Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Contractor:

Sample Date: 8/4/25

Concrete Grade: **P1M, 3500HP, 4000HP**

Dates Test Represents: 8/5/2025 through 8/11/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1350	8.04	2.69	43.3
IA	58-003	Stoneco	570	3.40	2.69	18.3
2NS	63-114	Highland	1200	7.26	2.65	38.5
		Total Wt	**3120**	**18.70**		100.0

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

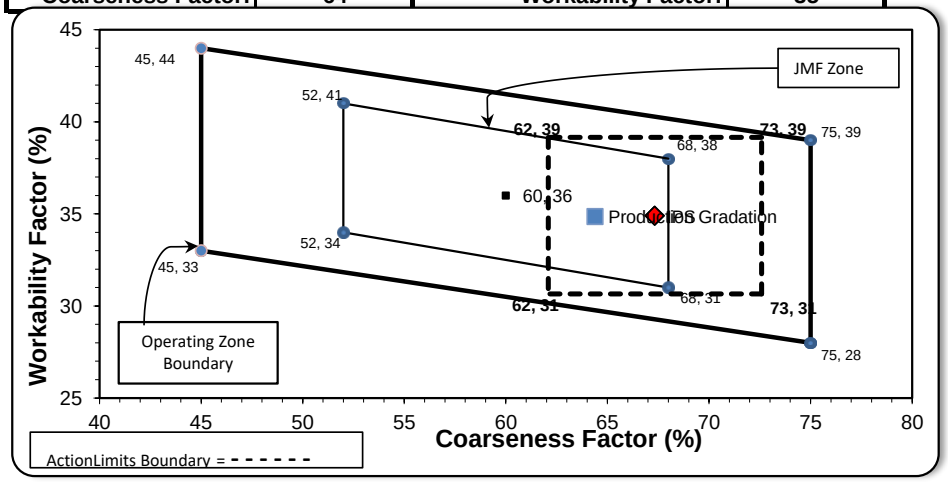
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	63.6	100.0	100.0	84.3	15.8	15.8
3/4"	37.7	100.0	100.0	73.0	11.2	27.0
1/2"	18.2	91.4	100.0	63.0	10.0	37.0
3/8"	14.1	73.9	100.0	58.1	5.0	41.9
#4	3.6	18.1	99.4	43.1	15.0	56.9
#8	2.1	6.5	85.2	34.9	8.2	65.1
#16	1.5	4.3	65.8	26.7	8.1	73.3
#30	1.3	3.3	45.2	18.6	8.2	81.5
#50	1.2	2.8	18.8	8.3	10.3	91.7
#100	1.1	2.5	3.4	2.2	6.0	97.8
LBW	0.8	2.1	0.4	0.9	1.4	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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	64	Workability Factor:	35



Intial Production Sample (IPS)

Coarseness Factor:	67
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"	85.5	14.5	14.5
3/4"	73.4	12.1	26.6
1/2"	61.0	12.4	39.0
3/8"	56.2	4.8	43.8
#4	43.1	13.1	56.9
#8	34.9	8.2	65.1
#16	29.4	5.5	70.6
#30	21.6	7.8	78.4
#50	8.1	13.4	91.9
#100	2.2	5.9	97.8
LBW	1.4	0.8	98.6

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SM, LLC Technical Service

Approved BY:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **12**

Contractor:

Sample Date: 8/4/25

Concrete Grade: **P1M, 3500HP, 4000HP**

Dates Test Represents: 8/5/2025 through 8/11/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	970	5.93	2.62	31.6
IA	71-47	Presque Isle	900	5.50	2.62	29.3
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

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

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	90.9	100.0	100.0	97.1	2.9	2.9
1"	38.9	100.0	100.0	80.7	16.4	19.3
3/4"	12.6	99.2	100.0	72.2	8.5	27.8
1/2"	6.1	78.6	100.0	64.1	8.1	35.9
3/8"	4.7	48.6	100.0	54.8	9.2	45.2
#4	3.0	9.1	97.2	41.6	13.2	58.4
#8	2.4	3.5	81.8	33.8	7.9	66.2
#16	2.2	2.6	63.3	26.2	7.6	73.8
#30	2.1	2.4	45.6	19.2	7.0	80.8
#50	1.9	2.3	23.5	10.5	8.7	89.5
#100	1.8	2.2	5.9	3.5	6.9	96.5
LBW	1.4	2.0	1.2	1.5	2.0	98.5

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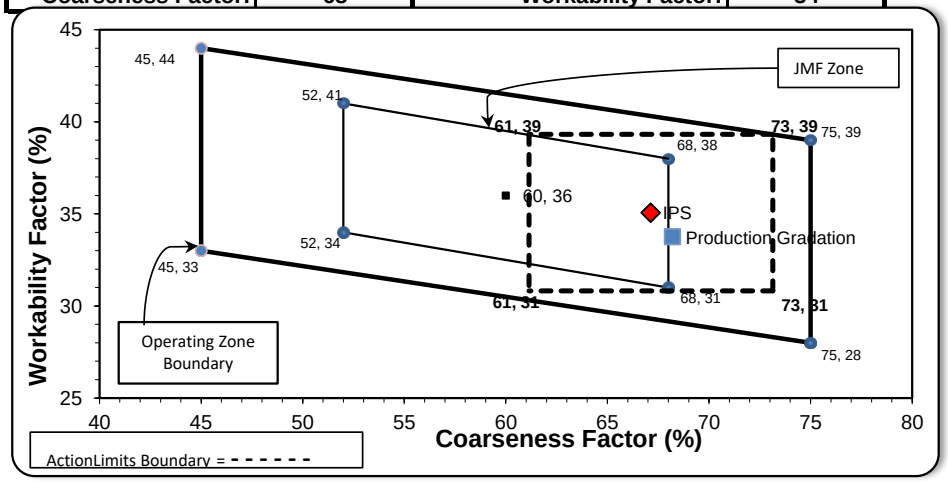
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	68	Workability Factor:	34



Intial Production Sample (IPS)

Coarseness Factor:	67
Workability Factor:	35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.6	0.4	0.4
1"	83.9	15.7	16.1
3/4"	74.0	9.8	26.0
1/2"	63.7	10.3	36.3
3/8"	56.4	7.3	43.6
#4	43.0	13.4	57.0
#8	35.1	7.9	64.9
#16	29.0	6.1	71.0
#30	20.9	8.0	79.1
#50	8.1	12.8	91.9
#100	1.6	6.5	98.4
LBW	0.9	0.8	99.1

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P11**

Contractor:

Sample Date: 8/4/25

Concrete Grade: **P1M, 3500HP, 4000HP**

Dates Test Represents: 8/5/2025 through 8/11/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

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

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	90.9	100.0	100.0	97.3	2.7	2.7
1"	38.9	100.0	100.0	82.1	15.2	17.9
3/4"	12.6	99.2	100.0	74.1	8.0	25.9
1/2"	6.1	78.6	100.0	65.7	8.4	34.3
3/8"	4.7	48.6	100.0	55.8	9.9	44.2
#4	3.0	9.1	97.2	41.7	14.1	58.3
#8	2.4	3.5	81.8	33.8	8.0	66.2
#16	2.2	2.6	63.3	26.2	7.6	73.8
#30	2.1	2.4	45.6	19.2	7.0	80.8
#50	1.9	2.3	23.5	10.5	8.7	89.5
#100	1.8	2.2	5.9	3.5	6.9	96.5
LBW	1.4	2.0	1.2	1.5	2.0	98.5

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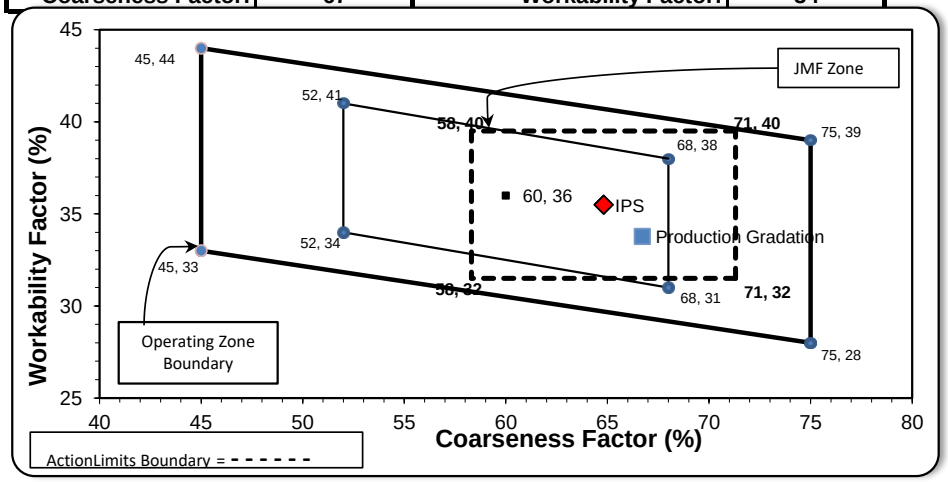
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	67	Workability Factor:	34



Intial Production Sample (IPS)

Coarseness Factor:	65
Workability Factor:	36

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.0	0.6	0.6
1"	84.0	15.3	16.0
3/4"	73.5	10.5	26.5
1/2"	65.2	8.2	34.8
3/8"	58.2	7.1	41.8
#4	44.1	14.1	55.9
#8	35.5	8.6	64.5
#16	29.1	6.4	70.9
#30	21.9	7.3	78.1
#50	9.6	12.2	90.4
#100	2.6	7.1	97.4
LBW	1.0	1.6	99.0

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-O2**

Contractor:

Sample Date: 8/4/25

Concrete Grade: **P1M, 3500HP, 4000HP**

Dates Test Represents: 8/5/2025 through 8/11/2025

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

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

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	90.9	100.0	100.0	97.3	2.7	2.7
1"	38.9	100.0	100.0	82.1	15.2	17.9
3/4"	12.6	99.2	100.0	74.1	8.0	25.9
1/2"	6.1	78.6	100.0	65.7	8.4	34.3
3/8"	4.7	48.6	100.0	55.8	9.9	44.2
#4	3.0	9.1	97.2	41.7	14.1	58.3
#8	2.4	3.5	81.8	33.8	8.0	66.2
#16	2.2	2.6	63.3	26.2	7.6	73.8
#30	2.1	2.4	45.6	19.2	7.0	80.8
#50	1.9	2.3	23.5	10.5	8.7	89.5
#100	1.8	2.2	5.9	3.5	6.9	96.5
LBW	1.4	2.0	1.2	1.5	2.0	98.5

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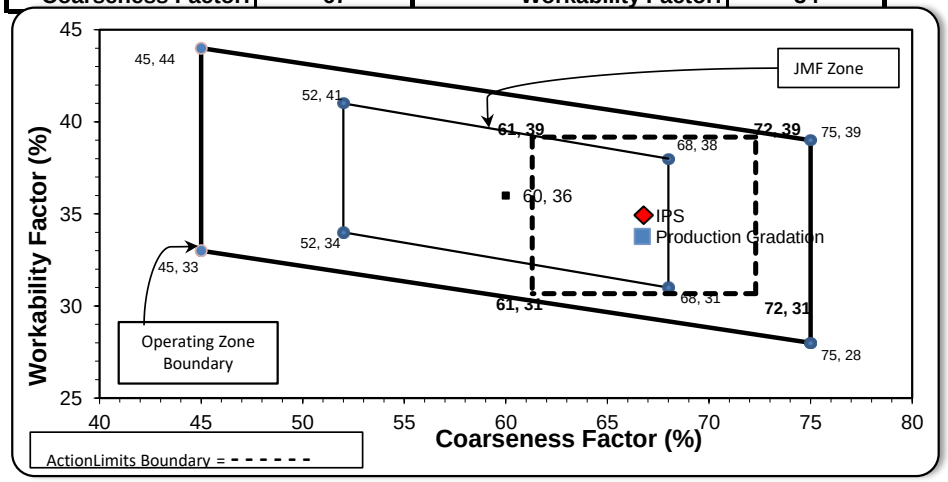
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation ○ Batch Plant Gradations ◉ Aggregate SupplierGradations

Coarseness Factor:	67	Workability Factor:	34



Intial Production Sample (IPS)

Coarseness Factor:	67
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"	85.0	15.0	15.0
3/4"	72.3	12.7	27.7
1/2"	64.5	7.8	35.5
3/8"	56.5	8.0	43.5
#4	42.7	13.8	57.3
#8	34.9	7.8	65.1
#16	29.0	5.9	71.0
#30	21.0	8.0	79.0
#50	8.2	12.8	91.8
#100	1.6	6.5	98.4
LBW	0.7	0.9	99.3

PREPARED BY:
SM, LLC Technical Service

Approved By: