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| Specification Amendment AMC\_S279  **Effective Immediately and Supersedes 3.50 specification amendment dated May 2022)**  **INCLUDE IN ALL PROJECTS WITH A PAVING COMPONENT**  (Do not use specification amendment AMC\_S275 QUALITY CONTROL TESTING USING MAXIMUM SPECIFIC GRAVITY TESTING OF HOT MIX ASPHALT in conjunction with this amendment.)  **Amendments to Specification 3.50, Asphalt Concrete Pavement (EPS);**   1. Subsection 3.50.1.2.13, **QA Acceptance Lot** is replaced in its entirety with the following:   A Lot in which all acceptance testing is conducted by the Consultant using quality assurance test procedures as outlined in these specifications. The number and selection of QA Acceptance Lots shall be determined as follows:   1. First two Lots of production for each Mix Type used, except for Mix Type S1 in which case the first Lot shall be used, and; 2. One additional random lot for the bottom lift, if two or more lifts are specified, and; 3. Minimum of one additional random Lot per 30 000 tonnes, or portion thereof, of total ACP contract tender tonnage and; 4. Three additional random Lots of top lift production, for each Mix type, if two or more lifts are specified and; 5. Any additional Lot(s) chosen by the Consultant. 6. Subsection 3.50.2.4, **Reclaimed Asphalt Pavement**, replace the last paragraph in its entirety with the following:   For RAP/virgin aggregate blends greater than 10/90, the Contractor shall adjust the virgin asphalt grade and/or undertake rheology testing of the RAP and virgin asphalt cements according to the requirements listed in Table 3.50.2.4 Asphalt Grade Adjustment and Rheology Testing for RAP Usage. Rheology testing of the blended RAP and virgin asphalt cements shall meet the requirements of the specified grade.   1. Subsection 3.50.3.4, **Variation from the Job Mix Formula,** replace second sentence in its entirety with the following:   The Lot Mean Marshall Air Voids, as determined by the Consultant, shall not vary from the air voids in the approved mix design by more than +0.5% and –1.0%. If the Lot Mean Marshall Air Voids vary from the approved mix design by more than the limits as stated, the Consultant may suspend operations. The Consultant will allow paving to resume when the proposed corrective actions is likely to yield air voids that conform to the approved mix design.   1. Table 3.50.4.2 in Subsection 3.50.4.2**, Methods of Testing For Acceptance and Appeal Testing** is replaced in its entirety with Table 1.   **Table 1**  **Test Methods on Managed QA Projects**   |  | **Test Description** | **Test Method** | | --- | --- | --- | | 1 | Sampling Mixes | ATT-37 | | 2 | Coring | ATT-5 | | 3 | Extraction | ATT-12 | | 4 | Correction Factor, Extracted Asphalt Content | ATT-12 Part III | | 5 | Percent Fracture | ATT-50 | | 6 | Sieve Analysis | ATT-26 | | 7 | Density, Immersion Method, Waxed Asphalt Concrete Specimens | ATT-6 | | 8 | Density, Immersion Method, Saturated Surface Dry Asphalt Concrete Specimens | ATT-7 | | 9 | Density, Using Automated Vacuum Sealing Method | AASHTO T331 | | 10 | Air Voids Calculation, Asphalt Concrete Specimens | ATT- 36 | | 11 | Percent Compaction, Asphalt Concrete Pavement | ATT- 67 | | 12 | Forming Marshall Specimens, Field Method | ATT-13 | | 13 | Moisture Content, Oven Method Asphalt Concrete Mixes | ATT-15 | | 14 | Smoothness of Pavements using IRI Criteria | Contract Documents | | 15 | Stratified Random Test Sites for A.C.P. Projects | ATT- 56 | | 16 | Appeal Testing, Asphalt Content, Density and Gradation | ATT- 68 | | 17 | Asphalt Content, Ignition Method | ATT-74 | | 18 | Correction Factor, Ignition Asphalt Content | ATT-74 Part II | | 19 | Maximum Specific Gravity of Bituminous Mixes | ASTM 2041 | | **Additional Test Methods for all QC or QA Acceptance Lots** | | | | 20 | Asphalt Content | AASHTO T164, T287 or ATT-12 or ATT-74 |   NOTES:  - In all test methods used as reference in this specification, metric sieves as specified in Canadian General Standards Board Specification 8-GP-2M shall be substituted for any other specified wire cloth sieves in accordance with Specification 3.2, Aggregate Production and Stockpiling.  - In all cases the latest amendment or revision current at the closing date of the Tender is implied when reference is made to one of the above standards in the Specification.   1. Table 3.50.4.3 in Subsection 3.50.4.3**, Quality Control Testing** is replaced in its entirety with the following table**.**   **Table 3.50.4.3**  **Quality Control Testing Requirements – Managed QA Testing Projects**   | **Test** | **Standard** | **Minimum Frequency** | | --- | --- | --- | | **AGGREGATE PRODUCTION** |  | See Specification 3.2 | | **ASPHALT MIX PLANT** | | | | Calibration | ATT-17 | Once per project or as required | | Inspection | ATT-16 | (2) | | **SAMPLES** | | | | Asphalt Cement | ATT-42 | See Specification 5.7 | | Tack, Prime and Fog Materials | ATT-42 | See Specification 5.7 | | Cold Feed Aggregate | ATT-38 |  | | Mix | ATT-37 | (2) | | QA Cores - Stratified Random Test Sites Chosen By The Consultant | ATT-56 | One per segment for each Lot.  One per segment for selected Lots as directed by the Consultant. | | * + 1. QA Cores for Pavement Density | ATT-5 | | * + 1. QA Cores for Asphalt Content and Gradation | ATT-5 | | **TESTS WITH SPECIFIED MINIMUM FREQUENCIES** | | | | Mix Asphalt Content | AASHTO T164, T287 or ATT-12 or AT-74 | (2) | | Correction Factors | ATT-12, Part III or ATT-74, Part II | As Required | | Mix Moisture Content | ATT-15 | (2) | | Aggregate Sieve Analysis | ATT-26 | (2) | | Pavement Segregation | Segregation Rating Manual | Each Lot | | Field Formed Marshall Briquettes | ATT-13 | (2) | | Density Immersion Method, Saturated Surface Dry | ATT-7 | (2) | | Maximum Specific Gravity of Bituminous Mixes (Gmm) | ASTM 2041 | (2),(3) | | Void Calculations, Cores or Formed Specimens | ATT-36 | (2),(3) | | Pavement Smoothness using IRI Criteria | See Contract Documents | Travel lanes of all top lift paving | | **TESTS WITH NO SPECIFIED MINIMUM FREQUENCIES** | | | | Temperatures | ATT-30 | (1) | | Percent Compaction, Cores or Nuclear Density | ATT-67, ATT-5 or  ATT-11 | (1),(3) | | Random Test Site Locations | ATT-56 | (1) | | Correction Factors, Nuclear Moisture-Density Measurement | ATT-48 | (1) |   (1) Minimum Frequency not Specified.  (2) When a Lot has eight hours of plant production or more, a minimum of four checks and tests are required. When a Lot has less than eight hours of plant production, these tests shall be performed once for every two full hours of plant production.  (3) Marshall air voids and pavement percent of compaction calculated using Gmm.   1. Subsection 3.50.4.4.2.3 **Asphalt Mix Sampling** is replaced in its entirety with the following:   Sampling of the asphalt mixture for determining Marshall air voids will be carried out by the Consultant using the procedure identified in ATT-37. For each sampling instance, the Consultant shall retain a split sample of a minimum 5,000 g. The split sample will be identified and retained by the Consultant for possible appeal testing for the determination of Lot Mean Maximum Specific Gravity (Gmm).   1. Add the following to Section 3.50.4.4.2 **Acceptance Sampling and Testing Procedures**   3.50.4.4.2.5 Marshall Air Voids  The Marshall density of field formed specimens and Maximum Specific Gravity of loose mix shall be determined by the Consultant. Marshall Air Voids shall be calculated as follows.  *Where: Gmm = Maximum specific gravity, and Gmb = Bulk Density of Marshall or core specimen (kg/m3)  Note: Density is a synonymous term often used within industry in place of Specific Gravity.*     1. Replace the following sentence in Sub Section 3.50.5.4.1 **General,**   *“If required by the Consultant the contact edge of any mat placed by the Contractor shall be coated with a thin film of liquid asphalt before placing the adjacent mat.”*  In its entirety, with the following:  The contact edge of any mat placed by the Contractor shall be coated with a thin film of liquid asphalt before placing the adjacent mat.   1. Replace **Table 3.50A Unit Price Adjustment for Density** with the following table.  | **TABLE 3.50 A**  **Unit Price Adjustment for Density** | | | | | | | --- | --- | --- | --- | --- | --- | | **% of Gmm** | **Unit Price Adjustment - Dollars per Tonne** | | | | | | **Design Lift Thickness** | | | | | | **Lot Mean** | **35 mm or Greater**  **Lower Lifts** | **Less Than 35 mm and Greater than 20 mm**  **Lower Lifts** | **20 mm**  **Lower Lifts** | **35 mm or Greater**  **Top Lift Only** | **Less Than 35 mm and Greater than 20 mm**  **Top Lift Only** | | ≥ 94.5 | + 1.00 | +1.00 | + 1.00 | + 1.00 | + 1.00 | | 94.4 | + 0.90 | + 0.90 | + 0.90 | + 0.90 | + 0.90 | | 94.3 | + 0.80 | + 0.80 | + 0.80 | + 0.80 | + 0.80 | | 94.2 | + 0.70 | + 0.70 | + 0.70 | + 0.70 | + 0.70 | | 94.1 | + 0.60 | + 0.60 | + 0.60 | + 0.60 | + 0.60 | | 94.0 | + 0.50 | + 0.50 | + 0.50 | + 0.50 | + 0.50 | | 93.9 | + 0.40 | + 0.40 | + 0.40 | + 0.40 | + 0.40 | | 93.8 | + 0.30 | + 0.30 | + 0.30 | + 0.30 | + 0.30 | | 93.7 | + 0.20 | + 0.20 | + 0.20 | + 0.20 | + 0.20 | | 93.6 | + 0.10 | + 0.10 | + 0.10 | + 0.10 | + 0.10 | | 93.5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 93.4 | ‑0.20 | 0.00 | 0.00 | ‑0.20 | 0.00 | | 93.3 | ‑0.40 | 0.00 | 0.00 | ‑0.40 | 0.00 | | 93.2 | ‑0.60 | 0.00 | 0.00 | ‑0.60 | 0.00 | | 93.1 | ‑0.80 | 0.00 | 0.00 | ‑0.80 | 0.00 | | 93.0 | ‑1.00 | 0.00 | 0.00 | ‑1.00 | 0.00 | | 92.9 | ‑1.20 | 0.00 | 0.00 | ‑1.20 | 0.00 | | 92.8 | ‑1.40 | 0.00 | 0.00 | ‑1.40 | 0.00 | | 92.7 | ‑1.60 | 0.00 | 0.00 | ‑1.60 | 0.00 | | 92.6 | ‑1.80 | 0.00 | 0.00 | ‑1.80 | 0.00 | | 92.5 | ‑2.00 | 0.00 | 0.00 | ‑2.00 | 0.00 | | 92.4 | ‑2.20 | 0.00 | 0.00 | ‑2.20 | ‑0.20 | | 92.3 | ‑2.40 | 0.00 | 0.00 | ‑2.40 | ‑0.40 | | 92.2 | ‑2.60 | 0.00 | 0.00 | ‑2.60 | ‑0.60 | | 92.1 | ‑2.80 | 0.00 | 0.00 | ‑2.80 | ‑0.80 | | 92.0 | ‑3.00 | 0.00 | 0.00 | ‑3.00 | ‑1.00 | | 91.9 | ‑3.20 | 0.00 | 0.00 | ‑3.20 | ‑1.20 | | 91.8 | ‑3.40 | 0.00 | 0.00 | ‑3.40 | ‑1.40 | | 91.7 | ‑3.60 | 0.00 | 0.00 | ‑3.60 | ‑1.60 | | 91.6 | ‑3.80 | 0.00 | 0.00 | ‑3.80 | ‑1.80 | | 91.5 | ‑4.00 | 0.00 | 0.00 | ‑4.00 | ‑2.00 | | 91.4 | ‑4.40 | 0.00 | 0.00 | ‑4.40 | ‑2.20 | | 91.3 | ‑4.80 | 0.00 | 0.00 | ‑4.80 | ‑2.40 | | 91.2 | ‑5.20 | 0.00 | 0.00 | ‑5.20 | ‑2.60 | | 91.1 | ‑5.60 | 0.00 | 0.00 | ‑5.60 | ‑2.80 | | 91.0 | ‑6.00 | 0.00 | 0.00 | ‑6.00 | ‑3.00 | | 90.9 | ‑6.40 | 0.00 | 0.00 | ‑6.40 | ‑3.20 | | 90.8 | ‑6.80 | 0.00 | 0.00 | ‑6.80 | ‑3.40 | | 90.7 | ‑7.20 | 0.00 | 0.00 | ‑7.20 | ‑3.60 | | 90.6 | ‑7.60 | 0.00 | 0.00 | ‑7.60 | ‑3.80 | | 90.5 | ‑8.00 | 0.00 | 0.00 | ‑8.00 | ‑4.00 | | 90.4 | 50% of Unit Price | ‑0.20 | 0.00 | Overlay or Rm.&Rp. | ‑4.40 | | 90.3 | 50% of Unit Price | ‑0.40 | 0.00 | Overlay or Rm.&Rp. | ‑4.80 | | 90.2 | 50% of Unit Price | ‑0.60 | 0.00 | Overlay or Rm.&Rp. | ‑5.20 | | 90.1 | 50% of Unit Price | ‑0.80 | 0.00 | Overlay or Rm.&Rp. | ‑5.60 | | 90.0 | 50% of Unit Price | ‑1.00 | 0.00 | Overlay or Rm.&Rp. | ‑6.00 | | 89.9 | 50% of Unit Price | ‑1.20 | 0.00 | Overlay or Rm.&Rp. | ‑6.40 | | 89.8 | 50% of Unit Price | ‑1.40 | 0.00 | Overlay or Rm.&Rp. | ‑6.80 | | 89.7 | 50% of Unit Price | ‑1.60 | 0.00 | Overlay or Rm.&Rp. | ‑7.20 | | 89.6 | 50% of Unit Price | ‑1.80 | 0.00 | Overlay or Rm.&Rp. | ‑7.60 | | 89.5 | 50% of Unit Price | ‑2.00 | 0.00 | Overlay or Rm.&Rp. | ‑8.00 | | 89.4 | 50% of Unit Price | ‑2.20 | ‑0.20 | Overlay or Rm.&Rp. | ‑8.40 | | 89.3 | 50% of Unit Price | ‑2.40 | ‑0.40 | Overlay or Rm.&Rp. | ‑8..80 | | 89.2 | 50% of Unit Price | ‑2.60 | ‑0.60 | Overlay or Rm.&Rp. | ‑9.20 | | 89.1 | 50% of Unit Price | ‑2.80 | ‑0.80 | Overlay or Rm.&Rp. | ‑9.60 | | 89.0 | 50% of Unit Price | ‑3.00 | ‑1.00 | Overlay or Rm.&Rp. | ‑10.00 | | 88.9 | 50% of Unit Price | ‑3.20 | ‑1.20 | Overlay or Rm.&Rp. | ‑10.40 | | 88.8 | 50% of Unit Price | ‑3.40 | ‑1.40 | Overlay or Rm.&Rp. | ‑10.80 | | 88.7 | 50% of Unit Price | ‑3.60 | ‑1.60 | Overlay or Rm.&Rp. | ‑11.20 | | 88.6 | 50% of Unit Price | ‑3.80 | ‑1.80 | Overlay or Rm.&Rp. | ‑11.60 | | 88.5 | 50% of Unit Price | ‑4.00 | ‑2.00 | Overlay or Rm.&Rp. | ‑12.00 | | 88.4 | 50% of Unit Price | ‑4.40 | ‑2.20 | Remove & Replace | ‑12.40 | | 88.3 | 50% of Unit Price | ‑4.80 | ‑2.40 | Remove & Replace | ‑12.80 | | 88.2 | 50% of Unit Price | ‑5.20 | ‑2.60 | Remove & Replace | ‑13.20 | | 88.1 | 50% of Unit Price | ‑5.60 | ‑2.80 | Remove & Replace | ‑13.60 | | 88.0 | 50% of Unit Price | ‑6.00 | ‑3.00 | Remove & Replace | ‑14.00 | | 87.9 | 50% of Unit Price | ‑6.40 | ‑3.20 | Remove & Replace | ‑14.40 | | 87.8 | 50% of Unit Price | ‑6.80 | ‑3.40 | Remove & Replace | ‑14.80 | | 87.7 | 50% of Unit Price | ‑7.20 | ‑3.60 | Remove & Replace | ‑15.20 | | 87.6 | 50% of Unit Price | ‑7.60 | ‑3.80 | Remove & Replace | ‑15.60 | | 87.5 | 50% of Unit Price | ‑8.00 | ‑4.00 | Remove & Replace | ‑16.00 | | 87.4 | Remove & Replace | 50% of Unit Price | ‑4.40 | Remove & Replace | 50% of Unit Price | | 87.3 | Remove & Replace | 50% of Unit Price | ‑4.80 | Remove & Replace | 50% of Unit Price | | 87.2 | Remove & Replace | 50% of Unit Price | ‑5.20 | Remove & Replace | 50% of Unit Price | | 87.1 | Remove & Replace | 50% of Unit Price | ‑5.60 | Remove & Replace | 50% of Unit Price | | 87.0 | Remove & Replace | 50% of Unit Price | ‑6.00 | Remove & Replace | 50% of Unit Price | | 86.9 | Remove & Replace | 50% of Unit Price | ‑6.40 | Remove & Replace | 50% of Unit Price | | 86.8 | Remove & Replace | 50% of Unit Price | ‑6.80 | Remove & Replace | 50% of Unit Price | | 86.7 | Remove & Replace | 50% of Unit Price | ‑7.20 | Remove & Replace | 50% of Unit Price | | 86.6 | Remove & Replace | 50% of Unit Price | ‑7.60 | Remove & Replace | 50% of Unit Price | | 86.6 | Remove & Replace | 50% of Unit Price | ‑8.00 | Remove & Replace | 50% of Unit Price | | 86.5 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 86.4 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 86.3 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 86.2 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 86.1 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 86.0 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.9 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.8 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.7 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.6 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.5 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.4 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.3 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.2 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.1 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 85.0 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 84.9 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 84.8 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 84.7 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | 84.6 | Remove & Replace | Remove & Replace | 50% of Unit Price | Remove & Replace | Overlay or Rm.&Rp. | | ≤84.5 | Remove & Replace | Remove & Replace | Remove & Replace | Remove & Replace | Overlay or Rm.&Rp. |   Notes: - Single lifts only are considered “Top Lifts”.  - Preliminary leveling is not considered a “Lift”. | |
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