

# Aggregate Optimization Chart

**PLANT #:** **P-02**

Contractor: \_\_\_\_\_

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Dates Test Represents: 7/3/2026 through 7/9/2026

1 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	71-47	Presque Ise	1420	8.85	2.57	47.7
26A	71-47	Presque Ise	360	2.24	2.57	12.1
2NS	63-115	Ray Rd	1200	7.20	2.67	40.3
<b>Total Wt</b>			<b>2980</b>	<b>18.30</b>		<b>100.0</b>

<----- 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"	98.2	100.0	100.0	99.1	0.9	0.9
3/4"	81.7	100.0	100.0	91.3	7.9	8.7
1/2"	37.0	93.9	100.0	69.2	22.0	30.8
3/8"	18.0	79.7	100.0	58.5	10.8	41.5
#4	2.5	18.5	96.0	42.1	16.4	57.9
#8	1.7	5.5	82.8	34.8	7.3	65.2
#16	1.5	3.0	63.0	26.4	8.4	73.6
#30	1.4	2.5	46.5	19.7	6.8	80.3
#50	1.4	2.4	23.5	10.4	9.3	89.6
#100	1.3	2.2	5.5	3.1	7.3	96.9
LBW	1.1	2.0	0.8	1.1	2.0	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 4% for the 3/4" sieve when

a 1.5" max. size (nom. Max. 1.0") aggregate is used.

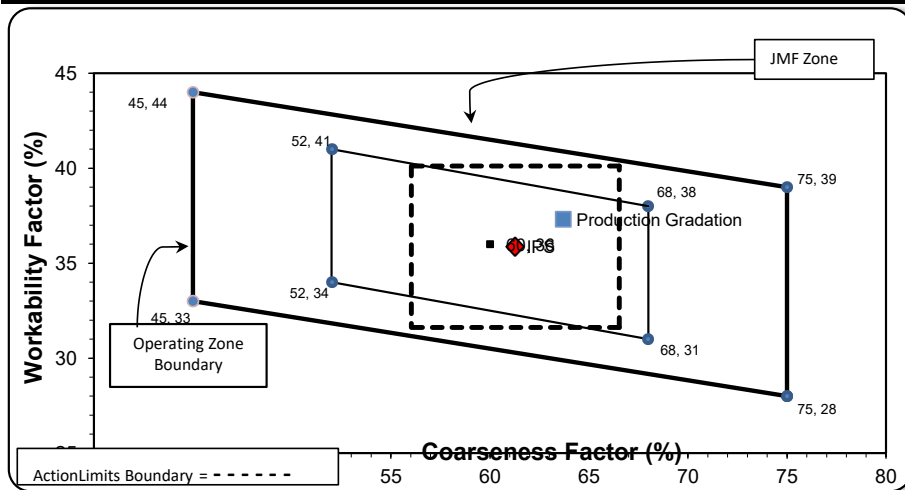
Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>64</b>	<b>Workability Factor:</b>	<b>35</b>	<b>37.3</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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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

PREPARED BY:  
SM, LLC Technical Service

Approved By:  
Nancy Donahue

# Aggregate Optimization Chart

**PLANT #:** **P-02**

Contractor: \_\_\_\_\_

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Dates Test Represents: 7/3/2026 through 7/9/2026

5 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	71-47	Presque Ise	1400	8.73	2.57	48.6
26A	71-47	Presque Ise	300	1.87	2.57	10.4
2NS	63-115	Ray Rd	1180	7.08	2.67	41.0
<b>Total Wt</b>			<b>2880</b>	<b>17.68</b>		<b>100.0</b>

<----- 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"	98.2	100.0	100.0	99.1	0.9	0.9
3/4"	81.7	100.0	100.0	91.1	8.0	8.9
1/2"	37.0	93.9	100.0	68.7	22.4	31.3
3/8"	18.0	79.7	100.0	58.0	10.7	42.0
#4	2.5	18.5	96.0	42.5	15.5	57.5
#8	1.7	5.5	82.8	35.3	7.2	64.7
#16	1.5	3.0	63.0	26.9	8.5	73.1
#30	1.4	2.5	46.5	20.0	6.9	80.0
#50	1.4	2.4	23.5	10.6	9.4	89.4
#100	1.3	2.2	5.5	3.1	7.4	96.9
LBW	1.1	2.0	0.8	1.1	2.0	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 4% for the 3/4" sieve when

a 1.5" max. size (nom. Max. 1.0") aggregate is used.

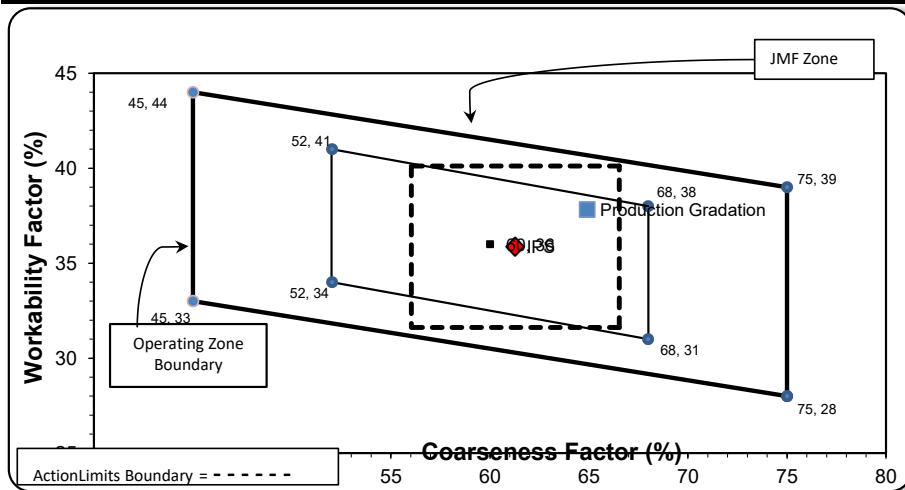
Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>65</b>	<b>Workability Factor:</b>	<b>35</b>	<b>37.8</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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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

PREPARED BY:  
 SM, LLC Technical Service

Approved By:  
 Nancy Donahue

# Aggregate Optimization Chart

**PLANT #:** **P-35**

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Contractor: \_\_\_\_\_

Dates Test Represents: 7/3/2026 through 7/9/2026

1 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stone Co	1540	9.17	2.69	50.3
26A	58-003	Stone Co	260	1.55	2.69	8.5
2NS	81-019	Pleasant Lk	1260	7.62	2.65	41.2
<b>Total Wt</b>			<b>3060</b>	<b>18.34</b>		<b>100.0</b>

<----- 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"	85.7	100.0	100.0	92.8	7.2	7.2
1/2"	44.7	99.5	100.0	72.1	20.7	27.9
3/8"	28.9	88.5	100.0	63.2	8.9	36.8
#4	5.3	9.6	98.5	44.0	19.2	56.0
#8	2.2	2.0	83.7	35.7	8.3	64.3
#16	1.8	1.7	66.3	28.4	7.4	71.6
#30	1.6	1.4	41.6	18.1	10.3	81.9
#50	1.4	1.4	16.5	7.6	10.4	92.4
#100	1.4	1.3	3.1	2.1	5.5	97.9
LBW	1.2	1.0	0.5	0.9	1.2	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 4% for the 3/4" sieve when

a 1.5" max. size (nom. Max. 1.0") aggregate is used.

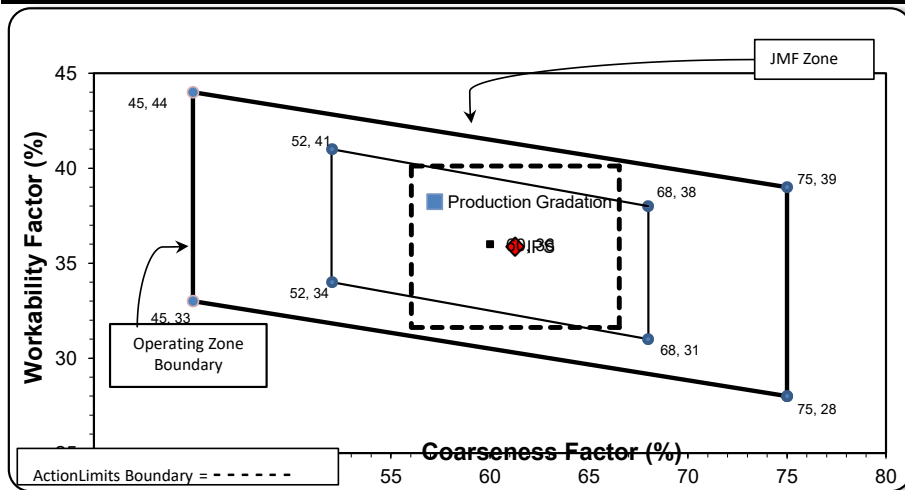
Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>57</b>	<b>Workability Factor:</b>	<b>36</b>	<b>38.2</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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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

PREPARED BY:  
SM, LLC Technical Service

Approved By:  
Nancy Donahue

# Aggregate Optimization Chart

**PLANT #:** **P-35**

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Contractor: \_\_\_\_\_

Dates Test Represents: 7/3/2026 through 7/9/2026

5 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stone Co	1500	8.94	2.69	51.0
26A	58-003	Stone Co	200	1.19	2.69	6.8
2NS	81-019	Pleasant Lk	1240	7.50	2.65	42.2
<b>Total Wt</b>			<b>2940</b>	<b>17.63</b>		<b>100.0</b>

<----- 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"	85.7	100.0	100.0	92.7	7.3	7.3
1/2"	44.7	99.5	100.0	71.8	21.0	28.2
3/8"	28.9	88.5	100.0	62.9	8.8	37.1
#4	5.3	9.6	98.5	44.9	18.0	55.1
#8	2.2	2.0	83.7	36.6	8.3	63.4
#16	1.8	1.7	66.3	29.0	7.6	71.0
#30	1.6	1.4	41.6	18.5	10.5	81.5
#50	1.4	1.4	16.5	7.8	10.7	92.2
#100	1.4	1.3	3.1	2.1	5.7	97.9
LBW	1.2	1.0	0.5	0.9	1.2	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 4% for the 3/4" sieve when

a 1.5" max. size (nom. Max. 1.0") aggregate is used.

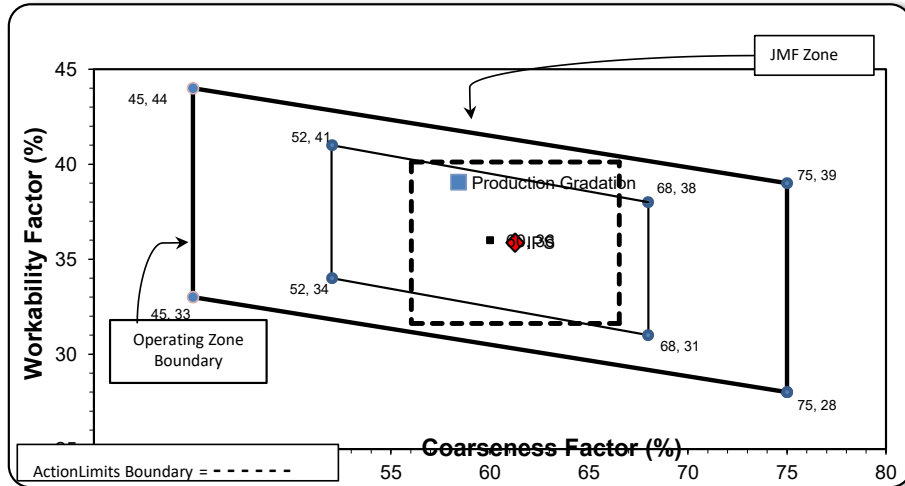
Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>58</b>	<b>Workability Factor:</b>	<b>37</b>	<b>39.1</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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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

PREPARED BY:  
SM, LLC Technical Service

Approved By:  
Nancy Donahue

# Aggregate Optimization Chart

**PLANT #:** **P-102**

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Contractor: \_\_\_\_\_

Dates Test Represents: 7/3/2026 through 7/9/2026

1 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stone Co	1530	9.11	2.69	49.7
1A	58-003	Stone Co	400	2.38	2.69	13.0
2NS	63-114	Highland Lk	1150	6.95	2.65	37.3
<b>Total Wt</b>			<b>3080</b>	<b>18.45</b>		<b>100.0</b>

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



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

Sieve	6AA	1A	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"	85.7	100.0	100.0	92.9	7.1	7.1
1/2"	44.7	87.2	100.0	70.9	22.0	29.1
3/8"	28.9	72.0	100.0	61.0	9.8	39.0
#4	5.3	18.5	98.8	41.9	19.1	58.1
#8	2.2	2.6	85.2	33.2	8.7	66.8
#16	1.8	1.6	68.6	26.7	6.5	73.3
#30	1.6	1.4	49.2	19.3	7.4	80.7
#50	1.4	1.2	22.5	9.3	10.1	90.7
#100	1.4	1.2	4.3	2.5	6.8	97.5
LBW	1.2	1.0	0.4	0.9	1.6	99.1

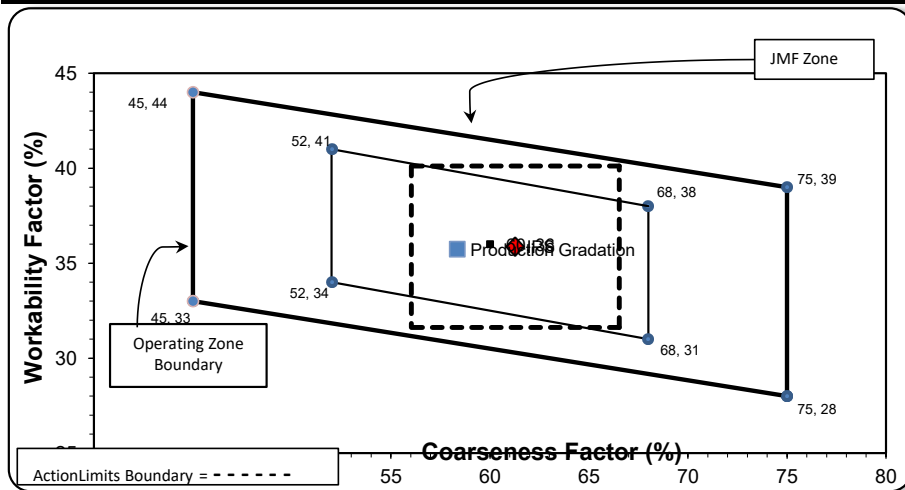
\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.  
 \*\*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.  
 \*\*\*% Retained must be at least 4% for the 3/4" sieve when 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)

<b>Coarseness Factor:</b>	<b>58</b>	<b>Workability Factor:</b>	<b>33</b>	<b>35.7</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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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

PREPARED BY:  
 SM, LLC Technical Service

Approved By:  
 Nancy Donahue

# Aggregate Optimization Chart

**PLANT #:** **P-102**

Contractor: \_\_\_\_\_

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Dates Test Represents: 7/3/2026 through 7/9/2026

5 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stone Co	1500	8.94	2.69	51.0
1A	58-003	Stone Co	320	1.91	2.69	10.9
2NS	63-114	Highland Lk	1120	6.77	2.65	38.1
<b>Total Wt</b>			<b>2940</b>	<b>17.62</b>		<b>100.0</b>

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



**Superior Materials, LLC**

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

Sieve	6AA	1A	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"	85.7	100.0	100.0	92.7	7.3	7.3
1/2"	44.7	87.2	100.0	70.4	22.3	29.6
3/8"	28.9	72.0	100.0	60.7	9.7	39.3
#4	5.3	18.5	98.8	42.4	18.3	57.6
#8	2.2	2.6	85.2	33.9	8.5	66.1
#16	1.8	1.6	68.6	27.2	6.6	72.8
#30	1.6	1.4	49.2	19.7	7.5	80.3
#50	1.4	1.2	22.5	9.4	10.3	90.6
#100	1.4	1.2	4.3	2.5	6.9	97.5
LBW	1.2	1.0	0.4	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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

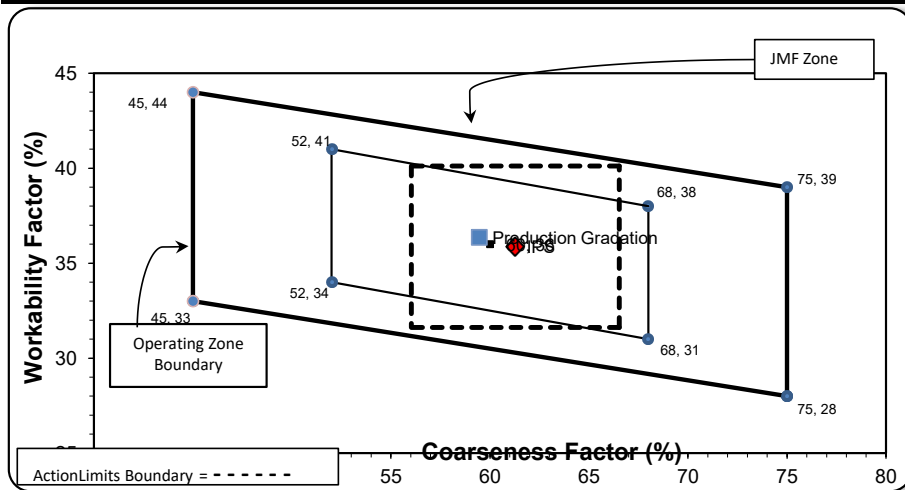
Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>59</b>	<b>Workability Factor:</b>	<b>34</b>	<b>36.4</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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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

PREPARED BY:  
SM, LLC Technical Service

Approved By:  
Nancy Donahue

# Aggregate Optimization Chart

**PLANT #:** **P-103**

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Contractor: \_\_\_\_\_

Dates Test Represents: 7/3/2026 through 7/9/2026

1 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stone Co	1530	9.11	2.69	49.7
1A	58-003	Stone Co	400	2.38	2.69	13.0
2NS	63-114	Highland Lk	1150	6.95	2.65	37.3
<b>Total Wt</b>			<b>3080</b>	<b>18.45</b>		<b>100.0</b>

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



**Superior Materials, LLC**

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

Sieve	6AA	1A	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"	85.7	100.0	100.0	92.9	7.1	7.1
1/2"	44.7	87.2	100.0	70.9	22.0	29.1
3/8"	28.9	72.0	100.0	61.0	9.8	39.0
#4	5.3	18.5	98.8	41.9	19.1	58.1
#8	2.2	2.6	85.2	33.2	8.7	66.8
#16	1.8	1.6	68.6	26.7	6.5	73.3
#30	1.6	1.4	49.2	19.3	7.4	80.7
#50	1.4	1.2	22.5	9.3	10.1	90.7
#100	1.4	1.2	4.3	2.5	6.8	97.5
LBW	1.2	1.0	0.4	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 4% for the 3/4" sieve when

a 1.5" max. size (nom. Max. 1.0") aggregate is used.

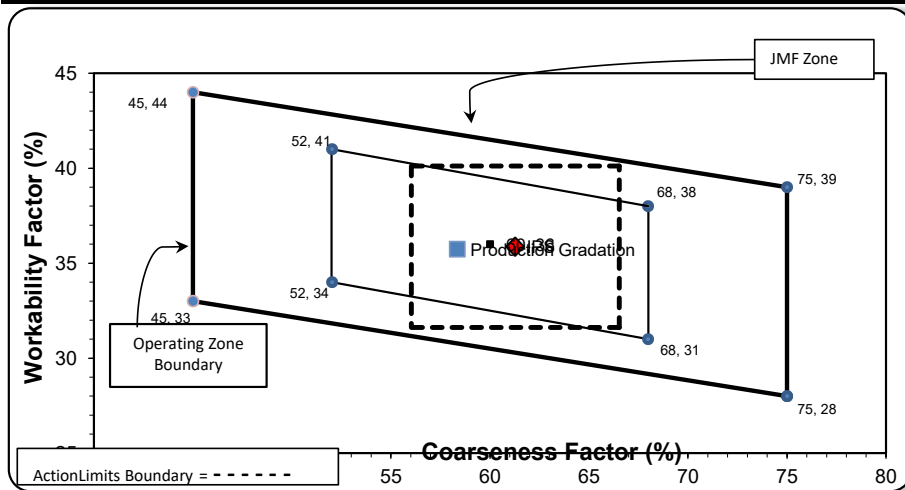
Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>58</b>	<b>Workability Factor:</b>	<b>33</b>	<b>35.7</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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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

PREPARED BY:  
SM, LLC Technical Service

Approved By:  
Nancy Donahue

# Aggregate Optimization Chart

**PLANT #:** **P-103**

Contractor: \_\_\_\_\_

Sample Date: 7/2/26

Concrete Grade: **DM-450HP**

Dates Test Represents: 7/3/2026 through 7/9/2026

5 inch slump

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	58-003	Stone Co	1500	8.94	2.69	51.0
1A	58-003	Stone Co	320	1.91	2.69	10.9
2NS	63-114	Highland Lk	1120	6.77	2.65	38.1
<b>Total Wt</b>			<b>2940</b>	<b>17.62</b>		<b>100.0</b>

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



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

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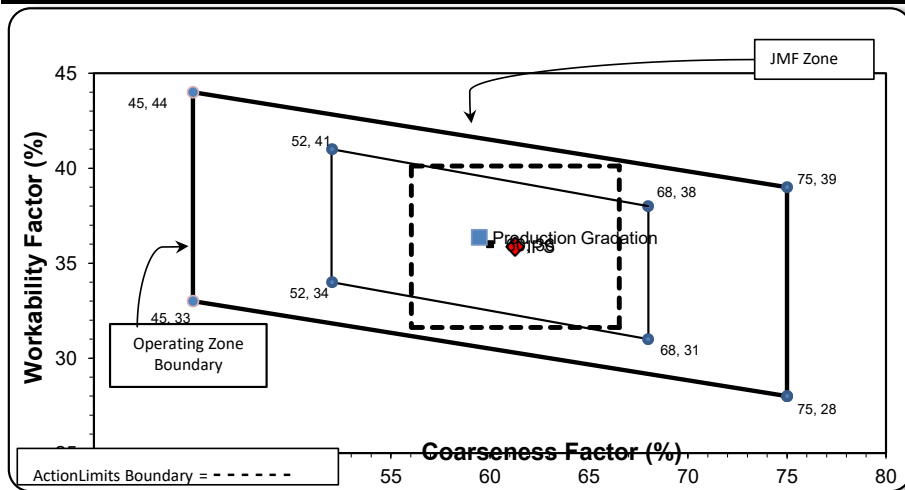
Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Adjusted WF Initial Production Sample (IPS)

<b>Coarseness Factor:</b>	<b>59</b>	<b>Workability Factor:</b>	<b>34</b>	<b>36.4</b>
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<b>Coarseness Factor:</b>	<b>61</b>
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<b>Workability Factor:</b>	<b>36</b>
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#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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