

SECTION 07 19 00

CONCRETE WATER REPELLENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This WORK shall consist of furnishing and applying two (2) coats of a semi-opaque, pure acrylic, water repellent, and colored coating to all designated concrete surfaces in accordance with the DRAWINGS and SPECIFICATIONS.

1.02 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
 - 1. Section 03 35 00, Concrete Finishing.

1.03 SUBMITTALS

- A. Submit color mixture to be used in a color block for approval by OWNER.

1.04 QUALITY ASSURANCE

- A. Mock-ups:
 - 1. Three (3) two-foot by two-foot (2' x 2') samples showing the designated colors and texture shall be prepared for initial approval.
 - 2. The coating shall be applied by the same method to be used in the final field application to a surface similar in pattern and texture to the surfaces to be coated on the PROJECT.
 - 3. A final sample for the chosen color and texture measuring at least four feet by four feet (4' x 4') shall be prepared as specified above and shall be set at the PROJECT site for a period of three (3) days for review by ENGINEER.
 - 4. The final samples shall receive ENGINEER's written approval before the coating can be incorporated into the WORK.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The coating shall be self-priming, semi-opaque colored toner containing only methyl methacrylate ethyl acrylate copolymer resins.
- B. The toning pigments shall be suspended in solution at all times by a chemical suspension agent and solvent, shall be laminar silicates, titanium dioxide, and inorganic oxides.
- C. There shall be no settling or color variation.

- D. Use of vegetable or marine oils, paraffin materials, stearates, or organic pigments in any part of the coating formulation shall not be permitted.

Physical Properties	
Weight by Gallon	8.3 lbs, min.
Solids by Weight	30% min.
Sand (Silicone)	3.2 to 3.8 lbs/gallon (exclude at retaining walls with form liner finish)

PART 3 EXECUTION

3.01 PREPARATION

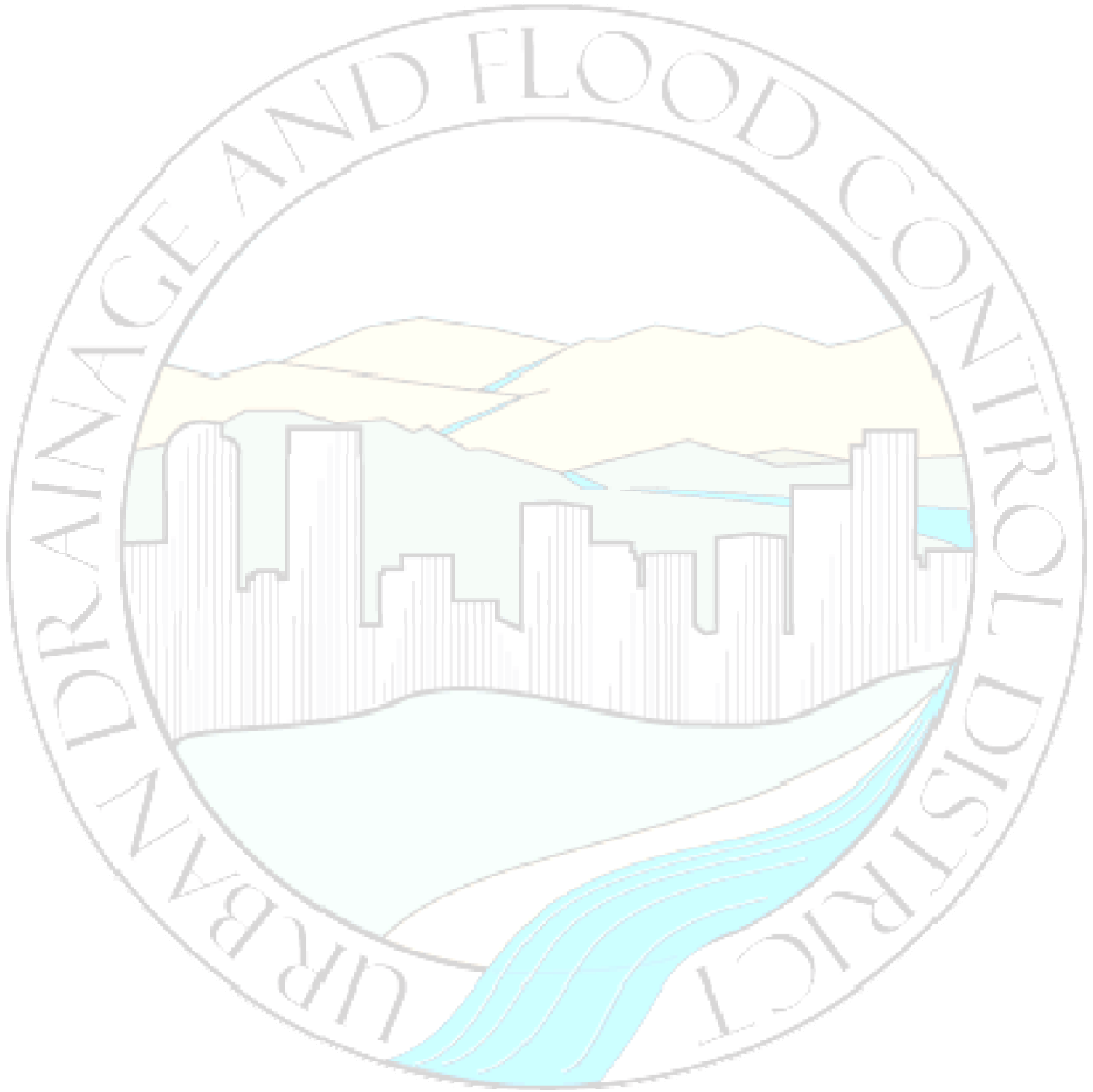
- A. All concrete finishing shall be completed in accordance with the SPECIFICATIONS. The concrete shall be at least fourteen (14) days old before the bonding agent and coating may be applied.
- B. Prior to application of the coating material, all voids and irregularities shall be pointed and trued with a mortar consisting of cement and fine sand aggregate. Only minor voids which can be completely filled with the coating material may remain.
- C. Within twenty-four (24) hours before the coating is applied, the concrete surfaces to be coated shall be hot-water blasted at a minimum of three thousand (3,000) psi followed by a cold-water rinse to remove dirt, curing agents, form release agents, or other foreign substances that would be detrimental to the coating penetration or color.
- D. All surfaces to be coated shall be clean, dry, and free of frost or other foreign substances at the time of application.

3.02 APPLICATION

- A. The coatings shall be applied to all exposed concrete elements above the ground line and shall extend a minimum of one (1) foot below the ground line or as shown on the DRAWINGS.
- B. The coating shall be applied only when the ambient temperature is between forty degrees Fahrenheit (40°F) and ninety degrees Fahrenheit (90°F).
- C. The coating shall be mixed by a mechanical mixer and shall be applied by spraying. A roller shall be used immediately after the spray application to obtain texture and fill minor voids as approved by ENGINEER. A brush may be used to apply coating to form liner finishes as approved by ENGINEER.
- D. The process shall be applied uniformly in the following sequences:
 1. Application of the first coat applied at a rate of forty five (45) square feet per gallon, and eighty (80) square feet per gallon for the second coat.
 2. The second coat shall not be applied until at least twelve (12) hours after application of the first coat, but not to exceed ninety six (96) hours, or as recommended by the manufacturer.

3. Workmanship shall be such that the final coated surface is colored uniformly and presents a pleasing appearance.

END OF SECTION





SECTION 07 91 00

MANHOLE PREFORMED JOINT SEALS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. CONTRACTOR shall furnish all labor, tools, equipment, and install joint sealer for precast concrete manholes, where shown on the DRAWINGS and as specified herein.

1.02 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
 - 1. Section 33 05 13, Manholes.

1.03 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. AASHTO M198, Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.

1.04 SUBMITTALS

- A. CONTRACTOR shall submit product SPECIFICATIONS for all items pertaining to the WORK covered in this section.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Materials, equipment, and accessories specified in this section shall be products of:
 - 1. K. T. Snyder; Ram-Nek.
 - 2. Hamilton-Kent; Kent-Seal No. 2.
 - 3. Sheller-Globe; Tac-Tite.
 - 4. Conseal CS-102

2.02 MATERIALS

- A. General: Joint sealer shall be preformed, plastic gasket with hydrocarbon resins and inert mineral filler, in accordance with AASHTO M198, Type B.
- B. Primers: Primers shall be used when recommended by the joint sealer manufacturer.

PART 3 EXECUTION

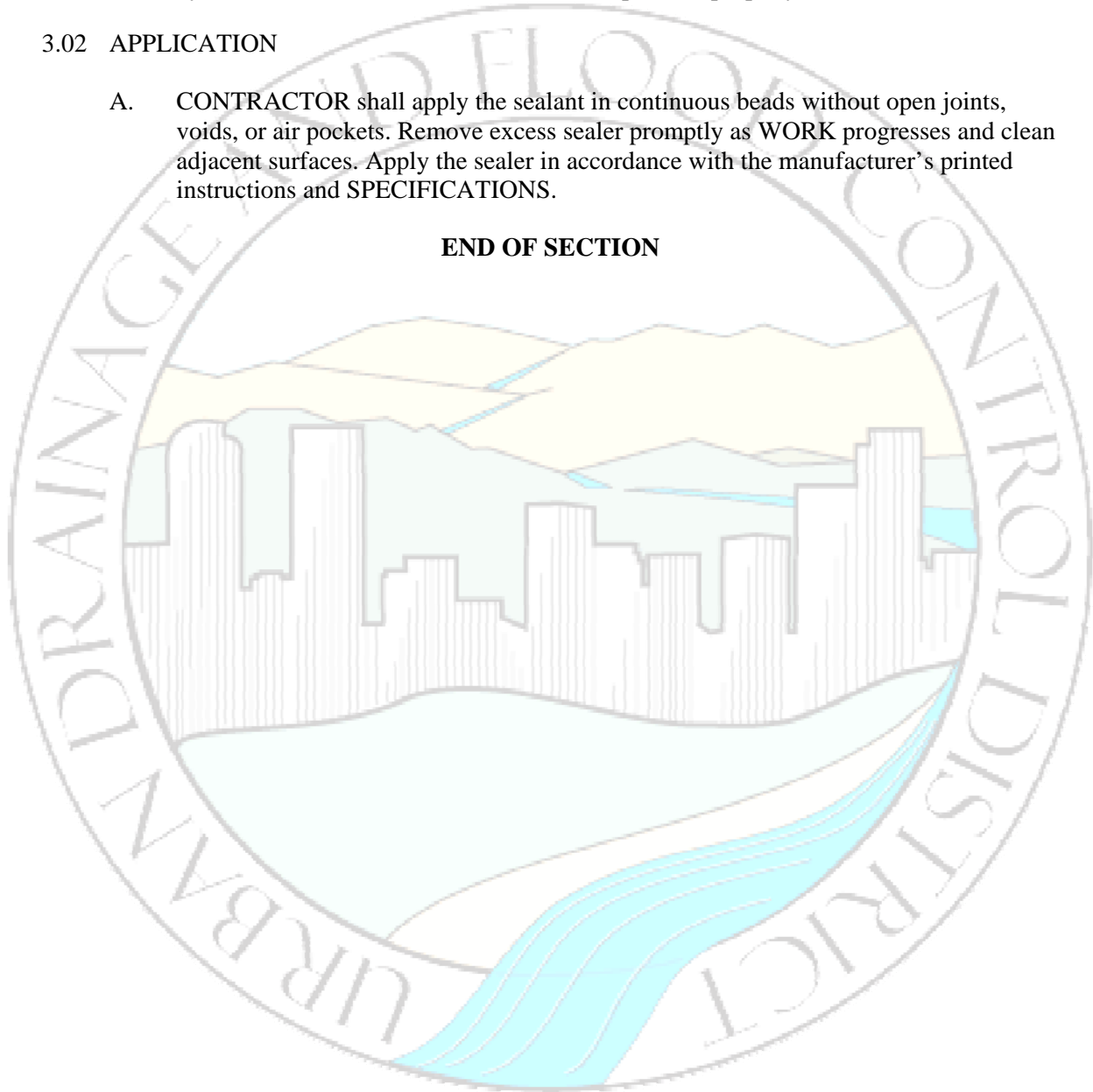
3.01 PREPARATION

- A. CONTRACTOR shall clean the concrete surfaces in accordance with the manufacturer's recommendations. Mask edges, if required, to protect adjoining surfaces and produce a straight finish line. If required by the manufacturer, prime concrete surfaces with the recommended primer. Install bond breaker tape as required by the manufacturer to ensure sealant shall perform properly.

3.02 APPLICATION

- A. CONTRACTOR shall apply the sealant in continuous beads without open joints, voids, or air pockets. Remove excess sealer promptly as WORK progresses and clean adjacent surfaces. Apply the sealer in accordance with the manufacturer's printed instructions and SPECIFICATIONS.

END OF SECTION



SECTION 07 92 00

SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. CONTRACTOR shall furnish all labor, materials, tools, equipment, and perform all WORK and services for all sealant WORK, both exterior and interior where the words caulk, caulking, or sealant is shown on DRAWINGS or specified, in accordance with provisions of the CONTRACT DOCUMENTS, and completely coordinated with WORK of all other trades.
- B. Although such WORK is not specifically indicated, CONTRACTOR shall furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to, or necessary for, a sound, secure, and complete installation.

1.02 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
 - 1. Section 03 31 00, Structural Concrete.
 - 2. Section 32 16 00, Sidewalks, Curbs, and Gutters.

1.03 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. ASTM International (ASTM):
 - a. ASTM C509, Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.
 - b. ASTM C920, Standard Specification for Elastomeric Joint Sealants.
 - c. ASTM D1056, Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.
 - 2. Sealant, Waterproofing and Restoration Institute (SWRI):
 - a. SWRI 2, Sealants the Professionals' Guide.
 - b. SWRI 7, Sealant Specifications.
 - 3. Federal Specification (FED):
 - a. H-08-1 SEC 07920, Sealants and Caulking.

1.04 SUBMITTALS

- A. CONTRACTOR shall submit product SPECIFICATIONS for all items pertaining to the WORK covered in this section.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Materials, equipment, and accessories specified in this section shall be products of:
 - 1. Potable Water Containment Structures (Polyurethane Sealant): Sika; Sikaflex 1-a or Sikaflex 1-c.
 - 2. Fire Resistant Sealant for Buildings: General Electric; 3-6548 silicone RTV foam.
 - 3. Portland cement Concrete Pavements:
 - a. Dow Corning; 888 or 890.
 - b. Sika; Sikaflex, 15 LM.
 - 4. Portland Cement Concrete Curb, Gutter, and Sidewalk: Sika; Sikaflex 1-a or Sikaflex 1cSL.

2.02 MATERIALS

- A. Sealant:
 - 1. Type: Provide non-sagging sealant for vertical joints. Sealants for horizontal joints may be self-leveling.
 - 2. Filler Compatibility: Before use of any sealant, investigate its compatibility with joint surfaces, fillers, and other materials in joint system. Provide only materials compatible with installation conditions.
 - 3. Color: Provide colors matching materials being sealed. Where compound is not exposed to view in finished WORK, provide manufacturer's color which has best performance.
- B. Joint Cleaner: Provide as recommended by sealant manufacturer.
- C. Joint Primer-Sealer: Provide as recommended by sealant manufacturer.
- D. Bond Breaker: Bond breaker material shall be furnished as recommended by sealant manufacturer.
- E. Sealant Backer Rod: Rod stock of polyethylene, polyethylene jacketed polyurethane foam, or other flexible, non-absorbent, non-bituminous material recommended by sealant manufacturer. The backer rod shall:
 - 1. Control joint depth.

2. Break bond of sealant at bottom of joint.
3. Provide proper shape of sealant bead to minimize possibility of sealant extrusion.

F. Compressible Sealant:

1. Size compressible sealant so that width of material is twice joint width.
2. Foamed polyurethane strip saturated with polymerized polybutylene waterproofing.
3. Foamed polyurethane strip saturated with polymerized polybutylene waterproofing coated on front face with non-reactive release agent that will act as bond breaker for applied sealant.
4. Apply adhesive as recommended by sealant manufacturer.

PART 3 EXECUTION

3.01 GENERAL

- A. Perform WORK in accordance with SWRI requirements for materials and installation or in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Maintain one (1) copy of each SWRI document on site.
- C. Areas to be Sealed: Seal any joints or areas which may permit penetration of moisture, unless sealing WORK is specifically required under other sections and/or as shown on the DRAWINGS. Make all joints watertight.
- D. Priming: Where required, prime joint surfaces. Limit application to surfaces to receive caulking. Mask off adjacent surfaces.

3.02 PREPARATION

- A. Surface Preparation: Clean all joint surfaces. Joint walls shall be sound, clean, dry, and free from oil, grease, and frost. Curing compound residues and any other foreign matter shall be thoroughly removed. Where required to completely clean the joint, the joint shall be mechanically cleaned by water or sand blasting.

3.03 APPLICATION

- A. Bond Breaker or Backer Rod Installation: Install bond breaker or backer rod as specified to regulate depth of sealant.
- B. Compressible Joint Sealant: Install compressible sealant in joint to depth recommended by manufacturer. Take care to avoid contamination of sides of joint. Protect sidewalls of joint (to depth of sealant) as recommended by manufacturer. Install with adhesive on two (2) faces in contact with sides of joints.
- C. Sealant:

1. Location:
 - a. One or two component polyurethane (exterior and interior use).
 - b. One or two component silicone (exterior use and interior wet area use).
 - c. Compressible Sealant (where indicated).
 - d. Epoxy Sealants (where indicated).
2. The joint shall be cleaned as recommended by sealant manufacturer.
3. The joint shall be primer-sealed as recommended by sealant manufacturer.
4. Use sufficient pressure to fill all voids and joints solid. Apply sealant when joint slot is at the mid-point of its designed expansion and construction. Install sealant with hand or power-operated caulking gun horizontally in one (1) direction and vertically from top to bottom. Avoid overlapping of sealant to eliminate entrapment of air.
5. To facilitate tooling, wet concave pointing tool with a diluted soap solution. Apply sealants when the surface and ambient temperature is forty degrees Fahrenheit (40°F) or higher and in accordance with the temperature limitations of the manufacturer.

3.04 MANUFACTURER'S FIELD SERVICES

- A. Field Services: Obtain sealing compounds only from manufacturers who shall, when required, provide services of manufacturer's field service representatives at PROJECT site for purposes of advising and instructing installers in proper procedures and precautions for use of materials. Provide such services, when required, without expense to OWNER.

3.05 CLEANING

- A. Dispose of all spillage and refuse sealant material in accordance with applicable regulations.

END OF SECTION