Iowa Department of Transportation

MINUTES
OF
IOWA DOT SPECIFICATION COMMITTEE MEETING

May 11, 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
	John Smythe	Office of Construction
	Roger Bierbaum	Office of Contracts
	Larry Jesse	Office of Local Systems
	Jim Berger	Office of Materials
	Doug McDonald	District 1-Marshalltown RCE Office
Members Not Present:	Gary Novey	Office of Bridges & Structures
	Troy Jerman	Office of Traffic & Safety
	Mike Kennerly	Office of Design
Advisory Members Present:	Lisa Rold	FHWA
Advisory Members Not Present:	Jim Rost	Office of Location & Environment
	Larry Stevens	SUDAS
Others Present:	Deanna Maifield	Office of Design
	Wayne Mander	Office of Design
	Dan Sprengeler	Office of Traffic and Safety
	Vince Ehlert	Iowa County
	Kevin Merryman	Office of Construction
	Brad Azeltine	Office of Location & Environment
	Mark Bortle	Office of Construction
	Mike Heitzman	Office of Materials

Tom Reis, Specifications Engineer, opened the meeting. The following items were discussed in accordance with the agenda dated May 5, 2006:

1. **Article 1101.03, Definition of Terms**
   Article 1107.08, Public Convenience and Safety
   Article 1107.09, Barricades and Warning Signs
   Section 2527, Pavement Marking
   Section 2528, Traffic Control.

The Specifications Engineer requested several changes to the traffic control specifications that will incorporate language to be removed from the Road Standards.

2. Article 2212.07, Basis of Payment (Base Repair).

The Office of Construction requested a change to Article 2212.07 that will modify how overdepth patches are paid in conjunction with upcoming changes to Section 2529.

3. Article 2301.08, Bridge Approach Sections.

The Office of Construction requested a change to Article 2301.08 that will clarify the specification requirements for epoxy coated reinforcement for bridge approach sections.

4. Article 2301.34, Method of Measurement (PCC Pavement).

The Office of Materials requested changes to Article 2301.34 that will align the specifications with the FHWA requirements concerning sampling of cores for quality assurance. It is correct in IM 346 and the Construction Manual.

5. Section 2303, Hot Mix Asphalt Mixtures.

The Office of Materials requested changes to Section 2303 that will bring the HMA QC/QA program into compliance with the Federal regulations.

6. Article 2403.03, B, Entrained Air Content.

The Office of Materials requested a change to Article 2403.03 that will modify the entrained air content to account for hauling and placement methods.

7. Article 2521.01, Description (Certified Plant Inspection).

The Office of Materials requested a change to Article 2521.01 that will bring the specifications into compliance with the Federal regulations for quality control testing.

8. Section 2529, Full Depth Finish Patches.

The Office of Construction requested changes to Section 2529 that will address payment for overdepth patches, placement of cure, payment for smoothness testing, payment of anchor lug removal, and clarifies the Method of Measurement for CD and CT joints.

9. Section 2537, Removal of Underground Tank Systems and Remediation of Petroleum Contaminated Soil.

The Office of Location and Environment requested several changes to Section 2537 that bring the standard specifications into alignment with Iowa DNR rules.

10. Article 4108.01, Description (Mineral Admixtures).

The Office of Materials requested changes to Article 4108.01 that will modify the specifications for chemical limit for available alkalies in mineral admixtures.

11. Article 4109.02, Testing Sieves (Aggregate Gradation Table).

The Office Materials requested several changes to the Aggregate Gradation Table that will correct some incorrect references.

12. Article 4115.03, Gradation (Coarse Aggregate for PCC).

The Office of Materials requested a change to Article 4115.03 that will add a reference to the Aggregate Gradation Table.

13. Article 4120.02, Granular Material.

The Office of Materials requested a change to Article 4120.02 that will correct a reference to the Materials I.M.s.

14. **Article 4121.01, Description (Granular Subbase Material)**

The Office of Materials requested a change to Article 4120.02 that will correct a reference to the Materials I.M.s.

15. **Article 4123.01, Description (Modified Subbase Material).**

The Office of Materials requested a change to Article 4120.02 that will correct a reference to the Materials I.M.s.

16. **Article 4130.01, Revetment Description.**

The Office of Materials requested a change to Article 4120.02 that will correct a reference to the Materials I.M.s.

17. **Article 4161.02, Preservatives.**

The Office of Materials requested a change to Article 4161.02 that will correct an oversight of not having Copper Naphthenate mentioned as an approved preservative.

18. **Article 4161.03, Treatment.**

The Office of Materials requested changes to correct an omission in the table from the last revision.

19. Article 4164.04, Wood Sign Posts.

The Office of Materials requested changes to Article 4164.04 that will delete a reference to the Northern Hardwood and Pine Manufactures Association as it no longer exists and to recognize that Grade #1 Northern Pine species are closely equivalent to Pine and Douglas Fir Grade #2.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Tom Reis	**Office:** Specifications	**Item 1**
Submittal Date: April 27, 2006	**Proposed Effective Date:** October 2006 GS	
Article No.: 1101.03 **Title:** Definition of Terms **Article No.:** 1107.08 **Title:** Public Convenience and Safety **Article No.:** 1107.09, B **Title:** Responsibilities of the Contractor. **Section No.:** 2527 **Title:** Pavement Marking **Section No.:** 2528 **Title:** Traffic Control.	**Other:**	

Specification Committee Action: Approved. Add suggested text to Article 2528.02. Change language regarding left signal head in Article 2528.07.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: Article 2528.02, Signs and Article 2528.07, Temporary Traffic Signals see text below. For all other changes, see Members Requested Change.

2528.02, Signs.

Add as the fifth and sixth paragraphs:

When indicated in the contract documents, supplemental sign flags shall be used in conjunction with work zone signing. The sign flags shall be 16 inches (400 mm) square and sheeted with red Type III or Type IV retroreflective sheeting meeting requirements of Article 4186.03.

Permanent signing that conveys a message contrary to the message of the temporary signing and not applicable to the working conditions shall be covered or removed by the Contractor when directed by the Engineer.

2528.07, Temporary Traffic Signals.

Replace the third paragraph:

The Contractor shall furnish actuated signal controllers that comply with NEMA and ITE standards. Signal timing shall be set as approved by the Engineer. Signals shall rest on Red.

Add as third and fourth paragraphs:

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).

Comments: The Office of Construction noted that in Article 2528.02 the word "red" needs to be added before "Type III or Type IV retroreflective sheeting". District 6 Construction wanted to know if the Materials I.M. referenced in Article 2527.02 will be ready by October. The Specifications Section verified it would be ready. District 6 Construction noted that the language in the third paragraph of Article 2528.07 is a bit confusing. It isn't clear where other signal heads would be placed. Multi-lane situations aren't addressed. The Office of Traffic and Safety along with the Office of Construction explained that for a two-lane situation, the other signal head would be place 8 feet from the left signal head. Multi-lane situations would be handled by a detail. The Office of Traffic and Safety suggested adding language that third paragraph applies to two-lane situations. The Office of Construction suggested that the language might be best left on the standards. The Office of Design noted that the standards show how many signals there are. They suggested changing the language to read: "Any signal head mounted over traffic shall be centered over the appropriate lane." Construction agreed with that language.

Specification Section Recommended Text: See submitted text.

Comments:

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

1101.03, Definition of Terms.

Add definition.

Speed Limit.
Refers to the legally established speed limit before construction and not the advisory speed during construction.

1107.08, Public Convenience and Safety.

Add as the sixth, seventh, and eighth paragraphs:

When work on a traveled way necessitates diverting traffic from a work lane to another lane, material, mobile equipment, and vehicles shall occupy the work lane to the minimum extent and for the minimum time necessary, and non-mobile equipment shall be removed from the work lane promptly after its operation is completed in that lane.

On two-lane two-way roadways, a work area shall be established only on one side of the roadway and there shall be no parking of vehicles or equipment on the opposite shoulder within 500 feet (150 m) of the work area.

The location for storage of equipment by the Contractor during nonworking hours shall be as reviewed and approved by the Engineer prior to use.

Parking of private vehicles on Interstate right-of-way will not be allowed. Parking of unattended equipment within the median or storage of equipment within 50 feet (15 m) of the edge of pavement will not be allowed.

1107.09, B, Responsibilities of the Contractor.

Add as the second sentence of the fourth full paragraph:

An additional flagger shall be stationed at public road intersections or crossings within the work area, if necessary, to prevent vehicles from entering the work area against the flow of traffic. Individual intersections that must be closed for the paving train (tack application through final rolling) to pass shall have a flagger stationed at each approach to control sideroad traffic. When traffic control is incidental, additional flaggers will not be paid for separately.

1107.09, B, 11, Lane Drop-off or Rise.

Delete the first, second and third indented paragraphs:

~~When the nominal thickness placed or removed results in a drop-off or rise of more than 2 inches (50 mm) adjacent to an open traffic lane, the spacing of the lane line channelizing devices shall be reduced to 50% of that shown on the Standard Road Plan. The edge of the channelizing device shall be placed within 1 foot (300 mm) of the drop-off or rise.~~

~~If conditions result in a rise or drop-off which exceeds 3 1/2 inches (90 mm) overnight, the Contractor shall also place a temporary edge line in the open lane, 1 foot (0.3 m) from the drop-off, at no additional cost to the Contracting Authority.~~

~~The Contractor may use drums for the lane line channelizing devices in which case the temporary edge lines will not be required. The channelizing devices may be placed on either surface during working hours. Work shall continue within a work area on consecutive stages on consecutive working days until the drop-off or rise is eliminated and the work area can be moved.~~

2527.02, Materials.

Renumber existing Articles F through I to G through J and **Insert** new Article F:

F. Channelizer Markers.
Channelizer marker shall be in accordance with Materials I.M. XXX.

G~~F~~. Preformed Polymer Tape.
H~~I~~. Removable, Nonreflective, Preformed Tape.
I~~J~~. Profiled Pavement Marking Tape
J~~I~~. Intersection Marking Tape.

2527.03, F, 5, Raised Pavement Markers.

Add as the third sentence:

Raised pavement markers shall be placed parallel to the line being marked at that location. Placement shall be in accordance with the manufacturer's recommendations subject to approval by the Engineer. For pavement crossovers, raised pavement markers, spaced at 10 feet (3 m) on center shall be used to supplement the white and yellow edge lines from the beginning of the lane reduction taper through the reverse curves of the crossover.

2528.02, Signs.

Add as the fifth and sixth paragraphs:

When indicated in the contract documents, supplemental sign flags shall be used in conjunction with work zone signing. The sign flags shall be 16 inches (400 mm) square and sheeted with Type III or Type IV retroreflective sheeting meeting requirements of Article 4186.03.

Permanent signing that conveys a message contrary to the message of the temporary signing and not applicable to the working conditions shall be covered or removed by the Contractor when directed by the Engineer.

2528.03, Channelizing Devices.

Add as the second, third, and fourth paragraphs:

Channelizing devices may be placed up to 2 feet (0.6 m) beyond centerline or lane line at specific locations where actual work activity is taking place. Channelizing devices shall be returned to the

original position when the work activity has passed.

Individual channelizing devices may be omitted during working hours in areas where placement interferes with the work. Channelizing devices on tapers are required at all times.

Channelizing devices of different types shall not be intermixed.

2528.03, B, Cones, Vertical Panels, 42 Inch (1050 mm) Channelizers, Drums, and Tubular Markers.

Add as the fourth paragraph:

Cones may be used as channelizing devices in tapers and along lane lines during daylight hours only.

2528.06, Lighting Devices.

Add as the third sentence of second paragraph:

All barricade warning lights shall be in accordance with the ITE Standard for Flashing and Steady Burn Barricade Warning Lights and shall be identified as specified therein. In addition, Type A barricade warning lights shall operate on a 12 volt battery system, unless the ITE identification specifically indicates that the rating is based on a different system. Type A lights shall be visible to both directions of traffic.

2528.07, Temporary Traffic Signals.

Replace the third paragraph:

The Contractor shall furnish actuated signal controllers that comply with NEMA and ITE standards. Signal timing shall be set as approved by the Engineer. Signals shall rest on Red.

Add as third and fourth paragraphs:

The left signal head shall be centered over traffic lane.

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

Add as the sixth paragraph:

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 to 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.

2528.08, Temporary Floodlighting.

Add as the fourth paragraph:

Clearance for overhead wiring shall be a minimum of 18 feet (5.5 m). Auxiliary poles used to furnish power to floodlighting shall be offset 30 feet (9 m) from the traveled way unless there are right-of-way restrictions.

2528.11, Limitations.

Replace the third paragraph:

During non-working hours, traffic control devices intended for working hours only shall be removed, covered, or turned down unless a drop-off or physical obstruction remains within 15 feet (4.5 m) of a

lane open to traffic. Signs or barricades are not required for work beyond 15 feet (4.5 m) of a lane open to traffic. When traffic control devices are no longer needed, they shall be removed.

Add as the eight paragraph:

Modifications to the Traffic Control Plan shall be reviewed and approved by the Engineer prior to any changes being made. Sign spacing may be modified by the Engineer to meet existing field conditions or to prevent obstruction of the motorist's view of permanent signing.

Reason for Revision: To incorporate language into the Standard Specifications that has been removed from the Road Standards. This was at the request of the AGCI and involves language that is repeated on numerous 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:					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Kevin Merryman	**Office:** Construction	**Item 2**
Submittal Date: April 7, 2006	**Proposed Effective Date:** October 2006	
Section No.: 2212.07 **Title:** Basis of Payment (Base Repair)	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: See Reason for Revision.

Specification Section Recommended Text:

2212.07, B, Full Depth Repair Patches.

Add the as the second paragraph:

Payment for overdepth patches will be made in accordance with Article 2529.14, A, 2.

Comments:

Member's Requested Change (Redline/Strikeout):

2212.07 BASIS OF PAYMENT. Add the following paragraph 2 to sub-paragraph B.

Payment for overdepth patches will be made in accordance with Article 2529.14, A, 2.

Reason for Revision: Changes to parallel changes to the full depth finish patching specifications.

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

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Wayne Sunday	**Office:** Construction	**Item 3**
Submittal Date: April 18, 2006	**Proposed Effective Date:** October 17, 2006	
Article No.: 2301.08 **Title:** Bridge Approach Sections	**Other:**	

Specification Committee Action: Deferred.

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

Specification Committee Approved Text:

Comments: The Office of Construction requested that this item be deferred.

Specification Section Recommended Text:

2301.08, Bridge Approach Sections.

Add as the third sentence:

Furnishing and placement of reinforcement shall be in accordance with Section 2404, except that Articles 2404.09 and 2404.10 shall not apply.

Comments:

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

2301.08 BRIDGE APPROACH SECTIONS

Bridge approach sections shall be constructed as shown in the contract documents. All approach pavement reinforcing steel shall be epoxy coated. Furnishing and placement shall be in accordance with Specification Section 2404 Reinforcement, except that Article 2404.09 Method of Measurement and Article 2404.10 Basis of Payment shall not apply. Clear distance from face of concrete to near reinforcing steel shall be 2 inches (50mm), unless otherwise noted in the contract documents. The Bridge Approach Section shall be Class C Concrete, with coarse aggregate durability in accordance with Article 4115.04.

Reason for Revision: To address epoxy coated reinforcement, furnishing, placement and repair of damage for epoxy coated reinforcing when specified in bridge approach construction.

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 / Todd Hanson	**Office:** Materials	**Item 4**
Submittal Date: April 13, 2006	**Proposed Effective Date:** October 2006	
Article No.: 2301.34, A **Title:** Method of Measurement (PCC Pavement)	**Other:**	

Specification Committee Action: Approved. Add in suggested text.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2301.34, A, Portland Cement Concrete Pavement.

Replace the third paragraph of the second indented paragraph:

> At locations determined by the Engineer, the Contractor shall cut samples from the pavement, as directed above, by drilling with a core drill of a size that will provide samples with a 4-inch (101.6 mm) outside diameter. The Contractor shall restore the surface by tamping low-slump concrete into the hole, finishing and texturing. The Engineer will witness the core drilling, identify, and measure the cores immediately. ~~The Contractor shall identify and deliver the cores to the field laboratory or plant inspector.~~ The Engineer will measure the cores and determine the thickness index in accordance with Materials I.M. 346. After measurement on the grade, the Contractor shall deliver the cores to the District Materials Office. When cores are not measured on the grade, the Engineer will take immediate possession of the cores.

Comments: District 6 Construction asked who transports cores to District Materials if they are not measured on grade. The Office of Materials explained that it is the intent that if measurement is made on grade, the Contractor shall deliver the cores. They requested that “on the grade” be added to the fifth sentence.

Specification Section Recommended Text:

2301.34, A, Portland Cement Concrete Pavement.

Replace the third paragraph of the second indented paragraph:

> At locations determined by the Engineer, the Contractor shall cut samples from the pavement, as directed above, by drilling with a core drill of a size that will provide samples with a 4-inch (101.6 mm) outside diameter. The Contractor shall restore the surface by tamping low-slump concrete into the hole, finishing and texturing. The Engineer will witness the core drilling, identify, and measure the cores immediately. ~~The Contractor shall identify and deliver the cores to the field laboratory or plant inspector.~~ The Engineer will measure the cores and determine the thickness index in accordance with Materials I.M. 346. After measurement, the Contractor shall deliver the cores to the District Materials Office. When cores are not measured on the grade, the Engineer will take immediate possession of the cores.

Comments: This item was deferred from the March 9th Specification Committee meeting as Item 8.

Member's Requested Change (Redline/Strikeout):

2301.34 METHOD OF MEASUREMENT.

A. Portland Cement Concrete Pavement.
The quantity of Standard or Slip-Form Portland Cement Concrete Pavement of the type specified in square yards (square meters), will be the quantity shown in the contract documents and applies to pavement, concrete pavement widening greater than 6 feet (1.8 m), side street connections, crossovers, ramps, acceleration and deceleration lanes or auxiliary lanes, and concrete paved shoulders having the same design thickness. The coring requirements for thickness do not apply to detour pavements, paved drives, and temporary pavements. The thickness of pavement constructed will be determined from core depths as follows:

The division of lots, number of lots, lot sizes, and core locations shall be in accordance with Materials I.M. 346.

At locations determined by the Engineer, the Contractor shall cut samples from the pavement, as directed above, by drilling with a core drill of a size that will provide samples with a 4-inch (101.6 mm) outside diameter. The Contractor shall restore the surface by tamping low-slump concrete into the hole, finishing and texturing. The Engineer will witness the core drilling, identify, and measure the cores immediately. The Engineer will measure the cores and determine the thickness index in accordance with Materials I.M. 346. After measurement, ~~T~~the Contractor shall ~~identify and~~ deliver the cores to the District Materials Office ~~field laboratory or plant inspector~~. When cores are not measured on the grade, the Engineer will take immediate possession of the cores.

Reason for Revision:					
County or City Input Needed (X one)			**Yes**	**No**	
Comments: The spec does not match the requirements by the FHWA concerning sampling of cores for quality assurance. It is correct in IM 346 and the Construction Manual.					
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 5**
Submittal Date: April 21, 2005	**Proposed Effective Date:** October 2006	
Article No.: 2303 **Title:** Hot Mix Asphalt Mixtures	**Other:**	

Specification Committee Action: Approved. Make appropriate changes in Articles 2303.04, B, 1; 2303.04, C, 1; and 2303.04, D, 2.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: For Articles 2303.04, B, 1; 2303.04, C, 1; and 2303.04, D, 2 see text below. For all other changes, see Specifications Section Recommended Text.

2303.04, B, 1, Sampling and Testing.

Replace the first eight paragraphs:

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.

Aggregate samples shall be taken, at random times, as directed and witnessed by the Engineer in accordance with Materials I.M. 204 and secured in accordance with IM 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, ~~from the roadway, behind the paver, prior to compaction,~~ 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 ~~day's production~~ 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 ~~E~~each production paired sample ~~shall be tested~~ 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.

2303.04, C, 1, Density.

Replace the fourth full paragraph:

Seven ~~D~~density samples ~~will~~ shall be taken and will be tested for each lot in accordance with Materials I.M. 204. The length laid in each lot ~~shall~~ will be divided into ~~seven~~ approximately equal sublots ~~sections~~ and one sample ~~will~~ shall be obtained, at a random location, as directed and witnessed by the Engineer in each sublot ~~section~~.

2303.04, D, 2, Compacted Pavement Cores.

Replace the first two paragraphs:

The Contractor shall cut and trim samples under the direction of and witnessed by the Engineer ~~from any course or finished pavement~~ 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 ~~shall~~ be identified, taken possession by the Engineer, and delivered to the Contractor's quality control field laboratory.

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

Comments: District 6 Construction asked if the correct number of paragraphs is being replaced in Article 2303.04, B, 1. The Specifications Section noted that it is the first eight paragraphs that are being replaced. District 6 Construction expressed some concerns that indentation will be lost if the four indented paragraphs of Article 2303.04, B, 1 aren't included in the changes. The Specifications Section noted that they will include this text in the minutes. District 6 Construction noted some errors with the use of "shall" and "will" in Article 2303.04, C, 1. These corrections are in the Specifications Section Recommended Text. District 6 Construction asked if the word "secured" used in the last sentence of first paragraph of Article 2303.04, D, 2 is correct for this situation. The Office of Material noted that "taken possession" is the correct terminology.

Specification Section Recommended Text:

2303.03, E, 1, d, Test Strip Construction for Class IA and IB Compaction.

Replace the fourth paragraph:

Procedures and documentation to be followed during construction of the test strip shall allow the Engineer and the Contractor to confirm ~~verify~~ mixture design properties and effectiveness of compaction procedures.

2303.04, Quality Control Program.

Replace the title:

Quality Assurance ~~Control~~ Program.

2303.04, B, Plant Production.

Replace the second sentence:

Certified Plant Inspection as described in ~~according to~~ Section 2521 will be required on all HMA plant production.

2303.04, B, 1, Sampling and Testing.

Replace the first nine paragraphs:

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.

Aggregate samples shall be taken, at random times, as directed and witnessed by the Engineer in accordance with Materials I.M. 204 and secured in accordance with IM 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, ~~from the roadway, behind the paver, prior to compaction,~~ in accordance with Materials I.M. 322 and secured in accordance with IM 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 ~~day's production~~ 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 ~~E~~each production paired sample ~~shall be tested~~ as follows:

2303.04, C, 1, Density.

Replace the fourth full paragraph:

~~Seven~~ ~~D~~density samples will be taken and tested for each lot in accordance with Materials I.M. 204. The length laid in each lot shall be divided into ~~seven~~ approximately equal sublots ~~sections~~ and one sample will be obtained, at a random location, as directed and witnessed by the Engineer in each sublot ~~section~~.

2303.04, D, Sampling and Testing.

Replace the first two paragraphs:

The Contractor shall maintain and calibrate ~~and correlate~~ the quality control testing equipment with prescribed procedures. Sampling and testing shall conform to specified ~~testing~~ 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 ~~for~~ product acceptance, the lab shall be qualified.

~~All samples shall be identified, stored and retained by the Contractor for the Contracting Authority until the lot is accepted. The Contracting Authority may acquire these samples for comparative, verification, or assurance testing.~~ 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 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.

2303.04, D, 1, Individual Materials and Loose Mixture.

Replace the article:

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 ~~S~~samples of loose HMA mixture shall be taken in accordance with Materials I.M. 322, each box of the pair weighing at least 30 ~~60~~ pounds (14 ~~28~~ kg), ~~and shall be transported to the test facility in a way to retain heat to facilitate sample splitting procedures~~. The Contractor's quality control tests for mixture properties shall be conducted on representative portions of the mix, ~~split~~ from the quality control sample of each sublot ~~the larger sample of mix~~. ~~After splitting of the sample is completed in the Contractor's QM-A laboratory, the remainder of the sample, approximately 30 pounds (15 kg), shall be retained for laboratory testing by the laboratory designated by the Contracting Authority.~~

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 ~~summary sheet approved~~ by the Contracting Authority. The Daily Plant Report ~~Quality Control Summary Sheet~~ shall also include a description of quality control actions taken (adjustment of cold feed percentages, changes in JMF, etc.). The Contractor shall FAX, or by other method approved by the Engineer, the Daily Plant Report ~~daily quality control summary sheet~~ 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.

2303.04, D, 2, Compacted Pavement Cores.

Replace the first two paragraphs:

The Contractor shall cut and trim samples under the direction of and witnessed by the Engineer ~~from any course or finished pavement~~ 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 ~~shall~~ be identified, secured by the Engineer, and delivered to the Contractor's quality control field laboratory.

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

2303.04, D, 3, Acceptance, Correlation, and Quality Assurance Testing.

Replace the title and article:

3. Verification, ~~Acceptance, Correlation~~, and Independent ~~Quality~~ Assurance Testing. The Contractor's quality control test results from paired samples will be validated by ~~compared and correlated to~~ the Engineer's verification test results on a regular basis using guidelines and tolerances set forth in Materials I.M. ~~208, Appendix C;~~ 216 and 511.

If the Engineer's verification test results validate the Contractor's test results ~~If satisfactory correlation exists between the Contractor's test results and the Engineer tests~~, the Contractor's results will be used for material acceptance. Disputes between the Contractor's and Engineer's test results~~, on one sample or one test of one sample,~~ will be resolved in accordance with Materials I.M. 511.

The Engineer will select, at random, ~~a split portion of~~ 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 ~~test as many of the samples as necessary to establish a correlation~~.

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 may ~~from the initial production will~~ also be tested by the Contractor, but the Contractor's test results will not be used for material acceptance ~~and the Engineer for correlation and validation of results~~.

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.

Comments:

Member's Requested Change:

Change 2303.03 E. 1. d. Test Strip Construction for Class 1A and 1B Compaction. Paragraph 4

"Procedures and documentation to be followed during construction of the test strip shall allow the Engineer and the Contractor to confirm ~~verify~~ mixture design properties and effectiveness of compaction procedures."

Replace 2303.04 Quality Control Program

2303.04 QUALITY ASSURANCE ~~CONTROL~~ PROGRAM.

A. Mix Design - Job Mix Formula.
The JMF for each mixture shall be the responsibility of the Contractor.

The Contractor shall submit completed JMF using the computer format of Form 956 to the materials laboratory designated by the Contracting Authority for approval. The Contractor shall submit supporting documentation demonstrating the design process was followed and how the recommended JMF was determined, including an economic evaluation when required. Documentation shall include trial and final proposed aggregate proportions (Form 955) and corresponding gyratory data. The Contractor shall also submit sufficient loose mixture and individual material samples for approval of the design.

The JMF shall be prepared by personnel who are Iowa DOT certified in bituminous mix design.

If the JMF is not satisfactory, the Contractor shall submit another JMF for review. An approved JMF will be required prior to beginning plant production. The Contractor will be charged $1000 for each JMF approval requested and performed which exceeds two per mix size, type, and proposal item on any individual project or group of tied projects.

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 ~~according to~~ 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.

Aggregate samples shall be taken, at random times, as directed and witnessed by the Engineer in accordance with Materials I.M. 204 and secured in accordance with IM 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, ~~from the roadway, behind the paver, prior to compaction,~~ in accordance with Materials I.M. 322 and secured in accordance with IM 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 ~~day's production~~ 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 ~~shall be tested~~ 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.

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.

C. Construction.

1. Density.

Density samples shall be taken from the compacted mixture and tested not later than the next working day following placement and compaction.

A lot shall be considered as one layer of one mixture placed during a day's operation. The Engineer may approve classifying multiple layers of construction placed during a single day as a lot provided only one mixture was used.

The Engineer may waive sampling for density provided compaction has been thorough and effective in the following situations:

1. When the day's operation is not more than 2500 square yards (2500 m^2),
2. When the day's operation is not more than 500 tons (500 Mg),
3. When the mixture is being placed in irregular areas, or
4. When placing wedge or strengthening courses.

~~Seven~~ Density samples will be taken and tested for each lot in accordance with Materials I.M. 204. The length laid in each lot shall be divided into ~~seven~~ approximately equal sublots ~~sections~~ and one sample will be obtained, at a random location, as directed and witnessed by the Engineer in each sublot ~~section~~.

If a sample is damaged or measures less than 70% or more than 150% of the intended thickness, an alternate sampling location will be determined and used. Samples shall not be taken less than 1 foot (300 mm) from the edge of a given pass of the placing equipment, from run-outs, or from day's work joints or structures.

The quality index for density of each lot shall be determined by the following formula:

$$QI_{Density} = \frac{(\text{Average } G_{mb})_{\text{Field Lot}} - ((\%\ \text{Density})_{\text{Specified}} \times (\text{Average } G_{mb})_{\text{Lab Lot}})}{(\text{Standard Deviation } G_{mb})_{\text{Field Lot}}}$$

where $QI_{Density}$ = Quality Index for density
G_{mb} = bulk Specific Gravity of the mixture

When the quality index falls below 0.00, the Engineer may declare the lot or parts of the lot defective.

If one of the density test values from a lot is an outlier, identified in accordance with the procedure described in Materials I.M. 501, the outlier value shall not be used to determine the quality index. The quality index shall be determined using the remaining density test values.

If only one laboratory density value is obtained that day, combine that value with the next day's test results to evaluate both days' production. If two or more laboratory density values are obtained that day, then the average of those tests alone shall be used. If a significant mix change has been made, only the appropriate laboratory density values should be used with the corresponding density cores.

2. Thickness.
The thickness of the completed course will be measured to the nearest 1/8 inch (3 mm), exclusive of seal coat, by measurement of cores. All areas of uniform and similar thickness and width for the project will be divided into lots.

The frequency specified for taking density samples from the surface lift will be used when measuring for completed thickness. However, samples that may not be tested for density because they are less than 70% of the intended thickness shall be used for thickness, and in these particular instances, the additional samples of sufficient thickness that are used for density tests shall not be measured for thickness. Thickness samples will be taken full depth of the completed course and after measurement, the density samples for the top layer shall be removed by the Contractor from the core. If any of the measurements for a lot is less than the designated thickness, the quality index for thickness of that lot will be determined by the following formula:

(English)

$$QI_{Thickness} = \frac{\text{Average Thickness}_{Measured} - (\text{Thickness}_{Plan} - 0.5)}{\text{Maximum Thickness}_{Measured} - \text{Minimum Thickness}_{Measured}}$$

(Metric)

$$QI_{Thickness} = \frac{\text{Average Thickness}_{Measured} - (\text{Thickness}_{Plan} - 12.7)}{\text{Maximum Thickness}_{Measured} - \text{Minimum Thickness}_{Measured}}$$

When the day's operation is 2500 square yards (2500 m^2) or less, or the mixture is being placed in irregular areas or next to structures, the Engineer may waive sampling for thickness provided there is reasonable assurance that the pavement conforms to the required thickness. When the quality index falls below 0.00, the Engineer may declare the lot or parts of the lot defective.

3. Smoothness
Smoothness of the surface course shall be in accordance with Section 2316.

D. Sampling and Testing.
The Contractor shall maintain and calibrate ~~and correlate~~ the quality control testing equipment with prescribed procedures. Sampling and testing shall conform to specified ~~testing~~ 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 ~~for~~ 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 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, stored and retained by the Contractor for the Contracting Authority until the lot is accepted. The Contracting Authority may acquire these samples for comparative, verification, or assurance testing.~~

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 ~~60~~ pounds (14 ~~28~~ kg), ~~and shall be transported to the test facility in a way to retain heat to facilitate sample splitting procedures~~. The Contractor's quality control tests for mixture properties shall be conducted on representative portions of the mix, ~~split~~ from the quality control sample of each sublot ~~the larger sample of mix~~. ~~After splitting of the sample is completed in the Contractor's QM-A laboratory, the remainder of the sample, approximately 30 pounds (15 kg), shall be retained for laboratory testing by the laboratory designated by the Contracting Authority.~~

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 ~~summary sheet approved~~ by the Contracting Authority. The Daily Plant Report ~~Quality Control Summary Sheet~~ shall also include a description of quality control actions taken (adjustment of cold feed percentages, changes in JMF, etc.). The Contractor shall FAX, or by other method approved by the Engineer, the Daily Plant Report ~~daily quality control summary sheet~~ 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.

2. Compacted Pavement Cores.
The Contractor shall cut and trim samples under the direction of and witnessed by the Engineer ~~from any course or finished pavement~~ 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 ~~shall~~ be identified, secured by the Engineer, and delivered to the Contractor's quality control field laboratory.

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

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, ~~Acceptance, Correlation~~, and Independent ~~Quality~~ Assurance Testing.

The Contractor's quality control test results from paired samples will be validated by ~~compared and correlated to~~ the Engineer's verification test results on a regular basis using guidelines and tolerances set forth in Materials I.M. ~~208, Appendix C;~~ 216 and 511.

If the Engineer's verification test results validate the Contractor's test results ~~If satisfactory correlation exists between the Contractor's test results and the Engineer tests~~, the Contractor's results will be used for material acceptance. Disputes between the Contractor's and Engineer's test results~~, on one sample or one test of one sample,~~ will be resolved in accordance with Materials I.M. 511.

The Engineer will select, at random, ~~a split portion of~~ 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 ~~test as many of the samples as necessary to establish a correlation~~.

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 may ~~from the initial production will~~ also be tested by the Contractor, but the Contractor's test results will not be used for material acceptance ~~and the Engineer for correlation and validation of results~~.

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

Reason for Revision: The HMA QC/QA program is being changed to comply with federal regulations and improve HMA quality. This specification revision makes immediate changes to the current QMA program to maintain federal funding for one to two years while the full review and revision effort is underway. These changes allow the agency to continue to use the contractor's test results for acceptance during this interim period.

Both this interim specification and the full revision are being developed by a QMA task group (HMA Quality Review Team). The Team includes 2 FHWA, 8 DOT, 1 County, 5 APAI, and 2 aggregate representatives. The Team publishes bulletins on a regular basis to inform the entire HMA community of the discussion and direction of the review.

County or City Input Needed (X one)			**Yes** X	**No**	
Comments: DOT-Local Systems and a County Engr participate on the HMA Quality Review Team.					
Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes** X	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: APAI and aggregate industry participate on the HMA Quality Review Team					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger / Todd Hanson	**Office:** Materials	**Item 6**
Submittal Date: April 20, 2006	**Proposed Effective Date:** October 2006	
Article No.: 2403.03, B **Title:** Materials (Structural Concrete)	**Other:**	

Specification Committee Action: Approved as is.			
Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06
Specification Committee Approved Text: See Specifications Recommended Text.			
Comments: See Reason for Revision.			

Specification Section Recommended Text:

2403.03, B, Entrained Air Content.

Replace the fourth sentence:

To allow for loss during placement, the air content of fresh, unvibrated structural concrete shall be 6.5%, as a target value, with a maximum variation of ~~± 1.0%~~ -1.0% and +1.5%.

Comments:

Member's Requested Change (Redline/Strikeout):

B. Entrained Air Content.
Air entrainment shall be accomplished by addition of an approved air entraining agent complying with Section 4103. Air content will be tested in accordance with Materials I.M. 318. The intended air entrainment is 6%. To allow for loss during placement, the air content of fresh, unvibrated structural concrete shall be 6.5%, as a target value, with a maximum variation of ~~± 1.0%~~ -1.0% and +1.5%.

Reason for Revision: Industry requested a change to the tolerance on air to account for hauling and placement methods. The Office of Materials has looked at the standard deviation on air tests and it is wider than the current tolerance allowed.

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

Industry Input Needed (X one)			**Yes** X	**No**	
Industry Notified:	**Yes**	**No**	**Industry Concurrence:**	**Yes** X	**No**
Comments: Industry requested a change to the tolerance on air to account for hauling and placement methods.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger	**Office:** Materials	**Item 7**
Submittal Date: April 26, 2006	**Proposed Effective Date:** October, 2006	
Article No.: 2521.01 **Title:** Description (Certified Plant Inspection)	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: See Reason for Revision.

Specification Section Recommended Text:

2521.01, Description.

Delete the second paragraph:

~~Based on satisfactory correlation with the Contracting Authority's test results, in accordance with Materials I.M. 216, the Contractor's process control test results for aggregate gradation shall be the basis of acceptance. The minimum frequency for acceptance testing shall be in accordance with Materials I.M. 204.~~

Comments:

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

2521.01 DESCRIPTION.
This describes certified plant inspection. Certified plant inspection will be required for Interstate, Primary, state park, and institutional projects. It will apply to other projects only when designated. When this specification applies, the Contractor shall furnish or be responsible for certified plant inspection for the work, as specified herein.

~~Based on satisfactory correlation with the Contracting Authority's test results, in accordance with Materials I.M. 216, the Contractor's process control test results for aggregate gradation shall be the basis of acceptance. The minimum frequency for acceptance testing shall be in accordance with Materials I.M. 204.~~

2521.02 REQUIREMENTS.
Certified plant inspection shall be in accordance with Materials I.M. 213, utilizing personnel certified for the type of inspection to be accomplished and utilizing prescribed test equipment furnished by the Contractor. The equipment shall also be available for use by the Engineer for monitoring purposes.

When a field laboratory or office is furnished, as provided in Section 2520, exclusive use by the Engineer for inspection purposes is intended. Additional field laboratory space and equipment and/or office space, for use by the Contractor to fulfill the requirements of Certified Plant Inspection, are incidental to the contract unit price for the item for which this inspection is required.

Delivery of samples to the District Materials Laboratory may also be required. The provisions for this are in accordance with Section 2534.

2521.03 APPLICATION.
This specification applies to all HMA, HMA patching material, PCC, structural concrete, and flowable mortar, except where excluded by a note in the contract documents.

The Engineer may waive aggregate gradations, moisture, and specific gravity tests based on previous satisfactory experience with the plant for PCC which is furnished at a maximum rate of 25 cubic yards (25 m^2) per day, whether from one or more sources. This may be based on quantities planned by the Contractor several days ahead of placement.

Reason for Revision: Recent FHWA inspired short-term changes to the Iowa DOT Quality Assurance Program make revisions necessary. For non-QMC paving and for structures, the QC aggregate test results will not be solely used in the acceptance decision. Where QC testing will be used in the acceptance decision, it is identified elsewhere (QMA & QMC).

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: Industry has concerns. Less testing and larger lots subject to price adjustment increase the contractor's risk. Because gradation is not the most critical performance characteristic for concrete, the specification limits are fairly open and the price adjustment schedule is minimal except in extreme cases. The long-term goal is to identify important performance characteristics and implement a method of acceptance.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: John Smythe / Kevin Merryman	**Office:** Construction	**Item 8**
Submittal Date: April 7, 2006	**Proposed Effective Date:** October 2006	
Section No.: 2529 **Title:** FULL DEPTH FINISH PATCHES	**Other:**	

Specification Committee Action: Approved. In Article 2529.05, clarify subbase as being granular. In Article 2529.14, A, 2 make recommended changes to table.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

2529.05 Restoring Subbase or Subgrade for Full Depth Finish Patches.

Replace the second and third paragraph:

~~When a stabilized base or subbase is damaged during removal operations and subbase is not required, the base or subbase shall be leveled and compacted with a taper for drainage and filled full depth with patching material, at no additional cost.~~

~~For other patches, when subbase is not required, overdepth removal of 2 inches (50 mm) or less below the bottom of the patch shall be replaced with the patching mixture. If the overdepth removed is greater than 2 inches (50 mm), subbase material or backfill material may be placed, at the Contractor's expense. If the subbase cannot have a proper outlet for drainage, the overdepth removal shall be replaced with patch material.~~

When the existing subgrade, base, or subbase is damaged during removal operations and subbase placement is not required, repairs shall be made at the Contractor's expense. Overdepth removal may be replaced with granular subbase material or the patching mixture. When the granular subbase material cannot be properly drained, the overdepth removal shall be replaced with the patching mixture.

2529.14, A, 2, Full Depth Finish Patches, by Area.

Replace the second paragraph:

~~If the average thickness of the existing pavement at a patch location exceeds that shown in the contract documents by more than 2 inches (50 mm), the area unit cost for that patch will be adjusted proportionately to compensate for the increased thickness.~~

When the average thickness of the existing pavement at any one patch location varies from the thickness shown in the plans, the square yard (square meter) patching quantity will be adjusted per the following chart. Quantities will be increased when pavement thickness is greater than shown in the plans and decreased when less than shown in the plans.

% Change of Thickness	% Change of Quantity
0 to 10	0
>10 to 20	10
>20 to 30	15
>30	20

Comments: The Office of Construction wants to give contractors an option for repair materials below the required patch thickness since the cost of ready mix has increased significantly. District 2 Materials suggested clarifying subbase as being granular. District 6 Construction asked if other options, such as special backfill, could be used when drainage cannot be achieved. Construction explained that subbase material or patching material are only options. District 6 Construction agreed that since those are the only options, subbase needs to be clarified as granular.

The Office of Construction recommended changes to the submitted table in Article 2529.14, A, 2. These are included in Specification Committee Approved text. The changes assure the percent increase of quantity is less than the percent change of thickness. The idea of using percentages is to allow quantity increases without the need for an extra work order. This is the approach Illinois is using.

The Office of Contracts expressed concern for situations when pavement thickness is not shown on the plans. This is common with local plans. The Office of Construction noted this is covered in the Specifications (Article 2529.03, B). The range is specified as not less than 6 inches or more than 12 inches. The Office of Construction noted that some sort of baseline is needed. Iowa County noted the thickness is normally 6 or 7 inches. Local Systems suggested assuming 7 inches. This will cover a majority of situations. The Committee agreed to address this concern when the book is rewritten.

Specification Section Recommended Text:

2529.05 Restoring Subbase or Subgrade for Full Depth Finish Patches.

Replace the second and third paragraph:

~~When a stabilized base or subbase is damaged during removal operations and subbase is not required, the base or subbase shall be leveled and compacted with a taper for drainage and filled full depth with patching material, at no additional cost.~~

~~For other patches, when subbase is not required, overdepth removal of 2 inches (50 mm) or less below the bottom of the patch shall be replaced with the patching mixture. If the overdepth removed is greater than 2 inches (50 mm), subbase material or backfill material may be placed, at the Contractor's expense. If the subbase cannot have a proper outlet for drainage, the overdepth removal shall be replaced with patch material.~~

When the existing subgrade, base, or subbase is damaged during removal operations and subbase placement is not required, repairs shall be made at the Contractor's expense. Overdepth removal may be replaced with subbase material or the patching mixture. When the subbase material cannot be properly drained, the overdepth removal shall be replaced with the patching mixture.

2529.09 Placing Full Depth Portland Cement Concrete Finish Patches.

Replace the third full paragraph and following indented paragraph.

~~Immediately after the concrete has been finished and the surface water has disappeared, the concrete shall be cured. Exposed vertical edges shall be cured in a manner acceptable to the~~

~~Engineer. Pavement surfaces shall be cured as follows:~~

~~Concrete shall be covered immediately with an insulating blanket type cover as specified in Article 2301.19. The blanket type cover shall be covered with insulation board. The board shall be cellulosic fiber sheathing with a nominal 3/4 inch (19 mm) thickness, similar to that specified in ASTM C 208. The board may be wrapped with plastic film to protect it from rain. The board shall be placed over the patch and adjacent surface and held tightly in place with weights to retain all possible heat in the concrete.~~

After the concrete has been finished and surface water has disappeared, the concrete shall be cured. Placement of curing materials shall occur no later than 20 minutes after completion of finishing operations. Concrete shall be cured by completely covering with an insulating blanket type cover as specified in Article 2301.19. The blanket-type cover shall be completely covered with insulation board. The board shall be cellulosic fiber sheathing with a nominal 3/4 inch (19 mm) thickness, similar to that specified in ASTM C 208. The board may be wrapped with plastic film to protect it from rain. The board shall be placed over the patch and adjacent surface and held tightly in place with weights to retain all possible heat in the concrete.

2529.10 Smoothness.

Replace the third sentence of Article A.

For each patch added by the Engineer that is greater than 50 foot (15 m) long, the Contractor will be paid ~~$200~~ $500 in addition to the appropriate unit prices involved.

2529.13, B, CD and CT Joints.

Replace the third sentence.

~~Each joint is for one lane width, or when required, a part of one lane width.~~ Each joint is for one lane width. Partial lane width joints will be counted as one lane width for payment purposes.

2529.14, A, 2, Full Depth Finish Patches, by Area.

Replace the second paragraph:

~~If the average thickness of the existing pavement at a patch location exceeds that shown in the contract documents by more than 2 inches (50 mm), the area unit cost for that patch will be adjusted proportionately to compensate for the increased thickness.~~

When the average thickness of the existing pavement at any one patch location varies from the thickness shown in the plans, the square yard (square meter) patching quantity will be adjusted per the following chart. Quantities will be increased when pavement thickness is greater than shown in the plans and decreased when less than shown in the plans.

% Change of Thickness	% Change of Quantity
0 to 5	0
>5 to 15	7.5
>15 to 20	10
>20 to 30	15
>30	20

2529.14, E, Removal of Anchor Lugs.

Replace the third sentence:

If removal of anchor lugs is not a bid item in the contract documents, the Contractor will be paid ~~$400~~ $600 per lane in which an anchor lug, or portion of anchor lug is removed.

Comments: The changes made to the original submittal were following a meeting of the ICPA patching contractors.

Member's Requested Change (Redline/Strikeout):

2529.05 RESTORING SUBBASE OR SUBGRADE FOR FULL DEPTH FINISH PATCHES.
Delete the 2nd and 3rd paragraph and add new paragraph 2.

~~When a stabilized base or subbase is damaged during removal operations and subbase is not required, the base or subbase shall be leveled and compacted with a taper for drainage and filled full depth with patching material, at no additional cost.~~

~~For other patches, when subbase is not required, overdepth removal of 2 inches (50 mm) or less below the bottom of the patch shall be replaced with the patching mixture. If the overdepth removed is greater than 2 inches (50 mm), subbase material or backfill material may be placed, at the Contractor's expense. If the subbase cannot have a proper outlet for drainage, the overdepth removal shall be replaced with patch material.~~

When the existing subgrade, base, or subbase is damaged during removal operations and subbase placement is not required, repairs shall be made at the Contractor's expense. Overdepth removal of 2 inches (50 mm) or less below the bottom of the patch shall be replaced with the patching mixture. Overdepth removal greater than 2 inches (50 mm) below the patch may be replaced with subbase material or the patching mixture. When the subbase material cannot be properly drained, the overdepth removal shall be replaced with the patching mixture.

2529.09 PLACING FULL DEPTH PORTLAND CEMENT CONCRETE FINISH PATCHES.
Make the following change to the 2nd sub-paragraph of paragraph 2.

> Except for preplanned joints, placement shall be continuous until the patch is completed. When a delay of ~~45~~ 30 minutes can not be avoided, an appropriate DW joint shall be constructed.

Replace the 3rd paragraph and the subparagraph with new paragraph 3.

~~Immediately after the concrete has been finished and the surface water has disappeared, the concrete shall be cured. Exposed vertical edges shall be cured in a manner acceptable to the Engineer. Pavement surfaces shall be cured as follows:~~

> ~~Concrete shall be covered immediately with an insulating blanket type cover as specified in Article 2301.19. The blanket-type cover shall be covered with insulation board. The board shall be cellulosic fiber sheathing with a nominal 3/4 inch (19 mm) thickness, similar to that specified in ASTM C 208. The board may be wrapped with plastic film to protect it from rain. The board shall be placed over the patch and adjacent surface and held tightly in place with weights to retain all possible heat in the concrete.~~

After the concrete has been finished and surface water has disappeared, the concrete shall be cured. Placement of curing materials shall occur no later than 20 minutes after completion of

type cover as specified in Article 2301.19. The blanket-type cover shall be completely covered with insulation board. The board shall be cellulosic fiber sheathing with a nominal 3/4 inch (19 mm) thickness, similar to that specified in ASTM C 208. The board may be wrapped with plastic film to protect it from rain. The board shall be placed over the patch and adjacent surface and held tightly in place with weights to retain all possible heat in the concrete.

2529.10 SMOOTHNESS. Make the following change to sub-paragraph A.

A. Profilometer testing and evaluation is required for each patch with a length of 50 feet (15 m) or more. The testing shall be done after the patch is placed and near the center of the traffic lane. For each patch added by the Engineer that is greater than 50 foot (15 m) long, the Contractor will be paid ~~$200~~ $500 in addition to the appropriate unit prices involved. This is to compensate for additional smoothness requirements.

2529.13 METHOD OF MEASUREMENT. Make the following changes to sub-paragraph B.

B. CD and CT Joints.

1. CD Joint Assembly
2. CT Joint

When CD Joint Assemblies or CT Joints are required within the patch area, the Engineer will count the number of joints properly installed of each type respectively. For CT Joints inadvertently missed or added during the construction process, the Engineer will count the number of joints properly installed. ~~Each joint is for one lane width, or when required, a part of one lane width.~~ Each joint is for one lane width. Partial lane width joints will be counted as one lane width for payment purposes.

2529.14 BASIS OF PAYMENT. Make the following changes to sub-paragraph A2. Insert chart.

2. Full Depth Finish Patches, by Area.
This payment shall be full compensation for removal of the old pavement, restoring the subgrade or subbase, furnishing and installation of tie bars, restoring longitudinal reinforcement for continuously reinforced patches, furnishing and placing the patching material, including the asphalt binder, tack coat, curing, joint sealing, and backfilling the disturbed area. When joint and crack sealing is included in the contract, joint sealing of the patches shall be accomplished and paid for as part of that work.

~~If the average thickness of the existing pavement at a patch location exceeds that shown in the contract documents by more than 2 inches (50 mm), the area unit cost for that patch will be adjusted proportionately to compensate for the increased thickness.~~

When the average thickness of the existing pavement at any one patch location varies from the thickness shown in the plans, the square yard (square meter) patching quantity will be adjusted per the following chart. Quantities will be increased when pavement thickness is greater than shown in the plans and decreased when less than shown in the plans.

% Change of Thickness	% Change of Quantity
0 to less than 15	0
15 to less than 20	10
20 to less than 30	15
30 and greater	20

Make the following changes to sub-paragraph E.

E. Removal of Anchor Lugs.
For the number of anchor lugs removed in each traffic lane, the Contractor will be paid the contract unit price. This payment shall be full compensation for removal and for furnishing and placing subbase material, as specified. If removal of anchor lugs is not a bid item in the contract documents, the Contractor will be paid ~~$400~~ $600 per lane in which an anchor lug, or portion of anchor lug is removed.

Reason for Revision: Most of the changes above address issues discussed in a meeting with the industry held in December 2005.

The change to 2529.05 addresses concerns about overdepth removals due to damage caused by the contractor and how/whether additional payment is made.

The change to 2529.09 to require a DW joint after 30 minutes addresses a valid concern raised by field inspection staff that an M mix with CaCl is no longer workable after 45 minutes and can result in a cold joint in the patch.

The change to 2529.09 regarding cure placement addresses a request from industry to clarify when curing materials must be placed.

The changes to 2529.10 and 2529.14 E address industry requests to increase fixed price payment for smoothness evaluation and removal of anchor lugs respectively.

The change to 2529.13 clarifies how to determine the quantity of CD and CT baskets for which payment will be made.

The change to 2529.14, A, 2 provides a simpler means for payment of patches thicker than the thicknesses identified in the project plans. The change will allow an adjustment to be made to the measured square yard payment to account for overdepth patches rather than an adjustment to the unit price which requires a contract modification.

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

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

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Rost / Brad Azeltine	**Office:** Location and Environment	**Item 9**
Submittal Date: April 25, 2006	**Proposed Effective Date:** October 2006 GS	
Section No.: 2537 **Title:** Removal of Underground Tank Systems and Remediation of Petroleum Contaminated Soil	**Other:**	

Specification Committee Action: Approved as is.			
Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06
Specification Committee Approved Text: See Specification Section Recommended text.			
Comments: See Reason for Revision			

Specification Section Recommended Text:

2537.01, B, Remediation of Petroleum Contaminated Soil.

Replace Item 2:

> **2.** Transport, spread, incorporate and ~~mix~~ turn contaminated soil at ~~designated~~ remediation areas designated or approved by the Engineer, or transport and dispose contaminated soil at an approved solid waste landfill.

2537.01, Scope of Work.

Replace the last full paragraph:

> All work shall be in accordance with 567 IAC, Chapters ~~121~~ 120 and 135, applicable OSHA regulations, and this specification.

2537.02, A, Contamination.

Replace the article:

> Contamination or contaminated shall mean the presence of petroleum hydrocarbon constituents at concentration levels ~~80%, or greater, than~~ at or above those listed ~~as~~ in Iowa DNR's ~~contamination corrective action levels as designated~~ Tier 1 Look-Up Table in 567 IAC, Chapter 135. Soils with constituent concentrations below ~~80%~~ these levels will be classified "non-contaminated."

2537.02, C, Land Application.

Replace the first sentence:

> Land application shall mean the act or process of placing, leveling to a uniform thickness and application rate, ~~mixing~~ incorporation, and ~~treating~~ remediation of petroleum contaminated soil to a level of constituent concentration less than ~~corrective action levels as designated~~ those listed in the Tier 1 Look-Up Table in 567 IAC, Chapter 135.

2537.02, D, Mixing.

Replace the title and first sentence:

D. ~~Mixing~~ Incorporation.
~~Mixing~~ Incorporation means the process of ~~loosening and incorporating~~ mixing the contaminated soil after placement to provide a loose and divided soil texture and leveling at the remediation site.

2537.02, E, Remediation of Contaminated Soil.

Replace the second sentence:

Once contaminated soil has been land applied, it must remain in place until the levels of contamination ~~is~~ are below ~~action levels as designated~~ those listed in the Tier 1 Look-Up Table in 567 IAC, Chapter 135.

2537.02, F, Tank System.

Replace the second sentence:

A tank system includes, but is not limited to: fill and vent piping, product delivery piping, product pumps, product dispensers, leak detection piping, and leak detection wells.

2537.03, Notification.

Replace the first sentence:

Based on the Contractor's work schedule, the Engineer will complete necessary Iowa DNR regulatory notifications for tank removals~~,~~ and additional excavation for petroleum contaminated soil~~, and application sites for remediation of petroleum contaminated soil~~.

2537.03, B, B. Remediation of Petroleum Contaminated Soil.

Replace the article:

The Contractor shall provide ~~a ten calendar day written notification to the Engineer before commencing excavation to remove and remediate petroleum contaminated soil. The Engineer will complete~~ and submit the Iowa DNR~~'s~~ "Land Application Notification" form to the Iowa DNR with a copy sent to the Engineer at least 30 calendar days prior to beginning excavation activities.

The Engineer will waive this ~~ten calendar day~~ notification if:

1. Petroleum contaminated soil will be taken to an approved solid waste landfill.

2. The remediation ~~and additional site excavation~~ notification was separately identified and included with the 45 calendar day notification for removal of underground tanks.

3. The excavated material will be stockpiled, pending further remediation activities. In this case, ~~a ten calendar day~~ submission of the Iowa DNR notification will be required at least 30 calendar days prior to ~~before~~ removing the soil from the stockpile for land application.

2537.04, B, Remediation of Petroleum Contaminated Soil.

Replace the article:

The location for an excavation and any Engineer-designated remediation area, or approved solid waste landfill will be designated in the contract documents. The Contractor may propose an alternate remediation area, subject to the requirements of 567 IAC, Chapter 120 and the Engineer's

approval. Contaminated soil shall be stored, applied, incorporated, and turned in accordance with the landfarm operating requirements in 567 IAC, Chapter 120. ~~Contaminated soil application rates at the designated remediation area shall be not greater than 500 tons per acre (1120 Mg/ha), and not to exceed 4 inches (100 mm) in thickness, and natural slopes not greater than 5%. Application on frozen ground will not be allowed without prior approval of the Engineer.~~ If a remediation area is located within a designated borrow or staged construction area, the Contractor shall coordinate with the other project contractors and be prepared to stage land application operations so the remediation area remains available for construction project requirements. ~~This may require temporarily stockpiling and covering petroleum contaminated soil with plastic sheeting.~~ The contract documents may contain other specific containment requirements. ~~The Contractor shall uniformly place and mix contaminated soil when the area becomes available. After mixing, petroleum contaminated soil shall remain in place until satisfactorily remediated.~~

2537.06, B, Remediation of Petroleum Contaminated Soil.

Replace the third sentence:

Excavation shall continue until Organic Vapor Monitoring (OVM) readings and laboratory tests indicate remaining soil is at, or below, Iowa DNR's ~~action~~ Tier 1 Look-Up Table levels published in 567 IAC, Chapter 135, or when directed by the Engineer to stop.

2537.07, Sampling and Testing for Petroleum Contamination.

Replace the article:

All sampling and environmental site work shall be supervised by a Groundwater Professional ~~registered~~ certified by the Iowa DNR in accordance with 567 IAC, Chapter 134. The Groundwater Professional shall obtain, prepare, and submit samples for laboratory analysis. This work shall be in a manner consistent with standard practices for sampling and testing of petroleum contamination and 567 IAC, Chapter 135. Analysis of samples shall be by a laboratory certified by Iowa DNR pursuant to 567 IAC, Chapter ~~42~~ 83.

2537.07, A, Removal of Underground Tanks, Sampling and Testing.

Replace the forst paragraph:

After a tank has been removed, the Groundwater Professional shall obtain soil and groundwater samples and submit them for laboratory analysis as required by ~~current Iowa Code, in accordance with Iowa DNR guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal"~~ 567 IAC, Chapter 135.

2537.07, A, 1, Soil Samples.

Replace the first paragraph:

The locations for sampling in the areas where the tanks and the associated piping have been removed shall be as defined in ~~the Iowa DNR guidance document for "Underground Storage Tank Closure Procedures for Tank and Piping Removal"~~ 567 IAC, Chapter 135.

2537.07, A, 2, Ground Water Sample.

Replace the article:

Sampling locations shall be as outlined in ~~the Iowa DNR guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal."~~ 567 IAC, Chapter 135. Groundwater sampling wells shall be:

a. Installed and closed by a Certified Water Well contractor registered in the State of Iowa pursuant to 567 IAC, Chapter 82.

b. Cased wells constructed ~~as recommended by the Iowa DNR guidance document for "Underground Storage Tank Closure Procedures for Tanks and Piping Removal" and~~ in accordance with 567 IAC 110.11.

2537.07, B, Remediation of Petroleum Contaminated Soil, Sampling and Testing.

Replace paragragh 1.

1. In the judgment of the Groundwater Professional, remaining soil contamination is below Iowa DNR's ~~contamination action~~ Tier 1 Look-Up Table levels ~~for TPH's~~, or

2537.08, A, Removal of Underground Tanks.

Replace the article:

The Contractor shall submit a completed Tank Closure Report to the Engineer within 30 calendar days of completion of the tank removal. This report shall ~~be as outlined in the Iowa DNR guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal."~~ comply with the requirements of 567 IAC, Chapter 135. In addition, ~~T~~the report shall include~~:~~

~~**1.** A copy of DNR Form 542-1226 for each ground water sampling well constructed and closed.~~

~~**2.**~~ the ~~L~~location of all tanks, piping, sampling locations, and excavation limits ~~shall be~~ referenced to station and offset distance from mainline or side road survey center line on the tank closure site map. The use of a Professional Land Surveyor licensed in the State of Iowa is not required for the development of a tank closure site map.

~~**3.** Registration tags removed from the tanks.~~

The Contractor shall complete and return to the Engineer a written certification of destruction for all tanks which have been removed. "Certificate of Destruction" forms are available from the Engineer.

2537.10, A, 1, Sampling and Testing for Petroleum Contamination.

Replace the second sentence:

This payment shall be full compensation for all labor, equipment, sample preparation, transportation, testing to comply with ~~the~~ applicable Iowa DNR ~~guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal"~~ regulations, and disposal of all contaminated soil from sampling events.

2537.10, B, Remediation of Petroleum Contaminated Soil.

Replace the second sentence of the first paragraph:

This payment shall be full compensation for all labor, equipment, and materials required to excavate, transport, spread, incorporate and ~~mix~~ turn petroleum contaminated soil in compliance with Federal, State, and local regulations; Contractor's employee health and safety requirements; furnishing, placing, and removing safety fence; final grading and seeding of the excavated area; and providing the services of a Groundwater Professional.

Replace the third paragraph:

The contract unit price for Remediation of Petroleum Contaminated Soil shall include ~~one soil mixing event~~ turning the petroleum contaminated soil once a month for the first three months during landfarm season as defined in 567 IAC, Chapter 120. Additional ~~mixing~~ turning directed by the Engineer will be paid for in accordance with Article 1109.03, B. Field sampling and testing using OVM equipment will be considered incidental to this item.

Comments:

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

Section 2537. Removal of Underground Tank Systems and Remediation of Petroleum Contaminated Soil.

2537.01 SCOPE OF WORK.

A. Removal of Underground Tanks.
Removal of underground tanks shall include:

1. Removal, collection, and disposal of contents of the tank system.

2. Vent, remove, transport, and destroy all components of the tank system.

3. Obtain and test soil and groundwater samples necessary to complete Iowa DNR's Tank Closure Report.

4. Furnish, install, maintain, and subsequently remove safety fence enclosure around excavated areas.

5. Remove non-contaminated soil and rubble.

6. Furnish, place, compact, and finish to grade the excavation with suitable backfill soil.

7. Prepare and provide Tank Closure Reports to the Engineer.

B. Remediation of Petroleum Contaminated Soil.
Remediation of petroleum contaminated soil shall include:

1. Removal of contamination by excavating a specified volume of soil.

2. Transport, spread, incorporate and ~~mix~~ turn contaminated soil at ~~designated~~ remediation areas designated or approved by the Engineer, or transport and dispose contaminated soil at an approved solid waste landfill.

3. Obtain and test soil and groundwater samples necessary to complete Iowa DNR's requirements for removal of contaminated soil by excavation.

4. Furnish, place, compact, and finish to grade the excavation with suitable backfill soil.

5. Prepare and provide an Over-Excavation of Contaminated Soil report to the Engineer.

In situations where suitable remediation sites are not available within the ROW, the contract documents will require delivery of petroleum contaminated soil to a solid waste landfill facility approved by the Engineer.

All work shall be in accordance with 567 IAC, Chapters ~~121~~ 120 and 135, applicable OSHA regulations, and this specification.

2537.02 DEFINITIONS.

For the purposes of this Specification the following definitions will apply:

A. Contamination.
Contamination or contaminated shall mean the presence of petroleum hydrocarbon constituents at concentration levels ~~80%, or greater, than~~ at or above those listed ~~as~~ in Iowa DNR's ~~contamination corrective action levels as designated~~ Tier 1 Look-Up Table in 567 IAC, Chapter 135. Soils with constituent concentrations below ~~80%~~ these levels will be classified "non-contaminated."

B. Destroy.
Destroy shall mean rendering a tank system unusable for any purpose other than scrap metal or landfill material in the case of plastics or fiberglass. All components of a system shall be cut-up and/or crushed prior to being recycled as scrap or landfilled.

C. Land Application.
Land application shall mean the act or process of placing, leveling to a uniform thickness and application rate, ~~mixing~~ incorporation, and ~~treating~~ remediation of petroleum contaminated soil to a level of constituent concentration less than ~~corrective action levels as designated~~ those listed in the Tier 1 Look-Up Table in 567 IAC, Chapter 135. Land application and land farming are terms which are often used interchangeably.

D. ~~Mixing~~ Incorporation.
~~Mixing~~ Incorporation means the process of ~~loosening and incorporating~~ mixing the contaminated soil after placement to provide a loose and divided soil texture and leveling at the remediation site. Mixing operations such as disking or harrowing to approximately 2 inches (50 mm) greater than the depth of material placed are considered acceptable.

E. Remediation of Contaminated Soil.
Remediation of contaminated soil means the process of removing contaminated soil by excavation, surface applying the contaminated soil in a relatively thin layer, and allowing natural processes to reduce contamination levels below regulated action levels. Once contaminated soil has been land applied, it must remain in place until the levels of contamination ~~is~~ are below ~~action levels as designated~~ those listed in the Tier 1 Look-Up Table in 567 IAC, Chapter 135.

F. Tank System.
Tank System means underground storage tanks and all associated piping, auxiliary equipment, containment systems and leak detection equipment. A tank system includes, but is not limited to: fill and vent piping, product delivery piping, product pumps, product dispensers, leak detection piping, and leak detection wells.

2537.03 NOTIFICATION.
Based on the Contractor's work schedule, the Engineer will complete necessary Iowa DNR regulatory notifications for tank removals~~,~~ and additional excavation for petroleum contaminated soil~~, and application sites for remediation of petroleum contaminated soil~~.

A. Removal of Underground Tanks.
The contractor shall provide written notification to the Engineer 45 calendar days prior to removing underground tanks. The Engineer will provide the 30 calendar day Iowa DNR written pre-tank-removal notification.

B. Remediation of Petroleum Contaminated Soil.
The Contractor shall provide ~~a ten calendar day written notification to the Engineer before~~

~~commencing excavation to remove and remediate petroleum contaminated soil. The Engineer will complete~~ and submit the Iowa DNR~~'s~~ "Land Application Notification" form to the Iowa DNR with a copy sent to the Engineer at least 30 calendar days prior to beginning excavation activities.

The Engineer will waive this ~~ten calendar day~~ notification if:

1. Petroleum contaminated soil will be taken to an approved solid waste landfill.

2. The remediation ~~and additional site excavation~~ notification was separately identified and included with the 45 calendar day notification for removal of underground tanks.

3. The excavated material will be stockpiled, pending further remediation activities. In this case, ~~a ten calendar day~~ submission of the Iowa DNR notification will be required at least 30 calendar days prior to ~~before~~ removing the soil from the stockpile for land application.

2537.04 LOCATION.

A. Removal of Underground Tanks.
The location of all known underground tanks will be identified in the contract documents. Should the Contractor encounter an underground tank system that is not identified in the contract documents, the Contractor shall stop all activities in close proximity of the discovery, promptly notify the Engineer of the discovery, and not resume work in the immediate area until authorized by the Engineer.

B. Remediation of Petroleum Contaminated Soil.
The location for an excavation and any Engineer-designated remediation area, or approved solid waste landfill will be designated in the contract documents. The Contractor may propose an alternate remediation area, subject to the requirements of 567 IAC, Chapter 120 and the Engineer's approval. Contaminated soil shall be stored, applied, incorporated, and turned in accordance with the landfarm operating requirements in 567 IAC, Chapter 120. ~~Contaminated soil application rates at the designated remediation area shall be not greater than 500 tons per acre (1120 Mg/ha), and not to exceed 4 inches (100 mm) in thickness, and natural slopes not greater than 5%. Application on frozen ground will not be allowed without prior approval of the Engineer.~~ If a remediation area is located within a designated borrow or staged construction area, the Contractor shall coordinate with the other project contractors and be prepared to stage land application operations so the remediation area remains available for construction project requirements. ~~This may require temporarily stockpiling and covering petroleum contaminated soil with plastic sheeting.~~ The contract documents may contain other specific containment requirements. ~~The Contractor shall uniformly place and mix contaminated soil when the area becomes available. After mixing, petroleum contaminated soil shall remain in place until satisfactorily remediated.~~

2537.05 UNDERGROUND TANK REMOVAL.

A. Removal of Tank Contents.
Prior to tank removal:

1. All liquid, sludge, and/or sand shall be removed from the tank system, collected, and disposed of in accordance with Federal, State, and local regulations.

2. Tanks shall be vented and purged to reduce vapors below explosive levels.

B. Removal of Underground Tanks.
Underground Tank Removal shall include the removal and destruction of the tank, all associated piping, and auxiliary equipment.

2537.06 EXCAVATION, BACKFILL, AND SAFETY FENCE.

A. Removal of Underground Tanks.
Excavation required for underground tank removal shall be the excavation necessary to remove the tank including all original backfill that was placed when the tank was installed, and excavation necessary to remove piping associated with the underground tank system.

The Contractor shall immediately notify the Engineer if excavated material contains suspected contamination pursuant to 567 IAC 135.6. Excavated material that has petroleum contamination shall be remediated as described in this specification. All other sand fill, rubble, and materials associated with tank removal shall become the property of the Contractor and removed from the project in accordance with Article 1104.08.

B. Remediation of Petroleum Contaminated Soil.
Approximate limits of excavation (horizontal and vertical) will be identified in the contract documents. Actual excavation limits will be determined in the field and based on the extent of contaminant migration. Excavation shall continue until Organic Vapor Monitoring (OVM) readings and laboratory tests indicate remaining soil is at, or below, Iowa DNR's ~~action~~ Tier 1 Look-Up Table levels published in 567 IAC, Chapter 135, or when directed by the Engineer to stop.

In situations where petroleum contaminated soil is below a layer of non-contaminated soil, the Contractor shall remove and stockpile the non-contaminated soil before or during excavation of the contaminated area. Non-contaminated soil may be used for backfill material provided Type A compaction, in accordance with Section 2107, can be achieved. If non-contaminated excavated soil does not meet the requirements of Article 2102.06 or cannot achieve adequate compaction it shall become the property of the Contractor and removed from the project in accordance with Article 1104.08.

C. Backfilling Excavations.
The Contractor shall provide earth fill material for backfilling. This material shall meet the requirements of Article 2102.06.

Backfilling shall not begin until authorized to do so by the Engineer. The backfilling and compaction operation shall be completed according to the requirements of Section 2107 for Type A compaction, and shall be completed within ten working days after authorization is given.

The site shall be graded, shaped to drain, and left in a condition in accordance with Article 1104.08.

D. Safety Fence.
The Contractor shall furnish, place, maintain, and remove (after completing backfilling operations), safety fence meeting the requirements of Article 4188.03 around the site of work. Fencing material shall remain the property of the Contractor.

2537.07 SAMPLING AND TESTING FOR PETROLEUM CONTAMINATION.
All sampling and environmental site work shall be supervised by a Groundwater Professional ~~registered~~ certified by the Iowa DNR in accordance with 567 IAC, Chapter 134. The Groundwater Professional shall obtain, prepare, and submit samples for laboratory analysis. This work shall be in a manner consistent with standard practices for sampling and testing of petroleum contamination and 567 IAC, Chapter 135. Analysis of samples shall be by a laboratory certified by Iowa DNR pursuant to 567 IAC, Chapter ~~42~~ 83.

A. Removal of Underground Tanks, Sampling and Testing.
After a tank has been removed, the Groundwater Professional shall obtain soil and groundwater samples and submit them for laboratory analysis as required by ~~current Iowa Code, in accordance with Iowa DNR guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal"~~ 567 IAC, Chapter 135.

The Contractor shall submit all laboratory analysis reports and a copy of the Chain-of-Custody form to the Engineer as soon as available from the testing laboratory.

The Contractor shall be responsible to dispose of all soil and water generated during the sampling, testing and installation of ground water monitoring wells. Disposal of this material shall be in accordance with applicable Federal, State, and local regulations.

Sampling and testing shall be as follows:

1. Soil Samples.
The locations for sampling in the areas where the tanks and the associated piping have been removed shall be as defined in ~~the Iowa DNR guidance document for "Underground Storage Tank Closure Procedures for Tank and Piping Removal"~~ 567 IAC, Chapter 135.

The presence of standing water in an excavation may cause bottom soil samples to be invalid. In this situation, required bottom soil samples shall be taken from the excavated sidewall immediately above the surface water and in the assumed down gradient direction when possible. The Tank Closure Report shall contain an explanation and justification for all alternate sampling locations.

2. Ground Water Sample.
Sampling locations shall be as outlined in ~~the Iowa DNR guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal."~~ 567 IAC, Chapter 135. Groundwater sampling wells shall be:

a. Installed and closed by a Certified Water Well contractor registered in the State of Iowa pursuant to 567 IAC, Chapter 82.

b. Cased wells constructed ~~as recommended by the Iowa DNR guidance document for "Underground Storage Tank Closure Procedures for Tanks and Piping Removal" and~~ in accordance with 567 IAC 110.11.

Water samples shall be obtained from cased, fully developed, purged, and stabilized wells. After use, all sampling locations shall be closed in accordance with applicable Iowa DNR regulations. It shall be the Contractor's responsibility to provide a completed Iowa DNR "Abandoned Water Well Plugging Record," DNR Form 542-1226, to Iowa DNR for each well closed. A copy of these forms shall be submitted to the Engineer at the conclusion of the project.

Wells shall not be closed without prior approval of the Engineer.

B. Remediation of Petroleum Contaminated Soil, Sampling and Testing.
During excavation of contaminated soil, the Groundwater Professional shall test a representative sample of soil from each truck load for Volatile Organic Compounds (VOCs), using appropriate confined head-space air sampling procedures and portable Organic Vapor Monitoring (OVM) equipment. OVM equipment shall be calibrated using a benzene standard and readings shall be approximately correlated to known Total Petroleum Hydrocarbon (TPH) concentrations in a soil matrix. Excavation will be continued until:

1. In the judgment of the Groundwater Professional, remaining soil contamination is below Iowa DNR's ~~contamination action~~ Tier 1 Look-Up Table levels ~~for TPH's~~, or

2. Excavation is stopped by the Engineer.

Upon completion of excavation the Groundwater Professional shall obtain soil samples for laboratory analysis from the excavated side walls and bottom in accordance with 567 IAC, Chapter 135 unless otherwise directed by the Engineer. A final site sampling plan shall be developed by the

Groundwater Professional and submitted to the Engineer for approval prior to final sampling. This plan shall, at a minimum, identify the total number of samples to be collected and the distribution of sampling locations.

2537.08 SITE DOCUMENTATION AND REPORTS.

A. Removal of Underground Tanks.
The Contractor shall submit a completed Tank Closure Report to the Engineer within 30 calendar days of completion of the tank removal. This report shall ~~be as outlined in the Iowa DNR guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal."~~ comply with the requirements of 567 IAC, Chapter 135. In addition, ~~T~~the report shall include~~:~~

~~**1.** A copy of DNR Form 542-1226 for each ground water sampling well constructed and closed.~~

~~**2.**~~ the ~~L~~location of all tanks, piping, sampling locations, and excavation limits ~~shall be~~ referenced to station and offset distance from mainline or side road survey center line on the tank closure site map. The use of a Professional Land Surveyor licensed in the State of Iowa is not required for the development of a tank closure site map.

~~**3.** Registration tags removed from the tanks.~~

The Contractor shall complete and return to the Engineer a written certification of destruction for all tanks which have been removed. "Certificate of Destruction" forms are available from the Engineer.

B. Remediation of Petroleum Contaminated Soil.
The Contractor shall document all field activities. The Contractor shall make available to the Engineer all field documentation upon request. An Over-Excavation Soil Report shall be prepared and submitted at the end of the project. This report shall, at a minimum, include:

1. Daily Diary.
A narrative record of daily site events relative to excavation, sampling, transporting, and spreading of soil as outlined in this specification.

2. Field OVM Testing.
A field log tabulating all OVM field testing, dates and approximate times for individual tests, the results of each OVM test, and site map designating approximate site location of removed soil being tested.

3. Laboratory Results and Site Map.
A copy of all laboratory analytical results, a scaled site map locating sampling locations, and a copy of all chain-of-custody forms. Site maps shall be referenced to station and offset distance from mainline or side road survey center line. The use of a Professional Land Surveyor licensed in the State of Iowa is not required for the development of a sampling and soil excavation site map.

4. Abandoned Water Well Plugging Record.
The report shall include a copy of DNR Form 542-1226 for each ground water sampling well constructed and closed.

2537.09 METHOD OF MEASUREMENT.

A. Removal of Underground Tanks.
The Engineer will count the number of underground tanks removed by the Contractor.

1. Sampling and Testing for Petroleum Contamination.
The Engineer will count the number of soil and water samples taken and tested by a

laboratory as described in this specification.

2. Water Sampling Well.
The Engineer will count the number of water sampling wells constructed and closed. Water sampling wells constructed, but which are required by the Engineer to remain available for later sampling, will be paid for in accordance with Article 1109.03, B.

B. Remediation of Petroleum Contaminated Soil.
The Engineer will determine the quantity of excavated petroleum contaminated soil in cubic yards (cubic meters) by cross-sectioning the excavated area before and after excavation. Quantities will be computed from cross section measurements by the average end area method.

1. Sampling and Testing for Petroleum Contamination.
The Engineer will count the number of samples taken and tested by a laboratory as described in this specification.

2. Embankment-in-place.
The Engineer will determine the quantity of embankment-in-place in cubic yards (cubic meters) in accordance with provisions of Article 2102.13. Non-contaminated soil stockpiled during the excavation and which is used for backfill, will not be measured for payment.

2537.10 BASIS OF PAYMENT.

A. Removal of Underground Tanks.
The Contractor will be paid the contract unit price for each underground tank removed. This payment shall be full compensation for removal of the tank and associated piping, and all labor, equipment, material, health and safety requirements, excavation and backfill necessary for required removal. It shall also include transporting and destruction of the tank system; removal, containment, transportation, and disposal of the tank system's contents; removal of non-contaminated excavated materials from the project; furnishing, placing, and removing safety fence; furnishing, placing, and compacting backfill material; final grading and seeding of the excavated area; providing the services of a Groundwater Professional; and preparing and submitting Certificate of Destruction forms.

If remediation of contaminated soil is required by the contract documents, the cost of remediation shall be included in the cost of Remediation of Petroleum Contaminated Soil.

1. Sampling and Testing for Petroleum Contamination.
The Contractor will be paid the contract unit price for each soil or water sample taken and tested by a laboratory as described in this specification. This payment shall be full compensation for all labor, equipment, sample preparation, transportation, testing to comply with ~~the~~ applicable Iowa DNR ~~guidance document "Underground Storage Tank Closure Procedures for Tank and Piping Removal"~~ regulations, and disposal of all contaminated soil from sampling events. Payment shall also include the preparation and submittal to the Engineer of Iowa DNR's Tank Closure Reports.

2. Water Sampling Wells.
The Contractor will be paid the contract unit price for each water sampling well constructed and closed. This payment shall be full compensation for all labor, equipment, and materials to install each cased well, purging prior to taking samples, and closing the well. This payment shall also include disposal of all contaminated soil and water generated as a result of well installation, purging, sampling events, and the preparation and submittal to the Engineer of Iowa DNR's Abandoned Water Well Plugging Records.

3. Remediation of Petroleum Contaminated Excavation.
Remediation of contaminated excavation soil not identified in the contract documents, but associated with Removal of Underground Tanks will be paid for in accordance with Article

1109.03, B.

B. Remediation of Petroleum Contaminated Soil.
The Contractor will be paid the contract unit price per cubic yard (cubic meter). This payment shall be full compensation for all labor, equipment, and materials required to excavate, transport, spread, incorporate and ~~mix~~ turn petroleum contaminated soil in compliance with Federal, State, and local regulations; Contractor's employee health and safety requirements; furnishing, placing, and removing safety fence; final grading and seeding of the excavated area; and providing the services of a Groundwater Professional.

This payment shall also include landfill costs if so designated in the contract documents. Stockpiling, covering the stockpile, and work associated with ultimate placement in a borrow or staged construction area will be considered incidental to this item.

The contract unit price for Remediation of Petroleum Contaminated Soil shall include ~~one soil mixing event~~ turning the petroleum contaminated soil once a month for the first three months during landfarm season as defined in 567 IAC, Chapter 120. Additional ~~mixing~~ turning directed by the Engineer will be paid for in accordance with Article 1109.03, B. Field sampling and testing using OVM equipment will be considered incidental to this item.

1. Sampling and Testing for Petroleum Contamination.
The Contractor will be paid the contract unit price of each soil or water sample taken and tested by a laboratory as described in this specification. This payment shall be full compensation for all labor, equipment, materials, sample preparation, transportation, and testing to comply with Iowa DNR requirements for petroleum contaminated soil. It shall also include the preparation and submittal to the Engineer of site documentation including a Site Sampling Plan, if required, and an Over-Excavation Report.

2. Embankment-in-place.
The Contractor will be paid the embankment-in-place contract unit price per cubic yard (cubic meter). This payment shall be full compensation for furnishing, transporting, placing, compacting, and final grading of the backfill material. Placement and compaction of non-contaminated backfill soil stockpiled as a result of the excavation will be considered incidental to this item.

Reason for Revision: These changes are meant to reflect updates to Iowa DNR's rules, specifically to IAC 567 Chapters 120 and 135. DNR has revised their landfarming rules to make it much more difficult to pursue this type of handling for petroleum contaminated soil. The changes to 2537 will still allow this as an option, but it is amended so that either the Engineer can designate a landfarm site, can approve a proposed Contractor selected site, or can designate or approve disposal at a sanitary landfill.

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: J. Berger	**Office:** Materials	**Item 10**
Submittal Date: April 10, 2006	**Proposed Effective Date:** October, 2006	
Article No.: 4108.01 **Title:** Description (Mineral Admixtures)	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: See Reason for Revision.

Specification Section Recommended Text:

4108.01, Description.

Replace the first two sentences of the first paragraph:

Fly ash to be substituted for Portland cement in concrete shall comply with AASHTO M 295, either Class F or Class C, except value of available alkalies shall not exceed 1.50% as determined by Materials I.M. 491.17. ~~including the Supplementary Optional Chemical Requirements.~~ Sources with fly ash between 1.5% and 2.5% available alkalies may be approved based on satisfactory results of the mortar bar expansion test specified in Materials I.M. 491.17. For Class C fly ash, the pozzolanic activity test with lime will not be required.

Comments:

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

Fly ash to be substituted for Portland cement in concrete shall comply with AASHTO M 295, either Class F or Class C, ~~including the Supplementary Optional Chemical Requirements~~ except value of available alkalies shall not exceed 1.50% as determined by Materials I.M. 491.17. Sources with fly ash between 1.5% and 2.5% available alkalies may be approved based on satisfactory results of the mortar bar expansion test specified in Materials IM 491.17. For Class C fly ash, the pozzolanic activity test with lime is not required.

Reason for Revision:

AASHTO recently changed M295 eliminating the optional chemical limit for available alkalies. Several midwest sources exceed the 1.5% limit and some may exceed 2.5%. The Materials Office recommends continuing with the limit until some testing and investigation can be conducted.

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

Comments: We use the same requirements for our fly ash approval. This change is only due to the removal of previous supplemental requirement on available alkali in AASHTO M 295.

Industry Input Needed (X one)			**Yes**	**No** X	
Industry Notified:	**Yes**	**No** X	**Industry Concurrence:**	**Yes** X	**No**
Comments: We use the same requirements for our fly ash approval. This change is only due to the removal of previous supplemental requirement on available alkali in AASHTO M 295.					

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger / Keith Norris	**Office:** Materials	**Item 11**
Submittal Date: April 26, 2006	**Proposed Effective Date:** October 2006	
Article No.: 4109.02 **Title:** Testing Sieves (Aggregate Gradation Table)	**Other:**	

Specification Committee Action: Approved. Change 1.0" to 1.00".

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See attached Aggregate Gradation Table. The same changes will be applied to the metric Aggregate Gradation Table.

Comments:

Specification Section Recommended Text: Attached to the 5/5/06 agenda.

Comments: The Specifications Section supports these changes except for the naming of the 1" sieve. AASHTO M 92 (ASTM E 11) Specification lists two Sieve Designations: Standard and Alternative. Standard Sieve Designation uses the metric designations: 37.5 mm, 25.0 mm, 19.0 mm, 12.5 mm, 9.5 mm, 4.75 mm, 2.36 mm, 600 µm, 300 µm, 150 µm, and 75 µm. Alternative Sieve Designation uses the designations: 1½ in., 1.00 in., ¾ in., ½ in., ⅜ in., No. 4, No. 8, No. 30, No. 50, No. 100, and No. 200.

The 1" is the nominal sieve opening, but not the name of the sieve size.

All of the suggested changes will also need to be made to the metric sieve table.

Member's Requested Change (Redline/Strikeout):

Attached as page 2.

Reason for Revision:

Needed to fix some incorrect references in the Section No. column and notes after recent changes in the aggregate specifications and for consistency with AASHTO nomenclature.

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:					

AGGREGATE GRADATION TABLE - ENGLISH														
Grad. No.	**Section No.**	**Std. Sieve ~~Sz~~. Size**	**1.~~5~~ 1/2”**	**1.0~~0~~”**	**3/4”**	**~~0.500~~ 1/2”**	**3/8”**	**4**	**8**	**30**	**50**	**100**	**200**	
		Intended Use	**Percent Passing**											**Notes**
1	4110, ~~4111~~, 4125, 4133	PCC FA, Cover Agg.					100	90-100	70-100	10-60			0-1.5	1
3	4115 (57, 2-8)	PCC CA	100	95-100		25-60		0-10	0-5				0-1.5	2, 11
4	4115 (2-8)	PCC CA	100	50-100	30-100	20-75	5-55	0-10	0-5				0-1.5	11
5	4115 (67, 2-8)	PCC CA		100	90-100		20-55	0-10	0-5				0-1.5	11
6	4115.06 (Repair & Overlay)	PCC CA			100	97-100	40-90	0-30					0-1.5	11
7	4117 (Class V)	PCC FA & CA	100					80-92	60-75	20-40				
8	4117.03 (Class V)	Fine Limestone					100	90-100					0-30	
10	4120.02, 4120.03 (C gravel)	Granular Surface.			100			50-80	25-60					3
11	4120.02, 4120.04, 4120.05, 4120.07 (A, B, Cr. St.)	Granular Surface & ~~Shldr.~~Shoulder		100	95-100	70-90		30-55	15-40				6-16	4, 5
12a	4121 (Cr. St)	Granular Subbase	100			40-80			5-25				0-6	6
12b	4121 (Cr. Gravel)	Granular Subbase	100			50-80			10-30		5-15		3-7	7
13	4122.02 (Cr. St.)	Macadam St. Base	3” nominal maximum size screened over 3/4” or 1.00” screen.											
14	4123	Modified Subbase	100		70-90				10-40				3-10	5, ~~7~~ 7
19	4125 (1/2” ~~.500~~” Cr. Gr. or Cr. St.)	Cover Aggregate			100	97-100	40-90	0-30	0-15				0-2	
20	4125 ~~(3/8”)~~ (1/2” Scr. Gr.)	Cover Aggregate			100	95-100	40-80	0-15	0-7				0-1.5	
21	4125 ~~(.500” Scr, Gr.)~~ (3/8”)	Cover Aggregate				100	90-100	10-55	0-20	0-7			0-1.5	
22	4124.02~~B~~	Fine Slurry Mixture					100	85-100	40-95	20-60	14-35	10-25	5-25	10
23	4124.02~~B~~ (Cr. St.)	Coarse Slurry Mixture					100	70-90	45-70	19-34	12-25	7-18	5-15	
29	4131	Porous Backfill			100	95-100	50-100	10-50	0-8					
30	4132.02 (Cr. St.)	Special Backfill	100						15-45				0-10	5
31	4132.03 (Gravel)	Special Backfill		100	90-100	75-100			30-55				3-7	
32	4133 (Sand/Gr./Cr. St.)	Granular Backfill	100% passing the 3” ~~sieve~~ screen						20-100				0-10	8, 9
35	4133.05 (Natural Sand/Gr.)	Floodable Backfill	100						20-90				0-4	
36	4133.05 (Natural Sand)	Floodable Backfill							100				0-2	

Notes: (Gradations No. 2, 9, 15, 16, 17, 18, ~~22~~, 24, ~~25~~, 26, 27, 28, 33, and 34 have been deleted)

1. For Section 4110, when the fine aggregate is sieved through the following numbered sieves - 4, 8, 16, 30, 50, and 100 - not more than 40% shall pass one sieve and be retained on the sieve with the next higher number ~~for Section 4110 and 45% for Section 4111~~.
2. When used in precast and prestressed concrete bridge beams, 100% shall pass the 1.0~~0~~" sieve.
3. When compaction of material is a specification requirement, the minimum percent passing the No. 200 sieve is 6%.
4. See specifications for combination of gravel and limestone ~~screenings~~.

5. Unwashed air-dried samples of crushed composite material shall be tested for gradation compliance except that no gradation determination will be made for material passing the No. 200 sieve.

6. The gradation requirement for the No. 8 sieve shall be 5% to 20% when recycled material is supplied.

7. ~~Gradation 3 or 4 may be substituted, at the Contractor's option.~~ For 4121 gravel, one fractured face on 30% or more of the particles retained on the 3/8 inch sieve. For 4123 gravel, one fractured face on 75% or more of the particles retained on the 3/8 inch sieve.

8. Crushed stone shall have 100% passing the 1.00" sieve.

9. ~~Granular backfill for use under flowable mortar or in floodable applications shall meet the requirements of Section 4133.~~ When granular backfill is used in floodable applications use gradation 35 or 36. When granular backfill is used under Flowable mortar, one of the following alternative materials shall be used: natural sand compliant with Section 4110, except the % passing the No. 200 sieve shall not exceed 4%; gravel, crushed stone, or crushed concrete meeting the gradation requirements of Section 4121.

10. Gradation limitations for the 30, 50, and 100 sieves shall not apply when slurry mixture is applied by hand lutes, such as for slurry leveling.

11. Maximum of 2.5% passing the No. 200 sieve allowed if generated from the parent material when documented production is 1% or less as determined by the Office of Materials.

SPECIFICATION REVISION SUBMITTAL FORM

Submitted by: Jim Berger / Keith Norris	**Office:** Materials	**Item 12**
Submittal Date: April 26, 2006	**Proposed Effective Date:** October 2006	
Article No.: 4115.03 **Title:** Gradation (Coarse Aggregate for PCC)	**Other:**	

Specification Committee Action: Approved.			
Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06
Specification Committee Approved Text: See Specification Section Recommended Text.			
Comments: See Reason for Reason.			

Specification Section Recommended Text:

4115.03, Gradation.

Add as the first paragraph:

Meet the requirements of the Article 4109.02.

Comments:

Member's Requested Change (Redline/Strikeout):

4115.03 GRADATION.

Add:

Meet the requirements of the Aggregate Gradation Table, Article 4109.02.

Reason for Revision:

Needed reference to the Aggregate Gradation Table.

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 / Keith Norris	**Office:** Materials	**Item 13**
Submittal Date: April 26, 2006	**Proposed Effective Date:** October 2006	
Article No.: 4120.02 **Title:** Granular Material	**Other:**	

Specification Committee Action: Approved as is.			
Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: District 2 Materials noted that I.M. 210 is being developed and will be ready by October. The material that will be in I.M. 210 is currently in I.M. 209. I.M. 210 will focus on recycled material. The text will not change. It will be moved from I.M. 209 to I.M. 210.

Specification Section Recommended Text:

4120.02, B, Granular Shoulders.

Replace the reference to Materials I.M. 209 with Materials I.M. 210 in the first bullet of the second paragraph.

Comments:

Member's Requested Change (Redline/Strikeout):

Change reference in first bullet.

4120.02 GRANULAR MATERIAL.

A. Granular Surfacing.
Furnish material meeting the requirements of Article 4120.04, or when specified in the contract documents, meet the requirements of Article 4120.03, 4120.05, or 4120.06.

B. Granular Shoulders.
Furnish material meeting the requirements of Article 4120.04 or recycled materials, or when specified in the contract documents, meet the requirements of Article 4120.05 or 4120.06.

For recycled materials, meet the following requirements:

- Recycle PCC, RAP, or Composite pavements to meet the requirements of Materials I.M. ~~209~~ 210.

Reason for Revision:

Reference changed – Recycled Materials moved to Materials I.M. 210

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 / Keith Norris	**Office:** Materials	**Item 14**
Submittal Date: April 26, 2006	**Proposed Effective Date:** October 2006	
Article No.: 4121.01 **Title:** Description (Granular Subbase Material)	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: District 2 Materials noted that I.M. 210 is being developed and will be ready by October. The material that will be in I.M. 210 is currently in I.M. 209. I.M. 210 will focus on recycled material. The text will not change. It will be moved from I.M. 209 to I.M. 210.

Specification Section Recommended Text:

4121.01, Description.

Replace the reference to Materials I.M. 209 with Materials I.M. 210 in the third bullet.

Comments:

Member's Requested Change (Redline/Strikeout):

Change reference in third bullet.

4121, Granular Subbase Material.

4121.01 DESCRIPTION.

- Crushed stone,
- Gravels of which 30% or more of the particles retained on the 3/8 inch (9.5 mm) sieve have at least one fractured face as defined in Materials I.M. 305,
- Crushed PCC pavement meeting the requirements of Materials I.M. ~~209~~ 210, or
- Uniformly blended combinations of these materials.

Reason for Revision: Reference changed – Recycled Materials moved to Materials I.M. 210

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 / Keith Norris	**Office:** Materials	**Item 15**
Submittal Date: April 26, 2006	**Proposed Effective Date:** October 2006	
Article No.: 4123.01 **Title:** Description (Modified Subbase Material)	**Other:**	

Specification Committee Action: Approved as is.			
Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: District 2 Materials noted that I.M. 210 is being developed and will be ready by October. The material that will be in I.M. 210 is currently in I.M. 209. I.M. 210 will focus on recycled material. The text will not change. It will be moved from I.M. 209 to I.M. 210.

Specification Section Recommended Text:

4123.01, Description.

Replace the reference to Materials I.M. 209 with Materials I.M. 210 in the third bullet.

Comments:

Member's Requested Change (Redline/Strikeout):

Change reference in third bullet.

Section 4123. Modified Subbase Material

4123.01 DESCRIPTION.

- Crushed stone,
- Gravels for which 75% or more of the particles retained on the 3/8 inch (9.5 mm) sieve have at least one fractured face as defined in Materials I.M. 305,
- Recycled pavements meeting Materials I.M. ~~209~~ 210, or
- Uniformly blended combinations of these materials with a maximum of 50% RAP.

Reason for Revision: Reference changed – Recycled Materials moved to Materials I.M. 210

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 / Keith Norris	**Office:** Materials	**Item 16**
Submittal Date: April 26, 2006	**Proposed Effective Date:** October 2006	
Article No.: 4130.01 **Title:** Revetment Description	**Other:**	

Specification Committee Action: Approved as is.			
Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: District 2 Materials noted that I.M. 210 is being developed and will be ready by October. The material that will be in I.M. 210 is currently in I.M. 209. I.M. 210 will focus on recycled material. The text will not change. It will be moved from I.M. 209 to I.M. 210.

Specification Section Recommended Text:

4130.01, Revetment Description.

Replace the reference to Materials I.M. 209 with Materials I.M. 210 in Article B.

Comments:

Member's Requested Change (Redline/Strikeout):

Change reference in bullet B.

4130.01 REVETMENT DESCRIPTION.

A. Broken limestone, dolomite, quartzite, or granite from an approved source as described in Materials I.M. 409.

- A minimum of 50% of the stone or broken concrete revetment shall be composed of beds or slabs more than 5 inches (125 mm) thick.
- A minimum of 10% of the beds or slabs shall be thick enough to produce the required weight (mass) of either the stone or concrete with the greatest dimension not more than two times the smallest dimension.

B. Recycled PCC revetment meeting the requirements of Materials I.M. ~~209~~ 210 may be used with the approval of the Engineer.

Reason for Revision: Reference changed – Recycled Materials moved to Materials I.M. 210

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 17**
Submittal Date: April 27, 2006	**Proposed Effective Date:** October 06	
Article No.: 4161.02 **Title:** Preservatives	**Other:**	

Specification Committee Action: Approved as is.			
Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Recommended Text.

Comments: See Reason for Revision.

Specification Section Recommended Text:

4161.02, Preservatives.

Replace the second sentence:

Unless otherwise specified, treatment may be with creosote, pentachlorophenol, chromated copper arsenate (CCA), ammoniacal copper arsenate (ACA), ~~or~~ ammoniacal copper zinc arsenate (ACZA), or Copper Naphthenate.

Comments:

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

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), ~~or~~ ammoniacal copper zinc arsenate (ACZA)~~.~~,or Copper Naphthenate.

Reason for Revision: Accidentally omitted from last revision when Copper Naphthenate was approved and incorporated into the specs.

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 18**
Submittal Date: April 27, 2006	**Proposed Effective Date:** October 06	
Article No.: 4161.03 **Title:** Treatment	**Other:**	

Specification Committee Action: Approved as is.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text: See Specification Section Recommended Text.

Comments: See Reason for Revision.

Specification Section Recommended Text:

4161.03, Treatment.

Add superscript (2) to Cresote and Pentachlorophenol in the column titles of Table 1.

Comments:

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

4161.03 TREATMENT.
Except as provided herein, preservative treatment shall be in accordance with requirements and recommendations of AWPA Standard C1 and the applicable AWPA Commodity Standards 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(2)**	**Pentachloro-phenol(2)**	**Copper Napthenate(2)**	**ACA(3)**	**ACZA(3)**	**CCA(1, 3)**	**AWPA Material Standard**
Lumber and Timber for Structures	12 (192.2)	0.6 (9.6)	0.075 (1.2)	0.6 (9.6)	0.6 (9.6)	0.6 (9.6)	C2, C14
Piles for Foundation:							
Douglas Fir	17 (272)	-	-	-	-	-	C3, C14
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

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
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

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.

Reason for Revision: Accidentally omitted from last 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: Jim Berger	**Office:** Materials	**Item 19**
Submittal Date: April 27, 2006	**Proposed Effective Date:** October 06	
Article No.: 4164.04 **Title:** Wood Sign Posts	**Other:**	

Specification Committee Action: Approved. Actually replacing the fourth paragraph, not the second paragraph.

Deferred:	**Not Approved:**	**Approved Date:** 5/11/06	**Effective Date:** 10/17/06

Specification Committee Approved Text:

4164.04, Wood Sign Posts.

Replace the fourth paragraph:

Nominal 4 inch by 4 inch (100 mm by 100 mm) sign posts in lengths up to 14 feet (4.3 m) may be furnished in species Northern Pine (Norway, Red Pine), Grade No. 1, in accordance with the Northeastern Lumber Manufacturer's Association Rules. ~~Northern Hardwood and Pine Manufacturers Association Standard Grading Rules. Nominal 4 inch by 4 inch (100 mm by 100 mm) sign posts in 10 foot (3.0 m) and 12 foot (3.6 m) lengths may be Grade No. 2, of the above species in accordance with the above Association Standard Grading Rules.~~

Comments: District 2 Construction asked if it is the fourth paragraph, rather than the second paragraph, that is being replaced. The Office of Materials verified it is the fourth paragraph that is being replaced.

Specification Section Recommended Text:

4164.04, Wood Sign Posts.

Replace the fourth full paragraph:

Nominal 4 inch by 4 inch (100 mm by 100 mm) sign posts in lengths up to 14 feet (4.3 m) may be furnished in species Northern Pine (Norway, Red Pine), Grade No. 1, in accordance with the Northeastern Lumber Manufacturer's Association Rules. ~~Northern Hardwood and Pine Manufacturers Association Standard Grading Rules. Nominal 4 inch by 4 inch (100 mm by 100 mm) sign posts in 10 foot (3.0 m) and 12 foot (3.6 m) lengths may be Grade No. 2, of the above species in accordance with the above Association Standard Grading Rules.~~

Comments:

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

4164.04 WOOD SIGN POSTS.
Wood sign posts shall be either Douglas Fir (coast region) or Southern Pine and shall be graded as provided in ASTM D 245 according to rules approved by the Board of Review of the American Lumber Standards Committee.

Douglas Fir posts shall be of the following grades and nominal size, and shall be free of heart centers: 4" x 4" (100 mm x 100 mm) - "No. 2" - Structural Light Framing; 4" x 6" (100 mm x 150 mm) - "Dense No. 2" - Structural Joist and Plank;
Southern Pine posts shall be of the following grades and nominal size: 4" x 4" (100 mm x 100 mm) - No. 2 Dense; 4" x 6" (100 mm x 150 mm) - No. 1 Dense;

Nominal 4 inch by 4 inch (100 mm by 100 mm) sign posts in lengths up to 14 feet (4.3 m) may be furnished in species Northern Pine (Norway, Red Pine), Grade No. 1, in accordance with the Northeastern Lumber Manufacturer's Association Rules. ~~Northern Hardwood and Pine Manufacturers Association Standard Grading Rules. Nominal 4 inch by 4 inch (100 mm by 100 mm) sign posts in 10 foot (3.0 m) and 12 foot (3.6 m) lengths may be Grade No. 2, of the above species in accordance with the above Association Standard Grading Rules.~~

Posts shall be furnished in the size and length specified and shall conform to the following for the size designated:

A. Posts a nominal 4 inches by 4 inches (100 mm by 100 mm) shall be furnished S4S and shall be sawed square at both ends. Posts shall be bored with 10 holes 7/16 inch (11 mm) in diameter at nominal 6 inch (150 mm) spacing (center to center) with the first hole being 3 inches (75 mm) from one end of the post. The spacing and alignment of holes shall be within nominal 1/16 inch (2 mm) of true center line and distance.

B. Posts a nominal 4 inches by 6 inches (100 mm by 150 mm) shall be furnished S4S and shall be sawed square at both ends. Posts shall be bored through the 6 inches (150 mm) thickness with 15 holes 7/16 inch (11 mm) in diameter at 6 inch (150 mm) spacing (center to center) with the first hole being 3 inches (75 mm) from one end of the post. The spacing and alignment of holes shall be within 1/16 inch (2 mm) of true center line and distance.

Reason for Revision: The Northern Hardwood and Pine Manufacturers Association no longer exists. Grade No. 1 in Northern Pine species is closely equivalent to the grades required for Pine and Douglas Fir compared to a No. 2 Northern Pine.

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:					