
CONSTRUCTION SPECIFICATION
INSTRUCTION FOR USE
CS-I-OR-061 ROCK RIPRAP

061.1 APPLICABILITY

Construction Specification CS-OR-061 is applicable to equipment-placed or hand-placed rock riprap, granular filter, and granular bedding. It is also applicable for riprap placed over geotextile fabrics installed in accordance with Construction Specification CS-OR-095, Geotextile.

061.2 MATERIAL SPECIFICATIONS

Select rock type as appropriate and specify in Section 061.7 Items of Work and Construction Details.

Rock type 1—For exposure conditions that require sound and durable material because of aggressive environment and demanding requirements, or in locations where replacement or repair would be difficult if breakdown or other failure were to occur.

Rock type 2—A lesser degree of durability is required while meeting a good standard of performance. The hazard is not a major consideration, and accessibility for repair or replacement is practical. No design changes are necessary for use of this rock type.

Rock type 3—Does not meet our normal requirements for quality, but because of the lack of onsite availability or availability of better materials, it is advantageous to use. Design changes, such as greater rock thickness and/or flatter slopes, may be required to compensate for the lack of long-term durability. More frequent repair and replacement should be anticipated.

061.3 INCLUDED ITEMS

Items to be included in contract specifications and drawings follow:

- a) Complete plans and cross-sections of the required riprap.
- b) Type of placement (equipment or hand-placed).
- c) Foundation preparation requirements, if any.
- d) Gradation requirements for material.
- e) Screening, selection, or other processing requirements to ensure obtaining rock of the required quality and grading. For example, if angular to subangular rock is preferred over

- subrounded to rounded rock; specify this requirement in Section 061.7 Items of Work and Construction Details.
- f) Sources of material if the sources are to be specified. When sources are designated in the contract, the adequacy of quantity and quality of usable material at each source must be determined in advance by:
 - g) Geologic investigations with adequate sampling and testing
 - h) Specific case history that establishes the quality by satisfactory performance under comparable conditions of use and exposure or acceptable prequalification by other agencies.
 - i) ASTM D 5240 should be specified to check for rock resistance to freeze-thaw damage on sites that have large volumes of riprap, at highly hazardous locations, or on sites that would be difficult to repair if rock breakdown occurs. Acceptance limits in the specification must be evaluated and strengthened, if needed, to ensure the use of the appropriate rock type and quality.
 - j) When geotextile filters are specified, Construction Specification CS-OR-095, Geotextile, should be used.

061.4 ITEMS OF WORK AND CONSTRUCTION DETAILS

Starting at the top of page 061–3, prepare and outline job specific "Items of Work and Construction Details" (IWCD) in accordance with these instructions.