































Proposed Geotechnical / Soil-Gas Investigation for PE Phase:

- G-207   Geotechnical Rotary-Wash Boring
- M-124   Gas Monitoring Well
- G-199/M-122   Dual Geotechnical Boring / Gas Monitoring Well
- CB-105   CPT [Geotechnical + Gas - BAT]
- C-127   CPT [Geotechnical]
- S-115   Geotechnical Sonic Core
- P-103   Pump Test
- E-135   Environmental Boring [Direct Push]
- T2E-B9   Fault Investigation [Hollow Stem Auger]

Prior ACE Phase Investigations:

- M-15  AMEC Environmental Exploration
- G-3  AMEC Geotechnical Exploration
- SB-2  Prior Fault Investigation Boring


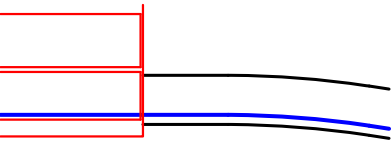
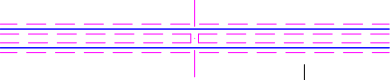
















Prior Investigations (depth >70') :  = Geotechnical  = Gas Well or CPT w/ Gas Reading

- M 4953-05-1851  AMEC Geotechnical Exploration
- CPT9G  AMEC CPT Exploration (1994)
- MW2C  AMEC Geotechnical Exploration (1990)
- P-43  Engineering Science Environmental Exploration (1992)
- W-GW-3  TRC Environmental Exploration (2007)
- CWDD 18-2  CWDD Converse Ward Davis Dixon (1981)
- CWDD 18  CWDD Dual Geotechnical / Environmental Exploration (1981)
- MC-2  Converse Consultants West (1992)
- RC-17, GW-1  EnviroRail 1994 (1996)
- WWC 4  Woodward Clyde Consultants (1977)
- R-09-014  Rotary Wash borings by others for I-405 widening (2009)
- CPT-09-054  CPT by others for I-405 widening (2009)

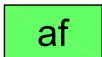

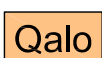
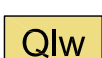
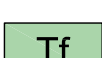
Symbol Labels:

- (MW) Ground water monitoring (observation) well
- (NV) Boring with noise and vibration testing
- (P) Boring with pressure meter testing

Symbols Legend:

-  Site view of station. Alignment based on data provided by PB (7/15/2011)
-  Profile view of station (red) with tunnel outline (black) and track (blue)
-  Site view showing center of tracks (blue), tunnel outlines (magenta dash) with perpendicular of cross passage.
-  Cross passage (profile view).
- NV-185  Noise and Vibration Point of Interest.
- (12-24-08)  Ground-water depth measured during 2009 to 2011 in an observation well, drilled by AMEC and date of measurement.
-  Overnight Ground-water depth measured in a 2011 boring, drilled by AMEC.
-  Ground-water depth measured during drilling of a boring in 2011, by AMEC.
- Geologic contact line.
- Top of tar impregnated soil.
-      Geotechnical boring completed as a part of PE phase investigation.
-      Geotechnical boring to be completed as a part of PE phase investigation.
-  Final Fault trace Location to be refined during final design.

Geologic Units:

-  **af** ARTIFICIAL FILL (undocumented)
-  **Qal** YOUNGER ALLUVIUM (Holocene) - predominantly sand, silt and clay
-  **Qalo** OLDER ALLUVIUM - varying layers of Silty Sand, Clayey/Silty Clay, and Silt with occasional gravel
-  **Qlw** LAKEWOOD FORMATION (late Pleistocene) - interbedded Silty sands, Silts, and Clays with clayey Sand Layers
-  **Qsp** SAN PEDRO FORMATION (mid Pleistocene) - predominately greenish gray and bluish gray fine-grained Sands, medium to coarse Sands and some Silt Layers.
-  **Tf** FERNANDO FORMATION (Pliocene) - predominately massive Siltstone with some Claystone interbeds

DESIGNED BY	ELLIOTT / MUNRO
DRAWN BY	L. MORLEY
CHECKED BY	JAG / HP
IN CHARGE	MBH / PM
DATE	12/02/2011

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION

M Metro
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

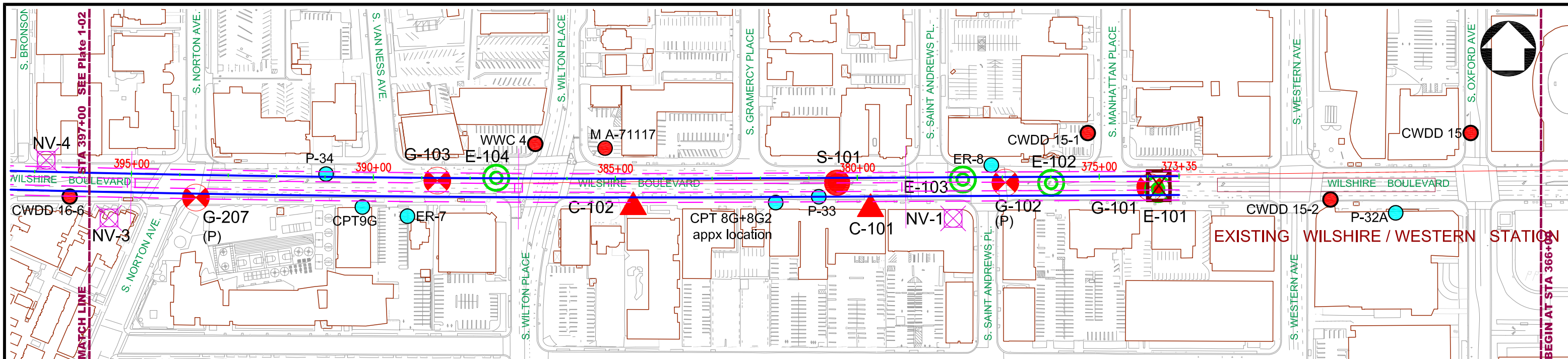
PB
PROJECT MANAGER _____

WESTSIDE SUBWAY EXTENSION
PRELIMINARY ENGINEERING
BORING PLAN AND GEOLOGIC PROFILE

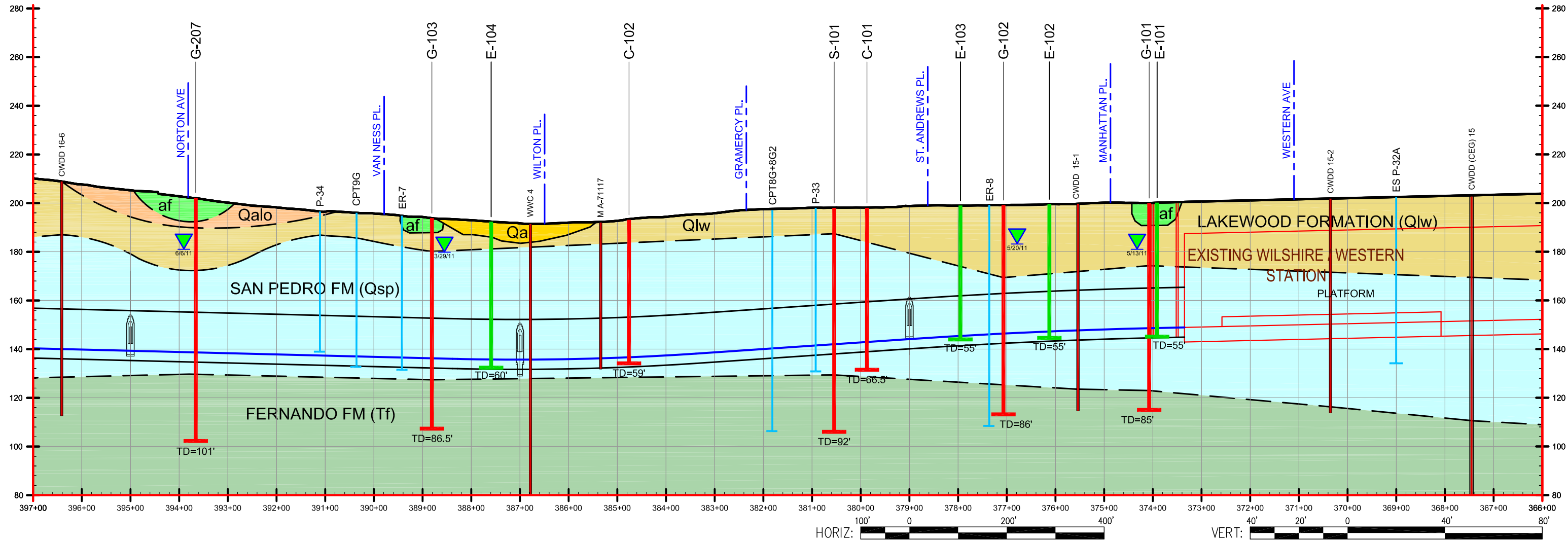
LEGEND & EXPLANATION SHEET

CONTRACT NO	
DRAWING NO	Plate 1-00
SCALE	
SHEET NO	

FILE NAME: C:\Users\LA\Morley\Documents\CAD\4953-11-1421_NVSE4953-11-1421_P&P-Plates(11,11).dwg [00] DATE: December 20, 2011 TIME: 11:00 PM



PLAN





HORIZ: 100' 0 200' 400'

VERT: 40' 20' 0 40' 80'

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION

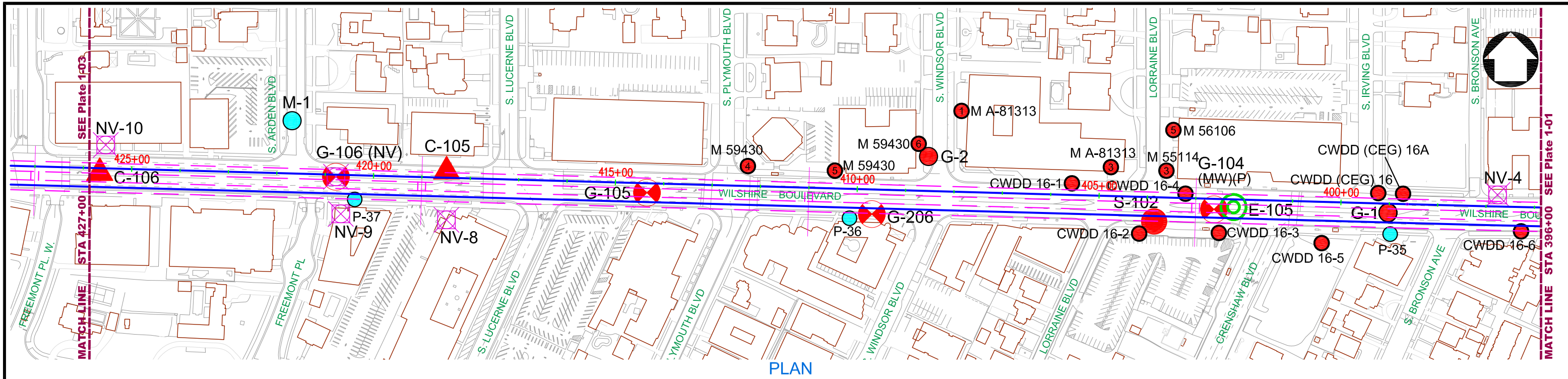
DESIGNED BY	ELLIOTT / MUNRO
DRAWN BY	L. MORLEY
CHECKED BY	JAG / HP
IN CHARGE	MBH / PM
DATE	12/02/2011


Metro
 LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY


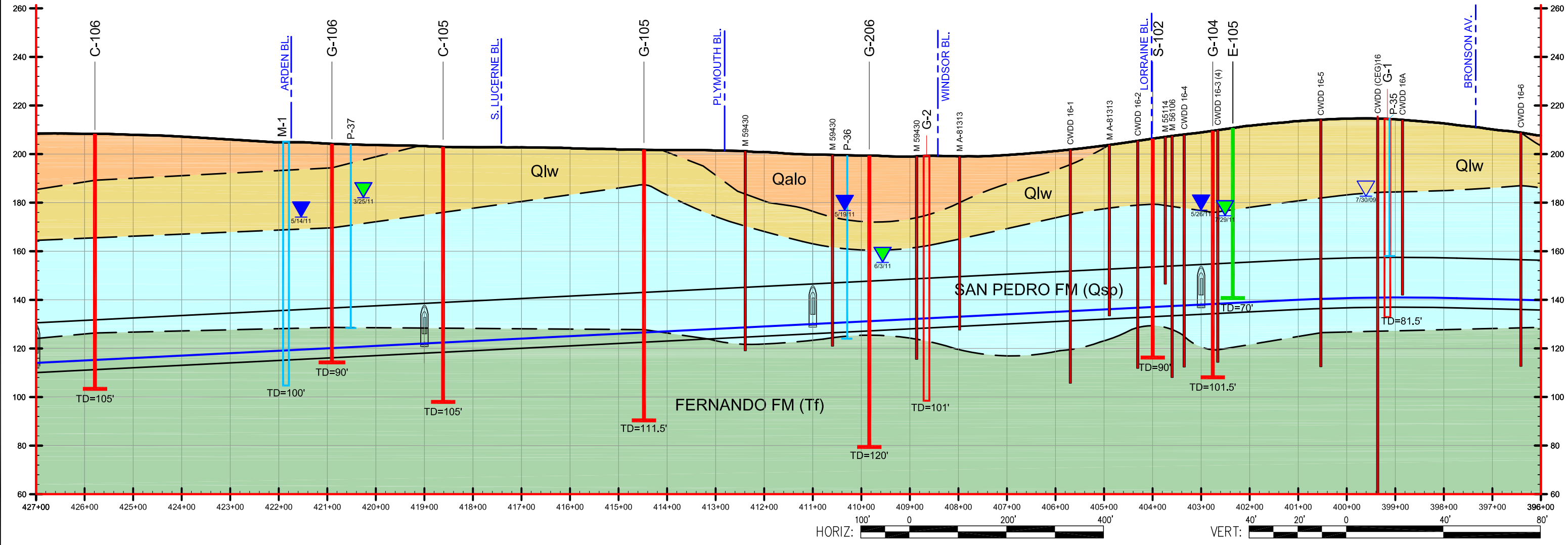
WESTSIDE SUBWAY EXTENSION
PRELIMINARY ENGINEERING
BORING PLAN AND GEOLOGIC PROFILE
 STATION 366+00 to 397+00

CONTRACT NO	
DRAWING NO	Plate 1-01
SCALE	AS NOTED
SHEET NO	

FILE NAME: C:\Users\LAMorley\Documents\CAD\4953-11-1421_WSE\4953-11-1421_P&P\Plate1-11.dwg [01] DATE: December 07, 2011 TIME: 1:35 PM



PLAN



HORIZ: 100' 0 200' 400'

VERT: 40' 20' 0 40'

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION

DESIGNED BY
ELLIOTT / MUNRO

DRAWN BY
L. MORLEY

CHECKED BY
JAG / HP

IN CHARGE
MBH / PM

DATE
12/02/2011

M Metro

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

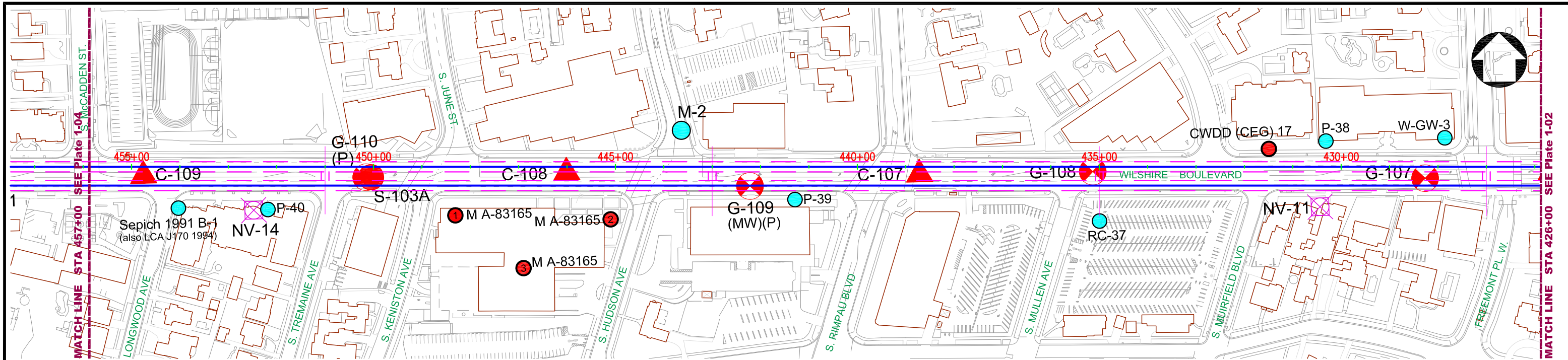
PR PROJECT MANAGER

WESTSIDE SUBWAY EXTENSION
PRELIMINARY ENGINEERING
BORING PLAN AND GEOLOGIC PROFILE

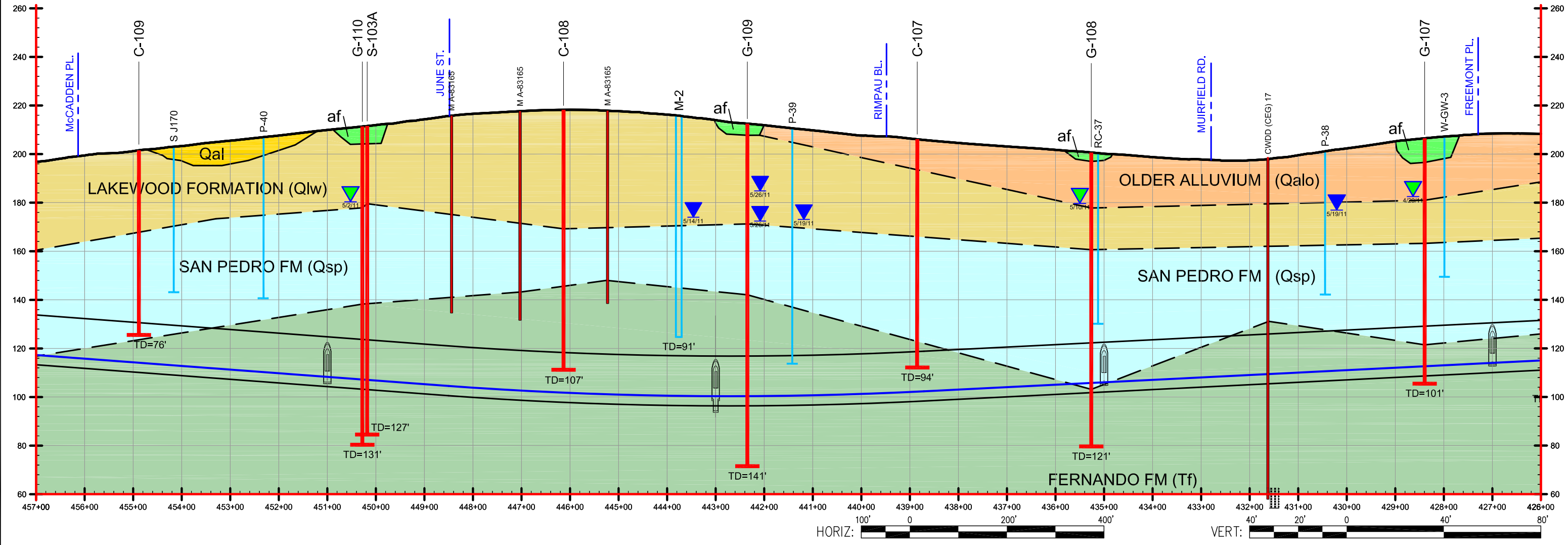
STATION 386+00 TO 427+00

CONTRACT NO	
DRAWING NO	Plate 1-02
SCALE	AS NOTED
SHEET NO	

FILE NAME: C:\Users\LAMorley\Documents\CAD\4953-11-1421_NWSE\4953-11-1421_P&P\Plates\11.dwg [02] DATE: December 07, 2011 TIME: 1:42 PM



PLAN





HORIZ: 100' 0 200' 400'

VERT: 40' 20' 0 40' 80'

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION

DESIGNED BY ELLIOTT / MUNRO
DRAWN BY L. MORLEY
CHECKED BY JAG / HP
IN CHARGE MBH / PM
DATE 12/02/2011


Metro
 LOS ANGELES COUNTY
 METROPOLITAN TRANSPORTATION AUTHORITY

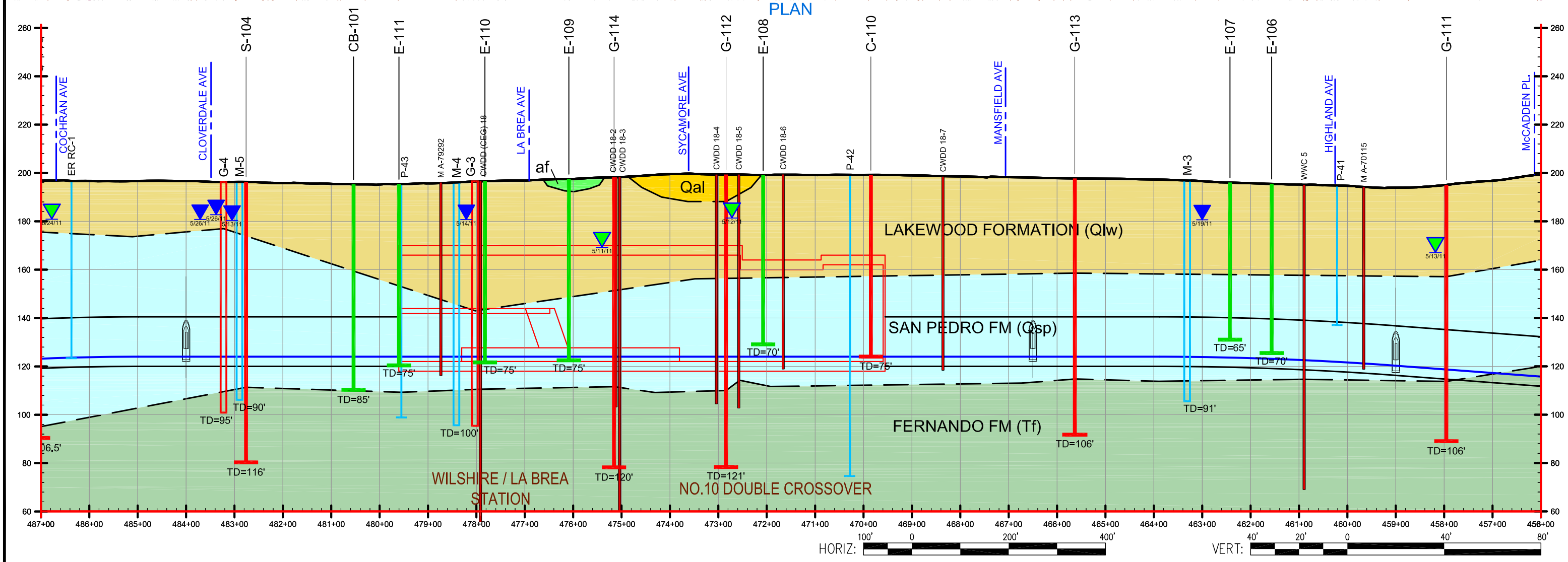
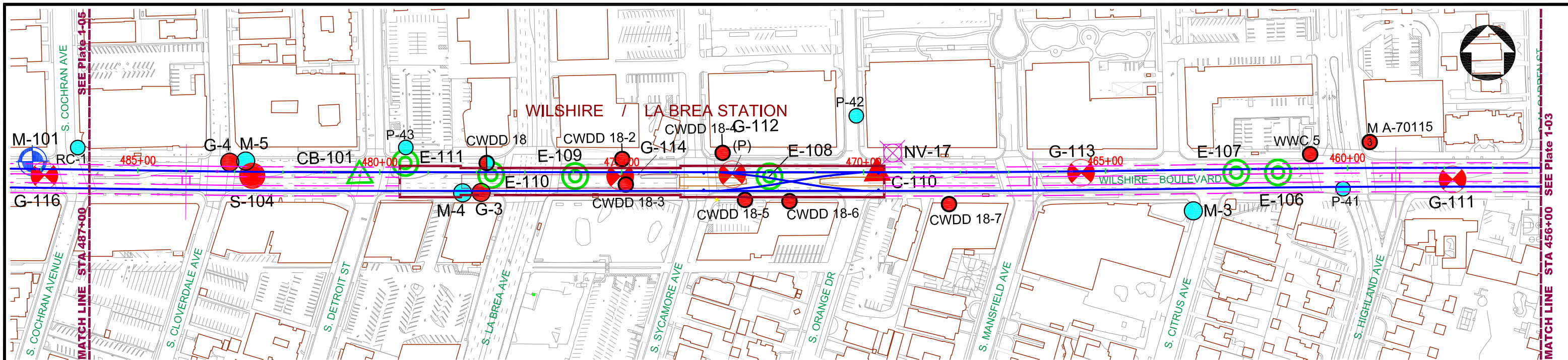

 PROJECT MANAGER _____

**WESTSIDE SUBWAY EXTENSION
 PRELIMINARY ENGINEERING
 BORING PLAN AND GEOLOGIC PROFILE**

STATION 426+00 to 457+00


CONTRACT NO	REV
DRAWING NO Plate 1-03	
SCALE AS NOTED	
SHEET NO	

FILE NAME: C:\Users\LA\Morley\Documents\CAD\4953-11-1421_WSE\4953-11-1421_P&P-Plates\11.11.dwg [03] DATE: December 07, 2011 TIME: 1:49 PM



REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION

DESIGNED BY
ELLIOTT / MUNRO
 DRAWN BY
L. MORLEY
 CHECKED BY
JAG / HP
 IN CHARGE
MBH / PM
 DATE
12/02/2011


Metro
 LOS ANGELES COUNTY
 METROPOLITAN TRANSPORTATION AUTHORITY
 PROJECT MANAGER _____

WESTSIDE SUBWAY EXTENSION
 PRELIMINARY ENGINEERING
 BORING PLAN AND GEOLOGIC PROFILE
 STATION 456+00 TO 487+00

CONTRACT NO	
DRAWING NO	Plate 1-04
SCALE	AS NOTED
SHEET NO	

FILE NAME: C:\Users\LAMorley\Documents\CAD\4953-11-1421_WSE\4953-11-1421_P&P-Plates\11.dwg [04] DATE: December 07, 2011 TIME: 4:52 PM