## Aggregate Optimization Chart

PLANT #:		P-103	- Constate Crader DM 4500HB				Contractor:						
Sample Date: Dates Test Represents:		5/19/25 Concrete Grade: DM, 4500HP					MDOT No.:						
		5/20/2025	through	5/26/2025	Specific	%	MDOT NO.:						
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Gravity	Contribution							
6AA	58-003	Stoneco	1350	8.04	2.69	45.8							
26A	58-003	Stoneco	450	2.68	2.69	15.3							
2NS	63-114 Highland		1150 6.95		2.65	39.0	1		SUPERIOR				
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%		MATE	RIALS		
Sieve	6AA		26A		2NS	Cumulative % Passing	% Retained	% Retained Cumulative % Retained		<b>Superior I</b> 30701 W. 2	<b>Materials, LLC</b> 10 Mile Rd.		
2"	1	00.0	100	100.0 100.0 100.0		0.0	0.0	Suite 500					
1.5"	100.0		100.0		100.0	100.0	0.0	0.0	Farmington Hills, MI 48336				
1"	100.0		100.0		100.0	100.0	0.0	0.0					
3/4"	82.7		100		100.0	92.1	7.9	7.9					
1/2"		39.2	99		100.0	72.1	20.0	27.9					
3/8" #4	18.6 2.8		86.5 11.7		100.0 99.2	60.7 41.7	<u> </u>	39.3 58.3	*Maximum % Retained must be above the 3/8" sieve				
#4 #8	1.3		2.5		99.2 85.6	34.3	7.4	65.7	*Any two adjacent sieves must equal 10% except m nom. max., #100 and #200 sieves. *% Retained must be at least 4% for each sieve exc				
#16	1.3		1.6		67.6	27.1	7.2	72.9					
#30	1.0		1.4		49.5	20.0	7.2	80.0	nom. max., #100 and #200 sieves.				
#50		1.0		1.2		9.3	10.6	90.7	*% Retained must be at least 4% for the 3/4" sieve w				
#100			1.2		3.0	1.8	7.6	98.2	a 1.5" max. size (nom. Max. 1.0") aggregate is used		aggregate is used.		
LBW		0.8	1.	0	0.4	0.7	1.1	99.3					
Production G	Gradation	O Batch Plant Gra	idations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	S)				
Coarseness Factor: 60			Workability Factor: 34			36.8	Coarseness Factor:		61				
						<u> </u>	Workability Factor:		36				
45				JMF Zone			Sieve	Cumulative	%	Cumulative			
	45, 44				JIVIF ZONE			% Passing	Retained	% Retained			
		52, 41 <b>56</b>	40	67 40			2"	100.0	0.0	0.0			
					75, 39		1.5"	100.0	0.0	0.0			
<b>3</b> <sup>40</sup>							4 "	99.3	0.7	0.7			
(%)				68, 38	Í		1"		-	-			
(%)			Produc • 🌒 I 🕄	tion Gradation			3/4"	89.2	10.1	10.8			
(%)			Produc • 🌮 IBS	-			3/4" 1/2"	89.2 70.7	10.1 18.5	10.8 29.3			
Factor (%)	45 22	52, 34	Produc • 🏟 I Aĝ	-			3/4" 1/2" 3/8"	89.2 70.7 60.7	10.1 18.5 10.0	10.8 29.3 39.3			
Factor (%)	45, 33	52, 34 <b>56</b> ,		tion Gradation			3/4" 1/2" 3/8" #4	89.2 70.7 60.7 44.4	10.1 18.5 10.0 16.3	10.8 29.3 39.3 55.6			
Factor (%)		56,		-			3/4" 1/2" 3/8" #4 #8	89.2 70.7 60.7 44.4 35.9	10.1 18.5 10.0 16.3 8.5	10.8 29.3 39.3 55.6 64.1			
Factor (%)	Operating Zone	56,		tion Gradation	75.00		3/4" 1/2" 3/8" #4 #8 #16	89.2 70.7 60.7 44.4 35.9 27.3	10.1 18.5 10.0 16.3 8.5 8.6	10.8 29.3 39.3 55.6 64.1 72.7			
ility Factor (%)		56,		tion Gradation	75, 28		3/4" 1/2" 3/8" #4 #8	89.2 70.7 60.7 44.4 35.9	10.1 18.5 10.0 16.3 8.5	10.8 29.3 39.3 55.6 64.1			
Factor (%)	Operating Zone	56,		tion Gradation	75, 28	80	3/4" 1/2" 3/8" #4 #8 #16 #30	89.2 70.7 60.7 44.4 35.9 27.3 19.1	10.1 18.5 10.0 16.3 8.5 8.6 8.2	10.8 29.3 39.3 55.6 64.1 72.7 80.9			

PREPARED BY: SM, LLC Technical Service

Approved BY: May 1. Ball

## Aggregate Optimization Chart

PLANT	#:	p11					Contractor:			_		
Sample Date	e:	5/19/25	Concrete Grade: DM, 45									
Dates Test F	Represents:	5/20/2025	through	5/26/2025			MDOT No.:					
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution						
6AA	71-47	Presque Isle	1450	8.87	2.62	49.9						
26A	71-47	Presque Isle	305	1.87	2.62	10.5						
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6				SUD	ERIOR	
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	-	MATE	FIALS	
Sieve		6AA	26A		2NS	Cumulative % Passing	% Retained Cumulative % Retained				<b>Materials, LLC</b> 10 Mile Rd.	
2"	1	100.0		100.0		100.0	0.0	0.0	Suite 500			
1.5"	100.0		100.0		100.0	100.0	0.0	0.0	]	Farmingto	n Hills, MI 48336	
1"		96.8	100.0		100.0	98.4	1.6	1.6	]			
3/4"		77.6	100.0		100.0	88.8	9.6	11.2	]			
1/2"		30.2	97.5 87.1		100.0	64.9	23.9	35.1	4			
3/8"		15.1			100.0	56.3	8.6	43.7		m % Retained must be above the 3/8"		
#4	3.5		24.8		97.8	43.1	13.2	56.9	· ·		equal 10% except max.,	
#8	2.4		9.3		79.3 62.5	33.6	9.5	66.4	· · · · ·	00 and #200 sieves		
#16		2.2		4.9		26.4	7.2	73.6	*% Retained must be at least 4% for each sieve ex			
#30		2.0		3.8		19.6	6.7	80.4	· · · · ·	00 and #200 sieves		
#50 #100	1.9		3.4 3.1		24.2	10.9 3.2	8.8 7.7	89.1 96.8	*% Retained must be at least 4% for the 3/4" sieve v a 1.5" max. size (nom. Max. 1.0") aggregate is used.			
LBW		1.8 1.5	2.6		5.0 0.8	3.2 1.3	<b>1.9</b> 96.8 a 1.5		a 1.5" max. siz	ze (nom. Max. 1.0")	aggregate is used.	
						1			1			
Production C		Batch Plant Gra	0.00	egate Supplier Gra			Intial Production			-		
Coarsen	ess Factor:	66	Workability Factor:		34	36.1	Coarseness Factor:		62			
45	•						Work	ability Factor:	36			
1	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative		
1		52, 41						% Passing	Retained	% Retained		
1		56	40	67, 40	75, 39		2"	100.0	0.0	0.0		
<b>~</b> <sup>40</sup>							1.5"	100.0	0.0	0.0		
<b>(%)</b> <sup>40</sup>				68, 38			4 11	400.0		0.0		
or (%)							1"	100.0	0.0	0.0		
ctor (%)			■ 6 <b>()</b> 318		Gradation		3/4"	95.0	5.0	5.0		
Factor (%)		52, 34	■ 6 <b>€</b> 388		Gradation		3/4" 1/2"	95.0 72.3	5.0 22.8	5.0 27.7		
ity Factor (%)	45, 33	52, 34	■ 6 <b>(\$</b> 38)	S Production	Gradation		3/4" 1/2" 3/8"	95.0 72.3 60.4	5.0 22.8 11.8	5.0 27.7 39.6		
bility Factor (%)	45, 33	52, 34	■ 6 <b>⊕</b> 38		Gradation		3/4" 1/2" 3/8" #4	95.0 72.3 60.4 42.6	5.0 22.8 11.8 17.8	5.0 27.7 39.6 57.4		
kability Factor (%)			■ 6 <b>⊕</b> 38	S Production	Gradation		3/4" 1/2" 3/8" #4 #8	95.0 72.3 60.4 42.6 36.0	5.0 22.8 11.8 17.8 6.6	5.0 27.7 39.6 57.4 64.0		
ility Factor (%)	45, 33 Operating Zone Boundary		€ 6 <b>∲</b> 388	S Production	o Gradation		3/4" 1/2" 3/8" #4	95.0 72.3 60.4 42.6	5.0 22.8 11.8 17.8	5.0 27.7 39.6 57.4		

75

80

#100

LBW

3.4

1.3

6.1

2.1

PREPARED BY: SM, LLC Technical Service

50

55

 $\mathbf{Coarseness} \ \mathbf{Factor} \ \mathbf{(\%)}^{70}$ 

25

40

45

ActionLimits Boundary = - - - - -

Approved By:

Mart 1. Ball

96.6

98.7