

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The extent of cast-in-place concrete is shown on the drawings.
- B. Related Work:
 - Section 02220: Excavating, Backfilling & Compacting

1.2 QUALITY ASSURANCE

- A. The Contractor shall provide miscellaneous items necessary to completely construct the improvements described in these plans and specifications. The contractor shall make a field inspection of project site and determine the extent, costs, and methods necessary to properly construct the following, but not limited to, work items.
- B. The purpose of this construction is to provide an even, smooth concrete surface where walking can be accomplished without undue interference from a rough surface or joints. It is, therefore, necessary for the control joints to be precisely cut to prevent random cracks. Extra care shall be exercised in the sealing operation to prevent overfilling of joints or spillage of the filler material.
- C. Random cracks will not be tolerated.
- D. Joints shall be placed as shown in drawings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.
- C. Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color, pattern, or texture selection.
- D. Samples for Verification: For each type of exposed color, pattern, or texture indicated.
- E. Other Action Submittals:
 - 1. Design Mixtures: For each decorative concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and testing agency.
- B. Material Certificates: For the following, from manufacturer:
 - 1. Cementitious materials.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.
 - 4. Curing compounds.
 - 5. Applied finish materials.
- C. Material Test Reports: For each of the following:
 - 1. Aggregates. Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- D. Field quality-control reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer of decorative concrete paving systems.
- B. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing readymixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- D. Source Limitations: Obtain decorative concrete paving products and each type or class of cementitious material of the same brand from same manufacturer's plant, and obtain each aggregate from single source.
- E. Concrete Testing Service: Engage a qualified testing agency to perform material evaluation tests and to design concrete mixtures.
- F. ACI Publications: Comply with ACI 301 (ACI 301M) unless otherwise indicated.

- G. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockups of full-thickness sections of decorative concrete paving to demonstrate typical joints; surface color, pattern, and texture; curing; and standard of workmanship.
 - 2. Build mockups of each decorative concrete paving type not less than 5 feet by 10 feet.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Landscape Architect specifically approves such deviations in writing.
 - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- H. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to decorative concrete paving, including but not limited to, the following:
 - a. Concrete mixture design.
 - b. Quality control of concrete materials and decorative concrete paving construction practices.

 - 2. Require representatives of each entity directly concerned with decorative concrete paving to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Decorative concrete paving Installer.
 - e. Manufacturer's representative of decorative concrete paving system.

1.6 TESTING

- A. Each pour shall be tested. For pours exceeding fifty (50) cubic yards, obtain an additional test for every fifty (50) cubic yards thereafter.

- B. Provide copies of all test results to Landscape Architect.

- C. All concrete testing shall be paid by the City of Moore.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. The concrete for this job will be 3500 P.S.I. air-entrained concrete.

- B. Cement: Portland Cement, (ASTM C-150, Type I).

- C. Fine aggregate: Sand particles shall be coarse, sharp, clean, and conforming to ASTM C-33.
- D. Coarse aggregate:
 - 1. Crushed limestone conforming to ASTM C-33 for normal weight concrete.
 - 2. Light weight conforming to ASTM C-330 for semi-light weight concrete. Minimum Fsp (splitting ratio) of 6.0.
- E. Water: Clean and free from injurious amounts of oil, acids, alkalis, organic materials, or other deleterious substances.
- F. Dowels
 - 1. Anchor Dowels shall be 1/2" x 36" smooth steel with a dowel cap on one end. Anchor Dowels are to be placed on 24" centers or as shown on the drawings. Center Dowels on expansion joints.
 - 2. #3 & #4 rebar as shown in detail in the drawings.

PART 3 - EXECUTION

3.1 PLACING

- A. Notify Owner's Representative of intent to pour at least twenty-four (24) hours prior to placing concrete.
- B. Remove debris from spaces to be occupied by concrete. Forms to be removed shall be thoroughly wetted or oiled. Remove excess water from place of deposit. Do not deposit concrete during rain unless it is adequately protected. If placed during rain, be prepared to protect concrete from rain until it has hardened sufficiently so as to not be damaged.
- C. Thoroughly compact concrete by suitable means during placing and work around reinforcement and into corners and recesses of forms. Use vibrators under competent supervision.
- D. Sub-grade for Concrete Paving. The intention is to provide a stable base for the installation of the concrete. The sub base and any fill under the paving shall be compacted to 95% standard Proctor Density. Contractor shall perform and submit a minimum of two compaction tests for the paved areas at each site to verify proper compaction.
- E. Any excess cut for the project shall be placed in a manner as to blend with the existing grades and contours and be sufficiently compacted as to minimize erosion. This will not be a temporary location, but will remain a permanent feature of the park. Rough grading can be accomplished with motorized equipment. Fine grading shall provide a surface that can be mowed.

- F. Placing the concrete will be scheduled to avoid times of high wind, low humidity, or variations in high and low temperatures of more than 40 degrees in a 24-hour period. If these weather conditions cannot be avoided, measures such as wind breaks and fog spray of the area will be used during concrete placement.
- G. Finish elevations for concrete walks and pad surfaces shall not vary more than 1 inch above finish elevations to allow placement of sod.
- H. Finish for all concrete surfaces will be a light broom finish. The concrete should be troweled once before being broomed.

END OF SECTION 03 30 00