Aggregate Optimization Chart

Production Gradation Report

PLANT #: P11

Contractor: _____

Sample Date: 6/10/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/11/2024 through 6/17/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	71-47	Presque Isle	900	5.50	2.62	29.3
IA	71-47	Presque Isle	970	5.93	2.62	31.6
2NS	95-013	Smelter Bay	1200	7.26	2.65	39.1
		Total Wt	**3070**	**18.70**		100.0

<----- Verify this number is 100%

Sieve	CA	IA	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	96.4	100.0	100.0	98.9	1.1	1.1
1"	21.3	100.0	100.0	76.9	22.0	23.1
3/4"	7.4	95.6	100.0	71.5	5.5	28.5
1/2"	2.1	67.9	100.0	61.2	10.3	38.8
3/8"	1.8	41.0	100.0	52.6	8.6	47.4
#4	1.8	6.5	96.4	40.3	12.3	59.7
#8	1.7	2.7	85.3	34.7	5.6	65.3
#16	1.7	2.1	70.6	28.8	5.9	71.2
#30	1.6	2.0	49.6	20.5	8.3	79.5
#50	1.6	1.9	23.4	10.2	10.3	89.8
#100	1.5	1.8	6.8	3.7	6.5	96.3
LBW	1.2	1.5	1.3	1.3	2.3	98.7

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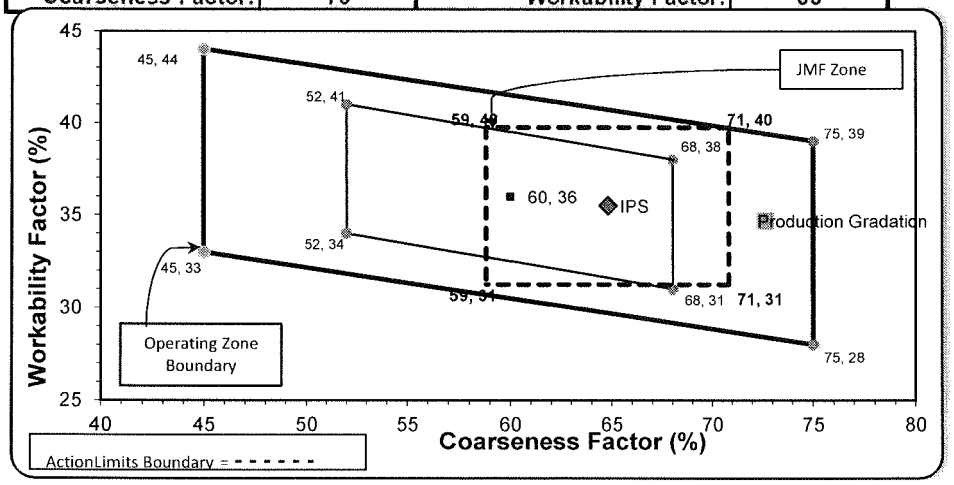
*Maximum % Retained must be above the 3/8" sieve.
*Any two adjacent sieves must equal 10% except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.
*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom.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

Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	73	Workability Factor:	35



Intial Production Sample (IPS)

Coarseness Factor:	65
Workability Factor:	36

Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	0.0	0.0
1.5"	99.0	0.6	0.6
1"	84.0	15.3	16.0
3/4"	73.5	10.5	26.5
1/2"	65.2	8.2	34.8
3/8"	58.2	7.1	41.8
#4	44.1	14.1	55.9
#8	35.5	8.6	64.5
#16	29.1	6.4	70.9
#30	21.9	7.3	78.1
#50	9.6	12.2	90.4
#100	2.6	7.1	97.4
LBW	1.0	1.6	99.0

PREPARED BY:
SM, LLC Technical Service

Approved By:

Daily Summary Report

Date	Tuesday, June 11, 2024		
Sample Id	-1989616792	-674941399	-1989616254
Plant			
Product	2NS GR	7920 INTERMED AGG P1M LS	7919 COARSE AGG P1M LS
Specification	2NS GR Spec	Intermed Agg P1M LS Target	Coarse Agg P1M LS Target
Sample Type	QA	QA	QA
Time	08:15	08:25	08:35
2" (50mm)		100.0	100.0
1 1/2" (37.5mm)		100.0	96.4
1" (25mm)		100.0	21.3
3/4" (19mm)		95.6	7.4
1/2" (12.5mm)		67.9	2.1
3/8" (9.5mm)	100.0	41.0	1.8
#4 (4.75mm)	96.4	6.5	1.8
#8 (2.36mm)	85.3	2.7	1.7
#16 (1.18mm)	70.6	2.1	1.7
#30 (.6mm)	49.6	2.0	1.6
#50 (.3mm)	23.4	1.9	1.6
#100 (.15mm)	6.8	1.8	1.5
#200 (75µm)	1.6	1.6	1.3
Pan	0.0	0.0	0.0
FM	2.68		
Wash Loss (#200/75um)	1.3	1.5	1.2
Total Moisture	5.01	2.44	1.47

Aggregate Optimization Chart

Production Gradation Report

PLANT #: P-102

Contractor: _____

Sample Date: 6/10/24

Concrete Grade: **P1M, 3500HP**

Dates Test Represents: 6/11/2024 through 6/17/2024

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft³	Specific Gravity	% Contribution
CA	58-003	Stoneco	1470	8.76	2.69	47.1
IA	58-003	Stoneco	450	2.68	2.69	14.4
2NS	63-114	Highland	1200	7.26	2.65	38.5
		Total Wt	**3120**	**18.70**		100.0

<----- Verify this number is 100%

Sieve	CA	IA	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"	64.1	100.0	100.0	83.1	16.9	16.9
3/4"	32.6	100.0	100.0	68.2	14.8	31.8
1/2"	15.5	93.8	100.0	59.3	9.0	40.7
3/8"	8.9	79.3	100.0	54.1	5.2	45.9
#4	3.2	16.8	99.1	42.0	12.0	58.0
#8	2.5	4.0	84.8	34.4	7.7	65.6
#16	2.2	2.4	67.1	27.2	7.2	72.8
#30	2.1	2.0	47.4	19.5	7.7	80.5
#50	1.9	1.8	15.9	7.3	12.2	92.7
#100	1.8	1.8	2.9	2.2	5.0	97.8
LBW	1.6	1.6	0.0	1.0	1.2	99.0

*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.

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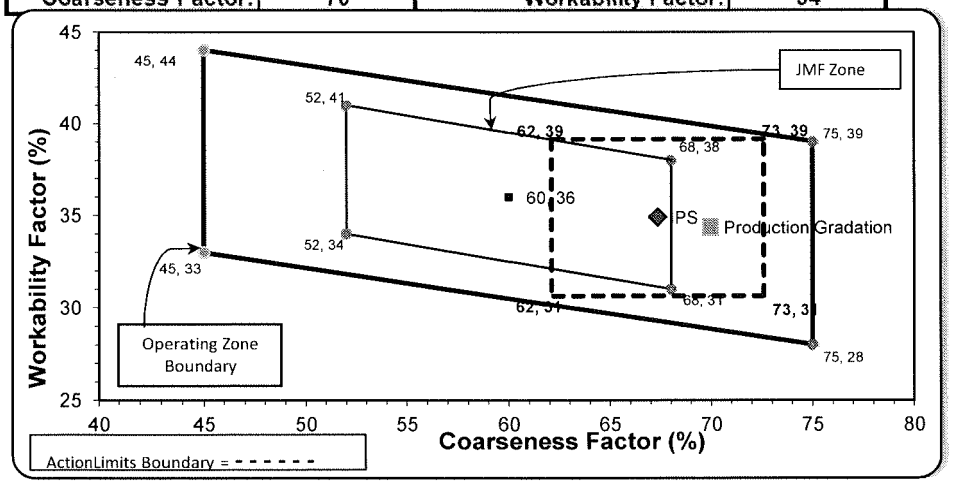
Production Gradation ◉ Batch Plant Gradations ○ Aggregate Supplier Gradations

Coarseness Factor:	70	Workability Factor:	34



Intial Production Sample (IPS)

Coarseness Factor:	67
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"	85.5	14.5	14.5
3/4"	73.4	12.1	26.6
1/2"	61.0	12.4	39.0
3/8"	56.2	4.8	43.8
#4	43.1	13.1	56.9
#8	34.9	8.2	65.1
#16	29.4	5.5	70.6
#30	21.6	7.8	78.4
#50	8.1	13.4	91.9
#100	2.2	5.9	97.8
LBW	1.4	0.8	98.6

PREPARED BY:
SM, LLC Technical Service

Approved By:

Plant S102-Superior Novi

Product 7919-COARSE AGG P1M LS

Period: 06/09/2024 - 06/15/2024

Name/Title Doug Storey / QC Technician

Report Date 06/18/2024

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	64.1	%	
	3/4" (19mm)	32.6	%	
	1/2" (12.5mm)	15.5	%	
	3/8" (9.5mm)	8.9	%	
	#4 (4.75mm)	3.2	%	
	#8 (2.36mm)	2.5	%	
	#16 (1.18mm)	2.2	%	
	#30 (.6mm)	2.1	%	
	#50 (.3mm)	1.9	%	
	#100 (.15mm)	1.8	%	
	#200 (75µm)	1.7	%	
	Wash Loss (#200/75um)	1.6	%	0-2
	Total Moisture	2.03	%	

Plant S102-Superior Novi

Product 7920-INTERMED AGG P1M LS

Period: 06/09/2024 - 06/15/2024

Name/Title Doug Storey / QC Technician

Report Date 06/18/2024

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)	93.8	%	
	3/8" (9.5mm)	79.3	%	
	#4 (4.75mm)	16.8	%	
	#8 (2.36mm)	4.0	%	
	#16 (1.18mm)	2.4	%	
	#30 (.6mm)	2.0	%	
	#50 (.3mm)	1.8	%	
	#100 (.15mm)	1.8	%	
	#200 (75µm)	1.7	%	
	Wash Loss (#200/75um)	1.6	%	0-3
	Total Moisture	3.28	%	

Plant S102-Superior Novi

Product 1022-2NS GR

Period: 06/09/2024 - 06/15/2024

Name/Title Doug Storey / QC Technician

Report Date 06/18/2024

Procedure	Sieve/Test	Result	Unit	2NS GR Spec
	3/8" (9.5mm)	100.0	%	100-100
	#4 (4.75mm)	99.1	%	95-100
	#8 (2.36mm)	84.8	%	65-95
	#16 (1.18mm)	67.1	%	35-75
	#30 (.6mm)	47.4	%	20-55
	#50 (.3mm)	15.9	%	10-30
	#100 (.15mm)	2.9	%	0-10
	#200 (75µm)	0.2	%	
	FM	2.83		2.6-3
	Wash Loss (#200/75um)	0.0	%	0-3
	Total Moisture	3.24	%	