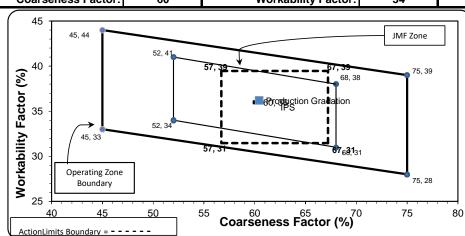
Production	Gradation	Report
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PLANT #	#:	P-101					Contractor:			
Sample Date	э:	7/10/23		C	Concrete Grade	;: DM, 4500HP				
Dates Test R	{epresents:	7/11/2023	through	7/17/2023			MDOT No.:			
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific	%	1			2
			5, ,		Gravity	Contribution	1			
6AA	71-47	Presque Isle	1500	9.17	2.62	51.7	4			-
26A	71-47	Presque Isle	250	1.53	2.62	8.6	4			
2NS	75-051	Mid Michigan		6.93	2.66	39.7	A Statistics			SUI
——————————————————————————————————————		Total Wt	t 2900	17.63		100.0	< Verify this no	umber is 100%	1	MAT
Sieve		6AA	26/	А	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superio</u> 30701 W
2"	·	100.0	100	J.0	100.0	100.0	0.0	0.0	1	Suite 50
1.5"		100.0	100		100.0	100.0	0.0	0.0	1	Farming
1"		98.4	100		100.0	99.2	0.8	0.8	1	
3/4"		81.6	100		100.0	90.5	8.7	9.5	1	
1/2"		41.4	95.		100.0	69.3	21.2	30.7	1	
3/8"	,	24.8	86.		100.0	59.9	9.4	40.1	*Maximum %	6 Retained must
#4	·	4.8	21.	.7	96.1	42.5	17.5	57.5	*Any two adja	acent sieves mu
#8	·	2.2	6.0	.0	80.8	33.7	8.8	66.3	nom. max., #1(00 and #200 sie
#16		2.0	3.2	.2′	66.7	27.8	5.9	72.2		must be at leas
#30	·	1.8	2.6	.6	52.1	21.8	5.9	78.2	nom. max., #1(00 and #200 sie
#50	·	1.8	2.3		28.7	12.5	9.3	87.5		must be at leas
#100	·	1.7	2.2		7.7	4.1	8.4	95.9	a 2" max. size	(nom. Max. 1.5
LBW		1.4	2.0	0	1.4	1.5	2.7	98.5		
Production G	Gradation	O Batch Plant Gra	adations Aggr 	regate Supplier Grac	dations	Adjusted WF	Initial Producti	tion Sample (IPS	S)	
Coarsen	ess Factor:	: 60	Work	ability Factor:	34	36.2	Coars	seness Factor:	62	1
45							Work	ability Factor:	35	1
	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulativ
1 1	40, 44					 ′	Sieve	% Passing	Retained	% Retaine
		52, 41				'	2"	100.0	0.0	0.0
्र ⁴⁰			57, 39	67, 39 68, 38	75, 39	, '	1.5"	100.0	0.0	0.0
Factor (%)			!	1		'	1"	100.0	0.0	0.0
				ngiction Gradiation			3/4"	95.0	5.0	5.0
5 35			i "			'	1/2"	70.5	24.5	29.5
	\rightarrow	52, 34		i			3/8"	60.0	10.5	40.0
	45 33							44.4	45.0	FF 0



r Materials, LLC 10 Mile Rd. on Hills, MI 48336

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



	Coars	eness Factor:	62	
	Work	ability Factor:	35	
Sie	~	Cumulative	%	Cumulative
Sie	ve	% Passing	Retained	% Retained
2'		100.0	0.0	0.0
1.5	5"	100.0	0.0	0.0
1	'	100.0	0.0	0.0
3/4	1"	95.0	5.0	5.0
1/2	2"	70.5	24.5	29.5
3/8	3"	60.0	10.5	40.0
#4	1	44.4	15.6	55.6
#8	3	35.5	9.0	64.5
#1	6	28.5	7.0	71.5
#3	0	21.5	7.0	78.5
#5	0	10.2	11.3	89.8
#1(00	3.1	7.1	96.9
LB	W	1.3	1.8	98.7

Approved By: Mart P. Ball

PLANT :	#:	P-102					Contractor:			
Sample Date		7/10/23		_ / /= = = =	Concrete Grade	DM, 4500HP				
Dates Test R Agg. Class	Represents: Pit #	7/11/2023 Source	through Weight (SSD)	7/17/2023 ft ³	Specific	%	MDOT No.:			
6AA	58-003	Stoneco	1550	9.23	Gravity 2.69	Contribution 52.5				
26A	58-003	Stoneco	250	1.49	2.69	8.5				
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUD
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%	_	SUPI MATE
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior N</u> 30701 W. 1
2"	-	100.0	100).0	100.0	100.0	0.0	0.0	1	Suite 500
1.5"	1	100.0	100).0	100.0	100.0	0.0	0.0	1	Farmington
1"		100.0	100	0.0	100.0	100.0	0.0	0.0]	
3/4"		72.6	100	0.0	100.0	85.6	14.4	14.4]	
1/2"		38.3	97	.7	100.0	67.4	18.2	32.6]	
3/8"		22.2	84	.1	100.0	57.8	9.6	42.2	*Maximum %	Retained must be a
#4		3.2	10	.3	98.3	40.9	16.9	59.1	*Any two adja	cent sieves must eq
#8		1.6	3.		83.2	33.6	7.3	66.4	nom. max., #10	00 and #200 sieves.
#16		1.4	2.		65.4	26.4	7.1	73.6	*% Retained I	must be at least 4%
#30		1.3	2.1		45.9	18.8	7.7	81.2	nom. max., #10	00 and #200 sieves.
#50		1.2	2.		22.2	9.5	9.3	90.5	*% Retained I	nust be at least 8%
#100		1.2	1.		6.0	3.1	6.3	96.9	a 2" max. size	(nom. Max. 1.5") ag
LBW		0.9	1.	-	1.1	1.0	2.1	99.0	J	
Production G	Gradation	O Batch Plant Gra	dations 💿 Aggr	regate Supplier G	Gradations	Adjusted WF	Intial Production	on Sample (IPS	S)	
Coarsene	ess Factor:	64	Work	ability Facto	r: 34	36.1	Coars	eness Factor:		
45							Work	ability Factor:	36	
4	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained
-		52, 41	40	67 40			2"	100.0	0.0	0.0
G ⁴⁰			*****		75, 39		1.5"	100.0	0.0	0.0
<u>ک</u>				68, 3	³⁸ I		1"	99.3	0.7	0.7
JO 1				Production Gra	adation		3/4"	89.2	10.1	10.8
5 35							1/2"	70.7	18.5	29.3
Ë j	\rightarrow	52, 34		1			3/8"	60.7	10.0	39.3
i It	45, 33		L	i			#4	44.4	16.3	55.6
iq 30		56,	32	67, 32,	31		#8	35.9	8.5	64.1
Workability Factor (%)	Operating Zone	2					#16	27.3	8.6	72.7
ō	Boundary				75, 28		#30	19.1	8.2	80.9
S 25							#50	7.4	11.7	92.6

80

75

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

#100

LBW

5.6

1.2

1.9

0.7

98.1

99.3



rials, LLC Rd. MI 48336

he 3/8" sieve. % except max., ch sieve except max., 1" sieve when e is used.

50

55

45

ActionLimits Boundary = - - - - -

25

40

PLANT #	#:	P-103					Contractor:			-	
Sample Date):	7/10/23	-	C	concrete Grade:	DM, 4500HP					
Dates Test R	epresents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1550	9.23	2.69	52.5					
26A	58-003	Stoneco	250	1.49	2.69	8.5					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUD	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		30701 W. 1	Materials, LLC 10 Mile Rd.
2"		00.0	10		100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	10		100.0	100.0	0.0	0.0	l	Farmingto	n Hills, MI 48336
1"		00.0	10		100.0	100.0	0.0	0.0	l		
3/4"		72.6	10		100.0	85.6	14.4	14.4			
1/2"		38.3	97		100.0	67.4	18.2	32.6			
3/8"		22.2	84	.1	100.0	57.8	9.6	42.2	*Maximum %	Retained must be a	above the 3/8" sieve.
#4		3.2	10		98.3	40.9	16.9	59.1	*Any two adja	acent sieves must e	qual 10% except max.,
#8		1.6	3.	-	83.2	33.6	7.3	66.4	nom. max., #1	00 and #200 sieves	i.
#16		1.4	2		65.4	26.4	7.1	73.6	*% Retained	must be at least 4%	for each sieve except i
#30		1.3	2		45.9	18.8	7.7	81.2	· · · · ·	00 and #200 sieves	
#50		1.2	2	-	22.2	9.5	9.3	90.5			for the 1" sieve when
#100		<u>1.2</u> 0.9	1.		6.0	3.1	6.3	96.9 99.0	a 2" max. size	(nom. Max. 1.5") ag	ggregate is used.
		114	1	/	1.1	1.0	2.1	99.0			
LBW								00.0	8		
I	Gradation	Batch Plant Gra	idations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	6)	_	
Production G	Fradation			regate Supplier Gra ability Factor:	dations 34	Adjusted WF 36.1			61	1	
Production G		Batch Plant Gra		5 11			Coars	on Sample (IPS	61 36]	
Production G Coarsene		Batch Plant Gra		5 11			Coars	on Sample (IPS eness Factor: ability Factor: Cumulative	61 36 %	Cumulative	
Coarsene	ess Factor:	Batch Plant Gra		5 11	34		Coars Work Sieve	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing	61 36 % Retained	% Retained	
45 45 40	ess Factor:	Batch Plant Gra		5 11	34 JMF Zone		Coars Work Sieve 2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0	61 36 % Retained 0.0	% Retained 0.0	
45 40	ess Factor:	Batch Plant Gra		5 11	34		Coars Work Sieve	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	61 36 % Retained 0.0 0.0	% Retained 0.0 0.0	
45 40	ess Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3	61 36 % Retained 0.0 0.0 0.7	% Retained 0.0 0.0 0.7	
Coarsene	ess Factor:	Batch Plant Gra	Work	ability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	61 36 % Retained 0.0 0.0 0.7 10.1	% Retained 0.0 0.0 0.7 10.8	
45 40	ess Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2	61 36 % Retained 0.0 0.0 0.7	% Retained 0.0 0.0 0.7	
Coarsene	ess Factor:	Batch Plant Gra	Work	sability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0	% Retained 0.0 0.0 0.7 10.8 29.3	
Production G Coarsene	45, 44	Batch Plant Gra	Work	exability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7	61 36 % Retained 0.0 0.0 0.7 10.1 18.5	% Retained 0.0 0.0 0.7 10.8 29.3 39.3	
45 40	45, 44 45, 33	Batch Plant Gra	Work	ability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3	% Retained 0.0 0.7 10.8 29.3 39.3 55.6	
Coarsene	45, 44	Batch Plant Gra	Work	eability Factor:	34 JMF Zone 75, 39 ation		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4 35.9	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5	% Retained 0.0 0.7 10.8 29.3 39.3 55.6 64.1	
Morkability Factor (%)	45, 44 45, 33 Operating Zone	Batch Plant Gra	Work	eability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4 35.9 27.3	61 36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6	% Retained 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7	
Coarsene	45, 44 45, 33 Operating Zone	Batch Plant Gra	Work	eability Factor:	34 JMF Zone 75, 39 ation		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4 35.9 27.3 19.1	61 36 % <u>Retained</u> 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6 8.2	% Retained 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7 80.9	

Approved BY: Mary 1. Ball

PLANT :	#: _	14					Contractor:				
Sample Date	e:	7/10/23		C	Concrete Grade:	DM, 4500HP					
Dates Test R	Represents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution				5	
6AA	58-003	Stoneco	1560	9.29	2.69	52.7					
26A	58-003	Stoneco	300	1.79	2.69	10.1				Ц	
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	6	AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Builders F</u> 30701 W.	Redi-Mix 10 Mile Rd.
2"	1(0.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		0.0	100	-	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336
1"	1(0.0	100	0.0	100.0	100.0	0.0	0.0			
3/4"	7	2.6	100).0	100.0	85.6	14.4	14.4			
1/2"	3	8.3	97	.7	100.0	67.2	18.3	32.8			
3/8"	2	2.2	84	.1	100.0	57.4	9.9	42.6	*Maximum %	Retained must be	above the 3/8" sieve.
#4		3.2	10	-	99.9	39.9	17.5	60.1	*Any two adja	icent sieves must e	qual 10% except max.,
#8		1.6	3.	3	90.1	34.7	5.2	65.3	nom. max., #10	00 and #200 sieves	i.
#16		1.4	2.		69.4	26.8	7.9	73.2	*% Retained	must be at least 4%	for each sieve except
#30		1.3	2.		44.5	17.4	9.3	82.6	-	00 and #200 sieves	
#50		1.2	2.	-	14.3	6.1	11.3	93.9			for the 1" sieve when
#100 LBW		1.2).9	1. 1.		2.7 0.2	1.8 0.7	4.3	98.2 99.3	a 2" max. size	(nom. Max. 1.5") aç	ggregate is used.
Production G).9 Batch Plant Gra		regate Supplier Gra			1.1		•)		
	ess Factor:	65		ability Factor:		37.2		on Sample (IPS eness Factor:	63		
								ability Factor:	36		
45								Cumulative	%	Cumulative	
	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41	57.40	68, 40			2"	100.0	0.0	0.0	
					75, 39		1.5"	100.0	0.0	0.0	
<u>ک</u>				68, 38			1"	99.3	0.7	0.7	
D			 60, 36 	Production C	Gradation		3/4"	89.0	10.3	11.0	
te 35			- 00, 30				1/2"	70.3	18.7	29.7	
ш́ į	\rightarrow	52, 34	-i-				3/8"	59.9	10.4	40.1	
İţ	45, 33						#4	41.9	18.0	58.1	
	1		57,57	68, 32			#8	35.9	6.0	64.1	
ia 30							#16	27.8	8.2	72.2	
	Operating Zone										
/orkabil	Dperating Zone Boundary				75, 28		#30	18.9	8.8	81.1	
Worka					75, 28		#50	6.3	12.6	93.7	
30 4 25 40		50 55		65 Factor (%)	· · · · · · · · ·	80				-	

PREPARED BY: SM, LLC Technical Service

ActionLimits Boundary = - - - - -

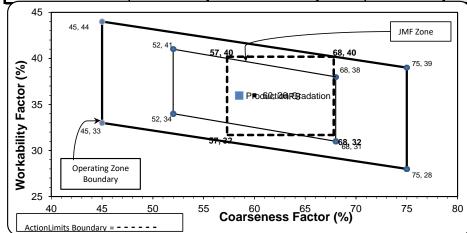
Approved By: Mart P. Ball

PLANT :	#:	12	_				Contractor:				
Sample Date		7/10/23	-		Concrete Grade:	DM, 4500HP				-	
Dates Test R	Represents:	7/11/2023	through	7/17/2023	Cresifie	0/	MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1550	9.48	2.62	53.4					
26A	71-47	Presque Isle	205	1.25	2.62	7.1					
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	R
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1	
2"	1	100.0	100	0.0	100.0	100.0	0.0	0.0		Suite 500	.0
1.5"	1	100.0	100	0.0	100.0	100.0	0.0	0.0	1	Farmingtor	n Hil
1"		98.7	100	0.0	100.0	99.3	0.7	0.7	1		
3/4"		81.5	100		100.0	90.1	9.2	9.9			
1/2"		43.7	97	-	100.0	69.7	20.4	30.3			
3/8"		28.3	90	-	100.0	61.1	8.7	38.9	*Maximum %	Retained must be	abo
#4		5.5	19		96.2	42.4	18.7	57.6	*Any two adja	icent sieves must e	qua
#8		2.5	4.		80.4	33.5	8.9	66.5		00 and #200 sieves	
#16		2.1	2.		65.5	27.2	6.3	72.8		must be at least 4%	
#30		2.0	1.		49.9	20.9	6.3	79.1		00 and #200 sieves	
#50		1.9	1.	-	26.4	11.6	9.4	88.4		must be at least 8%	
#100 LBW		<u>1.8</u> 1.4	1.	-	6.9 1.2	3.8 1.3	7.8 2.5	96.2 98.7	a 2" max. size	(nom. Max. 1.5") a	ggre
		_		-							
Production G		Batch Plant Gra		regate Supplier G			Intial Production	on Sample (IPS	<i>.</i>		
Coarsene	ess Factor:	59	Work	ability Factor	r: 33	36.0	Coars	eness Factor:	63		
⁴⁵ T							Work	ability Factor:	36		_
	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
-		52, 41	57, 40	68, 40			2"	% Passing 100.0	Retained 0.0	% Retained 0.0	
G ⁴⁰					75.39		 1.5"	100.0	0.0	0.0	1
<u>گ</u>				68, 3	° T		1"	99.3	0.0	0.0	1
D I							3/4"	89.0	10.3	11.0	1
orkability Factor (%)							1/2"	70.3	18.7	29.7	1
Щ I	\rightarrow	52, 34	_ <u>i</u>	1			3/8"	59.9	10.4	40.1	1
lity	45, 33			68,3			#4	41.9	18.0	58.1	1
ig 30			31,01	-68,3	Sfi		#8	35.9	6.0	64.1	1
ιξ ΙΓ	l Operating Zone	<u>`</u>					#16	27.8	8.2	72.2	1
ō]]	Boundary	·			75, 28		#30	18.9	8.8	81.1	1



ials, LLC Rd. MI 48336

ne 3/8" sieve. % except max., ch sieve except max., 1" sieve when 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 #	#:	20	_				Contractor:				
Sample Date	:	7/10/23		C	concrete Grade	DM, 4500HP					
Dates Test R	epresents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1505	9.21	2.62	51.8					
26A	71-47	Presque Isle	300	1.83	2.62	10.3					
2NS	63-92	Grange Hall	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		Superior 30701 W. 1	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"		96.0	100		100.0	97.9	2.1	2.1			
3/4"		73.9	100		100.0	86.5	11.4	13.5			
1/2"		30.9	95		100.0	63.7	22.7	36.3			
3/8"		17.3	83		100.0	55.5	8.3	44.5			above the 3/8" sieve.
#4		3.5	18		97.5	40.6	14.9	59.4			qual 10% except max.,
#8		2.2	5.	-	84.2	33.5	7.1	66.5		00 and #200 sieves	
#16 #30		2.0 1.9	2.		71.2 52.6	28.3 21.1	5.3 7.1	71.7 78.9			for each sieve except
#30 #50		1.9	2.		23.3	10.0	11.2	90.0		00 and #200 sieves	for the 1" sieve when
#100		1.7	1.	-	4.4	2.7	7.2	97.3		(nom. Max. 1.5") ag	
LBW		1.4	1.		0.6	1.1	1.6	98.9	a 2 max. 5120	(1011. Max. 1.0) ag	ggregate is used.
Production G	radation	O Batch Plant Gra	dations 💿 Aggr	egate Supplier Grac	lations	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ess Factor:	67	Work	ability Factor:	34	36.0	Coars	eness Factor:	63		
45							Work	ability Factor:	36		
45	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
	+3, 44				51411 20116			% Passing	Retained	% Retained	
		52, 41	57, 40	68, 40			2"	100.0	0.0	0.0	
							4 5 1	100.0	0.0	0.0	
२ ⁴⁰			i —	68,38	75, 39		1.5"				
				68, 38	75, 39		1"	100.0	0.0	0.0	
			6 0, 36		^{75, 39} ion Gradation		1" 3/4"	100.0 89.2	0.0 10.8	0.0 10.8	
	→		■ 60, 36		T I		1" 3/4" 1/2"	100.0 89.2 68.4	0.0 10.8 20.8	0.0 10.8 31.6	
Factor (%)	45.33	52, 34	■ 60, 36		T I		1" 3/4" 1/2" 3/8"	100.0 89.2 68.4 59.9	0.0 10.8 20.8 8.6	0.0 10.8 31.6 40.1	
Factor (%)	45, 33	52, 34	• 60, 36	PS Producti	T I		1" 3/4" 1/2" 3/8" #4	100.0 89.2 68.4 59.9 43.0	0.0 10.8 20.8 8.6 16.9	0.0 10.8 31.6 40.1 57.0	
Factor (%)			• 60, 36		T I		1" 3/4" 1/2" 3/8" #4 #8	100.0 89.2 68.4 59.9 43.0 35.9	0.0 10.8 20.8 8.6 16.9 7.1	0.0 10.8 31.6 40.1 57.0 64.1	
Factor (%)	45, 33 Operating Zone Boundary		■ 60, 36	PS Producti	ion Gradation		1" 3/4" 1/2" 3/8" #4	100.0 89.2 68.4 59.9 43.0	0.0 10.8 20.8 8.6 16.9	0.0 10.8 31.6 40.1 57.0	
Workability Factor (%)	Operating Zone		• 60, 36	PS Producti	T I		1" 3/4" 1/2" 3/8" #4 #8 #16 #30 #50	100.0 89.2 68.4 59.9 43.0 35.9 29.0	0.0 10.8 20.8 8.6 16.9 7.1 6.8	0.0 10.8 31.6 40.1 57.0 64.1 71.0	
Factor (%)	Operating Zone		57, 32	PS Producti	ion Gradation	80	1" 3/4" 1/2" 3/8" #4 #8 #16 #30	100.0 89.2 68.4 59.9 43.0 35.9 29.0 21.3	0.0 10.8 20.8 8.6 16.9 7.1 6.8 7.7	0.0 10.8 31.6 40.1 57.0 64.1 71.0 78.7	

Approved By:

PLANT #		p11			_	BII (Contractor:				
Sample Date		7/10/23			Concrete Grade:	DM, 4500HP	MDOTN				
Dates Test R Agg. Class	Pit #	7/11/2023 Source	through Weight (SSD)	7/17/2023 ft ³	Specific	%	MDOT No.:				
6AA	71-47	Presque Isle	1500	9.17	Gravity 2.62	Contribution 51.6					
26A	71-47	Presque Isle	255	1.56	2.62	8.8					
2NS	95-013	Smelter Bay	1150	6.95	2.65	39.6				0110	
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		SUP	ER
Sieve		6AA	26	: A	2016	Cumulative	% Retained	Cumulative		Superior I	Mate
Sieve	,	DAA	20		2NS	% Passing	% Retained	% Retained		30701 W. 1	
2"	1	00.0	10		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		Farmingtor	۱ Hill
1"		96.8		0.0	100.0	98.3	1.7	1.7			
3/4"		79.8		0.0	100.0	89.6	8.8	10.4			
1/2"		39.2		. .0	100.0	68.3	21.2	31.7	1		
3/8"		21.7).6	100.0	58.7	9.6	41.3	*Maximum %	Retained must be a	above
#4		4.5	19		96.7	42.4	16.4	57.6		cent sieves must e	
#8		2.9		.4	85.1	35.6	6.8	64.4		00 and #200 sieves	
#16		2.6	2		70.2	29.3	6.2	70.7		must be at least 4%	
#30		2.5	1.		50.6	21.5	7.9	78.5		00 and #200 sieves	
#50		2.4		.6	25.0	11.3	10.2	88.7		must be at least 8%	
#100 LBW		2.3	1.	.5 .3	7.6	4.3	6.9	95.7 98.3	a 2" max. size	(nom. Max. 1.5") ag	greg
roduction G		2.0 Batch Plant Gra		.3 gregate Supplier Gra	1.3 adations	1.7	2.7	90.3 on Sample (IPS	2)		
	ess Factor:	÷	_	ability Factor:	36	38.1		eness Factor:	62	l	
45								ability Factor:	36		
-	45, 44							Cumulative	%	Cumulative	
1	- /	50.44			JMF Zone		Sieve	% Passing	Retained	% Retained	
40		^{52, 4}	i. 40	67, 40			2"	100.0	0.0	0.0	
⊋ _]				68.38	75, 39		1.5"	100.0	0.0	0.0	
Factor (%)			!	Production Gra	dation		1"	100.0	0.0	0.0	
£			■ 60, 3 1E	IS 🚦			3/4"	95.0	5.0	5.0	
ig 35			i	i			1/2"	72.3	22.8	27.7	
		52, 34	+	i i			3/8"	60.4	11.8	39.6	
	45, 33	50	,92	67,32 68,31			#4	42.6	17.8	57.4	
	1			68, 31			#8	36.0	6.6	64.0	
							#16	29.5	6.5	70.5	
	Operating Zone				75, 28		#30	20.3	9.2	79.7	
	Operating Zone Boundary				10,20				J.Z		
Workability							#50	9.5	10.8	90.5	
		50 55	5_60	• Factor (%)		80					



ls, LLC d. 48336

3/8" sieve. except max., sieve except max., sieve when used.

Approved By:

#:	P-32					Contractor:			-	
:	7/10/23		C	Concrete Grade:	DM, 4500HP				-	
epresents:	7/11/2023	through	7/17/2023			MDOT No.:				
Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
71-47	Presque Isle		9.17		51.6					
95-013				2.65					SUP	ERIOR
		2905	17.69		100.0	< Verity this n	umber is 100%		MATE	RIALS
	6 AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1	<u>Materials, LLC</u> 10 Mile Rd.
1	00.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
				100.0	100.0	0.0	0.0		Farmingtor	n Hills, MI 48336
	96.8	10	0.0	100.0	98.3	1.7	1.7			
				100.0	89.6	8.8	10.4			
								*Maximum %	Retained must be a	above the 3/8" sieve.
							-	-		
										-
								,		
			-		-	-				
	-		-	-				a z max. size	(nom. wax. 1.5) ag	gregate is used.
radation			-					5)		
	·				,			/		
ess Factor:	64	Work	ability Factor:	36	38.1	Coars	eness Factor:	62		
ss Factor:	64	Worl	cability Factor:	36	38.1		eness Factor: ability Factor:	62 36		
	64	Worł	ability Factor:		38.1	Work	ability Factor:	36	Cumulative	
ess Factor:	64	Work	cability Factor:	JMF Zone	38.1		ability Factor: Cumulative	36 %	Cumulative % Retained	
	52, 41				38.1	Work	ability Factor:	36	Cumulative % Retained 0.0	
	52, 41	Work	67, 40	JMF Zone	38.1	Work Sieve	ability Factor: Cumulative % Passing	36 % Retained	% Retained	
	52, 41			JMF Zone	38.1	Work Sieve 2" 1.5" 1"	ability Factor: Cumulative % Passing 100.0 100.0 100.0	36 % Retained 0.0 0.0 0.0	% Retained 0.0 0.0 0.0	
	52, 41	6.40	67, 40	JMF Zone	38.1	Work Sieve 2" 1.5" 1" 3/4"	ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0	36 % Retained 0.0 0.0 0.0 5.0	% Retained 0.0 0.0 0.0 5.0	
	52, 41		67, 40	JMF Zone	38.1	Work Sieve 2" 1.5" 1" 3/4" 1/2"	ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3	36 % Retained 0.0 0.0 0.0 5.0 22.8	% Retained 0.0 0.0 0.0 5.0 27.7	
15, 44	52, 41	6.40	67, 40	JMF Zone	38.1	Work 2" 1.5" 1" 3/4" 1/2" 3/8"	ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4	36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8	% Retained 0.0 0.0 0.0 20.0 27.7 39.6	
	52, 41 56	6.40	67, 40 Production Gra	JMF Zone rdation	38.1	Work 2" 1.5" 1" 3/4" 1/2" 3/8" #4	ability Factor: Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6	36 % Retained 0.0 0.0 5.0 22.8 11.8 17.8	% Retained 0.0 0.0 5.0 27.7 39.6 57.4	
15, 44	52, 41 56	6.40	67, 40	JMF Zone rdation	38.1	Work 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	ability Factor: Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6 36.0	36 % Retained 0.0 0.0 5.0 22.8 11.8 17.8 6.6	% Retained 0.0 0.0 5.0 27.7 39.6 57.4 64.0	
45, 33 Operating Zone	52, 41 56 52, 34 30	6.40	67, 40 Production Gra	JMF Zone adation	38.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	36 % Retained 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5	% Retained 0.0 0.0 0.0 27.7 39.6 57.4 64.0 70.5	
45, 33	52, 41 56 52, 34 30	6.40	67, 40 Production Gra	JMF Zone rdation	38.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	ability Factor: Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5 20.3	36 % Retained 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5 9.2	% Retained 0.0 0.0 0.0 27.7 39.6 57.4 64.0 70.5 79.7	
45, 33 Operating Zone	52, 41 56 52, 34 30	6.40	67, 40 Production Gra	JMF Zone adation	38.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	36 % Retained 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5	% Retained 0.0 0.0 0.0 27.7 39.6 57.4 64.0 70.5	
	epresents: Pit # 71-47 71-47 95-013	7/10/23 epresents: 7/11/2023 Pit # Source 71-47 Presque Isle 71-47 Presque Isle 95-013 Smelter Bay Total Wt 6AA 100.0 100.0 100.0 96.8 79.8 39.2 21.7 4.5 2.9 2.6 2.5 2.4 2.3 2.0 radation	7/10/23 epresents: 7/11/2023 through Pit # Source Weight (SSD) 71-47 Presque Isle 1500 71-47 Presque Isle 255 95-013 Smelter Bay 1150 Total Wt 2905 6AA 26 100.0 100 100.0 100 96.8 100 79.8 100 39.2 97 21.7 90 4.5 19 2.9 4. 2.6 2. 2.5 1. 2.4 1. 2.3 1. 2.0 1.	7/10/23 7/17/2023 Pit # Source Weight (ssp) ft ³ 71-47 Presque Isle 1500 9.17 71-47 Presque Isle 255 1.56 95-013 Smelter Bay 1150 6.95 Total Wt 2905 17.69 6AA 26A 100.0 100.0 100.0 100.0 96.8 100.0 96.8 100.0 21.7 90.6 4.5 19.9 2.9 4.4 2.6 2.2 2.5 1.7 2.4 1.6 2.3 1.5 2.0 1.3	7/10/23 Concrete Grade: epresents: 7/11/2023 through 7/17/2023 Pit # Source Weight (ssp) ft ³ Specific Gravity 71-47 Presque Isle 1500 9.17 2.62 71-47 Presque Isle 255 1.56 2.62 95-013 Smelter Bay 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 96.8 100.0 100.0 100.0 39.2 97.0 100.0 100.0 21.7 90.6 100.0 100.0 4.5 19.9 96.7 2.9 4.4 85.1 2.6 2.2 70.2 2.5 1.7 50.6 2.0 2.3 1.3 2.3 1.5 7.6 2.0 1.3 1.3	Throw Through Through	Total Concrete Grade: DM, 4500HP epresents: 7/11/2023 through 7/17/2023 MDOT No.: Pit # Source Weight (ssp) ft ³ Specific % MDOT No.: 71-47 Presque Isle 1500 9.17 2.62 51.6 51.6 71-47 Presque Isle 255 1.56 2.62 8.8 95-013 Smelter Bay 1150 6.95 2.65 39.6	7/10/23 Concrete Grade: DM, 4500HP epresents: 7/11/2023 through 7/17/2023 MDOT No.: Pit # Source Weight (sso) ft ³ Specific Gravity % Contribution 71-47 Presque Isle 1500 9.17 2.62 51.6 71-47 Presque Isle 255 1.56 2.62 8.8 95-013 Smelter Bay 1150 6.95 2.65 39.6 Total Wt 2905 17.69 100.0 Cumulative % Passing % Retained 100.0 100.0 100.0 100.0 0.0 0.0 96.8 100.0 100.0 98.3 1.7 1.7 79.8 100.0 100.0 88.6 8.8 10.4 39.2 97.0 100.0 68.3 21.2 31.7 21.7 90.6 100.0 58.7 9.6 41.3 4.5 19.9 96.7 42.4 16.4 57.6 2.9	The source Weight (ssp) ft ³ Specific Grade: DM, 4500HP MDOT No.: Pit # Source Weight (ssp) ft ³ Specific Grade: 51.6 % 71-47 Presque Isle 1500 9.17 2.62 8.8 95-013 Smelter Bay 1150 6.95 2.62 8.8 95-013 Smelter Bay 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 % Retained 100.0 100.0 100.0 100.0 0.0 0.0 96.8 100.0 100.0 89.6 8.8 10.4 39.2 97.0 100.0 68.3 21.2 31.7 21.77 90.6 100.0 68.3 21.2 31.7 21.77 90.6 100.0 68.3 21.2 31.7 21.77 90.6 100.0 58.7 9.6 41.3 'Any two adja nom. max, #1 2.6 2.2 70.2 <td>Image: Triangle persents: Triangle presents: Triangle presents: Concrete Grade: DM, 4500HP MDOT No.: Pit # Source Weight (ssp) ft ³ Specific of triangle presents: MDOT No.: MDOT No.: 71-47 Presque Isle 1500 9.17 2.62 51.6 2.62 8.8 95-013 Smelter Bay 1150 6.95 2.65 39.6 Cumulative % Retained Cumulative % Retained Superior I 6AA 26A 2NS Cumulative % Passing % Retained Cumulative % Retained Suite S00 Farmington 99.2 97.0 100.0 100.0 100.0 68.8 10.4 37.1 1.7 1.7 79.8 100.0 100.0 100.0 68.3 21.2 31.7 1.7 1.7 2.9 4.4 85.1 35.6 6.8 64.4 7.4 7.4 7.9 7.8 100.0 100.0 100.0 8.8 10.4 2.9 4.4 85.1 35.6 6.8 6.4 7.9 7.8 7.9 7.8 7.9</td>	Image: Triangle persents: Triangle presents: Triangle presents: Concrete Grade: DM, 4500HP MDOT No.: Pit # Source Weight (ssp) ft ³ Specific of triangle presents: MDOT No.: MDOT No.: 71-47 Presque Isle 1500 9.17 2.62 51.6 2.62 8.8 95-013 Smelter Bay 1150 6.95 2.65 39.6 Cumulative % Retained Cumulative % Retained Superior I 6AA 26A 2NS Cumulative % Passing % Retained Cumulative % Retained Suite S00 Farmington 99.2 97.0 100.0 100.0 100.0 68.8 10.4 37.1 1.7 1.7 79.8 100.0 100.0 100.0 68.3 21.2 31.7 1.7 1.7 2.9 4.4 85.1 35.6 6.8 64.4 7.4 7.4 7.9 7.8 100.0 100.0 100.0 8.8 10.4 2.9 4.4 85.1 35.6 6.8 6.4 7.9 7.8 7.9 7.8 7.9

Approved By:

PLANT :	#:	P-35	_				Contractor:				
Sample Date):	7/10/23		(Concrete Grade:	DM, 4500HP				-	
Dates Test R	Represents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1550	9.23	2.69	52.5					
26A	58-003	Stoneco	250	1.49	2.69	8.5					
2NS	81-019	Pleasant Lake	1150 2950	6.95	2.65	39.0					ERIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%		MATI	RIALS
Sieve	1	6AA	26	Α	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			Materials, LLC 10 Mile Rd.
2"		100.0	100	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"		100.0	100).0	100.0	100.0	0.0	0.0			
3/4"		72.6	100		100.0	85.6	14.4	14.4			
1/2"		38.3	97		100.0	67.4	18.2	32.6			
3/8"		22.2	84		100.0	57.8	9.6	42.2	*Maximum %	Retained must be	above the 3/8" sieve.
#4		3.2	10		98.3	40.9	16.9	59.1	*Any two adja	icent sieves must e	qual 10% except max.,
#8		1.6	3.		83.2	33.6	7.3	66.4		00 and #200 sieves	
#16		1.4	2.		65.4	26.4	7.1	73.6			for each sieve except n
#30		1.3	2.		45.9	18.8	7.7	81.2	,	00 and #200 sieves	
#50 #100		1.2 1.2	2.	-	22.2	9.5 3.1	9.3 6.3	90.5 96.9			for the 1" sieve when
LBW		0.9	1.		6.0 1.1	3.1 1.0	2.1	98.9 99.0	a 2° max. size	(nom. Max. 1.5") a	ggregate is used.
Production G	Gradation	Batch Plant Gra		egate Supplier Gra				on Sample (IPS	6)		
Coarsene	ess Factor:	64	Work	ability Factor	: 34	36.1		eness Factor:	61		
		-			-		Work	ability Factor:	36		
⁴⁵ .								Cumulative	%	Cumulative	
	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41					2"	100.0	0.0	0.0	
a ⁴⁰		56,			75, 39		1.5"	100.0	0.0	0.0	
Factor (%)			!	68, 38	i I		1"	99.3	0.7	0.7	
j j			• • 60.36	Production Grad	dation		3/4"	89.1	10.2	10.9	
5 35 -			1 °°,1PS				1/2"	70.5	18.6	29.5	
		52, 34	i				3/8"	60.5	10.0	39.5	
E I	45, 33			i			#4	44.1	16.4	55.9	
ig 30]		56,	31	67, 88 , 31	1		#8	35.6	8.5	64.4	
ž	Operating Zone	e					#16 #30	27.7 20.6	7.9 7.1	72.3 79.4	
Workability	Boundary				75, 28		#30 #50	8.7	11.8	79.4 91.3	
							#50	1.6	7.1	91.3	
25 +						00					
25 +	45	<u> </u>	60	Factor (%)) 75	80	LBW	1.1	0.6	98.9	

Approved By:

PLANT #	#:	P-36	_				Contractor:				
Sample Date	:	7/10/23	_	(Concrete Grade	DM, 4500HP					
Dates Test R	epresents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1550	9.48	2.62	53.4					
26A	71-47	Presque Isle	205	1.25	2.62	7.1					
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%		MATI	ERIALS
Sieve 6AA		26A		2NS	Cumulative % Passing	% Retained Cumulative % Retained			Materials, LLC 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"	9	98.7	100	0.0	100.0	99.3	0.7	0.7	1		
3/4"		31.5	100		100.0	90.1	9.2	9.9			
1/2"		43.7	97	.0	100.0	69.7	20.4	30.3			
3/8"	28.3		90.6		100.0	61.1	8.7	38.9	*Maximum % Retained must be above the 3/8" sieve		above the 3/8" sieve.
#4	5.5		19.9		97.5	42.9	18.1	57.1	*Any two adjacent sieves must equal 10% except max		
#8	2.5		4.4		84.2	35.0	8.0	65.0	nom. max., #100 and #200 sieves.		
#16	2.1		2.2		71.2	29.5	5.5	70.5	*% Retained must be at least 4% for each sieve excep		
#30	2.0		1.7		52.6	22.0	7.5	78.0	nom. max., #100 and #200 sieves.		
#50	1.9		1.6 1.5		23.3	10.4	11.7	89.6	*% Retained must be at least 8% for the 1" sieve when a 2" max. size (nom. Max. 1.5") aggregate is used.		
#100 LBW		<u>1.8</u> 1.4	1.		4.4 0.6	2.8 1.1	7.5 1.7	97.2 98.9	a 2" max. size	(nom. Max. 1.5") a	ggregate is used.
Production G		Batch Plant Gra		s regate Supplier Gra				on Sample (IPS	5)		
	ess Factor:	60	Workability Factor:		35	37.5	Coarseness Factor:		63		
								ability Factor:	35		
⁴⁵ T								Cumulative	%	Cumulative	
	15, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41					2"	100.0	0.0	0.0	
~ ⁴⁰			58, 39	68, 99	75, 39		1.5"	100.0	0.0	0.0	
Factor (%)				68, 38			1"	99.1	0.9	0.9	
ک				tion Gradation			3/4"	90.3	8.8	9.7	
ž 35			■ 60, 36	IPS			1/2"	69.2	21.1	30.8	
	\rightarrow	52, 34		i			3/8"	59.1	10.1	40.9	
<u>i</u>	45, 33			!			#4	41.8	17.3	58.2	
Workability		_	58, 31	68, ³	1		#8	35.1	6.6	64.9	
ka 🕺	Operating Zone						#16	28.5	6.6	71.5	
Į ∟	Boundary				75, 28		#30	21.2	7.3	78.8	
							#50 #100	8.7 1.8	12.5 7.0	91.3 98.2	
						· ·		1.0		90.∠	
25 40	45	50 55	5 60	Factor (%) ⁷⁰	75	80	LBW	0.7	1.0	99.3	

Approved By:

PLANT #	#:	P-38					Contractor:				
Sample Date	:	7/10/23	'	С	Concrete Grade	: DM, 4500HP					
Dates Test R	epresents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1550	9.23	2.69	52.5					
26A	58-003	Stoneco	250	1.49	2.69	8.5					
2NS	81-019	Pleasant Lake		6.95	2.65	39.0				SUP	ERIOR
		Total Wt	2950	17.68	L	100.0	< Verify this n	umber is 100%			RIALS
Sieve 6AA		6AA	26A		2NS	Cumulative % Passing	% Retained	Cumulative % Retained	Superior Materials, L		
2"		100.0	100).0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	100		100.0	100.0	0.0	0.0		Farmingtor	n Hills, MI 48336
1"	1	100.0	100	0.0	100.0	100.0	0.0	0.0			
3/4"		72.6	100		100.0	85.6	14.4	14.4	-1		
1/2"		38.3	97	.7	100.0	67.4	18.2	32.6			
3/8"	3/8" 22.2		84.1		100.0	57.8	9.6	42.2	*Maximum % Retained must be above the 3/8" siev		above the 3/8" sieve.
#4	#4 3.2		10.3		98.3	40.9	16.9	59.1	*Any two adjacent sieves must equal 10% except n		qual 10% except max.,
#8		1.6	3.		83.2	33.6	7.3	66.4	nom. max., #10	00 and #200 sieves.	
	#16 1.4		2.5		65.4	26.4	7.1	73.6	*% Retained must be at least 4% for each sieve exce		
#30		1.3	2.		45.9	18.8	7.7	81.2	,	00 and #200 sieves	
#50		1.2	2.		22.2	9.5	9.3	90.5	*% Retained must be at leas		
#100 LBW		1.2 0.9	1.		6.0 1.1	3.1 1.0	6.3 2.1	96.9 99.0	a 2" max. size	(nom. Max. 1.5") ag	gregate is used.
		_				-					
Production G	radation	Batch Plant Gra	dations Ø Agg	gregate Supplier Gra	idations	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarseness Factor: 64			Workability Factor: 34				Coarseness Factor:				
Coarsene	ess Factor:	64	Work	ability Factor:	34	36.1	Coars	eness Factor:	61		
	ess Factor:	64	Work	ability Factor:	34	36.1		eness Factor: ability Factor:	61 36		
45	ess Factor:		Work	ability Factor:	34 JMF Zone	36.1		ability Factor: Cumulative % Passing		Cumulative % Retained	
45	-	64	Work	Cability Factor:	•	36.1	Work Sieve 2"	ability Factor: Cumulative % Passing 100.0	36 % Retained 0.0	% Retained 0.0	
45 4	-		Work	97, 40	•	36.1	Work Sieve 2" 1.5"	ability Factor: Cumulative % Passing 100.0 100.0	36 % Retained 0.0 0.0	% Retained	
45 4	-		Work	68, 38	JMF Zone	36.1	Work Sieve 2" 1.5" 1"	ability Factor: Cumulative % Passing 100.0 100.0 99.3	36 % Retained 0.0 0.0 0.7	% Retained 0.0 0.0 0.7	
	-			68, 38	JMF Zone	36.1	Work Sieve 2" 1.5" 1" 3/4"	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1	36 % Retained 0.0 0.0 0.7 10.2	% Retained 0.0 0.0 0.7 10.9	
	-			97, 40	JMF Zone	36.1	Work 2" 1.5" 1" 3/4" 1/2"	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5	36 % Retained 0.0 0.0 0.7 10.2 18.6	% Retained 0.0 0.0 0.7 10.9 29.5	
Factor (%)	5,44			68, 38	JMF Zone	36.1	Work 2" 1.5" 1" 3/4" 1/2" 3/8"	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5	36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0	% Retained 0.0 0.7 10.9 29.5 39.5	
Factor (%)	-	52, 41 56 , 52, 34	• 60,136	68, 38 Production Grada	JMF Zone	36.1	Work 2" 1.5" 1" 3/4" 1/2" 3/8" #4	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1	36 % Retained 0.0 0.0 0.7 10.2 18.6 10.0 16.4	% Retained 0.0 0.7 10.9 29.5 39.5 55.9	
Factor (%)	45, 33	52, 41 56 , 52, 34 56 ,	• 60,136	68, 38	JMF Zone	36.1	Work 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6	36 % Retained 0.0 0.7 10.2 18.6 10.0 16.4 8.5	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4	
Factor (%)	45, 33 Operating Zone	52, 41 56 , 52, 34 56 ,	• 60,136	68, 38 Production Grada	JMF Zone 75, 39 ation	36.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7	36 % Retained 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3	
Factor (%)	45, 33	52, 41 56 , 52, 34 56 ,	• 60,136	68, 38 Production Grada	JMF Zone	36.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7 20.6	36 % Retained 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9 7.1	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3 79.4	
ability Factor (%)	45, 33 Operating Zone	52, 41 56 , 52, 34 56 ,	• 60,136	68, 38 Production Grada	JMF Zone 75, 39 ation	36.1	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.1 70.5 60.5 44.1 35.6 27.7	36 % Retained 0.0 0.7 10.2 18.6 10.0 16.4 8.5 7.9	% Retained 0.0 0.7 10.9 29.5 39.5 55.9 64.4 72.3	



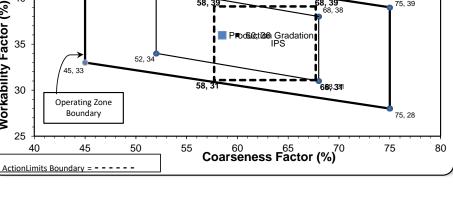
PLANT #	#:	P-39	_				Contractor:			_	
Sample Date:	:	7/10/23	_	С	concrete Grade	e: DM, 4500HP				•	
Dates Test R	epresents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1555	9.51	2.62	53.5					
26A	71-47	Presque Isle	250	1.53	2.62	8.6					
2NS	44-051	Krake Willis Rd		6.65	2.65	37.9				SUP	ERIOR
T		Total Wt	2905 17.69			100.0	< Verify this number is 100%				RIALS
Sieve 6AA		26	A	2NS	Cumulative % Passing	% Retained Cumulative % Retained		Superior Materials, LLC			
2"		100.0	100	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"		98.4	100	0.0	100.0	99.1	0.9	0.9			
3/4"		81.6	100		100.0	90.2	9.0	9.8			
1/2"		41.4	95	.8	100.0	68.3	21.9	31.7			
3/8"	3/8" 24.8		86.4		100.0	58.6	9.7	41.4	*Maximum % Retained must be above the 3/8" siev		above the 3/8" sieve.
#4			21.7		95.9	40.8	17.8	59.2	*Any two adjacent sieves must equal 10% except ma		
#8 2.2		6.0		82.4	32.9	7.9	67.1	nom. max., #100 and #200 sieves.			
	#16 2.0		3.2		68.2	27.2	5.7	72.8	*% Retained must be at least 4% for each sieve exce		
	#30 1.8		2.6 2.3		51.0	20.5	6.7	79.5	nom. max., #100 and #200 sieves.		
#50		1.8			23.0	9.9	10.6	90.1			for the 1" sieve when
#100 LBW		1.7 1.4	<u>2.2</u> 2.0		5.6 1.1	3.2 1.3	6.7 96.8 a: 1.9 98.7		a 2" max. size (nom. Max. 1.5") aggregate is used.		
roduction G	radation	Batch Plant Gra	dations 🕑 Agg	regate Supplier Grac	Jacions	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarseness Factor: 62		Workability Factor:				Coarseness Factor:					
Coarsene	ess Factor:	62	Work	ability Factor:	33	35.4	Coars	eness Factor:	63		
	ess Factor:	62	Work	ability Factor:	33	35.4		eness Factor: ability Factor:	36		
45]		62	Worł	ability Factor:		35.4	Work		36 %	Cumulative	
45]	5, 44		Work	ability Factor:	33 JMF Zone	35.4	Work: Sieve	ability Factor: Cumulative % Passing	36 % Retained	% Retained	
45		62	Work	cability Factor:		35.4	Works Sieve 2"	ability Factor: Cumulative % Passing 100.0	36 % Retained 0.0	% Retained 0.0	
45			58, 40				Work: Sieve 2" 1.5"	ability Factor: Cumulative % Passing 100.0 100.0	36 % Retained 0.0 0.0	% Retained 0.0 0.0	
45			58, 40	P8, 38	JMF Zone		Works Sieve 2" 1.5" 1"	ability Factor: Cumulative % Passing 100.0 100.0 100.0	36 % Retained 0.0 0.0 0.0	% Retained 0.0 0.0 0.0	
45			58, 40	6 ⁸ , 38	JMF Zone		Works Sieve 2" 1.5" 1" 3/4"	ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7	36 % Retained 0.0 0.0 0.0 10.3	% Retained 0.0 0.0 0.0 10.3	
45		52, 41	58, 40		JMF Zone		Works 2" 1.5" 1" 3/4" 1/2"	ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3	36 % Retained 0.0 0.0 0.0 10.3 19.4	% Retained 0.0 0.0 0.0 10.3 29.7	
45 44	5, 44		58, 40	6 ⁸ , 38	JMF Zone	35.4	Works 2" 1.5" 1" 3/4" 1/2" 3/8"	ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1	36 % Retained 0.0 0.0 0.0 10.3 19.4 11.2	% Retained 0.0 0.0 10.3 29.7 40.9	
45 44		52, 41	58, 40	odDSion Gradation	75, 39	35.4	Works 2" 1.5" 1" 3/4" 1/2" 3/8" #4	ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8	36 % Retained 0.0 0.0 10.3 19.4 11.2 16.3	% Retained 0.0 0.0 10.3 29.7 40.9 57.2	
45 44	5, 44	52, 41	58, 40	6 ⁸ , 38	75, 39		Worka <u>Sieve</u> <u>2"</u> 1.5" 1" <u>3/4"</u> <u>1/2"</u> <u>3/8"</u> <u>#4</u> <u>#8</u>	ability Factor: Cumulative % Passing 100.0 100.0 89.7 70.3 59.1 42.8 35.5	36 % Retained 0.0 0.0 10.3 19.4 11.2 16.3 7.3	% Retained 0.0 0.0 0.0 10.3 29.7 40.9 57.2 64.5	
45 44	5, 44 45, 33 Operating Zone	52, 41	58, 40	odDSion Gradation	JMF Zone		Worka <u>2</u> " 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8 35.5 29.0	36 % Retained 0.0 0.0 10.3 19.4 11.2 16.3 7.3 6.5	% Retained 0.0 0.0 0.0 10.3 29.7 40.9 57.2 64.5 71.0	
ability Factor (%)	5, 44	52, 41	58, 40	odDSion Gradation	75, 39		Worka 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8 35.5 29.0 21.2	36 % Retained 0.0 0.0 10.3 19.4 11.2 16.3 7.3 6.5 7.7	% Retained 0.0 0.0 0.0 10.3 29.7 40.9 57.2 64.5 71.0 78.8	
45 44	5, 44 45, 33 Operating Zone	52, 41	58, 40 60 36 36, 22	odDSion Gradation	JMF Zone	35.4	Worka <u>2</u> " 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8 35.5 29.0	36 % Retained 0.0 0.0 10.3 19.4 11.2 16.3 7.3 6.5	% Retained 0.0 0.0 0.0 10.3 29.7 40.9 57.2 64.5 71.0	

Approved By: Mart P. Ball

PLANT #	#:	P-O2					Contractor:				
Sample Date	:	7/10/23		(Concrete Grade:	DM, 4500HP	-				
Dates Test R	epresents:	7/11/2023	through	7/17/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1550	9.48	2.62	53.4					
26A	71-47	Presque Isle	205	1.25	2.62	7.1					
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%	1		ERIALS
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		Farmingto	n Hills, MI 48336
1"	ç	98.7	100).0	100.0	99.3	0.7	0.7			
3/4"	8	81.5	100).0	100.0	90.1	9.2	9.9			
1/2"	4	43.7	97	.0	100.0	69.7	20.4	30.3			
3/8"		28.3	90.6		100.0	61.1	8.7	38.9	*Maximum % Retained must be above the 3		above the 3/8" sieve
#4	#4 5.5		19.9		96.2	42.4	18.7	57.6	*Any two adjacent sieves must equal 10% exce		
#8	#8 2.5		4.4		80.4	33.5	8.9	66.5	nom. max., #100 and #200 sieves.		
#16		2.1	2.2		65.5	27.2	6.3	72.8	*% Retained must be at least 4% for each sie		for each sieve exce
#30		2.0	1.		49.9	20.9	6.3	79.1	nom. max., #10	00 and #200 sieves	
#50		1.9	1.		26.4	11.6	9.4	88.4	*% Retained r	must be at least 8%	for the 1" sieve whe
#100		1.8	1.		6.9	3.8	7.8	96.2	a 2" max. size	(nom. Max. 1.5") ag	ggregate is used.
LBW		1.4	1.	-	1.2	1.3	2.5	98.7			
Production G	additon	Batch Plant Gra		egate SupplierGra	•	· ·		on Sample (IPS	,	I	
Coarsene	ess Factor:	59	Work	ability Factor:	33	36.0		eness Factor:	63		
45							Work	ability Factor:	35		
- 4	45, 44				JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
1		52, 41					2"	100.0	0.0	0.0	
			58, 39	68, 39 68, 38	75, 39		1.5"	100.0	0.0	0.0	
లి				68, 38			1"	100.0	0.0	0.0	
5 j				Cradation			3/4"	95.1	4.9	4.9	
2 35				Gradation IPS			1/2"	74.6	20.5	25.4	
й I		52, 34	<u> </u>	i			3/8"	59.3	15.3	40.7	
İţ	45, 33						#4	42.1	17.2	57.9	
ig 30 1		_	58, 31	6 6 83.331			#8	35.1	7.1	64.9	
ka [Operating Zone						#16	29.2	5.9	70.8	
Workability Factor (%)	Boundary				75, 28		#30	21.9	7.3	78.1	
S 25							#50	9.6	12.4	90.4	



3/8" sieve. except max., sieve except max., sieve when s used.



Coars	seness Factor:	63	
Worl	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"	95.1	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

PREPARED BY: SM, LLC Technical Service

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Approved By: Mart P. Ball