Iowa Department of Transportation

MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

March 13, 2008

Members Present:	John Adam	Statewide Operations Bureau
	Daniel Harness, Secretary	Specifications Section
	Bruce Kuehl	District 6-District Construction
	Gary Novey	Office of Bridges & Structures
	John Smythe	Office of Construction
	Jim Berger	Office of Materials
	Doug McDonald	District 1-Marshalltown RCE
	Dan Redmond	District 4-District Materials
Members Not Present:	Tom Reis, Chair	Specifications Section
	Roger Bierbaum	Office of Contracts
	Mike Kennerly	Office of Design
	Larry Jesse	Office of Local Systems
	Troy Jerman	Office of Traffic & Safety
Advisory Members Present:	Lisa Rold	FHWA
	Larry Stevens	SUDAS
Others Present:	Deanna Maifield	Office of Design
	Ed Kasper	Office of Contracts
	Emily Egeland	Specifications Section
	Charlie Purcell	Office of Local Systems

Daniel Harness, Assistant Specifications Engineer, opened the meeting. The following items were discussed in accordance with the agenda sent March 6, 2008:

1. Article 2401.03, Removal of Substructures.

The Office of Construction requested a change to bring the specification requirements in line with the Iowa DNR 401 Permit General Conditions.

2. Article 2417.02, Materials.
Article 2417.05, B, Deflection Testing for Polyethylene Pipes.
Article 2417.05, A, Class A Bedding.

The Office of Bridges and Structures requested a change that will require all corrugated steel culverts placed under roadways to be coated.

3. Article 2507.04, Method of Measurement.
Article 2507.05, Basis of Payment.

The Office of Bridges and Structures requested measurement and payment for Class B revetment be changed from an area basis to a weight basis.

4. Section 2601, Erosion Control.

The Office of Design requested a discussion regarding seeding mixtures. Currently there are seed mixtures located in both the plans and the Standard Specifications. The Office of Design would like to discuss the possibility of eliminating the mixture from either the plans or the Specifications.

5. DS-01XXX, Partial Depth Bridge Deck Patching.

The Office of Bridges and Structures requested the implementation of a new Developmental Specification to address partial depth patches placed on bridge decks.

6. Imperative Mood/Active Voice Update.

The Specifications Section informed the Committee that it has placed a second draft of the Imperative Mood/Active Voice rewrite of the specifications in the Specifications\Exchange folder.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Wayne A. Sunday	**Office:** Construction	**Item 1**
Submittal Date: January 24, 2008	**Proposed Effective Date:** October 21, 2008	
Article No.: 2401.03 **Title:** Removal of Substructures	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 3/13/08	**Effective Date:** 10/21/08

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: The Specifications Section noted the change is to Article 2401.03, not Article 2401.04 as was stated in the agenda.

The Office of Bridges and Structures expressed some concern that removing substructures to below the natural stream will disturb material at the stream bed. The Office of Construction noted that they didn't think disturbing material at the stream bottom could be avoided. The Office of Bridges and Structures wanted to know if the material would need to be replaced with clean material. The Committee decided replacing with clean material isn't necessary.

Specification Section Recommended Text:

2401.03, Removal of Substructures.

Replace the first sentence:

Unless otherwise provided or ordered, substructures of existing structures shall be removed to 1 foot (0.3 m) below ~~the~~ natural stream bottom, and those parts outside the stream shall be removed to 1 foot (0.3 m) below natural ground surface.

Comments:

Member's Requested Change: **(DO NOT USE "Track Changes," or "Mark-Up". Use ~~Strikeout~~/Highlight)**

2401.04 REMOVAL OF SUBSTRUCTURES.
Unless otherwise provided or ordered, substructures of existing structures shall be removed to one foot below ~~the~~ natural stream bottom, and those parts outside the stream shall be removed to 1 foot (0.3 m) below natural ground surface. Where these portions of existing structures lie wholly or in part within limits for a new structure, they shall be removed as necessary to accommodate construction of the proposed structure. Blasting or other operations necessary for removal of an existing structure or obstruction, which may damage new construction, shall be completed prior to placing new work.

Reason for Revision: The Iowa Department of Natural Resources 401 Permit General Conditions states; "The old bridge and its piers will be removed to one foot below the natural river bed". This general condition is stated on all 401 Permits and this specification revision will bring the specification requirements in line with the 401 Permit General Conditions.

County or City Input Needed (X one)	**Yes**	**No**

Comments:

Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Gary Novey / Dave Claman	**Office:** Bridges & Structures	**Item 2**
Submittal Date: 2/15/08	**Proposed Effective Date:** October, 2008	
Article No.: 2417.02 **Title:** Materials **Article No.:** 2417.05 **Title:** Installation **Article No.:** 2417.05, A **Title:** Class A Bedding	**Other:**	

Specification Committee Action: Approved changes to Article 2417.02. Deferred action on Article 2417.05 until it is determined how the proposed changes will affect other specifications.

Deferred:	**Not Approved:**	**Approved Date:** 3/13/08	**Effective Date:** 10/21/08

Specification Committee Approved Text: For Article 2417.02, see Specification Section Recommended Text.

Comments: District 6 Construction asked why the culverts need to be coated. The Office of Bridges and Structures explained that coated pipes last longer. District 6 expressed concern that there may not be any suppliers in Iowa that coat pipes. This could drive the cost up. It was noted that Unclassified Pipes are already required to be coated.

The Office of Bridges and Structures pointed out arch corrugated steel pipes aren't currently required to be coated. They will investigate whether the same change should be made to arch pipes.

Currently, the Office of Design is working on draft standards for backfilling and compaction by flooding. The Office of Construction pointed out that sand is incidental to Class B bedding in Article 2416.06, but is a pay item on the draft standard. They noted that, in addition, the definition of Class B bedding will need to be changed, and there may be other conflicts that need to be resolved. The Committee decided the proposed changes to Article 2417.05 should be deferred until some of the other issues associated with Class B bedding have been resolved.

Specification Section Recommended Text:

2417.02, Materials.

Replace the third paragraph.

~~When required, c~~Corrugated steel culverts placed under roadways shall be coated according to Article 4141.02.

2417.05, Installation.

Delete the first paragraph:

~~Installation of corrugated metal pipe or polyethylene pipe for roadway culverts shall be with a Class A bedding.~~

2417.05, A, Class A Bedding.

Replace the title and entire article:

A. ~~Class A~~ Bedding.

Installation of corrugated metal pipe or plastic pipe for roadway culverts shall be with Class B bedding in accordance with Article 2416.04, B, 1. ~~Class A bedding shall consist of a uniform uncompacted cushion of sand as detailed in the contract documents and meeting the gradation requirements of Gradation No. 1 or 32 of the Aggregate Gradation Table referenced in Section 4109.~~

Comments: The Office of Bridges and Structures asked that additional changes be made to Article 2417.05 to change Class A bedding and backfill to Class B.

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.**

2417.02 MATERIALS
C. For Roadway culverts use coated corrugated iron and steel culverts according to Article 4141.02.

Reason for Revision: The spec currently does not require corrugated pipe to be coated for Roadway culverts. Unclassified Roadway pipe does require a corrugated culvert to be coated. However, the designer must be aware that if he specifies corrugated pipe under our highways, that he will be getting galvanized pipe unless he specifies coated pipe in the plans. I would like to change the spec so that any corrugated pipe under our Roadway will be coated regardless of whether it is placed as an Unclassified Roadway pipe or if it is specified.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Gary Novey / Dave Claman	**Office:** Bridges & Structures	**Item 3**
Submittal Date: February 15, 2008	**Proposed Effective Date:** October, 2008	
Article No.: 2507.04 **Title:** Method of Measurement, Class B Revetment **Article No.: 2507.05** **Title:** Basis of Payment, Class B Revetment	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 3/13/08	**Effective Date:** 10/21/08

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2507.04, Method of Measurement.

Replace the first two paragraphs:

The quantity of Class A~~, B,~~ or C revetment will be computed by the Engineer in square yards (square meters) from measurements of the surface as constructed to the nearest 0.1 foot (0.1 m).

Class B, D, and ~~Class~~ E revetment and Erosion Stone will be measured in tons (megagrams) to the nearest 0.1 ton (0.1 Mg). Only material placed in accordance with the contract documents will be measured.

2507.05, Basis of Payment.

Replace the first indented paragraph:

For the quantity of revetment furnished and placed, the Contractor will be paid the contract unit price per square yard (square meter) for Class A~~, B,~~ or C revetment, or per ton (megagram) for Class B, D, or E revetment and Erosion Stone.

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.**

2507.04 – Method of Measurement

The quantity of Class A, ~~B,~~ or C revetment will be computed by the Engineer in square yards…

Class B, ~~Class~~ D, and ~~Class~~ E revetment and Erosion Stone will be measured in tons….

2507.05 – Basis of payment

For the quantity of revetment furnished and placed, the Contractor will be paid the contract unit price per square yard (square meter) for Class A, ~~B,~~ or C revetment, or per ton (megagram) for Class B, ~~Class~~ D, or E revetment and Erosion Stone.

Reason for Revision: Currently, Class B revetment is measured and paid in square yards. This can make payment difficult when there are varying degrees of thickness when placing Class B revetment. Suppliers and Contractors measure and pay this item in tons, not square yards. Recommend Class B to be measured and paid in tons.					
County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Mike Kennerly / Deanna Maifield	**Office:** Design	**Item 4**
Submittal Date: 2008.01.31	**Proposed Effective Date:**	
Section No.: 2601 **Title:** Erosion Control	**Other:**	

Specification Committee Action: Recommend voiding the Standard Notes.

Deferred:	**Not Approved:**	**Approved Date:**	**Effective Date:**

Specification Committee Approved Text:

Comments: The Committee agreed that the seed mixtures should be in one location only, and the best place for the mixtures is in the Standard Specifications. The Standard Notes will be voided.

Specification Section Recommended Text:

Comments:

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.**

Discuss current practice of including seeding mixture notes in the plans. There is a section in the specification book, so I wanted to be sure that everyone was ok with what we are doing and discuss whether we should void one or the other.

Reason for Revision:

County or City Input Needed (X one)	**Yes**	**No**
Comments:		

Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Gary Novey	**Office:** Bridge	**Item 5**
Submittal Date: Feb 28, 2008	**Proposed Effective Date:** June 17, 2008	
Article No.: DS-01XXX **Title:** Partial Depth Bridge Deck Patching.	**Other:**	

Specification Committee Action: Approved with changes as noted.

Deferred:	**Not Approved:**	**Approved Date:** 3/13/08	**Effective Date:** 6/17/08

Specification Committee Approved Text: See attached Draft DS-01XXX

Comments: District 6 Construction noted several items that have come up related to bridge deck patching:

- Two of the mixes produce product with too much flow. This could have been related to weather. Patching was done overnight in late fall.
- There is no direction in the DS on how much aggregate to use. The manufacturer provides maximum values. Crews had to do some experimenting to determine the right amount of aggregate to use. In addition, the manufacturer recommends pea gravel. There is only one approved source in District 6, so the cost was high. District 4 Materials noted in-house testing was done using crushed limestone – they felt it produced a better mix.
- A 30 pound jack hammer is the standard and what crews typically use, at least to the top of the steel. Then they switch to a 15 pound jack hammer.
- It is not practical to match the surface texture of the surrounding deck. Once the mix begins to set, it sets very quickly.
- When sounded, epoxy injected patches sound hollow. Several patches were replaced even though they appeared to be fine.

District 6 Construction also recommended adding language to instruct the Contractor to open patch areas as soon as the required strength is achieved. The recommendation was made to add language to address lane closures. It was also recommended language be added that the surface of patches be roughened instead of being required to match the surface texture of the surrounding deck. The grade and cross slope of patches are still required to match the surrounding deck.

District 4 Materials asked if there should be a limit for the percentage of aggregate passing the #200 sieve. They also asked if any of the approved rapid set materials in the Materials I.M.s had been considered. The Office of Bridges and Structures noted that none of the rapid set materials already approved were satisfactory. They noted they would need to look into the issue involving percent of aggregate passing the #200 sieve.

The Office of Bridges and Structures will work with District 6 regarding some of the above issues District 6 Construction brought up. The Specifications Section will add language to address lane closures and time for opening lanes after patches have cured. They will also add language to address concerns with patch surfaces.

Specification Section Recommended Text:

Comments: What about patches smaller than 1 square foot, but deeper than 1 inch? Add aggregate or not? The Office of Bridges and Structures noted that aggregate would not need to be added.

Smoothness requirements? The Office of Bridges and Structures noted this is taken care of in Article 01XXX.03, A, 4.

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.**					
Reason for Revision: This developmental specification would be used as part of a project plan to address bridge deck patching needs. In addition to this DS, the plan would require site specific information including traffic control, bridge geometrics, and an estimate of patching needs. Limitations concerning specific time restrictions will be addressed in the project plan.					
County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

Draft DS-01XXX
(New)

Iowa Department of Transportation

DEVELOPMENTAL SPECIFICATIONS
FOR
PARTIAL DEPTH BRIDGE DECK PATCHING

Effective Date
June 17, 2008

THE STANDARD SPECIFICATIONS, SERIES 2001, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

01XXX.01 DESCRIPTION.
Partial depth bridge deck patches consist of removing bridge deck concrete in areas designated in the contract documents. This includes furnishing and placing patching material to provide a new traffic surface as shown in the contract documents. This work is in areas where the size, shape, and depth of patch depends on the extent of deck deterioration and will be determined during the removal operation.

01XXX.02 MATERIALS AND EQUIPMENT.

A. Materials.
The following concrete mixes have been approved for the patching of bridge decks. Manufacturer specifications shall be followed for the patching mix used except as noted in this specification. Two copies of the manufacturer's patching product information shall be furnished to the Engineer prior to initiating partial depth patching work.

1. Allowable Bridge Deck Patching Mixes.

- **a.** Conspec Pave Patch – 3000
- **b.** EUCO-Speed MP
- **c.** FUTURA

2. Additional Requirements.
Calcium chloride shall not be added to bridge deck patching mixes.

Conspec, EUCO, and FUTURA deck patching mixes may be used with or without coarse aggregate.

For areas of repair larger than 1 square foot (0.3 square meters) and deeper than 1 inch (25 mm), coarse aggregate shall be used.

The aggregate for extending the grout shall be pea gravel with a minimum durability of Class 2 and meeting the gradation shown in the following table.

Sieve Size	Percent Passing
1/2 in. (12.5 mm)	100
3/8 in. (9.5 mm)	85 - 100
No. 8 (2.36 mm)	0 - 8

The above aggregate shall be allowed for addition to the Conspec, EUCO, and FUTURA patching mixes. Manufacturer's recommendations shall be followed for adding aggregates to these mixes.

B. Equipment.
Existing deck surface material may be removed by wet or dry saws, jack hammers, or similar equipment. Hand equipment may be necessary to achieve a vertical edge and the designated shape for the patch.

The following additional equipment will be required for bridge deck patches:

- Sandblasting equipment for cleaning the prepared patch area on bridge decks before placing the patch.
- Preparation of the patch area shall be completed using equipment no heavier than a 15 pound (7 kg) air chisel. With the approval of the Engineer, a 30 pound (14 kg) air chisel may be used if its use does not result in significant damage to the patch area and edges.
- Compressed air for cleaning the prepared area shall be oil and moisture free.
- An on-site mortar or paddle type concrete mixer will be required for mixing patching material.

01XXX.03 CONSTRUCTION.
Tabulations for partial depth bridge deck finish patches shown in the contract documents are for estimating purposes only. The Engineer will designate the location and limits of these patches. The shape and depth may be irregular so that hand-operated equipment may be necessary for some or all removals. Existing deck material shall be removed within the designated area to sound concrete as determined by the Engineer. All material removed not designated for salvage shall become the property of the Contractor and shall be removed in accordance with Article 1104.08 of the Standard Specifications.

A visual survey of the bottom of the deck over traffic or a railroad shall be completed prior to patching deck locations on the top of the bridge deck. Care shall be taken to avoid knocking loose deteriorated areas onto traffic below. Lane closures below the bridge deck being patched may be required.

A. Preparation of Patch Area.

1. Area to be Patched.
The area of bridge deck to be patched shall be determined by hand sounding around the spall or area of loose concrete. The patching area removed shall include 2 to 3 inches (50 mm to 75 mm) of sound concrete around the edges of the patch area. Efforts shall be made to mark the patching area in a way to accommodate sawing around the patching area, by using a square, triangle, rectangle, or similar straight edged shape. The minimum depth of patch shall be 1 inch (25 mm).

2. Sawing.
The depth of the existing deck steel shall be determined before saw cutting.

Patching shall occur within 24 hours of sawing operations.

Saw at a depth of 3/4 to 1 inch (20 to 25 mm) around the area marked using either a wet saw or a dry cut blade. Care shall be taken to avoid cutting into bridge reinforcing bars.

Areas from which concrete has been removed shall be kept free of slurry produced by wet sawing of concrete joints. Slurry shall be removed from prepared areas before new concrete is placed.

3. Removal.
Removals shall be done with a jackhammer or hand tools. Remove all loose and unsound concrete down to a minimum of 1 inch (25 mm) and no deeper than 1 inch (25 mm) below the top mat of reinforcing steel. The Contractor shall avoid jack hammering on the reinforcing steel to prevent damage to the reinforcing. Care shall to be taken to avoid breaking through the bridge deck. Patch edges shall be kept as straight and square as possible when removal depth exceeds the 3/4 to 1 inch (20 to 25 mm) saw cut.

Within 24 hours prior to placing patching material, all reinforcing bars and newly exposed concrete shall be thoroughly cleaned by sandblasting or shot blasting. Where bond between existing concrete and reinforcing steel has been destroyed, the concrete adjacent to the bar shall be removed to a depth that will permit new concrete to bond to the entire periphery of the exposed bar. A minimum of 3/4 inch (20 mm) clearance shall be required around the bar. Care shall be exercised to prevent cutting, stretching, or damaging exposed reinforcing steel. Epoxy coated reinforcing steel shall not be sandblasted or shot blasted. Cleaning of epoxy coated reinforcing shall be with hand tools and compressed air to avoid damaging the epoxy coating. All epoxy coating damage shall be repaired by a method approved by the Engineer.

After sandblasting, all loose materials (including dust and fine particles) shall be removed with compressed air.

4. Patch Placement.
Patch placement shall be done according to the patching manufacturer's recommendations and subject to the approval of the Engineer. These recommendations shall be furnished to the Engineer prior to initiating patching work.

Patching mix shall be thoroughly troweled into patch edges to ensure a good bond and seal. Care shall be taken to ensure all saw cuts extending beyond the patch area are filled with patching material to prevent water from getting around or under the patch.

Protection and curing of patches shall be in accordance with the manufacturer's recommendations.

The surface finish of all patches shall match the current deck grade and cross slopes. The surface of all patches shall be roughened.

Prior to final acceptance, a finish partial depth patch shall be level with the adjacent pavement and have a smooth riding surface.

B. Limitations of Operations.
Traffic shall be maintained during construction operations unless the road is closed. All operations shall be conducted with minimum inconvenience to traffic. Lane closures shall be in accordance with the Traffic Control Plan. On two-lane roads, operations shall be limited to one traffic lane at a time except for minor encroachment in the adjacent lane for sawing and patch preparation when traffic is maintained. For multiple lane roadways, the work area may include one lane in each direction.

When approved by the Engineer, patch areas may extend up to 2 feet (0.6 m) into an adjacent lane as allowed in the Traffic Control Plan.

If unforeseen conditions result in excavated areas being left overnight, a sufficient number of flaggers shall be furnished by the Contractor to warn motorists and direct traffic until patches are complete and the lane is open to traffic. Additional compensation for these flaggers will not be considered.

Concrete patching material shall be placed only when the ambient air and pavement temperatures are in accordance with the manufacturer's recommendations.

Patched areas shall be opened to traffic as soon as the manufacturer's recommended patch strength is achieved.

C. Area Restoration.
The bridge deck surface and areas immediately adjacent to patch areas shall be kept clean of slurry and excess patch materials.

01XXX.04 METHOD OF MEASUREMENT.
The Engineer will calculate the area of each Partial Depth Bridge Deck Finish Patch in square feet (square meters) from surface measurements. The area of each patch less than 1 square foot (0.1 m^2) will be counted as 1 square foot (0.1 m^2) for payment purposes.

01XXX.05 BASIS OF PAYMENT.
For the number of square feet (square meters) of Partial Depth Bridge Deck Patches measured, the Contractor will be paid the contract unit price per square foot (square meter). This payment shall be full compensation for sawing, removal of bridge deck concrete, preparing the patch area, furnishing and placing patch material, finishing, curing, and restoration of the area.

Item 6

Standard Specification Manual Rewrite to Imperative Mood/Active Voice Update

The Specifications Section informed the Committee it has placed a second draft of the Imperative Mood/Active Voice specifications in the Specifications\Exchange\Imperative Mood Specifications folder. Since the SUDAS specifications have been incorporated into the new book with the second draft, there is no longer a separate folder for SUDAS specifications. The Specifications Section will continue to update the Imperative Mood/Active Voice specifications as they work with SUDAS and when GS-01015 is released.