Aggregate Optimization Chart

Production Gradation Report

PLANT #: p11

Contractor: _____

Sample Date: 9/2/24

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/3/2024 through 9/9/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1
26A	71-47	Presque Isle	300	1.83	2.62	10.3
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		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"	95.7	100.0	100.0	97.8	2.2	2.2
3/4"	73.9	98.9	100.0	86.8	11.0	13.2
1/2"	30.8	90.9	100.0	64.4	22.4	35.6
3/8"	15.7	70.5	100.0	54.7	9.7	45.3
#4	3.0	9.5	95.8	40.4	14.3	59.6
#8	1.9	2.8	80.9	33.3	7.1	66.7
#16	1.6	2.0	65.7	27.0	6.3	73.0
#30	1.6	1.8	49.5	20.6	6.4	79.4
#50	1.5	1.6	26.0	11.2	9.4	88.8
#100	1.4	1.5	6.7	3.5	7.7	96.5
LBW	1.1	1.1	0.8	1.0	2.5	99.0

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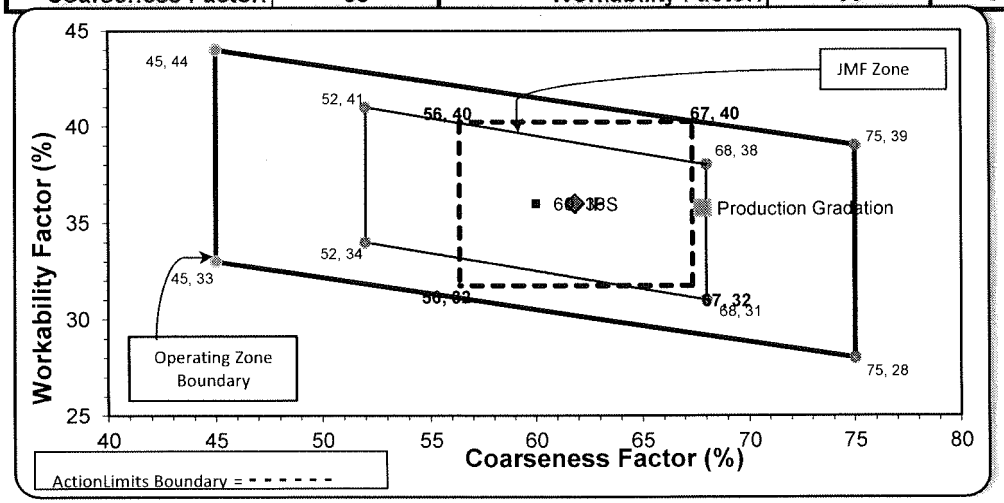
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for the 3/4" sieve when a 1.5" max. size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

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	68	Workability Factor:	33	Adjusted WF	35.8



Intial Production Sample (IPS)

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

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date Thursday, September 5, 2024

Sample Id	- 674952066	-667669438	-674897218	-367922331	-674933763
Plant	S11	S11	S11	S11	S11
Product	7919 COARSE AGG P1M LS	1051 6AA LS	1067 26A Mod LS	7920 INTERMED AGG P1M LS	1022 2NS GR
Specification	Coarse Agg P1M LS Target	6AA LS	26A Mod LS Spec	Intermed Agg P1M LS Target	2NS GR Spec
Sample Type	QA	QA	QA	QA	QA
Time	16:14	16:15	16:16	16:16	16:17
2" (50mm)	100.0	100.0	100.0	100.0	
1 1/2" (37.5mm)	96.7	100.0	100.0	100.0	
1" (25mm)	32.0	95.7	100.0	100.0	
3/4" (19mm)	7.6	73.9	98.9	99.6	
1/2" (12.5mm)	2.4	30.8	90.9	76.2	
3/8" (9.5mm)	1.9	15.7	70.5	50.9	100.0
#4 (4.75mm)	1.8	3.0	9.5	9.4	95.8
#8 (2.36mm)	1.7	1.9	2.8	3.3	80.9
#16 (1.18mm)	1.7	1.6	2.0	2.4	65.7
#30 (.6mm)	1.6	1.6	1.8	2.2	49.5
#50 (.3mm)	1.6	1.5	1.6	2.1	26.0
#100 (.15mm)	1.5	1.4	1.5	1.9	6.7
#200 (75µm)	1.3	1.24	1.3	1.7	1.1
Pan	0.0	0.00	0.0	0.0	0.0
FM					2.75
Wash Loss (#200/75um)	1.2	1.1	1.1	1.5	0.8
Total Moisture	0.09	2.42	2.15	1.53	3.76

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Contractor: _____

Sample Date: 9/2/24

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/3/2024 through 9/9/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1475	8.79	2.69	50.0
26A	58-003	Stoneco	325	1.94	2.69	11.0
2NS	63-114	Highland	1150	6.95	2.65	39.0
		Total Wt	**2950**	**17.68**		100.0

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

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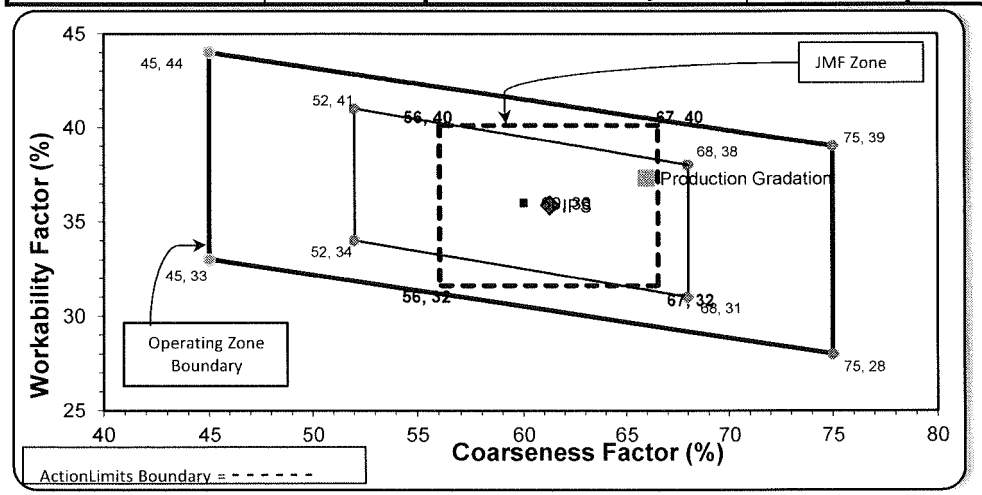
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	83.0	100.0	100.0	91.5	8.5	8.5
1/2"	39.2	99.7	100.0	69.6	21.9	30.4
3/8"	15.6	92.7	100.0	57.0	12.6	43.0
#4	2.9	25.8	98.9	42.8	14.1	57.2
#8	1.6	8.0	85.0	34.8	8.0	65.2
#16	1.4	3.4	68.4	27.7	7.1	72.3
#30	1.2	2.3	49.7	20.2	7.5	79.8
#50	1.2	1.9	21.5	9.2	11.0	90.8
#100	1.1	1.8	4.4	2.5	6.7	97.5
LBW	0.9	1.6	0.8	0.9	1.5	99.1

*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:	66	Workability Factor:	35	Adjusted WF: 37.3



Intial 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, September 3, 2024		
Sample Id	-674922694	-674918922	-674904925
Plant	S102 Superior Novi	S102 Superior Novi	S102 Superior Novi
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	12:19	12:20	16:19
2" (50mm)	100.0	100.0	
1 1/2" (37.5mm)	100.0	100.0	
1" (25mm)	100.0	100.0	
3/4" (19mm)	83.0	100.0	
1/2" (12.5mm)	39.2	99.7	
3/8" (9.5mm)	15.6	92.7	100.0
#4 (4.75mm)	2.9	25.8	98.9
#8 (2.36mm)	1.6	8.0	85.0
#16 (1.18mm)	1.4	3.4	68.4
#30 (.6mm)	1.2	2.3	49.7
#50 (.3mm)	1.2	1.9	21.5
#100 (.15mm)	1.1	1.8	4.4
#200 (75µm)	1.00	1.7	1.1
Pan	0.00	0.0	0.0
FM			2.72
Wash Loss (#200/75um)	0.9	1.6	0.8
Total Moisture	2.47	2.36	2.45

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-103

Sample Date: 9/2/24

Dates Test Represents: 9/3/2024 through 9/9/2024

Contractor: _____

Concrete Grade: **DM, 4500HP**

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1475	8.79	2.69	50.0
26A	58-003	Stoneco	325	1.94	2.69	11.0
2NS	63-114	Highland	1150	6.95	2.65	39.0
		Total Wt	**2950**	**17.68**		100.0

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

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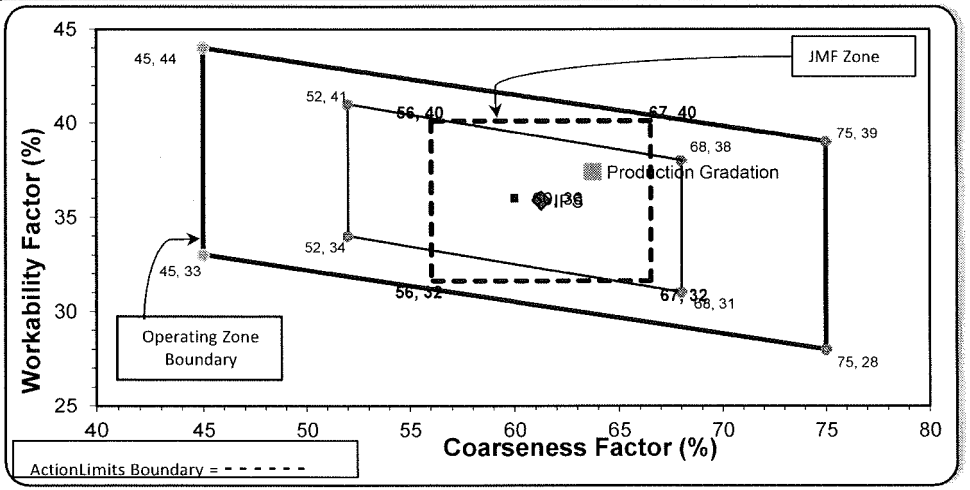
Farmington Hills, MI 48336

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"	83.7	100.0	100.0	91.9	8.2	8.2
1/2"	40.2	99.9	100.0	70.1	21.8	29.9
3/8"	19.3	89.7	100.0	58.5	11.6	41.5
#4	4.6	5.6	99.3	41.6	16.9	58.4
#8	2.4	1.3	86.1	34.9	6.7	65.1
#16	1.9	0.9	70.3	28.5	6.5	71.5
#30	1.7	0.9	52.0	21.2	7.2	78.8
#50	1.6	0.8	23.3	10.0	11.2	90.0
#100	1.5	0.8	4.8	2.7	7.3	97.3
LBW	1.3	0.7	1.0	1.1	1.6	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.

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	64	Workability Factor:	35	Adjusted WF 37.4



Intial 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, September 3, 2024		
Sample Id	-1989627643	-1989648617	-674905736
Plant	S103 Superior Brighton	S103 Superior Brighton	S103 Superior Brighton
Product	1067 26A Mod LS	1051 6AA LS	1022 2NS GR
Specification	26A Mod LS Spec	6AA LS	2NS GR Spec
Sample Type	QA	QA	QA
Time	12:22	16:20	16:21
2" (50mm)	100.0	100.0	
1 1/2" (37.5mm)	100.0	100.0	
1" (25mm)	100.0	100.0	
3/4" (19mm)	100.0	83.7	
1/2" (12.5mm)	99.9	40.2	
3/8" (9.5mm)	89.7	19.3	100.0
#4 (4.75mm)	5.6	4.6	99.3
#8 (2.36mm)	1.3	2.4	86.1
#16 (1.18mm)	0.9	1.9	70.3
#30 (.6mm)	0.9	1.7	52.0
#50 (.3mm)	0.8	1.6	23.3
#100 (.15mm)	0.8	1.5	4.8
#200 (75µm)	0.7	1.38	1.4
Pan	0.0	0.00	0.0
FM			2.64
Wash Loss (#200/75um)	0.7	1.3	1.0
Total Moisture	0.87	1.71	3.23