

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-36**

Contractor: _____

Sample Date: **5/11/20**

Concrete Grade: **S2M**

Dates Test Represents: **5/12/2020** through **5/18/2020**

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1600	9.79	2.62	52.5
26A	71-47	Presque Isle	250	1.53	2.62	8.2
2NS	63-92	Grange Hall	1200	7.26	2.65	39.3
Total Wt			3050	18.57		100.0

Verify this number is 100%

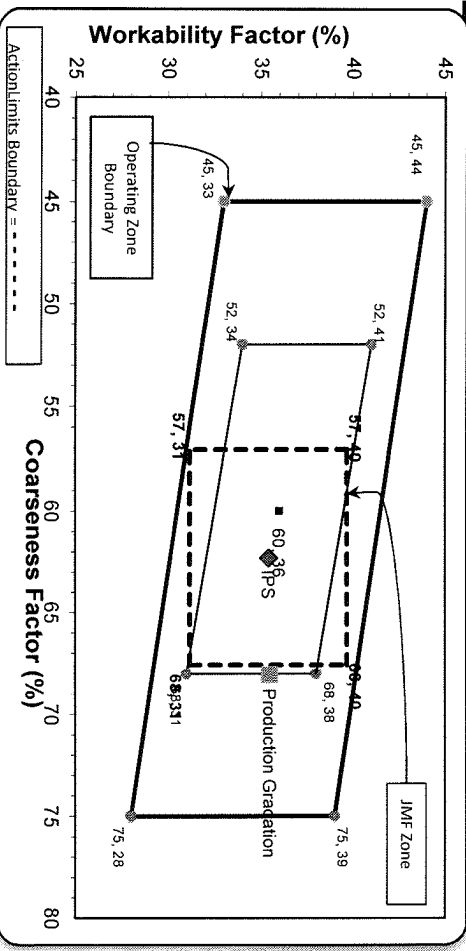
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.1	100.0	100.0	98.0	2.0	2.0
3/4"	74.0	100.0	100.0	86.4	11.6	13.6
1/2"	33.3	96.8	100.0	64.7	21.6	35.3
3/8"	19.1	82.2	100.0	56.1	8.6	43.9
#4	5.1	25.6	97.3	43.1	13.0	56.9
#8	2.7	8.2	84.9	35.5	7.6	64.5
#16	2.0	4.4	70.3	29.1	6.4	70.9
#30	1.9	3.8	51.3	21.5	7.6	78.5
#50	1.7	3.6	22.6	10.1	11.4	89.9
#100	1.5	3.2	4.1	2.7	7.4	97.3
LBW	1.2	2.9	1.0	1.3	1.4	98.7

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Initial Production Sample (IPS)

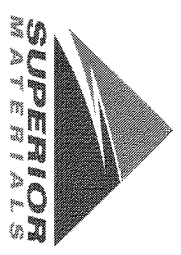
Coarseness Factor: **68** Workability Factor: **35**

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

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



PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S36-Superior Auburn Hills
Product 1051-6AA LS
Period: 05/10/2020 - 05/16/2020

Name/Title Doug Storey / QC Technician
Report Date 05/15/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	96.1	%	95-100
	3/4" (19mm)	74.0	%	
	1/2" (12.5mm)	33.3	%	30-60
	3/8" (9.5mm)	19.1	%	
	#4 (4.75mm)	5.1	%	0-8
	#8 (2.36mm)	2.7	%	
	#16 (1.18mm)	2.0	%	
	#30 (.6mm)	1.9	%	
	#50 (.3mm)	1.7	%	
	#100 (.15mm)	1.5	%	
	#200 (75µm)	1.20	%	
	Wash Loss (#200/75um)	1.2	%	0-2
	Total Moisture	3.15	%	



Plant S36-Superior Auburn Hills
Product 1067-26A Mod LS
Period: 05/10/2020 - 05/16/2020

Name/Title Doug Storey / QC Technician
Report Date 05/15/2020

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)	96.8	%	95-100
	3/8" (9.5mm)	82.2	%	60-95
	#4 (4.75mm)	25.6	%	5-30
	#8 (2.36mm)	8.2	%	0-12
	#16 (1.18mm)	4.4	%	
	#30 (.6mm)	3.8	%	
	#50 (.3mm)	3.6	%	
	#100 (.15mm)	3.2	%	
	#200 (75µm)	2.9	%	
	Wash Loss (#200/75um)	2.8	%	0-3
	Total Moisture	4.00	%	



Plant S36-Superior Auburn Hills
Product 1022-2NS GR
Period: 05/10/2020 - 05/16/2020

Name/Title Doug Storey / QC Technician
Report Date 05/15/2020

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)	70.3	%	35-75
	#30 (.6mm)	51.3	%	20-55
	#50 (.3mm)	22.6	%	10-30
	#100 (.15mm)	4.1	%	0-10
	#200 (75µm)	1.0	%	
	FM	2.70		2.6-3
	Wash Loss (#200/75um)	0.6	%	0-3
	Total Moisture	2.56	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-39

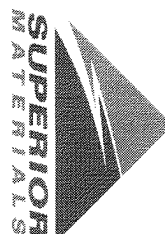
Contractor: _____

Sample Date: 5/11/20

Concrete Grade: S2M

Dates Test Represents: 5/12/2020 through 5/18/2020

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	1700	10.40	2.62	55.7
26A	71-47	Presque Isle	150	0.92	2.62	4.9
2NS	44-051	Krake Willis Rd	1200	7.26	2.65	39.3
Total Wt:			3050	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"	98.4	100.0	100.0	99.1	0.9	0.9
3/4"	85.7	100.0	100.0	92.0	7.1	8.0
1/2"	49.7	98.5	100.0	71.9	20.1	28.1
3/8"	30.9	90.0	100.0	61.0	10.9	39.0
#4	5.9	25.4	95.5	42.1	18.9	57.9
#8	3.0	7.2	81.0	33.9	8.2	66.1
#16	2.5	3.6	67.5	28.1	5.8	71.9
#30	2.3	3.0	52.0	21.9	6.2	78.1
#50	2.2	2.8	25.5	11.4	10.5	88.6
#100	2.1	2.6	6.5	3.9	7.5	96.1
LBW	1.8	2.3	1.4	1.7	2.2	98.3

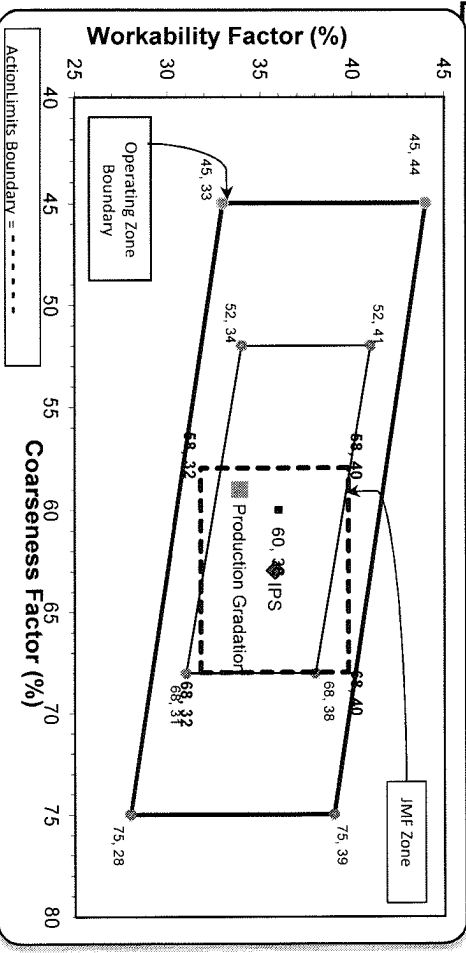
*Maximum % Retained must be above the 3/8" sieve.
 *Any two adjacent sieves must equal 10% except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 4% for each sieve except max.
 nom. max. #100 and #200 sieves.
 *% Retained must be at least 8% for the 1" sieve when
 a 2" max size (nom.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

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Initial Production Sample (IPS)

Coarseness Factor: 59 Workability Factor: 34

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: _____



Plant S39-Superior Sterling Heights

Product 1051-6AA LS

Period: 05/10/2020 - 05/16/2020

Name/Title Doug Storey / QC Technician

Report Date 05/15/2020

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	98.4	%	95-100
	3/4" (19mm)	85.7	%	
	1/2" (12.5mm)	49.7	%	30-60
	3/8" (9.5mm)	30.9	%	
	#4 (4.75mm)	5.9	%	0-8
	#8 (2.36mm)	3.0	%	
	#16 (1.18mm)	2.5	%	
	#30 (.6mm)	2.3	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.1	%	
	#200 (75µm)	1.79	%	
	Wash Loss (#200/75µm)	1.7	%	0-2
	Total Moisture	3.69	%	



Plant S39-Superior Sterling Heights

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 05/10/2020 - 05/16/2020

Report Date 05/15/2020

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)	98.5	%	95-100
	3/8" (9.5mm)	90.0	%	60-95
	#4 (4.75mm)	25.4	%	5-30
	#8 (2.36mm)	7.2	%	0-12
	#16 (1.18mm)	3.6	%	
	#30 (.6mm)	3.0	%	
	#50 (.3mm)	2.8	%	
	#100 (.15mm)	2.6	%	
	#200 (75µm)	2.3	%	
	Wash Loss (#200/75um)	2.2	%	0-3
	Total Moisture	3.36	%	



Plant S39-Superior Sterling Heights

Product 1022-2NS GR

Period: 05/10/2020 - 05/16/2020

Name/Title Doug Storey / QC Technician

Report Date 05/15/2020

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.5	%	95-100
	#8 (2.36mm)	81.0	%	65-95
	#16 (1.18mm)	67.5	%	35-75
	#30 (.6mm)	52.0	%	20-55
	#50 (.3mm)	25.5	%	10-30
	#100 (.15mm)	6.5	%	0-10
	#200 (75µm)	1.4	%	
	FM	2.72		2.6-3
	Wash Loss (#200/75um)	1.3	%	0-3
	Total Moisture	4.15	%	