

WORKSHEET FOR A MARSHALL MIX DESIGN AASHTO T 245

Project:	Date:
Contractor:	Class & Grading of mixture:
Asphalt supplier:	Grade of asphalt:
Sources for: Aggregates:	Mineral filler:
Testing laboratory name:	Phone:
Testing performed by:	
Testing reported by:	

English Metric

SUMMARY OF THE PROPOSED JOB-MIX-FORMULA

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Percent asphalt by mass of total mix¹, (P_b) 2. Air voids (V_a) 3. Voids in mineral aggregate (VMA) 4. Maximum specific gravity (G_{mm}) 5. Recommended plant mixing temperature,
(Attach Temperature Viscosity Curve) 6. Effective specific gravity of aggregate (G_{se}) 7. Marshall stability, 8. Marshall flow, | <ol style="list-style-type: none"> 9. Specific gravity of binder (G_b) 10. Specific gravity of mineral filler 11. Dust-to-Binder ratio (DP) 12. Moisture susceptibility test results: ² <ol style="list-style-type: none"> a. Dry strength, b. Wet strength, c. Index of retained strength, % |
|--|---|

Gradation Designation:

GRADATION TARGET VALUES AND ALLOWABLE DEVIATIONS				SPECIFIC GRAVITY AND ABSORPTION		
Sieve Sizes	Job Mix Formula Target Value ³	Target Value Specification Range %	Allowable Deviation ⁴ %	Fine Aggregate (AASHTO T 84)	Coarse Aggregate (AASHTO T 85)	Combined Aggregate
				Bulk SG (G_{sb})		
				Bulk SSD SG		
				Apparent SG (G_{sb})		
				Absorption	%	%

¹ Establish asphalt cement content (percent by mass of mix) to the nearest 0.01 percent.
² See contract for moisture susceptibility test method: AASTHO T 165/T 167 or AASTHO T 283.
³ Establish target values to the nearest 0.1 percent as a part of the job mix formula.
⁴ Allowable deviations plus or minus from established target values.

WORKSHEET FOR A MARSHALL MIX DESIGN (Continued)

Material Stockpile	Stockpile Description	Blend Ratio
A		%
B		%
C		%
D		%
E		%
Total		%

Stockpile Gradation

Sieve Size	Stockpile A %	Stockpile B %	Stockpile C %	Stockpile D %	Stockpile E %	Blended Stockpile Gradation	Job Mix Formula Target Values	Specification Limits

Aggregate Properties

Property	Result	Specification	Property	Result	Specification
LA Abrasion, % - Grading AASHTO T 96			Fractured Faces, % - ASTM D 5821		
Sodium Sulfate Soundness, % AASHTO T 104			Sand Equivalent AASHTO T 176, Alt method #2, reference method		
Durability index (Coarse) AASHTO T 210			Other:		
Durability index (Fine) AASHTO T 210			Other:		

WORKSHEET FOR A MARSHALL MIX DESIGN (Continued)

Trial Number	1	2	3
% Asphalt by mass of total mix, (P _b)			
Effective Binder Content (P _{bc})			
Specimen height,			
Marshall Stability,			
Marshall Flow,			
Bulk specific gravity, (G _{mb})			
Bulk unit mass,			
Max. specific gravity, (G _{mm})			
Dust-to-Binder ratio, (DP)			
% Air voids, (V _a)			
% Voids in mineral aggregate, (VMA)			
Average Marshall Stability value,			
Average Marshall Flow value,			
Average % Air voids, (V _a)			
Average % Voids in mineral aggregate, (VMA)			

Trial Number	4	5	6
% Asphalt by mass of total mix, (P _b)			
Effective Binder Content (P _{bc})			
Specimen height,			
Marshall Stability,			
Marshall Flow,			
Bulk specific gravity, (G _{mb})			
Bulk unit mass,			
Max. specific gravity, (G _{mm})			
Dust-to-Binder ratio, (DP)			
% Air voids, (V _a)			
% Voids in mineral aggregate, (VMA)			
Average Marshall Stability value,			
Average Marshall Flow value,			
Average % Air voids, (V _a)			
Average Voids in mineral aggregate, (VMA)			

Test Results for Each of the Individual Moisture Susceptibility Test Specimens

Percent asphalt binder:	AASHTO T 165/T 167	AASHTO T 283	Specimen Dia:	6 inch	4 inch
Antistripping, type, amount:			Freeze cycle:	Yes	No

Sample I.D.							Average
Height	Dry						
	Wet						
Bulk Specific Gravity	Dry						
	Wet						
Air Voids	Dry						
	Wet						
Strength	Dry						
	Wet						
Retained Strength, %							

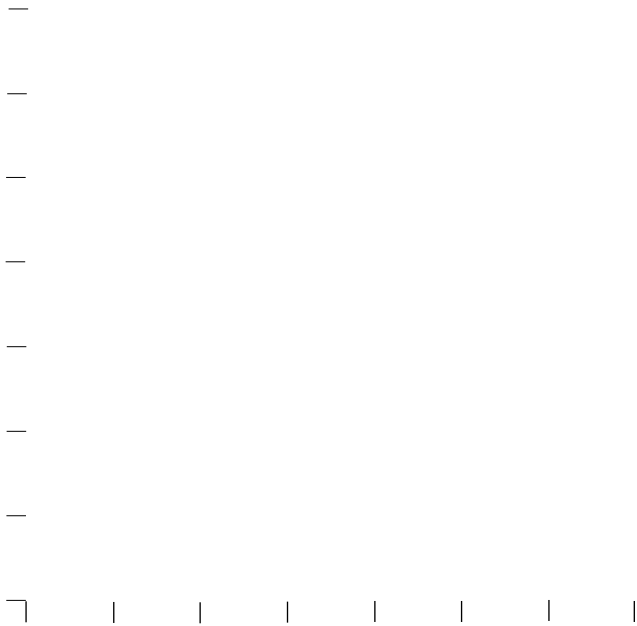
WORKSHEET FOR A HVEEM MIX DESIGN (Continued)

Design Curves for Proposed Job Mix Formula (JMF)

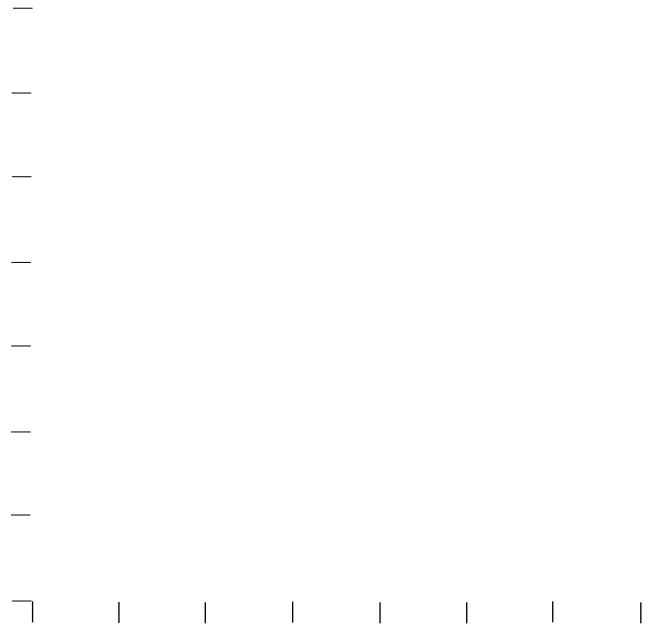
AIR VOIDS (V_a)

MARSHALL FLOW

% Air voids (V_a)



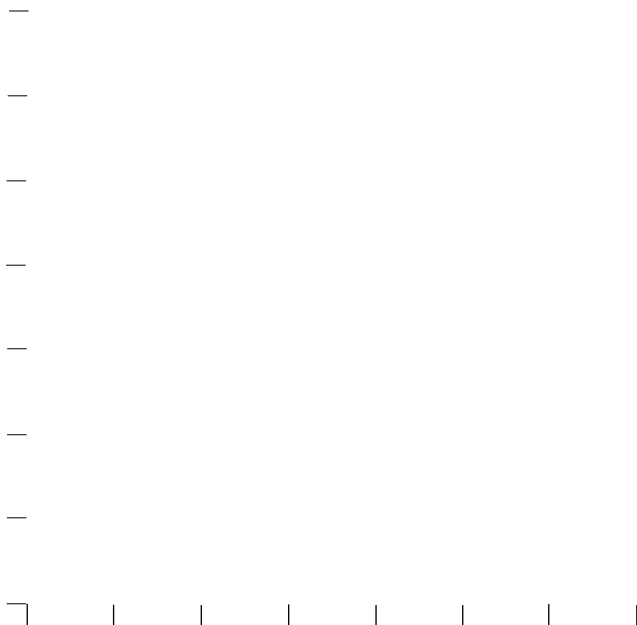
% Asphalt binder (P_b)



% Asphalt binder (P_b)

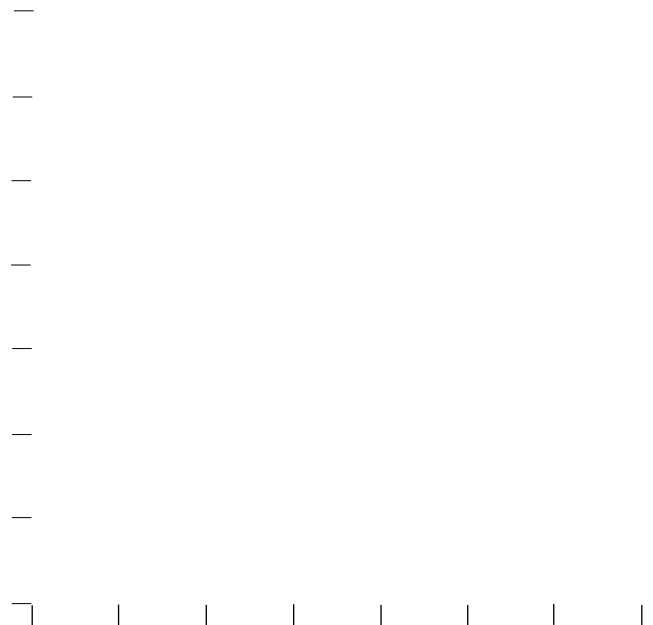
MARSHALL STABILITY

VMA



% Asphalt binder (P_b)

Voids in mineral aggregate



% Asphalt binder (P_b)



RECLAIMED ASPHALT PAVEMENT (RAP) DATA SHEET

Location: _____

Sampled by: _____

Tested by: _____

Date: _____

	RAP 1		RAP 2	
% of RAP in Mixture				
Sieve Size	Dry Gradation	T 308 Burned Gradation	Dry Gradation	T 308 Burned Gradation

AC by % mix, Pb	Specific Gravity	Specific Gravity
Gmm		
Gse $Gse = (100 - Pb)/(10/Gmm - Pb/Gb)$		
Gsb $Gsb = Gse/(((Pba * Gse)/(100 * Gb)) + 1)$		
Pba = (assumed)		
Gb = (assumed)		

Remarks: