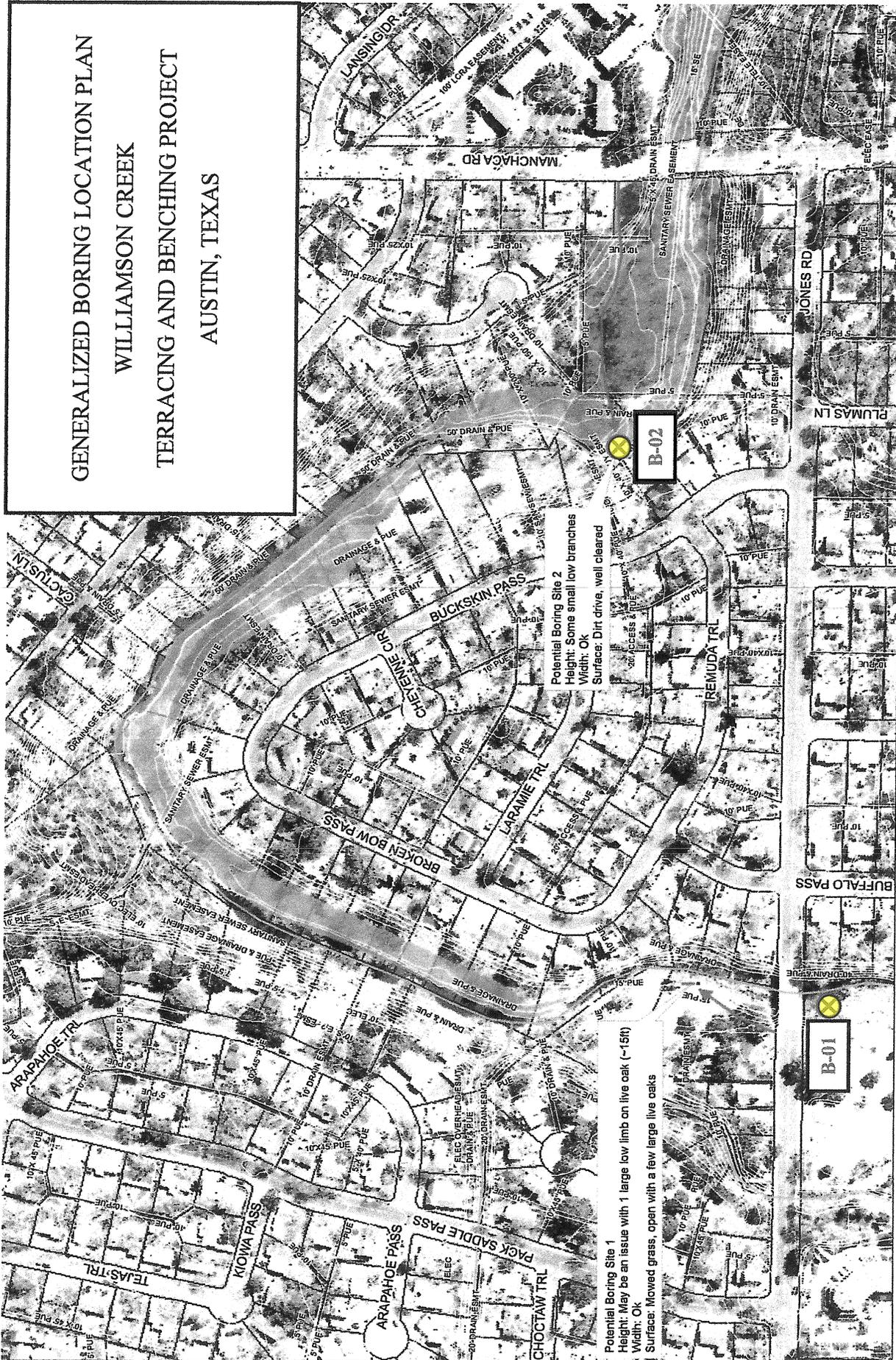


**BORING LOCATION MAPS**  
**and**  
**LOGS OF BORINGS**

GENERALIZED BORING LOCATION PLAN  
 WILLAMSON CREEK  
 TERRACING AND BENCHING PROJECT  
 AUSTIN, TEXAS

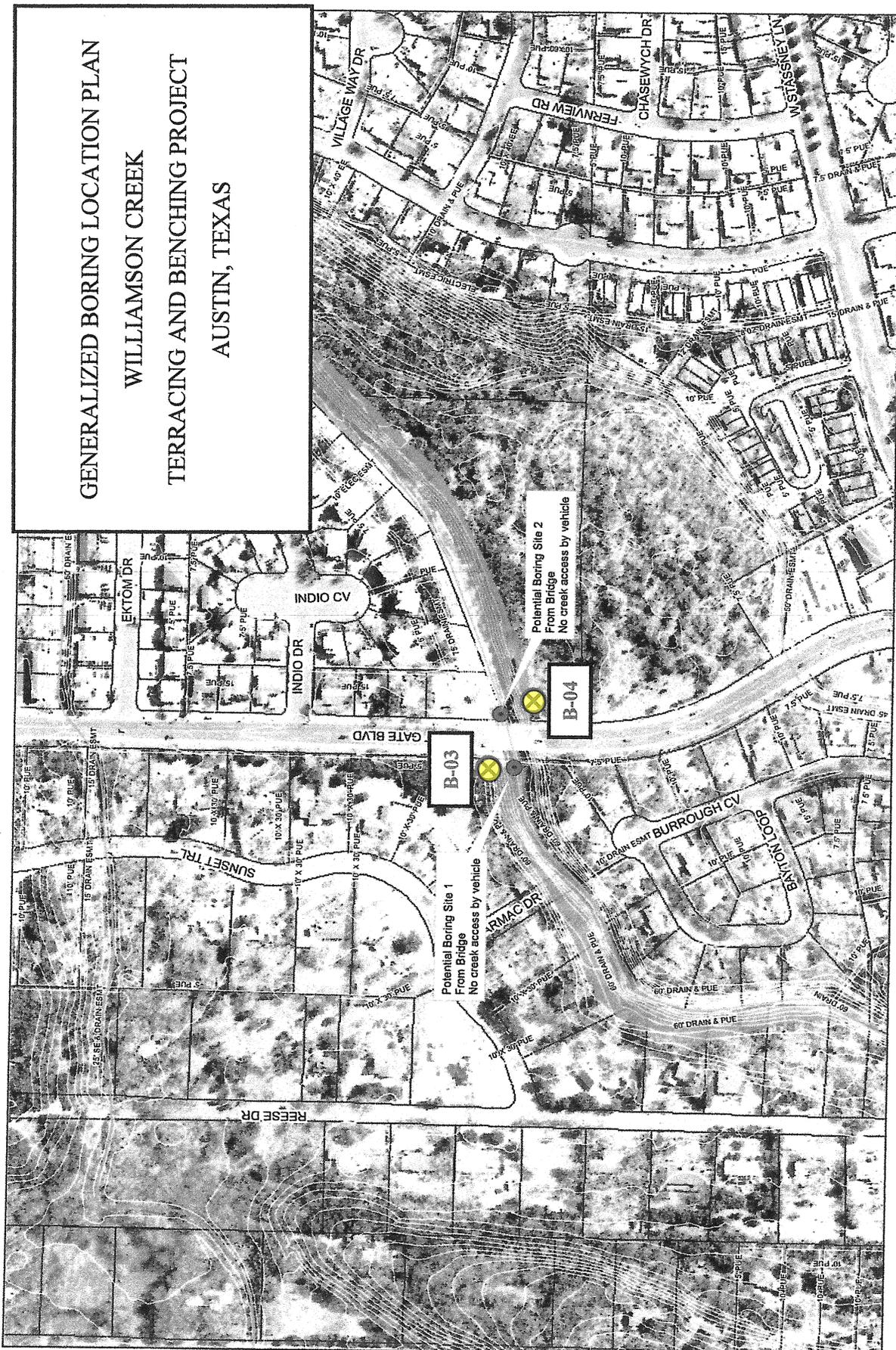


Potential Boring Site 1  
 Height: May be an issue with 1 large low limb on live oak (~15ft)  
 Width: OK  
 Surface: Mowed grass, open with a few large live oaks

Potential Boring Site 2  
 Height: Some small low branches  
 Width: OK  
 Surface: Dirt drive, well cleared

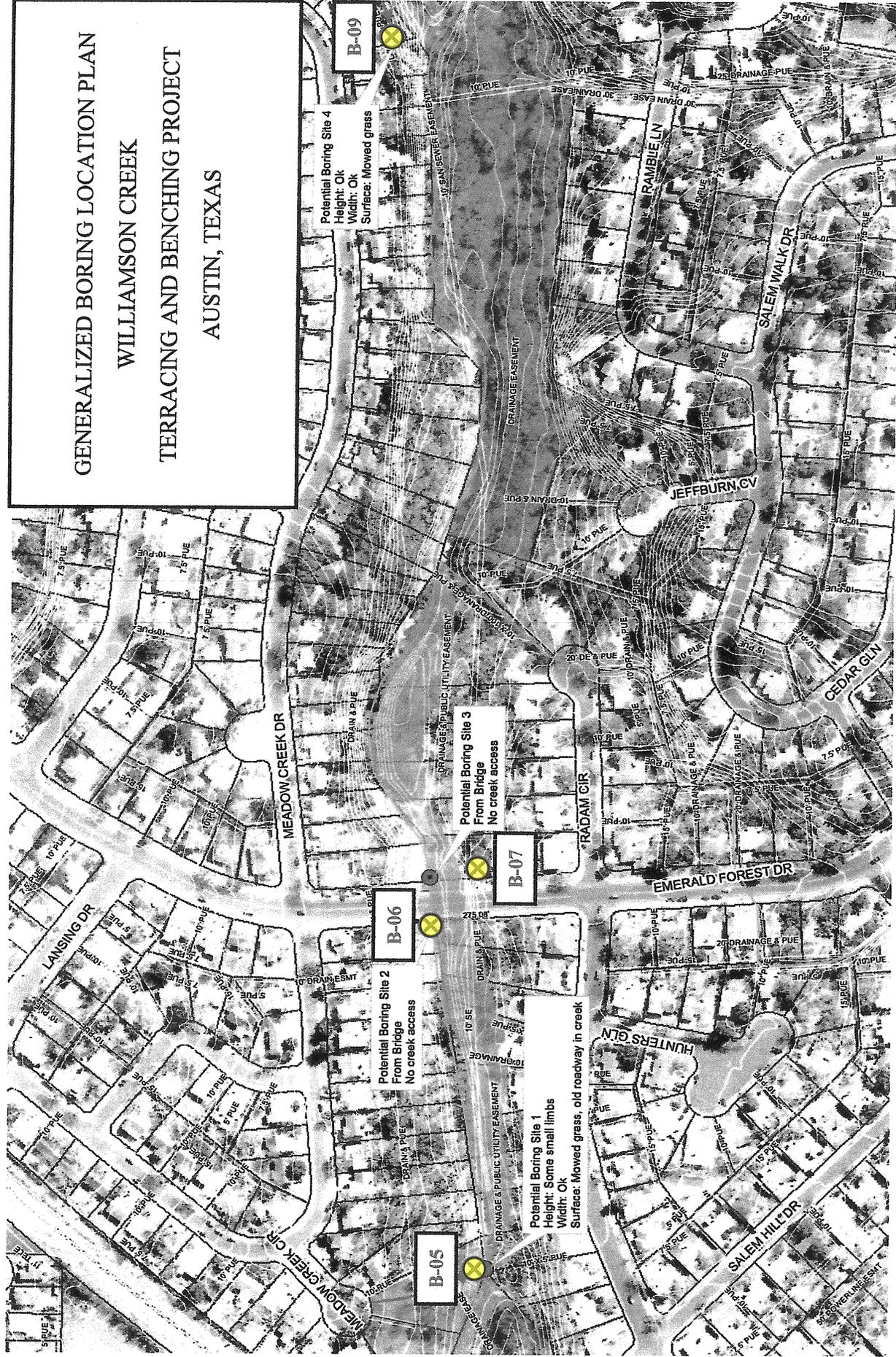
Not to Scale

GENERALIZED BORING LOCATION PLAN  
 WILLIAMSON CREEK  
 TERRACING AND BENCHING PROJECT  
 AUSTIN, TEXAS



Not to Scale

GENERALIZED BORING LOCATION PLAN  
 WILLIAMSON CREEK  
 TERRACING AND BENCHING PROJECT  
 AUSTIN, TEXAS



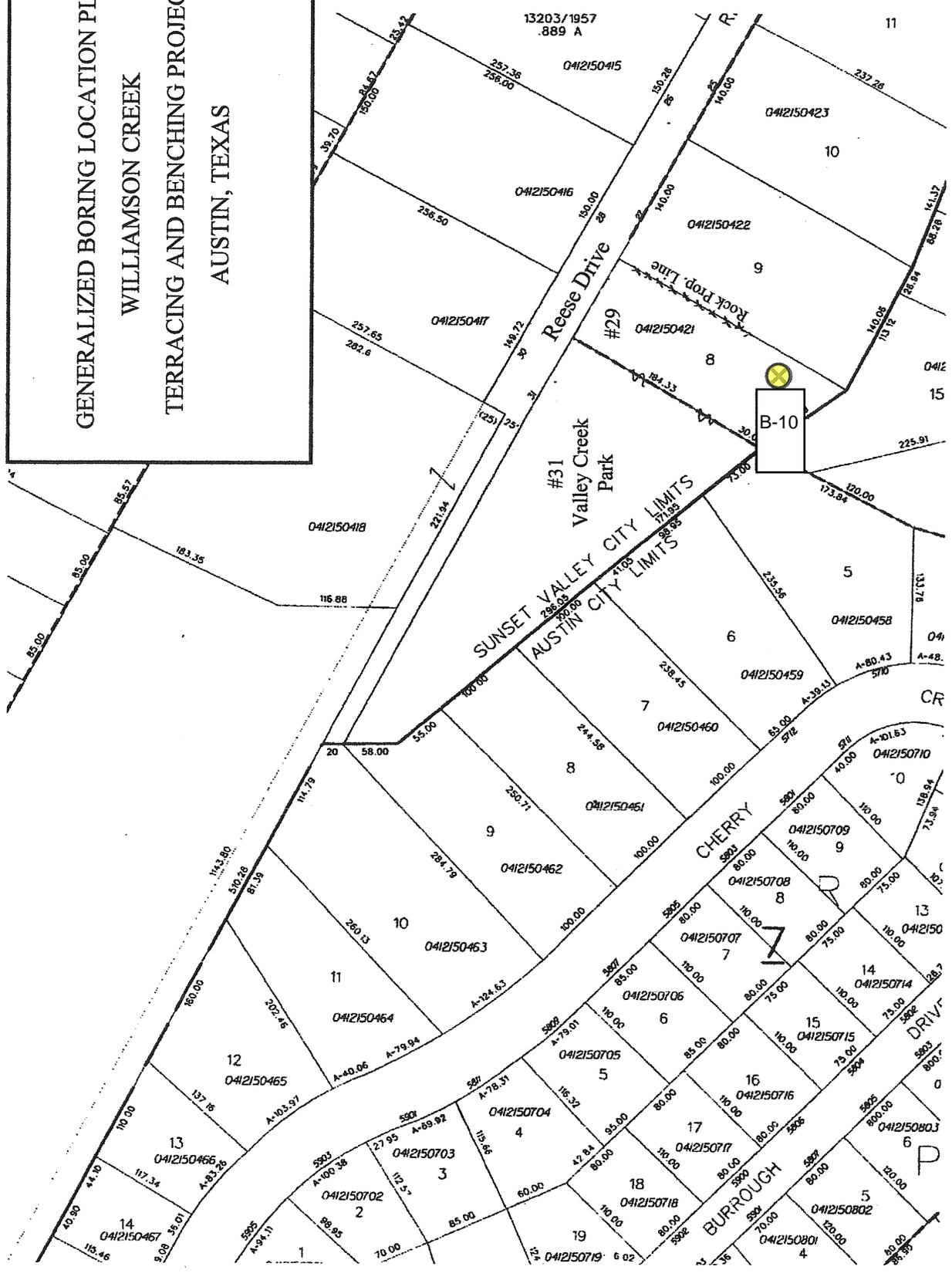
Not to Scale

GENERALIZED BORING LOCATION PLAN  
 WILLIAMSON CREEK  
 TERRACING AND BENCHING PROJECT  
 AUSTIN, TEXAS



Not to Scale

GENERALIZED BORING LOCATION PLAN  
 WILLIAMSON CREEK  
 TERRACING AND BENCHING PROJECT  
 AUSTIN, TEXAS



Not to Scale

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-01**

NOTES : Hole dry upon completion of drilling operation.

DATE DRILLED : 05-24-06

BORING DEPTH : 15.0 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT (%)	PLASTICITY INDEX	% PASSING #200 SIEVE
0 - 4			FAT CLAY (CH), brown, silty, sandy, w/scattered small to large gravel (medium stiff) (Qht)	8						
4 - 5			LEAN CLAY (CL), greenish tan and tan, silty (medium stiff) (Qtt)							
5 - 9			FAT CLAY (CH), greenish tan and gray, jointed, w/calcite crystals and ferrous deposits (stiff) (Kdr)	9	8.9	18.7	111.2	66	45	91.8
9 - 15			CLAYEY SHALE, gray, jointed (stiff) (Kdr)	48						
15 - 15			Terminated @ 15 feet							

LOG OF BORING 05-20706- WILLIAMSON CREEK.GPJ HOLT ENGINEERING.GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-02**

NOTES : Water level at 4.8' upon completion of drilling operation.

DATE DRILLED : 05-24-06

BORING DEPTH : 15.0 FEET

DRILLER : John Webb

WATER LEVEL : 4.8 FEET

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT (%)	PLASTICITY INDEX	% PASSING #200 SIEVE
			Fill - Unclassified brown clayey sandy silt, w/small to large limestone rock and concrete debris							
			FAT CLAY (CH), brown, silty, w/sand, (medium) (Qht)							
			- Very moist 3.5'-5.0'	6		24.2		59	39	81.3
5			Water level 4.8 feet							
			CLAYEY SAND (SC), light brown, very silty, w/small to medium gravel (medium) (Qtt)		1.0	11.1	124.7	43	25	22.5
			CLAYEY SAND (SC), light brown, w/thick small to medium gravel (medium) (Qtt)	6		11.6		27	12	16.1
10										
			CLAYEY SHALE, gray (stiff) (Kdr)							
				41						
15			Terminated @ 15 feet							
20										
25										
30										

LOG OF BORING 05-20706- WILLIAMSON CREEK GPJ HOLT ENGINEERING GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-03**

NOTES : Hole dry prior to coring at 10.2 feet.

DATE DRILLED : 05-30-06

BORING DEPTH : 29.5 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	% CORE RECOVERY	RQD (%)	DRILLING RATE (MIN./FT.)	CORE INTERVAL (FEET)	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT(%)	PLASTICITY INDEX	% PASSING #200 SIEVE
0 - 1.5	[Hatched pattern]		LEAN CLAY (CL), brown, very silty, lighter w/depth (medium) (Qal)											
1.5 - 5.0	[Hatched pattern]		FAT CLAY (CH), greenish brown and tan, silty, w/oxidation staining (stiff to very stiff) (Kdr)					17		10.6		48	30	91.5
5.0 - 10.2	[Hatched pattern]		LIMESTONE, tan, fossiliferous, w/thin fractured limestone and silt layers (medium hard) (Kbu)				10.2							
10.2 - 12.1	[Hatched pattern]		-- Interbedded clayey silt layers 12.1'-13.7'	100	76				70.0					
12.1 - 15.1	[Hatched pattern]						15.1							
15.1 - 17.9	[Hatched pattern]		-- Highly fossiliferous 17.9'-19.5'	100	79									
17.9 - 19.9	[Hatched pattern]						19.9							
19.9 - 21.9	[Hatched pattern]		-- Angular bedding plane joints 21.9'-23.0'	100	92				155.7					
21.9 - 24.7	[Hatched pattern]						24.7							
24.7 - 29.5	[Hatched pattern]			100	58									
29.5			Terminated @ 29.5 feet											

LOG OF BORING 05-20706- WILLIAMSON CREEK GPJ HOLT ENGINEERING GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-04**

NOTES : Hole dry upon completion of drilling operation.

DATE DRILLED : 05-24-06

BORING DEPTH : 22.0 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT (%)	PLASTICITY INDEX	% PASSING #200 SIEVE
5			Fill - Unclassified brown clayey sandy silt, w/thick small to large limestone rock and gravel (soft to medium stiff)	5						
9			Fill - Unclassified light brown and tan clayey silty sand, w/small gravel (soft)	9						
10			LEAN CLAY (CL), light brown and tan, silty, sandy, w/gravel and small to medium limestone rock (medium stiff) (Qht)	4		4.4		20	6	8.7
15			FAT CLAY (CH), dark brown, silty (stiff) (Qht)	27						
15			LEAN CLAY (CL), tan, silty, sandy, w/small to medium limestone rock and gravel (stiff) (Qht)							
20			FAT CLAY (CH), greenish tan and gray, jointed (stiff) (Kdr)	7.1	14.8	101.8	55	35	94.4	
22			Terminated @ 22 feet	22						
25										
30										

LOG OF BORING 05-20706- WILLIAMSON CREEK.GPJ HOLT ENGINEERING.GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-05**

NOTES : Hole dry prior to coring at 0.2 feet.

DATE DRILLED : 05-24-06

BORING DEPTH : 14.6 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	% CORE RECOVERY	RQD (%)	DRILLING RATE (MIN./FT.)	CORE INTERVAL (FEET)	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT(%)	PLASTICITY INDEX	% PASSING #200 SIEVE
0.2			LIMESTONE, tan (medium hard to hard) (Kau) -- Marly 0.8'-2.5'				0.2		131.8					
5.0			LIMESTONE, gray, solid (medium hard to hard) (Kau)	100	83		5.0		188.7					
9.8			-- Tan layer 6.5'-8.5'	100	100		9.8		147.9					
14.6			Terminated @ 14.6 feet				14.6							

LOG OF BORING 05-20706- WILLIAMSON CREEK.GPJ HOLT ENGINEERING.GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-06**

NOTES : Water level at 16.2' at completion of drilling operation.

DATE DRILLED : 05-25-06

BORING DEPTH : 25.0 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT(%)	PLASTICITY INDEX	% PASSING #200 SIEVE
0 - 5			Fill - Unclassified brown silty sandy clay w/small limestone rock and calcareous material (medium stiff to stiff)	15						
5 - 10			Fill - Unclassified light brown and tan silty clay with silt layers and calcareous material (medium stiff to stiff)	29						
10 - 15			LEAN CLAY (CL), light brown and tan, calcareous, w/fractured limestone layers and stiff silt layers interbedded (stiff)	16		7.9		41	24	41.5
15 - 16.6'			-- Fractured limestone layers 16.6'-17.1'							
16.6' - 20'			LIMESTONE, tan, thin to thick bedded, w/occasional fractured layers (hard) (Kau)	50/4"						
20' - 25'			LIMESTONE, gray, thick bedded, occasionally marly (hard to medium hard) (Kau)	50/0"						
25' - 25.0'			Terminated @ 25 feet							

LOG OF BORING 05-20706- WILLIAMSON CREEK.GPJ HOLT ENGINEERING.GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-07**

NOTES : Hole dry prior to coring at 11.2 feet.

DATE DRILLED : 05-30-06

BORING DEPTH : 24.6 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	% CORE RECOVERY	RQD (%)	DRILLING RATE (MIN./FT.)	CORE INTERVAL (FEET)	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT (%)	PLASTICITY INDEX	% PASSING #200 SIEVE
0 - 5			Fill - Unclassified brown clayey sandy silt, w/scattered small to large limestone rock and gravel (soft to medium stiff)					6						
5 - 7			Fill - Unclassified light brown very silty sand, w/small gravel (soft to medium stiff)					7						
7 - 10			LEAN CLAY (CL), light brown and tan, silty, sandy, calcareous, w/small to large limestone rock (medium stiff)							6.9		30	14	27.9
10 - 11.2			LIMESTONE, tan, w/thin interbedded silt layers (medium hard to hard) (Kau)				11.2							
11.2 - 15.2			LIMESTONE, tan, w/thin interbedded silt layers (medium hard to hard) (Kau) -- Vuggy zone 16.3'-16.5'	100	83				78.0					
15.2 - 20.0			LIMESTONE, gray, fossiliferous (medium hard to hard) (Kau) -- Tan w/marl layers 18.8'-19.6'	100	100									
20.0 - 24.6			LIMESTONE, gray, fossiliferous (medium hard to hard) (Kau) -- Tan w/marl layers 18.8'-19.6'	100	100				95.9					
24.6 - 25			Terminated @ 24.6 feet				24.6							

LOG OF BORING 05-20706- WILLIAMSON CREEK GPJ HOLT ENGINEERING.GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-08**

NOTES : Hole dry prior to coring at 3.3 feet.

DATE DRILLED : 05-25-06

BORING DEPTH : 14.8 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	% CORE RECOVERY	RQD (%)	DRILLING RATE (MIN./FT.)	CORE INTERVAL (FEET)	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT (%)	PLASTICITY INDEX	% PASSING #200 SIEVE
0 - 1.5			SANDY LEAN CLAY (CL), brown, silty, loose (soft) (Qal)											
1.5 - 3.3			LEAN CLAY (CL), brown to dark brown, silty, w/sand (soft to firm) (Qtt)							13.2		48	30	79.9
3.3 - 5.5			LIMESTONE, tan, thin bedded, fossiliferous (hard to medium hard) (Kau)	100	100		3.3	55/7"						
5.5 - 10.3			LIMESTONE, gray, thin to thick bedded, glauconitic (hard to medium hard) (Kau) -- Angular fracture @ 5.8'	100	100		5.5		183.8					
10.3 - 14.8			-- Occasional pyrite nodules and inclusions 11.3'-14.1'  -- Marly, friable limestone 14.1'-14.8' -- Last 0.3' of core destroyed 14.5'-14.8' Terminated @ 14.8 feet	89	80		10.3		50.6					
14.8 - 14.8							14.8							

LOG OF BORING 05-20706- WILLIAMSON CREEK.GPJ HOLT ENGINEERING.GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-09**

NOTES : Hole dry prior to coring at 1.0 feet.

DATE DRILLED : 05-25-06

BORING DEPTH : 14.6 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

LONG. :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	% CORE RECOVERY	RQD (%)	DRILLING RATE (MIN./FT.)	CORE INTERVAL (FEET)	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT (%)	PLASTICITY INDEX	% PASSING #200 SIEVE
0			LEAN CLAY (CL), brown and light brown, silty, w/thick small to large gravel and limestone rock (medium) (Qal)				1.0							
1			LIMESTONE, tan, thin bedded (hard to medium hard) (Kau)	100	100									
5			LIMESTONE, gray, thick bedded, fossiliferous, w/pyrite nodules and inclusions (hard to medium hard) (Kau)	100	100		5.0		220.8					
10				100	100		9.8							
15			-- Slickenside, 45° from horizontal @ 13.0'-13.2'						126.1					
14.6			Terminated @ 14.6 feet				14.6							

LOG OF BORING 05-20706- WILLIAMSON CREEK.GPJ HOLT ENGINEERING.GDT 6/12/06

**WILLIAMSON CREEK  
TERRACING AND BENCHING PROJECT  
AUSTIN, TEXAS**

**LOG OF BORING B-10**

NOTES : Hole dry prior to coring at 9.7 feet.

DATE DRILLED : 05-30-06

BORING DEPTH : 24.4 FEET

DRILLER : John Webb

WATER LEVEL :

ELEVATION :

DRILLING METHOD : 4" Flight Augers

LAT :

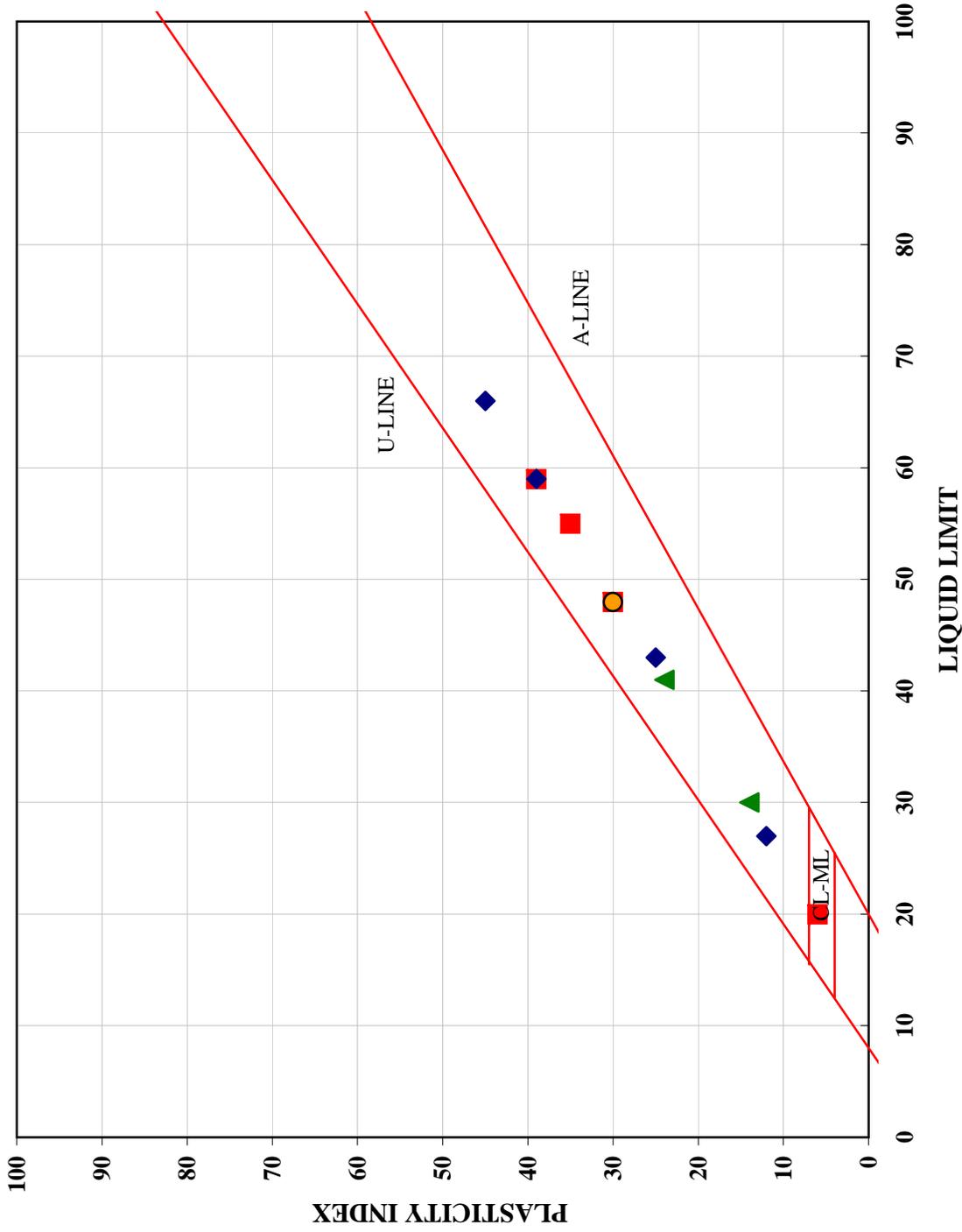
LONG :

DEPTH (feet)	GRAPHIC LOG	SAMPLE	SOIL DESCRIPTION	% CORE RECOVERY	RQD (%)	DRILLING RATE (MIN./FT.)	CORE INTERVAL (FEET)	BLOWS PER FOOT	UCC STR. (TSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT(%)	PLASTICITY INDEX	% PASSING #200 SIEVE
5			LEAN CLAY (CL), dark brown, very silty, w/scattered tan silt layers and small to medium limestone rocks (medium stiff) (Qal)					22						
10			LEAN CLAY (CL), tan and light brown, silty, sandy, w/thick small to large limestone rocks (medium) (Qal)											
10			LIMESTONE, tan, fossiliferous, w/interbedded fractured limestone layers and stiff silt layers (medium hard to very hard) (Kbu)	100	0		9.7 10.0							
15			– Very hard limestone w/common stylolites and totally healed fractures 12.5'-17.6'	100	69		14.8							
20			– Common clayey silt layers 17.6'-24.4'	100	77		19.6	172.0						
25			Terminated @ 24.4 feet				24.4							

LOG OF BORING 05-20706- WILLIAMSON CREEK.GPJ HOLT ENGINEERING.GDT 6/12/06

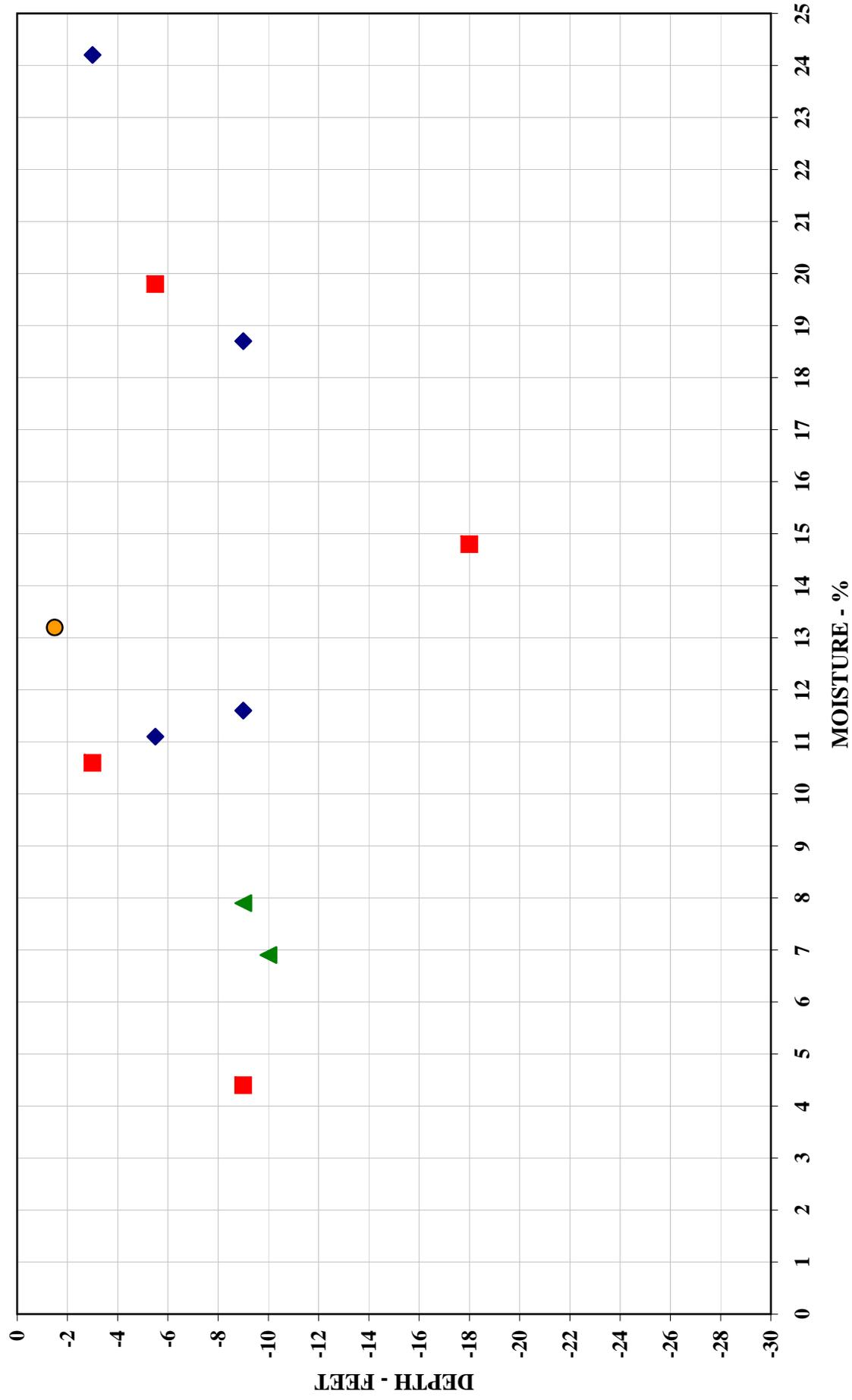
## **LABORATORY TESTING DATA CHARTS**

# WILLIAMSON CREEK, AUSTIN, TEXAS PLASTICITY CHART

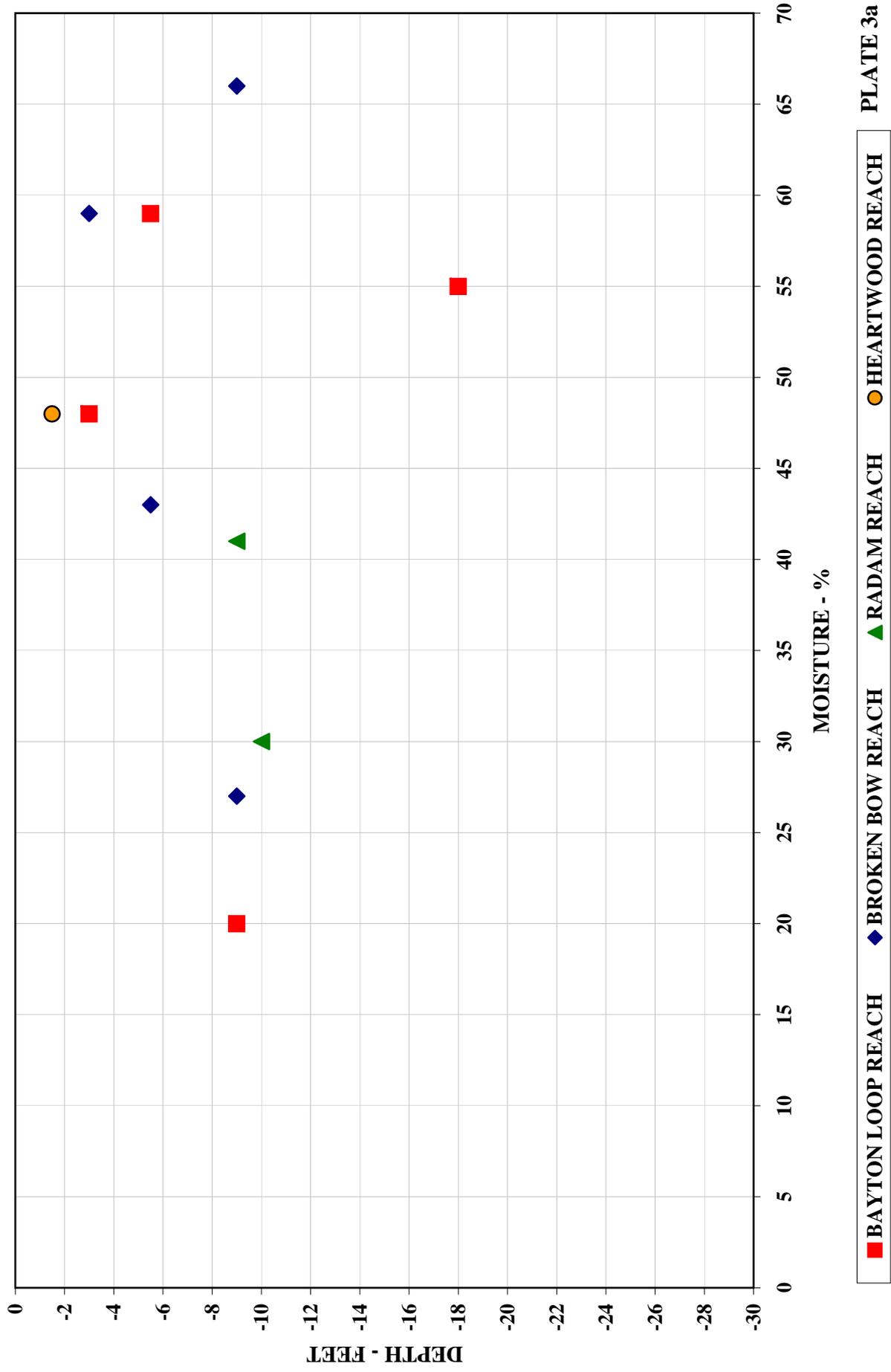


- BAYTON LOOP REACH
- ◆ BROKEN BOW REACH
- HEARTWOOD REACH
- ▲ RADAM REACH

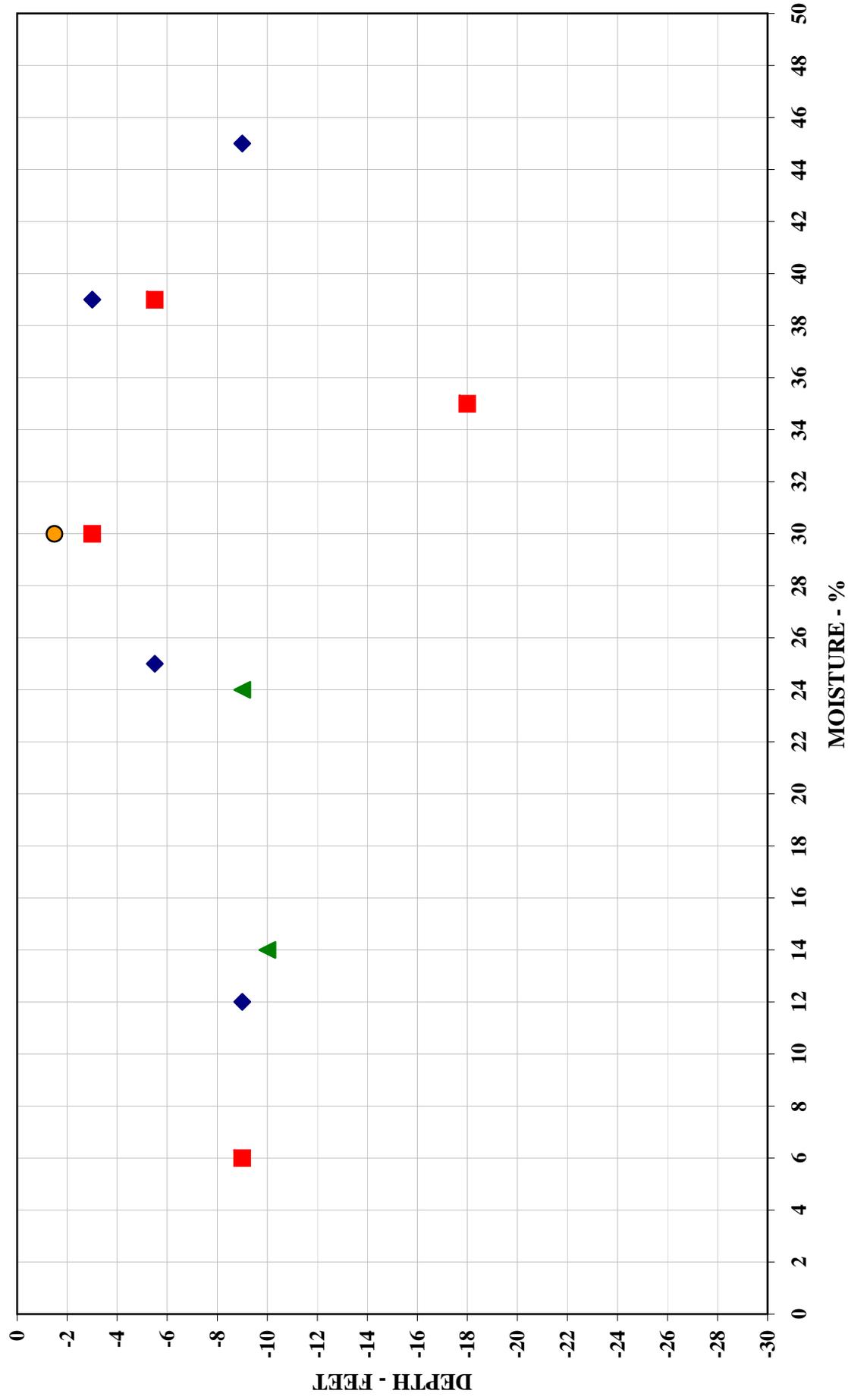
WILLIAMSON CREEK, AUSTIN, TEXAS  
MOISTURE CONTENT VS DEPTH



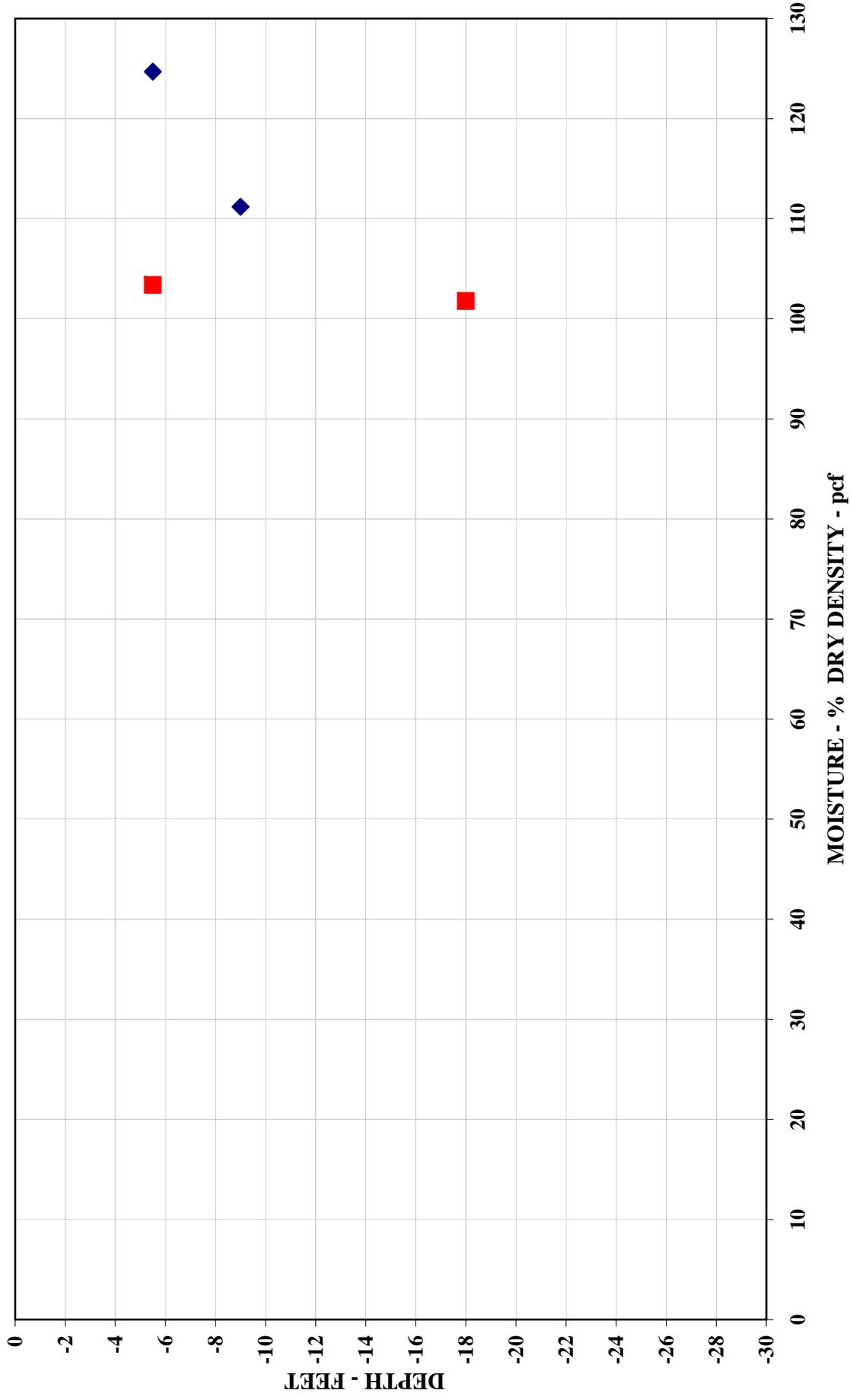
WILLIAMSON CREEK, AUSTIN, TEXAS  
LIQUID LIMIT VS DEPTH



WILLIAMSON CREEK, AUSTIN, TEXAS  
PLACTICITY INDEX VS DEPTH



**WILLIAMSON CREEK, AUSTIN, TEXAS  
DRY DENSITY VS DEPTH**



■ BAYTON LOOP REACH    ◆ BROKEN BOW REACH

WILLIAMSON CREEK, AUSTIN, TEXAS  
ULTIMATE COMPRESSIVE STRENGTH VS DEPTH

