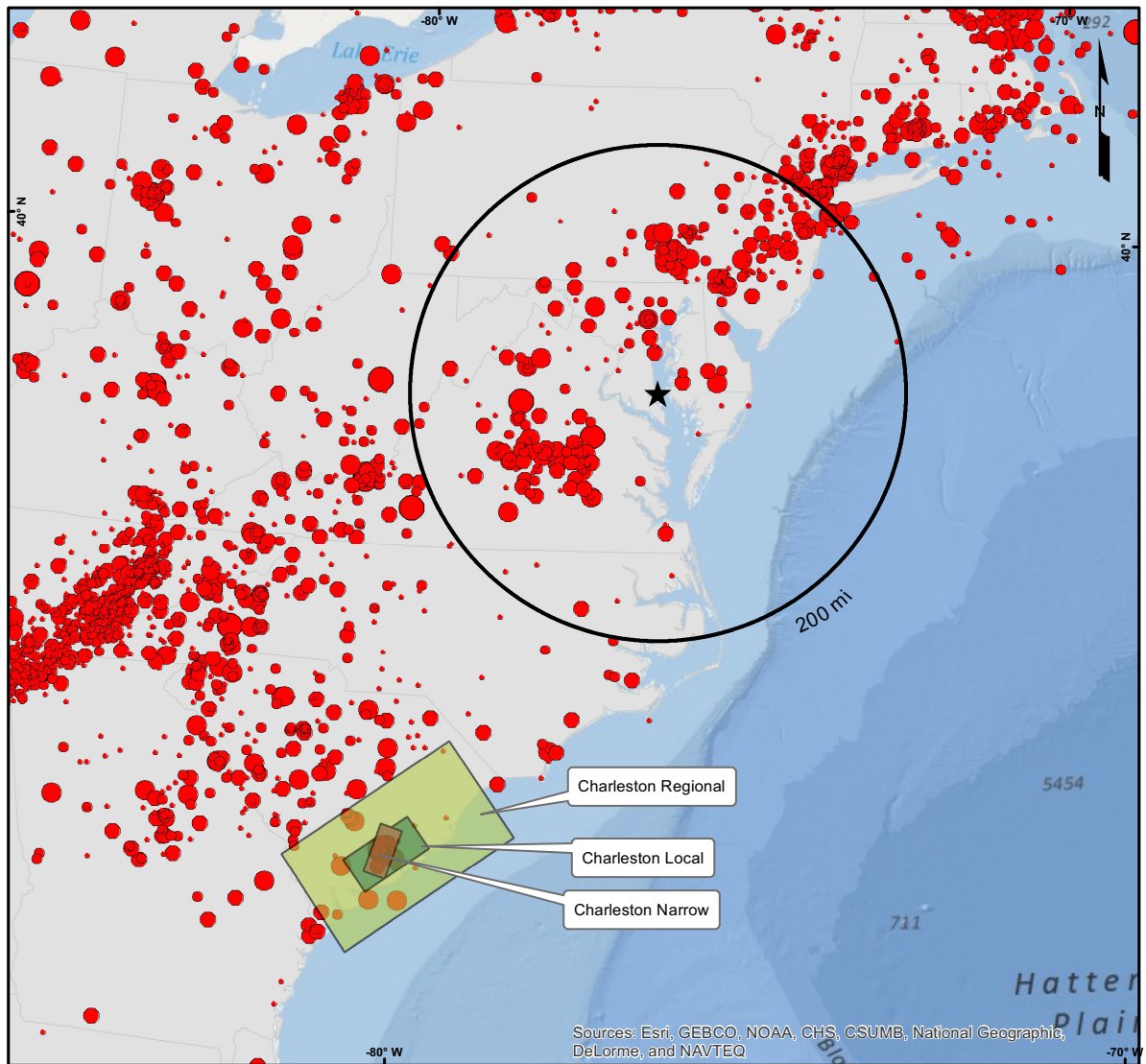


Figure 2.5-55 — {Alternative geometries of Charleston RLME Source}



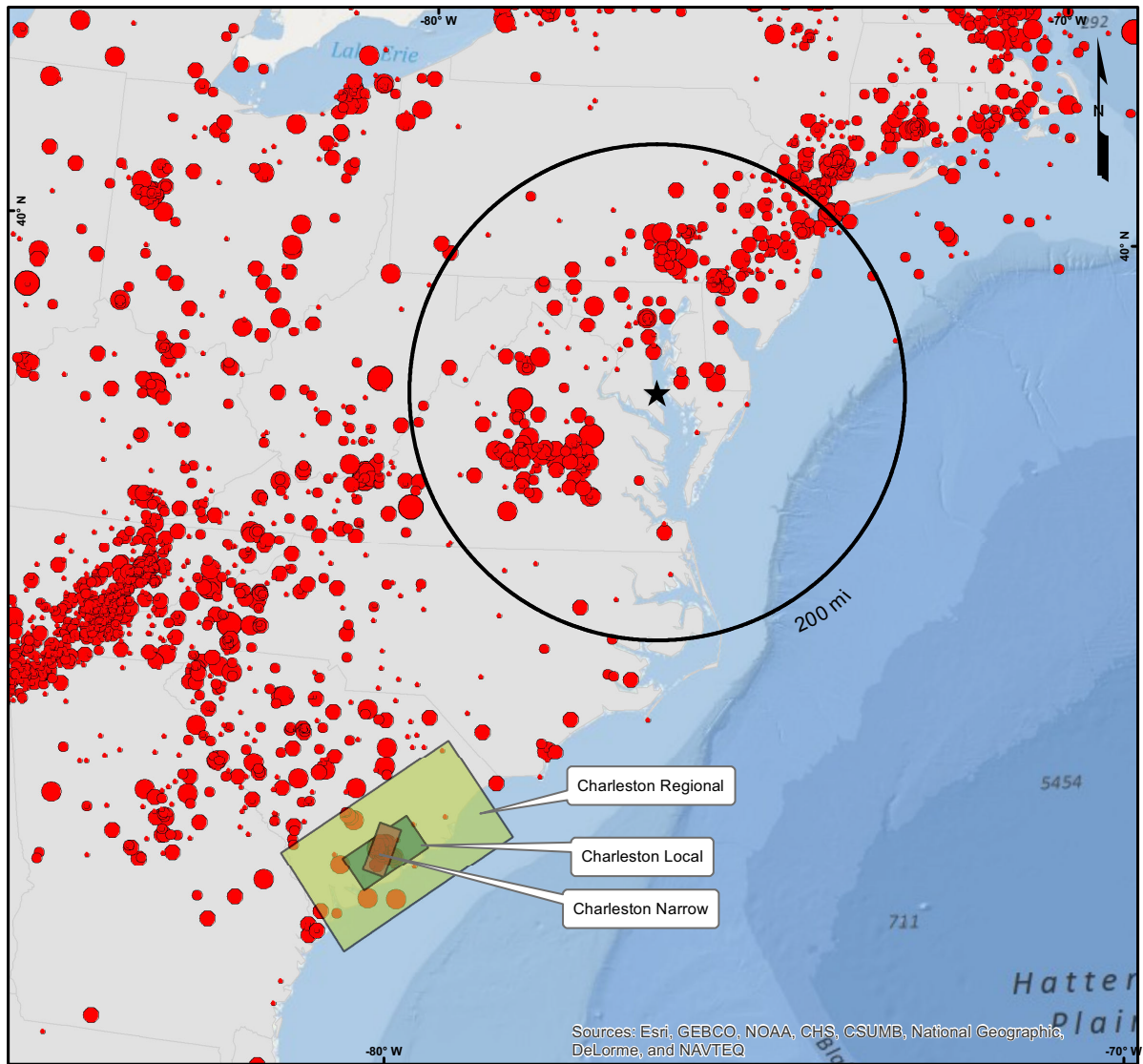
Legend

- | | |
|-------------------------|-------------|
| ★ Site | |
| □ 200-mile Radius | |
| ■ Charleston - Local | • 2.2 - 2.7 |
| ■ Charleston - Narrow | • 2.8 - 3.1 |
| ■ Charleston - Regional | • 3.2 - 3.8 |
| | • 3.9 - 4.8 |
| | • ≥4.9 |
- Earthquake Magnitude (E[M])** DATUM: WGS84

Reference(s):
1. EPR/DOE/NRC (2012)

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Figure 2.5-56 — {New Madrid Fault System RLME Source}



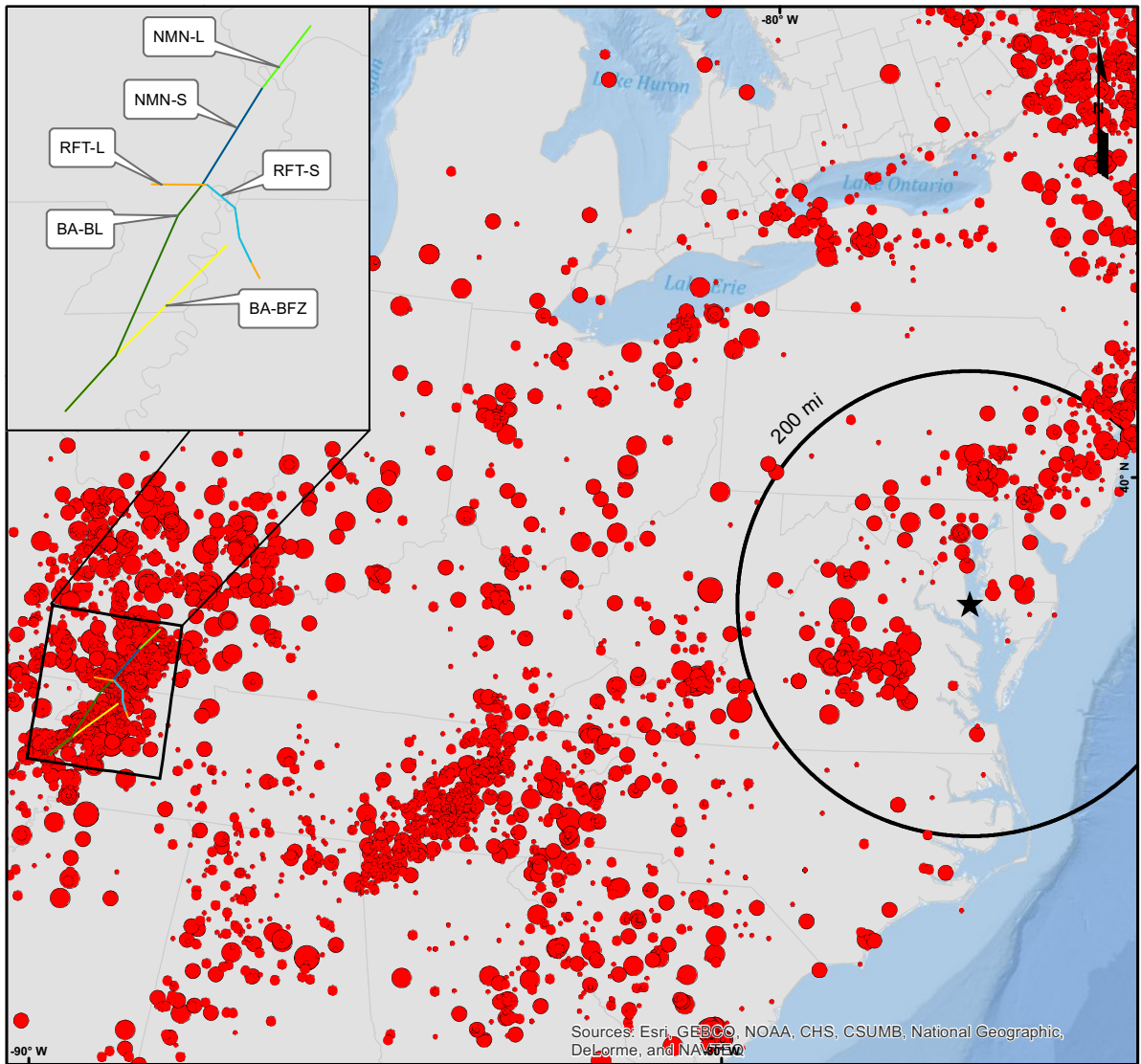
Legend

- ★ Site
 - 200-mile Radius
 - Charleston - Local
 - Charleston - Narrow
 - Charleston - Regional
- | Earthquake Magnitude (E[M]) | |
|-----------------------------|-----------|
| DATUM: WGS84 | |
| ● | 2.2 - 2.7 |
| ● | 2.8 - 3.1 |
| ● | 3.2 - 3.8 |
| ● | 3.9 - 4.8 |
| ● | >=4.9 |

Reference(s):
1. EPRI/DOE/NRC (2012)

09-4179-GIS-A013

Figure 2.5-57 — (Eastern Rift Margin, Wabash Valley, Marianna, and Commerce RLMes}



DATUM: NAD 83

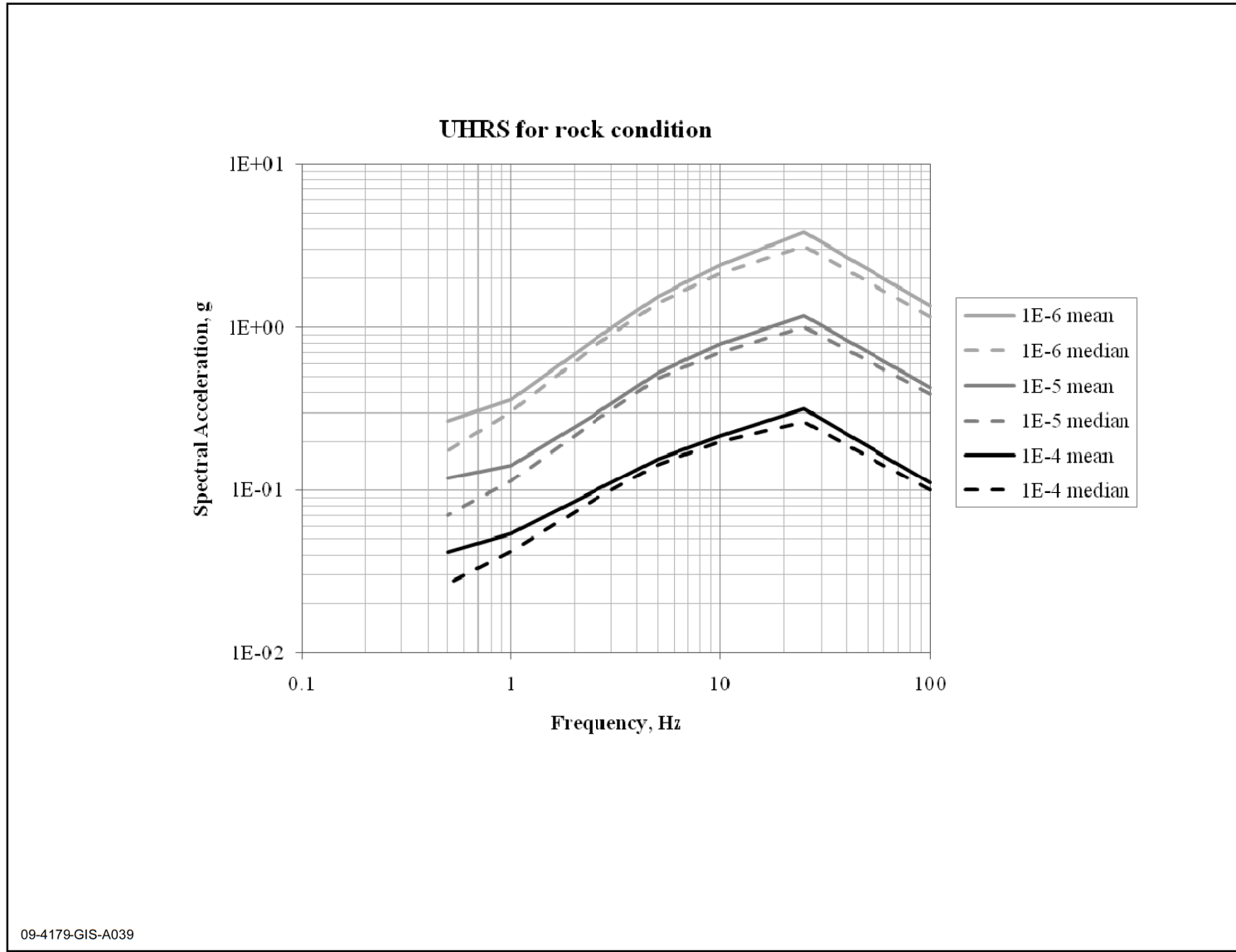
Legend

- ★ Site
 - Fault**
 - NMN Extended: NMN-L
 - NMN Short: NMN-S
 - NMS: BA-BFZ
 - NMS: BA-BL
 - RFT Extended: RFT-L
 - RFT Short: RFT-S
- | Earthquake Magnitude (E[M]) | |
|-----------------------------|-----------|
| • | 2.2 - 2.7 |
| • | 2.8 - 3.1 |
| • | 3.2 - 3.8 |
| • | 3.9 - 4.8 |
| • | >=4.9 |
- 200 Mile Radius

Reference(s):
1. EPRI/DOE/NRC (2012)

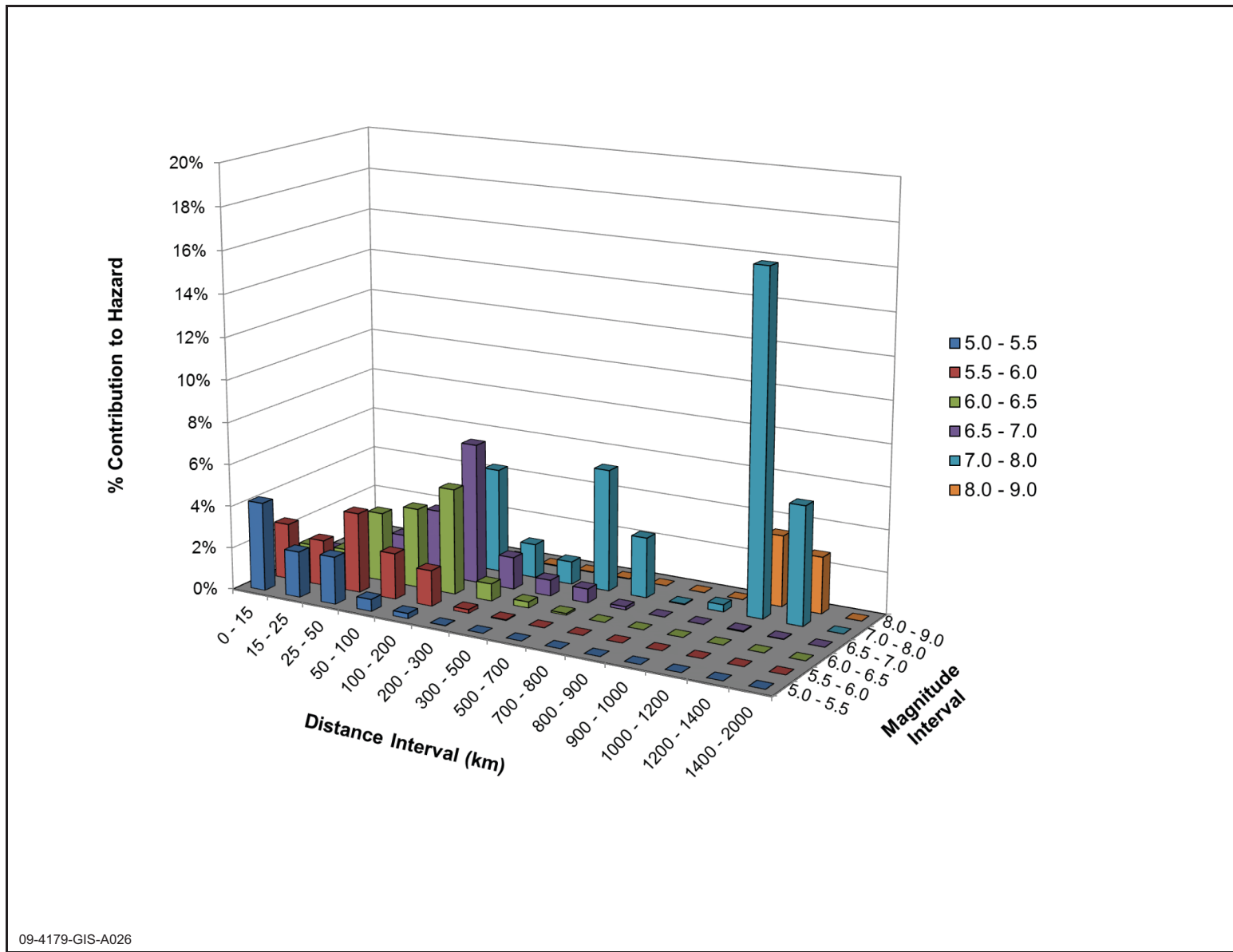
09-4179-GIS-A016

Figure 2.5-58 — Uniform Hazard Spectra for Rock Conditions at Seven Structural Frequencies for which Ground Motion Equations are Available



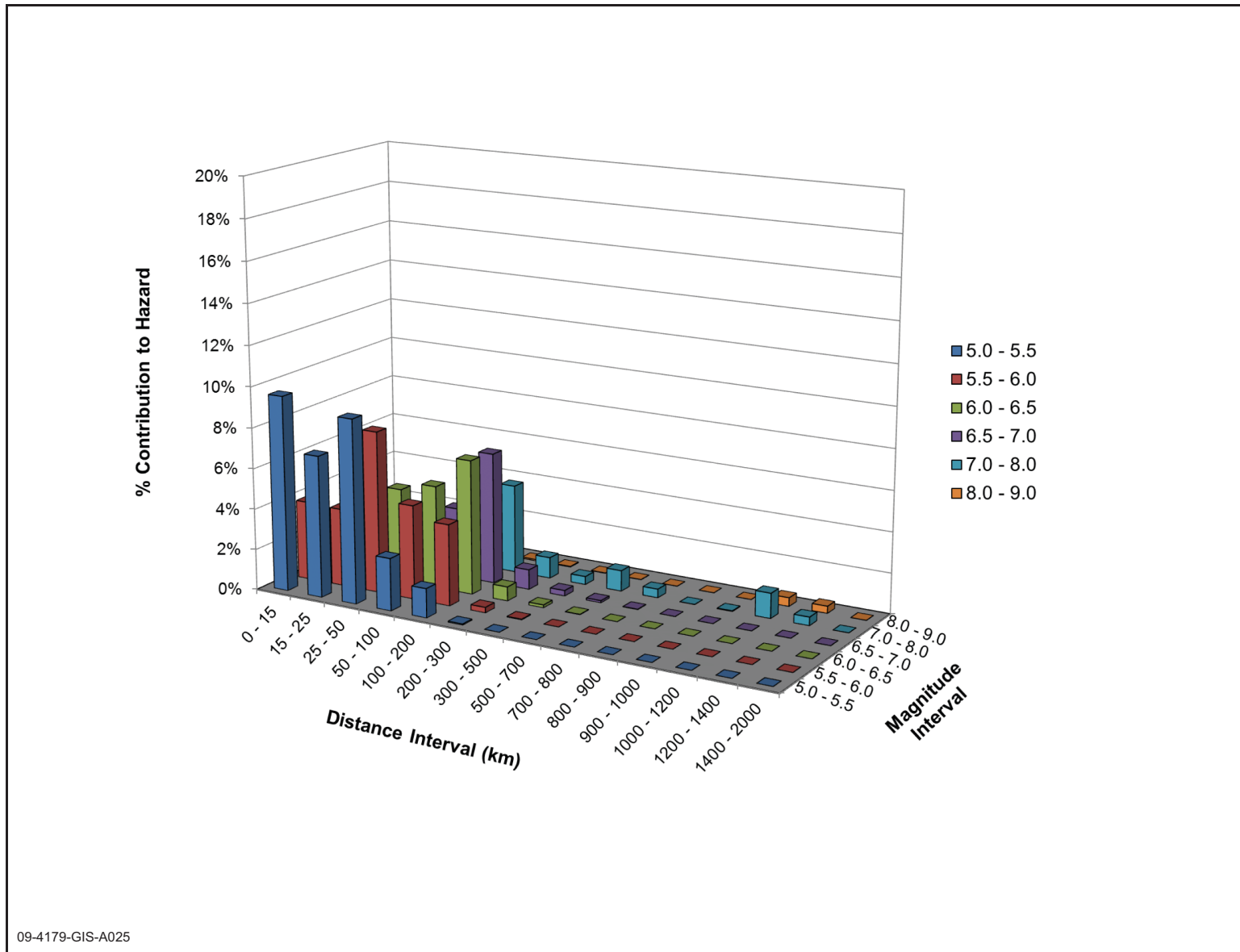
09-4179-GIS-A039

Figure 2.5-59 — {Mean 10-4 Rock Deaggregation for 1 and 2.5Hz}



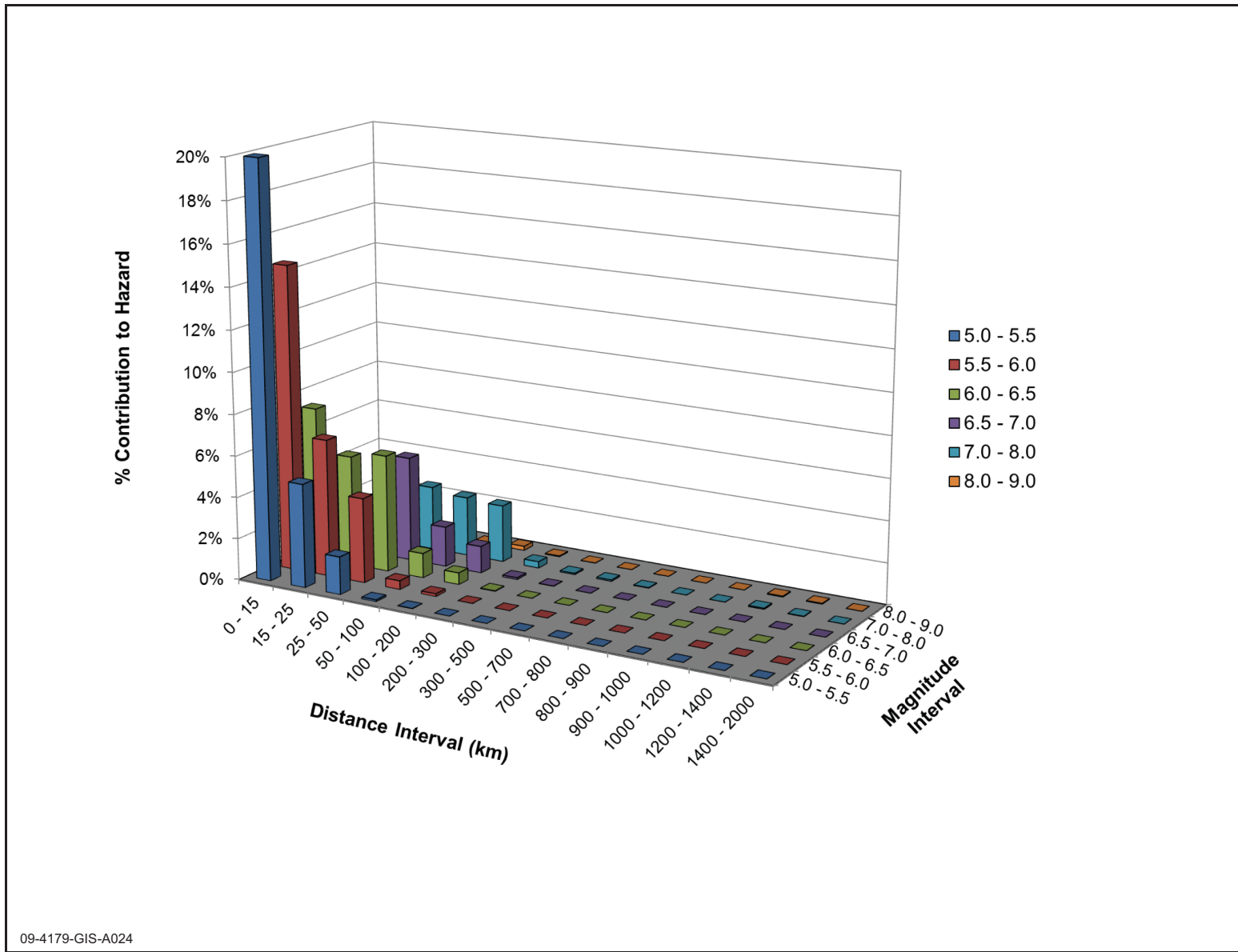
09-4179-GIS-A026

Figure 2.5-60 — {Mean 10-4 Rock Deaggregation for 5 and 10 Hz}



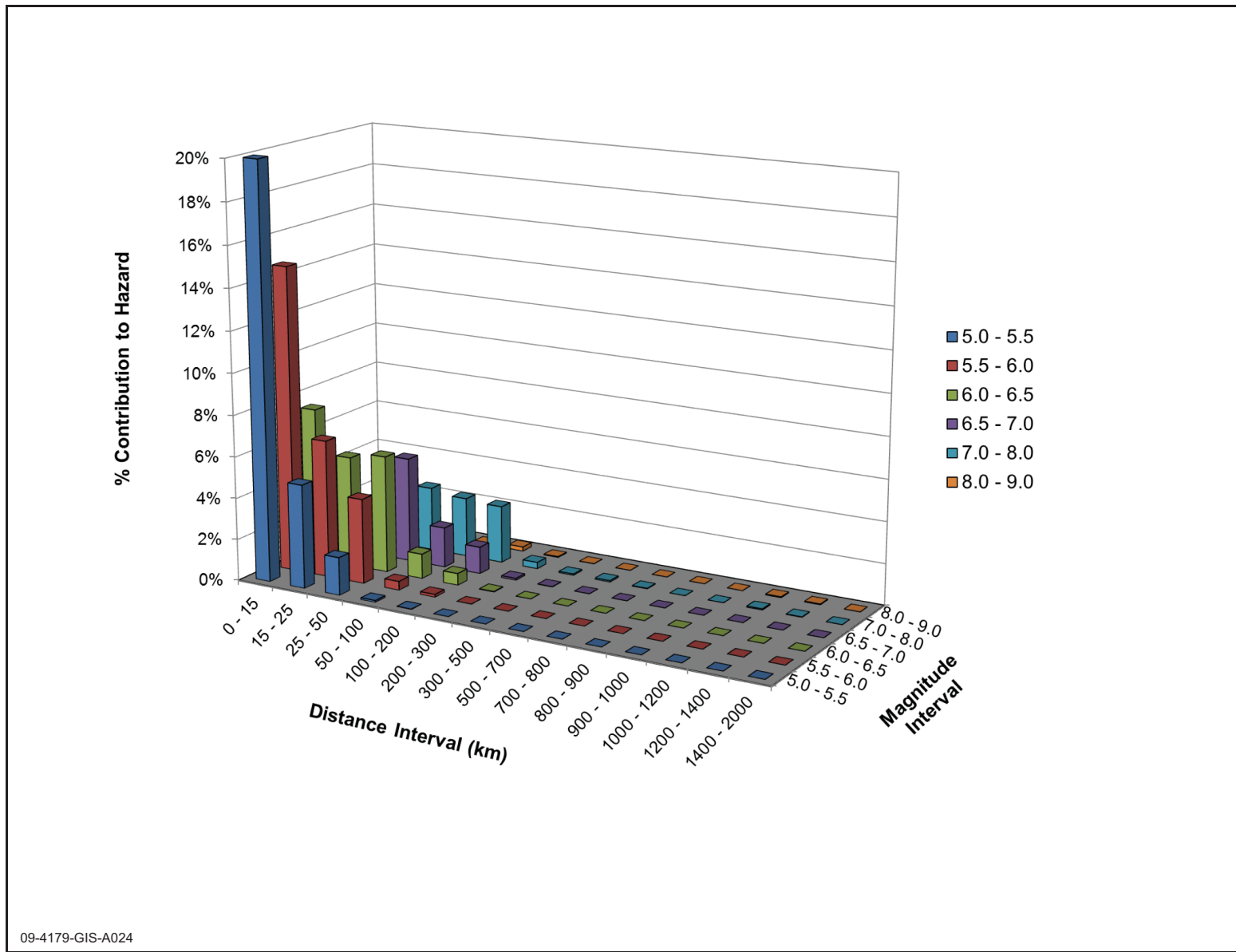
09-4179-GIS-A025

Figure 2.5-61 — {Mean 10-5 Rock Deaggregation for 1 and 2.5 Hz}



09-4179-GIS-A024

Figure 2.5-62 — {Mean 10-5 Rock Deaggregation for 5 and 10 Hz}



09-4179-GIS-A024

Figure 2.5-63 — {10-4 Rock UHS Values and Smooth Spectra Fit to HF and LF Spectral Shapes}

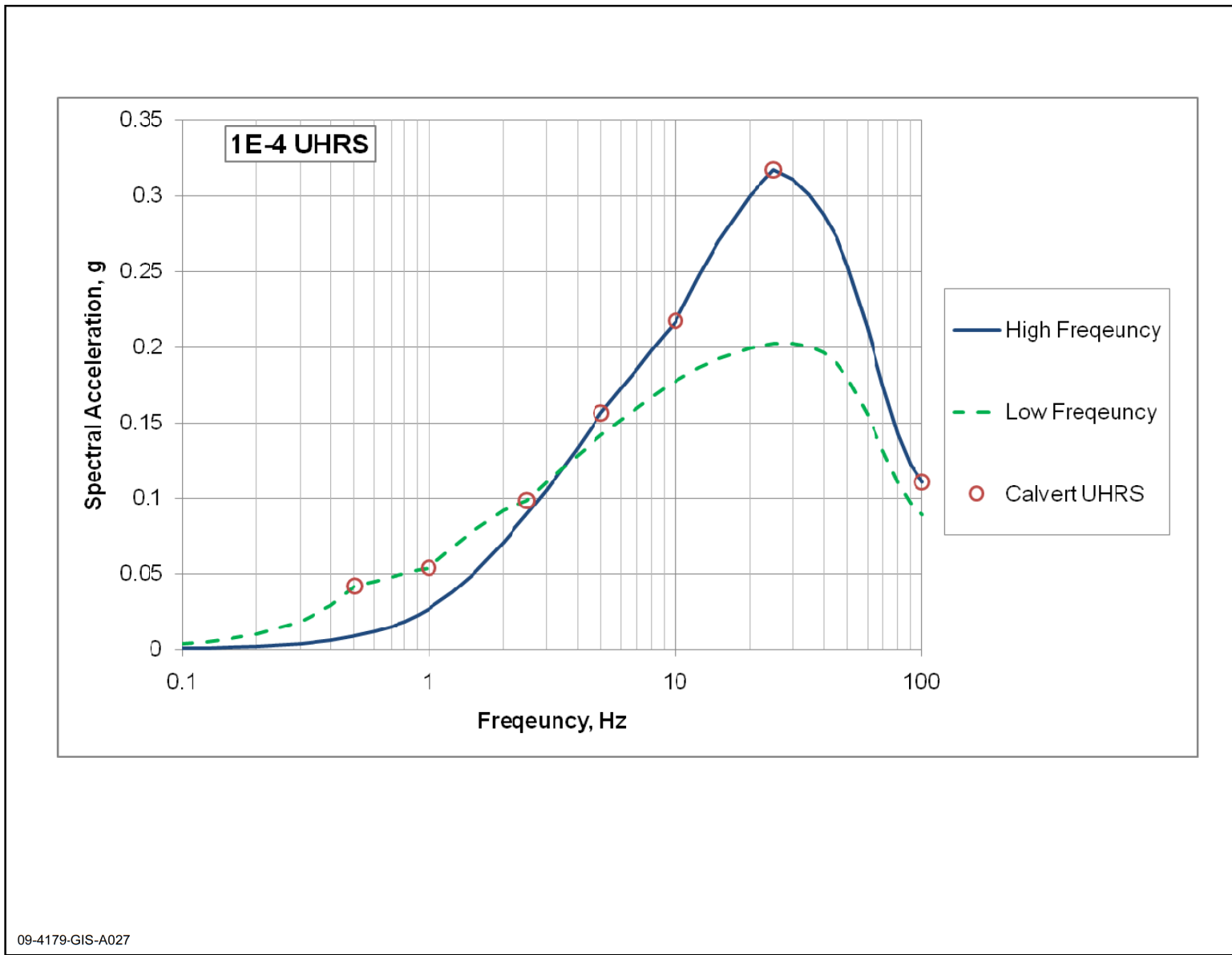
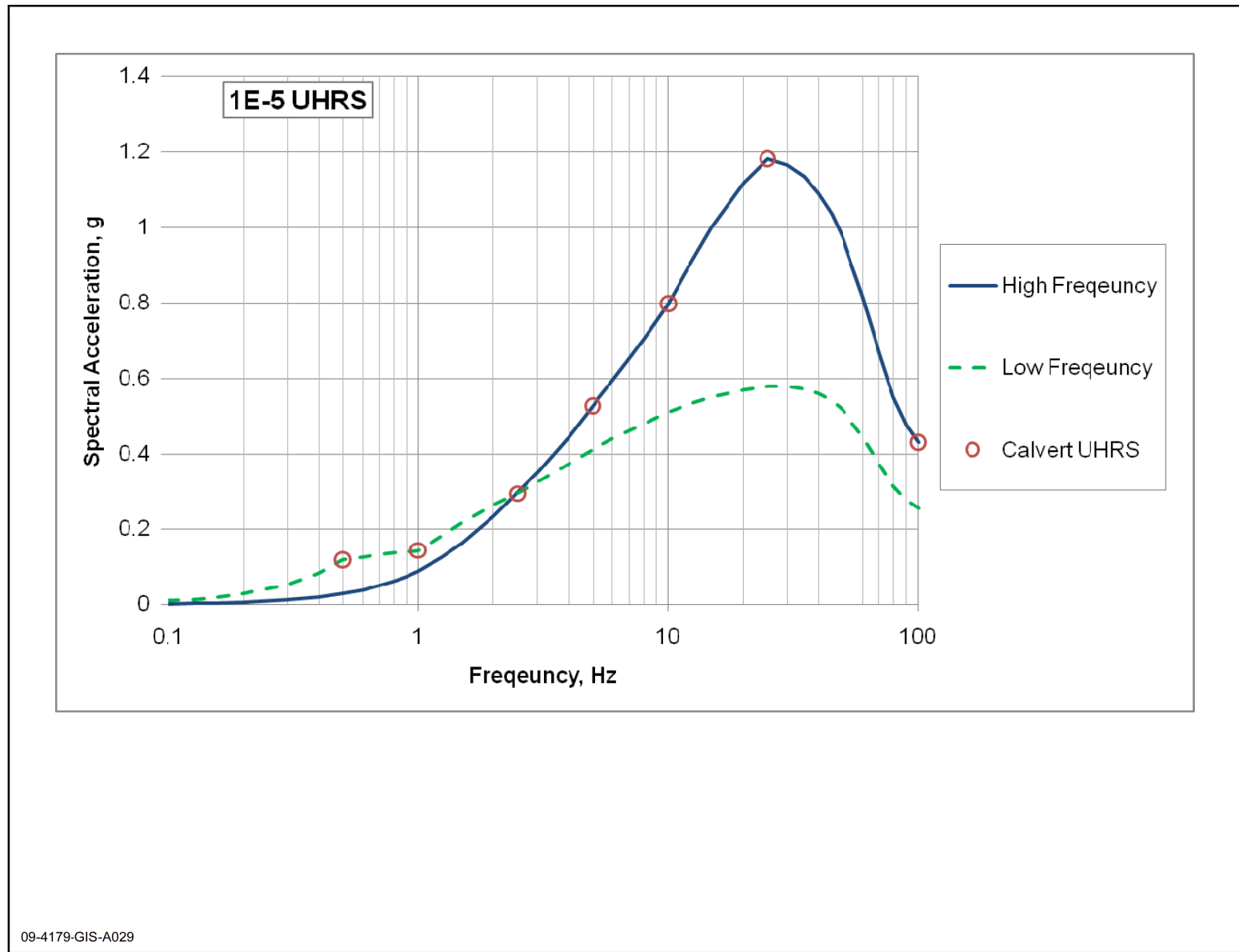
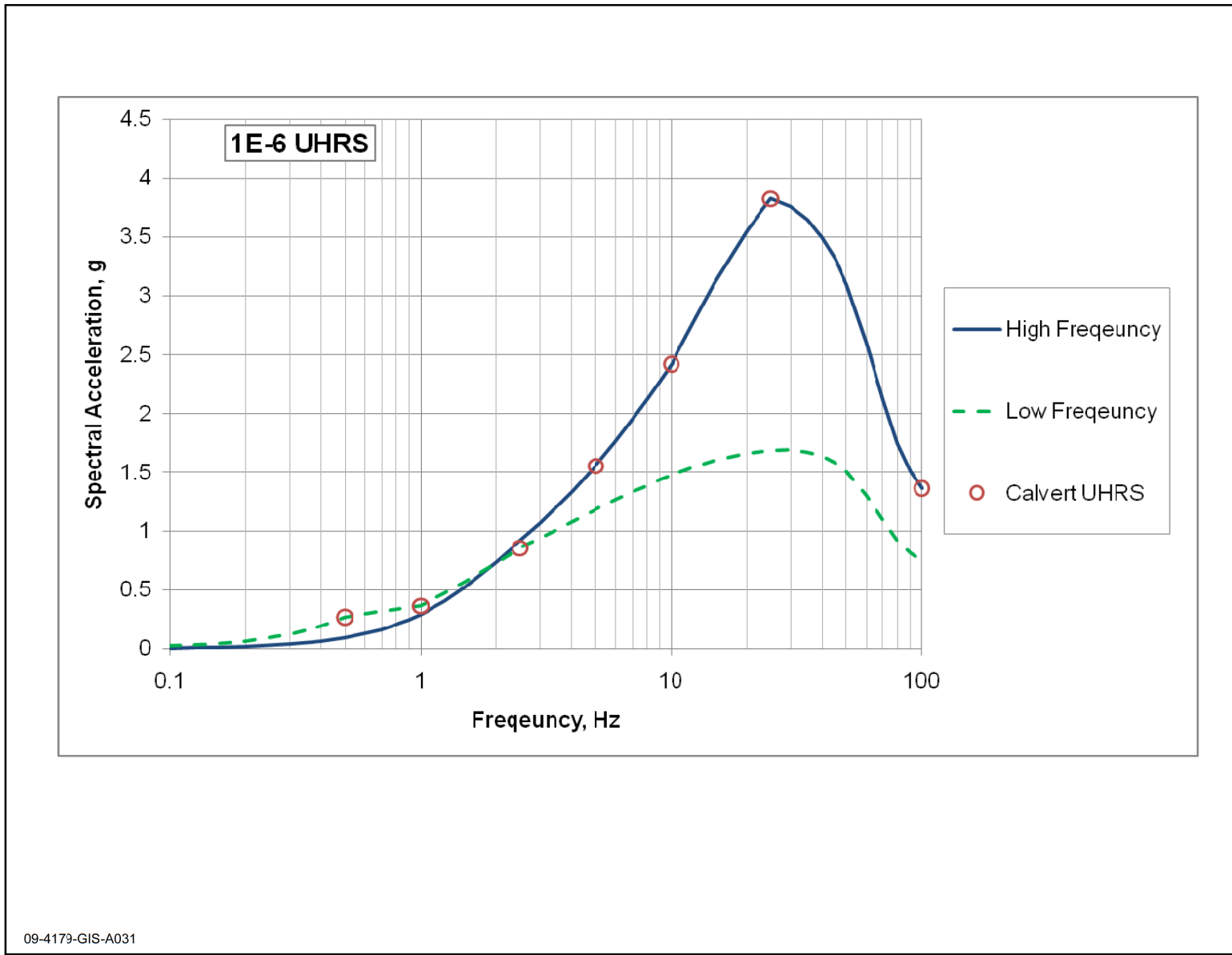


Figure 2.5-64 — {10-5 Rock UHS Values and Smooth Spectra Fit to HF and LF Spectral Shapes}



09-4179-GIS-A029

Figure 2.5-65 — {10-6 Rock UHS Values and Smooth Spectra Fit to HF and LF Spectral Shapes}



09-4179-GIS-A031

Figure 2.5-66 — {Low-Strain Best Estimate (BE) Shear Wave Velocity Profile}

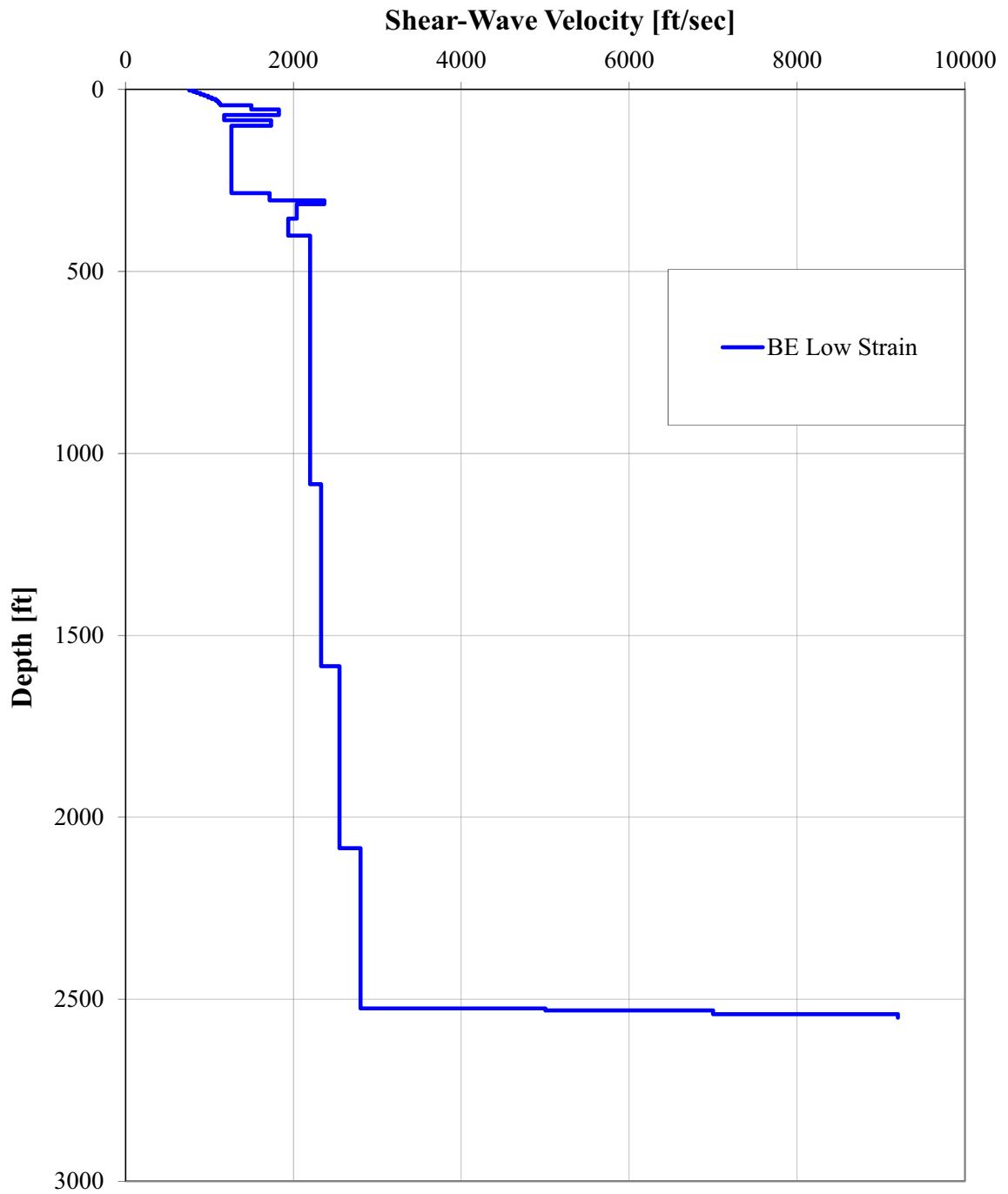


Figure 2.5-67 — {Log-Standard Deviation for Low-Strain Shear Wave Velocity Profile}

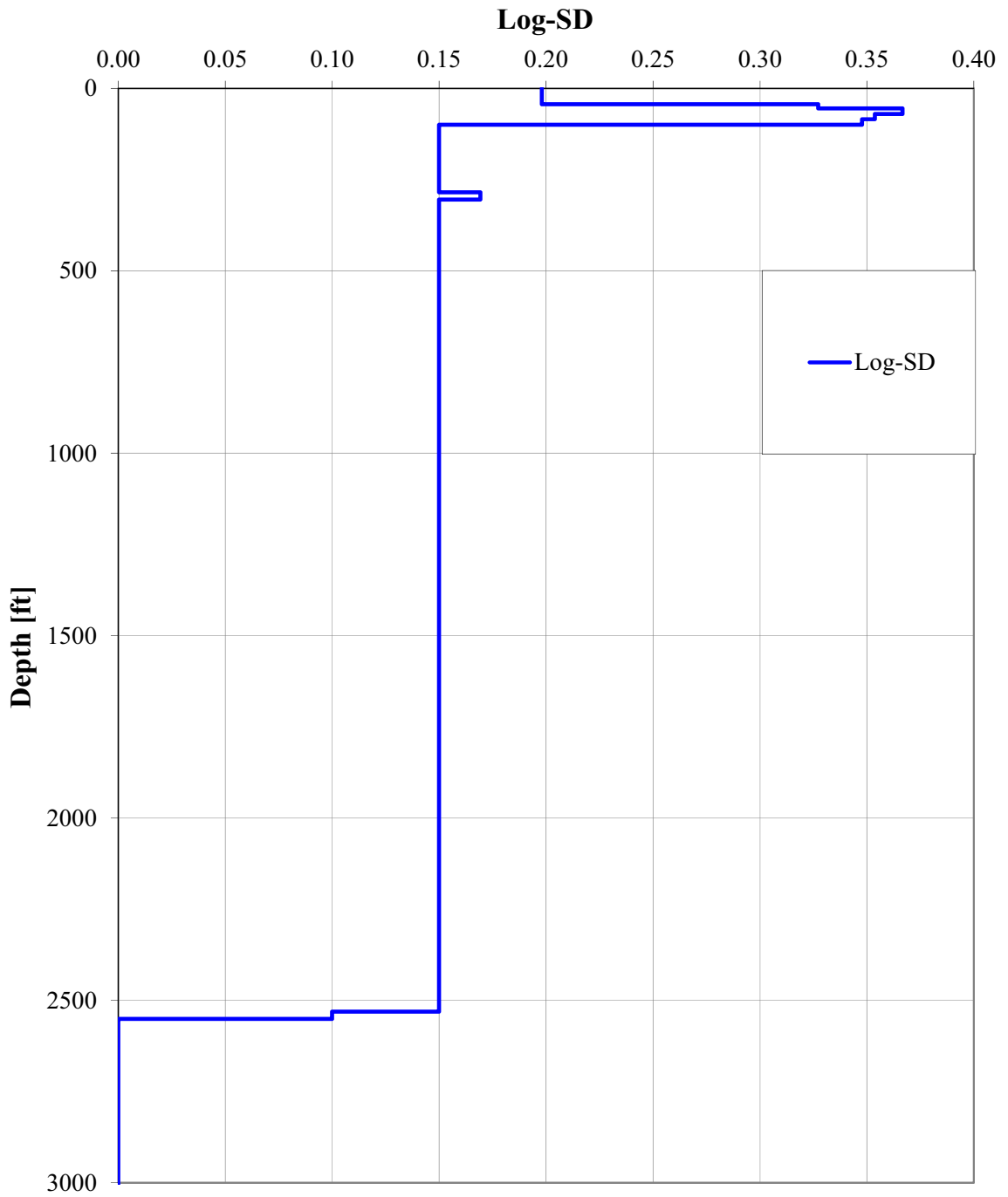


Figure 2.5-68 — {{Shear Wave Velocity for Simulated Profiles 1 to 10 – (Halfspace at first occurrence of Vs =9200 ft/sec)}

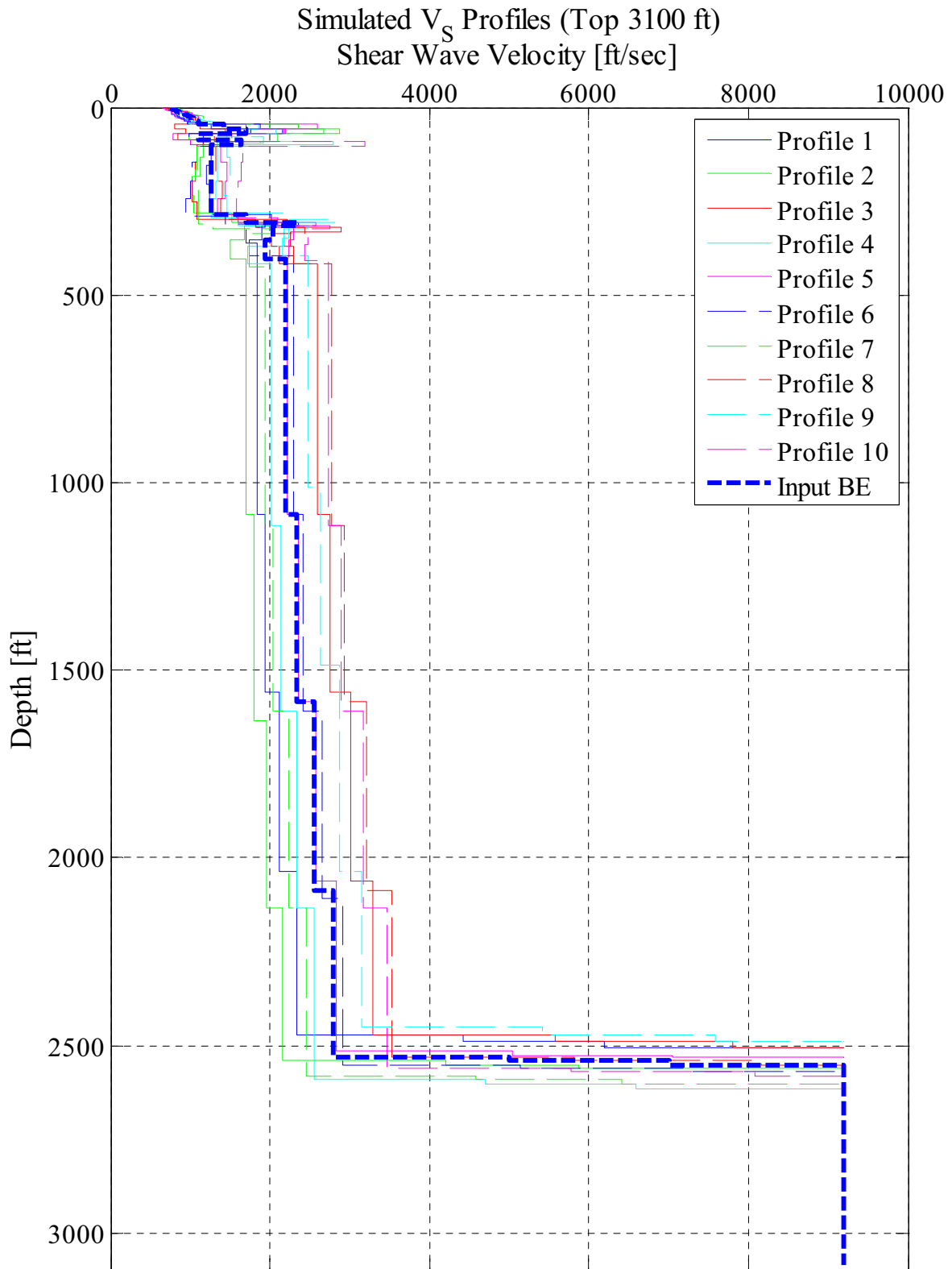


Figure 2.5-69 — Shear Wave Velocity for 60 Simulated Profiles – (Halfspace at first occurrence of $V_s = 9200$ ft/sec)

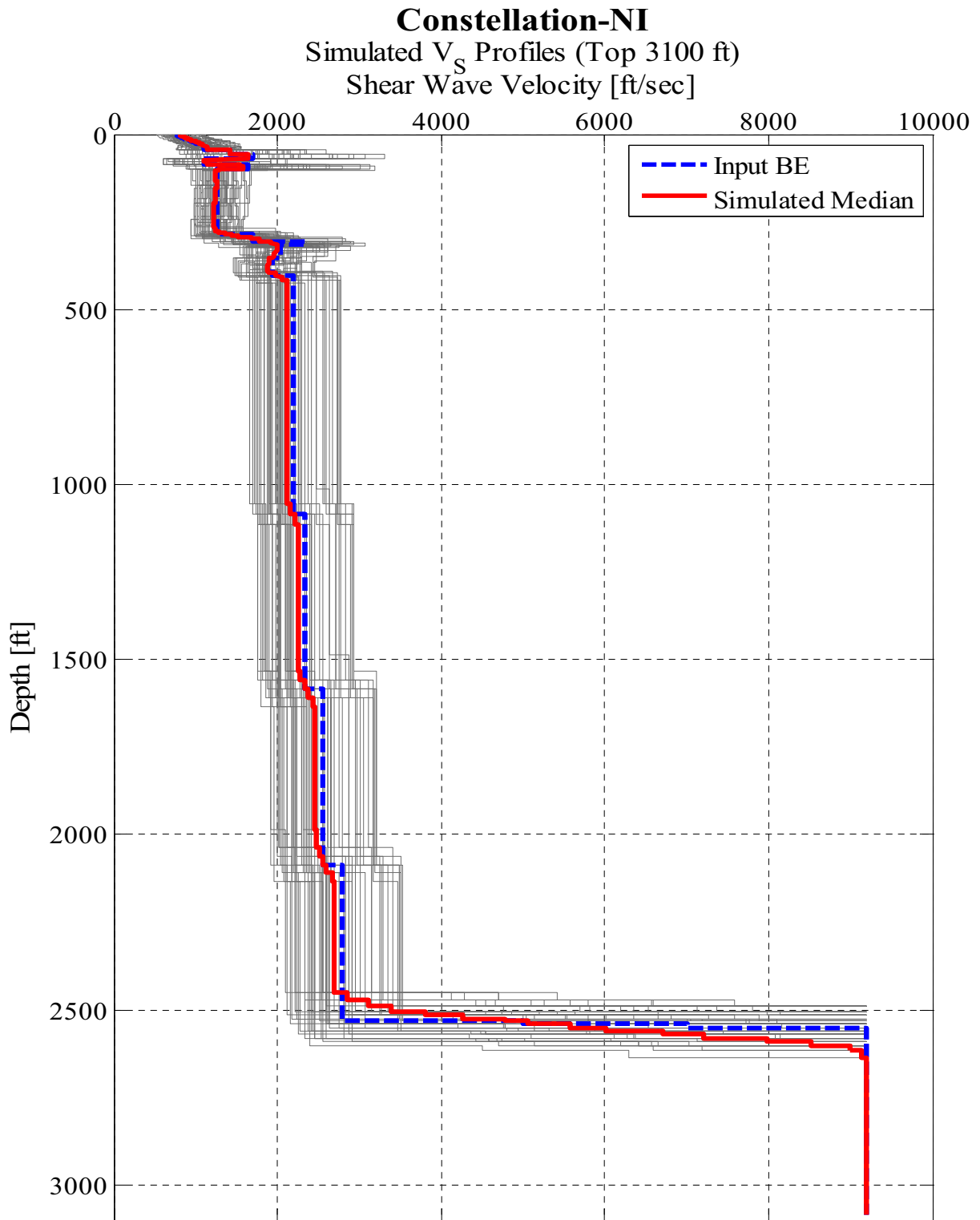


Figure 2.5-70 — {Fill 1 Shear Modulus Reduction Curves for 60 Simulated Profiles}

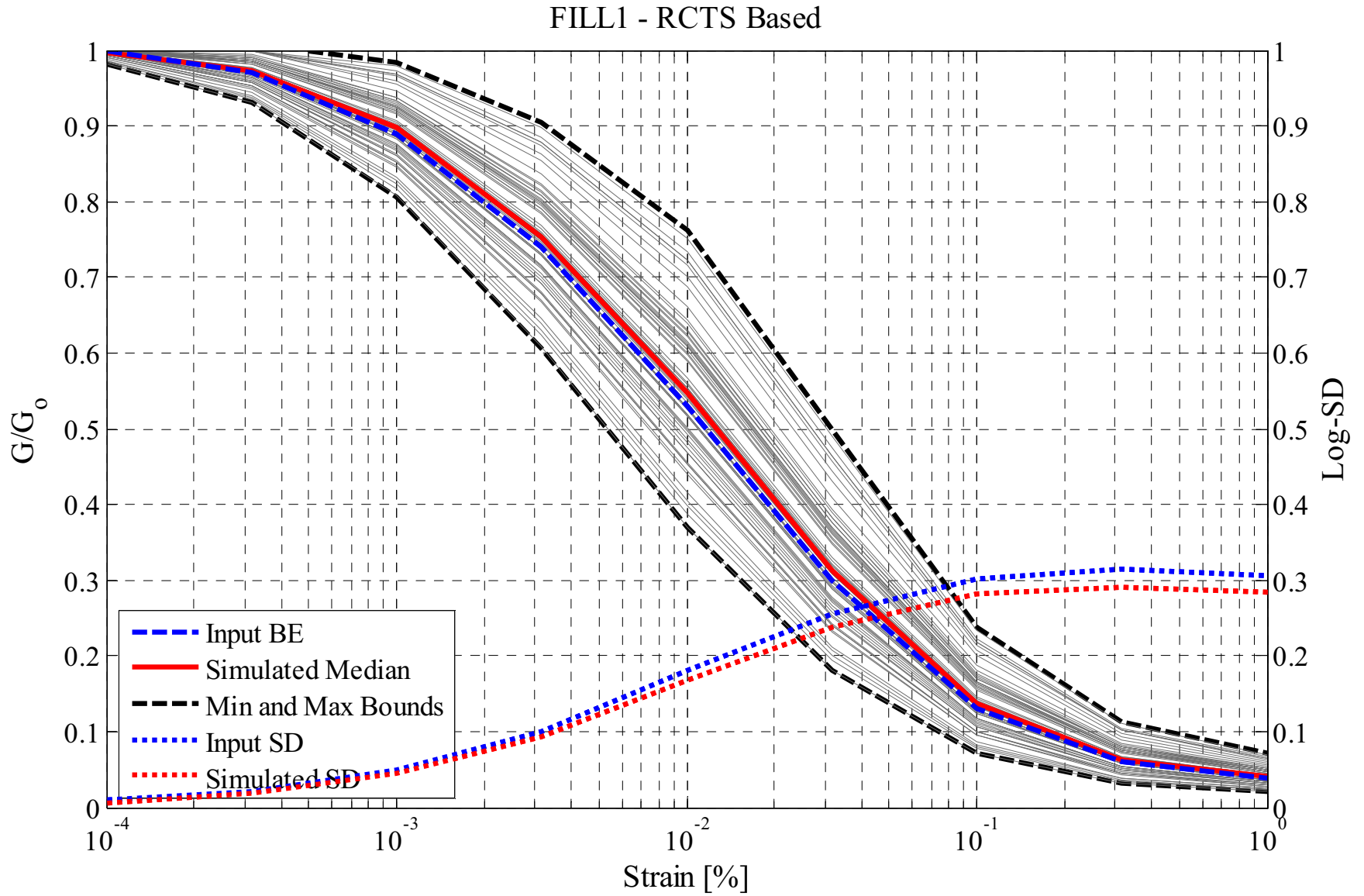


Figure 2.5-71 — {Fill 1 Damping Ratio Curves for 60 Simulated Profiles}

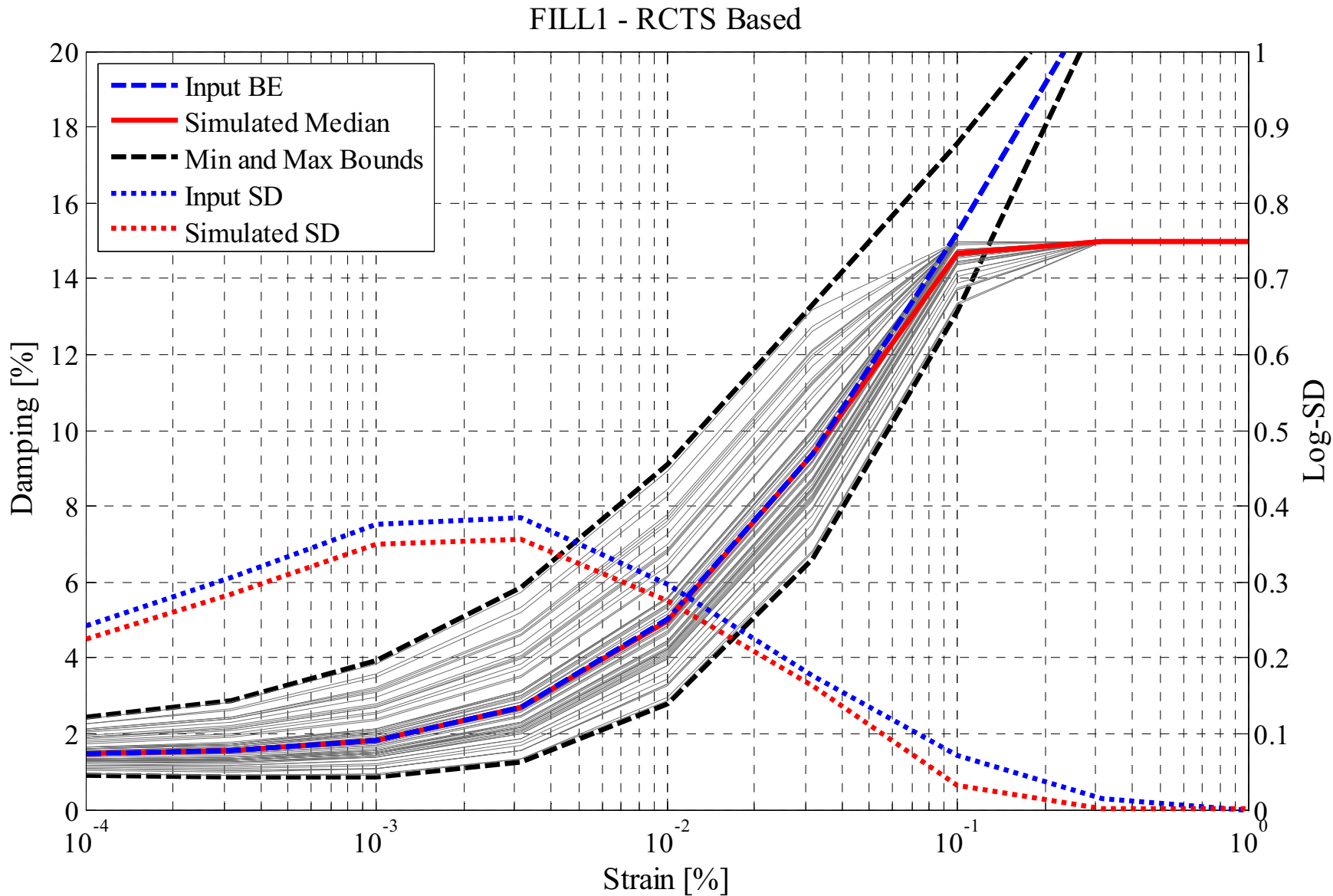


Figure 2.5-72 — {5% Damping ARS Amplification Functions – HF 1E-4}
 (Gray curves represent the individual profiles while the red curve represents the mean response)

Calvert Cliffs - GMRS Horizon - HF 1E-4

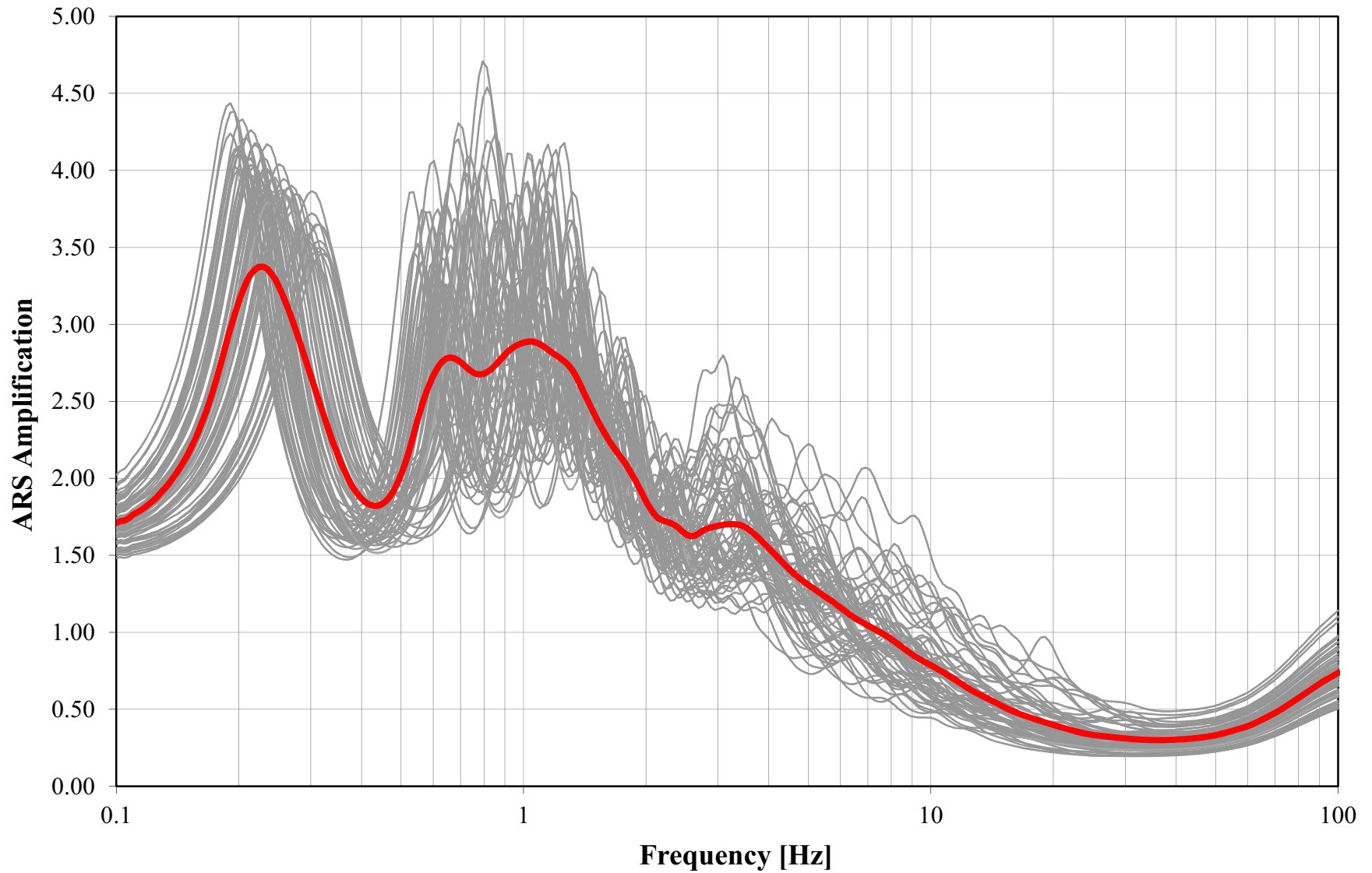


Figure 2.5-73 — {Maximum Shear Strain Profiles – HF 1E-4}
 (Gray curves represent the individual profile while the red curve represents the mean response)

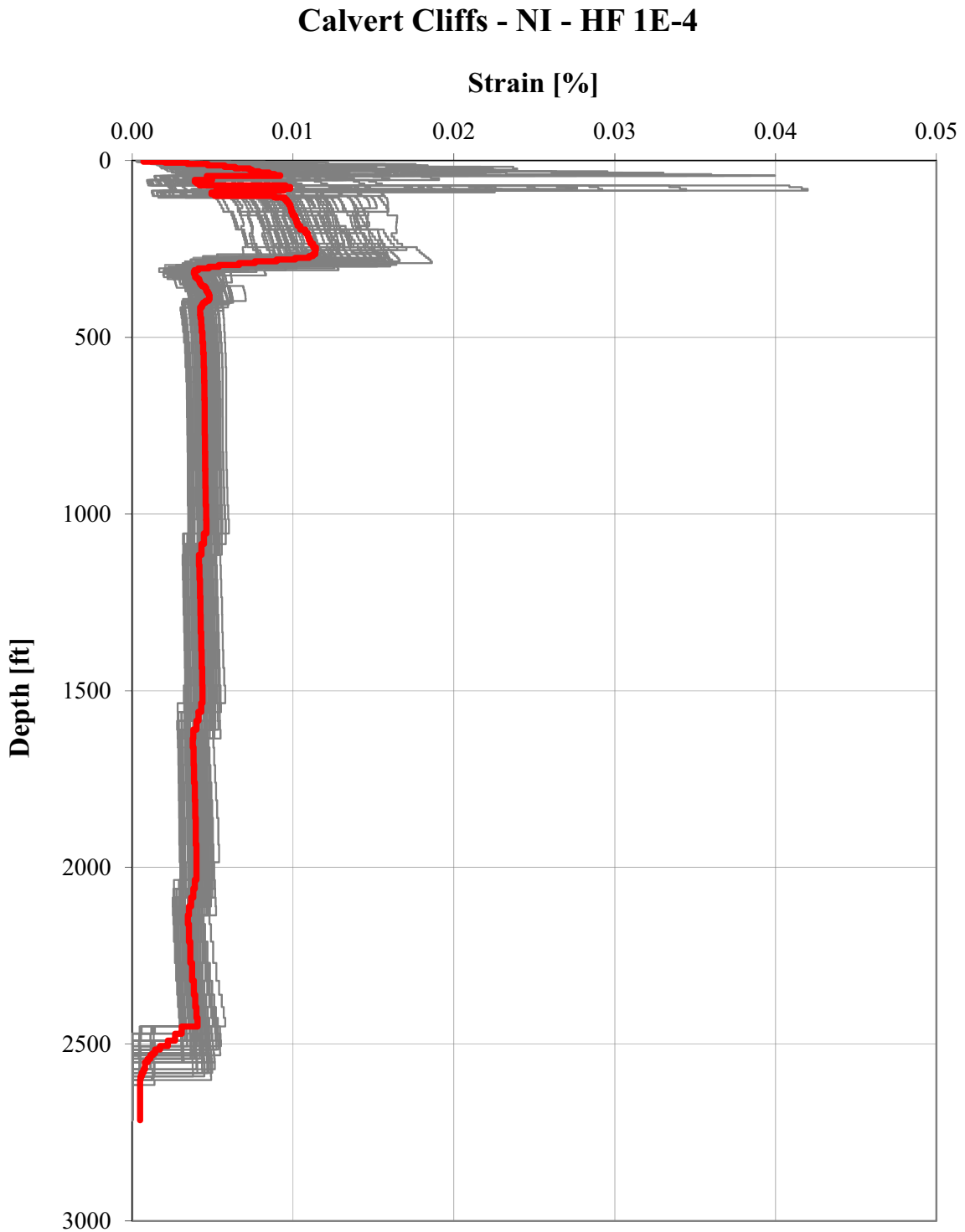


Figure 2.5-74 — {5% Damping ARS Amplification Functions – LF 1E-4}
(Gray curves represent the individual profiles while the red curve represents the mean response)

Calvert Cliffs - GMRS Horizon - LF 1E-4

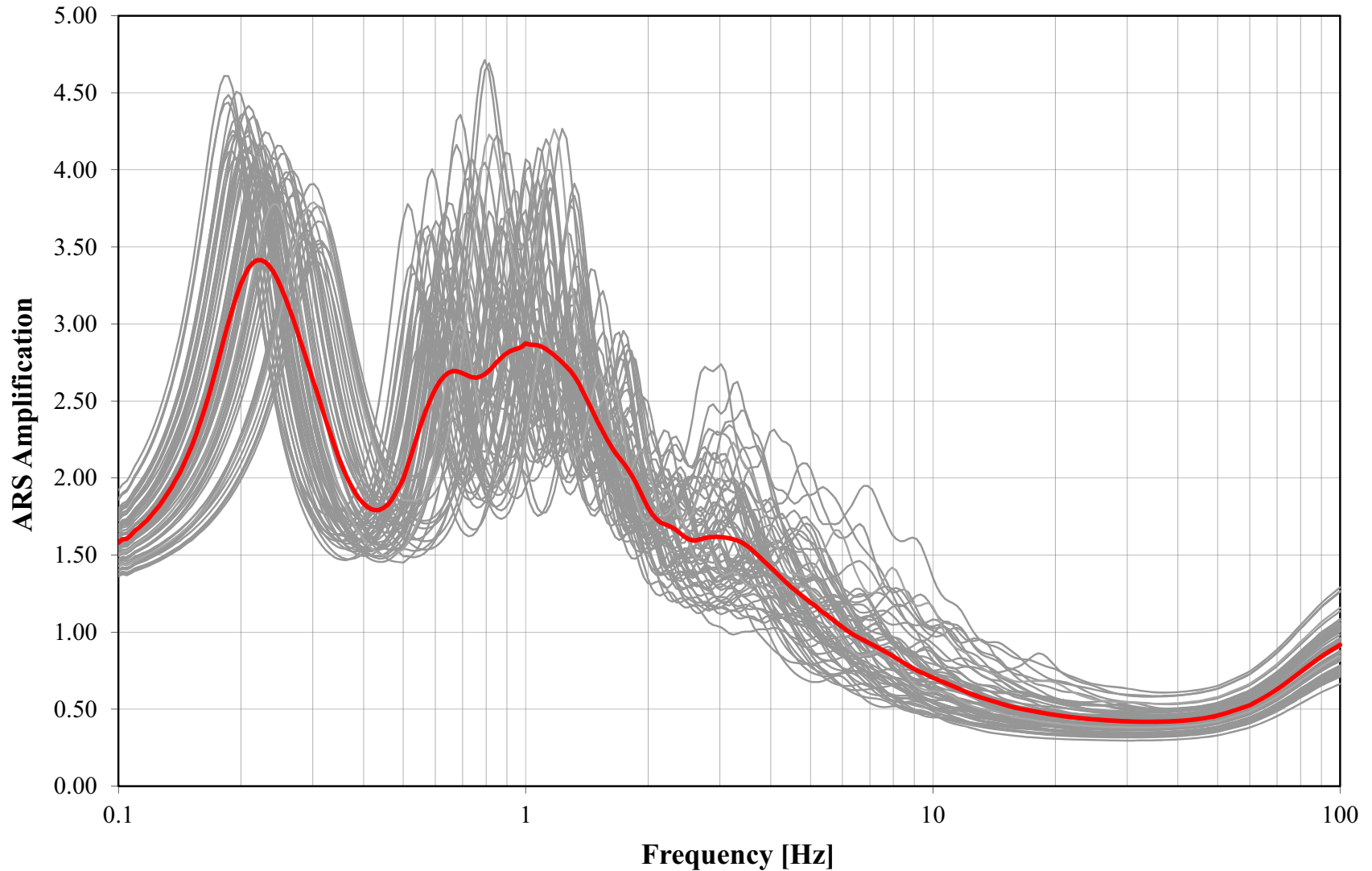


Figure 2.5-75 — {Maximum Shear Strain Profiles – LF 1E-4}
 (Gray curves represent the individual profile while the red curve represents the mean response)

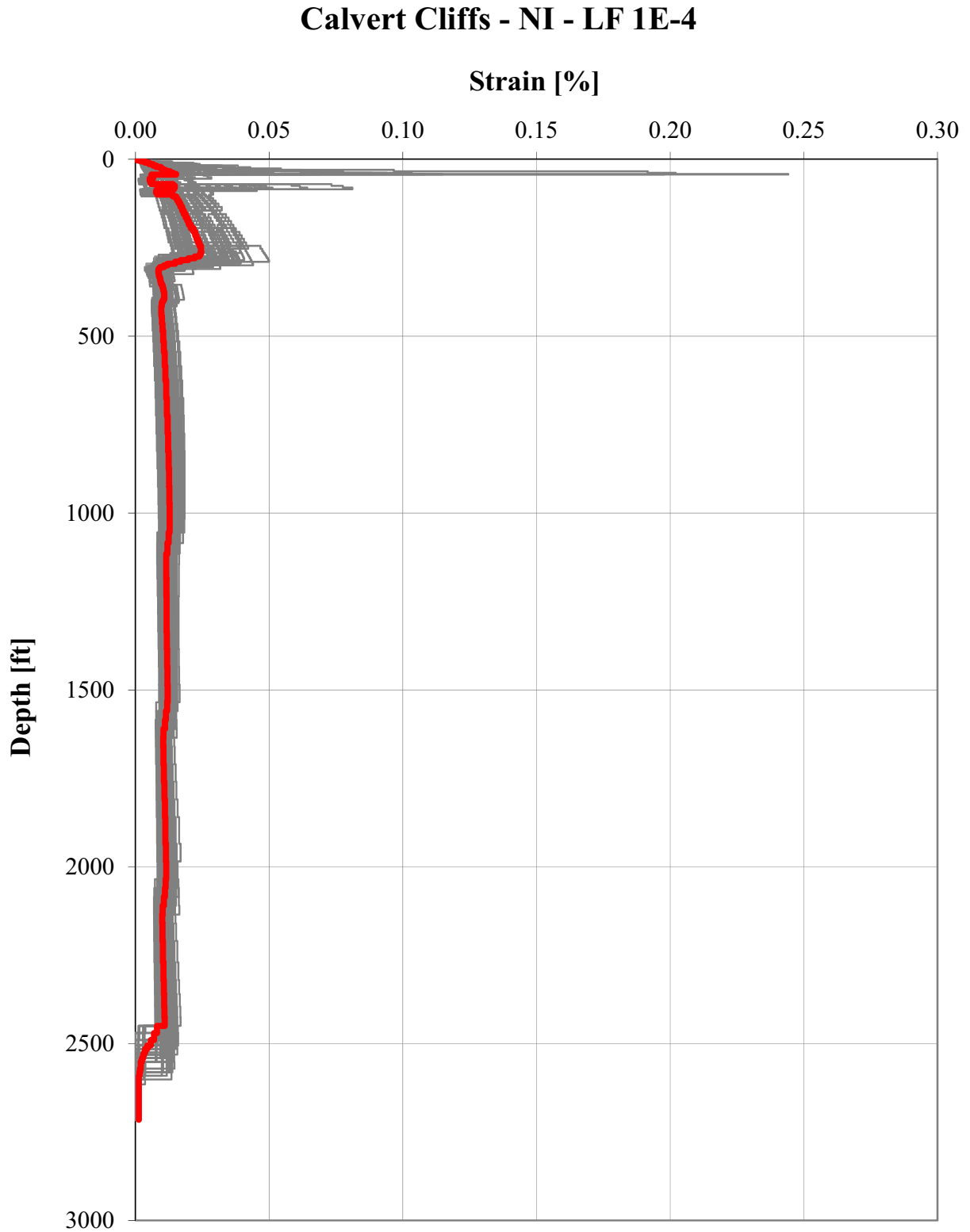


Figure 2.5-76 — {5% Damping ARS Amplification Functions – HF 1E-5}
 (Gray curves represent the individual profiles while the red curve represents the mean response)

Calvert Cliffs - GMRS Horizon - HF 1E-5

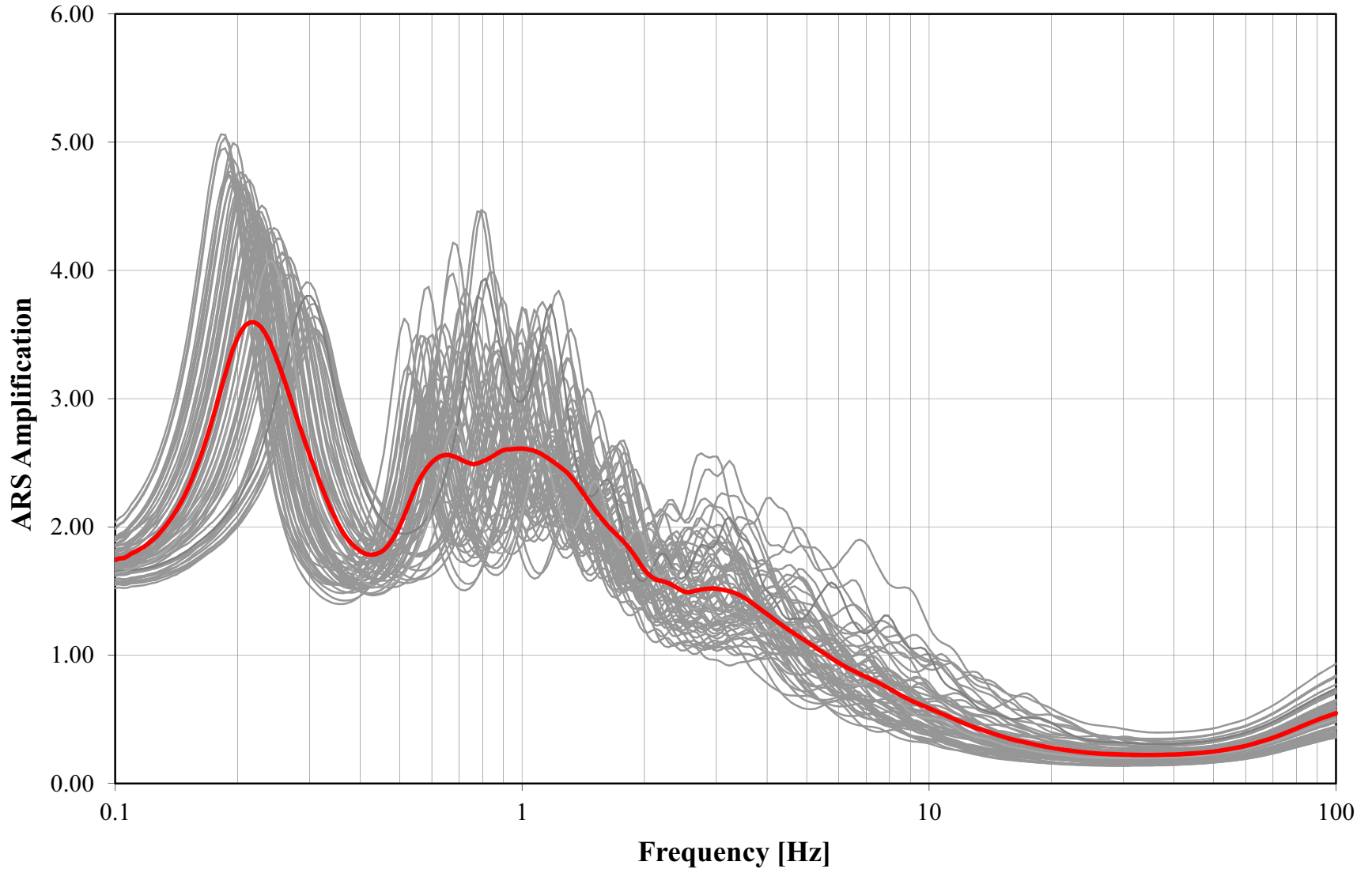


Figure 2.5-77 — {Maximum Shear Strain Profiles – HF 1E-5}
 (Gray curves represent the individual profile while the red curve represents the mean response)

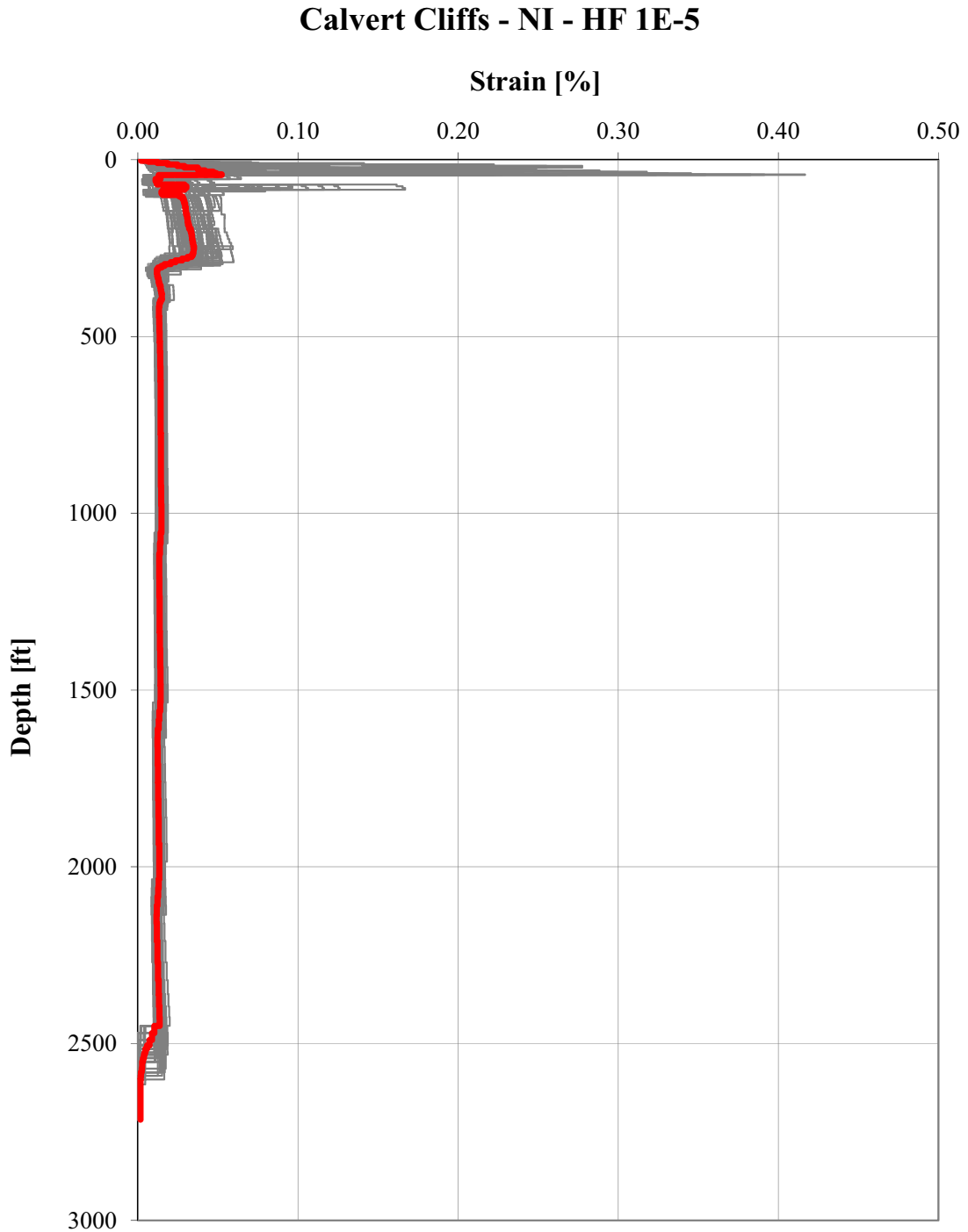


Figure 2.5-78 — {5% Damping ARS Amplification Functions – LF 1E-5}
(Gray curves represent the individual profiles while the red curve represents the mean response)

Calvert Cliffs - GMRS Horizon - HF 1E-5

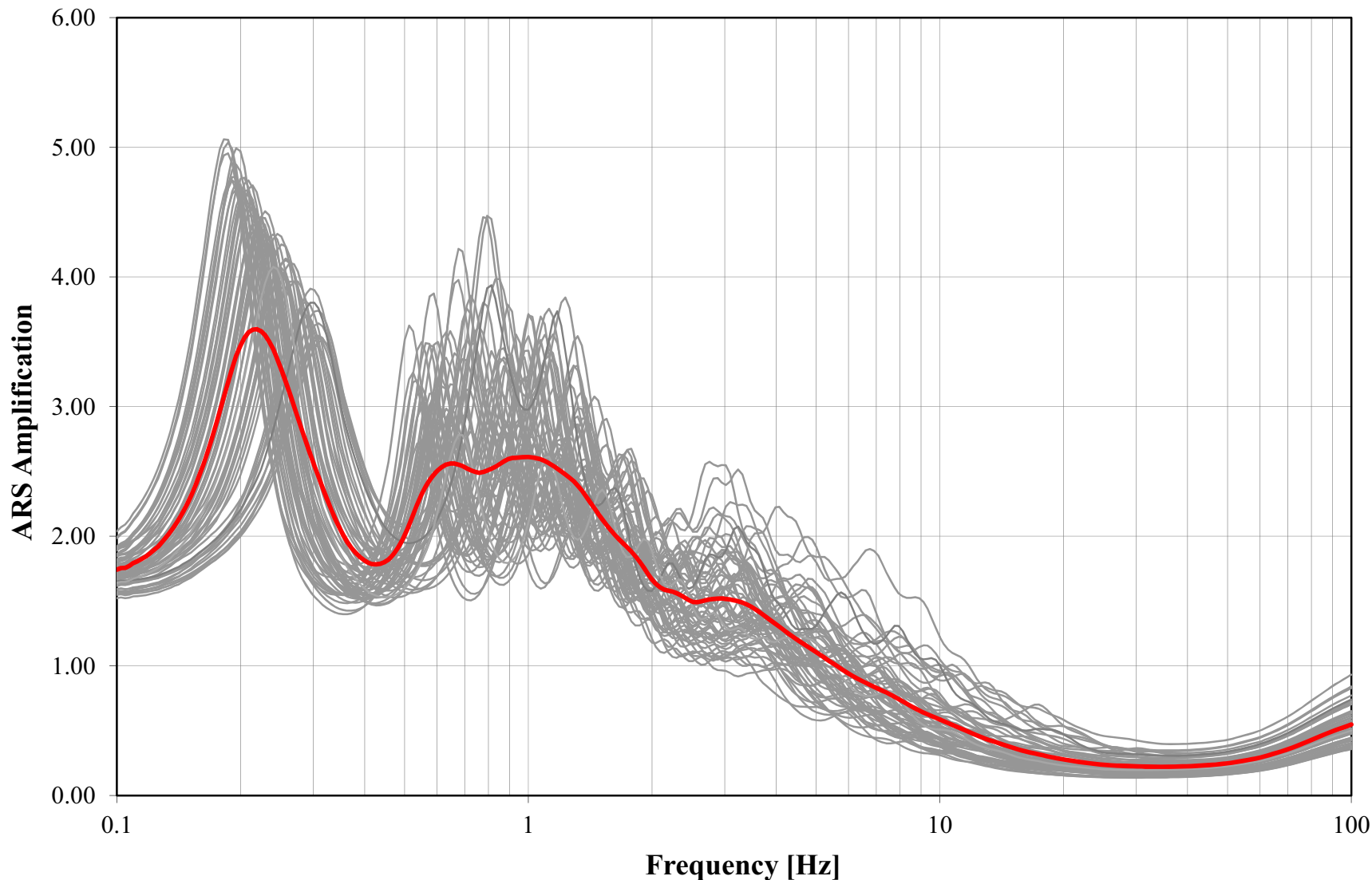


Figure 2.5-79 — {Maximum Shear Strain Profiles – LF 1E-5}
(Gray curves represent the individual profile while the red curve represents the mean response)

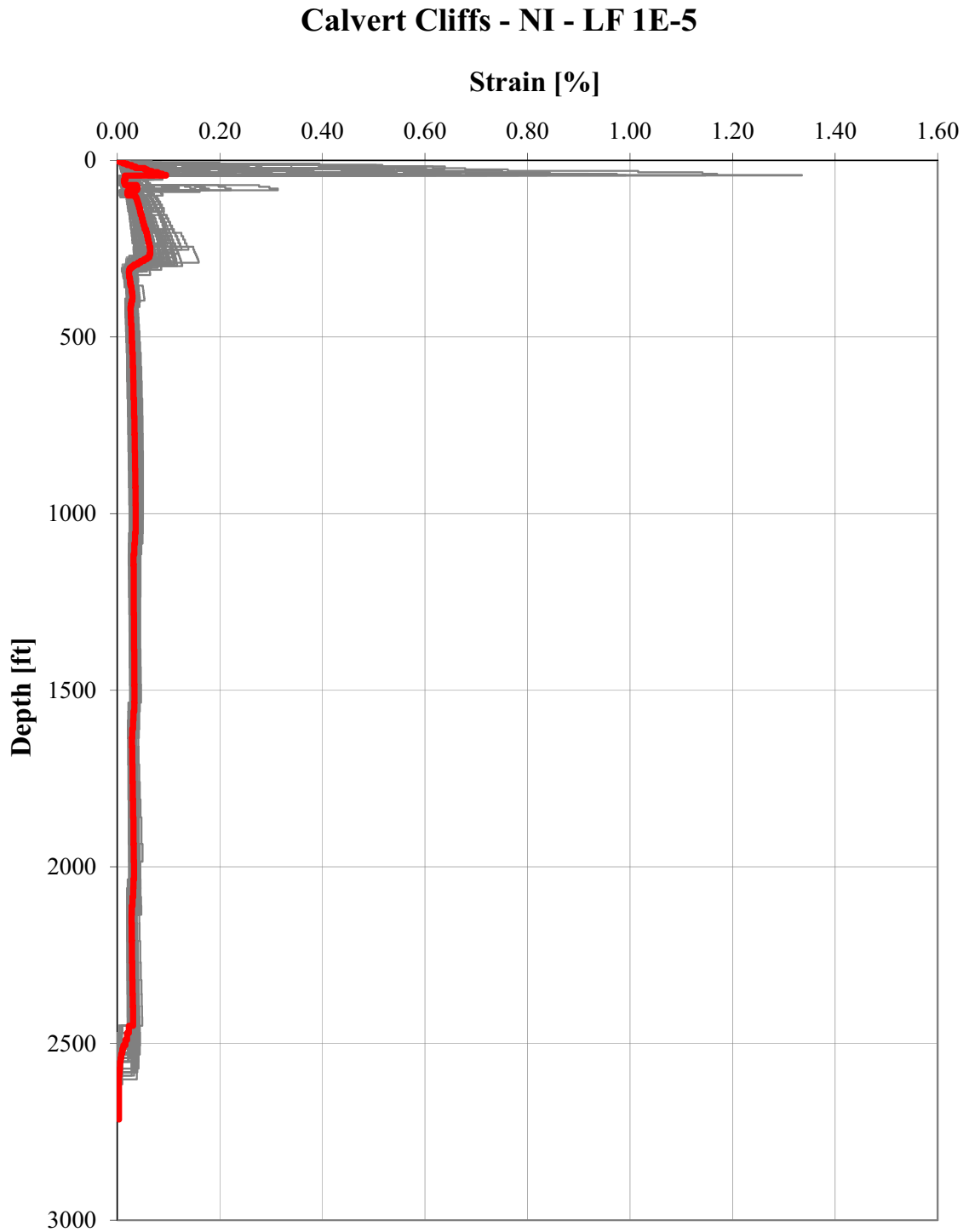


Figure 2.5-80 — {5% Damping HF and LF Spectra for 1E-4 and 1E-5}

Calvert Cliffs - NI - GMRS Horizon - 43.5 ft Depth

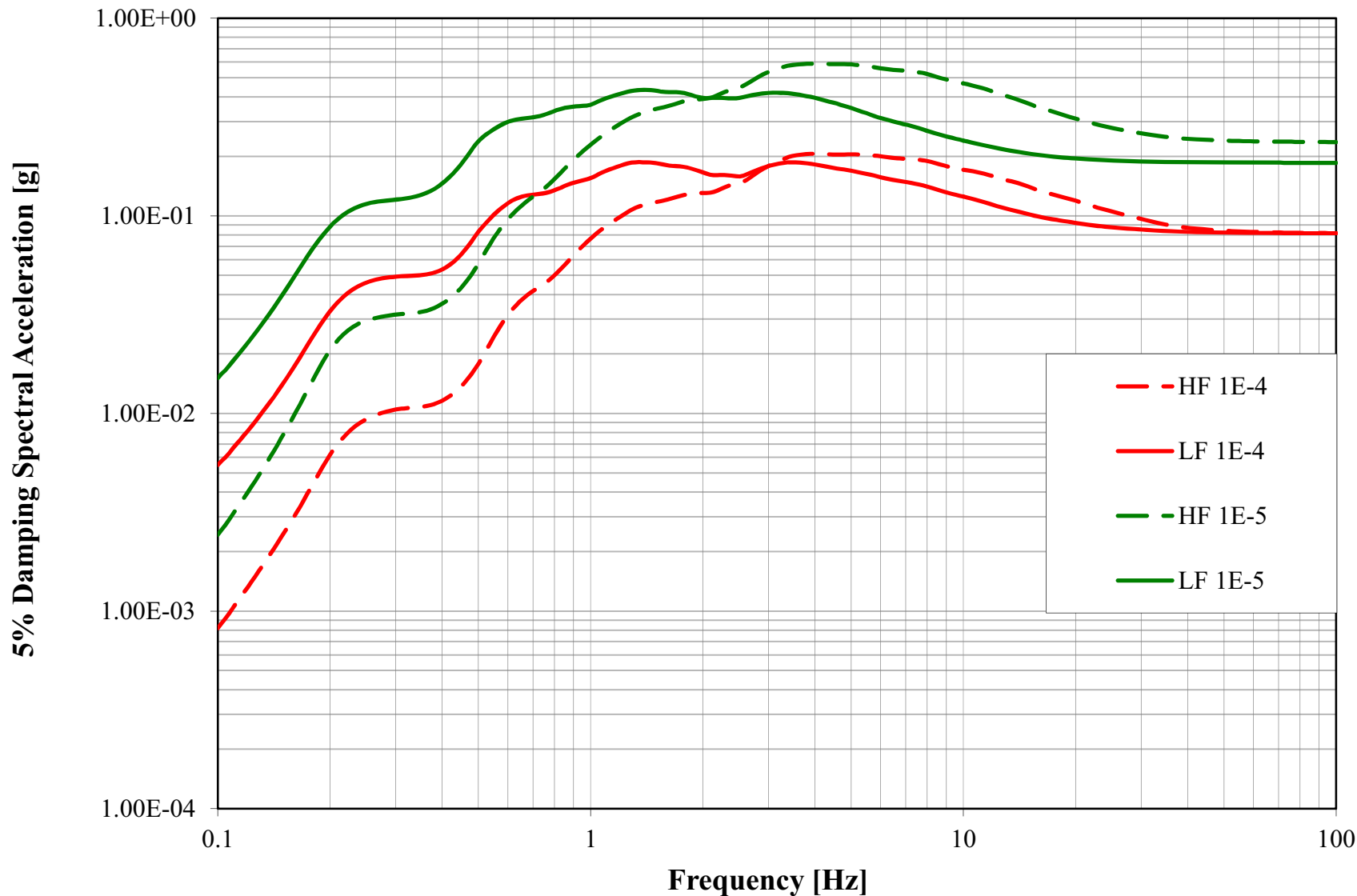


Figure 2.5-81 — {Recommended Horizontal and Vertical GMRS}

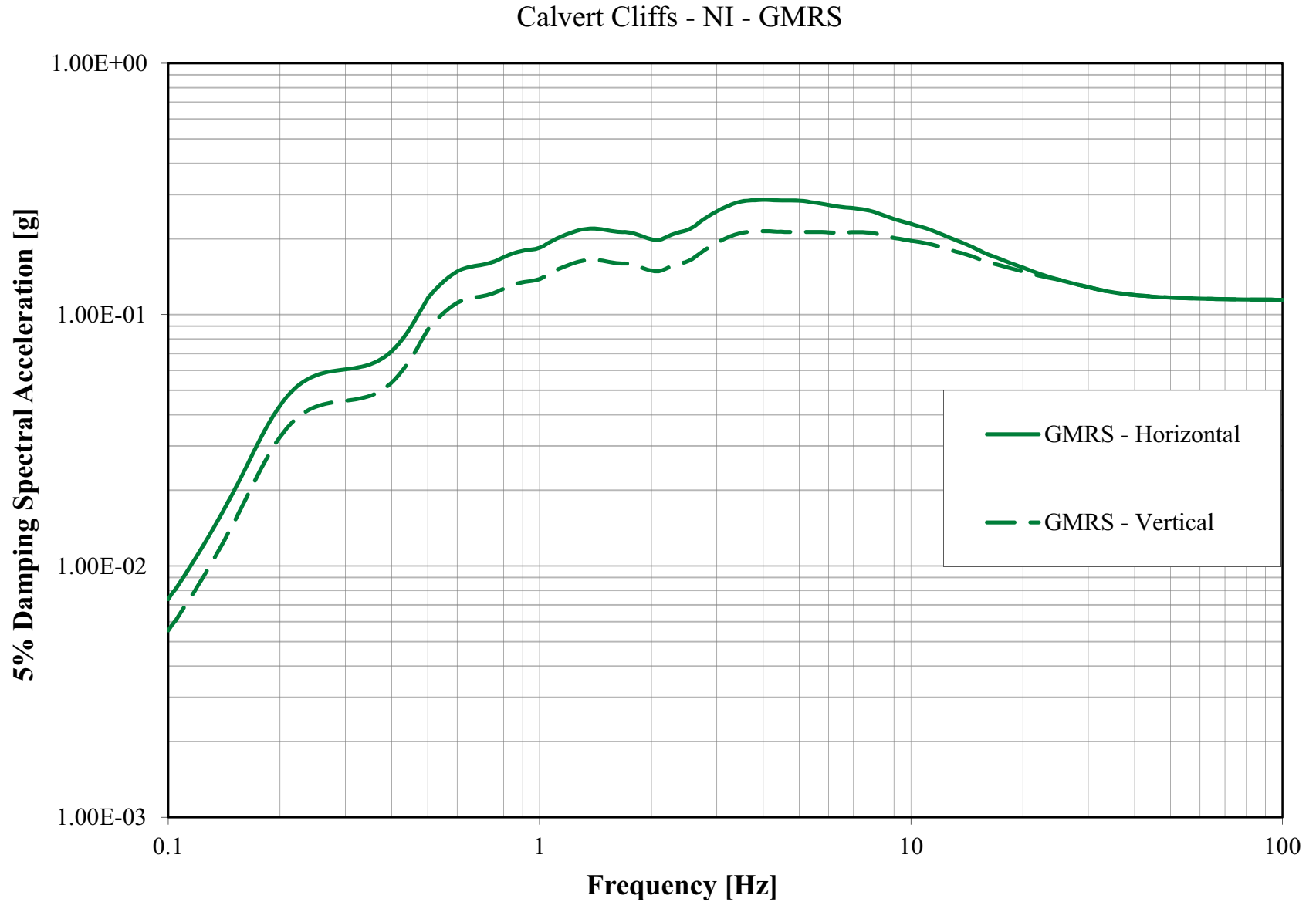


Figure 2.5-82 — {V/H Ratios from Several Publications and Recommended V/H Ratios}

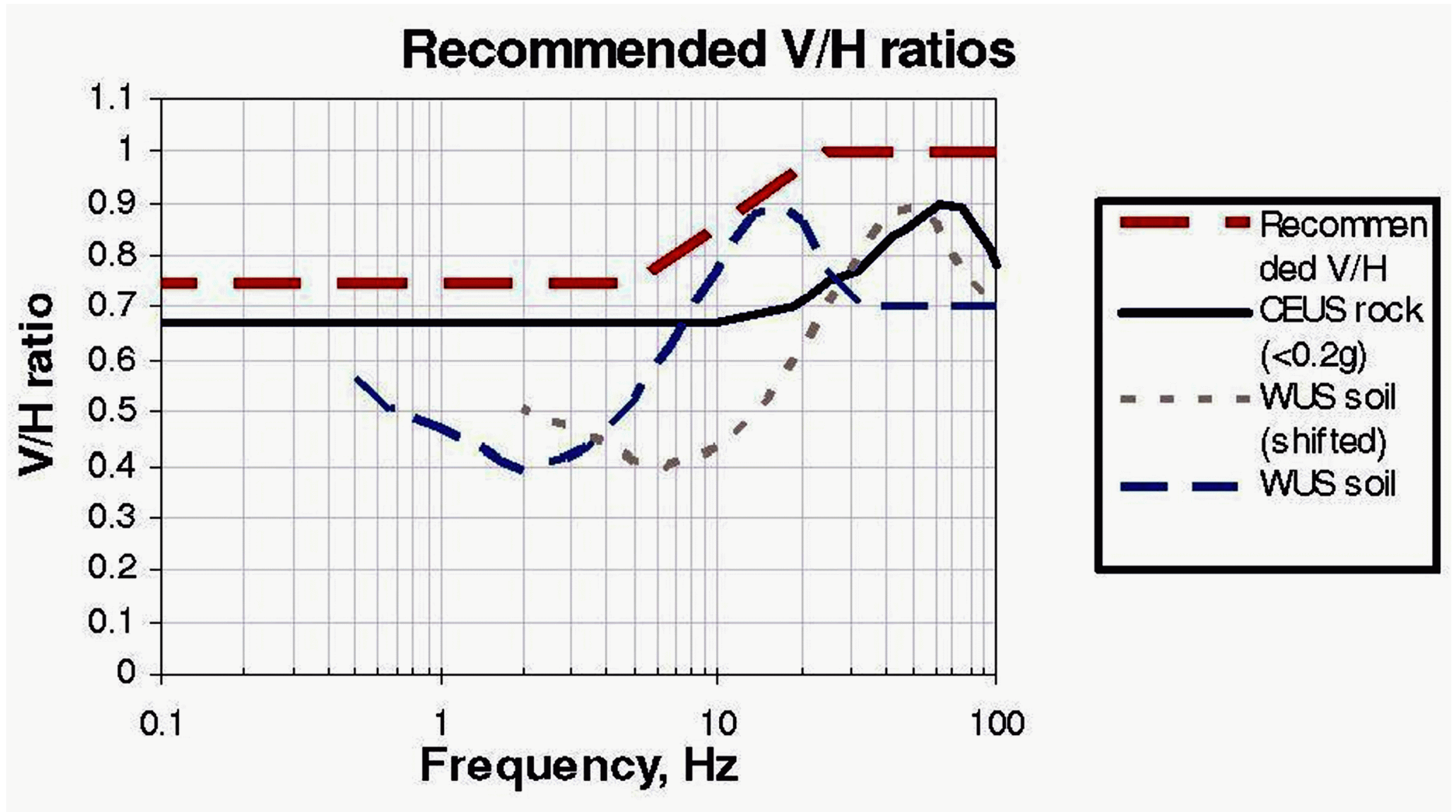
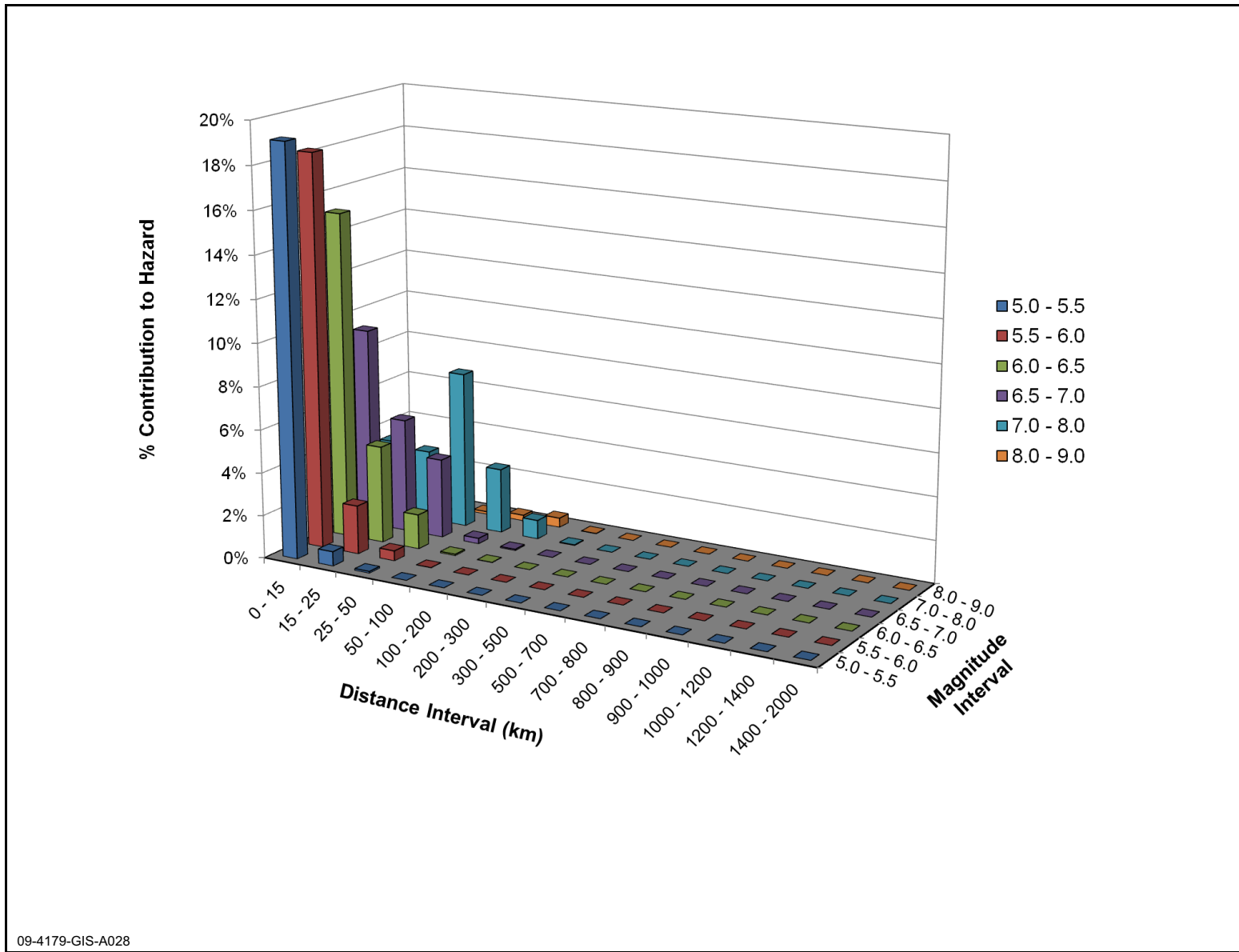
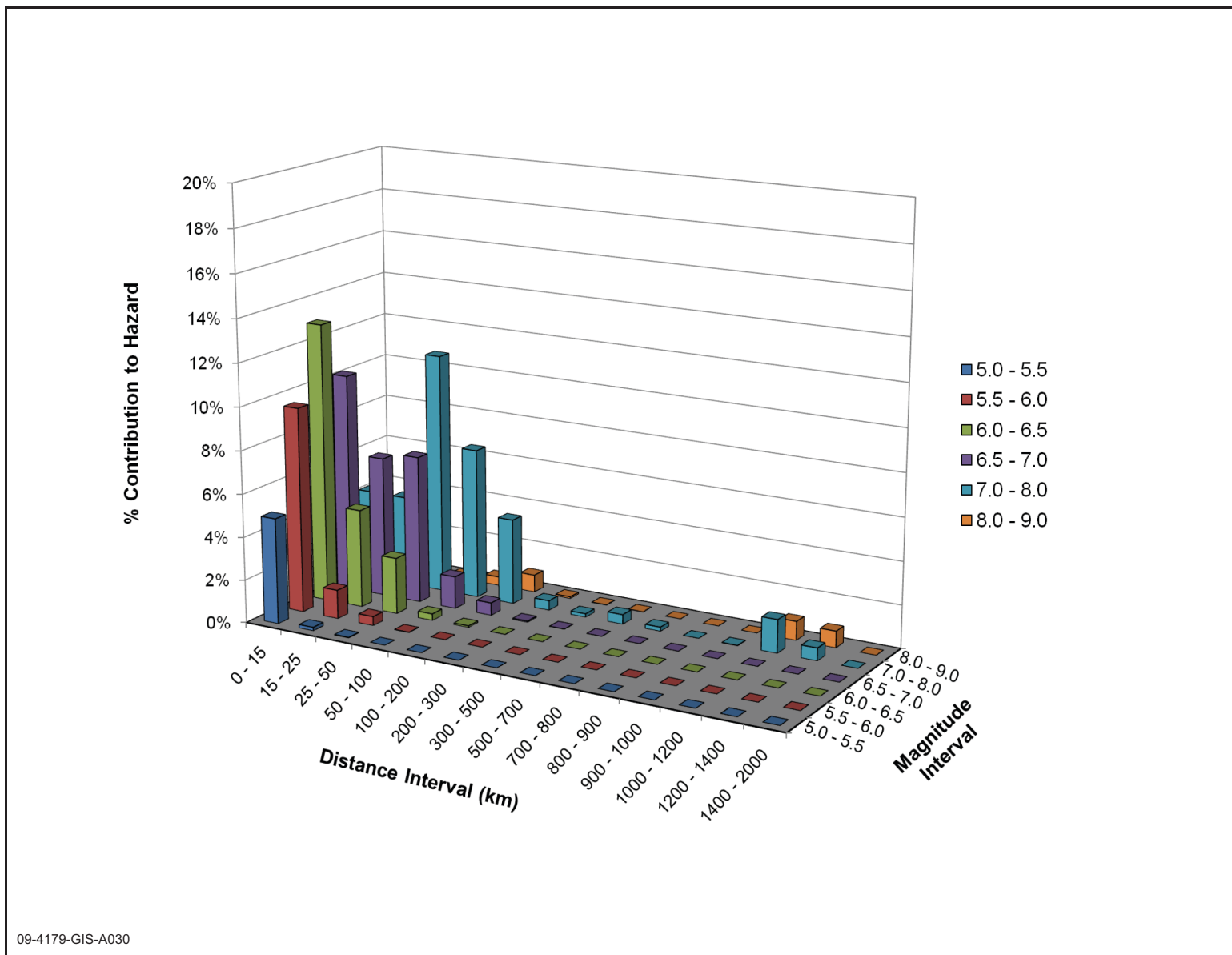


Figure 2.5-83 — {Mean 10⁻⁶ Rock Deaggregation Plot for 5 and 10 Hz}



09-4179-GIS-A028

Figure 2.5-84 — {Mean 10-6 Rock Deaggregation Plot for 1 and 2.5 Hz}



09-4179-GIS-A030

Figure 2.5-85 — {Mean and Fractile Rock Hazard Curves for Peak Ground Acceleration}

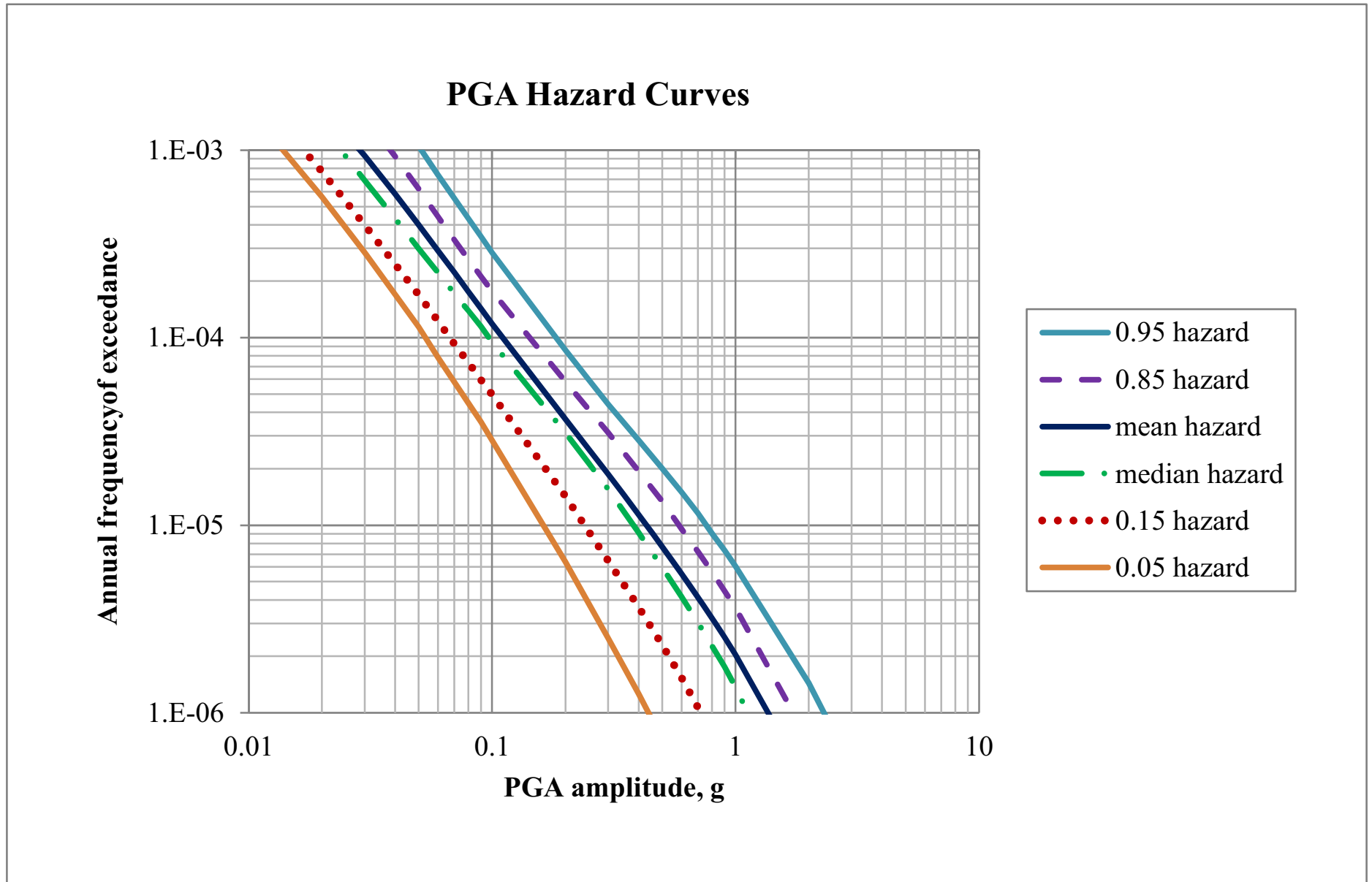


Figure 2.5-86 — {Mean and Fractile Rock Hazard Curves for 25 Hz Spectral Acceleration

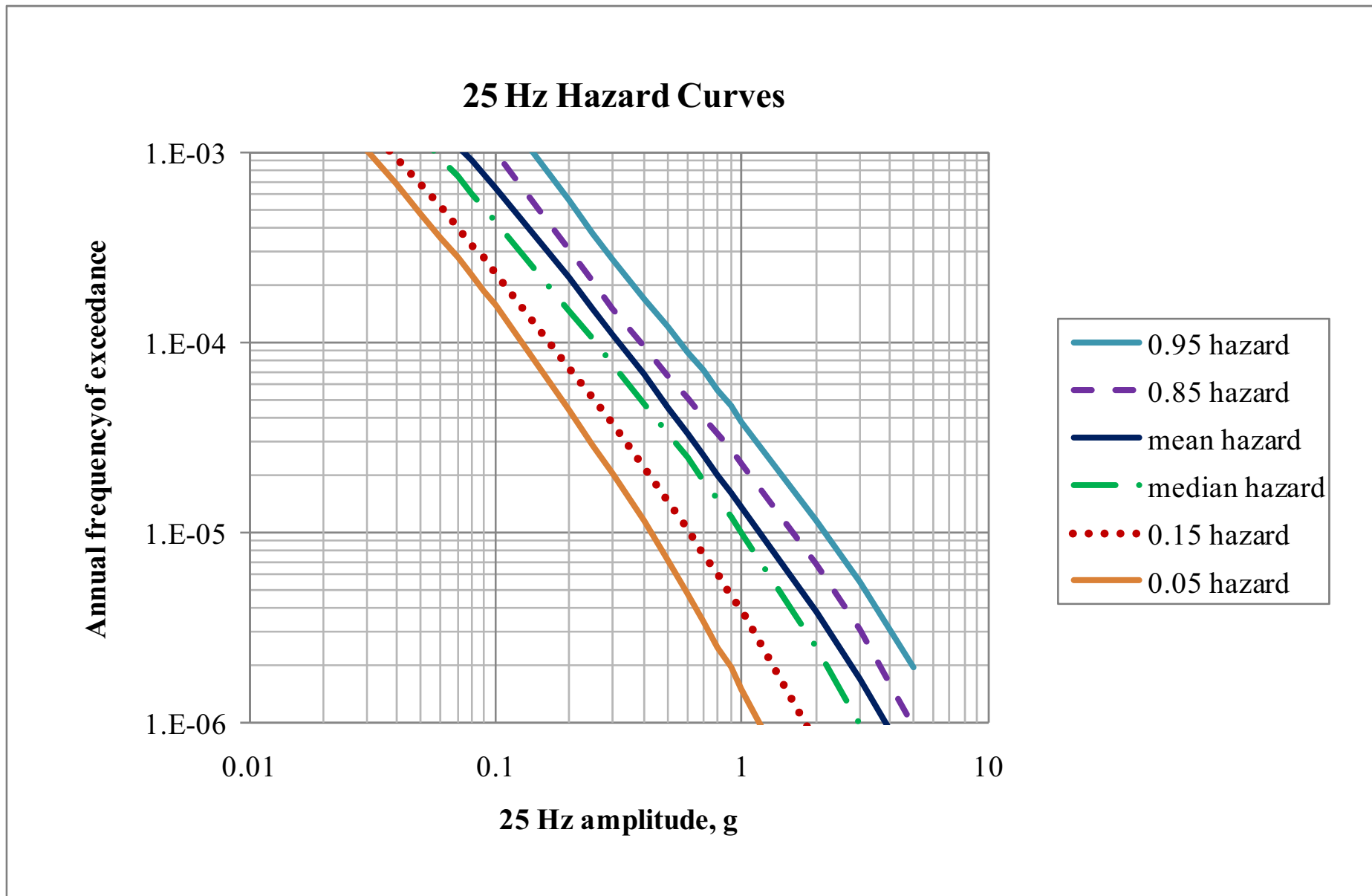


Figure 2.5-87 — {Mean and Fractile Rock Hazard Curves for 10 Hz Spectral Acceleration

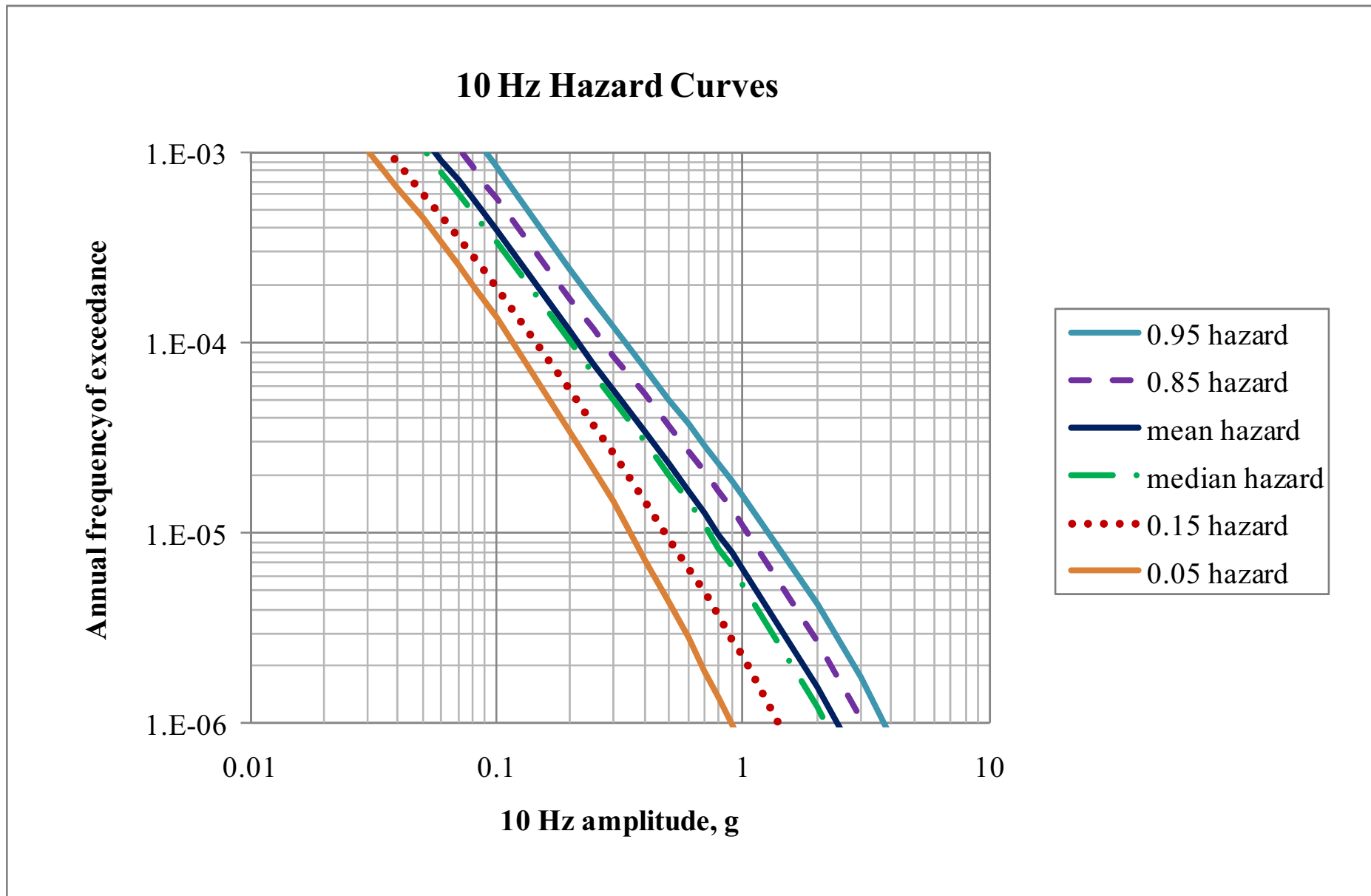


Figure 2.5-88 — {Mean and Fractile Rock Hazard Curves for 5 Hz Spectral Acceleration

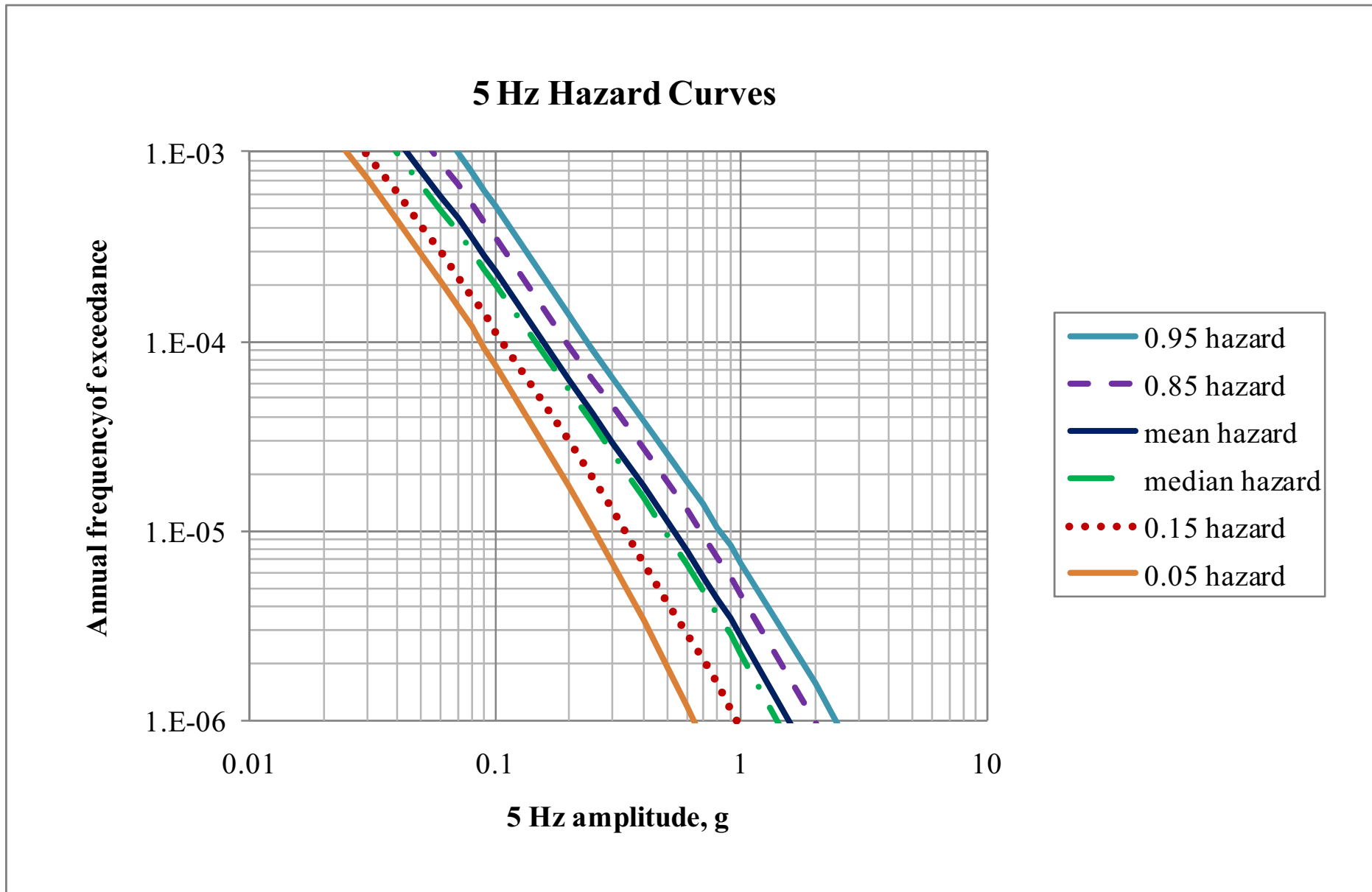


Figure 2.5-89 — {Mean and Fractile Rock Hazard Curves for 2.5 Hz Spectral Acceleration

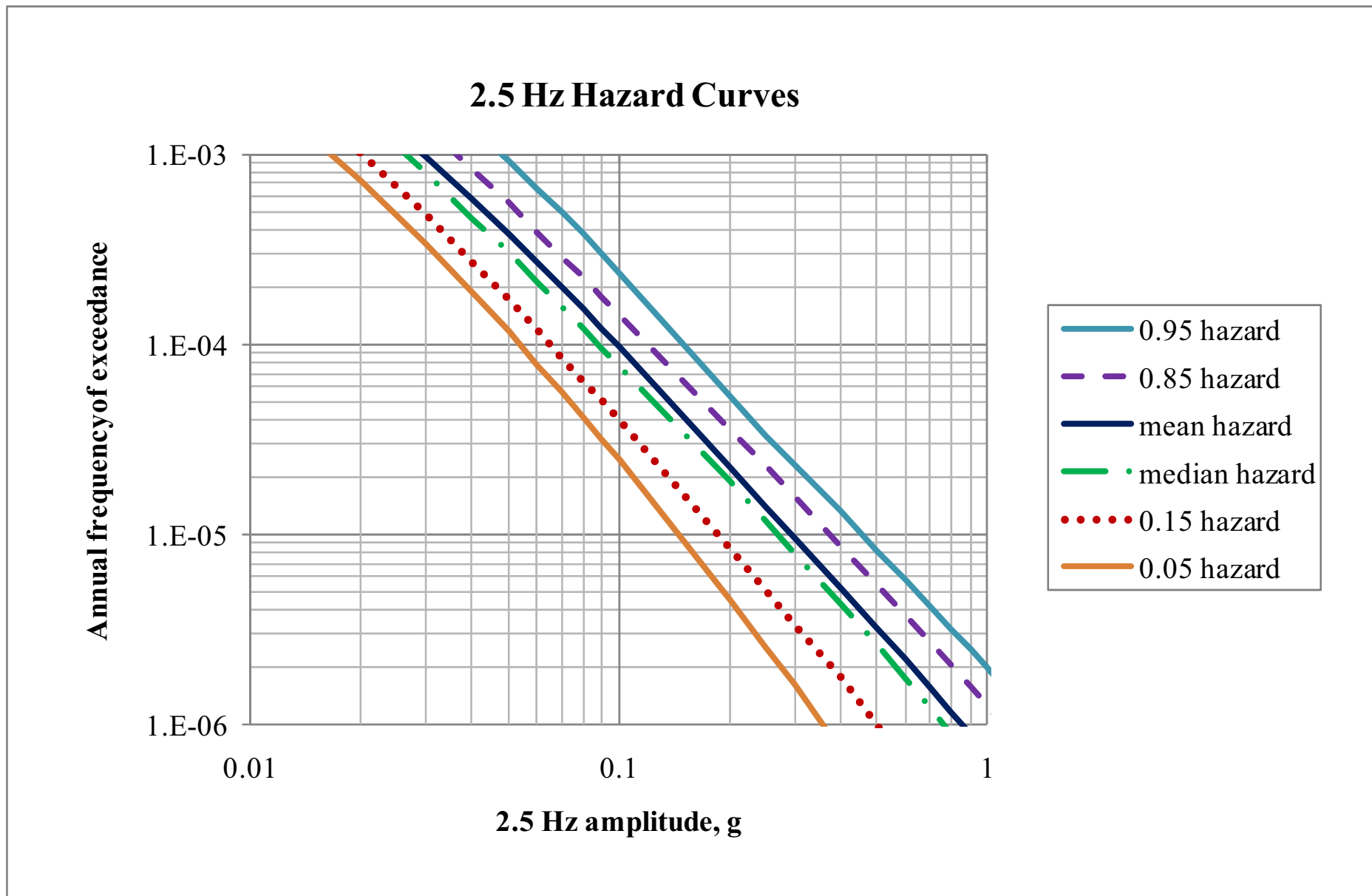


Figure 2.5-90 — {Mean and Fractile Rock Hazard Curves for 1 HZ Spectral Acceleration

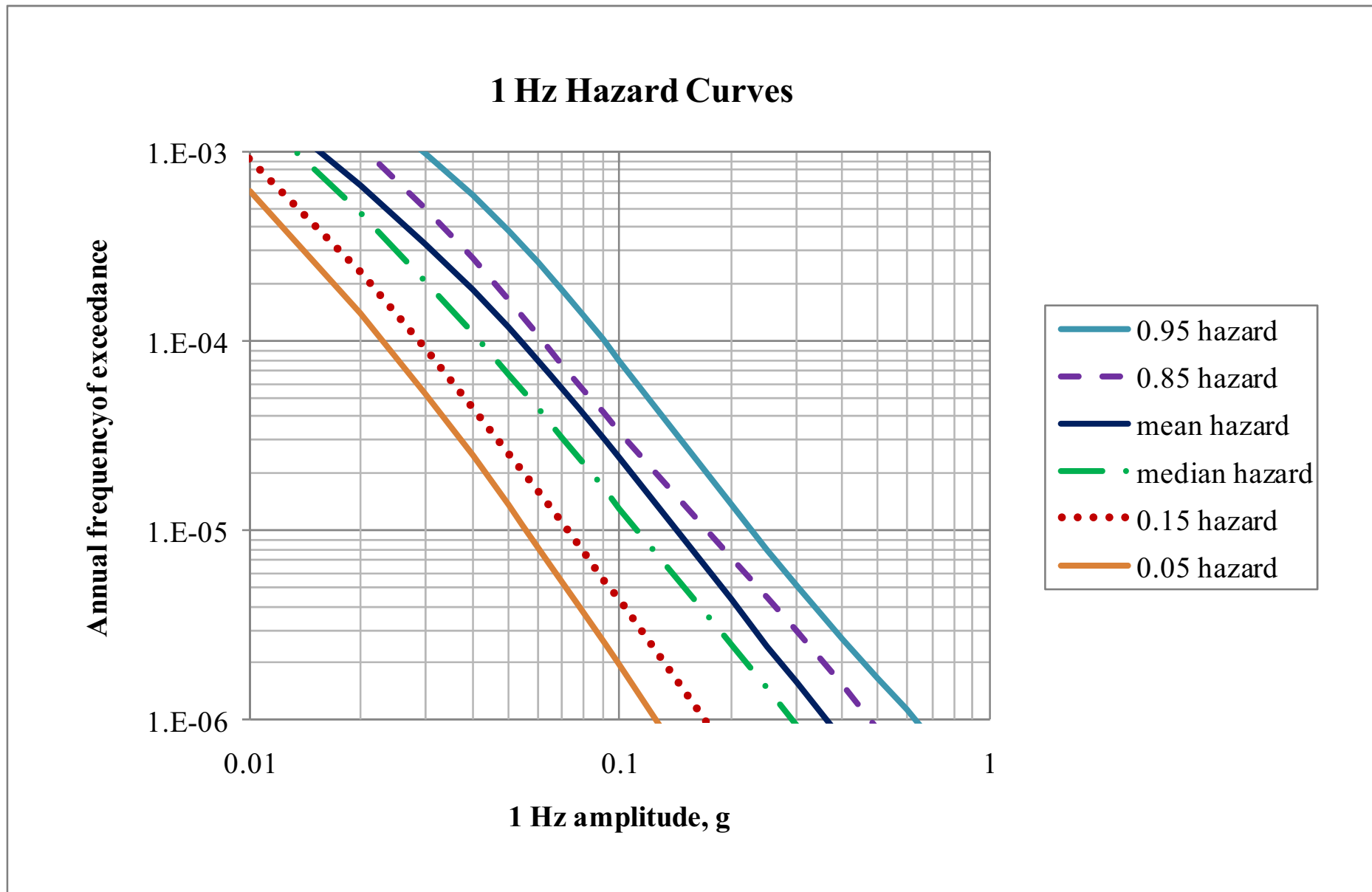


Figure 2.5-91 — {Mean and Fractile Rock Hazard Curves for 0.5 Hz Spectral Acceleration

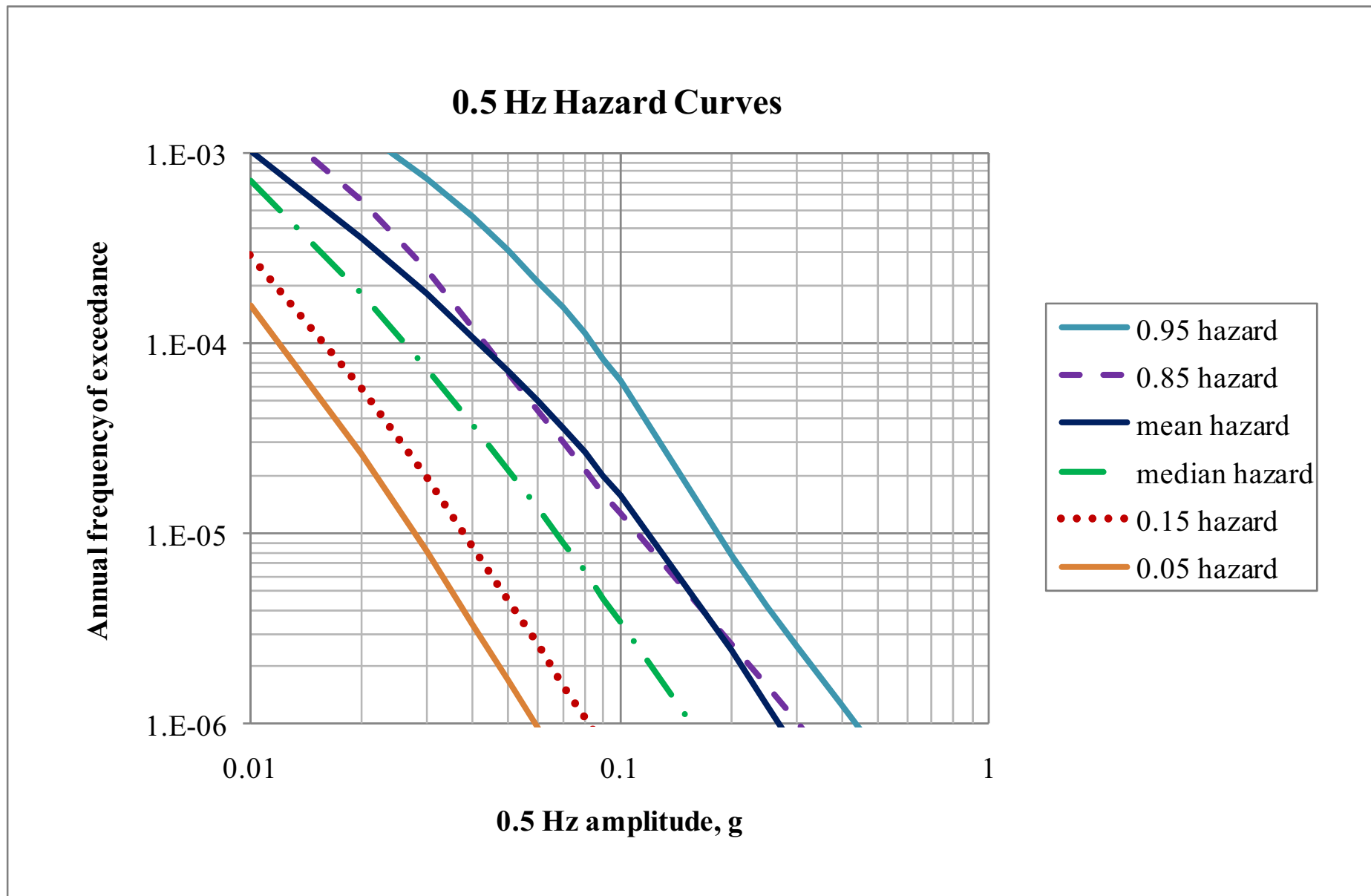
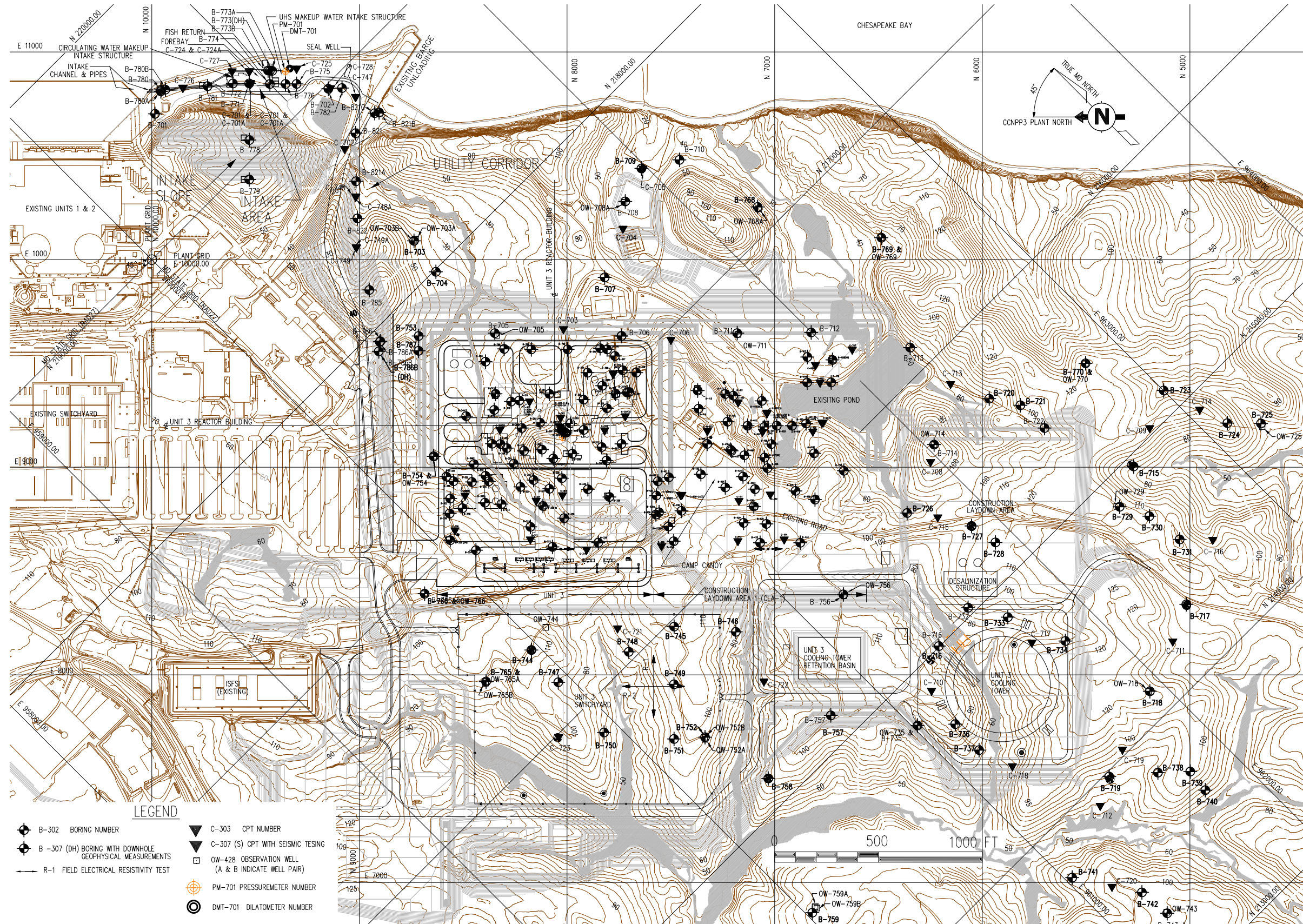


Figure 2.5-92 — {Site Utilization Plan with Boring Locations}



See Figure 1.1-3 and Figure 1.2-1 for Site and Powerblock layout

Figure 2.5-94 — {Intake Area Profile Location}

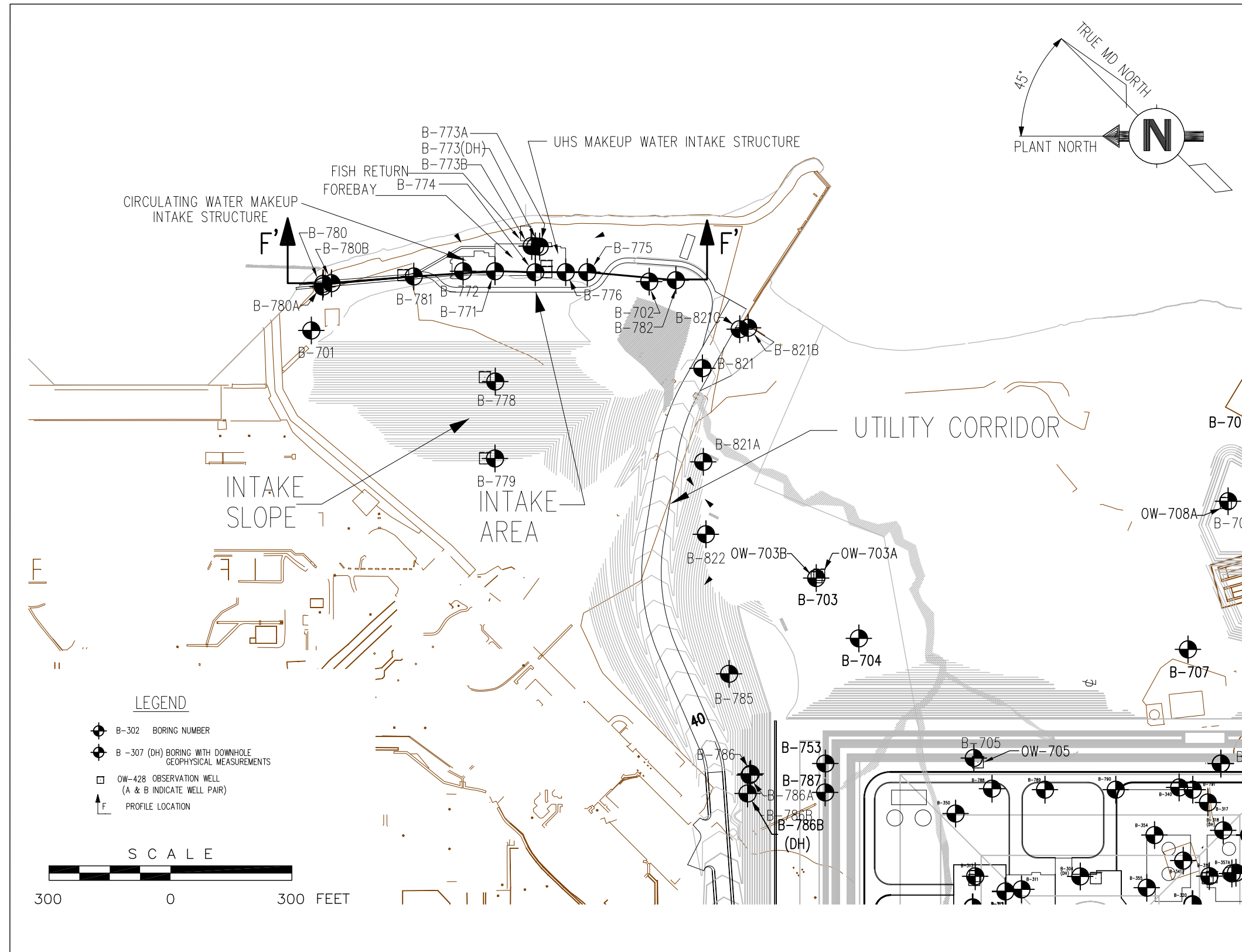


Figure 2.5-95 — {Generalized CCNPP Soil Column}

UNIT	THICKNESS [ft]		
	MIN	MAX	AVG
STRATUM I - TERRACE SAND	1	68	28
STRATUM IIa - CHESAPEAKE CLAY/SILT	4	36	19
STRATUM IIb - CHESAPEAKE CEMENTED SAND	3	69	24
	2	3	55
	3	4	39
STRATUM IIc - CHESAPEAKE CLAY/SILT (FROM B-301 AND B-401)	190	195	193
INTERBEDDED SAND LAYERS			
STRATUM III - NANJEMOY SAND (FROM B-301 and B-401)	>101	>115	>108

Figure 2.5-96 — {Subsurface Profile A-A'}

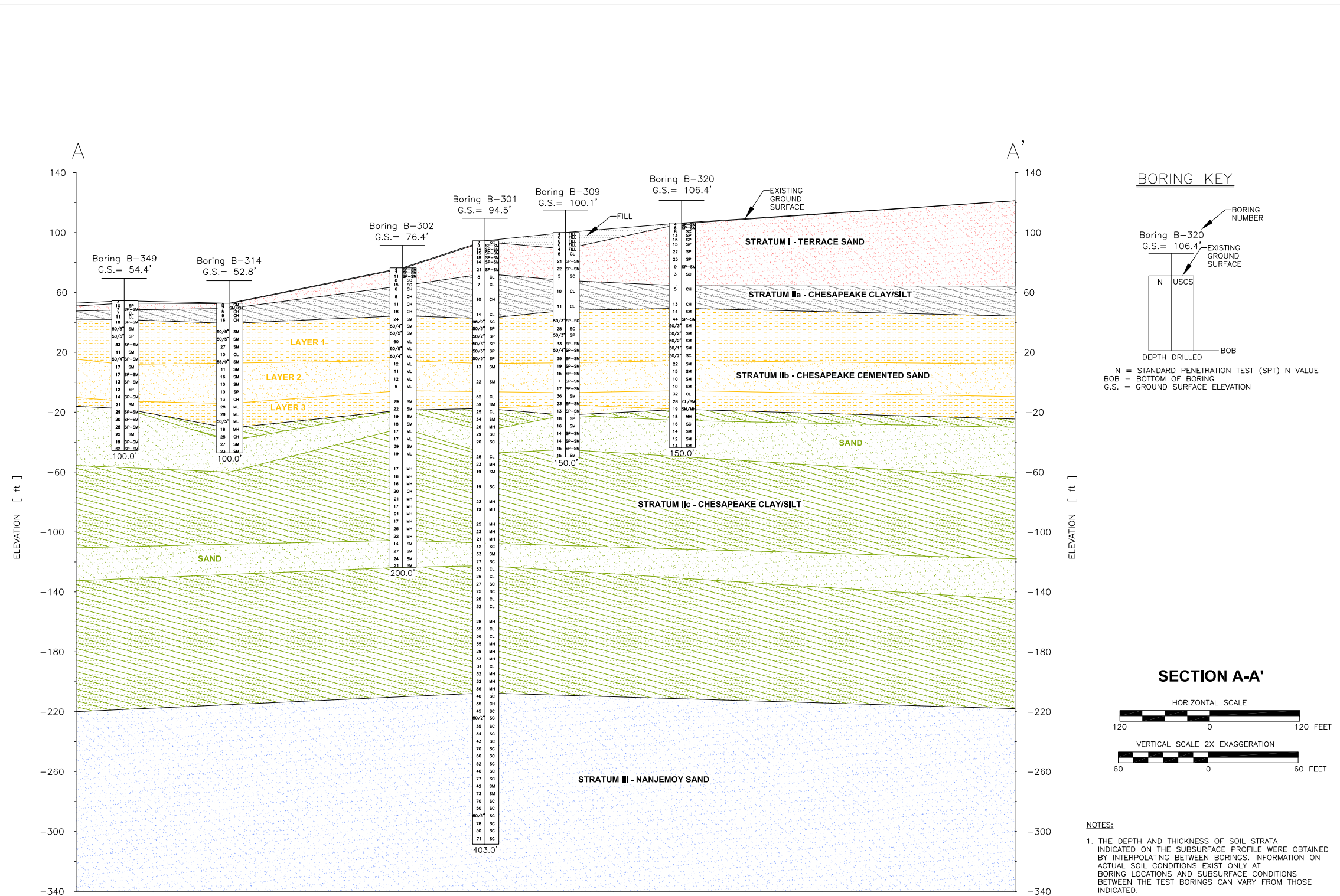


Figure 2.5-97 — {Subsurface Profile B-B'}

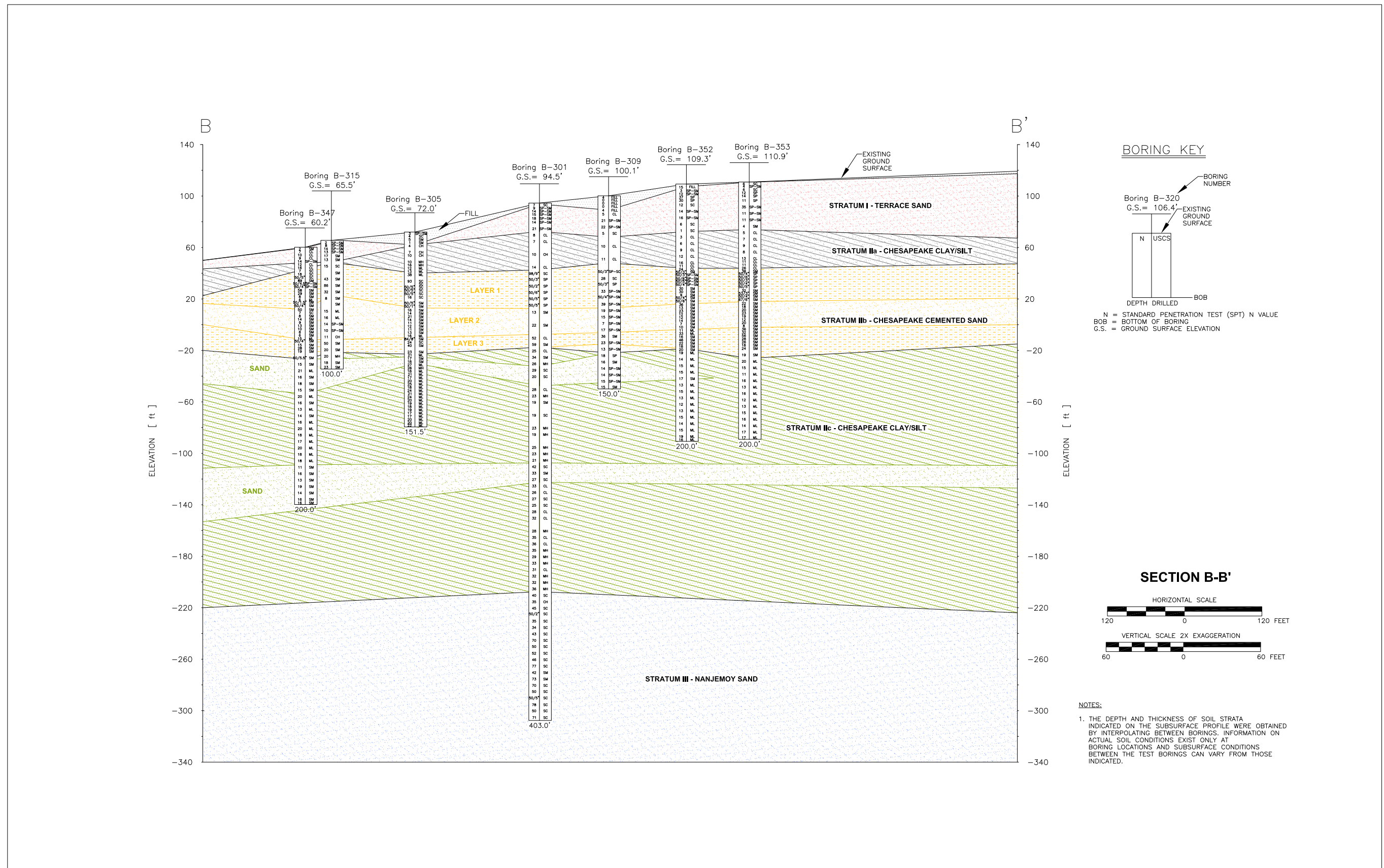


Figure 2.5-98 — {Subsurface Profile C-C'}

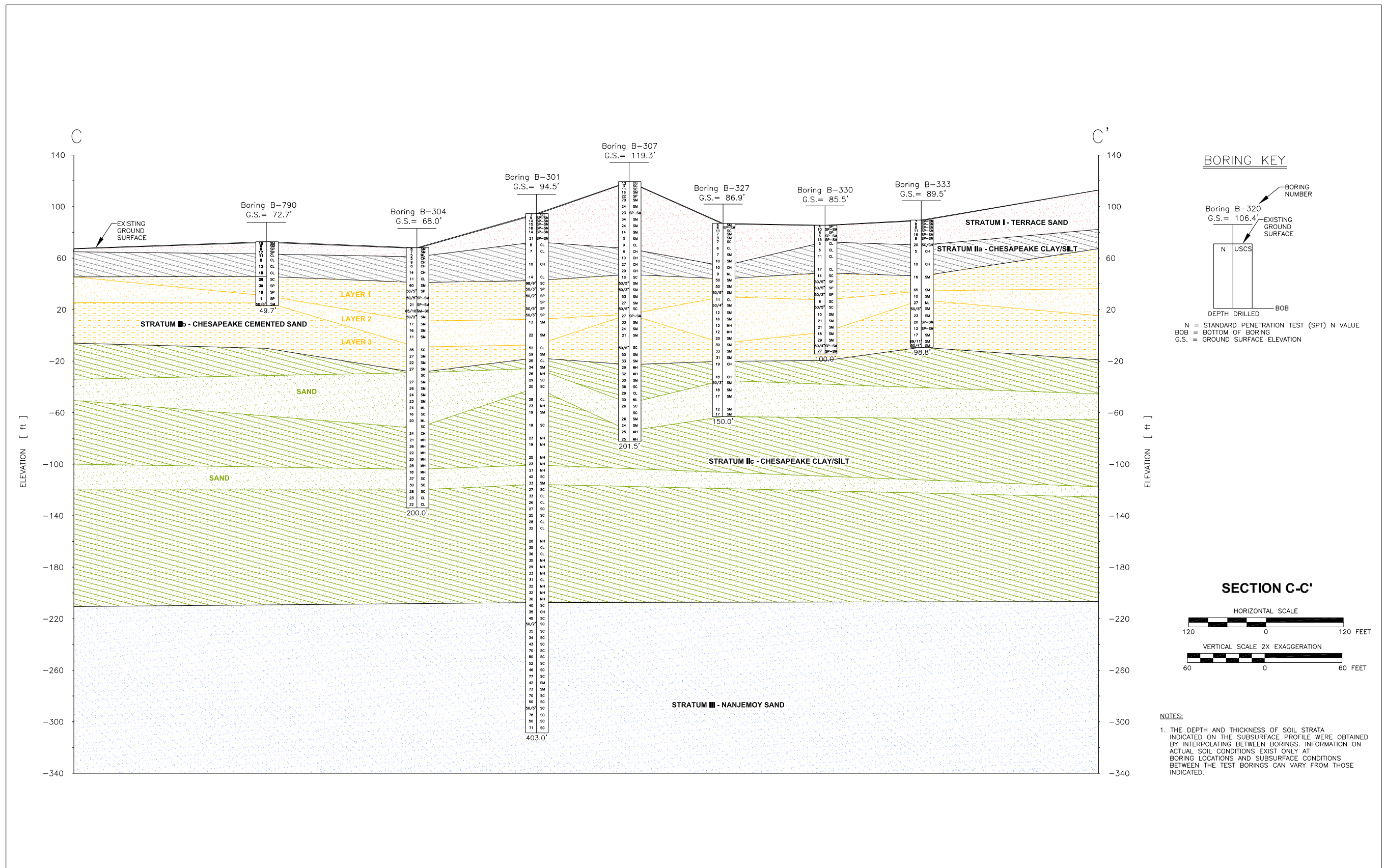


Figure 2.5-99 — {Subsurface Profile D-D'}

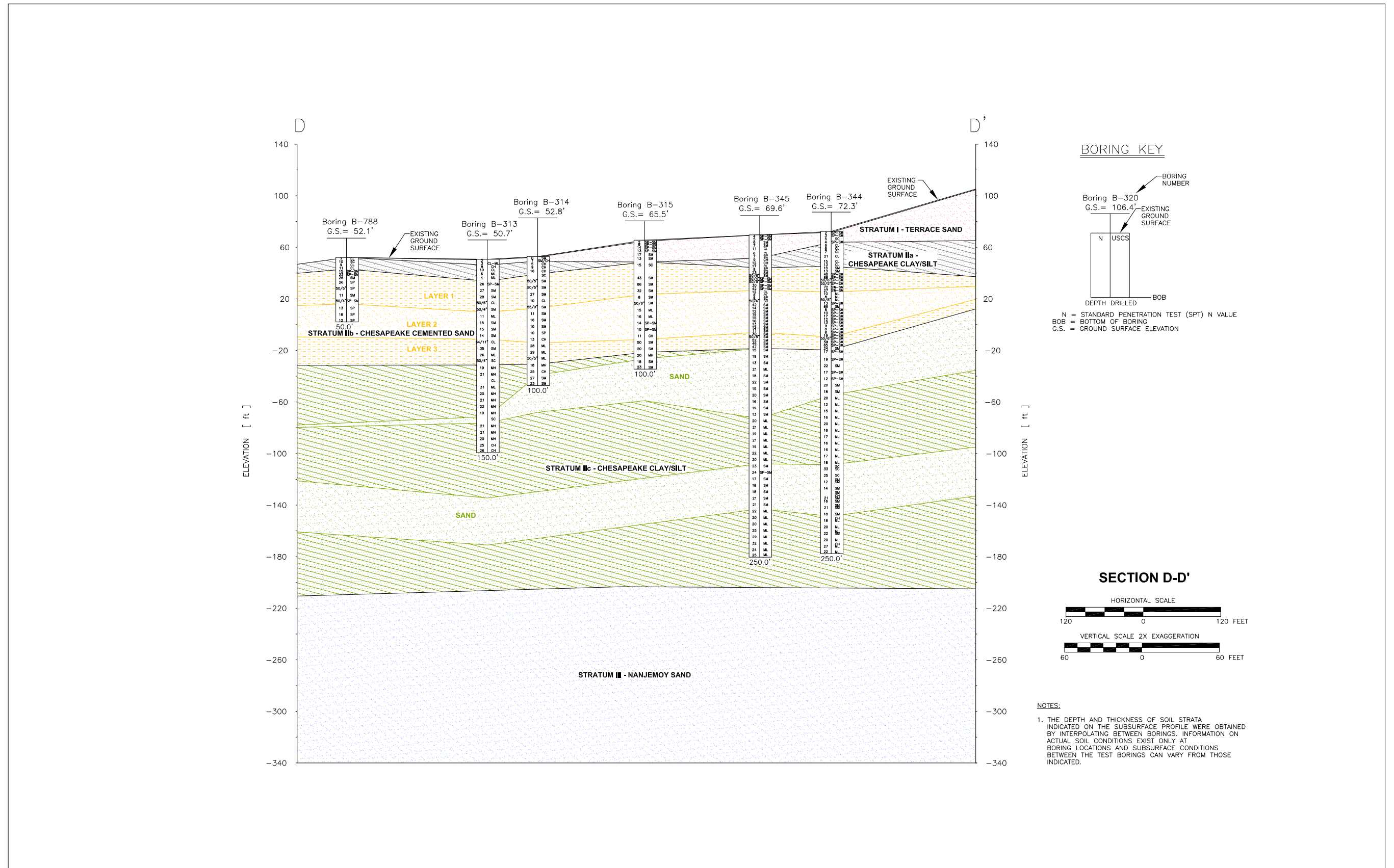
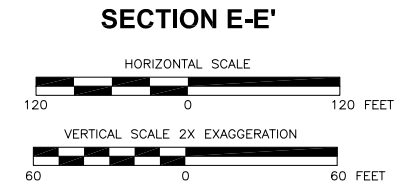
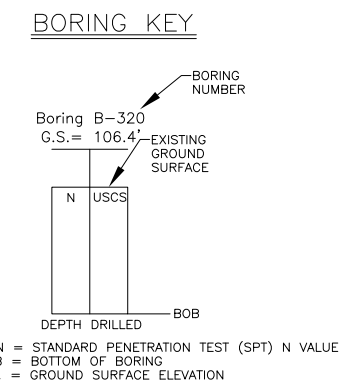
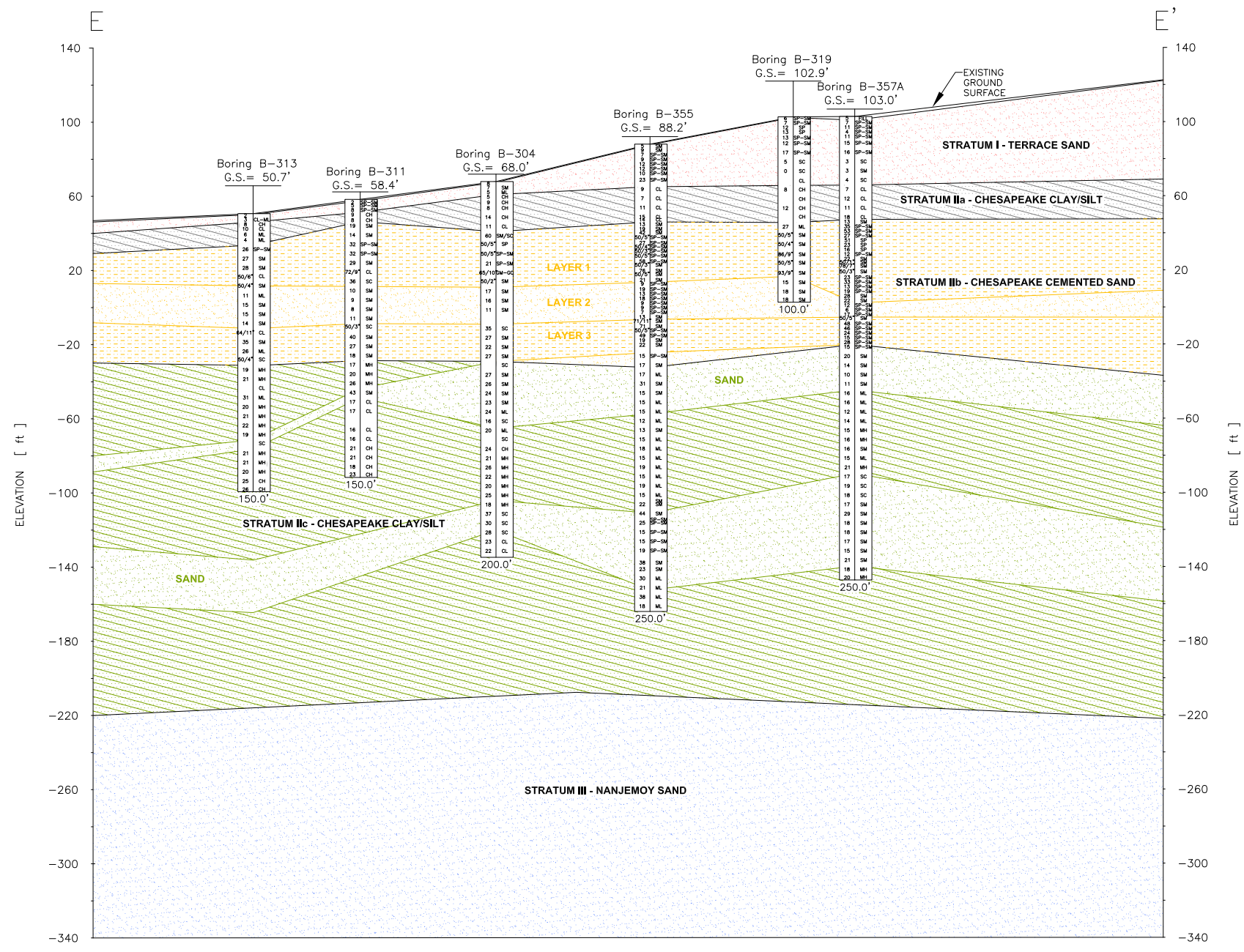


Figure 2.5-100 — {Subsurface Profile E-E'}



NOTES:

1. THE DEPTH AND THICKNESS OF SOIL STRATA INDICATED ON THE SUBSURFACE PROFILE WERE OBTAINED BY INTERPOLATING BETWEEN BORINGS. INFORMATION ON ACTUAL SOIL CONDITIONS EXIST ONLY AT BORING LOCATIONS AND SUBSURFACE CONDITIONS BETWEEN THE TEST BORINGS CAN VARY FROM THOSE INDICATED.

Figure 2.5-101 — {Subsurface Profile F-F'}

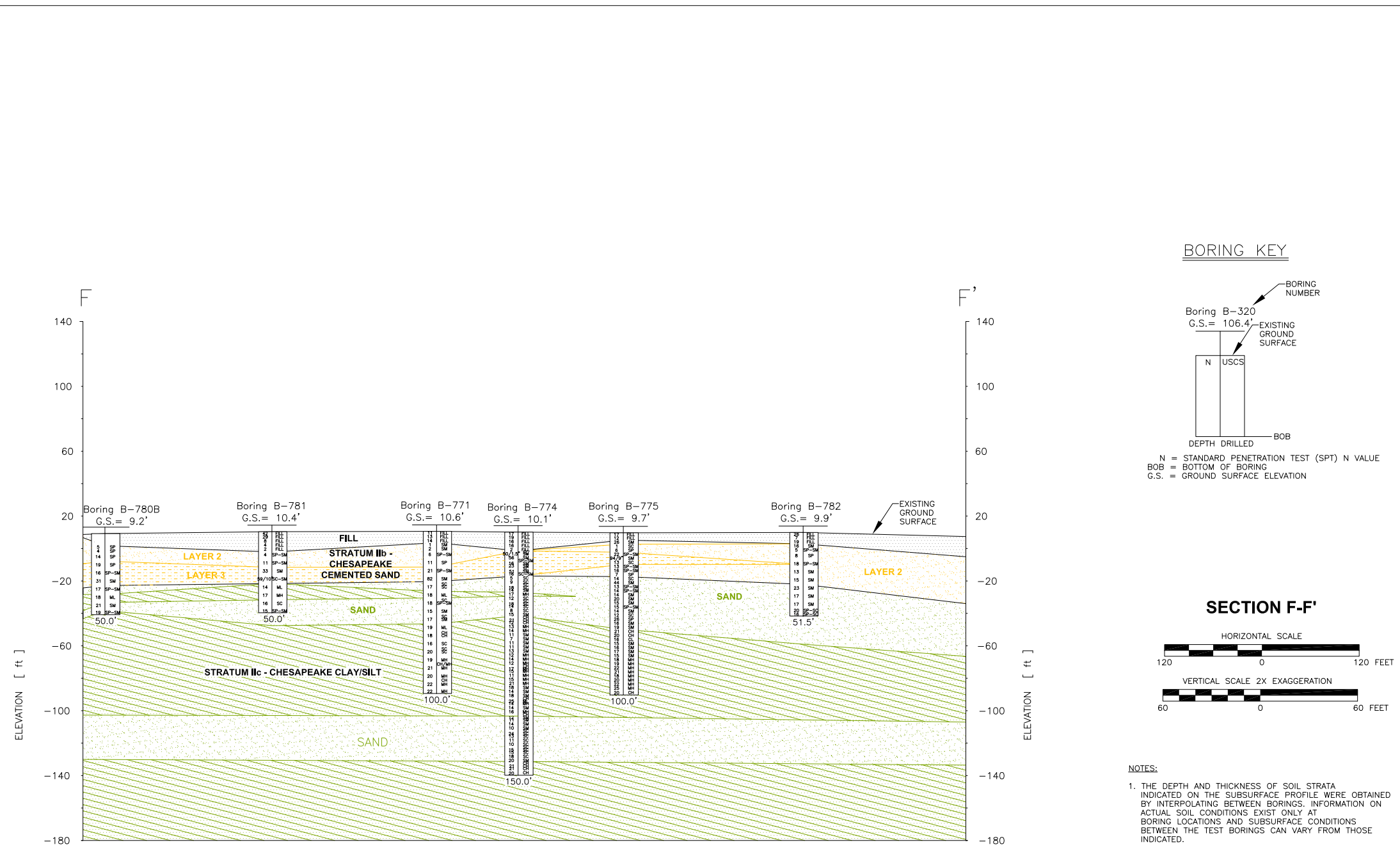


Figure 2.5-102 — {SPT Data for Powerblock Area}

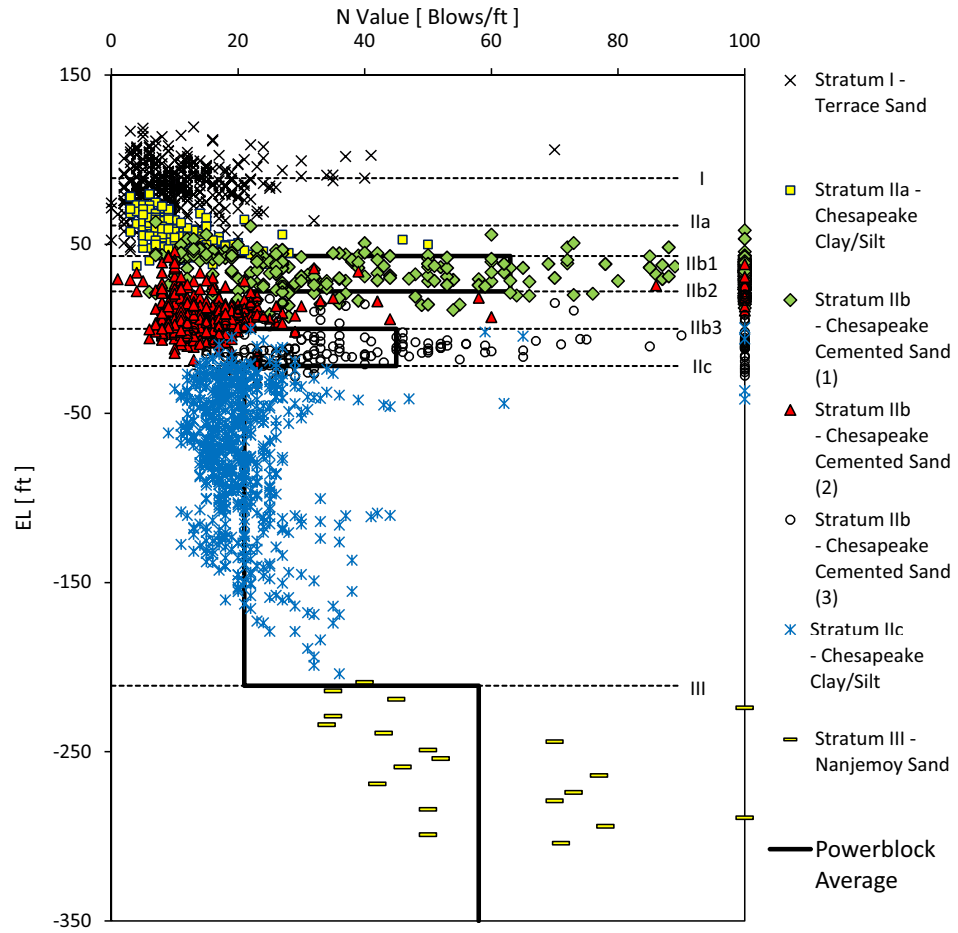


Figure 2.5-103 — {SPT Data for Intake Area}

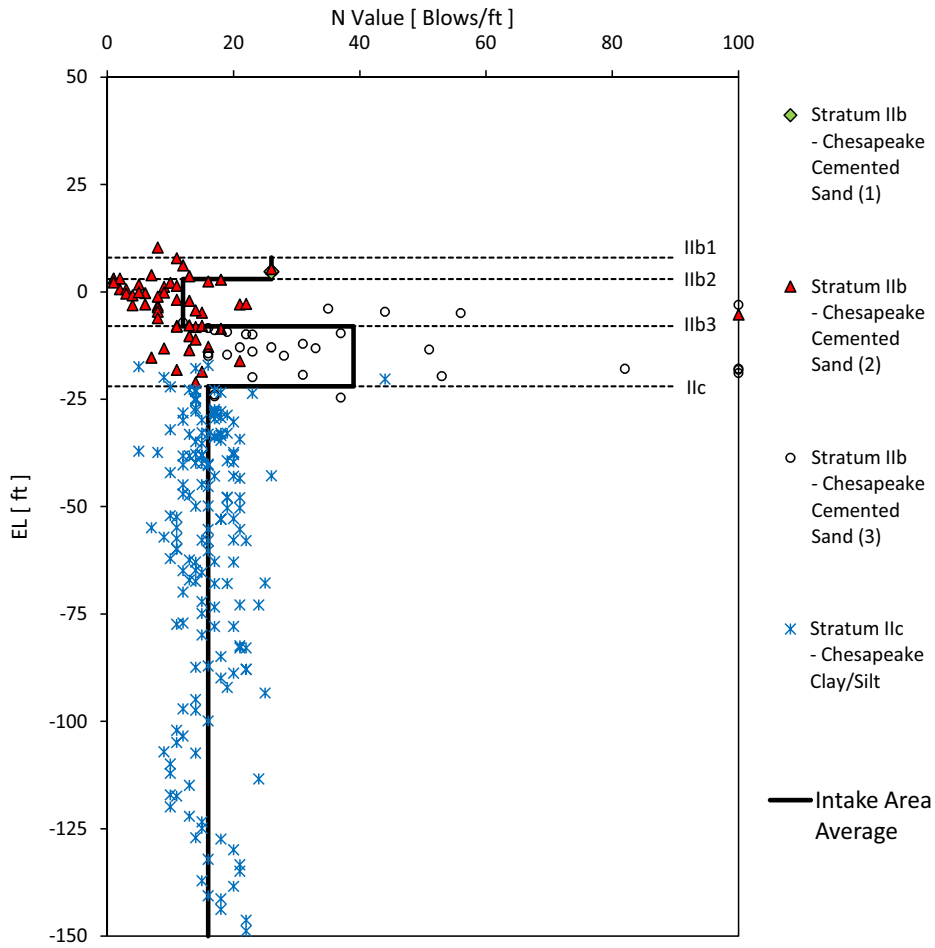


Figure 2.5-104 — {CPT Tip Resistance, Powerblock Area}

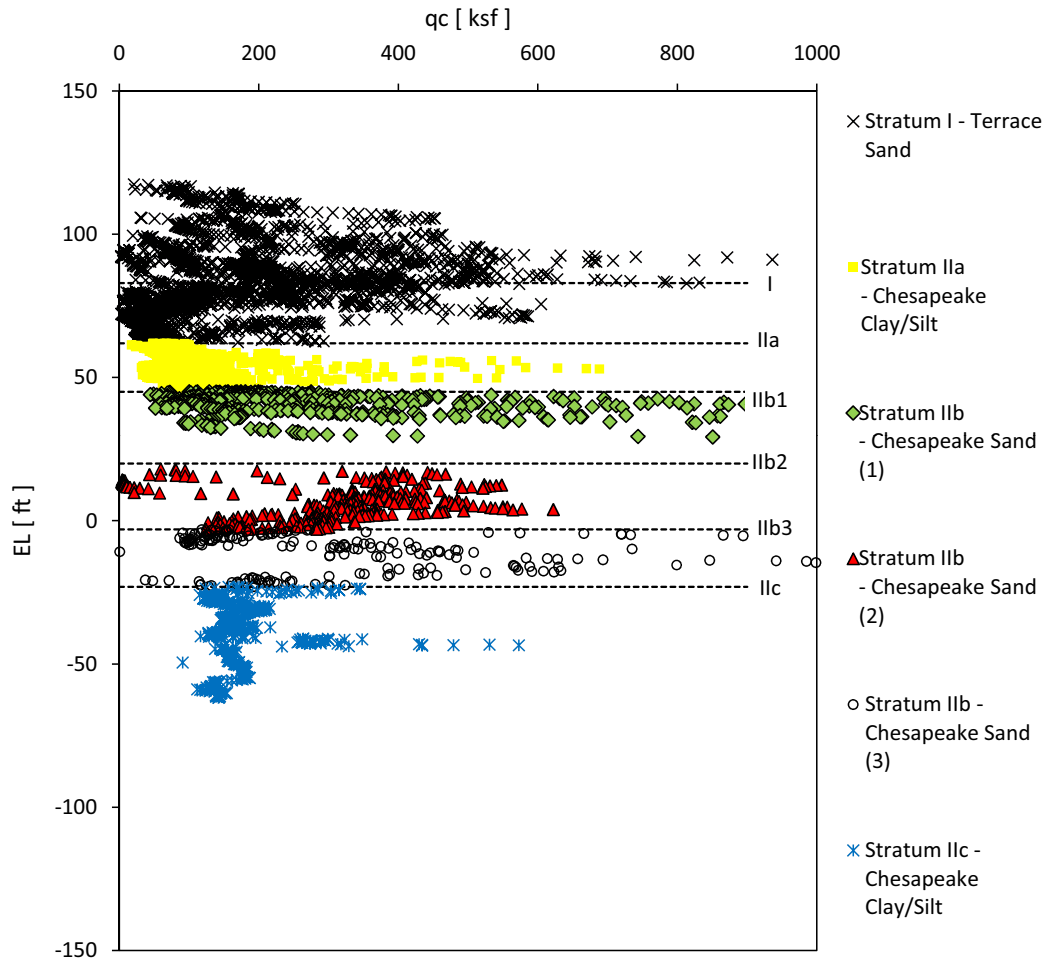


Figure 2.5-105 — {CPT Tip Resistance, Intake Area}

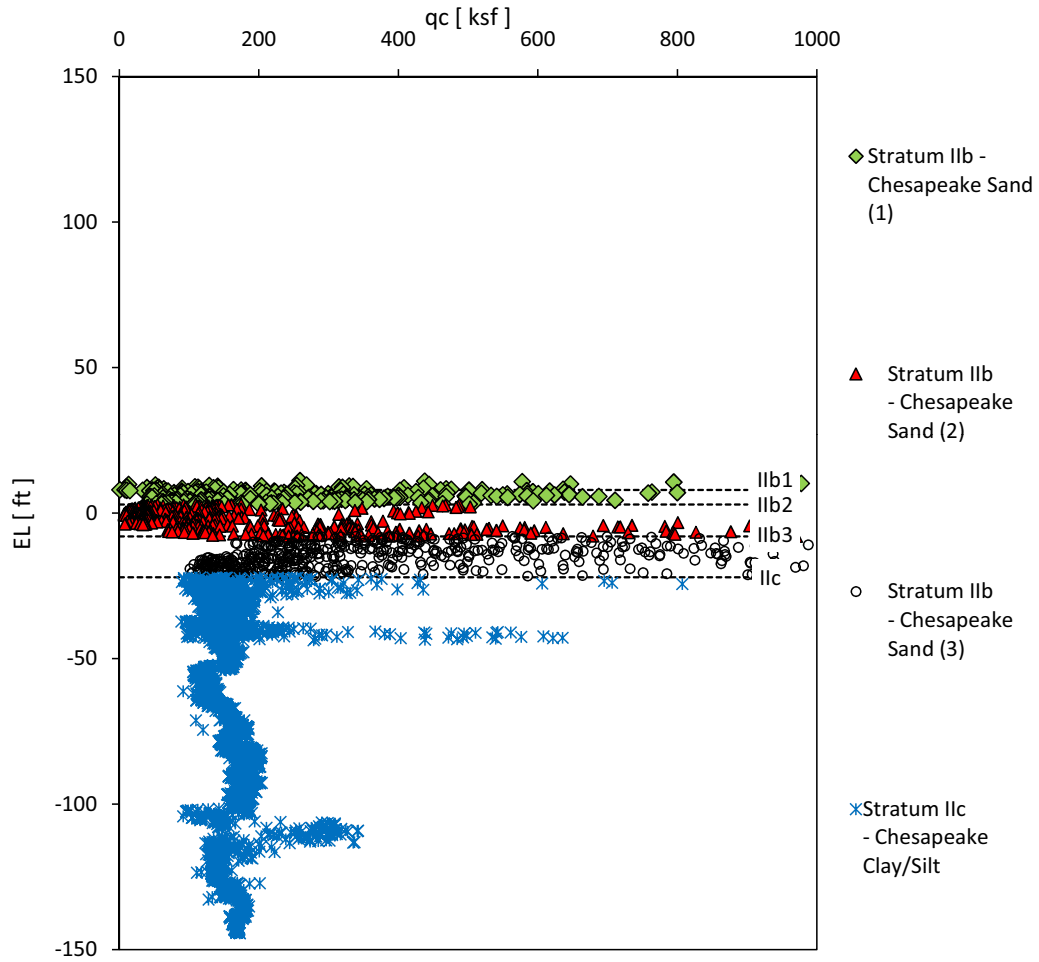


Figure 2.5-106 — {Vp Measurements from Suspension P-S Velocity Logging}

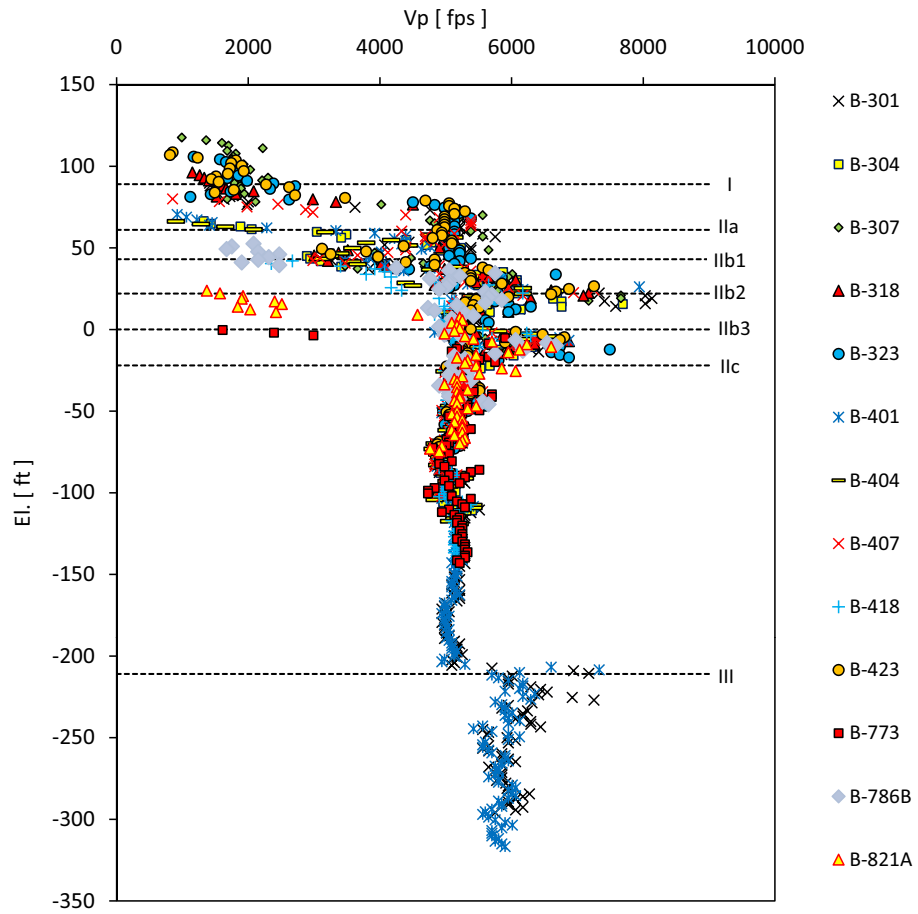


Figure 2.5-107 — {Vs Measurements from Suspension P-S Velocity Logging}

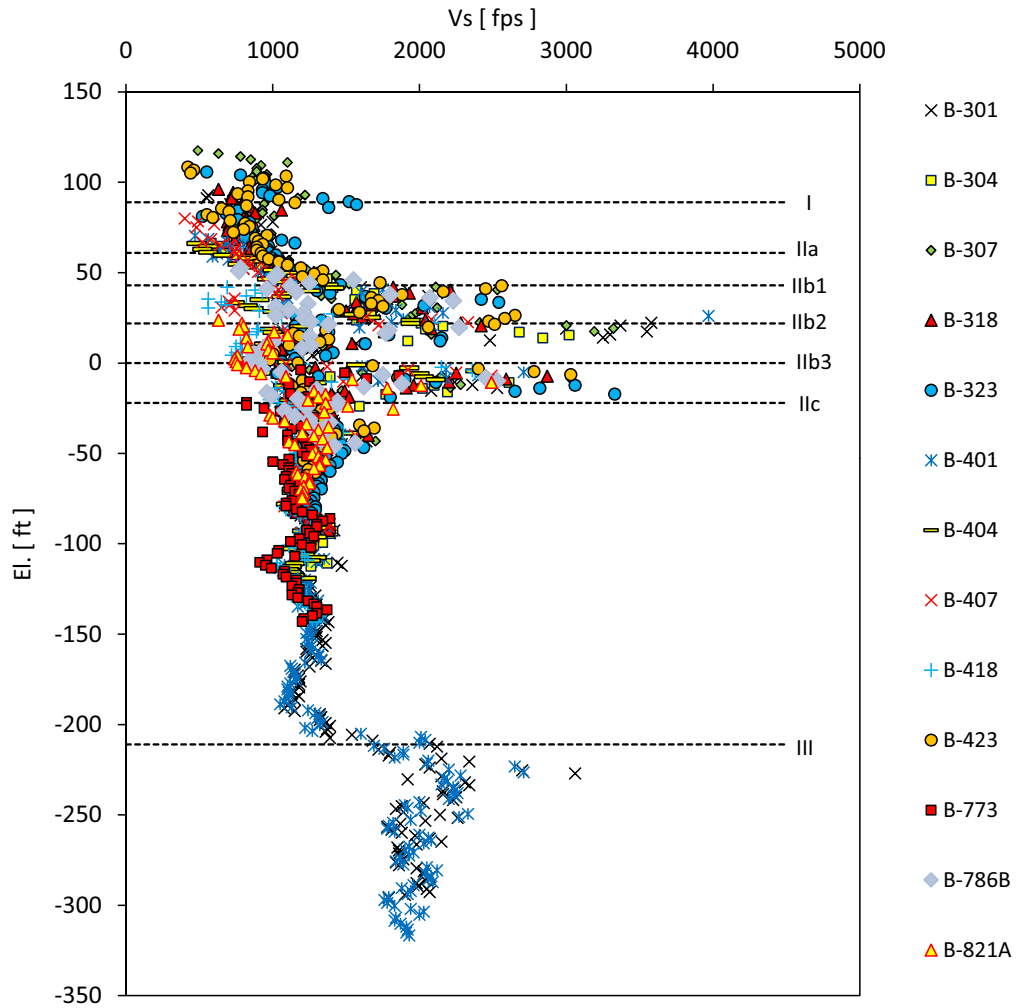


Figure 2.5-108 — {PS Logging Test at Intake Area B-773}

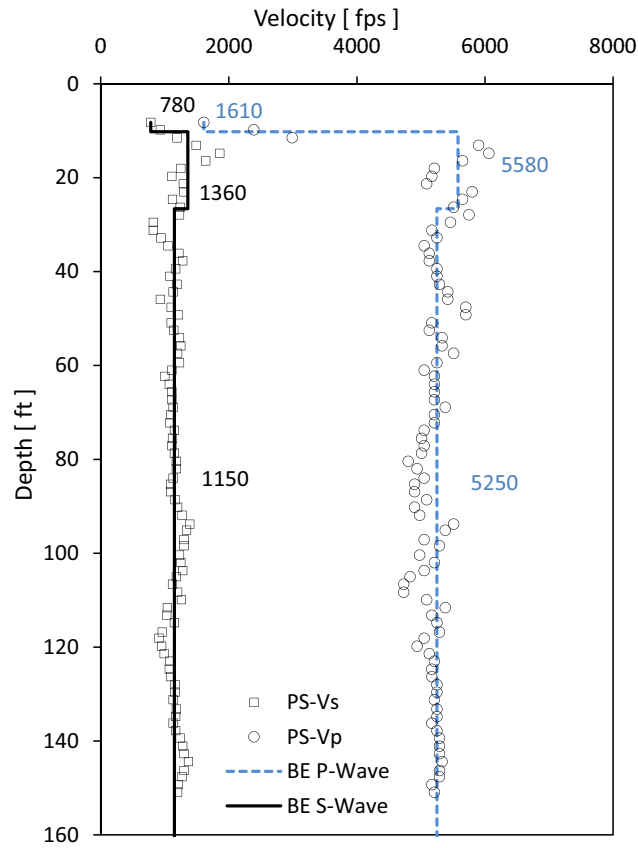


Figure 2.5-109 — {Uphole Seismic Survey Results from CCNPP Units 1 and 2 UFSAR}

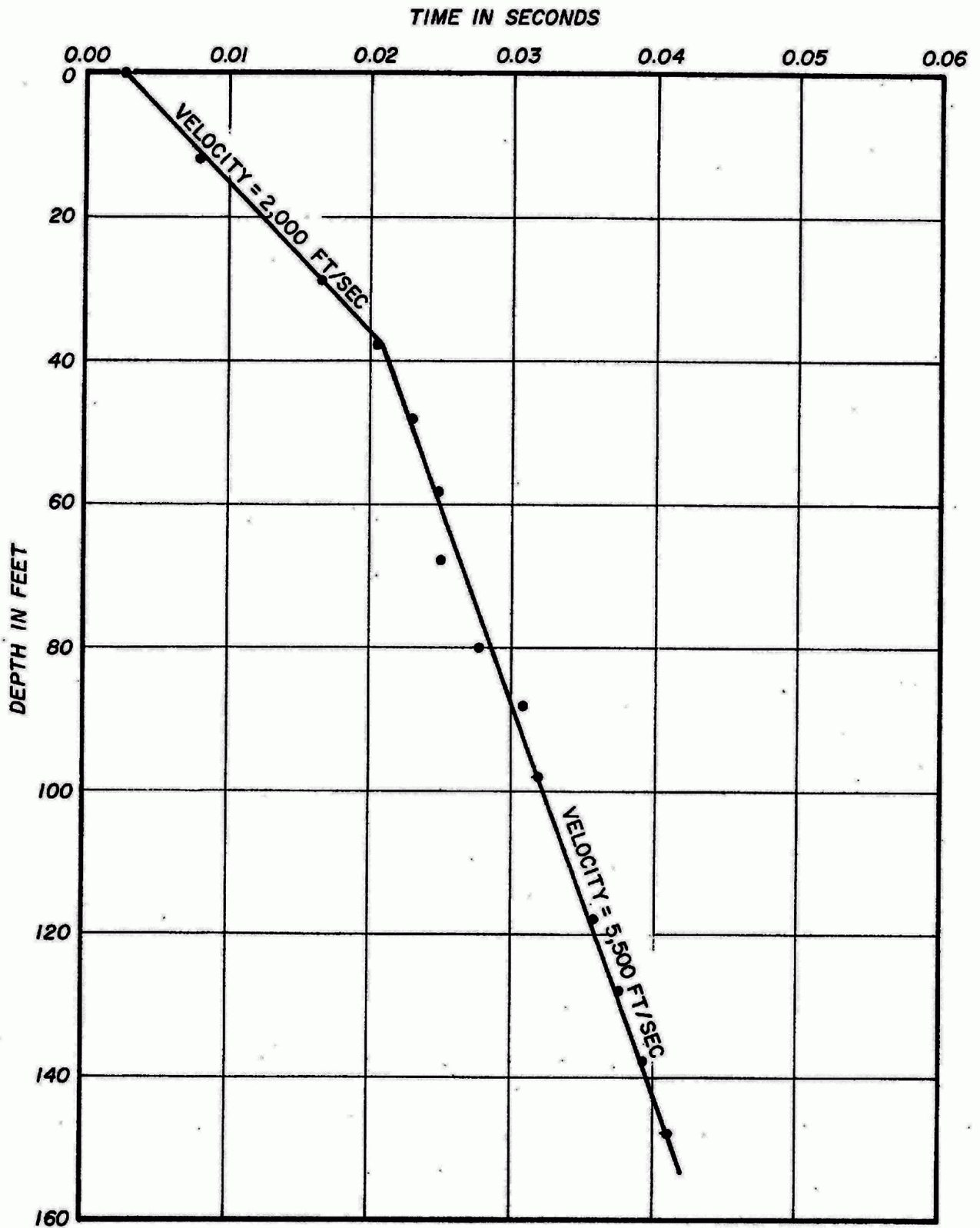


Figure 2.5-110 — {Pressuremeter Data}

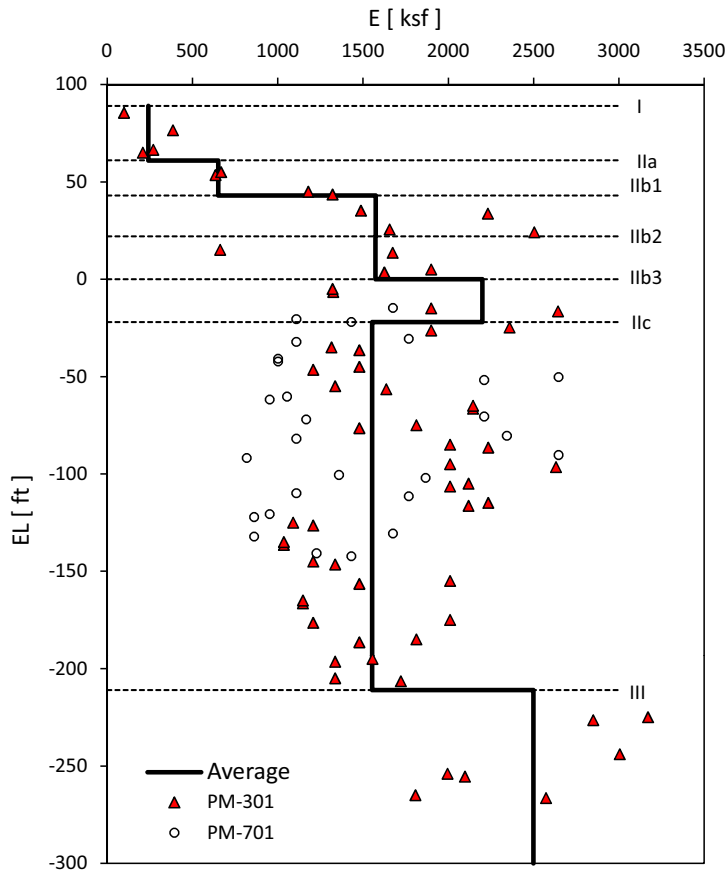


Figure 2.5-111 — {Moisture Content and Atterberg Limits, Powerblock Area}

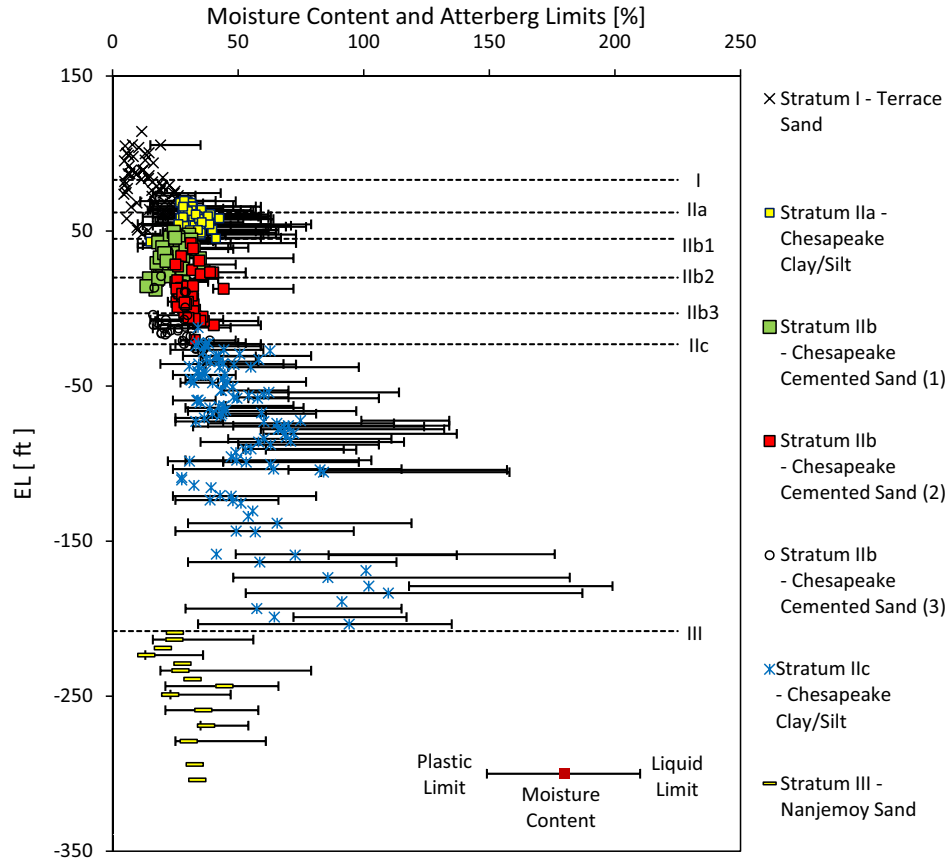


Figure 2.5-112 — {Moisture Content and Atterberg Limits, Intake Area}

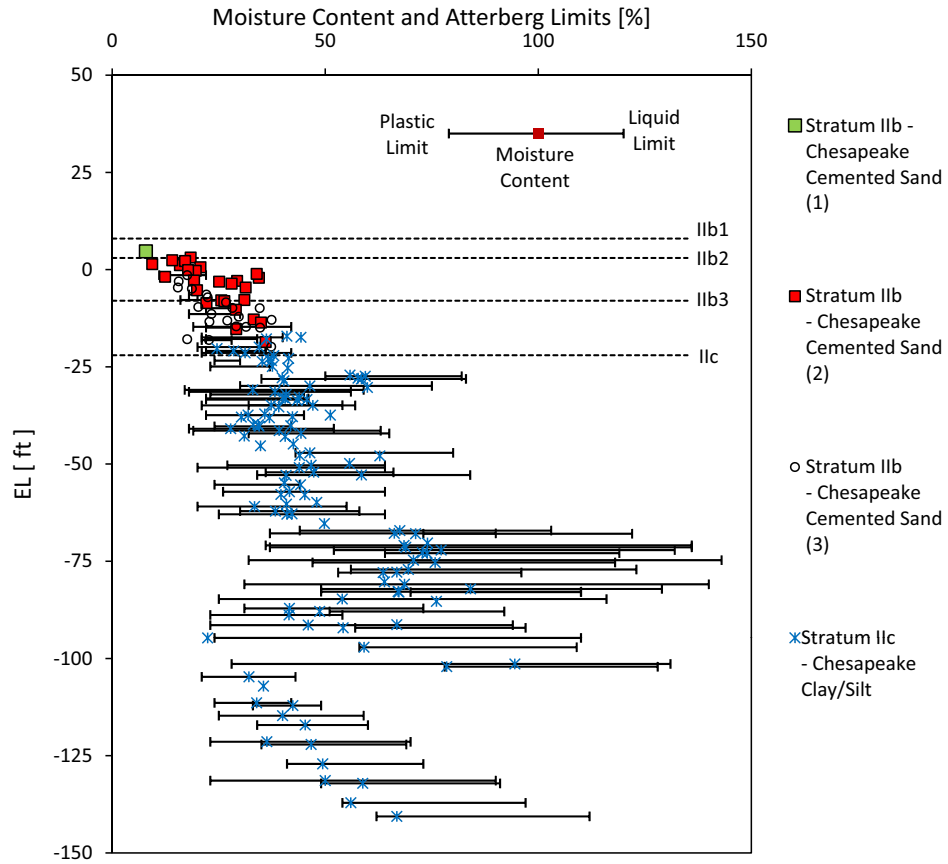


Figure 2.5-113 — {Plasticity Chart, Powerblock Area}

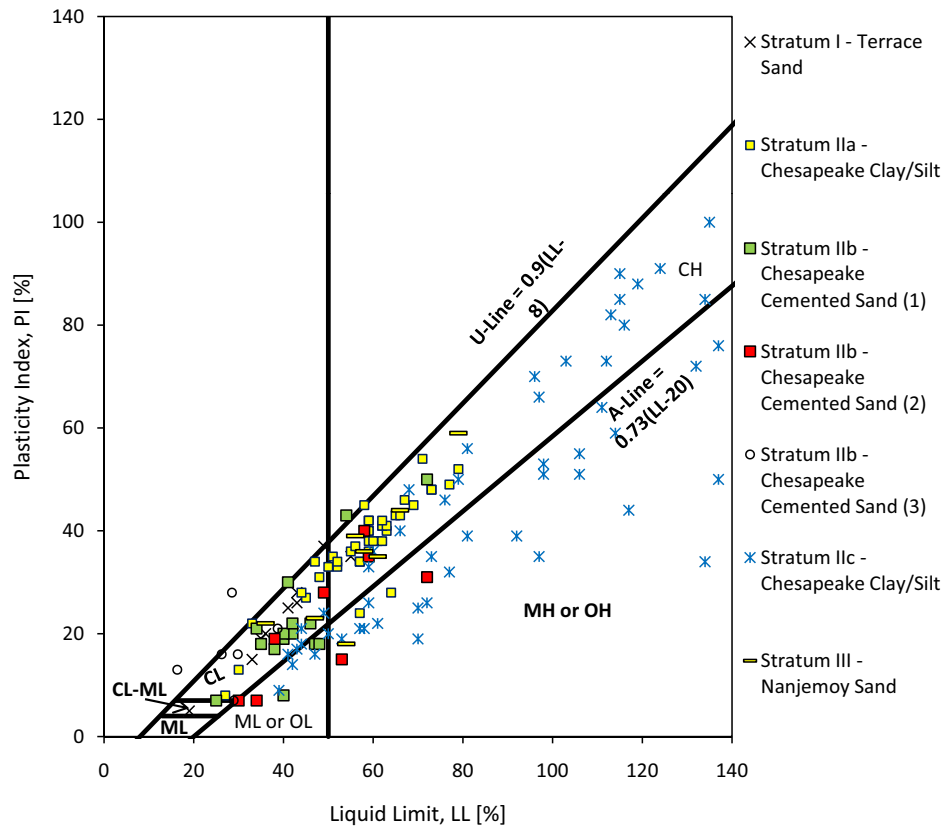


Figure 2.5-114 — {Plasticity Chart, Intake Area}

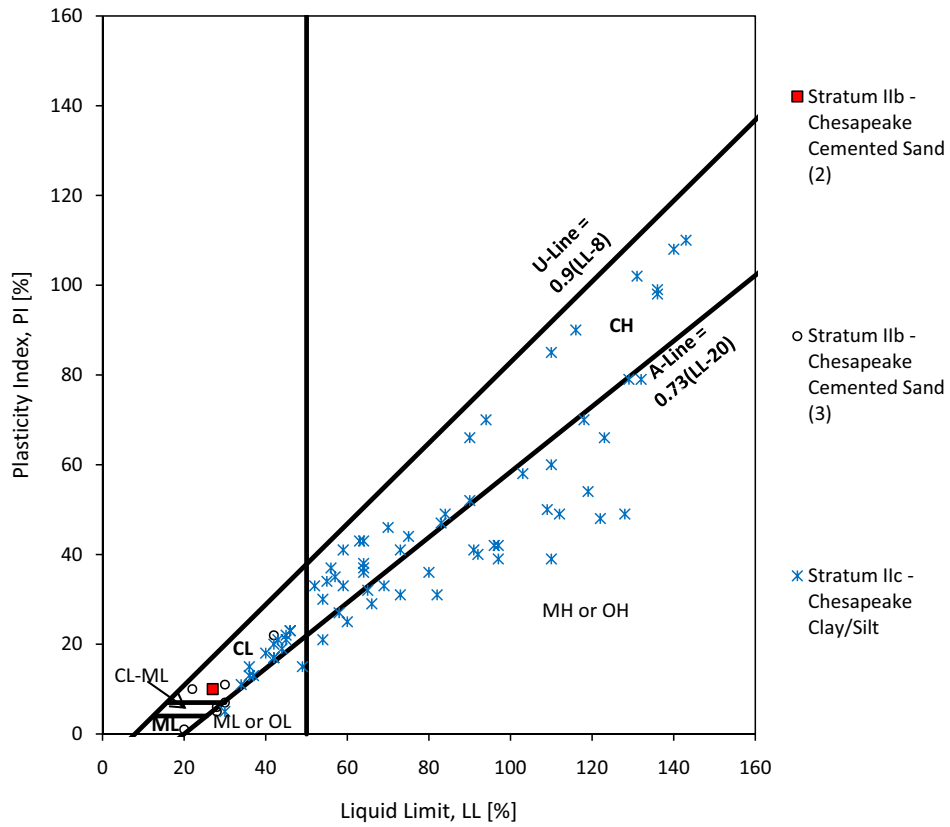


Figure 2.5-115 — {RCTS Testing Sample B-437-6, Powerblock Area}

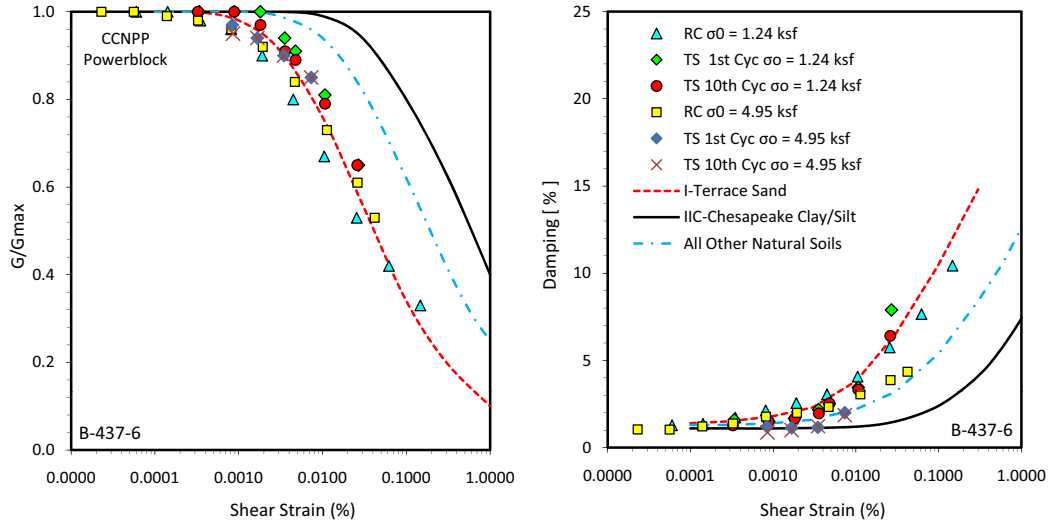


Figure 2.5-116 — {RCTS Testing Sample B-301-10, Powerblock Area}

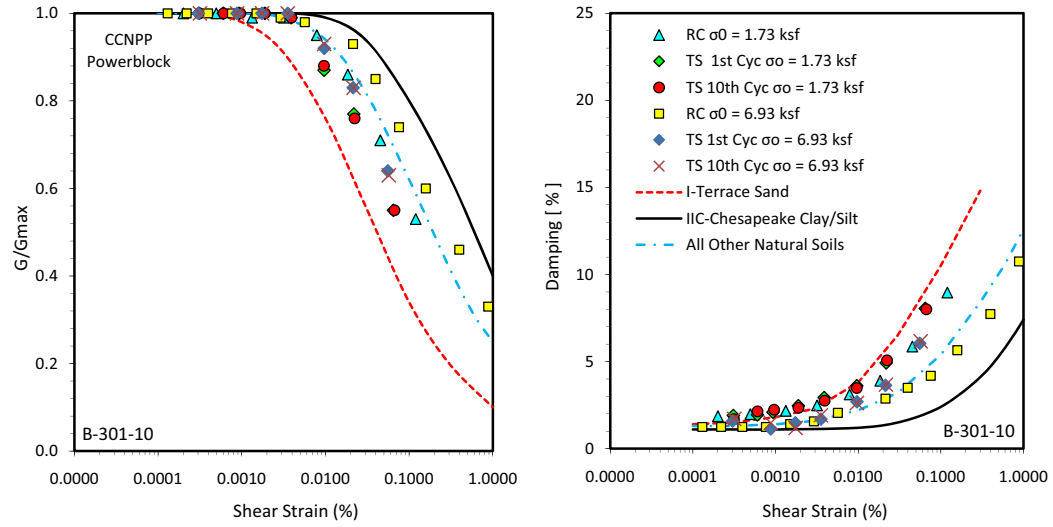


Figure 2.5-117 — {RCTS Testing Sample B-305-17, Powerblock Area}

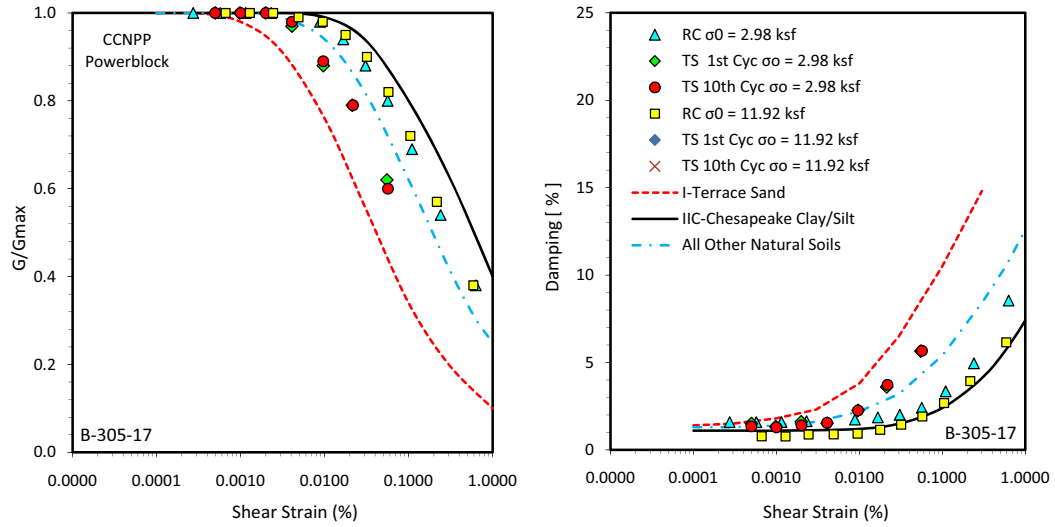


Figure 2.5-118 — {RCTS Testing Sample B-404-14, Powerblock Area}

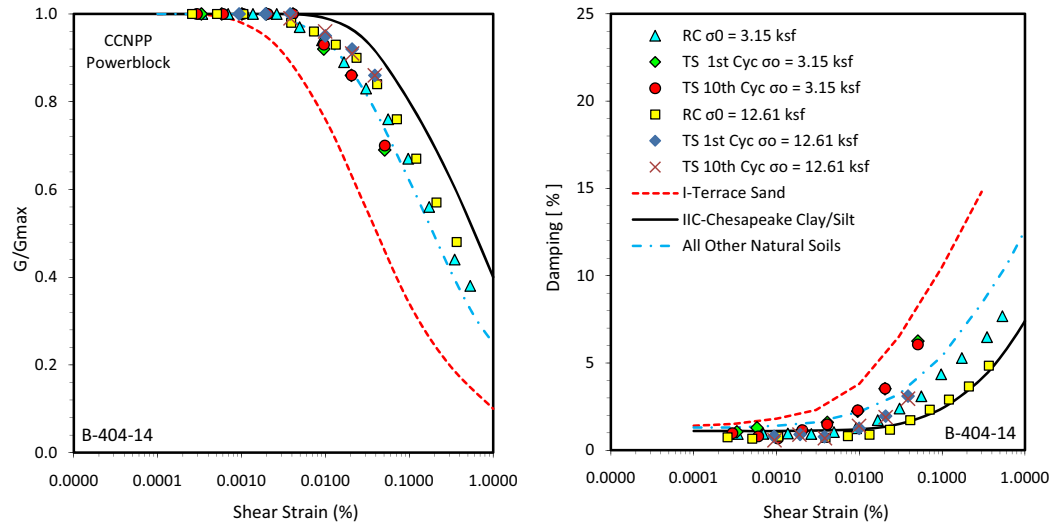


Figure 2.5-119 — {RCTS Testing Sample B-401-31, Powerblock Area}

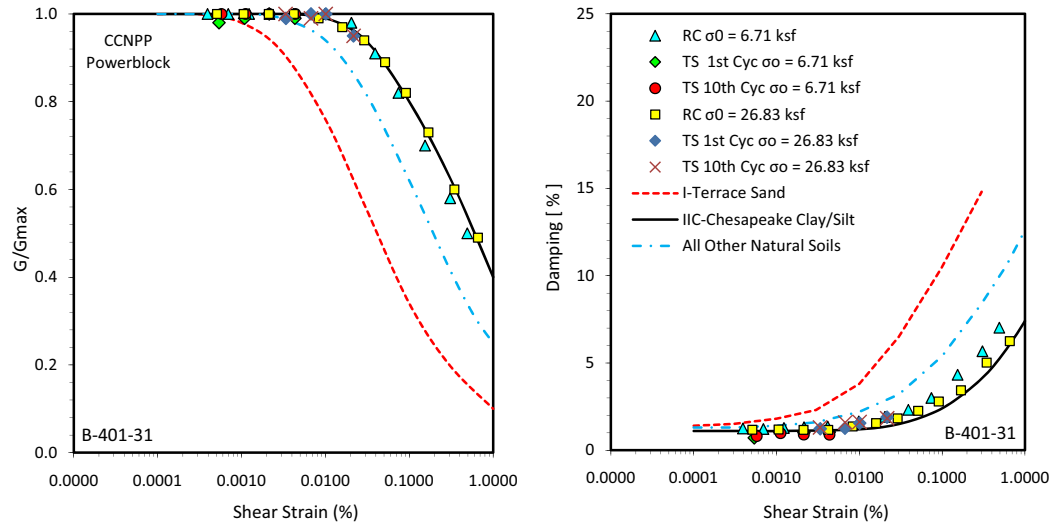


Figure 2.5-120 — {RCTS Testing Sample B-401-67, Powerblock Area}

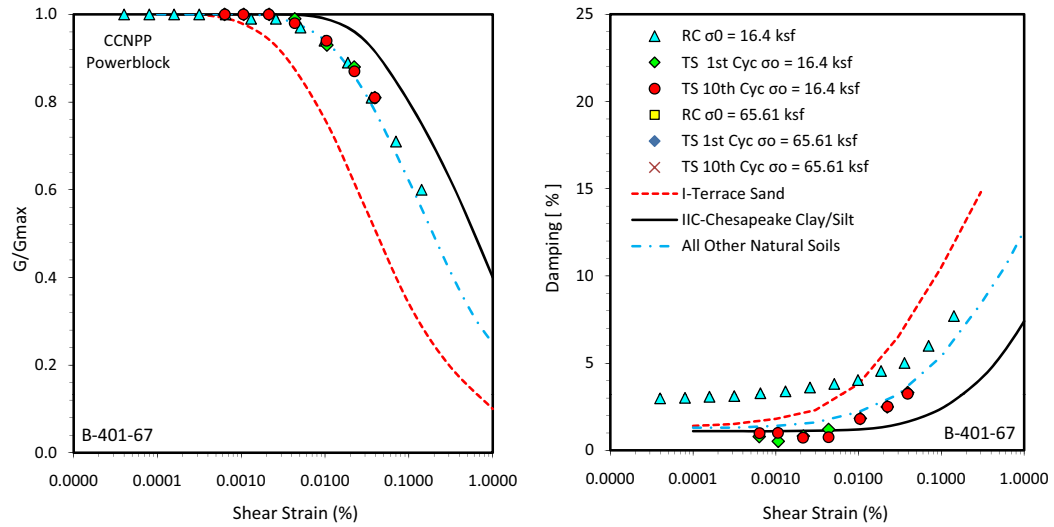


Figure 2.5-121 — {RCTS Testing Sample B-401-48, Powerblock Area}

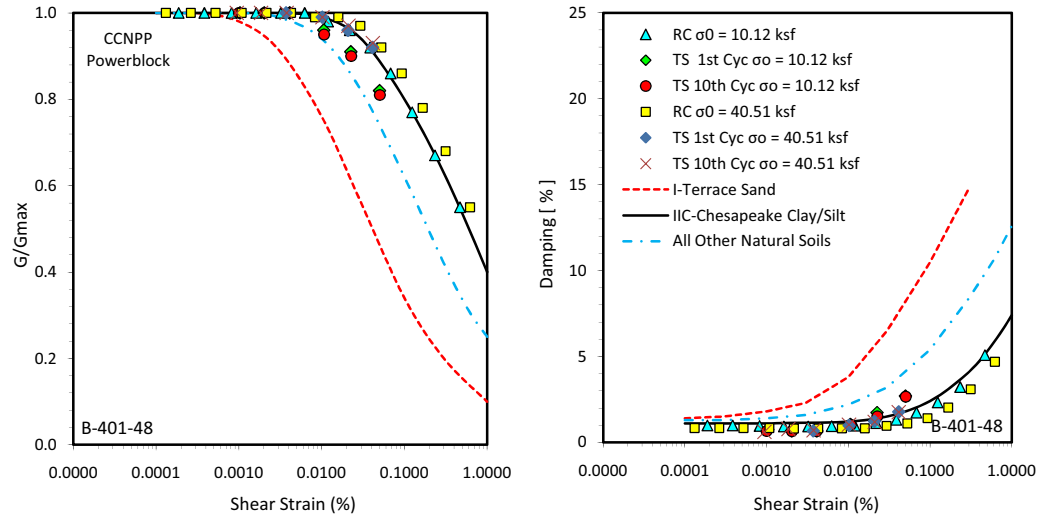


Figure 2.5-122 — {RCTS Testing Sample B-301-78, Powerblock Area}

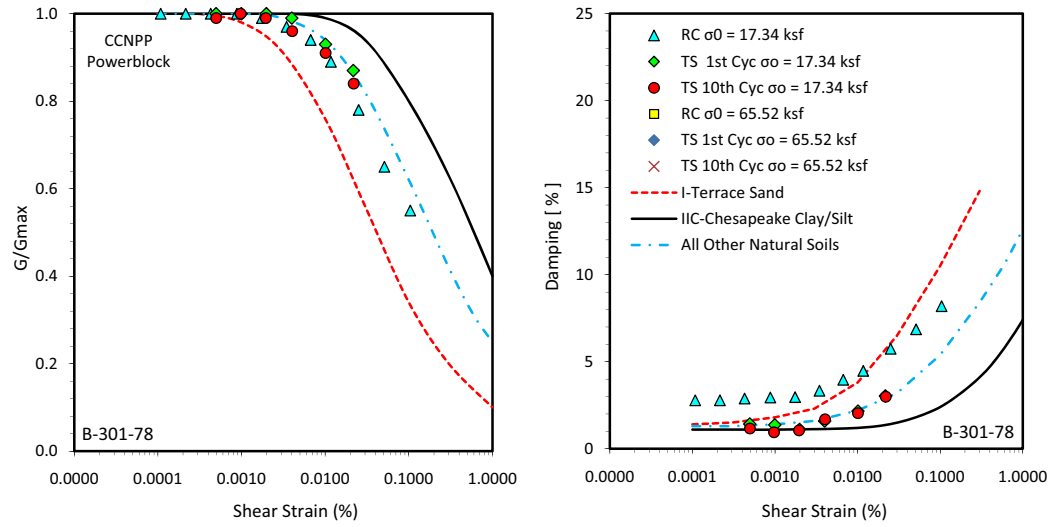


Figure 2.5-123 — {RCTS Testing Sample B-306-17, Powerblock Area}

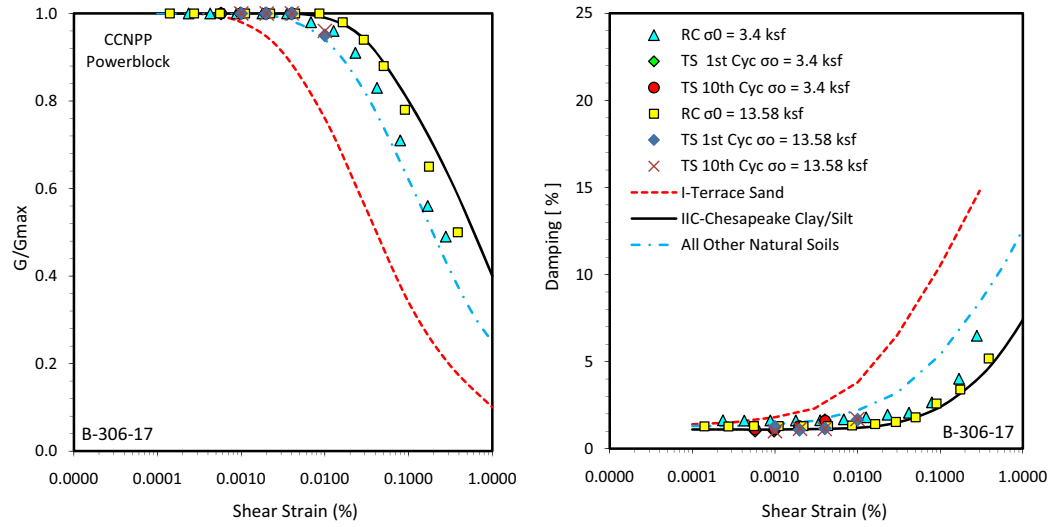


Figure 2.5-124 — {RCTS Testing Sample B-409-15, Powerblock Area}

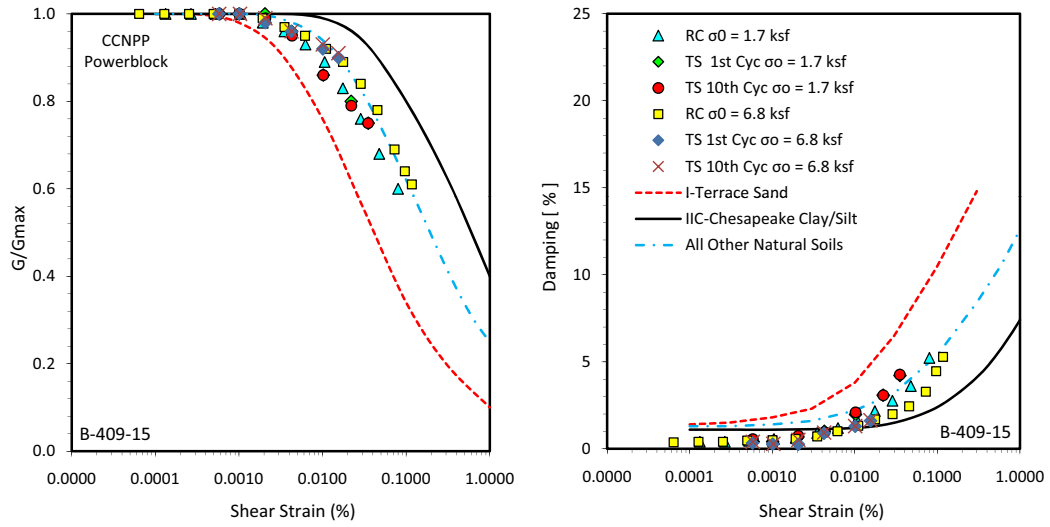


Figure 2.5-125 — {RCTS Testing Sample B-404-22, Powerblock Area}

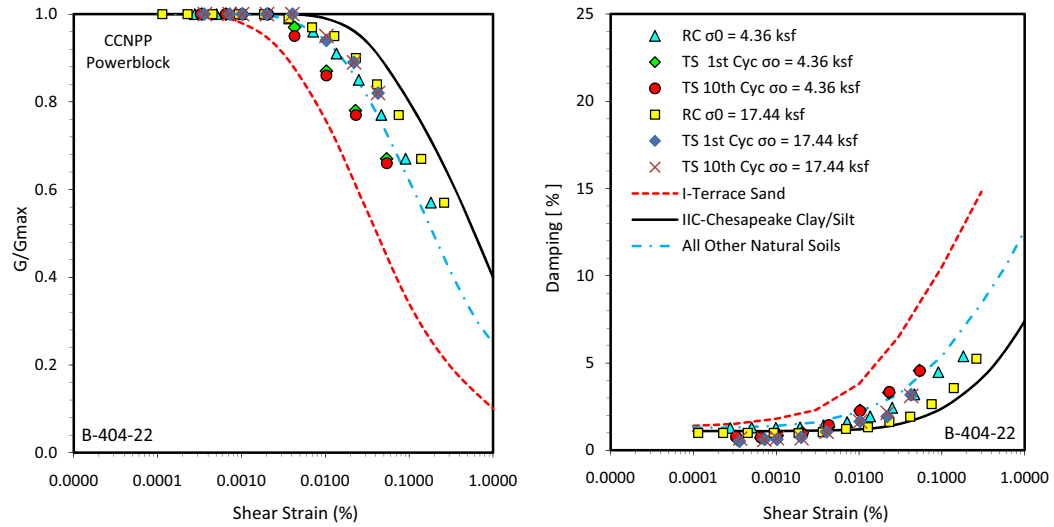


Figure 2.5-126 — {RCTS Testing Sample B-401-42, Powerblock Area}

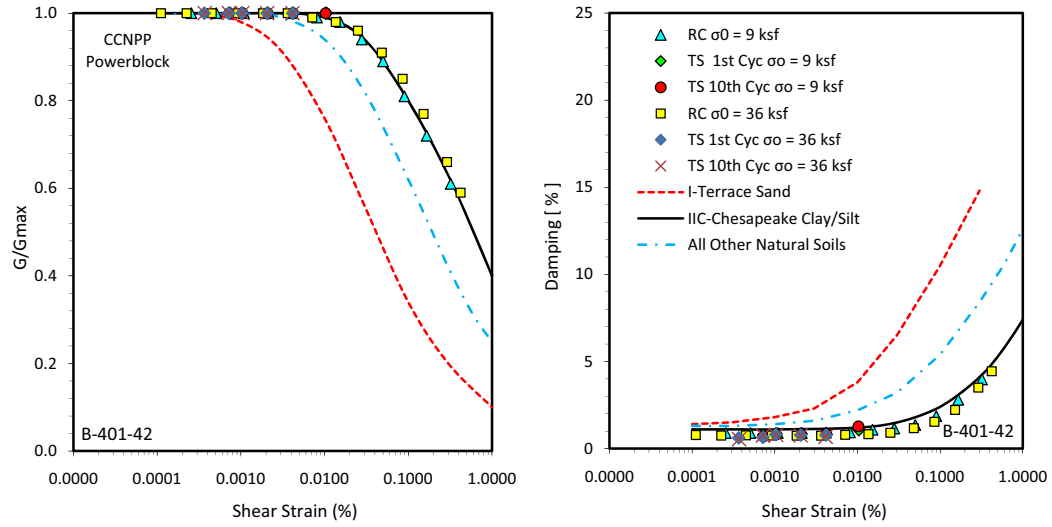


Figure 2.5-127 — {RCTS Testing Sample B-409-39, Powerblock Area}

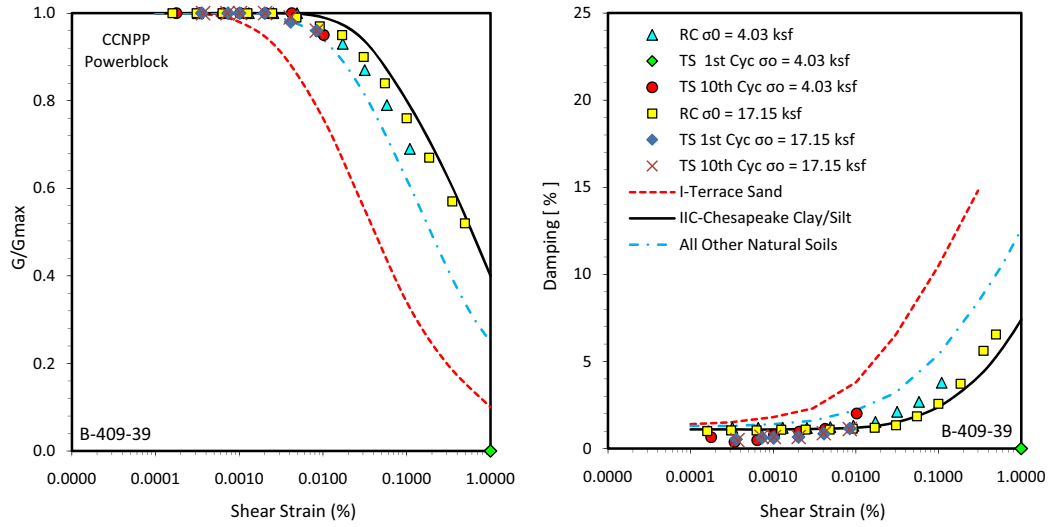


Figure 2.5-128 — {RCTS Testing Sample B-773-2, Intake Area}

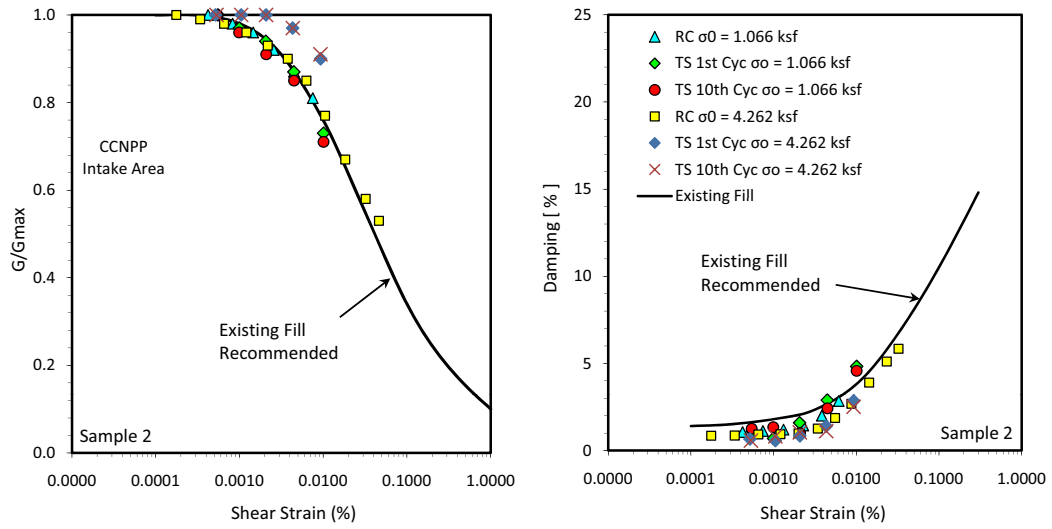


Figure 2.5-129 — {RCTS Testing Sample B-773-3, Intake Area}

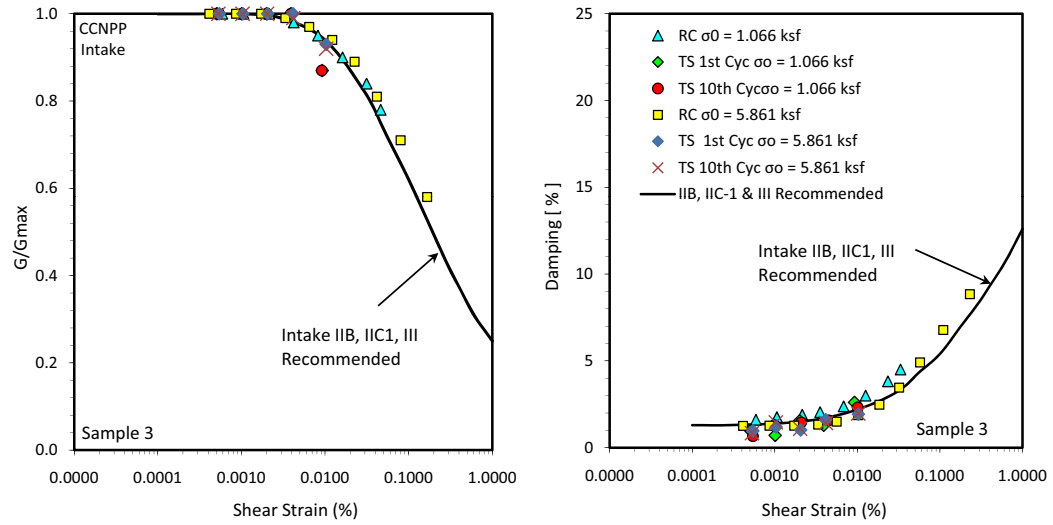


Figure 2.5-130 — {RCTS Testing Sample B-773-4, Intake Area}

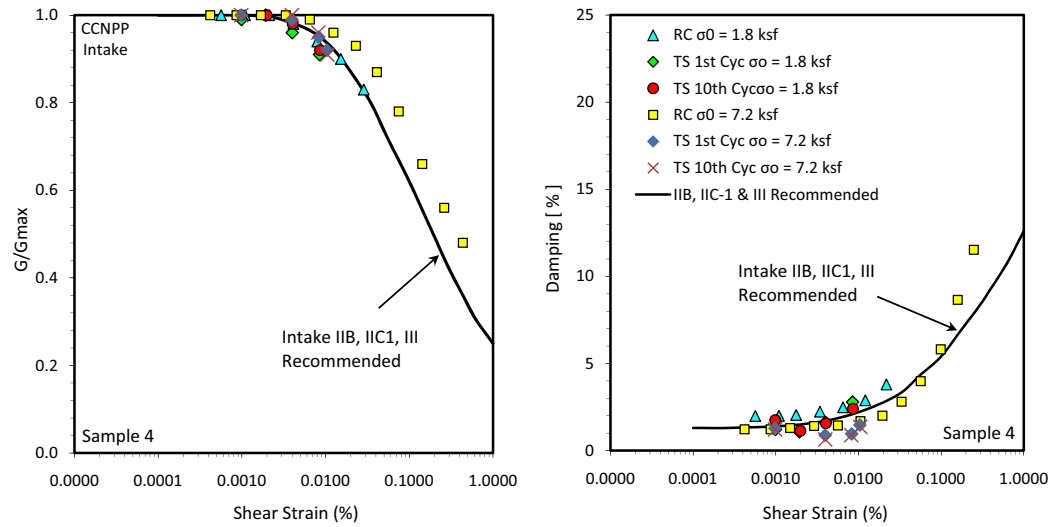


Figure 2.5-131 — {RCTS Testing Sample B-773-5, Intake Area}

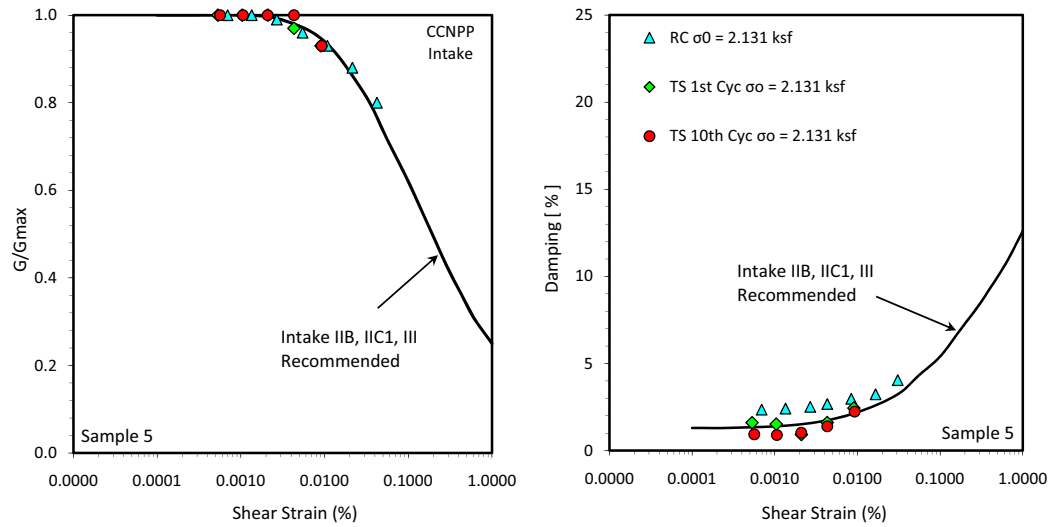


Figure 2.5-132 — {RCTS Testing Sample B-773-6, Intake Area}

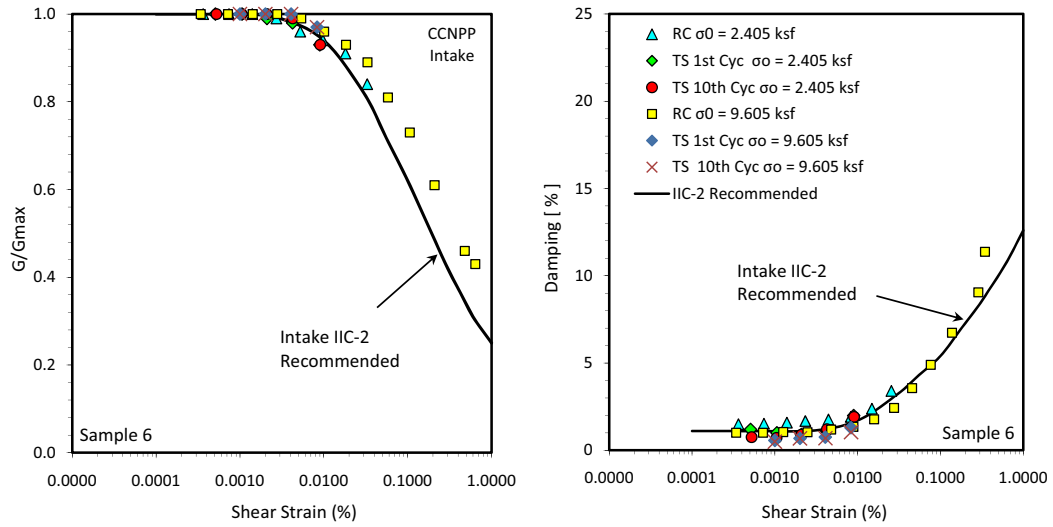


Figure 2.5-133 — }RCTS Testing Sample B-773-7, Intake Area}

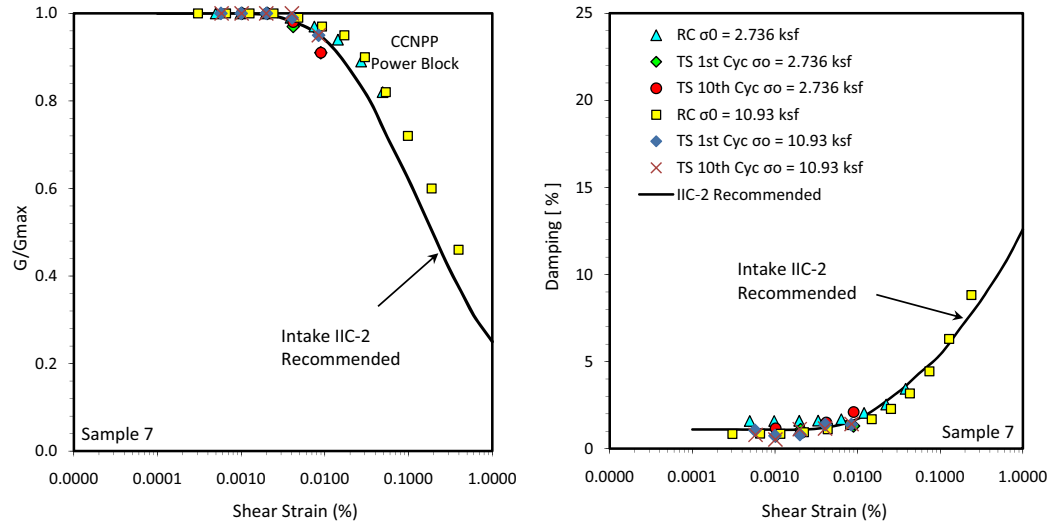


Figure 2.5-134 — {RCTS Testing Sample B-773-9, Intake Area}

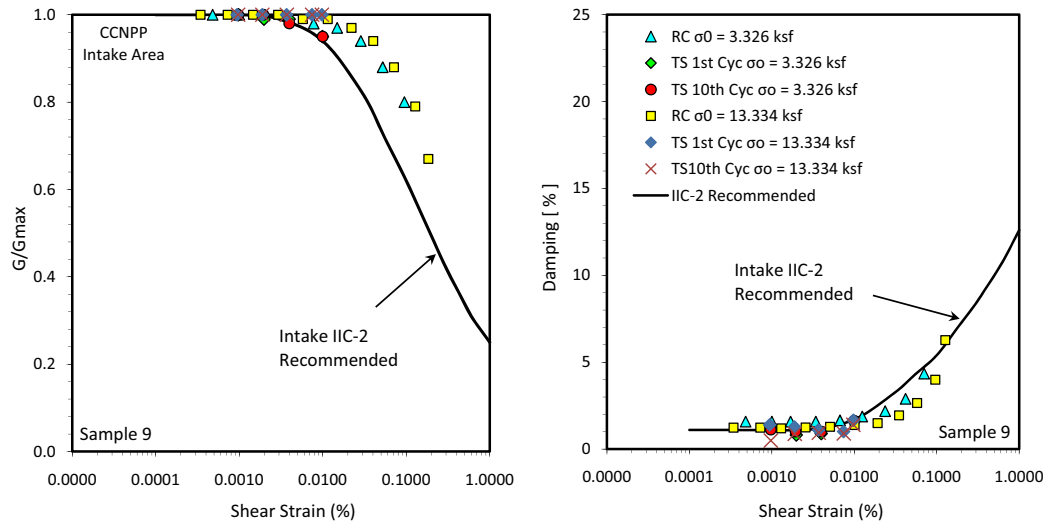


Figure 2.5-135 — {RCTS Testing Sample B-773-11, Intake Area}

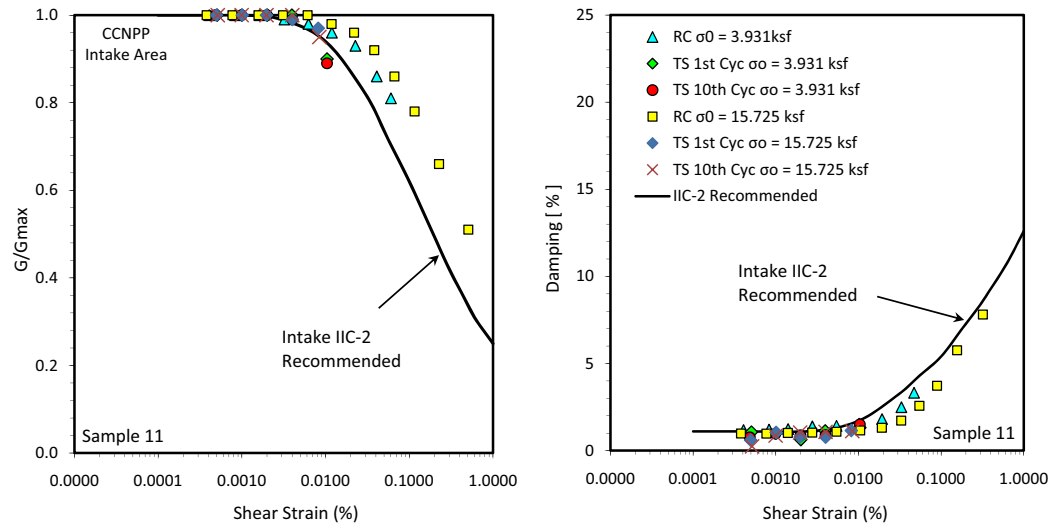


Figure 2.5-136 — {RCTS Testing Sample B-773-13, Intake Area}

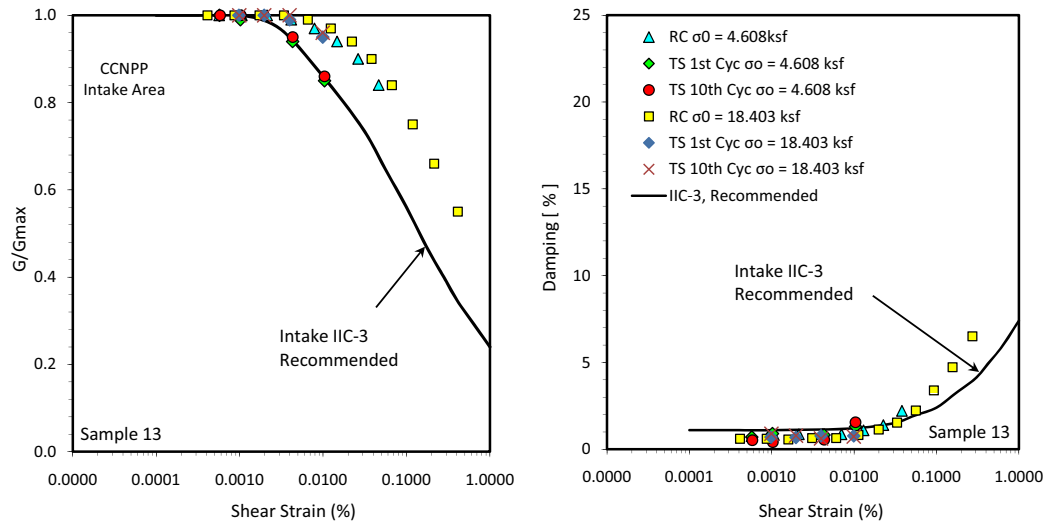


Figure 2.5-137 — {RCTS Testing Sample B-773-15, Intake Area}

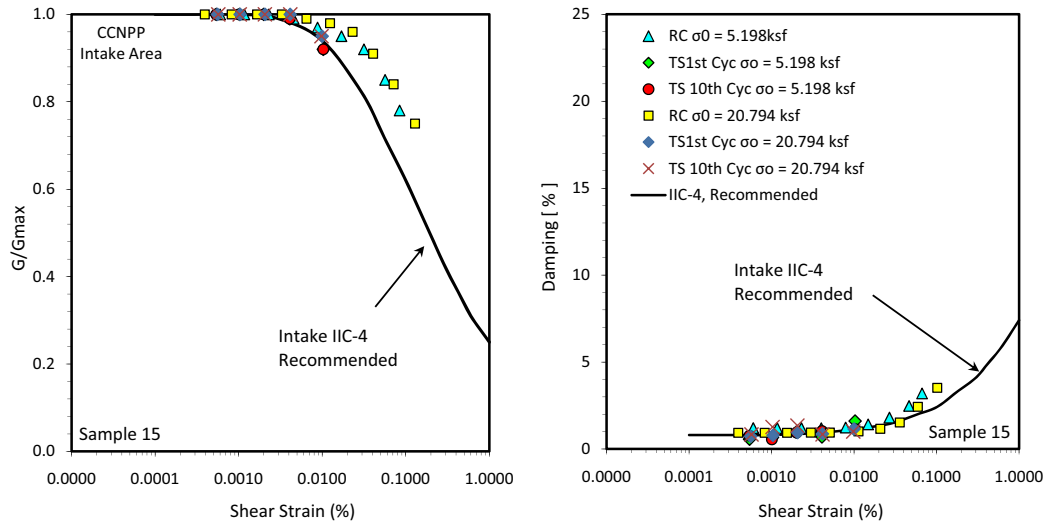


Figure 2.5-138 — {RCTS Testing Sample CR6 Blend, Backfill}

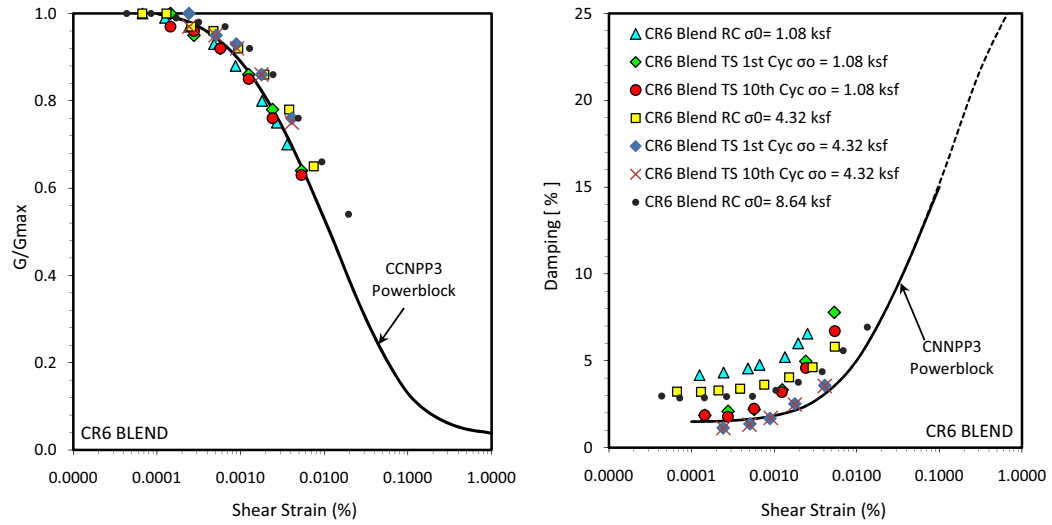


Figure 2.5-139 — {RCTS Testing Sample GAB Blend, Backfill}

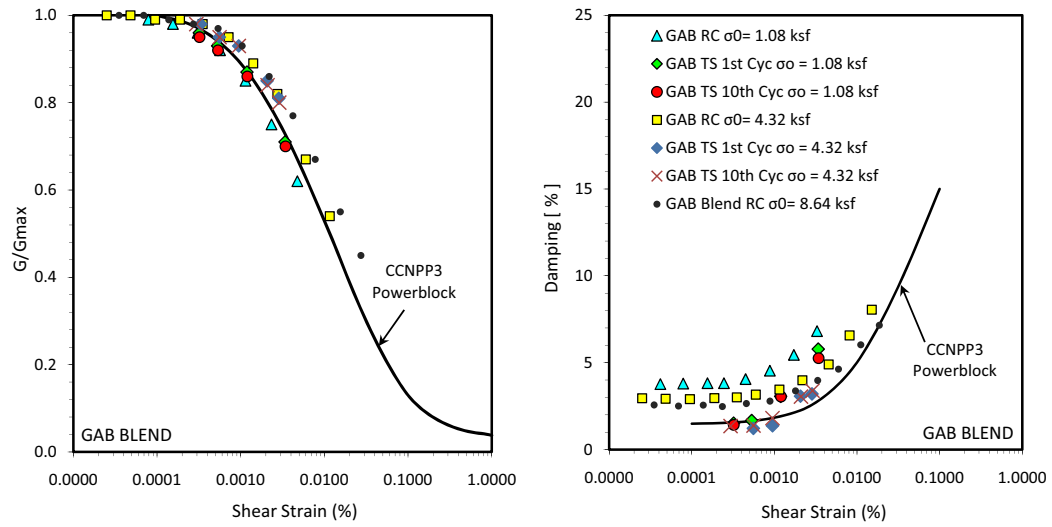


Figure 2.5-140 — {RCTS Testing Sample CR6 Vulcan Average, Backfill}

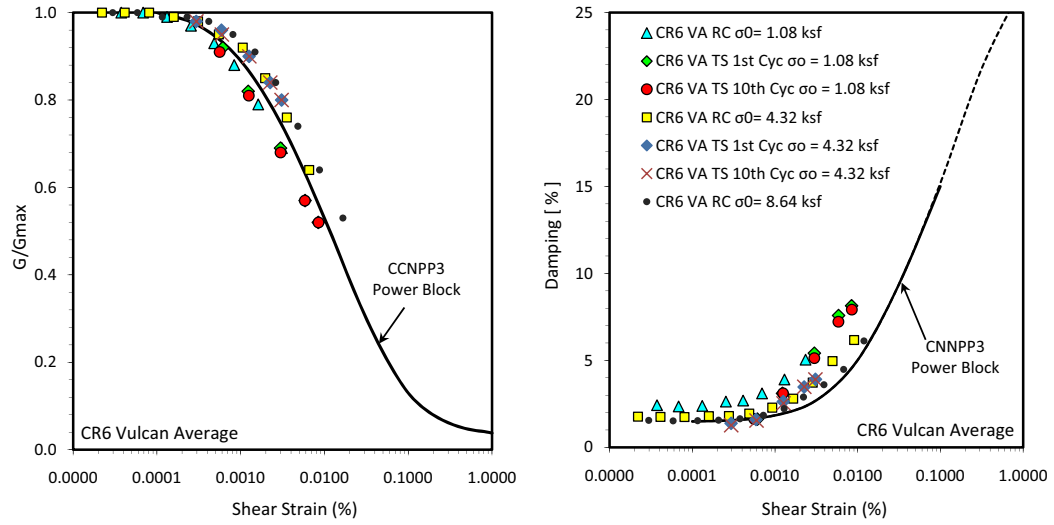


Figure 2.5-142 — {Shear Wave Velocity Based on Chester (Kent Island) Measurements}

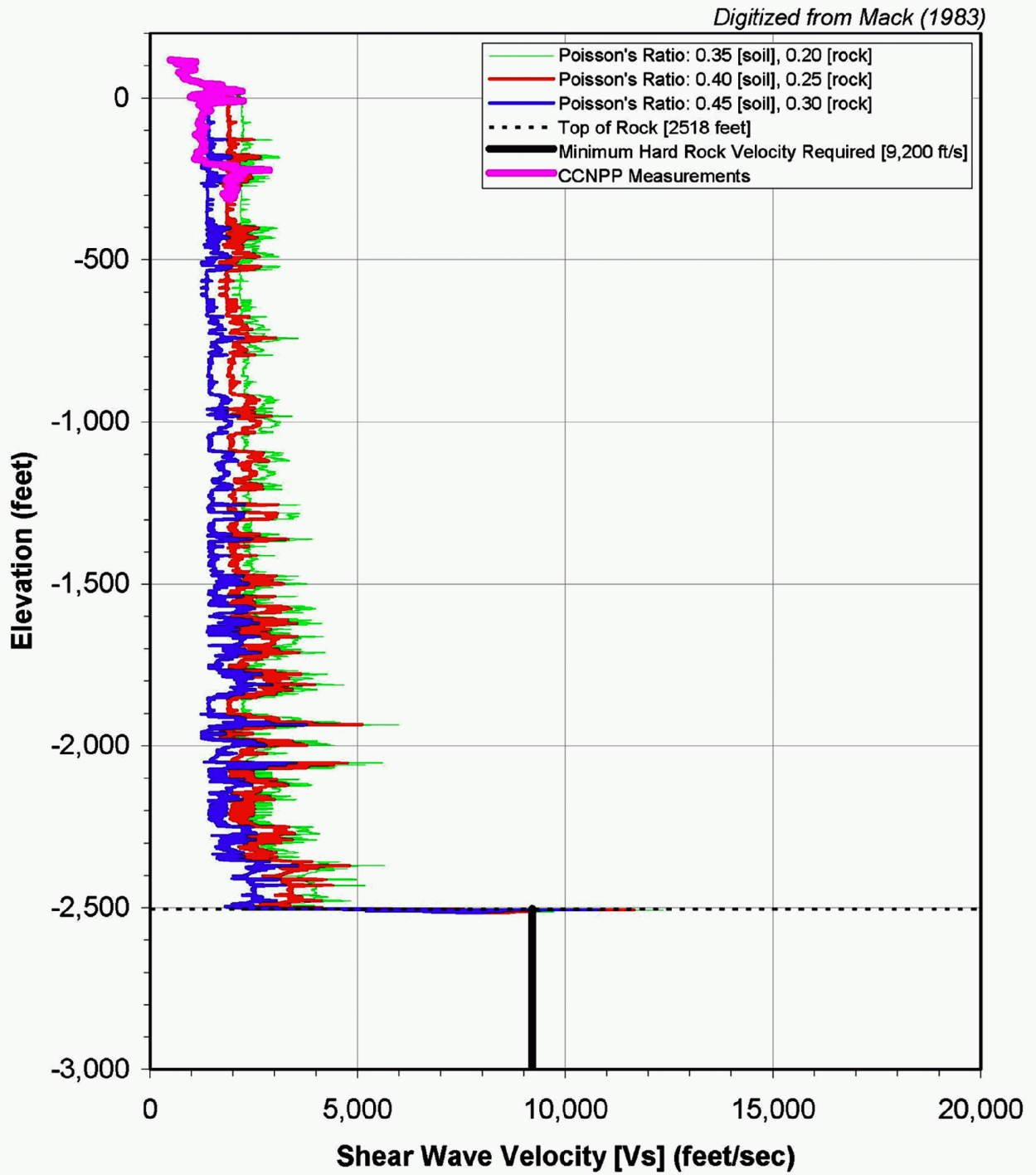


Figure 2.5-143 — {Shear Wave Velocity Based on Lexington Park Measurements}

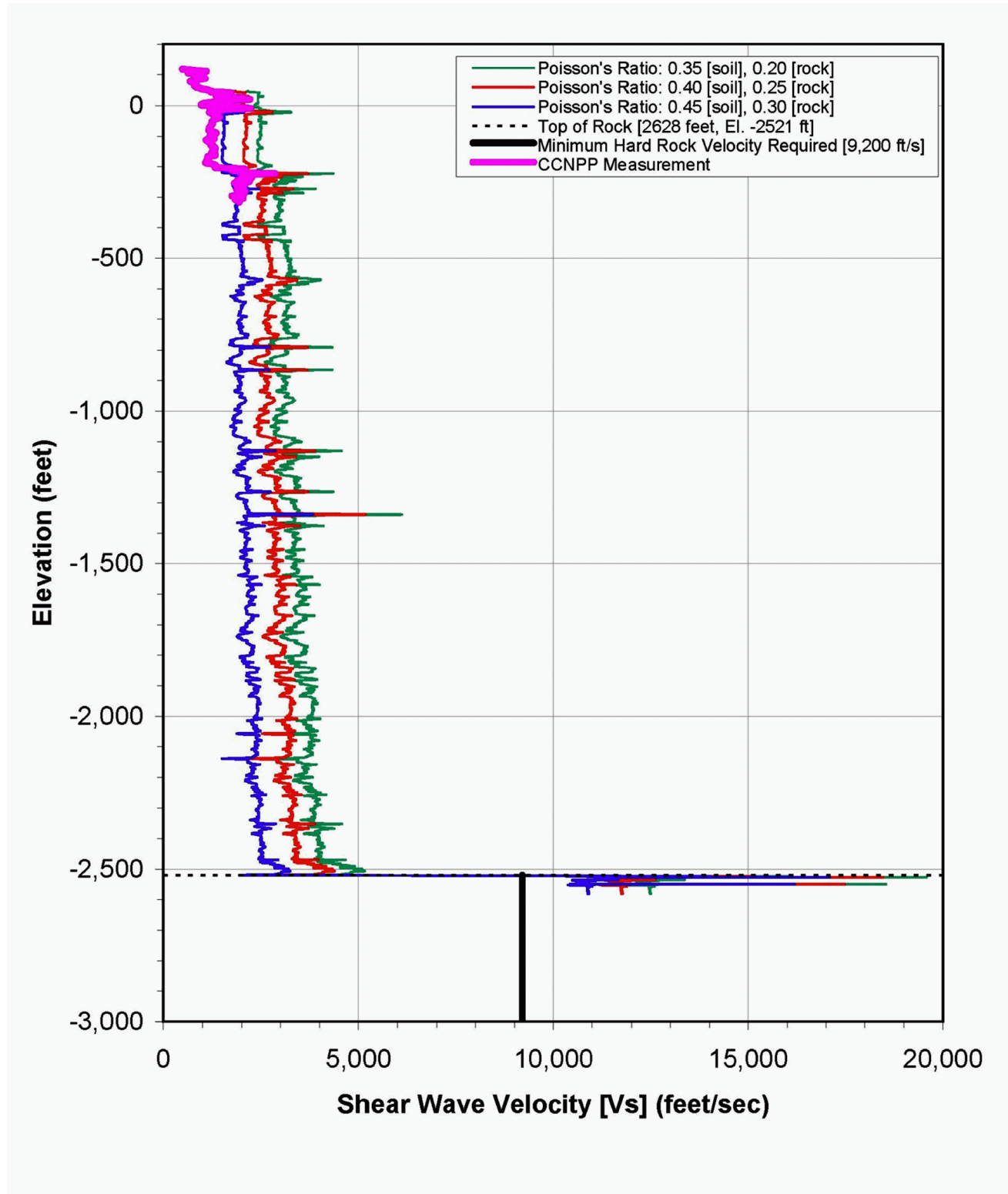


Figure 2.5-144 — {{Smoothed and Averaged Vs Log for Chester and Lexington Park Measurements}}

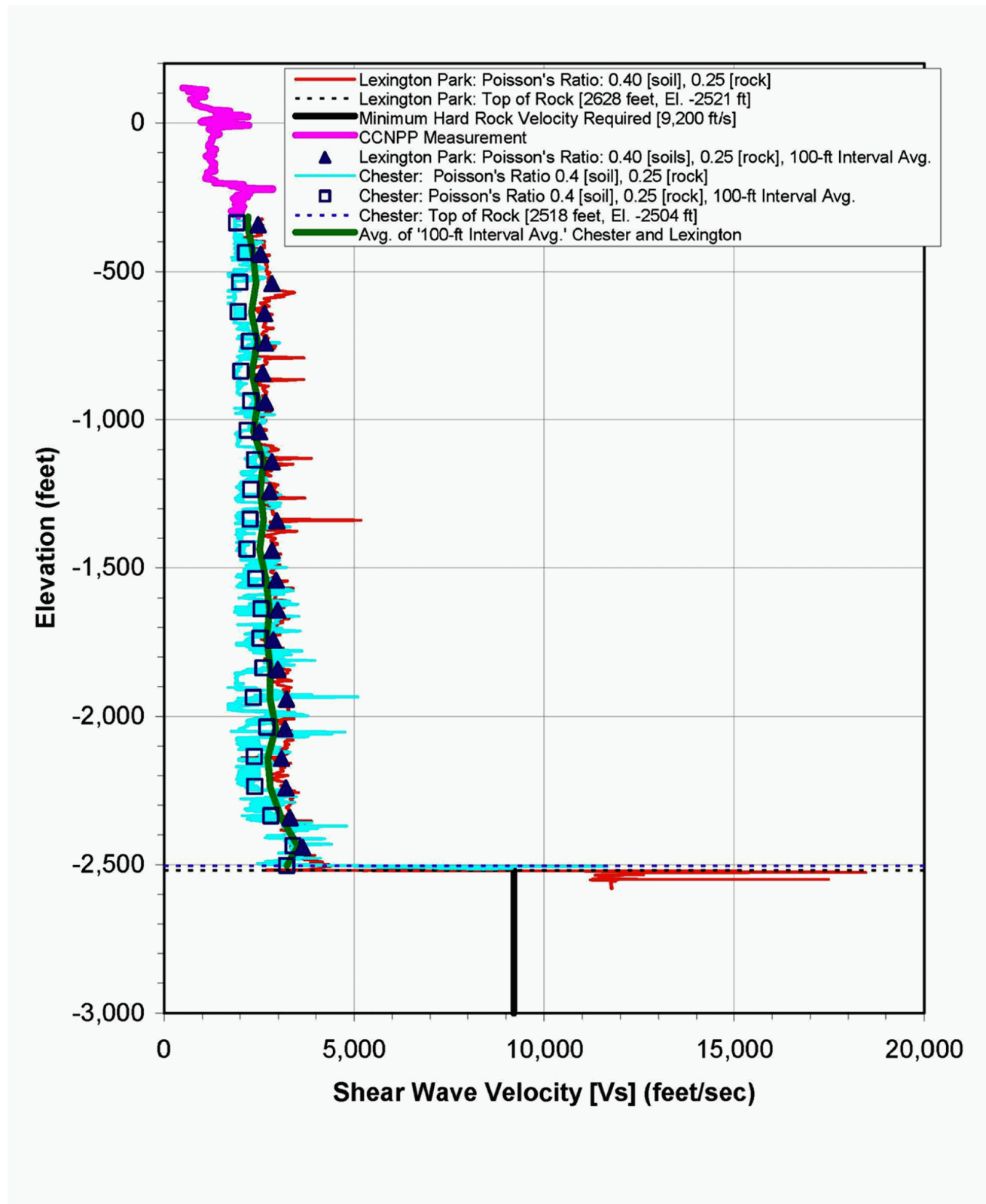


Figure 2.5-145 — {{Average Vs, Chester, Lexington Park, Maryland and Deep Measurements in Coastal Plain Soils}}

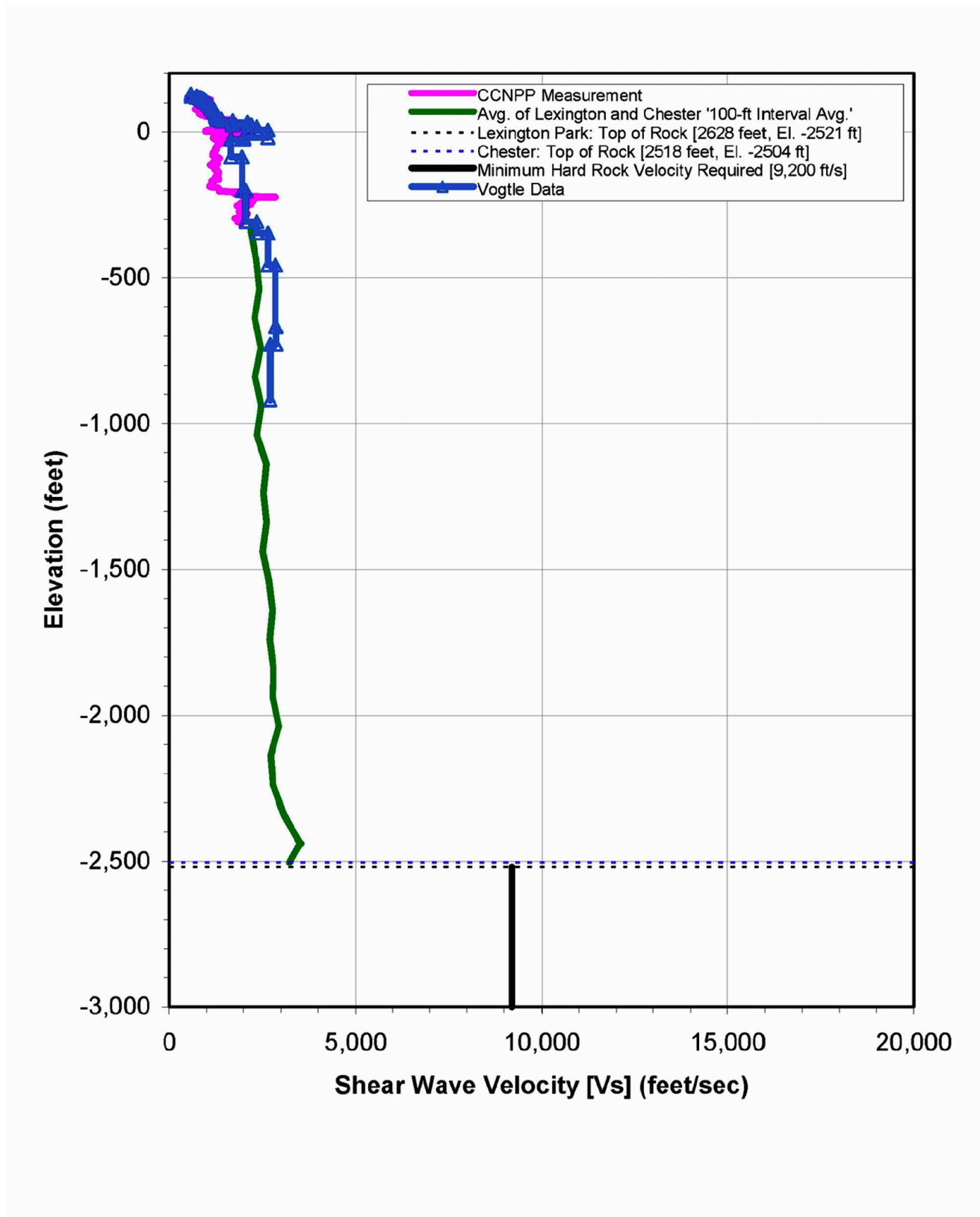


Figure 2.5-146 — {Bedrock Vs Log for Chester (Kent Island), Maryland}

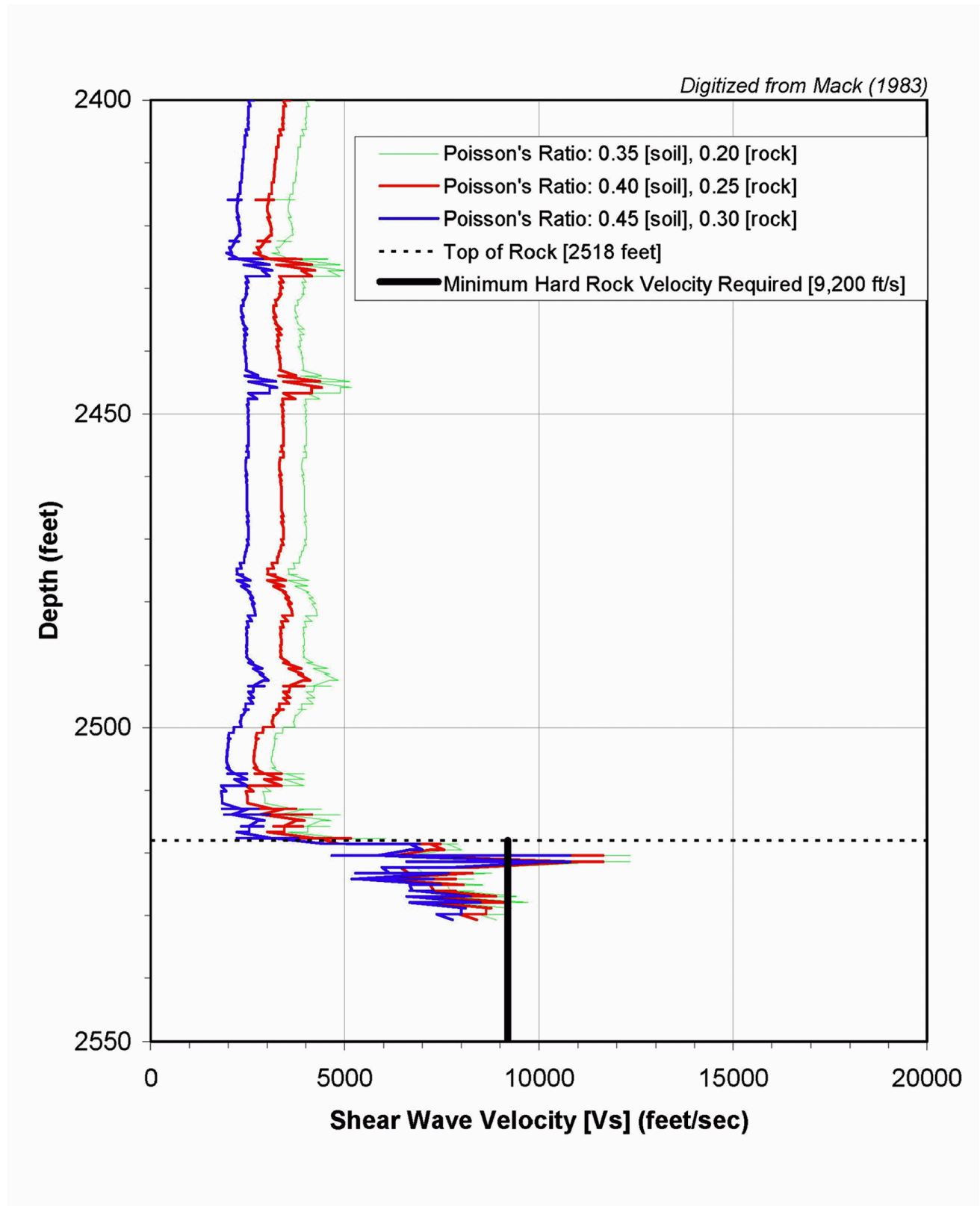


Figure 2.5-147 — {Bedrock Vs Log for Lexington Park, Maryland}

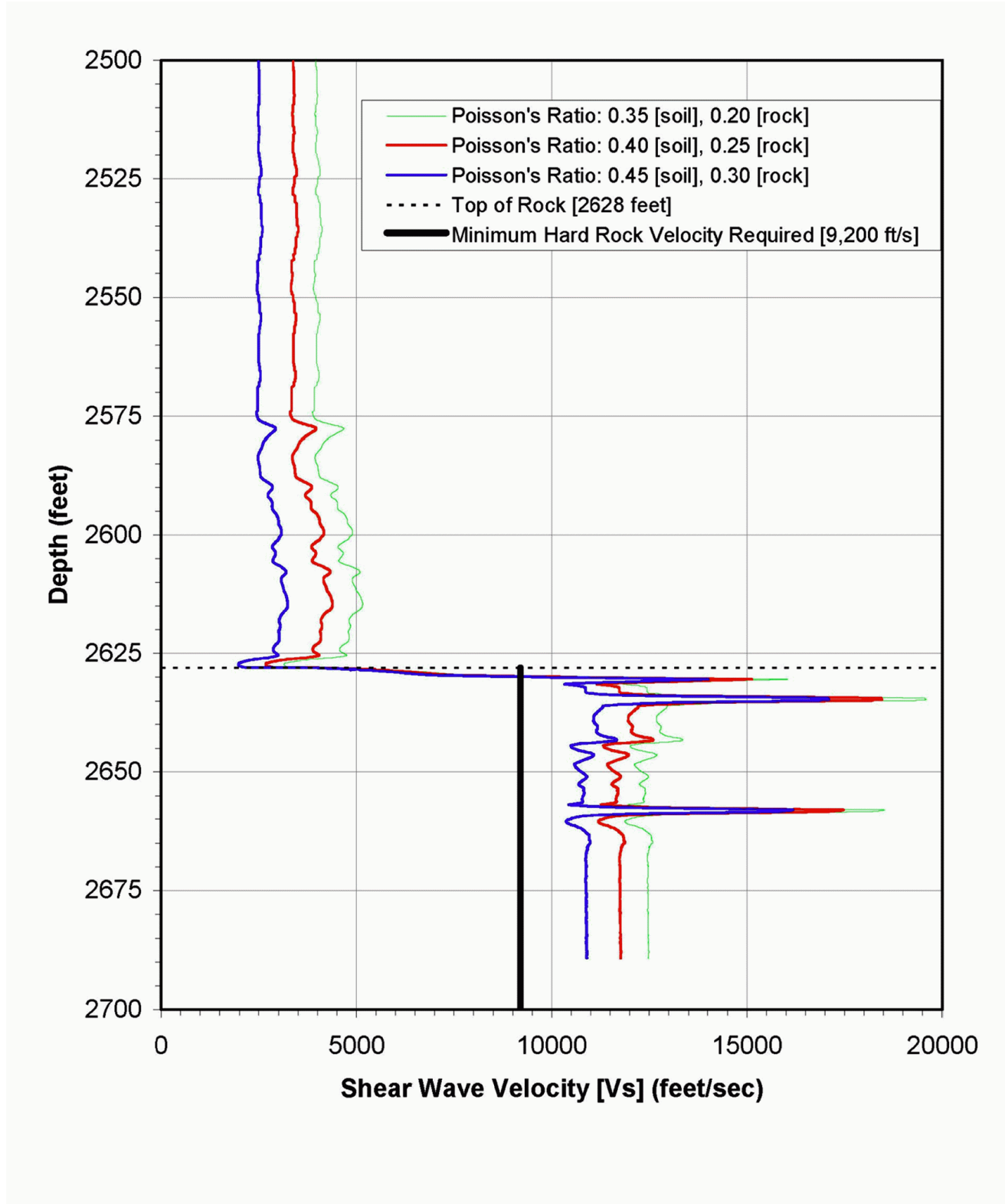


Figure 2.5-148 — {Interpretation of Bedrock Velocity Gradient for Chester Measurement}

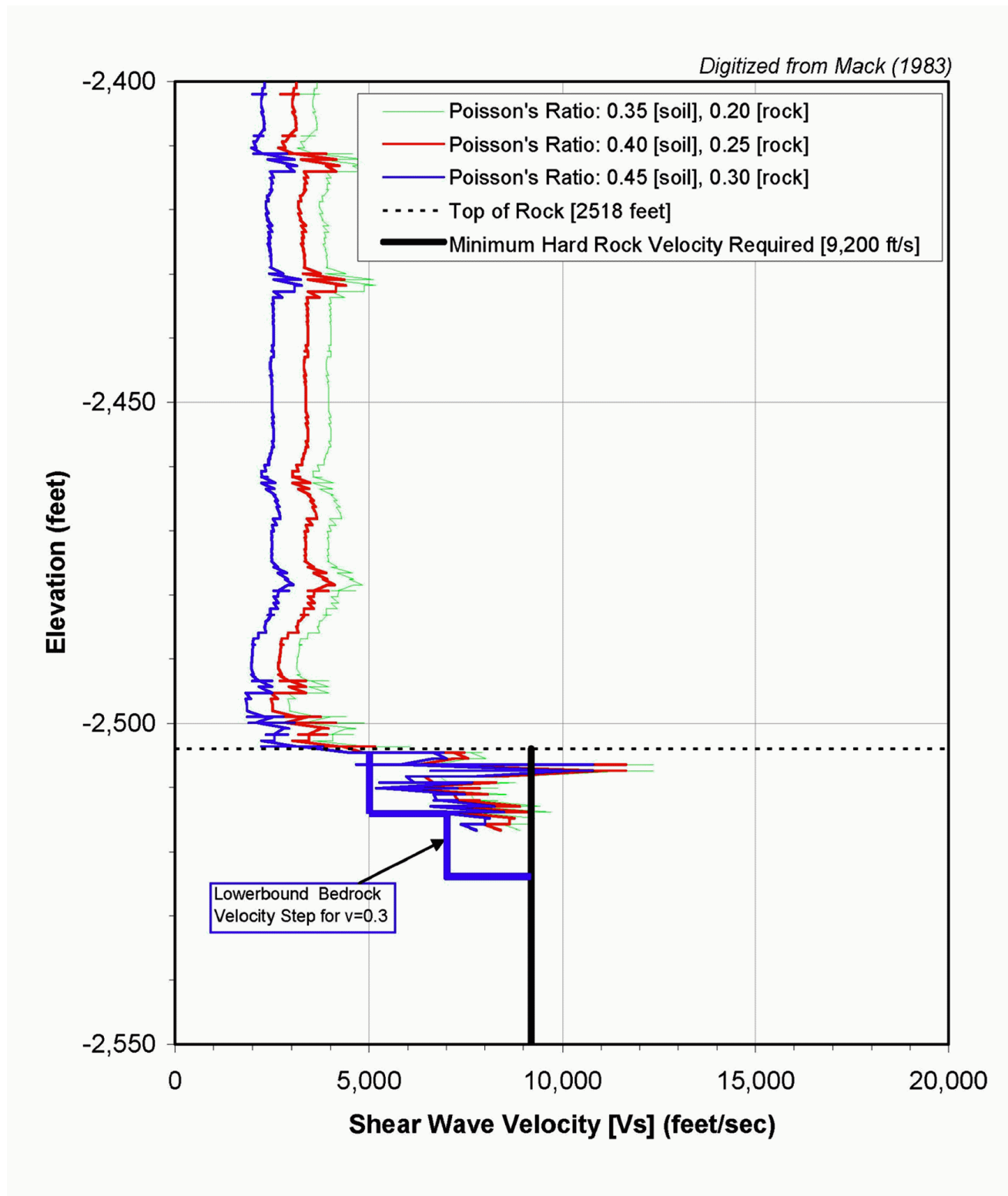


Figure 2.5-149 — {Excavation Profile AA', Powerblock Area}

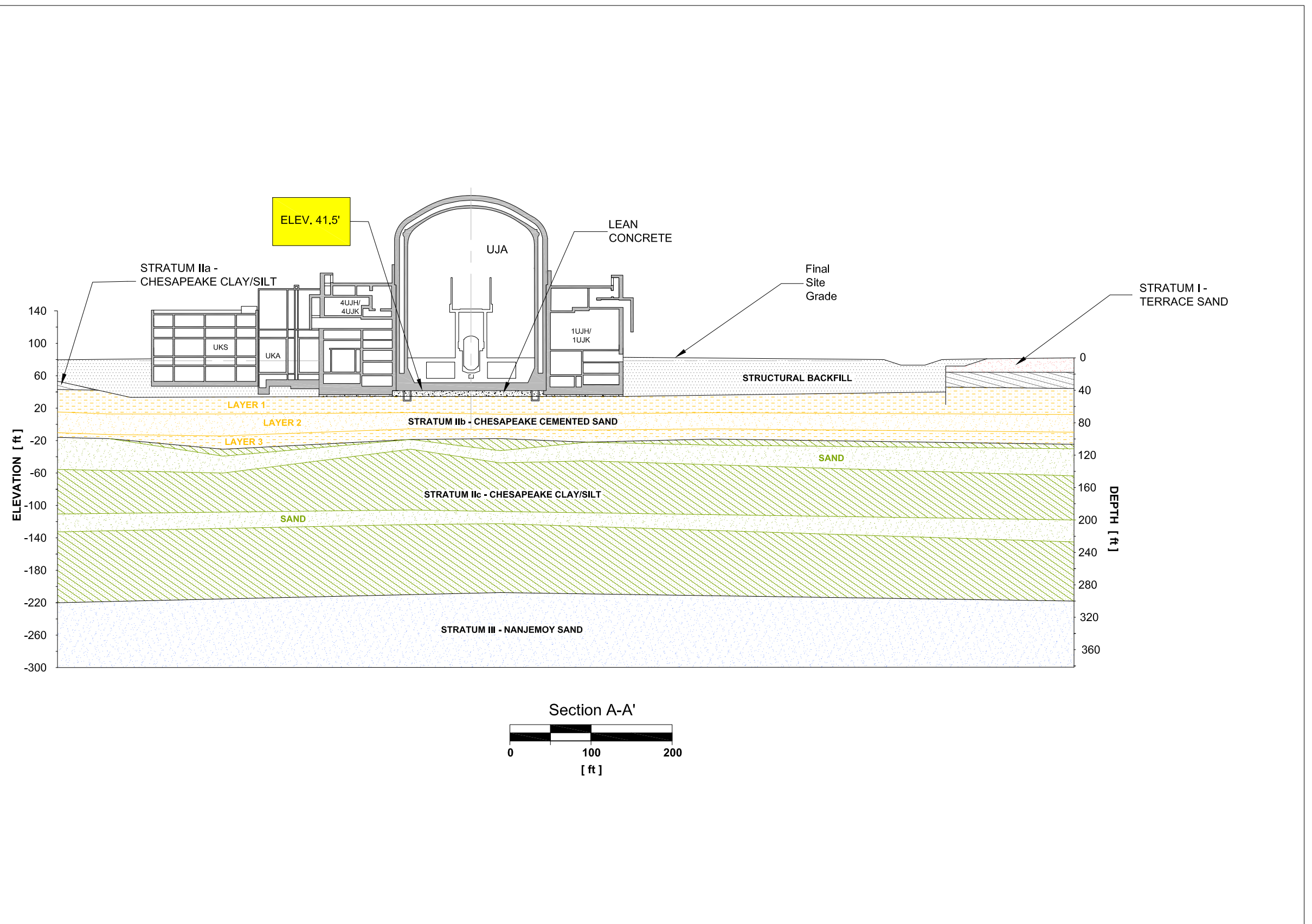


Figure 2.5-150 — {Excavation Profile BB', Powerblock Area}

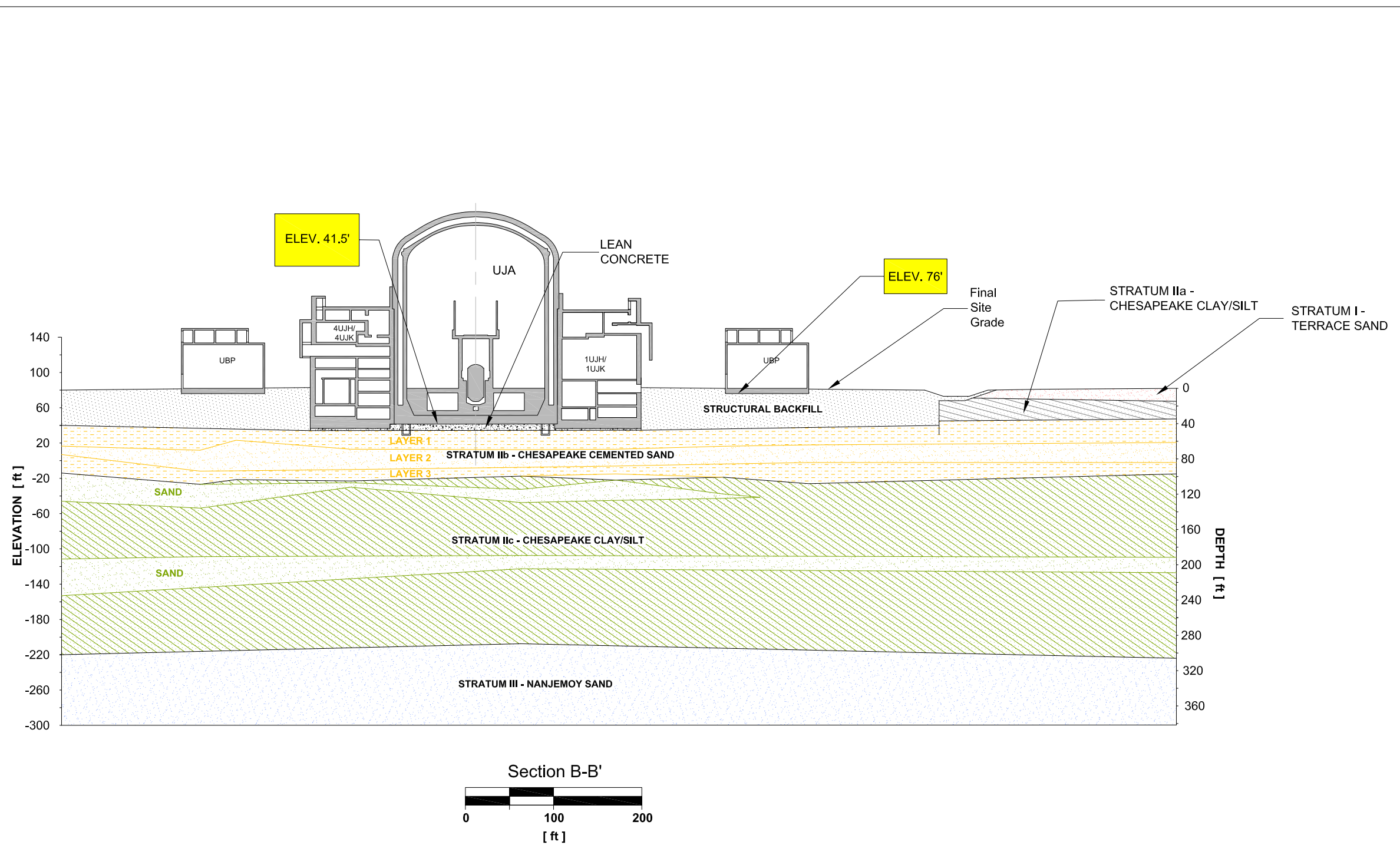


Figure 2.5-151 — {Excavation Profile CC', Powerblock Area}

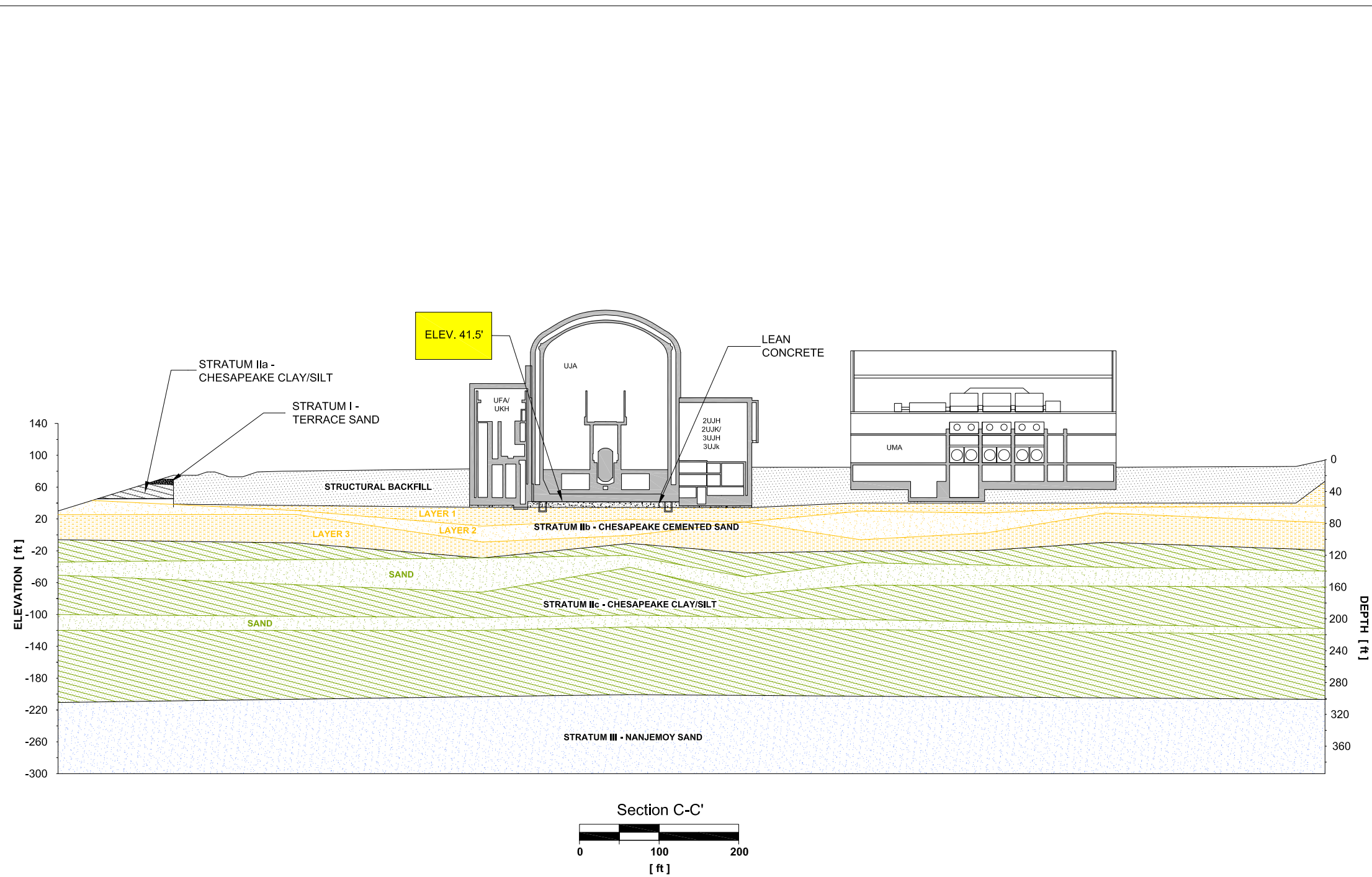


Figure 2.5-152 — {Excavation Profile DD', Powerblock Area}

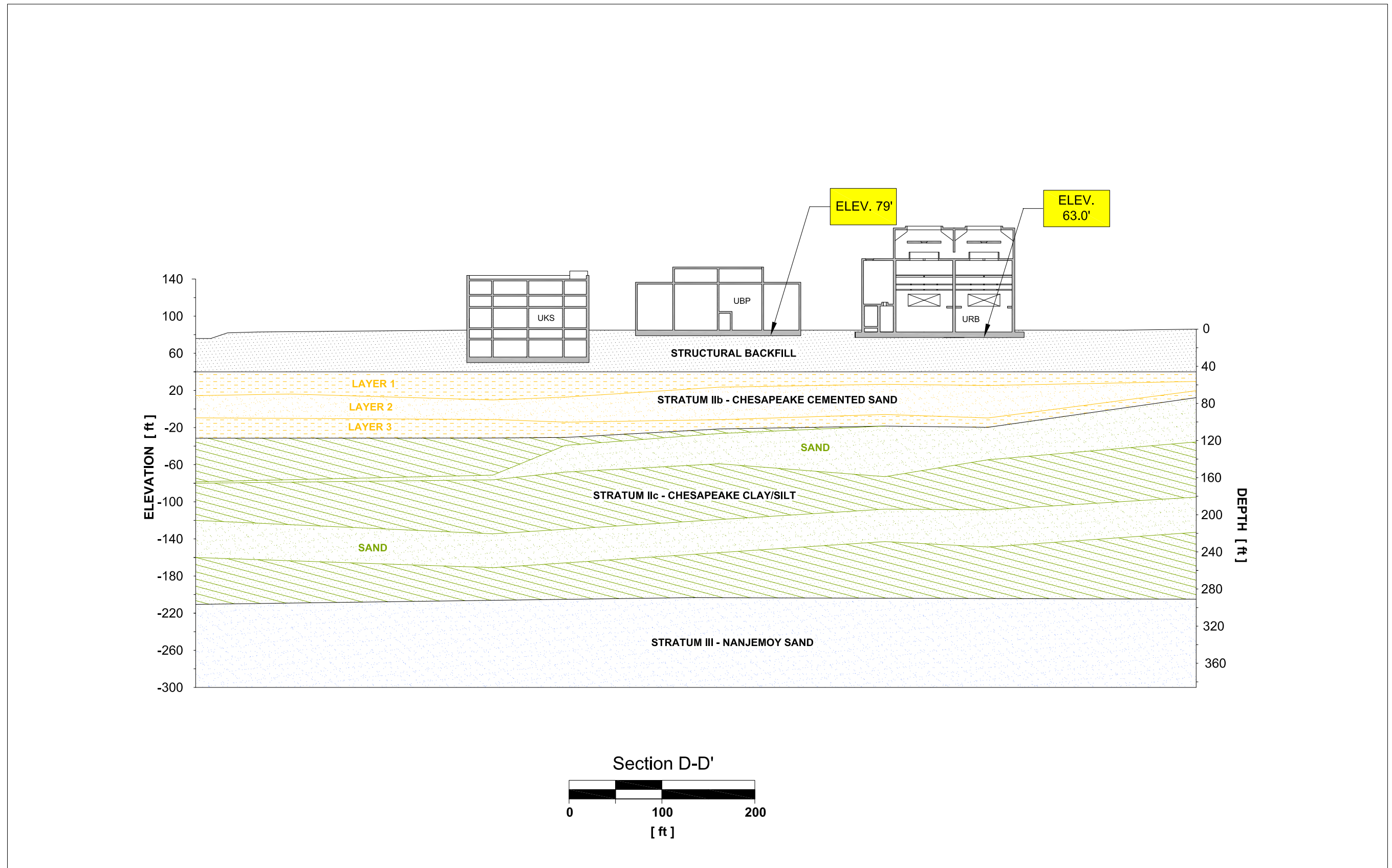


Figure 2.5-153 — {Excavation Profile EE', Powerblock Area}

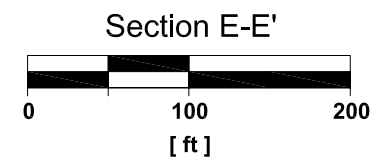
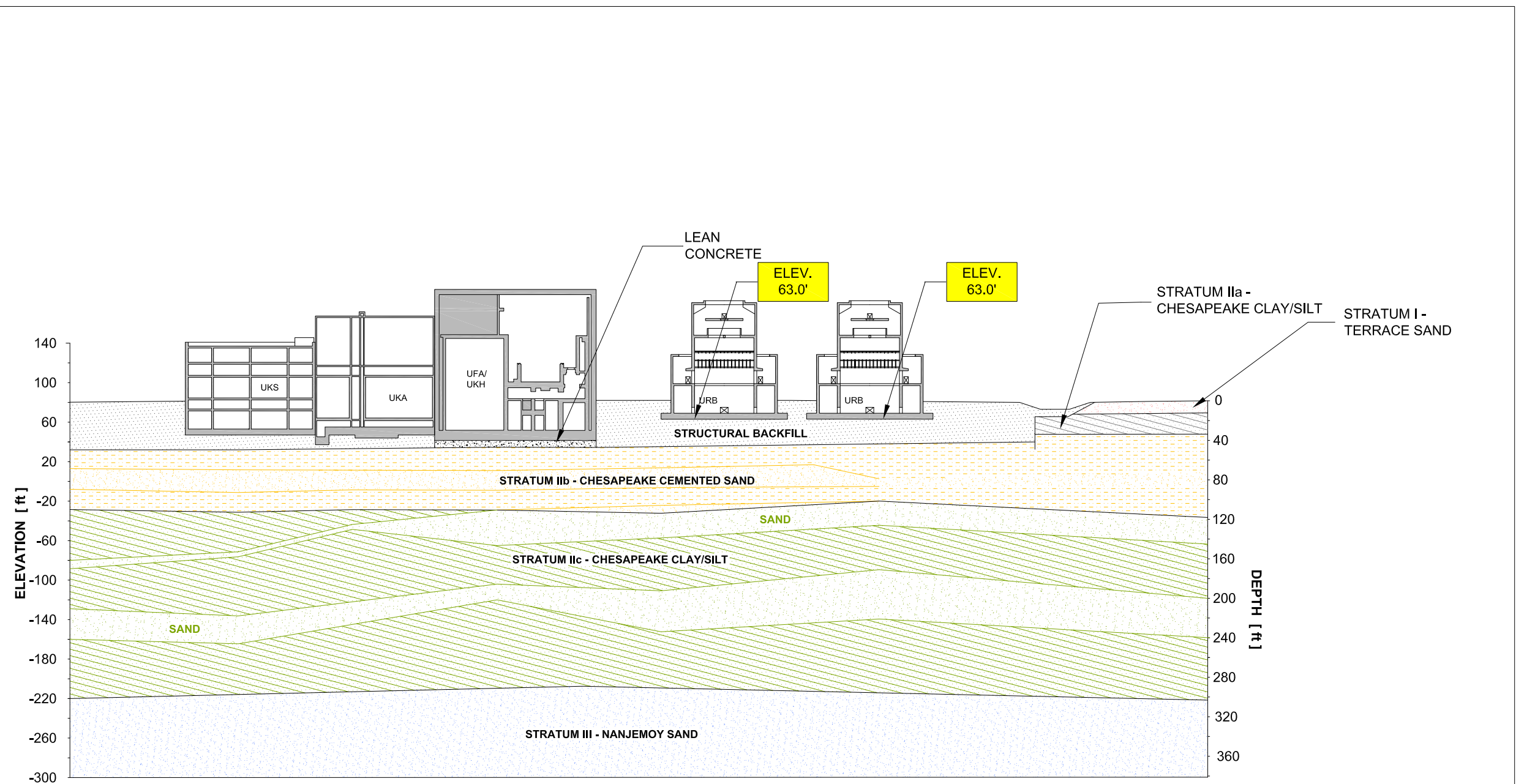


Figure 2.5-154 — {Excavation Profile FF, Intake Area}

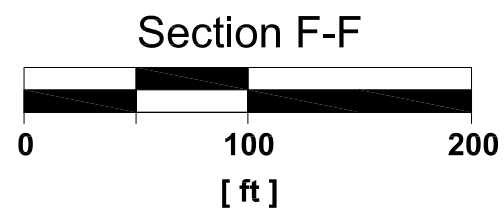
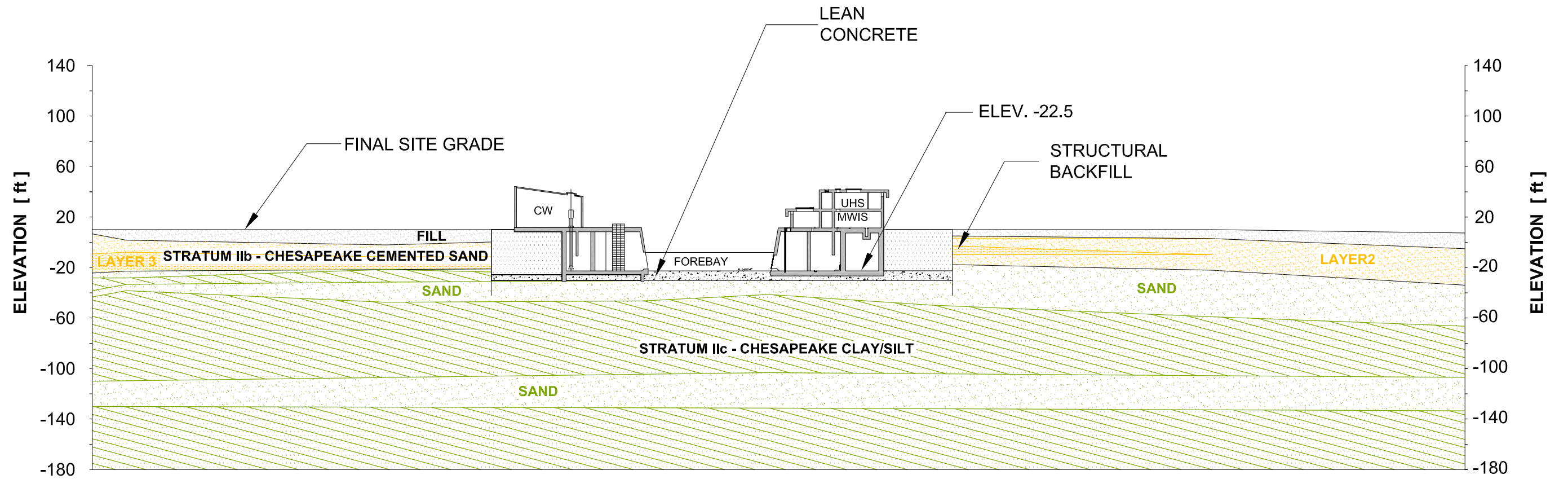


Figure 2.5-155 — {Best Estimate Velocity Profiles, In-Situ condition, Powerblock Area}

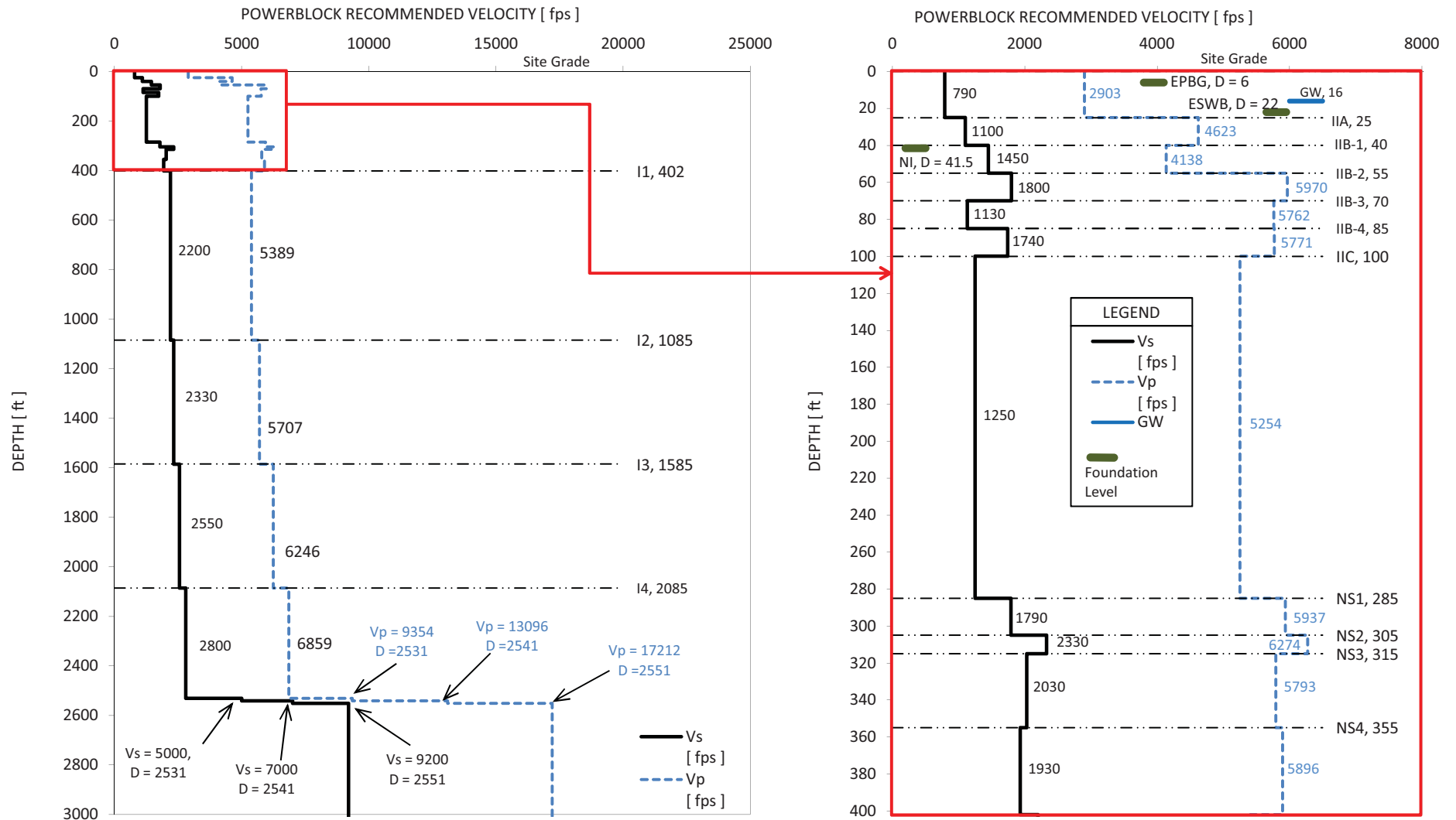


Figure 2.5-156 — {Best Estimate Velocity Profiles with Fill Placement, Powerblock Area}

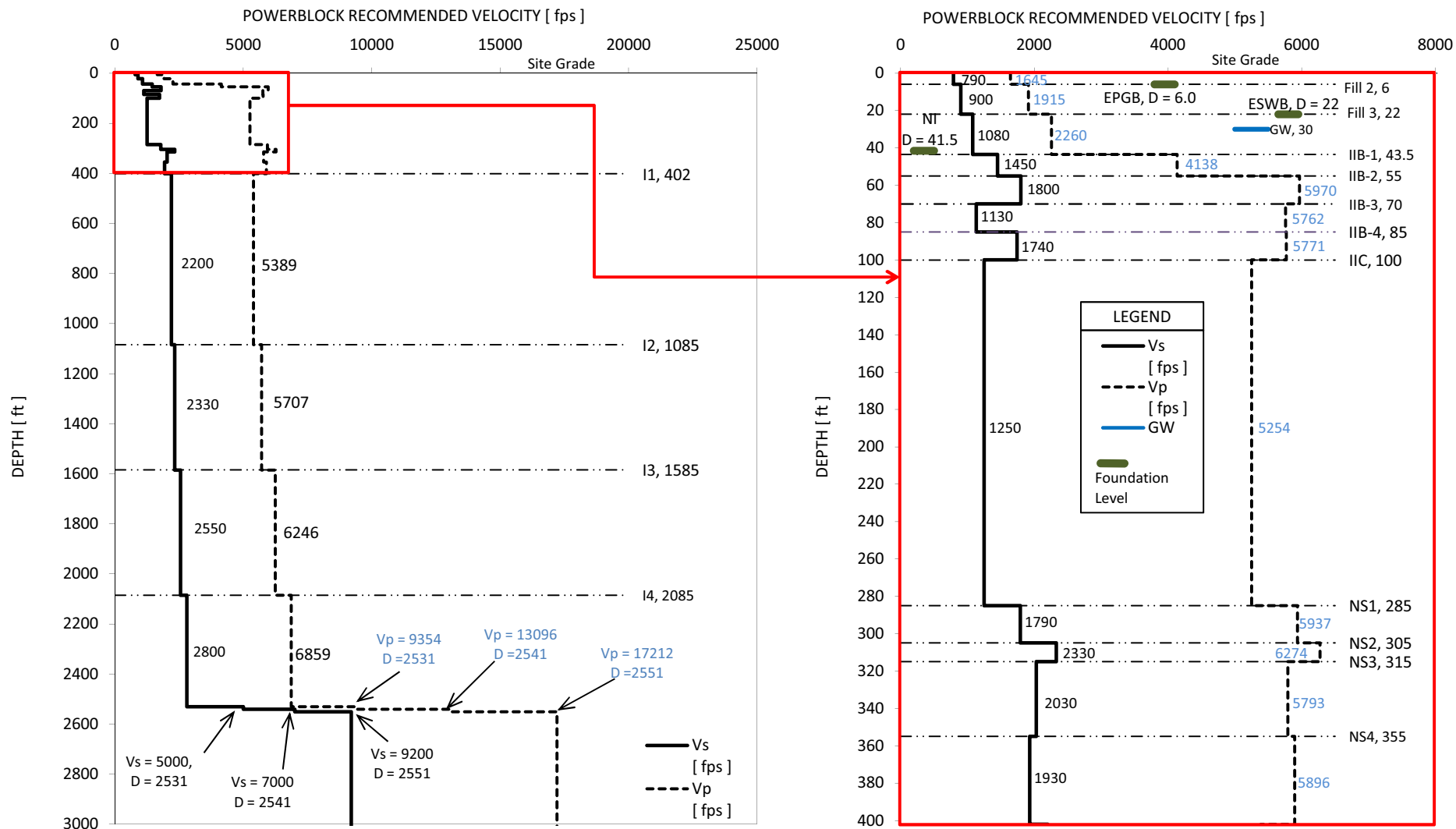


Figure 2.5-158 — {Best Estimate Velocity Profiles with Fill Placement, Intake Area}

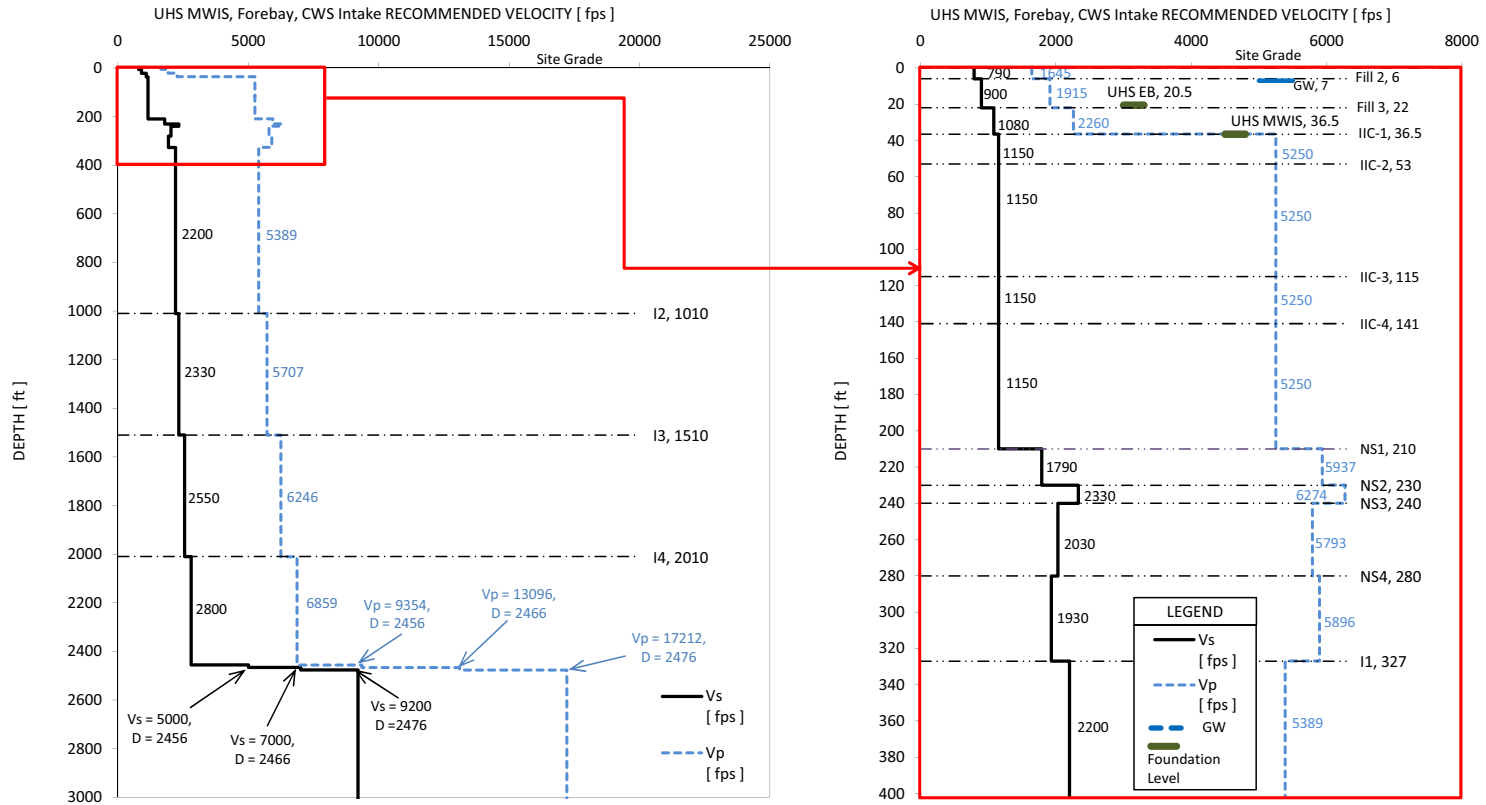


Figure 2.5-159 — {Strain Dependant Properties for Powerblock Area}

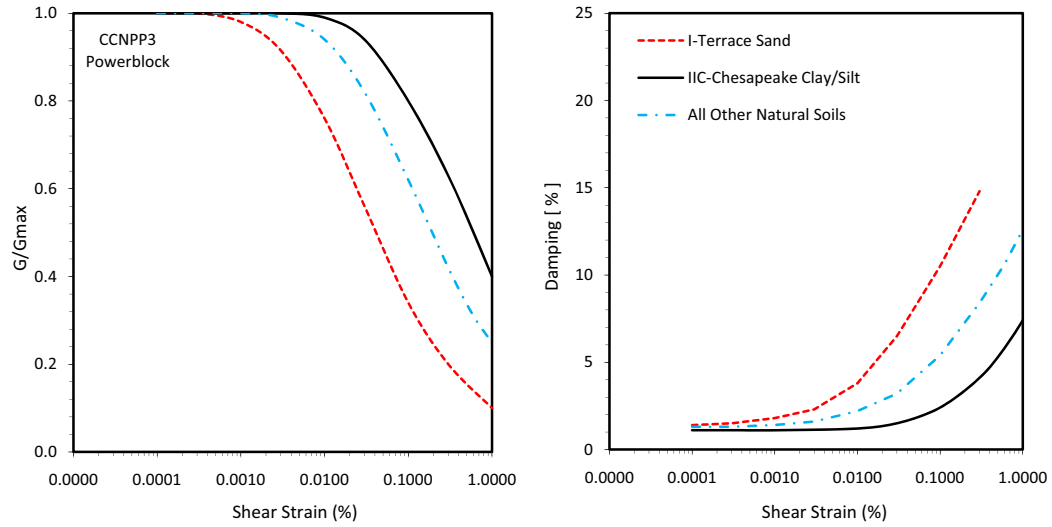


Figure 2.5-160 — {Strain Dependant Properties for Intake Area}

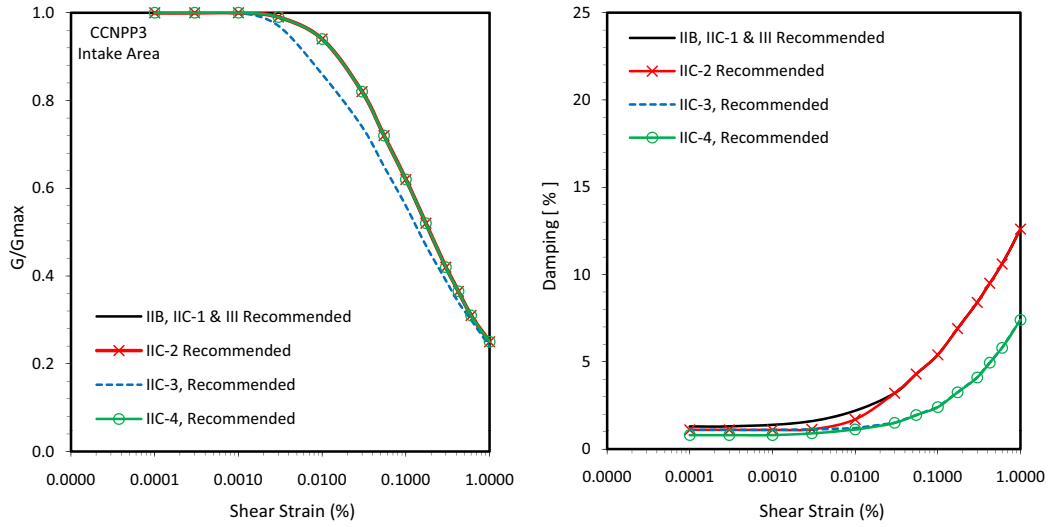


Figure 2.5-161 — {Strain Dependant Properties for Backfill}

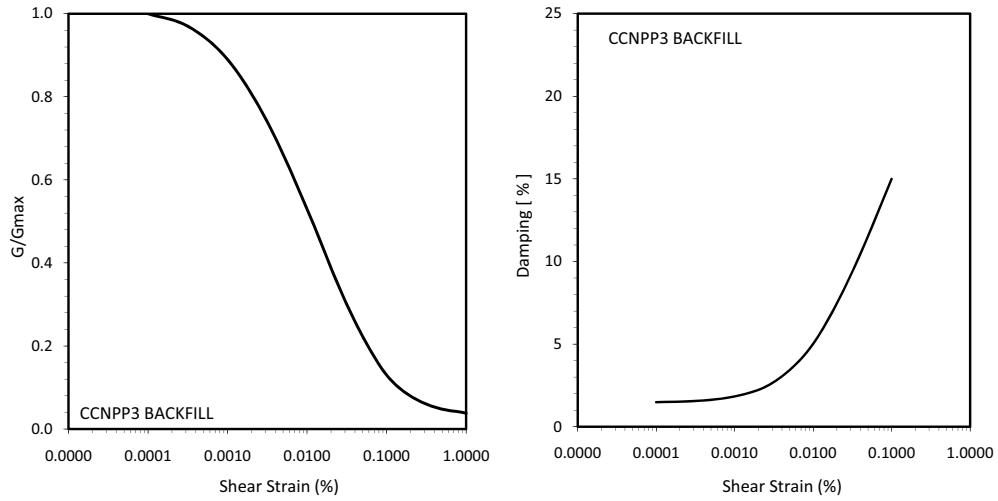
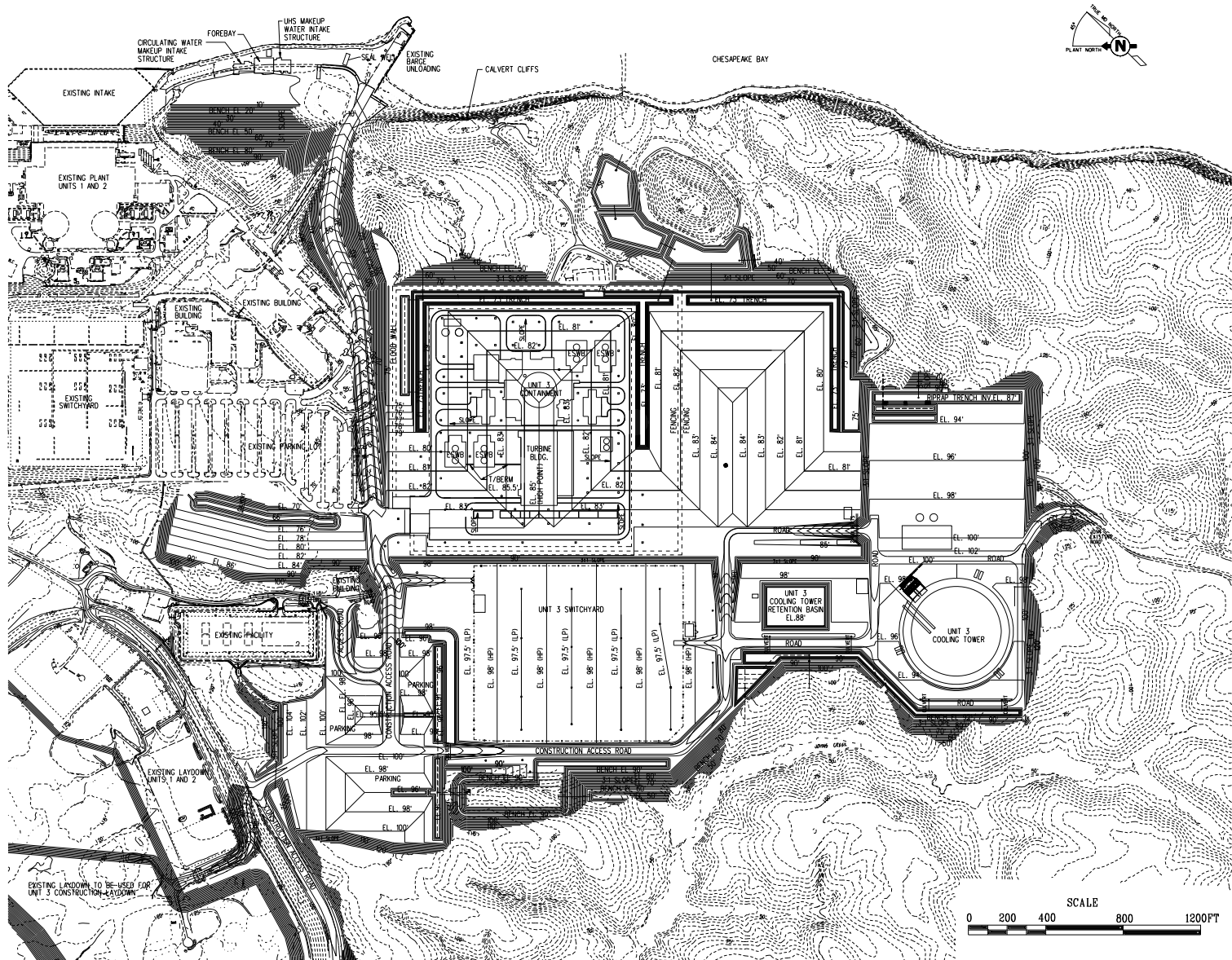


Figure 2.5-162 — {Site Grading Plan}



See Figure 1.2-1 for Powerblock layout

Figure 2.5-163 — {Elevation Contours of Top of Stratum IIb Cemented Sand}

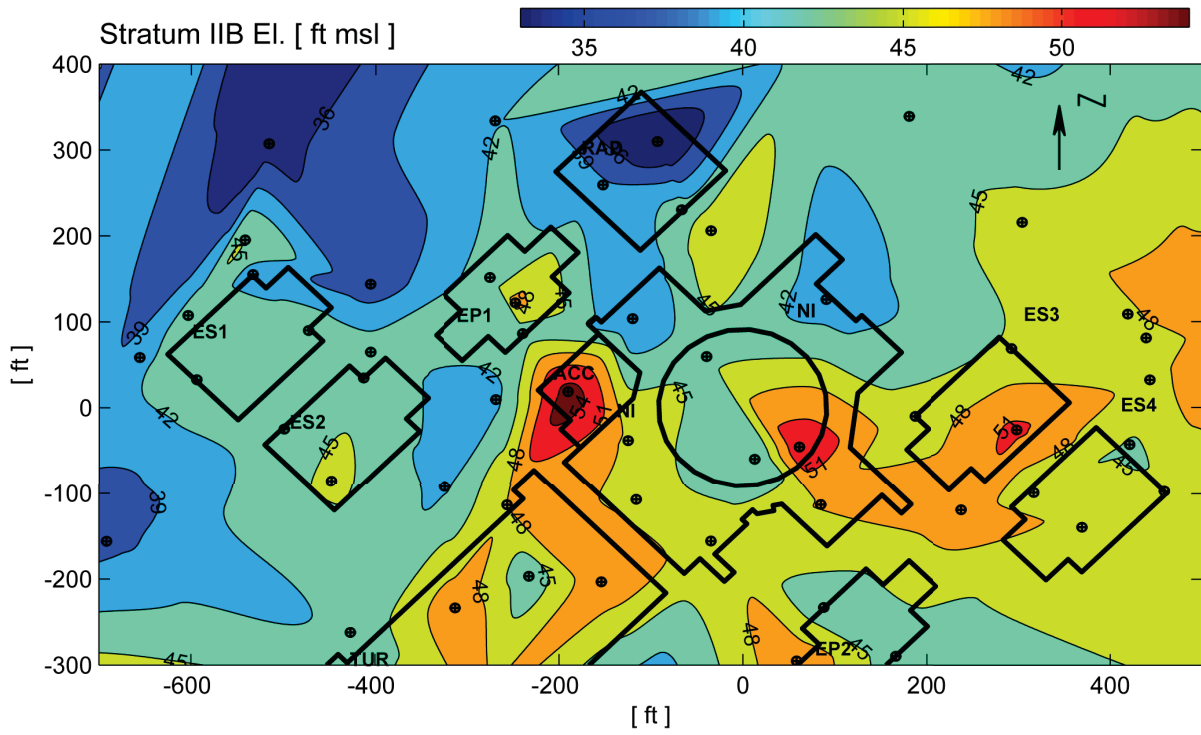


Figure 2.5-164 — {Topography in Powerblock Area}

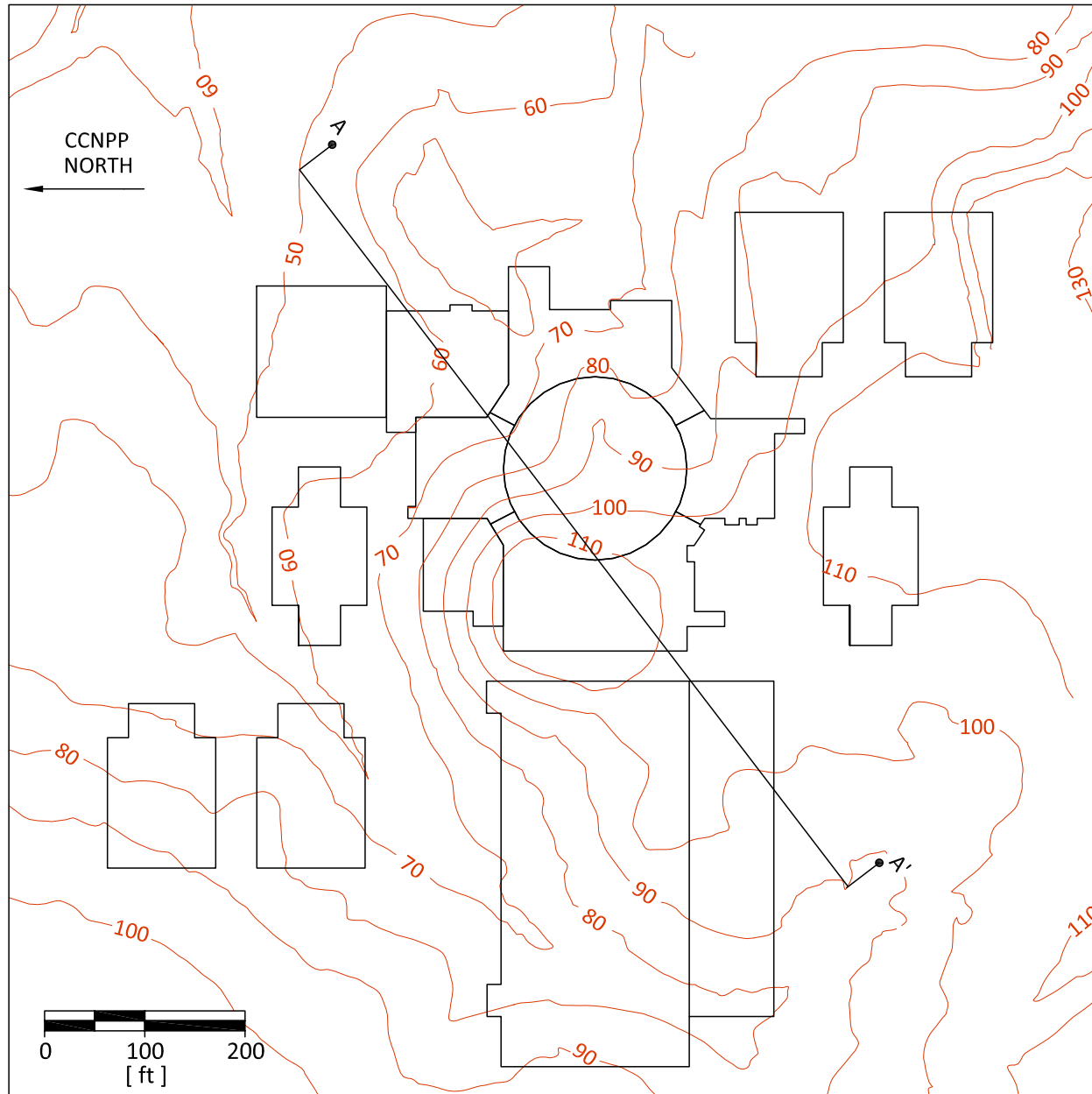


Figure 2.5-165 — {FOS against Liquefaction Based on SPT Data, Powerblock}

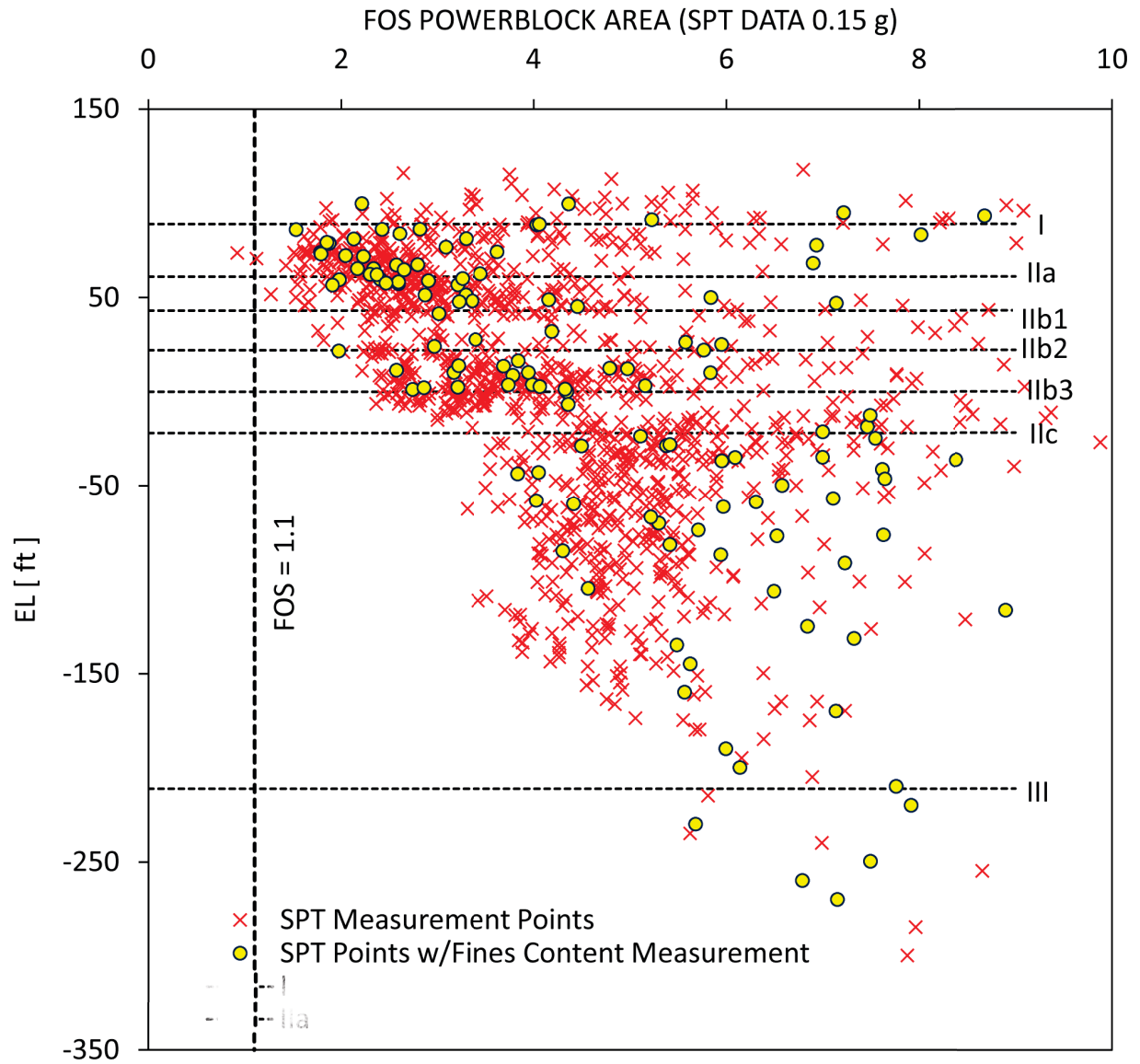


Figure 2.5-166 — {FOS against Liquefaction Based on SPT Data, Intake Area}

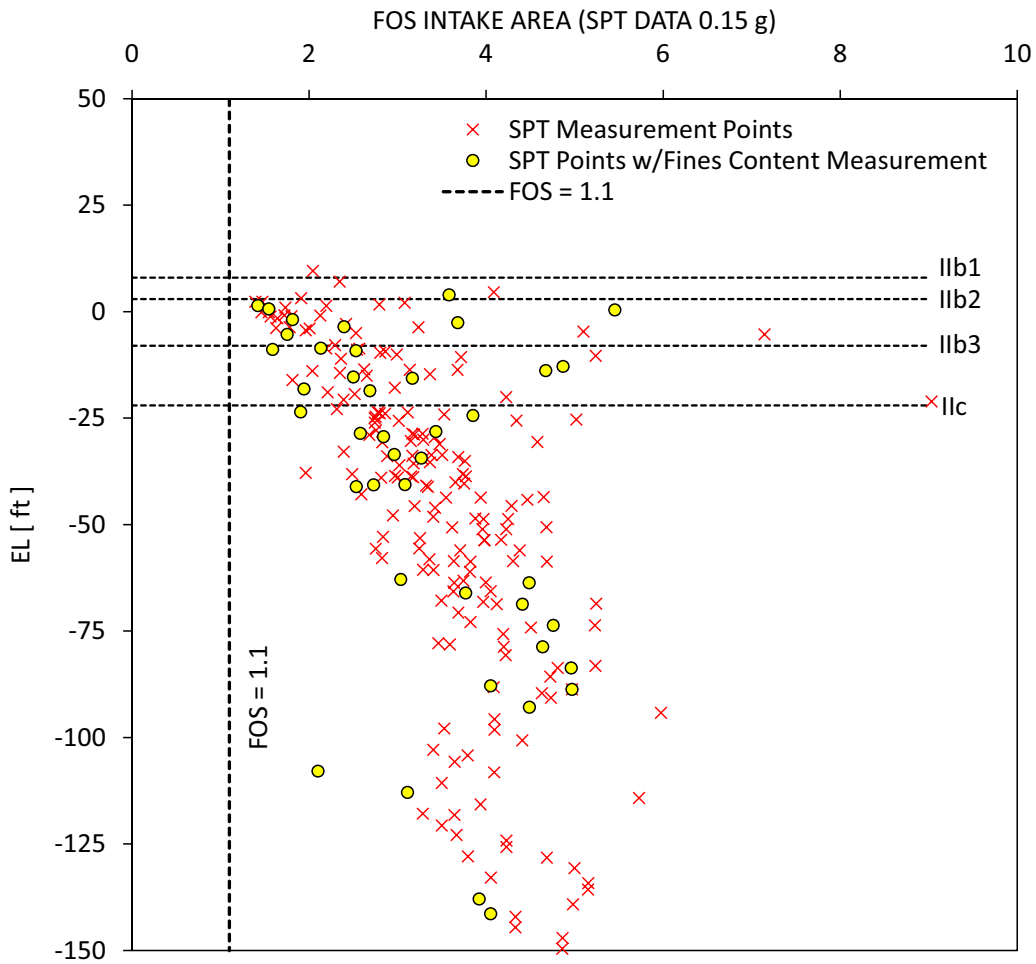


Figure 2.5-167 — {FOS against Liquefaction Based on Vs Data, Powerblock}

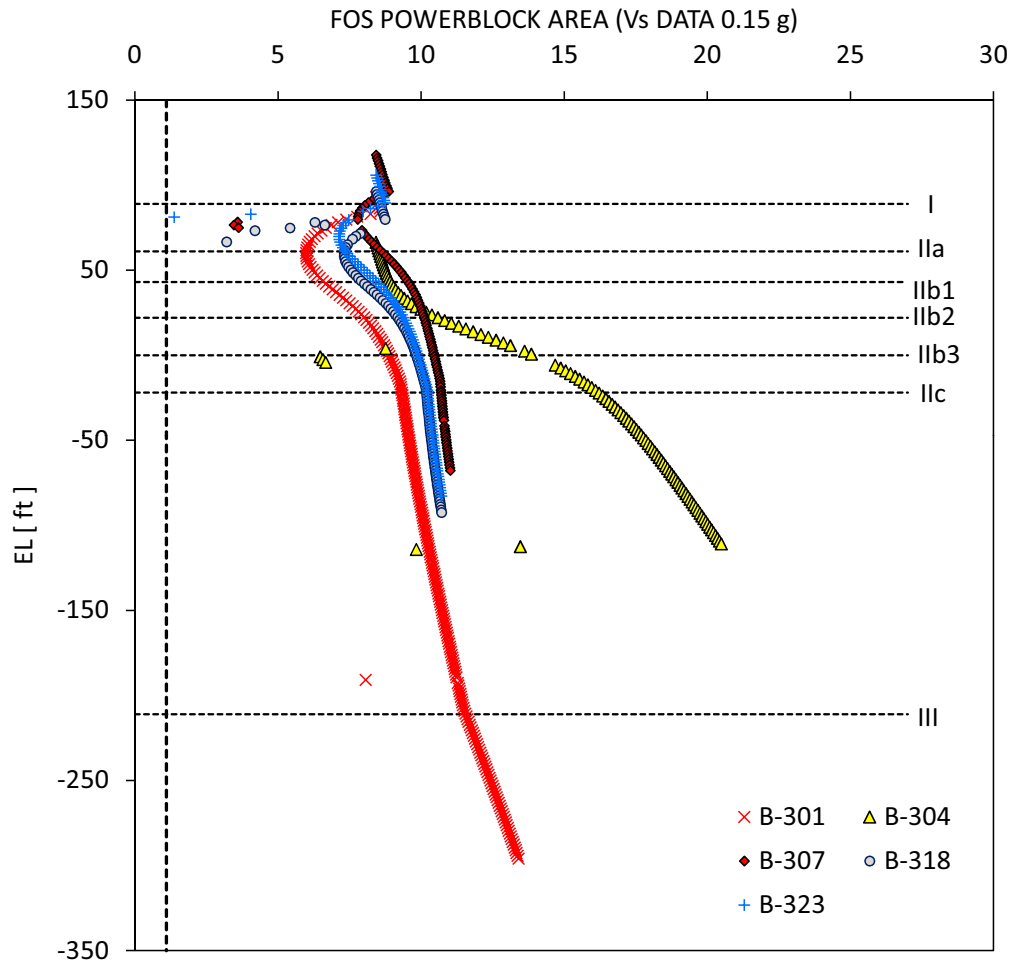


Figure 2.5-168 — {FOS against Liquefaction Based on Vs Data, Intake Area}

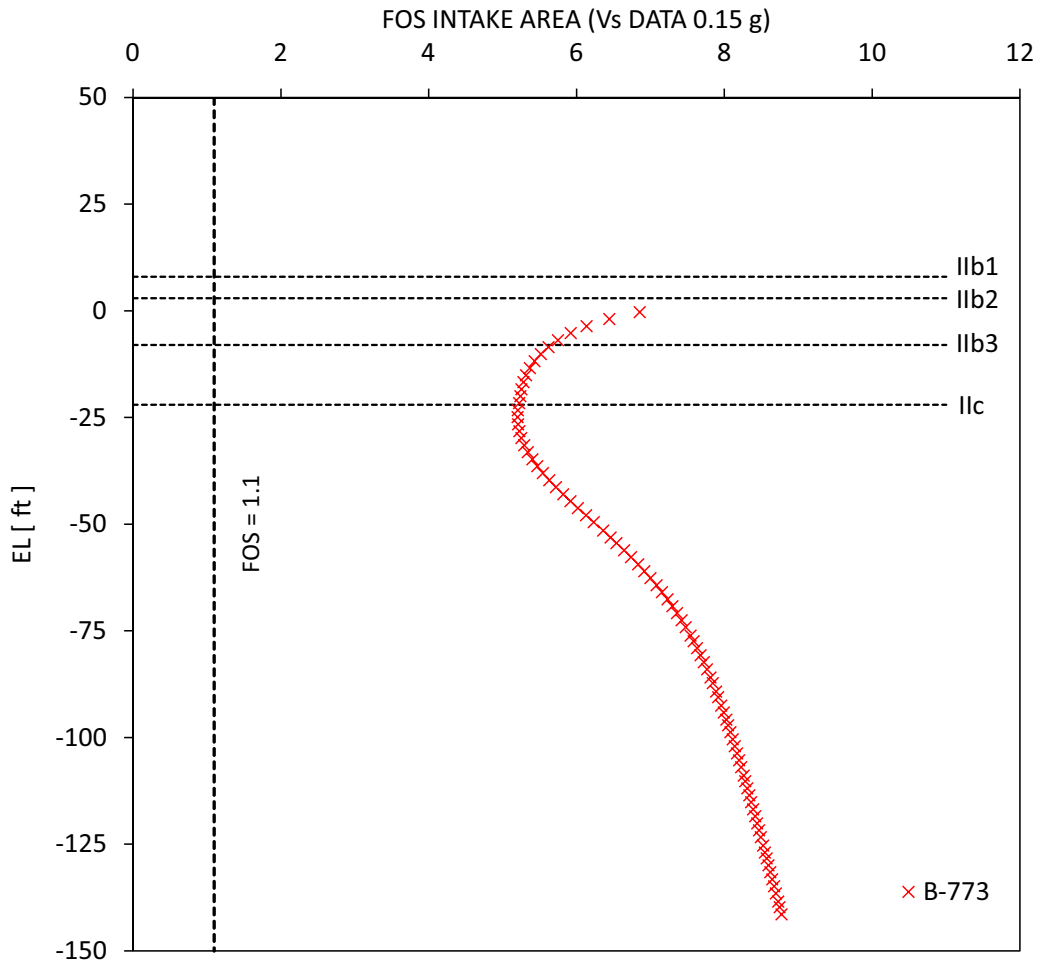


Figure 2.5-169 — {FOS against liquefaction based on CPT Data, Powerblock Area}

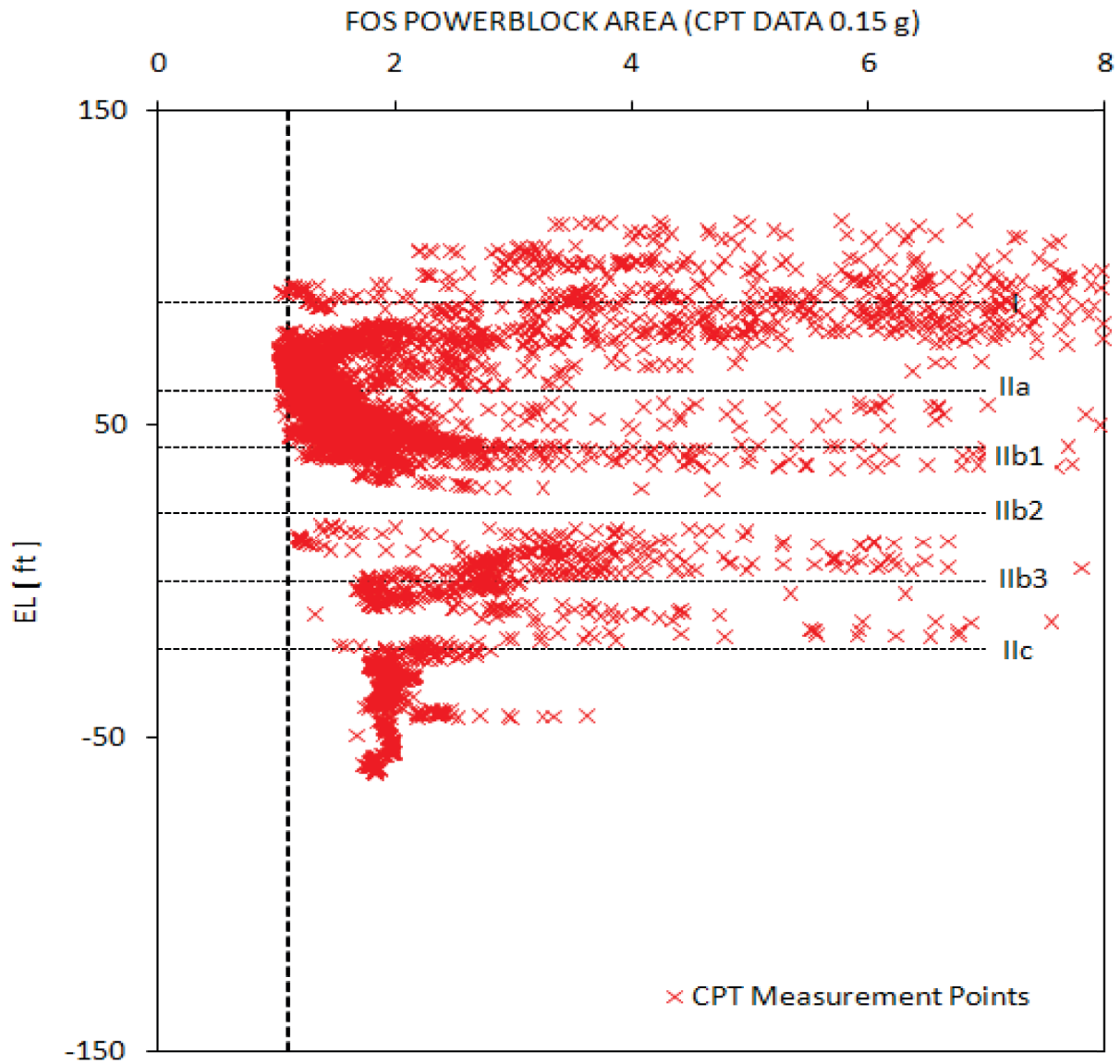


Figure 2.5-170 — {FOS against liquefaction based on CPT Data, Intake Area}

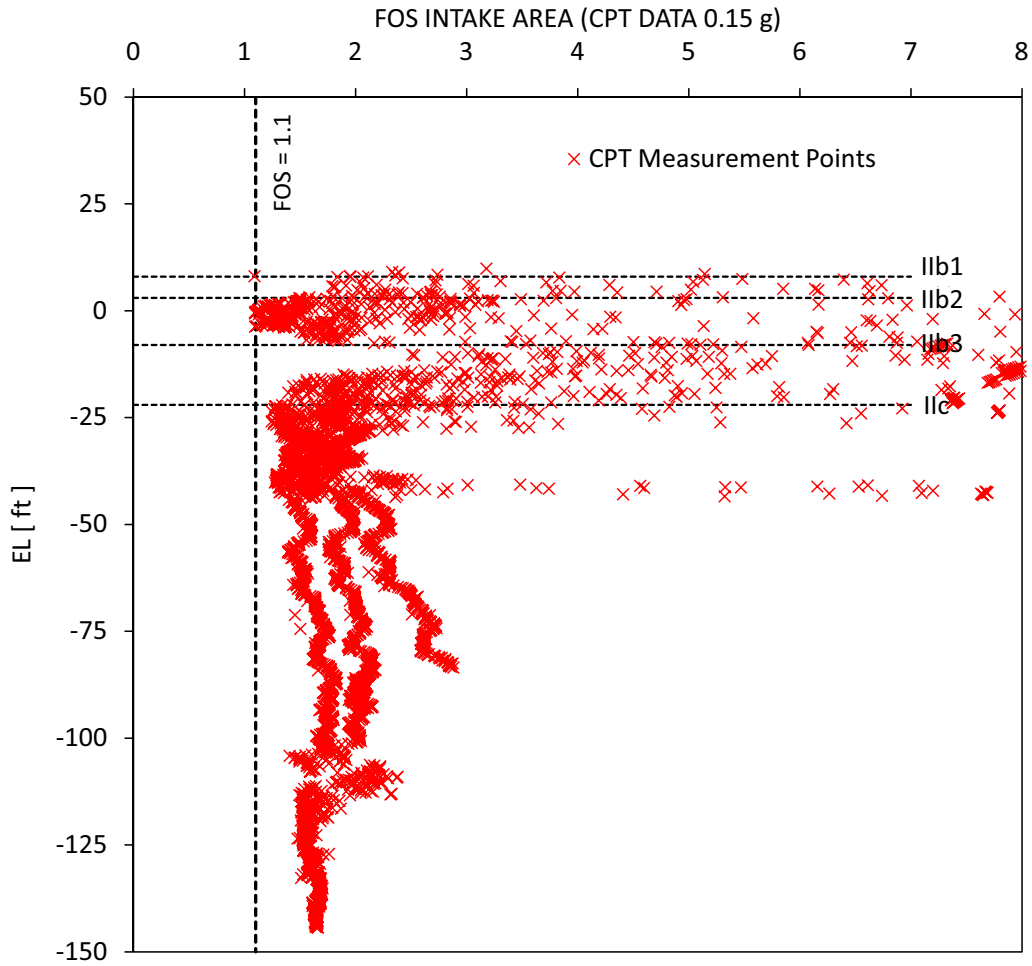


Figure 2.5-171 — {FOS against Liquefaction for Backfill, Powerblock Area}

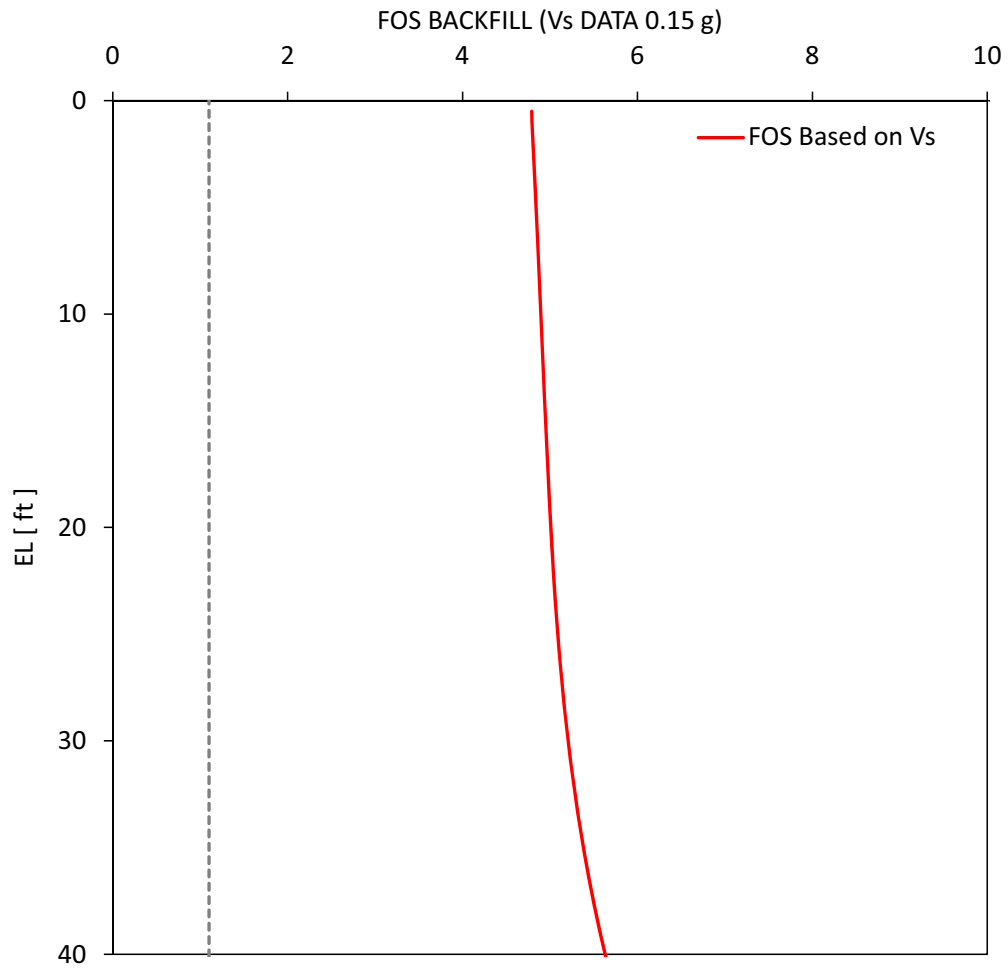


Figure 2.5-172 — {Building Areas, Loads, and Foundation Elevation}

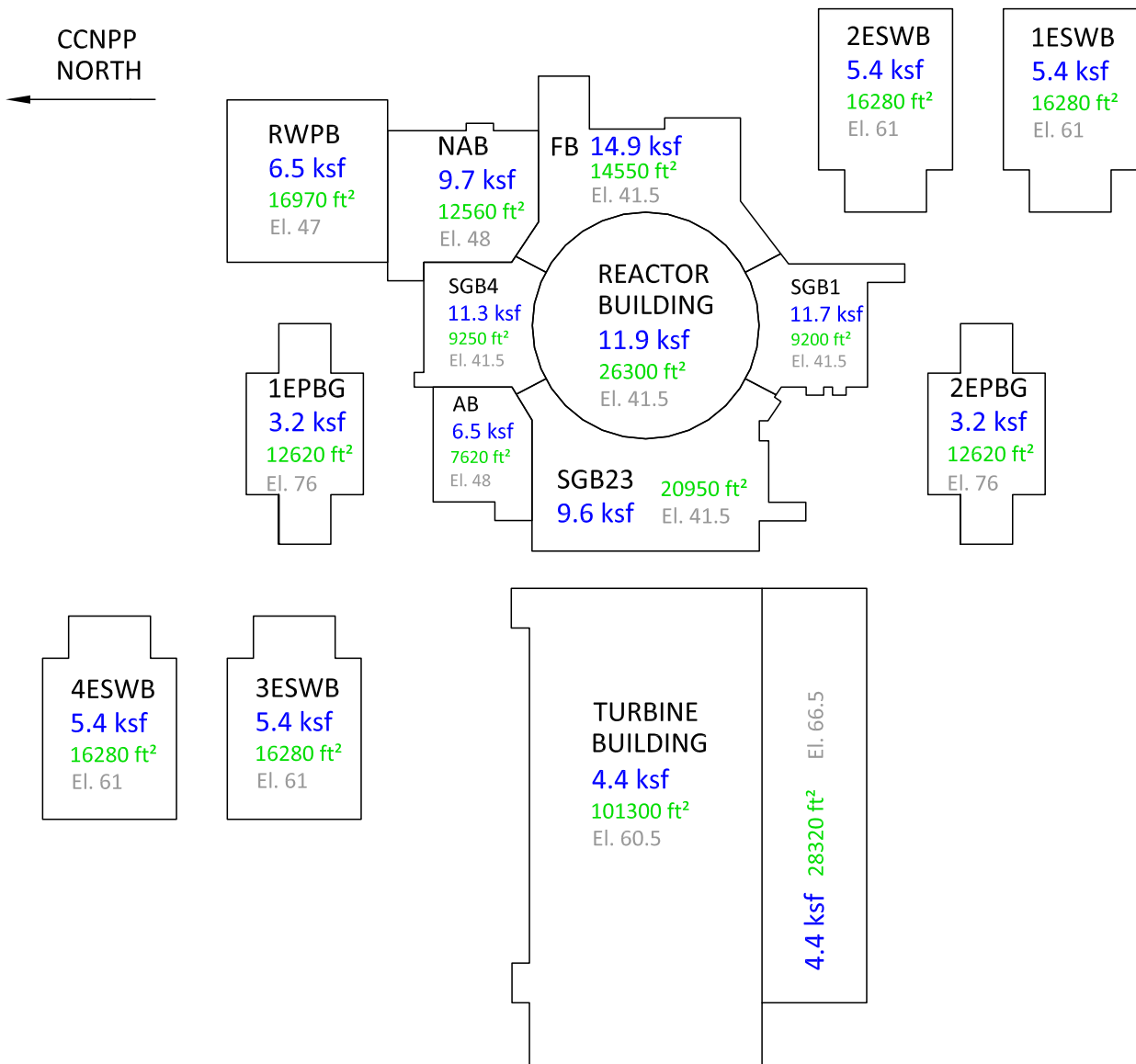


Figure 2.5-173 — {PLAXIS 3D Subsurface Representation}

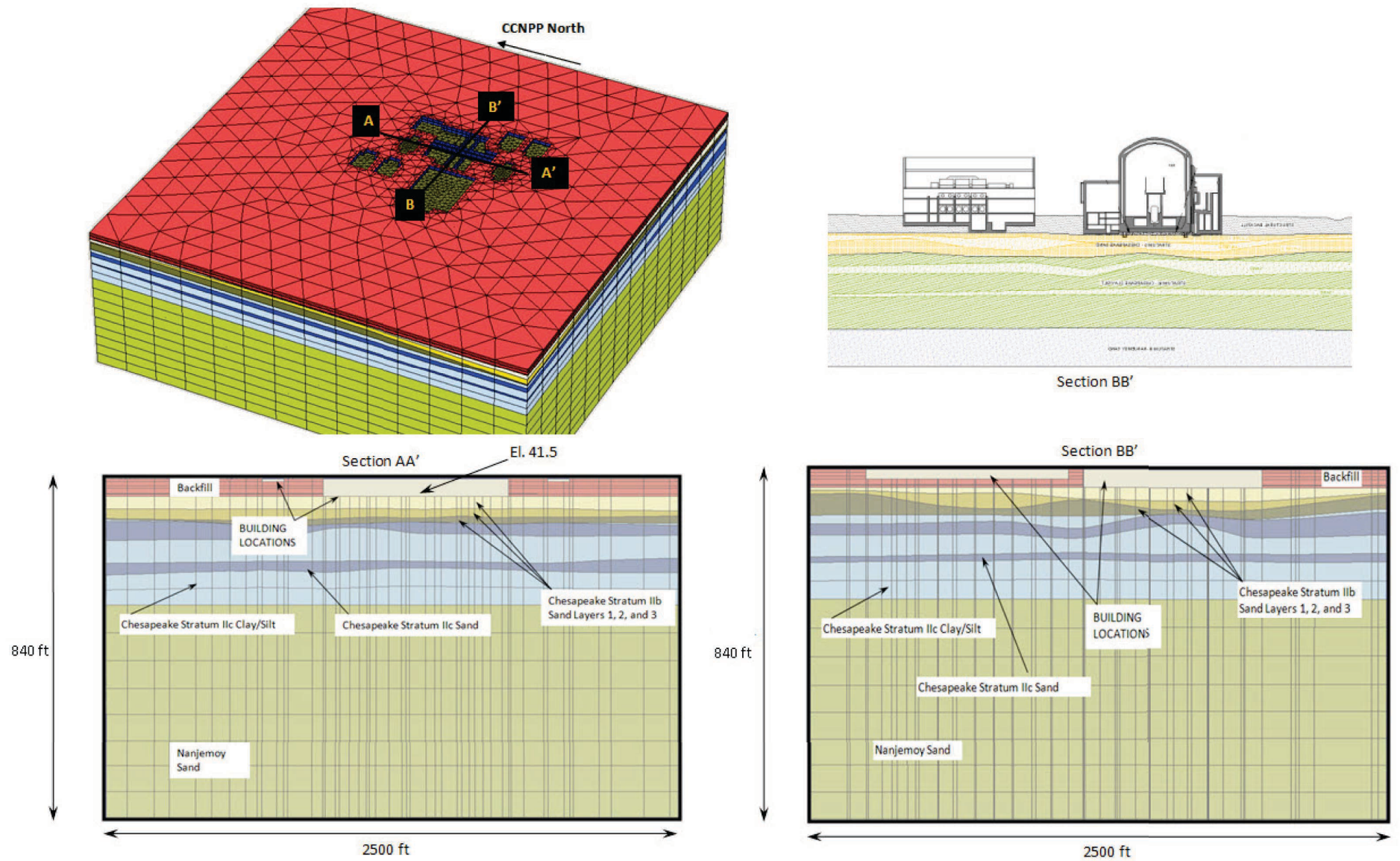


Figure 2.5-174 — {Subdivision of ED Model to Account for Variable Surface Topography}

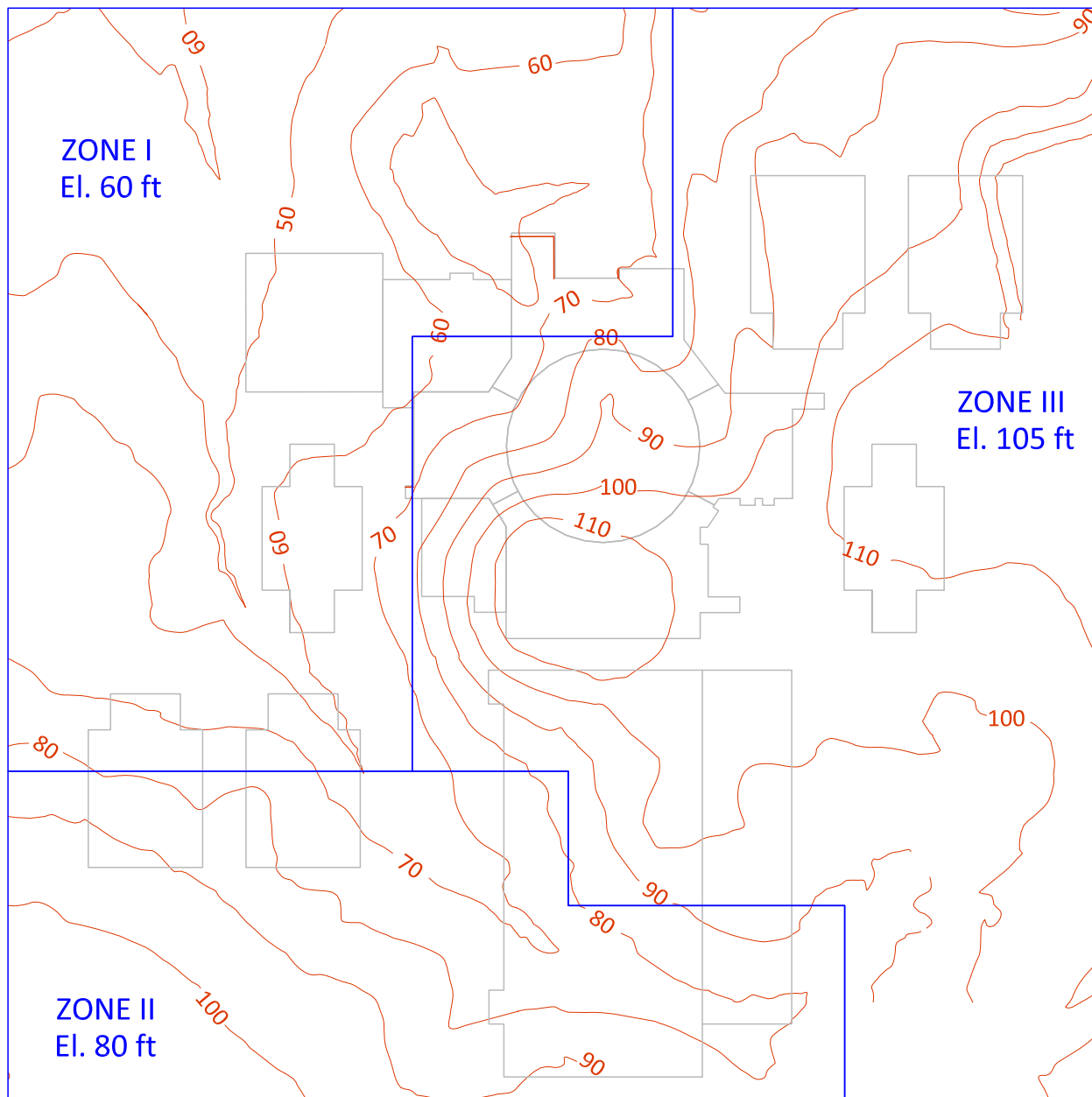


Figure 2.5-175 — {Heave After Excavation}

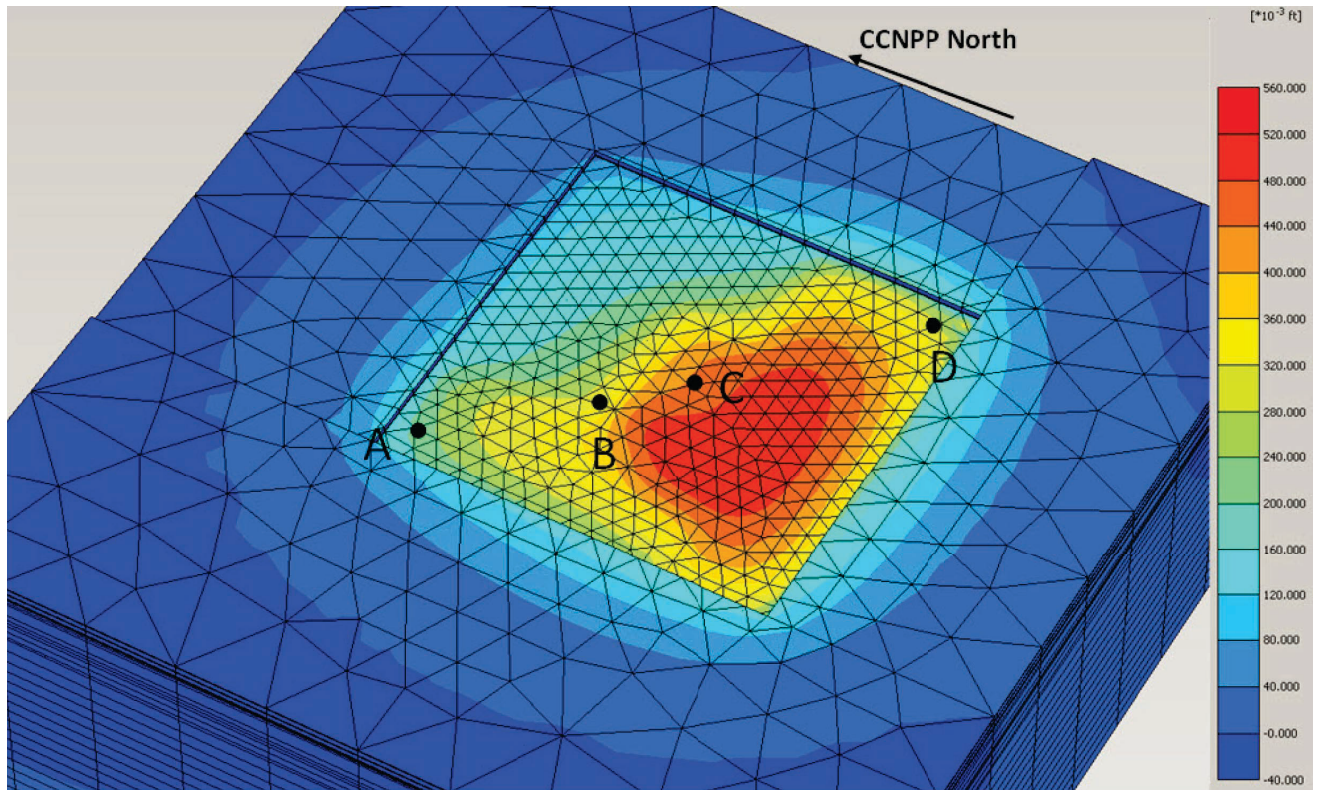


Figure 2.5-176 — {Building Load Construction Sequence}

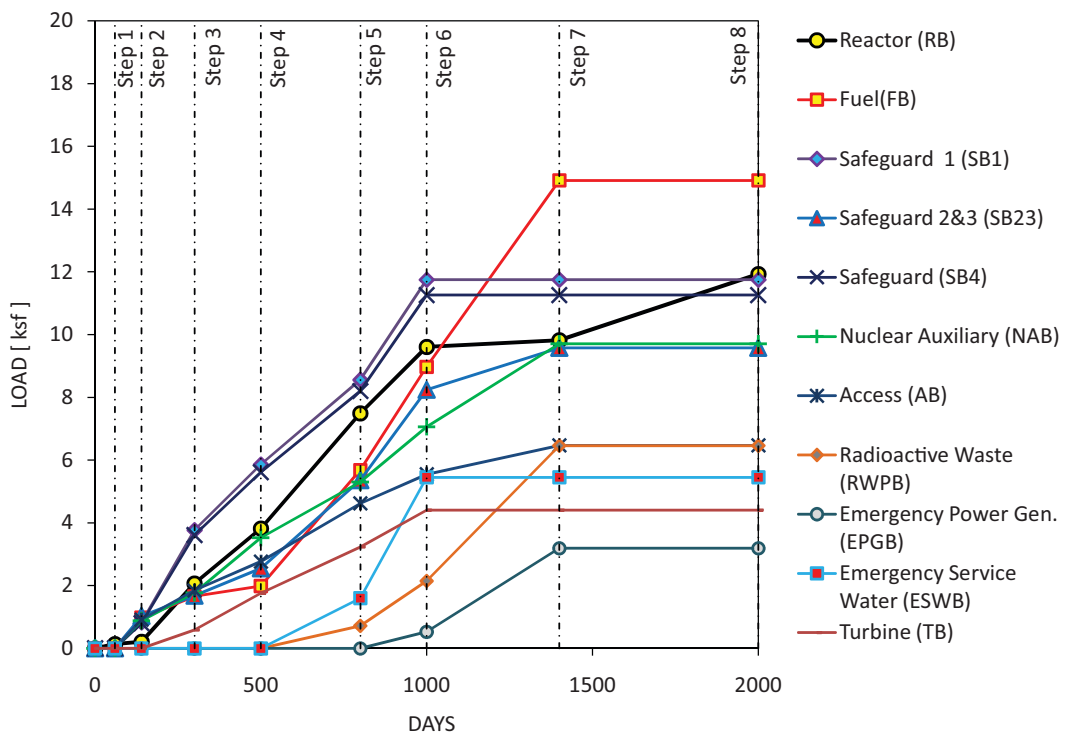


Figure 2.5-177 — {Surface Topography Plan and Cross Section}

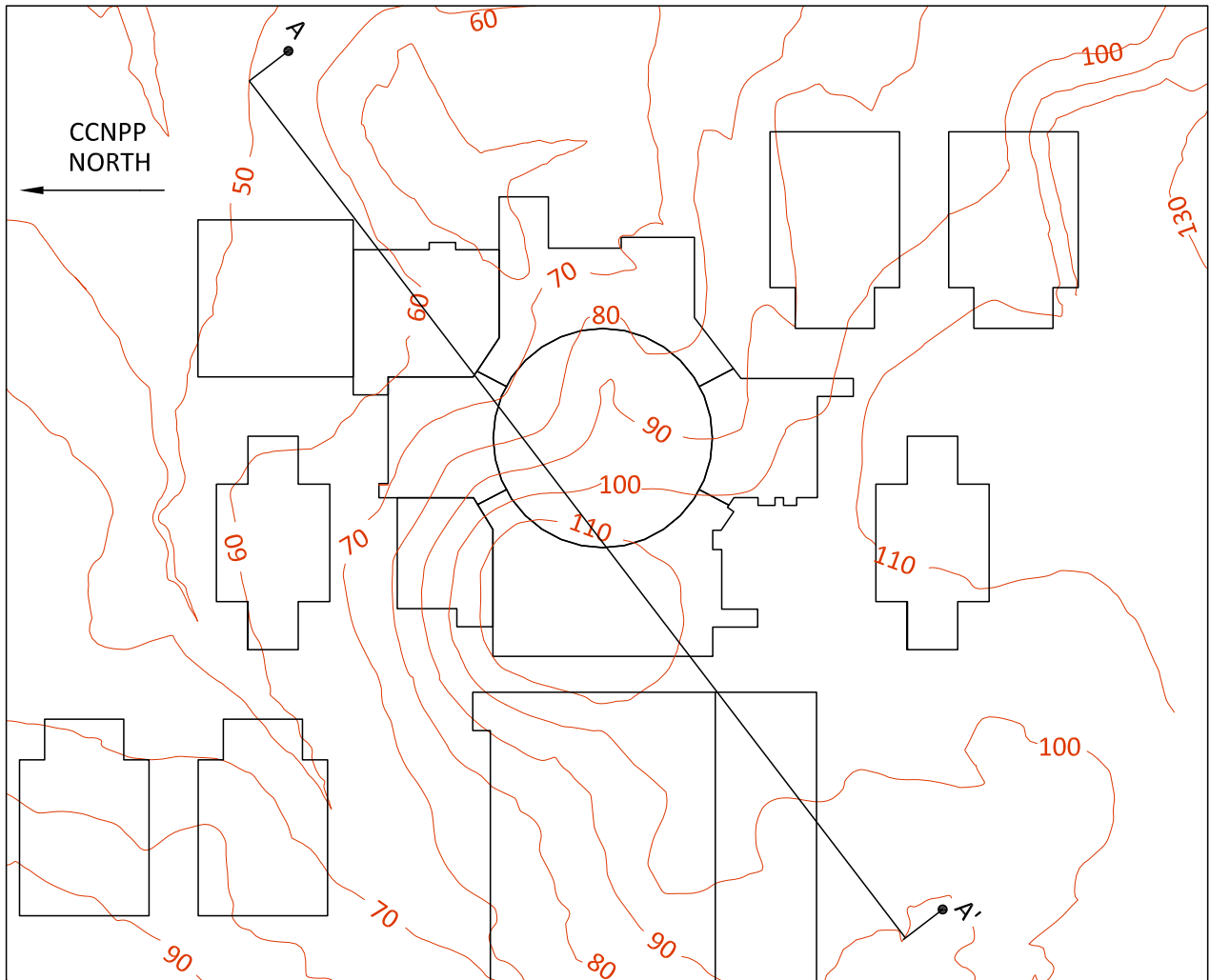
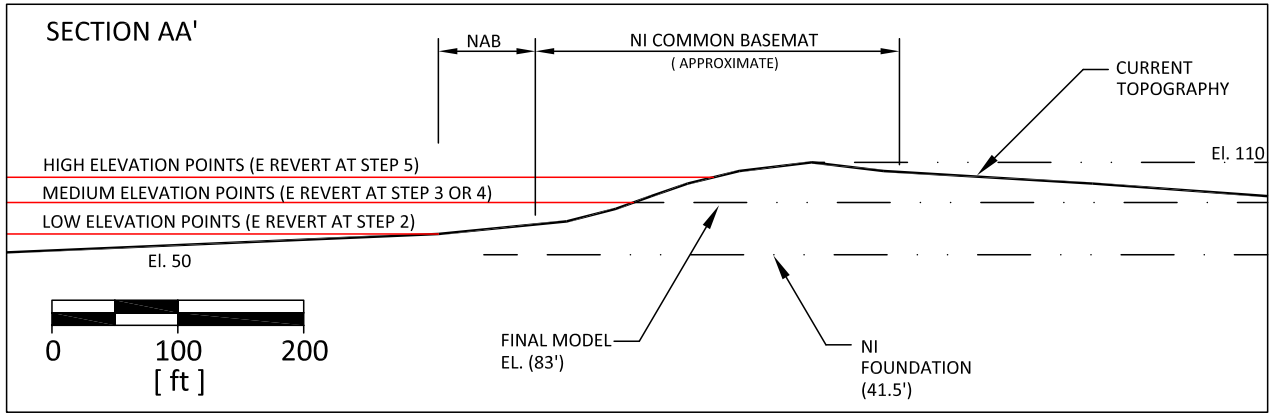


Figure 2.5-178 — {Contour Plots of Incremental Settlements}

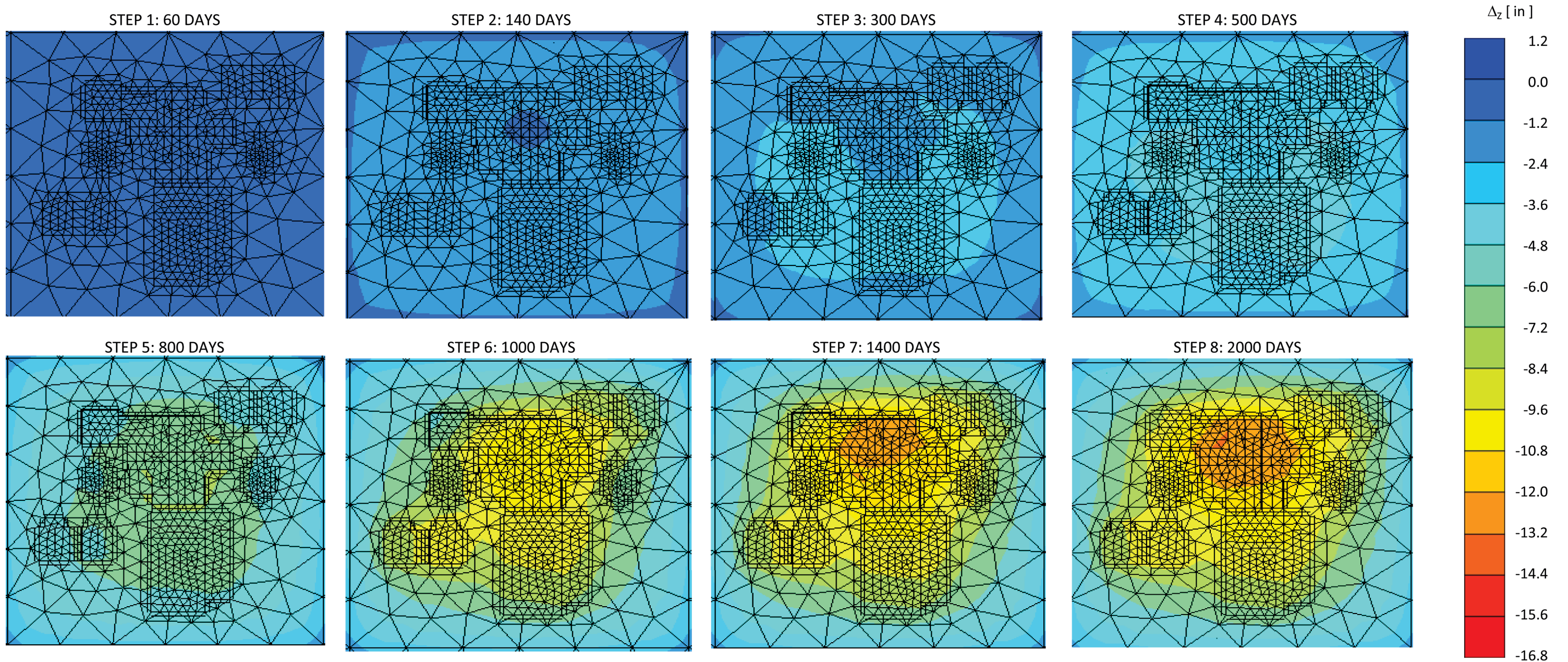
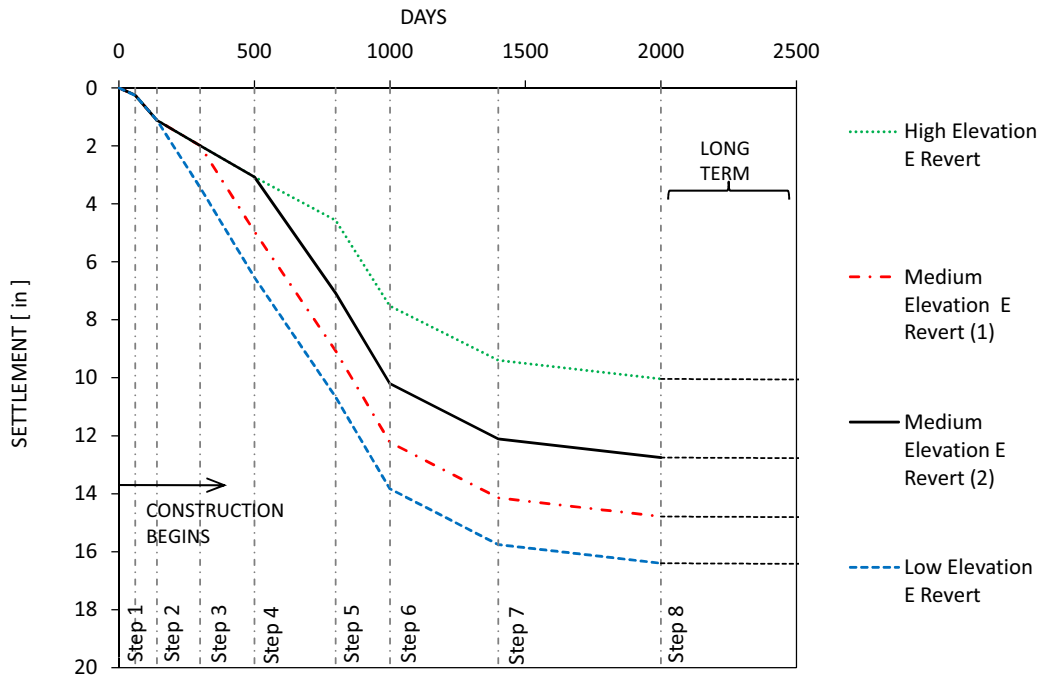


Figure 2.5-179 — {NI Settlement Estimate}



Notes:

- Low Elevation: revert to loading modulus at the end of the 2nd load step (140 days)
- Medium Elevation (1): revert to loading modulus at the end of the 3rd load step (300 days)
- Medium Elevation (2): revert to loading modulus at the end of the 4th load step (500 days)
- High Elevation: revert to loading modulus at the end of the 5th load step (800 days)
- Long term settlement estimate due to creep and rewatering offset each other and are not significant

Figure 2.5-180 — {Settlement at Center Point of Safety Related Buildings}

