

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION**SPECIAL PROVISION****HMA CORING, ACCEPTANCE, AND PAY FACTORS****DESCRIPTION**

This special provision modifies portions of Section 430 of the 2020 Standard Specifications for Road and Bridge Construction. It changes the requirements of shoulder construction, depending on the method of construction; updates coring requirements for the changes in subplot size; and to clarify how contract price adjustments are calculated.

CONSTRUCTION REQUIREMENTS

Replace Section 430.04 I, "Compaction" and Section 430.04 M, "Acceptance" with the following text.

I. Compaction.**1. General.**

Remove all surface irregularities before beginning compaction.

Sequence rolling operations and select the type and the number of rollers to match production and to attain the required density before the mat temperatures fall below 185°F.

In areas not accessible to rollers, compact the pavement mat with hand or mechanical tampers.

2. Calculated Density.**a. General.**

Use calculated density on mainline pavement, interstate crossroads, ramps, turn lanes, rest area approaches, and parking lots.

b. Coring.**(1) General.**

Obtain pavement cores at locations designated by the Engineer under the observation of the Engineer.

Use a machine that cuts a cylindrical core sample without disturbing the density of the sample. Complete coring on or before the working day following the placement of the lift. Obtain a core with a smooth outer surface, no distortion of the cylindrical shape, and no displacement of the aggregate particles. Obtain a core that is 4 to 6 inches in diameter and the full depth of the in place asphalt.

Fill core holes before placing the subsequent lift of pavement. If there is no subsequent lift of pavement, fill the core hole within 24 hours of obtaining the core. Remove free standing water before filling core holes. Fill core holes in 2

inch lifts using material from the same mix design used on the roadway. Compact each lift using a hand tamper.

(2) Pavement Density Cores.

Use a masonry saw to cut the core so that only the layer to be tested is removed.

Label each core, using a system approved by the Engineer, to identify the location from which the core was obtained.

(3) Pavement Thickness Determination Cores.

Obtain pavement thickness determination cores after the final lift of pavement has been placed. Label the cores. The Engineer will take possession of these cores immediately upon extraction. Do not cut these cores.

3. Ordinary Compaction.

a. General.

Use ordinary compaction on shoulders, driveways, section line approaches, bike paths, leveling courses, and patches.

Ordinary compaction consists of breakdown rolling, intermediate rolling, and finish rolling. Compact the bituminous material until the surface is tightly bound and shows no displacement under operation of the roller.

For patching, immediately after spreading perform initial rolling with pneumatic-tired rollers or combination rollers.

b. Breakdown Rolling.

Breakdown rolling consists of one or more complete coverage with a roller meeting the requirements of one of the following Sections:

- 151.01 A.3, "Self-Propelled Pneumatic-Tired Rollers";
- 151.01 B.2, "Smooth-Faced Steel-Wheel Roller: Tandem – Type A";
- 151.01 C, "Vibratory Rollers"; or
- 151.01 D, "Combination Rollers".

c. Intermediate Rolling.

Follow breakdown rolling with intermediate rolling with a roller conforming to Section 151.01 A.3, "Self-Propelled Pneumatic-Tired Rollers", or 151.01 D, "Combination Rollers" until the surface is tightly bound and shows no displacement under the roller.

If roller tires pick up the bituminous material or there are excessive roller marks in the mat, the Engineer may allow the removal of the intermediate rolling operation if it appears to the Engineer that compaction is being achieved.

d. Finish Rolling.

Perform the finish rolling with a roller conforming to Section 151.01 B.3, "Smooth-Faced Steel-Wheel Roller: Tandem – Type B", or 151.01 C, "Vibratory Rollers" in the static mode, and continue until roller marks are eliminated.

M. Acceptance.**1. General.**

The Engineer will accept bituminous mix based on the criteria in this section.

The Engineer will exclude material used in shoulder placement when calculating the total quantity of material affected by pay factors and will not designate core locations within shoulder areas.

2. Aggregate.

The Engineer will accept aggregate used in the mix based on QC tests that are verified by QA testing, and the control limits specified in Section 430.04 E.5, "Control Limits".

If the results for two consecutive aggregate gradation tests in a single day fall outside the single test target value control limits, the Engineer will apply a contract price adjustment as specified in Section 430.06 C, "Contract Price Adjustments".

3. Asphalt Content.

The Engineer will base the acceptance of the asphalt content of bituminous mix on the totalizer readings obtained as specified in Section 430.04 E, "QC Testing" and SFN 9988, "Mix Bitumen Cut-Off Report" and will apply a contract price adjustment as specified in Section 430.06 C, "Contract Price Adjustments".

If the average asphalt content, as determined by the Engineer according to SFN 9988, "Mix Bitumen Cut-off Report" deviates from the target value by 0.40 percentage points or more, the Engineer may reject the material. If the material is accepted, the Engineer will apply a contract price adjustment as specified in Section 430.06 C, "Contract Price Adjustments".

4. Field Density.

This section will apply when the pavement is constructed as specified in Section 430.04 I.2, "Calculated Density".

The Engineer will base acceptance of the density of hot mix asphalt on the average density of the pavement compared to the daily average maximum theoretical density. The comparison will be made using SFN 59132, "Density Pay Factor".

The Engineer will determine the density of pavement based on lots. A lot is equal to the amount of material, in tons, placed each production day.

A subplot is defined as a single lift, one paver width wide, and 1,000 feet long. If a partial subplot is less than 500 feet, it will be included in the previous subplot. A partial subplot 500 feet or greater will be considered a separate subplot.

The individual subplot densities will be averaged to determine the density of the pavement lot.

If the average density of the pavement compared to the daily average maximum theoretical density is above the values in Table 430-10, the Engineer will apply the adjustment factors specified in Section 430.06 C, "Contract Price Adjustments".

If the average density of the pavement compared to the daily average maximum theoretical density is at or below the values specified in Table 430-10, remove and replace the pavement.

Table 430-10

Superpave FAA 40, 41, 42, and 43	Superpave FAA 44 and 45
88.0%	89.0% ¹

¹ When the lift of pavement is placed on aggregate base, reclaimed material, or cold in place recycle material this number is reduced to 88.0%

BASIS OF PAYMENT

Replace Section 430.06 C.1, "General" with the following text.

C. Contract Price Adjustments.

1. General

The Engineer will calculate the Combined Adjustment Factor by multiplying the individual adjustment factors for:

- Aggregate gradation;
- Asphalt content; and
- Compaction.

1.0 will be subtracted from the Combined Adjustment Factor to determine the Contract Price Adjustment.

The contract price adjustment will be determined by multiplying the Contract Price Adjustment Factor by the total tons of hot mix asphalt placed during a single day and the contract unit price for "Superpave, FAA ____" or "RAP Superpave FAA ____".