

Aggregate Optimization Chart

PLANT #: P-32

Sample Date: 6/14/21

Dates Test Represents: 6/15/2021 through 6/21/2021

Concrete Grade: P1M

Contractor: _____

MDOT No.: _____

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	Contribution %
CA	71-47	Presque Isle	1020	6.24	2.62	33.2
IA	71-47	Presque Isle	800	4.89	2.62	26.1
NNS	95-013	Smelter Bay	1250	7.56	2.65	40.7
Total Wt			3070	18.69		100.0

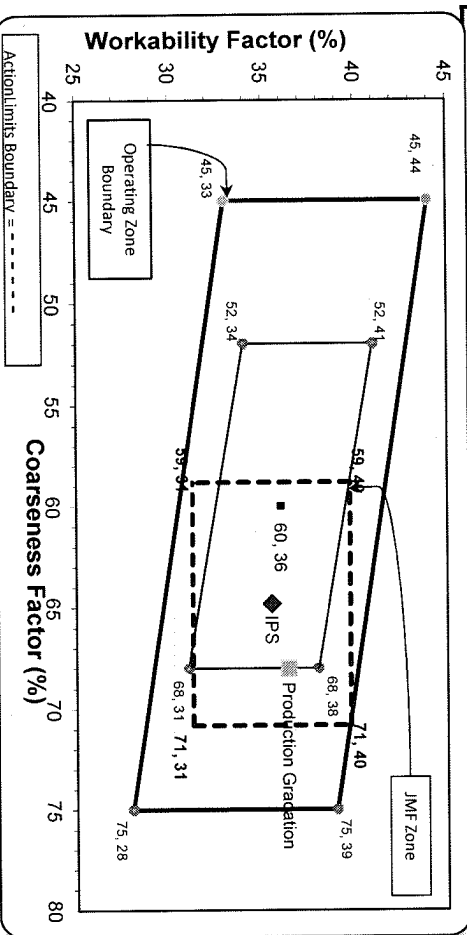
Sieve	CA	IA	NNS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	95.2	100.0	100.0	98.4	1.6	1.6
1"	36.8	100.0	100.0	79.0	19.4	21.0
3/4"	22.4	98.1	100.0	73.7	5.3	26.3
1/2"	4.3	77.9	100.0	62.4	11.3	37.6
3/8"	3.5	57.0	100.0	56.7	5.7	43.3
#4	2.8	18.5	96.4	45.0	11.7	55.0
#8	2.6	5.7	83.6	36.4	8.6	63.6
#16	2.4	3.6	66.5	28.8	7.6	71.2
#30	2.3	2.7	45.8	20.1	8.7	79.9
#50	2.1	2.2	23.7	10.9	9.2	89.1
#100	2.0	1.9	8.1	4.5	6.5	95.5
LBW	1.7	1.4	1.1	1.4	3.1	98.6



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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: 68 **Workability Factor: 36**



Initial Production Sample (IPS)

Sieve	% 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: _____

Plant 958-JMT
 Product 1022-2NS GR - Smelter Bay
 Period: 06/06/2021 - 06/12/2021

Name/Title Doug Storey / QC Technician
 Report Date 06/19/2021

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)	83.6	%	65-95
	#16 (1.18mm)	66.5	%	35-75
	#30 (.6mm)	45.8	%	20-55
	#50 (.3mm)	23.7	%	10-30
	#100 (.15mm)	8.1	%	0-10
	#200 (75µm)	1.2	%	
	FM	2.76		2.6-3
	Wash Loss (#200/75um)	1.1	%	0-3
	Total Moisture	4.9	%	

Plant 958-JMT

Product 7920-INTERMED AGG P1M LS PI

Name/Title Doug Storey / QC Technician

Period: 06/13/2021 - 06/19/2021

Report Date 06/19/2021

Procedure	Sieve/Test	Result	Unit	Intermed Agg P1M LS PI Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	100.0	%	
	1" (25mm)	100.0	%	
	3/4" (19mm)	98.1	%	
	1/2" (12.5mm)	77.9	%	
	3/8" (9.5mm)	57.0	%	
	#4 (4.75mm)	18.5	%	
	#8 (2.36mm)	5.7	%	
	#16 (1.18mm)	3.6	%	
	#30 (.6mm)	2.7	%	
	#50 (.3mm)	2.2	%	
	#100 (.15mm)	1.9	%	
	#200 (75µm)	1.7	%	
	Wash Loss (#200/75um)	1.4	%	0-3
	Total Moisture	3.6	%	

Plant 958-JMT

Product 7919-COARSE AGG P1M LS PI

Name/Title Doug Storey / QC Technician

Period: 06/13/2021 - 06/19/2021

Report Date 06/19/2021

Procedure	Sieve/Test	Result	Unit	Coarse Agg P1M LS PI Target
	2" (50mm)	100.0	%	
	1 1/2" (37.5mm)	95.2	%	
	1" (25mm)	36.8	%	
	3/4" (19mm)	22.4	%	
	1/2" (12.5mm)	4.3	%	
	3/8" (9.5mm)	3.5	%	
	#4 (4.75mm)	2.8	%	
	#8 (2.36mm)	2.6	%	
	#16 (1.18mm)	2.4	%	
	#30 (.6mm)	2.3	%	
	#50 (.3mm)	2.1	%	
	#100 (.15mm)	2.0	%	
	#200 (75µm)	1.8	%	
	Wash Loss (#200/75um)	1.7	%	0-2
	Total Moisture	2.4	%	