

SECTION S505 - BRICK PAVEMENT RESTORATION

S505-1 DESCRIPTION

Work consists of restoration of existing brick pavement to its original section, as required in Contract Documents and as directed by Project Manager.

References to NYSDOT specifications are to be in accordance with latest edition of *NYSDOT Standard Specifications (US Customary Units)*.

S505-2 MATERIALS

S505-2.01 Replacement Brick Paver

Replacement brick pavers are to be new heavy vehicular paving bricks in accordance with ASTM C1272. Brick pavers will be visually inspected subsequent to delivery, and prior to, during or after laying and rolling. Brick pavers not in accordance with ASTM C1272 will be rejected.

Replacement brick pavers that are so kiln marked or distorted in burning as to lay unevenly in pavement section, will be rejected.

Replacement brick pavers are to conform in size and color to existing brick pavers originally used for pavement area to be restored. Color of replacement brick pavers is to be permanent and reasonably uniform throughout brick paver.

When sample pieces of replacement brick pavers broken, brick paver is to exhibit uniformity of texture and structure, and is to be free from open or market laminations.

For grades of 6 percent or over, brick pavers are to have one or more longitudinal edges or faces chamfered or grooved up to 3/4 inch.

Provide typed written statement to Project Manager stating that brick pavers have been inspected and passed all required tests. Decisions relative to each carload of brick pavers will be made when practicable within 24 hours of notice. Permission to deliver brick pavers to project site will not be considered final inspection in any respect.

S505-2.02 Coarse Sand

Coarse sand is to be clean washed well graded angular sand with maximum particle size of 3/16 inch, without any fine limestone screenings, free of salts and other deleterious materials, and in accordance with ASTM C33 Concrete Aggregates.

S505-2.03 Polymeric Jointing Sand

Polymeric jointing sand for filling joints is to be mix of graded sand and binder, especially formulated for filling of narrow or wide joints for brick, slate and stone paver construction.

After setting-up, polymeric jointing sand material is to be flexible, allowing for movement without cracking. Polymeric jointing sand is to resistant to insect infestation, weed growth and erosion caused by rain, frost, wind and suction. Polymeric jointing sand is to be suitable for stabilizing horizontal or sloping installations such as for streets, driveways, sidewalks, parking lots and curb park areas.

S505-2.04 Mortar

Mortar is to be type S masonry mortar in accordance with NYSDOT Section 705-21 Masonry Mortar.

S505-2.05 Concrete

Concrete for pavement foundation is to be Class C concrete in accordance with NYSDOT Section 503 Portland Cement Concrete Foundation for Pavement.

S505-2.06 Subbase Course

Subbase course material is to be Type 1 in accordance with NYSDOT Section 304 Subbase Course, with following modification:

Recycled materials, pulverized or recycled portland cement concrete aggregate (RCA) and brick, reclaimed asphalt pavement (RAP), and Corian® are unacceptable for use as subbase course material, unless specifically authorized in writing by City Engineer.

S505-3 CONSTRUCTION DETAILS

S505-3.01 General

Brick pavers are to be handled carefully during hauling, unloading and laying, so as to prevent spalling or otherwise damaging brick pavers.

Brick pavers are to be stored at location that is safe and secure from damage by Contractor's ongoing operations, and from vandalism, theft or other mishap. Brick pavers are not to be stacked more than five high, with bottom row placed on level ground to provide even bearing across entire brick paver surface. Work is to be phased so as to reduce to minimum amount of time brick pavers are to be stored.

Brick pavers are to be covered to prevent mud, dirt or other material from collecting on brick pavers. Brick pavers that become soiled are to be cleaned before use.

Brick pavers are not to be installed when ambient air temperature is under 40°F, or is expected to fall below 40°F within following 24 hour period.

Cutting straight edges of brick pavers is to be done with water cooled radial cut-off type masonry saw for sharp, straight edge. Cutting circular edges of brick pavers is to be done with concrete hole saw which produces sharp circular edge.

Expansion joints are to be provided where brick pavers butt up against curb, catch basin, manhole, utility valve or any other type of structure or utility appurtenance located within area to be restored. Place 1/2 inch thick premoulded expansion joint material between brick paver and structure/utility appurtenance. Top of premoulded expansion joint material is to be recessed 5/8 inch below top of brick paver, with recessed area filled in with caulking sealant.

All outer edges of existing brick pavement area to be restored, are to be saw cut before being excavated. Saw cuts are to be full depth thru existing concrete foundation, and are to be made by using concrete saw.

Existing subgrade material that is determined to be undesirable, is to be removed and replaced with select granular fill material.

S505-3.02 Brick Paver Removal

Use extra caution when removing and handling existing brick pavers that are to be salvaged for reuse, and when working adjacent to brick pavement areas that are to remain, so that breakage or damage caused by Contractor's ongoing operations is kept to absolute minimal amount as possible. Existing brick pavers that are designated for reuse, and are subsequently damaged due to Contractor's operations, are to be replaced with new replacement brick pavers.

Project Manager and Contractor will pre-determine which existing brick pavers are structurally acceptable for reuse. Carefully excavate around and remove existing brick pavers such that overall structural integrity of brick paver is not compromised. Clean removed brick pavers of all extraneous materials, including concrete, in such manner as to be non-deleterious to brick paver.

Caution is to be taken in removing existing brick to minimize any breakage. Brick is to be cleaned of all foreign or extraneous matter. Removal and cleaning of brick is to be done such that overall structural integrity of brick is maintained.

Existing brick pavers that are broken during excavation, or cleaning operations, are to be properly disposed of.

After removing existing brick pavers, existing setting bed material is to be removed, and if necessary concrete foundation, and all removed materials properly disposed of.

S505-3.03 Brick Pavement Restoration

A. General

Brick pavement restoration area is to be in accordance with existing pattern, joints, grade, and crown so as to blend in with adjacent existing brick pavement areas, and to provide uniformly even surface.

Brick pavement is to be restored using combination of existing and new replacement brick pavers. Existing brick pavers are those that are either excavated from project site, or salvaged and imported from other locations. If existing brick pavers are imported from another location, imported brick pavers must conform in size and color to existing brick pavement area being restored.

Reuse only existing brick pavers that are in good condition, solid, without being cracked, chipped, or show any other forms of deterioration, and that are approved for reuse by Project Manager.

Before existing brick pavers are reset, existing brick pavers are to be redressed and cleaned to obtain smooth surface and to provide for good fit with adjacent brick pavers where they are being installed.

Brick pavement section is to be as detailed in Contract Documents. Before constructing brick pavement section, surface of underlying subbase material should be thoroughly clean and dry, and any isolated high and low spots corrected before placement of subbase course material.

Brick pavers are to be laid on setting bed of coarse sand which has been thoroughly compacted to nominal thickness of 1 inch after compaction. Screed rails should be set on surface of setting bed material to proper line and level. An allowance should be made in overall thickness of setting bed material for compaction during brick paver installation. Overall placement thickness of setting bed material should be established so that after brick pavers have been compacted, top surface of brick pavers will be maximum of 1/8 inch above finished grade to allow for limited in-service settlement.

To prevent disturbance, setting bed material should not be spread too far ahead of brick paver laying face. Voids left after removing screed rails should be filled. Protect screeded setting bed material from wind or rain as well as by wayward construction operations. If setting bed material is disturbed, it is to be loosened and rescreeded. Extensive areas of screeded setting bed material should not be left exposed overnight unless they are properly protected from disturbance and moisture. Moisture content of setting bed material should be kept as uniform as possible to minimize undulations in brick paver surface, and should be kept in damp condition conducive to packing. Water should not be applied except by very light misting. Stockpiled setting bed material is to be covered to protect it from wind and rain.

Brick pavers are to be placed by hand on setting bed material, in required pattern, with straight courses. Brick pavers should be tamped down and leveled with mechanical vibrator. After compaction, top of brick pavers are to be maximum 1/8 inch above finished grade, true to surrounding cross-slope and grade, and free of any movement.

Joints between brick pavers are to be between 1/16 and 3/16 of an inch, with no joint width to exceed 3/16 of an inch. Joints are to be filled with polymeric jointing sand or mortar, to within 1/8 inch of brick paver surface after compaction.

B. Joints – Polymeric Jointing Sand

Before applying polymeric jointing sand material, surface of brick pavers must be completely dry as moisture will activate binder agent of polymeric jointing sand.

Cover brick pavement restoration area with polymeric jointing sand, then sweep polymeric jointing sand over and into all joints until joints are overfilled. Sweep entire surface clean removing all excess polymeric jointing sand material as soon as possible so polymeric jointing sand does not get stuck in surface texture of brick pavers. Compact overall area, repeating process until joints are filled solid with polymeric jointing sand. Lightly moisten polymeric jointing sand material with water several times at 5 to 10 minute intervals gradually moistening entire depth of joint.

C. Joints – Mortar

Mortar mixture is to be swept over and into brick paver joints until joints are completely filled. Lightly fog mortar mixture with water and add more mortar mixture, repeating process as necessary until joints are completely filled and thoroughly compacted. Brick pavers are to be cleaned of excess mortar mixture, and joints finished prior to mortar mixture setting up.

Brick pavers are to be kept moist for 4 calendar days after filling joints with mortar mixture. After 4 day curing period, removal of remaining mortar film may be accomplished by use of light acid wash (10 percent solution of hydrochloric or muriatic acid) followed by flushing clean with water. Care is to be taken to avoid use of acid solution in areas where runoff could damage trees or vegetation.

S505-4 METHOD OF MEASUREMENT

Quantity to be measured for payment will be number of square feet of brick pavement restored.

S505-5 BASIS OF PAYMENT

S505-5.01 Brick Pavement Restoration

Unit price bid includes cost of: Storing and protecting existing and replacement brick pavers; excavating, removing, redressing, cleaning and resetting existing brick pavers; redressing, cleaning and setting existing brick pavers salvaged and imported from other locations; cleaning and installing replacement brick pavers; cutting brick pavers; expansion joints; premoulded expansion joint material; caulking sealant; excavation including hand excavation; pavement saw cutting; coarse sand setting bed; filling joints with polymeric jointing sand or mortar mixture; water; acid wash; concrete foundation; subbase course type 1; protection of work from damage, vandalism, theft or other mishap; and furnishing all labor, material and equipment necessary to complete work.

Replacement of undesirable subbase material will be paid for under separate items.

S505-5.02 Replacement Brick Paver

Unit price bid includes cost of: furnishing and delivering new replacement brick pavers; and furnishing all labor, material and equipment necessary to complete work.

S505-5.03 Existing Brick Paver – Salvaged From Other Location

Unit price bid includes cost of: excavating, removing and delivering existing brick pavers from other locations; and furnishing all labor, material and equipment necessary to complete work.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
S505.05	Brick Pavement Restoration	Square Foot
S505.06	Replacement Brick Paver	Square Foot
S505.07	Existing Brick Paver - Salvaged From Other Location	Square Foot

REVISED July 1, 2017