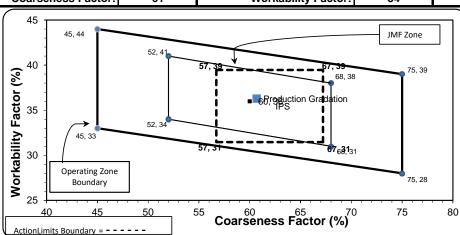
Production	Gradation	Report
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PLANT #	#:	P-101					Contractor:			
Sample Date	:	9/4/23		C	Concrete Grade:	DM, 4500HP				
Dates Test R	epresents:	9/5/2023	- through	9/11/2023			MDOT No.:			
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific	%				
			U		Gravity	Contribution				
6AA	71-47	Presque Isle	1500 250	9.17 1.53	2.62	51.7				
26A 2NS	71-47 75-051	Presque Isle Mid Michigan	1150	6.93	2.62 2.66	8.6 39.7				
2113	75-051	Total Wt		17.63	2.00	100.0	< Verify this n	umber is 100%		SUF
		Total Wi	2300	17.05					1	MAT
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superio</u> 30701 W
2"	1	100.0	100	0.0	100.0	100.0	0.0	0.0	1	Suite 500
1.5"	1	100.0	100	0.0	100.0	100.0	0.0	0.0		Farmingt
1"		96.8	100		100.0	98.3	1.7	1.7		
3/4"		80.0	100		100.0	89.7	8.7	10.3		
1/2"		40.3	96		100.0	68.8	20.9	31.2		
3/8"		24.8	85		100.0	59.8	9.0	40.2	*Maximum %	Retained must b
#4		4.5	22		95.9	42.3	17.6	57.7	*Any two adja	icent sieves must
#8		2.3	5.		81.1	33.8	8.5	66.2	nom. max., #10	00 and #200 siev
#16		2.0	2.		67.1	27.9	5.9	72.1	*% Retained r	must be at least 4
#30		1.9	2.		53.1	22.2	5.6	77.8		00 and #200 siev
#50		1.8	1.		26.7	11.7	10.5	88.3	*% Retained I	must be at least 4
#100		1.8	1.		6.2	3.5	8.1	96.5	a 1.5" max. siz	e (nom. Max. 1.0
LBW		1.5	1.	5	1.0	1.3	2.2	98.7		
Production G	radation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gra	adations	Adjusted WF	Initial Producti	ion Sample (IPS	S)	
Coarsene	ss Factor:	61	Work	ability Factor:	34	36.3	Coars	eness Factor:	62	
45							Work	ability Factor:	35	
45	45, 44				JMF Zone		Ciava	Cumulative	%	Cumulative
	-0,				JIVII ZOITE		Sieve	% Passing	Retained	% Retained
40		52, 41					2"	100.0	0.0	0.0
्र ⁴⁰			57, 39	67, 39 68, 3	75, 39		1.5"	100.0	0.0	0.0
e			!		0		1"	100.0	0.0	0.0
<u></u>			■_68,rg	duction Gradation			3/4"	95.0	5.0	5.0
5 35			ļ	195			1/2"	70.5	24.5	29.5
ility Factor (%)	\rightarrow	52, 34		i			3/8"	60.0	10.5	40.0
l E	45, 33		57, 31				#4	44.4	15.6	55.6
	1		51, 51	67 ₆ 31 ₃	31		#8	35.5	90	64.5



or Materials, LLC /. 10 Mile Rd. n ton Hills, MI 48336

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



Coars	seness Factor:	62	
Work	ability Factor:	35	
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"	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

Approved By:

PLANT #	#:	P-102					Contractor:			
Sample Date	:	9/4/23			Concrete Grade	DM, 4500HP				
Dates Test R	epresents:	9/5/2023	through	9/11/2023			MDOT No.:			
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution				_
6AA	58-003	Stoneco	1525	9.09	2.69	51.7				
26A	58-003	Stoneco	275	1.64	2.69	9.3				
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SII
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%		SU M A 1
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superio</u> 30701 \
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		Suite 50
1.5"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		Farmin
1"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		
3/4"		86.8	10	0.0	100.0	93.2	6.8	6.8		
1/2"		43.5	99	0.6	100.0	70.8	22.4	29.2		
3/8"	:	22.3	89).7	100.0	58.9	11.9	41.1	*Maximum %	Retained must
#4		4.9	23	5.6	97.9	42.9	16.0	57.1	*Any two adja	icent sieves mu
#8		2.9	5	.8	83.0	34.4	8.5	65.6	nom. max., #10	00 and #200 sie
#16		2.5	3	.4	66.4	27.5	6.9	72.5	*% Retained r	must be at least
#30		2.3	2	.8	47.2	19.9	7.6	80.2	nom. max., #10	00 and #200 sie
#50		2.2	2	.6	23.2	10.4	9.4	89.6	*% Retained r	must be at least
#100		2.0		.4	4.4	3.0	7.5	97.0	a 1.5" max. size	e (nom. Max. 1.
LBW		1.6	2	1	0.4	1.2	1.8	98.8]	
Production G	radation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gi	radations	Adjusted WF	Intial Production	on Sample (IPS	5)	-
Coarsene	ess Factor:	63	Work	ability Factor	: 34	36.9	Coars	eness Factor:	61	



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 1.5" max. size (nom. Max. 1.0") aggregate is used.

45 45, 44 JMF Zone 52, 4 Workability Factor (%) 75, 39 68, 38 Production Gradation 52, 34 45, 33 56, 3 67, 32, 31 Operating Zone Boundary 75, 28 25 $\operatorname{Coarseness}^{60}\operatorname{Factor}^{65}\operatorname{(\%)}^{70}$ 55 40 45 50 75 80 ActionLimits Boundary = - - - - -

	Coars	eness Factor:	61	
	Work	ability Factor:	36	
Si	eve	Cumulative	%	Cumulative
51	eve	% Passing	Retained	% Retained
2	<u>2"</u>	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
#	ŧ4	44.4	16.3	55.6
ŧ	‡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
	00	1.9	5.6	98.1
LE	3W	0.7	1.2	99.3

Approved By: Mary P. Ball

PLANT :	#:	P-103					Contractor:				
Sample Date):	9/4/23			Concrete Grade:	DM, 4500HP					
Dates Test R	Represents:	9/5/2023	through	9/11/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1525	9.09	2.69	51.7					
26A	58-003	Stoneco	275	1.64	2.69	9.3					
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	Α	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
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"	1	00.0	100		100.0	100.0	0.0	0.0			
3/4"		36.8	100		100.0	93.2	6.8	6.8			
1/2"		43.5	99		100.0	70.8	22.4	29.2			
3/8"		22.3	89		100.0	58.9	11.9	41.1	*Maximum %	Retained must be	above the 3/8" sieve.
#4		4.9	23		97.9	42.9	16.0	57.1			qual 10% except max.,
#8		2.9	5.		83.0	34.4	8.5	65.6		00 and #200 sieves	
#16		2.5	3.		66.4	27.5	6.9	72.5			for each sieve except
#30 #50		2.3 2.2	2.		47.2 23.2	19.9 10.4	7.6 9.4	80.2 89.6	-	00 and #200 sieves	
#50 #100		2.2	2.		4.4	3.0	9.4 7.5	89.6 97.0			for the 3/4" sieve whe
LBW		<u>2.0</u> 1.6	2.		0.4	3.0 1.2	1.8	97.0	a 1.5° max. siz	e (nom. Max. 1.0")	aggregate is used.
Production G		Batch Plant Gra	â	' regate Supplier G		Adjusted WF	l.	on Sample (IPS	3		
	ess Factor:	63		ability Facto	r: 34	36.9		eness Factor:	, 61		
				usinty i doto		00.0		ability Factor:	36		
⁴⁵]	-							Cumulative	%	Cumulative	
	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41		07.40			2"	100.0	0.0	0.0	
a ⁴⁰		-36	40		75, 39		1.5"	100.0	0.0	0.0	
8			-	68, 3	88		1"	99.3	0.7	0.7	
ō			■ 601 86	Production Grada	ation		3/4"	89.2	10.1	10.8	
Factor (%)							1/2"	70.7	18.5	29.3	
	\rightarrow	52, 34	÷	.			3/8"	60.7	10.0	39.3	
Ę	45, 33		L				#4	44.4	16.3	55.6	
Workability		56,	52	67, 32,	31		#8	35.9	8.5	64.1	
ka	Operating Zone						#16	27.3	8.6	72.7	
	Boundary				75, 28		#30	19.1	8.2	80.9	
S 25							#50	7.4	11.7	92.6	
25 40	45	50 55	60 Coarseness	65 7	0 75	80	#100	1.9	5.6	98.1	
	10	00	Coorčenoos	Easter (0/)			LBW	0.7	1.2	99.3	

Approved BY: Mary P. Ball

PLANT #	#:	14					Contractor:				
Sample Date	-	9/4/23			Concrete Grade:	DM, 4500HP					
Dates Test R	epresents:	9/5/2023	through	9/11/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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%	•	Finish F	DI-MIX
Sieve	6	AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Builders I</u> 30701 W.	Redi-Mix 10 Mile Rd.
2"	1(0.00	100	.0	100.0	100.0	0.0	0.0	1	Suite 500	
1.5"	1(0.00	100	.0	100.0	100.0	0.0	0.0]	Farmingto	n Hills, MI 48336
1"		0.00	100		100.0	100.0	0.0	0.0]		
3/4"		6.8	100		100.0	93.3	6.7	6.7			
1/2"		3.5	99		100.0	71.3	22.0	28.7			
3/8"		2.3	89		100.0	59.4	11.9	40.6			above the 3/8" sieve.
#4		4.9	23		99.9	42.5	16.9	57.5			equal 10% except max.,
#8		2.9	5.	-	90.1	35.7	6.8	64.3		00 and #200 sieves	
#16		2.5	3.4		69.4	27.5	8.2	72.5			6 for each sieve except
#30		2.3	2.	-	44.5	18.0	9.4	82.0	· · · ·	00 and #200 sieves	
#50 #100		2.2 2.0	2.		14.3 2.7	6.7 2.3	<u>11.3</u> 4.4	93.3 97.7			6 for the 3/4" sieve when
LBW		2.0 1.6	2.		0.2	2.3	4.4	97.7	a 1.5° max. siz	e (nom. Max. 1.0")	aggregate is used.
Production G		Batch Plant Gra		egate Supplier Gr			-	on Sample (IPS	」 6)		
Coarsene	ess Factor:	63	Work	ability Factor	: 36	38.2		eness Factor:			
45				<i>,</i>			Work	ability Factor:	36		
45	45, 44				JMF Zone		0.1	Cumulative	%	Cumulative	
1	+3, 44				JIVIF 2011e		Sieve	% Passing	Retained	% Retained	
		52, 41	57.40	68, 40			2"	100.0	0.0	0.0	
् ⁴⁰					75, 39		1.5"	100.0	0.0	0.0	
ల !			i 🗖	Production 68, 38	ation		1"	99.3	0.7	0.7	
1 t o			6 0, 36	PS			3/4"	89.0	10.3	11.0	
Factor (%)			i				1/2"	70.3	18.7	29.7	
		52, 34		j			3/8"	59.9	10.4	40.1	
Workability	45, 33		57,22		,		#4	41.9	18.0	58.1	
	ļ	-			T		#8	35.9 27.8	6.0 8.2	64.1 72.2	
ž	Operating Zone						#16 #30	27.8	8.2 8.8	72.2 81.1	
\$ L	Boundary				75, 28		#30 #50	6.3	12.6	93.7	
25 L							#30 #100	0.3	12.0	93.7	

80

75

 $\operatorname{Coarseness}^{60}\operatorname{Factor}^{65}(\%)^{70}$

#100

LBW

1.7

1.0

4.6

0.7

98.3

99.0





50

55

45

ActionLimits Boundary = - - - - -

25

40

#:	12					Contractor:				
:	9/4/23			Concrete Grade	DM, 4500HP	_			-	
epresents:	9/5/2023	through	9/11/2023			MDOT No.:				
Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
71-47	Presque Isle	1450	8.87	2.62	49.9					
71-47	Presque Isle	305	1.87	2.62	10.5					
63-115				2.65					SUD	FRIOR
	Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	•	MATE	RIALS
	6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<u>Naterials, LLC</u>
1	00.0	100	0	100.0	100.0	0.0	0.0	-		U MIIE Ra.
								1		Hills, MI 48336
				100.0			1.7	1		
				100.0	87.5	10.8	12.5	1		
		96	.5	100.0	65.1	22.4	34.9	1		
	14.8	87	.2	100.0	56.1	9.0	43.9	*Maximum %	Retained must be a	above the 3/8" sieve.
	3.8	25	.7	96.5	42.8	13.3	57.2	*Any two adja	icent sieves must eo	qual 10% except max.,
	2.2	6.3		82.8	34.5	8.3	65.5	nom. max., #10	00 and #200 sieves.	
	1.8			68.0	28.1	6.4	71.9	*% Retained	must be at least 4%	for each sieve except
	1.6	2.	1	50.8	21.1	7.0	78 9	nom max #1(00 and #200 sieves	
						1.0		π	50 anu #200 sieves.	
	1.6	1.		25.7	11.2	10.0	88.8	· ·		for the 3/4" sieve whe
	1.4	<u> </u>	9 8	25.7 5.3	11.2 3.0	10.0 8.2	88.8 97.0	*% Retained i		
	-	1.	9 8	25.7	11.2	10.0	88.8	*% Retained i	must be at least 4%	
	1.4	1. 1. 1.	9 8	25.7 5.3 0.6	11.2 3.0 1.0	10.0 8.2 2.0	88.8 97.0	*% Retained a 1.5" max. siz	must be at least 4%	
	1.4 1.2	1. 1. 1. dations () Aggu	9 8 6	25.7 5.3 0.6 radations	11.2 3.0 1.0	10.0 8.2 2.0 Intial Productio	88.8 97.0 99.0	*% Retained i a 1.5" max. siz	must be at least 4%	
radation	1.4 1.2 O Batch Plant Gra	1. 1. 1. dations () Aggu	9 8 6 regate Supplier G	25.7 5.3 0.6 radations	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars	88.8 97.0 99.0 on Sample (IPS	*% Retained i a 1.5" max. siz	must be at least 4%	
radation	1.4 1.2 O Batch Plant Gra	1. 1. 1. dations () Aggu	9 8 6 regate Supplier G	25.7 5.3 0.6 iradations r: 35	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work	88.8 97.0 99.0 on Sample (IPS eness Factor:	*% Retained i a 1.5" max. siz 63	must be at least 4%	
radation ss Factor:	1.4 1.2) Batch Plant Gra 67	1. 1. 1. dations () Aggu	9 8 6 regate Supplier G	25.7 5.3 0.6 radations	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor:	*% Retained n a 1.5" max. siz 63 63 36	must be at least 4% e (nom. Max. 1.0") a	
radation ss Factor:	1.4 1.2 O Batch Plant Gra	1. 1. 1. dations () Aggu	9 8 6 regate Supplier G	25.7 5.3 0.6 radations r: 35	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2"	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0	*% Retained (a 1.5" max. siz 63 63 63 86 86 86 86 86 86 86 80 80 80 80 80 80 80 80 80 80 80 80 80	must be at least 4% e (nom. Max. 1.0") ; Cumulative	
radation ss Factor:	1.4 1.2) Batch Plant Gra 67	1. 1. 1. dations () Aggu	9 8 6 regate Supplier G ability Facto	25.7 5.3 0.6 iradations r: 35	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5"	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	*% Retained (a 1.5" max. siz 63 63 63 86 86 86 86 86 86 80 80 80 80 80 80 80 80 80 80 80 80 80	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0	
radation ss Factor:	1.4 1.2) Batch Plant Gra 67	1. 1. 1. dations () Aggu	9 8 6 regate Supplier G ability Facto	25.7 5.3 0.6 iradations r: 35	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1"	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3	*% Retained (a 1.5" max. siz 63 63 63 86 86 86 86 86 86 86 86 86 86 86 86 86	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.7	
radation ss Factor:	1.4 1.2) Batch Plant Gra 67	1. 1. 1. dations () Aggu	9 8 6 ability Facto 68, 40 68, 3 8 7 rodu	25.7 5.3 0.6 radations r: 35 JMF Zone	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4"	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0	*% Retained I a 1.5" max. siz 63 63 63 63 8 8 8 8 8 8 8 8 8 8 8 8 8 8	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.7 11.0	
radation ss Factor:	1.4 1.2) Batch Plant Gra 67 52, 41	1. 1. 1. dations () Aggu Work	9 8 6 ability Facto 68, 40 68, 3 8 7 rodu	25.7 5.3 0.6 radations r: 35 JMF Zone	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3	*% Retained I a 1.5" max. siz 63 63 63 63 86 86 86 86 86 86 86 86 86 86 86 86 86	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.7 11.0 29.7	
radation ess Factor:	1.4 1.2) Batch Plant Gra 67	1. 1. 1. dations () Aggu Work	9 8 6 ability Facto 68, 40 68, 3 8 7 rodu	25.7 5.3 0.6 radations r: 35 JMF Zone	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9	*% Retained (a 1.5" max. siz 63 63 63 86 86 86 86 86 86 86 86 86 86 86 86 86	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.7 11.0 29.7 40.1	
radation ss Factor:	1.4 1.2) Batch Plant Gra 67 52, 41	1. 1. 1. dations () Aggu Work	9 8 6 regate Supplier G ability Facto 68, 40 68, 3 PS	25.7 5.3 0.6 radations r: 35 JMF Zone 75, 39 iction Gradation	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9 41.9	*% Retained I a 1.5" max. siz 63 63 63 63 64 86 86 86 86 86 86 86 86 86 86 86 86 86	Cumulative % Retained 0.0 0.7 11.0 29.7 40.1 58.1	
radation ess Factor:	1.4 1.2) Batch Plant Gra 67 52, 41	1. 1. 1. dations () Aggu Work	9 8 6 ability Facto 68, 40 68, 3 8 7 rodu	25.7 5.3 0.6 radations r: 35 JMF Zone 75, 39 iction Gradation	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9 41.9 35.9	*% Retained I a 1.5" max. siz 63 63 63 63 76 80 80 80 80 80 80 80 90 80 80 90 80 90 80 90 80 90 90 90 90 90 90 90 90 90 90 90 90 90	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.7 11.0 29.7 40.1 58.1 64.1	
radation ss Factor: 5, 44 45, 33 Operating Zone	1.4 1.2 () Batch Plant Gra 67 52, 41 52, 34	1. 1. 1. dations () Aggu Work	9 8 6 regate Supplier G ability Facto 68, 40 68, 3 PS	25.7 5.3 0.6 radations r: 35 JMF Zone 35 state of the second seco	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9 41.9 35.9 27.8	*% Retained I a 1.5" max. siz 63 63 63 63 86 % Retained 0.0 0.0 0.0 0.7 10.3 18.7 10.4 18.0 6.0 8.2	Cumulative % Retained 0.0 0.7 11.0 29.7 40.1 58.1 64.1 72.2	
radation ss Factor: 5, 44 45, 33	1.4 1.2 () Batch Plant Gra 67 52, 41 52, 34	1. 1. 1. dations () Aggu Work	9 8 6 regate Supplier G ability Facto 68, 40 68, 3 PS	25.7 5.3 0.6 radations r: 35 JMF Zone 75, 39 iction Gradation	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9 41.9 35.9 27.8 18.9	*% Retained I a 1.5" max. siz 63 63 63 63 76 80 80 80 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Cumulative % Retained 0.0 0.7 11.0 29.7 40.1 58.1 64.1 72.2 81.1	
radation ss Factor: 5, 44 45, 33 Operating Zone	1.4 1.2 () Batch Plant Gra 67 52, 41 52, 34	1. 1. 1. 1. 1. 4ations • Aggu Work 57, 40 • 60, 36	9 8 6 regate Supplier G ability Facto 68, 40 68, 40 8 8 8 8 8 8 8 9	25.7 5.3 0.6 radations r: 35 JMF Zone 35 riction Gradation 25 75, 28	11.2 3.0 1.0 Adjusted WF	10.0 8.2 2.0 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	88.8 97.0 99.0 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.0 70.3 59.9 41.9 35.9 27.8	*% Retained I a 1.5" max. siz 63 63 63 63 86 % Retained 0.0 0.0 0.0 0.7 10.3 18.7 10.4 18.0 6.0 8.2	Cumulative % Retained 0.0 0.7 11.0 29.7 40.1 58.1 64.1 72.2	for the 3/4" sieve when aggregate is used.
	epresents: Pit # 71-47 71-47 63-115	epresents: 9/5/2023 Pit # Source 71-47 Presque Isle 71-47 Presque Isle 63-115 Ray Rd Total Wt 6AA 100.0 100.0 96.6 75.0 30.8 14.8 3.8 2.2 1.8	epresents: 9/5/2023 through Pit # Source Weight (ssp) 71-47 Presque Isle 1450 71-47 Presque Isle 305 63-115 Ray Rd 1150 Fotal Wt 2905 6AA 26 100.0 100 100 100.0 100 100 100.0 100 100 96.6 100 100 30.8 96 14.8 3.8 25 2.2 6. 1.8 2.	epresents: 9/5/2023 through 9/11/2023 Pit # Source Weight (ssp) ft ³ 71-47 Presque Isle 1450 8.87 71-47 Presque Isle 305 1.87 63-115 Ray Rd 1150 6.95 Total Wt 2905 17.69 6AA 26A 100.0 100.0 100.0 100.0 96.6 100.0 30.8 96.5 14.8 87.2 3.8 25.7 2.2 6.3 1.8 2.8	epresents: $9/5/2023$ through $9/11/2023$ Pit # Source Weight (ssp) ft^3 Specific Gravity 71-47 Presque Isle 1450 8.87 2.62 71-47 Presque Isle 305 1.87 2.62 63-115 Ray Rd 1150 6.95 2.65 Total Wt 2905 17.69 2000 6AA 26A 2NS 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 30.8 96.5 100.0 30.8 25.7 96.5 2.2 6.3 82.8 1.8 2.8 68.0	epresents: $9/5/2023$ through $9/11/2023$ Pit # Source Weight (ssp) ft ³ Specific Gravity $\%$ 71-47 Presque Isle 1450 8.87 2.62 49.9 71-47 Presque Isle 305 1.87 2.62 10.5 63-115 Ray Rd 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 6AA 26A 2NS Cumulative % Passing 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 96.6 100.0 100.0 87.5 30.8 96.5 100.0 65.1 14.8 87.2 100.0 56.1 34.5 34.5 34.5 1.8 2.8 68.0 28.1 34.5	epresents: $9/5/2023$ through $9/11/2023$ MDOT No.: Pit # Source Weight (ssp) ft ³ Specific Gravity % Contribution 71-47 Presque Isle 1450 8.87 2.62 49.9 71-47 Presque Isle 305 1.87 2.62 10.5 63-115 Ray Rd 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 Weight (structure) % Retained 100.0 100.0 100.0 100.0 0.	epresents: 9/5/2023 through 9/11/2023 MDOT No.: Pit # Source Weight (ssb) ft ³ Specific Gravity Contribution 71-47 Presque Isle 1450 8.87 2.62 49.9 71-47 Presque Isle 305 1.87 2.62 10.5 63-115 Ray Rd 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 < Verify this number is 100% 6AA 26A 2NS Cumulative % Passing % Retained Cumulative % Retained 100.0 100.0 100.0 100.0 0.0 0.0 0.0 96.6 100.0 100.0 100.0 87.5 10.8 12.5 30.8 96.5 100.0 65.1 22.4 34.9 14.8 87.2 100.0 56.1 9.0 43.9 3.8 25.7 96.5 42.8 13.3 57.2 2.2 6.3 82.8	epresents: 9/5/2023 through 9/11/2023 MDOT No.: Pit # Source Weight (sso) ft ³ Specific Gravity % Contribution 71-47 Presque Isle 1450 8.87 2.62 49.9 71-47 Presque Isle 305 1.87 2.62 10.5 63-115 Ray Rd 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 < Verify this number is 100% 6AA 26A 2NS Cumulative % Passing % Retained Cumulative % Retained 100.0 100.0 100.0 100.0 0.0 0.0 96.6 100.0 100.0 100.0 0.0 0.0 96.6 100.0 100.0 87.5 10.8 12.5 30.8 96.5 100.0 65.1 22.4 34.9 14.8 87.2 100.0 56.1 9.0 43.9 *Any two adja 2.2 6.3 82.8 34.5<	epresents: 9/5/2023 through 9/11/2023 MDOT No.: Pit # Source Weight (sso) ft ³ Specific Gravity % Contribution 71-47 Presque Isle 1450 8.87 2.62 49.9 71-47 Presque Isle 305 1.87 2.62 10.5 63-115 Ray Rd 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 Cumulative % Passing % Retained Superior N 30701 W. 1 100.0 100.0 100.0 100.0 0.0 0.0 100.0 100.0 100.0 100.0 100.0 0.0 0.0 100.0 100.0 100.0 100.0 100.0 0.0 0.0 10.0 96.6 100.0 100.0 87.5 10.8 12.5 30.8 96.5 100.0 65.1 22.4 34.9 'Maximum % Retained must be a 'Any two adjacent sieves must e'Any two adjace

PREPARED BY: SM, LLC Technical Service

ActionLimits Boundary = - - - - -

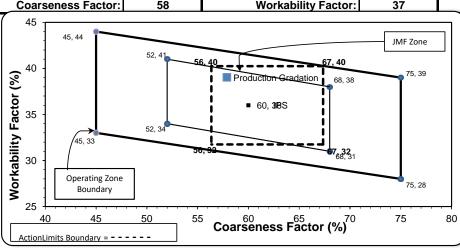
Approved By:

PLANT :	#:	p11					Contractor:			
Sample Date):	9/4/23			Concrete Grade:	DM, 4500HP	_			
Dates Test R	epresents:	9/5/2023	through	9/11/2023			MDOT No.:			
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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				SUPE
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE
Sieve	(6AA	26	6A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior N</u> 30701 W. 10
2"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500
1.5"	1	00.0	10	0.0	100.0	100.0	0.0	0.0		Farmington
1"		97.0	-	0.0	100.0	98.5	1.5	1.5		
3/4"		85.9		0.0	100.0	92.9	5.6	7.1		
1/2"		46.5		6.5	100.0	72.8	20.1	27.2		
3/8"		29.3		7.2	100.0	63.3	9.6	36.7		Retained must be at
#4		6.8	25		96.9	44.4	18.8	55.6		cent sieves must equ
#8		3.5	-	.3	86.2	36.5	7.9	63.5		00 and #200 sieves.
#16		3.0		.8	71.4	30.1	6.5	69.9		must be at least 4% f
#30		2.7	2		51.2	21.8	8.2	78.2		00 and #200 sieves.
#50		2.6		.9	24.3	11.1	10.7	88.9		must be at least 4% f
#100 LBW		2.4 1.8		.8 .6	7.5 1.5	4.4	6.8 2.7	95.6 98.3	a 1.5" max. sız	e (nom. Max. 1.0") ag
Production G		Batch Plant Gra	dations 💿 Agg	regate Supplier Gra			Intial Production	on Sample (IPS	3)	
	ess Factor:	58	Worl	ability Factor	37	39.0		eness Factor:	62	
45				-			Work	ability Factor:	36	
1 1	45, 44				18.45 7			Cumulative	%	Cumulative
		52, 41			JMF Zone		Sieve	% Passing	Retained	% Retained
40		^{52, 4}	<u>i.40</u>	67, 40	_		2"	100.0	0.0	0.0
(%) [™] [Production	Gradation 68, 38	75, 39		1.5"	100.0	0.0	0.0
			1				1"	100.0	0.0	0.0



laterials, LLC Mile Rd. Hills, MI 48336

pove the 3/8" sieve. ual 10% except max., or each sieve except max., or the 3/4" sieve when ggregate is used.



Coars	eness Factor:	62	
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"	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 :	#:	P-32	_				Contractor:				
Sample Date):	9/4/23	-		Concrete Grade:	DM, 4500HP					
Dates Test R	Represents:	9/5/2023	through	9/11/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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%			ERIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 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"		97.0	10	0.0	100.0	98.5	1.5	1.5			
3/4"		85.9	100		100.0	92.9	5.6	7.1			
1/2"		46.5	96		100.0	72.8	20.1	27.2			
3/8"		29.3	87		100.0	63.3	9.6	36.7	*Maximum %	Retained must be	above the 3/8" sieve.
#4		6.8	25		96.9	44.4	18.8	55.6	*Any two adja	icent sieves must e	equal 10% except max.,
#8		3.5	6.	-	86.2	36.5	7.9	63.5	,	00 and #200 sieves	
#16		3.0	2.	-	71.4	30.1	6.5	69.9			6 for each sieve except i
#30 #50		2.7 2.6	2.		51.2 24.3	21.8 11.1	8.2 10.7	78.2 88.9		00 and #200 sieves	
#30 #100		2.4	1.		7.5	4.4	6.8	00.9 95.6			6 for the 3/4" sieve wher aggregate is used.
LBW		1.8	1.		1.5	1.7	2.7	98.3	a 1.5 max. siz	e (nom. max. 1.0)	aggregate is used.
Production G	Gradation	Batch Plant Gra	-	regate Supplier G		Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ess Factor:	58	Work	ability Factor	r: 37	39.0	Coars	eness Factor:	62		
			2	•	•		Work	ability Factor:	36		
45					JMF Zone		0.1	Cumulative	%	Cumulative	
	45, 44				JIVIF Zone		Sieve	% Passing	Retained	% Retained	
		52, 41	6.40	67.40			2"	100.0	0.0	0.0	
्र ⁴⁰]			Production (75, 39		1.5"	100.0	0.0	0.0	
گ (5Hauation 68, 3	8		1"	100.0	0.0	0.0	
Į			60.3	s i			3/4"	95.0	5.0	5.0	
Factor (%)			1	:			1/2"	72.3	22.8	27.7	
		52, 34	+	i			3/8"	60.4	11.8	39.6	
i lit	45, 33	51					#4 #8	42.6 36.0	17.8	57.4 64.0	
Workability			, -	67 _{68,} 32	31		#8 #16	36.0 29.5	6.6 6.5	64.0 70.5	
ž	Operating Zone						#16 #30	29.5	9.2	70.5	
\$ ∣L	Boundary				75, 28		#30	9.5	9.2	90.5	
> ₂₅							#100	3.4	6.1	96.6	
	45	50 55	5 60	<u> </u>	0 75	80			-		
40	45		Coordenaar	Factor (%)	0 75	00	LBW	1.3	2.1	98.7	

Approved By:

PLANT #	#:	P-35					Contractor:				
Sample Date	:	9/4/23	-	C	Concrete Grade	: DM, 4500HP				-	
Dates Test R	epresents:	9/5/2023	through	9/11/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1525	9.09	2.69	51.7					
26A	58-003	Stoneco	275	1.64	2.69	9.3					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUD	EBLOB
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	_		ERIOR
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<u>Materials, LLC</u> 10 Mile Rd.
2"		100.0	100	0.0	100.0	100.0	0.0	0.0	1	Suite 500	
1.5"		100.0	100	0.0	100.0	100.0	0.0	0.0]	Farmingto	n Hills, MI 48336
1"		100.0	100	0.0	100.0	100.0	0.0	0.0			
3/4"		86.8	100	0.0	100.0	93.2	6.8	6.8			
1/2"		43.5	99		100.0	70.8	22.4	29.2			
3/8"		22.3	89		100.0	58.9	11.9	41.1	*Maximum %	Retained must be	above the 3/8" sieve.
#4		4.9	23	-	97.9	42.9	16.0	57.1	*Any two adja	cent sieves must e	qual 10% except max.
#8		2.9	5.	-	83.0	34.4	8.5	65.6	nom. max., #1	00 and #200 sieves	5.
#16		2.5	3.		66.4	27.5	6.9	72.5	*% Retained	must be at least 4%	6 for each sieve except
#30		2.3	2.		47.2	19.9	7.6	80.2	nom. max., #10	00 and #200 sieves	5.
#50		2.2	2.		23.2	10.4	9.4	89.6			6 for the 3/4" sieve whe
#100		2.0	2.		4.4	3.0	7.5	97.0	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		1.6	2.		0.4	1.2	1.8	98.8	J		
Production G	Fradation	O Batch Plant Gra	dations 💿 Aggi	regate Supplier Gra	idations	Adjusted WF	Intial Production	on Sample (IPS	5)	-	
Coarsene	ess Factor:	63	Work	ability Factor:	34	36.9	Coars	eness Factor:	61		
45							Work	ability Factor:			
	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
1	10, 11				5111 20110		Sieve	% Passing	Retained	% Retained	
40		52, 41	40				2"	100.0	0.0	0.0	
२ ⁴⁰		50,	1	68, 38	75, 39		1.5"	100.0	0.0	0.0	
<u>ව</u>			-		Í		1"	99.3	0.7	0.7	
ţ			■ 60.1 3 6	Production Gradati	on		3/4"	89.1	10.2	10.9	
Factor (%)		Ţ		· •			1/2"	70.5	18.6	29.5	
		52, 34	i				3/8"	60.5	10.0	39.5	
lif.	45, 33		Le	i			#4	44.1	16.4	55.9	
	ļ	56,	31	67, 88 , 31			#8	35.6	8.5	64.4	
Workability	Operating Zone	2					#16	27.7	7.9	72.3	
ŝ L	Boundary				75, 28		#30	20.6	7.1	79.4	
S							#50	8.7	11.8	91.3	

80

75

 $\operatorname{Coarseness}^{60}\operatorname{Factor}^{65}(\%)^{70}$



1.6

1.1

#100

LBW

7.1

0.6

98.4

98.9

PREPARED BY: SM, LLC Technical Service

50

45

ActionLimits Boundary = - - - - -

25

40

55

PLANT #	#:	P-36	_				Contractor:				
Sample Date	:	9/4/23	_	(Concrete Grade:	DM, 4500HP					
Dates Test R	epresents:	9/5/2023	through	9/11/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	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%	1		RIALS
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"	1	00.0	100.0		100.0	100.0	0.0	0.0	Suite 500		
1.5"		00.0	100		100.0	100.0	0.0	0.0	Farmington Hills, MI 48336		
1"		96.6	100		100.0	98.3	1.7	1.7			
3/4"		75.0	100.0		100.0	87.5	10.8	12.5	1		
1/2"		30.8	96	.5	100.0	65.1	22.4	34.9	I		
3/8"		14.8	87.2		100.0	56.1	9.0	43.9	*Maximum % Retained must be above the 3/8" sieve.		
#4	3.8		25.7		97.1	43.0	13.1	57.0	*Any two adjacent sieves must equal 10% except max		
#8	2.2		6.3		83.3	34.7	8.3	65.3	nom. max., #100 and #200 sieves.		
#16		1.8	2.8		69.2	28.6	6.1	71.4	*% Retained must be at least 4% for each sieve excep		
#30		1.6	2.1		50.3	20.9	7.7	79.1	nom. max., #100 and #200 sieves.		
#50		1.6	1.9 1.8		20.0	8.9	12.0	91.1	*% Retained must be at least 4% for the 3/4" sieve when a 1.5" max. size (nom. Max. 1.0") aggregate is used.		
#100 LBW		1.4 1.2	1.		2.8 0.3	2.0 0.9	6.9 1.1	98.0 99.1	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
Production G		Batch Plant Gra		regate Supplier Gra				on Sample (IPS	5)		
	ess Factor:	67	Work	ability Factor:	: 35	37.2		eness Factor:	63		
		••						ability Factor:	35		
⁴⁵ T								Cumulative	%	Cumulative	
4	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41	$ \longrightarrow $				2"	100.0	0.0	0.0	
2 ⁴⁰			58, 39	6 8, 39	75, 39		1.5"	100.0	0.0	0.0	
Factor (%)				68, 38			1"	99.1	0.9	0.9	
5			■ 60, 36		ction Gradation		3/4"	90.3	8.8	9.7	
2 35 -			- 00, 30	IPS			1/2"	69.2	21.1	30.8	
Щ į		52, 34		i			3/8"	59.1	10.1	40.9	
Workability	45, 33						#4	41.8	17.3	58.2	
		_	58, 31	68,3	1		#8	35.1	6.6	64.9	
х II	Operating Zone						#16 #30	28.5 21.2	6.6 7.3	71.5 78.8	
<u>s</u> L	Boundary				75, 28		#30 #50	8.7	12.5	91.3	
> 25							#50	0.7 1.8	7.0	91.3	
40	45	50 55	5 60	Factor (%) ⁷⁰) 75	80	LBW	0.7	1.0	99.3	
			Conreanace					0.1	1.5	00.0	

Approved By:

PLANT :	#:	P-38					Contractor:				
Sample Date	e:	9/4/23	•	С	oncrete Grade	DM, 4500HP				•	
Dates Test R	Represents:	9/5/2023	through	9/11/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1525	9.09	2.69	51.7					
26A	58-003	Stoneco	275	1.64	2.69	9.3					
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%		MATE	RIALS
Sieve 6AA		26A		2NS	Cumulative % Passing	% Retained	% Retained 30701 W. 10 Mile Rd.				
2"		00.0	100.0		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 Hills, MI 48336		
1"		00.0	100		100.0	100.0	0.0	0.0	1		
3/4"		86.8	100	-	100.0	93.2	6.8	6.8			
1/2"		43.5	99		100.0	70.8	22.4	29.2			
3/8"		22.3	89.7		100.0	58.9	11.9	41.1	*Maximum % Retained must be above the 3/8" sieve.		
#4	4.9		23.6		97.9	42.9	16.0	57.1	*Any two adjacent sieves must equal 10% except max		
#8		2.9	5.8		83.0	34.4	8.5	65.6	nom. max., #100 and #200 sieves.		
#16		2.5	3.4 2.8		66.4	27.5	6.9	72.5	*% Retained must be at least 4% for each sieve exception max. #100 and #200 sieves		
#30 #50		2.3 2.2	2.6		47.2 23.2	19.9 10.4	7.6 9.4	80.2 89.6	nom. max., #100 and #200 sieves. *% Retained must be at least 4% for the 3/4" sieve who		
#30		2.0	2.4		4.4	3.0	9.4 7.5	97.0	a 1.5" max. size (nom. Max. 1.0") aggregate is used.		
LBW		1.6	2.		0.4	1.2	1.8	98.8	a 1.5 max. siz		ayyreyale is used.
Production G	Gradation	Batch Plant Gra		regate Supplier Gra	dations		-	on Sample (IPS	5)		
Coarsene	ess Factor:	63	Work	ability Factor:	34	36.9		eness Factor:	61		
				,							
45							Work	ability Factor:	36		
1.	45, 44				JMF Zone		Work Sieve	ability Factor: Cumulative	36 %		
	45, 44	52, 41			JMF Zone		Sieve	Cumulative % Passing	% Retained	% Retained	
40	45, 44	52, 41 56,		67,40			Sieve 2"	Cumulative % Passing 100.0	% Retained 0.0	% Retained 0.0	
40	45, 44		******	68, 38	JMF Zone		Sieve 2" 1.5"	Cumulative % Passing 100.0 100.0	% Retained 0.0 0.0	% Retained 0.0 0.0	
40	45, 44			68, 38 Production Gradatio	75, 39		Sieve 2" 1.5" 1"	Cumulative % Passing 100.0 100.0 99.3	% Retained 0.0 0.0 0.7	% Retained 0.0 0.0 0.7	
40	45, 44		10		75, 39		Sieve 2" 1.5"	Cumulative % Passing 100.0 100.0	% Retained 0.0 0.0	% Retained 0.0 0.0	
40	45, 44		10- 60,186		75, 39		Sieve 2" 1.5" 1" 3/4"	Cumulative % Passing 100.0 100.0 99.3 89.1	% Retained 0.0 0.0 0.7 10.2	% Retained 0.0 0.0 0.7 10.9	
40	45, 44	56;	10- 60, 36		75, 39		Sieve 2" 1.5" 1" 3/4" 1/2"	Cumulative % Passing 100.0 99.3 89.1 70.5 60.5 44.1	% Retained 0.0 0.0 0.7 10.2 18.6	% Retained 0.0 0.0 0.7 10.9 29.5	
40	\rightarrow	56;	■ 60, 36		75, 39		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	Cumulative % Passing 100.0 99.3 89.1 70.5 60.5 44.1 35.6	% Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4 8.5	% Retained 0.0 0.0 0.7 10.9 29.5 39.5 55.9 64.4	
40	\rightarrow	52, 34	■ 60, 36	Production Gradatic	75, 39		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	Cumulative % Passing 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7	% Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9	% Retained 0.0 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3	
40	45, 33	52, 34	■ 60, 36	Production Gradatic	75, 39		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	Cumulative % Passing 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6	% Retained 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1	% Retained 0.0 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4	
Workability Factor (%) 06 07 07 08 07 07 07 07 07 07 07 07 07 07 07 07 07	45, 33 Operating Zone	52, 34	■ 60, 36	Production Gradatic	75, 39		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30 #50	Cumulative % Passing 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6 8.7	% Retained 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1 11.8	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4 91.3	
40	45, 33 Operating Zone	52, 34	● 60 ₁ ₿6	Production Gradatic	75, 39		Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	Cumulative % Passing 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6	% Retained 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1	% Retained 0.0 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4	

Approved By:

PLANT #	#:	P-39					Contractor:				
Sample Date:		9/4/23		C							
Dates Test R	epresents:	9/5/2023	through	9/11/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1605	9.82	2.62	55.2					
26A	71-47	Presque Isle	200	1.22	2.62	6.9					
2NS	44-051	Krake Willis Rd	1100	6.65	2.65	37.9				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. 3	Materials, LLC 10 Mile Rd.
2"		100.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	100		100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"		96.8	10	0.0	100.0	98.2	1.8	1.8			
3/4"		80.0	10		100.0	89.0	9.3	11.0			
1/2"		40.3	96	.3	100.0	66.8	22.2	33.2			
3/8"	3" 24.8		85.2		100.0	57.4	9.3	42.6	*Maximum % Retained must be above the 3/8" sieve		
#4			22.1		99.0	41.5	15.9	58.5	*Any two adjacent sieves must equal 10% except ma		
#8			5.2		85.0	33.8	7.7	66.2	nom. max., #100 and #200 sieves.		
#16			2.5		67.9	27.0	6.8	73.0	*% Retained must be at least 4% for each sieve exce		
#30			2.0		50.6	20.3	6.6	79.7	nom. max., #100 and #200 sieves.		
#50			1.8		23.1	9.9	10.5	90.1	*% Retained must be at least 4% for the 3/4" sieve who		
#100 LBW	#100 1.8		1.7 1.5		5.8 1.0	3.3	6.6 2.0	96.7 98.7	a 1.5" max. size (nom. Max. 1.0") aggregate is used.		
		1.5			_						
roduction G	Fradation	Batch Plant Gra		regate Supplier Gra	uauons	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ess Factor:	64	Work	ability Factor:	34	36.3	Coarseness Factor:		63		
45							Work	ability Factor:	36		
_	15, 44		JMF Zone				Sieve	Cumulative	%	Cumulative	
1	~	50.44						% Passing	Retained	% Retained	
40		52, 41	- F9 40				2"	100.0	0.0	0.0	
ົຂີ ໄ			JU, The second	68, 38	75, 39		1.5"	100.0	0.0	0.0	
			ł				1"	100.0 89.7	0.0	0.0	
9 35			■ 60, 36	Production Gra	dation		3/4	70.3	10.3	29.7	
				;			3/8"	59.1	19.4	40.9	
		52, 34		l.			3/8 #4	42.8	16.3	57.2	
	45. 33						#8	35.5	7.3	64.5	
oility Fa	45, 33		56, 32	68,32	2						
ability Fa	[5 8, 32	68,832	2			29.0	6.5	71.0	
orkability Fa	45, 33 Operating Zone Boundary	2	1 50, 22	688832			#16 #30		6.5 7.7		
Workability Fa	Operating Zone	2	5 0, 22	688,832	2 75, 28		#16	29.0		71.0	
Norkability Fa	Operating Zone	50 55	58, 22	65 Factor (%) ⁷⁰		80	#16 #30	29.0 21.2	7.7	71.0 78.8	

Approved By:

PLANT #:		P-O2 9/4/23					Contractor:				
Sample Date Dates Test R		9/4/23	through	9/11/2023	Concrete Grade	DIVI, 4500HP	MDOT No.:				
Agg. Class Pit #		Source	Weight (SSD)	ft ³	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	
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	•	MATE	
Sieve 6AA		26A		2NS	Cumulative % Passing	% Retained	Cumulative % Retained	ned 30701			
2"	1	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"		96.6	10	0.0	100.0	98.3	1.7	1.7			
3/4"		75.0	100		100.0	87.5	10.8	12.5			
1/2"		30.8	96		100.0	65.1	22.4	34.9			
3/8"		14.8	87		100.0	56.1	9.0	43.9	*Maximum % Retained must b		
#4		3.8	25		96.5	42.8	13.3 8.3	57.2	*Any two adjacent sieves must eq nom. max., #100 and #200 sieves.		
#8		2.2	6.		82.8	34.5		65.5			
#16		1.8	2.		68.0	28.1	6.4	71.9	*% Retained r	must be at least 4%	
#30		1.6	2.		50.8	21.1	7.0	78.9	nom. max., #100 and #200 sieves		
#50		1.6	1.		25.7	11.2	10.0	88.8	*% Retained must be at least 4		
#100 LBW		1.4	<u> </u>		5.3	3.0	8.2	97.0	a 1.5" max. size (nom. Max. 1.0")		
LBW		1.2		-	0.6	1.0	2.0	99.0	l		
Production G		O Batch Plant Gra	dations 💿 Agg	regate SupplierGra	1	Adjusted WF		on Sample (IPS	S)		
Coarsene	ess Factor:	67	Work	ability Factor	: 35	37.0	Coarseness Factor:		63		
45							Work	ability Factor:	35		
	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
40		52, 41	\checkmark				2"	100.0	0.0	0.0	
२ ⁴⁰			58, 39	68, 39	75, 39		1.5"	100.0	0.0	0.0	
<u>ی</u>			i				1"	100.0	0.0	0.0	
Į Į			■ 60, 36	roduc	ction Gradation		3/4"	95.1	4.9	4.9	
e 35			i	IPS			1/2"	74.6	20.5	25.4	
Workability Factor (%)		52, 34		!			3/8"	59.3	15.3	40.7	
ii ii	45, 33						#4	42.1	17.2	57.9	
ig 30 -		_	58, 31	6 8 8,33	n		#8	35.1	7.1	64.9	
ž	Operating Zone	2					#16	29.2	5.9	70.8 78.1	
♀ ┤ ∟	Boundary				75, 28		#30 #50	21.9 9.6	7.3 12.4	78.1 90.4	
> ₂₅							#50 #100	9.6 2.4	7.2	90.4 97.6	
40	45	50 59	5 60	65 70) 75	80	#100	2.4	1.2	91.0	

75

80

LBW

0.9



rials, LLC e Rd. MI 48336

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

99.1

1.5

PREPARED BY: SM, LLC Technical Service

50

45

ActionLimits Boundary = - - - -

40

55

Coarseness Factor (%)⁷⁰

