INDIANA DEPARTMENT OF TRANSPORTATION

100 North Senate Avenue
Room N7585 CM
Indianapolis, Indiana 46204

www.in.gov/indot

Eric Holcomb, Governor
Joe McGuinness, Commissioner

APPROVED MINUTES

September 17, 2020 Standards Committee Meeting

December 3, 2020

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Minutes from the September 17, 2020 Standards Committee Meeting

The Standards Committee meeting was called to order by Mr. Pankow, Chair, at 09:05 a.m. on September 17, 2020. This meeting was conducted virtually via Microsoft *Teams*. The meeting was adjourned at 11:54 a.m.

The following voting committee members were in attendance:

Gregory Pankow, Chairman, Director, Construction Management
John Wooden, Contract Administration Division
Dave Boruff, Manager, Traffic Administration
Mark Orton, Bridge Standards and Policy
Joseph Novak, State Construction Engineer
Kumar Dave, Pavement Engineering, Highway Design
Jim Reilman, Materials Engineer, Office of Materials Management
Michael Koch, District Construction, Fort Wayne District
Elena Veksler, Highway Design and Technical Support
Kurt Pelz, Manager, Construction Technical Support
Anne Rearick*, District Production, Statewide Tech Services Support Director
**Proxy for Louis Feagans*

Also, virtual presence was captured by *Microsoft Teams* of the following:

Duncan, Thomas, FHWA
Osborn, Dan, ICI
Susong, John, Rinker Materials
Leckie, John, ACPA
Beeson, Matt, INDOT
Blanchard, Jacob, INDOT
Bruno, Joseph, INDOT
Pfeiffer, Nate, INDOT
Phillips, Elizabeth, INDOT
Plattner, Dana, INDOT
Podorvanova, Lana, INDOT
Russell, Melissa, INDOT
Seef, Erik, INDOT
Smutzer, Katherine, INDOT

Corrice, Zachariah, INDOT
Culbertson, James, INDOT
Fegan, Roland, INDOT
Fisher, Steve, INDOT
Ford, Sarah, INDOT
Fowler, Kirsten, INDOT
Brian A. Triska, Traffic Control Specialists, Inc
+2 people (Conference Room)
Trammell, Scott, INDOT
White, Peter, INDOT
Kachler, Mischa, INDOT
Frederick, Jared, INDOT
Harris, Tom, INDOT
Hauser, Derrick, INDOT
Awwad, Nathan, INDOT
Li, Shuo, INDOT
Liu, Alexander, INDOT

The following items were listed for consideration:

A. GENERAL BUSINESS ITEMS

OLD BUSINESS

(No items were listed)

NEW BUSINESS

1. *Approval of the Minutes from the August 20, 2020 meeting.*

DISCUSSION: Mr. Pankow requested a motion to approve the Minutes from the August 20, 2020 meeting.

Motion: Mr. Novak
Second: Mr. Boruff
Ayes: 10
Nays: 0

ACTION: PASSED AS SUBMITTED

B. CONCEPTUAL PROPOSAL ITEMS

OLD BUSINESS

(No items were listed)

NEW BUSINESS

(No items were listed)

C. STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS PROPOSED ITEMS

OLD BUSINESS

Item No. 7 (5/21/2020) — Mr. Novak — pg 5

105.14	Failure to Maintain Roadway, Structures, Barricades, and Construction Signs
109.05.1	Quality Adjustments
801.03	General Requirements
801.12	Temporary Pavement Marking
801.18	Basis of Payment

ACTION: PASSED AS REVISED

NEW BUSINESS

Item No. 1 — Mr. Reilman — pg 12

2020 Standard Specifications:

913.01	Water

ACTION: PASSED AS SUBMITTED

Item No. 2 — Mr. Boruff — pg 16

Recurring Special Provision:

617-T-213	HIGH FRICTION SURFACE TREATMENT

ACTION: WITHDRAWN

Item No. 3 — Mr. Novak — pg 27

2020 Standard Specifications:

SECTION 628	FIELD OFFICE, FIELD LABORATORY, COMPUTER SYSTEM, COMPUTER SYSTEM EQUIPMENT, OFFICE MACHINES AND COMMUNICATIONS (various sections)

ACTION: PASSED AS REVISED

Item No. 4 — Mr. Reilman — pg 44

Recurring Special Provision:

304-R-711	PARTIAL DEPTH AND FULL DEPTH PATCHING

2020 Standard Specifications:

401.09	Acceptance of Mixtures
401.16	Density
401.19	Pay Factors
410.05	SMA Mix Design

ACTION: PASSED AS REVISED

Item No. 5 Mr. Reilman pg 51

2020 Standard Specifications:

909.01	General Requirements
909.03	Structural Steel Coating System

ACTION: PASSED AS SUBMITTED

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cc: Committee Members
FHWA
ICI

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: During resurfacing operations roadways are open to traffic but without the permanent markings in place. The focus of this proposal is on the edge lines. With the additional work activities as part of HMA paving including fog seal, CL/EL rumbles, and grooved markings there is an extended time before the permanent markings can be placed. This increases the need for temoporary pavement markings. Several sections of the temporary marking specifcations were identified that need to be updated.

PROPOSED SOLUTION: Revise the 801 section to require edge lines to be placed and maintained on selected newly constructed pavement. Allows for QA's to assessed for markings not placed within 10 work days. This proposal clarifies the assessment of QA's to include unplaced markings, updates the reference to the ATSSA manual for traffic markings and allows for a single pass application for temporary painted markings.

APPLICABLE STANDARD SPECIFICATIONS: 105.14, 109.05, 801.03, 801.12 and 801.18

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: 503-7.03 and 503-703(01) Temporary Pavement Markings. Provides for a quantity of TPM to be included in contracts.

APPLICABLE SECTION OF GIFE: Chapter 2

APPLICABLE RECURRING SPECIAL PROVISIONS: None

PAY ITEMS AFFECTED: Increased use of Temporary Pavement Marking _____ in.
APPLICABLE SUB-COMMITTEE ENDORSEMENT: ad hoc group of Joe Novak and Tom Harris with the concurrence of the 801 subcommittee and ICI.

IMPACT ANALYSIS (attach report): Attached

Submitted By: Joe Novak

Title: State Construction Engineer

Organization: INDOT Construction Management

Phone Number: 317-232-5456
Date: 8/20/2020

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No
Will approval of this item affect the Approved Materials List? No
Will this proposal improve:

- Construction costs? No
- Construction time? No
- Customer satisfaction? Yes
- Congestion/travel time? Yes
- Ride quality? No

Will this proposal reduce operational costs or maintenance effort? No

Will this item improve safety:

- For motorists? Yes
- For construction workers? No

Will this proposal improve quality for:

- Construction procedures/processes? No
- Asset preservation? Yes
- Design process? No

Will this change provide the contractor more flexibility? No
Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? Yes
Is this proposal needed for compliance with:

- Federal or State regulations? No
- AASHTO or other design code? No

Is this item editorial? No
Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda: This proposal will provide for edge line markings to be placed in a more timely manner. This should increase driver safety. The proposal will clarify the charge of LD's for defective and missing markings.

OLD BUSINESS ITEM

REVISION TO STANDARD SPECIFICATIONS

SECTION 105 - CONTROL OF WORK
105.14 Failure to Maintain Roadway, Structures, Barricades, and Construction Signs
SECTION 109 - MEASUREMENT AND PAYMENT
109.05.1 Quality Adjustments
SECTION 801 - TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS
801.03 General Requirements
801.12 Temporary Pavement Marking
801.18 Basis of Payment

The Standard Specifications are revised as follows:

SECTION 105, BEGIN LINE 531, INSERT AS FOLLOWS:

The Contractor may be assessed damages for failure to maintain the required traffic control devices *or markings*, except for construction warning lights, in accordance with 801.03. For each day, or portion thereof, during which a type of traffic control device *or marking* is in non-compliance, damages will be assessed at a rate of $40.00 for each day, per non-compliant unit within a device *or marking*. If the pay unit for a traffic device is per day, the damage assessment will equal twice the unit price.

SECTION 109, BEGIN LINE 821, DELETE AND INSERT AS FOLLOWS:

(c) Temporary Traffic Control Devices *and Markings*, TTCD

Quality adjustments ~~with respect to non-compliance with the ATSSA brochure titled Standards for Work Zone Traffic Control Devices~~ will be assessed when the device is deemed to be in non-compliance in accordance with 801.03. Adjustments will be determined in accordance with 105.14.

SECTION 801, BEGIN LINE 131, DELETE AND INSERT AS FOLLOWS:

Except for construction warning lights and temporary signals, the ATSSA brochure titled *"*Quality ~~Standards~~*Guidelines* for Work Zone Traffic Control Devices *and Features"* will be used a guide to determine if temporary traffic control devices *and markings* are Acceptable, Marginal or Unacceptable ~~as defined in the brochure~~. Upon initial setup and phase changes of temporary traffic control devices, all individual devices shall be of the Acceptable classification. A device not completely covered or removed when the message does not apply or when directed, will be considered unacceptable.

A temporary traffic control device will be deemed to be in non-compliance when considered Unacceptable. A type of temporary control device will be deemed to be in non-compliance when 25% or more of the individual devices are considered Marginal. Damages may be assessed in accordance with 105.14 for non-compliance.

Within 10 work days o~~O~~n HMA open to traffic, the edge lines shall be placed and shall be maintained until the next lift of HMA is placed or the permanent lines are placed, as appropriate. On PCCP open to traffic, the edge lines shall be placed, within 10 work days, and shall be maintained until the permanent lines are placed, as appropriate.

OLD BUSINESS ITEM

REVISION TO STANDARD SPECIFICATIONS

SECTION 105 - CONTROL OF WORK
105.14 Failure to Maintain Roadway, Structures, Barricades, and Construction Signs
SECTION 109 - MEASUREMENT AND PAYMENT
109.05.1 Quality Adjustments
SECTION 801 - TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS
801.03 General Requirements
801.12 Temporary Pavement Marking
801.18 Basis of Payment

~~*A temporary pavement marking will be deemed in non-compliance when considered Unacceptable or does not meet 808.07. Edge lines not placed within 10 work days of opening a segment of pavement to traffic will be deemed in non-compliance with a quality assurance unit of 5,000 lft. Placing the next lift of HMA will restart the counting of work days for the segment placed.*~~

A quality assurance unit for placed longitudinal temporary pavement markings shall be 500 lft on marked pavement in any combination or pattern, or portion thereof. A quality assurance unit for transverse marking, message, or symbol shall be each.

When longitudinal durable markings are specified ~~in the contract~~, a quality assurance unit for longitudinal temporary markings shall be 5,000 lft for markings that have not been placed.

Damages may be assessed in accordance with 105.14 for non-compliance. Damages for temporary pavement markings will not be assessed for patches less than 200 ft in length.

SECTION 801, BEGIN LINE 550, DELETE AND INSERT AS FOLLOWS:

801.12 Temporary Pavement Marking

Temporary pavement markings shall be new materials placed in accordance with 808.04, and 808.05. However, when temporary markings are to be in place for ~~14 calendar~~*10 work* days or less the dashed line pattern used on center line and lane lines may be 4 ft line segments on 40 ft centers and gore areas shall be marked by outline only and may be 5 in. wide lines. No-passing zones on all undivided two-way roadways shall be identified with signs and centerline markings. *Markings shall remain clearly visible during the day and night for a minimum of 200 ft ahead of a vehicle.* All temporary markings shall be maintained and replaced until they are no longer applicable.

SECTION 801, BEGIN LINE 592, DELETE AND INSERT AS FOLLOWS:

(a) Temporary Pavement Marking Methods

Pavement markings shall be installed in accordance with 808.07 except that measurement of retro-reflectivity is not required by the Contractor and quality adjustments ~~as per~~*in accordance with 808.07* will not apply. All other performance measures shall apply.

1. Paint

~~Painted markings shall require a second application of paint and beads as soon as practical after the first application is dry~~*Temporary edge lines ~~shall~~ may shall be painted*

OLD BUSINESS ITEM

REVISION TO STANDARD SPECIFICATIONS

SECTION 105 - CONTROL OF WORK
105.14 Failure to Maintain Roadway, Structures, Barricades, and Construction Signs
SECTION 109 - MEASUREMENT AND PAYMENT
109.05.1 Quality Adjustments
SECTION 801 - TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS
801.03 General Requirements
801.12 Temporary Pavement Marking
801.18 Basis of Payment

markings. When traffic is in the final pattern, the temporary edge lines shall be placed at the same location as the permanent markings.

SECTION 801, BEGIN LINE 642, DELETE AS FOLLOWS:

~~**(b) Quality Assurance Unit**~~

~~A quality assurance unit for longitudinal line shall be 500 lft on marked pavement in any combination or pattern, or portion thereof. A quality assurance unit for transverse marking shall be each. If a marking fails to be in accordance with the marginal standard as defined in the ATSSA Quality Standards for Work Zone Traffic Control Devices, the quality assurance assessment will be assessed in accordance with 801.03.~~

SECTION 801, BEGIN LINE 1164, DELETE AS FOLLOWS:

~~The cost of the second application of paint and beads for painted temporary markings shall be included in the cost of the first application of painted temporary pavement markings.~~

OLD BUSINESS ITEM

COMMENTS AND ACTION

105.14 Failure to Maintain Roadway, Structures, Barricades, and Construction Signs
109.05.1 Quality Adjustments
801.03 General Requirements
801.12 Temporary Pavement Marking
801.18 Basis of Payment

DISCUSSION:

This item was introduced and presented by Mr. Novak who explained that the focus of this proposal is on the edge lines. With the additional work activities as part of HMA paving including fog seal, CL/EL rumbles, and grooved markings, there is an extended time before the permanent markings can be placed. This increases the need for temporary pavement markings. Several sections of the temporary marking specifications were identified that need to be updated.

Mr. Novak stated that this proposal will provide for edge line markings to be placed in a more timely manner, and should increase driver safety. The proposal will also clarify the charge of LD's for defective and missing markings.

Mr. Koch asked if the 5,000 ft threshold is correct for durable markings since temporary markings is 5oo ft. Mr. Koch also asked if we are requiring temporary paint and then over spraying with permanent paint. Or are we not requiring edge lines establishment within 10 work days for projects which require permanent paint if the site has low ADT?

Mr. Koch also inquired if we should modify the language in 801.12 (a) 1. to include “pavement marking material”, or do we care if the markings are paint?

Mr. Harris explained that currently 801.12(b) defines a quality assurance unit for placed markings as 500 lft, but does not provide for markings that have not been placed. This spec change is intended to apply the 5,000 lft threshold for quality adjustments to lines that have not been placed only on contracts with a higher ADT that have durable longitudinal markings. We chose 5,000 lft for the threshold because charging QA’s on each 500 lft section would quickly become very excessive. This proposal is tied into contracts with durable markings to avoid requiring temporary edge lines on all contracts and overextending our marking subcontractor’s capacity to temporary paint. And for the surface course, by spec, durable markings are always grooved in, and the grooving will remove the temporary paint and avoid the potential warranty issue caused by placing the permanent durable markings on temporary paint.

In an effort to avoid any further confusion, Mr. Koch proposed a revision to the language as shown highlighted above. Mr. Novak agreed.

Further discussion ensued as to whether or not edge lines are appropriate. Ms. Veksler stated that MOT, which includes temporary markings, is normally shown on the plans.

Mr. Novak revised his motion and this item passed as revised.

OLD BUSINESS ITEM

COMMENTS AND ACTION

105.14 Failure to Maintain Roadway, Structures, Barricades, and Construction Signs
109.05.1 Quality Adjustments
801.03 General Requirements
801.12 Temporary Pavement Marking
801.18 Basis of Payment

[continued]

Motion: Mr. Novak Second: Mr. Dave Ayes: 10 Nays: 0 FHWA Approval: YES	Action:	
	___	Passed as Submitted
	X	Passed as Revised
	___	Withdrawn
Standard Specifications Sections referenced and/or affected: 105.14 pg 55; 109.05.1 pg 117; 801.03 pg 813, 801.12 pg 823, 801.18 pg 836.	X	2022 Standard Specifications
	___	Revise Pay Items List
Recurring Special Provision references in: NONE	X	Create RSP (No .801-T-128[1]) Effective: March 1, 2021 RSP Sunset Date: BFU: "Required for all contracts with an 808-12032 *Grooving for Pavement Markings* pay item."
Standard Drawing affected: NONE	___	Revise RSP (No.___) Effective: RSP Sunset Date:
Design Manual Sections affected: 503-7.03 and 503-703(01) Temporary Pavement Markings. Provides for a quantity of TPM to be included in contracts.	___	Standard Drawing Effective:
GIFE Sections cross-references: Section 2	___	Create RPD (No. ___) Effective:
	X	GIFE Update
	___	SiteManager Update

[1] *corrected RSP number*

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Water material specification needs a few updates. INDOT is required to test non-potable water and this has resulted in confusion with what internal department should test it and getting timely results back to the contractor.

PROPOSED SOLUTION: Put the contractor in control of testing non-potable water.

APPLICABLE STANDARD SPECIFICATIONS: 913.01

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: None

APPLICABLE SECTION OF GIFE: None

APPLICABLE RECURRING SPECIAL PROVISIONS: NA

PAY ITEMS AFFECTED: None

APPLICABLE SUB-COMMITTEE ENDORSEMENT: DTE's, Mike Koch, Jim Reilman

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT, Office of Materials & Tests

Phone Number: 317-522-9692

Date: 8/27/2020

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? Yes
Will approval of this item affect the Approved Materials List? No
Will this proposal improve:

Construction costs? No

Construction time? Yes

Customer satisfaction? N/A

Congestion/travel time? N/A

Ride quality? N/A

Will this proposal reduce operational costs or maintenance effort? N/A

Will this item improve safety:

For motorists? N/A

For construction workers? N/A

Will this proposal improve quality for:

Construction procedures/processes? N/A

Asset preservation? N/A

Design process? N/A

Will this change provide the contractor more flexibility? Yes

Will this proposal provide clarification for the Contractor and field personnel? N/A

Can this item improve/reduce the number of potential change orders? N/A

Is this proposal needed for compliance with:

Federal or State regulations? No

AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

REVISION TO STANDARD SPECIFICATIONS

SECTION 913 - SOIL TREATMENT MATERIALS
913.01 WATER

The Standard Specifications are revised as follows:

SECTION 913, BEGIN LINE 3, DELETE AND INSET AS FOLLOWS:

913.01 Water

Water ~~used in mixing or curing~~ shall be ~~reasonably~~ clean and free of oil, *algae,* salt, acid, alkali, sugar, vegetable, or other substance injurious to the finished product. *Where the source of water is relatively shallow, the intake shall be so enclosed as to exclude silt, mud, grass, or other foreign materials.* ~~The following w~~*W*ater ~~properties will~~*shall* be tested in accordance with~~*according to*~~ the test methods listed in ~~a~~*the* table below. T*o be acceptable for use, t*he results of the water ~~properties~~*testing* shall be *in accordance with the results* as follows:

Property	Test Method	Result
pH	ASTM D 1293	6.*0* to 8.*0*
Chloride Ions	ASTM D 512	less than 300 ppm
Sulfate (SO_4)	ASTM D 516	less than 500 ppm
Total Solids	ASTM C 1603	less than 1,500 ppm

A type A certification in accordance with 916 shall be provided for non-potable sources. The results of the tests listed in the table above shall be provided on the certification.

~~In addition, water containing algae will be unacceptable for use in concrete.~~ Water known to be of potable quality may be used without test*ing*.~~Where the source of water is relatively shallow, the intake shall be so enclosed as to exclude silt, mud, grass, or other foreign materials.~~

COMMENTS AND ACTION

913.01 WATER

DISCUSSION:

Mr. Reiman introduced and presented this item stating that the 913 water material specification needs a few updates. The Department is required to test non-potable water which has resulted in confusion as to which internal department should test it and in getting timely results back to the Contractor.

Mr. Reilman therefore proposes to revise 913 to put the Contractor in control of testing non-potable water.

Mr. Reilman said that this item is intended to go straight in to the 2022 spec book and that no RSP is necessary.

There was no further discussion and this item passed as submitted with shown editorial change: such as reinstatement of the "in accordance with".

Motion: Mr. Reilman Second: Mr. Novak Ayes: 10 Nays: 0 FHWA Approval: YES	Action:	
	X	Passed as Submitted
	___	Passed as Revised
	___	Withdrawn
Standard Specifications Sections referenced and/or affected: 913.01 pg 1036.	X	2022 Standard Specifications
	___	Revise Pay Items List
Recurring Special Provision references in: NONE	___	Create RSP (No.___) Effective: RSP Sunset Date:
Standard Drawing affected: NONE	___	Revise RSP (No.___) Effective: RSP Sunset Date:
Design Manual Sections affected: NONE	___	Standard Drawing Effective:
GIFE Sections cross-references: NONE	___	Create RPD (No. ___) Effective:
	___	GIFE Update
	X	SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The JTRP research project on the Investigation into the Durability and Performance of High Friction Surface Treatments, SPR-4300, is nearly complete and has identified several improvements for the high friction surface treatment recurring special provision based on the results of the first statewide high friction surface treatment contract, T-40130. Improvements are needed to the material requirements, minimum application temperature, surface preparation, and acceptance testing.

PROPOSED SOLUTION: Implement the recommended changes by the research to the high friction surface treatment recurring special provision. The material requirements for the polymeric resin binder and calcined bauxite would be adjusted, the minimum application temperature would be increased from 60°F to 65°F, the maximum crack width that can be filled without patching would be changed from 1.75 in. to 0.50 in., and the acceptance testing requirements would be adjusted to match the equipment at INDOT's Research Division.

APPLICABLE STANDARD SPECIFICATIONS: 617

APPLICABLE STANDARD DRAWINGS: No

APPLICABLE DESIGN MANUAL SECTION: No

APPLICABLE SECTION OF GIFE: No

APPLICABLE RECURRING SPECIAL PROVISIONS: RSP 617-T-213

PAY ITEMS AFFECTED: No

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Review by SAC Members and Principal Investigator for SPR-4300 on the Investigation into the Durability and Performance of High Friction Surface Treatment.

IMPACT ANALYSIS (attach report): Yes

Submitted By: Joe Bruno on behalf of Dave Boruff

Title: Sr. Engineer of Signals & Markings

Organization: INDOT

Phone Number: (317) 234-7949
Date: 8/24/2020

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No
Will approval of this item affect the Approved Materials List? No
Will this proposal improve:

Construction costs? No

Construction time? No

Customer satisfaction? Yes

Congestion/travel time? No

Ride quality? Yes

Will this proposal reduce operational costs or maintenance effort? Yes

Will this item improve safety:

For motorists? Yes

For construction workers? N/A

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? Yes

Design process? N/A

Will this change provide the contractor more flexibility? No

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? No

Is this proposal needed for compliance with:

Federal or State regulations? No

AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda: N/A

617-T-213 HIGH FRICTION SURFACE TREATMENT

(Adopted 05-19-16)

The Standard Specifications are revised as follows:

SECTION 617, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 617 – ~~BLANK~~*HIGH FRICTION SURFACE TREATMENT*

617.01 Description

This work shall consist of applying a high friction surface treatment, HFST, on asphalt or concrete pavement to enhance the skid resistance in accordance with 105.03.

The HFST shall be composed of calcined bauxite aggregate bound with a polymeric resin.

617.02 Materials

Materials shall be in accordance with the following:

(a) General

The Contractor shall provide a type A certification in accordance with 916 and test reports from an independent laboratory for both the polymeric resin binder and aggregate stating that the materials meet the requirements listed in accordance with 617.02(b) and 617.02(c), respectively, at least 14 days prior to application.

Materials shall be stored in a clean, dry environment and in accordance with the manufacturer's recommendations.

Material safety data sheets, product data sheets, and other information pertaining to the safe practices for the storage, handling, and disposal of the materials, and their health hazards shall be obtained from the manufacturer and posted at the material storage areas. A copy of such information shall be provided to the Engineer.

(b) Polymeric Resin Binder

The polymeric resin binder shall consist of a two part thermosetting polymer resin compound which holds the aggregate firmly in position, and in accordance with the following:

POLYMERIC RESIN BINDER MATERIAL PROPERTIES REQUIREMENTS		
Property	*Test Method*	*Requirements*
Adhesion Strength, psi @ 24 hrs	*ASTM C 1583*	*250 minimum or 100% substrate failure*
Compressive Strength, psi, minimum	*ASTM C 579, Method B*	*1,000 (3 hours) 5,000 (7 days)*

Cure Rate (Dry through time), hours	*ASTM D 1640, 55 mil wet thickness @ 75°F*	*3 maximum*
Durometer Hardness (Shore D)	*ASTM D 2240, Type 1 precision type D method*	*60 – ~~80~~75 (7 days, 73°F)*
Elongation at Break Point, %	*ASTM D 638, Type I specimens*	*~~30~~40 – 80 (7 days, 73°F)*
Gel Time for concrete surfaces, minutes	*ASTM C 881 AASHTO M 235*	*10 minimum*
Mixing Ratio	*Provide manufacturer's recommendations a minimum of 14 days prior to application*	*Per manufacturer*
Modulus @ ~~77~~73°F, psi	*ASTM C 881 (7 days)*	*≤ ~~90~~100,000 (asphalt) ≤ 130,000 (concrete)*
Ultimate Tensile Strength, psi	*ASTM D 638, Type I specimens*	*1,500 - 5,000 (7 days)*
Viscosity, poises @ 10 minutes	*ASTM D 2556*	*7 - 30*
Water Absorption, %	*ASTM D 570*	*1 maximum*

The binder test specimens shall be cured for seven days at 73 ± 2°F, and tested immediately upon curing.

(c) Aggregate

The aggregate shall be calcined bauxite that is clean, dry, free from foreign matter, and in accordance with the following:

CALCINED BAUXITE AGGREGATE MATERIAL REQUIREMENTS		
Property	*Test Method*	*Requirements*
Aluminum Oxide, %	*ASTM C 25*	*87 minimum*
Gradation *Sieve Designation:* *No. 4 (4.75 mm)* *No. 6 (3.35 mm)* *No. 16 (1.18 mm)* *No. 30 (0.6 mm)*	*AASHTO T 27*	*Percent Passing:* *100* *95.0-100.0* *0.0-5.0* *0.0-1.0*
~~Hardness~~	*~~Moh's Scale~~*	*~~8 minimum~~*
LA Abrasion Loss, % (C Grading)	*AASHTO T 96*	*12.5 maximum*
Micro-D~~u~~eval Abrasion Loss, % (NMAS-9.5 mm)	*AASHTO T 96*	*~~10 maximum (C grading)~~ 5.5*
Moisture Content, %	*AASHTO T 255*	*0.2 maximum*
Minimum Polish~~ed Stone~~ Value, PV-10 (NAS-9.5 mm, main scale)	*AASHTO T 279*	*~~38-44~~59*
~~Sodium Sulfate Soundness, %~~	*~~AASHTO T 104~~*	*~~12 maximum~~*

(d) Quality Control Plan

The Contractor shall submit a Quality Control Plan, QCP, to the Engineer for approval at least 14 days prior to application. The QCP shall show proposed methods to control the equipment, materials, mixing, and paving operations to ensure conformance with these specifications. The QCP shall contain, at a minimum, the following information:

1. *Key personnel with contact information.*

2. *Polymeric resin production plants, location of plants, personnel qualifications, inspection and record keeping methods, equipment calibration records, and accreditation certificates.*

3. *Aggregate production plant locations, personnel qualifications, inspection and record keeping methods, equipment calibration records, and accreditation certificates.*

4. *Mix design in accordance with the manufacturer's recommendations.*

5. *Moisture control methods of aggregate.*

6 *List of manufacturer recommendations for storage of material, weather restrictions, working and set-up time, curing time, and opening to traffic.*

7. *Cleaning and maintenance schedule for truck mounted application machine, including metering and monitoring devices.*

8. *Corrective actions that shall be taken for unsatisfactory construction practices and deviations from specifications.*

9. *A technical expert from the polymeric resin manufacturer shall be on call or on site for the startup operations to advise construction personnel in placing the HFST.*

10. *The QCP shall designate a QC Manager. The QC Manager shall be on the jobsite at all times during placement of the HFST.*

The QC Manager shall be responsible for the required field quality control sampling and testing in conformance with the approved quality control plan and contract documents. All sampling shall be performed in the presence of and in locations as directed by the Engineer. The Contractor shall maintain and make available upon request complete

records of sampling, testing, actions taken to correct problems, and quality control inspection results.

CONSTRUCTION REQUIREMENTS

617.03 Truck Mounted Application Machine

The HFST application machine shall be capable of the uniform application of the binder and aggregate at a minimum continuous application rate of 2300 sq yd/h.

617.04 Weather Restrictions

The polymeric resin binder material shall be applied on dry surfaces, between ~~April~~May 1 and ~~October 31~~September 30, when the ambient temperature is at least ~~60~~65°F and rising, but no more than ~~105~~100°F~~, unless the polymeric resin manufacturer can provide test data to support installation outside these ranges~~.

The HFST materials shall not be placed when rain is forecast during application or curing. There shall be no visible moisture present on the surface of the pavement at the time of application of the HFST. A plastic sheet, 18 in. by 18 in. that is left taped in place for a minimum of two hours, in accordance with ASTM D 4263, shall be used to identify moisture in the pavement.

617.05 Preparation

Roadway patching shall be performed in accordance with 304 for asphalt pavement and 506 for PCCP.

All inadequately sealed joints and cracks 1/4 to ~~1 3/4~~1/2 in. wide shall be cleaned and filled with a sealant approved by the polymeric resin manufacturer, which will bond to the specified polymeric resin binder. Cracks shall be blown clean using a compressed air lance. The cleaned cracks shall be filled with the approved sealant such that the surface is flush with the pavement.

The Contractor shall protect utilities, drainage structures, curbs, and any other structure within or adjacent to the area to be treated. The Contractor shall cover and protect all bridge expansion joint devices, existing pavement markings, preformed joint seal, raised pavement markers, and vehicle detection materials that will remain prior to HFST application.

HFST applied on either new HMA or new PCCP surface or patches in a contract, shall be applied at least 30 days after placement of the underlying pavement.

All receiving surfaces shall be clean, dry and free of dust, oil, debris and other material that might interfere with the bond between the polymeric resin binder material and existing surfaces.

Existing PCCP surfaces shall be cleaned by shot blasting to remove all curing

compounds, loosely bonded mortar, surface carbonation, and deleterious material. The prepared surface shall comply with the International Concrete Repair Institute, ICRI, standard for surface roughness CSP 5. After shot blasting, air wash, with a minimum of 180 cu ft/min of clean and dry compressed air, to remove all dust, debris, and deleterious material. The Contractor shall maintain the air lance perpendicular to the surface and the tip of the air lance within 12 in. of the surface.

Existing HMA surfaces shall be air washed with a minimum of 180 cu ft/min of clean and dry compressed air to remove all dust, debris, and deleterious material. The Contractor shall maintain the air lance perpendicular to the surface and the tip of the air lance within 12 in. of the surface.

The Contractor shall obtain approval from the Engineer to proceed with installation upon completion of surface preparation.

617.06 Test Section

For quantities greater than 1,000 sq yds, a minimum test section of 200 sq yds shall be applied within the contract to demonstrate the truck mounted application machine has been properly calibrated. This test section shall be considered part of the HFST quantity on the contract. The Contractor shall correct any deficient areas before opening to traffic as directed by the Engineer at no additional cost. The test section shall be opened to traffic only after curing has completed, and no uncovered polymeric resin remains exposed. The field conditions, including ambient and surface temperatures, anticipated for the production work shall be replicated during the test. The Contractor shall document the settings on the applicator equipment, initial quantities of polymer binder resin and aggregate topping, and unused quantities of resin and aggregate topping remaining in the applicator equipment after applying the HFST. The "dry through time" for the polymer binder resin system shall be noted. The test notes shall be provided to the Engineer.

617.07 HFST Application

A self-propelled, fully automated truck mounted application machine shall be used. Automated applications shall be completed in one course for widths up to 12 ft.

(a) Binder Application

The binder components shall be mixed proportionally in accordance with the manufacturer's recommended ratio. The polymeric resin binder shall be applied by a truck mounted application machine onto the pavement section to be treated. The binder shall be applied at a uniform application rate of 3.5 sq yd/gal. with a uniform thickness of 50 mils onto the pavement. The binder shall not separate in the mixing lines, cure, dry, chill, set up, or otherwise impair retention bonding of the high friction surfacing aggregate. No seams shall be visible in the middle of the traffic lanes of the finished work after application of the surface aggregate.

(b) Aggregate Application

The aggregate shall be applied by the same truck mounted application machine,

which includes an aggregate drop or broadcast spreader, immediately after placing the polymeric resin binder. The Contractor shall not use chip spreaders, vehicle tires, rollers, vibratory compactors or devices that throw loose aggregate onto any part of the live roadway lanes for applying the aggregate onto the wet uncured resin. Recovered bauxite aggregate may only be reused once and shall be blended with new bauxite at a rate of two parts of new bauxite to one part of recovered bauxite. The aggregate shall be applied uniformly to ensure complete coverage of the wet polymeric resin binder and result in a retained rate of 11 to 15 lbs/sq yd. No exposed polymeric resin shall remain visible on the surface.

617.08 Curing and Clean Up

The HFST shall be allowed to cure in accordance with the polymeric resin manufacturer recommendations. Two separate clean up processes shall be performed by removing the excess aggregate on the treated area and adjacent areas. The Contractor shall perform the initial clean up before opening to traffic. A secondary clean up shall be performed three to five days after construction.

617.09 Field Acceptance Testing

The Contractor shall remove and re-apply HFST where any patches of exposed polymeric resin exist, or where the HFST separates from the pavement at no additional cost. The HFST treated area will be tested at the discretion of the Engineer, within ~~60~~90 days after construction in accordance with the requirements in the following tables. Deficient locations shall be repaired or replaced as directed by the Engineer.

FIELD ACCEPTANCE TESTING REQUIREMENTS			
Property	*Requirement, minimum*	*Frequency*	*Test Method*
~~FN40R (Corrected Field FN)~~	*~~72~~*	*~~Every 0.1 mile in each lane~~*	*~~ASTM E 274 (Ribbed tire)~~*
~~Field Dynamic~~Friction Number ~~Value~~ (~~12~~40 mph)*	*~~0.90~~80*	*1 per location, or 1 every 1,500 lane-feet, whichever is shorter, between 24 h and 72 h after HFST application*	*ASTM E ~~1911~~ 274 (Smooth tire)*
Mean Profile Depth, ~~in~~mm.*	*~~1.0~~ 1.5*	*1 per location, or 1 every 1,500 lane-feet, whichever is shorter*	*ASTM E 2157*
** Denotes an optional test.*			

~~SPEED CORRECTION FACTORS for ASTM E 274 Testing Using a Ribbed Tire~~					
~~Test Speed (mph)~~	*~~FN Correction~~*	*~~Test Speed (mph)~~*	*~~FN Correction~~*	*~~Test Speed (mph)~~*	*~~FN Correction~~*
~~20~~	*~~-9.3~~*	*~~30~~*	*~~-4.8~~*	*~~40~~*	*~~0.0~~*
~~21~~	*~~-8.9~~*	*~~31~~*	*~~-4.4~~*	*~~41~~*	*~~0.5~~*
~~22~~	*~~-8.4~~*	*~~32~~*	*~~-3.9~~*	*~~42~~*	*~~1.0~~*

~~23~~	~~-8.0~~	~~33~~	~~-3.4~~	~~43~~	~~1.5~~
~~24~~	~~-7.6~~	~~34~~	~~-2.9~~	~~44~~	~~2.0~~
~~25~~	~~-7.1~~	~~35~~	~~-2.5~~	~~45~~	~~2.5~~
~~26~~	~~-6.7~~	~~36~~	~~-2.0~~	~~46~~	~~3.1~~
~~27~~	~~-6.2~~	~~37~~	~~-1.5~~	~~47~~	~~3.6~~
~~28~~	~~-5.8~~	~~38~~	~~-1.0~~	~~48~~	~~4.1~~
~~29~~	~~-5.3~~	~~39~~	~~-0.5~~	~~49~~	~~4.6~~

617.10 Method of Measurement

High friction surface treatment will be measured by the square yard, complete in place. The width for measurement will be the width of the top surface as shown on the plans or directed by the Engineer.

Patching will be measured in accordance with 304.06 for asphalt pavement and 506.12 for PCCP.

Pavement marking removal will be measured in accordance with 808.12.

617.11 Basis of Payment

The accepted quantity of the high friction surface treatment will be paid for at the contract unit price per square yard.

Patching will be paid for in accordance with 304.07 for asphalt pavement and 506.13 for PCCP.

Pavement marking removal will be paid for in accordance with 808.13.

Payment will be made under:

Pay Item ***Pay Unit Symbol***

High Friction Surface Treatment..... SYS

The cost of all materials, equipment, preparation, and testing necessary to apply and clean-up the high friction surface treatment shall be included in the cost of high friction surface treatment.

COMMENTS AND ACTION

617-T-213 HIGH FRICTION SURFACE TREATMENT

DISCUSSION:

This item was introduced and presented by Mr. Boruff, assisted by Mr. Bruno, who explained that the JTRP research project on the Investigation into the Durability and Performance of High Friction Surface Treatments, SPR-4300, is nearly complete and has identified several improvements for the high friction surface treatment recurring special provision based on the results of the first statewide high friction surface treatment contract, T-40130. Improvements are needed to the material requirements, minimum application temperature, surface preparation, and acceptance testing.

Mr. Boruff Proposed to implement the recommended changes by the research to the high friction surface treatment recurring special provision. The material requirements for the polymeric resin binder and calcined bauxite would be adjusted, the minimum application temperature would be increased from 60°F to 65°F, the maximum crack width that can be filled without patching would be changed from 1.75 in. to 0.50 in., and the acceptance testing requirements would be adjusted to match the equipment at the Department's Research Division.

Mr. Koch asked if the temperature range is established in 617.04, then do we need the fixed dates? Mr. Bruno answered that yes, the temperature restrictions are sufficient and the calendar cut-off dates may be removed.

Mr. Koch also asked if all cracks wider than 1/2 in. are to be patched or does the resin fill the void provided the HMA is otherwise in suitable condition? Mr. Bruno responded that the research findings from SPR-4300 indicate that the current limit of 1.75 in. is too high. The resin will hide a crack up to 1.75 in. in the short-term but does not do much to prevent these larger cracks from spreading. Language has been added for clarification.

Mr. Koch stated that waiting 30 days significantly impacts schedules, especially for sites which require patching. With the inclusion of the word 'new' I assume any patching would require the lag; is this correct or can certain products be used sooner? For example 738 requires a 28 day cure for concrete patching material but does not limit rapid setting patching material. Mr. Bruno responded that the 30 day cure time is based on conventional patching materials being used, and that a shorter window could be allowed for rapid setting materials on PCCP patches. Added language is as shown highlighted above.

In response to Mr. Koch's inquiry about the language in 617.09, Mr. Bruno stated that INDOT's Research Division is responsible for conducting the acceptance testing. As a result, the use of "will" is appropriate and that an update to the Frequency Manual for HFST is needed.

Mr. Koch asked, if our goal is to check for aggregate loss after an extended time frame, should that be stated? We wouldn't want to inadvertently close the contract early once other testing has been completed.
Mr. Shuo Li provided further explanation as to the 90 days specified in 617.09 in order to ensure product stability.
Following further discussion, revisions to 617.09 concerning the 90 days review period are as shown.

Mr. Plattner inquired about the weather restrictions in 617.04, asking if the resin manufacturer is recommending installation within certain temperature ranges, do we need to ask for test results to support their recommendation?

Mr. Shuo Li responded that, the language stating "... *unless the polymeric resin manufacturer can provide test data to support installation outside these ranges*", may cause confusions. Construction plays a critical role in maintaining the durability of HFST. Epoxy resin systems can be applied at temperatures even lower than 60°F, which theoretically affects the cure time only. However, curing at low temperatures tend to result in greater variation in the binder system. In addition, curing at low temperatures requires much more time for traffic control, which is commonly not practical. We have already observed aggregate loss and surface wrinkling at those HFST sites installed at low temperatures. The proposed revision, "*when the ambient temperature is at least 65°F and rising, but no more than 100°F*" should be sufficient to address the possible issues.

COMMENTS AND ACTION

617-T-213 HIGH FRICTION SURFACE TREATMENT

There was much discussion concerning the temperature, whether it should be ambient or surface temperature. This discussion was not resolved at this time, so Mr. Boruff withdrew this item pending further review.

Motion: Mr. Boruff Second: Mr. Dave Ayes: Nays: FHWA Approval:	Action: ___ Passed as Submitted ___ Passed as Revised _X_ Withdrawn
Standard Specifications Sections referenced and/or affected: NONE	___ 2022 Standard Specifications ___ Revise Pay Items List
Recurring Special Provision references in: 617-T-213 HIGH FRICTION SURFACE TREATMENT	___ Create RSP (No.___) Effective: RSP Sunset Date:
Standard Drawing affected: NONE	___ Revise RSP (No.___) Effective: RSP Sunset Date:
Design Manual Sections affected: NONE	___ Standard Drawing Effective:
GIFE Sections cross-references: NONE	___ Create RPD (No. ___) Effective: ___ GIFE Update ___ SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The current SS 628 for Field Office is out of date in regards to various matters related to the field office needs.

PROPOSED SOLUTION: Revise the SS 628 to update the specification to reflect current needs and technology and provide more clarity as to what is required.

APPLICABLE STANDARD SPECIFICATIONS: 628

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: N/A

PAY ITEMS AFFECTED: Adding pay item for Telephone Service; renaming field office pay items.

APPLICABLE SUB-COMMITTEE ENDORSEMENT: N/A

IMPACT ANALYSIS (attach report): See Below.

Submitted By: Joe Novak

Title: State Construction Engineer

Organization: INDOT

Phone Number:

Date: 8/4/20

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? NO
Will approval of this item affect the Approved Materials List? NO
Will this proposal improve:

- Construction costs? NO
- Construction time? NO
- Customer satisfaction? NO
- Congestion/travel time? NO
- Ride quality? NO

Will this proposal reduce operational costs or maintenance effort? NO

Will this item improve safety:

- For motorists? NO
- For construction workers? YES

Will this proposal improve quality for:

- Construction procedures/processes? NO
- Asset preservation? NO
- Design process? NO

Will this change provide the contractor more flexibility? NO

Will this proposal provide clarification for the Contractor and field personnel? YES

Can this item improve/reduce the number of potential change orders? NO

Is this proposal needed for compliance with:

- Federal or State regulations? NO
- AASHTO or other design code? NO

Is this item editorial? NO

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

The Standard Specifications are revised as follows:

SECTION 628, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 628 – FIELD OFFICE, ~~FIELD LABORATORY,~~ COMPUTER SYSTEM, COMPUTER SYSTEM EQUIPMENT, OFFICE MACHINES AND COMMUNICATIONS

628.01 Description

This work shall consist of providing the specified facilities, equipment, supplies and services in accordance with 105.03.

628.02 Field Office ~~and Laboratory~~ Requirements

When specified, the Contractor shall provide a field office, computer systems, computer system equipment, office machines, ~~field laboratory,~~*telephone service and equipment*, services, equipment and supplies for the Department's exclusive use in accordance with the minimum requirements listed below.

All equipment shall be covered by normal manufacturer's warranties. All cellular telephone units, computer systems, *telephone~~(s)~~ and voice mail systems*, office machines and associated equipment provided by the Contractor will remain the property of the Contractor and will be returned to the Contractor upon completion of the contract.

(a) Field Office

The field office shall be located as mutually agreed by the Engineer and the Contractor. If a building exists within the limits of the right-of-way that is acceptable as a field office and the building is scheduled to be removed under the terms of the contract, the building may be equipped and furnished as the field office. A building within the right-of-way that is furnished under this specification shall be removed prior to the date of the last work and other acceptable facilities for the field office shall then be provided.

The field office may be a permanent building or a trailer and shall be of the type shown on the Schedule of Pay Items. The building or trailer furnished for the field office shall be in accordance with all applicable State and local codes and applicable IOSHA/OSHA requirements.

The field office shall be complete and ready for use by the Department, including all utility connections, office machines, internet service, equipment and supplies, prior to the start of work. If the Contractor is unable to provide the permanent field office prior to the start of the work, the Engineer shall be notified in writing and the Contractor and the Engineer will agree on temporary field office arrangements prior to the start of work. A temporary field office will not be accepted by the Department for more than two months, at which time a permanent field office shall be ready for the Department's use.

The field office shall at a minimum be the size listed below for the type field office specified.

~~1. Type A~~*I* ~~400~~*460* ~~sq ft~~
~~*2. Type II 650 sq ft*~~
~~2~~*3.* ~~Type B~~*III* ~~550~~*1,000* ~~sq ft~~
~~3~~*4.* ~~Type C~~*IV* ~~650~~*2,200* ~~sq ft.~~
1. *Type A – 460 sq ft*
2. *Type C – 650 sq ft*
3. *Type D – 1,000 sq ft*
4. *Type E – 2,200 sq ft.*

Minimum dimensions shall be 8 ft wide and 7 ft in height, from floor to ceiling. For a trailer, the calculation of minimum area will be based on the exterior box dimensions.

The office shall have a solid and level floor with no holes, a weatherproof roof and shall be dust-proof, and wind-tight. The field office shall have at least two doors for ingress and egress and shall have a minimum of six windows for a ~~t~~*Type* ~~*I*~~*A* or ~~*AII A*~~*C* field office and eight windows for a ~~t~~*Type* ~~*BIII B*~~*D* or ~~*CIV C*~~*E* field office, not including any windows in the doors.

Exterior doors shall have a satisfactory locking system. At least one door shall always be able to be unlocked and opened from inside the field office. If a padlock is used to secure a door, it shall be a high security type and shall be made inaccessible to bolt cutters, hacksaws, hammers, or prybars. The padlock shall be mounted in such a manner that locking and unlocking the door can be made with minimal effort. Installation of additional hardware to protect the lock or use of multiple padlocks on a door will not be allowed. Additional hardware to receive the padlock will be acceptable. The Contractor shall furnish the number of keys to the office as directed by the Engineer. The Department will maintain a list of all Department personnel who are given keys.

Windows shall be hinged or sliding and have a minimum area of 5 sq ft each. Windows shall be provided with satisfactory locks and screens. Windows, including windows in the doors, shall be provided with shades, blinds, or other approved coverings.

Type ~~*III*~~*D and Type* ~~*IV*~~*E field offices shall have at least one room with a minimum area of 196 sq ft for use as a conference or meeting room.*

The field office shall have heating and air-conditioning equipment capable of maintaining a uniform temperature between 68°F and 80°F.

The field office shall have a minimum 100 amp, 120/240 volt electrical service, shall have sufficient receptacles to satisfactorily accommodate all required electrical

equipment without the use of extension cords or splitters and shall be provided with satisfactory office type lighting.

~~The field office shall include a minimum of one separately lockable storage area. The storage area shall have a minimum storage volume of 63 cu ft with a minimum floor area of 9 sq ft.~~

If the field office is a trailer, the trailer shall be securely supported by adequate blocking. The blocking shall provide a foundation to prevent settlement. The trailer shall be secured to the ground with a trailer tie down system that is in accordance with all State and local requirements. Each trailer shall be furnished with steps meeting IOSHA/OSHA requirements at each doorway.

The field office location shall be selected in order to provide satisfactory parking and trash disposal facilities for Department use. Parking spaces shall be either paved or surfaced with compacted aggregate, size No. 53, or other acceptable materials suitable for all-weather usage *and shall be maintained, including snow removal. Satisfactory parking for a ~~t~~Type ~~I~~A field office shall be a minimum of ~~6~~six separate parking spaces. Satisfactory parking for a Type ~~II~~C field office shall be a minimum of 10 separate parking spaces. Satisfactory parking for a Type ~~III~~D field office shall be a minimum of 12 separate parking spaces. Satisfactory parking for a Type ~~IV~~E field office shall be a minimum of 16 separate parking spaces.*

Any ~~T~~type of field office may be used by other Department personnel from other Department contracts.

(b) Field Office Equipment and Supplies

The following minimum equipment and supplies shall be furnished for each field office of the type specified.

	Office Type		
Equipment and Supplies	*~~I or~~* A~~II~~ *and C*	B~~III~~B*D*	*~~CIV~~CE*
Bloodborne Pathogen Kit	1	1	1
~~Bottled Drinking~~*Potable* Water	Yes	Yes	Yes
Broom and Dust Pan	1	1	1
Calculators	1	2	*~~2~~4*
Carbon Monoxide Detector	1	1	*~~1~~2*
Chairs	~~4~~*8*	*~~8~~12*	*~~12~~20*
Cleaning Supplies	Yes	Yes	Yes
~~Drafting Stools~~	~~1~~	~~1~~	~~1~~
~~Drafting Tables~~	~~1~~	~~1~~	~~1~~
Dry Erase Board	*1*	*1*	*2*
Electric Vacuum Sweeper	*1*	*1*	*1*
File Cabinet Drawers	~~4~~	8	12

Fire Extinguishers	~~1~~*2*	2	~~2~~*3*
First-Aid Kit	1	1	1
Folding Office Tables	~~1~~*4*	~~2~~*6*	~~2~~*10*
Microwave Oven	1	1	~~1~~*2*
Office Desks and Office Chairs	~~2~~*4*	~~4~~*5*	~~4~~*10*
Paper Shredder	1	1	1
~~Pencil Sharpener~~	~~1~~	~~1~~	~~1~~
Plan Holder	*1*	*1*	*2*
Refrigerator/Freezer	1	1	~~1~~*2*
Shelving	~~16~~*20* lft	~~20~~*24* lft	~~24~~*48* lft
Six-hook Coat Rack	1	1	~~1~~*2*
Smoke Detector	1	~~1~~*2*	~~2~~*3*
~~Telephones Lines~~	~~2~~	~~2~~	~~2~~
~~Telephones~~	~~2~~	~~2~~	~~3~~
Toilet Facilities	Yes	Yes	Yes
TV Monitor	*0*	*1*	*1*
USB Speakerphone Microphone	~~Yes~~*No*	*Yes*	*Yes*
~~Voice Mail~~	~~1~~	~~1~~	~~1~~
Waste Paper Baskets	~~2~~*4*	~~4~~*6*	~~4~~*10*

The office and the equipment shall be furnished in a condition satisfactory to the Department.

Adequate quantities of basic hygiene and office cleaning supplies shall be provided. These supplies shall include, but are not limited to, *antibacterial* hand soap *in a pump container*, hand sanitizer, paper towels, *trash bags,* toilet paper, spray air freshener, window cleaner, all-surface cleaner, toilet disinfectant, toilet brush and a toilet plunger.

~~Bottled drinking water with a dispenser having both hot and cold water capabilities shall be furnished. Drinking cups and paper towels shall be provided~~*Potable water shall be provided separately for drinking and hand washing purposes*.

The plan holder shall have a minimum number of ~~5~~five individual holders, capable of holding full size plans, ~~(~~24 in. by 36 in.~~)~~, per plan holder.

Fire extinguishers shall be 5 lb, Class ABC or higher rated and shall be maintained in a fully charged and operable condition and shall meet all IOSHA/OSHA requirements.

The toilet facilities shall consist of, at a minimum, a toilet and hand washing location. For a Type ~~I~~IA or Type ~~II~~IC field office, the toilet can be a ~~Port-a-toilet~~portable toilet and the hand washing location can be a ~~P~~portable ~~H~~hand ~~W~~washing ~~S~~station. For a Type ~~III~~ID or Type ~~IV~~IE field office, the toilet facilities shall be provided indoors. ~~If~~ Indoor toilet facilities ~~facilities are provided indoors, it~~ shall have an exhaust fan. Hot water is not required for the toilet facilities. If a ~~Port-a-toilet~~portable toilet is provided, it shall be provided with a lock and at least two keys for the lock. If a ~~P~~portable ~~H~~hand ~~W~~washing

~~S~~station is provided as the hand washing location, it shall always remain functional, including during freezing temperatures. The ~~Port-a-toilet~~portable toilet ~~and/~~or ~~P~~portable ~~H~~hand ~~W~~washing ~~S~~station shall be serviced a minimum of once per week and shall ~~always~~ be maintained in such a manner as to provide consistent continual toilet facility service.

First-aid kits shall meet the requirements of ANSI Z308.1 current at the time of letting.

Shelving shall have a minimum width of 10 in.

~~At least one telephone shall be a cordless phone having a frequency of at least 900 MHz.~~

~~The telephone voice mail system shall be capable of providing both a minimum one minute outgoing message and 30 minutes total recording time for incoming messages. It shall have a remote operation feature, which may be used to retrieve, replay, erase, and save messages. An answering machine meeting these requirements may be substituted for the voice mail system.~~

Filing cabinets shall at a minimum be fire resistant steel filing cabinets with a class D or higher classification established by UL or Safe Manufacturers National Association. Cabinet drawers shall have a filing depth of 25 in. All cabinets shall have a lock and at least ~~four~~*half of the* drawers shall be fireproof.

Office desktops shall be at least 48 in. wide and 25 in. deep. All desks shall contain at least two drawers, one of which shall be provided with a lock.

Folding office tables shall be a minimum size of 30 in. by ~~60~~*72* in.

Office chairs shall be height adjustable and equipped with castors. Other required chairs may be stackable or folding chairs.

~~Drafting tables shall contain a tilt top work table for drafting purposes. Dimensions shall be at least 30 in. by 60 in. The drafting stool shall be proportional to each drafting table.~~

Supplies to be furnished shall include all items required for proper operation of the required equipment. This includes, but is not limited to, operating manuals and paper supplies.

Calculators shall be electric powered, have a printer, ~~and~~ a minimum 12-digit capacity*, and have a counting function*.

The paper shredder shall have a minimum capacity of 12 sheets of 20 lb paper, shall be capable of shredding paper clips and staples, and shall include a five-gallon capacity waste basket.

The dry erase board shall have a minimum size of 4 ft by 6 ft. Adequate quantities of dry erase markers and erasers shall be provided.

The TV ~~M~~monitor shall be at a minimum 55 in., LED, 4 series, 2160P, Smart, 4K UDH TV with HDR and shall work wirelessly with laptops. It shall be mounted on the wall of designated meeting or conference rooms as determined by the Engineer.

A USB ~~S~~speakerphone ~~M~~microphone shall be a Conference Speaker Omnidirectional Computer Mic, with 360° ~~degree~~ ~~V~~voice pickup, ~~T~~touch ~~S~~sensor ~~B~~buttons for ~~M~~mute/~~U~~unmute, ~~S~~streaming and shall be provided for use in designated meeting or conference rooms as determined by the Engineer.

The microwave oven shall have a minimum 1 cu ft capacity with a minimum 1,100 watts and shall have digital controls.

The refrigerator/freezer shall have a minimum 20 cu ft. capacity for a Type ~~III~~D or Type ~~IV~~E field office and shall have a minimum 10 cu ft~~.~~ capacity for a Type ~~I~~A or Type ~~II~~C field office.

The field office and all equipment and supplies shall be maintained and replenished in a satisfactory manner during the term of the contract or until released by the Engineer. If the field office or required equipment and supplies are not maintained by the Contractor, the Engineer may withhold partial payments until the field office is operational to the Department's satisfaction.

SECTION 628, BEGIN LINE 265, DELETE AND INSERT AS FOLLOWS:

(e) Field Office Machines

The Contractor shall provide a fully operational copier, printer, and document scanner for the Department's exclusive use in the field office in accordance with the minimum requirements listed herein.

In lieu of separate copier, printer, and scanner, the Contractor may provide an all-in-one unit that meets all the requirements for any combination of the individual machines being provided. Separate machines shall be provided for those machine functions that are not included in an all-in-one type machine. *All machines shall ~~always~~ be supplied with, and shall be maintained with, one additional set of ink cartridges.*

1. Copier

The copier shall be compatible with, and shall be connected to, the computer system provided by the Contractor or the Department for use by the Department in the field office.

The copier shall be capable of using plain paper and of making full size, black and white copies of letter, legal and ledger US paper size original documents. The copier shall be capable of reducing and increasing copy sizes. The copier shall have a self-feeding paper tray, an automatic document feeder and be capable of producing at least 20 copies per minute. *The copier shall be capable of double-sided copying. The copier shall have at least two universal paper drawers; letter and ledger size.*

2. Printer

The printer shall be compatible with, and shall be connected to, the computer system provided by the Contractor or by the Department for use by the Department in the field office. The printer shall be capable of printing single-sided *and double-sided*, black and white letter, legal and ledger US paper size documents at a rate of 20 pages per minute and capable of automatic duplex printing. More than one printer may be used to meet this requirement.

All printers shall be set to accommodate wireless printing from the Department's provided laptop or mobile device.

3. Document Scanner

The document scanner shall be compatible with, and shall be connected to, the computer system provided by the Contractor or the Department for use by the Department in the field office. The scanner shall be capable of scanning letter and ~~legal~~*ledger* size documents and shall have an automatic document feeder and be capable of 200 to 600 dpi black and white resolution, preset to 200 dpi.

SECTION 628, BEGIN LINE 313, DELETE AND INSERT AS FOLLOWS:

(f)~~ Field Laboratory~~*Telephone Service*

~~The field laboratory shall be located as mutually agreed by the Engineer and the Contractor. The laboratory shall consist of an acceptable building or trailer in accordance with 628.02(a) in which the Department will house and use equipment to perform testing procedures for the contract.~~

~~The following equipment and supplies shall be furnished for each field laboratory of the type specified. The equipment and supplies shall meet the requirements of 628.02(a) as applicable.~~

	~~Laboratory Type~~		
~~Equipment and Supplies~~	~~A~~	~~B~~	~~C~~
~~Bloodborne Pathogen Kit~~	~~1~~	~~1~~	~~1~~
~~Bottled Drinking Water~~	~~Yes~~	~~Yes~~	~~Yes~~
~~Broom and Dust Pan~~	~~1~~	~~1~~	~~1~~
~~Carbon Monoxide Detector~~	~~1~~	~~1~~	~~1~~
~~Chairs~~	~~2~~	~~2~~	~~2~~
~~Cleaning Supplies~~	~~Yes~~	~~Yes~~	~~Yes~~
~~File Cabinet Drawers~~	~~4~~	~~4~~	~~4~~

~~Fire Extinguishers~~	~~1~~	~~2~~	~~2~~
~~First-Aid Kit~~	~~1~~	~~1~~	~~1~~
~~Folding Office Tables~~	~~1~~	~~1~~	~~12~~
~~Office Desks and Office Chairs~~	~~1~~	~~1~~	~~12~~
~~Shelving~~	~~16 lft~~	~~20 lft~~	~~24 lft~~
~~Six-hook Coat Rack~~	~~1~~	~~1~~	~~1~~
~~Smoke Detector~~	~~1~~	~~1~~	~~2~~
~~Telephones Lines~~	~~1~~	~~1~~	~~1~~
~~Telephones~~	~~1~~	~~1~~	~~1~~
~~Toilet Facilities~~	~~Yes~~	~~Yes~~	~~Yes~~
~~Voice Mail~~	~~1~~	~~1~~	~~1~~
~~Waste Paper Baskets~~	~~2~~	~~2~~	~~2~~

~~If a field office is provided that is large enough to include the required space for the laboratory, the Engineer may agree to accept the field office for use as both office and laboratory, in which case the equipment and supplies listed for the laboratory will not be required.~~

~~If the field laboratory is a separate structure that is located directly adjacent to the field office, the toilet facilities, drinking water, telephones, voice mail/answering machine, telephone lines and cleaning supplies will not be required~~*When specified in the Schedule of Pay Items, the Contractor shall provide telephone services and equipment ~~and services~~, as specified below, for use by the Department on the contract.*

Telephone Service	*Type A*	*Type B*	*Type C*
Telephone line	*1*	*2*	*2*
Telephone	*1*	*2*	*3*
Telephone voice mail system	*1*	*2*	*1*

The telephone voice mail system shall be capable of providing both a minimum one minute outgoing message and 30 minutes total recording time for incoming messages. It shall have a remote operation feature, which may be used to retrieve, replay, erase, and save messages. An answering machine meeting these requirements may be substituted for the voice mail system.

At least one telephone shall be a cordless phone having a frequency of at least 900 MHz.

~~1. Type A~~

~~a. 1one telephone line~~
~~b. 1one telephone~~
~~c. 1one telephone voice mail system.~~

~~2. Type B~~

~~*a. 2two telephone lines*~~
~~*b. 2two telephones*~~
~~*c. 1two telephone voice mail system.*~~

~~***3. Type C***~~
~~*a. 2two telephone lines*~~
~~*b. 3three telephones*~~
~~*c. 1one telephone voice mail system.*~~

628.03 Mobile Internet Service

When specified, the Contractor shall provide mobile internet service for the Department's exclusive use.

The mobile broadband internet service access device will be used by the Department in a laptop computer provided by either the Contractor or the Department.

The device shall connect to the laptop via a USB 2.0 *or USB 3.0* *(Note: this change was approved by the Standards Committee on 11-20-2019 and is shown in RSP 628-C-265)* compliant port, or by wireless means. The device and service shall be capable of a minimum ~~*3*~~*4*G speed. The internet service rate plan shall include unlimited data and time usage with no roaming charge for national domestic use. All software necessary for the operation of the device shall be provided to the Engineer.

The Contractor shall not purchase any device or enter into any service agreement until authorized by the Engineer. The Engineer will provide a minimum of 10 business days notice prior to the date the device will be required.

628.04 Cellular Telephones

The Contractor shall provide cellular telephone equipment and services, as specified below, for use by the Department on the contract.

Each cellular telephone unit shall have a service coverage area that includes the project limits. Each cellular telephone unit shall include a belt clip system, a 120V AC charger, a 12V DC mobile charger, and a hands-free kit consisting of a speaker and a microphone enabling the user to operate the unit with minimal need for the use of their hands. The hands-free kit ~~may be either wired or~~ ~~*must*~~*shall* be wireless.

All equipment shall be covered by normal manufacturer's warranties. All cellular telephone units and associated equipment will remain the property of the Contractor and will be returned to the Contractor upon completion of the contract.

Cellular telephone units shall meet the following minimum requirements:

(a) Type A

1. internet ready device with minimum ~~3.5~~*5* in. display, measured diagonally
2. cellular telephone anytime minutes per month as shown in the Schedule of Pay Items
3. unlimited nights and weekends service
4. voice mail and caller ID
5. protective case to prevent damage to the unit
6. rear facing camera with a minimum ~~4~~*8* MP resolution
7. minimum ~~720~~*1080*p video capture
8. 5 GB or higher data plan per unit
9. internal memory of ~~16~~*64* GB or higher
~~10. USB port for computer connection.~~

(b) Type B

1. a cellular telephone with anytime minutes per month as shown in the Schedule of Pay Items
2. unlimited nights and weekends service
3. voice mail and caller ID
4. ~~build~~*built*-in camera with a minimum ~~3.2~~*5* MP resolution.

The Department will be responsible for damage or loss of the units beyond that covered by normal manufacturer's warranties, while in use by the Department. The Contractor shall provide replacement cellular telephone units, batteries, chargers, and equipment within one business day of notification of need for the item.

The Contractor shall not enter into any agreement with any service provider or purchase any cellular telephone units for use by the Department until authorized by the Engineer. The Engineer will notify the Contractor a minimum of 10 business days prior to the need for the units.

628.05 Method of Measurement

Field office ~~and field laboratory~~ will be measured by the month for the specified type. Partial months will be rounded up to the next 1/2 or whole month. The Department will provide two weeks advanced notice prior to when the facility will be vacated.

~~If a field laboratory is specified and is included in the same space as the field office, the field laboratory will not be measured for payment.~~

Computer system and computer system equipment will be measured by the number of units specified.

Telephone ~~S~~service will be measured by the month for the specified type. Partial months will be rounded up to the next 1/2 or whole month. The Department will provide two weeks advanced notice prior to when the telephone service will be vacated.

Cellular telephones will be measured by the number of units required for the type specified.

Mobile internet service, and cellular telephone service will be measured by the month for each system or service provided. Partial months will be rounded up to the next 1/2 or whole month. The Department will provide two weeks advanced notice prior to when mobile internet service and cellular telephone service will no longer be required.

628.06 Basis of Payment

Field office ~~and field laboratory~~ will be paid for at the contract unit price per month, complete in place until released.

Computer system and computer system equipment will be paid for at the contract unit price per each for the units provided.

Telephone ~~S~~service will be paid for at the contract unit price per month, complete in place until released.

Mobile internet service will be paid by the month for each system or service provided.

Cellular telephone units will be paid for at the contract unit price per each per each type specified. Cellular telephone service will be paid for at the contract unit price per month per each phone. Monthly charges for cellular telephone minutes and data in excess of those specified in the contract will be paid for by the dollar amount for the invoiced price per each occurrence as cellular telephone, additional charges.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Cellular Telephone Service, _____ (anytime minutes)	MOS
Cellular Telephone, _____ (type)	EACH
Cellular Telephone, Additional Data	DOL
Cellular Telephone, Additional Minutes	DOL
Computer System Equipment	EACH
Computer System	EACH
~~Field Laboratory, _____ (type)~~	~~MOS~~
Field Office, _____ (type)	MOS

Mobile Internet Service, _____ Each..... MOS
quantity
Telephone Service, _____..... MOS
type

The cost of all heating, cooling, electrical service, ~~telephone service~~ and other miscellaneous utility bills required for the field office ~~or field laboratory~~ shall be included in the cost of the field office ~~or the field laboratory~~.

If a field office smaller than the specified type is approved by the Engineer, a new unit price will be established for the smaller field office. The new unit price will be equal to the original contract unit price multiplied by the smaller floor area and divided by the specified floor area.

All costs necessary to provide and maintain the ~~T~~telephone ~~S~~service, including monthly charges and installation of telephone line~~(s)~~, shall be included in the cost of the ~~T~~telephone ~~S~~service.

If a temporary field office is provided in accordance with 628.02, payment will be 65% of the unit price during the time the temporary field office is in use by the Department.

The cost of all materials and labor necessary to setup, secure, maintain and remove the field office ~~or the field laboratory~~, including all required equipment and supplies and any material required to provide parking, shall be included in the cost of the respective pay item~~s~~.

All costs necessary to provide and maintain the computer system, computer system equipment, including the required software, manuals, technical support and miscellaneous computer requirements shall be included in the cost of the computer system or computer system equipment.

All costs necessary to establish, install and maintain field office internet service, both wireless and Ethernet, field office network, including any required hardware, software, fees, monthly charges, setup, installation and technical support shall be included in the cost of the field office.

All costs associated with providing the field office for any Type of field office for ~~the~~ use by other Department personnel from other Department contracts shall be included in the cost of the field office.

All costs necessary to provide the copier, printer, and document scanner, including setup, installation, all required connections to computers, technical support and miscellaneous office machine requirements shall be included in the cost of the field office.

REVISION TO STANDARD SPECIFICATIONS

SECTION 628 - FIELD OFFICE, FIELD LABORATORY, COMPUTER SYSTEM, COMPUTER SYSTEM EQUIPMENT, OFFICE MACHINES AND COMMUNICATIONS (various sections)

All costs necessary to establish, install and maintain mobile internet service, including required hardware, software, fees, monthly charges, setup, installation and technical support shall be included in the cost of mobile internet service.

The Contractor shall provide a copy of the detailed invoice from the service provider for each cellular telephone unit each month.

COMMENTS AND ACTION

SECTION 628 - FIELD OFFICE, FIELD LABORATORY, COMPUTER SYSTEM, COMPUTER SYSTEM EQUIPMENT, OFFICE MACHINES AND COMMUNICATIONS (various sections)

DISCUSSION:

This item was introduced and presented by Mr. Novak, assisted by Mr. Culbertson, who stated that the current Standard Specification section 628 for Field Office is out of date in regards to various matters related to the field office needs.

Mr. Novak proposed to revise 628 to reflect current needs and technology, and to provide more clarity as to what is required. Mr. Culbertson described all of the proposed changes.

Mr. Koch asked if we could add language to require separate source locations to ensure we do not have a single potable water source. Minor revisions for consistency and clarification are as shown.

Mr. Stickney had asked why are we changing from letters to numerals, particularly roman numerals? Why not make the fourth field office "D"? Using letters as numbers in pay item descriptions is not a good idea. Roman numerals are potentially confusing and become another number when accidentally truncated. Type 1, 2 or 3 will always be 1, 2 or 3 but "Type I" could be Type II, III, or IV cut off in the middle of the string.

Mr. Novak agreed to revise the types to A, C, D, & E. Mr. Novak further stated that we need new designations (D&E) for the 2 larger offices as those are very different than anything we have currently and it would cause confusion to recycle designation letters, and stated that A & C are still close enough to the existing to recycle the designation.

Revisions for clarification and consistency are as shown highlighted above.

There was no further discussion and this item passed as revised.

COMMENTS AND ACTION

SECTION 628 - FIELD OFFICE, FIELD LABORATORY, COMPUTER SYSTEM, COMPUTER SYSTEM EQUIPMENT, OFFICE MACHINES AND COMMUNICATIONS (various sections)

[continued]

Motion: Mr. Novak Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES	Action:	
	___	Passed as Submitted
	X	Passed as Revised
	___	Withdrawn
Standard Specifications Sections referenced and/or affected: 628 begin pg 542.	X	2022 Standard Specifications
	___	Revise Pay Items List
Recurring Special Provision affected: 628-C-265 COMPUTER SYSTEM, COMPUTER SYSTEM EQUIPMENT, OFFICE MACHINE AND COMMUNICATIONS	___	Create RSP (No.___) Effective: RSP Sunset Date:
	X	Revise RSP (No. 628-C-265) Effective: March 1, 2021 RSP Sunset Date: 2022 SS book
Standard Drawing affected: NONE		
Design Manual Sections affected: NONE	___	Standard Drawing Effective:
	___	Create RPD (No. ___) Effective:
GIFE Sections cross-references: NONE	___	GIFE Update
	___	SiteManager Update

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: confusion on min temp requirements for patching. Mixture not being placed with a paver for fear of QA testing. Air void tolerance was not bumped up with S5 requirements. SMA gradation causing unnecessary penalties.

PROPOSED SOLUTION: Update RSP 304-R-711. Add exceptions to where mixture is sampled if placed with a paver. Update air void tolerance. Update SMA gradation table.

APPLICABLE STANDARD SPECIFICATIONS: 401,410

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: NA

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: RSP 304-R-711

PAY ITEMS AFFECTED: N/A

APPLICABLE SUB-COMMITTEE ENDORSEMENT: APAI Steering Committee, Construction Issues subcommittee (APAI members, Derick Hauser, James Culbertson, Jacob Blanchard)

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: 317-522-9692

Date: 8/19/20

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? N

Will approval of this item affect the Approved Materials List? N

Will this proposal improve:

- Construction costs? N
- Construction time? Y
- Customer satisfaction? Y
- Congestion/travel time? N
- Ride quality? Y

Will this proposal reduce operational costs or maintenance effort? Y

Will this item improve safety:

- For motorists? N
- For construction workers? N

Will this proposal improve quality for:

- Construction procedures/processes? Y
- Asset preservation? N
- Design process? N

Will this change provide the contractor more flexibility? Y
Will this proposal provide clarification for the Contractor and field personnel? Y
Can this item improve/reduce the number of potential change orders? Y
Is this proposal needed for compliance with:

- Federal or State regulations? N
- AASHTO or other design code? N

Is this item editorial? N
Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

304-R-711 PARTIAL DEPTH AND FULL DEPTH PATCHING
SECTION 401 - QC/QA HMA PAVEMENT
401.09 ACCEPTANCE OF MIXTURES
401.16 DENSITY
401.19 PAY FACTORS
SECTION 410 - QC/QA HMA – SMA PAVEMENT
410.05 SMA MIX DESIGN

304-R-711 PARTIAL DEPTH AND FULL DEPTH PATCHING

(Adopted 01-16-20)

The Standard Specifications are revised as follows:

SECTION 304, BEGIN LINE 16, DELETE AND INSERT AS FOLLOWS:

304.04 *Partial Depth and Full Depth* Patching

Areas to be patched will be marked on the surface by the Engineer. The marked pavement shall be removed to the depth shown on the typical section or as directed. A minimum 2 in. vertical joint shall be constructed with the pavement that remains in place. If it is determined that the marked pavement is to be removed full depth, the patch depth shall be to the bottom of the existing asphalt material or as directed.

Subgrade of aggregate base under patches shall be compacted in accordance with 203.25. If the excavation for patches reveals unsuitable subgrade material, such material shall be removed to a depth of 6 in. and backfilled to the top of subgrade with compacted aggregate in accordance with 301. Unauthorized excavation beyond neat lines shall be replaced with compacted aggregate in accordance with 301.

The excavated patch areas shall be filled with HMA for patching of the type specified in the pay item *and as shown on the plans*. ~~Partial depth patches shall use HMA intermediate mixture and full depth patches shall use HMA base mixture in accordance with 402.~~*HMA used for patching shall be in accordance with 402.* A MAF in accordance with 402.05 will not apply. *The ~~minimum temperature of~~ 175°F temperature requirement for the previously paved course in accordance with 402.13 will not apply.* Mixtures will be accepted in accordance with 402.09.

Each course shall be compacted by approved mechanical equipment in accordance with 409.03(d).

A smooth riding surface shall be maintained on HMA patches at all times. Deformation due to traffic or other conditions shall be corrected immediately. ~~HMA base, intermediate, or surface mixtures may~~*HMA of the type specified in the pay item shall* be used to maintain patches. Unless otherwise specified, patches shall be completed during daylight hours and opened to traffic at the close of the workday. Patches that cannot be completed prior to the end of daily operations shall be backfilled, compacted, and a temporary surface placed to carry traffic, unless otherwise specified.

SECTION 304, BEGIN LINE 79, INSERT AS FOLLOWS:

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

304-R-711 PARTIAL DEPTH AND FULL DEPTH PATCHING
SECTION 401 - QC/QA HMA PAVEMENT
401.09 ACCEPTANCE OF MIXTURES
401.16 DENSITY
401.19 PAY FACTORS
SECTION 410 - QC/QA HMA – SMA PAVEMENT
410.05 SMA MIX DESIGN

Payment will be made under:

Pay Item	**Pay Unit Symbol**
*HMA Patching, Full Depth, __*__ type*	*TON*
HMA Patching, *Partial Depth,* __*__ type	TON
Widening with HMA, __*__ type	TON

* Mixture type in accordance with 402.04.

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

304-R-711 PARTIAL DEPTH AND FULL DEPTH PATCHING
SECTION 401 - QC/QA HMA PAVEMENT
401.09 ACCEPTANCE OF MIXTURES
401.16 DENSITY
401.19 PAY FACTORS
SECTION 410 - QC/QA HMA – SMA PAVEMENT
410.05 SMA MIX DESIGN

The Standard Specifications are revised as follows:

SECTION 401, AFTER LINE 293, DELETE AND INSERT AS FOLLOWS:

Samples shall not be obtained from *the following areas:*

(a) Mixture placed on an approach, taper, gore area, crossover that is not placed simultaneously with the mainline.

(b) Mixture placed on a shoulder less than ~~8'~~ 8 ft ~~wide~~in width that is not placed simultaneously with the mainline.

(c) Within 25 f~~ee~~t of a transverse construction joint.

(d) ~~a~~*A*reas placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3.

If a random location falls within this area, the Engineer will randomly select another location within the sublot for sampling. If an entire sublot falls within this area, test results from the previous sublot will be used for acceptance. If the previous sublot is not available, the subsequent sublot will be used for acceptance. If previous or subsequent sublot results for a mixture accepted by 401.19(a) will be replicated for an entire lot, each sublot in that lot will be accepted by 401.19(b).

SECTION 401, AFTER LINE 526, DELETE AND INSERT AS FOLLOWS:

Cores shall not be obtained from *the following areas:*

(a) Mixture placed on an approach, taper, gore area, crossover that is not placed simultaneously with the mainline.

(b) Mixture placed on a shoulder less than ~~8'~~ 8 ft ~~wide~~in width that is not placed simultaneously with the mainline.

(c) Within 25 f~~ee~~t of a transverse construction joint.

(d) Within 25 f~~ee~~t of an acceptance sample taken in accordance with 401.09.

(e) ~~a~~*A*reas placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3.

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS

304-R-711 PARTIAL DEPTH AND FULL DEPTH PATCHING
SECTION 401 - QC/QA HMA PAVEMENT
401.09 ACCEPTANCE OF MIXTURES
401.16 DENSITY
401.19 PAY FACTORS
SECTION 410 - QC/QA HMA – SMA PAVEMENT
410.05 SMA MIX DESIGN

If a random location falls within this area, the Engineer will randomly select another location within the sublot for coring. If an entire sublot falls within this area, test results from the previous sublot will be used for acceptance. If the previous sublot is not available, the subsequent sublot will be used for acceptance.

SECTION 401, AFTER LINE 690, DELETE AND INSERT AS FOLLOWS:

If the Lot PWL for any one of the properties is less than 50, a sublot has an air void content less than 1.0% or greater than ~~7.0~~*8.0*%, or a sublot has a volume of effective binder greater than 3.0% above design minimums, the lot will be referred to the Office of Materials Management for adjudication as a failed material in accordance with normal Department practice as listed in 105.03.

SECTION 410, AFTER LINE 65, DELETE AND INSERT AS FOLLOWS:

SMA Gradation Control Limits						
	Mixture Designation					
	9.5 mm		12.5 mm		19.0 mm	
Sieve Size	Lower	Upper	Lower	Upper	Lower	Upper
1 1/2 in. (37.5 mm)					100.0	100.0
1 in. (25.0 mm)			100.0	100.0	~~100.0~~*99.0**	100.0
3/4 in. (19.0 mm)	100.0	100.0	~~100.0~~*99.0**	100.0	90.0	99.0
1/2 in. (12.5 mm)	~~100.0~~*99.0**	100.0	90.0	99.0	50.0	88.0
3/8 in. (9.5 mm)	70.0	95.0	50.0	80.0	25.0	60.0
No. 4 (4.75 mm)	30.0	50.0	20.0	35.0	20.0	28.0
No. 8 (2.36 mm)	20.0	30.0	16.0	24.0	16.0	24.0
No. 16 (1.18 mm)	---	21.0	---	---	---	---
No. 30 (600 µm)	---	18.0	---	---	---	---
No. 50 (300 µm)	---	15.0	---	---	---	---
No. 200 (75 µm)	8.0	12.0	8.0	11.0	8.0	11.0
* The lower % passing gradation may be 98.0% when SMA RAP material in accordance with 410.06 is used in the SMA mixture.						

COMMENTS AND ACTION

304-R-711 PARTIAL DEPTH AND FULL DEPTH PATCHING
401.09 ACCEPTANCE OF MIXTURES
401.16 DENSITY
401.19 PAY FACTORS
410.05 SMA MIX DESIGN

DISCUSSION:
Mr. Reilman introduced and presented this item stating that there has been some confusion regarding the minimum temp requirements for patching. Mixtures are not being placed with a paver for fear of QA testing. Air void tolerance was not bumped up with S5 requirements, and SMA gradation is causing unnecessary penalties.

Mr. Reilman therefore proposed to update RSP 304-R-711, by adding exceptions to where the mixture is sampled if placed with a paver, updating the air void tolerance, and updating the SMA gradation table. Further clarification and explanation was provided by Mr. Awwad.

Mr. Awwad suggested a minor language revision as shown, to remove the word “minimum”. Further revisions were made for clarification as shown.

Mr. Reilman revised his motion, which was seconded by Mr. Boruff. This item passed as revised.

Motion: Mr. Reilman Second: Mr. Novak Ayes: 10 Nays: 0 FHWA Approval: YES	Action:	
	___	Passed as Submitted
	_X_	Passed as Revised
	___	Withdrawn
Standard Specifications Sections referenced and/or affected: 304 begin pg 255, 401.09 pg 294, 401.16 pg 300, 401.19 pg 304, 410.05 pg 338. Recurring Special Provisions (existing): 304-R-711 PARTIAL DEPTH AND FULL DEPTH PATCHING 401-R-701 QC/QA HMA PAVEMENT 410-R-703 QC/QA HMA - SMA PAVEMENT Standard Drawing affected: NONE Design Manual Sections affected: NONE GIFE Sections cross-references: NONE	_X_	2022 Standard Specifications
	___	Revise Pay Items List
	___	Create RSP (No.___) Effective: RSP Sunset Date:
	_X_	Revise RSP (No. 304-R-711, 401-R-701, 410-R-703 Effective: March 1, 2021 RSP Sunset Date: 2022 SS book
	___	Standard Drawing Effective:
	___	Create RPD (No. ___) Effective:
	___	GIFE Update
	_X_	SiteManager Update

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO STANDARD SPECIFICATIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Confusion on size of structural steel coating sample to be submitted for testing. Outdated reference to NEPCOAT evaluation process in 909.03 and formulation approval in 909.05 Traffic Paint.

PROPOSED SOLUTION: Clarify the size of sample required. Update the Structural Steel Coating System evaluation criteria to reference NTPEP and delete the formulation approval as it is no longer applicable.

APPLICABLE STANDARD SPECIFICATIONS: 909

APPLICABLE STANDARD DRAWINGS: none

APPLICABLE DESIGN MANUAL SECTION: none

APPLICABLE SECTION OF GIFE: none

APPLICABLE RECURRING SPECIAL PROVISIONS: 619-B-312

PAY ITEMS AFFECTED: None

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad hoc: Kelly Cummins & Jim Reilman

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: 317-522-9692

Date: 8/19/2020

IMPACT ANALYSIS REPORT CHECKLIST

Explain the business case as to why this item should be presented to the Standards Committee for approval. Answer the following questions with Yes, No or N/A.

Does this item appear in any other specification sections? No

Will approval of this item affect the Approved Materials List? No

Will this proposal improve:

Construction costs? N/A

Construction time? N/A

Customer satisfaction? N/A

Congestion/travel time? N/A

Ride quality? N/A

Will this proposal reduce operational costs or maintenance effort? N/A

Will this item improve safety:

For motorists? N/A

For construction workers? N/A

Will this proposal improve quality for:

Construction procedures/processes? Yes

Asset preservation? N/A

Design process? N/A

Will this change provide the contractor more flexibility? N/A

Will this proposal provide clarification for the Contractor and field personnel? Yes

Can this item improve/reduce the number of potential change orders? N/A

Is this proposal needed for compliance with:

Federal or State regulations? No

AASHTO or other design code? No

Is this item editorial? No

Provide any further information as to why this proposal should be placed on the Standards Committee meeting Agenda:

REVISION TO STANDARD SPECIFICATIONS

SECTION 909 - PAINT AND LIQUID EPOXY
909.01 GENERAL REQUIREMENTS
909.03 STRUCTURAL STEEL COATING SYSTEM

The Standard Specifications are Revised as Follows:

SECTION 909, BEGIN LINE 3, INSERT AS FOLLOWS:

909.01 General Requirements

All necessary facilities for inspection of materials and manufacture of coatings, paints, and ingredients shall be granted. Free access to all parts of the premises where any or all of these products are being prepared shall be allowed. ~~Material~~ Safety Data Sheets shall be provided.

Paints and coatings shall be furnished ready for use without modification and shall not settle, cake, curdle, liver, gel, or develop excessive change in viscosity between time of manufacture and time of use. It shall remain capable of being readily dispersed with a paddle, or other approved methods, to a consistency appropriate for the intended use. Paints and coatings may be sampled and tested at any time prior to use. *Paints and coatings that are part of an approved structural steel coating system shall be submitted in an unopened, full, and complete kit for testing.* If, for any reason, re-sampling and re-testing following initial or prior approval is indicated, the latest test results shall prevail over all previous tests for material that has not been used. Previously approved paint or coating that are stored for future use may be re-sampled and re-tested.

SECTION 909, BEGIN LINE 225, DELETE AND INSERT AS FOLLOWS:

909.03 Structural Steel Coating System

This coating system shall consist of an inorganic zinc primer, an epoxy intermediate paint, and a polyurethane finish coat for the painting of steel bridges and other structural steel. All of the coatings within any coating system shall be manufactured by the same manufacturer and shall be compatible with one another. All coatings shall be in accordance with 909.02.

(a) Toxicity

The cured film of each coating within the structural steel coating system shall not contain any toxic heavy metals above the limits of the regulatory levels of 40 CFR 261.24, Table 1 or contain any other material which will require characterization as a hazardous waste for the disposal of the dried film.

(b) ~~Resistance~~*Evaluation*

The coating system shall be ~~tested in accordance with the requirements of NEPCOAT, Specification Criteria For Protective Coatings, dated June 6, 1996~~*evaluated by the NTPEP Structural Steel Coatings Program. The certified report from NTPEP shall include specific identification of the formulation or system being submitted for consideration. It shall also include all test results for the specific coating formulation or coating system. The certified report from NTPEP will be accepted as the certified test report required for approval.* The coating system shall be in accordance with all of the

applicable acceptance criteria *contained within 909.02.* ~~and~~*In addition, the finish coat* shall maintain a ~~specular gloss retention~~*minimum* of 60% *specular gloss retention* relative ~~of~~*to* the initial gloss and a maximum color change of ~~15~~*6* ΔE for Test No. 3, *Cyclic* Weathering Resistance.

(c) Approval of Structural Steel Coating System

The manufacturer shall obtain approval of each structural steel coating system prior to furnishing any of these coatings. Only structural steel coating systems from the Department's list of approved Structural Steel Coating Systems shall be used. Structural steel coating systems will be placed and maintained on the Department's list of approved Structural Steel Coating Systems in accordance with ITM 606.

COMMENTS AND ACTION

909.01 GENERAL REQUIREMENTS
909.03 STRUCTURAL STEEL COATING SYSTEM

DISCUSSION:
This item was introduced and presented by Mr. Reilman who stated that there has been some confusion concerning the size of structural steel coating samples to be submitted for testing, as well as the outdated reference to the NEPCOAT evaluation process in 909.03 and the formulation approval in 909.05 for Traffic Paint.

Mr. Reilman proposed to incorporate the above shown revisions in order to clarify the size of the sample required, update the Structural Steel Coating System evaluation criteria to reference NTPEP and to delete the formulation approval since it is no longer applicable.

Mr. Reilman said that this item is intended to go straight in to the 2022 spec book and that no RSP is necessary.

There was no further discussion and this item passed as submitted.

Motion: Mr. Reilman Second: Mr. Novak Ayes: 10 Nays: 0 FHWA Approval: YES	Action: X ___ ___	 Passed as Submitted Passed as Revised Withdrawn
Standard Specifications Sections referenced and/or affected: 909 begin pg 980. Recurring Special Provision (existing with 909): 619-B-312 PAINTING BRIDGE STEEL 909-M-049 WHITE AND YELLOW WATERBORNE TRAFFIC PAINT Standard Drawing affected: NONE Design Manual Sections affected: NONE GIFE Sections cross-references: NONE	X ___ ___ ___ ___ ___ ___	2022 Standard Specifications Revise Pay Items List Create RSP (No.___) Effective: RSP Sunset Date: Revise RSP (No.___) Effective: RSP Sunset Date: Standard Drawing Effective: Create RPD (No. ___) Effective: GIFE Update SiteManager Update