

SUBSOIL
INVESTIGATIONS**SOIL MECHANICS DRILLING CORP.**3770 MERRICK ROAD • SEAFORD, L. I., NEW YORK 11783
(516) 221-2333 • FAX (516) 221-0254

August 24, 2018

Tahoe Development Corp.
82-17 153rd Avenue, Suite 206
Howard Beach, NY 11414
Att: Anthony GurinoRe: 183 Beach 101st Street
Far Rockaway, NY
Our Job #18-378

Gentlemen:

Forwarded herewith are copies of the boring logs for drilling recently completed at the above referenced site.

The purpose of the subsurface investigation was to determine the nature and extent of the underlying soil deposits and determine the structural engineering characteristics of the soil at the site. Two (2) test borings were drilled to a depth of 27 feet each. Boring B-1 was drilled using truck mounted drilling equipment at the location shown on our Boring Location Plan. The boring was advanced using hollow stem auger casing. Sample recovery was obtained with a 2" diameter, 2'0" long split spoon sampler was advanced into the subsurface by the use of an automatic 140 lb. hammer with a 30" drop. From the drops of the hammer, blow counts required to advance the split spoon sampler over each 6" intervals were recorded and is shown on the boring log. Continuous split spoon samples were taken generally for the top 12 feet then every 5 feet thereafter to the final depth of the boring. A written description of the recovered soil samples per our geologist's visual identification of same is also presented on the log.

The CME automatic hammer operates with an efficiency of approximately 90%. The original conventional use of rope, cathead and drop weight, on the other hand, operates with an efficiency of approximately 60%. As a consequence, the standard penetration test results obtained using the CME auto-hammer are on the order of two-thirds the value that would have been obtained had the original rope and cathead method been used. This is significant if you are using design charts for soil strength parameters based on historical data associated with the rope and cathead method. If so, you should adjust our data accordingly.

Boring B-2 was drilled using portable drilling equipment. Sample recovery was obtained using a conventional standard penetration test (SPT) method, i.e., driving a standard 2 inch diameter split spoon sampler with a 140 lb. hammer drop weight falling 30 inches. The number of blows required to advance the spoon each 6 inch increment was recorded and is shown in the third column of the boring log. Continuous split spoon samples were

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taken for the top 18 feet then every 5 feet thereafter to the final depth of the boring. A written description of the recovered soil samples per our geologist's visual identification of same is also presented on the log.

Our investigation revealed that the areas drilled are blanketed by from 1 to 2 feet of concrete and loose to moderately dense soil fill, underlain, generally, by a moderately dense to dense coarse to fine sand with traces of silt and gravel and shell fragments extending to the deepest depths drilled.

Natural ground water was encountered within the boreholes at a depth of 7'1" and 6'8" below existing grade at the time the work was done and is under tidal influence.

All soils below the fill will satisfactorily support foundation loads of 3,000 lbs. per square foot and exhibit excellent drainage characteristics.

Frost penetration in this area is 4 feet. All exterior foundations must have a minimum of 4 foot of cover.

Liquefaction is not a design consideration.

For seismic purposes the site is classified as Site Class "D" per the New York City Building Code. Table 1613.5.3(1) has a Site coefficient F_a as a function of site class and mapped spectral response acceleration at short periods (S_s)^a is 1.57. Table 1613.5.3(2) has a Site Coefficient F_v as a function of site class and mapped spectral response acceleration at 1-second period (S_1)^a is 2.4.

Soil samples recovered during drilling operations will be stored in our lab for a period of 30 days after which they will be destroyed. During this period we will deliver these samples to any prescribed location upon request.

If after you examine the enclosed you have any further questions, please feel free to call and discuss them with us.

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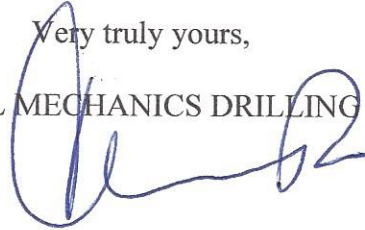
Tahoe Development Corp.
Att: Anthony Gurino

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Billing is enclosed. TR-1 and TR-4 forms will be provided upon payment of our invoice.

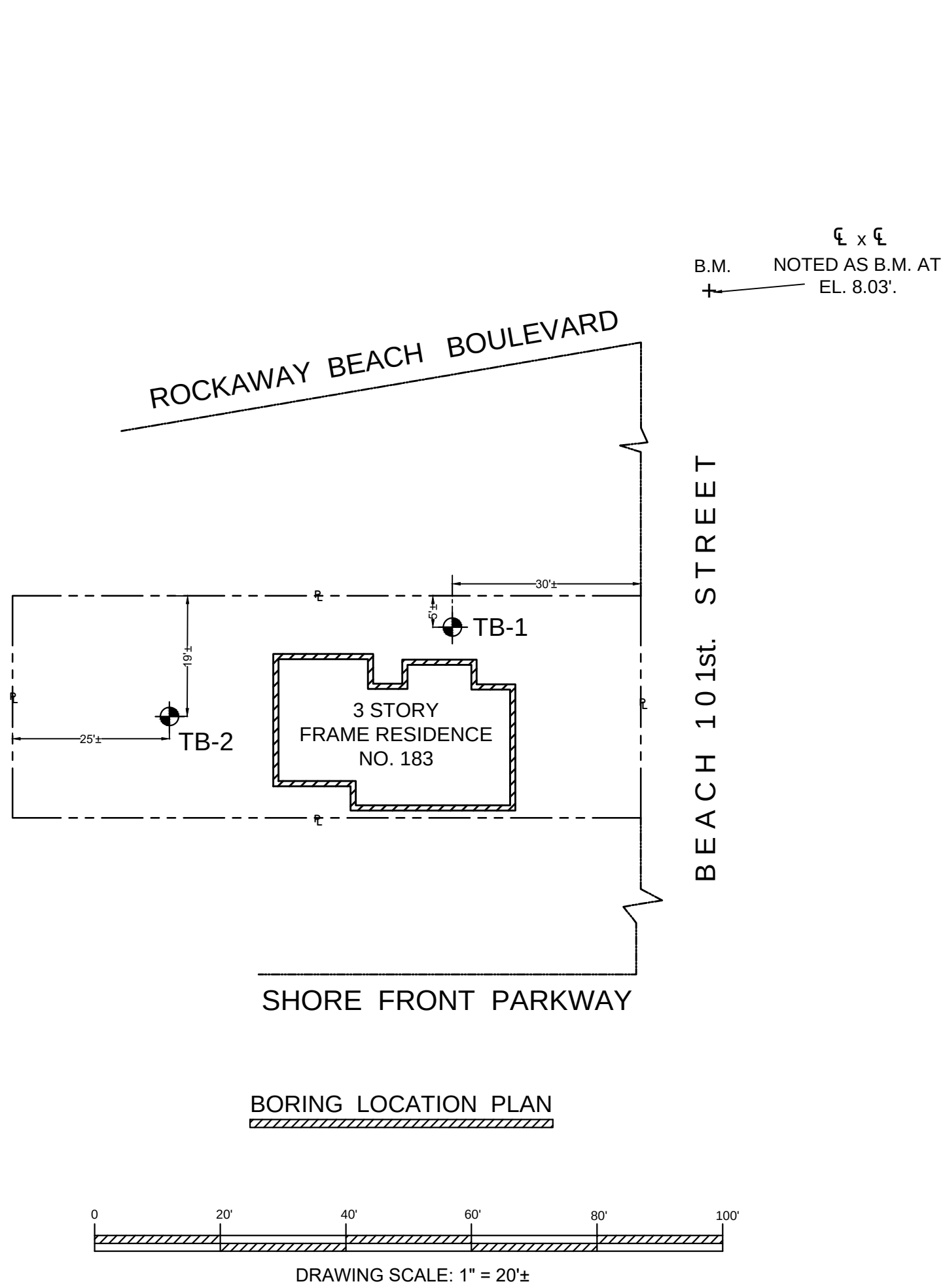
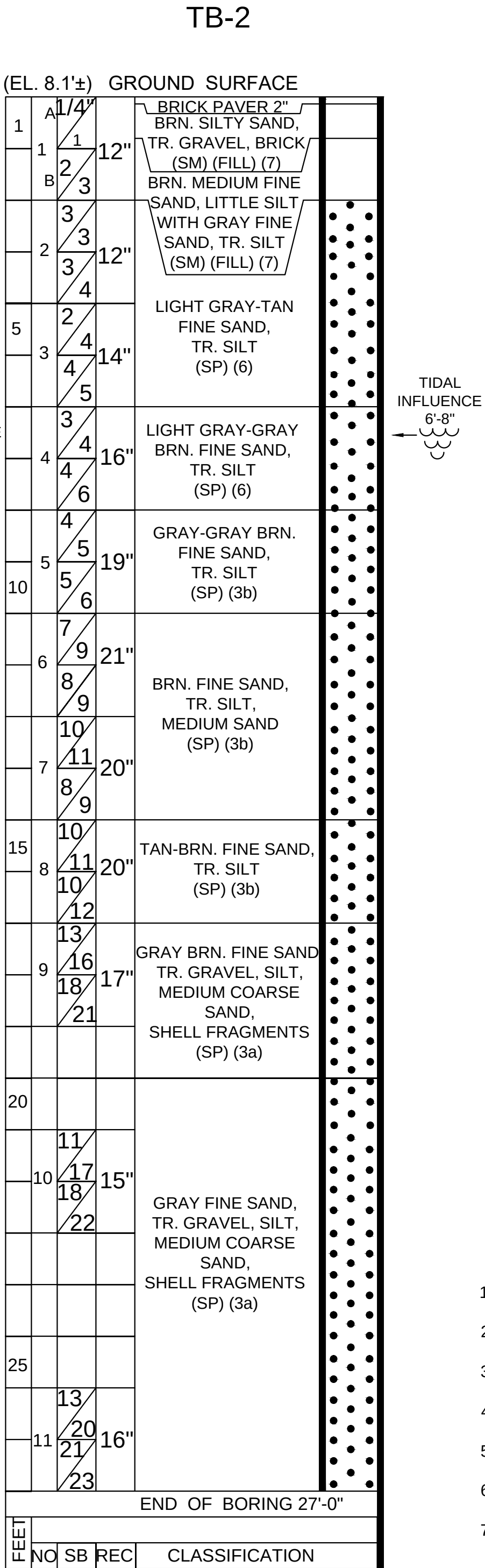
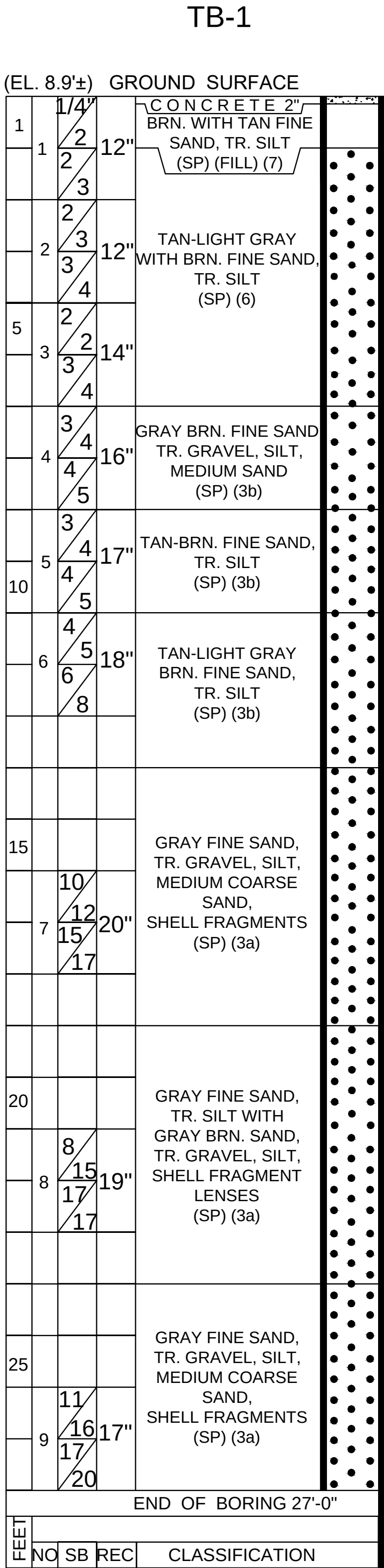
Very truly yours,

SOIL MECHANICS DRILLING CORP.

A handwritten signature in blue ink, appearing to read 'Carl Vernick', is written over the company name.

Carl Vernick, P.E.
President

CV:mlf
Encls.



NOTES

- SOIL DESCRIPTIONS ARE BY VISUAL EXAMINATION OF SOIL SAMPLES RECOVERED DURING DRILLING OPERATIONS.
- SOIL DESCRIPTIONS ARE IN ACCORD WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.
- GROUND WATER TABLE WAS MEASURED INSIDE THE DRILL CASING AT THE COMPLETION OF EACH BOREHOLE.
- GROUND WATER TABLE WHERE ENCOUNTERED AT THIS SITE IS UNDER TIDAL INFLUENCE.
- SOIL STRATIFICATIONS ARE ACCURATE TO WITHIN TWO FEET VERTICALLY.
- TB-1 SOIL SAMPLES WERE OBTAINED USING A CENTRAL MINE EQUIPMENT (CME) AUTOMATIC TRIP HAMMER.
- TB-2 SOIL SAMPLES WERE OBTAINED USING PORTABLE TRIPOD MOUNTED EQUIPMENT STANDARD PENETRATION ROPE & CATHEAD 140lb. HAMMER ADVANCED 2"Ø SPLIT SPOON SAMPLER AT 30" FALL.
- SOIL TEST BORING GROUND SURFACE ELEVATIONS SHOWN ARE REFERENCED TO 6' x 6' OF BEACH 101st St. & ROCKAWAY BEACH BLVD. AT B.M. EL. 8.03' QUEENS TOPOGRAPHICAL BUREAU DATUM MAP NO. 217 CORRECTED TO NAVD88 DATUM.
- SOIL TEST BORINGS DRILLED IN ACCORD WITH THE NEW YORK CITY BUILDING CODE.

UNIFIED SOIL CLASSIFICATION		
SOIL GROUPS	TYPICAL NAMES AND SOIL SYMBOLS	
1a Thru 1d	BED ROCK	
GW	WELL GRADED GRAVELS, GRAVEL SAND MIXTURES, LITTLE OR NO FINES	
GP	POORLY GRADED GRAVELS OR GRAVEL SAND MIXTURES. LITTLE OR NO FINES	
GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURE	
GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURE	
SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES	
SM	SILTY SANDS, SAND - SILT MIXTURES	
SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
ML	INORGANIC SILTS, VERY FINE SANDS, CLAYEY SILTS, SLIGHT PLASTICITY	
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS SANDY CLAYS, SILTY CLAYS	
OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS	

ALLOWABLE SOIL BEARING PRESSURES, N.Y.C. BLDG. CODE TABLE 1804.1		
CLASS OF MATERIALS (Notes 1 and 3)	MAXIMUM ALLOWABLE FOUNDATION PRESSURE (TSF)	MAXIMUM ALLOWABLE FOUNDATION PRESSURE (KPa)
1. BEDROCK (NOTES 2 and 7) ★		
1a HARD SOUND ROCK - GNEISS, DIABASE, SCHIST	60	5,746
1b MEDIUM HARD ROCK - MARBLE, SERPENTINE	40	3,830
1c INTERMEDIATE ROCK - SHALE, SANDSTONE	20	1,915
1d SOFT ROCK - WEATHERED ROCK	8	766
2. SANDY GRAVEL & GRAVEL (GW, GP) (NOTES 3, 4, 8, and 9) ★		
2a DENSE	10	958
2b MEDIUM	6	575
3. GRANULAR SOILS (GC, GM, SW, SP, SM, & SC)(NOTES 4, 5, 8, and 9) ★		
3a DENSE	6	575
3b MEDIUM	3	287
4. CLAYS (SC, CL, & CH)(NOTES 4, 6, 8, and 9)		
4a HARD	5	479
4b STIFF	3	287
4c MEDIUM	2	192
5. SILTS & SILTY SOILS (ML & MH)(NOTES 4, 8, and 9) ★		
5a DENSE	3	287
5b MEDIUM	1.5	144
6. ORGANIC SILTS, ORGANIC CLAYS, PEATS, SOFT CLAYS, LOOSE GRANULAR SOILS, & VARVED SILTS	SEE 1804.2.1 ★	SEE 1804.2.1 ★
7. CONTROLLED & UNCONTROLLED FILLS	SEE 1804.2.2 OR 1804.2.3 ★	SEE 1804.2.2 OR 1804.2.3 ★

COMPACTION RELATED TO SPOON BLOWS PER FOOT			
SAND & SILT		CLAY	
LOOSE	LESS THAN 10	SOFT	4 OR LESS
MEDIUM	10 TO 30	MEDIUM	GREATER THAN 8 TO 30
DENSE	GREATER THAN 31	HARD	GREATER THAN 30
" N "	STANDARD PENETRATION TEST - ASTM 1586		
2" SPOON, 140lb HAMMER @ 30" FALL			
N=17 BLOWS PER FOOT	SPOON BLOW COUNT IS GENERALLY SHOWN IN 6" INCREMENTS FOR 2' DRIVE TO OBTAIN BLOWS PER FOOT (N) USE THE 2ND & 3RD 6" INCREMENT		

	ROTARY CASING	EXTRA HEAVY CASING	SAMPLE SPOON
SIZES, INCHES	2.5		2.0
HAMMER WEIGHT, POUNDS	-----		140
HAMMER FALL, INCHES	-----		30
CB - CASING BLOWSPER 1 FOOT DRIVE SB - SPOON BLOWS PER 6 INCH DRIVE P - PUSHED BY WEIGHT OF HAMMER WOR - WEIGHT OF ROD	UD - UNDISTURBED SOIL SAMPLE NO - SAMPLE NUMBER FEET - DEPTH FROM GND. SUR. NOTED AT EACH 5' WOH - WEIGHT OF HAMMER REC - SOIL RECOVERY IN INCHES		
THE LIABILITY OF SOIL MECHANICS DRILLING CORP., ITS OFFICERS OR EMPLOYEES, FOR ERRORS, OMISSIONS OR NEGLIGENCE RESULTING IN PERSONAL INJURIES, PROPERTY DAMAGE OR ANY CONSEQUENTIAL DAMAGES, IS LIMITED TO THE AMOUNT OF THE FEE PAID FOR THIS REPORT. THE RETENTION OR USE OF ANY PART OF THIS REPORT WILL CONSTITUTE AN ACCEPTANCE OF THIS LIMITED LIABILITY. IF THIS IS UNACCEPTABLE, THE CLIENT MUST NOTIFY SOIL MECHANICS DRILLING CORP. IN WRITING BY CERTIFIED MAIL, WITHIN SEVEN DAYS FROM THE DATE OF RECEIPT. THE FEE CHARGED FOR THIS REPORT IS BASED ON THIS LIMITATION OF LIABILITY WHICH IS THE ESSENCE OF THIS AGREEMENT. IF THE CLIENT WANTS A HIGHER LIMITATION OF LIABILITY, SOIL MECHANICS DRILLING CORP., WILL NEGOTIATE ONE, BASED UPON A HIGHER FEE BEING CHARGED FOR THE ADDITIONAL ASSUMPTION OF LIABILITY. SOIL MECHANICS DRILLING CORP., ITS OFFICERS OR EMPLOYEES, HAVE NO LIABILITY OR RESPONSIBILITY TO PERSONS OTHER THAN THE CLIENT FOR WHOM THIS REPORT WAS PREPARED. ANYONE, OTHER THAN OUR CLIENT, RELIES ON THIS REPORT AT THEIR OWN RISK.			

	PROJECT: 183 BEACH 101st. STREET FAR ROCKAWAY, NEW YORK
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SUBSURFACE INVESTIGATION			
183 BEACH 101st. STREET			
FAR ROCKAWAY, NEW YORK			
VERTICAL BORING SCALE: 1/2" = 1'-0" UNLESS NOTED OTHERWISE	DRAWING DATE AUGUST 24, 2018	DRAWING NUMBER 18R378.2	
DATES OF BORING AUGUST 22, 2018	DRAWN BY: NAR	CHECKED BY: CV	REVISED DATE:
SHEET 1 OF 1			

BORING PLAN SUBSURFACE INVESTIGATION	
DATE: AUGUST 24, 2018 PROJECT No: 18R378.2 DRAWING BY: NAR CHK BY: CV	B-001.00
SEAL & SIGNATURE:	
CAD FILE No: Z: 18R378.2	SHEET 1 OF 1