Origination Form

Specifications

Submittal Information			
Name:	James Greene	**Standard Specification Section:**	974
Email:	james.greene@dot.state.fl.us	**Special Provision:**	
Date:	2026-06-18T18:36:41Z	**Associated Specs:**	332, 333, and 403

Summary:

Added the material requirements for 333 and 403.

Justification:

Revision was needed to add the material requirements for 333 and 403.

Do the changes affect other types of specifications?

Neither

List Specifications Affected:

Other Affected Documents/Offices	Contacted	Yes/No
Other Standard Plans		No
Florida Design Manual		No
Structures Manual		No
Basis of Estimates Manual		No
Approved Product List	Karen Byram	Yes
Construction Office		No
Maintenance Office		No
Materials Manual		No

Traffic Engineering Manual		No

Are changes in line with promoting and making progress on improving safety, enhancing mobility, inspiring innovation, and fostering talent; explain how?

High Friction Surface Treatments (HFST) and Epoxy Overlays have significantly enhanced surface friction and bridge durability. These successful transitions from Developmental Specifications to Standard Specifications demonstrate the effectiveness of adopting new materials and modern construction methods. Spec 974 describes material requirements for Specs 333 and 403.

What financial impact does the change have; project costs, pay item structure, or consultant fees?

N/A

What impact does the change have on production or construction schedules?

N/A

How does this change improve efficiency or quality?

Spec 974 describes the material requirements for the new Specs 333 and 403.

Which FDOT offices does the change impact?

State Construction Office, State Design Office, State Materials Office

What is the impact to districts with this change?

N/A

Does the change shift risk and to who?

N/A

Provide summary and resolution of any outstanding comments from the districts or industry.

Comments and Responses are available on the Track the Status of Revisions hyperlink located on the Specifications landing page: https://www.fdot.gov/specifications/default.shtm

What is the communication plan?

Through the established specification revision process (e.g., Internal and Industry Review)

What is the schedule for implementation?

The Standard Specifications eBook and Workbook are effective July 1st every year.

SURFACE APPLICATIONS
(REV 6-18-26)

SUBARTICLE 974-1 is deleted and the following substituted:

974-1 Description.

This section specifies the material requirements for detectable warnings, patterned pavement, ~~and~~ green-colored pavement markings, high friction surface treatment, and epoxy concrete overlay.

SECTION 974 is expanded by the following Articles:

974-5 High Friction Surface Treatment.

974-5.1 General: Use a two-part polymer resin binder treatment capable of retaining a bauxite aggregate topping under vehicular traffic conditions.

974-5.2 Approved Product List Requirements: Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the documentation identified in Table 974-8. Documentation and reports must demonstrate that the product meets the requirements of this Section.

Table 974-8

Documentation	Requirements
Product Photo	Displays the significant features of the product.
Technical Data Sheet	Uniquely identifies the product and includes product specifications, storage instructions, and shelf life.
Installation Instructions	Uniquely identifies the product and includes the following information as applicable: 1. Surface preparation and installation procedures 2. The minimum substrate curing time prior to installing the product. 3. Installation materials and equipment. 4. Resin, sealers, coatings, coloring, and friction materials. 5. Friction material source and rate of application. 6. Number of coats and the thickness of each coat. Instructions must contain the following: 1. Schedule for the trial High Friction Surface Treatment (HFST) work and the production HFST work. 2. Description of equipment for placing HFST. 3. Method of application for measuring, mixing, placing, and finishing HFST. 4. Method for protecting areas not to receive HFST. 5. Description of acceptable environmental conditions for placing HFST. 6. Cure time and time to bear traffic estimates for HFST. 7. Storage and handling of HFST components.

Table 974-8	
Documentation	Requirements
	8. Disposal and recycling of excess HFST and containers. 9. Contingency plan for possible failure during the HFST application. 10. Name of the certified independent testing laboratory. 11. Key personnel and contact information. 12. All project certifications and test results. The QCP shall designate a QC Manager who shall have full authority to institute any action necessary for the successful operation of the plan. Include instructions for repair of any surface defects, including cracking, bleeding, raveling, and delamination.
Product Label	For each component of the product system. Labels must contain the following information as applicable: 1. Uniquely identifies the product name. 2. Address of the manufacturer. 3. Show the date of manufacture, and lot number. 4. Warning of any special handling or precautions of the material, as recommended by the manufacturer. 5. The component materials shall be clearly marked with the volume of materials in units of gallons and the product name.
Safety Data Sheet (SDS)	SDS meeting OSHA requirements for each product component and manufacturer recommended installation materials as applicable.
Manufacturer's Certification	Certified copies of complete materials testing results from the producers documenting that the polymer resin binder meets the requirements of Table 974-9 and that the aggregate meets the requirements of Table 974-10. The materials test results shall be within 12 months of project letting date and must be representative of the material used on the project and must document source of origin.
Independent Laboratory Test Report	Include documentation that indicates the in-place friction characteristics of these projects met a minimum FN40R of 65, when tested in accordance with AASHTO T 242, or DFT40 of 70 when tested in accordance with ASTM E1911.

974-5.3 Polymer Binder: The polymer resin binder shall consist of a thermosetting modified polymer compound and shall meet the Table 974-9.

Table 974-9 Polymer Resin Binder Requirements		
Property	Test Method	Requirement
Viscosity	ASTM D2556	700 – 3,000 cP

Table 974-9 Polymer Resin Binder Requirements		
Property	Test Method	Requirement
Gel Time	ASTM C881 (60 gram mass)	≥10 minutes
Ultimate Tensile Strength	ASTM D638 (Type 1 Specimen)	2,000 – 5,000 psi
Elongation at break point	ASTM D638 (Type 1 Specimen)	30 – 70%
Durometer Hardness (shore D)	ASTM D2240	60 – 80
Compressive Strength	ASTM C579	≥1,000 at 3 hours ≥5,000 psi at 7 days
Cure Rate (dry time)	ASTM D1640	≤3 hours
Water Absorption	ASTM D570	≤1.0%
Adhesive Strength at 24 hrs	ASTM C1583	≥250 psi or 100% substrate failure

974-5.4 Aggregate: The aggregate shall be a calcined bauxite. The aggregate shall be clean, dry, and free from foreign matter. The aggregate shall meet the following requirements:

Table 974-10 Aggregate Requirements			
Property		Test Methods	Test Methods
Aggregate Abrasion Value		AASHTO T 96	≤20%
Aggregate Grading	No. 4 Sieve Size	AASHTO T 27	100% Passing
	No. 6 Sieve Size	AASHTO T 27	95% Minimum Passing
	No. 16 Sieve Size	AASHTO T 27	5% Maximum Passing
Moisture Content		AASHTO T 255	≤0.2%
Aluminum Oxide		ASTM C25	≥86%

974-6 Epoxy Concrete Overlay (Bridge Deck)

974-6.1 General: Epoxy concrete overlay consists of three components: primer, binder, and aggregate. The primer and binder provide preservation for the bridge deck, while the aggregate provides surface friction for traffic.

974-6.2 Approved Product List Requirements: Manufacturers seeking evaluation of products for inclusion on the APL shall submit an application in accordance with Section 6 and include the documentation identified in Table 974-11. Documentation and reports must demonstrate that the product meets the requirements of this Section.

Table 974-11	
Documentation	Requirements
Product Photo	Provide product photos that display the significant features of the product. Provide photos for all manufacturer supplied installation materials.
Technical Data Sheet	Provide product literature that uniquely identifies the product and includes product specifications, storage instructions, and recommended installation materials and equipment as applicable.

Table 974-11	
Documentation	Requirements
	Chloride Content for each product must be disclosed in the manufacturer's data sheet. No placed spall repair material shall exhibit chloride contents greater than 0.50 pounds of chloride per cubic yard of concrete or mortar.
Installation Instructions	Uniquely identifies the product and includes the following information as applicable: 1. Surface preparation and installation procedures. 2. The minimum substrate curing time prior to installing the product. 3. Installation materials and equipment. 4. Resin, sealers, coatings, coloring, and aggregates materials. 5. Rate of application. 6. Number of coats and the thickness of each binder. Instructions must contain the following: 1. Method of application for measuring, mixing, placing, and finishing Polymer Overlay System. 2. Method for protecting areas not to receive Polymer Overlay System. 3. Description of acceptable environmental conditions for placing Polymer Overlay System. 4. Cure time and time to bear traffic estimates for Polymer Overlay System. 5. Storage and handling of epoxy concrete overlay components. 6. Disposal and recycling of excess epoxy concrete overlay and containers. 7. Contingency plan for possible failure during the Epoxy concrete overlay application. 8. Name of the certified independent testing laboratory. 9. Key personnel and contact information. 10. All project certifications and test results. The QCP shall designate a QC Manager who shall have full authority to institute any action necessary for the successful operation of the plan. Include instructions for repair of any surface defects, including cracking, bleeding, raveling, and delamination.
Product Label and Packaging	For each component of the product system. Labels must contain the following information as applicable: 1. Uniquely identifies the product name. 2. Address of the manufacturer. 3. Show the date of manufacture, and lot number. 4. Warning of any special handling or precautions of the material, as recommended by the manufacturer. 5. The component materials shall be clearly marked with the volume of materials in units of gallons and the product name.

Table 974-11	
Documentation	Requirements
Safety Data Sheet (SDS)	Provide SDS meeting OSHA requirements for product and manufacturers recommend installation materials as applicable. Non-Hazardous, per RCRA Subtitle C Table 1 of 40 CFR 261.24 "Toxicity Characteristic" and not exude fumes which are hazardous, toxic, or detrimental to persons or property.
Independent Laboratory Test Report	Provide independent testing conducted in accordance with the specification requirements showing that the material meets the requirements of this Section. Include documentation that indicates the in-place friction characteristics and in-place bonding of the project met requirements of Section 403.
Installation Instructions, Manufacturer's Instructions	Manufacturer's Instructions must describe detailed quality control requirements for installation including but not limited to: formulation for two or more component systems, special materials and/or equipment, recommendations for all surface preparation, and curing requirements.
Product Sample (for APL listing)	A sample may be requested to verify the product, in accordance with the specifications. If the product is a system, a sample of each component must be submitted.

974-6.3 Primer: The primer shall be compatible with the epoxy binder and meet the requirements in Table 974-12.

Table 974-12 Primer Requirements		
Property	Test Method	Requirement
Viscosity	ASTM D2556	≤100 cP
Flash Point	ASTM D3278	≥180 °F
Adhesion to Surface	ASTM C1583	≥250 psi

974-6.4 Epoxy Binder: The binder shall meet the requirements in Table 974-13.

Table 930-13 Epoxy Binder Requirements[1]		
Property	Test Method	Requirement
Viscosity	ASTM D2556	1,000 – 2,500 cP
Flash Point	ASTM D3278	≥180 °F
Gel Time	ASTM C881	≥10 minutes[2]
Compressive Strength	ASTM C579	≥1,000 psi at 3 hours ≥5,000 psi at 7 days
Tensile Strength	ASTM D638	2,000 – 7,000 psi at 7 days
Tensile Elongation	ASTM D638	30 – 80%
Adhesion to Surface[3]	ASTM C1583	≥250 psi

Notes:
1. Epoxy binders exhibit negligible penetration by chloride ion (ASTM C1202).
2. Minimum gel time of 5 minutes when automated proportioning, mixing, and dispensing equipment are used.
3. Tested with selected aggregate.

974-6.5 Aggregate: The aggregate shall be basalt, bauxite, or flint. The aggregate shall be clean, dry, and free from foreign matter. The aggregate shall meet the requirements in Table 974-14.

Table 974-14 Aggregate Requirements[1]			
Property		Test Method	Requirement
Aggregate Abrasion Value		AASHTO T96	≤30%
Aggregate Gradation	No. 4 Sieve Size	AASHTO T27	100% Passing
	No. 8 Sieve Size	AASHTO T27	30 – 75% Passing
	No. 16 Sieve Size	AASHTO T27	5% Maximum Passing
	No. 30 Sieve Size	AASHTO T27	1% Maximum Passing
Moisture Content		AASHTO T255	≤0.2%

Notes:
1. Aggregate requirements of High Friction Epoxy Concrete Overlay are listed in Table 974-10 and only use calcined bauxite.