

SECTION 32 1600

CONCRETE CURB, GUTTER AND SIDEWALK/WALKWAY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Place concrete curbs and sidewalks/walkways.
- B. Provide mock-up of exterior concrete walk finish, including, but not limited to, texture, color, and score pattern.

1.02 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Section, apply to this Section.
- B. Related Sections include, but are not limited to, the following:
 - 1. Earthwork – Section 31 2000
 - 2. Asphalt Concrete Paving and Base – Section 32 1216

1.03 REFERENCES

- A. Reference Data:
 - 1. If the year of the adoption or latest revision is omitted from the designation, it shall mean the specification, manual, or test designation in effect the date the Notice to Proceed with the Work is given.
- B. City of Rohnert Park Design and Construction Standards, latest edition (City Standards).
- C. Caltrans Standard Specifications, Sections 73 (Concrete Curbs and Sidewalks) and 90 (Concrete).

1.04 SUBMITTALS

- A. Submit concrete mix design to Engineer for review at least 21 days prior to concrete.
- B. Submit mock-up of exterior concrete walk finish, including, but not limited to, texture, color, and score pattern to Architect for review prior to any concrete installation.

PART 2 PRODUCTS

2.01 CONCRETE

- A. Concrete shall comply with the applicable provisions of Section 90 "Concrete" of the Caltrans Standard Specifications for Section 90-2 "Minor Concrete" and meet the following requirements listed below.
 - 1. Concrete shall have a minimum 28 day compressive strength of 3,000 psi.
 - 2. Concrete shall have a maximum slump of 4 inches.
 - 3. Concrete must contain at least 505 pounds of cementitious material per cubic yard.
 - 4. Cementitious material must be Type II or V Portland cement or a combination of Type II or V Portland cement and other approved Supplementary Cementitious Materials (SCM's). Typical SCM's are ground granulated blast furnace slag, fly ash, silica fume, rice hull ash and natural pozzolans such as calcined shale, calcined clay and metakaolin. The amount of SCM's in the concrete mix shall not exceed the requirements listed in section 90-1.02B of the Caltrans Standard Specifications.
 - 5. The quantity of free water must not exceed 310 pounds per cubic yard of concrete plus 20

pounds of free water for each required 100 pounds of cementitious material in excess of 550 pounds of cementitious material per cubic yard of concrete.

6. The maximum course aggregate size must not be larger than 1-1/2" or smaller than 3/4" and meet the gradation requirements in section 90-1.02C(4)(b).
7. Fine Aggregate grading shall meet the gradation requirements in section 90-1.02C(4)(c).
8. Acceptable admixtures shall conform to Section 90-1.02E. Chemical admixtures must comply with ASTM C 494, Air-entraining admixtures must comply with ASTM C 260.
9. For textured and colored concrete surfaces, aggregate must comply with the grading requirements for fine aggregate in section 90-1.02C(4)(c). Aggregate used in grout for textured and colored concrete surfaces must comply with the grading requirements listed in section 73-4.02. Color pigments for dry-shake method must comply with ASTM C 979.

PART 3 EXECUTION

3.01 GENERAL

- A. Curbs, gutter and sidewalks/walkways shall conform to the details shown on the drawings.
- B. Provide representative mock-up of sidewalk including, but not limited to, texture, color, and score pattern for review and approval by Architect prior to construction.
- C. Concrete finishes along accessible routes of travel shall be at least as slip-resistant as that described as a medium salted finish for slopes of less than 6%, and slip-resistant at slopes of 6% or greater.
- D. Concrete finishes in non-accessible path of travel areas should be a medium, broom finish.

3.02 SUBGRADE PREPARATION

- A. As per Section 31 2000, Earthwork.
- B. Minimum Class 2 aggregate base material under sidewalks/walkways as shown on the Drawings shall be at least 4 inches in compacted thickness, or otherwise noted.
- C. Subgrade and forms shall be wet immediately before concrete placement.
- D. Reinforcement shall be carefully placed and supported.
- E. Steel dowels, reinforcement steel and welded wire mesh must comply with Section 52 "Reinforcement" of the California Standard Specifications
- F. Apply soil sterilizer 6" each side of the edges of sidewalks/walkways to prevent growth of vegetation under sidewalks/walkways.
- G. Excavate for thickened edges where they occur.

3.03 EXISTING CURBS, GUTTERS AND SIDEWALKS

- A. Joint shall be cut to a minimum depth of 1-1/2 inches with an abrasive type saw.
- B. Joint shall be at first scoring line at or beyond the planned joint location.

3.04 FORMS

- A. Smooth face against concrete, true smooth upper edge and rigid enough to withstand pressure of fresh concrete without distortion.
- B. Clean and oil coated.
- C. Carefully set to alignment, grade and required dimensions.

- D. Adequately secured from movement by stakes, clamps, spreaders and braces.

3.05 CURB AND SIDEWALK/WALKWAY CONSTRUCTION

- A. Dimensions as shown on Drawings.
- B. Weakened lane joints shall be constructed at intervals not exceeding 15 feet.
- C. Expansion joints, 1/2 inch wide, shall be installed where the new walkway joins existing curbs, drainage structures and other fixed objects.
- D. Expansion joints shall contain 1/2-inch thick premolded joint fillers the full thickness of concrete. Preformed expansion joint filler must comply with ASTM D 1751.
- E. The top and face of curbs, and non-decorative sidewalks/ walkways shall be finished with a steel trowel and be given a final fine brush finish.
- F. The top and face of curb shall be true and straight and not vary more than 0.01 foot above or below the staked grade.
- G. Concrete curing shall be as provided in Section 90-1.03B of the California Standard Specifications.
- H. Repairs shall be made by removing and replacing the entire unit between scoring lines or joints.
- I. Dowel sidewalks to building slabs at all doorways.

3.06 ADJUST UTILITY BOXES

- A. The Contractor shall adjust all existing and new utility boxes, and any other service castings falling within the limits of work to exact grade at the same time the concrete improvements are being constructed and shall maintain these appurtenances to true and exact grade until concrete is thoroughly set.

3.07 CURING

- A. Moist Curing: Cover with reinforced waterproof curing paper. Seal all joints and weights down edges. Maintain moist for 14 days.
- B. Liquid Curing Compound: Locations as approved by Architect. Apply a uniform coating within two hours of final troweling.

3.08 REPAIRS AND PROTECTIONS

- A. Repair or replace broken or defective concrete as directed by Architect.
- B. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.

3.09 CLEAN UP

- A. Remove all debris and stains resulting from the work of this section.

END OF SECTION