SECTION 701 GENERAL QMP REQUIREMENTS

701.1 Description

(1) This section describes contractor responsibilities common to QMP's under part 7 including quality control plans; personnel and laboratory certification; quality control testing; and data submission and record keeping. This section also describes department responsibilities, common to all QMP's under part 7, for verification and quality assurance testing. Exceptions and additional requirements under the QMP program are specified under specific QMP provisions.

701.2 Quality Control Program

701.2.1 General

(1) Provide and maintain a quality control program, defined as all activities and documentation of the following:

1. Mix and gradation design.
2. Control and inspection of production and placement processes.
3. Material sampling, testing, and correction of in-place work.

(2) CMM chapter 8 provides additional detailed guidance for QMP work and describes required sampling and testing procedures. The contractor may obtain the CMM from the department's web site at:

http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm

(3) The department's materials reporting system (MRS) software allows contractors to submit selected data to the department electronically, estimate pay adjustments, and print reports. Qualified personnel may obtain MRS software from the department's web site at:

http://www.atwoodsystems.com/iibv2/default.cfm

701.2.2 Quality Control Plan

(1) Submit a comprehensive written quality control plan and construct the project as that plan provides. Submit the plan to the engineer no later than 10 business days before producing or placing material. Do not change the quality control plan without the engineer's review. Update with changes as they become effective. Provide a current plan to the engineer and post in each contractor laboratory before producing material and as changes are adopted.

(2) Ensure that the quality control plan includes the following elements:

1. Organizational chart including names, telephone numbers, current certifications, and roles and responsibilities of quality control personnel.
2. Process for disseminating quality control and corrective actions information to appropriate persons. Include a list of recipients, the communication means used, and action time frames.
3. Locations of QC laboratories.
4. Material sources.
5. Initial and routine equipment checks and documentation.
6. Frequency of contractor quality control testing.
7. Process control testing the contractor intends to perform, and associated control charts or other documentation the contractor will make available to the department.
8. Procedures for documenting the locations of yielding foundation layers.

(3) The contractor may submit an abbreviated quality control plan consisting of only item one of 701.2.2(2) as follows:

- If the various quantities subject to QMP testing under the contract are less than the amount of material defined as a small quantity under the specific contract QMP provisions. The contractor may choose to increase testing frequency without submitting a comprehensive quality control plan.
- If specific contract QMP provisions allow an abbreviated quality control plan. For contracts containing multiple QMP provisions, the contractor can submit an abbreviated quality control plan for a portion of the work or integrate that work into a comprehensive plan required under the contract.

701.2.3 Personnel Certification

(1) Have personnel certified under the department's highway technician certification program (HTCP) perform sampling, testing, and documentation as follows:

TABLE 701-1 PERSONNEL CERTIFICATION REQUIREMENTS

REQUIRED CERTIFICATION LEVEL	SAMPLING OR TESTING ROLES
PCC Technician I PCC Assistant Certified Technician (ACT-PCC)	Sampling fresh concrete Air content, slump, and temperature testing Fabrication and curing of concrete strength specimens
Concrete Strength Tester CST Assistant Certified Technician (ACT-CST)	Concrete strength testing
Aggregate Technician IPP Aggregate Sampling Technician Aggregate Assistant Certificate Technician (ACT-AGG)	Aggregate sampling
Aggregate Technician IPP Aggregate Assistant Certified Technician (ACT-AGG)	Gradation, P 200, and moisture content testing

(2) A certified technician must coordinate and take responsibility for the work an ACT performs. Have a certified technician ensure that sampling and testing is performed correctly, analyze test results, and post resulting data. No more than one ACT can work under a single certified technician.

701.2.4 Laboratory Certification

(1) Ensure that contractor portable and fixed laboratories as well as commercial laboratories performing testing under the contract are qualified to perform the work in question. Obtain information on the Wisconsin laboratory qualification program from the department's web site at:

http://www.dot.state.wi.us/business/engrserv/lab-qualification.htm

701.2.5 Equipment

(1) Furnish the necessary equipment and supplies for performing quality control testing. The engineer may inspect the measuring and testing devices to confirm both calibration and condition. Calibrate testing equipment according to CMM 8-30 and maintain a calibration record at the laboratory.

701.2.6 Documentation

(1) Document all observations, inspection records, and process adjustments daily. Submit test results to the department's materials contact person on the same day they become available.

(2) Use forms provided in CMM chapter 8. Note other information in a permanent field record and as a part of process control documentation enumerated in the contractor's quality control plan. Enter data into the applicable MRS software within 5 business days after results are available.

(3) Submit final testing records and other documentation to the engineer electronically within 10 business days after all contract-required information becomes available. The engineer may allow submission of scanned copies of hand-written documentation.

701.3 Contractor Testing

(1) Perform contract required QC tests for samples randomly located according to CMM 8-30. Also perform other tests as necessary to control production and construction processes, and additional testing enumerated in the contractor's quality control plan or that the engineer directs. Use test methods as follows:

TABLE 701-2 TESTING STANDARDS

TEST	TEST STANDARD
Washed P 200 analysis	T 11[1]
Sieve analysis of fine and coarse aggregate	AASHTO T27[1]
Aggregate moisture	AASHTO T255[1]
Sampling freshly mixed concrete	AASHTO T141
Air content of fresh concrete	AASHTO T152[2]
Concrete slump	AASHTO T119[2]
Concrete temperature	AASHTO T309
Concrete compressive strength	AASHTO T22
Making and curing concrete cylinders	AASHTO T23
Standard moist curing for concrete cylinders	AASHTO M201

[1] As modified in CMM 8-60.

[2] As modified in CMM 8-70.

(2) Notify the engineer when an individual test exceeds a spec limit. Material from the first out-of-spec test up to, but not including, material from the first subsequent in-spec test is nonconforming. The department may reject or otherwise determine the final disposition of nonconforming material as specified in 106.5.

(3) The department may periodically observe contractor sampling and testing, and direct additional contractor sampling and testing for department evaluation.

701.4 Department Testing

701.4.1 General

(1) The department conducts verification testing to validate product quality and independent assurance testing to evaluate sampling and testing. The department will use the same sampling and testing methods required for contractor testing under 701.3. The department will provide the contractor with a list of names and telephone numbers of project verification and independent assurance personnel.

(2) The department will provide test results to the contractor within 2 business days after the department obtains the sample, or in the case of long term testing, within 2 business days after results are available.

(3) Correct department-identified deficiencies. If the contractor fails to correct deficiencies or resolve discrepancies, the engineer may suspend production. Resolve disputes as specified in 106.3.4.3.5.

701.4.2 Verification Testing

(1) The department will have an HTCP certified technician, or ACT working under a certified technician, perform QV sampling and testing. Department QV testing personnel must meet the same certification level requirements specified for contractor testing personnel for each test being verified. The department will notify the contractor before sampling so the contractor can observe QV sampling.

(2) The department will sample randomly at locations independent of the contractor's QC tests and use separate equipment and laboratories. The department will conduct a minimum of one verification test for each 10 contractor QC tests unless specific QMP provisions specify otherwise.

(3) If verification tests conform to specifications, no further action is required. If verification tests do not conform to specifications, the department will notify the contractor immediately. The engineer and contractor will jointly investigate nonconforming test results. The investigation may include additional testing as well as review and observation of both department and contractor sampling and testing procedures, equipment, and other documented test results. Both parties will document investigative work.

701.4.3 Independent Assurance Testing

(1) The department performs independent assurance testing to evaluate department verification and contractor's QC sampling and testing including personnel qualifications, procedures, and equipment. The department will perform independent assurance reviews according to the department's independent assurance program, which may include one or more of the following:

1. Split sample testing.
2. Proficiency sample testing.
3. Witnessing sampling and testing.

4. Test equipment calibration checks.
5. Reviewing contract-required data and available contractor process control information.
6. Requesting that testing personnel perform additional sampling and testing.

701.5 Payment

(1) Costs for sampling, testing, and documentation under part 7 are incidental to the work. If the contractor fails to perform work required under the contract QMP provisions, the department may reduce the contractor's pay. The department will administer pay reductions under the Non-performance of QMP administrative item.