

HOT MIX ASPHALT – GENERAL CONSTRUCTION REQUIREMENTS. – SMOOTHNESS.

(REV 1-9-14)

SUBARTICLE 330-8.2 is deleted and the following substituted:

330-8.2 Transverse Joints: Place the mixture as continuously as possible to minimize transverse joints. When constructing permanent transverse joints, meet the surface requirements as defined in 330-9.4.3. Construct temporary transverse joints in such a manner to allow traffic to pass over it. When resuming the paving operation, construct a transverse joint by cutting back on the previously placed pavement at a location where the straightedge requirements are met. At the project limits, tie into the adjoining pavement layers as shown in the Plans.

SUBARTICLE 330-9.4 is deleted and the following substituted:

330-9.4 Pavement Smoothness: Construct a smooth pavement meeting the requirements of this Specification.

330-9.4.1 Process Control Testing: Assume full responsibility for controlling all paving operations and processes such that the requirements of these Specifications are met at all times.

330-9.4.2 Laser Acceptance: Acceptance testing for pavement smoothness of the friction course for mainline traffic lanes will be based on the laser profiler using the International Roughness Index (IRI) as defined in ASTM E-1926. Areas not suitable for testing with the laser profiler will be QC tested and accepted with the straight edge in accordance with 330-9.4.3.

The pavement smoothness of each lane will be determined by a laser profiler furnished and operated by the Department in accordance with FM 5-549 and a report issued with the IRI reported to whole numbers.

For acceptance testing purposes, the pavement will be divided into LOTs. A LOT is defined as anything less than or equal to 0.1 mile and greater than or equal to 0.01 mile.

330-9.4.2.1 Evaluation Process: As soon as the friction course to be placed is scheduled, notify the Engineer. A minimum of 10 calendar days from notification is needed for the Department to schedule the equipment. Prior to testing and for the full project limits, ensure all lanes are open, free from obstructions, and all debris is removed from roadway.

330-9.4.2.2 Acceptable Pavement: If the initial ride acceptance test shows all project LOTs to be less than or equal to 95 IRI, LOT incentive/disincentive pay will be calculated as described in 330-9.4.2.4.

330-9.4.2.3 Unacceptable Pavement: If any LOT in the project has an IRI greater than 95, the project data will be reprocessed using continuous analysis to define the limits of the unacceptable pavement.

For unacceptable LOTs, the limits of unacceptable pavement are defined as those areas of pavement 50 feet either side of where the continuous plot line exceeds 95 IRI. The limits of unacceptable pavement may extend into neighboring LOTs.

For unacceptable LOTs at either end of the project:

1. If the continuous analysis ends above 95 IRI 0.05 miles from the end of the project, then the corrective action limits will extend to the end of the project.

2. If the continuous analysis ends at or below 95 IRI 0.05 miles from the end of the project, then the corrective action limits are defined above. For unacceptable LOTs at hold out areas due to breaks in paving such as bridges:

1. If the continuous analysis ends above 95 IRI 0.05 miles from the break in paving, then the corrective action limits will extend from the break in paving to a point as defined above.

2. If the continuous analysis ends at or below 95 IRI 0.05 miles from the break in paving then the pavement will be left in place with the appropriate disincentive applied.

3. If any LOTs with an IRI greater than 95 are left in place as a result of the continuous analysis, they will be paid at maximum disincentive Address all areas of unacceptable pavement in accordance with 330-9.5.

As soon as all corrections are scheduled, notify the Engineer. A minimum of 10 calendar days from notification is needed for the Department to schedule the equipment. Prior to testing and for the full project limits, ensure all lanes are open, free from obstructions, and all debris is removed from roadway.

Repeat this process as necessary until all LOTs have an IRI less than or equal to 95 at which time, incentive/disincentive will be calculated for the project as described in 330-9.4.2.4.

330-9.4.2.4 Calculating Incentive/Disincentive: For all LOTs, pay adjustment incentive/disincentive will be based on the dollar value corresponding to each LOT's IRI shown in Table 330-5

Incentive/disincentive will be determined from the initial test for all LOTs less than or equal to 95 IRI and that were not affected by remove and replace corrections.

Incentive/disincentive for any LOTs affected by remove and replace corrections will be determined from the final acceptance run (once at or below 95 IRI).

LOT incentive / disincentive for a project will be calculated once all project LOTs are less than or equal to 95 IRI as follows:

$$\text{LOT incentive/disincentive} = \frac{\text{LOT Pay Adjustment} * \text{LOT length (miles)}}{0.1}$$

Project incentive / disincentive is the sum of the incentives / disincentives of all LOTs in the project.

Total project incentive shall not exceed 5% of the FC-5 price.

Total project disincentive shall not result in payment less than 80% of the FC-5 price.

The FC-5 price is the bid unit price times the pay quantity of FC-5 (as determined in accordance with 337-11). For lump sum projects, the FC-5 price is the unit price determined using the six month statewide pay item average for the six months prior to the letting date for this Contract times the pay quantity of FC-5 (as determined in accordance with 9-2).

330-9.4.2.5 Project Level Consistency Incentive: If all project LOTs are less than or equal 55 IRI, the project will earn an additional 3% incentive based on the FC-5 price. The FC-5 price is described in 330-9.4.2.4. The Project Level Consistency Incentive is in addition to the project incentive outlined in 330-9.4.2.4.

LOT IRI	LOT Pay Adjustment	LOT IRI	LOT Pay Adjustment	LOT IRI	LOT Pay Adjustment
≤ 30	\$260	56	-\$20	76	-\$420
31	\$240	57	-\$40	77	-\$440
32	\$220	58	-\$60	78	-\$460
33	\$200	59	-\$80	79	-\$480
34	\$180	60	-\$100	80	-\$500
35	\$160	61	-\$120	81	-\$520
36	\$140	62	-\$140	82	-\$540
37	\$120	63	-\$160	83	-\$560
38	\$100	64	-\$180	84	-\$580
39	\$80	65	-\$200	85	-\$600
40	\$60	66	-\$220	86	-\$620
41	\$40	67	-\$240	87	-\$640
42	\$20	68	-\$260	88	-\$660
		69	-\$280	89	-\$680
43 – 55	Full Pay	70	-\$300	90	-\$700
		71	-\$320	91	-\$720
		72	-\$340	92	-\$740
		73	-\$360	93	-\$760
		74	-\$380	94	-\$780
		75	-\$400	95*	-\$800

*LOTs > 95 IRI left in place following continuous analysis method receive -\$800 LOT pay adjustment.

330-9.4.3 Straightedge Acceptance: Furnish a 15 foot manual and 15 foot rolling straightedge meeting the requirements of FM 5-509 for transverse joints at the beginning and end of the project, at the beginning and end of bridge structures, ramps, acceleration/deceleration lanes, and other areas not suitable for testing with the laser profiler. Perform all straightedge testing in accordance with FM 5-509 in the outside wheel path of each lane. Notify the Engineer of the location and time of straightedge testing a minimum of 48 hours before beginning testing. The Engineer will verify the straightedge testing by observing the QC straightedging operations. Address all deficiencies in excess of 3/16 inch in accordance with 330-9.5.

SUBARTICLE 330-9.5.1 is deleted and the following substituted:

330-9.5.1 Corrections: Correct all areas of unacceptable pavement at no cost to the Department. Retest all corrected areas and assure the requirements of these Specifications are met. For those areas corrected as a result of 330-9.4, the Department will retest all corrected areas to assure the requirements of these Specifications are met.

Correct deficiencies in the friction course or final surface layer by removing and replacing the full depth of the layer, extending a minimum of 50 feet on both sides (where possible) of the defective area for the full width of the paving lane.

As an exception, the Engineer may allow the Contractor to leave these areas in place if it is determined by the Engineer that the deficiency is not a significant detriment to the pavement quality. A reduction to the pay item quantity will be made in accordance with 330-9.5.2. For unacceptable IRI, Lane length (L) will be calculated as the sum of the lengths of all LOTs with an IRI greater than 95.

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CO Specs Authorization