



**Department of  
Design and  
Construction**

**Ana Barrio**  
Acting Commissioner

**Program Management Division  
QA and Construction Safety Bureau**

**John M. DeVito**  
Director  
QA & Construction Safety

**Concrete and Asphalt Generic Mix Design Approval # 2017 – 817**

30-30 Thomson Avenue  
Long Island City, NY 11101

**Date:** 11/3/2017

Tel. 718 / 391-1395  
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www.nyc.gov/buildnyc

**To:** **Larry Santana, QC Manager**  
**Willets Point Asphalt**

**From:** **John M. DeVito, Director**  
**QA & Construction Safety Bureau**

**Date Submitted:** 10/24/17

**Plant:** Willets Point Asphalt

**NYSDOT Facility Numbers:** H0354

**Laboratory:** N/A

**Mix Design Type:** 3RA Binder

**Generic Mix Design Serial Number:** WilletsPointAsphalt/3RA/Binder/NYCDDC/111/17

**Generic Mix Design Date:** 10/24/2017

**Generic Mix Design Expiration Date:** 11/30/2019

- Comments:**
- 1) This mix design is approved only for the NYSDOT Facility Numbers listed above.
  - 2) Approval is limited to the material sources and aggregate sizes shown on the mix design.
  - 3) Dosage of admixtures may be adjusted by the plant within manufacturer's written guidelines, but admixtures not listed may not be added.

Reviewed & Prepared by:

Scott Cruz, QA Inspector

Recommended for Acceptance by:

Carlos Ortiz, Engineer in Charge

# QA & CONSTRUCTION SAFETY BUREAU

## ASPHALT JOB MIX FORMULA SHEET - 3 RA BINDER MIX

PLANT NAME: WILLETS POINT ASPHALT  
 NYSDOT FACILITY #: H0354  
 PLANT ADDRESS: FLUSHING  
New York, NY

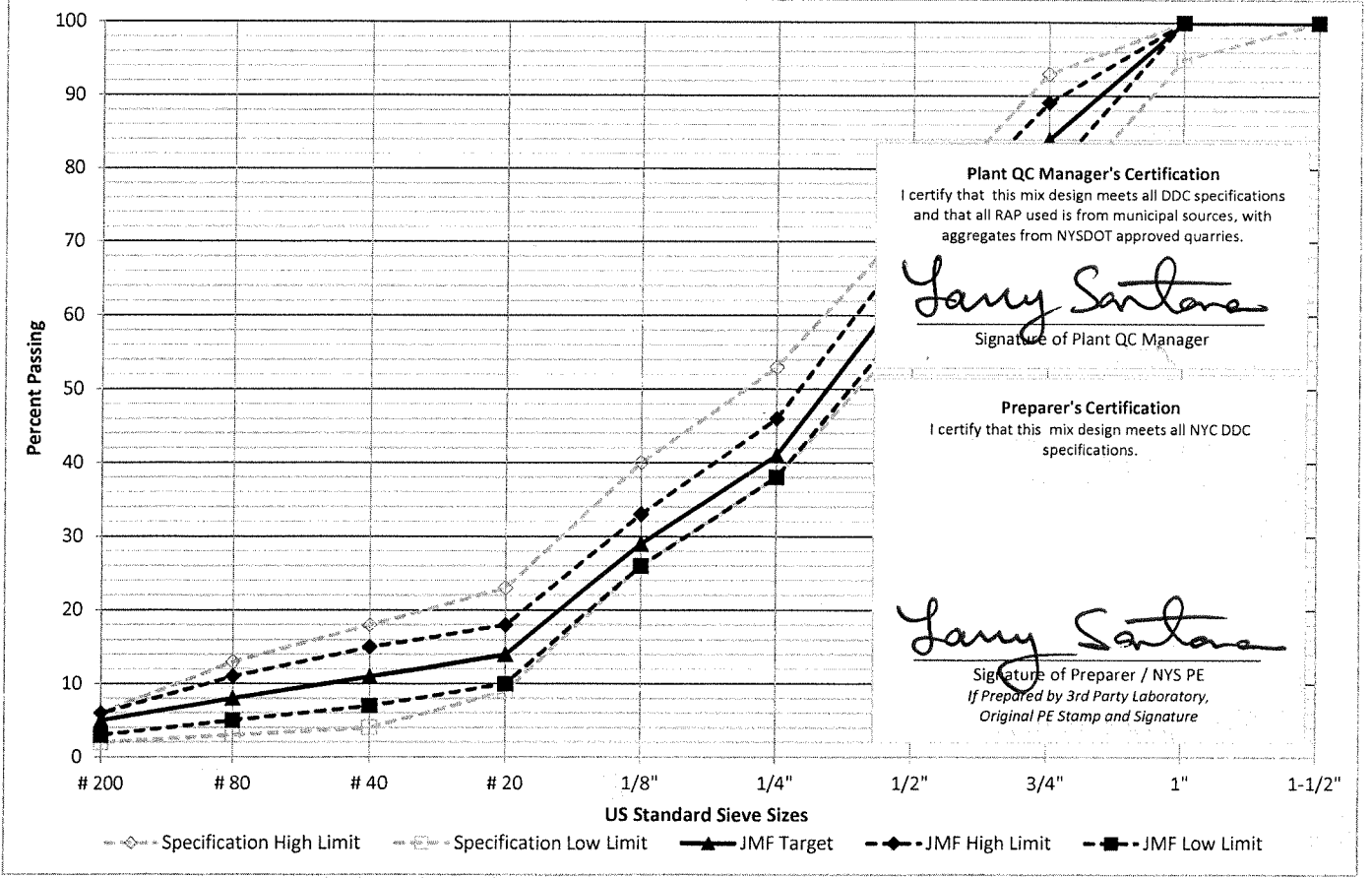
MIX DESIGN DATE: 10/24/2017  
 PREPARED BY: LARRY SANTANA  
 COMPANY: WILLETS POINT ASPHALT  
 PLANT QC MGR: LARRY SANTANA

Item	Supplier / Quarry	NYSDOT Source	High Friction	Agg. Blend %	Mix %	Lbs / Ton
					0.0%	0
#57 Stone	Tilcon, Mt Hope, NJ	8-32R	Yes	46.0%	44.8%	895
#8 Stone	Tilcon, Mt Hope, NJ	8-32R	Yes	10.0%	9.7%	195
					0.0%	0
Natural Sand	Tilcon, Mt Hope, NJ	8-32R	N/A	0.0%	0.0%	0
Manuf. Sand	Tilcon, Mt Hope, NJ	8-32R	N/A	14.0%	13.6%	272
RAP 1	Flushing Asphalt Co.	N/A	Yes	30.0%	29.2%	584
	RAP % Asphalt: 6.2%			RAP AC	1.8%	36
All RAP to be from Municipal Sources - Aggregates from State Quarries				RAP Aggregate	27.4%	548
		N/A			0.0%	0
	RAP % Asphalt: 0.0%			RAP AC	0.0%	0
All RAP to be from Municipal Sources - Aggregates from State Quarries				RAP Aggregate	0.0%	0
Virgin Asphalt	Grade: PG64-22	SG (G <sub>b</sub> ):	1.034		2.7%	54
Total Asphalt Content (P <sub>b</sub> ):					4.5%	90
					100.0%	2,000

Project No: Generic  
**APPROVED**  
 NYC DDC (QA/QC BUREAU)  
 Date: 11/3/17 Reviewed By: S.C  
 LOG NO: 2017-817  
 QA/QC APPROVAL STAMP

**WILLETSPOINTASPHALT/3RA/BINDER/GENERIC/NYCDDC/111/17 EXP: 11/30/2019**

Sieve Size	1-1/2"	1"	3/4"	1/2"	1/4"	1/8"	# 20	# 40	# 80	# 200	P <sub>b</sub>
Specification Limits	100-100	95-100	74-93	58-73	38-53	26-40	9-23	4-18	3-13	2-6	4-6
JMF Target	100	100	84	65	41	29	14	11	8	5	4.5
JMF Range	100-100	100-100	79-89	60-70	38-46	26-33	10-18	7-15	5-11	3-6	4-5.2



**QA & CONSTRUCTION SAFETY BUREAU**  
**ASPHALT JOB MIX FORMULA SHEET - 3 RA BINDER MIX**

PLANT NAME: WILLETS POINT ASPHALT  
 NYSDOT FACILITY #: H0354  
 PLANT ADDRESS: FLUSHING  
 New York, NY

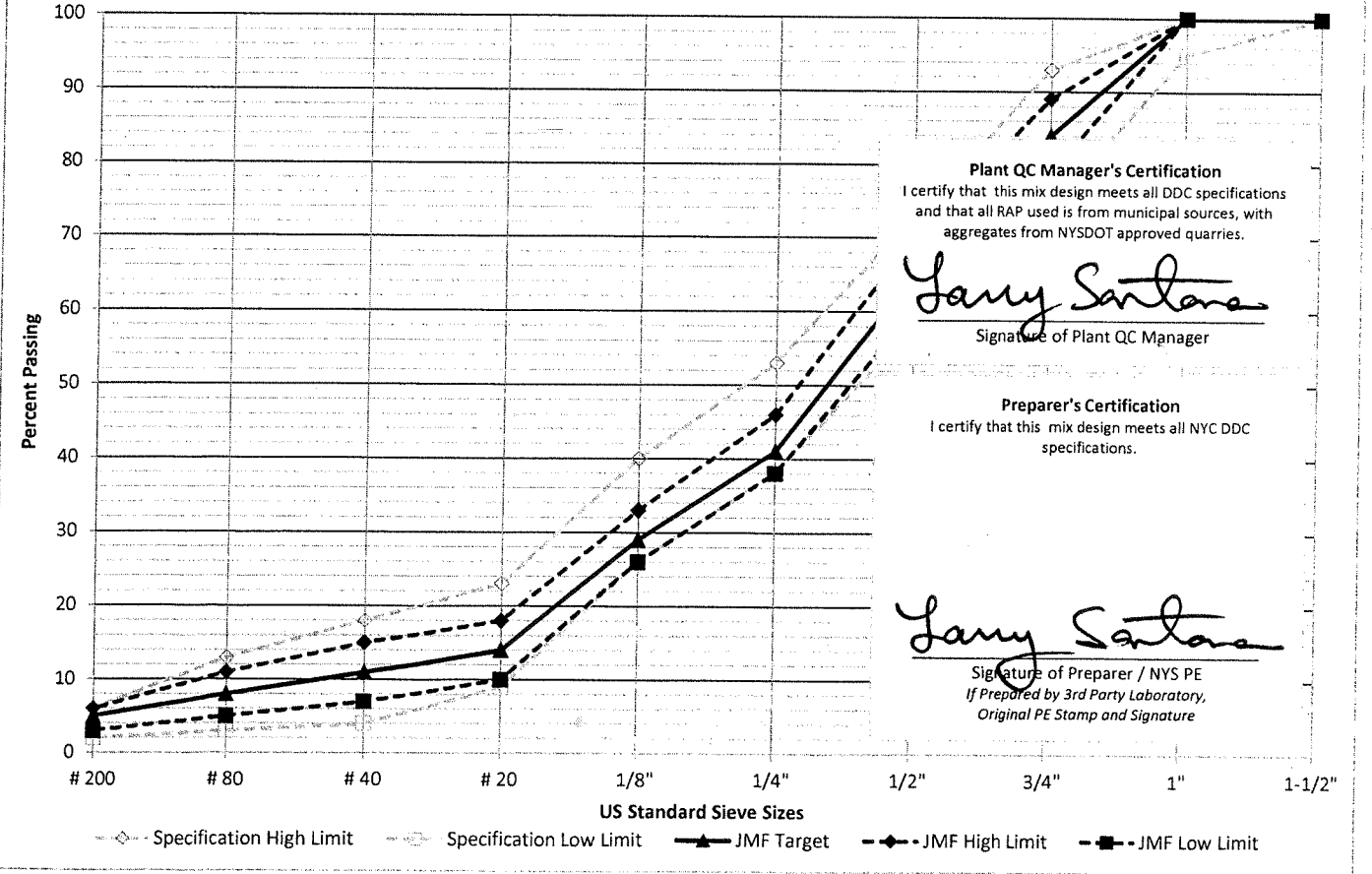
MIX DESIGN DATE: 10/24/2017  
 PREPARED BY: LARRY SANTANA  
 COMPANY: WILLETS POINT ASPHALT  
 PLANT QC MGR: LARRY SANTANA

Item	Supplier / Quarry	NYSDOT Source	High Friction	Agg. Blend %	Mix %	Lbs / Ton	
					0.0%	0	
#57 Stone	Tilcon, Mt Hope, NJ	8-32R	Yes	46.0%	44.8%	895	
#8 Stone	Tilcon, Mt Hope, NJ	8-32R	Yes	10.0%	9.7%	195	
					0.0%	0	
Natural Sand	Tilcon, Mt Hope, NJ	8-32R	N/A	0.0%	0.0%	0	
Manuf. Sand	Tilcon, Mt Hope, NJ	8-32R	N/A	14.0%	13.6%	272	
RAP 1	Flushing Asphalt Co.	N/A	Yes	30.0%	29.2%	584	
	RAP % Asphalt: 6.2%			RAP AC	1.8%	36	
<i>All RAP to be from Municipal Sources - Aggregates from State Quarries</i>					RAP Aggregate	27.4%	548
		N/A			0.0%	0	
	RAP % Asphalt: 0.0%			RAP AC	0.0%	0	
<i>All RAP to be from Municipal Sources - Aggregates from State Quarries</i>					RAP Aggregate	0.0%	0
Virgin Asphalt	Grade: PG64-22	SG (G <sub>b</sub> ):	1.034		2.7%	54	
Total Asphalt Content (P <sub>b</sub> ):					4.5%	90	
					100.0%	2,000	

QA&CS APPROVAL STAMP

WILLETSPOINT ASPHALT/3RA/BINDER/GENERIC/NYCDDC/111/17 EXP: 11/30/2019

Sieve Size	1-1/2"	1"	3/4"	1/2"	1/4"	1/8"	# 20	# 40	# 80	# 200	P <sub>b</sub>
Specification Limits	100-100	95-100	74-93	58-73	38-53	26-40	9-23	4-18	3-13	2-6	4-6
JMF Target	100	100	84	65	41	29	14	11	8	5	4.5
JMF Range	100-100	100-100	79-89	60-70	38-46	26-33	10-18	7-15	5-11	3-6	4-5.2



**QA & CONSTRUCTION SAFETY BUREAU**

**AGGREGATE SPECIFIC GRAVITY & COMBINED GRADATION WORKSHEET - 3 RA BINDER MIX**

PLANT NAME: WILLETS POINT ASPHALT

NYSDOT FACILITY #: H0354

MIX DESIGN DATE: 10/24/2017

**Average Bin Gradations**

Sieve	Not Used		#57 Stone		#8 Stone		Not Used		Natural Sand		Manuf. Sand		RAP 1		Not Used	
	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass	% Ret.	% Pass
1.5"		100.0	0.0	100.0	0.0	100.0		100.0	0.0	100.0	0.0	100.0	0.0	100.0		100.0
1"		100.0	0.0	100.0	0.0	100.0		100.0	0.0	100.0	0.0	100.0	0.0	100.0		100.0
3/4"		100.0	34.8	65.2	0.0	100.0		100.0	0.0	100.0	0.0	100.0	0.0	100.0		100.0
1/2"		100.0	41.8	23.4	1.6	98.4		100.0	0.0	100.0	0.0	100.0	0.0	100.0		100.0
1/4"		100.0	20.6	2.8	64.6	33.8		100.0	0.0	100.0	0.0	100.0	29.8	70.2		100.0
1/8"		100.0	2.8	0.0	28.6	5.2		100.0	0.0	100.0	9.9	90.1	21.6	48.6		100.0
#20		100.0	0.0	0.0	5.2	0.0		100.0	0.0	100.0	44.9	45.2	26.3	22.3		100.0
#40		100.0	0.0	0.0	0.0	0.0		100.0	0.0	100.0	14.7	30.5	4.2	18.1		100.0
#80		100.0	0.0	0.0	0.0	0.0		100.0	0.0	100.0	14.9	15.6	3.4	14.7		100.0
#200		100.0	0.0	0.0	0.0	0.0		100.0	0.0	100.0	12.4	3.2	5.6	9.1		100.0
Pan			0.0		0.0				0.0		3.2		9.1			
Totals	0.0		100.0		100.0		0.0		0.0		100.0		100.0		0.0	

Stockpiles Sampled By: D. LOPEZ Date Sampled: 10/15/2017

Gradation Technician: D. LOPEZ Date Tested: 10/15/2017

**Coarse Aggregate Specific Gravity per ASTM C127**

Discard portion of sample that passes the 1/4" sieve.  
Only Perform this test if aggregate is 10% or more coarse (less than 90% passing the 1/4" sieve)

	Not Used	#57 Stone	#8 Stone	Not Used	Natural Sand	Manuf. Sand	RAP 1	Not Used
% Coarse Agg.	---	97.2%	66.2%	---	0.0%	0.0%	29.8%	---
Test Required?	NO	YES	YES	NO	NO	NO	YES	NO
A) Wt. in Air		2655.3	2650.1				1023.4	
B) Wt. SSD		2670.5	2670.0				1029.6	
C) Wt. in Water		1688.2	1682.0				643.2	
G <sub>sb</sub> (A/(B-C))	---	2.703	2.682	---	---	---	2.649	---
G <sub>sa</sub> (A/(A-C))	---	2.746	2.737	---	---	---	2.692	---

**Fine Aggregate Specific Gravity per ASTM C128**

Discard portion of sample that does not pass the #4 sieve.  
Only Perform this test if 10% or more passes the 1/4" Sieve.

	Not Used	#57 Stone	#8 Stone	Not Used	Natural Sand	Manuf. Sand	RAP 1	Not Used
% Fine Agg.	---	2.8%	33.8%	---	100.0%	100.0%	70.2%	---
Test Required?	NO	NO	YES	NO	YES	YES	YES	NO
A) Wt. in Air		0.0	2650.1		497.8	497.8	1023.4	
B) Wt. Flask + Water		0.0	0.0		680.0	680.0	0.0	
C) Wt. Flask + Water + Sample		0.0	1682.0		992.8	992.8	643.2	
S) Wt. SSD		0.0	2670.0		500.1	500.1	1029.6	
G <sub>sb</sub> (A/(B+S-C))	---	---	2.682	---	2.658	2.658	2.649	---
G <sub>sa</sub> (A/(B+A-C))	---	---	2.737	---	2.691	2.691	2.692	---

**Combined Aggregate Specific Gravity**

	Not Used	#57 Stone	#8 Stone	Not Used	Natural Sand	Manuf. Sand	RAP 1	Not Used
Combined G <sub>sb</sub>	---	2.703	2.682	---	2.658	2.658	2.649	---
Combined G <sub>sa</sub>	---	2.746	2.737	---	2.691	2.691	2.692	---

S. G. Technician: D. LOPEZ Date Tested: 10/14/2017

**Combined Average Gradations, % Passing**

Bin	Agg Blend	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#57 Stone	46.0%	46.0	46.0	30.0	10.8	3.3	0.0	0.0	0.0	0.0	0.0
#8 Stone	10.0%	10.0	10.0	10.0	9.8	3.4	0.5	0.0	0.0	0.0	0.0
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Sand	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manuf. Sand	14.0%	14.0	14.0	14.0	14.0	14.0	12.6	6.3	4.3	2.2	0.4
RAP 1	30.0%	30.0	30.0	30.0	30.0	21.1	14.6	6.7	5.4	4.4	2.7
Not Used	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0%	100.0	100.0	84.0	64.6	39.7	27.7	13.0	9.7	6.6	3.2
Specification Limits		100-100	95-100	74-93	58-73	38-53	26-40	9-23	4-18	3-13	2-6

**QA & CONSTRUCTION SAFETY BUREAU**  
**ASPHALT TRIAL GRADATION WORKSHEET - 3 RA BINDER MIX**

PLANT NAME: WILLETS POINT ASPHALT

NYS DOT FACILITY #: H0354

MIX DESIGN DATE: 10/24/2017

**BATCH 1** Batch P<sub>b</sub>: 3.5%  
 Batch Grams: 1280.0

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#57 Stone	46.0%	44.4%	568.2		0.0	0.0	198.9	228.4	106.8	18.2	0.0	0.0	0.0	0.0	15.9	568.2
#8 Stone	10.0%	9.7%	123.5		0.0	0.0	0.0	2.0	79.8	35.3	6.4	0.0	0.0	0.0	0.0	123.5
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Sand	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manuf. Sand	14.0%	13.5%	172.9		0.0	0.0	0.0	0.0	0.0	17.1	77.6	25.4	25.8	21.4	5.5	172.9
RAP 1	30.0%	30.9%	395.1	24.5	0.0	0.0	0.0	0.0	117.7	85.3	103.9	16.6	13.4	22.1	11.5	395.1
Not Used	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Virgin Asphalt		1.6%	20.3	20.3												20.3
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1280.0</b>	<b>44.8</b>	<b>0.0</b>	<b>0.0</b>	<b>198.9</b>	<b>230.4</b>	<b>304.3</b>	<b>156.0</b>	<b>188.0</b>	<b>42.0</b>	<b>39.2</b>	<b>43.6</b>	<b>32.9</b>	<b>1280.0</b>

3.50%

**BATCH 2** Batch P<sub>b</sub>: 4.0%  
 Batch Grams: 1280.0

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#57 Stone	46.0%	44.2%	565.2		0.0	0.0	197.8	227.2	106.3	18.1	0.0	0.0	0.0	0.0	15.8	565.2
#8 Stone	10.0%	9.6%	122.9		0.0	0.0	0.0	2.0	79.4	35.1	6.4	0.0	0.0	0.0	0.0	122.9
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Sand	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manuf. Sand	14.0%	13.4%	172.0		0.0	0.0	0.0	0.0	0.0	17.0	77.2	25.3	25.6	21.3	5.5	172.0
RAP 1	30.0%	30.7%	393.0	24.4	0.0	0.0	0.0	0.0	117.1	84.9	103.4	16.5	13.4	22.0	11.4	393.0
Not Used	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Virgin Asphalt		2.1%	26.8	26.8												26.8
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1280.0</b>	<b>51.2</b>	<b>0.0</b>	<b>0.0</b>	<b>197.8</b>	<b>229.2</b>	<b>302.8</b>	<b>155.2</b>	<b>187.0</b>	<b>41.8</b>	<b>39.0</b>	<b>43.3</b>	<b>32.7</b>	<b>1280.0</b>

4.00%

**BATCH 3** Batch P<sub>b</sub>: 4.5%  
 Batch Grams: 1280.0

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#57 Stone	46.0%	43.9%	562.3		0.0	0.0	196.8	226.0	105.7	18.0	0.0	0.0	0.0	0.0	15.7	562.3
#8 Stone	10.0%	9.6%	122.2		0.0	0.0	0.0	2.0	79.0	35.0	6.4	0.0	0.0	0.0	0.0	122.2
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Sand	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manuf. Sand	14.0%	13.4%	171.1		0.0	0.0	0.0	0.0	0.0	16.9	76.8	25.2	25.5	21.2	5.5	171.1
RAP 1	30.0%	30.5%	391.0	24.2	0.0	0.0	0.0	0.0	116.5	84.4	102.8	16.4	13.3	21.9	11.3	391.0
Not Used	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Virgin Asphalt		2.6%	33.4	33.4												33.4
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1280.0</b>	<b>57.6</b>	<b>0.0</b>	<b>0.0</b>	<b>196.8</b>	<b>228.0</b>	<b>301.2</b>	<b>154.3</b>	<b>186.0</b>	<b>41.6</b>	<b>38.8</b>	<b>43.1</b>	<b>32.6</b>	<b>1280.0</b>

4.50%

**BATCH 4** Batch P<sub>b</sub>: 5.0%  
 Batch Grams: 1280.0

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#57 Stone	46.0%	43.7%	559.4		0.0	0.0	195.8	224.9	105.2	17.9	0.0	0.0	0.0	0.0	15.7	559.4
#8 Stone	10.0%	9.5%	121.6		0.0	0.0	0.0	1.9	78.6	34.8	6.3	0.0	0.0	0.0	0.0	121.6
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Sand	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manuf. Sand	14.0%	13.3%	170.2		0.0	0.0	0.0	0.0	0.0	16.9	76.4	25.0	25.4	21.1	5.4	170.2
RAP 1	30.0%	30.4%	388.9	24.1	0.0	0.0	0.0	0.0	115.9	84.0	102.3	16.3	13.2	21.8	11.3	388.9
Not Used	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Virgin Asphalt		3.1%	39.9	39.9												39.9
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1280.0</b>	<b>64.0</b>	<b>0.0</b>	<b>0.0</b>	<b>195.8</b>	<b>226.8</b>	<b>299.6</b>	<b>153.5</b>	<b>185.0</b>	<b>41.4</b>	<b>38.6</b>	<b>42.9</b>	<b>32.4</b>	<b>1280.0</b>

5.00%

**BATCH 5** Batch P<sub>b</sub>: 5.5%  
 Batch Grams: 1280.0

Bin	Batch Weights, Retained on Sieve - Grams		Batch Grams	Asph. Grams	1.5"	1"	3/4"	1/2"	1/4"	1/8"	#20	#40	#80	#200	Pan	
	Agg. Blend	Mix Blend														
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#57 Stone	46.0%	43.5%	556.4		0.0	0.0	194.7	223.7	104.6	17.8	0.0	0.0	0.0	0.0	15.6	556.4
#8 Stone	10.0%	9.5%	121.0		0.0	0.0	0.0	1.9	78.1	34.6	6.3	0.0	0.0	0.0	0.0	121.0
Not Used	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Sand	0.0%	0.0%	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Manuf. Sand	14.0%	13.2%	169.3		0.0	0.0	0.0	0.0	0.0	16.8	76.0	24.9	25.2	21.0	5.4	169.3
RAP 1	30.0%	30.2%	386.9	24.0	0.0	0.0	0.0	0.0	115.3	83.6	101.7	16.2	13.2	21.7	11.2	386.9
Not Used	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Virgin Asphalt		3.6%	46.4	46.4												46.4
<b>Total Mix</b>	<b>100.0%</b>	<b>100.0%</b>	<b>1280.0</b>	<b>70.4</b>	<b>0.0</b>	<b>0.0</b>	<b>194.7</b>	<b>225.6</b>	<b>298.0</b>	<b>152.7</b>	<b>184.1</b>	<b>41.1</b>	<b>38.4</b>	<b>42.7</b>	<b>32.2</b>	<b>1280.0</b>

5.50%