1350 MUNI **MATERIAL SPECIFICATION FOR CONCRETE – MATERIALS AND PRODUCTION**

1350.07.05.01 **Delivery of Ready Mixed Concrete**

ADD the following:

The Contractor shall be responsible for ensuring that only concrete which is in accordance with the submitted mix design and which meets the specification requirements for air content, slump, temperature and delivery time, is included in the work.

1350.07.06 **Quality Control**

For all concrete, Quality Control (QC) testing consisting of slump, air content and temperature determinations shall be carried out on each load or batch of concrete until satisfactory control is established. Satisfactory control shall be established each day. It is established when concrete from 5 consecutive loads or batches, is within the specified requirements without field adjustments. If any field adjustments are required, testing on each load shall be continued until 5 consecutive loads or batches meet the requirements with no field adjustment. After satisfactory control has been established, testing shall be carried out on every third load. If testing indicates that a load does not meet the requirements, testing shall resume on each load until satisfactory control is established.

If multiple plants supply concrete, satisfactory control shall be established for each plant.

QC testing shall be performed by a person holding either of the following certifications:

a) CSA Certified Concrete Testing Technician, Concrete Testing and Sampling Certificate, or

b) ACI Concrete Field Testing Technician – Grade 1.

This person shall have a valid original card issued by the certifying agency in his or her possession at all times.

Sets of cylinders for 28 day compressive strength testing shall be cast for every 20 cu.m of concrete placed or one set per day, whichever is more frequent. The testing frequency may be adjusted by the City as deemed necessary. In addition to the above, air content, slump, and temperature tests shall be carried out whenever compressive test cylinders are cast.

The Contractor shall supply, maintain and subsequently remove upon completion of the project, a temporary storage facility for concrete test cylinders. The facility shall be capable of housing 24 cylinders, insulated, located in the shade and be maintained at a temperature about 5 degrees Celsius. Vehicle access to the storage facility shall be provided at all times.

1350.08 **Quality Assurance**

1350.08.01 **General**

ADD the following:

QA testing for compressive strength shall be completed by the city's representative.

The Contractor is responsible for testing of slump, air content, and temperature of plastic concrete and shall cast QA and Referee cylinders. The Owner or the Owner's designate shall deliver the samples to the appropriate laboratory.

1350 .08.02.04.03 Referee Testing

ADD the following:

Should the Contractor disagree with the results of Quality Assurance (QA) testing, the Contractor may request, in writing, that the referee sample be analyzed by an independent third party firm within five (5) business days of receipt of results. The results of the referee testing shall be used to determine acceptance of material.

If the referee sample results in a change from rejection to acceptance, the Owner shall pay the costs of the referee testing. Otherwise, the Contractor shall pay all referee testing costs.