ITEM 01503.0298 M - MODIFIED CLASS F RAPID SET CEMENT CONCRETE FOUNDATION FOR PAVEMENT

DESCRIPTION:

Construct an unreinforced, high early strength portland cement concrete foundation for pavement using a modified Class F concrete. Apply the requirements of §503, Portland Cement Concrete Foundation for Pavement, except as modified in this specification.

MATERIALS:

Apply the following material requirements in addition to those listed in §503.

Calcium Chloride 712-02
Non-Chloride Accelerator Admixture ..... Approved List

If Type A Solid Flake Calcium Chloride is used, it shall be made into an aqueous solution having a specific gravity of 1.290 to 1.295 at 15°C. If Type B Liquid Calcium Chloride solution is used, it shall consist of only calcium chloride and water. Any solution containing any other admixture is unacceptable.

Use only neutralized vinsol resin based air entraining agents. Water reducers, if used, may be either Type A (Normal) or Type F (High Range).

Cement may be Type 2, Type I/II, or Type III.

Proportioning Concrete. Proportion Class F concrete in accordance with §501-3.01, Proportioning. At the Contractor's option use any combination of the above materials to achieve the specified strength, air content, and slump. Use only one type of accelerator at any one time. Hot water may be used to raise the concrete drop temperature to a maximum of 35°C.

Mix Design and Trial Batch. Develop a mix design and prepare a trial batch using those materials to be used on the project. Demonstrate the mix's ability to achieve the specified properties to the Regional Materials Engineer's satisfaction. Changes other than minor fluctuations in admixture dosage rates will require a new mix design and trial batch. The Engineer may halt paving and order additional trial batches whenever the specified properties are not achieved.

The mix must meet the following requirements:

Property	Minimum	Desired	Maximum
18 Hour Compressive Strength (Trial Batch)	15 Mpa	-	-
18 Hour Compressive Strength (Project)	14 Mpa	-	-
28 Day Compressive Strength (Trial Batch)	30 Mpa	-	-
Air Content	5.0%	6.5%	8.0%
Slump	40 mm	-	100 mm

Alternate mix designs will be considered provided they meet the above requirements as determined by the Regional Materials Engineer.

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CONSTRUCTION REQUIREMENTS:

Apply the requirements of §503 except as modified in this specification.

Joints. Sawcut skewed transverse contraction joints at 3.0 - 5.5 m intervals where indicated on the plans or directed by the Engineer. Construct skewed transverse construction joints at paving interruptions. Construct a shear key in skewed transverse construction joints in accordance with the attached detail entitled Shear Key For Formed Longitudinal and Transverse Joints.

Department standard sheets for Longitudinal Joint Ties do not apply. Longitudinal joints, whether formed or sawed, do not require longitudinal joint ties. Construct a shear key in formed longitudinal joints in accordance with the attached detail entitled Shear Key For Formed Longitudinal and Transverse Joints. Sawcut longitudinal joints when adjacent lanes are placed simultaneously.

Project Strength Determination. The Engineer will cast two pairs (four total) cylinders (in accordance with materials Method 9.2, Field Inspection of Portland Cement Concrete) from each days placement. The Engineer will mark the cylinders and leave them adjacent to the pavement under similar curing conditions.

The Regional Materials Engineer will determine the concrete compressive strength at the desired time. Test one pair from each of the two pairs cast. Open the placement to traffic if:

- the average compressive strength of the cylinder pair exceeds 14 Mpa,
- the compressive strength of each cylinder is above 10.5 Mpa, and
- the corresponding time frame has elapsed for the entire area to be opened.

If these conditions are not met, the Regional Materials Engineer will re-test the remaining cylinder pair a minimum of 6 hours later. If these conditions are again not met, open the placement after 72 hours.

Project testing of 28 day compressive strength is not required. If subsequent trial batches are required the Engineer may waive the 28 day compressive strength testing.

METHOD OF MEASUREMENT:

Apply the provisions of §503.

BASIS OF PAYMENT:

Apply the provisions of §503 except no longitudinal tie bars or transverse joint supports are required. Include the cost of constructing shear keys in the bid price for this item. Sawcutting transverse and longitudinal joints will be paid for under a separate item.

SHEAR KEY FOR LONGITUDINAL AND TRANSVERSE JOINTS