

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-101**

Sample Date: 5/8/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 5/8/2017 to 5/14/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	48.2
26A	71-47	Presque Isle	250	1.53	2.62	8.0
2NS	63-115	Ray Road	1360	8.22	2.65	43.7
Total Wt			3110	18.93		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"	86.2	100.0	100.0	93.3	6.7	6.7
1/2"	38.3	97.0	100.0	70.0	23.3	30.0
3/8"	18.6	84.7	100.0	59.5	10.5	40.5
#4	2.4	13.7	97.9	45.1	14.4	54.9
#8	1.4	3.7	80.4	36.1	8.9	63.9
#16	1.2	2.3	62.8	28.2	7.9	71.8
#30	1.2	2.1	46.2	21.0	7.3	79.0
#50	1.1	2.0	23.0	10.7	10.2	89.3
#100	1.1	1.9	4.7	2.7	8.0	97.3
LBW	1.0	1.7	0.5	0.8	1.9	99.2



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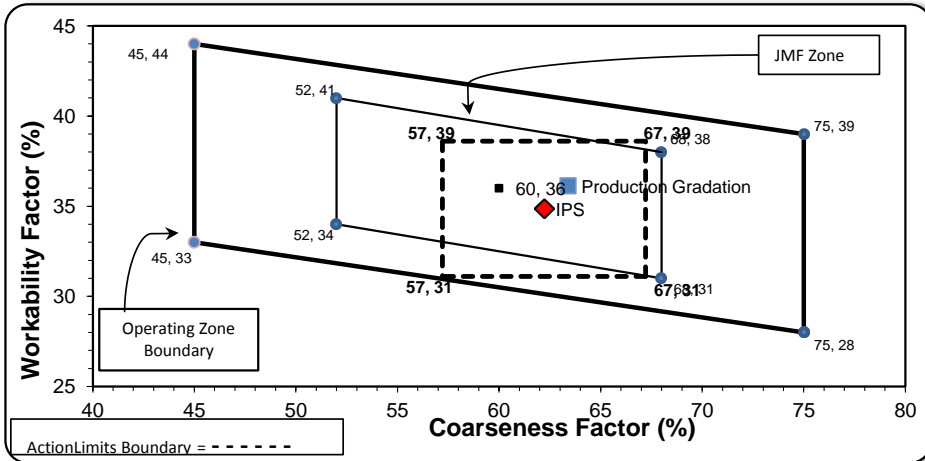
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **63** **Workability Factor:** **36**

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"	71.1	23.9	28.9
3/8"	59.5	11.7	40.5
#4	44.0	15.5	56.0
#8	34.9	9.1	65.1
#16	27.6	7.2	72.4
#30	20.2	7.4	79.8
#50	8.9	11.3	91.1
#100	2.7	6.2	97.3
LBW	1.4	1.2	98.6



PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-103**

Sample Date: 5/8/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 5/8/2017 to 5/14/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1650	9.83	2.69	52.3
26A	58-003	Stoneco	215	1.28	2.69	6.8
2NS	81-93	Burmeister	1290	7.83	2.64	40.9
Total Wt			3155	18.94		100.0

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



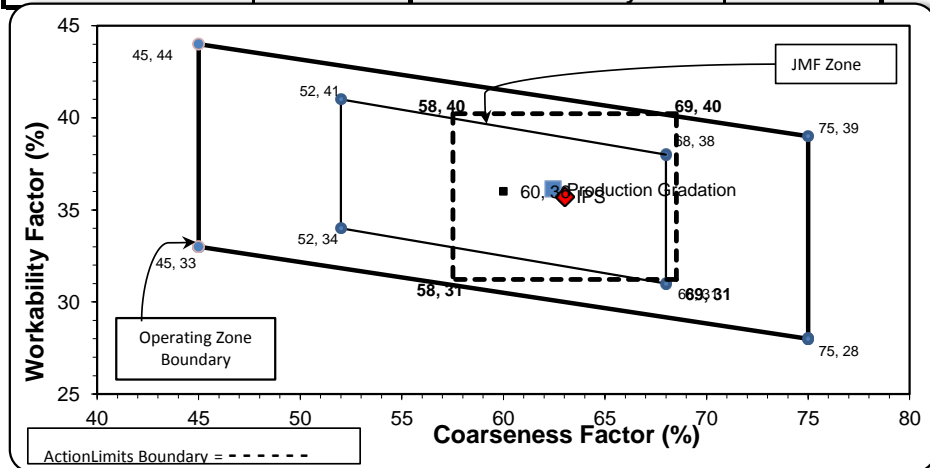
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 Farmington Hills, MI 48336

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"	83.1	100.0	100.0	91.2	8.8	8.8
1/2"	47.7	99.7	100.0	72.6	18.5	27.4
3/8"	25.7	84.9	100.0	60.1	12.5	39.9
#4	4.4	28.0	98.9	44.6	15.5	55.4
#8	1.9	5.7	85.0	36.1	8.5	63.9
#16	0.9	2.3	68.7	28.7	7.4	71.3
#30	0.8	1.6	47.2	19.8	8.9	80.2
#50	0.7	1.4	17.2	7.5	12.3	92.5
#100	0.7	1.3	2.8	1.6	5.9	98.4
LBW	0.9	1.0	1.0	0.9	0.7	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:	62	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"	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

MIX ID'S: WSN175E9

Production Gradation Report

PLANT #: **P-36**

Sample Date: 5/8/17

Concrete Grade: **S2M (SPECIAL, 5000 PSI)**

Contractor: _____

Dates Test Represents: 5/8/2017 to 5/14/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1580	9.41	2.69	52.8
26A	71-47	Presque Isle	150	0.92	2.62	5.0
2NS	63-92	AA Grange Hall	1260	7.62	2.65	42.1
Total Wt			2990	17.95		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"	83.1	100.0	100.0	91.1	8.9	8.9
1/2"	47.7	97.0	100.0	72.2	18.9	27.8
3/8"	25.7	84.7	100.0	60.0	12.2	40.0
#4	4.4	13.7	98.0	44.3	15.7	55.7
#8	1.9	3.7	85.8	37.3	7.0	62.7
#16	0.9	2.3	70.4	30.3	7.1	69.7
#30	0.8	2.1	51.3	22.1	8.1	77.9
#50	0.7	2.0	21.7	9.6	12.5	90.4
#100	0.7	1.9	2.7	1.6	8.0	98.4
LBW	0.9	1.7	0.2	0.6	1.0	99.4

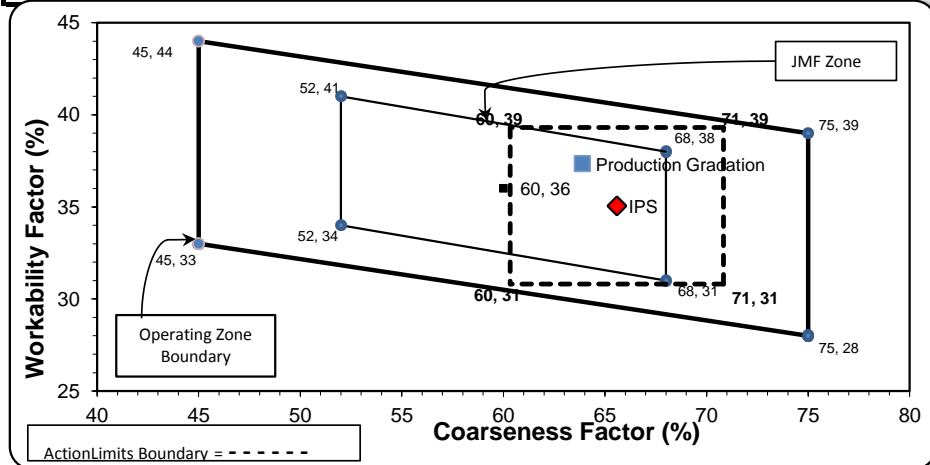


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*Maximum % Retained must be above the 3/8" sieve.
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 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 64 **Workability Factor: 37**



Initial Production Sample (IPS)

Coarseness Factor: 66		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"	91.7	8.3	8.3
1/2"	66.8	24.8	33.2
3/8"	57.4	9.4	42.6
#4	43.0	14.4	57.0
#8	35.1	7.9	64.9
#16	28.0	7.1	72.0
#30	19.5	8.5	80.5
#50	8.1	11.4	91.9
#100	2.0	6.1	98.0
LBW	0.7	1.3	99.3

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Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-38**

Sample Date: 5/8/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 5/8/2017 to 5/14/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1650	9.83	2.69	52.3
26A	58-003	Stoneco	215	1.28	2.69	6.8
2NS	81-93	Burmeister	1290	7.83	2.64	40.9
Total Wt			3155	18.94		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"	83.1	100.0	100.0	91.2	8.8	8.8
1/2"	47.7	99.7	100.0	72.6	18.5	27.4
3/8"	25.7	84.9	100.0	60.1	12.5	39.9
#4	4.4	28.0	98.9	44.6	15.5	55.4
#8	1.9	5.7	85.0	36.1	8.5	63.9
#16	0.9	2.3	68.7	28.7	7.4	71.3
#30	0.8	1.6	47.2	19.8	8.9	80.2
#50	0.7	1.4	17.2	7.5	12.3	92.5
#100	0.7	1.3	2.8	1.6	5.9	98.4
LBW	0.9	1.0	1.0	0.9	0.7	99.1

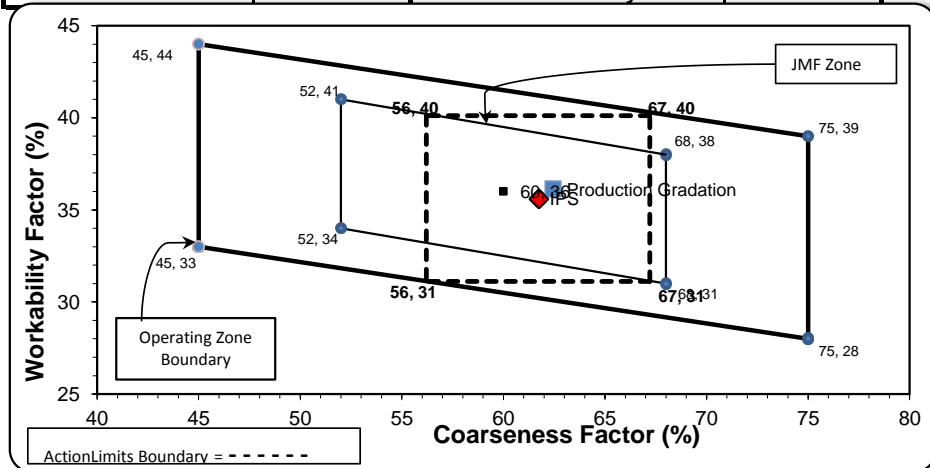


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 *% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **62** Workability Factor: **36**



Initial 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"	99.2	0.8	0.8
3/4"	91.1	8.1	8.9
1/2"	72.0	19.1	28.0
3/8"	60.3	11.7	39.7
#4	43.4	16.9	56.6
#8	35.6	7.8	64.4
#16	28.4	7.2	71.6
#30	21.8	6.7	78.2
#50	9.1	12.6	90.9
#100	1.7	7.4	98.3
LBW	1.1	0.6	98.9

PREPARED BY:
 SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDS257E7 and DDS257E8

Production Gradation Report

PLANT #: **P-39**

Sample Date: 5/8/17

Concrete Grade: **S2M**

Contractor: _____

Dates Test Represents: 5/8/2017 to 5/14/2017

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	48.2
26A	71-47	Presque Isle	250	1.53	2.62	8.0
2NS	63-115	Ray Road	1360	8.22	2.65	43.7
Total Wt			3110	18.93		100.0

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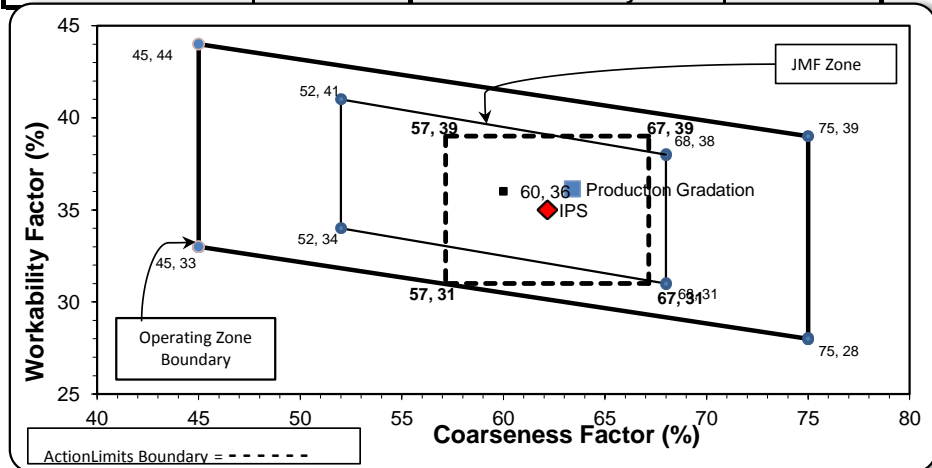
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Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	86.2	100.0	100.0	93.3	6.7	6.7
1/2"	38.3	97.0	100.0	70.0	23.3	30.0
3/8"	18.6	84.7	100.0	59.5	10.5	40.5
#4	2.4	13.7	97.9	45.1	14.4	54.9
#8	1.4	3.7	80.4	36.1	8.9	63.9
#16	1.2	2.3	62.8	28.2	7.9	71.8
#30	1.2	2.1	46.2	21.0	7.3	79.0
#50	1.1	2.0	23.0	10.7	10.2	89.3
#100	1.1	1.9	4.7	2.7	8.0	97.3
LBW	1.0	1.7	0.5	0.8	1.9	99.2

*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:	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"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	71.2	23.8	28.8
3/8"	59.6	11.6	40.4
#4	44.1	15.5	55.9
#8	35.0	9.1	65.0
#16	27.7	7.3	72.3
#30	20.3	7.4	79.7
#50	8.9	11.4	91.1
#100	2.7	6.3	97.3
LBW	1.4	1.2	98.6

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 SM, LLC Technical Service

Approved By: