



GENERAL

Construction notes address changes in department policy or specifications that are not included in the contract. Implementation requires a contract change order that both department staff and the contractor agree to. Construction notes offer optional fixes to known problems, but are not contractual mandates. Solutions outlined in construction notes are endorsed by both the department and the industry.

The department issues a new set of construction notes in the early part of the construction season. Additional notes are released during the construction season if an issue warrants a rapid response. Later issuances include or supersede earlier issuances.

Typical construction notes address late breaking technical specification changes, while others may address contract administration issues. Each note provides background information, a problem statement, and a solution to that problem in the form of contract change order language field staff can incorporate in their contracts.

Construction notes are advisory regarding cost and thus only make suggestions regarding how the proposed contract change might be priced. No-cost solutions are generally recommended, but many situations will require renegotiation of the contract bid prices for affected items. Some changes may require the addition or deletion of bid items.

CURRENT CONSTRUCTION NOTES

2008 Construction Notes

- [1. Roundabouts](#)
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4. Seed Mix No. 10 - obsolete
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2009 Construction Notes

1. Electronic Reporting of Concrete Pavement Thickness Data - obsolete

2010 Construction Notes

- [1. Curing Compounds on Urban Projects](#)
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Construction and Materials Manual

2008 Construction Note Number 1 - April 2008

Subject: Roundabouts

Wisconsin Department of Transportation

BACKGROUND

The central island of a roundabout is the raised, non-traversable area encompassed by the circulatory roadway. A traversable apron may be a part of the central island. Where the traversable apron is used, they are intended to be traversable by trucks, but should discourage passenger vehicles from using them. The aprons generally have been designed with a minimum 4" curb, and are constructed with colored and/or textured concrete.

PROBLEM

The pavement marking, stamped concrete, and curbs have given truckers mixed signals. They don't know whether or not they are supposed to be driving upon the traversable apron. The first four items listed below need correction to help make it clearer that the apron is to be used by trucks. Item 5 does not contribute to the confusion, but it does relate to construction.

1. The yellow pavement marking between the circulating roadway and the truck apron has given truckers the impression they shouldn't cross this line to allow offtracking of the rear wheels to go onto the truck apron.
2. The stamped concrete truck apron has given truckers the impression this is an aesthetic treatment and trucks should stay off (this of course is not true, that is what the truck apron is intended for).
3. Some truckers believe the previous G or J curb, even the 4-inch, is not truck tire friendly.
4. When changing to a new curb design, a corresponding inlet must be introduced.
5. Dowels had been designed as part of the pavement in the truck apron. These have been found to be unnecessary, and even detrimental.

SOLUTION

1. Do not install the yellow pavement marking line around the roundabout at the gutter flag that separates the circulating roadway from the truck apron. If the project has already been let consider removing it from the project.
2. Stamping the colored concrete truck apron is not recommended. If the project has already been let consider removing the stamping from the project. If there has been a commitment to a community to install the stamped concrete in an urban area, that is fine, the stamping may stay.
3. Begin using the Type R or T curb and gutter that is located between the circulatory roadway and the truck apron. Provide the contractor with the detail for the new curb section, SDD 8D1. If the project has already been let replace the G or J (or proposed curb type) with type R or T. The new R or T has a gentle curved flowline with a 16-inch radius.
The minimum thickness of the new standard gutter flange is 8 inches. Negotiate the cost of the change with the contractor and pay with a change order.
4. Use the Type T Inlet Cover when using the Type R or T curb and gutter. Provide SDD 8A5 to the contractor. Negotiate the cost of the change with the contractor and pay with a change order.
5. Dowels in the truck apron should be eliminated if already included in the plans. Dowels are incidental to concrete pavement, so no cost adjustment should be necessary.



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2008 Construction Note Number 2 - May 2008

Subject: Welding

Wisconsin Department of Transportation

BACKGROUND

WisDOT's Standard Specifications currently require welders to be certified to AWS D1.5 for all welding on bridge structures, including field-welded splices for cast-in-place piling and steel piling. This requirement for welding piling is difficult for contractors to meet due to the lack of welders on the typical job site who are certified at the AWS D1.5 level, and the need for certification at this level has been questioned.

PROBLEM

WisDOT's Standard Specifications require welders to be certified to AWS D1.5 for field welding splices for cast-in-place piling and steel piling. WisDOT has determined that certification to AWS D1.1 is acceptable for this application.

SOLUTION

The welder certification requirements for field-welded splices for cast-in-place piling and steel piling embedded in the ground are revised to AWS D1.1.

Add the following language as a no cost change order to contracts that include any of the Piling CIP Concrete Delivered and Driven (dia) x (wall) bid items or any of the Piling Steel Delivered and Driven HP (inch) (lb) bid items.

510.3.2 Shell Lengths and Splices

Replace paragraph two with the following:

- (2) Weld splices as the plans show and conforming to the AWS D1.1/D1.1M Structural Welding Code - Steel. Use shielded metal arc welding (SMAW) for welds on portions of piles that will be above grade in service. Visually inspect and certify the quality of field welds as follows:
1. Ensure that the contractor's inspector is an AWS certified welding inspector (CWI) or a department-approved individual competent to perform inspections.
 2. Have the contractor's inspector complete department form DT2320 for each structure and submit the form to the engineer for inclusion in the permanent project record.

511.2.2 Steel Oil Field Pipe

Replace paragraphs one and two with the following:

- (1) Conform to ASTM, A 252, grade 3 with a maximum tensile strength of 85 ksi (586.1 MPa). If replacing HP piling, provide pipe with a cross section that equals or exceeds 97 percent of the area of the HP piling originally specified. The pipe shall have a minimum outside diameter of 7 3/4 inches (196 mm) and a minimum wall thickness of 3/8 inch (10 mm). Ensure that each pipe on each load delivered to the project conforms to the bill of lading and is marked to uniquely identify the load. Make the marking durable and legible.
- (2) The contractor shall also furnish, at or before delivery, certification of the pipe's chemical composition to determine its carbon equivalency (CE). Ensure the CE does not exceed 0.50.

$$CE=C+1/6(Mn+Si+Cr+Mo+V)+1/15(Ni+Cu)$$

511.3.4.4.2 Oil Field Pipe

Replace paragraphs one and two with the following:

- (1) Position backup rings flush with the joint and place according to AWS D1.1/D1.1M Structural Welding Code - Steel. Ensure that the rings allow the joint to contract freely as the weld cools. Make tack welds the smallest size necessary to hold the pipe ends in alignment for welding.
- (2) For materials not listed in table 3.1 of the AWS D1.1 code, preheat for a distance of 5 inches (125 mm) on both sides of the weld. Preheat steel pipe with a CE less than 0.35 to 100 F (38 C). Preheat steel pipe with a CE between 0.35 and 0.45 inclusive to 250 F (121 C). Preheat steel pipe with a CE between 0.45 and 0.50 inclusive to 400 F (204 C).

Contact Craig Wehrle of the department's Bureau of Structures for approval of the contractor's designated welding inspector.

Craig Wehrle

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608-266-8487

These provisions will be included in the 2009 edition of the standard specifications effective with the December 2008 letting.

Contact Bill Dreher at 608-266-8489 for additional information.



Construction and Materials Manual

2008 Construction Note Number 3 - May 2008

Subject: QMP Ride

Wisconsin Department of Transportation

BACKGROUND

The QMP ride specification was introduced in the 2007 construction season without being tested or piloted. After the 2007 season, industry and the department met to make revisions to solve problems that were exposed in the field. The new edition of the QMP ride specification, published with the May 2008 STSP release, contains those substantive changes.

PROBLEM

The changes to the QMP Ride specification were made too late to include in 2008 construction contracts.

SOLUTION

If the contractor and engineer agree, the engineer can change order the new QMP ride specification into the contract.

Field staff should look at the new QMP ride specification to determine its potential impact on their project. The decision to implement this change will be made by field staff on a project-by-project basis.

If the engineer and contractor agree to implement the revised spec, the engineer should write a change order replacing the QMP Ride contract special provision with the new edition, STSP 440-010 QMP Ride, available at the following site:

<http://on.dot.wi.gov/consultants/stsp.shtm>

With the change to the new QMP Ride specification, the engineer and contractor should agree to the following:

1. The change will be implemented as a no-cost change order.
2. The entire existing QMP ride spec will be replaced with the revised edition.
3. The change order must be agreed upon before paving begins.

Call Wayne Chase at 608-245-8960 for more information regarding this note.



Construction and Materials Manual

Wisconsin Department of Transportation

2008 Construction Note Number 5 - July 2008

Subject: Mid-Lane Longitudinal Cracking in HMA Pavements

BACKGROUND

WisDOT has observed an increased occurrence of premature mid-lane longitudinal cracking in some HMA pavements. This cracking has occurred during the pavements' first 5 years of service. This distress results in increased maintenance costs and possible shortened service life for the affected HMA pavement.

PROBLEM

This distress is caused by either paver induced segregation or a lack of paver compaction occurring near the slat conveyor in the center 18 inches of the paved lane. A lower density is achieved in this area that results in the premature longitudinal cracking. Indications of a problem in this area are not always visible during paving, or at the completion of paving.

SOLUTION

The HMA industry is aware of the issue and made efforts to correct equipment issues leading to this problem. These efforts include the installation of manufacturer retrofit kits on pavers, paver modifications, or replacement/removal of pavers.

As a method of minimizing the potential of the distress occurring, the department recommends the following be performed in the field by department project staff based on past experience of the region with the occurrence of the distress within their region, or by a specific contractor or paver:

Perform nuclear density tests in the center 18 inches of the paved lane and compare the results with those taken in the rest of the lane. If consistent variations of approximately 4pcf are found between tests from the two locations, it is an indicator that the distress may occur. Discuss the situation with the contractor to see what changes they propose to correct the situation. If no changes are made, stop paving operations.

The department is also evaluating the new Pilot QMP HMA Nuclear Density specification to determine if it can effectively measure the potential of this distress. The new pilot specification requires testing be performed in the center of the paved lane. This specification can be added as a no cost change order to contracts that contain the QMP HMA Nuclear Density STSP. Perform the additional testing outlined above to aid in the evaluation of the new specification.

Contact Tom Brokaw at 608-246-7934 for more information regarding this note.



Construction and Materials Manual
 2010 Construction Note Number 1 - January 2010
 Subject: Curing Compounds on Urban Projects

Wisconsin Department of Transportation

BACKGROUND

Appearance of concrete items is important in urban settings where these items are highly visible to the general public. WisDOT has observed an increase in the frequency of scaling problems over the first winter on concrete items on urban projects in recent years.

PROBLEM

Concrete items are most vulnerable to scaling damage during the first winter of service when the concrete is still relatively green, and it is subjected to severe exposure to de-icing salts and freeze-thaw cycling while in a saturated condition. Concrete items such as pavement, curb and gutter, driveway aprons, sidewalk, etc. in urban settings have frequently been showing significant scaling after the first winter, especially in areas where chloride-laden snow banks sat for an extended period of time. The poor appearance of areas where this scaling occurs has generated numerous complaints from municipalities and the public.

SOLUTION

WisDOT is seeking to mitigate this problem by upgrading the type of curing compound used on exposed concrete items on urban projects and roundabouts regardless of location. Linseed oil type curing compound has been shown by past experience to provide increased scaling resistance over the first winter. Standard specifications are currently being changed to require the use of linseed oil type curing compound on urban work to increase scaling resistance.

Use a contract change order (CCO) to implement the change to linseed oil cure on active projects where the standard wax type water based cure is currently specified. The price increase should be negotiated with the contractor on the basis of increased materials cost to substitute the linseed oil cure in place of the standard cure. This change should be applied to all exposed concrete items within the right of way that have standard gray color and standard finish specified. This would include, but not be limited to, Concrete Pavement, Curb and Gutter, Driveway Aprons and Sidewalk.

This change would not apply to any items with special color and/or texture such as stamped and/or colored concrete for which clear cure and seals are specified by special provision.

Add the following language as a change order to contracts that include the above items in an urban setting or any roundabouts. For a project that is partially urban and partially rural, apply the change to the entire project.

Use linseed oil cure in place of the curing compound required by the standard specifications for the concrete items in this contract listed below

Item Number	Item Name	Quantity and Units
_____	_____	_____
_____	_____	_____
_____	_____	_____

The linseed oil cure shall meet the following requirements:

Furnish liquid membrane-forming curing compounds composed of a blend of boiled linseed oil and high viscosity, heavy bodied linseed oil emulsified in a water solution conforming to AASHTO M 148, type 2 class B. Test material at an application rate of 1 gallon per 200 square feet.

The drying time requirements shall be waived. The chemical requirements (volumes are exclusive of added pigments) are as follows:

Oil phase (50+/- 4% by volume)	(Percent by Mass)
Boiled Linseed Oil.....	80
Z-8 Viscosity Linseed Oil.....	20
Water phase (50 +/- 4% by volume).....	100

Standard specifications requiring the use of linseed oil type curing compound on urban work and roundabouts will be in place for the 2011 construction season.

Call Jim Parry at 608-246-7939 for more information about this note.



Construction and Materials Manual

Wisconsin Department of Transportation

2010 Construction Note Number 2 - January 2010

Subject: *Electronic Reporting of Concrete Pavement Thickness Data*

BACKGROUND

The department is phasing in the use of the Materials Reporting System (MRS) system for contractors to electronically submit construction and materials data to the department. The MRS software allows contractors to submit data to the department electronically, estimate pay adjustments, and print selected reports. Qualified personnel may obtain MRS software from the department's web site at:

<http://www.atwoodsystems.com/mrs>

PROBLEM

The department will be requiring contractors to use the MRS system to report concrete thickness data starting with projects let in March 2010, but contracts let before March 2010 will not have language requiring the contractor to use the MRS. Also, field staff have asked for clarification on how to handle thickness measurement for shoulders, ramps, and other longer units of constant cross section.

SOLUTION

The standard specifications will be revised to require the use of the MRS system to report concrete thickness probing data.

Implement new specification language calling for the establishment of special units to measure thickness of concrete pavement in long stretches less than 10 feet wide, such as shoulders and ramps. Each special unit is limited to a maximum of 350 square yards. When entering thickness data into the MRS for special units provide a description of the location or locations and any alternate methods used instead of probing for special units.

Add the following language as a no cost change order to contracts let before March 2010 that include concrete pavement bid items. This language supersedes that of the December 2009 concrete pavement thickness data construction note.

415.3.18.1 General

Replace paragraphs two and three with the following:

- (2) The department will use contractor probing of the freshly placed concrete as the primary method for determining thickness. The department will base acceptance and payment on the contractor's quality control tests until shown through the validation, verification, or dispute resolution process that the contractor's test results are in error. The department will validate all contractor data before determining pay adjustments. The department will determine areas with deficient thickness by coring.
- (3) Within 30 calendar days after probing, submit the thickness data electronically using the department's materials reporting system (MRS) software available at:

<http://www.atwoodsystems.com/mrs>

415.3.18.3 Pavement Units

Replace paragraph three with the following:

- (3) Establish special units for areas of fillets, intersections, gaps, and other areas not included in basic units. Also establish special units for shoulders, ramps, and other long areas of constant cross section less than 10 feet wide. Limit the size of special units to a maximum of 350 square yards.

415.3.18.4.3 Alternate Methods

Replace paragraph one with the following:

- (1) The contractor may employ an alternate method, agreeable to the engineer, to determine the measured thickness of special units. Measure the depth of a special unit at a minimum of 2 locations as the engineer approves. Include a brief description of the alternate method as a part of the MRS submittal.

415.3.18.9 Nonconforming Areas

Replace the entire text with the following:

- (1) If the final thickness of a basic unit is nonconforming, the department will make the pay adjustment for that unit contingent upon the final thickness of the next basic unit in that lane. If the location for the next required random probing series is within 125 feet of the first test location, the contractor may select and document a new random location to provide space for corrective action.
- (2) If the final thickness of the next basic unit is conforming, the department will not assess any pay adjustments for either basic unit. If the final thickness of the next basic unit is nonconforming or unacceptable, the department will adjust the pay for both basic units. The department will continue pay adjustment for each succeeding basic unit until the contractor produces a basic unit with conforming final thickness.
- (3) If the final thickness of a special unit is nonconforming, the department will adjust the pay for that unit.

These specification revisions will be incorporated into contracts effective with the March 2010 letting using Additional Special Provision 6 (ASP 6) and will be included in the 2011 edition of the standard specifications effective with the December 2010 letting.

Call Wayne Chase at 608-245-8960 for more information regarding this note.