

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

PROCEDURE FOR EVALUATING PRODUCTS FOR USE
IN HIGHWAY CONSTRUCTION

1. SCOPE

- 1.1 ~~New Products—products / Processes not currently covered by the Standard Specifications or Supplemental Specifications~~ are frequently presented to the Division by various manufacturers, suppliers and/or producers or suppliers (MS&Ps) with a request that they be considered for use in our highway program. ~~In order to~~To facilitate handling of such requests in a uniform and expeditious manner, this Materials Procedure outlines the steps necessary for such product/~~process~~ submittal and evaluation. This Procedure covers the addition of approved submitted products to the Division's Approved Product List (APL).
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2. REFERENCE DOCUMENTS

- 2.1 MP 106.00.03: *Guidelines for Establishing ~~A~~and Maintaining Approved Product Lists of Materials, Systems and Sources.*
- 2.1.2.2 MP 106.10.50: *WVDOH Buy America Acceptance Guidelines.*
-

3. PROCEDURE

- 3.1 Consideration for ~~New—new Product—product Evaluation—evaluation~~ shall be requested through completion by the MS&Ps of West Virginia Division of Highways (DOH) Form HL-468, “*Preliminary Information for New Product Evaluation*”. Once completed, DOH Form HL-468 shall be submitted to the Materials Control, Soils and Testing Division (MCS&T) via email to the New Products Evaluation email address: DOHNewProducts@wv.gov.
- 3.1.1 The HL-468 Form can be found on the MCS&T Division's Materials Procedures [Webpage](#)¹. A sample of this form shown in Attachment 1.
- 3.2 Upon receipt of the completed Form HL-468, the Materials Control, Soils and Testing Division shall distribute to ~~Districts/Divisions and/or other~~ applicable parties for evaluation. This preliminary evaluation shall determine the need/usefulness of the product/process for various DOH applications. ~~Any District/Division having an interest shall respond within fourteen calendar days to MCS&T. Lack of response from Districts/Divisions personnel, shall be indication of “No Interest”. A further, more detailed review/evaluation of the product may follow if deemed necessary and is detailed in bullet 2.2.2.~~
- 3.2.1 If the preliminary review indicates that the product may be accepted without further evaluation, the ~~Manufacturer/Supplier shall be notified by MCS&T that no further~~

¹ <https://transportation.wv.gov/highways/mcst/Pages/MP-100s.aspx>

~~information or testing is warranted~~ Product shall be considered accepted and added to the APL.

~~2.2.1.1~~ Please note that such approvals may result in the need for new policies and guidance such as ~~Standard Specifications, Special Provisions, or Design Directives~~ and creation of such will need to be championed by the interested party and work through the applicable approval processes.

3.2.2 If the preliminary review indicates that further research or evaluation is warranted, the ~~Manufacturer/Supplier~~ MS&P shall be notified by MCS&T to submit additional types of information. This may include but not be limited to: samples, product specifications, certified test data, or product demonstrations. ~~Product/Process demonstrations testing~~ shall be coordinated by the ~~Materials Control Soils and Testing~~ MCS&T Division with the results of any further testing/evaluation being submitted to all appropriate ~~District/Division personnel for review and comment~~ evaluating parties.

~~All comments shall be forwarded to MCS&T within fourteen calendar days. The Manufacturer/Supplier shall be notified by MCS&T of the result of these additional evaluations. Refer to bullets 2.2.1 and 2.2.1.1 if the product is acceptable and approved.~~

~~3.3~~ If the ~~review~~ evaluation indicates that the product is not acceptable, the Manufacturer/Supplier shall be notified by MCS&T. ~~The MS&P Manufacturer/Supplier shall not be permitted to~~ submit the same product for evaluation during the same calendar year.

~~3.3.3.4~~ In the instance where a product has significant approved usage, the Director (or their Designee) of MCS&T may add a product to either a new or existing APL as per MP 106.00.03. If a product is a candidate for being added to the APL in this manner, the Lab Coordinator shall contact the MS&P prior to the addition of the product to the APL to request completion of the required HL-468.

4. DOCUMENTATION

4.1 The ~~MCS&T Materials Control, Soils and Testing~~ Division shall maintain a New Product Evaluation listing with the ~~current status~~ status of all requests from the time of receipt. This listing shall include the product evaluation report number, which will provide information such as; the product name, the Manufacturer/Supplier, date of initial request, and the final action recommended. This listing will be maintained on the Division's website. Where applicable, product evaluation data will also be submitted for inclusion in the AASHTO Product Evaluation List (APEL).

~~4.1.1~~ Additionally ~~Additionally~~, MCS&T may evaluate the product/process after one year to determine if the performance or functionality of the product/process meets the desired results, goals or intentions of the DOH. Please note that any such evaluation may result in the product being removed from the New Product Evaluation Listing. This report will be in the form of a Materials Inspection Report (MIR) and this report will remain as part of the new products evaluation listing.

5. BUY AMERICA

- 5.1 Each HL-468 submission must include whether the product meets the Federal and State Buy America requirements of MP 106.10.50. If the MS&P indicates that their product meets Buy America requirements, the company shall produce a notarized Certificate of Compliance (CoC) signed by a company official with knowledge and authority to certify the product is compliant with applicable Buy America requirements.
- 5.1.1 In the event where the source of materials is changed and is no longer Buy America compliant, the MS&P must notify MCST in writing.
- 5.1.2 Under no circumstance shall the CoC described above be used for Buy America compliance on a project. Each project must submit a CoC as described in MP 106.10.50 "WVDOH Buy America Acceptance Guidelines"
- 5.2 A notarized Coc shall contain the following information:
- 5.2.1 Title: Certification of Buy America compliance for Source Approval.
- 5.2.2 The Name, Address and Contact Information for the Company.
- 5.2.3 The date of the application
- 5.2.4 A company statement that demonstrates compliance with Buy America.
- 5.2.5 The name of the material and/or material code reference in the CoC. This material name shall be a clear, common name of the material that is comparable to the AWP Material Name. Part Numbers etc. may also be on the document if the company wishes.
- 5.2.6 Signature of the Company Official and date.
- 5.3 The document must be notarized.
- 4.25.4 A sample of this CoC document is provided in Attachment 2.

Ronald L. Stanevich, PE, Director
Materials Control, Soils & Testing Division

ATTACHMENT 1 - SAMPLE HL-468 FORM (See Excel File - This will likely become a
google form)

ATTACHMENT 2: SAMPLE COMPLIANCE FORM
**Certification of Buy America, Build America Compliance
For Source Approval**

Acme Manufacturing Company
123 Main Street
Charleston, WV
25302

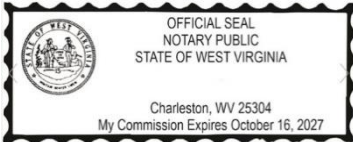
HL 468 Submission Date: 10/31/2022

~~The below listed materials and products meets all the requirements of all Federal and State Laws for Buy America, including but not limited to: Chapter 5, Article 19 and Chapter 5A, Article 3 Section 56 of the West Virginia Code; 23 U.S.C. 313 Buy America, 23 CFR 635.410 Buy America Requirements, and Build America, Buy America Act, Section 70914. The below listed material meets all the requirements of all Federal and State Laws for Buy America, Build America, including but not limited to: 23 Chapter 5, Article 19 and Chapter 5A, Article 3 Section 56 of the West Virginia Code, 23 U.S.C. 313 Buy America, 23 CFR 635.410 Buy America Requirements and Buy America, Build America Act, Section 70914. In the event where the material delivered to a WVDOH project does not meet these requirements, any payments made for the associated materials shall be returned to the Division.~~

This Certification of Compliance is for the material listed below:

- 526.003.004 - Widget, Part Qi
- 596.003.004 - Widget, Part Hr

Jonathan Doe, Quality Assurance Manager



WVDOH Use Only

Reviewed by:

Reviewed Date:

Status:

WEST VIRGINIA DIVISION OF HIGHWAYS
PRELIMINARY INFORMATION FOR TECHNOLOGY/PRODUCT EVALUATION

1 TRADE NAME _____

MANUFACTURER _____

ADDRESS _____ APPLIED FOR? _____
City State Zip

2 REPRESENTATIVE _____

ADDRESS _____ PHONE _____
City State Zip

3 PRODUCT CATEGORY _____

4 EXISTING MATERIAL CODE: _____

5 BUY AMERICA BUILD AMERICA COMPLIANT? _____ NO _____ YES

5A IF 5 IS YES, SIGNED AND NOTARIZED CERTIFICATE OF COMPLIANCE
PROVIDED IN ACCORDANCE WITH MP 106.00.02 _____ YES

6 RECOMMENDED USE - PRIMARY

7 RECOMMENDED USE - ALTERNATE

8 ANY KNOWN OR PROBABLE ADVERSE AFFECT ON PRESENTLY USED OR
INSTALLED MATERIALS, STRUCTURES OR EQUIPMENT

9 PLAN DRAWING, PICTURE, OR SKETCH FURNISHED BY MANUFACTURER?

_____ YES _____ NO

10 MEETS REQUIREMENTS OF FOLLOWING SPECIFICATIONS

<-AASHTO

<-ASTM

<-FHWA

<-OTHER

11 APPROVED FOR PROPOSED USE BY HIGHWAY AUTHORITIES OR OTHER AGENCIES IN THE FOLLOWING STATES

12 ARE INSTRUCTIONS OR DIRECTIONS FOR INSTALLATION, APPLICATION OR USE AVAILABLE?

_____ YES _____ NO
COPY ATTACHED: _____ YES _____ NO

13 WILL DEMONSTRATION BE PROVIDED?

14 ARE EDUCATIONAL COURSES OR VIDEOS AVAILABLE?

_____ YES _____ NO

15 AVAILABILITY SEASONAL

_____ NON-SEASONAL
DELIVERY AT SITE _____

AFTER RECEIPT OF ORDER.
ARE QUANTITIES LIMITED?

_____ YES _____ NO

16 WILL FREE SAMPLE BE FURNISHED?

_____ YES _____ NO

17 NEW MARKET? _____ YES _____ NO

ALTERNATE FOR WHICH EXISTING PRODUCT?

18 IS PRODUCT GUARANTEED? _____ YES _____ NO

CONDITIONS?

19 BACKGROUND DESCRIPTION OF COMPANY AND ITS PRODUCT

20 ADDITIONAL INFORMATION

21 THE FOREGOING INFORMATION IS FURNISHED BY

NAME/TITLE: _____

EMAIL ADDRESS: _____

COMPLETED FORMS SHOULD EMAILED TO:

DOHNewProducts@wv.gov

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

MATERIALS PROCEDURE
ANALYSIS OF WATER

1. **PURPOSE/SCOPE**

- 1.1 ~~The To set forth~~ methods of collection, preservation, and chemical, biological, and physical analysis of water and mixing water used in cement concrete.
- 1.2 ~~2.—SCOPE~~The methods set forth in this procedure shall be used for all water analysis except physical testing of water used in concrete. ~~The given methods are the primary test procedures for water analysis.~~

2. **APPLICABLE REFERENCED DOCUMENTS**

~~AASHTO (American Association of State Highway and Transportation Officials) T 263 and T 264.~~

- 2.1 ~~Standard Methods for the Examination of Water and Wastewater, American Public Health Association, MP 715.07.20 - Standard Method of Test for Determining the Quality of Water Used with Hydraulic Cement.~~
- 2.2 ~~AASHTO R23 - Standard Practice for Chemical, Biological, and Physical Analysis of Water, most recent edition.~~
- 2.3 ~~AASHTO R24 - Standard Practice for Collection and Preservation of Water Samples, most recent edition.~~
- 2.4 **ASTM C1602 - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete, most recent edition.**
- 2.5 ~~ASTM C1603 - Standard Test Method for Measurement of Solids in Water, most recent edition.~~
- 2.6 ~~Standard Methods for the Examination of Water and Wastewater, American Public Health Association, most recent edition.~~
- 2.7 **ASTM C114 - Standard Test Methods for Chemical Analysis of Hydraulic Cement, most recent edition.**

3. **COLLECTION AND PRESERVATION**

- 3.1 Collection and preservation of water samples shall be conducted by AASHTO ~~T 264~~ **R24**.

4. **CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS**

- 4.1 ~~The chemical, biological, and physical analysis of water shall be conducted by AASHTO T-263~~ **R23** ~~with the following exceptions and Standard Methods for the Examination of Water and Wastewater. The following tests from these sources are the required test:~~
- 4.1.1 ~~Hydrogen Ion Concentration for pH by Electrometric Method, Method 4500-H+.~~
- 4.1.2 ~~Argentometric method for Chloride, Method 4500-Cl B.~~
- 4.1.3 ~~Gravimetric Method Ignition as SO4 Method 4500-SO4.~~
- 4.1.4 ~~Atomic Absorption Method for Sodium and Potassium Method 3500-B.~~
- 4.1.5 ~~ASTM C1603 - Standard Test method for Measurement of Solids in Water.~~
- 4.1.6 ~~Nitrate Test 418B.~~
- 4.1.7 ~~Oil and Grease Test 503A.~~

Commented [BDA1]: Need to tie this to the spec book and consider renumbering to match the spec, also need to apply this to the items

Commented [BDA2]: Boggs, if potable, what do we do? If not potable? Which do we do? Make it more clear if this applies to non-potable.

?If from the tap, do this, if not from the tap, do this? Etc, may be good to add the specifics. If the situation arises,

Commented [BDA3]: Do we need d and g?

4.1.14.1.8 Total Kjeldahl Nitrogen Test 420A.

RLS:Mpj

Ron L. Stanevich, P.E.
Director
Materials Control, Soils and Testing Division

MP 642.40.20
Signature Date
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R7WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

STANDARD METHOD OF TEST FOR DETERMINING THE PERCENTAGE OF
COAL AND LIGHTWEIGHT PARTICLES IN AGGREGATE

1. PURPOSE

- 1.1 To provide a standard method of testing for coal and lightweight particles in aggregates by means of a sink-float separation in a heavy liquid with a designated specific gravity.
-

2. SCOPE

- 2.1 This procedure is applicable to fine and coarse aggregates.
-

3. APPLICABLE DOCUMENTS

- 3.1 ASTM E 11 ~~OR AASHTO M 92~~
- 3.2 ASTM E 100
- 3.3 ASTM C 702 OR AASHTO ~~T 248~~R 76
- 3.4 MATERIALS PROCEDURE (MP) 700.00.06
- 3.5 ASTM C 127 OR AASHTO T 85
- 3.6 ASTM C 128 OR AASHTO T 84
- 3.7 ASTM E 617 OR AASHTO M 231
-

4. APPARATUS

- 4.1 *Sieves*—The following sieve sizes conforming to ~~AASHTO M 92~~ASTM E 11; 4.75 mm (No. 4) and 300 µm (No. 50).
- 4.2 *Balance*—The balance shall have sufficient capacity, be readable to 0.1 percent of the sample mass, or better, and conform to the requirements of AASHTO M 231.
- 4.3 *Oven*—An oven capable of maintaining a temperature of 110°C ± 5°C (230°F ± 9°F).
- 4.4 *Containers*—Large vat/tank for storage of heavy liquid with compatible mesh bucket for immersion of coarse aggregate into heavy liquid, buckets for soaking test portion,

Pans for surface drying the aggregates, 600 ml Pyrex beakers for containing fine aggregate test portions.

■

- 4.5 *Skimmers*—Made of 300 μm (No. 50) sieve cloth conforming to ASTM E 11. Fitting one with a handle for scooping floating particles from heavy liquid. The other must be capable of fitting over 600 ml Pyrex beakers.
- 4.6 *Stirring Rods*—A glass rod for stirring fine aggregates, a large metal rod for stirring coarse aggregates.
- 4.7 *Heavy Liquid*—Consisting of a mixture of zinc bromide and water in such proportions so that a designated specific gravity of 2.00 ± 0.01 can be maintained at all times during the test.
- 4.8 *Hydrometer*—Conforming to the requirements of ASTM E 100 and capable of measuring the liquid specific gravity to within ± 0.01 .
- 4.9 *Safety Equipment*—Industrial type rubber gloves, face shield or goggles.

Note: Although there is no particular hazard from the fumes of zinc bromide solution, precautions shall be taken to avoid inhalation of fumes and contact with eyes and skin. Goggles and gloves shall be worn, and the solution should only be used in a laboratory exhaust hood.

5. SAMPLE PREPARATION

- 5.1 Secure a field sample of the aggregate in accordance with MP 700.00.06. Samples shall be representative of the sources from which they are obtained and shall be reduced to an appropriate size by use of a sample splitter or by quartering in accordance with ASTM C 702 or AASHTO ~~T 248~~R 76.
- 5.2 The samples shall be dried in an oven to a constant mass at a temperature of $110 \pm 5^\circ\text{C}$ ($230 \pm 9^\circ\text{F}$).
- 5.2.1 In the following minimum test portions, the oven-dried sample shall be weighed to the nearest one gram and that weight recorded.

Nominal Maximum Size of Aggregate (Sieve Openings)	Minimum Weight of Test Sample (Grams)
No. 4 (4.75 mm)	200 grams
$\frac{3}{4}$ in (19.0 mm)	3,000 grams
1 $\frac{1}{2}$ in (37.5 mm)	5,000 grams
3 in (75.0 mm)	10,000 grams

5.3 The fine aggregate oven dry sample shall be cooled to room temperature and sieved over a 300 μm (No. 50) sieve until less than one percent of the retained material passes through the sieve in one minute of continuous sieving. Discard the minus 300 μm (No. 50) sieve material.

5.3.1 Bring the plus 300 μm (No. 50) test portion to a saturated-surface-dry condition as specified in ASTM C 128 or AASHTO T 84. (See Note 1 and Note 2).

Note 1 – If material undergoes degradation in water, the material does not have to be brought to an SSD condition.

Note 2 – Pit derived silica sand commonly contains soft and easily degradable aggregations of sub-bituminous coal. Because of this possible degrading constituent, pit sand shall not be subjected to SSD condition under this procedure.

5.4 Coarse aggregates shall be sieved over a 4.75 mm (No. 4) sieve. The plus 4.75 mm (No. 4) material shall be thoroughly washed and oven dried to a constant mass at a temperature of $110^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ($230 \pm 9^{\circ}\text{F}$).

5.4.1 Allow oven dry sample to cool to room temperature and weigh a test portion to a minimum test size, to the nearest 1 gram and record weight.

5.4.2 Bring sample to a saturated-surface-dry condition as specified in ASTM C ~~127~~128 or AASHTO T ~~85~~84. (See Note 1 and Note 2).

6. PROCEDURE

6.1 Under a ventilation hood or in adequately ventilated area, check the heavy liquid (zinc bromide) for correct specific gravity (2.00 ± 0.01).

6.2 Fine Aggregate - weigh a test portion to a minimum of 200 grams to the nearest 0.1 gram and record weight. This test portion shall be placed in a 600 ml beaker and a volume of heavy liquid poured into the beaker until the liquid level is at least 1 in above the sample level.

6.2.1 Agitate the test portion by means of a glass-stirring rod allowing the lightweight particles to float to the surface.

6.2.2 Pour the liquid and floating lightweight particles into a second beaker, passing through a 300 μm (No. 50) skimmer, making sure that only the floating particles are poured off with the liquid.

6.2.3 Repeat procedure in [section -6.2.2](#) until test portion is free from floating particles, then drain heavy liquid from test portion back into vat. Rinse test portion with water to remove heavy liquid from sample and discard.

6.2.4 Wash the decanted particles retained on the 300 μm (No. 50) skimmer with water until all the zinc bromide is removed.

- 6.2.5 Dry decanted particles to a constant weight and weigh to the nearest 0.1 gram.
- 6.3 Coarse Aggregate - Place sample into mesh bucket and place into vat of zinc bromide solution.
- 6.3.1 NOTE: If test portion is sufficiently large, two or more runs may be necessary to complete testing.
- 6.3.2 Agitate test portion by means of a large metal stirring rod allowing the lightweight particles to float to the surface.
- 6.3.3 Remove floating pieces from heavy liquid by scooping with a 300 μm (No. 50) skimmer. Repeat process until test portion is free of floating particles.
- 6.3.4 Raise mesh bucket to drain heavy liquid from test portion into vat. Rinse test portion with water to remove heavy liquid from sample and discard.
- 6.3.5 Wash lightweight particles with water until all the zinc bromide is removed.
- 6.3.6 Dry lightweight particles to a constant weight and weigh to the nearest 1.0 gram.
- 6.4 Slag: Due to the manufacturing process, there is entrapped air in the aggregate. The procedure for slag is the same for any other coarse aggregate; however, a greater number of pieces will come to the surface than with other types of aggregates. The floating particles must be friable before they are considered as deleterious.

7. CALCULATION

- 7.1 Calculate the percentage of lightweight particles as follows:

Fine Aggregates

$$L = \frac{W_1}{W_2} \times 100$$

L = Percentage of lightweight particles

W_1 = Oven dry mass of lightweight particles

W_2 = Oven dry mass of test portion

- 7.2 Report results to nearest 0.1 percent.

MP 702.01.20 Steward – Aggregate & Soils Section
RLS:M

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

GUIDE FOR QUALITY CONTROL AND ACCEPTANCE PLANS FOR SUBGRADE, BASE
COURSE, AND AGGREGATE ITEMS

1. PURPOSE

- 1.1 The purpose of this Materials Procedure (MP) is to establish minimum requirements for the Contractor's Quality Control (QC) Program and Acceptance Plan. It is intended that these requirements be used as a procedural guide in detailing the inspection, sampling, and testing deemed necessary to maintain compliance with the material and Specification requirements.
- 1.2 To establish procedural guidelines for approval and documentation of the Master QC Plan.
-

2. SCOPE

- 2.1 This procedure is applicable to Aggregate items placed in the field. It outlines the quality control procedures for items used and includes procedures for approving and using a Master and/or Project Specific Quality Control (QC) Plan. This procedure also aids in documentation and retention of the QC Plan in ProjectWise.
-

3. REFERENCED DOCUMENTS

- a) MP 300.00.51 - Procedural Guidelines for Maintaining Control charts for Aggregate Gradations
 - b) MP 700.00.54 - Procedure for Evaluating Quality Control Sample Test Results with Verification Sample Test Results
 - c) MP 700.00.06 - Aggregate Sampling Procedures
 - d) ML-25, Procedure for Monitoring the Activities Related to Sieve Analysis of Fine and Coarse Aggregate
 - e) WV Division of Highways Construction Manual, Current Edition
 - f) WV Division of Highways Standard Specifications, Current Edition & Supplementary
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4. GENERAL REQUIREMENTS

- 4.1 The Contractor shall provide and maintain a QC system that will provide reasonable assurance that all materials and products submitted to the District for acceptance will conform to the contract requirements whether natural, manufactured or processed by the Contractor or procured from suppliers, subcontractors, or vendors. The Contractor shall perform or have performed the inspections and tests required to substantiate product

conformance to contract document requirements and shall also perform or have performed all inspections and tests otherwise required by the contract. The Contractor's QC inspections and tests shall be documented and shall be available for review by the Engineer/District throughout the life of the contract. The Contractor shall maintain standard equipment and qualified personnel as required by the Specifications to assure conformance to contract requirements. Procedures will be subject to the review of the District before the work is started.

5. QUALITY CONTROL PLAN

- 5.1 The Contractor shall prepare a QC Plan detailing the type and frequency of inspection, sampling, and testing deemed necessary to measure and control the various properties of materials and construction governed by the Specifications. As a minimum, the sampling and testing plan shall detail sampling location, sampling techniques, and test frequency to be utilized. **Attachment #1** shows guidelines for the QC Plan. QC sampling and testing performed by the Contractor may be utilized by the District for acceptance.
- 5.1.1 A QC Plan must be developed by the Contractor and submitted to the Engineer/District prior to the start of construction on every project. Acceptance of the QC Plan by the Engineer/District will be contingent upon its concurrence with these guidelines.
- 5.2 As work progresses, an addendum(s) may be required to the QC Plan to keep the QC program current. Personnel may be required to show proof of certification for testing.
- 5.3 QC Plan Guidelines: The QC plan shall include but not be limited to the following information:
- 5.3.1 Name of company official responsible for QC program. Contact phone number(s) and email(s) shall be included in the cover letter.
- 5.3.2 List certified personnel as specified in Section 106 of the Specifications, whether from the submitting company, consultant testing firm, or both.
- 5.3.3 List of the Aggregate items to be controlled by QC Plan.
- 5.3.4 Sampling and Testing Plan: As a minimum, the sampling and testing plan should detail sampling locations, test methods, and test frequencies to be used. To facilitate the District's monitoring activities, which are described in Section 7.1, all completed gradation samples must be retained by the Contractor until further disposition is designated by the District Materials Supervisor. The QC Plan should state where and how these samples will be maintained. Applicable sections of Materials Letter ML-25 should be used for guidance.
- 5.3.5 Testing Facility: The plan shall state the specific location where the samples(s) will be tested and retained.
- 5.3.6 Documentation Plan: The Contractor's plan to document and distribute test results shall be described.

5.3.7 Forms and Distribution: Approved processing forms available on the [MCS&T Webpage](#)¹ shall be used to record the test data. Gradation tests will be recorded on Form T300. The laboratory reference number will always start with a "C" for all QC samples taken and tested by the Contractor. One copy of each completed form should be retained by the Contractor until the work is completed and accepted. The original signed copy of the test data is to be delivered to the District Materials Supervisor. To be an effective QC function, tests must be completed and results distributed in a regular and timely manner. The plan, therefore, must state what action will be taken in the event that testing and reporting are not completed in a reasonable period of time - preferably within 72 hours after the sample is taken (at the discretion of the District.)

5.3.8 Control Charts: The Specifications require the plotting of gradation test results on control charts using the moving average concept as described in MP 300.00.51. The QC Plan should state where and how the charts shall be maintained and made available to District personnel. These charts are part of the District's acceptance procedures and must be available to the District when the project is completed or at the request of the District personnel. At the Contractor's request, the requirement of Control Charts may be waived on a per project basis. The Contractor will submit a written request to the District asking that the Control Charts be waived. The District will make a determination based on the size of the project and the number of gradation tests required.

5.3.9 Disposition of Non-Specification Material: The Contractor shall provide a detailed plan of action for the immediate notification of all parties involved in the event that nonconforming situations are detected.

5.3.10 Delivery Batch Tickets

~~Each truckload of aggregate batch of Structural Concrete, including miscellaneous concrete (as defined in section 4.2.6.1), delivered at the project shall be accompanied by one batch delivery ticket with all of the following items of information listed in Section 4.2.9.1 pre-printed on the ticket: Contract Identification Number (CID #), Federal and/or State Project Number, Ticket number, Date, Time, Source Code, Material Name, Load Number, Daily Tonnage, Tonnage to Date, Gross Truck Weight, Tare Truck Weight, Net Weight, Number of Axles on Haul Unit, License Number of Haul Unit, and Weighperson's Name certifying that all information on the ticket is correct. In the case of Portland Cement Concrete Pavement, each batch of concrete delivered at the project on which a test in accordance with Table 1 of Attachment 1 is to be performed shall be accompanied by a batch ticket. This batch ticket shall have all of the items listed in section 4.2.9.1 pre-printed on the ticket unless non-agitator trucks or truck agitators are used. In this case, the batch ticket shall have all of the items listed in section 4.2.9.2 pre-printed on the ticket.~~

~~All batch tickets for Structural Concrete and Portland Cement Concrete Pavement Concrete transported by truck mixers shall have all of the following items pre-printed on the ticket: Producer/Supplier Code, Producer/Supplier Name, Producer/Supplier Location, Mix Design Laboratory Reference Number, Date, Sequence Number, Volume (yd³/m³).~~

¹ <https://transportation.wv.gov/highways/mcst/Pages/tbox.aspx>

Time Batched, Time Unloaded, Contract Identification Number (CID #), Federal and/or State Project Number, Material Code, Material Name, Water Allowed (Gallon/Liter), Water at Plant (gallon/liter), Weight of Ice at Plant (lb/kg), Water at Job (Gallon/Liter), Weight of Cement (lb/kg), Supplementary Cementitious Material(s) (SCM) (lb/kg) (lb/kg), Weight of Fine Aggregate (lb/kg), Weight of Coarse Aggregate (lb/kg), Admixture Name(s) and Dose (ounces/mL), Temperature (°F/°C), Cylinder I.D., Initial Counter, Final Counter, Target Consistency (in/mm), Actual Consistency (in/mm), Target Air (%), Actual Air (%), Truck Number.

All batch tickets for concrete delivered by means of non-agitator trucks or truck agitators shall have all of the following items pre-printed on the ticket: Producer/Supplier Name, Mix Design Laboratory Reference Number, Date, Sequence Number, Volume (yd³/m³), Time Batched, Time Unloaded, CID#, Federal and/or State Project Number, Material Code, Material Name, Water Allowed (Gallon/Liter), Water at Plant (Gallon/Liter), Weight of Ice at Plant (lb/kg), Weight of Cement (lb/kg), Weight of SCM (lb/kg), Weight of Fine Aggregate (lb/kg), Weight of Coarse Aggregate (lb/kg), Admixture Name(s) and Weight(s) (ounces/grams), Temperature (°F/°C), Target Consistency (in/mm), Actual Consistency (in/mm), Target Air (%), Actual Air (%), Truck Number.

Th

5.3.10.1 As per the requirements of Section 109.20.1 of the Specifications, an e-ticket shall be provided to meet these requirements.

e batch ticket in the case of either type of concrete shall be a pre-printed batch ticket prepared by the plant. This ticket may be either computer generated or a standard pre-printed form with blank spaces provided in which all of the required data shall be recorded. The data items listed above that are completed in the field (such as Time Unloaded, Actual Consistency, etc.) must have a space on the batch ticket for completion. Volume is to be reported to the nearest 0.01 yd³ (0.01 m³). Consistencies are to be reported to the nearest 0.25 inch (5 mm). Target and Actual Air are to be reported to the nearest 0.1% (to the nearest 0.25% if the volumetric method is used).

5.3.9 Types of QC Plans

5.3.9.15.3.10.2 QC Plans which are intended for use on more than one project shall be defined as Master QC Plans. Section 6.1 outlines the procedures for Master QC Plan submittal and approval.

5.3.9.25.3.10.3 QC Plans which are intended for use on a single project shall be defined as Project Specific QC Plans. Project Specific QC Plans shall contain a cover letter which includes the following: project description, CID#, and Federal and/or State Project Number.

5.3.9.35.3.10.4 A contractor may submit a project specific cover letter referencing the Master QC plan instead of a Project Specific QC Plan.

5.3.9.45.3.10.5 Once any QC Plan is approved for a project, the key-date shall be entered in Site Manager by the appropriate District Materials personnel. The first date entered shall be the date the Project QC Plan letter is received. The second date shall be when the District approves the QC Plan for use on the project.

6. MASTER QUALITY CONTROL PLAN

- 6.1 The intent of a Master QC Plan is to facilitate the approval process in a more uniform manner. The Contractor may submit a Master QC when their workload in a given District is routinely repetitive for the year.
- 6.1.1 The Contractor may submit a new Master Aggregate Items QC Plan each year to each District in which they have or expect to have work (see **Attachment #2** for an example.) If the Contractor does not have work or does not have a history of work in a given District for the year, then a Master Field QC Plan shall not be submitted to that District.
- 6.1.2 The District will review the submitted Master QC Plan to see if it meets the requirements for the Aggregate Items in the QC Plan as per Section 5.3. If accepted, the District shall assign a laboratory reference number to the Master QC Plan for future referencing. The District will acknowledge approval of each Master QC Plan to the Contractor by letter (see **Attachment #3** for an example), which will include the laboratory reference number and a copy of the approved Master QC Plan. This will then be scanned and placed in ProjectWise under the appropriate District's Org for that Contractor and/or Producer/Supplier.
- 6.1.3 Once a project has been awarded, if a Contractor elects to use the approved Master Aggregate Items QC Plan on that project, the Contractor shall submit a letter requesting to use the Master QC Plan for that project. This letter must be on the Contractor's letterhead, be addressed to the District Engineer/Manager or their designee, and contain the following information: project number, CID#, project description, type of QC Plan, and the laboratory reference number for the Master QC Plan. (See **Attachment #4** for an example.)
- 6.1.4 The District shall review the referenced Master QC Plan to ensure it covers all items in the project. If the referenced Master QC Plan is found to be insufficient for some items on the project, the District shall request the Contractor to submit additional information for QC of those items as an addendum on a project specific basis. When the District is satisfied with the QC Plan for this project, a letter shall be sent to the Contractor acknowledging approval (see **Attachment #5** for an example), with the following attached: the Contractor's project QC Plan request letter and the Master QCP approval letter. This shall then be placed in the project's incoming-mail mailbox in ProjectWise.
- 6.1.5 A Master QC Plan that has been approved for project use shall be good for the duration of that project, even if that project continues into future calendar years.
- 6.1.6 For the use of District Personnel, the District approval letter for this project must state the ProjectWise link to the referenced Master QC Plan for that Contractor. For example, WVDOT ORGS > District Organization #> Materials > Year>Master QC Plans, etc.

- 6.1.7 The Master Aggregate items QC Plan shall be valid for the duration of one calendar year beginning on January 1st and ending on December 31st.

7. ACCEPTANCE PLAN

- 7.1 The Specifications state that acceptance (verification) sampling and testing is the responsibility of the District and QC tests are the responsibility of the Contractor. Acceptance activities (sampled and tested at the frequency given in Section 7.1.2) may be accomplished by conducting verification sampling and testing completely independent of the Contractor and, in some cases, by witnessing tests performed by the Contractor, or by a combination of the two. The following guidelines provide a system, which should result in sufficient confidence in the Contractor's documentation of their QC operations to permit acceptance of the material in accordance with the procedure set forth in the Specifications.
- 7.1.1 The District shall review all information supplied by the Contractor on the QC Plan. Note, in particular, the qualifications of the sampler, tester, the location, and other qualifying statements about the testing facility. In the event that little qualifying information is supplied or has been demonstrated by the testing facility: Prior to work, the District (or their representative) shall review the availability, type, and suitability of the testing equipment and verify all calibrations. This information should be documented and kept available at the District Materials Section.
- 7.1.2 The District shall sample and test, completely independent of the Contractor, at a frequency equal to or greater than ten (10) percent of the frequency for testing given in the approved QC Plan. Witnessing the Contractor's sampling and testing activities may also be a part of the acceptance procedure, but only to the extent that such tests are considered "in addition to" the ten (10) percent independent tests.
- 7.1.3 Plot the results of gradation tests performed by the District on the Contractor's QC charts with a red circle, but do not include these values in the moving average. When the Contractor's tests are witnessed, circle the Contractor's test result on the control chart with red. These values are used in the moving average calculations. The laboratory number will always start with an "M" for all acceptance (verification) samples taken and tested in this manner by the District, and will always start with a "0" for all of the Contractor's tests, which are witnessed by the District.
- 7.1.4 Evaluate the results of acceptance (verification) tests, whether performed or witnessed by the District, in accordance with MP 700.00.54.
- 7.2 If the evaluation indicates similarity with the QC test(s), the control chart will be considered acceptable to that point.
- 7.2.1 If dissimilarity is determined, an immediate investigation shall be conducted in an effort to determine the cause. Until the situation is resolved, any samples held in accordance with ML-25 will be retained and may be used in whatever manner deemed appropriate during the investigation.

7.3 Implement ML-25 for aggregate gradations.

8. ABSENT TESTING OF MATERIAL

8.1 If the Contractor fails to perform testing of the material in accordance with the Contractor's Division Approved Quality Control Plan, payment for the portion of the item represented by the absent test shall be withheld, pending the Engineer's decision whether or not to allow the material to remain in place.

8.1.1 If the Engineer allows the material to remain in place, the Division shall not pay for the material represented by the absent test. However, the Division shall pay for the cost of the placement of the material, including labor and equipment. The invoice or material supplier cost (if applicable), determined at the time of shipment, shall be used to calculate the cost of material when evaluating the total cost of labor and equipment.

Ronald L. Stanevich, P.E.
Director

Materials Control, Soils and Testing Division

RLS: M
ATTACHMENTS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

GUIDE FOR QUALITY CONTROL PLANS
FOR ASPHALT

1. PURPOSE

- 1.1 This procedure presents uniform Quality Control (QC) guidelines for Contractor (and/or Producer(s)) to develop their QC Plan. All items listed are believed necessary to assure adequate product QC.
- 1.2 This procedure also creates a more uniform process for District Materials to review and approve Quality Control Plans for use on projects.
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2. SCOPE

- 2.1 This Material Procedure (MP) is applicable to, but not limited to the following Asphalt Items:
- a. Base
 - b. Wearing
 - c. Patching and Leveling Courses
 - d. All P.W.L. Items
 - e. Skid
-

3. GENERAL REQUIREMENTS

- 3.1 As stated in the Specifications, a QC Plan must be developed by the Contractor and/or Producer and submitted to the Engineer prior to construction. Acceptance of the Quality Control Plan by the Engineer will be contingent upon its concurrence with these guidelines. For this reason, the plan should clearly describe the methods by which the Quality Control Program will be conducted. For example, the items to be controlled, tests to be performed, testing frequencies, sampling locations and techniques all should be included and each item should be listed separately. Also, a detailed plan of action regarding disposition of non-specification material should be included. Such a plan should provide for immediate notification of all parties involved in the event non-conforming situations are detected. Attachment #1 may be used as an example Quality Control Plan for plant operations using all items that are applicable to the specific type of plant items produced. Attachment #2 may be used as an example Quality Control Plan for field operations using all items that are applicable to field work.
- 3.2 Inspection and testing records shall be maintained, kept current, and made available for review by the Engineer throughout the life of the contract. All other documentation, such as date of inspections, tests performed, temperature measurements, and any accuracy, calibration, or re-calibration checks performed on production or testing equipment should be recorded.

- 3.3 The Contractor shall maintain standard calibrated equipment and certified personnel in accordance with contract and Specification requirements for the item(s) being produced.
- 3.4 The Division reserves the right to review all pertinent documents concerning equipment calibration used for testing and proof of certified personnel performing tests.

4. MASTER QUALITY CONTROL PLAN

- 4.1 The intent of a Master QC Plan is to facilitate the approval process in a more uniform manner. The Contractor may submit a Master QC when their workload in a given District is routinely repetitive for the year.
- 4.1.1 The Contractor may submit a new Master Asphalt Items QC Plan each year to each District in which they have or expect to have work. If the Contractor does not have work or does not have a history of work in a given District for the year, then a Master QC Plan shall not be submitted to that District.
- 4.1.2 The District will review the submitted Master QC Plans to see if they meet the requirements for the Asphalt Items in the QC Plan. If accepted, the District shall assign a laboratory reference number to the Master QC Plans for future referencing. The District will acknowledge approval of each Master QC Plan to the Contractor by letter (see Attachment #3 for an example), which will include the laboratory reference number and a copy of the approved Master QC Plan. This will then be scanned and placed in ProjectWise under the appropriate District's Org for that Contractor and/or Producer/Supplier.
- 4.1.3 Once a project has been awarded, if a Contractor elects to use the approved Master Asphalt Items QC Plan on that project, the Contractor shall submit a letter requesting to use the Master QC Plan for that project. This letter must be on the Contractor's letterhead, be addressed to the District Engineer/Manager or their designee, and contain the following information: project number, CID#, project description, type of QC Plan, and the laboratory reference number for the Master QC Plan. (See Attachment #4a and 4b for Plant and Field operations respectively for examples.)
- 4.1.4 The District shall review the referenced Master QC Plan to ensure it covers all items in the project. If the referenced Master QC Plan is found to be insufficient for some items on the project, the District shall request the Contractor to submit additional information for QC of those items as an addendum on a project specific basis. When the District is satisfied with the QC Plan for this project, a letter shall be sent to the Contractor acknowledging approval (see Attachment #5 for an example), with the following attached: the Contractor's project QC Plan request letter and the Master QCP approval letter. This shall then be placed in the project's incoming-mail mailbox in ProjectWise.
- 4.1.5 A Master QC Plan that has been approved for project use shall be good for the duration of that project, even if that project continues into future calendar years.
- 4.1.6 For the use of District Personnel, the District approval letter for this project must state the ProjectWise link to the referenced Master QC Plan for that Contractor. For example, WVDOT ORGS > District Organization #> Materials > Year>Master QC Plans, etc.
- 4.1.7 The Master Asphalt Items QC Plan shall be valid for the duration of one calendar year beginning on January 1st and ending on December 31st.

4.2 TruckBatch Tickets

Each truckload batch of asphalt delivered to the project shall be accompanied by one truckbatch ticket with all of the items of information required listed in Section 4.21.1.1 listed on the ticket.

4.2.1.1 TruckBatch tickets shall have all of the following items listed on the ticket: Ticket Number, Producer/Supplier Code, Producer/Supplier Name, Producer/Supplier Location, Approved Job Mix Formula (JMF) Number, Item Number, Date, Gross Weight (TN), Tare Weight (TN), Net Weight (TN), Cumulative Weight (TN), Maximum Density, Time Batched, Contract Identification Number (CID #), Federal and/or State Project Number, Material Code, Material Name, Temperature (°F/°C), Truck Number, and Lab Number for Testing. In addition, once the design has been verified, the newly established Maximum Density shall be reported on each ticket thereafter.

4.2.1.2 As per the requirements of Section 109.20.1 of the Specifications, an e-ticket shall be provided to meet these requirements.

5. ASPHALT FOR MAINTENANCE

5.1 The provisions of this MP will also apply to asphalt plant run purchase orders that are picked up at the plant by the Division's Maintenance forces. Yearly Master Plant and Field QCP's apply to Laydown Asphalt Purchase Orders awarded to vendors. Exceptions to this are as specified in the Purchase Order Maintenance Contract.

6. ACCEPTANCE PLAN

6.1 The Asphalt Material shall be accepted in accordance with the material's specific MP and the Standard Specifications.

6.2 Key Dates for Site Manager

6.2.1 Once the Quality Control Plan is approved for the project the key date shall be entered into the current AASHTOWare software by the appropriate District Materials personnel. The first date entered shall be the date the Project Quality Control Plan letter is received. The second date shall be when the district approves the quality control plan for use on the project.

7. ABSENT TESTING OF MATERIAL

7.1 If the Contractor fails to perform testing of the material in accordance with the Contractor's Division Approved Quality Control Plan, payment for the portion of the item represented by the absent test shall be withheld, pending the Engineer's decision whether or not to allow the material to remain in place.

7.1.1 If the Engineer allows the material to remain in place, the Division shall not pay for the material represented by the absent test. However, the Division shall pay for the cost of the placement of the material, including labor and equipment. The invoice or material supplier cost (if applicable), determined at the time of shipment, shall be used to calculate the cost of material when evaluating the total cost of labor and equipment.

RLS: J
ATTACHMENTS

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

GUIDE FOR QUALITY CONTROL AND ACCEPTANCE REQUIREMENTS FOR PORTLAND
CEMENT CONCRETE

1. PURPOSE

- 1.1 To establish minimum requirements for Contractor's Quality Control (QC) system and the Division's Acceptance Plan. It is intended that these minimum requirements be followed in detailing the inspection, sampling, and testing deemed necessary to maintain compliance with all Specification requirements.
-

2. SCOPE

- 2.1 This Materials Procedure (MP) is applicable to all Portland Cement Concrete (PCC) items, and it outlines the quality control procedures for both plant and field operations and includes procedures for approving and using Master and/or Project Specific QC Plans. This procedure also aids in documentation and retention of QC Plans in ProjectWise.
-

3. GENERAL REQUIREMENTS

- 3.1 The Contractor shall provide and maintain a quality control system that will provide reasonable assurance that all materials and products submitted to the Division for acceptance will conform to the contract requirements whether manufactured or processed by the Contractor or procured from suppliers, subcontractors, or vendors. The Contractor shall perform or have performed the inspections and tests required to substantiate product conformance to contract document requirements and shall also perform or have performed all inspections and tests otherwise required by the contract. The Contractor's quality control inspections and tests shall be documented and shall be available for review by the Engineer throughout the life of the contract. The Contractor shall maintain standard equipment and qualified personnel as required by the Specifications to assure conformance to contract requirements. Procedures will be subject to the review of the Division before the work is started.
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4. QUALITY CONTROL PLAN

- 4.1 The Contractor shall prepare a QC Plan detailing the type and frequency of inspection, sampling, and testing deemed necessary to measure and control the various properties of materials and construction governed by the Specifications. As a minimum, the sampling and testing plan should detail sampling location, sampling techniques, and

- test frequency to be utilized. Quality control sampling and testing performed by the Contractor may be utilized by the Division for acceptance.
- 4.1.1 A QC Plan must be developed by the Contractor and submitted to the Engineer prior to the start of construction on every project. Acceptance of the QC Plan by the Engineer will be contingent upon its concurrence with these guidelines.
- 4.1.2 As work progresses, an addendum(s) may be required to a QC Plan to keep the QC program current. Personnel may be required to show proof of certification for testing.
- 4.2 Quality Control Plan Guidelines
- 4.2.1 The Plan shall identify the personnel responsible for the Contractor's quality control. This should include the company official who will act as the liaison with Division personnel, as well as the Certified Portland Cement Concrete Technician who will direct the inspection program at the plant or in the field depending if it is a plant or field QC Plan. Their phone number and email address must also be included as a means for contact by the Division personnel.
- 4.2.2 All classes of concrete and corresponding mix design numbers, which may be used, shall be listed on the Plant QC Plan. All classes of concrete, which may be used, shall be listed on the Field QC Plan.
- 4.2.3 Process control sampling, testing, and inspection should be an integral part of the contractor's quality control system. In addition to the above requirements, the Contractor's QC Plan should document the process control requirements shown in Table 1 of Attachment 1. The process control activities shown in Table 1 are considered to be normal activities necessary to control the production and placement of a given product or material at an acceptable quality level. To facilitate the Division's activities, the Contractor, as per ML-25, shall retain all completed gradation samples until further disposition is designated by the Division.
- 4.2.4 All sampling and testing shall be in accordance with the methods and procedures required by the Specifications. Measuring and testing equipment shall be standard and properly calibrated as per the specified test procedures. If alternative sampling methods, procedures, and inspection equipment are to be used, they shall be detailed in the QC Plan. Any QC testing that is not performed in accordance with the methods and procedures required by the Specifications shall be considered an invalid test, and the applicable penalty for the cost associated with that test, in accordance with MP 109.00.20, will be assessed to the contractor, along with the applicable price adjustment in Section 105.3. The test specimen(s) represented by an invalid test shall be considered as not meeting Specifications and documented accordingly. The Division may, however, use the results of an invalid test to determine if material may be accepted and allowed to remain in place and if payment may be made for the material represented by the invalid test.

- 4.2.4.1 Any individual who samples or tests plastic concrete for quality control purposes shall be certified as a WVDOH PCC Inspector.
- 4.2.4.2 Any Laboratory which tests the hardened concrete cylinders for the Contractor, for quality control purposes, shall be listed in the Contractor's QC Plan for field operations. This Laboratory shall provide evidence that it meets the applicable requirements in ASTM C1077, pertaining to testing hardened concrete cylinders, for a concrete testing laboratory, including curing facilities, testing equipment, technician proficiency, participation in the CCRL Concrete Proficiency Sample Program (PSP), Quality Management System documentation, and recordkeeping. The only test required for these laboratories, in the CCRL Concrete PSP, is ASTM C39 (AASHTO T22), but it is recommended that the laboratory perform all the field test portions of these Proficiency Samples and maintain the results of these tests, in order to evaluate any root cause issues pertaining to compressive strength. Each Laboratory shall be inspected and evaluated initially, and at least once every regular inspection tour cycle (approximately 30 months) by the Cement and Concrete Reference Laboratory (CCRL). The ASTM standards pertaining to testing concrete cylinders, with which the subject laboratory must comply, include ASTM C39 (AASHTO T22), ASTM C617 (AASHTO T231) or ASTM C1231, and ASTM C511 (AASHTO M201). The Personnel Qualification requirements in Section 6 of ASTM C1077 regarding PE direction, Laboratory Supervisors, and concrete laboratory personnel testing certifications also apply, except that a Laboratory Supervisor with at least five years experience in construction materials testing shall be a permissible substitution for the licensed professional engineer. Subsequent documentation shall be provided to the Division showing that the subject Laboratory and personnel meet the applicable requirements of ASTM C1077, pertaining to testing concrete cylinders, for a concrete laboratory.
- 4.2.4.3 Any Laboratory which desires to test Contractor hardened concrete QC specimens on WVDOH projects shall submit the evidence/documentation, required in Section 4.2.4.2, confirming compliance with ASTM C1077, with regards to testing concrete cylinders, to MCS&T Division at the following e-mail address: DOHMCSnTconcretelab@wv.gov. MCS&T Division will review this submittal. In this submittal, the subject Laboratory shall also explain how all deficiencies noted in the CCRL Laboratory Inspection Report have been addressed. All deficiencies noted in the CCRL Laboratory Inspection Report shall be resolved to the satisfaction of the Division within 90 days from the date of the CCRL Laboratory Inspection Report. Once MCS&T Division determines that the subject Laboratory is in compliance with the applicable requirements of ASTM C1077, and all deficiencies have been adequately resolved, that Laboratory will be placed on the Division's Approved List of Concrete Cylinder Testing Labs. All laboratories which test contractor hardened concrete QC specimens on WVDOH projects must be listed on the Division's Approved List of Concrete Cylinder Testing Labs. A listing of these laboratories is available on the WVDOT internet site at the following link:

YPERLINK

["https://transportation.wv.gov/highways/mcst/Pages/APL_By_Number.aspx"](https://transportation.wv.gov/highways/mcst/Pages/APL_By_Number.aspx)
https://transportation.wv.gov/highways/mcst/Pages/APL_By_Number.aspx.

All Division Approved Laboratories shall provide the Division with the CCRL Lab Number for their laboratory and agree to allow DOH, CCRL, and AASHTO re:source to freely share information about assessment reports, proficiency samples, corrective actions, quality management system, and personnel competency and certification records.

- 4.2.5 When calculating the compressive strength of concrete cylinders in accordance with AASHTO T22, the following procedure shall be used:

$$CS = \frac{ML}{0.25 \times \pi \times D^2}$$

Where:

- CS = Compressive Strength of the specimen
- ML = Maximum load carried by the specimen during the test
- π = Mathematical constant PI
- D = Diameter of the cylinder being tested (in accordance with AASHTO T 22)

Note: The calculation for CS shall be performed in one continuous step (without any rounding), either by the testing machine, or by calculating device, and only the final value (CS) is permitted to be rounded (to the accuracy specified in AASHTO T 22). The value for π shall be the manufacturer's pre-programmed value in a calculating device or the testing machine.

4.2.6 Miscellaneous Concrete:

The contractor is not required to perform the process control testing required by Part C of Table 1 of the Attachment on miscellaneous concrete (as defined in section 4.2.6.1), provided that the concrete in question is being supplied by an A1 or A2 plant (as defined in MP 601.05.50, formerly numbered as IM-18), and provided that the requirements of section 4.2.6.2 are met for each project on which the reduced testing of miscellaneous concrete is applied.

- 4.2.6.1 Miscellaneous concrete shall be defined as relatively small quantities, not exceeding 25 yd³ (19 m³) per day, incorporated into items that will not adversely affect the traffic carrying capacity of a completed facility. Such items would not include any concrete intended for major structures, permanent mainline or ramp pavements, or any other structurally critical items part of, or adjacent to the roadway.

The following items are suggested as a guideline in establishing items that may be categorized as miscellaneous concrete:

Note: Concrete testing for certain items below is waived, in some cases, by the referenced section of the specifications.

1. Sidewalks
2. Curb and Gutter
3. Slope walls for under drain outlet pipes
4. Temporary pavements and pipe crossings
5. Building floors
6. Slope paving and headers
7. Paved ditch or gutter
8. Small (less than 36" diameter) culvert headwalls
9. Catch basins, manhole bases, inlets, and junction boxes (and adjustments of such items) not located in the roadway
10. Foundations for breakaway supports
11. Utility trench fills
12. Cast-in-place survey markers

4.2.6.2 One sample per two days of production (for the same project) shall be tested (beginning on the first day of production) for compressive strength, air content, and consistency. On a minimum of ten percent of the samples outlined above, the Division will observe the batching operation at the plant (that is producing the concrete to be sampled) and check the operational control.

4.2.6.3 When placing miscellaneous concrete and no testing is required, an Approved Source Sample will be generated in SiteManager. The C##### representing the test from the previous day of production shall be entered in the intended use field. Miscellaneous Concrete will be entered in remarks. Miscellaneous Concrete will be written on all batch tickets for which testing is not required, per the miscellaneous concrete provisions of this MP, prior to scanning and placing in ProjectWise.

4.2.7 Documentation:

The Contractor shall maintain adequate records of all inspections and tests. The records shall indicate the nature and number of observations made, the number and type of deficiencies found, the quantities approved and rejected, and the nature of corrective action taken as appropriate. The Contractor's documentation procedures will be subject to the review and approval of the Division prior to the start of the work and to compliance checks during the progress of the work.

4.2.8 Charts and Forms:

All conforming and non-conforming inspections and test results shall be kept complete and shall be available at all times to the Division during the performance work. Forms shall be on a computer-acceptable medium where required. Batch

- ticket data shall be documented in accordance with the applicable section of MP 601.03.50, with a copy to be submitted to the District Materials Section within 72 hours of the concrete placement. Gradation data shall be documented on WVDOH form T300 using the material codes listed in the online computer systems user guide. The original gradation data shall be submitted to the District Materials Section within 72 hours of obtaining the gradation sample. Test data for Portland Cement Concrete shall be charted in accordance with the applicable requirements of MP 601.03.52. Gradation test data shall be plotted in accordance with the applicable requirements of MP 300.00.51. The Contractor may use other types of control charts as deemed appropriate by the Division. It is normally expected that testing and charting will be completed within 48 hours after sampling. The Contractor shall also ensure that all Material Suppliers prepare and submit the HL-441 form (weekly supplier report) in a timely manner
- 4.2.8.1 All charts and records documenting the Contractor's quality control inspections and tests shall become property of the Division upon completion of the work.

4.2.9 Batch Tickets

- Each batch of Structural Concrete, including miscellaneous concrete (as defined in section 4.2.6.1), delivered at the project shall be accompanied by one batch ticket with all of the items of information listed in Section 4.2.9.1 ~~pre-printed-populated~~ on the ticket. In the case of Portland Cement Concrete Pavement, each batch of concrete delivered at the project on which a test in accordance with Table 1 of Attachment 1 is to be performed shall be accompanied by a batch ticket. This batch ticket shall have all of the items listed in section 4.2.9.1 ~~pre-populated~~~~printed~~ on the ticket unless non-agitator trucks or truck agitators are used. In this case, the batch ticket shall have all of the items listed in section 4.2.9.2 ~~pre-populated~~~~printed~~ on the ticket.
- 4.2.9.1 All batch tickets for Structural Concrete and Portland Cement Concrete Pavement Concrete transported by truck mixers shall have all of the following items ~~pre-populated~~~~printed~~ on the ticket: Producer/Supplier Code, Producer/Supplier Name, Producer/Supplier Location, Mix Design Laboratory Reference Number, Date, Sequence Number, Volume (yd³/m³), Time Batched, Time Unloaded, Contract Identification Number (CID #), Federal and/or State Project Number, Material Code, Material Name, Water Allowed (Gallon/Liter), Water at Plant (gallon/liter), Weight of Ice at Plant (lb/kg), Water at Job (Gallon/Liter), Weight of Cement (lb/kg), Supplementary Cementitious Material(s) (SCM) (lb/kg) (lb/kg), Weight of Fine Aggregate (lb/kg), Weight of Coarse Aggregate (lb/kg), Admixture Name(s) and Dose (ounces/mL), Temperature (°F/°C), Cylinder I.D., Initial Counter, Final Counter, Target Consistency (in/mm), Actual Consistency (in/mm), Target Air (%), Actual Air (%), Truck Number.

4.2.9.2 All batch tickets for concrete delivered by means of non-agitator trucks or truck agitators shall have all of the following items ~~pre-populated~~printed on the ticket: Producer/Supplier Name, Mix Design Laboratory Reference Number, Date, Sequence Number, Volume (yd³/m³), Time Batched, Time Unloaded, CID#, Federal and/or State Project Number, Material Code, Material Name, Water Allowed (Gallon/Liter), Water at Plant (Gallon/Liter), Weight of Ice at Plant (lb/kg), Weight of Cement (lb/kg), Weight of SCM (lb/kg), Weight of Fine Aggregate (lb/kg), Weight of Coarse Aggregate (lb/kg), Admixture Name(s) and Weight(s) (ounces/grams), Temperature (°F/°C), Target Consistency (in/mm), Actual Consistency (in/mm), Target Air (%), Actual Air (%), Truck Number.

~~4.2.9.3~~ The batch ticket in the case of either type of concrete shall be a ~~pre-printed~~ batch ticket prepared by the plant. This ticket ~~may~~must be ~~either e~~computer generated or a standard pre-printed form with blank ~~spaces~~fields provided in which all of the required data shall be recorded. The data items listed above that are completed in the field (such as Time Unloaded, Actual Consistency, etc.) must have a ~~space~~field on the batch ticket for completion. Volume is to be reported to the nearest 0.01 yd³ (0.01 m³). Consistencies are to be reported to the nearest 0.25 inch (5 mm). Target and Actual Air are to be reported to the nearest 0.1% (to the nearest 0.25% if the volumetric method is used).

~~4.2.9.4~~ As per the requirements of Section 109.20.1 of the Specifications, an e-ticket shall be provided to meet these requirements.

~~4.2.9.3~~

4.2.10 Corrective Action:

The Contractor shall take prompt action to correct conditions, which have resulted, or could result, in the submission to the Division of materials and products, which do not conform to the requirements of the Contract documents.

4.2.11 Non-Conforming Materials:

4.2.11.1 The Contractor shall establish and maintain an effective and positive system for controlling non-conforming material, including procedures for its identification, isolation and disposition. Reclaiming or reworking of non-conforming materials shall be in accordance with procedures acceptable to the Division. All non-conforming materials and products shall be positively identified to prevent use, shipment, and intermingling with conforming materials and products. Holding areas, mutually agreeable to the Division and the Contractor shall be provided by the Contractor.

4.2.12 Types of QC Plans:

4.2.12.1 QC Plans which are intended for use on more than one project shall be defined as Master QC Plans. Section 4.3 outlines the procedures for Master QC Plan submittal and approval.

- 4.2.12.2 QC Plans which are intended for use on a single project shall be defined as Project Specific QC Plans. Project Specific QC Plans shall contain a cover letter which includes the following: project description, CID#, Federal and/or State Project Number.
- 4.2.12.3 A Contractor may submit a Master QC Plan for Plant and/or Field operations instead of a Project Specific QC Plan.
- 4.2.12.4 Once any QC Plan is approved for a project, the key date shall be entered in SiteManager by the appropriate District Materials personnel. The first date entered shall be the date the Project QC Plan letter is received. The second date shall be when the District approves the QC Plan for use on the project.

4.3 Master QC Plan

- 4.3.1 The intent of Master QC Plans is to facilitate the approval process in a more uniform manner. Master QC Plans can be submitted to the Division by the Contractor when their workload in a given District is routinely repetitive for the year.
- 4.3.2 The Contractor shall submit a Master Field QC Plan yearly to each District in which they have work (see Attachment 2). If the Contractor does not have work in a given District for the year, then a Master Field QC Plan does not need to be submitted to that District.
- 4.3.3 The Producer/Supplier shall submit a Master Plant QC Plan at the beginning of each year to the District in which their plant is located (see Attachment 3).
- 4.3.4 The District will review the submitted Master QC Plans to see if they meet the applicable requirements of Sections 4.2 thru 4.2.11.1 and assign a Laboratory Reference Number to each QC Plan upon approval, for future referencing. The District will acknowledge approval of each Master QC Plan to the Contractor and/or Producer/Supplier by letter (see Attachment 4), which will include the Laboratory Reference Number and a copy of the approved Master QC Plan. This will then be scanned and placed in ProjectWise under the appropriate District's Org for that Contractor and/or Producer/Supplier.
- 4.3.5 Once a project has been awarded, if a contractor elects to use the approved Master Plant and Master Field QC Plans on that project, the Contractor shall submit a letter requesting to use the Master QC Plans for that project. This letter must be on the Contractor's letterhead, be addressed to the District Engineer/Manager or their designee, and contain the following information: project number, CID#, project description, type of Quality Control Plan and the laboratory reference number for the Master QC Plan. See Attachment 5 for an example of a plant letter and Attachment 6 for an example of a field letter.

- 4.3.5.1 The District shall review the referenced Master QC Plans to ensure they cover all items in that project. If the referenced Master QC Plan is found to be insufficient for some items on that project, the District shall request the Contractor to submit additional information for quality control of those items as an addendum on a project specific basis. When the District is satisfied with the QC Plan for that project, a letter shall be sent to the Contractor acknowledging approval (see Attachment 7), with the following attached: the contractor's project QC Plan request letter and the Master QC Plan approval letter. This shall then be placed in the project's incoming-mail mailbox in ProjectWise.
- 4.3.5.2 A Master QC Plan that has been approved for project use shall be good for the duration of that project.
- 4.3.5.3 For the use of Division Personnel, the District approval letter for this project must state the ProjectWise link to the referenced Master QC Plan for that Contractor (for example: WVDOT ORGS > District Organization #> Materials > Year > Master QC Plans).
- 4.3.6 The Master Field and Plant QC Plans shall be valid for the duration of one calendar year beginning on January 1st and ending on December 31st. The Master Plant QC Plan will also cover maintenance purchase order concrete for the year.

5. ACCEPTANCE SAMPLING AND TESTING

- 5.1 Acceptance sampling and testing is the responsibility of the Division. Quality control tests by the Contractor may be used for acceptance.
- 5.2 The Division shall sample and test for applicable items completely independent of the contractor at a frequency equal to approximately ten (10) percent of the frequency for testing given in the approved QC Plan. Witnessing the contractor's sampling and testing activities may also be a part of the acceptance procedure, but only to the extent that such tests are considered "in addition to" the ten (10) percent independent tests.
- 5.3 Results from independent tests conducted by the Division for gradation, entrained air, consistency, and strength will be plotted on the Contractor's quality control charts with a red circle, but are not to be included in the moving average. When the Contractor's tests are witnessed, the results are circled on the control chart in red, and are to be included in the moving average calculations.
- 5.4 Results from both independent tests and witnessed tests will be evaluated in accordance with MP 700.00.54. If a dissimilarity is detected, an investigation shall be immediately initiated to determine the cause of the dissimilarity.

6. ABSENT TESTING OF MATERIAL

- 6.1 If the Contractor fails to perform testing of the material in accordance with the Contractor's Division Approved Quality Control Plan, payment for the portion of the item represented by the absent test shall be withheld, pending the Engineer's decision whether or not to allow the material to remain in place.
- 6.1.1 If the Engineer allows the material to remain in place, the Division shall not pay for the material represented by the absent test. However, the Division shall pay for the cost of the placement of the material, including labor and equipment. The invoice or material supplier cost (if applicable), determined at the time of shipment, shall be used to calculate the cost of material when evaluating the total cost of labor and equipment.

Ronald L. Stanevich, P.E.
Director
Materials Control, Soils and Testing Division

RLS:Mt

Attachments

TABLE 1
CONTRACTORS PROCESS CONTROL
REQUIREMENTS
STRUCTURAL CONCRETE AND
PORTLAND CEMENT CONCRETE PAVEMENT

Minimum frequency*

A. PLANT AND TRUCKS

- | | |
|--------------------------------------|----------------------------------|
| 1. Mixer Blades | Prior to Start of Job and Weekly |
| 2. Scales | |
| a. Tared | Daily |
| b. Calibrate | Prior to start of Job |
| c. Check Calibration | Weekly |
| 3. Gauges and Meters-Plant and Truck | |
| a. Calibrate | Yearly |
| b. Check Calibration | Weekly |
| 4. Admixture Dispenser | |
| a. Calibrate | Prior to Start of Job |
| b. Check Operation and Calibration | Daily |

B. AGGREGATES

- | | |
|-------------------|---|
| 1. Fine Aggregate | |
| a. Gradation | Per section 601.3.2.4 of the Specifications |
| b. Moisture | Daily |

-
2. Coarse Aggregates
- a. Gradation Per section 601.3.2.4 of the Specifications
 - b. Percent passing No. 75 μ m Daily
 - c. \bar{A} for Combined Coarse Aggregates
Fine Aggregates and Cement Per section 601.3.2.4 of the Specifications
 - d. Moisture Daily
3. Optimized Aggregates
- a. Gradation Per section 601.3.2.4.1 of the Specifications
 - b. Moisture Daily

C. PLASTIC CONCRETE

1. Entrained Air Content
- | | |
|---|--|
| Pavement Concrete | Two at the beginning of the paving operation, per Section 501.4.2, then one per 500 yd ³ (380 m ³) or fraction thereof, with a minimum of two per day |
| Structural Concrete
(except Bridge Superstructure) | One per 100 yd ³ (75 m ³) or fraction thereof, with a minimum of one per ½ day of operation |
| Bridge Superstructure | One per batch |
2. Consistency**
- | | |
|---|--|
| Pavement Concrete
with a minimum of two per day | One per 500 yd ³ (380 m ³) or fraction thereof, |
| Structural Concrete
(except Bridge Superstructure) | One per 100 yd ³ (75 m ³) or fraction thereof, with a minimum of one per ½ day of operation |

Bridge Superstructure	One for first batch and one for every fifth batch thereafter
3. Temperature	Per Specification
4. Yield	
Pavement Concrete	Per Section 501.3 of the Specifications and one for each five days of operation after the first five days of operation
Structural Concrete	Per Section 601.3.2.3 of the Specifications and one for each ten sets of cylinders after the first ten
5. Compressive Strength***	
Pavement Concrete	One set of concrete cylinders for each 350 yd ³ (75 m ³) or fraction thereof
Structural Concrete	For each class concrete delivered and placed on a calendar day from a single supplier, one set of concrete cylinders for each 100 yd ³ (75 m ³) or fraction thereof
6. Permeability	
Pavement Concrete	N/A
Structural Concrete	Per Section 601.4.5 of the Specifications
Specialized Concrete Overlays	Per Section 679.2.2 of the Specifications

* Frequency for Process Control will vary with the size and type of aggregate or mixture and the batch-to-batch variability of the item.

** When superplasticizer is added to the concrete in the field, additional consistency testing is required as per Section 601.3.2.1 of the Specifications.

*** All cylinders shall be made, cured, and shipped to the Laboratory in accordance with AASHTO T 23 and MP 601.04.20. They shall be tested in accordance with AASHTO T 22 and the applicable section of the Standard Specifications.

Example
COMPANY LETTERHEAD

Mr./Ms./Mrs. _____
West Virginia Department of Highways
District ___ Engineer/Manager
_____, WV #####

RE: Master PCC Field QC Plan

Dear _____,

We are submitting our PCC Field Quality Control Plan, developed in accordance with Sections 501 and 601 of the (year) WVDOH Standard Specifications, the (year) WVDOH Supplemental Specifications, and MP 601.03.50.

1. The Quality Control program is under the direction of _____, who can be contacted in Field/Office, by telephone number _____, cell# _____, and/or e-mail address _____.
2. Sampling and testing will be performed by qualified personnel as per WVDOH specifications Section 106.
3. Class(es) of Concrete to be controlled are listed as follows:
 - All types Class A - All types Class B - All types Class C
 - All types Class D - All types Class K - All types Class H
 - Etc.
4. All items in this QC Plan will be sampled at a minimum frequency as specified in Table 1 of Attachment 1. We acknowledge that additional sampling may be required by the Division in addition to the minimum frequency stated.
5. All sampling and testing will be in accordance with the methods and procedures required by the specifications. All measuring and testing equipment shall be standard and properly calibrated as per the specified test procedure. *(If alternative sampling methods, procedures and inspection equipment are to be used please state in detail what they are and how they will be utilized.)*

6. Batch ticket data shall be documented in accordance with the applicable section of MP 601.03.50, with a copy to be submitted to the District Materials Section within 72 hours of the concrete placement.
7. Calculation of the compressive strength of concrete cylinders will be done as shown in Section 4.2.5 of MP 601.03.50.
8. Testing of Miscellaneous Concrete will be as specified in Section 4.2.6 and Sub-Sections 4.2.6.1 thru 4.2.6.3 of MP 601.03.50.
9. We will maintain adequate records of all inspection and tests. The records will indicate the type of test, number of observations made, the amount and type of deficiency's found, the quantities approved and rejected, and the nature of corrective actions taken as appropriate. Our documentation procedures will be subject to the review and approval of the Division prior to the start of the work and to compliance checks during the progression of the work.
10. **Our company** will take prompt action to correct conditions, which have resulted or could result, in the submission to the Division/District of materials and products, which do not conform to the requirements of the contract documents.
11. **Non-Conforming Materials** -- *State how you will establish an effective and positive system for controlling non-conforming material. This shall include the following:*
 - *procedures for non-conforming material identification*
 - *isolation and disposition of this material*

Reclaiming or reworking of non-conforming materials shall be in accordance with procedures acceptable to the Division.

Our company will specify and provide holding areas, which shall be mutually agreeable by the Division and Contractor.

Very Truly Yours,

Company Official, Title

Example
COMPANY LETTERHEAD

Mr./Ms./Mrs. _____
West Virginia Department of Highways
District ___ Engineer/Manager
_____, WV #####

RE: Master PCC Plant QC Plan

Dear _____,

We are submitting our PCC PLANT Quality Control Plan, developed in accordance with Sections 501 and 601 of the (year) WVDOH Standard Specifications, the (year) WVDOH Supplemental Specifications, and MP 601.03.50.

1. The Quality Control program is under the direction of _____, who can be contacted in Field/Office, by telephone number _____, cell# _____, and/or e-mail address _____.
2. Sampling and testing will be performed by qualified personnel as per WVDOH specifications Section 106.
3. The PCC Mix Designs and class of concrete to be controlled are listed below:

Mix Design Number	Class of Concrete
1. #####	Class B
2. _____	_____
3. _____	_____
4. _____	_____
Etc.	

4. All items in this QC Plan will be sampled at a minimum frequency as specified in Table 1 of Attachment. We acknowledge that additional sampling may be required by the Division in addition to the minimum frequency stated.
5. All sampling and testing will be in accordance with the methods and procedures required by the specifications. All measuring and testing equipment shall be standard and properly calibrated as

per the specified test procedure. *(If alternative sampling methods, procedures and inspection equipment are to be used please state in detail what they are and how they will be utilized.)*

6. Charts and forms

Our Company will make sure all conforming and non-conforming inspections and test results shall be kept complete and shall be available at all times to the Division during the performance work. Forms shall be on a computer-acceptable medium where required. Gradation data shall be documented on WVDOT form T300 using the material codes listed in the online computer systems user guide. The original gradation data shall be submitted to the District Materials Section within 72 hours of obtaining the gradation sample. Test data for Portland cement concrete shall be charted in accordance with the applicable requirements of MP 601.03.52. Gradation test data shall be plotted in accordance with the applicable requirements of MP 300.00.51. We may use other types of control charts as deemed appropriate by Division. It is normally expected that testing and charting will be completed within 48 hours after sampling. **Our Company** shall also ensure that all Material Suppliers prepare and submit the HL-441 form (weekly supplier report) in a timely manner. All charts and records will be turned over to the Division upon completion of work for a given project.

7. *State that batch tickets will conform to requirements of MP601.03.50 Section 4.3.9 and its applicable subsections.*

8. **Our company** will take prompt action to correct conditions, which have resulted or could result, in the submission to the Division of materials and products, which do not conform to the requirements of the contract documents.

9. Non-Conforming Materials - *State how you will establish an effective and positive system for controlling non-conforming material. This shall include the following:*

- *procedures for non-conforming material identification*
- *isolation and disposition of this material*

Reclaiming or reworking of non-conforming materials shall be in accordance with procedures acceptable to the Division.

Our company will specify and provide holding areas, which shall be mutually agreeable by the Division and Contractor.

Very Truly Yours,

Company Official, Title

WVDOH District Master QCP Approval Letter
*** EXAMPLE ***
WVDOH LETTERHEAD

ACME Company
20 First St.
Somewhere, WV #####

RE: PCC Plant or PCC Field (*whichever is applicable*)
Master QC Plan
Description: (YEAR)
P/S code: (only if a plant QCP)

Dear Sir,

Your Quality Control Plan (**M#-#####**) for _____ has been reviewed and found to be acceptable for the following items:

- All WVDOH approved Designs for PCC Classes of Concrete controlled by the referenced QC plan.

As work progresses throughout the season an addendum(s) may be required to this QCP to keep the QC program current. **Also note that personnel may be required to show proof of certification for testing. Please use Lab Reference # M#-##### when corresponding about this QC plan.** Please make sure that all appropriate personnel have a copy of this plan in their possession.

Very truly yours,

Name, Title

Example
COMPANY LETTERHEAD

Mr./Ms./Mrs. _____
WV Department of Highways
District ___ Engineer/Manager
_____, WV #####

RE: PCC Quality Control Plan
for Plant ---- Project

Federal Project No. _____
State Project No. _____
Contract ID No. _____
Description _____

Dear Mr./Ms./Mrs. _____,

We would like to use our **Producer/Supplier's name** Master PCC Plant QC Plan, reference number _____ for the project referenced above. All PCC items on the referenced project are covered by the Master PCC Plant QC Plan. *(if needed state the Special Provision and that the addendum is attached for Quality Control of Special Provision Item)*

The Quality Control Plan is under the direction of _____,
_____ (title), and will be the company's contact representative to the Division of Highways District Materials and Construction Departments. He/She can be contacted in person at the plant, by telephone _____ or at e-mail at _____.

Very truly yours,

Company Representative

Example
COMPANY LETTERHEAD

Mr./Ms./Mrs. _____
WV Department of Highways
District ___ Engineer/Manager
_____, WV #####

Re: PCC Quality Control Plan
for Field ---- Project

Federal Project No. _____
State Project No. _____
Contract ID No. _____
Description _____

Dear Mr./Ms./Mrs. _____,

We would like to use our approved Master PCC Field QC Plan, reference number _____ for the project referenced above. All PCC items on the referenced project are covered by the Master PCC Field QC Plan. *(if needed state the Special Provision and that the addendum is attached for Quality Control of Special Provision Item)*

The Quality Control Plan is under the direction of _____,
_____ (title), and will be the company's contact representative to the Division of Highways District Materials and Construction Departments. He/She can be contacted in person at the plant, by telephone _____ or at e-mail at _____.

Very truly yours,

Company Representative

WVDOH District Master QCP Approval Letter
*** EXAMPLE ***
WVDOH LETTERHEAD

ACME Company
20 First St.
Somewhere, WV #####

RE: PCC Field or PCC Plant (*whichever is applicable*) QC Plan

Project CID#: #####
Fed/State Project #: NHPP- ## - #####-##
Description: Falling Slide
County: XXXXXXXX
P/S Code: (If a Plant)

Dear Sir,

Your request to use Master Quality Control Plan (**M# - #####**) for **PCC Plant** or **PCC Field** (*whichever is applicable*) on the project referenced above, has been reviewed and found to be acceptable for the following items:

- All WVDOH approved designs and classes of PCC controlled by this QCP listed below:
- Class B - Class B modified - Class K -etc.

As work progresses throughout this project an addendum(s) may be required to this QCP to keep the QC program current. **Please use M# - ##### when corresponding about this QC Plan. Also note that personnel may be required to show proof of certification for testing.** Please make sure that all appropriate personnel have a copy of this plan in their possession.

For Division Reference: The Master Quality Control Plan can be reviewed in ProjectWise at the folder shown below:

WVDOT ORG>D0#>year>MASTER QC PLANS>Contractors or Plant>Company
>folder>Name of file (i.e.: 2016 04 05 M#160001 PCC Plant QCP)

Very truly yours,

Name, Title

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

MATERIALS PROCEDURE

**ACCEPTANCE PROCEDURE FOR MASH COMPLIANT
ROADSIDE SAFETY HARDWARE**

1. PURPOSE

- 1.1 To set forth a procedure for acceptance of Roadside Safety Hardware to ensure compliance with Joint Implementation Agreement for the Manual for Assessing safety hardware (MASH) between FHWA and AASHTO by memorandum, dated January 7, 2016.

2. REFERENCED DOCUMENTS

- 2.1 That MASH Document [above](#).
- ~~2.2~~ Our MASH Specification
- ~~2-22.3~~ [MP 106.00.02 – “Procedure for Evaluation of New Products for Use In Highway Construction”](#)

3. SCOPE

- 3.1 This procedure is applicable to any roadside highway safety hardware that is to be reviewed by the Roadway Departure Task Force that will be placed on the [Division’s Approved Product List \(APL\)](#).¹

4. PROCEDURE EVALUATION OF SUBMITTED PRODUCTS

- 4.1 The product shall be submitted to the Director of Materials Control, Soils & Testing and will be assigned to the Roadway Departure Task Force for evaluation.
- 4.2 The Traffic Certification Supervisor will distribute the product information the Task Force representatives. Those representatives shall be:
- a. [Director of Traffic Engineering Division](#)
 - b. [Director of Contract Administration Division](#)
 - c. [Director of Materials Control, Soils & Testing Division](#)
 - d. [Traffic Mobility and Safety Engineer](#)
 - d.e. [Director of Maintenance](#)
- 4.3 A Meeting to discuss the submission shall be scheduled within 360 days of the receipt of the submission.

Commented [BDA1]: Ted and Donna will certainly have some input into this as well.

Commented [BDA2]: Should we include operations or maintenance?

Commented [MGW3]: Done.

¹ https://transportation.wv.gov/highways/mcst/Pages/APL_By_Number.aspx

- 4.4 The submission shall be evaluated ~~and accepted~~ based on ~~one of~~ the following criteria, in descending order of preference:
 - 4.4.1 Letter of Eligibility (LOE) from FHWA
 - 4.4.2 Full suite of passing MASH testing at an accredited facility, but no LOE
 - 4.4.3 Previous issue of NCHRP 350 Letter of Eligibility and an acceptable In-Service Performance Evaluation.
 - 4.4.4 A profession opinion letter of due diligence has been issued by an accredited testing facility determination of the hardware being MASH eligible.
 - 4.4.5 Minor modifications of hardware previously determined to be eligible by the DOH process that in the opinion of the Roadway departure Group determine are not significant modification to performance.
- 4.5 Products used by other DOT's will be considered after reviewing the data from the state standards coordinator as to the state's reasoning for usage after implementation dates.

Commented [BDA4]: I believe these are sorted in order of preference, for example, if they have that LOE, they're pretty good to go. Maybe say something like "in descending order of preference"? Etc?

Commented [MGW5]: done

5. ACCEPTANCE OF MASH MATERIAL

- 5.1 The voting members will determine if the product meets MASH criteria.
- 5.2 If approved, the submitted material will be added to the APL as per MP 106.00.02.

Commented [BDA6]: Maybe flesh this out? Or maybe not, since we already explain the process in the MP.

Ronald L. Stanevich, P.E.
Director
Materials Control, Soils & Testing Division

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS & TESTING DIVISION

MATERIALS PROCEDURE

CRITERIA TO APPROVE FABRICATORS OF GUARDRAIL BEAMS, STEEL
GUARDRAIL POSTS AND HARDWARE

1. PURPOSE

- 1.1 To establish a procedure for approving fabricators of guardrail beams, steel guardrail posts and hardware acceptable for use on West Virginia Division of Highways (WVDOH) projects.
- 1.2 To establish a procedure for maintaining a record of such information.

2. SCOPE

- 2.1 This procedure shall apply to the guardrail classes and types as defined in Section 3 of AASHTO M180

3. APPLICABLE DOCUMENTS

- 3.1 WVDOH Specifications for Roads and Bridges Section 607
- 3.2 AASHTO M180
- 3.3 WVDOH Form HL-468

4. ACCEPTANCE PROCEDURE

- 4.1 For guardrail and hardware materials to be evaluated for acceptance, the fabricator-must comply with the following requirements.
- 4.3 The fabricator shall complete form HL-468 attainable from the website: https://transportation.wv.gov/highways/mcst/Pages/newproduct_evaluationprocedure.aspx and submit it to the WVDOH Materials Control, Soils and Testing (MCS&T) Division new products email address, indicating intention to be included on the WVDOH APL (approved product list) as an approved fabricator-of guardrail materials.
- 4.4 The fabricator shall submit a current certificate indicating membership and conformance with the National Transportation Product Evaluation Program "NTPEP" for guardrail. Additionally, audits are to be performed by NTPEP at the fabricator's facility and encompass a detailed review of the quality management system, production process and testing capabilities.

- 4.5 After NTPEP documents have been obtained, evaluated, and found to be in compliance, the fabricator will be assigned a seven-digit approved source laboratory approval number and placed on the APL for guardrail fabricators. This approval will remain active unless the fabricator fails to remain compliant with NTPEP.
- 4.6 With each shipment of guardrail beams, posts, or hardware to a WVDOH project, the guardrail fabricator shall provide shipping documents which contain a laboratory approval number reflecting that the materials have been approved meeting quality specified by the WVDOH.

Ronald L. Stanevich, P.E.
Director
Materials Control, Soils and Testing Division