

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Sample Date: **8/24/20**

Dates Test Represents: **8/25/2020** through **8/31/2020**

Concrete Grade: **DM**

Contractor: _____

MDOT No.: _____



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

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution	
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1	
26A	71-47	Presque Isle	350	2.14	2.62	12.0	
2NS	63-92	Grange Hall	1100	6.65	2.65	37.9	
Total Wt.						2905	100.0

Sieve	6AA	26A	2NS	Cumulative % Passing
2"	100.0	100.0	100.0	100.0
1.5"	100.0	100.0	100.0	100.0
1"	97.2	100.0	100.0	98.6
3/4"	74.7	100.0	100.0	87.3
1/2"	43.9	96.3	100.0	71.5
3/8"	28.0	75.1	100.0	60.9
#4	7.4	16.8	97.3	42.6
#8	3.2	6.2	84.9	34.5
#16	2.5	4.0	70.2	28.3
#30	2.4	3.5	49.4	20.3
#50	2.2	3.3	20.9	9.4
#100	2.0	3.0	3.1	2.5
LBW	1.8	2.7	0.8	1.5

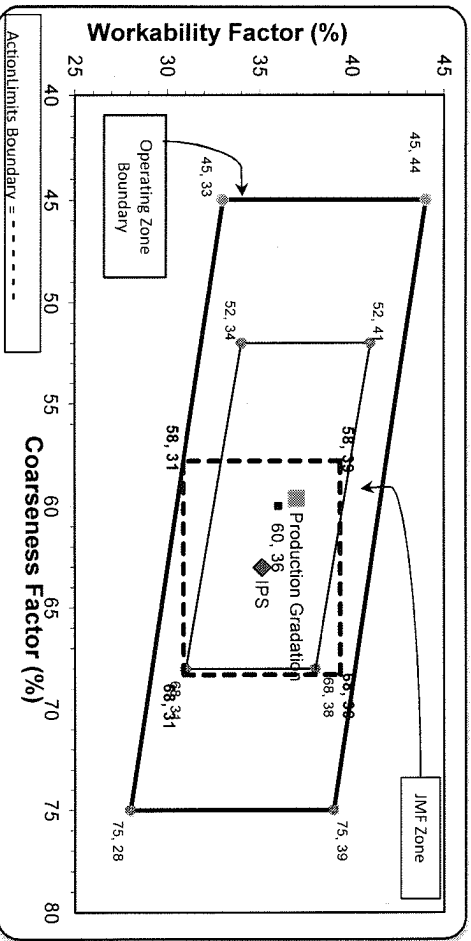
Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: **60** Workability Factor: **34** Adjusted WF: **37.0**

Initial Production Sample (IPS)

Coarseness Factor: **63** Workability Factor: **35**

Sieve	% 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: _____



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 08/23/2020 - 08/29/2020

Report Date 08/29/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	97.2	%	95-100
	3/4" (19mm)	74.7	%	
	1/2" (12.5mm)	43.9	%	30-60
	3/8" (9.5mm)	28.0	%	
	#4 (4.75mm)	7.4	%	0-8
	#8 (2.36mm)	3.2	%	
	#16 (1.18mm)	2.5	%	
	#30 (.6mm)	2.4	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.0	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.7	%	0-2
	Total Moisture	2.92	%	
AASHTO T11	-#200 (75um)	1.76	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 08/23/2020 - 08/29/2020

Report Date 08/29/2020

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)	75.1	%	60-95
	#4 (4.75mm)	16.8	%	5-30
	#8 (2.36mm)	6.2	%	0-12
	#16 (1.18mm)	4.0	%	
	#30 (.6mm)	3.5	%	
	#50 (.3mm)	3.3	%	
	#100 (.15mm)	3.0	%	
	#200 (75µm)	2.7	%	
	Wash Loss (#200/75um)	2.5	%	0-3
	Total Moisture	2.42	%	



2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 08/23/2020 - 08/29/2020

Report Date 08/29/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.3	%	95-100
	#8 (2.36mm)	84.9	%	65-95
	#16 (1.18mm)	70.2	%	35-75
	#30 (.6mm)	49.4	%	20-55
	#50 (.3mm)	20.9	%	10-30
	#100 (.15mm)	3.1	%	0-10
	#200 (75µm)	0.8	%	
	FM	2.74		2.6-3
	Wash Loss (#200/75um)	0.8	%	0-3
	Total Moisture	3.11	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-39**

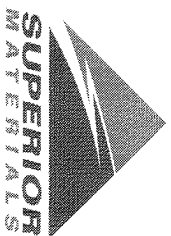
Sample Date: **8/24/20**

Dates Test Represents: **8/25/2020** through **8/31/2020**

Concrete Grade: **DM**

Contractor: _____

MDOT No.: _____



Superior Materials, LLC
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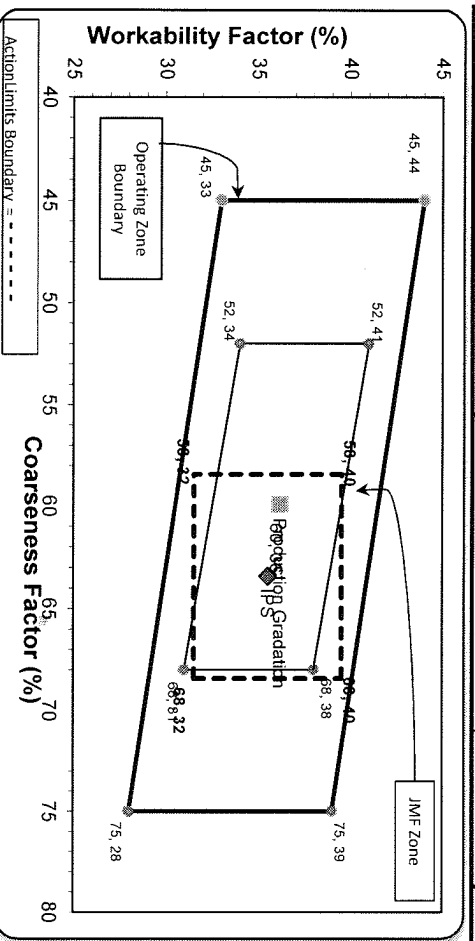
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2
26A	71-47	Presque Isle	150	0.92	2.62	5.2
ZNS	44-051	Krake Willis Rd	1150	6.95	2.65	39.6
			Total Wt	2905	17.69	100.0

Sieve	6AA	26A	ZNS	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"	81.2	100.0	100.0	89.6	9.4	10.4
1/2"	48.0	97.0	100.0	71.1	18.5	28.9
3/8"	29.3	86.9	100.0	60.3	10.9	39.7
#4	6.3	28.0	95.6	42.8	17.5	57.2
#8	3.5	8.4	79.1	33.7	9.1	66.3
#16	3.0	3.5	64.4	27.3	6.3	72.7
#30	2.6	2.6	49.4	21.1	6.2	78.9
#50	2.5	2.3	24.3	11.1	10.0	88.9
#100	2.2	2.1	6.5	3.9	7.2	96.1
LBW	1.9	1.9	1.7	1.8	2.1	98.2

*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: **60** Workability Factor: **34** Adjusted WF: **36.2**



Sieve	Coarseness Factor:	Workability Factor:	Adjusted WF
2"	63	36	63
1.5"	63	36	63
1"	63	36	63
3/4"	63	36	63
1/2"	63	36	63
3/8"	63	36	63
#4	63	36	63
#8	63	36	63
#16	63	36	63
#30	63	36	63
#50	63	36	63
#100	63	36	63
LBW	63	36	63

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S39-Superior Sterling Heights

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 08/23/2020 - 08/29/2020

Report Date 08/29/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	98.2	%	95-100
	3/4" (19mm)	81.2	%	
	1/2" (12.5mm)	48.0	%	30-60
	3/8" (9.5mm)	29.3	%	
	#4 (4.75mm)	6.3	%	0-8
	#8 (2.36mm)	3.5	%	
	#16 (1.18mm)	3.0	%	
	#30 (.6mm)	2.6	%	
	#50 (.3mm)	2.5	%	
	#100 (.15mm)	2.2	%	
	#200 (75µm)	1.94	%	
	Wash Loss (#200/75um)	1.8	%	0-2
	Total Moisture	0.00	%	



Plant S39-Superior Sterling Heights

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 08/23/2020 - 08/29/2020

Report Date 08/29/2020

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)	97.0	%	95-100
	3/8" (9.5mm)	86.9	%	60-95
	#4 (4.75mm)	28.0	%	5-30
	#8 (2.36mm)	8.4	%	0-12
	#16 (1.18mm)	3.5	%	
	#30 (.6mm)	2.6	%	
	#50 (.3mm)	2.3	%	
	#100 (.15mm)	2.1	%	
	#200 (75µm)	1.9	%	
	Wash Loss (#200/75um)	1.7	%	0-3
	Total Moisture	0.00	%	



Plant S39-Superior Sterling Heights

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 08/23/2020 - 08/29/2020

Report Date 08/29/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.6	%	95-100
	#8 (2.36mm)	79.1	%	65-95
	#16 (1.18mm)	64.4	%	35-75
	#30 (.6mm)	49.4	%	20-55
	#50 (.3mm)	24.3	%	10-30
	#100 (.15mm)	6.5	%	0-10
	#200 (75µm)	1.7	%	
	FM	2.81		2.6-3
	Wash Loss (#200/75um)	1.2	%	0-3
	Total Moisture	2.79	%	