

REV	DATE	BY	APP	REG. NO.	EXPIRES	SEAL HOLDER	DESCRIPTION

DESIGNED BY
ELLIOTT / MUNRO

DRAWN BY
L. MORLEY

CHECKED BY
JAG / H.P.

IN CHARGE
MBH / PM

DATE
12/02/2011

KEY SYMBOLS

Test Results:

- Horizontal Earth Pressure Coefficient, K_0 (using Pressuremeter Test)
- Shear wave velocity based on CPT measurements
- Peak Ground Acceleration
- Peak Ground Velocity
- Operational Design Earthquake
- Maximum Design Earthquake

PROFILE: H=200', V=40' VERTICAL EXAGGERATION = 5:1

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

WESTSIDE SUBWAY EXTENSION
PRELIMINARY ENGINEERING

AT-REST EARTH PRESSURE COEFFICIENTS AND SEISMIC DESIGN PARAMETERS FOR TUNNEL DESIGN

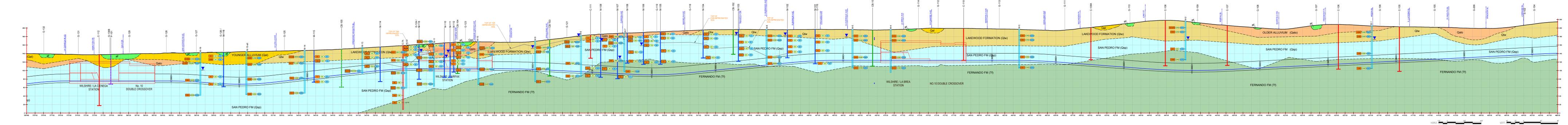
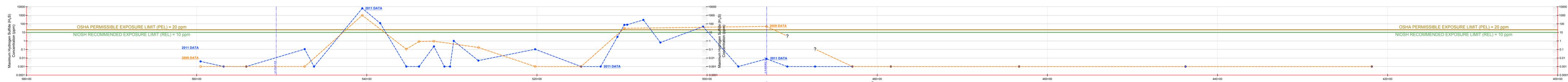
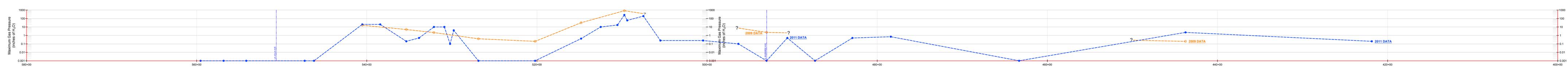
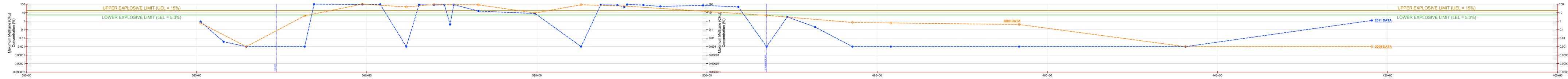
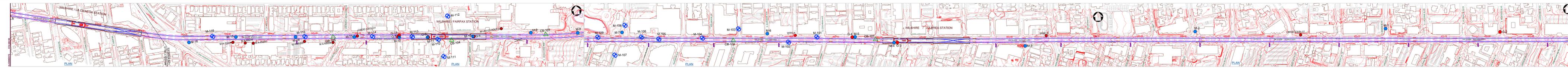
STATION 665+00 TO 858+00

CONTRACT NO. _____

DRAWING NO. **PLATE 3-2** REV. _____

SCALE _____

SHEET NO. **AS NOTED**



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GAS SYMBOLS
MAXIMUM RECORDED VALUES
 Methane (CH₄) Encountered:
 1. 15% by volume
 2. 5% by volume
 3. 1.2% by volume
 Hydrogen Sulfide (H₂S) Found:
 4. 8.7 ppm (Per the Station to Station Pressure (H₂O) Encountered)
 5. 0.7 when drilled

NOTES:
 1. Station "1" indicates year taken (2011/2009) otherwise all data is 2011
 2. W = Water encountered negating Data
 3. H = High (off scale)
 4. NA = No Measured Data (not available)
 5. Ground Water Level and Date Measured
 6. For clarity purposes Geotechnical Borings are not shown on Plan and Profile. Only Geologic Units and Contacts are shown on the Profile.

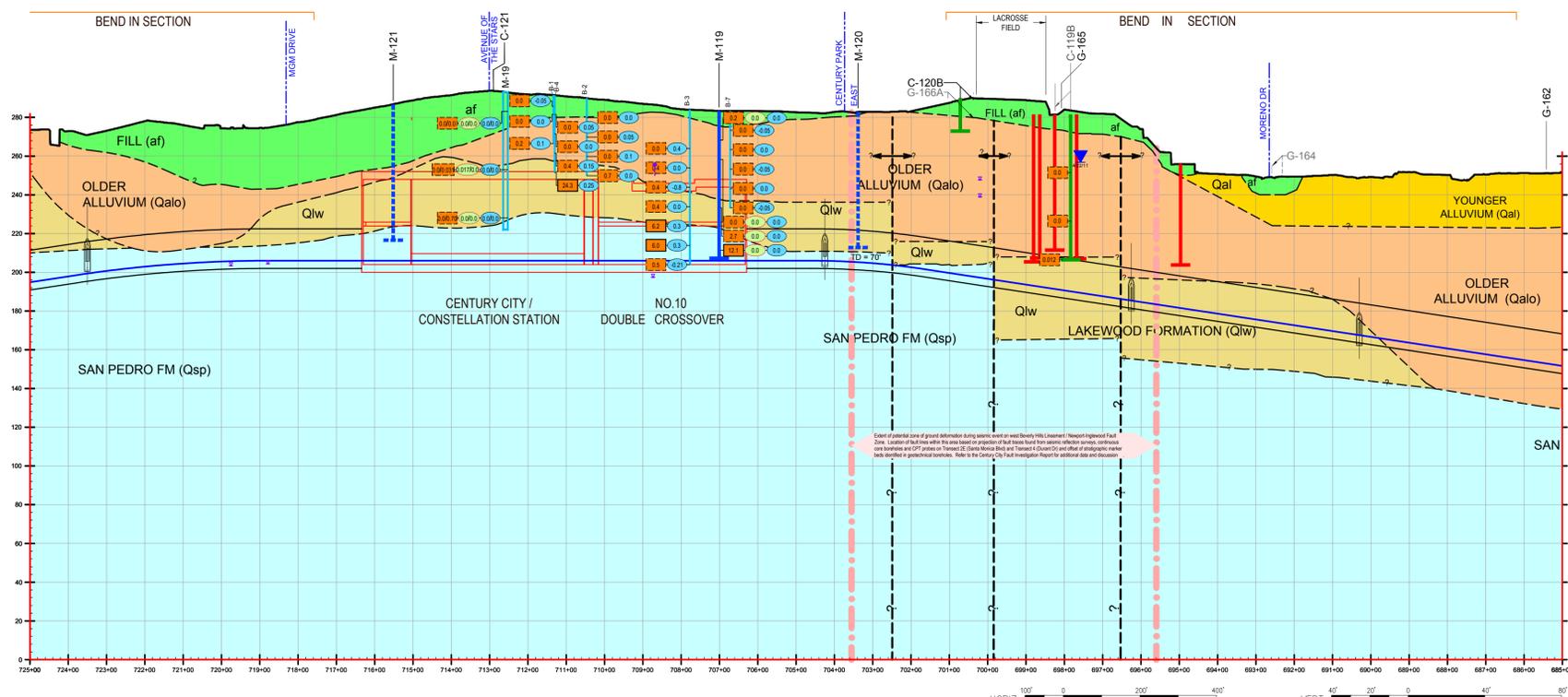
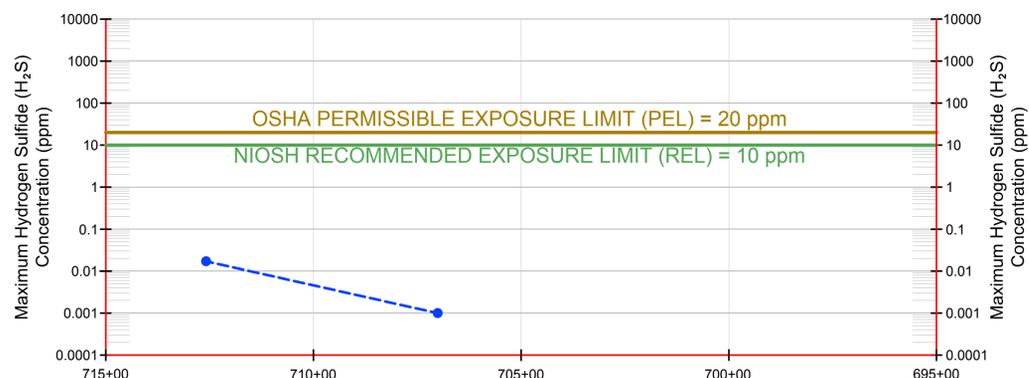
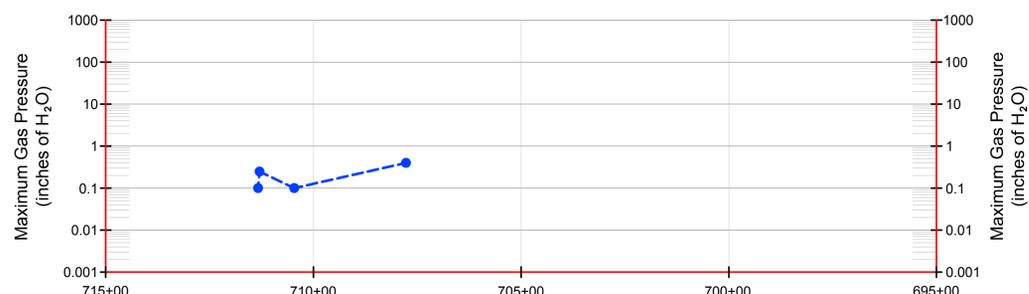
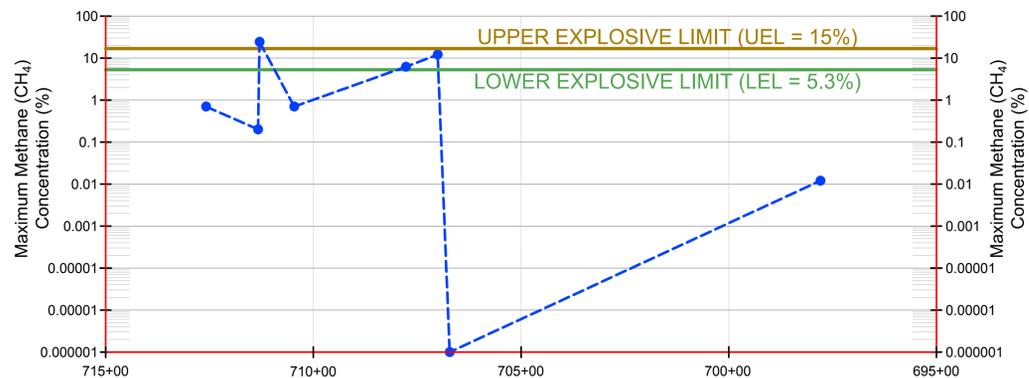
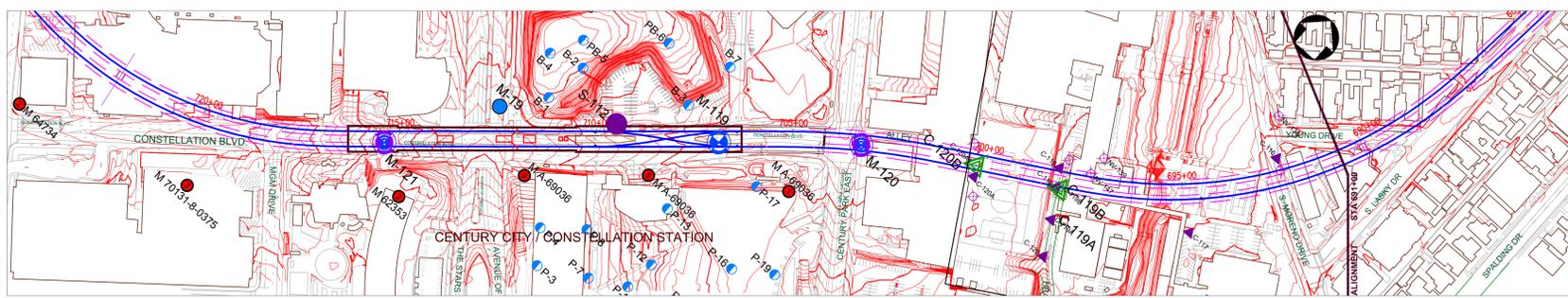
GROUNDWATER SYMBOLS:
 1. Groundwater depth measured in an observation well and date of measurement (AMEC 2009 - 2011).
 2. Overnight Groundwater depth measured in a boring (AMEC 2011).
 3. Groundwater depth measured during drilling of a boring (AMEC 2011).
 4. Groundwater encountered during drilling (Metro, 2011).
 5. Seepage encountered during drilling (I.C. 1999).

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
Metro
PB PROJECT MANAGER

WESTSIDE SUBWAY EXTENSION PRELIMINARY ENGINEERING
PLOT OF SUBSURFACE GAS DATA FAIRFAX AREA
STATION 400+00 to 580+00

DRAWING NO	PLATE 4-1	REV	
SCALE	AS NOTED		
SHEET NO			

User: LAMorey Dec 02, 2011 @ 5:53 pm File: \\nas001\proj\111421_MetroWestside\CAD\4653_11-1421_Gas-Data-Press-Pk-Ang [P14-1]



GAS SYMBOLS	
MAXIMUM RECORDED VALUES	
During 2004 to 2011	
Methane (CH ₄) Encountered:	
4	< 5% by Volume
25	5 - 25% by Volume
100	26 - 100% by Volume
Hydrogen Sulfide (H ₂ S) Found:	
0.7	0.7 ppm (Parts Per Million by Volume)
Pressure (H ₂ O) Encountered:	
0.7	0.7 inches of Water

- NOTES :**
1. Slash "/" indicates year taken (2011/2009) otherwise all data is 2011
 2. W = Water encountered negating Data
 3. H = High (off scale)
 4. NA = No Measured Data (not available)
 5. ▲ Ground-Water Level and Date Measured
 6. For clarity purposes Geotechnical Borings are not shown on Plan and Profile. Only Geologic Units and Contacts are shown on the Profile.
 7. B-1 to B-7 are 2004 gas data of drill site 2 (10131 Constellation Blvd) by others.

- GROUNDWATER SYMBOLS :**
- ▼ 12/24/08 Groundwater depth measured in an observation well and date of measurement (AMEC 2009 - 2011).
 - ▼ Overnight Groundwater depth measured in a boring (AMEC 2011).
 - ▼ Groundwater depth measured during drilling of a boring (AMEC 2011).
 - ▼ Groundwater encountered during drilling (Metro, 2011).
 - ↑ Seepage encountered during drilling (LC, 1969).

User Name: LAMorley Dec 05, 2011 @ 5:29pm File Name: G:\4953_Geotech\2011\11421_Metro\Westside\CAD\4953-11-1421_Gas Data-Press-Plt.dwg [Plt-2]

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LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

Metro

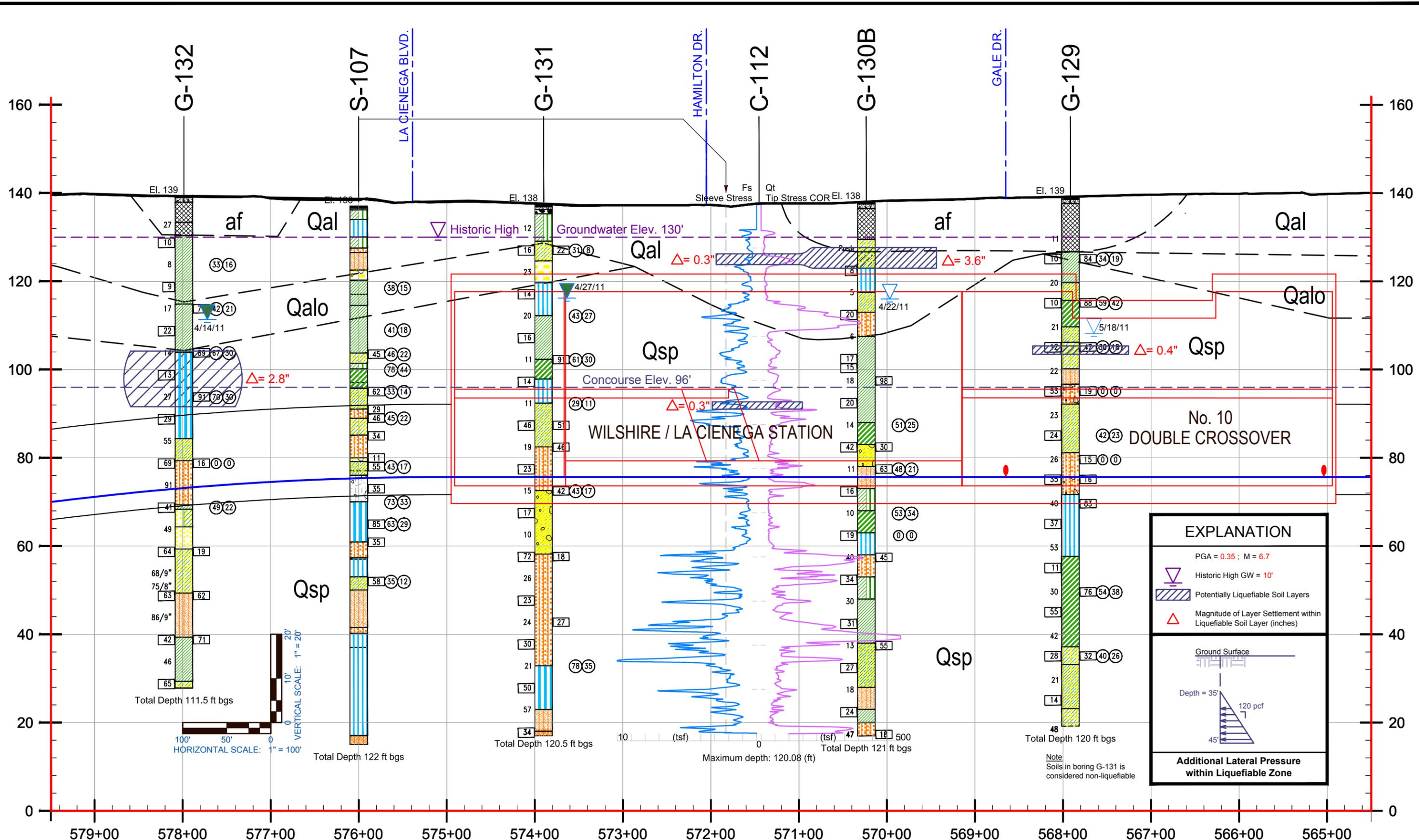
PROJECT MANAGER

WESTSIDE SUBWAY EXTENSION PRELIMINARY ENGINEERING

PLOT OF SUBSURFACE GAS DATA CENTURY CITY AREA

STATION 695+00 TO 715+00

DRAWING NO	PLATE 4-2
SCALE	AS NOTED
SHEET NO	



EXPLANATION

- PGA = 0.35 ; M = 6.7
- Historic High GW = 10'
- Potentially Liquefiable Soil Layers
- Magnitude of Layer Settlement within Liquefiable Soil Layer (inches)

Ground Surface

Depth = 35'

120 pcf

45'

Additional Lateral Pressure within Liquefiable Zone

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M Metro

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

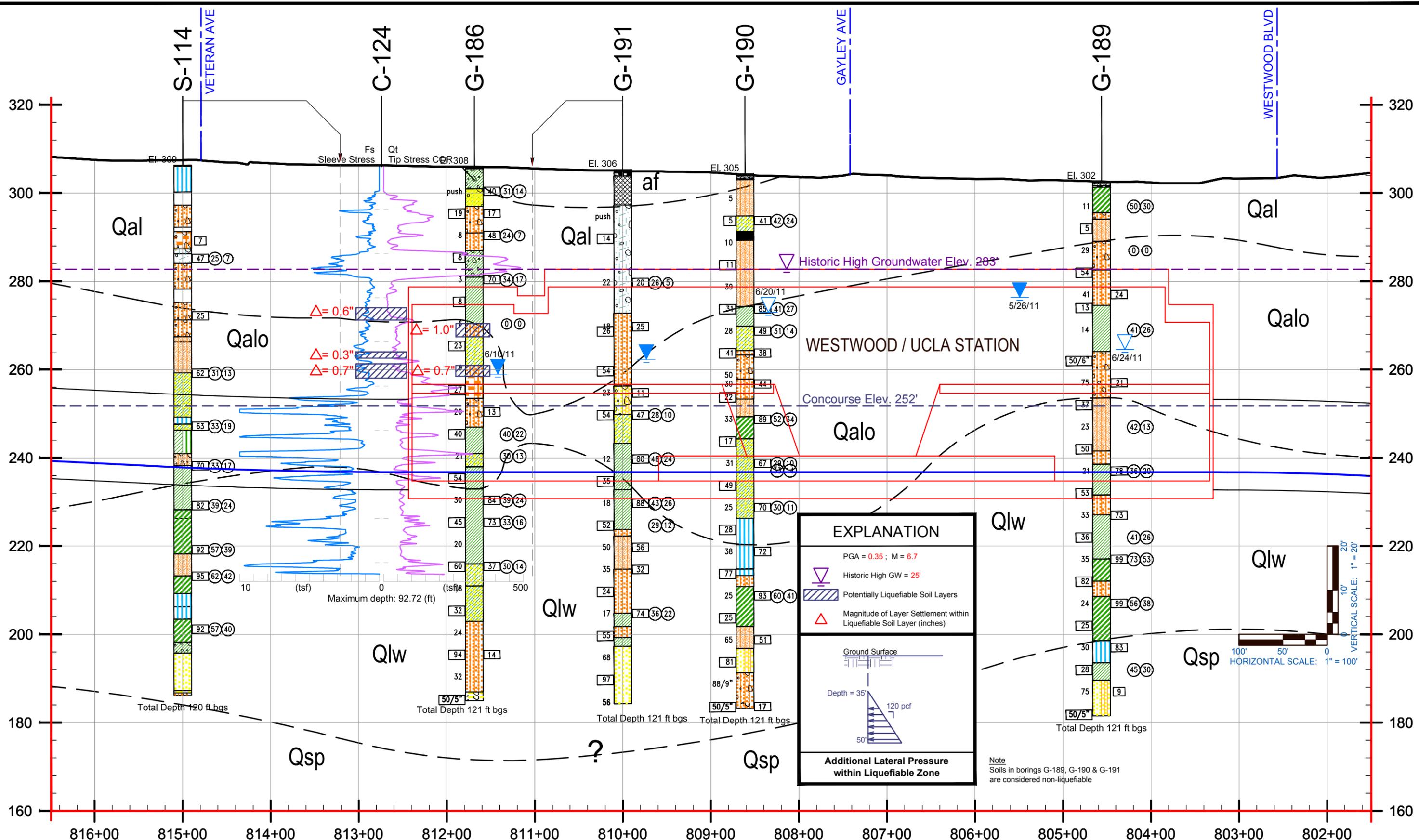
PB PROJECT MANAGER

WESTSIDE SUBWAY EXTENSION PRELIMINARY ENGINEERING

LIQUEFACTION INDUCED SETTLEMENT AND EARTH PRESSURE FOR ODE LEVEL EARTHQUAKE

WILSHIRE / LA CIENEGA STATION

CONTRACT NO	
DRAWING NO	Plate 5-1
SCALE	AS NOTED
SHEET NO	



EXPLANATION

- PGA = 0.35 ; M = 6.7
- Historic High GW = 25'
- Potentially Liquefiable Soil Layers
- Magnitude of Layer Settlement within Liquefiable Soil Layer (inches)

Ground Surface

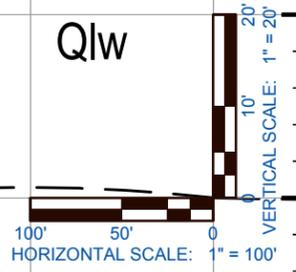
Depth = 35'

120 pcf

50'

Additional Lateral Pressure within Liquefiable Zone

Note
Soils in borings G-189, G-190 & G-191 are considered non-liquefiable



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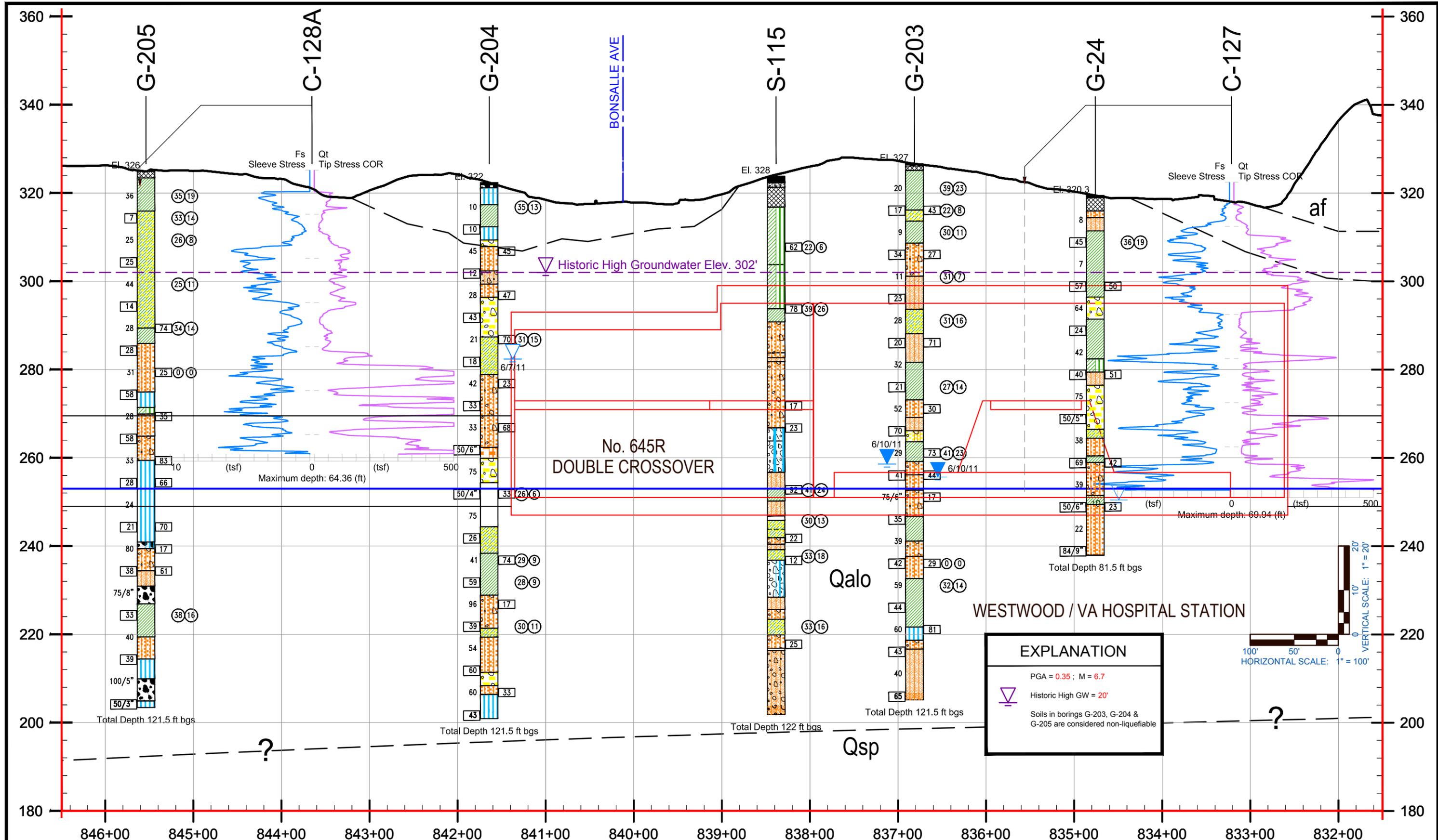
PB PROJECT MANAGER

WESTSIDE SUBWAY EXTENSION PRELIMINARY ENGINEERING

LIQUEFACTION INDUCED SETTLEMENT AND EARTH PRESSURE FOR ODE LEVEL EARTHQUAKE

WESTWOOD / UCLA STATION

CONTRACT NO	
DRAWING NO	Plate 5-2
SCALE	AS NOTED
SHEET NO	

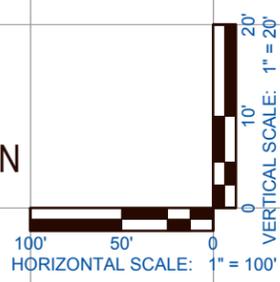


EXPLANATION

PGA = 0.35 ; M = 6.7

▽ Historic High GW = 20'

Soils in borings G-203, G-204 & G-205 are considered non-liquefiable



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LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

**WESTSIDE SUBWAY EXTENSION
 PRELIMINARY ENGINEERING**
 LIQUEFACTION INDUCED SETTLEMENT AND
 EARTH PRESSURE FOR ODE LEVEL EARTHQUAKE
 WESTWOOD / VA HOSPITAL STATION

CONTRACT NO	
DRAWING NO	Plate 5-3
SCALE	AS NOTED
SHEET NO	