Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-101**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	51.7
26A	71-47	Presque Isle	250	1.53	2.62	8.6
2NS	75-051	Mid Michigan	1150	6.93	2.66	39.7
		Total Wt	**2900**	**17.63**		100.0

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

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"	99.3	100.0	100.0	99.6	0.4	0.4
3/4"	85.9	100.0	100.0	92.7	6.9	7.3
1/2"	43.7	97.0	100.0	70.6	22.1	29.4
3/8"	25.5	88.7	100.0	60.5	10.1	39.5
#4	4.3	22.6	96.4	42.4	18.1	57.6
#8	2.5	4.9	80.6	33.7	8.7	66.3
#16	2.3	2.2	66.2	27.6	6.0	72.4
#30	2.2	1.8	51.2	21.6	6.0	78.4
#50	2.1	1.6	24.1	10.8	10.8	89.2
#100	2.0	1.5	7.4	4.1	6.7	95.9
LBW	1.7	1.4	0.9	1.4	2.7	98.6

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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

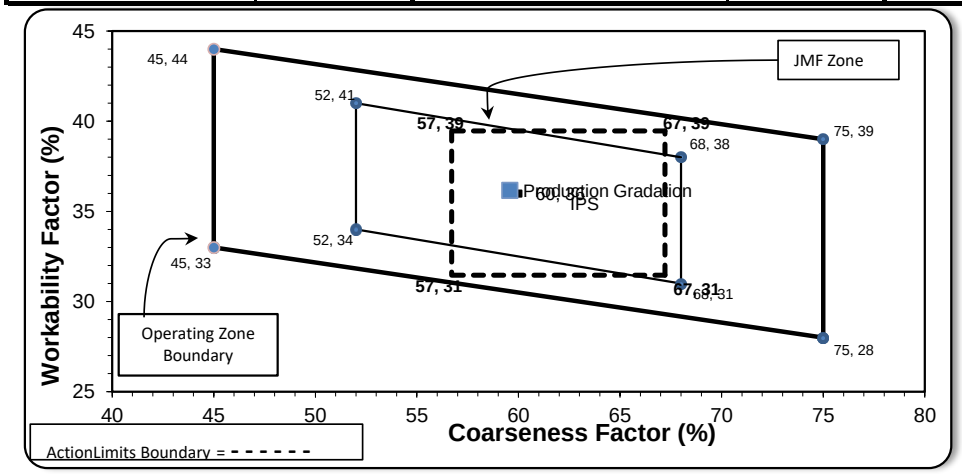
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	60	Workability Factor:	34	Adjusted WF 36.2

Initial Production Sample (IPS)

Coarseness Factor:	62
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"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	70.5	24.5	29.5
3/8"	60.0	10.5	40.0
#4	44.4	15.6	55.6
#8	35.5	9.0	64.5
#16	28.5	7.0	71.5
#30	21.5	7.0	78.5
#50	10.2	11.3	89.8
#100	3.1	7.1	96.9
LBW	1.3	1.8	98.7



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SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-102**

Contractor: _____

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.8
26A	58-003	Stoneco	300	1.79	2.69	10.2
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
		Total Wt	**2950**	**17.68**		100.0

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

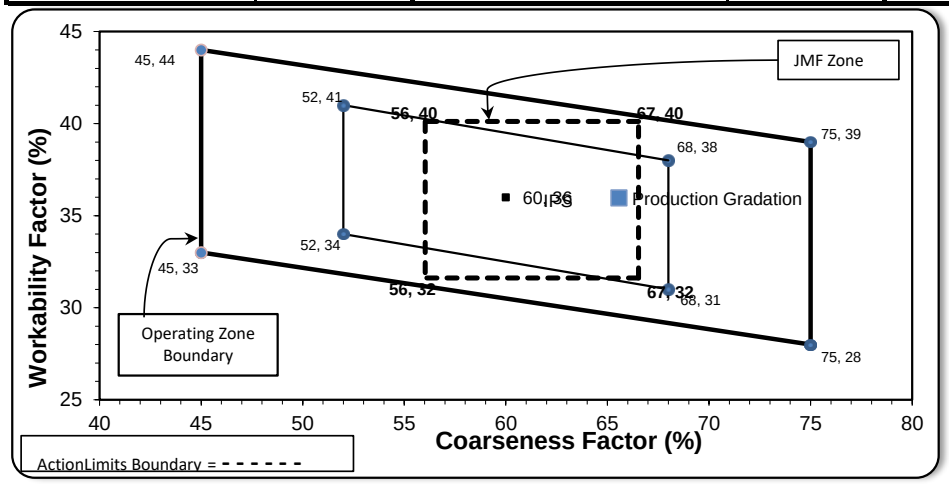
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	79.1	100.0	100.0	89.4	10.6	10.6
1/2"	37.6	99.4	100.0	68.2	21.2	31.8
3/8"	17.1	85.6	100.0	56.4	11.8	43.6
#4	2.7	10.8	97.9	40.6	15.7	59.4
#8	1.7	2.5	83.0	33.5	7.2	66.5
#16	1.5	1.8	66.4	26.8	6.6	73.2
#30	1.4	1.6	47.2	19.3	7.6	80.7
#50	1.3	1.4	23.2	9.8	9.4	90.2
#100	1.3	1.4	4.4	2.5	7.3	97.5
LBW	1.0	1.2	0.4	0.8	1.7	99.2

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 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

Coarseness Factor:	66	Workability Factor:	33	Adjusted WF 36.0



Intial Production Sample (IPS)

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

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.8
26A	58-003	Stoneco	300	1.79	2.69	10.2
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
		Total Wt	**2950**	**17.68**		100.0

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

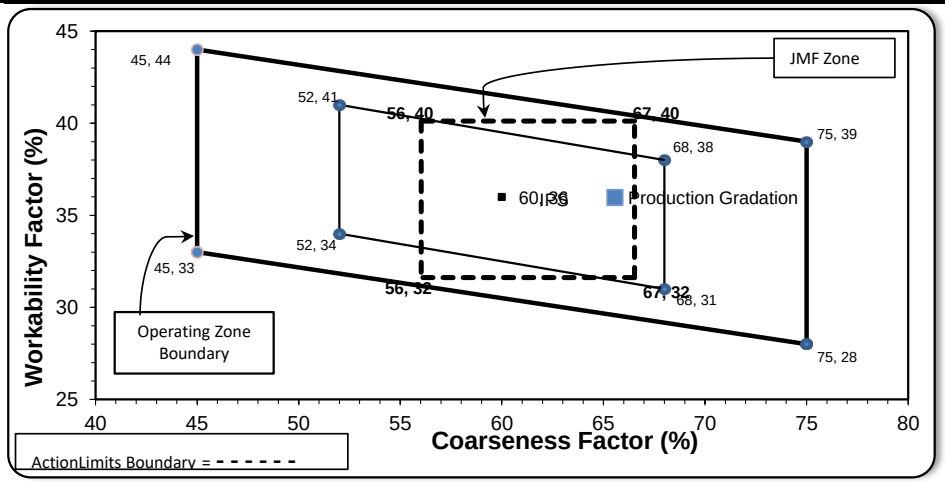
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	79.1	100.0	100.0	89.4	10.6	10.6
1/2"	37.6	99.4	100.0	68.2	21.2	31.8
3/8"	17.1	85.6	100.0	56.4	11.8	43.6
#4	2.7	10.8	97.9	40.6	15.7	59.4
#8	1.7	2.5	83.0	33.5	7.2	66.5
#16	1.5	1.8	66.4	26.8	6.6	73.2
#30	1.4	1.6	47.2	19.3	7.6	80.7
#50	1.3	1.4	23.2	9.8	9.4	90.2
#100	1.3	1.4	4.4	2.5	7.3	97.5
LBW	1.0	1.2	0.4	0.8	1.7	99.2

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 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

Coarseness Factor:	66	Workability Factor:	33	Adjusted WF 36.0



Intial Production Sample (IPS)

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

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: 14

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.7
26A	58-003	Stoneco	360	2.14	2.69	12.2
2NS	19-04	Schlegel	1100	6.60	2.67	37.2
		Total Wt	**2960**	**17.68**		100.0

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

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"	79.1	100.0	100.0	89.4	10.6	10.6
1/2"	37.6	99.4	100.0	68.3	21.1	31.7
3/8"	17.1	85.6	100.0	56.2	12.1	43.8
#4	2.7	10.8	99.9	39.8	16.4	60.2
#8	1.7	2.5	90.1	34.6	5.2	65.4
#16	1.5	1.8	69.4	26.8	7.9	73.2
#30	1.4	1.6	44.5	17.4	9.3	82.6
#50	1.3	1.4	14.3	6.1	11.3	93.9
#100	1.3	1.4	2.7	1.8	4.3	98.2
LBW	1.0	1.2	0.2	0.7	1.1	99.3

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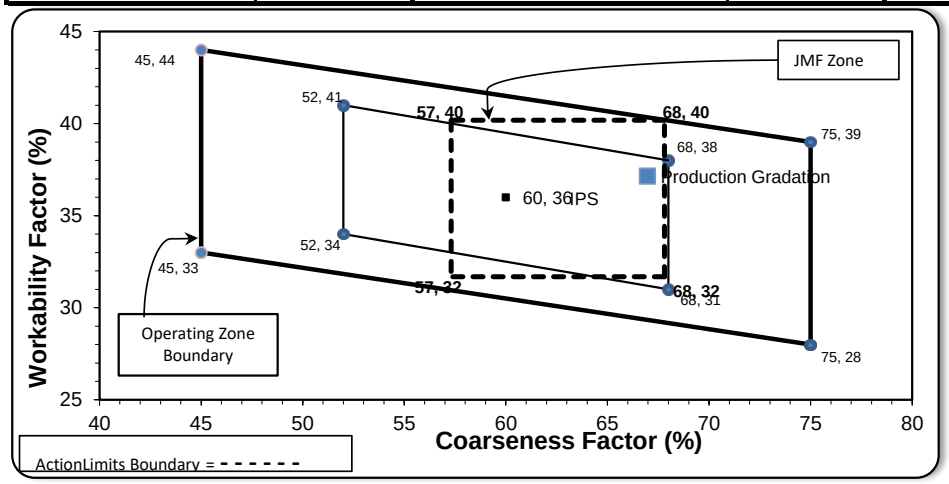
Suite 500
Farmington Hills, MI 48336

*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 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

Coarseness Factor:	67	Workability Factor:	35	Adjusted WF 37.1



Intial Production Sample (IPS)

Coarseness Factor:	63
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"	89.0	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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SM, LLC Technical Service

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: 12

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	49.9
26A	71-47	Presque Isle	305	1.87	2.62	10.5
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		100.0

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

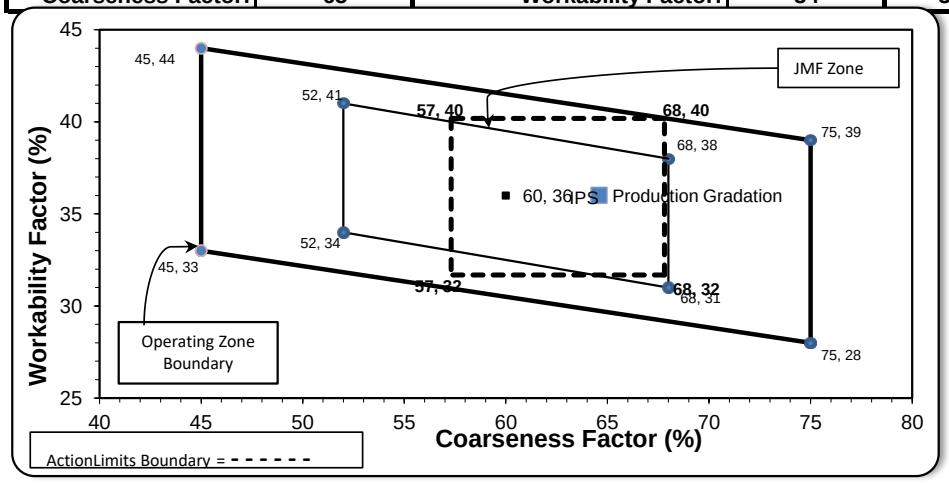
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.5	100.0	100.0	98.3	1.7	1.7
3/4"	75.9	100.0	100.0	88.0	10.3	12.0
1/2"	34.7	94.3	100.0	66.8	21.2	33.2
3/8"	16.9	86.0	100.0	57.1	9.8	42.9
#4	2.9	27.9	96.0	42.4	14.7	57.6
#8	1.6	6.5	80.9	33.5	8.9	66.5
#16	1.4	3.2	65.9	27.1	6.4	72.9
#30	1.4	2.6	49.5	20.6	6.6	79.4
#50	1.3	2.4	25.5	11.0	9.6	89.0
#100	1.3	2.3	5.4	3.0	8.0	97.0
LBW	1.0	2.0	0.6	0.9	2.1	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.

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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

				Adjusted WF
Coarseness Factor:	**65**	**Workability Factor:**	**34**	**36.0**



Intial Production Sample (IPS)

Coarseness Factor:	**63**
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"	89.0	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

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **p11**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1
26A	71-47	Presque Isle	300	1.83	2.62	10.3
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		100.0

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

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"	97.8	100.0	100.0	98.9	1.1	1.1
3/4"	79.6	100.0	100.0	89.8	9.1	10.2
1/2"	43.3	94.3	100.0	71.0	18.8	29.0
3/8"	25.5	86.0	100.0	61.2	9.8	38.8
#4	5.2	27.9	97.2	44.0	17.3	56.0
#8	2.7	6.5	85.4	35.8	8.1	64.2
#16	2.2	3.2	69.9	29.1	6.7	70.9
#30	2.1	2.6	50.3	21.2	7.9	78.8
#50	2.0	2.4	24.6	11.0	10.2	89.0
#100	1.9	2.3	7.2	4.0	6.9	96.0
LBW	1.4	2.0	0.9	1.3	2.8	98.7

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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

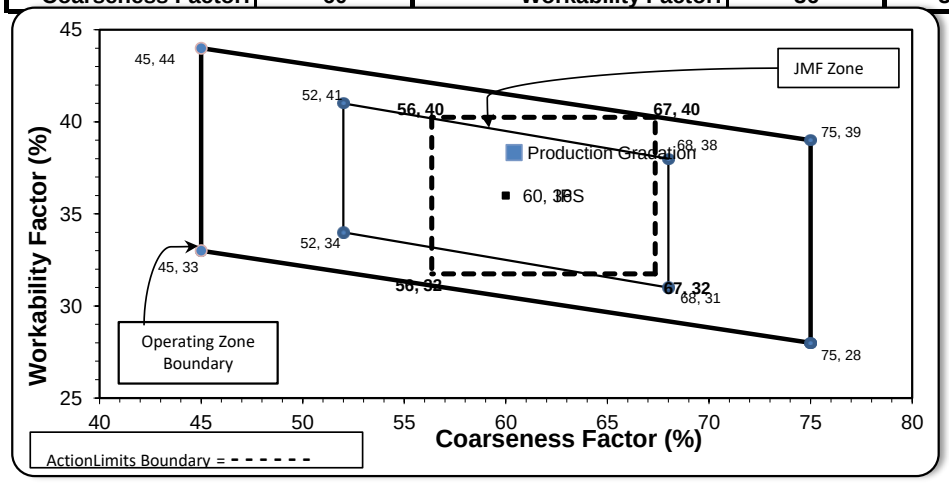
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	60	Workability Factor:	36	Adjusted WF 38.3

Intial Production Sample (IPS)

Coarseness Factor:	62
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"	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-32**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1
26A	71-47	Presque Isle	300	1.83	2.62	10.3
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		100.0

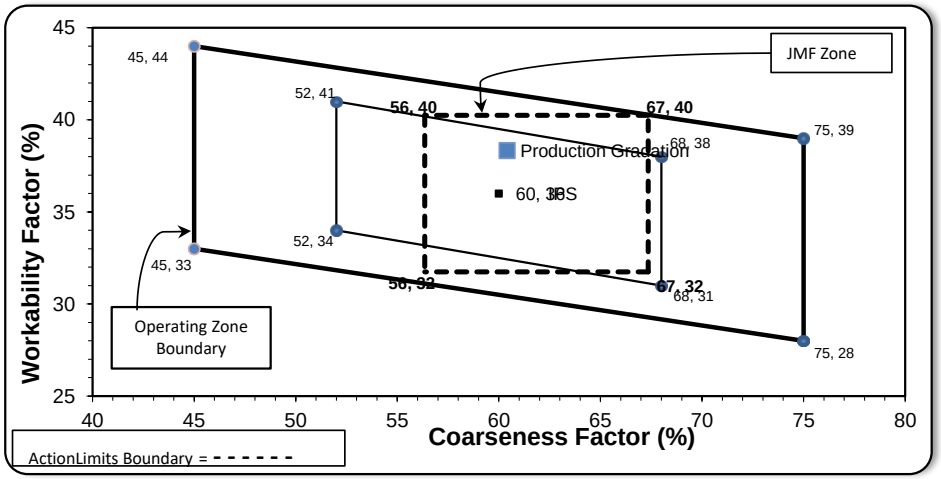
<----- Verify this number is 100%

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"	97.8	100.0	100.0	98.9	1.1	1.1
3/4"	79.6	100.0	100.0	89.8	9.1	10.2
1/2"	43.3	94.3	100.0	71.0	18.8	29.0
3/8"	25.5	86.0	100.0	61.2	9.8	38.8
#4	5.2	27.9	97.2	44.0	17.3	56.0
#8	2.7	6.5	85.4	35.8	8.1	64.2
#16	2.2	3.2	69.9	29.1	6.7	70.9
#30	2.1	2.6	50.3	21.2	7.9	78.8
#50	2.0	2.4	24.6	11.0	10.2	89.0
#100	1.9	2.3	7.2	4.0	6.9	96.0
LBW	1.4	2.0	0.9	1.3	2.8	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 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

Coarseness Factor:	60	Workability Factor:	36	Adjusted WF 38.3



Intial Production Sample (IPS)

Coarseness Factor:	62
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"	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

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-35**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.8
26A	58-003	Stoneco	300	1.79	2.69	10.2
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
		Total Wt	**2950**	**17.68**		100.0

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

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"	79.1	100.0	100.0	89.4	10.6	10.6
1/2"	37.6	99.4	100.0	68.2	21.2	31.8
3/8"	17.1	85.6	100.0	56.4	11.8	43.6
#4	2.7	10.8	97.9	40.6	15.7	59.4
#8	1.7	2.5	83.0	33.5	7.2	66.5
#16	1.5	1.8	66.4	26.8	6.6	73.2
#30	1.4	1.6	47.2	19.3	7.6	80.7
#50	1.3	1.4	23.2	9.8	9.4	90.2
#100	1.3	1.4	4.4	2.5	7.3	97.5
LBW	1.0	1.2	0.4	0.8	1.7	99.2

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Suite 500
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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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

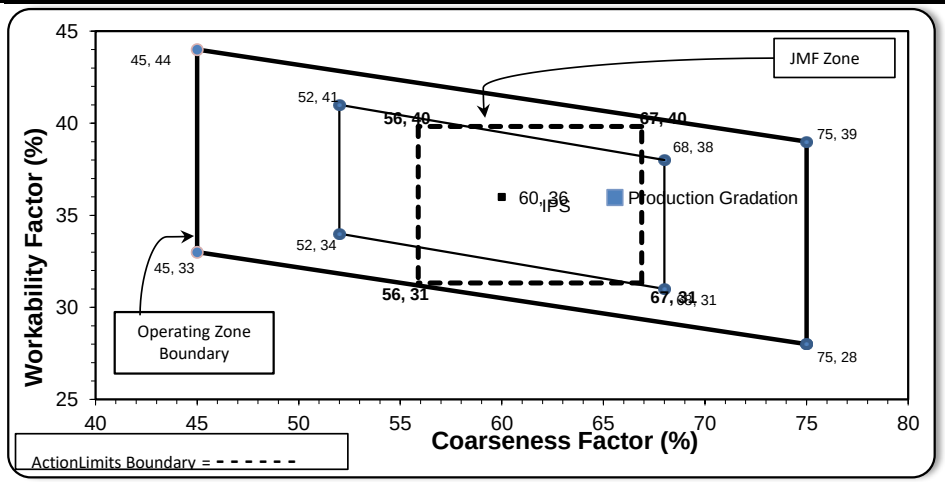
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	66	Workability Factor:	33	Adjusted WF 36.0

Intial Production Sample (IPS)

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"	89.1	10.2	10.9
1/2"	70.5	18.6	29.5
3/8"	60.5	10.0	39.5
#4	44.1	16.4	55.9
#8	35.6	8.5	64.4
#16	27.7	7.9	72.3
#30	20.6	7.1	79.4
#50	8.7	11.8	91.3
#100	1.6	7.1	98.4
LBW	1.1	0.6	98.9



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SM, LLC Technical Service

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	49.9
26A	71-47	Presque Isle	305	1.87	2.62	10.5
2NS	63-92	Grange Hall	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		100.0

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

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"	96.5	100.0	100.0	98.3	1.7	1.7
3/4"	75.9	100.0	100.0	88.0	10.3	12.0
1/2"	34.7	94.3	100.0	66.8	21.2	33.2
3/8"	16.9	86.0	100.0	57.1	9.8	42.9
#4	2.9	27.9	97.2	42.9	14.2	57.1
#8	1.6	6.5	82.6	34.2	8.7	65.8
#16	1.4	3.2	67.9	27.9	6.3	72.1
#30	1.4	2.6	49.3	20.5	7.4	79.5
#50	1.3	2.4	20.4	9.0	11.5	91.0
#100	1.3	2.3	3.4	2.2	6.7	97.8
LBW	1.0	2.0	0.8	1.0	1.2	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.

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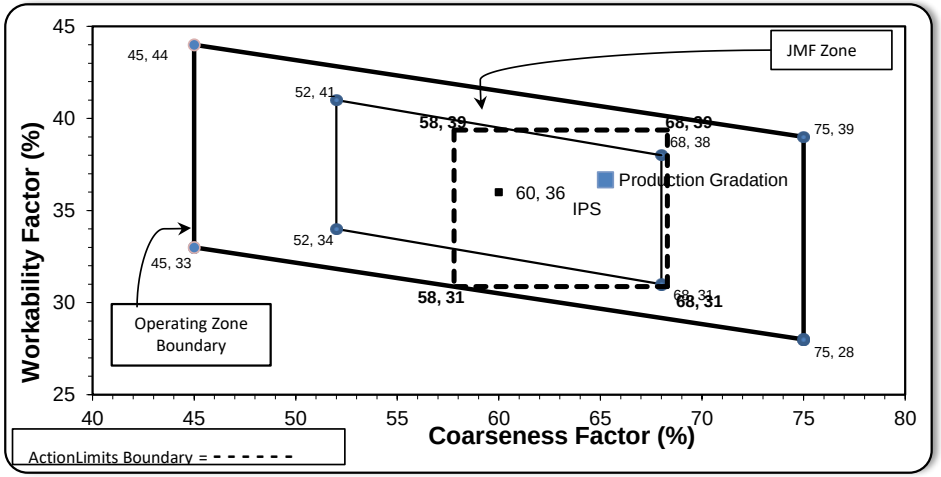
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	65	Workability Factor:	34	Adjusted WF 36.7



Intial Production Sample (IPS)

Coarseness Factor:	63
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"	99.1	0.9	0.9
3/4"	90.3	8.8	9.7
1/2"	69.2	21.1	30.8
3/8"	59.1	10.1	40.9
#4	41.8	17.3	58.2
#8	35.1	6.6	64.9
#16	28.5	6.6	71.5
#30	21.2	7.3	78.8
#50	8.7	12.5	91.3
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-38**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	50.8
26A	58-003	Stoneco	300	1.79	2.69	10.2
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
		Total Wt	**2950**	**17.68**		100.0

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

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"	79.1	100.0	100.0	89.4	10.6	10.6
1/2"	37.6	99.4	100.0	68.2	21.2	31.8
3/8"	17.1	85.6	100.0	56.4	11.8	43.6
#4	2.7	10.8	97.9	40.6	15.7	59.4
#8	1.7	2.5	83.0	33.5	7.2	66.5
#16	1.5	1.8	66.4	26.8	6.6	73.2
#30	1.4	1.6	47.2	19.3	7.6	80.7
#50	1.3	1.4	23.2	9.8	9.4	90.2
#100	1.3	1.4	4.4	2.5	7.3	97.5
LBW	1.0	1.2	0.4	0.8	1.7	99.2

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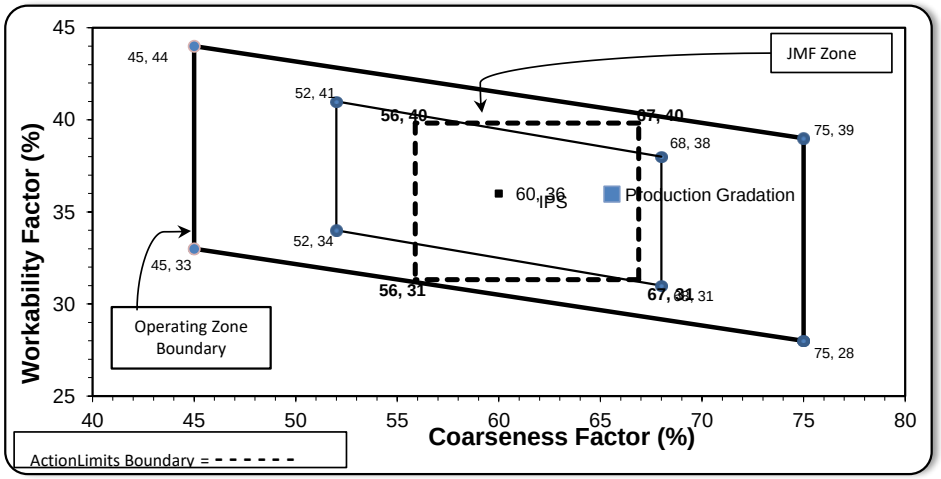
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for the 3/4" sieve when a 1.5" max. size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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	66	Workability Factor:	33	Adjusted WF 36.0



Intial Production Sample (IPS)

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"	89.1	10.2	10.9
1/2"	70.5	18.6	29.5
3/8"	60.5	10.0	39.5
#4	44.1	16.4	55.9
#8	35.6	8.5	64.4
#16	27.7	7.9	72.3
#30	20.6	7.1	79.4
#50	8.7	11.8	91.3
#100	1.6	7.1	98.4
LBW	1.1	0.6	98.9

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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-39**

Contractor:

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	200	1.22	2.62	6.9
2NS	44-051	Krake Willis Rd	1100	6.65	2.65	37.9
		Total Wt	**2905**	**17.69**		100.0

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

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"	99.3	100.0	100.0	99.6	0.4	0.4
3/4"	85.9	100.0	100.0	92.2	7.4	7.8
1/2"	43.7	97.0	100.0	68.7	23.5	31.3
3/8"	25.5	88.7	100.0	58.1	10.6	41.9
#4	4.3	22.6	98.9	41.4	16.7	58.6
#8	2.5	4.9	84.6	33.8	7.6	66.2
#16	2.3	2.2	68.9	27.5	6.2	72.5
#30	2.2	1.8	49.7	20.2	7.4	79.8
#50	2.1	1.6	23.8	10.3	9.9	89.7
#100	2.0	1.5	6.5	3.7	6.6	96.3
LBW	1.7	1.4	1.6	1.6	2.0	98.4

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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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

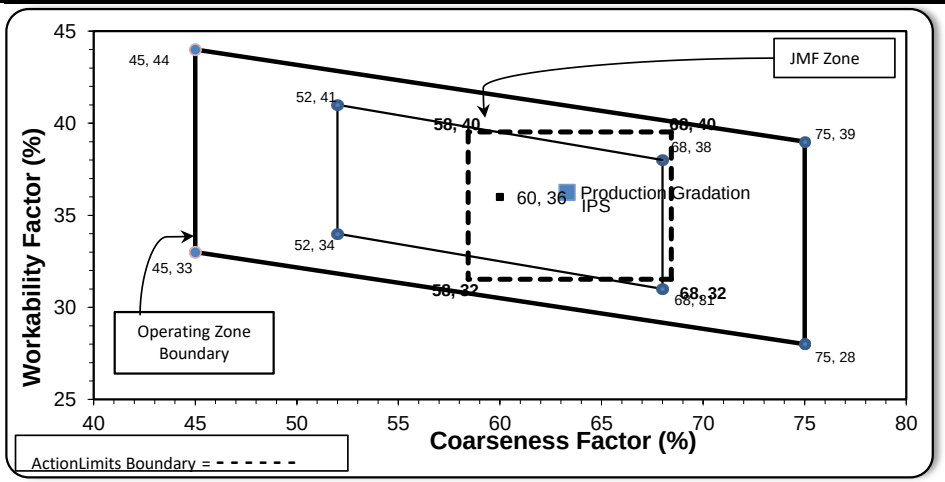
Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	63	Workability Factor:	34	Adjusted WF 36.3

Intial Production Sample (IPS)

Coarseness Factor:	63
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"	100.0	0.0	0.0
3/4"	89.7	10.3	10.3
1/2"	70.3	19.4	29.7
3/8"	59.1	11.2	40.9
#4	42.8	16.3	57.2
#8	35.5	7.3	64.5
#16	29.0	6.5	71.0
#30	21.2	7.7	78.8
#50	9.8	11.5	90.2
#100	3.7	6.1	96.3
LBW	1.2	2.5	98.8



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Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-O2**

Contractor: _____

Sample Date: 9/18/23

Concrete Grade: **DM, 4500HP**

Dates Test Represents: 9/19/2023 through 9/25/2023

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	49.9
26A	71-47	Presque Isle	305	1.87	2.62	10.5
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
		Total Wt	**2905**	**17.69**		100.0

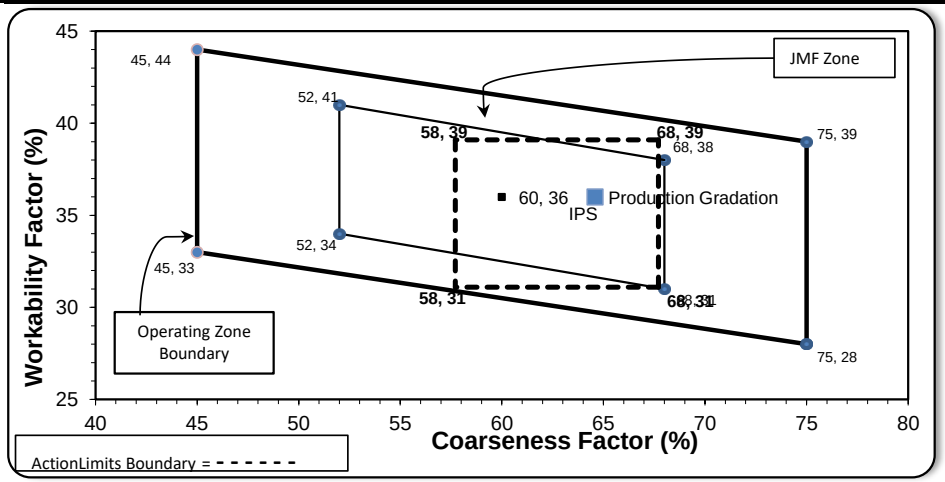
<----- Verify this number is 100%

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"	96.5	100.0	100.0	98.3	1.7	1.7
3/4"	75.9	100.0	100.0	88.0	10.3	12.0
1/2"	34.7	94.3	100.0	66.8	21.2	33.2
3/8"	16.9	86.0	100.0	57.1	9.8	42.9
#4	2.9	27.9	96.0	42.4	14.7	57.6
#8	1.6	6.5	80.9	33.5	8.9	66.5
#16	1.4	3.2	65.9	27.1	6.4	72.9
#30	1.4	2.6	49.5	20.6	6.6	79.4
#50	1.3	2.4	25.5	11.0	9.6	89.0
#100	1.3	2.3	5.4	3.0	8.0	97.0
LBW	1.0	2.0	0.6	0.9	2.1	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 SupplierGradations

Coarseness Factor:	65	Workability Factor:	34	Adjusted WF 36.0



Intial Production Sample (IPS)

Coarseness Factor:	63
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"	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

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