pavement marker.

All existing traffic striping to be removed shall be measured by the linear foot along the line of the actual striping removed, with deduction for gaps in dash stripes. All existing pavement markings to be removed shall be measured by the square foot of the actual area removed. Payment for units measured shall include all labor, materials, tools, equipment, and incidentals for removing existing traffic striping and pavement markings and applying fog seal coat all in accordance with the plans, specifications, and as directed by the City Engineer.

Payment for pavement markers removed shall include all labor, materials, tools, equipment and incidentals for removing existing pavement markers all in accordance with the plans, specifications, and as directed by the City Engineer.

The Contract unit price paid for roadside signs shall include all labor, materials, tools, equipment, concrete, and incidentals for installing the roadside signs complete, and no additional compensation will be allowed therefor.

Payment for furnishing and installing non-illuminated street name signs and other sign panels on traffic signal standards and mast arms, including furnishing all mounting hardware, shall be considered as included in the contract price paid for signal and lighting and no separate payment will be made therefore.