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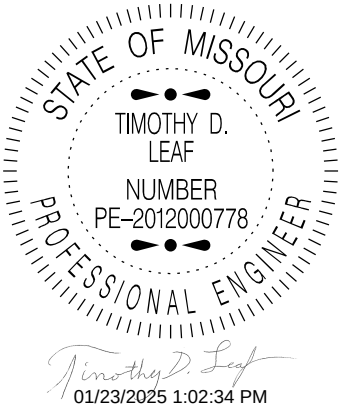

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65101
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If a seal is present on this sheet, JSP's has been electronically sealed and dated.

JOB NO. JCD0060
Osage County, MO
Date Prepared: 1/23/2025

Only the following items of the Job Special Provisions (Bridge) are authenticated by this seal: All

A. CONSTRUCTION REQUIREMENTS

1.0 Description. This provision contains general construction requirements for this project.

2.0 Construction Requirements. The sketches and the asbestos and lead inspection report for the existing structure(s) are included in the contract in the bridge electronic deliverables zip file for informational purposes only.

2.1 In order to assure the least traffic interference, the work shall be scheduled so that a lane closure is for the absolute minimum amount of time required to complete the work. A lane shall not be closed until material is available for continuous construction and the contractor is prepared to diligently pursue the work until the closed lane is opened to traffic.

2.2 Qualified special mortar shall be a qualified rapid set concrete patching material in accordance with Sec 704. A qualified rapid set concrete patching material will not be permitted for half-sole repair, deck repair with void tube replacement, full depth repair, modified deck repair and substructure repair (formed) unless a note in these specifications specifies that a qualified special mortar may be used.

2.3 Provisions shall be made to prevent any debris and material from falling into the waterway. If determined necessary by the engineer, any debris and material that falls below the bridge outside the previously specified limits shall be removed as approved by the engineer at the contractor's expense.

2.4 Any damage sustained to the remaining structure as a result of the contractor's operations shall be repaired or the material replaced as approved by the engineer at the contractor's expense.

2.5 Provisions shall be made to prevent damage to any existing utilities. Any damage sustained to the utilities as a result of the contractor's operations shall be the responsibility of the contractor. All costs of repair and disruption of service shall be as determined by the utility owners and as approved by the engineer.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for other items included in the contract.

B. ESTIMATED QUANTITIES

Description. The following table lists the pay items and estimated quantities for the Y01981 bridge for this project.

Item No.	Pay Item	Unit	Quantity
206-99.01	Dewatering	Lump Sum	1
703-99.04	Powerwash Existing Structure	Sq. Foot	1810
704-99.01	Mortar Testing	Lump Sum	1
704-99.02	Replace Stones	Each	50
704-99.04	Repoint Masonry Joints	Sq. Foot	1100

C. CLEANING EXTERIOR OF MASONRY

1.0 Description. This work shall consist of cleaning the outside faces of the bridge and adjacent stone wall on the north side of Route E. No work is anticipated inside the arches (barrels) of the bridge. This work shall be completed prior to the work involving repointing or replacement of missing stones.

2.0 Execution.

2.1 Hot water wash with low psi. 200-300 psi may be satisfactory. Maximum psi will be 500.

2.2 A bristle brush may be used to supplement the water wash as long as it does not remove or damage the stone surface.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for Powerwash Existing Structure.

D. HISTORIC STONE MASONRY REPOINTING

1.0 Description. This work shall consist of raking and repointing masonry joints as directed by the engineer. This work is anticipated to be performed on the exposed exterior faces of the bridge, wingwalls and adjacent stone wall on the north side of Route E. No work is anticipated inside the arches (barrels) of the bridge.

2.0 Materials.

2.1 Mortar.

2.1.1 Mortar shall conform to ASTM C270, Type N and match existing original mortar in color, strength, texture and composition. See “Mortar Testing” elsewhere in these specifications.

2.1.2 Water shall be potable, clean and free from acids, alkalis or organic materials.

2.1.3 Sand shall conform to ASTM C144 and shall be hard, sharp, clean, well graded and free of organic material.

2.1.4 Lime shall conform to ASTM C207 Type S Hydrated Lime for Masonry Purposes. Air entrained lime shall not be used.

2.1.5 Cement shall conform to ASTM C150 Type II Portland Cement. It shall not contain more than 0.6 percent alkali to avoid efflorescence. Air entrained mortar shall not be used.

2.1.6 The use of admixtures will not be permitted without the prior approval of the engineer.

2.2 Shims. Shims required to support replacement stones and for full-depth pointing shall be hard plastic and removable.

3.0 Execution.

3.1 Removing Existing Mortar.

3.1.1 Mortar shall be raked out from joints to depths equal to 2.5 times their widths, or to sound mortar, whichever is deeper (minimum of ¾”). Joints shall be brushed, vacuumed or flushed to remove all dirt and loose debris.

3.1.2 Center cut joints. If power tools are permitted, these tools shall only be used to cut a single kerf in the center of the masonry joint. “Half-Moons” leftover from grinders shall be removed. Hand tools, or if approved, power chisels, shall be used to remove the remaining mortar from the side of the joints.

3.1.3 Edges of masonry units shall not be broken or marred and joint shall not be widened. The Contractor shall replace, in-kind, all masonry units damaged by mortar removal at the Contractor’s cost.

3.2 Tools.

3.2.1 Power Tools

Use of rotary grinders, power chisels, pneumatic hammers or any other power tools will be permitted only with prior approval of tool types, locations and mechanics. If mechanical grinders are approved for cutting the horizontal joints, the blade must be no larger than four inches in diameter. Power chisels, if used, shall be a hand-held short stroke pneumatic carving tool with a round shank chisel blade with no retainer. Power routers shall not be used.

3.2.2 Chisels

Chisels shall be narrower than the joints in which they are used.

3.2.3 Mortar Injectors

For full-depth pointing, if Contractor so elects, Contractor will be permitted to use powered injection equipment of suitable design, providing that the Contractor demonstrates that joints can be completely filled and compacted to the same degree as accomplished by hand placement of mortar by conventional methods. Where mortar injectors are employed, the final 5/8” shall be placed by hand.

3.3 Site Conditions

3.3.1 Do not perform any masonry application unless air temperatures are between 40 and 85 degrees Fahrenheit and will remain so for at least 48 hours after completion of work. Alternatively, provide proper protection to maintain said temperature range.

3.3.2 Provide sun, wind and rain protection per the approval of the engineer.

3.4 Pointing

3.4.1 Masonry surfaces shall be pre-dampened to receive repointing mortar for a minimum of twenty minutes prior to mortar placement. Masonry surfaces shall be damp but free of excess standing water at time of mortar placement.

3.4.2 Joints shall be pointed in layers or lifts where the joints are deeper than ¾”.

3.4.2.1 Joints greater than ¾” deep shall be pointed with an initial lift to bring the joint to a uniform depth of ¾”.

3.4.2.2 Compact each layer at the time it is placed in the joint by applying firm pressure with the pointing tool.

3.4.2.3 Allow each lift to become thumbprint hard before applying the next lift.

3.5 Full-Depth Pointing

3.5.1 Provide temporary support where necessary to prevent displacement of brick or stone during repointing and until mortar has achieved sufficient strength.

3.5.2 Where required to maintain support of units, rake out and repoint each unit in stages, allowing freshly repointed portions to cure sufficiently before raking out and repointing remaining portions of joints supporting the unit.

3.5.3 Remove temporary shims and supports when no longer needed and repoint the voids left by temporary shims and supports.

4.0 Method of Measurement. This work will be measured as the flat area of the exposed, exterior faces around which repointing is performed. The measured area will include the area of the repointing mortar as well as the area of the adjacent stone(s) being repointed, in square feet.

5.0 Basis of Payment. Any labor, materials, equipment, or other required items shall be considered completely covered by the contract unit price for Repoint Masonry Joints.

E. REPLACING BROKEN OR MISSING STONES

1.0 Description. This work shall consist of sourcing and replacing missing stones as directed by the engineer. Any slipped stones that are easily removed shall be replaced. Slipped stones that are locked in their location shall be adjusted as close to the original position as possible and repointed per these specifications.

The upstream “nose” in the center between the two arches is highly deteriorated. It is expected that a number of stones will be required to rebuild this section of the bridge.

2.0 Materials.

2.1 Replacement Stones.

2.1.1 Replacement stones shall be sourced locally and shall match the existing stones as closely as possible.

2.1.2 Replacement stones shall be obtained from a single source.

3.0 Execution.

3.1 If replacing a damaged stone, shore the area as needed to remove the existing stone.

3.2 Clean the area where the stone will be replaced.

3.3 Apply a bedding mortar and carefully reset the stones to be replaced, ensuring they are well bedded. Take care to protect the adjacent masonry and stonework.

3.4 After the bedding mortar has cured, repoint the masonry joints following the repointing procedures in these specifications.

4.0 Method of Measurement. Measurement of replacement stones will be made per each.

5.0 Basis of Payment. Any labor, materials, equipment, or other required items shall be considered completely covered by the contract unit price for Replace Stones.

F. MORTAR TESTING

1.0 Description. This work shall consist of sampling and testing existing (original) mortar to determine a suitable mortar mixture for use in the repointing and repair work for this project.

2.0 References.

2.1 ASTM C1713: Standard Specification for Mortars for the Repair of Historic Masonry.
2.2 ASTM C1324: Standard Test Method for Examination and Analysis of Hardened Masonry Mortar.

3.0 Testing.

3.1 Mortar Testing. Mortar testing shall be completed to determine the appropriate mortar mix proportions and aggregate in accordance with ASTM C1324 Standard Test Method for the Examination and Analysis of Hardened Masonry Mortar. Samples of original pointing mortar shall be removed by the contractor from approved locations. Mortar testing shall be completed by a qualified petrographer as defined by ASTM C1324. The specified mix shall conform to the materials and proportioning sections of ASTM C1713.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract lump sum price for Mortar Testing.

G. DEWATERING

1.0 Description. This provision covers dewatering the site as necessary to provide a suitable condition for construction as approved by the engineer. This work will only be performed at the discretion of the engineer and will be underrun if not required by the engineer. If the engineer determines it necessary to provide dewatering, the work shall be performed in accordance with Sec 206 and this job special provision.

2.0 Construction Requirements. Dewatering shall provide a dry work area suitable to perform the work required for the project, within specifications, as approved by the engineer. Typical dewatering methods consist of, but are not limited to, construction of cofferdams, seal courses, over excavation, well point systems, dewatering and drainage diversion. Any dewatering method utilized shall conform to all environmental laws and regulations.

3.0 Method of Measurement. No measurement will be made.

4.0 Basis of Payment. Payment for dewatering will be made regardless of which dewatering means is utilized. No payment will be made if the work area is not maintained in a dewatered state as approved by the engineer. The lump sum payment for dewatering will be considered full compensation, and no time extensions will be made regardless of which means and methods are utilized by the contractor.