

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

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%



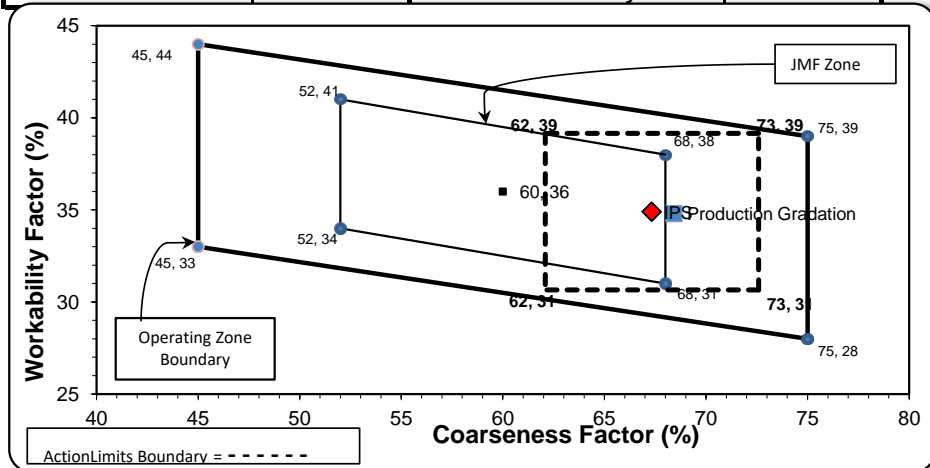
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	63.6	100.0	100.0	82.9	17.2	17.2
3/4"	40.0	100.0	100.0	71.7	11.1	28.3
1/2"	18.0	94.9	100.0	60.6	11.1	39.4
3/8"	11.6	79.5	100.0	55.4	5.2	44.6
#4	2.4	22.4	99.3	42.6	12.8	57.4
#8	1.6	7.0	85.9	34.8	7.8	65.2
#16	1.4	3.2	68.6	27.5	7.3	72.5
#30	1.4	2.3	48.1	19.5	8.0	80.5
#50	1.4	2.0	20.7	8.9	10.6	91.1
#100	1.2	1.9	4.0	2.4	6.5	97.6
LBW	1.0	1.7	0.4	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 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**



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: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

Contractor: _____

MDOT No.: _____



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

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

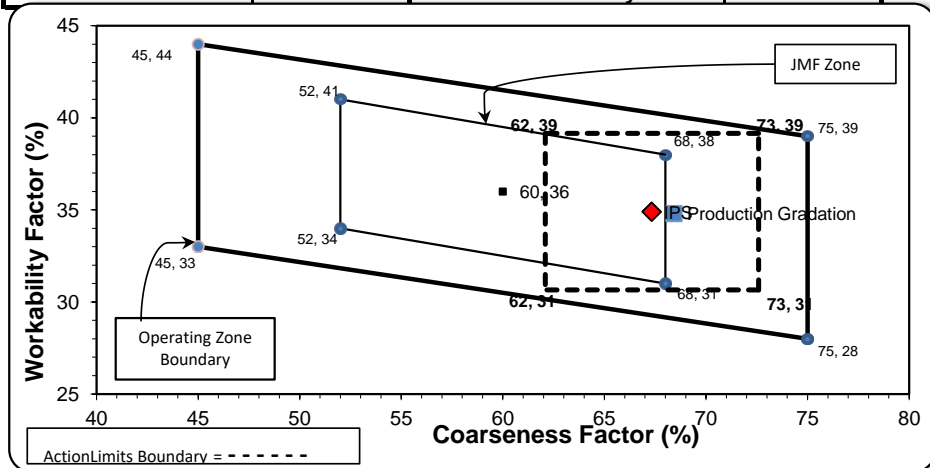
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Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	63.6	100.0	100.0	82.9	17.2	17.2
3/4"	40.0	100.0	100.0	71.7	11.1	28.3
1/2"	18.0	94.9	100.0	60.6	11.1	39.4
3/8"	11.6	79.5	100.0	55.4	5.2	44.6
#4	2.4	22.4	99.3	42.6	12.8	57.4
#8	1.6	7.0	85.9	34.8	7.8	65.2
#16	1.4	3.2	68.6	27.5	7.3	72.5
#30	1.4	2.3	48.1	19.5	8.0	80.5
#50	1.4	2.0	20.7	8.9	10.6	91.1
#100	1.2	1.9	4.0	2.4	6.5	97.6
LBW	1.0	1.7	0.4	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 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**



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 #: 15

Sample Date: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

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	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



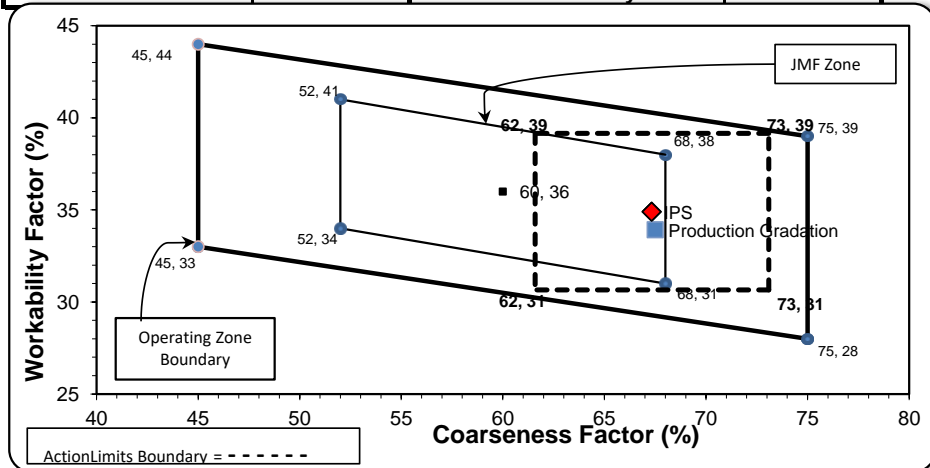
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	63.6	100.0	100.0	82.9	17.2	17.2
3/4"	40.0	100.0	100.0	71.7	11.1	28.3
1/2"	18.0	94.9	100.0	60.6	11.1	39.4
3/8"	11.6	79.5	100.0	55.4	5.2	44.6
#4	2.4	22.4	97.4	41.8	13.6	58.2
#8	1.6	7.0	83.6	33.9	7.9	66.1
#16	1.4	3.2	63.9	25.7	8.2	74.3
#30	1.4	2.3	43.0	17.5	8.2	82.5
#50	1.4	2.0	20.6	8.9	8.7	91.1
#100	1.2	1.9	4.3	2.5	6.4	97.5
LBW	1.0	1.7	0.5	0.9	1.6	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:	68	Workability Factor:	34
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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"	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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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	870	5.32	2.62	28.3
IA	71-47	Presque Isle	1000	6.12	2.62	32.6
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



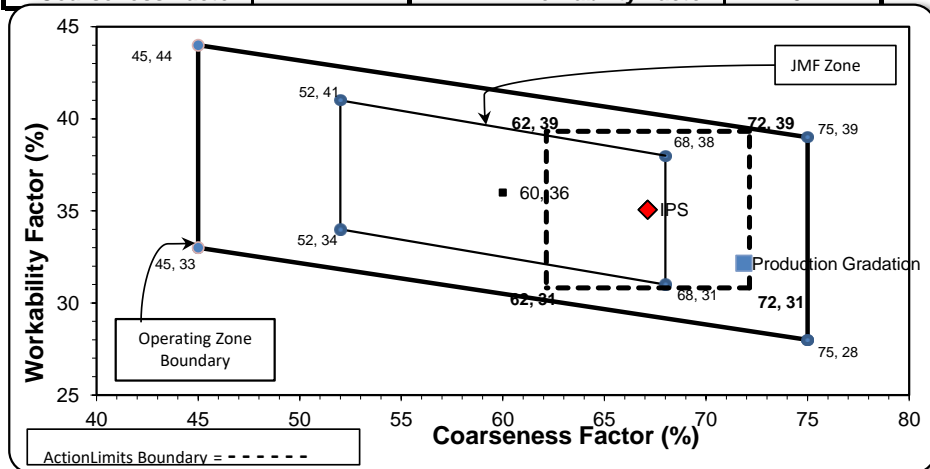
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	93.7	100.0	100.0	98.2	1.8	1.8
1"	36.6	100.0	100.0	82.0	16.2	18.0
3/4"	6.7	97.8	100.0	72.8	9.2	27.2
1/2"	1.6	64.0	100.0	60.4	12.5	39.6
3/8"	1.5	36.0	100.0	51.2	9.1	48.8
#4	1.4	6.6	97.0	40.5	10.8	59.5
#8	1.3	2.9	78.9	32.2	8.3	67.8
#16	1.2	2.3	61.9	25.3	6.9	74.7
#30	1.1	2.2	46.3	19.1	6.2	80.9
#50	1.1	2.1	25.6	11.0	8.1	89.0
#100	1.0	1.9	6.3	3.4	7.6	96.6
LBW	0.8	1.5	0.7	1.0	2.4	99.0

*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:	32
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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"	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

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

PLANT #: 21

Sample Date: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

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	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



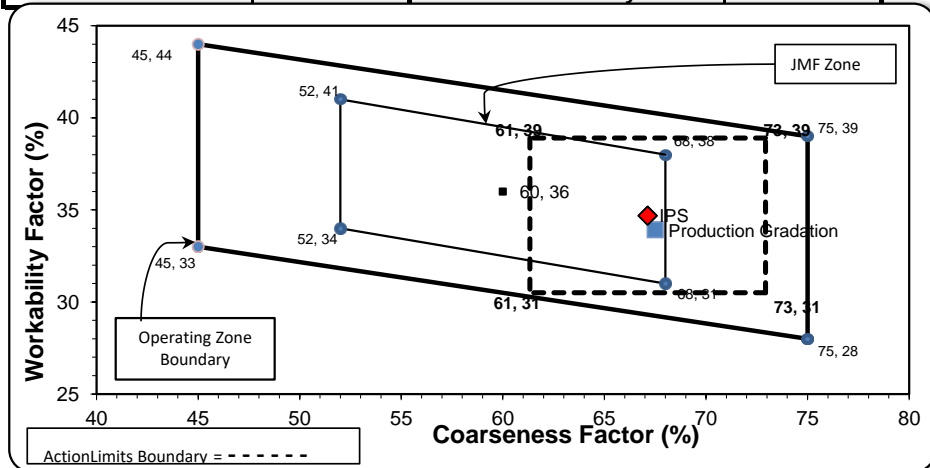
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	63.6	100.0	100.0	82.9	17.2	17.2
3/4"	40.0	100.0	100.0	71.7	11.1	28.3
1/2"	18.0	94.9	100.0	60.6	11.1	39.4
3/8"	11.6	79.5	100.0	55.4	5.2	44.6
#4	2.4	22.4	97.4	41.8	13.6	58.2
#8	1.6	7.0	83.6	33.9	7.9	66.1
#16	1.4	3.2	63.9	25.7	8.2	74.3
#30	1.4	2.3	43.0	17.5	8.2	82.5
#50	1.4	2.0	20.6	8.9	8.7	91.1
#100	1.2	1.9	4.3	2.5	6.4	97.5
LBW	1.0	1.7	0.5	0.9	1.6	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:	68	Workability Factor:	34
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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 #: P11

Sample Date: 9/16/24

Concrete Grade: P1M, 3500HP

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

Contractor: _____

MDOT No.: _____



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

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	770	4.71	2.62	25.1
IA	71-47	Presque Isle	1100	6.73	2.62	35.8
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

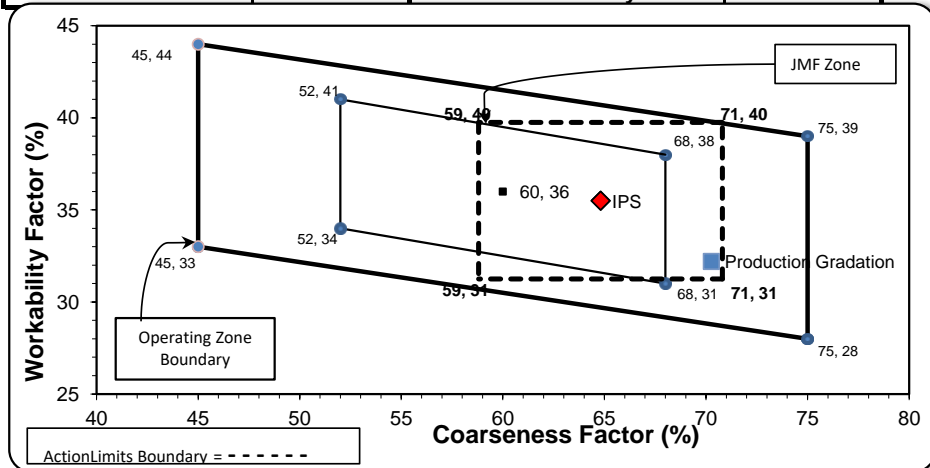
<----- Verify this number is 100%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	93.7	100.0	100.0	98.4	1.6	1.6
1"	36.6	100.0	100.0	84.1	14.3	15.9
3/4"	6.7	97.8	100.0	75.8	8.3	24.2
1/2"	1.6	64.0	100.0	62.4	13.4	37.6
3/8"	1.5	36.0	100.0	52.4	10.1	47.6
#4	1.4	6.6	97.0	40.6	11.7	59.4
#8	1.3	2.9	78.9	32.2	8.4	67.8
#16	1.2	2.3	61.9	25.3	6.9	74.7
#30	1.1	2.2	46.3	19.2	6.2	80.8
#50	1.1	2.1	25.6	11.0	8.1	89.0
#100	1.0	1.9	6.3	3.4	7.6	96.6
LBW	0.8	1.5	0.7	1.0	2.4	99.0

*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:	32
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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: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

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	81-019	Pleasant Lake	1200	7.26	2.65	38.5
Total Wt			3120	18.70		100.0

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



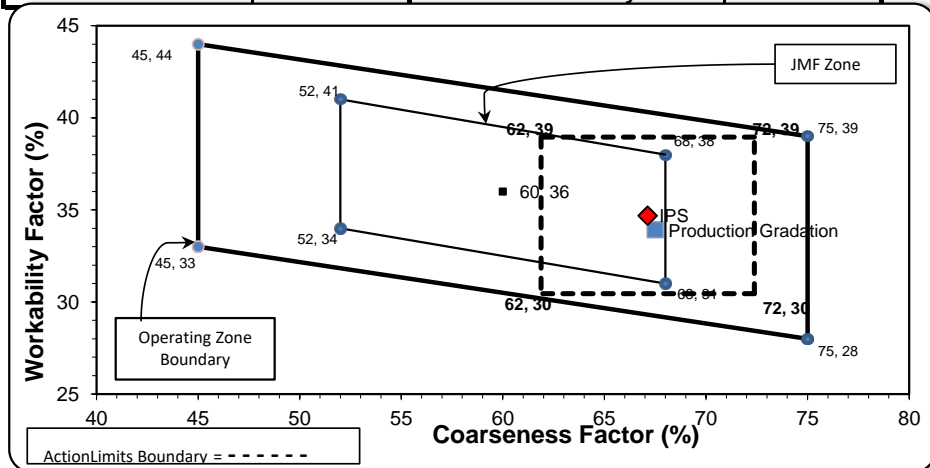
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	63.6	100.0	100.0	82.9	17.2	17.2
3/4"	40.0	100.0	100.0	71.7	11.1	28.3
1/2"	18.0	94.9	100.0	60.6	11.1	39.4
3/8"	11.6	79.5	100.0	55.4	5.2	44.6
#4	2.4	22.4	97.4	41.8	13.6	58.2
#8	1.6	7.0	83.6	33.9	7.9	66.1
#16	1.4	3.2	63.9	25.7	8.2	74.3
#30	1.4	2.3	43.0	17.5	8.2	82.5
#50	1.4	2.0	20.6	8.9	8.7	91.1
#100	1.2	1.9	4.3	2.5	6.4	97.5
LBW	1.0	1.7	0.5	0.9	1.6	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: **68** **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"	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: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	750	4.59	2.62	24.4
IA	71-47	Presque Isle	1120	6.85	2.62	36.5
2NS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



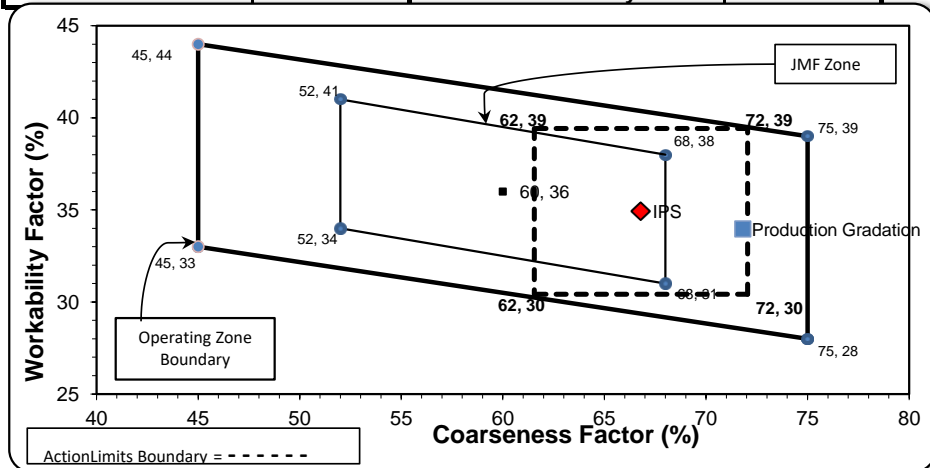
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	93.7	100.0	100.0	98.5	1.5	1.5
1"	36.6	100.0	100.0	84.5	13.9	15.5
3/4"	6.7	97.8	100.0	76.4	8.1	23.6
1/2"	1.6	64.0	100.0	62.8	13.6	37.2
3/8"	1.5	36.0	100.0	52.6	10.2	47.4
#4	1.4	6.6	97.8	41.0	11.6	59.0
#8	1.3	2.9	83.4	34.0	7.0	66.0
#16	1.2	2.3	68.4	27.9	6.1	72.1
#30	1.1	2.2	50.6	20.8	7.0	79.2
#50	1.1	2.1	24.0	10.4	10.4	89.6
#100	1.0	1.9	3.6	2.3	8.1	97.7
LBW	0.8	1.5	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.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor:	72	Workability Factor:	34
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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"	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: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	750	4.59	2.62	24.4
IA	71-47	Presque Isle	1120	6.85	2.62	36.5
2NS	44-051	Krake Willis Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

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



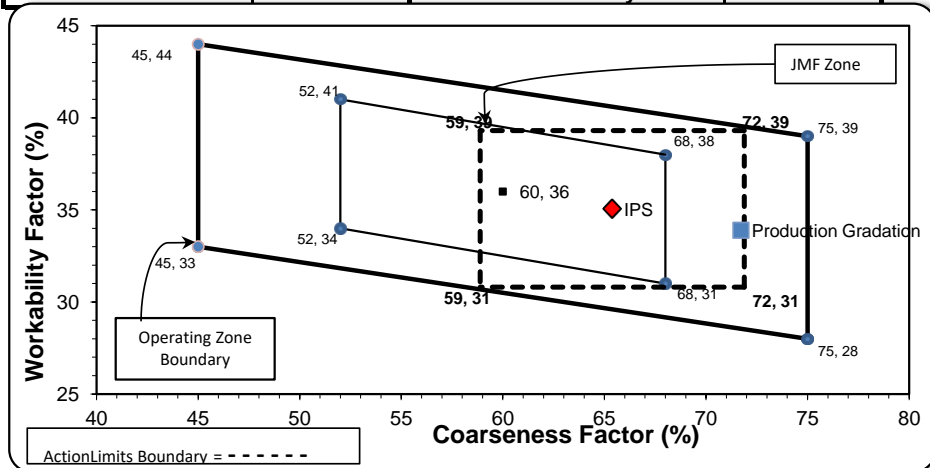
Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	93.7	100.0	100.0	98.5	1.5	1.5
1"	36.6	100.0	100.0	84.5	13.9	15.5
3/4"	6.7	97.8	100.0	76.4	8.1	23.6
1/2"	1.6	64.0	100.0	62.8	13.6	37.2
3/8"	1.5	36.0	100.0	52.6	10.2	47.4
#4	1.4	6.6	99.2	41.5	11.1	58.5
#8	1.3	2.9	83.2	33.9	7.6	66.1
#16	1.2	2.3	67.4	27.5	6.4	72.5
#30	1.1	2.2	49.2	20.3	7.2	79.7
#50	1.1	2.1	20.9	9.2	11.1	90.8
#100	1.0	1.9	4.6	2.7	6.5	97.3
LBW	0.8	1.5	0.4	0.9	1.8	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: **72** **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"	99.6	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: 9/16/24

Concrete Grade: **P1M, 3500HP**

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

Contractor: _____

MDOT No.: _____



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

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	870	5.32	2.62	28.3
IA	71-47	Presque Isle	1000	6.12	2.62	32.6
2NS	63-115	Ray Rd	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

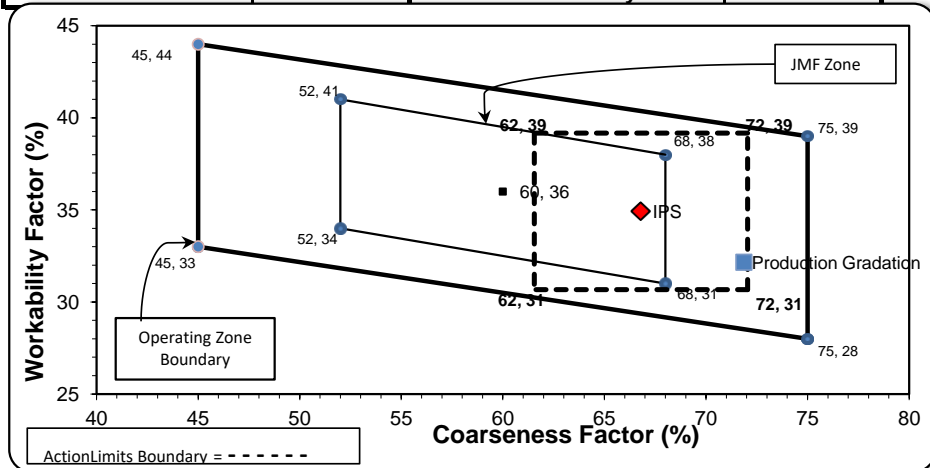
<----- Verify this number is 100%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	93.7	100.0	100.0	98.2	1.8	1.8
1"	36.6	100.0	100.0	82.0	16.2	18.0
3/4"	6.7	97.8	100.0	72.8	9.2	27.2
1/2"	1.6	64.0	100.0	60.4	12.5	39.6
3/8"	1.5	36.0	100.0	51.2	9.1	48.8
#4	1.4	6.6	97.0	40.5	10.8	59.5
#8	1.3	2.9	78.9	32.2	8.3	67.8
#16	1.2	2.3	61.9	25.3	6.9	74.7
#30	1.1	2.2	46.3	19.1	6.2	80.9
#50	1.1	2.1	25.6	11.0	8.1	89.0
#100	1.0	1.9	6.3	3.4	7.6	96.6
LBW	0.8	1.5	0.7	1.0	2.4	99.0

*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:	32
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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"	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: