Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-101**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1725	10.55	2.62	56.5
26A	71-47	Presque Isle	100	0.61	2.62	3.3
2NS	75-051	Mid-Michigan	1230	7.41	2.66	40.3
		Total Wt	**3055**	**18.57**		100.0

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

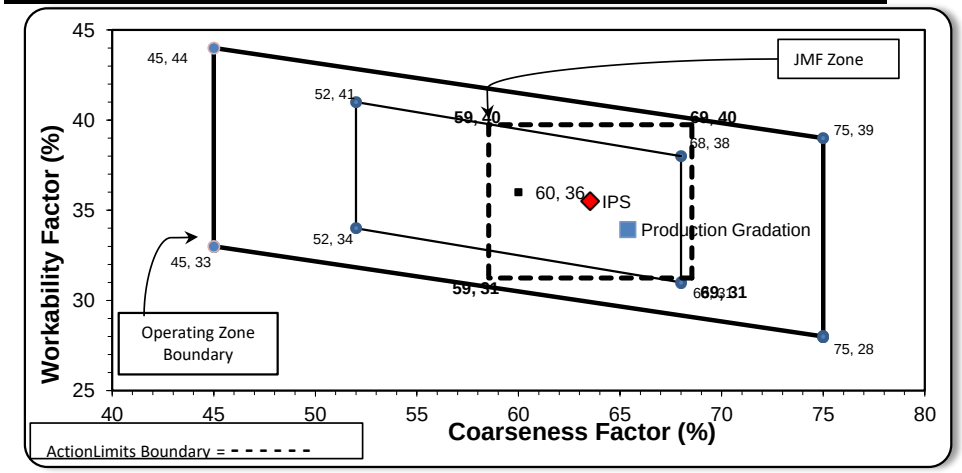
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	98.2	100.0	100.0	99.0	1.0	1.0
3/4"	78.2	100.0	100.0	87.7	11.3	12.3
1/2"	39.1	96.7	100.0	65.5	22.2	34.5
3/8"	24.3	86.4	100.0	56.8	8.7	43.2
#4	4.2	14.5	98.5	42.5	14.3	57.5
#8	2.2	3.8	80.9	33.9	8.6	66.1
#16	1.9	2.0	64.1	26.9	7.0	73.1
#30	1.9	1.7	48.6	20.7	6.3	79.3
#50	1.8	1.5	24.3	10.8	9.8	89.2
#100	1.7	1.4	4.8	2.9	7.9	97.1
LBW	1.5	1.3	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.

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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	65	Workability Factor:	34



Initial Production Sample (IPS)

Coarseness Factor:	64
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"	93.9	6.1	6.1
1/2"	71.4	22.5	28.6
3/8"	59.0	12.4	41.0
#4	45.1	13.9	54.9
#8	35.5	9.6	64.5
#16	28.3	7.2	71.7
#30	21.3	6.9	78.7
#50	11.0	10.3	89.0
#100	3.4	7.6	96.6
LBW	1.1	2.3	98.9

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-102**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1640	9.77	2.69	52.9
26A	58-003	Stoneco	250	1.49	2.69	8.1
2NS	63-114	Highland	1210	7.32	2.65	39.0
		Total Wt	**3100**	**18.58**		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"	83.2	100.0	100.0	91.1	8.9	8.9
1/2"	45.5	99.6	100.0	71.1	20.0	28.9
3/8"	22.4	87.1	100.0	57.9	13.2	42.1
#4	3.9	24.8	99.2	42.8	15.1	57.2
#8	1.6	6.7	85.4	34.7	8.1	65.3
#16	1.2	3.3	69.0	27.8	6.9	72.2
#30	1.1	2.6	48.9	19.9	8.0	80.1
#50	1.0	2.4	17.8	7.7	12.2	92.3
#100	0.9	2.3	3.4	2.0	5.7	98.0
LBW	0.7	2.2	0.3	0.7	1.3	99.3

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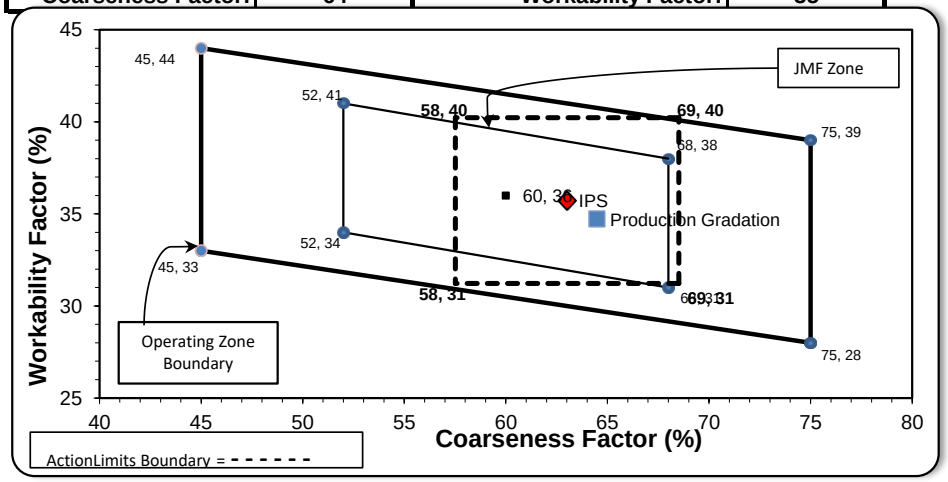
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	64	Workability Factor:	35



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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-103**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1640	9.77	2.69	52.9
26A	58-003	Stoneco	250	1.49	2.69	8.1
2NS	63-114	Highland	1210	7.32	2.65	39.0
		Total Wt	**3100**	**18.58**		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"	83.2	100.0	100.0	91.1	8.9	8.9
1/2"	45.5	99.6	100.0	71.1	20.0	28.9
3/8"	22.4	87.1	100.0	57.9	13.2	42.1
#4	3.9	24.8	99.2	42.8	15.1	57.2
#8	1.6	6.7	85.4	34.7	8.1	65.3
#16	1.2	3.3	69.0	27.8	6.9	72.2
#30	1.1	2.6	48.9	19.9	8.0	80.1
#50	1.0	2.4	17.8	7.7	12.2	92.3
#100	0.9	2.3	3.4	2.0	5.7	98.0
LBW	0.7	2.2	0.3	0.7	1.3	99.3

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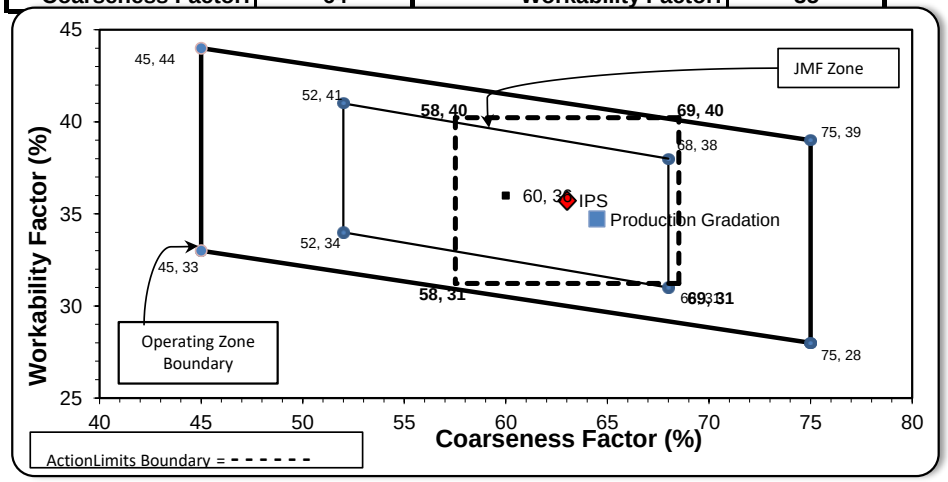
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	64	Workability Factor:	35



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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
SM, LLC Technical Service

Approved BY:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-12**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	52.5
26A	71-47	Presque Isle	220	1.35	2.62	7.2
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
		Total Wt	**3050**	**18.57**		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"	97.4	100.0	100.0	98.6	1.4	1.4
3/4"	72.6	100.0	100.0	85.6	13.0	14.4
1/2"	38.7	97.4	100.0	67.7	18.0	32.3
3/8"	21.3	84.6	100.0	57.6	10.1	42.4
#4	4.8	21.2	98.0	43.6	14.0	56.4
#8	2.9	6.8	81.4	34.8	8.7	65.2
#16	2.5	3.8	64.9	27.8	7.1	72.2
#30	2.4	3.3	48.5	21.1	6.7	78.9
#50	2.3	3.0	22.9	10.7	10.4	89.3
#100	2.1	2.8	3.5	2.7	7.9	97.3
LBW	1.5	2.4	0.5	1.2	1.6	98.8

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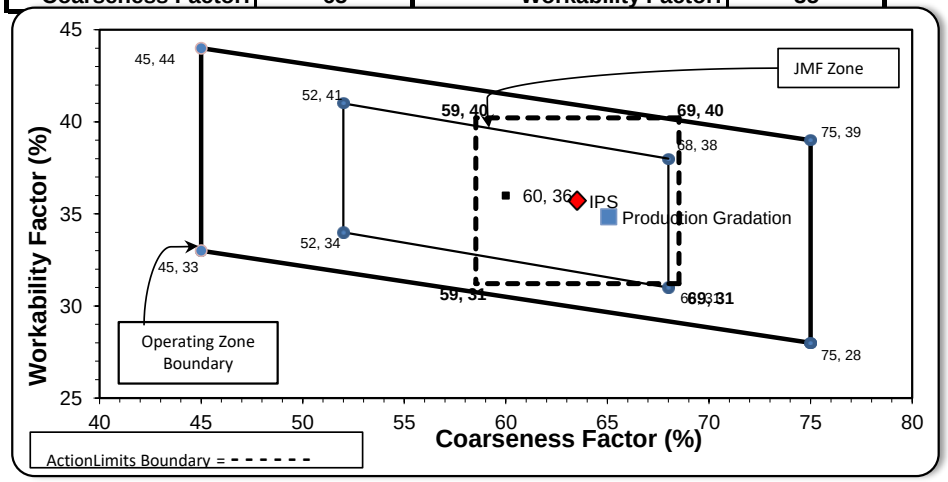
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

*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 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:	65	Workability Factor:	35



Intial Production Sample (IPS)

Coarseness Factor:	64
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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.2	12.1	40.8
#4	41.5	17.7	58.5
#8	35.7	5.8	64.3
#16	27.9	7.9	72.1
#30	18.3	9.5	81.7
#50	7.3	11.0	92.7
#100	2.0	5.3	98.0
LBW	0.9	1.1	99.1

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1820	11.13	2.62	59.7
26A	71-47	Presque Isle	0	0.00	2.62	0.0
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
		Total Wt	**3050**	**18.57**		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"	96.3	100.0	100.0	97.8	2.2	2.2
3/4"	83.1	100.0	100.0	89.9	7.9	10.1
1/2"	50.8	97.4	100.0	70.6	19.3	29.4
3/8"	31.9	84.6	100.0	59.4	11.3	40.6
#4	6.6	21.2	96.4	42.8	16.5	57.2
#8	2.9	6.8	83.7	35.5	7.3	64.5
#16	2.4	3.8	67.6	28.7	6.8	71.3
#30	2.2	3.3	45.8	19.8	8.9	80.2
#50	2.1	3.0	22.5	10.3	9.5	89.7
#100	2.1	2.8	7.1	4.1	6.2	95.9
LBW	1.6	2.4	1.6	1.6	2.5	98.4

*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 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Superior Materials, LLC
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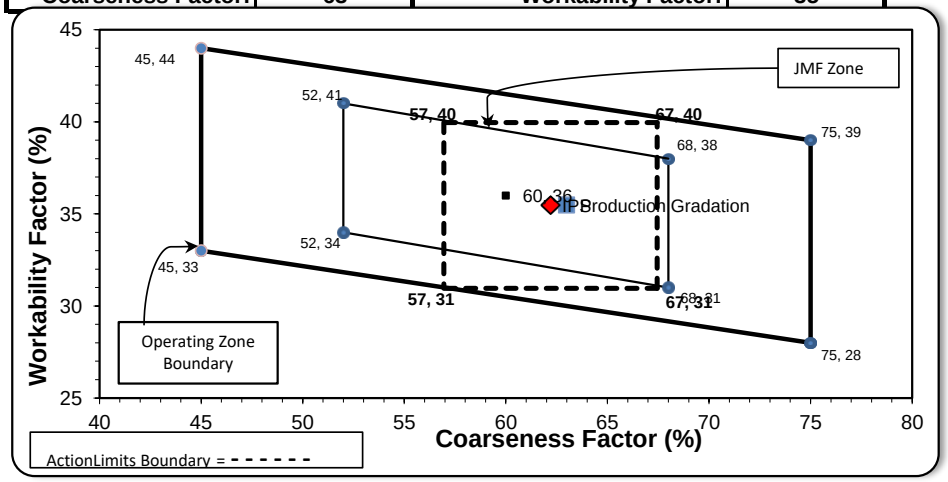
Suite 500
Farmington Hills, MI 48336

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	63	Workability Factor:	35



Intial 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"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	49.2
26A	71-47	Presque Isle	350	2.14	2.62	11.5
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
		Total Wt	**3050**	**18.57**		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"	97.4	100.0	100.0	98.7	1.3	1.3
3/4"	72.6	100.0	100.0	86.5	12.2	13.5
1/2"	38.7	97.4	100.0	69.6	17.0	30.4
3/8"	21.3	84.6	100.0	59.5	10.0	40.5
#4	4.8	21.2	97.4	43.1	16.4	56.9
#8	2.9	6.8	84.6	35.5	7.6	64.5
#16	2.5	3.8	69.4	29.0	6.5	71.0
#30	2.4	3.3	48.5	20.6	8.3	79.4
#50	2.3	3.0	17.1	8.2	12.4	91.8
#100	2.1	2.8	2.1	2.2	6.0	97.8
LBW	1.5	2.4	0.4	1.2	1.0	98.8

*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.

Superior Materials, LLC
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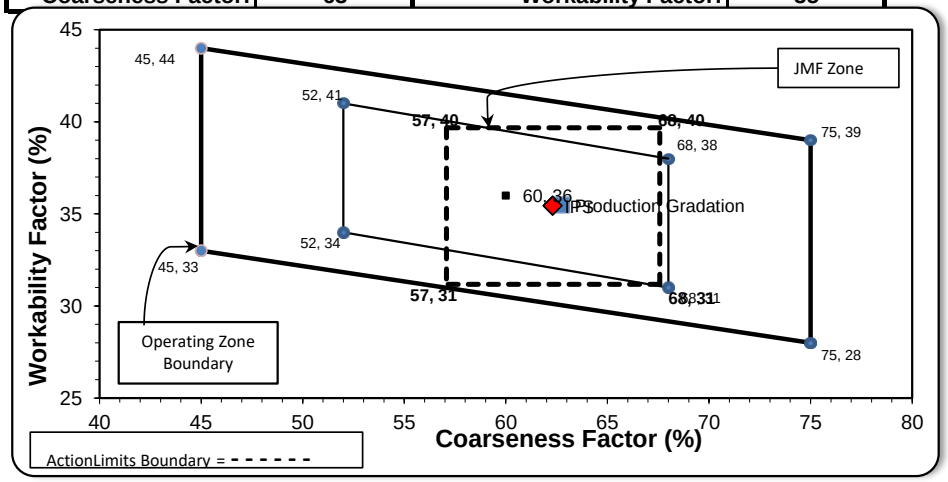
Farmington Hills, MI 48336

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	63	Workability Factor:	35



Intial 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"	99.1	0.9	0.9
3/4"	90.5	8.6	9.5
1/2"	69.8	20.7	30.2
3/8"	59.8	10.0	40.2
#4	42.2	17.6	57.8
#8	35.4	6.7	64.6
#16	28.8	6.7	71.2
#30	21.4	7.4	78.6
#50	8.8	12.6	91.2
#100	1.8	7.0	98.2
LBW	0.7	1.0	99.3

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-39**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1650	10.09	2.62	54.1
26A	71-47	Presque Isle	150	0.92	2.62	4.9
2NS	44-051	Krake Willis Rd	1250	7.56	2.65	41.0
		Total Wt	**3050**	**18.57**		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"	98.2	100.0	100.0	99.0	1.0	1.0
3/4"	78.2	100.0	100.0	88.2	10.8	11.8
1/2"	39.1	96.7	100.0	66.9	21.3	33.1
3/8"	24.3	86.4	100.0	58.4	8.5	41.6
#4	4.2	14.5	95.6	42.2	16.2	57.8
#8	2.2	3.8	80.6	34.4	7.8	65.6
#16	1.9	2.0	64.8	27.7	6.7	72.3
#30	1.9	1.7	50.2	21.7	6.0	78.3
#50	1.8	1.5	26.3	11.8	9.9	88.2
#100	1.7	1.4	7.8	4.2	7.6	95.8
LBW	1.5	1.3	0.9	1.2	2.9	98.8

Superior Materials, LLC
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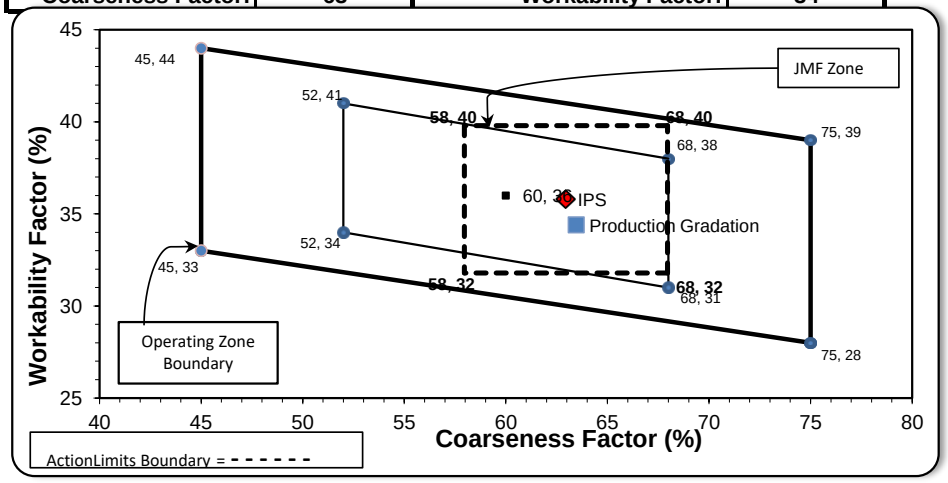
Suite 500
Farmington Hills, MI 48336

*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 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:	63	Workability Factor:	34



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"	89.8	10.2	10.2
1/2"	70.7	19.1	29.3
3/8"	59.6	11.1	40.4
#4	43.2	16.4	56.8
#8	35.8	7.4	64.2
#16	29.2	6.6	70.8
#30	21.4	7.8	78.6
#50	9.8	11.6	90.2
#100	3.7	6.1	96.3
LBW	1.2	2.5	98.8

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-O2**

Contractor:

Sample Date: 9/28/20

Concrete Grade: **S2M**

Dates Test Represents: 9/29/2020 through 10/5/2020

MDOT No.:

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1550	9.48	2.62	50.8
26A	71-47	Presque Isle	200	1.22	2.62	6.6
2NS	63-115	Ray Rd	1300	7.86	2.65	42.6
		Total Wt	**3050**	**18.57**		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"	97.4	100.0	100.0	98.7	1.3	1.3
3/4"	72.6	100.0	100.0	86.1	12.6	13.9
1/2"	38.7	97.4	100.0	68.7	17.4	31.3
3/8"	21.3	84.6	100.0	59.0	9.7	41.0
#4	4.8	21.2	98.0	45.6	13.4	54.4
#8	2.9	6.8	81.4	36.6	9.0	63.4
#16	2.5	3.8	64.9	29.2	7.4	70.8
#30	2.4	3.3	48.5	22.1	7.1	77.9
#50	2.3	3.0	22.9	11.1	11.0	88.9
#100	2.1	2.8	3.5	2.7	8.4	97.3
LBW	1.5	2.4	0.5	1.1	1.6	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.

Superior Materials, LLC
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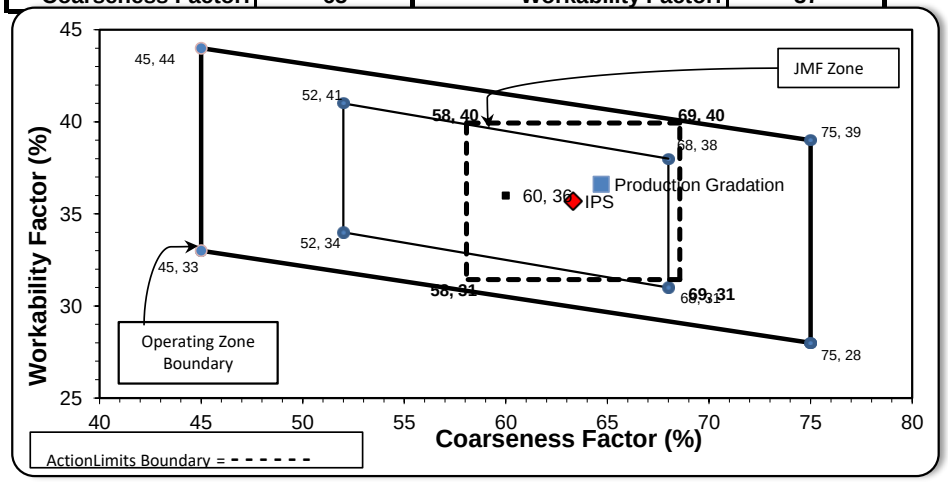
Farmington Hills, MI 48336

Production Gradation ○ Batch Plant Gradations ◉ Aggregate SupplierGradations

Coarseness Factor:	65	Workability Factor:	37



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"	95.6	4.4	4.4
1/2"	73.1	22.6	26.9
3/8"	59.3	13.8	40.7
#4	42.8	16.5	57.2
#8	35.7	7.1	64.3
#16	28.9	6.8	71.1
#30	20.7	8.2	79.3
#50	9.9	10.8	90.1
#100	2.1	7.8	97.9
LBW	0.9	1.2	99.1

PREPARED BY:
SM, LLC Technical Service

Approved By: