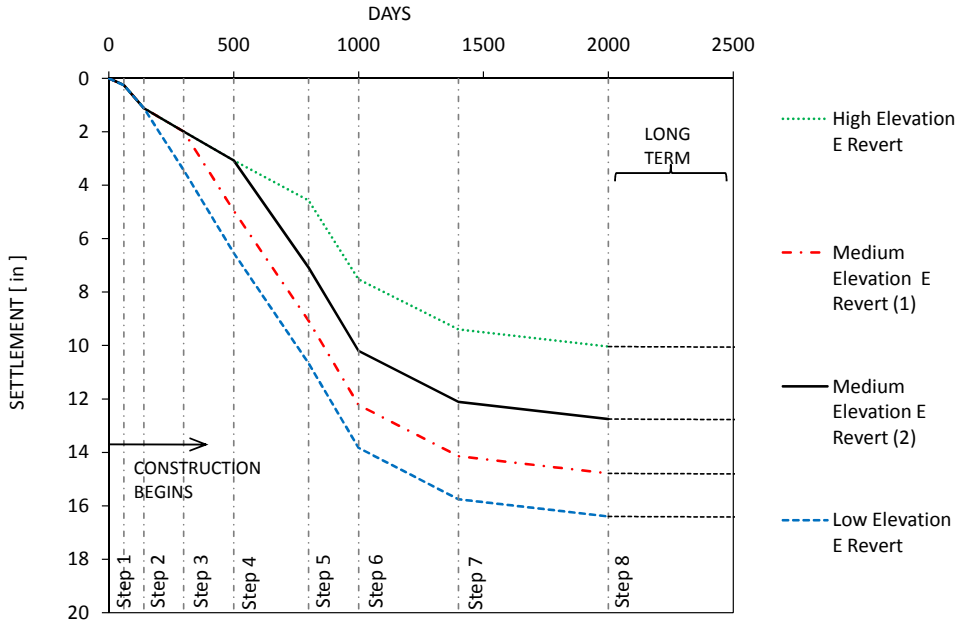
Figure 2.5-179— {NI Settlement Estimate}



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}

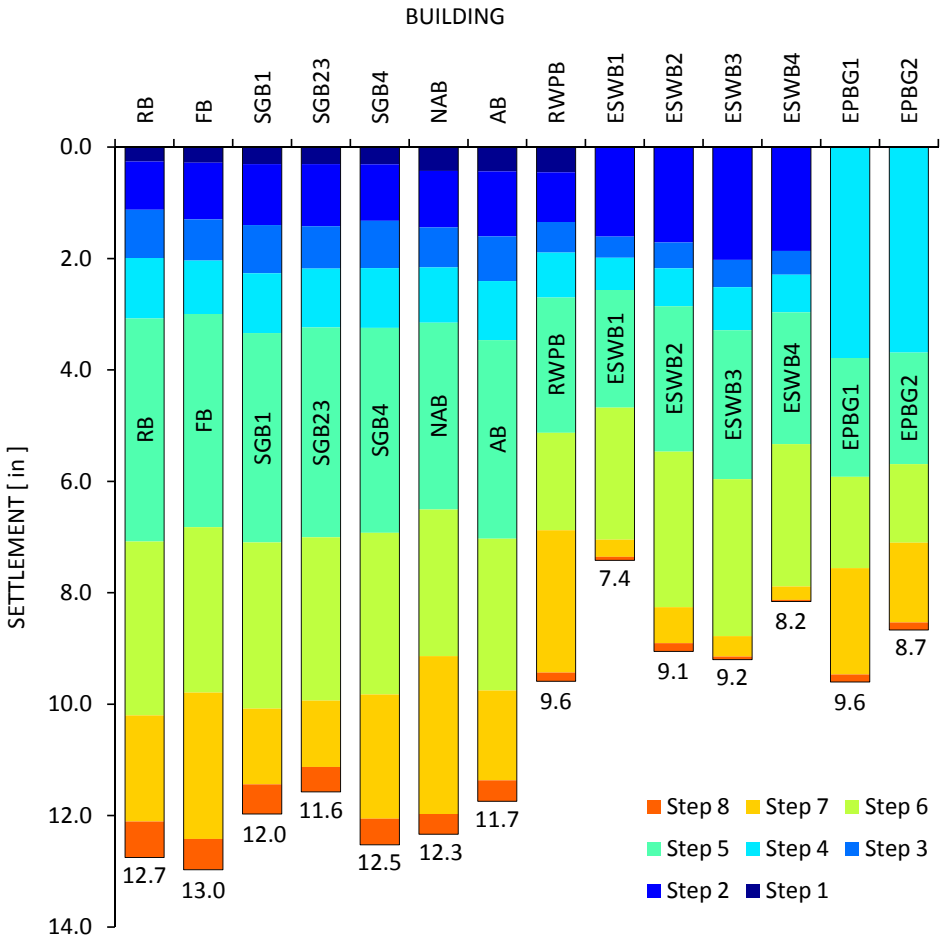


Figure 2.5-181— {Settlement Tracking Cross Sections}

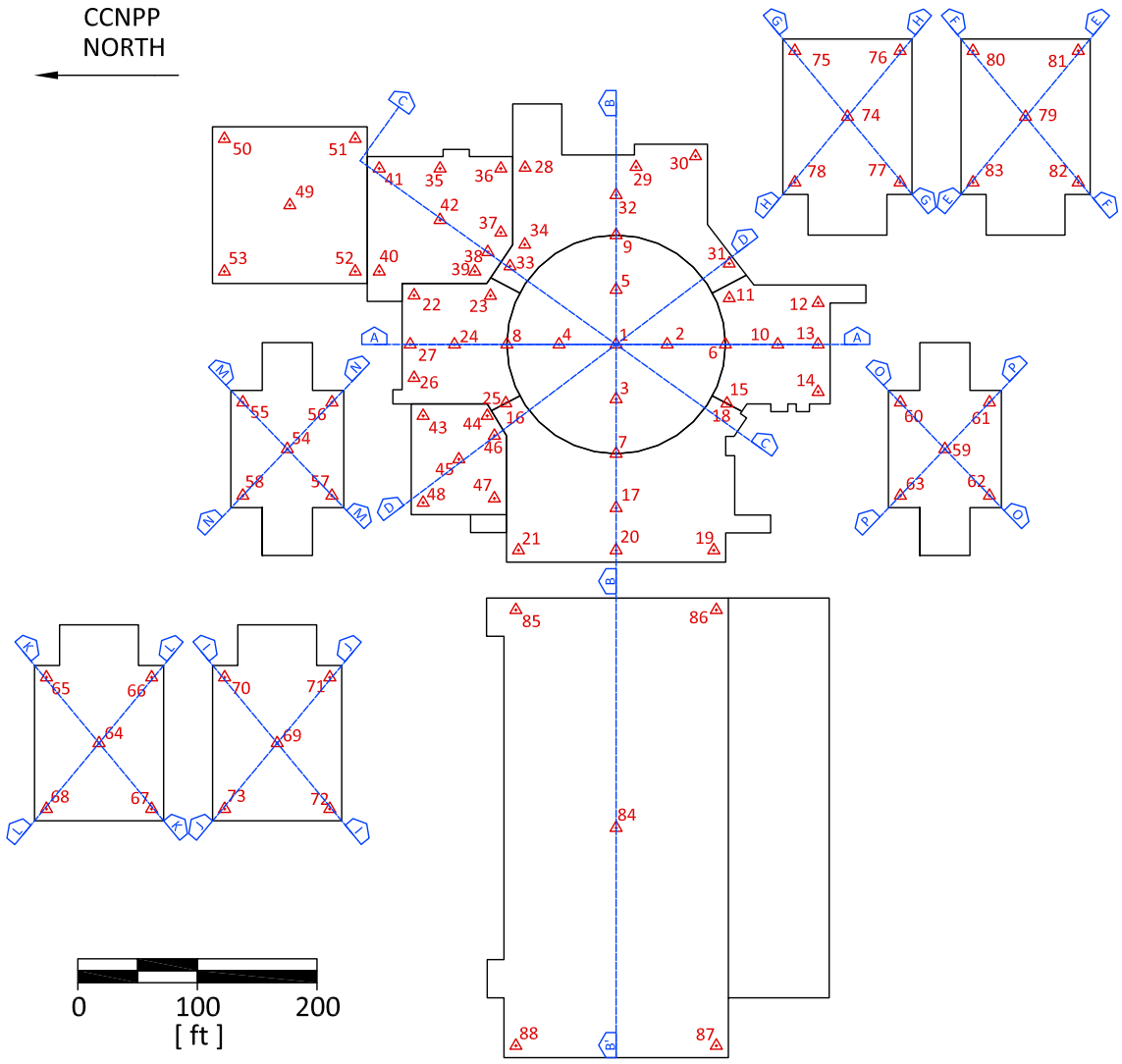


Figure 2.5-182— {Foundation Settlement across NI and TB Footprint}

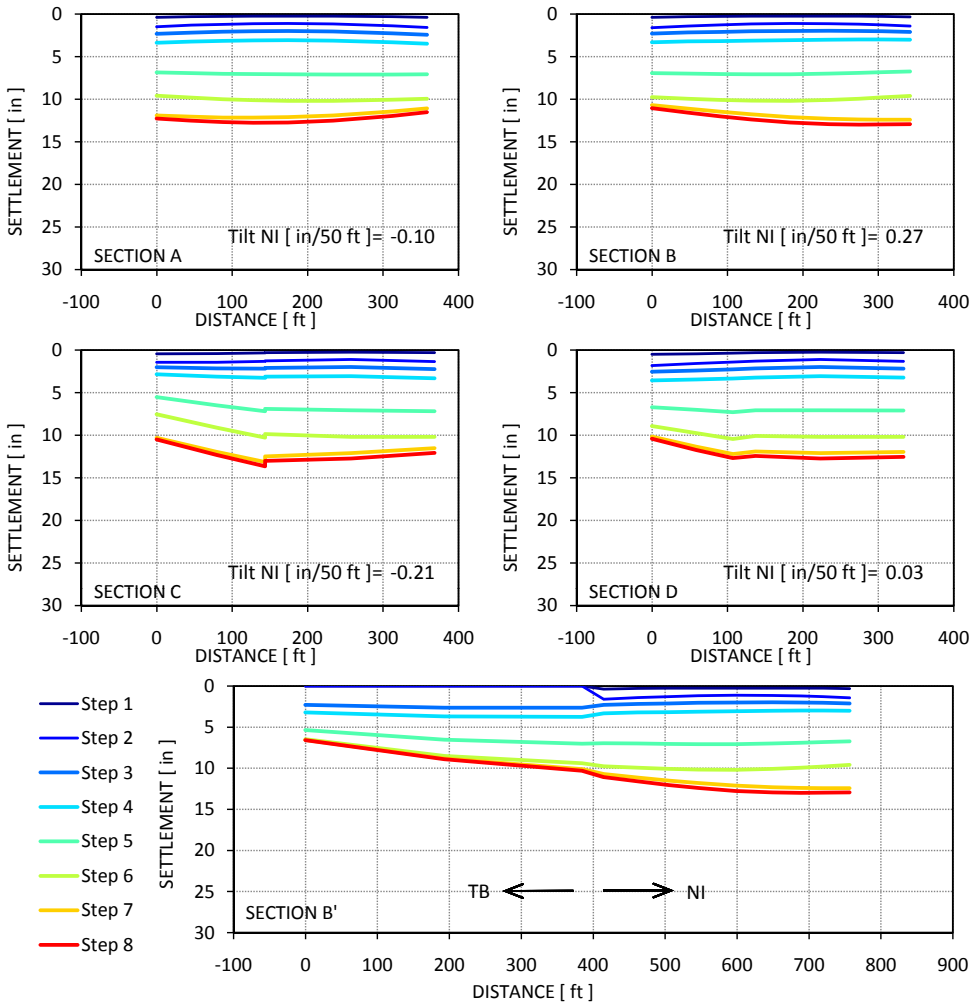


Figure 2.5-183— {Settlement at Center of Facilities After Adjustment for Topography}

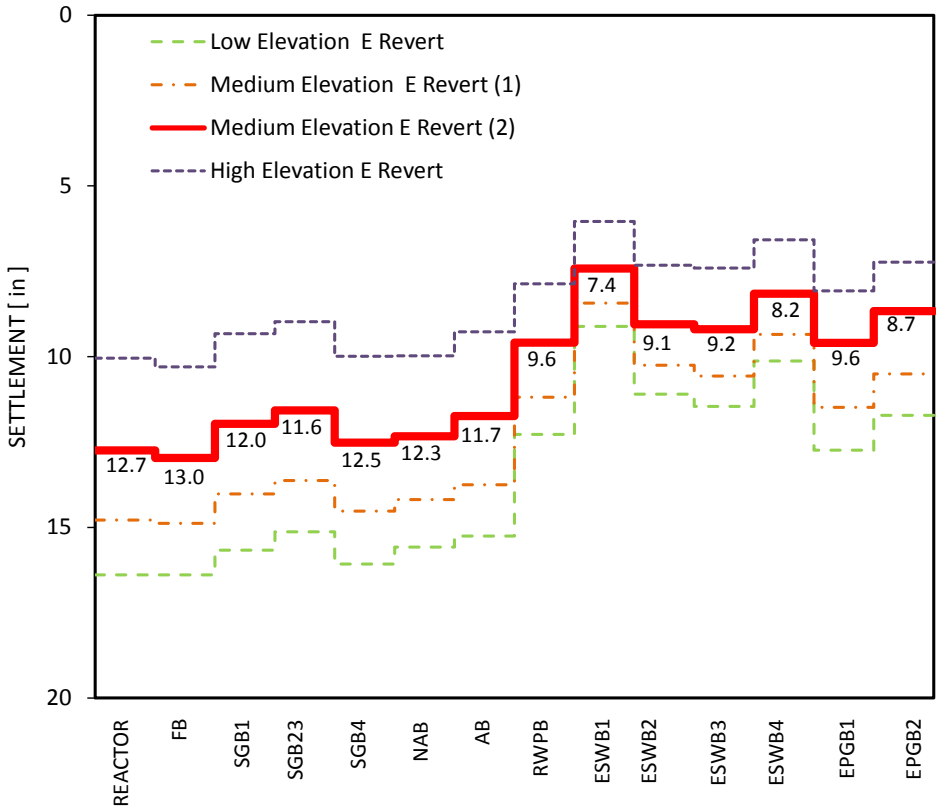
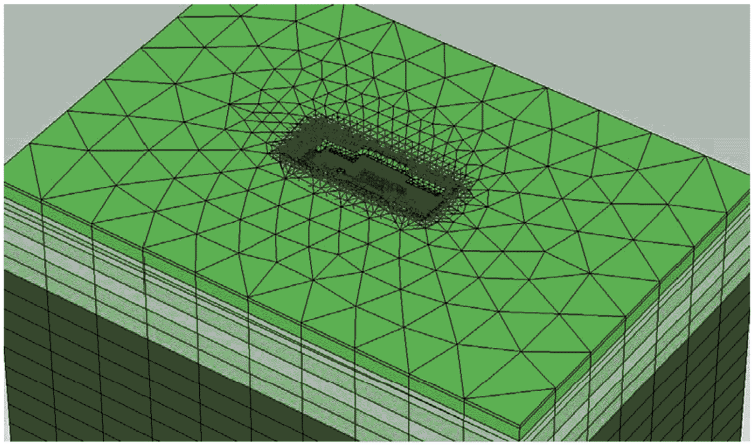
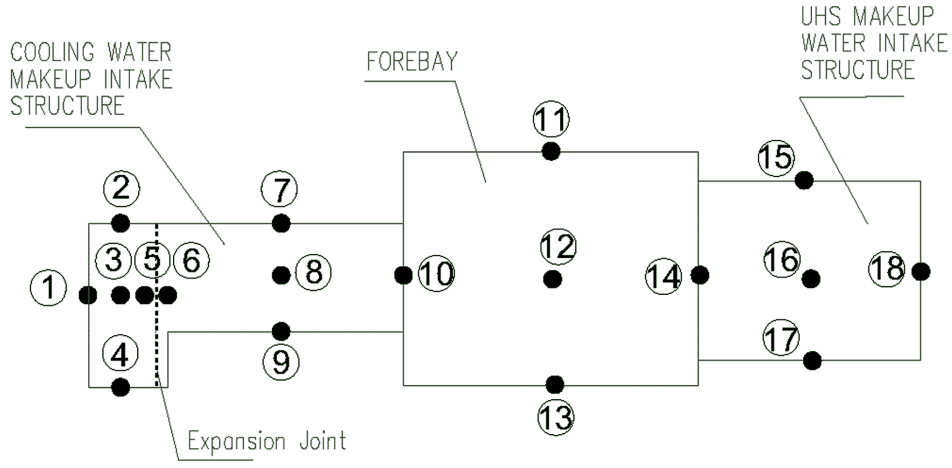


Figure 2.5-184— {UHS FEM Model}





Note: Numbers correspond to the settlement and tilt calculation points in the settlement analysis model.

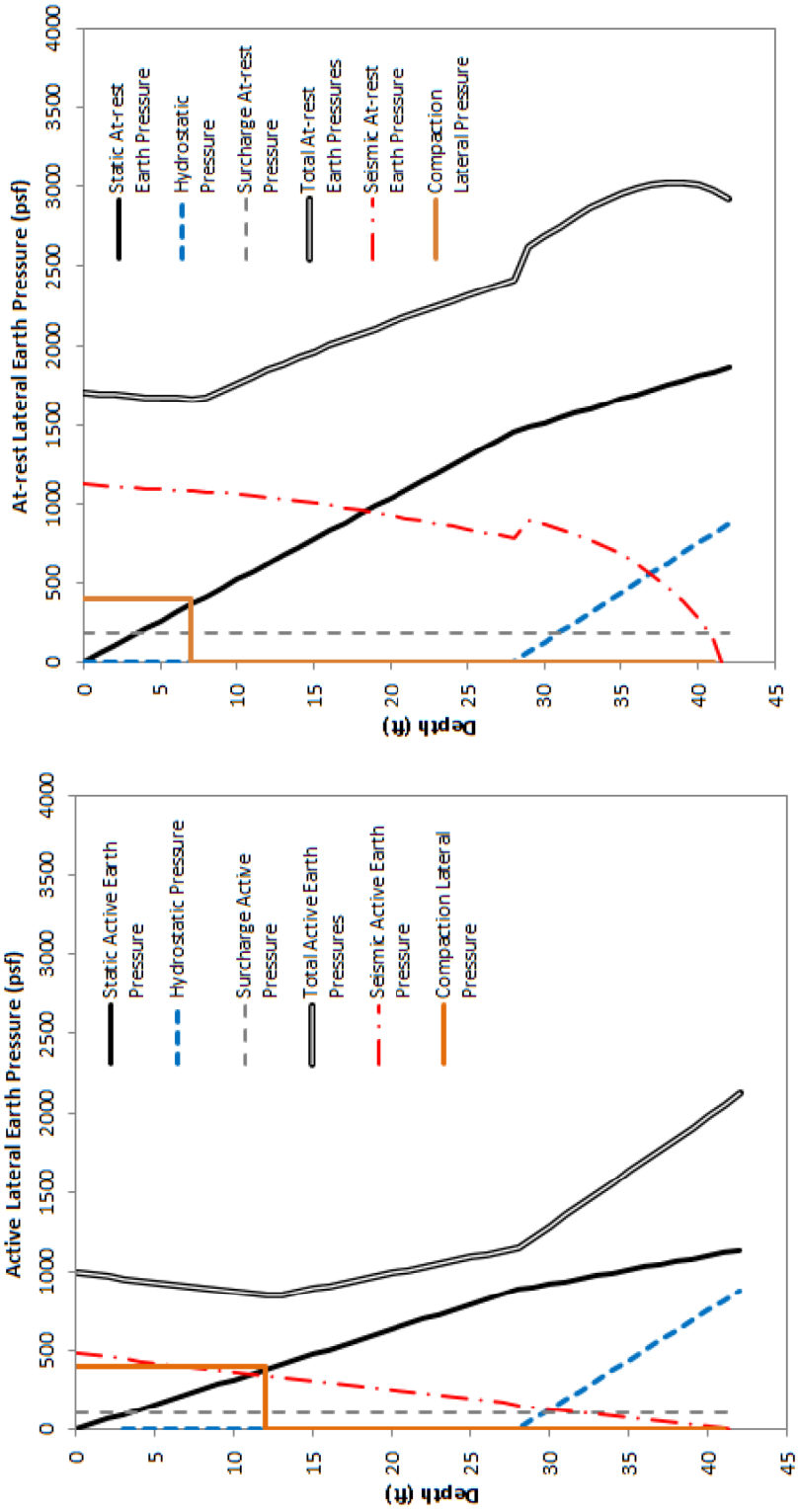


Figure 2.5-185— {Earth Pressure Representative Diagrams}

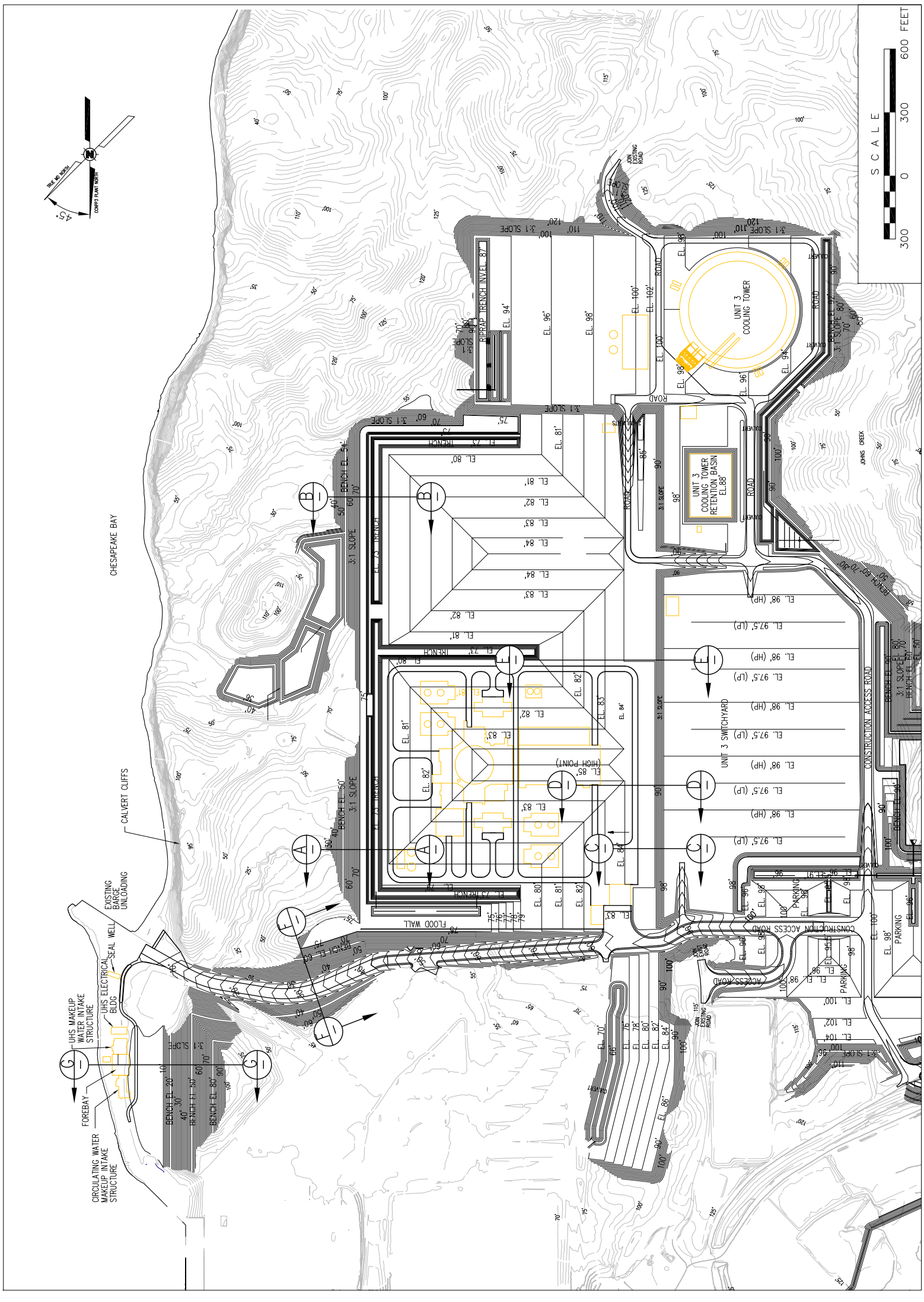
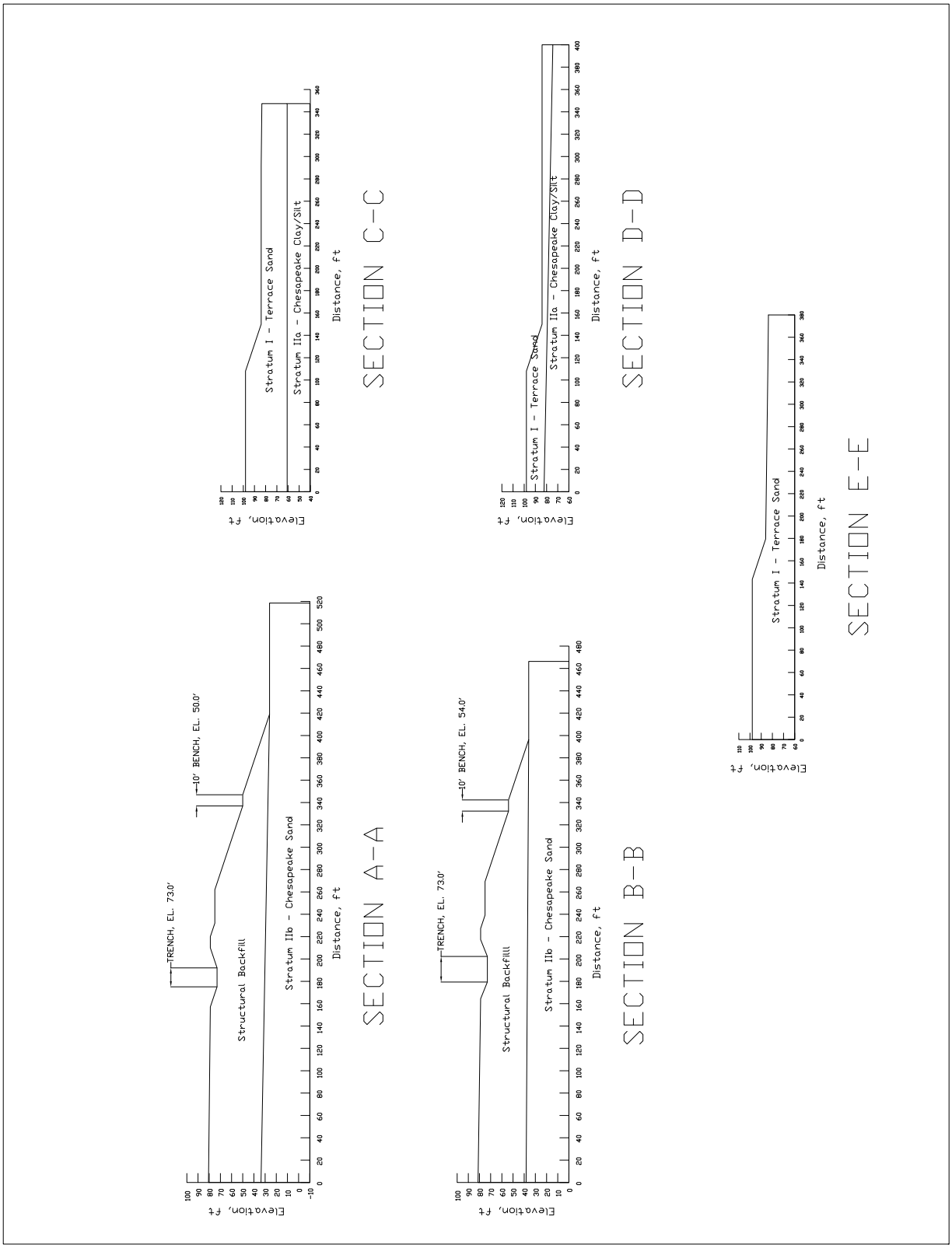


Figure 2.5-186— {Site Grading Plan with Slope Cross-Sections}

See Figure 1.2-1 for Powerblock layout

Figure 2.5-187— {Cross-sections in Powerblock Area}



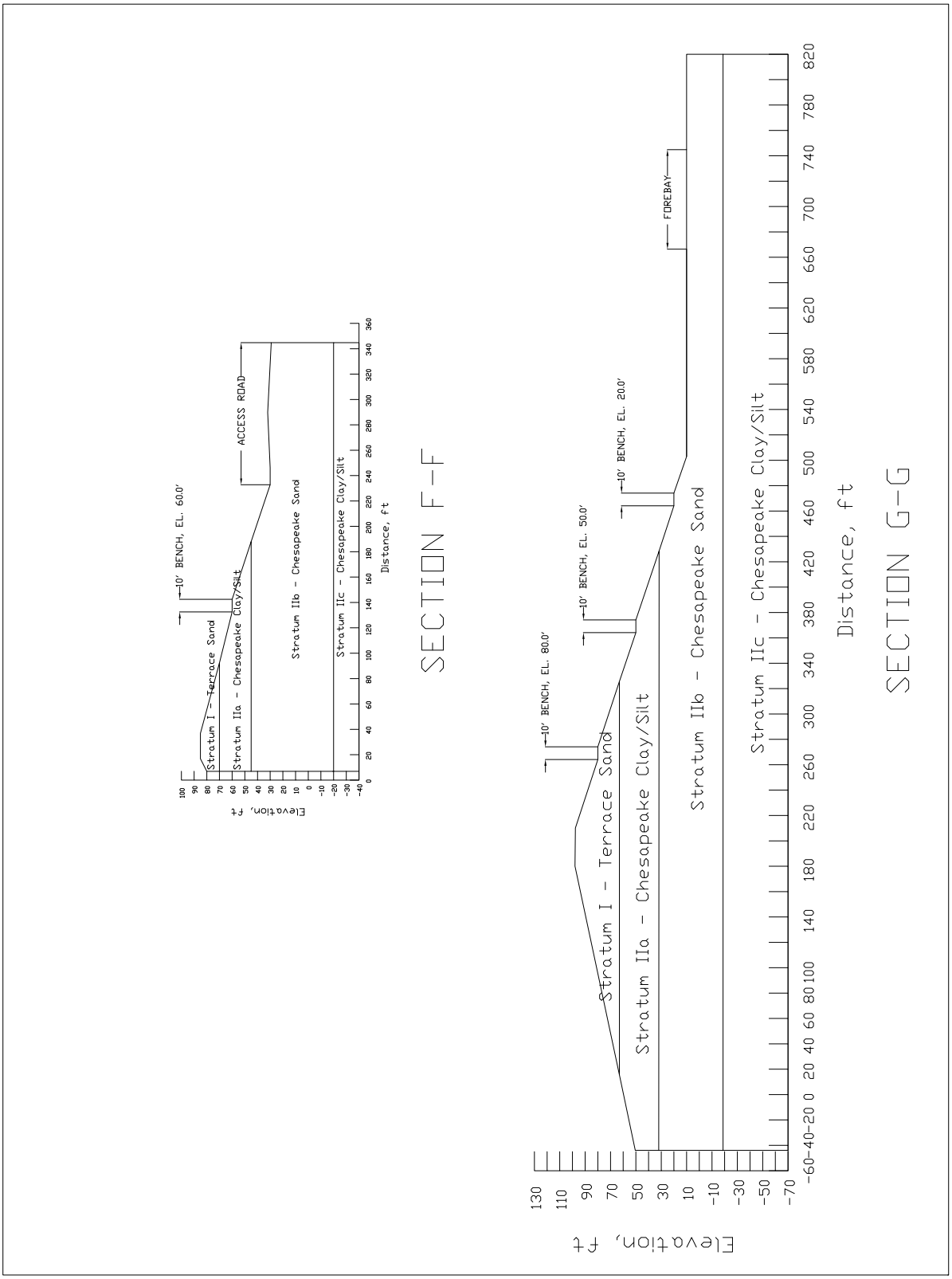


Figure 2.5-188— {Cross-sections in Intake Area and Utility Corridor}

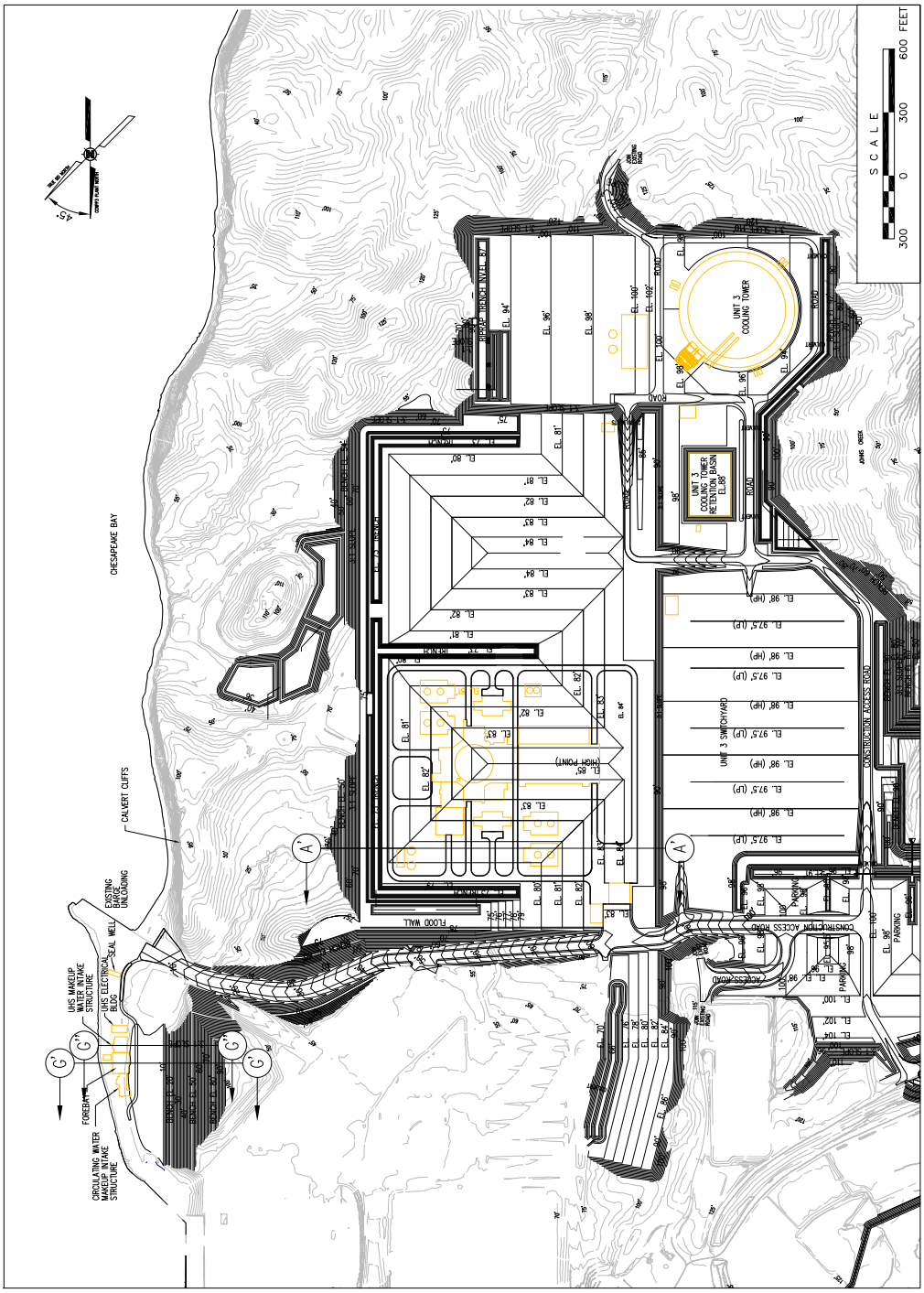


Figure 2.5-189— {Location of Excavation Cross-sections in CCNPP Unit 3}

See Figure 1.2-1 for Powerblock layout

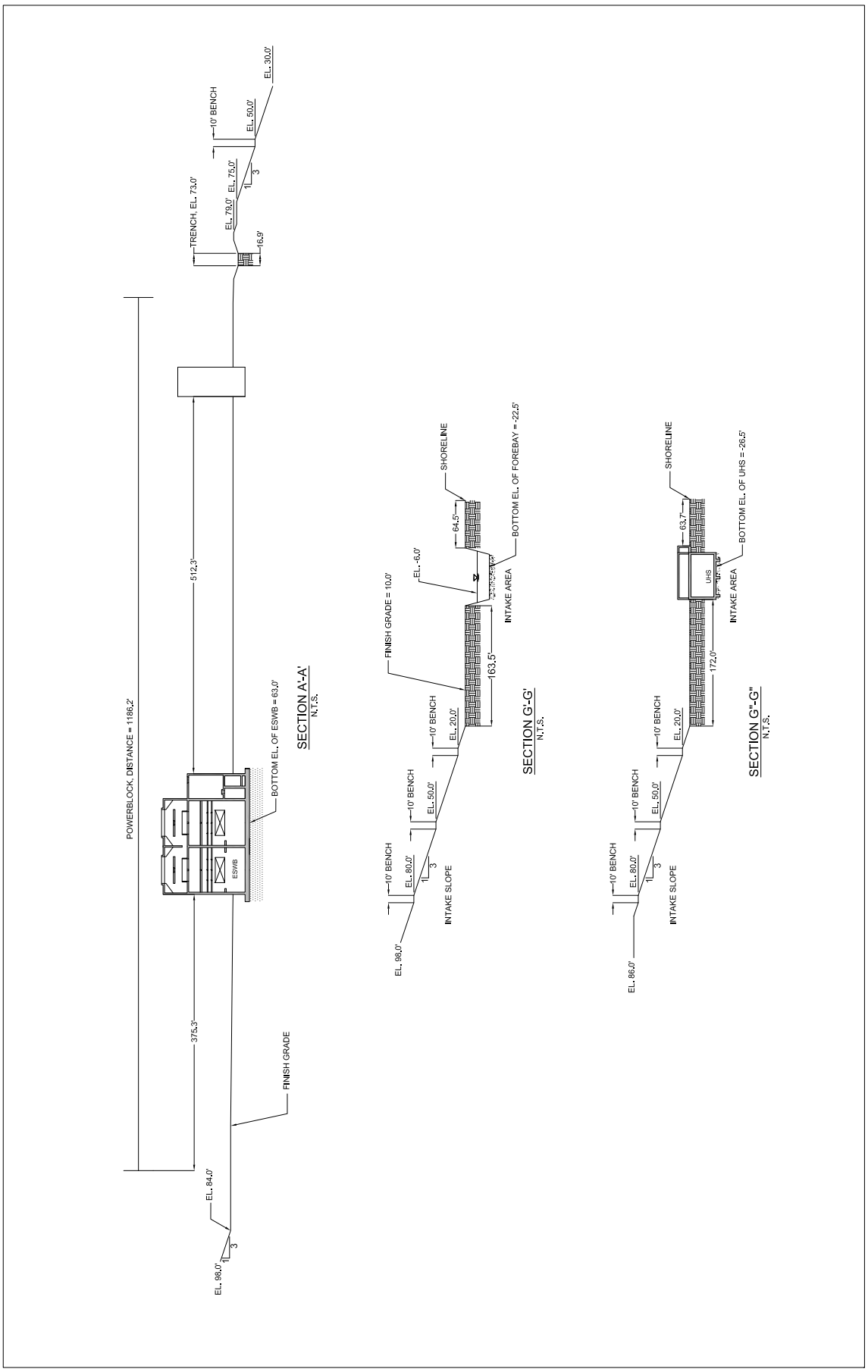
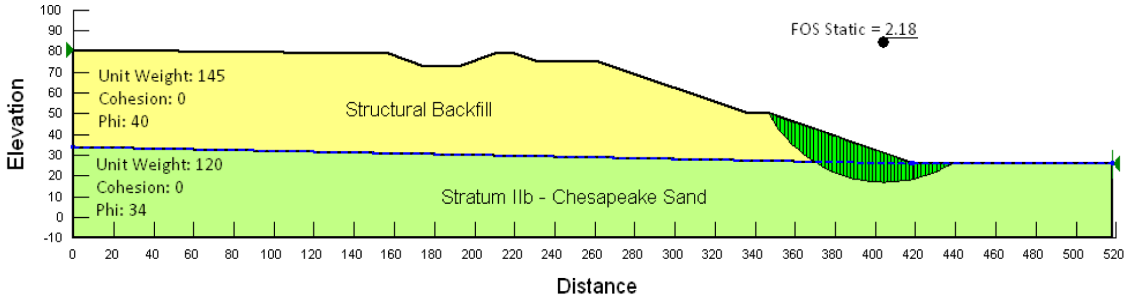
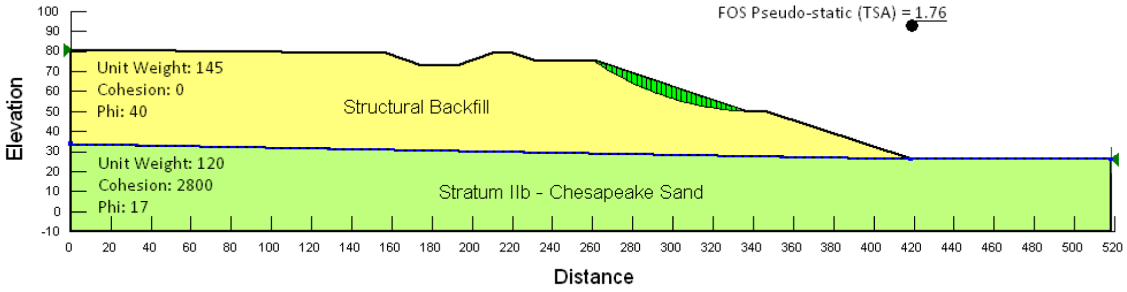


Figure 2.5-190— {Excavation Cross-sections in CCNPP Unit 3}

Figure 2.5-191— {Static and Pseudo-Static Stability Analyses of Slope Section A - Case a}





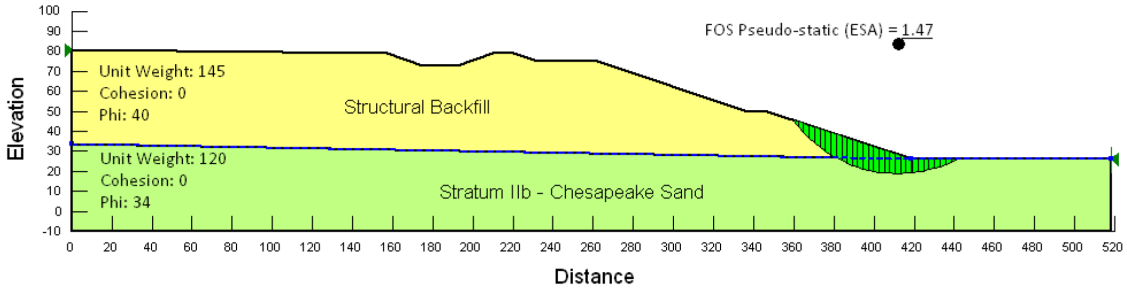
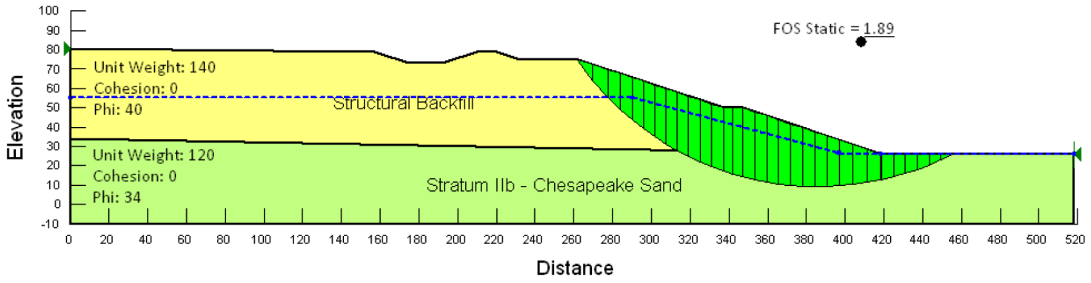
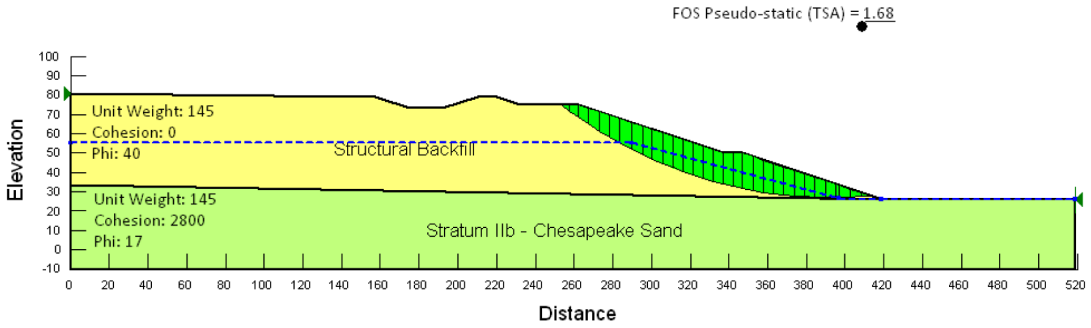


Figure 2.5-192— {Static and Pseudo-Static Stability Analyses of Slope Section A - Case b}





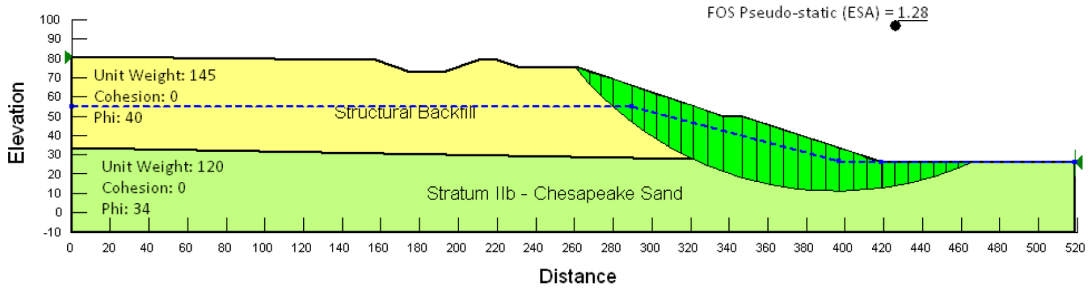


Figure 2.5-193— {Static and Pseudo-Static Stability Analyses of Slope Section B - Case a}

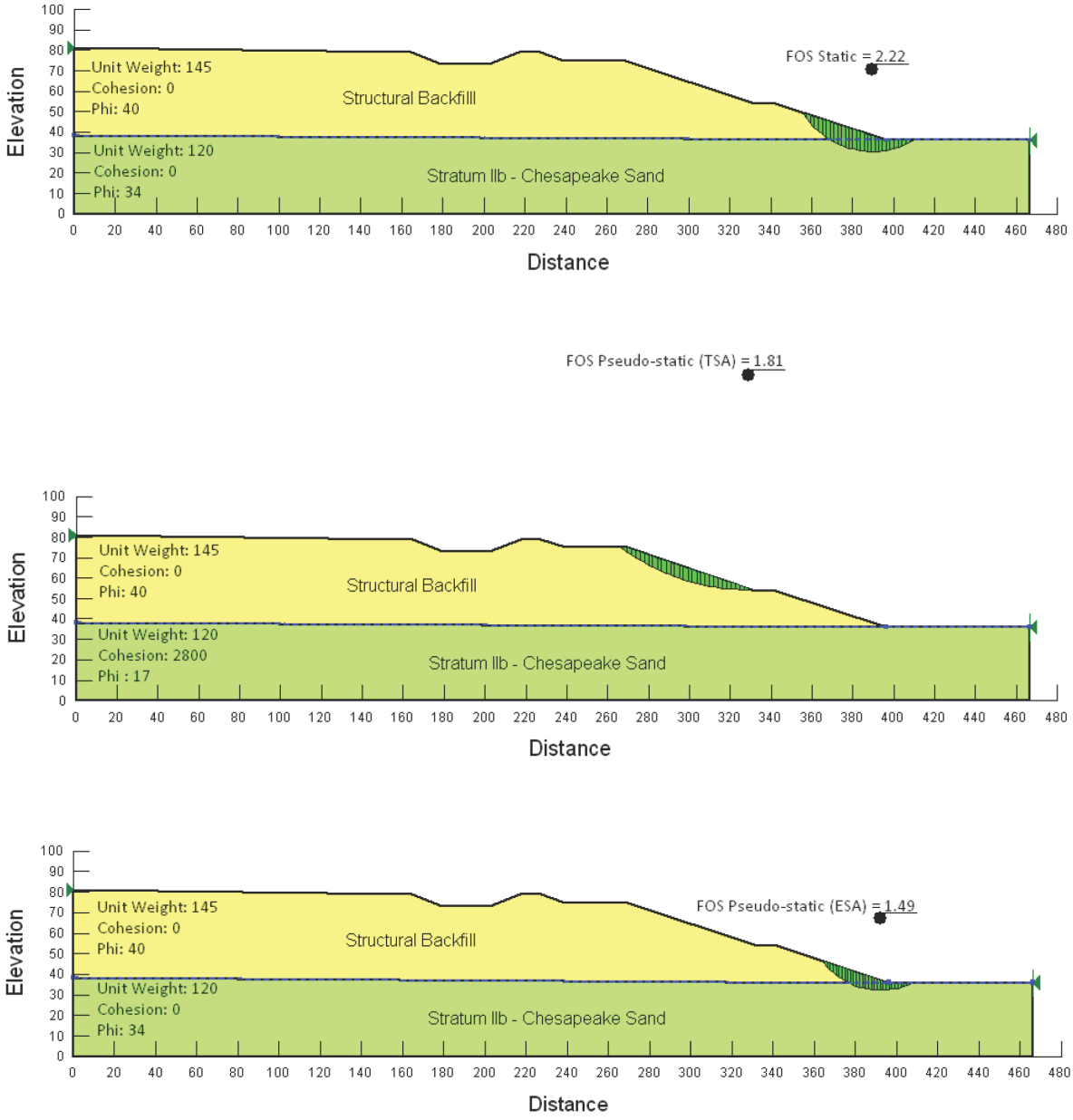


Figure 2.5-194— {Static and Pseudo-Static Stability Analyses of Slope Section B - Case b}

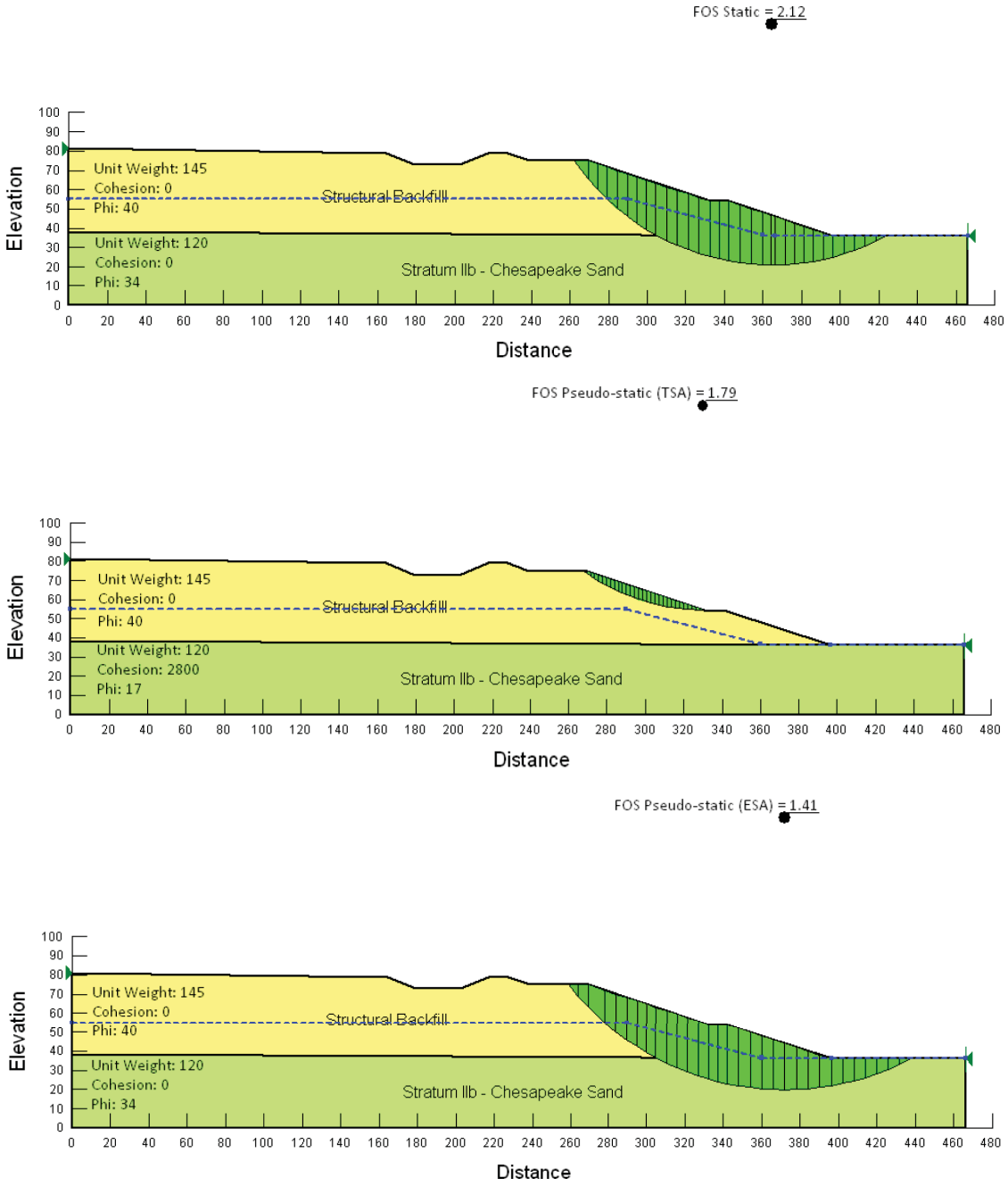


Figure 2.5-195— {Static and Pseudo-Static Stability Analyses of Slope Section C}

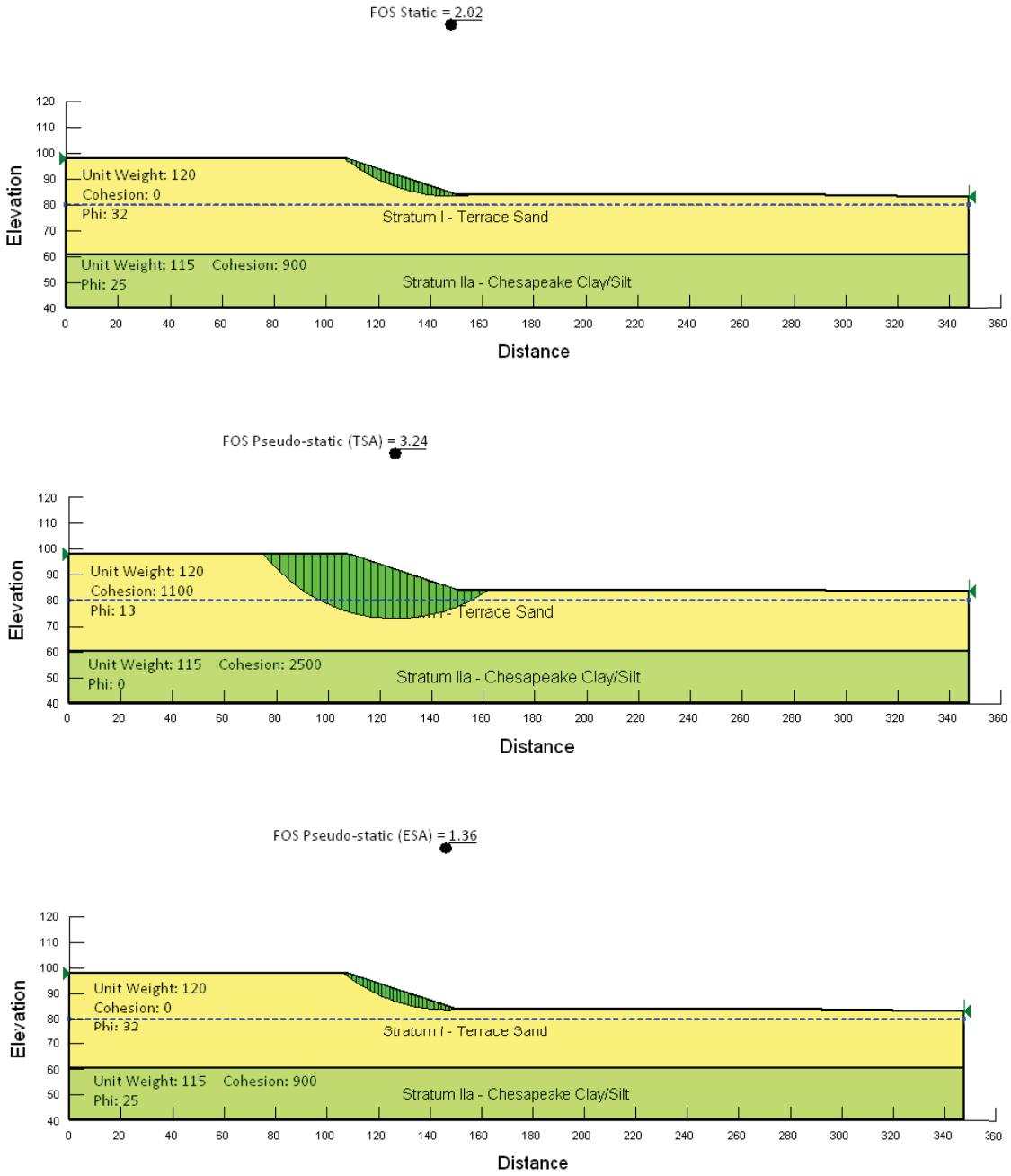


Figure 2.5-196— {Static and Pseudo-Static Stability Analyses of Slope Section D}

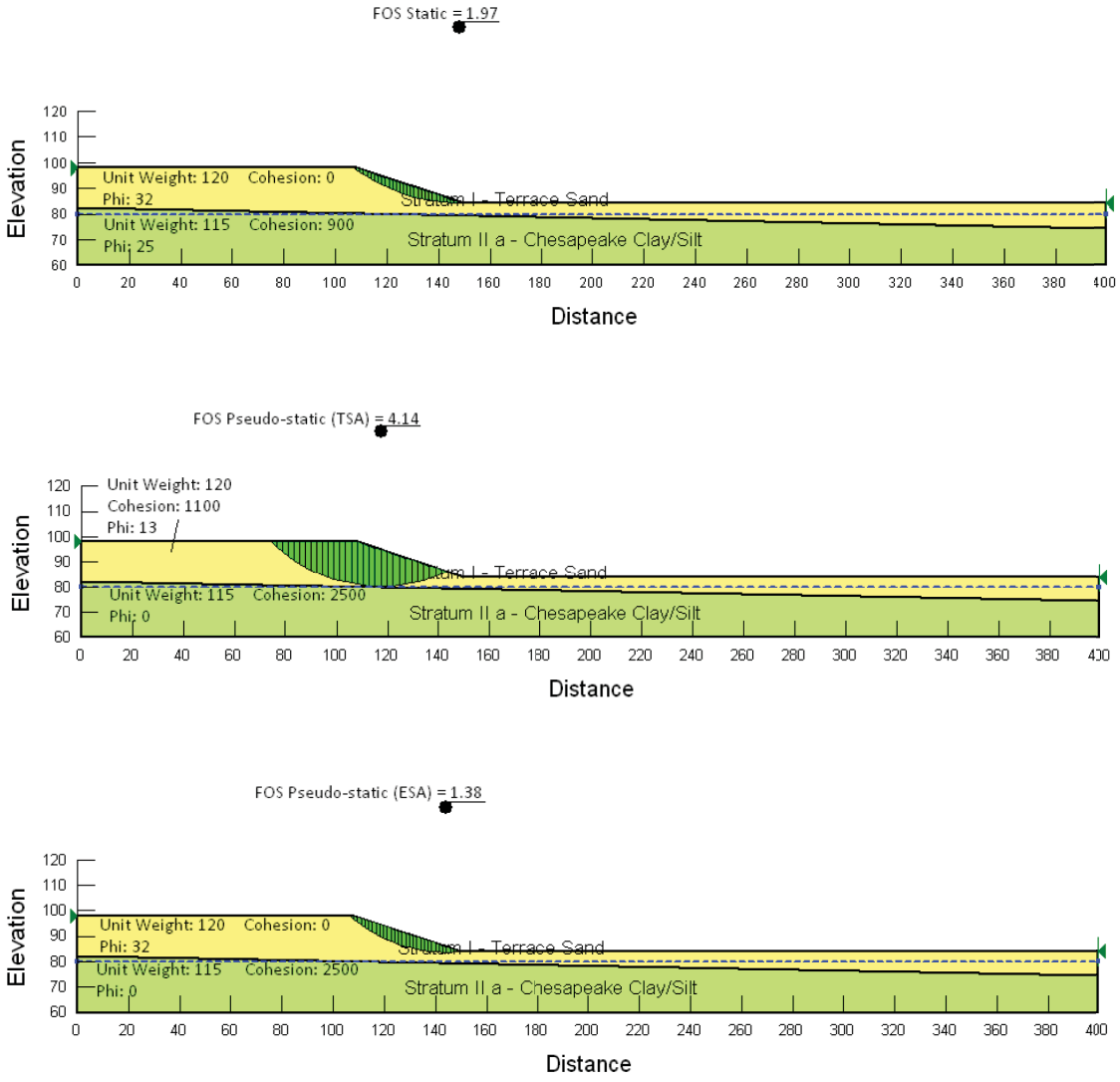


Figure 2.5-197— {Static and Pseudo-Static Stability Analyses of Slope Section E}

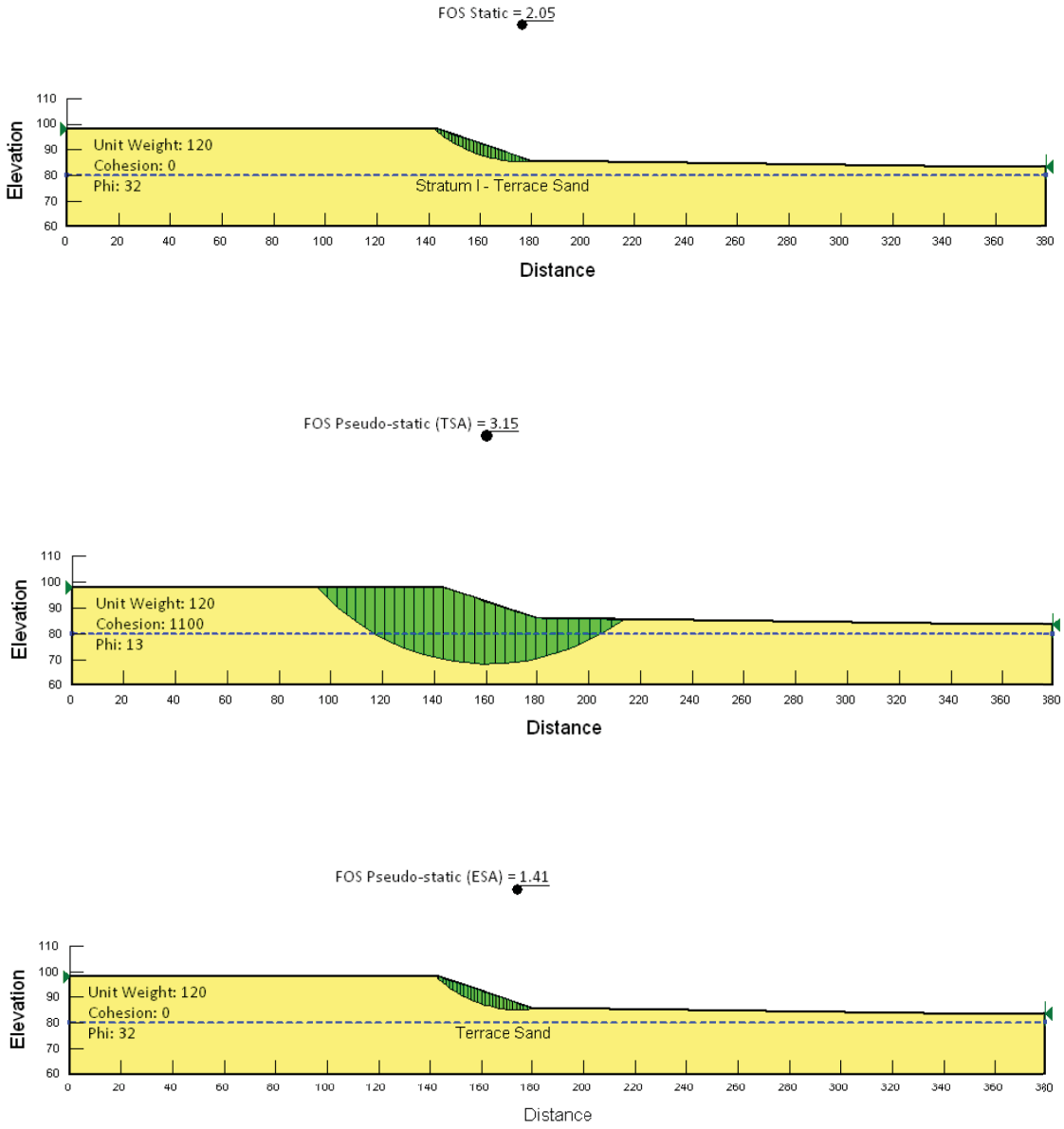
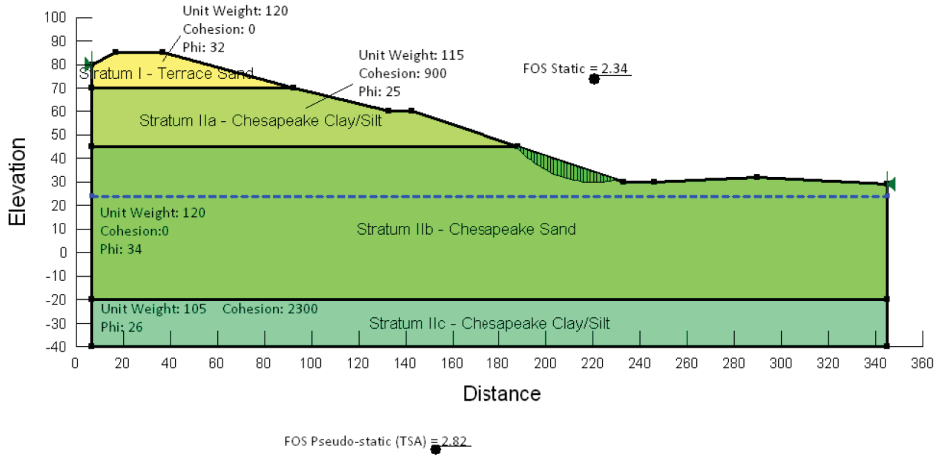
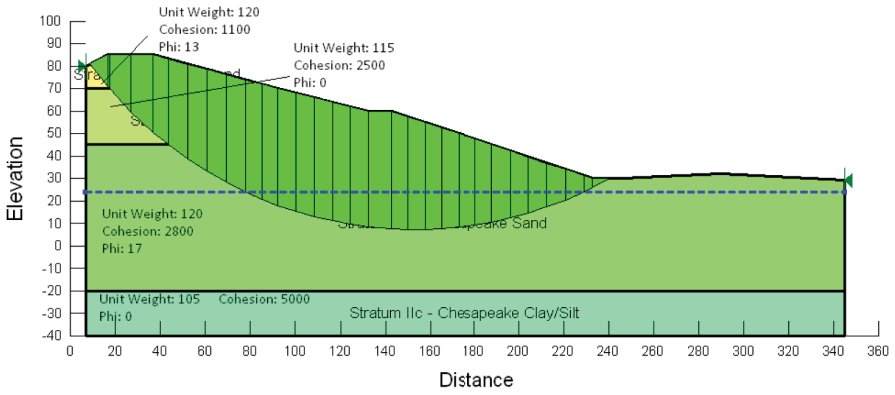


Figure 2.5-198— {Static and Pseudo-Static Stability Analyses of Slope Section F (Utility Corridor)}





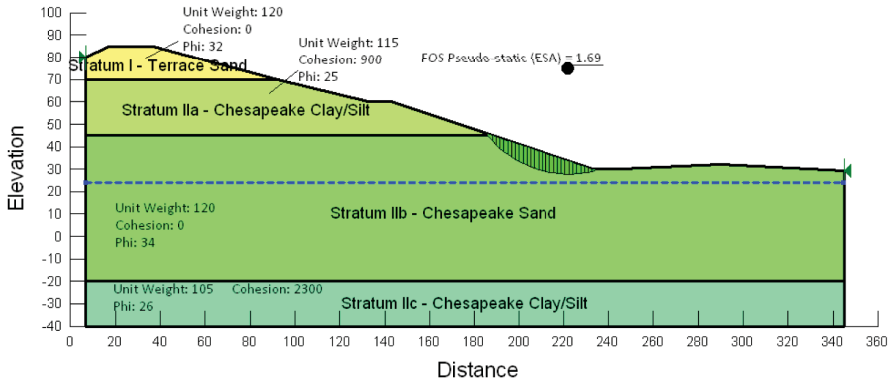
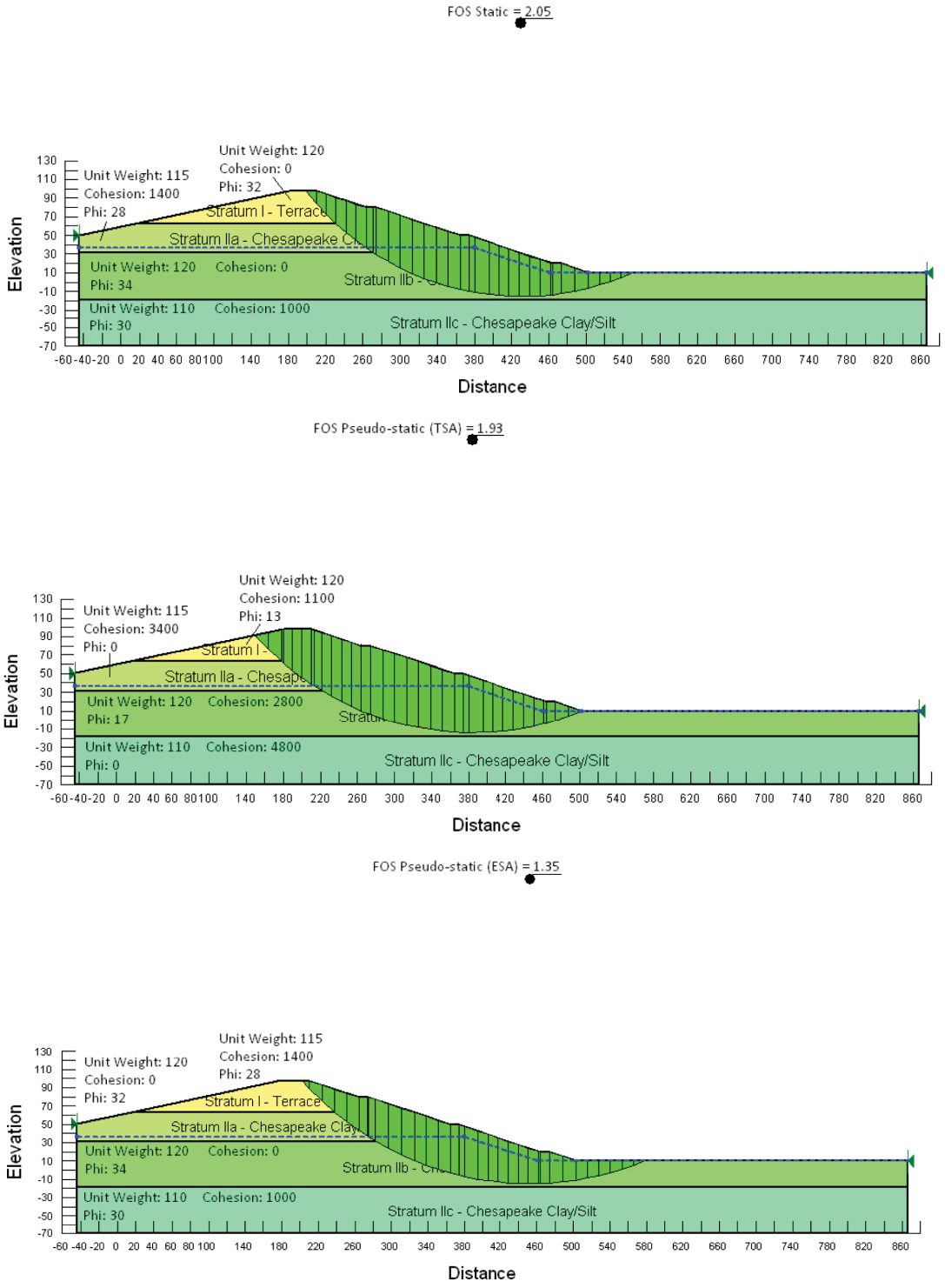


Figure 2.5-199— {Static and Pseudo-Static Stability Analyses of Slope Section G (Intake Area)}



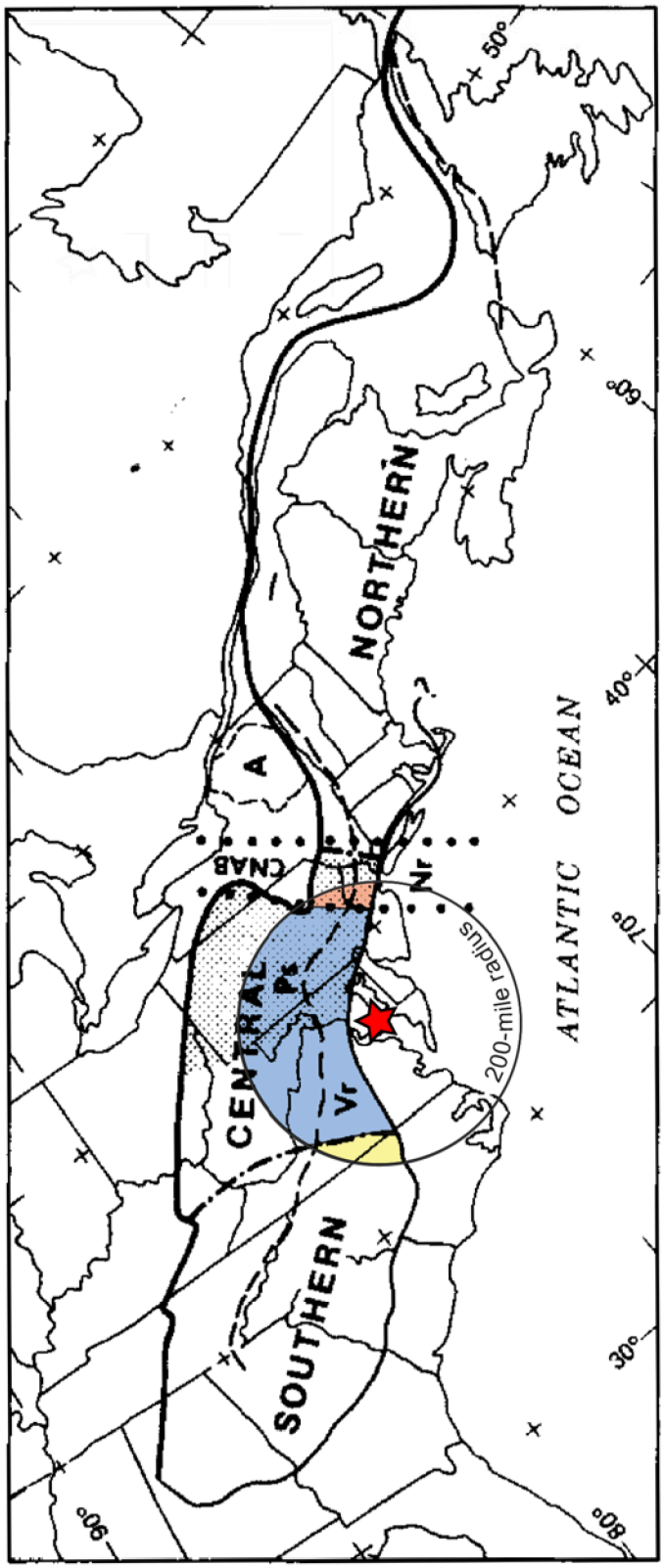
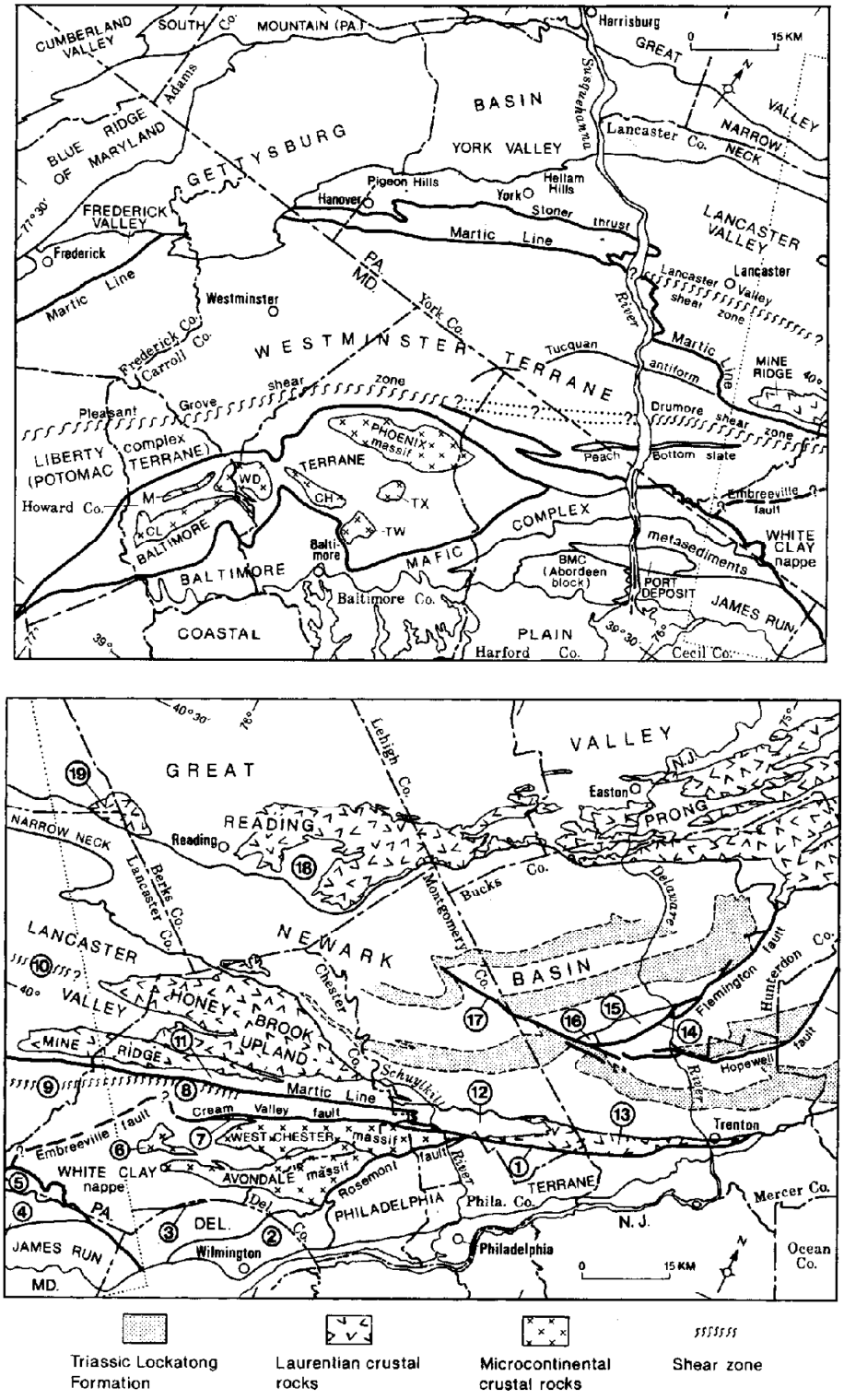


Figure 2.5-200— {Outline of the Appalachian Orogen and its Major Subdivisions along the Eastern North American Continent}

Figure 2.5-201— {Appalachian Orogen}



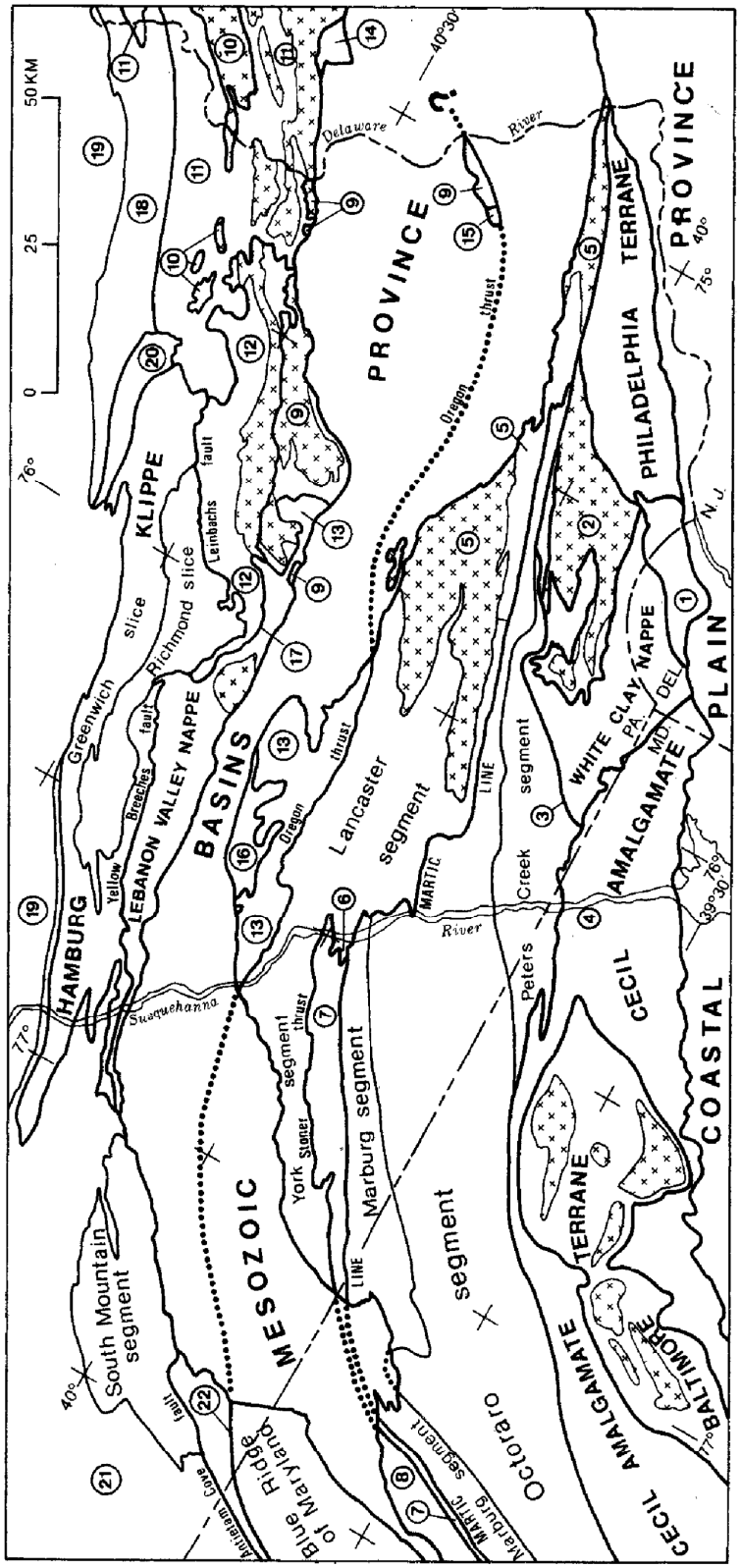
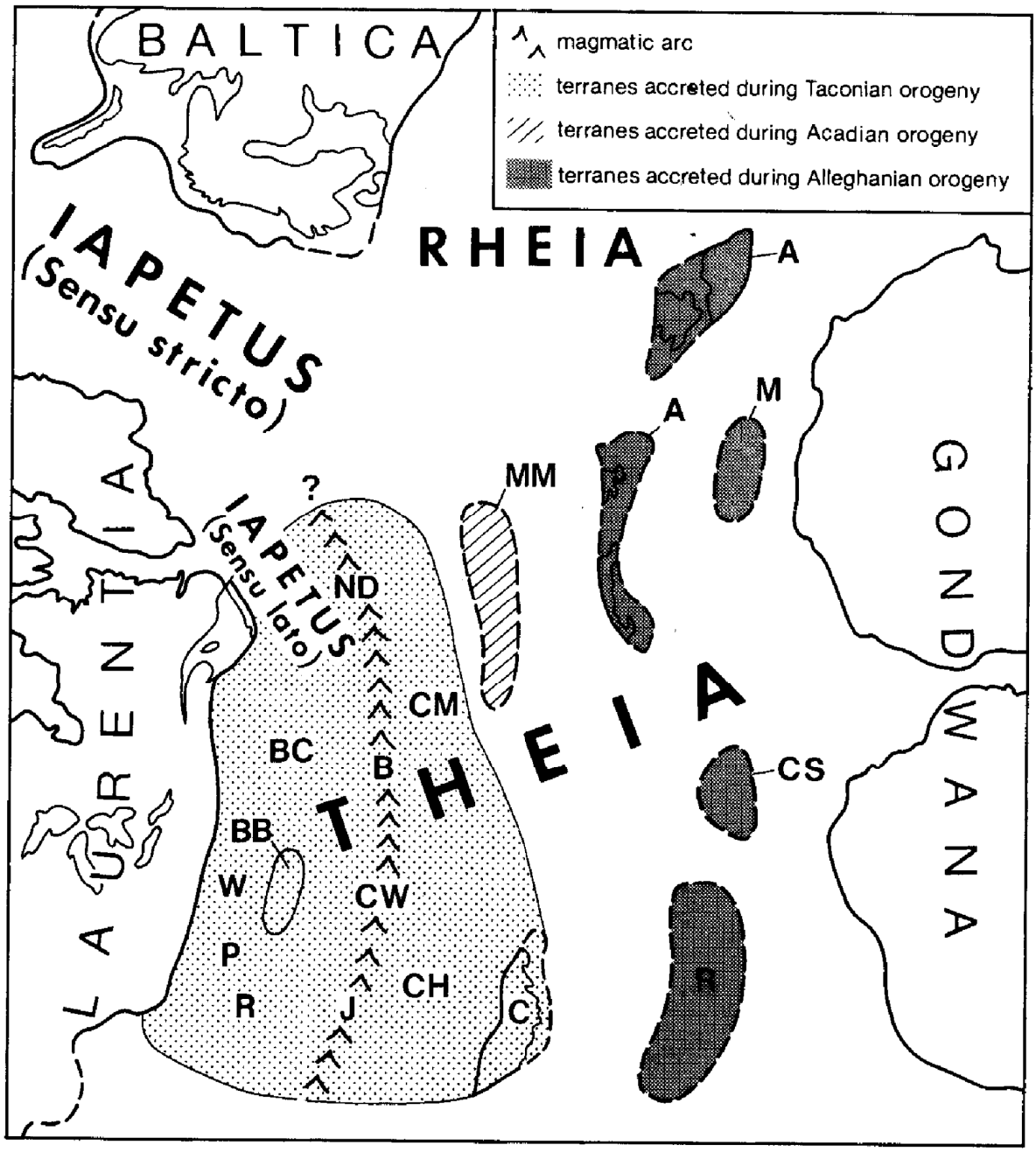


Figure 2.5-202— {Laurentian-Margin Subdivision and other Tectonic Elements of the Southeast of the Blue Mountain Front}

Figure 2.5-203— {Schematic Map Showing the Relative Positions of Exotic Terranes}



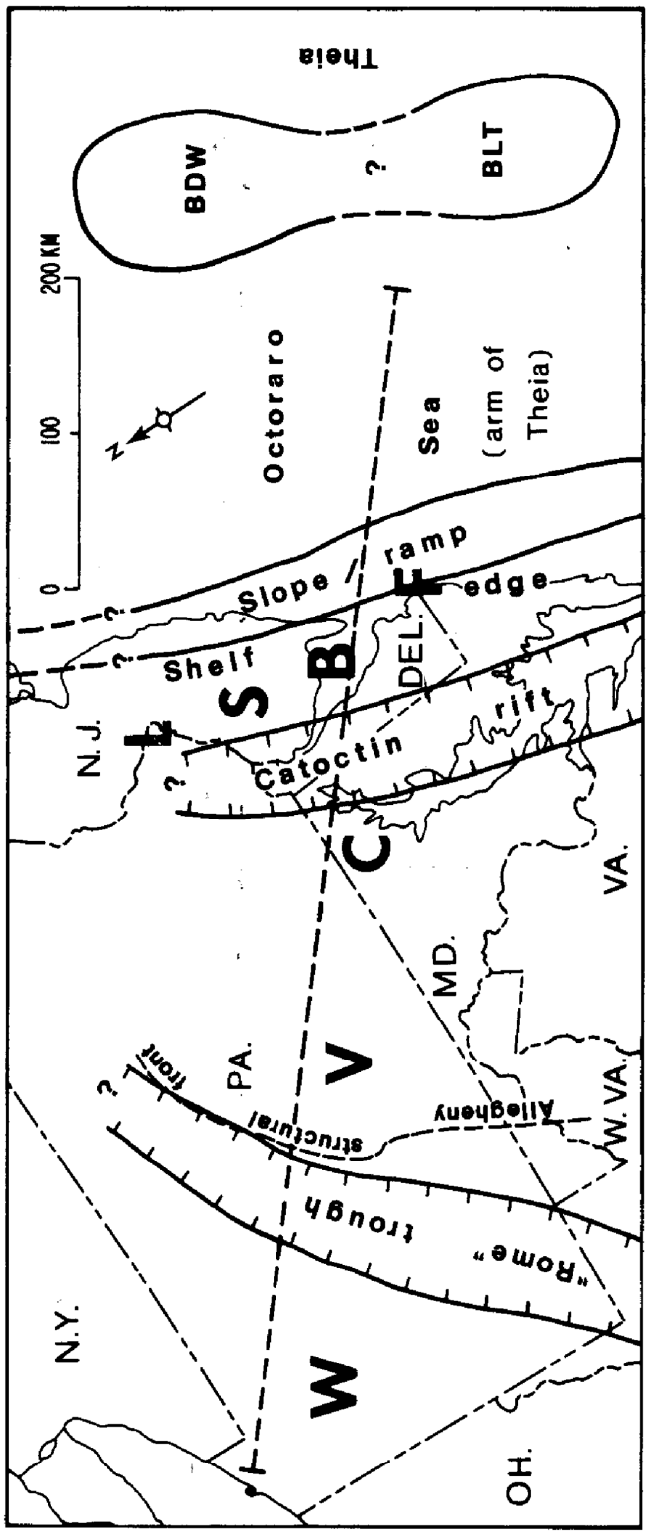


Figure 2.5-204— {Rifts Formed during the Breakup of Rodinia}

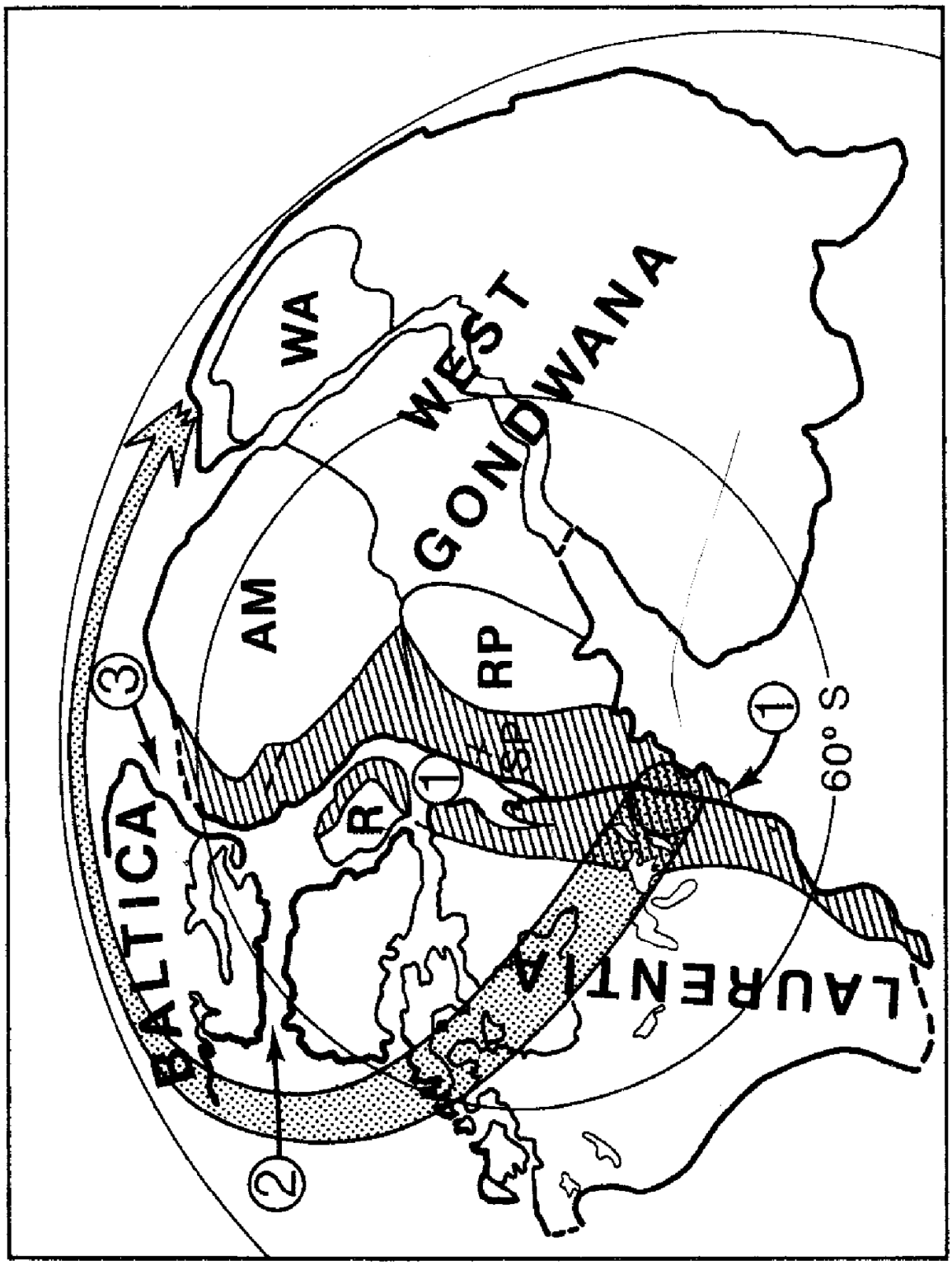


Figure 2.5-205— {Reconstruction of part of Rodinia at the end of the Neoproterozoic, showing the relative positions of Laurentia, Baltica, and West Gondwana}

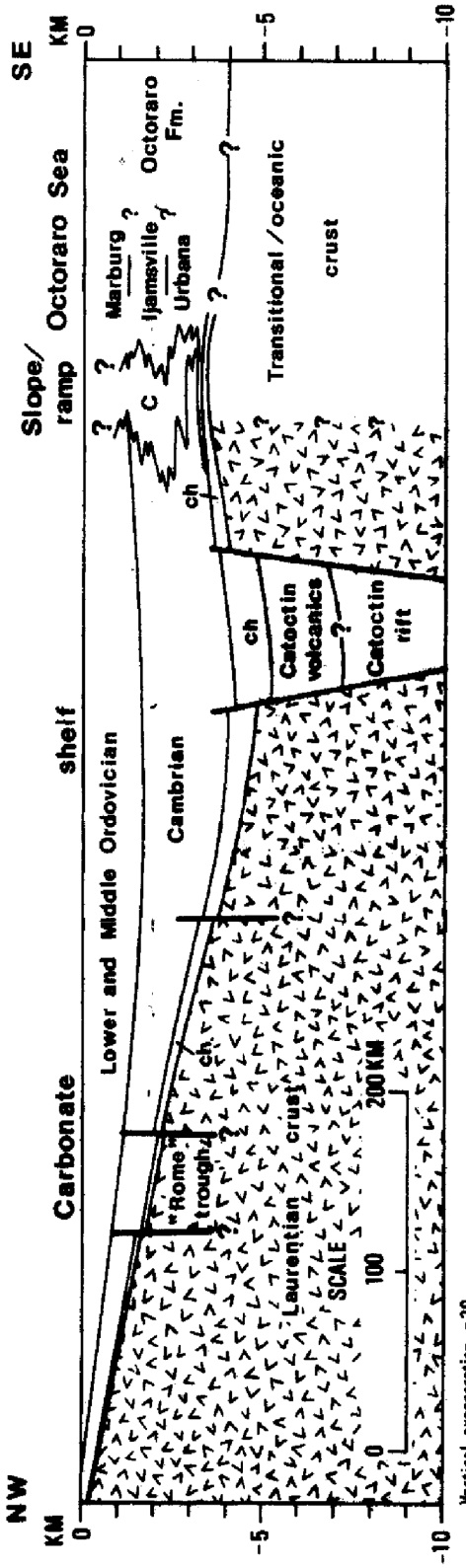


Figure 2.5-206— {Cross section of the carbonate shelf, shelf/slope/basin/transition, and proximal basin (Octorara seaway) during the Middle Ordovician, from Erie (NW) to the present Atlantic coaseline(SE)}

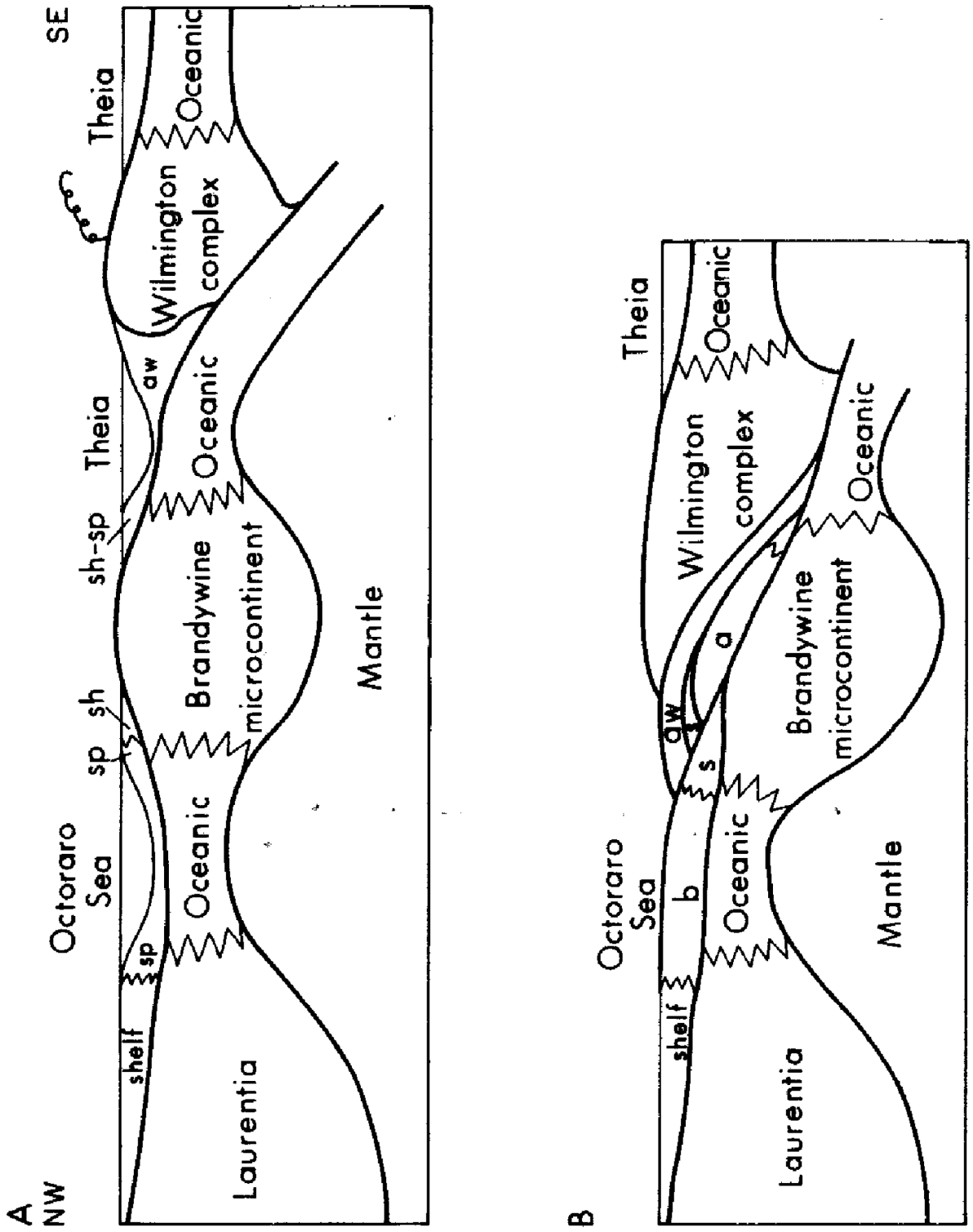


Figure 2.5-207— {Brandywine Microcontinent}

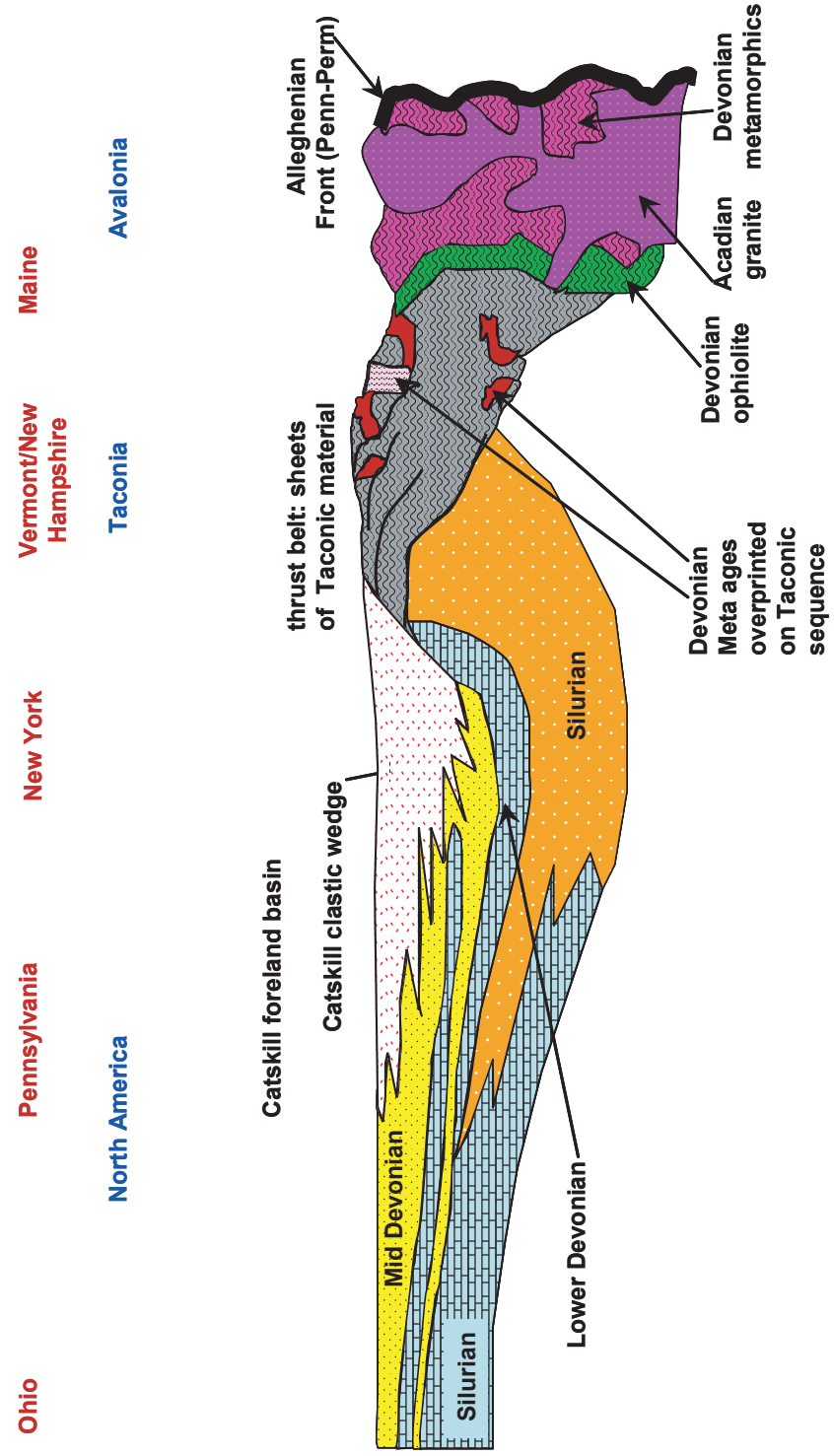
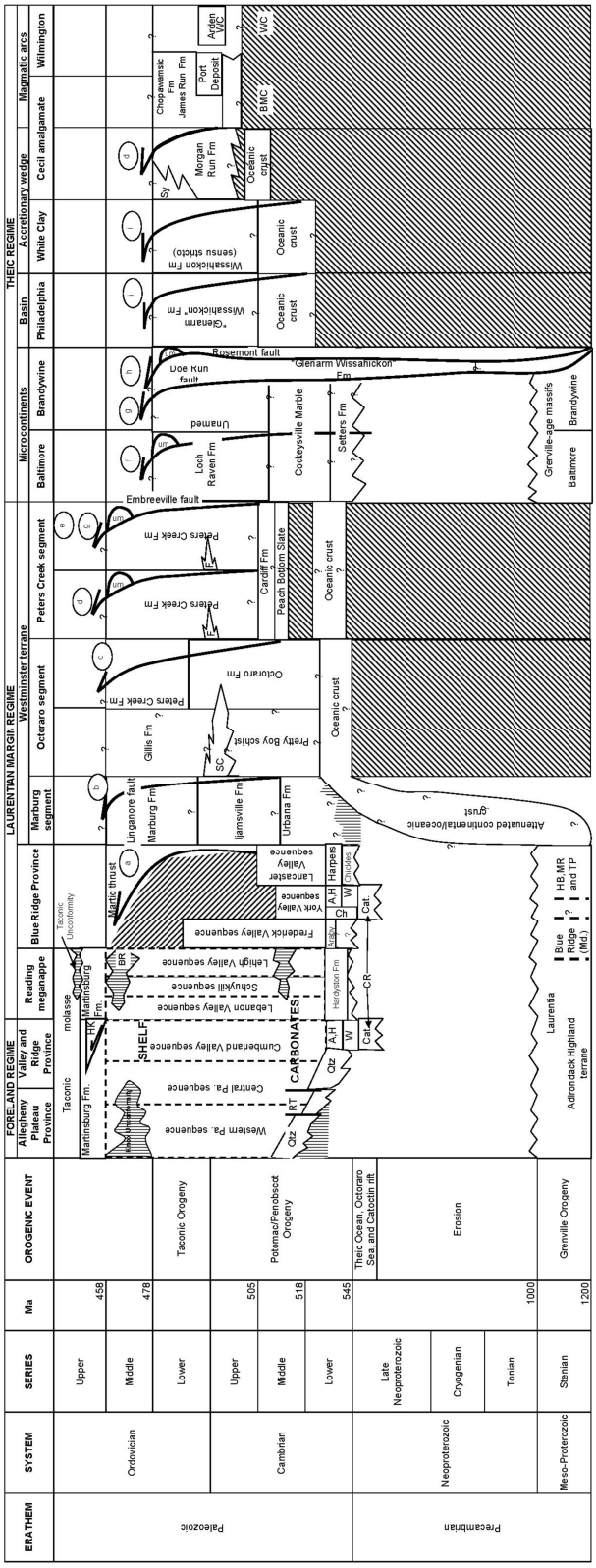


Figure 2.5-208— {Catskill clastic wedge Structure and Stratigraphy during the Acadian Orogeny}

Figure 2.5-209— {Precambrian through Ordovician Regional Stratigraphy}



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modified from Faill 1997a, Castle, 2001, Gates, Mullre and Krol, 1999

Notes:
Correlation chart of Neoproterozoic to Upper Ordovician in the Foreland, Laurentian Margin and Theic Regimes, and/or structural entities within regimes. Vertical lines-unconformity or discontinuity; diagonal lines (down to left)-intervals of unknown or no event; diagonal lines (down to right)-stratigraphic section since tremoved by erosion. Curved arrows-thrust faults; question marks-uncertain age

Figure 2.5-210— {Legend for Figure 2.5-214 (Precambrian through Ordovician Regional Stratigraphy)}

A-Antietam Formation
BMC-Baltimore Mafic Complex
MBR-Black Riveran hiatus

Cat.-Catoctin Formation
Ch-Chickies Formation
CR-Catoctin rift

F-Fishing Creek metabasalt
H-Harpers Formation
HB-Honey Brook Upland
HK-Hamburg klippe
MR-Mine Ridge
Qtz-quartzose siliciclastic rocks
RT-Rome trough
SC-Sams Creek Formation
Sy-Sykesville Formation
TP-Trenton prong
um-ultramafic body tectonically emplaced by entrainment within a fault
W-Weverton (and Loudoun) Formations
WC-Wilmington Complex

Hanging wall identities (in circles):
a-Westinster terrane
b-Linganore nappe
c-Westminster terrane ("Peters Creek" segment)
d-Baltimore Mafic Complex
e-Brandywine terrane
f-Liberty Complex or Baltimore Mafic Complex
g-White Clay nappe
h-Philadelphia terrane
i-Wilmington Complex

modified from Faill 1997a

Figure 2.5-211— {Silurian through Permian Regional Stratigraphy}

ERATHEM	SYSTEM	SERIES	Ma	OROGENIC EVENT	North Virginia and West Virginia	Maryland-Delaware	West-Central Pennsylvania	Eastern Pennsylvania	Southeastern-Western New York	Northern New Jersey
UPPER PALEOZOIC	Permian					Dunkard Group	Dunkard Group			
	Pennsylvanian	Upper		Allegheny Orogeny		Monongahela Formation	Monongahela Formation	Monogahela Formation	Pottsville Group	
						Conemaugh Formation	Conemaugh Group: Casselman Formation; Glenshaw Formation	Conemaugh Group: Casselman Formation; Glenshaw Formation		
		Middle				Allegheny Formation	Allegheny Formation	Allegheny Formation		
						Pottsville Group	Pottsville Group	Pottsville Group		
		Lower								
	Mississippian	Upper			Mauch Chunk Formation; Greenbrier Formation	Mauch Chunk Formation; Greenbrier Formation	Mauch Chunk Formation; Loyalhanna Formation	Mauch Chunk Formation	Pocono Group	
					Maccrady Formation					
		Lower			Price/Pocono Formation: Burgoon/Purslane Sandstone; Rockwell Formation	Pocono Group: Purslane Sandstone; Rockwell Formation	Burgoon Sandstone; Rockwell Formation	Burgoon Sandstone Member; Waverly Group		
	Devonian	Upper		Acadian Orogeny	Hampshire (Catskill) Formation; Foreknobs Formation; Scherr Formation; Brallier Formation; Harrell Shale	Hampshire Formation; Foreknobs Formation; Scherr Formation; Brallier Formation; Harrell Shale	Catskill Group: Duncannon Member; Sherman Creek Member; Irish Valley Member; Lock Haven Formation; Brallier Formation; Harrell Formation	Catskill Group: Long Run Member; Beaverdam Run Member; Walcksville Member; Towamensing Member	Catskill Group: Slide Mountain Member; Walton Formation; Gilboa/Oneonta Formations; Catskill Formation: Conewango Group; Conneaut Group; Canadaway Group; West Falls Group; Sonyea Group; Genessee Group	Catskill Formation
		Middle			Tully Limestone; Mahantango Formation; Marcellus Shale; Huntersville Chert; Hamilton Group: Millboro Shale; Needmore Shale	Tully Limestone; Mahantango Formation; Marcellus Shale; Needmore Shale	Tully Limestone; Mahantango Formation; Marcellus Shale; Selinsgrove Limestone; Needmore Shale	Trimmers Rock Formation; Mahantango Formation; Marcellus Shale; Buttermilk Falls Limestone; Palmerton Sandstone; Schoharie Formation; Esopus Formation	Hamilton Group: Manorskill Shale; Mahantango Shale; Skunnemunk Conglomerate; Bellvale Sandstone; Mt. Marion Formation; Cornwall Shale; Balcoven Shale; Moscow Shale; Ludlowville Shale; Skaneateles Shale; Marcellus Shale	Hamilton Group: Mahantango Shale; Skunnemunk Conglomerate; Marcellus Shale
		Lower			Oriskany/Ridgeley Sandstone; Licking creek Limestone; Corriganville Limestone; Healing Spring Sandstone; New Creek Limestone	Oriskany Sandstone; Shriver Chert; Mandata Shale; Corriganville Limestone; New Creek Limestone	Oriskany Group: Ridgeley Sandstone; Shriver Chert; Mandata Shale; Helderberg Group: New Scotland Formation; Kalkberg Limestone; Coeymans Formation	Oriskany Group: Ridgeley Sandstone; Shriver Chert; Port Ewen Shale; Helderberg Group: Minisink Limestone; New Scotland Formation; Coeymans Formation	Tristates Group: Onondaga Limestone; Saugerties Limestone; Aquetuck Formation; Carlisle Center Shale; Esopus Shale; Glenerie Formation; Port Jervis Formation; Connelly Sandstone; Oriskany Group: Port Ewen Formation; Becraft Limestone/Alsen Formation; New Scotland Formation; Kalkberg Limestone; Helderberg Group: Coeymans Limestone; Manlius Limestone; Rondout Dolomite	Oriskany Group: Ridgeley Sandstone; Shriver Chert; Glenerie Formation; Port Ewen Shale; Minisink Limestone; New Scotland Formation; Kalkberg Limestone; Helderberg Group: Coeymans Limestone; Rondout Dolomite
	Silurian	Upper			Keyser Limestone; Tonoloway Formation; Wills Creek Shale	Keyser Limestone; Tonoloway Formation; Wills Creek Shale	Bass Island Dolomite; Salina Formation	Rondout Formation; Andreas Red Beds; Decker Formation; Bossardville Limestone	Salina Group; Poxono Island Shale; Lockport Group	Decker Formation; Bossardville Limestone; Poxono Island Formation
		Middle			Bloomsburg Formation; McKenzie Formation	Bloomsburg Formation; McKenzie Formation	Lockport Dolomite; Lockport Dolomite-Keefer Sandstone	Poxono Island Formation; Bloomsburg Red Beds	Bloomsburg Shale (redbeds); Clinton Group	Bloomsburg Red Beds
		Lower	443	Taconic Orogeny	Clinton Group; Tuscarora Sandstone	Clinton Group; Tuscarora Sandstone	Clinton Group; Medina Group; Tuscarora Sandstone	Shawangunk Formation: Tammany Member; Lizard Creek Member; Minsi Member; Weiders Member	Green Pond Group; Shawangunk Conglomerate; Medina Group	Green Pond Group; Shawangunk Formation; Clinton Sandstone; Tuscarora Sandstone

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modified from Swezey, 2002, Inners, 1987, Epstein, 1986, Ver Straeten and Brett, 2000, Castle, 2001, Edmunds, 1996, NYDEC accessed on 8/12/2009
Carter, 2007 (accessed on 8/12/2009), Milici and Swezey, 2006, MGS, 2000 (accessed on 8/13/2009),Schmidt, 1993, Ver Straeten, 2007, USGS, 2008, Rader and Evans, 1993

Figure 2.5-212— {Lower to Middle Mesozoic}

Lower and Middle Mesozoic Regional Stratigraphic Column

ERATHEM	SYSTEM		Ma	OROGENIC EVENT	All basins	Culpeper Basin (Virginia-Maryland)	Gettysburg basin, (Maryland-Pennsylvania)	Narrow Neck of the Gettysburg basin and Newark basins, Pennsylvania	Newark basin, Pennsylvania	Newark basin, New Jersey-New York
LOWER and MIDDLE MESOZOIC	Jurassic	Lower		Rift Basins (Gettysburg and Culpeper Basins)	NEWARK SUPERGROUP	Culpeper Group: Millbrook Quarry Member; Waterfall Formation; Sander Basalt; Turkey Run Formation; Hickory Grove Basalt; Midland Formation; Mount Zion Church Basalt; Goose Creek Member; Catharpin Creek Fm; Mountain Run Member; Tibbstown Fm; Leesburg Member; Balls Bluff Siltstone; Manassas Formation; Poolesville Member; Rapidan Mbr; Reston Mbr; Tuscarora Creek Mbr	Gettysburg Formation; basalt at Aspers; Gettysburg Fm: Arendtsville Fanglomerate Lentil; Heidlersburg Sandstone Mbr; Conewago Conglomerate Mbr; New Oxford Formation	Hammer Creek Formation; New Oxford Formation; Stockton Formation	upper part Brunswick Group; Jacksonwald Basalt; lower part Brunswick Group; Perkasie Member; Graters Member; Brunswick Group; Lockatong Formation; Stockton Formation	Boonton Formation; Hook Mountain Basalt; Towaco Formation; Preakness Basalt; Feltville Formation; Orange Mountain Basalt; Passaic Formation; Perkasie Member; Graters Member; Brunswick Group
	Triassic	Upper		EROSION						
		Middle	248							

NOT DRAWN TO SCALE

Notes:
modified from Froleich and Robinson USGS Bulletin 1776, 1988, USGS, 2003, NJDEP, 1990

Figure 2.5-213— {Upper Mesozoic to Cenozoic}

Upper Mesozoic (Cretaceous) and Cenozoic Regional Stratigraphy

ERATHEM	SYSTEM	SERIES	Ma	Virginia	Maryland-Delaware	New Jersey	New York	Pennsylvania
				FORMATION				
CENOZOIC	QUATERNARY	Holocene & Pleistocene	Present	Columbia Group	Lowland deposits: spit, shoreline, marsh, swamp and alluvial deposits; Carolina Bay, dune, upland, deposits, Cypress Swamp Fm. and upland bog deposits; Delaware Bay Group; Columbia Formation	Cape May Formation: glacial, lacustrine and eolian deposits; Pensauken Formation; Bridgetown Formation	Columbia Group	Colluvium; Alluvium; Low terrance deposits
CENOZOIC	TERTIARY / NEOGENE	Pliocene		Chesapeake Group: Yorktown Formation	Upland deposits: Beaverdam Fm.; Yorktown Fm.		Beacon Hill Formation	
CENOZOIC	TERTIARY / NEOGENE	Miocene		Chesapeake Group: St. Marys Formation; Choptank Formation; Calvert Formation	Chesapeake Group: Eastover Fm.; St. Marys Fm.; Choptank Fm.; Calvert Fm.	Beacon Hill Gravel; Cohansey Sand; Kirkwood Formation	Cohansey Sand; Kirkwood Formation	High terrance deposits
CENOZOIC	TERTIARY / PALEOGENE	Oligocene			Old Chruch Fm.; Glauconitic unit	Mays Landing unit		
CENOZOIC	TERTIARY / PALEOGENE	Eocene		Chickahominy Formation; Pamunkey Group: Nanjemoy Formation; Aquia Formation	Pamunkey Group: Piney Point Fm. (Piney Point Fm.; Shark River Fm.); Nanjemoy Fm.; Manasquan Fm.; Marlboro Clay; Vincentown Fm.; Aquia Fm.; Brightseat Fm.; Homerstown Fm.	Shark River Formation; Manasquan Formation; Vincentown Formation; Homerstown Formation	Shark River Formation; Manasquan Formation; Vincentown Formation; Hornerstown Formaton	
CENOZOIC	TERTIARY / PALEOGENE	Paleocene		Mattaponi Formation				
UPPER MESOZOIC	CRETACEOUS	Upper	65	Potomac Group: Patuxent Formation	Monmouth Formation	Tinton Sand; Redbank Sand; New Egypt Fm; Navesink Formation	Tinton Formation; Redbank Formation; Navesink Formation	
UPPER MESOZOIC	CRETACEOUS	Upper			Matawan Formation / Matawan Group: Mt. Laurel Fm; Marshalltown Fm; Englishtown Fm; Merchantville Fm	Matawan Group: Mt. Laurel Formation; Wenonah Formation; Marshalltown Formation; Englishtown Formation; Woodbury Shale; Merchantville Formation	Mt. Laurel Formation; Wenonah Formation; Marshalltown Formation; Englishtown Formation; Woodbury Shale; Merchantville Formation	
UPPER MESOZOIC	CRETACEOUS	Upper			Magothy Formation	Magothy Formation	Magothy Formation	
UPPER MESOZOIC	CRETACEOUS	Lower			Potomac Formation / Potomac Group: Raritan Fm.; Patapsco Fm.; Arundel Fm.; Patuxent Fm.; Waste Gate Fm.	Raritan /Bass River Formations; Potomac Formation	Raritan Formation; Potomac Formation	
PALEOZOIC				Undifferentiated pre-Cretaceous consolidated-rock basement				
PRECAMBRIAN								

NOT DRAWN TO SCALE
Note:
Waste Gate Formation is no longer recognized by the MGS (personal communication 2006)

modified from Hansen 1984, Achmad, 1997, Otton, 1955, Hansen 1996, and Calis and Drummond 2008 and USGS 2003 and Pickett, 1987, Vogt and Eshelman, 1987, Olsson, 1987, NJDEP, 1990 Achmad and Hansen, 1997, Baltimore Gas & Electric, 1968, Cederstrom, 1957, Glaser, 1971, Hansen, 1978, Hansen and Wilson, 1984, Hansen, 1996, Virginia State Water Control Board, 1974 Root, 1977, USGS accessed on 8/13/2009, DGS, 2007 (accessed on 8/12/2009)

Figure 2.5-214— {Surficial Geology of the Monmouth Junction Quadrangle, Somerset, Middlesex, and Mercer Counties, New Jersey, Open-File Map OFM 47, Department of Environmental Protection, New Jersey Geological Survey}