MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**RIPRAP, SPECIAL**

UTL:CJD 1 of 2 APPR:RWS:DMG:06-03-24

**a. Description.** This work consists of clearing and preparing grades, excavating and disposing of surplus material, furnishing and placing riprap, including headers for proposed lagoon berms in accordance with section 813 of the Standard Specification for Construction except as modified herein and as shown on the plans.

**b. Materials.** Furnish stone for riprap that is quarried rock or waste mine rock, free from shale, spoil, and organic material, as well as seams, cracks, or other structural defects which may cause accelerated weathering. Ensure the rock is hard, angular, durable, and resistant to weathering and water action. Do not use broken concrete.

Ensure the gradation meets the requirements specified in Table 1 herein. The ratio of greatest to least dimension must not exceed 3:1 for any individual stone for at least 80 percent of the material. Acceptance of the gradation will be based on visual inspection of riprap in-place by the Engineer.

**Table 1: Gradation Requirements for Riprap, Special**

|  |  |
| --- | --- |
| Least Dimension, inches | Percent Smaller Than |
| 10 | 100 |
| 8 | 85 |
| 6 | 50 |
| 3 | 15 |

Furnish nonwoven geotextile separator in accordance with section 910 of the Standard Specifications for Construction.

**c. Construction.** Place nonwoven geotextile separator as shown on the plans in accordance with section 308 of the Standard Specifications for Construction. Place riprap at the top of the lagoon berms in accordance with subsection 813.03.E of the Standard Specifications for Construction as specified for Plain Riprap on prepared grades to the elevations, thickness, and lateral limits shown on the plans. Ensure areas to be protected by riprap are cleared of brush, trees, stumps, and debris. Shape and compact all grades to the required cross section. Ensure the riprap installation does not damage the geotextile separator or the flexible membrane liner (FML). Ensure damaged geotextile separator and FML is removed and replaced as directed by the Engineer at no cost to the contract.

Start placement of riprap at the top of the berm and extend to the limits shown on the plans, with each stone firmly bedded into the berms and against adjoining stones. Construct the riprap to minimize voids by select placement of optimum stone sizes from the gradation specified. If placed riprap contains voids, the Engineer will direct the placement of additional stones of the appropriate size to fill the voids. The finished surface of the riprap must present a tight, even surface.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

**Pay item Pay Unit**

Riprap, Spec Square Yard

**Riprap, Spec** will be paid for in accordance with subsection 813.04 of the Standard Specifications for Construction for Riprap, Plain.