

# EXPECTED IMPLEMENTATION JULY 2020

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## 425 INLETS, MANHOLES, AND JUNCTION BOXES (REV 10-9-19) (FA 12-9-19) (7-20)

ARTICLE 425-3 is expanded by the following new Subarticle:

### 425-3 Materials.

**425-3.1 General:** Meet the following requirements:

Sand (for mortar).....	Section 902
Portland Cement.....	Section 921
Water.....	Section 923
Reinforcing Steel .....	Sections 931 and 415
Liner Repair Systems.....	Section 948
Brick and Concrete Masonry Units.....	Section 949
Castings for Frames and Gratings.....	Section 962
Masonry Cement, Type M or S.....	ASTM C91
Preblended Dry Masonry Cement Mortar, Type M or S .....	ASTM C1714

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**425-3.2 Gratings, Covers, and Frames:** Use gratings and frames fabricated from structural steel or cast iron as designated in the appropriate Standard Plans Index. When “Alt. G” grates are specified in the Plans, provide structural steel grates that are galvanized in accordance with the requirements of ASTM A123.

Use rigid frames and covers either 24 inches or 36 inches or optional three-piece adjustable frames and covers as indicated in Standard Plans, Index 425-001.

For three-piece adjustable frames, the inner frame may include replaceable resilient seats to support the cover. In addition, the inner frame shall indicate it is adjustable, by clearly having the word “adjustable” imprinted into the exposed portion of the inner frame so “adjustable” is visible from the roadway after installation.

**425-3.3 Skimmer:** Include 1.5% by weight of carbon black with plastic skimmers on french drain systems.

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SECTION 425-6 is expanded by the following new Article.

### 425-6 Skimmers.

Furnish and install skimmers in accordance with the Plans and Standard Plans.

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### 425-7 Construction Methods.

**425-7.1 Excavation:** Excavate as specified in Section 125.

Where unsuitable material for foundations is encountered, excavate the unsuitable material and backfill with suitable material prior to constructing or setting inlets, manholes and junction boxes.

As an option to the above and with the Engineer’s approval, the Contractor may carry the walls down to a depth required for a satisfactory foundation,

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backfill to 8 inches below the flowline with clean sand and cast a non-reinforced 8 inch floor.

**425-7.2 Placing and Curing Concrete:** Place the concrete in the forms, to the depth shown in the Plans, and thoroughly vibrate it. After the concrete has hardened sufficiently, cover it with suitable material and keep it moist for a period of three days. Finish the traffic surface in accordance with 522-7.2, or with a simulated broom finish approved by the Engineer.

**425-7.3 Setting Manhole Castings:** After curing the concrete as specified above, set the frame of the casting in a full mortar bed composed of one part portland cement to two parts of fine aggregate.

**425-7.3.1 Standard Castings:** Set manhole frames in a mortar bed and adjust to grade using brick or concrete grade rings, with a maximum 12 inch adjustment.

**425-7.3.2 Optional Adjustable Castings:** When using a three-piece adjustable frame and cover, install the frame and cover with brick or concrete grade rings to the base course height. Make adjustments using the inner frame in accordance with the manufacturer's installation recommendations so the inner frame and cover meet the grade and slope of the pavement surface opened to traffic.

**425-7.4 Reinforcing Steel:** Follow the construction methods for the steel reinforcement as specified in Section 415.

**425-7.5 Laying Brick:** Brick masonry may be used if the structure is circular and constructed in place, or for adjustments of rectangular risers up to a maximum 12 inches in height. Saturate all brick with water before laying. Bond the brick thoroughly into the mortar using the shove-joint method to lay the brick. Arrange headers and stretchers so as to bond the mass thoroughly. Finish the joints properly as the work progresses and ensure that they are not less than 1/4 inch or more than 3/4 inch in thickness. Do not use spalls or bats except for shaping around irregular openings or when unavoidable at corners.

**425-7.6 Backfilling:** Backfill as specified in Section 125, meeting the specific requirements for backfilling and compaction around inlets, manholes, and junction boxes detailed in 125-8.1 and 125-8.2. However; for outfall lines beyond the sidewalk or future sidewalk area, where no vehicular traffic will pass over the pipe, inlets, manholes, and junction boxes, compact backfill as required in 125-9.2.2.

**425-7.7 Adjusting Structures:** Adjust existing manholes, catch basins, inlets, valve boxes, etc., within the limits of the proposed work, to meet the finished grade of the proposed pavement, or if outside of the proposed pavement area, to the finished grade designated in the Plans for such structures. Adjust structures prior to placement of final asphalt pavement surface layer. Adjust structures to match final pavement surface cross-slope. Use materials and construction methods which meet the requirements specified above to adjust the existing structures.

The Contractor may extend manholes needing to be raised using adjustable extension rings of the type which do not require the removal of the existing manhole frame. Use an extension device that provides positive locking action and permits adjustment in height as well as diameter and meets the approval of the Engineer. When adjusting structures in flexible pavement, restore final road surface in accordance with Standard Plans, Index 125-001.

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## 425-8 Method of Measurement.

The quantities to be paid for will be the number of inlets, manholes, junction boxes, and yard drains, completed and accepted; and the number of structures of these types (including also valve boxes) satisfactorily adjusted.

## 425-9 Basis of Payment.

**425-9.1 New Structures:** Price and payment will be full compensation for furnishing all materials and completing all work described herein or shown in the Plans, including all clearing and grubbing outside the limits of clearing and grubbing as shown in the Plans, all excavation except the volume included in the measurement designated to be paid for under the items for the grading work on the project, all backfilling around the structures, the disposal of surplus material, and the furnishing and placing of all gratings, frames, covers, and any other necessary fittings.

**425-9.2 Adjusted Structures:** When an item of payment for adjusting manholes, valve boxes, or inlets is provided in the proposal, price and payment will be full compensation for the number of such structures designated to be paid for under such separate items, and which are satisfactorily adjusted, at the Contract unit prices each for adjusting inlets, adjusting manholes, and adjusting valve boxes.

For any of such types of these structures required to be adjusted but for which no separate item of payment is shown in the proposal for the specific type, payment will be made under the item of adjusting miscellaneous structures.

### 425-9.3 Payment Items: Payment will be made under:

Item No. 425- 1-	Inlets - each.
Item No. 425- 2-	Manholes - each.
Item No. 425- 3-	Junction Boxes - each.
Item No. 425- 4-	Adjusting Inlets - each.
Item No. 425- 5-	Adjusting Manholes - each.
Item No. 425- 6-	Adjusting Valve Boxes - each.
Item No. 425- 8-	Adjusting Miscellaneous Structures - each.
Item No. 425- 10-	Yard Drains - each.