Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP164E7 and DDP164E8

Production Gradation Report

PLANT #: **P-101**

Contractor: _____

Sample Date: 5/8/17

Concrete Grade: **P1M**

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

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	950	5.81	2.62	30.9
IA	71-47	Presque Isle	820	5.02	2.62	26.7
2NS	63-115	Ray Road	1300	7.86	2.65	42.3
		Total Wt	**3070**	**18.69**		100.0

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

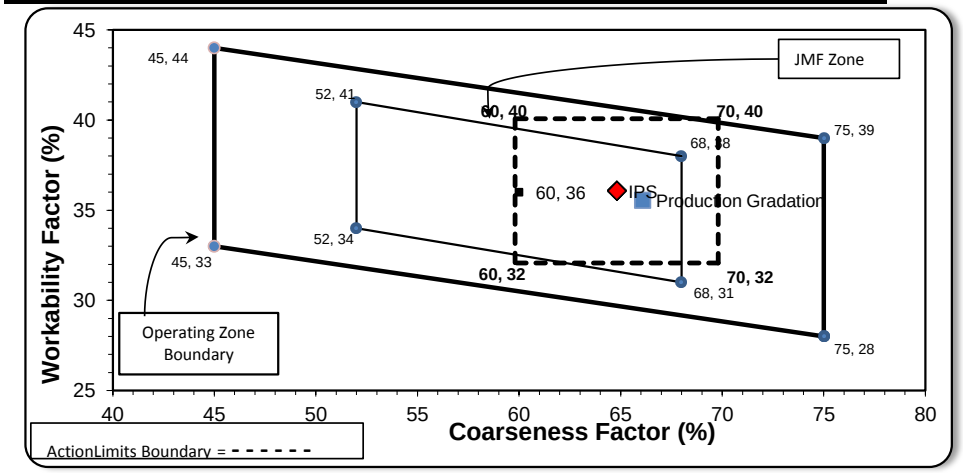
Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.6	100.0	100.0	99.6	0.4	0.4
1"	50.1	100.0	100.0	84.6	15.0	15.4
3/4"	18.2	98.2	100.0	74.2	10.4	25.8
1/2"	4.0	79.1	100.0	64.7	9.5	35.3
3/8"	3.1	52.8	100.0	57.4	7.3	42.6
#4	2.4	8.5	97.9	44.5	12.9	55.5
#8	2.2	3.1	80.4	35.6	8.9	64.4
#16	2.1	2.5	62.8	27.9	7.6	72.1
#30	2.0	2.3	46.2	20.8	7.1	79.2
#50	2.0	2.2	23.0	10.9	9.9	89.1
#100	1.9	2.1	4.7	3.1	7.8	96.9
LBW	1.5	1.9	0.5	1.2	2.0	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
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Production Gradation ○ Batch Plant Gradations ◉ Aggregate Supplier Gradations

Coarseness Factor:	66	Workability Factor:	36



Initial Production Sample (IPS)

Coarseness Factor:	65		
Workability Factor:	36		
Sieve	**Cumulative % Passing**	**% Retained**	**Cumulative % Retained**
2"	100.0	0.0	0.0
1.5"	99.3	0.7	0.7
1"	83.6	15.7	16.4
3/4"	73.0	10.6	27.0
1/2"	65.1	7.9	34.9
3/8"	58.6	6.5	41.4
#4	45.8	12.8	54.2
#8	36.1	9.7	63.9
#16	28.8	7.3	71.2
#30	21.7	7.1	78.3
#50	10.3	11.4	89.7
#100	3.1	7.2	96.9
LBW	1.3	1.8	98.7

PREPARED BY:
SM, LLC Technical Service

Approved By:

Aggregate Optimization Chart

MIX ID'S: DDP154E7, DDP154E8, DDP164E7 and DDP164E8

Production Gradation Report

PLANT #: **P-39**

Contractor: _____

Sample Date: 5/8/17

Concrete Grade: **P1M**

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

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	950	5.81	2.62	30.9
IA	71-47	Presque Isle	820	5.02	2.62	26.7
2NS	63-115	Ray Road	1300	7.86	2.65	42.3
		Total Wt	**3070**	**18.69**		100.0

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

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.6	100.0	100.0	99.6	0.4	0.4
1"	50.1	100.0	100.0	84.6	15.0	15.4
3/4"	18.2	98.2	100.0	74.2	10.4	25.8
1/2"	4.0	79.1	100.0	64.7	9.5	35.3
3/8"	3.1	52.8	100.0	57.4	7.3	42.6
#4	2.4	8.5	97.9	44.5	12.9	55.5
#8	2.2	3.1	80.4	35.6	8.9	64.4
#16	2.1	2.5	62.8	27.9	7.6	72.1
#30	2.0	2.3	46.2	20.8	7.1	79.2
#50	2.0	2.2	23.0	10.9	9.9	89.1
#100	1.9	2.1	4.7	3.1	7.8	96.9
LBW	1.5	1.9	0.5	1.2	2.0	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.

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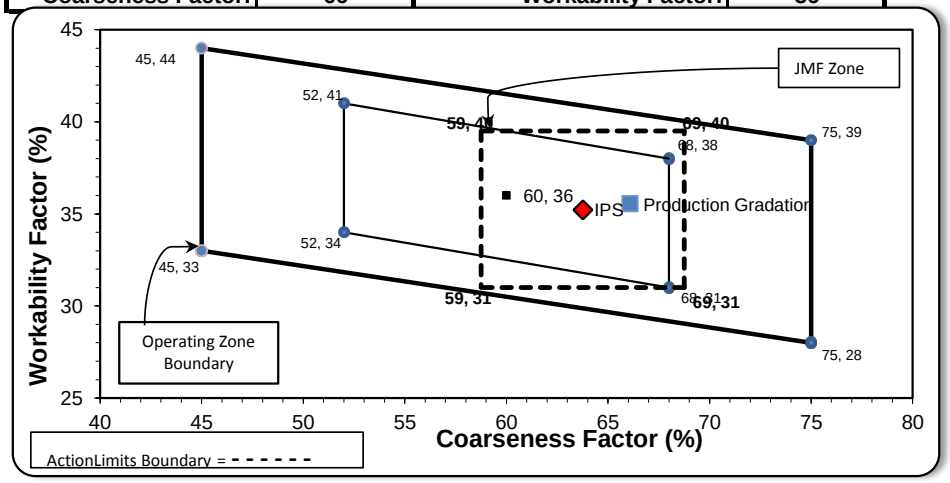
Production Gradation ○ Batch Plant Gradations ◉ Aggregate SupplierGradations

Coarseness Factor:	66	Workability Factor:	36



Intial Production Sample (IPS)

Coarseness Factor:	64
Workability Factor:	35

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.4	0.6	0.6
1"	84.3	15.1	15.7
3/4"	73.9	10.4	26.1
1/2"	65.7	8.2	34.3
3/8"	58.7	7.0	41.3
#4	45.1	13.6	54.9
#8	35.3	9.8	64.7
#16	28.1	7.2	71.9
#30	21.2	6.9	78.8
#50	10.1	11.1	89.9
#100	3.1	7.0	96.9
LBW	1.4	1.7	98.6

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SM, LLC Technical Service

Approved By: