

May 28, 2021

Texas Department of Transportation
Bridge Division
118 E. Riverside Drive
Austin, Texas 78704

Attention: ChunHo Lee, P.E.,
Bridge Division (Project Manager)

Reference: Contract 88-7IDP5044 WA#5-5
Project ID: 88GEOTECH08
Gary Creek (CSJ: 0901-28-035)
Bosque County, Texas

Mr. Lee,

Transmitted herewith is the Bridge Foundations Data Report for the borings explored, including the WINCORE boring logs and .clog file as requested for this project within Work Authorization #5-5 of the contract.

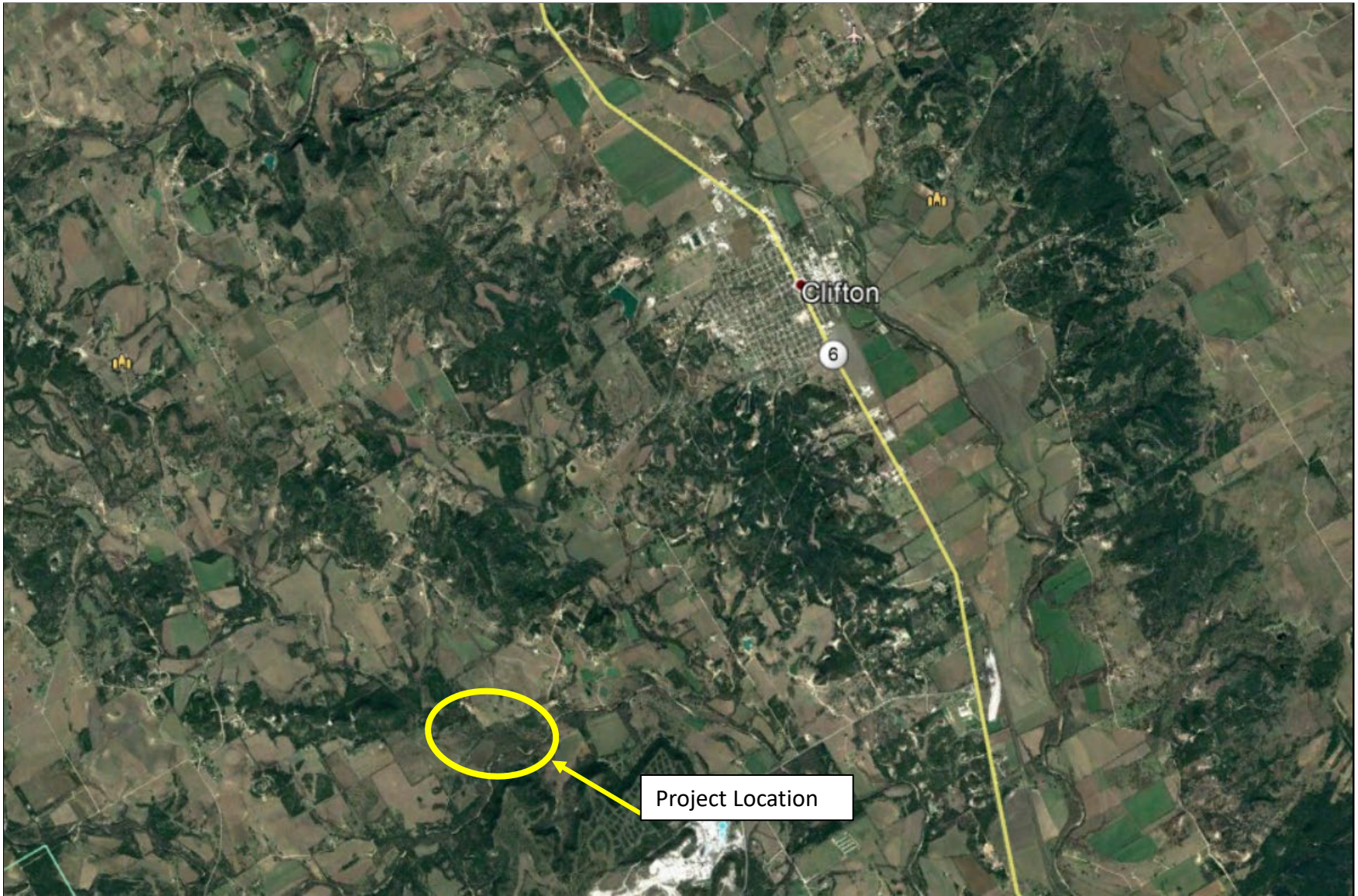
GPS Coordinates of the as-drilled boring locations are shown on the WINCORE logs. Project location sheets provided with WA#5-5 are also included for reference.

We appreciate this opportunity to be of service. Please let us know if you have any questions or require additional information.

Respectfully submitted,

May 29, 2021
A circular professional engineer seal for Mark G. Thomas, License No. 103791, State of Texas. The seal features a star in the center and the text 'STATE OF TEXAS', 'MARK G. THOMAS', '103791', and 'PROFESSIONAL ENGINEER LICENSED'. A blue ink signature of Mark G. Thomas is written over the seal.

Mark G. Thomas, P.E., P.G.
Principal Geotechnical Engineer
D&S Engineering Labs, LLC



****BORING LOCATIONS ARE INTENDED FOR GRAPHICAL REFERENCE ONLY****



CLIFTON

PLAN OF BORINGS
TXDOT WA #5-5 GARY CREEK
CSJ: 0901-28-035

TEXAS

SHEET NO.

G1

DATE DRILLED
May 4 and 5, 2021



BORING LOCATIONS ARE INTENDED FOR GRAPHICAL REFERENCE ONLY



CLIFTON

PLAN OF BORINGS
TXDOT WA #5-5 GARY CREEK
CSJ: 0901-28-035

TEXAS

SHEET NO.

G2

DATE DRILLED
May 4 and 5, 2021



DRILLING LOG

WinCore
Version 3.1

County Bosque
Highway CSJ
0901-28-035

Hole BR-01
Structure Bridge
Station
Offset

District Waco
Date 05/4/21
Grnd. Elev. 0.0 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
-0.5			FILL, SAND, loose; light brown; some clay and gravel	0	130.4	11.2	40	23	123.0	1' P.P. = 4.5+
			CLAY, soft; brown, light brown; trace sand and gravel; few calcareous nodules (CL)							2' P.P. = 4.5+
-4.5	5	8 (6) 10 (6)	CLAYEY SAND, loose to compact; white, light brown, brown; some gravel; trace calcareous nodules; occasional clay seams (SC)			3.4				3' P.P. = 4.5+
										4' P.P. = 4.5+
	10	23 (6) 31 (6)								5' P.P. = 4.5+
	15	15 (6) 13 (6)								6' %Passing #4=62.4, #40=26.3, 200=19.9 D50=2.7 mm 7' push refusal 8' - 9.5' very dense layer, augers "chattering"
	20	5 (6) 5 (6)								11' %Passing No. 200 Sieve = 43.0 10' - 12' bag sample 12' - 13' very dense layer, augers "chattering"
	24.0		SHALE, moderately to highly weathered; very soft; light brown; occasional very hard calcareous layers			15.1				18' %Passing No. 200 Sieve = 18.0 19' attempted to push, augers began to sink
	25	44 (6) 43 (6)								24' push refusal
	29.0		LIMESTONE, fresh; hard to very hard; light gray, gray; frequent shale seams; fossiliferous							26' - 27' very dense layer, augers "chattering"
	30	50 (1) 50 (1)								28' - 29' very dense layer, augers "chattering"
	35	50 (2.5) 50 (3.5)								30-35' %REC=48; %RQD=48% 30.1'-31.1' SPT MOD 39, 33

Remarks: GPS Coordinates: N31.724853, W97.623782
 -seepage at 18 feet during drilling
 -water introduced at 30 feet for coring purposes
 -16 feet southwest of bridge
 -5 feet northwest of center line
 -SPT MOD = SPT test run using a 170 lbs hammer with a 24" drop height

Driller: James Taylor (D&S)

Logger: Dalton Hubbard (D&S)

Organization: D&S Engineering Labs, LLC



DRILLING LOG

WinCore
Version 3.1

County Bosque
Highway CSJ 0901-28-035

Hole BR-01
Structure Bridge
Station
Offset

District Waco
Date 05/4/21
Grnd. Elev. 0.0 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
-40.0	40	50 (2) 50 (2)	LIMESTONE, fresh; hard to very hard; light gray, gray; frequent shale seams; fossiliferous							35-40' %REC=76; %RQD=76%
			SHALE, fresh; very soft to soft; dark gray; occasional limestone seams							40-45' %REC=89; %RQD=89%
	45	50 (5) 37 (6)		0	49.1	20.7			130.7	45-50' %REC=100; %RQD=100%
-49.6	50	50 (0) 50 (0.3)	LIMESTONE, fresh; very hard; light gray; frequent shale seams							50-55' %REC=40; %RQD=40%
			SHALE, fresh; soft to very hard; gray, olive gray; trace pyrite; frequent limestone seams							55-60' %REC=92%; %RQD=92%
-55.1	55	50 (0) 50 (0)								60-65' %REC=70; %RQD=70%
	60	50 (0.3) 50 (0)								65-70' %REC=88; %RQD=88%
	65	50 (2) 50 (2)								
	70	50 (4.5) 50 (4)								

Remarks: GPS Coordinates: N31.724853, W97.623782
 -seepage at 18 feet during drilling
 -water introduced at 30 feet for coring purposes
 -16 feet southwest of bridge
 -5 feet northwest of center line
 -SPT MOD = SPT test run using a 170 lbs hammer with a 24" drop height

Driller: James Taylor (D&S)

Logger: Dalton Hubbard (D&S)

Organization: D&S Engineering Labs, LLC



DRILLING LOG

WinCore
Version 3.1

County Bosque
Highway CSJ
0901-28-035

Hole BR-01
Structure Bridge
Station
Offset

District Waco
Date 05/4/21
Grnd. Elev. 0.0 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
75		50 (2.5) 50 (3)	SHALE, fresh; soft to very hard; gray, olive gray; trace pyrite; frequent limestone seams							70-75' %REC=67; %RQD=67%
80		50 (5.5) 40 (6)								75-80' %REC=89; %RQD=89%
85		50 (0.3) 50 (0)								80-85' %REC=60; %RQD=60%
-85.0			SANDSTONE, weakly cemented; soft; gray, light brown							85-90' %REC=37; %RQD=37%
90		39 (6) 50 (5)								
-91.0										
95										
100										
105										

Remarks: GPS Coordinates: N31.724853, W97.623782
 -seepage at 18 feet during drilling
 -water introduced at 30 feet for coring purposes
 -16 feet southwest of bridge
 -5 feet northwest of center line
 -SPT MOD = SPT test run using a 170 lbs hammer with a 24" drop height

Driller: James Taylor (D&S)

Logger: Dalton Hubbard (D&S)

Organization: D&S Engineering Labs, LLC



DRILLING LOG

WinCore
Version 3.1

County Bosque
Highway CSJ
0901-28-035

Hole BR-02
Structure Bridge
Station
Offset

District Waco
Date 05/5/21
Grnd. Elev. 0.0 ft
GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties			Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	
-35.0			LIMESTONE, fresh; very hard; light gray; occasional shale seams; fossiliferous						35-40' %REC=51; %RQD=51%
-40.0	40	29 (6) 29 (6)		0	2766.0	1.1		162.7	
			SHALE, fresh; very soft; dark gray; occasional limestone seams; fossiliferous						40-45' %REC=90; %RQD=90%
	45	25 (6) 35 (6)		0	57.0	21.8		130.5	
-46.3			LIMESTONE, fresh; hard; light gray; occasional shale seams						45-50' %REC=79; %RQD=79%
	50	50 (1) 50 (0.5)							50-55' %REC=95; %RQD=95%
-50.8			SHALE, fresh; hard to very hard; dark gray; occasional limestone and sandstone seams; fossiliferous						
	55	50 (0.3) 50 (0)							55-60' %REC=100%; %RQD=100%
	60	50 (1.3) 50 (0.5)							60-65' %REC=60; %RQD=60%
	65	50 (1) 50 (0.8)							
70		50 (2) 50 (1)							

Remarks: GPS Coordinates: N31.725006, W97.623549
 -seepage at 17 feet during drilling
 -water introduced at 30 feet for coring purposes
 -19 feet east of bridge
 -7 feet south of center line
 -SPT MOD = SPT test run using a 170 lbs hammer with a 24" drop height

Driller: James Taylor (D&S)

Logger: Sean Gallagher (LCA)

Organization: D&S Engineering Labs, LLC



DRILLING LOG

WinCore
Version 3.1

County **Bosque**
Highway **CSJ**
0901-28-035

Hole **BR-02**
Structure **Bridge**
Station
Offset

District **Waco**
Date **05/5/21**
Grnd. Elev. **0.0 ft**
GW Elev. **N/A**

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
-75.2	75	50 (1.3) 50 (0.8)	SHALE, fresh; hard to very hard; dark gray; occasional limestone and sandstone seams; fossiliferous							70-75' %REC=72; %RQD=72%
80										
85										
90										
95										
100										
105										

Remarks: GPS Coordinates: N31.725006, W97.623549
 -seepage at 17 feet during drilling
 -water introduced at 30 feet for coring purposes
 -19 feet east of bridge
 -7 feet south of center line
 -SPT MOD = SPT test run using a 170 lbs hammer with a 24" drop height

Driller: James Taylor (D&S)

Logger: Sean Gallagher (LCA)

Organization: D&S Engineering Labs, LLC



G16-3002-5-5 TxDOT DFW WA#5-5 Gary Creek, Clifton, Texas

LAB TEST RESULTS SUMMARY

Boring ID	Latitude	Longitude	Depth (ft.)	Material Description	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	%Passing			Lateral Stress (psi)	Deviator Stress (psi)	Unit Weight (pcf)
									#4	#40	#200			
BR-01	N31.724853	W97.623782	2 - 3	CLAY (CL)	11.2	40	17	23				0	130.4	123.0
			6 - 7	CLAYEY SAND (SC)	3.4				26.2	21.9	19.8			
			11 - 12	CLAYEY SAND (SC)	6.3	31	15	16			43.0			
			18 - 19	CLAYEY SAND (SC)	15.1						18.0			
			43.6 - 44	SHALE	20.7						0	0	49.1	130.7
BR-02	N31.725006	W97.623549	3 - 4	CLAY (CL)	14.9	33	17	16			66.0	0	47.0	128.0
			9 - 10	CLAY (CL)	12.9	29	13	16			73.0	8.7	44.7	107.9
			19 - 20	CLAYEY SAND (SC)	29.8				57.2	47.5	41.7			
			38.7 - 39	LIMESTONE	1.1							0	2766	162.7
			44.3 - 50	SHALE	21.8							0	57	130.5

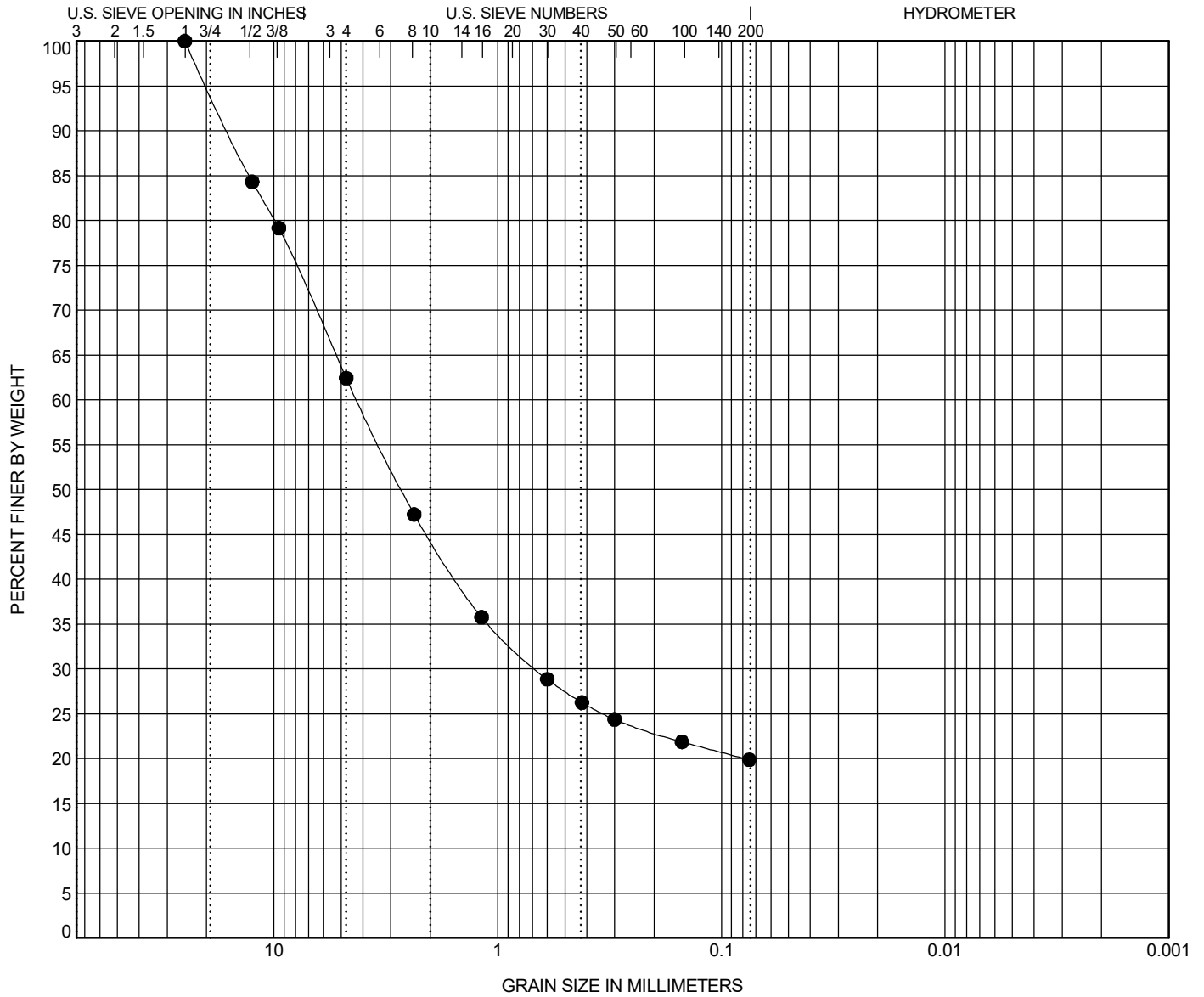


GRAIN SIZE DISTRIBUTION

ASTM D1140

COUNTY: Bosque
 HIGHWAY:
 CSJ: 0901-28-035

DATE: 5/4/2021
 DRILLED BY: James Taylor (D&S)
 LOGGED BY: Dalton Hubbard (D&S)



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Description							LL	PL	PI	Cc	Cu
CLAYEY SAND; loose to compact; white, light brown, brown; some gravel; occasional clay seams (SC)											
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
BR-01	6.0	25	4.25	0.672		37.6	42.5	19.9			

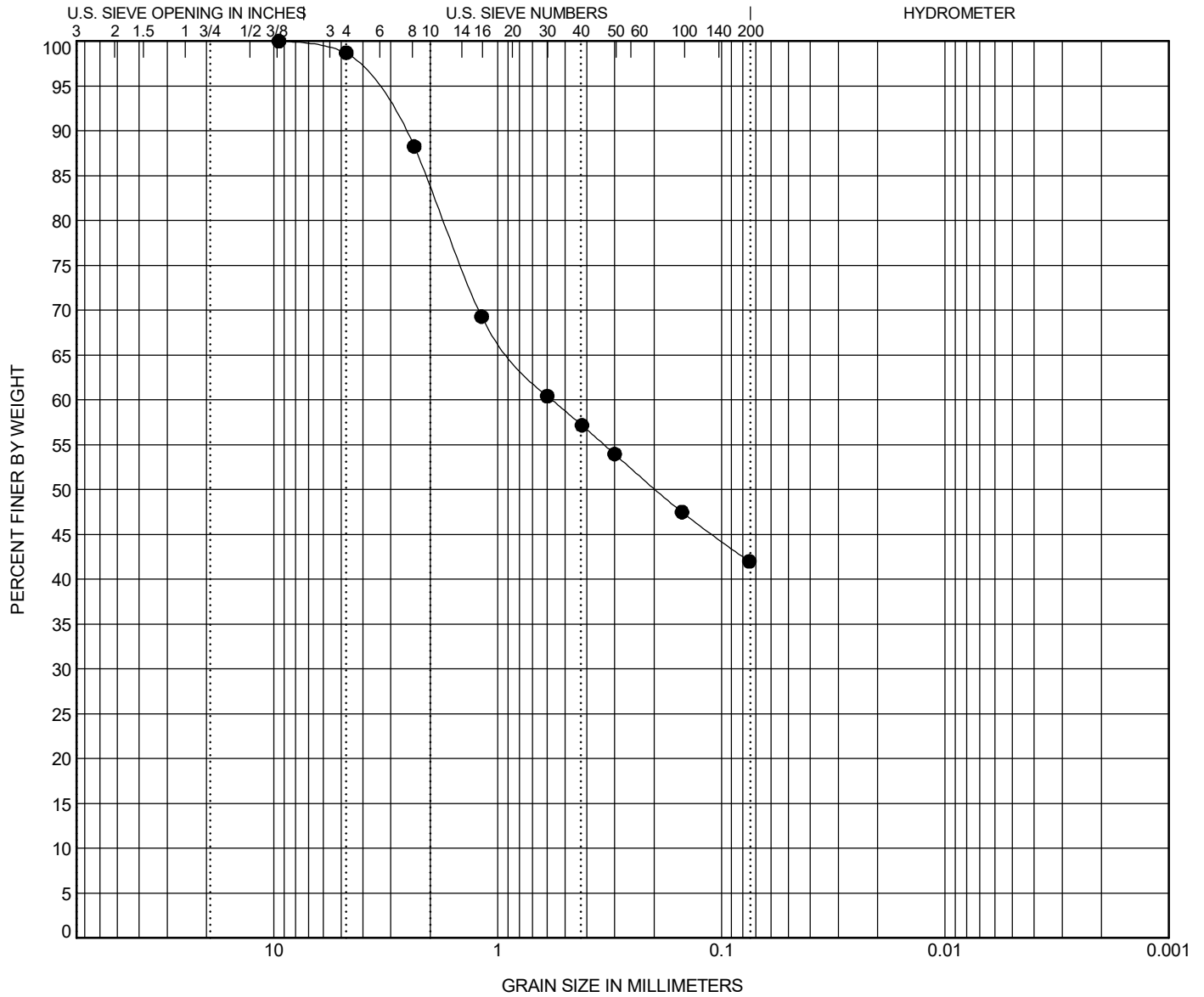


GRAIN SIZE DISTRIBUTION

ASTM D1140

COUNTY: Bosque
 HIGHWAY:
 CSJ: 0901-28-035

DATE: 5/5/2021
 DRILLED BY: James Taylor (D&S)
 LOGGED BY: Sean Gallagher (LCA)



GRAVEL		SAND			SILT OR CLAY
coarse	fine	coarse	medium	fine	

Description							LL	PL	PI	Cc	Cu
CLAYEY SAND; loose to compact; tan, light brown; some gravel; occasional clay seams (SC)											
BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay		
BR-02	19.0	9.5	0.573			1.3	56.7	42.0			



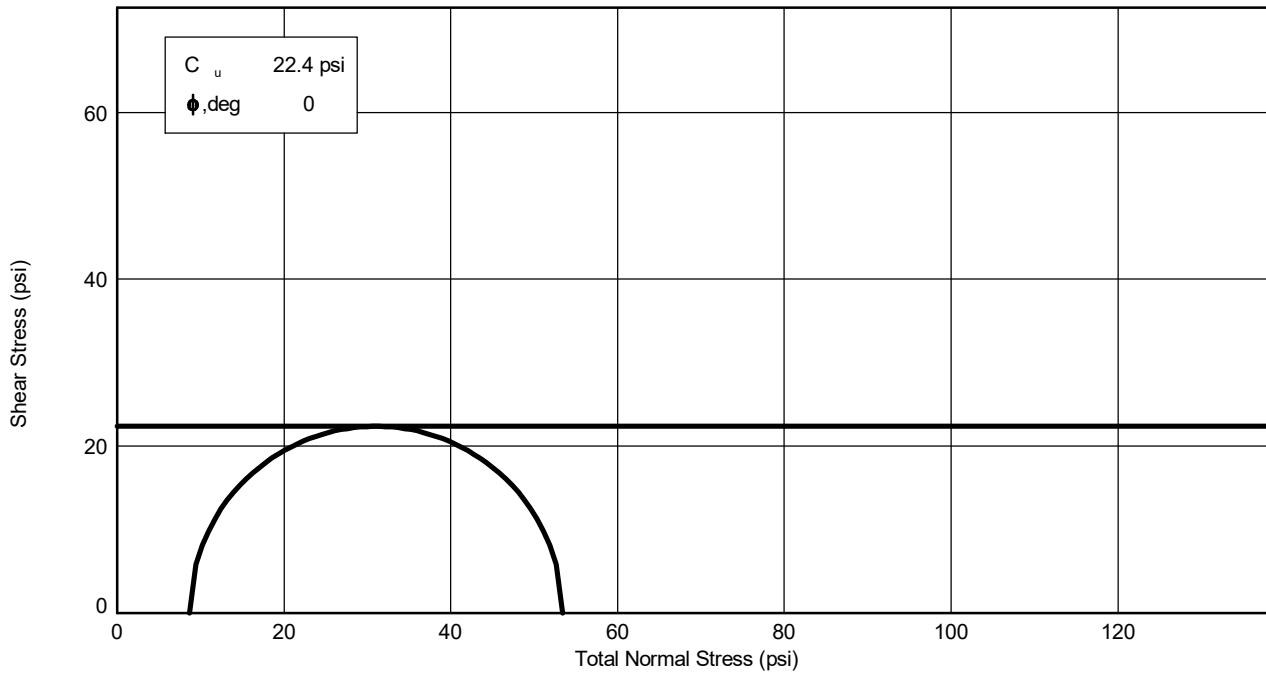
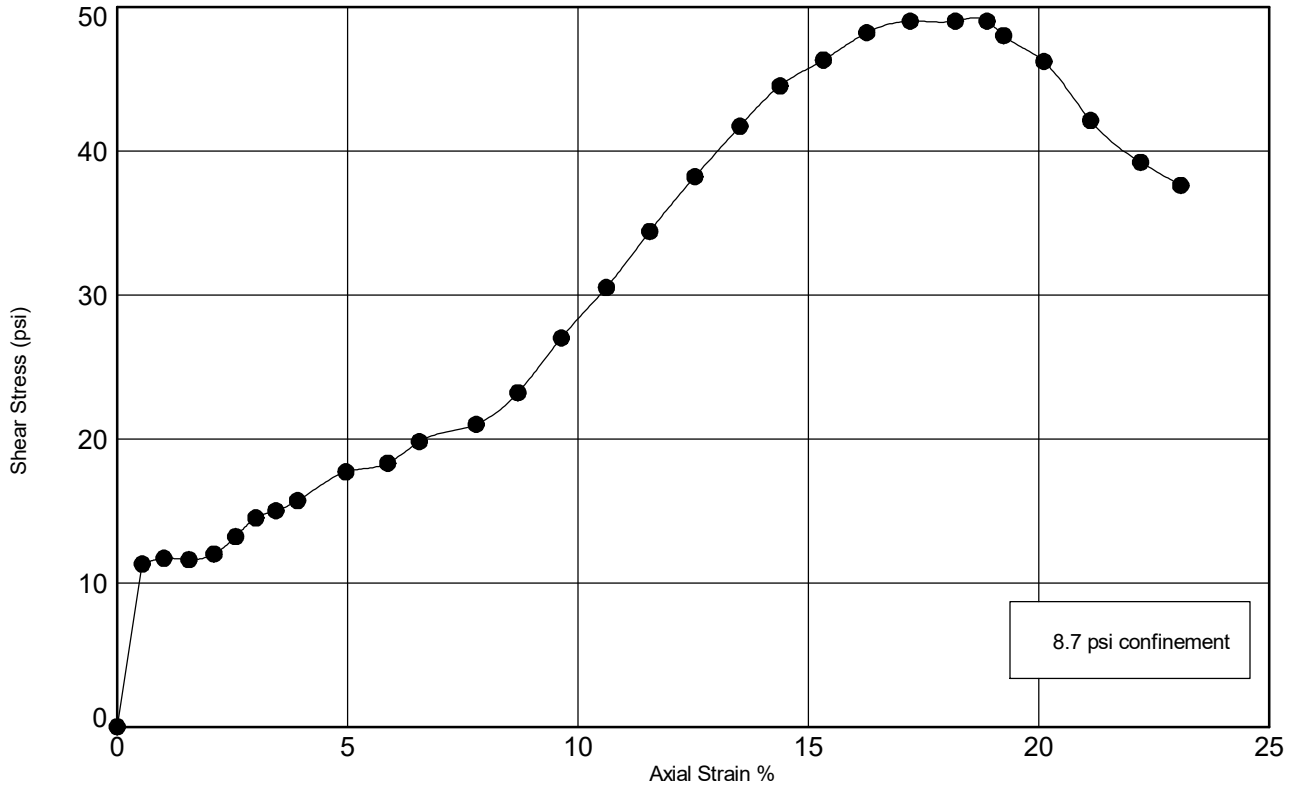
UNCONSOLIDATED-UNDRAINED TRIAXIAL TEST TEX-118E

PROJECT:

CSJ: 0901-28-035

DISTRICT: Waco

LOCATION: Bosque



Borehole	Depth	Description				
● BR-02	9.0	CLAY (CL); stiff to very stiff; dark brown, brown; trace calcareous nodules; some sand				
Major Principal Stress (psi) σ_1		Minor Principal Stress (psi) σ_3		Deviator Stress (psi) $\Delta\sigma_f$	γ_d	MC%
53.4		8.68		44.7	107.9	21.3