Construction Specification MS-01	Rock

1. Description

This specification covers the quality of rock to be used in the construction of in-stream rock structures for stream restoration as well as rock for rip rap. The use of rock in stream projects, requires a dense, low porosity material that can with stand stream flows as well as freeze-thaw cycles.

2. Quality

Individual rock fragments shall be dense, sound and free from cracks, seams and other defects conducive to accelerated weathering. Except as provided below, the rock shall meet the following parameters:

a. Bulk specific gravity (saturated dry surface basis) not less than 2.5. Bulk specific gravity to be determined by ASTM Method C127.

b. Absorption not more than two percent (2%).

c. Soundness - weight loss in five (5) cycles not more than ten percent (10%) when sodium sulfate is used or more than fifteen percent (15%) when magnesium sulfate is used.

d. Soundness shall be determined in accordance with ASTM C88 for coarse aggregate modified as follows;

The test sample shall not be separated into fractions. It shall consist of 500 grams (+ 300 grams), reasonably uniform in size and shape and weighing approximately 100 grams each, obtained by breaking the rock and selecting fragments of the required size.

After the sample has dried, following completion of the final test cycle and washing to remove the reactants, the loss of weight shall be determined by subtracting from the original weight of the sample, the final weight of all fragments which have not broken into three or more pieces. The report shall show the percentage loss of weight and the results of the qualitative examination.

Rock that fails to meet the requirements in sub-sections a, b, and c above, may be

accepted if the rock has been pre-approved by NYSDOT or if similar rock from the same source has been demonstrated to be sound after five (5) years or more of service under conditions or weather, wetting, drying and erosive forces similar to those conditions anticipated at the site.

3. Rock Shape & Size

a. Rock for In-stream Structures

Rock fragments shall be angular, flat or cubed in shape. Uniform, cubed rock are best for top rocks while those rock with more roundness can be used as footer rocks.

b. Rip Rap

Rock fragments shall be angular to sub-rounded in shape. The least dimension (c-axis) shall not be less than one third the greatest diameter (a-axis) of the fragment. Rock shall conform to the specified grading limits after it has been placed in the riprap.

c. Rock Size

Rock shall be provided in the sizes set forth in the construction specification for each in-stream structure and/or for rock riprap.

4. Certification

At the request of the Contracting Officer, the Contractor shall provide acceptable documentation that the rock proposed for the project meets the specifications as set forth above. The Contracting officer mat waive the need for certification of the rock if the quarry sources is known to produce acceptable rock, or upon inspection of the proposed rock source by the Contracting Officer and Project Engineer.

5. Special Conditions

None