Production Gradation Report

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PLANT #	#:	P-101					Contractor:			_	
Sample Date	:	11/6/23		C	concrete Grade	DM, 4500HP					
Dates Test R		11/7/2023	through	11/13/2023			MDOT No.:				•
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	71-47	Presque Isle	1450	8.87	2.62	50.0					
26A	71-47	Presque Isle	300	1.83	2.62	10.3					
2NS	75-051	Mid Michigan	1150 2900	6.93 17.63	2.66	39.7				SUP	ERIOR
		Total Wt	2900	17.03		100.0	< Verify this n	umber is 100%	1	MATE	RIALS
Sieve		6 AA	26	5A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior</u> 30701 W. 1	Materials, LLC 10 Mile Rd.
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	1	Farmington Hills, MI 48336	
1"		99.3	10	0.0	100.0	99.7	0.3	0.3			
3/4"		85.9	10		100.0	93.0	6.7	7.1			
1/2"		43.7	97		100.0	71.5	21.4	28.5	l		
3/8"		25.5	88		100.0	61.6	10.0	38.4			above the 3/8" sieve.
#4		4.3	22		96.3	42.7	18.9	57.3			qual 10% except max.,
#8		2.5	4	-	82.1	34.3	8.4	65.7		00 and #200 sieves	
#16 #30		2.3 2.2	2		67.2 51.4	28.0 21.7	6.3 6.4	72.0 78.3			o for each sieve except ma
#30 #50		2.2	1		27.5	12.1	9.5	87.9	· ·	00 and #200 sieves	for the 3/4" sieve when
#100		2.0	1.	-	7.3	4.1	8.1	96.0		e (nom. Max. 1.0")	
									a 1.0 max. 012		aggrogato to aboa.
LBW		1.7	1.		0.8	1.3	2.7	98.7			
LBW			1.		0.0	_		98.7 on Sample (IPS	S)		
LBW roduction G		1.7	1. dations 💿 Agg	.4	0.0	_	Initial Producti		S) 62	1	
LBW Production G Coarsene	radation	1.7 Batch Plant Gra	1. dations 💿 Agg	.4 regate Supplier Gra	dations	Adjusted WF	Initial Producti Coars	on Sample (IPS]	
LBW roduction G	radation ess Factor:	1.7 Batch Plant Gra	1. dations 💿 Agg	.4 regate Supplier Gra	dations 34	Adjusted WF	Initial Producti Coars Work	on Sample (IPS eness Factor:	62	Cumulative	
LBW Production G Coarsene	radation	1.7 Batch Plant Gra 58	1. dations 💿 Agg	.4 regate Supplier Gra	dations	Adjusted WF	Initial Producti Coars Work Sieve	on Sample (IPS eness Factor: ability Factor:	62 35	Cumulative % Retained	
LBW roduction G Coarsene	radation ess Factor:	1.7 Batch Plant Gra	1. dations () Agg Work	.4 regate Supplier Gra	dations 34 JMF Zone	Adjusted WF	Initial Producti Coars Work Sieve 2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0	62 35 % Retained 0.0	% Retained 0.0	
LBW roduction G Coarsene 45 45 40	radation ess Factor:	1.7 Batch Plant Gra 58	1. dations 💿 Agg	.4 regate Supplier Gra	dations 34 JMF Zone 75.39	Adjusted WF	Initial Producti Coars Work Sieve 2" 1.5"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	62 35 % Retained 0.0 0.0	% Retained 0.0 0.0	
LBW roduction G Coarsene	radation ess Factor:	1.7 Batch Plant Gra 58	1 dations (i) Agg Work	4 regate Supplier Gra cability Factor:	dations 34 JMF Zone 75.39	Adjusted WF	Initial Producti Coars Work Sieve 2" 1.5" 1"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0	62 35 % Retained 0.0 0.0 0.0	% Retained 0.0 0.0 0.0	
LBW Production G Coarsene 45 45 40	radation ess Factor:	1.7 Batch Plant Gra 58	1 dations (i) Agg Work	.4 regate Supplier Gra kability Factor: 67, 39	dations 34 JMF Zone 75.39	Adjusted WF	Initial Producti Coarse Work Sieve 2" 1.5" 1" 3/4"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0	62 35 % Retained 0.0 0.0 0.0 0.0 5.0	% Retained 0.0 0.0 0.0 5.0	
LBW Production G Coarsene	radation ess Factor:	1.7 () Batch Plant Gra 58 52, 41	1 dations (i) Agg Work	4 regate Supplier Gra cability Factor:	dations 34 JMF Zone 75.39	Adjusted WF	Initial Producti Coarse Work Sieve 2" 1.5" 1" 3/4" 1/2"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5	% Retained 0.0 0.0 0.0 0.0 29.5	
LBW Production G Coarsene 45 45 40	radation ess Factor:	1.7 Batch Plant Gra 58	1 dations (i) Agg Work	4 regate Supplier Gra cability Factor:	dations 34 JMF Zone 75.39	Adjusted WF	Initial Producti Coarse Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5 60.0	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5	% Retained 0.0 0.0 0.0 29.5 40.0	
LBW Production G Coarsene	radation ess Factor: 45, 44	1.7 () Batch Plant Gra 58 52, 41	1 dations (i) Agg Work	4 regate Supplier Gra cability Factor:	dations 34 JMF Zone 3 75, 39	Adjusted WF	Initial Producti Coarse Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5 60.0 44.4	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6	% Retained 0.0 0.0 0.0 29.5 40.0 55.6	
LBW Production G Coarsene	radation ess Factor: 45, 44 45, 33	1.7) Batch Plant Gra 58 52, 41 52, 34	1 dations () Agg Work	4 regate Supplier Gra cability Factor: 67, 59 68, 35 on Gradation	dations 34 JMF Zone 3 75, 39	Adjusted WF	Initial Producti Coarse Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5 60.0	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5	% Retained 0.0 0.0 0.0 29.5 40.0	
LBW Production G Coarsene	radation ess Factor: 45, 44	1.7) Batch Plant Gra 58 52, 41 52, 34	1 dations () Agg Work	4 regate Supplier Gra cability Factor: 67, 59 68, 35 on Gradation	dations 34 JMF Zone 3 75, 39	Adjusted WF	Initial Producti Coarse Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5 60.0 44.4 35.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6 9.0	% Retained 0.0 0.0 0.0 29.5 40.0 55.6 64.5	
Vorkability Factor (%)	radation ss Factor: 45, 44 45, 33 Operating Zone	1.7) Batch Plant Gra 58 52, 41 52, 34	1 dations () Agg Work	4 regate Supplier Gra cability Factor: 67, 59 68, 35 on Gradation	dations 34 5, 39 1	Adjusted WF	Initial Producti Coarse Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 70.5 60.0 44.4 35.5 28.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6 9.0 7.0	% Retained 0.0 0.0 0.0 29.5 40.0 55.6 64.5 71.5	
LBW Production G Coarsene	radation ss Factor: 45, 44 45, 33 Operating Zone	1.7) Batch Plant Gra 58 52, 41 52, 34 52, 34	1. dations () Agg Work 57, 39 Production 57, 31 57, 31	4 regate Supplier Gra cability Factor: 67, 59 68, 35 on Gradation	dations 34 JMF Zone 75, 39	Adjusted WF	Initial Producti Coarse 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 100.0 100.0 100.0 95.0 70.5 60.0 44.4 35.5 28.5 21.5	62 35 % Retained 0.0 0.0 0.0 5.0 24.5 10.5 15.6 9.0 7.0 7.0	% Retained 0.0 0.0 0.0 5.0 29.5 40.0 55.6 64.5 71.5 78.5	

Approved By: Mart 1. Ball

PLANT a	#:	P-102					Contractor:				
Sample Date):	11/6/23			oncrete Grade:	DM, 4500HP					
Dates Test R	Represents:	11/7/2023	through	11/13/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1375	8.19	2.69	46.6					
26A	58-003	Stoneco	425	2.53	2.69	14.4					
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%	1		RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		Superior 30701 W. :	Materials, LLC 10 Mile Rd.
2"	1	00.0	10	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"		99.9	10		100.0	100.0	0.0	0.0			
3/4"		83.5	10		100.0	92.3	7.6	7.7			
1/2"		39.0	99	.9	100.0	71.6	20.8	28.4			
3/8"		15.9	89		100.0	59.3	12.3	40.7	*Maximum % Retained must be above the 3/8" sid		above the 3/8" sieve.
#4		3.1	12		97.9 83.0	41.4	17.9	58.6	*Any two adja	cent sieves must e	qual 10% except max.,
#8		2.0		3.3 2.9		33.8	7.6	66.2	nom. max., #100 and #200 sieves.		
#16		1.7			66.4	27.1	6.7	72.9			for each sieve except
#30 #50		1.6	2		47.2	19.5	7.6	80.5	,	00 and #200 sieves	
#50 #100		1.4 1.2	2		23.2 4.4	10.1 2.6	9.5 7.4	89.9 97.4			5 for the 3/4" sieve when
LBW		1.1	2		0.4	1.0	1.6	99.0	a 1.5 max. siz	e (nom. Max. 1.0")	aggregate is used.
Production G	Gradation	Batch Plant Gra		regate Supplier Gra				on Sample (IPS	5)		
	ess Factor:	61	Work	ability Factor:	34	36.3		eness Factor:	, 61		
		0.			0.			ability Factor:	36		
45								Cumulative	%	Cumulative	
- '	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
1		52, 41	40	67 40			2"	100.0	0.0	0.0	
a ⁴⁰		- 36			75, 39		1.5"	100.0	0.0	0.0	
ð				68, 38	Ĩ		1"	99.3	0.7	0.7	
				duction Gradation			3/4"	89.2	10.1	10.8	
ig 35 -			- 001100				1/2"	70.7	18.5	29.3	
Ë j	\rightarrow	52, 34	÷				3/8"	60.7	10.0	39.3	
Ē	45, 33	56	L				#4	44.4	16.3	55.6	
ig 30 -			52	67, 32 , 31			#8	35.9	8.5	64.1	
¥	Operating Zone						#16	27.3	8.6	72.7	
S 4 1	Boundary				75, 28		#30 #50	19.1 7.4	8.2 11.7	80.9 92.6	
₽ 											
Workability Factor (%)							#100	10	56	0.9 1	
	45	50 55	5 6 0	Factor (%)	75	80	#100 LBW	1.9 0.7	5.6 1.2	98.1 99.3	

Approved By:

PLANT :	#:	12					Contractor:				
Sample Date):	11/6/23			Concrete Grade:	DM, 4500HP					
Dates Test R	Represents:	11/7/2023	through	11/13/2023			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	63-115	Ray Rd	1150	6.95	2.65	39.6				CUD	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	number is 100%			ERIOR RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior N</u> 30701 W. 1	Materials, LLC
2"	1	00.0	100	0.0	100.0	100.0	0.0	0.0	Suite 500 Farmington Hills, MI		
1.5"		00.0	100	0.0	100.0	100.0	0.0	0.0			ı Hills, MI 48336
1"	9	96.5	100	0.0	100.0	98.3	1.7	1.7		0	
3/4"	-	75.9	100	0.0	100.0	88.0	10.3	12.0			
1/2"		34.7	94	.3	100.0	66.8	21.2	33.2			
3/8"		16.9	86	.0	100.0	57.1	9.8	42.9	*Maximum %	Retained must be	above the 3/8" siev
#4		2.9	27	.9	96.0	42.4	14.7	57.6	*Any two adja	cent sieves must e	equal 10% except m
#8		1.6	6.		80.9	33.5	8.9	66.5	nom. max., #10	00 and #200 sieves	j.
#16		1.4	3.	2	65.9	27.1	6.4	72.9	*% Retained r	must be at least 4%	6 for each sieve exc
#30		1.4	2.		49.5	20.6	6.6	79.4	nom. max., #10	00 and #200 sieves	j.
#50		1.3	2.		25.5	11.0	9.6	89.0	*% Retained r	must be at least 4%	6 for the 3/4" sieve v
#100		1.3	2.		5.4	3.0	8.0	97.0	a 1.5" max. siz	e (nom. Max. 1.0")	aggregate is used.
LBW		1.0	2.	0	0.6	0.9	2.1	99.1			
Production G	Gradation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gr	adations	Adjusted WF	Intial Producti	on Sample (IPS	5)		
Coarsene	ess Factor:	65	Work	ability Factor	: 34	36.0	Coars	eness Factor:	63		
45						\neg	Work	ability Factor:	36		
	45, 44	52. 41			JMF Zone		Sieve	Cumulative % Passing	% Retained	Cumulative % Retained	
40		52, 4	57, 40	68, 40			2"	100.0	0.0	0.0	
≈ ¹				68, 38	75, 39		1.5"	100.0	0.0	0.0	
			!				1"	99.3	0.7	0.7	
l 2			■ 60, 36	PS Production G	iradation		3/4"	89.0	10.3	11.0	
3 5			ļ	i			1/2"	70.3	18.7	29.7	
	45, 33	52, 34					3/8"	59.9	10.4	40.1	
≝ 1	/**0, 00		57, 22	68, 34	2		#4	41.9	18.0	58.1	
a 30				-68, 3	1		#8	35.9	6.0	64.1	
Workability Factor (%)	Operating Zone						#16	27.8	8.2	72.2	
	Boundary				75, 28		#30	18.9	8.8	81.1	
							#50	6.3	12.6	93.7	1

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

80

75

55

#100

LBW

1.7

1.0

4.6

0.7



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

98.3

99.0

PREPARED BY: SM, LLC Technical Service

45

ActionLimits Boundary = - - - - -

50

25

40



Sample Date		p11 11/6/23		C	Concrete Grade	DM. 4500HP	Contractor:			-	
Dates Test R		11/7/2023	through	11/13/2023			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				SUD	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1	Materials, LLC L0 Mile Rd.
2"	1	00.0	100).0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		00.0	100).0	100.0	100.0	0.0	0.0		Farmingtor	n Hills, MI 48336
1"		97.8	100		100.0	98.9	1.1	1.1			
3/4"		79.6	100		100.0	89.8	9.1	10.2			
1/2"		43.3	94	.3	100.0	71.0	18.8	29.0			
3/8"		25.5	86		100.0	61.2	9.8	38.8	*Maximum %	Retained must be a	above the 3/8" sieve.
#4		5.2	27		97.2	44.0	17.3	56.0	*Any two adja	acent sieves must e	qual 10% except max.,
#8		2.7	6.		85.4	35.8	8.1	64.2	-	nom. max., #100 and #200 sieves.	
#16		2.2	3.		69.9	29.1	6.7	70.9			for each sieve except
#30		2.1	2.	6	50.3	21.2	7.9	78.8	nom. max., #100 and #200 sieves.		
									-		
#50		2.0	2.	4	24.6	11.0	10.2	89.0	*% Retained I	must be at least 4%	for the 3/4" sieve when
#50 #100		2.0 1.9	2. 2.	4 3	24.6 7.2	11.0 4.0	10.2 6.9	89.0 96.0	*% Retained I		for the 3/4" sieve when
#50 #100 LBW		2.0 1.9 1.4	2. 2. 2.	4 3 0	24.6 7.2 0.9	11.0 4.0 1.3	10.2 6.9 2.8	89.0 96.0 98.7	*% Retained a 1.5" max. siz	must be at least 4%	for the 3/4" sieve when
#50 #100 LBW Production G	iradation	2.0 1.9 1.4 O Batch Plant Gra	2. 2. 2. dations () Aggr	4 3 0 egate Supplier Gra	24.6 7.2 0.9 dations	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio	89.0 96.0 98.7 on Sample (IPS	*% Retained i a 1.5" max. siz	must be at least 4%	for the 3/4" sieve when
#50 #100 LBW Production G		2.0 1.9 1.4	2. 2. 2. dations () Aggr	4 3 0	24.6 7.2 0.9 dations	11.0 4.0 1.3	10.2 6.9 2.8 Intial Productio	89.0 96.0 98.7	*% Retained i a 1.5" max. siz 5) 62	must be at least 4%	for the 3/4" sieve when
#50 #100 LBW Production G	iradation	2.0 1.9 1.4 O Batch Plant Gra	2. 2. 2. dations () Aggr	4 3 0 egate Supplier Gra	24.6 7.2 0.9 dations	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars	89.0 96.0 98.7 on Sample (IPS	*% Retained i a 1.5" max. siz 5) 62 36	must be at least 4%	for the 3/4" sieve whe
#50 #100 LBW Production G Coarsene	iradation	2.0 1.9 1.4 O Batch Plant Gra	2. 2. 2. dations () Aggr	4 3 0 egate Supplier Gra	24.6 7.2 0.9 dations 36	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars Work	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative	*% Retained I a 1.5" max. siz 62 36 %	must be at least 4% e (nom. Max. 1.0") a Cumulative	for the 3/4" sieve whe
#50 #100 LBW Production G Coarsene	adation	2.0 1.9 1.4 O Batch Plant Gra	2. 2. 2. dations () Aggr	4 3 0 egate Supplier Gra ability Factor:	24.6 7.2 0.9 dations	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars Work Sieve	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing	*% Retained I a 1.5" max. siz 62 62 36 % Retained	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	adation	2.0 1.9 1.4 O Batch Plant Gra 60	2. 2. 2. dations () Aggr	4 3 0 egate Supplier Gra	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars Work Sieve 2"	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0	*% Retained I a 1.5" max. siz 62 36 % Retained 0.0	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	adation	2.0 1.9 1.4 O Batch Plant Gra 60	2. 2. 2. dations () Aggr Work	4 3 0 egate Supplier Gra ability Factor:	24.6 7.2 0.9 dations 36	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars Work Sieve 2" 1.5"	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0	*% Retained I a 1.5" max. siz 62 36 % Retained 0.0 0.0	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0	for the 3/4" sieve whe
#50 #100 LBW Production G Coarsene	adation	2.0 1.9 1.4 O Batch Plant Gra 60	2. 2. 2. dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars Work Sieve 2" 1.5" 1"	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0	*% Retained I a 1.5" max. siz 62 36 % Retained 0.0 0.0 0.0	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.0	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	adation	2.0 1.9 1.4 O Batch Plant Gra 60	2. 2. 2. dations () Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4"	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0	*% Retained (a 1.5" max. siz 62 36 % Retained 0.0 0.0 0.0 0.0 5.0	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.0 0.0 5.0	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	adation	2.0 1.9 1.4 O Batch Plant Gra 60 52, 41 54	2. 2. 2. dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Productio Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3	*% Retained (a 1.5" max. siz 62 36 % Retained 0.0 0.0 0.0 0.0 5.0 22.8	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.0 0.0 5.0 27.7	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	adation	2.0 1.9 1.4 O Batch Plant Gra 60	2. 2. 2. dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4	*% Retained (a 1.5" max. siz 62 36 % Retained 0.0 0.0 0.0 0.0 5.0 22.8 11.8	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.0 0.0 27.7 39.6	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	Fradation Ess Factor:	2.0 1.9 1.4 O Batch Plant Gra 60 52, 41 54	2. 2. 2. dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6	*% Retained (a 1.5" max. siz 62 36 % Retained 0.0 0.0 0.0 0.0 5.0 22.8 11.8 17.8	must be at least 4% e (nom. Max. 1.0") a Cumulative % Retained 0.0 0.0 0.0 5.0 27.7 39.6 57.4	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	45, 44	2.0 1.9 1.4 O Batch Plant Gra 60 52, 41 52, 41 54 52, 34 54 55 52, 34 56	2. 2. 2. dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0	*% Retained (a 1.5" max. siz 62 36 % Retained 0.0 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6	must be at least 4% e (nom. Max. 1.0") a % Retained 0.0 0.0 0.0 5.0 27.7 39.6 57.4 64.0	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	Pradation Pass Factor: 45, 44 45, 33 Operating Zone	2.0 1.9 1.4 O Batch Plant Gra 60 52, 41 52, 41 54 52, 34 54 55 52, 34 56	2. 2. 2. dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	*% Retained (a 1.5" max. siz 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5	Cumulative % Retained 0.0 0.0 0.0 0.0 0.0 5.0 27.7 39.6 57.4 64.0 70.5	for the 3/4" sieve wher
#50 #100 LBW Production G 45 40 40 40 40 40 40 40 40 40	45, 44	2.0 1.9 1.4 O Batch Plant Gra 60 52, 41 52, 41 54 52, 34 54 55 52, 34 56	2. 2. 2. dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5 20.3	*% Retained (a 1.5" max. siz 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5 9.2	Cumulative % Retained 0.0 0.0 0.0 27.7 39.6 57.4 64.0 70.5 79.7	for the 3/4" sieve when
#50 #100 LBW Production G Coarsene	Pradation Pass Factor: 45, 44 45, 33 Operating Zone	2.0 1.9 1.4 O Batch Plant Gra 60 52, 41 52, 41 54 52, 34 54 55 52, 34 56	2. 2. 2. 2. 4dations (•) Aggr Work	4 3 0 egate Supplier Gra ability Factor: 67, 40 ction Gradati ⁸ h ³⁸	24.6 7.2 0.9 dations 36 JMF Zone 75, 39	11.0 4.0 1.3 Adjusted WF	10.2 6.9 2.8 Intial Production Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	89.0 96.0 98.7 on Sample (IPS eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 100.0 95.0 72.3 60.4 42.6 36.0 29.5	*% Retained (a 1.5" max. siz 36 % Retained 0.0 0.0 0.0 5.0 22.8 11.8 17.8 6.6 6.5	Cumulative % Retained 0.0 0.0 0.0 0.0 0.0 5.0 27.7 39.6 57.4 64.0 70.5	for the 3/4" sieve when

PREPARED BY: SM, LLC Technical Service

ActionLimits Boundary = - - - - -

Approved By: Mary 1. Ball

PLANT	•	P-32					Contractor:				
Sample Date	•	11/6/23			concrete Grade	DM, 4500HP					
Dates Test R	(epresents:	11/7/2023	through	11/13/2023	0	0/	MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific	% Contribution					
6AA	71-47	Presque Isle	1455	8.90	Gravity 2.62	Contribution 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					
-		Total Wt		17.69		100.0	< Verify this n	umber is 100%	_	SUP	ERIOR
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		Superior 30701 W. :	Materials, LLC 10 Mile Rd.
2"	1	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	Farmington Hills, MI 48336		n Hills, MI 48336
1"		97.8		0.0	100.0	98.9	1.1	1.1			
3/4"		79.6	10		100.0	89.8	9.1	10.2			
1/2"		43.3	94		100.0	71.0	18.8	29.0		D	
3/8" #4		25.5 5.2	86	-	100.0 97.2	61.2 44.0	9.8 17.3	38.8 56.0			above the 3/8" sieve.
#4 #8		2.7	27.9 6.5		85.4	35.8	8.1	64.2			qual 10% except max.,
#0 #16		2.2			69.9	29.1	6.7	70.9		00 and #200 sieves	for each sieve except
#30		2.1	3.2 2.6		50.3	21.2	7.9	78.8		00 and #200 sieves	•
#50		2.0	2		24.6	11.0	10.2	89.0			5 for the 3/4" sieve wher
#100		1.9	2		7.2	4.0	6.9	96.0		e (nom. Max. 1.0")	
LBW		1.4	2	0	0.9	1.3	2.8	98.7		. , , , , , , , , , , , , , , , , , , ,	
Production G	adation	O Batch Plant Gra	idations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	- 		
	ess Factor:	60	Work	ability Factor:	36	38.3		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	
					75, 39		1.5"	100.0	0.0	0.0	
a ⁴⁰			Produ	iction Gradati ^{68, 38}	T T		1"	100.0	0.0	0.0	
<u>8</u> 40			6 0, 3 E				3/4"	95.0	5.0	5.0	
40 (%) Jo			= 00, s e	° ∎			1/2"	72.3	22.8	27.7	
actor (%)				•			3/8"	60.4	11.8	39.6	
Factor (%)		52, 34							470		
ity Factor (%)	45, 33	52, 34		 			#4	42.6	17.8	57.4	
bility Factor (%)	45, 33	52, 34	 				#8	36.0	6.6	64.0	
kability Factor (%)	45, 33 Operating Zone	50	 	6 7 ₆₈ ,32			#8 #16	36.0 29.5	6.6 6.5	64.0 70.5	
orkability Factor (%)		50	 		75, 28		#8 #16 #30	36.0 29.5 20.3	6.6 6.5 9.2	64.0 70.5 79.7	
Workability Factor (%)	Operating Zone	50	 	67,32 68,31	75, 28		#8 #16 #30 #50	36.0 29.5 20.3 9.5	6.6 6.5 9.2 10.8	64.0 70.5 79.7 90.5	
Workability Factor (%)	Operating Zone	50		65 Factor (%)	75, 28		#8 #16 #30	36.0 29.5 20.3	6.6 6.5 9.2	64.0 70.5 79.7	

Approved By: Mart P. Ball

PLANT #		P-35					Contractor:				
Sample Date		11/6/23			concrete Grade	: DM, 4500HP					
Dates Test R	epresents:	11/7/2023	through	11/13/2023			MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution					
6AA	58-003	Stoneco	1375	8.19	2.69	46.6					
26A	58-003	Stoneco	425	2.53	2.69	14.4					
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0				SUD	FRIOR
		Total Wt	2950	17.68		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		Superior 30701 W. :	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	n Hills, MI 48336
1"		99.9	100		100.0	100.0	0.0	0.0			
3/4"		83.5	100		100.0	92.3	7.6	7.7			
1/2"		39.0	99		100.0	71.6	20.8	28.4			
3/8" #4		15.9 3.1	89 12		100.0 97.9	59.3 41.4	12.3 17.9	40.7 58.6			above the 3/8" sieve.
#4 #8		2.0	3.3		83.0	33.8	7.6	58.6 66.2			qual 10% except max.,
#8 #16		<u>2.0</u> 1.7	3.		66.4	27.1	6.7	00.2 72.9		00 and #200 sieves	
#10		1.6	2.		47.2	19.5	7.6	80.5		00 and #200 sieves	for each sieve except
#50		1.4	2.		23.2	10.1	9.5	89.9			5 for the 3/4" sieve whe
#100		1.2	2.		4.4	2.6	7.4	97.4		e (nom. Max. 1.0")	
LBW		1.1	2.		0.4	1.0	1.6	99.0			
Production G	radation	O Batch Plant Gra	dations 💿 Aggr	egate Supplier Grad	dations	Adjusted WF	Intial Production	on Sample (IPS	3)		
	ss Factor:	61	Work	ability Factor:	34	36.3		eness Factor:	61		
					-			ability Factor:	36		
45	-							Cumulative	%	Cumulative	
- 4	5, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
-		52, 41					2"	100.0	0.0	0.0	
_ 40 -		56,			75, 39		1.5"	100.0	0.0	0.0	
<u>∽</u> ~				68, 38	I		1"	99.3	0.7	0.7	
(%) [™] [0 / / !!	004	10.2	10.9	
tor (%)			- 60,B8	duction Gradation			3/4"	89.1	-		
actor (%)			■ 60,B8	duction Gradation			1/2"	70.5	18.6	29.5	
/ Factor (%)		52, 34	■ 60,β§	duction Fradation			1/2" 3/8"	70.5 60.5	18.6 10.0	29.5 39.5	
lity Factor (%)	45, 33						1/2" 3/8" #4	70.5 60.5 44.1	18.6 10.0 16.4	29.5 39.5 55.9	
ability Factor (%)		56,		duction Fradation			1/2" 3/8" #4 #8	70.5 60.5 44.1 35.6	18.6 10.0 16.4 8.5	29.5 39.5 55.9 64.4	
rkability Factor (%)	Operating Zone	56,					1/2" 3/8" #4 #8 #16	70.5 60.5 44.1 35.6 27.7	18.6 10.0 16.4 8.5 7.9	29.5 39.5 55.9 64.4 72.3	
Norkability Factor (%)		56,			75, 28		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	
ability Factor (%) 00 32 32 32 33 34 34 34 34 34 34 34 34 34 34 34 34	Operating Zone	56,			75, 28		1/2" 3/8" #4 #8 #16	70.5 60.5 44.1 35.6 27.7	18.6 10.0 16.4 8.5 7.9	29.5 39.5 55.9 64.4 72.3	

Approved By: Mary 1. Ball

PLANT #	F: .	P-36	_				Contractor:				
Sample Date:	:	11/6/23	_	C	oncrete Grade	DM, 4500HP					
Dates Test R	epresents:	11/7/2023	through	11/13/2023			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 nu	umber is 100%	I	MATE	RIALS
Sieve	e	6 AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1	Materials, LLC L0 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		Farmingtor	n Hills, MI 48336
1"		96.5	100	0.0	100.0	98.3	1.7	1.7			
3/4"		75.9	100		100.0	88.0	10.3	12.0			
1/2"		34.7	94		100.0	66.8	21.2	33.2			
3/8"		16.9	86	-	100.0	57.1	9.8	42.9	*Maximum % Retained must be above the 3/8" siev		
#4		2.9	27.9		97.2	42.9	14.2	57.1	*Any two adjacent sieves must equal 10% except r		
#8		1.6	6.5		82.6	34.2	8.7	65.8		00 and #200 sieves	
#16 #30		1.4 1.4	3.2 2.6		67.9 49.3	27.9 20.5	6.3 7.4	72.1 79.5			for each sieve except
#30		1.4	2.		20.4	9.0	11.5	91.0		00 and #200 sieves	for the 3/4" sieve wher
#100		1.3	2.		3.4	2.2	6.7	97.8		e (nom. Max. 1.0") :	
LBW		1.0	2.		0.8	1.0	1.2	99.0			aggiogato to docat
Production G	radation	O Batch Plant Gra	idations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	5)		
Coarsene	ss Factor:	65	Work	ability Factor:	34	36.7		eness Factor:	63		
					-						
45					L		Worka	ability Factor:	35	Cumulative	
-	5, 44				JMF Zone			ability Factor: Cumulative	35 %	Cumulative % Retained	
-	5, 44	52, 41			L		Worka	ability Factor:	35	Cumulative % Retained 0.0	
40	5, 44		58, 39		L		Worka Sieve	ability Factor: Cumulative % Passing	35 % Retained	% Retained	
40	5, 44		58, 32	66, 38	JMF Zone		Worka Sieve 2" 1.5" 1"	ability Factor: Cumulative % Passing 100.0 100.0 99.1	35 % Retained 0.0 0.0 0.9	% Retained 0.0 0.0 0.9	
40	5, 44			68, 38	JMF Zone		Worka Sieve 2" 1.5" 1" 3/4"	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3	35 % Retained 0.0 0.0 0.9 8.8	% Retained 0.0 0.0 0.9 9.7	
40	5, 44			5 8, 39 68, 38	JMF Zone		Worka Sieve 2" 1.5" 1" 3/4" 1/2"	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2	35 % Retained 0.0 0.0 0.9 8.8 21.1	% Retained 0.0 0.0 0.9 9.7 30.8	
Factor (%)				68, 38	JMF Zone		Worka Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1	35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1	% Retained 0.0 0.9 9.7 30.8 40.9	
Factor (%)	45, 33	52, 41		Production G	JMF Zone 75, 39 Gradation		Worka Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8	35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3	% Retained 0.0 0.9 9.7 30.8 40.9 58.2	
Factor (%)	45, 33	52, 41		68, 38	JMF Zone 75, 39 Gradation		Worka Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8 35.1	35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6	% Retained 0.0 0.9 9.7 30.8 40.9 58.2 64.9	
Factor (%)	45, 33 Operating Zone	52, 41	6 0, 36	Production G	JMF Zone 75, 39 Gradation		Worka Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8 35.1 28.5	35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6 6.6	% Retained 0.0 0.0 0.9 9.7 30.8 40.9 58.2 64.9 71.5	
Factor (%)	45, 33	52, 41	6 0, 36	Production G	JMF Zone 75, 39 Gradation		Worka Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8 35.1 28.5 21.2	35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6 6.6 7.3	% Retained 0.0 0.0 0.9 9.7 30.8 40.9 58.2 64.9 71.5 78.8	
⁴ ² ² ² ² ² ² ² ² ² ²	45, 33 Operating Zone	52, 41	6 0, 36	Production G	JMF Zone 75, 39 Gradation		Worka Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	ability Factor: Cumulative % Passing 100.0 100.0 99.1 90.3 69.2 59.1 41.8 35.1 28.5	35 % Retained 0.0 0.0 0.9 8.8 21.1 10.1 17.3 6.6 6.6	% Retained 0.0 0.0 0.9 9.7 30.8 40.9 58.2 64.9 71.5	

Approved By: Mary 1. Ball

PLANT #	7:	P-39					Contractor:			-	
Sample Date:	:	11/6/23		C	concrete Grade	: DM, 4500HP					
Dates Test R	epresents:	11/7/2023	through	11/13/2023			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	44-051	Krake Willis Rd		6.65	2.65	37.9				SUD	FRIOR
-		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve		6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		Superior I 30701 W. 1	Materials, LLC L0 Mile Rd.
2"		100.0	10	0.0	100.0	100.0	0.0	0.0		Suite 500	
1.5"		100.0	10	0.0	100.0	100.0	0.0	0.0		Farmingtor	n Hills, MI 48336
1"		99.3	10		100.0	99.6	0.4	0.4			
3/4"		85.9	10		100.0	92.7	6.9	7.3			
1/2"		43.7	97		100.0	70.5	22.2	29.5			
3/8"		25.5	88		100.0	60.2	10.3	39.8	*Maximum % Retained must be above the 3/8" sie		
#4		4.3	22.6		98.9	42.0	18.2	58.0			qual 10% except max.,
#8 #16		2.5 2.3	4.9		84.6 68.9	33.8 27.5	8.2 6.3	66.2 72.5	,	00 and #200 sieves.	
#10		2.2	1.8		49.7	20.1	7.4	72.5		must be at least 4% 00 and #200 sieves.	for each sieve except
#50		2.1	1		23.8	10.3	9.9	89.7			for the 3/4" sieve whe
#100		2.0	1.	-	6.5	3.7	6.6	96.3		e (nom. Max. 1.0") a	
LBW		1.7	1.		1.6	1.6	2.0	98.4			-999
Production G	radation	O Batch Plant Gra	dations 💿 Agg	regate Supplier Gra	dations	Adjusted WF	Intial Production	on Sample (IPS	- S)		
		-				Adjusted WF 36.3			,	1	
Coarsene	radation ess Factor:	Batch Plant Gra		regate Supplier Gra ability Factor:		Adjusted WF 36.3	Coars	eness Factor:	63]	
Coarsene	ess Factor:	-			34		Coars Work		63 36	Cumulative	
Coarsene		-					Coars	eness Factor: ability Factor: Cumulative	63 36 %	Cumulative % Retained	
Coarsene	ess Factor:	-			34		Coars Work	eness Factor: ability Factor:	63 36	Cumulative % Retained 0.0	
45 40 40	ess Factor:	60		ability Factor:	34		Coars Work Sieve 2" 1.5"	eness Factor: ability Factor: Cumulative % Passing	63 36 % Retained	% Retained	
45 40 40	ess Factor:	60			34 JMF Zone		Coars Work Sieve 2" 1.5" 1"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0	63 36 % Retained 0.0 0.0 0.0	% Retained 0.0 0.0 0.0	
45 40 40	ess Factor:	60	58, 40	Bability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7	63 36 % Retained 0.0 0.0 0.0 10.3	% Retained 0.0 0.0 0.0 10.3	
45 40 40	ess Factor:	60	58, 40	ability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3	63 36 % Retained 0.0 0.0 0.0 0.0 10.3 19.4	% Retained 0.0 0.0 0.0 10.3 29.7	
45 44 40	5,44	60	58, 40	Bability Factor:	34 JMF Zone		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8"	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1	63 36 % Retained 0.0 0.0 0.0 10.3 19.4 11.2	% Retained 0.0 0.0 0.0 10.3 29.7 40.9	
45 44 40	ess Factor:	60	58, 40	ability Factor:	34 JMF Zone 75, 39		Coars Work Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8	63 36 % <u>Retained</u> 0.0 0.0 0.0 10.3 19.4 11.2 16.3	% Retained 0.0 0.0 0.0 0.0 29.7 40.9 57.2	
45 44	5, 44 45, 33	60	58, 40	Bability Factor:	34 JMF Zone 75, 39		Coarse Work: Sieve 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8 35.5	63 36 % <u>Retained</u> 0.0 0.0 0.0 10.3 19.4 11.2 16.3 7.3	% Retained 0.0 0.0 0.0 0.0 10.3 29.7 40.9 57.2 64.5	
45 44	5, 44 45, 33 Operating Zone	60	58, 40	ability Factor:	34 JMF Zone 75, 39		Coarse Work: 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8 35.5 29.0	63 36 % <u>Retained</u> 0.0 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	
45 44	5, 44 45, 33	60	58, 40	ability Factor:	34 JMF Zone 75, 39		Coarse Work: 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16 #30	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 89.7 70.3 59.1 42.8 35.5 29.0 21.2	63 36 % <u>Retained</u> 0.0 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 0.0 10.3 29.7 40.9 57.2 64.5 71.0 78.8	
ability Factor (%)	5, 44 45, 33 Operating Zone	60	58, 40	ability Factor:	34 JMF Zone 75, 39		Coarse Work: 2" 1.5" 1" 3/4" 1/2" 3/8" #4 #8 #16	eness Factor: ability Factor: Cumulative % Passing 100.0 100.0 100.0 89.7 70.3 59.1 42.8 35.5 29.0	63 36 % <u>Retained</u> 0.0 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: Mary 1. Ball

PLANT		P-O2		~	oncrete Grade		Contractor:				
Sample Date					oncrete Grade	DWI, 430011F					
Dates Test F	cepresents:	11/7/2023	through	11/13/2023	Specific	%	MDOT No.:				
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Gravity	⁷⁰ 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				CUD	ERIOR
		Total Wt	2905	17.69		100.0	< Verify this n	umber is 100%		MATE	RIALS
Sieve	(6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained		<u>Superior I</u> 30701 W. 1	Materials, LLC L0 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"		96.5		0.0	100.0	98.3	1.7	1.7			
3/4"		75.9	-	0.0	100.0	88.0	10.3	12.0			
1/2"		34.7	94		100.0	66.8	21.2	33.2			
3/8" #4		16.9 2.9	86	5.0 7.9	100.0 96.0	57.1 42.4	9.8 14.7	42.9 57.6	*Maximum % Retained must be above the 3/8" siev *Any two adjacent sieves must equal 10% except m		
#4 #8		1.6	6		80.9	33.5	8.9	66.5		Cent sleves must e	
#16		1.4	3	-	65.9	27.1	6.4	72.9	,		for each sieve except
#30		1.4		.6	49.5	20.6	6.6	79.4		00 and #200 sieves	•
#50		1.3	2		25.5	11.0	9.6	89.0			for the 3/4" sieve whe
#100		1.3	2	.3	5.4	3.0	8.0	97.0	a 1.5" max. siz	e (nom. Max. 1.0") ;	aggregate is used.
LBW		1.0	2	.0	0.6	0.9	2.1	99.1			
Production G	Gradation	O Batch Plant Gra	dations 🛛 💿 Agg	regate SupplierGrad	ations	Adjusted WF	Intial Production	on Sample (IPS	3)		
	ess Factor:	65	Work	ability Factor:	34	36.0	Coars	eness Factor:	63		
				•			Work	ability Factor:	35		
45					INAE Zono			Cumulative	%	Cumulative	
-	45, 44				JMF Zone		Sieve	% Passing	Retained	% Retained	
		52, 41	¥				2"	100.0	0.0	0.0	
			58, 39	68, 39	75, 39		1.5"	100.0	0.0	0.0	
م 40				00, 30	I		1"	100.0	0.0	0.0	
(%) ⁴⁰			I								
tor (%)			■ 60, 36	Production Gra	adation		3/4"	95.1	4.9	4.9	
actor (%)			■ 60, 36	Production Gra	adation		1/2"	74.6	20.5	25.4	
y Factor (%)	45-22	52, 34	■ 60, 36	Production Gra	adation		1/2" 3/8"	74.6 59.3	20.5 15.3	25.4 40.7	
ility Factor (%)	45, 33	52, 34			adation		1/2" 3/8" #4	74.6 59.3 42.1	20.5 15.3 17.2	25.4 40.7 57.9	
ability Factor (%) 00 01 02 02 02 03 04 04 04 04 04 04 04 04 04 04			• 60, 36	Production Gra	adation		1/2" 3/8" #4 #8	74.6 59.3 42.1 35.1	20.5 15.3 17.2 7.1	25.4 40.7 57.9 64.9	
orkability Factor (%)	Operating Zone						1/2" 3/8" #4 #8 #16	74.6 59.3 42.1 35.1 29.2	20.5 15.3 17.2 7.1 5.9	25.4 40.7 57.9 64.9 70.8	
ility Factor (%)					adation 75, 28		1/2" 3/8" #4 #8	74.6 59.3 42.1 35.1	20.5 15.3 17.2 7.1	25.4 40.7 57.9 64.9	
% 40 35 30 25 40	Operating Zone		58, 31			80	1/2" 3/8" #4 #8 #16 #30	74.6 59.3 42.1 35.1 29.2 21.9	20.5 15.3 17.2 7.1 5.9 7.3	25.4 40.7 57.9 64.9 70.8 78.1	

Approved By: Marthe Bal