

ITEM 07560.08 M - CONSTRUCTION OF STONE MASONRY; NON-STRUCTURAL VENEER

DESCRIPTION:

The work shall consist of setting new stone masonry required to complete the veneer work at the location indicated on the plans.

The new stone masonry construction shall replicate the appearance of the existing surrounding stone masonry.

MATERIALS:

The stone masonry shall be obtained from a source approved by the Engineer and shall be free from minerals which, by weathering, would cause discoloration or deterioration. The quarried material for the entire project work shall match or replicate the existing retaining wall and native stone as closely as possible in kind, sizes, quality, color, texture and finish. Samples of the new stone shall be submitted to the Engineer for approval.

Individual stones shall have a thickness of no less than 130 mm for the top course. Length and width dimensions shall be variable to match the dimensions of the existing surrounding stone masonry as approved by the Engineer.

Wire anchors shall be of chromium-nickel stainless steel, ASTM A167, Type 302 or 304, and provided as shown on the plans or as directed by the Engineer. Anchors shall be positioned within masonry joints under individual stones and shall be fully covered by mortar. Drilling of stones will be permitted only when such work is authorized by and performed to the approval of the Engineer. Anchorage devices will be subject to approval of the Engineer.

Portland cement shall be Type 6 (white) cement meeting the material requirements of Subsection 701-01 of the Standard Specifications, except that the maximum permissible alkali content shall be 0.60 percent. All portland cement used for this item shall be supplied by the same manufacturer.

Hydrated lime shall meet the requirements of ASTM C 207, Type SA. All hydrated lime used for this item shall be supplied by the same manufacturer.

Masonry sand shall be obtained from a natural local source, and graded per ASTM C 144. The sand shall be free of impurities such as salts, organic impurities, and other deleterious materials in accordance with ASTM C 144. The Contractor shall provide a sample of the masonry sand to the Engineer for approval prior to commencing work.

Water used for mixing and curing mortar shall meet the requirements of Subsection 712-01 of the Standard Specifications.

Caulking compound shall conform to the requirements of Section 705-06, "Caulking Compound for Structures."

Joint filler shall conform to the requirements of Section 705-07, "Premoulded Resilient Joint Filler."

CONSTRUCTION DETAILS:

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Stone masonry shall be subject to the restrictions of Subsection 560-3.01, General, in the Standard Specification Manual, except as modified herein or on the Contract plans.

Mortar shall consist of 1 part portland cement, 2 parts lime, and 8 parts sand. After adding all ingredients (including water) to a mechanical mixer, mix for 3 to 5 minutes to entrain air and produce a workable and uniform consistency. Mortar that has stiffened due to evaporation may be retempered by adding water to restore a workable consistency. Discard all unused mortar 2 ½ hours after mixing. The use of pigments or other mortar additives will not be permitted without the written permission of the Engineer.

Masonry shall be placed in a coursed ashlar pattern and consist of roughly squared corners and dressed stone laid in cement mortar.

The surface finish of the stone shall be rock-faced. The surface finish shall not have any tool marks. Irregular projections shall be limited to a maximum of 75 mm for any one stone measured from the pitch line. There shall be no indentations.

Stones shall have their edges pitched to a true line, with tops and bottoms parallel and cut to lie on their natural beds. The bottom beds shall be the full size of the stone, and hollow beds or over-hanging tops will not be permitted. The beds of stone shall be fine-finished full depth. The vertical face joints shall be fine-finished for a depth of not less than 230 mm.

Plastic or lead “stand-offs” may be used during the stone rebuilding in order to ensure a controlled and consistent mortar joint and prevent unset mortar from being compressed out of the joints.

All stone shall be so finished that no large holes or portions of holes greater than 75 mm shall show on surfaces which will be exposed in the finished work.

The Contractor shall use extreme care when placing the mortar within the boundaries of the stone facing to avoid causing air pockets due to overhanging stones.

Stone shall be thoroughly cleaned before being set, and the receiving surface shall be well-cleaned. The thickness of all joints and beds shall be uniform throughout. Spalls shall not be used as pinner in mortar beds or joints. When any stone is disturbed or mortar joint broken, the stone shall be taken up; and after all mortar has been cleaned from the stone, bed, and joints, it shall be reset in fresh mortar. All stones shall be well-bedded, with face joints properly raked before the mortar has set.

A sample wall shall be constructed by the Contractor at a location approved by the Engineer. The wall shall be 1.8 m in height 1.8 m in length, and the width of the proposed wall as shown in the contract plans or as approved by the Engineer, and made of stone masonry and matching mortar. This procedure shall be repeated until a sample wall is approved by the Engineer. The sample wall shall be maintained intact until the Engineer directs its removal.

The masonry shall be kept wet during the pointing and in hot and dry weather, as determined by the Engineer, shall be protected from the sun and kept wet for a period of 3 days after completion, unless otherwise permitted or directed. Face surfaces of stone shall not be smeared with mortar, and after pointing has been completed and set, the masonry shall be thoroughly cleaned as directed.

Masonry shall not be constructed when the ambient temperature is 4° C or below, or when the stones contain frost, except by written permission of the Engineer and subject to any conditions required.

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Stone shall not be dropped upon or slid over existing masonry, nor shall hammering or cutting of stones on the masonry be allowed. Stones shall be carefully set without jarring masonry already laid, and they shall be handled in a manner so as not to cause disfigurement. Masonry shall be constructed to obtain a pattern in the finished wall which will be in character with the existing stone masonry and the following general requirements which will apply to the placing of stone masonry:

Preparation of Stone and Bed: Each stone shall be cleaned and thoroughly saturated with water before being set. The receiving surface which is to receive the masonry shall also be cleaned and moistened.

Spalls not Permitted in Mortar Beds: No pinning up of stones with spalls will be permitted and no spalls will be permitted in beds. Stone may only be supported by mortar beds with plastic or lead "stand-offs" and anchors and dovetails as approved by the Engineer and called for on the plans.

Stone Shapes: There shall be no unusual shaped stone as determined by the Engineer.

Clusters: There shall be no clusters of stone of the same length or height.

Vertical Joints: There shall be no more than two stones abutting any one vertical joint. Break vertical joints with adjacent courses of at least 150 mm.

Stone Proportions: All stones shall be proportional to the minimum dimensions as described in the Materials Section of this specification. Stones shall decrease in thickness from the bottom to the top of the wall. Cutting and shaping of stone may be performed by the Contractor to achieve the desired appearance.

METHOD OF MEASUREMENT:

Payment for non-structural veneer will be made for the number of square meters (including joints within the non-structural veneer) measured on the projected plane of all the exposed surfaces of the non-structural veneer incorporated in the work.

Metal dowels, ties, non-structural veneer masonry, mortar, or any joint material within the nominal thickness of the veneer will, for the purpose of payment, be classified as non-structural veneer and will not be paid for under any other item.

Mortar joints between non-structural veneer and concrete will be paid for as non-structural veneer.

BASIS OF PAYMENT:

The unit price bid per square meter for this item shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work. The cost of erecting and disposing of the sample wall shall be included in the unit price bid for this work.