



# NEVILLE AGGREGATES CO. INC.

*Construction Aggregates Supplier*

3501 Neville Road, Pittsburgh PA 15225

P 412.771.4001

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January 1, 2023

PennDOT Ref. #: NLSOHA14  
Material Type: 2A Limestone

To Whom It May Concern:

This letter is to verify that Neville Aggregates, Greentree PA, is an agent for National Lime and Stone Company, Carey OH. National Lime and Stone Company produces the material provided for your use, in accordance with the requirements of PennDOT Publication 408, Section 703 for coarse aggregate.

Sincerely,

A handwritten signature in black ink that reads "Caleb T. Bryan".

Caleb T. Bryan

A handwritten signature in black ink that reads "David T. Giehll".

David T. Giehll

# Quality Test Report

BMG Research & Development Center

3507 Neville Road, Pittsburgh PA 15225



**Source** National Lime & Stone Company - NLSOHA14  
**Product** 2A Limestone  
**Specification** PaDOT 408 Section 703

## Sample Information

<b>Sample No</b>	Average	<b>Weather</b>	-
<b>Start Date</b>	1/15/2022	<b>Temp</b>	-
<b>Finish Date</b>	12/27/2022	<b>Split Sample</b>	<input type="checkbox"/>
<b>Sampled By</b>	David Giehll	<b>Resample</b>	<input type="checkbox"/>
<b>Tested By</b>	David Giehll	<b>Lot/Sublot</b>	-
<b>Type</b>	Production Sample	<b>Quantity</b>	50 lbs
<b>Method</b>	Stockpile		

## Gradation Results

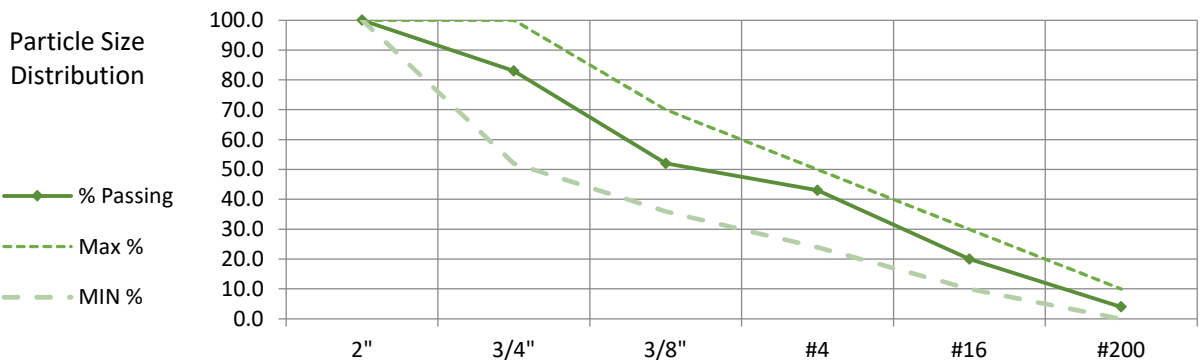
Units	Moist Mass	Dry Mass	Moisture %	Wash ST	Wash End	Wash Loss %
lbs	37.11	35.87	3.45%	12.870	11.915	7.42%

Sieve	Retained	Retained	Retained	Retained	Passing	Target	Specification %
2"	0.00	0.00	0.0	0.0	100.0	100	100
1 1/2"	0.00	0.00	0.0	0.0	100.0	-	-
3/4"	6.10	6.10	17.0	17.0	83.0	76	52
1/2"	6.10	12.20	17.0	34.0	66.0	-	-
3/8"	5.02	17.22	14.0	48.0	52.0	53	36
#4	3.23	20.45	9.0	57.0	43.0	37	24
#16	8.25	28.70	23.0	80.0	20.0	20	10
#200	5.74	34.44	16.0	96.0	4.0	5	0

## Other Test Results

Test Name	Date	Result	Unit	Target	Specification %
Wash Loss (#200)	--	7.42%	%	5	0 10



# LABORATORY COMPACTION CHARACTERISTICS OF SOIL

*CORRECTION OF UNIT WEIGHT AND WATER CONTENT FOR SOILS CONTAINING OVERSIZE PARTICLES - ASTM D4718*

Client	Neville Aggregates	Boring	N/A
Client Project	National	Depth	N/A
Project No.	45467	Sample	National
		Lab Sample No.	45467001
Visual Description:	Gray Gravelly Sand with Silt		

WET DENSITY					TEST PARAMETERS	
Mold ID	1	1	1	1	Test Method	ASTM D698
Compaction Point #	1	2	3	4	Compaction Energy	Standard
Wt. Mold & WS, gm.	10968	11166	11420	11387	Test Procedure	C (Rock Corr.)
Wt. Mold, gm.	6448	6448	6448	6448	Mold Diameter, in	6
Wt. WS, gm.	4520	4718	4972	4939	Compacted Layers	3
Mold Volume, cc	2122	2122	2122	2122	Blows Per Layer	56
Wet Density, gm./cc	2.13	2.22	2.34	2.33	Rammer Weight / Fall	5.5 lbs / 12 in.
Wet Density, pcf	132.9	138.7	146.2	145.2	Size of Material Used	-3/4" Sieve
					Use: 5%> 3/4" <30%	
WATER CONTENT					OVERSIZE PARTICLE CORRECTION	
Tare Number	829	811	520	807	Oversize Material, % (+3/4" Sieve) =	29.5
Wt. Tare & WS, gm.	1150	1278	1300.3	1482.8	W.C. of Oversize Rock % (Measured) =	2.7
Wt. Tare & DS, gm.	1123.9	1226.9	1215.6	1364.6	Gs of Oversize Rock (Measured) =	2.53
Wt. Tare, gm.	101.5	102	101.4	101.7	Percent Fines, % (-3/4" Sieve) =	70.5
Water Content, %	2.6	4.5	7.6	9.4	W.C. of Finer Material, % (-3/4" Sieve) =	4.8
DRY DENSITY vs. WATER CONTENT					SAMPLE SUMMARY	
LABORATORY TEST VALUES						
Water Content, %	2.6	4.5	7.6	9.4	Lab Optimum Water Content, %	7.3
Dry Density, pcf	129.6	132.7	135.9	132.8	Lab Maximum Dry Density, pcf	135.9
FIELD CORRECTED TEST VALUES						
Water Content, %	2.6	4.0	6.2	7.4	Field Optimum Water Content, %	6.0
Dry Density, pcf	136.9	139.3	141.7	139.4	Field Maximum Dry Density, pcf	141.8
Note: Maximum Density and Optimum Water Content reported from estimated best fit smooth curve!						
<p>The graph plots Dry Density (pcf) on the y-axis (125.0 to 145.0) against Water Content (%) on the x-axis (1 to 11). It features two main curves: a black laboratory curve and a green field corrected curve. The laboratory curve peaks at approximately 141.8 pcf at 7.3% water content. The field corrected curve peaks at 141.8 pcf at 6.0% water content. A red dashed horizontal line indicates the 95% Field MDD at 134.7 pcf. Vertical dashed lines connect the peak of the field curve and the 95% MDD line to the x-axis. A note states that the maximum density and optimum water content are reported from an estimated best fit smooth curve.</p>						
Note: Compacted with automatic compaction machine						

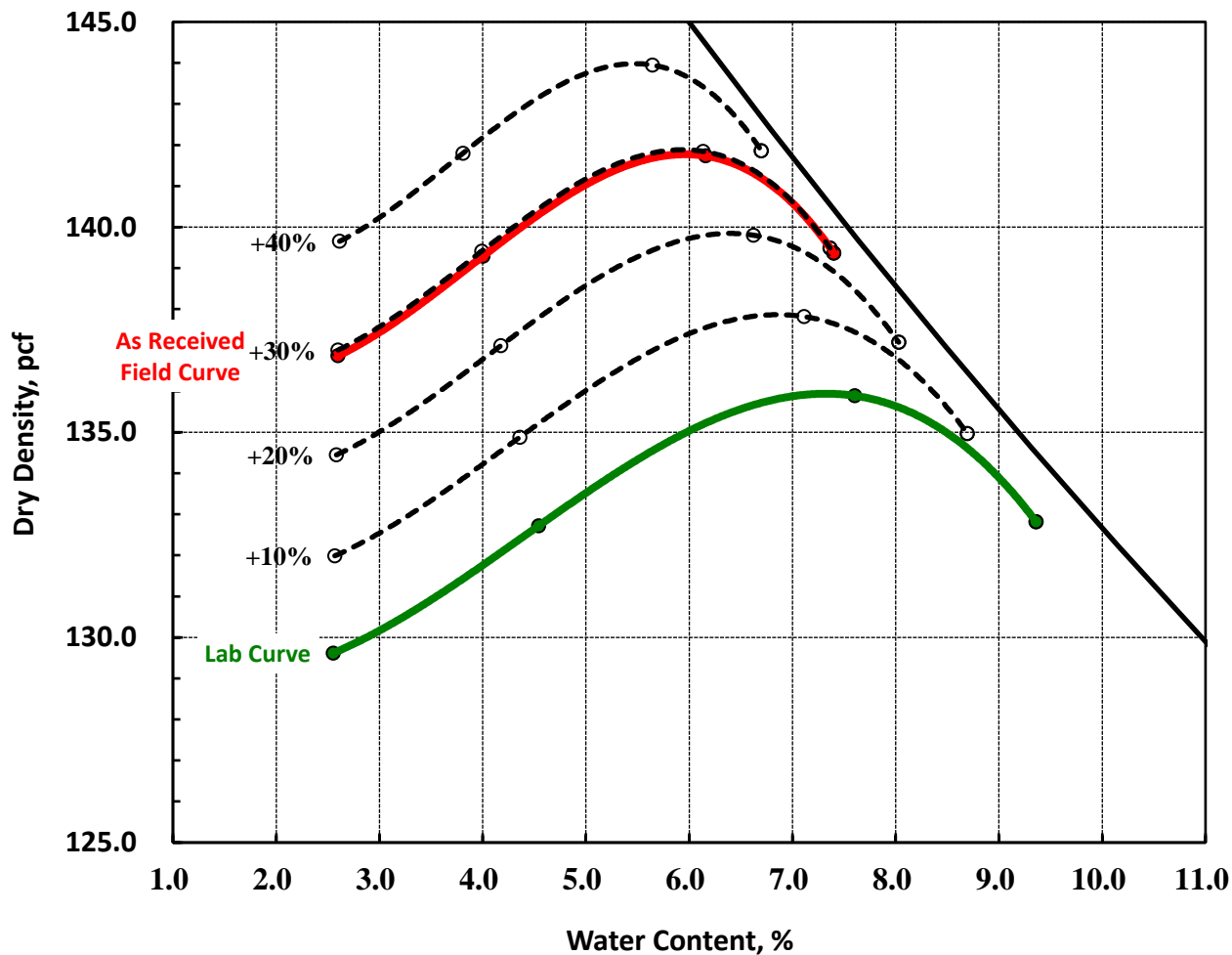
# LABORATORY COMPACTION CHARACTERISTICS OF SOIL

*CORRECTION OF UNIT WEIGHT AND WATER CONTENT FOR SOILS CONTAINING OVERSIZE PARTICLES - ASTM D4718*

Client	Neville Aggregates	Boring	N/A
Client Project	National	Depth	N/A
Project No.	45467	Sample	National
		Lab Sample No.	45467001
Description: Gray Gravelly Sand with Silt			

As-Received WC, %	4.8	Lab Optimum WC, %	7.3
As-Received Coarse Material, %	29.5	Lab Max. Dry Density,	135.9
		Field Optimum WC, %	6.0
		Field Max. Dry Density, pcf	141.8

**Rock Correction Family of Curves for Different Percentages of +3/4" Material in 10 Percent Increments**



### SPECIFIC GRAVITY AND ABSORPTION OF OVERSIZE FRACTION

TEST VALUES	SYMBOL
Weight of Oven-Dry Test Sample In Air + Tare Weight, gm	19391     A + t
Tare Weight, gm	1722.7     t
Weight of Oven-Dry Test Sample In Air, gm	17668.3     A
Weight of Saturated-Surface-Dry Sample In Air, gm	18180.3     B
Weight of Saturated Test Sample In Water, gm	11202.7     C

### SAMPLE SUMMARY

Bulk Specific Gravity	2.53	A / (B - C)
Bulk Specific Gravity (Saturated-Surface-Dry)	2.61	B / (B - C)
Apparent Specific Gravity	2.73	A / (A - C)
Absorption, %	2.9%	(B - A) / A

# LABORATORY COMPACTION CHARACTERISTICS OF SOIL

*CORRECTION OF UNIT WEIGHT AND WATER CONTENT FOR SOILS CONTAINING OVERSIZE PARTICLES - ASTM D4718*

Client	Neville Aggregates	Boring	N/A
Client Project	National	Depth	N/A
Project No.	45467	Sample	National
		Lab Sample No.	45467002
Visual Description:	Gray Gravelly Sand with Silt		

WET DENSITY					TEST PARAMETERS	
Mold ID	1	1	1	1	Test Method	ASTM D1557
Compaction Point #	1	2	3	4	Compaction Energy	Modified
Wt. Mold & WS, gm.	11303	11526	11558	11492	Test Procedure	C (Rock Corr.)
Wt. Mold, gm.	6448	6448	6448	6448	Mold Diameter, in	6
Wt. WS, gm.	4855	5078	5110	5044	Compacted Layers	5
Mold Volume, cc	2122	2122	2122	2122	Blows Per Layer	56
Wet Density, gm./cc	2.29	2.39	2.41	2.38	Rammer Weight / Fall	10 lbs / 18 in.
Wet Density, pcf	142.8	149.3	150.3	148.3	Size of Material Used	-3/4" Sieve
					Use: 5% > 3/4" < 30%	
WATER CONTENT					OVERSIZE PARTICLE CORRECTION	
Tare Number	232	827	713	506	Oversize Material, % (+3/4" Sieve) =	29.5
Wt. Tare & WS, gm.	1370.3	1224.7	1408.8	1510.7	W.C. of Oversize Rock % (Measured) =	2.7
Wt. Tare & DS, gm.	1311.1	1157	1289.9	1355.3	Gs of Oversize Rock (Measured) =	2.53
Wt. Tare, gm.	178.1	182	98.5	102.1	Percent Fines, % (-3/4" Sieve) =	70.5
Water Content, %	5.2	6.9	10.0	12.4	W.C. of Finer Material, % (-3/4" Sieve) =	4.8
DRY DENSITY vs. WATER CONTENT					SAMPLE SUMMARY	
LABORATORY TEST VALUES						
Water Content, %	5.2	6.9	10.0	12.4	<b>Lab Optimum Water Content, %</b>	<b>7.4</b>
Dry Density, pcf	135.7	139.6	136.6	132.0	<b>Lab Maximum Dry Density, pcf</b>	<b>139.8</b>
FIELD CORRECTED TEST VALUES						
Water Content, %	4.5	5.7	7.8	9.5	<b>Field Optimum Water Content, %</b>	<b>6.1</b>
Dry Density, pcf	141.6	144.6	142.3	138.7	<b>Field Maximum Dry Density, pcf</b>	<b>144.7</b>
<p><i>Note: Maximum Density and Optimum Water Content reported from estimated best fit smooth curve!</i></p>						
<p>The graph plots Dry Density (pcf) on the y-axis (ranging from 130.0 to 145.0) against Water Content (%) on the x-axis (ranging from 4 to 14). It features two data series: Laboratory Test Values (black dots and solid black curve) and Field Corrected Test Values (green dots and solid green curve). A dashed black curve represents the theoretical maximum density. A horizontal red dashed line indicates the 95% Field Maximum Dry Density (MDD) at 137.5 pcf. Vertical dashed lines connect the peak of the laboratory curve (at ~6.1% water content) and the peak of the field curve (at ~7.4% water content) to the x-axis. A vertical black dashed line is also present at approximately 6.1% water content.</p>						
<p><i>Note: Compacted with automatic compaction machine</i></p>						

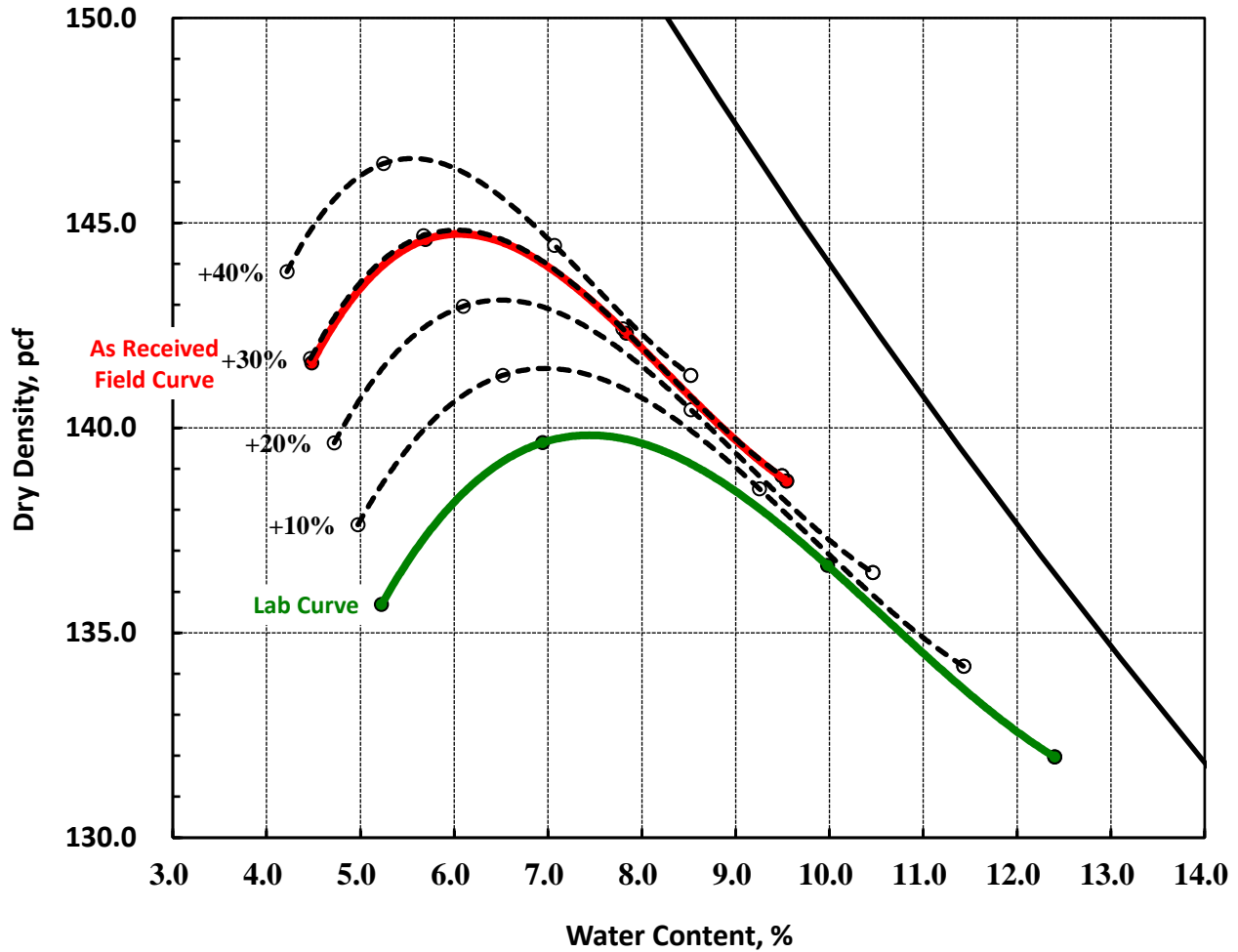
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As-Received WC, %	4.8	Lab Optimum WC, %	7.4	Field Optimum WC, %	6.1
As-Received Coarse Material, %	29.5	Lab Max. Dry Density,	139.8	Field Max. Dry Density, pcf	144.7

**Rock Correction Family of Curves for Different Percentages of +3/4" Material in 10 Percent Increments**



### SPECIFIC GRAVITY AND ABSORPTION OF OVERSIZE FRACTION

TEST VALUES	SYMBOL
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### SAMPLE SUMMARY

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Absorption, %	2.9%	(B - A) / A