

### General Notes for Textured Concrete Form Liners:

1. See individual design sheets for specific notes and details describing the features which incorporate textured concrete. Work performed to create textured concrete shall be in accordance with the Standard Specifications for formwork and the following:
2. Form the textured concrete surface using a form liner system made of high-strength urethane elastomer, plastic or flexible foam materials capable of withstanding anticipated concrete pour pressures without leakage or causing physical defects. Form liners shall easily attach to forms and be removable without causing concrete surface damage. If recommended by the form liner Manufacturer, use structural backers to prevent deformation of the liner during loading of the forms. The liners shall be designed to form surfaces conforming to the design intent including the shape, lines and dimensions shown in the plans and to avoid visible pattern repeats. Match pattern features at form liner joints to minimize pattern repeats and make the formed concrete surface appear uniform and continuous without visible seams and form marks. When joints are unavoidable, make joints along main features of the pattern in accordance with Manufacturer's recommendations.
3. Form liner edges following curves are to be cut cleanly and parallel to the curve. Use adequate blocking, sealing and other means in order to maintain the appropriate depth and character of texture at cut edges of liners and to prevent mortar leakage.
4. During loading of forms with concrete, take extra care to adequately vibrate concrete in order to maintain all intended features of the form liner in the final surface and to prevent voids. Following removal of forms, finish minor defects to blend with the balance of the surface texture. The completed surface shall be free of blemishes, surface voids and conspicuous form marks to the satisfaction of the Engineer. The Contractor shall correct, at his own cost, any surface defects.
5. Verify that release agents used are compatible with form liner material, and are non-staining. Apply release agent in accordance with the form liner Manufacturer's recommendations.
6. If used, form ties shall be made of non-corrosive materials when the portion permanently embedded in the concrete is less ties and accessories in stone pattern mortar joints and at high points of finished wall.
7. If heating forms during cold weather construction, take special care to avoid damaging form liners. Overheating can warp or melt some form liner materials.
8. Strip formwork using techniques in accordance with liner manufacturer's recommendations after the concrete has achieved the strengths and cure times required by the plans and applicable Specifications. Clean and repair form liner surfaces prior to use. Do not use split, frayed, delaminated or otherwise damaged form liners.
9. All costs associated with concrete texturing and form liners are to be included in the bid item "Structural Concrete (RCB Culvert)".

### General Notes for Concrete Rustication:


1. Strips and panels used as inserts within concrete forms to create the rustication features may be made of wood, steel, plastic or other nonporous material capable of withstanding anticipated concrete pour pressures without physical defects. Wood inserts, if used, shall be free of warp, twist, checks or cracks, and shall be presoaked prior to placement of concrete in the forms.
2. Rustication inserts shall easily attach to forms and shall not allow leakage of concrete between the form and the insert. When steel forms are used, rustication strips may be rigidly attached to the inside surfaces of the forms. When steel forms are not used, rustication strips and other inserts for small recesses on exposed concrete surfaces shall be fastened to the forms in a manner that will permit them to remain in place when the forms are removed. Leave inserts in place until they can be removed without damage to the surrounding concrete.
3. The inserts shall be designed to form surfaces and features conforming to the design intent including the shape, lines, depths and dimensions shown in the plans. Create inserts using a minimum number of splice joints in their length. Splices, if used, shall be tightly joined so as not to allow gaps or leaks, and shall not create any change in alignment or shape of the rustication feature. Do not locate form ties within concrete rustications.
4. For rustication features following the perimeter of rounded surfaces, it may be necessary to use multiple layers of insert material in order to achieve the radius curve. This is acceptable, provided that the final shape, line, depth, and dimension of the features are maintained in the final result.
5. During loading of forms with concrete, take extra care to ensure proper consolidation of concrete around all rustication inserts to preserve the shape, line and depth of all intended features in the final concrete surface. Following removal of forms, repair all defects to achieve the rustication features as specified in the plans. Patch voids, honeycomb areas, etc., in accordance with the Standard Specifications. If surfaces will not receive a colored sealer coating, add white cement to the patching mortar to lighten it in order to match surrounding concrete when dry. Completed surface shall be free from blemishes, surface voids and conspicuous form marks to the satisfaction of the Engineer. The Contractor shall correct, at his own cost, any surface defects.
6. All costs associated with concrete rustication are to be included in the bid item "Structural Concrete (RCB Culvert)".

### Anti-Graffiti Coating Notes:

1. Anti-graffiti surface preparation and application shall be in accordance with the "Special Provisions for Anti-Graffiti Coating" and material used shall be an approved type in accordance with Materials I.M. 491.23. Color shall be clear. Anti-graffiti coating must be compatible with other concrete coatings used on the project in accordance with the Manufacturer's recommendations.
2. Anti-graffiti coating shall be applied to all interior surfaces of the pedestrian tunnel except the walking surface, and all exposed vertical surfaces of the headwalls including the parapets. Anti-graffiti coating is not required on the top horizontal surfaces of the parapets. All costs for anti-graffiti coating shall be included in the bid item "Anti-Graffiti Coating" and is paid for on a square yard basis.

### Tunnel Concrete Coating Notes:

1. All interior surfaces of the pedestrian tunnel except the walking surface, to the limits of the front face of parapets, shall be finished with a 100% acrylic, vapor permeable masonry coating. The coating used shall be certified to allow water vapor transmission in accordance with ASTM E96 or ASTM D1653.
2. The 100% acrylic, vapor permeable masonry coating shall be one of the following listed products:
  - A. TK Products Tri-shen Acrylic
  - B. Sherwin Williams A-100
  - C. Chemrex Inc. Thorosheen
  - D. Edison Coatings Aqryl-X 200
  - E. Approved equal; submit product information to the Iowa DOT, Bridges and Structures Bureau, Ames, IA 50010. Do not order materials prior to receiving approval for use on the project.
3. Prior to concrete coating application, prepare surfaces in accordance with the "Developmental Specifications for Concrete Surface Preparation and Testing Prior to Coating Application". Apply 100% acrylic, vapor permeable masonry coating in accordance with the "Developmental Specifications for Structural Concrete Coating".
4. One color of concrete coating is to be used on the pedestrian tunnel. The color shall be white matching SAE AMS-STD-595 color number 27925 (semi-gloss). Submit product specifications and color samples in accordance with the "Developmental Specifications for Structural Concrete Coating".
5. No coating overspray or other contamination shall be allowed on the floor surface of the pedestrian tunnel, on the adjacent parapets, headwalls, or on the approach pavement. Take special care to avoid contamination of adjacent surfaces.
6. All costs associated with surface preparation and application of 100% acrylic, vapor permeable masonry coating are to be included in the bid item "Structural Concrete Coating".

LATEST REVISION DATE	APPROVED BY BRIDGE ENGINEER	 Cast-in-Place Standard Design - Walkways and Trails	
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		Aesthetic Treatment General Notes	PT-AD 1-20