(A)	ORATO		Santen Tel	n Anto ephon	andale onio, Te ne: (21 0) 495	exas 7 10) 49	8216)			LOCATION: 10349 Military Drive; San Antonio, Texas NUMBER: 220634		
Т	FIE	LD D	ATA		LABO	DRA1	TOR)	/ DAT			DATE(S) DRILLED: 11/10/2020 DRILLING METHOD(S):		
\dagger					AT	TERB	ERG				Ai Rotary/Rock Coring		
	ОЕРТН (FT)	SAMPLE NUMBER	SAMPLES N: BLOWS/FT P: TONS/SQ FT C: TONS/SQ FT QC: TONS/SQ FT	MOISTURE CONTENT (%)	T LIQUID LIMIT	PLASTIC LIMIT TIMIT	PLASTICITY INDEX	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	GROUNDWATER INFORMATION: Groundwater was not encountered during drilling, nor observed upon the completior the drilling. SURFACE ELEVATION: N/A DESCRIPTION OF STRATUM		
 		SPT S-1	N= 10	6	LL	PL	FI		0 % 0	2	SANDY LEAN CLAY, dark brown, dry, stiff.		
	5 -	SPT S-2 SPT S-3 SPT S-4 SPT S-5	N= 44 N= 47 N= 38 N= 37	9 6 12 12	33	20	13			90	MARLY LEAN CLAY, light brown, dry, hard. (CL) Same as above. Same as above, moist. (CL) MARLY LEAN CLAY, light brown, moist, hard.		
	15	SPT S-6	N= 19	23	59	15	44			99	FAT CLAY, light brown, moist, very stiff. (CH)		
	20	SPT S-7	N= 37-50/5"	12							MARLY LEAN CLAY, light brown, moist, very hard.		
	25 ·	CORE S-8	RQD=58%								LIMESTONE, light brown, fairly continuous, fair quality.		
	30	-CORE - S-9 -	REC=98% RQD=70%					126	113.2		Same as above, continuous.		
	35	CORE S-10	REC=98% RQD=70%					130	108.9		Same as above, with verticle fractures.		
	40	CORE S-11	REC=100% RQD=92%					132	72.4		LIMESTONE, light brown, continuous, excellent quality.		
	45	CORE S-12	REC=100% RQD=48%					130	164.6		Same as above, poor quality.		
		CORE S-13	REC=93% RQD=38%					129	174.8		Same as above, with clay seams.		
T T	50 -	CORE S-14						121	28.7		LIMESTONE , with clay seams, light brown, continuous, fair quality.		

MINUS NO. 200 SIEVE (%)



FIELD DATA

SAMPLE NUMBER

CORE

S-15

CORE

S-16

CORE

S-17

CORE

S-18

CORE

S-19

SAMPLES

SOIL SYMBOL

Τ

DEPTH (FT)

60

65

70

75

80

 \perp

220634 LOGS.GPJ ROCK_ETL.GDT

BORING

P,

Rock Engineering & Testing Lab, Inc. 10856 Vandale Street San Antonio, Texas 78216

> LABORATORY DATA ATTERBERG LIMITS

> > PLASTICITY INDEX

ы

DRY DENSITY POUNDS/CU.FT

138

139

133

133

128

COMPRESSIVE (TONS/SQ FT)

STRENGTH

220.6

243.6

74.3

167.6

152.7

PLASTIC LIMIT

PL

LIQUID LIMIT

LL

Telephone: (210) 495-8000 Fax: (210) 495-8015

8

MOISTURE CONTENT

I: BLOWS/FT
:: TONS/SQ FT
:: TONS/SQ FT
RC:: TONS/SQ FT

REC=98%

RQD=45%

REC=100%

RQD=65%

REC=95%

RQD=45%

REC=97%

RQD=52%

REC=95%

RQD=58%

CLIENT: Kimley-Horn and Associates, Inc. PROJECT: Sea World Ground Storage Tank

LOCATION: 10349 Military Drive; San Antonio, Texas

NUMBER: 220634

DATE(S) DRILLED: 11/10/2020

DRILLING METHOD(S):	
Ai Rotary/Rock Coring	

GROUNDWATER INFORMATION:

Groundwater was not encountered during drilling, nor observed upon the completion of the drilling.

DESCRIPTION OF STRATUM

Same as above, sans clay seams, white and light brown, with fractures, poor quality.

Same as above, with fossils, fair quality.

LIMESTONE, white and light brown, with fossils, continuous, poor quality.

Same as above, sans fossils, fair quality.

Same as above.

Boring terminated at a depth of 80-feet.

N - STANDARD PENETRATION TEST RESISTANCE Qc - STATIC CONE PENETROMETER TEST INDEX

P - POCKET PENETROMETER RESISTANCE

REMARKS:

Boring location determined by RETL. Drilling operations performed by RETL. GPS Coordinates: N 29.45017°, W -98.69689°

/E	Heiner	MG &	Ţŧij	108	356 Va	indale	ng & 1 Streetexas 7	t i	g Lab, I	nc.		CLIENT: Kimley-Horn and Associates, Inc. PROJECT: Sea World Ground Storage Tank LOCATION: 10349 Military Drive; San Antonio, Texas
V	18082			Tel	ephon	e: (21	10) 495	5-8000)			NUMBER: 220634
	~	EV IN	, <u>)</u>			,						DATE(S) DRILLED: 11/11/2020
	FIE	LD D	Α	TA	I	_AB(DRAT	ORY	/ DAT	Ά		DRILLING METHOD(S):
ヿ						AT	TERBI LIMIT:					Air Rotary
SOIL SYMBOL	БЕРТН (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	RY DENSITY DUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ.FT)	MINUS NO. 200 SIEVE (%)	GROUNDWATER INFORMATION: Groundwater was not encountered during drilling, nor observed upon the completior the drilling. SURFACE ELEVATION: N/A
ў П			1		∑ 7	LL 40	PL	PI	2 2	SE	- ≥	DESCRIPTION OF STRATUM SANDY SILT, dark brown, dry, very stiff. (ML)
		SPT S-1	Ă	N= 20		40_	28	12			69	SANDT SILL, dark brown, dry, very still. (ML)
		SPT S-2	X	N= 21	6							CHALK, white, dry, very stiff.
	- 5	SPT S-3		N= 23	13							MARLY LEAN CLAY, light brown, moist, very stiff.
		SPT S-4	\square	N= 33-50/3"	14	41	15	26			98	Same as above, very hard. (CL)
		SPT S-5		N= 35	14							Same as above, hard.
	- 10 ·	- 0-3										
	 - 15 ·	 SH S-6		P= 3.5	20				104	2.8		FAT CLAY, light brown, moist, very stiff.
		SPT S-7	X	N= 38-50/3"	12							MARLY LEAN CLAY, light brown, moist, very hard.
	 - 25 -	SPT S-8	X	N= 50/4"	10							LIMESTONE, light brown, dry, very hard.
		SPT S-9	X	N= 50/0"	10							Same as above.
	 - 35 · 	SPT S-10	X	N= 50/1"	8							Same as above, dry.
	 - 40 - 	SPT S-11	X	N= 50/0"	8							LIMESTONE, light brown, dry, hard.
	 - 45 - 	SPT S-12	X	N= 50/0"	7							Same as above.
	 - 50 -	SPT S-13	X	N= 62	20							FAT CLAY, light brown, moist, hard. Boring terminated at a depth of 50-feet.
(Qc - S	STAT	IC	RD PENE CONE PE PENETRO	NET	RON	1ETE	R TE	EST IN			REMARKS: Boring location determined by RETL. Drilling operations performed by RETL. GPS Coordinates: N 29.45036°, W -98.69679°

The state of the s	enter i			108 Sar Tele	56 Va Anto ephon	ndale nio, To e: (21	Street exas 7 10) 49	t 8216	g Lab, I		D	CLIENT: Kimley-Horn and Associates, Inc. PROJECT: Sea World Ground Storage Tank LOCATION: 10349 Military Drive; San Antonio, Texas NUMBER: 220634
<u> </u>	RATO	EN HE	RP		`	0) 495			<u> </u>	DATE(S) DRILLED: 11/12/2020 DRILLING METHOD(S):		
+	FIE	FIELD DATA LABORATORY DATA ATTERBERG										Air Rotary
SOIL STIMBOL	ı (FT)	SAMPLE NUMBER	.ES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	LIQUID LIMIT	PLASTIC LIMIT MI	PLASTICITY INDEX	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	GROUNDWATER INFORMATION: Groundwater was not encountered during drilling, nor observed upon the completion the drilling.
2	DЕРТН (FT)	SAMP	SAMPLES	N: BLO P: TON T: TON Qc: TO	MOIST	LL	PL Z	PI	DRY D POUN	COMP STREN (TONS	MINUS	SURFACE ELEVATION: N/A DESCRIPTION OF STRATUM
	- - -	SPT S-1 SPT S-2		N= 19 N= 21	5							SANDY LEAN CLAY, dark brown, dry. CHALK, white, dry, very stiff. Same as above.
	5 - - -	SPT S-3 SPT S-4	Ž	N= 20 N= 44	13 16	49	17	32			98	MARLY LEAN CLAY, light brown, moist, very stiff. (CL) Same as above, hard.
	10 -	SPT	۱ X	N= 38-50/5"	12	44	15	29			96	Same as above, very hard. (CL)
	15 - -	SPT S-6	Χı	N= 50/1"	9							<u>LIMESTONE</u> , light brown, dry, hard.
† - - -	20 -	SPT : S-7	XI.	N= 50/1"	9							Same as above.
+ + + + + + +	25 - -	SPT S-8	X ı	N= 50/2"	10							Same as above, moist.
# # #	30 -	SPT	XI	N= 50/0"	9							LIMESTONE, light brown, dry, very hard.
	35 -	SPT S-10	X	N= 50/0"	11							Same as above, hard.

LOG_OF_BORING 220634 LOGS.GPJ ROCK_ETL.GDT N - STANDARD PENETRATION TEST RESISTANCE Qc - STATIC CONE PENETROMETER TEST INDEX

P - POCKET PENETROMETER RESISTANCE

16

SPT

SPT

S-12

SPT S-13

N= 10-50/0"

X N= 50/0"

40

45

50

REMARKS:

Same as above, dry.

FAT CLAY, light brown, moist, very hard.

LIMESTONE, light brown, dry, very hard.

Boring terminated at a depth of 50-feet.

Boring location determined by RETL. Drilling operations performed by RETL. GPS Coordinates: N 29.45022°, W -98.69648°



Rock Engineering & Testing Lab, Inc. 10856 Vandale Street San Antonio, Texas 78216 Telephone: (210) 495-8000 Fax: (210) 495-8015

N - STANDARD PENETRATION TEST RESISTANCE

Qc - STATIC CONE PENETROMETER TEST INDEX

P - POCKET PENETROMETER RESISTANCE

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CLIENT: Kimley-Horn and Associates, Inc. PROJECT: Sea World Ground Storage Tank

LOCATION: 10349 Military Drive; San Antonio, Texas

NUMBER: 220634

DATE(S) DDILLED: 11/11/2020

		S MC								DATE(S) DRILLED: 11/11/2020				
	FIELD DATA LABORATORY DATA								DAT	Ά		DRILLING METHOD(S):		
							TERBI					Air Rotary		
SOIL SYMBOL	DЕРТН (FT)	SAMPLE NUMBER	SAMPLES	N: BLOWS/FT P: TONS/SQ FT T: TONS/SQ FT Qc: TONS/SQ FT	MOISTURE CONTENT (%)	Г ГІДИІР ГІМІТ	PLASTIC LIMIT WIT	교 PLASTICITY INDEX	DRY DENSITY POUNDS/CU.FT	COMPRESSIVE STRENGTH (TONS/SQ FT)	MINUS NO. 200 SIEVE (%)	GROUNDWATER INFORMATION: Groundwater was not encountered during drilling, nor observed upon the completion of the drilling. SURFACE ELEVATION: N/A DESCRIPTION OF STRATUM		
		SPT S-1	Μı	N= 9	5	39	30	9			57	SANDY SILT, dark brown, dry, stiff. (ML)		
	- 5	SPT S-2 SPT S-3		N= 33 N= 47 N= 29 N= 25	7 9 11 12						96	MARLY LEAN CLAY, pale brown, dry, hard. Same as above, light brown. Same as above, moist, very stiff. MARLY LEAN CLAY, light brown, moist, very stiff.		
	 - 15 - 	SPT S-6	Χı	N= 14-50/5"	12							Same as above, very hard.		
	 - 20 -	SPT S-7	Χı	N= 37-50/4"	11	34	14	20			88	Same as above. (CL)		
	 - 25 -	SPT S-8	Χı	N= 50/0"	9							LIMESTONE, light brown, dry, very hard.		
	 - 30 - 	SPT S-9	Χı	N= 50/3"	8							Same as above.		
	 - 35 - 	SPT S-10	X۱	N= 50/1"	7							Same as above.		
	 - 40 -	SPT S-11	×.	N= 50/2"	8							<u>LIMESTONE</u> , light brown, dry, very hard.		
	 45 -	SPT S-12	X,	N= 50/0"	10							Same as above.		
	 - 50 -	SPT S-13	X	N= 50/3"	13							Same as above. Boring terminated at a depth of 50-feet.		
												DEMADKS:		

REMARKS:

Boring location determined by RETL. Drilling operations performed by RETL. GPS Coordinates: N 29.45006°, W -98.69658°