GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS

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VOLUME 2

SECTION 16

CONCRETE AND JOINTS IN CONCRETE

- a) Clause 16.18 (1)(c) Replace the clause with the following:
 - (c) workability after the addition of superplasticisers, in terms of designed slump value or designed flow value,
- b) Clause 16.24 (3) & (4)

Replace the clauses with the following:

- (3) Three samples of concrete shall be provided from each batch at approximately 1/6, 1/2 and 5/6 of the discharge from the mixer. Each sample shall be of sufficient size to perform a slump test or a flow table test, and make two 150mm test cubes. The method of sampling shall be as stated in CS1.
- (4) Each sample taken in accordance with Clause 16.24(3) shall be tested to determine its slump value or its flow value in accordance with CS1.
- c) Clause 16.25 (2) & (3)

Replace the clauses with the following:

(2) Laboratory Mix Trials shall be carried out in accordance with Section 11 of CS1. Three separate batches shall be made, each of sufficient size to provide samples for two slump tests or two flow table tests, and to make six 150mm test cubes.

(3) Two slump tests or two flow table tests in accordance with CS1 shall be performed on separate specimens from each batch of Laboratory Trial Mix concrete.

d) Clause 16.26 (a) & (b)

Replace the clauses with the following:

- (a) The average of the nine slump values shall be within 20mm or 25%, whichever is the greater, of the designed slump value. The average of the nine flow values shall be within +/- 35mm of the designed flow value.
- (b) The range of the three slump values for each batch of concrete shall not exceed 20% of the average of the three slump values for that batch. For flow table tests, the range of the three flow values for each batch of concrete shall be within 70mm.

e) Clause 16.27 (1)(a) **Replace the clause with the following**:

(a) The average of the six slump values shall be within 20mm or 25%, whichever is the greater, of the designed slump value. The average of the six flow values shall be within +/- 35mm of the designed flow value.

f) Clause 16.27 (2)(a) **Replace the clause with the following**:

(a) The average of the six slump values shall be within 20 mm or 25%, whichever is the greater, of the designed slump value. The average of the six flow values shall be within +/- 35mm of the designed flow value.

g) Clause 16.30 (1) **Replace th** & (2)

Replace the clauses with the following:

(1) A concrete mix which complies with the specified requirements for laboratory mix trials, plant trials and for trial lengths

or trial panels shall become an approved concrete mix. The designed slump value or designed flow value used to produce an approved concrete mix shall become the approved slump value or approved flow value.

(2) If laboratory mix trials or plant trials are not required, a concrete mix submitted as stated in Clause 16.18 and which complies with the specified requirements for trial lengths or trial panels shall become an approved concrete mix. The designed slump value or designed flow value of the concrete mix shall become the approved slump value or approved flow value.

h) Clause 16.40(1)(g) Replace the clause with the following:

 (g) designation of concrete mix and approved slump value or approved flow value,

i) Clause 16.40 (2)(b) **Replace the clauses with the following**: & (i)

- (b) designation of concrete mix and approved slump value or approved flow value,
- (i) results of flow table tests or slump tests,

j) Clause 16.54 (2) **Replace the clause with the following**:

(2) The size of each sample and the method of sampling shall be in accordance with CS1.

k) Clause 16.55 (1) Replace the clause with the following:

(1) Each sample of concrete taken as stated in Clause 16.54 shall be divided into two specimens; each specimen shall be tested to determine the workability of the concrete in accordance with CS1. Selection of the testing method is given in the table below:

Normal Workability (slump value from 80 mm to 140mm)	High Workability (flow value from 420 mm to 600mm)
Slump Test	Flow Table Test (See Note below)

Note: For concrete with a flow value greater than 600mm, the Engineer shall specify the workability testing method.

1) Clause 16.55 (2) **Replace the clause with the following**:

(2) The average of the two workability values shall be calculated and referred to as the average slump value or average flow value.

m) Clause 16.56 (3) Add the following sub-clause:

(3) The average flow value of the two specimens taken from one sample of designed mix concrete shall be within +/- 50mm of the approved flow value.

VOLUME 3

SECTION 21 MARINE WORKS

a) Clause 21.06 Concrete

Replace the clause with the following:

Concrete shall comply with Appendix B entitled "Recommended Specification for Concrete in Marine Environment" of the Port Works Design Manual to address the corrosion of reinforced concrete for marine structures and also shall comply with Section 16 in general