Iowa Department of Transportation

MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

November 9, 2006

Members Present:	John Adam	Statewide Operations Bureau
	Tom Reis, Chair	Specifications Section
	Daniel Harness, Secretary	Specifications Section
	Keith Norris	District 2-District Materials Engineer
	Bruce Kuehl	District 6-District Const. Engineer
	Gary Novey	Office of Bridges & Structures
	Roger Bierbaum	Office of Contracts
	Jim Berger	Office of Materials
Members Not Present:	John Smythe	Office of Construction
	Mike Kennerly	Office of Design
	Larry Jesse	Office of Local Systems
	Troy Jerman	Office of Traffic & Safety
	Doug McDonald	District 1-Marshalltown RCE
Advisory Members Present:	Lisa Rold	FHWA
Others Present:	LeRoy Bergmann	Office of Local Systems
	Wayne Mander	Office of Design
	Tom Jacobson	Office of Construction
	Vanessa Goetz	Office of Materials
	Mark Bortle	Office of Construction

Tom Reis, Specifications Engineer, opened the meeting. The following items were discussed in accordance with the agenda dated November 3, 2006:

1. Article 1101.03, Definition of Terms.

The Specifications Section requested changes to several definitions to include developmental specifications, and a change to the definition of Engineer approved at the September 14, 2006 meeting.

2. Article 1102.08, Examination of Plans, Proposal Form, Specifications, Supplemental Specifications, Developmental Specifications, Special Provisions, and of Site of Work.

The Specifications Section requested a change to include Developmental Specifications.

3. Article 2303.03, G, 5, Stop Sign Rumble Strips.
Article 2529.12, Limitations of Operations.

The Specifications Section requested a change suggested by the District 1 Office to move language regarding stop sign rumble strips from Section 2303 to Section 2529.

4. Article 2405.09, Anchor Bolts for Bridge Bearings.

The Office of Construction requested a change that will restrict the practice of welding anchor bolts.

5. Article 2522.08, Footings.

The Office of Construction requested a change that will restrict the practice of welding anchor bolts.

6. Article 2523.03, Footings.

The Office of Construction requested a change that will restrict the practice of welding anchor bolts.

7. Article 2525.01, B, 2, Concrete Bases for Poles.

The Office of Construction requested a change that will restrict the practice of welding anchor bolts.

8. Article 2528.07, Portable Temporary Traffic Signals.

The Specifications Section requested a change that will combine Article 2528.07 and DS-01058 to allow expanded use of portable temporary traffic signals and more flexibility for the industry.

9. Article 2544.05, Cleaning and Filling of Cracks.

The Specifications Section and the Office of Contracts requested a change that will bring uniformity among Districts for contract periods.

10 Article 4121.03, Quality.

The Office of Materials requested a change to remove quality requirements inadvertently added with GS-01010.

11. Article 4160.01, Wood Preservatives.

The Office of Materials requested a change to delete Ammoniacal Copper Arsenate (ACA) since it is no longer in use and has been removed from the 2006 AWPA Specifications.

12. Article 4161.03, Treatment.

The Office of Materials requested a change to update to the new Use Category System of the 2006 AWPA Specifications.

13. Article 4187.01, C, 2, Anchor Bolts, Nuts, and Washers.

The Office of Construction requested a change that will restrict the practice of welding anchor bolts.

14. SS-01047, High Tension Cable Guardrail.

The Office of Design requested changes to SS-01044 to add language for spare parts kits and for installations in weak soil.

15. SS-01047, Milled Shoulder Rumble Strips – HMA or PCC Surface.

The Specifications Section requested a change to DS-01082 suggested by the District 1 Office to add clarity to the Method of Measurement. The Specification Section is also requesting that DS-01082 be changed to a Supplemental Specification since it is applied to several projects each year.

16. PCC Pavement.

The Specifications Section would like to hear comments from the Committee regarding two issues that arose from the examination of inconsistencies between Iowa DOT and SUDAS:

- Eliminating payment for cold weather protection, and
- Making testing of PCC pavement samples incidental to the PCC paving item.

17. Article 4131.03, Quality (Porous Backfill Material).

The Office of Materials requested a change to Table 4131.03 that would change the maximum allowed percentage for abrasion from 45 to 50%**.**

18. Article 2529.12, Limitations (Full Depth Finish Patches).

The Specifications Section requested several changes that incorporate language removed from the Standard Road Plans.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis / Daniel Harness	**Office:** Specifications Section	**Item 1**
Submittal Date: October 11, 2006	**Proposed Effective Date:** April 17, 2007	
Article No.: 1101.03 **Title:** Definition of Terms	**Other:**	

Specification Committee Action: Approved with changes noted.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: For Engineer, see Specification Section Recommended text. For Proposal Form and Special Provisions, see the Specification Section Recommended text and capitalize terms as noted in the Comments. For Contract (Also Contract Documents), see below:

Contract (Also Contract Documents).

The written agreement between the Contracting Authority and the Contractor setting forth the obligations of the parties thereunder, including but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment.

The contract includes the following: addendum, contract bond, contract form, Materials Instructional Memorandums, Notice to Bidders, Notice to Proceed, plans, proposal, ~~s~~Special ~~p~~Provisions, Standard ~~s~~Specifications, Developmental Specifications, and ~~s~~Supplemental ~~s~~Specifications; also any change orders and agreements which are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.

Comments: The Office of Contracts noted that under Contract (Also Contract Documents) "specifications" should be "standard specifications". They also noted that "standard specifications", "supplemental specifications", "developmental specifications", "special provisions", "notice to bidder", and "notice to proceed" should be capitalized in the definitions of Contract, Proposal Form, and Special Provisions.

Specification Section Recommended Text:

1101.03, Definition of Terms.

Replace the following definitions:

Engineer.

~~The Chief Engineer for contracts let by the Department, the County Engineer for contracts let by the county, the City Engineer for contracts let by the city, or other engineer executive of the contracting Authority, acting directly or through duly authorized representatives, such representative acting within the scope of the particular duties assigned to the Engineer or of the authority given the Engineer.~~

For the Department, the Engineer is the Chief Engineer. For publicly owned projects, the Engineer is a Professional Engineer licensed in the State of Iowa and the authorized representative of the Contracting Authority. For privately contracted projects, with improvements that are to become publicly owned, the Engineer is the authorized representative of the public entity ultimately accepting ownership of the improvements. For all other projects, the Engineer is the owner's authorized representative.

The Engineer may act directly, or through duly authorized representatives, acting within the scope of the particular duties assigned to the Engineer, or of the authority given the Engineer.

Contract (Also Contract Documents).

The written agreement between the Contracting Authority and the Contractor setting forth the obligations of the parties thereunder, including but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment.

The contract includes the following: addendum, contract bond, contract form, Materials Instructional Memorandums, notice to bidders, notice to proceed, plans, proposal, special provisions, specifications, developmental specifications, and supplemental specifications; also any change orders and agreements which are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.

Proposal Form.

The approved form which includes Special Provisions Text listing applicable ~~s~~Supplemental ~~s~~Specifications, Developmental Specifications, ~~s~~Special ~~p~~Provisions, and other requirements of the project(s) on which the Contracting Authority requires formal bids to be prepared and submitted for the work.

Special Provisions.

Additions and revisions to the ~~s~~Standard, ~~g~~General ~~s~~Supplemental, Developmental, and ~~s~~Supplemental ~~s~~Specifications covering conditions peculiar to an individual project. They only apply to a project when noted in the proposal form.

Comments:

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

See Specification Section Recommended Text.

Reason for Revision: SUDAS asked that for publicly owned projects, the Engineer be a Professional Engineer licensed in the State of Iowa. This has been added in to the definition for Engineer approved at the September 14, 2006 meeting.

Developmental Specifications should be added to the definition for Contracts.

For the sake of consistency, the Specifications Section is suggesting to add Developmental

Specifications to the definition for Proposal Form.

Developmental specifications should be added to the definition for Special Provisions.

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis / Daniel Harness	**Office:** Specifications	**Item 2**
Submittal Date: October 11, 2006	**Proposed Effective Date:** April 17, 2007	
Article No.: 1102.08 **Title:** Examination of Plans, Proposal Form, Specifications, Supplemental Specifications, Developmental Specifications, Special Provisions, and of Site of Work	**Other:**	

Specification Committee Action: Approved with changes noted.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text:

1102.08, Examination of Plans, Proposal Form, Specifications, Supplemental Specifications, Developmental Specifications, Special Provisions, and of Site Work.

Replace the title and the first sentence:

It is the responsibility of the bidder to examine the plans, proposal form, ~~s~~Standard ~~s~~Specifications, ~~s~~Supplemental ~~s~~Specifications, Developmental Specifications, ~~s~~Special ~~p~~Provisions, the site of the work, and the state of the work of other contractors on the project to assure that all requirements of the ~~contract~~ proposal form and the plans are fully understood.

Comments: Office of Contracts noted the same corrections need to made as in Item 1

Specification Section Recommended Text:

1102.08, Examination of Plans, Proposal Form, Specifications, Supplemental Specifications, Developmental Specifications, Special Provisions, and of Site Work.

Replace the title and the first sentence:

It is the responsibility of the bidder to examine the plans, proposal form, specifications, supplemental specifications, developmental specifications, special provisions, the site of the work, and the state of the work of other contractors on the project to assure that all requirements of the ~~contract~~ proposal form and the plans are fully understood.

Comments:

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

See Specification Section Recommended Text.

Reason for Revision: Developmental specifications should be added.

The use of the term "proposal form" may be more appropriate here than "contract" since at this point there isn't yet a written agreement between the bidder and the Contracting Authority.

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

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis / Daniel Harness	**Office:** Specifications Section	**Item 3**
Submittal Date: October 27, 2006	**Proposed Effective Date:** 4/17/06	
Article No.: 2303.03, G, 5 **Title:** Stop Sign Rumble Strips. **Article No.:** 2529.12 **Title:** Limitation of Operations.	**Other:**	

Specification Committee Action: Approved with changes noted.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text:

2303.03, G, 5, Stop Sign Rumble Strips.

Replace the entire article:

~~The Contractor shall place Stop Sign Rumble Strips prior to opening roadway sections to traffic i~~ If the plans include the bid item Rumble Strip Panel (In Full Depth Patch), Section 2529 shall apply. To meet the requirement of placing Stop Sign Rumble Strips before opening roadway sections to traffic, ~~T~~the Contractor may ~~accomplish this by construction of the permanent Rumble Strip Patch or by constructing~~ construct temporary rumble strip panels meeting the final pattern and location of the Stop Sign Rumble Strip indicated in the plans.

2529.12, Limitation of Operations.

Add as the second paragraph:

The Contractor shall place Stop Sign Rumble Strips, when included in the plans, prior to opening roadway sections to traffic.

Comments: The Specifications Section noted that 2303.03, G, 5 should include language regarding placing temporary panels. They suggested placing language regarding permanent rumble strip panels in Section 2529 and leaving the language for temporary rumble strip panels in Article 2303.03, G, 5. The Committee agreed.

Specification Section Recommended Text:

2303.03, G, 5, Stop Sign Rumble Strips.

Replace the entire article:

~~The Contractor shall place Stop Sign Rumble Strips prior to opening roadway sections to traffic if the plans include the bid item Rumble Strip Panel (In Full Depth Patch). The Contractor may accomplish this by construction of the permanent Rumble Strip Patch or by constructing temporary rumble strip panels meeting the final pattern and location of the Stop Sign Rumble Strip indicated in the plans.~~ If the plans include the bid item Rumble Strip Panel (Full Depth Patch), Section 2529 shall apply.

2529.12, Limitation of Operations.

Add as the second paragraph:

The Contractor shall place Stop Sign Rumble Strips prior to opening roadway sections to traffic. The Contractor may accomplish this by construction of the permanent Rumble Strip Patch or by constructing temporary rumble strip panels meeting the final pattern and location of the Stop Sign Rumble Strip indicated in the plans.

Comments:

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

See Specification Section Recommended Text.

Reason for Revision: District 1 Office pointed out that when a plan requires adding/replacement of rumble strips on projects without HMA bid items (thus no reference to sec. 2303) it appears this important traffic control specification language may not be applicable to the project. They pointed out that it might be better if this language were included in the bid item for 'Rumble Strip Panel (In Full Depth Patch)' covered in Section 2529.

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

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Wayne Sunday	**Office:** Construction	**Item 4**
Submittal Date: 10/26/06	**Proposed Effective Date:** April 17, 2007	
Article No.: 2405.09 **Title:** Setting Anchor Bolts For Bridge Bearings	**Other:**	

Specification Committee Action: Approved with changes noted.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: Articles 2405.09; 2405.09, A; and 2405.09, A, 1, see Specification Section Recommended Text. Article 2405.09, A, 2 and 2405.09, B, see below:

2. Preset Anchor Bolts.
When the contract documents specify, anchor bolts for bridge bearings shall be set prior to placing concrete. The bolts shall be held firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. Welding on anchor bolts shall not be allowed. The Contractor shall obtain a template from the manufacturer/fabricator for proper placement of the anchor bolts. The template shall remain in place until the concrete has hardened. Anchor bolts shall be set accurately at points specified in the contract documents and be plumb within 1/4 inch (6 mm) per 12 inches (300 mm).

B. For Foundations.
Welding on anchor bolts will not be allowed. The bolts shall be held firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. The Contractor shall obtain a template from the manufacturer/fabricator for proper placement of the anchor bolts. The template shall remain in place until the concrete has hardened. Anchor bolts shall be set accurately at points specified in the contract documents and be plumb within 1/4 inch (6 mm) per 12 inches (300 mm).

Comments: The Office of Bridges and Structures asked where the tolerance of 1/8 inch per 48 inches for plumbing anchor bolts came from. They stated that for sign trusses, they are using a tolerance of 1/4 inch per foot. They expressed concern that 1/8 per 48 inches may not be constructible. The Office of Construction wasn't sure where the tolerance came from. They will work with the Office of Bridges and Structures to determine an appropriate tolerance.

The Director of the Statewide Operations Bureau noted that 2405.09, A, states anchor bolts shall be placed **prior to** placing concrete and 2405.09, A, 1, states they shall be placed **during** placing concrete. Article 2405.09, A, 1 will be changed to state anchor bolts shall be placed prior to concrete placement.

After the meeting, the Office of Bridges and Structures determined that the tolerance for plumbing anchor bolts should be 1/4 inch per foot.

Specification Section Recommended Text:

2405.09, Anchor Bolts for Bridge Bearings.

Replace the title and the entire article:

2405.09 Anchor Bolts for Bridge Bearings and Foundations.
Anchor bolts shall meet the requirements of ASTM F 1554, Grade 36, and be full-length galvanized. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in blue to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436.

Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.

A. For Bridge Bearings.
Unless otherwise specified in the contract documents, anchor bolts to be embedded in concrete substructures shall be set in drilled holes. Anchor bolts shall be set prior to the time the concrete is placed, when specified in the contract documents.

1. Anchor Bolts Set in Drilled Holes.
Anchor bolts for bridge bearings shall be accurately set perpendicular to the plane of the bridge seat in clean, dry holes. The locations of anchor bolts in relation to slotted holes in expansion shoes shall be varied to compensate for the temperature of the structure. The nuts on anchor bolts at the expansion bearings of spans shall be adjusted to permit movement of the span with changes in temperature. Anchor bolts shall be set with a hydraulic cement or polymer grout.

When a hydraulic cement grout is used, it shall meet the requirements of Materials I.M. 491.13. The diameter of the hole shall be 1/2 inch (13 mm) larger than the bolt diameter, and the annular space shall be slightly overfilled with grout.

When polymer grout is used, it shall meet requirements of Materials I.M. 491.11. The diameter of the hole shall be 1/8 inch (3 mm) larger than the bolt diameter, and the annular space shall be filled with the grout in accordance with the manufacturer's recommendations and limitations, as approved by the Engineer.

2. Preset Anchor Bolts.
When the contract documents specify, anchor bolts for bridge bearings shall be set during the placing of concrete. The bolts shall be held firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. Welding on anchor bolts shall not be allowed. The Contractor shall obtain a template from the manufacturer/fabricator for proper placement of the anchor bolts. The template shall remain in place until the concrete has hardened. Anchor bolts shall be set accurately at points specified in the contract documents and be plumb within 1/8 inch (3 mm) per 48 inches (1200 mm).

B. For Foundations.
Welding on anchor bolts shall not be allowed. The bolts shall be held firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. The Contractor shall obtain a template from the manufacturer/fabricator for proper placement of the anchor bolts. The template shall remain in place until the concrete has hardened. Anchor bolts shall be set accurately at points specified in the contract documents and be plumb within 1/8 inch (3 mm) per 48 inches (1200 mm).

Comments:

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

~~2405.09 ANCHOR BOLTS FOR BRIDGE BEARINGS.~~
~~Unless otherwise specified in the contract documents, anchor bolts to be embedded in concrete substructures shall be set in drilled holes. Anchor bolts shall be set prior to the time the concrete is placed, when specified in the contract documents. Anchor bolts shall meet the requirements of ASTM F 1554, Grade 36, and be full-length galvanized. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be~~

~~color coded in blue to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.~~

~~**A. Anchor Bolts Set in Drilled Holes.**~~

~~Anchor bolts for bridge bearings shall be accurately set perpendicular to the plane of the bridge seat in clean, dry holes. The locations of anchor bolts in relation to slotted holes in expansion shoes shall be varied to compensate for the temperature of the structure. The nuts on anchor bolts at the expansion bearings of spans shall be adjusted to permit movement of the span with changes in temperature. Anchor bolts shall be set with a hydraulic cement or polymer grout.~~

~~When a hydraulic cement grout is used, it shall meet the requirements of Materials I.M. 491.13. The diameter of the hole shall be 1/2 inch (13 mm) larger than the bolt diameter, and the annular space shall be slightly overfilled with grout.~~

~~When polymer grout is used, it shall meet requirements of Materials I.M. 491.11. The diameter of the hole shall be 1/8 inch (3 mm) larger than the bolt diameter, and the annular space shall be filled with the grout in accordance with the manufacturer's recommendations and limitations, as approved by the Engineer.~~

~~**B. Preset Anchor Bolts.**~~

~~When the contract documents specify, anchor bolts for bridge bearings shall be set during the placing of concrete. The bolts shall be held firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. The template shall remain in place until the concrete has hardened. Anchor bolts shall be set accurately at points specified in the contract documents.~~

2405.09 ANCHOR BOLTS FOR BRIDGE BEARINGS AND FOUNDATIONS.

Anchor bolts shall meet the requirements of ASTM F 1554, Grade 36, and be full-length galvanized. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in blue to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.

A. For Bridge Bearings.

Unless otherwise specified in the contract documents, anchor bolts to be embedded in concrete substructures shall be set in drilled holes. Anchor bolts shall be set prior to the time the concrete is placed, when specified in the contract documents.

1. Anchor Bolts Set in Drilled Holes.

Anchor bolts for bridge bearings shall be accurately set perpendicular to the plane of the bridge seat in clean, dry holes. The locations of anchor bolts in relation to slotted holes in expansion shoes shall be varied to compensate for the temperature of the structure. The nuts on anchor bolts at the expansion bearings of spans shall be adjusted to permit movement of the span with changes in temperature. Anchor bolts shall be set with a hydraulic cement or polymer grout.

When a hydraulic cement grout is used, it shall meet the requirements of Materials I.M. 491.13. The diameter of the hole shall be 1/2 inch (13 mm) larger than the bolt diameter, and the annular space shall be slightly overfilled with grout.

When polymer grout is used, it shall meet requirements of Materials I.M. 491.11. The diameter of the hole shall be 1/8 inch (3 mm) larger than the bolt diameter, and the annular space shall be filled with the grout in accordance with the manufacturer's recommendations and limitations, as approved by the Engineer.

2. Preset Anchor Bolts.
When the contract documents specify, anchor bolts for bridge bearings shall be set during the placing of concrete. The bolts shall be held firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. Welding on anchor bolts shall not be allowed. The Contractor shall obtain a template from the manufacturer/fabricator for proper placement of the anchor bolts. The template shall remain in place until the concrete has hardened. Anchor bolts shall be set accurately at points specified in the contract documents and be plumb within 1/8 inch (3 mm) per 48 inches (1200 mm).

B. For Foundations.

Welding on anchor bolts shall not be allowed. The bolts shall be held firmly in a rigid template which spans the concrete with sufficient clearance to permit proper finishing of the surface of the concrete. The Contractor shall obtain a template from the manufacturer/fabricator for proper placement of the anchor bolts. The template shall remain in place until the concrete has hardened. Anchor bolts shall be set accurately at points specified in the contract documents and be plumb within 1/8 inch (3 mm) per 48 inches (1200 mm).

Reason for Revision: Instances of contractors welding anchor bolts has driven the need to specifically restrict this practice. This rewrite of this article addresses this and will be the primary Article location that will be referenced in other specification articles related to construction involving anchor bolts.

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: John Smythe / Wayne Sunday	**Office:** Construction	**Item 5**
Submittal Date: 10/26/06	**Proposed Effective Date:** April 17, 2007	
Article No.: 2522.08 **Title:** Footings	**Other:**	

Specification Committee Action: Approved.			
Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2522.08, Footings.

Replace the third sentence:

Placement of anchor bolts shall be in accordance with Article 2405.09, B. Placement of~~,~~ conduit~~,~~ and any other appurtenant or optional features of the footing shall be as shown in the contract documents.

Comments:

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

2522.08 FOOTINGS.

Footings shall be constructed as required in the contract documents at the specified locations. Unless specifically stated otherwise, methods and materials used for construction of footings shall be in conformance with current specifications. Placement of anchor bolts shall be in accordance with Article 2405.09, B. Placement of conduit and any other appurtenant or optional features of the footing shall be as shown in the contract documents.

Reason for Revision: Instances of contractors welding anchor bolts has driven the need to specifically restrict this practice. This rewrite of this article addresses this and will be the primary Article location that will be referenced in other specification articles related to construction involving anchor bolts.

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: John Smythe / Wayne Sunday	**Office:** Construction	**Item 6**
Submittal Date: 10/26/06	**Proposed Effective Date:** April 17, 2007	
Article No.: 2523.03 **Title:** Footings	**Other:**	

Specification Committee Action: Approved with changes noted.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text:

2523.03, Footings.

Add as the third sentence to the fourth paragraph:

Anchor bolts shall be placed in accordance with Article 2405.09, B.

Comments: The Office of Bridges and Structures noted that 2525.03 should be 2523.03.

Specification Section Recommended Text:

2525.03, Footings.

Add as the third sentence to the fourth paragraph:

Anchor bolts shall be placed in accordance with Article 2405.09, B.

Comments:

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

2523.03 FOOTINGS.

The Contractor shall provide cast-in-place concrete footings for all lighting units not located on structures or barriers. The top portion of all footings shall be formed and poured in form work to at least 6 inches (150 mm) below the finished ground level. The footings shall conform in all respects to the details, including reinforcement and alignment to provide the correct overhang, as indicated in the contract documents.

The finished surfaces shall be smooth and free from stains and foreign material.

When shale, sandstone, broken and shattered rock, solid rock, or other similar materials are encountered, an alternate footing, shall be constructed as directed by the Engineer.

Anchor bolts shall be placed to provide for placement of nuts and washers on the top and bottom of the transformer base or pole flange with ample room for adjustment and plumbing the pole. When slip bases are used, Contractor shall position anchor bolts so that they do not interfere with the operation of the slip base. Anchor bolts shall be placed in accordance with 2405.09, B.

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: John Smythe / Wayne Sunday	**Office:** Construction	**Item 7**
Submittal Date: 10/26/06	**Proposed Effective Date:** April 17, 2007	
Article No.: 2525.01, B, 2 **Title:** Concrete Bases For Poles	**Other:**	

Specification Committee Action: Approved.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2525.01, B, 2, Concrete Bases for Poles.

Add as the fourth sentence:

Placement of anchor bolts shall be in accordance with Article 2405.09, B.

Comments:

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

2. Concrete Bases for Poles.
The material for the forms shall be of sufficient thickness to prevent warping or other deflections from the specified pattern. The forms shall be set level, and means shall be provided for holding them rigidly in place while the concrete is being deposited. All conduit, ground rods, and anchor rods shall be installed rigidly in place before concrete is deposited in the forms. Placement of anchor bolts shall be in accordance with Article 2405.09, B. Anchor bolts for the signal poles shall be set in place by means of a template constructed to space the anchor bolts in accordance with the manufacturer's requirements. The center of the template and the center of the concrete base shall coincide. Concrete shall meet requirements of Section 2403. The top of the base shall be finished level and the top edges shall be rounded with an edger having a radius of 0.5 inch (13 mm). The top of pole bases shall be set flush with the sidewalk or pavement surface. When installed in an earth shoulder away from the pavement edge, the top of the concrete base shall be approximately 4 inches (100 mm) above the surface of the ground. The exposed surface of the base shall have a wood floated finish.

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: Tom Reis	**Office:** Specifications	**Item 8**
Submittal Date: October 27, 2006	**Proposed Effective Date:** April 2007 GS	
Article No.: 2528.07 **Title:** Temporary Traffic Signals **Developmental Specification:** DS-01058 **Title:** Portable Temporary Traffic Signals	**Other:**	

Specification Committee Action: Approved. The Specifications Section will include comments and concerns raised by the Office of Construction.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/06

Specification Committee Approved Text:

2528.07 Temporary Traffic Signals.

Replace the entire article:

A. GENERAL.

Temporary traffic signals shall be set up and operated as shown in the contract documents. The temporary traffic signal system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part 4 of the MUTCD. Unless otherwise stated in the contract documents, the Contractor may provide either a span wire or trailer mounted temporary traffic signal system.

In the event any part of the temporary traffic signal system malfunctions or a continuous red flash mode is encountered, flaggers shall be furnished by the Contractor on a 24 hour-7 day a week basis until repairs are made and the signals are fully functional. For temporary traffic signals at intersections, the Contractor shall install stop signs on all approaches until the signals are fully operational. This shall be at no additional cost to the Contracting Authority.

B. EQUIPMENT

1. TRAILER OR SPAN WIRE MOUNTED SYSTEMS.

The Contractor shall furnish actuated signal controllers complying with NEMA and ITE standards. The temporary traffic signal system shall include a solid state digital traffic signal controller capable of operating the signals in accordance with MUTCD requirements and NEMA Standard TS1 (a copy of the manufacturer's certificate of compliance shall be posted in the control cabinet (in a weatherproof folder) and made available to the Engineer upon request). Temporary traffic signal systems shall have conflict monitoring conforming to NEMA TS1 standard. The conflict monitor shall detect the presence of conflicting signal indications, absence of proper voltages, and proper operation of the controller. Upon detection of a conflict or loss of communication, all signals shall enter into flashing red mode.

Article 2525.03, D shall apply with the following exceptions for one lane two way traffic control:

a. Green Revert.
If during an All Red clearance interval a call occurs on the phase losing the right-of-way prior to a call on any other traffic phase, the right-of-way shall revert to the previous traffic phase, initiating the initial green interval. The transfer shall be immediate without completing the All Red clearance interval.

b. Rest in Absence of Actuation.
In the absence of detector actuation of assertion or recall switch(es), the right-of-way indication shall Dwell In All Red.

Clearance for overhead wiring shall be a minimum of 18 feet (5.5 m).

A detection area shall be located near the stop line with the downstream edge positioned 6 feet (2 m) from the stop line. A second detection area shall be located 100 to 150 feet (30 to 45 m) in advance of the stop line. The size of the detection area shall be 6 feet by 10 feet (2 m by 3 m). A single above-ground detector may be used to provide detection for both areas.

Signal heads shall have 12 inch (300 mm) lenses and conform to ITE Specification “Vehicle Traffic Control Signal Heads”. All signal heads shall be equipped with visors and back plates. The backplate shall provide a minimum of 5 inches (125 mm) black field around the signal assembly and shall have a dull black finish.

There shall be a minimum of two traffic signal heads per approach. All signal heads mounted over the road surface shall be mounted a minimum of 15 feet (4.6 m) from the bottom of the signal head to the top of the road surface. One signal head shall be mounted over the center of the travel lane. All far right signal heads shall be mounted a minimum of 8 feet (2.45 m) from the bottom of the signal head to the top of the ground surface. Required signal heads for through traffic on any one approach shall be located not less than 8 feet (2.4 m) apart measured horizontally perpendicular to the approach between the centers of the signal faces.

2. TRAILER MOUNTED SYSTEMS.

Approved trailer mounted systems are listed in Materials I.M. XXX.

The system shall consist of two or more self-contained trailer mounted units each containing two signal heads.

3. SPAN-WIRE MOUNTED SYSTEMS.

Posts shall meet requirements of Article 2528.02.

C. OPERATIONAL REQUIREMENTS.

The exact location of the signals, stop bars, and signs shall be as identified in the contract documents. Temporary traffic signal installations shall be set up securely and leveled in a manner approved by the Engineer.

All temporary traffic signals shall be programmed for red flash upon startup, conflict, or power failure. The temporary traffic signal system shall be programmed to dwell in all-red.

For one lane two way traffic control operations, when an additional phase is used for a side road movement, only one long all red interval shall be used between active phases on each side of the work area.

Signal timing shall be set as identified in the contract documents.

D. EQUIPMENT CROSSINGS.

For equipment crossings, a signal operator shall be used to control the signal system. This operator shall be positioned with good sight distance for both the mainline and haul road.

The signal system shall be preprogrammed with fixed yellow and all red time periods so the operator can only activate the beginning of the yellow interval for mainline traffic.

When the equipment crossing is not in use, the signal shall be set to yellow flash mode. If hauling operations are suspended for more than one week, the signal heads shall be covered or if portable trailer units are used, the trailers shall be removed.

Comments: Below are the comments from ATSSA members:

1. The ADDCO representative raised a concern about the requirement for NEMA TS-1 certification. ADDCO stated that they make an equivalent portable trailer mounted temporary signal system that is not NEMA TS-1 certified, but has been approved for use and has been used by the DOTs in Minnesota, Nebraska, Kansas, Missouri, Illinois, and Michigan. ADDCO would like Iowa to modify our specifications to allow their unit. They forwarded a 12 page purchase specification for their system.
2. The Horizon Signal representative agreed with the proposed language.
3. The OMHC representative requested that the Materials I.M. language include the words, “as long as they meet this specification” after the words, “The following portable temporary traffic signals are approved for use in Iowa.”
4. The Quality Traffic Control representative agreed with the proposed language.

The Office of Construction explained the Office of Traffic and Safety wants to stick to the NEMA TS-1 certified controllers. They also noted that none of the other I.M.s contain the phrase, “as long as they meet this specification,” so they recommend against adding this language.

The Specifications Section noted that a Materials I.M. will be developed that will list approved manufacturers.

The question was raised regarding whether or not span wire controllers must meet TS-1 requirements. The Office of Construction responded that all actuated signal controllers must be TS-1 certified. The question was raised if road standards will need to be changed. The Specifications Section responded that there are a few. References to span wire will be eliminated from the road standards.

The Specifications Section noted that the Office of Construction had some additional comments and formatting concerns. These will be addressed before the recommended changes are added to the General Supplemental.

Specification Section Recommended Text: See Member’s requested text.

Comments: Revisions as a result of comments/input from ATSSA will be handed out at the meeting.

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

General rewrite combining DS-01058 and Article 2528.07

2528.07 TEMPORARY TRAFFIC SIGNALS.

A. GENERAL.
Traffic signals shall be as shown in the contract documents and shall be adjusted and operated as required therein. Details for traffic signals are in Part 4 of the MUTCD.

In the event a temporary traffic signal malfunctions or a continuous red flash mode is encountered, flaggers shall be furnished by the Contractor on a 24 hour-7 day a week basis until repairs are made and the signals are fully functional. For temporary traffic signals at intersections, the Contractor shall install stop signs on all approaches until the signals are fully operational. This shall be at no additional cost to the Contracting Authority.

B. EQUIPMENT

1. TRAILER OR SPAN WIRE MOUNTED SYSTEMS.
The Contractor shall furnish actuated signal controllers complying with NEMA and ITE standards. The system shall include a solid state digital traffic signal controller capable of operating the signals in accordance with MUTCD requirements and NEMA Standard TS1 (a certificate of compliance may be required).

Traffic signal systems shall have conflict monitoring that conforms to NEMA TS1 standards. The conflict monitor shall detect the presence of conflicting signal indications, absence of proper voltages, and proper operation of the controller. Upon detection of a conflict or loss of communication, all signals shall enter into flashing red mode.

Signal timing shall be set as identified in the contract documents.

Article 2525.03 shall apply with the following exceptions for two-lane-two-way roadways:

a. Green Revert.
If during an All Red clearance interval a call occurs on the phase losing the right-of-way prior to a call on any other traffic phase, the right-of-way shall revert to the previous traffic phase, initiating the initial green interval. The transfer shall be immediate without completing the All Red clearance interval.

b. Rest in Absence of Actuation.
In the absence of detector actuation of assertion or recall switch(es), the right-of-way indication shall Dwell In All Red.

All signal heads mounted over traffic shall be centered over the appropriate traffic lane.

Clearance for overhead wiring shall be a minimum of 18 feet (5.5 m).

For two-lane-two-way roadways, a detection area shall be located near the stop line with the downstream edge positioned 6 feet (2 m) from the stop line. A second detection area shall be located 100 to 150 feet (30 to 45 m) in advance of the stop line. The size of the detection area shall be 6 feet by 10 feet (2 m by 3 m). A single above-ground detector may be used to provide detection for both areas.

Signal heads shall have 12 inch (300 mm) lenses and conform to ITE Specification “Vehicle Traffic Control Signal Heads”. All signal heads shall be equipped with visors and back plates. The backplate shall provide a minimum of 5 inches (125 mm) black field around the signal assembly and shall have a dull black finish.

Posts shall meet requirements of Article 2528.02. Unless otherwise specified in the contract documents, the Contractor may provide a portable temporary traffic signal system.

The operating temperature range of the signal system shall be at least -30°F to 120°F (-35°C to 50°C).

2. EQUIPMENT CROSSINGS.
For equipment crossings, a signal operator shall be used to control the signal system. This operator shall be positioned with good sight distance for both the mainline and haul road.

The signal system shall be preprogrammed with fixed yellow and all red time periods so the operator can only activate the beginning of the yellow interval for mainline traffic.

When the equipment crossing is not in use, the signal shall be set to yellow flash mode for span-wire systems and removed for portable trailer systems. If hauling operations are suspended for more than one week, the signal heads shall be covered or if portable trailer units are used, the trailer shall be removed.

3. TRAILER MOUNTED SYSTEMS.
Approved trailer mounted temporary signal systems are listed in Materials I.M. XXX.

The system shall consist of two or more self-contained trailer mounted units each consisting of two signal heads. One signal head shall be mounted on a mast arm capable of extending over the center of the travel lane. The system shall meet the physical display and operational requirements of conventional traffic signals as specified in Part 4 of the MUTCD.

4. SPAN-WIRE MOUNTED
Temporary traffic signals for intersection control may be span-wire mounted. Traffic signals shall be installed as shown in the contract documents.

C. OPERATIONAL REQUIREMENTS
The exact location of the signals, stop bars, and signs shall be as identified in the contract documents. The portable traffic signal installations shall be set up securely and leveled in a manner approved by the Engineer.

All portable traffic signals shall be programmed for red flash upon startup, conflict, or power failure. The portable traffic signal system shall be programmed to dwell in all-red.

There shall be a minimum of two traffic signal heads per each approach. All signal heads mounted over the road surface shall be mounted at a minimum height of 15 feet (4.6 m) from the bottom of the signal head to the top of the road surface. All far right signal heads shall be mounted at a minimum height of 8 feet (2.45 m) from the bottom of the signal head to the top of the ground surface.

For one lane two way operations, when an additional phase is used for a side road movement, only one long all red interval shall be used between active phases on each side of the work area.

Materials I.M. xxx

B. LIST OF APPROVED MANUFACTURERS
The following portable temporary traffic signals are approved for use in Iowa.

Horizon Signal Technologies	Model: SQ3TS
OMJC Signal, Inc.	Model: Pop-Up 17-15 IA

Other portable temporary traffic signals may be approved by contacting the State Traffic Engineer at 515.239.1513.

Reason for Revision: Combining Section 2528.07 and DS-01058 will allow expanded use of portable temporary signals and more flexibility for the industry.

County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes** x	**No**	
Industry Notified:	**Yes** x	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments: The ATSSA has been notified and their input should be received prior to the November 9, 2006 Specification Committee meeting.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Roger Bierbaum / Tom Reis	**Office:** Contracts / Specifications	**Item 9**
Submittal Date: October 16, 2006	**Proposed Effective Date:** 4/17/07	
Article No.: 2544.05 **Title:** Cleaning and Filling of Cracks	**Other:**	

Specification Committee Action: Approved.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: See Specifications Section Recommended Text.

Comments: Industry accepted the proposed changes.

Specification Section Recommended Text:

2544.05, Cleaning and Filling of Cracks.

Replace the second sentence of the first paragraph:

Except when this work is in preparation for a seal coat or slurry seal, crack filling will not be allowed on pavements from ~~June~~ May 15 to September ~~15~~ 30.

Comments:

The Committee decided to defer until after input has been received from industry. Input has been received from the AGCI as noted.

The Office of Contracts suggested the proposed changes to promote consistency. District 6 commented that their maintenance people suggested May 15 to September 30 instead. The Office of Contracts will propose this to industry.

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

The 2001 Standard Spec Book has the following limitation for Cleaning and Filling of Cracks. The second sentence of the first paragraph of 2544.01 states:

"Except when this work is in preparation for a seal coat or slurry seal, crack filling may not be allowed on pavements in the months of July and August if tracking or soiling of the pavement becomes a problem."

GS—01002 replaced the second sentence of the first paragraph of 2441.01 with the following:

"Except when this work is in preparation for a seal coat or slurry seal, crack filling ~~may~~ will not be allowed on pavements ~~in the months of July and August if tracking or soiling of the pavement becomes a problem~~ from June 15 to September 15."

Some districts are modifying the GS with their own district specific limitations (normally not allowing this work to be done between June 15 and September 15). We have received a complaint that all districts should be uniform. Therefore the Office of Contracts is asking the Specification Committee to review what limitations on Cleaning and Filling of Cracks should be included in the next GS which can be used uniformly by all districts.

Reason for Revision: Lack of uniformity between districts

County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: The AGCI contacted their members in May 2006 and have confirmed there are no objections to the changes recommended.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger / Keith Norris	**Office:** Materials / District 2 Materials	**Item 10**
Submittal Date: October 20, 2006	**Proposed Effective Date:** April 17, 2006	
Article No.: 4121.03 **Title:** Quality	**Other:**	

Specification Committee Action: Approved.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: See Specifications Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4121.03, Quality.

Delete the fourth and fifth rows of Table 4121.03:

~~Total of Abrasion & C Freeze~~	~~65~~	
~~Clay Lumps and Friable particles~~	~~4~~	~~Materials I.M. 368~~

Comments:

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

TABLE 4121.03

Coarse Aggregate Quality	Maximum Percent Allowed	Test Method
Abrasion	50	AASHTO T 96
Alumina [(a)]	1.5	Iowa DOT Materials Laboratory Test Method 222
A Freeze	25	Iowa DOT Materials Laboratory Test Method 211, Method A
~~Total of Abrasion & C Freeze~~	~~65~~	
~~Clay Lumps and Friable particles~~	~~4~~	~~Materials I.M. 368~~

[(a)] If the Alumina value fails, the A Freeze value shall be determined for specification compliance. Iowa DOT Materials Laboratory Test Method 222 does not apply to gravel.

Reason for Revision: The last two quality requirements listed in table 4121.03 were not included in the Standard Specifications Series 2001 and were not intended to be added to GS 01010.

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:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 11**
Submittal Date: October 27, 2006	**Proposed Effective Date:** April 07	
Article No.: 4160.01, D, E, and F **Title:** Wood Preservatives	**Other:**	

Specification Committee Action: Approved.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4160.01, D, Ammoniacal Copper Arsenate.

Delete the entire article:

~~**D. Ammoniacal Copper Arsenate.**~~

~~Ammoniacal copper arsenate (ACA) shall conform to the requirements of AASHTO M 133 (AWPA P5).~~

4160.01, E, Ammoniacal Copper Zinc Arsenate.

Renumber the article:

4160.01, ~~E~~ D, Ammoniacal Copper Zinc Arsenate.

4160.01, F, Copper Naphthenate.

Renumber the article:

4160.01, ~~F~~ E, Copper Naphthenate.

Comments:

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

4160.01 DESCRIPTION.
Wood preservatives shall meet the requirements for the material specified. Use of this material shall meet the requirements of all Federal, State, and local regulations.

A. Creosote.
Creosote for a wood preservative shall meet requirements of AASHTO M 133 (AWPA P1).

B. Pentachlorophenol.
Pentachlorophenol for a wood preservative shall meet requirements of AASHTO M 133 (AWPA P8). Petroleum solvent shall meet requirements of AWPA P9 for Hydrocarbon Solvent Type A.

C. Chromated Copper Arsenate.
Chromated copper arsenate (CCA) shall conform to the requirements of AASHTO M 133 (AWPA P5), Type A, Type B, or Type C.

~~**D. Ammoniacal Copper Arsenate.**~~
~~Ammoniacal copper arsenate (ACA) shall conform to the requirements of AASHTO M 133 (AWPA P5).~~

~~**E.**~~ **D. Ammoniacal Copper Zinc Arsenate.**
Ammoniacal Copper Zinc Arsenate (ACZA) shall conform to he requirements of AASHTO M 133 (AWPA P5).

~~**F.**~~ **E. Copper Naphthenate.**
Copper Naphtenate shall meet the requirements of AASHTO M 133 (AWPA P8). Petroleum solvent shall meet the requirements of AWPA P9 for Hydrocarbon solvent Type A.

Reason for Revision: Ammoniacal Copper Arsenate (ACA) is no longer in use and has been removed from the 2006 AWPA Specifications.

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: Jim Berger	**Office:** Materials	**Item 12**
Submittal Date: October 27, 2006	**Proposed Effective Date:** April 07	
Article No.: 4161.03 **Title:** Preservative Treatment	**Other:**	

Specification Committee Action: Approved with changes noted.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: See Specification Section Recommended text, except for the first paragraph of Article 4161.03:

4161.03, Treatment.

Replace the first paragraph:

Except as provided herein, preservative treatment shall be in accordance with requirements and recommendations of AWPA Standards ~~C~~U1 and T1, and the applicable AWPA Commodity ~~Standards~~ Specifications listed in the following tables for various materials and usages:

Comments: The Office of Local Systems noted that in the first paragraph of Article 4161.03, C1 should be deleted and U1 added.

Specification Section Recommended Text:

4161.03, Treatment.

Replace the first paragraph:

Except as provided herein, preservative treatment shall be in accordance with requirements and recommendations of AWPA Standards ~~U~~C1 and T1, and the applicable AWPA Commodity ~~Standards~~ Specifications listed in the following tables for various materials and usages:

Replace Table 1:

TABLE 1: MINIMUM PRESERVATIVE RETENTION REQUIREMENTS
(lb./cu.ft. of wood)
(kilograms per cubic meter of wood)

	Retention						
Material and Usage	**Creosote** (2)	**Pentachloro-phenol** (2)	**Copper Napthenate** (2)	**~~ACA~~** (3)	**ACZA** (3)	**CCA** (1, 3)	**AWPA ~~Material Standard~~ UC-Section-Special Req.**
Lumber and Timber for Structures (4)	~~12~~ (192.2) AWPA U1	~~0.6~~ (9.6) AWPA U1	~~0.075~~ (1.2) AWPA U1	~~0.6~~ (9.6)	~~0.6~~ (9.6) AWPA U1	~~0.6~~ (9.6) AWPA U1	C2, C14 AWPA U1
Piles for Foundation:							
Douglas Fir	17 (272)	- -	- -	- -	- -	- -	~~C3, C14~~ UC4C-E
Southern Pine	12 (192.2)	- -	- -	- -	- -	- -	

Post, Guardrail, and Spacer Blocks: Sawed Four Sides	~~12~~ ~~(192.2)~~	0.6 (9.6)	0.075 (1.2)	~~0.5~~ ~~(8.0)~~	0.5 (8.0)	0.5 (8.0)	~~C2, C14~~ UC4A-A-4.3
Posts, Fence, Guide, and Sign: Round	~~8~~ ~~(128)~~	0.4 (6.4)	0.055 (0.88)	~~0.4~~ ~~(6.4)~~	0.4 (6.4)	0.4 (6.4)	~~C5, C14~~ UC4A-B
Sawed Four Sides	~~10~~ ~~(160)~~	0.5 (8.0)	0.060 (0.96)	~~0.4~~ ~~(6.4)~~	0.4 (6.4)	0.4 (6.4)	~~C2, C14~~ UC4A-A-4.3

NOTE:

(1) CCA shall not be used for the treatment of Douglas Fir.
(2) Oil type preservatives
(3) CCA, ACA, and ACZA are waterborne preservatives.
(4) Retentions based on AWPA. Use Category and Commodity Specification for different applications.

Replace Table 2:

TABLE 2: MINIMUM PRESERVATIVE PENETRATION REQUIREMENTS
inches (mm) of wood and/or % of sapwood penetration

	Penetration		
Material and Usage	**Southern Pine**	**Douglas Fir**	**APWA Material Standard Section**
Lumber and Timber for Structures (1)	~~2.5 in. (63 mm) or 85%~~ APWA U1, T1	~~**Under 5 in. (125 mm) thick:** 0.4 in. (10 mm) and 90% **5 in. (125 mm) and thicker:** 0.5 in (13 mm) and 90%~~ APWA U1, T1	~~C2, C14~~ APWA U1, T1
Piles for Foundation:	2.5 in. (63 mm) or 85%	0.75 in. (19 mm) and 85% up to 1.6 in. (40 mm) and 85%	~~C3, C14~~ T1-8.5
Post, Guardrail, and Spacer Blocks: Sawed Four Sides	2.5 in. (63 mm) or 85%	**Under 5 in. (125 mm) thick:** 0.4 in. (10 mm) and 90% **5 in. (125 mm) and thicker:** 0.5 in. (13 mm) and 90%	~~C2, C14~~ T1-8.1
Posts, Fence, Guide, and Sign: Round	2.0 in. (50 mm) or 85%	3/8 in. (9 mm) and 100% up to 1 in. (25 mm) or 85	~~C5, C14~~ T1-8.2
Sawed Four Sides	~~2.0 in. (50 mm) or 85%~~ 2.5 in. (63 mm) or 85%	**Under 5 in. (125 mm) thick:** 0.4 in. (10 mm) and 90% **5 in. (125 mm) and thicker:** 0.5 in. (13 mm) and 90%	~~C2, C14~~ T1-8.1

NOTE:

(1) Penetrations based on AWPA. Use Category and Commodity Specification for different applications.

4161.03, B, Seasoning.

Replace the first sentence:

When sawed material is treated with waterborne preservatives (CCA~~)~~, ~~ACA,~~ ACZA), the moisture content prior to treatment, as determined by resistance type moisture meter, shall not be more than 20% if kiln dried or not more than 23% if air dried.

4161.03, E, Results of Treatment.

Replace the third sentence:

Other treatment requirements shall be in accordance with AWPA Standards ~~C~~U1 and T1 and the applicable AWPA ~~Commodity~~ ~~Standards~~ Specifications listed in the above tables.

4161.03, G, Product Marking.

Replace the fourth sentence of the first paragraph:

Acceptable brands or marks shall be similar to the general guidelines for brands listed in AWPA M1 and M6 ~~piles~~.

Comments:

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

Section 4161. Preservative Treatment.

4161.01 DESCRIPTION.
Preservative treatment of timber, lumber, piling, and posts shall meet requirements of applicable sections, within these specifications, which cover the individual materials. Unless otherwise specified, the treatment process and results of treatment shall meet requirements of this section.

4161.02 PRESERVATIVES.
Preservatives used for treatment shall meet requirements of Section 4160. Unless otherwise specified, treatment may be with creosote, pentachlorophenol, chromated copper arsenate (CCA), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or Copper Naphthenate.

4161.03 TREATMENT.
Except as provided herein, preservative treatment shall be in accordance with requirements and recommendations of AWPA Standards U1, T1~~C1~~ and the applicable AWPA Commodity ~~Standards~~ Specifications listed in the following tables for various materials and usages:

TABLE 1: MINIMUM PRESERVATIVE RETENTION REQUIREMENTS
(lb./cu.ft. of wood)
(kilograms per cubic meter of wood)

	Retention						
Material and Usage	**Creosote**	**Pentachloro-phenol**	**Copper Napthenate(2)**	**~~ACA(3)~~**	**ACZA(3)**	**CCA(1, 3)**	**AWPA ~~Material Standard~~ UC-Section-Special Req.**
Lumber and Timber for Structures (*)	~~12 (192.2)~~AWPA U1	~~0.6(9.6)~~AWPA U1	~~0.075(1.2)~~AWPA U1	~~0.6 (9.6)~~	~~0.6 (9.6)~~AWPA U1	~~0.6 (9.6)~~AWPA U1	AWPA U1
Piles for Foundation:				-			
Douglas Fir	17 (272)	-	.14 (2.2)	-	-	-	~~C3, C14~~ UC4C-E
Southern Pine	12 (192.~~2~~)	-	.10 (1.6)	-	-	-	
Post, Guardrail, and Spacer Blocks: Sawed Four Sides	~~12 (192.2)~~	~~0.6~~ 0.5 ~~(9.6)~~(8.0)	0.075 (1.2)	~~0.5 (8.0)~~	0.5 (8.0)	0.5 (8.0)	~~C2, C14~~ UC4A-A-4.3

Posts, Fence, Guide, and Sign: Round Sawed Four Sides	~~8 - (128)~~ ~~10 (160)~~	0.4 (6.4) 0.5 (8.0)	0.055 (0.88) 0.060 (0.96)	~~0.4 (6.4)~~ ~~0.4 (6.4)~~	0.4 (6.4) 0.4 (6.4)	0.4 (6.4) 0.4 (6.4)	~~C5, C14~~ UC4A-B ~~C2, C14~~ UC4A-A-4.3

NOTE:
(*) Retentions based on AWPA Use Category and Commodity Specification for different applications
(1) CCA shall not be used for the treatment of Douglas Fir.
(2) Oil type preservatives
(3) CCA, ACA, and ACZA are waterborne preservativees.

TABLE 2: MINIMUM PRESERVATIVE PENETRATION REQUIREMENTS
inches (mm) of wood and/or % of sapwood penetration

	Penetration		
Material and Usage	**Southern Pine**	**Douglas Fir**	**AWPA Material Standard Section**
Lumber and Timber for Structures (*)	~~2.5 in. (63 mm) or 85%~~ AWPA U1, T1	~~**Under 5 in. (125 mm) thick:**~~ ~~0.4 in. (10 mm) and 90%~~ ~~**5 in. (125 mm) and thicker:**~~ ~~0.5 in (13 mm) and 90%~~ AWPA U1,T1	~~C2, C14~~ AWPA U1, T1
Piles for Foundation:	2.5 in. (63 mm) or 85%	0.75 in. (19 mm) and 85% up to 1.6 in. (40 mm) and 85%	~~C3, C14~~T1-8.5
Post, Guardrail, and Spacer Blocks: Sawed Four Sides	2.5 in. (63 mm) or 85%	**Under 5 in. (125 mm) thick:** 0.4 in. (10 mm) and 90% **5 in. (125 mm) and thicker:** 0.5 in. (13 mm) and 90%	~~C2, C14~~T1-8.1
Posts, Fence, Guide, and Sign: Round Sawed Four Sides	2.0 in. (50 mm) or 85% ~~2.0 in. (50 mm)~~ 2.5 in. (63 mm) or 85%	3/8 in. (9 mm) and 100% up to 1 in. (25 mm) or 85% **Under 5 in. (125 mm) thick:** 0.4 in. (10 mm) and 90% **5 in. (125 mm) and thicker:** 0.5 in. (13 mm) and 90%	~~C5, C14~~T1-8.2 ~~C2, C14~~T1-8.1

NOTE:
(*) Penetrations based on AWPA Use Category and Commodity Specification for different applications

Other aspects of the treatment process shall meet the following requirements:

A. Incising.
Coastal Douglas Fir lumber shall be incised.

B. Seasoning.
When sawed material is treated with waterborne preservatives (CCA~~)~~, ~~ACA~~, ACZA), the moisture content prior to treatment, as determined by resistance type moisture meter, shall not be more than 20% if kiln dried or not more than 23% if air dried. The moisture content shall be measured at a depth equivalent to the required penetration up to a maximum of 1.5 inches (38 mm). Unless otherwise specified, lumber 2 inches (50 mm) or less in nominal thickness that is treated with a

waterborne preservative shall be dried after treatment to a moisture content of not more than 20% if kiln dried or not more than 23% if air dried.

C. Special Treatment for Guardrail and Sign Posts Treated With Oil Type Preservative.
Before being removed from the treatment cylinder, sign and guardrail posts shall be further subjected to live steam at a maximum pressure of 13 psi (90 kPa), and following that, to an additional period of vacuum to insure that the surface of the wood is free from accumulation of oil type preservative.

D. Method of Treatment.
The preservative used shall be the same for all the product furnished for each contract item or order. Unless otherwise specified, treatment with creosote oil, pentachlorophenol, or copper naphthenate solution shall be made by the empty cell process with initial air pressure. Treatment with waterborne preservative shall be made by the full cell process.

E. Results of Treatment
Unless otherwise specified, retention and penetration of preservatives shall be in conformance with the above tables. Preservative retentions shall be determined by assay method. Other treatment requirements shall be in accordance with AWPA Standards ~~C1~~U1, T1 and the applicable AWPA ~~Commodity~~ Standards listed in the above tables.

F. Handling Treated Products.
Care and handling of preservative treated wood products shall be in accordance with AWPA Standard M4.

G. Product Marking.
The individual pieces of inspected, treated material shall bear a legible identification mark either hammer or heat branded, die stamped, or metal tagged. For material treated with waterborne preservatives, the identification mark may be ink stamped provided the information is clearly visible and legible. As a minimum, the identification mark shall indicate the treater, the species of wood, the preservative treatment type, and the retention level. Acceptable brands or marks shall be similar to the general guidelines for brands listed in AWPA M1 and M6 ~~piles~~. All treated wood material that requires a grade, with the exception of 45 inch (1145 mm) Terminal Posts[1], shall contain a quality grade mark of an accredited grade monitoring and inspection agency approved under the American Lumber Standards Committee (ALSC).

[1] In the event that Terminal Posts that are 45 inches (1145) in length to be used for Guardrails can not be stamped with a quality grade mark due to sizing of material, Terminal Posts shall then be stamped "MFG No. 1" to indicate that the Terminal Posts were cut from an original piece graded as a No. 1. Wane requirements will be waived.

Material less than 3 feet (1 m) in length does not require a grade mark; however, a certification statement from the mill/processor certifying the grade of the material shall be provided. See Documentation Section of Materials I.M. 462. Round wood posts, round wood piles, and round wood poles do not require a grade, since the grading rules apply only to sawn material.

In addition, each bundle of treated wood products shall have at least one plastic tag identifying the charge number for the bundle.

H. Inspection.
White and treatment inspections, certifications, and test reports for each shipment shall be furnished in accordance with Materials I.M. 462.

Reason for Revision: Updating to the new Use Category System of the 2006 AWPA Specs. The C Commodity Standards are no longer in use.					
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: John Smythe / Wayne Sunday	**Office:** Construction	**Item 13**
Submittal Date: 10/26/06	**Proposed Effective Date:** April 17, 2007	
Article No.: 4187.01, C, 2 **Title:** Anchor Bolts, Nuts, and Washers	**Other:**	

Specification Committee Action: Approved.			
Deferred:	**Not Approved:**	**Approved Date:** 11/09/06	**Effective Date:** 04/14/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4187.01, C, 2, Anchor Bolts, Nuts, and Washers.

Add as the first sentence:

Welding of anchor bolts will not be allowed.

Comments:

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

2. Anchor Bolts, Nuts, and Washers.

Welding of anchor bolts shall not be allowed. The anchor bolts shall meet the requirements of ASTM F 1554, Grade 105 (724 MPa), and be full-length galvanized. Anchor bolts shall be the Unified Coarse Thread Series and have Class 2A tolerance. The end of each anchor bolt intended to project from the concrete shall be color coded in red to identify the grade. Washers shall be galvanized and shall meet the requirements of ASTM F 436. Nuts shall meet the requirements of ASTM A 563, DH, be heavy hex, and be galvanized. Nuts may be over-tapped in accordance with the allowance requirements of ASTM A 563. Galvanizing shall meet the requirements of ASTM A 153, Class C; or ASTM B 695, Class 50.

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: Mike Kennerly / Deanna Maifield	**Office:** Design	**Item 14**
Submittal Date:	**Proposed Effective Date:**	
Article No.: SS-01044 (DRAFT SS-010XX) **Title:** High Tension Cable Guardrail	**Other:**	

Specification Committee Action: Approved

Deferred:	**Not Approved:**	**Approved Date:** 11-09-06	**Effective Date:** 04/17/07

Specification Committee Approved Text: See attachment

Comments: The Office of Design provided a handout of additional changes regarding spare parts kits and weak soil conditions. The Specifications Section noted that the spare parts kits may be not eligible for purchase with Federal aid funding. FHWA will look into this further. The Office of Contracts noted that the bid item could be changed to non-Federal aid.

The Office of Contracts suggested bidding spare parts kits by count rather than lump sum. They also pointed out that if a city or county is using this SS, they would not want the spare parts kits delivered to an Iowa DOT maintenance garage. The Specifications Section will replace “Iowa DOT” with “Contracting Authority”.

District 6 Construction noted that they are seeing a lot of variation in plans regarding grading for high tension cable guardrail systems. They asked the Office of Design to review the possibility of developing standards.

There was concern expressed with adding language to deal with weak soil conditions. Some members of the Committee felt it was too much to ask Contractors to take borings at each installation. The Committee agreed that the proposed language will work, as it leaves it up to Contractors to use a worst case scenario, or take borings and design the end anchors according to the manufacturer’s recommendation.

The Committee agreed that grading to meet the manufacturer’s recommendations for the end anchor should be incidental to the end anchor.

Specification Section Recommended Text:

Comments:

Member’s Requested Change: See attached Draft SS-01047.

Reason for Revision: Add spare parts kit and address concerns associated with installations in weak soils.

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

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

Draft SS-010XX
(Replaces SS-01044)

Iowa Department of Transportation

SUPPLEMENTAL SPECIFICATIONS
FOR
HIGH TENSION CABLE GUARDRAIL

Effective Date
Month Day, 2007

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

010XX.01 Description.
This work shall consist of constructing high tension cable guardrail by furnishing and installing posts, cables, end anchors, and any special connections and fittings which may be required in the contract documents.

High tension cable guardrail shall:
1. Meet the requirements of NCHRP Report 350, Test Level 4 criteria.
2. Be accepted as a crashworthy device by the FHWA.
3. Exhibit a dynamic deflection for NCHRP Report 350 Test 3-11 of 8 feet (2.4 m) or less.

Approved products are listed in Materials I.M.455.01.

010XX.02 Materials.
The materials used for construction of high tension cable guardrail shall meet the manufacturer's requirements. Concrete ~~for concrete~~ foundations for posts and end anchor~~ages~~ shall be Class C mix in accordance with Section 2403 of the Standard Specifications.

Spare parts kits for high tension cable guardrail shall consist of:
- An extra supply of TL-4 line posts (socketed-type), including post hardware and accessories (caps, reflective sheeting, straps, spacers, and socket covers). This supply shall include enough materials to complete a 300 foot installation.
- An extra supply of anchor posts (socketed-type), including post hardware and accessories (caps, reflective sheeting, straps, fittings, spacers, and socket covers). This supply shall include enough materials to complete one end anchor installation.
- Specialized tools necessary to maintain the guardrail, such as a spreader tool.

Spare parts kits shall not include a tension meter. The spare parts kit shall be delivered to the Contracting Authority's nearest maintenance office.

010XX.03 Construction.

A. Installation of High Tension Cable Guardrail.
The Contractor shall install high tension cable guardrail according to the manufacturer's recommendations. Prior to construction, the Contractor shall provide the Engineer with three copies of the manufacturer's most current product manuals covering installation and maintenance of the

installation and signed certification statements for all materials to be incorporated into the installation in accordance with Materials I.M. 455.01.

The Contractor shall tension the cables according to the manufacturer's recommendations at the time of installation, then check and adjust the tension approximately three weeks after installation.

B. Posts.
The posts shall be plumb and at the manufacturer's recommended location, spacing, and elevation.

All posts shall be the "socketed" type and shall be installed in concrete foundations. Foundations shall be cast in place and constructed in accordance with Article 2505.03, B, 4 of the Standard Specifications. Dimensions and reinforcement shall be according to manufacturer's recommendations except that foundation depth shall be at least 42 inches (1.1 m).

C. End Anchors.
High tension cable guardrail installations shall incorporate one of the approved end anchors listed in Materials I.M. 455.01. Within each installation, end anchors and high tension cable guardrail shall be produced by the same manufacturer.

End anchors shall be constructed according to the manufacturer's recommendations for the site specific soil conditions. Soils testing required shall be incidental to the cable installation.

D. Delineating High Tension Cable Guardrail.
High tension cable guardrail installations shall be delineated with retroreflective sheeting. The sheeting shall be applied to the last five posts at each end of an installation and throughout the remainder of the installation at a maximum spacing of 50 feet (15 m). The sheeting shall be Type III or IV retroreflective sheeting meeting the requirements of Article 4186.03 of the Standard Specifications. The sheeting shall provide at least 7 square inches (4500 mm^2) of surface area when viewed from a line parallel to the roadway centerline and shall be attached near the top of the post in a manner recommended by the manufacturer. The sheeting shall be applied to that side of the post from which vehicle impacts are most likely. For installations where impacts are likely to occur from either side, the sheeting shall be applied to both sides of the post. The sheeting shall be yellow or white and shall be the same color as the adjacent edge line.

010XX.04 Limitations.
In case of a discrepancy between these Specifications and the manufacturer's recommendations, these Specifications shall govern.

Concrete foundations for posts and end anchors may be subjected to cable tensioning after 3 calendar days. This time requirement may be lengthened by the Engineer during cool weather.

Grading work, if required, shall be completed prior to installation of new guardrail.

When a roadway is open to traffic during construction, high tension cable guardrail installations shall be completed within 5 working days from the day the structure, barrier rail, pavement, shoulder, or whichever is the controlling item of work, is sufficiently completed to allow high tension cable guardrail installation. At locations where the proposed high tension cable guardrail installation does not interfere with the functioning of the existing guardrail, the existing guardrail shall not be removed until the high tension cable guardrail system is fully functional. High tension cable guardrail end anchors shall be delineated with a temporary traffic drum until the final end anchor is completed and the cables properly tensioned. Each installation exceeding the 5 ~~calendar~~ working day completion requirement will be subject to a contract price adjustment of $500 per working day. This price adjustment will be waived when the installation is designated as crossover protection only and no guardrail or concrete barrier has been removed.

When a roadway is closed to public traffic for construction, all high tension cable guardrail installations shall be completed before opening the road to traffic.

010XX.05 Method of Measurement.

A. High Tension Cable Guardrail.
The quantity of high tension cable guardrail will be the length shown in the contract documents. The length will be calculated as the protection length, not including lengths of high tension cable guardrail end anchors.

B. High Tension Cable Guardrail End Anchors.
The Engineer will count the ~~quantity~~ number of high tension cable guardrail end anchors constructed.

C. High Tension Cable Guardrail Spare Parts Kit.
The Engineer will count the number of spare parts kits delivered.

010XX.06 BASIS OF PAYMENT.
Payment for high tension cable guardrail will include the furnishing of all materials, equipment, tools, and labor necessary to provide a complete installation of the high tension cable guardrail, including excavation and backfilling. However, excavation in unexpected rock will be paid for as extra work in accordance with Article 1109.03 of the Standard Specifications. Unexpected rock will be considered as rock encountered during excavation that was not visible from the roadway and was not indicated in the contract documents. The Engineer may adjust the payment for high tension cable guardrail in accordance with Article 2505.06, B of the Standard Specifications.

A. High Tension Cable Guardrail.
The Contractor will be paid the contract unit price per linear foot (meter) for the installation of high tension cable guardrail. All posts and accessories required by the manufacturer, as well as additional hardware and concrete, will be incidental to the item.

B. High Tension Cable Guardrail End Anchor.
The Contractor will be paid the contract unit price for each high tension cable guardrail end anchor. Grading required to meet the manufacturer's recommendations will be considered incidental to the high tension cable guardrail anchor.

C. High Tension Cable Guardrail Spare Parts Kit.
The Contractor will be paid the contract unit price for each spare parts kit delivered. Payment will be full compensation for delivering spare parts kits to the location identified in the contract documents.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis / Daniel Harness	**Office:** Specifications Section	**Item 15**
Submittal Date: October 27, 2006	**Proposed Effective Date:** January 17, 2007	
Article No.: DS-01082 (DRAFT SS-01047) **Title:** Milled Shoulder Rumble Strips – HMA or PCC Surface	**Other:**	

Specification Committee Action: Approved

Deferred:	**Not Approved:**	**Approved Date:** 11/9/07	**Effective Date:** 2/20/07

Specification Committee Approved Text:

Comments: Office of Contracts asked if this is to be effective with the April 07 GS or with the next letting. The Specifications Section noted that it will be effective with the next letting (January 2007). They will examine which projects will be affected and make appropriate changes.

District 6 noted that there is no guidance for what to do on freeways, whether to use the standard for expressways or for interstates. They have had one project that was milled incorrectly.

This was presented as SS-01048 in the meeting. This will be issued as SS-01047.

After the meeting, the Specifications Section determined that since this would affect more than a dozen projects which have already been turned in for the January letting, it was best to make this SS effective with the February letting.

Specification Section Recommended Text: See member's requested change.

Comments:

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

See attached SS-01047

Reason for Revision: District 1 Office noted that the MOM does not address gapping intersections, turn lanes, and median crossings. They also requested the intent be made clearer that measurement is to be made along both shoulders of a 2 lane road, and along outside and median shoulders for multi-lane roads.

Since this DS has no controller, is applied to several projects each year, and the content has remained unchanged (other than for minor clarifications) the Specifications Section is recommending this be changed to an SS in preparation to adding to the next book, and to eliminate the need for designer to select this DS.

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:					

Draft SS-01047
(Replaces DS-01082)

Iowa Department of Transportation

DEVELOPMENTAL SPECIFICATIONS
FOR
MILLED SHOULDER RUMBLE STRIPS - HMA OR PCC SURFACE

Effective Date
February 20, 2007

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

01047.01 GENERAL.

This work shall consist of furnishing all necessary labor, equipment, and materials; and performing all operations necessary for milling shoulder rumble strips in HMA or PCC surfaced shoulders. Shoulder rumble strips shall be milled to the dimensions and spacing shown in the plans. The work shall also include applying diluted asphalt emulsion to the milled shoulder rumble strips by means of a bituminous distributor.

01047.02 MATERIALS.

A. Milling.
Milling equipment shall be equipped with a cutting head with cutting tips arranged in a pattern as to provide a smooth cut, approximately 1/16 inches (2 mm) between peaks and valleys.

B. Asphalt Emulsion Fog Seal.
Asphalt emulsion grade CSS-1h, meeting requirements of Section 4140 of the Standard Specifications, shall be used.

The asphalt emulsion shall be diluted with water prior to application to the milled shoulder rumble strip. The dilution rate is one part of asphalt emulsion to one part of water.

01047.03 CONSTRUCTION.

If degraded shoulders are encountered that will not accommodate milled rumble strips, the Engineer shall be notified. These sections shall be skipped.

A. Test Strip.
The Contractor shall demonstrate to the Engineer on an initial 500 foot (150 m) test section that the equipment and method will provide the desired milled shoulder rumble strip and surface inside each depression without damaging the adjacent pavement. If the desired results are not being provided, as determined by the Engineer, the Contractor shall provide new equipment, different methods, or make necessary adjustments to provide the desired results. If the initial 500 foot (150 m) section results are unsatisfactory, it will be repaired or replaced as determined by the Engineer, at no additional cost to the Contracting Authority.

B. Milling.
Shoulder rumble strips shall be milled in a straight line, offset from the painted edge line as shown in the plans and shall not deviate from that offset more than ± 2 inches (50 mm). The offset may be

decreased to 6 inches (150 mm) on shoulders with a top width less than 30 inches (750 mm). The depth of the rumble strips shall be as shown in the plans. The alignment and depth will be randomly checked by the Engineer.

Waste material (millings) resulting from the operation shall be removed on a daily basis. The waste material may be used as fillet material adjacent to the paved shoulder or it may become property of the Contractor and disposed of off the project. Disposal of material may be at an approved landfill, approved stockpile, or other methods that will allow the material to be recycled. Waste material shall be removed prior to opening adjacent lane to traffic.

C. Asphalt Emulsion Fog Seal.
The equipment shall meet the requirements of Section 2001 of the Standard Specifications.

Application width shall cover the entire milled shoulder rumble strip.

The diluted asphalt emulsion fog seal shall be placed in accordance with Article 2308.06 of the Standard Specifications, at a rate of 0.13 gallon per square yard (0.6 L/m^2).

Asphalt emulsion shall not be placed on a damp or wet surface.

Asphalt emulsion shall be applied during weather conditions under which satisfactory application can be obtained. Asphalt emulsion shall not be applied when the air temperature is below 50°F (10°C). Asphalt emulsion shall not be placed after October 15 without permission from the Engineer.

D. Limitations.
The Contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The Contractor shall not park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service areas shall be subject to approval of the Engineer.

01047.04 METHOD OF MEASUREMENT.

A. Milled Shoulder Rumble Strips.
The quantity of Milled Shoulder Rumble Strips~~,~~ of the type specified, in stations (meters), along each edge of ~~the~~ mainline pavement abutting a paved shoulder~~,~~ will be the quantity shown in the contract documents. Unless stated otherwise in the contract documents, ~~N~~no deduction will be made for gapped areas ~~sections through interchanges, and bridges~~. The quantity will be adjusted for the length of degraded shoulders skipped, not milled, as defined in Article 01047.03 of this specification. The quantity will be adjusted for test sections that were deemed unsatisfactory.

B. Asphalt Emulsion for Fog Seal.
The quantity of undiluted Asphalt Emulsion for Fog Seal will be measured in gallons (liters) as provided in Article 2307.06, B, of the Standard Specifications.

01047.05 BASIS OF PAYMENT.

A. Milled Shoulder Rumble Strips.
The Contractor will be paid the contract unit price for Milled Shoulder Rumble Strips, of the type specified, per station (meter).

B. Asphalt Emulsion for Fog Seal.
The Contractor will be paid the contract unit price per gallon (liter) for undiluted Asphalt Emulsion for Fog Seal that is mixed and used on the project. Diluted asphalt emulsion that is delivered to the project site, but not applied to the roadway surface will not be considered for payment.

This payment shall be full compensation for cleaning the shoulder surface, furnishing and applying diluted asphalt emulsion, mixing water, and protecting the adjacent pavement and edge lines.

Item 16

PCC Pavement

The Specifications Committee discussed two items related to inconsistencies between Iowa DOT Standard Specifications and SUDAS. These issues came out of a meeting in November of 2005 held with SUDAS.

Eliminating Payment for Cold Weather Protection.
District 6 noted that it isn't likely that Industry will go along with eliminating payment for cold weather protection. The Office of Contracts agreed. District 6 pointed out that eliminating payment for cold weather protection could end up costing the DOT more as opposed to paying for it only when needed. In addition, this could open the Contractor up to refusing to pave if cold weather protection is required, but isn't paid for.

Decision: Take this item back to SUDAS and let them know Iowa DOT isn't interested in dropping payment for cold weather protection. Ask SUDAS if they are willing to pay for cold weather protection. If they aren't, a different course of action will be pursued.

Making Testing of PCC Pavement Samples Incidental to the PCC Paving Item.

District 6 Construction asked if anyone on the Committee could remember why PCC Pavement Samples became a sample item. Nobody could remember. The Specifications Section will investigate.

The Office of Contracts noted that this is an item that is small and is proportional to the item being bid. This makes it a good candidate for being incidental. District 6 Construction agreed.

The Specifications Section suggested that testing for HMA paving samples be made incidental to the HMA paving item.

Decision: Bring these items up with Industry at the next ICPA and APAI Specification Committee meetings and explain that Iowa DOT is working towards uniformity with SUDAS and would like to drop these bid items.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger/Keith Norris	**Office:** Materials	**Item 17**
Submittal Date: November 8,	**Proposed Effective Date:** April 17, 2007	
Article No.: 4131.03 **Title:** Quality	**Other:**	

Specification Committee Action: Approved.

Deferred:	**Not Approved:**	**Approved Date:** 11/9/06	**Effective Date:** 4/17/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4131.03, Quality

Replace the first line of Table 4131.03:

TABLE 4131.03

Aggregate Quality	Maximum Allowed Percent	Test Method
Abrasion	~~45%~~ 50%	AASHTO T 96
Alumina (a)	0.7%	Iowa 222
A Freeze	10%	Iowa 211, Method A
Shale	5%	Materials I.M. 345
(a) If the Alumina value fails, the A Freeze value shall be determined for specification compliance. Iowa 222 does not apply to gravel.		

Comments:

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

Table 4131.03 Porous Backfill Material.

Change: Abrasion Maximum Allowed Percent from 45 to 50

TABLE 4131.03

Aggregate Quality	Maximum Allowed Percent	Test Method
Abrasion	~~45%~~ 50%	AASHTO T96
Alumina (a)	0.7%	Iowa 222
A Freeze	10%	Iowa 211, Method A
Shale	5%	Materials I.M. 345
(a) If the Alumina value fails, the A Freeze value shall be determined for specification compliance. Iowa 222 does not apply to gravel.		

Reason for Revision: Will allow the use of aggregate produced for PCC.

County or City Input Needed (X one)			**Yes**	**No** X	
Comments:					
Industry Input Needed (X one)			**Yes**	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Industry is strongly in favor.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis	**Office:** Specifications	**Item 18**
Submittal Date: November 1, 2006	**Proposed Effective Date:** April 17, 2007	
Article No.: 2529.12 **Title:** Limitation of Operations	**Other:**	

Specification Committee Action: Approved with changes.

Deferred:	**Not Approved:**	**Approved Date:** 11/09/2006	**Effective Date:** 4/17/2007

Specification Committee Approved Text:

2529.12, Limitation of Operations.

Replace the first paragraph:

All operations shall be conducted with minimum inconvenience to traffic. Traffic shall be maintained during construction operations unless the road is closed.

On two-lane roads, patching shall be conducted on only one lane at a time when traffic is maintained.

For roads with multiple lanes in each direction, the work area may include one lane each direction or as allowed by the traffic control details. Where patching is required in adjacent lanes at the same location the median lane shall be completed first.

Replace the fifth paragraph:

When PCC patches without calcium chloride are constructed, ~~a Type II barricade~~ two drums meeting the requirements of Article 2528.03, B shall be placed in front of each patch location where there is a possibility of turning into or returning to the closed lane. ~~These barricades~~ Additional drums need not be placed for patches spaced closer than 150 feet (45 m).

Comments: District 6 Construction asked why work is done in the median lane first. The Specifications Section explained that if work is done in the outside lane first and a blowup occurs, there is no place to put traffic since the Contractor will have equipment and material on the shoulder. If the median lane is done first and a blowup occurs, traffic can be placed on the shoulder.

The Office of Contracts noted that a patch, by definition, can only be in one traffic lane. The sentence needs to be reworded to state this applies to patches that extend into adjacent lanes.

Specification Section Recommended Text:

2529.12, Limitation of Operations.

Replace the first paragraph:

All operations shall be conducted with minimum inconvenience to traffic. Traffic shall be maintained during construction operations unless the road is closed.

On two-lane roads, patching shall be conducted on only one lane at a time when traffic is maintained.

For roads with multiple lanes in each direction, the work area may include one lane each direction or as allowed by the traffic control details. Where a patch extends into an adjacent traffic lane, work shall be completed in the median lane first.

Replace the fifth paragraph:

When PCC patches without calcium chloride are constructed, ~~a Type II barricade~~ two drums meeting the requirements of Article 2528.03.B shall be placed in front of each patch location where there is a possibility of turning into or returning to the closed lane. ~~These barricades~~ Additional drums need not be placed for patches spaced closer than 150 feet (45 m).

Comments:

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

2529.12, LIMITATION OF OPERATIONS.

Replace the second and fifth paragraphs:

All operations shall be conducted with minimum inconvenience to traffic. Traffic shall be maintained during construction operations unless the road is closed. On two-lane roads, patching shall be conducted on only one lane at a time when traffic is maintained.
For roads with multiple lanes each direction, the work area may include one lane each direction or as allowed by the traffic control details. Where a patch extends into two traffic lanes, work shall be completed in the median lane first.

When conditions permit, patch areas may extend up to 2 feet (0.6 m) into an adjacent lane. When this encroachment is not tabulated in the contract documents, it must be approved by the Engineer prior to beginning work. A flagger will be required at these locations. Work in an adjacent lane must be completed and opened to traffic the same day using PCC (Class A or B) or HMA to match the normal patch area material.

When HMA patches on two-lane roadways and PCC patches with calcium chloride are constructed, the work schedule shall be adjusted so all equipment and obstructions are removed from the travel lanes and shoulders from 30 minutes before sunset to 30 minutes after sunrise.

When PCC patches without calcium chloride are constructed, a Type II barricade two drums meeting the requirements of Article 2528.03.B shall be placed in front of each patch location where there is a possibility of turning into or returning to the closed lane. Additional These drums barricades need not be placed for patches spaced closer than 150 feet (45 m).

Reason for Revision: Language that was removed from Road Standards

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:					