CHAPTER 9
ASPHALTIC CONCRETE PRODUCTION, OPTIONAL BASE, AND PLACEMENT RECORDS

9.1 PURPOSE

The purpose of this procedure is to establish uniform and decisive instructions for keeping accurate records of final Asphalt Pay Items with liquid included, and Optional Base Pay Items.

9.2 SCOPE

This procedure provides explanation of the forms used to document the quantities of bituminous material in the daily production of asphaltic concrete mixes for the Department's construction projects. It also establishes guidelines to control asphalt plant operations that relate to the daily measurement and documentation of bituminous quantities. Also included, are instructions for assessing Composite Pay Factor (CPF) adjustments.

9.3 ASPHALT PLANT OPERATIONS

The specifications include the requirements for the asphalt plant operation. This procedure reiterates and expands on some of these, especially those that have a bearing on the measurement and recording of final pay quantities.

All asphalt plants shall have electronic weight systems with automatic ticket printouts.

All asphalt plants must be equipped with one of the following three electronic weigh systems capable of automatically printing a delivery ticket. (See ***Attachment 9-1***):

~~9.3.1~~1. **Automatic batch plant with printout** (see ***Subarticle 320-2*** *of the* ***Specifications***).

~~9.3.2~~2. **Electronic weight system on hopper beneath a surge or storage bin**.

~~9.3.3~~3. **Electronic weigh system on the truck scales**.

The following information shall be included on the printed delivery tickets:

- Sequential load number
- Financial Project ID Number
- Date
- Name and location of plant
- Type of mix
- Place for hand recording mix temperature
- Truck number
- Gross, tare, and net weights (as applicable)
- Accumulated total of mix*
- Tons

*In the event of a malfunction of the automatic printer, when the plant is equipped with an electronic display a contractor blank automatic ticket may be written by a Department representative from the electronic display until the printer can be repaired. This period is not to exceed 48 hours.

9.4 AUTOMATED PLANTS WITH BATCH WEIGHT PRINTER SYSTEM

Plants of this type are set up to automatically control the batching operations, and have an automatic printer system. The system will print the individual or accumulative weights of aggregate and liquid asphalt delivered to the pugmill and the total weight of the batches contained in a truck load.

9.4.1 Operating Without Storage Bins

There are two methods of maintaining proper pay records for this type plant:

(A) The weight of asphalt shown on the automatically printed tickets for the material used on the project is accepted.

NOTE: These automatically printed tickets are acceptable, and the total weight of mix shown may be used as the tonnage, if the following conditions are fulfilled:

(1) The printer ticket weights must be checked across certified truck scales and be within the 0.4% tolerance allowed by the ***Ss~~s~~pecifications***.

(2) There must be an original and at least three (3) clear copies. The original is retained by the Contractor's Quality Control (CQC) Plant Technician, and becomes part of the ***Lot Submittal Package***, one copy is retained by the producer at the plant, one copy goes to the CQC Road Technician, and one copy goes to the paving contractor.

(3) Preprinted ticket numbers do not normally occur without breaks in order, as they cause excessive "page order" messages on the computer output listing. To avoid this problem, the plant assigned numbers shall be in sequence regardless of the numerical order of the preprinted number on the ticket.

(4) The **original weight tickets**, tapes, or digital records shall become the property of the Department. Regardless of the method of documentation the records of all project mixes furnished during production runs for the Department shall be included.

(5) Preprinted tickets shall be bound in sets for each day's run. A cover sheet shall be prepared for each set (See ***Attachment 9-4a***) showing the ~~f~~Financial ~~p~~Project ID ~~n~~Number, pay item numbers, date, book number, design mix number, type of material, ticket numbers included, and total quantity. Material of different types, pay items, waste, or private work for each day's run shall be identified. These packets shall be available, for review by the Department's Verification Technician one day after production and shall become part of the ***Lot Submittal Package***. (See ***Attachments 9-4 and 9-4a thru 9-4d***).

(6) Unless the number of weight tickets justifies the use of the computer to summarize the material, a manual summary shall be made by weight ticket totals in the ***~~f~~Final ~~e~~Estimates ~~c~~Computation B~~b~~ook.***

(7) When the computer is used, the output shall be included as part of the estimate computations and shall be cross-referenced in the computation book.

(8) A complete tabulation, as packing list, of all weight tickets for each type of material or each different pay item shall be shown in the transmittal data when the final estimates

package is submitted.

(B) For those plants with the automatic printer system, (if all Department tickets used are properly numbered in sequence by the plant inspector including all void and waste tickets), it will be necessary for the contractor to furnish the Department only those tickets showing production when printed weights are accepted and converted to volume for pay purposes.

~~9.4.2.~~9.4.2 Operation ~~w~~With ~~s~~Storage B~~b~~ins

The record keeping procedures for this type of plant are similar to an automated plant without a printer system, and using storage bins:

(A) Record the exact weight of all material placed in storage bins.

(B) Record the exact weight of all material used out of the storage bins and at the end of the day or run. Calculate the amount of mix remaining in the bins. If the producer elects to use any of the mix remaining in the storage bin after the Department completes its work for this date, the tonnage used must be recorded under Department supervision and deducted in order to establish the tonnage in storage at the beginning of the next day's work.

9.5 REQUIREMENTS FOR ACCURACY CONDITIONS AND TOLERANCE

The following requirements relate to asphalt plant operations:

(A) Truck scales shall be recertified every six months.

(B) Batch scales and the accuracy of the automatic printer shall be certified at least once every six months.

(C) The accuracy of the batch scales and the printer system shall be checked at the commencement of production and thereafter at least once a week during production for the Department.

(D) The maximum permissible deviation is 8 pounds per ton of load. ***(***See ***Subarticle 320-2*** *of the* ***Specifications)***

9.6 METHOD OF MEASUREMENT

~~9.6.1.~~9.6.1 Tonnage Items (Bit Included)

Automatic printer tickets showing weights along with the cover sheet, will become part of the ***Lot Submittal Package***, and shall be submitted with the final estimate for each job on the contract.

9.6.2~~.~~ Square Yard Items (Bit Included) (Optional Base Only)

When the pavement is to be paid for on an area basis, the area to be paid for shall be Plan Quantity subject to the provisions of ***Subarticle 9-3*** *of the* ***Specifications***, omitting any areas not allowed for payment under the provisions of ***Subarticle 330-12*** *of the* ***Specifications*** and adjusted as follows:

(A) The pay area shall not exceed 105% of the surface area.

(B) There will be no adjustment of the pay area on the basis of thickness for base courses constructed utilizing mixed-in-place operations.

(C) If plan quantity is changed, automatic printer tickets showing weights, field records, and measurements, shall be submitted with the final estimate for each job on the contract along with the ***Lot S~~s~~ubmittal Package***. (See ***Attachments 9-4 & 9-4a thru 9-4d***).

NOTE: If a plan quantity error exceeds the limitations established in ***Article 9-3*** *of the* ***Specifications***, then record documentation in field books, computer forms, or computation book forms.

9.6.3~~.~~ Surface Deficiencies –

Deficiencies are determined by the Engineer with a 15-foot rolling straightedge. Deviations from the straightedge in excess of 3/16 of an inch shall be corrected in accordance with ***Subarticle 330-12.5*** *of the* ***Specifications*** unless such corrections are waived by the District Construction Engineer (DCE). Deficient areas where the Engineer has waived corrections will be deducted as follows:

(A**)** **Friction Course: Tonnage Item**

The Department will base the reduction under ***Subarticle 330-12.5.2*** of the ***Specifications*** when the standard reduction is

based on removing a quantity of material that is 100 Foot by the lane width by layer thickness as determined through the following equation:

Quantity (tons) = t X Gmm X w X 0.24

When a deficiency length that is greater or less than 100 feet, the following equation will be used.

EXAMPLE:

The deficiency is ten (10) Ft, the length will be 110 Ft. The equation is as follows:
1.5 X 2.417 x 12' X 0.24 X 1.1 = 11.48 – 11.5 Tons Deduct
1.1 Ft = 110 Ft. ÷ 100

If the deficiency is less than 100 foot, for example 85 feet;
1.5 X2.417 X 12 X 0.24 X 0.85 = 8.88 = 8.9 Tons Deduct
Where 0.85 = 85 Ft ÷ 100 = 0.85

(B) **Other Than Friction Course:**

(1) Where the Engineer elects to waive a correction, and the finished pavement surface is other than friction course, the appropriate pay quantity for asphaltic concrete shall be reduced by the equivalent quantity of materials, which would have been removed and replaced if the correction had been made.

(2) Same as in ***Section 9,6.3 (A)*** above, and example.

9.6.4. Rejected Surface

Defective surface will be rejected and will be replaced with a satisfactory surface at no compensation for the replaced area in accordance with ***Article 330-12*** *of the* ***Specifications***.

Should the rejected surface area not be corrected to the satisfaction of the Project Engineer (PE) or Project Administrator (PA), no pay for the rejected area should be made in accordance with ***Subarticle 9-5.3*** *of the* ***Specifications***.

9.7 CORE OUT ADJUSTMENT (OPTIONAL BASE ONLY)

Adjustments in accordance to Specifications and Special Provisions:

9.7.1 Square Yard Items (Bit Included)

When the pavement is to be paid for on an area basis, the area to be paid for shall be Plan Quantity subject to the provisions of ***Subarticle 9-3.2*** *of the* ***Specifications***, adjusted as follows:

(A) The volume of pavement represented by the difference between the average thickness (determined as specified in ***Article 330-16*** *of the* ***Standard Specifications***), and specified thickness shall be converted to equivalent Square Yards (SY) of pavement of specified thickness and the quantity thereby obtained shall be added to, or deducted, from the pay areas as appropriate.

The maximum average thickness of pavement, upon which payment will be made, shall be limited as follows:

Example Core-Out Adjustment

Type Limerock 7.00″

Plan Quantity 8,000 SY

Specifications allow 1/2″ per Subarticle 285-7

Actual core out = 7.50″

Therefore = $\frac{7.50'' - 7.00''}{7.00''}$ = .071428571 X 100 = 7.1428571 % > 5%*****

*****Optional Base shall not exceed 105% of the surface area per ***Article 285-8*** *of the* ***Specifications***.

Therefore: .05 X 8,000 SY = 400 SY Thickness Adjustment

(B) Superpave base shall be adjusted based on the spread of the mixture. The pay area shall be based on the project average spread rate divided by the specified rate. The adjustment shall not exceed 105%.

Example Spread Rate Adjustment

Project Specified Spread Rate = 450 Lbs/SY

Project Average Spread Rate = 469 Lbs/SY

$\frac{469 - 450}{450} = .042222222 \quad X\ 100 = 4.2\% < 5\%$

Plan Quantity = 20,000 SY

Unit Price of Superpave Base = $ 15.00

Therefore 0.042222222 X 20,000 SY = 844 SY

And 844 SY X $ 15.00 = $ 12,660.00

Or:

~~If the unit price for the Superpave base was $15.00 a SY,~~ ~~m~~Multiply .042222222 by $15.00. This equals a revised unit price of 0.633~~3~~ $/SY. An adjustment will be shown by multiplying 20,000 SY~~s~~ by the revised unit price of $0.633~~3~~.

20,000 SY X 0.633 = $ 12,660.00

(C) In some instances, the CQC road report will show more or less square yards than plan quantity. The contractor should use due care when reporting square yards to accurately report the length and width of area being placed. Should the square yards not match plan quantity, the yardage will be adjusted to pay plan quantity and paid on the last composite pay factor adjustment. The PA shall use reasonable investigation to see if plan quantity is in error and warrants an adjustment.

(D) Composite base is a combination of granular material and asphalt. The Subbase (granular) will be cored prior to placing asphalt. All areas over 1/2" or under 1/4" will be corrected prior to placing asphalt. The asphalt is based on a spread converting inches to pounds according to ***Article 234-9*** of the ***Specifications*** and will be controlled within +/-5% of the specified spread rate. The average spread rate of the asphalt shall be converted back to

inches by reversing the formula specified in ***Article 234-9.1*** of the ***Specifications*** and added to the average thickness of the Subbase. The thickness adjustment will then be applied for the composite base pay item limited to a maximum 105% of the surface area, as specified in ***Article 285-8***. (***See attached example below.***) For Bituminous Adjustments on Composite base, refer to **Chapter 6, Section 6-8** of this ***manual***. ***Section 234*** of the ***Specifications***, ***Basis of Payment***; refers to ***Section 334*** of the ***Specifications***, which determines requirements of mixture, and CPF.

Example: Thickness Adjustment

Composite base = 4" Limerock and 4" Type B-12.5 asphalt

Convert 4" of asphalt to Lbs/SY by the following formula as specified in ***Article 234-9.1*** of the ***Specifications***.

43.3* X inches X Gmm**

*43.3 is a constant derived by the State Materials Office.

**Gmm is taken from the approved design mix for the specified project.
**Gmm (maximum specific gravity) = 2.358

43.3 X 4 X 2.358 = 408 Lbs/SY

Core-out report for Limerock = 4.25"
Average spread rate for asphalt = 426 Lbs/SY***

Convert lbs to inches based on reverse formula in ***Article 234-9.1
426 ÷ 43.3 ÷ 2.358 = 4.17"

4.25" (Limerock) + 4.17" (Asphalt) = 8.42" average thickness for composite base.

Thickness adjustment = $\frac{8.42" - 8.00"}{8.00"}$ = .053**** (>5%) X Surface Area

**** Pay will be limited to a maximum of 105% X Surface Area
Therefore: Thickness Adjustment = 0.05 X Surface Area

9.8 SALVAGE OF MATERIALS

When material is salvaged from the project and delivered to a Maintenance Yard, a signed ***"Receipt of Goods from Vendor"*** must be submitted with the final estimate. The "vendor" is actually the Construction Office from which the materials were received and the vendor number is the Financial Project ID Number. (See ***Attachment 9-2***).

9.9 SUPERIOR PERFORMING ASPHALT PAVEMENT (SUPERPAVE)

Description (***Section 334*** *of the* ***Specifications***) (Each contract shall be reviewed for the governing Specification).

Superpave Asphalt Concrete shall be constructed using the type of mixture specified in the contract, or when offered as alternates, as selected. Superpave mixes are identified as Type SP-9.5, Type SP-12.5, or Type SP-19.0.

Superpave Design Mixes shall meet the requirements of ***Section 320*** *of the* ***Specifications*** for plant and equipment and the general construction requirements of ***Section 330*** of the ***Specifications***, with the exception of the density requirements as per ***Subarticle 334-5*** of the ***Specifications***.

The Superpave mixes are categorized as either “coarse” or “fine”, depending on the overall gradation of the mixture. Coarse mixes are defined as having a gradation that passes below the restricted zone, as defined in ***Subarticle 334-2*** of the ***Specifications***. Fine mixes are defined as having a gradation that passes above the restricted zone.

9.9.1 Compensation

Tonnage Item: Compensation shall be by automatic printer tickets showing weights, along with the ***Lot Submittal Package*** shall be submitted with the Final Estimate for each job on the contract.

9.-10 ASPHALTIC CONCRETE FRICTION COURSE (105% ADJUSTMENT)

9.-10.1 Thickness of Friction Courses (*Article 337-9*)

The thickness of the friction courses will be plan thickness as shown in the contract documents. For construction purposes, the plan thickness will be converted to a spread rate as defined below for various mixes.

9.~~-~~10.2 Spread Rate for FC-5 (*Article 337-9*)

Original plan quantities will be based on a spread rate of 80 Lbs/SY. Construction spread rates will be calculated by multiplying the plan thickness by the bulk specific gravity of the mix being placed and then multiply by 40.5 Lbs/SY. (See ***Attachment 9-6***).

Note: 40.5 Lbs/SY is a constant derived by the State Materials Office.

Note: Per ***Article ~~Specification~~ 337-11*** of the ***Specifications***, the pay quantity of Friction Course will be based on the average spread rate for the project, limited to 105% of the spread rate set by the Engineer in accordance with ***Article 337-8*** of the ***Specifications***. However, under ***~~Specification~~ Article 337-8*** of the ***Specifications***; for FC12.5, FC-9.5 and FC-5; it states that the thickness of friction course layer will be the plan thickness as shown in the contract documents, and that for construction purposes, the plan thickness will be converted to spread rate.

For construction purposes, the plan thickness is converted to an average spread rate and documented. However, for pay purposes, the average of the two design mixes should be taken and then multiplied by 1.05% or 5% to come up with the maximum pay limited to 105%.

Example: Design mix 1 = 80 Lbs/SY; Design Mix 2 = 82 Lbs/SY
Average Design Mix = 81 Lbs/SY
81 Lbs/SY X 1.05 =85 Lbs/SY. Maximum thickness that can be paid.

9.~~-~~10.3 Spread Rate for FC-9.5 and FC-12.5 (*Article 337-8*)

Original plan quantities will be based on a spread rate of 110 Lbs/SY-in. as defined in ***Article 334-1*** of the ***Specifications***. Construction spread rates will be calculated by multiplying the plan thickness by the maximum specific gravity of the mix being placed and then multiplied by 43.3 Lbs/SY. (*See* ***Attachment 9-7***).

Note: 43.3 Lbs/SY is a constant derived by the State Materials Office.

9.~~-~~10.4 Method of Measurement (*Article 337-10*)

The quantity to be paid for will be the weight, in tons, as determined in accordance with ***Article 320-2*** of the ***Specifications*** (including provisions for the automatic recordation system). The pay quantity will be based on the average spread rate for the project, limited to a maximum of 105% of the construction spread rate calculated by the above formulas in accordance with ***Article 337-9*** of the ***Specifications***.

Note: The spread rate should be monitored during production and placement to ensure the Contractor is within 5 ~~percent~~% . After all asphalt for friction course has been placed and the average spread rate exceeds 5 ~~percent~~ % as allowed by the ***Specifications***, a deduction for the overage will be applied at the original bid price. A note will be added in remarks explaining that this deduction has been applied due to exceeding the spread rate by more than 5 ~~percent~~ % allowed by the ***Specifications***.

Example:

Total TES for contract shows = 13,846.3 Tons
Total TES for contract shows = 173,622 SY

Design Spread Rate = 167.3 Lbs/SY
The Specifications shows that Friction Course gets a maximum of 105% from design spread rate.
167.3 X 1.05 = 175.7 Lbs/SY

However, 15,281.2 Tons are total tons placed by the Contractor on the road, and maximum tons that could be placed should be calculated as follows:

(175.7 Lbs/SY X 173,622 SY) ÷2000 Lbs/Ton = 15,252.7 Tons maximum that could be placed

The Department can only pay up to 105% maximum tonnage and since the Contractor placed more tonnage than the maximum allowed, there will be a deduction. The deduction is calculated as follows:

15,252.7 - 15,281.2 = - 28.5 Tons to be deducted
And 28.5 Tons X $ 75.00 = $ 2,137.50 amount deducted
The deduction under this contract will be from the original contract amount and unit price at 100%.

Also, if there is a CPF Adjustment, there is either a deduction or addition (depending on the factor) from the last CPF adjustment.

Example: If the last CPF = 102% (or 0.02) and the unit price = $ 75.00;

0.02 X $ 75.00 = + $ 1.50 (new unit price)

(- 28.5) X (+$1.50) = $ - 42.75 deduct.

9-11 MISCELLANEOUS ASPHALT

9-11.1 Method of Measurement (*Article 339-7*)

The quantity to be paid for will be the weight in tons determined by weighing in trucks on scales meeting the requirements of ***Article 320-2.2*** of the ***Specifications*** of the or from the total weight of batches placed in trucks as determined by an automatic printer system meeting the requirements of ***Article 320-4*** of the ***Specifications***. The pay quantity will be based on the average spread rate or dimensions for the project, limited to a maximum of 105%. For calculation, a weight of 100 Lbs/SY per inch thickness of asphalt will be used.

9-11.2 Basis of Payment (*Article 339-8*)

Price and payment will be full compensation for all work specified in this section, including shaping and compacting the foundation, soil sterilization treatment, furnishing of the bituminous material used in the mixture, and shaping of the adjacent earth surfaces.

Example:

Original Square Yards = 800
Original Tons = 80.00
Final Square Yards = 800
Final Tons = 90.50
90.50 X 2,000 = 181,000 LBS.
181,000 Lbs ÷ 800 SY = 226.25 Lbs/SY

226.25 Lbs. ÷ *200 Lbs. X 100 = 113 %
113 % > 105 %
200 Lbs/SY X 1.05 = 210 Lbs/SY maximum Lbs/SY payable
210 Lbs X 800 SY ÷ 2,000 = 84 Tons Final Pay Quantity

* 2" X 100 Lbs/SY = 200 Lbs/SY

9.-12 CONTRACTOR'S QUALITY CONTROL (CQC)

9.-12.1 Contractor Responsibility for all Asphalt Produced and Accepted

The Contractor will be responsible for all asphalt produced and accepted. The Contractor is responsible for quality control at the plant and on the roadway. The Contractor or Sub-Contractor will run asphalt content and gradation tests at the plant and density tests on the roadway. The contractor or Sub-Contractor is responsible for determining quantities of asphalt produced and recording tack measurements placed on the roadway. The Department has developed a Powerpoint presentation labeled **"*Asphalt Construction Information for CQC Specifications*"**. It is recommended that Project Administrators inform Contractors and Sub-Contractors at the Preconstruction Conference that this presentation is available. It is recommended that all personnel responsible for asphalt production, reporting, and documentation view the presentation. It is also recommended that all Department personnel responsible for asphalt inspection view this presentation. The presentation is available for viewing or downloading at the following URL:

http://www.dot.state.fl.us/statematerialsoffice/quality/programs/qualitycontrol/guidelines/contractor/asphaltoutline/asphaltconstructioninfo.pdf

9-12.2 Quality Control Documentation Verification

The Engineer, or designee, is responsible for reviewing and randomly checking the quantities submitted by the Contractor Quality Control (CQC) Technician. The Engineer shall collect a copy of the ***Quality Control Technician's Report*** for both the asphalt plant and the asphalt road. In addition the Engineer shall collect all asphalt ticket packets

associated with these reports. The Engineer is to ensure that the ticket packets for each day's production match these reports.

When an error is detected ~~that will require correcting reports for more than one (1) Lot~~, the correction will be shown on the latest report for that specific item. Reference will be made to the report with the corrected information. The report where the error first occurred will show the correction by striking through the error, and writing the correct information, with initials and date. Reports following the error will not require correction.

9.~~-~~12.3 Resolution Reports for A.C. Content, Gradation and Density Cores

In some instances when the CQC Technician's results and the Verification Technician's results do not compare for a specified test, then a Resolution report must be accomplished. The tests results of the Resolution Technician will be compared to the results of the CQC Technician and the Verification Technician.

If the Resolution results favor the CQC Technician's results, use the CQC Technician's results.

If the Resolution Technician's results favor the Verification Technician's results, use the Resolution Technician's results.

Note: The cost of the resolution testing, performed by the Department which favors the results of the Verification Technicians, will be deducted from the Contractor on the next progress estimate (See ***A~~a~~ttachment 9-9a & 9-9b***). The cost of the testing can be found at the following URL.

http://www.dot.state.fl.us/statematerialsoffice/quality/programs/qualitycontrol/qcindex.htm

9-12.4 Composite Pay Factor - Excel Spreadsheet

The Verification Technician is responsible for entering the CQC Technician's test results in the Composite Pay Factor (CPF) spreadsheet to calculate the pay adjustments. These entries shall be done at the closing of a Lot during the life of the contract. It is the responsibility of the Project Engineer or designee to verify that the test results entered by the Verification Technician are correct. All reports shall be affixed to the CPF spreadsheet representing that Lot. See example of ***Lot Submittal***

Package (See ***Attachment No. 9-4 and 9-4a thru 9-4d***). The reports along with the asphalt ticket packets shall be collected two working days after the closing of a Lot. The ***Lot Submittal Package*** shall be submitted with the Final Estimates Package.

9.~~-~~12.5 Composite Pay Factor Adjustments

All Contracts shall have a unit price adjustment calculated. The engineer or designee shall calculate the unit price adjustment and enter the revised unit price adjustment on the monthly/progress estimate along with the tons represented by each lot produced.

These revised unit price adjustments range from 75 per cent to 105 per cent. All lots shall be grouped together for each unit price adjustment.

Example: Lots 2, 3, and 5 were at 101 ~~percent~~%: show the tons represented by these lots on the monthly/progress at the revised unit price for a 101 ~~per cent~~% adjustment and place a brief comment) explaining which lots received the adjustment(s). CPF adjustments in Sitemanager will be handled by adjusting the unit price by the variance percent of the CPF. (See ***Attachment No 9-9a & 9-9b***). Also place a new ***Computation Sheet*** in the ***Computation Booklet*** or break out the percentage adjustments on the original ***Computation Sheet*** for the adjusted item(s) (See ***Attachment No. 9-3***).

~~**Note:** Always carry the revised unit price adjustment calculations to four (4) decimal places.~~

9.~~-~~12.6 Low Pay Factor Material Documentation

(A) Composite Pay Factors < 80 or ≥ 75

(1) Remove and replace the tonnage in the Lot and pay the CPF represented by the replacement Lot. The original ***Lot Submittal Package*** will be explained with remarks as “No Pay”.

(2) Obtain an Engineering Analysis, if agreed to by the Project Administrator, to determine if material may remain in place. If material is to remain in place, pay the original CPF. If the material is to be removed and replaced, pay the CPF represented by the replacement Lot. The original ***Lot Submittal Package*** will be explained with remarks as “No

Pay" with reference to the new replacement ***Lot Submittal Package***.

Note: The Engineer, at his/her sole option, may perform an evaluation and leave this material in place, apply the CPF for this Lot, or have this material removed and replaced as identified in ***No. 1*** above.

(B) Composite Pay Factor < 75

Remove and replace the tonnage in this Lot and pay the CPF represented by the replacement Lot. The original ***Lot Submittal Package*** will be explained with remarks as "No Pay".

(C) Independent Verification Test (VT) Failure

This shall be handled as stated above. In some instances, the Project Manager/Administrator will require removal and replacement of tonnage within a Lot. If removal and replacement is required, **DO NOT CORRECT THE REPORTS**. The reports should reflect what actually happened. This defective asphalt may be a partial sublot, an entire sublot, or an entire Lot. The CQC Technician should identify the problem before an entire Lot is placed. The defective asphalt will then be milled and replaced with asphalt within another Lot. This is documented in the "Remarks" area. The Technician will document the tonnage of "acceptable asphalt" that is replacing the defective one that was previously placed. The previous report number and date will also be identified in the "Remarks". The new asphalt will be analyzed in the new Lot and paid accordingly. The previous ***Lot Submittal Package*** will also be identified in the "Remarks" area showing a deduction of the asphalt in this Lot, and it will be referenced to the new ***Lot Submittal Package*** and to where this material was actually produced.

Example:

Lot 3 has defective asphalt for which the PA, after concurrence from the District Construction/Bituminous Engineer, required removal and replacement. The Project Manager identifies the area in writing to the Contractor. The Contractor will mill up this defective asphalt at their expense and replace with asphalt from a later Lot. This asphalt will be analyzed in this later Lot and be paid based on this later Lot's CPF with remarks identifying the area and

replacement tonnage represented. For example, the replacement tonnage equals 249 tons. The previous ***Lot ~~s~~Submittal ~~p~~Package*** will have a deduction of 249 tons handled in the remarks column and payment deducted at the previous Lot's CPF and referenced to the new ***Lot Submittal Package*** in which the replacement tonnage was produced. The new ***Lot ~~s~~submittal ~~p~~ackage*** will clearly identify that 249 tons produced was needed to replace defective asphalt produced in Lot 3, with references and remarks.

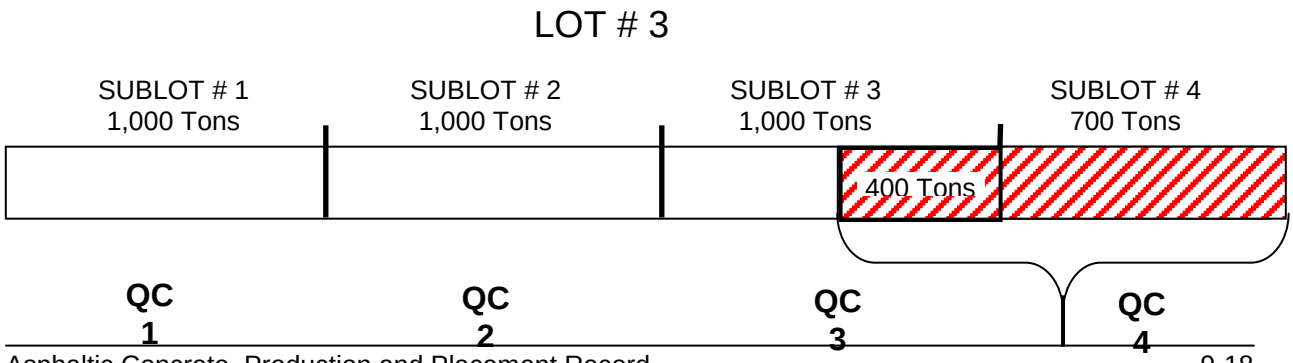
(D) Individual Quality Control Test

In some instances an individual QC test will bring the CPF down to either (<80 or ≥75) or <75. The original lot is then paid based on the outcome of the CPF. The Contractor may perform an ***Engineering Analysis Report (EAR)***, if approved by the PA, to isolate the tonnage that needs to be removed and the effected material will be deducted from the original ***Lot Submittal Package*** with remarks explaining its removal and replacement. The replacement material is to be paid in the ***Lot Submittal Package*** at the appropriate CPF for that lots production.

Note: If all material in a sublot is removed and replaced, the QC test for that sublot will be thrown out and the CPF will be based on the remaining QC test results. The VT is to compile a new CPF worksheet based on the remaining tests results, place it in the ***Lot Submittal Package*** and "VOID" the original CPF worksheet.

Note: When isolating tonnage where removal is required , the PA must evaluate the material between the previous QC test and the QC test that caused the Lot to fall into the Low Pay Factor and evaluate the material placed after previous or current QC test.

Example of documenting Low Pay Factor Material due to Quality Control Test Failure



The production was shut down at 700 tons production in Sublot #4 due to a QC failure. After an EAR was performed it was determined that 400 tons in Sublot #3 was also affected.

All of Sublot #4 was removed therefore the remaining 3 QC test results are utilized to determine the CPF. The 3 QC test results represent the remainder of the Lot.

Total production for pay will be: 2,600 tons in Lot #3 based on the 3 QC tests. The 1,100 tons (400 tons Sublot #3 & 700 tons in Sublot #4) will be removed and replaced. The deduction will be handled in the remarks column of the ***Lot Submittal Package*** for Lot #3 with reference to the ***Lot Submittal Package*** where the replacement tonnage occurred. The replacement tonnage (1100 tons) will be paid at the CPF for the Lot that produced the replacement tonnage with explanation in the remarks column referencing this material to Lot #3.

9.-13 DOCUMENTATION FOR MULTIPLE FINANCIAL IDENTIFICATION NUMBERS (FIN), UNDER ONE CONTRACT

All asphalt produced and accepted for a particular item shall be reported under the lead FIN (See exception below). The quantities for each FIN are determined by the Project Administrator, the prorated amount is determined from the Trns*port Estimated System (TES) pay item breakout. This will be done by taking the total tons shown on the TES for each FIN and dividing it by the total tons for the contract, then multiplying this amount by the total tons placed. This shall be done **monthly** after the estimate cutoff day based on the Contractor's Certification of Quantities, if asphalt has been placed during the month and paid accordingly on the monthly progress estimate.

Note: This breakout is done monthly to ensure the fuel and bituminous adjustments are correctly adjusted for the period the asphalt was produced and accepted. The CPF breakout adjustments shall be done during the month when the Lot is closed out.

Example

Project “A” TES shows 10,000 tons
Project “B” TES shows 20,000 tons
Total TES for contract = 30,000 tons

Tons placed this month = 4,359 tons

Project “A” would be determined by dividing 10,000 by 30,000 and multiplying by 4,359.10,000 ÷ 30,000 = .33 X 4,359 = 1,438.47 or 1,438.50 tons

Project “B” would be determined by dividing 20,000 by 30,000 and multiplying by 4,359.
20,000 ÷ 30,000 = .67 X 4,359 = 2,920.53 or 2,920.50 tons

Total = 1,438.5 + 2,920.5 = 4,359 tons.

Exception:

When an item is shown only on one FIN, those tons will be reported on that FIN.

9.~~-~~14 DOCUMENTATION FOR MULTIPLE FINs, UNDER ONE CONTRACT, INCLUDING NON-FEDERAL AID (NFA) PARTICIPATING

All asphalt produced and accepted for a particular item shall be reported under the lead FIN including NFA participating (See exception below). The quantities for each FIN are determined by the PA, the prorated amount is determined from the Trns*port Estimated System (TES) pay item breakout. This will be done by taking the total tons shown on the TES for each FIN and dividing it by the total tons for the contract, then multiplying this amount by the total tons placed. This shall be done **monthly** after the estimate cutoff day based on the Contractor’s Certification of Quantities, if asphalt has been placed during the month and paid accordingly on the monthly progress estimate.

Example:

Project “A” TES shows 6,000 tons Federal Aid (FA) participating and 4,000 tons NFA participating
Project “B” TES shows 20,000 tons Federal Aid participating
Total TES for contract = 30,000 tons
Tons placed this month = 4,359 tons

Project "A" (FA) would be determined by dividing 6,000 (FA) by 30,000 and multiplying by 4,359.
(FA) 6,000 ÷ 30,000 = .20 X 4,359 = 871.80

Project "A" (NFA) would be determined by dividing 4,000 (NFA) by 30,000 and multiplying by 4,359.
(NFA) 4,000 ÷ 30,000 = .13 X 4,359 = 566.67 or 566.70 tons

Project "B" would be determined by dividing 20,000 by 30,000 and multiplying by 4,359.
(FA) 20,000 ÷ 30,000 = .67 X 4,359 = 2,920.53 or 2,920.50 tons

Total = 871.8 + 566.7 + 2,920.5 = 4,359 tons.
Exception:

When an item is shown only on one FIN number, those Tons will be reported on that FIN number.

9-15 CPF DOCUMENTATION FOR MULTIPLE FIN, UNDER ONE CONTRACT

All CPF's for asphalt produced and accepted for a particular item shall be reported under the lead FIN (See exception below). The quantities for each FIN will be determined by the PA, as the prorated amount determined from the TES pay item breakout. This will be done by taking the total tons shown on the TES for each FIN and dividing it by the total tons for the contract, then multiplying this amount by the total tons placed for each CPF. This shall be done during the month the Lot is closed out and paid accordingly on the monthly progress estimate.

Example:

Project "A" TES shows 10,000 tons
Project "B" TES shows 20,000 tons
Total TES for contract = 30,000 tons

Tons placed = 31,500 tons*

CPF @ 105% = 8,000 tons
CPF @ 102% = 20,000 tons
CPF @ 98% = 3,500 tons

Project "A" is determined by dividing 10,000 by 30,000 and multiplied by the total tons for each CPF.

10,000 ÷ 30,000 = .33
CPF @ 105% = 8,000 X .33 = 2,640.00 tons
CPF @ 102% = 20,000 X .33 = 6,600.00 tons
CPF @ 98% = 3,500 X .33 = 1,155.00

Project "B" is determined by dividing 20,000 by 30,000 and multiplied by the total tons for each CPF.

20,000 ÷ 30,000 = .67
CPF @ 105% = 8,000 X .67 = 5,360.00 tons
CPF @ 102% = 20,000 X .67 = 13,400.00 tons
CPF @ 98% = 3,500 X .67 = 2,345.00 tons

Total CPF @ 105% = 2,640 + 5,360 = 8,000 tons
Total CPF @ 102% = 6,600 + 13,400 = 20,000 tons
Total CPF @ 98% = 1,155 + 2,345 = 3,500 tons

Note: This may be done on Federal Aid participating and Non Federal Aid participating projects. These pro-rated amounts shall be shown in the computation booklet along with the calculations.

Note: ~~f~~For this example, 31.500 Tons placed by Contractor is 105% maximum of the original Contract quantity, which is allowed per Specifications. See next example for the maximum pay.

Exception:

When an item is shown only on one FIN number, those tons will be reported on that FIN number.

9.-16 OVERALL SPREAD RATE ADJUSTMENT FOR MULTIPLE FIN, UNDER ONE CONTRACT (105% MAX PAY)

This shows an example of a105% Overall Adjustment Spread Rate on a multi fin project, how to calculate and separate quantities under the two projects.

Example:

Project "A" TES shows 13,754.2 Tons and 172,559 SY

Project "B" TES shows 91.1 Tons and 1,063 SY
Total TES for Contract = 13,845.3 Tons
Total TES for Contract = 173,622 SY Area
Design Spread Rate = 167.3 Lbs/SY

The ***Specification***s shows that the Friction Course gets a maximum of 105% from design spread rate which = 175.7 Lbs/SY (max. allowed)

Project "A" overall adjustment would be determined by:
(13,754.2 ÷13,845.3) = 0.99 out of total Contract, and
Project "B" overall adjustment would be determined by:
(91.1 ~~—~~ ÷13,845.3) = 0.01 out of total Contract

However, 15,281.2 Tons are the total Tons placed by Contractor on the road. ~~However t~~The maximum Tons that could be placed should be calculated, as follows:

(175.7 Lbs/SY X 173,622 SY) ÷ 2000 Lbs/Tons = 15,252.7 Tons
So 15,252.7 Tons is maximum that could be placed

Then the total deduction and the deduction on each project (can be calculated. The Department can only pay up to 105% maximum. Since the contractor placed more tonnage than the maximum tonnage, there will be a deduction). The deduction is done as follows:

15,252.7 Tons – 15,281.2 Tons = - 28.5 Tons Total deduct

Therefore:

For Project "A" -28.5 X 0.99 = -28.2 Tons is deducted and
For project "B" -28.5 X 0.01 = - 0.3 Tons is deducted.

The deduction under each project is from the original contract amount and unit price at 100%.

Also, if there is a CPF Adjustment, there is either a deduction or addition (depending on the factor) from the last CPF adjustment. Example: if the CPF =102% (or 0.02) and the last lot was 4000 Tons; unit price = $ 5.00;

0.02 X $ 5.00 = + $ 0.10 (New Unit Price)

For project A: + $ 0.10 X - 28.2 = - $ 2.82 deduct, and
For project B: + $ 0.10 X -0.3 = - $ 0.03 deduct

9.~~-~~17 CERTIFICATION OF QUANTITIES SUBMITTAL

The Contractor is required to fill out, sign and submit a ***Certification of Quantities*** (***Asphalt and Bituminous Materials, Conventional Projects***) ***F~~f~~orm No. 700-050-66*** to the PA for payment. This form is furnished by the Department (*See* ***Attachment 9-5***),and is required to be turned in by the Contractor on a monthly basis. This form shows all the asphalt that was produced, accepted and will be reported on the lead FIN. The Contractor only shows the tons that were accepted for the Contract. The Department will apply the CPF adjustment as defined above, after the Lot is closed out, and the ***Lot Submittal Package*** is received and verified. The Project Administrator shall keep a running total of each item's tonnage for the period represented and compare these to the ***Certification***. Any discrepancies shall be resolved before authorizing payment on the progress estimate. These ***Certifications*** are to accompany the ***Final Estimate Package***. The QC Manager shall handle discrepancies appropriately. If a ***Certification of Quantities*** has been determined to show tonnage that wasn't accepted on the project, the QC Manager must be notified for justification. A copy of the submittal should be provided to the State Construction Office.

Note: In some instances, the certifications will not match the asphalt quantity payable at the end of the project. This is due to removal and replacement for low CPFs. When this occurs, there should be notes on the summary, and running totals on the ***Lot Submittal Packages***. The Contractor shall not be required to adjust previous ***certifications*** due to removal and replacement.

9.18 LIST OF ATTACHMENTS FOLLOWING THIS CHAPTER

Attachment No. 9-1 ..... Automatic Printer Ticket

Attachment No. 9-2 ..... Receipt/Invoice for Excess Materials Delivered to Warehouse

Attachment No. 9-3 ..... Computation Sheet for Superpave (Level B)

Attachment No. 9-4 & 9-4a thru 9-4d..... Lot Submittal Package

Attachment No. 9-5 ..... Certification of Quantities

Attachment No. 9-6 ..... Spread Rate Calculation (FC-5)

Attachment No. 9-7 ..... Spread Rate Calculation (FC-9.5)