Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-02

Sample Date: 9/16/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 9/17/2024 through 9/23/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1470	8.99	2.62	48.2
26A	71-47	Presque Isle	350	2.14	2.62	11.5
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
		Total Wt	**3050**	**18.57**		100.0

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

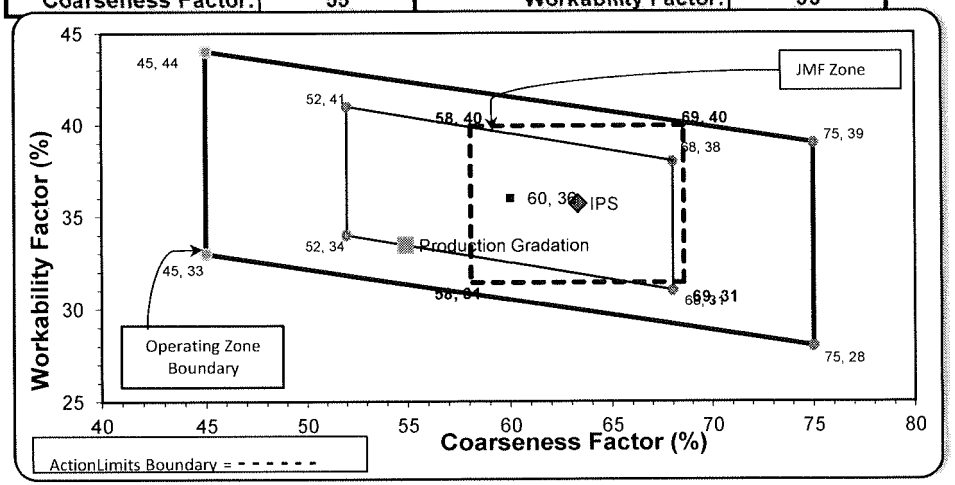
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.3	100.0	100.0	99.7	0.3	0.3
3/4"	87.5	100.0	100.0	94.0	5.7	6.0
1/2"	47.1	93.9	100.0	73.8	20.2	26.2
3/8"	29.5	77.9	100.0	63.5	10.3	36.5
#4	5.9	11.9	95.2	42.6	20.9	57.4
#8	3.0	2.5	78.7	33.5	9.1	66.5
#16	2.6	1.7	63.1	26.9	6.6	73.1
#30	2.5	1.6	47.3	20.5	6.4	79.5
#50	2.4	1.5	24.1	11.0	9.4	89.0
#100	2.3	1.4	5.8	3.6	7.4	96.4
LBW	2.0	1.2	1.0	1.5	2.1	98.5

*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.

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

Production Gradation ◉ Batch Plant Gradations ○ Aggregate SupplierGradations

Coarseness Factor:	55	Workability Factor:	33



Intial Production Sample (IPS)

Coarseness Factor:	63
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"	95.6	4.4	4.4
1/2"	73.1	22.6	26.9
3/8"	59.3	13.8	40.7
#4	42.8	16.5	57.2
#8	35.7	7.1	64.3
#16	28.9	6.8	71.1
#30	20.7	8.2	79.3
#50	9.9	10.8	90.1
#100	2.1	7.8	97.9
LBW	0.9	1.2	99.1

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date	Friday, September 20, 2024		
Sample Id	-1989656617	-674942979	-674892783
Plant	S02 Superior Hoover	S02 Superior Hoover	S02 Superior Hoover
Product	1022 2NS GR	1067 26A Mod LS	1051 6AA LS
Specification	2NS GR Spec	26A Mod LS Spec	6AA LS
Sample Type	QA	QA	QA
Time	11:54	11:59	12:03
2" (50mm)		100.0	100.0
1 1/2" (37.5mm)		100.0	100.0
1" (25mm)		100.0	99.3
3/4" (19mm)		100.0	87.5
1/2" (12.5mm)		93.9	47.1
3/8" (9.5mm)	100.0	77.9	29.5
#4 (4.75mm)	95.2	11.9	5.9
#8 (2.36mm)	78.7	2.5	3.0
#16 (1.18mm)	63.1	1.7	2.6
#30 (.6mm)	47.3	1.6	2.5
#50 (.3mm)	24.1	1.5	2.4
#100 (.15mm)	5.8	1.4	2.3
#200 (75µm)	1.3	1.3	2.09
Pan	0.0	0.0	0.00
FM	2.86		
Wash Loss (#200/75um)	1.0	1.2	2.0
Total Moisture	3.31	2.19	2.93

Aggregate Optimization Chart

Production Gradation Report

PLANT #: p11

Contractor: _____

Sample Date: 9/16/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 9/17/2024 through 9/23/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1420	8.69	2.62	46.6
26A	71-47	Presque Isle	400	2.45	2.62	13.1
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
		Total Wt	**3050**	**18.57**		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"	97.7	100.0	100.0	98.9	1.1	1.1
3/4"	88.1	100.0	100.0	94.5	4.5	5.5
1/2"	52.1	95.4	100.0	77.1	17.4	22.9
3/8"	31.6	82.8	100.0	65.9	11.2	34.1
#4	5.8	15.4	92.8	42.1	23.8	57.9
#8	2.6	3.8	77.0	32.8	9.4	67.2
#16	2.2	2.0	62.5	26.5	6.3	73.5
#30	2.0	1.6	48.3	20.6	5.9	79.4
#50	1.9	1.5	26.2	11.6	9.0	88.4
#100	1.8	1.4	5.9	3.4	8.2	96.6
LBW	1.6	1.2	0.7	1.2	2.2	98.8

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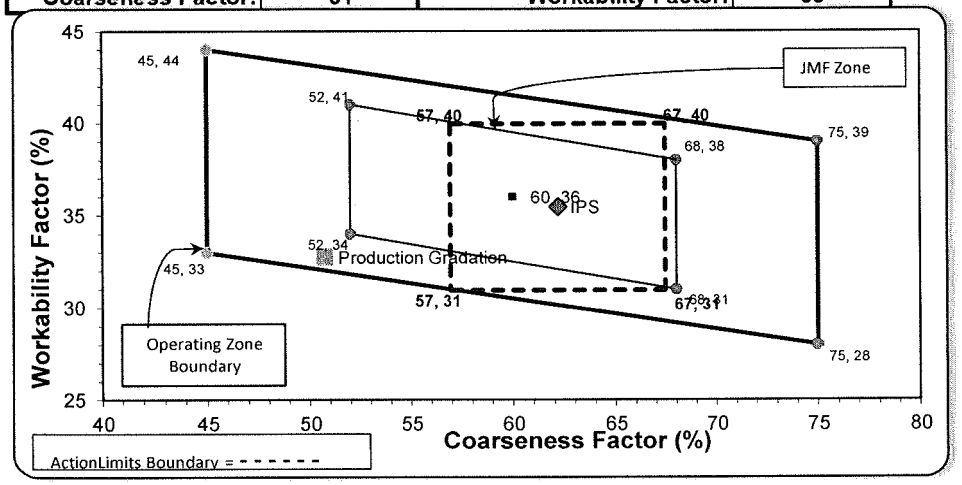
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for the 3/4" sieve when a 1.5" max. size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

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	51	Workability Factor:	33



Intial Production Sample (IPS)

Coarseness Factor:	62
Workability Factor:	35

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"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date Tuesday, September 17, 2024

Sample Id	- 674969619	-1989640223	-674929190	-1989625078	-674958322
Plant	S11 Onsite Jefferson	S11 Onsite Jefferson	S11 Onsite Jefferson	S11 Onsite Jefferson	S11 Onsite Jefferson
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	Shipping	Shipping	QA	QA
Time	12:00	12:01	12:02	12:03	12:04
2" (50mm)	100.0	100.0	100.0	100.0	
1 1/2" (37.5mm)	98.2	100.0	100.0	100.0	
1" (25mm)	49.5	97.7	100.0	100.0	
3/4" (19mm)	15.3	88.1	99.1	100.0	
1/2" (12.5mm)	4.6	52.1	77.8	95.4	
3/8" (9.5mm)	3.2	31.6	52.5	82.8	100.0
#4 (4.75mm)	2.2	5.8	10.1	15.4	92.8
#8 (2.36mm)	1.9	2.6	3.7	3.8	77.0
#16 (1.18mm)	1.8	2.2	2.6	2.0	62.5
#30 (.6mm)	1.8	2.0	2.4	1.6	48.3
#50 (.3mm)	1.7	1.9	2.3	1.5	26.2
#100 (.15mm)	1.6	1.8	2.2	1.4	5.9
#200 (75µm)	1.5	1.69	2.0	1.3	0.9
Pan	0.0	0.00	0.0	0.0	0.0
FM					2.87
Wash Loss (#200/75um)	1.3	1.6	1.9	1.2	0.7
Total Moisture	0.17	2.68	2.15	1.94	5.06

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Contractor: _____

Sample Date: 9/16/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 9/17/2024 through 9/23/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	48.4
26A	58-003	Stoneco	400	2.38	2.69	12.9
2NS	63-114	Highland	1200	7.26	2.65	38.7
		Total Wt	**3100**	**18.58**		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"	98.2	100.0	100.0	99.1	0.9	0.9
3/4"	82.2	100.0	100.0	91.4	7.7	8.6
1/2"	45.0	98.8	100.0	73.2	18.2	26.8
3/8"	19.9	84.7	100.0	59.3	14.0	40.7
#4	3.9	5.8	98.8	40.9	18.4	59.1
#8	2.3	2.4	85.5	34.5	6.4	65.5
#16	2.0	2.0	69.6	28.2	6.4	71.8
#30	1.8	1.8	51.9	21.2	7.0	78.8
#50	1.7	1.6	24.0	10.3	10.9	89.7
#100	1.6	1.5	5.0	2.9	7.4	97.1
LBW	1.4	1.4	0.5	1.1	1.9	98.9

*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.

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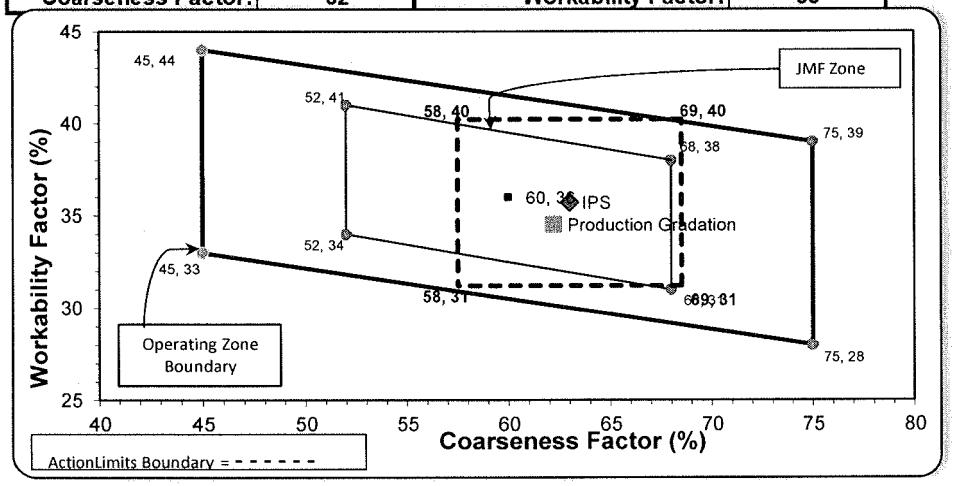
Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	62	Workability Factor:	35



Intial Production Sample (IPS)

Coarseness Factor:	63
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date	Monday, September 16, 2024				
Sample Id	-367922554	-1989640253	-1989624723	-1989622114	-674966791
Plant	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi
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	12:00	12:01	12:02	12:03	12:04
2" (50mm)	100.0	100.0	100.0	100.0	
1 1/2" (37.5mm)	100.0	100.0	100.0	100.0	
1" (25mm)	72.6	98.2	100.0	100.0	
3/4" (19mm)	47.1	82.2	100.0	100.0	
1/2" (12.5mm)	16.7	45.0	91.2	98.8	
3/8" (9.5mm)	10.4	19.9	69.7	84.7	100.0
#4 (4.75mm)	3.9	3.9	15.0	5.8	98.8
#8 (2.36mm)	2.9	2.3	3.3	2.4	85.5
#16 (1.18mm)	2.6	2.0	1.7	2.0	69.6
#30 (.6mm)	2.5	1.8	1.4	1.8	51.9
#50 (.3mm)	2.3	1.7	1.3	1.6	24.0
#100 (.15mm)	2.2	1.6	1.2	1.5	5.0
#200 (75µm)	2.1	1.48	1.1	1.4	0.8
Pan	0.0	0.00	0.0	0.0	0.0
FM					2.65
Wash Loss (#200/75um)	2.0	1.4	1.1	1.4	0.5
Total Moisture	1.43	2.29	0.47	2.10	2.50

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-103

Sample Date: 9/16/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 9/17/2024 through 9/23/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	48.4
26A	58-003	Stoneco	400	2.38	2.69	12.9
2NS	63-114	Highland	1200	7.26	2.65	38.7
		Total Wt	**3100**	**18.58**		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"	99.3	100.0	100.0	99.7	0.3	0.3
3/4"	70.6	100.0	100.0	85.8	13.9	14.2
1/2"	29.5	98.7	100.0	65.7	20.1	34.3
3/8"	12.7	92.1	100.0	56.7	9.0	43.3
#4	2.4	9.9	99.3	40.9	15.9	59.1
#8	1.3	3.6	84.5	33.8	7.1	66.2
#16	1.0	2.8	66.3	26.5	7.3	73.5
#30	0.9	2.5	48.1	19.4	7.1	80.6
#50	0.9	2.4	21.9	9.2	10.2	90.8
#100	0.8	2.3	4.4	2.4	6.8	97.6
LBW	0.7	2.2	0.3	0.7	1.6	99.3

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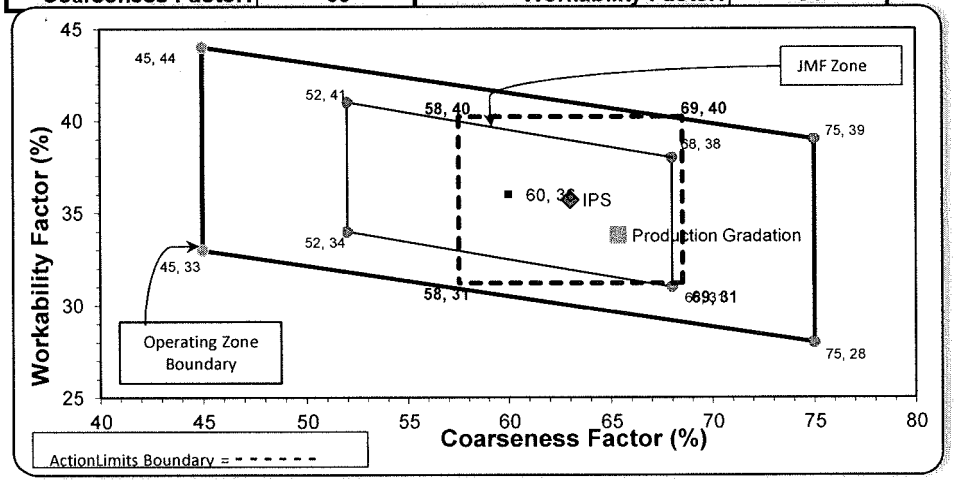
Suite 500
Farmington Hills, MI 48336

*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:	65	Workability Factor:	34



Intial Production Sample (IPS)

Coarseness Factor:	63
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
SM, LLC Technical Service

Approved BY:

Daily Summary Report

Date	Monday, September 16, 2024		
Sample Id	-674890279	-1989627444	-1989646883
Plant	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton
Product	1051 6AA LS	1067 26A Mod LS	1022 2NS GR
Specification	6AA LS	26A Mod LS Spec	2NS GR Spec
Sample Type	QA	QA	QA
Time	12:00	12:01	12:02
2" (50mm)	100.0	100.0	
1 1/2" (37.5mm)	100.0	100.0	
1" (25mm)	99.3	100.0	
3/4" (19mm)	70.6	100.0	
1/2" (12.5mm)	29.5	98.7	
3/8" (9.5mm)	12.7	92.1	100.0
#4 (4.75mm)	2.4	9.9	99.3
#8 (2.36mm)	1.3	3.6	84.5
#16 (1.18mm)	1.0	2.8	66.3
#30 (.6mm)	0.9	2.5	48.1
#50 (.3mm)	0.9	2.4	21.9
#100 (.15mm)	0.8	2.3	4.4
#200 (75µm)	0.75	2.2	0.7
Pan	0.00	0.0	0.0
FM			2.76
Wash Loss (#200/75um)	0.7	2.2	0.3
Total Moisture	0.75	2.18	2.53