

## ITEM 01560.25 M - MASONRY STONE JOINT REPAIR

### DESCRIPTION:

Repair masonry joints or cracks at locations indicated in the Contract Plans or where directed by the Engineer. Water blast the stone surface, install injection ports, point with mortar, pressure inject with a cementitious grout and clean up the repaired area.

### MATERIALS REQUIREMENTS:

Mortar for pointing joints or cracks - §560-2.06.

Cementitious grout for injecting into joints or cracks:

|  |         |
|--|---------|
| 1 part Portland Cement, Type II                                  | §701-01 |
| 1 part Fly Ash (Type F)  | §711-10 |
| 6 parts Grout Sand   | §703-04 |
| 15 - 20 liters of Water per 45 kg of portland cement             | §712-01 |
| 1% Expansive Agent by weight of cementitious materials (maximum) | -       |

The above mix design is suggested. Make adjustments based on field conditions. Perform mix trials to select a suitable grout for the application and demonstrate that the grout flows satisfactorily through an installed injection port.

### CONSTRUCTION DETAILS:

Equipment. Use only equipment in good working order, approved by the Engineer.

1. For mortar (pointing joints or cracks) - follow §560-2.06, except that hand mixing is not allowed, and do not wet the joints or cracks just prior to pointing.
2. For grout (injecting into the ports) - use a high speed colloidal mixing machine that operates in the range of 800 to 2,000 revolutions per minute to create a homogenous mixture. Use a positive displacement pump which maintains a continuous pressure head (maximum pressure 690 kPa) to uniformly force grout into the joints or cracks. Provide easily viewed, accurate pressure gauges that enable the operator to monitor the flow of grout.

Preparation. Clean all matter detrimental to the bond of pointing mortar from the joint or crack area. Limit the water cleaning pressure to a maximum 1,400 kPa. No acids or corrosives will be permitted for cleaning.

Injection Port Installation. Allow the joints or cracks to dry prior to pointing. Attach injection ports to the prepared, dry area by placing them into the joints or cracks, and affixing with mortar as described under "Pointing Joint or Crack Openings". Space the injection ports at 1 - 2 meter intervals, as dictated by conditions, or use port locations approved by the Engineer.

Pointing Joint or Crack Openings. Force mortar into the joint or crack to a minimum depth of 1½ times the width, being careful not to plug the port outlets. Perform joint or crack repair only when the surface and ambient temperatures are above 7°C. After the mortar has gained sufficient strength, start the grout injection through the ports.

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Curing. Protect the pointed masonry from drying and keep wet for a period of at least 3 days after completion.

Grout Injection. Start at either end of a horizontal joint or crack, or at the lowest point of a sloping or vertical joint or crack. Secure the feed line to the first port. Initiate and continue flow until grout exists from the adjacent port. Temporarily stop the injection process, remove the feed line, and seal the port. Attach the feed line to the adjacent port and repeat this procedure along the joint or crack until the last port is sealed. Exercise care to assure a continuous grouting operation. When warranted, adjacent ports may be plugged and injection continued through the same port.

Clean Up. Remove spillage and the ports until flush with the adjacent surface. Remove stains and repair any damage to the satisfaction of the Engineer at no additional cost to the State.

### **METHOD OF MEASUREMENT:**

The work will be measured as the number of square meters of stone masonry repaired as required.

### **BASIS OF PAYMENT:**

Include all labor, materials and equipment necessary to complete the work in the price bid per square meter.