

## PART 1 - GENERAL

### 1.1 SECTION INCLUDES

- .1 Work of this section includes only those rock removals required for dry land portion of the site. Any rock removal found in the dredging portion of the site shall be done in accordance with Section 35 20 23.

### 1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 28 - Health and Safety Requirements.
- .3 Section 35 20 23 - Dredging.

### 1.3 MEASUREMENT FOR PAYMENT

- .1 Rock Removal: Quantities will be taken from cross sections showing original rock surface and actual grade line set by the Contractor in presence of the Departmental Representative's Site Representative, except that minimum depth of rock required to be excavated to be considered as 300 mm. Include incidental to this cost all costs associated with placing and compacting removed material elsewhere on-site, surveying and provision of final grade cross-sections to Departmental Representative for review and all other plant, labour, material and equipment required to complete the work.
- .2 Contractor to notify Departmental Representative at least 48 hours in advance of start of blasting.

- .3 Rock excavated beyond design grade will not be measured for payment.
- .4 Pay limits for blasting to extend 300 mm below sub-grade lines.

#### 1.4 DEFINITIONS

- .1 Rock: any solid material in excess of 1.50 m3 and which cannot be removed by means of heavy duty mechanical excavating equipment. Frozen material not classified as rock.
- .2 PPV: peak particle velocity.

#### 1.5 SUBMITTALS

- .1 Blasting Operation
  - .1 Submit to Departmental Representative and local authorities having jurisdiction for approval, written proposal of operations for removal of rock by blasting, in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Contractor shall consult with licensed explosive expert to ensure any existing underground utilities and surrounding structures are not damaged during operations.
  - .3 Indicate proposed method of carrying out work types and quantities of explosives to be used, loading charts and drill hole patterns, type of caps, blasting techniques, blast protection measures for

items such as flying rock, vibration, dust and noise control. Include details on protective measures, time of blasting and other pertinent details.

- .4 Contractor shall submit to Departmental Representative written copy of Licensed Explosive Expert's recommendations prior to start of blasting.
- .5 Submit records to Departmental Representative at end of each shift. Maintain complete and accurate record of drilling and blasting operations.

#### 1.6 QUALIFICATIONS

- .1 Retain licensed explosives expert to program and supervise blasting work, to interpret recommendations of pre-blasting report, and to determine precautions, preparation and operations techniques.
- .2 Submit documentation verifying explosives expert's qualifications.

#### 1.7 BLASTING SURVEY AND MONITORING

- .1 Contractor shall have a pre-blast survey completed on all structures within a 300 m radius of the blast area.
- .2 A copy of the pre-blast survey shall be submitted to the Departmental Representative prior to start of blasting.

## PART 2 - PRODUCTS

2.1 NOT USED	.1 Not Used
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## PART 3 - EXECUTION

3.1 PROTECTION	.1 Prevent damage to persons and property by flying rocks by covering the site of the blasting with mats or other suitable devices. Post guards, sound warnings and display signs when blasting is to take place.
	.2 Existing structures and underground utilities may be exposed in areas where blasting may affect them. Blasting expert to provide recommendations on method to best protect these lines.
	.3 Repair any damage caused by blasting at no cost to Canada.
3.2 ROCK REMOVAL	.1 Co-ordinate this Section with Section 01 35 28 - Health and Safety Requirements.
	.2 Remove rock to alignments, profiles, and cross sections as indicated.
	.3 Explosive blasting is permitted at locations where Licensed Explosive Expert deems no damage will occur to existing underground utilities and structures and/or property.
	.1 Do blasting operations in accordance with:
	.1 Canadian Construction

Safety Code.

- .2 Canadian Blasting Association Standards.
- .3 The Explosives Act (Canada).
- .4 Fire Commissioner's Act.
- .5 Occupational Health and Safety Act and Regulations.
- .6 Local and Provincial Codes.

- .4 Use rock removal procedures to produce uniform and stable excavation surfaces. Minimize overbreak, and to avoid damage to adjacent structures.
- .5 Remove boulders and fragments which may slide or roll into excavated areas.
- .6 Correct unauthorized rock removal at no extra cost.

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### 3.3 ROCK DISPOSAL

- .1 Reuse surplus removed rock as fill ballast material for new timber cribwork and site fills, where material is acceptable.