



GFAC TEXAS PLLC

8155 East 46th Street
Tulsa, Oklahoma 74145
Phone: 918-622-7021

October 24, 2022

Mr. Micah Hargrave, P.E.
Freese and Nichols, Inc.
2711 North Haskell, Suite 3300
Dallas, TX 75204

**Subject: Subsurface Exploration and Laboratory Testing Services
21st Street Water Line Replacement
East 21st Street, Riverside to Peoria
Tulsa, Oklahoma
Project No. G2022072**

Dear Mr. Hargrave:

GFAC TEXAS PLLC (GFAC) is pleased to present the results of the subsurface exploration and laboratory testing performed for the proposed 21st Street Water Line Replacement in Tulsa, Oklahoma.

The subsurface exploration was completed on September 27, 2022. The exploration consisted of six (6) borings drilled to approximate depths ranging from 15 to 17 feet below the existing ground surface levels. The borings were drilled near the locations requested by Freese and Nichols, Inc., which are indicated on the attached Boring Location Diagram(s). The borings were completed using a truck mounted (CME 55) rotary drill rig using continuous flight augers to advance the boreholes. Representative samples were obtained by tube sampling procedures in general accordance with ASTM D 1587 and the split-barrel sampling procedures in general accordance with ASTM D 1586. The split-barrel sampling procedure utilizes a standard 2-inch O.D. split-barrel sampler that is driven into the bottom of the boring with a 140-pound auto-hammer falling a distance of 30 inches. The number of blows required to advance the sampler the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Resistance Value (N). These "N" values are indicated on the boring logs at their depth of occurrence and provide an indication of the consistency and relative density of the material.

Boring logs included with this letter, present such data as soil descriptions, consistency and relative density evaluations, depths, sampling intervals and observed groundwater conditions. Conditions encountered in each of the borings were monitored and recorded by the field engineer. Field logs included visual classification of the materials encountered during drilling, as well as drilling characteristics. Our final boring logs represent the engineer's interpretation

of the field logs combined with laboratory observation and testing of the samples. Stratification boundaries indicated on the boring logs were based on observations during our fieldwork, an extrapolation of information obtained by examining samples from the borings and comparisons of soils with similar engineering characteristics. Locations of these boundaries are approximate, and the transitions between soil types may be gradual rather than clearly defined.

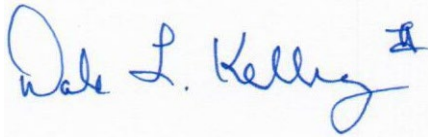
Laboratory tests were performed on samples selected by representatives of GFAC and approved by Freese and Nichols, Inc. Laboratory tests were performed in general accordance with the applicable standards. The results are presented on the attached boring logs, the Summary of Laboratory Testing Results sheets, Grain Size Distribution Sheets, and the Unconfined Compressive Strength Test Reports.

If you have questions regarding the content of this letter or require additional information, please contact the undersigned.

Sincerely,

GFAC TEXAS PLLC

Certificate of Authorization #8119; Exp. 6/30/2024



Dale L. Kelley II, P.E.
Senior Project Engineer



Brian K. Marick, P.E.
Principal Engineer

Attachments:

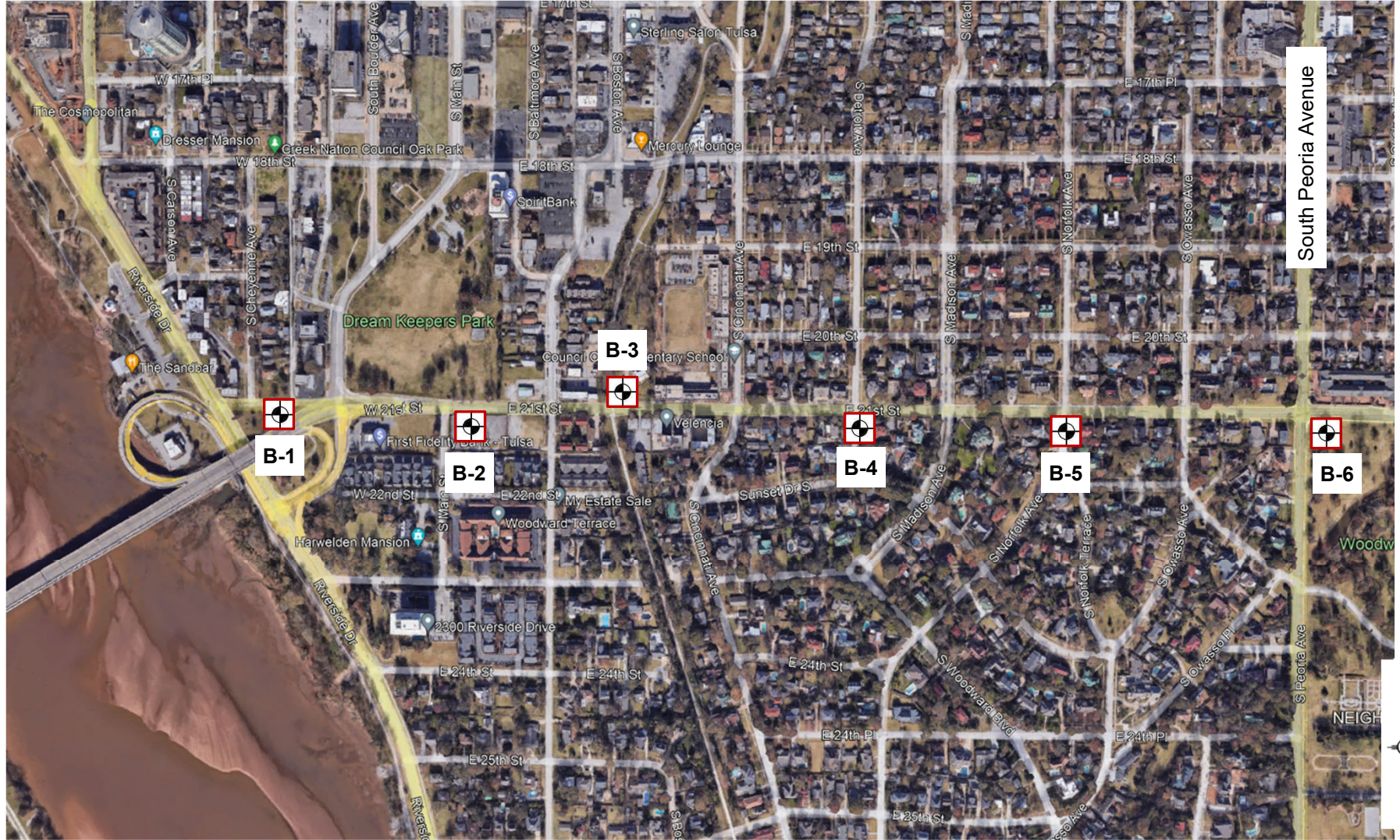
Boring Location Diagrams

Boring Logs

Summary of Laboratory Testing Results

Grain Size Distribution Sheets

Unconfined Compressive Strength Test Reports



Not to Scale

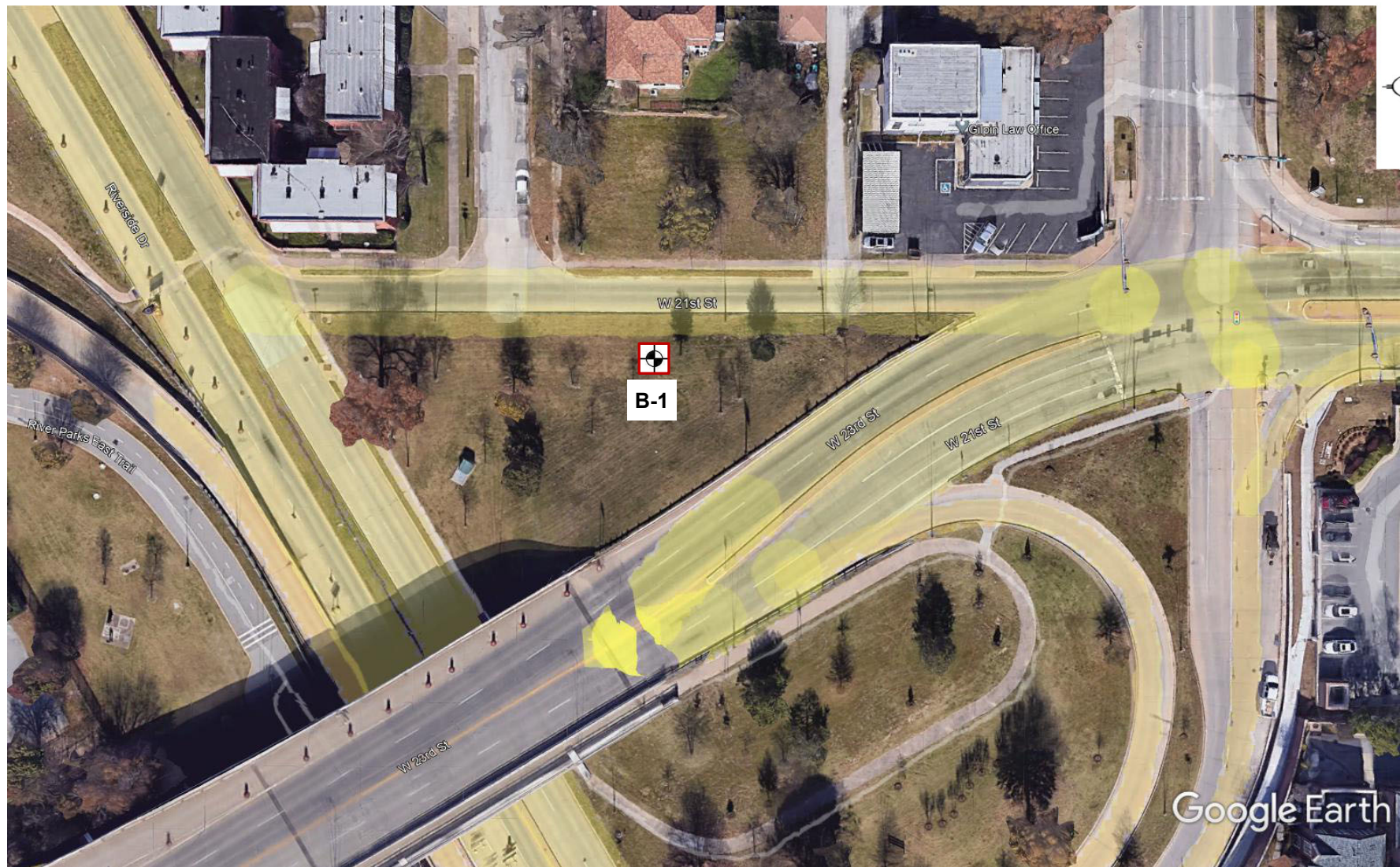
Boring locations are approximate.

Boring Location Diagram

21st Street Water Line Replacement
East 21st Street, Riverside to Peoria
Tulsa, Oklahoma

G2022072

October 5, 2022



Not to Scale

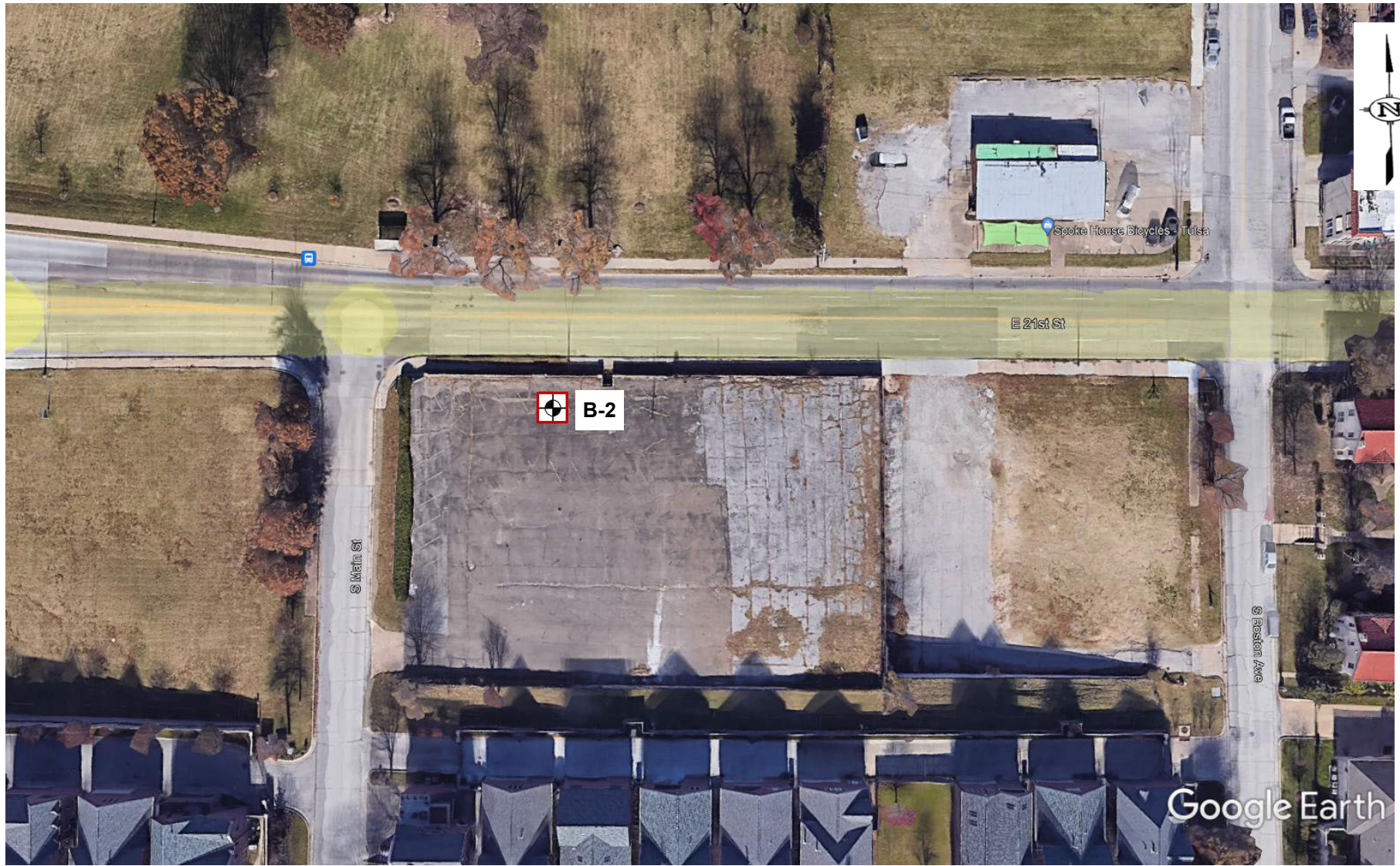
Boring locations are approximate.

Boring Location Diagram

21st Street Water Line Replacement
 East 21st Street, Riverside to Peoria
 Tulsa, Oklahoma

G2022072

October 5, 2022



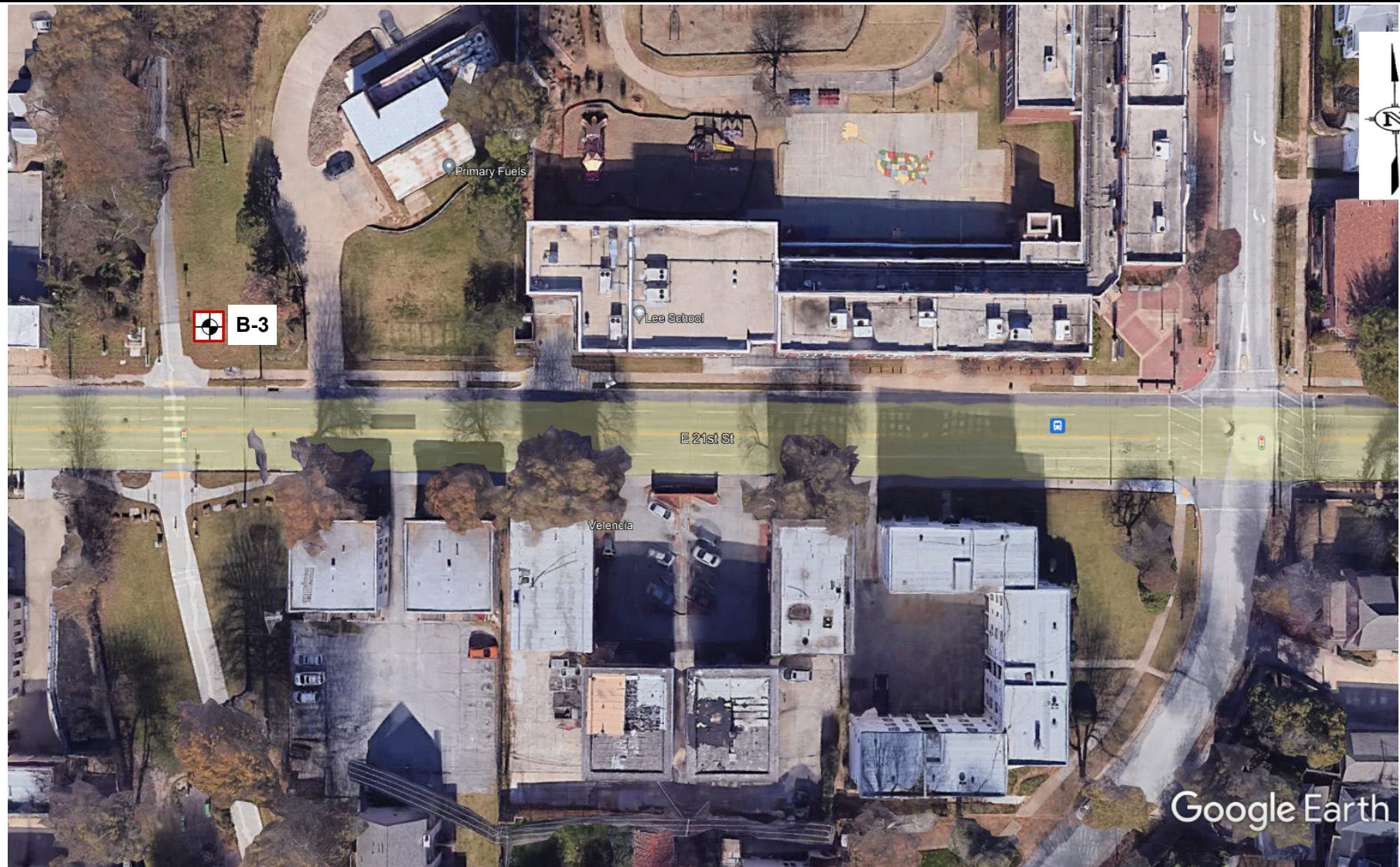
Not to Scale
Boring locations are approximate.

Boring Location Diagram

21st Street Water Line Replacement
East 21st Street, Riverside to Peoria
Tulsa, Oklahoma

G2022072

October 5, 2022



Not to Scale

Boring locations are approximate.

Boring Location Diagram

21st Street Water Line Replacement
East 21st Street, Riverside to Peoria
Tulsa, Oklahoma

G2022072

October 5, 2022



Not to Scale

Boring locations are approximate.

Boring Location Diagram

21st Street Water Line Replacement
East 21st Street, Riverside to Peoria
Tulsa, Oklahoma

G2022072

October 5, 2022



Not to Scale

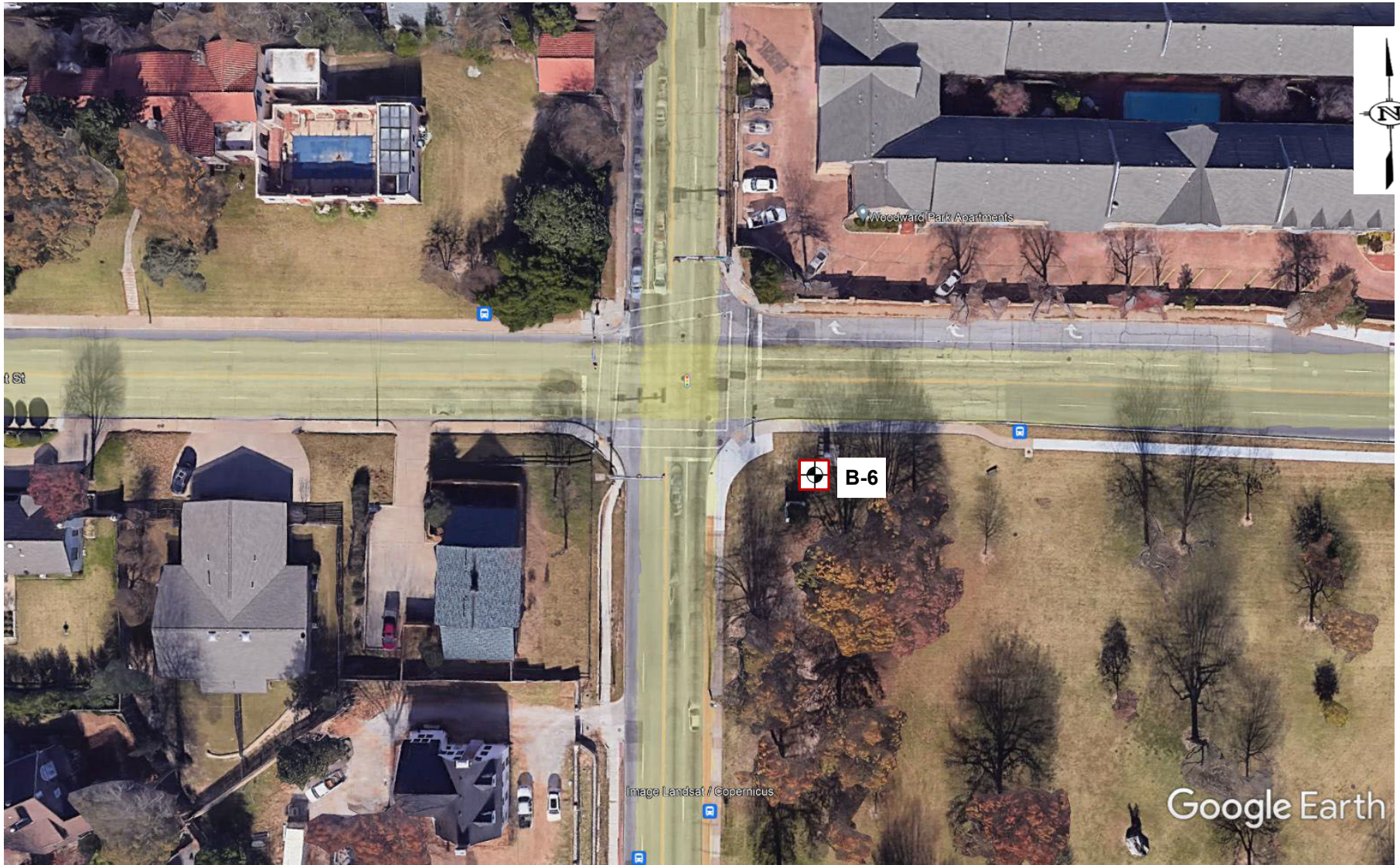
Boring locations are approximate.

Boring Location Diagram

21st Street Water Line Replacement
 East 21st Street, Riverside to Peoria
 Tulsa, Oklahoma

G2022072

October 5, 2022



Not to Scale

Boring locations are approximate.

Boring Location Diagram

21st Street Water Line Replacement
East 21st Street, Riverside to Peoria
Tulsa, Oklahoma

G2022072

October 5, 2022

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Tulsa OK 74145
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BORING NUMBER B-1

PAGE 1 OF 1

CLIENT Freese and Nichols, Inc	PROJECT NAME 21st Street Water Line Replacement
PROJECT NUMBER G2022072	PROJECT LOCATION East 21st Street, Riverside to Peoria, Tulsa, OK
DATE STARTED 9/27/22 COMPLETED 9/27/22	GROUND ELEVATION HOLE SIZE 6 inches
DRILLING CONTRACTOR GFAC	GROUND WATER LEVELS:
DRILLING METHOD CFA 6"	AT TIME OF DRILLING --- Dry
LOGGED BY PWV CHECKED BY DLK	AT END OF DRILLING --- Dry
NOTES Lat: 36.133319, Lon: -95.989995	AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL											
		FILL - Sandy Silt with gravel and broken concrete, moist, brown	SS 1	83		10-9-10 (19)							
		FILL - Broken Concrete, Limestone Gravel	SS 2	67		10-15-8 (23)							
		SANDY SILTY CLAY, moist, very soft, brown, dark brown											
5		- dark brown below 4.6 feet	SS 3	100		0-1-1 (2)			19	24	17	7	69
		LEAN CLAY, moist, very soft, dark brown trace gray, orange	SS 4	100		0-1-1 (2)			21	26	17	9	90
10		LEAN CLAY with sand, moist, very soft, dark brown trace gray	SS 5	100		0-0-0 (0)			24	27	18	9	84
15													

Bottom of borehole at 15.0 feet.

GEO BASE - GINT STD US LAB.GDT - 10/24/22 08:28 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCLPROJECTS\G2022072 21ST STREET WATERLINE.GPJ

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BORING NUMBER B-2

PAGE 1 OF 1

CLIENT Freese and Nichols, Inc **PROJECT NAME** 21st Street Water Line Replacement
PROJECT NUMBER G2022072 **PROJECT LOCATION** East 21st Street, Riverside to Peoria, Tulsa, OK
DATE STARTED 9/27/22 **COMPLETED** 9/27/22 **GROUND ELEVATION** **HOLE SIZE** 6 inches
DRILLING CONTRACTOR GFAC **GROUND WATER LEVELS:**
DRILLING METHOD CFA 6" **AT TIME OF DRILLING** --- Dry
LOGGED BY PWV **CHECKED BY** DLK **AT END OF DRILLING** --- Dry
NOTES Lat: 36.133275, Lon: -95.987112 **AFTER DRILLING** ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT - 2 3/4 inches											
		FILL - Limestone Screenings - 2 inches											
		FILL - Silty Sand, moist, orange, brown											
		SILTY SAND, moist, loose, tan, brown	SS 1	83		4-3-2 (5)							
			SS 2	83		1-2-3 (5)			10	NP	NP	NP	30
5		SILTY SAND, moist, loose, brown, orange trace tan											
			SS 3	78		2-3-3 (6)			9	NP	NP	NP	30
		- medium dense below 7.5 feet											
10		SILTY CLAYEY SAND, moist, medium dense, brown, red trace orange	SS 4	83		4-7-5 (12)							
		LEAN CLAY, moist, stiff, gray trace orange, brown	SS 5	100		2-4-6 (10)							
15		- very stiff below 15 feet											
			ST 6	100			27240	112	18	32	16	16	96

Bottom of borehole at 17.0 feet.

GEO BASE - GINT STD US LAB GDT - 10/24/22 08:29 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\G2022072 21ST STREET WATERLINE.GPJ

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BORING NUMBER B-3

PAGE 1 OF 1

CLIENT <u>Freese and Nichols, Inc</u>	PROJECT NAME <u>21st Street Water Line Replacement</u>
PROJECT NUMBER <u>G2022072</u>	PROJECT LOCATION <u>East 21st Street, Riverside to Peoria, Tulsa, OK</u>
DATE STARTED <u>9/27/22</u> COMPLETED <u>9/27/22</u>	GROUND ELEVATION _____ HOLE SIZE <u>6 inches</u>
DRILLING CONTRACTOR <u>GFAC</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CFA 6"</u>	AT TIME OF DRILLING <u>--- Dry</u>
LOGGED BY <u>PWV</u> CHECKED BY <u>DLK</u>	AT END OF DRILLING <u>--- Dry</u>
NOTES <u>Lat: 36.133576, Lon: -95.985055</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL											
		FILL - Sandy Silt with Limestone Gravel											
		FILL - Sandy Silt, dry, brown, orange	SS 1	83		6-7-8 (15)							
		SILTY CLAY with sand, moist, soft, orange, brown											
			SS 2	89		2-2-1 (3)			12	22	17	5	82
5		- medium stiff below 5 feet											
			SS 3	0		2-3-4 (7)							
		LEAN CLAY, moist, medium stiff, tan											
			SS 4	0		2-2-3 (5)			19	34	15	19	89
10													
		LEAN CLAY, moist, very stiff, gray, orange											
			ST 5	100			9740	107	21	38	17	21	96
15													

Bottom of borehole at 15.0 feet.

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BORING NUMBER B-4

PAGE 1 OF 1

CLIENT <u>Freese and Nichols, Inc</u>	PROJECT NAME <u>21st Street Water Line Replacement</u>
PROJECT NUMBER <u>G2022072</u>	PROJECT LOCATION <u>East 21st Street, Riverside to Peoria, Tulsa, OK</u>
DATE STARTED <u>9/27/22</u> COMPLETED <u>9/27/22</u>	GROUND ELEVATION _____ HOLE SIZE <u>6 inches</u>
DRILLING CONTRACTOR <u>GFAC</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CFA 6"</u>	AT TIME OF DRILLING <u>--- Dry</u>
LOGGED BY <u>PWV</u> CHECKED BY <u>DLK</u>	AT END OF DRILLING <u>--- Dry</u>
NOTES <u>Lat: 36.133150, Lon: -95.981749</u>	AFTER DRILLING <u>---</u>

GEO BASE - GINT STD US LAB.GDT - 10/24/22 08:29 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\G2022072 21ST STREET WATERLINE.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT - 2 1/2 inches											
		CONCRETE - 6 1/4 inches											
		FILL - Sandy Silty Clay, moist, brown, red											
		SILTY CLAY, moist, soft, brown	SS 1	83		4-3-2 (5)							
		- brown, orange below 3.1 feet	SS 2	100		1-1-2 (3)			15	22	17	5	86
5		LEAN CLAY, moist, soft to medium stiff, orange, brown	SS 3	89		2-1-3 (4)			15	30	18	12	91
			SS 4	83		2-2-2 (4)			12	28	17	11	87
10		SILTY CLAY with sand, moist, soft, orange, brown											
			SS 5	78		1-1-2 (3)			14	22	17	5	71
15													

Bottom of borehole at 15.0 feet.

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BORING NUMBER B-5

PAGE 1 OF 1

CLIENT <u>Freese and Nichols, Inc</u>	PROJECT NAME <u>21st Street Water Line Replacement</u>
PROJECT NUMBER <u>G2022072</u>	PROJECT LOCATION <u>East 21st Street, Riverside to Peoria, Tulsa, OK</u>
DATE STARTED <u>9/27/22</u> COMPLETED <u>9/27/22</u>	GROUND ELEVATION _____ HOLE SIZE <u>6 inches</u>
DRILLING CONTRACTOR <u>GFAC</u>	GROUND WATER LEVELS:
DRILLING METHOD <u>CFA 6"</u>	AT TIME OF DRILLING <u>--- Dry</u>
LOGGED BY <u>PWV</u> CHECKED BY <u>DLK</u>	AT END OF DRILLING <u>--- Dry</u>
NOTES <u>Lat: 36.133176, Lon: -95.978974</u>	AFTER DRILLING <u>---</u>

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		ASPHALT - 6 inches											
		CONCRETE - 5 inches											
		FILL - Sandy Silt, moist, dark brown, brown											
		SANDY SILT, moist, soft to medium stiff, brown	SS 1	89		3-2-2 (4)							
		SANDY LEAN CLAY, moist, medium stiff, brown trace orange											
		- brown, orange below 3.2 feet	SS 2	89		2-3-3 (6)			14	26	15	11	66
5		SILT with sand, moist, soft to medium stiff, orange, brown											
		- medium stiff below 7.5 feet	SS 3	78		2-2-2 (4)							
			SS 4	89		2-2-4 (6)			14	21	18	3	76
10													
		LEAN CLAY, moist, medium stiff, orange, brown											
			SS 5	56		2-3-3 (6)			15	30	16	14	90

Bottom of borehole at 15.0 feet.

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BORING NUMBER B-6

PAGE 1 OF 1

CLIENT Freese and Nichols, Inc

PROJECT NAME 21st Street Water Line Replacement

PROJECT NUMBER G2022072

PROJECT LOCATION East 21st Street, Riverside to Peoria, Tulsa, OK

DATE STARTED 9/27/22

COMPLETED 9/27/22

GROUND ELEVATION

HOLE SIZE 6 inches

DRILLING CONTRACTOR GFAC

GROUND WATER LEVELS:

DRILLING METHOD CFA 6"

AT TIME OF DRILLING --- Dry

LOGGED BY PWV

CHECKED BY DLK

AT END OF DRILLING --- Dry

NOTES Lat: 36.133234, Lon: -95.975352

AFTER DRILLING ---

GEO BASE - GINT STD US LAB.GDT - 10/24/22 08:29 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\G2022072 21ST STREET WATERLINE.GPJ

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	Texas Cone Penetrometer	BLOW COUNTS (N VALUE)	Uncon. Strength (psf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		TOPSOIL											
		SILTY SAND, dry, loose, brown	SS 1	72		8-3-2 (5)			4	NP	NP	NP	42
		SILTY SAND, dry, very loose, brown	SS 2	83		1-1-2 (3)			5	NP	NP	NP	35
5		SAND with silt, moist, loose, brown, orange trace red	SS 3	83		2-2-3 (5)							
		SANDY LEAN CLAY, moist, medium stiff, brown, orange trace gray	SS 4	100		2-2-4 (6)			16	24	11	13	55
10		CLAYEY SAND, moist, very loose to loose, brown, orange trace gray	SS 5	100		2-2-2 (4)			15	24	15	9	48
15													

Bottom of borehole at 15.0 feet.

Summary of Laboratory Testing Results

Project Name: East 21st Street Water Line Replacement
Project Location: East 21st Street, Riverside to Peoria, Tulsa, OK
Project No.: G2022072

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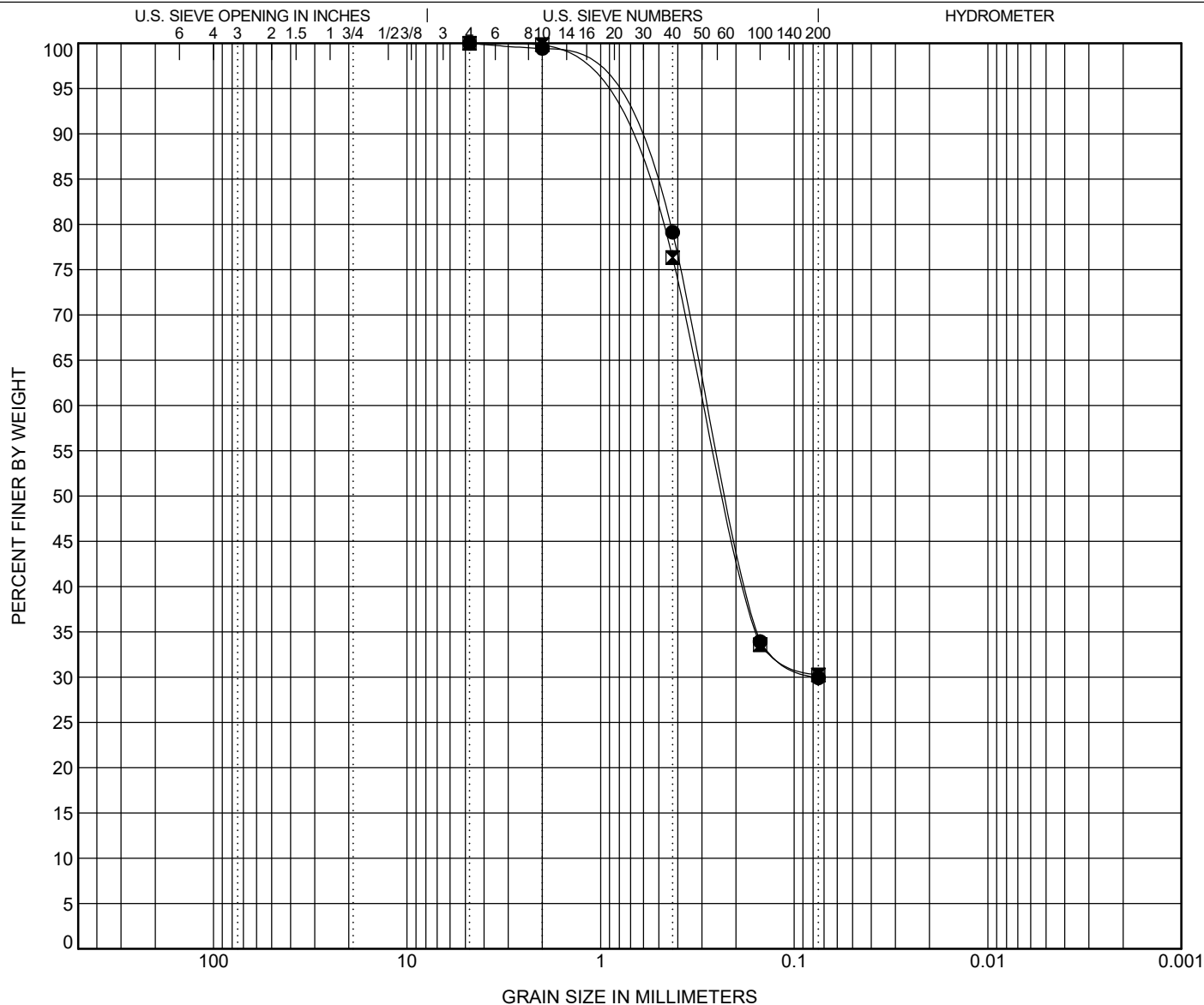
GRAIN SIZE DISTRIBUTION

CLIENT Freese and Nichols, Inc

PROJECT NAME 21st Street Water Line Replacement

PROJECT NUMBER G2022072

PROJECT LOCATION East 21st Street, Riverside to Peoria, Tulsa, OK



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-2	2.5	SILTY SAND(SM)					NP	NP	NP		
☒ B-2	5.0	SILTY SAND(SM)					NP	NP	NP		
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt		%Clay	
● B-2	2.5	4.75	0.274	0.076		0.0	70.1	29.9			
☒ B-2	5.0	4.75	0.285			0.0	69.8	30.2			

GRAIN SIZE - GINT STD US LAB.GDT - 10/10/22 10:06 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCL\PROJECTS\G2022072 21ST STREET WATERLINE.GPJ

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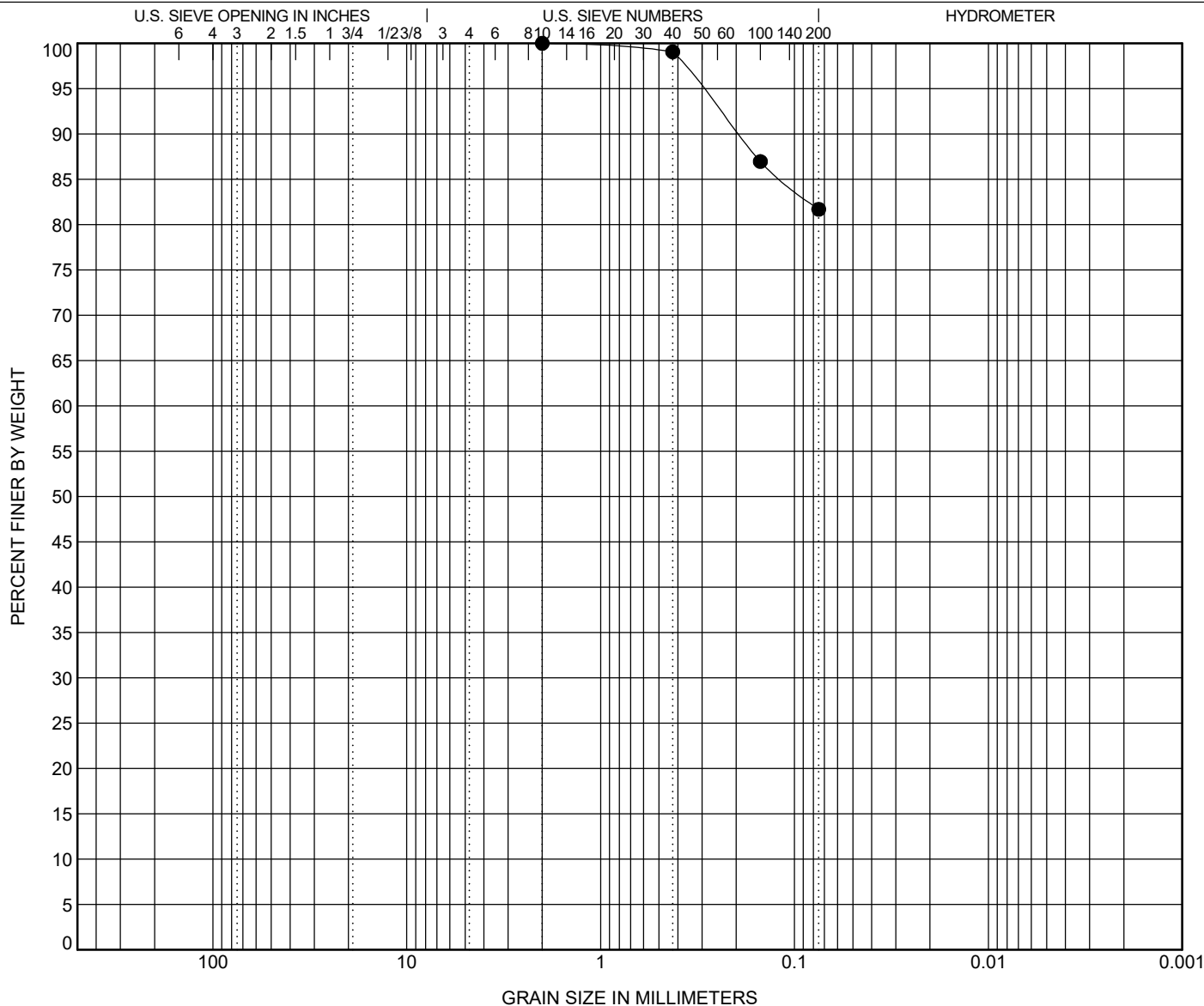
GRAIN SIZE DISTRIBUTION

CLIENT Freese and Nichols, Inc

PROJECT NAME 21st Street Water Line Replacement

PROJECT NUMBER G2022072

PROJECT LOCATION East 21st Street, Riverside to Peoria, Tulsa, OK



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-3	2.5	SILTY CLAY with SAND(CL-ML)					22	17	5		
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt		%Clay	
● B-3	2.5	2				0.0	18.3	81.7			

GRAIN SIZE - GINT STD US LAB.GDT - 10/10/22 10:09 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCL\PROJECTS\G2022072 21ST STREET WATERLINE.GPJ

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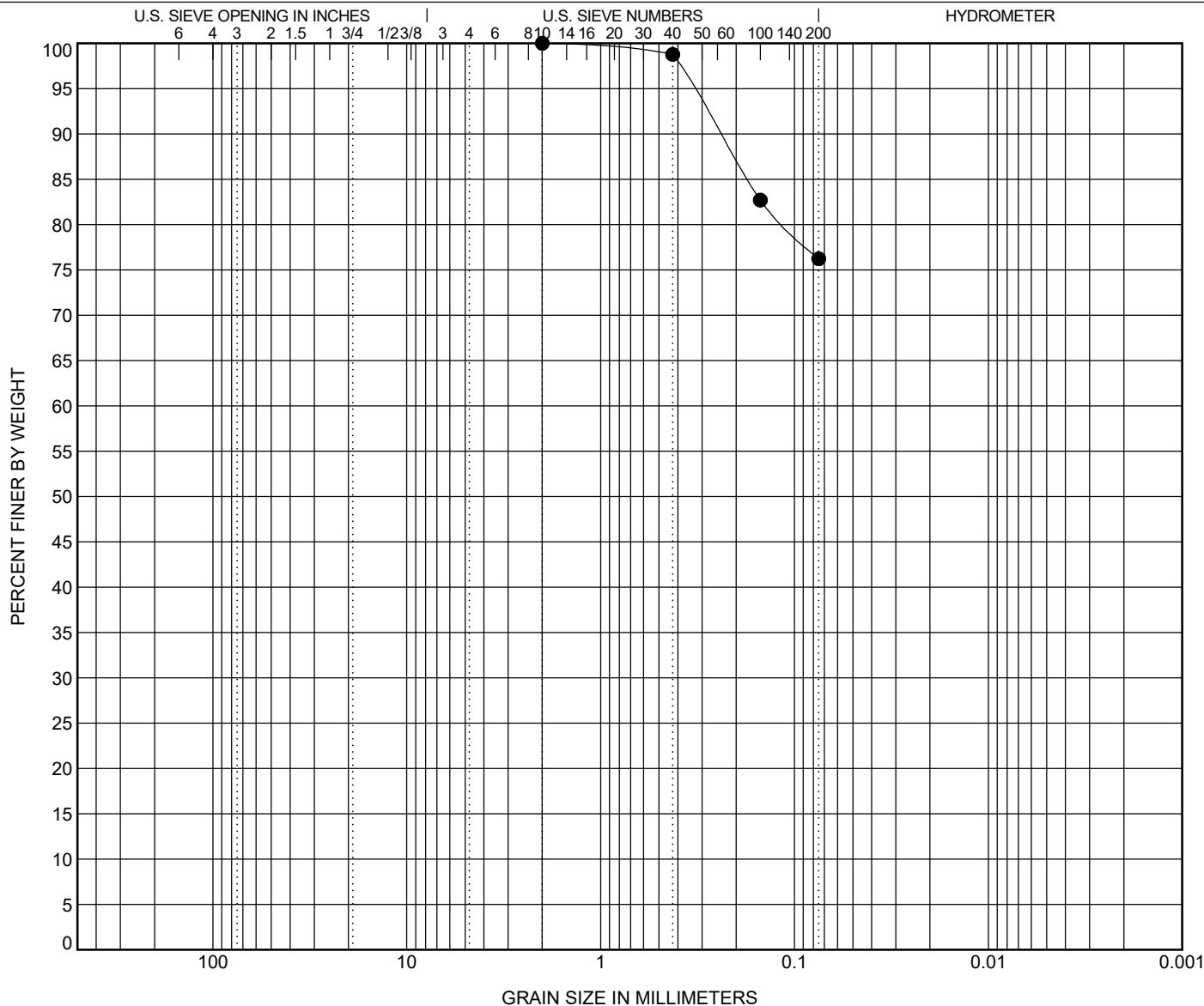
GRAIN SIZE DISTRIBUTION

CLIENT Freese and Nichols, Inc

PROJECT NAME 21st Street Water Line Replacement

PROJECT NUMBER G2022072

PROJECT LOCATION East 21st Street, Riverside to Peoria, Tulsa, OK



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-5	8.5	SILT with SAND(ML)					21	18	3		
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt		%Clay	
● B-5	8.5	2				0.0	23.8	76.2			

GRAIN SIZE - GINT STD US LAB.GDT - 10/11/22 09:23 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCL\PROJECTS\G2022072 21ST STREET WATERLINE.GPJ

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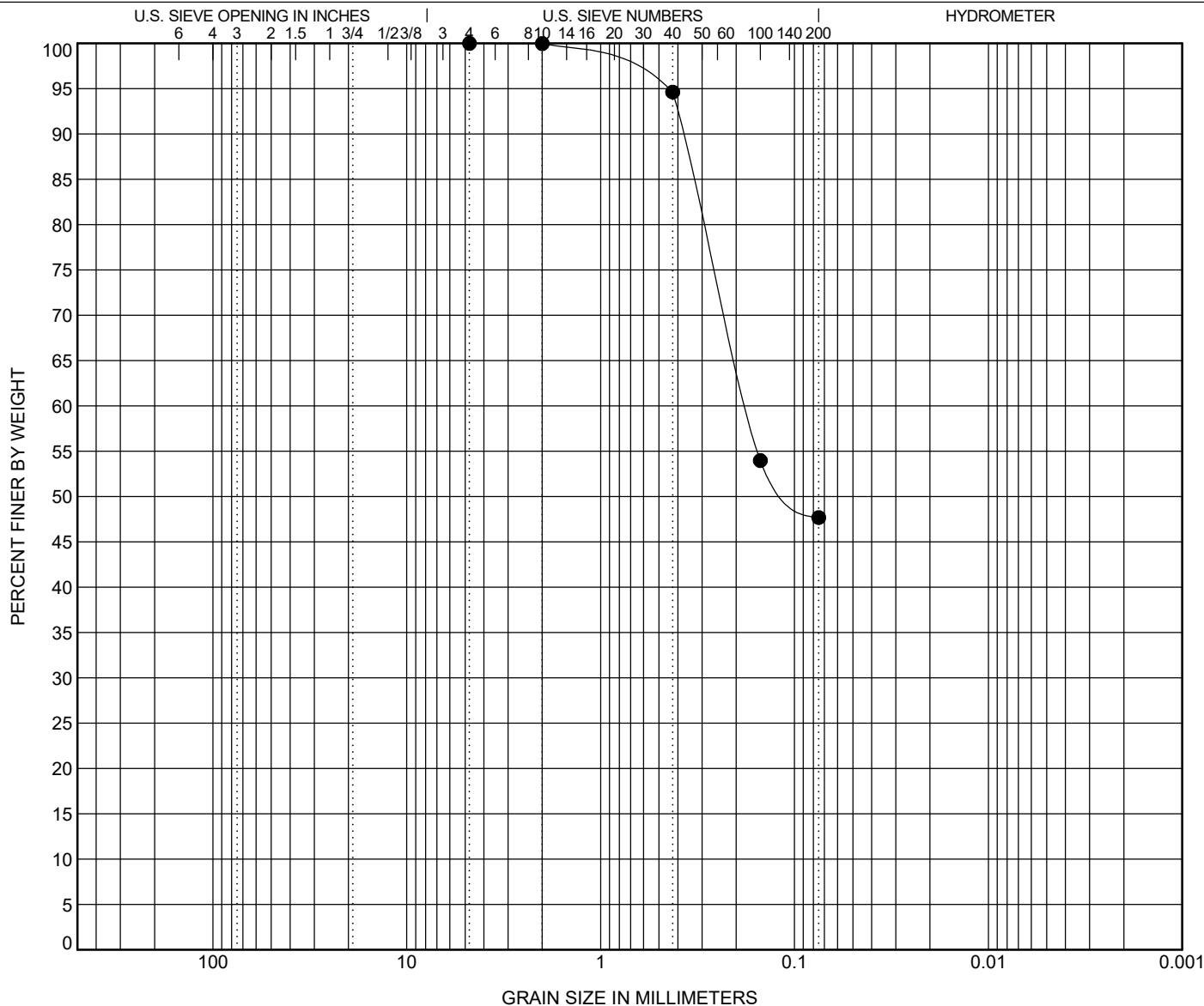
GRAIN SIZE DISTRIBUTION

CLIENT Freese and Nichols, Inc

PROJECT NAME 21st Street Water Line Replacement

PROJECT NUMBER G2022072

PROJECT LOCATION East 21st Street, Riverside to Peoria, Tulsa, OK



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

BOREHOLE	DEPTH	Classification					LL	PL	PI	Cc	Cu
● B-6	13.5	CLAYEY SAND(SC)					24	15	9		
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt		%Clay	
● B-6	13.5	4.75	0.175			0.0	52.3	47.7			

GRAIN SIZE - GINT STD US LAB.GDT - 10/11/22 09:24 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINTCL\PROJECTS\G2022072 21ST STREET WATERLINE.GPJ



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Tulsa, Oklahoma 74145
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Unconfined Compressive Strength Test Report

Client: Freese & Nichols, Inc.
2711 North Haskell Avenue Suite #300
Dallas, TX 75204

Report Date: October 10, 2022
Project: 21st Street Water Line Replacement
Tulsa, OK

Test Specification: ASTM D 2166

Project: 21st Street Water Line Replacement
Project No.: G2022072

Date Tested: 10/10/2022
Tested By: BB

Boring No.: B-2 **Sample No.:** ST-6

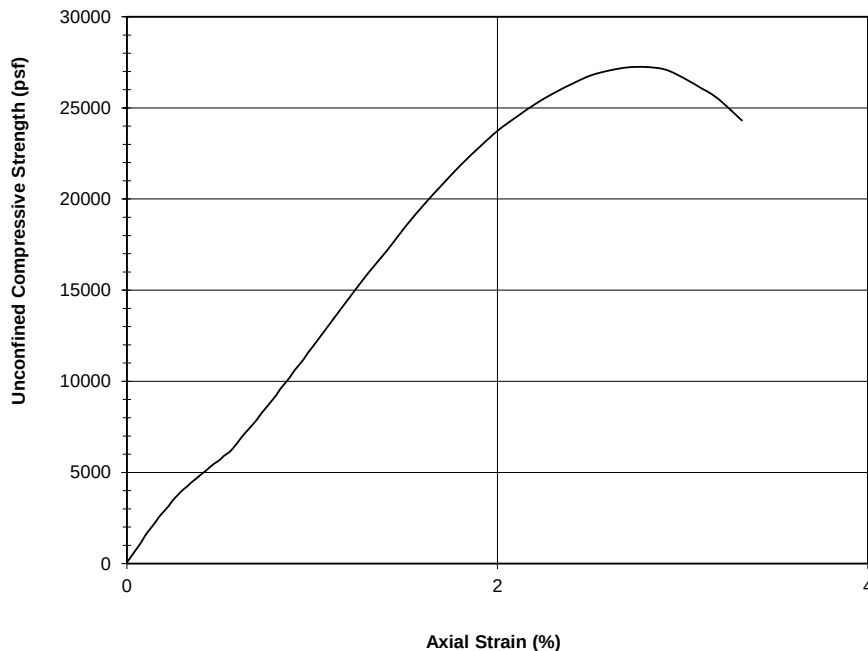
Sample Depth: 15.0 - 17.0

Sample Description: Lean Clay, gray trace orange, brown

Atterberg Limits: LL= 32 PL= 16 PI= 16
Percentage of Fines: 96
USCS Classification(%) CL

Sample Type: Undisturbed
Initial Diameter (inches): 2.871
Initial Height (inches): 5.608
Height-Diameter Ratio: 2.0

Moisture Content(%): 17.7
Wet Density (pcf): 132.1
Dry Density (pcf): 112.2
Specific Gravity (assumed): 2.71
Saturation (%): 94



Unconfined Compressive Strength (psf) 27,240
Axial Strain @ Failure (%) 2.81



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Tulsa, Oklahoma 74145
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Unconfined Compressive Strength Test Report

Client: Freese & Nichols, Inc.
2711 North Haskell Avenue Suite #300
Dallas, TX 75204

Report Date: October 10, 2022
Project: 21st Street Water Line Replacement
Tulsa, OK

Test Specification: ASTM D 2166

Project: 21st Street Water Line Replacement
Project No.: G2022072

Date Tested: 10/10/2022
Tested By: BB

Boring No.: B-3 **Sample No.:** ST-5

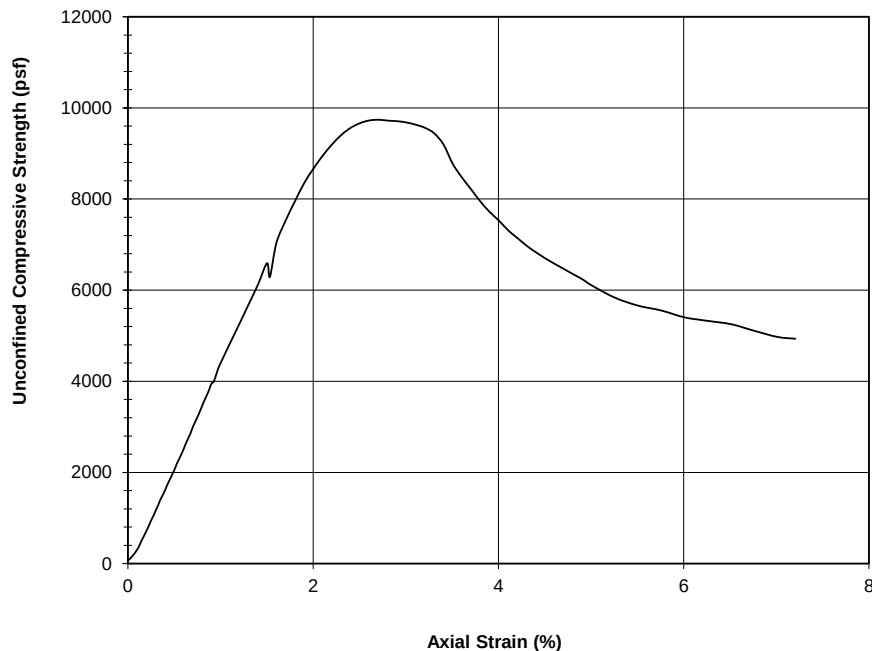
Sample Depth: 13.0 - 15.0

Sample Description: Lean Clay, gray, orange

Atterberg Limits: LL= 38 PL= 17 PI= 21
Percentage of Fines: 96
USCS Classification(%) CL

Sample Type: Undisturbed
Initial Diameter (inches): 2.834
Initial Height (inches): 5.587
Height-Diameter Ratio: 2.0

Moisture Content(%): 21.1
Wet Density (pcf): 130.1
Dry Density (pcf): 107.5
Specific Gravity (assumed): 2.71
Saturation (%): 99



Unconfined Compressive Strength (psf) 9,740
Axial Strain @ Failure (%) 2.70