



Contract Information			
Contract Number	State Route	Section	Date
Project Engineer		Region	
HMA Paving Contractor		Submitted By	
HMA Class	Gyrations Levels	HMA Evaluation Method	ESALs (millions)
$\frac{3}{8}$ Inch $\frac{3}{4}$ Inch $\frac{1}{2}$ Inch 1 Inch	N Initial: N Design: N Max:	Statistical Commercial Non Statistical	
RAP to be used in production		RAP stockpile tonnage	RAS to be used in production
Yes No			Yes No

Asphalt Binder Information			
Primary Asphalt Binder Supplier	Asphalt Binder Specific Gravity (Gb)	Asphalt Binder Grade	Proposed Pb
Mixing Temperature Range	Temperature Range	Anti-Strip Type	*Anti-Strip %
Secondary Asphalt Binder Supplier	Asphalt Binder Specific Gravity (Gb)	Asphalt Binder Grade	Proposed Pb
Mixing Temperature Range	Compaction Temperature Range	Anti-Strip Type	*Anti-Strip %

* If Required by Contract

Contractor Aggregate Structure and Aggregate Test Data							
In the table below provide the "Material" identification (3/4"-0, #4-0, etc.), "Source" (J-199, E-320, etc.), "Ratio" (45%, 20%, etc.), and the percent passing each sieve for each stockpile used in the mix design as well as the combined gradation and the specification requirements for the class of HMA used. Report all stockpile gradations to the nearest tenth of a percent. Report the combined gradation to the nearest whole percent except the U.S. No. 200, which must be reported to the nearest tenth of a percent.							
Material						Combined Gradation	Specification Requirements
Source							
Ratio							
1 1/2" Square							
1" Square							
3/4" Square							
1/2" Square							
3/8" Square							
U.S. No. 4							
U.S. No. 8							
U.S. No. 16							
U.S. No. 30							
U.S. No. 50							
U.S. No. 100							
U.S. No. 200							

Contractor's Aggregate Test Data

In the table below provide all of the aggregate specific gravity and aggregate quality property test data determined for each stockpile and the selected design aggregate structure (Combined Gradation) as required. The specification requirements only apply to the design aggregate structure (Combined Gradation).

Material							Combined Gradation	
Source								
Ratio								
Gsb Coarse								
Gsb Fine								
Gsb Blend								
Sand Equiv.								45 Min.
Uncompacted Void Content								<3m ESALs, 40 Minimum >3m ESALs, 44 Minimum
Coarse Fracture								90% Minimum

Fractured Faces, Single Double (Must Check One)

Contractor's Hamburg Wheel-Track Device (HWTD) and Indirect Tensile Strength (IDT) Test Data (If Required by Contract)

In the table below provide the rut depth (mm) and Stripping Inflection Point (Pass/Fail) in accordance with WSDOT FOP for AASHTOT 324, and Indirect Tensile Strength (psi) by performing WSDOT FOP for ASTM D 6931.

	Primary Asphalt Binder Proposal	Secondary Asphalt Binder Proposal	Specification Requirements
Hamburg Wheel-Track Testing (mm)			
Stripping Inflection Point			Pass
Indirect Tensile Strength Test (psi)			

Remarks

Additional Information for High RAP and/or RAS HMA Mix Designs (If Applicable)

In the tables below, provide the required information for HMA mix designs containing > 20% Recycled Asphalt Pavement(RAP) and/or any amount of Recycled Asphalt Shingles (RAS). Testing shall be performed in accordance with AASHTO R 29 to establish a true grade for each asphalt component and the final blend. HMA mix designs that contain higher levels of RAP and/or any amount of RAS will not be accepted for verification testing at the State Materials Laboratory without the information completed below. Warm Mix Asphalt (WMA) mix designs will not be accepted with > %20 RAP and/or any amount of RAS.

Primary Asphalt Supplier

Grade of Virgin Asphalt Binder (PGAB)	Pb Virgin Asphalt Binder (PGAB) by Wt of Mix	Pb of RAP
Recycling Agent	% Recycling Agent by Wt. of Binder	Pb of RAS
% Asphalt Binder Contributed from RAP by Wt. of Mix	% Asphalt Binder Contributed from RAS by Wt. of Mix	% Total Quantity Asphalt Binder Contributed from RAP & RAS by Wt. of Mix (40%) max
Pba RAP	Gb RAP	Gmm RAP
Pba RAS	Gb RAS	Gmm RAS

Property	Virgin PGAB Test Temp	Virgin PGAB Test data	RAP Tc	RAS Tc	Lab Blend Test Data	Lab Blend Specification
Original High Temp, DSR, kPA						min 1.00
Rolling Thin Film Oven High Temp, DSR, KPA						min 2.20
Pressure Aging Vessel @ 100°C Int. Temp, DSR, kPA						max 5000
Pressure Aging Vessel @ 100°C Low Temp, BBR, Stiffness, MPa						max 300
Pressure Aging Vessel @ 100°C Low Temp, BBR, m-value, MPa						min 0.300

Secondary Asphalt Supplier

Grade of Virgin Asphalt Binder (PGAB)	Pb Virgin Asphalt Binder (PGAB) by Wt of Mix	Pb of RAP
Recycling Agent	% Recycling Agent by Wt. of Binder	Pb of RAS
% Asphalt Binder Contributed from RAP by Wt. of Mix	% Asphalt Binder Contributed from RAS by Wt. of Mix	% Total Quantity Asphalt Binder Contributed from RAP & RAS by Wt. of Mix (40%) max
Pba RAP	Gb RAP	Gmm RAP
Pba RAS	Gb RAS	Gmm RAS

Property	Virgin PGAB Test Temp	Virgina PGAB Test data	RAP Tc	RAS Tc	Lab Blend Test Data	Lab Blend Specification
Original High Temp, DSR, kPA						min 1.00
Rolling Thin Film Oven High Temp, DSR, KPA						min 2.20
Pressure Aging Vessel @ 100°C Int. Temp, DSR, kPA						max 5000
Pressure Aging Vessel @ 100°C Low Temp, BBR, Stiffness, MPa						max 300
Pressure Aging Vessel @ 100°C Low Temp, BBR, m-value, MPa						min 0.300

Contractor's HMA Mix Design Data

In the table below provide the HMA volumetric mix design data determined by performing WSDOT SOP 732. The Va, VMA, VFA, and Gmb values must be determined from replicate mixtures compacted to the appropriate Ndesign gyration level in accordance to section 8.2 of SOP 732, **back calculated values from replicate mixtures compacted to Nmax are not acceptable.**

HMA Properties	Primary Asphalt Binder			Secondary Asphalt Binder		
	-0.5% Pb Design	Pb Design	+0.5% Pb Design	-0.5% Pb Design	Pb Design	+0.5% Pb Design
Pb						
% Gmm @ Nini						
% Gmm @ Ndes (Va)						
% VMA @ Ndes						
% VFA @ Ndes						
Dust / Asphalt Ratio						
Pbe						
Gmm						
Gmb						
Gse						
Height @ Nini						
Height @ Ndes						

Contractor's HMA Mix Design Proposal(s)

In the table below provide the HMA volumetric mix design data that comes closest to, or intersects, 4.0% Va, from the testing performed via WSDOT SOP 732. This may be the same as the Pb design data from the table above. Also provide the % Gmm data developed from the replicate mixtures compacted to appropriate Nmax gyration level.

HMA Properties	Primary Asphalt Binder Proposal	Secondary Asphalt Binder Proposal	Specification Requirements
Pb			
% Gmm @ Nini			
% Gmm @ Ndes			96.0
% VMA @ Ndes			
% VFA @ Ndes			
Dust / Asphalt Ratio			0.6 - 1.6
Pbe			
Gmm			
Gmb			
Gse			
% @ Gmm @ Nmax			≤98.0

I certify this HMA job-mix formula (JMF) has been developed in accordance to WSDOT Standard Operating Procedure (SOP) 732 "Volumetric Design for Hot-Mix Asphalt (HMA)". The HMA JMF has been verified in accordance to section 10 of SOP 732 which consist of preparing replicate mixtures containing the selected design aggregate structure at each of the following binder contents: (1) the estimated design binder content, Pb (design); (2) 0.5 percent below Pb (design); (3) 0.5 percent above Pb (design). I am aware, in accordance to WSDOT Standard Practice QC 8, Approval of Hot Mix Asphalt Mix Designs for the Qualified Products List, that a response will be provided within 25 calendar days for WSDOT mix designs, and 40 calendar days for contracts outside of WSDOT.

Printed Name _____

Signature _____

Phone _____

Date _____