ADDENDUM #1
2019 STREET REHABILITATION-UNIT 1
BID #18/19-001 / PWP #WA-2018-188
BIDS DUE NO LATER THAN: 1:45 PM ON MAY 24, 2018
PUBLIC BID OPENING: 2:00 PM ON MAY 24, 2018

This addendum is to notify all potential proposers of clarifications made to the Bid documents as stated below.

SUMBITTED REQUESTS FOR INFORMATION:
Questions provided by potential bidders as of 5/21/18, and answers provided by the City of Sparks:

Bidder Question
We are requesting the geotechnical report used to design the roadway section for this project. This could include drill logs, potholes, or any other appropriate data.

City Response
The requested information is provided in the remaining pages of this Addendum (Addendum #1).

Please note and adjust your bid according to the revisions, additions, deletions, clarifications or modifications as presented on this Addendum #1, which are made a part of this bid. NOTE: To avoid disqualification, this Addendum 1 (and any other addenda) must be signed by an authorized representative of the bidding firm in the space provided and must be submitted with your firm's sealed proposal. Failure to return this addendum, duly signed, may be cause for rejection of the bid. ALL ADDENDA SHOULD BE SIGNED AND PLACED IN SEQUENTIAL ORDER AND ATTACHED TO THE FRONT OF THE BID PACKAGE, COMPLETE WITH ALL REQUIRED DOCUMENTS.

_____
CONTRACTOR BUSINESS NAME

X_____
Authorized Signature

_____
Printed Name of Person Signing

_____
Dan Marran, C.P.M., CPPO
Contracts and Risk Manager

May 21, 2018

LUMOS & ASSOCIATES

March 20, 2018

City of Sparks
Attn: Bob Schricker
431 Prater Way
Sparks, NV 89434

RE: City of Sparks Pavement Investigation

This letter transmits information from the asphalt coring investigation provided for the City of Sparks, Nevada. It is our understanding the information provided herein is for FY 19 Unit 1. Lumos & Associates, Inc. was contracted to perform the coring, sampling, and materials testing, but not to provide recommendations or construction specifications.

Thirteen (13), 6-inch asphalt cores were extracted in order to determine pre-existing pavement sections (Refer to Plates 1 and 2 for core locations and Plates A-1 through A-13 for core hole logs). Base aggregate materials were sampled from all locations, where present. Sub-grade soil samples were obtained from all locations. Representative subgrade samples were tested to determine their plasticity index and percent fines (Refer to Plates B-1 and B-2).

It has been a pleasure to be of service to you on this project. Should you have any questions, or would like to discuss the contents of this letter in greater detail, please do not hesitate to contact the undersigned at (775) 827-6111.

Sincerely,

Bert Sexton, E.I.
Geotechnician
Lumos & Associates, Inc.

PROFESSIONAL ENGINEER-STATE OF NEVADA
MITCHELL T. BURNS
Exp: 12-31-18
CIVIL
No. 15001
3/20/18

Mitch Burns, P.E., C.E.M.
Materials Engineering Manager
Lumos & Associates, Inc.

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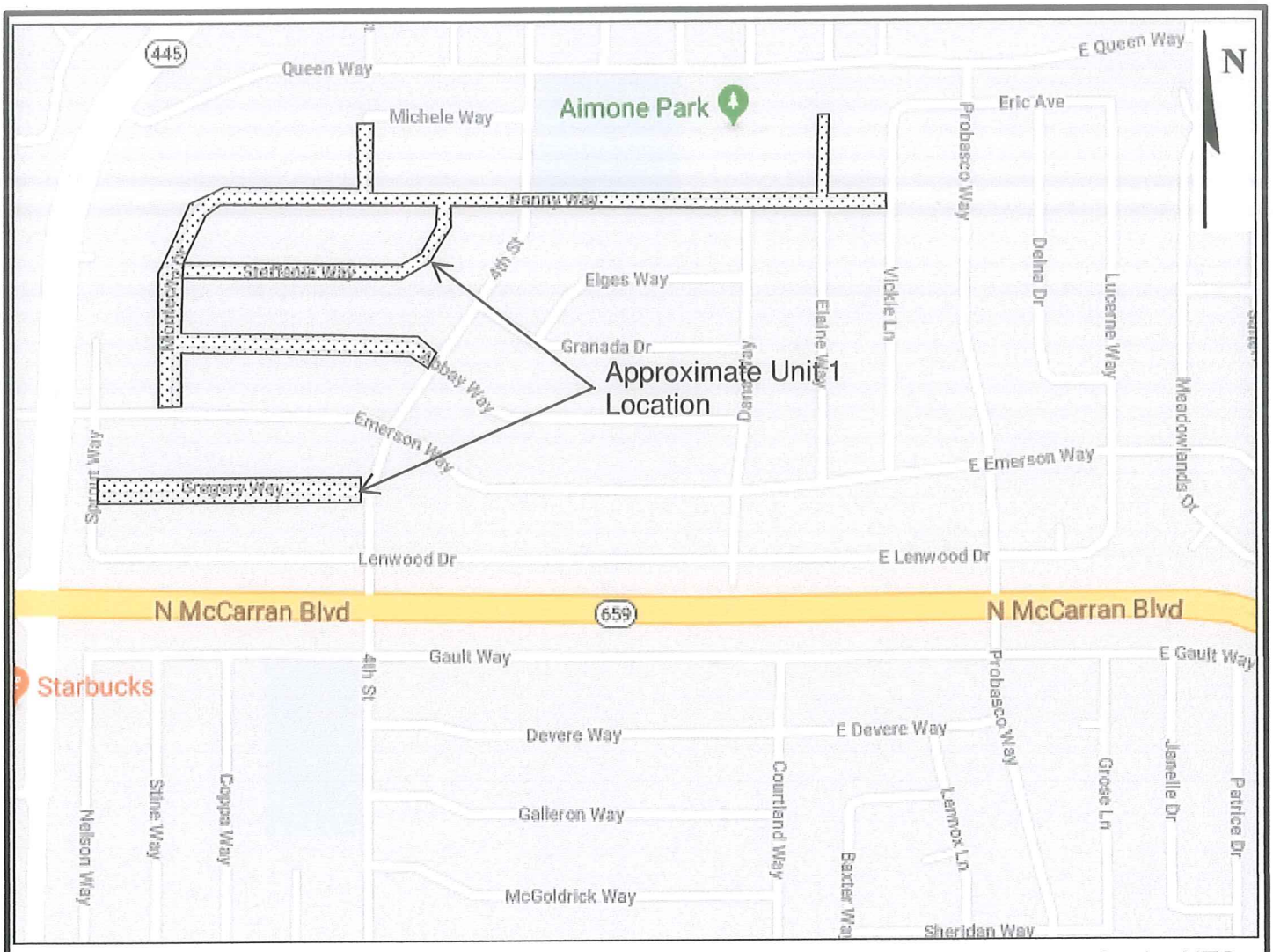

Scale: NTS

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Lumos and Associates
800 E. College Parkway
Carson City, NV 89706
(775) 883-7077
Fax: (775) 883-7114
bsexton@lumosinc.com

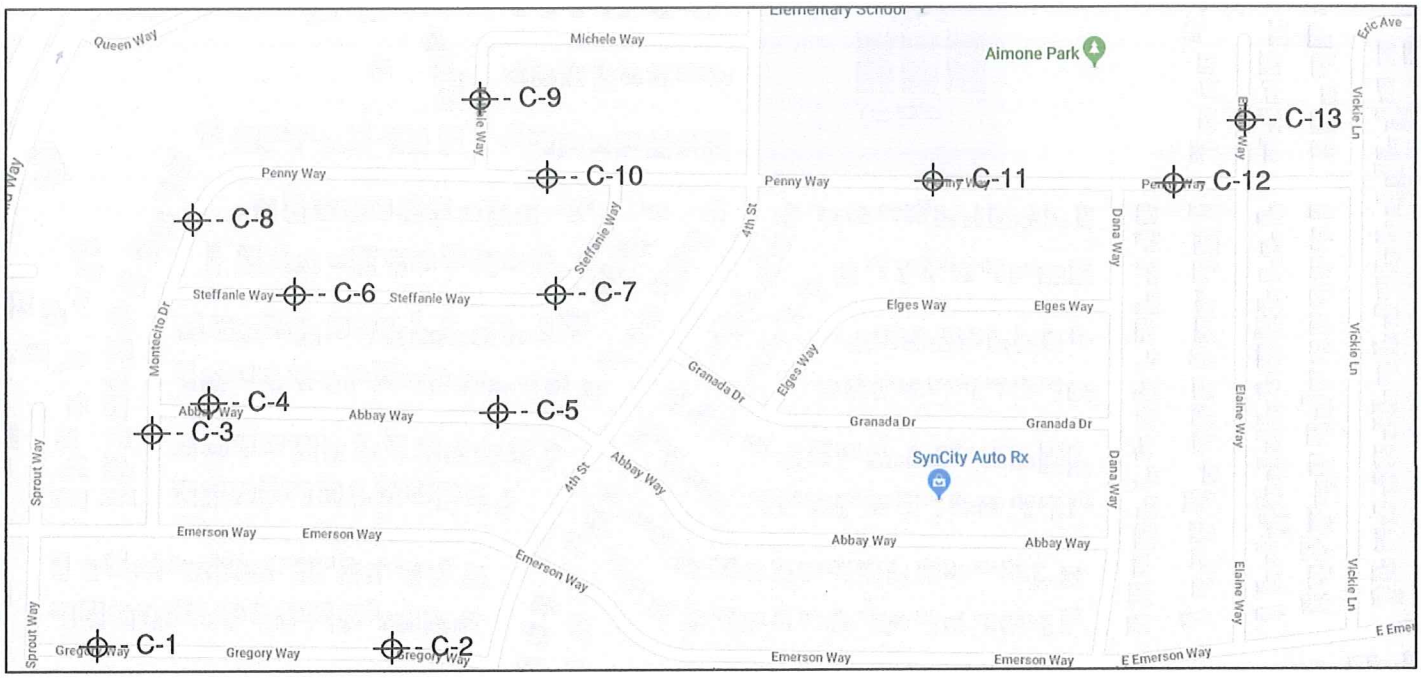
FY 19, Unit 1 Street Rehabilitation

VICINITY MAP: UNIT 1

Job Number: 9400.048

Date: May, 2018

PLATE 1



Scale: NTS

⊕ - Approximate Core Hole Location

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SITE MAP: FY19, UNIT 1

Job Number: 9400.048

Date: May, 2018

PLATE 2

APPENDIX A

LUMOS
& ASSOCIATES

TEST PIT No. C-01

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**

Total Depth: **2.2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			3 3/4" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Surface has Block, and Alligator Cracking Throughout. 0.3										
1		B	14 1/4" Material Similar to Type 2 Aggregate Base Rock. Material is Moist and Medium Dense. 1.5										
2		Z	**Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Gravel is Round to Sub-Round in Shape. 2.2				32	17	15.9	55.6	28.5		
			Test pit terminated at 2.2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE A-1

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TEST PIT No. C-02

Logged By: **B. Sexton**
Date Logged: **3-9-2018**
Drill Type: **Hand Excavation**

Total Depth: **2.2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			4 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Surface has Block, and Alligator Cracking Throughout. 0.4										
1		B	11 1/2" Material Similar to Type 2 Aggregate Base Rock. Material is Dark Brown, Moist, and Medium Dense. 1.3										
		Z	**Dark Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 15% Medium to Fine Sub-Round Gravel, 55% Coarse to Fine Sand, and 30% Clay. 1.6										
2		B	**Light Brown to Tan Clayey SAND (SC),** Moist, Loose to Medium Dense. Estimated 10% Fine Sub-Round Gravel, 60% Coarse to Fine Sand, and 30% Clay. 2.2										
			Test pit terminated at 2.2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE A-2

TEST PIT No. C-03

Logged By: **B. Sexton**
Date Logged: **3-9-2018**
Drill Type: **Hand Excavation**

Total Depth: **2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			2 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Surface has Block, and Alligator Cracking Throughout. 0.2										
		B	9 1/2" Material Similar to Type 2 Aggregate Base Rock. Material is Brown, Moist, and Medium Dense. 1.0										
1		Z	**Dark Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 30% Medium to Fine Sub-Round Gravel, 50% Coarse to Fine Sand, and 20% Clay. 1.3										
		Z	**Light Brown to Tan Clayey SAND (SC),** Moist, Loose to Medium Dense. Estimated 10% Fine Sub-Round Gravel, 60% Coarse to Fine Sand, and 30% Clay. 2.0										
2			Test pit terminated at 2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE
A-3

TEST PIT No. C-04

Logged By: **B. Sexton**
Date Logged: **3-9-2018**
Drill Type: **Hand Excavation**

Total Depth: **2.2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			2 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Alligator Cracking Throughout, and the Slurry Seal is Separating from the Asphalt Below it. 0.3										
1		B	9 1/2" Material Similar to Type 2 Aggregate Base Rock. Material is Brown, Moist, and Medium Dense. 1.3										
2		B	**Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 15% Medium to Fine Sub-Angular to Sub-Round Gravel, 65% Coarse to Fine Sand, and 20% Clay. 2.2										
			Test pit terminated at 2.2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE A-4

TEST PIT No. C-05

Logged By: **B. Sexton**
Date Logged: **3-9-2018**
Drill Type: **Hand Excavation**

Total Depth: **2.1 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			2 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Alligator Cracking Throughout, and the Slurry Seal is Separating from the Asphalt Below it. 0.2										
1		B	12" Material Similar to Type 2 Aggregate Base Rock. Material is Brown, Moist, and Medium Dense. 1.2										
2		B	**Light Brown Silty, Clayey SAND (SC-SM),** Moist, Loose to Medium Dense. 2.1										
			Test pit terminated at 2.1 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE
A-5

TEST PIT No. C-06

Logged By: **B. Sexton**
Date Logged: **3-9-2018**
Drill Type: **Hand Excavation**

Total Depth: **2.2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			3" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous and has Block Cracking Throughout. 0.3										
1		B	12" Material Similar to Type 2 Aggregate Base Rock. Material is Dark Brown, Moist, and Medium Dense. 1.3										
		B	**Light Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 30% Medium to Fine Sub-Round Gravel, 50% Coarse to Fine Sand, and 20% Clay. 1.8										
2		Z	**Reddish Brown Silty SAND (SM),** Moist, Loose to Medium Dense. Estimated 80% Coarse to Fine Sand and 20% Non-Plastic Silt. 2.2										
			Test pit terminated at 2.2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE A-6

TEST PIT No. C-07

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**

Total Depth: **2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			3" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous and has Block Cracking Throughout. 0.3										
1		B	13" Material Similar to Type 2 Aggregate Base Rock. Material is Dark Brown, Moist, and Medium Dense. 1.3										
2		B	**Light Brown to Orange Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 30% Medium to Fine Sub-Round Gravel, 40% Coarse to Fine Sand, and 30% Clay. 2.0										
			Test pit terminated at 2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE A-7

TEST PIT No. C-08

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**
Total Depth: **2.3 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			2 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Surface has Block, and Alligator Cracking Throughout. 0.3										
1		B	15" Material Similar to Type 2 Aggregate Base Rock. Material is Brown, Moist, and Medium Dense. 1.5										
2		Z	**Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Gravel is Sub-Angular to Sub-Round in Shape. 2.0				28	15	37.7	46.2	16.1		
		Z	**Orange Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 20% Fine Sub-Round Gravel, 50% Coarse to Fine Sand, and 30% Clay. 2.3										
			Test pit terminated at 2.3 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE
A-8

TEST PIT No. C-09

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**
Total Depth: **2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			3" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous and has Block Cracking Throughout. 0.3										
1		B	10" Material Similar to Type 2 Aggregate Base Rock. Material is Dark Brown, Moist, and Medium Dense. 1.1										
		B	**Light Brown to Orange Clayey SAND with Gravel (SC),** Moist, Medium Dense. Gravel is Sub-Round in Shape. 2.0				36	19	30.1	38.8	31.1		
2			Test pit terminated at 2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE
A-9

TEST PIT No. C-10

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**
Total Depth: **2.2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			3" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous and has Block Cracking Throughout. 0.3										
1		B	11.5" Material Similar to Type 2 Aggregate Base Rock. Material is Dark Brown, Moist, and Medium Dense. 1.2										
2		B	**Orange Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 30% Medium to Fine Sub-Round Gravel, 40% Coarse to Fine Sand, and 30% Clay. 2.2										
			Test pit terminated at 2.2 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE A-10

TEST PIT No. C-11

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**

Total Depth: **2.3 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			2 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Surface has Block, and Alligator Cracking Throughout. 0.2										
		B	15" Material Similar to Type 2 Aggregate Base Rock. Material is Brown, Moist, and Medium Dense. 1.0										
1		B	**Dark Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Gravel is Sub-Angular in Shape. 1.5				29	11	17.5	60.4	22.0		
2		Z	**Brown Silty, Clayey SAND (SC-SM),** Moist, Loose to Medium Dense. Estimated 70% Coarse to Fine Sand, and 30% Clay. 2.3										
			Test pit terminated at 2.3 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE A-11

TEST PIT No. C-12

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**

Total Depth: **2.1 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			4 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Surface has Block, and Alligator Cracking Throughout. 0.4										
		B	7 1/2" Material Similar to Type 2 Aggregate Base Rock. Material is Light Brown, Moist, and Medium Dense. 1.0										
1		B	**Brown Clayey SAND with Gravel (SC),** Moist, Medium Dense. Estimated 30% Medium to Fine Sub-Angular to Sub-Round Gravel, 40% Coarse to Fine Sand, and 30% Clay. 1.7										
2		Z	**Brown Silty, Clayey SAND (SC-SM),** Moist, Loose to Medium Dense. Estimated 70% Coarse to Fine Sand, and 30% Clay. 2.1										
			Test pit terminated at 2.1 feet.										

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LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048

Date: May 2018

PLATE A-12

TEST PIT No. C-13

Logged By: **B. Sexton**
Date Logged: **3-8-2018**
Drill Type: **Hand Excavation**

Total Depth: **2 feet**
Water Depth: **No groundwater encountered**
Ground Elev.: **E.G.S. feet ±**

Percolation Test | Split Spoon | Ziplock Sample | California Sampler | Bulk Sample | Static Water Table

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Density, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Direct Shear
			4 1/2" Material Similar to Asphalt with a Cap of Slurry Seal. Material is Porous, Surface has Block, and Alligator Cracking Throughout. 0.3										
		B	7 1/2" Material Similar to Type 2 Aggregate Base Rock. Material is Light Brown, Moist, and Medium Dense. 1.0										
1		B	**Brown Silty SAND (SM),** Moist, Medium Dense. Gravel is Sub-Round in Shape. 2.0				NP	NP	9.7	71.6	18.7		
2			Test pit terminated at 2 feet.										

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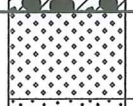
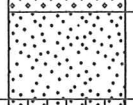
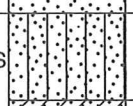
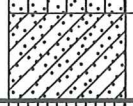
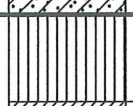
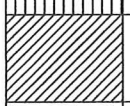
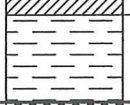
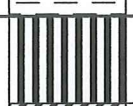
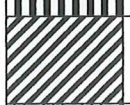
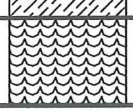
LOG OF EXPLORATORY TEST PIT

Job Number: 9400.048
Date: May 2018

PLATE
A-13

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Other Tests	
AN	ANALYTICAL TEST (pH, Soluble Sulfate, and Resistivity)
C	CONSOLIDATION TEST
DS	DIRECT SHEAR TEST
MD	MOISTURE DENSITY CURVE

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FY 19, Unit 1 Street Rehabilitation

LEGEND

Job Number: 9400.048

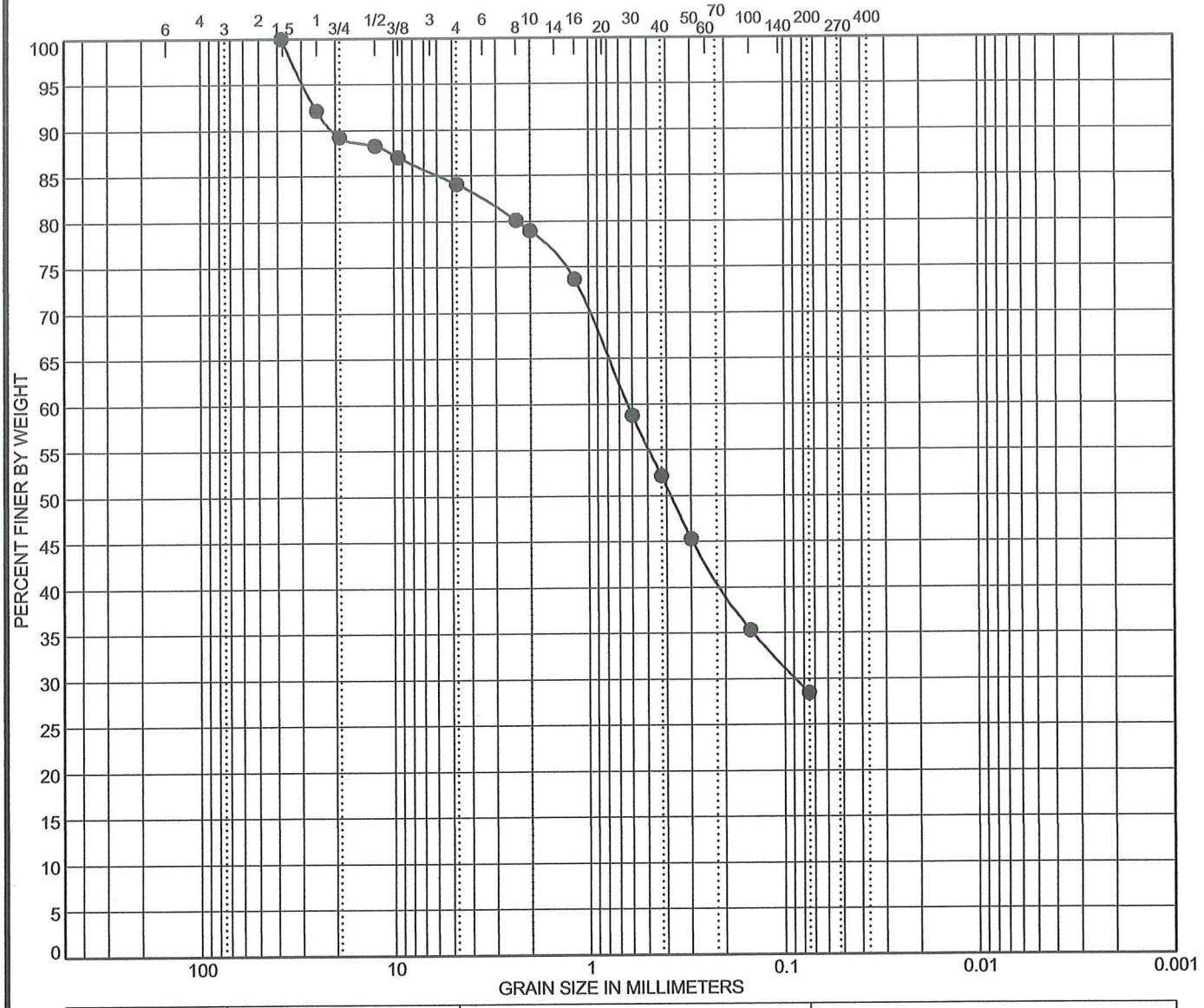
Date: May, 2018

PLATE A-14

LUMOS LEGEND C.O.S. 2018 PAVEMENT MAINTENANCE.GPJ 10-23-06.GDT 3/19/18

APPENDIX B

LUMOS & ASSOCIATES



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 3-16-2018								
C-01	Classification					LL	PL	PI	Cc	Cu
Depth: 1.5	Clayey SAND with Gravel (SC)					32	15	17		
Sample Location	Core 1 from 1.5' - 2.2'									
USCS	SC									
AASHTO										

Specimen Identification								
C-01	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
Depth: 1.5	38.1	0.634	0.088		15.9	55.6	28.5	

Natural Moisture	10.4 %		**S.E.**		**Absorption %**	
R-Value			**Durability Index**		**Soundness**	
Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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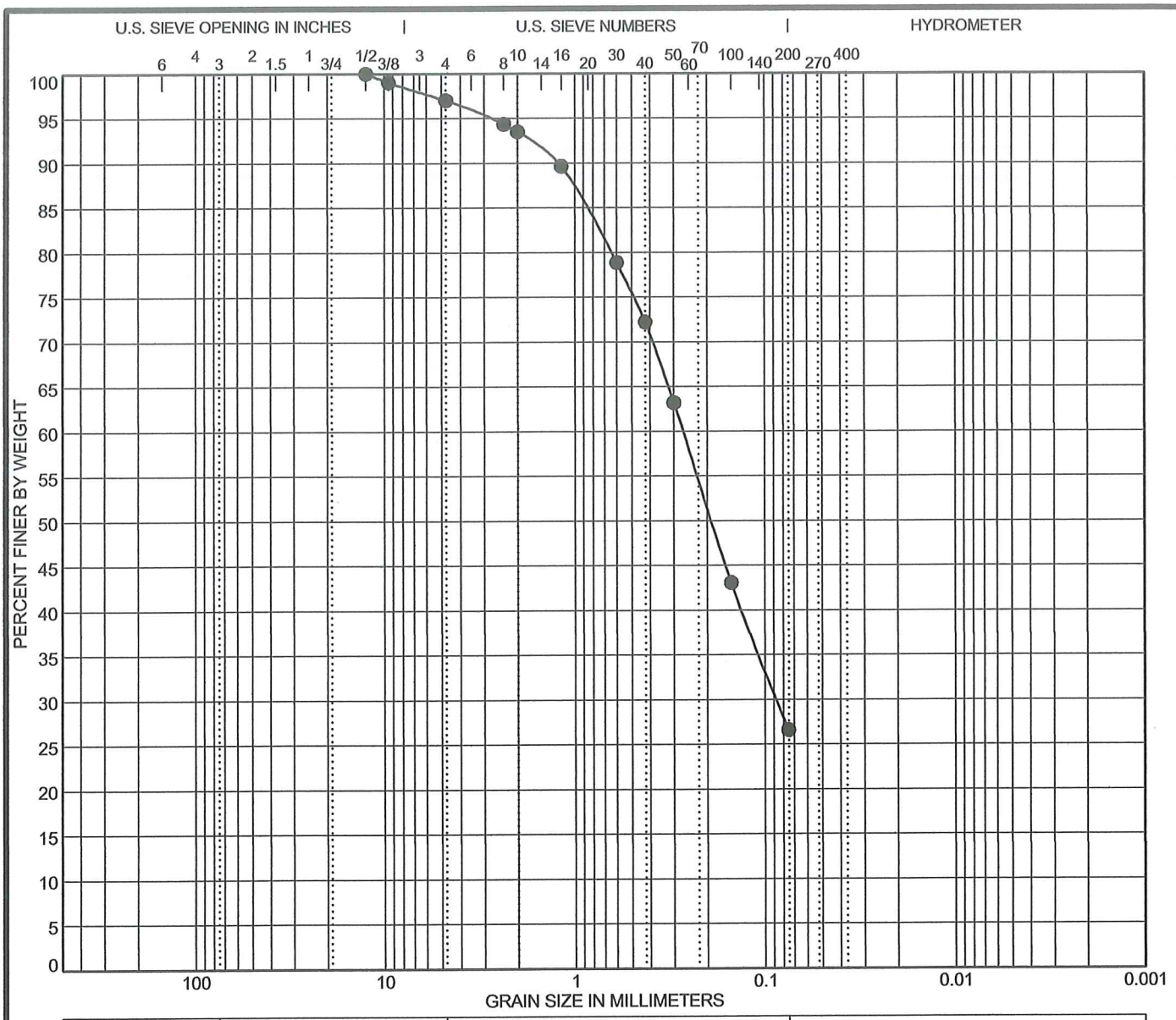
GRAIN SIZE DISTRIBUTION

Job Number: 9400.048

Date: May 2018

PLATE

B-1.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification	Date: 3-16-2018	LL	PL	PI	Cc	Cu
●	**C-05**	Classification					
	Depth: 1.25	Silty, Clayey SAND (SC-SM)	22	17	5		
	Sample Location	Core 5 from 1.25' - 2.08'					
	USCS	SC-SM					
	AASHTO						

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**C-05**								
	Depth: 1.25	12.5	0.268	0.086		3.0	70.4	26.6	
	Natural Moisture	7.2 %		**S.E.**		**Absorption %**			
	R-Value			**Durability Index**		**Soundness**			
	Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**			

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GRAIN SIZE DISTRIBUTION

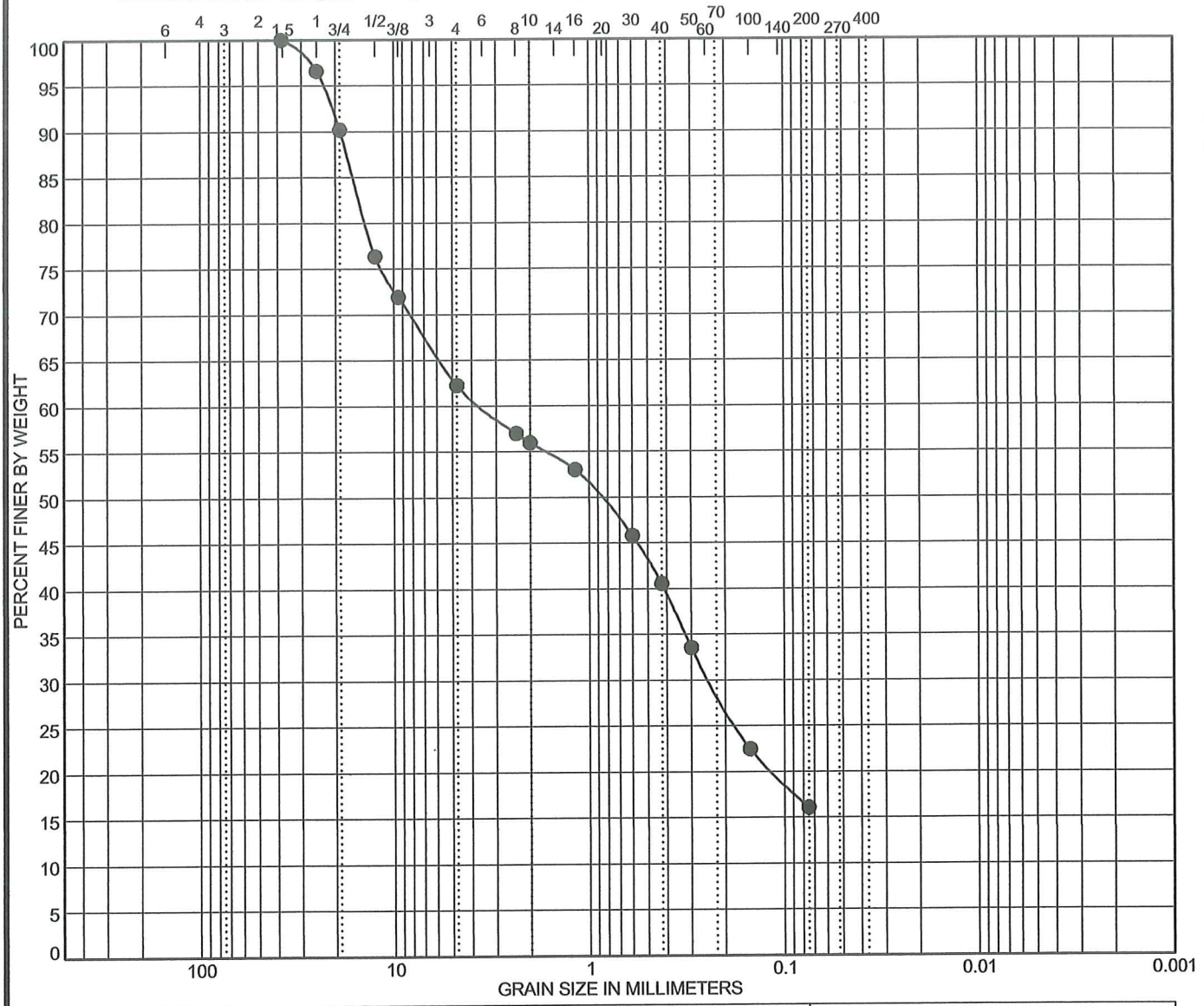
Job Number: 9400.048

Date: May 2018

PLATE

B-1.2

LUMOS GRAIN SIZE C.O.S. 2018 PAVEMENT MAINTENANCE.GPJ US LAB.GDT 5/16/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 3-16-2018	LL	PL	PI	Cc	Cu
● **C-08**	Classification					
Depth: 1.5	Clayey SAND with Gravel (SC)	28	14	14		
Sample Location	Core 8 from 1.5' - 2'					
USCS	SC					
AASHTO						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **C-08**								
Depth: 1.5	38.1	3.513	0.24		37.7	46.2	16.1	

Natural Moisture	6.9 %		**S.E.**		**Absorption %**	
R-Value			**Durability Index**		**Soundness**	
Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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GRAIN SIZE DISTRIBUTION

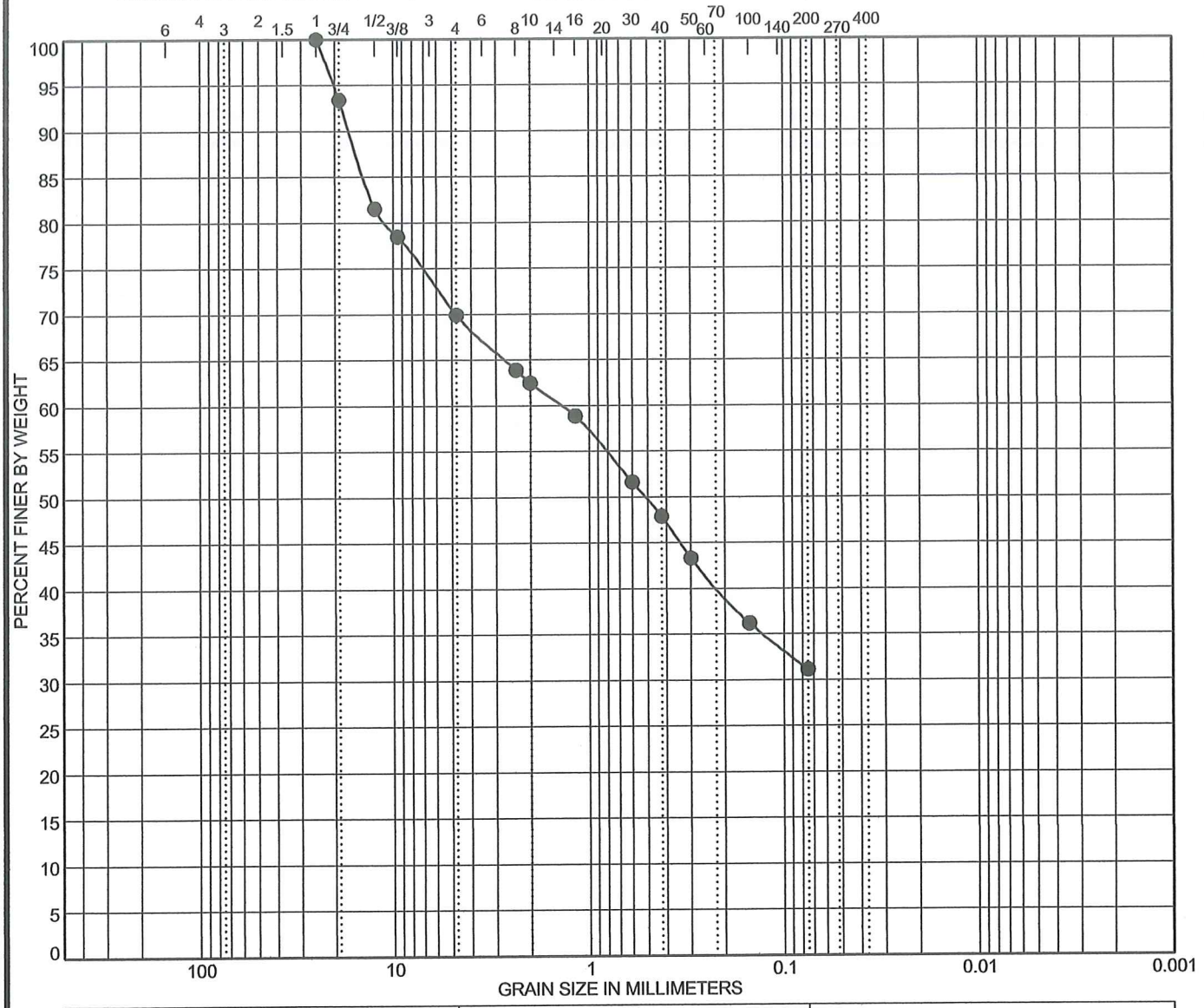
Job Number: 9400.048

Date: May 2018

PLATE

B-1.3

LUMOS GRAIN SIZE C.O.S. 2018 PAVEMENT MAINTENANCE.GPJ US LAB.GDT 5/16/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 3-16-2018								
● **C-09**	Classification					LL	PL	PI	Cc	Cu
Depth: 1.08	Clayey SAND with Gravel (SC)					36	17	19		
Sample Location	Core 9 from 1.08' - 2'									
USCS	SC									
AASHTO										

Specimen Identification								
● **C-09**	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
Depth: 1.08	25	1.391			30.1	38.8	31.1	

Natural Moisture	9.8 %		**S.E.**		**Absorption %**	
R-Value			**Durability Index**		**Soundness**	
Perctage of Wear (500 rev)	%		**Specific Gravity**		**Direct Shear**	

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GRAIN SIZE DISTRIBUTION

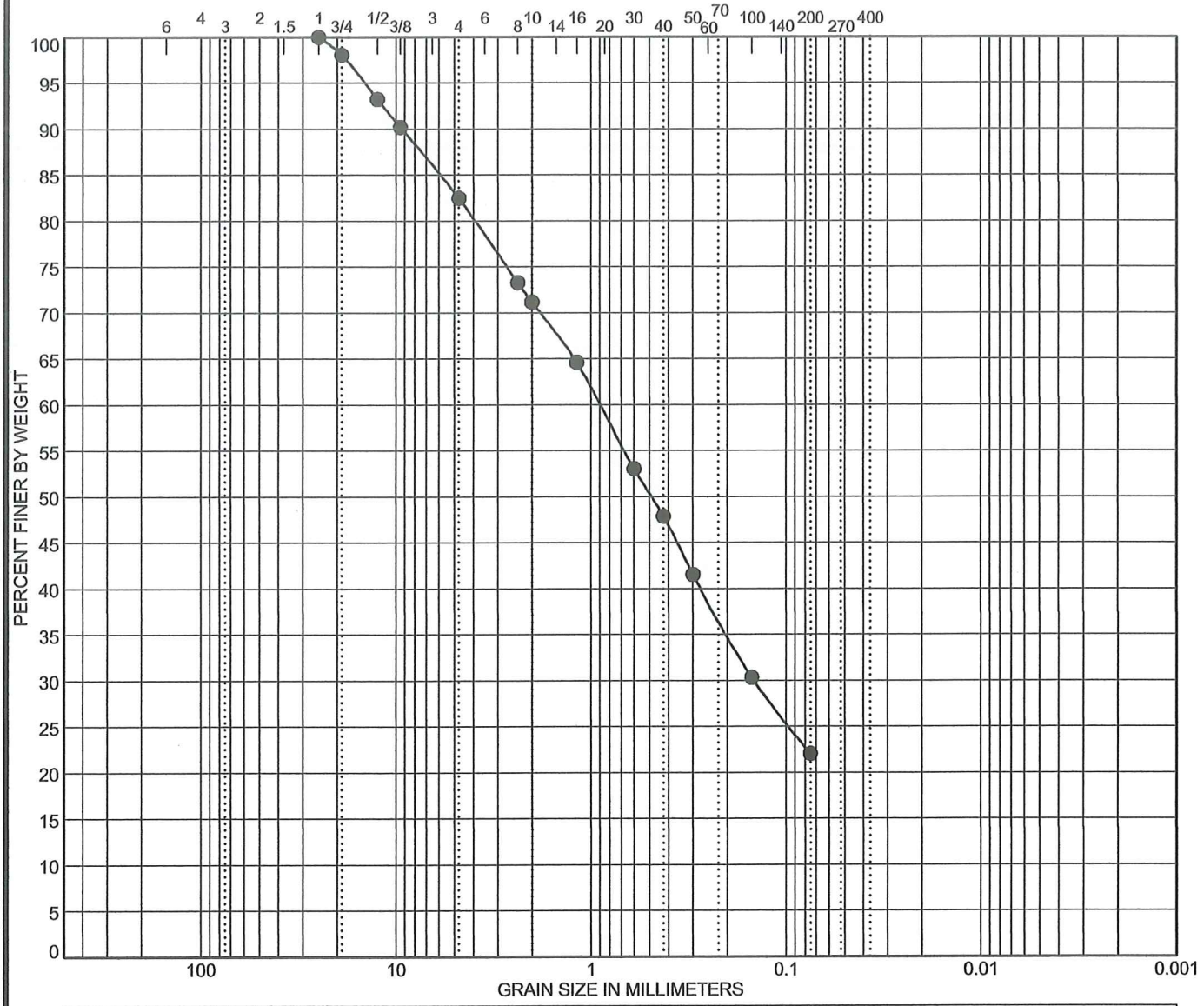
Job Number: 9400.048

Date: May 2018

PLATE

B-1.4

LUMOS GRAIN SIZE C.O.S. 2018 PAVEMENT MAINTENANCE.GPJ US LAB.GDT 5/16/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 3-16-2018						
● C-11	Classification	LL	PL	PI	Cc	Cu
Depth: 1	Clayey SAND with Gravel (SC)	29	18	11		
Sample Location	Core 11 from 1' - 1.5'					
USCS	SC					
AASHTO						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● C-11 Depth: 1	25	0.901	0.146		17.5	60.4	22.0	
Natural Moisture	10.1 %		S.E.		Absorption %			
R-Value			Durability Index		Soundness			
Perctage of Wear (500 rev)	%		Specific Gravity		Direct Shear			

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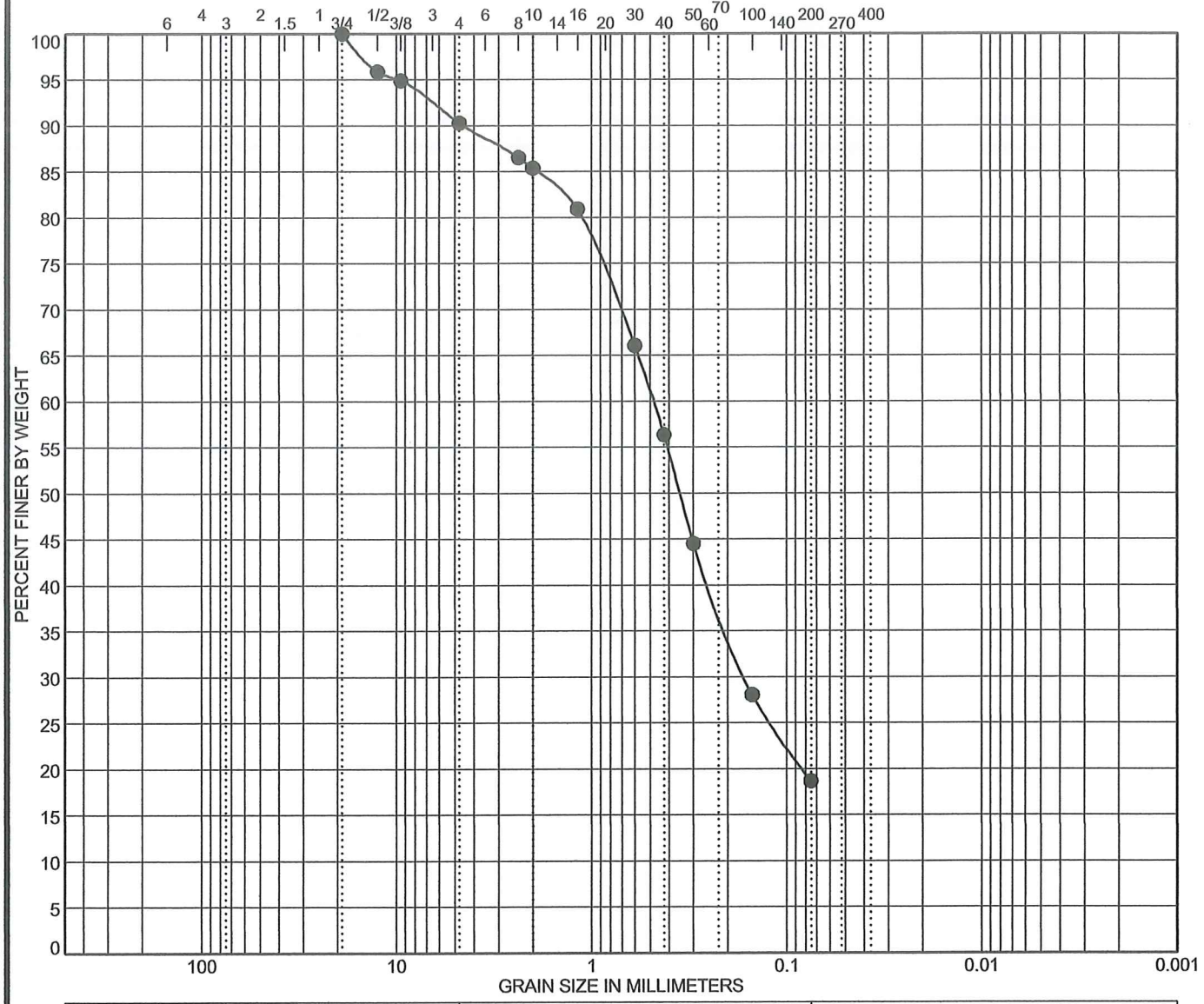
GRAIN SIZE DISTRIBUTION

Job Number: 9400.048 Date: May 2018

PLATE B-1.5

LUMOS_GRAIN SIZE_C.O.S. 2018 PAVEMENT MAINTENANCE.GPJ US LAB.GDT 5/16/18



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Date: 3-16-2018								
● C-13	Classification					LL	PL	PI	Cc	Cu
Depth: 1	Silty SAND (SM)					NP	NP	NP		
Sample Location	Core 13 from 1' - 2'									
USCS	SM									
AASHTO										

Specimen Identification								
● C-13	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
Depth: 1	19	0.484	0.163		9.7	71.6	18.7	

Natural Moisture	6.7 %		S.E.		Absorption %	
R-Value			Durability Index		Soundness	
Perctage of Wear (500 rev)	%		Specific Gravity		Direct Shear	

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FY 19, Unit 1 Street Rehabilitation

GRAIN SIZE DISTRIBUTION

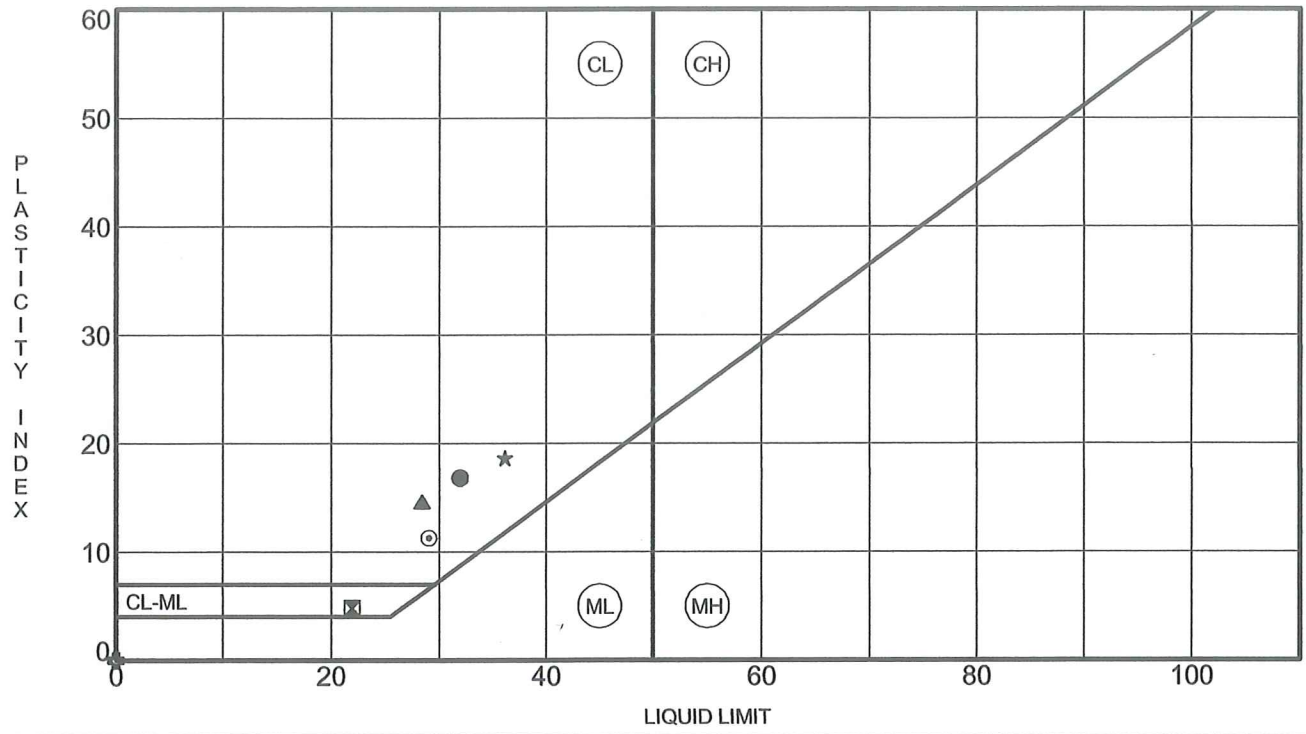
Job Number: 9400.048

Date: May 2018

PLATE

B-1.6

LUMOS GRAIN SIZE C.O.S. 2018 PAVEMENT MAINTENANCE.GPJ US LAB.GDT 5/16/18



Specimen Identification			LL	PL	PI	Fines	Classification
●	C-01	1.5	32	15	17	28	Clayey SAND with Gravel (SC)
⊠	C-05	1.3	22	17	5	27	Silty, Clayey SAND (SC-SM)
▲	C-08	1.5	28	14	14	16	Clayey SAND with Gravel (SC)
★	C-09	1.1	36	17	19	31	Clayey SAND with Gravel (SC)
⊙	C-11	1.0	29	18	11	22	Clayey SAND with Gravel (SC)
✿	C-13	1.0	NP	NP	NP	19	Silty SAND (SM)

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FY 19, Unit 1 Street Rehabilitation

ATTERBERG LIMITS' RESULTS

Job Number: 9400.048 Date: May 2018

PLATE B-2

LUMOS ATTERBERG LIMITS C.O.S. 2018 PAVEMENT MAINTENANCE.GPJ US LAB.GDT 5/16/18

LUMOS & ASSOCIATES

CEMENT TREATED BASE COMPRESSION TESTS

REPORT TO: **City of Sparks**

PROJECT NAME: **FY18, Unit 1 Street Rehabilitation**

PROJECT NO.: **9400.048**

LOCATION: Sparks, Nevada

CONTRACTOR: N/A

SAMPLED BY: A. Szendrey/J. Hartley

DATE RECEIVED: 3/8/2018

WEATHER: Clear

TIME: N/A

AIR TEMP: N/A

MOLDED BY: P. McCreary/ Z. Lim

DATE MOLDED: 3/27/2018

MATERIAL DESCRIPTION: 4% Cement Treated Base - 30% Asphalt Grindings and 70% Aggregate Base
2% Over Optimum Moisture Content

SAMPLE LOCATION: 2019 Unit 1, Blended Material

SAMPLE TYPE: LABORATORY DESIGN X FIELD SAMPLE

LAB NO.	DIAMETER (IN)	HEIGHT (IN)	AREA (SQ. IN)	TEST AGE	DATE TESTED	TOTAL LOAD-LBS.	UNIT LOAD PSI
R-145-18	4.05	4.89	12.88	3	3/30/18	6,131	475
R-146-18	4.03	4.98	12.76	3	3/30/18	5,940	465
R-147-18	4.03	4.92	12.76	3	3/30/18	5,552	435
R-148-18	4.03	4.86	12.76	7	4/03/18	6,785	530
R-149-18	4.05	4.97	12.88	7	4/03/18	7,213	560
R-150-18	4.05	4.92	12.88	7	4/03/18	6,697	520
				Average Compressive Strength 3-Day:			**460**
				Average Compressive Strength 7-Day:			**535**

Testing and Sampling were performed in accordance with ASTM D-558, C-1632, C-1633. Standards as applicable.

REMARKS:

CAPPING ☐ UNBONDED ☒ BONDED

TEST RESULTS: ☐ COMPLY ☐ DO NOT COMPLY

Reviewed by:

Mitch Burns, P.E., Materials Engineering Manager

☐ 9222 Prototype Drive, Reno, NV 89521, Tel 775.827.6111, Fax 775.827.6402
☐ 800 East College Parkway, Carson City, NV 89706, Tel 775.883.7077, Fax 775.883.7114
☐ 178 South Maine Street, Fallon, NV 89406, Tel 775.423.2188, Fax 775.423.5657
☐ 225 Kingsbury Grade, Suite A, Stateline, NV 89449, Tel 775.588.6490, Fax 775.588.6479

LUMOS & ASSOCIATES

CEMENT TREATED BASE COMPRESSION TESTS

REPORT TO: **City of Sparks**

PROJECT NAME: **FY19, Unit 1 Street Rehabilitation**

PROJECT NO.: **9400.048**

LOCATION: Sparks, Nevada

CONTRACTOR: N/A

SAMPLED BY: A. Szendrey/J. Hartley

DATE RECEIVED: 3/8/2018

WEATHER: Clear

TIME: N/A

AIR TEMP: N/A

MOLDED BY: P. McCreary/ Z. Lim

DATE MOLDED: 3/27/2018

MATERIAL DESCRIPTION: 3% Cement Treated Base - 30% Asphalt Grindings and 70% Aggregate Base
2% Over Optimum Moisture Content

SAMPLE LOCATION: 2019 Unit 1, Blended Material

SAMPLE TYPE: LABORATORY DESIGN X FIELD SAMPLE

LAB NO.	DIAMETER (IN)	HEIGHT (IN)	AREA (SQ. IN)	TEST AGE	DATE TESTED	TOTAL LOAD-LBS.	UNIT LOAD PSI
R-139-18	4.06	4.95	12.95	3	3/30/18	4,577	355
R-140-18	4.04	4.94	12.82	3	3/30/18	4,841	380
R-141-18	4.04	4.90	12.82	3	3/30/18	5,072	395
R-142-18	4.06	4.93	12.95	7	4/03/18	5,218	405
R-143-18	4.04	4.92	12.82	7	4/03/18	5,201	405
R-144-18	4.04	4.84	12.82	7	4/03/18	5,218	405
				Average Compressive Strength 3-Day:			**375**
				Average Compressive Strength 7-Day:			**405**

Testing and Sampling were performed in accordance with ASTM D-558, C-1632, C-1633. Standards as applicable.

REMARKS:

CAPPING ☐ UNBONDED ☒ BONDED

TEST RESULTS: ☐ COMPLY ☐ DO NOT COMPLY

Reviewed by:

Mitch Burns, P.E., Materials Engineering Manager

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☐ 225 Kingsbury Grade, Suite A, Stateline, NV 89449, Tel 775.588.6490, Fax 775.588.6479

LUMOS & ASSOCIATES

CEMENT TREATED BASE COMPRESSION TESTS

REPORT TO:	City of Sparks	PROJECT NAME:	FY19, Unit 1 Street Rehabilitation
		PROJECT NO.:	9400.048
		LOCATION:	Sparks, Nevada
		CONTRACTOR:	N/A
SAMPLED BY:	A. Szendrey/J. Hartley	DATE RECEIVED:	3/8/2018
WEATHER:	Clear	TIME:	N/A
AIR TEMP:	N/A	MOLDED BY:	P. McCreary/ Z. Lim
DATE MOLDED:	3/27/2018		

MATERIAL DESCRIPTION: 2% Cement Treated Base - 30% Asphalt Grindings and 70% Aggregate Base
2% Over Optimum Moisture Content

SAMPLE LOCATION: 2019 Unit 1, Blended Material

SAMPLE TYPE: LABORATORY DESIGN X FIELD SAMPLE

LAB NO.	DIAMETER (IN)	HEIGHT (IN)	AREA (SQ. IN)	TEST AGE	DATE TESTED	TOTAL LOAD-LBS.	UNIT LOAD PSI
R-133-18	4.05	4.87	12.88	3	3/30/18	4,147	320
R-134-18	4.05	4.89	12.88	3	3/30/18	3,968	310
R-135-18	4.05	4.83	12.88	3	3/30/18	3,741	290
R-136-18	4.06	4.94	12.95	7	4/03/18	4,232	325
R-137-18	4.06	4.94	12.95	7	4/03/18	4,114	320
R-138-18	4.04	4.82	12.82	7	4/03/18	4,333	340
				Average Compressive Strength 3-Day:			**305**
				Average Compressive Strength 7-Day:			**330**

Testing and Sampling were performed in accordance with ASTM D-558, C-1632, C-1633. Standards as applicable.

REMARKS:

CAPPING ☐ UNBONDED ☒ BONDED

TEST RESULTS: ☐ COMPLY ☐ DO NOT COMPLY

Reviewed by:

Mitch Burns, P.E., Materials Engineering Manager

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