

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **p11**

Sample Date: 10/14/24

Dates Test Represents: 10/15/2024 through 10/21/2024

Concrete Grade: **DM, 4500HP**

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %	
6AA	71-47	Presque Isle	1355	8.29	2.62	46.6	
26A	71-47	Presque Isle	400	2.45	2.62	13.8	
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6	
Total Wt						2905	17.69
						100.0	

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	87.2	100.0	100.0	94.0	6.0	6.0
1/2"	39.1	95.3	100.0	70.9	23.1	29.1
3/8"	19.2	82.1	100.0	59.8	11.1	40.2
#4	3.8	15.5	93.4	40.9	19.0	59.1
#8	2.6	4.2	77.3	32.4	8.5	67.6
#16	2.4	2.8	62.7	26.3	6.1	73.7
#30	2.3	2.5	48.7	20.7	5.6	79.3
#50	2.3	2.3	28.4	12.6	8.1	87.4
#100	2.1	2.2	8.5	4.6	8.0	95.4
LBW	1.8	1.9	1.1	1.5	3.1	98.5

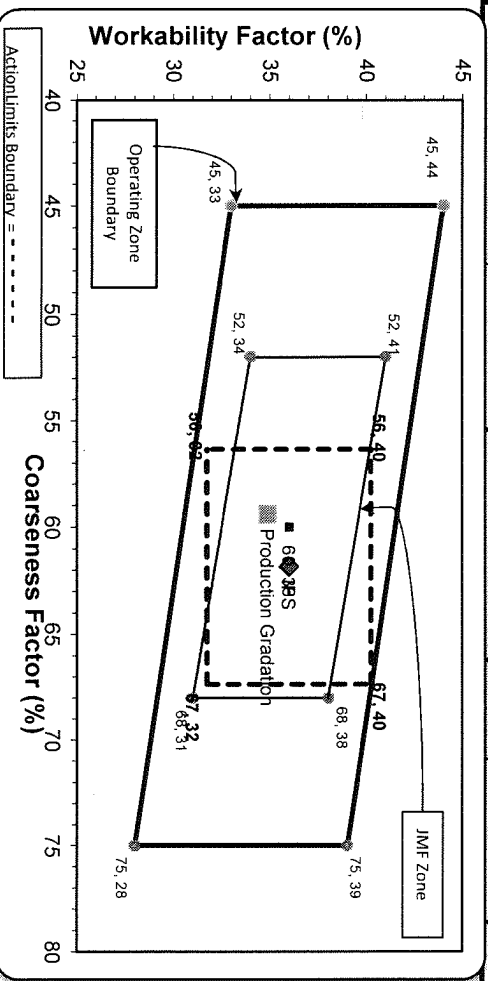
Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Adjusted WF

Initial Production Sample (IPS)

Coarseness Factor: **59** Workability Factor: **32** Adjusted WF: **34.9**

Coarseness Factor: **62** Workability Factor: **36**



Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	72.3	22.8	27.7
3/8"	60.4	11.8	39.6
#4	42.6	17.8	57.4
#8	36.0	6.6	64.0
#16	29.5	6.5	70.5
#30	20.3	9.2	79.7
#50	9.5	10.8	90.5
#100	3.4	6.1	96.6
LBW	1.3	2.1	98.7

*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for the 3/4" sieve when
 a 1.5" max size (nom. Max. 1.0") aggregate is used.

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



EDW. C. LEVY CO.
 8800 Dix Avenue, Eastern, PA 48226
 (313) 643-7200

Daily Summary Report

Date Thursday, October 17, 2024

Sample Id	Plant	Product	Specification	Sample Type	Time	1124319770	-674912127	-1989648247	-1409968138
-674935850	S000 Superior Onsite	7919 COARSE AGG P1M LS	Coarse Agg P1M LS Target	QA	13:43	-1124319770 S000 Superior Onsite	7920 INTERMED AGG P1M LS	1067 26A Mod LS	1022 2NS GR Superior Onsite
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 1/2" (37.5mm)	96.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1" (25mm)	32.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3/4" (19mm)	5.7	87.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1/2" (12.5mm)	2.1	39.1	76.4	95.3	95.3	95.3	95.3	95.3	95.3
3/8" (9.5mm)	1.8	19.2	41.7	82.1	82.1	82.1	82.1	82.1	82.1
#4 (4.75mm)	1.7	3.8	3.7	15.5	15.5	15.5	15.5	15.5	15.5
#8 (2.36mm)	1.6	2.6	2.0	4.2	4.2	4.2	4.2	4.2	4.2
#16 (1.18mm)	1.5	2.4	1.8	2.8	2.8	2.8	2.8	2.8	2.8
#30 (6mm)	1.4	2.3	1.7	2.5	2.5	2.5	2.5	2.5	2.5
#50 (3mm)	1.3	2.3	1.7	2.3	2.3	2.3	2.3	2.3	2.3
#100 (.15mm)	1.2	2.1	1.6	2.2	2.2	2.2	2.2	2.2	2.2
#200 (75µm)	1.1	1.98	1.5	2.0	2.0	2.0	2.0	2.0	2.0
Pan	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FM									
#200 (75µm)	1.0	1.8	1.4	1.9	1.9	1.9	1.9	1.9	1.9
Wash Loss (#200/75µm)	1.0	1.8	1.4	1.9	1.9	1.9	1.9	1.9	1.9
Total Moisture	1.3	3.6	0.7	1.1	1.1	1.1	1.1	1.1	1.1

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **12**

Sample Date: **10/14/24**
 Dates Test Represents: **10/15/2024** through **10/21/2024**
 Concrete Grade: **DM, 4500HP**

Contractor: _____
 MDOT No.: _____



Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1350	8.26	2.62	46.5
26A	71-47	Presque Isle	405	2.48	2.62	13.9
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
		Total Wt	2905	17.69		100.0

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	95.7	100.0	100.0	98.0	2.0	2.0
3/4"	79.8	100.0	100.0	90.6	7.4	9.4
1/2"	41.0	95.7	100.0	72.0	18.6	28.0
3/8"	22.5	84.8	100.0	61.9	10.1	38.1
#4	3.7	19.0	93.8	41.5	20.4	58.5
#8	2.5	4.4	77.4	32.4	9.1	67.6
#16	2.2	1.8	62.2	25.9	6.5	74.1
#30	2.1	1.4	47.6	20.0	5.9	80.0
#50	2.0	1.2	26.3	11.5	8.5	88.5
#100	1.9	1.1	7.6	4.0	7.5	96.0
LBW	1.7	0.9	0.9	1.3	2.8	98.7

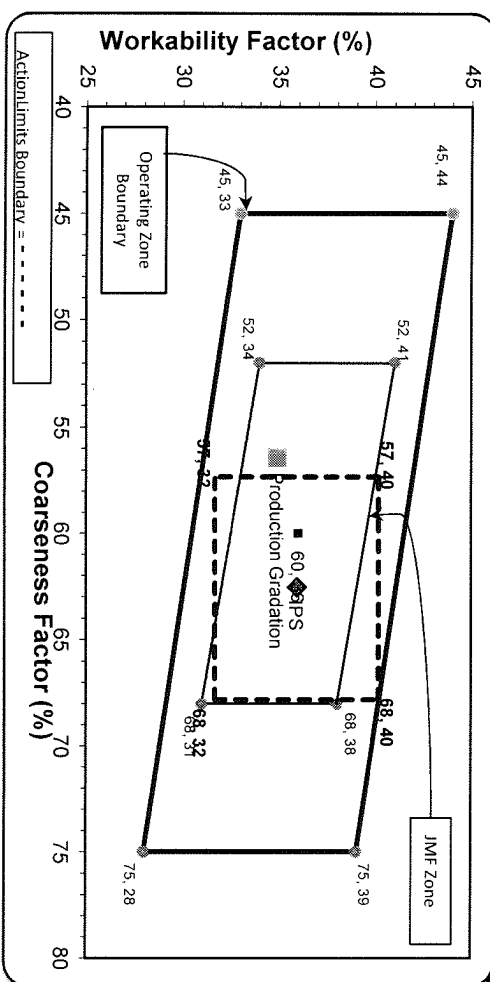
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for the 3/4" sieve when
 a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **56** Workability Factor: **32** Adjusted WF: **34.9**

Initial Production Sample (IPS)

Coarseness Factor: **63** Workability Factor: **36**



Sieve	Coarseness Factor	Workability Factor	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	100.0	0.0	0.0
1.5"	100.0	0.0	100.0	0.0	0.0
1"	99.3	0.7	99.3	0.7	0.7
3/4"	89.0	10.3	89.0	10.3	11.0
1/2"	70.3	18.7	70.3	18.7	29.7
3/8"	59.9	10.4	59.9	10.4	40.1
#4	41.9	18.0	41.9	18.0	58.1
#8	35.9	6.0	35.9	6.0	64.1
#16	27.8	8.2	27.8	8.2	72.2
#30	18.9	8.8	18.9	8.8	81.1
#50	6.3	12.6	6.3	12.6	93.7
#100	1.7	4.6	1.7	4.6	98.3
LBW	1.0	0.7	1.0	0.7	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:



EDW. C. LEVY CO.
 2800 Dix Avenue, Detroit, MI 48226
 (313) 565-1200

Superior Onsite
 Southfield

Daily Summary Report

Date Friday, October 18, 2024

Sample Id	-674936001	-1989659459	-1989628994
Plant	S000 Superior Onsite	S000 Superior Onsite	S000 Superior Onsite
Product	1051 6AA LS	1067 26A Mod LS	1022 2NS GR
Specification	26A Mod LS Spec	26A Mod LS Spec	2NS GR Spec
Sample Type	QA	QA	QA
Time	12:28	12:32	13:29
2" (50mm)	100.0	100.0	100.0
1 1/2" (37.5mm)	100.0	100.0	93.8
1" (25mm)	95.7	100.0	77.4
3/4" (19mm)	79.8	100.0	62.2
1/2" (12.5mm)	41.0	95.7	47.6
3/8" (9.5mm)	22.5	84.8	26.3
#4 (4.75mm)	3.7	19.0	7.6
#8 (2.36mm)	2.5	4.4	1.2
#16 (1.18mm)	2.2	1.8	0.0
#30 (.6mm)	2.1	1.4	2.85
#50 (.3mm)	2.0	1.2	1.2
#100 (.15mm)	1.9	1.1	0.9
#200 (75µm)	1.79	1.0	0.9
Pan	0.00	0.0	0.9
FM			3.6
#200 (75µm)			
Wash Loss (#200/75µm)	1.7	0.9	0.9
Total Moisture	2.5	2.4	3.6

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-102**

Contractor: _____

Sample Date: 10/14/24

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 10/15/2024 through 10/21/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
6AA	58-003	Stonoco	1375	8.19	2.69	46.6
26A	58-003	Stonoco	425	2.53	2.69	14.4
NNS	63-114	Highland	1150	6.95	2.65	39.0
Total Wt:						17.68
						100.0



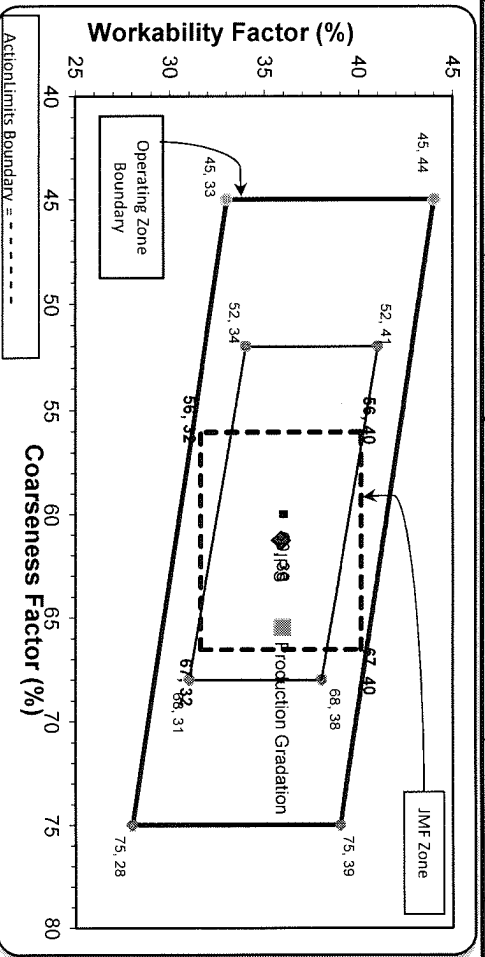
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	6AA	26A	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	77.9	100.0	100.0	99.2	10.3	10.3
1/2"	28.9	99.2	100.0	66.7	23.0	33.3
3/8"	10.6	86.7	100.0	56.4	10.3	43.6
#4	1.9	3.7	98.9	40.0	16.4	60.0
#8	1.2	1.2	83.9	33.4	6.5	66.6
#16	1.0	1.0	64.3	25.7	7.8	74.3
#30	0.9	0.8	42.1	16.9	8.7	83.1
#50	0.8	0.7	18.0	7.5	9.5	92.5
#100	0.8	0.7	4.2	2.1	5.4	97.9
LBW	0.6	0.6	0.6	0.6	1.5	99.4

*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for the 3/4" sieve when
 a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation	<input checked="" type="radio"/> Batch Plant Gradations	<input type="radio"/> Aggregate Supplier Gradations
Coarseness Factor:	65	Workability Factor:
		33
		Adjusted WF:
		35.9

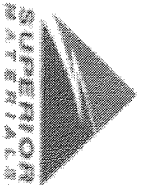
Initial Production Sample (IPS)	Coarseness Factor:	61
	Workability Factor:	36



Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.3	0.7	0.7
3/4"	89.2	10.1	10.8
1/2"	70.7	18.5	29.3
3/8"	60.7	10.0	39.3
#4	44.4	16.3	55.6
#8	35.9	8.5	64.1
#16	27.3	8.6	72.7
#30	19.1	8.2	80.9
#50	7.4	11.7	92.6
#100	1.9	5.6	98.1
LBW	0.7	1.2	99.3

PREPARED BY:
 SM, LLC Technical Service

Approved By: _____



Daily Summary Report

Date Tuesday, October 15, 2024

Sample Id	Plant	Product	Specification	Sample Type	Time	2" (50mm)	1 1/2" (37.5mm)	1" (25mm)	3/4" (19mm)	1/2" (12.5mm)	3/8" (9.5mm)	#4 (4.75mm)	#8 (2.36mm)	#16 (1.18mm)	#30 (.6mm)	#50 (.3mm)	#100 (.15mm)	#200 (75µm)	Pan	FM	Wash Loss (#200/75µm)	Total Moisture
-674940099	S102 Superior Novi	6AA LS	6AA LS	QA	12:45	100.0	100.0	100.0	77.9	28.9	10.6	1.9	1.2	1.0	0.9	0.8	0.8	0.72	0.00	0.6	2.74	
-674948288	S102 Superior Novi	26A Mod LS	26A Mod LS Spec	QA	13:14	100.0	100.0	100.0	100.0	99.2	86.7	3.7	1.2	1.0	0.8	0.7	0.7	0.7	0.0	0.6	3.40	
-1989635858	S102 Superior Novi	INTERMED AGG P1M LS	Intermed Agg P1M LS Target	QA	14:30	100.0	100.0	100.0	100.0	95.4	77.7	23.6	7.9	3.6	2.4	2.0	1.8	1.7	0.0	1.7	3.12	
-674972279	S102 Superior Novi	COARSE AGG P1M LS	Coarse Agg P1M LS Target	QA	14:31	100.0	100.0	51.3	23.7	10.2	6.3	2.0	1.7	1.6	1.5	1.4	1.4	1.3	0.0	1.2	1.85	
-674983415	S102 Superior Novi	2NS GR	2NS GR Spec	QA	14:50	100.0	98.9	83.9	64.3	42.1	18.0	4.2	0.8	0.0	2.89	0.6	3.98					

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

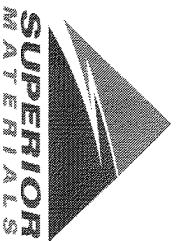
Sample Date: **10/14/24**

Dates Test Represents: **10/15/2024** through **10/21/2024**

Concrete Grade: **DM, 4500HP**

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Verify this number is 100%

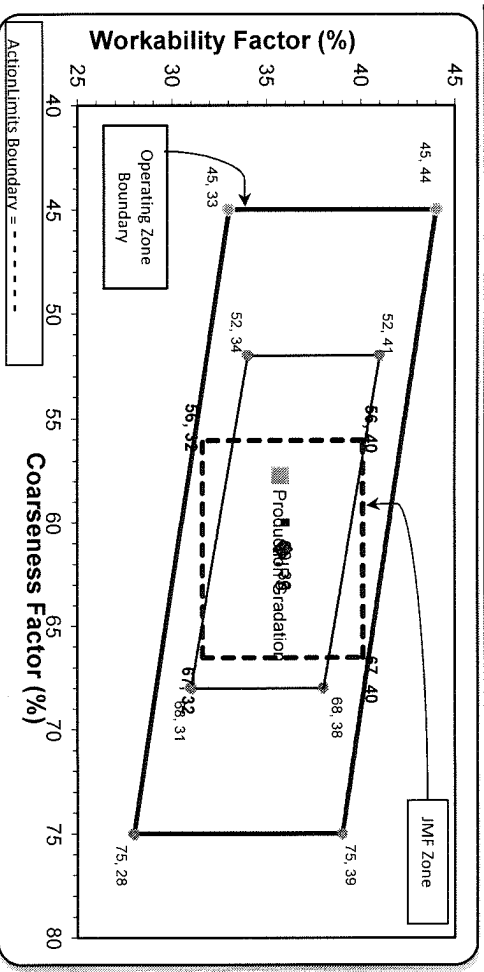
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %	
6AA	58-003	Stoneco	1375	8.19	2.69	46.6	
26A	58-003	Stoneco	425	2.53	2.69	14.4	
2NS	63-114	Highland	1150	6.95	2.65	39.0	
Total Wt						2950	100.0

Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	78.0	100.0	100.0	89.7	10.3	10.3
1/2"	39.8	99.7	100.0	71.9	17.8	28.1
3/8"	19.7	92.3	100.0	61.5	10.4	38.5
#4	3.5	8.2	98.7	41.3	20.2	58.7
#8	1.3	2.4	82.8	33.2	8.1	66.8
#16	1.0	1.8	62.2	25.0	8.3	75.0
#30	0.9	1.5	39.4	16.0	9.0	84.0
#50	0.8	1.4	15.8	6.7	9.3	93.3
#100	0.8	1.3	3.4	1.9	4.8	98.1
LBW	0.6	1.1	0.5	0.6	1.3	99.4

*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *Retained must be at least 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **58** Workability Factor: **33** Adjusted WF: **35.7**

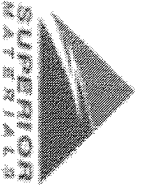


Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.3	0.7	0.7
3/4"	89.2	10.1	10.8
1/2"	70.7	18.5	29.3
3/8"	60.7	10.0	39.3
#4	44.4	16.3	55.6
#8	35.9	8.5	64.1
#16	27.3	8.6	72.7
#30	19.1	8.2	80.9
#50	7.4	11.7	92.6
#100	1.9	5.6	98.1
LBW	0.7	1.2	99.3

Initial Production Sample (IPS) Coarseness Factor: **61** Workability Factor: **36**

PREPARED BY: SM, LLC Technical Service

Approved BY: _____



Daily Summary Report

Date Tuesday, October 15, 2024

Sample Id	-674979899	-674960491	-1989637293	-674940167	-674965843
Plant	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton
Product	7919 COARSE AGG P1M LS	1051 6AA LS	7920 INTERMED AGG P1M LS	1067 26A Mod LS	1022 2NS GR
Specification	Coarse Agg P1M LS Target	6AA LS	Intermed Agg P1M LS Target	26A Mod LS Spec	2NS GR Spec
Sample Type	QA	QA	QA	QA	QA
Time	13:15	13:16	13:17	13:18	14:40
2" (50mm)	100.0	100.0	100.0	100.0	100.0
1 1/2" (37.5mm)	100.0	100.0	100.0	100.0	98.7
1" (25mm)	56.1	100.0	100.0	100.0	82.8
3/4" (19mm)	17.0	78.0	100.0	100.0	62.2
1/2" (12.5mm)	5.3	39.8	89.5	99.7	39.4
3/8" (9.5mm)	3.2	19.7	73.6	92.3	15.8
#4 (4.75mm)	2.3	3.5	20.5	8.2	3.4
#8 (2.36mm)	2.2	1.3	8.6	2.4	0.7
#16 (1.18mm)	2.1	1.0	5.9	1.8	0.0
#30 (.6mm)	1.9	0.9	4.8	1.5	2.98
#50 (.3mm)	1.7	0.8	3.7	1.4	0.5
#100 (.15mm)	1.5	0.8	3.1	1.3	
#200 (75um)	1.4	0.72	2.9	1.2	
Pan	0.0	0.00	0.0	0.0	
FM					
Wash Loss (#200/75um)	1.3	0.6	2.7	1.1	
Total Moisture	1.75	2.90	3.10	3.66	3.41