CHAPTER 9
PORTLAND CEMENT CONCRETE (PCC) PAVEMENT

9.00 GENERAL

There are many different activities that take place in the construction of a Portland Cement Concrete (PCC) Pavement. There are also numerous inspection and documentation functions that are associated with those various activities. It is important that inspectors are knowledgeable of PCC paving and have the proper tools to adequately inspect the work and ensure that acceptable materials and proper construction practices are being provided in accordance with the contract documents. To aid in proper inspection of PCC paving activities, a PCC Paving Field Inspection Checklist was developed and is included in *Appendix 9-9*. This checklist, along with many other resources may also be found at the following locations:

DOTNET: http://dotnet/construct/construct_body_index2.asp
WEB: http://www.iowadot.gov/construction/pcc.html

9.01 PRE-CONCRETING CONFERENCE

On all projects involving PCC pavement, the Project Engineer and inspectors should meet with appropriate contractor and supplier personnel to discuss concrete production and pavement placement quality issues before any materials are placed. When ready mix concrete is used, the ready mix producer should also attend.

For the various types of work, the following items should be covered:

- Approvals and required quantities of aggregate and cement, class of mix, time and rate of delivery, haul routes, percent of air, slump, batch weights, volume per truck, total quantity required, preparation of delivery tickets, testing arrangements, procedures in case of load rejection, responsibility for setting batch weights and amount of admixtures, placing, finishing and curing arrangements, and personnel work assignments.
- Placement schedule, types of placement to be used (slip-form or fixed form), and method of determining opening strength.
- Settings and condition of paving equipment, dust control, subgrade treatment, procedure for checking steel placement, utility and street return box outs, heading-up equipment, joint sawing and cleaning, joint sealing, rain damage prevention, and cold weather protection.

Only one pre-concreting conference is considered necessary for thoroughly discussing the work, responsibilities, and duties of all involved in the project. On small projects it may be possible to include a pre-concreting conference with the preconstruction conference.

9.02 "PCC PLANT PAGE" (FORMS 800240E and 800240M)

The daily inspection report on paving work is a record of the construction progress, working conditions, weather, etc. during paving and plant operations which may affect pavement quality. This report keeps district and central offices advised on job status and serves as a detailed permanent record of the paving project. At the end of each day on which any pavement was placed, this report is to be completed by plant inspection staff for appropriate distribution. Copies of forms are included in *Appendix 9-5.* Refer to *Materials I.M. 527* for instructions on preparing and distributing this form.

9.03 USE OF COMMERCIAL READY MIX CONCRETE ON PAVING PROJECTS

When the concrete source for a paving project is a commercial ready mix plant, each truck load of concrete must be identified by Form 830212 or an acceptable alternate plant ticket. A current copy of the Form 830212 is included in *Appendix 9-1*.

Required Information:

- For continuous mainline paving, Form 830212 shall be filled out completely for the first truck. Tickets for subsequent trucks need only to have the Truck No., Ticket No., Conc. This Truck, Time Batched, Water Subtotal, and Maximum Water Allowed portion filled out. When any change in the moisture content, plant adjustments in mixing water, or any other changes to the batching or materials in the concrete are made, a complete ticket must be filled out for the first load that includes the changes.

- For intermittent production other than mainline paving, such as bridge approaches and street returns, all information on Form 830212 is required for each load because of the greater possibility of need for water adjustment on grade.

Moisture tests must be made frequently at the plant, and water added on grade must be documented to ensure uniformity in concrete consistency and accurate tracking of water to cementitious ratios. Discharge time must be entered on Form 830212 for each load to properly document the amount of time from batching to placement.

9.04 CONCRETE DELIVERY TIMES

To insure that quality concrete is incorporated into pavement, maximum delivery times have been included in Specification 2301.02, C, 4 for both continuous agitation (agitor and ready mix trucks) and non-agitated trucks (dump trucks).

These delivery times should be verified at least once during each day of normal paving. Per *Materials IM 527*, cement to water contact time should be recorded at least daily. These verifications should be recorded in project field books. During hot, dry, windy weather, maximum time limitations listed in specifications are critical limits to insure that quality concrete is being placed and incorporated into project.