BDE SPECIAL PROVISIONS
For the November 4, 2016 Letting

The following special provisions indicated by an "x" are applicable to this contract and will be included by the Project Development and Implementation Section of the BD&E. An * indicates a new or revised special provision for the letting.

| | File Name | # | | Special Provision Title | Effective | Revised |
|---|---|---|---|---|---|---|
| | 80099 | 1 | | Accessible Pedestrian Signals (APS) | April 1, 2003 | Jan. 1, 2014 |
| | 80274 | 2 | | Aggregate Subgrade Improvement | April 1, 2012 | April 1, 2016 |
| | 80192 | 3 | | Automated Flagger Assistance Device | Jan. 1, 2008 | |
| | 80173 | 4 | | Bituminous Materials Cost Adjustments | Nov. 2, 2006 | July 1, 2015 |
| | 80241 | 5 | | Bridge Demolition Debris | July 1, 2009 | |
| | 5026I | 6 | | Building Removal-Case I (Non-Friable and Friable Asbestos) | Sept. 1, 1990 | April 1, 2010 |
| | 5048I | 7 | | Building Removal-Case II (Non-Friable Asbestos) | Sept. 1, 1990 | April 1, 2010 |
| | 5049I | 8 | | Building Removal-Case III (Friable Asbestos) | Sept. 1, 1990 | April 1, 2010 |
| | 5053I | 9 | | Building Removal-Case IV (No Asbestos) | Sept. 1, 1990 | April 1, 2010 |
| | 80366 | 10 | | Butt Joints | July 1, 2016 | |
| | 80360 | 11 | | Coarse Aggregate Quality | July 1, 2015 | |
| | 80198 | 12 | | Completion Date (via calendar days) | April 1, 2008 | |
| | 80199 | 13 | | Completion Date (via calendar days) Plus Working Days | April 1, 2008 | |
| | 80293 | 14 | | Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet | April 1, 2012 | July 1, 2016 |
| | 80311 | 15 | | Concrete End Sections for Pipe Culverts | Jan. 1, 2013 | April 1, 2016 |
| | 80277 | 16 | | Concrete Mix Design – Department Provided | Jan. 1, 2012 | April 1, 2016 |
| | 80261 | 17 | | Construction Air Quality – Diesel Retrofit | June 1, 2010 | Nov. 1, 2014 |
| * | 80029 | 18 | | Disadvantaged Business Enterprise Participation | Sept. 1, 2000 | July 2, 2016 |
| | 80363 | 19 | | Engineer's Field Office | April 1, 2016 | |
| | 80358 | 20 | | Equal Employment Opportunity | April 1, 2015 | |
| | 80364 | 21 | | Errata for the 2016 Standard Specifications | April 1, 2016 | |
| | 80229 | 22 | | Fuel Cost Adjustment | April 1, 2009 | July 1, 2015 |
| | 80304 | 23 | | Grooving for Recessed Pavement Markings | Nov. 1, 2012 | Aug. 1, 2014 |
| | 80246 | 24 | | Hot-Mix Asphalt – Density Testing of Longitudinal Joints | Jan. 1, 2010 | April 1, 2016 |
| | 80347 | 25 | | Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Jobsite Sampling | Nov. 1, 2014 | April 1, 2016 |
| * | 80376 | 26 | | Hot-Mix Asphalt – Tack Coat | Nov. 1, 2016 | |
| | 80367 | 27 | | Light Poles | July 1, 2016 | |
| | 80368 | 28 | | Light Tower | July 1, 2016 | |
| | 80336 | 29 | | Longitudinal Joint and Crack Patching | April 1, 2014 | April 1, 2016 |
| | 80369 | 30 | | Mast Arm Assembly and Pole | July 1, 2016 | |
| | 80045 | 31 | | Material Transfer Device | June 15, 1999 | Aug. 1, 2014 |
| | 80342 | 32 | | Mechanical Side Tie Bar Inserter | Aug. 1, 2014 | April 1, 2016 |
| | 80370 | 33 | | Mechanical Splicers | July 1, 2016 | |
| | 80165 | 34 | | Moisture Cured Urethane Paint System | Nov. 1, 2006 | Jan. 1, 2010 |
| | 80361 | 35 | | Overhead Sign Structures Certification of Metal Fabricator | Nov. 1, 2015 | April 1, 2016 |
| | 80349 | 36 | | Pavement Marking Blackout Tape | Nov. 1, 2014 | April 1, 2016 |
| | 80371 | 37 | | Pavement Marking Removal | July 1, 2016 | |
| | 80298 | 38 | | Pavement Marking Tape Type IV | April 1, 2012 | April 1, 2016 |
| | 80365 | 39 | | Pedestrian Push-Button | April 1, 2016 | |
| * | 80377 | 40 | | Portable Changeable Message Signs | Nov. 1, 2016 | |
| | 80359 | 41 | | Portland Cement Concrete Bridge Deck Curing | April 1, 2015 | July 1, 2016 |
| | 80353 | 42 | | Portland Cement Concrete Inlay or Overlay | Jan. 1, 2015 | April 1, 2016 |
| | 80338 | 43 | | Portland Cement Concrete Partial Depth Hot-Mix Asphalt Patching | April 1, 2014 | April 1, 2016 |
| | 80300 | 44 | | Preformed Plastic Pavement Marking Type D - Inlaid | April 1, 2012 | April 1, 2016 |

| File Name | # | | Special Provision Title | Effective | Revised |
|---|---|---|---|---|---|
| 80372 | 45 | | Preventive Maintenance – Bituminous Surface Treatment (A-1) | Jan. 1, 2009 | July 1, 2016 |
| 80373 | 46 | | Preventive Maintenance – Cape Seal | Jan. 1, 2009 | July 1, 2016 |
| 80374 | 47 | | Preventive Maintenance – Micro-Surfacing | Jan. 1, 2009 | July 1, 2016 |
| 80375 | 48 | | Preventive Maintenance – Slurry Seal | Jan. 1, 2009 | July 1, 2016 |
| 80328 | 49 | | Progress Payments | Nov. 2, 2013 | |
| 3426I | 50 | | Railroad Protective Liability Insurance | Dec. 1, 1986 | Jan. 1, 2006 |
| 80157 | 51 | | Railroad Protective Liability Insurance (5 and 10) | Jan. 1, 2006 | |
| 80306 | 52 | | Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS) | Nov. 1, 2012 | April 1, 2016 |
| 80340 | 53 | | Speed Display Trailer | April 2, 2014 | April 1, 2016 |
| 80127 | 54 | | Steel Cost Adjustment | April 2, 2004 | July 1, 2015 |
| 80362 | 55 | | Steel Slag in Trench Backfill | Jan. 1, 2016 | |
| 80317 | 56 | | Surface Testing of Hot-Mix Asphalt Overlays | Jan. 1, 2013 | April 1, 2016 |
| 80355 | 57 | | Temporary Concrete Barrier | Jan. 1, 2015 | July 1, 2015 |
| 20338 | 58 | | Training Special Provisions | Oct. 15, 1975 | |
| 80318 | 59 | | Traversable Pipe Grate | Jan. 1, 2013 | April 1, 2014 |
| 80288 | 60 | | Warm Mix Asphalt | Jan. 1, 2012 | April 1, 2016 |
| 80302 | 61 | | Weekly DBE Trucking Reports | June 2, 2012 | April 2, 2015 |
| 80289 | 62 | | Wet Reflective Thermoplastic Pavement Marking | Jan. 1, 2012 | |
| 80071 | 63 | | Working Days | Jan. 1, 2002 | |

The following special provisions and recurring special provisions are in the 2016 Standard Specifications.

| File Name | Special Provision Title | New Location | Effective | Revised |
|---|---|---|---|---|
| 80240 | Above Grade Inlet Protection | Articles 280.02, 280.04, and 1081.15 | July 1, 2009 | Jan. 1, 2012 |
| 80310 | Coated Galvanized Steel Conduit | Article 811.03 | Jan. 1, 2013 | Jan. 1, 2015 |
| 80341 | Coilable Nonmetallic Conduit | Article 1088.01 | Aug. 1, 2014 | Jan. 1, 2015 |
| 80294 | Concrete Box Culverts with Skews ≤ 30 Degrees Regardless of Design Fill and Skews > 30 Degrees with Design Fills > 5 Feet | Article 540.04 | April 1, 2012 | April 1, 2014 |
| 80334 | Concrete Gutter, Curb, Median, and Paved Ditch | Articles 606.02, 606.07, and 1050.04 | April 1, 2014 | Aug. 1, 2014 |
| 80335 | Contract Claims | Article 109.09 | April 1, 2014 | |
| Chk Sht #27 | English Substitution of Metric Reinforcement Bars | Article 508.09 | April 1, 1996 | Jan. 1, 2011 |
| 80265 | Friction Aggregate | Articles 1004.01 and 1004.03 | Jan. 1, 2011 | Nov. 1, 2014 |
| 80329 | Glare Screen | Sections 638 and 1085 | Jan. 1, 2014 | |
| Chk Sht #20 | Guardrail and Barrier Wall Delineation | Sections 635, 725, 782, and 1097 | Dec. 15, 1993 | Jan. 1, 2012 |
| 80322 | Hot-Mix Asphalt – Mixture Design Composition and Volumetric Requirements | Sections 312, 355, 406, 407, 442, 482, 601, 1003, 1004, 1030, and 1102 | Nov. 1, 2013 | Nov. 1, 2014 |
| 80323 | Hot-Mix Asphalt – Mixture Design Verification and Production | Sections 406, 1030, and 1102 | Nov. 1, 2013 | Nov. 1, 2014 |
| 80348 | Hot-Mix Asphalt – Prime Coat | Sections 403, 406, 407, 408, 1032, and 1102 | Nov. 1, 2014 | |
| 80315 | Insertion Lining of Culverts | Sections 543 and 1029 | Jan. 1, 2013 | Nov. 1, 2013 |
| 80351 | Light Tower | Article 1069.08 | Jan. 1, 2015 | |
| 80324 | LRFD Pipe Culvert Burial Tables | Sections 542 and 1040 | Nov. 1, 2013 | April 1, 2015 |
| 80325 | LRFD Storm Sewer Burial Tables | Sections 550 and 1040 | Nov. 1, 2013 | April 1, 2015 |
| 80337 | Paved Shoulder Removal | Article 440.07 | April 1, 2014 | |

| File Name | Special Provision Title | New Location | Effective | Revised |
|---|---|---|---|---|
| 80254 | Pavement Patching | Article 701.17 | Jan. 1, 2010 | |
| 80352 | Pavement Striping - Symbols | Article 780.14 | Jan. 1, 2015 | |
| Chk Sht #19 | Pipe Underdrains | Section 601 and Articles 1003.01, 1003.04, 1004.05, 1040.06, and 1080.05 | Sept. 9, 1987 | Jan. 1, 2007 |
| 80343 | Precast Concrete Handhole | Articles 814.02, 814.03, and 1042.17 | Aug. 1, 2014 | |
| 80350 | Retroreflective Sheeting for Highway Signs | Article 1091.03 | Nov. 1, 2014 | |
| 80327 | Reinforcement Bars | Section 508 and Articles 421.04, 442.06, 1006.10 | Nov. 1, 2013 | |
| 80344 | Rigid Metal Conduit | Article 1088.01 | Aug. 1, 2014 | |
| 80354 | Sidewalk, Corner, or Crosswalk Closure | Article 1106.02 | Jan. 1, 2015 | April 1, 2015 |
| 80301 | Tracking the Use of Pesticides | Article 107.23 | Aug. 1, 2012 | |
| 80356 | Traffic Barrier Terminals Type 6 or 6B | Article 631.02 | Jan. 1, 2015 | |
| 80345 | Underpass Luminaire | Articles 821.06 and 1067.04 | Aug. 1, 2014 | April 1, 2015 |
| 80357 | Urban Half Road Closure with Mountable Median | Articles 701.18, 701.19, and 701.20 | Jan. 1, 2015 | July 1, 2015 |
| 80346 | Waterway Obstruction Warning Luminaire | Article 1067.07 | Aug. 1, 2014 | April 1, 2015 |

The following special provisions require additional information from the designer. The additional information needs to be included in a separate document attached to this check sheet. The Project Development and Implementation section will then include the information in the applicable special provision. The Special Provisions are:

- Bridge Demolition Debris
- Building Removal-Case I
- Building Removal-Case II
- Building Removal-Case III
- Building Removal-Case IV
- Completion Date
- Completion Date Plus Working Days
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

**TRAINING SPECIAL PROVISIONS (BDE)**

Effective: October 15, 1975

This Training Special Provision supersedes Section 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities," and is in implementation of 23 U.S.C. 140(a).

As part of the Contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The Contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under this contract will be . In the event the Contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the Contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The Contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the Contractor's needs and the availability of journeymen in the various classifications within the reasonable area of recruitment. Prior to commencing construction, the Contractor shall submit to the Illinois Department of Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the Contractor shall specify the starting time for training in each of the classifications. The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the Contractor shall make every effort to enroll minority trainees and women (e.g. by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent such persons are available within a reasonable area of recruitment. The Contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the Contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The Contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used, the Contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the Contractor and approved by the Illinois Department of Transportation and the Federal Highway Administration. The Illinois Department of Transportation and the Federal Highway Administration shall approve a program, if it is reasonably calculated to meet the equal employment opportunity obligations of the Contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved by not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather then clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Illinois Department of Transportation and the Federal Highway Administration. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the Contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the Engineer, reimbursement will be made for training of persons in excess of the number specified herein. This reimbursement will be made even though the Contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the Contractor from receiving other reimbursement. Reimbursement for offsite training indicated above may only be made to the Contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training, provides the instruction to the trainee or pays the trainee's wages during the offsite training period.

No payment shall be made to the Contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyman, is caused by the Contractor and evidences a lack of good faith on the part of the Contractor in meeting the requirement of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program.

It is not required that all trainees be on board for the entire length of the contract. A Contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid at least 60 percent of the appropriate minimum journeyman's rate specified in the contract for the first half of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees in an approved existing program are enrolled as trainees on this project. In that case, the appropriate rates approved by the Departments of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provision.

The Contractor shall furnish the trainee a copy of the program he will follow in providing the training. The Contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The Contractor shall provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

Method of Measurement. The unit of measurement is in hours.

Basis of Payment. This work will be paid for at the contract unit price of 80 cents per hour for TRAINEES. The estimated total number of hours, unit price, and total price have been included in the schedule of prices.

20338

All Regional Engineers

Michael L. Hine

Special Provision for Railroad Protective Liability Insurance

September 30, 2005

This special provision has been revised to provide additional “blanks” for railroad information and to update the mailing address for insurance submittal.

This special provision should only be used for “short-line” (minor) railroads. When a Class I railroad is involved, the special provision Railroad Protective Liability Insurance (5 and 10) should be used. Following is a list of the Class 1 railroads:

The Burlington Northern & Santa Fe Railway Co.
Chicago, Central & Pacific Railroad Co.
CN
Canadian Pacific Railway
CSX Transportation, Inc.
Grand Trunk Western Railroad Inc.
Illinois Central Railway Co.
Kansas Southern Railway Co.
Norfolk Southern Railway Co.
Soo Line
Union Pacific Railroad Co.
Wisconsin Central Ltd.
Wisconsin Central Chicago Link Ltd.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 20, 2006 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 30, 2005.

3426Im

**RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)**

Effective: December 1, 1986
Revised: January 1, 2006

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications. A separate policy is required for each railroad unless otherwise noted.

| NAMED INSURED & ADDRESS | NUMBER & SPEED OF PASSENGER TRAINS | NUMBER & SPEED OF FREIGHT TRAINS |
|---|---|---|
| | | |

DOT/AAR No.: RR Mile Post:
RR Division: RR Sub-Division:

For Freight/Passenger Information Contact: Phone:
For Insurance Information Contact: Phone:

DOT/AAR No.: RR Mile Post:
RR Division: RR Sub-Division:

For Freight/Passenger Information Contact: Phone:
For Insurance Information Contact: Phone:

Approval of Insurance. The original and one certified copy of each required policy shall be submitted to the following address for approval:

Illinois Department of Transportation
Bureau of Design and Environment
2300 South Dirksen Parkway, Room 326
Springfield, Illinois 62764

The Contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall

submit to the Engineer evidence that the required insurance has been approved by the railroad(s). The Contractor shall also provide the Engineer with the expiration date of each required policy.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

3426I

All Regional Engineers

Charles J. Ingersoll

Special Provision for Building Removal - Case I (Non-Friable and Friable Asbestos)

January 8, 2010

This special provision has been revised to make a minor clarification. It should be included on contracts involving building removal with both non-friable and friable asbestos abatement.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 23, 2010 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2010.

5026im

**BUILDING REMOVAL - CASE I (NON-FRIABLE AND FRIABLE ASBESTOS ABATEMENT) (BDE)**

Effective: September 1, 1990
Revised: April 1, 2010

BUILDING REMOVAL: This work shall consist of the removal and disposal of _____ building(s), together with all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| Bldg. No. | Parcel No. | Location | Description |
|---|---|---|---|

Discontinuance of Utilities: The Contractor shall arrange for the discontinuance of all utility services and the removal of the metering devices that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

Signs: Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR
HIGHWAY CONSTRUCTION
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

All friable asbestos shall be removed from the building(s) prior to demolition. The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled "Asbestos Abatement (General Conditions)", "Removal and Disposal of Friable Asbestos Building No._____", and "Removal and Disposal of Non-Friable Asbestos Building No. _____" contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all asbestos, friable and non-friable, is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Three separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO. _____

2. REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. _____

3. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. _____

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

<u>ASBESTOS ABATEMENT (GENERAL CONDITIONS):</u> This work consists of the removal and disposal of friable and non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provisions for "Removal and Disposal of Friable Asbestos, Building No._____" and "Removal and Disposal of Non-Friable Asbestos, Building No. _____", and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages _____ thru _____. Also refer to the Materials Description Table on page _____ for a brief description and location of the various materials. Also included is a Materials Quantities Table on page _____. This table states whether the ACM is friable or non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of friable asbestos, and non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page _____, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of these permits shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least ten days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator
Illinois Environmental Protection Agency
Division of Air Pollution Control
P. O. Box 19276
Springfield, Illinois 62794-9276
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

A. All submittals and notices shall be made to the Engineer, except where otherwise specified herein.

B. Submittals that shall be made prior to start of work:

1. Submittals required under Asbestos Abatement Experience.

2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.

3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.

4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.

5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).

6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.

7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.

8. Submit proof of written notification and compliance with Paragraph "Notifications".

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;

2. Submit daily copies of work site entry logbooks with information on worker and visitor access;

3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and

4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.

B. The Contractor shall document current Workmen's Compensation Insurance coverage.

C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

A. Company Experience: Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.

B. Personnel Experience:

1. For Superintendent, the Contractor shall supply:

a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.

b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.

2. For workers involved in the removal of friable and non-friable asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

<u>ABATEMENT AIR MONITORING</u>: The Contractor shall comply with the following:

A. Personal Monitoring: All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the Contractor. Additional personal samples may be required by the Engineer at any time during the project.

B. Contained Work Areas for Removal of Friable Asbestos: Area samples shall be collected for the department within the work area daily. A minimum of one sample shall be taken outside of the abatement area removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

C. Interior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable Transite and floor tile removal

operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

D. Exterior Non-Friable Asbestos-Containing Materials: The Contractor shall perform personal air monitoring during removal of all nonfriable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

   The Contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

E. Air Monitoring Professional

   1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the Contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".

   2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. _____: This work consists of the removal and disposal of all friable asbestos from the building(s) prior to demolition. The work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)" and as outlined herein.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. _____, as shown, which price shall include furnishing all labor, materials, equipment and services required to remove and dispose of the friable asbestos.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. _____: The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.

2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. _____, as shown.

The cost for this work shall be determined as follows:

Option #1 - Actual cost of removal and disposal of non-friable asbestos.

Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

The cost of removing and disposing of the building(s), assuming all asbestos, friable and non-friable is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. _____".

Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NO. _____ be deleted.

# EXAMPLE

Attached are Appendixes A - D. These appendixes are examples of the information to be included in the proposal and referred to on page 3 of the Special Provision.

Appendix A are the sketches of the building(s) noted on page 1 of the Special Provision. These sketches show the location of asbestos on each floor of the building(s).

Appendix B provides a "Material Description Table" also referred to on page 3 of the Special Provision.

Appendix C is a "Material Quantities Table" and is referred to on page 3 of the Special Provision.

Appendix D is a sample of a Shipping Manifest form referred to on page 3.

Appendix E is a sample of the building(s) identification needed on page 1.

APPENDIX B

MATERIAL DESCRIPTION TABLE

| Material Description | % And Type Of Asbestos | Location, Description, Sample Number (If Applicable) |
|---|---|---|
| I. Ike and Swanies Tap | | |
| Pipe Insulation | 55% & 60% chrysotile | Typical of all insulated piping in Basement area and in wall on 1st Floor. Fair condition. Some debris present in Basement. |
| Freezer cork Mastic | 10% chrysotile | Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Sample AX656. |
| Floor tile | 10% chrysotile | First floor in west portion of building. Floor tile is located under carpet. Poor condition. Sample AX652. |
| II. Peoria Hotel Building | | |
| Pipe Insulation | 20% & 30% chrysotile | Typical of most insulated piping in Basement area. 1st Floor and 2nd Floor. Fair condition. Abundant debris present in Basement. Sample AX660 and Sample AX663. |
| HW Tank Insulation | 55% chrysotile | Tank located in Mechanical Room on the Basement Floor. Tank insulation is in fair condition. ACM debris is throughout Mechanical Room. Sample AX664. |
| Freezer Cork Mastic | 10% chrysotile | Cork wall and ceiling mastic is in Freezer Room in Basement area. Poor condition. Same as Sample AX656. |

| | | |
|---|---|---|
| Floor tile | 10% chrysotile<br>12% chrysotile | First floor in the main hotel building. Floor tile is in poor condition. Sample AX561 and Sample AX662. |
| Transite Siding | 25% chrysotile | Located on an out building in back of main hotel, 1st Floor. Debris on ground and in Basement area Sample AX666. |

## APPENDIX C

## MATERIAL QUANTITIES TABLE

The following are approximate quantities of ACM to be removed from the building indicated. These material quantities do not indicate the cleaning required to remove asbestos debris and resulting contamination from the work areas.

I. Ike and Swanies Tap

| Material | Floor | Quantity Present | Friable |
|---|---|---|---|
| Pipe Insulation | Basement | 140 L.F. | Yes |
| Pipe Insulation | 1st Floor | 20 L.F. | Yes |
| Cork Mastic | Basement | 900 S.F. | No |
| Floor Tile | 1st Floor | 1225 S.F. | No |
| Carpet | 1st Floor | 1225 S.F. | No |

II. Peoria Hotel Building

| Material | Floor | Quantity Present | Friable |
|---|---|---|---|
| Tank Insulation | Basement Mech RM | 115 L.F. | Yes |
| Pipe Insulation | Basement Mech RM | 335 L.F. | Yes |
| Pipe Insulation | Basement (remaining) | 770 L.F. | Yes |
| Pipe Insulation | 1st Floor | 120 S.F. | Yes |
| Pipe Insulation | 2nd Floor | 40 S.F. | Yes |
| Cork Mastic | Basement | 400 S.F. | No |
| Floor Tile | lst Floor | 1300 S.F. | No |
| Linoleum | lst Floor | 75 S.F. | No |
| Transite Siding | lst Floor | 225 S.F. | No |

APPENDIX D

SHIPPING MANIFEST

Generator

| | | | |
|---|---|---|---|
| 1. Work Site Name and Mailing Address | Owner's Name | | Owner's Telephone No. |
| 2. Operator's Name and Address | | | Operator's. Telephone No |
| 3. Waste Disposal Site (WDS) Name Mailing Address, and Physical Site Location | | | WDS Telephone No. |
| 4. Name and Address of Responsible Agency | | | |
| 5. Description of Materials | | | |
| 6. Containers | No. | Type | |
| 7. Total Quantity | $M^3$ | ($Yd^3$) | |
| 8. Special Handling Instructions and Additional Information | | | |
| 9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations. | | | |
| Printed/Typed Name & Title | Signature | | Month Day Year |

Transporter

| | | |
|---|---|---|
| 10. Transporter 1 (Acknowledgement of Receipt of Materials) | | |
| Printed/Typed Name & Title<br><br>Address and Telephone No. | Signature | Month Day Year |
| 11. Transporter 2 (Acknowledgement of Receipt of Materials) | | |
| Printed/Typed Name & Title<br><br>Address and Telephone No. | Signature | Month Day Year |

Disposal Site

| | | |
|---|---|---|
| 12. Discrepancy Indication Space | | |
| 13. Waste Disposal Site Owner or Operator: | Certification of Receipt of Asbestos Materials Covered By This Manifest Except As Noted in Item 12 | |
| Printed/Typed Name & Title | Signature | Month Day Year |

# APPENDIX D

## INSTRUCTIONS

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the Company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.

4. Provide the name and address of the local, State, or EPA Regional Office responsible for administering the asbestos NESHAP program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is

   - Friable asbestos material
   - Nonfriable asbestos material

6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):

   DM - Metal drums, barrels
   DP - Plastic drums, barrels
   BA - 6 mil plastic bags or wrapping

7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.

9. The authorized agent of the waste generator shall read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator shall retain a copy of this form.

## APPENDIX D

### INSTRUCTIONS

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport.

NOTE: The transporter shall retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS shall note in this space any discrepancy between waste described on this mainfest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS shall retain a completed copy of this form. The WDS shall also send a completed copy to the operator listed in Item 2.

APPENDIX E

| Bldg. No. | Parcel No. | Location | Description |
|---|---|---|---|
| 1 | 408D005 | 210-212 Franklin, Peoria | 2 story 60'x40' brick & masonry, 50% basement 50% crawl space |
| 2 | 408D010 | 203-211 Franklin, Peoria | Section 1: 1 story 30'x17'-4" brick & masonry slab<br><br>Section 2: 2 story 36'x81' brick & masonry full basement<br><br>Section 3: 3 story 50'x72' brick & masonry full basement<br><br>Section 4: 2 story 134'x38' brick & masonry, partial basement |

5026I

All Regional Engineers

Charles J. Ingersoll

Special Provision for Building Removal - Case II (Non-Friable Asbestos)

January 8, 2010

This special provision has been revised to make a minor clarification. It should be included on contracts involving building removal with non-friable asbestos abatement only.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 23, 2010 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2010.

5048im

**BUILDING REMOVAL - CASE II (NON-FRIABLE ASBESTOS ABATEMENT) (BDE)**

Effective: September 1, 1990
Revised: April 1, 2010

BUILDING REMOVAL: This work shall consist of the removal and disposal of _____ building(s), together with all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| Bldg. No. | Parcel No. | Location | Description |
|---|---|---|---|

Discontinuance of Utilities: The Contractor shall arrange for the discontinuance of all utility services and the removal of the metering devices that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

Signs: Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR
HIGHWAY CONSTRUCTION
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

The Contractor has the option of removing the non-friable asbestos prior to demolition or demolishing the building(s) with the non-friable asbestos in place. Refer to the Special Provisions titled “Asbestos Abatement (General Conditions)” and “Removal and Disposal of Non-Friable Asbestos Building No. _____“ contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all non-friable asbestos is removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Two separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO. _____

2. REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. _____

The Contractor shall have two options available for the removal and disposal of the non-friable asbestos.

The pay item for removal and disposal of non-friable asbestos will not be deleted regardless of the option chosen by the Contractor.

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of non-friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provision for "Removal and Disposal of Non-Friable Asbestos, Building No. _____," and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages _____ thru _____. Also refer to the Materials Description Table on page _____ for a brief description and location of the various materials. Also included is a Materials Quantities Table on page _____. This table states the ACM is non-friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of non-friable asbestos if done prior to demolition, shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page _____, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of the permit(s) shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least ten days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition if they are done as separate operations.

Asbestos Demolition/Renovation Coordinator
Illinois Environmental Protection Agency
Division of Air Pollution Control
P. O. Box 19276
Springfield, Illinois 62794-9276
(217) 785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.

B. Submittals that shall be made prior to start of work:

1. Submittals required under Asbestos Abatement Experience.

2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.

3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.

4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.

5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).

6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.

7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.

8. Submit proof of written notification and compliance with the “Notifications” paragraph.

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;

2. Submit daily copies of work site entry logbooks with information on worker and visitor access;

3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and

4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.

B. The Contractor shall document current Workmen's Compensation Insurance coverage.

C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

A. Company Experience. Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.

B. Personnel Experience:

1. For Superintendent, the Contractor shall supply:

    a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.

    b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.

2. For workers involved in the removal of asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

<u>ABATEMENT AIR MONITORING</u>: The Contractor shall comply with the following:

A. Personal Monitoring. All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits shall be monitored daily. Personal monitoring is the responsibility of the Contractor. Additional personal samples may be required by the Engineer at any time during the project.

B. Interior Non-Friable Asbestos-Containing Materials. The Contractor shall perform personal air monitoring during removal of all non-friable Transite and floor tile removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

C. Exterior Non-Friable Asbestos-Containing Materials. The Contractor shall perform personal air monitoring during removal of all non-friable cementitious panels, piping, roofing felts, and built up roofing materials that contain asbestos.

    The Contractor shall conduct down wind area sampling to monitor airborne fiber levels at a frequency of no less than three per day.

D. Air Monitoring Professional

    1. All air sampling shall be conducted by a qualified Air Sampling Professional supplied by the Contractor. The Air Sampling Professional shall submit

documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".

2. Air sampling shall be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. _____: The Contractor has the option of removing and disposing of the non-friable asbestos prior to demolition of the building(s) or demolishing the building(s) with the non-friable asbestos in place.

Option #1 - If the Contractor chooses to remove all non-friable asbestos prior to demolition, the work shall be done according to the Special Provision titled "Asbestos Abatement (General Conditions)".

Option #2 - If the Contractor chooses to demolish the building(s) with the non-friable asbestos in place, the following provisions shall apply:

1. Continuously wet all non-friable ACM and other building debris with water during demolition.

2. Dispose of all demolition debris as asbestos containing material by placing it in lined, covered transport haulers and placing it in an approved landfill.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF NON-FRIABLE ASBESTOS, BUILDING NO. _____, as shown.

The cost for this work shall be determined as follows:

Option #1 - Actual cost of removal and disposal of non-friable asbestos.

Option #2 - The difference in cost between removing and disposing of the building if all non-friable asbestos is left in place and removing and disposing of the building assuming all non-friable asbestos is removed prior to demolition.

The cost of removing and disposing of the building(s), assuming all non-friable asbestos is removed first, shall be represented by the pay item "BUILDING REMOVAL NO. _".

Regardless of the option chosen by the Contractor, this pay item will not be deleted, nor will the pay item BUILDING REMOVAL NO. _____ be deleted.

All Regional Engineers

Charles J. Ingersoll

Special Provision for Building Removal - Case III (Friable Asbestos)

January 8, 2010

This special provision has been revised to make a minor clarification. It should be included on contracts involving building removal with friable asbestos abatement only.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 23, 2010 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2010.

5049im

**BUILDING REMOVAL - CASE III (FRIABLE ASBESTOS ABATEMENT) (BDE)**

Effective: September 1, 1990
Revised: April 1, 2010

BUILDING REMOVAL: This work shall consist of the removal and disposal of _____ building(s), together with all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| Bldg. No. | Parcel No. | Location | Description |
|---|---|---|---|

Discontinuance of Utilities: The Contractor shall arrange for the discontinuance of all utility services and the removal of the metering devices that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

Signs: Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR
HIGHWAY CONSTRUCTION
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

All friable asbestos shall be removed from the building(s) prior to demolition. Refer to the Special Provisions titled “Asbestos Abatement (General Conditions)” and “Removal and Disposal of Friable Asbestos Building No. _____“ contained herein.

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein. The lump sum unit price(s) for this work shall represent the cost of demolition and disposal assuming all friable asbestos has been removed prior to demolition. Any salvage value shall be reflected in the contract unit price for this item.

EXPLANATION OF BIDDING TERMS: Two separate contract unit price items have been established for the removal of each building. They are:

1. BUILDING REMOVAL NO. _____

2. REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. _____

ASBESTOS ABATEMENT (GENERAL CONDITIONS): This work consists of the removal and disposal of friable asbestos from the building(s) to be demolished. All work shall be done according to the requirements of the U.S. Environmental Protection Agency (USEPA), the Illinois Environmental Protection Agency (IEPA), the Occupational Safety and Health Administration (OSHA), the Special Provision for "Removal and Disposal of Friable Asbestos, Building No. _____" and as outlined herein.

Sketches indicating the location of Asbestos Containing Material (ACM) are included in the proposal on pages _____ thru _____. Also refer to the Materials Description Table on page _____ for a brief description and location of the various materials. Also included is a Materials Quantities Table on page _____. This table states the ACM is friable and gives the approximate quantity. The quantities are given only for information and it shall be the Contractor's responsibility to determine the exact quantities prior to submitting his/her bid.

The work involved in the removal and disposal of friable asbestos shall be performed by a Contractor or Sub-Contractor prequalified with the Illinois Capital Development Board.

The Contractor shall provide a shipping manifest, similar to the one shown on page _____, to the Engineer for the disposal of all ACM wastes.

Permits: The Contractor shall apply for permit(s) in compliance with applicable regulations of the Illinois Environmental Protection Agency. Any and all other permits required by other federal, state, or local agencies for carrying on the work shall be the responsibility of the Contractor. Copies of these permits shall be sent to the district office and the Engineer.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least ten days prior to commencement of any asbestos removal or demolition activity. Separate notices shall be sent for the asbestos removal work and the building demolition.

Asbestos Demolition/Renovation Coordinator
Illinois Environmental Protection Agency
Division of Air Pollution Control
P. O. Box 19276
Springfield, Illinois 62794-9276

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.

B. Submittals that shall be made prior to start of work:

1. Submittals required under Asbestos Abatement Experience.

2. Submit documentation indicating that all employees have had medical examinations and instruction on the hazards of asbestos exposure, on use and fitting of respirators, on protective dress, on use of showers, on entry and exit from work areas, and on all aspects of work procedures and protective measures as specified in Worker Protection Procedures.

3. Submit manufacturer's certification stating that vacuums, ventilation equipment, and other equipment required to contain airborne fibers conform to ANSI 29.2.

4. Submit to the Engineer the brand name, manufacturer, and specification of all sealants or surfactants to be used. Testing under existing conditions will be required at the direction of the Engineer.

5. Submit proof that all required permits, site locations, and arrangements for transport and disposal of asbestos-containing or asbestos-contaminated materials, supplies, and the like have been obtained (i.e., a letter of authorization to utilize designated landfill).

6. Submit a list of penalties, including liquidated damages, incurred through non-compliance with asbestos abatement project specifications.

7. Submit a detailed plan of the procedures proposed for use in complying with the requirements of this specification. Include in the plan the location and layout of decontamination units, the sequencing of work, the respiratory protection plan to be

used during this work, a site safety plan, a disposal plan including the location of an approved disposal site, and a detailed description of the methods to be used to control pollution. The plan shall be submitted to the Engineer prior to the start of work.

8. Submit proof of written notification and compliance with the “Notifications” paragraph.

C. Submittals that shall be made upon completion of abatement work:

1. Submit copies of all waste chain-of-custodies, trip tickets, and disposal receipts for all asbestos waste materials removed from the work area;

2. Submit daily copies of work site entry logbooks with information on worker and visitor access;

3. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls; and

4. Submit results of any bulk material analysis and air sampling data collected during the course of the abatement including results of any on-site testing by any federal, state, or local agency.

Certificate of Insurance:

A. The Contractor shall document general liability insurance for personal injury, occupational disease and sickness or death, and property damage.

B. The Contractor shall document current Workmen's Compensation Insurance coverage.

C. The Contractor shall supply insurance certificates as specified by the Department.

Asbestos Abatement Experience:

A. Company Experience: Prior to starting work, the Contractor shall supply evidence that he/she has been prequalified with the Illinois Capital Development Board and that he/she has been included on the Illinois Department of Public Health's list of approved Contractors.

B. Personnel Experience:

1. For Superintendent, the Contractor shall supply:

a. Evidence of knowledge of applicable regulations in safety and environmental protection is required as well as training in asbestos abatement as evidenced by the successful completion of a training course in supervision of asbestos abatement as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model

Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to the Engineer prior to the start of work.

b. Documentation of experience with abatement work in a supervisory position as evidenced through supervising at least two asbestos abatement projects; provide names, contact, phone number, and locations of two projects in which the individual(s) has worked in a supervisory capacity.

2. For workers involved in the removal of asbestos, the Contractor shall provide training as evidenced by the participation and successful completion of an accredited training course for asbestos abatement workers as specified in 40 CFR 763, Subpart E, Appendix C, EPA Model Contractor Accreditation Plan. A copy of the certificate of successful completion shall be provided to all employees who will be working on this project.

ABATEMENT AIR MONITORING: The Contractor shall comply with the following:

A. Personal Monitoring: All personal monitoring shall be conducted per specifications listed in OSHA regulation, Title 29, Code of Federal Regulation 1926.58. All area sampling shall be conducted according to 40 CFR Part 763.90. All air monitoring equipment shall be calibrated and maintained in proper operating condition. Excursion limits will be monitored daily. Personal monitoring is the responsibility of the Contractor. Additional personal samples may be required by the Engineer at any time during the project.

B. Contained Work Areas for Removal of Friable Asbestos: Area samples shall be collected for the department within the work area daily. A minimum of one sample shall be taken outside of the abatement area removal operations. The Engineer will also have the option to require additional personal samples and/or clearance samples during this type of work.

C. Air Monitoring Professional

1. All air sampling will be conducted by a qualified Air Sampling Professional supplied by the Contractor. The Air Sampling Professional shall submit documentation of successful completion of the National Institute for Occupational Safety and Health (NIOSH) course #582 - "Sampling and Evaluating Airborne Asbestos Dust".

2. Air sampling will be conducted according to NIOSH Method 7400. The results of these tests shall be provided to the Engineer within 24 hours of the collection of air samples.

<u>REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. _____</u> : This work consists of the removal and disposal of all friable asbestos from the building(s) prior to demolition. The work shall be done according to the Special Provision titled “Asbestos Abatement (General Conditions)” and as outlined herein.

This work will be paid for at the contract unit price per lump sum for REMOVAL AND DISPOSAL OF FRIABLE ASBESTOS, BUILDING NO. _____, as shown.

5049I

All Regional Engineers

Charles J. Ingersoll

Special Provision for Building Removal - Case IV (No Asbestos)

January 8, 2010

This special provision has been revised to make a minor clarification. It should be included on contracts involving building removal with no asbestos abatement whatsoever.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 23, 2010 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2010.

5053im

**BUILDING REMOVAL - CASE IV (NO ASBESTOS) (BDE)**

Effective: September 1, 1990
Revised: April 1, 2010

BUILDING REMOVAL: This work shall consist of the removal and disposal of _____ building(s), together with all foundations, retaining walls, and piers, down to a plane 1 ft (300 mm) below the ultimate or existing grade in the area and also all incidental and collateral work necessary to complete the removal of the building(s) in a manner approved by the Engineer. Any holes, such as basements, shall be filled with a suitable granular material. The building(s) are identified as follows:

| Bldg. No. | Parcel No. | Location | Description |
|---|---|---|---|

Discontinuance of Utilities: The Contractor shall arrange for the discontinuance of all utility services and the removal of the metering devices that serve the building(s) according to the respective requirements and regulations of the City, County, or utility companies involved. The Contractor shall disconnect and seal, in an approved manner, all service outlets that serve any building(s) he/she is to remove.

Signs: Immediately upon execution of the contract and prior to the wrecking of any structures, the Contractor shall be required to paint or stencil, in contrasting colors of an oil base paint, on all four sides of each residence and two opposite sides of other structures, the following sign:

PROPERTY ACQUIRED FOR
HIGHWAY CONSTRUCTION
TO BE DEMOLISHED BY THE

VANDALS WILL BE PROSECUTED

The signs shall be positioned in a prominent location on the structure so that they can be easily seen and read and at a sufficient height to prevent defacing. The Contractor shall not paint signs nor start demolition of any building(s) prior to the time that the State becomes the owner of the respective building(s).

Basis of Payment: This work will be paid for at the contract lump sum unit price for BUILDING REMOVAL, numbers as listed above, which price shall be payment in full for complete removal of the buildings and structures, including any necessary backfilling material as specified herein.

The lump sum unit price(s) for this work shall represent the cost of demolition. Any salvage value shall be reflected in the contract unit price for this item.

Notifications: The "Demolition/Renovation Notice" form, which can be obtained from the IEPA office, shall be completed and submitted to the address listed below at least ten days prior to commencement of any demolition activity.

Asbestos Demolition/Renovation Coordinator
Illinois Environmental Protection Agency
Division of Air Pollution Control
P. O. Box 19276
Springfield, Illinois 62794-9276
(217)785-1743

Notices shall be updated if there is a change in the starting date or the amount of asbestos changes by more than 20 percent.

Submittals:

A. All submittals and notices shall be made to the Engineer except where otherwise specified herein.

B. Prior to starting work, the Contractor shall submit proof of written notification and compliance with the “Notifications” paragraph.

5053I

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Disadvantaged Business Enterprise Participation |
| Date: | July 22, 2016 |

This special provision was developed by the Bureau of Small Business Enterprises. It has been revised to clarify the receipt of the Utilization Plan and to correct typos.

This special provision should be inserted in contracts with DBE goals.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 4, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory July 22, 2016.

80029m

**DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)**

Effective: September 1, 2000
Revised: July 2, 2016

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

> The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
>
> (a) Withholding progress payments;
>
> (b) Assessing sanctions;
>
> (c) Liquidated damages; and/or
>
> (d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a

good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform _____% of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

(a) The bidder documents that enough DBE participation has been obtained to meet the goal or,

(b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:
http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index.

BIDDING PROCEDURES. Compliance with this Special Provision is required prior to the award of the contract and the failure of the low bidder to comply will render the bid not responsive.

In order to assure the timely award of the contract, the low bidder shall submit:

(a) The bidder shall submit a DBE Utilization Plan on completed Department forms SBE 2025 and 2026.

(1) The final Utilization Plan must be submitted within five calendar days after the date of the letting in accordance with subsection (a)(2) of Bidding Procedures herein.

(2) To meet the five day requirement, the bidder may send the Utilization Plan electronically by scanning and sending to **DOT.DBE.UP@illinois.gov** or faxing to (217) 785-1524. The subject line must include the bid Item Number and the Letting date. The Utilization Plan should be sent as one .pdf file, rather than multiple files and emails for the same Item Number. It is the responsibility of the bidder to obtain confirmation of email or fax delivery.

Alternatively, the Utilization Plan may be sent by certified mail or delivery service within the five calendar day period. If a question arises concerning the mailing date of a Utilization Plan, the mailing date will be established by the U.S. Postal Service postmark on the certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service when the Utilization Plan is received by the Department. It is the responsibility of the bidder to ensure the postmark or receipt date is affixed within the five days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Utilization Plan is to be submitted to:

Illinois Department of Transportation
Bureau of Small Business Enterprises
Contract Compliance Section
2300 South Dirksen Parkway, Room 319
Springfield, Illinois 62764

The Department will not accept a Utilization Plan if it does not meet the five day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Utilization Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration.

(b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of Utilization Plan approval or disapproval under the procedures of this Special Provision.

(c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and scanned or faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:

(1) The names and addresses of DBE firms that will participate in the contract;

(2) A description, including pay item numbers, of the work each DBE will perform;

(3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

(4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;

(5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the Utilization Plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,

(6) If the contract goal is not met, evidence of good faith efforts; the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract.

<u>GOOD FAITH EFFORT PROCEDURES</u>. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

(a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors

are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.

(1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.

b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with subsection (c)(6) of the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

(5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

(6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.

(b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period in order to cure the deficiency.

(c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217) 785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for consideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration

Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

(a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.

(b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.

(c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.

(d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:

(1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

(2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

(1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.

(2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.

(3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

(a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.

(b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.

(c) SUBCONTRACT. The Contractor must provide DBE subcontracts to IDOT upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.

(d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

(1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or

(2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or

(3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor,

with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

(1) The listed DBE subcontractor fails or refuses to execute a written contract;

(2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;

(3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;

(4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.

(6) You have determined that the listed DBE subcontractor is not a responsible contractor;

(7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice of its withdrawal;

(8) The listed DBE is ineligible to receive DBE credit for the type of work required;

(9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;

(10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated, or fails to complete its work on the Contract for any reason the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department shall provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

(f) PAYMENT RECORDS. The Contractor shall maintain a record of payments for work performed to the DBE participants. The records shall be made available to the Department for inspection upon request. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.

(g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.

(h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor my request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of “Good Faith Effort Procedures” of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Material Transfer Device |
| Date: | April 18, 2014 |

This special provision was developed by the Bureau of Materials and Physical Research. It has been revised to increase the roadway contact pressure in which the use of a Material Transfer Device (MTD) is allowed for partially completed segments of full-depth HMA pavement where the thickness of in place pavement is less than 10 in.

This special provision shall be inserted into interstate hot-mix asphalt (HMA) paving and full depth HMA contracts. For full depth HMA contracts the MTD shall be used for constructing all lifts of pavement. It should be inserted in other HMA paving contracts at the district's discretion.

The special provision contains three fill in the blank areas, which must be determined by the district and are considered project specific requirements. The following guidelines should be considered:

(1) Type of materials to be placed with the MTD (to be determined by the district). Example wording: This work shall consist of placing HMA binder and surface course mixtures according to Section 406 of the Standard Specifications, except that these materials shall be placed using a material transfer device.

(2) Location where the MTD will be used on the project (to be determined by the district). Example wording: The material transfer device shall be used for the placement of all HMA binder and surface course mixtures placed with a paver including ramps but excluding shoulders.

(3) Based on (1) above, the designer must restate, which materials are placed with the MTD (to be determined by the district). If square yard pay items are placed with the MTD, conversion factors must be shown on the plans. Example wording: This work will be measured for payment in tons (metric tons) for all HMA binder and surface course materials placed with a material transfer device.

The operation or transportation of heavy equipment on pavement or structures within contract limits is governed by Article 107.16 of the Standard Specifications and implemented through Construction Memorandum No. 39. Additionally, this special provision contains specific restrictions regarding travel

information to the Bureau of Bridges and Structures identifying the structures that will be crossed by the MTD. The Bureau of Bridges and Structures will analyze the structures to verify that they have the capacity to safely carry an emptied MTD and will provide the designer with recommendations. The recommendations provided by the Bureau of Bridges and Structures will identify any structure, which due to general deterioration or insufficient load carrying capacity, cannot be crossed by an emptied MTD. The plans shall include notice to the contractor of special requirements and restrictions for structures that cannot be crossed by an emptied MTD. The notice shall indicate to the contractor that the emptied MTD must be transported over the identified structures on a transport vehicle and that information describing axle loads and axle spacing of the transport vehicle must be provided to the Engineer for review by the Bureau of Bridges and Structures.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2014 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 18, 2014.

80045m

**MATERIAL TRANSFER DEVICE (BDE)**

Effective: June 15, 1999
Revised: August 1, 2014

Description. This work shall consist of placing _____(1)_____, except that these materials shall be placed using a material transfer device (MTD).

Materials and Equipment. The MTD shall have a minimum surge capacity of 15 tons (13.5 metric tons), shall be self-propelled and capable of moving independent of the paver, and shall be equipped with the following:

(a) Front-Dump Hopper and Conveyor. The conveyor shall provide a positive restraint along the sides of the conveyor to prevent material spillage. MTDs having paver style hoppers shall have a horizontal bar restraint placed across the foldable wings which prevents the wings from being folded.

(b) Paver Hopper Insert. The paver hopper insert shall have a minimum capacity of 14 tons (12.7 metric tons).

(c) Mixer/Agitator Mechanism. This re-mixing mechanism shall consist of a segmented, anti-segregation, re-mixing auger or two full-length longitudinal paddle mixers designed for the purpose of re-mixing the hot-mix asphalt (HMA). The longitudinal paddle mixers shall be located in the paver hopper insert.

CONSTRUCTION REQUIREMENTS

General. The MTD shall be used for the placement of _____(2)_____ _____. The MTD speed shall be adjusted to the speed of the paver to maintain a continuous, non-stop paving operation.

Use of a MTD with a roadway contact pressure exceeding 25 psi (172 kPa) will be limited to partially completed segments of full-depth HMA pavement where the thickness of binder in place is 10 in. (250 mm) or greater.

Structures. The MTD may be allowed to travel over structures under the following conditions:

(a) Approval will be given by the Engineer.

(b) The vehicle shall be emptied of HMA material prior to crossing the structure and shall travel at crawl speed across the structure.

(c) The tires of the vehicle shall travel on or in close proximity and parallel to the beam and/or girder lines of the structure.

Method of Measurement. This work will be measured for payment in tons (metric tons) for _____ _____(3)_____ materials placed with a material transfer device.

Basis of Payment. This work will be paid for at the contract unit price per ton (metric ton) for MATERIAL TRANSFER DEVICE.

The various HMA mixtures placed with the MTD will be paid for as specified in their respective specifications. The Contractor may choose to use the MTD for other applications on this project; however, no additional compensation will be allowed.

80045

All District Engineers, Walter S. Kos & Miguel d'Escoto

Michael L. Hine

Special Provision for Working Days

January 11, 2002

This special provision was developed by the Bureau of Design & Environment as a result of changes to the letting proposal.

It should be inserted into all working day contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 26, 2002 and subsequent lettings. The Project Development and Implementation Section will include the paper copy in the contract.

This special provision will be transferred through the E-mail System to the district offices on January 11, 2002.

80071m

**WORKING DAYS (BDE)**

Effective: January 1, 2002

The Contractor shall complete the work within working days.

80071

All Regional Engineers

John D. Baranzelli

Special Provision for Accessible Pedestrian Signals (APS)

September 27, 2013

This special provision was developed by the Bureau of Operations and the Bureau of Design and Environment to provide statewide requirements for accessible pedestrian signals (APS). It has been revised to fit with the 2012 Standard Specifications, to agree with the Bureau of Operations Policy on Pedestrian Pushbutton Locations and Accessible Pedestrian Signals, and to incorporate new accessibility requirements.

This special provision should be inserted into all contracts using APS.

The installation of APS at signalized intersections should be based on the Bureau of Operations Policy on Pedestrian Pushbutton Locations and Accessible Pedestrian Signals.

Designer Note: Pedestrian pushbutton posts and pedestrian signal heads are not part of this work. If they are needed, use the appropriate pay items as per Sections 876 and 881 of the Standard Specifications.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2014 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 27, 2013.

80099m

**ACCESSIBLE PEDESTRIAN SIGNALS (APS) (BDE)**

Effective: April 1, 2003
Revised: January 1, 2014

Description. This work shall consist of furnishing and installing accessible pedestrian signals (APS). Each APS shall consist of an interactive vibrotactile pedestrian pushbutton with speaker, an informational sign, a light emitting diode (LED) indicator light, a solid state electronic control board, a power supply, wiring, and mounting hardware. The APS shall meet the requirements of the MUTCD and Sections 801 and 888 of the Standard Specifications, except as modified herein.

Electrical Requirements. The APS shall operate with systems providing 95 to 130 VAC, 60 Hz and throughout an ambient air temperature range of -29 to +160 °F (-34 to +70 °C).

The APS shall contain a power protection circuit consisting of both fuse and transient protection.

Audible Indications. A pushbutton locator tone shall sound at each pushbutton.

If two accessible pedestrian pushbuttons are placed less than 10 ft (3 m) apart or placed on the same pole, the audible walk indication shall be a speech walk message.

A clear, verbal message shall be used to communicate the pedestrian walk interval. This message shall sound throughout the WALK interval only. The verbal message shall be modeled after: "'Street Name.' Walk Sign is on to cross "Street Name'." No other messages shall be used to denote the WALK interval.

Where two accessible pedestrian pushbuttons are separated by at least 10 ft (3 m), the walk indication shall be an audible percussive tone. It shall repeat at 8 to 10 ticks per second with a dominant frequency of 880 Hz.

Automatic volume adjustments in response to ambient traffic sound level shall be provided up to a maximum volume of 100 dBA. Locator tone and verbal messages shall be no more than 5 dB louder than ambient sound.

Pedestrian Pushbutton. Pedestrian pushbuttons shall be at least 2 in. (50 mm) in diameter or width. The force required to activate the pushbutton shall be no greater than 3.5 lb (15.5 N).

A red LED shall be located on or near the pushbutton which, when activated, acknowledges the pedestrians request to cross the street.

Signage. A sign shall be located immediately above the pedestrian pushbutton and parallel to the crosswalk controlled by the pushbutton. The sign shall be one of the following standard MUTCD designs:

R10-3

R10-3a

R10-4

R10-4a

Tactile Arrow. A tactile arrow, pointing in the direction of travel controlled by a pushbutton, shall be provided either on the pushbutton or its sign.

Vibrotactile Feature. The pushbutton shall pulse when depressed and shall vibrate continuously throughout the WALK interval.

Method of Measurement. This work will be measured for payment as each, per pushbutton.

Basis of Payment. This work will be paid for at the contract unit price per each for ACCESSIBLE PEDESTRIAN SIGNALS.

80099

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Steel Cost Adjustment |
| Date: | April 17, 2015 |

This special provision was developed by the Bureau of Design and Environment to account for the industry wide escalation in the cost of steel. It has been revised to clarify this adjustment also applies to extra work when paid for by agreed unit prices and to define the beginning steel cost index for such extra work.

It should be included in all projects involving steel metal piling (excluding temporary sheet piling), structural steel, and reinforcing steel. It should also be included for other materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), and frames and grates that may be subject to a steel cost adjustment when the pay item they are used in has a contract value of $10,000 or greater.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 31, 2015 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 17, 2015.

80127m

**STEEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)**

Effective: April 2, 2004
Revised: July 1, 2015

Description. Steel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in steel prices when optioned by the Contractor. The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form or failure to indicate contract number, company name, and sign and date the form shall make this contract exempt of steel cost adjustments for all items of steel. Failure to indicate "Yes" for any item of work will make that item of steel exempt from steel cost adjustment.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

Metal Piling (excluding temporary sheet piling)
Structural Steel
Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), and frames and grates will be subject to a steel cost adjustment when the pay items they are used in have a contract value of $10,000 or greater.

The adjustments shall apply to the above items when they are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply when the item is added as extra work and paid for at a lump sum price or by force account.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

(a) The dates and quantity of steel, in lb (kg), shipped from the mill to the fabricator.

(b) The quantity of steel, in lb (kg), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

SCA = Q X D

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in lb (kg)
D = price factor, in dollars per lb (kg)

$D = MPI_M - MPI_L$

Where: $MPI_M$ = The Materials Cost Index for steel as published by the Engineering News-Record for the month the steel is shipped from the mill. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

$MPI_L$ = The Materials Cost Index for steel as published by the Engineering News-Record for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price,. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

The unit weights (masses) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the $MPI_M$ will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

<u>Basis of Payment</u>. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the $MPI_L$ and $MPI_M$ in excess of five percent, as calculated by:

Percent Difference = $\{(MPI_L - MPI_M) \div MPI_L\} \times 100$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

**Attachment**

| Item | Unit Mass (Weight) |
|---|---|
| Metal Piling (excluding temporary sheet piling) | |
| Furnishing Metal Pile Shells 12 in. (305 mm), 0.179 in. (3.80 mm) wall thickness) | 23 lb/ft (34 kg/m) |
| Furnishing Metal Pile Shells 12 in. (305 mm), 0.250 in. (6.35 mm) wall thickness) | 32 lb/ft (48 kg/m) |
| Furnishing Metal Pile Shells 14 in. (356 mm), 0.250 in. (6.35 mm) wall thickness) | 37 lb/ft (55 kg/m) |
| Other piling | See plans |
| Structural Steel | See plans for weights (masses) |
| Reinforcing Steel | See plans for weights (masses) |
| Dowel Bars and Tie Bars | 6 lb (3 kg) each |
| Mesh Reinforcement | 63 lb/100 sq ft (310 kg/sq m) |
| Guardrail | |
| Steel Plate Beam Guardrail, Type A w/steel posts | 20 lb/ft (30 kg/m) |
| Steel Plate Beam Guardrail, Type B w/steel posts | 30 lb/ft (45 kg/m) |
| Steel Plate Beam Guardrail, Types A and B w/wood posts | 8 lb/ft (12 kg/m) |
| Steel Plate Beam Guardrail, Type 2 | 305 lb (140 kg) each |
| Steel Plate Beam Guardrail, Type 6 | 1260 lb (570 kg) each |
| Traffic Barrier Terminal, Type 1 Special (Tangent) | 730 lb (330 kg) each |
| Traffic Barrier Terminal, Type 1 Special (Flared) | 410 lb (185 kg) each |
| Steel Traffic Signal and Light Poles, Towers and Mast Arms | |
| Traffic Signal Post | 11 lb/ft (16 kg/m) |
| Light Pole, Tenon Mount and Twin Mount, 30 - 40 ft (9 – 12 m) | 14 lb/ft (21 kg/m) |
| Light Pole, Tenon Mount and Twin Mount, 45 - 55 ft (13.5 – 16.5 m) | 21 lb/ft (31 kg/m) |
| Light Pole w/Mast Arm, 30 - 50 ft (9 – 15.2 m ) | 13 lb/ft (19 kg/m) |
| Light Pole w/Mast Arm, 55 - 60 ft (16.5 – 18 m) | 19 lb/ft (28 kg/m) |
| Light Tower w/Luminaire Mount, 80 - 110 ft (24 – 33.5 m) | 31 lb/ft (46 kg/m) |
| Light Tower w/Luminaire Mount, 120 - 140 ft (36.5 – 42.5 m) | 65 lb/ft (97 kg/m) |
| Light Tower w/Luminaire Mount, 150 - 160 ft (45.5 – 48.5 m) | 80 lb/ft (119 kg/m) |
| Metal Railings (excluding wire fence) | |
| Steel Railing, Type SM | 64 lb/ft (95 kg/m) |
| Steel Railing, Type S-1 | 39 lb/ft (58 kg/m) |
| Steel Railing, Type T-1 | 53 lb/ft (79 kg/m) |
| Steel Bridge Rail | 52 lb/ft (77 kg/m) |
| Frames and Grates | |
| Frame | 250 lb (115 kg) |
| Lids and Grates | 150 lb (70 kg) |

Return With Bid

**ILLINOIS DEPARTMENT OF TRANSPORTATION**

**OPTION FOR STEEL COST ADJUSTMENT**

The bidder shall submit this completed form with his/her bid. Failure to submit the form or properly complete contract number, company name, and sign and date the form shall make this contract exempt of steel cost adjustments for all items of steel. Failure to indicate "Yes" for any item of work will make that item of steel exempt from steel cost adjustment. After award, this form, when submitted shall become part of the contract.

**Contract No.:** _____

**Company Name:**_____

**Contractor's Option:**

Is your company opting to include this special provision as part of the contract plans for the following items of work?

| | | |
|---|---|---|
| Metal Piling | Yes | ☐ |
| Structural Steel | Yes | ☐ |
| Reinforcing Steel | Yes | ☐ |
| Dowel Bars, Tie Bars and Mesh Reinforcement | Yes | ☐ |
| Guardrail | Yes | ☐ |
| Steel Traffic Signal and Light Poles, Towers and Mast Arms | Yes | ☐ |
| Metal Railings (excluding wire fence) | Yes | ☐ |
| Frames and Grates | Yes | ☐ |

**Signature:** _____ **Date:** _____

80127

All Regional Engineers

Charles J. Ingersoll

Special Provision for Railroad Protective Liability Insurance (5 and 10)

September 30, 2005

This special provision was developed by the Bureau of Construction, in cooperation with the FHWA, to increase the limits of railroad protective liability insurance per the railroads' requirements. The following list of Class 1 railroads in which this special provision should be inserted into has been revised.

This special provision is only for use in contracts involving the following Class 1 railroads:

The Belt Railway Company of Chicago
The Burlington Northern & Santa Fe Railway Company
Chicago, Central & Pacific Railroad Company and Its Parents
Canadian National
Canadian Pacific Railway/Soo Line
CSX Transportation, Inc.
Dakota, Minnesota, and Eastern Railroad
Elgin, Joliet and Eastern Railway Company and Its Parents
Grand Trunk Western Railroad Inc. and Its Parents
Illinois Central Railway Co. and Its Parents
Indiana Harbor Belt Railroad Company
Kansas City Southern Railway Company/Gateway Western
Metra *
Norfolk Southern Railway Company
Soo Line
Union Pacific Railroad Company
Wisconsin Central Ltd. and Its Parents
Wisconsin Central Chicago Link Ltd.

* When the Metra is the Class 1 railroad, they shall be listed in the special provision as follows:

> "The Commuter Rail Division of the Regional Transportation Authority, a division of an Illinois municipal corporation, and its affiliated separate public corporation known as the Northeast Illinois Regional Commuter Railroad Corporation, both operating under the service mark Metra, as now exists or may hereafter be constituted or acquired, and the Regional Transportation Authority, an Illinois municipal corporation."

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 20, 2006 and subsequent lettings. The

Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 30, 2005.

80157m

**RAILROAD PROTECTIVE LIABILITY INSURANCE (5 and 10) (BDE)**

Effective: January 1, 2006

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications, except the limits shall be a minimum of $5,000,000 combined single limit per occurrence for bodily injury liability and property damage liability with an aggregate limit of $10,000,000 over the life of the policy. A separate policy is required for each railroad unless otherwise noted.

| NAMED INSURED & ADDRESS | NUMBER & SPEED OF PASSENGER TRAINS | NUMBER & SPEED OF FREIGHT TRAINS |
|---|---|---|

DOT/AAR No.: RR Mile Post:
RR Division: RR Sub-Division:

For Freight/Passenger Information Contact: Phone:
For Insurance Information Contact: Phone:

DOT/AAR No.: RR Mile Post:
RR Division: RR Sub-Division:

For Freight/Passenger Information Contact: Phone:
For Insurance Information Contact: Phone:

Approval of Insurance. The original and one certified copy of each required policy shall be submitted to the following address for approval:

Illinois Department of Transportation
Bureau of Design and Environment
2300 South Dirksen Parkway, Room 326
Springfield, Illinois 62764

The Contractor will be advised when the Department has received approval of the insurance from the railroad(s). Before any work begins on railroad right-of-way, the Contractor shall submit to the Engineer evidence that the required insurance has been approved by the railroad(s). The Contractor shall also provide the Engineer with the expiration date of each required policy.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

80157

All Regional Engineers

Charles J. Ingersoll

Special Provision for Moisture Cured Urethane Paint System

September 25, 2009

This special provision was developed by the Bureau of Materials and Physical Research. It has been revised to comply with recent changes set forth by the Illinois Environmental Protection Agency.

It should be inserted into projects requiring a moisture cured urethane paint system.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 15, 2010 letting and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 25, 2009.

80165m

**MOISTURE CURED URETHANE PAINT SYSTEM (BDE)**

Effective: November 1, 2006
Revised: January 1, 2010

Add the following to Section 1008 of the Standard Specifications:

"**1008.06 Moisture Cured Urethane Paint System.** The moisture cured urethane paint system shall consist of an aromatic moisture cured urethane primer, an aromatic moisture cured urethane intermediate coat, and aliphatic moisture cured urethane finish coats. It is intended for field painting blast-cleaned existing structures.

(a) General Requirements.

(1) Compatibility. Each coating in the system shall be supplied by the same paint manufacturer.

(2) Toxicity. Each coating shall contain less than 0.01 percent lead in the dry film and no more than trace amounts of hexavalent chromium, cadmium, mercury or other toxic heavy metals.

(3) Volatile Organics. The volatile organic compounds of each coating shall not exceed 2.8 lb/gal (340 g/L) as applied.

(b) Test Panel Preparation.

(1) Substrate and Surface Preparation. Test panels shall be ASTM A 36, hot-rolled steel measuring 4 x 6 in. (100 x 150 mm). Panels shall be blast-cleaned per SSPC–SP5 white metal condition using recyclable metallic abrasive according to SSPC AB-3. The abrasive shall be a 60/40 mix of shot and grit. The shot shall be an SAE shot number S230 and the grit an SAE number G40. Hardness of the shot and grit shall be Rockwell C45. The anchor profile shall be 1.5-2.5 mils (40-65 microns) measured according to ASTM D 4417, Method C.

(2) Application and Curing. All coatings shall be spray applied at the manufacturer's recommended film thickness. The coated panels shall be cured at least 30 days and not more than 45 days at 77 °F ± 2 °F (25 °C ± 2 °C) and 65 ± 5 percent relative humidity.

(3) Scribing. The test panels shall be scribed according to ASTM D 1654 with a single "X" mark centered on the panel. The rectangular dimensions of the scribe shall have a top width of 2 in. (50 mm) and a height of 4 in. (100 mm). The scribe cut shall expose the steel substrate as verified with a microscope.

(4) Number of Panels. All testing shall be performed on triplicate panels.

(c) Zinc-Rich Primer Requirements.

(1) Generic Type. This material shall be a single component zinc-rich aromatic moisture cured urethane primer. It shall be suitable for topcoating with urethanes.

(2) Zinc Dust. The zinc dust pigment shall be according to ASTM D 520, Type II.

(3) Slip Coefficient. The organic zinc coating shall meet a Class B AASHTO slip coefficient (0.50 or greater) for structural steel joints using ASTM A 325 (A 325M) or A 490 (A 490M) bolts.

(4) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 900 psi (6.2 MPa) when tested according to ASTM D 4541 Annex A4.

(d) Intermediate Coat Requirements.

(1) Generic Type. This material shall be a single component aromatic moisture cured urethane. It shall be suitable as an intermediate coat over the primer and compatible with the finish coat.

(2) Color. The color of the intermediate coat shall provide a distinct contrast between the primer and the finish coat.

(e) Urethane Finish Coat Requirements.

(1) Generic Type. This material shall be a single component aliphatic moisture cured urethane. It shall be suitable as a topcoat over the intermediate coat.

(2) Color and Hiding Power. The finish coat shall match Munsell Glossy Color 7.5G 4/8 Interstate Green, 2.5YR 3/4 Reddish Brown, 10B 3/6 Blue, or 5B 7/1 Gray. The color difference shall not exceed 3.0 Hunter Delta E Units. Color difference shall be measured by instrumental comparison of the designated Munsell standard to a minimum dry film thickness of 3 mils (75 microns) of sample coating produced on a test panel according to ASTM D 823, Practice E, Hand–Held, Blade Film Application. Color measurements shall be determined on a spectrophotometer with 45 degrees circumferential/zero degrees geometry, illuminant C, and two degrees observer angle. The spectrophotometer shall measure the visible spectrum from 380-720 nanometers with a wavelength interval and spectral bandpass of 10 nanometers.

The contrast ratio of the finish coat at 3 mils (75 microns) dry film thickness shall not be less than 0.99 when tested according to ASTM D 2805.

(3) Accelerated Weathering Resistance. Test panels shall be aluminum alloy measuring 12 x 4 in. (300 x 100 mm) prepared according to ASTM D 1730 Type A, Method 1 Solvent Cleaning. A minimum dry film thickness of 3 mils (75 microns) of finish coat shall be applied to three test panels according to ASTM D 823, Practice E, Hand Held Blade Film Application. The coated panels shall be cured at least 30 days and

not more than 45 days at 77 °F ± 2 °F (25 °C ± 2 °C) and 65 ± 5 percent relative humidity. The panels shall be subjected to 300 hours of accelerated weathering using the light and water exposure apparatus (fluorescent UV - condensation type) as specified in ASTM G 53-96 and ASTM G 154 (equipped with UVB-313 lamps). The cycle shall consist of eight hours UV exposure at 140 °F (60 °C) followed by four hours of condensation at 104 °F (40 °C). After exposure, the panel shall be rinsed with clean water and allowed to dry at room temperature for one hour. The exposed panels shall not show a color change of more than 3 Hunter Delta E Units.

(f) Three Coat System Requirements.

(1) Finish Coat Color. For testing purposes, the color of the finish coat shall match Federal Standard No 595, color chip 14062 (green).

(2) Salt Fog. When tested according to ASTM B 117 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,000 hours of salt fog exposure.

| Salt Fog Acceptance Criteria (max.) | | |
|---|---|---|
| Blister Conversion Value | Rust Criteria | |
| After 4000 Hours | Maximum Creep | Average Creep |
| 10 | 6 mm | 2 mm |

(3) Cyclic Exposure. When tested according to ASTM D 5894 and evaluated according to AASHTO R 31, the paint system shall exhibit no spontaneous delamination and not exceed the following acceptance levels after 5,040 hours of cyclic exposure.

| Cyclic Exposure Acceptance Criteria (max.) | | |
|---|---|---|
| Blister Conversion Value | Rust Criteria | |
| | Maximum Creep | Average Creep |
| 10 | 13 mm | 7 mm |

(4) Adhesion. The adhesion to an abrasively blasted steel substrate shall not be less than 900 psi (6.2 MPa) when tested according to ASTM D 4541 Annex A4.

(5) Freeze Thaw Stability. There shall be no reduction of adhesion, which exceeds the test precision, after 30 days of freeze/thaw/immersion testing. One 24 hour cycle shall consist of 16 hours of approximately -22 °F (-30 °C) followed by four hours of thawing at 122 °F (50 °C) and four hours tap water immersion at 77 °F (25 °C). The test panels shall remain in the freezer mode on weekends and holidays.

(g) Qualification Samples and Tests. The manufacturer shall supply, to an independent test laboratory and to the Department, samples of the moisture cured zinc-rich urethane primer, moisture cured urethane intermediate coat, and moisture cured aliphatic urethane finish coats for evaluation. Prior to approval and use, the manufacturer shall submit a notarized certification of the independent laboratory, together with results of all

tests, stating that these materials meet the requirements as set forth herein. The certified test report shall state lots tested, manufacturer's name, product names, and dates of manufacture. New certified test results and samples for testing by the Department shall be submitted any time the manufacturing process or paint formulation is changed. All costs of testing, other than tests conducted by the Department, shall be borne by the manufacturer.

(h) Acceptance Samples and Certification. A 1 qt (1 L) sample of each lot of paint produced for use on state or local agency projects shall be submitted to the Department for testing, together with a manufacturer's certification. The certification shall state that the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be witnessed by a representative of the Illinois Department of Transportation. The moisture cured zinc-rich primer, moisture cured urethane intermediate coat, and moisture cured aliphatic urethane finish coat shall not be used until tests are completed and they have met the requirements as set forth herein."

80165

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Bituminous Materials Cost Adjustments |
| Date: | April 17, 2015 |

This special provision was developed by IDOT and Industry as a result of the volatility in the cost of bituminous materials. It has been revised to clarify this adjustment also applies to extra work when paid for by agreed unit prices and to define the beginning bituminous price index for such extra work.

This special provision should be included in projects with at least 1,200 tons (1,100 metric tons) of applicable bituminous work. The adjustments are applicable to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and pavement preservation type surface treatments. The adjustments are not applicable to bituminous prime coats, tack coats, crack filling/sealing, or joint filling/sealing.

This special provision should not be included in alternate pavement bid projects.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 31, 2015 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 17, 2015.

80173m

**BITUMINOUS MATERIALS COST ADJUSTMENTS (BDE) (RETURN FORM WITH BID)**

Effective: November 2, 2006
Revised: July 1, 2015

Description. Bituminous material cost adjustments will be made to provide additional compensation to the Contractor, or credit to the Department, for fluctuations in the cost of bituminous materials when optioned by the Contractor. The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments.

The adjustments shall apply to permanent and temporary hot-mix asphalt (HMA) mixtures, bituminous surface treatments (cover and seal coats), and preventative maintenance type surface treatments that are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply to bituminous prime coats, tack coats, crack filling/sealing, joint filling/sealing, or extra work paid for at a lump sum price or by force account.

Method of Adjustment. Bituminous materials cost adjustments will be computed as follows.

$CA = (BPI_P - BPI_L) \times (\%AC_V / 100) \times Q$

Where: CA = Cost Adjustment, $.

$BPI_P$ = Bituminous Price Index, as published by the Department for the month the work is performed, $/ton ($/metric ton).

$BPI_L$ = Bituminous Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, $/ton ($/metric ton).

$\%AC_V$ = Percent of virgin Asphalt Cement in the Quantity being adjusted. For HMA mixtures, the % $AC_V$ will be determined from the adjusted job mix formula. For bituminous materials applied, a performance graded or cutback asphalt will be considered to be 100% $AC_V$ and undiluted emulsified asphalt will be considered to be 65% $AC_V$.

Q = Authorized construction Quantity, tons (metric tons) (see below).

For HMA mixtures measured in square yards: Q, tons = A x D x ($G_{mb}$ x 46.8) / 2000. For HMA mixtures measured in square meters: Q, metric tons = A x D x ($G_{mb}$ x 1) / 1000. When computing adjustments for full-depth HMA pavement, separate calculations will be made for the binder and surface courses to account for their different $G_{mb}$ and % $AC_V$.

For bituminous materials measured in gallons: Q, tons = V x 8.33 lb/gal x SG / 2000
For bituminous materials measured in liters: Q, metric tons = V x 1.0 kg/L x SG / 1000

Where: A = Area of the HMA mixture, sq yd (sq m).

| | | |
|---|---|---|
| D | = | Depth of the HMA mixture, in. (mm). |
| $G_{mb}$ | = | Average bulk specific gravity of the mixture, from the approved mix design. |
| V | = | Volume of the bituminous material, gal (L). |
| SG | = | Specific Gravity of bituminous material as shown on the bill of lading. |

<u>Basis of Payment</u>. Bituminous materials cost adjustments may be positive or negative but will only be made when there is a difference between the $BPI_L$ and $BPI_P$ in excess of five percent, as calculated by:

Percent Difference = $\{(BPI_L - BPI_P) \div BPI_L\} \times 100$

Bituminous materials cost adjustments will be calculated for each calendar month in which applicable bituminous material is placed; and will be paid or deducted when all other contract requirements for the work placed during the month are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

**ILLINOIS DEPARTMENT OF TRANSPORTATION**

**OPTION FOR BITUMINOUS MATERIALS COST ADJUSTMENTS**

The bidder shall submit this completed form with his/her bid. Failure to submit the form, or failure to fill out the form completely, shall make this contract exempt of bituminous materials cost adjustments. After award, this form, when submitted, shall become part of the contract.

**Contract No.:** _____

**Company Name:**_____

**Contractor's Option:**

Is your company opting to include this special provision as part of the contract?

Yes ☐ No ☐

**Signature:** _____ **Date:** _____

80173

All Regional Engineers

Eric E. Harm

Special Provision for Automated Flagger Assistance Devices

September 28, 2007

This special provision was developed by the Bureau of Safety Engineering to provide safer working conditions for flaggers. This Special Provision allows the use of Automated Flagger Assistance Devices (AFADs) on two-lane, two-way highways, at the option of the contractor. The use of this device is allowed by the FHWA memorandum, “MUTCD - Revised Interim Approval for the use of Automated Flagger Assistance Devices in Temporary Traffic Control Zones (IA-4R)”, dated January 28, 2005.

This special provision should be used on two-lane highways where two-way traffic will be maintained over one lane of pavement. For example: rural milling and/or resurfacing projects, bridge maintenance projects, haul road crossings, pavement patching, or other similar projects with slow moving or stationary operations where the use of a flagger is required. AFADs should not be used on urban projects with numerous intersections where additional flaggers are required to control traffic.

Any questions regarding the use of AFADs should be directed to the Bureau of Safety Engineering.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 18, 2008, and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 28, 2007.

80192m

**AUTOMATED FLAGGER ASSISTANCE DEVICES (BDE)**

Effective: January 1, 2008

Description. This work shall consist of furnishing and operating automated flagger assistance devices (AFADs) as part of the work zone traffic control and protection for two-lane highways where two-way traffic is maintained over one lane of pavement. Use of these devices shall be at the option of the Contractor.

Equipment. AFADs shall be according to the FHWA memorandum, "MUTCD - Revised Interim Approval for the use of Automated Flagger Assistance Devices in Temporary Traffic Control Zones (IA-4R)", dated January 28, 2005. The devices shall be mounted on a trailer or a moveable cart and shall meet the requirements of NCHRP 350, Category 4.

The AFAD shall be the Stop/Slow type. This device uses remotely controlled "STOP" and "SLOW" signs to alternately control right-of-way.

Signs for the AFAD shall be according to Article 701.03 of the Standard Specifications and the MUTCD. The signs shall be 24 x 24 in. (600 x 600 mm) having an octagon shaped "STOP" sign on one side and a diamond shaped "SLOW" sign on the opposite side. The letters on the signs shall be 8 in. (200 mm) high. If the "STOP" sign has louvers, the full sign face shall be visible at a distance of 50 ft (15 m) and greater.

The signs shall be supplemented with one of the following types of lights.

(a) Flashing Lights. When flashing lights are used, white or red flashing lights shall be mounted within the "STOP" sign face and white or yellow flashing lights within the "SLOW" sign face.

(b) Stop and Warning Beacons. When beacons are used, a stop beacon shall be mounted 24 in. (600 mm) or less above the "STOP" sign face and a warning beacon mounted 24 in. (600 mm) or less above, below, or to the side of the "SLOW" sign face. As an option, a Type B warning light may be used in lieu of the warning beacon.

A "WAIT ON STOP" sign shall be placed on the right hand side of the roadway at a point where drivers are expected to stop. The sign shall be 24 x 30 in. (600 x 750 mm) with a black legend and border on a white background. The letters shall be at least 6 in. (150 mm) high.

This device may include a gate arm or mast arm that descends to a horizontal position when the "STOP" sign is displayed and rises to a vertical position when the "SLOW" sign is displayed. When included, the end of the arm shall reach at least to the center of the lane being controlled. The arm shall have alternating red and white retroreflective stripes, on both sides, sloping downward at 45 degrees toward the side on which traffic will pass. The stripes shall be 6 in. (150 mm) in width and at least 2 in. (50 mm) in height.

Flagging Requirements. Flaggers and flagging requirements shall be according to Article 701.13 of the Standard Specifications and the following.

AFADs shall be placed at each end of the traffic control, where a flagger is shown on the plans. The flaggers shall be able to view the face of the AFAD and approaching traffic during operation.

To stop traffic, the “STOP” sign shall be displayed, the corresponding lights/beacon shall flash, and when included, the gate arm shall descend to a horizontal position. To permit traffic to move, the “SLOW” sign shall be displayed, the corresponding lights/beacon shall flash, and when included, the gate arm shall rise to a vertical position.

If used at night, the AFAD location shall be illuminated according to Section 701 of the Standard Specifications.

When not in use, AFADs will be considered nonoperating equipment and shall be stored according to Article 701.11 of the Standard Specifications.

Basis of Payment. This work will not be paid for separately but shall be considered as included in the cost of the various traffic control items included in the contract.

80192

All Regional Engineers

Scott E. Stitt

Special Provision for Completion Date (via calendar days)

January 14, 2011

This special provision was developed per the recommendations of an FHWA/IDOT Joint Process Review to establish a form of contract time which is based upon a set number of calendar days.

This special provision should be used at the district's discretion and per the guidance in Chapter 66 of the Bureau of Design and Environment Manual.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 29, 2011, and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 14, 2011.

80198m

**COMPLETION DATE (VIA CALENDAR DAYS) (BDE)**

Effective: April 1, 2008

The Contractor shall complete all work on or before the completion date of this contract which will be based upon calendar days.

The completion date will be determined by adding the specified number of calendar days to the date the Contractor begins work, or to the date ten days after execution of the contract, whichever is the earlier, unless a delayed start is granted by the Engineer.

80198

All Regional Engineers

Scott E. Stitt

Special Provision for Completion Date (via calendar days) Plus Working Days

January 14, 2011

This special provision was developed per the recommendations of an FHWA/IDOT Joint Process Review to establish a form of contract time which is based upon a set number of calendar days.

This special provision should be used at the district's discretion and per the guidance in Chapter 66 of the Bureau of Design and Environment Manual.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 29, 2011, and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 14, 2011.

80199m

**COMPLETION DATE (VIA CALENDAR DAYS) PLUS WORKING DAYS (BDE)**

Effective: April 1, 2008

The Contractor shall complete work on or before the completion date of this contract which will be based upon calendar days. After the completion date, an additional working days will be allowed to complete .

The completion date will be determined by adding the specified number of calendar days to the date the Contractor begins work, or to the date ten days after execution of the contract, whichever is the earlier, unless a delayed start is granted by the Engineer.

80199

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Fuel Cost Adjustment |
| Date: | April 17, 2015 |

This special provision was developed by IDOT and Industry as a result of the volatility in the cost of fuel. It has been revised to define the beginning fuel price index for extra work paid for by agreed unit price.

This special provision should be included in projects with at least 25,000 cu yd (20,000 cu m) of earthwork items; 5,000 tons (4,500 metric tons) of applicable aggregate or hot-mix asphalt (HMA) bases course, pavement and shoulder items; 7,500 sq yd (6000 sq m) of applicable PCC bases course, pavement and shoulder items; and $250,000 of applicable structure items. The adjustments are applicable to permanent and temporary items.

Note To Designer: If the designer identifies items of work, such as channel excavation, rock excavation (Category A), aggregate surface course (Category B), various widening items (Category C or D) or other work efforts which are not included in the categories of specified Sections, but represent the possibility for significant cost fluctuation due to changes in costs of fuel, the identified items should be listed in a separate special provision identifying the category under which the fuel adjustment should be included, and follow this special provision.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 31, 2015 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 17, 2015.

80229m

**FUEL COST ADJUSTMENT (BDE) (RETURN FORM WITH BID)**

Effective: April 1, 2009
Revised: July 1, 2015

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate on the attached form whether or not this special provision will be part of the contract and submit the completed form with his/her bid. Failure to submit the form or failure to indicate contract number, company name and sign and date the form shall make this contract exempt of fuel cost adjustments for all categories of work. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and extra work paid for by agreed unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Extra work paid for at a lump sum price or by force account will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

(1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.

(2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.

(4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.

(5) Category E: Structures. Structure items having a cumulative bid price that exceeds $250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units

| Category | Factor | Units |
|---|---|---|
| A - Earthwork | 0.34 | gal / cu yd |
| B – Subbase and Aggregate Base courses | 0.62 | gal / ton |
| C – HMA Bases, Pavements and Shoulders | 1.05 | gal / ton |
| D – PCC Bases, Pavements and Shoulders | 2.53 | gal / cu yd |
| E – Structures | 8.00 | gal / $1000 |

Metric Units

| Category | Factor | Units |
|---|---|---|
| A - Earthwork | 1.68 | liters / cu m |
| B – Subbase and Aggregate Base courses | 2.58 | liters / metric ton |
| C – HMA Bases, Pavements and Shoulders | 4.37 | liters / metric ton |
| D – PCC Bases, Pavements and Shoulders | 12.52 | liters / cu m |
| E – Structures | 30.28 | liters / $1000 |

(c) Quantity Conversion Factors.

| Category | Conversion | Factor |
|---|---|---|
| B | sq yd to ton | 0.057 ton / sq yd / in depth |
| | sq m to metric ton | 0.00243 metric ton / sq m / mm depth |
| C | sq yd to ton | 0.056 ton / sq yd / in depth |
| | sq m to metric ton | 0.00239 m ton / sq m / mm depth |
| D | sq yd to cu yd | 0.028 cu yd / sq yd / in depth |
| | sq m to cu m | 0.001 cu m / sq m / mm depth |

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$CA = (FPI_P - FPI_L) \times FUF \times Q$

Where: CA = Cost Adjustment, $

$FPI_P$ = Fuel Price Index, as published by the Department for the month the work is performed, $/gal ($/liter)

$FPI_L$ = Fuel Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, $/gal ($/liter)

FUF = Fuel Usage Factor in the pay item(s) being adjusted

Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the $FPI_L$ and $FPI_P$ in excess of five percent, as calculated by:

Percent Difference = $\{(FPI_L - FPI_P) \div FPI_L\} \times 100$

Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Return With Bid

**ILLINOIS DEPARTMENT OF TRANSPORTATION**

**OPTION FOR FUEL COST ADJUSTMENT**

The bidder shall submit this completed form with his/her bid. Failure to submit the form or properly complete contract number, company name, and sign and date the form shall make this contract exempt of fuel cost adjustments in all categories. Failure to indicate "Yes" for any category of work at the time of bid will make that category of work exempt from fuel cost adjustment. After award, this form, when submitted shall become part of the contract.

**Contract No.:** _____

**Company Name:**_____

**Contractor's Option:**

Is your company opting to include this special provision as part of the contract plans for the following categories of work?

| | | |
|---|---|---|
| Category A Earthwork. | Yes | ☐ |
| Category B Subbases and Aggregate Base Courses | Yes | ☐ |
| Category C HMA Bases, Pavements and Shoulders | Yes | ☐ |
| Category D PCC Bases, Pavements and Shoulders | Yes | ☐ |
| Category E Structures | Yes | ☐ |

**Signature:** _____ **Date:** _____

80229

All Regional Engineers

Charles J. Ingersoll

Special Provision for Bridge Demolition Debris

April 17, 2009

This special provision was developed by the Bureau of Design to comply with Federal Public Law 109-59, Section 1805 which requires the department to first make the debris from the demolition of bridges available for beneficial use by Federal, State, or local government, unless such use obstructs navigation.

It should be inserted in contracts in which a unit of local government has expressed interest in the debris and has coordinated with the District Bureau of Local Roads and Streets.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 31, 2009 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 17, 2009.

80241m

**BRIDGE DEMOLITION DEBRIS (BDE)**

Effective: July 1, 2009

The debris from removing structure number shall be delivered to (agency name), located at (address), miles from the jobsite. For description of debris to be salvaged, the Contractor shall contact (agency contact person and phone number). The Contractor shall coordinate delivery of the debris to the designated location, at no additional cost to the Department. Upon receipt of the debris, the receiving agency shall be responsible for additional costs of processing, delivery placement and use of the material and shall assume legal and permitting responsibility for the placement of the debris. Payment for delivery of the debris to the designated location shall be included in the cost for removal of existing structures.

80241

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, OM 1/11/16 |
| Subject: | Special Provision for Hot-Mix Asphalt – Density Testing of Longitudinal Joints |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to improve the performance of longitudinal joints in Hot-Mix Asphalt (HMA) pavements. It has been revised to fit with the 2016 Standard Specifications.

It should be inserted in HMA contracts utilizing Quality Control/Quality Assurance as the Quality Management Program for the pavement/resurfacing.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 letting and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80246m

**HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)**

Effective: January 1, 2010
Revised: April 1, 2016

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

"Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4 in. (100 mm), from each pavement edge. (i.e. for a 5 in. (125 mm) lift the near edge of the density gauge or core barrel shall be within 5 in. (125 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.

b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced 10 ft (3 m) apart longitudinally along the unconfined pavement edge and centered at the random density test location."

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

| "Mixture Composition | Parameter | Individual Test (includes confined edges) | Unconfined Edge Joint Density Minimum |
|---|---|---|---|
| IL-4.75 | Ndesign = 50 | 93.0 – 97.4% [1/] | 91.0% |
| IL-9.5 | Ndesign = 90 | 92.0 – 96.0% | 90.0% |
| IL-9.5,IL-9.5L | Ndesign < 90 | 92.5 – 97.4% | 90.0% |
| IL-19.0 | Ndesign = 90 | 93.0 – 96.0% | 90.0% |
| IL-19.0, IL-19.0L | Ndesign < 90 | 93.0 [2/] – 97.4% | 90.0% |
| SMA | Ndesign = 50 & 80 | 93.5 – 97.4% | 91.0%" |

80246

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. Omer M. Osman 7/12/14 |
| Subject: | Special Provision for Construction Air Quality – Diesel Retrofit |
| Date: | July 25, 2014 |

This special provision was developed by the Bureau of Design and Environment and the Bureau of Construction to reduce construction air emissions from older diesel equipment. The cover memo has been revised to change Baldwin Township to Baldwin Precinct in Randolph County.

This special provision should be inserted in all projects within the following counties, townships and precinct; Cook, DuPage, Kane, Lake, McHenry, Will, Jersey, Madison, Monroe, St. Clair, Aux Sable and Goose Lake Township in Grundy County, Oswego Township in Kendall County, and Baldwin Precinct in Randolph County.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 7, 2014 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory July 25, 2014.

80261m

**CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)**

Effective: June 1, 2010
Revised: November 1, 2014

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

| Effective Dates | Horsepower Range | Model Year |
|---|---|---|
| | | |
| June 1, 2010 1/ | 600-749 | 2002 |
| | 750 and up | 2006 |
| | | |
| June 1, 2011 2/ | 100-299 | 2003 |
| | 300-599 | 2001 |
| | 600-749 | 2002 |
| | 750 and up | 2006 |
| | | |
| June 1, 2012 2/ | 50-99 | 2004 |
| | 100-299 | 2003 |
| | 300-599 | 2001 |
| | 600-749 | 2002 |
| | 750 and up | 2006 |

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.
2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (http://www.epa.gov/cleandiesel/verification/verif-list.htm), or verified by the California Air Resources Board (CARB) (http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm); or

b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

**Diesel Retrofit Deficiency Deduction**

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be $1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.

Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

80261

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Concrete Mix Design – Department Provided |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research as an interim measure to allow districts to transition from Department concrete mix designs to contractor mix designs. This special provision has been revised to fit with the 2016 Standard Specifications.

It should be included in projects involving cast-in-place concrete at the district's discretion.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80277m

**CONCRETE MIX DESIGN – DEPARTMENT PROVIDED (BDE)**

Effective: January 1, 2012
Revised: April 1, 2016

For the concrete mix design requirements in Article 1020.05(a) of the Standard Specifications, the Contractor has the option to request the Engineer determine mix design material proportions for Class PV, PP, RR, BS, DS, SC, and SI concrete. A single mix design for each class of concrete will be provided. Acceptance by the Contractor to use the mix design developed by the Engineer shall not relieve the Contractor from meeting specification requirements.

80277

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Warm Mix Asphalt |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to implement Warm-Mix Asphalt technology as part of the Federal Highway Administration Every Day Counts Initiative. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted in all Hot-Mix Asphalt contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80288m

**WARM MIX ASPHALT (BDE)**

Effective: January 1, 2012
Revised: April 1, 2016

Description. This work shall consist of designing, producing and constructing Warm Mix Asphalt (WMA) in lieu of Hot Mix Asphalt (HMA) at the Contractor's option. Work shall be according to Sections 406, 407, 408, 1030, and 1102 of the Standard Specifications, except as modified herein. In addition, any references to HMA in the Standard Specifications, or the special provisions shall be construed to include WMA.

WMA is an asphalt mixture which can be produced at temperatures lower than allowed for HMA utilizing approved WMA technologies. WMA technologies are defined as the use of additives or processes which allow a reduction in the temperatures at which HMA mixes are produced and placed. WMA is produced by the use of additives, a water foaming process, or combination of both. Additives include minerals, chemicals or organics incorporated into the asphalt binder stream in a dedicated delivery system. The process of foaming injects water into the asphalt binder stream, just prior to incorporation of the asphalt binder with the aggregate.

Approved WMA technologies may also be used in HMA provided all the requirements specified herein, with the exception of temperature, are met. However, asphalt mixtures produced at temperatures in excess of 275 °F (135 °C) will not be considered WMA when determining the grade reduction of the virgin asphalt binder grade.

Equipment.

Revise the first paragraph of Article 1102.01 of the Standard Specifications to read:

"**1102.01 Hot-Mix Asphalt Plant.** The hot-mix asphalt (HMA) plant shall be the batch-type, continuous-type, or dryer drum plant. The plants shall be evaluated for prequalification rating and approval to produce HMA according to the current Bureau of Materials and Physical Research Policy Memorandum, "Approval of Hot-Mix Asphalt Plants and Equipment". Once approved, the Contractor shall notify the Bureau of Materials and Physical Research to obtain approval of all plant modifications. The plants shall not be used to produce mixtures concurrently for more than one project or for private work unless permission is granted in writing by the Engineer. The plant units shall be so designed, coordinated and operated that they will function properly and produce HMA having uniform temperatures and compositions within the tolerances specified. The plant units shall meet the following requirements."

Add the following to Article 1102.01(a) of the Standard Specifications.

"(11) Equipment for Warm Mix Technologies.

a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of ± 2 percent of the actual water metered. The foaming control system shall be electronically interfaced with the asphalt binder meter.

b. Additives. Additives shall be introduced into the plant according to the supplier's recommendations and shall be approved by the Engineer. The system for introducing the WMA additive shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes."

Mix Design Verification.

Add the following to Article 1030.04 of the Standard Specifications.

"(e) Warm Mix Technologies.

(1) Foaming. WMA mix design verification will not be required when foaming technology is used alone (without WMA additives). However, the foaming technology shall only be used on HMA designs previously approved by the Department.

(2) Additives. WMA mix designs utilizing additives shall be submitted to the Engineer for mix design verification."

Construction Requirements.

Revise the second paragraph of Article 406.06(b)(1) of the Standard Specifications to read:

"The HMA shall be delivered at a temperature of 250 to 350 °F (120 to 175 °C). WMA shall be delivered at a minimum temperature of 215 °F (102 °C)."

Basis of Payment.

This work will be paid at the contract unit price bid for the HMA pay items involved. Anti-strip will not be paid for separately, but shall be considered as included in the cost of the work.

80288

All Regional Engineers

Scott E. Stitt

Special Provision for Wet Reflective Thermoplastic Pavement Marking

September 30, 2011

This special provision was developed by the Bureau of Materials and Physical Research as a response to the degradation of the retro-reflective properties of pavement marking materials under wet conditions. Use of this special provision should be according to Departmental Policy TRA-14: Guidelines for the Use of Pavement Marking Materials on State Highways.

It should be included in all projects involving wet reflective thermoplastic pavement marking.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 20, 2012 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 30, 2011.

80289m

**WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (BDE)**

Effective: January 1, 2012

Description. This work shall consist of furnishing and applying thermoplastic pavement markings with a wet reflective media. Work shall be according to Section 780 of the Standard Specifications, except as modified herein.

Revise the seventh paragraph of Article 780.05 of the Standard Specifications to read:

"Thermoplastic marking shall be placed with drop on glass beads and wet reflective media uniformly applied to ensure adequate dry and wet retroreflectivity. The combination of thermoplastic material, glass beads, and wet reflective media used shall preclude the surface beads and wet reflective media from sinking deeply into the thermoplastic."

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) of applied line width, as specified, for WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING – LINE; and/or per square foot (square meter) for WET REFLECTIVE THERMOPLASTIC PAVEMENT MARKING – LETTERS AND SYMBOLS.

Delete the last sentence of Article 1095.01(f) of the Standard Specifications.

Add the following to Article 1095.01 of the Standard Specifications.

"(g) Wet Reflective Media. The wet reflective media shall be according to the manufacturer's specifications. Once applied, the wet reflective thermoplastic pavement markings shall meet the following retroreflectivity requirements when tested according to ASTM E2177 and ASTM E2176. The readings shall be obtained with a portable retroreflectometer meeting ASTM E1710.

| Wet Retroreflectivity Requirements $R_L$ (mcc/lx/$m^2$) | | |
|---|---|---|
| | White | Yellow |
| Wet Recovery (ASTM E2177) | 350 | 275 |
| Wet Continuous (ASTM E2176) | 100 | 75" |

80289

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Aggregate Subgrade Improvement |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to allow the use of gravel in fills over 24 inches in thickness. This special provision has been revised to fit with the 2016 Standard Specifications.

The designer should check with the District Geotechnical Engineer to determine the appropriate thickness of the aggregate subgrade material.

When this special provision is used, BDE special provision, Reclaimed Asphalt Pavement and Reclaimed Asphalt Shingles should also be included in the contract.

It should be included in all contracts utilizing aggregate subgrade improvements.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80274m

**AGGREGATE SUBGRADE IMPROVEMENT (BDE)**

Effective: April 1, 2012
Revised: April 1, 2016

Add the following Section to the Standard Specifications:

"**SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT**

**303.01 Description.** This work shall consist of constructing an aggregate subgrade improvement.

**303.02 Materials.** Materials shall be according to the following.

| Item | Article/Section |
|---|---|
| (a) Coarse Aggregate | 1004.07 |
| (b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2, and 3) | 1031 |

Note 1. Crushed RAP, from either full depth or single lift removal, may be mechanically blended with aggregate gradations CS 01, CS 02, and RR 01 but shall not exceed 40 percent of the total product. The top size of the RAP shall be less than 4 in. (100 mm) and well graded.

Note 2. RAP having 100 percent passing the 1 1/2 in. (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradations CS 01, CS 02, or RR 01 are used in lower lifts.

Note 3. The RAP used for aggregate subgrade improvement shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".

**303.03 Equipment.** The vibratory machine shall be according to Article 1101.01, or as approved by the Engineer.

**303.04 Soil Preparation.** The stability of the soil shall be according to the Department's Subgrade Stability Manual for the aggregate thickness specified.

**303.05 Placing Aggregate.** The maximum nominal lift thickness of aggregate gradations CA 02, CA 06, or CA 10 shall be 12 in. (300 mm). The maximum nominal lift thickness of aggregate gradations CS 01, CS 02, and RR 01 shall be 24 in. (600 mm).

**303.06 Capping Aggregate.** The top surface of the aggregate subgrade shall consist of a minimum 3 in. (75 mm) of aggregate gradations CA 06 or CA 10. When the contract specifies that a granular subbase is to be placed on the aggregate subgrade improvement, the 3 in. (75 mm) of capping aggregate shall be the same gradation and may be placed with the underlying aggregate subgrade improvement material.

**303.07 Compaction.** All aggregate lifts shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

**303.08 Finishing and Maintenance of Aggregate Subgrade Improvement.** The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

**303.09 Method of Measurement.** This work will be measured for payment according to Article 311.08.

**303.10 Basis of Payment.** This work will be paid for at the contract unit price per cubic yard (cubic meter) or ton (metric ton) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified."

Add the following to Section 1004 of the Standard Specifications:

"**1004.07 Coarse Aggregate for Aggregate Subgrade Improvement.** The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete. In applications where greater than 24 in. (600 mm) of subgrade material is required, gravel may be used below the first 12 in (300 mm) of subgrade.

(b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials.

(c) Gradation.

(1) The coarse aggregate gradation for total subgrade thickness less than or equal to 12 in. (300 mm) shall be CA 2, CA 6, CA 10, or CS 01.

The coarse aggregate gradation for total subgrade thickness more than 12 in. (300 mm) shall be CS 01 or CS 02 as shown below or RR 01 according to Article 1005.01(c).

| | COARSE AGGREGATE SUBGRADE GRADATIONS | | | | |
|---|---|---|---|---|---|
| Grad No. | Sieve Size and Percent Passing | | | | |
| | 8" | 6" | 4" | 2" | #4 |
| CS 01 | 100 | 97 ± 3 | 90 ± 10 | 45 ± 25 | 20 ± 20 |
| CS 02 | | 100 | 80 ± 10 | 25 ± 15 | |

| | COARSE AGGREGATE SUBGRADE GRADATIONS (Metric) |
|---|---|

| Grad No. | Sieve Size and Percent Passing | | | | |
|---|---|---|---|---|---|
| | 200 mm | 150 mm | 100 mm | 50 mm | 4.75 mm |
| CS 01 | 100 | 97 ± 3 | 90 ± 10 | 45 ± 25 | 20 ± 20 |
| CS 02 | | 100 | 80 ± 10 | 25 ± 15 | |

(2) The 3 in. (75 mm) capping aggregate shall be gradation CA 6 or CA 10.”

80274

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Bridges and Structures as a result of the implementation of AASHTO Load and Resistance Factor Design (LRFD) for precast and cast-in-place concrete box culverts.

This special provision has been revised as a result of changes to ASTM C 1577. Seven additional box sizes have been added to the ASTM and therefore corresponding sizes have been included in this revision.

This special provision should be inserted into contracts with precast concrete or cast-in-place box culverts having a skew > 30 degrees and a design fill ≤ 5 feet.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80293m

**CONCRETE BOX CULVERTS WITH SKEWS > 30 DEGREES AND DESIGN FILLS ≤ 5 FEET (BDE)**

Effective: April 1, 2012
Revised: July 1, 2016

Revise the second paragraph of Article 540.04 of the Standard Specifications to read:

"Unless otherwise noted on the plans, the Contractor shall have the option, when a cast-in-place concrete box culvert is specified, of constructing the box culvert using precast box culvert sections when the design cover is 6 in. (150 mm) minimum. The precast box culvert sections shall be designed for the same design cover shown on the plans for cast-in-place box culvert**;** shall be of equal or larger size opening, and shall satisfy the design requirements of ASTM C 1577."

Add the following after the seventh paragraph of Article 540.06 of the Standard Specifications:

"Precast concrete box culverts with skews greater than 30 degrees and having design covers less than or equal to 5 ft are not covered by the standard design table shown in ASTM C 1577. The design table provided herein is provided to address this design range. The same notes, reinforcement configurations, clearances, and requirements of ASTM C 1577 apply to this special design table. A box designated 7 x 6 x 8 indicates a span of 7 ft, a rise of 6 ft, and top slab, bottom slab, walls and haunches of 8 in. unless otherwise noted on the tables.

| 3 ft x 2 ft x 4 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.17 | 1.10 | 0.30 | 0.10 | 0.28 | 0.17 | 0.92 | 0.14 | |
| 2<3 | 0.14 | 0.18 | 0.19 | 0.10 | | | | | 31 |
| 3-5 | 0.10 | 0.12 | 0.12 | 0.10 | | | | | 29 |

*top slab 7.0 in., bottom slab 6.0 in.

| 3 ft x 3 ft x 4 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.17 | 1.17 | 0.33 | 0.10 | 0.31 | 0.17 | 0.92 | 0.14 | |
| 2<3 | 0.10 | 0.22 | 0.22 | 0.10 | | | | | 31 |
| 3-5 | 0.10 | 0.14 | 0.14 | 0.10 | | | | | 31 |

*top slab 7.0 in., bottom slab 6.0 in.

| 4 ft x 2 ft x 5 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.21 | 0.88 | 0.26 | 0.12 | 0.28 | 0.18 | 0.89 | 0.14 | |
| 2<3 | 0.20 | 0.21 | 0.20 | 0.12 | | | | | 33 |
| 3-5 | 0.13 | 0.13 | 0.14 | 0.12 | | | | | 32 |

*top slab 7.5 in., bottom slab 6.0 in.

| 4 ft x 3 ft x 5 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.18 | 1.02 | 0.31 | 0.12 | 0.32 | 0.18 | 0.87 | 0.14 | |
| 2<3 | 0.16 | 0.25 | 0.24 | 0.12 | | | | | 38 |
| 3-5 | 0.12 | 0.16 | 0.17 | 0.12 | | | | | 34 |

*top slab 7.5 in., bottom slab 6.0 in.

| 4 ft x 4 ft x 5 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.18 | 1.08 | 0.34 | 0.12 | 0.34 | 0.18 | 0.86 | 0.14 | |
| 2<3 | 0.13 | 0.28 | 0.27 | 0.12 | | | | | 38 |
| 3-5 | 0.12 | 0.18 | 0.19 | 0.12 | | | | | 38 |

*top slab 7.5 in., bottom slab 6.0 in.

| 5 ft x 2 ft x 6 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.27 | 0.63 | 0.23 | 0.14 | 0.24 | 0.19 | 0.19 | 0.17 | |
| 2<3 | 0.25 | 0.22 | 0.20 | 0.14 | | | | | 37 |
| 3-5 | 0.17 | 0.15 | 0.15 | 0.14 | | | | | 35 |

*top slab 8.0 in., bottom slab 7.0 in.

| 5 ft x 3 ft x 6 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.20 | 0.72 | 0.27 | 0.14 | 0.29 | 0.19 | .0.71 | 0.17 | |
| 2<3 | 0.21 | 0.26 | 0.25 | 0.14 | | | | | 37 |
| 3-5 | 0.14 | 0.18 | 0.18 | 0.14 | | | | | 35 |

*top slab 8.0 in., bottom slab 7.0 in.

| 5 ft x 4 ft x 6 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.19 | 0.78 | 0.30 | 0.14 | 0.31 | 0.19 | 0.70 | 0.17 | |
| 2<3 | 0.18 | 0.30 | 0.28 | 0.14 | | | | | 45 |
| 3-5 | 0.14 | 0.20 | 0.21 | 0.14 | | | | | 40 |

*top slab 8.0 in., bottom slab 7.0 in.

| 5 ft x 5 ft x 6 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.19 | 0.82 | 0.33 | 0.14 | 0.34 | 0.19 | 0.69 | 0.17 | |
| 2<3 | 0.16 | 0.33 | 0.32 | 0.14 | | | | | 45 |
| 3-5 | 0.14 | 0.22 | 0.23 | 0.14 | | | | | 45 |

*top slab 8.0 in., bottom slab 7.0 in.

| 6 ft x 2 ft x 7 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.33 | 0.51 | 0.21 | 0.17 | 0.23 | 0.19 | 0.61 | 0.17 | |
| 2<3 | 0.31 | 0.22 | 0.22 | 0.17 | | | | | 42 |
| 3-5 | 0.22 | 0.17 | 0.17 | 0.17 | | | | | 41 |

*top slab 8.0 in.

| 6 ft x 3 ft x 7 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.27 | 0.58 | 0.26 | 0.17 | 0.27 | 0.19 | 0.58 | 0.17 | |
| 2<3 | 0.26 | 0.27 | 0.27 | 0.17 | | | | | 41 |
| 3-5 | 0.18 | 0.19 | 0.20 | 0.17 | | | | | 39 |

*top slab 8.0 in.

| 6 ft x 4 ft x 7 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.25 | 0.64 | 0.30 | 0.17 | 0.30 | 0.19 | 0.57 | 0.17 | |
| 2<3 | 0.23 | 0.31 | 0.31 | 0.17 | | | | | 42 |
| 3-5 | 0.17 | 0.22 | 0.23 | 0.17 | | | | | 41 |

*top slab 8.0 in.

| 6 ft x 5 ft x 7 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in. / ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.23 | 0.68 | 0.33 | 0.17 | 0.32 | 0.19 | 0.56 | 0.17 | |
| 2<3 | 0.20 | 0.34 | 0.35 | 0.17 | | | | | 52 |
| 3-5 | 0.17 | 0.24 | 0.25 | 0.17 | | | | | 48 |

*top slab 8.0 in.

| 6 ft x 6 ft x 7 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2* | 0.21 | 0.72 | 0.37 | 0.17 | 0.34 | 0.19 | 0.55 | 0.17 | |
| 2<3 | 0.18 | 0.37 | 0.38 | 0.17 | | | | | 52 |
| 3-5 | 0.17 | 0.26 | 0.28 | 0.17 | | | | | 52 |

*top slab 8.0 in.

| 7 ft x 2 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.38 | 0.60 | 0.26 | 0.19 | 0.22 | 0.19 | 0.75 | 0.19 | |
| 2<3 | 0.38 | 0.24 | 0.24 | 0.19 | | | | | 46 |
| 3-5 | 0.27 | 0.19 | 0.19 | 0.19 | | | | | 44 |

| 7 ft x 3 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.36 | 0.57 | 0.32 | 0.19 | 0.25 | 0.19 | 0.71 | 0.19 | |
| 2<3 | 0.33 | 0.29 | 0.30 | 0.19 | | | | | 44 |
| 3-5 | 0.23 | 0.21 | 0.21 | 0.19 | | | | | 42 |

| 7 ft x 4 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.34 | 0.61 | 0.37 | 0.19 | 0.27 | 0.19 | 0.70 | 0.19 | |
| 2<3 | 0.29 | 0.34 | 0.34 | 0.19 | | | | | 44 |
| 3-5 | 0.21 | 0.24 | 0.25 | 0.19 | | | | | 42 |

| 7 ft x 5 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.32 | 0.65 | 0.42 | 0.19 | 0.30 | 0.19 | 0.69 | 0.19 | |
| 2<3 | 0.26 | 0.37 | 0.38 | 0.19 | | | | | 49 |
| 3-5 | 0.19 | 0.27 | 0.28 | 0.19 | | | | | 46 |

| 7 ft x 6 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.29 | 0.69 | 0.46 | 0.19 | 0.32 | 0.19 | 0.67 | 0.19 | |
| 2<3 | 0.23 | 0.40 | 0.42 | 0.19 | | | | | 59 |
| 3-5 | 0.19 | 0.29 | 0.30 | 0.19 | | | | | 55 |

| 7 ft x 7 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.27 | 0.73 | 0.50 | 0.19 | 0.34 | 0.19 | 0.65 | 0.19 | |
| 2<3 | 0.21 | 0.43 | 0.45 | 0.19 | | | | | 59 |
| 3-5 | 0.19 | 0.31 | 0.33 | 0.19 | | | | | 59 |

| 8 ft x 2 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.47 | 0.50 | 0.29 | 0.19 | 0.23 | 0.19 | 0.61 | 0.19 | |
| 2<3 | 0.51 | 0.30 | 0.31 | 0.19 | | | | | 50 |
| 3-5 | 0.36 | 0.22 | 0.22 | 0.19 | | | | | 48 |

| 8 ft x 3 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.43 | 0.49 | 0.35 | 0.19 | 0.26 | 0.19 | 0.58 | 0.19 | |
| 2<3 | 0.45 | 0.36 | 0.37 | 0.19 | | | | | 48 |
| 3-5 | 0.32 | 0.26 | 0.27 | 0.19 | | | | | 45 |

| 8 ft x 4 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.40 | 0.52 | 0.40 | 0.19 | 0.29 | 0.19 | 0.57 | 0.19 | |
| 2<3 | 0.40 | 0.42 | 0.43 | 0.19 | | | | | 45 |
| 3-5 | 0.28 | 0.30 | 0.31 | 0.19 | | | | | 45 |

| 8 ft x 5 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.37 | 0.56 | 0.45 | 0.19 | 0.31 | 0.19 | 0.56 | 0.19 | |
| 2<3 | 0.36 | 0.46 | 0.47 | 0.19 | | | | | 48 |
| 3-5 | 0.26 | 0.33 | 0.34 | 0.19 | | | | | 45 |

| 8 ft x 6 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.34 | 0.61 | 0.49 | 0.19 | 0.33 | 0.19 | 0.56 | 0.19 | |
| 2<3 | 0.33 | 0.50 | 0.52 | 0.19 | | | | | 56 |
| 3-5 | 0.24 | 0.36 | 0.37 | 0.19 | | | | | 50 |

| 8 ft x 7 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.32 | 0.65 | 0.53 | 0.19 | 0.35 | 0.19 | 0.56 | 0.19 | |
| 2<3 | 0.30 | 0.53 | 0.56 | 0.19 | | | | | 65 |
| 3-5 | 0.22 | 0.38 | 0.40 | 0.19 | | | | | 61 |

| 8 ft x 8 ft x 8 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.30 | 0.69 | 0.57 | 0.19 | 0.36 | 0.19 | 0.55 | 0.19 | |
| 2<3 | 0.28 | 0.56 | 0.59 | 0.19 | | | | | 65 |
| 3-5 | 0.20 | 0.40 | 0.43 | 0.19 | | | | | 65 |

| 9 ft x 2 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.46 | 0.35 | 0.26 | 0.22 | 0.22 | 0.22 | 0.47 | 0.22 | |
| 2<3 | 0.58 | 0.32 | 0.32 | 0.22 | | | | | 55 |
| 3-5 | 0.41 | 0.23 | 0.23 | 0.22 | | | | | 52 |

| 9 ft x 3 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.42 | 0.35 | 0.32 | 0.22 | 0.23 | 0.22 | 0.47 | 0.22 | |
| 2<3 | 0.52 | 0.38 | 0.39 | 0.22 | | | | | 52 |
| 3-5 | 0.37 | 0.27 | 0.28 | 0.22 | | | | | 49 |

| 9 ft x 4 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.38 | 0.38 | 0.36 | 0.22 | 0.25 | 0.22 | 0.47 | 0.22 | |
| 2<3 | 0.47 | 0.44 | 0.45 | 0.22 | | | | | 52 |
| 3-5 | 0.33 | 0.31 | 0.32 | 0.22 | | | | | 49 |

| 9 ft x 5 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.35 | 0.41 | 0.41 | 0.22 | 0.28 | 0.22 | 0.47 | 0.22 | |
| 2<3 | 0.43 | 0.49 | 0.50 | 0.22 | | | | | 49 |
| 3-5 | 0.30 | 0.35 | 0.36 | 0.22 | | | | | 49 |

| 9 ft x 6 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in. / ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.32 | 0.44 | 0.44 | 0.22 | 0.29 | 0.22 | 0.47 | 0.22 | |
| 2<3 | 0.39 | 0.53 | 0.54 | 0.22 | | | | | 55 |
| 3-5 | 0.28 | 0.38 | 0.39 | 0.22 | | | | | 52 |

| 9 ft x 7 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in. / ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.30 | 0.46 | 0.48 | 0.22 | 0.31 | 0.22 | 0.45 | 0.22 | |
| 2<3 | 0.36 | 0.56 | 0.59 | 0.22 | | | | | 64 |
| 3-5 | 0.26 | 0.40 | 0.42 | 0.22 | | | | | 58 |

| 9 ft x 8 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.28 | 0.49 | 0.52 | 0.22 | 0.33 | 0.22 | 0.45 | 0.22 | |
| 2<3 | 0.33 | 0.60 | 0.63 | 0.22 | | | | | 72 |
| 3-5 | 0.24 | 0.43 | 0.45 | 0.22 | | | | | 72 |

| 9 ft x 9 ft x 9 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.27 | 0.51 | 0.55 | 0.22 | 0.34 | 0.22 | 0.45 | 0.22 | |
| 2<3 | 0.31 | 0.63 | 0.66 | 0.22 | | | | | 72 |
| 3-5 | 0.23 | 0.45 | 0.48 | 0.22 | | | | | 72 |

| 10 ft x 2 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.46 | 0.29 | 0.24 | 0.24 | 0.24 | 0.24 | 0.34 | 0.24 | |
| 2<3 | 0.66 | 0.33 | 0.34 | 0.24 | | | | | 59 |
| 3-5 | 0.46 | 0.24 | 0.24 | 0.24 | | | | | 59 |

| 10 ft x 3 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.44 | 0.33 | 0.30 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | |
| 2<3 | 0.59 | 0.40 | 0.41 | 0.24 | | | | | 59 |
| 3-5 | 0.42 | 0.29 | 0.29 | 0.24 | | | | | 56 |

| 10 ft x 4 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.40 | 0.36 | 0.35 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | |
| 2<3 | 0.54 | 0.46 | 0.47 | 0.24 | | | | | 56 |
| 3-5 | 0.38 | 0.33 | 0.34 | 0.24 | | | | | 52 |

| 10 ft x 5 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.37 | 0.39 | 0.39 | 0.24 | 0.26 | 0.24 | 0.24 | 0.24 | |
| 2<3 | 0.49 | 0.51 | 0.52 | 0.24 | | | | | 52 |
| 3-5 | 0.35 | 0.36 | 0.38 | 0.24 | | | | | 52 |

| 10 ft x 6 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.34 | 0.42 | 0.43 | 0.24 | 0.28 | 0.24 | 0.42 | 0.24 | |
| 2<3 | 0.45 | 0.55 | 0.57 | 0.24 | | | | | 56 |
| 3-5 | 0.33 | 0.40 | 0.41 | 0.24 | | | | | 52 |

| 10 ft x 7 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.32 | 0.44 | 0.46 | 0.24 | 0.30 | 0.24 | 0.24 | 0.24 | |
| 2<3 | 0.42 | 0.59 | 0.62 | 0.24 | | | | | 59 |
| 3-5 | 0.31 | 0.42 | 0.45 | 0.24 | | | | | 56 |

| 10 ft x 8 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in. / ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.30 | 0.47 | 0.50 | 0.24 | 0.31 | 0.24 | 0.24 | 0.24 | |
| 2<3 | 0.39 | 0.63 | 0.66 | 0.24 | | | | | 75 |
| 3-5 | 0.29 | 0.45 | 0.48 | 0.24 | | | | | 66 |

| 10 ft x 9 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.28 | 0.49 | 0.53 | 0.24 | 0.33 | 0.24 | 0.24 | 0.24 | |
| 2<3 | 0.37 | 0.66 | 0.70 | 0.24 | | | | | 79 |
| 3-5 | 0.27 | 0.47 | 0.51 | 0.24 | | | | | 79 |

| 10 ft x 10 ft x 10 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.27 | 0.51 | 0.56 | 0.24 | 0.34 | 0.24 | 0.24 | 0.24 | |
| 2<3 | 0.35 | 0.69 | 0.74 | 0.24 | | | | | 79 |
| 3-5 | 0.26 | 0.50 | 0.54 | 0.24 | | | | | 79 |

| 11 ft x 2 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.50 | 0.27 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.73 | 0.35 | 0.35 | 0.26 | | | | | 67 |
| 3-5 | 0.52 | 0.26 | 0.26 | 0.26 | | | | | 63 |

| 11 ft x 3 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.45 | 0.31 | 0.29 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.67 | 0.42 | 0.43 | 0.26 | | | | | 63 |
| 3-5 | 0.47 | 0.30 | 0.31 | 0.26 | | | | | 60 |

| 11 ft x 4 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.41 | 0.34 | 0.33 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.61 | 0.48 | 0.49 | 0.26 | | | | | 60 |
| 3-5 | 0.43 | 0.35 | 0.35 | 0.26 | | | | | 56 |

| 11 ft x 5 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.38 | 0.37 | 0.37 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.56 | 0.53 | 0.54 | 0.26 | | | | | 56 |
| 3-5 | 0.40 | 0.38 | 0.39 | 0.26 | | | | | 56 |

| 11 ft x 6 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.35 | 0.40 | 0.40 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.52 | 0.58 | 0.60 | 0.26 | | | | | 56 |
| 3-5 | 0.37 | 0.42 | 0.43 | 0.26 | | | | | 56 |

| 11 ft x 7 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.33 | 0.42 | 0.43 | 0.26 | 0.28 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.48 | 0.62 | 0.64 | 0.26 | | | | | 60 |
| 3-5 | 0.35 | 0.44 | 0.47 | 0.26 | | | | | 56 |

| 11 ft x 8 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.31 | 0.45 | 0.47 | 0.26 | 0.30 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.45 | 0.66 | 0.69 | 0.26 | | | | | 67 |
| 3-5 | 0.33 | 0.47 | 0.50 | 0.26 | | | | | 63 |

| 11 ft x 9 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.30 | 0.47 | 0.50 | 0.26 | 0.31 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.43 | 0.69 | 0.73 | 0.26 | | | | | 85 |
| 3-5 | 0.31 | 0.49 | 0.53 | 0.26 | | | | | 70 |

| 11 ft x 10 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.28 | 0.49 | 0.53 | 0.26 | 0.33 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.41 | 0.73 | 0.77 | 0.26 | | | | | 86 |
| 3-5 | 0.30 | 0.52 | 0.56 | 0.26 | | | | | 86 |

| 11 ft x 11 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.27 | 0.51 | 0.56 | 0.26 | 0.34 | 0.26 | 0.26 | 0.26 | |
| 2<3 | 0.39 | 0.76 | 0.81 | 0.26 | | | | | 86 |
| 3-5 | 0.29 | 0.55 | 0.59 | 0.26 | | | | | 86 |

| 12 ft x 2 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.51 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.81 | 0.37 | 0.37 | 0.29 | | | | | 71 |
| 3-5 | 0.57 | 0.29 | 0.29 | 0.29 | | | | | 68 |

| 12 ft x 3 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.46 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.74 | 0.44 | 0.44 | 0.29 | | | | | 68 |
| 3-5 | 0.53 | 0.32 | 0.32 | 0.29 | | | | | 64 |

| 12 ft x 4 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.42 | 0.33 | 0.31 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.68 | 0.50 | 0.51 | 0.29 | | | | | 64 |
| 3-5 | 0.49 | 0.36 | 0.37 | 0.29 | | | | | 60 |

| 12 ft x 5 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.39 | 0.35 | 0.34 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.63 | 0.55 | 0.56 | 0.29 | | | | | 64 |
| 3-5 | 0.45 | 0.40 | 0.41 | 0.29 | | | | | 60 |

| 12 ft x 6 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.36 | 0.38 | 0.38 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.59 | 0.60 | 0.62 | 0.29 | | | | | 60 |
| 3-5 | 0.42 | 0.44 | 0.45 | 0.29 | | | | | 56 |

| 12 ft x 7 ft x 11 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.34 | 0.41 | 0.42 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.55 | 0.65 | 0.67 | 0.29 | | | | | 60 |
| 3-5 | 0.40 | 0.47 | 0.49 | 0.29 | | | | | 60 |

| 12 ft x 8 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.32 | 0.43 | 0.45 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.52 | 0.69 | 0.72 | 0.29 | | | | | 67 |
| 3-5 | 0.38 | 0.50 | 0.52 | 0.29 | | | | | 64 |

| 12 ft x 9 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.30 | 0.45 | 0.47 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.49 | 0.73 | 0.76 | 0.29 | | | | | 75 |
| 3-5 | 0.36 | 0.52 | 0.56 | 0.29 | | | | | 68 |

| 12 ft x 10 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.29 | 0.48 | 0.50 | 0.29 | 0.30 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.46 | 0.76 | 0.80 | 0.29 | | | | | 93 |
| 3-5 | 0.34 | 0.55 | 0.59 | 0.29 | | | | | 79 |

| 12 ft x 11 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.29 | 0.50 | 0.53 | 0.29 | 0.32 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.44 | 0.79 | 0.85 | 0.29 | | | | | 91 |
| 3-5 | 0.33 | 0.57 | 0.62 | 0.29 | | | | | 79 |

| 12 ft x 12 ft x 12 in. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Design Earth Cover, ft | Circumferential Reinforcement Areas, sq in./ ft | | | | | | | | |
| | As1 | As2 | As3 | As4 | As5 | As6 | As7 | As8 | “M”, in. |
| 0<2 | 0.29 | 0.52 | 0.56 | 0.29 | 0.33 | 0.29 | 0.29 | 0.29 | |
| 2<3 | 0.43 | 0.83 | 0.89 | 0.29 | | | | | 93 |
| 3-5 | 0.32 | 0.60 | 0.65 | 0.29 | | | | | 93” |

80293

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Pavement Marking Tape Type IV |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research and Bureau of Operations to create a statewide specification for temporary pavement marking tape in work zones that provides for improved retroreflectivity during wet conditions. This special provision has been revised to fit with the 2016 Standard Specifications.

It should be included in contracts where the use of this material has been approved by the Bureau of Materials and Physical Research.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80298m

**PAVEMENT MARKING TAPE TYPE IV (BDE)**

Effective: April 1, 2012
Revised: April 1, 2016

Revise Article 703.02 of the Standard Specifications to read:

"**703.02 Materials.** Materials shall be according to the following.

(a) Pavement Marking Tape, Type I and Type III ..... 1095.06
(b) Paint Pavement Markings ..... 1095.02
(c) Pavement Marking Tape, Type IV ..... 1095.11"

Revise the second paragraph of Article 703.05 of the Standard Specifications to read:

"Type I marking tape or paint shall be used at the option of the Contractor, except paint shall not be applied to the final wearing surface unless authorized by the Engineer for late season applications where tape adhesion would be a problem. Type III or Type IV marking tape shall be used on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts."

Revise the fourth paragraph of Article 703.07 of the Standard Specifications to read:

"When Pavement Marking Tape, Type III or Pavement Marking Tape, Type IV is specified in the contract other than on a Standard, the work will be paid for at the contract unit price per foot (meter) for PAVEMENT MARKING TAPE, TYPE III or PAVEMENT MARKING TAPE, TYPE IV of the line width specified and at the contract unit price per square feet (square meter) for PAVEMENT MARKING TAPE, TYPE III - LETTERS AND SYMBOLS or PAVEMENT MARKING TAPE, TYPE IV – LETTERS AND SYMBOLS."

Add the following to Section 1095 of the Standard Specifications:

"**1095.11 Pavement Marking Tape, Type IV.** The temporary, preformed, patterned markings shall consist of a white or yellow tape with wet retroreflective media incorporated to provide immediate and continuing retroreflection during both wet and dry conditions. The tape shall be manufactured without the use of heavy metals including lead chromate pigments or other similar, lead-containing chemicals.

The white and yellow Type IV marking tape shall meet the Type III requirements of Article 1095.06 and the following.

(a) Composition. The retroreflective pliant polymer pavement markings shall consist of a mixture of high-quality polymeric materials, pigments and glass beads distributed throughout its base cross-sectional area, with a layer of wet retroreflective media bonded to a durable polyurethane topcoat surface. The patterned surface shall have approximately 40% ± 10% of the surface area raised and presenting a near vertical face

to traffic from any direction. The channels between the raised areas shall be substantially free of exposed beads or particles.

(b) Retroreflectance. The white and yellow markings shall meet the following for initial dry and wet retroreflectance.

(1) Dry Retroreflectance. Dry retroreflectance shall be measured under dry conditions according to ASTM D4061 and meet the values described in Article 1095.06 for Type III tape.

(2) Wet Retroreflectance. Wet retroreflectance shall be measured under wet conditions according to ASTM E2177 and meet the values shown in the following table.

**Wet Retroreflectance, Initial $R_L$**

| **Color** | **$R_L$ 1.05/88.76** |
|---|---|
| White | 300 |
| Yellow | 200 |

(c) Color. The material shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and a two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

| **Color** | **Daylight Reflectance %Y** |
|---|---|
| White | 65 minimum |
| *Yellow | 36-59 |

*Shall match Federal 595 Color No. 33538 and the chromaticity limits as follows.

| | | | | |
|---|---|---|---|---|
| x | 0.490 | 0.475 | 0.485 | 0.530 |
| y | 0.470 | 0.438 | 0.425 | 0.456 |

(d) Skid Resistance. The surface of the markings shall provide an average minimum skid resistance of 50 BPN when tested according to ASTM E303.

(e) Sampling, Testing, Acceptance, and Certification. Prior to approval and use of the wet reflective, temporary, removable pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, and date of manufacture.

After approval by the Department, samples and certification by the manufacturer shall be submitted for each batch used. The manufacturer shall submit a certification stating that

the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, manufacturer's name, and date of manufacture.

All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer."

80298

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Preformed Plastic Pavement Marking Type D - Inlaid |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research and Bureau of Operations to create a statewide specification for an alternative preformed plastic pavement marking that provides for improved retroreflectivity during wet conditions. This special provision has been revised to fit with the 2016 Standard Specifications.

It should be included in contracts where the use of this material has been approved by the Bureau of Materials and Physical Research.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80300m

**PREFORMED PLASTIC PAVEMENT MARKING TYPE D - INLAID (BDE)**

Effective: April 1, 2012
Revised: April 1, 2016

Revise subparagraph (c) and add subparagraph (i) to Article 780.02 of the Standard Specifications:

"(c) Preformed Plastic Pavement Markings, Type B and Type C ..... 1095.03
(i) Preformed Plastic Pavement Marking, Type D ..... 1095.10"

Revise the first paragraph of Article 780.07(a) of the Standard Specifications to read:

"(a) Type B or D - Inlaid Application. On freshly placed HMA, the inlaid markings shall be applied before final compaction and when the pavement temperature has cooled to approximately 150 °F (65 °C) and when, in the opinion of the Engineer, the pavement is acceptable for vehicular traffic."

Revise the first paragraph of Article 780.12 of the Standard Specifications to read:

"**780.12 Inspection.** The epoxy, thermoplastic, preformed thermoplastic, preformed plastic Type B, C, or D, and polyurea pavement markings will be inspected following installation, but no later than October 15 for preformed plastic markings, November 1 for thermoplastic and preformed thermoplastic markings, and December 15 for epoxy and polyurea markings. In addition, they will be inspected following a winter performance period that extends 180 days from November 1."

Revise the ninth paragraph of Article 780.12 of the Standard Specifications to read:

"This performance inspection and performance acceptance of the epoxy, thermoplastic, preformed thermoplastic, preformed plastic Type B, C, or D, and polyurea markings shall not delay acceptance of the entire project and final payment due if the Contractor requires and receives from the subcontractor a third party "performance" bond naming the Department as obligee in the full amount of all pavement marking quantities listed in the contract, multiplied by the contract unit price. The bond shall be executed prior to acceptance and final payment of the non-pavement marking items and shall be in full force and effect until final performance inspection and performance acceptance of the epoxy, thermoplastic, preformed thermoplastic, preformed plastic, and polyurea pavement markings. Execution of the third party bond shall be the option of the Contractor."

Revise the first paragraph of Article 780.14 of the Standard Specifications to read:

"**780.14 Basis of Payment.** This work will be paid for at the contract unit prices per foot (meter) of applied line width, as specified, for THERMOPLASTIC PAVEMENT MARKING - LINE; PAINT PAVEMENT MARKING - LINE; EPOXY PAVEMENT MARKING - LINE;

PREFORMED PLASTIC PAVEMENT MARKING - LINE - TYPE B, C, B – INLAID, or D - INLAID; PREFORMED THERMOPLASTIC PAVEMENT MARKING – LINE, POLYUREA PAVEMENT MARKING TYPE I – LINE, POLYUREA PAVEMENT MARKING TYPE II - LINE; and/or per square foot (square meter) for THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS; PAINT PAVEMENT MARKING - LETTERS AND SYMBOLS; EPOXY PAVEMENT MARKING - LETTERS AND SYMBOLS; PREFORMED PLASTIC PAVEMENT MARKING - TYPE B, C, B – INLAID, or D - INLAID - LETTERS AND SYMBOLS; PREFORMED THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS."

Add the following to Section 1095 of the Standard Specifications:

"**1095.10 Preformed Plastic Pavement Marking, Type D.** The preformed patterned markings shall consist of a white or yellow tape with wet retroreflective media incorporated to provide immediate and continuing retroreflection during both wet and dry conditions. The pavement marking shall be manufactured without the use of heavy metals including lead chromate pigments or other similar, lead-containing chemicals.

The white and yellow preformed plastic pavement markings shall meet the Type B requirements of Article 1095.03(b), (c), (d), (e), (i), (l), (m), (n) and the following.

(a) Composition. The pliant polymer pavement markings shall consist of a mixture of high-quality polymeric materials, pigments and glass beads distributed throughout its base cross-sectional area, with a layer of wet retroreflective media bonded to a durable polyurethane topcoat surface. The patterned surface shall have approximately 40% ± 10% of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed beads or particles.

(b) Retroreflectance. The white and yellow markings shall meet the following for initial dry and wet retroreflectance.

(1) Dry Retroreflectance. Dry retroreflectance shall be measured under dry conditions according to ASTM D4061 and meet the values described in Article 1095.03(l) for Type B.

(2) Wet Retroreflectance. Wet retroreflectance shall be measured under wet conditions according to ASTM E2177 and meet the values shown in the following table.

**Wet Retroreflectance, Initial $R_L$**

| Color | $R_L$ 1.05/88.76 |
|---|---|
| White | 300 |
| Yellow | 200 |

(c) Color. The material shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and a two degree observer angle.

The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

| **Color** | **Daylight Reflectance %Y** |
|---|---|
| White | 65 minimum |
| *Yellow | 36-59 |

*Shall match Federal 595 Color No. 33538 and the chromaticity limits as follows.

| | | | | |
|---|---|---|---|---|
| x | 0.490 | 0.475 | 0.485 | 0.530 |
| y | 0.470 | 0.438 | 0.425 | 0.456 |

(d) Sampling, Testing, Acceptance, and Certification. Prior to approval and use of the preformed pavement marking materials, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, and date of manufacture.

After approval by the Department, samples and certification by the manufacturer shall be submitted for each batch used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, manufacturer's name, and date of manufacture."

80300

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Weekly DBE Trucking Reports |
| Date: | April 17, 2015 |

This special provision was developed by the Office of Business and Workforce Diversity and the Bureau of Construction as a result of revised DBE monitoring requirements set forth in 49 CFR 26.37. It has been revised to clarify when the reports are required.

This special provision should be inserted into all contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 31, 2015 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 17, 2015.

80302m

**WEEKLY DBE TRUCKING REPORTS (BDE)**

Effective: June 2, 2012
Revised: April 2, 2015

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Engineer on Department form "SBE 723" within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

80302

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Grooving for Recessed Pavement Markings |
| Date: | April 18, 2014 |

This special provision was developed by the Bureau of Operations to create a statewide specification for installing a pavement groove for recessed pavement markings that provides for improved durability of pavement marking materials. It has been revised to include minimum depth requirements for thermoplastic pavement markings.

This special provision should be inserted into contracts where the grooving of pavement marking materials has been specified.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the August 1, 2014 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 18, 2014.

80304m

**GROOVING FOR RECESSED PAVEMENT MARKINGS (BDE)**

Effective: November 1, 2012
Revised: August 1, 2014

Description. This work shall consist of grooving the pavement surface in preparation for the application of recessed pavement markings.

Equipment. Equipment shall be according to the following.

(a) Pavement Marking Tape Installations: The grooving equipment shall have a free-floating saw blade cutting head equipped with gang-stacked diamond saw blades. The diamond saw blades shall be of uniform wear and shall produce a smooth textured surface. Any ridges in the groove shall have a maximum height of 15 mils (0.38 mm).

(b) Liquid and Thermoplastic Pavement Marking Installations: The grooving equipment shall be equipped with either a free-floating saw blade cutting head or a free-floating grinder cutting head configuration with diamond or carbide tipped cutters and shall produce an irregular textured surface.

## CONSTRUCTION REQUIREMENTS

General. The Contractor shall supply the Engineer with a copy of the pavement marking material manufacturer's recommendations for constructing a groove.

Pavement Grooving Methods. The grooves for recessed pavement markings shall be constructed using the following methods.

(a) Wet Cutting Head Operation. When water is required or used to cool the cutting head, the groove shall be flushed with high pressure water immediately following the cut to avoid build up and hardening of slurry in the groove. The pavement surface shall be allowed to dry for a minimum of 24 hours prior to the final cleaning of the groove and application of the pavement marking material.

(b) Dry Cutting Head Operation. When used on HMA pavements, the groove shall be vacuumed or cleaned by blasting with high-pressure air to remove loose aggregate, debris, and dust generated during the cutting operation. When used on PCC pavements, the groove shall be flushed with high pressure water or shot blasted to remove any PCC particles that may have become destabilized during the grooving process. If high pressure water is used, the pavement surface shall be allowed to dry for a minimum of 24 hours prior to the final cleaning of the groove and application of the pavement marking material.

Pavement Grooving. Grooving shall not cause ravels, aggregate fractures, spalling or disturbance of the joints to the underlying surface of the pavement. Grooves shall be cut into

the pavement prior to the application of the pavement marking material. Grooves shall be cut such that the width is 1 in. (25 mm) greater than the width of the pavement marking line as specified on the plans. Grooves for letters and symbols shall be cut in a square or rectangular shape so that the entire marking will fit within the limits of the grooved area. The position of the edge of the grooves shall be a minimum of 4 in. (100 mm) from the edge of all longitudinal joints. The depth of the groove shall not be less than the manufacturer's recommendations for the pavement marking material specified, but shall be installed to a minimum depth of 110 mils (2.79 mm) and a maximum depth of 200 mils (5.08 mm) for pavement marking tapes thermoplastic markings and a minimum depth of 40 mils (1.02 mm) and a maximum depth of 80 mils (2.03 mm) for liquid markings. The cutting head shall be operated at the appropriate speed in order to prevent undulation of the cutting head and grooving at an inconsistent depth.

At the start of grooving operations, a 50 ft (16.7 m) test section shall be installed and depth measurements shall be made at 10 ft (3.3 m) intervals within the test section. The individual depth measurements shall be within the allowable ranges according to this Article. If it is determined the test section has not been grooved at the appropriate depth or texture, adjustments shall be made to the cutting head and another 50 ft (16.7 m) test section shall be installed and checked. This process shall continue until the test section meets the requirements of this Article.

For new HMA pavements, grooves shall not be installed within 14 days of the placement of the final course of pavement.

Final Cleaning. Immediately prior to the application of the pavement marking material or primer sealer, the groove shall be cleaned with high-pressure air blast.

Method of Measurement. This work will be measured for payment in place, in feet (meter) for the groove width specified.

Grooving for letter, numbers and symbols will be measured in square feet (square meters).

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for GROOVING FOR RECESSED PAVEMENT MARKING of the groove width specified, and per square foot (square meter) for GROOVING FOR RECESSED PAVEMENT MARKING, LETTERS AND SYMBOLS.

The following shall only apply when preformed plastic pavement markings are to be recessed:

Add the following paragraph after the first paragraph of Article 780.07 of the Standard Specifications.

"The markings shall be capable of being applied in a grooved slot on new and existing portland cement concrete and HMA surfaces, by means of a pressure-sensitive, precoated adhesive, or liquid contact cement which shall be applied at the time of installation. A primer sealer shall be applied with a roller and shall cover and seal the entire bottom of the groove.

The primer sealer shall be recommended by the manufacturer of the pavement marking material and shall be compatible with the material being used. The Contractor shall install the markings in the groove as soon as possible after the primer sealer cures according to the manufacturer's recommendations. The markings placed in the groove shall be rolled and tamped into the groove with a roller or tamper cart cut to fit the groove and loaded with or weighing at least 200 lb (90kg). Vehicle tires shall not be used for tamping. The Contractor shall roll and tamp the material with a minimum of 6 passes to prevent easy removal or peeling."

80304

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman 1/11/16 |
| Subject: | Special Provision for Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS) |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to combine the existing two BDE special provisions, Reclaimed Asphalt Pavement and Reclaimed Asphalt Shingles into one.

This special provision has been revised to fit with the 2016 Standard Specifications and incorporates the revision from January 2, 2015.

This special provision should be inserted in all HMA contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80306m

**RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (BDE)**

Effective: November 1, 2012
Revise: April 1, 2016

Revise Section 1031 of the Standard Specifications to read:

"**SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES**

**1031.01 Description.** Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

(a) Reclaimed Asphalt Pavement (RAP). RAP is the material produced by cold milling or crushing an existing hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.

(b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Sources", by weight of RAS. All RAS used shall come from a Bureau of Materials and Physical Research approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 93 percent passing the #4 (4.75 mm) sieve based on a dry shake gradation. RAS shall be uniform in gradation and asphalt binder content and shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.

(1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.

(2) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

**1031.02 Stockpiles.** RAP and RAS stockpiles shall be according to the following.

(a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. Stockpiles shall be identified by signs indicating the type as listed below (i.e. "Homogeneous Surface").

Prior to milling, the Contractor shall request the District provide documentation on the quality of the RAP to clarify the appropriate stockpile.

(1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. All FRAP shall be fractionated prior to testing by screening into a minimum of two size fractions with the separation occurring on or between the #4 (4.75 mm) and 1/2 in. (12.5 mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP shall pass the sieve size specified below for the mix into which the FRAP will be incorporated.

| Mixture FRAP will be used in: | Sieve Size that 100 % of FRAP Shall Pass |
|---|---|
| IL-19.0 | 1 1/2 in. (40 mm) |
| IL-9.5 | 3/4 in. (20 mm) |
| IL-4.75 | 1/2 in. (13 mm) |

(2) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures and represent: 1) the same aggregate quality, but shall be at least C quality; 2) the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag); 3) similar gradation; and 4) similar asphalt binder content. If approved by the Engineer, combined single pass surface/binder millings may be considered "homogeneous" with a quality rating dictated by the lowest coarse aggregate quality present in the mixture.

(3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed prior to testing by crushing to where all RAP shall pass the 5/8 in. (16 mm) or smaller screen. Conglomerate RAP stockpiles shall not contain steel slag.

(4) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP/FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

(b) RAS Stockpiles. Type 1 and Type 2 RAS shall be stockpiled separately and shall not be intermingled. Each stockpile shall be signed indicating what type of RAS is present.

Unless otherwise specified by the Engineer, mechanically blending manufactured sand (FM 20 or FM 22) up to an equal weight of RAS with the processed RAS will be permitted to improve workability. The sand shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The sand shall be accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type, and lot number shall be maintained by project contract number and kept for a minimum of three years.

**1031.03 Testing.** RAP/FRAP and RAS testing shall be according to the following.

(a) RAP/FRAP Testing. When used in HMA, the RAP/FRAP shall be sampled and tested either during or after stockpiling.

(1) During Stockpiling. For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

(2) After Stockpiling. For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Each sample shall be split to obtain two equal samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

(b) RAS Testing. RAS or RAS blended with manufactured sand shall be sampled and tested during stockpiling according to Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Source".

Samples shall be collected during stockpiling at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 250 tons (225 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a ≤ 1000 ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS or RAS blended with manufactured sand shall be stockpiled in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

Before testing, each sample shall be split to obtain two test samples. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall perform a washed extraction and test for unacceptable materials on the other test sample according to Department procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

If the sampling and testing was performed at the shingle processing facility in accordance with the QC Plan, the Contractor shall obtain and make available all of the test results from start of the initial stockpile.

**1031.04 Evaluation of Tests.** Evaluation of test results shall be according to the following.

(a) Evaluation of RAP/FRAP Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation, and when applicable $G_{mm}$. Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

| Parameter | FRAP/Homogeneous/ Conglomerate |
|---|---|
| 1 in. (25 mm) | |
| 1/2 in. (12.5 mm) | ± 8 % |
| No. 4 (4.75 mm) | ± 6 % |
| No. 8 (2.36 mm) | ± 5 % |
| No. 16 (1.18 mm) | |
| No. 30 (600 µm) | ± 5 % |
| No. 200 (75 µm) | ± 2.0 % |
| Asphalt Binder | ± 0.4 % 1/ |
| $G_{mm}$ | ± 0.03 |

1/ The tolerance for FRAP shall be ± 0.3 %.

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, the RAP/FRAP shall not be used in HMA unless the RAP/FRAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the ITP, “Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)”.

(b) Evaluation of RAS and RAS Blended with Manufactured Sand Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and gradation. Individual test results, when compared to the averages, will be accepted if within the tolerances listed below.

| Parameter | RAS |
|---|---|
| No. 8 (2.36 mm) | ± 5 % |
| No. 16 (1.18 mm) | ± 5 % |
| No. 30 (600 µm) | ± 4 % |
| No. 200 (75 µm) | ± 2.0 % |
| Asphalt Binder Content | ± 1.5 % |

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, or if the percent unacceptable material exceeds 0.5 percent by weight of material retained on the # 4 (4.75 mm) sieve, the RAS or RAS blend shall not be used in Department projects. All test data and acceptance ranges shall be sent to the District for evaluation.

**1031.05 Quality Designation of Aggregate in RAP/FRAP.**

(a) RAP. The aggregate quality of the RAP for homogeneous and conglomerate stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

(1) RAP from Class I, Superpave/HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.

(2) RAP from Class I binder, Superpave/HMA (High ESAL) binder, or (Low ESAL) IL-19.0L binder mixtures are designated as containing Class C quality coarse aggregate.

(b) FRAP. If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer.

If the quality is not known, the quality shall be determined as follows. Coarse and fine FRAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5000 tons (4500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant laboratory prequalified by the Department for the specified testing. The consultant laboratory shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the Bureau of Materials and Physical Research Aggregate Lab for MicroDeval Testing, according to ITP 327. A maximum loss of 15.0 percent will be applied for all HMA applications.

**1031.06 Use of RAP/FRAP and/or RAS in HMA.** The use of RAP/FRAP and/or RAS shall be the Contractor's option when constructing HMA in all contracts.

(a) RAP/FRAP. The use of RAP/FRAP in HMA shall be as follows.

(1) Coarse Aggregate Size. The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.

(2) Steel Slag Stockpiles. Homogeneous RAP stockpiles containing steel slag will be approved for use in all HMA (High ESAL and Low ESAL) Surface and Binder Mixture applications.

(3) Use in HMA Surface Mixtures (High and Low ESAL). RAP/FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be FRAP or homogeneous in which the coarse aggregate is Class B quality or better. RAP/FRAP from Conglomerate stockpiles shall be considered equivalent to limestone for frictional considerations. Known frictional contributions from plus #4 (4.75 mm) homogeneous RAP and FRAP stockpiles will be accounted for in meeting frictional requirements in the specified mixture.

(4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP/FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP, homogeneous, or conglomerate, in which the coarse aggregate is Class C quality or better.

(5) Use in Shoulders and Subbase. RAP/FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, homogeneous, or conglomerate.

(6) When the Contractor chooses the RAP option, the percentage of RAP shall not exceed the amounts indicated in Article 1031.06(c)(1) below for a given Ndesign.

(b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.

(c) RAP/FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with RAP or FRAP in HMA mixtures up to a maximum of 5.0 percent by weight of the total mix.

(1) RAP/RAS. When RAP is used alone or RAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the Max RAP/RAS ABR table listed below for the given Ndesign.

**RAP/RAS Maximum Asphalt Binder Replacement (ABR) Percentage**

| HMA Mixtures 1/, 2/ | RAP/RAS Maximum ABR % | | |
|---|---|---|---|
| Ndesign | Binder/Leveling Binder | Surface | Polymer Modified |
| 30 | 30 | 30 | 10 |

| | | | |
|---|---|---|---|
| 50 | 25 | 15 | 10 |
| 70 | 15 | 10 | 10 |
| 90 | 10 | 10 | 10 |

1/ For Low ESAL HMA shoulder and stabilized subbase, the RAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When RAP/RAS ABR exceeds 20 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28). If warm mix asphalt (WMA) technology is utilized and production temperatures do not exceed 275 °F (135 °C), the high and low virgin asphalt binder grades shall each be reduced by one grade when RAP/RAS ABR exceeds 25 percent (i.e. 26 percent RAP/RAS ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

(2) FRAP/RAS. When FRAP is used alone or FRAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the FRAP/RAS table listed below for the given Ndesign.

**FRAP/RAS Maximum Asphalt Binder Replacement (ABR) Percentage**

| HMA Mixtures 1/, 2/ | FRAP/RAS Maximum ABR % | | |
|---|---|---|---|
| Ndesign | Binder/Leveling Binder | Surface | Polymer Modified 3/, 4/ |
| 30 | 50 | 40 | 10 |
| 50 | 40 | 35 | 10 |
| 70 | 40 | 30 | 10 |
| 90 | 40 | 30 | 10 |

1/ For Low ESAL HMA shoulder and stabilized subbase, the FRAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When FRAP/RAS ABR exceeds 20 percent for all mixes, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28). If warm mix asphalt (WMA) technology is utilized and production temperatures do not exceed 275 °F (135 °C), the high and low virgin asphalt binder grades shall each be reduced by one grade when FRAP/RAS ABR exceeds 25 percent (i.e. 26 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

3/ For SMA the FRAP/RAS ABR shall not exceed 20 percent.

4/ For IL-4.75 mix the FRAP/RAS ABR shall not exceed 30 percent.

**1031.07 HMA Mix Designs.** At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the detailed requirements specified herein.

(a) RAP/FRAP and/or RAS. RAP/FRAP and/or RAS mix designs shall be submitted for verification. If additional RAP/FRAP and/or RAS stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original RAP/FRAP and/or RAS stockpile and HMA mix design, and meets all of the requirements herein, the additional RAP/FRAP and/or RAS stockpiles may be used in the original mix design at the percent previously verified.

(b) RAS. Type 1 and Type 2 RAS are not interchangeable in a mix design. A RAS stone bulk specific gravity (Gsb) of 2.300 shall be used for mix design purposes.

**1031.08 HMA Production.** HMA production utilizing RAP/FRAP and/or RAS shall be as follows.

(a) RAP/FRAP. The coarse aggregate in all RAP/FRAP used shall be equal to or less than the nominal maximum size requirement for the HMA mixture being produced.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material. If material passing the sizing device adversely affects the mix production or quality of the mix, the sizing device shall be set at a size specified by the Engineer.

If the RAP/FRAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP/FRAP and either switch to the virgin aggregate design or submit a new RAP/FRAP design.

(b) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.

(c) RAP/FRAP and/or RAS. HMA plants utilizing RAP/FRAP and/or RAS shall be capable of automatically recording and printing the following information.

(1) Dryer Drum Plants.

a. Date, month, year, and time to the nearest minute for each print.

b. HMA mix number assigned by the Department.

c. Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

d. Accumulated dry weight of RAP/FRAP/RAS in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).

e. Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.

f. Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.

g. Residual asphalt binder in the RAP/FRAP material as a percent of the total mix to the nearest 0.1 percent.

h. Aggregate and RAP/FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAP/FRAP are printed in wet condition.)

(2) Batch Plants.

a. Date, month, year, and time to the nearest minute for each print.

b. HMA mix number assigned by the Department.

c. Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).

d. Mineral filler weight to the nearest pound (kilogram).

e. RAP/FRAP/RAS weight to the nearest pound (kilogram).

f. Virgin asphalt binder weight to the nearest pound (kilogram).

g. Residual asphalt binder in the RAP/FRAP/RAS material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

**1031.09 RAP in Aggregate Surface Course and Aggregate Wedge Shoulders, Type B.** The use of RAP in aggregate surface course (temporary access entrances only) and aggregate wedge shoulders, Type B shall be as follows.

(a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Non-Quality" and "FRAP". The testing requirements of Article 1031.03 shall not apply. RAP used shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".

(b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5 mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single sized will not be accepted."

80306

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Concrete End Sections for Pipe Culverts |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Design and Environment to establish construction requirements, a method of measurement and a basis of payment for the new Highway Standards for concrete end sections for pipe culverts.

This special provision has been revised to coordinate with the 2016 Standard Specifications and with the deletion of Highways Standards 542006 and 542016. These two Standards were no longer necessary since the individual end sections shown on Highway Standards 542001 and 542011 can be placed side-by-side for multi-pipe culvert installations.

This special provision should be inserted into contracts utilizing Highway Standards 542001 or 542011.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80311m

**CONCRETE END SECTIONS FOR PIPE CULVERTS (BDE)**

Effective: January 1, 2013
Revised: April 1, 2016

Description. This work shall consist of constructing cast-in-place concrete and precast concrete end sections for pipe culverts. These end sections are shown on the plans as Highway Standard 542001 or 542011. This work shall be according to Section 542 of the Standard Specifications except as modified herein.

Materials. Materials shall be according to the following Articles of Division 1000 – Materials of the Standard Specifications.

| | Item | Article/Section |
|---|---|---|
| (a) | Portland Cement Concrete (Note 1) | 1020 |
| (b) | Precast Concrete End Sections (Note 2) | |
| (c) | Coarse Aggregate (Note 3) | 1004.05 |
| (d) | Structural Steel (Note 4) | 1006.04 |
| (e) | Anchor Bolts and Rods (Note 5) | 1006.09 |
| (f) | Reinforcement Bars | 1006.10(a) |
| (g) | Nonshrink Grout | 1024.02 |
| (h) | Chemical Adhesive Resin System | 1027 |
| (i) | Mastic Joint Sealer for Pipe | 1055 |
| (j) | Hand Hole Plugs | 1042.16 |

Note 1. Cast-in-place concrete end sections shall be Class SI, except the 14 day mix design shall have a compressive strength of 5000 psi (34,500 kPa) or a flexural strength of (800 psi) 5500 kPa and a minimum cement factor of 6.65 cwt/cu yd (395 kg/cu m).

Note 2. Precast concrete end sections shall be according to Articles 1042.02 and 1042.03(b)(c)(d)(e) of the Standard Specifications. The concrete shall be Class PC according to Section 1020, and shall have a minimum compressive strength of 5000 psi (34,000 kPa) at 28 days.

Joints between precast sections shall be produced with reinforced tongue and groove ends according to the requirements of ASTM C 1577.

Note 3. The granular bedding placed below a precast concrete end section shall be gradation CA 6, CA 9, CA 10, CA 12, CA 17, CA 18, or CA 19.

Note 4. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable.

Note 5. The anchor rods for the culvert ties shall be according to the requirements of ASTM F 1554, Grade 105 (Grade 725).

## CONSTRUCTION REQUIREMENTS

The concrete end sections may be precast or cast-in-place construction. Toe walls shall be either precast or cast-in-place, and shall be in proper position and backfilled according to the applicable paragraphs of Article 502.10 of the Standard Specifications prior to the installation of the concrete end sections. If soil conditions permit, cast-in-place toe walls may be poured directly against the soil. When poured directly against the soil, the clear cover of the sides and bottom of the toe wall shall be increased to 3 in. (75 mm) by increasing the thickness of the toe wall.

(a) Cast-In-Place Concrete End Sections. Cast-in-place concrete end sections shall be constructed according to the requirements of Section 503 of the Standard Specifications and as shown on the plans.

(b) Precast Concrete End Sections. When the concrete end sections will be precast, shop drawings detailing the slab thickness and reinforcement layout shall be submitted to the Engineer for review and approval.

The excavation and backfilling for precast concrete end sections shall be according to the requirements of Section 502 of the Standard Specifications, except a layer of granular bedding at least 6 in. (150 mm) in thickness shall be placed below the elevation of the bottom of the end section. The granular bedding shall extend a minimum of 2 ft (600 mm) beyond each side of the end section.

Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 2/3 turn on one of the nuts. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut.

When individual, precast end sections are placed side-by-side for a multi-pipe culvert installation, a 3 in. (75 mm) space shall be left between adjacent end section walls and the space(s) filled with Class SI concrete.

Method of Measurement. This work will be measured for payment as each, with each end of each culvert being one each.

Basis of Payment. This work will be paid for at the contract unit price per each for CONCRETE END SECTION, STANDARD 542001 or CONCRETE END SECTION, 542011, of the pipe diameter and slope specified.

80311

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Surface Testing of Hot-Mix Asphalt Overlays |
| Date: | January 8, 2016 |

This special provision was originally developed by the Bureau of Materials & Physical Research as part of the Illinois Smoothness Initiative. It requires a 0.00 in. (0.0 mm) blanking band be used to calculate the Profile Index values and includes incentives and/or disincentives based on those values. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted into all interstate resurfacing contracts. At the district's discretion, it can also be inserted into other multi-lane resurfacing contracts with overlay thicknesses of 3.75 in. (95 mm) or greater. Note: this special provision is not recommended for use on two lane hot-mix asphalt overlay projects or projects with overlay thicknesses less than 3.75 in. (95 mm).

The districts should include the Bureau of Design and Environment Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80317m

**SURFACE TESTING OF HOT-MIX ASPHALT OVERLAYS (BDE)**

Effective: January 1, 2013
Revised: April 1, 2016

Revise Article 406.03(h) of the Standard Specifications to read:

"(h) Pavement Surface Test Equipment .....1101.10"

Revise Article 406.11 of the Standard Specifications to read:

"**406.11 Surface Tests.** The finished surface of the pavement shall be tested for smoothness according to Article 407.09, except as follows:

One wheel track shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to the edge of the lane away from traffic.

| SMOOTHNESS ASSESSMENT SCHEDULE (HMA Overlays) | | |
|---|---|---|
| High-Speed Mainline Pavement Average Profile Index in./mile (mm/km) | Low-Speed Mainline Pavement Average Profile Index in./mile (mm/km) | Assessment per sublot |
| 6.0 (95) or less | 15.0 (240) or less | +$150.00 |
| >6.0 (95) to 10.0 (160) | >15.0 (240) to 25.0 (400) | +$80.00 |
| >10.0 (160) to 30.0 (475) | >25.0 (400) to 45.0 (710) | +$0.00 |
| >30.0 (475) to 40.0 (635) | >45.0 (710) to 65.0 (1025) | +$0.00 |
| Greater than 40.0 (635) | Greater than 65.0 (1025) | -$300.00" |

80317

All Regional Engineers

Omer M. Osman, P.E.

Special Provision for Traversable Pipe Grate

January 10, 2014

This special provision was developed by the Bureau of Design and Environment to establish construction requirements, a method of measurement and a basis of payment for the new Highway Standard for traversable pipe grate.

This special provision has been revised to include splicing requirements for the pipe grates.

This special provision should be inserted into contracts utilizing a traversable pipe grate on either culvert or box culvert end sections.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 25, 2014 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 10, 2014.

80318m

**TRAVERSABLE PIPE GRATE (BDE)**

Effective: January 1, 2013
Revised: April 1, 2014

Description. This work shall consist of constructing a traversable pipe grate on a concrete end section.

Materials. Materials shall be according to the following Articles of Division 1000 – Materials of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Traversable Pipe Grate Components (Note 1) | |
| (b) Chemical Adhesive Resin System | 1027 |
| (c) High Strength Steel Bolts, Nuts, and Washers (Note 2) | 1006.08 |

Note 1. All steel pipe shall be according to ASTM A 53 (Type E or S), Grade B, or ASTM A 500 Grade B, standard weight (SCH. 40). Structural steel shapes and plates shall be according to AASHTO M270 Grade 50 (M 270M Grade 345) and the requirements of Article 1006.04 of the Standard Specifications. All steel components of the grating system shall be galvanized according to AASHTO M 111 or M 232 as applicable.

Anchor rods shall be according to ASTM F 1554, Grade 36 (Grade 250).

Note 2. Threaded rods conforming to the requirements of ASTM F 1554, Grade 105 (Grade 725) may be used for the thru bolts.

## CONSTRUCTION REQUIREMENTS

Fabrication of the traversable pipe grate shall be according to the requirements of Section 505 of the Standard Specifications and as shown on the plans.

Anchor rods shall be set according to Article 509.06 of the Standard Specifications. Bolts and anchor rods shall be snug tightened by a few impacts of an impact wrench or the full force of a worker using an ordinary spud wrench. Thru bolts shall be snug tightened and shall be brought to a snug tight condition followed by an additional 2/3 turn on one of the nuts. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut.

Splicing of pipes shall be made by utilizing full penetration butt welds according to Article 505.04(q) of the Standard Specifications. In lieu of welding, bolted or sleeve type splices may be utilized, provided the splices are located over intermediate supports with no more than one splice per pipe run with the exception that no splice may occur in pipe runs under 30 ft (9 m) in length.

Method of Measurement. This work will be measured for payment in place in feet (meters). The length measured shall be along the pipe grate elements from end to end for both longitudinal and intermediate support pipes.

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for TRAVERSABLE PIPE GRATE.

80318

All Regional Engineers

John D. Baranzelli

Special Provision for Progress Payments

September 27, 2013

This special provision was developed by the Office of Chief Counsel to comply with Section 2705-610 of the Department of Transportation Law of the Civil Administrative Code Of Illinois [20 ILCS 2705-610] which provides low-interest loans to DBE loan applicants.

This special provision should be inserted into all contracts, except those for repair of motorist caused highway damage.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 17, 2014 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 27, 2013.

80328m

**PROGRESS PAYMENTS (BDE)**

Effective: November 2, 2013

Revise Article 109.07(a) of the Standard Specifications to read:

"(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the quantity of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than $1000.00 will be approved for payment other than the final payment.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics' Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610), progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved."

80328

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Longitudinal Joint and Crack Patching |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Construction, at the request of Industry, to standardize the work of repairing longitudinal joints and cracks with a partial depth patch. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted into contracts involving longitudinal partial depth patching.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80336m

**LONGITUDINAL JOINT AND CRACK PATCHING (BDE)**

Effective: April 1, 2014
Revised: April 1, 2016

Description. This work shall consist of partial depth removal of the existing portland cement concrete pavement or hot-mix asphalt (HMA) pavement and replacement with HMA.

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Bituminous Material for Tack Coat | 406.02 |
| (b) Hot-Mix Asphalt (Note 1) | 1030 |

Note 1. If the patch is going to be resurfaced, the HMA for partial depth patches shall be a surface mixture of the same type as the proposed resurfacing or as approved by the Engineer. If the patch is not going to be resurfaced, the mix shall be as shown on the plans.

Equipment. Equipment shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Self-Propelled Milling Machine | 1101.16 |
| (b) Concrete Saw | 442.03(d) |
| (c) Wheel Saw | 442.03(e) |
| (d) Rollers | 442.03 |
| (e) Mechanical Sweeper | 1101.03 |
| (f) Air Equipment (Note 1) | |

Note 1. The air equipment shall be capable of supplying compressed air at a minimum pressure 100 psi (690 kPa) and shall have sufficient flow rate to remove all disturbed pavement debris. The equipment shall also be according to ASTM D 4285.

## CONSTRUCTION REQUIREMENTS

General. The patch width shall be 2 ft (600 mm), the length shall be a minimum of 10 ft (3 m), and the depth as shown on the plans.

Partial Depth Removal. Partial depth removal of the pavement shall be accomplished by the use of a milling machine and/or the wheel saw. The patch area shall be cleaned by air equipment or mechanical sweeper and all disturbed pavement debris and any loose or unsound concrete shall be removed. Materials resulting from the removal shall be disposed of according to Article 202.03 of the Standard Specifications.

Exposed reinforcement shall be removed back to the point where the steel is in contact with sound concrete. Where high steel is encountered, the depth of the patch may be reduced as directed by the Engineer.

Replacement with HMA. Bituminous tack coat shall be applied to the exposed pavement according to Article 406.05(b) of the Standard Specifications.

The prepared patch shall be filled with HMA surface course with a maximum lift thickness of 3 in. (75 mm). Where more than one lift is needed, the top lift shall be a minimum of 2 in. (50 mm) thick. The HMA mixtures and density control limits shall conform to Article 1030 of the Standard Specifications.

Patch Maintenance. Patches opened to traffic which are high or become rough by rutting, shoving, or heaving shall be corrected by trimming off high areas and/or filling depressions. Filled areas shall be rolled again.

Method of Measurement. Partial depth removal of the pavement will be measured for payment in feet (meters) along the center of the removed pavement.

HMA for longitudinal partial depth patching will be measured for payment in tons (metric tons) according to Article 406.13 of the Standard Specifications.

Basis of Payment. Partial depth removal of the pavement will be paid for at the contract unit price per foot (meter) for LONGITUDINAL PARTIAL DEPTH REMOVAL, of the thickness specified.

HMA for longitudinal partial depth patching will be paid for at the contract unit price for ton (metric ton) for LONGITUDINAL PARTIAL DEPTH PATCHING.

80336

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Portland Cement Concrete Partial Depth Hot - Mix Asphalt Patching |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Design & Environment (BDE) and the Bureau of Construction to address industry's concerns over the variability of patch sizes in the field. This special provision has been revised to fit with the 2016 Standard Specifications.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80338m

**PORTLAND CEMENT CONCRETE PARTIAL DEPTH HOT-MIX ASPHALT PATCHING (BDE)**

Effective: April 1, 2014
Revised: April 1, 2016

Description. This work shall consist of partial depth removal of the existing portland cement concrete pavement structure and replacement with hot-mix asphalt (HMA).

The partial depth removal on a lane width or less shall be classified by type/size as follows.

| | |
|---|---|
| Type I | Less than 8 sq yd (9 sq m) |
| Type II | 8 sq yd (9 sq m) or more, but less than 50 sq yd (42 sq m) |
| Type III | 50 sq yd (42 sq m) or more, but less than 100 sq yd (84 sq m) |
| Type IV | 100 sq yd (84 sq m) or more |

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Bituminous Material for Tack Coat | 406.02 |
| (b) Hot-Mix Asphalt (Note 1) | 1030 |

Note1. If the patch is going to be resurfaced, the HMA for partial depth patches shall be a surface mixture of the same type as the proposed resurfacing or as approved by the Engineer. If the patch is not going to be resurfaced, the mix shall be as shown on the plans.

Equipment. Equipment shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Self-Propelled Milling Machine | 1101.16 |
| (b) Concrete Saw | 442.03(d) |
| (c) Wheel Saw | 442.03(e) |
| (d) Rollers | 442.03 |
| (e) Mechanical Sweeper | 1101.03 |
| (f) Air Equipment (Note 1) | |

Note 1. The air equipment shall be capable of supplying compressed air at a minimum pressure of 100 psi (690 kPa) and shall have sufficient flow rate to remove all disturbed pavement debris. The equipment shall also be according to ASTM D 4285.

## CONSTRUCTION REQUIREMENTS

General. The minimum patch dimension shall be 24 x 24 in. (600 x 600 mm).

Partial Depth Removal. Partial depth removal of the pavement shall be accomplished by the use of a milling machine and/or the wheel saw. The patch area shall be cleaned by air equipment or mechanical sweeper and all disturbed pavement debris and any loose or unsound concrete shall be removed. Materials resulting from the removal shall be disposed of according to Article 202.03 of the Standard Specifications.

Exposed reinforcement shall be removed back to the point where the steel is in contact with sound concrete. Where high steel is encountered, the depth of the patch may be reduced as directed by the Engineer.

Replacement with HMA. When the Engineer determines the exposed pavement will be suitable for a partial depth patch, a bituminous tack coat shall be applied according to Article 406.05(b) of the Standard Specifications.

The prepared patch shall be filled with HMA with a maximum lift thickness of 3 in. (75 mm). Where more than one lift is needed, the top lift shall be a minimum of 2 in. (50 mm) thick. At the option of the Contractor, the 2 in. (50 mm) top layer may be constructed using HMA surface course. The HMA shall be compacted to the satisfaction of the Engineer.

Patch Maintenance. Patches opened to traffic which are high or become rough by rutting, shoving, or heaving shall be corrected by trimming off high areas and/or filling depressions. Filled areas shall be rolled again.

Areas Unsuitable for a Partial Depth Patch. When the Engineer determines the exposed pavement will not be suitable for a partial depth patch, or removal is one half or more of the pavement thickness, the remaining portion of the pavement shall be removed and a full depth patch shall be constructed according to Section 442 of the Standard Specifications for the Class of full depth patches included in the contract. The exposed area may be filled with HMA and the full depth patch constructed at a later date. HMA shall be placed as specified for the partial depth repair.

Method of Measurement. Partial depth removal of the portland cement concrete pavement will be measured for payment in place and the area computed in square yards (square meters).

HMA for partial depth patching of the portland cement concrete pavement and for the backfilling of partial depth removal when it is determined the area is not suitable for a partial depth patch will be measured for payment in tons (metric tons) according to Article 406.13 of the Standard Specifications.

Basis of Payment. Partial depth removal of the portland cement concrete pavement will be paid for at the contract unit price per square yard (square meter) for PARTIAL DEPTH REMOVAL, of the type and thickness specified.

HMA for partial depth patching and for backfilling areas unsuitable for a partial depth patch will be paid for at the contract unit price per ton (metric ton) for PARTIAL DEPTH PATCHING.

When the Engineer determines to convert any partial depth patch to a full depth patch after the partial depth removal of the portland cement concrete pavement has begun, the partial depth removal will still be paid for at the contract unit price for PARTIAL DEPTH REMOVAL. The remaining removal for the full depth patch will be considered as included in the appropriate full depth patching pay item.

80338

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Mechanical Side Tie Bar Inserter |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Construction to provide an alternate method for installation of tie bars in the side of a longitudinal construction joint. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted in contracts with Portland Cement Concrete Pavement utilizing Highway Standard 420001.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80342m

**MECHANICAL SIDE TIE BAR INSERTER (BDE)**

Effective: August 1, 2014
Revised: April 1, 2016

Add the following to Article 420.03 of the Standard Specifications:

"(k) Mechanical Side Tie Bar Inserters .....1103.18"

Revise Article 420.05(b) of the Standard Specifications to read:

"(b) Longitudinal Construction Joint. The tie bars shall be installed using one of the following methods.

(1) Preformed or Drilled Holes. The tie bars shall be installed with a nonshrink grout or chemical adhesive providing a minimum pull-out strength as follows. The nonshrink grout and/or chemical adhesive shall be on the Department's qualified product list.

| Bar Size | Minimum Pull-Out Strength |
|---|---|
| No. 6 (No. 19) | 11,000 lb (49 kN) |
| No. 8 (No. 25) | 19,750 lb (88 kN) |

Holes shall be blown clean and dry prior to placing the grout or adhesive. If compressed air is used, the pneumatic tool lubricator shall be bypassed and a filter installed on the discharge valve to keep water and oil out of the lines. The installation shall be with methods and tools conforming to the grout or adhesive manufacturer's recommendations.

The Contractor shall load test five percent of the first 500 tie bars installed. No further installation will be allowed until the initial five percent testing has been completed and approval to continue installation has been given by the Engineer. Testing will be required for 0.5 percent of the bars installed after the initial 500. For each bar that fails to pass the minimum requirements, two more bars selected by the Engineer shall be tested. Each bar that fails to meet the minimum load requirement shall be reinstalled and retested. The equipment and method used for testing shall meet the requirements of ASTM E 488. All tests shall be performed within 72 hours of installation. The tie bars shall be installed and approved before concrete is placed in the adjacent lane."

(2) Inserted. The tie bars shall be installed with the use of a mechanical side tie bar inserter. The inserter shall insert the tie bars with vibration while still within the extrusion process, after the concrete has been struck off and consolidated without deformation of the slab. The inserter shall remain stationary relative to the pavement when inserting tie bars, while the formless paver continues to move in the direction of paving.

A void greater than 1/8 in. (3 mm) at any location around the tie bar shall require immediate adjustment of the paving operation. A void greater than 1/2 in.(13 mm) shall be repaired with a nonshrink grout or chemical adhesive after the concrete has hardened. If at the end of the day of paving more than 20 percent of the tie bars show a void larger than 1/8 in. (3 mm) at any point around the bar, the use of the side tie bar inserter shall be discontinued.

(3) Formed in Place. The tie bar shall be formed in place as shown on the plans.

The sealant reservoir shall be formed either by sawing after the concrete has set according to Article 420.05(a) or by hand tools when the concrete is in a plastic state."

Add the following to Section 1103 of the Standard Specifications:

"**1103.18 Mechanical Side Bar Inserters.** The mechanical side tie bar inserter shall be self-contained and supported on the formless paver with the ability to move independently from the formless paver. The insertion apparatus shall vibrate within a frequency of 2000 to 6000 vpm. A vibrating reed tachometer, hand type, shall be provided according to Article 1103.12."

80342

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Jr 1/11/16 |
| Subject: | Special Provision for Speed Display Trailer |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Safety Engineering to enhance safety of the traveling public and workers in work zones by alerting drivers of their speed, thus deterring them from driving above the posted work zone speed limit. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted into all freeway and expressway projects involving Highway Standard 701400.

The districts should include the Bureau of Design and Enviroment Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80340m

**SPEED DISPLAY TRAILER (BDE)**

Effective: April 2, 2014
Revised: April 1, 2016

Add the following to Article 701.15 of the Standard Specifications:

"(m) Speed Display Trailer. A speed display trailer shall be utilized on freeways and expressways as part of Highway Standard 701400. The trailer shall be placed on the right hand side of the roadway adjacent to, or within 100 ft (30 m) beyond, the first work zone speed limit sign.

Whenever the speed display trailer is not in use, it shall be considered non-operating equipment and shall be stored according to Article 701.11."

Add the following to Article 701.20 of the Standard Specifications:

"(k) Speed Display Trailer will be paid for at the contract unit price per calendar month or fraction thereof for each trailer as SPEED DISPLAY TRAILER."

Add the following to Article 1106.02 of the Standard Specifications:

"(o) Speed Display Trailer. The speed display trailer shall consist of a LED speed indicator display with self-contained, one-direction radar mounted on an orange see-through trailer. The height of the display and radar shall be such that it will function and be visible when located behind concrete barrier.

The speed measurement shall be by radar and provide a minimum detection distance of 1000 ft (300 m). The radar shall have an accuracy of ±1 mile per hour.

The speed indicator display shall face approaching traffic and shall have a sign legend of "YOUR SPEED" immediately above or below the speed display. The digital speed display shall show two digits (00 to 99) in mph. The color of the changeable message legend shall be a yellow legend on a black background. The minimum height of the numerals shall be 18 in. (450 mm), and the nominal legibility distance shall be at least 750 ft (250 m).

The speed indicator display shall be equipped with a violation alert that flashes the displayed detected speed when the posted limit is exceeded. The speed indicator shall have a maximum speed cutoff. The display shall include automatic dimming for nighttime operation.

The speed indicator measurement and display functions shall be equipped with the power supply capable of providing 24 hours of uninterrupted service."

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Jobsite Sampling |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to provide a method of constructing Hot Mix Asphalt pavements utilizing pay adjustments based on percent within limits statistical calculations. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted into interstate, freeway and expressway resurfacing and full-depth projects having a minimum quantity of 8000 tons (7260 metric tons) per mix. Pay for performance may be considered for smaller projects where a more accurate measure of quality is desired. This special provision should not be used on:

1. Temporary pavements, patching, or shoulders unless they are used as auxiliary lanes.
2. Applications where the mixture thickness is less than three times the nominal maximum aggregate size.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80347m

**HOT MIX ASPHALT - PAY FOR PERFORMANCE USING PERCENT WITHIN LIMITS - JOBSITE SAMPLING (BDE)**

Effective: November 1, 2014
Review: April 1, 2016

Description. This special provision describes the procedures used for production, placement and payment for hot-mix asphalt (HMA). This special provision shall apply to all pay items as specified in the plans. This work shall be according to the Standard Specifications except as specified herein.

| | | |
|---|---|---|
| Delete Articles: | 406.06(b)(1), 2nd paragraph | (Temperature requirements) |
| | 406.06(e), 3rd paragraph | (Paver speed requirements) |
| | 406.07(b) | (Rolling) |
| | 406.07(c) | (Density) |
| | 1030.04, last two sentences of first paragraph | (Mix design verification) |
| | 1030.05(a)(4, 5, 7, 8, 9, & 10) | (QC/QA Documents) |
| | 1030.05(d)(2)a. | (Plant Tests) |
| | 1030.05(d)(2)b. | (Dust-to-Asphalt and Moisture Content) |
| | 1030.05(d)(2)d. | (Small Tonnage) |
| | 1030.05(d)(2)f. | (HMA Sampling) |
| | 1030.05(d)(3) | (Required Field Tests) |
| | 1030.05(d)(4) | (Control Limits) |
| | 1030.05(d)(5) | (Control Charts) |
| | 1030.05(d)(6) | (Corrective Action for Required Plant Tests) |
| | 1030.05(d)(7) | (Corrective Action for Field Tests (Density)) |
| | 1030.05(e) | (Quality Assurance by the Engineer) |
| | 1030.05(f) | (Acceptance by the Engineer) |
| | 1030.06(a), 2nd paragraph | (Before start-up…) |

Definitions.

(a) Quality Control (QC): All production and construction activities by the Contractor required to achieve the required level of quality.

(b) Quality Assurance (QA): All monitoring and testing activities by the Engineer required to assess product quality, level of payment, and acceptability of the product.

(c) Percent Within Limits (PWL): The percentage of material within the quality limits for a given quality characteristic.

(d) Quality Characteristic: The characteristics that are evaluated by the Department for payment using PWL. The quality characteristics for this project are field Voids in the Mineral Aggregate (VMA), voids, and density. Field VMA will be calculated using the combined Aggregates Bulk Specific Gravity ($G_{sb}$) from the mix design.

(e) Quality Level Analysis (QLA): QLA is a statistical procedure for estimating the amount of product within specification limits.

(f) Sublot: A sublot for field VMA, and voids, will be 1000 tons (910 metric tons). If the quantity is less than 8000 tons (7260 metric tons), the sublot size will be adjusted to achieve a minimum of 8 tests. If the last sublot consists of less than 200 tons (180 metric tons), it will be combined with the previous sublot.

(g) Density Testing Interval: The interval for density testing will be 0.2 mile (320 m) for lift thickness equal to or less than 3 in. (75 mm) and 0.1 mile (160 m) for lift thickness greater than 3 in. (75 mm). If a density testing interval is less than 200 ft (60 m), it will be combined with the previous test interval.

(h) Lot: A lot consists of ten sublots or 30 density intervals. If seven or less sublots or 19 or less density intervals remain at the end of production of a mixture, the test results for these sublots will be combined with the previous lot for evaluation of percent within limits and pay factors. Lots for mixture testing are independent of lots for density testing.

(i) Density Test: A density test consists of a core taken at a random longitudinal and transverse offset within each density testing interval. The HMA maximum theoretical gravity ($G_{mm}$) will be based on the running average of four including the current day of production. Initial $G_{mm}$ will be based on the average of the first four test results. The random transverse offset excludes the outer 1.0 ft (300 mm) from an unconfined edge. For confined edges, the random transverse offset excludes a distance from the outer edge equal to the lift thickness or a minimum of 4 in. (100 mm).

(j) Unconfined Edge Density: The outer 1.0 ft (300 mm) of an unconfined edge will be excluded from the effective pavement width used for calculating random transverse density location. The unconfined edge density will be randomly selected within each 1/2 mile (800 m) section for each unconfined edge. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4.0 in. (100 mm), from each pavement edge.

Pre-production Meeting. The Engineer will schedule a pre-production meeting a minimum of seven calendar days prior to the start of production. The HMA QC Plan, test frequencies, random test locations, and responsibilities of all parties involved in testing and determining the PWL will be addressed. Personnel attending the meetings will include the following:

(a) Resident Engineer

(b) District Mixture Control Representative

(c) QC Manager

(d) Contractor Paving Superintendent

(e) Any consultant involved in any part of the HMA sampling or testing on this project

Quality Control (QC) by the Contractor. The Contractor's quality control plan shall include the schedule of testing for both quality characteristics and non-quality characteristics required to control the product such as asphalt binder content and mixture gradation. The schedule shall include sample location. The minimum test frequency shall not be less than outlined in the Minimum Quality Control Sampling and Testing Requirements table below.

Table 1
Minimum Quality Control Sampling and Testing Requirements

| Quality Characteristic | Minimum Test Frequency | Sampling Location |
|---|---|---|
| Mixture Gradation | 1/day | per QC Plan |
| Binder Content | | |
| $G_{mm}$ | | |
| $G_{mb}$ | | |
| Density | per QC plan | per QC Plan |

The Contractor shall submit QC test results to the Engineer within 48 hours of the time of sampling.

Initial Production Testing. The Contractor shall split and test the first two samples with the Department for comparison purposes. The Contractor shall complete all tests and report all results to the Engineer within two working days of sampling. The Engineer will make Department test results of the initial production testing available to the Contractor within two working days from the receipt of the samples.

Quality Assurance (QA) by the Engineer. The Engineer will test each sublot for field VMA, voids, and dust/AC ratio; and each density interval for density to determine payment for each lot. A sublot shall begin once an acceptable test-strip has been completed and the AJMF has been determined. All Department testing will be performed in a qualified laboratory by personnel who have successfully completed the Department HMA Level I training.

Voids, field VMA, and Dust/AC ratio. For each sublot, the Engineer will determine the random tonnage for the sample and the Contractor shall be responsible for obtaining the sample according to the "PFP and QCP Hot-Mix Asphalt Random Jobsite Sampling" procedure. The Engineer will not disclose the random location of the sample until after the truck containing the random tonnage has been loaded and en-route to the project.

Density. The Engineer will identify the random locations for each density testing interval. The Contractor shall be responsible for obtaining the 4 in. (100 mm) diameter cores within the same day and prior to opening to traffic unless otherwise approved by the Engineer according to the "PFP and QCP Random Density Procedure". The locations will not be disclosed to the Contractor until after final rolling. The cores shall be obtained under the supervision of the Engineer. All core holes shall be filled immediately upon completion of coring. All water shall be removed from the core holes prior to filling. All core holes shall be filled with a rapid

hardening mortar or concrete which shall be mixed in a separate container prior to placement in the hole. Any depressions in the surface of the filled core holes greater than 1/4 in. (6 mm) at the time of final inspection will require removal of the fill material to the depth of the lift thickness and replacement.

Test Results. The Department's test results for the first sublot, or density testing interval, of every lot will be available to the Contractor within three working days from the time the secured sample was delivered, by the Contractor, to the Department's testing facility or a location designated by the Engineer. Test results for a completed lot will be available to the Contractor within ten working days from the time the secured sample from the last sublot or density testing interval was delivered to the Department's testing facility or a location designated by the Engineer.

The Engineer will maintain a complete record of all Department test results. Copies will be furnished upon request. The records will contain, at a minimum, the originals of all Department test results and raw data, random numbers used and resulting calculations for sampling locations, and quality level analysis calculations.

Dispute Resolution. Dispute resolution testing will only be permitted when the Contractor submits their split sample test results prior to receiving Department split sample test results and: 1) the difference between the Contractor and Department split test results exceed the precision limits shown in Table 2 below; or 2) the Department's test results are outside the acceptable limits shown in Table 4. For density disputes, the Contractor shall use the Department's running average for $G_{mm}$ when determining compliance with the Limits of Precision.

Table 2

| Test Parameter | Limits of Precision |
|---|---|
| Voids | 1.0 % |
| VMA | 1.0 % |
| Ratio - Dust / Asphalt Binder | 0.2 |
| Core Density | 1.0 % |

If dispute resolution is necessary, the Contractor shall submit a request in writing within four working days of receipt of the results of the quality index analysis for the lot. The Engineer will document receipt of the request. The Bureau of Materials and Physical Research (BMPR) laboratory will be used for dispute resolution testing.

Density cores for dispute resolution testing shall be taken at the same time as the random density core. The density core for dispute resolution testing shall be taken within 1 ft (300 mm) longitudinally of the random density core and at the same transverse offset. Density dispute resolution will replace original density test results.

If three or more consecutive mix sublots are contested, corresponding density results will be recalculated with the new $G_{mm}$.

Test results from the dispute resolution testing will replace voids, VMA and Dust/AC results from the original quality assurance testing. The lot pay factor for the lot under dispute resolution will be recalculated. If the recalculated lot pay factor is less than or equal to the original lot pay factor, laboratory costs listed below will be borne by the Contractor.

Table 3

| Test | Cost |
|---|---|
| Mix Testing | $1000.00 / sublot |
| Core Density | $300.00 / core |

Acceptance by the Engineer. All of the Department's tests shall be within the acceptable limits listed below:

Table 4

| Acceptable Limits | |
|---|---|
| Parameter | Acceptable Range |
| Field VMA | -1.0 – +3.0 %[1/] |
| Voids | 2.0 – 6.0 % |
| Density:<br>IL-19.0, IL-9.5<br>IL-4.75, SMA | <br>90.0 – 98.0 %<br>92.0 – 98.0 % |
| Dust / AC Ratio | 0.4 – 1.6[2/] |

1/ Based on minimum required VMA from mix design

2/ Does not apply to SMA

In addition, the PWL for any quality characteristic shall be 50 percent or above for any lot. No visible pavement distress shall be present such as, but not limited to, segregation, excessive coarse aggregate fracturing or flushing.

Basis of Payment. Payment will be based on the calculation of the Composite Pay Factor for each mix according to the "PFP Quality Level Analysis" document. Payment for full depth pavement will be based on the calculation of the Full Depth Pay Factor according to the "PFP Quality Level Analysis" document.

Additional Pay Adjustments. In addition to the Composite Pay Factor for each mix, monetary deductions will be made for dust/AC ratios and unconfined edge densities as shown in Tables 5 and 6 as follows.

Table 5

| Dust / AC Pay Adjustment Table [1/] | |
|---|---|
| Range | Deduct / sublot |
| $0.6 \le X \le 1.2$ | $0 |
| $0.5 \le X < 0.6$ or $1.2 < X \le 1.4$ | $1000 |
| $0.4 \le X < 0.5$ or $1.4 < X \le 1.6$ | $3000 |
| $X < 0.4$ or $X > 1.6$ | Shall be removed and replaced |

1/ Does not apply to SMA.

Table 6

| Unconfined Edge Density Adjustment Table | |
|---|---|
| Density | Deduct / 0.5 mile (800 m) |
| ≥ 90% | $0 |
| 89.0% to 89.9% | $1000 |
| 88.0% to 88.9% | $3000 |
| < 88.0% | Outer 1.0 ft (300 mm) will require remedial action acceptable to the Engineer |

80347

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Pavement Marking Blackout Tape |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Operations to create a statewide specification for pavement marking blackout tape which can be used to temporarily cover existing pavement markings in work zones instead of removing them. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted into contracts where the district is requiring the existing pavement markings in a work zone to be temporarily covered.

The districts should include the Bureau of Design and Environment Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80349m

**PAVEMENT MARKING BLACKOUT TAPE (BDE)**

Effective: November 1, 2014
Revised: April 1, 2016

Revise the fourth paragraph of Article 701.04 of the Standard Specifications to read:

"The traffic control shall remain in place only as long as needed and shall be removed when directed by the Engineer. Signs that do not apply to current conditions shall be removed, covered, or turned from the view of motorists. All existing pavement markings which conflict with the revised traffic pattern shall be removed according to Section 783 or when specified, temporarily covered with pavement marking blackout tape. The width of blackout tape shall be at least 1 in. (25 mm) wider than the width of the pavement marking being covered. The removing or covering of existing markings shall be scheduled immediately to facilitate the revised traffic pattern. If darkness or inclement weather prohibits the removal or covering operations, such operations shall be resumed the next morning or when weather permits."

Revise Article 701.19(f) of the Standard Specifications to read:

"(f) Removal of existing pavement markings and raised reflective pavement markers will be measured for payment according to Article 783.05. Temporary covering of existing pavement markings with blackout tape will be measured for payment in feet (meters) in place. Removal of blackout tape will be measured for payment in square feet (square meters)."

Revise Article 701.20(j) of the Standard Specifications to read:

"(j) Removal of existing pavement markings and raised reflective pavement markers will be paid for according to Article 783.06. Temporary covering of existing pavement markings with blackout tape will be paid for at the contract unit price per foot for PAVEMENT MARKING BLACKOUT TAPE, of the line width specified." Removal of blackout tape will be paid for as short term pavement marking removal according to Article 703.07."

Revise the first two paragraphs of Article 1095.06 of the Standard Specifications to read:

"**1095.06 Pavement Marking Tape.** White or yellow marking tape shall consist of glass spheres of high optical quality embedded into a binder on a suitable backing that is precoated with a pressure sensitive adhesive. The spheres shall be of uniform gradation and distributed evenly over the surface of the tape. Blackout marking tape shall be a Type III tape consisting of a matte black, non-reflective, patterned surface that is precoated with a pressure sensitive adhesive. The surface of the blackout pavement marking tape shall provide a minimum skid resistance value of 45 BPN when tested according to ASTM E 303-74.

The material shall be white, yellow, or matte black as specified. White and yellow colors shall conform closely to Federal color tolerances for pavement marking paint."

Revise the second table of Article 1095.06 to read:

| “Test | Type I | | Type III | | |
|---|---|---|---|---|---|
| | White | Yellow | White | Yellow | Blackout |
| Initial Thickness, mils (mm) | 20 (0.51) | 20 (0.51) | 20 (0.51) | 20 (0.51) | 65 (1.65) 1/<br>10 (0.25) 2/ |
| Durability (cycles) | 5,000 | 5,000 | 1,500 | 1,500 | 1,500 |

Notes:
1/ Measured at the thickest point of the patterned surface.
2/ Measured at the thinnest point of the patterned surface.”

80349

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Om 1/11/16 |
| Subject: | Special Provision for Portland Cement Concrete Inlay or Overlay |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Materials & Physical Research as an alternative rehabilitation strategy to hot-mix asphalt overlays on pavements or intersections that have experienced excessive rutting. Use of this special provision shall be according to the Bureau of Design and Environment (BDE) Manual, Chapter 53, Section 53-4.08 for use of Portland Cement Concrete Inlay or Overlay.

This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted in contracts using Portland Cement Concrete Inlay or Overlays.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80353m

**PORTLAND CEMENT CONCRETE INLAY OR OVERLAY (BDE)**

Effective: January 1, 2015
Revised: April 1, 2016

Description. This work shall consist of constructing a portland cement concrete inlay or overlay on an existing hot-mix asphalt (HMA) surfaced pavement.

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Portland Cement Concrete (Note 1) | 1020 |
| (b) Synthetic Fibers (Note 2) | |
| (c) Protective Coat | 1023.01 |

Note 1. Class PV concrete shall be used, except the cement factor for central mixed concrete shall be 6.05 cwt/cu yd (360 kg/cu m). A cement factor reduction according to Article 1020.05(b)(8) of the Standard Specifications will be permitted, but shall not exceed a maximum 0.30 cwt/cu yd (18 kg/cu m). CA 5 shall not be used and CA 7 may only be used for overlays that are a minimum of 4.5 in. (113 mm) thick. The Class PV concrete shall have a minimum flexural strength of 550 psi (3800 kPa) or a minimum compressive strength of 3000 psi (20,700 kPa) at 14 days.

Note 2. Synthetic fibers shall be Type III according to ASTM C 1116. The synthetic fiber shall be a monofilament or bundled monofilament with a minimum length of 1.0 in. (25 mm) and a maximum length of 2 1/2 in. (63 mm), and shall have a maximum aspect ratio (length divided by the equivalent diameter of the fiber) of 150. The quantity of synthetic fiber(s) added to the concrete mixture shall be sufficient to have a residual strength ratio ($R_{150,3}$) of 20.0 percent according to Illinois Modified ASTM C 1609. The maximum dosage rate shall not exceed 5.0 lb/cu yd (3.0 kg/cu m), unless the manufacturer can demonstrate through a field demonstration that the concrete mixture will be workable and fiber clumping is not a problem.

The synthetic fibers shall be added to the concrete and mixed per the manufacturer's recommendation.

The Department will maintain a qualified products list of synthetic fibers, which will include the minimum required dosage rate. For the minimum required fiber dosage rate based on the Illinois Modified ASTM C 1609 test, a report prepared by an independent laboratory accredited by the AASHTO Materials Reference Laboratory (AMRL) for Portland Cement Concrete shall be provided. The report shall show results of tests conducted no more than five years prior to the time of submittal. When the test result is more than seven years old, the manufacturer shall submit retest results prepared by an independent laboratory accredited by AASHTO.

Equipment. Equipment shall be according to Article 420.03, 1101.10, and 1101.19 of the Standard Specifications, except as noted herein. The mechanical saw used for cutting joints shall be equipped with an upcutting blade and a restricting skid plate to prevent spalling of the finished saw cut. For surface variation corrections, the grinding device shall be a self-propelled machine with diamond blades. The machine shall be designed for grinding concrete surfaces, and shall have a minimum effective head width of 3 ft (0.9 m). Wood forms of a height equal to the proposed inlay or overlay thickness may be used.

## CONSTRUCTION REQUIREMENTS

Preparation of Existing Pavement. The area to be overlaid shall be milled as shown on the plans according to Section 440 of the Standard Specifications. Areas requiring patching shall be patched according to Section 442 of the Standard Specifications. The patches shall be milled or their surface given a rough texture.

When detector loops are required, the loops shall be Type I or Type II according to Section 886 of the Standard Specifications. The detector loops shall be installed into the milled surface prior to cleaning.

Following milling, the surface shall be cleaned. Cleaning shall be accomplished by sweeping to remove all large particles and air blasting to remove dust. As an alternative to air blasting, a vacuum sweeper may be used to accomplish the dust removal. The surface shall be free of standing water. The prepared surface shall meet the approval of the Engineer prior to proceeding with the work.

Forms and Form Setting. This work shall be according to Article 420.06 of the Standard Specifications. Shims or wedges may be used to raise the forms to the specified plan elevation. Form removal shall be according to Article 420.11 of the Standard Specifications.

Treatment of Structures in the Pavement. Pavement round-outs shall be used at structures in the pavement. This work shall be as shown on the plans.

Placing. This work shall be according to Article 420.07 of the Standard Specifications, except standing water on the existing pavement surface shall be removed prior to concrete placement. Slip form paving shall be according to Article 420.14 of the Standard Specifications. However in Article 420.14(c)(2) of the Standard Specifications, the amount of pavement removed for edge slump will be at the direction of the Engineer and reinforcement will not be required.

Strike Off, Consolidation, Finishing, Longitudinal Floating, Straightedging, Edging, and Final Finish. This work shall be according to Article 420.09 of the Standard Specifications, except when a Type B final finish is specified the artificial turf drag shall be replaced with a rough broom finish struck perpendicular to the direction of traffic flow. The rough broom finish shall be performed over the entire surface.

Surface Tests. The finished surface of the pavement shall be tested for smoothness according

to Article 407.09 of the Standard Specifications, except as follows:

The finished surface of the pavement shall be tested for smoothness once the pavement has attained a flexural strength of 550 psi (3800 kPa) or a compressive strength of 3000 psi (20,700 kPa).

One wheel track shall be tested per lane. Testing shall be performed 3 ft (1 m) from and parallel to the edge of the lane away from traffic.

Membrane curing damaged during testing shall be repaired as directed by the Engineer at no additional cost to the Department.

No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to ground areas according to Article 420.18.

For pavement that is corrected by removal and replacement, the minimum area shall be replaced in even panel sizes.

| SMOOTHNESS ASSESSMENT SCHEDULE (PCC) | | |
|---|---|---|
| High-Speed Mainline Pavt. Average Profile Index in./mile (mm/km) | Low-Speed Mainline Pavt. Average Profile Index in./mile (mm/km) | Assessment per sublot |
| 6.0 (95) or less | | +$800.00 |
| >6.0 (95) to 11.0 (175) | 15.0 (240) or less | +$650.00 |
| >11.0 (175) to 17.0 (270) | >15.0 (240) to 25.0 (400) | +$400.00 |
| >17.0 (270) to 30.0 (475) | >25.0 (400) to 45.0 (710) | +$0.00 |
| >30.0 (475) to 40.0 (635) | >45.0 (710) to 65.0 (1025) | +$0.00 |
| Greater than 40.0 (635) | Greater than 65.0 (1025) | -$500.00” |

Joints. Joints shall be constructed at the locations and spacing shown on the plans. Field adjustments to the transverse joint locations will be permitted provided no transverse joint exceeds the planned spacing by more than ten percent.

The joints shall be mechanically sawed to 1/4 the depth of the inlay or overlay, and shall be a minimum 1/8 in. (3 mm) and a maximum 1/4 in. (6 mm) wide. Sawed joints shall be constructed as soon as the concrete will support the weight of the saw and operator without disturbing the final finish.

Opening to Traffic. The road shall be opened to traffic according to Article 420.13 of the Standard Specifications, except curing may be discontinued and the pavement opened to traffic when a minimum flexural strength of 550 psi (3800 kPa) or a minimum compressive strength of 3000 psi (20,700 kPa) is attained.

Protective Coat Application. The use of protective coat shall be according to Articles 420.10 and 420.18 of the Standard Specifications.

Method of Measurement. This work will be measured for payment according to Article 420.19 of the Standard Specifications.

Milling, when required, will be measured for payment according to Article 440.07 of the Standard Specifications.

Patching, when required, will be measured for payment according to Article 442.10 of the Standard Specifications.

Detector loops, when required, will be measured for payment according to Article 886.05 of the Standard Specifications.

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for PORTLAND CEMENT CONCRETE INLAY or PORTLAND CEMENT CONCRETE OVERLAY, of the thickness specified.

Protective coat will be paid for according to Article 420.20 of the Standard Specifications.

Milling, when required, will be paid for according to Article 440.08 of the Standard Specifications.

Patching, when required, will be paid for according to Article 442.11 of the Standard Specifications.

Detector loops, when required, will be paid for according to according to Article 886.06 of the Standard Specifications.

Add the following to Article 1101 of the Standard Specifications.

"**1101.19 Vacuum Sweeper.** The vacuum sweeper shall have a minimum sweeping path of 52 in. (1.3 m) and a minimum blower rating of 20,000 cu ft per minute (566 cu m per minute)."

80353

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Temporary Concrete Barrier |
| Date: | April 17, 2015 |

This special provision was developed by the Bureau of Safety Engineering to address the installation and payment of anchor pins; and to allow for alternate anchoring details on bridge decks.

It has been revised to remove material requirements that are unnecessary as reinforcement bars are covered in Article 1006.10. It is also being revised to clarify anchor pins shall not be installed through bridge decks "unless otherwise noted". Pinning is allowed on existing bridge decks, but not allowed on newly constructed bridge decks; however pinning of end barrier is not allowed even on existing bridge decks.

This special provision should be inserted in contracts using temporary concrete barrier.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 31, 2015 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 17, 2015.

80355m

**TEMPORARY CONCRETE BARRIER (BDE)**

Effective: January 1, 2015
Revised: July 1, 2015

Revise Article 704.02 of the Standard Specifications to read:

"**704.02 Materials.** Materials shall be according to the following.

| Item | Article/Section |
|---|---|
| (a) Precast Temporary Concrete Barrier | 1042 |
| (b) Reinforcement Bars | 1006.10(a) |
| (c) Connecting Pins and Anchor Pins (Note 1) | |
| (d) Connecting Loop Bars (Note 2) | |
| (e) Packaged Rapid Hardening Mortar or Concrete | 1018 |

Note 1. Connecting Pins and Anchor Pins shall be according to the requirements of ASTM F 1554 Grade 36 (Grade 250).

Note 2. Connecting loop bars shall be smooth bars according to the requirements of ASTM A 36 (A 36M)."

Revise Article 704.04 of the Standard Specifications to read:

"**704.04 Installation.** The barriers shall be seated on bare, clean pavement or paved shoulder and connected together in a smooth, continuous line at the locations provided by the Engineer.

Except on bridge decks, or where alternate anchoring details are shown on the plans, the barrier unit at each end of an installation shall be anchored to the pavement or paved shoulder using six anchor pins and protected with an impact attenuator as shown on the plans. When pinning of additional barrier units within the installation is specified, three anchor pins shall be installed in the traffic side holes of the required barriers.

Where both pinned and unpinned barrier units are used in a continuous installation, a transition shall be provided between them. The transition from pinned to unpinned barrier shall consist of two anchor pins installed in the end holes on the traffic side of the first barrier beyond the pinned section and one anchor pin installed in the middle hole on the traffic side of the second barrier beyond the pinned section. The third barrier beyond the pinned section shall then be unpinned.

Barriers located on bridge decks shall be restrained as shown on the plans. Anchor pins shall not be installed through bridge decks, unless otherwise noted.

Barriers or attachments damaged during transportation or handling, or by traffic during the life of the installation, shall be repaired or replaced. The Engineer will be the sole judge in determining which units or attachments require repair or replacement.

The barriers shall be removed when no longer required by the contract. After removal, all anchor holes in the pavement or paved shoulder shall be filled with a rapid hardening mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used and the material shall be struck-off flush."

Add the following after the first paragraph of Article 704.05 of the Standard Specifications:

"Anchor pins, except for the six anchor pins for the barrier unit at each end of an installation, will be measured for payment as each, per anchor pin installed."

Add the following after the second paragraph of Article 704.06 of the Standard Specifications:

"Anchor pins, except for the six anchor pins for the barrier unit at each end of an installation, will be paid for at the contract unit price per each for PINNING TEMPORARY CONCRETE BARRIER."

80355

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. OMO/AAW |
| Subject: | Special Provision for Equal Employment Opportunity |
| Date: | January 9, 2015 |

This special provision was developed by the Bureau of Design and Environment and the Office of Chief Counsel to comply with changes to the Illinois Administrative Code, Title 44, Section 750 which revised the Equal Employment Opportunity Clause.

This special provision should be inserted into all contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 24, 2015 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 9, 2015.

80358m

**EQUAL EMPLOYMENT OPPORTUNITY (BDE)**

Effective: April 1, 2015

FEDERAL AID CONTRACTS. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

"EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act, or the Illinois Department of Human Rights Rules and Regulations, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political sub-divisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of this Contract, the Contractor agrees as follows:

(1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service; and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

(2) That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability (according to the Illinois Department of Human Rights Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

(3) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status or an unfavorable discharge from military service.

(4) That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the

Contractor will promptly so notify the Illinois Department of Human Rights and IDOT and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

(5) That it will submit reports as required by the Illinois Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or IDOT, and in all respects comply with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

(6) That it will permit access to all relevant books, records, accounts, and work sites by personnel of IDOT and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

(7) That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify IDOT and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with these provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations."

STATE CONTRACTS. Revise Section II of Check Sheet #5 of the Recurring Special Provisions to read:

"II. EQUAL EMPLOYMENT OPPORTUNITY

In the event of the Contractor's noncompliance with the provisions of this Equal Employment Opportunity Clause, the Illinois Human Rights Act or the Illinois Department of Human Rights Rules and Regulations, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political sub-divisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

During the performance of this Contract, the Contractor agrees as follows:

1. That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service; and further

that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization.

2. That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability (according to the Illinois Department of Human Rights Rules and Regulations) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

3. That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status, or an unfavorable discharge from military service.

4. That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations. If any labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and IDOT and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

5. That it will submit reports as required by the Illinois Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or IDOT, and in all respects comply with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

6. That it will permit access to all relevant books, records, accounts and work sites by personnel of IDOT and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights Rules and Regulations.

7. That it will include verbatim or by reference the provisions of this clause in every subcontract it awards under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify IDOT and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with these provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights

Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations."

80358

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Portland Cement Concrete Bridge Deck Curing |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to implement recommendations approved by the Illinois Highway Development Council regarding use of cellulose polyethylene blanket as an alternative curing method for portland cement concrete bridge decks.

This special provision has been revised to fit with the 2016 Standard Specifications and to fix inconsistencies between requirements for cotton mats and cellulose polyethylene blankets.

This special provision should be inserted into portland cement concrete bridge deck contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80359m

**PORTLAND CEMENT CONCRETE BRIDGE DECK CURING (BDE)**

Effective: April 1, 2015
Revised: July 1, 2016

Revise the following two entries in the table in Article 1020.13 of the Standard Specifications to read:

| "INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION | | | |
|---|---|---|---|
| TYPE OF CONSTRUCTION | CURING METHODS | CURING PERIOD DAYS | LOW AIR TEMPERATURE PROTECTION METHODS |
| Superstructure (Approach Slab) | 1020.13(a)(5)(6) 19/ | 3 | 1020.13(d)(1)(2) 17/ |
| Deck | 1020.13(a)(5)(6) 19/ | 7 | 1020.13(d)(1)(2) 17/ |

Add the following footnote to the end of the Index Table of Curing and Protection of Concrete Construction in Article 1020.13 of the Standard Specifications:

"19/ The cellulose polyethylene blanket method shall not be used on latex modified concrete."

Revise Article 1020.13(a)(5) of the Standard Specifications to read:

"(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry or damp cotton mats. Cotton mats in poor condition will not be allowed. The cotton mats shall be placed in a manner which will not create indentations greater than 1/4 in. (6 mm) in the concrete surface. Minor marring of the surface is tolerable and is secondary to the importance of timely curing. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. Thereafter, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets. The cotton mats shall be kept saturated with water.

a. Bridge Decks. For bridge decks, a foot bridge shall be used to place and wet the cotton mats. The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without indentations to the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 4 ft (1.2 m) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

For areas inaccessible to the cotton mats, curing shall be according to Article 1020.13(a)(3)."

Add the following to Article 1020.13(a) of the Standard Specifications.

"(6) Cellulose Polyethylene Blanket Method. After the surface of concrete has been textured or finished, it shall be covered immediately with a cellulose polyethylene blanket. Damaged cellulose polyethylene blankets will not be allowed. The blankets shall be installed with the white perforated polyethylene side facing up. Adjoining blankets shall overlap a minimum of 4 in. (100 mm). Any air bubbles trapped during placement shall be removed. The blankets shall then be wetted immediately and thoroughly soaked with a gentle spray of water. Thereafter, the blankets shall be kept saturated with water. For bridge decks, the blankets shall be placed and kept wet according to Article 1020.13(a)(5)a."

Revise the first paragraph of Article 1022.03 of the Standard Specifications to read:

"**1022.03 Waterproof Paper Blankets, White Polyethylene Sheeting, Burlap-Polyethylene Blankets, and Cellulose Polyethylene Blankets.** These materials shall be white and according to ASTM C 171, except moisture loss test specimens shall be made according to Illinois Modified AASHTO T 155.

The cellulose polyethylene blanket shall consist of a white polyethylene sheeting with cellulose fiber backing and shall be limited to single use only. The cellulose polyethylene blankets shall be delivered to the jobsite unused and in the manufacturer's unopened packaging until ready for installation. Each roll shall be clearly labeled with product name, manufacturer, and manufacturer's certification of compliance with ASTM C 171."

80359

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Omer M. Osman, P.E. |
| Subject: | Special Provision for Coarse Aggregate Quality |
| Date: | April 17, 2015 |

This special provision was developed by the Bureau of Materials and Physical Research to provide a quality test for oil-stained aggregates and to remove the Los Angeles Abrasion limits for crushed slag.

This special provision should be inserted in contracts using portland cement concrete and hot-mix asphalt.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 31, 2015 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 17, 2015.

80360m

**COARSE AGGREGATE QUALITY (BDE)**

Effective: July 1, 2015

Revise Article 1004.01(b) of the Standard Specifications to read:

"(b) Quality. The coarse aggregate shall be according to the quality standards listed in the following table.

| COARSE AGGREGATE QUALITY | | | | |
|---|---|---|---|---|
| QUALITY TEST | CLASS | | | |
| | A | B | C | D |
| $Na_2SO_4$ Soundness 5 Cycle, ITP 104 [1/], % Loss max. | 15 | 15 | 20 | 25 [2/] |
| Los Angeles Abrasion, ITP 96 [11/], % Loss max. | 40 [3/] | 40 [4/] | 40 [5/] | 45 |
| Minus No. 200 (75 µm) Sieve Material, ITP 11 | 1.0 [6/] | --- | 2.5 [7/] | --- |
| Deleterious Materials [10/] | | | | |
| Shale, % max. | 1.0 | 2.0 | 4.0 [8/] | --- |
| Clay Lumps, % max. | 0.25 | 0.5 | 0.5 [8/] | --- |
| Coal & Lignite, % max. | 0.25 | --- | --- | --- |
| Soft & Unsound Fragments, % max. | 4.0 | 6.0 | 8.0 [8/] | --- |
| Other Deleterious, % max. | 4.0 [9/] | 2.0 | 2.0 [8/] | --- |
| Total Deleterious, % max. | 5.0 | 6.0 | 10.0 [8/] | --- |
| Oil-Stained Aggregate [10/], % max | 5.0 | --- | --- | |

1/ Does not apply to crushed concrete.

2/ For aggregate surface course and aggregate shoulders, the maximum percent loss shall be 30.

3/ For portland cement concrete, the maximum percent loss shall be 45.

4/ Does not apply to crushed slag or crushed steel slag.

5/ For hot-mix asphalt (HMA) binder mixtures, except when used as surface course, the maximum percent loss shall be 45.

6/ For crushed aggregate, if the material finer than the No. 200 (75 µm) sieve consists of the dust from fracture, essentially free from clay or silt, this percentage may be increased to 2.5.

7/ Does not apply to aggregates for HMA binder mixtures.

8/ Does not apply to Class A seal and cover coats.

9/ Includes deleterious chert. In gravel and crushed gravel aggregate, deleterious chert shall be the lightweight fraction separated in a 2.35 heavy media separation. In crushed stone aggregate, deleterious chert shall be the lightweight fraction separated in a 2.55 heavy media separation. Tests shall be run according to ITP 113.

10/ Test shall be run according to ITP 203.

11/ Does not apply to crushed slag.

All varieties of chert contained in gravel coarse aggregate for portland cement concrete, whether crushed or uncrushed, pure or impure, and irrespective of color, will be classed as chert and shall not be present in the total aggregate in excess of 25 percent by weight (mass).

Aggregates used in Class BS concrete (except when poured on subgrade), Class PS concrete, and Class PC concrete (bridge superstructure products only, excluding the approach slab) shall contain no more than two percent by weight (mass) of deleterious materials. Deleterious materials shall include substances whose disintegration is accompanied by an increase in volume which may cause spalling of the concrete."

80360

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Omer 1/11/16 |
| Subject: | Special Provision for Overhead Sign Structures – Certification of Metal Fabricator |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Bridges and Structures to provide updated requirements for American Institute of Steel Construction. certification and IDOT prequalification for overhead sign structure fabricators. This special provision has been revised to fit with the 2016 Standard Specifications.

This special provision should be inserted into contracts requiring overhead sign structures.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80361m

**OVERHEAD SIGN STRUCTURES – CERTIFICATION OF METAL FABRICATOR (BDE)**

Effective: November 1, 2015
Revised: April 1, 2016

Revise Article 106.08 of the Standard Specifications to read:

"**106.08 Certification of Metal Fabricator.** All fabricators performing work on metal components of structures shall be certified under the appropriate category of the AISC Certification Program for Steel Bridge Fabricators as follows.

(a) Fabricators of the main load carrying steel components of box girder, trusses over 200 ft (61 m) in length, arch, cable supported, moveable, and curved (radii under 1000 ft (305 m)) structures shall be certified under Category Advanced Bridges.

(b) Fabricators of the main load carrying steel components of spliced rolled beams, welded plate girders, either simple span or continuous, trusses under 200 ft (61 m) in length, and curved (radii over 1000 ft (305 m)) structures, shall be certified under Category Intermediate Bridges.

(c) Fabricators of the main load carrying steel components of unspliced rolled beam sections shall be certified under Category Simple Bridges.

(d) Fabricators of overhead sign structures shall be on the Department's list of pre-qualified Overhead Sign Structure Fabricators and certified under either (a), (b), (c) or Category Bridge and Highway Metal Component Manufacturers.

(e) Fabricators of steel or other non-ferrous metal components of structures, not certified under (a), (b), or (c) above, shall be certified under the AISC program for Bridge and Highway Metal Component Manufacturers.

In addition, fabricators of fracture critical main load carrying steel components of bridges shall also have the Fracture Critical Endorsement."

80361

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman |
| Subject: | Special Provision for Steel Slag in Trench Backfill |
| Date: | September 23, 2015 |

This special provision was developed by the Bureau of Materials and Physical Research to allow the use of fine aggregate steel slag produced with an electric arc furnace for trench backfill.

This special provision should be inserted into contracts requiring trench backfill.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the January 15, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory September 25, 2015.

cc: Omer M. Osman
Aaron A. Weatherholt
John Baranzelli
HST-57734
80362m

**STEEL SLAG IN TRENCH BACKFILL (BDE)**

Effective: January 1, 2016

Revise the second sentence of Article 1003.01(a)(8) of the Standard Specifications to read:

> "Crushed steel slag shall be the nonmetallic product which is developed in a molten condition simultaneously with steel in an open hearth, basic oxygen, or electric arc furnace."

Revise Article 1003.04(a) of the Standard Specifications to read:

"(a) Description. The fine aggregate shall consist of sand, stone sand, chats, wet bottom boiler slag, slag sand, or granulated slag sand. Crushed concrete sand, construction and demolition debris sand, and steel slag sand produced from an electric arc furnace may be used in lieu of the above for trench backfill."

80362

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, O. 1/11/16 |
| Subject: | Special Provision for Engineer's Field Office |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Construction to include online data usage as a covered item in the Basis of Payment.

This special provision should be inserted in contracts requiring an engineer's field office.

The districts should include the Bureau of Design and Environment Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80363m

**ENGINEER'S FIELD OFFICE (BDE)**

Effective: April 1, 2016

Revise the fifth sentence of the first paragraph of Article 670.07 of the Standard Specifications to read:

"This price shall include all utility costs and shall reflect the salvage value of the building or buildings, equipment, and furniture which remain the property of the Contractor after release by the Engineer, except the Department will pay that portion of the monthly long distance, monthly local telephone, and online data usage that, when combined, exceed $250."

80363

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, Jr 1/11/16 |
| Subject: | Special Provision for Errata for the 2016 Standard Specifications |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Design & Environment (BDE) to correct errors and omissions in the Standard Specifications for Road and Bridge Construction, Adopted April 1, 2016.

This special provision should be inserted into all contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80364m

**ERRATA FOR THE 2016 STANDARD SPECIFICATIONS (BDE)**

Effective: April 1, 2016

Page 84 Article 204.02. In the seventh line of the first paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 90 Article 205.06. In the first sentence of the third paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 91 Article 205.06. In the first sentence of the fourth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”, and in the second sentence change “AASHTO T 224” to “Illinois Modified AASHTO T 99 (Annex A1)”.

Page 91 Article 205.06. In the second line of the fifth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”.

Page 91 Article 205.06. In the sixth line of the eighth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 148 Article 302.09. In the second sentence of the fifth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”, and in the third sentence change “AASHTO T 99” to “Illinois Modified AASHTO T 99”.

Page 152 Article 310.09. In the second sentence of the second paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”, and in the third sentence change “AASHTO T 99” to “Illinois Modified AASHTO T 99”.

Page 155 Article 311.05(a). In the first sentence of the fifth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”, and in the second sentence change “AASHTO T 224” to “Illinois Modified AASHTO T 99 (Annex A1)”.

Page 155 Article 311.05(a). In the second line of the sixth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”.

Page 163 Article 351.05(a). In the second sentence of the fifth paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”, and in the third sentence change “AASHTO T 224” to “Illinois Modified AASHTO T 99 (Annex A1)”.

Page 163 Article 351.05(a). In the second line of the sixth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”.

Page 169 Article 352.11. In the second sentence of the fourth paragraph change “AASHTO T 191” to “Illinois Modified AASHTO T 191”, and in the third sentence change “AASHTO T 134 (Method B)” to “Illinois Modified AASHTO T 134 (Method B)”.

Page 169 Article 352.12. In the first sentence of the first paragraph change “AASHTO T 22” to “Illinois Modified AASHTO T 22”, and in the second sentence change “AASHTO T 134 (Method B)” to “Illinois Modified AASHTO T 134 (Method B)”.

Page 196 Article 406.07(a). After the footnotes in Table 1 - Minimum Roller Requirements for HMA add the following:

“<u>EQUIPMENT DEFINITION</u>

$V_s$ - Vibratory roller, static mode, minimum 125 lb/in. (2.2 kg/mm) of roller width. Maximum speed = 3 mph (5 km/h) or 264 ft/min (80 m/min). If the vibratory roller does not eliminate roller marks, its use shall be discontinued and a tandem roller, adequately ballasted to remove roller marks, shall be used.

$V_D$ - Vibratory roller, dynamic mode, operated at a speed to produce not less than 10 impacts/ft (30 impacts/m).

P - Pneumatic-tired roller, max. speed 3 1/2 mph (5.5 km/h) or 308 ft/min (92 m/min). The pneumatic-tired roller shall have a minimum tire pressure of 80 psi (550 kPa) and shall be equipped with heat retention shields. The self-propelled pneumatic-tired roller shall develop a compression of not less than 300 lb (53 N) nor more than 500 lb (88 N) per in. (mm) of width of the tire tread in contact with the HMA surface.

$T_B$ - Tandem roller for breakdown rolling, 8 to 12 tons (7 to 11 metric tons), 250 to 400 lb/in. (44 to 70 N/mm) of roller width, max. speed = 3 1/2 mph (5.5 km/h) or 308 ft/min (92 m/min).

$T_F$ - Tandem roller for final rolling, 200 to 400 lb/in. (35 to 70 N/mm) of roller width with minimum roller width of 50 in. (1.25 m). Ballast shall be increased if roller marks are not eliminated. Ballast shall be decreased if the mat shoves or distorts.

3W - Three wheel roller, max. speed = 3 mph (5 km/h) or 264 ft/min (80 m/min), 300 to 400 lb/in. (53 to 70 N/mm) of roller width. The three-wheel roller shall weigh 10 to 12 tons (9 to 11 metric tons).”

Page 331 Article 505.04(p). Under Range of Clearance in the first table change “in. x $10^{-6}$” to “in. x $10^{-3}$”.

Page 444 Article 542.03. In the Notes in Table IIIB add “CPP Corrugated Polypropylene (CPP) pipe with smooth interior”.

Page 445 Article 542.03. In the fourth column in Table IIIB (metric) change the heading for Type 5 pipe from “CPE” to “CPP”.

Page 445 Article 542.03. In the Notes in Table IIIB (metric) change “PE Polyethylene (PE) pipe with a smooth interior” to “CPP Corrugated Polypropylene (CPP) pipe with smooth interior”.

Page 449 Article 542.04(f)(2). In the third line of the second paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 544 Article 639.03. In the first sentence of the first paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, Traffic Signals,” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,””.

Page 546 Article 640.03. In the first sentence of the first paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 548 Article 641.03. In the first sentence of the first paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaire and Traffic Signals,” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals,””.

Page 621 Article 727.03. In the first sentence of the third paragraph change “AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 629 Article 734.03(a). In the fourth line of the second paragraph change “AASHTO T 99 (Method C)” to “Illinois Modified AASHTO T 99 (Method C)”.

Page 649 Article 801.02. In the first sentence of the first paragraph change “AASHTO’s Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 742 Article 1003.04(c). Under Gradation in the table change “(see Article 1003.02(c))” to “(see Article 1003.01(c))”.

Page 755 Article 1004.03(b). Revise the third sentence of the first paragraph to read “For Class A (seal or cover coat), and other binder courses, the coarse aggregate shall be Class C quality or better.”.

Page 809 Article 1020.04(e). In the third line of the first paragraph change “ITP SCC-3” to “ITP SCC-4”.

Page 945 Article 1069.05. In the first sentence of the tenth paragraph change ““Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals”” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 961 Article 1070.04(b)(1). In the third sentence of the first paragraph change ““Standard Specifications of Structural Supports for Highway Signs, Luminaires and Traffic Signals” published by AASHTO” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 989 Article 1077.01. In the second sentence of the first paragraph change “Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, as published by AASHTO” to “AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals””.

Page 1121 Article 1103.13(a). In the first line of the first paragraph change “Bridge Deck Approach Slabs.” to “Bridge Deck and Approach Slabs.”.

80364

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | Regional Engineers |
| From: | Omer M. Osman Osman, O 1/11/16 |
| Subject: | Special Provision for Pedestrian Push-Button |
| Date: | January 8, 2016 |

This special provision was developed by the Bureau of Operations to revise the mounting height, and to establish the maximum lateral offset (i.e. reach range), for pedestrian push-buttons to ensure they are accessible.

This special provision should be inserted in contracts involving pedestrian push-buttons.

The districts should include the Bureau of Design and Environment Check Sheet marked with the applicable special provisions for the April 22, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory January 8, 2016.

80365m

**PEDESTRIAN PUSH-BUTTON (BDE)**

Effective: April 1, 2016

Revise Article 888.03 of the Standard Specifications to read:

"**888.03 Installation.** The pedestrian push-button shall be located next to the curb ramp, sidewalk, or a paved clear space with a minimum size of 2.5 ft x 4.0 ft (760 mm x 1.22 m). The front face of the push-button should be even with the nearest edge of the curb ramp, sidewalk, or clear space but shall in no case be further away than 10 in. (250 mm). The height of the push-button should be 36 in. (900 mm) above the paved surface but shall in no case be less than 30 in. (760 mm) or more than 42 in. (1.05 m). The housing of the push-button shall be completely in contact with the post, pole, or extension arm on which it is mounted. The Contractor shall apply an anti-seize paste compound on all nuts and bolts prior to assembly. The methods of mounting both the pedestrian push-button and the sign shall be approved by the Engineer."

80365

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Butt Joints |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research at the recommendation of the Illinois Highway Development Council to allow for the use of temporary ramps made of high density polyethylene as an alternative to temporary hot-mix asphalt (HMA) or rubber ramps at butt joints.

This special provision should be inserted into all HMA resurfacing contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80366m

**BUTT JOINTS (BDE)**

Effective: July 1, 2016

Add the following to Article 406.08 of the Standard Specifications.

"(c) Temporary Plastic Ramps. Temporary plastic ramps shall be made of high density polyethylene meeting the properties listed below. Temporary plastic ramps shall only be used on roadways with permanent posted speeds of 55 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the plastic ramp shall have a maximum thickness of 1/4 in. (6 mm) and the trailing edge shall match the height of the adjacent pavement ± 1/4 in. (± 6 mm).

The ramp will be accepted by certification. The Contractor shall furnish a certification from the manufacturer stating the temporary plastic ramp meets the following requirements.

| Physical Property | Test Method | Requirement |
|---|---|---|
| Melt Index | ASTM D 1238 | 8.2 g/10 minutes |
| Density | ASTM D 1505 | 0.965 g/cc |
| Tensile Strength @ Break | ASTM D 638 | 2223 psi (15 MPa) |
| Tensile Strength @ Yield | ASTM D 638 | 4110 psi (28 MPa) |
| Elongation @ Yield [1/], percent | ASTM D 638 | 7.3 min. |
| Durometer Hardness, Shore D | ASTM D 2240 | 65 |
| Heat Deflection Temperature, 66 psi | ASTM D 648 | 176 ºF (80 ºC) |
| Low Temperature Brittleness, $F_{50}$ | ASTM D 746 | <-105 ºF (<-76 ºC) |

1/ Crosshead speed -2 in./minute

The temporary plastic ramps shall be installed according to the manufacturer's specifications and fastened with anchors meeting the manufacturer's recommendations. Temporary plastic ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary HMA ramps at the Contractor's expense."

80366

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Light Poles |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Bridges and Structures to update light poles to LRFD code requirements.

This special provision should be inserted into contracts requiring light poles.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80367m

**LIGHT POLES (BDE)**

Effective: July 1, 2016

Revise the second paragraph of Article 1069.01 of the Standard Specifications to read:

"The detailed design and fabrication of the pole shaft, arms, tenons, and attachments shall be according to AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" current at the time the project is advertised. Light poles shall be designed for ADT > 10,000 and Risk Category Typical. If Fatigue design is required, light poles shall be designed for Importance Category I."

Revise the fifth paragraph of Article 1069.01(a) of the Standard Specifications to read:

"Deflection of the pole top as caused by the combined effect of deadload referenced above and wind speed prescribed by AASHTO shall be as required by AASHTO. Pole deflection and loading compliance, certified by the manufacturer, shall be noted on the pole submittal."

80367

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Light Tower |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Bridges and Structures to update light towers to LRFD code requirements.

This special provision should be inserted into contracts requiring light towers.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80368m

**LIGHT TOWER (BDE)**

Effective: July 1, 2016

Revise the third paragraph of Article 1069.08 of the Standard Specifications to read:

"The design shall be based upon AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals" in effect on the date of invitation for bids, however the width of reinforced opening requirement in Chapter 5, Section 5.6.6.1 shall not apply. Light Towers shall be designed for ADT > 10,000, Risk Category Typical, and Fatigue Importance Category I."

80368

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Mast Arm Assembly and Pole |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Bridges and Structures to update mast arm assembly and pole to LRFD code requirements.

This special provision should be inserted into contracts requiring mast arm assemblies and poles.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80369m

**MAST ARM ASSEMBLY AND POLE (BDE)**

Effective: July 1, 2016

Revise Article 1077.03(a)(1) of the Standard Specifications to read:

"(1) Loading. The mast arm assembly and pole, and combination mast arm assembly and pole shall be designed for the loading shown on the Highway Standards or elsewhere on the plans, whichever is greater. The design shall be according to AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals" 2015 Edition. However, the arm-to-pole connection for tapered signal and luminaire arms shall be according to the "fillet welded, ring stiffened box connection" detail as shown in Figure C5.6.7-2. The mast arm and pole shall be designed assuming the ADT > 10,000, Risk Category Typical, and Fatigue Category I Natural Wind Gust only."

80369

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Mechanical Splicers |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research and the Bureau of Bridges and Structures as an erratum for the 2016 Standard Specifications. The testing requirement for total slip was contained in the BDE special provision Reinforcement Bars which was incorporated into the 2106 Standard Specifications; however this testing requirement was inadvertently left out.

This special provision should be inserted into contracts requiring mechanical splicers.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80370m

**MECHANICAL SPLICERS (BDE)**

Effective: July 1, 2016

Add the following paragraph after the second paragraph of Article 1006.10(a)(1)g. of the Standard Specifications.

> "Mechanical splicers shall have an additional requirement for total slip. The total slip of the bars within the splice sleeve of the connector after loading in tension to 30 ksi (207 MPa) and relaxing to 3 ksi (20.7 MPa) shall not exceed 0.01 in. (254 microns)."

80370

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Pavement Marking Removal |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Operations to eliminate shot blasting as a pavement marking removal option and creates separate grinding and water blasting pavement marking removal pay items.

Check Sheet #27 Pavement Marking Removal should no longer be used with the creation of separate pay items for grinding and water blasting.

This special provision should be inserted into contracts requiring pavement marking removal.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80371m

**PAVEMENT MARKING REMOVAL (BDE)**

Effective: July 1, 2016

Revise Article 783.02 of the Standard Specifications to read:

"**783.02 Equipment.** Equipment shall be according to the following.

| Item | Article/Section |
|---|---|
| (a) Grinders (Note 1) | |
| (b) Water Blaster with Vacuum Recovery | 1101.12 |

Note 1. Grinding equipment shall be approved by the Engineer."

Revise the first paragraph of Article 783.03 of the Standard Specifications to read:

"**783.03 Removal of Conflicting Markings.** Existing pavement markings that conflict with revised traffic patterns shall be removed. If darkness or inclement weather prohibits the removal operations, such operations shall be resumed the next morning or when weather permits. In the event of removal equipment failure, such equipment shall be repaired, replaced, or leased so removal operations can be resumed within 24 hours."

Revise the first and second sentences of the first paragraph of Article 783.03(a) of the Standard Specifications to read:

"The existing pavement markings shall be removed by the method specified and in a manner that does not materially damage the surface or texture of the pavement or surfacing. Small particles of tightly adhering existing markings may remain in place, if in the opinion of the Engineer, complete removal of the small particles will result in pavement surface damage."

Revise the first paragraph of Article 783.04 of the Standard Specifications to read:

"**783.04 Cleaning.** The roadway surface shall be cleaned of debris or any other deleterious material by the use of compressed air or water blast."

Revise the first paragraph of Article 783.06 of the Standard Specifications to read:

"**783.06 Basis of Payment.** This work will be paid for at the contract unit price per each for RAISED REFLECTIVE PAVEMENT MARKER REMOVAL, or at the contract unit price per square foot (square meter) for PAVEMENT MARKING REMOVAL – GRINDING and/or PAVEMENT MARKING REMOVAL – WATER BLASTING."

Delete Article 1101.13 from the Standard Specifications.

80371

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Preventive Maintenance - Bituminous Surface Treatment (A-1) |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to:

- revise quality of aggregate to match with hot-mix asphalt surfaces,
- add friction aggregate requirement, and
- correct type of chert for maximum allowance.

This special provision should be inserted into preventive maintenance – bituminous surface treatment (A-1) contracts and should be used in lieu of Check Sheet #28 Preventive Maintenance – Bituminous Surface Treatment.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80372m

**PREVENTIVE MAINTENANCE – BITUMINOUS SURFACE TREATMENT (A-1) (BDE)**

Effective: January 1, 2009
Revised: July 1, 2016

Description. This work shall consist of constructing a single bituminous surface treatment (A-1).

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Seal Coat Aggregate (Note 1) | 1003, 1004.03 |
| (b) Bituminous Materials (Note 2) | 1032 |

Note 1. The seal coat aggregate shall be either fine or coarse aggregate.

When fine aggregate is used, it shall be stone sand, wet bottom boiler slag, slag sand, or steel slag sand. The aggregate quality shall be Class B. The fine aggregate material shall be selected from the table in Article 1004.03(a) of the Standard Specifications based upon the friction aggregate mixture specified. The aggregate gradation shall be FA 1 (Special), FA 4 (Special), or FA 22 as specified on the plans and shall meet the following.

| FINE AGGREGATE GRADATIONS | | | | | | |
|---|---|---|---|---|---|---|
| Grad. No. | Sieve Size and Percent Passing | | | | | |
| | 3/8 in. (9.5 mm) | No. 4 (4.75 mm) | No. 8 (2.36 mm) | No. 16 (1.18 mm) | No. 40 (425 µm) | No. 200 (75 µm) |
| FA 1 (Special) | 100 | 90 ± 10 | 62.5 ± 17.5 | 32.5 ± 7.5 | 7.5 ± 7.5 | 1.5 ± 1 |
| FA 4 (Special) | 100 | -- | -- | 2 ± 2 | -- | 1.5 ± 1 |
| FA 22 | 100 | * | * | 8 ± 8 | -- | 2 ± 2 |

* For the fine aggregate gradation FA 22, the aggregate producer shall set the midpoint percent passing, and the Department will apply a range of ± 10 percent. The midpoint shall not be changed without Department approval.

When coarse aggregate is used, it shall be crushed gravel, crushed stone, wet bottom boiler slag, crushed slag, crushed sandstone, or crushed steel slag. The coarse aggregate material shall be selected from the table in Article 1004.03(a) of the Standard Specifications based upon the friction aggregate mixture specified. The aggregate quality shall be Class B and the total chert count shall be no more than 25.0 percent by weight (mass) as determined by the ITP 203. The aggregate gradation shall be CA 15, CA 16, or CA 20 as specified on the plans.

Note 2. The bituminous material shall be either a CRSP or an HFP polymer modified emulsified asphalt meeting the requirements of Article 1032.06(f)(2) of the Standard Specifications.

Equipment. Equipment shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (a) Self-Propelled Pneumatic-Tired Roller (Note 1) | 1101.01 |
| (b) Mechanical Sweeper (Note 2) | 1101.03 |
| (c) Aggregate Spreaders (Note 3) | 1102.04 |
| (d) Pressure Distributor (Note 4) | 1102.05 |
| (e) Heating Equipment | 1102.07 |

Note 1. There shall be a minimum of two rollers, with the final number of rollers determined by the rollers' abilities to maintain proper spacing with the aggregate spreader as directed by the Engineer.

Note 2. The mechanical sweeper shall be power driven and self-propelled with the broom located between the axles. The mechanical sweeper shall not use a cantilever-mounted broom and the broom rotation shall not be operated by forward movement.

Note 3. The aggregate spreader shall be a self-propelled mechanical type with the receiving hopper in the rear and shall pull the aggregate truck. The spreader shall be fitted with an automated system which provides positive interconnected control of the aggregate flow with the forward speed of the spreader. The automated system shall provide uniform and consistent aggregate application at the rate specified.

The Engineer will check the spread roll of the aggregate spreader for straightness each day before operations begin. Should the surface of the spread roll vary off a straight line along its longitudinal dimension by more than 1/16 in. (1.5 mm), the Engineer will inspect the application of aggregate for corrugations and, should these occur, the machine shall be repaired or replaced. The forward speed of the spreader during calibration shall be the same as is to be used during construction. The equipment required for aggregate spreader calibration may consist of several sheets of canvas, each being exactly 1 sq yd (0.8 sq m), and a weight scale. By making several runs at different gate openings over the sheets of canvas, placed to cover the full width applied by the spreader, and carefully measuring the aggregate on each canvas sheet, the gate opening at the pre-established speed required to apply aggregate at the specified rate may be determined.

Note 4. The pressure distributor shall have a minimum capacity of 3000 gal (11,500 L). The application rate control shall be automated and shall control the application rate regardless of ground speed or spray bar width. The computer shall have the capability of recording the application rate, gallons sprayed, square yards, and feet traveled. The pressure distributor shall be capable of maintaining the asphalt emulsion at the specified temperature. The spray bar nozzles shall produce a uniform triple lap application fan

spray, and the shutoff shall be instantaneous, with no dripping. The pressure distributor shall be capable of maintaining the specified application rate within ± 0.015 gal/sq yd (± 0.070 L/sq m) for each load. The spray-bar nozzles shall be turned to make the same angle with the longitudinal axis of the spray bar as recommended by the manufacturer.

Application rates shall be determined by the procedures listed in ASTM D 2995, except the sample may be taken on three 8 x 12 in. (200 x 300 mm) metal plates. The three plates shall be positioned as directed by the Engineer.

## CONSTRUCTION REQUIREMENTS

Weather Limitations. This work shall be done between May 1 and August 31. Bituminous materials shall be applied only when the temperature of the air in the shade is above 55 °F (13 °C). No work shall be started if local conditions indicate that rain is imminent.

This work may be done between September 1 and September 15 provided both of the following conditions are met:

(a) The temperature of the air in the shade is above 70 °F (20 °C) and the temperature of the surface to which the asphalt will be applied is 70 °F (20 °C) or above, and

(b) The National Weather Service forecast for the area does not show any rain or any temperatures below 55 °F (13 °C) for the day the work is to be done or for the following five days.

Repair and Preparation of Base or Existing Surface. The base or existing surface shall be prepared according to Section 358 of the Standard Specifications.

Calibration. The working day prior to starting construction, the pressure distributor and aggregate spreader shall be calibrated and adjusted according to the manufacturer's recommendations. At least three days prior to starting the work the Contractor shall provide the Engineer with a copy of the manufacturer's recommendations for the equipment to be used. All calibrations and adjustments shall be made in the presence of the Engineer on a level surface at a location approved by the Engineer. The Contractor shall maintain proper calibration and adjustment of the equipment and the Engineer reserves the right to check application rates as the work progresses. Should the equipment fail to consistently apply the specified rates, the work shall be stopped and the Contractor shall recalibrate and readjust the equipment.

Application Rates. Based upon the aggregate gradation to be used, the Contractor shall determine the application rates of bituminous material and seal coat aggregate. The application rates along with the seal coat gradations shall be submitted to the Engineer for approval prior to the start of work. Application rates shall be according to the following table for the aggregate type shown on the plans, and shall result in aggregate embedment between 50 and 70 percent behind the roller. Changes in the application rate of greater than 15 percent shall be resubmitted to the Engineer for approval.

| Aggregate Type | Bituminous Material Rate | Aggregate Rate |
|---|---|---|
| CA 15 | 0.38 – 0.46 gal/sq yd<br>(1.7 – 2.1 L/sq m) | 22 – 30 lb/sq yd<br>(12 – 16 kg/sq m) |
| CA 16 | 0.36 – 0.40 gal/sq yd<br>(1.6 – 1.8 L/sq m) | 18 – 26 lb/sq yd<br>(8 – 14 kg/sq m) |
| CA 20 | 0.36 – 0.40 gal/sq yd<br>(1.6 – 1.8 L/sq m) | 18 – 26 lb/sq yd<br>(8 – 14 kg/sq m) |
| FA 1 (Special) | 0.26 – 0.30 gal/sq yd<br>(1.2 – 1.4 L/sq m) | 16 – 20 lb/sq yd<br>(9 – 11 kg/sq m) |
| FA 4 (Special) | 0.28 – 0.36 gal/sq yd<br>(1.3 – 1.6 L/sq m) | 18 – 24 lb/sq yd<br>(10 – 13 kg/sq m) |
| FA 22 | 0.32 – 0.40 gal/sq yd<br>(1.5 – 1.8 L/sq m) | 15 – 22 lb/sq yd<br>(8 – 12 kg/sq m) |

Preparation of Bituminous Material. The temperature of the bituminous material at the time of application shall be such that it shall spray uniformly without clogging the spraying nozzles and shall be applied within the temperature ranges of 150 – 190 °F (65 – 90 °C).

Preparation of Aggregate. The aggregate shall be stockpiled near the jobsite according to Article 1003.01(e) or 1004.01(e) of the Standard Specifications. The aggregate used shall contain no free moisture. Slightly damp aggregate may be used with the approval of the Engineer.

Application of Bituminous Material. The bituminous material shall be applied with a pressure distributor. The entire length of the spray bar shall be set at the height above the surface recommended by the manufacturer for even distribution of the bituminous material.

The distributor shall be operated in a manner such that missing or overlapping of transverse joints shall be avoided. To prevent overlapping of successive applications of bituminous material at transverse joints, heavy paper shall be spread over the previously applied bituminous material and aggregates. In order to obtain a uniform application of the bituminous material, the distributor shall be traveling at the speed required for the specified rate of application when the spray bar crosses the paper.

Adjacent construction, such as concrete pavement, curb and gutter, bridge floors, raised reflective pavement markers, and bridge handrails, shall be protected by shields, covers or other means. If bituminous material is applied to adjacent construction, the Contractor shall remove such material to the satisfaction of the Engineer.

The emulsified asphalt shall not be applied when the wind conditions will inhibit uniform coverage from the fans of asphalt being applied.

Application of Aggregates. The seal coat aggregates shall be spread evenly with an aggregate spreader over the entire surface being treated. When treating one-half of the pavement width at a time, an inside strip of uncovered emulsified asphalt 3 in. (75 mm) wide shall be left during

construction of the first half to provide center joint overlap when the second half of the treatment is placed. In all cases, the aggregate shall be applied ahead of the truck or spreader wheels. Hand spreading will be permitted only when approved by the Engineer and, when so permitted, the aggregate shall be spread uniformly and at the approximate rate specified. Any ridges of aggregate left by the aggregate spreader shall be smoothed out with hand brooms immediately behind the aggregate spreader.

All equipment involved in the work shall operate as close to each other as practical. The aggregate shall cover the asphalt emulsion within 30 seconds of applications. At no time shall the aggregate spreader trail the pressure distributor by more than 150 ft (45 m) to ensure proper asphalt/aggregate adhesion.

Each aggregate truck shall be equipped with a suitable hitch for connection to the aggregate spreader while unloading. The trucks shall avoid contact between the truck body or bed and the aggregate spreader. The body or bed of the truck shall be modified, if necessary, to empty cleanly and completely into the receiving hopper of the aggregate spreader. No aggregate shall be allowed to spill onto the road surface when the truck is emptying into this hopper.

The aggregate shall be rolled following spreading. A maximum time of five minutes will be allowed between the spreading of aggregate and completion of the initial rolling of the aggregate. The rollers shall proceed in a longitudinal direction at a speed less than or equal to 5 mph (8 km/h). Each roller will travel over the aggregate a minimum of two times. The entire surface shall be rolled immediately with a self-propelled pneumatic-tired roller. Rolling shall proceed in a longitudinal direction beginning at the edges and progressing toward the center, overlapping on successive trips by at least 1/2 the width of the roller. The aggregate shall then be rolled with a separate pneumatic-tired roller until the aggregate is properly seated in the bituminous material.

The Contractor shall use the appropriate sweeping equipment to perform an initial sweeping after a minimum of two hours curing and not less than one hour before sunset on the day the bituminous surface treatment is placed. The initial sweeping shall remove excess aggregate by lightly sweeping each pavement lane. The sweeping shall be sufficient to prevent migration of loose aggregate back onto any part of the pavement.

The Contractor shall sweep the pavement surface as needed to remove excess aggregate.

Opening to Traffic. The road shall be opened to traffic according to Article 701.17(c)(4) of the Standard Specifications.

Method of Measurement. The bituminous surface treatment will be measured for payment in place and the area computed in square yards (square meters). The width for measurement will be the top width of the bituminous surface treatment as shown on the plans or as directed by the Engineer.

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for BITUMINOUS SURFACE TREATMENT (PREVENTIVE MAINTENANCE).

When provided as a payment item, the preparation of the existing surface will be measured and paid for as specified in Section 358 of the Standard Specifications. If not provided as a payment item, preparation of existing surface will be paid for according to Article 109.04 of the Standard Specifications.

80372

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Preventive Maintenance – Cape Seal |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to:

- correct type of chert for maximum allowance,
- clarify crushed aggregate requirement, and
- add polyester fibers to Jobsite-Mixed Sealant.

This special provision should be inserted into preventive maintenance – cape seal contracts and should be used in lieu of Check Sheet #29 Preventive Maintenance – Cape Seal.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80373m

**PREVENTIVE MAINTENANCE – CAPE SEAL (BDE)**

Effective: January 1, 2009
Revised: July 1, 2016

Description. This work shall consist of constructing a single bituminous surface treatment (A-1) and a micro-surfacing on existing hot-mix asphalt (HMA) surfaces.

Materials. Materials shall be according to the following.

(a) A-1 Surface Treatment. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (1) Seal Coat Aggregate (Note 1) | 1003, 1004.03 |
| (2) Bituminous Materials (Note 2) | 1032 |

Note 1. The seal coat aggregate shall be either fine or coarse aggregate.

When fine aggregate is used, it shall be stone sand, wet bottom boiler slag, slag sand, or steel slag sand. The aggregate quality shall be Class C. The aggregate gradation shall be FA 1 (Special), FA 4 (Special), or FA 22 as specified on the plans and shall meet the following.

| FINE AGGREGATE GRADATIONS | | | | | | |
|---|---|---|---|---|---|---|
| Grad. No. | Sieve Size and Percent Passing | | | | | |
| | 3/8 in. (9.5 mm) | No. 4 (4.75 mm) | No. 8 (2.36 mm) | No. 16 (1.18 mm) | No. 40 (425 µm) | No. 200 (75 µm) |
| FA 1 (Special) | 100 | 90 ± 10 | 62.5 ± 17.5 | 32.5 ± 7.5 | 7.5 ± 7.5 | 1.5 ± 1 |
| FA 4 (Special) | 100 | -- | -- | 2 ± 2 | -- | 1.5 ± 1 |
| FA 22 | 100 | * | * | 8 ± 8 | -- | 2 ± 2 |

* For the fine aggregate gradation FA 22, the aggregate producer shall set the midpoint percent passing, and the Department will apply a range of ± 10 percent. The midpoint shall not be changed without Department approval.

When coarse aggregate is used, it shall be crushed gravel, crushed stone, wet bottom boiler slag, crushed slag, crushed sandstone, or crushed steel slag. The aggregate quality shall be Class C and the total chert count shall be no more than 25.0 percent by weight (mass) as determined by the Illinois Test Procedure 203. The aggregate gradation shall be CA 15, CA 16, or CA 20 as specified on the plans.

Note 2. The bituminous material shall be either a CRSP or an HFP polymer modified emulsified asphalt meeting the requirements of Article 1032.06(f)(2) of the Standard Specifications.

(b) Micro-Surfacing. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (1) Mineral Filler (Note 1) | 1001 |
| (2) Water | 1002 |
| (3) Coarse Aggregate (Note 2) | 1004.03 |
| (4) Latex-Modified Emulsified Asphalt (Note 3) | |
| (5) Additives (Note 4) | |

Note 1. The mineral filler shall be Type 1 portland cement.

Note 2. The coarse aggregate material shall be selected from the table in Article 1004.03(a) of the Standard Specifications based upon the friction aggregate mixture specified. The quality of the aggregate shall be Class B and the gradation shall be as shown in the table below.

| Sieve Size | % Passing |
|---|---|
| 3/8 in. (9.5 mm) | 100 |
| No. 4 (4.75 mm) | 95 ± 5 |
| No. 8 (2.36 mm) | 77 ± 13 |
| No. 16 (1.18 mm) | 57 ± 13 |
| No. 30 (600 µm) | 40 35 ± 10 |
| No. 50 (330 µm) | 24 19 ± 6 |
| No. 100 (150 µm) | 15 ± 6 |
| No. 200 (75 µm) | 10 ± 5 |

When coarse aggregate is used, it shall be crushed gravel, crushed stone, crushed slag, crushed sandstone, or crushed steel slag. The blending, alternate use, and/or substitutions of aggregates from different sources for use in this work will not be permitted without the approval of the Engineer. Any blending shall be by interlocked mechanical feeders. The blending shall be uniform, compatible with the other components of the mix, and the equipment shall be approved by the Engineer.

If blending aggregates, the blend shall have a washed gradation performed every other day or a minimum of three tests per week. Testing shall be completed before the aggregate receives final acceptance for use in the mix.

Aggregates shall be screened at the stockpile prior to delivery to the paving machine to remove oversized material or contaminants.

Note 3. CSS-1h Latex Modified Emulsified Asphalt. The emulsified asphalt shall be a quick-traffic latex modified asphalt emulsion containing a minimum of 3.0 percent latex solids by weight of asphalt binder. The latex shall be milled or blended into the emulsifier solution prior to the emulsification process. The CSS-1h latex modified emulsified asphalt shall be according to the following.

| Test (AASHTO T 59) | Result |
|---|---|
| Viscosity, Saybolt Furol, 77 ºF (25 ºC), SFS | 20-100 |
| Storage Stability Test, 24 hours, % | 1 max. |
| Particle Charge Test | Positive |
| Sieve Test, No. 20 (850 µm), retained on sieve, % | 0.10 max. |
| Distillation Test, Residue from distillation test to 347 ± 9 º F(175 ± 5 ºC), % | 62 min. |

| Tests on residue from distillation | Result |
|---|---|
| Penetration, 77 ºF (25 ºC), 100 grams, 5 seconds, (AASHTO T 49), dmm | 40-90 |
| Ductility, 77 ºF (25 ºC), 50 mm/min, (AASHTO T 51), mm | 400 min. |
| Solubility in trichloroethylene, (AASHTO T 44), % | 97.5 min. |
| Softening Point, (AASHTO T 53), ºF (ºC) | 135 (57) min. |
| Absolute Viscosity, 140 ºF (60 ºC), (AASHTO T 202), Poises (Pa · sec) | 8,000 (800) min. |

Note 4. Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They shall be included as part of the mix design and be compatible with the other components of the mix.

(c) Crack/Joint Sealant. The crack/joint sealant shall be a fiber-modified asphalt binder mixed at the jobsite or premixed.

(1) Jobsite-Mixed Sealant. The sealant shall consist of an asphalt binder and fibers, and be according to the following.

a. Asphalt Binder. The asphalt binder shall be PG 58-28, PG 58-22, or PG 64-22 and meet the requirements of Article 1032.05 of the Standard Specifications.

b. Fibers. Fibers shall be short cut polypropylene or polyester fibers meeting the properties listed below. The fiber will be accepted by certification. The Contractor shall supply a certification from the manufacturer stating that it meets the specified requirements.

| Property | Value | |
|---|---|---|
| | Polypropylene | Polyester |
| Length, in. (mm) | 0.3 - 0.5<br>(8 - 12) | 0.25 ± 0.02<br>(6.3 ± 0.5) |
| Denier | 13-16 | 3 - 6 |
| Crimps | None | None |
| Tensile Strength, min., psi (kPa) | 40,000 (275,000) | 70,000 (482,000) |
| Specific Gravity (typical) | 0.91 | 1.32 – 1.40 |
| Moisture Regain @ 70 ºF (21 ºC) and 65% RH (typical), % | 0.1 | N/A |
| Elongation at Break, % | | 35 - 38 |
| Melt Temperature, ºF (ºC) | | 475 – 490<br>(246 – 254) |
| Percent Fibers by weight (mass) | 8.0 | 5.0 ± 0.5 |

c. Sealant Heating. The sealant shall be heated in the kettle at temperatures between 255 and 285 ºF (124 and 141 ºC).

(2) Premixed Sealant. The sealant shall be packaged and consist of an asphalt binder, fibers, and other modifiers meeting the following requirements. The sealant and its components will be accepted by certification. The Contractor shall submit a certification from the manufacturer stating that it meets the specified requirements.

a. Asphalt Binder. The asphalt binder shall be PG 64-22 and meet the requirements of Article 1032.05 of the Standard Specifications.

b. Fibers. Fibers shall be short cut polyester fibers meeting the properties listed in the table above for Jobsite-Mixed Sealant.

The sealant, in its final form, shall meet the following requirements when sampled and heated to the manufacturer's recommended maximum heating temperature according to ASTM D 5167.

| Test | Value |
|---|---|
| Cone Penetration @ 77 ºF (25 ºC), ASTM D 5329 | 10 - 35 dmm |
| Softening Point, ASTM D 36 | 175 ºF (79 ºC) min. |
| Maximum Heating Temperature | 400°F (204 ºC) |
| Application Temperature | 350°F (177 °C) min. |

Equipment. Equipment shall be according to the following.

(a) A-1 Surface Treatment. Equipment shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (1) Self-Propelled Pneumatic-Tired Roller (Note 1) | 1101.01 |
| (2) Mechanical Sweeper (Note 2) | 1101.03 |
| (3) Aggregate Spreaders (Note 3) | 1102.04 |
| (4) Pressure Distributor (Note 4) | 1102.05 |
| (5) Heating Equipment | 1102.07 |

Note 1. There shall be a minimum of two rollers, with the final number of rollers determined by the rollers' abilities to maintain proper spacing with the aggregate spreader as directed by the Engineer.

Note 2. The mechanical sweeper shall be power driven and self-propelled with the broom located between the axles. The mechanical sweeper shall not use a cantilever-mounted broom and the broom rotation shall not be operated by forward movement.

Note 3. The aggregate spreader shall be a self-propelled mechanical type with the receiving hopper in the rear and shall pull the aggregate truck. The spreader shall be fitted with an automated system which provides positive interconnected control of the aggregate flow with the forward speed of the spreader. The automated system shall provide uniform and consistent aggregate application at the rate specified.

The Engineer will check the spread roll of the aggregate spreader for straightness each day before operations begin. Should the surface of the spread roll vary off a straight line along its longitudinal dimension by more than 1/16 in. (1.5 mm), the Engineer will inspect the application of aggregate for corrugations and, should these occur, the machine shall be repaired or replaced. The forward speed of the spreader during calibration shall be the same as is to be used during construction. The equipment required for aggregate spreader calibration may consist of several sheets of canvas, each being exactly 1 sq yd (0.8 sq m), and a weight scale. By making several runs at different gate openings over the sheets of canvas, placed to cover the full width applied by the spreader, and carefully measuring the aggregate on each canvas sheet, the gate opening at the pre-established speed required to apply aggregate at the specified rate may be determined.

Note 4. The pressure distributor shall have a minimum capacity of 3000 gal (11,500 L). The application rate control shall be automated and shall control the application rate regardless of ground speed or spray bar width. The computer shall have the capability of recording the application rate, gallons sprayed, square yards, and feet traveled. The pressure distributor shall be capable of maintaining the asphalt emulsion at the specified temperature. The spray bar nozzles shall produce a uniform triple lap application fan spray, and the shutoff shall be instantaneous, with no dripping. The pressure distributor shall be capable of maintaining the specified application rate within $\pm$ 0.015 gal/sq yd ($\pm$ 0.070 L/sq m) for each load. The spray-bar nozzles shall be turned to make the same angle with the longitudinal axis of the spray bar as recommended by the manufacturer.

Application rates shall be determined by the procedures listed in ASTM D 2995, except the sample may be taken on three 8 x 12 in. (200 x 300 mm) metal plates. The three plates shall be positioned as directed by the Engineer.

(b) Micro-Surfacing. Equipment shall be according to the following.

(1) Micro-Surfacing Mixing Machine. The machine shall be either a continuous (self-loading) machine or a non-continuous (self-contained) machine depending on the size of the project as described below. Both types of machines shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, control additive and water to maintain an adequate supply to the proportioning controls. The mixing unit shall be able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, control setting additive, and water to a revolving multi-blade, double-shafted mixer.

Machines that are the continuous (self-loading) type shall be an automatic-sequenced, self-propelled, continuous-flow mixing unit able to discharge the mixed product on a continuous-flow basis. The machine shall be equipped to allow the operator to have full control of the forward and reverse speeds during applications of the material and be equipped with opposite-side driver stations to assist in alignment.

Non-continuous (self-contained) machines will be allowed on projects with a length of 2 lane-miles (3.2 lane-km) or less. For mainline paving, the Contractor shall have at least three self-contained machines in continuous operation to ensure appropriate production rates. Self-contained machines will also be allowed on shoulders, ramps, short applications as bridge decks, or where the material can be placed in a single loading capacity of the machine.

Each mixing unit to be used in the performance of the work shall be calibrated in the presence of the Engineer prior to construction. Each new or different aggregate requires a new calibration. Previous calibration documentation covering the exact materials to be used may be acceptable, provided that no more than 30 days have lapsed. The documentation shall include an individual calibration of each material at various settings, which can be related to the machine metering devices. Prior to the calibration process, portable scales used to calibrate the mixing machine for emulsion and aggregate shall be checked with 25 lb and 50 lb weights, respectively. Results from the standard weight checks shall be furnished to the Engineer. No machine will be allowed to work on the project until the calibration has been completed and/or accepted.

(2) Micro-Surfacing Spreader. The mixture shall be agitated and spread uniformly in the surfacing box by means of twin-shafted paddles or spiral augers fixed in the spreader box. A front seal shall be provided to insure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a

uniform consistency is achieved to produce a free flow of material to the rear strike-off. The spreader box shall have suitable means provided to side shift the box to compensate for variations in the pavement geometry.

A secondary strike-off shall be provided to improve surface texture on the surface course. The secondary strike-off shall have the same adjustments as the spreader box and shall not bounce, wobble, or chatter.

When required on the plans, before the final surface course is placed, preliminary micro-surfacing material may be required to fill ruts, utility cuts, depressions in the existing surface, etc. Ruts of 1/2 in. (13 mm) or greater in depth shall be filled independently with a rut-filling spreader box, either 5 or 6 ft (1.5 or 1.8 m) in width. For irregular or shallow rutting of less than 1/2 in. (13 mm) in depth, a full-width scratch-coat pass may be used as directed by the Engineer utilizing either a stiff primary rubber or else a metal primary strike off. Ruts that are in excess of 1 1/2 in. (38 mm) in depth may require multiple placements with the rut-filling spreader box to restore the cross-section. All rut-filling level-up material should cure under traffic for a minimum of 24 hours before additional material is placed on top of the level up.

(3) Micro-Surfacing Proportioning Devices. Individual volume or weight controls for proportioning each material to be added to the mix (i.e. aggregate, mineral filler, emulsified asphalt, additive, and water) shall be provided and properly marked. These proportioning devices are used in material calibration and determining the material output at any time. Calibration records, conversion formulas, and daily run sheets including the beginning and final numbers shown on the proportioning devices shall be submitted to the Engineer for approval. During production any deviations from the original JMF shall be approved by the Engineer.

(c) Crack/Joint Sealing. Equipment shall be according to the following.

(1) Air Compressor. The air compressor shall be capable of producing a minimum pressure of 90 psi (620 kPa) at the end of the discharge hose. The air stream shall discharge onto the pavement through an appropriate air lance. The tool lubricator shall be bypassed and a filter installed on the discharge valve to keep water and oil out of the line.

(2) Oil Kettle. The crack sealant shall be heated in an oil jacketed double wall kettle equipped with an agitator (reversing rotary auger action) and separate thermometers for the oil bath and mixing chamber. The unit shall also be equipped with a reversible hydraulic 2 in. (50 mm) hot asphalt pump and a recirculating pump to circulate the oil bath.

## CONSTRUCTION REQUIREMENTS

Weather Limitations. Placement of the A-1 bituminous surface treatment shall be done between May 1 and August 31, with the micro-surfacing being placed according to the timeframe specified herein. Bituminous materials shall be applied only when the temperature of the air in the shade is above 55 ºF (13 ºC). No work shall be started if local conditions indicate that rain is imminent.

The A-1 bituminous surface treatment may be done between September 1 and September 15 provided both of the following conditions are met:

(a) The temperature of the air in the shade is above 70 ºF (20 ºC) and the temperature of the surface to which the asphalt will be applied is 70 ºF (20 ºC) or above, and

(b) The National Weather Service forecast for the area does not show any rain or any temperatures below 55 ºF (13 ºC) for the day the work is to be done or for the following five days.

Mix Design. A Contractor provided laboratory shall develop the mix design for the micro-surfacing mixture, shall verify the functioning of the set regulating additives, and shall present certified test results for the Engineer's approval. This laboratory shall be recognized by the International Slurry Surfacing Association (ISSA) as being capable of performing mix designs. The Engineer will verify the laboratory tests required in ISSA A143 have been conducted.

Proportions for the mix design shall be within the following limits.

| | |
|---|---|
| Mineral Aggregate,<br>dry weight (mass) lb/sq yd (kg/sq m) | 15-50 (8-30) |
| Latex Emulsified Asphalt Residue,% by wt. of Aggregate | 5.5-10.5 |
| Latex Base Modifier | As required with % by weight (mass) of binder min. of 3.0 |
| Mix Set Additive | As required |
| Mineral Filler,<br>% by weight (mass) of aggregate | 0.25 - 3 depending on weather conditions |

The amount of mineral filler needed shall be determined by the laboratory mix design and will be considered as part of the aggregate gradation.

The amount and type of latex shall be determined by the laboratory performing the mix design. The minimum amount required shall be based on asphalt weight content and shall be certified by the emulsion supplier.

Compatibility of the aggregate, latex-modified emulsified asphalt, mineral filler, and other additives shall be verified by the mix design. The materials shall meet the following requirements for ISSA A143.

| ISSA Test No. | Description | Specification |
|---|---|---|

| | | |
|---|---|---|
| ISSA TB-139 | Wet Cohesion<br>@ 30 minutes min. (Set)<br>@ 60 minutes min. (Traffic) | <br>12 kg-cm min.<br>20 kg-cm min. or Near Spin |
| ISSA TB-109 | Excess Asphalt by LWT Sand Adhesion | 50 gm/sq ft (538 gm/sq m) max. |
| ISSA TB-114 | Wet Stripping | Pass (90% min.) |
| ISSA TB-100 | Wet-Track Abrasion Loss<br>One-hour Soak<br>Six-day Soak | <br>50 gm/sq ft (538 gm/sq m) max.<br>75 gm/sq ft (807 gm/sq m) max. |
| ISSA TB-147 | Lateral Displacement | 5% max. |
| | Specific Gravity after 1,000 Cycles of 25 lb (11.34 kg) | 2.10 max. |
| ISSA TB-144 | Classification Compatibility | 11 Grade Points min.<br>(AAA, BAA) |
| ISSA TB-113 | Mix Time @ 77 °F (25 °C) | Controllable to 120 seconds min. |

The mixing test and set-time test shall be checked at the highest temperatures expected during construction.

The mix design shall report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effect). The report shall clearly show the proportions of aggregate, mineral filler (minimum and maximum), water (minimum and maximum), additive usage, and latex-modified asphalt emulsion based on the dry weight of the aggregate.

For the aggregate blend in the mix design, test results for AASHTO T 176 shall be provided with the mix information to the Engineer. Aggregate test values below 65 shall require review and approval from the Engineer.

Before the work commences, the Contractor shall submit to the Engineer a complete mix design covering the specific materials to be used on the project. The percentages of each individual material required shall be shown in the laboratory report. The Engineer shall approve the mix design prior to its use. After approval, no substitutions will be permitted, unless approved by the Engineer, and the Contractor shall maintain continuous control of the latex-modified emulsified asphalt to dry aggregate proportioning to conform to the approved mix design within a tolerance of ± 2 gal/ton (± 8 L/metric ton).

Micro-Surfacing Test Strip. For projects over 100,000 sq yd (83,600 sq m), at least one day prior to starting the project the Contractor shall designate a mutually agreeable location and apply a test strip of micro-surfacing using the aggregate indicated in the mix design. The Engineer will evaluate the micro-surfacing application rate and cure time.

Surface Preparation. Pavement markings shall be removed according to Article 783.03(a) of the Standard Specifications. Only very small particles of tightly adhering existing markings may remain in place.

When specified in the plans, pavement markers shall be removed according to Article 783.03(b) of the Standard Specifications.

Bumps greater than or equal to 1/2 in. (13 mm) shall be removed by grinding. The Contractor shall determine bump grinding locations in the presence of the Engineer by using a 16 ft (5 m) straightedge with the scratcher bolts set to 1/2 in. (13 mm). All locations marked by the scratcher bolts shall be ground using either a grinding machine consisting of multiple saws or a cold-milling machine with a double- or triple-wrap milling head.

Joints and cracks 3/16 in. (5 mm) or wider shall be cleaned of loose and unsound material and sealed. The sealant shall be applied only when the joints and cracks are clean and dry and the ambient temperature is 40-85 °F (4-29 °C). The sealant shall be applied using a pressurized wand delivery system with such devices as necessary to seal the cracks/joints and form a nominal 0.125 in. (3 mm) thick by 3 in. (75 mm) wide overseal band centered so that the center of the 3 in. (75 mm) wide band is within 1 in. (25 mm) of the crack. The sealant shall be allowed to cure before opening to traffic. When approved by the Engineer, the sealer may be dusted with fine sand, portland cement, or mineral filler to prevent tracking.

Prior to applying the A-1 bituminous surface treatment, the pavement surface shall be cleaned.

Manholes, valve boxes, drop inlets, and other service entrances shall be protected from the cape seal by a suitable method. The surface preparation shall be approved by the Engineer prior to application of the A-1 bituminous surface treatment. No dry aggregate either spilled from the lay-down machine or existing on the road, will be permitted.

Calibration. The working day prior to starting construction of the A-1 bituminous surface course, the pressure distributor and aggregate spreader shall be calibrated and adjusted according to the manufacturer's recommendations. At least three days prior to starting the work the Contractor shall provide the Engineer with a copy of the manufacturer's recommendations for the equipment to be used. All calibrations and adjustments shall be made in the presence of the Engineer on a level surface at a location approved by the Engineer. The Contractor shall maintain proper calibration and adjustment of the equipment and the Engineer reserves the right to check application rates as the work progresses. Should the equipment fail to consistently apply the specified rates, the work shall be stopped and the Contractor shall recalibrate and readjust the equipment.

Application. The cape seal shall be applied as shown on the plans and the following.

(a) A-1 Bituminous Surface Treatment. The bituminous material and aggregate shall be applied according to the following.

(1) Application Rates. Based upon the aggregate gradation to be used, the Contractor shall determine the application rates of bituminous material and seal coat aggregate. The application rates along with the seal coat gradations shall be submitted to the Engineer for approval prior to the start of work. Application rates shall be according to the following table for the aggregate type shown on the plans, and shall result in

aggregate embedment between 50 and 70 percent behind the roller. Changes in the application rate of greater than 15 percent shall be resubmitted to the Engineer for approval.

| Aggregate Type | Bituminous Material Rate | Aggregate Rate |
|---|---|---|
| CA 15 | 0.38 – 0.46 gal/sq yd<br>(1.7 – 2.1 L/sq m) | 22 – 30 lb/sq yd<br>(12 – 16 kg/sq m) |
| CA 16 | 0.36 – 0.40 gal/sq yd<br>(1.6 – 1.8 L/sq m) | 18 – 26 lb/sq yd<br>(8 – 14 kg/sq m) |
| CA 20 | 0.36 – 0.40 gal/sq yd<br>(1.6 – 1.8 L/sq m) | 18 – 26 lb/sq yd<br>(8 – 14 kg/sq m) |
| FA 1 (Special) | 0.26 – 0.30 gal/sq yd<br>(1.2 – 1.4 L/sq m) | 16 – 20 lb/sq yd<br>(9 – 11 kg/sq m) |
| FA 4 (Special) | 0.28 – 0.36 gal/sq yd<br>(1.3 – 1.6 L/sq m) | 18 – 24 lb/sq yd<br>(10 – 13 kg/sq m) |
| FA 22 | 0.32 – 0.40 gal/sq yd<br>(1.5 – 1.8 L/sq m) | 15 – 22 lb/sq yd<br>(8 – 12 kg/sq m) |

(2) Preparation of Bituminous Material. The temperature of the bituminous material at the time of application shall be such that it shall spray uniformly without clogging the spraying nozzles and shall be applied within the temperature ranges of 150 – 190 ºF (65 – 90 ºC).

(3) Preparation of Aggregate. The aggregate shall be stockpiled near the jobsite according to Article 1003.01(e) or 1004.01(e) of the Standard Specifications. The aggregate used shall contain no free moisture. Slightly damp aggregate may be used with the approval of the Engineer.

(4) Application of Bituminous Material. The bituminous material shall be applied with a pressure distributor. The entire length of the spray bar shall be set at the height above the surface recommended by the manufacturer for even distribution of the bituminous material.

The distributor shall be operated in a manner such that missing or overlapping of transverse joints is avoided. To prevent overlapping of successive applications of bituminous material at transverse joints, heavy paper shall be spread over the previously applied bituminous material and aggregates. In order to obtain a uniform application of the bituminous material, the distributor shall be traveling at the speed required for the specified rate of application when the spray bar crosses the paper.

Adjacent construction, such as concrete pavement, curb and gutter, bridge floors, raised reflective pavement markers, and bridge handrails, shall be protected by shields, covers or other means. If bituminous material is applied to adjacent construction, the Contractor shall remove such material to the satisfaction of the Engineer.

The emulsified asphalt shall not be applied when the wind conditions will inhibit uniform coverage from the fans of asphalt being applied.

(5) Application of Aggregates. The seal coat aggregates shall be spread evenly with an aggregate spreader over the entire surface being treated. When treating one-half of the pavement width at a time, an inside strip of uncovered emulsified asphalt 3 in. (75 mm) wide shall be left during construction of the first half to provide center joint overlap when the second half of the treatment is placed. In all cases, the aggregate shall be applied ahead of the truck or spreader wheels. Hand spreading will be permitted only when approved by the Engineer and, when so permitted, the aggregate shall be spread uniformly and at the approximate rate specified. Any ridges of aggregate left by the aggregate spreader shall be smoothed out with hand brooms immediately behind the aggregate spreader.

All equipment involved in the work shall operate as close to each other as practical. The aggregate shall cover the asphalt emulsion within 30 seconds of applications. At no time shall the aggregate spreader trail the pressure distributor by more than 150 ft (45 m) to ensure proper asphalt/aggregate adhesion.

Each aggregate truck shall be equipped with a suitable hitch for connection to the aggregate spreader while unloading. The trucks shall avoid contact between the truck body or bed and the aggregate spreader. The body or bed of the truck shall be modified, if necessary, to empty cleanly and completely into the receiving hopper of the aggregate spreader. No aggregate shall be allowed to spill onto the road surface when the truck is emptying into this hopper.

The aggregate shall be rolled following spreading. A maximum time of five minutes will be allowed between the spreading of aggregate and completion of the initial rolling of the aggregate. The rollers shall proceed in a longitudinal direction at a speed less than or equal to 5 mph (8 km/h). Each roller shall travel over the aggregate a minimum of two times. The entire surface shall be rolled immediately with a self-propelled pneumatic-tired roller. Rolling shall proceed in a longitudinal direction beginning at the edges and progressing toward the center, overlapping on successive trips by at least 1/2 the width of the roller. The aggregate shall then be rolled with a separate pneumatic-tired roller until the aggregate is properly seated in the bituminous material.

The Contractor shall use the appropriate sweeping equipment to perform an initial sweeping after a minimum of two hours curing and not less than one hour before sunset on the day the A-1 surface treatment is placed. The initial sweeping shall remove excess aggregate by lightly sweeping each pavement lane. The sweeping shall be sufficient to prevent migration of loose aggregate back onto any part of the pavement.

The Contractor shall sweep the pavement surface as needed to remove excess aggregate.

(b) Micro-Surfacing. This method shall consist of applying the surface mix within a maximum of 12 calendar days of placing the A-1 bituminous surface treatment. The Contractor shall sweep the pavement surface immediately prior to applying the micro-surfacing.

The surface shall be prewetted by water fogging ahead of the spreader box when road conditions require, as determined by the Engineer. The rate of fogging shall be adjusted during the day based on pavement temperature, surface texture, and dryness.

(1) Application. The micro-surfacing shall be applied over the entire width of each lane in a single pass at a rate of 24 lb/sq yd (13 kg/sq m). The application rate shall be verified from daily readings taken from the proportioning devices during the progress of the work.

The paving mixture shall be spread to leave a uniform surface. A sufficient amount of material shall be carried at all times in all parts of the spreader box to ensure complete coverage. Overloading of the spreader shall be avoided. No lumps or uncoated aggregate will be permitted in the finished surface.

Adjustments to the mix design may be required during construction, based on field conditions. The percent of mineral filler in the mix design may be increased or decreased by less than 0.3 percent when the slurry seal is being placed if it is found to be necessary for better consistency or set times. The Engineer will give final approval for all adjustments.

(2) Mix Consistency. The finished product shall be uniform in color and composition. No streaks, such as those caused by oversized aggregate, shall be left in the finished surface. If excess streaking develops, the job will be stopped until the Contractor proves to the Engineer that the situation has been corrected. Excessive streaking is defined as more than four drag marks greater than 1/2 in. (13 mm) wide and 4 in. (100 mm) long, or 1 in. (25 mm) wide and 3 in. (75 mm) long, in any 30 sq yd (25 sq m) area. No transverse ripples or longitudinal streaks of 0.25 in. (6 mm) in depth will be permitted, when measured by placing a 10 ft (3 m) straightedge over the surface.

(3) Mix Stability. The micro-surfacing shall possess sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. It shall be free of excess water or emulsified asphalt and free of segregation of the emulsified asphalt and aggregate fines from the coarser aggregate. Under no circumstances shall water be sprayed directly into the lay-down box while placing micro-surfacing material.

(4) Joints and Edges. The Contractor shall devise a joint plan according to ISSA A143 and submit to the Engineer for approval. When practical, the surface course joint shall be at least 10 in. (255 mm) away from the nearest edge of any subsequent permanent pavement markings.

Micro-surfacing edges shall be parallel with the existing pavement edges. If the existing pavement edge cannot be used to give a straight edge, a stringline or other guide will be required. Edge lines shall not vary by more than ± 2 in. (± 50 mm) horizontally in any 100 ft (30 m) of length.

A smooth, neat seam shall be provided where two passes meet. Excess material shall be immediately removed from the ends of each run. Any damage to, or irregularities in, the micro-surfacing shall be repaired, as directed by the Engineer. All repairs shall be made with a paver box, except areas designated as hand work areas.

(5) Hand Work. Those areas inaccessible to the spreader box and other areas approved by the Engineer shall be designated as hand work areas. Adjustments to the additive will be permitted to provide a slower setting time when hand spreading is needed. If hand spreading is necessary, the mixture shall be poured in a small windrow along one edge of the surface to be covered and then spread uniformly by a hand squeegee or lute. Hand work areas shall have an appearance consistent with that being placed with a spreader box.

Clean-Up. All areas, such as manholes, gutters, and intersections, shall have the cape seal removed as specified by the Engineer. The Contractor shall, on a daily basis, remove any debris associated with the performance of the work.

Sampling and Testing. The Contractor shall check yield of the application after the first 1000 ft (300 m), and throughout each day's paving, with a minimum of three tests per day. Yield check results shall be furnished to the Engineer daily.

The Contractor shall submit a daily "run sheet" for each day's work as soon as all the data is available. The run sheet shall provide a breakdown of the actual meter numbers and quantities of all materials actually used each day, as well as the respective locations.

Opening to Traffic. The A-1 bituminous surface treatment portion shall be opened to traffic according to Article 701.17(c)(4) of the Standard Specifications.

The micro-surfacing shall be opened to traffic within one hour of its application.

Curing. The micro-surfacing shall cure for a minimum of seven days before placement of the permanent pavement markings.

Method of Measurement. Crack/joint sealing will be measured for payment in feet (meters), measured along the crack.

Pavement marking removal and pavement marker removal will be measured for payment according to Article 783.05 of the Standard Specifications.

The cape seal will be measured for payment in place and the area computed in square yards (square meters). The width for measurement will be the width of the top surface as shown on the plans or as directed by the Engineer.

Basis of Payment. Crack/joint sealing will be paid for at the contract unit price per foot (meter) for FIBER-MODIFIED ASPHALT CRACK SEALING.

Bump removal will be paid for at the contract unit price per each for BUMP REMOVAL.

Pavement marking removal and pavement marker removal will be paid for according to Article 783.06 of the Standard Specifications.

Cape seal will be paid for at the contract unit price per square yard (square meter) for CAPE SEAL, of the gradation type and friction aggregate mixture specified.

80373

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Preventive Maintenance – Micro-Surfacing |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to:

- clarify crushed aggregate requirement,
- add polyester fibers to Jobsite-Mixed Sealant, and
- revise tack coat application rate to reflect residual asphalt.

This special provision should be inserted into preventive maintenance – micro-surfacing contracts and should be used in lieu of Check Sheet #30 Preventive Maintenance – Micro-Surfacing.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80374m

**PREVENTIVE MAINTENANCE – MICRO-SURFACING (BDE)**

Effective: January 1, 2009
Revised: July 1, 2016

Description. This work shall consist of micro-surfacing hot-mix asphalt (HMA) surfaces.

Materials. Materials shall be according to the following.

(a) Micro-Surfacing. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (1) Mineral Filler (Note 1) | 1001 |
| (2) Water | 1002 |
| (3) Coarse Aggregate (Note 2) | 1004.03 |
| (4) Bituminous Material (Tack Coat) | 1032.06 |
| (5) Latex-Modified Emulsified Asphalt (Note 3) | |
| (6) Additives (Note 4) | |

Note 1. The mineral filler shall be Type 1 portland cement.

Note 2. The coarse aggregate material shall be selected from the table in Article 1004.03(a) of the Standard Specifications based upon the friction aggregate mixture specified. The quality of the aggregate shall be Class B and the gradation shall be as shown in the table below.

| Sieve Size | Type II % Passing | Type III % Passing 1/ |
|---|---|---|
| 3/8 in. (9.5 mm) | 100 | 100 |
| #4 (4.75 mm) | 95 ± 5 | 80 ± 10 |
| #8 (2.36 mm) | 77 ± 13 | 57 ± 13 |
| #16 (1.18 mm) | 57 ± 13 | 39 ± 11 |
| #30 (600 µm) | 35 ± 10 | 26 ± 8 |
| #50 (330 µm) | 19 ± 6 | 18 ± 7 |
| #100 (150 µm) | 15 ± 6 | 12 ± 6 |
| #200 (75 µm) | 10 ± 5 | 10 ± 5 |

1/ Rut filling mixes shall be constructed using a Type III gradation. All surface mixes shall be constructed using a Type II gradation.

When coarse aggregate is used, it shall be crushed gravel, crushed stone, crushed slag, crushed sandstone, or crushed steel slag. The blending, alternate use, and /or substitutions of aggregates from different sources for use in this work will not be permitted without the approval of the Engineer. Any blending shall be by interlocked

mechanical feeders. The blending shall be uniform, compatible with the other components of the mix, and the equipment shall be approved by the Engineer.

If blending aggregates, the blend shall have a washed gradation performed every other day or a minimum of three tests per week. Testing shall be completed before the aggregate receives final acceptance for use in the mix.

Aggregates shall be screened at the stockpile prior to delivery to the paving machine to remove oversized material or contaminants.

Note 3. CSS-1h Latex Modified Emulsified Asphalt. The emulsified asphalt shall be a quick-traffic latex modified asphalt emulsion containing a minimum of 3.0 percent latex solids by weight of asphalt binder. The latex shall be milled or blended into the emulsifier solution prior to the emulsification process. The CSS-1h latex modified emulsified asphalt shall be according to the following.

| Test (AASHTO T 59) | Result |
|---|---|
| Viscosity, Saybolt Furol, 77 ºF (25 ºC), SFS | 20-100 |
| Storage Stability Test, 24 hours, % | 1 max. |
| Particle Charge Test | Positive |
| Sieve Test, No. 20 (850 µm), retained on sieve, % | 0.10 max. |
| Distillation Test, Residue from distillation test to 347 ± 9 ºF (175 ± 5 ºC), % | 62 min. |

| Tests on residue from distillation | Result |
|---|---|
| Penetration, 77 ºF (25 ºC), 100 grams, 5 seconds, (AASHTO T 49), dmm | 40-90 |
| Ductility, 77 ºF (25 ºC), 50 mm/min, (AASHTO T 51), mm | 400 min. |
| Solubility in trichloroethylene, (AASHTO T 44), % | 97.5 min. |
| Softening Point, (AASHTO T 53), ºF (ºC) | 135 (57) min. |
| Absolute Viscosity, 140 ºF (60 ºC), (AASHTO T 202), Poises (Pa · sec) | 8,000 (800) min. |

Note 4. Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They shall be included as part of the mix design and be compatible with the other components of the mix.

(b) Crack/Joint Sealant. The crack/joint sealant shall be a fiber-modified asphalt binder mixed at the jobsite or premixed.

(1) Jobsite-Mixed Sealant. The sealant shall consist of an asphalt binder and fibers, and be according to the following.

a. Asphalt Binder. The asphalt binder shall be PG 58-28, PG 58-22, or PG 64-22 and meet the requirements of Article 1032.05 of the Standard Specifications.

b. Fibers. Fibers shall be short cut polypropylene or polyester fibers meeting the properties listed below. The fiber will be accepted by certification. The Contractor shall supply a certification from the manufacturer stating that it meets the specified requirements.

| Property | Value | |
|---|---|---|
| | Polypropylene | Polyester |
| Length, in. (mm) | 0.3 - 0.5<br>(8 - 12) | 0.25 ± 0.02<br>(6.3 ± 0.5) |
| Denier | 13 - 16 | 3 - 6 |
| Crimps | None | None |
| Tensile Strength, min., psi (kPa) | 40,000 (275,000) | 70,000 (482,000) |
| Specific Gravity (typical) | 0.91 | 1.32 – 1.40 |
| Moisture Regain @ 70 °F (21 °C) and 65% RH (typical), % | 0.1 | N/A |
| Elongation at Break, % | | 35 - 38 |
| Melt Temperature, ºF, ºC | | 475 – 490<br>(246 – 254) |
| Percent Fibers by weight (mass) | 8.0 | 5.0 ± 0.5 |

c. Sealant Heating. The sealant shall be heated in the kettle at temperatures between 255 and 285 °F (124 and 141 °C).

(2) Premixed Sealant. The sealant shall be packaged and consist of an asphalt binder, fibers, and other modifiers meeting the following requirements. The sealant and its components will be accepted by certification. The Contractor shall submit a certification from the manufacturer stating that it meets the specified requirements.

a. Asphalt Binder. The asphalt binder shall be PG 64-22 and meet the requirements of Article 1032.05 of the Standard Specifications.

b. Fibers. Fibers shall be short cut polyester fibers meeting the properties listed in the table above for Jobsite-Mixed Sealant.

The sealant, in its final form, shall meet the following requirements when sampled and heated to the manufacturer's recommended maximum heating temperature according to ASTM D 5167.

| Test | Value |
|---|---|
| Cone Penetration @ 77 °F (25 °C), ASTM D 5329 | 10-35 dmm |

| | |
|---|---|
| Softening Point, ASTM D 36 | 175 °F (79 °C) min. |
| Maximum Heating Temperature | 400°F (204 °C) |
| Application Temperature | 350°F (177 °C) min. |

Equipment. Equipment shall be according to the following.

(a) Micro-Surfacing. Equipment shall be according to the following.

(1) Micro-Surfacing Mixing Machine. The machine shall be either a continuous (self-loading) machine or a non-continuous (self-contained) machine depending on the size of the project as described below. Both types of machines shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, control additive and water to maintain an adequate supply to the proportioning controls. The mixing unit shall be able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, control setting additive, and water to a revolving multi-blade, double-shafted mixer.

Machines that are the continuous (self-loading) type shall be an automatic-sequenced, self-propelled, continuous-flow mixing unit able to discharge the mixed product on a continuous-flow basis. The machine shall be equipped to allow the operator to have full control of the forward and reverse speeds during applications of the material and be equipped with opposite-side driver stations to assist in alignment.

Non-continuous (self-contained) machines will be allowed on projects with a length of 2 lane-miles (3.2 lane-km) or less. For mainline paving, the Contractor shall have at least three self-contained machines in continuous operation to ensure appropriate production rates. Self-contained machines will also be allowed on shoulders, ramps, short applications such as bridge decks, or where the material can be placed in a single loading capacity of the machine.

Each mixing unit to be used in the performance of the work shall be calibrated in the presence of the Engineer prior to construction. Each new or different aggregate requires a new calibration. Previous calibration documentation covering the exact materials to be used may be acceptable, provided that no more than 30 days have lapsed. The documentation shall include an individual calibration of each material at various settings, which can be related to the machine metering devices. Prior to the calibration process, portable scales used to calibrate the mixing machine for emulsion and aggregate shall be checked with 25 lb and 50 lb weights, respectively. Results from the standard weight checks shall be furnished to the Engineer. No machine will be allowed to work on the project until the calibration has been completed and/or accepted.

(2) Micro-Surfacing Spreader. The mixture shall be agitated and spread uniformly in the surfacing box by means of twin shafted paddles or spiral augers fixed in the spreader box. A front seal shall be provided to insure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable.

The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The spreader box shall have suitable means provided to side shift the box to compensate for variations in the pavement geometry.

A secondary strike-off shall be provided to improve surface texture on the surface course. The secondary strike-off shall have the same adjustments as the spreader box and shall not bounce, wobble, or chatter.

When required on the plans, before the final surface course is placed, preliminary micro-surfacing material may be required to fill ruts, utility cuts, depressions in the existing surface, etc. Ruts of 1/2 in. (13 mm) or greater in depth shall be filled independently with a rut-filling spreader box, either 5 or 6 ft (1.5 or 1.8 m) in width. For irregular or shallow rutting of less than 1/2 in. (13 mm) in depth, a full-width scratch-coat pass may be used as directed by the Engineer utilizing either a stiff primary rubber or else a metal primary strike off. Ruts that are in excess of 1 1/2 in. (38 mm) in depth may require multiple placements with the rut-filling spreader box to restore the cross-section. All rut-filling level-up material should cure under traffic for a minimum of 24 hours before additional material is placed on top of the level up.

(3) Micro-Surfacing Proportioning Devices. Individual volume or weight controls for proportioning each material to be added to the mix (i.e. aggregate, mineral filler, emulsified asphalt, additive, and water) shall be provided and properly marked. These proportioning devices are used in material calibration and determining the material output at any time. Calibration records, conversion formulas, and daily run sheets including the beginning and final numbers shown on the proportioning devices shall be submitted to the Engineer for approval. During production any deviations from the original JMF shall be approved by the Engineer.

(b) Crack/Joint Sealing. Equipment shall be according to the following.

(1) Air Compressor. The air compressor shall be capable of producing a minimum pressure of 90 psi (620 kPa) at the end of the discharge hose. The air stream shall discharge onto the pavement through an appropriate air lance. The tool lubricator shall be bypassed and a filter installed on the discharge valve to keep water and oil out of the line.

(2) Oil Kettle. The crack sealant shall be heated in an oil jacketed double wall kettle equipped with an agitator (reversing rotary auger action) and separate thermometers for the oil bath and mixing chamber. The unit shall also be equipped with a reversible hydraulic 2 in. (50 mm) hot asphalt pump and a recirculating pump to circulate the oil bath.

## CONSTRUCTION REQUIREMENTS

General. The paving mixture shall be capable of filling up to 1 1/2 in. (38 mm) wheel ruts in one pass, be capable of field regulation of the setting time, and be suitable for nighttime placement. The compatibility of all ingredients of the mix, including the mix set additive, shall be certified by the emulsified asphalt manufacturer.

Weather Limitations. Placement of the micro-surfacing shall be done between May 1 and October 15, and when the temperature is at least 50 ºF (10 ºC) and rising and the forecast for the next 24 hours is above 40 ºF (5 ºC).

Mix Design. A Contractor provided laboratory shall develop the mix design for the micro-surfacing mixture, shall verify the functioning of the set regulating additives, and shall present certified test results for the Engineer's approval. This laboratory shall be recognized by the International Slurry Surfacing Association (ISSA) as being capable of performing mix designs. The Engineer will verify the laboratory tests required in ISSA A143 have been conducted.

Proportions for the mix design shall be within the following limits.

| | |
|---|---|
| Mineral Aggregate, dry weight (mass) lb/sq yd (kg/sq m) | 15-50 (8-30) |
| Latex Emulsified Asphalt Residue, % by wt. of Aggregate | 5.5-10.5 |
| Latex Base Modifier | As required with % by weight (mass) of binder, min. of 3.0 |
| Mix Set Additive | As required |
| Mineral Filler, % by weight (mass) of Aggregate | 0.25 - 3 depending on weather conditions |

The amount of mineral filler needed shall be determined by the laboratory mix design and will be considered as part of the aggregate gradation.

The amount and type of latex shall be determined by the laboratory performing the mix design. The minimum amount required shall be based on asphalt weight content and shall be certified by the emulsion supplier.

Compatibility of the aggregate, latex-modified emulsified asphalt, mineral filler, and other additives shall be verified by the mix design. The materials shall meet the following requirements for ISSA A143.

| ISSA Test No. | Description | Specification |
|---|---|---|
| ISSA TB-139 | Wet Cohesion<br>@ 30 minutes min. (Set)<br>@ 60 minutes min. (Traffic) | <br>12 kg-cm min.<br>20 kg-cm min. or Near Spin |
| ISSA TB-109 | Excess Asphalt by LWT Sand Adhesion | 50 gm/sq ft (538 gm/sq m) max. |
| ISSA TB-114 | Wet Stripping | Pass (90% min.) |
| ISSA TB-100 | Wet-Track Abrasion Loss<br>One-hour Soak<br>Six-day Soak | <br>50 gm/sq ft (538 gm/sq m) max.<br>75 gm/sq ft (807 gm/sq m) max. |

| | | |
|---|---|---|
| ISSA TB-147 | Lateral Displacement | 5% max. |
| | Specific Gravity after 1,000 Cycles of 25 lb (11.34 kg) | 2.10 max. |
| ISSA TB-144 | Classification Compatibility | 11 Grade Points min. (AAA, BAA) |
| ISSA TB-113 | Mix Time @ 77 °F (25 °C) | Controllable to 120 seconds min. |

The mixing test and set-time test shall be checked at the highest temperatures expected during construction.

The mix design shall report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effect). The report shall clearly show the proportions of aggregate, mineral filler (minimum and maximum), water (minimum and maximum), additive usage, and latex-modified asphalt emulsion based on the dry weight of the aggregate.

For the aggregate blend in the mix design, test results for AASHTO T 176 shall be provided with the mix information to the Engineer. Aggregate test values below 65 shall require review and approval from the Engineer.

Before the work commences, the Contractor shall submit to the Engineer a complete mix design covering the specific materials to be used on the project. The percentages of each individual material required shall be shown in the laboratory report. The Engineer shall approve the mix design prior to its use. After approval, no substitutions will be permitted, unless approved by the Engineer, and the Contractor shall maintain continuous control of the latex-modified emulsified asphalt to dry aggregate proportioning to conform to the approved mix design within a tolerance of ± 2 gal/ton (± 8 L/metric ton).

Test Strip. For projects over 100,000 sq yd (83,600 sq m), at least one day prior to starting the project the Contractor shall designate a mutually agreeable location and apply a test strip of micro-surfacing using the aggregate indicated in the mix design. The Engineer will evaluate the micro-surfacing application rate and cure time.

Surface Preparation. Pavement markings shall be removed according to Article 783.03(a) of the Standard Specifications. Only very small particles of tightly adhering existing markings may remain in place.

When specified in the plans, pavement markers shall be removed according to Article 783.03(b) of the Standard Specifications.

Bumps greater than or equal to 1/2 in. (13 mm) shall be removed by grinding. The Contractor shall determine bump grinding locations in the presence of the Engineer by using a 16-ft (5-m) straightedge with the scratcher bolts set to 1/2 in. (13 mm). All locations marked by the scratcher bolts shall be ground using either a grinding machine consisting of multiple saws or a cold-milling machine with a double- or triple-wrap milling head.

Joints and cracks 3/16 in. (5 mm) or wider shall be cleaned of loose and unsound material and sealed. The sealant shall be applied only when the joints and cracks are clean and dry, and the

ambient temperature is 40-85 °F (4-29 °C). The sealant shall be applied using a pressurized wand delivery system with such devices as necessary to seal the cracks/joints and form a nominal 0.125 in. (3 mm) thick by 3 in. (75 mm) wide overseal band centered so that the center of the 3 in. (75 mm) wide band is within 1 in. (25 mm) of the crack. The sealant shall be allowed to cure before opening to traffic. When approved by the Engineer, the sealant may be dusted with fine sand, portland cement, or mineral filler to prevent tracking.

Micro-Surfacing. The micro-surfacing shall be applied as shown on the plans and the following.

(a) Preparation. Prior to applying the micro-surfacing, the pavement surface shall be cleaned. On highly oxidized surfaces, a tack coat shall be applied at a rate of 0.025 lb/sq ft (0.122 kg/sq m) according to Article 406.05(b) of the Standard Specifications. Manholes, valve boxes, drop inlets, and other service entrances shall be protected from the micro-surfacing by a suitable method. The surface preparation shall be approved by the Engineer prior to the application of the micro-surfacing. No dry aggregate either spilled from the lay-down machine or existing on the road will be permitted.

The Contractor shall apply the micro-surfacing according to the following methods.

(1) Micro-Surfacing Rut Filling. This method shall consist of filling each of the two wheelpath ruts in a lane using the specially designed rutbox and the rutfill (Type III) mix. It shall be the Contractor's responsibility to determine and estimate the quantities of rutfill mix required for rut filling. This work is then followed by one pass of micro-surfacing as described below.

(2) Micro-Surfacing, Single Pass. This method shall consist of applying the surface mix over the entire width of each lane in one pass at an application rate of 20 lb/sq yd (11 kg/sq m).

Determinations of application rates shall be from daily readings taken from the material control devices during the progress of the work.

The pavement surface shall be prewetted by water fogging ahead of the spreader box when road conditions require, as determined by the Engineer. The rate of fogging shall be adjusted during the day based on pavement temperature, surface texture, and dryness.

The paving mixture shall be spread to fill minor cracks and shallow potholes and leave a uniform surface. Care shall be taken when rut filling to restore the designed profile of the pavement cross section. Excess crowning (over-filling) of rut areas shall be avoided. A sufficient amount of material shall be carried at all times in all parts of the spreader box to ensure complete coverage. Overloading of the spreader shall be avoided. No lumps or uncoated aggregate will be permitted in the finished surface.

Adjustments to the mix design may be required during construction, based on field conditions. The percent of mineral filler in the mix design may be increased or decreased by less than 0.3 percent when the slurry seal is being placed if it is found to be necessary for better consistency or set times. The Engineer will give final approval for all adjustments.

(b) Mix Consistency. The finished product shall be uniform in color and composition. No streaks, such as those caused by oversized aggregate, shall be left in the finished surface. If excess streaking develops, the job will be stopped until the Contractor proves to the Engineer that the situation has been corrected. Excessive streaking is defined as more than four drag marks greater than 1/2 in. (13 mm) wide and 4 in. (100 mm) long, or 1 in. (25 mm) wide and 3 in. (75 mm) long, in any 30 sq yd (25 sq m) area. No transverse ripples or longitudinal streaks of 0.25 in. (6 mm) in depth will be permitted, when measured by placing a 10 ft (3 m) straightedge over the surface.

(c) Mix Stability. The micro-surfacing shall possess sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. It shall be free of excess water or emulsified asphalt and free of segregation of the emulsified asphalt and aggregate fines from the coarser aggregate. Under no circumstances shall water be sprayed directly into the lay-down box while placing micro-surfacing material.

(d) Joints and Edges. The Contractor shall devise a joint plan according to ISSA A143 and submit to the Engineer for approval. When practical, the surface course joint shall be at least 10 in. (255 mm) away from the nearest edge of any subsequent permanent pavement markings.

Micro-surfacing edges shall be parallel with the existing pavement edges. If the existing pavement edge cannot be used to give a straight edge, a stringline or other guide will be required. Edge lines shall not vary by more than ± 2 in. (50 mm) horizontally in any 100 ft (30 m) of length.

A smooth, neat seam shall be provided where two passes meet. Excess material shall be immediately removed from the ends of each run. Any damage to, or irregularities in, the micro-surfacing shall be repaired, as directed by the Engineer. All repairs shall be made with a paver box, except areas designated as hand work areas.

(e) Hand Work. Those areas inaccessible to the spreader box and approved by the Engineer shall be designated as hand work areas. Adjustments to the additive will be permitted to provide a slower setting time when hand spreading is needed. If hand spreading is necessary, the mixture shall be poured in a small windrow along one edge of the surface to be covered and then spread uniformly by a hand squeegee or lute. Hand work areas shall have an appearance consistent with that being placed with a spreader box.

Clean-Up. All areas, such as manholes, gutters, and intersections, shall have the micro-surfacing mix removed as specified by the Engineer. The Contractor shall, on a daily basis, remove any debris associated with the performance of the work.

Sampling and Testing. The Contractor shall check yield of the application after the first 1000 ft (300 m), and throughout each day's paving, with a minimum of three tests per day. Yield check results shall be furnished to the Engineer daily.

The Contractor shall submit a daily "run sheet" for each day's work as soon as all the data is available. The run sheet shall provide a breakdown of the actual meter numbers and quantities of all materials actually used each day, as well as the respective locations.

Opening to Traffic. The micro-surfacing shall be opened to traffic within one hour of its application.

Curing. The micro-surfacing shall cure for a minimum of 7 days before placement of the permanent pavement markings.

Method of Measurement. This work will be measured for payment as follows.

(a) Contract Quantities. The requirements for the use of contract quantities shall conform to Article 202.07(a) of the Standard Specifications.

(b) Measured Quantities. Crack/Joint sealing will be measured for payment in feet (meters), measured along the crack.

Pavement marking removal will be measured for payment according to Article 783.05 of the Standard Specifications.

The micro-surfacing will be measured according to the following for the method of application provided in the plans.

(1) Micro-Surfacing Rut Filling. Micro-surfacing rut filling will be measured for payment in place in feet (meters) along the wheel path or filled rut.

(2) Micro-surfacing, Single Pass. Micro-surfacing, single pass will be measured for payment in place and the area computed in square yards (square meters). The width for measurement will be the width of the top surface as shown on the plans or as directed by the Engineer.

PrimeTack coat, when required, will be measured for payment according to Article 406.13(b) of the Standard Specifications.

Basis of Payment. Crack/joint sealing will be paid for at the contract unit price per foot (meter) of FIBER-MODIFIED ASPHALT CRACK SEALING.

Bump removal will be paid for at the contract unit price per each for BUMP REMOVAL.

Pavement marking removal and pavement marker removal will be paid for according to Article 783.06 of the Standard Specifications.

Rut filling will be paid for at the contract unit price per foot (meter) for MICRO-SURFACING RUT FILLING.

Micro-surfacing, single pass will be paid for at the contract unit price per square yard (square meter) for MICRO-SURFACING, SINGLE PASS, of the gradation type and friction aggregate mixture specified.

Tack coat, when required, will be paid for according to Article 406.14 of the Standard Specifications.

80374

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Preventive Maintenance – Slurry Seal |
| Date: | April 15, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research to:

- clarify crushed aggregate requirement,
- add polyester fibers to Jobsite-Mixed Sealant, and
- revise tack coat application rate to reflect residual asphalt.

This special provision should be inserted into preventive maintenance – slurry seal contracts and should be used in lieu of Check Sheet #31 Slurry Seal.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the July 29, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory April 15, 2016.

80375m

**PREVENTIVE MAINTENANCE – SLURRY SEAL (BDE)**

Effective: January 1, 2009
Revised: July 1, 2016

Description. This work shall consist of slurry sealing existing hot-mix asphalt (HMA) surfaces.

Materials. Materials shall be according to the following.

(a) Slurry Seal. Materials shall be according to the following Articles/Sections of the Standard Specifications.

| Item | Article/Section |
|---|---|
| (1) Mineral Filler (Note 1) | 1001 |
| (2) Water | 1002 |
| (3) Coarse Aggregate (Note 2) | 1004.03 |
| (4) Bituminous Material (Tack Coat) | 1032.06 |
| (5) Emulsified Asphalt (Note 3) | |
| (6) Additives (Note 4) | |

Note 1. The mineral filler shall be Type 1 portland cement.

Note 2. The coarse aggregate material shall be selected from the table in Article 1004.03(a) of the Standard Specifications based upon the friction aggregate mixture specified. The quality of the aggregate shall be Class B and the gradation shall be as shown in the table below.

| Sieve Size | % Passing |
|---|---|
| 3/8 in. (9.5 mm) | 100 |
| #4 (4.75 mm) | 95 ± 5 |
| #8 (2.36 mm) | 77 ± 13 |
| #16 (1.18 mm) | 57 ± 13 |
| #30 (600 µm) | 35 ± 10 |
| #50 (330 µm) | 19 ± 6 |
| #100 (150 µm) | 15 ± 6 |
| #200 (75 µm) | 10 ± 5 |

When coarse aggregate is used, it shall be crushed gravel, crushed stone, crushed slag, crushed sandstone, or crushed steel slag. The blending, alternate use, and/or substitutions of aggregates from different sources for use in this work will not be permitted without the approval of the Engineer. Any blending shall be by interlocked mechanical feeders. The blending shall be uniform, compatible with the other components of the mix, and the equipment shall be approved by the Engineer.

If blending aggregates, the blend shall have a washed gradation performed every other day or a minimum of three tests per week. Testing shall be completed before the aggregate receives final acceptance for use in the mix.

Aggregates shall be screened at the stockpile prior to delivery to the paving machine to remove oversized material or contaminants.

Note 3. The emulsified asphalt shall be a quick-traffic, asphalt emulsion conforming to the requirements of AASHTO M 208 for CSS-1h, and the following.

| AASHTO Test No. | Quality | Specification |
|---|---|---|
| AASHTO T 59 [1/] | Residue after Distillation | 60% Minimum |

1/ When using a latex-modified emulsion, the distillation temperature shall be 347 ± 9 ºF (175 ± 5 ºC).

| AASHTO Test No. | Tests on Residue | Specification |
|---|---|---|
| AASHTO T 49 | Penetration at 77 °F (25 °C) | 40 - 90 dmm [2/] |

2/ Climatic conditions should be considered when establishing this range.

The cement mixing test will be waived for this emulsion.

If a latex-modified emulsion is used, the latex shall be milled or blended into the emulsifier solution prior to the emulsification process.

Note 4. Additives may be added to the emulsion mix or any of the component materials to provide control of the quick-traffic properties. They shall be included as part of the mix design and be compatible with the other components of the mix.

(b) Crack/Joint Sealant. The crack/joint sealant shall be a fiber-modified asphalt binder mixed at the jobsite or premixed.

(1) Jobsite-Mixed Sealant. The sealant shall consist of an asphalt binder and fibers, and be according to the following.

a. Asphalt Binder. The asphalt binder shall be PG 58-28, PG 58-22, or PG 64-22 and meet the requirements of Article 1032.05 of the Standard Specifications.

b. Fibers. Fibers shall be short cut polypropylene or polyester fibers meeting the properties listed below. The fiber will be accepted by certification. The Contractor shall supply a certification from the manufacturer stating that it meets the specified requirements.

| Property | Value | |
|---|---|---|
| | Polypropylene | Polyester |
| Length, in. (mm) | 0.3 - 0.5<br>(8 - 12) | 0.25 ± 0.02<br>(6.3 ± 0.5) |
| Denier | 13 - 16 | 3 - 6 |
| Crimps | None | None |
| Tensile Strength, min., psi (kPa) | 40,000 (275,000) | 70,000 (482,000) |
| Specific Gravity (typical) | 0.91 | 1.32 – 1.40 |
| Moisture Regain @ 70 °F (21 °C) and 65% RH (typical), % | 0.1 | N/A |
| Elongation at Break, % | | 35 - 38 |
| Melt Temperature, ºF, (ºC) | | 475 – 490<br>(246 – 254) |
| Percent Fibers by weight (mass) | 8.0 | 5.0 ± 0.5 |

c. Sealant Heating. The sealant shall be heated in the kettle at temperatures between 255 and 285 °F (124 and 141 °C).

(2) Premixed Sealant. The sealant shall be packaged and consist of an asphalt binder, fibers, and other modifiers meeting the following requirements. The sealant and its components will be accepted by certification. The Contractor shall submit a certification from the manufacturer stating that it meets the specified requirements.

a. Asphalt Binder. The asphalt binder shall be PG 64-22 and meet the requirements of Article 1032.05 of the Standard Specifications.

b. Fibers. Fibers shall be short cut polyester fibers meeting the properties listed in the table above for Jobsite-Mixed Sealant.

The sealant, in its final form, shall meet the following requirements when sampled and heated to the manufacturer's recommended maximum heating temperature according to ASTM D 5167.

| Test | Value |
|---|---|
| Cone Penetration @ 77 °F (25 °C), ASTM D 5329 | 10-35 dmm |
| Softening Point, ASTM D 36 | 175 °F (79 °C) min. |
| Maximum Heating Temperature | 400°F (204 °C) |
| Application Temperature | 350°F (177 °C) min. |

Equipment. Equipment shall be according to the following.

(a) Slurry Seal. Equipment shall be according to the following.

(1) Slurry Seal Mixing Machine. The machine shall be either a continuous (self-loading) machine or a non-continuous (self-contained) machine depending on the size of the project as described below. Both types of machines shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, control additive and water to maintain an adequate supply to the proportioning controls. The mixing unit shall be able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, control setting additive, and water to a revolving multi-blade, double-shafted mixer.

Machines that are the continuous (self-loading) type shall be an automatic-sequenced, self-propelled, continuous-flow mixing unit able to discharge the mixed product on a continuous-flow basis. The machine shall be equipped to allow the operator to have full control of the forward and reverse speeds during applications of the material and be equipped with opposite-side driver stations to assist in alignment.

Non-continuous (self-contained) machines will be allowed on projects with a length of 2 lane-miles (3.2 lane-km) or less. For mainline paving, the Contractor shall have at least three self-contained machines in continuous operation to ensure appropriate production rates. Self-contained machines will also be allowed on shoulders, ramps, short applications such as bridge decks, or where the material can be placed in a single loading capacity of the machine.

Each mixing unit to be used in the performance of the work shall be calibrated in the presence of the Engineer prior to construction. Each new or different aggregate requires a new calibration. Previous calibration documentation covering the exact materials to be used may be acceptable, provided that no more than 30 days have lapsed. The documentation shall include an individual calibration of each material at various settings, which can be related to the machine metering devices. Prior to the calibration process, portable scales used to calibrate the mixing machine for emulsion and aggregate shall be checked with 25 lb and 50 lb weights, respectively. Results from the standard weight checks shall be furnished to the Engineer. No machine will be allowed to work on the project until the calibration has been completed and/or accepted.

(2) Slurry Seal Spreader. The mixture shall be agitated and spread uniformly in the surfacing box by means of twin shafted paddles or spiral augers fixed in the spreader box. A front seal shall be provided to insure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved to produce a free flow of material to the rear strike-off. The spreader box shall have suitable means provided to side shift the box to compensate for variations in the pavement geometry.

(3) Slurry Seal Proportioning Devices. Individual volume or weight controls for proportioning each material to be added to the mix (i.e. aggregate, mineral filler, emulsified asphalt, additive, and water) shall be provided and properly marked.

These proportioning devices are used in material calibration and determining the material output at any time. Calibration records, conversion formulas, and daily run sheets including the beginning and final numbers shown on the proportioning devices shall be submitted to the Engineer for approval. During production any deviations from the original JMF shall be approved by the Engineer.

(b) Crack/Joint Sealing. Equipment shall be according to the following.

(1) Air Compressor. The air compressor shall be capable of producing a minimum pressure of 90 psi (620 kPa) at the end of the discharge hose. The air stream shall discharge onto the pavement through an appropriate air lance. The tool lubricator shall be bypassed and a filter installed on the discharge valve to keep water and oil out of the line.

(2) Oil Kettle. The crack sealant shall be heated in an oil jacketed double wall kettle equipped with an agitator (reversing rotary auger action) and separate thermometers for the oil bath and mixing chamber. The unit shall also be equipped with a reversible hydraulic 2-in. (50-mm) hot asphalt pump and a recirculating pump to circulate the oil bath.

## CONSTRUCTION REQUIREMENTS

General. The slurry seal shall be capable of field regulation of the setting time. The compatibility of all ingredients of the mix, including the mix set additive, shall be certified by the emulsified asphalt manufacturer.

Weather Limitations. Placement of the slurry seal shall be done between May 1 and October 15, and when the temperature is at least 50 ºF (10 ºC) and rising and the forecast for the next 24 hours is above 40 ºF (5 ºC).

Mix Design. A Contractor provided laboratory shall develop the mix design for the paving mixture, shall verify the functioning of the set regulating additives, and shall present certified test results for the Engineer's approval. This laboratory shall be recognized by the International Slurry Surfacing Association (ISSA) as being capable of performing mix designs. The Engineer will verify the laboratory tests required in ISSA A105 have been conducted.

Proportions for the mix design shall be within the following limits.

| | |
|---|---|
| Mineral Aggregate,<br>dry weight (mass) lb/sq yd (kg/sq m) | 15 - 25 (8 - 15) |
| Emulsified Asphalt Residue,<br>% by wt. of Aggregate | 7.5 - 13.5 |
| Latex Base Modifier (if required) | As required with % by weight (mass) of binder, min. of 5.0 |
| Mix Set Additive | As required |

| | |
|---|---|
| Mineral Filler, % by weight (mass) of Aggregate | 0.5 - 2.0 depending on weather conditions |

The amount of mineral filler needed shall be determined by the laboratory mix design and will be considered as part of the aggregate gradation.

The amount and type of latex shall be determined by the laboratory performing the mix design. The minimum amount required shall be based on asphalt weight content and shall be certified by the emulsion supplier.

Compatibility of the aggregate, emulsified asphalt, mineral filler, and other additives shall be verified by the mix design. The materials shall meet the following requirements for ISSA A105.

| ISSA Test No. | Description | Specification |
|---|---|---|
| ISSA TB-139 | Wet Cohesion<br>@ 30 minutes min. (Set)<br>@ 60 minutes min. (Traffic) | <br>12 kg-cm min.<br>20 kg-cm min. or Near Spin |
| ISSA TB-109 | Excess Asphalt by LWT Sand Adhesion | 50 gm/sq ft (538 gm/sq m) max. |
| ISSA TB-114 | Wet Stripping | Pass (90% min.) |
| ISSA TB-100 | Wet-Track Abrasion Loss<br>One-hour Soak | <br>75 gm/sq ft (807 gm/sq m) max. |
| ISSA TB-113 | Mix Time @ 77 °F (25 °C) | Controllable to 180 seconds, min. |

The mixing test and set-time test shall be checked at the highest temperatures expected during construction.

The mix design shall report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effect). The report shall clearly show the proportions of aggregate, mineral filler (minimum and maximum), water (minimum and maximum), additive usage, and asphalt emulsion based on the dry weight of the aggregate.

For the aggregate blend in the mix design, test results for AASHTO T 176 shall be provided with the mix information to the Engineer. Aggregate test values below 45 shall require review and approval from the Engineer.

Before the work commences, the Contractor shall submit to the Engineer a complete mix design covering the specific materials to be used on the project. The percentages of each individual material required shall be shown in the laboratory report. The Engineer shall approve the mix design prior to its use. After approval, no substitutions will be permitted unless approved by the Engineer, and the Contractor shall maintain continuous control of the emulsified asphalt to dry aggregate proportioning to conform to the approved mix design within a tolerance of ± 2 gal/ton (± 8 L/metric ton).

Test Strip. For projects over 100,000 sq yd (83,600 sq m), at least one day prior to starting the project the Contractor shall designate a mutually agreeable location and apply a test strip of

slurry seal using the aggregate indicated in the mix design. The Engineer will evaluate the slurry seal application rate and cure time.

Surface Preparation. Pavement markings shall be removed according to Article 783.03(a) of the Standard Specifications. Only very small particles of tightly adhering existing markings may remain in place.

When specified in the plans, pavement markers shall be removed according to Article 783.03(b) of the Standard Specifications.

Bumps greater than or equal to 1/2 in. (13 mm) shall be removed by grinding. The Contractor shall determine bump grinding locations in the presence of the Engineer by using a 16-ft (5-m) straightedge with the scratcher bolts set to 1/2 in. (13 mm). All locations marked by the scratcher bolts shall be ground using either a grinding machine consisting of multiple saws or a cold-milling machine with a double- or triple-wrap milling head.

Joints and cracks, 3/16 in. (5 mm) or wider, shall be cleaned of loose and unsound material and sealed. The sealant shall be applied only when the joints and cracks are clean and dry, and the ambient temperature is 40 - 85 °F (4 - 29 °C). The sealant shall be applied using a pressurized wand delivery system with such devices as necessary to seal the cracks/joints and form a nominal 0.125 in. (3 mm) thick by 3 in. (75 mm) wide overseal band centered so that the center of the 3 in. (75 mm) wide band is within 1 in. (25 mm) of the crack. The sealant shall be allowed to cure before opening to traffic. When approved by the Engineer, the sealant may be dusted with fine sand, portland cement, or mineral filler to prevent tracking.

Slurry Sealing. The slurry seal shall be applied as follows.

(a) Preparation. Prior to applying the slurry seal, the pavement surface shall be cleaned. On highly oxidized surfaces, a tack coat shall be applied at a rate of 0.025 lb/sq ft (0.122 kg/sq m) according to Article 406.05(b) of the Standard Specifications. Manholes, valve boxes, drop inlets, and other service entrances shall be protected from the slurry seal by a suitable method. The surface preparation shall be approved by the Engineer prior to application of the slurry seal. No dry aggregate either spilled from the lay-down machine or existing on the road, will be permitted.

    The pavement surface shall be prewetted by water fogging ahead of the spreader box when road conditions require, as determined by the Engineer. The rate of fogging shall be adjusted during the day based on pavement temperature, surface texture, and dryness.

(b) Application. The slurry seal shall be applied over the entire width of each lane in a single pass at a rate 20 lb/sq yd (11 kg/sq m). The application rate shall be verified from daily readings taken from the proportioning devices during the progress of the work.

    The paving mixture shall be spread to fill minor cracks and shallow potholes and leave a uniform surface. A sufficient amount of material shall be carried at all times in all parts of

the spreader box to ensure complete coverage. Overloading of the spreader shall be avoided. No lumps or uncoated aggregate will be permitted in the finished surface.

Adjustments to the mix design may be required during construction, based on field conditions. The percent of mineral filler in the mix design may be increased or decreased by less than 0.3 percent when the slurry seal is being placed if it is found to be necessary for better consistency or set times. The Engineer will give final approval for all adjustments.

(c) Mix Consistency. The finished product shall be uniform in color and composition. No streaks, such as those caused by oversized aggregate, shall be left in the finished surface. If excess streaking develops, the job will be stopped until the Contractor proves to the Engineer that the situation has been corrected. Excessive streaking is defined as more than four drag marks greater than 1/2 in. (13 mm) wide and 4 in. (100 mm) long, or 1 in. (25 mm) wide and 3 in. (75 mm) long, in any 30 sq yd (25 sq m) area. No transverse ripples or longitudinal streaks of 0.25 in. (6 mm) in depth will be permitted, when measured by placing a 10 ft (3 m) straightedge over the surface.

(d) Mix Stability. The slurry seal shall possess sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. It shall be free of excess water or emulsified asphalt and free of segregation of the emulsified asphalt and aggregate fines from the coarser aggregate. Under no circumstances shall water be sprayed directly into the lay-down box while placing slurry seal material.

(e) Joints and Edges. The Contractor shall devise a joint plan according to ISSA A105 and submit it to the Engineer for approval. When practical, the surface course joint shall be at least 10 in. (255 mm) away from the nearest edge of any subsequent permanent pavement markings.

Slurry seal edges shall be parallel with the existing pavement edges. If the existing pavement edge cannot be used to give a straight edge, a stringline or other guide will be required. Edge lines shall not vary by more than ± 2 in. (50 mm) horizontally in any 100 ft (30 m) of length.

A smooth, neat seam shall be provided where two passes meet. Excess material shall be immediately removed from the ends of each run. Any damage to, or irregularities in, the slurry seal shall be repaired, as directed by the Engineer. All repairs shall be made with a paver box, except areas designated as hand work areas.

(f) Hand Work. Those areas inaccessible to the spreader box and approved by the Engineer shall be designated as hand work areas. Adjustments to the additive will be permitted to provide a slower setting time when hand spreading is needed. If hand spreading is necessary, the mixture shall be poured in a small windrow along one edge of the surface to be covered and then spread uniformly by a hand squeegee or lute.

Hand work areas shall have an appearance consistent with that being placed with a spreader box.

Clean-Up. All areas, such as manholes, gutters, and intersections, shall have the slurry seal mix removed as specified by the Engineer. The Contractor shall, on a daily basis, remove any debris associated with the performance of the work.

Sampling and Testing. The Contractor shall check yield of the application after the first 1000 ft (300 m), and throughout each day's paving, with a minimum of three tests per day. Yield check results shall be furnished to the Engineer daily.

The Contractor shall submit a daily "run sheet" for each day's work as soon as all the data is available. The run sheet shall provide a breakdown of the actual meter numbers and quantities of all materials actually used each day, as well as the respective locations.

Opening to Traffic. The slurry seal shall be opened to traffic within two hours of its application.

Curing. The slurry seal shall cure for a minimum of 7 days before placement of the permanent pavement markings.

Method of Measurement. This work will be measured for payment as follows.

(a) Contract Quantities. The requirements for the use of contract quantities shall conform to Article 202.07(a) of the Standard Specifications.

(b) Measured Quantities. Crack/Joint sealing will be measured for payment in feet (meters), measured along the crack.

Pavement marking removal will be measured for payment according to Article 783.05 of the Standard Specifications.

The slurry seal will be measured for payment in place and the area computed in square yards (square meters). The width for measurement will be the width of the top surface as shown on the plans or as directed by the Engineer.

Prime Tack coat, when required, will be measured for payment according to Article 406.13(b) of the Standard Specifications.

Basis of Payment. Crack/joint sealing will be paid for at the contract unit price per foot (meter) of FIBER-MODIFIED ASPHALT CRACK SEALING.

Bump removal will be paid for at the contract unit price per each for BUMP REMOVAL.

Pavement marking removal and pavement marker removal will be paid for according to Article 783.06 of the Standard Specifications.

Slurry seal will be paid for at the contract unit price per square yard (square meter) for ASPHALTIC EMULSION SLURRY SEAL, of the friction aggregate mixture specified.

PrimeTack coat, when required, will be paid for according to Article 406.14 of the Standard Specifications.

80375

# Illinois Department of Transportation

## Memorandum

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|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Hot-Mix Asphalt – Tack Coat |
| Date: | July 22, 2016 |

This special provision was developed by the Bureau of Materials and Physical Research in response to District requests for a quicker setting tack coat for night-time paving or other paving conditions that are not ideal for traditional setting tack coats.

This special provision should be inserted into all HMA paving contracts.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 4, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory July 22, 2016.

80376m

**HOT-MIX ASPHALT – TACK COAT (BDE)**

Effective: November 1, 2016

Revise Article 1032.06(a) of the Standard Specifications to read:

"(a) Anionic Emulsified Asphalt. Anionic emulsified asphalts shall be according to AASHTO M 140. SS-1h emulsions used as a tack coat shall have the cement mixing test waived."

80376

# Illinois Department of Transportation

## Memorandum

| | |
|---|---|
| To: | All Regional Engineers |
| From: | Maureen M. Addis |
| Subject: | Special Provision for Portable Changeable Message Signs |
| Date: | July 22, 2016 |

This special provision was developed by the Bureau of Safety Programs and Engineering to reduce the minimum height of a portable changeable message sign (PCMS) in rural areas which is consistent with the MUTCD. This change may help mitigate potential damage to PCMS and the potential for PCMS to become misaligned during windy conditions.

This special provision should be inserted into contracts utilizing portable changeable message signs. Note: Highway Standard 701400 requires one.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 4, 2016 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory July 22, 2016.

80377m

**PORTABLE CHANGEABLE MESSAGE SIGNS (BDE)**

Effective: November 1, 2016

Revise this second sentence of the first paragraph of Article 1106.02(i) of the Standard Specifications to read:

> "The message panel shall be a minimum of 7 ft (2.1 m) above the edge of pavement in urban areas and a minimum of 5 ft (1.5 m) above the edge of pavement in rural areas, present a level appearance, and be capable of displaying up to eight characters in each of three lines at a time."

80377