Production	Gradation	Report
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<b>PLANT</b> #	<b>#:</b>	P-101					Contractor:			
Sample Date	:	9/25/23			Concrete Grade:	DM, 4500HP				-
Dates Test R	epresents:	9/26/2023	through	10/2/2023			MDOT No.:			_
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution				
6AA	71-47	Presque Isle	1750	10.70	2.62	60.3				8
26A	71-47	Presque Isle	0	0.00	2.62	0.0				
2NS	75-051	Mid Michigan	1150	6.93	2.66	39.7				é
		Total Wt	2900	17.63		100.0	< Verify this n	umber is 100%		SM
Sieve		6AA	26	Α	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Sup</u> 307
2"	1	00.0	100	).0	100.0	100.0	0.0	0.0		Suit
1.5"	1	00.0	100	).0	100.0	100.0	0.0	0.0		Farr
1"	1	00.0	100	).0	100.0	100.0	0.0	0.0		
3/4"	1	91.1	100	).0	100.0	94.6	5.4	5.4		
1/2"		54.7	97	.0	100.0	72.7	22.0	27.3		
3/8"		34.7	88	.7	100.0	60.6	12.1	39.4	*Maximum %	Retained m
#4		5.5	22	.6	96.1	41.4	19.2	58.6	*Any two adja	icent sieves
#8		2.6	4.	9	80.4	33.5	8.0	66.5	nom. max., #10	00 and #200
#16		2.4	2.	2	65.6	27.5	6.0	72.5	*% Retained	must be at I
#30		2.3	1.	8	50.3	21.3	6.1	78.7	nom. max., #10	00 and #200
#50		2.2	1.	-	24.3	11.0	10.4	89.0	*% Retained	must be at l
#100		2.1	1.	-	8.2	4.5	6.4	95.5	a 1.5" max. siz	e (nom. Ma
LBW		1.8	1.	4	1.1	1.5	3.0	98.5		
Production G	radation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gr	adations	Adjusted WF	Initial Producti	on Sample (IPS	S)	_
Coarsene	ess Factor:	59	Work	ability Factor	: 33	36.0	Coars	eness Factor:	62	
45							Work	ability Factor:	35	
	45, 44				JMF Zone	$\neg \mid \mathbf{I}$	Sieve	Cumulative	%	Cumula
1	,				JIVIT ZOTIC		Sieve	% Passing	Retained	% Retai
		52, 41					2"	100.0	0.0	0.0
्र <sup>40</sup>			57, 39	67, <del>39</del> 68, 3	75, 39		1.5"	100.0	0.0	0.0

75, 28

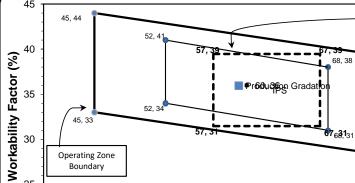
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Superior Materials, LLC 30701 W. 10 Mile Rd. Suite 500 Farmington Hills, MI 48336

Maximum % Retained must be above the 3/8" sieve. Any two adjacent sieves must equal 10% except max., m. max., #100 and #200 sieves. % Retained must be at least 4% for each sieve except max., m. max., #100 and #200 sieves. % Retained must be at least 4% for the 3/4" sieve when .5" max. size (nom. Max. 1.0") aggregate is used.



55

 $\textbf{Coarseness} \quad \textbf{Factor} \quad \textbf{(\%)}^{70}$ 

Coars	eness Factor:	62	
		-	
WORK	ability Factor:	35	
Sieve	Cumulative	%	Cumulative
Sieve	% Passing	Retained	% 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"	95.0	5.0	5.0
1/2"	70.5	24.5	29.5
3/8"	60.0	10.5	40.0
#4	44.4	15.6	55.6
#8	35.5	9.0	64.5
#16	28.5	7.0	71.5
#30	21.5	7.0	78.5
#50	10.2	11.3	89.8
#100	3.1	7.1	96.9
LBW	1.3	1.8	98.7

PREPARED BY: SM, LLC Technical Service

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ActionLimits Boundary = - - - - -

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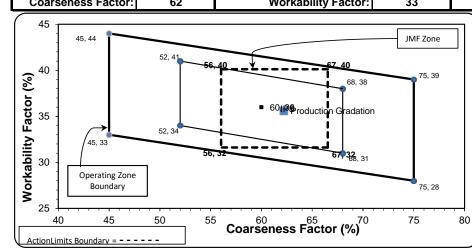
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Approved By: Mary 1. Ball

PLANT	#:	P-102					Contractor:				
Sample Date	e:	9/25/23	-		Concrete Grade:	DM, 4500HP				-	
Dates Test F	Represents:	9/26/2023	- through	10/2/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution	]				
6AA	58-003	Stoneco	1500	8.94	2.69	50.8	1				
26A	58-003	Stoneco	300	1.79	2.69	10.2	1				
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0	1			SUP	PERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	_		ERIALS
Sieve		6AA	20	6A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"		100.0	10	0.0	100.0	100.0	0.0	0.0	1	Suite 500	
1.5"		100.0	10	0.0	100.0	100.0	0.0	0.0	1	Farmingto	on Hills, MI 48336
1"		99.8	10	0.0	100.0	99.9	0.1	0.1	1		
3/4"		83.1	10	0.0	100.0	91.4	8.5	8.6	1		
1/2"		42.7	99	9.4	100.0	70.8	20.6	29.2	1		
3/8"		20.7	87	7.3	100.0	58.4	12.4	41.6	*Maximum %	Retained must be	above the 3/8" sieve
#4		3.5	10	).1	97.5	40.8	17.6	59.2	*Any two adja	icent sieves must e	equal 10% except ma
#8		1.8	2	.9	81.8	33.1	7.7	66.9	nom. max., #1	00 and #200 sieves	S.
#16		1.6	2	.1	64.4	26.1	7.0	73.9	*% Retained	must be at least 4%	% for each sieve exce
#30		1.4	1	.8	45.6	18.7	7.5	81.3	nom. max., #1	00 and #200 sieves	S.
#50		1.4	1	.6	22.5	9.6	9.0	90.4	*% Retained	must be at least 4%	% for the 3/4" sieve w
#100		1.3	1	.6	6.3	3.3	6.4	96.7	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		1.0	1	.4	1.1	1.1	2.2	98.9			
Production G	Gradation	O Batch Plant Gra	adations 💿 Agg	regate Supplier Gr	adations	Adjusted WF	Intial Production	on Sample (IPS	S)		
Coarsen	ess Factor:	62	Wor	ability Factor	: 33	35.6	Coars	eness Factor:	61		
45							Work	ability Factor:	36		
1 1	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
í – 1		52, 41		-			0"	100.0	0.0	0.0	1



e above the 3/8" sieve. equal 10% except max., es. 1% for each sieve except max., es. 1% for the 3/4" sieve when )") aggregate is used.



Coar	seness Factor:	61	
	cability Factor:	36	
Sieve	Cumulative	%	Cumulative
Sieve	% Passing	Retained	% Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.3	0.7	0.7
3/4"	89.2	10.1	10.8
1/2"	70.7	18.5	29.3
3/8"	60.7	10.0	39.3
#4	44.4	16.3	55.6
#8	35.9	8.5	64.1
#16	27.3	8.6	72.7
#30	19.1	8.2	80.9
#50	7.4	11.7	92.6
#100	1.9	5.6	98.1
LBW	0.7	1.2	99.3

Approved By: Mary 1. Ball

PLANT #	#:	P-103					Contractor:				
Sample Date		9/25/23		(	Concrete Grade	: DM, 4500HP					
Dates Test R	Represents:	9/26/2023	through	10/2/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1500	8.94	2.69	50.8					
26A	58-003	Stoneco	300	1.79	2.69	10.2					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUP	ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%			RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<b>Materials, LLC</b> 10 Mile Rd.
2"		100.0	10	0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	10		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		99.8	10	0.0	100.0	99.9	0.1	0.1			
3/4"		83.1	10	0.0	100.0	91.4	8.5	8.6			
1/2"		42.7	99	.4	100.0	70.8	20.6	29.2			
3/8"		20.7	87	.3	100.0	58.4	12.4	41.6	*Maximum %	Retained must be	above the 3/8" sieve.
#4		3.5	10	).1	97.5	40.8	17.6	59.2	*Any two adja	icent sieves must e	qual 10% except max.,
#8		1.8	2.	.9	81.8	33.1	7.7	66.9	nom. max., #10	00 and #200 sieves	
#16		1.6	2.		64.4	26.1	7.0	73.9	*% Retained	must be at least 4%	o for each sieve except
#30		1.4	1.		45.6	18.7	7.5	81.3		00 and #200 sieves	
#50		1.4	1.	-	22.5	9.6	9.0	90.4			o for the 3/4" sieve wher
#100		1.3	1.	-	6.3	3.3	6.4 2.2	96.7	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		1.0	1.		1.1	1.1	2.2	98.9			
Production G	Gradation	O Batch Plant Gra	idations 💽 Agg	regate Supplier Gra	adations	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ess Factor:	62	Work	ability Factor:	33	35.6	Coars	eness Factor:	61		
45							Work	ability Factor:	36		
45	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
1.	45, 44				JIVII ZONC		Sleve	% Passing	Retained	% Retained	
-		52, 41 <b></b> 56	40	67 40			2"	100.0	0.0	0.0	
ू <sup>40</sup> ]				68, 38	75, 39		1.5"	100.0	0.0	0.0	
۹ ک			;	00, 30	I		1"	99.3	0.7	0.7	
<u>ŏ</u>			= 60 <b>13</b> 6	roduction Gradatic			3/4"	89.2	10.1	10.8	
Factor (%)			1	Toduction Gradatic			1/2"	70.7	18.5	29.3	
Ľ ]		52, 34	<b>•</b>	<b>i</b>			3/8"	60.7	10.0	39.3	
lif.	45, 33	56.	L				#4	44.4	16.3	55.6	
Workability			52	<b>67, 32</b> 68, 31			#8	35.9	8.5	64.1	
폰 :	Operating Zone						#16	27.3	8.6	72.7	
Ŝ	Boundary				75, 28		#30	19.1	8.2	80.9	
> <sub>25</sub>		<u> </u>		<u> </u>	<u></u>		#50 #100	7.4	11.7	92.6	
/2 +						00		1.9	5.6	98.1	
25 <del></del> 40	45	50 55	b 60	<b>Factor (%)</b>	75	80	LBW	0.7	1.2	99.3	

Approved BY: Mary 1. Ball

PLANT #	<b>#:</b>	14	_				Contractor:			_	
Sample Date	:	9/25/23		C	concrete Grade	DM, 4500HP					
Dates Test R	epresents:	9/26/2023	through	10/2/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution				Γ	
6AA	58-003	Stoneco	1500	8.94	2.69	50.7					
26A	58-003	Stoneco	360	2.14	2.69	12.2				L	
2NS	19-04	Schlegel	1100	6.60	2.67	37.2				Bui	lders'
		Total Wt	2960	17.68		100.0	< Verify this n	umber is 100%	•		DI-MIX
Sieve	e	SAA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<b>Redi-Mix</b> 10 Mile Rd.
2"		00.0	100	-	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	100		100.0	100.0	0.0	0.0	1	Farmingto	n Hills, MI 48336
1"		99.8	100	-	100.0	99.9	0.1	0.1	1		
3/4"		33.1	100	-	100.0	91.4	8.5	8.6	1		
1/2"		42.7	99.		100.0	70.9	20.5	29.1			
3/8"		20.7	87.		100.0	58.3	12.6	41.7			above the 3/8" sieve.
#4		3.5	10.		99.9	40.1	18.1	59.9			equal 10% except max.,
#8 #16		<u>1.8</u> 1.6	2.9		90.1 69.4	34.7 26.9	<u>5.4</u> 7.9	65.3 73.1		00 and #200 sieves	
#16 #30		1.4	2.		44.5	17.5	9.4	82.5			6 for each sieve except
#30 #50		1.4	1.0		14.3	6.2	11.2	93.8		00 and #200 sieves	s. 6 for the 3/4" sieve whe
#100		1.3	1.0	-	2.7	1.9	4.4	98.1			aggregate is used.
LBW		1.0	1.4		0.2	0.8	1.1	99.2	a 1.0 max. 012		aggregate to acca.
Production G	radation	O Batch Plant Gra	idations 💿 Aggr	egate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ess Factor:	64	Work	ability Factor:	35	37.2	Coars	eness Factor:	63		
45							Work	ability Factor:	36		_
	15, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
-		50.44						% Passing	Retained	% Retained	
40		52, 41	57, 40	68, 40			2"	100.0	0.0	0.0	
ຈີ ໄ				68, 38	75, 39		1.5"	100.0	0.0	0.0	
Ľ			!	Production Grac	lation		1"	99.3	0.7	0.7	
£			■ 60, 3 <b>6</b> 1	PS			3/4"	89.0	10.3	11.0	
Factor (%)			ļ				1/2" 3/8"	70.3 59.9	18.7 10.4	29.7 40.1	
2	45, 33	52, 34		1				41.9	10.4	58.1	
Workability	.0,00		57,22	68, 32			#4	35.9	6.0	64.1	
		7		00, 31			#16	27.8	8.2	72.2	
ž	Operating Zone Boundary				75, 28		#30	18.9	8.8	81.1	
š [L	boundary				10,20		#50	6.3	12.6	93.7	
25							#400	4.7		00	

75

80

#100

LBW

1.7

1.0

4.6

0.7

45

ActionLimits Boundary = - - - - -

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**Coarseness Factor (%)**<sup>70</sup>

55

25

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Approved By: Mart P. Ball

98.3

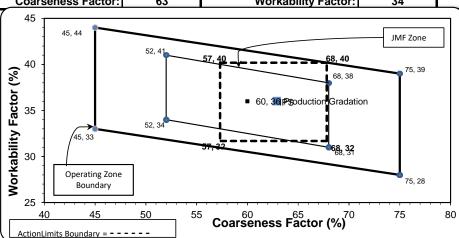
99.0

PLANT #	<b>#:</b>	12					Contractor:			
Sample Date	:	9/25/23		C	Concrete Grade	DM, 4500HP	_			
Dates Test R	epresents:	9/26/2023	through	10/2/2023			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				CLUDE
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	-	SUPE MATE
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior M</u> 30701 W. 10
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500
1.5"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Farmington I
1"		97.5	100	0.0	100.0	98.8	1.2	1.2		
3/4"		79.4	100	0.0	100.0	89.7	9.0	10.3		
1/2"		38.3	93	3.0	100.0	68.5	21.2	31.5		
3/8"		20.1	81	.5	100.0	58.2	10.3	41.8	*Maximum %	Retained must be al
#4		2.5	19	.2	96.4	41.4	16.8	58.6	*Any two adja	cent sieves must eq
#8		1.6	4.	.6	81.4	33.5	7.9	66.5	nom. max., #10	00 and #200 sieves.
#16		1.5	2.	.4	66.4	27.3	6.2	72.7	*% Retained	must be at least 4%
#30		1.4	1.	.9	49.4	20.5	6.8	79.5	nom. max., #10	00 and #200 sieves.
#50		1.3	1.	.8	24.5	10.5	9.9	89.5	*% Retained	must be at least 4%
#100		1.3	1.	.7	5.3	2.9	7.6	97.1	a 1.5" max. siz	e (nom. Max. 1.0") a
LBW		1.0	1.	.5	0.6	0.9	2.0	99.1		
Production G	radation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	5)	
Coarsene	ess Factor:	63	Work	ability Factor:	34	36.0	Coars	eness Factor:	63	
45						$\neg$	Work	ability Factor:	36	
4	15, 44	50.44			JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
40		52, 41	57, 40	<u>68,</u> 40			2"	100.0	0.0	0.0
(@ <sup>™</sup> ]				68, 38	75, 39		1.5"	100.0	0.0	0.0
Factor (%)			ļ				1"	99.3	0.7	0.7
9			■ 60, <b>36</b>	Psoduction Gradat	ion		3/4"	89.0	10.3	11.0
<b>e</b> 35			i				1/2"	70.3	18.7	29.7
		52, 34		Ĭ			3/8"	59.9	10.4	40.1
lity	45, 33			<b></b>			#4	41.9	18.0	58.1



terials, LLC /ile Rd. lls, MI 48336

ve the 3/8" sieve. 10% except max., each sieve except max., the 3/4" sieve when regate is used.



Coars	eness Factor:	63	
Work	ability Factor:	36	
Sieve	Cumulative	%	Cumulative
Sieve	% Passing	Retained	% Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	99.3	0.7	0.7
3/4"	89.0	10.3	11.0
1/2"	70.3	18.7	29.7
3/8"	59.9	10.4	40.1
#4	41.9	18.0	58.1
#8	35.9	6.0	64.1
#16	27.8	8.2	72.2
#30	18.9	8.8	81.1
#50	6.3	12.6	93.7
#100	1.7	4.6	98.3
LBW	1.0	0.7	99.0

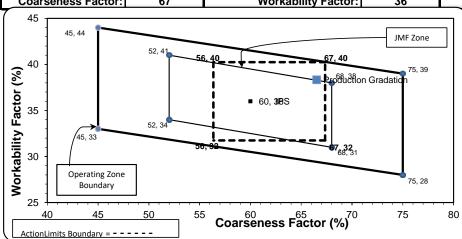
Approved By: Marthe Ball

PLANT #	<b>#:</b>	p11					Contractor:			
Sample Date	:	9/25/23	-		Concrete Grade:	DM, 4500HP				
Dates Test R	epresents:	9/26/2023	through	10/2/2023			MDOT No.:			
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution				
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1				
26A	71-47	Presque Isle	300	1.83	2.62	10.3				
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6				SUDER
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATERI
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		Superior Mate 30701 W. 10 Mil
2"		00.0	100	-	100.0	100.0	0.0	0.0		Suite 500
1.5"	1	00.0	100	).0	100.0	100.0	0.0	0.0		Farmington Hills
1"		95.1	100	).0	100.0	97.5	2.5	2.5		
3/4"		70.8	100	-	100.0	85.4	12.2	14.6		
1/2"	;	32.7	93	.0	100.0	65.6	19.8	34.4		
3/8"		18.6	81	.5	100.0	57.3	8.2	42.7	*Maximum %	Retained must be above
#4		3.3	19	.2	97.0	42.0	15.3	58.0	*Any two adja	cent sieves must equal 10
#8		2.0	4.	6	86.8	35.8	6.2	64.2	nom. max., #10	0 and #200 sieves.
#16		1.8	2.	4	72.3	29.8	6.1	70.2	*% Retained r	nust be at least 4% for ea
#30		1.7	1.	9	51.4	21.4	8.4	78.6	nom. max., #10	00 and #200 sieves.
#50		1.6	1.	8	24.3	10.6	10.8	89.4	*% Retained r	nust be at least 4% for the
#100		1.5	1.		7.2	3.8	6.8	96.2	a 1.5" max. size	e (nom. Max. 1.0") aggreg
LBW		1.1	1.	5	1.6	1.3	2.4	98.7		
Production G	radation	O Batch Plant Gra	dations 💿 Aggr	egate Supplier Gr	adations	Adjusted WF	Intial Production	on Sample (IPS	5)	
Coarsene	ess Factor:	67	Work	ability Factor	: 36	38.3	Coars	eness Factor:	62	
45							Work	ability Factor:	36	
4	15, 44				JMF Zone		Cieve	Cumulative	%	Cumulative
		52, 41			JIVII 2011e		Sieve	% Passing	Retained	% Retained
40		<sup>52, ¬</sup>	6.40	67, 40			2"	100.0	0.0	0.0
͡͡͡͡			i		75, 39 Ion Gradatich		1.5"	100.0	0.0	0.0
			!		ion Gradation		1"	100.0	0.0	0.0
<b>actor (%)</b>			■ 60, <b>31</b> 8	s 🍴			3/4"	95.0	5.0	5.0
<b>8</b> 35		1	i				1/2"	72.3	22.8	27.7

ALS

erials, LLC le Rd. , MI 48336

the 3/8" sieve. 0% except max., ach sieve except max., e 3/4" sieve when gate is used.



Coars	eness Factor:	62	
Work	ability Factor:	36	
Sieve	Cumulative	%	Cumulative
Sleve	% Passing	Retained	% 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"	95.0	5.0	5.0
1/2"	72.3	22.8	27.7
3/8"	60.4	11.8	39.6
#4	42.6	17.8	57.4
#8	36.0	6.6	64.0
#16	29.5	6.5	70.5
#30	20.3	9.2	79.7
#50	9.5	10.8	90.5
#100	3.4	6.1	96.6
LBW	1.3	2.1	98.7

Approved By: Mart P. Ball

PLANT #	<b>#:</b>	P-32					Contractor:				
Sample Date	:	9/25/23		(	Concrete Grade	DM, 4500HP					
Dates Test R	epresents:	9/26/2023	through	10/2/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1455	8.90	2.62	50.1					
26A	71-47	Presque Isle	300	1.83	2.62	10.3					
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%			RIALS
Sieve	(	6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior</u> 30701 W. 1	<b>Materials, LLC</b> 10 Mile Rd.
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	100	-	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		95.1	100	0.0	100.0	97.5	2.5	2.5			
3/4"		70.8	100		100.0	85.4	12.2	14.6			
1/2"		32.7	93	.0	100.0	65.6	19.8	34.4			
3/8"		18.6	81		100.0	57.3	8.2	42.7	*Maximum %	Retained must be	above the 3/8" sieve.
#4		3.3	19		97.0	42.0	15.3	58.0	*Any two adja	cent sieves must e	qual 10% except max.,
#8		2.0	4.	-	86.8	35.8	6.2	64.2	nom. max., #10	00 and #200 sieves	
#16		1.8	2.		72.3	29.8	6.1	70.2			for each sieve except
#30		1.7	1.		51.4	21.4	8.4	78.6	,	00 and #200 sieves	
#50		1.6	1.	-	24.3	10.6	10.8	89.4			for the 3/4" sieve wher
#100 LBW		<u>1.5</u> 1.1	1.		7.2	3.8 1.3	6.8 2.4	96.2 98.7	a 1.5" max. sız	e (nom. Max. 1.0")	aggregate is used.
Production G		Batch Plant Gra		egate Supplier Gra	-	-		on Sample (IPS	<b>.</b> 5)		
	ess Factor:	67	Work	ability Factor:	36	38.3		eness Factor:	62		
		0.						ability Factor:	36		
<sup>45</sup> ]								Cumulative	%	Cumulative	
- 4	15, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
		52, 41	5. 40 V	67.40			2"	100.0	0.0	0.0	
					75, 39		1.5"	100.0	0.0	0.0	
8 I					on Gradation		1"	100.0	0.0	0.0	
Factor (%)			■ 60, <b>3</b> 8				3/4"	95.0	5.0	5.0	
<b>3</b> 5				· !			1/2"	72.3	22.8	27.7	
		52, 34	-i	<b>i</b>			3/8"	60.4	11.8	39.6	
Ē	45, 33						#4	42.6	17.8	57.4	
Workability			, 55	<b>67, 32</b> 68, 31			#8	36.0	6.6	64.0	
ž	Operating Zone						#16	29.5	6.5	70.5 79.7	
§ L	Boundary				75, 28		#30 #50	20.3 9.5	9.2 10.8	79.7 90.5	
> <sub>25</sub>							#50 #100	9.5 3.4	6.1	90.5 96.6	
40	45	50 55	60	<b>Factor (%)</b> <sup>70</sup>	75	80	LBW	1.3	2.1	98.7	
			Coarseness	Factor (%)				1.0	<u> </u>	00.1	

Approved By:

		9/25/23			Concrete Grade		Contractor:				
Sample Date Dates Test F		9/26/2023	through	10/2/2023	Concrete Grade	DW, 430011F	MDOT No.:				
Agg. Class	1	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution	MECTING.				
6AA	58-003	Stoneco	1500	8.94	2.69	50.8					
26A	58-003	Stoneco	300	1.79	2.69	10.2					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				CUD	
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	_	SUP MATE	
Sieve 6AA			26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1	
2"		100.0	100.0		100.0	100.0	0.0	0.0		Suite 500	
1.5"	1	100.0	100	0.0	100.0	100.0	0.0	0.0		Farmingtor	
1"		99.8	100	).0	100.0	99.9	0.1	0.1			
3/4"		83.1	100.0		100.0 100.0	91.4	8.5	8.6			
1/2"		42.7	99	99.4		70.8	20.6	29.2			
3/8"		20.7	87	.3	100.0	58.4	12.4	41.6	*Maximum %	Retained must be a	
#4		3.5	10	.1	97.5	40.8	17.6	59.2	*Any two adjacent sieves mus		
#8		1.8	2.		81.8	33.1	7.7	66.9	nom. max., #10	0 and #200 sieves.	
#16		1.6	2.	1	64.4	26.1	7.0	73.9	*% Retained r	nust be at least 4%	
#30		1.4	1.	8	45.6	18.7	7.5	81.3	nom. max., #100 and #200 siev		
#50		1.4	1.		22.5	9.6	9.0	90.4	*% Retained must be at least		
#100		1.3	1.		6.3	3.3	6.4	96.7	a 1.5" max. siz	e (nom. Max. 1.0") a	
LBW	Ĺ	1.0	1.	4	1.1	1.1	2.2	98.9			
Production C		O Batch Plant Gra	0.00	egate Supplier Gra				on Sample (IPS		1	
Coarsen	ess Factor:	62	Work	ability Factor:	: 33	35.6		eness Factor:	61		
45							Work	ability Factor:	36		
	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
1		52, 41					0"	100.0	0.0	0.0	
			-40 🔻	67 40			2"	100.0			
و <sup>40</sup>		56,	40	67,40	75, 39		1.5"	100.0	0.0	0.0	
(%) <sup>40</sup>		56,	<del>10</del>	68, 38	75, 39		1.5" 1"	100.0 99.3	0.0 0.7	0.0 0.7	
tor (%)		56,	<b>40</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b> <b>1</b>		T I		1.5" 1" 3/4"	100.0 99.3 89.1	0.0 0.7 10.2	0.0 0.7 10.9	
actor (%)		56,	<b>40</b> ■ 60 ■ 60	68, 38 roduction Gradatic	T I		1.5" 1" 3/4" 1/2"	100.0 99.3 89.1 70.5	0.0 0.7 10.2 18.6	0.0 0.7 10.9 29.5	
<pre> Factor (%) Factor (%)</pre>	$\rightarrow$	52, 34			T I		1.5" 1" 3/4" 1/2" 3/8"	100.0 99.3 89.1 70.5 60.5	0.0 0.7 10.2 18.6 10.0	0.0 0.7 10.9 29.5 39.5	
lity Factor (%)	45, 33				T I		1.5" 1" 3/4" 1/2" 3/8" #4	100.0 99.3 89.1 70.5 60.5 44.1	0.0 0.7 10.2 18.6 10.0 16.4	0.0 0.7 10.9 29.5 39.5 55.9	
bility Factor (%)	45, 33	52, 34 56,			n		1.5" 1" 3/4" 1/2" 3/8" #4 #8	100.0 99.3 89.1 70.5 60.5 44.1 35.6	0.0 0.7 10.2 18.6 10.0 16.4 8.5	0.0 0.7 10.9 29.5 39.5 55.9 64.4	
kability Factor (%)	45, 33 Operating Zone	56,		roduction Gradatic	n		1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7	0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9	0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3	
(or kability Factor (%)		56,		roduction Gradatic	n		1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6	0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1	0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4	
Workability Factor (%)	Operating Zone	56,		roduction Gradatic	n		1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30 #50	100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6 8.7	0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1 11.8	0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4 91.3	
40 35 25 40	Operating Zone	56,	31	roduction Gradatic	on 75, 28	80	1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6	0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1	0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4	

IOR ALS

rials, LLC e Rd. MI 48336

he 3/8" sieve. % except max., ch sieve except max., e 3/4" sieve when ate is used.

SM, LLC Technical Service

ActionLimits Boundary = - - - - -

PREPARED BY:

Approved By:

PLANT #	#:	P-36					Contractor:				
Sample Date	):	9/25/23	•	(	Concrete Grade:	DM, 4500HP					
Dates Test R	epresents:	9/26/2023	through	10/2/2023	-		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	63-92	Grange Hall	1150	6.95	2.65	39.6				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve 6AA		26A		2NS	Cumulative % Passing	% Retained Cumulative % Retained		Superior Materials, LLC 30701 W. 10 Mile Rd.			
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	10		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		97.5	10		100.0	98.8	1.2	1.2			
3/4"		79.4	10	0.0	100.0	89.7	9.0	10.3			
1/2"		38.3	93		100.0	68.5	21.2	31.5			
3/8"		20.1	81.5		100.0	58.2	10.3	41.8	*Maximum % Retained must be above the 3/8" sieve		
#4		2.5	19.2		97.3	41.8	16.4	58.2	*Any two adjacent sieves must equal 10% except m		
#8		1.6	4.6		82.8	34.1	7.7	65.9	nom. max., #100 and #200 sieves.		
#16		1.5	2.4		68.0	27.9	6.1	72.1	*% Retained must be at least 4% for each sieve exce		
#30 #50		1.4 1.3	1.9 1.8		49.6 20.2	20.5 8.8	7.4 11.7	79.5 91.2	nom. max., #100 and #200 sieves. *% Retained must be at least 4% for the 3/4" sieve wi		
#30		1.3	1.8		2.7	1.9	6.9	91.2	a 1.5" max. size (nom. Max. 1.0") aggregate is used.		
LBW		1.0	1		0.1	0.7	1.2	99.3	a 1.5 111ax. Siz		ayyreyale is useu.
Production G	radation	Batch Plant Gra	dations 💿 Agg	regate Supplier Gra	adations	Adjusted WF	Intial Production	on Sample (IPS	<b>6</b> )		
Coarsene	ess Factor:	63	Work	ability Factor:	34	36.6	Coars	eness Factor:	63		
				-			Work	ability Factor:	35		
45	-				JMF Zone		0:	Cumulative	%	Cumulative	
- 4	45, 44				JIVIF ZOILE		Sieve	% Passing	Retained	% Retained	
1		52, 41					2"	100.0	0.0	0.0	
. 1									0.0	~ ~	
्र <sup>40</sup>			58, 39	<b>68, 99</b>	75, 39		1.5"	100.0		0.0	
(%) <sup>40</sup>			58, 39	<b>68, 38</b>			1"	99.1	0.9	0.9	
tor (%)			58, <u>39</u> 60, 36	Production Grad			1" 3/4"	99.1 90.3	0.9 8.8	0.9 9.7	
actor (%)	4		58, <u>39</u> 60, 36	• • • • • • • • • • • • • • • • • • • •			1" 3/4" 1/2"	99.1 90.3 69.2	0.9 8.8 21.1	0.9 9.7 30.8	
Factor (%)		52, 34	<b>58, 39</b> <b>6</b> 0, 36	Production Grad			1" 3/4" 1/2" 3/8"	99.1 90.3 69.2 59.1	0.9 8.8 21.1 10.1	0.9 9.7 30.8 40.9	
Factor (%)	45, 33	52, 34		Production Grad	ation		1" 3/4" 1/2" 3/8" #4	99.1 90.3 69.2 59.1 41.8	0.9 8.8 21.1 10.1 17.3	0.9 9.7 30.8 40.9 58.2	
Factor (%)			58, 39 60, 36 58, 31	Production Grad	ation		1" 3/4" 1/2" 3/8" #4 #8	99.1 90.3 69.2 59.1 41.8 35.1	0.9 8.8 21.1 10.1 17.3 6.6	0.9 9.7 30.8 40.9 58.2 64.9	
Factor (%)	Operating Zone			Production Grad	ation		1" 3/4" 1/2" 3/8" #4	99.1 90.3 69.2 59.1 41.8	0.9 8.8 21.1 10.1 17.3	0.9 9.7 30.8 40.9 58.2	
Factor (%)				Production Grad	ation		1" 3/4" 1/2" 3/8" #4 #8 #16	99.1 90.3 69.2 59.1 41.8 35.1 28.5	0.9 8.8 21.1 10.1 17.3 6.6 6.6	0.9 9.7 30.8 40.9 58.2 64.9 71.5	
ability Factor (%)	Operating Zone		58, 31	Production Grad	ation 1 75, 28	80	1" 3/4" 1/2" 3/8" #4 #8 #16 #30	99.1 90.3 69.2 59.1 41.8 35.1 28.5 21.2	0.9 8.8 21.1 10.1 17.3 6.6 6.6 7.3	0.9 9.7 30.8 40.9 58.2 64.9 71.5 78.8	

Approved By:

PLANT :	#:	P-38					Contractor:					
Sample Date	9:	9/25/23	-	C	Concrete Grade:	DM, 4500HP						
Dates Test R		9/26/2023	through	10/2/2023			MDOT No.:					
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution						
6AA	58-003	Stoneco	1500	8.94	2.69	50.8						
26A	58-003	Stoneco	300	1.79	2.69	10.2						
		Pleasant Lake			2.65	39.0				SUP	ERIOR	
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%			RIALS	
Sieve 6AA		26A		2NS	Cumulative % Passing	% Retained	Cumulative % Retained	Superior Materials,				
2"	1	00.0	100	).0	100.0	100.0	0.0	0.0		Suite 500		
1.5"	1	00.0	100	).0	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336	
1"		99.8	100		100.0	99.9	0.1	0.1				
3/4"		83.1	100		100.0	91.4	8.5	8.6				
1/2"		42.7	99		100.0	70.8	20.6	29.2				
3/8"		20.7	87.3		100.0	58.4	12.4	41.6	*Maximum % Retained must be above the 3/8" sieve			
#4		3.5	10.1		97.5	40.8	17.6	59.2	*Any two adjacent sieves must equal 10% except m			
#8		1.8	2.9		81.8	33.1	7.7	66.9	nom. max., #100 and #200 sieves.			
#16		1.6	2.1		64.4	26.1	7.0	73.9	*% Retained must be at least 4% for each sieve exce			
#30		1.4	1.8 1.6		45.6	18.7 9.6	7.5	81.3 90.4	nom. max., #100 and #200 sieves.			
#50 #100		1.4 1.3	1.6		22.5 6.3	9.6 3.3	9.0 6.4	90.4 96.7	*% Retained must be at least 4% for the 3/4" sieve will a 1.5" max. size (nom. Max. 1.0") aggregate is used.			
LBW		1.0	1.6		0.3	3.3 1.1	2.2	98.9	a 1.5° max. siz	e (nom. Max. 1.0")	aggregate is used.	
Production G	Fradation	Batch Plant Gra		regate Supplier Gra				on Sample (IPS	3)			
	ess Factor:	62	-	ability Factor:	33	35.6		eness Factor:	,) 61			
				using ration				ability Factor:	36			
45					<u> </u>			Cumulative	%	Cumulative		
	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained		
1		52, 41	$ \longrightarrow $				2"	100.0	0.0	0.0		
		56,			75, 39		1.5"	100.0	0.0	0.0		
ڪ ا				68, 38	Ť		1"	99.3	0.7	0.7		
<u>ס</u>			■ 60-26				3/4"	89.1	10.2	10.9		
<b>5</b> 35		I		roduction Gradatio	n		1/2"	70.5	18.6	29.5		
Щ I		52, 34	+				3/8"	60.5	10.0	39.5		
lity	45, 33		1	i			#4	44.1	16.4	55.9		
Workability Factor (%)		56,	31	<b>67, 8</b> 8, 31			#8	35.6	8.5	64.4		
ž	Operating Zone	·					#16 #30	27.7 20.6	7.9 7.1	72.3 79.4		
₽   L	Boundary				75, 28		#30 #50	20.6	11.8	79.4 91.3		
<b>&gt;</b> 25							#50 #100	8.7 1.6	7.1	91.3		
		E0 E1		05 70	75	80						
40	45	50 55	5 60	Factor (%) <sup>70</sup>	75	00	LBW	1.1	0.6	98.9		

Approved By: Mart P. Ball

PLANT #	#:	P-39					Contractor:				
Sample Date	:	9/25/23		(	Concrete Grade	DM, 4500HP				-	
Dates Test R	epresents:	9/26/2023	through	10/2/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft <sup>3</sup>	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1805	11.04	2.62	62.1					
26A	71-47	Presque Isle	0	0.00	2.62	0.0					
2NS	44-051	Krake Willis Rd		6.65	2.65	37.9				SUP	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	1		RIALS
Sieve 6AA		26A		2NS	Cumulative % Passing	% Retained	Cumulative % Retained	Superiorivialeriais			
2"		100.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	10	0.0	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		100.0	10	0.0	100.0	100.0	0.0	0.0			
3/4"		91.1	10		100.0	94.5	5.5	5.5	1		
1/2"		54.7	97	-	100.0	71.9	22.6	28.1			
3/8"		34.7	88.7		100.0	59.4	12.4	40.6	*Maximum % Retained must be above the 3/8" siev		
#4		5.5	22.6		98.9	40.9	18.6	59.1	*Any two adjacent sieves must equal 10% except m		
#8		2.6	4.9		84.6	33.6	7.2	66.4	nom. max., #100 and #200 sieves.		
#16		2.4	2.2		68.9	27.6	6.1	72.4	*% Retained must be at least 4% for each sieve exc		
#30 #50		2.3	<u>1.8</u> 1.6		49.7	20.2	7.3 9.9	79.8 89.6	nom. max., #100 and #200 sieves. *% Retained must be at least 4% for the 3/4" sieve w		
#50 #100		2.2	1.5		23.8 6.5	3.8	<u>9.9</u> 6.6	89.6 96.2	a 1.5" max. size (nom. Max. 1.0") aggregate is used.		
LBW		1.8	1.5		1.6	3.0 1.7		2.0 98.3		e (nom. Max. 1.0")	aggregate is used.
Production G	radation	Batch Plant Gra		regate Supplier Gra	_	Adjusted WF		on Sample (IPS	<b>(</b> )		
	ess Factor:	61	Work	ability Factor:	34	36.1	Coarseness Factor: Workability Factor:		63		
		01							36		
<sup>45</sup> ]								Cumulative	%	Cumulative	
_ 4	15, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41					2"	100.0	0.0	0.0	
<b>a</b> <sup>40</sup>				00, 40	75, 39		1.5"	100.0	0.0	0.0	
ల్				68, 38			1"	100.0	0.0	0.0	
ō				duction Gradition			3/4"	89.7	10.3	10.3	
<b>5</b> 35				IPS Clark			1/2"	70.3	19.4	29.7	
ш́ į		52, 34					3/8"	59.1	11.2	40.9	
lity	45, 33						#4	42.8	16.3	57.2	
Workability Factor (%)		_	50, 22	68,83	32		#8	35.5	7.3	64.5	
<u>8</u>	Operating Zone	2					#16	29.0	6.5	71.0	
§ ]	Boundary				75, 28		#30	21.2	7.7	78.8	
<b>&gt;</b> 25					<u></u>		#50 #100	9.8 3.7	11.5	90.2 96.3	
40	45	50 55	60	<b>Factor (%)</b>	75	80	LBW	3.7	6.1 2.5	96.3 98.8	
40											

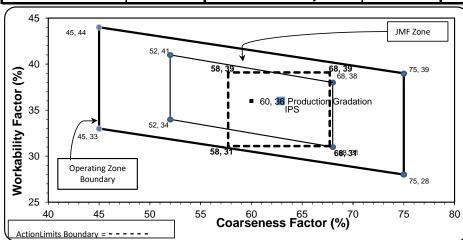
Approved By: Mart P. Ball

PLANT #	#:	P-02	_				Contractor:			
Sample Date		9/25/23			Concrete Grade	e: DM, 4500HP	·			
Dates Test R Agg. Class	Pit #	9/26/2023 Source	through Weight (SSD)	10/2/2023 ft <sup>3</sup>	Specific	%	MDOT No.:			
			<b>U</b>		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				SUPE
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	1	MATEI
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior Ma</u> 30701 W. 10
2"	1	100.0	100	).0	100.0	100.0	0.0	0.0		Suite 500
1.5"	1	100.0	100	).0	100.0	100.0	0.0	0.0		Farmington H
1"		97.5	100	).0	100.0	98.8	1.2	1.2		
3/4"		79.4	100	).0	100.0	89.7	9.0	10.3		
1/2"		38.3	93	.0	100.0	68.5	21.2	31.5		
3/8"		20.1	81	.5	100.0	58.2	10.3	41.8	*Maximum %	Retained must be abo
#4		2.5	19	.2	96.4	41.4	16.8	58.6	*Any two adja	cent sieves must equa
#8		1.6	4.	6	81.4	33.5	7.9	66.5	nom. max., #10	00 and #200 sieves.
#16		1.5	2.	4	66.4	27.3	6.2	72.7	*% Retained r	must be at least 4% fo
#30		1.4	1.	9	49.4	20.5	6.8	79.5	nom. max., #10	00 and #200 sieves.
#50		1.3	1.	8	24.5	10.5	9.9	89.5	*% Retained r	must be at least 4% fo
#100		1.3	1.	7	5.3	2.9	7.6	97.1	a 1.5" max. siz	e (nom. Max. 1.0") ag
LBW		1.0	1.	5	0.6	0.9	2.0	99.1		
Production G	Gradation	O Batch Plant Gra	dations 💿 Aggr	egate SupplierGra	dations	Adjusted WF	Intial Production	on Sample (IPS	5)	
Coarsene	ess Factor:	63	Work	ability Factor:	34	36.0	Coars	eness Factor:	63	
45							Work	ability Factor:	35	
-	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
		52, 41					2"	100.0	0.0	0.0
<b>a</b> <sup>40</sup>			58.39	68, 39	75, 39		1.5"	100.0	0.0	0.0
Factor (%)				<b>68, 39</b> 68, 38	10,00		1"	100.0	0.0	0.0
5				, i i			3/4"	95.1	4.9	4.9
<b>5</b> 35			■ 60, <b>36</b>	Production Grada	tion		1/2"	74.6	20.5	25.4
E	$\rightarrow$	52.34					3/8"	59.3	15.3	40.7



erials, LLC le Rd. MI 48336

the 3/8" sieve. 0% except max., ach sieve except max., e 3/4" sieve when gate is used.



Coar	seness Factor:	63			
Wor	kability Factor:	35			
Sieve	Cumulative	%	Cumulative % Retained		
Sleve	% Passing	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"	95.1	4.9	4.9		
1/2"	74.6	20.5	25.4		
3/8"	59.3	15.3	40.7		
#4	42.1	17.2	57.9		
#8	35.1	7.1	64.9		
#16	29.2	5.9	70.8		
#30	21.9	7.3	78.1		
#50	9.6	12.4	90.4		
#100	2.4	7.2	97.6		
LBW	0.9	1.5	99.1		

Approved By: Mart P. Ball