SP TO BE INCLUDED IN ALL FT. MCMURRAY REGION TENDERS SPECIFYING THE SUSAN LAKE AGGREGATE SOURCE

1.1. REVISIONS TO ASPHALT CONCRETE PAVEMENT REQUIREMENTS – SUSAN LAKE AGGREGATE SOURCE

1.1.1. General

The Contractor is advised that the aggregate available from the Susan Lake pit is considered to be of marginal quality; and the following revisions to the mix design criteria, QC/QA testing procedures and requirements for segregation repairs are applicable when using aggregate from this source for top lift paving.

These revisions are not applicable when using aggregate obtained from other sources or for lower lift paving.

1.1.2. Revisions to Specification 3.2, Aggregate Production and Stockpiling

Table 3.2.3.2(C), Quality Control Testing of Aggregates, in Subsection 3.2.3.2.3, Quality Control Testing, is revised as follows:

i) The minimum frequency for the Detrimental Matter in Coarse Aggregate test is revised from "Minimum of one for first 5 000 tonnes. [(1)]" to "*Minimum of one for the first 5 000 tonnes and thereafter at a minimum frequency of one per 10 000 tonnes*".

ii) Note [(1)] is deleted.

1.1.3. Revisions to Specification 3.50, Asphalt Concrete Pavement – EPS

i) Table 3.50.3.2 of Subsection 3.50.3.2, **Requirements for Mix Design**, is replaced in its entirety with the following:

TABLE 1
ASPHALT CONCRETE MIX TYPES AND CHARACTERISTICS WHEN USING AGGREGATE FROM SUSAN LAKE

Mix Type	*Aggregate Criteria*			*Marshall Mix Design Criteria*					
	Top Size (mm) (Class for Des. 1 Aggregate)	*% MF. -5000 (min) Note 1*	*% Fractures +5000 (2 faces) (min)*	*Marshall Stability N (min)*	*No. of Blows*	*Flow (mm)*	*Air Voids (%)*	*VMA % (min) by % Air Voids*	*Voids Filled with Asphalt %*
								3.0 / *4.0*	

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Mix Type	***Aggregate Criteria***			***Marshall Mix Design Criteria***						
	Top Size (mm) (Class for	***% MF. -5000 (min) Note 1***	***% Fractures +5000***	***Marshall Stability N (min)***	***No. of Blows***	***Flow (mm)***	***Air Voids (%)***	***VMA % (min) by % Air Voids***		***Voids Filled with Asphalt %***
H1	*12.5*	*75*	*95 (one face 90*	*12 000*	*75*	*2.0 to 3.5*	*Note 3*	*13.0*	*14.0*	*65-78*
H2	*12.5*	*70*	*80*	*11 500*	*75*	*2.0 to 3.5*	*Note 3*	*13.0*	*14.0*	*65-78*
M1	*12.5*	*50*	*60*	*8 000*	*75*	*2.0 to 3.5*	*Note 3*	*13.0*	*14.0*	*65-78*
L1	*12.5*	*Note 5*	*60*	*5 300*	*50*	*2.0 to 4.0*	*Note 3, 4*	*13.0*	*14.0*	*65-78*
S1	*10.0*	*Note 5*	*70*	*5 300*	*Note 2*	*2.0 to 4.0*	*Note 3*	*14.0*	*15.0*	*65-78*
S2	*10.0*	*75*	*90*	*10 000*	*75*	*2.0 to 3.5*	*Note 3*	*14.0*	*15.0*	*65-78*

Design Air Voids	***Minimum Theoretical Film Thickness Requirements (µm)*** *(Note 6)*
	All Mix Types *(Note 7)*
4.0 and 3.9	*7.0*
3.7 and 3.8	*7.1*
3.5 and 3.6	*7.2*
3.3 and 3.4	*7.3*
3.0, 3.1 and 3.2	*7.4*

Note 1 - The Percentage of Manufactured Fines in the -5000 Portion of the Combined Aggregate.
Note 2 - Use the same number of blows as for the surface course or 50 blows if used as a surface course.
Note 3 - The Design Air Voids shall be chosen as the lowest value, within the range of 3.0 % to 4.0% inclusive, such that all other mix design criteria are met.
Note 4 - Air Void limits listed in Note 3 shall be reduced by 0.5% for community airports. VMA at 3.0% Air Voids shall be a minimum of 13.0%. A PG 46-34 asphalt is normally used for community airports
Note 5 - All fines manufactured by the process of crushing shall be incorporated into the mix.
Note 6- Theoretical Film Thickness shall be as follows, depending on the specified Mix Type and Design Air Voids. The Theoretical Film Thickness value shall be established in accordance with TLT-311.
Note 7 - S1 requirement only for a surface course.

ii) Table 3.50.4.2 of Subsection 3.50.4.2, **Methods of Testing For Acceptance and Appeal Testing**, is replaced in its entirety with the following:

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TABLE 2
TEST METHODS ON MANAGED QA PROJECTS USING SUSAN LAKE AGGREGATE

	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	*Voids Calculations, 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,*	*IRI Special Provisions*
15	*Stratified Random Test Sites for A.C.P. Projects*	*ATT-56*
16	*Appeal Testing, Asphalt Content, Density and Gradation*	*ATT-68*
17	*Maximum Specific Gravity of Bituminous Mixes*	*AASHTO T 209*
ADDITIONAL TEST METHODS FOR ALL QC OR QA ACCEPTANCE LOTS		
18	*Asphalt Content*	*ATT-12*

NOTES:

- All QC and QA testing shall use solvent extraction procedures as outlined in ATT-12 Parts 1,2 & 3 for determining the asphalt content on either loose mix or cores.
- *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.*

iii) Table 3.50.4.3 of Subsection 3.50.4.3, **Quality Control Testing**, is replaced in its entirety with the following:

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TABLE 3
QUALITY CONTROL TESTING REQUIREMENTS - MANAGED QA TESTING PROJECTS USING SUSAN LAKE AGGREGATE

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.
i) QA Cores for Pavement Density	ATT-5	
ii) QA Cores for Asphalt Content and Gradation	ATT-5	
TESTS WITH SPECIFIED MINIMUM FREQUENCIES		
Mix Asphalt Content	ATT-12	(2)
Correction Factors	ATT-12, Part III	As Required
Mix Moisture Content	ATT-15	(2)
Aggregate Sieve Analysis	ATT-26	(2)
Maximum Specific Gravity of Bituminous Mixes (G_{mm})	AASHTO T 209	(2)(3)
Pavement Segregation	Segregation Rating Manual	Each Lot
TESTS WITH NO SPECIFIED MINIMUM FREQUENCIES		
Field Formed Marshall Briquettes	ATT-13	(1)
Density Immersion Method, Saturated Surface Dry	ATT-7	(1)
Void Calculations, Cores or Formed Specimens	ATT-36	(1)
Temperatures	ATT-30	(1)
Percent Compaction, Cores or Nuclear Density	ATT-67, ATT-5 or ATT-11	(1)
Random Test Site Locations	ATT-56	(1)
Correction Factors, Nuclear Moisture-Density Measurement	ATT-48	(1)
Pavement Smoothness	IRI special provisions	Travel lanes of all top lift paving

(1) Minimum Frequency not Specified.

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(2) When a Lot has eight hours of plant production or more, a minimum of four plant checks plus four asphalt contents and four sieve analysis of the combined aggregate (cold feed or extraction) 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) Maximum Specific Gravity (G_{mm}) shall be reported on the loose mix for information purposes only.

1.1.3.1. Additional Reporting Requirements

The Quality Control Lot Paving Report shall be provided to the Consultant and shall include the following additional information for each loose mix sample taken:

- Individual G_{mm} values and individual Marshall air voids based upon the following equation:

$$Air\ Voids\ (\%) = \left(\frac{G_{mm} - G_{mb}}{G_{mm}}\right) \times 100$$

where G_{mm} = maximum specific gravity, and
G_{mb} = Marshall density (tonne/m^3)

- Lot mean G_{mm}; and Lot mean Marshall Air Voids by:

  1) % of G_{mm}, and

  2) The air voids table contained in the applicable mix design.

- Individual and Lot mean values for Pavement Compaction (both % of G_{mm} and % of Lot Mean Marshall Density) and Core air voids (both by % of G_{mm} and by the air voids table contained in the applicable mix design.)

Lot Marshall Air Voids, as determined by the Consultant, and calculated using the air voids table (ATT-36) will continue to be used in section 3.50.3.4, Variation from the Job Mix Formula. Acceptance criteria and unit price adjustment for pavement compaction shall continue to be based upon % of Lot Mean Marshall Density (ATT-67) as determined by the Consultant.

1.1.4. Modifications to Pavement Segregation Requirements

Contrary to section 3.50.4.8.1 Repairing Pavement Segregation the Contractor shall repair all sites of segregation identified by the Consultant including slight segregation. The slight

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segregation shall be repaired using the method of repair pre-approved for moderate segregation. All other requirements for pavement segregation including acceptance and payment adjustment remain the same.

NOTE TO PROJECT CONSULTANT (NOT TO BE INSERTED IN TENDER)

The aggregate correction value for the ignition oven method is typically very high when using this aggregate source and consequently is not to be used for QA testing. The Consultant shall use the solvent extraction method as outlined in ATT-12. The consultant shall also forward the QC Lot Paving Reports to the department (trans.construtqa@gov.ab.ca) for these projects along with the regular Lot Paving Reports.

Insert this special provision into all tenders containing ACP within the Fort McMurray region.