

# Aggregate Optimization Chart

# Production Gradation Report

**PLANT #:** P-32

Sample Date: 9/19/22

Dates Test Represents: 9/20/2022 through 9/26/2022

Concrete Grade: DM 4500HP

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

Aggr. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	Contribution %
6AA	71-47	Presque Isle	1355	8.29	2.62	46.6
26A	71-47	Presque Isle	400	2.45	2.62	13.8
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6
<b>Total Wt:</b>						<b>2905</b>
						<b>100.0</b>

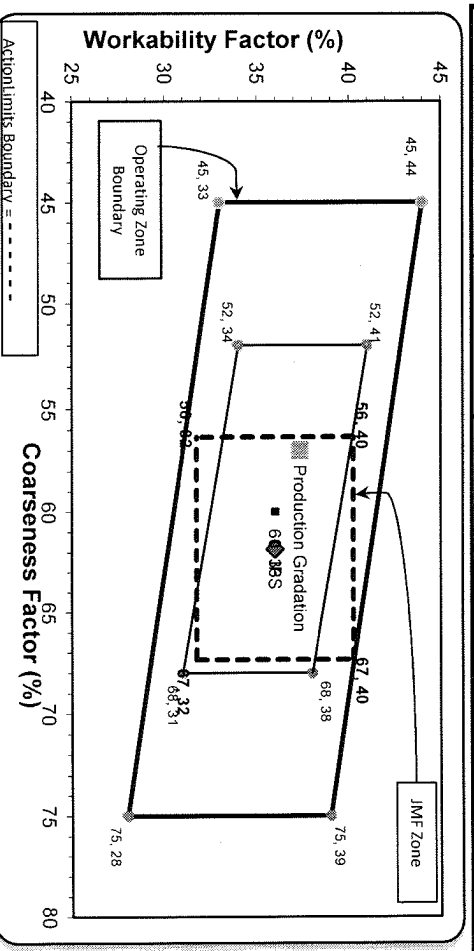
Verify this number is 100%

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"	97.8	100.0	100.0	99.0	1.0	1.0
3/4"	85.3	100.0	100.0	93.1	5.8	6.9
1/2"	45.1	94.7	100.0	73.7	19.5	26.3
3/8"	24.8	85.0	100.0	62.9	10.8	37.1
#4	3.4	23.8	95.9	42.8	20.0	57.2
#8	1.7	7.0	83.6	34.9	8.0	65.1
#16	1.6	3.1	69.2	28.6	6.3	71.4
#30	1.5	2.4	50.4	21.0	7.6	79.0
#50	1.4	2.2	24.3	10.6	10.4	89.4
#100	1.4	2.1	6.9	3.7	6.9	96.3
LBW	1.0	1.8	1.3	1.2	2.4	98.8

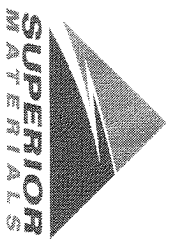
\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max.  
 nom. max. #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max.  
 nom. max. #100 and #200 sieves.  
 \*% Retained must be at least 8% for the 1" sieve when  
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

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: 57 Workability Factor: 35 Adjusted WF: 37.4



Sieve	Initial Production Sample (IPS)	Coarseness Factor:	Workability Factor:	Adjusted WF
2"	100.0	62	36	62
1.5"	100.0	0.0	0.0	0.0
1"	100.0	0.0	0.0	0.0
3/4"	95.0	5.0	5.0	5.0
1/2"	72.3	22.8	27.7	27.7
3/8"	60.4	11.8	39.6	39.6
#4	42.6	17.8	57.4	57.4
#8	36.0	6.6	64.0	64.0
#16	29.5	6.5	70.5	70.5
#30	20.3	9.2	79.7	79.7
#50	9.5	10.8	90.5	90.5
#100	3.4	6.1	96.6	96.6
LBW	1.3	2.1	98.7	98.7



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

PREPARED BY:  
 SM, LLC Technical Service

Approved By: \_\_\_\_\_

Plant 958-JMT  
 Product 1022-2NS GR - Smelter Bay  
 Period: 09/18/2022 - 09/24/2022

Name/Title Doug Storey / QC Technician  
 Report Date 09/23/2022

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	95.9	%	95-100
	#8 (2.36mm)	83.6	%	65-95
	#16 (1.18mm)	69.2	%	35-75
	#30 (.6mm)	50.4	%	20-55
	#50 (.3mm)	24.3	%	10-30
	#100 (.15mm)	6.9	%	0-10
	#200 (75µm)	1.7	%	
	FM	2.70		2.6-3
	Wash Loss (#200/75um)	1.3	%	0-3
	Total Moisture	4.5	%	

Plant 958-JMT  
 Product 1067-26A Mod LS  
 Period: 09/18/2022 - 09/24/2022

Name/Title Doug Storey / QC Technician  
 Report Date 09/23/2022

Procedure	Sieve/Test	Result	Unit	26A Mod 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)	94.7	%	95-100
	3/8" (9.5mm)	85.0	%	60-95
	#4 (4.75mm)	23.8	%	5-30
	#8 (2.36mm)	7.0	%	0-12
	#16 (1.18mm)	3.1	%	
	#30 (.6mm)	2.4	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.1	%	
	#200 (75µm)	1.9	%	
	Wash Loss (#200/75um)	1.8	%	0-3
	Total Moisture	3.3	%	

# Edw. C. Levy Co.

JMT  
8911 W. Jefferson  
Detroit, 48209  
(313) 429-2429

Plant: 958-JMT

Product: 1054-6AA LS PI

Period: 09/18/2022 - 09/24/2022

Name/Title: Doug Storey / QC Technician

Report Date: 09/23/2022

Procedure	Sieve/Test	Result	Unit	6AA LS PI Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	97.8	%	95-100
	3/4" (19mm)	85.3	%	
	1/2" (12.5mm)	45.1	%	30-60
	3/8" (9.5mm)	24.8	%	
	#4 (4.75mm)	3.4	%	0-8
	#8 (2.36mm)	1.7	%	
	#16 (1.18mm)	1.6	%	
	#30 (.6mm)	1.5	%	
	#50 (.3mm)	1.4	%	
	#100 (.15mm)	1.4	%	
	#200 (75µm)	1.2	%	
	Wash Loss (#200/75µm)	1.0	%	0-2
	Total Moisture	3.5	%	

# Aggregate Optimization Chart

# Production Gradation Report

**PLANT #:** P-36

Sample Date: 9/19/22

Dates Test Represents: 9/20/2022 through 9/26/2022

Concrete Grade: DM 4500HP

Contractor: \_\_\_\_\_

MDOT No.: \_\_\_\_\_

Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1555	9.51	2.62	53.5
26A	71-47	Presque Isle	250	1.53	2.62	8.6
2NS	63-92	Gange Hall	1100	6.65	2.65	37.9
<b>Total Wt:</b>			<b>2905</b>	<b>17.69</b>		<b>100.0</b>

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"	97.0	100.0	100.0	98.4	1.6	1.6
3/4"	77.0	100.0	100.0	87.7	10.7	12.3
1/2"	41.0	94.6	100.0	68.0	19.7	32.0
3/8"	22.8	85.5	100.0	57.4	10.5	42.6
#4	4.8	20.1	97.3	41.1	16.3	58.9
#8	2.9	4.9	82.7	33.3	7.9	66.7
#16	2.6	2.2	68.2	27.4	5.9	72.6
#30	2.5	1.7	50.4	20.6	6.8	79.4
#50	2.4	1.6	20.1	9.0	11.5	91.0
#100	2.3	1.5	4.0	2.9	6.2	97.1
LBW	1.8	1.3	0.7	1.3	1.5	98.7

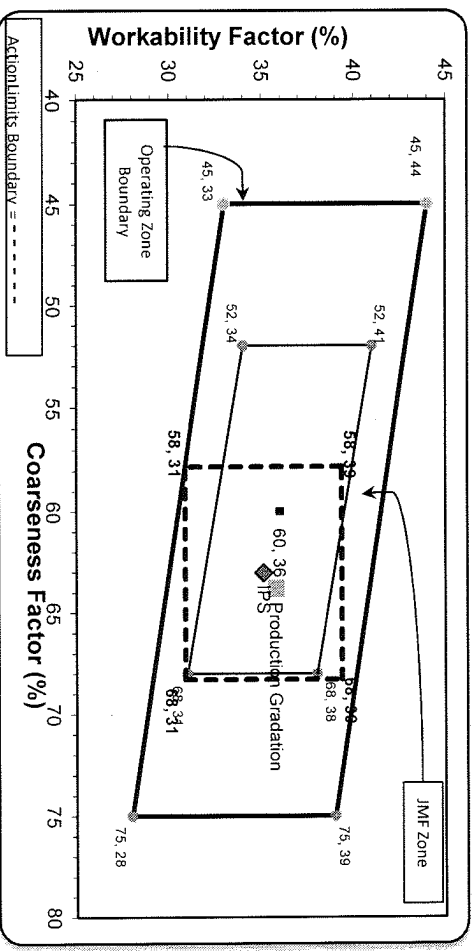
\*Maximum % Retained must be above the 3/8" sieve.  
 \*Any two adjacent sieves must equal 10% except max.  
 nom. max.: #100 and #200 sieves.  
 \*% Retained must be at least 4% for each sieve except max.  
 nom. max.: #100 and #200 sieves.  
 \*% Retained must be at least 8% for the 1" sieve when 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

Production Gradation  Batch Plant Gradations  Aggregate Supplier Gradations

Coarseness Factor: 64 Workability Factor: 33 Adjusted WF: 35.8

Initial Production Sample (IPS)

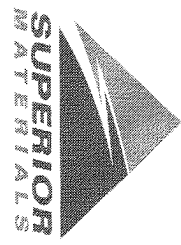
Coarseness Factor: 63 Workability Factor: 35



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: \_\_\_\_\_



**Superior Materials, LLC**  
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 Farmington Hills, MI 48336



Superior Auburn Hills  
2470 Auburn Road  
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills  
Product 1022-2NS GR  
Period: 09/18/2022 - 09/24/2022

Name/Title Doug Storey / QC Technician  
Report Date 09/23/2022

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)	82.7	%	65-95
	#16 (1.18mm)	68.2	%	35-75
	#30 (.6mm)	50.4	%	20-55
	#50 (.3mm)	20.1	%	10-30
	#100 (.15mm)	4.0	%	0-10
	#200 (75µm)	0.9	%	
	FM	2.77		2.6-3
	Wash Loss (#200/75µm)	0.7	%	0-3
	Total Moisture	3.54	%	



Superior Auburn Hills  
 2470 Auburn Road  
 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills  
 Product 1067-26A Mod LS  
 Period: 09/18/2022 - 09/24/2022

Name/Title Doug Storey / QC Technician  
 Report Date 09/23/2022

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)	94.6	%	95-100
	3/8" (9.5mm)	85.5	%	60-95
	#4 (4.75mm)	20.1	%	5-30
	#8 (2.36mm)	4.9	%	0-12
	#16 (1.18mm)	2.2	%	
	#30 (.6mm)	1.7	%	
	#50 (.3mm)	1.6	%	
	#100 (.15mm)	1.5	%	
	#200 (75µm)	1.4	%	
	Wash Loss (#200/75µm)	1.3	%	0-3
	Total Moisture	3.07	%	



Superior Auburn Hills  
 2470 Auburn Road  
 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills  
 Product 1051-6AA LS  
 Period: 09/18/2022 - 09/24/2022

Name/Title Doug Storey / QC Technician  
 Report Date 09/23/2022

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	97.0	%	95-100
	3/4" (19mm)	77.0	%	
	1/2" (12.5mm)	41.0	%	30-60
	3/8" (9.5mm)	22.8	%	
	#4 (4.75mm)	4.8	%	0-8
	#8 (2.36mm)	2.9	%	
	#16 (1.18mm)	2.6	%	
	#30 (.6mm)	2.5	%	
	#50 (.3mm)	2.4	%	
	#100 (.15mm)	2.3	%	
	#200 (75µm)	2.0	%	
AASHTO T11	-#200 (75um)	2.02	%	
	Wash Loss (#200/75um)	1.8	%	0-2
	Total Moisture	2.10	%	