INDIANA DEPARTMENT OF TRANSPORTATION

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Room N758 CM
Indianapolis, Indiana 46204

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Eric Holcomb, Governor
Joe McGuinness, Commissioner

APPROVED MINUTES

March 18, 2021 Standards Committee Meeting

April 22, 2021

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Minutes from the March 18, 2021 Standards Committee Meeting

The Standards Committee meeting was called to order by Mr. Pankow, Chair, at 01:01 p.m. on March 18, 2021, which was held virtually via *Teams* (Microsoft application). The meeting was adjourned at 01:23 p.m.

The following committee members were in a virtual attendance:

Gregory Pankow, Chairman, Director, Construction Management
John Wooden, Contract Administration Division
Dave Boruff, Traffic Engineering
Mark Orton, Bridge Design Division
Joe Novak, Construction Management
Kumar Dave, Pavement Engineering, Highway Design
Jim Reilman, Materials and Tests Division
Michael Koch, District Construction, Fort Wayne District
Elena Veksler, Highway Design and Technical Support
Kurt Pelz, Construction Technical Support
Louis Feagans, Director, Statewide Technical Services

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

Awwad, Nathan, INDOT
Beeson, Matt, INDOT
Blanchard, Jacob, INDOT
Corrice, Zachariah, INDOT
Duncan, Thomas, FHWA
Fisher, Steve, INDOT
Fowler, Kirsten, INDOT
Frederick, Jared, INDOT
Harris, Tom, INDOT
Hauser, Derrick, INDOT
McNutt, Donald, guest
Patterson, Patrick, INDOT
Pfeiffer, Nate, INDOT
Podorvanova, Lana, INDOT
Ritter, John, INDOT
Siddiki, Nayyar, INDOT

Susong, John, Rinker Materials
Wortkoetter, Andrew, INDOT
Trammell, Scott, INDOT

The following items were discussed:

A. GENERAL BUSINESS ITEMS

OLD BUSINESS

(No items were listed)

NEW BUSINESS

1. Approval of the Minutes from the February 18, 2021 meeting

DISCUSSION: Mr. Pankow requested a motion to approve the Minutes from the February 18, 2021 meeting.

Motion: Mr. Boruff
Second: Mr. Reilman
Ayes: 9 (absent: 1)
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

(No items were listed)

NEW BUSINESS

609.02	Materials
609.13	Method of Measurement
609.14	Basis of Payment

Recurring Special Provisions:

609-B-311	RCBA SLAB OPTION FOR USE WITH SHORT TERM CLOSURES
702-R-691	STRUCTURAL CONCRETE

Standard Drawings:

E 503-BATJ-01	TERMINAL JOINT INDEX AND GENERAL NOTES
E 609-RCBA-01	REINFORCED CONCRETE BRIDGE APPROACH INDEX AND GENERAL NOTES

ACTION: PASSED AS SUBMITTED

Item No. 2 (2020 SS) Mr. Reilman pg 16

Recurring Special Provisions:

401-R-417	HMA SPRAY PAVER AND EMULSION
410-R-418	SMA SPRAY PAVER AND EMULSION

ACTION: PASSED AS REVISED

Item No. 3 (2020 SS) Mr. Reilman pg 26

Recurring Special Provision:

509-R-722	PCCP JOINT REPAIR

ACTION: PASSED AS SUBMITTED

cc: Committee Members
FHWA
ICI

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND STANDARD DRAWINGS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Reinforced concrete bridge approach slabs require a pozzolan and thus surface sealing is no longer needed. Class C concrete is not needed for reinforced concrete bridge approach slabs. The excess cement results in excess shrinkage, cracking, and cost, all of which are not necessary.

PROPOSED SOLUTION: incorporate proposed changes; delete references to surface seal and revert back to class A concrete.

APPLICABLE STANDARD SPECIFICATIONS: 609

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: Yes

APPLICABLE SECTION OF GIFE: TBD

APPLICABLE RECURRING SPECIAL PROVISIONS: create new 609, or alternatively incorporate into 2022 spec book

PAY ITEMS AFFECTED: None

APPLICABLE SUB-COMMITTEE ENDORSEMENT: Ad Hoc: Jeremy Hunter, Mike Nelson, Jim Reilman, & Pete White

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT, Office of Materials & Tests

Phone Number: 317-522-9692

Date: 2/16/21

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND STANDARD DRAWINGS

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? Yes

Construction time? N/A

Customer satisfaction? Yes

Congestion/travel time? N/A

Ride quality? N/A

Will this proposal reduce operational costs or maintenance effort? Yes

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? Yes

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, SPECIAL PROVISION, AND STANDARD DRAWINGS

SECTION 609 - REINFORCED CONCRETE BRIDGE APPROACHES
609.02 Materials
609.13 Method of Measurement
609.14 Basis of Payment
609-B-311 RCBA SLAB OPTION FOR USE WITH SHORT TERM CLOSURES
702-R-691 STRUCTURAL CONCRETE
E 503-BATJ-01 TERMINAL JOINT INDEX AND GENERAL NOTES
E 609-RCBA-01 REINFORCED CONCRETE BRIDGE APPROACH INDEX AND GENERAL NOTES

The Standard Specifications are revised as follows:

SECTION 609, BEGIN LINE 1, DELETE AND INSERT AS FOLLOWS:

SECTION 609 – REINFORCED CONCRETE BRIDGE APPROACHES

609.01 Description

This work shall consist of constructing reinforced concrete bridge approaches, RCBA, and extensions required for bridge railing transitions in accordance with 105.03.

MATERIALS

609.02 Materials

Materials shall be in accordance with the following:

Coarse Aggregate, Class D or Higher, Size No. 53 904
Concrete, Class ~~C*~~*A*.....702
Curing Materials.....912.01
Joint Materials.....906.02(a)1
Reinforcing Bars, Epoxy Coated.....910.01
Support Devices .....910.01(b)9
~~Surface Seal.....709.02~~
Threaded Tie Bar Assembly.....910.01(b)2

~~* Coarse Aggregate shall be Class AP, Size No. 8~~

SECTION 609, BEGIN LINE 128, DELETE AS FOLLOWS:

609.13 Method of Measurement

Reinforced concrete bridge approaches, including extensions required for bridge railing transitions, will be measured by the square yard. Dense graded subbase will be measured in accordance with 302.08. Reinforcing bars will be measured in accordance with 703.07. Threaded tie bar assemblies will be measured in accordance with 703.07. ~~Surface seal will be measured in accordance with 709.07.~~

SECTION 609, BEGIN LINE 139, DELETE AS FOLLOWS:

609.14 Basis of Payment

Reinforced concrete bridge approaches, including extensions required for bridge railing transitions, will be paid for at the contract unit price per square yard. Dense graded

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subbase will be paid for in accordance with 302.09. Reinforcing bars will be paid for in accordance with 703.08. Threaded tie bar assemblies will be paid for in accordance with 703.08. ~~Surface seal will be paid for in accordance with 709.08.~~

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609-B-311 RCBA SLAB OPTION FOR USE WITH SHORT TERM CLOSURES

(Revised 11-20-19)

The Standard Specifications are revised as follows:

SECTION 609, BEGIN LINE 14, DELETE AND INSERT AS FOLLOWS:

Concrete, Class ~~A~~*C* 702

SECTION 609, AFTER LINE 22, INSERT AS FOLLOWS:

The cement content used in the Class C concrete for the RCBAs may be increased to 752 lbs/cu yd.

SECTION 609, BEGIN LINE 88, DELETE AND INSERT AS FOLLOWS:

609.10 Curing *and Sealing*

RCBA ~~shall be wet cured in accordance with 702 or~~ shall have liquid membrane forming curing compound applied to exposed surfaces ~~within 30 minutes~~ after the finishing operations have been completed*, as specified below*. The edges of the RCBA shall be cured immediately upon removal of the forms. The edge shall be covered with curing materials equal to the material used on the surface or banked with soil 12 in. wide or greater.

SECTION 609, BEGIN LINE 100, INSERT AS FOLLOWS:

Liquid membrane forming curing compound shall be applied *to the RCBA* in a continuous uniform film at a rate not less than 1 gal./150 sq ft of concrete surface and shall be applied to provide a uniform, solid, white opaque coverage on all surfaces, similar to a white sheet of paper. *The curing compound shall be mixed thoroughly within 1 h before use. All concrete cured by this method shall receive two applications of the curing compound. The first application shall be applied immediately after surface water has disappeared and surface texturing has been applied. The second application shall be applied after the first application has set.* Additional applications, if needed, shall follow the previous application within 30 minutes. The curing compound may be warmed in a water bath during cold weather at a temperature not exceeding 100°F. Thinning with solvents will not be allowed. Non-uniform film rates will result in the discontinuance of that application method.

SECTION 609, AFTER LINE 110, INSERT AS FOLLOWS:

The RCBAs may be covered with an insulating material during the curing period. Insulating materials are not a substitute for curing and liquid membrane forming curing compound shall be applied prior to placing insulating materials.

REVISION TO STANDARD SPECIFICATIONS, SPECIAL PROVISION, AND STANDARD DRAWINGS

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Concrete sealer shall not be used on the RCBA. The concrete mix design shall use the silica fume option in accordance with 709.05(c). Slag cement shall not be used.

SECTION 609, BEGIN LINE 120, DELETE AND INSERT AS FOLLOWS:

609.12 Opening to Traffic

The RCBA may be opened to equipment and traffic when *the flexural strength of the* test beams indicate ~~a modulus of rupture of 550 psi~~*the concrete has attained a modulus of rupture of 500 psi* or greater.

SECTION 609, BEGIN LINE 159, DELETE AND INSERT AS FOLLOWS:

The cost of finishing, furnishing, ~~and~~ placing curing materials*, silica fume, insulating materials, and additional cement used* shall be included in the cost of the RCBA.

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702-R-691 STRUCTURAL CONCRETE

(Revised 06-18-20)

The Standard Specifications are revised as follows:

SECTION 702, BEGIN LINE 7, INSERT AS FOLLOWS:

702.02 Classes of Concrete

The following classes of concrete shall be used where specified.

Class of Concrete	A	B	C
Cement content in lbs/cu yd	564	470	658
Maximum water/cement ratio in lbs of water per lbs of cement	0.450	0.620	0.443
*Minimum water/cement ratio in lbs of water per lbs of cement**	*0.380*	*0.400*	*0.380*
**The minimum water/cement ratio for all slipformed railings shall be 0.360.*			

SECTION 702, BEGIN LINE 34, DELETE AND INSERT AS FOLLOWS:

Fabric for Waterproofing .....~~918.01~~*918.06*

SECTION 702, BEGIN LINE 99, DELETE AND INSERT AS FOLLOWS:

~~Blended portland pozzolan cements, fly ash, and ground granulated blast furnace slag used as a pozzolan may only be used in concrete bridge decks between April 1 and October 15 of the same calendar year~~*Slag cement or silica fume in accordance with 709.05(c) shall be used in all bridge decks,* ~~*and*~~ *reinforced concrete bridge approaches, and terminal joint lugs.*

Blended portland pozzolan cements, fly ash, and slag cement may be used in concrete when the ambient temperature is above 50°F during the entire placement period. Immediately following placement, the average ambient temperature shall be above 50°F for the entire curing period. The average temperature shall be calculated based on hourly temperature measurements taken at the jobsite or from published weather station data within 10 miles of the jobsite. If the temperature restrictions are not met during placement or during the required curing period, curing shall continue and the element shall not be put into service until the strength requirements in accordance with 702.24 are met. If no test specimens are available to determine the concrete strength, curing shall continue and

REVISION TO STANDARD SPECIFICATIONS, SPECIAL PROVISION, AND STANDARD DRAWINGS

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the concrete will be adjudicated as failed material. In no case shall the curing period be reduced below the minimum number of days specified for the element.

SECTION 702, BEGIN LINE 116, DELETE AND INSERT AS FOLLOWS:

Class A concrete shall contain a water-reducing admixture. Class C concrete shall contain either a water-reducing admixture or both a water-reducing admixture and a retarding admixture. The types used shall not be changed during any individual contiguous pour. *For class C concrete,* ~~T~~*t*he types of admixtures to be used, shall be selected based on the expected concrete or air temperature. When either temperature is expected to be 65°F or above, both a water-reducing admixture and a retarding admixture shall be used. A water-reducing admixture shall be used when both temperatures are expected to be below 65°F unless retardation is required due to the structure design or the proposed pour sequence such as the requirements for floor slab pours set out in 704.04. If class C concrete contains ground granulated blast furnace slag, the producer may propose an alternate temperature threshold for including a retarding admixture. *If either class A concrete or class C concrete is used in slipformed railings, the requirement to use a water reducing admixture is waived.* Air-entraining cements will not be allowed in class C concrete.

SECTION 702, BEGIN LINE 237, INSERT AS FOLLOWS:

Concrete that is not within the specified slump limits at time of placement shall not be used. Except as required in 702.05 for *class A and* class C concrete, chemical admixtures type A, type B, type D, type F, and type G, may be used in the concrete. Chemical admixtures type C and type E will be allowed only with prior written permission.

SECTION 702 BEGIN LINE 477, DELETE AND INSERT AS FOLLOWS:

702.11 Cold Weather Concrete

When it is necessary to place concrete at or below an atmospheric temperature of ~~35°~~*40°*F, or whenever it is determined that the temperature may fall below ~~35°~~*40°*F within the curing period, the water, aggregates, or both shall be heated and suitable enclosures and heating devices provided. Cold weather concrete shall be placed at the risk of the Contractor and shall be removed and replaced with no additional payment if it becomes frozen or otherwise damaged.

SECTION 702, BEGIN LINE 528, DELETE AND INSERT AS FOLLOWS:

702.12 Consistency

Slump will be measured in accordance with 505 and shall be no less than 1 in. and no more than 4*6* in. except for concrete placed in foundation seals.

REVISION TO STANDARD SPECIFICATIONS, SPECIAL PROVISION, AND STANDARD DRAWINGS

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SECTION 702, BEGIN LINE 1286, INSERT AS FOLLOWS:

702.24 Application of Loads to and Acceptance of New Concrete

Except as otherwise hereinafter provided, application of loads to new concrete shall be in accordance with the following:

(a) Equipment or traffic will not be allowed on structures until test beams representing all concrete required to carry live loads have attained a flexural strength of 550 psi for third-point loading.

(b) Unbalanced backfill will not be allowed until test beams representing the concrete required to resist it have attained a flexural strength of 440 psi for third-point loading. The unbalanced height shall not exceed 10 ft until test beams representing the concrete have attained a flexural strength of 480 psi for third-point loading.

(c) The dead weight of steel or precast concrete superstructure shall not be placed on concrete until test beams representing the concrete have attained a flexural strength of 400 psi for third-point loading. A dead load shall not be placed on hammer-head piers until test beams representing have attained a flexural strength of at least 480 psi for third-point loading. The concrete floor, if to be placed thereon, shall not be poured until test beams representing the concrete supporting the superstructure have attained a flexural strength of at least 440 psi for third-point loading.

(d) Test beams representing concrete anchoring inserts to support falsework shall attain a flexural strength of a minimum of 480 psi for third-point loading, before a dead load of concrete is applied.

(e) When blended portland pozzolan cements, fly ash, or slag cement are used in bridge railings or concrete barrier and the temperature limitations in accordance with 702.05 are not met, the bridge railings or concrete barrier may be put into service when flexural strength testing performed on test specimens indicate a modulus of rupture of 500 psi has been attained.

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISION

E 503-BATJ-01 TERMINAL JOINT INDEX AND GENERAL NOTES (with markups)

INDEX	
SHEET NO.	SUBJECT
1	Terminal Joint Index and General Notes
2	Terminal Joint, Type PCCP
3	Terminal Joint, Type HMA

GENERAL NOTES:

1. When the approach pavement is Continuously Reinforced Concrete Pavement (CRCP) or HMA over CRCP, the details shall be as shown elsewhere on the plans.
2. The width of the concrete sleeper slab shall match the width of the reinforced concrete bridge approach slab.
3. Reinforcing bars shall be epoxy coated.
4. Sleeper slab and terminal joint shall be concrete, Class A.
5. ~~The driving surface of the concrete lug shall be surface sealed.~~

INDIANA DEPARTMENT OF TRANSPORTATION

TERMINAL JOINT
INDEX AND GENERAL NOTES

SEPTEMBER 2020

STANDARD DRAWING NO. E 503-BATJ-01

03/10/20
DESIGN STANDARDS ENGINEER DATE

04/02/20
CHIEF ENGINEER DATE

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISION

E 609-RCBA-01 REINFORCED CONCRETE BRIDGE APPROACH INDEX AND GENERAL NOTES (with markups)

INDEX	
SHEET NO.	SUBJECT
1	Reinforced Concrete Bridge Approach Index and General Notes
2	Reinforced Concrete Bridge Approach Square
3	Reinforced Concrete Bridge Approach Skewed
4	Reinforced Concrete Bridge Approach Section, Pavement Ledge, and Bar Bending Details

GENERAL NOTES:

1. All reinforcing bars shall be epoxy coated.
2. See Standard Drawing series E 609-TBAE for RCBA extensions used with bridge railing transitions.
3. ~~RCBA shall be surface sealed.~~

INDIANA DEPARTMENT OF TRANSPORTATION

REINFORCED CONCRETE BRIDGE APPROACH
INDEX AND GENERAL NOTES

SEPTEMBER 2020

STANDARD DRAWING NO. E 609-RCBA-01

ELIZABETH W. PHILLIPS REGISTERED No. 10200124 STATE OF INDIANA PROFESSIONAL ENGINEER

03/10/20
DESIGN STANDARDS ENGINEER DATE

04/02/20
CHIEF ENGINEER DATE

COMMENTS AND ACTION

609.02 Materials
609.13 Method of Measurement
609.14 Basis of Payment
609-B-311 RCBA SLAB OPTION FOR USE WITH SHORT TERM CLOSURES
702-R-691 STRUCTURAL CONCRETE
E 503-BATJ-01 TERMINAL JOINT INDEX AND GENERAL NOTES
E 609-RCBA-01 REINFORCED CONCRETE BRIDGE APPROACH INDEX AND GENERAL NOTES

DISCUSSION:
This item was introduced and presented by Mr. Reilman, who stated that reinforced concrete bridge approach slabs require a pozzolan, which means that surface sealing is no longer needed. Mr. Reilman also explained that Class C concrete is not needed for reinforced concrete bridge approach slabs, stating that the excess cement results in excess shrinkage, cracking, and cost, all of which are not necessary.

Mr. Reilman therefore proposed to incorporate the proposed changes shown above, delete references to surface seal and revert back to class A concrete. The surface seal requirement will also be removed from the standard drawing for the RCBA.

Since the revisions to 609.02, 609.13, and 609.14 are rather minor, it is proposed to incorporate those changes into the 2022 spec book instead of creating another RSP.
There was no further discussion and this item passed as submitted.

Motion: Mr. Reilman Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES	Action: X Passed as Submitted ___ Passed as Revised ___ Withdrawn
Standard Specifications Sections referenced and/or affected: 609 begin pg 480. Recurring Special Provision affected: 609-B-311 RCBA SLAB OPTION FOR USE WITH SHORT TERM CLOSURES Standard Drawing affected: E 503-BATJ-01 E 609-RCBA-01 Design Manual Sections affected: YES GIFE Sections affected: NO	X 2022 Standard Specifications, and changes from 702-R-691 ___ Revise Pay Items List X Revise RSP (No. 609-B-311) Effective: September 1, 2021 RSP Sunset Date: X Standard Drawing: E 503-BATJ-01 and E 609-RCBA-01 Effective: September 1, 2021 ___ Create RPD (No. ___) Effective: ___ GIFE Update ___ SiteManager Update ___ Frequency Manual Update

Mr. Reilman
Date: 3/18/21

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO SPECIAL PROVISIONS

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: confusion on spray paver usage when the plans dictate the shoulder to be placed simultaneously with mainline pavement.

PROPOSED SOLUTION: Clarify specifications for when HMA is exempted from spray paver use.

APPLICABLE STANDARD SPECIFICATIONS: 401, 410

APPLICABLE STANDARD DRAWINGS: N/A

APPLICABLE DESIGN MANUAL SECTION: N/A

APPLICABLE SECTION OF GIFE: N/A

APPLICABLE RECURRING SPECIAL PROVISIONS: RSP 401-R-417 and 410-R-418

PAY ITEMS AFFECTED: N/A

APPLICABLE SUB-COMMITTEE ENDORSEMENT:

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT

Phone Number: 317-522-9692

Date: 2/26/21

Mr. Reilman
Date: 3/18/21

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO SPECIAL PROVISIONS

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? N

Customer satisfaction? N

Congestion/travel time? N

Ride quality? N

Will this proposal reduce operational costs or maintenance effort? N

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? Y

Will this change provide the contractor more flexibility? N

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

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

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 SPECIAL PROVISIONS

401-R-417 HMA SPRAY PAVER AND EMULSION
410-R-418 SMA SPRAY PAVER AND EMULSION

401-R-417 HMA SPRAY PAVER AND EMULSION

(Adopted 05-21-20)

The Standard Specifications are revised as follows:

SECTION 401, BEGIN LINE 21, INSERT AS FOLLOWS:

401.03 Materials

Materials shall be in accordance with the following:

Asphalt Emulsion.....*902.01(b)2*
Asphalt Materials
PG Binder.....902.01(a)
Coarse Aggregates 904
Base Mixtures – Class D or Higher
Intermediate Mixtures – Class C or Higher
Surface Mixtures* – Class B or Higher
Fibers.....AASHTO M 325
Fine Aggregates 904
*Surface aggregate requirements are listed in 904.03(d).

SECTION 401, BEGIN LINE 360, DELETE AND INSERT AS FOLLOWS:

Rubblized concrete pavements shall be primed in accordance with 405. PCCP, milled asphalt surfaces, and ~~asphalt surfaces~~*new and existing asphalt surfaces* shall be tacked in accordance with 406*, except surfaces shall be tacked in accordance with 401.14 when mixture is placed with paving equipment in accordance with 409.03(c)4.* Contact surfaces of curbing, gutters, manholes, and other structures shall be tacked in accordance with 406.

SECTION 401, BEGIN LINE 381, INSERT AS FOLLOWS:

401.14 Spreading and Finishing

The mixture placed on a shoulder, approach, taper, or gore area ~~that is not placed simultaneously with a travel lane, turn lane, auxiliary lane, or ramp,~~ shall be placed by means of laydown equipment in accordance with 409.03(c)1, 409.03(c)2, or 409.03(c)3 and tacked in accordance with 406 and 409.03(a). No additional payment will be made if the Contractor elects to use equipment and materials in accordance with 409.03(c)4 and 902.01(b)2.

The mixture *placed on all travel lanes, turn lanes, auxiliary lanes, and ramps* shall be placed upon an approved surface by means of laydown equipment in accordance with 409.03(c)*4. This shall include a mixture placed simultaneously with a travel lane, turn lane, auxiliary lane, or ramp.*

The spray paver emulsion, in accordance with 902.01(b)2, shall be applied at a temperature recommended by the emulsion supplier and applied uniformly across the

entire width of pavement to be overlaid. Equipment shall not operate on the applied emulsion before the asphalt mix is placed.

The asphalt emulsion spray bar affixed to the spray paver shall not be turned off while applying the HMA except when passing over the plate sampling area. The plate sampling area shall be defined as 3.0 ft or less from the first edge of the plate sample encountered going upstream and continuing to 3.0 ft or less from the last edge of the plate sample encountered going upstream. This shall include any contractor plate samples. Tack coat will not be required in the plate sampling area.

The application rates of the spray paver emulsion are shown in the table below.

Spray Paver Emulsion Application Rate and Adjustment Factors for Surface Conditions			
Mixture Designation	*19.0 mm or 25.0 mm*	*12.5 mm*	*9.5 mm*
Tack Emulsion Application Rate, gal./sq yd	*0.25*	*0.20*	*0.17*
Existing Surface Condition	*Adjustment to application rate, gal./sq yd*		
PCCP, smooth or polished	*-0.03*	*-0.03*	*-0.03*
PCCP, broomed or textured	*0*	*0*	*0*
Flushed asphalt concrete surface	*-0.02*	*-0.03*	*-0.03*
Dense, unaged asphalt concrete surface	*0*	*0*	*0*
Open textured, dry, aged or oxidized asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*
Milled asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*

A pre-paving meeting between the Engineer and the Contractor shall be held on-site prior to beginning work. The following shall be reviewed:

(a) work schedule
(b) traffic control plan
(c) equipment calibrations and adjustments
(d) inspection and evaluation of the condition and adequacy of equipment, including units for transport of materials
(e) design mix formula
(f) the Contractor's proposed emulsion and mix application rates
(g) QCP in accordance with ITM 803
(h) the Contractor's authorized representative.

Prior to paving, both the planned quantity and lay rate shall be adjusted by multiplying by the MAF. When mixture is produced from more than one DMF for a given pay item, the MAF will be applied to the applicable portion of the mixture for each. The

temperature of each mixture at the time of spreading shall be less than 315°F whenever PG 64-22 or PG 70-22 binders are used or not more than 325°F whenever PG 76-22 binder is used. *No mixture shall be placed on a previously paved course that has not cooled to below 175°F. For mixtures compacted in accordance with 402.15, the temperature of each mixture at the time of spreading shall not be less than 245°F.*

SECTION 401, AFTER LINE 404, INSERT AS FOLLOWS:

HMA mainline and HMA shoulders which are 8 ft or more in width shall be placed with paving equipment in accordance with 409.03(c)1 *or 409.03(c)4*.

SECTION 401, AFTER LINE 869, INSERT AS FOLLOWS:

Spray paver emulsion will be measured by the ton.

SECTION 401, AFTER LINE 886, INSERT AS FOLLOWS:

The accepted quantities of spray paver emulsion will be paid for at the contract unit price per ton, complete in place.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Joint Adhesive, _____ course type	LFT
HMA Spray Paver Emulsion	*TON*
Liquid Asphalt Sealant	LFT
Profilograph, HMA	LS
QC/QA-HMA, _____, _____, _____, _____mm (ESAL[(1)]) (PG[(2)]) (Course[(3)]) (Mix[(4)])	TON

(1) ESAL Category as defined in 401.04
(2) Number represents the high temperature binder grade. Low temperature grades are - 22
(3) Surface, Intermediate, or Base
(4) Mixture Designation

SECTION 409, AFTER LINE 84, INSERT AS FOLLOWS:

4. Spray Paver

The paver shall be in accordance with 409.03(c)1 except as follows:

(a) The paver shall be self-priming, designed and built for applying the HMA and the asphalt emulsion simultaneously. The paver shall have a receiving hopper, feed system, asphalt emulsion storage tank, a calibrated metering system for measuring the emulsion volume applied, spray bar and a heated, variable width, combination vibratory screed or a combination vibratory-tamping bar screed.

REVISION TO SPECIAL PROVISIONS

401-R-417 HMA SPRAY PAVER AND EMULSION
410-R-418 SMA SPRAY PAVER AND EMULSION

(b) The paver shall be capable of spraying the asphalt emulsion, applying the asphalt mix and leveling the surface of the mat in one pass.

REVISION TO SPECIAL PROVISIONS

401-R-417 HMA SPRAY PAVER AND EMULSION
410-R-418 SMA SPRAY PAVER AND EMULSION

410-R-418 SMA SPRAY PAVER AND EMULSION

(Adopted 05-21-20)

The Standard Specifications are revised as follows:

SECTION 410, BEGIN LINE 21, INSERT AS FOLLOWS:

410.03 Materials

Materials shall be in accordance with the following:

Asphalt Emulsion .....*902.01(b)2*
Asphalt Materials
PG Binder, PG 76-22, PG 70-22.....902.01(a)
Coarse Aggregates, Class AS.....904
Fibers.....AASHTO M 325
Fine Aggregates (sand, mineral filler) 904

SECTION 410, BEGIN LINE 238, DELETE AND INSERT AS FOLLOWS:

Milled asphalt surfaces and asphalt surfaces shall be tacked in accordance with 406*, except surfaces shall be tacked in accordance with 401.14 when mixture is placed with paving equipment in accordance with 409.03(c)4.* Contact surfaces of curbing, gutters, manholes, and other structures shall be tacked in accordance with 406.

SECTION 410, BEGIN LINE 251, INSERT AS FOLLOWS:

410.14 Spreading and Finishing

The mixture placed on a shoulder, approach, taper, or gore area ~~that is not placed simultaneously with a travel lane, turn lane, auxiliary lane, or ramp,~~ shall be placed by means of laydown equipment in accordance with 409.03(c)1, 409.03(c)2, or 409.03(c)3 and tacked in accordance with 406 and 409.03(a). No additional payment will be made if the Contractor elects to use equipment and materials in accordance with 409.03(c)4 and 902.01(b)2.

The mixture *placed on all travel lanes, turn lanes, auxiliary lanes, and ramps* shall be placed upon an approved surface by means of laydown equipment in accordance with 409.03(c)*4. This shall include a mixture placed simultaneously with a travel lane, turn lane, auxiliary lane, or ramp.*

The spray paver emulsion, in accordance with 902.01(b)2, shall be applied at a temperature recommended by the emulsion supplier and applied uniformly across the entire width of pavement to be overlaid. Equipment shall not operate on the applied emulsion before the asphalt mix is placed.

The asphalt emulsion spray bar affixed to the spray paver shall not be turned off while applying the HMA except when passing over the plate sampling area. The plate sampling area shall be defined as 3.0 ft or less from the first edge of the plate sample

encountered going upstream and continuing to 3.0 ft or less from the last edge of the plate sample encountered going upstream. This shall include any contractor plate samples. Tack coat will not be required in the plate sampling area.

The application rates of the spray paver emulsion are shown in the table below.

Spray Paver Emulsion Application Rate and Adjustment Factors for Surface Conditions			
Mixture Designation	*19.0 mm*	*12.5 mm*	*9.5 mm*
Tack Emulsion Application Rate, gal./sq yd	*0.25*	*0.20*	*0.17*
Existing Surface Condition	*Adjustment to application rate, gal./sq yd*		
PCCP, smooth or polished	*-0.03*	*-0.03*	*-0.03*
PCCP, broomed or textured	*0*	*0*	*0*
Flushed asphalt concrete surface	*-0.02*	*-0.03*	*-0.03*
Dense, unaged asphalt concrete surface	*0*	*0*	*0*
Open textured, dry, aged or oxidized asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*
Milled asphalt concrete surface	*+0.02*	*+0.01*	*+0.01*

A pre-paving meeting between the Engineer and the Contractor shall be held on-site prior to beginning work. The following shall be reviewed:

(a) work schedule
(b) traffic control plan
(c) equipment calibrations and adjustments
(d) inspection and evaluation of the condition and adequacy of equipment, including units for transport of materials
(e) design mix formula
(f) the Contractor's proposed emulsion and mix application rates
(g) QCP in accordance with ITM 803
(h) the Contractor's authorized representative.

Mixtures in areas inaccessible to mechanical devices may be placed by other methods. The temperature of mixture at the time of spreading shall be no more than 315°F whenever PG 70-22 binder is used or no more than 325°F whenever PG 76-22 binder is used. *The temperature of each mixture shall not be less than 245°F at the time of spreading when placed with paving equipment in accordance with 409.03(c)2 or 409.03(c)3. No mixture shall be placed on a previously paved course that has not cooled to less than 175°F.*

SECTION 410, AFTER LINE 488, INSERT AS FOLLOWS:

Spray paver emulsion will be measured by the ton.

REVISION TO SPECIAL PROVISIONS

401-R-417 HMA SPRAY PAVER AND EMULSION
410-R-418 SMA SPRAY PAVER AND EMULSION

SECTION 410, AFTER LINE 497, INSERT AS FOLLOWS:

The accepted quantities of spray paver emulsion will be paid for at the contract unit price per ton, complete in place.

Adjustments to the contract payment with respect to mixture, density, and smoothness for mixture produced will be included in a quality assurance adjustment pay item. The unit price for this pay item will be $1.00 and the quantity will be in units of dollars. The quantity is the total calculated in accordance with 410.19. A change order developed in accordance with 109.05 will be prepared to reflect contract adjustments.

Payment will be made under:

Pay Item	**Pay Unit Symbol**
Joint Adhesive, _____ course type	LFT
SMA Spray Paver Emulsion	*TON*
QC/QA-HMA, _____, _____, _____, _____ mm, - SMA (ESAL[1])(PG[2])(Course[3])(Mix[4])	TON
Quality Assurance Adjustment	DOL

(1) ESAL Category as defined in 410.04
(2) Number represents the high temperature binder grade. Low temperature grades are - 22
(3) Surface or Intermediate
(4) Mixture Designation

SECTION 409, AFTER LINE 84, INSERT AS FOLLOWS:

4. Spray Paver

The paver shall be in accordance with 409.03(c)1 except as follows:

(a) The paver shall be self-priming, designed and built for applying the HMA and the asphalt emulsion simultaneously. The paver shall have a receiving hopper, feed system, asphalt emulsion storage tank, a calibrated metering system for measuring the emulsion volume applied, spray bar and a heated, variable width, combination vibratory screed or a combination vibratory-tamping bar screed.

(b) The paver shall be capable of spraying the asphalt emulsion, applying the asphalt mix and leveling the surface of the mat in one pass.

COMMENTS AND ACTION

401-R-417 HMA SPRAY PAVER AND EMULSION
410-R-418 SMA SPRAY PAVER AND EMULSION

DISCUSSION:
Mr. Reilman introduced and presented this item explaining that there has been some confusion on spray paver usage when the plans dictate that the shoulder is to be placed simultaneously with the mainline pavement.

Mr. Reilman proposed to incorporate the above shown revisions which will clarify the specifications for when HMA is exempted from spray paver use.

Mr. Koch asked if the use of negative language for 409.03(c)1-3 will create potential confusion with the spray paver. Mr. Awwad suggested the revisions shown above, in 401.14 and 410.14, which may make more sense and may properly account for any odd scenarios. Mr. Reilman revised his motion.

These will remain as RSPs with the revised Basis for Use of ""Required for contracts as determined by the Division of Materials and Tests."

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

Motion: Mr. Reilman Second: Mr. Koch Ayes: 10 Nays: 0 FHWA Approval: YES	Action: ___ _X_ ___	 Passed as Submitted Passed as Revised Withdrawn
Standard Specifications Sections referenced and/or affected: 401 begin pg. 287; 410 begin pg. 336. Recurring Special Provision references in: 401-R-417 HMA SPRAY PAVER AND EMULSION 410-R-418 SMA SPRAY PAVER AND EMULSION Standard Drawing affected: NONE Design Manual Sections affected: NONE GIFE Sections cross-references: NONE	___ ___ ___ _X_ ___ ___ ___ ___ ___	2024 Standard Specifications Revise Pay Items List Create RSP (No.___) Effective: RSP Sunset Date: Revise RSP (No. 401-R-417 , 410-R-418) Effective: September 1, 2021 RSP Sunset Date: Standard Drawing Effective: Create RPD (No. ___) Effective: GIFE Update SiteManager Update Frequency Manual Update

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISION

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The amount of latex modifier required in the 509 specification was inadvertently omitted.

PROPOSED SOLUTION: Include a statement showing the required amount of latex modifier in 509.04(b).

APPLICABLE STANDARD SPECIFICATIONS: None

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: Yes

APPLICABLE SECTION OF GIFE: TBD

APPLICABLE RECURRING SPECIAL PROVISIONS: 509-R-722

PAY ITEMS AFFECTED: None

APPLICABLE SUB-COMMITTEE ENDORSEMENT: None

IMPACT ANALYSIS (attach report):

Submitted By: Jim Reilman

Title: State Materials Engineer

Organization: INDOT, Division of Materials and Tests

Phone Number: 317-522-9692

Date: 3/10/21

Mr. Reilman
Date: 3/18/21

STANDARD SPECIFICATIONS, SPECIAL PROVISIONS AND STANDARD DRAWINGS

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISION

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? N/A

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 AND SPECIAL PROVISION

509-R-722 PCCP JOINT REPAIR

(Note: This RSP 509-R-722 was considered on December 17, 2020 meeting and approved to be incorporated into 2022 SS. Only affected section shown here. For a full content of this RSP please go to: https://www.in.gov/dot/div/contracts/standards/rsp/sep19/sec500.htm)

509-R-722 PCCP JOINT REPAIR

(Adopted 12-17-20)

[509.04 Concrete Mix Criteria]

(b) RHCC, LMC, or LMC-VE

RHCC, LMC, or LMC-VE shall be proportioned to meet the following requirements and properties:

Portland cement content for LMC	*658 lb/cu yd, minimum*
Rapid hardening cement content for RHCC or LMC-VE	*658 lb/cu yd, minimum*
Latex modifier for LMC or LMC-VE	*3.5 gal/94 lb cement*
Maximum allowable water/cementitious ratio for LMC	*0.400[A]*
Maximum allowable water/cementitious ratio for LMC-VE	*0.440[A]*
Maximum allowable water/cementitious ratio for RHCC	*0.450[B]*
Slump	*3 to 7 in.[C]*
Air content for RHCC	*6.5% ±1.5%[D]*
Air content for LMC and LMC-VE	*0.0% - 6.0%*
Minimum modulus of rupture	*500 psi[E]*
Minimum compressive strength	*3,200 psi[E]*
Maximum shrinkage in air	*0.060% at 28 days[F]*

[A] Including the water in the latex.

[B] During production of RHCC, the water cement ratio shall be maintained within ±0.020 of the target stated on the CMDP, not to exceed 0.450.

[C] Measured four to five minutes after discharge from the mixer.

[D] If the RHCC has a permeability of 900 coulombs or less at 56 days, the acceptable range of air content is allowed to be the same as LMC and LMC-VE. Verification of this property will be determined from testing of specimens cast at the trial batch. Testing will be done per AASHTO T277, with the value determined by averaging the result of two specimens.

[E] Concrete beams and cylinders cast for the purpose of evaluating the mix criteria shall be cured in accordance with AASHTO T23 Section 10.1, Standard Cure conditions. RHCC and LMC-VE shall achieve the minimum modulus of rupture in 12 hours or less. LMC shall achieve the minimum modulus of rupture in 24 hours or less. RHCC, LMC and

REVISION TO STANDARD SPECIFICATIONS AND SPECIAL PROVISION

509-R-722 PCCP JOINT REPAIR

LMC-VE shall provide opening to traffic within the requirements for maintenance of traffic and lane closure restrictions.

[F] *The maximum allowable shrinkage will only apply if the Contractor requests to omit tooling the longitudinal joint prior to sawing. Testing shall be in accordance with ASTM C157 and conducted on specimens cast from concrete at the trial batch. Approval will be based on a Type A certification in accordance with 916, which shall be submitted to the Department's Concrete Engineer.*

(c) RSP

Prepackaged RSP material may be extended with a coarse aggregate as recommended

[……]

COMMENTS AND ACTION

509-R-722 PCCP JOINT REPAIR

DISCUSSION:

This item was introduced and presented by Mr. Reilman who humbly explained that the amount of latex modifier required in the 509 specification was inadvertently omitted.

Mr. Reilman proposed to include a statement showing the required amount of latex modifier in 509.04(b).

Since this RSP has been incorporated into the new 2022 spec book, it is proposed to also incorporate this minor revision into the 2022 spec book, and not create a new RSP.

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: . Recurring Special Provision references in: NONE Standard Drawing affected: NONE Design Manual Sections affected: NONE GIFE Sections cross-references: NONE	X ___ ___ ___ ___ ___ ___ 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 Frequency Manual Update