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October 11, 2019 File No.: 303451-001

Mr. William McPhee
Overton Moore Properties
19300 Hamilton Ave., Suite 200
Gardena, CA 90248

PROJECT: 1477 HUNTINGTON AVENUE DEVELOPMENT
1477 HUNTINGTON AVENUE
SOUTH SAN FRANCISCO, CALIFORNIA

SUBJECT: Geotechnical Feasibility Study

REF.: Proposal for a Geotechnical Feasibility Study, 1477 Huntington Avenue Development 1477 Huntington Avenue, South San Francisco, California, by Earth Systems Pacific, dated July 31, 2019

Dear Mr. McPhee:

Per your authorization, Earth Systems Pacific (Earth Systems) has prepared this letter that summarizes the results of our geotechnical feasibility study for the proposed development at 1477 Huntington Avenue in South San Francisco, California (APN 014-184-999). The purpose of this feasibility study was to assess potential geotechnical constraints that could affect the future development of the property with an intent that the information included herein will only be used in development of conceptual development plans.

Scope of Services

The scope of this feasibility study included general site reconnaissance, subsurface exploration, engineering evaluation of the collected subsurface data, and preparation of this report. We recommend performing a comprehensive design-level geotechnical engineering investigation prior to project design to fulfill the requirements of the California Building Code (CBC) to either confirm or modify the conclusions of the feasibility investigation, and to develop detailed geotechnical recommendations for design and construction of the planned improvements.

A detailed evaluation of site geology, analyses of the soil for infiltration rates, mold or other microbial content, lead, asbestos, corrosion potential, radioisotopes, hydrocarbons, or other chemical properties are beyond the scope of this report. This report does not address issues in the domain of contractors such as, but not limited to, site safety, loss of volume due to stripping of the site, shrinkage of soils during compaction, excavatability, shoring, temporary slope angles, and construction means and methods. Ancillary features such as LID/stormwater management

facilities, swimming pools, temporary access roads, fences, and nonstructural fills are not within our scope and are also not addressed.

Site Description

The site consists of a developed, approximate 2-acre parcel located just south of the South Spruce Avenue and Huntington Avenue crossing. The site area contains a 5,430 Sq. Ft. one story building in the middle portion of the lot surrounded by asphaltic paved, at-grade parking, minor concrete flat work, and landscape areas.

Geologic Setting

A brief review of the geologic literature indicates that the site is underlain by Pleistocene Colma Formation (Qc) (E.E. Brabb, R.W. Graymer, and D.L. Jones, U.S.G.S. Open File Report 98-137). The site is located within a seismically active area but is outside an Alquist-Priolo Earthquake Fault Rupture Zone as delineated by the State of California. The site is located within an area that has not yet been evaluated for seismic hazards by the State of California; however, the site is located within an area mapped with a low susceptibility to liquefaction according to the Association of Bay Area Governments (ABAG).

Subsurface Exploration

Our subsurface exploration program consisted of advancing four Cone Penetrometer Tests (CPTs) at the site on September 20, 2019 at the approximate locations shown on the attached Site Plan. The CPT soundings were performed by Middle Earth Geo Testing, Inc. (MEGT) utilizing their 25-ton truck mounted CPT rig. The soundings were conducted in accordance with ASTM specifications and pushed to a maximum depth of 60 feet below the ground surface. A copy of the CPT soundings are attached.

A CPT involves pushing a standardized size instrument of a conical shape into the ground at a specified constant rate. The Conical Instrument (cone) used for this project had a tip area of 10 cm^2 and a friction sleeve area of 150 cm^2. The cone was pushed into ground at a constant rate of 20-mm per second using the 25-ton truck as reaction weight. The cone was fitted with load cells, which recorded the total force acting on the cone (Qc), sleeve friction (Fs), and pore pressure (u) readings at 5 cm depth intervals. The data collected from the CPT was used to interpret soil behavior type, site stratigraphy, soil consistency, strength, and many other geotechnical engineering properties using published relationships. Generally, cohesive soils (clays) have high friction ratios (sleeve friction divided by cone bearing – Rf), low cone bearing, and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing, and generate little in the way of excess pore water pressures.

Subsurface Profile

The CPTs advanced at the site encountered soil behavior types that were predominately fine-grained in nature in the approximate upper 10 feet of the site. Below the fine-grained soil, the CPTs encountered soils behavior types that were predominately sandy in nature alternating with layers that were predominately fine-grained in nature to depth of approximately 25 to 30 feet below the ground surface (bgs). This was followed by soil behavior types that were predominately fine-grained in nature to a depth of approximately 50 feet bgs. Finally, the CPTs encountered soil behavior types that were predominately sandy in nature from 50 feet bgs to the maximum depths explored of approximately 60 feet. The predominantly fine-grained soils generally had stiff to hard consistencies. The predominantly coarse-grained materials were generally medium dense to dense.

Groundwater

Groundwater was encountered at an elevation of approximately 15 feet, 18 feet, 15 feet, and 15 feet above mean sea level (msl) in CPT-1, CPT-2, CPT-3, and CPT-4, respectively. Available mapped data at the site, through GeoTracker, indicate depth of groundwater in the was measured in 2009 to range from 23 to 27 feet above msl. Variations in rainfall, temperature, and other factors may affect water levels, and therefore groundwater levels should not be considered constant; however, groundwater is not expected to have an adverse effect on the construction of the proposed development.

Conclusions

Based on our site reconnaissance and review of available geotechnical literature pertaining to the site, it is our opinion, the proposed development should be feasible from a geotechnical engineering standpoint. Some of the anticipated geotechnical issues are as follows:

<u>Soil Expansion Potential</u>

Plasticity index tests performed on samples of the upper soils from the site resulted in a liquid limit (LL) of 32 and a plasticity index (PI) of 18. These values indicate that the sample tested has a low expansion potential. Thus, measures other than moistening and compacting the soils to mitigate soil expansion are not anticipated.

<u>Site Preparation and Grading</u>

Final plans for site grading were not available when this report was prepared; however, we anticipate the site grading to consist of backfilling the depressions resulting from the demolition of the existing building and associated footings and the utility trenches.

Foundations

The subsurface investigation performed at the site indicate that the soils at the site are consistent throughout the site and likely consist of medium dense to dense sand and gravel and stiff to very stiff clayey soils. Based on this information, it is anticipated that the proposed structures could be supported on conventional spread or strip foundations.

Closure

As discussed above, a comprehensive future design level geotechnical engineering investigation will be necessary to provide design-level recommendations for design and construction of the proposed site development. While this document may be used in evaluating the geotechnical suitability and the overall planning of the development, it should not be relied upon for design or construction of improvements at the site.

Our intent was to perform the geotechnical feasibility investigation in a manner consistent with the level of care and skill ordinary exercised by members of the profession practicing in the locality of this project at this time under similar conditions for this level of investigation. No representation, warranty, or guarantee is either expressed or implied. This report is indented for the exclusive use by the client for the subject project. Application beyond the stated intent is strictly at the user's risk.

This document, the data, conclusions, and recommendations contained herein are the property of Earth Systems. Copies may be made only by Earth Systems, the client, and his authorized agents for use exclusively on the subject project. Any other use is subject to federal copyright laws and the written approval of Earth Systems.

Thank you for this opportunity to have been of service. Please feel free to contact this office at your convenience if you have any questions regarding this report.

Sincerely,

Earth Systems Pacific

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Project Engineer

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CIVIL
STATE OF CALIFORNIA

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Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
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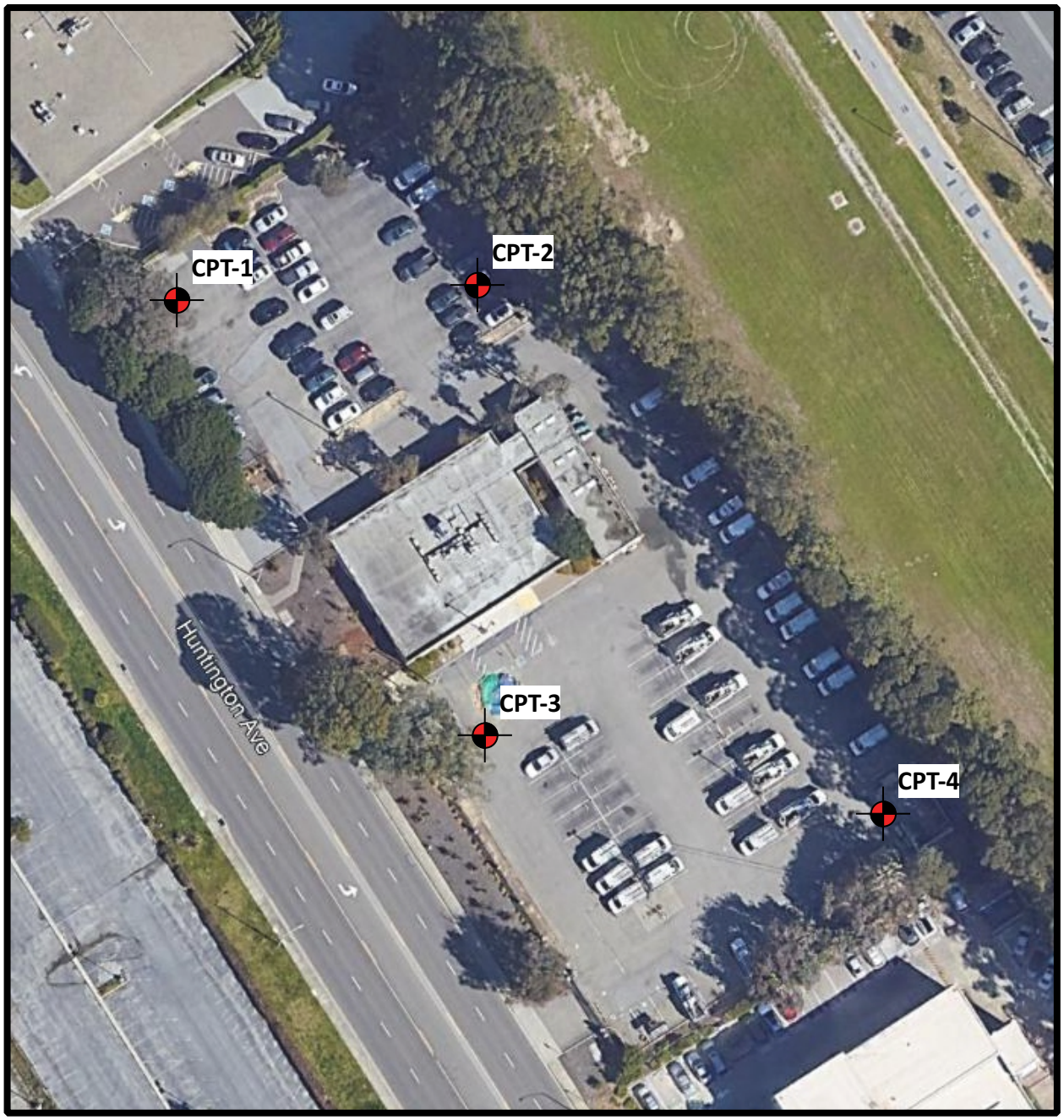
GEOTECHNICAL
STATE OF CALIFORNIA

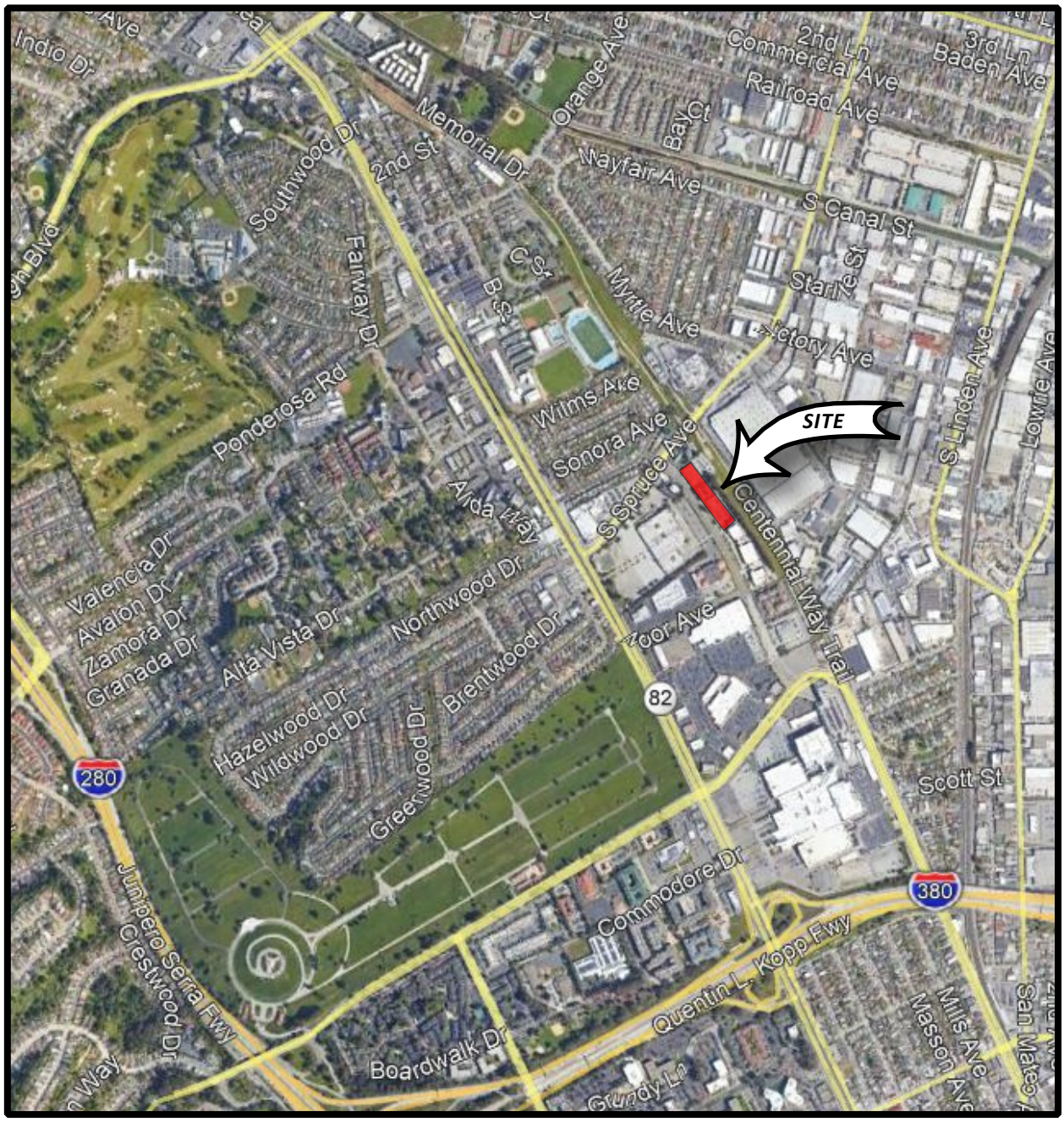
Attachments: Site Plan
Vicinity Map
Cone Penetrometer Test Logs

Doc No.: 1910-022.FEA/kt



Base: Google Earth (2018)

Earth Systems Pacific	1477 Huntington Avenue Development 1477 Huntington Avenue South San Francisco, California	Site Plan 303451-001



Base: Google Earth (2018)

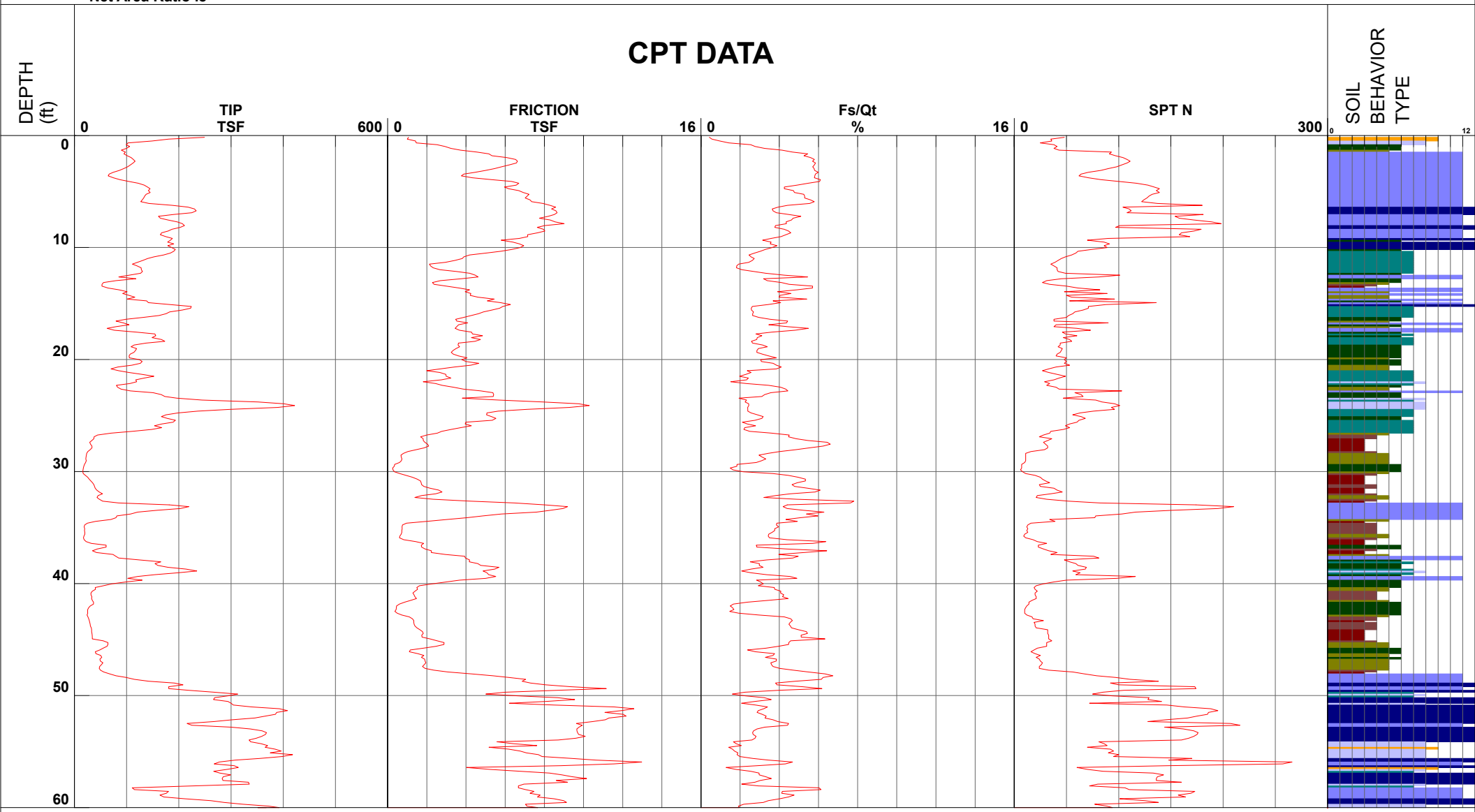
Earth Systems Pacific	1477 Huntington Avenue Development 1477 Huntington Avenue South San Francisco, California	Vicinity Map 303451-001

Earth Systems

Project	Huntington Avenue Development	Operator	JM-AJ	Filename	SDF(080).cpt
Job Number	304551-001	Cone Number	DDG1489	GPS	
Hole Number	CPT-01	Date and Time	9/20/2019 2:12:17 PM	Maximum Depth	60.53 ft
EST GW Depth During Test		18.30 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

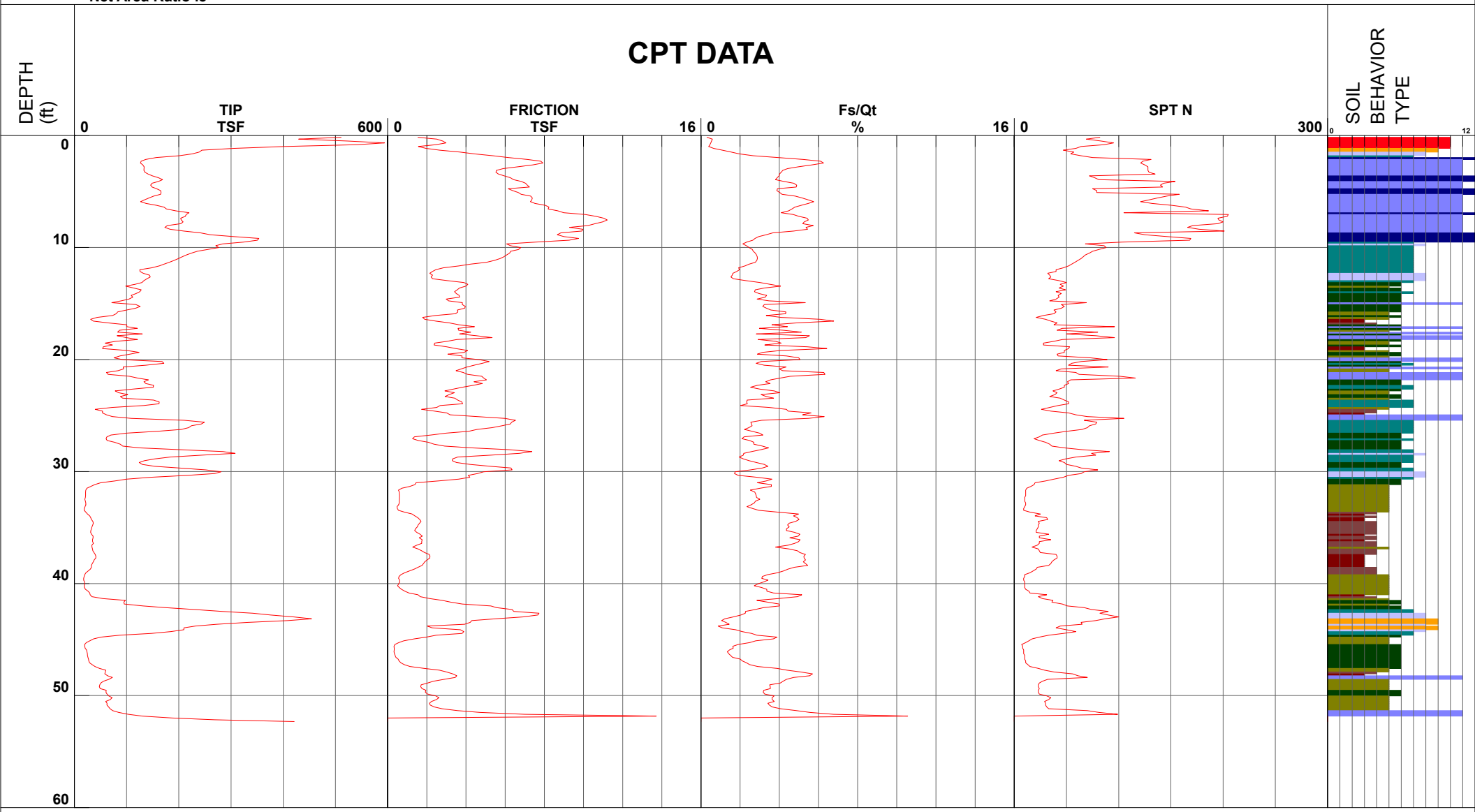
S*Soil behavior type and SPT based on data from UBC-1983

Earth Systems

Project	Huntington Avenue Development	Operator	JM-AJ	Filename	SDF(079).cpt
Job Number	304551-001	Cone Number	DDG1489	GPS	
Hole Number	CPT-02	Date and Time	9/20/2019 1:16:58 PM	Maximum Depth	52.33 ft
EST GW Depth During Test		15.80 ft			

Net Area Ratio .8

CPT DATA



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12 - sand to clayey sand (*)

Cone Size 10cm squared

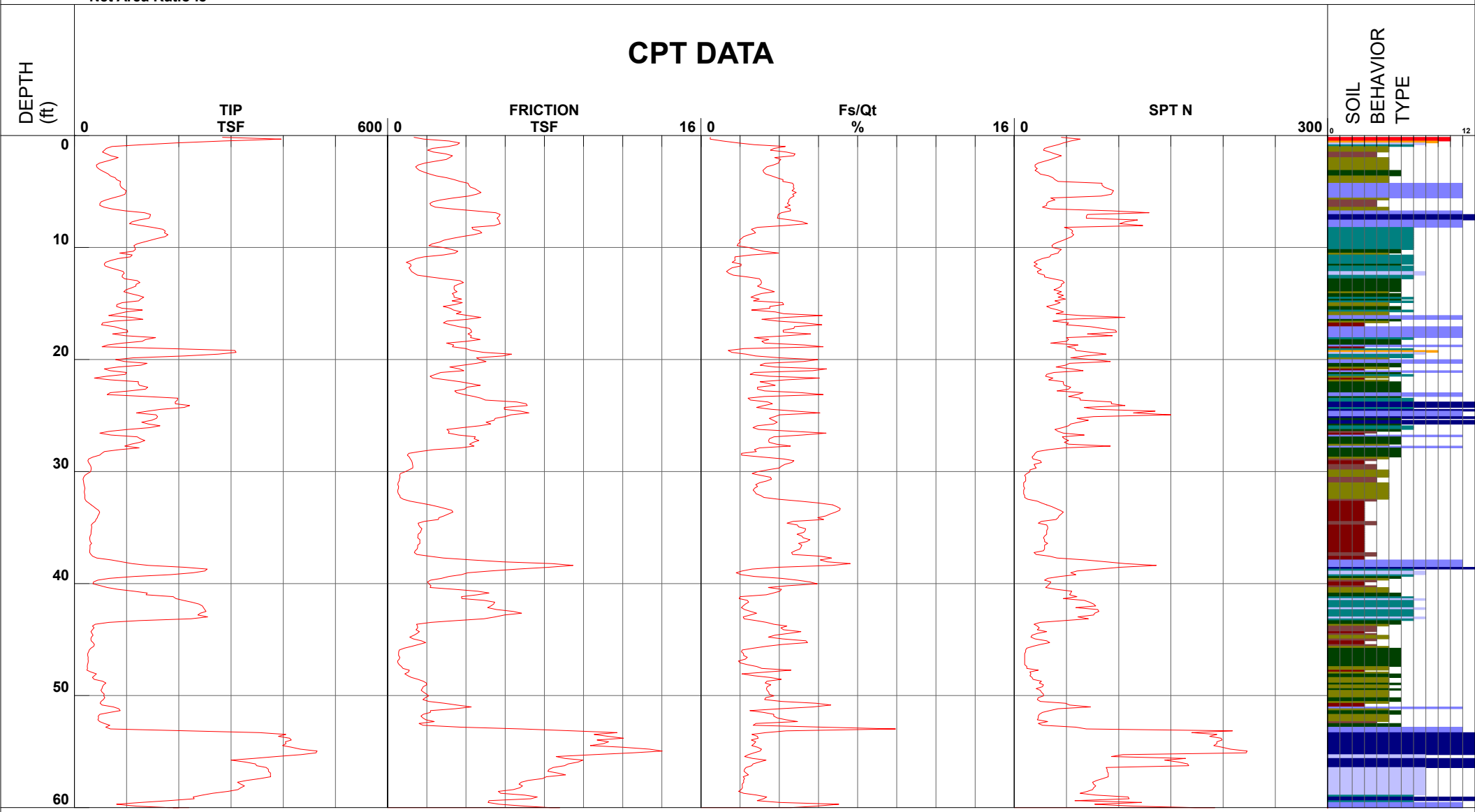
S*Soil behavior type and SPT based on data from UBC-1983

Earth Systems

Project	Huntington Avenue Development	Operator	JM-AJ	Filename	SDF(082).cpt
Job Number	304551-001	Cone Number	DDG1489	GPS	
Hole Number	CPT-03	Date and Time	9/20/2019 4:06:27 PM	Maximum Depth	60.69 ft
EST GW Depth During Test		21.00 ft			

Net Area Ratio .8

CPT DATA



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8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 10cm squared

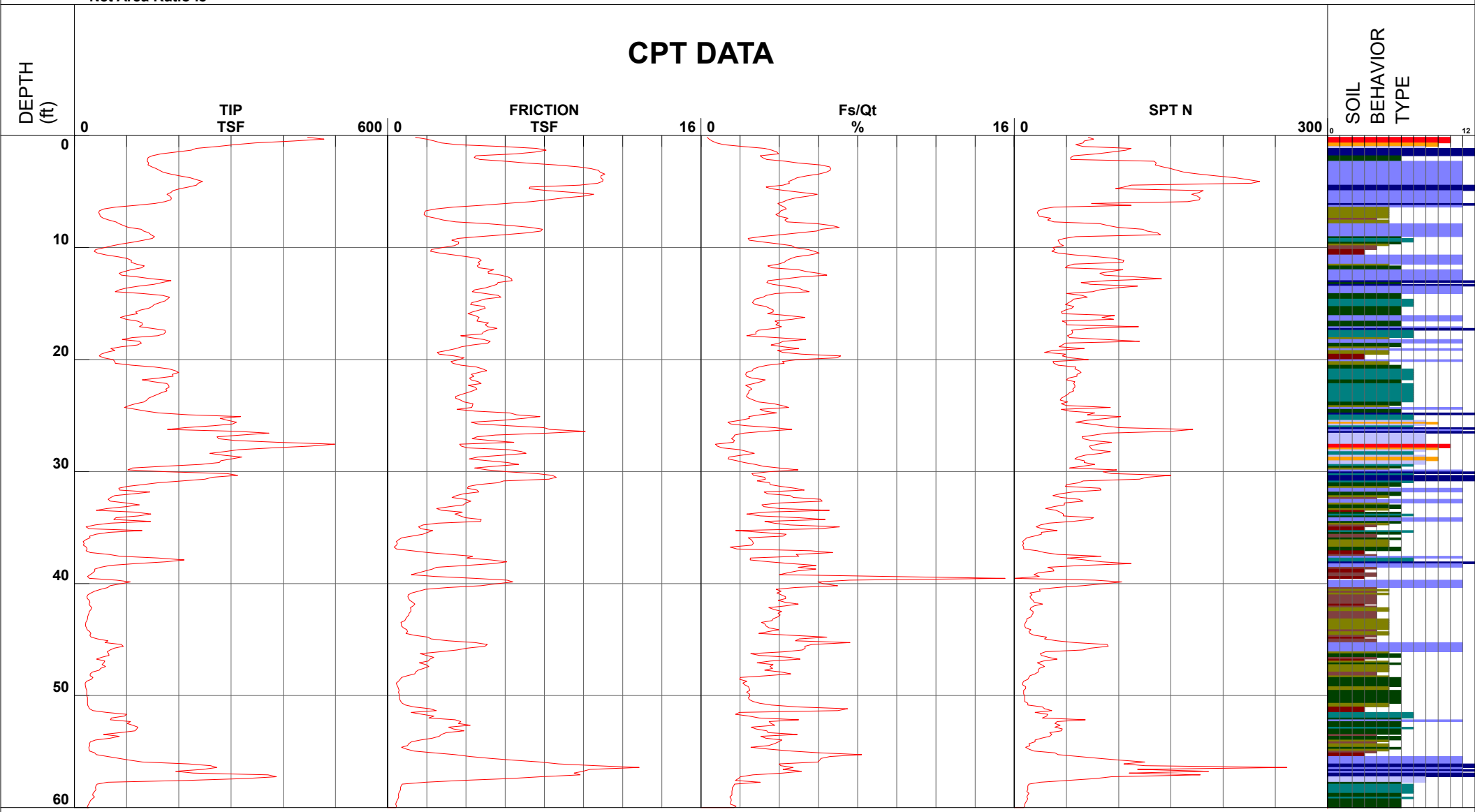
S*Soil behavior type and SPT based on data from UBC-1983

Earth Systems

Project	Huntington Avenue Development	Operator	JM-AJ	Filename	SDF(081).cpt
Job Number	304551-001	Cone Number	DDG1489	GPS	
Hole Number	CPT-04	Date and Time	9/20/2019 3:12:10 PM	Maximum Depth	60.53 ft
EST GW Depth During Test		21.90 ft			

Net Area Ratio .8

CPT DATA



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Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983