

# Special Specification 5099

## Remove, Clean, Palletize, Store, and Relay Street Brick



### 1. DESCRIPTION

This Item will govern for the removal, cleaning, palletizing, storing and relaying of street brick, in accordance with the details shown on the plans and in this Item.

### 2. MATERIALS

All new materials will conform to pertinent requirements of the following Items:

- Item 420, "Concrete Substructures"
- Item 421, "Hydraulic Cement Concrete".

2.1. **Bedding Sand.** The bedding sand will be a fine aggregate meeting the requirements of Section 421.2.6.2 with the exception of the fineness modulus requirements.

2.2. **Joint Sand.** The joint sand will be a mixture of fine aggregate and cement. The fine aggregate will meet the gradation requirements shown in Table 1.

Table 1  
Fine Aggregate Gradation Chart

| Sieve Size | Percent Passing       |
|------------|-----------------------|
| 3/8 in     | 0                     |
| No. 4      | 0                     |
| No. 8      | 0 to 5                |
| No. 16     | 0 to 30               |
| No. 30     | 25 to 60              |
| No. 50     | 65 to 90 <sup>1</sup> |
| No. 100    | 85 to 98 <sup>2</sup> |
| No. 200    | 100 <sup>3</sup>      |

1. For crushed sand this is allowed to decrease to 60 to 80.
2. For crushed sand this is allowed to decrease to 75 to 90.
3. For crushed sand this is allowed to decrease to 90 to 100.

The joint sand will be subjected to the sand equivalent test (Test Method Tex-203-F). The sand equivalent will not be less than 35 unless otherwise shown on the plans.

The hydraulic cement will be Type I, IP, or II conforming to the requirements of DMS-4600, "Hydraulic Cement." The percent of cement will be a 1:1 ratio unless otherwise approved by the Engineer.

### 3. EQUIPMENT

The machinery, tools and equipment necessary for proper prosecution of the work will be on the project and approved by the Engineer prior to beginning work on this Item.

### 4. CONSTRUCTION METHODS

4.1. **Brick Removal, Cleaning, Inventorying and Palletizing.** The Contractor will be responsible for the removal of existing street brick in a manner that assures the least amount of damage to the brick. Removal methods will have prior approval by the Engineer. Motor graders, tractors, and front-end loaders will not be allowed to

pick up, "Pop-Up" or remove bricks unless otherwise directed by the Engineer. Bricks will not be thrown, tossed or dropped during the handling process.

Bricks will be graded upon removal and separated as reusable and non-reusable. Bricks designated as reusable will be cleaned so that the edges and the face surface, having no more than 3 broken corners, are free from motor oil, paint, asphalt and other foreign matter. A high pressure soap wash or other necessary methods, as approved by the Engineer, will be used to clean the brick. Nondestructive chemical solvents may be used to clean the brick. Sandblasting of the bricks will not be permitted.

Clean brick will be stacked on wooden pallets, banded and stored at the Contractor's construction yard, or a facility agreed upon by the Engineer. It will be the entire responsibility of the Contractor to store and protect from harm both bricks designated for reuse and those not to be reused. Bricks not designated for reuse will be stacked, banded, palletized, and stored at a storage facility as shown in the plans. Palletized brick will be loaded with forklifts onto flatbed trucks for transportation. In no case will loading brick with front end loaders, transporting in dump trucks or dumping of bricks be allowed.

The existing sand cushion will be removed within the same limits of brick removal and disposed of by the Contractor at locations approved by the Engineer.

- 4.2. **Relaying of Bricks.** Upon completion of sub-base, asphaltic stabilized base, paid for separately and in accordance with appropriate bid items, the placement of the bedding sand will commence in accordance with the details shown on the plans and as directed by the Engineer. The bedding sand will be of a uniform moisture content of 3% to 7% at time of compaction. The uncompacted bedding sand course will be spread evenly over the area to be paved and then screeded to a level that will produce the thickness shown on the plans when the street brick have been placed and vibrated. Once screeded and leveled to the desired elevation, this bedding sand will not be disturbed or compacted in any way.

Street brick will be placed in the same pattern as existed before removal and the existing brick will be placed bottom side up to expose the unused surface to traffic, immediately after screeding and leveling of the bedding sand. String lines will be used to hold all patterns true. The bricks will be laid in such a manner that the joints between the brick are as tight as possible. For maximum interlock between brick, the joints will not exceed a 1/4 in. gap. Every 10 rows of bricks laid will be aligned and compressed using an edge board and sledge hammer or an equally effective method as approved by the Engineer.

In each row, all full bricks will be laid first. Partial bricks will be cut using a masonry saw and fitted subsequently. Such closure bricks will not consist of less than 1/3 of a full brick. A grout mix, tinted to match the brick color, consisting of 1 part cement to 2 parts fine aggregate may be used to fill a small edge space. Gaps less than 3/8 in. will be filled with joint sand.

Bricks will be compacted into the bedding sand using a high-frequency, low-amplitude mechanical flat plate vibrator, having a plate area sufficient to cover a minimum of 12 bricks. The compactor will be capable of delivering a 3,500 to 5,000 lb. centrifugal compaction force operated at a frequency of 80 to 90 hertz.

Compaction will proceed as closely as possible following the laying of brick and prior to opening to traffic. Units which are damaged during compaction will be removed and replaced. Compaction should not be attempted within 3 ft. of the laying face. All work to within 3 ft. of the laying face will be left fully compacted at the completion of each day. The remaining uncompacted edge of the laying face and bedding sand will be protected from moisture loss/gain and compaction.

After compaction into the bedding sand, the cement stabilized joint sand will be spread over the brick surface and vibrated into the joints with additional vibrator passes and brushing so as to completely fill the joints. Surplus material will be left on the surface during placement of brick to ensure complete filling of joints during initial use. The excess cement stabilized joint sand will be swept off when directed by the Engineer. After sweeping, the compacted brick section will be lightly fogged with clean water. Use fogging equipment that can apply water in a fine mist, not a spray. The fog produce will be from equipment that pumps water or water and air under high pressure through a suitable atomizing nozzle. Use hand-held mechanical equipment

portable enough to use in the direction of any prevailing wind and adaptable for intermittent use to prevent excessive wetting of the Street Brick Pavers.

No traffic will be allowed on bricks until the bricks have been properly compacted and the joints have been filled.

Prior to final acceptance of the project, all joints will be refilled as necessary to replace any settlement that may occur.

## 5. MEASUREMENT

This Item will be measured by the square yard of surface area in its original position, except for areas that require repair which were damaged by the negligence of the Contractor.

## 6. PAYMENT

The work performed and the materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Removing, Cleaning, Palletizing, Storing and Relaying Street Brick", "Removing, Cleaning, Palletizing, and Storing Street Brick", or "Relaying Street Brick".

The price bid for "Removing, Cleaning, Palletizing, Storing and Relaying Street Brick" will be full compensation for removal and cleaning of existing street brick; for removal of existing bedding sand; for palletizing and banding of street brick; for loading, transporting to the designated storage site, and unloading of the palletized brick; for furnishing and placing bedding sand and joint sand; for relaying of cleaned and palletized existing brick; and for all manipulations, labor, materials, equipment, tools and incidentals necessary to complete the work.

The price bid for "Removing, Cleaning, Palletizing, and Storing Street Brick" will be full compensation for removal and cleaning of existing street brick, for removal of existing bedding sand; for palletizing and banding of both reusable and non-reusable street brick; for loading, transporting to the designated storage site, and unloading of the palletized street brick and existing sand cushion; and for all manipulations, labor, appliances, tools, equipment, and incidentals necessary to complete the work.

The price bid for "Relaying Street Brick" will be full compensation for the loading, and transporting from the designated storage site; and unloading of the palletized brick at the project site; for furnishing and placing bedding sand and cement stabilized joint sand; for relaying of the existing cleaned and palletized brick; sweeping of the cement stabilized joint sand; fogging of the compacted street bricks and for all manipulations, labor, materials, equipment, tools and incidentals necessary to complete the work.

Additional brick that is required due to the existing brick being unusable will be paid for in accordance with Article 9.7 "Payment for extra work and force account method".