



TRANSPORTATION CABINET

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CALL NO. 103
CONTRACT ID NO. 141048
ADDENDUM # 1

Subject: Taylor County, STP BRZ 0403 (195)
Letting September 26, 2014

- (1) Added - Special Notes - Pages 22(a)-22(j) of 111
- (2) Deleted - Pages 75-78 of 111

Proposal revisions are available at <http://transportation.ky.gov/Construction-Procurement/>.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

A handwritten signature in blue ink that reads "Diana Castle Radcliffe".

Diana Castle Radcliffe
Director
Division of Construction Procurement

DR:ks
Enclosures



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SPECIAL NOTE FOR ARCHITECTURAL TREATMENT

1.0 DESCRIPTION

This work consists of constructing textured surfaces simulating natural cut stone masonry, or sandblasted concrete surfaces as designated in the plans or contract documents to receive Architectural Treatment. The work shall be performed in accordance with the applicable provisions of the Standard Specifications, the Plans, and as described herein.

2.0 FORMED TEXTURED SURFACES

Where formliner is designated, concrete surfaces shall be formed using a form lining system made of high-strength urethane elastomer, or thermoformed rigid polymer materials capable of withstanding anticipated concrete pour pressures without leakage or causing physical defects. Formliners shall attach easily to forms and be removable without causing concrete surface damage. The liners shall be designed to form surfaces conforming to the design intent including the shape, lines and dimensions described herein and in the plans.

Formliners shall produce the textured effect of a realistic, cut stone masonry surface. Simulated stones surfaces should exhibit the rough, natural finish of real stone laid in place and have a maximum surface relief of no more than 3 ½ inches. Stone surfaces will be set in different surface elevations as detailed in the drawings. Simulated stone surfaces having a smooth, slick or shiny surface will be rejected. Individual stones shall be formed with crisp, sharp edges and have a rough natural relief to the shape and dimensions described herein and shown on approved shop drawings.

Formliner shall be one of the following:

- Pattern #1104 Random Cut Stone from Custom Rock, Inc. (14-3/4" coursing, 3" relief)
- Pattern # 1102-R2 Random Cut Stone from CustomRock, Inc. (24" coursing, 2" relief)
- Pattern #472 Random Cut Stone from Greenstreak (16" coursing, 1.625" relief)
- Pattern #17004 Liberty Island Stone from Fitzgerald Formliners (16" coursing, 2.75" relief)
- Or equal meeting the general aesthetics of the pre-approved patterns above.

If snap ties are to be used, ties shall be made of non-corrosive materials when the portion permanently embedded in the concrete is less than 1 ½ inches from the finished surface.

Form release agents shall be fully compatible with the formliner material and any special surface finish to be applied to the textured surfaces.

3.0 SANDBLAST TEXTURED SURFACES

Where abrasive blast, 'sandblast' or 'sandblasted' textured surfaces are designated, 24 hr to 72 hrs after casting (concrete strength between 1000 psi and 1500 psi minimum), concrete surfaces to be sandblasted shall be exposed and given a light sandblast sufficient to abrade the concrete surface to remove cement/sand paste just enough to reveal the coarse aggregate and produce a sugar-cube like limestone surface texture. Blast corners and edges of patterns carefully, using back-up boards, to maintain uniform corner or edge line. Determine type of nozzle, nozzle pressure, and blasting techniques required to match design reference sample or mockup.

4.0 SUBMITTALS

The Contractor shall submit the following to the Engineer for approval:

1. Product data including manufacturer's technical information and use instructions for formliner placement and release.
2. Actual samples of form ties that will be used with work requiring architectural treatment.
3. Qualification data for firms and person specified below under Quality Assurance to demonstrate their capabilities and experience. Include a list of completed projects with project names, addresses, names of architects, engineers and owners, plus any other pertinent information.
4. Shop drawings indicating formliner layout and termination details. Indicate backup, rustication, reveal, and chamfer strip locations. Include jointing, form tie location, pattern placement, pattern match details, and end, edge and other special conditions. Indicate tolerances and procedure of installation and separation.

After approval of shop drawings by the Engineer and prior to commencement of production, the Contractor shall submit the following to the Engineer for approval:

1. Test Panel Mock-ups as specified below under Quality Assurance. The mock-up should be coordinated with other mock-ups related to the Architectural Treatment such as Integral Color Concrete.

5.0 QUALITY ASSURANCE

1. Manufacturer's Qualifications: The formliner manufacturer must have a minimum of five years experience making liners used to create formed concrete surfaces matching natural stone shapes and textures.
2. Installer Qualifications: The formliner installer shall have had a minimum of three consecutive years of experience in textured formed concrete construction.
3. Test Panel Mock-up: Provide a full-scale mock-up (5'x5' minimum panel size) using actual job specific materials, methods and workmanship. These include concrete mix [cement type, aggregate gradation, slump, water/cement ratios, plasticizers, integral coloring agents, and additives], forming system [ties, liner, and formwork], form release agents, placement rate, form pressures, joint sealing, vibrating and stripping practices. In addition, demonstrate patching and repair procedures for spalled concrete, and voids caused by honeycombing or bugholes and demonstrate techniques for producing a 'sandblast' or abrasive blast finish if applicable. Incorporate formwork accessories, a minimum one vertical and one horizontal form liner joint, form liner corner matching technique, and coping details. Accepted mock-up will be the standard by which remaining work will be evaluated for technical and aesthetic merit. Accepted mock-up is a prerequisite to beginning job formwork. Submit variations from mock-up materials or techniques for approval prior to use.

- 4. Coordination: Coordinate and combine mock-up with related technique mock-up requirements insofar as practicable.

Following completion of the structure, remove and dispose of the test panels in accordance with the Specifications.

Test panels shall be considered incidental to the work and no direct compensation will be made therefore.

6.0 CONSTRUCTION REQUIREMENTS

Match pattern features at formliner joints to make the formed concrete surface appear uniform and continuous without grout leakage at the joints. When concrete vertical and horizontal construction joints are required, place formliner joints in the valley of the grooves, or as approved by the Engineer. Pour concrete at a rate and lift depth such that the pressure exerted by the wet concrete on the formwork, as determined using ACI 347-04 "Guide to Formwork for Concrete", does not exceed formliner manufacturer's recommendations and in no case exceeds 1000 psi. Following removal of forms, finish improperly formed joints to achieve a smooth and uniform cast concrete surface. No visible vertical and horizontal seams or conspicuous form marks created by butt-joining formliners will be allowed. Where it is not possible to locate a vertical or horizontal groove at a construction joint, the concrete surface shall be finished to reduce visibility of the construction joints.

Strip formwork in accordance with the formliner manufacturer's recommendations to avoid concrete surface deterioration or weakness planes in the substrate. Finish form tie holes in accordance with the Specifications, and if applicable, the Special Note for Integral Colored Concrete, using approved patching materials.

Clean and repair surfaces of formliners to be re-used. Split, frayed, delaminated or otherwise damaged formliner material will not be acceptable for exposed surfaces. Formliners shall be cleaned and free of concrete buildup prior to each pour. Do not use "patched" forms for exposed concrete surfaces unless they are acceptable to the Engineer.

7.0 METHOD OF MEASUREMENT

Measurement for Architectural Treatment will be to the nearest square yard of surface in the plane of the nominal dimensions shown on the plans and within the limits shown in the contract documents for areas receiving Architectural Treatment which includes but is not limited to architectural formliners and abrasive blast or sandblast finish.

8.0 BASIS OF PAYMENT

The unit price bid per square yard of Architectural Treatment shall be considered full compensation for furnishing all materials, labor, and incidental items necessary to construct the Work in accordance with the Plans, Specifications, other Contract Documents, and this Special Note.

Payment will be made under :

Item Code	Description	Units
23026ED	Architectural Treatment	Square Yard

SPECIAL NOTE FOR CONCRETE SEALING

Description.

Perform surface preparation and application of a silane, or silane/siloxane penetrant sealer, with 40 percent solids and active materials dispersed in water to exposed concrete surfaces as designated in the project plans in accordance with the manufacturer's recommendations and this Special Note. Ensure that the penetrant sealer is tinted with a fugitive dye and will be distinguishable on the concrete surface a minimum of four hours after application and becomes invisible within seven days of application. Ensure that the penetrant sealer will not affect the color or character of any architectural finish including formliner finish, sandblast finish, or integrally colored concrete.

Materials.

Meet the following:

Appearance	White, Milky Liquid
VOC content (EPA method 24)	Less than 350 g/l
Flash Point (ASTM 3278)	Greater than 200° F SETA
Resistance to Chloride ion penetration AASHTO T259 and T260	Less than 0.52 pounds/yd ³ (criteria of 1.5) at 1/2 inch level Less than 0.00 pounds/yd ³ (criteria of 0.75) at 1 inch level
Water absorption test (ASTM C 642)	0.50 percent maximum / 48 hours; 1.5 percent maximum / 50 days
NCHRP 244	
Series II - cube test	
Water weight gain	85 percent reduction minimum
Absorbed chloride	87 percent reduction minimum
Series IV - Southern climate	
Absorbed chloride	95 percent reduction minimum
Scaling resistance test (ASTM C 672)	(non - air - entrained concrete) 0 rating "No Scaling" (100 cycles)

3.0 Surface Preparation.

3.1 General: Prepare concrete surfaces to receive a penetrant sealer in accordance with this Special Note dependent on whether the surfaces are of recently cast concrete (new construction) or of existing concrete.

3.2 Surface Preparation for New Construction: Remove substances such as dust, grime, dirt, curing compounds, form oil, debris, etc. by water blasting, light sandblasting, wire brushing, or other methods acceptable to the Engineer, all in accordance with the penetrant sealer manufacturer's recommendations. When using cleaning methods other than water blasting, wash the cleaned surfaces with potable water as a final cleaning operation.

3.3 Surface Preparation for Existing Concrete:

3.3.1 General: Remove substances such as dust, grime, dirt, stains, mineral deposits, oil, bituminous materials, debris, and all other deleterious material by using water blasting equipment of sufficient operating capacity and pressure, all in accordance with the penetrant sealer manufacturer's recommendations.

3.3.2 Cleaning Equipment: Use approved water blasting equipment to clean existing concrete surfaces. Use water blasting equipment which is specifically manufactured to clean concrete surfaces. Use equipment that has a minimum rated nozzle capacity of

6,000 psi when using the spray head proposed for use in the work, or as recommended for blast cleaning by the sealer manufacturer.

3.3.3 Water for Blasting: Use clean potable water.

3.3.4 Concrete Surface Cleaning Operation: During the cleaning operation, exercise sufficient care to minimize the removal of the concrete matrix. Furnish hand tools, power grinders, and other similar equipment to remove materials which cannot be removed by water blasting without abrading the concrete matrix beyond acceptable limits. Wash concrete surfaces cleaned by methods other than water blasting with water blasting equipment as the final cleaning operation.

Limit the duration of water blasting to provide a light abraded surface. Do not allow surface abrasion to exceed 0.016 inch. The Engineer will not require further cleaning of stains still apparent after abrading to a depth of 0.016 inch. Avoid exposure of coarse aggregate by water blasting. Re-clean cleaned concrete surfaces which become contaminated before applying the penetrant sealer at no expense to the Department prior to applying the penetrant sealer.

4.0 Application of Sealant Materials.

4.1 General: Apply the penetrant sealer only to surfaces which have been prepared in accordance with this Special Note and approved by the Engineer. For application of the penetrant sealer, meet this Special Note and the penetrant sealer manufacturer's recommendations.

Prior to application of any penetrant sealer, cure concrete for a minimum of 21 days or as recommended by the sealer manufacturer.

Coordinate the application of the penetrant sealer so that concrete surfaces prepared to receive penetrant sealer are sealed with the penetrant sealer within ten days after completion of the surface preparation and prior to contamination of the prepared surfaces.

4.2 Application Equipment: Apply the penetrant sealer using any suitable air or airless sprayer with an operating pressure of approximately 20 psi.

4.3 Application Limitations: Apply the penetrant sealer material only when the ambient air temperature is between 50 and 90° F. Apply the penetrant sealer only to concrete surfaces which have dried a minimum of 48 hours after water last contacted the concrete surfaces. Do not apply the penetrant sealer when winds are blowing 25 mph or more, during rainfall, or when water spray or mist is present.

4.4 Application: Apply the penetrant sealer only to concrete surfaces that have been prepared in accordance with the requirements and limitations set forth in this Special Note. Apply the penetrant sealer in a uniform manner without puddling and skips and at a rate in accordance with the manufacturer's recommendations. Redistribute any penetrant sealer which is applied and subsequently puddles in low areas over the concrete surfaces by use of a squeegee. Generally, begin the application of the penetrant at the lowest elevation and proceed upward toward higher elevations. Maintain operating pressures in the sprayers used for application of the penetrant sealer material sufficiently low so that atomization or misting of the material does not occur.

5.0 Control of Materials.

5.1 Packaging and Identification: Deliver the penetrant sealer to the project in the unopened, sealed containers with the manufacturer's label identifying the product and with numbered seals intact. Ensure that each container is clearly marked by the manufacturer with the following information:

- a. Manufacturer's name and address.
- b. Product name.
- c. Date of manufacture.
- d. Expiration date.

- e. LOT identification number.
- f. Container serial number.

5.2 Manufacturer’s Certification: Provide the Engineer a certification, from the manufacturer, confirming that the penetrant sealer meets the requirements of this Section. Do not incorporate these materials into the project until the Engineer has accepted certification for this material. Submit such certification for each LOT of material delivered to the project. In each certification, identify the serial numbers of the containers certified.

5.3 Materials Sampling for Tests: The Engineer may require samples from each LOT or container of materials delivered to the project or from containers at the point of use. When samples are required, furnish samples in accordance with the Engineer’s instructions.

5.4 Storage of Materials: Store materials delivered to the job site in original unopened containers within an appropriate storage facility. Use a storage facility that provides protection from the elements, and safe and secure storage of the materials.

5.5 Unused Material in Opened Containers: Do not return unused material in opened containers to storage for later use. The Contractor may either apply such material to appropriate areas on concrete surfaces or remove and dispose of it at locations off site that the Contractor provides.

6.0 Acceptance.

The Engineer will accept penetrant sealer application when it is determined that the Contractor has properly cleaned all surface areas to be sealed and has applied the penetrant sealer within the required rates of application.

7.0 Method of Measurement.

Prestressed precast items designated in the plans to be sealed will not be measured for separate payment. The Contractor shall include the cost of cleaning, sealing, and applying Penetrant Sealer with the cost of the prestressed precast items. For cast-in-place surfaces to be sealed, the quantities to be paid for will be the area, in square feet , of *Concrete Sealing* as determined by field measurement, completed and accepted.

8.0 Basis of Payment.

Payment at the unit price bid for *Concrete Sealing* will be full compensation for all work and materials specified in this Section, including cleaning, applying penetrant, and furnishing penetrant, necessary to satisfactorily clean and seal the areas designated. No additional compensation will be made for areas which must be resealed due to Contractor error or non-compliance with this Special Note or with the Penetrant Sealer manufacturer’s recommendations.

Payment will be made under:

Item Code	Description	Units
23378EC	Concrete Sealing	Square Foot

SPECIAL NOTE FOR INTEGRAL COLOR CONCRETE

SECTION 1 GENERAL

1.01 SUMMARY

- A. Special Note includes: Integrally colored cast-in-place concrete.

1.02 REFERENCES

- A. American Society for Testing and Materials:
1. ASTM C979 - Pigments for Integrally Colored Concrete.

1.03 SUBMITTALS

- A. Submit product data and manufacturer's instructions for:
1. Color additives.
2. Curing compounds compatible with color additive to be used.
- B. Samples:
1. Samples for Color Selection: Submit color additive manufacturer's sample chip set; indicate color additive name and required dosage rate. Samples indicate general color and may vary from concrete finished in field according to Specifications.
2. Color is to be medium gray and approximate Federal Standard 595C x6176 as closely as practicable.

1.04 QUALITY ASSURANCE

- A. Colored Concrete Mock-Up:
1. Coordinate colored concrete mock-up with other mock-ups required on the project such as any 'Architectural Treatment' mock-up. Separate mock-ups are not required unless specified otherwise in the contract documents.
1. Provide a full-scale mock-up of a wall section (minimum size 5'x5'). Construct mock-up at least one month before start of other concrete work to allow concrete to cure before observation.
2. At an approved location on the Project, demonstrate methods of obtaining consistent visual appearance, including each forming and finishing condition required on Project using materials, workmanship, joint treatment, form ties, curing method, and patching techniques to be used throughout Project unless waived by the Engineer.
3. Retain samples of cements, sands, aggregates, and color additives used in mock-up for comparison with materials used in remaining Work.
4. Accepted mock-up provides visual standard for the Work.
5. Remove and dispose of mock-up when no longer required for comparison with finished work in accordance with the Specifications.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Color Additives: Comply with manufacturer's instructions. Only add pigments at the batch plant by an automated dosing system.

SECTION 2 PRODUCTS

2.01 CONCRETE MATERIALS

- A. Colored Additives for Integrally Colored Concrete:
 - 1. Manufacturer:
 - a. Davis Colors, 3700 E.Olympic Blvd, Los Angeles, CA ph 800-356-4848
 - b. Butterfield Colors, 625 W. Illinois Ave, Aurora, IL ph 800-282-3388
 - c. Solomon Colors, 4050 Color Plant Rd, Springfield, IL ph 800-624-0261
 - d. Approved Equal
 - 2. Materials:
 - a. Colored additives shall contain pure, concentrated mineral pigments specially processed for mixing into concrete and complying with ASTM C979.
 - b. Color additives containing carbon black are not acceptable under any circumstances.
- B. Admixtures: Do not use calcium chloride admixtures.

2.02 FORMS

- A. Form Facing Material:
 - 1. Provide non-porous surface such as steel, plastic, or high-density overlaid plywood with watertight joint seals to prevent leakage.
 - 2. Decorative Form Liners: see the Special Note for Architectural Treatment
- B. Form Ties: Fiberglass rods tinted to match concrete.
- C. Form Release: Provide a form release agent that is non-staining and minimizes formation of "bug-holes" in the concrete surface.

2.03 ACCESSORIES

- A. Curing Compound for Colored Concrete: Curing compound shall comply with ASTM C309 and be approved by color additive manufacturer for use with colored concrete. Use only curing compounds specifically recommended for use with colored concrete.
- B. Supports for Reinforcing Bars: Use corrosion-resistant types at locations in contact with exposed surfaces.
- C. Cleaning Agents: Use products known to be compatible with colored concrete.

2.04 CONCRETE MIXES

- A. Color Additives: Mix in accordance with manufacturer's instructions. Mix until color additives are uniformly dispersed throughout mixture.
- B. Do not retemper mix by adding water in field.

2.05 CONCRETE COLORS

- A. Concrete Color:
 - 1. Cement: Color shall be gray. White cement is not required.
 - 2. Dosage rate shall be based on weight of portland cement, fly ash, silica fume, lime and other cementitious materials but not aggregate or sand.
- B. Dosage rate of color additive shall not exceed 10 percent of weight of cementitious materials in mix.
- C. Final Concrete Color is to closely match Federal Standard 595C color x6176.

SECTION 3 EXECUTION

3.01 FINISHES ON FORMED SURFACES

- A. Provide concrete finishes in accordance with the Standard Specifications or Textured Form Liner finish as described in the Special Note for Architectural Treatment as applicable.
- B. Stripping: Leave forms in place as long as practical. Remove forms when concrete has reached a consistent age to maintain uniformity of curing conditions throughout Project.

3.03 PATCHING

- A. Fill holes and defects in concrete surface within 48 hours of form removal.
- B. Use the same patching materials and techniques that were approved on the mock-up.
- C. Make patches with a stiff mortar made with materials from the same sources as the concrete. Adjust mortar mix proportions so dry patch matches dry adjacent concrete. Add white cement to mortar mix if necessary to lighten it.

3.04 CURING

- A. Cure colored concrete in accordance with Subsection 601.03.17 B (or 609.03.12 for bridge decks) as applicable.

- B. Colored Concrete: Cure with an approved curing compound applied in accordance with manufacturer's instructions. Apply curing compound at consistent time for each pour to maintain close color consistency.
- C. Curing Compound: Water blast clean surfaces to remove any residual curing compound after concrete curing is complete and prior to any concrete sealing operations.

3.05 TOLERANCES

- A. Minor variations in appearance of colored concrete, which are similar to natural variations in color and appearance of uncolored concrete, are acceptable.

3.06 CLEANING

- A. Efflorescence: Remove efflorescence as soon as practical after it appears. Allowing efflorescence to remain on the colored concrete surface may permanently damage the coloring.
- B. Use the least aggressive cleaning techniques possible
- C. If proprietary cleaning agents are used, pre-wet wall, test cleaning agent on a small, inconspicuous area, and check effects prior to proceeding. Begin cleaning at the top and work down. Thoroughly rinse wall afterwards with clean water. Follow cleaner manufacturer's instructions.
- D. Do not use muriatic (hydrochloric) acid on colored concrete.

SECTION 4 MEASUREMENT AND PAYMENT

4.01 Measurement

- A. Measurement : No separate measurement for integral color concrete will be made. All work and material required to provide Integral Color Concrete in accordance with this Special Note is considered incidental to the Class of Concrete being colored.

4.02 Payment

- A. Payment: No separate payment for integral color concrete will be made. All work and material required to provide Integral Color Concrete in accordance with this Special Note is considered incidental to the unit price bid for the Class of Concrete being colored.