

	Department of Design and Construction	SPECIFICATION BULLETIN	SB 18-002
Prepared: 	3/5/2018	Approved: 	3/5/2018
Richard Jones, P.E. CWI Director, Specifications – Infrastructure Design	Date	Mohsen Zargareh, P.E. Assistant Commissioner – Infrastructure Design	Date

APPLICABILITY:

- This Specification Bulletin (SB) is effective for projects advertised on or after 4/1/2018.

SUPERSEDEENCE:

- This SB supersedes the following SBs: **NONE**

ATTACHMENTS:

- **ATTACHMENT 1:** New Section 6.44 CST – Color Surface Treatment for Pavements (CST) Pages A1-1 through A1-4

REVISIONS TO THE NEW YORK CITY DEPARTMENT OF TRANSPORTATION STANDARD HIGHWAY SPECIFICATIONS VOLUME 1 OF 2, DATED 8/1/15:

No Changes.

REVISIONS TO THE NEW YORK CITY DEPARTMENT OF TRANSPORTATION STANDARD HIGHWAY SPECIFICATIONS VOLUME 2 OF 2, DATED 8/1/15:

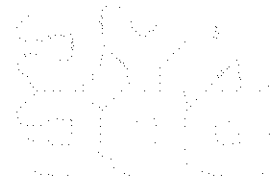
All references contained below are to the New York City Department of Transportation Standard Highway Specifications, Dated August 1, 2015. Said Standard Highway Specifications are hereby revised as follows:

- Refer** to Pages 393 through 395, Section 6.44 PO – Lane Pavement Overlay;
Delete in its entirety the Section;
Insert the new Section 6.44 CST in Attachment 1 (4 pages).

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SECTION 6.44 CST – COLOR SURFACE TREATMENT FOR PAVEMENTS (CST)

6.44CST.1. DESCRIPTION.

Under this work, the Contractor must furnish and apply CST at various locations in accordance with the patterns specified in the Work Orders or Contract Drawings and in conformance with these specifications and as directed by the Engineer.

6.44CST.2. REFERENCES.

- a) ASTM D7234: Pull-Off Adhesion Strength of Coatings on Concrete using Portable Pull-Off Adhesion Testers
- b) ASTM E303: Measuring Surface Frictional Properties Using the British Pendulum Tester
- c) EPA 24 ASTM D3960-05 Volatile Organic Compounds (VOC)

6.44CST.3. SUBMITTALS.

- a) A copy of the current year accreditation certificate available from the Contractor or Subcontractor who will be performing this work or written verification from the coating supplier that the Contractor or Subcontractor is qualified to perform this Work.
- b) Confirmation of coating color.
- c) Manufacturer's lot certification of the aggregate hardness.

6.44CST.4. MATERIALS.

The following table outlines minimum performance properties for CST:

Characteristic	Test Specification	Measured Result
Adhesion to Asphalt	ASTM D7234	Substrate Failure
Wet Friction	ASTM E303	>55 BPN
Aggregate Hardness	Moh's Hardness Scale	Corundrum and Calcined Bauxite: 8 minimum Recycled Glass: 6 minimum

The CST must be capable of application on new and existing asphalt and Portland cement concrete surfaces, and must:

- a) Be VOC compliant and lead chromate free.
- b) Not contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the US Occupational Safety and Health Administration (OSHA) as a carcinogen.
- c) Conform to current Federal, State and Local air pollution regulations, including those for the control (emission) of VOC.
- d) Be packaged and stored in accordance with the manufacturer's instructions and requirements for shelf life and storage conditions in original unopened containers. Shipping documents and containers shall have identification numbers or batch dates for confirmation of when products were manufactured, clearly labeled as to the type material and the ratio of the components to be mixed by volume as well as showing resin or hardener components, brand name, name of manufacturer, lot or batch number, temperature range for storage, expiration date and the quantity contained. Include any special instructions regarding mixing and the Material Safety Data Sheets. The Contractor must have this information available for inspection at any time.
- e) Provide a surface where color and chemical resistance will not degrade under normal exposure to weather, street sweeping, snow plowing, calcium chloride, sodium chloride, oils (automotive or food) and automotive fuels.
- f) Use color pigments that remain stable under exposure to ultraviolet light, preferably have a positive rating on the LEED Solar Reflective Index.
- g) The Engineer must approve CST color prior to the purchase of materials by the Contractor. Colors shall be:

- a. Bicycle Lanes: Green;
 - b. Bus Lanes: Red;
 - c. Plazas: Truffle;
 - d. As specified by Work Orders or Plans.
- h) Friction aggregate:
- a. Type: As specified and provided by the CST manufacturer and must match the aggregate types listed in the table below.
 - b. Hardness: Aggregate used must have a minimum hardness as listed in the table above. Adequate aggregate hardness will not relieve the Contractor of the Wet Friction performance requirement listed in the table above.
 - c. Aggregate particle size must be:
 - i. Bicycle facilities: between 0.8mm - 1.2mm;
 - ii. Bus and waling facilities: between 1.0mm - 3.0mm.

6.44CST.5 APPROVED MATERIALS.

Only products with a manufacturer's certification that the product meets the requirements of this specification, or a product approved equal as determined by the Engineer, are deemed acceptable for use. The Contractor must receive pre-approval for all materials by the Engineer prior to purchase.

COLOR SURFACE TREATMENT FOR PAVEMENTS (CST) – APPROVED MATERIALS LIST

Product	Manufacturer	Contact Information	Approved Aggregate	Manufacturer Recommendations
ColorSafe	Transpo Industries	20 Jones Street New Rochelle, NY 10801 800-321-7870 transpo.com	Calcined bauxite or Corundum	Primer plus two coats
CycleGrip MMAX	Ennis-Flint	115 Todd Court Thomasville, NC 27360 336-475-6600 ennisflint.com	Corundum	Bike lane: one coat (90 mils)
Safe-T-Grip	Epoplex	1000 East Park Avenue Maple Shade, NJ 08052 800-822-6920 epoplex.com	Bauxite / Granite mix	Thin overlay one coat
High Friction Surface Treatment	Ruby Lake	493 State Route 28 Richfield Springs, NY 13439 914-523-3766 rubylakeglass.com	Recycled glass	One epoxy coat plus one layer
Safetrack SC	Stirling Lloyd	Rockwell Road, Building A, Newington, CT 06111 860-666-5008 northamerica.stirlinglloyd.com	Calcined bauxite	
Endurablend	Pavement Surface Coatings, LLC	81 Ball Road Mountain Lakes, NJ 07046 866-215-6120 Pavementsurfacecoatings.com	Calcined bauxite	One layer

6.44CST.6 CONSTRUCTION DETAILS.

General: The Contractor must place CST as shown in the Contract or Work Order Documents or as ordered by the Engineer.

Before the Contractor may begin any surface treatment work, the Contractor must submit a schedule of operations for the approval of the Engineer. At least five (5) days prior to starting application, the Contractor must provide the Engineer with the color manufacturer's written instructions for use and provide access to

aggregate for random testing. These instructions must include, but not be limited to, material mixing ratios and acceptable application temperatures.

When the Contractor applies CST under traffic, the Contractor must provide all necessary flags, markers, signs, etc. in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) to maintain and protect traffic, and to protect marking operations and the markings until thoroughly set.

The Contractor is responsible for removing, to the satisfaction of the Engineer, all tracking marks and spilled CST applied in unauthorized areas such as utilities, drainage structures, curbs and manhole covers.

The Contractor must apply the asphalt pavement coating system to the pavement in accordance with the manufacturer's specification. In its hardened state, the color shall be as specified and as approved by the Engineer.

Asphalt pavement must be stable, well compacted and generally in excellent condition for the application of the asphalt pavement coating. The Engineer will make the final determination as to the suitability of the existing asphalt pavement.

The asphalt pavement surface must be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials and chemical residue.

The asphalt pavement coating must only be applied in the correct environmental conditions as instructed by the coating supplier and as approved by the Engineer.

Refer to the instructions provided by the coating supplier regarding when the painted lane may be opened to traffic. Wait time is typically a function of the dry rate of the coating and climate conditions.

The Engineer may, at his/her discretion, require the Contractor to remove all extraneous marks on the pavement made by the agents or employees of the Contractor, or made by others due to improper control or protection of the work area by the Contractor, his agents or employees. The Contractor must repair or replace at no cost to the City any installation which, in the opinion of the Engineer, is not acceptable, whether by reason of poor workmanship, poor appearance, poor performance, poor materials, improper width or improper alignment. The Contractor must replace rejected installation as directed by the Engineer within fifteen (15) days after receiving written notification of the rejection of such completed work.

Atmospheric Conditions: The Contractor may only apply CST during dry weather conditions and on dry pavement surfaces. At the time of installation, the pavement surface temperature must be at or above manufacturer recommendations.

Surface Preparation: The Contractor must clean the pavement and existing durable markings to the satisfaction of the Engineer. At the time of application, all pavement surfaces and existing durable markings shall be free of oil, dirt, dust, grease and similar foreign materials.

Application Equipment: Per manufacturer's instructions. The Contractor must receive written pre-approval from the Engineer before spray applying any CST product.

Application: The Contractor must place CST at the width, thickness and pattern designated by the Contract Documents or work orders. Surface treatment operations shall not begin until applicable surface preparation work is completed and approved by the Engineer, and the atmospheric conditions and pavement surface temperature are acceptable to the Engineer. The applied film thickness must comply with manufacturer recommendations.

Defective Results: The Contractor must repair CST, which after application and curing, is determined by the Engineer to be defective and not in conformance with this specification. The Contractor is responsible for the cost of the repair of defective CST and the Contractor must perform the work to the satisfaction of the Engineer as follows:

- a) Insufficient film thickness: The Contractor must clean and prepare the surface of the CST to the satisfaction of the Engineer by reapplying CST over the cleaned surface in accordance with the requirements of this specification at the full thickness.
- b) Uncured or discolored CST and/or insufficient bond (to pavement surface or existing durable marking): The Contractor must completely remove defective CST and clean the underlying pavement surface to the satisfaction of the Engineer. After surface preparation work is complete,

the Contractor must repair the CST by reapplying the CST over the cleaned pavement surface in accordance with the requirements of this specification.

- c) Insufficient Wet Friction as determined by the Engineer: The Contractor must remove and clean defective CST to the underlying pavement surface or re-coat with CST and friction aggregate. The repair method must be approved in advance in writing by the Engineer. After surface preparation work is complete, the Contractor must repair by reapplying CST over the cleaned pavement surface in accordance with the requirements of this specification.
- d) The Contractor must also repair or replace any other defects not noted above, but determined by the Engineer to need repair, as directed by and to the satisfaction of the Engineer.

The Contractor will perform all work in conjunction with the repair or replacement of defective CST at the Contractor's expense.

Personal Protective Equipment: The Contractor must follow all exposure, respiratory and personal protective equipment controls, handling and safety precautions, as well as spill and disposal procedures as identified by safety data sheets (SDS), labels and other manufacturer's recommendations for the products used.

Work Zone Traffic Control (WZTC): The Contractor is responsible for ensuring appropriate WZTC in compliance with the MUTCD appropriate for the dry time of the selected material applied. The Contractor is responsible to ensure adequate WZTC to prevent those walking, skating, bicycling, and driving from coming into contact with applied material that is still capable of being tracked. The Contractor will be liable for such tracking and property damage should it occur.

6.44CST.7. MEASUREMENT.

The quantities to be measured for payment shall be the number of square feet of CST, of each color. This amount be computed within the payment lines shown on the plans, Work Order or as otherwise ordered in writing by the Engineer.

6.44CST.8. PRICES TO COVER.

The unit prices bid per square feet of CST shall cover the cost of all labor, materials, plant, equipment, insurance and necessary incidentals required including, but not limited to, testing, cleaning, preparation of surfaces and application of the CST, all in accordance with the contract plans and specifications, and as directed by the Engineer.

Payment will be made under:

Item No.	Item	Pay Unit
6.44 CST	COLOR SURFACE TREATMENT FOR PAVEMENTS (CST)	S.F.