

Aggregate Optimization Chart

PLANT #: **P-101**

Sample Date: 6/3/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 6/4/2024 through 6/10/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	1070	6.54	2.62	34.9
IA	71-47	Presque Isle	800	4.89	2.62	26.1
2NS	75-051	Mid Michigan	1200	7.23	2.66	39.1
Total Wt			3070	18.67		100.0

<---- Verify this number is 100%



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

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	97.9	2.1	2.1
1"	29.3	100.0	100.0	75.4	22.6	24.6
3/4"	3.4	99.6	100.0	66.2	9.1	33.8
1/2"	1.8	79.6	100.0	60.5	5.8	39.5
3/8"	1.8	53.8	100.0	53.7	6.7	46.3
#4	1.8	11.6	97.1	41.6	12.1	58.4
#8	1.8	3.7	82.7	33.9	7.7	66.1
#16	1.7	2.6	70.0	28.6	5.3	71.4
#30	1.6	2.4	55.0	22.7	6.0	77.3
#50	1.6	2.3	28.0	12.1	10.6	87.9
#100	1.5	2.2	8.7	4.5	7.6	95.5
LBW	1.1	1.9	1.2	1.3	3.1	98.7

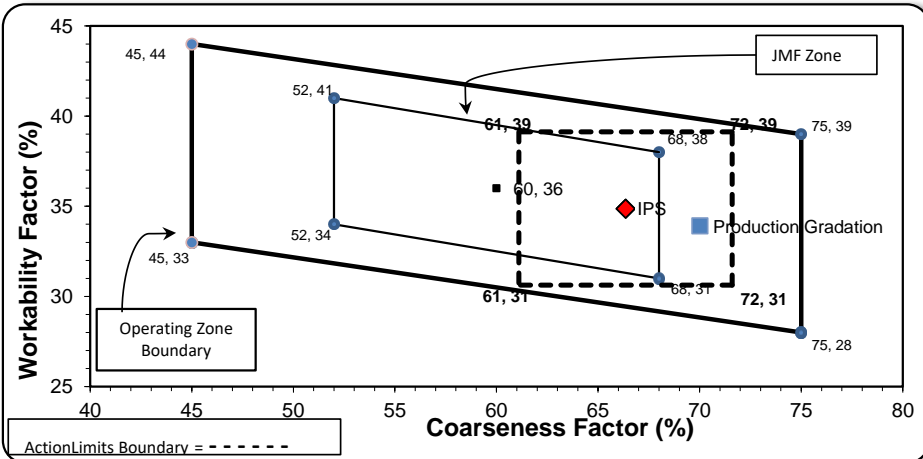
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	70	Workability Factor:	34
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Initial Production Sample (IPS)

Coarseness Factor:	66
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"	84.3	15.3	15.7
3/4"	74.8	9.6	25.2
1/2"	64.3	10.4	35.7
3/8"	56.8	7.5	43.2
#4	43.0	13.8	57.0
#8	34.9	8.1	65.1
#16	26.4	8.5	73.6
#30	19.9	6.5	80.1
#50	10.4	9.5	89.6
#100	3.4	7.0	96.6
LBW	1.2	2.2	98.8

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: **6/3/24**

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: **6/4/2024** through **6/10/2024**

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



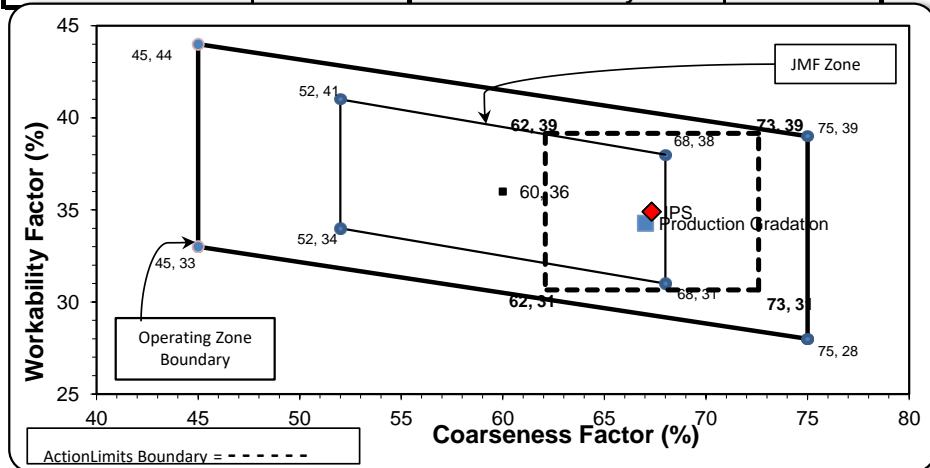
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 Suite 500
 Farmington Hills, MI 48336

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"	67.5	100.0	100.0	84.7	15.3	15.3
3/4"	37.9	100.0	100.0	70.7	13.9	29.3
1/2"	19.2	91.5	100.0	60.7	10.0	39.3
3/8"	14.4	74.2	100.0	55.9	4.8	44.1
#4	2.3	20.4	98.7	42.0	14.0	58.0
#8	1.6	5.2	85.2	34.3	7.7	65.7
#16	1.4	2.5	69.3	27.7	6.6	72.3
#30	1.3	1.8	49.8	20.0	7.6	80.0
#50	1.3	1.6	18.5	8.0	12.1	92.0
#100	1.2	1.4	3.0	1.9	6.0	98.1
LBW	1.0	1.4	0.6	0.9	1.0	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **67** **Workability Factor:** **34**



Initial 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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-103**

Sample Date: 6/3/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/4/2024 through 6/10/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	63-114	Highland	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



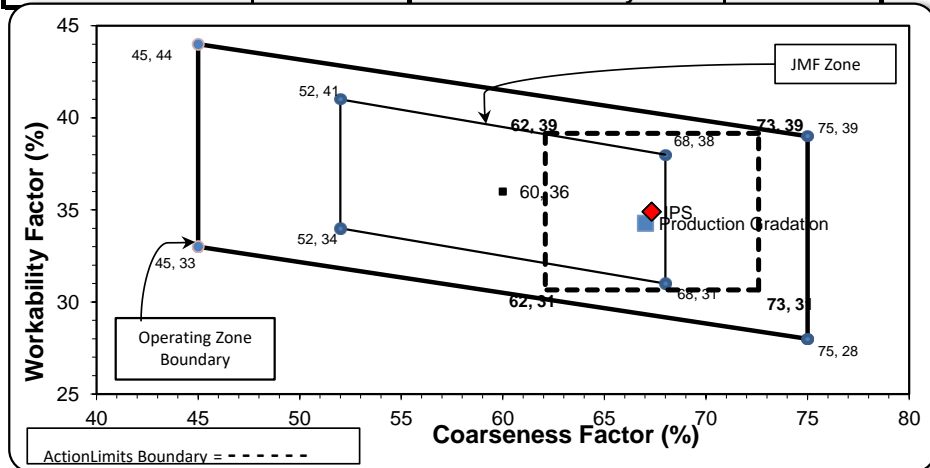
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 Suite 500
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Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	67.5	100.0	100.0	84.7	15.3	15.3
3/4"	37.9	100.0	100.0	70.7	13.9	29.3
1/2"	19.2	91.5	100.0	60.7	10.0	39.3
3/8"	14.4	74.2	100.0	55.9	4.8	44.1
#4	2.3	20.4	98.7	42.0	14.0	58.0
#8	1.6	5.2	85.2	34.3	7.7	65.7
#16	1.4	2.5	69.3	27.7	6.6	72.3
#30	1.3	1.8	49.8	20.0	7.6	80.0
#50	1.3	1.6	18.5	8.0	12.1	92.0
#100	1.2	1.4	3.0	1.9	6.0	98.1
LBW	1.0	1.4	0.6	0.9	1.0	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **67** **Workability Factor:** **34**



Initial 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

PREPARED BY:
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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 6/3/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/4/2024 through 6/10/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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%



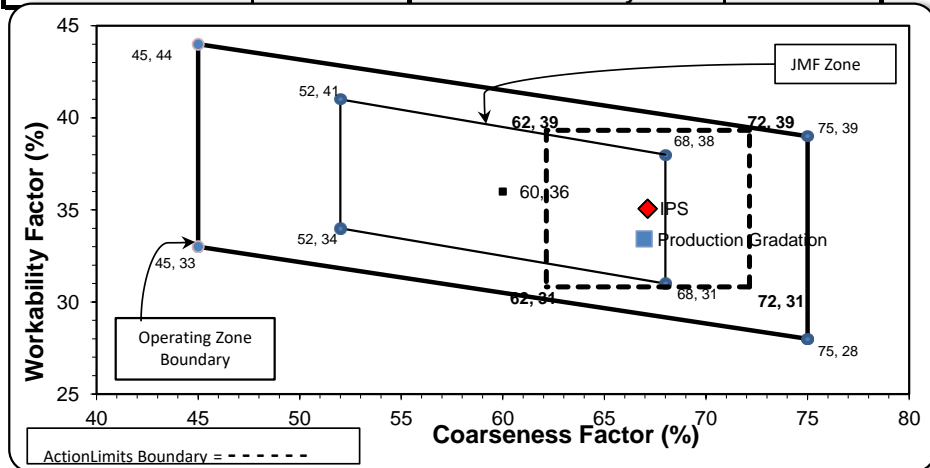
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 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	98.1	1.9	1.9
1"	29.3	100.0	100.0	77.7	20.4	22.3
3/4"	3.4	99.6	100.0	69.4	8.3	30.6
1/2"	1.8	79.6	100.0	63.0	6.4	37.0
3/8"	1.8	53.8	100.0	55.4	7.6	44.6
#4	1.8	11.6	96.0	41.5	13.9	58.5
#8	1.8	3.7	81.3	33.4	8.1	66.6
#16	1.7	2.6	65.5	26.9	6.5	73.1
#30	1.6	2.4	49.6	20.6	6.3	79.4
#50	1.6	2.3	25.3	11.1	9.5	88.9
#100	1.5	2.2	4.7	3.0	8.1	97.0
LBW	1.1	1.9	0.6	1.1	1.8	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 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:** 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

PLANT #: 20

Sample Date: 6/3/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/4/2024 through 6/10/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	950	5.81	2.62	30.9
IA	71-47	Presque Isle	920	5.63	2.62	30.0
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



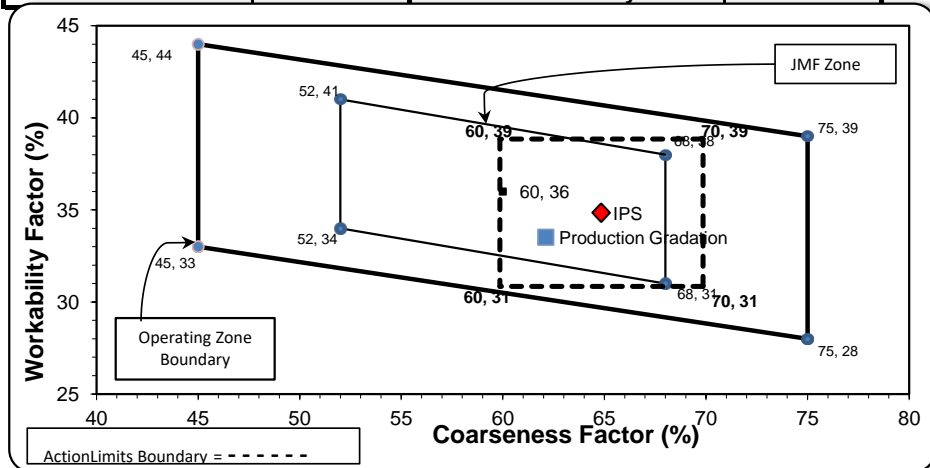
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Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.4	100.0	100.0	99.5	0.5	0.5
1"	42.2	100.0	100.0	82.1	17.4	17.9
3/4"	13.5	99.0	100.0	72.9	9.2	27.1
1/2"	3.3	83.7	100.0	65.2	7.7	34.8
3/8"	2.7	62.7	100.0	58.7	6.5	41.3
#4	2.2	9.7	97.8	41.8	16.9	58.2
#8	2.1	3.0	81.8	33.5	8.3	66.5
#16	2.0	2.2	66.0	27.1	6.4	72.9
#30	2.0	2.1	48.1	20.0	7.0	80.0
#50	1.9	2.0	21.4	9.6	10.5	90.4
#100	1.7	1.8	3.2	2.3	7.2	97.7
LBW	1.5	1.7	0.4	1.1	1.2	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 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: 62 **Workability Factor:** 34



Initial Production Sample (IPS)

Coarseness Factor: 65
Workability Factor: 35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.1	0.9	0.9
1"	80.8	18.2	19.2
3/4"	71.3	9.6	28.7
1/2"	64.0	7.3	36.0
3/8"	57.7	6.2	42.3
#4	42.8	15.0	57.2
#8	34.8	7.9	65.2
#16	28.4	6.4	71.6
#30	20.2	8.2	79.8
#50	7.6	12.6	92.4
#100	1.6	6.0	98.4
LBW	1.0	0.6	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: P11

Sample Date: 6/3/24

Concrete Grade: P1M, 3500HP

Dates Test Represents: 6/4/2024 through 6/10/2024

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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	95-013	Smelter Bay	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



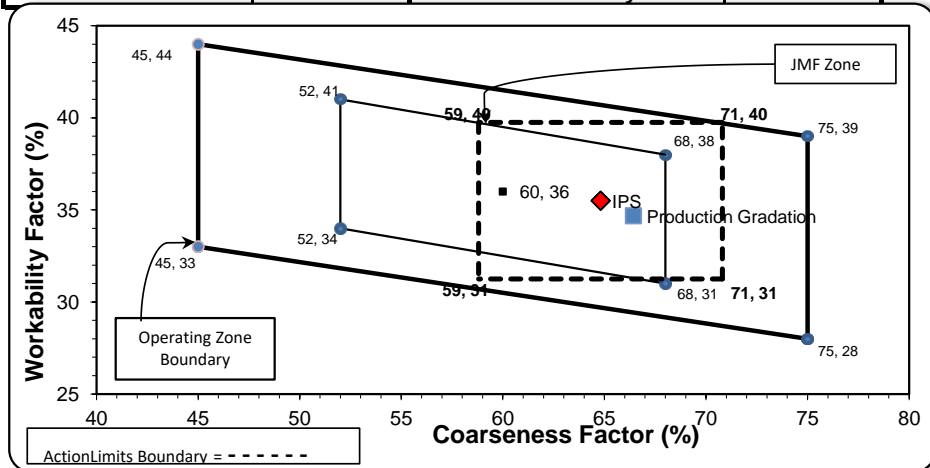
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	98.2	1.8	1.8
1"	29.3	100.0	100.0	79.3	19.0	20.7
3/4"	3.4	99.6	100.0	71.6	7.7	28.4
1/2"	1.8	79.6	100.0	64.8	6.8	35.2
3/8"	1.8	53.8	100.0	56.6	8.2	43.4
#4	1.8	11.6	95.9	41.7	14.9	58.3
#8	1.8	3.7	84.4	34.7	7.0	65.3
#16	1.7	2.6	69.4	28.4	6.2	71.6
#30	1.6	2.4	49.5	20.6	7.9	79.4
#50	1.6	2.3	22.9	10.1	10.4	89.9
#100	1.5	2.2	6.6	3.7	6.4	96.3
LBW	1.1	1.9	1.1	1.4	2.4	98.6

*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: 66 **Workability Factor:** 35



Initial 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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-35**

Sample Date: **6/3/24**

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: **6/4/2024** through **6/10/2024**

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



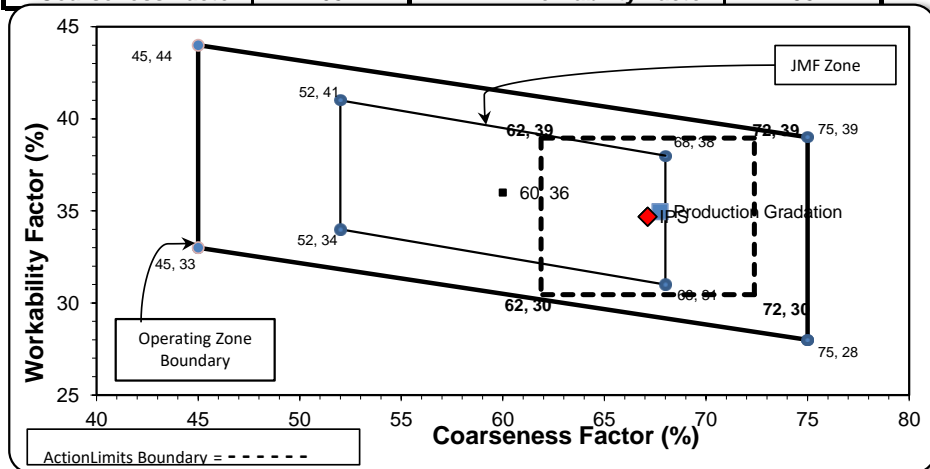
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	67.5	100.0	100.0	84.7	15.3	15.3
3/4"	37.9	100.0	100.0	70.7	13.9	29.3
1/2"	19.2	91.5	100.0	60.7	10.0	39.3
3/8"	14.4	74.2	100.0	55.9	4.8	44.1
#4	2.3	20.4	99.0	42.1	13.8	57.9
#8	1.6	5.2	87.0	35.0	7.1	65.0
#16	1.4	2.5	64.4	25.8	9.2	74.2
#30	1.3	1.8	40.8	16.6	9.2	83.4
#50	1.3	1.6	18.3	7.9	8.7	92.1
#100	1.2	1.4	3.6	2.2	5.7	97.8
LBW	1.0	1.4	0.4	0.8	1.3	99.2

*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:	35
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Initial 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"	86.9	13.1	13.1
3/4"	76.1	10.8	23.9
1/2"	63.7	12.4	36.3
3/8"	56.2	7.5	43.8
#4	43.2	13.0	56.8
#8	34.7	8.5	65.3
#16	27.5	7.2	72.5
#30	20.6	7.0	79.4
#50	9.0	11.6	91.0
#100	2.1	6.9	97.9
LBW	1.0	1.1	99.0

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-36**

Sample Date: 6/3/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 6/4/2024 through 6/10/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



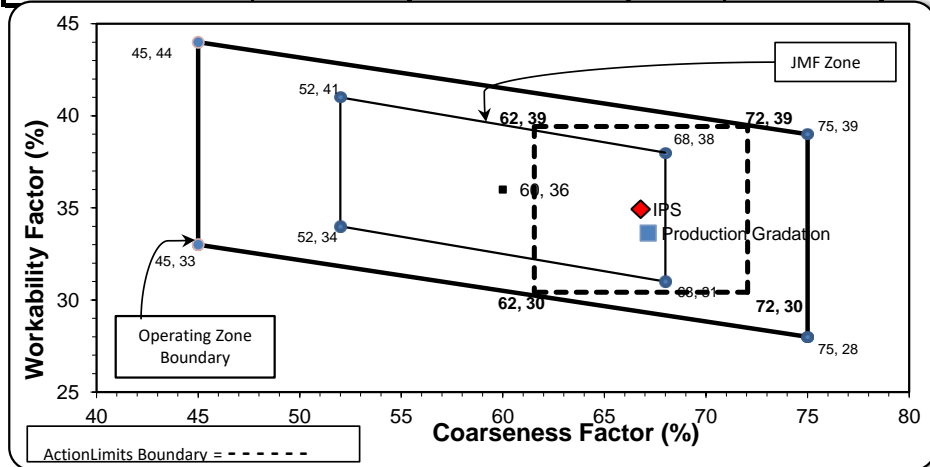
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	98.1	1.9	1.9
1"	29.3	100.0	100.0	77.7	20.4	22.3
3/4"	3.4	99.6	100.0	69.4	8.3	30.6
1/2"	1.8	79.6	100.0	63.0	6.4	37.0
3/8"	1.8	53.8	100.0	55.4	7.6	44.6
#4	1.8	11.6	97.8	42.2	13.2	57.8
#8	1.8	3.7	81.8	33.6	8.6	66.4
#16	1.7	2.6	66.0	27.1	6.5	72.9
#30	1.6	2.4	48.1	20.0	7.1	80.0
#50	1.6	2.3	21.4	9.5	10.5	90.5
#100	1.5	2.2	3.2	2.4	7.2	97.6
LBW	1.1	1.9	0.4	1.1	1.3	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 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: **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"	72.1	12.9	27.9
1/2"	64.5	7.6	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:

Aggregate Optimization Chart

PLANT #: **P-39**

Sample Date: **6/3/24**

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: **6/4/2024** through **6/10/2024**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	920	5.63	2.62	30.0
2NS	44-051	Krake Willis Rd	1250	7.56	2.65	40.7
Total Wt			3070	18.69		100.0

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



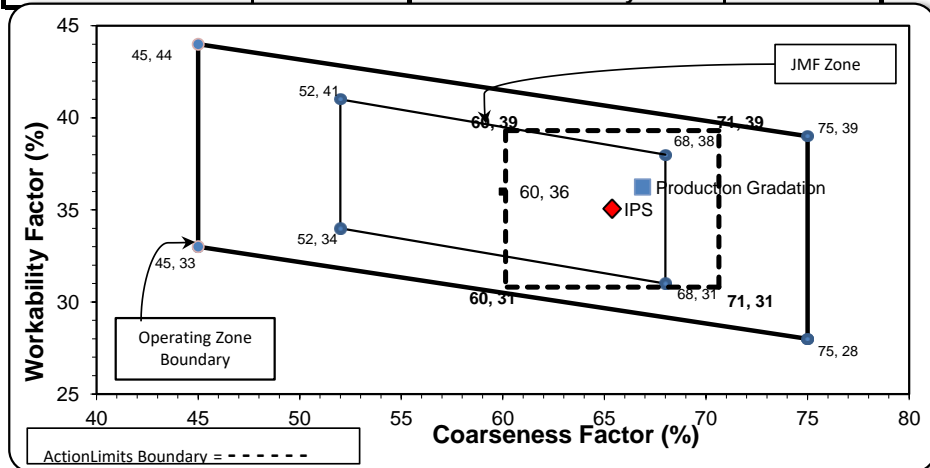
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	98.2	1.8	1.8
1"	29.3	100.0	100.0	79.3	19.0	20.7
3/4"	3.4	99.6	100.0	71.6	7.7	28.4
1/2"	1.8	79.6	100.0	65.1	6.5	34.9
3/8"	1.8	53.8	100.0	57.4	7.7	42.6
#4	1.8	11.6	99.4	44.5	12.9	55.5
#8	1.8	3.7	85.0	36.2	8.2	63.8
#16	1.7	2.6	69.0	29.4	6.9	70.6
#30	1.6	2.4	50.5	21.8	7.6	78.2
#50	1.6	2.3	24.2	11.0	10.7	89.0
#100	1.5	2.2	6.2	3.6	7.4	96.4
LBW	1.1	1.9	0.6	1.1	2.5	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 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:** **36**



Initial Production Sample (IPS)

Coarseness Factor: **65**
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"	74.1	9.8	25.9
1/2"	64.3	9.7	35.7
3/8"	57.5	6.8	42.5
#4	44.5	13.1	55.5
#8	35.1	9.4	64.9
#16	27.9	7.2	72.1
#30	21.7	6.2	78.3
#50	12.6	9.1	87.4
#100	3.5	9.1	96.5
LBW	1.2	2.4	98.8

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: **P-02**

Sample Date: 6/3/24

Concrete Grade: **P1M, 3500HP**

Contractor: _____

Dates Test Represents: 6/4/2024 through 6/10/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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%



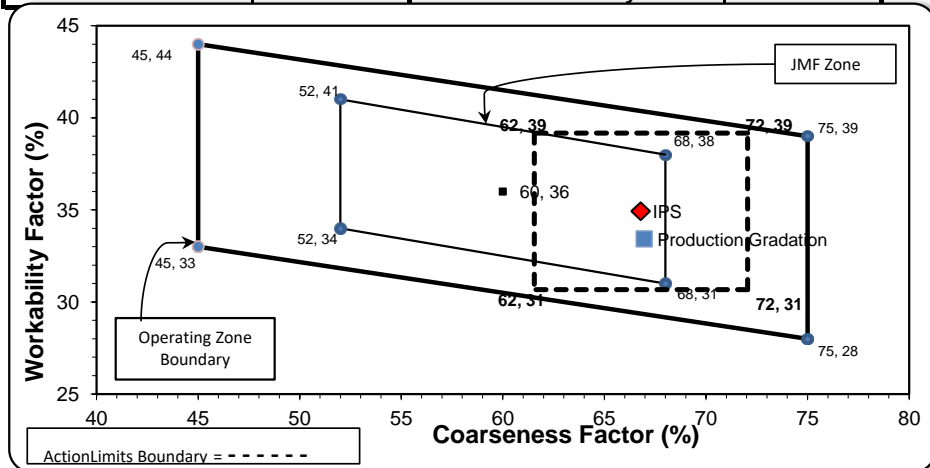
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	94.0	100.0	100.0	98.1	1.9	1.9
1"	29.3	100.0	100.0	77.7	20.4	22.3
3/4"	3.4	99.6	100.0	69.4	8.3	30.6
1/2"	1.8	79.6	100.0	63.0	6.4	37.0
3/8"	1.8	53.8	100.0	55.4	7.6	44.6
#4	1.8	11.6	96.0	41.5	13.9	58.5
#8	1.8	3.7	81.3	33.4	8.1	66.6
#16	1.7	2.6	65.5	26.9	6.5	73.1
#30	1.6	2.4	49.6	20.6	6.3	79.4
#50	1.6	2.3	25.3	11.1	9.5	88.9
#100	1.5	2.2	4.7	3.0	8.1	97.0
LBW	1.1	1.9	0.6	1.1	1.8	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 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:** **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"	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: