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**Decommissioning, Demolition and Site Restoration SSB HQ**  
**Southside Road, St. John's, NL**  
**Project No. R.111146.001**

2020/12/01

Section 03 30 00 – Cast in Place Concrete

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PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This section specifies requirements for supply, placing, finishing, protecting and curing cast-in-place concrete for retaining wall, jersey barrier supports for temporary chain link fence and posts for permanent chain link fence.

1.2 CERTIFICATES

- .1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Minimum 2 weeks prior to starting concrete work submit to Departmental Representative manufacturer's test data and certification by qualified independent inspection and testing laboratory that following materials will meet specified requirements:
  - .1 Portland cement.
  - .2 Blended hydraulic cement.
  - .3 Supplementary cementing materials.
  - .4 Admixtures.
  - .5 Aggregates.
  - .6 Water.
- .3 Provide certification that mix proportions selected will produce concrete of quality, yield and strength as specified in concrete mixes, and will comply with CAN/CSA-A23.1.
- .4 Provide certification that plant, equipment, and materials to be used in concrete comply with requirements of CAN/CSA-A23.1.

1.3 STORAGE OF MATERIALS

- .1 Store materials to prevent contamination or deterioration.
- .2 Provide adequate storage facilities for materials to ensure a continuous supply of these materials during batching operations.
- .3 Store cement in weathertight facility.

1.4 QUALITY ASSURANCE

- .1 Minimum 2 weeks prior to starting concrete work, submit proposed quality control procedures to Departmental Representative for the following items:
  - .1 Cold and hot weather concrete.
  - .2 Curing.
  - .3 Finishes.
  - .4 Formwork removal.
  - .5 Joints.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Cement to CAN/CSA-A3001, TerC3.

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- .2 Supplementary cementing materials: to CAN/CSA-A3001.
- .3 Cementitious hydraulic slag: to CAN/CSA-A3001.
- .4 Water: to CAN/CSA-A23.1.
- .5 Aggregates: to CAN/CSA-A23.1. Coarse aggregates to be normal density.
- .6 Air entraining admixture: to ASTM C260.
- .7 Chemical admixtures: to ASTM C494/C494M. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.
- .8 Concrete retarders: to ASTM C494/C494M. Do not allow moisture of any kind to come in contact with the retarder film.
- .9 Curing compound: curing compounds are not to be used.
- .10 Superplasticizers, as required to produce final slump, to approval of Departmental Representative.

2.2 MIXES

- .1 Proportion concrete in accordance with CAN/CSA-A23.1, Clause 4.3.
- .2 Proportion concrete to comply with Alternate 1, Table 2 in CAN/CSA-A23.1 and following requirements:
  - .1 Cement:
    - .1 TerC3 blended hydraulic cement.
  - .2 Minimum compressive strength: 35 MPa at 28 days.
  - .3 Class of exposure: C1.
  - .4 Minimum cement content: 385 kg/m<sup>3</sup> of concrete.
  - .5 20 mm nominal size coarse aggregate.
  - .6 Air content 5% to 8%.
  - .7 Density of air-dry concrete in range of 2240 kg/m<sup>3</sup> to 2400 kg/m<sup>3</sup>.
  - .8 Slump at time and point of discharge 50 mm to 100 mm before superplasticizer (150mm to 210mm after superplasticizer).
- .3 When the Contractor wishes to purchase concrete from a ready mix concrete supplier, submit a letter from the supplier certifying the following:
  - .1 That plant and equipment is certified and all materials to be used in the concrete comply with the requirements of CAN/CSA-A23.1.
  - .2 That the mix proportions selected will produce concrete of the specified quality and yield. Indicate mix proportions and sources of all materials.
  - .3 That the strengths will comply with the strengths specified herein.

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- .4 When the Contractor wishes to mix concrete on site, identify the source of aggregates and submit samples of fine and coarse aggregates to a testing laboratory for testing and trial mixes in order to determine a suitable mix design. The testing laboratory, at Contractor's cost, will test the trial mix for slump, air content, density and strength. The results of these tests will be submitted to the Departmental Representative to be reviewed for compliance with the specification. This review must be completed before permission to place concrete is given.
  - .1 The sand, gravel, water and air entraining agent should be mixed prior to the addition of cement and water reducer.
- .5 Weigh aggregates, cement, water and admixture when batching. No alternative methods of measuring will be permitted.
- .6 Do not use calcium chloride.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Obtain Departmental Representative's approval before placing concrete. Provide 24 hours notice prior to placing of concrete.
- .2 Pumping of concrete is permitted only after approval of equipment and mix.
- .3 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .4 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .5 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.
- .6 Do not place load upon new concrete until authorized by Departmental Representative.

3.2 CONSTRUCTION

- .1 Comply with additional requirements of CAN/CSA-A23.1, Clause 4.1.1.5, for concrete exposed to seawater environments.
- .2 Minimum concrete cover over reinforcing steel bars to be 75 mm.
- .3 Place concrete in hot weather to CAN/CSA-A23.1.
- .4 Place concrete in cold weather to CAN/CSA-A23.1.
- .5 Keep concrete surfaces moist continually during protection stage.

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- .6 Place, consolidate, finish, cure and protect concrete to CAN/CSA-A23.1.
- .7 Do not commence placing concrete until Departmental Representative has inspected and approved forms, foundations, reinforcing steel, consolidation and finishing equipment and curing and protective methods.

3.3 FORMWORK

- .1 Install and strip formwork to CAN/CSA-A23.1.

3.4 INSERTS

- .1 Position and secure anchor bolts in formwork to maintain line and grades.

3.5 PLACING  
CONCRETE

- .1 Place and consolidate concrete to CAN/CSA-A23.1.
- .2 Do not place concrete on or against frozen material.

3.6 FINISHING

- .1 All work is to be finished to CAN/CSA-A23.1.

3.7 PROTECTION  
AND CURING

- .1 Cure to CAN/CSA-A23.1.