



# INDIANA DEPARTMENT OF TRANSPORTATION

*Driving Indiana's Economic Growth*

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**Mitchell E. Daniels, Jr., Governor**  
**Michael B. Cline, Commissioner**

## FINAL DRAFT MINUTES

**April 19, 2011 Standards Committee Meeting**  
**(No Changes to First Draft Minutes)**

May 12, 2011

TO: Standards Committee

FROM: Scott Trammell, Secretary

RE: Minutes for the April 19, 2011 Standards Committee Meeting

The Standards Committee meeting was called to order by Mr. Miller at 10:02 a. m. on April 19, 2011 in the N955 Bay Window Conference Room. The meeting was adjourned at 11:43 a.m.

The following committee members were in attendance:

Mark Miller, Chairman  
Greg Pankow, Constr. Mgmt.  
Brian Zafar\*\*, Roadway Services  
Ron Walker, Materials Mgmt.  
Tom Caplinger, Crawfordsville Dist.

Dave Andrews, Pvmt. Eng.  
Ron Heustis\*, Contract Admin.  
Dave Boruff, Traffic Admin.  
Randy Strain, Str. Services

\*Proxy for Bob Cales

\*\*Proxy for John Wright

Also in attendance were the following:

Bren George, FHWA  
Scott Trammell, Secretary  
Jim Reilman, INDOT  
Tony Uremovich, INDOT

Mike Byers, Concrete Pvmt Assc.  
Steve Fisher, INDOT SiteManager  
Paul Berebitsky, ICA  
Lana Podorvanova, INDOT

The following agenda items were considered:

### A. GENERAL BUSINESS ITEMS

OLD BUSINESS

Mr. Miller addressed the Wireless Detector RSP 805-T-173 which was approved previously to be incorporated into the 2012 spec book. It has been determined that RSP 805-T-173 conflicts with other RSP's, so rather than incorporate it into the 2012 spec book, Mr. Miller recommended keeping it as a RSP. RSP 805-T-173 can be revisited later once all the other associated RSP's are cleaned up. Mr. Boruff concurred with this recommendation.

NEW BUSINESS

1. Approval of Minutes from February 17, 2011 meeting

ACTION: Approved as Submitted

Motion: Mr. Strain  
Second: Mr. Walker  
Ayes: 8  
Nays: 0

2. An update of the List of Pay Items in Section 715 (2010 SS)

Brief discussion and explanation by Mr. Trammell, all are in agreement with the proposed editorial revisions.

3. December 2011 Standards Committee meeting coincides with the APAI Winter Conference and will require a change to the Standards Committee meeting date.

B. CONCEPTUAL PROPOSAL ITEMS

OLD BUSINESS

*(No items considered)*

NEW BUSINESS

1. WELDED WIRE REINFORCEMENT FOR USE IN BRIDGE CONSTRUCTION

DISCUSSION: This conceptual proposal was introduced by Mr. Strain and explained as shown on the proposal page, with the understanding that this may be brought back as a Recurring Special Provision. Mr. Reilman, Mr. Anderson and Mr. Strain volunteered to be involved in this committee to formulate this new Unique Special Provision. Mr. George (FHWA) said they also have a materials person that can be involved in this group. Mr. Miller and Mr. Strain also welcomed assistance and input from Mr. Barrows of Engineered Wire Products, Inc. Mr. Heustis offered some insight on reinforcing steel and Mr. Miller offered to include Tommy Nantung, from Research, as a part of the committee.

2. AN UPDATE OF THE UNIQUE SPECIAL PROVISION FOR SEMI-LIGHTWEIGHT CONCRETE

DISCUSSION: This conceptual proposal was introduced by Mr. Strain, concerning the use of semi-lightweight concrete. Mr. Miller inquired

about the use of this material and the control of the material. Mr. Strain explained the reasoning behind the proposal, and that the designer should demonstrate need, not just availability and cost. There was further discussion by Mr. Walker and Mr. Reilman concerning quality control issues associated with this material. Mr. Reilman expressed concern over the Department having more control over the use of the material and not leaving it up to the designer or industry. Mr. Walker said we have other means to control the material, such as a QCP.

Mr. Miller asked who would be involved in this committee, and Mr. Strain recommended Mr. Zander and Mr. McCool.

3. SHOP-APPLIED METALIZING: ITS PRACTICALITY AND COST-TO-BENEFIT

DISCUSSION: This conceptual proposal was introduced and explained by Mr. Strain as stated in the proposal page. Mr. Miller asked if we do not have that as an option right now and Mr. Strain confirmed that we do not. Mr. Strain commented that the initial investment of doing this in the field has a high initial cost. There was further discussion on how and when the metalizing could and should be accomplished.

It was agreed that the individuals to be included in the committee would be Mr. Duncan (FHWA), Todd Tracy, Mr. Reilman, and Mr. Strain.

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

OLD BUSINESS

(No items considered)

NEW BUSINESS

Item No. 01 04/19/11 (2010 SS) Mr. Strain page 08

Recurring Special Provision:

701-B-132 PILE DRIVING

ACTION: PASSED AS REVISED

Item No. 02 04/19/11 (2010 SS) Mr. Pankow page 11

Recurring Special Provision:

108-C-XXX WORKING RESTRICTIONS DURING  
HOLIDAY PERIODS  
104-R-168 SCHEDULE OF OPERATIONS AND TRAFFIC  
CONTROL FOR UNDERSEALING, CONCRETE  
PATCHING, PLACING UNDERDRAINS, AND  
RESURFACING

ACTION: WITHDRAWN

Item No. 03 04/19/11 (2010 SS) Mr. Pankow page 18

Recurring Special Provision

725-R-541 SLIP LINING OF EXISTING PIPE

ACTION: WITHDRAWN

Item No. 04(a) 04/19/11 (2010 SS) Mr. Walker page 29  
501.14 Concrete Mixing and Transportation  
502.10 Concrete Mixing and Transportation

ACTION: PASSED AS SUBMITTED (SEE COMMENTS)

Item No. 04(b) 04/19/11 (2010 SS) Mr. Walker page 29  
503.02 Materials  
506.02 Materials  
507.02 Materials

ACTION: WITHDRAWN (SEE COMMENTS)

cc: Committee Members (11)  
FHWA (2)  
ICA (1)

FINAL DRAFT MINUTES

1. CONCEPTUAL PROPOSAL

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WELDED WIRE REINFORCEMENT FOR USE IN BRIDGE CONSTRUCTION

PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The Department is interested in procedures and materials that will accelerate the process of bridge construction. A product which can aid the Department in this endeavor is Welded Wire Reinforcement. This product has been used in other states in prestressed concrete beams and bridge decks. At this time, our Standard Specifications contain no provisions for use of this material in bridge construction.

PROPOSED SOLUTION: Through the Standards Committee, develop a small ad-hoc committee to develop a unique special provision for this material which includes the method of acceptance, measurement, and payment. This unique special provision can be used on projects where methods of ABC (accelerated bridge construction) are deemed necessary.

APPLICABLE STANDARD SPECIFICATIONS: 703

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: 404 & 406

APPLICABLE SECTION OF GIFE: None

APPLICABLE RECURRING SPECIAL PROVISIONS: None

PAY ITEMS AFFECTED: 703-06028 & 06029

Submitted By: Randy Strain

Title: Bridge Standard and Policy Engineer

Organization: INDOT Technical Support

Phone Number: 232-3339

Date: 03-14-11

APPLICABLE SUB-COMMITTEE ENDORSEMENT:

2. CONCEPTUAL PROPOSAL

UPDATE OF THE UNIQUE SPECIAL PROVISION FOR SEMI-LIGHTWEIGHT CONCRETE

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Semi-lightweight concrete is used in prestressed concrete beams in order to reduce the weight of the beam and extend the span. This material is not being judiciously used. In fact, some design firms actually have stated that they begin their beam designs using semi-lightweight concrete. This material certainly has aspects within design where its use is to the Department's advantage, but recently this material has been used for ease of delivery.

PROPOSED SOLUTION: We currently have a unique special provision for this material. This provision may need to be updated and new materials added. The provision may include directions for use or specific conditions of use. Through the direction of the Standards Committee, it is proposed that an ad-hoc committee be assembled in order to produce this revised unique special provision with the input of designers, manufacturers, and construction management.

APPLICABLE STANDARD SPECIFICATIONS: 707

APPLICABLE STANDARD DRAWINGS: N.A.

APPLICABLE DESIGN MANUAL SECTION: N.A.

APPLICABLE SECTION OF GIFE: N.A.

APPLICABLE RECURRING SPECIAL PROVISIONS: N.A.N.A.

PAY ITEMS AFFECTED:

Submitted By: Randy Strain

Title: Bridge Standards and Policy Engineer

Organization: INDOT Technical Support

Phone Number: 232-3339

Date: 03-15-11

APPLICABLE SUB-COMMITTEE ENDORSEMENT:

3. CONCEPTUAL PROPOSAL

SHOP-APPLIED METALIZING: PRACTICALITY AND COST-TO-BENEFIT

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The Department currently has a unique special provision for field applied metalizing. This method of application may have a benefit in analyzing the cost-to-benefit when looking at the life cycle costs. However, the initial investment is substantial. A much more practical approach is shop-applied metalizing where the initial cost is much less and the overall life cycle is still achieved. At this time the Department has no provisions for shop-applied metalizing.

PROPOSED SOLUTION: Through the Standards Committee, develop a small ad hoc committee to develop a unique special provision for this material which includes the method of acceptance, measurement and payment.

APPLICABLE STANDARD SPECIFICATIONS: 909 and 619

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: N.A.

Submitted By: Randy Strain

Title: Bridge Standards and Policy Engineer

Organization: INDOT Technical Support

Phone Number: 232-3339

Date: 03-15-11

APPLICABLE SUB-COMMITTEE ENDORSEMENT:

SPECIFICATION REVISIONS  
RECURRING SPECIAL PROVISION

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: Recent problem on contracts where different wait times prior to pile restrike are required for different bridges on the same contract. The current 701-B-132 RSP is unable to address these situations.

PROPOSED SOLUTION: Change the 701-B-132 RSP to accommodate a restrike time per bridge.

APPLICABLE STANDARD SPECIFICATIONS: None

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION:

APPLICABLE SECTION OF GIFE: None

APPLICABLE RECURRING SPECIAL PROVISIONS: 701-B-132

Submitted By: Randy Strain

Title: Bridge Policy and Standards Engineer,  
Bridge Design, Inspection, Hydraulics, and Technical Support Division

Organization: INDOT

Phone Number: 2-3339

Date: March 16, 2011

APPLICABLE SUB-COMMITTEE ENDORSEMENT? Ad hoc committee consisting of: Ron Heustis, Jim Reilman, Mir Zaheer.

RECURRING SPECIAL PROVISION  
701-B-132 PILE DRIVING

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(Basis for Use: As determined necessary by project designer.  
Proposed changes shown strikethrough and underlined.)

701-B-132 PILE DRIVING

(Revised XX-XX-11)

The method for driving the piles ~~at each bridge file number~~ will be by the formula specified ~~in~~ below for each bridge file number.

The pile and driving equipment form to be submitted by the Contractor is available on the Department's website.

The Contractor shall ~~allow~~ wait ~~the specified minimum time~~ hours ~~the specified number of hours~~ indicated below ~~to pass from the time that driving is complete~~ prior to restriking the pile. If the minimum ~~number of hours~~ time shown is 0, restrike is not required.

<u>Bridge File on Plans</u>	<u>Formula Specified in</u>	<u>Minimum Time Number of Hours Prior to Restrike (Hours)</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

COMMENTS AND ACTION

701-R-132 PILE DRIVING

DISCUSSIONS: This item was introduced by Mr. Strain, and further explained by Mr. Reilman.

Mr. Reilman explained the need for elapsed time associated with restriking of piles, as shown in the Recurring Special Provision 701-R-132.

Mr. Heustis offered a few editorial changes.

Mr. Heustis and Mr. Reilman both concurred that the determination should come from the designer as recommended by the Office of Geotechnical Services.

Mr. Strain motioned to approve this item as amended, and re-motioned for approval.

Mr. Heustis further explained some of the variables involved in determining the time needed for striking as being dependent upon the soil type, the approval by the Geotechnical Engineer (per the information contained in the geotechnical report), and the size and depth of the pile.

Motion: Mr. Strain Second: Mr. Walker Ayes: 8 Nays: 0	Action: <input type="checkbox"/> Passed as Submitted <input checked="" type="checkbox"/> Passed as Revised <input type="checkbox"/> Withdrawn
Standard Specifications Sections affected: <p style="text-align: center;">NONE</p> Recurring Special Provision affected: <p style="text-align: center;">701-R-132 PILE DRIVING</p> Standard Sheets affected: <p style="text-align: center;">NONE</p> Design Manual Sections affected: <p style="text-align: center;">NONE</p> GIFE Sections cross-references: <p style="text-align: center;">NONE</p>	<input type="checkbox"/> 20__ Standard Specifications Book <input type="checkbox"/> Revise Pay Items List <input type="checkbox"/> Create RSP (No.____) Effective ____Letting RSP Sunset Date: ____ <input checked="" type="checkbox"/> Revise RSP (No.701-R-132) Effective Sept. 01, 2011 Letting RSP Sunset Date: ____ Standard Drawing Effective ____ <input type="checkbox"/> Create RPD (No. ____) Effective ____Letting <input type="checkbox"/> Technical Advisory GIFE Update Req'd.? Y __ N __ By ____ Addition or ____ Revision Frequency Manual Update Req'd? Y__N__ By ____ Addition or ____ Revision Received FHWA Approval? Yes

SPECIFICATION REVISIONS  
RECURRING SPECIAL PROVISION

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: A few Districts are inserting working restrictions around holidays into contracts.

PROPOSED SOLUTION: Delete the provisions that the various Districts are using and combine into one general working restriction special provision that would be used in all contracts in all Districts.

APPLICABLE STANDARD SPECIFICATIONS: None

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: None

APPLICABLE SECTION OF GIFE: None

APPLICABLE RECURRING SPECIAL PROVISIONS: Delete 108-C-202; propose to create new RSP

PAY ITEMS AFFECTED: None

Submitted By: Greg Pankow

Title: State Construction Engineer

Organization: INDOT

Phone Number: 2-5502

Date: March 15, 2011

APPLICABLE SUB-COMMITTEE ENDORSEMENT: An ad hoc committee consisting of: Roland Fegan, Jim Keefer, Jeff Logman, Mark Miller, Brad Minnick, Bart Mueller, Joe Novak, Greg Pankow, and Jim Reilman. ICA was provided an opportunity to review and comment.

RECURRING SPECIAL PROVISION

108-C-XXX WORKING RESTRICTIONS DURING HOLIDAY PERIODS

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108-C-XXX WORKING RESTRICTIONS DURING HOLIDAY PERIODS

(Adopted XX-XX-11)

The Standard Specifications are revised as follows:

SECTION 108, AFTER LINE 334, INSERT AS FOLLOWS:

*Contractors will not be permitted to work during the following holiday periods unless prior written approval is received from the Engineer. All deliveries and traffic coming from suppliers shall cease during the Department-ordered suspensions of work listed below. No time extensions to closure periods, intermediate completion dates, or contract completion dates will be granted for suspending work during these holiday periods. All times listed shall be local time.*

*(a) New Year's Day. If New Year's Day falls on Sunday, work shall be suspended from noon December 31 until sunrise January 3. If New Year's Day falls on a Monday through Saturday, work shall be suspended from noon December 31 until sunrise January 2.*

*(b) Good Friday. Work shall be suspended from noon on Good Friday until sunrise Monday.*

*(c) Memorial Day. Work shall be suspended from noon Friday before Memorial Day until sunrise Tuesday, the day after Memorial Day.*

*(d) Independence Day. If Independence Day falls on a:*

*Sunday - Work shall be suspended from noon Friday July 2 until sunrise Tuesday July 6.*

*Monday - Work shall be suspended from noon Friday July 1 until sunrise Tuesday July 5.*

*Tuesday - Work shall be suspended from noon Friday June 30 until sunrise Wednesday July 5.*

*Wednesday - Work shall be suspended from sunset on Tuesday July 3 until sunrise Thursday July 5.*

*Thursday - Work shall be suspended from noon Wednesday July 3 until sunrise Monday July 8.*

*Friday - Work shall be suspended from noon Thursday July 3 until sunrise Monday July 7.*

RECURRING SPECIAL PROVISION

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108-C-XXX WORKING RESTRICTIONS DURING HOLIDAY PERIODS

*Saturday - Work shall be suspended from noon Thursday July 2 until sunrise Monday July 6.*

*(e) Labor Day. Work shall be suspended from noon Friday before Labor Day until sunrise Tuesday, the day after Labor Day.*

*(f) Thanksgiving Day. Work shall be suspended from noon Wednesday before Thanksgiving Day until sunrise Monday after Thanksgiving Day.*

*(g) Christmas Day. Work shall be suspended from noon December 24 until sunrise December 27.*

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FINAL DRAFT MINUTES

RECURRING SPECIAL PROVISION

104-R-168 SCHEDULE OF OPERATIONS AND TRAFFIC CONTROL FOR UNDERSEALING,  
CONCRETE PATCHING, PLACING UNDERDRAINS, AND RESURFACING

(Proposed changes have shown highlighted in gray. Basis for Use: Required for all pavement undersealing,  
patching, shoulder drain placement, and resurfacing specified.)

104-R-168 SCHEDULE OF OPERATIONS AND TRAFFIC CONTROL FOR UNDERSEALING,  
CONCRETE PATCHING, PLACING UNDERDRAINS, AND RESURFACING

(Revised XX-XX-XX)

The Standard Specifications are revised as follows:

SECTION 104, AFTER LINE 343, INSERT AS FOLLOWS:

***(e) Schedule of Operations and Traffic Control for Undersealing, Concrete Patching, Placing Underdrains, and Resurfacing***

*Unless otherwise directed or permitted, the work specified shall be arranged and prosecuted in accordance with the applicable requirements of 107 and 801, and as set out herein.*

*All necessary barricades, flashing arrow signs, suitable lights, danger signals, signs, flaggers, and other traffic control devices shall be provided, erected and maintained for the protection of the workers and the safety of the public. Such protection shall be in accordance with 107.12 and as shown on the plans or as directed. Traffic shall be maintained such that the flow of traffic is interrupted for the shortest amount of time possible.*

***1. Construction Sequence***

*The construction shall be done in the following sequence, unless otherwise directed.*

- a. Undersealing shall be accomplished before all patching or other work within the pavement area is done.*
- b. The pavement patching shall be accomplished after undersealing is complete.*
- c. The underdrains shall be placed after the pavement patching is complete.*
- d. Resurfacing operations shall then begin.*

*The names and telephone numbers of the Superintendent and one other responsible employee shall be furnished. They shall be on call or available at night, on weekends, or during other non-working periods. These employees shall oversee the repair or replacement of all traffic control devices which may become damaged or inoperative.*

***2. Lane Closures***

*Only one lane in each direction shall be closed at a time, except as noted below. Traffic maintenance setups shall not be spaced closer than 3 mi (5 km) from one another on a one-way*

RECURRING SPECIAL PROVISION

104-R-168 SCHEDULE OF OPERATIONS AND TRAFFIC CONTROL FOR UNDERSEALING, CONCRETE PATCHING, PLACING UNDERDRAINS, AND RESURFACING

roadway. If a traffic maintenance setup extends beyond one or more ramps, an "Exits Right Lane Only" sign shall be placed.

On ~~all major~~ holiday weekends described in 108.08, \_\_\_\_\_ lanes of through traffic shall be maintained in each direction at all times. ~~from noon on the day before the weekend to 6:00 a.m. on the day after the weekend. Major holidays will be defined as New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day. Traffic shall be maintained on other holidays as directed.~~

\_\_\_\_\_ lanes of through traffic shall be maintained in each direction at all times during rush hour periods as directed. When work is performed during center lane closure on a three lane roadway, the median and center lanes may be closed during times other than rush hour periods as directed. Closure will be permitted for the center lane only at all other times.

### 3. Patching

During the patching operation of the outside lane or ramps, closure of such ramps will be permitted for the shortest possible time while patching is being done in the outside lane in the vicinity of ramp exits or entrances. Ramp closures will not be permitted during rush hour periods as directed.

Maintenance of traffic shall include a taper plus an additional length, both as shown on the plans, prior to reaching the construction area. The taper and additional length shall be delineated by drums spaced at intervals of 50 ft (15 m). One flashing arrow sign shall be placed at the beginning of the taper. A minimum of two drums or barricades shall be placed on the traffic approach side of each concrete patch or open hole.

### 4. Resurfacing

During resurfacing operations, \_\_\_\_\_ lanes of through traffic in each direction shall be maintained at all times from 5:00 a.m. to 9:00 p.m. A minimum on one lane of through traffic in each direction shall be maintained at all times from 9:00 p.m. to 5:00 a.m.

During the paving operation of the outside lane or ramps, closure of such ramps will be permitted for the shortest possible time while paving is being done in the outside lane in the vicinity of ramp exits or entrances, or in acceleration lanes, deceleration lanes, or gore areas. Ramp closures will not be permitted during rush hour periods as directed. The ramps for two consecutive interchanges shall not be closed at the same time.

During HMA base placement, the paving operation shall be limited to a segment including not more than two interchanges. All HMA base placement shall be completed in such segment prior to commencing with the next segment. When an outside lane is being paved, the adjacent shoulder shall be paved simultaneously.

RECURRING SPECIAL PROVISION

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104-R-168 SCHEDULE OF OPERATIONS AND TRAFFIC CONTROL FOR UNDERSEALING, CONCRETE PATCHING, PLACING UNDERDRAINS, AND RESURFACING

*Extension of a HMA course will be permitted for one lane, or one lane and shoulder, for a full day's placement. Such HMA course shall be placed on the adjacent lane and shoulder on the following day. If the Contractor does not plan to work on the following day, then such HMA course shall be placed on the adjacent lane and shoulder on the same day. An overnight lane closure shall be maintained on all courses over 165 lb/sq yd (90 kg/m<sup>2</sup>). Such closure shall be as shown on the plans.*

*The beginning and ending of each course shall, at the end of each day's operations, be feathered as directed to provide a smooth transition to the driving surface.*

SECTION 801, AFTER LINE 1155, INSERT AS FOLLOWS:

*The costs of furnishing, placing, moving, removal, and maintenance of the "Exits Right Lane Only" sign shall be included in the cost of construction signs type A.*

*The cost of maintenance of traffic during underseal operations shall be included in the costs of asphalt material for underseal and drilled holes for underseal. The cost of maintenance of traffic during pavement edge drain installation shall be included in the cost of underdrains.*

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COMMENTS AND ACTION

108-C-XXX WORKING RESTRICTIONS DURING HOLIDAY PERIODS  
 104-R-168 SCHEDULE OF OPERATIONS AND TRAFFIC CONTROL FOR UNDERSEALING,  
 CONCRETE PATCHING, PLACING UNDERDRAINS, AND RESURFACING

DISCUSSIONS: This item was introduced by Mr. Pankow who explained that it would make more sense to be consistent with all of the Districts, and asked that this proposal be approved as submitted.

Mr. Pankow further explained that the agreed upon dates can be relaxed should the need arise, but each District is currently in agreement with the dates shown.

Mr. Heustis pointed out that Sundays are already addressed in 108.08, and that holidays are defined in 101.26.

Much discussion ensued on whether or not this proposed RSP conflicts with what is already shown in the spec book.

Mr. Pankow offered that this be pulled pending further review and editing.

Motion: Mr. Pankow Second: Ayes: Nays:	Action: <input type="checkbox"/> Passed as Submitted <input type="checkbox"/> Passed as Revised <input checked="" type="checkbox"/> Withdrawn
Standard Specifications Sections affected: <p style="text-align: center;">NONE</p> Recurring Special Provision affected: 108-C-202 WORKING RESTRICTIONS MEMORIAL DAY, JULY FOURTH, LABOR DAY WEEKENDS; 104-R-168 SCHEDULE OF OPERATIONS AND TRAFFIC CONTROL FOR UNDERSEALING, CONCRETE PATCHING, PLACING UNDERDRAINS, AND RESURFACING	<input type="checkbox"/> 20__ Standard Specifications Book <input type="checkbox"/> Revise Pay Items List <input type="checkbox"/> Create RSP (No.____) Effective ____ Letting RSP Sunset Date: ____ <input type="checkbox"/> Revise RSP (No.____) Effective ____ Letting RSP Sunset Date: ____ Standard Drawing Effective ____ <input type="checkbox"/> Create RPD (No. ____) Effective ____ Letting <input type="checkbox"/> Technical Advisory
Standard Sheets affected: <p style="text-align: center;">NONE</p> Design Manual Sections affected: <p style="text-align: center;">NONE</p> GIFE Sections cross-references: <p style="text-align: center;">NONE</p>	GIFE Update Req'd.? Y __ N __ By ____ Addition or ____ Revision Frequency Manual Update Req'd? Y __ N __ By ____ Addition or ____ Revision Received FHWA Approval? ____

SPECIFICATION REVISIONS  
RECURRING SPECIAL PROVISION

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: There is confusion on the type of liner pipe the Department will allow to be deformed.

PROPOSED SOLUTION: Clarify the type of liner pipe the Department will allow to be deformed in RSP 725-R-541.

APPLICABLE STANDARD SPECIFICATIONS: None

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION: None

APPLICABLE SECTION OF GIFE: None

APPLICABLE RECURRING SPECIAL PROVISIONS: 725-R-541

Submitted By: Greg Pankow

Title: State Construction Engineer

Organization: INDOT

Phone Number: 2-5502

Date: April 7, 2011

APPLICABLE SUB-COMMITTEE ENDORSEMENT? Ad hoc committee consisting of: Rebecca Camarata, Mark Miller, Jim Reilman

RECURRING SPECIAL PROVISION

725-R-541 SLIP LINING OF EXISTING PIPE

(Proposed changes are shown highlighted in gray.  
Basis for Use: Required for all contracts with 725 pay items.  
RSP Sunset Date: 09-01-2011)

725-R-541 SLIP LINING OF EXISTING PIPE

(Revised 01-04-08)

The Standard Specifications are revised as follows:

SECTION 725, DELETE LINES 1 THROUGH 172.

SECTION 725, AFTER LINE 173 INSERT AS FOLLOWS:

**SECTION 725 – SLIP LINING OF EXISTING PIPE**

**725.01 Description**

*This work shall include installing a thermoplastic liner into an existing pipe and filling the space between the liner and the existing pipe with cellular concrete grout all in accordance with 105.03.*

**MATERIALS**

**725.02 Materials**

*Materials shall be in accordance with the following.*

<i>Cement, Type I or Type III .....</i>	<i>901.01(b)</i>
<i>Fine Aggregate.....</i>	<i>904</i>
<i>Flowable Backfill .....</i>	<i>213</i>
<i>Foam Concentrate.....</i>	<i>ASTM C869</i>
<i>Profile Wall HDPE Pipe Liner .....</i>	<i>907.25(b)</i>
<i>Profile Wall PVC Pipe Liner.....</i>	<i>907.25(c)</i>
<i>Solid Wall HDPE Pipe Liner .....</i>	<i>907.25(a)</i>
<i>Water .....</i>	<i>913.01</i>

*Structures to be lined with circular pipe shall be lined with solid wall HDPE liner, profile wall HDPE liner, or profile wall PVC liner. Structures to be lined with deformed pipe shall be lined with solid wall HDPE liner. Individual liner section lengths shall be a minimum of 19 ft (5.8 m), but shall not exceed 55 ft (16.7 m) unless approved. The pipe liner shall either be chosen from those shown on the Department's list of approved Thermoplastic Pipe Liners or shall be covered by a Type A certification in accordance with 916. If the pipe liner is not on the Department's list of approved Thermoplastic Pipe Liners, then the Type A certification must be furnished and the pipe liner must be approved by the Engineer prior to installation.*

RECURRING SPECIAL PROVISION

725-R-541 SLIP LINING OF EXISTING PIPE

(CONTINUED)

*Liner joints shall be bell and spigot, screw type, grooved press-on, fused, thermal welded, or other joint as recommended by the pipe liner manufacturer and shall be installed according to the manufacturer's recommended methods. Each liner joint shall be welded, fused, or joined according to the manufacturer's recommended methods. If a liner is welded, it shall be welded with a continuous weld for the circumference of the liner both inside and outside. The ends of pipe liners that are to be welded or fused shall be at the same ambient temperature  $\pm 5^{\circ}$  F. Welding, fusing, or joining shall be performed at all times by an installer trained and certified by either the pipe liner's manufacturer or the welding, fusing, or joining equipment manufacturer. A copy of the welder's, fuser's, or joiner's certificate shall be provided to the Engineer prior to the start of work. Destructive testing shall be done on a test section of pipe liner of the same size and material as the liner being installed. The method and frequency of destructive and non-destructive testing shall be as directed by the Engineer. The results of the destructive testing shall be provided on a Type A certification in accordance with 916.*

*All joints shall have sufficient mechanical strength to withstand the liner installation and grouting operations. Joints shall not reduce the hydraulic capacity of the liner.*

*The cellular concrete grout shall be designed in accordance with ASTM C 796 except as herein modified.*

*The admixtures, retarders, and plasticizers used in the grout shall be in accordance with the foam concentrate supplier's specifications.*

*The grout shall be made using the preformed foam process using foam generating equipment calibrated daily by the foam manufacturer to produce a precise and predictable volume of foam. The foam concentrate shall be certified by the manufacturer to have specific liquid/foam expansion ratio at a constant dilution ratio with water.*

*The specific job mix shall be submitted to the Engineer by either the foam concentrate supplier or the certified or licensed grouting contractor for approval prior to use on the contract. The mix shall have a minimum 28 day compressive strength of 150 psi (1040 kPa). The mix shall be tested by a laboratory approved by the Department or shall be approved based on prior acceptable performance on Department contracts.*

*Grout mixed off site shall be delivered to the job site in a truck mixer in accordance with 702.09 filled to half its capacity. The foam concentrate shall then be added to the cement mix in the truck and mixed to a uniform consistency.*

*Grout mixed on site shall be batched in a deck mate or similar device. Small batches of approximately 1 cubic yard (1 cubic meter) shall be mixed and pumped in a continuous operation.*

RECURRING SPECIAL PROVISION

725-R-541 SLIP LINING OF EXISTING PIPE

(CONTINUED)

*For each day worked or for each 100 cubic yards (100 cubic meters) placed, ~~four~~ 4 test cylinders measuring 3 in. by 6 in. (75 mm by 150 mm) shall be cast at the point of placement of the grout. Sampling, molding, curing, and compressive strength testing of the cylinders shall be in accordance with ASTM C 495, except as modified herein.*

*Initial curing shall be at a temperature of  $70^{\circ} \pm 10^{\circ}\text{F}$  ( $21.1^{\circ} \pm 5.5^{\circ}\text{C}$ ) and shall be from 2 to 5 days. After the initial curing, the test specimens shall be placed in a moist closet or moist room or stored in an enclosed curing tank above the water level. All specimens shall be kept in their molds in the moist storage for the remainder of the curing period. The specimens shall be tested at 28 days. At that time the specimens shall be prepared for testing in accordance with ASTM C 495 except the bearing surface may be ground or cut with a dry saw to meet surface tolerance. The specimens shall not be capped. Specimens shall be tested in compression as rapidly as possible to minimize drying. If more than one specimen is removed from the moist storage at the same time, these specimens shall be covered with a damp cloth until time of testing. The Contractor shall provide a Type A certification with the compressive strength results in accordance with 916.*

~~*Existing circular pipe structures shall be lined with solid wall high density polyethylene, HDPE, pipe liner; profile wall HDPE pipe liner; or profile wall polyvinyl chloride, PVC, pipe liner. Existing deformed pipe structures shall be lined with solid wall HDPE pipe liner.*~~

## **CONSTRUCTION REQUIREMENTS**

### **725.03 Construction Requirements**

#### **(a) Right-of-Entry Areas**

*If the right-of-way does not provide sufficient room for performance of the work, rights-of-entry from all necessary adjacent property owners shall be obtained by the Contractor in accordance with 107.14. A temporary fence shall be installed as required to prevent encroachment of the public or livestock into the work area. Upon completion of the work, disturbed areas on private property shall be restored in accordance with 107.14.*

#### **(a.1) Quality Control and Quality Assurance**

*A signed and dated QCP shall be prepared and submitted to the Engineer for acceptance at least 15 days prior to the start of slip lining the pipe. No work may begin until written notice has been received that the QCP has been accepted by the Engineer. Acceptance of the QCP will in no way relieve the Contractor of responsibility for installation procedures and testing requirements. The QCP shall include, as a minimum, identification of the QC representative by name and documentation verifying the QC representative's experience; the Contractor's method for cleaning and preparation of the existing pipe; method for joining, welding, or fusing the pipe joints; the personnel and certification of the personnel who will be welding or fusing the pipe liners; the method*

RECURRING SPECIAL PROVISION

725-R-541 SLIP LINING OF EXISTING PIPE

(CONTINUED)

*and frequency of destructive and non-destructive testing on the welded or fused joints; the initial testing of the first joining, welding, or fusing at each pipe liner installation location; the corrective action that will be taken if defective or non-passing joints are found; the grouting process including the daily calibration process procedures for the foam generating equipment; the inspection of bulkheads; the specific job mix of the foam concentrate; the grouting procedure and grouting process to ensure complete filling of voids; the corrective action to be taken if the foam compressive strength does not meet specifications; and the plan if the installation of the foam causes damage or deflection to the pipe liner.*

**(a.2) Quality Control (QC) Representative on Site**

*The QC representative shall either be a manufacturer's representative or a Professional Engineer with experience inspecting slip lining of pipes. A QC representative shall be present at the jobsite at the following milestones:*

- *Cleaning and preparation of the existing pipe,*
- *Initial testing of the first welding or fusing at each pipe liner installation location,*
- *Joining, welding, or fusing of the pipe liner,*
- *Inspection of bulkheads,*
- *Grouting procedure and process to ensure 100% filling of voids,*
- *Project clean-up.*

*The Contractor shall provide a minimum of 24 hours notice to the QC person prior to performing any of the above milestones. The QC person does not supersede the responsibility of the Contractor.*

**(b) Filling of Cavities Outside the Existing Pipe**

*All obvious cavities outside the existing pipe shall be filled with flowable backfill in accordance with 213 prior to the liner installation or with grout placed in conjunction with the grouting operation after the liner is installed.*

**(c) Liner Installation**

*Prior to commencing the liner installation, all jagged existing pipe edges or other deformities shall be repaired. All foreign material shall be removed from the existing pipe.*

*The inside diameter of the liner shall be in accordance with the following:*

<b>EXISTING CIRCULAR CMP STRUCTURES</b>	
<b>PAY ITEM DIAMETER in. (mm)</b>	<b>MINIMUM LINER INSIDE DIAMETER in. (mm)</b>
<i>12 (300)</i>	<i>10.0 (250)</i>
<i>15 (375)</i>	<i>11.7 (290)</i>

RECURRING SPECIAL PROVISION

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(CONTINUED)

18 (450)	14.3 (355)
21 (525)	16.8 (420)
24 (600)	18.5 (460)
27 (675)	20.7 (515)
30 (750)	23.5 (585)
33 (825)	26.1 (650)
36 (900)	29.5 (735)
42 (1050)	33.6 (840)
48 (1200)	39.2 (980)
54 (1350)	42.0 (1050)
60 (1500)	48.0 (1200)
66 (1650)	51.6 (1350)
72 (1800)	59.1 (1475)
78 (1950)	60.0 (1500)
84 (2100)	66.0 (1650)
90 (2250)	72.0 (1800)
96 (2400)	78.0 (1950)
102 (2550)	78.0 (1950)
108 (2700)	84.0 (2100)
114 (2850)	90.0 (2250)
120 (3000)	96.0 (2400)
126 (3150)	96.0 (2400)
132 (3300)	108.0 (2700)
138 (3450)	108.0 (2700)
144 (3600)	120.0 (3000)

<i>EXISTING CIRCULAR STRUCTURAL PLATE PIPE STRUCTURES</i>	
<i>PAY ITEM DIAMETER ft - in. (mm)</i>	<i>MINIMUM LINER INSIDE DIAMETER in. (mm)</i>
5 - 0 (1500)	48.0 (1200)
5 - 6 (1655)	51.7 (1290)
6 - 0 (1810)	59.1 (1475)
6 - 6 (1965)	59.1 (1475)
7 - 0 (2120)	59.1 (1475)
7 - 6 (2275)	72.0 (1800)
8 - 0 (2430)	78.0 (1950)
8 - 6 (2585)	84.0 (2100)
9 - 0 (2740)	90.0 (2250)
9 - 6 (2895)	96.0 (2400)
10 - 0 (3050)	96.0 (2400)
10 - 6 (3205)	96.0 (2400)
11 - 0 (3360)	108.0 (2700)

## RECURRING SPECIAL PROVISION

725-R-541 SLIP LINING OF EXISTING PIPE

(CONTINUED)

11 - 6 (3515)	108.0 (2700)
12 - 0 (3670)	120.0 (3000)

<i>EXISTING DEFORMED PIPE STRUCTURES</i>	
<i>PAY ITEM END AREA ft<sup>2</sup> (m<sup>2</sup>)</i>	<i>MINIMUM LINER INSIDE DIAMETER in. (mm)</i>
<i>CORRUGATED METAL PIPE-ARCH</i>	
<i>2 2/3 in. x 1/2 in. (68 mm x 13 mm) Corrugations</i>	
1.1 (0.10)	12.0 (300)
1.6 (0.15)	14.9 (370)
2.2 (0.20)	16.8 (420)
2.9 (0.27)	18.5 (460)
4.5 (0.42)	24.0 (600)
6.5 (0.60)	29.5 (735)
8.9 (0.83)	33.6 (840)
11.6 (1.08)	39.2 (980)
14.7 (1.37)	42.0 (1050)
18.1 (1.68)	48.0 (1200)
21.9 (2.03)	51.6 (1290)
26.0 (2.42)	59.1 (1475)
<i>3 in. x 1 in. (75 mm x 25 mm) Corrugations</i>	
15.6 (1.45)	42.0 (1050)
19.3 (1.79)	48.0 (1200)
23.2 (2.16)	51.6 (1290)
27.4 (2.55)	59.1 (1475)
32.1 (2.98)	60.0 (1500)
37.0 (3.44)	66.0 (1650)
42.4 (3.94)	72.0 (1800)
48.0 (4.46)	78.0 (1950)
59.2 (5.04)	78.0 (1950)
60.5 (5.62)	84.0 (2100)
67.4 (6.26)	90.0 (2250)
74.5 (6.92)	96.0 (2400)
<i>STRUCTURAL PLATE STEEL PIPE-ARCH</i>	
22 (2.0)	48.0 (1200)
24 (2.2)	51.7 (1290)
26 (2.4)	51.7 (1290)
28 (2.6)	59.1 (1475)
31 (2.9)	59.1 (1475)
33 (3.1)	59.1 (1475)
35 (3.3)	59.1 (1475)
38 (3.5)	59.1 (1475)

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725-R-541 SLIP LINING OF EXISTING PIPE

(CONTINUED)

40 (3.7)	59.1 (1475)
43 (4.0)	59.1 (1475)
46 (4.3)	72.0 (1800)
49 (4.6)	72.0 (1800)
52 (4.8)	78.0 (1950)
55 (5.1)	84.0 (2100)
58 (5.4)	84.0 (2100)
61 (5.7)	90.0 (2250)
64 (5.9)	90.0 (2250)
67 (6.2)	96.0 (2400)
71 (6.6)	96.0 (2400)
74 (6.9)	96.0 (2400)
78 (7.2)	96.0 (2400)
81 (7.5)	96.0 (2400)
85 (7.9)	96.0 (2400)
97 (9.0)	108.0 (2700)
102 (9.5)	108.0 (2700)
105 (9.8)	108.0 (2700)
109 (10.1)	120.0 (3000)

*Prior to commencing the liner installation operation, steps shall be taken by the Contractor to verify that a liner meeting the minimum inside diameter requirements can be successfully placed inside the existing pipe. If it is discovered prior to installation that a liner with the required inside diameter cannot fit, the inside and outside diameters of a substitute liner shall be submitted to the Engineer for approval. If this discovery is not made until after the liner installation has begun, the partially installed liner shall be removed. Inside and outside diameters for a substitute liner shall then be submitted to the Engineer for approval.*

*After the liner installation is complete and the liner has cooled to approximately the temperature of the existing pipe, the liner shall be cut so that each end is 8 in. (200 mm) outside the end of the existing pipe.*

*Grout shall be injected into the space between the existing pipe and the liner. The injection operation shall provide sufficient grout to fill all voids between the existing pipe and the liner over the entire structure length, but shall also be performed in a manner that does not distort the liner. Injection of the grout in lifts, use of spacers, or other safeguards shall be taken in order to keep the liner in position and prevent the liner from floating. The pressure developed in the space between the liner and the existing pipe shall not exceed the liner manufacturer's recommended maximum value.*

*All existing culverts, storm drains, underdrain pipes, drain tile, or other pipes that are directly connected to the lined structure shall be perpetuated. Grout shall not leak through the liner at these connections.*

RECURRING SPECIAL PROVISION

725-R-541 SLIP LINING OF EXISTING PIPE

(CONTINUED)

**725.04 Method of Measurement**

Thermoplastic liner will be measured by the linear foot (meter), complete in place. An allowance of 5 ft (1.5 m) of liner will be made for the perpetuation of an existing pipe through the liner.

No measurement will be made of liner joints or the length of joint welding or fusing, or other incidentals necessary to join sections of liner in accordance with the manufacturer's recommendations. The test section lengths of liner used for destructive testing will not be measured for payment.

No measurement will be made for a liner meeting the minimum inside diameter requirements that does not fit.

**725.05 Basis of Payment**

The accepted quantities of pipe liner, thermoplastic, will be paid for at the contract unit price per linear foot (meter) for the size of the existing pipe in which the liner is installed, complete in place. Perpetuating the direct connection of an existing pipe through the liner will be paid for by means of an allowance of 5 ft (1.5 m) of liner for each such connection.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit Symbol</b>
Pipe Liner, Thermoplastic, _____ in. (mm)..... diameter	LFT (m)
Pipe Liner, Thermoplastic, _____ sft (m2)..... area	LFT (m)

The cost of repairing jagged edges or deformities to existing pipe, filling cavities around the existing pipe with cellular concrete grout, acquisition and restoration of required right-of-entry areas, erection, maintenance, and removal of temporary fence, removing foreign material from the existing pipe, grouting the space between the existing pipe and the liner, and other incidentals will not be paid separately, but shall be included in the cost of the pay items in this section.

The cost of liner joints and other incidentals necessary to join sections of liner in accordance with the manufacturer's recommendations shall be included in the cost of the pay items in this section. All costs associated with having the QC representative on site shall be included in the cost of the pay items in this section.

The cost of training and certifying an installer, destructive and non-destructive testing, pipe liner, and incidentals used in destructive testing, and all costs associated

RECURRING SPECIAL PROVISION

725-R-541 SLIP LINING OF EXISTING PIPE

(CONTINUED)

*with the development of an acceptable QCP shall be included in the cost of the pay items in this section.*

*All welded or fused joints that do not pass the destructive testing will be rejected. The non-compliant joint shall be removed, a new joint fabricated, and retested, all with no additional compensation.*

*In situations where the condition of the existing pipe requires that a substitute liner be utilized, there will be no reduction in payment for the installation of the substitute liner. There will be no additional payment for the additional grout required to fill the larger void between the existing pipe and the smaller liner.*

*There will be no payment for the installation or removal of any liner that cannot be successfully installed due to the condition of the existing pipe. There will be no payment for a liner meeting the minimum inside diameter requirements that does not fit.*

*If the existing pipe or any other object not designated for removal is damaged while performing this work, it shall be considered unauthorized work and repaired or replaced in accordance with 105.11.*

FINAL DRAFT MINUTES

COMMENTS AND ACTION

725-R-541 SLIP LINING OF EXISTING PIPE

DISCUSSIONS: This item was introduced by Mr. Pankow.

Following a brief discussion between Mr. Reilman and Mr. Pankow, this item was withdrawn.

Mr. Miller suggested that Mr. Walker and the pipe committee look into this further.

<p>Motion: Second: Ayes: Nays:</p>	<p>Action:  <input type="checkbox"/> Passed as Submitted  <input type="checkbox"/> Passed as Revised  <input checked="" type="checkbox"/> Withdrawn</p>
<p>Standard Specifications Sections affected:  <p style="text-align: center;">NONE</p> <p>Recurring Special Provision affected:  <p style="text-align: center;">725-R-541 SLIP LINING OF EXISTING PIPE</p> <p>Standard Sheets affected:  <p style="text-align: center;">NONE</p> <p>Design Manual Sections affected:  <p style="text-align: center;">NONE</p> <p>GIFE Sections cross-references:  <p style="text-align: center;">NONE</p> </p></p></p></p></p>	<p><input type="checkbox"/> 20__ Standard Specifications Book  <input type="checkbox"/> Revise Pay Items List  <input type="checkbox"/> Create RSP (No.____)  Effective ____ Letting  RSP Sunset Date: ____  <input type="checkbox"/> Revise RSP (No.____)  Effective ____ Letting  RSP Sunset Date: ____  Standard Drawing Effective ____  <input type="checkbox"/> Create RPD (No. ____)  Effective ____ Letting  <input type="checkbox"/> Technical Advisory  GIFE Update Req'd.? Y __ N __  By ____ Addition or ____ Revision  Frequency Manual Update Req'd? Y __ N __  By ____ Addition or ____ Revision  Received FHWA Approval? ____</p>

SPECIFICATION REVISIONS  
REVISION TO STANDARD SPECIFICATIONS

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PROPOSAL TO STANDARDS COMMITTEE

PROBLEM(S) ENCOUNTERED: The following PCCP items require revisions to sections 501, 502 and 503:

1. Concrete Discharge (501.14, 502.10) -- The restriction of discharging concrete from non-agitating equipment within 30 minutes of mixing the water, cement, and aggregates is a problem for long projects, and there are permitting restrictions for locations of the concrete plants that may increase the haul distance. Increasing the allowable time for discharge of the concrete and adding a requirement for the temperature measurement of the concrete in accordance with AASHTO T 309 would be appropriate. Also, the discharged concrete would be required to be incorporated into the paving equipment within 15 minutes of discharge by truck mixer, truck agitator, or non-agitating equipment. Truck agitator and non-agitating equipment would be required to have a watertight cover.
2. Dowel Bar Protection (503.02; 506.02; 507.02)-- The requirements for exposure of bent and straight tie bars from ultraviolet light and moisture for no more than 21 days are also applied for dowel bars. Recent studies have indicated that the coatings commonly used for dowel bars are not sensitive to ultraviolet light or moisture for periods much longer than the 21 days. With anticipation that a very large number of dowel bars will be needed for upcoming major concrete projects and that the dowel bars will be commonly stored for more than 21 days, the 21-day restriction should be removed. The other requirements of being free of dirt, loose rust or scale, oil, or other foreign substance at the time of concrete placement would still apply.

PROPOSED SOLUTION: The following revisions are recommended to be authorized and made effective by a Recurring Special Provision.

1. Increase the discharge of concrete times if the temperature restrictions are met and the concrete is discharged into the paving equipment within 15 minutes. Also add a requirement that truck agitators and non-agitating equipment use watertight covers.
2. Remove the 21-day restrictions for protecting the dowel bars from ultraviolet light and moisture

APPLICABLE STANDARD SPECIFICATIONS: 501.14, 502.10, 503.02, 506.02, and 507.02

APPLICABLE STANDARD DRAWINGS: None

APPLICABLE DESIGN MANUAL SECTION:

SPECIFICATION REVISIONS  
REVISION TO STANDARD SPECIFICATIONS

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APPLICABLE SECTION OF GIFE: Section 8

APPLICABLE RECURRING SPECIAL PROVISIONS:

Submitted By: Ron Walker

Title: Manager, Office of Materials Management

Organization: INDOT

Phone Number: 317-610-7251 x 204

Date: 4-7-11

APPLICABLE SUB-COMMITTEE ENDORSEMENT? These specification revisions are recommended by the INDOT/PCCP Technical Committee.

FINAL DRAFT MINUTES

REVISION TO STANDARD SPECIFICATIONS

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SECTION 501 - QUALITY CONTROL/QUALITY ASSURANCE, QC/QA, PORTLAND CEMENT  
CONCRETE PAVEMENT, PCCP  
501.14 CONCRETE MIXING AND TRANSPORTATION

The Standard Specifications are revised as follows:

SECTION 501, BEGIN LINE 259, DELETE AND INSERT AS FOLLOWS:

*When the concrete temperature is 90°F (32°C) or above, discharge from non-agitating equipment shall be completed within 30 min of mixing the water, cement, and aggregates. For concrete temperature below 90°F (32°C), discharge from non-agitating equipment shall be completed within 45 min of mixing the water, cement, and aggregates. The concrete temperature shall be measured in accordance with AASHTO T 309 at the point of delivery.*

*A watertight cover shall be used for a truck agitator and non-agitating equipment. The concrete shall be incorporated into the paving equipment within 15 min of discharge by the truck mixer, truck agitator, or non-agitating equipment.*

Discharge from a truck agitator or a truck mixer shall be completed within 90 min of mixing the water, cement, and aggregates.

FINAL DRAFT MINUTED

REVISION TO STANDARD SPECIFICATIONS

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SECTION 502 - PORTLAND CEMENT CONCRETE PAVEMENT, PCCP  
502.10 CONCRETE MIXING AND TRANSPORTATION

The Standard Specifications are revised as follows:

SECTION 502, BEGIN LINE 200, DELETE AND INSERT AS FOLLOWS:

Concrete mixing and transportation shall be completed by central mixed, shrink mixed, or transit mixed methods. The minimum batch of concrete shall be 2 ~~yd~~<sup>cu yd</sup> (1.5 m<sup>3</sup>). *When the concrete temperature is 90°F (32°C) or above, discharge from non-agitating equipment shall be completed within 30 min of mixing the water, cement, and aggregates. For concrete temperature below 90°F (32°C), discharge from non-agitating equipment shall be completed within 45 min of mixing the water, cement, and aggregates. The concrete temperature will be measured in accordance with AASHTO T 309 at the point of delivery.* Discharge from a truck agitator or a truck mixer shall be completed within 90 min of mixing the water, cement, and aggregates.

FINAL DRAFT MINUTE

REVISION TO STANDARD SPECIFICATIONS

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SECTION 503 - PCCP JOINTS

503.02 MATERIALS

SECTION 506 - PCCP PATCHING

506.02 MATERIALS

SECTION 507 - PCCP RESTORATION

507.02 MATERIALS

The Standard Specifications are revised as follows:

SECTION 503, BEGIN LINE 25, INSERT AS FOLLOWS:

The epoxy coating on the dowel bars and bent and straight tie bars shall be protected in accordance with 703.04, *except that the protection from exposure to ultraviolet light and moisture shall not apply for the dowel bars.*

SECTION 506, BEGIN LINE 31, INSERT AS FOLLOWS:

The epoxy coating on the dowel bars shall be protected in accordance with 703.04, *except that the protection from exposure to ultraviolet light and moisture shall not apply.*

SECTION 507, BEGIN LINE 18, INSERT AS FOLLOWS:

The epoxy coating on the dowel bars shall be protected in accordance with 703.04, *except that the protection from exposure to ultraviolet light and moisture shall not apply.*

FINAL DRAFT MINUTES

COMMENTS AND ACTION

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501.14 CONCRETE MIXING AND TRANSPORTATION

502.10 CONCRETE MIXING AND TRANSPORTATION

503.02 MATERIALS

506.02 MATERIALS

507.02 MATERIALS

DISCUSSIONS: This item was introduced and presented by Mr. Walker, who explained the effects on temperature of the material at the time of discharge.

Mr. Walker explained that there is an AASHTO method for measuring the temperature.

Mr. Miller and Mr. Byers asked about the watertight cover. Mr. Walker explained that its use is to help maintain the temperature and keep the dust out of the mix, such as tarps that go over the truck bed.

Mr. Heustis inquired about record keeping, since the spec requires the Contractor to be the one who measures the temperature. Mr. Walker said that INDOT personnel will also be measuring the temperature.

Further discussion on how, who and when the temperature can be measured.

Mr. Byers offered that one thing you can do is cool the water down to reduce the temperature of the concrete.

More discussion led by Mr. Walker on possible corrective actions that can be taken by the Contractor if there exists a problem with the paving equipment. The issue may be whether or not the Contractor can get the concrete to the job and then placed inside of 30 minutes.

Mr. Walker asked that this, if approved today, be allowed on existing contracts. Mr. Miller suggested that the inclusion be on a job by job basis, based on need, but not necessarily apply to every job.

Mr. Miller asked about the dowel bars, and Mr. Walker explained that a study revealed that exposure of one year passed before any significant damage occurred to the coated bars. Further discussion ensued on what coatings could be used in addition to epoxy coatings. Mr. Walker suggested that the manufacturer provide proof that a protective coating had been applied. Mr. Miller offered that it could be a Type C certification.

Mr. Walker suggested that the dowel bar portion of this item be withdrawn pending further review.

Mr. Walker then proposed approving this item revised to not include the dowel bar portion. Mr. Strain seconded the revised motion.

More discussion on what to do when the concrete is over time, or over temperature. Mr. Pankow asked what our people can do if that happens. Mr. Walker offered that standard procedures will apply. Mr. Miller suggested that we approve this and that the GIFE be updated to address this issue.

Mr. Byers remind the group that as temperature increases, the concrete loses workability and production slows down.

The Office of Construction Management will issue a memo for this revision to be included on existing contracts.

COMMENTS AND ACTION

501.14 CONCRETE MIXING AND TRANSPORTATION  
 502.10 CONCRETE MIXING AND TRANSPORTATION  
 503.02 MATERIALS  
 506.02 MATERIALS  
 507.02 MATERIALS

<p>Motion: Mr. Walker          Second: Mr. Strain          Ayes:          Nays:</p>	<p>Action:  <input checked="" type="checkbox"/> 4(a) Passed as Submitted  <input type="checkbox"/> Passed as Revised (SEE COMMENTS)  <input checked="" type="checkbox"/> 4(b) Withdrawn</p>
<p>Standard Specifications Sections affected:          501.14 pg 293; 502.10 pg 310;          503.01 pg 318; 506.02 pg 328 and          507.02 pg 336.</p> <p>Recurring Special Provision affected:          NONE</p> <p>Standard Sheets affected:          NONE</p> <p>Design Manual Sections affected:          NONE</p> <p>GIFE Sections cross-references:          SECTION 8</p>	<p><input type="checkbox"/> 20 Standard Specifications Book  <input type="checkbox"/> Revise Pay Items List  <input checked="" type="checkbox"/> Create RSP (No. 5xx-x-xxx)          Effective Sept. 01, 2011 Letting          RSP Sunset Date: _____</p> <p><input type="checkbox"/> Revise RSP (No. _____)          Effective _____ Letting          RSP Sunset Date: _____</p> <p>Standard Drawing Effective _____  <input type="checkbox"/> Create RPD (No. _____)          Effective _____ Letting  <input type="checkbox"/> Technical Advisory</p> <p>GIFE Update Req'd.? Y ___ N ___          By _____ Addition or _____ Revision</p> <p>Frequency Manual Update Req'd? Y ___ N ___          By _____ Addition or _____ Revision</p> <p>Received FHWA Approval? Yes</p>