SECTION 040121

MASONRY RESTORATION

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Masonry Cleaning: Section 040123.

B. Joint Sealers: Section 079200.

1.02 SUBMITTALS

A. Product Data:
   1. Portland Cement: Brand and manufacturer's name.
   2. Lime: Brand and manufacturer's name.
   3. Mortar Pigments: Brand and manufacturer's name.
   4. Packaged Products: Manufacturer's specifications and application instructions for products specified.
   5. Sand: Location of pit, name of owner, and previous test data.

B. Samples: Deliver to the Site for comparison with existing masonry.
   1. Mortar for Exposed Joints and Cracks: Each required type, minimum 12 inches long by full thickness, showing finish and color.
   2. Masonry Units: Each required type, full size, showing finish and full color range.

1.03 QUALITY ASSURANCE

A. Field Examples: Prior to performing the Work of this Section, prepare a sample panel of not less than 12 sq ft for each type of masonry restoration Work required. Do not proceed further with the Work until the sample panel has been approved by the Director's Representative. Approved samples will be used as quality standards for the Work. Maintain approved samples at the Site until the Work is completed.
   1. Sample panels may be a portion of existing masonry which is to be restored, at a location directed by the Director's Representative.

B. Material Container Labels: Material containers shall bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable).

1.04 DELIVERY, STORAGE, AND HANDLING

A. Packaged Products:
   1. Deliver materials to the site in manufacturer's original, sealed containers. Do not deliver materials which have exceeded shelf life limitation set forth by the manufacturer.
   2. Comply with manufacturer's printed instructions for storing and protecting materials.

B. Bulk Aggregate: Store in a manner which will keep aggregate clean and protected from the weather elements.

1.05 PROJECT CONDITIONS

A. Environmental Requirements:
   1. For factory packaged products, comply with the manufacturer's printed limitations and instructions.
   2. At temperatures below 40 degrees F, maintain mortar temperature between 40 degrees F and 120 degrees F unless otherwise recommended by the material manufacturer. If necessary, heat mixing water and sand to produce the required results.
   3. At temperatures between 32 degrees F and 20 degrees F, provide wind breaks and cover the restored masonry to prevent wetting and freezing. Maintain restored masonry above freezing for not less than 16 hours using auxiliary heat or insulating blankets.
   4. At temperatures below 20 degrees F, provide heated enclosures for performing the Work. At the end of the workday, maintain the enclosures and keep the Work from freezing for not less than 24 hours.
   5. Do not lower freezing point of mortar by use of antifreeze, calcium chloride, or other additives.
   6. Do not use frozen materials or materials coated with ice or frost.

PART 2 PRODUCTS

2.01 MATERIALS

A. Mortar Types:
   1. Type N Mortar: ASTM C 270, Type N.
   2. Modified Type N Pointing Mortar: ASTM C 270, Type N, modified with an acrylic additive in accordance with the additive manufacturer's printed instructions for the intended usage.

B. Mortar Color: For exposed Type N mortar and Modified Type N pointing mortar, select materials (complying with the requirements) and proportion pigments with other ingredients as necessary to match the color of existing corresponding materials.

C. Mortar Pigments: High purity, finely ground, chemically inert, unfading, lime proof mineral oxides specially prepared for use in mortar.

D. Acrylic Additive: "Acryl 60" by Thoro System Products; "Sonocrete" by Sonneborn Building Products; "Anchor - IT" by Anti-Hydro Waterproofing Co.

E. Masonry Units: Match existing units in type, grade, size, appearance, and texture unless otherwise indicated.

F. Accessories:

PART 3 EXECUTION

3.01 PREPARATION

A. Protection: Protect adjacent surfaces not being restored. Protect sills, ledges, and projections from material droppings.

B. Surface Preparation:
   1. Prepare surfaces to be restored in compliance with product manufacturer's printed instructions and as specified.
   2. Remove dirt, dust, and foreign material from surfaces to be restored.
   3. Clean areas to be restored with compressed air or water flushing, except as otherwise recommended by the mortar manufacturer.

C. Materials Preparation:
   1. Dry concrete masonry units and stone that have become wet. Do not wet these masonry units.
   2. Wet bricks that have a high absorption rate. Wet bricks until water runs off. Install bricks when surface is slightly damp.
   3. Prepare exposed Type N mortar and Modified Type N pointing mortar to match the color and appearance of existing adjoining mortar.

3.02 REPOINTING JOINTS

A. Rake or cut out joints to a minimum depth of 5/8 inch and until sound surface is reached. Where cutting is required to remove existing mortar and joint filler, use a rotary power masonry saw wherever possible without damaging masonry. Cut the mortar and joint filler cleanly from the sides of the joints, leaving square corners. Flush joints clean with water or compressed air.

B. Dampen joints slightly before application of mortar, making sure there is no free water. Backpack joints tightly out to a depth of 5/8 inch from the face of masonry with Modified Type N pointing mortar. After backpacking mortar has attained initial set, redampen remaining 5/8 inch depth of joints, fill with Modified Type N pointing mortar, and finish joints to match existing adjoining joints.
   1. Where joint sealant is required, backpack the joints tightly out to a uniform depth of 1/4 inch.
   2. Where joint sealant is required, cut out the joints or backpack the joints (as required by existing conditions) to the depth shown on the Drawings.

3.03 REPLACING MASONRY UNITS

A. Provide temporary shoring or other supports as required to prevent displacement of existing masonry which is to remain. Perform the removal Work with such care as may be required to prevent damage to adjoining masonry which is to remain.

B. Remove the deteriorated and damaged masonry units to their full depth, including the surrounding joint mortar. Wherever possible without damaging

masonry, use a rotary power masonry saw for cutting Work. Leave square corners at adjoining masonry which is to remain. Clean joints and cavities by flushing with water or compressed air.

C. Dampen contact surfaces slightly before application of mortar, making sure there is no free water. Install matching masonry units with Type N mortar. Install units to match and align with existing masonry. Maintain bonding and coursing pattern of existing masonry. Use presoaked wood wedges where necessary to properly set the units and maintain uniform matching joints. Backpack and fill joints full of mortar. Finish joints to match existing adjoining joints.

D. Accessories:

3.04 FILLING CRACKS

A. Non-Moving Cracks: Clean cracks with water flushing or compressed air. Dampen contact surfaces. Fill cracks with Modified Type N pointing mortar flush with adjoining masonry.
   1. Enlarge cracks 1/8 inch or less in width to 1/4 inch wide by minimum 3/8 inch deep prior to cleaning and filling. Use masonry saw or power chisel.

B. Moving Cracks: Cut out cracks more than 1/8 inch in width (for sealant) as required to provide joint configuration shown on the Drawings. Use masonry saw or power chisel. Clean and dry the contact surfaces.

3.05 CLEANING

A. As the Work proceeds and after completion of Work, remove excess mortar, droppings, smears, stains, and other soiling substances resulting from the Work of this Section. Remove misplaced materials from surfaces immediately.

END OF SECTION