

Aggregate Optimization Chart

PLANT #: **P-102**

Sample Date: 6/24/19

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 6/25/2019 through 7/1/2019

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1600	9.53	2.69	51.7
26A	58-003	Stoneco	285	1.70	2.69	9.2
2NS	38-046	Chelsea	1210	7.35	2.64	39.1
Total Wt			3095	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"	99.3	100.0	100.0	99.6	0.4	0.4
3/4"	78.9	100.0	100.0	89.1	10.5	10.9
1/2"	38.6	99.5	100.0	68.2	20.9	31.8
3/8"	18.0	89.0	100.0	56.6	11.6	43.4
#4	2.4	25.7	99.8	42.6	14.0	57.4
#8	1.4	7.4	87.9	35.8	6.9	64.2
#16	1.3	3.1	63.7	25.9	9.9	74.1
#30	1.2	2.1	39.5	16.3	9.6	83.7
#50	1.1	1.9	18.2	7.9	8.4	92.1
#100	1.0	1.7	3.6	2.1	5.8	97.9
LBW	0.7	1.5	1.0	0.9	1.2	99.1

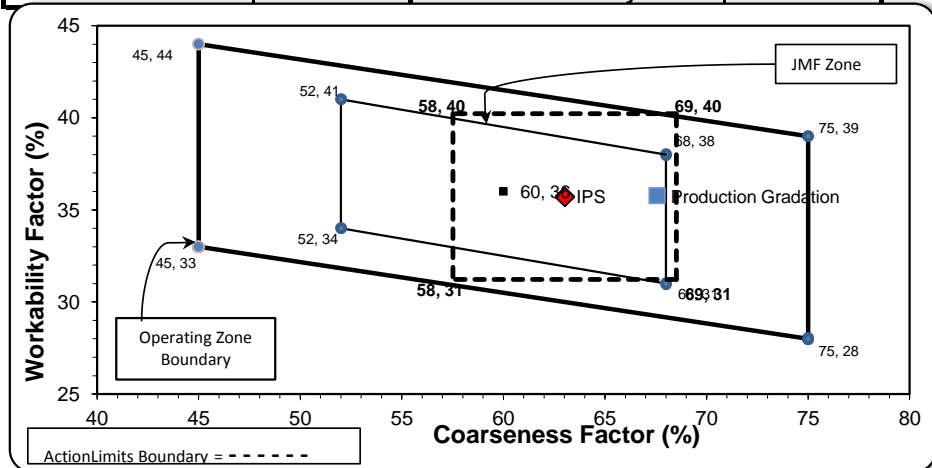
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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



Superior Materials, LLC
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Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 68 **Workability Factor: 36**



Initial 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

PLANT #: **P-32**

Sample Date: 6/24/19

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 6/25/2019 through 7/1/2019

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1450	8.87	2.62	47.5
26A	71-47	Presque Isle	370	2.26	2.62	12.1
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt			3050	18.57		100.0

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



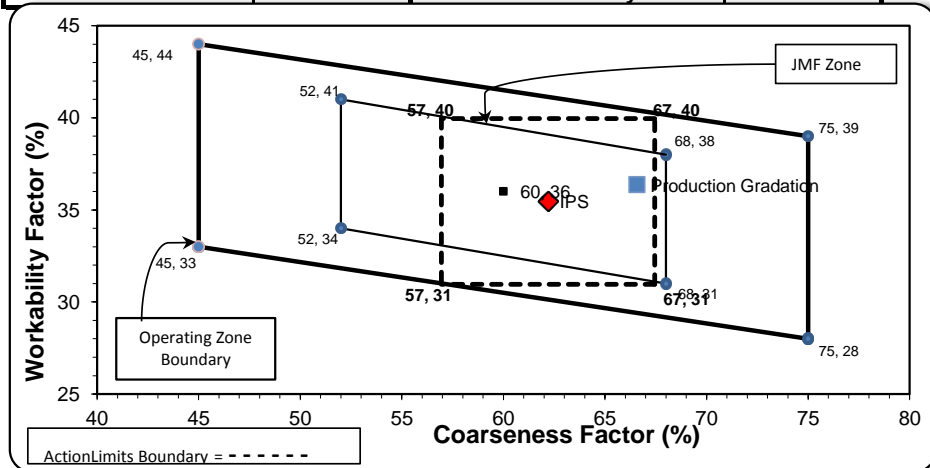
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	95.4	100.0	100.0	97.8	2.2	2.2
3/4"	70.6	100.0	100.0	86.0	11.8	14.0
1/2"	25.8	98.0	100.0	64.5	21.5	35.5
3/8"	13.8	88.6	100.0	57.6	6.8	42.4
#4	2.7	25.7	98.2	44.0	13.6	56.0
#8	1.5	8.0	86.0	36.4	7.6	63.6
#16	1.2	3.8	69.2	28.9	7.4	71.1
#30	1.2	3.0	46.2	19.6	9.4	80.4
#50	1.2	2.7	17.6	8.0	11.6	92.0
#100	1.1	2.5	3.0	2.0	6.0	98.0
LBW	0.6	2.1	0.8	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 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:	67	Workability Factor:	36
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Initial Production Sample (IPS)

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

PLANT #: **P-36**

Sample Date: 6/24/19

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 6/25/2019 through 7/1/2019

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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%



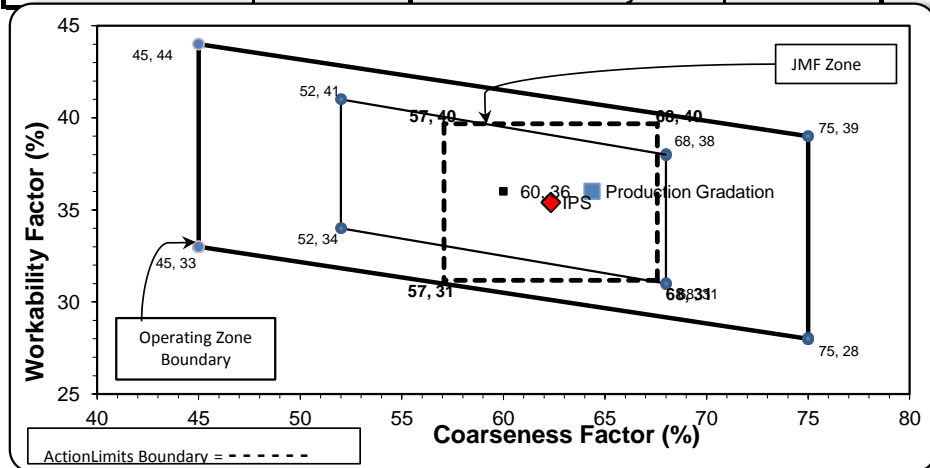
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	98.4	100.0	100.0	99.2	0.8	0.8
3/4"	80.8	100.0	100.0	90.6	8.7	9.4
1/2"	35.3	98.0	100.0	68.0	22.6	32.0
3/8"	18.9	88.6	100.0	58.8	9.1	41.2
#4	4.4	25.7	97.5	43.5	15.3	56.5
#8	2.7	8.0	85.8	36.0	7.5	64.0
#16	2.3	3.8	71.1	29.5	6.5	70.5
#30	2.1	3.0	51.9	21.8	7.7	78.2
#50	2.0	2.7	19.2	8.8	12.9	91.2
#100	1.9	2.5	2.4	2.2	6.7	97.8
LBW	1.0	2.1	0.3	0.9	1.3	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:	64	Workability Factor:	36
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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"	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

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Aggregate Optimization Chart

PLANT #: **P-39**

Sample Date: 6/24/19

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 6/25/2019 through 7/1/2019

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	49.2
26A	71-47	Presque Isle	280	1.71	2.62	9.2
2NS	44-051	Krake Willis Rd	1270	7.68	2.65	41.6
Total Wt			3050	18.57		100.0

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



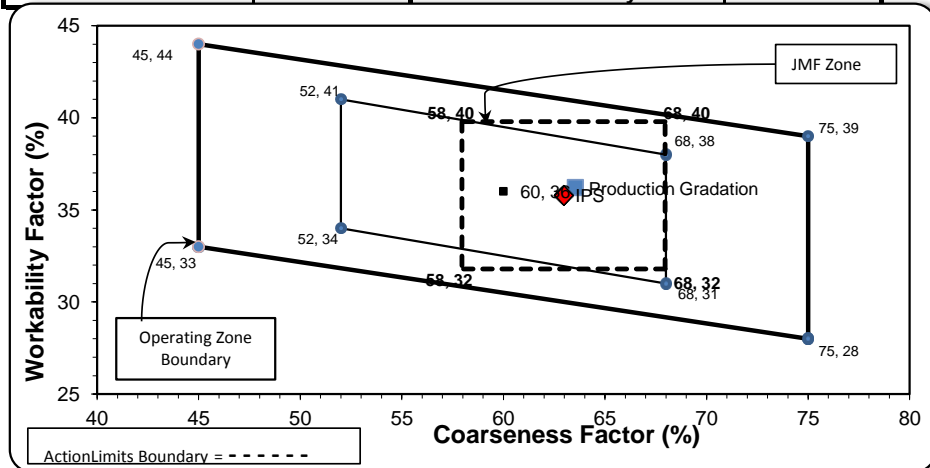
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	97.6	100.0	100.0	98.8	1.2	1.2
3/4"	77.8	100.0	100.0	89.1	9.7	10.9
1/2"	34.9	98.0	100.0	67.8	21.3	32.2
3/8"	19.7	88.6	100.0	59.5	8.3	40.5
#4	3.7	25.7	95.8	44.1	15.4	55.9
#8	2.1	8.0	82.7	36.2	7.9	63.8
#16	1.8	3.8	68.4	29.7	6.5	70.3
#30	1.7	3.0	52.4	22.9	6.8	77.1
#50	1.7	2.7	25.9	11.9	11.1	88.1
#100	1.6	2.5	8.4	4.5	7.4	95.5
LBW	1.5	2.1	1.2	1.4	3.1	98.6

*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:	36
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Initial 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

PLANT #: P-02

Sample Date: 6/24/19

Concrete Grade: S2M

Contractor: _____

Dates Test Represents: 6/25/2019 through 7/1/2019

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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	47-16	Buno Rd	1200	7.26	2.65	39.3
Total Wt			3050	18.57		100.0

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



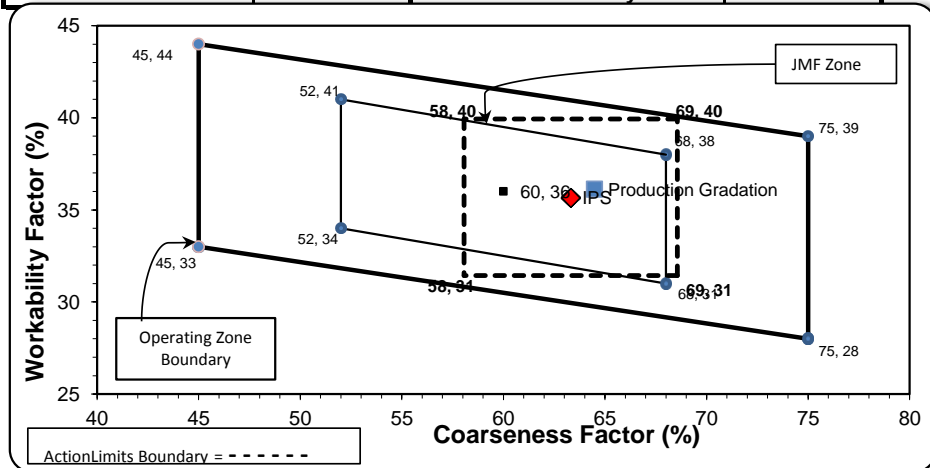
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	98.4	100.0	100.0	99.2	0.8	0.8
3/4"	80.8	100.0	100.0	90.6	8.7	9.4
1/2"	35.3	98.0	100.0	68.0	22.6	32.0
3/8"	18.9	88.6	100.0	58.8	9.1	41.2
#4	4.4	25.7	96.6	43.1	15.7	56.9
#8	2.7	8.0	86.1	36.1	7.0	63.9
#16	2.3	3.8	71.5	29.7	6.4	70.3
#30	2.1	3.0	51.0	21.4	8.3	78.6
#50	2.0	2.7	15.9	7.5	13.9	92.5
#100	1.9	2.5	1.7	1.9	5.7	98.1
LBW	1.0	2.1	0.3	0.9	1.0	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:	64	Workability Factor:	36
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Initial Production Sample (IPS)

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: