

PART 1 - GENERAL

1.1 DESCRIPTION .1 This section covers the requirements for dowelling and grouting anchors (rebar) into rock and/or existing concrete, as detailed on the drawings and specified herein.

1.2 MEASUREMENT FOR PAYMENT .1 No separate measurement for payment to be made for items under this section. Include all costs incidental in the unit cost or lump sum for items which rock anchors into rock or existing concrete are required.

PART 2 - PRODUCTS

2.1 STEEL ANCHORS .1 Anchors shall be billet steel deformed bars to CSA G30.18-M92, unless otherwise noted on the drawings, or approved by the Departmental Representative.

2.2 PORTLAND CEMENT GROUT .1 To be used to secure reinforcing dowels into existing rock or concrete in dry conditions.
.2 Grout shall be in accordance with CAN3-A23.1-M90. Portland Cement to CAN3-A5-M88 with minimum strength of grout to be 40 MPa unless otherwise noted on the drawings or approved by the Departmental Representative.
.3 Sand portion to pass the 4.75 mm sieve.
.4 Just sufficient water shall be added to produce a workable consistency without segregation.
.5 All grout remaining unused after one hour shall be discarded.
.6 Alternate pre-manufactured products to the Portland Cement Grout for anchoring bars into existing concrete or rock sub-straight can be considered. Contractor shall submit a request to the Departmental Representative for review and possible approval.

2.3 CHEMICAL ANCHORAGE .1 To be used to secure reinforcing dowels into existing rock or concrete in wet/submerged conditions or dry conditions.
.2 HIT RE500 Adhesive by Hilti or approved equal.

PART 3 - EXECUTION

3.1 DRILLING, PREPARATION, .1
& PLACING ROCK ANCHORS

The Contractor shall mark the location of all anchors and have the Departmental Representative inspect the rock and/or concrete surface in these areas prior to drilling.

- .2 For all anchors drill into bedrock, holes shall be 50 mm deeper than the require Anchor embedment depth indicated. The holes shall have the following dimensions unless otherwise recommended by the manufacturer for pre-manufactured grouting compounds:

<u>Anchor Size</u>	<u>Hole Size (mm)</u>
40 M	90 mm
35 M	70 mm
30 M	60 mm
25 M	55 mm
20 M	40 mm
15 M	35 mm
10 M	20 mm

- .1 The hole sizes indicated above shall not be increased by more than 5mm and shall not be less than indicated.
- .3 Prior to grouting, all water, debris, dust and contaminants shall be blown from holes and immediately thereafter grout shall be placed. Wet submerged conditions are acceptable when grouting with the chemical anchorage adhesive.
- .4 Anchors shall then be forced into hole to required depth of embedment.
- .5 Ensure grout is brought flush to top of hole.
- .6 Anchors shall be set at least 24 hours before cementing in area of anchors.