## SPECIFICATIONS FOR BRIDGE CONSTRUCTION

### SECTION 8

**CONCRETE SLOPE PROTECTION**

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**REFERENCE DRAWINGS**

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<td>Standard Concrete Slope Protection</td>
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8.1 General

The slopes to be covered by slope protection, unless otherwise specified, will have been trimmed to the lines and grades specified on the drawings, with a tolerance of plus or minus 150 mm. Concrete Slope Protection shall include fine-grading the slope surface to a plane 100 mm below the specified grades, filling with 100 mm of Crushed Aggregate Material Designation 2 Class 25, and placing 100 mm of reinforced concrete as specified below.

Where slopes have been constructed by others, and excavation exceeding 250 mm or fill exceeding 150 mm is required due to discrepancies in position of the original surface, excavation beyond the 250 mm tolerance limit and/or fill beyond the 150 mm tolerance limit will be considered to be Extra Work. Depending upon the circumstances of the particular project, however, the Department and Consultant may vary the specified concrete grades so as to minimize the amount of remedial trimming required. Excavation up to 250 mm and/or fill up to 150 mm will be considered as included in the bid price.

All thickness measurements indicated herein will be made perpendicular to the slope surface.

Refer to Standard Drawing S-1409 "Standard Concrete Slope Protection" included with these specifications.

8.2 Materials

The provisions of Section 4 of the Specifications, "Cast-In-Place Concrete", shall apply.

Concrete for slope protection shall meet all the requirements of Class B concrete, as defined in Section 4.4.

Wire mesh reinforcement shall be 152 x 152 MW 25.8 x 25.8, flat welded wire mesh sheets.

8.3 Placing

Before starting concrete slope protection work, the Contractor shall submit a detailed layout and forming plan to the Consultant for review.

The slopes to be covered by concrete slope protection shall be trimmed and dressed by the Contractor to lines and grades acceptable to the Consultant. The Contractor shall supply and place Crushed Aggregate Material Designation 2 Class 25 to a minimum thickness of 100 mm over the trimmed slopes. If top and/or toe cut-off walls are specified on the drawings, trenches shall be dug to suit. Granular fill shall conform to the requirements of the "Backfill" Specification, Section 2.2.2 (Designation 2, Class 25).

Sheet reinforcing mesh shall be placed in accordance with Section 5 - "Reinforcing Steel". The method of securing and maintaining the wire mesh in its proper location shall be reviewed and accepted by the Consultant.
The concrete shall be placed in accordance with Section 4.14 - "Handling and Placing Concrete".

The concrete shall be placed in either horizontal or vertical courses, with one course being allowed to cure for at least 12 hours before the adjoining course is placed. Formwork shall be provided below and above the wire mesh to ensure proper slab thickness, correct positioning of the mesh, and the formation of a proper cold joint between courses. Vertical or horizontal joints, as the case may be, shall be formed or grooved 50 mm to the depth of the reinforcing mesh. All joints shall be finished with a sidewalk type edging tool and left unfilled. The surfaces enclosed by joints shall be given a Class 5 finish as specified for curbs and sidewalks in Section 4.24.6 of Specification for "Cast-in-Place Concrete." Finishing work shall be carried out by competent, fully experienced personnel only.

Curing shall be performed as specified in Section 4.22 of Specification for "Cast-In-Place" Concrete.

Backfill at the toe, top or edges shall be non-granular, conforming to the requirements of "Backfill" Specification, Section 2.2.1, and shall not be placed until the slope protection has been reviewed and accepted by the Consultant.

8.4 Measurement and Payment

Payment for Concrete Slope Protection will be made at the unit price bid per square metre, and shall include full compensation for the cost of furnishing all tools, labour, equipment, materials, and incidentals necessary for the completed work, including the preparation of the slopes, supply and placing of reinforcing steel, steel mesh, concrete, and backfilling. The quantity to be paid for will be the number of square metres satisfactorily placed, and shall include trough drains adjoining the slope protection and the vertical surfaces of toe cut-off walls. No payment will be made for top cut-off walls or edge walls.

The Department reserves the right to reject any concrete whatsoever which does not meet the strength requirements for Class B concrete as tested in accordance with the requirements of Section 4 - "Cast-In-Place Concrete".

The Department may however, at the discretion of the Consultant, accept concrete which does not meet the specified strength requirement and in such case payment for concrete slope protection shall be made in accordance with the following scale:

- 25 MPa and over - Full bid price
- 23 MPa to 25 MPa - Bid price less $5 per square metre
- 21 MPa to 23 MPa - Bid price less $10 per square metre
- 19 MPa to 21 MPa - Bid price less $15 per square metre

All concrete below 19 MPa in slope protection will be rejected.
GENERAL NOTES

- DIMENSIONS ARE GIVEN IN mm. DETAILS ARE NOT TO SCALE.
- WELDED WIRE MESH (WWM) SHALL BE 152 x 152 MW25.8 x 25.8, SUPPLIED IN FLAT SHEETS, LAPPED A MINIMUM OF 152 mm AND SHALL BE SUPPLIED BY THE CONTRACTOR.
- ALL CONCRETE SHALL BE PLACED IN ALTERNATE HORIZONTAL (OR VERTICAL) COURSES. FIRST COURSES SHALL HAVE SET UP PRIOR TO PLACING ADJOINING COURSES.
- ALL JOINTS SHALL BE FORMED USING A SIDEWALK TYPE GROOVING TOOL.
- SLAB SHALL BE GIVEN A CLASS 6 SIDEWALK FINISH.

CONCRETE SLOPE PROTECTION