Wisconsin Department of Transportation

MATERIALS SAMPLING AND ACCEPTANCE

Bar Couplers

- Provide threaded bar couplers
- Manufacturers Certified Report of Test required- based on 3 samples
- Alternate couplers require department proof testing
  - 3 samples splices submitted to the C.O. Lab for proof testing

Threaded Bar Couplers

Bar Couplers
Standard Specifications

- **505.3.3.4 Bar Couplers**
- **505.3.3.4.1 General**

- (1) Provide threaded bar couplers unless the engineer approves an alternate coupler system in writing as allowed under 505.3.3.4.3.

- (2) If splicing epoxy-coated bars, clean and coat couplers and exposed threads with epoxy. Couplers may be coated with epoxy before or after installation. Use epoxy that is compatible with the touchup epoxy used on coated reinforcing bars.

- Effective with the December 2014 Letting 257 2015 Standard Specifications

- **505.3.3.4.2 Threaded Bar Couplers**

- (1) Ensure that the threaded bar coupler material is capable of developing 125 percent of the yield strength of the bar being spliced. Provide a manufacturer-certified report of tests, based on a minimum of 3 tests, showing the threaded bar coupler capacity.

- **505.3.3.4.3 Alternate Bar Coupler System**
- (1) Do not install alternate bar coupler systems before department proof testing and without the engineer's written approval. Provide 3 sample splices to the department for testing. Conform to the manufacturer's installation instructions and provide a copy of those instructions to the engineer.

Bar Couplers

E-Guide page

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505.0904 BAR COUPLERS No.4

1. **Mechanical Couplers:**
   - A copy of manufacturers installation instructions is required- reference on a prefix 900-_____-_____ document.
   - Three (3) sample splices are required for department proof testing.
   - System must be capable of developing 125 percent of the yield strength of the bar being spliced
2. **Threaded Bar Couplers**
   - Three (3) sample Threaded Bar Couplers are required for department proof testing **or-**
   - In lieu of the proof test samples manufacturer Certified Report of Test and Analysis is required- reference on a prefix 900-_____-_____ document.
   - System must be capable of developing 125 percent of the yield strength of the bar being spliced
   - If used for epoxy coated steel, bars couplers are required to be epoxy coated

Plan Quantity _____

Final Quantity _____

2/11/2015

High Strength Bolts

- High strength bolts, nuts, and washers are incidental to other bid items such as:
  - 506.0105- Structural Steel Carbon
  - 506.0605- Structural Steel HS
  - 506.4000- Steel Diaphragms
  - Pre- Fabricated Steel Truss Pedestrian Bridge
  - 641.XXXX- Sign Bridges
  - Others

High Strength Bolts

- Bolts are a critical element
- If not sampled and pre-tested as part of shop inspection(MTS prefix 115 report for bolt testing) submit 2 bolts, three nuts and three washers for each size(diameter and length) to the C.O. Lab
- When submitting bolts, nuts, and washers note manufacturer markings on the sample cards
- Certified Report of Test or Certification of Compliance denoting conformance to the standard specifications.

High Strength Bolts

Standard Specifications

- **The specification section is very comprehensive. Carefully review if you have high strength bolts on your project .**
- **506.2.5 High-Strength Bolts**
  - ***Revise 506.2.5 to update obsolete AASHTOs and require ro-cap testing according to department form DT2113.***
- **506.2.5.5 Identification**

  Ensure that the manufacturer provides identification marks for high-strength bolts and nuts according to ASTM A325.

High Strength Bolts

Standard Specifications

- **506.2.5.6 Testing and Reporting**
- ***Revise 506.2.5.6(1) to require field ro-cap testing according to department form DT2113.***
- (1) Test according to ASTM A325, ASTM A563, ASTM F436. For rotational-capacity testing conform to Report No. FHWA SA-91-031 "High-Strength Bolts for Bridges". In addition perform rotational-capacity testing in the field conforming to the procedures enumerated in department form DT2113.
- (2) Furnish 2 copies of a certified report of test or analysis indicating the results of required manufacturer/supplier tests. Also verify the results of additional field testing required under FHWA SA-91-031 by submitting 2 copies of department form DT2113.

High Strength Bolts E-guide Page

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506.0605 Structural Steel HS

Steel

1) Assign 900-_____-_____ to shop inspection report..

Stud Shear Connectors (when not a separate bid item)

1) Manufacturers certification of compliance is to be made available by the contractor when requested.
2) Diary entry required.

High Strength Bolts

1) If not pre-tested (see MTS prefix 115), submit 2 bolts and 3 nuts and washers per size per contract to C.O. for quality test.
2) Rotational Capacity-When bolted connections are required the contractor is to furnish 2 copies of a certified report of test or analysis indicating the results of required manufacturer/supplier tests as well as documentation verifying the results of additional field testing required under Report No. FHWA SA –91-031 " High Strength Bolts for Bridges"
3) Reference Ro-Cap reports of tests and contractors field Ro-Cap testing (form DT 2113) on an MTS/MIT prefix 900-_____-_____.

Paint for Metal

1) Diary entry required.
   a) Verify that the material is on the approved list.
   b) Indicate the paint system used.
2) Include manufacturer's product data sheet in project files.

Plan Quantity _____

Final Quantity _____

Concrete Reinforcing Steel

One sample for each 50000 lbs increment or portion <u>for each individual bar size</u> with a quantity equal to or greater than 50,000 lb.

BAR STEEL MINIMUM SAMPLING FREQUENCY	
BAR STEEL (pounds)	NUMBER OF SAMPLES
0 - 49,999	No sample required
50,000 – 99,999	2 samples required
100,000 – 149,999	3 samples required
150,000 – 199,999	4 samples required
200,000 – 249,999	5 samples required
300,000 – 349,999	6 samples required
Add one sample for each 50,000 lb or portion thereof.	

1. **<u>Do not</u> submit splice bars or test bars in lieu of cut samples.**
2. **Apply the sampling threshold individually for each size of bar.**
3. **Replace cut samples with bars long enough to provide additional lap length for splicing as prescribed in CMM 5-15.5.6.**
4. **The contractor may field cut reinforcement by sawing, using abrasive cut-off blades, or flame cutting. <u>Do not</u> flame cut epoxy-coated reinforcement.**

Concrete Reinforcing Steel

Complete ☐

505.0105 Bar Steel Reinforcement Bridges

1) Field - for quantities less than 50,000 lbs of any individual bar size.
   a) Visually inspect and document (Diary entry required).
   b) Manufacturer's certified report of tests is required. Reference electronically on a Materials Tracking System prefix 900. Assign 900-_____-_____ to certified report of tests.

2) Field Acceptance- for quantities equal to or greater than 50000 lbs of any individual bar size.
   a) Submit one sample per each 50,000 lbs. or portion of the individual bar size to C.O. for quality test.
   b) Manufacturer's certified report of tests required. Reference electronically on a Materials Tracking System prefix 900. Assign 900-_____-_____ to certified report of tests.

Note: Bar Steel without plainly marked heat number tags shall not be accepted. If this occurs **immediately** contact the regional person responsible for this area.
Submittal of splice bars in lieu of cut samples is prohibited.

Plan Quantity _____

Final Quantity _____

Revised 9/3/2008, JVW

Concrete Reinforcing Steel

BUY AMERICA

Important note: All iron and steel products supplied must be in compliance with FHWA "Buy America" provisions.
Certification documentation is required and shall state the iron and steel used in the product was:

- Melted and Manufactured in the US
- Was coated, galvanized, or painted in the US
- All fabrication, such as rolling, bending, forming, drilling, machining, extruding, etc. was done in the US.

If more than one company performed a fabrication process on the product, each company needs to make a "Buy America" certification statement for the process they performed.
Refer to Construction and Materials Manual (CMM) section 2.28.4

Upon completion of the project certify to the engineer, in writing using department form WS4567, that all steel, iron, and coating processes for steel or iron incorporated into the contract work conform to these Buy America provisions. Attach a list of exemptions and their associated costs to the certification form. Department form WS4567 is available at:

http://roadwaystandards.dot.wi.gov/standards/cmm/forms/ws4567.doc

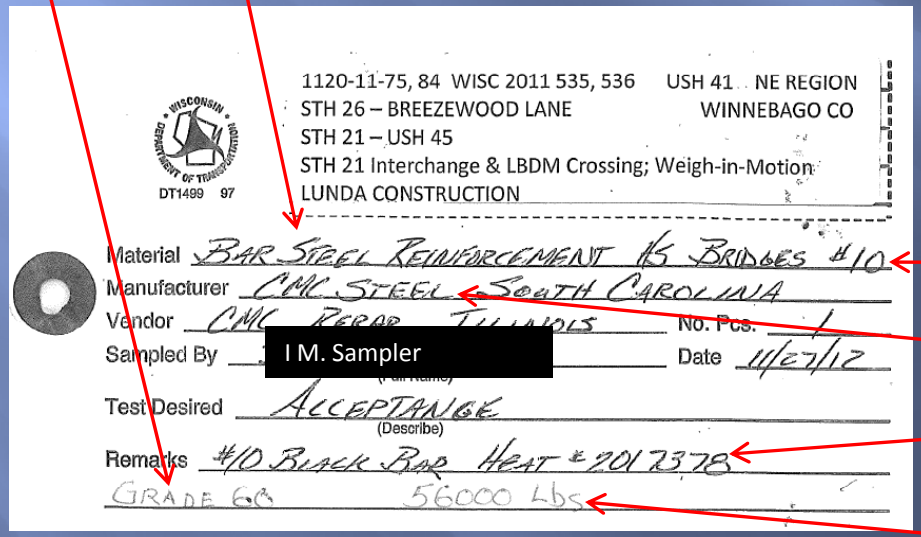
Concrete Reinforcing Steel

For each sample selected, attach a tag with the following information and submit to the Central Laboratory for testing (CMM 8-50):

- Steel type.
- Grade.
- Bar size.
- Heat number and manufacturer.
- If epoxy coated, the epoxy resin manufacturer.
- Quantity of material the sample represents.

Steel type

Grade


1120-11-75, 84 WISC 2011 535, 536 USH 41 NE REGION
STH 26 – BREEZEWOOD LANE WINNEBAGO CO
STH 21 – USH 45
STH 21 Interchange & LBDM Crossing; Weigh-in-Motion
LUNDA CONSTRUCTION
DT1499 97
Material BAR STEEL REINFORCEMENT #5 BRIDGES #10
Manufacturer CMC STEEL SOUTH CAROLINA
Vendor CMC REBAR ILLINOIS No. Pcs. 1
Sampled By I M. Sampler Date 11/27/12
Test Desired ACCEPTANCE (Describe)
Remarks #10 BLACK BAR HEAT # 2012378
GRADE 60 56000 Lbs

Bar Size

Manufacturer

Heat Number

Quantity

Sampling Asphaltic Materials

Requirements of Combined State Binder Group Method of Acceptance

WISCONSIN:

The supplier or contractor personnel will obtain samples, under the observation of a Department representative, by random selection from shipments of material at the job site. The sampling rate will be a minimum of one (1) per 800 Mg (900 tons) for each supplier and grade of asphalt binder, or fraction thereof, per contract. For contracts with less than approximately 23 Mg (25 tons) (one truck transport) of asphalt, sampling may be waived.

Sampling shall be accomplished by taking a one-liter (one-quart) sample of material from a transport in accordance with AASHTO Designation T40.

Sampling method shall be accomplished by taking a one-liter (one-quart) sample of material representing the middle third of the load from a sample valve attached to the transport in accordance with AASHTO Designation T40 section 10 paragraph 10.1 or other department approved supplier method as outlined in the QC plan.

Sampling Asphaltic Materials

CMM 8-65.2 Sampling Asphaltic Materials

"…make sure the following points are given appropriate attention:

1. Samples should be submitted in the proper type of container. The one-quart tin cans should be used for all asphaltic material, except emulsions, for which the one-half gallon plastic containers must be used. All containers must be new and clean.

2. Solvent or solvent-saturated cloth should not be used to clean the inside of the containers. The insertion of a solvent-saturated glove into the container during handling is an undesirable practice that could contaminate the sample.

3. The sample should always be taken in the containers to be sent to Central Office Truax Laboratory. Do not transfer the sample from one container to another.

Sampling Asphaltic Materials

CMM 8-65.2 Sampling Asphaltic Materials (Cont.)

4. When sampling through a spigot, drain off and waste enough material before filling the sample container, to ensure removal of all material in the sampling line.

5. The sample containers should be relatively full. A good guide would be to fill the container to within one-inch of the top. In a few instances, insufficient material has been submitted for the required testing. After the container has been properly closed, do not use any cleaning solvent in the area of the closure.

6. After the asphaltic material has been properly sampled and labeled, it should be shipped to the C.O. Truax laboratory the same day, if feasible. Shipments that take an excessive amount of time to arrive at the laboratory and those inappropriately sampled may cause test results that deviate from the contract requirements.

Sampling Asphaltic Materials

e-Guide Sampling, Testing and Documentation

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455.0105 Asphaltic Material PG58-28

1) Quality Verification Samples Required
   a. The supplier or contractor personnel will obtain samples, under the observation of a Department representative, by random selection from shipments of material at the job site. The sampling rate will be a minimum of one (1) per 800 Mg (900 tons) for each supplier and grade of asphalt binder, or fraction thereof, per contract. For contracts with less than approximately 23 Mg (25 tons) (one truck transport) of asphalt, sampling may be waived.
   b. Sampling shall be accomplished by taking a one-liter (one-quart) sample of material from a transport in accordance with AASHTO Designation T40.
   c. Sampling method shall be accomplished by taking a one-liter (one-quart) sample of material representing the middle third of the load from a sample valve attached to the transport in accordance with AASHTO Designation T40 section 10 paragraph 10.1 or other department approved supplier method as outlined in the QC plan

2) Certification of Shipments and Documentation
   a. For each truck shipment a shipping ticket shall be prepared showing the supplier, location, grade of asphaltic material, unique name, additives (silicone or anti-strip), truck number, supplier's tank number from which the truck was loaded, average unit weight, quantity, and date and time of loading. A statement certifying that the material complies with Combined State Binder Group requirements and Department Specifications shall be on or accompany the shipping ticket. The company invoice or manifest form may be used for this purpose.
   b. A representative shipping ticket or invoice (as described above) from at least one load shall be obtained and referenced on a MTS/MIT Prefix 900-_____-_____ report.

3) Diary Entry Required
   a. Verify all materials were supplied from an approved list source

Plan Quantity _____

Final Quantity _____

Updated by JVWHITE, 9-22-2010

Sampling Asphaltic Materials

CMM 8-50 Asphalt Cement Requirements

ASPHALTIC MATERIALS					
Asphalt Cement	Source and Field	Central Lab	[16]	1 Quart (1 L)	[16] For material from certified suppliers, one sample per 900 tons of asphalt or fraction thereof for each source and grade per contract. For contracts with less than approximately 25 tons (one truck transport) of asphalt, sampling may be waived. The current list of asphalt cement certified suppliers is located at: http://www.dot.wisconsin.gov/business/engrserv/approvedprod.htm See CMM 8-65 for the "Certification Method of Acceptance for Asphalt Cements." See CMM 8-65 for "Sampling Asphaltic Materials." Indicate on sample tag the type of any additives (silicone or others) in the asphalt sampled.

CMM 8-50 Verification sample requirement

1. **One sample each source and grade from certified suppliers**
2. **One sample each 900 tons or fraction**
3. **Sampling may be waived if less than 25 tons**

Sampling Asphaltic Materials

1. "The supplier or contractor personnel will obtain samples, *<u>under the observation of a Department representative…"</u>*

2. "Sampling shall be accomplished by taking a one-liter (one-quart) sample of material from a transport…"

3. "…by taking a one-liter (one-quart) sample of material representing the middle third of the load from a sample valve attached to the transport…"

Sampling Asphaltic Materials

MC, RC, SC types

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455.0505 Asphaltic Material Seal Coat

1)

- Sample material at the job site either before or during unloading
- Department representative to be present at sampling
- One sample per each 10000 gallons or fraction thereof
- Reference invoice on a MTS/MIT prefix 900-____-_____ report
- Diary entry – denote application rate, temperature, etc.

2)

- Obtain representative samples according to AASHTO T 40 except as follows:
  - If bleeding through a drain-cock in the transfer line, allow at least 5 minutes between samples.
  - If sampling from a valve installed in the side or end of the delivery vehicle tank, the valve must be between the quarter points of the tank's vertical diameter. Draw off and discard enough material to clear the intake line of material from previous loads before sampling.
  -
- Use only clean, dry non –metallic sample containers free from cleaning oil or other contamination. Do not contaminate samples. Tightly seal, mark for identification, and submit to the engineer immediately after filling. The department's laboratory will test the material.

Plan Quantity _____

Final Quantity _____

6/1/2010 JVW

Sampling Asphaltic Materials

MC, RC, SC types

- One sample for each 10,000 Gallons
- Sample at the jobsite
- Samples taken are to be observed by the engineer (department representative)
- NEVER use metal cans for samples, always use plastic or other non-reactive clean containers.

Sampling Asphaltic Materials

Emulsified Asphalts and Tack

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455.0605 Tack Coat

1) For contracts less than 2500 gallons:
   a) Diary Entry required; note type, quantity and application rate
   b) Field Sample is optional

2) For contracts more than 2500 gallons:
   a) Diary Entry Required
   b) Sample must be submitted to C.O. for quality test. See C/M Manual Section 8.65 for sampling techniques. If material is diluted with water, sample diluted material and note percent of dilution on sample tag.

Plan Quantity _____

Final Quantity _____

Revised 9-30-2008, JVW

Sampling Asphaltic Materials

Emulsified Asphalts and Tack

- One sample per contract if more than 2500 Gallons is used
- Sample at the jobsite
- Samples taken are to be observed by the engineer(department representative
- NEVER use metal cans for samples, always use plastic or other non-reactive clean containers.
- Emulsions have a limited life and should be submitted to the Central Laboratory as soon as practical.
- DO NOT allow samples to sit in the sun, be exposed to excessive heat, or freeze.

Sampling Asphaltic Materials

CMM 8-65.2 Sampling Asphaltic Materials

- **Region personnel will be responsible for observing the sampling procedure, filling out and attaching sample tags, and shipping of the samples procured at the job site**

Figure 1 Example Asphalt Sample Tag, Form DT1352

Project ID (One project only) 5225-01-71	County Grant	Region SW
Description		
Limits (For multi-section projects only) Platteville – Lancaster Rd		Highway STH 81
Prime Contractor Mathy	Subcontractor —	
Asphalt Material (Type and grade) PG 64-22		
Contact Name and Telephone Number Chuck Grant 608-516-6469		
Sampled By (State representative only) Chuck Grant		Date Sampled 9/21/06
Supplier (Include shipping point) Midwest Industrial Fuels LaCrosse		
Sample Number 3	Invoice (Or other ID Number) 4155	
Tons or Gallons 24.6		
Remarks		

DT1352 1/2006

IMPORTANT-
Name of Department person observing sampling

IMPORTANT-
Correct name of certified supplier

Geotextile Fabrics

CMM 8.50 Common requirements for geotextile fabric sampling:

- Samples must be full width of the roll and a minimum of 4 feet in length
- Total sample size a minimum of 40 SF
- Samples must be protected from ultraviolet light(keep covered)
- Product data sheets are not acceptable as a substitute for manufacturers certification of compliance or certified report of test or analysis.
- Certification documents to conform to CMM 8.45

Geotextile Fabrics

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Revised 3/15/2007 JVW

645.0125 Geotextile Fabric Type MS

The contractor shall furnish to the engineer at least fifteen (15) days prior to use in the work a manufacturer's Certified Report of Test or Analysis that the geotextile fabric delivered for use in the work meets the specified requirements. The delivered geotextile fabric shall bear markings to clearly identify it with the applicable test report furnished to the engineer. If not so marked, the fabric shall *not* be used.

1) Reference on a MTS/MIT prefix 900-_____-_____

The contractor shall deliver to the engineer a sample of the geotextile material at least 15 days prior to its incorporation into the work. At the same time, the contractor shall also furnish a sewn seam sample using the same geotextile fabric thread, seam spacing and number, and overlap distance as are intended or required for use in the work.

Samples of fabric for testing will be obtained from the job site for each 10,000 SY. (8,000 m2) or lesser portion used on the contract.

Samples shall be full width of the fabric and a minimum of 4 feet in length. The total sample size shall be a minimum of 40 S.F.

PROTECT SAMPLES – Geotextile fabric samples must be protected from Ultraviolet light.

Plan Quantity _____

Final Quantity _____

Geotextile Fabrics

Specific acceptance requirements

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Revised 2/5/2013 JVW

645.0140 Geotextile Fabric Type SAS

For contracts of 20,000 S.Y. or less:

A certificate of compliance shall be made available by the contractor. Reference on a MTS/MIT prefixes 900-_____-_____. **a diary entry is required**. See CMM 8-45 for requirements

Samples of fabric for testing will be obtained from the job site for each 20,000 SY. or lesser portion used on the contract.

For contracts of more than 20,000 S.Y.:

The contractor shall furnish to the engineer at least ten days prior to use in the work a manufacturer's Certified Report of Test or Analysis that the geotextile fabric delivered for use in the work meets the specified requirements. The delivered geotextile fabric shall bear markings to clearly identify it with the applicable test report furnished to the engineer. If not so marked, the fabric shall *not* be used.

1) Reference on a MTS/MIT prefix 900-_____-_____

Samples of fabric for testing will be obtained from the job site for each 20,000 SY. or lesser portion used on the contract.

Samples shall be full width of the fabric and a minimum of 4 feet in length. The total sample size shall be a minimum of 40 S.F.

PROTECT SAMPLES – Geotextile fabric samples must be protected from Ultraviolet light.

Plan Quantity _____

Final Quantity _____

Geotextile Fabrics

Specific acceptance requirements

Type SAS (Subgrade Aggregate Separation)

- One sample each 20,000 SY or lesser portion
- 20,000 SY or less- certification of compliance
- Greater than 20,000 SY manufacturers certified report of test or analysis

•Type MS (Marsh Stabilization)

- Sample required 15 days prior to use
- Sewn seam sample as required
- One sample each 10,000 SY or lesser portion
- 15 days prior to use - manufacturers certified report of test or analysis

•Type DF (Drainage Filtration) Schedule A, B or C

- •One sample each 2,000 SY or lesser portion
- 2,000 SY or less- certification of compliance
- Greater than 2,000 SY manufacturers certified report of test or analysis- 10 days prior to use

Geotextile Fabrics

Specific acceptance requirements

Type SR (Subgrade Reinforcement)

- One sample each 10,000 SY or lesser portion
- 10,000 SY or less- certification of compliance
- Greater than 10,000 SY manufacturers certified report of test or analysis- 10 days prior to use

•Type ES (Embankment Stabilization)

- Sample required 15 days prior to use
- Sewn seam sample as required
- One sample each 10,000 SY or lesser portion
- 15 days prior to use- manufacturers certified report of test or analysis

•Type R (Riprap) and HR(Heavy Riprap)

- Certification of compliance

•Type C (Modified SAS)

- Certification of compliance

Geotextile Fabrics

Specific acceptance requirements

Type FF (Inlet Protection) Type ES (Embankment Stabilization)

- Use pre-qualified product- Erosion Control PAL

- Silt Fence Geotextile Fabric
  - Certification of compliance
- Rock Bag Geotextile
  - Certification of compliance

Geotextile Fabrics

Specific acceptance requirements

New 04/05/2012 EC

Complete ☐

628.7570 ROCK BAGS

Geotextile Fabric

1) Diary Entry Required (optional 900-_____-_____)
2) Assign 900-_____-_____ to manufacturer certification of compliance.
   - Fabric shall conform to the requirements in special provisions:

Furnish rock bags made of a porous, ultraviolet resistant, high-density polyethylene or geotextile fabric that will retain 70% of its original strength after 500 hours of exposure and have a minimum in-place filled size of 24-inches long by 12-inches wide by 6-inches high. The fabric shall meet the following requirements:

Test	Method	Value
Minimum Tensile	ASTM D4632	Machine 70 lb min Cross 40 lb min
Elongation	ASTM D4632	Machine 20% min Cross 10 % min
Puncture	ASTM 4833	65 lbs min
Minimum Apparent Opening		No. 30 (U.S. Sieve) (600 µm)
Maximum Apparent Opening		No. 10 (U.S. Sieve) (2 mm)

Fill the bags with a clean, sound, hard, durable coarse aggregate meeting the approval of the engineer and conforming to the size and gradation requirements for size No. 2 coarse aggregate for concrete masonry in section 501 of the standard specifications.

Aggregate

1) Diary Entry Required (optional 900-_____-_____)
2) Conform to No. 2 coarse aggregate for concrete masonry. Assign 900-____-____ to materials

Plan Quantity _____

Final Quantity _____

.

FlyAsh

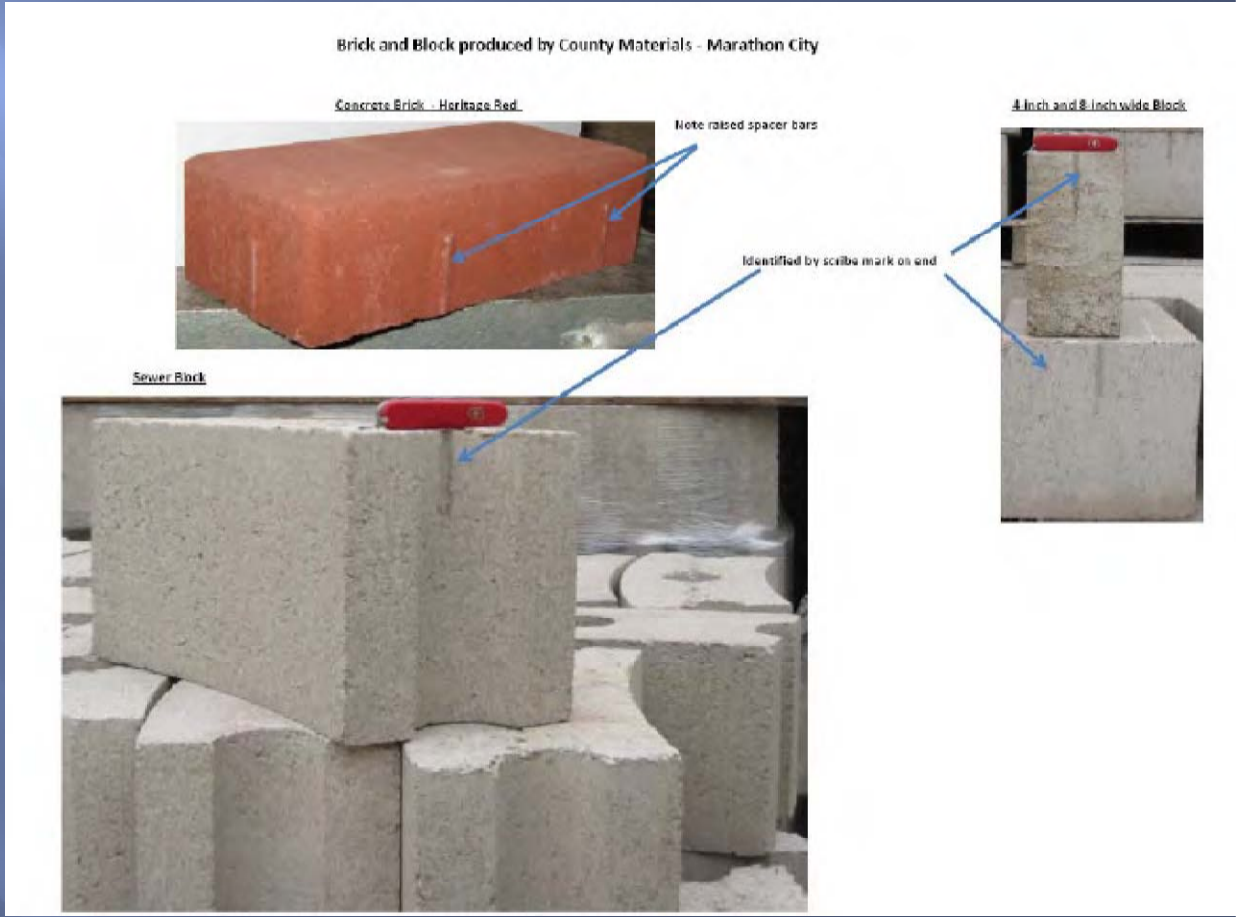
Specific acceptance requirements

- Certified Report of Test or Analysis 14 days prior to use-each source
- One sample per contract each source for 100 to 2000 tons , additional sample for > 2001 tons or lesser portion
- Rule of thumb – if there is more than 1100 CY of Fly Ash concrete expected - *get a sample*
- The sample is to be obtained under the observation of a WisDOT representative
- Minimum sample size 4 lbs

Concrete Brick and Block Masonry Units

Specific acceptance requirements

- Must be supplied from a pre qualified (approved list) source
- Masonry units can be identified by color or markings on each unit (as denoted on the approved list page)
- DO NOT use masonry units supplied from a non-approved source



AGGREGATES

Issues and concerns

- Coarse Aggregate Quality testing
  - The source name reported must be ***exactly as it appears on the list-*** the location remains the same. Contact the central office lab for a name change only when there is a compelling reason("good reason")
  - WisDOT representative and contractor should fill out sample card jointly
- Fine Aggregate testing
  - Testing of fine aggregates for properties- specific gravity etc. is not required of the contractor
  - If needed submit fine aggregate samples to the C.O. lab
  - Only fine aggregate tests done by C.O. Lab will be recorded as a prefix 162 test
- Masonry(mortar) Sand
  - Standard Specifications 518.2.2 prescribes the gradation requirements for masonry sand

Fencing

Issues and concerns

- Woven Wire fence
  - **616.2.2.3 Smooth Wire** (1) Furnish 9-gauge ***smooth zinc-coated steel wire*** for bracing and guying conforming to AASHTO M279 class 3.
  - Be certain to indicate on the sample card the specific application- there is a different spec. for the chain link tension wire
- Chain Link fence
  - **616.2.3 Chain Link Fence Materials**
  - Use type I zinc-coated steel or type II aluminum-coated ***steel tension wire***.
  - Be certain to indicate on the sample card the specific application- there is a different spec. for the woven wire smooth wire
  - Posts and top rails - need sample of two 12-inch lengths (from either end of the member and one three foot piece cut from the middle

MSE Walls

Specific acceptance requirements

- Modular Block
  - Pre-qualified system (approved list)
  - Blocks require certified report of test from an independent lab
  - Each pallet of block must have lot ID identification
  - Optional department sampling and testing
  - Geogrid contact BOS for lists of Geogrid and corresponding blocks
  - Backfill- certified of test required-includes:
    - pH, Sulfate content, Chloride content, Electrical resistivity, Angle of internal friction
    - Type A – comply to 501.2.5.4.4- size #1 PCC Aggregate
    - Type B - comply to 209.2.2 - grade 1 granular backfill
    - Nuclear density testing – 95% of max density –AASHTO T 99 if any portion of wall exceeds 5 feet in height

MSE Walls

Specific acceptance requirements

- Concrete Panel
  - Plans and shop drawings required
  - Pre-qualified system (approved list)
  - Wall panels - furnish producer info 14 days prior to production – most producers are listed on the **Concrete pipe and precast approved list**
  - Backfill- certified of test required-includes:
    - pH, Sulfate content, Chloride content, Electrical resistivity, Angle of internal friction
    - Gradation and LL/PI to comply to requirements of the STSP
    - Nuclear density testing – 95% of max density –AASHTO T 99 if any portion of wall exceeds 5 feet in height

MSE Walls

Specific acceptance requirements

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532.0300. S Wall Modular Block Mechanically Stabilized Earth

The department specifies approved Wall modular block mechanically stabilized earth products on the department's approved products list.

Refer to, and carefully review, the details of the contract special provision

Wall Facing Units

1) All blocks shall be certified as to strength, absorption, and freeze-thaw requirements unless, due to contract changes, certified blocks are not available when required. at the time of delivery of the certified blocks, furnish the engineer a certified test report from a department-approved independent testing laboratory for each lot of modular blocks. The certified test report shall clearly identify the firm conducted the sampling and testing, the type of block, the date sampled, name of the person who conducting the sampling, the represented lot, the number of blocks in the lot, and the specific test results for each of the stated requirements of this specification. A lot shall not exceed 5000 blocks. The certified test results will represent all blocks within the lot. Each pallet of blocks delivered shall bear lot identification information. Block lots that do not meet the requirements of this specification or blocks without supporting certified test reports will be rejected and shall be removed from the project at the contractor's expense.
2) Assign 900-_____-_____ to certified report of tests.
3) Optional Department testing
4) Project Documentation- visual verification of condition, dimensions and tags or markings, Record lot identification

Cast-in-place Cap (if used)

1) See Item of Concrete.

Leveling Pad

Depending on type of pad allowed:

1) Concrete Option
   a) See Item of Concrete.
2) Crushed Aggregate Base Course Option
   a) See requirements of Base Aggregate Dense item.

Geogrid

1) The wall designer shall supply the allowable Tension Reinforcement Load (T_A) used in the design for each reinforcement layer. The wall system composed of geogrid and modular blocks wall shall be from a preapproved supplier. The current list of preapproved geogrids and their corresponding modular blocks is maintained by the department's Structures Development Section and may be obtained by calling 608-266-8494. Only geogrid and modular blocks preapproved before contract letting will be allowed in the construction of the wall.
2) Certified Report of Test and Analysis required Assign 900-_____-_____ to certified report of tests.
3) See Special Provisions for required Tension Reinforcement Load documentation.

Revised 2/9/2012, JVW

MSE Walls

Specific acceptance requirements

Complete ☐

532.0500. S Wall Concrete Panel Mechanically Stabilized Earth

The department specifies approved Wall Concrete Panel mechanically stabilized earth systems on the department's approved products list.

Refer to, and carefully review, the details of the contract special provision

Note: Submittal of plans and shop drawings required.

Wall Panels

1) The location of the plant manufacturing the concrete panels shall be furnished to the engineer at least 14 days prior to the start of production.
2) Project documentation (diary entry etc.) Denote approved panel supplier, visual inspection of panels etc.

Leveling Pad

1) See Item of Concrete.

Reinforcing Steel

1) Certification documents for steel reinforcement items must denote compliance to all elements of Buy America provisions

Geotextile Fabric Type DF

1. Certification of compliance required
2. Reference the certification of compliance on an MTS/MIT prefix 900-____-_____ report

Backfill

1) Provide material conforming to the following gradation requirements.

Sieve Size	Percentage by Weight Passing
3 inches	100
No. 4	45 – 100
No. 40	10 - 50

The portion of the material passing the No. 4 sieve shall contain a maximum of 8 percent, by weight, of material passing the No. 200 sieve. The portion of the material passing the No. 4 sieve shall have a liquid limit not greater than 25 and a plasticity index not greater than 6.

Certified Report of Test form a certified independent lab required for backfill properties. Reference the report of test on an MTS/MIT prefix 900-_____-_____ report.

2) A certified report of tests by an independent lab is required for PH, sulfate content, chloride content, electrical resistivity, and angle of internal friction. Assign a 900-_____-_____ to test results.

3) Compact wall backfill Type B as specified in 207.3.6 of the standard specifications. For walls with a maximum height of any portion greater than 5 feet, compact Wall Backfill Type B to 95% of maximum density as determined by AASHTO T-99, Method C. Perform compaction testing on the backfill. When performing nuclear testing, use a nuclear

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Quiz

Sampling asphaltic materials for PG Binder grades requires the sample to be taken:

a) Supplier or contractor personnel will obtain samples

b) Under the observation of a Department representative

c) By random selection from shipments of material at the job site

d) All of the above

Quiz

Identify the CMM 8-50 Asphalt Material PG Binder Sample requirements for Verification sampling:

a) One sample each source and grade from certified suppliers

b) One sample each 900 tons or fraction

c) Sampling may be waived if less than 25 tons

d) All of the above

Quiz

Sampling Asphaltic Materials for MC, RC, SC types involves:

a) One sample for each 10,000 Gallons Sample at the jobsite

b) Samples taken are to be observed by a department representative

c) NEVER use metal cans for samples, always use plastic or other non-reactive clean containers

d) All of the above

Quiz

Sampling Asphaltic Materials for Emulsified Asphalts and Tack requires:

a) One sample per contract if more than 2500 Gallons is used

b) Samples taken are to be observed by a department representative

c) NEVER use metal cans for samples, always use plastic or other non-reactive clean containers

d) All of the above

Quiz

Sampling rebar reinforcement, you calculate that there are 54356 lbs of #4 bar used for your contract. How many samples would be required?

a) One sample

b) Two samples

c) Three samples

d) Four samples

Quiz

PROTECT SAMPLES – Geotextile fabric samples must be protected from:

a) Wind

b) Rain

c) Ultraviolet light

d) Snow showers

Quiz

You are sampling 19,000 SY of type SAS geotextile fabric for Subgrade Aggregate Separation. You are required to obtain:

a) One sample

b) Two samples

c) Certification of compliance

d) A and C

Quiz

You are sampling 1,900 SY of Type DF (Drainage Filtration) Schedule A. You are required to obtain:

a) One sample

b) Two samples

c) Certification of compliance

d) A and C

Quiz

Recent audits have identified this as an issue. The specific sampling and testing requirements for rock bag geotextile fabric are as:

a) One sample

b) Two samples

c) Certification of compliance

d) A and C

Quiz

Recent audits have identified this as an issue. You had 101 tons of FlyAsh used on your contract, identify the specific acceptance requirements:

a) Certified Report of Test or Analysis 14 days prior to use-each source

b) Certification of compliance

c) One sample obtained under the observation of a WisDOT representative

d) A and C