PLANT #: P-102

Concrete Grade: DM, 4500HP 9/30/24 Sample Date:

Contractor:

Dates Test Represents:		10/1/2024	through	10/7/2024		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1450	8.64	2.69	49.2
26A	58-003	Stoneco	350	2.09	2.69	11.9
2NS	63-114	Highland	1150	6.95	2.65	39.0

MDOT No.:



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

	Total Wt	2950 17.68		100.0	< Verify this n	umber is 100%
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.6	100.0	100.0	99.8	0.2	0.2
3/4"	83.4	100.0	100.0	91.8	8.0	8.2
1/2"	43.5	99.0	100.0	72.1	19.7	27.9
3/8"	22.3	86.5	100.0	60.2	11.9	39.8
#4	3.4	5.1	99.1	40.9	19.3	59.1
#8	1.5	2.3	82.6	33.2	7.7	66.8
#16	1.5	2.0	63.8	25.8	7.4	74.2
#30	1.4	1.8	44.8	18.4	7.5	81.6
#50	1.3	1.6	22.0	9.4	9.0	90.6
#100	1.3	1.6	4.6	2.6	6.8	97.4
LBW	1.0	1.5	0.7	0.9	1.7	99.1
•	0			•		

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max.,

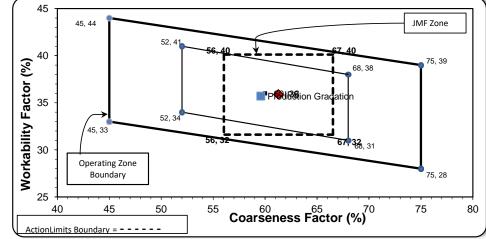
nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for the 3/4" sieve when

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

Production Gradation	Batch Plant Gradation	ns	dations	Adjusted WF	Intial Production Sample (IPS)	
Coarseness Factor:	60	Workability Factor:	33	35.7	Coarseness Factor:	61
45 -					Workability Factor:	36
-5				¬	Cumulative	%



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

PREPARED BY: SM, LLC Technical Service

PLANT #:

9/30/24 Sample Date:

Concrete Grade: DM, 4500HP

Contractor:

MDOT No.:

Dates Test Represents:		10/1/2024	through	10/7/2024		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1450	8.64	2.69	49.2
26A	58-003	Stoneco	350	2.09	2.69	11.9
2NS	63-114	Highland	1150	6.95	2.65	39.0

Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1450	8.64	2.69	49.2
26A	58-003	Stoneco	350	2.09	2.69	11.9
2NS	63-114	Highland	1150	6.95	2.65	39.0
		Total Wt	2950	17.68	_	100.0

Verify this no	umber is 100%
% Retained	Cumulative % Retained

SUPERIOR MATERIALS

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

	Total Wt	2930 17.68		100.0	< Verity this n	umber is 100%
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.6	100.0	100.0	99.8	0.2	0.2
3/4"	83.4	100.0	100.0	91.8	8.0	8.2
1/2"	43.5	99.0	100.0	72.1	19.7	27.9
3/8"	22.3	86.5	100.0	60.2	11.9	39.8
#4	3.4	5.1	99.1	40.9	19.3	59.1
#8	1.5	2.3	82.6	33.2	7.7	66.8
#16	1.5	2.0	63.8	25.8	7.4	74.2
#30	1.4	1.8	44.8	18.4	7.5	81.6
#50	1.3	1.6	22.0	9.4	9.0	90.6
#100	1.3	1.6	4.6	2.6	6.8	97.4
LBW	1.0	1.5	0.7	0.9	1.7	99.1
Production Gra	dation O Batch Plant Grada	tions	adations	Adjusted WF	Intial Production	on Sample (IPS)

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max.,

nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for the 3/4" sieve when

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

_	1 Todaction Cradation				/ lajustea VVI	iritiai i Todactio	on campic (ii c	')
	Coarseness Factor:	60	Workability Factor:	33	35.7	Coars	eness Factor:	
-	45					Work	ability Factor:	
	45.44			JMF Zone	7 I I	Sieve	Cumulative	
	1 10, 44				-	Sieve	% Passing	L
	-	52, 41	67.40			2"	100.0	

~	Ĭ	45, 44	JMF Zone]
Workability Factor (%)	5 -	45, 33	52, 41 68, 38 75, 39 68, 38 75, 39 56, 32 67, 38, 31	
Works		Operating Zone Boundary	75, 28	
	40	45	50 55 Coarseness Factor (%) 70 75	80

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

PREPARED BY: SM, LLC Technical Service

Aggregate Optimization Chart

PLANT #: 12

Sample Date:

26A 2NS

LBW

9/30/24 Concrete Grade: DM, 4500HP

Dates Test Represents: 10/1/2024 10/7/2024 through Agg. Clas 6AA

ss	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
	71-47	Presque Isle	1350	8.26	2.62	46.5
	71-47	Presque Isle	405	2.48	2.62	13.9
	63-115	Ray Rd	1150	6.95	2.65	39.6
		Total Wt	2905	17.69		100.0

1.4

Contractor:

Cumulative

98.7

MDOT No.:

Cumulative

1.3

-- Verify this number is 100%

SUPERIOR MATERIALS

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

Sieve	6AA	26A	2NS	% Passing	% Retained	% Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	96.6	100.0	100.0	98.4	1.6	1.6
3/4"	72.9	100.0	100.0	87.4	11.0	12.6
1/2"	32.2	95.4	100.0	67.9	19.6	32.1
3/8"	14.9	85.3	100.0	58.4	9.4	41.6
#4	3.2	21.3	96.1	42.5	15.9	57.5
#8	2.3	5.6	80.3	33.6	8.9	66.4
#16	2.0	2.6	65.0	27.0	6.6	73.0
#30	1.9	1.9	49.2	20.6	6.4	79.4
#50	1.8	1.8	25.4	11.1	9.5	88.9
#100	1.8	1.6	6.4	3.6	7.5	96.4

0.8

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max.,

nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for the 3/4" sieve when

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

Production Gradation	Batch Plant Gradatio	ns	ons	Adjusted WF	Intial Product	ion Sample (IPS	5)
Coarseness Factor:	63	Workability Factor:	34	36.1	Coars	seness Factor:	
7 45				$\neg \top$	Worl	kability Factor:	
45, 44			JMF Zone	7 I I	Sieve	Cumulative	
1 1	52, 41			- ' ∥	01010	% Passing	
40 1	57.4	68, 40			2"	100.0	
Factor (%)		68, 38	75, 39		1.5"	100.0	ľ
-					1"	99.3	
일		■ 60,∰poduction Gradation		- 11	3/4"	89.0	Г
35 -				- 11	1/2"	70.3	
-	52, 34			- 11	3/8"	59.9	
Aboundary About 45, 33 Operating Zone Boundary	57-2	2		- 11	#4	41.9	
30 -	· , ·	68, 32 68, 31			#8	35.9	
Operating Zone				- 11	#16	27.8	
Boundary			75, 28		#30	18.9	
S 25					#50	6.3	
40 45	50 55 _	60 65 70	75	80	#100	1.7	
		coarseness Factor (%) ⁷⁰	. •	""	LBW	1.0	
ActionLimits Boundary = -							

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

63

PREPARED BY: SM, LLC Technical Service

1.6

Aggregate Optimization Chart

Batch Plant Gradations

9/30/24

PLANT #: p11

Sample Date:

Production Gradation

Concrete Grade: DM, 4500HP

Dates Test I	Represents:	10/1/2024	through	10/7/2024		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1355	8.29	2.62	46.6
26A	71-47	Presque Isle	400	2.45	2.62	13.8
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6

MDOT No.:

Adjusted WF Intial Production Sample (IPS)

Coarseness Factor:

Contractor:



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

Sieve 6AA 26A 2NS Cumulative % Passing % 2" 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.4	Retained	Cumulative % Retained
1.5" 100.0 100.0 100.0 100.0		1
	0.0	0.0
4" 00.0 100.0 100.0 00.4	0.0	0.0
1 96.6 100.0 100.0 98.4	1.6	1.6
3/4" 72.9 100.0 100.0 87.4	11.1	12.6
1/2" 32.2 95.4 100.0 67.7	19.6	32.3
3/8" 14.9 85.3 100.0 58.3	9.5	41.7
#4 3.2 21.3 96.1 42.5	15.8	57.5
#8 2.3 5.6 80.3 33.6	8.8	66.4
#16 2.0 2.6 65.0 27.0 2.6	6.6	73.0
#30 1.9 1.9 49.2 20.6	6.4	79.4
#50 1.8 1.8 25.4 11.1 	9.5	88.9
#100 1.8 1.6 6.4 3.6	7.5	96.4
LBW 1.6 1.4 0.8 1.3	2.3	98.7

Aggregate Supplier Gradations

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max.,

nom. max., #100 and #200 sieves.

62

*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for the 3/4" sieve when

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

Coarsene	ss Factor:	63	Workability Factor: 34	36.1
(%) (%) (%) (%) (%) (%) (%) (%) (%) (%)	5, 44 45, 33 Operating Zone Boundary	52, 34	JMF Zone 68, 38 68, 38 75, 39 75, 28	
40 ActionLimits	45 Boundary = 	50 5	Coarseness Factor (%)	80

Work	ability Factor:	36	
Sieve	Cumulative	%	Cumulative
51646	% Passing	Retained	% Retained
2"	100.0	0.0	0.0
1.5"	100.0	0.0	0.0
1"	100.0	0.0	0.0
3/4"	95.0	5.0	5.0
1/2"	72.3	22.8	27.7
3/8"	60.4	11.8	39.6
#4	42.6	17.8	57.4
#8	36.0	6.6	64.0
#16	29.5	6.5	70.5
#30	20.3	9.2	79.7
#50	9.5	10.8	90.5
#100	3.4	6.1	96.6
LBW	1.3	2.1	98.7

PREPARED BY: SM, LLC Technical Service

PLANT #:

Sample Date: 9/30/24 Concrete Grade: DM, 4500HP

MDOT No.:

Dates Test F	Represents:	10/1/2024	through	10/7/2024		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	58-003	Stoneco	1475	8.79	2.69	50.0
26A	58-003	Stoneco	325	1.94	2.69	11.0
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0

Contractor:

<u>S</u>	uperior Materials, LLC
30	0701 W. 10 Mile Rd.
Sı	uite 500
Fa	armington Hills, MI 48336

	Total Wt	2950 17.68		100.0	< Verify this n	umber is 100%
Sieve	6AA	26A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained
2"	100.0	100.0	100.0	100.0	0.0	0.0
1.5"	100.0	100.0	100.0	100.0	0.0	0.0
1"	99.6	100.0	100.0	99.8	0.2	0.2
3/4"	83.4	100.0	100.0	91.7	8.1	8.3
1/2"	43.5	99.0	100.0	71.6	20.1	28.4
3/8"	22.3	86.5	100.0	59.7	12.0	40.3
#4	3.4	5.1	97.5	40.3	19.4	59.7
#8	1.5	2.3	83.8	33.7	6.6	66.3
#16	1.5	2.0	64.9	26.3	7.4	73.7
#30	1.4	1.8	44.5	18.2	8.0	81.8
#50	1.3	1.6	21.0	9.0	9.2	91.0
#100	1.3	1.6	4.3	2.5	6.5	97.5
LBW	1.0	1.5	0.6	0.9	1.6	99.1
	<u></u>				•	

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max.,

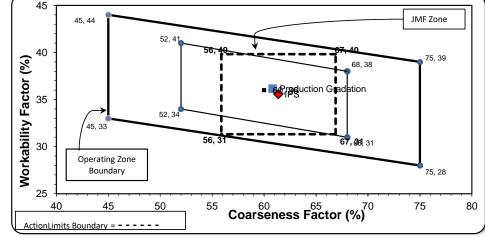
nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for the 3/4" sieve when

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

Production Gradation	Batch Plant Grad	ations () Aggregate Supplier Grada	ations	Adjusted WF	Intial Production	on Sample (IPS)	_
Coarseness Factor:	61	1	Workability Factor:	34	36.2	Coars	eness Factor:	61	1
45 1						Work	ability Factor:	36	
45, 44				JMF Zone	711	Sieve	Cumulative	%	7



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"	89.1	10.2	10.9
1/2"	70.5	18.6	29.5
3/8"	60.5	10.0	39.5
#4	44.1	16.4	55.9
#8	35.6	8.5	64.4
#16	27.7	7.9	72.3
#30	20.6	7.1	79.4
#50	8.7	11.8	91.3
#100	1.6	7.1	98.4
LBW	1.1	0.6	98.9

PREPARED BY: SM, LLC Technical Service

10/1/2024

PLANT #:

Dates Test Represents:

Workability Fact

25

9/30/24 Sample Date:

Concrete Grade: DM, 4500HP

75, 28

80

LBW

75

MDOT No.:

Contractor:

		1				• •
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific	%
Ayy. Class	rit#	Source	weight (SSD)	π	Gravity	Contribution
6AA	58-003	Stoneco	1475	8.79	2.69	50.0
26A	58-003	Stoneco	325	1.94	2.69	11.0
2NS	81-019	Pleasant Lake	1150	6.95	2.65	39.0
		Total M/4	2050	47.00		100.0

through

pecific	%	
Gravity	Contribution	
2.69	50.0	
2.69	11.0	
2.65	39.0	
	4000	

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

Total Wt		2950	17.68		100.0	< Verify this number is 100%		
Sieve	6AA	26A		2NS	Cumulative % Passing	% Retained	Cumulative % Retained	
2"	100.0	10	0.0	100.0	100.0	0.0	0.0	
1.5"	100.0	10	0.0	100.0	100.0	0.0	0.0	
1"	99.6	10	0.0	100.0	99.8	0.2	0.2	
3/4"	83.4	100.0		100.0	91.7	8.1	8.3	
1/2"	43.5	99	9.0	100.0	71.6	20.1	28.4	
3/8"	22.3	86	6.5	100.0	59.7	12.0	40.3	
#4	3.4	5	.1	97.5	40.3	19.4	59.7	
#8	1.5	2	.3	83.8	33.7	6.6	66.3	
#16	1.5	2.0		64.9	26.3	7.4	73.7	
#30	1.4	1.8		44.5	18.2	8.0	81.8	
#50	1.3	1.6		21.0	9.0	9.2	91.0	
#100	1.3	1.6		4.3	2.5	6.5	97.5	
LBW	1.0	1	.5	0.6	0.9	1.6	99.1	

10/7/2024

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max.,

nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for the 3/4" sieve when

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

98.9

Production Gradation	O Batch Plant Grad	lations Aggregate Supplier Grada	ations	Adjusted WF	Intial Producti	on Sample (IPS	3)
Coarseness Factor:	61	Workability Factor:	34	36.2	Coars	eness Factor:	
45					Work	ability Factor:	
45, 44			JMF Zone		Sieve	Cumulative % Passing	F
1 1	52, 41			- 11	2"	100.0	
% 40 -	56,		75, 39	- 11	1.5"	100.0	
🖔		68, 38	T	- 11	1"	99.3	
5		■ Repaduction Galaction		- 11	3/4"	89.1	

Coarseness Factor (%) 70

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"	89.1	10.2	10.9
1/2"	70.5	18.6	29.5
3/8"	60.5	10.0	39.5
#4	44.1	16.4	55.9
#8	35.6	8.5	64.4
#16	27.7	7.9	72.3
#30	20.6	7.1	79.4
#50	8.7	11.8	91.3
#100	1.6	7.1	98.4

61

36

0.6

PREPARED BY: SM, LLC Technical Service

50

45, 33

Operating Zone Boundary

45

ActionLimits Boundary = - - - - -

PLANT #: **P-O2**

Sample Date:

9/30/24

Contractor:

Concrete Grade: DM, 4500HP

Dates Test Represents:		10/1/2024	through	10/7/2024		
Agg. Class	Pit #	Source	Weight (SSD)	ft ³	Specific Gravity	% Contribution
6AA	71-47	Presque Isle	1350	8.26	2.62	46.5
26A	71-47	Presque Isle	405	2.48	2.62	13.9
2NS	63-115	Ray Rd	1150	6.95	2.65	39.6
		T (1 14/4	7	4 = 44		



Superior Materials, LLC 30701 W. 10 Mile Rd.

Suite 500

Farmington Hills, MI 48336

Total Wt		2905	2905 17.69		100.0	< Verify this number is 100%		
Sieve	6AA	26	A	2NS	Cumulative % Passing	% Retained	Cumulative % Retained	
2"	100.0	100	.0	100.0	100.0	0.0	0.0	
1.5"	100.0	100	.0	100.0	100.0	0.0	0.0	
1"	96.6	100	.0	100.0	98.4	1.6	1.6	
3/4"	72.9	100	.0	100.0	87.4	11.0	12.6	
1/2"	32.2	95.	4	100.0	67.9	19.6	32.1	
3/8"	14.9	85.	3	100.0	58.4	9.4	41.6	
#4	3.2	21.	3	96.1	42.5	15.9	57.5	
#8	2.3	5.6	6	80.3	33.6	8.9	66.4	
#16	2.0	2.6	6	65.0	27.0	6.6	73.0	
#30	1.9	1.9		49.2	20.6	6.4	79.4	
#50	1.8	1.8		25.4	11.1	9.5	88.9	
#100	1.8	1.6		6.4	3.6	7.5	96.4	
LBW	1.6	1.4	1	0.8	1.3	2.3	98.7	

*Maximum % Retained must be above the 3/8" sieve.

*Any two adjacent sieves must equal 10% except max.,

nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for each sieve except max., nom. max., #100 and #200 sieves.

*% Retained must be at least 4% for the 3/4" sieve when

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

		110		110	0	0.0		00.1	a 110 111a/11 012
LBW		1.6		1.4	8.0	1.3	2.3	98.7	
Production Gradation				Aggregate SupplierGradations		Adjusted WF Intial Production Sample (IPS)			S)
Coarsen	ess Factor:	63		Workability Factor:	34	36.1	Coars	eness Factor:	63
45 —							Work	ability Factor:	35
+3	45 44				JMF Zone	711	Sieve	Cumulative	%

45	45, 44 JMF Zone	
Workability Factor (%)	58, 39 68, 39 75, 39 68, 38 75, 39 60, 36 Production Gradation PS	
ility Fac	45, 33	
	58, 31 688, 331 Operating Zone Boundary 75, 28	
	0 45 50 55 60 65 70 75 80 mits Boundary =	,

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