Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Contractor: _____

Sample Date: 4/1/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 4/2/2024 through 4/8/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1500	8.94	2.69	48.4
26A	58-003	Stoneco	400	2.38	2.69	12.9
2NS	63-114	Highland	1200	7.26	2.65	38.7
		Total Wt	**3100**	**18.58**		100.0

<---- Verify this number is 100%

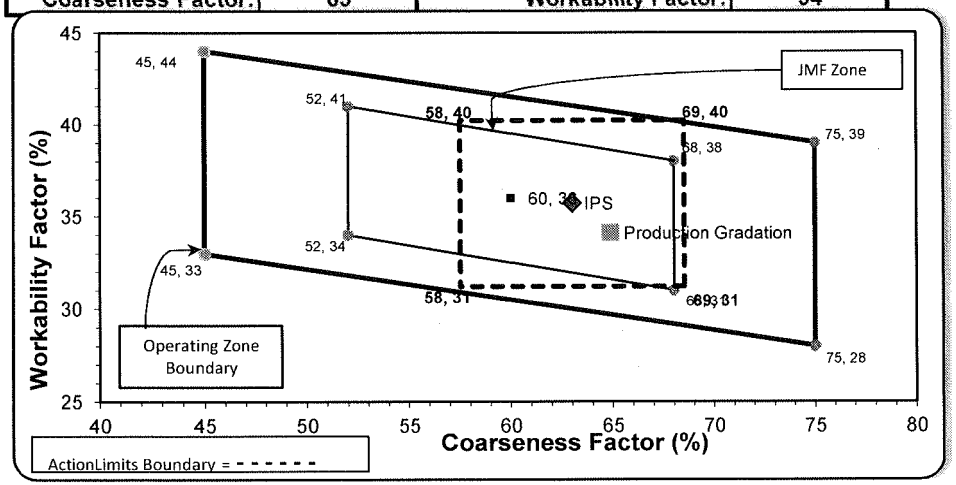
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	100.0	100.0	100.0	100.0	0.0	0.0
3/4"	81.4	100.0	100.0	91.0	9.0	9.0
1/2"	36.7	96.8	100.0	69.0	22.0	31.0
3/8"	16.8	80.8	100.0	57.3	11.7	42.7
#4	2.9	17.2	98.7	41.8	15.4	58.2
#8	1.6	6.8	83.9	34.1	7.7	65.9
#16	1.3	4.3	65.6	26.6	7.6	73.4
#30	1.2	3.6	46.8	19.2	7.4	80.8
#50	1.2	3.2	19.6	8.6	10.6	91.4
#100	1.1	3.1	4.1	2.5	6.1	97.5
LBW	1.0	2.9	0.7	1.1	1.4	98.9

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

*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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	65	Workability Factor:	34



Intial Production Sample (IPS)

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"	99.2	0.8	0.8
3/4"	90.9	8.3	9.1
1/2"	71.3	19.6	28.7
3/8"	59.5	11.8	40.5
#4	43.8	15.7	56.2
#8	35.7	8.1	64.3
#16	27.0	8.7	73.0
#30	18.6	8.4	81.4
#50	6.8	11.8	93.2
#100	1.4	5.4	98.6
LBW	0.6	0.8	99.4

PREPARED BY:
SM, LLC Technical Service

Approved By:

Plant S102-Superior Novi

Product 1051-6AA LS

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/05/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	100.0	%	95-100
	3/4" (19mm)	81.4	%	
	1/2" (12.5mm)	36.7	%	30-60
	3/8" (9.5mm)	16.8	%	
	#4 (4.75mm)	2.9	%	0-8
	#8 (2.36mm)	1.6	%	
	#16 (1.18mm)	1.3	%	
	#30 (.6mm)	1.2	%	
	#50 (.3mm)	1.2	%	
	#100 (.15mm)	1.1	%	
	#200 (75µm)	1.10	%	
	Wash Loss (#200/75um)	1.0	%	0-2
	Total Moisture	3.10	%	

Plant S102-Superior Novi

Product 1067-26A Mod LS

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/05/2024

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)	96.8	%	95-100
	3/8" (9.5mm)	80.8	%	60-95
	#4 (4.75mm)	17.2	%	5-30
	#8 (2.36mm)	6.8	%	0-12
	#16 (1.18mm)	4.3	%	
	#30 (.6mm)	3.6	%	
	#50 (.3mm)	3.2	%	
	#100 (.15mm)	3.1	%	
	#200 (75µm)	2.9	%	
	Wash Loss (#200/75um)	2.9	%	0-3
	Total Moisture	4.36	%	

Plant S102-Superior Novi

Product 1022-2NS GR

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/05/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	98.7	%	95-100
	#8 (2.36mm)	83.9	%	65-95
	#16 (1.18mm)	65.6	%	35-75
	#30 (.6mm)	46.8	%	20-55
	#50 (.3mm)	19.6	%	10-30
	#100 (.15mm)	4.1	%	0-10
	#200 (75µm)	0.9	%	
	FM	2.81		2.6-3
	Wash Loss (#200/75um)	0.7	%	0-3
	Total Moisture	2.03	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: p11

Contractor: _____

Sample Date: 4/1/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 4/2/2024 through 4/8/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1600	9.79	2.62	52.5
26A	71-47	Presque Isle	220	1.35	2.62	7.2
2NS	95-013	Smelter Bay	1230	7.44	2.65	40.3
		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"	96.3	100.0	100.0	98.1	1.9	1.9
3/4"	81.5	100.0	100.0	90.3	7.8	9.7
1/2"	45.3	95.1	100.0	71.0	19.3	29.0
3/8"	29.1	83.3	100.0	61.6	9.3	38.4
#4	4.3	22.1	96.4	42.7	18.9	57.3
#8	2.6	6.6	84.6	36.0	6.8	64.0
#16	2.1	3.5	70.2	29.7	6.3	70.3
#30	2.0	3.4	50.4	21.6	8.0	78.4
#50	1.9	3.3	23.5	10.7	10.9	89.3
#100	1.9	3.1	6.7	3.9	6.8	96.1
LBW	1.6	2.8	1.3	1.6	2.4	98.4

*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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

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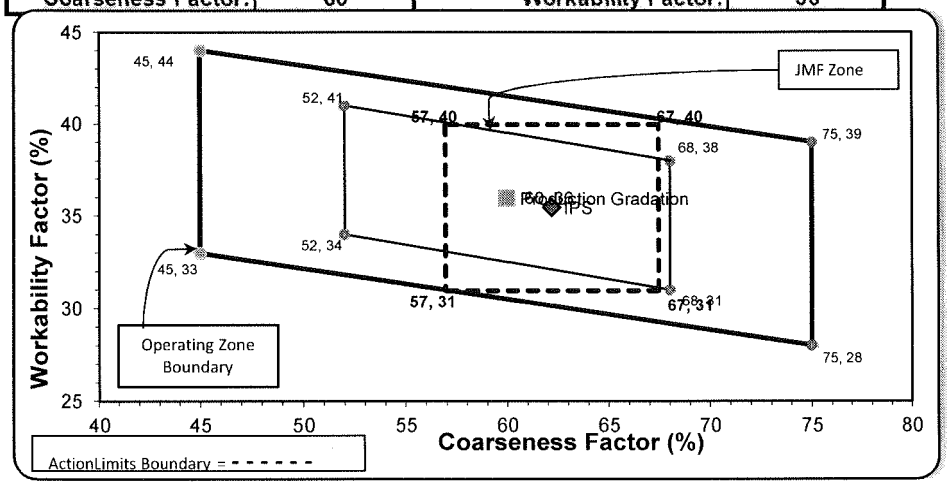
Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	60	Workability Factor:	36



Intial 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:

SUPERIOR MATERIALS

Plant S11-Onsite Jefferson

Product 1051-6AA LS

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/06/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	96.3	%	95-100
	3/4" (19mm)	81.5	%	
	1/2" (12.5mm)	45.3	%	30-60
	3/8" (9.5mm)	29.1	%	
	#4 (4.75mm)	4.3	%	0-8
	#8 (2.36mm)	2.6	%	
	#16 (1.18mm)	2.1	%	
	#30 (.6mm)	2.0	%	
	#50 (.3mm)	1.9	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.77	%	
	Wash Loss (#200/75um)	1.6	%	0-2
	Total Moisture	2.41	%	

SUPERIOR MATERIALS

Plant S11-Onsite Jefferson

Product 1067-26A Mod LS

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/06/2024

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)	95.1	%	95-100
	3/8" (9.5mm)	83.3	%	60-95
	#4 (4.75mm)	22.1	%	5-30
	#8 (2.36mm)	6.6	%	0-12
	#16 (1.18mm)	3.5	%	
	#30 (.6mm)	3.4	%	
	#50 (.3mm)	3.3	%	
	#100 (.15mm)	3.1	%	
	#200 (75µm)	3.0	%	
	Wash Loss (#200/75um)	2.8	%	0-3
	Total Moisture	2.08	%	

SUPERIOR MATERIALS

Plant S11-Onsite Jefferson

Product 1022-2NS GR

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/06/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.4	%	95-100
	#8 (2.36mm)	84.6	%	65-95
	#16 (1.18mm)	70.2	%	35-75
	#30 (.6mm)	50.4	%	20-55
	#50 (.3mm)	23.5	%	10-30
	#100 (.15mm)	6.7	%	0-10
	#200 (75µm)	1.4	%	
	FM	2.68		2.6-3
	Wash Loss (#200/75um)	1.3	%	0-3
	Total Moisture	3.17	%	

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-O2

Contractor: _____

Sample Date: 4/1/24

Concrete Grade: **S2M, 3500HP**

Dates Test Represents: 4/2/2024 through 4/8/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft^3	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1500	9.17	2.62	49.2
26A	71-47	Presque Isle	320	1.96	2.62	10.5
2NS	63-115	Ray Rd	1230	7.44	2.65	40.3
		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"	98.3	100.0	100.0	99.2	0.8	0.8
3/4"	76.2	100.0	100.0	88.3	10.9	11.7
1/2"	35.8	94.2	100.0	67.8	20.5	32.2
3/8"	18.3	80.0	100.0	57.7	10.1	42.3
#4	3.3	15.8	96.4	42.2	15.6	57.8
#8	2.4	4.5	81.3	34.4	7.7	65.6
#16	1.8	2.7	65.5	27.6	6.9	72.4
#30	1.6	2.5	50.4	21.4	6.2	78.6
#50	1.5	2.4	24.5	10.9	10.5	89.1
#100	1.4	2.2	5.0	2.9	7.9	97.1
LBW	1.2	1.9	0.9	1.2	1.8	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 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.

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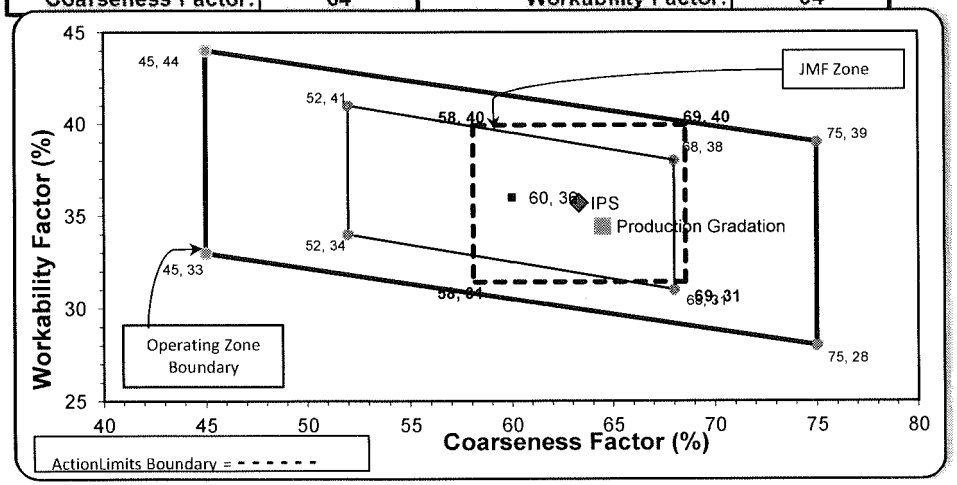
30701 W. 10 Mile Rd.
Suite 500
Farmington Hills, MI 48336

Production Gradation (◉) Batch Plant Gradations ( ) Aggregate SupplierGradations

Coarseness Factor:	64	Workability Factor:	34



Intial Production Sample (IPS)

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"	95.6	4.4	4.4
1/2"	73.1	22.6	26.9
3/8"	59.3	13.8	40.7
#4	42.8	16.5	57.2
#8	35.7	7.1	64.3
#16	28.9	6.8	71.1
#30	20.7	8.2	79.3
#50	9.9	10.8	90.1
#100	2.1	7.8	97.9
LBW	0.9	1.2	99.1

PREPARED BY:
SM, LLC Technical Service

Approved By:

Plant S02-Superior Hoover

Product 1051-6AA LS

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/06/2024

Procedure	Sieve/Test	Result	Unit	6AA LS
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	100-100
	1" (25mm)	98.3	%	95-100
	3/4" (19mm)	76.2	%	
	1/2" (12.5mm)	35.8	%	30-60
	3/8" (9.5mm)	18.3	%	
	#4 (4.75mm)	3.3	%	0-8
	#8 (2.36mm)	2.4	%	
	#16 (1.18mm)	1.8	%	
	#30 (.6mm)	1.6	%	
	#50 (.3mm)	1.5	%	
	#100 (.15mm)	1.4	%	
	#200 (75µm)	1.29	%	
	Wash Loss (#200/75um)	1.2	%	0-2
	Total Moisture	1.14	%	

Plant S02-Superior Hoover

Product 1067-26A Mod LS

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/06/2024

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)	94.2	%	95-100
	3/8" (9.5mm)	80.0	%	60-95
	#4 (4.75mm)	15.8	%	5-30
	#8 (2.36mm)	4.5	%	0-12
	#16 (1.18mm)	2.7	%	
	#30 (.6mm)	2.5	%	
	#50 (.3mm)	2.4	%	
	#100 (.15mm)	2.2	%	
	#200 (75µm)	2.0	%	
	Wash Loss (#200/75um)	1.9	%	0-3
	Total Moisture	2.10	%	

Plant S02-Superior Hoover

Product 1022-2NS GR

Period: 03/31/2024 - 04/06/2024

Name/Title Doug Storey / QC Technician

Report Date 04/06/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	96.4	%	95-100
	#8 (2.36mm)	81.3	%	65-95
	#16 (1.18mm)	65.5	%	35-75
	#30 (.6mm)	50.4	%	20-55
	#50 (.3mm)	24.5	%	10-30
	#100 (.15mm)	5.0	%	0-10
	#200 (75µm)	1.3	%	
	FM	2.77		2.6-3
	Wash Loss (#200/75um)	0.9	%	0-3
	Total Moisture	2.70	%	