

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-35

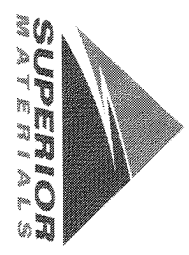
Sample Date: 10/10/22

Dates Test Represents: 10/11/2022 through 10/17/2022

Concrete Grade: P1M, 3500HP

Contractor: _____

MDOT No.: _____



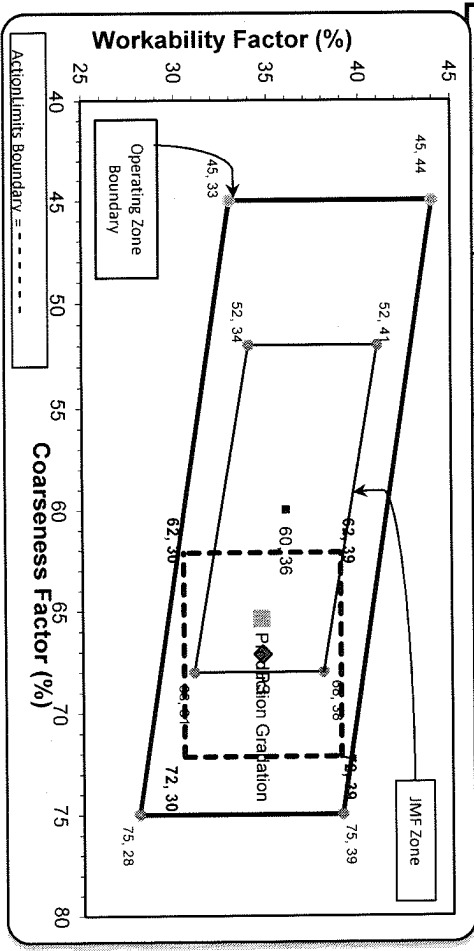
Superior Materials, LLC
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Agg. Class	Pit #	Source	Weight (ssd)	ft ³	Specific Gravity	Contribution %
CA	58-003	Stoneco	1370	8.16	2.69	43.9
IA	58-003	Stoneco	550	3.28	2.69	17.6
N2S	81-019	Pleasant Lake	1200	7.26	2.65	38.5
		Total Wt	3120	18.70		100.0

Sieve	CA	IA	N2S	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"	62.7	100.0	100.0	83.6	16.4	16.4
3/4"	25.4	100.0	100.0	67.2	16.4	32.8
1/2"	13.2	97.3	100.0	61.4	5.8	38.6
3/8"	9.6	82.8	100.0	57.3	4.1	42.7
#4	3.7	28.5	98.8	44.6	12.6	55.4
#8	2.1	9.2	83.5	34.7	10.0	65.3
#16	1.7	4.2	66.4	27.0	7.6	73.0
#30	1.6	2.8	48.2	19.7	7.3	80.3
#50	1.5	2.3	23.5	10.1	9.6	89.9
#100	1.4	2.1	7.5	3.9	6.2	96.1
LBW	1.1	2.0	1.8	1.5	2.3	98.5

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

Coarseness Factor: 65 Workability Factor: 35



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"	86.9	13.1	13.1
3/4"	76.1	10.8	23.9
1/2"	63.7	12.4	36.3
3/8"	56.2	7.5	43.8
#4	43.2	13.0	56.8
#8	34.7	8.5	65.3
#16	27.5	7.2	72.5
#30	20.6	7.0	79.4
#50	9.0	11.6	91.0
#100	2.1	6.9	97.9
LBW	1.0	1.1	99.0

Coarseness Factor: 67 Workability Factor: 35

*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.

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Plant S35-Superior Romulus
 Product 1022-2NS GR
 Period: 10/09/2022 - 10/15/2022

Name/Title Doug Storey / QC Technician
 Report Date 10/13/2022

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.8	%	95-100
	#8 (2.36mm)	83.5	%	65-95
	#16 (1.18mm)	66.4	%	35-75
	#30 (.6mm)	48.2	%	20-55
	#50 (.3mm)	23.5	%	10-30
	#100 (.15mm)	7.5	%	0-10
	#200 (75µm)	2.2	%	
	FM	2.72		2.6-3
AASHTO T11	-#200 (75um)	2.17	%	
	Wash Loss (#200/75um)	1.8	%	0-3
ASTM C566	Total Moisture	4.17	%	



Plant S35-Superior Romulus
 Product 7920-INTERMED AGG P1M LS
 Period: 10/09/2022 - 10/15/2022

Name/Title Doug Storey / QC Technician
 Report Date 10/13/2022

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	100.0	%	
	1/2" (12.5mm)	97.3	%	
	3/8" (9.5mm)	82.8	%	
	#4 (4.75mm)	28.5	%	
	#8 (2.36mm)	9.2	%	
	#16 (1.18mm)	4.2	%	
	#30 (.6mm)	2.8	%	
	#50 (.3mm)	2.3	%	
	#100 (.15mm)	2.1	%	
	#200 (75µm)	2.0	%	
	Wash Loss (#200/75um)	2.0	%	0-3
ASTM C566	Total Moisture	3.14	%	



Plant S35-Superior Romulus

Product 7919-COARSE AGG P1M LS

Name/Title Doug Storey / QC Technician

Period: 10/09/2022 - 10/15/2022

Report Date 10/13/2022

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	62.7	%	
	3/4" (19mm)	25.4	%	
	1/2" (12.5mm)	13.2	%	
	3/8" (9.5mm)	9.6	%	
	#4 (4.75mm)	3.7	%	
	#8 (2.36mm)	2.1	%	
	#16 (1.18mm)	1.7	%	
	#30 (.6mm)	1.6	%	
	#50 (.3mm)	1.5	%	
	#100 (.15mm)	1.4	%	
	#200 (75µm)	1.2	%	
	Wash Loss (#200/75um)	1.1	%	0-2
ASTM C566	Total Moisture	1.76	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-36

Sample Date: 10/10/22

Dates Test Represents: 10/11/2022 through 10/17/2022

Concrete Grade: P1M, 3500HP

Contractor: _____

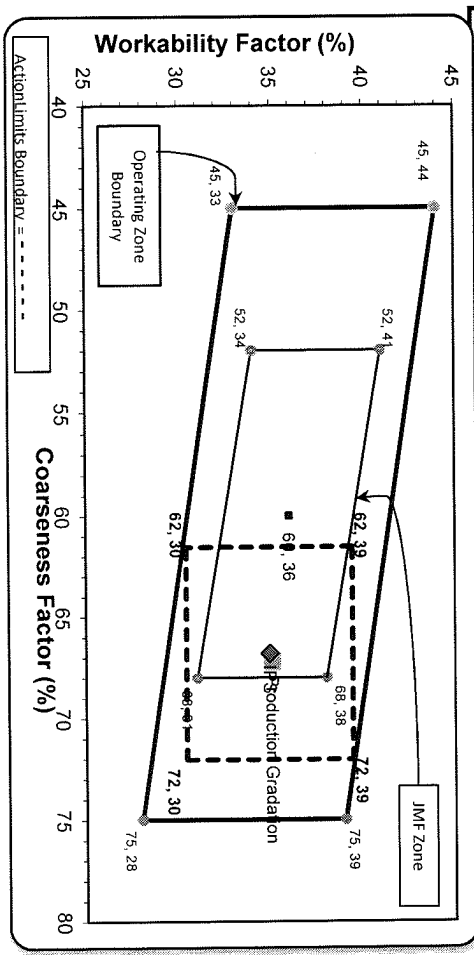
MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
CA	71-47	Presque Isle	950	5.81	2.62	30.9
IA	71-47	Presque Isle	920	5.63	2.62	30.0
NNS	63-92	Grange Hall	1200	7.26	2.65	39.1
Total Wt			3070	18.70		100.0

Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	98.3	100.0	100.0	99.5	0.5	0.5
1"	40.7	100.0	100.0	81.6	17.8	18.4
3/4"	8.8	99.2	100.0	71.5	10.1	28.5
1/2"	3.3	79.7	100.0	64.0	7.5	36.0
3/8"	2.8	54.7	100.0	56.3	7.6	43.7
#4	2.3	12.4	97.9	42.7	13.7	57.3
#8	2.2	3.7	85.1	35.1	7.6	64.9
#16	2.2	2.6	70.4	29.0	6.1	71.0
#30	2.2	2.3	51.9	21.7	7.3	78.3
#50	2.1	2.2	21.6	9.8	11.9	90.2
#100	1.9	2.0	4.1	2.8	7.0	97.2
LBW	1.5	1.7	0.5	1.2	1.6	98.8

Production Gradation Batch Plant Gradations Aggregate Supplier Gradations

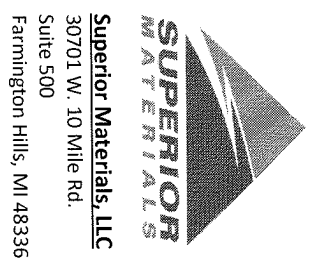
Coarseness Factor: 67 Workability Factor: 35



Sieve	Coarseness Factor:	Workability Factor:	% Retained	Cumulative % Retained
2"	67	35	0.0	0.0
1.5"			0.0	0.0
1"			15.0	15.0
3/4"			12.9	27.9
1/2"			7.6	35.5
3/8"			8.0	43.5
#4			13.8	57.3
#8			7.8	65.1
#16			5.9	71.0
#30			8.0	79.0
#50			12.8	91.8
#100			6.5	98.4
LBW			0.9	99.3

Initial Production Sample (IPS)

Coarseness Factor: 67 Workability Factor: 35



*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.

PREPARED BY:
SM, LLC Technical Service

Approved By: _____



Superior Auburn Hills
 2470 Auburn Road
 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills

Product 1022-2NS GR

Name/Title Doug Storey / QC Technician

Period: 10/09/2022 - 10/15/2022

Report Date 10/13/2022

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	97.9	%	95-100
	#8 (2.36mm)	85.1	%	65-95
	#16 (1.18mm)	70.4	%	35-75
	#30 (.6mm)	51.9	%	20-55
	#50 (.3mm)	21.6	%	10-30
	#100 (.15mm)	4.1	%	0-10
	#200 (75µm)	0.8	%	
	FM	2.69		2.6-3
	Wash Loss (#200/75um)	0.5	%	0-3
	Total Moisture	2.87	%	



Superior Auburn Hills
2470 Auburn Road
Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills
Product 7920-INTERMED AGG P1M LS
Period: 10/09/2022 - 10/15/2022

Name/Title Doug Storey / QC Technician
Report Date 10/14/2022

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	99.2	%	
	1/2" (12.5mm)	79.7	%	
	3/8" (9.5mm)	54.7	%	
	#4 (4.75mm)	12.4	%	
	#8 (2.36mm)	3.7	%	
	#16 (1.18mm)	2.6	%	
	#30 (.6mm)	2.3	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	2.0	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.7	%	0-3
	Total Moisture	3.40	%	



Superior Auburn Hills
 2470 Auburn Road
 Auburn Hills, MI 48432

Plant S36-Superior Auburn Hills
Product 7919-COARSE AGG P1M LS
Period: 10/09/2022 - 10/15/2022

Name/Title Doug Storey / QC Technician
Report Date 10/14/2022

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	98.3	%	
	1" (25mm)	40.7	%	
	3/4" (19mm)	8.8	%	
	1/2" (12.5mm)	3.3	%	
	3/8" (9.5mm)	2.8	%	
	#4 (4.75mm)	2.3	%	
	#8 (2.36mm)	2.2	%	
	#16 (1.18mm)	2.2	%	
	#30 (.6mm)	2.2	%	
	#50 (.3mm)	2.1	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.6	%	
	Wash Loss (#200/75um)	1.5	%	0-2
	Total Moisture	2.34	%	