

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-32**

Sample Date: **8/30/21**

Dates Test Represents: **8/31/2021** through **9/6/2021**

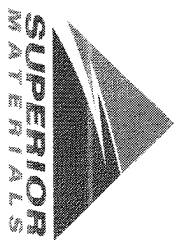
Concrete Grade: **S2M**

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1650	10.09	2.62	54.1
26A	71-47	Presque Isle	170	1.04	2.62	5.6
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
Total Wt:			3050	18.57		100.0

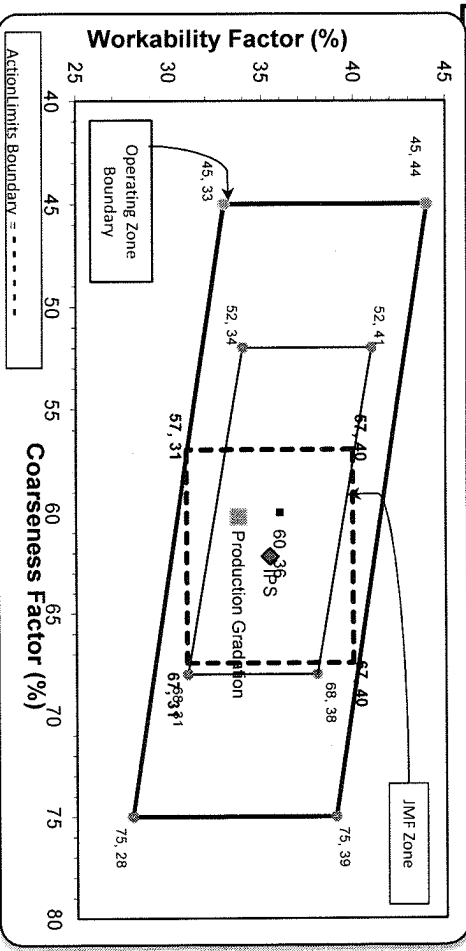
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.9	100.0	100.0	98.3	1.7	1.7
3/4"	85.4	100.0	100.0	92.1	6.2	7.9
1/2"	49.5	97.5	100.0	72.5	19.6	27.5
3/8"	27.6	87.2	100.0	60.1	12.4	39.9
#4	6.0	23.8	95.4	43.0	17.1	57.0
#8	3.0	6.5	78.8	33.8	9.3	66.2
#16	2.5	3.0	60.4	25.9	7.9	74.1
#30	2.3	2.5	43.5	18.9	7.0	81.1
#50	2.2	2.3	26.1	11.8	7.1	88.2
#100	2.1	2.0	9.8	5.2	6.6	94.8
LBW	1.5	1.6	1.3	1.4	3.8	98.6



Superior Materials, LLC
 30701 W. 10 Mile Rd.
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*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. 1.5") aggregate is used.

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations
 Coarseness Factor: **60** Workability Factor: **34**



Initial Production Sample (IPS)
 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"	100.0	0.0	0.0
3/4"	94.0	6.0	6.0
1/2"	70.2	23.7	29.8
3/8"	59.9	10.4	40.1
#4	42.7	17.2	57.3
#8	35.5	7.2	64.5
#16	28.4	7.0	71.6
#30	19.2	9.2	80.8
#50	8.9	10.3	91.1
#100	3.1	5.9	96.9
LBW	1.4	1.7	98.6

PREPARED BY:
 SM, LLC Technical Service

Approved By: _____

Plant 958-JMT

Product 1022-2NS GR - Smelter Bay

Name/Title Doug Storey / QC Technician

Period: 08/29/2021 - 09/04/2021

Report Date 09/03/2021

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)	78.8	%	65-95
	#16 (1.18mm)	60.4	%	35-75
	#30 (.6mm)	43.5	%	20-55
	#50 (.3mm)	26.1	%	10-30
	#100 (.15mm)	9.8	%	0-10
	#200 (75µm)	1.7	%	
	FM	2.86		2.6-3
	Wash Loss (#200/75um)	1.3	%	0-3
	Total Moisture	4.6	%	

Plant 958-JMT

Product 1067-26A Mod LS

Name/Title Doug Storey / QC Technician

Period: 08/29/2021 - 09/04/2021

Report Date 09/03/2021

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)	97.5	%	95-100
	3/8" (9.5mm)	87.2	%	60-95
	#4 (4.75mm)	23.8	%	5-30
	#8 (2.36mm)	6.5	%	0-12
	#16 (1.18mm)	3.0	%	
	#30 (.6mm)	2.5	%	
	#50 (.3mm)	2.3	%	
	#100 (.15mm)	2.0	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.6	%	0-3
	Total Moisture	4.0	%	

Edw. C. Levy Co.

JMT
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Detroit, 48209
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Plant 958-JMT

Product 1054-6AA LS PI

Period: 08/29/2021 - 09/04/2021

Name/Title Doug Storey / QC Technician

Report Date 09/03/2021

Procedure	Sieve/Test	Result	Unit	6AA LS PI Spec
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	96.9	%	95-100
	3/4" (19mm)	85.4	%	
	1/2" (12.5mm)	49.5	%	30-60
	3/8" (9.5mm)	27.6	%	
	#4 (4.75mm)	6.0	%	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)	1.7	%	
	Wash Loss (#200/75um)	1.5	%	0-2
	Total Moisture	3.3	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: **P-35**

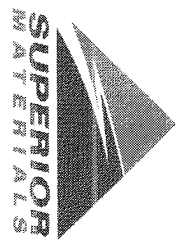
Sample Date: **8/30/21**

Dates Test Represents: **8/31/2021** through **9/6/2021**

Concrete Grade: **S2M**

Contractor: _____

MDOT No.: _____



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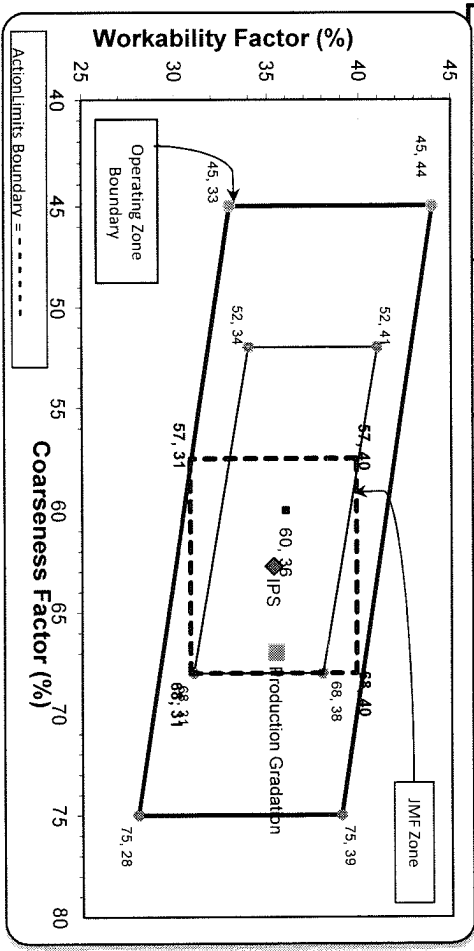
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
6AA	58-003	Stoneco	1600	9.53	2.69	51.6
26A	58-003	Stoneco	300	1.79	2.69	9.7
2NS	81-093	Burneister	1200	7.26	2.65	38.7
			Total Wt	3100	18.58	100.0

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"	99.6	100.0	100.0	99.8	0.2	0.2
3/4"	70.0	100.0	100.0	84.5	15.3	15.5
1/2"	35.1	99.7	100.0	66.5	18.0	33.5
3/8"	18.1	90.1	100.0	56.8	9.7	43.2
#4	4.6	12.7	99.3	42.0	14.7	58.0
#8	2.0	3.7	88.0	35.5	6.6	64.5
#16	1.5	2.6	73.3	29.4	6.1	70.6
#30	1.3	2.2	54.0	21.8	7.6	78.2
#50	1.2	2.0	18.7	8.1	13.7	91.9
#100	1.2	1.9	3.1	2.0	6.0	98.0
LBW	0.9	1.7	0.5	0.8	1.2	99.2

*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: **67** Workability Factor: **35**



Initial Production Sample (IPS)

Sieve	% Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.4	11.9	40.6
#4	43.0	16.5	57.0
#8	35.3	7.6	64.7
#16	28.2	7.1	71.8
#30	21.6	6.6	78.4
#50	9.1	12.5	90.9
#100	1.7	7.4	98.3
LBW	1.1	0.6	98.9

PREPARED BY:
 SM, LLC Technical Service

Approved By: _____



Plant S35-Superior Romulus
 Product 1022-2NS GR
 Period: 08/29/2021 - 09/04/2021

Name/Title Doug Storey / QC Technician
 Report Date 09/03/2021

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	99.3	%	95-100
	#8 (2.36mm)	88.0	%	65-95
	#16 (1.18mm)	73.3	%	35-75
	#30 (.6mm)	54.0	%	20-55
	#50 (.3mm)	18.7	%	10-30
	#100 (.15mm)	3.1	%	0-10
	#200 (75µm)	0.7	%	
	FM	2.64		2.6-3
AASHTO T11	-#200 (75um)	0.73	%	
	Wash Loss (#200/75um)	0.5	%	0-3
ASTM C566	Total Moisture	6.00	%	



Plant S35-Superior Romulus
 Product 1067-26A Mod LS
 Period: 08/29/2021 - 09/04/2021

Name/Title Doug Storey / QC Technician
 Report Date 09/03/2021

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)	99.7	%	95-100
	3/8" (9.5mm)	90.1	%	60-95
	#4 (4.75mm)	12.7	%	5-30
	#8 (2.36mm)	3.7	%	0-12
	#16 (1.18mm)	2.6	%	
	#30 (.6mm)	2.2	%	
	#50 (.3mm)	2.0	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.7	%	
	Wash Loss (#200/75um)	1.7	%	0-3
ASTM C566	Total Moisture	3.25	%	



Plant S35-Superior Romulus

Product 1051-6AA LS

Name/Title Doug Storey / QC Technician

Period: 08/29/2021 - 09/04/2021

Report Date 09/03/2021

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	99.6	%	95-100
	3/4" (19mm)	70.0	%	
	1/2" (12.5mm)	35.1	%	30-60
	3/8" (9.5mm)	18.1	%	
	#4 (4.75mm)	4.6	%	0-8
	#8 (2.36mm)	2.0	%	
	#16 (1.18mm)	1.5	%	
	#30 (.6mm)	1.3	%	
	#50 (.3mm)	1.2	%	
	#100 (.15mm)	1.2	%	
	#200 (75µm)	1.04	%	
AASHTO T11	-#200 (75µm)	1.04	%	
	Wash Loss (#200/75µm)	0.9	%	0-2
ASTM C566	Total Moisture	2.82	%	