

KING COUNTY DEPARTMENT OF TRANSPORTATION
CONSTRUCTION SERVICES SECTION
INSPECTORS DAILY REPORT Page 2 of 2

DATE: Monday September 21st 2009

- Per Kevin, WSDOT will be on the job on 09/23 and 09/24/09 to core mix for gauge correlation factor. County core machine is out of service.
- Contractor set VMS signs on each end of project regarding road closure from 09/22 to 09/25/09. County installed temp. Signs informing about road closure.

White - Contract File
Yellow - Project Engineer
Pink - Inspector's Diary

INSPECTOR(S) TIME: _____

INSPECTOR'S SIGNATURE: _____

**SE 416th Street Overlay:
Shingles in Paving Demonstration**

Construction Inspection and Quality Control Testing

Paving Day 1 (9-22-09)

**Inspectors Daily Report
HMA Test Results
HMA Mineral Aggregate Test Results
HMA Compaction Test Results**

KING COUNTY DEPARTMENT OF TRANSPORTATION
CONSTRUCTION SERVICES SECTION
INSPECTORS DAILY REPORT Page 1 of 2

DATE: Tuesday September 22nd 2009

Federal Aid # _____

PROJECT NO. M78030 CONTRACT NO. C00455C09 PROJECT: SE 416th ST Overlay- Shingles in Paving Demonstration

INSPECTOR (S): S.Shandil, M.Pavolka CONTRACTOR: Woodworth & Company

WEATHER: Clear TEMP: High 80 Low 60

WIND: Still Moderate High _____ Workable 8 Nonworkable 0

SIGNS AND TRAFFIC CONTROL CHECKED? Yes No _____ ON-SITE INTERVIEW? Yes _____ No

WORK DONE:

- **Woodworth (Paving):** 6.20am Moby's sweeper on site to clean SE 416th. 7am Set up traffic control signs and flaggers on 244th ave and various cross streets on SE 416th st. Road closed between 244th and 228th ave. Crew Remove paper joint at 244th ave using J/D backhoe. 7.10 place tack on North side of SE 416th up to 236th ave. Mob. Equipment. 7.30 begin paving from st # 116+27 to 89+66. Luke operating shuttle buggy to transfer mix on to paver. Al operating Blaw Knox paver with Jonathan as screed operator. Shane using Sakai as b/down roller with Willie operating DD-110HF as intermediate/finish roller and the DD-28HF for side streets d/ways and towards end of day. 10.15 End paving at st# 89+66, place paper joint and continued on to pre level both side of SE 416th st# 89+60 to 80+00. 11.55 End pre level, mob equipment back to 244TH AVE. Waited for 45 min. before resuming paving South side. 12.20 Tack South side. 12.50 place water on mat North side to drop temp. Paver broke down- Diesel leak. Fixed paver, cleaned road and place more tack. 1.30 pave South side up to st#89+66. Continued on to prelevel North side of road from st# 78+50 to 70+50. End at 4pm. continued to roll. Mat temp. About 180 deg. Compaction hard to achieve. Use DD-28HF to get compaction. Placed temp tapes Road opened at 5pm. Flaggers continued to relocate detour signs for paving on 09/23/09. Done at 6pm.
- **Gloria Jeanne: (Grinding):** Complete on 09/21/09.

EQUIPMENT ON PROJECT:

- **Woodworth:** 1- F/M work truck (Chevy 2500HD), 1- Work truck (F 450 + Trailer # 38) 1 – Flagging truck (Chevy 2500 HD # 1264 and 1262), 1 Back Hoe (JD 510 # 203), 1- Shuttle Buggy (SB- 2500B # 715), 1- Paver (Blaw Knox # 711), 3 Rollers (I.R DD-28HF # 841, I.R DD-110HF # 810, Sakai GW 750 # 822), Ken worth Water Truck # 26, Peter Bilt Tack Truck # 9
- **Gloria Jeanne:**
- **PERSONNEL ON PROJECT:**
- **Woodworth:** 1- Project Manager (Scott Droppelman), 1- F/M (Dan Andreas), 1- Paver operators (Al Anderson), 1- Shuttle buggy operator (Luke Dillard), 1 – Screed operator (Jonathan Pullack), 2 – Roller operators (Shane Thomas, Willie Guillen), 1- Truck spotter (Dave Thorton), 1 – Raker (Ludvig Yefimov), 1 – Tack Operator (), 1- TCS (Tara), 4- Flaggers (Glen, Katy, Ray and Paula)
- **Gloria Jeanne:**
- **King County:** Paul Moore, Kevin, Joe and Tim (Lab)
- **Others:** Warren (Enumclaw water district), Renay (CTL)

REMARKS:

- Road closed between 244th ave and 228th ave. Flaggers at each major crossing to stop cars entering in to work zone from 7am to 5pm.
- Used Sakai as break down roller, DD-110 as intermediate roller on 4 vibes. And 2 static rolling pattern and DD-28 for Side Street / driveways and to get compaction on the South side towards end of day.
- It seems that the rubber tires on Sakai were not warm enough in Morning. It was picking up mix which resulted in oil spots from St#113 + 00 to 111+50 on the North Side. Notified f/man. Stopped at st# 111+50 to clean rubber tires.

INSPECTOR(S) TIME: _____

White - Contract File
Yellow - Project Engineer
Pink - Inspector's Diary

INSPECTOR'S SIGNATURE: _____

**KING COUNTY DEPARTMENT OF TRANSPORTATION
CONSTRUCTION SERVICES SECTION
INSPECTORS DAILY REPORT Page 2 of 2**

DATE: Tuesday September 22nd 2009

- Temperature of laid down mix ranged from 270 deg. To 300deg. outside temp. was in the mid 80deg. This affected compaction on the South side.
- Paver had Diesel leak at st # 115+90 to 116+27 on the South side.
- Pre level on the North side from st # 89+60 (0" at centre to 5" at edge) to st # 83+50(0" at centre to 6"at edge) and stopped at 80+00 (0" at centre to 3" at edge), Skipped bridge section and pre level North side from 78+70 to 70+50(0" at centre to 2" at edge). Pre level South side from st # 88+00(0" at centre to 5" at edge) to 83+50(0" at centre to 5" at edge) and stopped at 80+00(0" at centre to 2" at edge)
- Sakai broke down and could not be used on the South side from st # to st # 114+50. Used DD-110HF as break down and intermediate roller. Sakai back in service from st # 114+50.
- Advised Joe (Lab) to take compaction shots in between wheel ruts.
- Day 1 Paving was from station 116+27 to 89+66. Wood Worth haul mix from Lake View plant using 15 truck and trailers. Placed 971.42T of HMA Class ½" PG 64-22 with 15% Rap on Se 416th st at 2" compacted. Placed 227.19 T of same mix as prelevel on SE 416TH ST.
- All trucks came in with covered loads.
- Temp. of mix was 290 deg at 116+27, 270deg at 109+00,290deg at 100+00,295 deg at 95+00. Temperature stayed within 5 deg. of 295deg. For rest of day.

White - Contract File
Yellow - Project Engineer
Pink - Inspector's Diary

INSPECTOR(S) TIME: _____

INSPECTOR'S SIGNATURE: _____



**King County
HMA Test Results**

Project: **SE 416th St Overlay, Shingles in Paving Demo.** Project Number: **M78030**
 Contractor: **Woodworth & Co.** Contract Number: **C004555C09**
 Asphalt Supplier: **Woodworth Lakesview** Sampling Location: **Truck Bed @ Plant**
 Oil Source and Grade: **U.S. Oil** Collection Date/Time: **9/22/09 @ 7:47 AM**
 Mix ID: **MD090088** Sample ID: **KC-09-1217** HMA Class: **1/2"**

Gradation (AASHTO T 30)

Sieve Size	% Passing	Tolerances	
		*LL	*UL
1 1/2"			to
1"			to
3/4"	100	99	to 100
1/2"	94	90	to 100
3/8"	82	78	to 90
#4	58		to
#8	39	35	to 43
#16	26		to
#30	18		to
#50	12		to
#100	9		to
#200	5.9	4.3	to 7.0

Volumetrics (AASHTO T 312)

		Tolerances	
		*LL	*UL
% Va @ Ndes	3.5	2.5	to 5.5
% VMA @ Ndes	13.9	12.5	to N/A
% VFA @ Ndes	74.8	65	to 75
Dust/Asphalt Ratio	1.3	0.6	to 1.6
Gmm (WSDOT FOP for AASHTO T 209)	2.485		154.7 lb/ft ³
Gmb (ASTM D2726)	2.399		
Asphalt Content % (KCDOT FOP for AASHTO T 308)			5.3
% Water (WSDOT FOP for AASHTO T 329)	0.27		2.0 max

Mix Temperature in °F: **332**
 Oil Temperature in °F: **330**
 Air Temperature in °F: **54**

*LL=Lower Limit UL=Upper Limit

Data from Mix Design

Aggregate Source	B-333	B-160	0	Gb (Binder)	1.028
Asphalt Content Design		5.6%		Mixing Temperature in °F	313
Anti Strip		0.00%		Compaction Temperature in °F	291
Pbe		4.5		Number of Gyration @ Initial	8
Gsb (Aggregate Blend)		2.64		Number of Gyration @ Design	100
Gsb (Fine Aggregate)		2.599		ESAL'S (millions)	3 to <30

Remarks:

Sample was obtained by King County Representative Tara Pfaff. A companion ssmple was taken by Woodworth. Sample was obtained from truck #10069T, ticket #244759. This truck was the 13th load of the day. The accumulative tonage was 417.50. This is the first of two samples to be taken today. This mix contains 15% RAP. Ignition Furnace Calibration Factor changed from 0.63 to 0.53.

X meets
Material _____ **above specifications.**
 _____ **fails to meet**

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 2 Resident Engr.
 1 Const. Admin.
 1 Dens. Engineer

Approved for
Distribution By:

Tested and
Submitted by:

TEP 9/22/2009

Materials Engineer

Date

Initial

Date

Tara Pfaff 10/9/09



Ignition Furnace Worksheet

Project: **SE 416th St Overlay, Shingles in Paving Demo** Project Number: **M78030**
 Contractor: **Woodworth & Co.** Contract Number: **C004555C09**
 Asphalt Supplier: **Woodworth Lakesview** Sampling Location: **Truck Bed @ Plant**
 Oil Source and Grade: **U.S. Oil** Collection Date/Time: **9/22/09 @ 7:47 AM**
 Mix ID: **MD090088** Sample ID: **KC-09-1217** HMA Class: **1/2"**

Moisture Content (WSDOT FOP for AASHTO T329)					
	Initial	After 90 min.	After 120 min.		
Time	9:10	10:40	11:15		
Tare Weight	541.5	541.5	541.5		
Sample + Tare Wt.	1141.0	1139.5	1139.4	Mass (Wt.) H ₂ O	1.6
Sample Weight	599.5	598.0	597.9	Percent H ₂ O	0.27

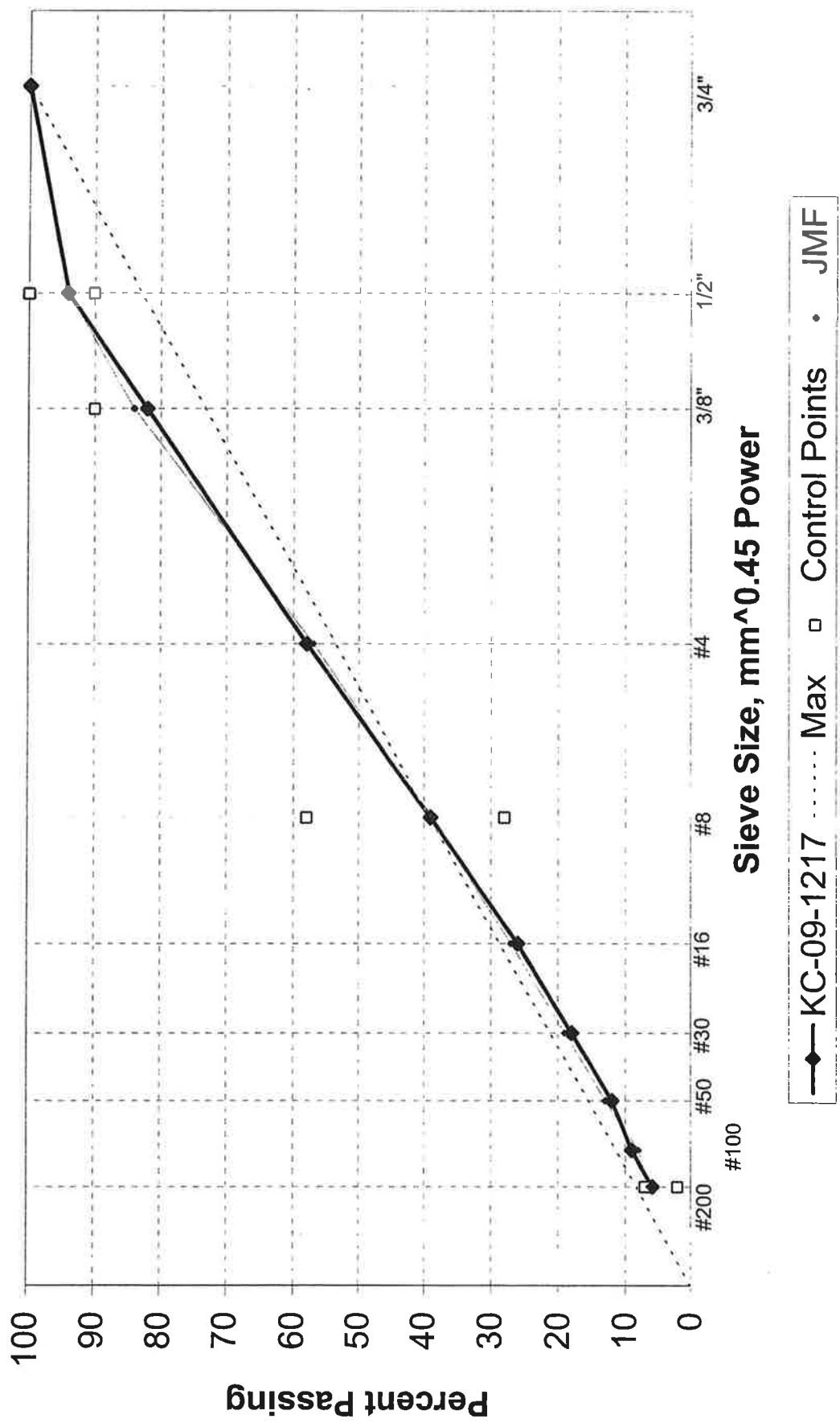
Ignition Furnace Data (AASHTO T 308)			
Mass of Empty Basket(s):	3057.8	Ignition Furnace ID:	TIKI
Mass of Baskets and Sample:	4600.2	Actual Asphalt Content in %:	5.3
Mass of Sample:	1542.4		
Calibration Factor (Ticket) in %:	0.53	Mix Design Asphalt Content in %:	5.6
Percent Loss (Ticket) in %:	6.30	Mass of Residual Agg. & Basket:	4504.3
Temperature Compensation (Ticket) in %:	0.19	Mass of Residual Agg. (Direct):	1446.5
Calibrated Asphalt Content (Ticket) in %:	5.58	Mass of Residual Agg. (Ticket):	1448.2
Difference of Masses of Residual Aggregate - Direct vs. Ticket = 0.1% Specification: shall be within ±0.1%.			

Sieve Analysis (AASHTO T30)							
Mass of Dry Washed Residual Aggregate:		1369.9					
Sieve Size	Accumulative Weight Retained	Percent Passing	JMF	Tolerance		Control Points	
*Record all sieves Sieve Size				Lower Limit	Upper Limit	Lower Limit	Upper Limit
1 1/2"							
1"							
3/4"	0.0	100	100	99	100	100	100
1/2"	92.6	94	94	90	100	90	100
3/8"	253.7	82	84	78	90	0	90
#4	612.0	58	57				
#8	889.1	39	39	35	43	28	58
#16	1063.6	26	27				
#30	1183.2	18	19				
#50	1265.7	12	13				
#100	1320.7	9	8				
#200	1361.2	5.9	6.3	4.3	7.0	2.0	7.0
Pan	1369.7						
Difference of Masses - Pan vs. Washed = 0.0% Specification: shall be within ± 0.2%							

Remarks: **Bold = Within Tolerance Limits** *Black Italic - At Tolerance Limit* Red = Outside Tolerance Limit
 Sample was obtained by King County Representative Tara Pfaff. A companion sample was taken by Woodworth. Sample was obtained from truck #10069T, ticket #244759. This truck was the 13th load of the day. The accumulative tonnage was 417.50. This is the first of two samples to be taken today. This mix contains 15% RAP. Ignition Furnace Calibration Factor changed from 0.63 to 0.53.

Material **X** meets fails to meet above specifications.

1/2 Inch HMA



KC-09-1217

Plant Information

Sampling Location Truck Bed @ Plant **Mix Temp** 332
Collection Date/Time 9/22/09 @ 7:47 AM **Oil Temp** 330
Sample ID KC-09-1217 **Air Temp** 54

Gyratory Data (AASHTO T 312)

Initial wt. of Uncompacted mix. 4800.0
Height in mm of Sample @ Initial Gyration 127.3 **8** **Compaction Temp. =** 291
Height in mm of Sample @ Design Gyration 115.5 **100**

Ignition Furnace (AASHTO T 308)

Mass of Empty Basket 3057.8 **Percent Loss (Ticket) in %:** 6.30
Mass of Basket & Sample 4600.2 **Temp. Comp. (Ticket) in %:** 0.19 **Oil:**
Sample Weight 1542.4 **Ignition Furnace ID:** TIKI
Calibration Factor in %: 0.53 **Mass of Res. Agg. & Bask.** 4504.3 **5.3**

Moisture Content (WSDOT FOP for AASHTO T 329)

Tare Weight 541.5 **Min. test sample 500g.**
Sample + Tare Wt. 1141.0 **Time** 9:10 **163 +/- 14° C for the oven temp.**
Sample + Tare Wt. 1139.5 **After 90 min.** 10:40 **Moist %:**
Sample + Tare Wt. 1139.4 **After 120 min.** 11:15 **(Use Military Time, ex. 00:00)** **0.27**

Rice Data (ASTM D 2041)

30 mm or less Hg at 15 min.

Sample Mass 1683.7
Mass of Pycnometer Under Water @ 25.0 °C 1277.5
Pycnometer Calibration @ 77°F
Mass of Sample & Pycnometer Under Water 2283.6
Temperature of Water 25.0 ± 1.0 °C 24.8

	Min. Mass
1/2"	1500g
3/4"	2000g
1"	2500g

RICE:
154.7

Sieve Analysis (AASHTO T 30)

Bulk Specific Gravity

Mass of Dry, Washed Sample 1369.9

1 1/2" #8 889.1
1" #16 1063.6
3/4" 0.0 #30 1183.2
1/2" 92.6 #50 1265.7
3/8" 253.7 #100 1320.7
#4 612.0 #200 1361.2
Pan 1369.7

Weight in Air 4789.3
Weight in Water 2797.3
Weight SSD 4793.6
Temp 25.0 ± 1.0 °C 25.1



HMA Volumetric Worksheet

Project: **SE 416th St Overlay, Shingles in Paving Demo** Project Number: **C004555C09**
 Mix ID: **MD090088** Sample ID: **KC-09-1217** HMA Class: **1/2"**

Required Data	
Percent Binder (Pb)	5.3
% Pass #200 Sieve	5.9
Gmm (Rice Specific Gravity)	2.485
Compaction Temperature in °F	291
Initial Weight of Uncompacted Mixture	4800.0
Number of Gyration @ Initial	8
Number of Gyration @ Design	100
Gb (Specific Gravity of the Binder)	1.028
Gsb (Bulk Specific Gravity of the Aggregate Blend)	2.64
Theoretical Maximum Specific Gravity "Gmm" (ASTM D 2041)	
(N) Sample Mass	1683.7
(O) Mass of Pycnometer Under Water	1277.5
(P) Pycnometer Calibration @ 77°F	
(Q) Mass of Sample & Pycnometer Under Water	2283.6
(R) Temperature of Water in °C	24.8
(S) Pycnometer Calibration @ Test Temperature	
(T) Bitumen Thermal Correction	
(U) Water Thermal Correction	1.00005
(V) Gmm @ 25°C = N*U/(N-(Q-O))	2.485
(W) Density @ 25°C = V*62.245 lb/ft ³	154.7
Bulk Specific Gravity "Gmb" (ASTM D2726)	
A = Mass in Grams of Specimen in Air	4789.3
B = Mass in Grams of Surface-Dry Specimen in Air	4793.6
C = Mass in Grams of Specimen in Water	2797.3
Temperature of the Water °C	25.1
D = Temperature Correction for Density of Water	1.0000
Gmb = D A / (B-C)	(nearest 0.001) 2.399
Absorption = ((B-A) / (B-C))*100	(nearest 0.001) 0.215%
Gyratory Compactor Data (AASHTO T 312)	
H @ Nini (Height of Sample @ Initial Gyration)	127.3
H @ Ndes (Height of Sample @ Design Gyration)	115.5
% Gmm @ N ini = (Hdes*Gmb)/(Hini*Gmm)*100	(nearest 0.1) 87.6
% Gmm @ N des = (Gmb)/(Gmm)*100	(nearest 0.1) 96.5
Air Voids (Va) {WSDOT Std. Spec. 9-03.8(7)}	
Va = 100 *(1-(Gmb/Gmm))	(nearest 0.1) 3.5
<i>JMF Tolerance = 2.5% to 5.5%</i>	
Voids in Mineral Aggregate (VMA) {WSDOT Std. Spec. 9-03.8(7)}	
VMA = 100 *(1-(Gmb*Ps/(Gsb*100)))	(nearest 0.1) 13.9
<i>Mix Criteria = Min. 14.0%</i>	
Voids Filled With Asphalt (VFA) {WSDOT Std. Spec. 9-03.8(7)}	
VFA = 100 * [(VMA - Va) / VMA]	(nearest 0.1) 74.8
<i>Mix Criteria = 65 to 75</i>	
Dust / Asphalt Ratio (D/A) {WSDOT Std. Spec. 9-03.8(2)}	
Gse = (100 - Pb) / [(100 /Gmm) - (Pb / Gb)]	(nearest 0.001) 2.699
Pbe = -(Ps*Gb)*(Gse-Gsb)/(Gse*Gsb)+Pb	(nearest 0.1) 4.5
Ps = 100 - Pb	(nearest 0.1) 94.7
D/A = % Passing #200 Sieve / Pbe	(nearest 0.1) 1.3
<i>Mix Criteria = 0.6 to 1.6</i>	



Mix Design Requirements and Specifications

Project: SE 416th St Overlay, Shingles in Paving Demo. Project Number: M78030
 Contractor: Woodworth & Co. Contract Number: C004555C09
 Asphalt Supplier: Woodworth Lakesview Mix ID: MD090088 HMA Class: 1/2"
 Oil Source: U.S. Oil Resident Engineer: Frank Overton

Gradation

Sieve Size	Contractor JMF % Passing	Tolerances		Control Points Class 1/2"	
		*LL	*UL	LL	UL
1 1/2"					
1"					
3/4"	100	99	100	100	100
1/2"	94	90	100	90	100
3/8"	84	78	90	0	90
#4	57	52	62		
#8	39	35	43	28	58
#16	27				
#30	19				
#50	13				
#100	8				
#200	6.3	4.3	7.0	2.0	7.0

Aggregate Source (Pit #)	B-333	B-160		
Binder Grade (PG)	64-22	ESAL'S (millions)	3	to <30
% Asphalt Content Design	5.6		5.1%	to 6.1%
% Anti Strip	0.00			
% Water				2% max
% Va @ Ndes	C 3.7		2.5	to 5.5
% VMA @Ndes	C 14.3		14	to N/A
% VFA @ Ndes	C 74		65	to 75
Dust/Asphalt Ratio	C 1.4		0.6	to 1.6
Pbe	C 4.5			
Gmm	S 2.463	SE Specification		45
Gmb	S 2.374	Fracture	Single face	90%
			Double face	
Gsb (Aggregate Blend)	S 2.640	Fine Aggregate Angularity		44% min.
Gsb (Fine Aggregate)	S 2.599			
Gb (Binder)	S 1.028			
Mixing Temperature in °F	313			
Max. Mixing Temperature in °F	350			
Compaction Temperature in °F	291			
Number of Gyration @ Initial	8			
Number of Gyration @ Design	100			
Number of Gyration @ Max.	160			

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*LL=Lower Limit UL=Upper Limit C = Use Contractors Information S = Use WSDOT Information



**King County
HMA Test Results**

Project: **SE 416th St Overlay, Shingles in Paving Demo.** Project Number: **M78030**
 Contractor: **Woodworth & Co.** Contract Number: **C004555C09**
 Asphalt Supplier: **Woodworth Lakesview** Sampling Location: **Truck Bed @ Plant**
 Oil Source and Grade: **U.S. Oil** Collection Date/Time: **9/22/09 @ 12:29 PM**
 Mix ID: **MD090088** Sample ID: **KC-09-1221** HMA Class: **1/2"**

Gradation (AASHTO T 30)

Sieve Size	% Passing	Tolerances	
		*LL	*UL
1 1/2"			to
1"			to
3/4"	100	99	to 100
1/2"	95	90	to 100
3/8"	83	78	to 90
#4	55		to
#8	36	35	to 43
#16	25		to
#30	18		to
#50	12		to
#100	9		to
#200	5.9	4.3	to 7.0

Volumetrics (AASHTO T 312)

		Tolerances	
		*LL	*UL
% Va @ Ndes	3.0	2.5	to 5.5
% VMA @Ndes	13.8	12.5	to N/A
% VFA @ Ndes	78.3	65	to 75
Dust/Asphalt Ratio	1.3	0.6	to 1.6
Gmm (WSDOT FOP for AASHTO T 209)	2.483		154.6 lb/ft³
Gmb (ASTM D2726)	2.409		
Asphalt Content % (KCDOT FOP for AASHTO T 308)			5.5
% Water (WSDOT FOP for AASHTO T 329)	0.17		2.0 max
Mix Temperature in °F		312	
Oil Temperature in °F		330	
Air Temperature in °F		81	

*LL=Lower Limit UL=Upper Limit

Data from Mix Design

Aggregate Source	B-333	B-160	0	Gb (Binder)	1.028
Asphalt Content Design		5.6%		Mixing Temperature in °F	313
Anti Strip		0.00%		Compaction Temperature in °F	291
Pbe		4.5		Number of Gyration @ Initial	8
Gsb (Aggregate Blend)		2.64		Number of Gyration @ Design	100
Gsb (Fine Aggregate)		2.599		ESAL'S (millions)	3 to <30

Remarks:

Sample was obtained by King County Representative Tara Pfaff. A companion sample was taken by Woodworth. Sample was obtained from truck #80-180, ticket #244856. This truck was the 23rd load of the day. The accumulative tonnage was 742.58. This is the second of two samples to be taken today. This mix contains 15% RAP. Ignition Furnace Calibration Factor changed from 0.63 to 0.53.

X meets
Material _____ above specifications.
_____ fails to meet

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2 Resident Engr.
1 Const. Admin.
1 Dens. Engineer

Approved for
Distribution By: _____

Tested and
Submitted by: TEP 9/22/2009

Materials Engineer

Date

Initial Date

*Victor Y. ...
10/7/09*



King County
Ignition Furnace Worksheet

Project: **SE 416th St Overlay, Shingles in Paving Demo** Project Number: **M78030**
 Contractor: **Woodworth & Co.** Contract Number: **C004555C09**
 Asphalt Supplier: **Woodworth Lakesview** Sampling Location: **Truck Bed @ Plant**
 Oil Source and Grade: **U.S. Oil** Collection Date/Time: **9/22/09 @ 12:29 PM**
 Mix ID: **MD090088** Sample ID: **KC-09-1221** HMA Class: **1/2"**

Moisture Content (WSDOT FOP for AASHTO T329)					
	Initial	After 90 min.	After 120 min.		
Time	1:51	3:33	4:02		
Tare Weight	513.2	513.2	513.2		
Sample + Tare Wt.	1220.4	1219.5	1219.2	Mass (Wt.) H ₂ O	1.2
Sample Weight	707.2	706.3	706.0	Percent H ₂ O	0.17

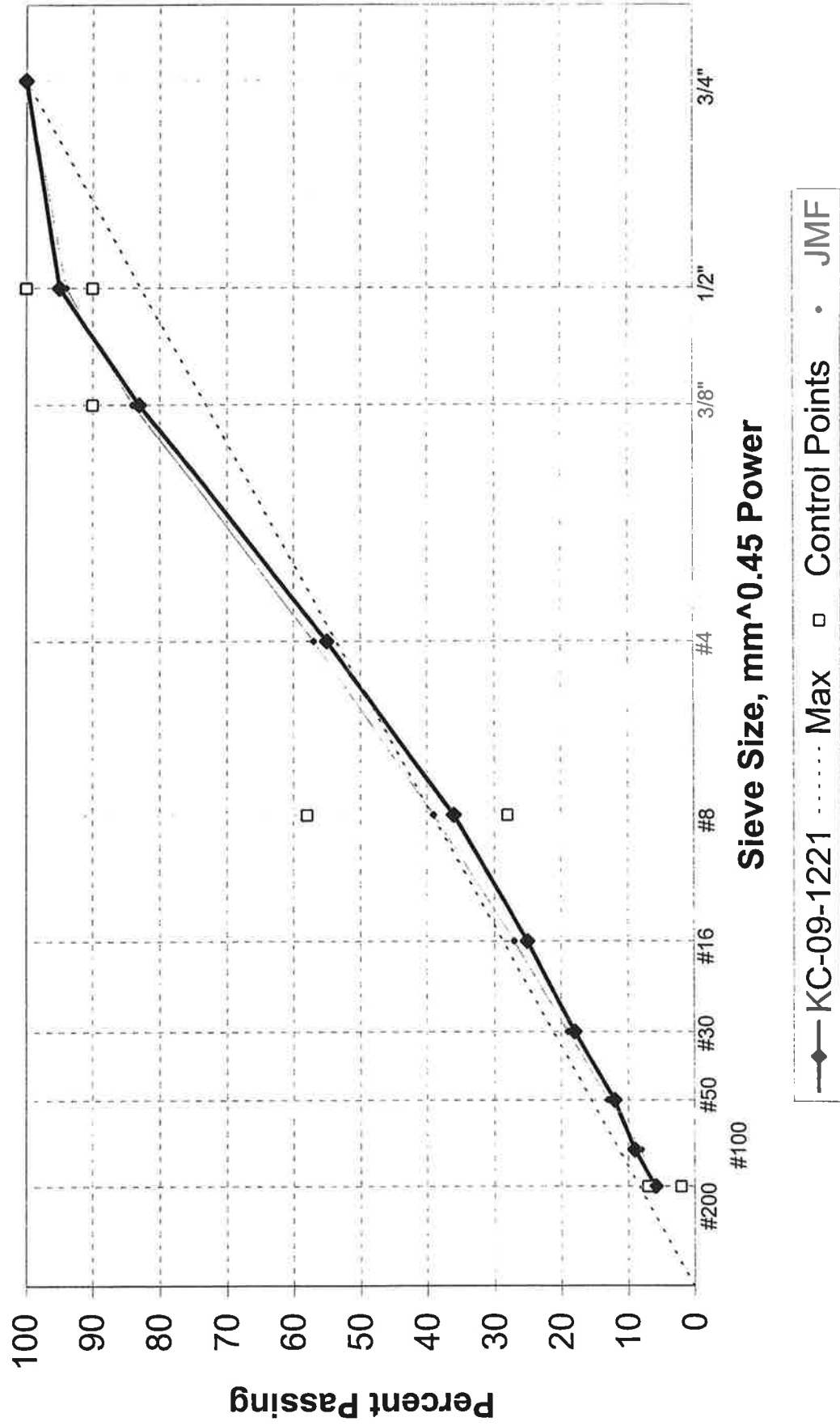
Ignition Furnace Data (AASHTO T 308)			
Mass of Empty Basket(s):	3021.7	Ignition Furnace ID:	TIKI
Mass of Baskets and Sample:	4643.7	Actual Asphalt Content in %:	5.5
Mass of Sample:	1622.0		
Calibration Factor (Ticket) in %:	0.53	Mix Design Asphalt Content in %:	5.6
Percent Loss (Ticket) in %:	6.40	Mass of Residual Agg. & Basket:	4544.3
Temperature Compensation (Ticket) in %:	0.18	Mass of Residual Agg. (Direct):	1522.6
Calibrated Asphalt Content (Ticket) in %:	5.69	Mass of Residual Agg. (Ticket):	1521.1
Difference of Masses of Residual Aggregate - Direct vs. Ticket = -0.1% Specification: shall be within ±0.1%.			

Sieve Analysis (AASHTO T30)							
Mass of Dry Washed Residual Aggregate:		1439.5					
Sieve Size	Accumulative Weight Retained	Percent Passing	JMF	Tolerance		Control Points	
*Record all sieves				Lower Limit	Upper Limit	Lower Limit	Upper Limit
Sieve Size							
1 1/2"							
1"							
3/4"	0.0	100	100	99	100	100	100
1/2"	77.3	95	94	90	100	90	100
3/8"	258.4	83	84	78	90	0	90
#4	690.6	55	57				
#8	969.4	36	39	35	43	28	58
#16	1140.1	25	27				
#30	1252.9	18	19				
#50	1338.2	12	13				
#100	1393.1	9	8				
#200	1432.4	5.9	6.3	4.3	7.0	2.0	7.0
Pan	1439.5						
Difference of Masses - Pan vs. Washed = 0.0% Specification: shall be within ± 0.2%							

Remarks: **Bold = Within Tolerance Limits** *Black Italic - At Tolerance Limit* Red = Outside Tolerance Limit
 Sample was obtained by King County Representative Tara Pfaff. A companion sample was taken by Woodworth. Sample was obtained from truck #80-180, ticket #244856. This truck was the 23rd load of the day. The accumulative tonnage was 742.58. This is the second of two samples to be taken today. This mix contains 15% RAP. Ignition Furnace Calibration Factor changed from 0.63 to 0.53.

Material **X** meets fails to meet above specifications.

1/2 Inch HMA



KC-09-1221

Plant Information

Sampling Location Truck Bed @ Plant **Mix Temp** 312
Collection Date/Time 9/22/09 @ 12:29 PM **Oil Temp** 330
Sample ID KC-09-1221 **Air Temp** 81

Gyratory Data (AASHTO T 312)

Initial wt. of Uncompacted mix. 4800.0
Height in mm of Sample @ Initial Gyration 127.3 **8** **Compaction Temp. =** 291
Height in mm of Sample @ Design Gyration 115.3 **100**

Ignition Furnace (AASHTO T 308)

Mass of Empty Basket 3021.7 **Percent Loss (Ticket) in %:** 6.40
Mass of Basket & Sample 4643.7 **Temp. Comp. (Ticket) in %:** 0.18 **Oil:**
Sample Weight 1622.0 **Ignition Furnace ID:** TIKI
Calibration Factor in %: 0.53 **Mass of Res. Agg. & Bask.** 4544.3 **5.5**

Moisture Content (WSDOT FOP for AASHTO T 329)

Tare Weight 513.2 **:** **Min. test sample 500g.**
Sample + Tare Wt. 1220.4 **Time** 1:51 **163 +/- 14° C for the oven temp.**
Sample + Tare Wt. 1219.5 **After 90 min.** 3:33 **Moist %:**
Sample + Tare Wt. 1219.2 **After 120 min.** 4:02 **(Use Military Time, ex. 00:00)** **0.17**

Rice Data (ASTM D 2041)

30 mm or less Hg at 15 min.

Sample Mass 1547.7
Mass of Pycnometer Under Water @ 25.0 °C 1277.5 **RICE:**
~~**Pycnometer Calibration @ 77°F**~~
Mass of Sample & Pycnometer Under Water 2201.8 **154.6**
Temperature of Water 25.0 ± 1.0 °C 25.1

	Min. Mass
1/2"	1500g
3/4"	2000g
1"	2500g

Sieve Analysis (AASHTO T 30)

Bulk Specific Gravity

Mass of Dry, Washed Sample 1439.5

1 1/2" **#8** 969.4
1" **#16** 1140.1
3/4" 0.0 **#30** 1252.9
1/2" 77.3 **#50** 1338.2
3/8" 258.4 **#100** 1393.1
#4 690.6 **#200** 1432.4
Pan 1439.5

Weight in Air 4788.5
Weight in Water 2803.6
Weight SSD 4791.4
Temp 25.0 ± 1.0 °C 25.1



HMA Volumetric Worksheet

Project: **SE 416th St Overlay, Shingles in Paving Demo** Project Number: **C004555C09**
 Mix ID: **MD090088** Sample ID: **KC-09-1221** HMA Class: **1/2"**

Required Data	
Percent Binder (Pb)	5.5
% Pass #200 Sieve	5.9
Gmm (Rice Specific Gravity)	2.483
Compaction Temperature in °F	291
Initial Weight of Uncompacted Mixture	4800.0
Number of Gyration @ Initial	8
Number of Gyration @ Design	100
Gb (Specific Gravity of the Binder)	1.028
Gsb (Bulk Specific Gravity of the Aggregate Blend)	2.64
Theoretical Maximum Specific Gravity "Gmm" (ASTM D 2041)	
(N) Sample Mass	1547.7
(O) Mass of Pycnometer Under Water	1277.5
(P) Pycnometer Calibration @ 77°F	
(Q) Mass of Sample & Pycnometer Under Water	2201.8
(R) Temperature of Water in °C	25.1
(S) Pycnometer Calibration @ Test Temperature	
(T) Bitumen Thermal Correction	
(U) Water Thermal Correction	0.99997
(V) Gmm @ 25°C = N*U/(N-(Q-O))	2.483
(W) Density @ 25°C = V*62.245 lb/ft ³	154.6
Bulk Specific Gravity "Gmb" (ASTM D2726)	
A = Mass in Grams of Specimen in Air	4788.5
B = Mass in Grams of Surface-Dry Specimen in Air	4791.4
C = Mass in Grams of Specimen in Water	2803.6
Temperature of the Water °C	25.1
D = Temperature Correction for Density of Water	1.0000
Gmb = D A / (B-C)	(nearest 0.001) 2.409
Absorption = ((B-A) / (B-C))*100	(nearest 0.001) 0.146%
Gyratory Compactor Data (AASHTO T 312)	
H @ Nini (Height of Sample @ Initial Gyration)	127.3
H @ Ndes (Height of Sample @ Design Gyration)	115.3
% Gmm @ N ini = (Hdes*Gmb)/(Hini*Gmm)*100	(nearest 0.1) 87.9
% Gmm @ N des = (Gmb)/(Gmm)*100	(nearest 0.1) 97.0
Air Voids (Va) {WSDOT Std. Spec. 9-03.8(7)}	
Va = 100 *(1-(Gmb/Gmm))	(nearest 0.1) 3.0
<i>JMF Tolerance = 2.5% to 5.5%</i>	
Voids in Mineral Aggregate (VMA) {WSDOT Std. Spec. 9-03.8(7)}	
VMA = 100 *(1-(Gmb*Ps/(Gsb*100)))	(nearest 0.1) 13.8
<i>Mix Criteria = Min. 14.0%</i>	
Voids Filled With Asphalt (VFA) {WSDOT Std. Spec. 9-03.8(7)}	
VFA = 100 * [(VMA - Va) / VMA]	(nearest 0.1) 78.3
<i>Mix Criteria = 65 to 75</i>	
Dust / Asphalt Ratio (D/A) {WSDOT Std. Spec. 9-03.8(2)}	
Gse = (100 - Pb) / [(100 /Gmm) - (Pb / Gb)]	(nearest 0.001) 2.706
Pbe = -(Ps*Gb)*(Gse-Gsb)/(Gse*Gsb)+Pb	(nearest 0.1) 4.6
Ps = 100 - Pb	(nearest 0.1) 94.5
D/A = % Passing #200 Sieve / Pbe	(nearest 0.1) 1.3
<i>Mix Criteria = 0.6 to 1.6</i>	



King County
Mix Design Requirements and Specifications

Project: SE 416th St Overlay, Shingles in Paving Demo. Project Number: M78030
 Contractor: Woodworth & Co. Contract Number: C004555C09
 Asphalt Supplier: Woodworth Lakesview Mix ID: MD090088 HMA Class: 1/2"
 Oil Source: U.S. Oil Resident Engineer: Frank Overton

Gradation

Sieve Size	Contractor JMF		Tolerances		Control Points	
	% Passing		*LL	*UL	LL	UL
1 1/2"						
1"						
3/4"	100		99	100	100	100
1/2"	94		90	100	90	100
3/8"	84		78	90	0	90
#4	57		52	62		
#8	39		35	43	28	58
#16	27					
#30	19					
#50	13					
#100	8					
#200	6.3		4.3	7.0	2.0	7.0

Aggregate Source (Pit #)	B-333	B-160			
Binder Grade (PG)	64-22		ESAL'S (millions)	3	to <30
% Asphalt Content Design	5.6			5.1%	to 6.1%
% Anti Strip	0.00				
% Water					2% max
% Va @ Ndes	C 3.7			2.5	to 5.5
% VMA @Ndes	C 14.3			14	to N/A
% VFA @ Ndes	C 74			65	to 75
Dust/Asphalt Ratio	C 1.4			0.6	to 1.6
Pbe	C 4.5				
Gmm	S 2.463		SE Specification		45
Gmb	S 2.374		Fracture	Single face	90%
				Double face	
Gsb (Aggregate Blend)	S 2.640		Fine Aggregate Angularity		44% min.
Gsb (Fine Aggregate)	S 2.599				
Gb (Binder)	S 1.028				
Mixing Temperature in °F	313				
Max. Mixing Temperature in °F	350				
Compaction Temperature in °F	291				
Number of Gyration @ Initial	8				
Number of Gyration @ Design	100				
Number of Gyration @ Max.	160				

Copies Distribution
 2 Resident Engr.
 1 Const. Admin.

*LL=Lower Limit UL=Upper Limit C = Use Contractors Information S = Use WSDOT Information



HMA Mineral Aggregate Results

Project: SE 416th St Overlay Project Number: M78030
 Contractor: Woodworth Contract Number: C00455C09
 Name of Source: Miles Sand and Gravel Roy Pit Sampling Location: Plant/Belt
 Lab Sample Number: KC-09-1218 Collection Date: 9/22/2009 @ Morning
 Mix ID: MD090088 Pit #: B-333 Sampled By: TEP HMA Class: 1/2"

Sand Equivalent Test (AASHTO T-176)

SE Value = $\frac{\text{Sand Reading (100)}}{\text{Clay Reading}}$

Clay Reading	Sand Reading	SE Value
5.5	3.5	64
Specification =	45 Min.	

Percentage of Fracture in Course Aggregate (AASHTO TP-61)

P = Percent of fracture
 F = Mass of fractured particles
 Q = Mass of questionable particles or borderline particles
 N = Mass of unfractured particles

$$P = \left[\frac{F + \left(\frac{Q}{2}\right)}{F + Q + N} \right] * 100$$

Sieve Size	F	Q	N	P
1"				
3/4"				
1/2"	103.5	0.0	0.0	100
3/8"	160.4	0.0	2.4	99
#4	77.5	0.0	1.1	99

Specification = Single Face = 90 % Double Face =

Uncompacted Void Content of Fine Aggregate (AASHTO T-304)

V = Volume of cylindrical measure, ml
 F = Net mass, g, of fine aggregate in measure
 G = Bulk dry specific gravity fine agg. (G_b)
 U = Uncompacted voids, percent, in the material

Preparation of Test Sample	
Sieve Size	Mass
#8 - #16	44 +/- 0.2 g
#16 - #30	57 +/- 0.2 g
#30 - #50	72 +/- 0.2 g
#50 - #100	17 +/- 0.2 g
Specification	44 Min.

Tare 185.64

$$U = \left[\frac{V - \left(\frac{F}{G}\right)}{V} \right] * 100$$

V	F	G	U
100.0	138.56	2.599	46.7
100.0	137.92	2.599	46.9
Average			47

Remarks:

Material X meets above specifications.
 fails to meet

Copies Distribution
2 Resident Engr.
1 Const. Admin.

Approved for Distribution By: _____ Tested and Submitted by: LKW 9/24/2009
 Materials Engineer Date Initial Date



**King County
Hot Mix Asphalt Compaction Form**

Date	9/22/09	Project	416th RAS Study		No.		Section		Prime		Woodworth	Paving Co.	Woodworth	Plant	Lakeview
Class	1/2"	Lift	Wearing	Start Air Temp.	50	End Air Temp.	92	Gauge	Troxler 4640B #2659		Mix I.D.	MD090088		Rand. #	
Estimated Density (p) =	0.0759 Tons/ft ³		Width (W) =	13ft	Depth (D) =	0.17ft	Sublot Size (S)	200 Tons		2635.0 ft ³		Lot Length to nearest 100 (A) = $V/(W^3) / (W/ft) \times D/ft$		1190ft	
Beg. Sta.	116+00 + 105+85		Sublot Ln. [(A) x 0.2] = (L)	238ft	Sta. to Sta.		Loc.	Enumclaw		ACP Test Temp.		Lot #		1	
Test	Location Code		Test Location		Offset	Depth	Gauge Readings		Avg. Reading	Corr. Fact.	Corrected Gauge	Rice Density		% of Rice	
1	Section #4		115+45		4'RT	0.17	145.3	144.0	144.7	1.007	145.7	154.6		94.2	
2	Section #4		113+25		6'RT	0.17	144.8	145.5	145.2	1.007	146.2	154.6		94.5	
3	Section #4		110+50		8.5'RT	0.17	144.6	146.5	145.6	1.007	146.6	154.6		94.8	
4	Section #4		108+75		4'RT	0.17	143.8	143.1	143.5	1.007	144.5	154.6		93.4	
5	Section #4		105+85		9'RT	0.17	143.8	144.6	144.2	1.007	145.2	154.6		93.9	

Estimated Density (p) =	0.0759 Tons/ft ³		Width (W) =	13ft	Depth (D) =	0.17ft	Sublot Size (S)	200 Tons		Vol. of ACP in Sublot (V) = $(S)(p)$		2635.0 ft ³		Lot Length to nearest 100 (A) = $V/(W^3) / (W/ft) \times D/ft$		1190ft	
Beg. Sta.	102+90 + 92+50		Sublot Ln. [(A) x 0.2] = (L)	238ft	Sta. to Sta.		Loc.	Enumclaw		ACP Test Temp.		Lot #		2			
Test	Location Code		Test Location		Offset	Depth	Gauge Readings		Avg. Reading	Corr. Fact.	Corrected Gauge	Rice Density		% of Rice			
1	Section #4		102+90		3.5'RT	0.17	142.5	142.5	142.5	1.007	143.5	154.6		92.8			
2	Section #4		100+00		2.5'RT	0.17	143.1	142.5	142.8	1.007	143.8	154.6		93.0			
3	Section #4		97+60		6.5'RT	0.17	145.4	144.4	144.9	1.007	145.9	154.6		94.4			
4	Section #4		95+05		10.5'RT	0.17	144.1	144.2	144.2	1.007	145.2	154.6		93.9			
5	Section #4		92+50		3'RT	0.17	142.4	142.8	142.6	1.007	143.6	154.6		92.9			
Field tests performed using KCDOT Test Method N-1.													Lot Avg.		93.4		

Pavers:	Blaw Knox PF-5510 #711	
Remarks:	Woodworth paved section #4 on the plan sheet. They planned to do 950 tons plus a smaller amount of prelevel for the paving to be done on 9-23-09. The asphalt placed today had 15% RAP and 0% RAS.	
Rollers	Breakdown	Intermediate
	Sakal GW 750	IR 110 HF
	P	DDV
Passes	4 Vibe	4 Vibe
		2-3 Static
Roller Codes: SDV - Single Drum Vibrator P-Pneumatic		
DDV Double Drum Vibrator TS - Tandem Steel		

Tester informed paving contractor and K.C. Inspector of the day's test results.

Field Eng./Tester Joe Karahuta Date 9/28/2009



Hot Mix Asphalt Compaction Form

Date	9/22/09	Project	416th RAS Study		No.	Section	Prime	Woodworth	Paving Co.	Woodworth	Plant	Lakeview
Class	1/2"	Lift	Wearing	Start Air Temp.	50	End Air Temp.	92	Gauge	Troxler 4640B #2659		Mix I.D.	MD090088
Estimated Density (p) =	0.0759 Tons/ft ³		Width (W) =	13ft	Depth (D) =	0.17ft	Sublot Size (S)	200 Tons		ACP Test Temp.	Lot Length to nearest 100' (A) = 1190ft	
Beg. Sta.	+		Sublot Ln. [(A) x 0.2] = (L)	238ft	Sta. to Sta.	Loc.		Enumclaw		Lot #		
Test	Location Code	Test Location		Offset	Depth	Gauge Readings		Avg. Reading	Corr. Fact.	Corrected Gauge	Rice Density	% of Rice
1	Section #4	91+30		7' RT	0.17	144.5	146.5	145.5	1.007	146.5	154.6	94.8
2	Section #4	115+60		9.5' LT	0.17	143.7	144.1	143.9	1.007	144.9	154.6	93.7
3	Section #4	113+00		4' LT	0.17	142.7	142.4	142.6	1.007	143.5	154.6	92.9
4	Section #4	110+90		6' LT	0.17	144.9	143.4	144.2	1.007	145.2	154.6	93.9
5	Section #4	108+40		9' LT	0.17	141.1	140.6	140.9	1.007	141.8	154.6	91.7
Lot Avg.											93.4	

Estimated Density (p) =	0.0759 Tons/ft ³		Width (W) =	13ft	Depth (D) =	0.17ft	Sublot Size (S)	200 Tons		Vol. of ACP in Sublot (V) = (S)(D) =	Lot Length to nearest 100' (A) = 1190ft	
Beg. Sta.	102+90 + 92+50		Sublot Ln. [(A) x 0.2] = (L)	238ft	Sta. to Sta.	Loc.		Enumclaw		ACP Test Temp.		
Test	Location Code	Test Location		Offset	Depth	Gauge Readings		Avg. Reading	Corr. Fact.	Corrected Gauge	Rice Density	% of Rice
1	Section #4	106+10		3' LT	0.17	141.8	143.7	142.8	1.007	143.7	154.6	93.0
2	Section #4	103+35		6' LT	0.17	141.5	143.1	142.3	1.007	143.3	154.6	92.7
3	Section #4	100+65		8.5' LT	0.17	145.7	145.0	145.4	1.007	146.4	154.6	94.7
4	Section #4	98+75		6.5' LT	0.17	144.7	142.0	143.4	1.007	144.4	154.6	93.4
5	Section #4	96+50		5' LT	0.17	144.0	142.9	143.5	1.007	144.5	154.6	93.4
Lot Avg.											93.4	

Field tests performed using KCDOT Test Method N-1.

Pavers:	Blaw Knox PF-5510 #711
Remarks:	Woodworth paved the westbound lane which is test section #4 on the plan sheet. They planned to do 950 tons plus a small amount of prelevel for the paving to be done on 9-23-09. The asphalt placed today had 15% RAP and 0% RAS.
Rollers	Sakal GW 750
Breakdown	P
Intermediate	IR 110 HF
DDV	DDV
Passes	4 Vibe
	2-3 Static

Tester informed paving contractor and K.C. Inspector of the day's test results.

Field Eng./Tester Joe Karahuta Date 9/28/2009

Roller Codes: SDV - Single Drum Vibrator P-Pneumatic
DDV Double Drum Vibrator TS - Tandem Steel



Hot Mix Asphalt Compaction Form

Date	9/22/09	Project	416th RAS Study		No.	Section		Prime	Woodworth	Paving Co.	Woodworth	Plant	Lakeview						
Class	1/2" Lift	Wearing	Start Air Temp.	50	End Air Temp.	92	Gauge	Troxler 4640B #2659		Mix I.D.	MD090088	Rand. #							
Estimated Density (p) =	0.0759 Tons/ft ³		Width (W) =	13ft	Depth (D) =	0.17ft	Sublot Size (S)	200 Tons	Loc.	ACP Test Temp.	Lot Length to nearest 100'(A) = = V/(ft ³) / W(ft) x D(ft) =		1190ft						
Beg. Sta.	+ Sublot Ln. [(A) x 0.2] = (L)		238ft	Sta. to Sta.									Lot #	5					
Test Location Code	Test Location																		
1	Section #4	94+15	7.5' LT	0.17	144.0	143.1	143.6	1.007	144.6	154.6	154.6	93.5	% of Rice						
2	Section #4	92+05	4' LT	0.17	142.5	143.6	143.6	1.007	144.1	154.6	154.6	93.2	% of Rice						
3	Section #4	90+10	8' LT	0.17	145.3	146.6	146.6	1.007	147.0	154.6	154.6	95.1	% of Rice						
4																			
5																			
Estimated Density (p) = 0.0759 Tons/ft ³													Width (W) =	Depth (D) =	Sublot Size (S)	Vol. of ACP in Sublot (V) =	Lot Length to nearest 100'(A) =	Lot Avg.	93.9
Beg. Sta.	+ Sublot Ln. [(A) x 0.2] = (L)		238ft	Sta. to Sta.									ACP Test Temp.	Lot #					
Test Location Code	Test Location																		
1																			
2																			
3																			
4																			
5																			
Field tests performed using KCDOT Test Method N-1.													Lot Avg.						
Pavers:	Blaw Knox PF-5510 #711																		
Remarks:	Woodworth paved the westbound lane which is test section #4 on the plan sheet. They planned to do 950 tons plus a small amount of prelevel for the paving to be done on 9-23-09. The asphalt placed today had 15% RAP and 0% RAS.																		
Rollers	Sakal GW 750 P		Breakdown		IR 110 HF DDV		Intermediate												
Passes	4 Vibe		4 Vibe		2-3 Static														
Roller Codes: SDV - Single Drum Vibrator P-Pneumatic DDV Double Drum Vibrator TS - Tandem Steel																			

Tester informed paving contractor and K.C. Inspector of the day's test results.

Field Eng./Tester Joe Karahuta Date 9/28/2009

**SE 416th Street Overlay:
Shingles in Paving Demonstration**

Construction Inspection and Quality Control Testing

Paving Day 2 (9-23-09)

**Inspectors Daily Report
HMA Test Results
HMA Mineral Aggregate Test Results
HMA Compaction Test Results**

KING COUNTY DEPARTMENT OF TRANSPORTATION
CONSTRUCTION SERVICES SECTION
INSPECTORS DAILY REPORT Page 1 of 2

DATE: Wednesday September 23rd 2009

Federal Aid # _____

PROJECT NO. M78030 CONTRACT NO. C00455C09 PROJECT: SE 416th ST Overlay- Shingles in Paving Demonstration

INSPECTOR (S): S. Shandil, M. Pavolka CONTRACTOR: Woodworth & Company

WEATHER: Clear TEMP: High 80 Low 60

WIND: Still Moderate High _____ Workable 8 Nonworkable 0

SIGNS AND TRAFFIC CONTROL CHECKED? Yes No _____ ON-SITE INTERVIEW? Yes _____ No

WORK DONE:

- **Woodworth (Paving):** 7am Set up traffic control signs and flaggers on SE 416th st. Road closed between 236th and 2000' East of 212th ave. Crew Remove paper joint at 236th ave using J/D backhoe. 7.10 place tack on North side of SE 416th from st# 89+66 to 63+10 at 228th ave. Mob. Equipment. 7.30 begin paving from st # 89+66 to 63+10. Luke operating shuttle buggy to transfer mix on to paver. Al operating Blaw Knox paver with Jonathan as screed operator. Shane using Sakai as b/down roller with Willie operating DD-110HF as intermediate/finish roller and the DD-28HF for side streets d/ways. 9.20 End paving at st# 63+10, place paper joint. Waited for 2hrs, mob. Equipment back to 236th. Place water to drop mat temp. on the North side. 11.30 pave South side up to st#63+10 End paving at 1.40 pm, had about 25tons mix in shuttle buggy. Pre level North and South side of road to cover county prep. Work. End at 2.15pm. Continued with compaction. Placed temp tapes, place water to drop mat temp. Road opened at 3.30pm. Flaggers continued to relocate detour signs for paving on 09/24/09. Done at 4.30pm.
- **Gloria Jeanne: (Grinding):** Complete on 09/21/09.

EQUIPMENT ON PROJECT:

- **Woodworth:** 1- F/M work truck(Chevy 2500HD), 1- Work truck (F 450 + Trailer # 38) 1 - Flagging truck(Chevy 2500 HD # 1264 and 1262), 1 Back Hoe(JD 510 # 203), 1- Shuttle Buggy (SB- 2500B # 715), 1- Paver(Blaw Knox # 711), 3 Rollers(I.R DD-28HF # 841, I.R DD-110HF # 810, Sakai GW 750 # 822 Pneumatic Roller), Ken worth Water Truck # 26, Peter Bilt Tack Truck # 9
- **Gloria Jeanne:**
- **PERSONNEL ON PROJECT:**
- **Woodworth:** 1- Project Manager(Scott Droppelman), 1- F/M (Dan Andreas), 1- Paver operators(Al Anderson), 1- Shuttle buggy operator (Luke Dillard), 1 - Screed operator (Jonathan Pullack), 2 - Roller operators (Shane Thomas, Willie Guillen), 1- Truck spotter (Dave Thorton), 1 - Raker (Ludvig Yefimov), 1 - Tack Operator (), 1- TCS (Tara), 4- Flaggers(Glen, Katy, Ray and Paula)
- **Gloria Jeanne:**
- **King County:** Paul Moore, Kevin, Joe(Lab), Matt Reichmann(Video person), Kris Beatty (DNR), Michelle Caulfield(Consultant)
- **Others:** Warren (Enumclaw water district), Joe Devol(WSDOT), Herb(WSDOT)

REMARKS:

- Road closed between 236th ave and 2000' East of 212th ave. Flaggers at each major crossing to stop cars entering in to work zone from 7am to 5pm.
- Used Sakai as break down roller on 6 vibes, DD-110 as intermediate roller on 4 vibes, 2 static rolling pattern and DD-28 for Side Street / driveways.
- Temperature of laid down mix ranged from 270 deg. To 300deg. Outside air temp. Was in the mid 80deg.
- Pre level on the North side from st # 63+00 to 54+00 (0" at centre to 1/2" at edge) and South side from st # 63+00 to 54+00 (0" at centre to 1/2" at edge).

INSPECTOR(S) TIME: _____

White - Contract File
Yellow - Project Engineer
Pink - Inspector's Diary

INSPECTOR'S SIGNATURE: _____

**KING COUNTY DEPARTMENT OF TRANSPORTATION
CONSTRUCTION SERVICES SECTION
INSPECTORS DAILY REPORT Page 2 of 2**

DATE: Wednesday September 23rd 2009

- Day 2 Paving was from station 89+66 to 63+10. Wood Worth haul mix from Lake View plant using 15 truck and trailers. Placed 933.85 Tons of HMA Class ½" PG 64-22 with 15% Rap and 3% RAS on Se 416th st at 2" compacted. Placed 25 T of same mix as prelevel on SE 416TH ST.
- All trucks came in with covered loads.
- Temp. Of mix was 270 deg at 89+66, 285deg at 83+50, 295deg at 75+50, 300 deg at 72+00. Temperature stayed within 5 deg. of 295deg. For rest of day.
- Talk to school principle at Elementary School. Discussed on school schedule and advised principle that we will adjust work hours. Contractor would start paving at 8am on Friday so that we are no way near school zone. Road will be closed from 212th to 236th but access will be given to school bus, parents and teachers.
- Call from Tara (lab) that 1st mix sample failed. # 200 was 7.2% and oil was 6.3. Advised f/man. Second sample failed also. #200 was at 6.8% and oil was 6.2. This could be the reason for easy compaction.
- Call from Kevin (lab) that King County and Wood worth have decided to pave the day 4 sections(st 36+50 to 10+17) on 09/24/09 using HMA plus 15% RAP. This would give Wood worth time to find out why mix sampled for today failed. Day 3 section (st 63+10 to 36+50) will now be paved on 09/25/09.
- Placed only 1" compacted mix on bridge crossing. It was rolled in static mode.
- WSDOT core crew on site with Joe (LAB) to core mix that was placed on Day 1(Mix had 15% RAP).

INSPECTOR(S) TIME: _____

White - Contract File
Yellow - Project Engineer
Pink - Inspector's Diary

INSPECTOR'S SIGNATURE: _____



**King County
HMA Test Results**

Project: **SE 416th St Overlay, Shingles in Paving Demo.** Project Number: **M78030**
 Contractor: **Woodworth & Co.** Contract Number: **C004555C09**
 Asphalt Supplier: **Woodworth Lakesview** Sampling Location: **Truck Bed @ Plant**
 Oil Source and Grade: **U.S. Oil** Collection Date/Time: **9/23/09 @ 7:35 AM**
 Mix ID: **MD090088** Sample ID: **KC-09-1224** HMA Class: **1/2"**

Gradation (AASHTO T 30)

Sieve Size	% Passing	Tolerances	
		*LL	*UL
1 1/2"			to
1"			to
3/4"	100	99	to 100
1/2"	91	90	to 100
3/8"	82	78	to 90
#4	58		to
#8	39	35	to 43
#16	27		to
#30	19		to
#50	14		to
#100	10		to
#200	7.2	4.3	to 7.0

Volumetrics (AASHTO T 312)

		Tolerances	
		*LL	*UL
% Va @ Ndes	1.1	2.5	to 5.5
% VMA @ Ndes	14.1	12.5	to N/A
% VFA @ Ndes	92.2	65	to 75
Dust/Asphalt Ratio	1.3	0.6	to 1.6
Gmm (WSDOT FOP for AASHTO T 209)	2.450		152.5 lb/ft ³
Gmb (ASTM D2726)	2.423		
Asphalt Content % (KCDOT FOP for AASHTO T 308)			6.4
% Water (WSDOT FOP for AASHTO T 329)	0.18		2.0 max
Mix Temperature in °F		329	
Oil Temperature in °F		330	
Air Temperature in °F		57	

*LL=Lower Limit UL=Upper Limit

Data from Mix Design

Aggregate Source	B-333	B-160	0	Gb (Binder)	1.028
Asphalt Content Design		5.6%		Mixing Temperature in °F	313
Anti Strip		0.00%		Compaction Temperature in °F	291
Pbe		4.5		Number of Gyration @ Initial	8
Gsb (Aggregate Blend)		2.64		Number of Gyration @ Design	100
Gsb (Fine Aggregate)		2.599		ESAL'S (millions)	3 to <30

Remarks:

Sample was obtained by King County Representative Tara Pfaff. A companion sample was taken by Woodworth. Sample was obtained from truck #10069T, ticket #245004. This truck was the 12th load of the day. The accumulative tonnage was 386.01. This is the first of two samples to be taken today. This mix contains 15% RAP and 3% RAS. Note: Yesterday, the tickets displayed MD090057, I questioned the Plant Operator about this and he stated that it was the same thing as MD090088, he agreed to change it on the tickets from now on. Ignition Furnace Calibration Factor Changed from 0.63 to 0.53.

This sample has failed to meet specifications for exceeding the tolerances for oil content% and the #200 screen.

Material _____ meets
X fails to meet
 above specifications.

Approved for Distribution By: _____
 Materials Engineer Date

Tested and Submitted by: TEP 9/23/2009
 Initial Date

Copies Distribution
2 Resident Engr.
1 Const. Admin.
1 Dens. Engineer

*Victor ylls
10/4/09*



Ignition Furnace Worksheet

Project: SE 416th St Overlay, Shingles in Paving Demo Project Number: M78030
 Contractor: Woodworth & Co. Contract Number: C004555C09
 Asphalt Supplier: Woodworth Lakesview Sampling Location: Truck Bed @ Plant
 Oil Source and Grade: U.S. Oil Collection Date/Time: 9/23/09 @ 7:35 AM
 Mix ID: MD090088 Sample ID: KC-09-1224 HMA Class: 1/2"

Moisture Content (WSDOT FOP for AASHTO T329)					
	Initial	After 90 min.	After 120 min.		
Time	8:46	10:40	11:10		
Tare Weight	512.0	512.0	512.0		
Sample + Tare Wt.	1176.6	1175.6	1175.4	Mass (Wt.) H ₂ O	1.2
Sample Weight	664.6	663.6	663.4	Percent H ₂ O	0.18

Ignition Furnace Data (AASHTO T 308)			
Mass of Empty Basket(s):	3010.1	Ignition Furnace ID:	TIKI
Mass of Baskets and Sample:	4867.9	Actual Asphalt Content in %:	6.4
Mass of Sample:	1857.8		
Calibration Factor (Ticket) in %:	0.53	Mix Design Asphalt Content in %:	5.6
Percent Loss (Ticket) in %:	7.32	Mass of Residual Agg. & Basket:	4734.2
Temperature Compensation (Ticket) in %:	0.16	Mass of Residual Agg. (Direct):	1724.1
Calibrated Asphalt Content (Ticket) in %:	6.63	Mass of Residual Agg. (Ticket):	1724.8

Difference of Masses of Residual Aggregate - Direct vs. Ticket = 0.0% Specification: shall be within ±0.1%.

Sieve Analysis (AASHTO T30)
 Mass of Dry Washed Residual Aggregate: 1613.1

Sieve Size	Accumulative Weight Retained	Percent Passing	JMF	Tolerance		Control Points	
				Lower Limit	Upper Limit	Lower Limit	Upper Limit
*Record all sieves							
Sieve Size							
1 1/2"							
1"							
3/4"	0.0	100	100	99	100	100	100
1/2"	149.0	91	94	90	100	90	100
3/8"	302.4	82	84	78	90	0	90
#4	730.9	58	57				
#8	1050.9	39	39	35	43	28	58
#16	1259.0	27	27				
#30	1394.5	19	19				
#50	1487.9	14	13				
#100	1551.2	10	8				
#200	1600.1	7.2	6.3	4.3	7.0	2.0	7.0
Pan	1612.9						

Difference of Masses - Pan vs. Washed = 0.0% Specification: shall be within ± 0.2%

Remarks: **Bold = Within Tolerance Limits** *Black Italic - At Tolerance Limit* **Red = Outside Tolerance Limit**
 Sample was obtained by King County Representative Tara Pfaff. A companion sample was taken by Woodworth. Sample was obtained from truck #10069T, ticket #245004. This truck was the 12th load of the day. The accumulative tonnage was 386.01. This is the first of two samples to be taken today. This mix contains 15% RAP and 3% RAS. Note: Yesterday, the tickets displayed MD090057, I questioned the Plant Operator about this and he stated that it was the same thing as MD090088, he agreed to change it on the tickets from now on. Ignition Furnace Calibration Factor This sample has failed to meet specifications for exceeding the oil content and the #200 screen tolerances.

Material _____ **meets** **X** **fails to meet** _____ **above specifications.**

1/2 Inch HMA

