

PART 1 - GENERAL

- 1.1 GENERAL .1 Existing rip rap is to be re-used in the new work. Use this section, only if there is insufficient quantity of rip rap in the footprint area of the new launchway, to complete the work. Contractor to determine required quantity prior to Bid in this regard and include in lump sum price, as appropriate. Additional rip rap, if required, will not be measured for payment.
- 1.1 RELATED SECTIONS .1 Section 01 33 00 - Submittal Procedures.  
.2 Section 01 74 21- Construction/Demolition Waste Management and Disposal.
- 1.2 REFERENCES .1 American Society for Testing and Materials (ASTM)  
.1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing.  
.2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.  
.2 Canadian General Standards Board (CGSB)  
.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire.  
.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
- 1.3 SUBMITTALS .1 Submit to Departmental Representative for approval, 4 weeks before blasting, details of proposed blasting operations showing types and quantities of explosives, loading charges and patterns, type of blasting caps, blasting techniques, blast protection measures, time of blasting and other pertinent details.

Submit subsequent changes to Departmental Representative before proceeding.

- .2 Submit to Departmental Representative complete photographic and descriptive record of buildings, roads and structures in general area of Project Work, before blasting is started. Describe buildings both inside and out. Record existing cracks in walls or structural components.
- .3 Samples
  - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Inform Departmental Representative of proposed source of materials and provide access for sampling at least 2 weeks prior to commencing Work.
  - .3 Submit 20 to 70 kg samples representative of quarry, minimum 2 weeks prior to beginning Work.
  - .4 Ship samples prepaid to Departmental Representative for approval.

1.4 REGULATORY REQUIREMENTS

- .1 Comply with municipal, provincial and national codes and regulations relating to project. Refer to the attachments.

PART 2 - PRODUCTS

2.1 ROCK MATERIAL

- .1 Hard, angular rock free from cracks, seams and other defects which may impair durability.
- .2 Relative density, 2.65 minimum.
- .3 Absorption, 1.5 to 2.0% maximum as determined by ASTM C127 test procedure.
- .4 Durability, less than 35% abrasion Wear, ASTM

C535 test procedure.

- .5 Sulphate Soundness Determination maximum 12% by ASTM C88.

2.2 RIP RAP

- .1 New rip rap to be hard, dense with relative density (formally specific gravity) not less than 2.65, durable quarry stone, free from seams, cracks or other structural defects, to meet following size distribution for use intended.
- .2 Rip-rap stone to be well graded, in the range of 500kg to 700kg size.
- .3 Supply rock spalls to fill open joints.
- .4 Field stones of appropriate sizes are acceptable for hand placed rip-rap.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Take precautions not to damage existing properties during hauling of rock materials. Damage to existing roads or other private or public properties will be repaired at the Contractor's expense.

3.2 PREPARATION

- .1 Haul roads: construct and maintain haul roads.

3.3 RIP RAP

- .1 Place rip-rap as directed to thickness and details indicated or as designated by Departmental Representative.
- .2 Where rip-rap is to be placed on slopes, excavate trench at toe of slope to dimensions as indicated.

- .3 All side slopes to be as shown on the drawings.
- .4 Fine grade area to be rip-rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .5 Place stones in manner approved by Departmental Representative to secure surface and create a stable mass. Place larger stones at bottom of slopes.
- .6 Hand placing:
  - .1 Use larger stones for lower courses and as headers for subsequent courses.
  - .2 Stagger vertical joints and fill voids with rock spalls or cobbles.
- .7 Finish surface evenly, free of large openings and neat in appearance.