Production Gradation Report

PLANT #	#:	P-101					Contractor:			
Sample Date	e:	4/25/22		C	Concrete Grade:	DM, 4500HP				
Dates Test R	Represents:	4/26/2022	- through	5/2/2022			MDOT No.:			
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution				j.
6AA	71-47	Presque Isle	1460	8.93	2.62	50.2	1			
26A	71-47	Presque Isle	300	1.83	2.62	10.3				
2NS	75-051	Mid Michigan	1150	6.93	2.66	39.5	J			SU
		Total Wt	2 910	17.69		100.0	< Verify this n	umber is 100%	-	MAT
Sieve	1	6AA	26	ЪА	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superi</u> 30701
2"		100.0	10	0.0	100.0	100.0	0.0	0.0	1	Suite 50
1.5"	·	100.0	10	0.0	100.0	100.0	0.0	0.0		Farmin
1"		95.9		0.0	100.0	97.9	2.1	2.1		
3/4"		80.7		0.0	100.0	90.3	7.6	9.7		
1/2"		40.3	98		100.0	69.9	20.5	30.1		
3/8"		22.1		6.6	100.0	59.5	10.3	40.5	*Maximum %	Retained must
#4	<u> </u>	3.8		7.8	98.5	42.7	16.9	57.3	*Any two adja	icent sieves m
#8		2.1		.7	83.3	34.5	8.2	65.5	nom. max., #10	J0 and #200 si
#16		1.9		2.5	68.3	28.2	6.3	71.8		must be at leas
#30		1.8		2.1	53.3	22.2	6.0	77.8	nom. max., #10	
#50		1.8		2.0	29.2	12.6	9.5	87.4		must be at lea
#100	←	1.7		.8	7.3	3.9	8.7	96.1	a 2" max. size (nom. Max. 1.
LBW		1.6 O Patch Plant Cra		.6	0.6	1.2	2.7	98.8	J	
roduction G		Batch Plant Grad		gregate Supplier Grad				ion Sample (IPS	,	1
Coarsene	ess Factor:	: 62		kability Factor:	34	37.0		eness Factor:	62	1
(⁴⁵ —) '	Work	ability Factor:	35	Ourmulati
1	45, 44				JMF Zone		Sieve	Cumulative	% Detained	Cumulati
		52, 41			L	- '		% Passing	Retained	% Retain
4 0 ⁻¹			57, 39	67, 39	75 30		2"	100.0	0.0	0.0
8				68, 38			1.5" 1"	100.0	0.0	0.0
Ľ,			i/	Production Gradation	'n		3/4"	100.0 95.0	0.0 5.0	0.0 5.0
Factor (%)			■ 60, 3	fês 📘			3/4	95.0 70.5	5.0 24.5	29.5
Т. Т. Т. Т. Г.	\rightarrow	52, 34	<u> </u>	i			3/8"	60.0	24.5	40.0
	45, 33	02, 01	1	_			3/8 #4	44.4	10.5	40.0 55.6
			57, 31	67 ₆ 3,1 ₃₁	.1		#4	35.5	9.0	64.5
	<u> </u>	_	-				#16	28.5	9.0 7.0	71.5
Workability	Operating Zone Boundary	e			75, 28		#30	21.5	7.0	78.5
ĬЦ∟	Doundary						#50	10.2	11.3	89.8
25	 	 	 	 	 		#100	3.1	71	96.9

80

75

#100

LBW

3.1

1.3

7.1

1.8

96.9

98.7



rior Materials, LLC W. 10 Mile Rd. 500 ngton Hills, MI 48336

st be above the 3/8" sieve. nust equal 10% except max., ieves. st 4% for each sieve except max., ieves. ast 8% for the 1" sieve when .5") aggregate is used.

SM, LLC Technical Service

55

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

ActionLimits Boundary = - - - - -

PREPARED BY:

45

50

40

Approved By: Mart P. Ball

PLANT :	#:	P-102					Contractor:						
Sample Date	e:	4/25/22			Concrete Grade:	DM, 4500HP				-			
Dates Test R	Represents:	4/26/2022	through	5/2/2022			MDOT No.:						
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution							
6AA	58-003	Stoneco	1600	9.53	2.69	54.1							
26A	58-003	Stoneco	205	1.22	2.69	6.9							
2NS	81-019	Pleasant Lake	1150	6.95	2.65	38.9				SUP	PERIOR		
		Total Wt	2955	17.71		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"		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		Farmingto	on Hills, MI 48336		
1"		100.0	100	-	100.0	100.0	0.0	0.0					
3/4"		81.4	100		100.0	89.9	10.1	10.1					
1/2"		40.8	99		100.0	67.9	22.0	32.1					
3/8"		22.4	87	-	100.0	57.1	10.8	42.9	*Maximum % Retained must be above the		above the 3/8" sieve.		
#4		3.1	14		99.0	41.2	15.9	58.8	*Any two adja	*Any two adjacent sieves must equal 10% except max.,			
#8		1.2	5.		85.2	34.2	7.0	65.8	nom. max., #100 and #200 sieves.				
#16		1.2	3.		68.9	27.7	6.5	72.3			% for each sieve except		
#30		1.1	3.		49.8	20.2	7.5	79.8		00 and #200 sieves			
#50		1.1	2.		22.8	9.7	10.5	90.3			6 for the 1" sieve when		
#100 LBW		1.0 0.6	2. 2.		6.0 1.4	3.1 1.0	6.6 2.0	96.9 99.0	a 2" max. size	(nom. Max. 1.5") a	ggregate is used.		
		Batch Plant Gra		egate Supplier (
Production G		0						on Sample (IPS	1	1			
Coarsene	ess Factor:	65	Work	ability Facto	or: 34	36.7		eness Factor:					
45 T						_)	Work	ability Factor:			1		
1 4	45, 44				JMF Zone		Sieve	Cumulative	% Deteined				
-		52, 41					0"	% Passing	Retained	% Retained			
40		56	40	67_40	75.00		<u>2"</u> 1.5"	100.0 100.0	0.0	0.0	4		
Factor (%)				68,	38 75, 39		1.5 1"	99.3	0.0	0.0	4		
2			1	Production	n Gradation		3/4"	89.2	10.1	10.8	1		
5 35			■ 60 1 3§				1/2"	70.7	18.5	29.3	1		
Ľ Ľ	\rightarrow	52, 34	1				3/8"	60.7	10.0	39.3	1		
	45, 33	02, 01					#4	44.4	16.3	55.6	1		
iiq 30		56,	32	67, 32	31		#8	35.9	8.5	64.1	1		
	l Operating Zone	<u>,</u>					#16	27.3	8.6	72.7	1		
Workability	Boundary	·			75, 28		#30	19.1	8.2	80.9	1		
	,				-,		#50	7.4	11.7	92.6	1		
25							#400	1.0	5.0	00.4	1		

75

80

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

#100

LBW

1.9

0.7

5.6

1.2

98.1

99.3

PREPARED BY: SM, LLC Technical Service

45

ActionLimits Boundary = - - - - -

50

55

25

40

Approved By: Mart P. Ball

PLANT :	#:	P-103					Contractor:					
Sample Date		4/25/22			Concrete Grade	: DM, 4500HP						
Dates Test R	lepresents:	4/26/2022	through	5/2/2022	-		MDOT No.:					
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution						
6AA	58-003	Stoneco	1600	9.53	2.69	54.1						
26A	58-003	Stoneco	205	1.22	2.69	6.9						
2NS	81-019	Pleasant Lake	1150	6.95	2.65	38.9				SUP	ERIOR	
		Total Wt	2955	17.71		100.0	< Verify this n	umber is 100%	•		RIALS	
Sieve	,	6AA	26	Α	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 2	<u>Materials, LLC</u> 10 Mile Rd.	
2"	1	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	1	Farmingto	n Hills, MI 48336	
1"	1	100.0	100	0.0	100.0	100.0	0.0	0.0				
3/4"		81.4	100	0.0	100.0	89.9	10.1	10.1]			
1/2"		40.8	99	.7	100.0	67.9	22.0	32.1]			
3/8"		22.4	87	.3	100.0	57.1	10.8	42.9	*Maximum %	Retained must be a	above the 3/8" sieve.	
#4		3.1	14	-	99.0	41.2	15.9	58.8	*Any two adjacent sieves must equal 10% except max.			
#8		1.2	5.		85.2	34.2	7.0	65.8	nom. max., #10			
#16		1.2	3.	-	68.9	27.7	6.5	72.3	*% Retained must be at least 4% for each sieve ex			
#30		1.1	3.		49.8	20.2	7.5	79.8	nom. max., #100 and #200 sieves.			
#50		1.1	2.	-	22.8	9.7	10.5	90.3			for the 1" sieve when	
#100 LBW		1.0 0.6	2.		6.0 1.4	3.1 1.0	6.6 2.0	96.9 99.0	a 2" max. size	(nom. Max. 1.5") ag	gregate is used.	
				-			-		l			
Production G	Fradation	O Batch Plant Gra	dations	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	3)	•		
Coarsene	ess Factor:	65	147									
			Work	ability Factor:	34	36.7	Coars	eness Factor:	61			
45			Worl	ability Factor:	34	36.7		eness Factor: ability Factor:	61 36			
45	45, 44		Worl	ability Factor:	JMF Zone	36.7	Work	ability Factor: Cumulative	36 %	Cumulative		
	45, 44		Worl	ability Factor:		36.7	Work Sieve	ability Factor: Cumulative % Passing	36 % Retained	% Retained		
	45, 44	52, 41 56 ,	Worl	ability Factor:	JMF Zone	36.7	Work Sieve 2"	ability Factor: Cumulative % Passing 100.0	36 % Retained 0.0	% Retained 0.0		
40	45, 44		-40	ability Factor:		36.7	Work Sieve 2" 1.5"	ability Factor: Cumulative % Passing 100.0 100.0	36 % Retained 0.0 0.0	% Retained 0.0 0.0		
40	45, 44		-40	68, 38	JMF Zone	36.7	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		
40	45, 44		-40 -601 35	<u>67-40</u>	JMF Zone	36.7	Work Sieve 2" 1.5" 1" 3/4"	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2	36 % Retained 0.0 0.0 0.7 10.1	% Retained 0.0 0.0 0.7 10.8		
40	45, 44	52, 41 56,		68, 38	JMF Zone	36.7	Work Sieve 2" 1.5" 1" 3/4" 1/2"	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7	36 % Retained 0.0 0.0 0.7 10.1 18.5	% Retained 0.0 0.0 0.7 10.8 29.3		
Factor (%)	\rightarrow			68, 38	JMF Zone	36.7	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7	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 39.3		
Factor (%)	45, 44	52, 41 56,	-40 - 60 3 8	68, 38	JMF Zone	36.7	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4	36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3	% Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6		
Factor (%)	45, 33	52, 41 56 , 52, 34 56 ,	-40 - 60 3 8	68, 38	JMF Zone	36.7	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4 35.9	36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3 8.5	% Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6 64.1		
Factor (%)	\rightarrow	52, 41 56 , 52, 34 56 ,	-40 - 60 3 8	68, 38	JMF Zone 75, 39	36.7	Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	ability Factor: Cumulative % Passing 100.0 100.0 99.3 89.2 70.7 60.7 44.4	36 % Retained 0.0 0.0 0.7 10.1 18.5 10.0 16.3	% Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6		
Workability Factor (%)	45, 33 Operating Zone	52, 41 56 , 52, 34 56 ,	-40 - 60 3 8	68, 38	JMF Zone	36.7	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 89.2 70.7 60.7 44.4 35.9 27.3	36 % Retained 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		
Factor (%)	45, 33 Operating Zone	52, 41 56 , 52, 34 56 ,	40 601 3 9	68, 38	JMF Zone 75, 39	36.7	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 89.2 70.7 60.7 44.4 35.9 27.3 19.1	36 % Retained 0.0 0.7 10.1 18.5 10.0 16.3 8.5 8.6 8.2	% Retained 0.0 0.0 0.7 10.8 29.3 39.3 55.6 64.1 72.7 80.9		

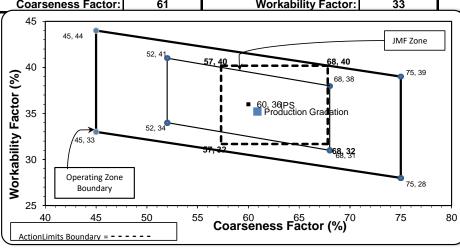
Approved BY: Mary P. Ball

P-12	PLANT #:					Contractor:			
4/25/22	Sample Date:		C	Concrete Grade:	DM, 4500HP				
/26/2022	Dates Test Represen	through	5/2/2022			MDOT No.:			
Source	Agg. Class Pit #	Weight (SSD)	ft ³	Specific Gravity	% Contribution				
esque Isle	6AA 71-47	1400	8.56	2.62	48.2				
esque Isle	26A 71-47	355	2.17	2.62	12.2				
Ray Rd	2NS 63-11	1150	6.95	2.65	39.6				SUD
Total Wt		2905	17.69		100.0	< Verify this n	umber is 100%		SUP MATE
	Sieve	26	Α	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior N</u> 30701 W. 10
)	2"	100	0.0	100.0	100.0	0.0	0.0		Suite 500
)	1.5"	100	0.0	100.0	100.0	0.0	0.0		Farmington
	1"	100		100.0	99.7	0.3	0.3		
	3/4"	100		100.0	91.8	8.0	8.2		
	1/2"	95		100.0	71.7	20.1	28.3		
	3/8"	76		100.0	59.0	12.7	41.0	*Maximum %	Retained must be a
	#4	21		96.3	42.1	17.0	57.9	*Any two adja	cent sieves must e
	#8	6.		78.2	32.7	9.3	67.3		00 and #200 sieves
	#16	3.		61.0	25.4	7.3	74.6		must be at least 4%
	#30	2.	-	45.4	19.1	6.3	80.9		00 and #200 sieves
	#50	2.		23.4	10.3	8.7	89.7		must be at least 8%
	#100 LBW	2.		3.3 0.7	2.3 0.9	8.0 1.4	97.7 99.1	a 2" max. size	(nom. Max. 1.5") ag
Datah Diant Curr		-	s regate Supplier Gra	-					
Batch Plant Grad	Production Gradation			ī	,		on Sample (IPS	,	1
61	Coarseness Fact	work	ability Factor:	33	35.2		eness Factor:	63	
	45					work	ability Factor:	36 %	Ourselation
	45, 44			JMF Zone		Sieve			Cumulative
52, 41		57, 40	68, 40	·		2"	% Passing 100.0	Retained 0.0	% Retained 0.0
	G ⁴⁰ ↓			75, 39			100.0	0.0	0.0
	stor (%)	i	68, 38	I		1.5	99.3	0.0	0.0
	5	I _ 60.20	PS			3/4"	89.0	10.3	11.0



aterials, LLC Mile Rd. Hills, MI 48336

pove the 3/8" sieve. ual 10% except max., or each sieve except max., or the 1" 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: Mart P. Ball

PLANT #	#:	P-32					Contractor:					
Sample Date	:	4/25/22		C	Concrete Grade	DM, 4500HP						
Dates Test R	epresents:	4/26/2022	through	5/2/2022			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%			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	0.0	100.0	100.0	0.0	0.0		Farmingto	n Hills, MI 48336	
1"		99.0	100).0	100.0	99.5	0.5	0.5				
3/4"		89.7	100		100.0	94.8	4.7	5.2				
1/2"		43.2	95		100.0	71.1	23.7	28.9				
3/8"		23.3	76		100.0	59.2	11.9	40.8			above the 3/8" sieve.	
#4		5.4	21	-	96.5	43.1	16.0	56.9	*Any two adjacent sieves must equal 10% except max.,			
#8		2.7	6.	-	84.0	35.3	7.8	64.7	nom. max., #100 and #200 sieves.			
#16		2.2	3.		68.9	28.7	6.6	71.3	*% Retained must be at least 4% for each sieve e		•	
#30 #50		2.0	2.		49.2	20.7	8.0	79.3	nom. max., #100 and #200 sieves.			
#50 #100		1.9 1.8	2.		23.5 6.7	10.5 3.8	10.3 6.7	89.5 96.2			for the 1" sieve when	
LBW		1.4	<u> </u>		1.7	1.5	2.2	90.2 98.5	a z max. size	(nom. Max. 1.5") ag	ggregate is used.	
Production G	radation	Batch Plant Gra		egate Supplier Gra			-	on Sample (IPS	5)			
	ess Factor:	63	Work	ability Factor:	35	37.8		eness Factor:	62			
								ability Factor:	36			
⁴⁵								Cumulative	%	Cumulative		
	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained		
1		52, 41	5. 40	67.40			2"	100.0	0.0	0.0		
2 ⁴⁰				67, 40	75, 39		1.5"	100.0	0.0	0.0		
<u>گ</u>				68, 38 Production Gradat			1"	100.0	0.0	0.0		
5			■ 60, 3 8				3/4"	95.0	5.0	5.0		
5 35							1/2"	72.3	22.8	27.7		
Щ I		52, 34	i.	1			3/8"	60.4	11.8	39.6		
lity	45, 33		!				#4	42.6	17.8	57.4		
iq 30			, , , ,	67, 32 68, 31			#8	36.0	6.6	64.0		
ka	Operating Zone						#16	29.5	6.5	70.5		
- 1 I	Boundary				75, 28		#30	20.3	9.2	79.7		
९ L							#50	9.5	10.8	90.5		
Workability Factor (%)												
8 25 40	45	50 55	5 _ 60	Factor (%) ⁷⁰	75	80	#100 LBW	3.4 1.3	6.1 2.1	96.6 98.7		

Approved By:

PLANT	#:	P-35	_				Contractor:			_		
Sample Date	e:	4/25/22		C	Concrete Grade	DM, 4500HP				-		
Dates Test F	Represents:	4/26/2022	through	5/2/2022			MDOT No.:					
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution						
6AA	58-003	Stoneco	1600	9.53	2.69	54.1						
26A	58-003	Stoneco	205	1.22	2.69	6.9						
2NS	81-019	Pleasant Lake	1150	6.95	2.65	38.9				SUP	ERIOR	
		Total Wt	2955	17.71		100.0	< Verify this n	umber is 100%	1	MATE	RIALS	
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior</u> 30701 W. 1	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	n Hills, MI 48336	
1"		100.0	100		100.0	100.0	0.0	0.0				
3/4"		81.4	10		100.0	89.9	10.1	10.1				
1/2"		40.8	99		100.0	67.9	22.0	32.1				
3/8"		22.4	87		100.0	57.1	10.8	42.9			above the 3/8" sieve.	
#4	<u> </u>		14		99.0	41.2	15.9	58.8	*Any two adjacent sieves must equal 10% except max. nom. max., #100 and #200 sieves.			
#8 #16			5.		85.2 68.9	34.2 27.7	7.0 6.5	65.8 72.3				
#16 #30		1.2 1.1	3.		49.8	20.2	<u> </u>	72.3	*% Retained must be at least 4% for each sieve except m nom. max., #100 and #200 sieves.			
#50		1.1	2		22.8	9.7	10.5	90.3	nom. max., #100 and #200 sieves. *% Retained must be at least 8% for the 1" sieve			
#100		1.0	2.	-	6.0	3.1	6.6	96.9		(nom. Max. 1.5") ag		
LBW		0.6	2.		1.4	1.0	2.0	99.0		(ggrogato to acca.	
roduction G	Gradation	O Batch Plant Gra	adations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	5)	_		
Coarsen	ess Factor:	65	Work	ability Factor:	34	36.7	Coars	eness Factor:	61			
45							Work	ability Factor:	36			
1	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative		
1	10, 11							% Passing	Retained	% Retained		
40		52, 41	40	67.40			2"	100.0	0.0	0.0		
ຂີ ໄ				68, 38	75, 39		1.5" 1"	100.0	0.0	0.0		
2 1			1					99.3	0.7	0.7 10.9		
ĩ l					Production		2///"	QO 1				
			■ 60, ₁ 36	Production G	Gradation		3/4" 1/2"	89.1 70.5	10.2 18.6			
	\rightarrow	50.04	■ 60, ₁ 36	Production G	Gradation		1/2"	70.5	18.6	29.5		
E E	45, 33	52, 34	■ 60, ₁ 36	Production G	Gradation			70.5 60.5	18.6 10.0	29.5 39.5		
oility Factor	45, 33	52, 34 56 ,					1/2" 3/8"	70.5	18.6	29.5		
²²²		56,		Production G			1/2" 3/8" #4 #8 #16	70.5 60.5 44.1	18.6 10.0 16.4 8.5 7.9	29.5 39.5 55.9		
orkability Factor	45, 33 Operating Zone Boundary	56,					1/2" 3/8" #4 #8 #16 #30	70.5 60.5 44.1 35.6	18.6 10.0 16.4 8.5	29.5 39.5 55.9 64.4		
Workability	Operating Zone	56,					1/2" 3/8" #4 #8 #16 #30 #50	70.5 60.5 44.1 35.6 27.7 20.6 8.7	18.6 10.0 16.4 8.5 7.9 7.1 11.8	29.5 39.5 55.9 64.4 72.3 79.4 91.3		
Norkability Factor	Operating Zone	56,	31		75, 28	80	1/2" 3/8" #4 #8 #16 #30	70.5 60.5 44.1 35.6 27.7 20.6	18.6 10.0 16.4 8.5 7.9 7.1	29.5 39.5 55.9 64.4 72.3 79.4		

Approved By:

PLANT #	#:	P-36	_				Contractor:			-	
Sample Date	:	4/25/22	<u>.</u>	(Concrete Grade	DM, 4500HP					
Dates Test R	epresents:	4/26/2022	through	5/2/2022			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1400	8.56	2.62	48.2					
26A	71-47	Presque Isle	405	2.48	2.62	13.9					
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%	1		FIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained			<u>Materials, LLC</u> 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	Farmington Hills, MI 48336		
1"	9	99.4	100).0	100.0	99.7	0.3	0.3			
3/4"	1	32.9	100		100.0	91.8	8.0	8.2			
1/2"		42.3	95		100.0	71.6	20.1	28.4			
3/8"		20.9	76	.7	100.0	58.6	13.0	41.4	*Maximum %	Retained must be	above the 3/8" sieve.
#4		2.7	21		97.0	41.0	17.6	59.0	*Any two adjacent sieves must equal 10% except max		
#8		1.9	6.		83.4	33.5	7.6	66.5	nom. max., #100 and #200 sieves.		
#16		1.7	3.	-	68.8	27.4	6.1	72.6	*% Retained must be at least 4% for each sieve except		
#30		1.6	2.		49.7	20.0	7.4	80.0	nom. max., #100 and #200 sieves.		
#50		1.6	2.		21.8	9.3	10.6	90.7			6 for the 1" sieve when
#100 LBW		1.5 0.9	2.		2.8 0.4	2.1 0.8	7.3 1.3	97.9 99.2	a 2" max. size	(nom. Max. 1.5") a	ggregate is used.
Production G		Batch Plant Gra		regate Supplier Gra	.		-	on Sample (IPS	5)		
	ess Factor:	62	Work	ability Factor:	33	36.0		eness Factor:	63		
		-		,				ability Factor:	35		
⁴⁵								Cumulative	%	Cumulative	
4	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41	$ \longrightarrow $				2"	100.0	0.0	0.0	
a 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	
2							3/4"	90.3	8.8	9.7	
2 35			- 60, 58	roduction Gradatio	on		1/2"	69.2	21.1	30.8	
		52, 34		i			3/8"	59.1	10.1	40.9	
l It	45, 33						#4	41.8	17.3	58.2	
ig 30			58, 31	68,3	1		#8	35.1	6.6	64.9	
	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	
25								1.0	7.0	90.∠	
25 40	45	50 55	5 60	Factor (%)) 75	80	LBW	0.7	1.0	99.3	

Approved By:

PLANT		P-39					Contractor:				
Sample Date		4/25/22			Concrete Grade:	DM, 4500HP					
Dates Test R	Represents:	4/26/2022	through	5/2/2022			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	44-051	Krake Willis Rd	1100	6.65	2.65	37.9				SIIP	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>Materials, LLC</u> 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	Farmington Hills, MI 48336		
1"		95.9	10		100.0	97.9	2.1	2.1	1		
3/4"		80.7	10		100.0	90.0	7.9	10.0			
1/2"		40.3	98		100.0	68.9	21.1	31.1			
3/8"		22.1	86	-	100.0	58.3	10.6	41.7	*Maximum % Retained must be above the 3/8" s		
#4		3.8	17.8 4.7		96.3	40.3	18.0	59.7	*Any two adjacent sieves must equal 10% except ma		
#8		2.1			79.8	31.8	8.5	68.2	nom. max., #100 and #200 sieves.		
#16		1.9	2	-	64.6	25.7	6.1	74.3	*% Retained must be at least 4% for each si		
#30 #50		1.8 1.8	2		49.2 25.2	19.8 10.7	5.9 9.1	80.2 89.3	nom. max., #100 and #200 sieves. *% Retained must be at least 8% for the 1" siev		
#30 #100		1.7	1.	-	7.8	4.0	6.7	96.0		(nom. Max. 1.5") ag	
LBW		1.6		6	0.5	1.2	2.8	98.8		(1011: Max. 1.5) a	ggregate is used.
Production G	Gradation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gra	adations	Adjusted WF		on Sample (IPS	■ 5)		
Coarsene	ess Factor:	61	Work	ability Factor	: 32	34.3	Coars	eness Factor:	63		
				<u> </u>			Work	ability Factor:	36		
45	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative	
		52, 41					2"	% Passing 100.0	Retained 0.0	% Retained 0.0	
40			58,40	08,40	75, 39		1.5"	100.0	0.0	0.0	
8				68, 38	15, 39		1"	100.0	0.0	0.0	
Factor (%)				T!			3/4"	89.7	10.3	10.3	
5 35			■ 60, 36				1/2"	70.3	19.4	29.7	
		52, 34	Pro	duction Gradition			3/8"	59.1	11.2	40.9	
İţ	45, 33						#4	42.8	16.3	57.2	
Norkability			58, 22	688.8	32		#8	35.5	7.3	64.5	
ka [Operating Zone						#16	29.0	6.5	71.0	
ō 11	Boundary				75, 28		#30	21.2	7.7	78.8	
<pre></pre>							#50	9.8	11.5	90.2	
	45	50 55	60	Factor (%)) 75	80	#100 LBW	3.7 1.2	6.1 2.5	96.3 98.8	
40									20	46 A	

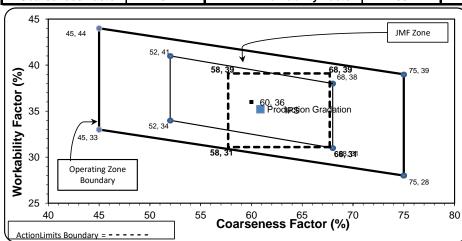
Approved By: Mart P. Ball

PLANT :	#:	P-O2					Contractor:			
Sample Date		4/25/22			Concrete Grade	: DM, 4500HP				
Dates Test R	epresents:	4/26/2022	through	5/2/2022			MDOT No.:			
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution				
6AA	71-47	Presque Isle	1400	8.56	2.62	48.2				
26A	71-47	Presque Isle	355	2.17	2.62	12.2				
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6				CUDE
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%	-	SUPER MATER
Sieve		6AA	26	6A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior Mate</u> 30701 W. 10 Mi
2"	1	100.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500
1.5"	1	100.0	10	0.0	100.0	100.0	0.0	0.0		Farmington Hill
1"		99.4	10	0.0	100.0	99.7	0.3	0.3		
3/4"		82.9	10	0.0	100.0	91.8	8.0	8.2		
1/2"		42.3	95	5.9	100.0	71.7	20.1	28.3		
3/8"		20.9	76	6.7	100.0	59.0	12.7	41.0	*Maximum %	Retained must be above
#4		2.7	21	.6	96.3	42.1	17.0	57.9	*Any two adja	cent sieves must equal 1
#8		1.9	6	.9	78.2	32.7	9.3	67.3	nom. max., #10	00 and #200 sieves.
#16		1.7	3	.6	61.0	25.4	7.3	74.6	*% Retained	must be at least 4% for e
#30		1.6	2	.6	45.4	19.1	6.3	80.9	nom. max., #10	00 and #200 sieves.
#50		1.6	2	.3	23.4	10.3	8.7	89.7	*% Retained	must be at least 8% for th
#100		1.5	2		3.3	2.3	8.0		a 2" max. size	(nom. Max. 1.5") aggrega
LBW		0.9	1.	.5	0.7	0.9	1.4	99.1		
Production G	Fradation	O Batch Plant Gra	dations 💿 Agg	regate SupplierGra	dations	Adjusted WF	Intial Production	on Sample (IPS	5)	
Coarsene	ess Factor:	61	Work	kability Factor	: 33	35.2	Coars	eness Factor:	63	
45					-		Work	ability Factor:	35	
	45, 44				JMF Zone		Sieve	Cumulative	%	Cumulative
-		52, 41						% Passing	Retained	% Retained
40		52, 4	↓		_		2"	100.0	0.0	0.0
? ™			58, 39	68, 39 68, 38	75, 39		1.5"	100.0	0.0	0.0
Ľ			!				1"	100.0	0.0	0.0
Factor (%)			6 0, 36	and the second sec			3/4"	95.1	4.9	4.9
5 35	_			Jue Son Gradation			1/2"	74.6	20.5	25.4
<u>ш</u>		52, 34	$ \rightarrow $				3/8"	59.3	15.3	40.7



erials, LLC le Rd. s, MI 48336

the 3/8" sieve. 0% except max., ach sieve except max., e 1" sieve when ate is used.



Coar	seness Factor:	63		
Wor	kability 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	

Approved By: Mart P. Ball