Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Contractor:

Sample Date: 7/28/25

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

Dates Test Represents: 7/29/2025 through 8/4/2025

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%

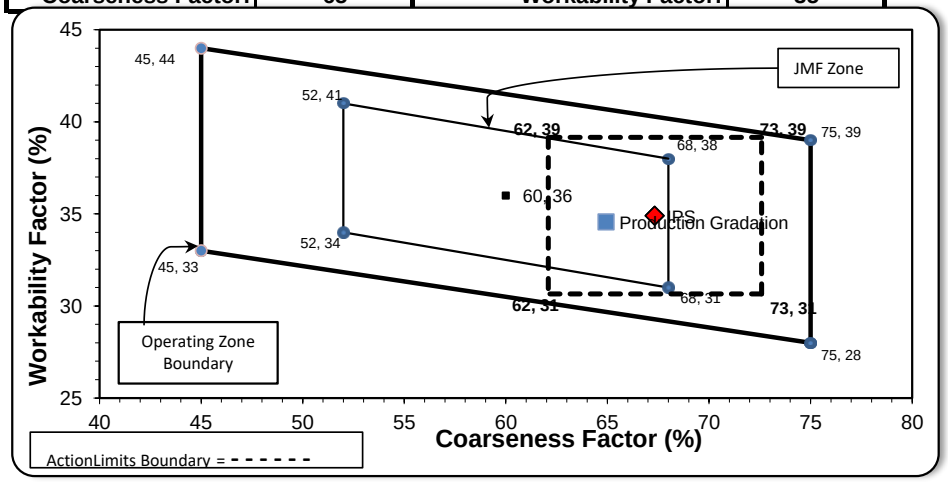
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	64.4	100.0	100.0	84.6	15.4	15.4
3/4"	25.9	100.0	100.0	67.9	16.7	32.1
1/2"	19.7	92.2	100.0	63.8	4.1	36.2
3/8"	13.3	72.8	100.0	57.5	6.3	42.5
#4	3.3	18.2	99.1	42.9	14.6	57.1
#8	1.7	5.6	85.3	34.6	8.3	65.4
#16	1.4	2.7	66.7	26.8	7.8	73.2
#30	1.3	2.2	47.0	19.0	7.7	81.0
#50	1.1	2.0	20.9	8.9	10.2	91.1
#100	1.1	1.9	4.0	2.4	6.5	97.6
LBW	1.0	1.7	0.4	0.9	1.5	99.1

Superior Materials, LLC
30701 W. 10 Mile Rd.
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 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:	65	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: 7/28/25

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

Dates Test Represents: 7/29/2025 through 8/4/2025

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"	90.3	100.0	100.0	96.9	3.1	3.1
1"	32.8	100.0	100.0	78.8	18.2	21.2
3/4"	5.0	100.0	100.0	70.0	8.8	30.0
1/2"	1.5	70.1	100.0	60.1	9.9	39.9
3/8"	1.1	42.0	100.0	51.7	8.4	48.3
#4	1.1	7.0	97.4	40.5	11.3	59.5
#8	1.1	2.9	82.1	33.3	7.2	66.7
#16	1.1	2.1	64.2	26.1	7.2	73.9
#30	1.0	1.9	46.6	19.1	7.0	80.9
#50	1.0	1.8	23.9	10.2	8.9	89.8
#100	0.9	1.7	5.7	3.0	7.2	97.0
LBW	0.8	1.5	1.0	1.1	1.9	98.9

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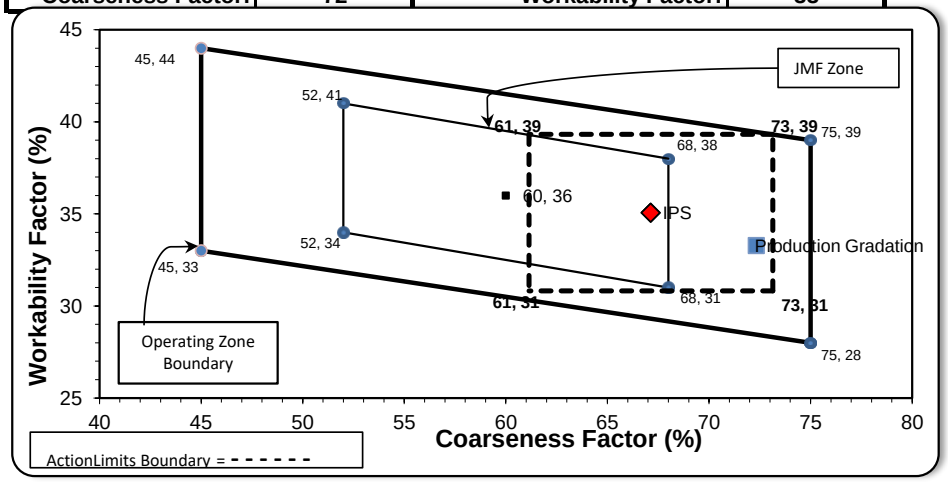
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	72	Workability Factor:	33



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: 7/28/25

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

Dates Test Represents: 7/29/2025 through 8/4/2025

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"	90.3	100.0	100.0	97.2	2.8	2.8
1"	32.8	100.0	100.0	80.3	16.9	19.7
3/4"	5.0	100.0	100.0	72.1	8.1	27.9
1/2"	1.5	70.1	100.0	61.7	10.5	38.3
3/8"	1.1	42.0	100.0	52.7	9.0	47.3
#4	1.1	7.0	97.4	40.6	12.1	59.4
#8	1.1	2.9	82.1	33.3	7.3	66.7
#16	1.1	2.1	64.2	26.1	7.2	73.9
#30	1.0	1.9	46.6	19.1	7.0	80.9
#50	1.0	1.8	23.9	10.2	8.9	89.8
#100	0.9	1.7	5.7	3.0	7.2	97.0
LBW	0.8	1.5	1.0	1.1	1.9	98.9

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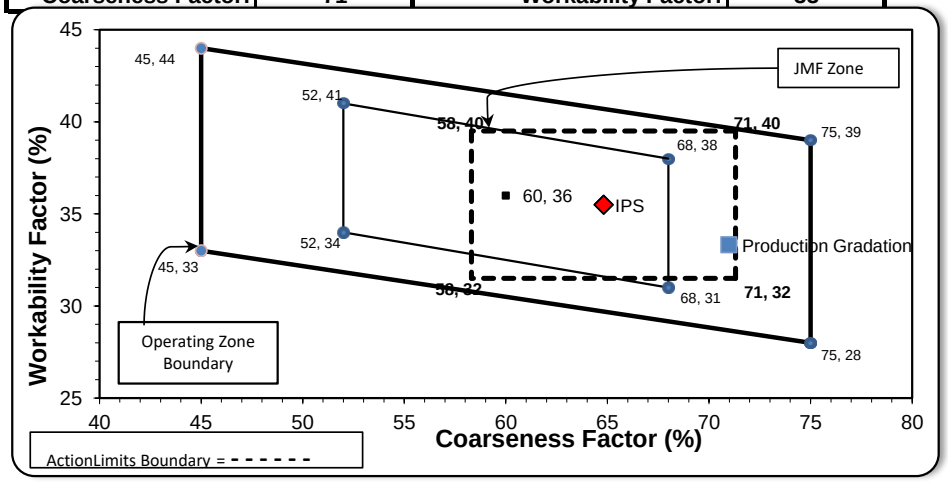
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	71	Workability Factor:	33



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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Approved By: