

Figure 03.07.01-29 S1.204: Application of Soil Loads on SAP2000 Model of Wall 2 of DGFOSV

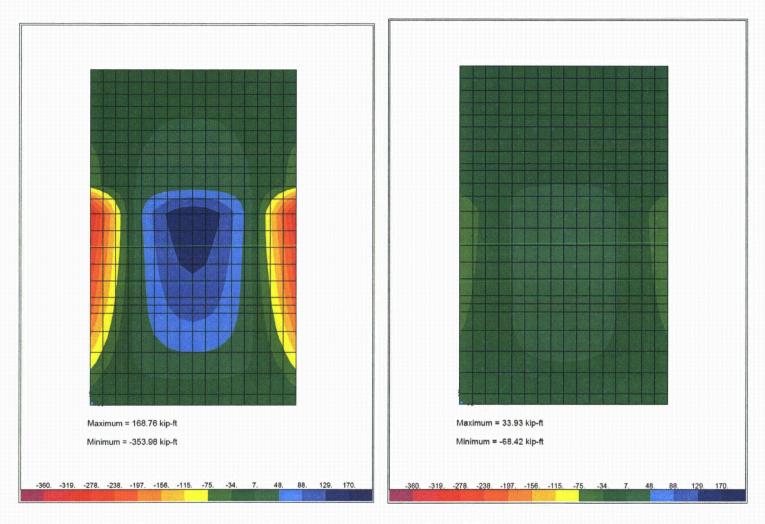


Figure 03.07.01-29 S1.205: Moment about Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 2 of DGFOSV

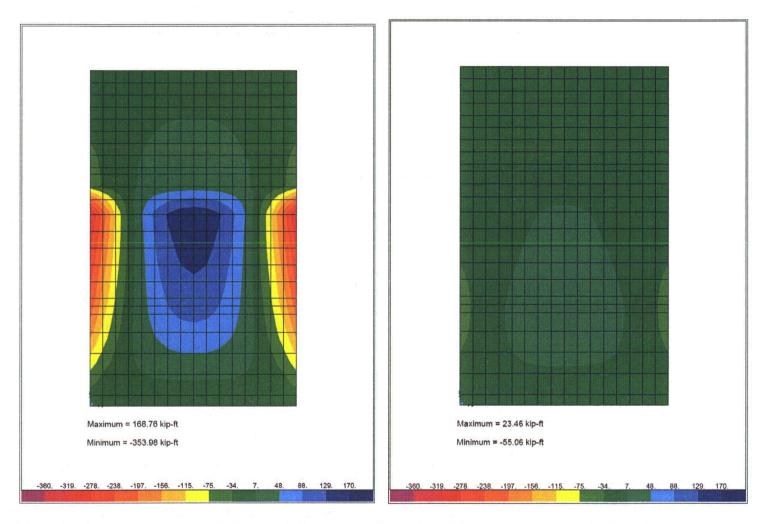


Figure 03.07.01-29 S1.206: Moment about Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 2 of DGFOSV

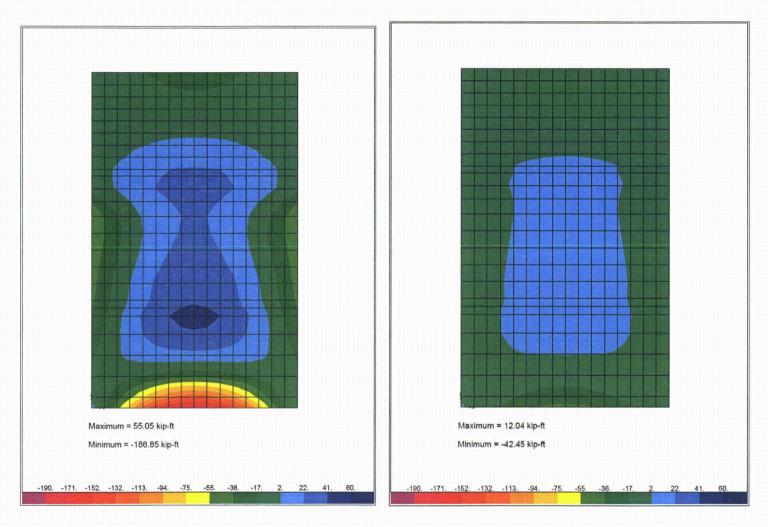


Figure 03.07.01-29 S1.207: Moment about X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 2 of DGFOSV

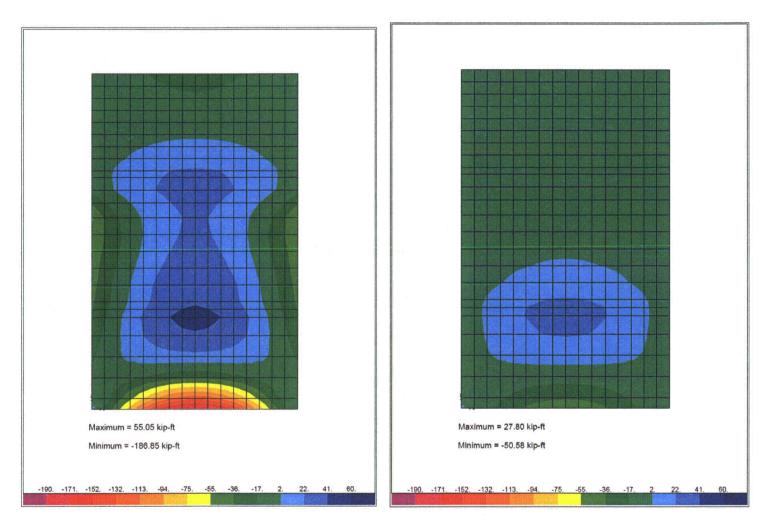


Figure 03.07.01-29 S1.208: Moment about X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 2 of DGFOSV

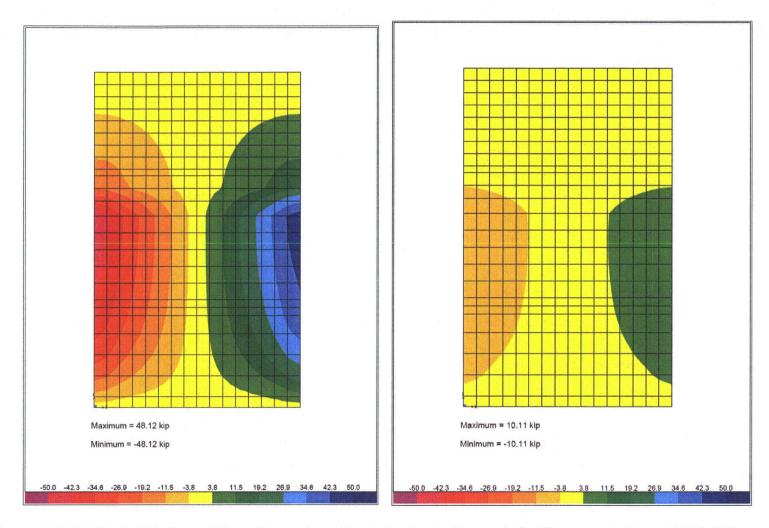


Figure 03.07.01-29 S1.209: Out-of-Plane Shear along Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 2 of DGFOSV

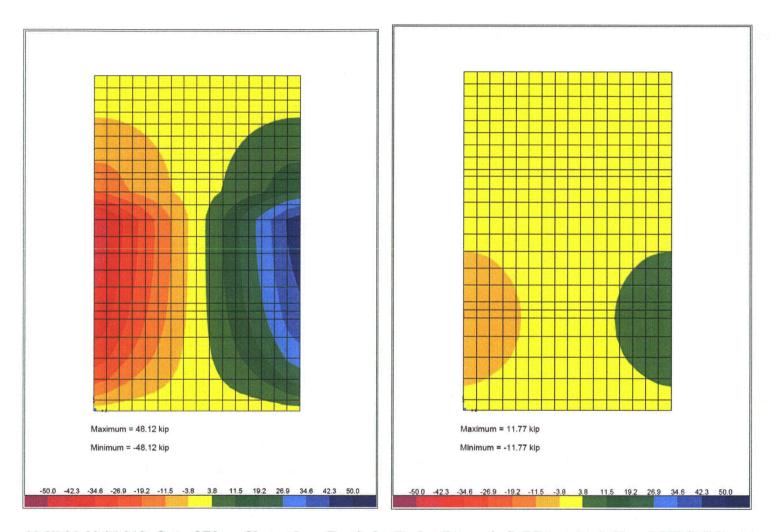


Figure 03.07.01-29 S1.210: Out-of-Plane Shear along Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 2 of DGFOSV

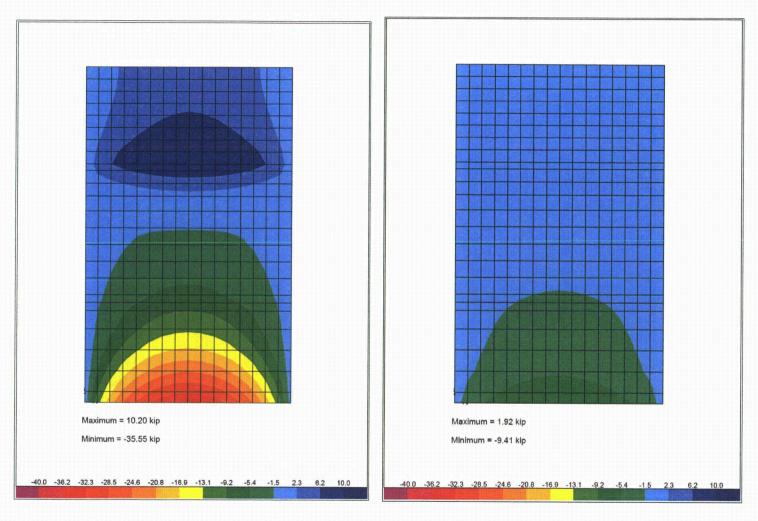


Figure 03.07.01-29 S1.211: Out-of-Plane Shear along X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 2 of DGFOSV

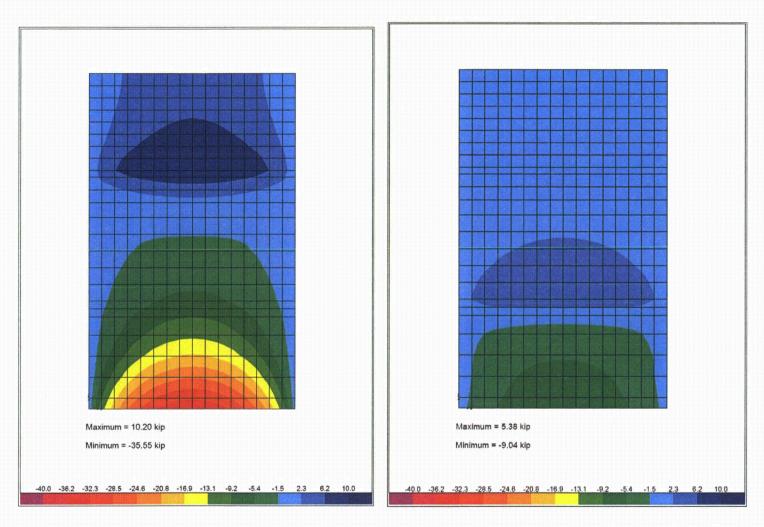


Figure 03.07.01-29 S1.212: Out-of-Plane Shear along X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 2 of DGFOSV

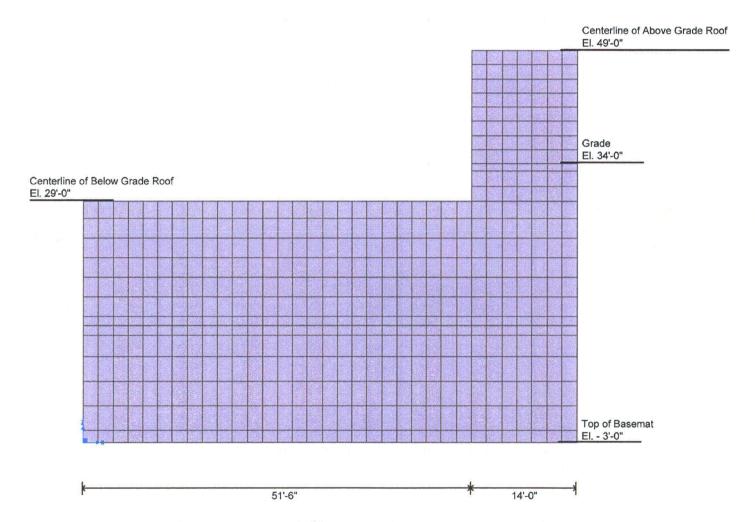


Figure 03.07.01-29 S1.213: SAP2000 Model of Wall 3 of DGFOSV

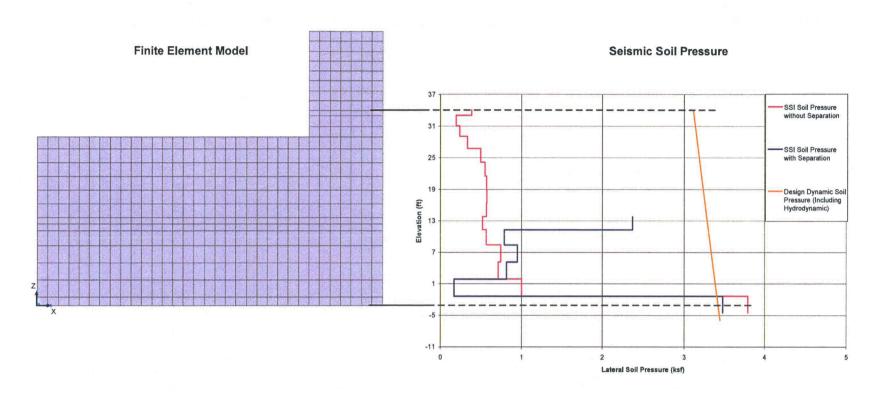


Figure 03.07.01-29 S1.214: Application of Soil Loads on SAP2000 Model of Wall 3 of DGFOSV

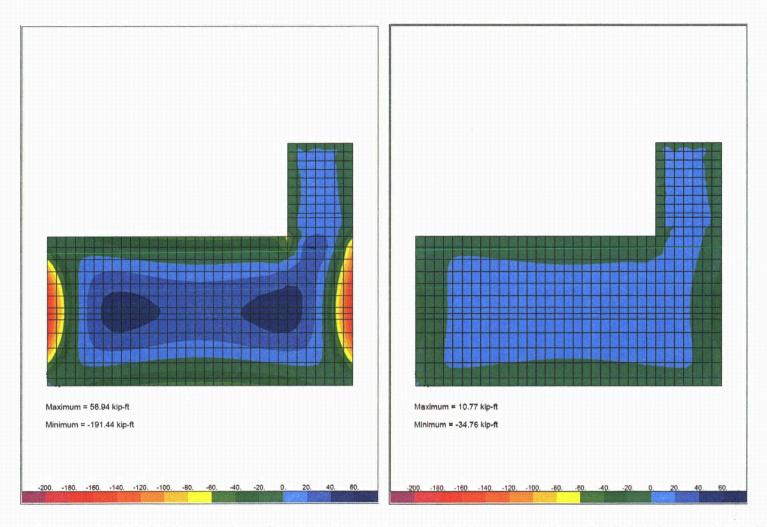


Figure 03.07.01-29 S1.215: Moment about Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 3 of DGFOSV

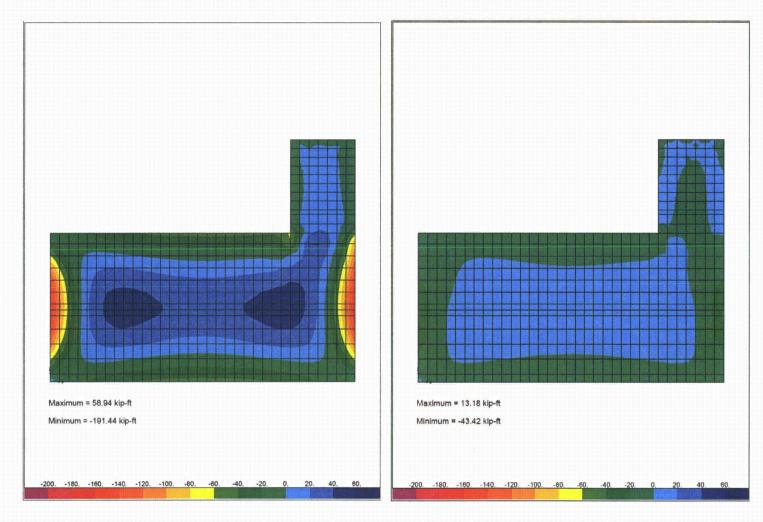


Figure 03.07.01-29 S1.216: Moment about Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 3 of DGFOSV

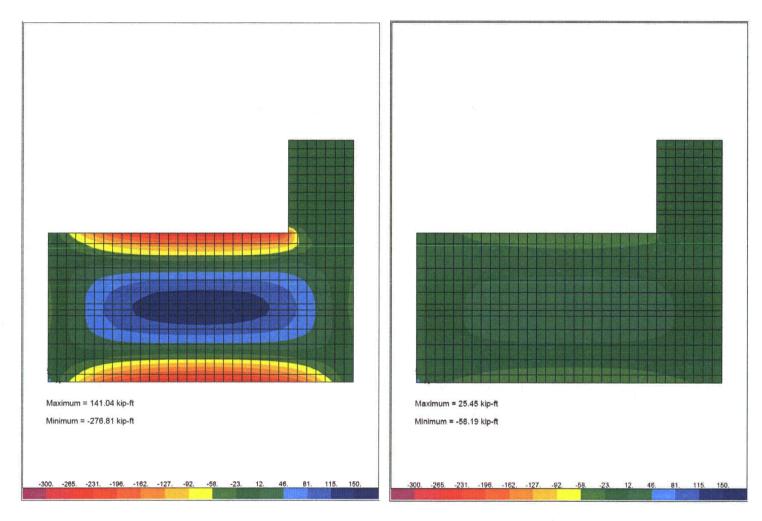


Figure 03.07.01-29 S1.217: Moment about X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 3 of DGFOSV

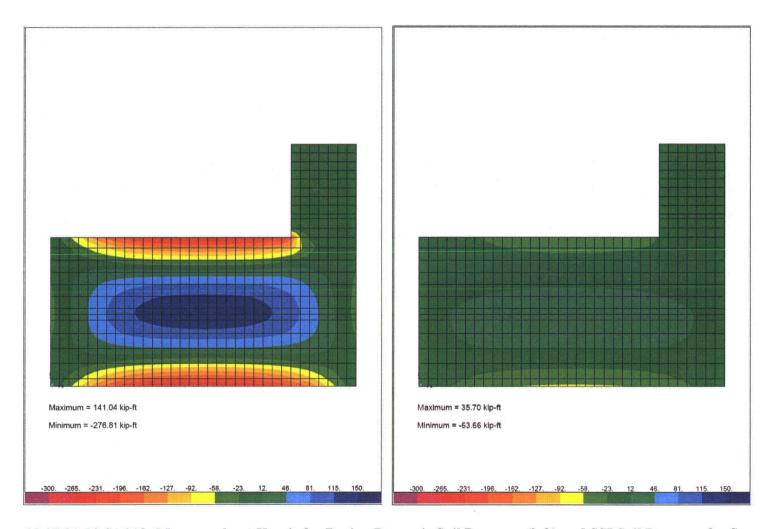


Figure 03.07.01-29 S1.218: Moment about X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 3 of DGFOSV

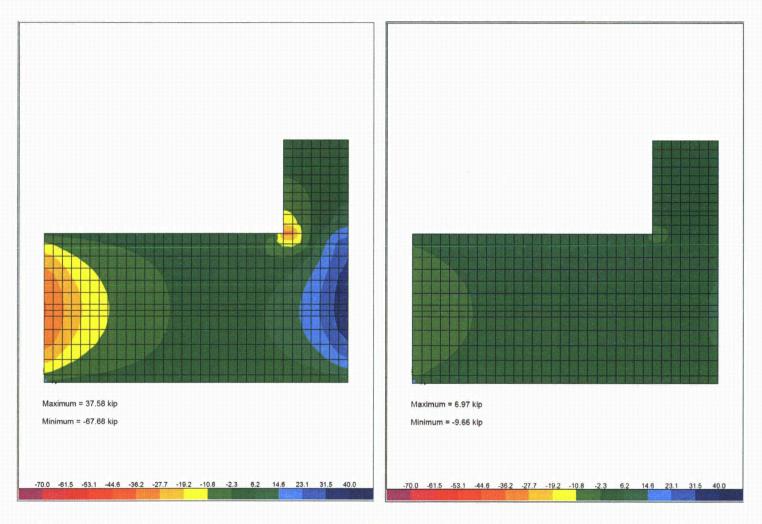


Figure 03.07.01-29 S1.219: Out-of-Plane Shear along Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 3 of DGFOSV

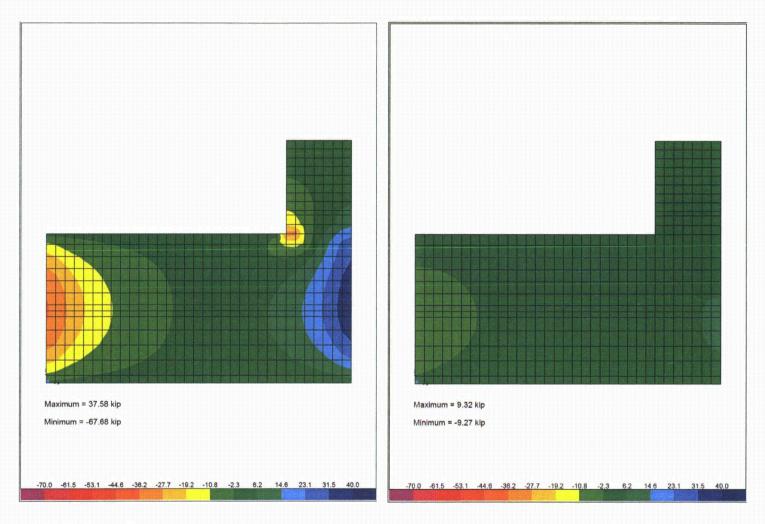


Figure 03.07.01-29 S1.220: Out-of-Plane Shear along Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 3 of DGFOSV

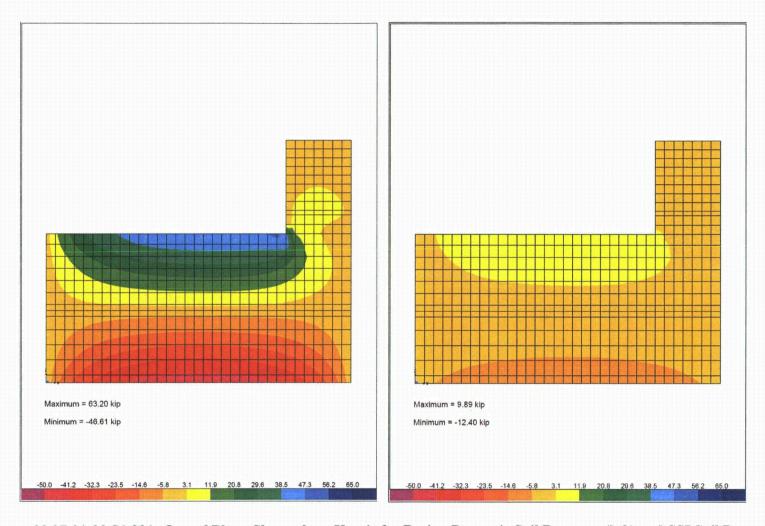


Figure 03.07.01-29 S1.221: Out-of-Plane Shear along X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 3 of DGFOSV

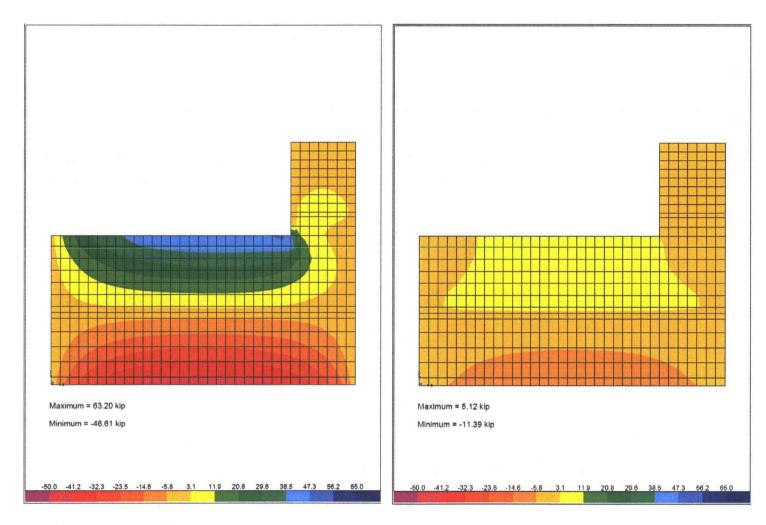


Figure 03.07.01-29 S1.222: Out-of-Plane Shear along X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 3 of DGFOSV

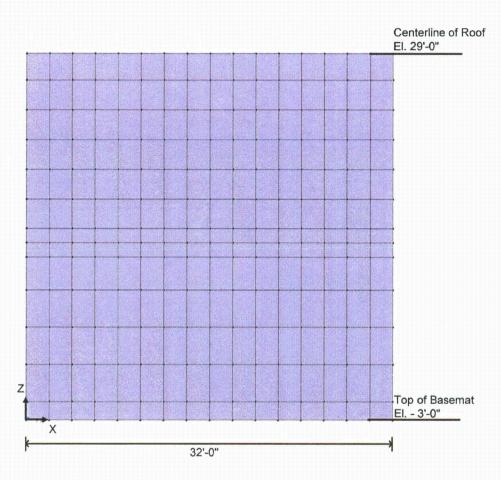


Figure 03.07.01-29 S1.223: SAP2000 Model of Wall 4 of DGFOSV

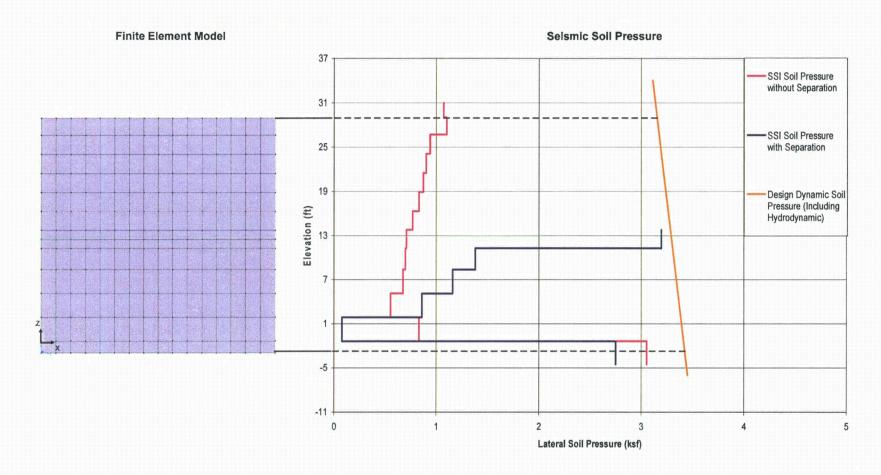


Figure 03.07.01-29 S1.224: Application of Soil Loads on SAP2000 Model of Wall 4 of DGFOSV

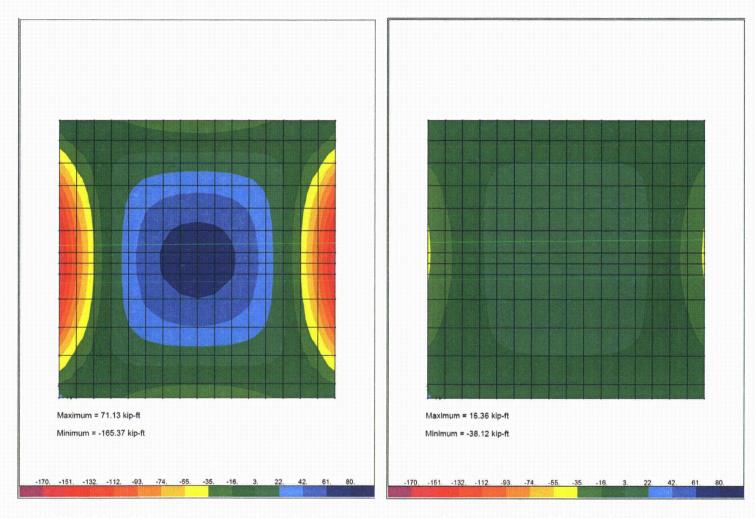


Figure 03.07.01-29 S1.225: Moment about Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 4 of DGFOSV

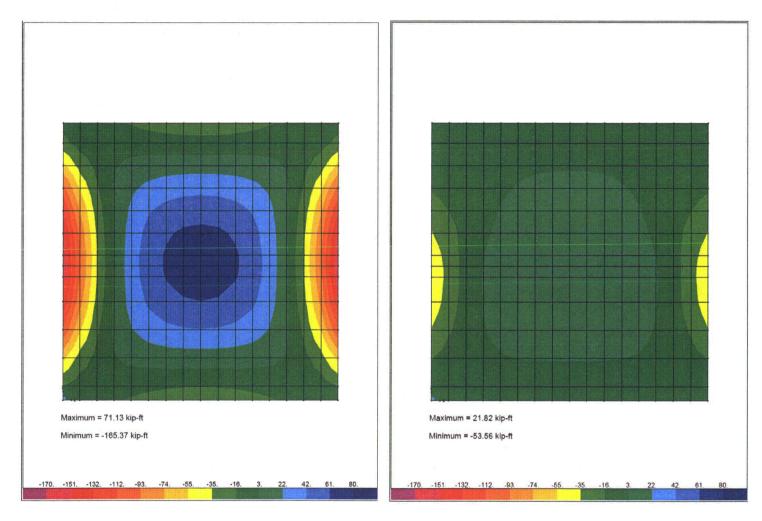


Figure 03.07.01-29 S1.226: Moment about Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 4 of DGFOSV

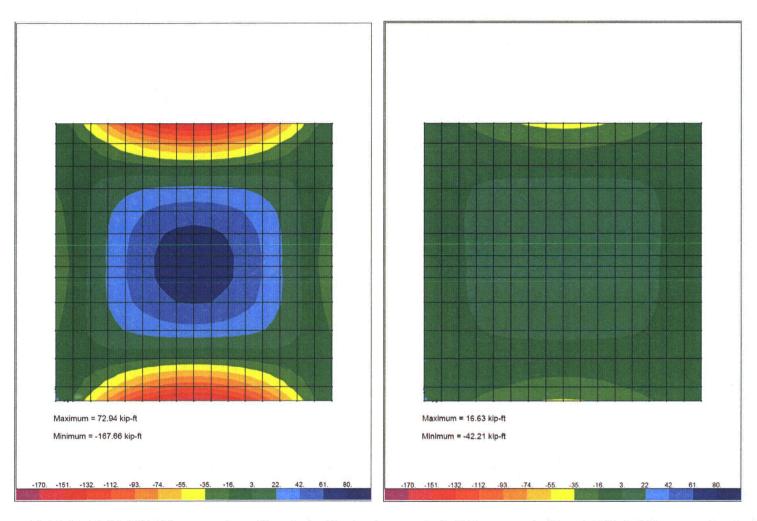


Figure 03.07.01-29 S1.227: Moment about X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 4 of DGFOSV

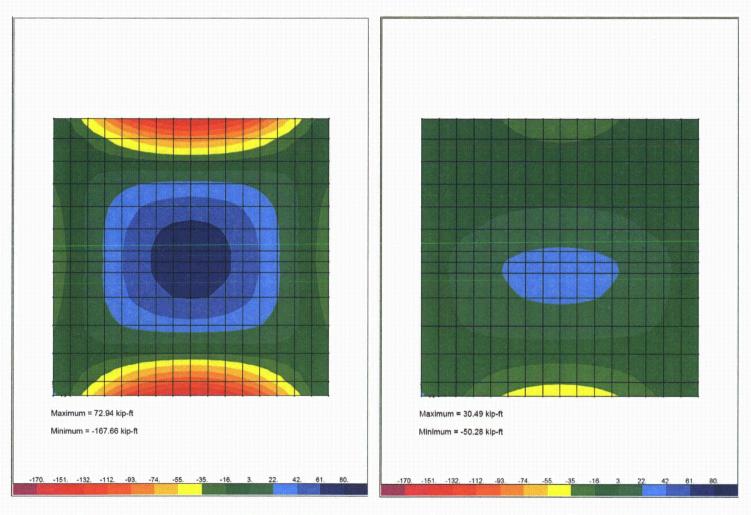


Figure 03.07.01-29 S1.228: Moment about X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 4 of DGFOSV

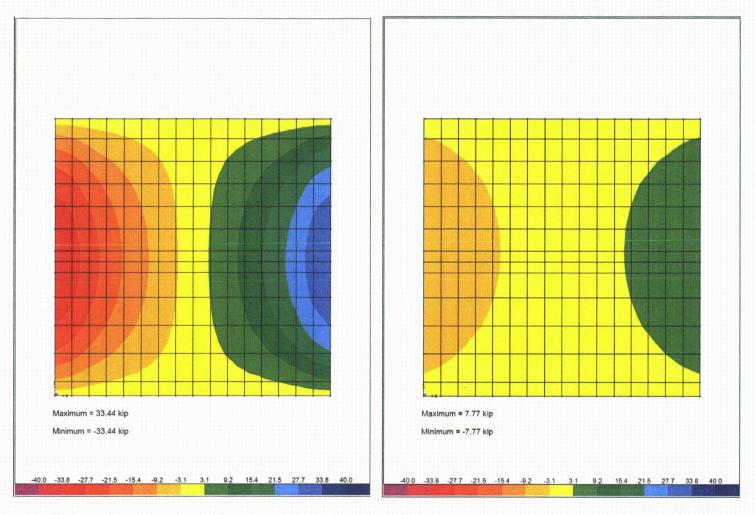


Figure 03.07.01-29 S1.229: Out-of-Plane Shear along Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 4 of DGFOSV

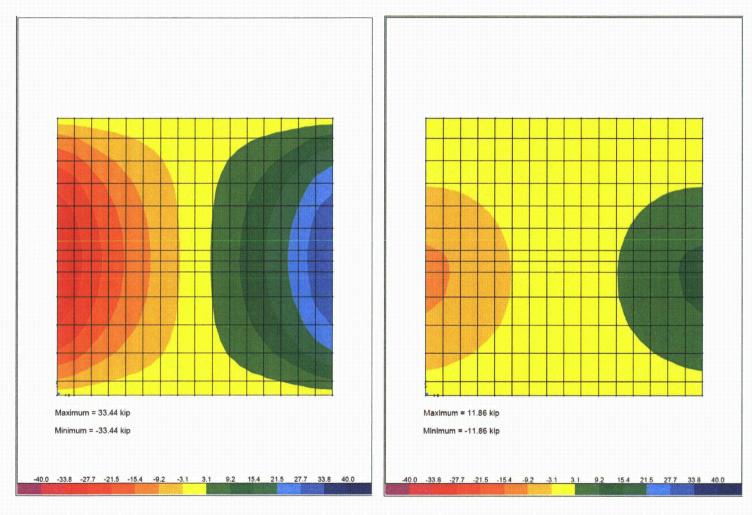


Figure 03.07.01-29 S1.230: Out-of-Plane Shear along Z-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 4 of DGFOSV

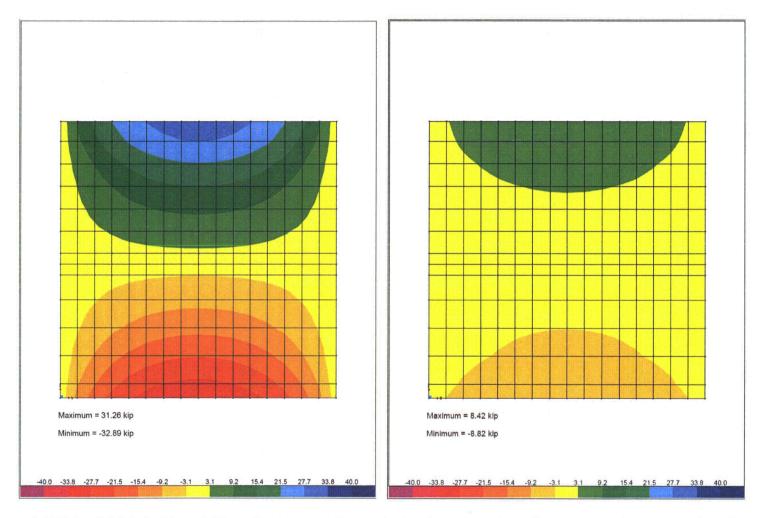


Figure 03.07.01-29 S1.231: Out-of-Plane Shear along X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure Excluding Separated Soil Case (right) for Wall 4 of DGFOSV

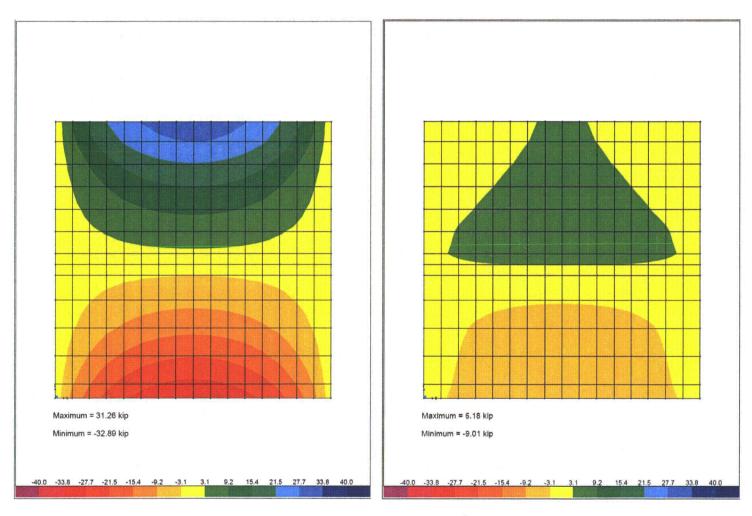
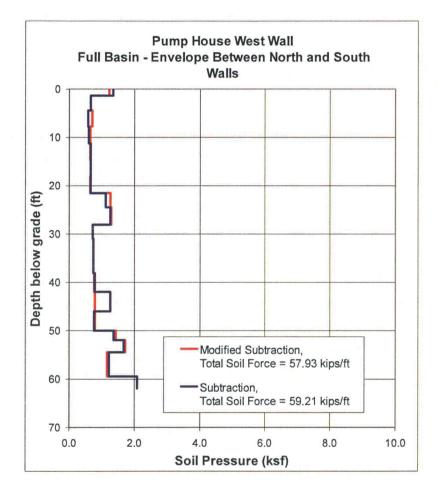


Figure 03.07.01-29 S1.232: Out-of-Plane Shear along X-axis for Design Dynamic Soil Pressure (left) and SSI Soil Pressure for Separated Soil Case (right) for Wall 4 of DGFOSV



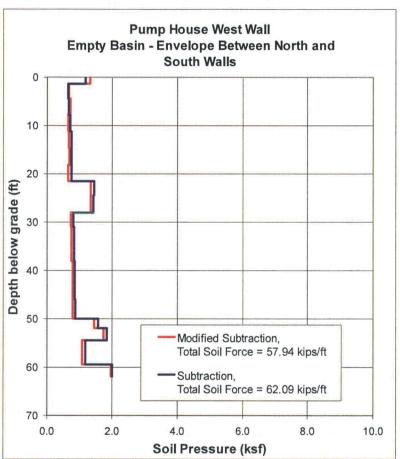
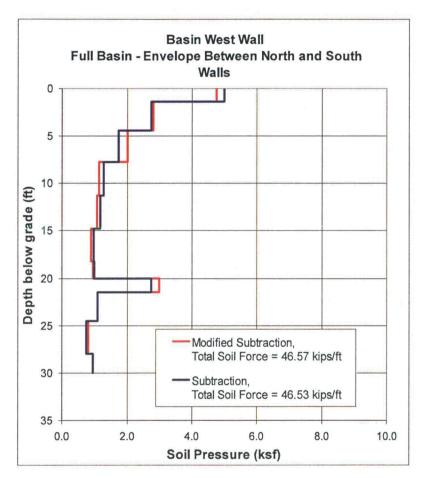


Figure 03.07.01-29 S1.233: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, RSW Pump House West Wall



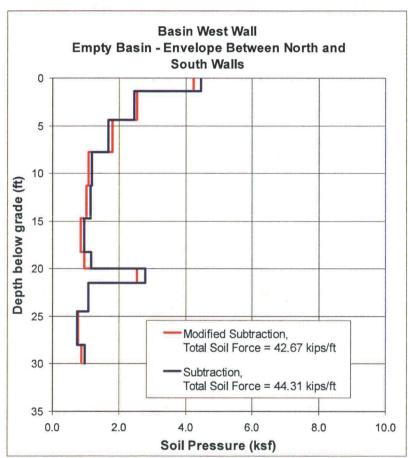
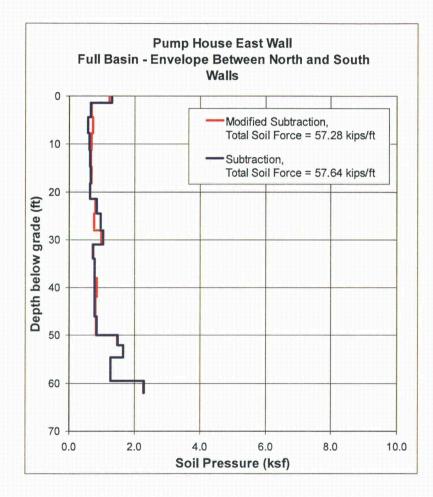


Figure 03.07.01-29 S1.234: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, UHS Basin West Wall



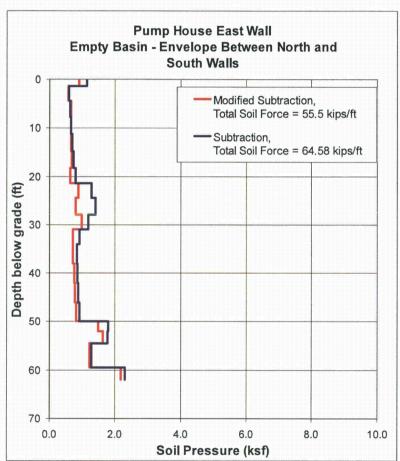
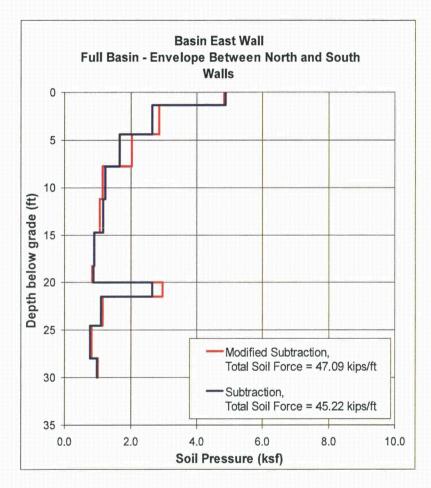


Figure 03.07.01-29 S1.235: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, RSW Pump House East Wall



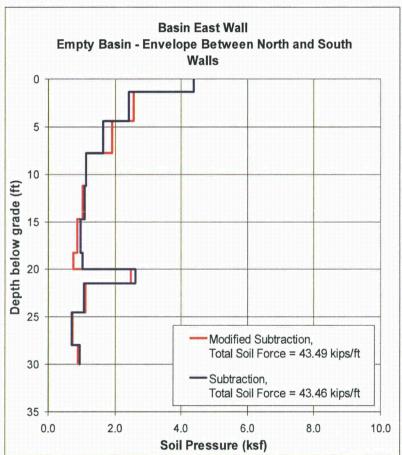
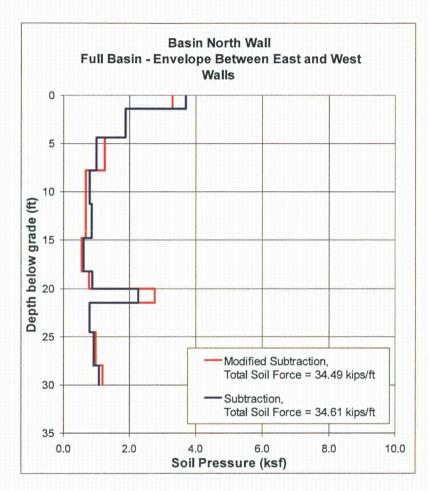


Figure 03.07.01-29 S1.236: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, UHS Basin East Wall



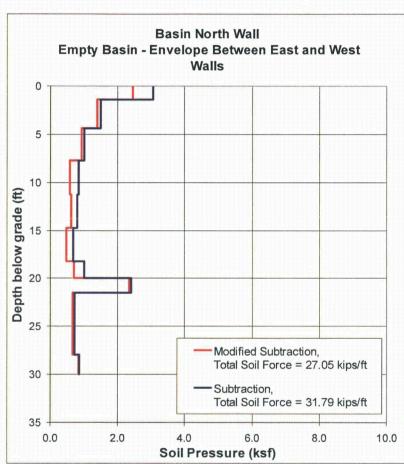
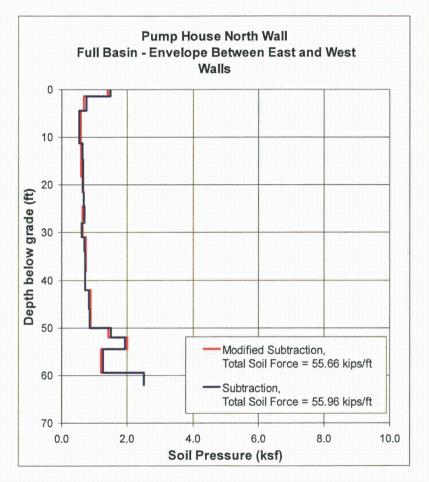


Figure 03.07.01-29 S1.237: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, UHS Basin North Wall



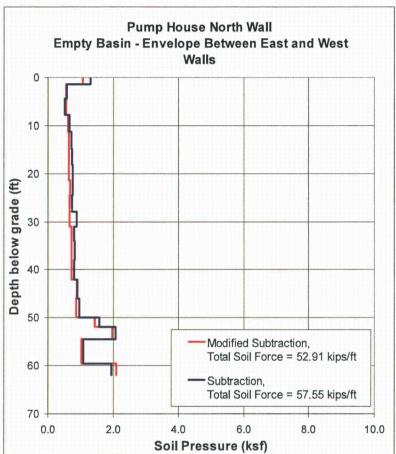
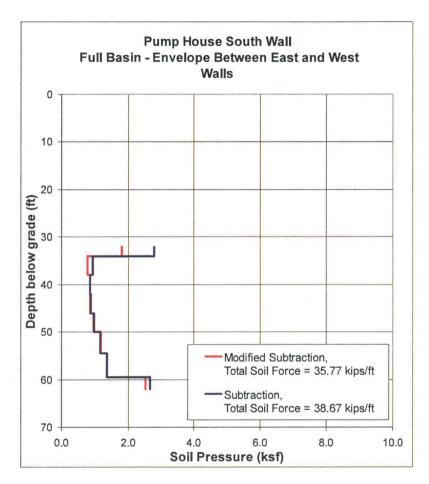


Figure 03.07.01-29 S1.238: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, RSW Pump House North Wall



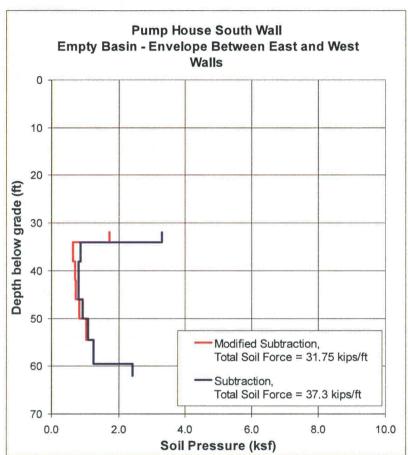
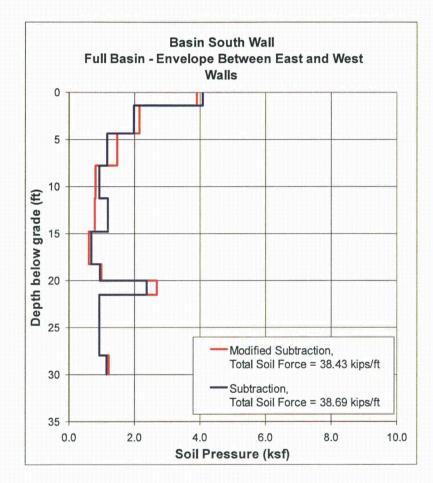


Figure 03.07.01-29 S1.239: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, RSW Pump House South Wall



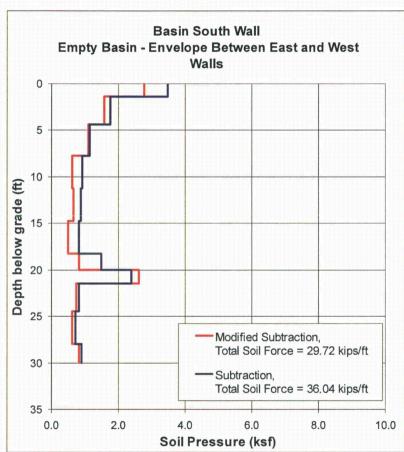


Figure 03.07.01-29 S1.240: Maximum Absolute SSI Seismic Soil Pressures from SM and MSM for Upper Bound In-situ Soil Case, UHS Basin South Wall

#### UHS North Wall Seismic Soil Pressure (psf)

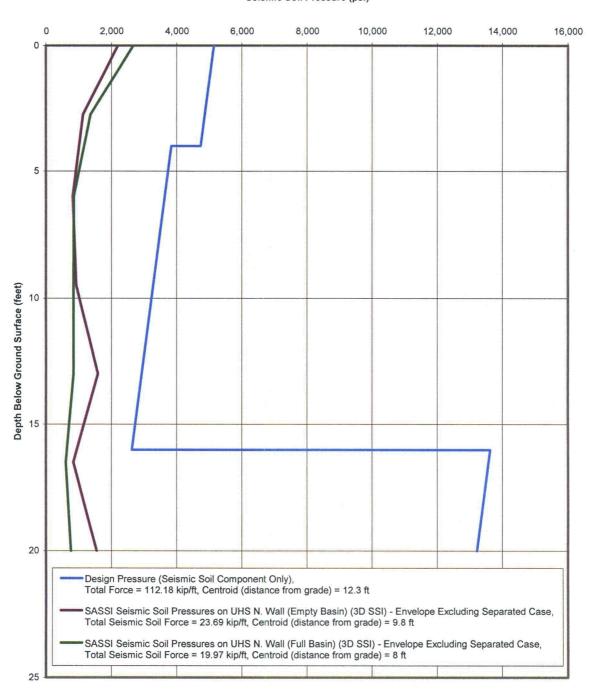


Figure 03.07.01-29 S1.241: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, UHS Basin North Wall

#### UHS East Wall Seismic Soil Pressure (psf)

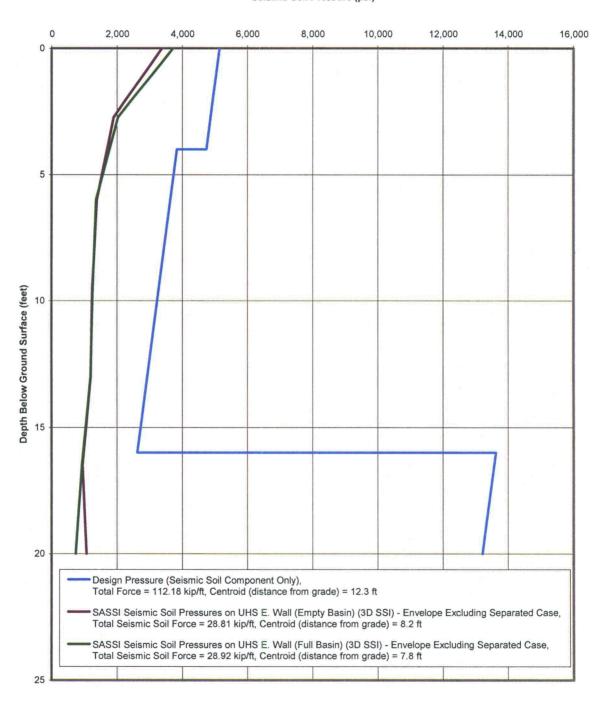


Figure 03.07.01-29 S1.242: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, UHS Basin East Wall

### UHS West Wall Seismic Soil Pressure (psf)

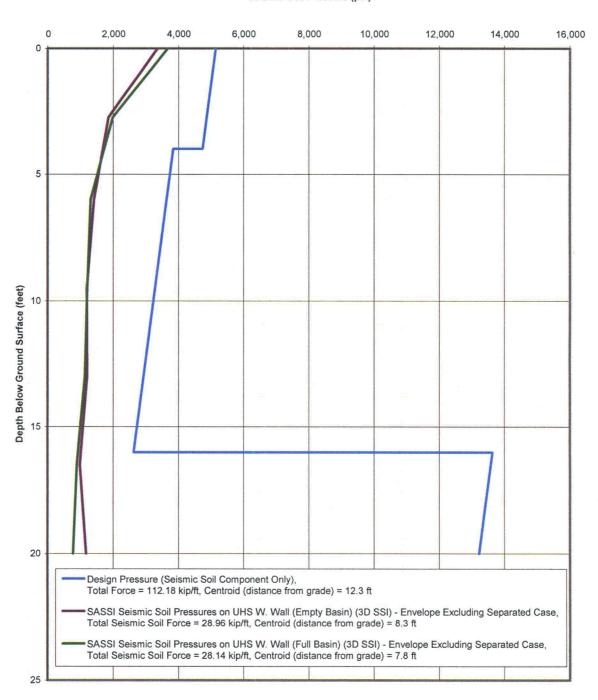


Figure 03.07.01-29 S1.243: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, UHS Basin West Wall

#### UHS South Wall Seismic Soil Pressure (psf)

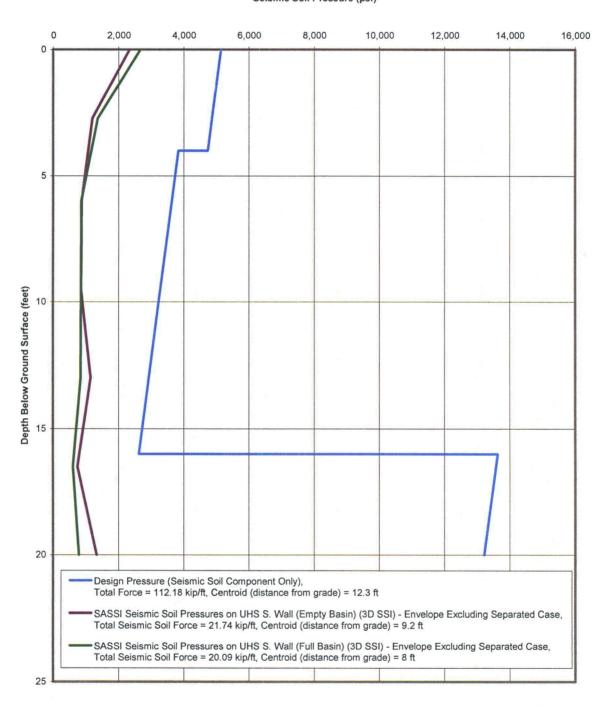


Figure 03.07.01-29 S1.244: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, UHS Basin South Wall

## Pump House South Wall

Seismic Soil Pressure (psf)

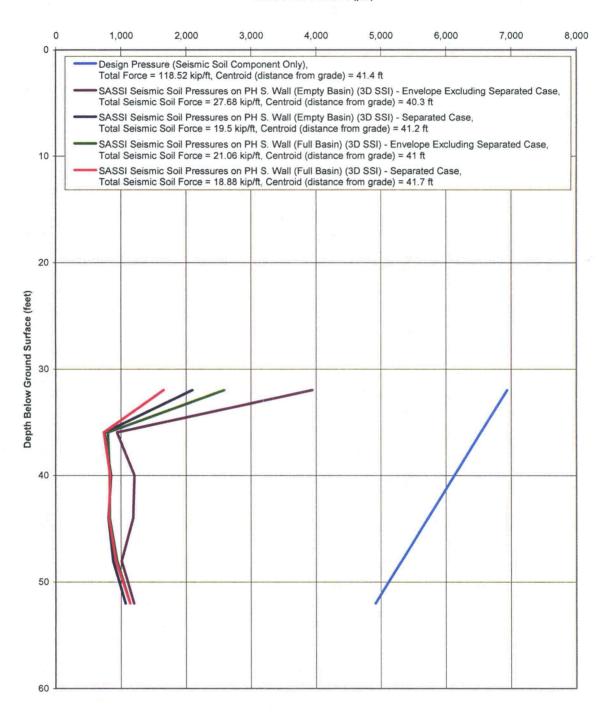


Figure 03.07.01-29 S1.245: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, RSW Pump House South Wall

## **Pump House North Wall**

Seismic Soil Pressure (psf)

- Design Pressure (Seismic Soil Component Only), Total Force = 395.71 kip/ft, Centroid (distance from grade) = 26.2 ft
- SASSI Seismic Soil Pressures on PH N. Wall (Empty Basin) (3D SSI) Envelope Excluding Separated Case, Total Seismic Soil Force = 58.97 kip/ft, Centroid (distance from grade) = 26.2 ft
- SASSI Seismic Soil Pressures on PH N. Wall (Empty Basin) (3D SSI) Separated Case, Total Seismic Soil Force = 52.28 kip/ft, Centroid (distance from grade) = 35.8 ft
- SASSI Seismic Soil Pressures on PH N. Wall (Full Basin) (3D SSI) Envelope Excluding Separated Case, Total Seismic Soil Force = 35.43 kip/ft, Centroid (distance from grade) = 28.9 ft
- SASSI Seismic Soil Pressures on PH N. Wall (Full Basin) (3D SSI) Separated Case,

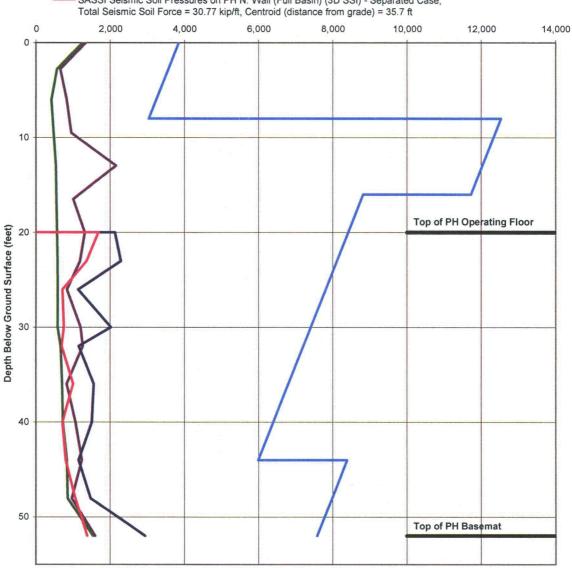


Figure 03.07.01-29 S1.246: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, RSW Pump House North Wall

### **Pump House East Wall**

Seismic Soil Pressure (psf)

- Design Pressure (Seismic Soil Component Only),
  Total Force = 244.31 kip, Centroid (distance from grade) = 25.3 ft
- SASSI Seismic Soil Pressures on PH E. Wall (Empty Basin) (3D SSI) Envelope Excluding Separated Case, Total Seismic Soil Force = 52.73 kip, Centroid (distance from grade) = 27.6 ft
- SASSI Seismic Soil Pressures on PH E. Wall (Empty Basin) (3D SSI) Separated Case, Total Seismic Soil Force = 45.58 kip, Centroid (distance from grade) = 34.5 ft
- SASSI Seismic Soil Pressures on PH E. Wall (Full Basin) (3D SSI) Envelope Excluding Separated Case, Total Seismic Soil Force = 36.46 kip, Centroid (distance from grade) = 28.8 ft
- SASSI Seismic Soil Pressures on PH E. Wall (Full Basin) (3D SSI) Separated Case, Total Seismic Soil Force = 28.67 kip, Centroid (distance from grade) = 35.7 ft

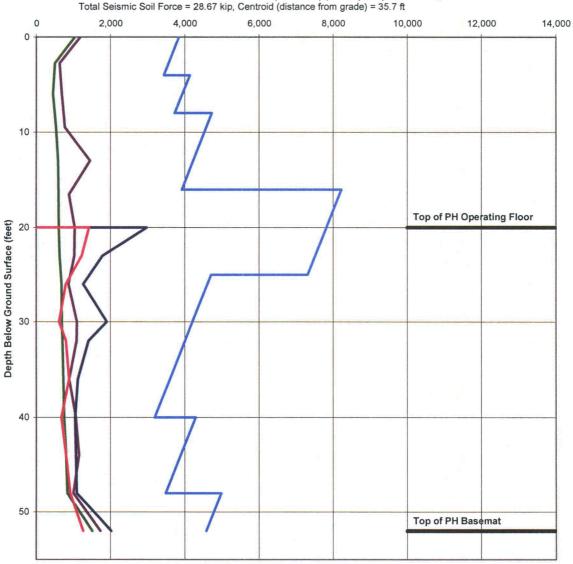
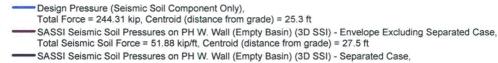


Figure 03.07.01-29 S1.247: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, RSW Pump House East Wall

## **Pump House West Wall**

Seismic Soil Pressure (psf)



Total Seismic Soil Force = 36.82 kip/ft, Centroid (distance from grade) = 35 ft

SASSI Seismic Soil Pressures on PH W. Wall (Full Basin) (3D SSI) - Envelope Excluding Separated Case, Total Seismic Soil Force = 35.68 kip/ft, Centroid (distance from grade) = 28.2 ft

SASSI Seismic Soil Pressures on PH W. Wall (Full Basin) (3D SSI) - Separated Case,

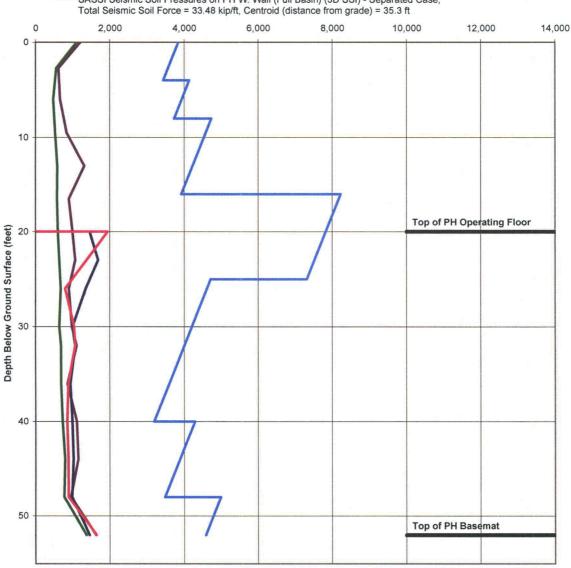


Figure 03.07.01-29 S1.248: Maximum Absolute SSI Seismic Soil Pressures from SM and Design Seismic Soil Pressures, RSW Pump House West Wall

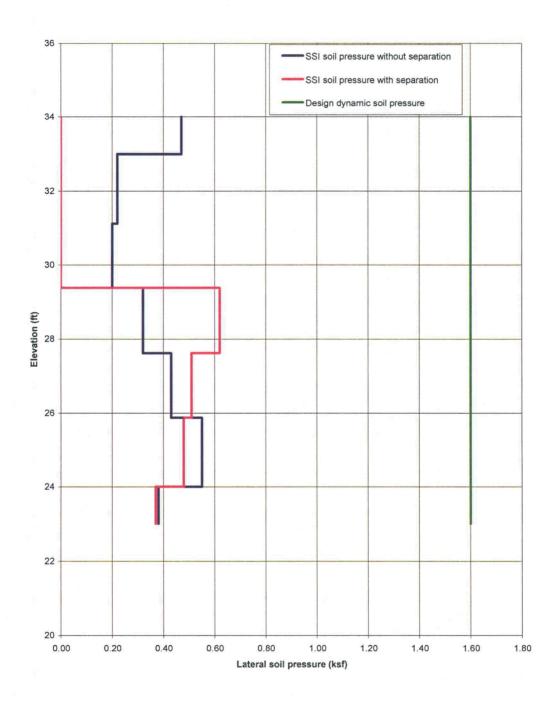


Figure 03.07.01-29 S1.249: SSI and Design Seismic Soil Pressures DGFOT Wall (2.5 ft thick)

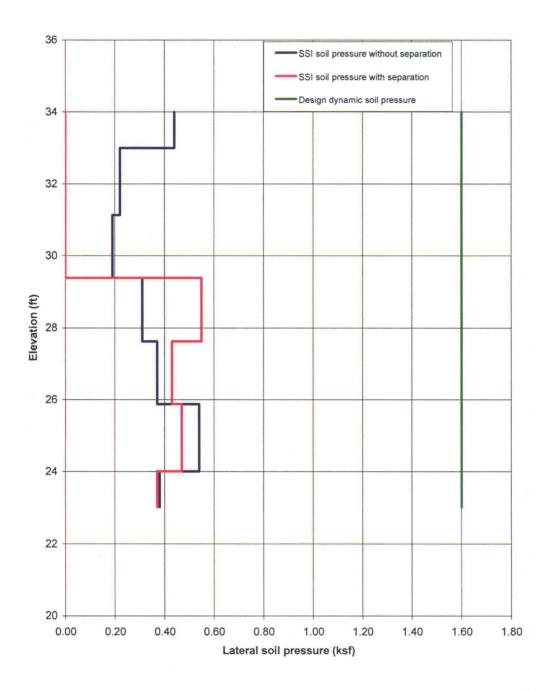


Figure 03.07.01-29 S1.250: SSI and Design Seismic Soil Pressures DGFOT Wall (2 ft thick)

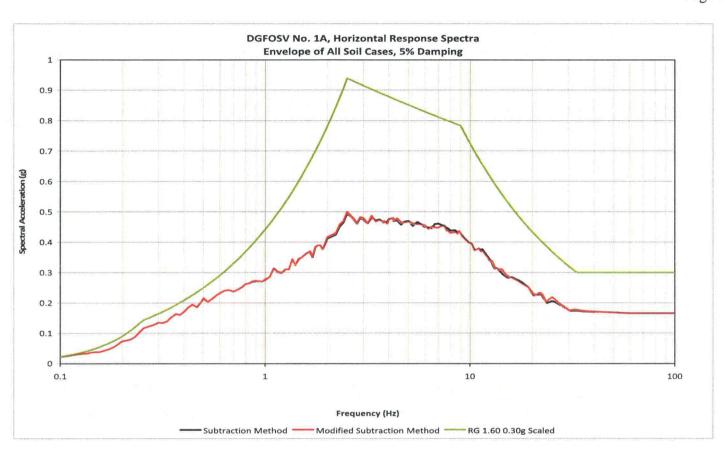


Figure 03.07.01-29 S1.251: Amplified Motion, MSM vs. SM

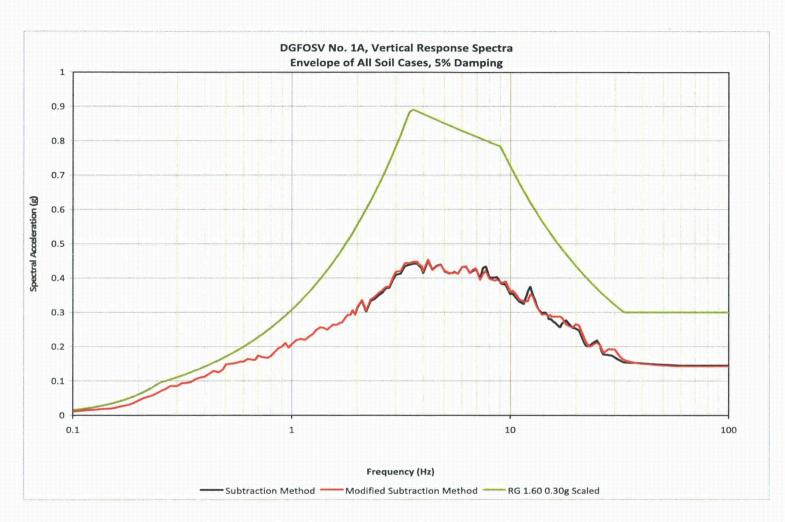


Figure 03.07.01-29 S1.252: Amplified Motion, MSM vs. SM

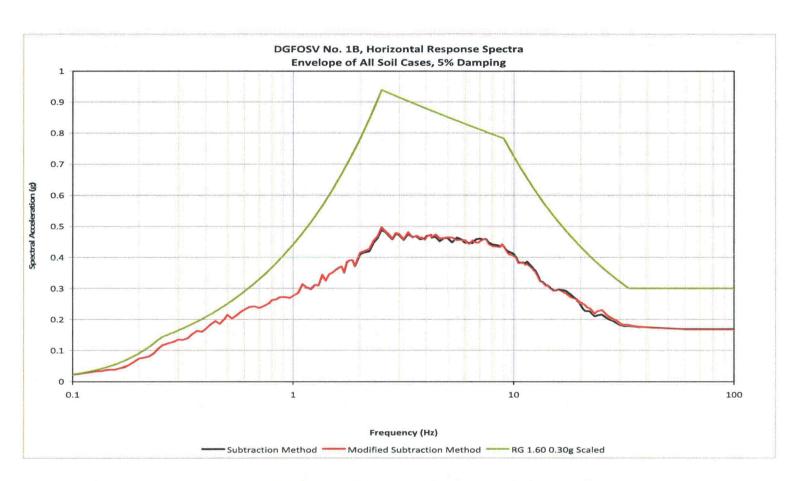


Figure 03.07.01-29 S1.253: Amplified Motion, MSM vs. SM

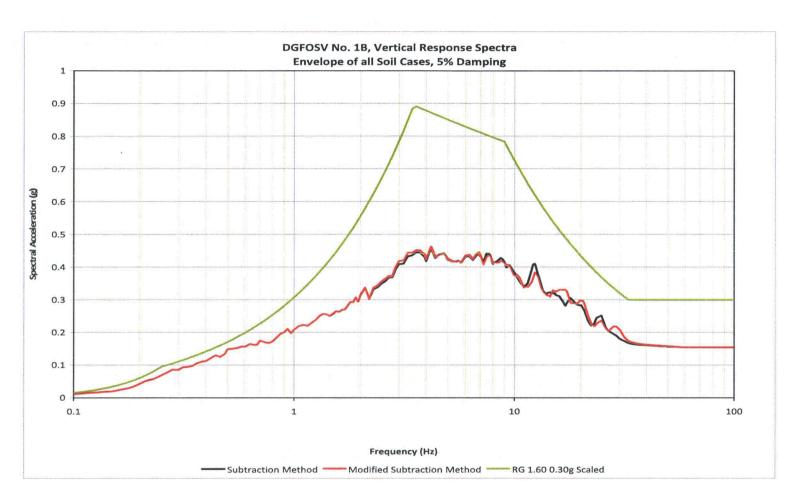


Figure 03.07.01-29 S1.254: Amplified Motion, MSM vs. SM

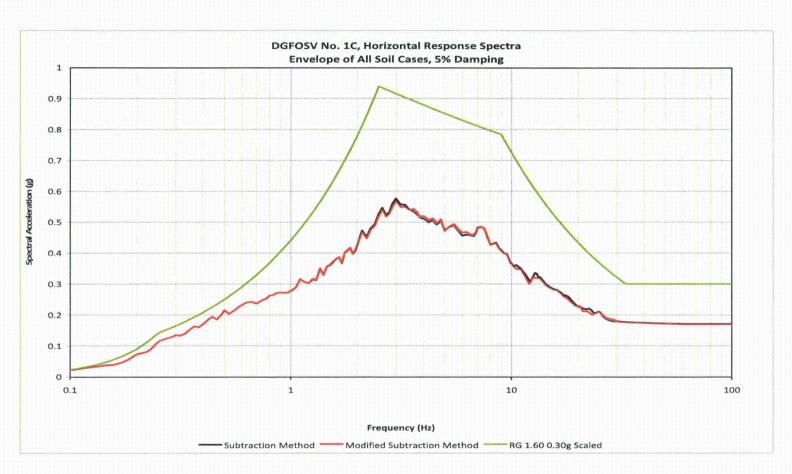


Figure 03.07.01-29 S1.255: Amplified Motion, MSM vs. SM

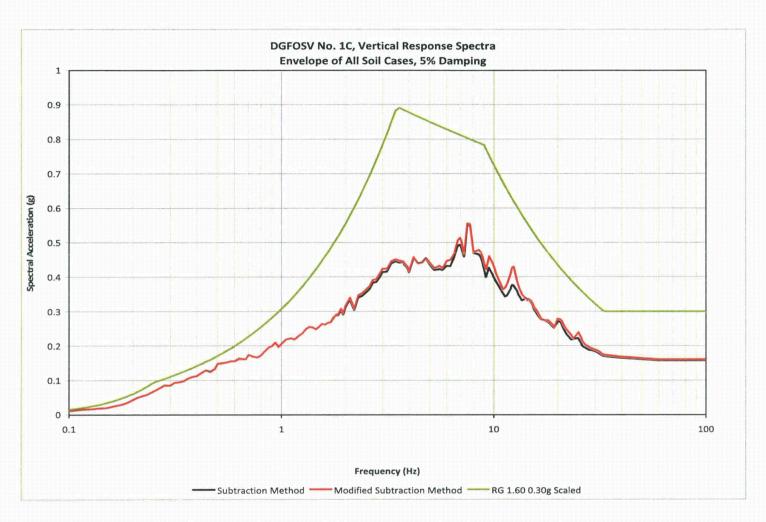


Figure 03.07.01-29 S1.256: Amplified Motion, MSM vs. SM

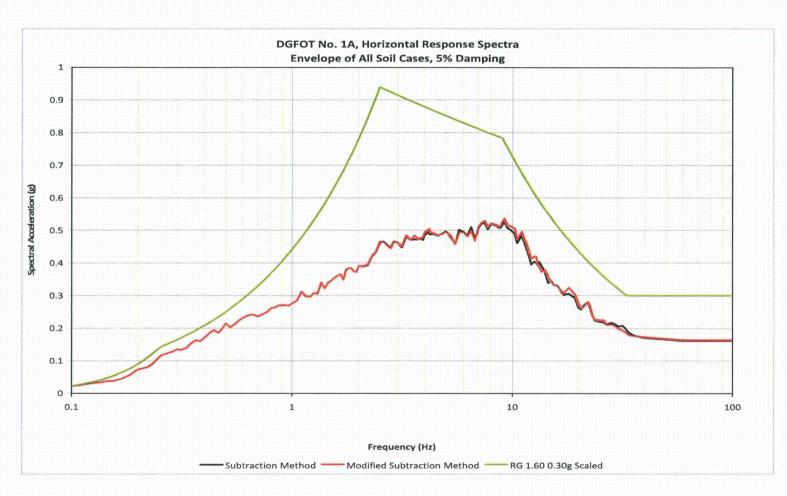


Figure 03.07.01-29 S1.257: Amplified Motion, MSM vs. SM

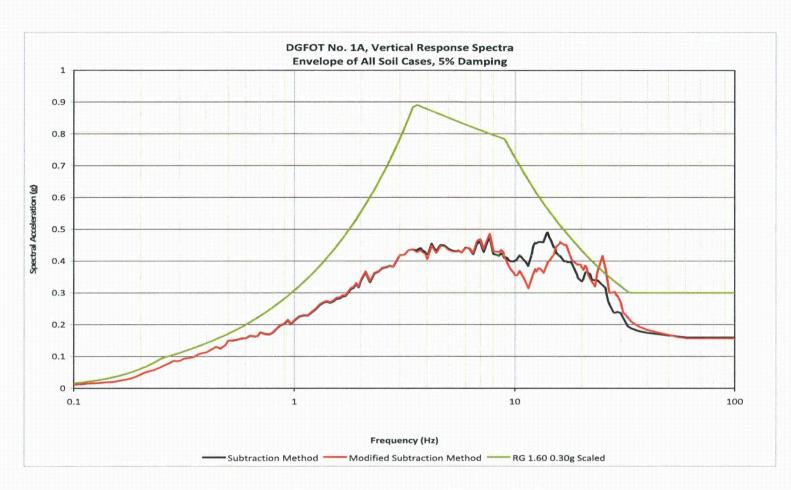


Figure 03.07.01-29 S1.258: Amplified Motion, MSM vs. SM

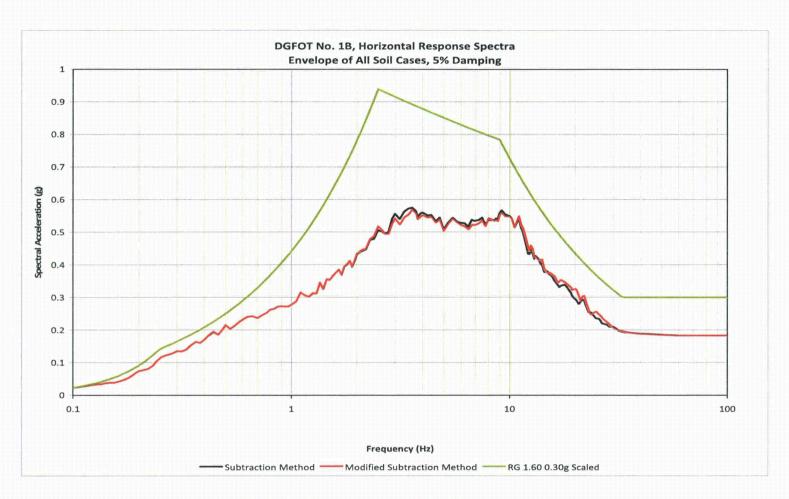


Figure 03.07.01-29 S1.259: Amplified Motion, MSM vs. SM

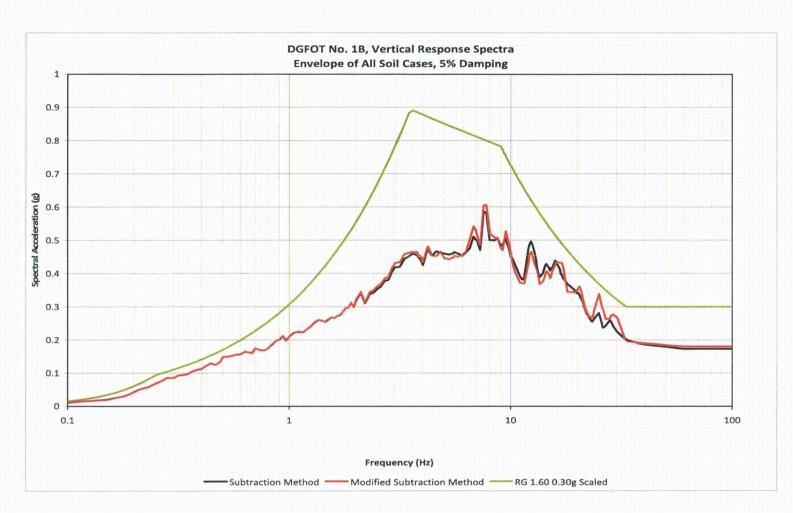


Figure 03.07.01-29 S1.260: Amplified Motion, MSM vs. SM

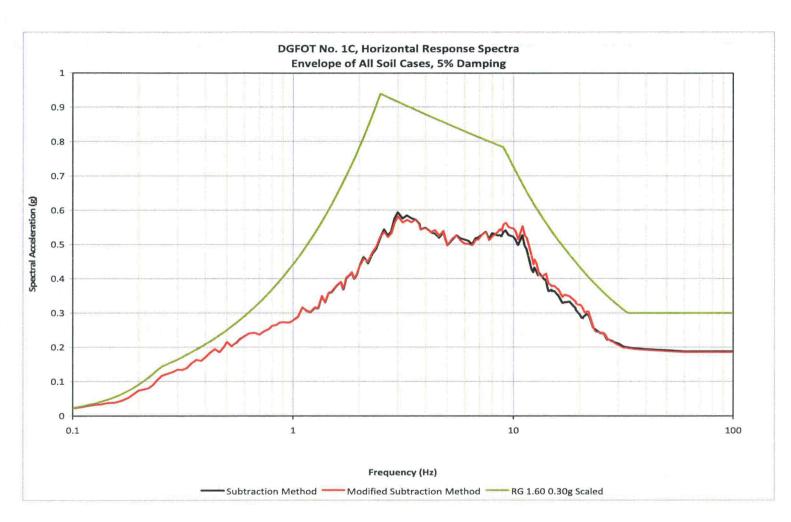


Figure 03.07.01-29 S1.261: Amplified Motion, MSM vs. SM

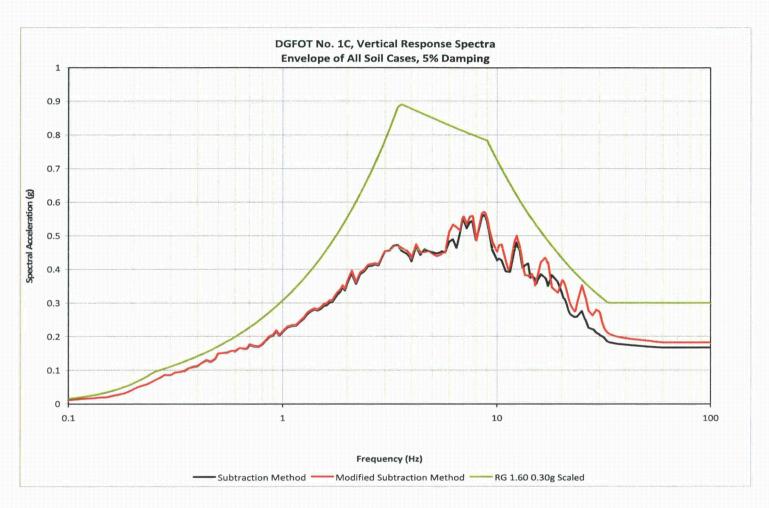


Figure 03.07.01-29 S1.262: Amplified Motion, MSM vs. SM

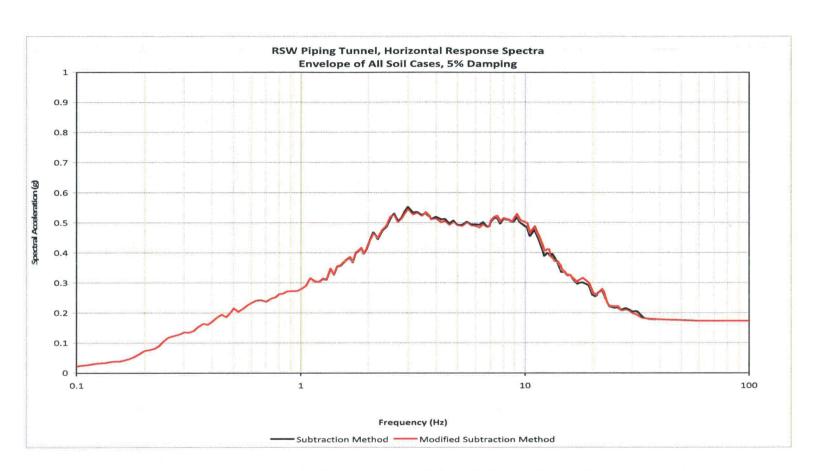


Figure 03.07.01-29 S1.263: Amplified Motion, MSM vs. SM

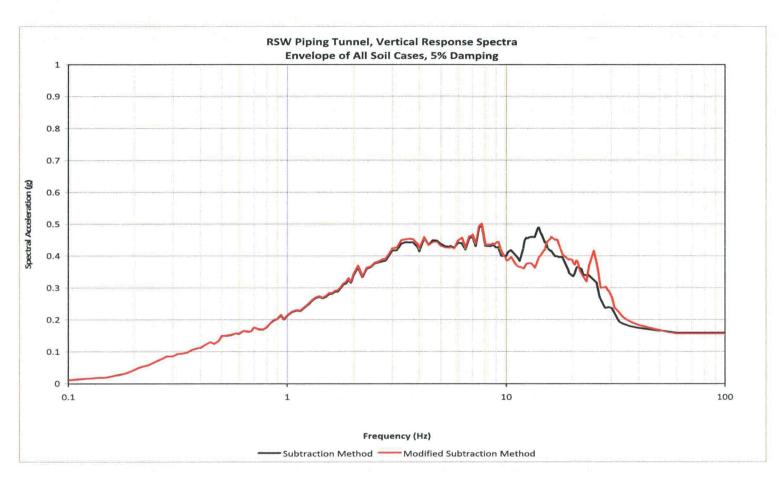


Figure 03.07.01-29 S1.264: Amplified Motion, MSM vs. SM

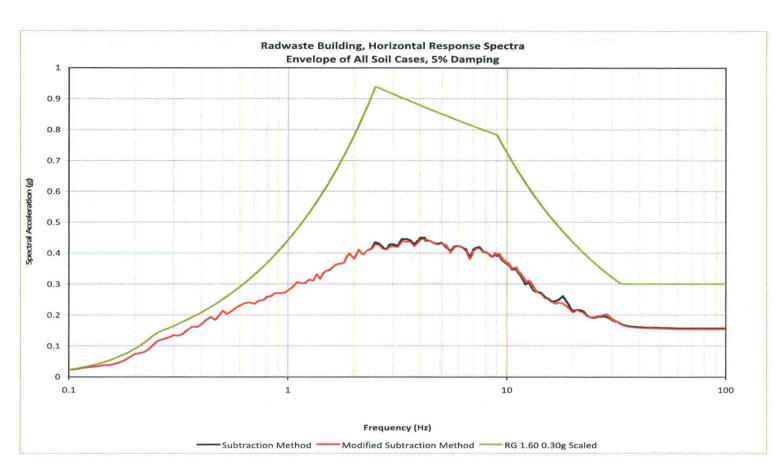


Figure 03.07.01-29 S1.265: Amplified Motion, MSM vs. SM

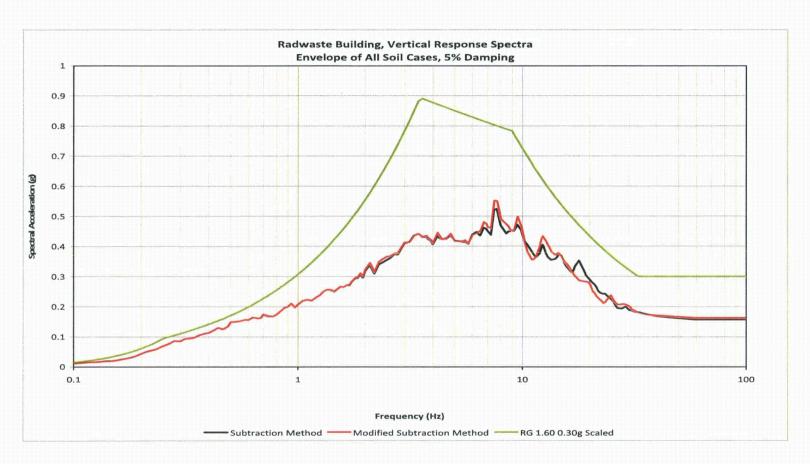


Figure 03.07.01-29 S1.266: Amplified Motion, MSM vs. SM

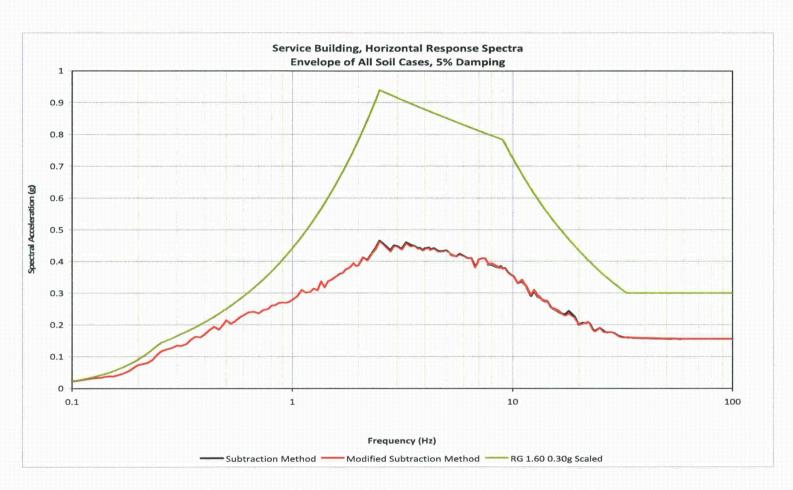


Figure 03.07.01-29 S1.267: Amplified Motion, MSM vs. SM

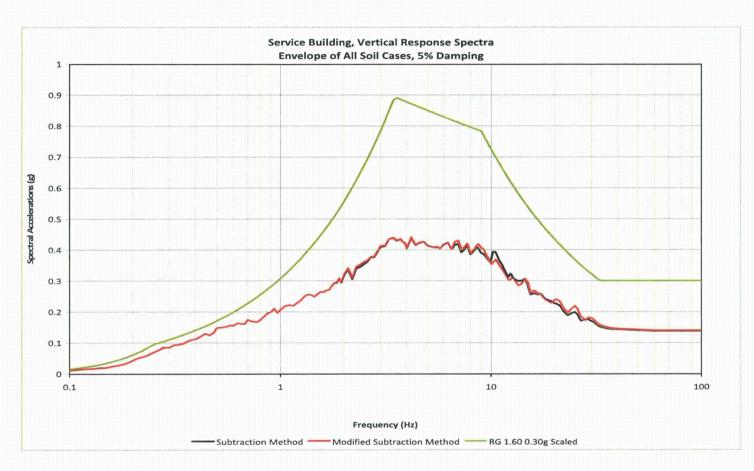


Figure 03.07.01-29 S1.268: Amplified Motion, MSM vs. SM

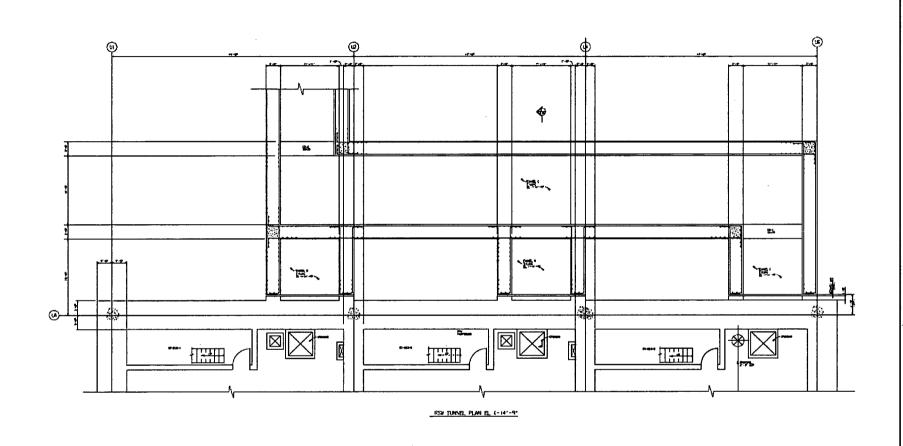


Figure 03.07.01-29 S1.269: Partial Plan of RSW Piping Tunnel and RSW Pump House

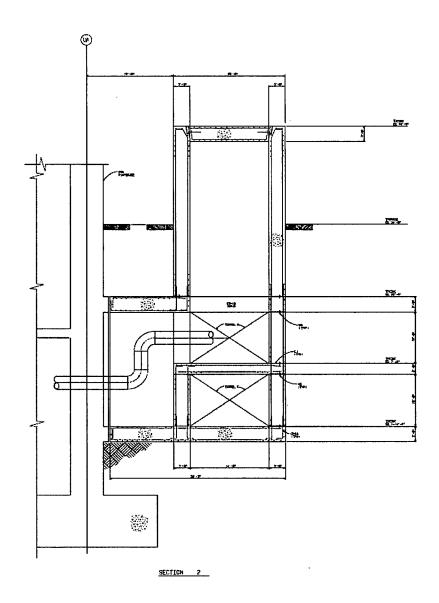


Figure 03.07.01-29 S1.270: RSW Piping Tunnel Section

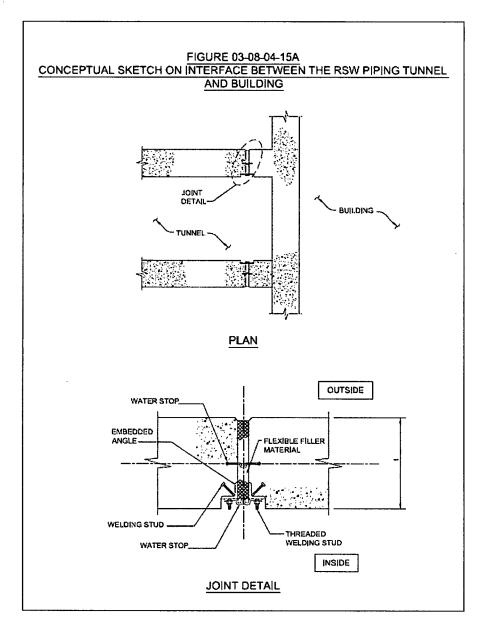


Figure 03.07.01-29 S1.271: Conceptual Detail of Seismic Joints

# **Design Margin for Total Force**

| Location                     | Maximum Total Force from Time History (kips/foot) |        |                         | Total Force from Absolute of<br>Maximum Pressures<br>(kips/foot) |                              |
|------------------------------|---|--------|-------------------------|--|------------------------------|
|                              | Subtraction                                       | Direct | Modified<br>Subtraction | Used for<br>Design   | Design<br>Pressure<br>Margin |
| Reactor Building, East Wall  | 25.3  | 25.3   | 25.7                    | 28.1   | 9                            |
| Reactor Building, West Wall  | 79.5  | 78.8   | 80.5                    | 225.5  | 180%                         |
| Tunnel, East Wall            | 70.5  | 68.8   | 69.3                    | 89.4   | 27%                          |
| lunnel, West Wall            | 50.6  | 50.7   | 50.4                    | 69.5   | 3/%                          |
| Radwaste Building, East Wall | 94.5  | 94.5   | 94.6                    | 113.6  | 20%                          |
| Radwaste Building, West Wall | 28.5  | 30.3   | 29                      | 29.5   | -                            |

Figure 03.07.01-29 S1.272: Table 5.1 Presented to the NRC during July 27, 2011 Audit

# Soil Pressures at Max Total Soil Force from Time History RSW Tunnel East Wall, Subtraction, Lower Bound In-Situ

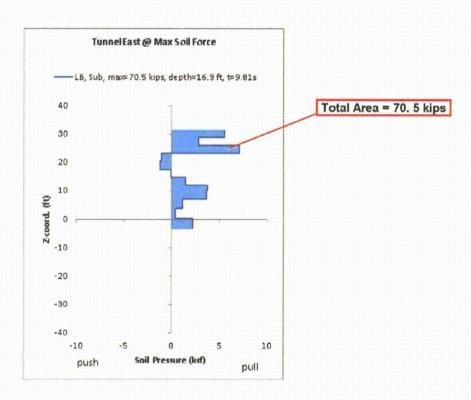


Figure 03.07.01-29 S1.273: Integration of Seismic Soil Pressure to Obtain Total Soil Force RSW Tunnel East Wall, Subtraction Method, Lower Bound In-Situ soil Case

# Soil Pressures at Max Total Soil Force from Time History RSW Tunnel East Wall, Direct, Lower Bound In-Situ

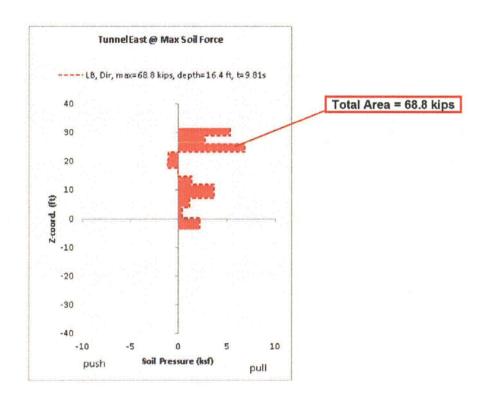


Figure 03.07.01-29 S1.274: Integration of Seismic Soil Pressure to Obtain Total Soil Force RSW Tunnel East Wall, Direct Method, Lower Bound In-Situ soil Case

# Soil Pressures at Max Total Soil Force from Time History RSW Tunnel East Wall, MSM, Lower Bound In-Situ

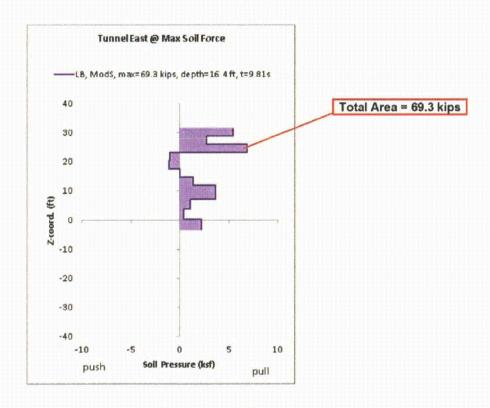


Figure 03.07.01-29 S1.275: Integration of Seismic Soil Pressure to Obtain Total Soil Force RSW Tunnel East Wall, Modified Subtraction Method, Lower Bound In-Situ soil Case

# Absolute of Maximum Soil Pressures RSW Tunnel East Wall, Subtraction, Lower Bound In-Situ

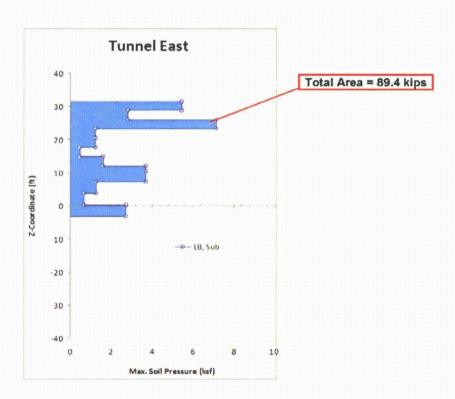


Figure 03.07.01-29 S1.276: Integration of Absolute Maximum Seismic Soil Pressure to Obtain Total Soil Force RSW Tunnel East Wall, Subtraction Method, Lower Bound In-Situ soil Case

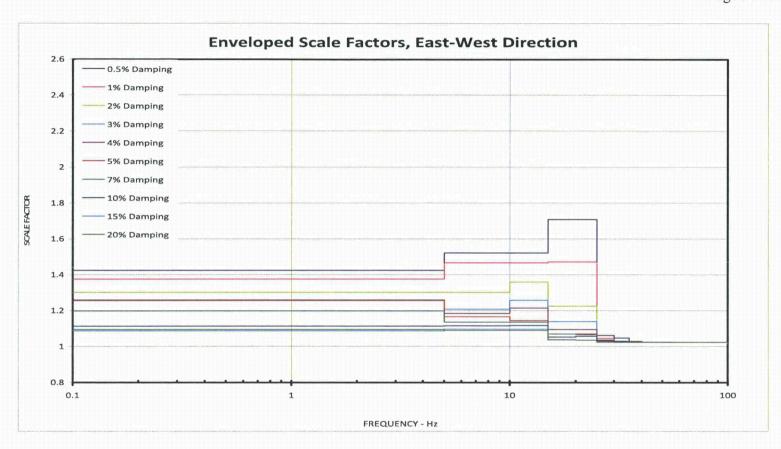


Figure 03.07.01-29 S1.277: Enveloped Scale Factors for East-West Response Spectra, Reactor Service Water (RSW) Piping Tunnel