

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Contractor: _____

Sample Date: 5/18/20

Concrete Grade: **DM**

Dates Test Represents: 5/19/2020 through 5/25/2020

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1600	9.79	2.62	55.1
26A	71-47	Presque Isle	205	1.25	2.62	7.1
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9
Total Wt:						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"	96.9	100.0	100.0	98.3	1.7	1.7
3/4"	83.2	100.0	100.0	90.7	7.5	9.3
1/2"	38.0	96.3	100.0	65.6	25.2	34.4
3/8"	17.3	85.3	100.0	53.4	12.2	46.6
#4	3.0	28.0	98.0	40.7	12.7	59.3
#8	2.0	8.4	85.9	34.2	6.5	65.8
#16	1.7	4.4	71.7	28.4	5.8	71.6
#30	1.6	3.7	50.8	20.4	8.0	79.6
#50	1.5	3.4	21.2	9.1	11.3	90.9
#100	1.3	3.0	3.8	2.4	6.7	97.6
LBW	1.1	2.6	1.0	1.2	1.2	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.

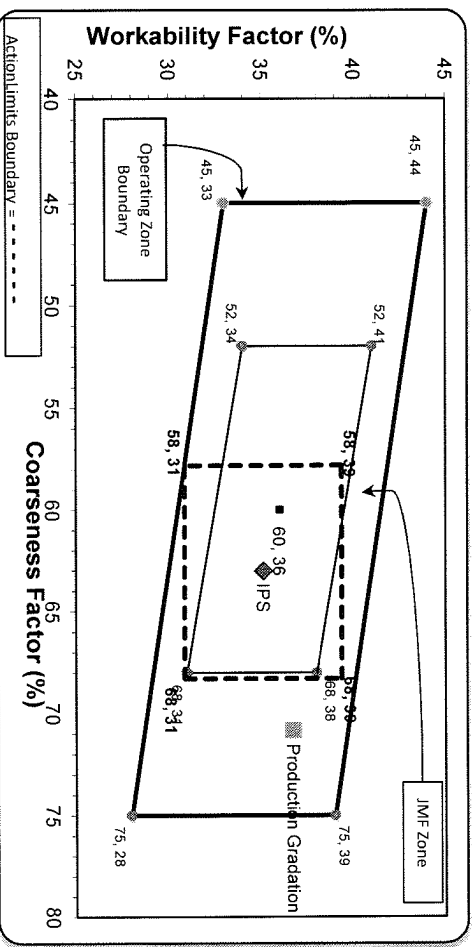
Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **71** Workability Factor: **34** Adjusted WF: **36.7**

Initial 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



PREPARED BY:
SM, LLC Technical Service

Approved By: _____



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



Plant S36-Superior Auburn Hills

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 05/17/2020 - 05/23/2020

Report Date 05/22/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	96.9	%	95-100
	3/4" (19mm)	83.2	%	
	1/2" (12.5mm)	38.0	%	30-60
	3/8" (9.5mm)	17.3	%	
	#4 (4.75mm)	3.0	%	0-8
	#8 (2.36mm)	2.0	%	
	#16 (1.18mm)	1.7	%	
	#30 (.6mm)	1.6	%	
	#50 (.3mm)	1.5	%	
	#100 (.15mm)	1.3	%	
	#200 (75µm)	1.11	%	
	Wash Loss (#200/75um)	1.1	%	0-2
	Total Moisture	3.48	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 05/17/2020 - 05/23/2020

Report Date 05/22/2020

Procedure	Sieve/Test	Result	Unit	26A LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	96.3	%	95-100
	3/8" (9.5mm)	85.3	%	60-95
	#4 (4.75mm)	28.0	%	5-30
	#8 (2.36mm)	8.4	%	0-12
	#16 (1.18mm)	4.4	%	
	#30 (.6mm)	3.7	%	
	#50 (.3mm)	3.4	%	
	#100 (.15mm)	3.0	%	
	#200 (75µm)	2.7	%	
	Wash Loss (#200/75um)	2.6	%	0-3
	Total Moisture	5.65	%	



Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 05/17/2020 - 05/23/2020

Report Date 05/22/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.0	%	95-100
	#8 (2.36mm)	85.9	%	65-95
	#16 (1.18mm)	71.7	%	35-75
	#30 (.6mm)	50.8	%	20-55
	#50 (.3mm)	21.2	%	10-30
	#100 (.15mm)	3.8	%	0-10
	#200 (75µm)	1.0	%	
	FM	2.68		2.6-3
	Wash Loss (#200/75um)	0.7	%	0-3
	Total Moisture	6.21	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-39**

Sample Date: 5/18/20

Dates Test Represents: 5/19/2020 through 5/25/2020

Concrete Grade: **DM**

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
30701 W. 10 Mile Rd.
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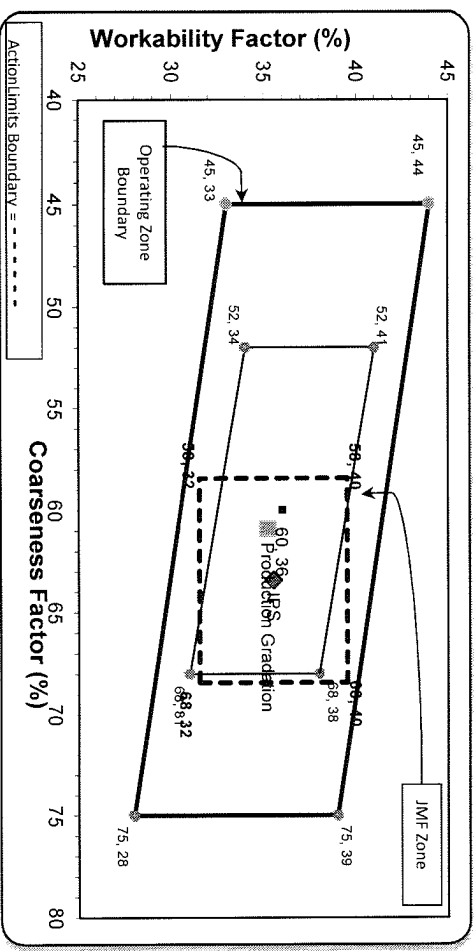
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
GAA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	200	1.22	2.62	6.9
2NS	44-051	Krake Willis Rd	1100	6.65	2.65	37.9
			Total Wt	2905		100.0

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"	99.5	100.0	100.0	99.7	0.3	0.3
3/4"	84.4	100.0	100.0	91.4	8.3	8.6
1/2"	45.1	97.5	100.0	69.5	21.9	30.5
3/8"	27.6	85.8	100.0	59.0	10.5	41.0
#4	6.1	23.2	95.4	41.1	17.9	58.9
#8	3.0	6.7	80.8	32.7	8.4	67.3
#16	2.5	3.7	66.7	26.9	5.8	73.1
#30	2.4	3.2	50.7	20.7	6.1	79.3
#50	2.3	3.0	30.0	10.6	10.1	89.4
#100	2.2	2.8	6.0	3.7	7.0	96.3
LBW	1.9	2.5	1.3	1.7	2.0	98.3

*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: **61** Workability Factor: **33** Adjusted WF: **35.2**



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"	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

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

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S39-Superior Sterling Heights

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 05/17/2020 - 05/23/2020

Report Date 05/22/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	99.5	%	95-100
	3/4" (19mm)	84.4	%	
	1/2" (12.5mm)	45.1	%	30-60
	3/8" (9.5mm)	27.6	%	
	#4 (4.75mm)	6.1	%	0-8
	#8 (2.36mm)	3.0	%	
	#16 (1.18mm)	2.5	%	
	#30 (.6mm)	2.4	%	
	#50 (.3mm)	2.3	%	
	#100 (.15mm)	2.2	%	
	#200 (75µm)	1.94	%	
	Wash Loss (#200/75um)	1.8	%	0-2
	Total Moisture	4.15	%	



Plant S39-Superior Sterling Heights

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 05/17/2020 - 05/23/2020

Report Date 05/22/2020

Procedure	Sieve/Test	Result	Unit	26A LS Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	100-100
	1/2" (12.5mm)	97.5	%	95-100
	3/8" (9.5mm)	85.8	%	60-95
	#4 (4.75mm)	23.2	%	5-30
	#8 (2.36mm)	6.7	%	0-12
	#16 (1.18mm)	3.7	%	
	#30 (.6mm)	3.2	%	
	#50 (.3mm)	3.0	%	
	#100 (.15mm)	2.8	%	
	#200 (75µm)	2.5	%	
	Wash Loss (#200/75um)	2.4	%	0-3
	Total Moisture	3.81	%	



Plant S39-Superior Sterling Heights

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 05/17/2020 - 05/23/2020

Report Date 05/22/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.4	%	95-100
	#8 (2.36mm)	80.8	%	65-95
	#16 (1.18mm)	66.7	%	35-75
	#30 (.6mm)	50.7	%	20-55
	#50 (.3mm)	24.2	%	10-30
	#100 (.15mm)	6.0	%	0-10
	#200 (75µm)	1.3	%	
	FM	2.76		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	3.48	%	