# Masonry Construction JSP-04-13

1.0 Rubble Masonry

**1.1 Description.** This work shall consist of stone laid in mortar or laid dry as shown on the plans or as directed by the engineer.

**1.2 Material.** Stone for rubble masonry shall be sound and durable, and relatively free of shale or other easily disintegrated material. In general, the stone shall not be less than 4 inches (100 mm) thick, however, an occasional stone greater than 2 inches (50 mm) thick will be permitted. Stones shall be a minimum of 12 inches (300 mm) wide, and shall be 12 to 36 inches (300 to 900 mm) long. The length shall not exceed three times the thickness. The stones shall be roughly squared on joints, beds and faces. Mortar for joints shall be in accordance with Sec 1066.1.3. Precast concrete blocks may be substituted for stone for masonry. Such blocks shall be of the size specified above, and shall be made of either Class B concrete or concrete of a commercial mixture in accordance with Sec 501.14. Concrete shall be proportioned, mixed and transported in accordance with Sec 501. The concrete shall be cured by any of the methods specified for concrete pavement, except that transparent membrane shall be used in lieu of pigmented membrane. For dry rubble masonry, the contractor may use broken concrete of the size specified above in lieu of stone if approved by the engineer.

**1.3 Construction Requirements.**

**1.3.1 Rubble Masonry Laid in Mortar** All stone or blocks shall be thoroughly wetted and laid upon their natural beds with joints approximately horizontal and vertical. Each stone or block shall be settled into place in a full bed of mortar. In general, the wall shall be laid with face joints not exceeding 1 1/2 inches (40 mm) in thickness and with vertical joints broken not less than 6 inches (150 mm). The vertical joints in the interior of the wall shall be filled with suitable stone or spalls thoroughly bedded in mortar without voids. Headers shall be arranged to occupy at least one fourth of the area of the face and back, and shall be evenly distributed. For walls 2 feet (600 mm) thick or less, headers shall extend entirely through the wall. For thicker walls, front, back and intermediate headers shall be arranged to lap at least 12 inches (300 mm).

**13.1.1** All joints on the exposed faces shall be raked out to a depth of approximately 1 1/2 inches (40 mm) and shall be thoroughly wetted. Joints shall then be filled flush with mortar pressed tightly into place with suitable tools, and cured with transparent curing membrane.

**13.1.2** Weather limitations and protection requirements as specified in Sec 502 shall apply to the grout and concrete.

**1.3.2 Rubble Masonry Laid Dry** Dry rubble masonry shall be built with broken joints and placed in a manner forming a solid self-supporting wall. After the stone has been placed, the voids shall be filled with spalls or small stones so that all stones are tightly wedged or keyed. The finished wall shall have a uniform surface. Stones shall be placed on a firm, solid foundation or footing. Backfilling shall be done to the finished ground line with suitable material placed in layers, with each layer firmly compacted into place.

**1.4 Method of Measurement.** Measurement will be made to the nearest 1/10 cubic yard (0.1 m3) in accordance with the dimensions shown on the plans or as revised by the engineer during construction. Copings and footings will generally be made of concrete and will be measured and paid for as concrete masonry. Excavating and backfilling will be measured and paid for as Class 3 Excavation in accordance with Sec 206.

**1.5 Basis of Payment.** The accepted quantity of rubble masonry will be paid for at the contract unit price for each of the pay items included in the contract.

2.0 Brick Masonry

**2.1 Description.** This work shall consist of brick laid in a mortar bed as on the plans or as directed by the engineer.

**2.2 Material.** Sewer brick shall be in accordance with AASHTO M 91 and shall be Grade MM or Grade SM as specified in the contract. Mortar shall meet be in accordance with Sec 1066.1.3.

**2.3 Construction Requirements.** Brick shall be thoroughly wetted and laid with full-mortared vertical and horizontal joints. The work shall be constructed with sufficient header courses to tie the brick masonry together. Full mortar beds shall be provided for setting any proposed castings, and the castings shall be set to the required elevation. Brick masonry around pipe or tile shall be carefully constructed to provide watertight connections. Masonry shall not be laid in freezing weather without the use of precautions as approved by the engineer.

**2.4 Method of Measurement.** Measurement will be made to the nearest cubic foot (0.05m3). Any concrete masonry in connection with brick masonry will be measured and paid for as concrete masonry.

**2.5 Basis of Payment.** The accepted quantity of brick masonry will be paid for at the contract unit price.