

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Sample Date: 9/25/23

Dates Test Represents: 9/26/2023 through 10/2/2023

Concrete Grade: DM, 4500HP

Contractor:

MDOT No.:

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	58-003	Stonoco	1500	8.94	2.69	50.8
26A	58-003	Stonoco	300	1.79	2.69	10.2
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
Total Wt			2950	17.68		100.0

<----- Verify this number is 100%

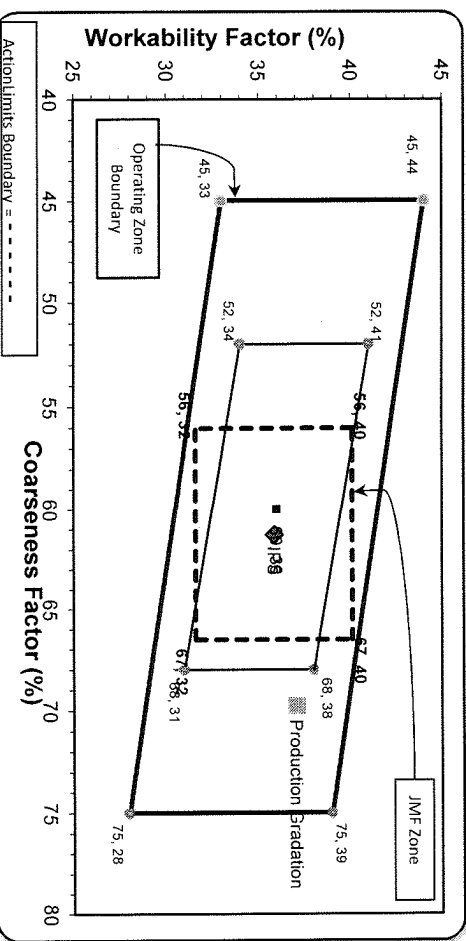
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	80.7	100.0	100.0	90.2	9.8	9.8
1/2"	32.7	99.7	100.0	65.7	24.4	34.3
3/8"	12.1	90.6	100.0	54.3	11.4	45.7
#4	2.2	16.3	98.6	41.2	13.1	58.8
#8	1.4	5.5	85.4	34.6	6.7	65.4
#16	1.2	3.8	65.7	26.6	8.0	73.4
#30	1.0	3.1	45.4	18.5	8.1	81.5
#50	1.0	2.8	21.4	9.1	9.4	90.9
#100	0.9	2.7	4.4	2.4	6.7	97.6
LBW	0.8	2.3	0.5	0.8	1.6	99.2

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 70 **Workability Factor:** 35 **Adjusted WF:** 37.1

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



*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:



Plant S102-Superior Novi
 Product 1051-6AA LS
 Period: 09/24/2023 - 09/30/2023

Name/Title Doug Storey / QC Technician
 Report Date 09/30/2023

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	100.0	%	95-100
	3/4" (19mm)	80.7	%	
	1/2" (12.5mm)	32.7	%	30-60
	3/8" (9.5mm)	12.1	%	
	#4 (4.75mm)	2.2	%	0-8
	#8 (2.36mm)	1.4	%	
	#16 (1.18mm)	1.2	%	
	#30 (.6mm)	1.0	%	
	#50 (.3mm)	1.0	%	
	#100 (.15mm)	0.9	%	
	#200 (75µm)	0.86	%	
	Wash Loss (#200/75um)	0.8	%	0-2
	Total Moisture	3.00	%	



Plant S102-Superior Novi
 Product 1067-26A Mod LS
 Period: 09/24/2023 - 09/30/2023

Name/Title Doug Storey / QC Technician
 Report Date 09/30/2023

Procedure	Sieve/Test	Result	Unit	26A Mod LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	99.7	%	95-100
	3/8" (9.5mm)	90.6	%	60-95
	#4 (4.75mm)	16.3	%	5-30
	#8 (2.36mm)	5.5	%	0-12
	#16 (1.18mm)	3.8	%	
	#30 (.6mm)	3.1	%	
	#50 (.3mm)	2.8	%	
	#100 (.15mm)	2.7	%	
	#200 (75µm)	2.5	%	
	Wash Loss (#200/75um)	2.3	%	0-3
	Total Moisture	3.66	%	



Plant S102-Superior Novi
 Product 1022-2NS GR
 Period: 09/24/2023 - 09/30/2023

Name/Title Doug Storey / QC Technician
 Report Date 09/30/2023

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.6	%	95-100
	#8 (2.36mm)	85.4	%	65-95
	#16 (1.18mm)	65.7	%	35-75
	#30 (.6mm)	45.4	%	20-55
	#50 (.3mm)	21.4	%	10-30
	#100 (.15mm)	4.4	%	0-10
	#200 (75µm)	0.6	%	
	FM	2.79		2.6-3
	Wash Loss (#200/75µm)	0.5	%	0-3
	Total Moisture	3.49	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

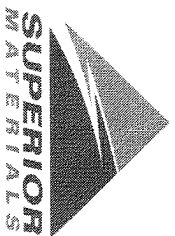
Sample Date: **9/25/23**

Dates Test Represents: **9/26/2023** through **10/2/2023**

Concrete Grade: **DM, 4500HP**

Contractor: _____

MDOT No.: _____



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

<--- Verify this number is 100%

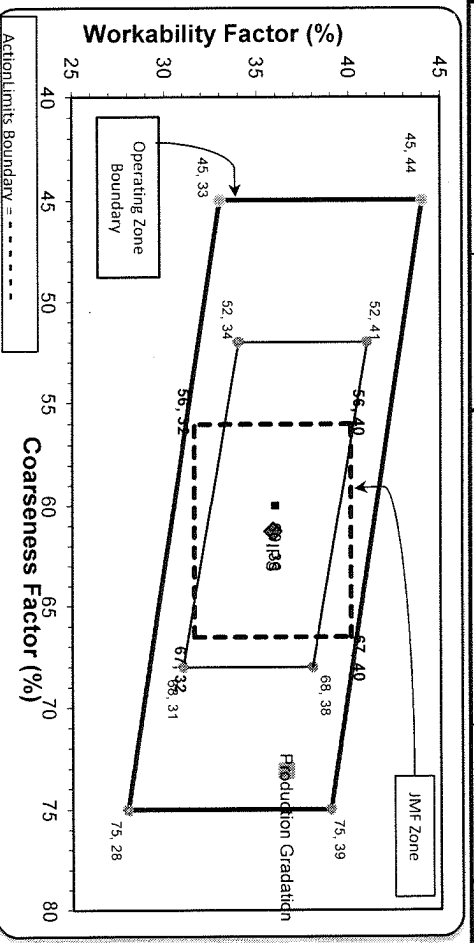
Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	58-003	Stoneco	1500	8.94	2.69	50.8
26A	58-003	Stoneco	300	1.79	2.69	10.2
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
		Total Wt	2950	17.68		100.0

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"	82.3	100.0	100.0	91.0	9.0	9.0
1/2"	27.4	99.8	100.0	63.1	27.9	36.9
3/8"	7.9	86.5	100.0	51.8	11.3	48.2
#4	1.8	6.5	98.7	40.1	11.7	59.9
#8	1.2	1.6	85.4	34.1	6.0	65.9
#16	1.0	1.0	64.6	25.8	8.3	74.2
#30	0.9	0.8	44.1	17.7	8.1	82.3
#50	0.9	0.7	19.9	8.3	9.4	91.7
#100	0.8	0.6	4.3	2.1	6.1	97.9
LBW	0.5	0.5	1.1	0.7	1.4	99.3

*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: **73** Workability Factor: **34** Adjusted WF: **36.6**



Sieve	Initial Production Sample (IPS)	Coarseness Factor:	Workability Factor:	Adjusted WF
2"	100.0	61	36	36.6
1.5"	100.0	61	36	36.6
1"	99.3	61	36	36.6
3/4"	89.2	61	36	36.6
1/2"	70.7	61	36	36.6
3/8"	60.7	61	36	36.6
#4	44.4	61	36	36.6
#8	35.9	61	36	36.6
#16	27.3	61	36	36.6
#30	19.1	61	36	36.6
#50	7.4	61	36	36.6
#100	1.9	61	36	36.6
LBW	0.7	61	36	36.6

PREPARED BY:
SM, LLC Technical Service

Approved BY: _____



Plant S103-Superior Brighton
Product 1051-6AA LS
Period: 09/24/2023 - 09/30/2023

Name/Title Doug Storey / QC Technician
Report Date 09/30/2023

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	100.0	%	95-100
	3/4" (19mm)	82.3	%	
	1/2" (12.5mm)	27.4	%	30-60
	3/8" (9.5mm)	7.9	%	
	#4 (4.75mm)	1.8	%	0-8
	#8 (2.36mm)	1.2	%	
	#16 (1.18mm)	1.0	%	
	#30 (.6mm)	0.9	%	
	#50 (.3mm)	0.9	%	
	#100 (.15mm)	0.8	%	
	#200 (75µm)	0.66	%	
	Wash Loss (#200/75µm)	0.5	%	0-2
	Total Moisture	3.00	%	



Plant S103-Superior Brighton
 Product 1067-26A Mod LS
 Period: 09/24/2023 - 09/30/2023

Name/Title Doug Storey / QC Technician
 Report Date 09/30/2023

Procedure	Sieve/Test	Result	Unit	26A Mod LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	99.8	%	95-100
	3/8" (9.5mm)	86.5	%	60-95
	#4 (4.75mm)	6.5	%	5-30
	#8 (2.36mm)	1.6	%	0-12
	#16 (1.18mm)	1.0	%	
	#30 (.6mm)	0.8	%	
	#50 (.3mm)	0.7	%	
	#100 (.15mm)	0.6	%	
	#200 (75µm)	0.6	%	
	Wash Loss (#200/75um)	0.5	%	0-3
	Total Moisture	3.97	%	



Plant S103-Superior Brighton
Product 1022-2NS GR
Period: 09/24/2023 - 09/30/2023

Name/Title Doug Storey / QC Technician
Report Date 09/30/2023

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.7	%	95-100
	#8 (2.36mm)	85.4	%	65-95
	#16 (1.18mm)	64.6	%	35-75
	#30 (.6mm)	44.1	%	20-55
	#50 (.3mm)	19.9	%	10-30
	#100 (.15mm)	4.3	%	0-10
	#200 (75µm)	1.3	%	
	FM	2.83		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	3.22	%	