SECTION 49

PILING

Piling shall conform to Section 49 of the Caltrans Standard Specifications and these City Standard Specifications.

49-1 GENERAL

49-1.02 Materials. - Concrete and steel shell piles are classified and designated by design loading in tons as Class 45 or Class 70 with configuration options. Where corrosion resistant piles are required, the letter "C" is added to the class designation.

49-1.11 Defective Piles. - The method used in driving piles shall not subject them to excessive and undue abuse producing crushing and spalling of the concrete, injurious splitting, splintering, and brooming of the wood, or deformation of the steel. Manipulation of piles to force them into proper position, if considered by the Engineer to be excessive, will not be permitted. Any pile damaged in driving by reason of internal defects, damaged by improper driving or driven out of its proper location shall be corrected at the Contractor's expense by one of the following methods approved by the Engineer for the pile in question.

1. The pile shall be withdrawn and replaced by a new and, when necessary, longer pile.
2. A second pile shall be driven adjacent to the defective pile.
3. The pile shall be spliced or built up as otherwise provided herein or a sufficient portion of the footing extended to properly imbed the pile.

49-6 MEASUREMENT AND PAYMENT

49-6.02 Payment. - In the sixth paragraph of the Caltrans Standard Specifications, delete both Sacramento and Los Angeles" the 3 places it appears and substitute "City of San Jose" therefor.

SECTION 50

PRESTRESSING CONCRETE

Prestressing concrete shall conform to Section 50 of the Caltrans Standard Specifications.

SECTION 51

CONCRETE STRUCTURES

Concrete structures shall conform to Section 51 of the Caltrans Standard Specifications.

SECTION 52

REINFORCEMENT

Reinforcement shall conform to Section 52 of the Caltrans Standard Specifications and these City Standard Specifications.

52-1.03 Steel Lists. - Before placing reinforcement, 5 copies of all shop drawings of all reinforcing steel shall be furnished, along with, and under the same conditions specified for steel lists.

52-1.04 Inspection. - Each bundle of steel shall be tagged at the mill with an identifying mill tag showing the name of the mill and the melt or heat number. The tag shall be of a durable material, shall be securely attached, and shall be placed in an exposed location for easy identification by the Engineer.

SECTION 53

AIR-BLOWN MORTAR

Air-blown mortar shall conform to Section 53 of the Caltrans Standard Specifications.

SECTION 54

WATERPROOFING

Waterproofing shall conform to Section 54 of the Caltrans Standard Specifications.

SECTION 55

STEEL STRUCTURES

Steel structures shall conform to Section 55 of the Caltrans Standard Specifications and these City Standard Specifications.

55-1.02 Drawings. - Drawings shall conform to Section 55-1.02 of the Caltrans Standard Specifications, except that Contractor shall make the required submittals to the Engineer.

SECTION 56

SIGNS

Signs shall conform to Section 56 of the Caltrans Standard Specifications and these City Standard Specifications.

56-1 OVERHEAD SIGN STRUCTURES

56-1.04 Welding. - Contractor shall be responsible for welder certification. Delete last sentence of last paragraph in Section 56-1.04 of the Caltrans Standard Specifications.

56-2 ROADSIDE SIGNS

56-2.01 Description. - Unless otherwise shown on the plans or specified in the special provisions, all sign panels for permanent installation as standard roadside signs will be furnished by the City. Construction signs, including sign panels, shall be furnished and installed by the Contractor. This work shall also include park signs, as specified in Section 56-2.02G which will be furnished by the City.

Signs shall conform to the provisions of the Caltrans "Traffic Manual" and the U.S. Department of Transportation, Federal Highway Administration, "Manual on Uniform Traffic Control Devices."

56-2.01A Sign Types. - Traffic signs are classified by general types, as indicated herein, according to message imparted or traffic control required.

(1) Warning Signs call attention to conditions on or adjacent to a traveled way that are potentially hazardous to traffic.
(2) Regulatory Signs give notice of traffic laws or regulations.
(3) Guide Signs show route designation, guidance and directional information.
(4) Construction Signs give guidance, regulate and warn traffic through construction zones. Construction signs include warning, regulatory, and guide signs as well as specific instructional signs.

Traffic signs shall be identified by codes: warning, regulatory, guide, and construction signs are numbered with a number preceded by a letter - W, R, G, or C, respectively.

Installation and mounting of traffic signs shall be designated by type, according to the sign chart shown on the plans. The detailed plans shall indicate installation and mounting required.

56-2.02D Sign Panel Fastening Hardware. - Lag screws, bolts, metal washers, and nuts may be cadmium plated steel in lieu of commercial quality galvanized steel.

56-2.02E Sign Panels. - Sign panels shall be sheet aluminum, except temporary construction signs, which may be plywood if approved by the Engineer. The gage thickness of sheet aluminum shall be commensurate with the size of the

sign. Reflective sheeting and porcelain enamel for signs shall conform to the State of California specifications for "Reflective Sheeting on Aluminum" and "Porcelain Enameled Aluminum Single Sheet and Laminated Panel Signs."

56-2.02F Certificate of Compliance. - The Contractor shall establish or be responsible for the necessary quality control and inspection practice to assure compliance with these specifications. The Contractor shall furnish, when required, a certificate of compliance, as specified in Section 6-1.07, "Certificates of Compliance," that all the required tests have been made and the results comply with the requirements of these specifications.

56-2.02G Park Signs. - "Park Rules and Regulations" and "Park Hours" signs shall be City standard and shall be obtained from the Parks and Recreation Department. Poles for park signs shall be 2-3/8" o.d. galvanized steel, 14 feet in length with minimum pipe wall thickness of .116", and shall be furnished by the Contractor. Poles for park signs shall be placed in a 3'-6" deep x 10" diameter Portland cement concrete footing, leaving 10'-6" foot height from top of grade.

56-2.03 Construction. - Wood posts located in traffic islands, after backfilling shall be wedged in place at the surface with redwood wedges. The space around wood posts set in sidewalk areas after backfill shall be capped with concrete and finished to the surrounding surface.

56-2.04 Sign Panel Installation. - Sign panel installation shall conform to Section 56-2.04 of the Caltrans Standard Specifications, except that sign panels, blind rivets, and closure inserts shall be furnished by the Contractor and shall otherwise be of materials as specified herein.

The exposed portion of fastening hardware of the face of signs shall be painted out using touch-up enamel that matches the background.

Park rules signs shall be mounted flush with top of pole with park hours sign mounted directly under, allowing 7'-0" clearance from the base of park hours sign to grade.

56-2.05 Measurement. - Delete Subsection 56-2.05, "Measurement" of the Caltrans Standard Specifications. Roadside signs will be measured by the unit from actual count, in place.

56-2.06 Payment. - Roadside signs measured as specified in Subsection 56-2.05, "Measurement" will be paid for at the contract unit price each. The contract unit price each shall include full compensation for furnishing all labor, materials (except City-furnished materials), tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing roadside signs, complete in place, including the installation of sign panels, as shown on the plans, and as specified in these standard specifications and the special provisions, and as directed by the Engineer.

SECTION 57

TIMBER STRUCTURES

Timber structures shall conform to Section 57 of the Caltrans Standard Specifications.

SECTION 58

PRESERVATIVE TREATMENT OF LUMBER, TIMBER AND PILING

Preservative treatment of lumber, timber, and piling shall conform to Section 58 of the Caltrans Standard Specifications and these City Standard Specifications.

58-1.02 Treatment and Retention. - When lumber, timber, or piling is treated with fluor chrome arsenate phenol, the retention shall be at least 0.50 pound per cubic foot.

SECTION 59

PAINTING

Painting shall conform to Section 59 of the Caltrans Standard Specifications.

SECTION 72

SLOPE PROTECTION

Slope protection shall conform to Section 72 of the Caltrans Standard Specifications.

SECTION 73

CONCRETE CURBS AND SIDEWALKS

Concrete curbs and sidewalks shall conform to Section 73 of the Caltrans Standard Specifications and these City Standard Specifications.

73-1.01 Description. - Portland cement concrete to be used for this work shall be Class A concrete.

73-1.01A Curb and Gutter Types. - Curbs and gutters are designated by type, in accordance with the dimensions shown on the plans and standard plan details and as described below.

Type	Description
A1	Standard curb with 6-inch curb face, 3/4-inch batter, overall depth of 14-inches, no gutter section.
A2	Standard curb and gutter, with 6-inch curb face, 3/4-inch batter, and 24-inch gutter section.
B1	Island barrier curb 24-inches overall in height, 8-inch curb face, 3 1/2-inch batter; used for landscaped islands.
B3-6	Island curb 6-inches in height with 3 1/2-inch batter; superimposed on existing pavement.
B3-8	Island curb same as above, except 8-inches in height.
V	Standard valley gutter, 4-foot width, 3 percent slope each way in cross-section.

73-1.05 Curb Construction. - Weakened plane joints shall be constructed at intervals of 10 feet or as shown on the plans. When a Portland cement concrete sidewalk or pavement is adjacent thereto or to be constructed adjacent thereto, the joints shall coincide with score marks in the sidewalk or pavement.

The weakened plane joint shall be constructed by scoring the partially set concrete to a minimum depth of 2 inches by 1/4-inch with a tool that will leave the corners rounded.

Expansion joints shall be installed only where specifically called for on the plans or as directed by the Engineer.

All curb and gutter joints shall conform to City Standard Plan Details.

The batter of the curb face and lip of gutter shall be constructed true to the dimensions as shown on the plans.

The use of an existing asphalt pavement edge as the lip of a gutter form will be allowed only upon express approval by the Engineer. The use of the

excavated embankment for backforms will not be allowed, except for the bottom portions of A1 and B1 barrier curbs.

Defective curb shall be repaired by removing and replacing no less than 5 feet and leaving no less than 5 feet from a joint.

73-1.05C Drain Openings. - Where required, drainage openings or outlets shall be constructed through curbs. The opening may consist of curb opening castings, in the configuration of the curb, or may be hand formed using a suitable mold the size of the drain. Care shall be exercised in placing concrete around hand formed openings to prevent cracking of the curb after the concrete has cured.

73-1.05D Flow Line Test. - Before approval or acceptance of integral curb and gutter, a flow line test shall be conducted to the satisfaction of the Engineer. Water, in a quantity determined by the Engineer, shall be released at the high point in the gutter and allowed to flow naturally. Any obstructions to the water flow shall be noted, as directed by the Engineer. The noted obstructions shall be corrected by either grinding off the high spots or removing and reconstructing the affected portions of curb and gutter.

73-1.05E Curb Markings. - The street name shall be imprinted into the face of the curb on the tangent section of curb adjacent to the curb return and at all other places indicated on the plans and specified in the special provisions.

The location of all sanitary sewer lateral that intersect the curb and gutter shall be marked by an "S" impressed directly above the lateral.

The letters used for markings shall be at least 2-3/4 inches high and impressed at least 1/4-inch into the concrete on the face of the curb.

73-1.05F Backfilling. - After the concrete has set sufficiently (minimum of 3 days), the spaces in back of and in front of curbs shall be backfilled to the required elevations with suitable material.

73-1.05G Protecting Concrete. - Newly completed concrete work shall be protected from damage. No construction equipment will be allowed adjacent to concrete curb and/or gutter until the fourth day following placement of the concrete. No paving operation will be permitted adjacent to concrete curb or gutter until the seventh day following the placement of the concrete. No equipment will be allowed on or to travel over newly placed concrete until the seventh day following placement of concrete, unless adequate provisions are made to transfer the loads off of the concrete.

73-1.06 Sidewalk, Gutter Depression, Island Paving, Wheelchair Ramp, and Driveway Construction. - Sidewalks shall be either detached, that is separated from the curb or structure, or marginal, that is adjacent to the curb, as shown on the plans. Under no circumstance shall concrete curbs and marginal sidewalks be constructed or poured monolithically.

Driveway aprons and wheelchair ramps shall be constructed as an integral part of the sidewalk with the thickness of sidewalk the same as the apron or ramp unless shown otherwise on the plans.

Flared ends of curbs for driveways and wheelchair openings shall be uniform and symmetrical.

The top of driveway or wheelchair curbs shall be true and straight and free from humps, sags, or other irregularities. The face rise of the driveway or wheelchair curb at flow line of gutter shall be formed with a driveway finishing tool as approved by the Engineer.

Forms for island pavement shall consist of previously constructed or existing type B-3 curbs. Screed forms shall be used where crowns are required in the island pavement. All other forms shall conform to the provisions as specified in Section 73-1.04, "Fixed Forms," of the Caltrans Standard Specifications.

In curing exposed aggregate surfaces, care shall be exercised to insure the curing compound used will not stain the surface.

Expansion joint filler, 1/4-inch thick, shall be installed between concrete sidewalks and any fixed structure such as a building or bridge. The expansion joint filler material shall extend for the full depth of the walk.

73-1.06A Weakened Plane Joints. - Weakened plane joints in sidewalks, driveway aprons, and wheelchair ramps shall be constructed in the concrete slab at intervals of 10 feet or at intervals shown on the plans. Weakened plane joints shall coincide with any existing joints in adjacent curbs or other facility.

Weakened plane joints shall be constructed by use of mechanical separators which shall be T shaped plastic strips at least one inch deep with a suitable anchor to prevent vertical movement. The top stiffener shall be at least 3/4-inch in width and shall be capable of separating from the web with a minimum amount of effort. The thickness of the web and separator shall be at least 1/16-inch and the length of the strip shall be sufficient to span the width of the concrete slab.

After preliminary trowelling, the concrete shall be parted at the designated locations, to a depth of approximately 2 inches, with an approved thin metal straight edge. The mechanical separator shall then be inserted in the impression so that the upper surface of the pull-top stiffener is flush with the concrete. The pull-top stiffener shall then be peeled off. After the pull-top stiffener is removed, the concrete shall be floated or trowelled to fill all voids adjacent to the joint strip.

During final trowelling, the edges of the mechanical separator shall be finished to a radius not to exceed 1/8-inch, using an approved slit edge jointing tool. Ordinary single edge jointers or groovers shall not be used, as they cause the joint strip to move out of alignment.

The sidewalk slab shall be divided into sections, between weakened plane joints, at 5 foot intervals, or at intervals shown on the plans, by score marks or dummy joints.

The score marks or dummy joints shall be formed by a jointing or grooving tool. The score mark or dummy joint shall extend into the concrete at least 1/4-inch and shall be approximately 1/8-inch wide. Score marks or joints normally shall be perpendicular to the line of work except at curves, where the mark or joint shall be radial to the curve. When longitudinal marks or joints are required, they shall be parallel to or concentric with the line of work.

Weakened plane joints for island paving or exposed aggregate paving shall be in accordance with the provisions above or may be accomplished by sawing to a depth of 1/4 to 1/5 the thickness of the slab.

73-1.06B Finishing. - Sidewalks, driveway aprons and wheelchair ramps are designated as to style of finish to be applied to the surface. The style of surface finishes are as follows:

Ordinary -- trowelled, medium broom finish
Exposed Aggregate -- seeded, transfer, or surface retarder methods
Special -- colored, decorative, or contrast.

Unless otherwise specified in the special provisions or shown on the plans, the style of surface finish for sidewalks, driveway aprons, or wheelchair ramps shall be "ordinary" as specified herein, except for wheelchair ramps without interior score marks, it shall be rough broom finish.

After the concrete has set sufficiently, the surface to receive "Ordinary" finish shall be given a final trowelling, and all joints, score marks, and edges shall be reopened or refinished. The finished surface shall then be lightly broomed transverse to the direction of the sidewalk.

Exposed aggregate surface finish shall be accomplished as follows:

(1) Immediately after the slab has been screeded, floated, and edges rounded with an edging tool, the selected aggregate as specified in the special provisions or shown on the plans, shall be scattered by hand and evenly distributed so that the entire surface is completely covered. The initial embedding of the aggregate shall be done by patting with a darby.

(2) As soon as the concrete can support the weight of a mason on kneeboards, the surface shall be hand floated so that the aggregate is entirely embedded just beneath the surface. Concrete mortar paste should completely surround and slightly cover the aggregate, leaving no holes or voids in the surface.

(3) After the hand floating is completed, a set retarder shall be sprayed or brushed over the surface in accordance to the manufacturer's recommendation. The rate of application of the retarder shall be sufficient so that the depth of mortar paste removed, on exposing the aggregate, shall be no more than 1/8-inch. The surface treated with retarder shall be protected by covering with polyethylene sheeting or paper to prevent drying out. The retarded mortar paste shall be removed within 12 hours after placement. The use of a set retarder may be waived by the Engineer, provided assurance is guaranteed that the exposed aggregate surface finish is uniform in exposure and appearance.

(4) The exposing of the aggregate shall be accomplished by simultaneously brushing and hosing of the mortar with water. Care shall be exercised not to overexpose or dislodge the aggregate.

(5) After the exposing of aggregate has been completed, the residue of the work shall be removed and disposed of, and any existing surface or facility splattered or stained shall be cleaned.

Special surface finish shall be as specified in the special provisions.

73-1.06C Protecting Concrete. - All newly completed concrete work shall be protected from damage, including damage by vandalism. No construction equipment or vehicles shall be allowed on or adjacent to newly completed concrete work as specified in Subsection 73-1.05G "Protecting Concrete."

73-1.06D Damaged or Defective Work. - Damaged or defective concrete work shall be removed and replaced. Removal of unacceptable concrete work shall be the entire unit between joints, or score marks if saw cut.

SECTION 74

PUMPING PLANT EQUIPMENT

Pumping plant equipment shall conform to Section 74 of the Caltrans Standard Specifications.

SECTION 75

MISCELLANEOUS METAL

Miscellaneous metal shall conform to Section 75 of the Caltrans Standard Specifications.