

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Sample Date: 12/2/24

Concrete Grade: DM, 4500HP

Contractor: _____

Dates Test Represents: 12/3/2024 through 12/9/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1425	8.49	2.69	48.3
26A	58-003	Stoneco	375	2.23	2.69	12.7
2NS	63-114	Highland	1150	6.95	2.65	39.0
Total Wt			2950	17.68		100.0

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



Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 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"	87.5	100.0	100.0	94.0	6.0	6.0
1/2"	47.1	96.9	100.0	74.1	19.9	25.9
3/8"	22.2	89.7	100.0	61.1	12.9	38.9
#4	3.1	9.9	99.2	41.4	19.7	58.6
#8	1.3	2.4	85.4	34.2	7.2	65.8
#16	1.1	1.7	66.2	26.6	7.7	73.4
#30	1.0	1.5	44.9	18.2	8.4	81.8
#50	1.0	1.4	21.8	9.2	9.0	90.8
#100	0.9	1.4	4.3	2.3	6.9	97.7
LBW	0.6	1.2	0.5	0.6	1.7	99.4

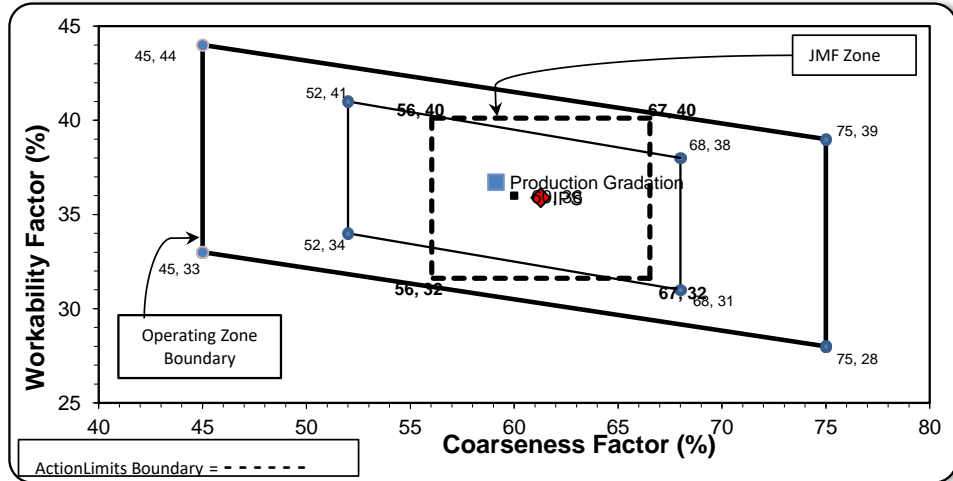
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for the 3/4" sieve when a 1.5" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	59	Workability Factor:	34	36.7
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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:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-103

Sample Date: 12/2/24

Concrete Grade: DM, 4500HP

Contractor: _____

Dates Test Represents: 12/3/2024 through 12/9/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1425	8.49	2.69	48.3
26A	58-003	Stoneco	375	2.23	2.69	12.7
2NS	63-114	Highland	1150	6.95	2.65	39.0
Total Wt			2950	17.68		100.0

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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"	87.5	100.0	100.0	94.0	6.0	6.0
1/2"	47.1	96.9	100.0	74.1	19.9	25.9
3/8"	22.2	89.7	100.0	61.1	12.9	38.9
#4	3.1	9.9	99.2	41.4	19.7	58.6
#8	1.3	2.4	85.4	34.2	7.2	65.8
#16	1.1	1.7	66.2	26.6	7.7	73.4
#30	1.0	1.5	44.9	18.2	8.4	81.8
#50	1.0	1.4	21.8	9.2	9.0	90.8
#100	0.9	1.4	4.3	2.3	6.9	97.7
LBW	0.6	1.2	0.5	0.6	1.7	99.4

*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

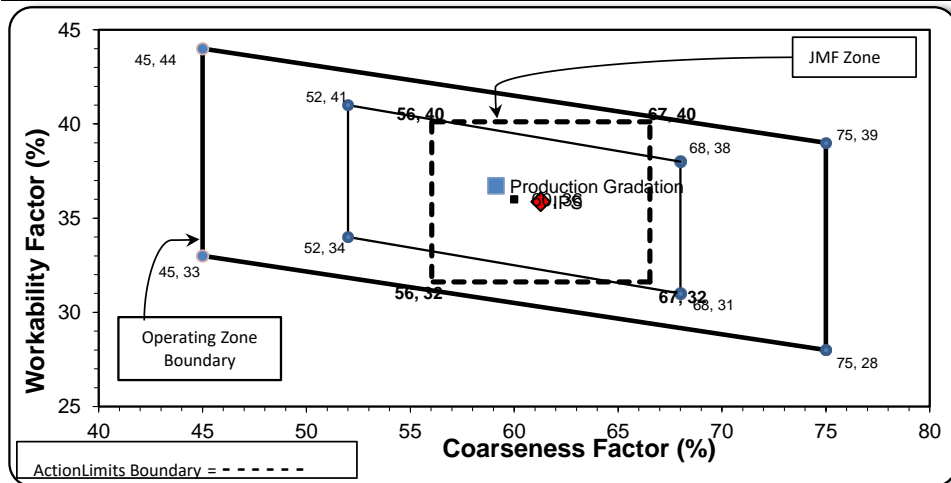
Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	59	Workability Factor:	34	36.7
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Coarseness Factor:	61
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Workability Factor:	36
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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



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Aggregate Optimization Chart

PLANT #: 12

Sample Date: 12/2/24

Concrete Grade: DM, 4500HP

Contractor: _____

Dates Test Represents: 12/3/2024 through 12/9/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	53.4
26A	71-47	Presque Isle	205	1.25	2.62	7.1
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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



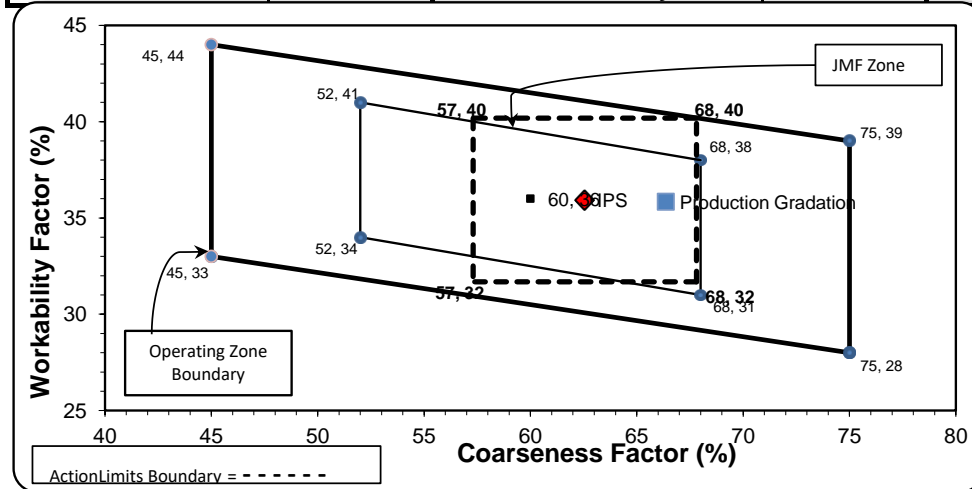
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 30701 W. 10 Mile Rd.
 Suite 500
 Farmington Hills, MI 48336

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"	96.9	100.0	100.0	98.3	1.7	1.7
3/4"	77.8	100.0	100.0	88.2	10.2	11.8
1/2"	35.6	95.5	100.0	65.3	22.8	34.7
3/8"	19.3	83.3	100.0	55.8	9.6	44.2
#4	3.3	19.1	99.0	42.3	13.5	57.7
#8	1.7	5.2	81.0	33.3	9.0	66.7
#16	1.4	3.1	64.6	26.5	6.8	73.5
#30	1.4	2.9	48.4	20.1	6.4	79.9
#50	1.3	2.7	25.1	10.8	9.3	89.2
#100	1.3	2.6	5.1	2.9	7.9	97.1
LBW	1.1	2.4	0.7	1.0	1.9	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 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 Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	66	Workability Factor:	33	Adjusted WF	35.8	Coarseness Factor:	63
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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"	89.0	10.3	11.0
1/2"	70.3	18.7	29.7
3/8"	59.9	10.4	40.1
#4	41.9	18.0	58.1
#8	35.9	6.0	64.1
#16	27.8	8.2	72.2
#30	18.9	8.8	81.1
#50	6.3	12.6	93.7
#100	1.7	4.6	98.3
LBW	1.0	0.7	99.0

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Aggregate Optimization Chart

PLANT #: p11

Contractor: _____

Sample Date: 12/2/24

Concrete Grade: DM, 4500HP

Dates Test Represents: 12/3/2024 through 12/9/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	53.4
26A	71-47	Presque Isle	205	1.25	2.62	7.1
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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



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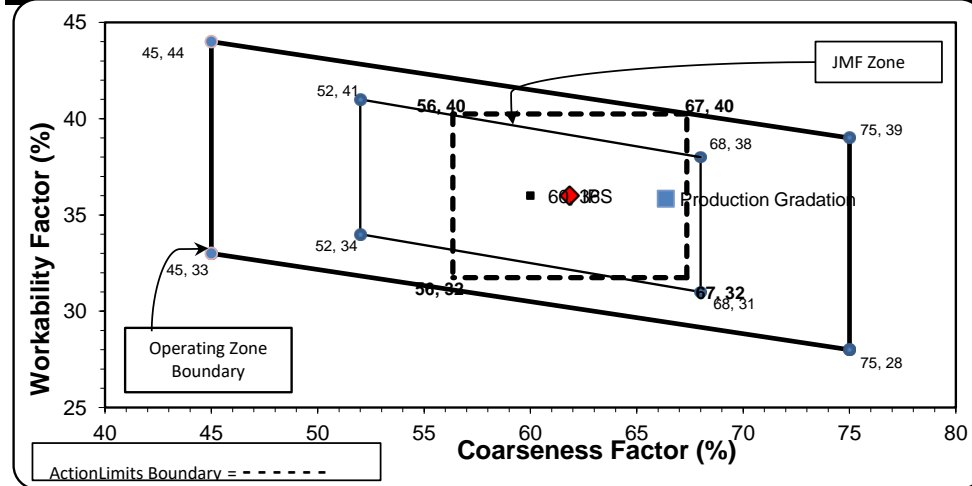
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.9	100.0	100.0	98.3	1.7	1.7
3/4"	77.8	100.0	100.0	88.2	10.2	11.8
1/2"	35.6	95.5	100.0	65.3	22.8	34.7
3/8"	19.3	83.3	100.0	55.8	9.6	44.2
#4	3.3	19.1	99.0	42.3	13.5	57.7
#8	1.7	5.2	81.0	33.3	9.0	66.7
#16	1.4	3.1	64.6	26.5	6.8	73.5
#30	1.4	2.9	48.4	20.1	6.4	79.9
#50	1.3	2.7	25.1	10.8	9.3	89.2
#100	1.3	2.6	5.1	2.9	7.9	97.1
LBW	1.1	2.4	0.7	1.0	1.9	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 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

Adjusted WF Initial Production Sample (IPS)

Coarseness Factor: 66	Workability Factor: 33	Adjusted WF 35.8	Coarseness Factor: 62
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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:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-02**

Sample Date: 12/2/24

Concrete Grade: DM, 4500HP

Contractor: _____

Dates Test Represents: 12/3/2024 through 12/9/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	53.4
26A	71-47	Presque Isle	205	1.25	2.62	7.1
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
Total Wt			2905	17.69		100.0

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



Superior Materials, LLC
 30701 W. 10 Mile Rd.
 Suite 500
 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"	96.9	100.0	100.0	98.3	1.7	1.7
3/4"	77.8	100.0	100.0	88.2	10.2	11.8
1/2"	35.6	95.5	100.0	65.3	22.8	34.7
3/8"	19.3	83.3	100.0	55.8	9.6	44.2
#4	3.3	19.1	99.0	42.3	13.5	57.7
#8	1.7	5.2	81.0	33.3	9.0	66.7
#16	1.4	3.1	64.6	26.5	6.8	73.5
#30	1.4	2.9	48.4	20.1	6.4	79.9
#50	1.3	2.7	25.1	10.8	9.3	89.2
#100	1.3	2.6	5.1	2.9	7.9	97.1
LBW	1.1	2.4	0.7	1.0	1.9	99.0

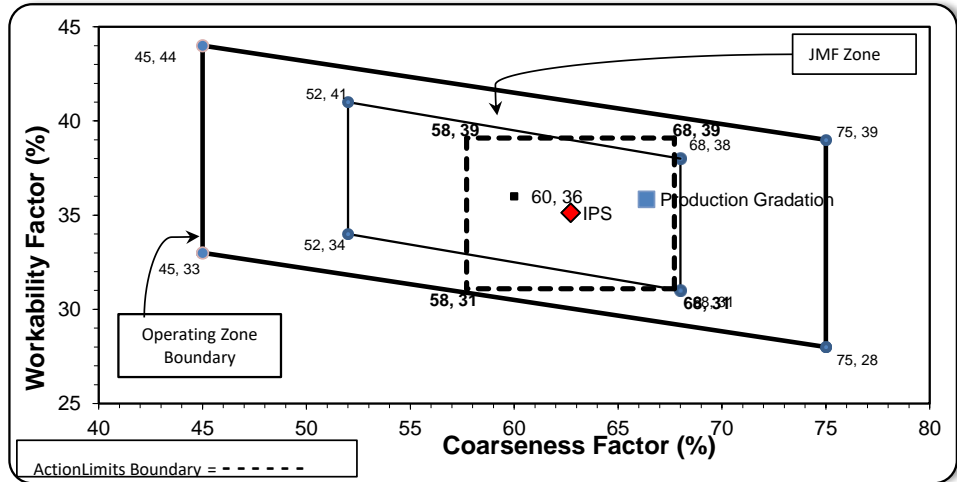
*Maximum % Retained must be above the 3/8" sieve.
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 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations Adjusted WF Initial Production Sample (IPS)

Coarseness Factor:	66	Workability Factor:	33	35.8
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Coarseness Factor:	63
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Workability Factor:	35
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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"	95.1	4.9	4.9
1/2"	74.6	20.5	25.4
3/8"	59.3	15.3	40.7
#4	42.1	17.2	57.9
#8	35.1	7.1	64.9
#16	29.2	5.9	70.8
#30	21.9	7.3	78.1
#50	9.6	12.4	90.4
#100	2.4	7.2	97.6
LBW	0.9	1.5	99.1

PREPARED BY:
 SM, LLC Technical Service

Approved By: