

This specification outlines the requirements for the placing of armour stone for erosion protection at locations and to details indicated or directed by the Owner.

PART 1 REFERENCES

This specification refers to the following standards, specifications, or publications:

ASTM International

C88/C88M	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C131/C131M	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

PART 2 GENERAL

2.1 NOT APPLICABLE

PART 3 PRODUCTS

3.1 STONE

- .1 Armour stone shall consist of clean, hard, sound, durable rock, resistant to weathering and degradation in water, free of overburden, spoil, shale and organic material and having a density not less than 2.6 tonne/m³. The rock material is subject to the Los Angeles Abrasion Test (ASTM C131/C131M) shall have a loss not greater than 35 %. When tested for soundness, five cycles of magnesium sulphate, ASTM C88/C88M, the rock material shall have a loss not greater than 15 %.
- .2 Armour stones shall be of an angular shape, and be of a uniform gradation. The least dimension of any stone shall not be less than one-quarter of the greatest dimension.
- .3 Individual armour stones shall be of a volume that is not less than that specified in the contract item in the MERX Schedule of Quantities and Prices.
- .4 The acceptability of the rock shall be determined by the Owner's Representative and/or by laboratory and/or field testing procedures carried out by qualified personnel.

.5 The approval of some rock fragments does not convey the Owner's Representative's approval of all rock fragments to be obtained at that quarry.

3.2 GEOTEXTILE (FILTER FABRIC)

.3.1 Geotextile in accordance with Section 02897 – Geotextile (Filter Fabric). Type as indicated in Contract Documents.

PART 4 EXECUTION

4.1 PLACING

- .1 Armour stones shall be placed within the limits required by the Owner.
- .2 Care shall be taken by the Contractor to ensure that no stones are placed outside of the specified limits.
- .3 If any armour stones are placed outside of the area to be treated or are washed out of place during construction, then they shall be removed or replaced by the Contractor at their own expense.
- .4 The Contractor shall complete any and all work required to provide access to all areas of the work site necessary to complete the preparation of foundation and placement of armour stone.
- .5 The Contractor shall prepare a foundation for the armour stone by excavating a seat in the existing ground.
- .6 Excavation shall include any additional excavation required at the toe of slope to adequately prepare the armour stone footing.
- .7 Excavation shall be by means of a backhoe, or a clam bucket as required, to carry out the excavation for the seat at the required location and to sufficient depth to provide a proper footing for the armour stone.
- .8 Place geotextile on prepared surface in accordance with Section 02897 – Geotextile (Filter Fabric) and as indicated. Avoid puncturing geotextile. Vehicular traffic over geotextile not permitted.
- .9.10 Stones shall be placed by a crane, or similar equipment, starting at the bottom of the slope and working upwards.
- .9.11 No pushing or dumping of the stones by bulldozers or other equipment will be allowed.
- .10.11 The Contractor shall choose the stones and place them in such a way that the whole structure will be bound and consolidated to as great an extent as the nature of the rock will allow. Placing shall be done in such a manner that the surface of the armour stone treated slope shall have a

uniform appearance. The thickness of the treated slope shall not be less than that specified in the item in the Contract Documents.

.11.12 The Contractor shall maintain the grades and slopes of the underlying material to ensure that the work area is cleared of all driftwood, debris, snow, ice and all other objectionable materials in the area of work.

.13 **The Contractor shall place the armour stone protection such that the underlying materials and any abutting structures are not damaged. The Contractor shall be responsible at their own expense to repair any such damage to the Work.**

.12.14 The Contractor shall be responsible for any Work or materials required to repair damage that is a result of water level variations, waves or weather conditions.

PART 5 PAYMENT

5.1 MEASUREMENT FOR PAYMENT

.1 Payment for supply and installation of armour stone will be measured in cubic metres for each specified size type unless otherwise specified.

.2 Transportation of material to placement site, access to placement site, and excavation for and preparation of foundation base not to be measured for payment but considered incidental to work and included in the MERX Schedule of Quantities and Prices.

.2.3 Where excavation required for armour stone overlaps excavation required for other work, then payment for excavation will be made in accordance with the specification for the other work as though no excavation were required for armour stone.

.3.4 Armour Stone will be paid based on the size (weight) range in the MERX Schedule of Quantities and Prices with 50 % more than the average unless otherwise specified on the drawings.

5.2 BASIS OF PAYMENT

.1 All costs associated with the work outlined in this specification shall be deemed to be included in the appropriate unit and lump sum prices quoted as outlined in the Measurement for Payment subsection of this section and as included in the MERX Schedule of Quantities and Prices.

.2 Geotextile Filter Fabric will be paid in accordance with Section 02897 – Filter Fabric (Geotextile).

Not For Construction