

SECTION 10900 RIGHT-OF-WAY SIGNAGE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Section includes specifications for exterior signage including object markers, such as speed signs, mile post markers, whistling board and station one mile signs.

1.02 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM International):
 - 1. A167 Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
 - 2. B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate
 - 3. D635 Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
 - 4. D3841 Specification for Glass-Fiber-Reinforced Polyester Plastic Panels
 - 5. D4956 Specification for Retroreflective Sheeting for Traffic Control
- B. California Manual on Uniform Traffic Control Devices (Federal Highway Administration MUTCD, as amended for use in California) (CMUTCD)
- C. State of California, Department of Transportation (Caltrans), Standard Specifications:
 - 1. Section 56 Signs
 - 2. Section 75 Miscellaneous Metals
- D. State of California, Department of Transportation (Caltrans), Standard Plans.

1.03 SYSTEM DESCRIPTION

- A. Signage, unless otherwise noted, shall conform to Caltrans Standard Specifications, Section 56, Signs, and CMUTCD. Sign panels shall be furnished by the Contractor.
- B. Owner will provide a "camera-ready" copy of the colored Caltrain™ logo.

1.04 SUBMITTALS

- A. Shop Drawings: Show sizes and thickness of all members, types of materials, methods of construction and assembly, complete sign and framing dimensions including span length and post heights, hangers, brackets, anchorage,

relationship to surrounding work by other trades, shop finishes, sign designs, layouts, lettering (including letter spacing), and other pertinent details of fabrication and installation.

- B. Manufacturer's Data: Sign manufacturer's descriptive data.
- C. Samples: Samples of all materials under this Section, as follows:
 - 1. Of all colors proposed for use on all signs, at least 8 inches by 8 inches.
 - 2. Full-size paper proofs of all signs, marked with proposed colors.
 - 3. After approval of color match and lettering proofs, submit for approval one full size sign of each type, as selected by the Engineer, complete and ready for installation. Submit as many times as necessary until approval by the Engineer has been obtained. Sample sign, upon approval, shall serve as the standard to be equaled by all other work.
 - 4. Manufacturer's color palette for fiberglass sign panels and frames for color selection.
- D. Certification of Compliance: Certify that aluminum posts for fiberglass sign panels will withstand 100 mile per hour wind loading.

1.05 QUALITY ASSURANCE

- A. Installation work under this Section shall be performed by experienced sign erectors.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Ship sign panels in such a manner as to ensure their arrival on the job site in an undamaged condition.
- B. Deliver and store material in a manner to prevent cracking, chipping or stress of the components, and to prevent mechanical damage or weather damage.

1.07 WARRANTY

- A. Provide a 5 year warranty against material defects.

PART 2 – PRODUCTS

2.01 NON-ILLUMINATED SIGN PANELS

- A. Aluminum Sign Panels:
 - 1. Flat sheet aluminum sheeting conforming to ASTM B209, Alloy 6061-T6, 1/8 inch thick minimum.
 - 2. The sign panel shall be retroreflective prismatic in accordance with ASTM D 4956 Class III or higher. The sheeting shall be applied as

specified by the sheeting manufacturer to recommended, properly prepared flat surfaces without the necessity of additional adhesive coats on the reflective sheeting or application surface.

3. Application of all lettering, arrows, and other artwork shall be by photographic silk screen. Do not modify font or layout rules and the arrow/circle.

B. Fiberglass Reinforced Plastic Sign Panels:

1. Products: One of the following products and in compliance with the requirements specified herein: Fiber-Brite; Sequentia, "Polyplate"; Intoplast Group "InteCel" (0.5 inch for Post-Mounted CZ Signs, 48 inches or less), or Engineer approved equal.
2. The sign panel shall be retroreflective prismatic in accordance with ASTM D 4956 Class III or higher. The sheeting shall be applied as specified by the sheeting manufacturer to recommended, properly prepared flat surfaces without the necessity of additional adhesive coats on the reflective sheeting or application surface.
3. Plastic shall be stabilized to prevent the release solvents and monomers. The front and back surfaces of the laminate shall be clean and free of constituents and releasing agents that can interfere with the bonding of retroreflective sheeting.
4. Panel shall be weather resistant Grade II thermoset polyester laminate.
5. Color of fiberglass reinforced plastic panels shall be uniform gray.
6. Panels shall be minimum 0.135-inch thick.
7. Tolerances: Finished fiberglass reinforced plastic panel signs shall be flat within a tolerance of $\pm 1/32$ inch per linear foot when measured across the plane of the sign in all directions. The finished signs shall have an overall tolerance within $\pm 1/8$ inch of the specified dimensions.
8. Fabrication: Cut fiberglass reinforced plastic panels from a single piece of laminate. Pre-drill bolt holes. Fabricate true and smooth predrilled bolt holes, panel edges, and the front and back surfaces of the panels. The panel surfaces shall be free of visible cracks, pinholes, foreign inclusions, warping and wrinkles that can affect performance and serviceability.

2.02 TYPEFACE (TEXT)

- A. Font shall be Helvetica medium with industry standard normal letter spacing.
- B. Place type and symbols as shown on the Contract Drawings. Bring any design conflict in the manufacture and fabrication of the signage to the attention of the Engineer before proceeding.

2.03 SIGN FRAMES

- A. Fabricate required steel framing, sign back bracing and support posts in accordance with Caltrans Standard Specifications, Section 75, Miscellaneous Metal.
- B. Hot-dip galvanize steel framing, mounting components, hardware and appurtenances after fabrication and touch up as specified in Section 05500, Metal Fabrications, and with Caltrans Standard Specifications, Section 75, Miscellaneous Metal.
- C. Frames for fiberglass sign panels: Extruded aluminum tubing conforming to the manufacturer’s requirements for each sign type. Finish shall be satin anodized in color selected by the Engineer.

2.04 FASTENINGS AND ANCHORS

- A. Unless otherwise noted, design a complete system of fastenings and anchorage devices for the various signs, as required for attachment to the various supporting structures.
- B. Straps and Saddle Brackets: Stainless steel conforming to the requirements of ASTM A167, Type 302 or 304, for mounting sign panels on electroliers, sign structure posts, and where shown on the Contract Drawings.
- C. Theft and vandal proof bolts: Stainless steel with a chromium content of at least 16 percent and a nickel content of at least 8 percent.
- D. Lag Screws, Bolts (Except Theft-Proof Bolts), Metal Washers and Nuts: Commercial quality steel, hot dip galvanized after fabrication in accordance with Caltrans Standard Specifications, Section 75, Miscellaneous Metal. Fiber washers shall be of commercial quality.
- E. Fastenings and anchors for fiberglass sign panels shall conform to the sign panel manufacturer’s requirements for each sign type.

2.05 SIGN COLORS

- A. Standard paint colors as manufactured by Dupont, or Engineer approved equal, and as follows:

<u>Color</u>	<u>Imron (spray)</u>	<u>Dulux(brush)</u>
Red	68209UM	93-58209H
Yellow	6808U	93-6808
White	617U	93-21667
Black	69	93-005

- B. For fiberglass sign panels, as selected from manufacturer’s color palette.

2.06 POSTS

- A. Metal Posts (Aluminum Signs only): Metal posts shall be in accordance with Caltrans Standard Specifications, Section 56-2.02A, Metal Posts, with the following additional requirements:
 - 1. Hot dip galvanize steel posts, mounting components, hardware and appurtenances after fabrication and touch up as specified in Section 05500, Metal Fabrications, or as specified in Caltrans Standard Specifications Section 75 – 1.05, Galvanizing.
 - 3. Aluminum posts: As manufactured by Architectural Sign Systems (ASI), (916) 924-1939; Vomar Products, (818) 894-7174, Model MP-L, or equal.
- B. Wood Posts: Wood posts shall be in accordance with Caltrans Standard Specifications, Section 56-2.02B, Wood Posts, with the following additional requirements:
 - 1. Posts shall be 4 x 4 inches nominal size unless otherwise indicated on the Contract Drawings.
 - 2. Preservative treat posts other than all heart redwood. Kiln dry prior to treatment
- C. Aluminum Posts for Fiberglass Sign Panels: Extruded aluminum tubing conforming to the manufacturer's requirements for each sign type. Finish shall be satin anodized. Design posts to withstand 100 mile per hour wind loading.
- D. Object Marker: Type P, conforming to the details shown on Caltrans Standard Plan A73B.

PART 3 – EXECUTION

3.01 SIGN INSTALLATION

- A. Install signs true, plumb, and level, where shown on the Contract Drawings. Do no field cutting of any sign work. Prevent bending and chipping signs. Exercise extreme care in all handling and stacking of signs to avoid bending or chipping. Replace chipped and bent sign panels. Exact locations of signs will be confirmed by the Engineer in the field.
- B. Rigidly anchor work to the supporting construction, as shown on the approved shop drawings. Conceal fastenings, except those which anchor supporting members to structure. Fabricate and erect supporting members and securely attach to the various structures in accordance with Caltrans Standard Specifications, Section 75, Miscellaneous Metal.
- C. Subsequent to erection, if required by the Engineer, exterior signs may be required to be covered until their actual use is required. Material used to temporarily cover any sign panel shall effectively conceal the message and be non-injurious to the panel, its finish, and its structural integrity.

3.02 POST INSTALLATION

- A. Install posts in accordance with Caltrans Standard Specifications, Section 56-2.03, Construction, with the following additional requirements:
 - 1. The remaining space around the post in the post holes shall be backfilled with concrete.
 - 2. Dispose of surplus excavated material as specified in Section 02300, Earthwork.
 - 3. Repair any spalling, chipping or cracking of concrete structures. Obtain the Engineer's approval of repair method.
 - 4. Unless otherwise noted, do not paint wood posts and blocks.
- 1. Touch-up galvanized metal as specified in Section 05100, Metal Fabrications, or as specified in Caltrans Standard Specifications Section 75 – 1.05, Galvanizing.

3.03 REMOVING, RELOCATING, REINSTALLING AND SALVAGING EXISTING SIGNS

- A. Remove, relocate, and salvage existing signs in accordance with Section 02220, Demolition, as augmented herein.
- B. Remove and re-install existing signs in new locations as shown on the Contract Drawings. Provide all necessary components required for erecting the existing sign in its new location, including support framing, hardware, post, post holes and concrete. Obtain Engineer's inspection for defects and approval of signs to be relocated prior to re-installation.
- C. Where existing Milepost signs at one-tenth mile intervals need to be removed to facilitate the Contractor's construction operations, remove and reinstall, or remove and replace with new signs. Relocate Milepost signs to a new location if the existing location changes due to new track alignment.
- D. Salvaging of signs shall include removing, disassembling, preparing, marking, bundling, packaging, tagging, hauling and stockpiling. Signs to be salvaged shall not be removed until their use is no longer required as determined by the Engineer. Salvaged materials shall be cleaned of all foreign materials and pressed flat before delivery to the Engineer.
- E. Existing posts, which support signs that are to be salvaged, shall become the property of the Contractor and shall be disposed of outside the work site. : Refer to General Provisions 7.16, Disposal of Material Outside of the Work Site.
- F. Protection and cleanup requirements for the new signs shall apply to the existing signs once that have been reinstalled.

3.04 PROTECTION AND CLEANING

- A. Protect and maintain completed sign panels in good condition, free from dirt, scratches, hand marks or other blemishes.
- B. Clean surfaces of sign work as recommended by the sign manufacturer after installation and keep in a condition satisfactory to the Engineer.
- C. Remove and replace defective work, including that exhibiting cracked, chipped, scratched, abraded, or otherwise damaged finishes, with work conforming to the specified requirements.

3.05 DISSIMILAR MATERIALS

- A. Separate aluminum surfaces in contact with or in close proximity to non-compatible metals or concrete with non-absorptive tape, coat of heavy-bodied bituminous paint, or zinc chromate primer.

END OF SECTION