2020 Quality Assurance Special Provision for State Acceptance (2020 QASP SA) 10/21/2019

ON PAGE 16 AND 17, SUBSECTION 101.03 – ABBREVIATIONS AND ACRONYMS

PWL Percent Within Limits
QCP Quality Control Plan

ON PAGE 16 AND 17, SUBSECTION 101.04 – DEFINITIONS

HMA Paving Quality Control Plan. A quality control plan specific to hot mix asphalt paving.

Project Records. Records or data of any type on any media including those produced by the Contractor or its consultants, subcontractors, suppliers, or manufacturers that are related to the contract. Project records include, but are not limited to, plans, working drawings, specifications, manufacturer's recommendations, catalog cuts, daily time reports, testing records, testing observations, measurements, records of force account work, schedules and scheduled updates or revisions, quality control plans and related documentation, inspection reports, traffic control plans and log, safety program and incident reports, soil erosion and water pollution control plans and logs, employment records, payrolls, internal accounting records, equal opportunity and affirmative action records, on-the-job and disadvantaged business enterprise reports, preconstruction conference records, progress meeting records, partnering records, correspondence, e-mails, and any other documents related to the work.

Quality Assurance. All planned and systematic operations to ensure that the operation, material, and/or end product meets specifications. Quality assurance includes:

1. Approval and oversight of the Contractor's quality control plan.
2. Review of inspector, sampler, tester, and laboratory qualifications.
3. Inspection for conformity with contract requirements.
4. Contractor quality control.
5. Acceptance.
6. Independent assurance.
7. Challenge resolution.

Quality Control Plan. The documentation, approved by the Department, of the program used by the Contractor which specifies the actions, inspection, sampling, and testing necessary to keep production and placement operations within specifications, including provisions to quickly determine when an operation becomes out of control and those actions that the Contractor will take to restore compliance.

ON PAGE 38, SUBSECTION 105.03 – CONFORMITY WITH PLANS AND SPECIFICATIONS

Add after the first sentence:

> For the quality characteristics of the items included in 2020 QASP SA Table 106.03-1, and subject to quality level analysis, acceptance will be based on the requirements of the 2020 Quality Assurance Special Provision for State Acceptance (2020 QASP SA).

ON PAGE 60, SUBSECTION 106.03 – SAMPLES, TESTS, AND CITED SPECIFICATIONS

Delete this subsection and replace with the following:

106.03 Samples, Tests, and Cited Specifications.

The Engineer will accept material, based on inspection and test results, before the Contractor incorporates material into the work. The Contractor may, with approval, incorporate material the Engineer cannot routinely sample before delivery, at the Contractor's risk. The Department will pay the Contractor for material incorporated into the work if the material meets the sampling, testing, and certification requirements.

Ensure the sampling and testing required by the contract, including references to WAQTC, ASTM, AASHTO, and Idaho standard test methods are from the current edition at time of bid opening, except as modified by the contract.

For testing performed on the Contractor's behalf for plant mix designs, alkali-silica reactivity expansion, and claim or dispute resolution, a professional engineer, licensed in the state where the testing will be performed, will supervise testing reporting.

Ensure a safe means of sampling and testing. If safe means of sampling and testing is not provided, work will be halted, at no additional cost to the Department. No material will be accepted after unsafe conditions have been identified and the Contractor has been notified of the unsafe conditions, until corrective action has been taken and the resumption of work is approved by the Engineer.

Ensure the individuals sampling and testing material and the testing facilities are qualified for the tests performed.

Provide crushing, screening, and mixing plants with approved sampling equipment capable of operating from the ground or a platform. Ensure the sampling equipment is capable of the following:

1. Moving at a constant rate across the width of the material falling from the discharge belt or chute.
2. Taking a representative sample of the material.
3. Conveying (e.g., slide, chute) the sample to the ground level where the sample can be safely and conveniently collected.

The Contractor is responsible for the quality of construction and materials incorporated into the work. The Contractor will perform all necessary quality control inspection, sampling, and testing and the Department is responsible for acceptance testing and independent assurance (IA) testing. Sampling and testing costs are included in the respective contract pay items. The Contractor is allowed to take the acceptance or IA samples as long as the sample collection is witnessed by the Department. The Contractor may employ an independent laboratory. The laboratory must follow the Contractor's approved quality control plan. Make all project records, including test results and all original source documentation for specified contract quality requirements available for review and allow Department representatives immediate access to the testing facilities during delivery and production hours.

The Contractor may observe the Department's sampling and testing activities. If the Contractor observes a deviation from the specified sampling or testing procedures, then the Contractor must describe the deviation to the Department immediately and document the deviation in writing within 24 hours to preserve their ability to challenge the sample.

A. Material Subject to Statistical-Based Acceptance.

When specified in the contract, the Department will use the quality level analysis as specified in 106.03.B to determine quality-based pay adjustments.

The Contractor and the Department will work cooperatively within their respective quality assurance (QA) responsibilities to produce and document a high quality project, meeting or exceeding the quality requirements of the contract.

1. The Department's Quality Assurance Responsibilities.

   The Department is responsible for determining the acceptability of the work, approving and monitoring of the Contractor's quality control plan (QCP). The Department will perform acceptance sampling, testing, and inspection for any element of the work to ensure Contractor compliance with the QCP and contract requirements. The Department may also perform IA and verification sampling and testing at any time.

   Acceptance sampling and testing is the Department's responsibility, unless alternate procedures are specified. The Department is responsible for performing acceptance testing and for evaluating the quality characteristics as specified in the 2020 QASP SA Table 106.03-1.

   The Department will obtain all samples by utilizing stratified random sampling in accordance with Idaho IR 148.

   Rounding will not be permitted at any level of calculating acceptance test results. The final reported value will be rounded to the nearest significant figure as specified in the 2020 QASP SA Table 106.03-1. ASTM E 29 does not apply.

   The Department will provide official acceptance test results within 24 hours of receipt of the final sample for the lot. The Department will not provide official acceptance test results before the completion of the lot. Acceptance results and all original source documents/datasheets used during material acceptance testing will be made available for review upon request.

   Unofficial results before final review can be shared with the Contractor, if available. These results must not be used for process quality control.

   The Department will complete acceptance sampling, splitting, and testing as specified in the 2020 QASP SA Table 106.03-1 using independent, stratified random samples. Approximately ½ of the sample will be used for acceptance testing and the other ½ retained for challenge testing. The challenge samples must be secured with Department provided serialized security tape. All chain of custody information must be documented on Department provided forms and samples must be stored in a location only accessible by Department representatives.

   a. Lot Description.

      A lot is a specific quantity of material from a single source which is produced or placed by the same controlled process. Acceptance tests will be grouped into lots by the Engineer. Lot size will be determined by the Engineer using the following criteria:

      i. The minimum lot size is 3 tests for each quality characteristic. The minimum testing frequency is specified in the 2020 QASP SA Table 106.03-1.

      ii. A lot is based on a work shift's production when the minimum lot size is achieved.

         1. If the work shift is represented by less than 3 tests for any quality

characteristic, the work shift will be combined with the following work shift to form a lot.

2. If the final work shift is represented by less than 3 tests for any quality characteristic, the final work shift will be combined with the previous work shift to form a lot. A Superpave HMA acceptance test strip is considered a lot.

2. The Contractor's Quality Control Responsibilities.

The Contractor is responsible for quality control for all work. The Contractor will not rely on the Department's acceptance testing results for their process quality control.

a. Quality Control Plan (QCP). The Contractor will develop, submit, and implement a QCP that meets the requirements of Idaho IR 158, as approved by the Department, for each of the materials included in 2020 QASP SA Table 106.03-1. A QCP for each of the materials, will be submitted to the Department at or before the preconstruction conference. The Department will provide the Contractor with approval or rejection of each QCP within 5 business days after receiving the QCP. Rejection of the QCP will require an additional 5 business days for re-evaluation. The QCP must be approved before that material is incorporated into the work/project. The QCP, as approved by the Department in accordance with Idaho IR 159, is binding upon the Contractor as a contract requirement.

i. QCP Amendments. Amend the QCP as necessary to conform to the current operations and submit the amended QCP for the Engineer's approval in accordance with IR 158. The Engineer will review and provide approval or rejection of the QCP amendment in accordance with Idaho IR 159 before the amendment is implemented.

At a minimum, the QCP will consist of plans, procedures, responsibilities, authority, and an organizational structure that demonstrates that an effective level of quality control will exist resulting in the end product complying with the contract requirements. The Contractor will provide all necessary quality control inspection, sampling, and testing to implement the QCP. The QCP will include an organizational structure and reporting requirements that demonstrate that QC personnel have sufficient independence to allow them to be primarily concerned with quality, as opposed to schedule and budget.

The Department will not sample or test for process control or assist in controlling the Contractor's production operations. The Contractor will provide QC personnel and testing equipment capable of providing a quality product that meets or exceeds the contract requirements. Continued production of non-conforming work for a reduced price as determined by the Department, instead of making adjustments to bring the work into conformance, is not allowed. The QCP will specifically include:

i. Construction items covered by the QCP as specified in the contract.

ii. Sampling location and techniques.

iii. Sampling plan.

iv. Tests and test methods.

v. Testing frequencies.

vi. Testing forms.

vii. Inspection frequencies.

viii. Detailed description of production and placement equipment and methods.

ix. Detailed calibration processes and procedures for hot plants or mixing plants.

x. Documentation procedures, including:

(1) Inspection and test records.

(2) Temperature measurements.

(3) Accuracy, calibration, or recalibration checks performed on production or testing equipment.

The QCP will identify the Contractor's QC personnel, including the company official ultimately responsible for the quality of the work. The Department's QCP approval process may include inspection of testing equipment and a sampling and testing demonstration by the Contractor's QC personnel to assure an acceptable level of performance.

The Contractor will comply with the approved QCP and will take all other steps necessary to assure a high quality project.

Failure by the Contractor to comply with the approved QCP will result in mandatory work suspension until compliance.

The Contractor will maintain and make available, quality control charts (at a minimum, a run chart as the material is being produced) for each quality characteristic to be used in the statistical analysis. Where applicable, the run chart will be plotted with the material's specification upper and lower limits for statistical analysis.

B. Quality Level Analysis.

Quality level analysis will not be performed if the total quantity of material, except the test strip(s), based on planned quantity, is less than the quantity computed for 3 tests at the frequencies specified in 2020 QASP SA Table 106.03-1.

1. Statistical Analysis. Unless otherwise specified, quality levels and pay factors will be computed as specified below:

a. Determine the unrounded arithmetic mean ($\overline{X}$).

$$\overline{X} = \frac{\sum x_i}{n}$$

Where:

Σ = Summation.

x_i = Individual test value.

n = Total number test values.

b. Compute the unrounded sample standard deviation (S).

$$S = \sqrt{\frac{\sum (x_i - \overline{X})^2}{n - 1}}$$

c. Compute the unrounded upper quality index (Q_u).

$$Q_u = \frac{USL - \overline{X}}{S}$$

Where:

USL = Upper specification limit.

S = Standard deviation.

d. Compute the unrounded lower quality index (Q_L).

$$Q_L = \frac{\overline{X} - LSL}{S}$$

Where:

LSL = Lower specification limit.

S = Standard deviation.

e. Determine P_U (percent within the upper specification limit, which corresponds to a given Q_U).

$$P_U = 100 - \left(100 \times \int_0^A beta\left(X; \frac{n}{2} - 1\right) dX\right)$$

Where:

P_U = Unrounded percent within upper limits.

A = Maximum $\left[0, 0.5 - 0.5 \times Q_U \times \frac{n^{0.5}}{2(n-1)}\right]$

X = Maximum $\left[0, 0.5 - 0.5 \times Q_U \times \frac{n^{0.5}}{2(n-1)}\right]$

beta$(X; \frac{n}{2} - 1)$ = Beta distribution density with $\alpha = \beta = \frac{n}{2} - 1$ where α and β are parameters of the beta distribution.

If a USL is not specified, P_U will be 100.

f. Determine P_L (percent within lower specification limit, which corresponds to a given Q_L).

$$P_L = 100 - \left(100 \times \int_0^A beta\left(X; \frac{n}{2} - 1\right) dX\right)$$

Where:

P_L = Unrounded percent within lower limits.

A = Maximum $\left[0, 0.5 - 0.5 \times Q_L \times \frac{n^{0.5}}{2(n-1)}\right]$

X = Maximum $\left[0, 0.5 - 0.5 \times Q_L \times \frac{n^{0.5}}{2(n-1)}\right]$

beta$(X; \frac{n}{2} - 1)$ = Beta distribution density with $\alpha = \beta = \frac{n}{2} - 1$ where α and β are parameters of the beta distribution.

If a LSL is not specified or the specification is zero, P_L will be 100.

g. Determine the unrounded percent within limits (PWL) (i.e., the total percent within the specification limits).

$$PWL = (P_U + P_L) - 100$$

h. Repeat steps 106.03.B.1.c through 106.03.B.1.g to calculate the PWL for each quality characteristic.

2. Acceptance Criteria. The Engineer will accept a lot containing material that does not meet specifications if the PWL is at least 40 for each of the quality characteristics. The Engineer must reject a lot containing non-specification material, which does not obtain at least a PWL of 40 for each quality characteristic. Remove rejected material, including those portions of the work in which that material was incorporated, at no additional cost to the Department. The Contractor may reuse the removed material if adjustments are made so the material meets the specifications.

   If the PWL of a lot falls below 60 for any quality characteristic, stop production and/or delivery. A corrective action plan must be submitted to the Engineer and approved. Production and/or delivery may resume after the Contractor takes effective and acceptable actions to improve the production quality as outlined in the approved corrective action plan. If resuming production involves a significant change to the production process, as determined by the Engineer, stop the current lot and begin a new lot.

   The Contractor may elect to remove defective material and replace it with new material on an entire lot basis, at no additional cost to the Department. The Department and the Contractor must re-sample, retest, and re-evaluate the new lot for acceptance.

   The Engineer may isolate and reject obviously defective material without regard to testing procedures. The Contractor may isolate and reject obviously defective material during delivery and production before acceptance testing.

3. Materials.

   a. 301, 303, and 635 Materials. The upper and lower specification limits (USL and LSL) for gradations will be set based on the applicable requirements of 703 except as specified below:

      (1) Test results will not be included in the quality level analysis for fracture, sand equivalent, cleanness value, 100 percent passing, or for any sieves where the upper specification limit is 100 percent passing and the lower specification limit is 95 percent passing or greater.

      The Engineer will use the lowest PWL computed for any 1 sieve as the basis of acceptance for that lot. The average PWL will be used for payment.

   b. 404 Material. When the lower specification limit is 0 percent and the upper specification limit is less than 3 percent, the upper specification limit will be 3 percent for statistical analysis. A 2 percent tolerance will be given for the percentage retained on the maximum sized sieve provided that 100 percent of the material passes the next larger sieve size. Only #4 and #8 sieves will be used for quality level analysis.

   c. 405 Superpave Material. The upper and lower specification limits for Superpave quality characteristics will be set by the limits established in 405.

(1) For SP 2 aggregates, the lowest PWL for any 1 sieve will be used for acceptance and pay factor calculations.

ON PAGE 61, SUBSECTION 106.07 – TEST RESULT CHALLENGE RESOLUTION

Delete this subsection and replace with the following:

106.07 Test Result Challenge Resolution.

The Contractor and the Department may enter into a challenge resolution when the quality of a lot is believed to be misrepresented.

The test result challenge process as specified in 106.07 will be exhausted in its entirety before other dispute or claims processes are initiated as specified in 105.16, 105.17, 105.18, and 105.19. The intent of challenge resolution is to resolve testing issues early, efficiently, and as close to the project level as possible. The Contractor will waive their right to challenge test results if they fail to comply with the requirements set forth in this subsection.

A. Initiation of a Challenge.

To request a challenge of acceptance test results, provide written notice, including all quality characteristics and copies of original quality control source documentation, within 3 business days after receipt of the acceptance test results. Failure to comply with these requirements in this subsection will bar either party from any further administrative, equitable, or legal remedy.

1. The Contractor will waive their right to challenge if either of the following conditions occur:
    i. The Engineer does not receive a written notice as specified within the time requirements (i.e., 3 business days).
    ii. The Contractor does not obtain the required number of the Contractor's quality control tests reported on forms established in the QCP at the frequency specified in 2020 QASP SA Table 106.3-1.
2. The Department will review the written notice and quality control documentation.

B. Challenge Resolution Process.

1. The Department and the Contractor will identify differences in procedures and equipment.
2. The Department and the Contractor will agree to a work plan for initiating resolution by a challenge laboratory as specified in 106.07.C. or 106.07.D.
3. The Contractor can witness challenge testing.

C. Challenge of Material <u>Not</u> Subject to Statistical-Based Acceptance.

The challenge lab is the Department Central Materials Laboratory or a Department District Materials Laboratory not associated with the District in which the acceptance testing is being performed. Splits of the Department's acceptance samples for the entire lot will be used for challenge testing. The challenge samples will be tested for all quality characteristics used in the quality level analysis by the challenge laboratory. The challenge laboratory results are final and the Engineer will use the challenge laboratory's test results for all quality characteristics for acceptance.

1. If the Department's acceptance test results indicate reject level material, and:

i. The challenge laboratory test results indicate acceptable material, then the Department will bear the cost of challenge laboratory testing.

ii. The challenge laboratory test results indicate reject level material, then the costs of challenge laboratory testing will be deducted from any monies due or that may come due the Contractor under the contract at the rate of $500.00 per sample.

For challenging of density properties, the Department's acceptance cores will be retained for retesting. The Contractor may request to observe challenge testing.

D. Challenge Laboratory Resolution of Material Subject to Statistical-Based Acceptance.

The challenge laboratory is the Department Central Materials Laboratory. The Central Materials Laboratory may elect to choose another challenge laboratory as needed to accommodate testing timelines. Upon challenge notification, the Department will arrange for testing of all challenged acceptance samples of the lot in question. Splits of the Department's acceptance samples will be used for challenge testing. The challenge samples for the entire lot will be tested for all quality characteristics used in the quality level analysis by the challenge laboratory. The challenge laboratory test results are final and the Engineer will use the challenge laboratory test results of all quality characteristics for acceptance for the entire lot.

The Contractor may use challenge resolution for density when the density pay factor is less than 1.00. The entire lot will be retested for density and used in the quality level analysis. A challenge resolution test will be performed by obtaining cores in new, stratified random sample locations equal to the same number of original acceptance tests. Sample locations will be identified by the Department using Idaho IR 148. Sampling of cores will be performed by the Contractor and must be witnessed by the Engineer. Traffic control and sampling will be performed by the Contractor. Challenge resolution may be performed regardless of the sampling location being exposed to traffic. The challenge test results are final and the Engineer will use the challenge test results for acceptance of the entire lot.

1. If the new composite pay factor results in a lower or equal composite pay factor for the lot in question, then the costs of challenge testing, in addition to the cost of any work related to traffic control performed for retesting at unit bid prices for the costs incurred, will be deducted from any monies due or that may come due the Contractor under the Contract at the rate shown in Table 106.07-1 per sample in the challenged lot.
2. If the new composite pay factor results in a higher composite pay factor for the lot in question, then the Department will bear the costs associated with the challenge testing, and the cost of any work related to traffic control performed for retesting at unit bid prices for the costs incurred.

Table 106.07-1 – Challenge Laboratory Testing Rates

Material	Rate Per Sample
301 Granular Subbase	$200
303 Aggregate Base	$250
404 Cover Coat Material	$300
635 Anti-Skid Material in Stockpile	$300
405 SP 2 Mix Quality Characteristics	$600
405 SP 2 Roadway Quality Characteristics	$400
405 SP 3 Mix Quality Characteristics	$600

Material	Rate Per Sample
405 SP 3 Roadway Quality Characteristics	$400
405 SP 5 Mix Quality Characteristics	$600
405 SP 5 Roadway Quality Characteristics	$400

ON PAGE 85, SUBSECTION 108.04 – PRECONSTRUCTION AND PREOPERATIONAL CONFERENCES

Add a #5:

5. A quality control plan as specified in 106.03.A.2.

ON PAGE 107, NEW SUBSECTION 109.09 – PAY FACTOR EQUATIONS

Insert with the following new subsection:

109.09 Pay Factor Equations.

The Engineer will determine a pay factor for each quality characteristic in an individual lot not rejected and replaced, except as otherwise specified, for use in the basis of payment calculations.

With the exception of reject quality level material, if any quality characteristic used in calculating the pay factor for the lot falls below 60 PWL all quality characteristics will be paid corresponding to the lowest, unrounded PWL.

A. 405 Mainline Density.

For mainline density, calculate the pay factor for each lot using the following formula:

$$\mathrm{PF}_{MLD} = \frac{55 + 0.5\times\left(PWL_{92} - \frac{(\mathrm{PWL}_{92} - 90) + |PWL_{92} - 90|}{2}\right)}{100} + \frac{((PWL_{92} - 90)) + |(PWL_{92} - 90)|}{1000} + \frac{(PWL_{93} - 90) + |PWL_{93} - 90|}{1000} + \frac{(PWL_{94} - 90) + |PWL_{94} - 90|}{2000}$$

Where:

PWL_{92} is the percent of material between 92.0 to 100.0% compaction.

PWL_{93} is the percent of material between 93.0 to 100.0% compaction.

PWL_{94} is the percent of material between 94.0 to 100.0% compaction.

B. All Other Quality Characteristics.

For all other quality characteristics calculate the unrounded pay factors for each lot using the following equation:

$$\mathrm{PF} = \frac{55+0.5\times(\mathrm{PWL})}{100}$$

ON PAGE 158, SUBSECTION 301.05 – BASIS OF PAYMENT

Add the following:

A. Granular Subbase Pay Factor. All acceptable material will be paid at contract unit price.

When RAP material is included in acceptable subbase, the natural material will be tested as specified in 301 and the blended material will be paid at contract unit price.

ON PAGE 162, SUBSECTION 303.05 – BASIS OF PAYMENT

Delete this subsection and replace with the following:

Calculation of Incentive/Disincentive. The incentive/disincentive dollar amount to be paid or deducted for all ____ aggregate type _____ for base accepted by the Department will be computed using the following formula:

$$PA_{303} = (PF_{303} - 1) \times Q_i \times P$$

Where:

PA_{303} = Pay adjustment for all ____ aggregate type ____ for base in dollars.

PF_{303} = Per 106.B.3 and 109.09.

Q_i = Quantity represented by individual lot (n).

P = Contract unit price.

The incentive/disincentive dollar amount to be paid or deducted for all ____ aggregate type ____ for base in stockpile accepted by the Department will be computed using the following formula:

$$PA_{STKPL\,303} = (PF_{STKPL\,303} - 1) \times Q_i \times P$$

Where:

$PA_{STKPL303}$ = Pay adjustment for all ____ aggregate type ____ for base in stockpile in dollars.

$PF_{STKPL303}$ = Per 106.B.3 and 109.09.

Q_i = Quantity represented by individual lot (n).

P = Contract unit price.

Note: The incentive may be a negative amount (i.e., a deduction from the total amount bid for the item).

ON PAGE 179, SUBSECTION 404.05 – BASIS OF PAYMENT

Add the following:

If the aggregate pay factor is less than 0.75, the material may be allowed to be left in place with a price adjustment if the finished product is found to be capable of performing its intended purpose. The price adjustment will be 50 percent of the contract unit bid price multiplied by the total quantity of material with a pay factor less than 0.75.

For surface treatment aggregate, the Engineer will use the lowest pay factor computed for any 1 sieve as the pay factor for that lot.

Calculation of Incentive/Disincentive. The incentive/disincentive dollar amount to be paid or deducted for

all cover coat material class _____ accepted by the Department, excluding material in stockpile and material with a pay factor less than 0.75 allowed to remain in place with a price adjustment, will be computed using the following formula:

$PA_{404} = (PF_{404} - 1) \times Q_i \times P$

Where:

PA_{404} = Pay adjustment for all cover coat material class ____ in dollars.

PF_{404} = Per 106.B.3 and 109.09.

Q_i = Quantity represented by individual lot (n).

P = Contract unit price.

The incentive/disincentive dollar amount to be paid or deducted for all cover coat material class ____ in stockpile accepted by the Department will be computed using the following formula:

$PA_{STKPL404} = (PF_{STKPL404} - 1) \times Q_i \times P$

Where:

$PA_{STKPL404}$ = Pay adjustment for all cover coat material class ____ in stockpile in dollars.

$PF_{STKPL404}$ = Per 106.B.3 and 109.09.

Q_i = Quantity represented by individual lot (n).

P = Contract unit price.

Note: The incentive may be a negative amount (i.e., a deduction from the total amount bid for the item).

ON PAGE 459, SUBSECTION 635.05 – BASIS OF PAYMENT

Add the following:

For anti-skid material, the Engineer will use the lowest pay factor computed for any 1 sieve as the pay factor for that lot.

Calculation of Incentive/Disincentive. The incentive/disincentive dollar amount to be paid or deducted for all anti-skid material accepted by the Department, excluding anti-skid defined as small quantity, will be computed for each lot using the following formula:

$$\mathrm{PA}_{635} = (\mathrm{PF}_{635} - 1) \times \mathrm{Q}_i \times \mathrm{P}$$

Where:

PA_{635} = Pay adjustment in dollars.

PF_{635} = Per 106.B.3 and 109.09.

Q_i = Quantity represented by individual lot (n).

P = Contract unit price.

Note: The incentive may be a negative amount (i.e., a deduction from the total amount bid for the item).

2020 QASP SA Table 106.03-1 – Material Subject to Statistical Based Acceptance

Material	Quality Characteristic	Test Method	Quality Characteristic Reported to	Quality Control Plan by the Contractor	Acceptance by the Department	
				Minimum Testing Frequency [a]	Minimum Testing Frequency [a]	Point of Sampling
301 Granular Subbase [f]	Gradation – 703.11	FOP for AASHTO T 27	0.01%	1 test per 5,000 Tons 1 test per 5,000 Tons	1 test per 5,000 Tons	From windrow or roadway
	Sand Equivalent	FOP for AASHTO T 176 (Alt. Method #2), Mechanical	See Note 2.	1 test per 5,000 Tons 1 test per 5,000 Tons	1 test per 5,000 Tons (pass/fail, no statistical analysis)	From windrow or roadway
303 Aggregate Base [f]	Gradation – 703.04	FOP for AASHTO T 27 with FOP for AASHTO T 11 (use wash method for all gradation measurements)	0.01%	1 test per 1,000 Tons 1 test per 1,000 Tons	1 test per 1,000 Tons	From windrow or roadway
	Sand Equivalent	FOP for AASHTO T 176 (Alt. Method #2), Mechanical	See Note 2.	1 test per 1,000 Tons	1 test per 1,000 Tons (pass/fail, no statistical analysis)	From windrow or roadway
	Fracture Count	FOP for AASHTO T 335, Method 1	See Note 2.	1 test per 1,000 Tons	1 test per 1,000 Tons (pass/fail, no statistical analysis)	From windrow or roadway
404 Cover Coat Material [f]	Gradation – 703.06	FOP for AASHTO T 27 with FOP for AASHTO T 11 (use wash method for all gradation measurements)	0.01%	1 test per 400 Tons 1 test per 400 Tons	1 test per 400 Tons	At point of loading to the roadway
	Cleanness Value	Idaho IT 72	See Note 2.	1 test per 400 Tons 1 test per 400 Tons	1 test per 400 Tons (pass/fail, no statistical analysis)	At point of loading to the roadway
	Fracture Count	FOP for AASHTO T 335, Method 1	See Note 2.	1 test per 400 Tons 1 test per 400 Tons	1 test per 400 Tons (pass/fail, no statistical analysis)	At point of loading to the roadway

Continued – 2020 QASP SA Table 106.03-1 – Material Subject to Statistical Based Acceptance						
Material	Quality Characteristic	Test Method	Quality Characteristic Reported to	Quality Control Plan by the Contractor	Acceptance by the Department	
				Minimum Testing Frequency [a]	Minimum Testing Frequency [a]	Point of Sampling
405 Superpave Class SP2 [f] [g]	Asphalt Content, P_b [e]	FOP for AASHTO T 168[c] and FOP for AASHTO R 47 and FOP for AASHTO T 308 and FOP for AASHTO T 329	0.01%	1 test minimum per 750 Tons	1 test per 750 Tons	FOP for AASHTO R 97 [c]
	Gradation[e]	FOP for AASHTO T 168[c] and FOP for AASHTO R 47 and FOP for AASHTO T 30 (use wash method for all gradation measurements)	0.01%	1 test minimum per 750 Tons	1 test per 750 Tons	FOP for AASHTO R 97 [c]
	Fracture Count	FOP for AASHTO T 335, Method 1	See Note 2.	By the Contractor as needed to control the operation. 1 test minimum per 1,500 Ton	N/A	N/A
	Sand Equivalent	FOP for AASHTO T 176 (Alt. Method #2), Mechanical	See Note 2.	By the Contractor as needed to control the operation. 1 test minimum per 1,500 Tons	N/A	N/A
	Mainline Density, MLD [d]	FOP for AASHTO T 355 [b] or FOP for AASHTO T 343	0.01%	1 test minimum per 375 Tons	1 test per 375 Tons [b]	FOP for AASHTO R 97 [c]
	Recycled Asphalt Pavement	FOP for AASHTO T 308 and FOP for AASHTO T 30	See Note 2.	1 test minimum per 1,500 Tons	N/A	N/A

Continued – 2020 QASP SA Table 106.03-1 – Material Subject to Statistical Based Acceptance						
Material	Quality Characteristic	Test Method	Quality Characteristic Reported to	Quality Control Plan by the Contractor	Acceptance by the Department	
				Minimum Testing Frequency [a]	Minimum Testing Frequency [a]	Point of Sampling
405 Superpave HMA Class SP 3, and SP 5 [f] [g]	Asphalt Content, P_b [e]	FOP for AASHTO T 168[c] and FOP for AASHTO R 47 and FOP for AASHTO T 308 and FOP for AASHTO T 329	0.01%	1 test minimum per 750 Tons	1 test minimum per 750 Tons	FOP for AASHTO R 97 [c]
	Gradation [e]	FOP for AASHTO T 30 (use wash method for all gradation measurements)	0.01%	1 test minimum per 750 Tons	1 test minimum per 750 Ton	FOP for AASHTO R 97 [c]
	Maximum Specific Gravity, G_{mm} [e]	FOP for AASHTO T 168[c] and FOP for AASHTO R 47 and FOP for AASHTO T 209 (Bowl Method)	0.001	1 test minimum per 750 Tons	1 test minimum per 750 Ton	FOP for AASHTO R 97 [c]
	Bulk Specific Gravity of Compacted Mix, G_{mb} [e]	FOP for AASHTO T 168[c] and FOP for AASHTO R 47 and FOP for AASHTO T 312 and FOP for AASHTO T 166 (Method A)	0.001	1 test minimum per 750 Tons	1 test minimum per 750 Tons	FOP for AASHTO R 97 [c]
	Effective Specific Gravity of Combined Aggregate, G_{se} [e]	WAQTC TM 13	0.001	1 test minimum per 750 Tons	1 test minimum per 750 Tons	FOP for AASHTO R 97 [c]
	Air Voids @ N_{design}, P_a [e]	WAQTC TM 13	0.01%	1 test minimum per 750 Tons	1 test minimum per 750 Tons	FOP for AASHTO R 97 [c]
	VMA @ N_{design} [e]	WAQTC TM 13	0.01%	1 test minimum per 750 Tons	1 test minimum per 750 Tons	FOP for AASHTO R 97 [c]
	Dust Proportion, DP [e]	WAQTC TM 13	0.001	1 test minimum per 750 Tons	1 test minimum per 750 Tons	FOP for AASHTO R 97 [c]
	Mainline Density [d] [e]	FOP for AASHTO T 355 [b] or FOP for AASHTO T 343 For cores: FOP for AASHTO R 67; FOP for AASHTO T 166 Method A or FOP for AASHTO T 331	0.01%	1 test minimum per 375 Tons	1 test per 375 Tons [b]	Roadway [c]
	Recycled Asphalt Pavement	FOP for AASHTO T 308 and FOP for AASHTO T 30	See Note 2.	1 test minimum per 1,500 Tons	N/A	N/A
635 Anti-Skid Material in Stockpile [f]	Gradation – 703.10	FOP for AASHTO T 27 with FOP for AASHTO T 11 (use wash method for all gradation measurements)	0.01%	1 test per 1,000 Tons By the Contractor as needed to control the operation	1 test per 1,000 Tons	From crusher or if previously crushed, final stockpile location.

Note: 1. Refer to the QA Manual minimum test requirements for minimum testing not included in 2020 QASP SA Table 106.03-1.

[a] If the total quantity of material is less than the minimum testing frequency for 1 test from 2020 QASP SA Table 106.03-1, acceptance will be as specified in the QA Manual Section 270.04.

[b] When a test strip is not required, density acceptance is based on cores as specified in 405.L.

[c] Sampling from the plant is not permitted unless the planned quantity is less than 750 tons or during the acceptance test strip.

[d] The Department will use nuclear gauges. The Contractor may use nuclear or non-nuclear (i.e., electronic) gauges.

[e] Calculated value based on unrounded results.

[f] This material requires an approved quality control plan.

[g] If the total quantity of material is between 750 and 2,250 tons, the entire quantity of material will be considered a single lot and will be accepted as specified in 405.03.I.

2. This quality characteristic is not subject to statistical based acceptance. Refer to the QA Manual Table 275.01.1 for calculating and reporting requirements.