SECTION 601 -- GENERAL REQUIREMENTS

601.01 -- General

1. The requirements in Section 601 are applicable to all concrete work unless otherwise indicated.

2. The Contractor shall protect concrete pavement from damage due to precipitation and/or freezing conditions until cured.

3. The Contractor shall always have materials readily available to protect the edges and the surface of the concrete.

4. No section of concrete pavement will be opened to traffic without providing the Engineer adequate advance notice to inspect joints, check the pavement surface, and schedule the coring unit.

5. The method used to place concrete shall not allow the concrete materials to segregate or displace reinforcing steel. The impact of any free fall must be kept to the lowest levels consistent with efficient placement.

6. Curing compounds shall not be placed on any surface that will be bonded to another concrete surface.

7. The NDR Materials and Tests Division is responsible to core all portland cement concrete pavement. The NDR Materials and Tests Division should be notified of any coring requirement the same day the pavement is laid so the coring can be done before the pavement is opened to traffic.

601.02 -- Equipment

1. a. All placing and finishing equipment shall be at the job site 1 full NDR work day before its intended use to allow the Engineer time to examine it.

b. On small urban projects, the equipment will be inspected before the work starts. However, the equipment need not be on site 1 day before the paving.

2. Garden rakes shall not be used to handle or move concrete.

3. The Contractor shall calibrate equipment as prescribed in Section 1002.

4. The subgrade template blade shall be of sufficient strength and stiffness to retain its shape under all working conditions. It shall be constructed so that the cutting edge will conform to the pavement crown and grade shown in the plans.

5. The subgrade profiling equipment shall conform to the requirements of Section 302. Electronically controlled profiling equipment will not be required when subsequent construction uses formed construction methods.

6. Concrete spreaders shall be self-propelled and able to spread and strike off concrete. Hand operated or tractor-drawn strike off blades shall not be employed unless hand finishing methods are allowed. Self-propelled concrete spreaders shall be equipped with the following devices:

a. A power-driven system capable of uniformly spreading the concrete transversely without segregation.

b. An adjustable strike-off screed capable of leveling the concrete surface at the required elevation inside the forms.

c. Vibrators capable of uniformly consolidating the full depth and width of the concrete.

7. a. Concrete pavement finishing machines shall be self-propelled and capable of leveling, consolidating, and floating the concrete.

b. The finishing machine shall travel at a controlled speed.

c. All finishing machines shall finish the pavement to the required cross section and degree of consolidation.

8. All spreading and finishing equipment operating on forms shall be equipped with scrapers to keep the top of the paving form free of concrete.

9. The wheels of finishing equipment operating on previously placed pavement shall be rubber faced. Track propelled equipment should be equipped with rubber protective pads on the crawler tracks, or the tracks shall travel on cushions of wood or belting. The near edge of wheels or tracks shall not be closer than 75 mm from edge of pavement. Provisions must also be made to prevent the screed from damaging the edge of the existing pavement surface.

10. a. Internal vibrating equipment shall be used ahead of the finishing machine.

b. Vibrators shall not contact the side forms nor transmit vibration to finishing machines or spreaders.

c. Vibrators shall consolidate the full depth and width of the concrete in a single pass so that a uniform density is achieved without mix segregation or creation of excessive surface mortar. The vibrators shall be operated only when the machine to which they are attached is moving. The vibrators shall be placed to minimize overlap vibration.

d. The Contractor shall always have a tachometer available to monitor vibrator frequency. The vibrator frequency shall be within the manufacturer's specifications.

11. a. The Contractor shall use a 3 m straightedge to continuously check the concrete surface smoothness. The allowable surface tolerance is 3 mm.

b. The Contractor shall use a straight steel channel (3 m long by 150 mm deep) to continuously check the alignment of the straightedge.

c. Sufficient straightedges shall be available to maintain continuous paving operations.

12. Equipment required to install pavement joints is as follows:

a. Air compressors shall be portable and able to maintain a nozzle air pressure of 620 kPa or greater. Suitable traps shall maintain the compressed air free of oil and moisture.

b. Sandblasting equipment shall be of proper size and capacity to obtain the cleaning specified and shall operate at an air pressure of at least 620 kPa. Nozzles shall be sized to the width of each joint.

c. Motor driven wire brushes shall have a stiff wire brush wheel able to clean the full depth of the joint face openings at not less than 1000 rpm. The motor and brush shall be mounted on a frame with wheels and handles to move the unit along the joints to be cleaned. Brush rotation shall move debris away from the operator.

d. (1) The mechanical joint saw blade shall be water-cooled with an adjustable guide to insure that a true line is cut.

(2) The initial cut can be made with either a carbide or diamond-toothed blade.

(3) The final cut shall be made with a diamond-toothed blade.

(4) Two joint saws shall always be maintained on the project.

(5) In an emergency, dry sawing is allowed with the Engineer's approval.

e. The hot-poured joint compound heater shall mechanically agitate the compound. A flame will not be allowed to contact the container surface. The melting unit shall heat the material to a pouring consistency without damaging the joint compound.

f. A pressure type joint filling machine with a mixing unit shall be used. The nozzle shall fill the joint from bottom to top. Hand caulking guns may be used in places that are inaccessible to the pressure equipment.