Iowa Department of Transportation

MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

February 08, 2007

Members Present:	Tom Reis, Chair	Specifications Section
	Daniel Harness, Secretary	Specifications Section
	Keith Norris	District 2-District Materials
	Gary Novey	Office of Bridges & Structures
	John Smythe	Office of Construction
	Larry Jesse	Office of Local Systems
	Jim Berger	Office of Materials
Members Not Present:	John Adam	Statewide Operations Bureau
	Bruce Kuehl	District 6-District Construction
	Roger Bierbaum	Office of Contracts
	Mike Kennerly	Office of Design
	Troy Jerman	Office of Traffic & Safety
	Doug McDonald	District 1-Marshalltown RCE
Advisory Members Present:	Max Grogg	FHWA
Others Present:	Brian Bradley	Office of Design
	Ed Kasper	Office of Contracts
	Mike Todsen	Office of Bridges and Structures
	Mike Heitzman	Office of Materials

Tom Reis, Specifications Engineer, opened the meeting. The following items were discussed in accordance with the agenda dated February 1, 2007:

1. Article 2301.04, E, Use of Fly Ash.
Article 2301.04, F, Use of Ground Granulated Blast Furnace Slag.

The Office of Materials is requesting changes that will combine text regarding the use of fly ash and GGBFS into one paragraph.

2. Article 2412.02, Materials.

The Office of Materials is requesting changes due to new ASTM C 595 cement designations.

3. Article 2513.03, B, 5, Materials.

The Office of Materials is requesting changes due to new ASTM C 595 cement designations.

4. Article 2522.09, Erection.

The Office of Bridges and Structures is requesting changes to correct problems associated with the installation of nuts on high mast towers.

5. Article 2529.02, B, 4, Cement.

The Office of Materials is requesting changes due to new ASTM C 595 cement designations.

6. Article 2530.03, B, 4, d, Cement.

The Office of Materials is requesting changes due to new ASTM C 595 cement designations.

7. Article 4101.01, B, ASTM C 595 Cements.
Article 4101.01, C, Cement Type Usage.

The Office of Materials is requesting changes due to new ASTM C 595 cement designations.

8. Article 4117.05, Cement Requirements.

The Office of Materials is requesting changes due to new ASTM C 595 cement designations.

9. Developmental Specifications for Reduction of HMA QC/QA Criteria for Local Agencies.

The Office of Materials is requesting a new DS intended to reduce construction staffing for low risk local projects.

10. Supplemental Specifications for Modification and Clarification to the HMA QA Program.

The Office of Materials is requesting a new SS intended to reduce construction staffing for low risk projects and expand sampling procedures.

11. Supplemental Specifications for QC Program for Small HMA Paving Quantities.

The Office of Materials is requesting changes to SS-01036 to incorporate changes that will reduce the construction staffing for low risk projects.

12. Special Provisions for Asphalt Binder Incidental to Hot Mix Asphalt Mixture.

The Office of Construction and District 2 Materials are requesting a Special Provision to evaluate the use of a single bid item for HMA. An incentive/disincentive provision is also included to ensure adequate film thickness is provided to ensure acceptable quality.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 1**
Submittal Date: January 12, 2007	**Proposed Effective Date:** October 2007	
Article No.: 2301.04, E **Title:** Use of Flyash **Article No.:** 2301.04, F **Title:** Use of Ground Granulated Blast Furnace Slag	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2301.04, E, Use of Fly Ash.

Replace the title and article:

E. Use of Fly Ash and GGBFS.
The maximum allowable fly ash substitution rate shall be 20%. The GGBFS substitution rate shall be not more than 35% by weight (mass). The total mineral admixture substitution rate shall not exceed 40%. When Type IP or IS cement is used in the concrete mixture, only fly ash substitution will be permitted. Substitution of Type I/II cement with both GGBFS and fly ash will be permitted in ready mix concrete mixtures only. Between October 16 and March 15, fly ash and GGBFS substitution will be allowed only when maturity method is used to determine time of opening.

2301.04, F, Use of Ground Granulated Blast Furnace Slag.

Delete the article:

~~**F. Use of Ground Granulated Blast Furnace Slag.**~~

~~**1.** Type IS and Type I(SM) may be furnished according to Section 4101 and Section 4108. Fly Ash substitution rate shall be according to Article 2301.04, E. The total mineral admixture substitution rate shall not exceed 40%.~~

~~**2.** GGBFS may be substituted for Portland cement in concrete mixtures which do not contain blended hydraulic cement. The GGBFS substitution rate shall be not more than 35% by weight (mass). When GGBFS is substituted as a mineral admixture, fly ash will be permitted in ready mix concrete mixtures only, with a maximum total mineral admixture substitution rate of 40%. The mixing equipment shall meet the requirements of Article 2001.21, B.~~

~~**3.** GGBFS substitution will be allowed from October 16 through March 15 only when maturity method is used to determine time of opening.~~

Comments:

Member's Requested Change (Redline/Strikeout):

E. Use of Fly Ash and GGBFS.
The maximum allowable fly ash substitution rate shall be 20%. The GGBFS substitution rate shall be not more than 35% by weight (mass). The total mineral admixture substitution rate shall not exceed 40%. When Type IP or IS cement is used in the concrete mixture, only fly ash substitution will be permitted. Substitution of Type I/II cement with both GGBFS and fly ash will be permitted in ready mix concrete mixtures only. Between October 16 and March 15, fly ash and GGBFS substitution will be allowed only when maturity method is used to determine time of opening.

~~**F. Use of Ground Granulated Blast Furnace Slag**~~

~~**1.** Type IS and Type I(SM) may be furnished according to Section 4101 and Section 4108. Fly Ash substitution rate shall be according to Article 2301.04, E. The total mineral admixture substitution rate shall not exceed 40%.~~

~~**2.** GGBFS may be substituted for Portland cement in concrete mixtures which do not contain blended hydraulic cement. The GGBFS substitution rate shall be not more than 35% by weight (mass). When GGBFS is substituted as a mineral admixture, fly ash will be permitted in ready mix concrete mixtures only, with a maximum total mineral admixture substitution rate of 40%. The mixing equipment shall meet the requirements of Article 2001.21, B.~~

~~**3.** GGBFS substitution will be allowed from October 16 through March 15 only when maturity method is used to determine time of opening.~~

Reason for Revision: Paragraph F.1 refers to blended cement (4101), but the article is referring to use of ggbfs (4108). This information can be combined into Paragraph E as it is in Article 2403.

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 2**
Submittal Date: January 12, 2007	**Proposed Effective Date:** October 2007	
Article No.: 2412.02 **Title:** Materials	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2412.02, Materials.

Replace the third and fourth rows of the table following the second paragraph:

Cement Type	Maximum Allowable Substitution*	Time Period
Type I, Type II	35% GGBFS 20% Fly Ash	March 16 to October 15
Type IS~~(SM)~~, IP~~, IA~~	0% GGBFS 20% Fly Ash	March 16 to October 15
Type I, II, IS~~(SM)~~, IP	0% GGBFS 0% Fly Ash	October 16 to March 15
* Maximum total mineral admixture substitution shall be 50%.		

Comments: Maximum Allowable Substitution for fly ash was changed to 20% with GS-01012.

Member's Requested Change (Redline/Strikeout):

Update the table in the second paragraph.

Cement Type	Maximum Allowable Substitution*	Time Period
Type I, Type II	35% GGBFS 15% Fly Ash	March 16 to October 15
Type IS~~(SM)~~, IP~~, IA~~	0% GGBFS 15% Fly Ash	March 16 to October 15
Type I, II, IS~~(SM)~~, IP	0% GGBFS 0% Fly Ash	October 16 to March 15

* Maximum total mineral admixture substitution shall be 50%.

Reason for Revision: Update to new ASTM C 595 cement designations. Blended cements will be Type IP or Type IS with the percent substitution indicated in parenthesis. (eg. IS(20)). IA was a typo in a previous spec change.					
County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 3**
Submittal Date: January 12, 2007	**Proposed Effective Date:** October 2007	
Article No.: 2513.03, B, 5 **Title:** Materials	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2513.03, B, 5, Materials.

Replace the second and fourth rows of the table:

Cement Type	Maximum Allowable Substitution*	Time Period
Type I, II	35% GGBFS 20% Fly Ash	March 16 to October 15
Type IS~~(SM)~~, IP	20% Fly Ash	March 16 to October 15
Type I, II	20% Fly Ash	October 16 to March 15
Type IS~~(SM)~~, IP	0%	October 16 to March 15
* Maximum total mineral admixture substitution shall be 50%.		

Comments:

Member's Requested Change (Redline/Strikeout):

5. Fly Ash and GGBFS. The conditions and allowable rates of fly ash and GGBFS substitution shall be as follows:

Cement Type	Maximum Allowable	Time Period
Type I, II	35% GGBFS 20% Fly Ash	March 16 to October 15
Type IS~~(SM)~~, IP	20% Fly Ash	March 16 to October 15
Type I, II	20% Fly Ash	October 16 to March 15
Type IS~~(SM)~~, IP	0%	October 16 to March 15
* Maximum total mineral admixture substitution shall be 50%		

Reason for Revision: Update to new ASTM C 595 cement designations. Blended cements will be Type IP or Type IS with the percent substitution indicated in parenthesis. (eg. IS(20)).					
County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Gary Novey	**Office:** Bridges and Structures	**Item 4**
Submittal Date: 01-09-2007	**Proposed Effective Date:** October 2007	
Article No.: 2522.09 **Title:** Erection	**Other:**	

Specification Committee Action: Approved with changes noted

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text:

2522.09, Erection.

Replace the first paragraph:

After testing has been accomplished to the satisfaction of the Engineer, the tower may be erected on the foundation. The precise aligning and erecting of all components of the tower lighting system shall be considered essential. The tower shall be plumbed and verified in at least two directions, 90 degrees apart, with a transit. All plumbing shall be done during full cloud cover, prior to sunrise, or after sunset as approved by the Engineer to prevent thermal expansion effects on the steel tower due to heat from sunshine ~~at a time of the day approved by the Engineer~~. All towers shall be plumbed within a tolerance of 50% of the pole top diameter. ~~Anchor bolt nuts shall be tightened as specified by the manufacturer.~~ The void between the base plate and top of the foundation shall be covered as shown on the plans.

Add as the third paragraph:

The procedure for tightening anchor bolt nuts on tower lighting, after tower has been plumbed, shall be as follows:

1) This work shall be performed only on days with winds less than 15 mph (25 km/h). All tightening of the nuts shall be done in the presence of the inspector. Once the tightening procedure is started it must be completed on all of the base plate nuts without pause or delay.

2) Properly sized wrenches and/or sockets designed for tightening nuts and/or bolts shall be used to avoid rounding or other damage to the nuts. Adjustable end or pipe wrenches will not be allowed.

3) Base plate, anchor rods and nuts shall be free of any dirt or debris.

4) Stick wax or bees wax shall be applied to the threads and bearing surfaces of the anchor bolt, nuts, and washers.

5) Top nuts shall be tightened so they fully contact the base plate. Leveling nuts shall be tightened to snug tight condition. Snug tight shall be defined as the full effort of one person on a wrench with a length equal to 14 times the bolt diameter but not less than 18 inches (460 mm). Full effort shall be applied as close to the end of the wrench as possible. Tightening shall be accomplished by leaning back and using entire body weight to pull firmly on the end of the wrench until the nut stops rotating. A minimum of two separate passes of tightening shall be used. Tightening shall be sequenced in each pass so that the nut on the opposite side, to the extent possible, is subsequently tightened until all of the nuts in that pass have been tightened.

6) Top nuts shall be tightened to snug tight as described for the leveling nuts.

7) The top nuts and base plate shall be match-marked using paint, crayon, or other approved means to provide a reference for determining the relative rotation of the nut and base plate during tightening. The top nuts shall be further tightened in two passes, as listed in the

following table, using a striking or hydraulic wrench. A sequence of tightening in each pass shall be used so that the nut on the opposite side, to the extent possible, is subsequently tightened until all nuts in that pass have been turned. The leveling nut shall not be rotated during the top nut tightening.

Anchor Bolt Size	First Pass	Second Pass	Total Rotation
Less than or Equal to 1 1/2 inch (38 mm) diameter	1/6 turn	1/6 turn	1/3 turn
Greater than 1 1/2 inch (38 mm) diameter	1/12 turn	1/12 turn	1/6 turn

8) The jam nuts shall be lubricated, placed, and tightened to snug tight.

Comments: The Specifications Section has added metric units.

Specification Section Recommended Text:

2522.09, Erection.

Replace the first paragraph:

After testing has been accomplished to the satisfaction of the Engineer, the tower may be erected on the foundation. The precise aligning and erecting of all components of the tower lighting system shall be considered essential. The tower shall be plumbed and verified in at least two directions, 90 degrees apart, with a transit. All plumbing shall be done during full cloud cover, prior to sunrise, or after sunset as approved by the Engineer to prevent thermal expansion effects on the steel tower due to heat from sunshine ~~at a time of the day approved by the Engineer~~. All towers shall be plumbed within a tolerance of 50% of the pole top diameter. ~~Anchor bolt nuts shall be tightened as specified by the manufacturer.~~ The void between the base plate and top of the foundation shall be covered as shown on the plans.

Add as the third paragraph:

The procedure for tightening anchor bolt nuts on tower lighting, after tower has been plumbed, shall be as follows:

1) This work shall be performed only on days with winds less than 15 mph. All tightening of the nuts shall be done in the presence of the inspector. Once the tightening procedure is started it must be completed on all of the base plate nuts without pause or delay.

2) Properly sized wrenches and/or sockets designed for tightening nuts and/or bolts shall be used to avoid rounding or other damage to the nuts. Adjustable end or pipe wrenches will not be allowed.

3) Base plate, anchor rods and nuts shall be free of any dirt or debris.

4) Stick wax or bees wax shall be applied to the threads and bearing surfaces of the anchor bolt, nuts, and washers.

5) Top nuts shall be tightened so they fully contact the base plate. Leveling nuts shall be tightened to snug tight condition. Snug tight shall be defined as the full effort of one person on a wrench with a length equal to 14 times the bolt diameter but not less than 18 inches. Full effort shall be applied as close to the end of the wrench as possible. Tightening shall be accomplished by leaning back and using entire body weight to pull firmly on the end of the wrench until the nut stops rotating. A minimum of two separate passes of tightening shall be used. Tightening shall be sequenced in each pass so that the nut on the opposite side, to the

extent possible, is subsequently tightened until all of the nuts in that pass have been tightened.

6) Top nuts shall be tightened to snug tight as described for the leveling nuts.

7) The top nuts and base plate shall be match-marked using paint, crayon, or other approved means to provide a reference for determining the relative rotation of the nut and base plate during tightening. The top nuts shall be further tightened in two passes, as listed in the following table, using a striking or hydraulic wrench. A sequence of tightening in each pass shall be used so that the nut on the opposite side, to the extent possible, is subsequently tightened until all nuts in that pass have been turned. The leveling nut shall not be rotated during the top nut tightening.

Anchor Bolt Size	**First Pass**	**Second Pass**	**Total Rotation**
Less than or Equal to 1 1/2 inch (metric size) diameter	1/6 turn	1/6 turn	1/3 turn
Greater than 1 1/2 inch (metric size) diameter	1/12 turn	1/12 turn	1/6 turn

8) The jam nuts shall be lubricated, placed, and tightened to snug tight.

Comments:

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

2522.09 ERECTION.
After testing has been accomplished to the satisfaction of the Engineer, the tower may be erected on the foundation. The precise aligning and erecting of all components of the tower lighting system shall be considered essential. The tower shall be plumbed and verified in at least two directions, 90 degrees apart, with a transit. ~~All plumbing shall be done at a time of the day approved by the Engineer.~~ All plumbing shall be done during full cloud cover, prior to sunrise, or after sunset as approved by the Engineer to prevent thermal expansion effects on the steel tower due to heat from sunshine. All towers shall be plumbed within a tolerance of 50% of the pole top diameter. ~~Anchor bolt nuts shall be tightened as specified by the manufacturer.~~ The void between the base plate and top of the foundation shall be covered as shown on the plans.

Other components of this system shall be constructed and all components shall be tested in accordance with Section 2523.

Procedure for tightening anchor bolt nuts on tower lighting, after tower has been plumbed, shall be as follows:

1) This work shall be performed only on days with winds less than 15 mph. All tightening of the nuts is to be done in the presence of the inspector. Once the tightening procedure is started it must be completed on all of the base plate nuts without pause or delay.

2) Properly sized wrenches and/or sockets designed for tightening nuts and/or bolts shall be used to avoid rounding or other damage to the nuts. Adjustable end or pipe wrenches may not be used.

3) Base plate, anchor rods and nuts are to be free of any dirt or debris.

4) Apply stick wax or bees wax to the threads and bearing surfaces of the anchor bolt, nuts, and washers.

5) Tighten top nuts so they fully contact the base plate. Tighten leveling nuts to snug tight condition. Snug tight is defined as the full effort of one person on a wrench with a length equal to 14 times the bolt diameter but not less than 18 inches. Apply the full effort as close to the end of the wrench as possible. Pull firmly by leaning back and using entire body weight on the end of the wrench until the nut stops rotating. Use a minimum of two separate passes of tightening. Sequence the tightening in each pass so that the nut on the opposite side, to the extent possible, will be subsequently tightened until all of the nuts in that pass have been tightened.

6) Tighten top nuts to snug tight as described for the leveling nuts.

7) Match-mark the top nuts and base plate using paint, crayon, or other approved means to provide a reference for determining the relative rotation of the nut and base plate during tightening. Using a striking or hydraulic wrench, further tighten the top nuts in two passes as listed in the following table. Use a sequence of tightening in each pass so that the nut on the opposite side, to the extent possible, will be subsequently tightened until all nuts in that pass have been turned. Do not rotate the leveling nut during the top nut tightening.

Anchor Bolt Size	First Pass	Second Pass	Total Rotation
Less than or Equal to 1 1/2 inch diameter	1/6 turn	1/6 turn	1/3 turn
Greater than 1 1/2 inch diameter	1/12 turn	1/12 turn	1/6 turn

8) Lubricate, place and tighten the jam nuts to snug tight.

Reason for Revision: There has been a history of poor installation of the nuts on high mast towers, which may have contributed to the recent fatigue cracking and failures of existing tower bases. This revision will provide information for the inspector and contractor to follow in bolting of base plates for the towers. The notes were developed during recent repairs that were done to high mast lighting towers and have been used by the Bridge Maintenance crews with good results.

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: Jim Berger	**Office:** Materials	**Item 5**
Submittal Date: January 12, 2007	**Proposed Effective Date:** October 2007	
Article No.: 2529.02, B, 4 **Title:** Cement	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2529.02, B, 4, Cement.

Replace the table following the second paragraph:

Patch Type	Cement Type	Maximum Allowable Substitution	Minimum Mix Temperature
5 Hour	Type 1, Type II Type IS~~(SM)~~	0% Fly Ash 0% Fly Ash	75ºF (24ºC) 80ºF (27ºC)*
10 Hour	Type I, Type II Type IS~~(SM)~~	10%Fly Ash 0% Fly Ash	65ºF (18ºC) 70ºF (21ºC)
* When a Type A Mid Range Water Reducing Admixture is used, the minimum mix temperature shall be 75ºF (24ºC).			

Add as the third paragraph:

The maximum substitution for Type IS shall not exceed 25%.

Comments:

Member's Requested Change (Redline/Strikeout):

4. Cement.
Cement for Class M mixes shall meet requirements of Section 4101.

The cement types and maximum allowable substitution rates shall be as follows:

Patch Type	Cement Type	Maximum Allowable Substitution	Minimum Mix Temperature
5 Hour	Type 1, Type II Type IS~~(SM)~~	0% Fly Ash 0% Fly Ash	75ºF (24ºC) 80ºF (27ºC)*
10 Hour	Type I, Type II Type IS~~(SM)~~	10%Fly Ash 0% Fly Ash	65ºF (18ºC) 70ºF (21ºC)
* When a Type A Mid Range Water reducing admixture is used, the minimum mix temperature shall be 75ºF (24ºC.			

The maximum substitution for Type IS shall not exceed 25%.

Reason for Revision: Update to new ASTM C 595 cement designations. Blended cements will be Type IP or Type IS with the percent substitution indicated in parenthesis. (eg. IS(20)). Need a maximum limit on substitution now because Type I(SM) was already limited to 25%, whereas Type IS is limited to 35% by our specification (0 to 95% by ASTM).

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 6**
Submittal Date: January 12, 2007	**Proposed Effective Date:** October 2007	
Article No.: 2530.03, B, 4, d **Title:** Cement	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

2530.03, B, 4, d, Cement.

Replace the table following the second paragraph

Patch Class	Cement Type	Maximum Allowable Substitution	Minimum Mix Temperature
B	Type I, Type II Type IS~~(SM)~~	0% Fly Ash 0% Fly Ash	75ºF (24ºC) 80ºF (27ºC)*
C	Type I, Type II Type IS~~(SM)~~	10% Fly Ash 0% Fly Ash	65ºF (18ºC) 70ºF (21ºC)
* When a Type A Mid Range water reducing admixture is used, the minimum mix temperature shall be 75ºF (24ºC).			

Add as the third paragraph:

The maximum substitution for Type IS shall not exceed 25%.

Comments:

Member's Requested Change (Redline/Strikeout):

d. Cement.
Cement for Class M concrete mixtures shall meet the requirements of Section 4101.

The cement types and maximum allowable substitution rates shall be as follows:

Patch ~~Type~~ Class	Cement Type	Maximum Allowable Substitution	Minimum Mix Temperature
~~5 Hour~~ B	Type I, Type II Type IS~~(SM)~~	0% Fly Ash 0% Fly Ash	75ºF (24ºC) 80ºF (27ºC)*
~~10 Hour~~ C	Type I, Type II Type IS~~(SM)~~	10% Fly Ash 0% Fly Ash	65ºF (18ºC) 70ºF (21ºC)
* When a Type A Mid Range water reducing admixture is used, the minimum mix temperature shall be 75ºF (24ºC).			

The maximum substitution for Type IS shall not exceed 25%.

Reason for Revision: Update to new ASTM C 595 cement designations. Blended cements will be Type IP or Type IS with the percent substitution indicated in parenthesis. (eg. IS(20)). Need a maximum limit on substitution now because Type I(SM) was already limited to 25%, whereas Type IS is limited to 35% by our specification (0 to 95% by ASTM).

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 7**
Submittal Date: January 12, 2007	**Proposed Effective Date:** October 2007	
Article No.: 4101.01, B **Title:** ASTM C 595 Cements **Article No.:** 4101.01, C **Title:** Cement Type Usage	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4101.01, B, ASTM C 595 Cements.

Replace item 3:

3. Type IP ~~or I(PM)~~ cement shall not contain Class C fly ash.

4101.01, C, Cement Type Usage.

Replace items 2 and 3:

2. Type IP~~, Type I(PM),~~ or Type IS~~, or Type I(SM)~~ cement may be furnished at the Contractor's option when Type I or Type II cement is specified. The limitations of Articles 2301.04, 2403.03, or 2412.02 shall apply.

3. The unit volume of Type IP~~, Type I(PM),~~ or Type IS~~, or Type I(SM)~~ cement in the concrete shall be that specified for Type I or Type II cement, unless otherwise specified.

Comments:

Member's Requested Change (Redline/Strikeout):

B. ASTM C 595 Cements
Unless otherwise specified, blended hydraulic cement shall meet requirements of ASTM C 595 and the following requirements:

1. The pozzolan constituent of Type IP cement shall not be more than 25 weight (mass) percent of the Portland-pozzolan cement.

2. The slag constituent of Type IS cement shall not be more than 35 weight (mass) percent of the Portland blast-furnace slag cement.

3. Type IP ~~or I(PM)~~ cement shall not contain Class C fly ash.

4. The Portland cement used to produce the blended cement shall meet the requirements of Article 4101.01, Paragraph A, except the alkali content expressed as total equivalent sodium oxide shall not be more than 0.75%.

C. Cement Type Usage
Unless otherwise specified, cement type and usage in various pavements, structures, and other elements shall be as follows:

1. Type I or Type II cement may be used for pavements, structures, and other applications. Type III cement may be used in precast and prestressed concrete only.

2. Type IP~~, Type I(PM),~~ or Type IS~~, or Type I(SM)~~ cement may be furnished at the Contractor's option when Type I or Type II cement is specified. The limitations of Articles 2301.04, 2403.03, or 2412.02 shall apply.

3. The unit volume of Type IP~~, Type I(PM),~~ or Type IS~~, or Type I(SM)~~ cement in the concrete shall be that specified for Type I or Type II cement, unless otherwise specified.

Reason for Revision: Update to new ASTM C 595 cement designations. Blended cements will be Type IP or Type IS with the percent substitution indicated in parenthesis. (eg. IS(20)).

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 8**
Submittal Date: January 12, 2007	**Proposed Effective Date:** October 2007	
Article No.: 4117.05 **Title:** Cement Requirements	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 10/16/07

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: None.

Specification Section Recommended Text:

4117.05, Cement Requirements.

Replace the third row of Table 4117.05:

TABLE 4117.05

Cement Type	Min. Required Substitution	Max. Allowable Substitution
Type I, Type II	20% Class F Fly Ash	25% Class F Fly Ash
Type I, Type II	25% GGBFS	35% GGBFS
Type IS~~1(SM)~~, IP	---	20% Class C Fly Ash

Comments:

Member's Requested Change (Redline/Strikeout):

4117.05 CEMENT REQUIREMENTS.
For Interstate and Primary projects, use the cement types and substitutions of Table 4117.05 when Class V aggregate is used.

TABLE 4117.05

Cement Type	Min. Required Substitution	Max. Allowable Substitution
Type I, Type II	20% Class F Fly Ash	25% Class F Fly Ash
Type I, Type II	25% GGBFS	35% GGBFS
Type IS ~~1(SM)~~, IP	---	20% Class C Fly Ash

Reason for Revision: Update to new ASTM C 595 cement designations. Blended cements will be Type IP or Type IS with the percent substitution indicated in parenthesis. (eg. IS(20)). **1**(SM) is a typo.					
County or City Input Needed (X one)			**Yes**	**No**	
Comments:					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes**	**No**
Comments:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 9**
Submittal Date: January 24, 2007	**Proposed Effective Date:** April 17, 2007	
Article No.: Developmental Specification **Title:** REDUCTION OF HMA QC/QA CRITERIA FOR LOCAL AGENCIES	**Other:**	

Specification Committee Action: Materials will work with Local Systems to develop a technical memo to accompany this DS. Specifications will make necessary revisions to DS and send out to committee to review.

Deferred:	**Not Approved:**	**Approved Date:** 2/8/07	**Effective Date:** 5/15/07

Specification Committee Approved Text: For DS, see attached Draft DS-010XX. The Specifications Section will send out the technical memo to Committee members.

Comments: There was quite a bit of concern with this DS being applied to projects with Federal aid. FHWA emphasized that without materials certification (witnessing the sampling and testing), there can be no Federal aid issued; therefore, this DS must not be applied to Federal aid projects. The issue was brought up that funding can change from non-Federal aid to Federal aid. If this DS has been applied, then the Federal aid would be denied. In addition, a DS applies to an entire contract, not individual projects. Applying the DS to individual projects in a contract may not be possible.

Concern was expressed that there needs to be text stating how and when this DS can be applied. The Specifications Section suggested placing that information in a technical memo rather than in the DS. This technical memo would be available on the Specifications Section website and clearly state that it cannot be applied to projects with Federal aid.

The Office of Local Systems noted that this DS would apply to FM and L projects only. Contracts could use project number as a checker to ensure this DS is being applied to only to FM and L projects. The technical memo could also emphasize this DS applies only to FM and L projects.

The Office of Contracts suggested having a controller for this DS. The Specifications Section noted they could investigate the possibility of having a controller for each District, likely the Local Systems Engineer.

The Office of Materials would like approval for the body of the DS so it can apply to projects as change order until administrative issues involved with putting on future projects are resolved. The Specifications Section noted a May effective date can be put on the DS.

The Committee agreed to remove the first paragraph and place it in a Technical Memorandum. The Office of Materials will work with Specifications Section to develop the Technical Memorandum. The Specifications Section will forward the Technical Memorandum to Committee members for approval before making the DS available on PSS.

Specification Section Recommended Text: See attached DS-010XX

Comments:

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

See attached DS.

Reason for Revision: Significant revisions to the HMA Quality Assurance Program were added to the

GS-01011 (Oct-06) to achieve sufficient compliance with federal regulations to maintain project federal funding. During the 2006 construction season, seven shadow projects were used to test the implementation of the program. Based on those projects and workshops held in each District, clarification was need for certain types of local agency projects. This DS describes changes to reduce the construction staffing for low risk local projects. As a DS, this specification should only be used under the direction and approval of the Office of Local Systems.					
County or City Input Needed (X one)			**Yes** X	**No**	
Comments: Prepared under the direction of the Office of Local Systems and QMA – QC/QA review team.					
Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Prepared under the direction of the QMA-QC/QA review team.					

Draft DS-010XX
(New)

Iowa Department of Transportation

DEVELOPMENTAL SPECIFICATIONS
FOR
REDUCTION OF HMA QC/QA CRITERIA FOR LOCAL AGENCIES

Effective Date
May 15, 2007

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

Section 2303 of the Standard Specifications shall apply with the following modifications:

Replace Article 2303.04, B, of the Standard Specifications:

B. Plant Production.
The Contractor shall perform the sampling and testing to provide the quality control of the mixture during plant production. Certified Plant Inspection as described in Section 2521 will be required on all HMA plant production. All personnel performing production quality control testing shall be certified by the Department.

Easy and safe access shall be provided to the location in the plant where samples are to be taken.

A "significant mix change" is defined as a single occurrence of an aggregate interchange of greater than 5%, a single occurrence of an asphalt content change greater than 0.2%, or any deletion or introduction of a new material into the mix.

1. Sampling and Testing.
Asphalt binder shall be sampled and tested to verify the quality of the binder grade. Asphalt binder samples shall be taken, at random times, as directed ~~and witnessed~~ by the Engineer in accordance with Materials I.M. 204.

Aggregate gradation control shall be based on cold feed gradation.

Three ~~A~~aggregate samples shall be taken per lot, at random times, as directed ~~and witnessed~~ by the Engineer in accordance with Materials I.M. 204 ~~and secured in accordance with I.M. 511~~ to determine that materials are being proportioned in accordance with the specifications.

The hot HMA mixture shall be sampled, at random locations, as directed ~~and witnessed~~ by the Engineer, in accordance with Materials I.M. 322 ~~and secured in accordance with Materials I.M. 511~~.

Each day's production of a mix design shall be considered a lot. When the anticipated quantity for the day is 2000 tons (2000 Mg) or more, that day's production shall be divided into four sublots, the first sublot of each day shall be the first 500 tons (500 Mg) produced. The remaining anticipated quantity for the day shall be divided into three sublots of equal size.

When the anticipated mix design quantity for the day is less than 2000 tons (2000 Mg), the first daily sublot shall be the first 500 tons (500 Mg) produced. Additional daily sublots of 750 tons (750 Mg) each will be established for mix production exceeding the first 500 tons (500 Mg).

The maximum number of paired hot HMA mixture samples required for acceptance of a lot will not exceed four.

Paired samples shall not be taken from the first 100 tons (100 Mg) of mix produced each day or the first 100 tons (100 Mg) of mix following a significant mix change.

The Contractor shall test the quality control sample of each production paired sample as follows:

Two gyratory specimens shall be prepared and compacted in accordance with Materials I.M. 325G and the results averaged to determine sample results.

Density shall be determined for each specimen in accordance with Materials I.M. 321.

The Contractor's field quality control laboratory compaction shall be used for field density control. The laboratory density for field control will be the bulk specific gravity of compacted mixture (G_{mb}) at N_{design}. Bulk specific gravity at N_{design} will be determined by compacting specimens to N_{max} and back calculating the bulk specific gravity at N_{design}.

The Theoretical Maximum Specific Gravity of the uncompacted mixture shall be determined in accordance with Materials I.M. 350 or other test methods recognized by AASHTO or ASTM.

The laboratory air voids shall be determined in accordance with Materials I.M. 501.

When liquid anti-strip additives are used, the Contractor shall satisfy one of the following methods to regulate the quantity of additive.

a. The Contractor shall present Certification that the equipment used to measure and blend the liquid anti-strip additive meets the anti-strip supplier’s recommended practice, that the equipment is directly tied to the asphalt binder supply system, and that the equipment has been calibrated to the equipment manufacturer’s guidelines.

b. The Contractor shall test the binder to measure the quantity of liquid anti-strip additive in the binder every 5000 tons (5000 Mg) of HMA production. The supplier’s test method shall be approved by the Engineer prior to use of the test.

c. The Contractor shall run AASHTO T 283 during production. If the Contractor is unable to certify or test for the presence and quality, the Contractor shall run AASHTO T 283 each 10,000 tons (10,000 Mg) of production to measure the effectiveness of the additive. The test results shall satisfy 80% TSR when compared to the dry strength of specimens prepared with asphalt binder containing the anti-strip additive.

2. Production Control.
After the JMF is established, the combined aggregate furnished for the project, the quantity of asphalt binder and laboratory air voids should consistently conform to the JMF, as target values, and shall be controlled within the production tolerances given in Table 2. Plant production must be controlled such that the plant produced HMA mixture will meet mixture design criteria for Air Voids and VMA at N_{design} gyrations of the gyratory compactor within the test tolerances given in the table. The slope of the gyratory compaction curve of plant produced material shall be monitored and variations in excess of ±0.40 of the mixture design gyratory compaction curve slope may indicate potential problems with uniformity of the mixture.

The gyratory mix design gradation control points for the size mixture designated in the project plans will not apply to plant production control.

Table 2 - Production Tolerances		
MEASURED CHARACTERISTIC	**TARGET VALUE (%)**	**SPECIFICATION TOLERANCE (%)(1)**
Cold feed gradation No. 4 (4.75 mm) and larger sieves	by JMF	± 7.0
Cold feed gradation No. 8 (2.36 mm)	by JMF	± 5.0
Cold feed gradation No. 30 (600 µm)	by JMF	± 4.0
Cold feed gradation No. 200 (75 µm)	by JMF	± 2.0 (2)
Daily asphalt binder content	by JMF	± 0.3
Field laboratory air voids	4.0 (3)	-0.5/+1.0 (4)
VMA (5)	by JMF	± 1.0 (6)
(1)- Based on single test unless otherwise noted.		
(2)- The filler/bitumen ratio of the plant produced mixture will be maintained between 0.6 and 1.4.		
(3)- Unless otherwise specified.		
(4)- Based on the moving average of four test values.		
(5)- Restricted to an asphalt film thickness as specified for the level of HMA mixture.		
(6)- Based on the daily lot average.		

The Contractor shall strive for the target value of the percent air void and asphalt binder by adjusting gradation and asphalt binder content.

The Contractor shall produce a mixture of uniform composition conforming to the JMF. If, during production, the Contractor determines from quality control testing that adjustments are necessary to the JMF to achieve the specified properties, adjustments to the JMF target gradation and asphalt binder content values may be made.

Adjustments to the JMF aggregate proportions and asphalt binder content shall be made as a result of the interactive process between the Contractor and the Engineer. The Contractor's adjustment recommendations shall prevail, provided all specifications and established mix design criteria are being met for plant production.

The voids in the mineral aggregate (VMA) and estimated film thickness shall be measured for specification compliance every day of HMA production.

Quality control charts in accordance with Materials I.M. 511 shall be available and kept current showing both individual test results and moving average values. Moving averages shall be based on four consecutive test results. Moving averages may only restart in the event of a mandatory plant shutdown for failure to maintain the average within the production tolerance. Control charts shall include a target value and specification tolerances.

Laboratory voids for individual tests shall be calculated according to Materials I.M. 501, using the individual density and individual maximum specific gravity determined for each sample. The moving average of laboratory voids shall be the average of the last four individual laboratory voids.

The Contractor shall monitor the test results and to make mix adjustments, when appropriate, to keep the mixture near the target values. The Contractor shall notify the Engineer whenever the

process approaches a specification tolerance limit. One moving average point for laboratory air voids outside the specification tolerance limit shall be cause to cease operations. The Contractor shall assume the responsibility to cease operations, including not incorporating produced material which has not been placed. The process shall not be started again until the Contractor notifies the Engineer of the corrective action proposed.

Replace Article 2303.04, D, of the Standard Specifications:

D. Sampling and Testing.
The Contractor shall maintain and calibrate the quality control testing equipment with prescribed procedures. Sampling and testing shall conform to specified procedures as listed in the applicable Materials I.M. and Specifications. When the results from a Contractor's quality control lab are used as part of product acceptance, the lab shall be qualified.

All quality control samples and field lab gyratory specimens used for acceptance shall be identified, stored, and retained by the Contractor until the lot is accepted. The Contracting Authority will prescribe the method of ~~securing the identity and integrity of~~ identifying the verification samples in accordance with Materials I.M. 511. All verification samples shall be stored by the Contractor for the Contracting Authority until delivery to the Contracting Authority's lab.

All samples shall be identified by a system approved by the Engineer.

1. Individual Materials and Loose Mixture.
All samples of asphalt binder, aggregate, and tack coat material, shall be identified~~, secured,~~ and promptly delivered to the appropriate laboratory, as designated by the Engineer.

Paired samples of loose HMA mixture shall be taken in accordance with Materials I.M. 322, each box of the pair weighing at least 30 pounds (14 kg). The Contractor's quality control tests for mixture properties shall be conducted on representative portions of the mix from the quality control sample of each sublot.

Samples shall be split for specimen preparation in accordance with Materials I.M. 357.

All test results and calculations shall be recorded and documented on data sheets approved by the Contracting Authority. Specific test results shall be recorded on the Daily Plant Report provided by the Contracting Authority. The Daily Plant Report shall also include a description of quality control actions taken (adjustment of cold feed percentages, changes in JMF, etc.). The Contractor shall FAX, or deliver by other method approved by the Engineer, the Daily Plant Report to the Engineer and designated laboratory daily. A copy of the electronic file containing project information generated during the progress of the work shall be furnished to the Engineer at project completion.

When sampling for AASHTO T 283, the Contractor shall obtain a 50 pound (25 kg) sample in accordance with Materials I.M. 322. The Engineer will select, at random, the sample location. The Contractor shall split the sample and deliver half to the Central Materials Laboratory.

2. Compacted Pavement Cores.
The Contractor shall cut and trim samples under the direction of and witnessed by the Engineer for tests of density, thickness, or composition, by sawing with a power driven masonry saw or by drilling a minimum 4 inch nominal diameter core. The surfaces shall be restored by the Contractor the same day. The core holes shall be dried, filled with the same type of material, and the material properly compacted. Pavement core samples will be identified, taken possession of by the Engineer, and delivered to the Contractor's quality control field laboratory.

The compacted HMA pavement shall ~~will~~ be tested in a timely manner by the ~~Engineer's~~ Contractor's personnel who are Iowa DOT Certified perform the test.

The minimum number of cores taken shall be in accordance with Materials I.M. 204, Appendix F.

The core locations will be determined by the Engineer.

The cores shall be prepared and tested in accordance with Materials I.M. 320, 321, and 337.

3. Verification and Independent Assurance Testing.
The Contractor's quality control test results from paired samples will be validated by the Engineer's verification test results on a regular basis using guidelines and tolerances set forth in Materials I.M. 216 and 511.

If the Engineer's verification test results validate the Contractor's test results, the Contractor's results will be used for material acceptance. Disputes between the Contractor's and Engineer's test results will be resolved in accordance with Materials I.M. 511.

The Engineer will select, at random, one or more of the daily hot mix production verification samples. Some or all of the samples selected will be tested in the materials laboratory designated by the Engineer. The Engineer will use the verification test results to determine if the Contractor's test results can be used for acceptance.

The Engineer will ~~test each lot~~ select one daily set of cores at random each week. These will be tested at the ~~Contractor's field quality control laboratory~~ materials laboratory designated by the Engineer. Cores from the first day of production will be tested by the Contractor and the Engineer for validation of the Contractor's results. ~~Cores may also be tested by the Contractor, but the Contractor's test results will not be used for material acceptance.~~

All personnel and laboratories performing tests used in the acceptance of material shall participate in the statewide Independent Assurance Program in accordance with Materials I.M. 208.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 10**
Submittal Date: January 24, 2007	**Proposed Effective Date:** April 17, 2007	
Article No.: Supplemental Specification **Title:** Modification and Clarifications to the HMA QA Program.	**Other:**	

Specification Committee Action: Approved, but will be a proposal note instead of an SS.

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

Specification Committee Approved Text: See attached Proposal Note.

Comments: The Office of Materials explained these changes are a result of things learned since revisions were made to the HMA Quality Assurance Program in October 2006. These changes are intended to be included with the October 2007 GS.

The Specifications Section asked for clarification of "Agency". The Office of Materials explained this would be the inspector (i.e. the Engineer).

The Office of Materials asked the Specifications Section to rewrite the paragraph being added to Article 2303.04, D, 2 to emphasize the Engineer has two options: (1) transport the cores directly to the lab; or (2) secure the cores and allow the Contractor to transport the cores to the lab.

The Specifications Section asked how changes would apply to Local Systems projects. FHWA pointed out that the proposed changes would be overridden by the proposed DS for Reduction of HMA QC/QA Criteria for Local Agencies (Item 9).

The Office of Construction asked if these changes could instead be included as part of the proposal. The Office of Contracts stated that this is a possibility. The Committee agreed to have these changes attached as a proposal note rather than an SS. The Specifications Section asked if these changes would apply to all HMA projects. The Office of Materials stated they would. The Office of Contracts stated it will add these changes as a proposal note to projects starting with the April letting, with the possibility of adding to projects in the March letting.

Specification Section Recommended Text: See attached SS-010XX

Comments: This specification needs to be issued as a DS if it has a controller.

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

Section 2303 is modified as follows:

2303.01 DESCRIPTION

Add the following paragraphs:

"Small quantity provisions (SS-010XX) apply for HMA bid items with 1000 tons or less."

"The Quality Assurance Program (Article 2303.04) applies to all projects, except as directed by the Office of Local Systems."

2303,04 B.1. Sampling and Testing

Add the following paragraph:

"The Contractor shall provide assistance with material sampling for Agency verification testing. When the Engineer notifies the Contractor that a sample shall be taken, the Contractor shall obtain the sample within 15 minutes."

2303.04 D.1 Individual Materials and Loose Mixture

Add the following paragraph:

"Paired sampling may also be accomplished by taking a bulk sample and immediately splitting the sample in accordance with IM 322 on the grade."

2303.04 D.2 Compacted Pavement Cores

Add the following paragraph:

"The Engineer may transport the cores directly to the lab or the Engineer may secure the cores and allow the Contractor to transport the cores to the lab."

Reason for Revision: Significant revisions to the HMA Quality Assurance Program were added to the GS-01011 (Oct-06) to achieve sufficient compliance with federal regulations to maintain project federal funding. During the 2006 construction season, seven shadow projects were used to test the implementation of the program. Based on those projects and workshops held in each District, some minor modifications and clarifications were identified. These changes reduce the construction staffing for low risk projects and expand sampling procedures. This SS describes the changes. As an SS, this specification should be used on all projects let under the GS-01011 and beyond.

County or City Input Needed (X one)			**Yes** X	**No**	
Comments: Prepared under the direction of the QMA – QC/QA review team.					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Prepared under the direction of the QMA-QC/QA review team.					

PROPOSAL NOTE FOR
MODIFICATION AND CLARIFICATIONS TO
THE HMA QA PROGRAM

2303.01 DESCRIPTION.

Add as the second paragraph:

Small quantity provisions (SS-01049) apply for HMA bid items with 1000 tons or less.

2303.04, B, 1, Sampling and Testing.

Add as the fifth paragraph:

The Contractor shall provide the Engineer assistance with material sampling for verification testing. When the Engineer notifies the Contractor that a sample shall be taken, the Contractor shall obtain the sample within 15 minutes.

2303.04, D, 1, Individual Materials and Loose Mixture

Add as the fourth paragraph:

Paired sampling may also be accomplished by taking a bulk sample and immediately splitting the sample in accordance with Materials I.M. 322 on the grade.

2303.04, D, 2, Compacted Pavement Cores

Add as the second paragraph:

The Engineer may either:

- Transport the cores directly to the lab, or
- Secure the cores and allow the Contractor to transport the cores to the lab.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 11**
Submittal Date: January 24, 2007	**Proposed Effective Date:** April 17, 2007	
Article No.: Supplemental Specification **Title:** Quality Control Program for Small HMA Paving Quantities.	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:**	**Effective Date:** 4/17/07

Specification Committee Approved Text: See attached Draft SS-01049.

Comments: The Office of Contracts asked if the 1000 tons is project specific. The Office of Materials explained it is bid item specific.

The Office of Construction expressed some concern with projects that involve both large and small quantities. The Office of Materials noted that although this is a possibility, the most common use of small quantities would be for base widening and/or leveling. The Office of Construction wanted to know if there will be problems for contractors if they are switching back and forth between projects involving large quantities (for example, on a Primary highway) and projects involving small quantities (for example, on a secondary road). District 2 Materials felt that it would be workable.

The Specifications Section asked the Office of Materials when they would like for these changes to become effective. The Office of Materials would like these changes to take effect immediately.

The Office of Contracts asked if this could be added as proposal note. The Office of Materials noted that these changes would require other changes in Section 2303; therefore, these changes aren't quite ready to add to the GS. The Committee agreed it should be added as an SS. The changes will become effective with the April letting.

Specification Section Recommended Text: See attached Draft SS-010XX.

Comments:

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

Replace existing SS-01036:

See attached SS.

Reason for Revision: Significant revisions to the HMA Quality Assurance Program were added to the GS-01011 (Oct-06) to achieve sufficient compliance with federal regulations to maintain project federal funding. During the 2006 construction season, seven shadow projects were used to test the implementation of the program. Based on those projects and workshops held in each District, the level of field inspection staffing was identified as a major concern. This SS describes changes to reduce the construction staffing for low risk projects. As an SS, this specification should be used on all projects let under the GS-01011 and beyond.

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

Comments: Prepared under the direction of the DMEs and QMA – QC/QA review team.

Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Prepared under the direction of the QMA-QC/QA review team.					

Draft SS-01049
(Replaces SS-01036)

Iowa Department of Transportation

SUPPLEMENTAL SPECIFICATIONS
FOR
QC PROGRAM FOR SMALL HMA PAVING QUANTITIES

Effective Date
April 17, 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.

01049.01 GENERAL.
This Supplemental Specification applies to work on the Interstate, Primary, and Secondary road systems and defines the quality control programs for contracts with HMA mixtures. These requirements will not apply to mixtures used for HMA patching.

For each ~~approved HMA job mix formula applied to a combined contract quantity~~ HMA mixture bid item of more than 1000 tons (1000 Mg), all requirements of Article 2303.04 of the Standard Specifications shall apply.

For each ~~approved HMA job mix formula applied to a combined contract quantity~~ HMA mixture bid item of 1000 tons (1000 Mg) or less shall be defined as small quantities and shall meet the requirements of this specification.

01049.02 QUALITY CONTROL FOR SMALL QUANTITIES.

A. Mix Design.
The Job Mix Formula (JMF) shall be prepared by the Contractor and approved by the Engineer prior to HMA production. The mix design shall comply with Article 2303.02 of the Standard Specifications and Materials I.M. 510.

B. Plant Production.
The calibration of the HMA production plant for the JMF shall be current and not more than 12 months old.

The Contractor shall use certified asphalt binder and approved aggregate sources meeting the JMF. The plant shall maintain an asphalt binder log to track the date and time of binder delivery. The HMA delivery tickets shall identify the JMF.

The Contractor shall monitor the quality control test results and make adjustments to keep the mixture near the target JMF values.

C. Construction.
Density measurements shall be taken of the compacted mixture, except when Class II compaction is specified. The Contractor's field quality control laboratory compaction shall be used for field density control as specified in Article 2303.04 of the Standard Specifications. The Engineer may accept the

density of the compacted layer based on cores or density gauge. The Engineer may waive density measurement provided the compaction has been thorough and effective. Density measurements of the compacted mixture shall be taken no later than the next working day following placement and compaction.

For small quantities, a lot will be the entire quantity of each HMA mixture bid item.

The quality index for density will not apply to small quantities.

D. Sampling and Testing.
Material sampling and testing is for production quality control only. Acceptance of mixture is based on Contractor certification. The Contractor shall perform a minimum of one aggregate cold-feed and one loose HMA test per lot. Sampling and testing of loose HMA is only required for mechanically placed mixture. All sampling and testing procedures shall follow the Standard Specifications and Materials I.M.s using certified technicians and qualified testing equipment. The Engineer may approve alternative sampling procedures. The sample shall be taken between the first 100 to 200 tons (100 to 200 Mg) of production. No split samples for agency ~~correlation~~ verification testing are required.

Asphalt binder will be accepted based on the asphalt supplier's shipment certification. No binder sampling or testing is required.

No material sampling or testing is required for daily HMA production of less than 100 tons (100 Mg) on any project.

E. Certification.
The Contractor shall provide a certification for the production of any mixture in which the requirements in this Supplemental Specification for small quantities are applied. The test results and certification statement shall be placed on the Daily HMA Plant Report (Form 800241). The Daily HMA Plant Report for certified HMA may be submitted at the end of the project for all certified HMA quantities, or submitted at intervals for portions of the certified quantity. The certification statement shall be as follows:

"The HMA mixture contains certified asphalt binder and approved aggregate as specified in the approved mix design and was produced in compliance with the provisions of SS-01049.02, Quality Control for Small HMA Quantities."

01049.03 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.
A completed Daily HMA Plant Report with the certification statement is required for ~~acceptance~~ measurement and payment for Contractor Certified HMA. The quantity of asphalt binder will be based on the approved JMF and any plant production quality control adjustments. Payment for the quality control requirements for small quantities will not be measured separately and shall be considered incidental to the items of HMA mixtures in the contract.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Keith Norris	**Office:** Construction / District 2	**Item 12**
Submittal Date: January 29, 2007	**Proposed Effective Date:** Feb. 8, 2007	
Article No.: Special Provision **Title:** Special Provisions for Asphalt Binder Incidental to Hot Mix Asphalt Mix.	**Other:**	

Specification Committee Action: Deferred.

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

Specification Committee Approved Text:

Comments: The Office of Materials noted that a combined bid item would force contractors to do economic analysis. Another solution that has been examined is not to pay contractors for binder in excess of 3/4% of Engineer's estimate. The Office of Construction expressed concern that if contractors aren't being paid for binder excess binder, they won't add it.

The Office of Contracts expressed concern that making binder incidental will affect bid item history and pavement determinations. The Office of Construction emphasized that this SP is intended to apply to a few select projects on a trial basis. Problems associated with item histories and pavement determinations would need to be worked out before implementing this SP statewide.

FHWA asked how many states are including binder. The Office of Materials noted about 80%. They also noted that these states tend to struggle with it because they do not have provisions for making sure they get durable mixes.

The Office of Materials asked if a contractor is using RAP and is being paid for the oil, would there be a bid item for RAP and oil. District 6 Materials verified this. They noted that it is up to contractors where binder comes from. If RAP is allowed, using it would be to their advantage. The current controls for the amount and use of RAP would not change.

The Office of Materials suggested bringing this SP up for future discussion after a further review of the percentages of incentives.

The Office of Contracts suggested looking into A-D Bidding (DS-01086), where D is value to the Department to use less absorptive aggregate. The Department would need to assign a monetary value to D. Using A-D Bidding would allow continued use of current two bid item system.

The Specifications Section noted that there are no restrictions for bidding by square yards. When bidding by square yards, binder is incidental. The Office of Materials noted that the only requirement associated with square yards is a minimum 8 micron film thickness. The SP would provide incentive for thicker film thickness. The Specifications Section asked if issues such as these could be addressed in the Specifications. The Office of Materials noted that some of the issues regarding film thickness are already being addressed. This would help to overcome problems associated with bidding by square yards. Right now, their concern is that without incentives, contractors will skinny up mixes.

The Committee decided to assemble a group to further discuss this SP.

Specification Section Recommended Text:

Comments: SS-01036 is being revised (see Item 11) and will be issued a new number. SS-01036 in this SP will need to be changed to this new number.

Member's Requested Change: **(Do not use 'Track Changes', or 'Mark-Up'. Use ~~Strikeout~~ and Highlight.** See attached Proposed SP language.					
Reason for Revision: To develop a Special Provision to evaluate the use of a single bid item for HMA. Experience on selected projects has shown that the current practice of bidding binder separately may not provide the most cost effective price for HMA. An incentive/disincentive provision is also included to ensure adequate film thickness is provided to ensure acceptable quality.					
County or City Input Needed (X one)			**Yes**	**No** X	
Comments: Use as SP only					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes** ***	**No**	**Industry Concurrence:**	**Yes** ***	**No**
Comments: *** Keith has discussed this conceptually with some contractors. It has not been discussed with the APAI or QMA steering committee. However, its use as an SP is only considered on a limited basis until some experience is gained.					

SP-010XXX
(New)

Iowa Department of Transportation

SPECIAL PROVISIONS

FOR

ASPHALT BINDER INCIDENTAL TO HMA MIXTURE

County
Project Number

Effective Date
Month Day, 2007

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

GENERAL.
Asphalt binder will not be measured separately for payment; instead, it will be considered incidental to the HMA mixture.

Section 2303 of the Standard Specifications and SS-01036 shall apply with the following modifications:

2303.02, B, 2, Blended Aggregates.

Replace the first paragraph with the following:

The blended aggregate shall meet the combined aggregate requirements in Materials I.M. 510 and the following requirements:

For 3/4 inch (19 mm) Mix Size: a minimum of 55 percent passing the No 4 (4.75 mm) sieve.
For 1/2 inch (12.5 mm) Mix Size: a minimum of 60 percent passing the No.4 (4.75 mm) sieve.

2303.02, D, Hot Mix Asphalt Mixture.

Delete the third and fourth paragraphs and the table following the fourth paragraph.

2303.06, A, Hot Mix Asphalt Mixture.

Add as the fourth, fifth, and sixth paragraphs:

Payment for each lot will be adjusted by the following percentages of the contract unit price. Patching will not be included in this payment schedule.

Film Thickness, microns	% Payment
Less than 8.0	*
8.0 – 9.0	100
9.1 – 9.5	103
9.6 – 11.5	106
11.6 – 13.0	103
13.1 – 15.0	100
Greater than 15.0	*
* Follow the procedure described in Appendix 2-34(M), Table M of the Construction Manual.	

Payment greater than 100 percent for the lot will require the following:

- The Quality Index (Density) is paid at 100 percent of full payment.
- The field laboratory air voids moving average values are within the range of 0.5% to +1% of the target lab voids.

For projects where all lots qualify for 106%, the Contractor will receive an additional 2% based on the contract unit price. Lots for which sampling and testing of the HMA mixture is not required or is waived by the Engineer shall not preclude payment of this incentive.

2303.06, B, Asphalt Binder.

Replace the first and second paragraphs with the following:

New asphalt binder and asphalt binder contributed in Recycled Asphalt Pavement incorporated in the HMA mixture will not be paid for separately, but will be considered incidental to the HMA Mixture.

01036.03, Method of Measurement and Basis of Payment

Delete the second sentence.