

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 02532 SANITARY SEWER MANHOLE ADJUSTMENT

PART 1 - SCOPE

This work shall consist of the adjustment of existing sanitary sewer manholes as necessary to conform to the adjusted elevations and grades as shown on the plans or as directed by the Owner and in accordance with these Specifications.

PART 2 - MATERIALS AND EQUIPMENT

2.01 MATERIALS.

A. Mortar.

1. Mortar shall be composed of the following mixtures by volume: one part portland cement, two parts sand, hydrated lime not to exceed 10 percent of the cement used, and four parts water. All ingredients shall be proportioned by measurement and not by estimation. All portland cement, sand, and water shall be specified in Specification Section 03050. All hydrated lime shall be as specified by ASTM C 6.

2. The mortar shall be hand mixed or machine mixed. In the preparation of hand mixed mortar, the sand, cement and hydrated lime shall be thoroughly mixed together in a clean, tight mortar box until the mixture is of uniform color, after which water shall be added. Machine mixed mortar shall be prepared in an approved mixer and shall be mixed not less than 1 ½ minutes. Mortar shall be used within 30 minutes after mixing.

B. Brick.

1. All brick shall conform to the Specifications for Concrete Building Brick, ASTM C55 for Grade A. Bricks shall conform to the following dimensions, unless otherwise approved by the Owner.

	<u>Depth</u> <u>Inches</u>	<u>Width</u> <u>Inches</u>	<u>Length</u> <u>Inches</u>
Standard Size	2 ¼	3 ¾	8
Allowable Variation	+ ¼	+ ¼	+ ½

2. All brick shall be new and whole, of uniform standard size and with substantially straight and parallel edges and square corners. Bricks shall be tough and strong and free from injurious cracks and flaws. Bricks shall be culled after delivery, if required, and all culls shall be removed from the work site.

3. The Contractor may be required to furnish the Owner with at least five bricks of the character and make he proposes to use, at least one week before any bricks are delivered for use. All bricks shall be of the same quality as the accepted samples.

C. Portland Cement Concrete.

Portland cement concrete for adjustment of precast or poured-in-place concrete manholes shall be Class A as specified in Specification Section 03050.

D. Steel Reinforcement.

Deformed steel reinforcing bar and welded wire fabric shall be of the grades, sizes and dimensions and at the designated spacings and locations as shown on the plans or as directed by the Owner.

E. Manhole Steps.

Manhole steps shall be as specified in Specification Section 02640 Paragraph 2.01.J.

F. Grade Adapter Ring.

Grade adapter rings shall be of the standard Memphis type as manufactured by Memphis Machine Works, or equal.

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2.02 EQUIPMENT.

All equipment necessary for the satisfactory performance of this work shall be on hand and inspected before work will be permitted to begin.

PART 3 - CONSTRUCTION REQUIREMENTS

3.01 STANDARD ADJUSTMENT METHOD.

A. Any manhole covers not adjusted and set at final grade by others shall be adjusted by the Contractor. If the cover requires lowering, the manhole rim shall be removed, sufficient upper courses of brick removed, and the rim reset at proper grade by use of cement mortar over the top course of brick remaining.

B. If the cover requires raising, all defective courses of brick shall be removed and the manhole rebuilt to proper grade and the rim reset as described above. The maximum finished collar height as measured from the top of the manhole rim to the beginning of the conical section shall be 18 inches. If the adjustment would require a collar of greater than 18 inches in height, then the existing collar and conical section of the manhole shall be removed, the riser section raised the required amount, the conical section and collar rebuilt and the rim reset at the proper grade. A manhole step shall be installed where required to provide a step 18 inches below the top of rim. Such additional steps shall be installed between the highest step and existing manhole steps, spaced vertically at 16 inches staggered horizontally at 12 inches and in alignment with existing steps.

C. Any changes in grade for manhole covers of precast or poured-in-place manholes shall be as shown on the plans or as directed by the Owner.

3.02 MANHOLE ADJUSTMENT WITH ADAPTER RINGS.

For manhole covers to be raised less than or equal to 5 inches and where the total collar height would not exceed 18 inches, manhole adapter rings may be used if approved by the Owner. Adapter rings may be up to a maximum of 5 inches utilizing no more than one ring. Adapter rings shall be tack welded to the existing rim at a minimum of 4 locations.

3.03 ALTERNATE ADJUSTMENT METHOD.

For manhole covers requiring adjustment where Cement Stabilized Aggregate Base (Specification Section 02710.1) or Soil Cement Base (Specification Section 02710.2) is being placed, the Contractor may, at this option, remove manhole rims and covers and adequately seal off the top of the existing manholes below the bottom of the base course prior to the aggregate or soil cementing operations. If this option is exercised, the Contractor shall reference the location of all manholes so sealed off and aggregate or soil cementing operations shall then continue over the entire street. Within 24 hours after the final compaction of a section of roadway or paved area, all manholes located within this section shall be raised to grade by removing a section of the soil or aggregate base a minimum 3 feet square directly over each manhole. The manhole rims and covers shall then be replaced with Class A concrete to the subgrade. If, in the process of relocating the manholes, the Contractor removed a larger section than specified, he shall replace the entire area so removed with Class A concrete at this expense.

PART 4 – MEASUREMENT

4.01 STANDARD MANHOLE ADJUSTMENTS.

Standard manhole adjustments will be measured per each.

4.02 MANHOLE ADJUSTMENT WITH ADAPTER RINGS.

Manhole adjustment with adapter rings will be measured per each.

PART 5 – PAYMENT

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5.01 STANDARD MANHOLE ADJUSTMENTS.

The accepted quantities of manholes adjusted will be paid for at the contract unit price per each, for raising or lowering the manhole cover to final grade, which price will be full compensation for furnishing all labor and materials necessary for the complete adjustment of the covers to the satisfaction of the Owner.

5.02 MANHOLE ADJUSTMENT WITH ADAPTER RING.

The accepted quantities of manholes adjusted by the adapter ring method will be paid for at the contract unit price per each, for raising the manhole to final grade, which price will be full compensation for furnishing all labor and materials necessary for the complete adjustment of the cover to the satisfaction of the Owner.

5.03 PAYMENT WILL BE MADE UNDER:

<u>Item No.</u>	<u>Pay Item</u>	<u>Pay Unit</u>
02532-5.01	STANDARD MANHOLE ADJUSTMENT	Each
02532-5.02	MANHOLE ADJUSTMENT WITH ADAPTER RINGS	Each

END OF SECTION 02532