



SEDGWICK COUNTY, KANSAS
DIVISION OF FINANCE
PURCHASING DEPARTMENT
525 N. Main, Suite 823 ~ Wichita, KS 67203
Phone: 316 660-7255 Fax: 316 383-7055
<http://sedgwickcounty.org/finance/purchasing.asp>

**REQUEST FOR BID
#14-0046
SOLDIERS AND SAILORS CIVIL WAR
MONUMENT HISTORIC STONE MASONRY
EXTERIOR RESTORATION AND REPAIR**

April 25, 2014

PURPOSE

Sedgwick County, Kansas, will be accepting bids for restoration and repair of the Soldiers and Sailors Civil War Monument located at 510 N Main, Wichita, Kansas 67203. It is anticipated that an official contract or purchase order will be issued after Board of County Commission approval of the recommended bid. It should be noted, however, that the County cannot guarantee the purchase of services/products described herein.

SUBMITTALS

Carefully review this Request for Bid. It provides specific technical information necessary to aid participating firms in formulating a thorough response. Should you elect to participate, submit one (1) complete original response form with any supplementary materials to:

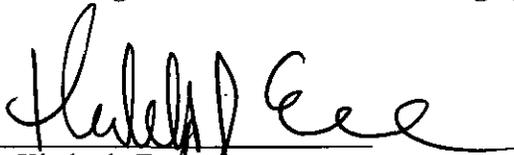
ATTN: Kimberly Evans
Sedgwick County Purchasing Department
525 N. Main, Suite 823
Wichita, KS 67203

SUBMITTALS are due NO LATER THAN 1:45 P.M., CDT, Tuesday, May 20, 2014. Responses must be sealed and marked on the lower left-hand corner with the firm name and address, bid number, and bid due date. Late or incomplete responses will not be accepted and will not receive consideration for final award.

Bid responses will be acknowledged and read into record at bid opening which will occur at 2:00 P.M., on the due date.

QUESTIONS AND CLARIFICATIONS

All requests for clarifications of the RFB process and document content should be directed to Kimberly Evans at email kjevans@sedgwick.gov. Questions are due **in writing** no later than 5 P.M. on April 30, 2014. Answers will be provided in written form as an addendum and will be posted on the County website at www.sedgwickcounty.org/finance/purchasing.asp no later than 5 P.M. on May 7, 2014. **Vendors are responsible for checking the web site and acknowledging any addenda on the proposal response form.**


Kimberly Evans
Purchasing Agent

RFB #14-0046

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I. COUNTY BACKGROUND

Sedgwick County, located in south-central Kansas, is the most populous of Kansas' 105 counties with a population estimated at more than 504,000 persons. It is the sixteenth largest in area, with 1,008 square miles, and reportedly has the second highest per capita wealth among Kansas' counties. Organizationally, the County is a Commission/Manager entity, employs nearly 2,800 persons, and provides a full range of municipal services; e.g., public safety, public works, criminal justice, recreation, entertainment, cultural, human/social, and education.

II. OBJECTIVES

1. The intent and purpose of this Request for Bid is to establish a fixed price with a qualified firm to provide masonry repair and restoration to the historic Soldiers and Sailors Monument.
2. Procure these services from one vendor.

III. SELECTION CRITERIA

The selection process will be based on the responses to this Request for Bid and any interviews conducted, references checked along and other criteria proving exemplary work, in verifying the ability of bidder to provide services in accord with this document. Each bid will be evaluated as determined by meeting the following criteria (ranked in no particular order):

1. Demonstrate clearly and completely your organization's ability and capacity to meet all miscellaneous instructions as outlined herein, and the clarity, completeness and comprehensiveness of the bid.
2. Qualifications of staff and cost considerations, the lowest bid WILL NOT necessarily be the successful bid.

IV. SCOPE OF WORK

Restore and repair the monument located at 510 N Main, Historic Courthouse, Wichita KS 67203. This structure is located on the south side of the building. A consultant was utilized to inspect the structure and report findings to the county. The consultant's recommendations are included as attachments to this document.

After award, Contractor shall communicate with the appointed County contact for the purpose of scheduling, monitoring the status/satisfaction of the provided services and communicating any issues affecting operations, such as, but not limited to, lighting, access, lock and keys and weather.

V. MANDATORY REQUIREMENTS AND SPECIFICATIONS

- A. All work shall be performed in an efficient manner, and shall meet the highest standards for the type of service being performed.
- B. Work shall be performed in compliance with manufacturer's recommendations for all products and equipment used.
- C. Work is to be scheduled during normal business hours, Monday-Friday 8:00am-5:00pm with any additional work to be coordinated with County Project Manager.
- D. Personnel shall not place or use equipment in locations in such a manner as to create safety hazards.
- E. Personnel shall at all times provide, place and remove warning signs/barricades as needed.
- F. Contractor is responsible for training, education, and compliance with all current OSHA and current industry safety standards, for employees and subcontractors.
- G. Contractor is responsible for protecting County property, including, but not limited to, all sidewalks, fencing and landscaped areas.
- H. Contractor will sweep areas on the ground which may have received fallen debris during project.
- I. **A payment bond equal to 100% of the bid cost is required if subcontractors are used.**

Contractor Shall:

1. Employ a sufficient number of experienced employees to adequately perform all services. Contractor shall be responsible for the conduct and performance of contractor's employees.
2. Provide a contract manager whose responsibility will be to maintain quality control, supervise Contractor's staff, and to serve as the County liaison with the Contractor.
3. At all times enforce strict discipline and good order among its employees performing under this agreement, and shall not employ under this agreement any unfit person or anyone not skilled in the work assigned.
4. Comply with the County's requirements for security and operational constraints, and with all

instructions from Sedgwick County Courthouse Police Officers regarding safety and/or security issues.

5. Notify the County of specific areas of potential damage which could result from the contractor completing scope of work.
6. Notify the County of damage that occurs as a result from the contractor completing scope of work. This includes but is not limited to Sedgwick County property and/or persons affected by the damage. Herein, the contractor becomes responsible for all repairs at his/her expense. Written approval from Sedgwick County is required for proposed repair work prior to commencing work. Repair work complete, upon written approval from Sedgwick County.
7. Be entirely responsible for any loss or damage to its materials, supplies and equipment, and for the personal property of its employees while they are maintained at a County work site.
8. Furnish all personnel (skill-trade restoration workers, MTR supervisor(s)), equipment and supplies necessary to accomplish required services to the satisfaction of the County. All equipment must be maintained in good operating condition, have sufficient quantities to adequately perform all services and meet current OSHA requirements. Contractor shall provide all transportation, including fuel, to and from locations for the purpose of performing services, handling trash, facilitating supervision, etc.

Contractor's Employees Shall:

1. Not appear to be under the influence of alcohol or drugs. Alcohol and drugs are not permitted to be inside or around any County buildings.
2. Not have a loud or boisterous conduct. This shall not be permitted at any time.
3. Adhere to the County's smoking policies.

Sedgwick County Shall:

1. Reserve the right to request the removal of any of the Contractor's employees from any County building at any time for reasonable cause. Contractor or the designated supervisory representative shall have such employee immediately leave the facility's premises upon the receipt of such request.
2. Not be responsible or liable for any equipment or supplies left by Contractor at any location.

VI. PAYMENT TERMS

Payment for all specified services to the successful vendor will be made following:

- Satisfactory completion of all work described within these specifications.
- Receipt of invoicing emailed to ap_invoices@sedgwick.gov or faxed to 316-941-5127.

VII. INSURANCE

Workers' Compensation:	
Applicable State Statutory	
Employer's Liability Insurance:	\$100,000.00
Contractor's Liability Insurance:	
Form of insurance shall be by a Commercial General Liability and include Automobile comprehensive/liability	
Bodily Injury:	
Each Occurrence	\$500,000.00
Aggregate	\$500,000.00
Property Damage:	
Each Occurrence	\$500,000.00
Aggregate	\$500,000.00
Personal Injury:	
Each Person Aggregate	\$500,000.00
General Aggregate	\$500,000.00
Automobile Liability-Owned, Non-owned and Hired	
Bodily Injury Each Person	\$500,000.00
Bodily Injury Each Occurrence	\$500,000.00
Professional Liability (if applicable)	\$500,000.00

Liability insurance coverage indicated above must be considered as primary and not as excess insurance. Contractor shall furnish a certificate evidencing such coverage, with County listed as an additional insured, except for professional liability, workers' compensation and employer's liability. Certificate shall be provided with bid/proposal submittals. Certificate shall remain in force during the duration of the project/services and will not be canceled, reduced, modified, limited, or restricted until thirty (30) days after County receives written notice of such change. All insurance must be with an insurance company with a minimum BEST rating of A- VIII and licensed to do business in the State of Kansas. It is the responsibility of Contractor to require that any and all approved subcontractors meet the minimum insurance requirements. Contractor shall obtain the above referenced certificate(s) of insurance, and in accordance with this Agreement, provide copies of such certificates to County.

VIII. INDEMNIFICATION

To the fullest extent of the law, the Provider, its subcontractors, agents, servants, officers or employees shall indemnify and hold harmless Sedgwick County, including, but not limited to, its elected and appointed officials, officers, employees and agents, from any and all claims brought by any person or entity whatsoever, arising from any act, error, or omission of the provider during the provider's performance of the agreement or any other agreements of the provider entered into by reason thereof. The provider shall indemnify and defend Sedgwick County, including, but not limited to, its elected and appointed officials, officers, employees and agents, with respect to any claim arising, or alleged to have arisen from negligence, and/or willful, wanton or reckless acts or omissions of the provider, its subcontractors, agents, servants, officers, or employees and any and all losses or liabilities resulting from any such claims, including, but not limited to, damage awards, costs and reasonable attorney's fees. This indemnification shall not be affected by any other portions of the agreement relating to insurance requirements. The provider agrees that it will procure and keep in force at all times at its own expense insurance in accordance with these specifications.

IX. TERMINATION

The County reserves the right to cancel the contract and discontinue services with a thirty (30) day written notice as a result of the failure of the contracted provider to provide acceptable services as delineated in the response to this document or if determined that services can be better provided by in-house or other sources. In the event of termination of this agreement as a result of a breach by contractor hereunder, the County will not be liable for any fees and may, at its sole option, award an agreement for the same services to another qualified firm to provide services.

X. TENTATIVE TIME LINE

The following dates are provided for informational purposes and are subject to change without notice. Contact Kimberly Evans, kjevans@sedgwick.gov, to confirm any and all dates.

Distribution of Request for Bid to interested parties	April 25, 2014
Clarification, Information and Questions submitted in writing no later than 5:00 p.m.	April 30, 2014
Addendum Issued	May 7, 2014
Sealed bids due before 1:45 p.m. CDT	May 20, 2014
Evaluation Period	May 21-June 4, 2014
Board of Bids and Contracts Recommendation	June 5, 2014
Board of County Commission Award	June 11, 2014

XI. REQUEST FOR BID CONDITIONS

All times indicated in this solicitation document are central standard/central daylight as applicable. In submitting a response to this Request for Bid, vendors hereby understand the following as applicable: http://www.sedgwickcounty.org/purchasing/pdf_files/bidcond.pdf

XII. GENERAL CONTRACT PROVISIONS

In submitting a response to this Request for Bid, vendors hereby understand the following as applicable: http://www.sedgwickcounty.org/purchasing/pdf_files/General_Contract_Provisions.pdf

REQUEST FOR BID
#14-0046
SOLDIERS AND SAILORS CIVIL WAR
MONUMENT HISTORIC STONE
MASONRY EXTERIOR RESTORATION
AND REPAIR

The undersigned, on behalf of the Bidder, certifies that: (1) this offer is made without previous understanding, agreement or connection with any person, firm, or corporation submitting a bid on the same project; (2) is in all respects fair and without collusion or fraud; (3) the person whose signature appears below is legally empowered to bind the firm in whose name the bidder is entered; (4) they have read the complete Request for Bid and understands all provisions; (5) if accepted by the County, this bid is guaranteed as written and amended and will be implemented as stated; and (6) mistakes in writing of the submitted bid will be their responsibility.

NAME _____

DBA/SAME _____

CONTACT _____

ADDRESS _____ CITY/STATE _____ ZIP _____

PHONE _____ FAX _____ HOURS _____

TAX PAYER I.D. NUMBER _____ STATE INCORPORATED _____

COMPANY WEB SITE ADDRESS _____ E-MAIL _____

NUMBER OF LOCATIONS _____ NUMBER OF PERSONS EMPLOYED _____

TYPE OF ORGANIZATION: Public Corporation _____ Private Corporation _____ Sole Proprietorship _____
 Partnership _____ Small Business _____ Manufacturer _____ Distributor _____ Retail _____ Dealer _____

General Nature of Business _____ FEIN/SS # _____ W-9 included _____

Not a Minority Owned Business _____ Minority Owned Business: _____ Certification # _____

African American _____ Asian _____ Hispanic _____ Native American _____ Other _____ Woman Owned Business _____

ACKNOWLEDGE RECEIPT OF ADDENDA: All addendum(s) are posted to our RFQ/RFP web page and it is the vendor's responsibility to check and confirm all addendum(s) related to this document by going to www.sedgwickcounty.org/finance/purchasing.asp.

NO. _____, DATED _____; NO. _____, DATED _____; NO. _____, DATED _____

Complete the work in accordance with the Request for Bid document and any addenda for the lump sum price of:
 _____ Dollars (\$ _____)

In submitting a response to this document, vendor acknowledges acceptance of all sections of the entire document and has clearly delineated and detailed any exceptions.

Signature _____ Title _____

Print Name _____ Dated _____

SECTION 04 01 20
MAINTENANCE OF HISTORIC MASONRY

1.1 RELATED DOCUMENTS

- A. All of the contract documents as defined by the conditions of the contract shall apply to this Section.

1.2 DESCRIPTION

- A. The Sedgwick County Soldiers and Sailors Civil War Monument located next to the Old Sedgwick County Courthouse, 510 N. Main Street, Wichita, Kansas is a historically significant structure built in 1912-13. The following architectural details describe the building in detail from the National Register of Historic Places continuation Sheet, Section number 7, Page 1. "It is an elegant ashlar loadbearing structure of Vermont granite designed by architect Ernest Monroe Viquesney (1876-1946) of Marietta, Georgia. The monument is an eighteen-foot-square building, measuring fifty feet in height from its base to the apex of the pedestal that crowns it. The building sits upon a series of three granite steps approached from all four sides, in the manner of a Greek temple. It has three parts: the Memorial Hall, a square drum, and cupola that tapers toward its apex and is surmounted by a granite plinth." This historic monument was placed on the National Register of Historic Places in 1998.
- B. In addition to all other requirements, all work of this Section shall be performed under the guidelines of the Secretary of the Interior's Standards for the Treatment of Historic Properties and must comply with the Secretary of the Interior's Standards for Rehabilitation.
- C. Section includes maintenance of historic masonry consisting of stone repair, reconstruction, repair, rehabilitation, restoration, and preservation as follows:
1. Mortar joint removal on monument to include steps (100%).
 2. Caulking material removal on monument to include steps (100%).
 3. Unused anchor removal.
 4. Stone crack injection with DHL repair material.
 5. Repoint mortar joints (100%) on monument and steps.
 6. Flashing installation: stainless steel, membrane, and lead t-caps.
 7. Preliminary cleaning: plant growth, atmospheric dark stain/soil removal.
 8. Final cleaning of exposed unit masonry surfaces after restoration treatments.
- D. Intent of this Section is:
1. To preserve as much of the original historic material as possible.
 2. To repair, clean, repoint all deteriorated/discolored stone and mortar joints on the Sedgwick County Soldiers and Sailors Civil War Monument.
 3. To ensure that all repair and replacement materials will match remaining historic construction in all physical and visual aspects, including material, form, color, texture, and workmanship.
 4. To ensure that all work will be done using the gentlest methods available.
 5. To ensure that sound historical materials will not be put at risk due to the work of this Section.

1.3 DEFINITIONS

- A. Very Low-Pressure Spray: Under 50 psi.
- B. Construction Laborer and Helpers: Individuals that assist in the general construction activities at the project site as defined by the Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2012-13 Edition*, Construction Laborers and Helpers. Source: <http://www.bls.gov/ooh/construction-and-extraction/construction-laborers-and-helpers.htm>
 - 1. SPECIAL NOTE: Construction Laborer and Helper personnel must remain within the defined parameters of their job description for this project as defined by the Bureau of Labor Statistics, U.S. Department of Labor. Thus, these individuals are not permitted to engage in direct labor activities that involve the use of skill-trade tools that come in contact with historic masonry materials on this project.
- C. Saturation Coefficient: Ratio of the weight of water absorbed during cold water immersion to weight absorbed during boiling water immersion. This information can be used as an indication of resistance of masonry units to freezing and thawing.
- D. Training Over-sight Committee: Primary stakeholders formed to develop, monitor, and approve the training certificate program plan within the framework of ASTM E2659-09 Standard Practice for Certificate Programs.
- E. Skill-Trade Restoration Worker: This occupation title is for the purpose of worker identification in relation to the Masonry Treatment Requirements (MTR) for this project. Individuals that have satisfied the education and qualifications required (in the restoration industry/union/trade school/or degree program) attaining a skill-trade position/title as defined by the Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2012-13 Edition*, Brickmasons, Blockmasons, and Stonemasons. Source: <http://www.bls.gov/ooh/construction-and-extraction/brickmasons-blockmasons-and-stonemasons.htm>
- F. Skill-Trade Training Certificate: A certificate granted to an individual skill-trade restoration worker who has successfully completed the on-site training requisites for a specific masonry treatment requirement (MTR).
- G. Training Certificate Program Plan: A documented plan developed by the certificate issuer that includes the essential elements of program design, development, implementation, and evaluation.
- H. Training Certificate Program Process: All activities by which the certificate issuer establishes for a skill-trade restoration worker or supervisor to fulfill specified requisites to earn a certificate, including but not limited to skill-trade prerequisites, completion of training components, evaluation of learner attainment of intended learning outcomes, and the certificate decision.
- I. Supervisor: This occupation title is for the purpose of worker identification in relation to the Masonry Treatment Requirements (MTR) for this project. Individuals that are responsible for the over-sight and supervision of skill-trade restoration workers engaged in the direct activities to deliver Masonry Treatment Requirements (MTR) for this project. Individuals may include, but are not limited to: owner's representative, owner project manager, general contractor's superintendent, construction manager, estimator, project superintendent, masonry foreman, subcontractor's project manager, and masonry superintendent as defined by the Dictionary of Occupational Titles for 11-9021.00 – Construction Managers; O*NET OnLine. Source: <http://www.onetonline.org/link/summary/11-9021.00>

- J. Supervision Training Certificate: A certificate granted to an individual supervisor who has successfully completed the on-site training requisites for a specific masonry treatment requirement (MTR).
- K. Training Summary Report: A written report issued by the ASTM E2659-09 certificate issuer / training instructor that describes in detail the approach, techniques, tools, materials, and methods to accomplish a Stone Treatment Requirement (STR).

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data and supporting procedures specific to this project established during the ASTM E2659-09 Historic Masonry On-site Training Program substantiating that products and methods of approach to treatment comply with project requirements. Include Material Safety Data Sheets (MSDS) as appropriate.
- B. Quality Assurance Plan: Prior to starting Work, submit a written plan as outlined in the Quality Assurance Section for the work of this Section.
- C. Training Program Plan: Submit written documentation of a training certificate program, which complies with ASTM E2659-09 Standard Practice for Certificate Programs specific to the Masonry Treatment Requirements (MTR) of this project. The plan shall include: the number of training components; training program process; intended learning outcomes; evaluation methods; description of preservation methodology; requisites to earn a skill-trade or supervision certificate; and policies to address complaints and appeals.
- D. Skill-Trade Certificates: Submit written ASTM E2659-09 project training skill-trade certificates from a qualified Historic Masonry Preservation Consultant / Training Program Instructor verifying that each skill-trade restoration worker (as defined in 1.3 DEFINITIONS) has successfully completed the requisites from the on-site training component specific to the masonry treatment requirement (MTR).
 - 1. Skill-trade certificates are earned by individual skill-trade restoration workers when requisites are successfully completed at the conclusion of training. The skill-trade certificates are non-transferable, cannot be earned by a company, and are valid only for the duration of the project.
 - 2. Skill-trade restoration workers that have earned skill-trade certificates are not permitted to delegate, teach, instruct, or supervise other personnel in the learning outcomes and requisites of the completed training component.
 - 3. A skill-trade certificate can be invalidated / cancelled by the ASTM E2659-09 training program oversight committee if the individual skill-trade restoration worker is not able to consistently fulfill the training program requisites according to the on-site training program plan.
 - 4. A skill-trade certificate cannot be earned by a construction laborer as defined in 1.3 DEFINITIONS.
- E. Supervisor Certificates: Submit written ASTM E2659-09 project training supervisor certificates from a qualified Historic Masonry Preservation Consultant / Training Program Instructor verifying that each supervisor (as defined in 1.3 DEFINITIONS) has successfully completed the requisites from the on-site training component specific to the skill-trade restoration workers they

will over-see performing the masonry treatment requirement (MTR) assigned to them individually.

1. Supervisor certificates are earned by individual supervisors when requisites are successfully completed at the conclusion of training. The supervisor certificates are non-transferable, cannot be earned by a company, and are valid only for the duration of the project. A skill-trade restoration worker is not permitted to earn a supervisor certificate in the masonry treatments assigned to them to perform individually.
 2. Individuals that earn a supervisor certificate must attend the entire on-site training component and participate in observing the skill-trade restoration workers during the process of the masonry treatment. Supervisors must be engaged in the training session and complete the written testing. They are to evaluate individual skill-trade restoration worker performance on the required test panels with the training instructor.
 3. A supervisor certificate cannot be earned from partial or incomplete participation in the training component.
 4. A supervisor certificate is required in order to monitor compliance to the quality standards of workmanship, tool choice, and approach to specific tasks as defined in each individual training component for the specified stone treatment requirements of this project.
- F. Historic Masonry Preservation Consultant / Training Program Instructor: The Owner has secured the services of Speweik Preservation Consultants, Inc., 3163 Heritage Pkwy., Elgin, IL 60124, Phone: 224-856-7449, Contact: John Speweik - to develop, organize, and deliver the ASTM E2659-09 Historic Masonry On-site Training program for this project.
- G. Mock-Ups
1. In place for all flashing types, materials, and profiles with continuous cleats (if required by the drawings). Mock-ups may remain as part of the work if approved.
 2. 8" minimum flashing splice with two rows of 3M VHB tape on either side of butt joint (1/8" gap). Sealant or lap splices are not permitted on the project unless specified.
 3. Replacement and repair anchors: Include details of anchors within individual masonry units, with locations of anchors, dimensions of holes and recesses in units required for anchors.
 4. Remove mortar joints for repointing stone: minimum length is 20" both bed and head joint profiles for each mason performing work.
 5. Install mortar joints for repointing stone: minimum length is 20" both bed and head joint profiles for each mason performing work.
 6. Crack injection using approved methods and materials: 12" minimum length.
 7. Stone cleaning before mortar joint removal- using approved methods and materials.
 8. Stone cleaning after repointing is complete - using approved methods and materials.
 9. Removal and patching of abandoned masonry anchor, fastener, or embed.
 10. Remove caulking material from roof joints; repoint joint; install lead t-cap per specification requirement: 24" minimum length for both bed and head joint profile conditions.
- H. Samples for Selection and Verification:
1. Repointing Mortar: Submit via mock-ups.
Refer to specified materials and the ASTM E2659-09 Training Summary Report for the approved approach, techniques, and methods.

2. Sealant Materials: Submit via mock-ups.
Owner will choose 3 colors to mock-up from the manufacturer's full range.
Gunnable sealant shall be Dow 790 silicone.
Pre-compressed joint sealant/filler shall be Emseal Seismic Colorseal.
Include similar Samples of accessories involving color selection.
 3. Crack Injection: Submit via mock-ups.
Refer to the specifications for materials and the ASTM E2659-09 Training Summary Report for the approved approach, techniques, and methods.
 4. Lead T-Caps: Submit via mock-ups.
- I. Qualification Data for Stone Restoration Firm: The contracting firm must submit in writing at least 10 individual projects completed in the last 5 years which they have been the primary masonry specialist. Work must be performed by a contractor with 5 years' documented successful experience in comparable historic stone masonry restoration projects in size, age and material and who employ personnel skilled in the restoration treatments and rehabilitation process and operations indicated. The written submission must include the following:
1. Name and address of project;
 2. Client name, address and phone number;
 3. Date of project completion;
 4. Age of building and whether it was listed on the National Register of Historic Places or is designated as a Historic Landmark;
 5. How the work scope was specifically delivered to comply with the Secretary of the Interior's Standards for Rehabilitation;
 6. Size of project, in terms of square feet of stone masonry restored; and
 7. List of materials used on the project (including names and manufacturers).

1.5 QUALITY ASSURANCE

- A. For acceptable best practice approach for techniques and methods for this project see the ASTM E2659-09 Training Summary Reports for each individual Masonry Treatment Requirement (MTR). If any part of this Section and or ASTM E2659-09 Training Summary Report appear to be in conflict, the Over-sight Committee shall make determination of which takes precedence.
- B. Quality Assurance Plan: Prior to beginning Work, submit a written Quality Assurance Plan to the Over-sight Committee and Owner for approval. Allow 2 weeks for review and approval process. Do not proceed without written approval of plan. The Owner's Quality Control representative and the Oversight Committee shall review work on a regular basis for conformance with the approved Quality Assurance Plan. The Quality Assurance Plan shall be a "work-in-progress" plan – updated throughout the progress of the project, and at a minimum, include the following items:
1. Describe on-site project training program. Include certificate issuer name and qualifications with specific requisites established to meet the masonry treatment requirements identified in the project documents.
 2. Identify the number of skill-trade restoration workers, by name, that will be assigned to each (MTR). Identify the number of supervisors, by name, that will be assigned to each (MTR).

3. Describe the method of mobilization and access to work areas. Include the proposed scaffold type and design and how the assembly of the scaffolding will be connected to the building without causing damage to the existing stone surface.
 4. Describe methods of dust containment during the work of this Section.
 5. Describe methods of protecting surrounding stone steps, statues, plaques, walkways, windows, doors, and roof as well as surrounding landscape. Submit drawings of protection when requested by the Owner.
 6. Describe the work procedures, materials, and tools the contractor proposes to use for each masonry treatment requirement (MTR) specified.
 7. Describe the sequence of the masonry treatment requirements (MTR).
 8. Describe the methods for surveying original layout and collecting datum points and plumb lines for rebuilding stone masonry if required.
 9. Describe the methods for shoring and providing a safe working environment.
 10. Describe the method and approach to removing cement based mortar joints and cleaning cement-based smears and old patching materials from the face of the stone.
 11. Describe the method and approach to removing caulking materials from between the stone units and cleaning previous repair smears and old patching materials from the face of the stone.
 12. Describe, in detail, the matching procedures relating to techniques and tools proposed for repointing the mortar joints.
 13. Describe the complete existing mortar removal procedure: include equipment, tools, approach, method, depth, square-back shape, and how the stone will be protected during operations.
 14. Describe the documentation procedures to identify the moisture conditions within the stonewalls after mortar removal operations. Determine the length of time required in order to dry-out the walls to establish an equilibrium of moisture prior to the installation of the new repointing mortar.
 15. Describe the procedure for mixing and matching repointing and injection materials.
 16. Describe the methods for setting stone back into the wall and maintaining the original bond patterns and joint width.
 17. Describe the methods and approach to cleaning operations. Include materials, mix ratios, dwell times, and system to capture waste run-off materials.
 18. Describe in detail the methods, approach, and materials to protect Exterior Bronze Figures, Copper Liberty Figure, Bronze Doors and glass, plaques, and historic non-masonry architectural features to remain.
- C. Project Training Program Definition and Use: All skill-trade restoration workers as defined in 1.3 DEFINITIONS must obtain project skill-trade certificate(s) in order to work on the Masonry

Treatment Requirements (MTR). This project has defined four (4) masonry treatment requirements that will require three separate on-site training days for issuance of the required project skill-trade certificates.

- D. Masonry Treatment Requirements are: CRACK INJECTION (MTR-1); CLEANING MASONRY (MTR-2); MORTAR REMOVAL (MTR-3); and REPOINTING (MTR-4).
- E. The contractor has the flexibility to assign skill-trade restoration workers that are most proficient in the skills required for the specified stone treatment requirement. It is not necessary, nor a requirement of this specification, that all skill-trade restoration workers obtain all project certificates offered.
- F. The contractor is responsible for labor and material costs associated with the on-site training programs.
- G. The project over-sight committee, representing the primary stakeholders, reserves the right to remove any skill-trade restoration worker, construction laborer, or supervisor from the project site who does not comply with the standards and performance criteria and project requirements as described in this Section.

1.6 SUBSTITUTIONS

- A. If alternatives to the methods and materials indicated are proposed for any phase of the stone restoration treatments, the Contractor shall provide written descriptions and programs of testing and install all test panels samples and mock-ups to demonstrate the effectiveness of the alternatives for use on this project. The contractor must provide documentation showing compliance with the requirements for substitutions and the following information:
 - 1. Coordination information, including a list of changes to other work that will be necessary to accommodate the substitution.
 - 2. A comparison of the substituted products and materials with specified products and methods, including performance, weight, size, durability, and visual effect.
 - 3. Certification that the substitution conforms to the contract documents and is appropriate for the applications indicated. Material substitution requests must be accompanied by independent laboratory test reports from a lab designated by the Owner to establish equivalent performance levels and specification compliance. The Owner shall designate the testing lab, and the party requesting the substitution shall pay for the testing.

1.7 REFERENCES

- A. ASTM E2659-09 Standard Practice for Certificate Programs
- B. TMS 402-08/ACI 530-08/ASCE 5-08
- C. The Secretary of the Interior's Standards for Rehabilitation, codified in 36 CFR 67
- D. Preservation Briefs 1, "Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings," U.S. Department of the Interior, National Park Service, Cultural Resources, Heritage Preservation Services, Washington, DC, 2000

- E. Preservation Briefs 2, "Repointing Mortar Joints in Historic Masonry Buildings," U.S. Department of the Interior, National Park Service, Cultural Resources, Heritage Preservation Services, Washington, DC, 1998
- F. Preservation Briefs 6, "Dangers of Abrasive Cleaning to Historic Buildings," U.S. Department of the Interior, National Park Service, Cultural Resources, Heritage Preservation Services, Washington, DC, 1979

1.8 DELIVERY, STORAGE, HANDLING, AND DOCUMENTATION

- A. Deliver masonry units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons. Keep masonry materials from coming in contact with the ground.
- B. Deliver other materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- C. During storage and construction, store restoration materials on elevated platforms, under cover, and in a dry location, protect from staining or intermixture with earth or other types of materials. Do not use cementitious materials that have become frozen.
- D. Store pre-blended lime putty mortar material in manufacturer's original and unopened containers.
- E. Receive pre-blended mortar buckets and all other restoration products to a secure staging area located onsite.
- F. Quality Assurance Documentation: A Project logbook [electronics not permitted] shall be used to identify and document the following items during the work of the Section. The Project logbook shall include the following minimum items:
 - 1. The Project logbook shall remain onsite at all times and available to the Owner, Over-sight Committee, and Historic Preservation Consultant for review with or without the contractor present.
 - 2. Record individual batch number and production date assigned to each pre-blended mortar bucket labeled by the manufacturer.
 - 3. Track bucket batch numbers during installation into the monument by date, time, and weather conditions at the location of installation, i.e., direct sunlight, shade, partly cloudy. Include batch number installation by elevation, location, and unit course number.
 - 4. Record temperature of the pre-blended mortar material and water used to mix the material.
 - 5. Document the project site air temperature [weather channel information not permitted]. Stone surface temperature shall be documented before, during and after installation. This will require temperature data on direct sunlight and shade-side elevations as well as roof area.
 - 6. Identify the trained skill-trade restoration worker installing the restoration repair materials by location/unit course number/elevation on the monument.

7. Identify the trained MTR Supervisor over-seeing the skill-trade restoration worker(s) at the time of installation of each restoration/repair product.
 8. Keep a written record of frequency of chisel-tip sharpening, diamond blade usage, and pneumatic air pressures required to operate the mortar removal tools.
 9. Document the frequency of water-misting the repointing mortar after installation is complete.
- G. Store pre-blended lime putty mortar buckets covered and protected from extreme heat and cold.
- H. Store all materials in a location onsite that will not impede the progress of the work. Protect from vandalism and theft.

1.9 PROJECT CONDITIONS

- A. Schedule Constraints: Confirm with Owner acceptable working hours, noise restrictions, dust containment, wastewater runoff and any possible scheduled public events that could limit access to the project site during restoration operations.
- B. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit masonry restoration and cleaning work to be performed according to manufacturers' written instructions and specified requirements.
- C. Clean and repair stone masonry units and repoint mortar joints only when air and stone surface temperatures are 40°F (4°C) and rising. Do not proceed with material installation or cleaning if air and stone surface temperatures exceed 95°F (35°C) and is predicted to remain so for at least 7 days after completion of the Work unless otherwise indicated.
- D. Cold-Weather Requirements: Comply with the following procedures for masonry repair and mortar repointing unless otherwise indicated:
1. When air temperature is below 40°F (4°C), heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between 41°F (5°C) and not to exceed 95°F (35°C).
 2. When mean daily air temperature is below 40°F (4°C), provide enclosure and heat to maintain temperatures above 41°F (5°C) within the enclosure for 14 days after repair and repointing.
- E. Hot-Weather Requirements: Protect masonry repair and mortar repointing when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials during and after installation. Provide temporary shade (Burlene blankets/tarps – white plastic lined with burlap) and windbreaks for up to 14 days after installation of repointing mortar if required. Lower temperature of materials as required minimizing evaporation. Do not apply mortar to substrates with temperatures of 95°F (35°C) and above unless otherwise indicated.
- F. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.
- G. Clean stone masonry surfaces only when air and stone surface temperatures are 40°F (4°C) and above and are predicted to remain so for at least 7 days after completion of cleaning.

- H. Prevent mortar from staining the face of the masonry or other surfaces to be left exposed.
- I. Cover and protect completed work when work is not in progress.
- J. Protect stone steps, concrete walkways, landscape, stone sills, ledges, bronze and copper figures, historic plaques and projections from mortar droppings.

1.10 COORDINATION

- A. Coordinate masonry restoration and cleaning with public circulation patterns at Project site. Some work is near public circulation patterns. Public circulation patterns cannot be closed off entirely, and in places can be only temporarily redirected around small areas of work. Plan and execute the Work accordingly.

1.11 SEQUENCING AND SCHEDULING

- A. Order replacement materials at earliest possible date to avoid delaying completion of the Work.
- B. Order premixed mortar immediately after approval of mock-ups. Take delivery of and store at Project site a sufficient quantity to complete Project.
- C. Perform masonry restoration work in the sequence established in the Quality Assurance Plan.
- D. As scaffolding is removed, patch anchor holes if used to attach scaffolding. Patch holes in masonry to comply with methods and procedures established in the on-site training program.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. Water: Potable.
- B. Acceptable Manufacturer:
 - a. Manufacturer: EaCo Chem, Inc., P.O. Box 52, Forestville, PA 16035,
Phone: 800-313-8505 email: info@eachchem.com Product: OneRestore Restoration Detergent, dilution ratio is one part OneRestore to four parts water. Apply in a double soak method allowing 10 minutes dwell time between two applications.

2.2 ACCESSORY MATERIALS

- A. Sealant Materials:
 - 1. Gunnable Sealant: Dow 790 silicone.
 - 2. Gunnable Sealant: Dow 756 silicone at limestone.
 - 3. Colors: Provide colors of exposed sealants to match colors of masonry adjoining installed sealant unless otherwise indicated.
- B. Joint-Sealant Backing:

1. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 2. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where acceptable.
- C. Masking Tape: Non-staining, nonabsorbent material, compatible with pointing mortar, joint primers, sealants, and surfaces adjacent to joints. Tape will easily come off entirely, including adhesive.
- D. Antirust Coating: Conproco ECB
- E. Miscellaneous Products: Select materials and methods of use based on the following, subject to approval of a mockup:
1. Previous effectiveness in performing the work involved.
 2. Little possibility of damaging exposed surfaces.
 3. Consistency of each application.
 4. Uniformity of the resulting overall appearance.
 5. Do not use products or tools that could do the following:
 - a. Remove, alter, or in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contact.
 - b. Leave a residue on surfaces.

2.3 MORTAR MIXES

- A. Repointing Mortar: Refer to the ASTM E2659-09 Training Summary Report for approved approach, techniques, and methods.
1. Product Manufacturer: U.S. Heritage Group, Inc., 3516 North Kostner Ave., Chicago, IL 60641, Phone: 773-286-2100.
 2. Product: Repointing mortar custom produced to match the original color and texture based upon the mortar analysis data identified by the Owner. The mortar material is produced pre-blended with all ingredients contained in a single container. Contractor shall extract a mortar sample from the monument and deliver it to the vendor for matching purposes. The Owner will supply the contractor with the technical information pertaining to the formulation and aggregate selection.
 3. Repointing Mortar: ASTM C270, Type O, Proportion Specification. One part portland cement, two parts lime putty lime, eight parts aggregate (1:2:8)

2.4 CRACK INJECTION

- A. DHL Dispersed Hydrated Lime injection material.
1. Manufacturer: U.S. Heritage Group, Inc., 3516 North Kostner Ave., Chicago, IL 60641, Phone 773-286-2100.

2. Spachtel Surface Treatment. Manufacturer: U.S. Heritage Group, Inc., 3516 North Kostner Ave., Chicago, IL 60641, Phone 773-286-2100. Color to match surface of limestone and to cover cracks.

2.5 FLASHING AND WATERPROOFING

- A. Metal Flashing: All metal flashing and accessories shall be 20 oz. zinc coated copper with 24 oz zinc coated copper cleats formed to match profiles. Conditions in the field will verify if required.
- B. All metal flashing shall be terminated with continuous, end dams with soldered hospital type corners, counter flashed and or sealed with continuous two-sided butyl tape, or with a continuous cleat fastened with #8 pan head 304 stainless steel screws and plastic or lead expansion sleeves at 8" O.C. or with a minimum 4" over lap of sheet membrane. In no case will the drainage plane of metal flashing be penetrated or otherwise breached. All cleats shall be sealed to substrates with continuous two-sided butyl tape.
 1. Alternate: Lead Coated Copper
- C. Membrane Flashing: Grace Perma-Barrier VP or approved substitute as shown on the drawings.
 1. All membrane flashing shall be terminated with continuous end dams with Grace liquid membrane-sealed hospital type corners. All seams shall be lapped a minimum of four inches and sealed with Grace liquid membrane; all vertical and horizontal seams and edges shall be sealed with Grace liquid membrane. Do not allow membrane or liquid membrane remain exposed to the weather or ultraviolet light for more than 10 days.
 2. Membrane shall be installed over clean, flat surfaces; in all cases primed with the appropriate Grace primer. All voids or gaps greater than 1/8" inch shall be filled with an approved material prior to installation of membrane. Do not stretch or wrinkle membrane. Do not install with fish-mouths or voids of any kind.
- D. Weeps: Mortar Net Weeps, Color to be approved by Owner.
- E. Rust Inhibitive Coating: Conproco ECB.
 1. Clean and prepare all non-removable embedded ferrous shapes and surfaces. Apply two coats to all cleaned surfaces.
- F. Lead Mortar Joint Caps: "Weathercap" malleable solid lead covers in shapes and profiles as shown on the drawings: size in width of lead mortar joint caps are dependent on joint width.
 1. Manufacturer: Weathercap, Inc., P.O. Box 1776, Slidell, LA 70459, Phone: 985-649-4000. Install with two continuous beads of non-staining Dow 991 silicone in color per approved mock-up.
 2. Refer to the Historic Stone Masonry Condition Assessment Report - Date: September 30, 2010; Page 14, Figure 9 for installation drawing.

PART 3 - EXECUTION

3.1 GENERAL

- A. Refer to ASTM E2659-09 Training Summary Reports for approved restoration, rehabilitation, preservation, and new installation methods. If any part of this section and any part of the

Training Summary Reports appear to be in conflict, the Owner or Over-sight Committee shall make determination as to which takes precedence.

3.2 PROTECTION

- A. Protect existing statuary, bronze plaques, and all historic non-masonry items to remain such as lights, doors, and glass.
- B. Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
 - 1. Erect temporary protective covers over granite steps using plywood to prevent stone edge chips and spalls or other damage from occurring during operations. Cover walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.
- C. Prevent mortar from staining the faces of surrounding masonry and other surfaces.
 - 1. Cover sills, ledges, and projections to protect from mortar droppings.
 - 2. Immediately remove mortar in contact with exposed masonry and other surfaces.
 - 3. Clean mortar splatters from scaffolding at end of each day.

3.3 UNUSED OR ABANDONED ANCHOR REMOVAL

- A. Follow procedures approved in mock-up submittal. Below is general information.
- B. Remove masonry anchors, brackets, wood nailers, and other extraneous items no longer in use unless identified as historically significant or indicated to remain.
 - 1. Remove items carefully to avoid spalling or cracking masonry.
 - 2. Where directed, if an item cannot be removed without damaging surrounding masonry, do the following:
 - a. Cut or grind off item approximately 1 inch beneath surface and core drill a recess of same depth in surrounding masonry as close around item as practical.
 - b. Immediately paint exposed end of item with two coats of antirust ECB coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended dry film thickness per coat. Keep paint off sides of recess.
 - 3. Patch the hole with approved materials where each item was removed unless directed to remove and replace the masonry unit. This type of repair requires an approved mock-up.

3.4 PAINTING STEEL UNCOVERED DURING THE WORK

- A. Inspect steel exposed during masonry removal. Where Owner or Over-sight Committee determines that it is structural, or for other reasons cannot be totally removed, prepare and paint exposed steel as follows:
 - 1. Remove paint, rust, and other contaminants according to SSPC-SP 2, "Hand Tool Cleaning" as applicable to meet project and paint manufacturer's required preparation.
 - 2. Immediately paint exposed steel with two coats of antirust ECB coating, following coating manufacturer's written instructions and without exceeding manufacturer's recommended rate of application (dry film thickness per coat).
- B. If on inspection and rust removal, the cross section of a steel member is found to be reduced from rust by more than 1/16 inch (1.6 mm), notify Owner before proceeding.

3.5 WIDENING JOINTS

- A. Do not widen a joint, except where indicated or approved by the Preservation Consultant and Owner.

3.6 REDRESSING STONE INSITU

- A. Scale off all loose pieces of original stone from masonry intended to remain in place, including surface material in powder or granular form and detachments of planer elements, spalls and chips. Contractor shall sound all stone surfaces on building by using the “ring test method” in order to distinguish fully intact stone from those in which delamination may be hidden or pieces of unstable material may not be immediately visible. Locations designated for redressing are generally surface spalls at the edge of the stone units that do not exceed 1/8” in depth.

3.7 CRACK INJECTION (MTR 1)

- A. General: Comply with Dispersed Hydrated Lime manufacturer’s written instructions.
- B. Those cracks designated on drawings, where stone is soundly bonded but cracked, shall be injected. Unless otherwise noted, the intent of this specification is for the designated cracks to be injected their full lengths, not just locally where markings are noted on the drawings.
- C. Drill 1/8-inch holes in diameter, downward sloping angles into cracks and inject holes as follows:
1. Drill holes into the center of cracks and transversely approximately 1-inch apart and ½-inch in depth.
 2. Clean out drill holes and cracks with compressed air and distilled water. Remove dirt and organic matter, loose material, sealants, and failed crack repair materials.
 3. Use a syringe and inject the DHL material starting from the bottom hole upwards, filling each hole as the process proceeds. Clean up any over-running material immediately as it flows from the crack surface.
 4. Allow the material to draw into the crack through capillary action until it becomes tacky. Re-apply the material in the low spots of the crack refilling the holes until they become completely full. This may require a wait time of approximately five minutes.
 5. Scrape excess material away after 30 minutes. Apply Spachtel Surface Treatment to the crack surface to blend in the repair with the surrounding stone surfaces.
- D. Only skill-trade restoration workers that hold a “Crack Repair Skill-Trade Certificate” will be permitted to work on the scope of this masonry restoration treatment as defined.
- E. Only supervisors that hold a “Crack Repair Supervisor Certificate” will be permitted to supervise and oversee the skill-trade restoration workers during the process of the work.

3.8 CLEANING MASONRY (MTR 2)

- A. Refer to ASTM E2659-09 Training Summary Reports for approved restoration, rehabilitation, preservation, and cleaning methods. If any part of this section and any part of the Training Summary Reports appear to be in conflict, the Owner or Over-sight Committee shall make determination as to which takes precedence.
- B. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.
- C. Use only those cleaning methods indicated for each masonry stone condition and approved by the Owner or Over-sight Committee.
- D. Only skill-trade restoration workers that hold a “Cleaning Skill-Trade Certificate” will be permitted to work on the scope of this masonry restoration treatment as defined.
- E. Only supervisors that hold a “Cleaning Supervisor Certificate” will be permitted to supervise and oversee the skill-trade restoration workers during the process of the work.

3.9 MORTAR REMOVAL (MTR 3)

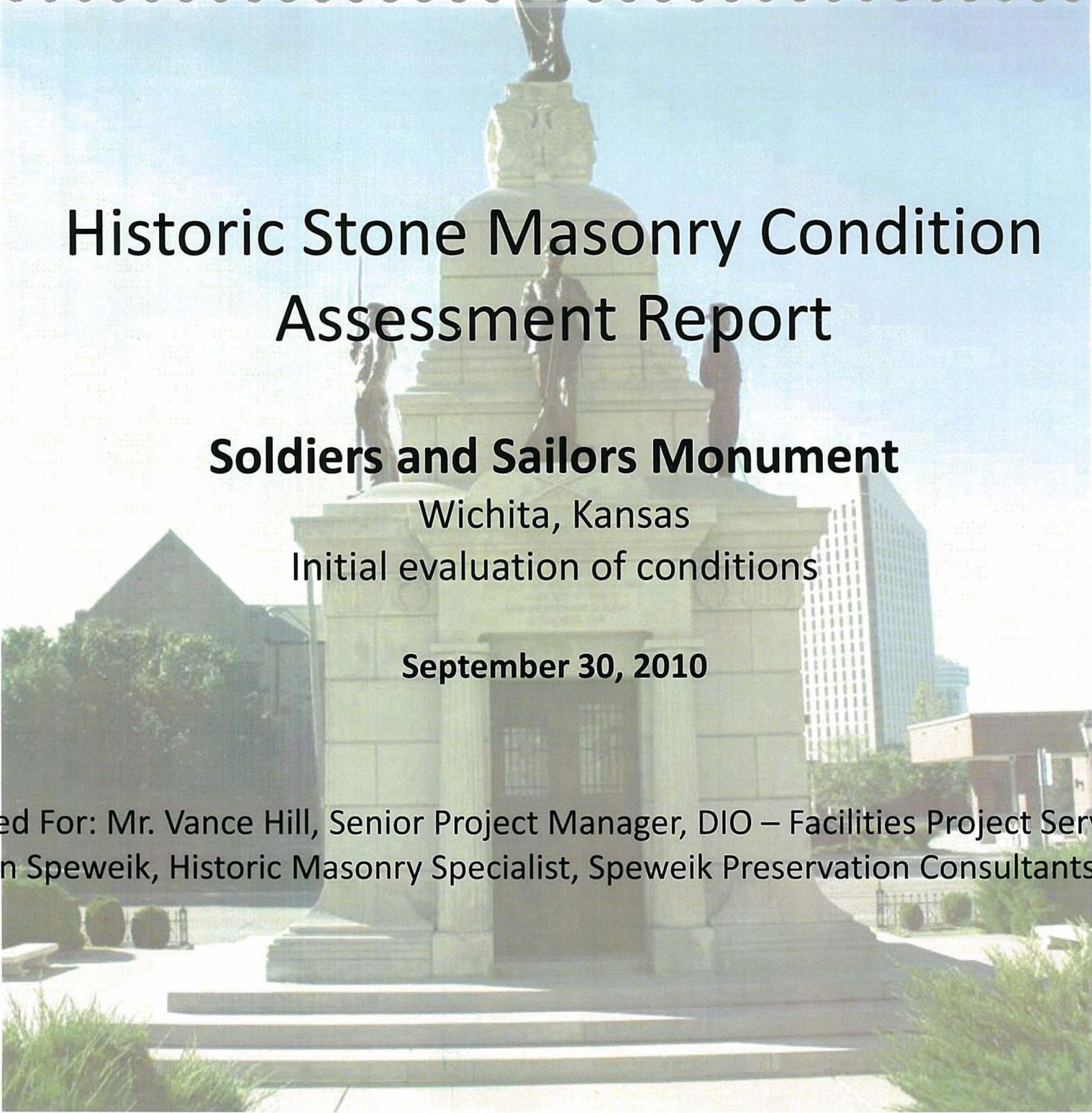
- A. Rake out joints 2½ times the width of the joint and according to procedures demonstrated in approved mockup and established during the on-site training program.
 - 1. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar.
 - 2. The square back reveal shape may require the removal of internal hidden stone material. This condition is typically a result of previous repointing campaigns that widened the joint profile at the face of the wall.
 - 3. Brush or vacuum joints to remove dirt and loose debris.
 - 4. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Owner.
 - 5. Follow guidelines described in the Preservation Brief No. 2 “Repointing Mortar Joints in Historic Masonry Buildings.”
 - 6. Contractor shall use the center-cut-method of mortar joint removal.
- B. Notify Architect of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.
- C. Use methods, techniques, tools, and approach as identified in the project training program and as demonstrated by the test panels approved by the Architect and Owner.
- D. Only skill-trade restoration workers that hold a “Mortar Removal Skill-Trade Certificate” will be permitted to work on the scope of this masonry restoration treatment as defined.
- E. Only supervisors that hold a “Mortar Removal Supervisor Certificate” will be permitted to supervise and oversee the skill-trade restoration workers during the process of the work.

3.10 REPOINTING (MTR 4)

- A. Repointing with Mortar:

1. Refer to ASTM E2659-09 Training Summary Report for approved approach, techniques, and methods.
 - B. Walls should be presoaked with water 10 minutes prior to repointing. Walls should be permitted to draw up the moisture to a saturated surface dry condition (SSD) with no standing water present prior to application of the repointing mortar.
 - C. Walls should be misted with water for the duration of at least 3 minutes at the end of the day after initial installation. Keep newly repointed walls from drying out too quickly. Moisten down the walls with water three times per day for the first three days after installation, including weekends and holidays.
 - D. Use methods and materials identified in the project training program lime mortar repointing and as demonstrated by the test panels approved by the Architect and Owner.
 - E. Only skill-trade restoration workers that hold a “Lime Mortar Repointing Skill-Trade Certificate” will be permitted to work on the scope of this masonry restoration treatment as defined.
 - F. Only supervisors that hold a “Lime Mortar Repointing Supervisor Certificate” will be permitted to supervise and oversee the skill-trade restoration workers during the process of the work.
- 3.11 FINAL CLEANING
- A. Refer to approved mock-up panels for methods and materials as directed by the Owner or Oversight Committee.
- 3.12 FIELD QUALITY CONTROL
- A. Inspectors: Owner will engage a Masonry Preservation Consultant to perform Quality Assurance Observation Inspections and prepare field reports on the progress of the work. Allow use of lift devices and scaffolding, as needed, to perform inspections.

END OF SECTION 04 01 20



Historic Stone Masonry Condition Assessment Report

Soldiers and Sailors Monument

Wichita, Kansas

Initial evaluation of conditions

September 30, 2010

Prepared For: Mr. Vance Hill, Senior Project Manager, DIO – Facilities Project Services
By: John Speweik, Historic Masonry Specialist, Speweik Preservation Consultants, Inc.

INTRODUCTION

Speweik Preservation Consulting, Inc.,(SPC) provided on-site consultation services for Sedgwick County per the request of Senior Project Manager Mr. Vance Hill for the Soldiers and Sailors Monument in Wichita, Kansas. The scope of the work called for a condition assessment of the granite work and the analysis of the original mortar material. SPC visited the site on September 29-30, 2010 to verify the conditions of the exterior historic granite masonry. An electronic digital moisture meter was used to gather data from the stone and the mortar in order to document what kind of patterns of moisture were present as they relate to any deterioration discovered.

John Speweik and Kyle Speweik of SPC met with Vance Hill at the site prior to starting the work. Kathy Morgan of the Wichita Historic Preservation Department assisted in the collection of data and documented the monument with digital photography. SPC removed and reinstalled a mortar joint as a test panel on a plinth head joint located at the southwest corner of the monument.

Please note that the results and conclusions reached in this consultation are limited to visual observations of the accessible areas of the building. While we have made our best efforts to investigate the building structure, many conditions were concealed by architectural finishes or were otherwise inaccessible, and therefore additional damage or other unforeseen conditions not included in this report may be possible. The findings of this report therefore represent our best professional opinion with the information made available to us.

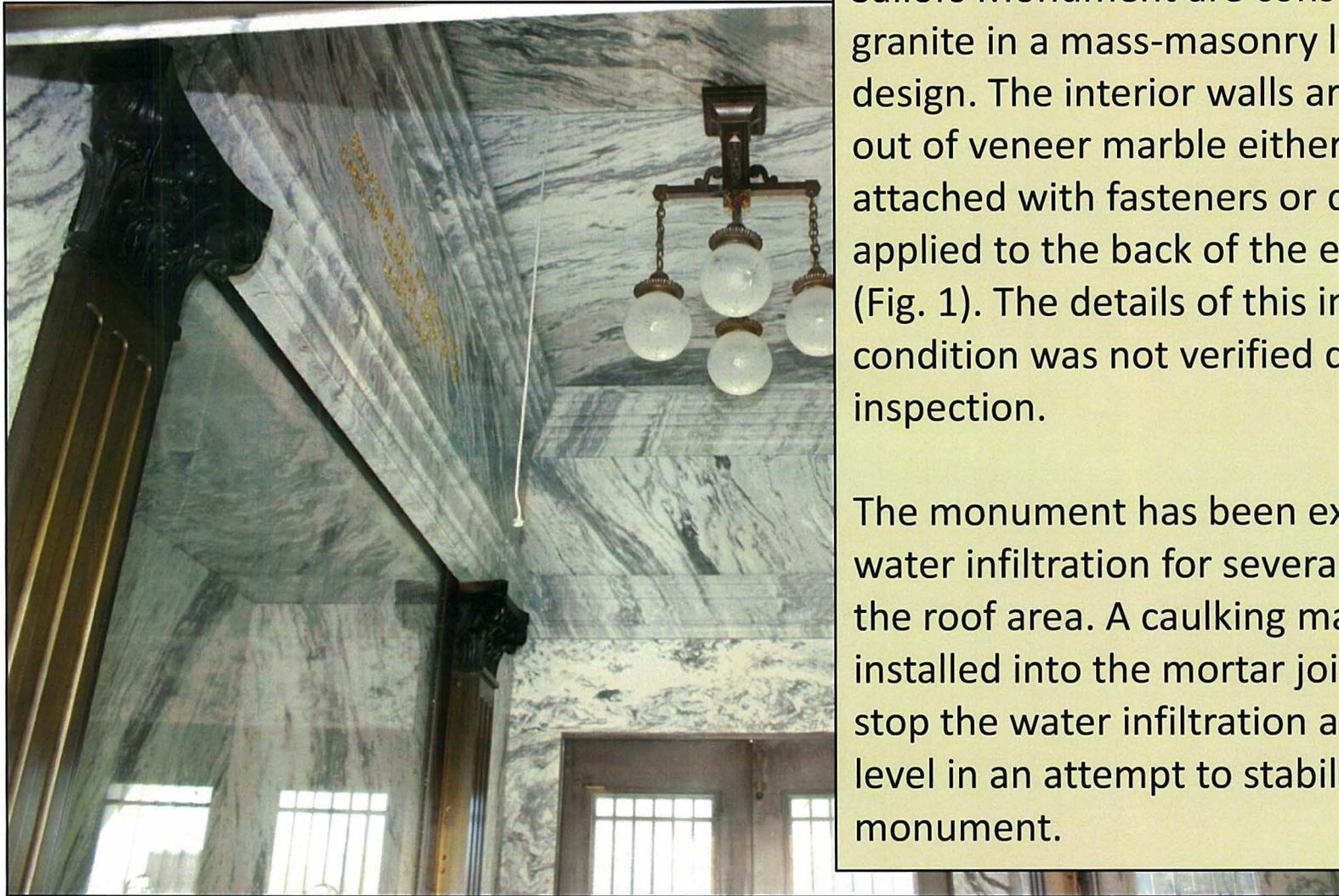
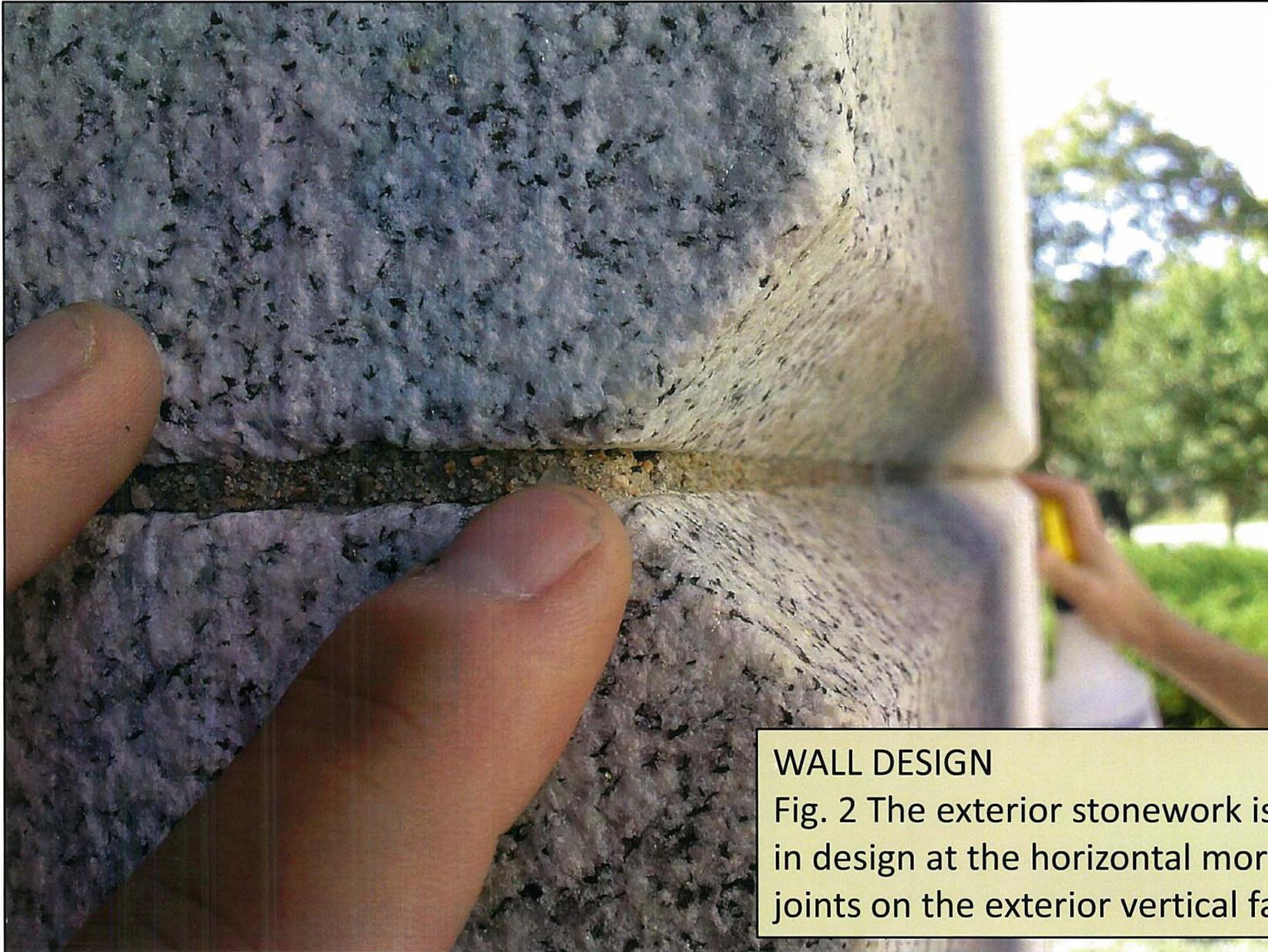


Fig. 1

WALL DESIGN

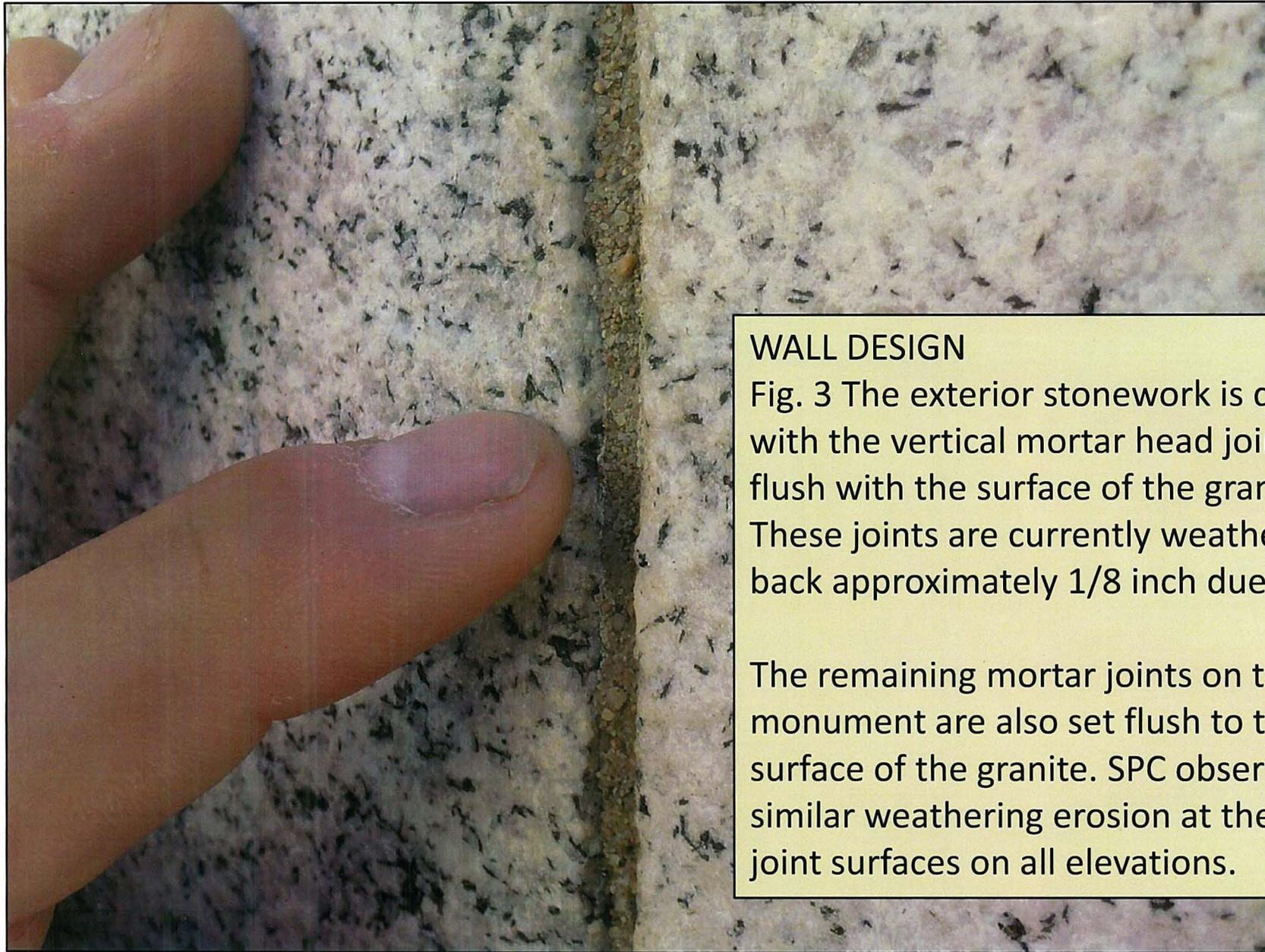
The exterior walls of the Soldiers and Sailors Monument are constructed of granite in a mass-masonry loadbearing design. The interior walls are constructed out of veneer marble either mechanically attached with fasteners or directly applied to the back of the exterior granite (Fig. 1). The details of this interior condition was not verified during this inspection.

The monument has been experiencing water infiltration for several years from the roof area. A caulking material was installed into the mortar joints in 2010 to stop the water infiltration at the roof level in an attempt to stabilize the monument.



WALL DESIGN
Fig. 2 The exterior stonework is bevel-cut in design at the horizontal mortar bed joints on the exterior vertical face walls.

Fig. 2

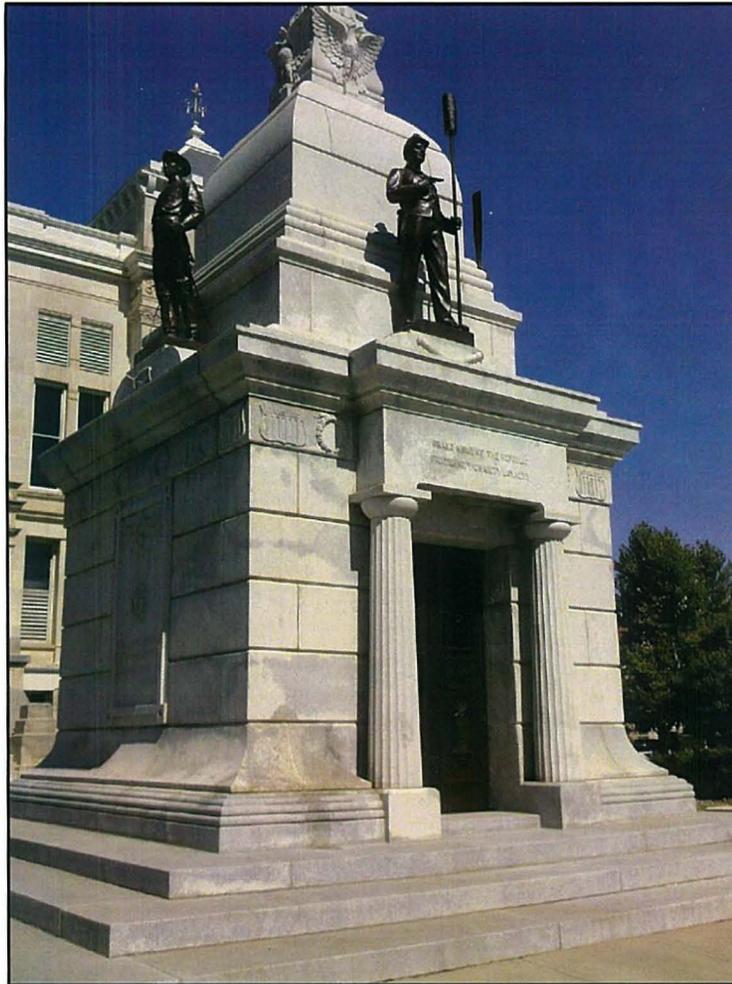


WALL DESIGN

Fig. 3 The exterior stonework is designed with the vertical mortar head joints set flush with the surface of the granite. These joints are currently weathered-back approximately 1/8 inch due to age.

The remaining mortar joints on the monument are also set flush to the surface of the granite. SPC observed similar weathering erosion at the mortar joint surfaces on all elevations.

Fig. 3



CONDITIONS

The inspection of the exterior historic stonework was observed from the ground. The granite is in excellent condition with no visible signs of settlement, cracking or displacement of the walls. The roof stone appear to be in good condition. The mortar joints on the monument were found to be in need of replacement. SPC observed the mortar joints to fall into two main categories: mortar bond failure (Fig. 4) and mortar loss/erosion (Fig. 5).



Fig. 4

Fig. 4 MORTAR BOND FAILURE: The adhesion is broken on this mortar joint on the left side of the profile. Bond failure can result in hairline cracks causing water infiltration due to capillary action.



Fig. 5 MORTAR LOSS & EROSION: close up of location where mortar loss and erosion are occurring simultaneously.

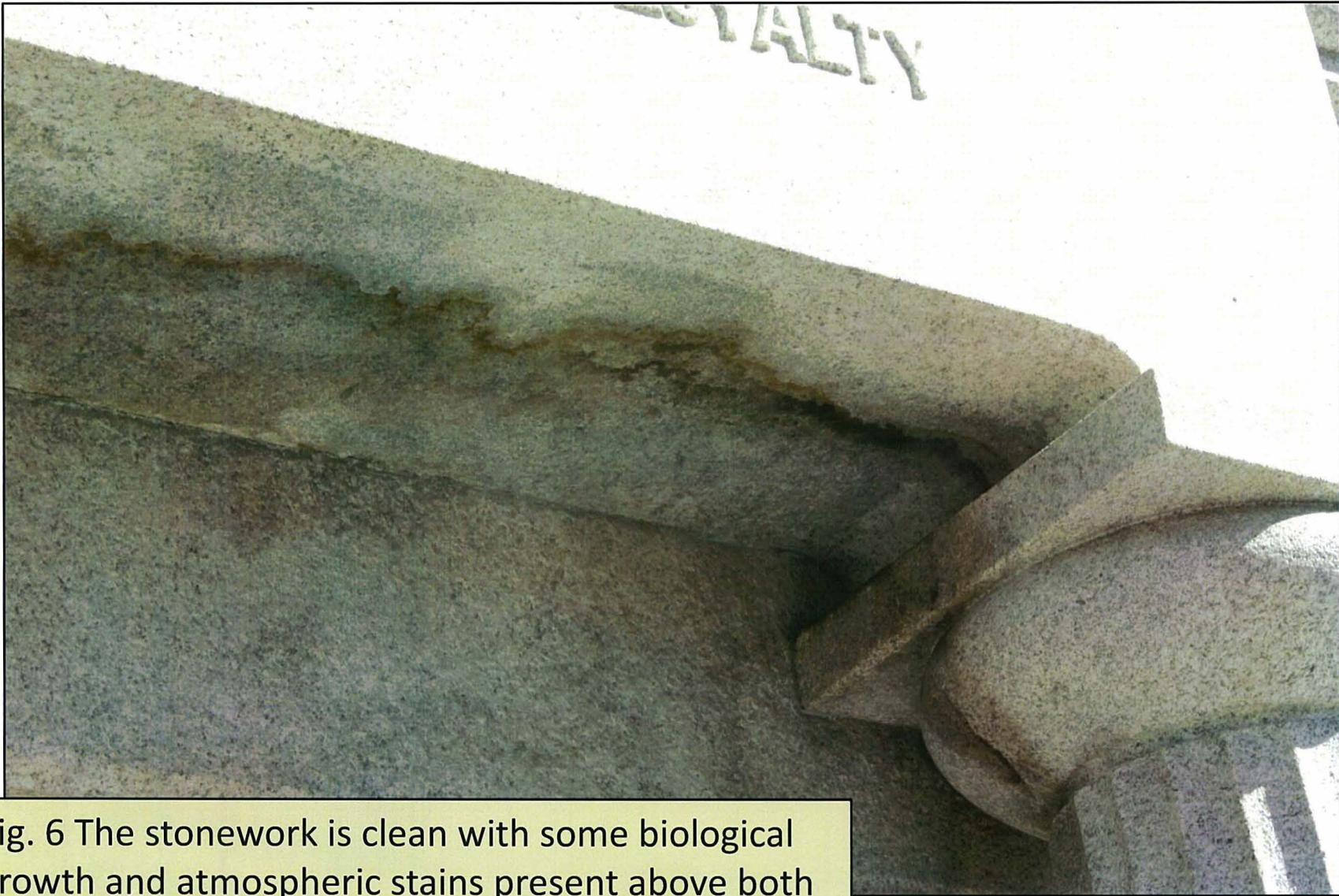


Fig. 6 The stonework is clean with some biological growth and atmospheric stains present above both entry doors on the north and south elevations.

Fig. 6

Fig. 7 MORTAR PERFORMANCE Existing mortar joint performance in relationship to water infiltration was studied. During the removal of the plinth stone mortar joint, a high moisture condition and mortar failure was discovered. The mortar condition at the surface of the wall was hard and durable only to about 1/8 inch in depth. Once the outer crust was penetrated, the remaining mortar underneath was very damp and sandy. It appears the binder of cement and lime had been totally dissolved over time most likely though repeated saturation conditions combined with freezing and thawing.



Fig. 7

Moisture Conditions

SPC engaged the building using a non-destructive electronic digital moisture sensor collection device to verify problem areas which assisted us in making our recommendations for preservation treatments. The data collection confirmed that the monument, at the test panel location (Fig. 8), is saturated at the subsurface level. This could be caused by the existing mortars inability to breathe at the outer surface of the joint profile. The water may likely be infiltrating by way of small hairline cracks in the mortar joints through capillary action. The goal is to have the mortar material breathe and obtain a tight bond to the stone surfaces so water can not penetrate the monument. It appears from our testing that the existing mortar material may be unintentionally holding water in the joint surfaces areas between the stone. The nature of this particular problem when joint surfaces are harder that interior surfaces is that water can not escape easily through evaporation. On the day of our testing the surface temperature of the granite at the test panel site was in excess of 100 degrees F. This elevated surface temperature (normal to the stone during this time of year) was unable to encourage evaporation of moisture from the wall due to the hard mortar surface. This condition over time will drive moisture into the inside of the monument creating a high humidity environment. The result is a potentially damaging effect to the interior materials.



Fig. 8

Recommendations

SPC recommends the removal of all mortar joints on the Soldiers and Sailors Monument. Sufficient time should be allowed for the complete drying out of the monument stonewalls for a given period of time prior to repointing. The time required will be dictated by determining the proper moisture equilibrium of the granite walls by using the electronic digital moisture meter.

This practice allows the evaporation of excess water from within the walls to escape. Air circulation and the use of dehumidifiers as well as heat should be used to facilitate this drying out process. SPC recommends the use of a lime-based mortar product to be considered for the repointing as the material allows for the optimum durability, excellent bond strength, and provides sufficient breathability. This is the mortar product SPC used in the test panel on the head joint on the southwest corner.

The use of lead canes (Fig. 9) on the skyward facing mortar joints should also be considered in replacement of the caulking presently in place.

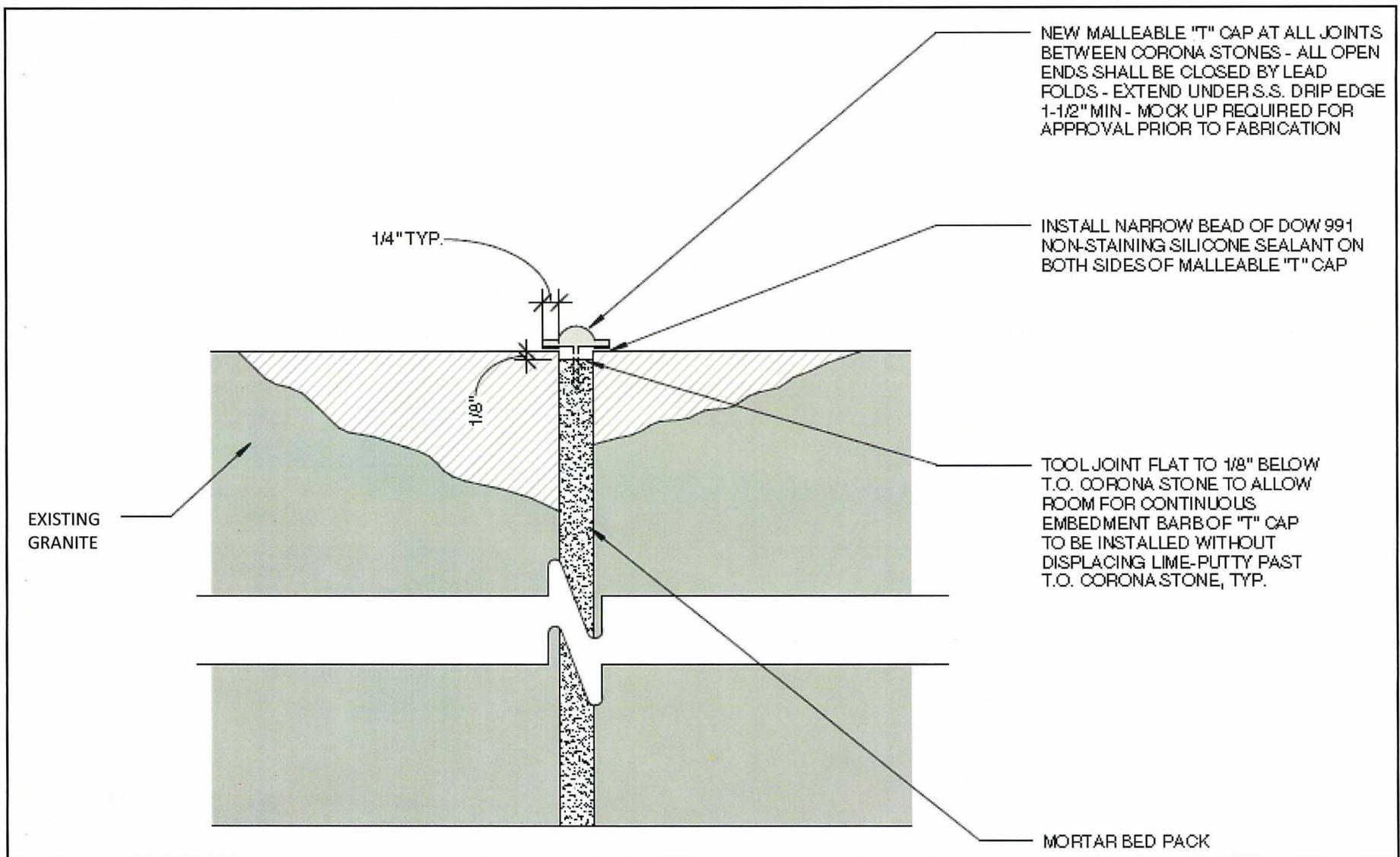


Fig. 9

Stone Preservation Treatment Considerations

The Secretary of the Interior's Standards for Rehabilitation (SISR)

1. Do nothing *SISR No. 2*
2. Repoint all mortar joints (lime-based mortar) *SISR No. 5*
3. DHL lime injection *SISR No. 6*
4. Water repellent treatments *SISR No. 10*

Fig. 10 * The Secretary of the Interior's Standards for Rehabilitation No. 10 – "New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired."

↑ *REVERSIBILITY – SEC. STANDARD No. 10

8 Steps for Consideration

1. **Develop Replacement Mortar Formulation:** Secure the professional services of Speweik Preservation Consultants, Inc., as the county's historic masonry consultant. Develop the replacement mortar formulation from this condition assessment report and the analysis of the original mortar – adjust ingredients for optimum performance and sacrificial capacity.
2. **Test Panel:** Monitor the test panel installation to define expectations of workmanship and the standards of excellence on the wall in the preservation stone treatments of repointing mortar joints (Fig.11).
3. **Drawings:** Elevation drawings are not required
4. **Specifications:** Write the specifications. Organize mandatory pre-bid meeting(s) and set bid date.
5. **Contractor Prequalification:** Prequalification of contractor during the “On-the-wall” interview process with the apparent low bidder.
6. **Project Award:** Project awarded to the most qualified low bidder.
7. **Quality Assurance:** Develop the ASTM E2659-09 SPC Historic Masonry Training Program specific to the Soldiers and Sailors Monument project specification requirements (Fig 12).
8. **Progress Inspections:** Ensure contractor compliance to the specifications (Fig. 13).

8 Steps for Consideration

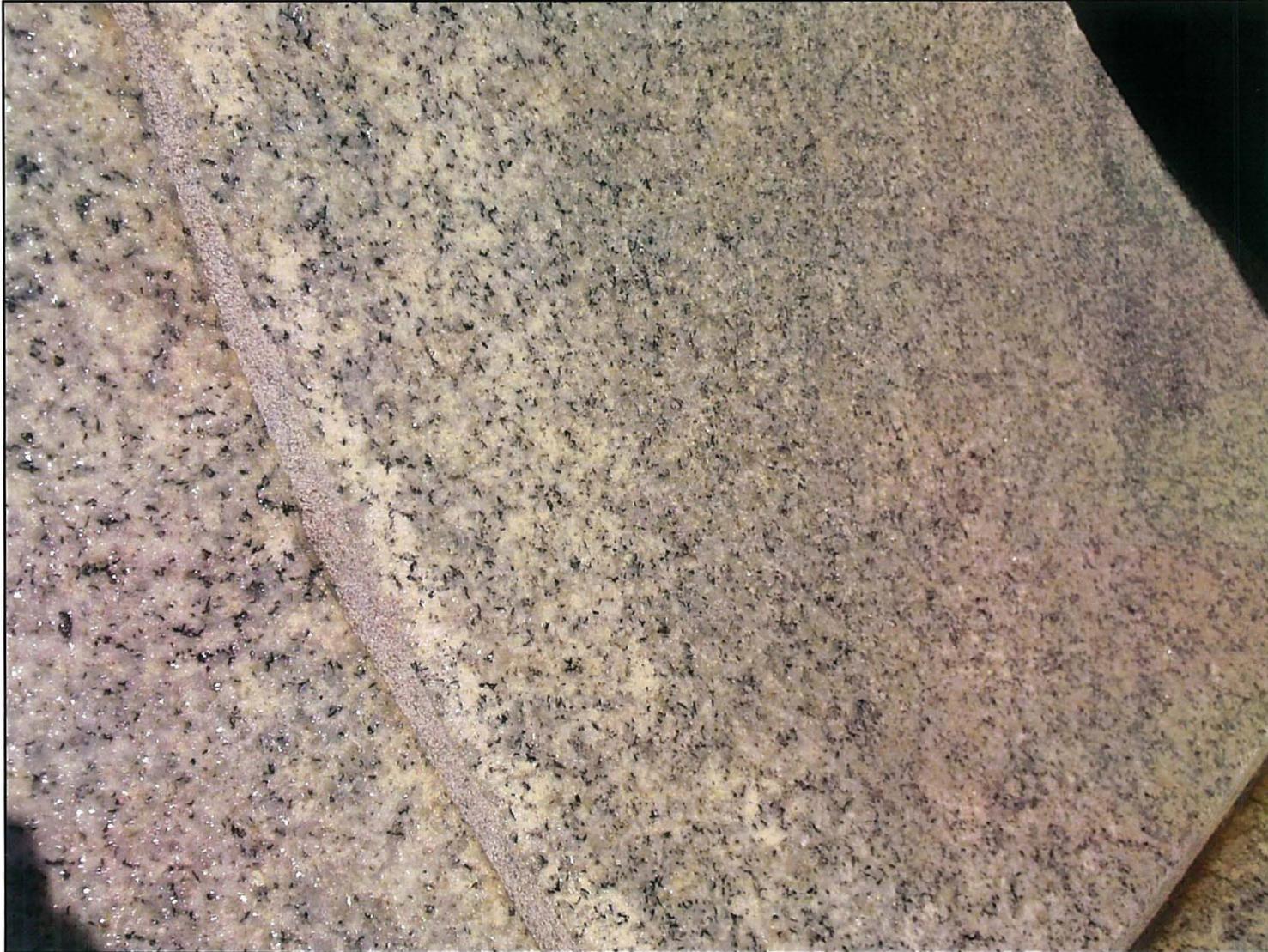


Fig. 11

8 Steps for Consideration

The Certificate Program Committee of ASTM E2659-09e1 with the Certificate Issuer verifies that all requisites have been completed by

John Hartshorn
for the
**SPC Historic Masonry Training
Component No. 5 Remove and Replace Stone**

presented on this 11th day of June in the year 2010 for the work scope described to accomplish the MIT Main Group Façade Pilot Project No. 090789 at the SE Corner of Building No. 2

CERTIFICATE PROGRAM COMMITTEE MEMBERS:
Mr. William Vitkosky, Senior Project Manager, MIT - Cambridge, MA
Mr. Eric Ward, Architect, EYP - Boston, MA
Mr. Gary Tondorf-Dick, Program Manager, MIT - Cambridge, MA

Designation: E 2659-09

1	REDRESS STONE INSITU
2	SUBSTITUTE STONE REPAIR
3	DUTCHMAN REPAIR
4	REMOVE CLEAN AND RETURN
5	REMOVE AND REPLACE
6	CRACK INJECTION AND STITCHING
7	LIME PUTTY REPOINTING
8	SELECTIVE DECONSTRUCTION

MIT-Bldg 2 Window Wall Pilot Restoration Project
**DIVISION 4
PROJECT
CERTIFICATE
TRAINING**


John P. Speweik CSI, Historic Masonry Instructor



Fig.12 Project Award & Onsite SPC Historic Masonry Training: Individual proficiency skill training for each mason at the project site. Training certificates earned by the individual mason and not by the company. Each mason must pass a written test and demonstrate proficiency of intended learning outcomes by installing a test panel. The test panel must be reviewed and approved by a project peer review committee in order to receive a certificate and hard hat sticker shown left bottom.

Fig. 12