September 7, 2016

Geotechnical Soils Investigation Report

Parking Deck
200 K Street, NW
Washington, DC

GeoCapitol Engineering LLC
4545 42nd Street, NW
Suite 307
Washington, DC 20016
(202) 375-7900•www.geocapeng.com

GeoCapitol Engineering LLC

4545 42nd Street, NW
Suite 307
Washington, DC 20016
(202) 375-7900
www.geocapeng.com

September 7, 2016

Mr. Mark Corneal
Office of the Deputy Mayor for Planning and Economic Development (DMPED)
1350 Pennsylvania Ave, NW, Suite 317
Washington, DC 20004

Subject: **Geotechnical Soils Investigation Report, Parking Deck, 200 K Street, NW, Washington, DC (GeoCapitol Project No. DC16024)**

Dear Mr. Corneal:

GeoCapitol Engineering LLC (GeoCapitol) is pleased to present the following geotechnical soils investigation report prepared for Parking Deck, at 200 K Street, NW, Washington, DC.

We appreciate the opportunity to serve as your geotechnical consultant on this project. Please do not hesitate to contact me if you have any questions or want to meet to discuss the findings and recommendations contained in the report.

Sincerely,

GEOCAPITOL ENGINEERING LLC

Daniel F. Gradishar, PE
President
dgradishar@geocapeng.com

GeoCapitol Engineering LLC

Table of Contents

1.0 Scope of Services

This geotechnical soils investigation report presents the results of the field investigation, soil laboratory testing, and engineering analysis of the geotechnical data. This report specifically addresses the following:

- An evaluation of subsurface conditions within the area of the proposed site development, including a seismic site classification and site-specific spectral response.
- Comments on subsurface rock near the structure footprint.
- Comments on utilizing existing foundations for support of the proposed structure addition.

Services not specifically identified in the contract for this project are not included in the scope of services.

2.0 Site Description and Proposed Construction

The site is located at 200 K Street, NW, Washington, DC and consists of an existing parking deck straddling the I-395 tunnel. A site vicinity map is presented as Figure 1 at the end of this report. The ground surface elevation at the site ranges from EL 44 to 50 feet. Based on RFQ dated April 22, 2016, the proposed construction consists of an addition to the top parking deck on the existing parking garage structure. We understand from the review of the existing as-built drawings provided by DDOT and Carmel Plaza Apartments that the parking garage structure was originally designed to have townhouses or other residential structures located where the existing parking deck is being utilized to park vehicles off of 2nd Street, NW.

Note: Aerial Photograph from Google Earth Imagery Dated 2016.

3.0 Subsurface Conditions

Subsurface conditions were investigated by drilling a total of two (2) test borings in the proposed site development area. Test boring logs and a boring location plan are presented in Appendix A of this report.

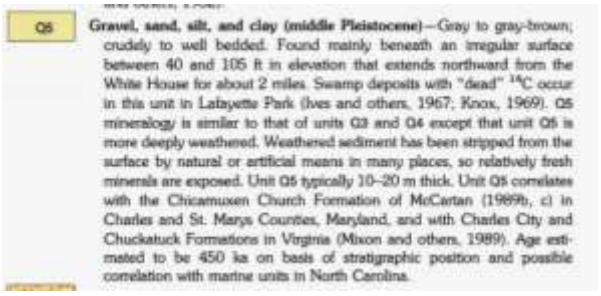
Previous geotechnical engineering soil test borings completed during the design of the I-395 tunnel were provided by DDOT and reviewed by us. The soil test borings were completed by Tippetts-Abbett-McCarthy-Stratton Engineers and Architects (TAMSEA) dated April 1974. Although a geotechnical engineering report was not discovered, the subsurface information from that study has been reviewed as a part of this project.

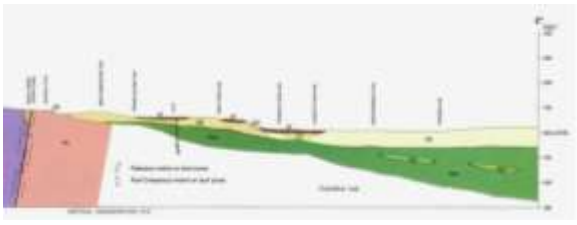
Pertinent previous test borings by TAMSEA are also included in Appendix A of this report. Test boring data by others is assumed to be complete and accurate. We do not assume any responsibility for the completeness and accuracy of data obtained from others without our supervision.

3.1 Geology

The site is located within the Coastal Plain Physiographic Province of the District of Columbia. The Coastal Plain consists of a seaward thickening wedge of unconsolidated to semi-consolidated sedimentary deposits from the Cretaceous Geologic Period to the Holocene Geologic Epoch. These deposits represent marginal-marine to marine sediments consisting of interbedded sands and clays. The Coastal Plain is bordered to the east by the Atlantic Ocean and to the west by the Piedmont Physiographic Province. The dividing line between the Coastal Plain and the Piedmont is locally referred to as the "Fall Line". This name comes from the waterfalls that form as a result of the differential erosion that occurs as streams cross the Piedmont/Coastal Plain contact.

Specifically, according to local geologic maps, the site is mapped in the Q5 gravel, sand, silt, and clay deposits of the Quaternary geologic period underlain by the clay-dominated lithofacies of the Potomac Formation of the Cretaceous geologic period. The Potomac Group sediments are the oldest sedimentary deposits in the Washington, DC area. These soils are known to be highly over-consolidated as a result of the weight of a substantial thickness of overlying soils that have since been eroded away. As a result of over-consolidation, Potomac Group soils have been pre-loaded and are capable of supporting substantial loads. The Potomac Group clays are well documented with problems associated with slope instability and excessive shrink/swell characteristics.


Q5 **Gravel, sand, silt, and clay (middle Pleistocene)**—Gray to gray-brown; crudely to well bedded. Found mainly beneath an irregular surface between 40 and 105 ft in elevation that extends northward from the White House for about 2 miles. Swamp deposits with "dead" ^{14}C occur in this unit in Lafayette Park (Ives and others, 1967; Knox, 1969). Q5 mineralogy is similar to that of units Q3 and Q4 except that unit Q5 is more deeply weathered. Weathered sediment has been stripped from the surface by natural or artificial means in many places, so relatively fresh minerals are exposed. Unit Q5 typically 10–20 m thick. Unit Q5 correlates with the Chicamuxen Church Formation of McCartan (1989b, c) in Charles and St. Marys Counties, Maryland, and with Charles City and Chuckatuck Formations in Virginia (Mixon and others, 1989). Age estimated to be 450 ka on basis of stratigraphic position and possible correlation with marine units in North Carolina.



Map excerpt provided courtesy of the USGS (Fleming, A.H., Drake, A.A., and McCartan, Lucy, 1994, Geologic map of the Washington West quadrangle, District of Columbia, Montgomery and Prince George's Counties, Maryland, and Arlington and Fairfax Counties, Virginia: U.S. Geological Survey)

3.2 Published Soils

A review of the DC soils map on the DC Atlas Plus website and the NRCS-USDA Web Soil Survey indicates the site is mapped within the urban land soils.

3.3 Stratification

The subsurface materials encountered have been stratified for purposes of our discussions herein. These stratum designations do not imply that the materials encountered are continuous across the site. Stratum designations have been established to characterize similar subsurface conditions based on material

gradations and parent geology. The generalized subsurface materials encountered in the test borings completed at the site have been assigned to the following strata:

Stratum A (Existing Fill)	generally soft to firm or loose, poorly graded gravel, well graded sand, and clayey sand, FILL, with various amounts of concrete, organics, and sand, dry to wet, brown, yellow, and gray
Stratum B1 (Potomac Group)	firm to stiff, LEAN CLAY (CL), with sand and micaceous, wet, gray
Stratum B2 (Potomac Group)	Loose to hard, clayey SAND (SM) and POORLY GRADED SAND (SM), moist, yellow, red, and gray

The two letter designations included in the strata descriptions presented above and on the test boring logs represent the Unified Soil Classification System (USCS) group symbol and group name for the samples based on laboratory testing per ASTM D-2487 and visual classifications per ASTM D-2488. It should be noted that visual classifications per ASTM D-2488 may not match classifications determined by laboratory testing per ASTM D-2487.

3.4 Groundwater

Groundwater level observations were made in the field during drilling. Groundwater was encountered at a depth of about 40 feet below the existing ground surface, or EL 10 at B-2.

The groundwater observation presented herein is considered to be an indication of the groundwater level at the date and time indicated. Where more impervious clay soils are encountered, the amount of water seepage into the borings is limited, and it is generally not possible to establish the location of the groundwater table through short term water level observations. Accordingly, the groundwater information presented herein should be used with caution. Also, fluctuations in groundwater levels should be expected with seasons of the year, construction activity, and changes to surface grades, precipitation, or other similar factors.

3.5 Soil Laboratory Test Results

Selected soil samples obtained from the field investigation were tested for grain size distribution, Atterberg limits, and natural moisture contents. A summary of soil laboratory test results is presented below, and the results of natural moisture content tests are presented on the test boring logs in Appendix A.

Test Boring No.	Depth (ft)	Sample Type	Stratum	Description of Soil Specimen	Sieve Results		Atterberg Limits			Natural Moisture Content (%)
					Percent Retained #4 Sieve	Percent Passing #200 Sieve	LL	PL	PI	
B-1	23.5-25	Split-spoon sample	A	WELL GRADED SAND with silt and gravel (SW-SM)	19.3	8.7	NP	NP	NP	6.8
B-2	5-6.5	Split-spoon sample	A	CLAYEY SAND (SC)	0.2	23.6	51	16	35	13.1
B-2	23.5-25	Split-spoon sample	B1	LEAN CLAY with sand (CL)	0	82.1	40	16	24	22.1

Test Boring No.	Depth (ft)	Sample Type	Stratum	Description of Soil Specimen	Sieve Results		Atterberg Limits			Natural Moisture Content (%)
					Percent Retained #4 Sieve	Percent Passing #200 Sieve	LL	PL	PI	
B-2	53.5-55	Split-spoon sample	B2	CLAYEY SAND (SC)	0	21.9	36	20	16	26.9

Notes:
1. Soil tests are in accordance with applicable ASTM standards
2. Soil classification symbols are in accordance with Unified Soil Classification System
3. Visual identification of samples is in accordance with ASTM D-2488
4. Key to abbreviations: LL = liquid limit; PL = plastic limit; PI = plasticity index; NP = non-plastic; N/T = not tested

3.6 Seismic Site Classification

Based on the results of the subsurface investigation and our knowledge of local geologic conditions, the site soils have been assigned to a site class D per the International Building Code (IBC). It may be possible to improve the site classification from a "D" to a "C" with in-situ shear wave testing at the site. We can provide this additional service upon request.

4.0 Engineering Analysis

Recommendations regarding utilizing the existing foundations for the proposed added load are presented herein.

4.1 Rock Excavation

Rock was not encountered in the recent borings to depths of 65 feet below the existing ground surface. Based on the previous boring logs drilled in 1974, auger refusal was not encountered to depths of 100 feet below the existing ground surface. However, very stiff Potomac Group sands and clays were encountered as borings were extended deeper.

4.2 Adding Loads to the Existing Foundations

The structural engineer, McMullan and Associates anticipates that the additional loading will require an increase of the soil bearing capacity of between 5 to 11 percent. We have reviewed the as-built foundation drawings. Based on the original design drawings, the foundations were designed for residential townhouses or similar lightly loaded residential structures to be constructed where the existing top parking deck is currently utilized to park vehicles. The structural field investigation will verify the structural integrity of the parking garage structure and is submitted under separate cover.

Based on our soil investigation data and review of the original design drawings, we estimate that the foundations are bearing in the Potomac Group dense sands and stiff clays. Based on our initial analysis, we believe that the existing foundations are capable of supporting the additional loads from the proposed one-level of construction on the parking deck. If additional stories or levels are planned above the 2-story townhouses, additional analysis and possible field investigations will need to occur.

5.0 General Limitations

Recommendations contained in this report are based upon the data obtained from the relatively limited number of test borings. This report does not reflect conditions that may occur between the points investigated, or between sampling intervals in test borings. The nature and extent of variations between test borings and sampling intervals may not become evident until the course of construction. Therefore, it is essential that on-site observations of subgrade conditions be performed during the construction period

to determine if re-evaluation of the recommendations in this report must be made. It is critical to the successful completion of this project that GeoCapitol be retained during construction to observe the implementation of the recommendations provided herein.

This report has been prepared to aid in the evaluation of the site and to assist your office and the design professionals in the design of this project. It is intended for use with regard to the specific project as described herein. Changes in proposed construction, grading plans, structural loads, etc. should be brought to our attention so that we may determine any effect on the recommendations presented herein.

An allowance should be established for additional costs that may be required for foundation and earthwork construction as recommended in this report. Additional costs may be incurred for various reasons including wet fill materials, soft subgrade conditions, unexpected groundwater problems, rock excavation, etc.

This report should be made available to bidders prior to submitting their proposals to supply them with facts relative to the subsurface conditions revealed by our investigation and the results of analyses and studies that have been performed for this project. In addition, this report should be given to the successful contractor and subcontractors for their information only.

We recommend the project specifications contain the following statement: "A geotechnical soils investigation report has been prepared for this project by GeoCapitol Engineering LLC This report is for informational purposes only and should not be considered part of the contract documents. The opinions expressed in this report are those of the geotechnical engineer and represent their interpretation of the subsoil conditions, tests and results of analyses that they performed. Should the data contained in this report not be adequate for the contractor's purposes, the contractor may make their own investigations, tests and analyses prior to bidding."

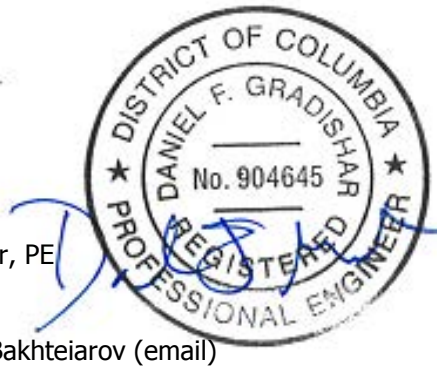
This report was prepared in accordance with generally accepted geotechnical engineering practices. No warranties, expressed or implied, are made as to the professional services included in this report.

We appreciate the opportunity to be of service for this project. Please contact the undersigned if you require clarification of any aspect of this report.

Sincerely,

GEOCAPITOL ENGINEERING LLC

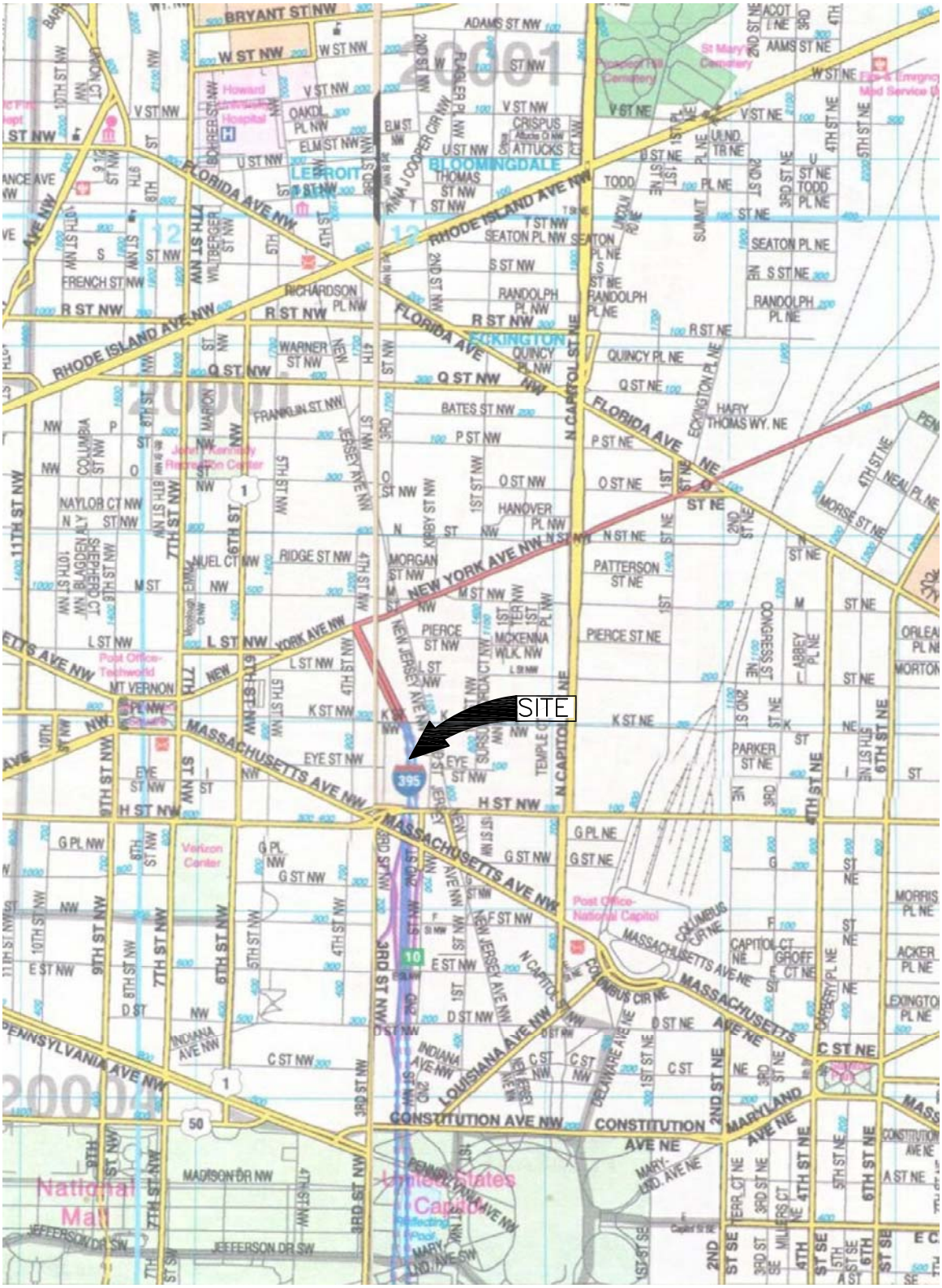
Ashley Hogan, PG
Senior Geologist



Daniel F. Gradishar, PE
Principal

Copy: Ms. Polina Bakhteiarov (email)

ST/AH/DG/kf
G:\PROJECTS\Active DC16 Projects\DC16024, Parking Deck Analysis from ODMPED\Final\Final Geotechnical Report-Parking Deck.docx



G:\PROJECTS\Active DC16 Projects\DC16024, Parking Deck Analysis from ODMPED\CAD\SVM DC16024.dwg

GeoCapitol Engineering LLC
4545 42nd Street NW, Suite 307
Washington, DC 20016
(202) 375-7900

200 K STREET NW PARKING DECK
WASHINGTON, DC 20001

SITE VICINITY MAP	Scale: N.T.S.	Fig. 1
Date: SEPT. 2016	Checked By: D.F.G.	Project No.: DC16024

Appendix A
Subsurface Investigation

Subsurface Investigation Procedures (1 page)

Identification of Soil (1 page)

Test Boring Notes (1 page)

Test Boring Logs (3 pages)

Previous Test Boring Logs (24 pages)

Boring Location Plan, Figure 2, (1 page)

Old Boring Location Plan, Figure 3 (1 page)

GeoCapitol Engineering LLC

Subsurface Investigation Procedures

1. Test Borings – Hollow Stem Augers

The borings are advanced by turning an auger with a center opening of 2¼ inches. A plug device blocks off the center opening while augers are advanced. Cuttings are brought to the surface by the auger flights. Sampling is performed through the center opening in the hollow stem auger, by standard methods, after removal of the plug. Usually, no water is introduced into the boring using this procedure.

2. Standard Penetration Tests

Standard penetration tests are performed by driving a 2 inch O.D., 1-⅜ inch I.D. sampling spoon with a 140-pound hammer falling 30 inches, according to ASTM D-1586. After an initial 6 inches penetration to assure the sampling spoon is in undisturbed material, the number of blows required to drive the sampler an additional 12 inches is generally taken as the N value. In the event 30 or more blows are required to drive the sampling spoon the initial 6 inch interval, the sampling spoon is driven to a total penetration resistance of 100 blows or 18 inches, whichever occurs first.

3. Test Boring Stakeout

The test boring stakeout was provided by GeoCapitol personnel using available site plans. Ground surface elevations were estimated from topographic information contained on the site plan provided to us and should be considered approximate. If the risk related to using approximate boring locations and elevations is unacceptable, we recommend an as-drilled survey of boring locations and elevations be completed by a licensed surveyor.

GeoCapitol Engineering LLC

Identification of Soil

I. DEFINITION OF SOIL GROUP NAMES

		ASTM D-2487	Symbol	Group Name
Coarse-Grained Soils More than 50% retained on No. 200 sieve	**Gravels** More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines	***GW***	WELL GRADED GRAVEL
			GP	POORLY GRADED GRAVEL
		Gravels with Fines More than 12% fines	***GM***	silty GRAVEL
			GC	clayey GRAVEL
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	***SW***	WELL GRADED SAND
			SP	POORLY GRADED SAND
		Sands with fines More than 12% fines	***SM***	silty SAND
			SC	clayey SAND
Fine-Grained Soils 50% or more passes the No. 200 sieve	**Silts and Clays** Liquid Limit less than 50	Inorganic	***CL***	LEAN CLAY
			ML	SILT
		Organic	***OL***	ORGANIC CLAY
				ORGANIC SILT
	Silts and Clays Liquid Limit 50 or more	Inorganic	***CH***	FAT CLAY
			MH	ELASTIC SILT
		Organic	***OH***	ORGANIC CLAY
				ORGANIC SILT
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor		***PT***	PEAT

II. DEFINITION OF MINOR COMPONENT PROPORTIONS

Minor Component	Approximate Percentage of Fraction by Weight
Gravelly, Sandy (adjective)	30% or more coarse grained
Sand, Gravel (with)	15% to 29% coarse grained
Silt, Clay (with)	5% to 12% fine grained

III. GLOSSARY OF MISCELLANEOUS TERMS

SYMBOLS	Unified Soil Classification Symbols are shown above as group symbols. Use "A" Line Chart for laboratory identification. Dual symbols are used for borderline classification.
BOULDERS & COBBLES	Boulders are considered pieces of rock larger than 12 inches, while cobbles range from 3 to 12 inches.
WEATHERED ROCK	Residual rock material with a standard penetration test (SPT) resistance between 60 blows per foot.
ROCK/SPOON REFUSAL	Rock material with a standard penetration test (SPT) resistance of 50 blows for 1 inch.
ROCK FRAGMENTS	Angular pieces of rock which have separated from original vein or strata and are present in a soil matrix. Only used in residual soils.
QUARTZ	A hard silicate mineral often found in residual soils. Only used when describing residual soils.
CEMENTED SAND	Usually localized rock-like deposits within a soil stratum composed of sand grains cemented by calcium carbonate, iron oxide, or other minerals. Commonly encountered in Coastal Plain sediments, primarily in the Potomac Group sands (Kps).
MICACEOUS	A term used to describe soil that "glitters" or is shiny. Most commonly encountered in fine-grained soils.
ORGANIC MATERIALS (Excluding Peat)	Topsoil - Surface soils that support plant life and contain organic matter.
	Lignite - Hard, brittle decomposed organic matter with low fixed carbon content (a low grade of coal).
FILL	Man made deposit containing soil, rock, and other foreign matter.
CONTAINS	This is used when a fill deposit contains a secondary component that does not apply to a USCS classification. Only used for fill deposits
WITH	This is used when a residual soil contains a secondary component that does not contribute to its USCS classification. Only used for natural soils.
PROBABLE FILL	Soils which contain no visually detected foreign matter but which are suspect with regard to origin.
LAYERS	½ to 12 inch seam of minor soil component.
COLOR	Two most predominant colors present should be described.
MOISTURE CONDITIONS	Wet, moist, or dry to indicate visual appearance of specimen.
f-m-c	Fine-medium-coarse

GeoCapitol Engineering LLC

Test Boring Notes

1. Classification of soil is by visual inspection and is in accordance with the Unified Soil Classification System.

2. Estimated groundwater levels are indicated on the logs. These are only estimates from available data and may vary with precipitation, porosity of soil, site topography, etc.

3. Sampling data presents standard penetrations for 6-inch intervals or as indicated with graphic representations adjacent to the sampling data.

4. The logs and related information depict subsurface conditions at the specific locations and at the particular time when drilled. Soil conditions at other locations may differ from conditions occurring at the test locations. Also, the passage of time may result in a change in the subsurface conditions at the test locations.

5. The stratification lines represent the approximate boundary between soil types as determined in the sampling operation. Some variation may be expected vertically between samples taken. The soil profile, groundwater level observations and penetration resistances presented on the logs have been made with reasonable care and accuracy and must be considered only an approximate representation of subsurface conditions to be encountered at the particular location.

GeoCapitol Engineering LLC

4545 42nd Street, NW
Washington, DC 20016

202-375-7900
fax

Parking Deck Engineering Analysis	LOGGED BY: **S. Tafesse**	BORING NUMBER: **B-1**
LOCATION: **200 K Street, NW, Washington, DC**	DRILLING CONTRACTOR: **Connelly & Associates Inc.**	SHEET 1 OF 1
OWNER/CLIENT: **DC Deputy Mayor for Planning & Econ. Development**	DRILLER: **J. Leatherman**	DATES DRILLED: **7/15/16 - 7/15/16**
PROJECT NUMBER: **DC16024** / GROUND SURFACE ELEVATION (ft): **44.5**	DRILLING METHOD: **Automatic hammer 2.25"**	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	SOIL: REC (in)	SOIL: STANDARD PENETRATION TEST RESISTANCE (BPF)	SOIL: MC (%)
44.5			*Fill*, light brown, POORLY GRADED GRAVEL, medium dense, moist, **GP**	6+4+13	14	
42.0			Very dense	19+22+30	14	3.9
39.5	5		Dense	11+13+22	12	
36.0			*Fill*, light brown, **f-c**, WELL GRADED SAND with silt and gravel, dense, moist, **SW-SM**	12+19+23	19	
31.0	10					
	15	A	Very dense	12+24+30	16	
26.0			Dense	11+22+20	18	
	20					
	25			12+19+23	16	6.8
16.0			Very dense	12+50/3	12	>>
15.3	30		Auger and Spoon Refusal at 29.3 ft			
	35					

STANDARD PENETRATION TEST RESISTANCE (BPF): 20 40 60 80

GROUND WATER LEVELS:

NOT ENCOUNTERED DURING DRILLING

NOT ENCOUNTERED UPON COMPLETION

SAMPLE TYPES:

Split Spoon

REMARKS: Refusal at 29.3 feet

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT PARKING DECK ENGINEERING ANALYSIS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 8/9/16

GeoCapitol Engineering LLC
4545 42nd Street, NW
Washington, DC 20016
202-375-7900
fax

Parking Deck Engineering Analysis	LOGGED BY: **S. Tafesse**	BORING NUMBER: **B-2**
LOCATION: **200 K Street, NW, Washington, DC**	DRILLING CONTRACTOR: **Connelly & Associates Inc.**	SHEET 1 OF 2
OWNER/CLIENT: **DC Deputy Mayor for Planning & Econ. Development**	DRILLER: **J. Leatherman**	DATES DRILLED: **7/15/16 - 7/15/16**
PROJECT NUMBER: **DC16024** / GROUND SURFACE ELEVATION (ft): **50.0**	DRILLING METHOD: **Automatic hammer 2.25"**	OFFSET NOTES:

ELEV. (ft)	DEPTH (ft)	STRATUM	MATERIAL DESCRIPTION	SOIL: REC (in)	SOIL: STANDARD PENETRATION TEST RESISTANCE (BPF)	SOIL: MC (%)
50.0			Topsoil = 0.5ft.	13+11+9	14	
49.5			*Fill*, light brown and yellow, POORLY GRADED GRAVEL with sand, contains organics, medium dense, wet, **GP**			
47.5			*Fill*, yellow brown, **f-m**, clayey SAND, loose, moist, **SC**	3+4+4	14	
45.0	5		Medium dense	13+7+7	12	13.1
41.5		A	Very loose	0+0+0	10	
36.5	10		*Fill*, light gray, POORLY GRADED GRAVEL with sand, contains concrete, loose, moist, **GP**	12+2+3	10	
31.5	15		*Potomac group*, gray, **f**, LEAN CLAY with sand, micaceous, firm, wet, **CL**	13+4+4	16	
	20			1+2+3	12	22.1
21.5	25	B1	Stiff	5+7+5	18	
	30			5+7+9	18	
11.0	35	B2		5+8+9	8	

GROUND WATER LEVELS:

▽ ENCOUNTERED: 40.0 ft ELEV. 10.0

NOT ENCOUNTERED UPON COMPLETION

SAMPLE TYPES:

☒ Split Spoon

REMARKS:

THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

BOREHOLE/TEST PIT PARKING DECK ENGINEERING ANALYSIS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 8/9/16

GeoCapitol Engineering LLC

4545 42nd Street, NW
Washington, DC 20016

202-375-7900
fax

Parking Deck Engineering Analysis	LOGGED BY: **S. Tafesse**	BORING NUMBER: **B-2**
LOCATION: **200 K Street, NW, Washington, DC**	DRILLING CONTRACTOR: **Connelly & Associates Inc.**	SHEET 2 OF 2

ELEV. (ft)	DEPTH (ft)	SAMPLE TYPE	STRATUM	GRAPHIC	MATERIAL DESCRIPTION	SOIL: REC (in)	SOIL: STANDARD PENETRATION TEST RESISTANCE (BPF) 20 40 60 80	SOIL: MC (%)
	45				*Potomac group*, yellow and red, **f-m**, clayey SAND, medium dense, moist, **SC** *(continued)*	12+8+7	16	
1.0	50		B2		Dark gray, wet	10+11+13	18	
	55					4+7+11	18	26.9
-9.2	60				*Potomac group*, light gray, POORLY GRADED SAND, medium dense, moist, **SP**	5+10+13	18	
-13.5	65				Dense	15+21+28	16	
-15.0					Bottom of Boring at 65.0 ft			
	70							
	75							
	80							
	85							

GROUND WATER LEVELS:

▽ ENCOUNTERED: 40.0 ft ELEV. 10.0

NOT ENCOUNTERED UPON COMPLETION

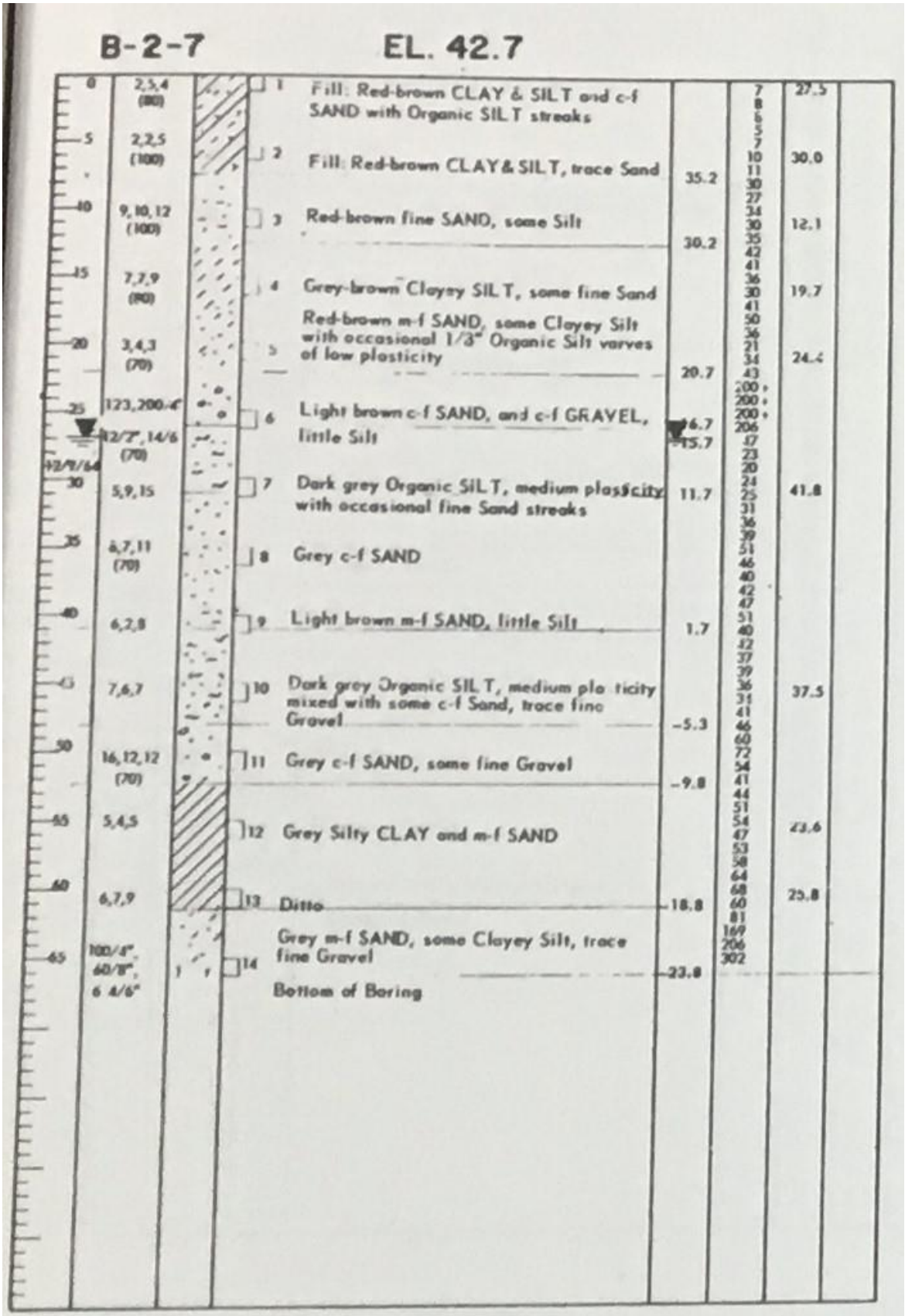
SAMPLE TYPES:

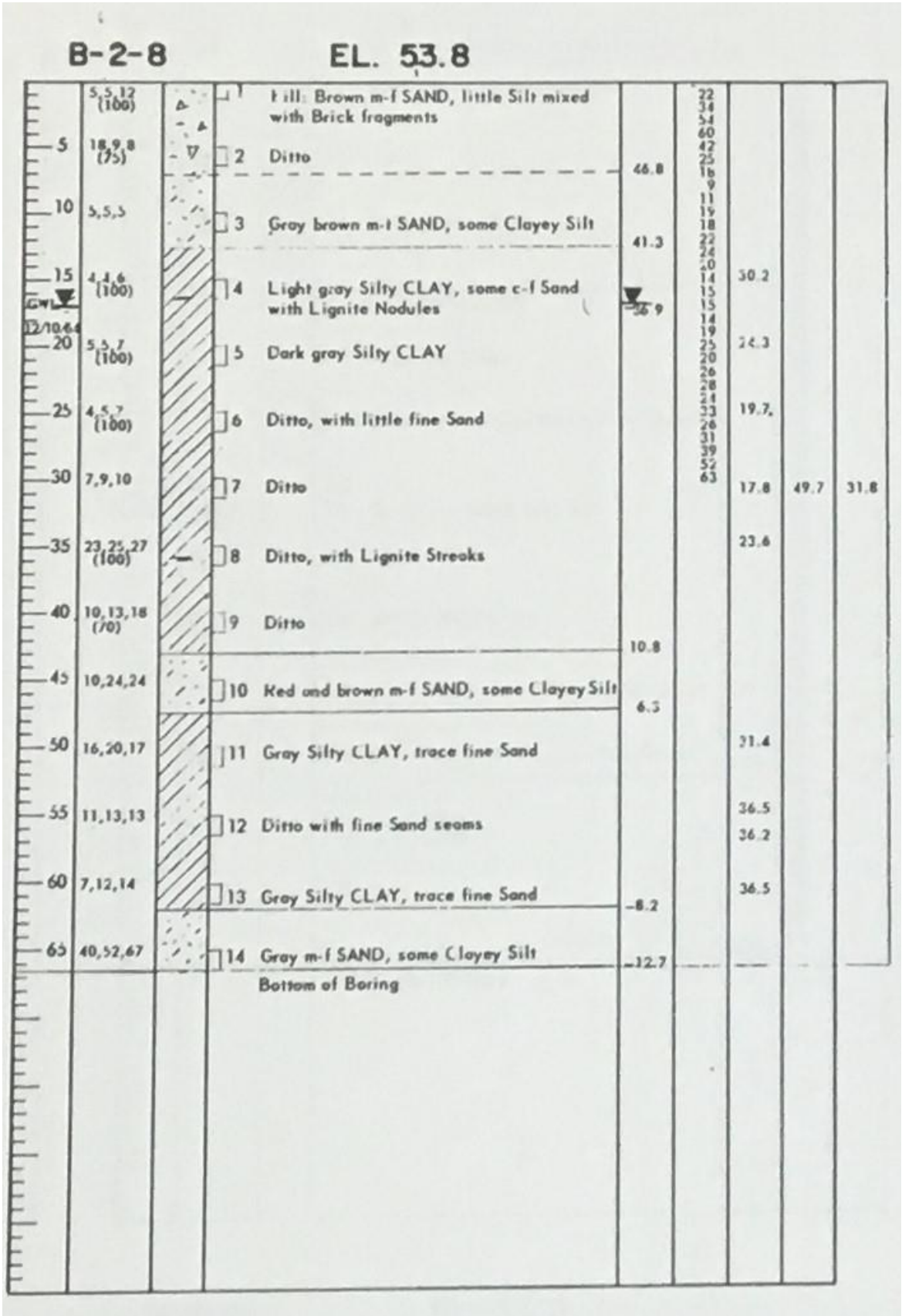
☒ Split Spoon

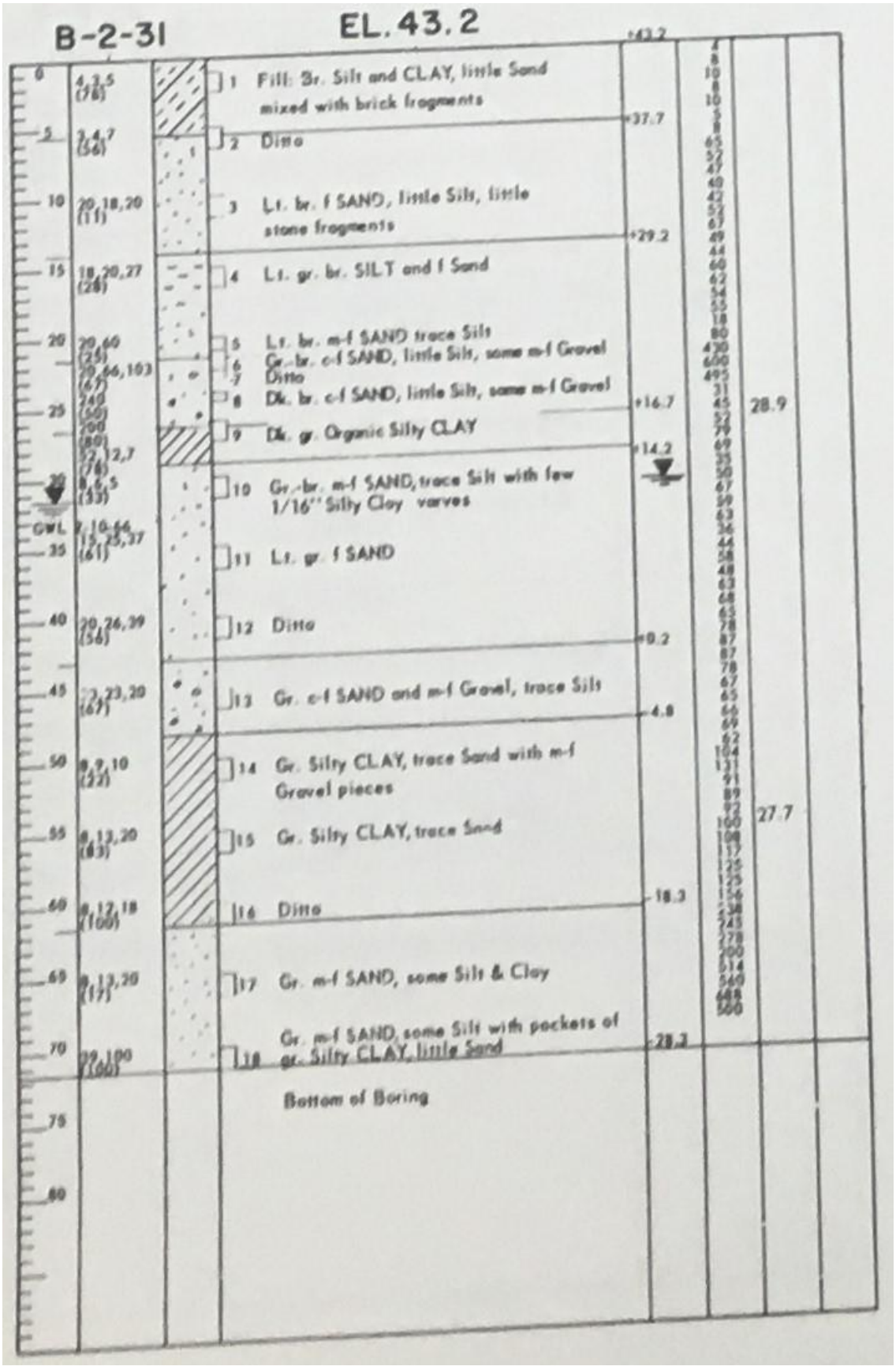
REMARKS:

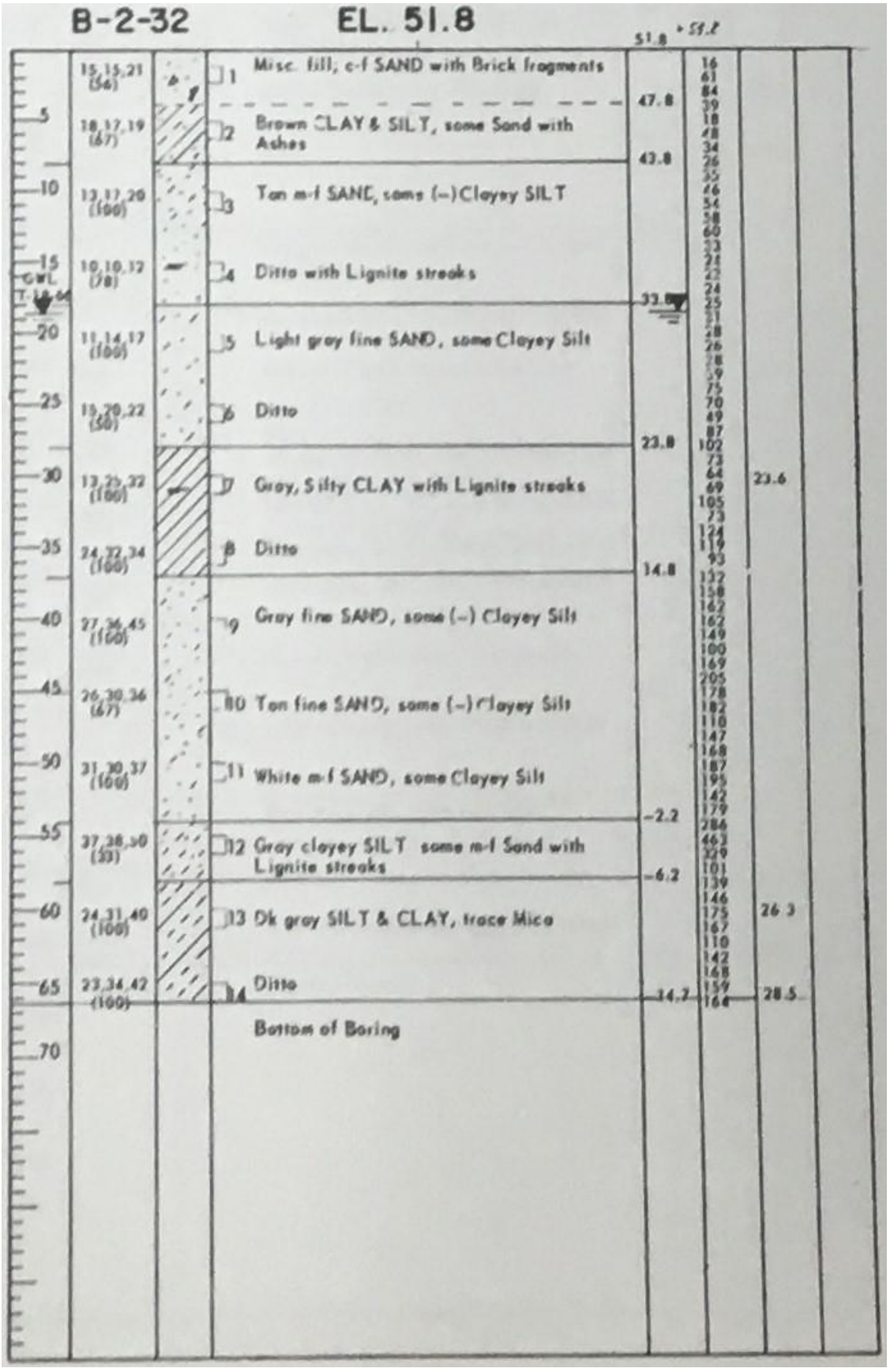
THE STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARIES. THE TRANSITION MAY BE GRADUAL.

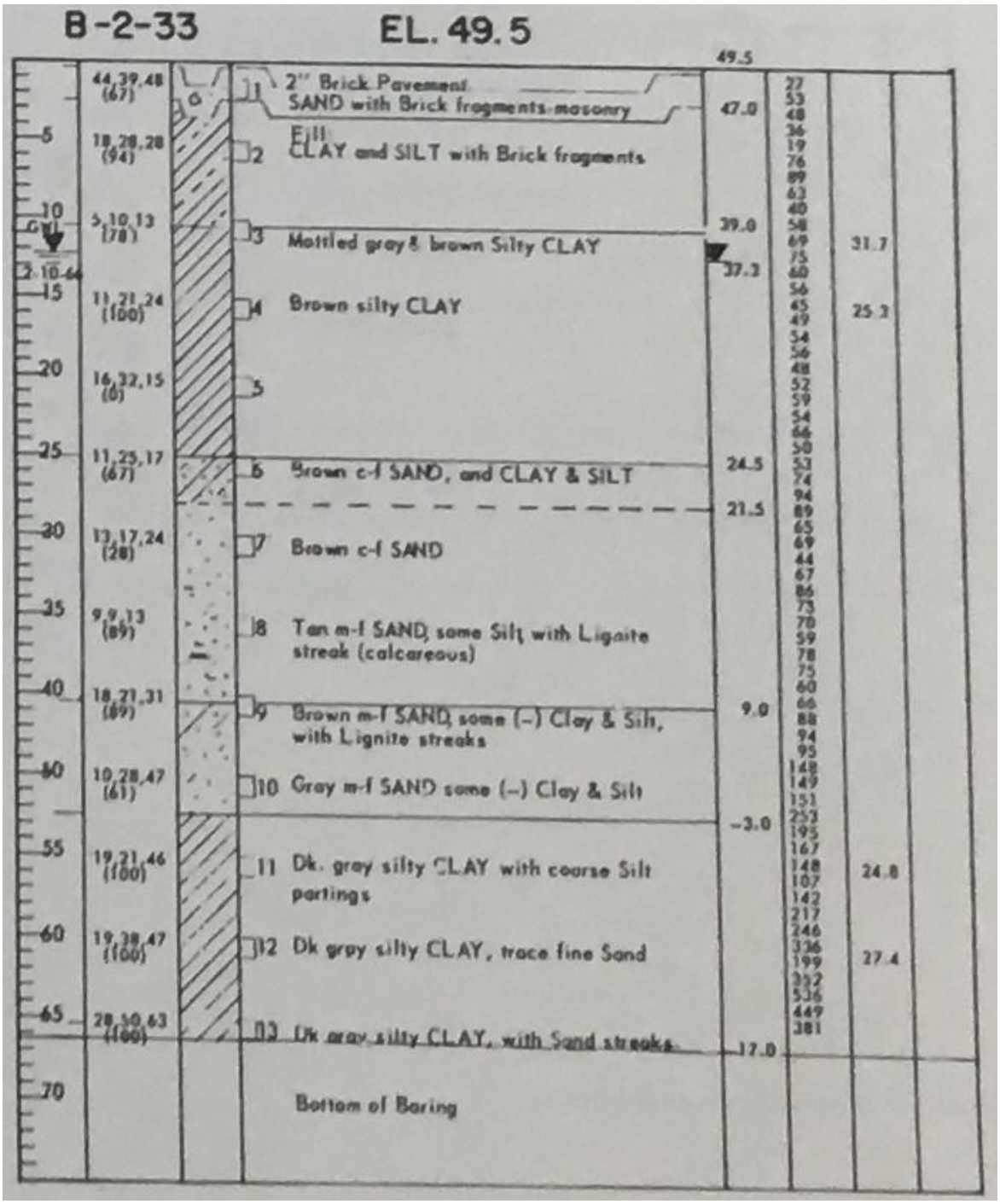
BOREHOLE/TEST PIT PARKING DECK ENGINEERING ANALYSIS.GPJ GEOCONCEPTS TEMPLATE 02-12-2015.GDT 8/9/16

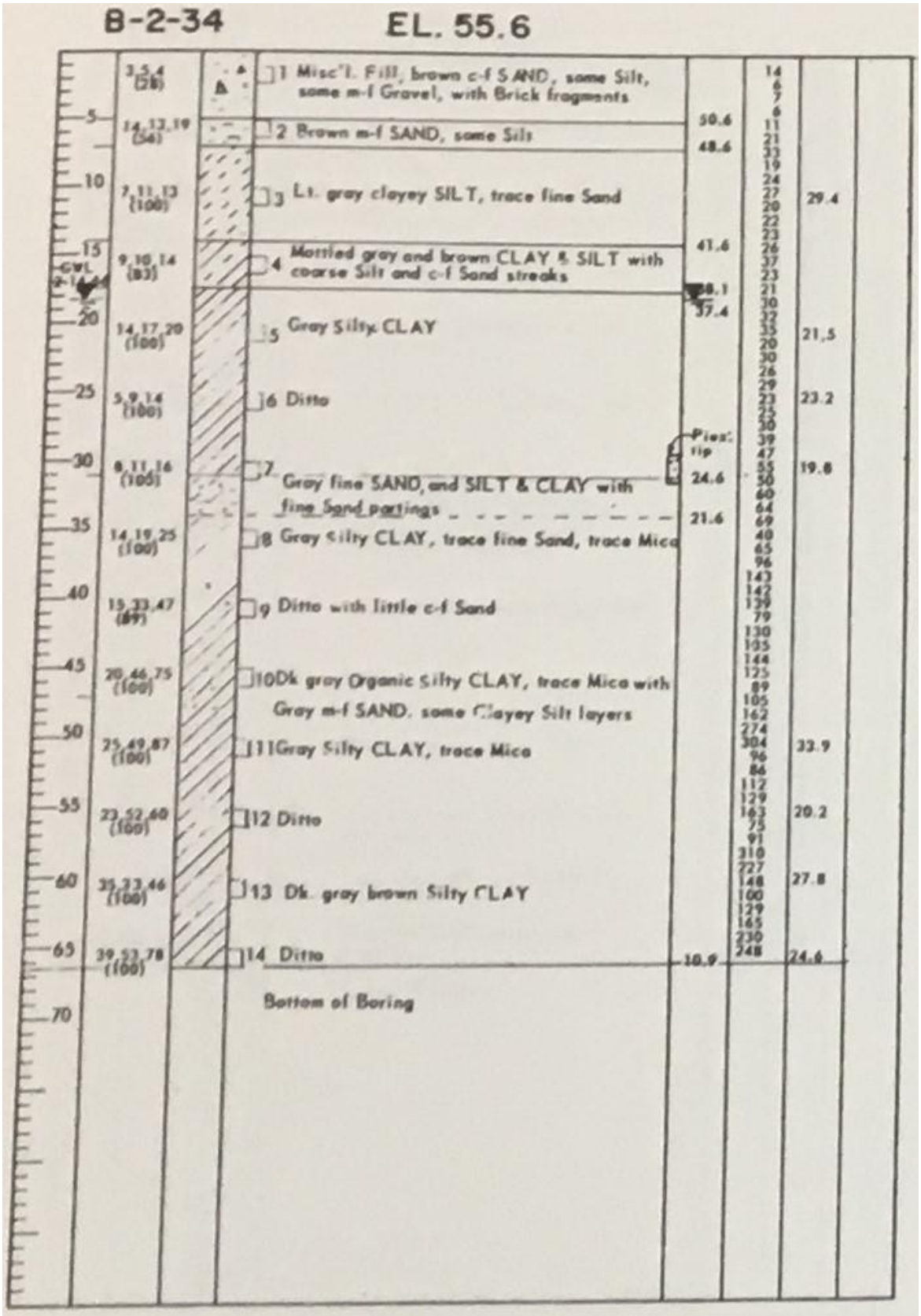

B-2-7
EL. 42.7
0
5
10
15
20
25
30
35
40
45
50
55
60
65
2,3,4 (80)
2,2,5 (100)
9,10,12 (100)
7,7,9 (90)
3,4,3 (70)
123,200/4"
12/7",14/6 (70)
12/9/64
5,9,15
4,7,11 (70)
6,2,8
7,6,7
16,12,12 (70)
5,4,5
6,7,9
100/4", 60/8", 6 4/6"
1 Fill: Red-brown CLAY & SILT and c-f SAND with Organic SILT streaks
2 Fill: Red-brown CLAY & SILT, trace Sand
35.2
3 Red-brown fine SAND, some Silt
30.2
4 Grey-brown Clayey SILT, some fine Sand
Red-brown m-f SAND, some Clayey Silt with occasional 1/8" Organic Silt varves of low plasticity
20.7
6 Light brown c-f SAND, and c-f GRAVEL, little Silt
16.7
15.7
7 Dark grey Organic SILT, medium plasticity with occasional fine Sand streaks
11.7
8 Grey c-f SAND
9 Light brown m-f SAND, little Silt
1.7
10 Dark grey Organic SILT, medium plasticity mixed with some c-f Sand, trace fine Gravel
-5.3
11 Grey c-f SAND, some fine Gravel
-9.8
12 Grey Silty CLAY and m-f SAND
13 Ditto
-18.8
14 Grey m-f SAND, some Clayey Silt, trace fine Gravel
-23.8
Bottom of Boring
7 8 6 5 7 10 11 30 27 34 30 35 42 41 36 30 41 50 36 21 34 43 200+ 200+ 200+ 206 17 23 20 24 25 31 36 39 51 46 40 42 47 51 40 42 37 39 36 31 41 46 60 72 54 41 44 51 54 47 53 58 64 68 60 81 169 206 302
27.5
30.0
12.1
19.7
24.4
41.8
37.5
43.6
25.8

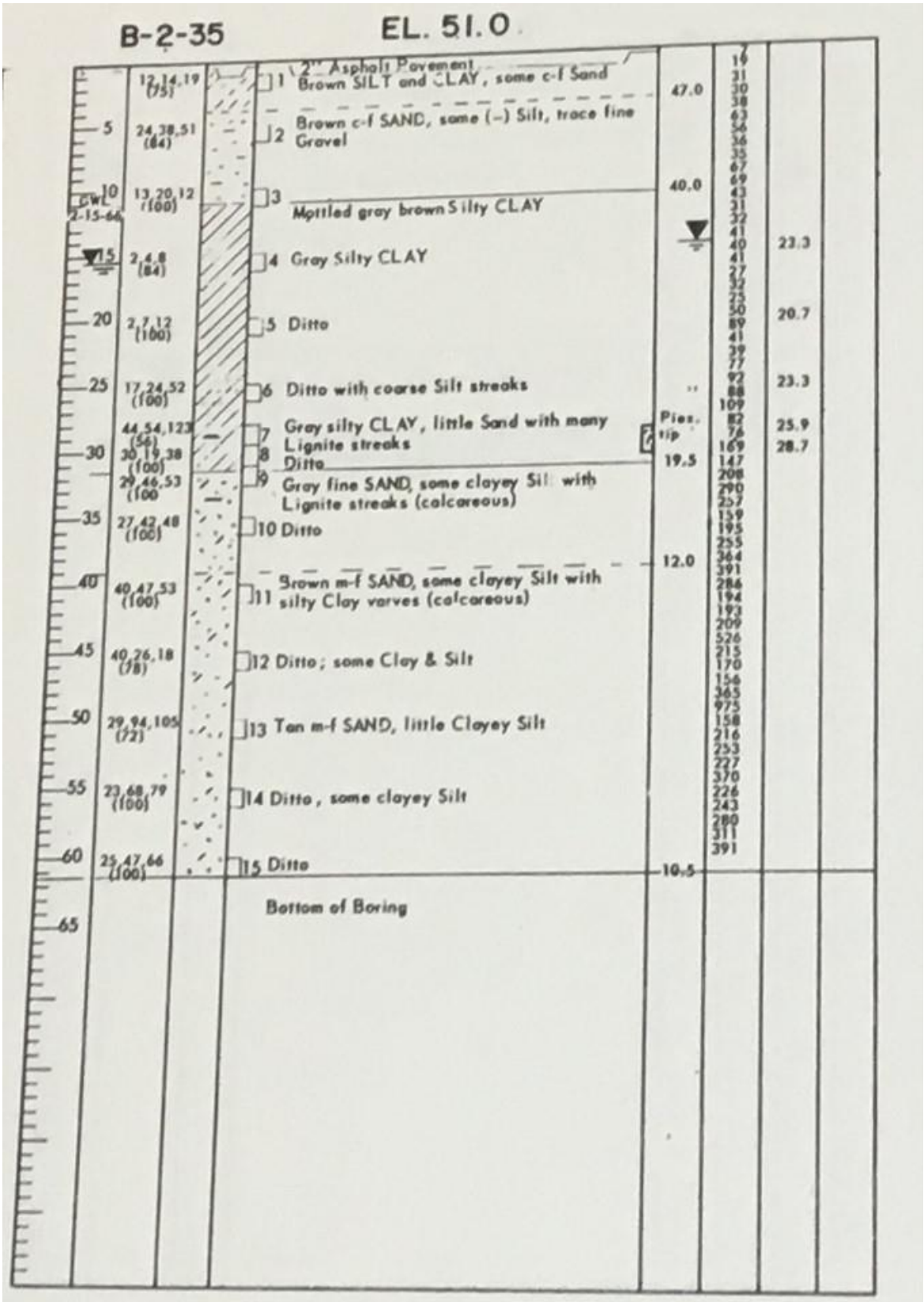

B-2-8
EL. 53.8
5,5,12 (100)
18,9,8 (75)
5,5,5
4,4,6 (100)
GWL
12/10/64
5,5,7 (100)
4,5,7 (100)
7,9,10
23,25,27 (100)
10,13,18 (70)
10,24,24
16,20,17
11,13,13
7,12,14
40,52,67
1 Fill: Brown m-f SAND, little Silt mixed with Brick fragments
2 Ditto
46.8
3 Gray brown m-f SAND, some Clayey Silt
41.3
4 Light gray Silty CLAY, some c-f Sand with Lignite Nodules
36.9
5 Dark gray Silty CLAY
6 Ditto, with little fine Sand
7 Ditto
8 Ditto, with Lignite Streaks
9 Ditto
10.8
10 Red and brown m-f SAND, some Clayey Silt
6.3
11 Gray Silty CLAY, trace fine Sand
12 Ditto with fine Sand seams
13 Gray Silty CLAY, trace fine Sand
-8.2
14 Gray m-f SAND, some Clayey Silt
-12.7
Bottom of Boring
22 34 54 60 42 25 16 9 11 19 18 22 26 20 14 15 15 14 19 25 20 26 28 44 33 26 31 39 52 63
30.2
24.3
19.7
17.8
23.6
21.4
36.5
36.2
36.5
49.7
31.8

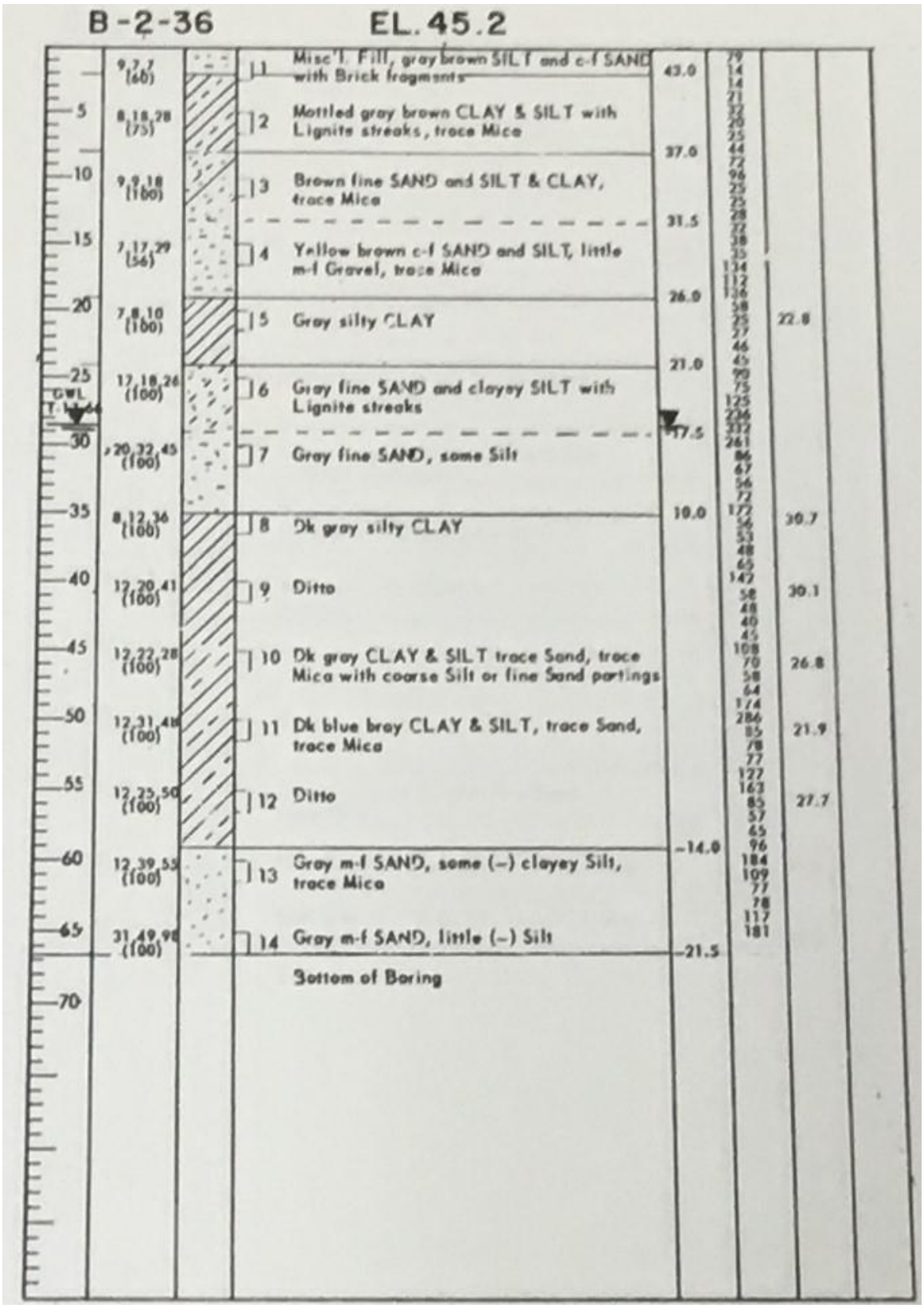

B-2-31
EL. 43.2
+43.2
1 Fill: Br. Silt and CLAY, little Sand mixed with brick fragments
+37.7
2 Ditto
3 Lt. br. f SAND, little Silt, little stone fragments
+29.2
4 Lt. gr. br. SILT and f Sand
5 Lt. br. m-f SAND trace Silt
6 Gr.-br. c-f SAND, little Silt, some m-f Gravel
7 Ditto
8 Dk. br. c-f SAND, little Silt, some m-f Gravel
+16.7
9 Dk. gr. Organic Silty CLAY
+14.2
10 Gr.-br. m-f SAND, trace Silt with few 1/16" Silty Clay varves
GWL
11 Lt. gr. f SAND
12 Ditto
+0.2
13 Gr. c-f SAND and m-f Gravel, trace Silt
-4.8
14 Gr. Silty CLAY, trace Sand with m-f Gravel pieces
15 Gr. Silty CLAY, trace Sand
16 Ditto
-18.3
17 Gr. m-f SAND, some Silt & Clay
18 Gr. m-f SAND, some Silt with pockets of gr. Silty CLAY, little Sand
-28.3
Bottom of Boring
28.9
27.7

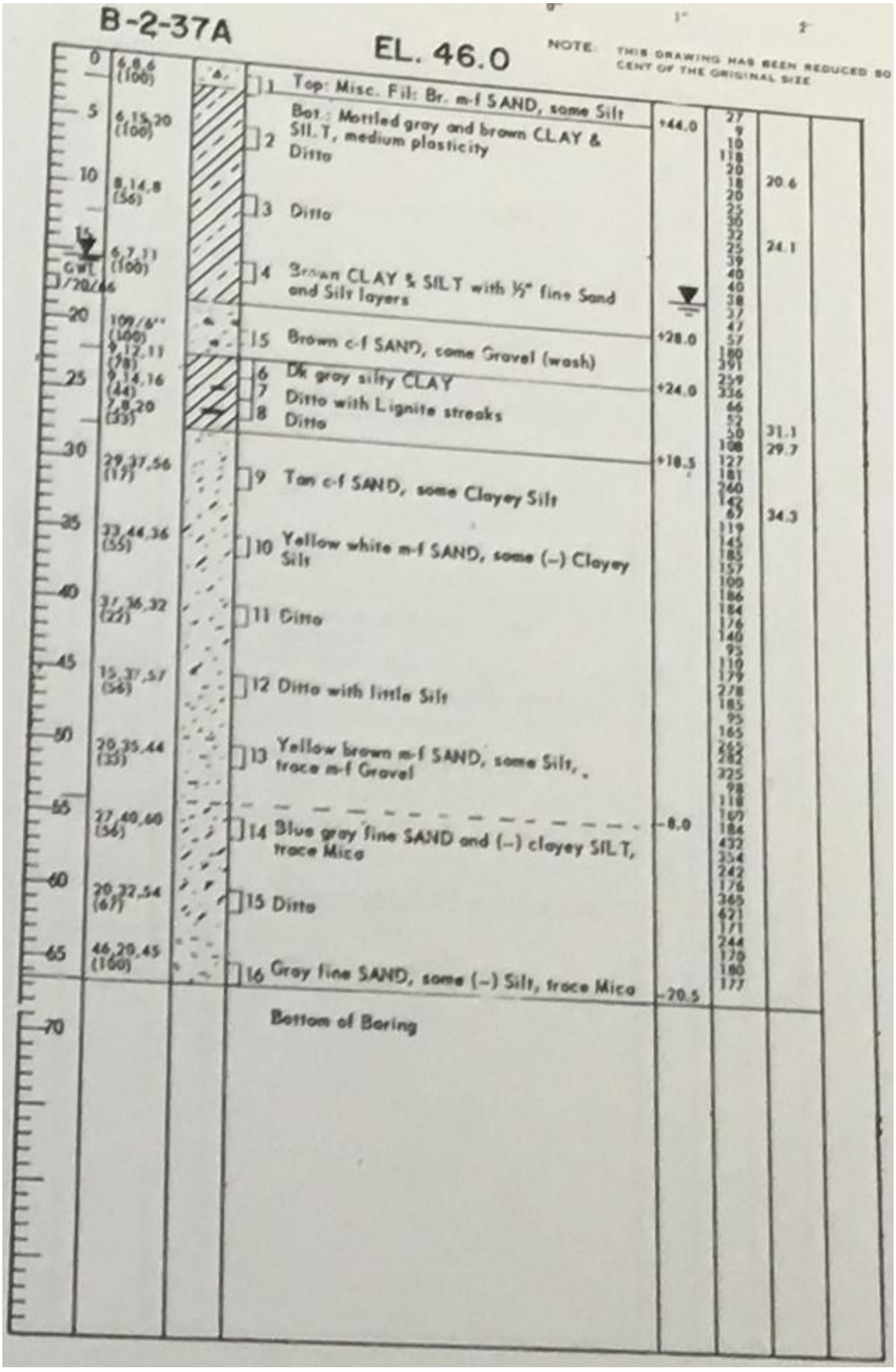

B-2-32
EL. 51.8
51.8
+51.2
15,15,21 (54)
18,17,19 (67)
13,17,20 (100)
10,10,12 (78)
GWL
11,14,17 (100)
13,20,22 (58)
13,22,22 (100)
24,32,34 (100)
27,36,45 (100)
26,30,36 (67)
31,30,37 (100)
37,38,50 (33)
24,31,40 (100)
23,34,42 (100)
1 Misc. fill; c-f SAND with Brick fragments
47.8
2 Brown CLAY & SILT, some Sand with Ashes
43.8
3 Tan m-f SAND, some (-) Clayey SILT
4 Ditto with Lignite streaks
33.8
5 Light gray fine SAND, some Clayey Silt
6 Ditto
23.8
7 Gray, Silty CLAY with Lignite streaks
8 Ditto
14.8
9 Gray fine SAND, some (-) Clayey Silt
10 Tan fine SAND, some (-) Clayey Silt
11 White m-f SAND, some Clayey Silt
-2.2
12 Gray clayey SILT some m-f Sand with Lignite streaks
-6.2
13 Dk gray SILT & CLAY, trace Mica
14 Ditto
-14.2
Bottom of Boring
16 61 84 39 18 48 34 26 35 46 54 58 60 33 21 22 24 25 31 48 26 28 59 75 70 49 87 102 73 64 69 105 73 124 119 93 132 158 162 162 149 100 169 205 178 182 110 147 168 187 195 142 179 284 463 329 101 139 146 175 167 110 142 168 159 164
23.6
26.3
28.5

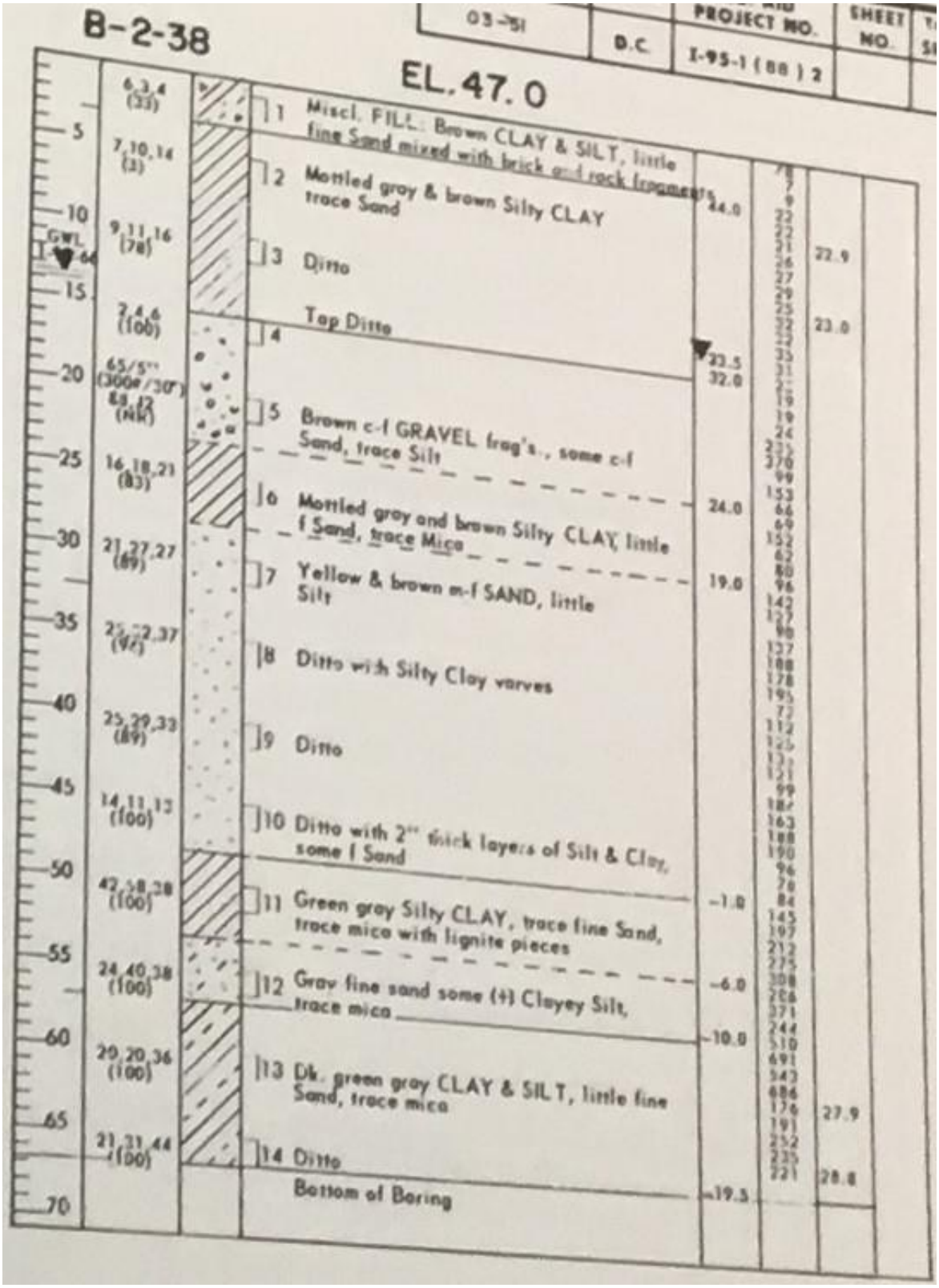

B-2-33
EL. 49.5
49.5
2" Brick Pavement
SAND with Brick fragments-masonry
47.0
Fill:
CLAY and SILT with Brick fragments
39.0
Mottled gray & brown Silty CLAY
37.2
Brown silty CLAY
Brown c-f SAND, and CLAY & SILT
24.5
21.5
Brown c-f SAND
Tan m-f SAND, some Silt, with Lignite streak (calcareous)
Brown m-f SAND, some (-) Clay & Silt, with Lignite streaks
9.0
Gray m-f SAND some (-) Clay & Silt
-3.0
Dk. gray silty CLAY with coarse Silt partings
Dk gray silty CLAY, trace fine Sand
Dk gray silty CLAY, with Sand streaks
-17.0
Bottom of Boring
31.7
25.2
24.8
27.4

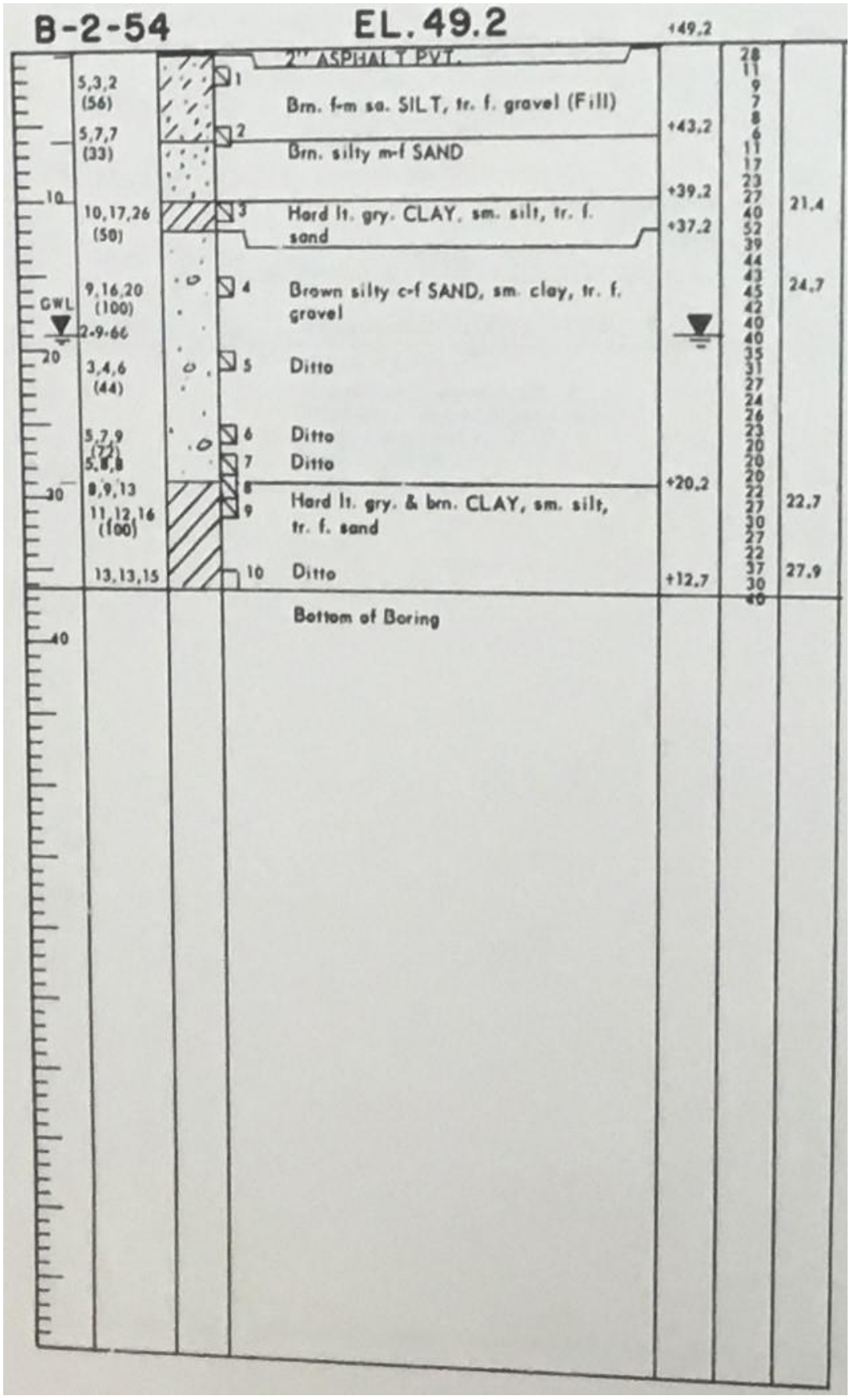

B-2-34
EL. 55.6
1 Misc'l. Fill, brown c-f SAND, some Silt, some m-f Gravel, with Brick fragments
2 Brown m-f SAND, some Silt
3 Lt. gray clayey SILT, trace fine Sand
4 Mottled gray and brown CLAY & SILT with coarse Silt and c-f Sand streaks
5 Gray Silty CLAY
6 Ditto
7 Gray fine SAND, and SILT & CLAY with fine Sand partings
8 Gray Silty CLAY, trace fine Sand, trace Mica
9 Ditto with little c-f Sand
10 Dk gray Organic Silty CLAY, trace Mica with Gray m-f SAND, some Clayey Silt layers
11 Gray Silty CLAY, trace Mica
12 Ditto
13 Dk. gray brown Silty CLAY
14 Ditto
Bottom of Boring
50.6
48.6
41.6
38.1
37.4
24.6
21.6
10.9
Piez. Tip
29.4
21.5
23.2
19.8
33.9
20.2
27.8
24.6

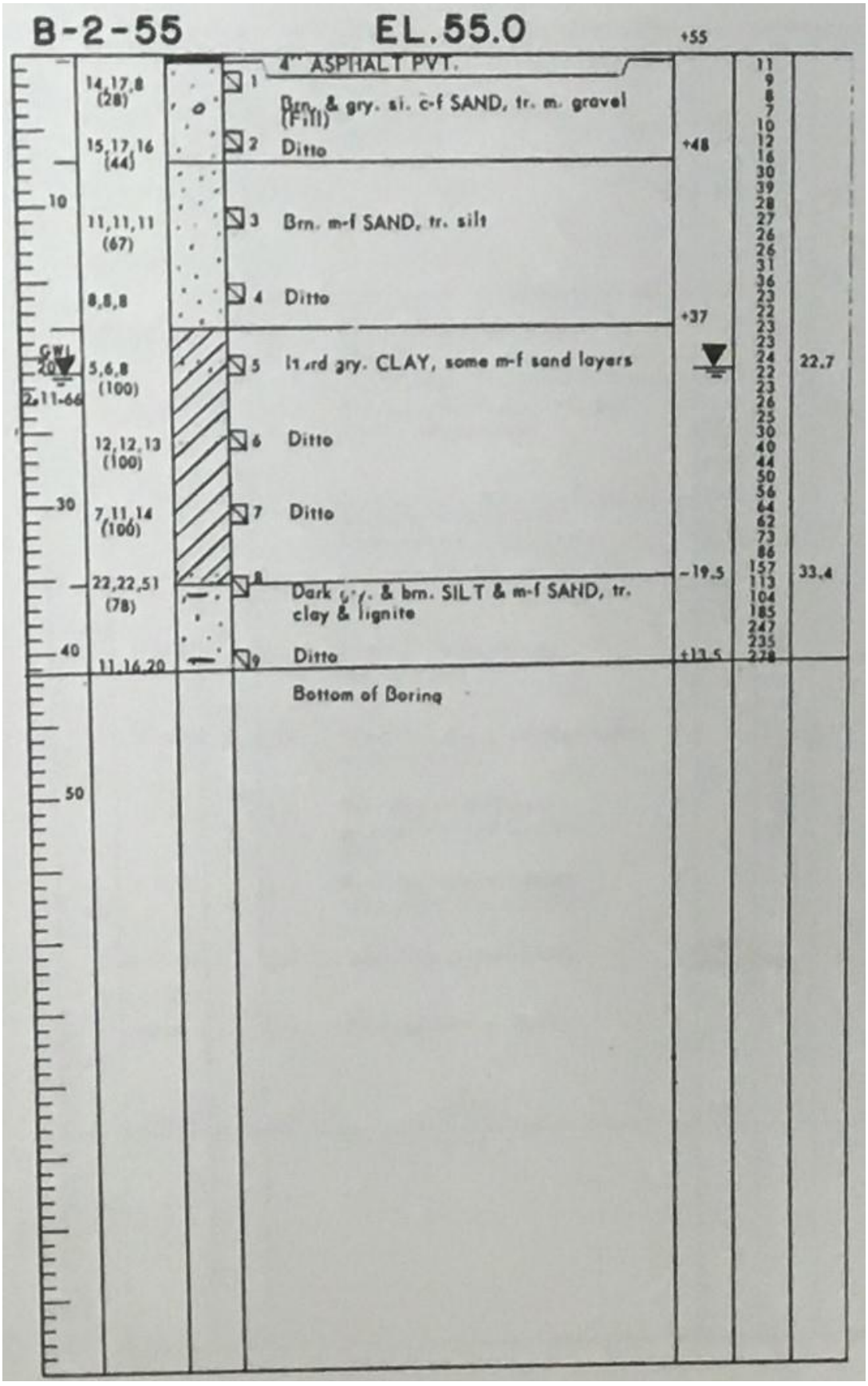

B-2-35
EL. 51.0
2" Asphalt Pavement
1 Brown SILT and CLAY, some c-f Sand
47.0
2 Brown c-f SAND, some (-) Silt, trace fine Gravel
40.0
3 Mottled gray brown Silty CLAY
GWL 2-15-66
4 Gray Silty CLAY
5 Ditto
6 Ditto with coarse Silt streaks
Piez. tip
7 Gray silty CLAY, little Sand with many Lignite streaks
8 Ditto
19.5
9 Gray fine SAND, some clayey Silt with Lignite streaks (calcareous)
10 Ditto
12.0
11 Brown m-f SAND, some clayey Silt with silty Clay varves (calcareous)
12 Ditto; some Clay & Silt
13 Tan m-f SAND, little Clayey Silt
14 Ditto, some clayey Silt
15 Ditto
10.5
Bottom of Boring
12,14,19 (75)
24,38,51 (84)
13,20,12 (100)
2,4,8 (84)
2,7,12 (100)
17,24,52 (100)
44,54,123 (56)
30,19,38 (100)
29,46,53 (100)
27,42,48 (100)
40,47,53 (100)
40,26,18 (78)
29,94,105 (72)
23,68,79 (100)
25,47,66 (100)
23.3
20.7
23.3
25.9
28.7

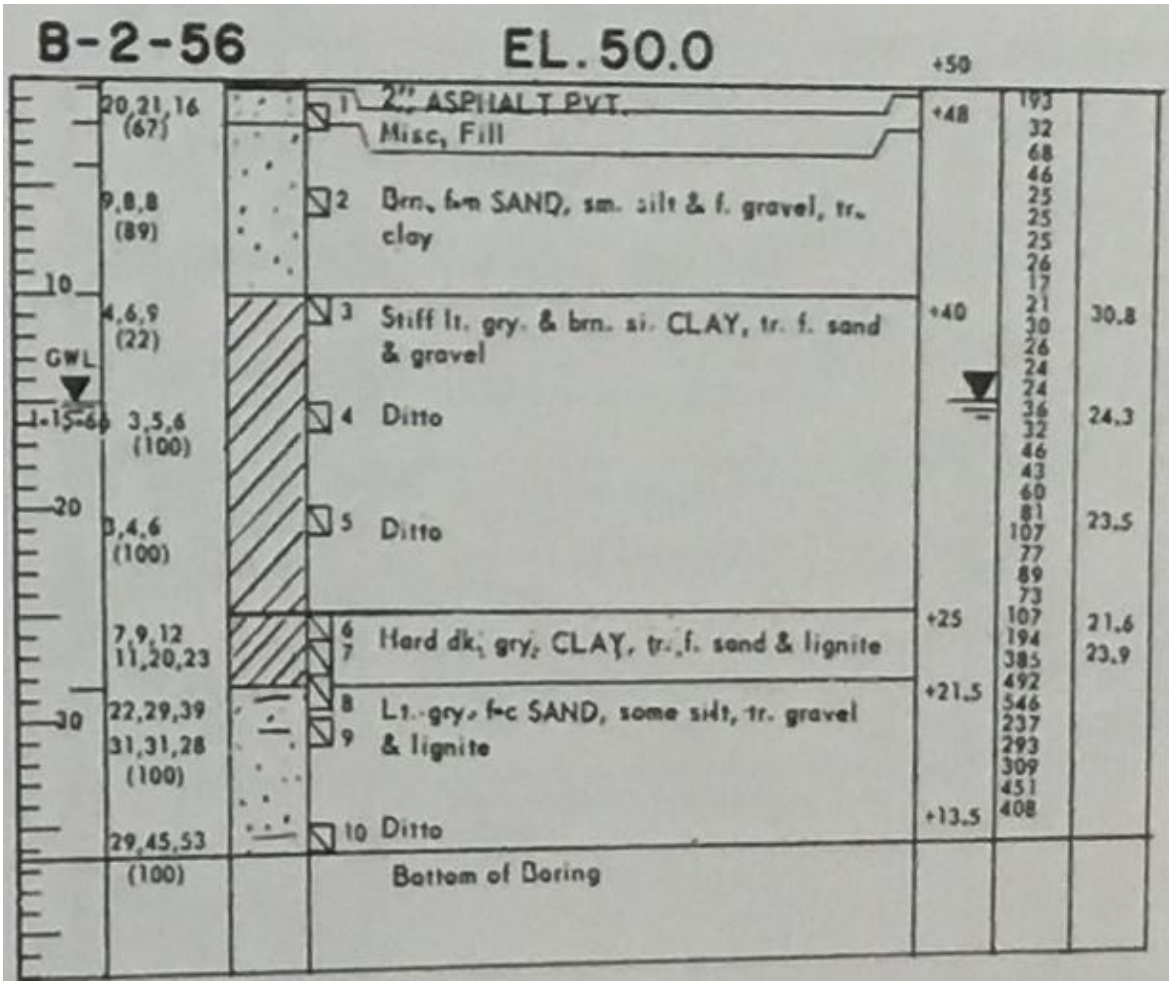

B-2-36
EL. 45.2
9,7,7 (60)
8,18,28 (75)
9,9,18 (100)
7,17,29 (56)
7,8,10 (100)
17,18,26 (100)
20,32,45 (100)
8,12,36 (100)
12,20,41 (100)
12,22,28 (100)
12,31,48 (100)
12,25,50 (100)
12,39,55 (100)
31,49,98 (100)
GWL
1 Misc'l. Fill, gray brown SILT and c-f SAND with Brick fragments
43.0
2 Mottled gray brown CLAY & SILT with Lignite streaks, trace Mica
37.0
3 Brown fine SAND and SILT & CLAY, trace Mica
31.5
4 Yellow brown c-f SAND and SILT, little m-f Gravel, trace Mica
26.0
5 Gray silty CLAY
21.0
6 Gray fine SAND and clayey SILT with Lignite streaks
17.5
7 Gray fine SAND, some Silt
10.0
8 Dk gray silty CLAY
9 Ditto
10 Dk gray CLAY & SILT trace Sand, trace Mica with coarse Silt or fine Sand partings
11 Dk blue bray CLAY & SILT, trace Sand, trace Mica
12 Ditto
-14.0
13 Gray m-f SAND, some (-) clayey Silt, trace Mica
14 Gray m-f SAND, little (-) Silt
-21.5
Bottom of Boring
22.8
30.7
30.1
26.8
21.9
27.7

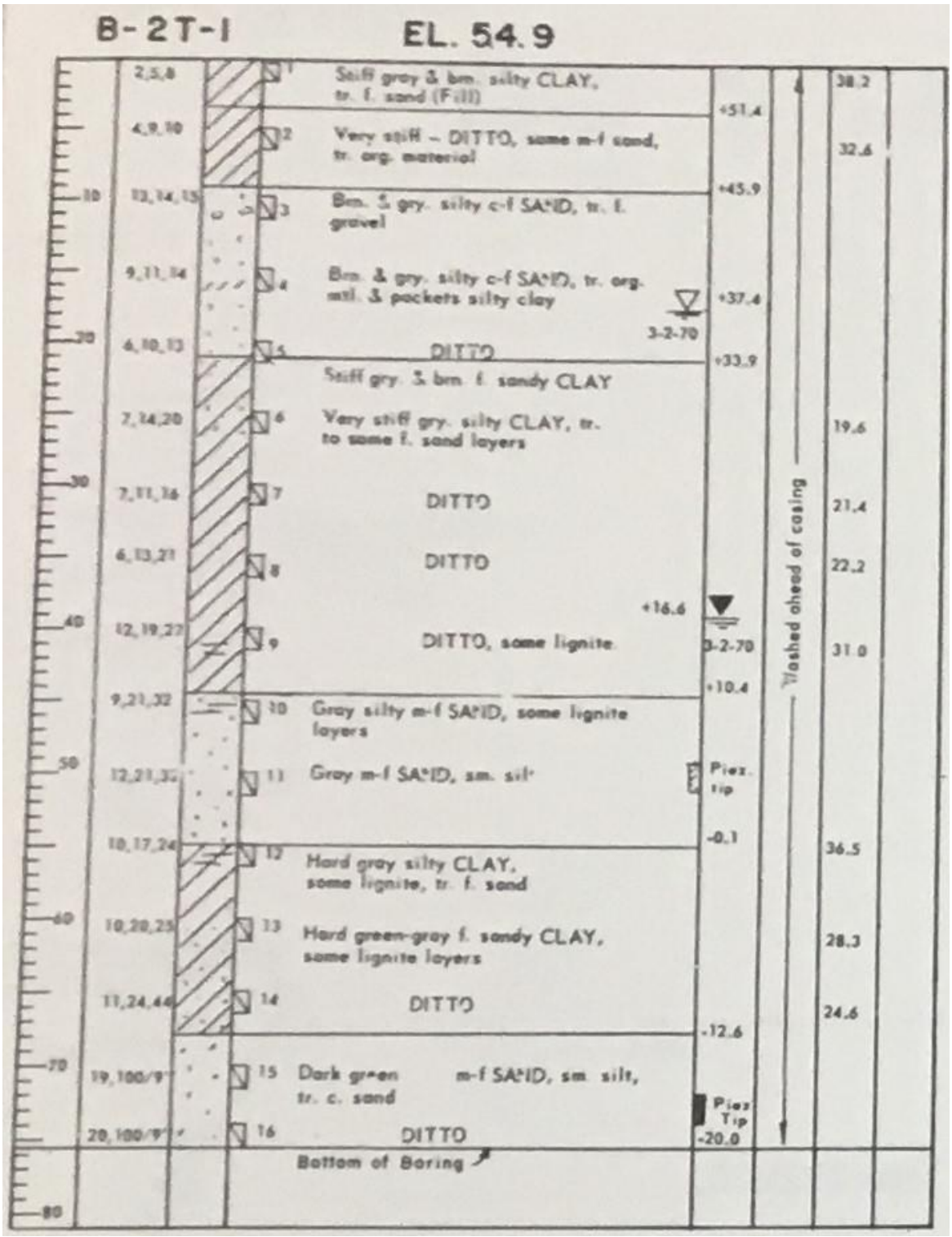

B-2-37A
EL. 46.0
NOTE: THIS DRAWING HAS BEEN REDUCED SO CENT OF THE ORIGINAL SIZE
1" 2"
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
6,8,6 (100)
6,15,20 (100)
8,14,8 (56)
6,7,11 (100)
GWL /20/66
109/6" (100)
9,12,11 (78)
9,14,16 (44)
7,8,20 (35)
29,37,56 (17)
33,44,36 (55)
37,36,32 (22)
15,37,57 (56)
20,35,44 (33)
27,40,60 (56)
20,32,54 (67)
46,20,45 (100)
1 Top: Misc. Fil: Br. m-f SAND, some Silt
Bot.: Mottled gray and brown CLAY & SILT, medium plasticity
2 Ditto
3 Ditto
4 Brown CLAY & SILT with ½" fine Sand and Silt layers
+44.0
15 Brown c-f SAND, some Gravel (wash)
+28.0
6 Dk gray silty CLAY
7 Ditto with Lignite streaks
8 Ditto
+24.0
+18.5
9 Tan c-f SAND, some Clayey Silt
10 Yellow white m-f SAND, some (-) Clayey Silt
11 Ditto
12 Ditto with little Silt
13 Yellow brown m-f SAND, some Silt, trace m-f Gravel
14 Blue gray fine SAND and (-) clayey SILT, trace Mica
-8.0
15 Ditto
16 Gray fine SAND, some (-) Silt, trace Mica
-20.5
Bottom of Boring
27 9 10 118 20 18 20 25 30 32 25 39 40 40 38 37 47 57 180 391 259 336 66 52 50 108 127 181 260 142 67 119 145 185 157 100 186 184 176 140 95 110 179 278 185 95 165 262 282 225 98 118 109 184 432 354 242 176 265 621 171 244 170 180 177
20.6
24.1
31.1
29.7
34.3


B-2-38
03-51
D.C.
PROJECT NO.
I-95-1(88)2
SHEET NO.
EL. 47.0
6,3,4 (33)
7,10,14 (31)
9,11,16 (78)
7,4,6 (100)
65/5" (300#/30") 88,12 (NR)
16,18,21 (83)
21,27,27 (89)
25,32,37 (92)
25,29,33 (89)
14,11,13 (100)
42,38,28 (100)
24,40,38 (100)
29,20,36 (100)
21,31,44 (100)
GWL
1 Miscl. FILL: Brown CLAY & SILT, little fine Sand mixed with brick and rock fragments
2 Mottled gray & brown Silty CLAY trace Sand
3 Ditto
4 Top Ditto
5 Brown c-f GRAVEL frag's., some c-f Sand, trace Silt
6 Mottled gray and brown Silty CLAY, little f Sand, trace Mica
7 Yellow & brown m-f SAND, little Silt
8 Ditto with Silty Clay varves
9 Ditto
10 Ditto with 2" thick layers of Silt & Clay, some f Sand
11 Green gray Silty CLAY, trace fine Sand, trace mica with lignite pieces
12 Gray fine sand some (+) Clayey Silt, trace mica
13 Dk. green gray CLAY & SILT, little fine Sand, trace mica
14 Ditto
Bottom of Boring
44.0
33.5
32.0
24.0
19.0
-1.0
-6.0
-10.0
-19.5
22.9
23.0
27.9
28.8
5
10
15
20
25
30
35
40
45
50
55
60
65
70


B-2-54
EL. 49.2
+49.2
2" ASPHALT PVT.
1
5,3,2
(56)
Brn. f-m sa. SILT, tr. f. gravel (Fill)
+43.2
2
5,7,7
(33)
Brn. silty m-f SAND
+39.2
10
3
10,17,26
(50)
Hard lt. gry. CLAY, sm. silt, tr. f. sand
+37.2
21.4
4
9,16,20
(100)
GWL
2-9-66
Brown silty c-f SAND, sm. clay, tr. f. gravel
24.7
20
5
3,4,6
(44)
Ditto
6
5,7,9
(72)
Ditto
7
5,8,8
Ditto
+20.2
30
8
8,9,13
9
11,12,16
(100)
Hard lt. gry. & brn. CLAY, sm. silt, tr. f. sand
22.7
10
13,13,15
Ditto
+12.7
27.9
Bottom of Boring
40


B-2-55
EL. 55.0
+55
4" ASPHALT PVT.
14,17,8 (28)
1
Brn. & gry. si. c-f SAND, tr. m. gravel (Fill)
15,17,16 (44)
2
Ditto
+48
10
11,11,11 (67)
3
Brn. m-f SAND, tr. silt
8,8,8
4
Ditto
+37
GWL 20'
5,6,8 (100)
5
Itard gry. CLAY, some m-f sand layers
22.7
11-66
12,12,13 (100)
6
Ditto
30
7,11,14 (100)
7
Ditto
22,22,51 (78)
8
-19.5
33.4
Dark g.y. & brn. SILT & m-f SAND, tr. clay & lignite
40
11,16,20
9
Ditto
+13.5
Bottom of Boring
50

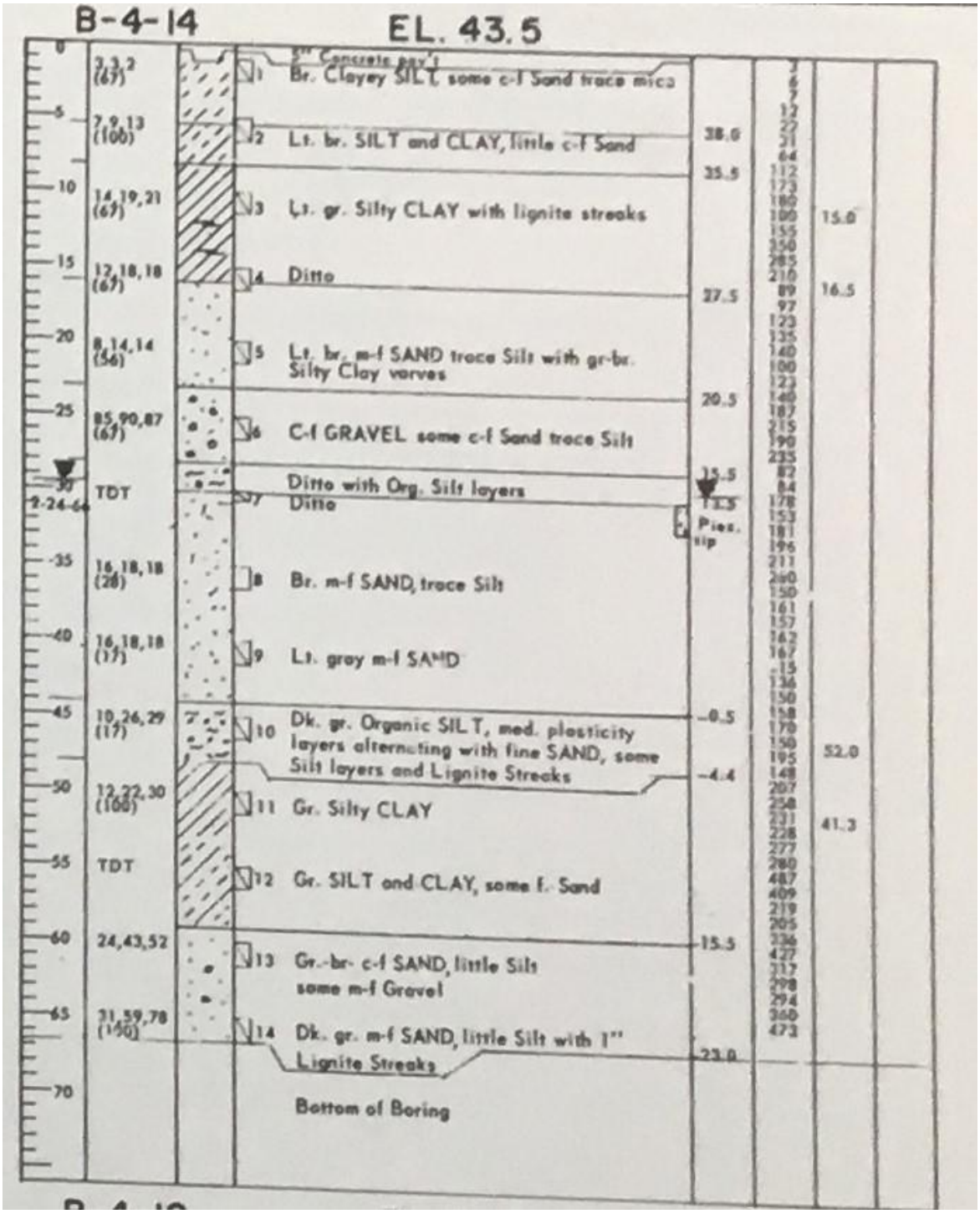

B-2-56
EL. 50.0
+50
+48
+40
+25
+21.5
+13.5
20,21,16 (67)
9,8,8 (89)
4,6,9 (22)
GWL
3,5,6 (100)
3,4,6 (100)
7,9,12 11,20,23
22,29,39 31,31,28 (100)
29,45,53 (100)
10
20
30
1 2" ASPHALT PVT.
Misc, Fill
2 Brn. f-m SAND, sm. silt & f. gravel, tr. clay
3 Stiff lt. gry. & brn. si. CLAY, tr. f. sand & gravel
4 Ditto
5 Ditto
6 7 Hard dk. gry. CLAY, tr. f. sand & lignite
8 9 Lt.-gry. f-c SAND, some silt, tr. gravel & lignite
10 Ditto
Bottom of Boring
193 32 68 46 25 25 25 26 17 21 30 26 24 24 36 32 46 43 60 81 107 77 89 73 107 194 385 492 546 237 293 309 451 408
30.8
24.3
23.5
21.6
23.9

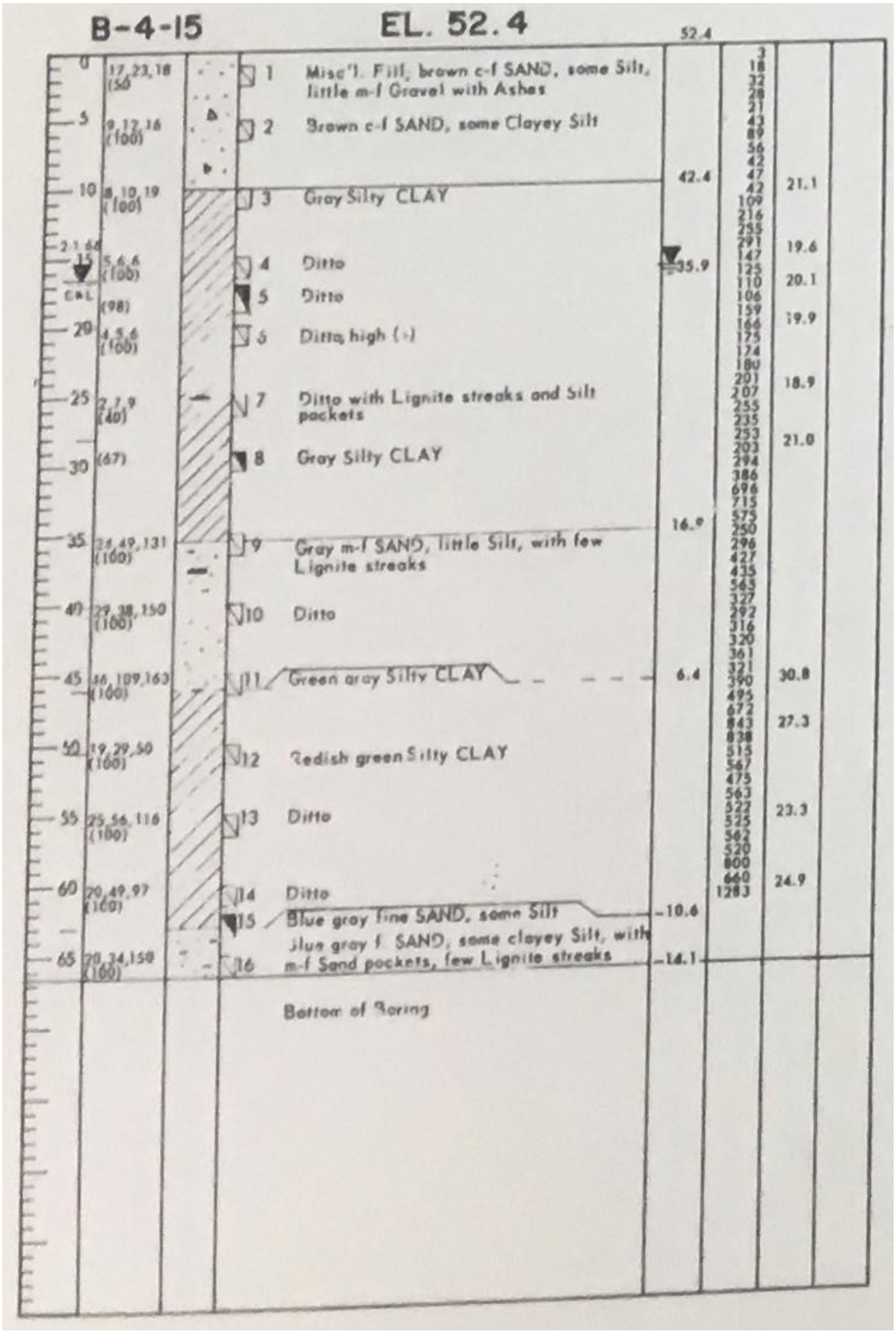

B-2T-1
EL. 54.9
2,5,8
Stiff gray & brn. silty CLAY, tr. f. sand (Fill)
+51.4
38.2
4,9,10
Very stiff – DITTO, some m-f sand, tr. org. material
32.6
+45.9
10
13,14,15
Brn. & gry. silty c-f SAND, tr. f. gravel
9,11,14
Brn. & gry. silty c-f SAND, tr. org. mtl. & pockets silty clay
+37.4
3-2-70
20
6,10,13
DITTO
+33.9
Stiff gry. & brn. f. sandy CLAY
7,14,20
Very stiff gry. silty CLAY, tr. to some f. sand layers
19.6
30
7,11,16
DITTO
21.4
6,13,21
DITTO
22.2
+16.6
40
12,19,27
DITTO, some lignite
3-2-70
31.0
+10.4
9,21,32
Gray silty m-f SAND, some lignite layers
50
12,21,32
Gray m-f SAND, sm. silt
Piez. tip
-0.1
18,17,24
Hard gray silty CLAY, some lignite, tr. f. sand
36.5
60
10,20,25
Hard green-gray f. sandy CLAY, some lignite layers
28.3
11,24,46
DITTO
24.6
-12.6
70
19,100/9"
Dark green m-f SAND, sm. silt, tr. c. sand
Piez Tip
20,100/9"
DITTO
-20.0
Bottom of Boring
80
Washed ahead of casing

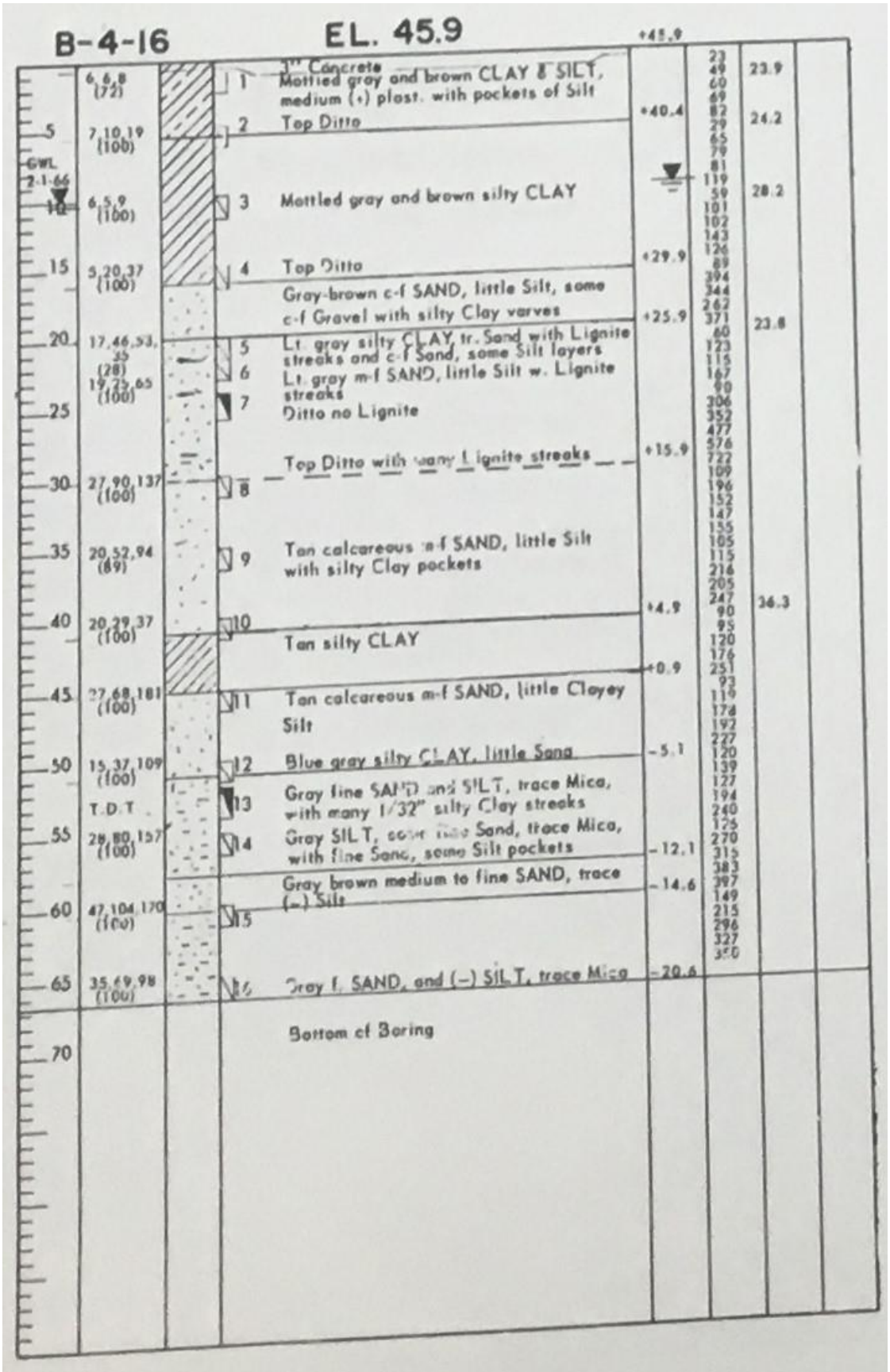
B-2T-2 EL. 54.8

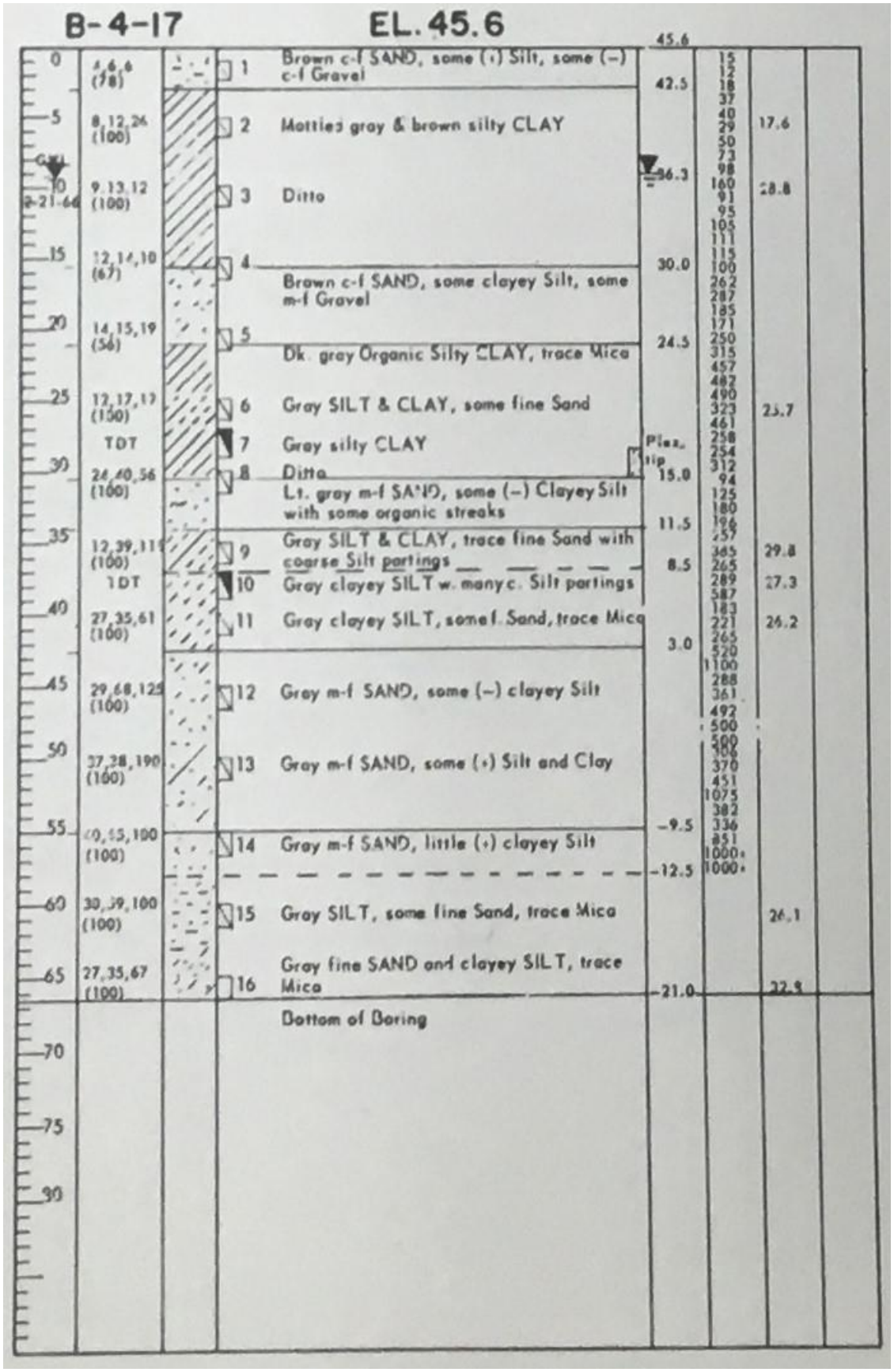
	7,17,22	1	Fill: Brn. c-f GRAVEL with some sand	+51.8			
	7,8,6	2	Light gry & brn. c-f SAND, some some silt, tr. clay				
10	8,7,6	3	Light gry & brn. clayey c-f SAND	+42.8	9 7 4		
			Black LIGNITE	+41.3	9 15		
	6,5,8	4	Stiff gry & brn. CLAY, tr. f. sand & lignite		9 7 8 10 14	23.8	
20	3,5,7	5	Stiff gry. CLAY, tr. f. sand		21 19 18 20 20	20.2	
	4,6,11	6	DITTO		27 31 31 29 32	20.0	
30	9,14,23	7	DITTO		42 42 65 86 115	19.3	
				+21.5			
	28,52,83	8	Dark gry. clayey m-f SAND, some black lignite	+16.4	GWL 180 143 190		
40	19,39,82	9	Gry. silty m-f SAND, tr. clay & lignite		3-2-70 104 102 147 165 194		
				+11.3	200+ 175+		
	24,57,108	10	DITTO		104 210 223		
50	26,36,38	11	Gry. silty c-f SAND, tr. silt & clay nodules	+1.8	144 135 170 131 69		
	13,18,32	12	Gry. silty f. SAND, tr. clay		81 103 94 122 300	25.5	
60	23,67,71	13	Top: DITTO Bott: Hard gry-green si. CLAY, tr. f. sand	-6.2	209 182 180	20.5	
	28,83,165	14	Green-gry. silty c-f SAND	-11.7	199 321	24.9	
			Bottom of Boring				
70			GWL observed in cased borehole.				

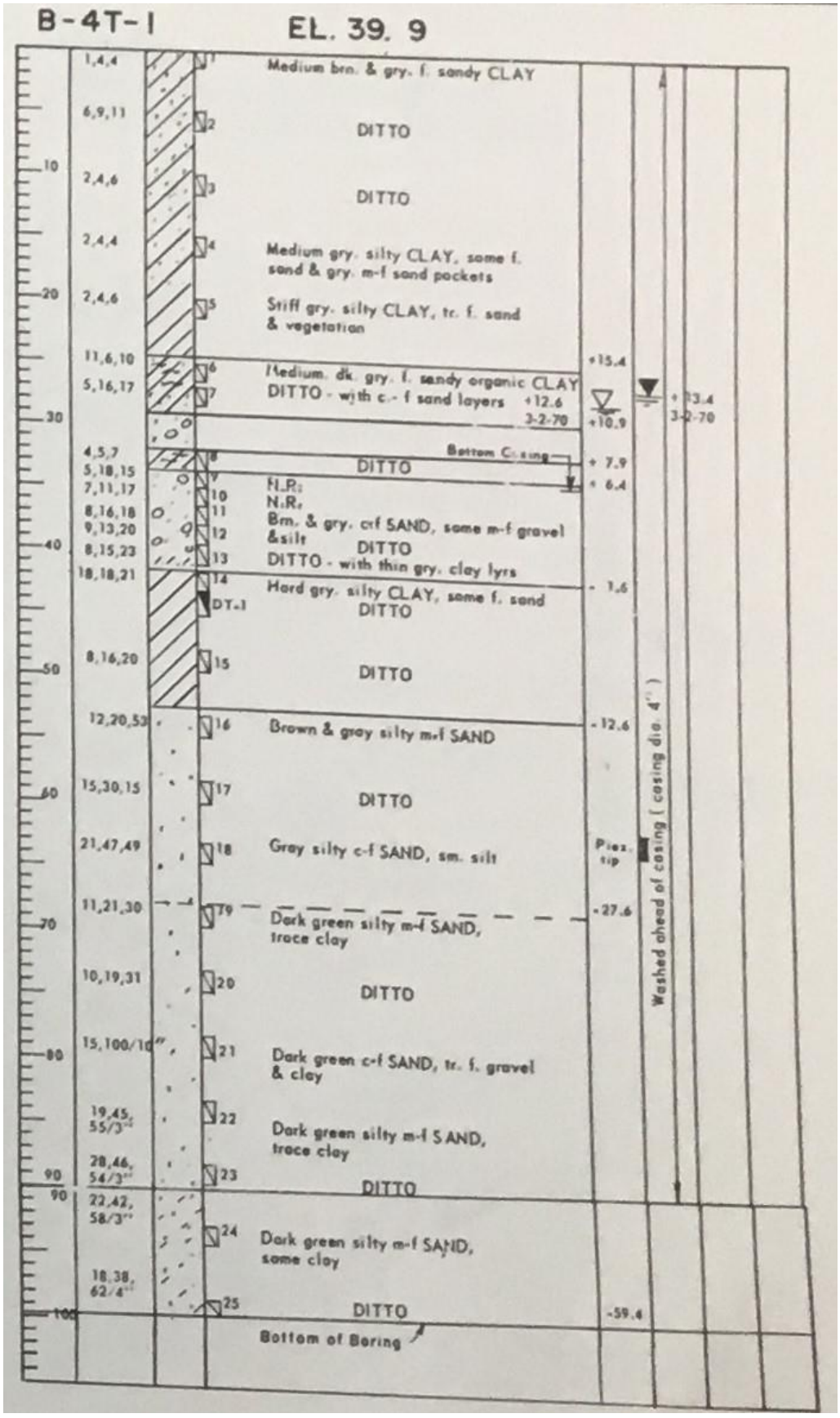
Date	Depth of GWL - ft.
1-16-70	38'9"
1-27-70	43'8"
2-9-70	43'6"
2-16-70	38'8"
2-24-70	38'3"
3-2-70	38'3"

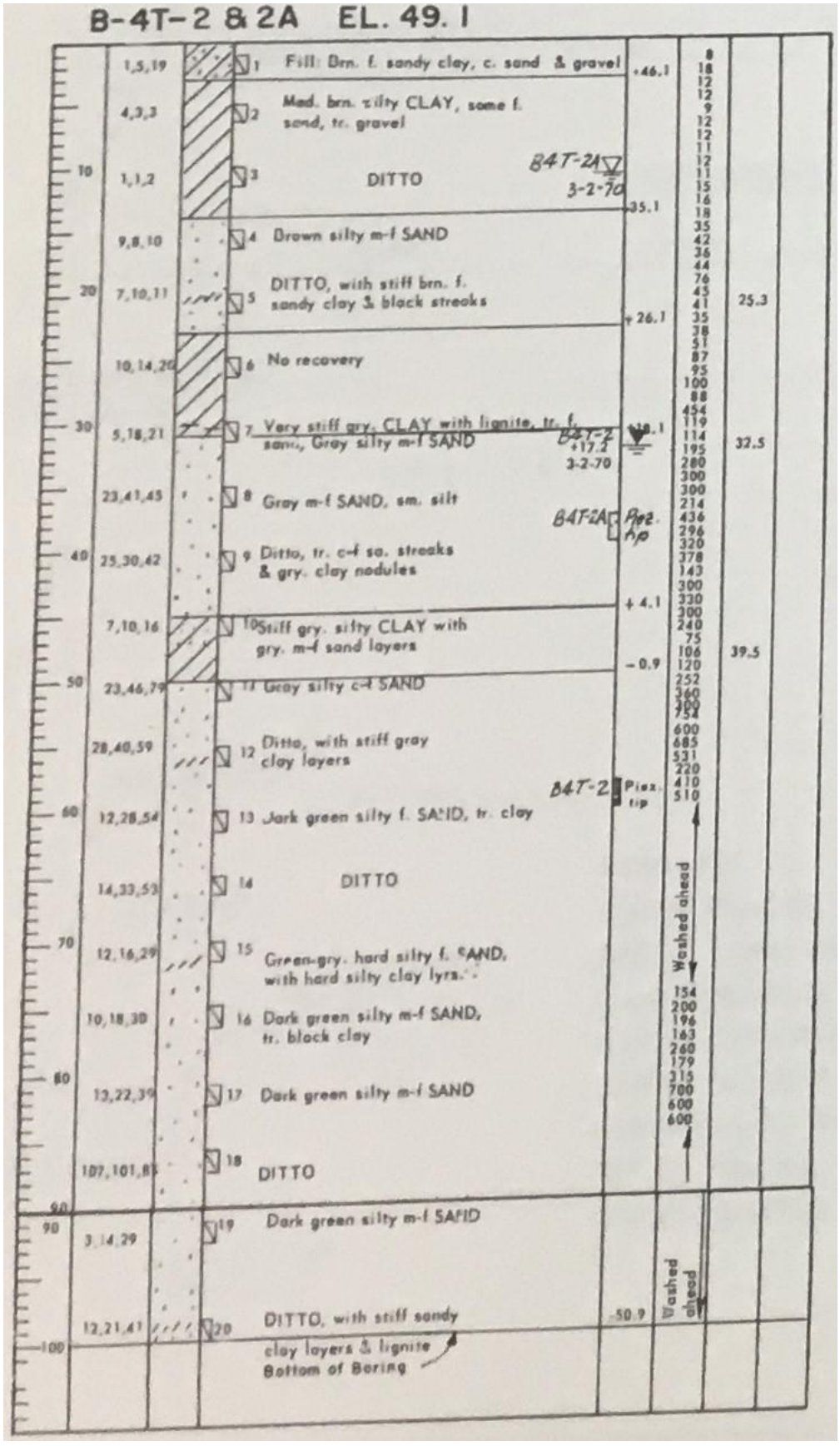

B-4-14
EL. 43.5
5" Concrete pav't
1 Br. Clayey SILT, some c-f Sand trace mica
2 Lt. br. SILT and CLAY, little c-f Sand
38.0
3 Lt. gr. Silty CLAY with lignite streaks
35.5
4 Ditto
27.5
5 Lt. br. m-f SAND trace Silt with gr-br. Silty Clay varves
20.5
6 C-f GRAVEL some c-f Sand trace Silt
15.5
Ditto with Org. Silt layers
7 Ditto
13.5
Piez. tip
8 Br. m-f SAND, trace Silt
9 Lt. gray m-f SAND
-0.5
10 Dk. gr. Organic SILT, med. plasticity layers alternating with fine SAND, some Silt layers and Lignite Streaks
-4.4
11 Gr. Silty CLAY
12 Gr. SILT and CLAY, some f. Sand
-15.5
13 Gr.-br. c-f SAND, little Silt some m-f Gravel
14 Dk. gr. m-f SAND, little Silt with 1" Lignite Streaks
-23.0
Bottom of Boring
TDT
2-24-64
15.0
16.5
52.0
41.3

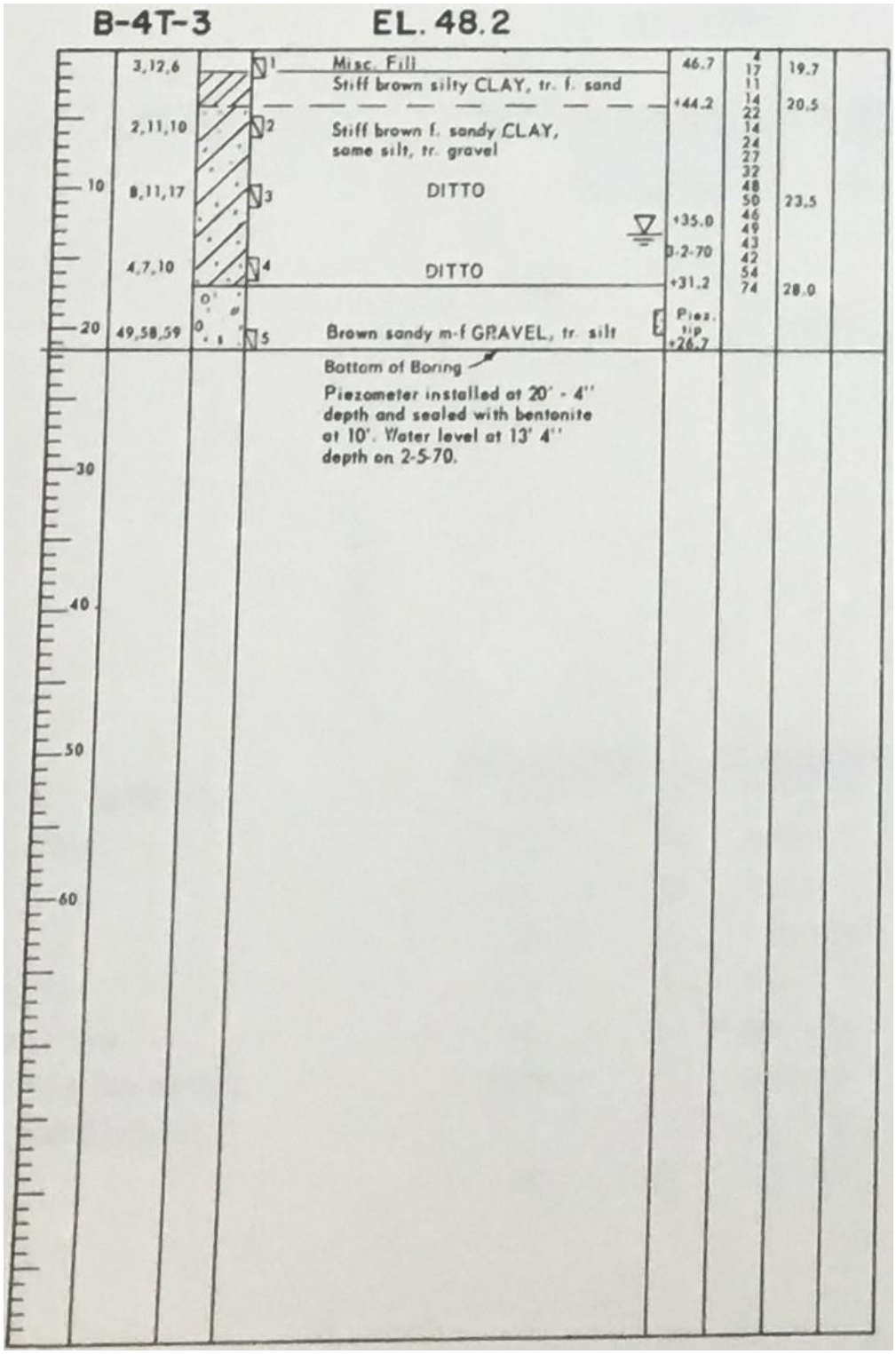

B-4-15
EL. 52.4
52.4
0
5
10
15
20
25
30
35
40
45
50
55
60
65
17,23,18 (50)
9,17,16 (100)
8,10,19 (100)
2,1,66
5,6,6 (100)
CAL
(98)
4,5,6 (100)
7,7,9 (40)
(67)
25,49,131 (100)
29,38,150 (100)
36,109,163 (100)
19,29,50 (100)
25,56,116 (100)
20,49,97 (100)
20,34,150 (100)
1 Misc'l. Fill, brown c-f SAND, some Silt, little m-f Gravel with Ashes
2 Brown c-f SAND, some Clayey Silt
42.4
3 Gray Silty CLAY
4 Ditto
35.9
5 Ditto
6 Ditto, high (+)
7 Ditto with Lignite streaks and Silt pockets
8 Gray Silty CLAY
16.0
9 Gray m-f SAND, little Silt, with few Lignite streaks
10 Ditto
11 Green gray Silty CLAY
6.4
12 Reddish green Silty CLAY
13 Ditto
14 Ditto
15 Blue gray fine SAND, some Silt
-10.6
16 Blue gray f SAND, some clayey Silt, with m-f Sand pockets, few Lignite streaks
-14.1
Bottom of Boring
2 18 32 28 21 43 89 56 42 47 42 109 216 255 291 147 125 110 106 159 166 175 124 180 201 207 255 235 253 203 294 386 696 715 575 250 296 427 435 565 327 292 316 320 361 321 390 495 672 843 838 515 567 475 563 522 525 562 520 800 660 1283
21.1
19.6
20.1
19.9
18.9
21.0
30.8
27.3
23.3
24.9

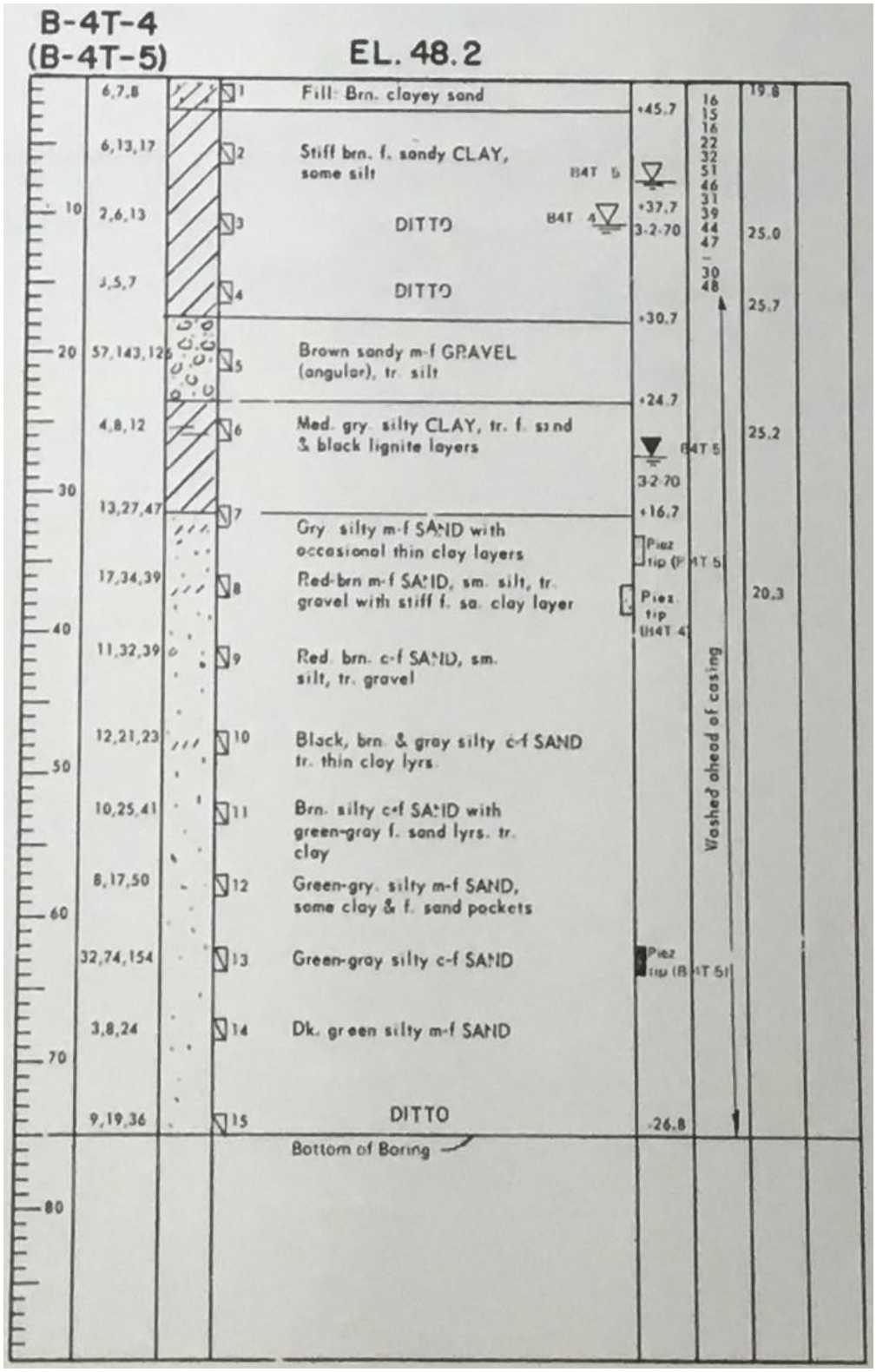

B-4-16
EL. 45.9
+45.9
3" Concrete
1 Mottled gray and brown CLAY & SILT, medium (+) plast. with pockets of Silt
+40.4
2 Top Ditto
3 Mottled gray and brown silty CLAY
GWL 2-1-66
+29.9
4 Top Ditto
Gray-brown c-f SAND, little Silt, some c-f Gravel with silty Clay varves
+25.9
5 Lt. gray silty CLAY, tr. Sand with Lignite streaks and c-f Sand, some Silt layers
6 Lt. gray m-f SAND, little Silt w. Lignite streaks
7 Ditto no Lignite
Top Ditto with many Lignite streaks
+15.9
8
9 Tan calcareous m-f SAND, little Silt with silty Clay pockets
+4.9
10 Tan silty CLAY
+0.9
11 Tan calcareous m-f SAND, little Clayey Silt
12 Blue gray silty CLAY, little Sand
-5.1
13 Gray fine SAND and SILT, trace Mica, with many 1/32" silty Clay streaks
T.D.T.
14 Gray SILT, some fine Sand, trace Mica, with fine Sand, some Silt pockets
-12.1
Gray brown medium to fine SAND, trace (-) Silt
-14.6
15
16 Gray f. SAND, and (-) SILT, trace Mica
-20.6
Bottom of Boring
6,6,8 (72)
7,10,19 (100)
6,5,9 (100)
5,20,37 (100)
17,46,53, 55 (28)
19,22,65 (100)
27,90,137 (100)
20,52,94 (89)
20,29,37 (100)
27,68,181 (100)
15,37,109 (100)
28,80,157 (100)
47,104,170 (100)
35,69,98 (100)
23 49 60 69 82 29 65 79 81 119 59 101 102 143 126 89 394 344 262 371 60 123 115 167 90 206 352 477 576 722 109 196 152 147 155 105 115 216 205 247 90 95 120 176 251 93 119 178 192 227 120 139 127 194 240 175 270 315 383 397 149 215 296 327 350
23.9
24.2
28.2
23.8
36.3

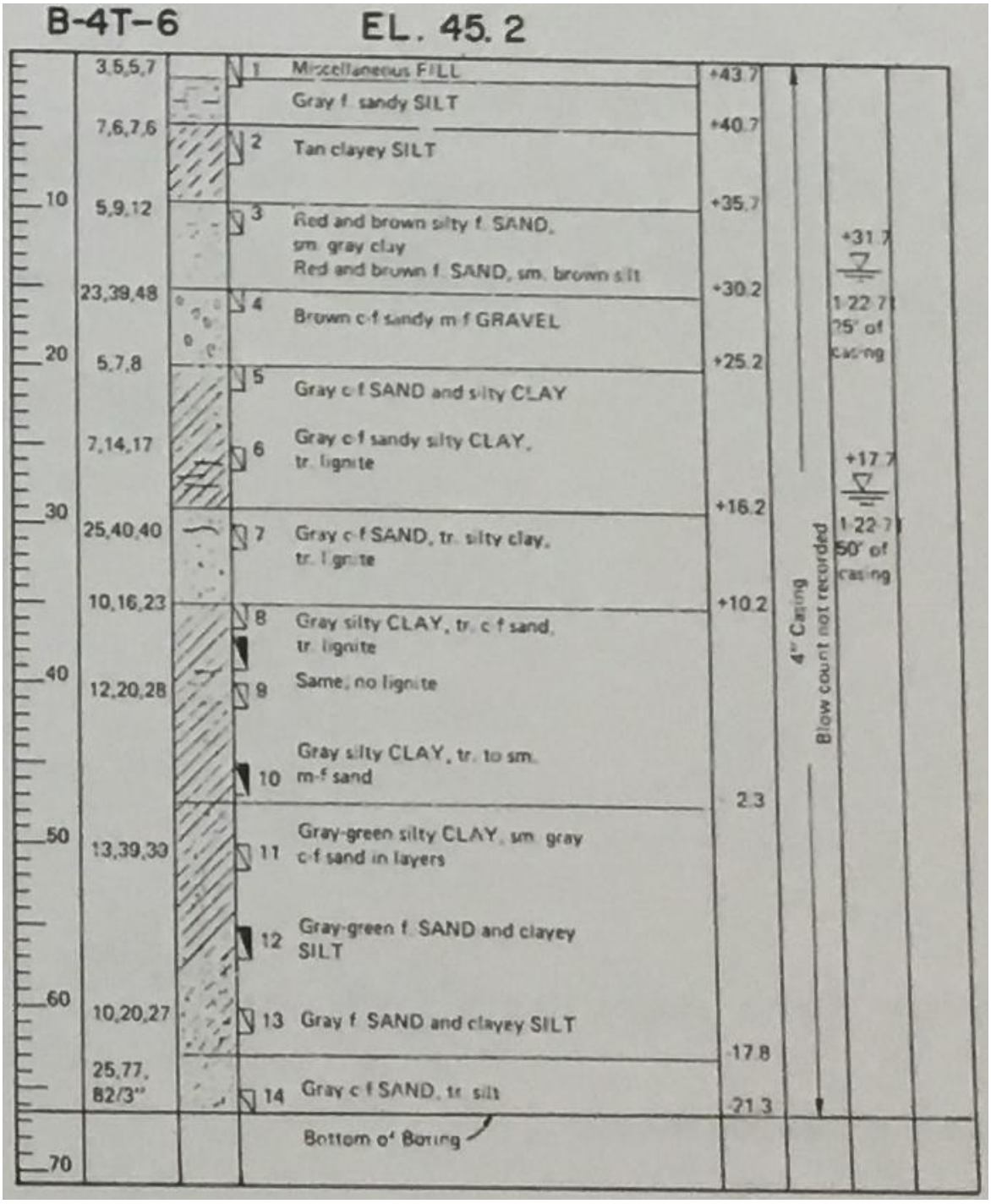

B-4-17
EL. 45.6
45.6
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
GWL
9-21-66
4,6,6 (78)
8,12,26 (100)
9,13,12 (100)
12,14,10 (67)
14,15,19 (56)
12,17,13 (100)
TDT
24,40,56 (100)
12,39,111 (100)
TDT
27,35,61 (100)
29,68,125 (100)
27,28,190 (100)
30,39,100 (100)
27,35,67 (100)
1 Brown c-f SAND, some (+) Silt, some (-) c-f Gravel
42.5
2 Mottled gray & brown silty CLAY
3 Ditto
36.3
4 Brown c-f SAND, some clayey Silt, some m-f Gravel
30.0
5 Dk. gray Organic Silty CLAY, trace Mica
24.5
6 Gray SILT & CLAY, some fine Sand
7 Gray silty CLAY
Plas. tip
8 Ditto
15.0
Lt. gray m-f SAND, some (-) Clayey Silt with some organic streaks
11.5
9 Gray SILT & CLAY, trace fine Sand with coarse Silt partings
8.5
10 Gray clayey SILT w. many c. Silt partings
11 Gray clayey SILT, some f. Sand, trace Mica
3.0
12 Gray m-f SAND, some (-) clayey Silt
13 Gray m-f SAND, some (+) Silt and Clay
-9.5
14 Gray m-f SAND, little (+) clayey Silt
-12.5
15 Gray SILT, some fine Sand, trace Mica
16 Gray fine SAND and clayey SILT, trace Mica
-21.0
Bottom of Boring
15 12 14 18 37 40 29 50 73 98 160 91 95 105 111 115 100 262 287 185 171 250 315 457 482 490 323 461 258 254 312 94 125 180 196 257 365 265 289 587 183 221 265 520 1100 288 361 492 500 500 306 370 451 1075 382 336 851 1000+ 1000+
17.6
28.8
25.7
29.8
27.3
26.2
26.1
22.9

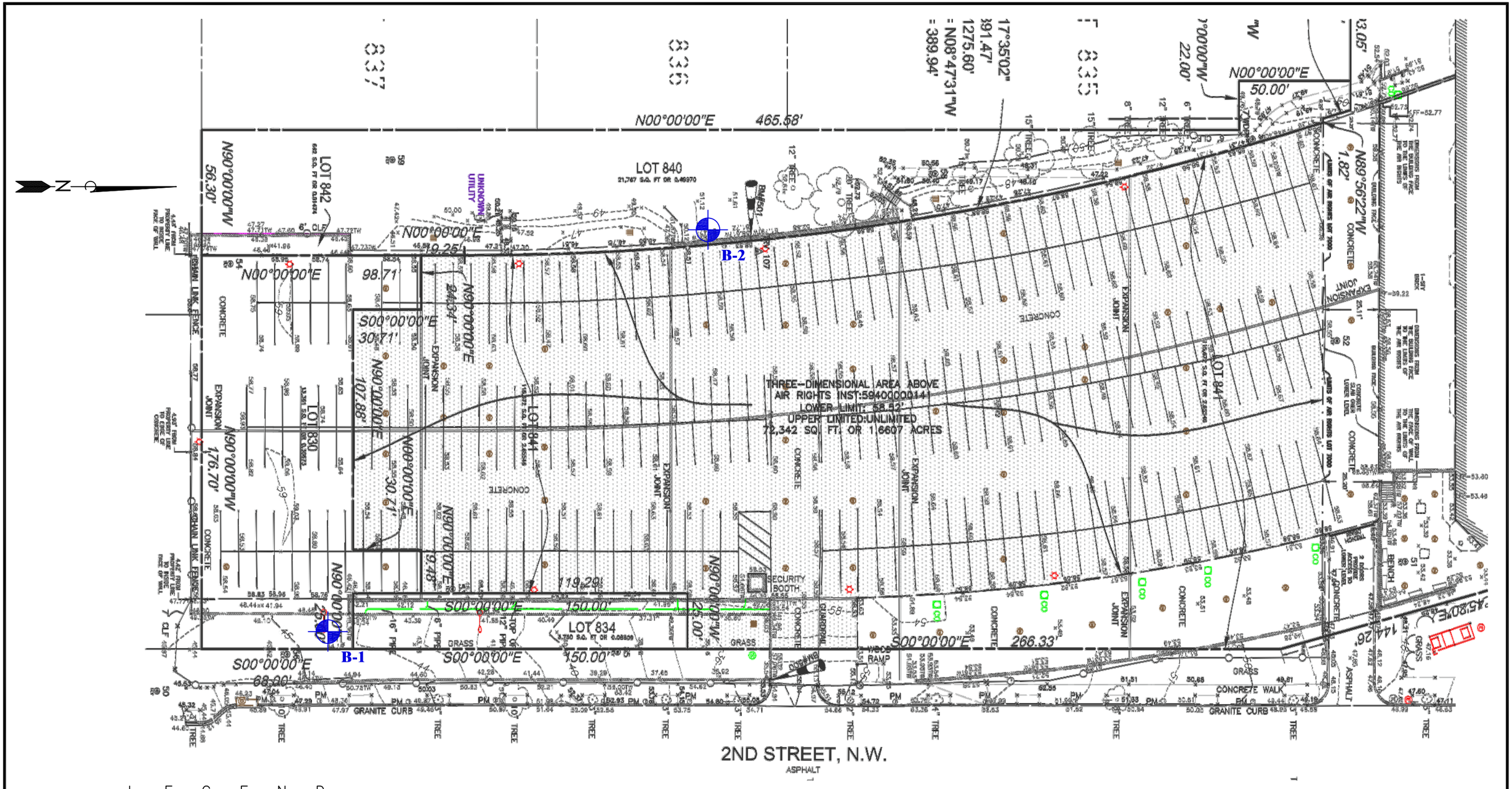

B-4T-1
EL. 39. 9
1,4,4
Medium brn. & gry. f. sandy CLAY
6,9,11
DITTO
2,4,6
DITTO
2,4,4
Medium gry. silty CLAY, some f. sand & gry. m-f sand pockets
2,4,6
Stiff gry. silty CLAY, tr. f. sand & vegetation
11,6,10
5,16,17
Medium. dk. gry. f. sandy organic CLAY
DITTO - with c.- f sand layers
+15.4
+12.6
3-2-70
+10.9
+13.4
3-2-70
Bottom Casing
4,5,7
5,18,15
DITTO
+ 7.9
+ 6.4
7,11,17
8,16,18
9,13,20
8,15,23
N.R.
N.R.
Brn. & gry. c-f SAND, some m-f gravel &silt
DITTO
DITTO - with thin gry. clay lyrs
18,18,21
Hard gry. silty CLAY, some f. sand
DT-1
DITTO
- 1.6
8,16,20
DITTO
12,20,53
Brown & gray silty m-f SAND
- 12.6
15,30,15
DITTO
21,47,49
Gray silty c-f SAND, sm. silt
Piez. tip
11,21,30
Dark green silty m-f SAND, trace clay
- 27.6
10,19,31
DITTO
15,100/10"
Dark green c-f SAND, tr. f. gravel & clay
19,45, 55/3"
Dark green silty m-f SAND, trace clay
28,46, 54/3"
DITTO
22,42, 58/3"
Dark green silty m-f SAND, some clay
18,38, 62/4"
DITTO
-59.4
Bottom of Boring
Washed ahead of casing (casing dia. 4")
10
20
30
40
50
60
70
80
90
90
100


B-4T-2 & 2A EL. 49.1
1,5,19
1 Fill: Brn. f. sandy clay, c. sand & gravel
+46.1
4,3,3
2 Med. brn. silty CLAY, some f. sand, tr. gravel
B4T-2A
3-2-70
1,1,2
3 DITTO
+35.1
9,8,10
4 Drown silty m-f SAND
7,10,11
5 DITTO, with stiff brn. f. sandy clay & black streaks
+26.1
10,14,20
6 No recovery
5,18,21
7 Very stiff gry. CLAY with lignite, tr. f. sand, Gray silty m-f SAND
B4T-2
+17.2
3-2-70
23,41,45
8 Gray m-f SAND, sm. silt
B4T-2A Piez. tip
25,30,42
9 Ditto, tr. c-f sa. streaks & gry. clay nodules
+4.1
7,10,16
10 Stiff gry. silty CLAY with gry. m-f sand layers
-0.9
23,46,79
11 Gray silty c-f SAND
28,40,59
12 Ditto, with stiff gray clay layers
B4T-2 Piez. tip
12,28,54
13 Dark green silty f. SAND, tr. clay
14,33,53
14 DITTO
12,16,29
15 Green-gry. hard silty f. SAND, with hard silty clay lyrs.
10,18,30
16 Dark green silty m-f SAND, tr. block clay
13,22,39
17 Dark green silty m-f SAND
107,101,85
18 DITTO
Washed ahead
3,14,29
19 Dark green silty m-f SAND
12,21,41
20 DITTO, with stiff sandy clay layers & lignite
-50.9
Washed ahead
Bottom of Boring
8 18 12 12 9 12 12 11 12 11 15 16 18 35 42 36 44 76 45 41 35 38 51 87 95 100 88 454 119 114 195 280 300 300 214 436 296 320 378 143 300 330 200 240 75 106 120 252 360 400 752 600 685 531 220 410 510 154 200 196 163 260 179 215 700 600 600
25.3
32.5
39.5


B-4T-3
EL. 48.2
3,12,6
2,11,10
8,11,17
4,7,10
49,58,59
1
2
3
4
5
Misc. Fill
Stiff brown silty CLAY, tr. f. sand
Stiff brown f. sandy CLAY, some silt, tr. gravel
DITTO
DITTO
Brown sandy m-f GRAVEL, tr. silt
Bottom of Boring
Piezometer installed at 20' - 4" depth and sealed with bentonite at 10'. Water level at 13' 4" depth on 2-5-70.
46.7
+44.2
+35.0
2-2-70
+31.2
Piez. tip +26.7
4
17
11
14
22
14
24
27
32
48
50
46
49
43
42
54
74
19.7
20.5
23.5
28.0
10
20
30
40
50
60


B-4T-4
(B-4T-5)
EL. 48.2
Fill: Brn. clayey sand
Stiff brn. f. sandy CLAY, some silt
DITTO
DITTO
Brown sandy m-f GRAVEL (angular), tr. silt
Med. gry. silty CLAY, tr. f. sand & black lignite layers
Gry. silty m-f SAND with occasional thin clay layers
Red-brn m-f SAND, sm. silt, tr. gravel with stiff f. sa. clay layer
Red. brn. c-f SAND, sm. silt, tr. gravel
Black, brn. & gray silty c-f SAND tr. thin clay lyrs.
Brn. silty c-f SAND with green-gray f. sand lyrs. tr. clay
Green-gry. silty m-f SAND, some clay & f. sand pockets
Green-gray silty c-f SAND
Dk. green silty m-f SAND
DITTO
Bottom of Boring
B4T 5
B4T 4
3-2-70
Piez tip (B4T 5)
Piez tip (B4T 4)
Piez tip (B4T 5)
Washed ahead of casing
+45.7
+37.7
+30.7
+24.7
+16.7
-26.8
19.8
25.0
25.7
25.2
20.3


B-4T-6
EL. 45.2
3,5,5,7
1 Miscellaneous FILL
+43.7
Gray f sandy SILT
7,6,7,6
+40.7
2 Tan clayey SILT
10
5,9,12
+35.7
3 Red and brown silty f SAND, sm gray clay
Red and brown f SAND, sm. brown silt
+31.7
1 22.7
25' of casing
23,39,48
+30.2
4 Brown c-f sandy m-f GRAVEL
20
5,7,8
+25.2
5 Gray c-f SAND and silty CLAY
7,14,17
6 Gray c-f sandy silty CLAY, tr. lignite
+17.7
+16.2
30
25,40,40
7 Gray c-f SAND, tr. silty clay, tr. lignite
1 22.7
50' of casing
10,16,23
+10.2
8 Gray silty CLAY, tr. c-f sand, tr. lignite
40
12,20,28
9 Same, no lignite
Gray silty CLAY, tr. to sm. m-f sand
10
2.3
50
13,39,39
11 Gray-green silty CLAY, sm. gray c-f sand in layers
12 Gray-green f SAND and clayey SILT
60
10,20,27
13 Gray f SAND and clayey SILT
17.8
25,77, 82/3"
14 Gray c-f SAND, tr. silt
21.3
Bottom of Boring
70
4" Casing
Blow count not recorded



L E G E N D

APPROXIMATE BORING LOCATION

B-1

GRAPHICAL SCALE

40' 0 40' 80'

NOTE: BASE PLAN PROVIDED BY AMT LLC DATED AUGUST 2014.

G:\PROJECTS\Active DC16 Projects\DC16024, Parking Deck Analysis from ODMPED\CAD\BLP DC16024.dwg

GeoCapitol Engineering LLC
4545 42nd Street NW, Suite 307
Washington, DC 20016 (202) 375-7900

200 K STREET NW PARKING DECK
WASHINGTON, DC 20001

BORING LOCATION PLAN

Scale: AS SHOWN

Fig. 2

Date: SEPT. 2016

Checked By: D.F.G.

Project No.: DC16024