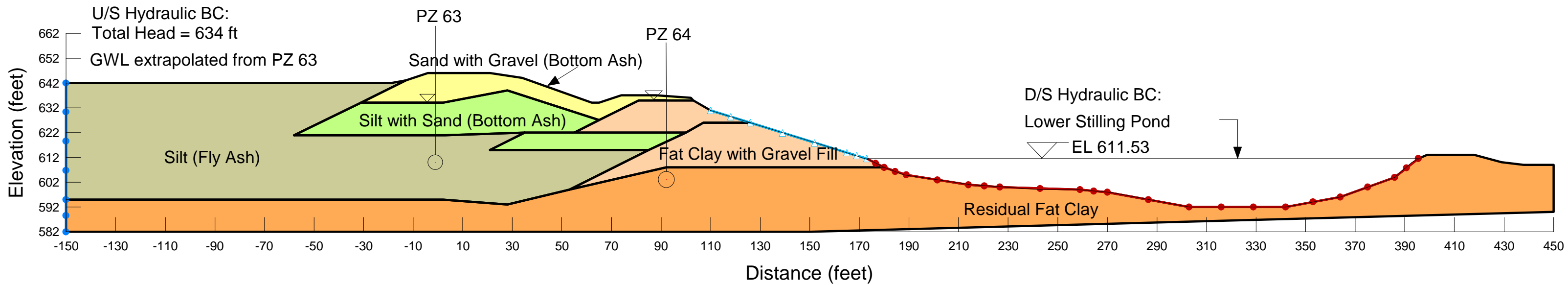
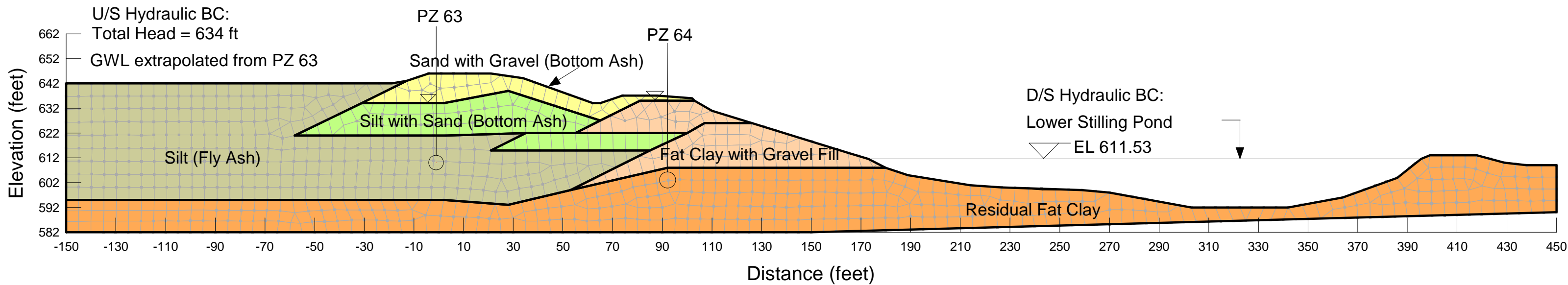


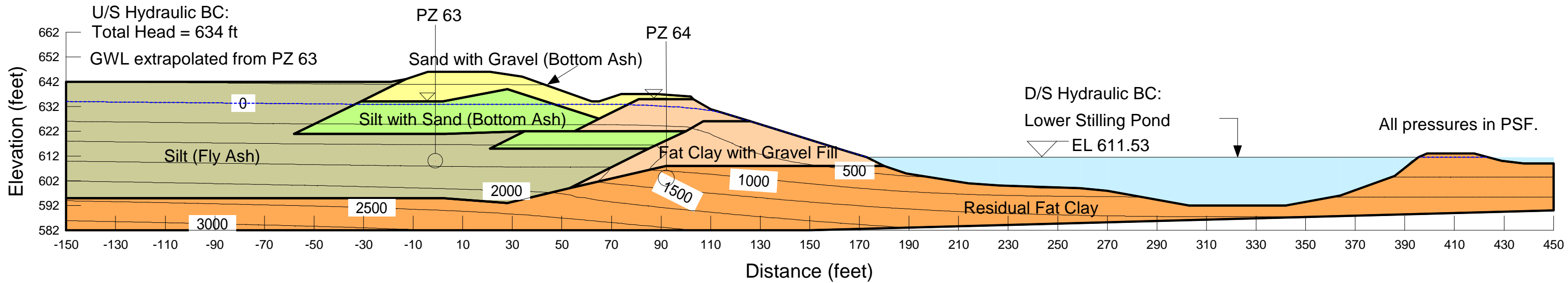
Widows Creek Ash Pond Section A - Dredge Cell Subsurface Profile and Boundary Conditions



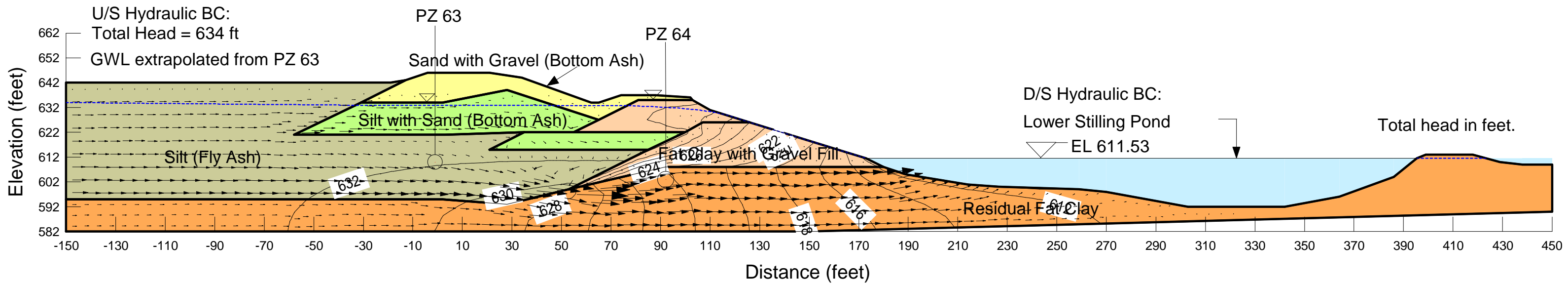
Widows Creek Ash Pond Section A - Dredge Cell Finite Element Mesh



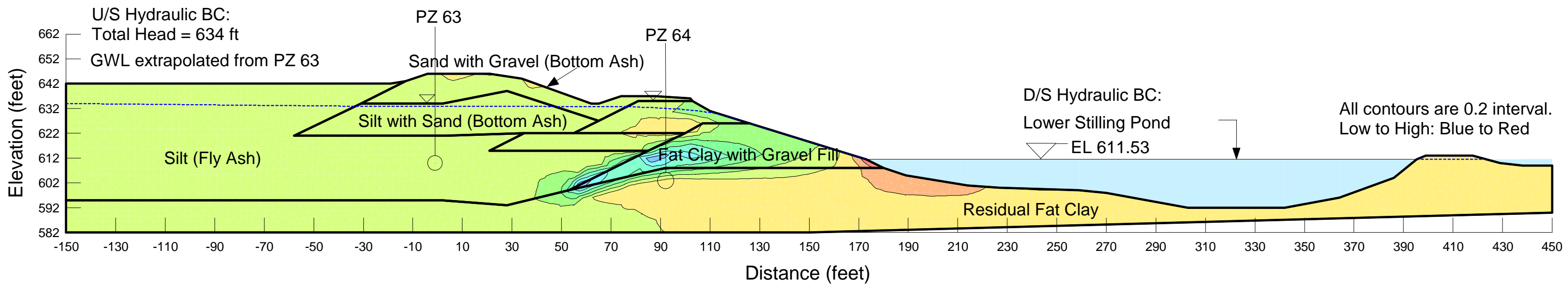
Widows Creek Ash Pond Section A - Dredge Cell Pore Water Pressure Contours



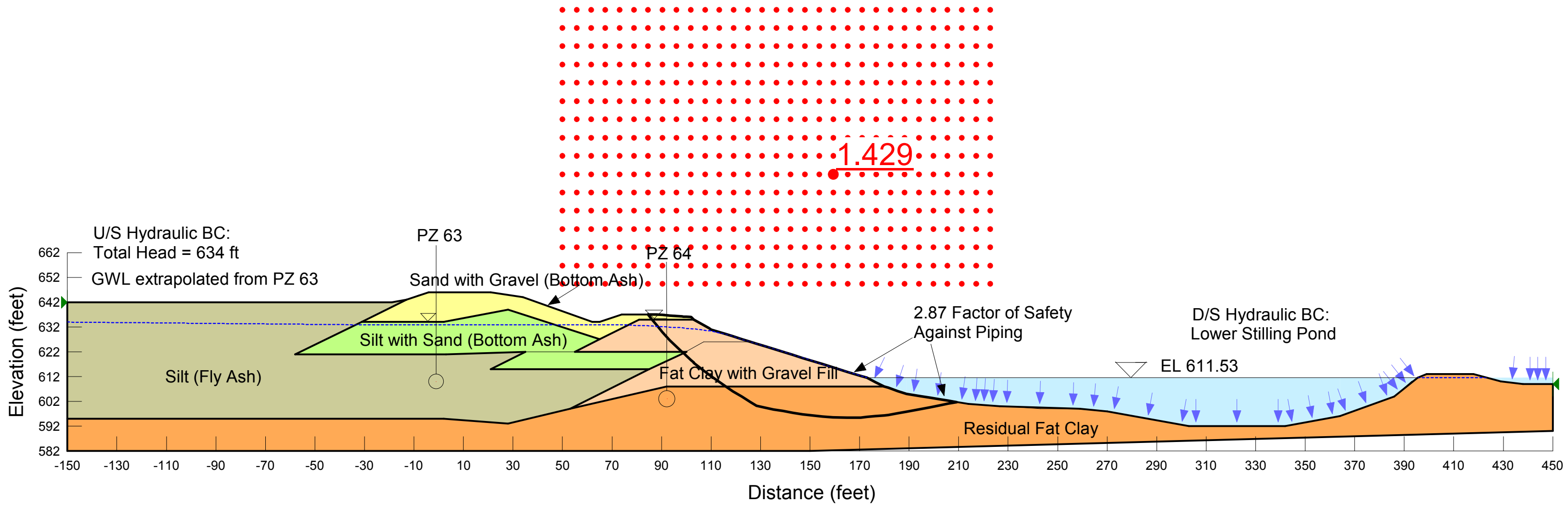
Widows Creek Ash Pond Section A - Dredge Cell Total Head Contours and Flow Vectors



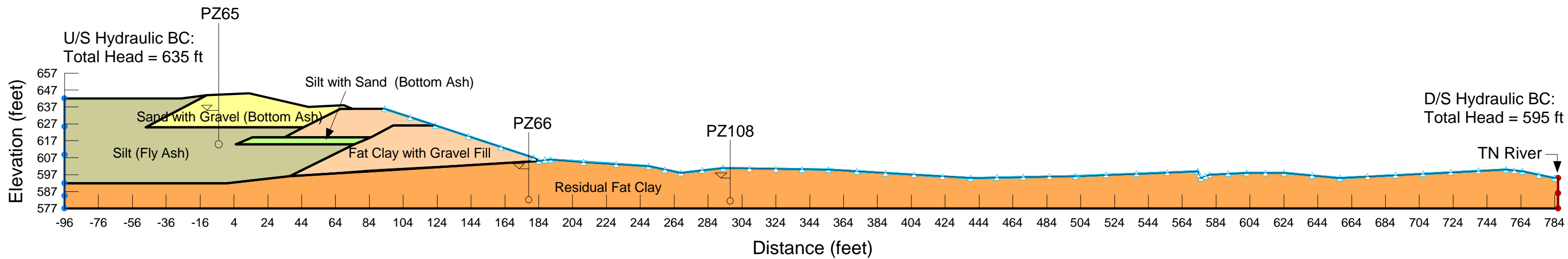
Widows Creek Ash Pond Section A - Dredge Cell Vertical Gradient Contours



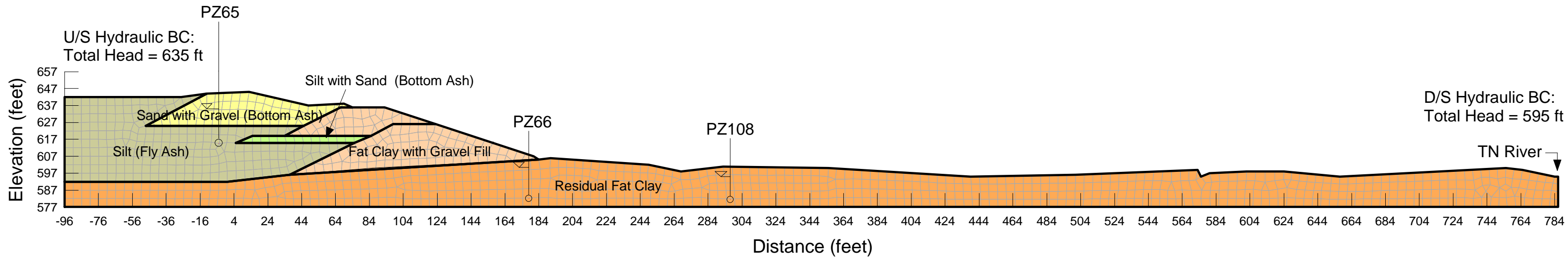
Widows Creek Ash Pond Section A - Dredge Cell Slope Stability



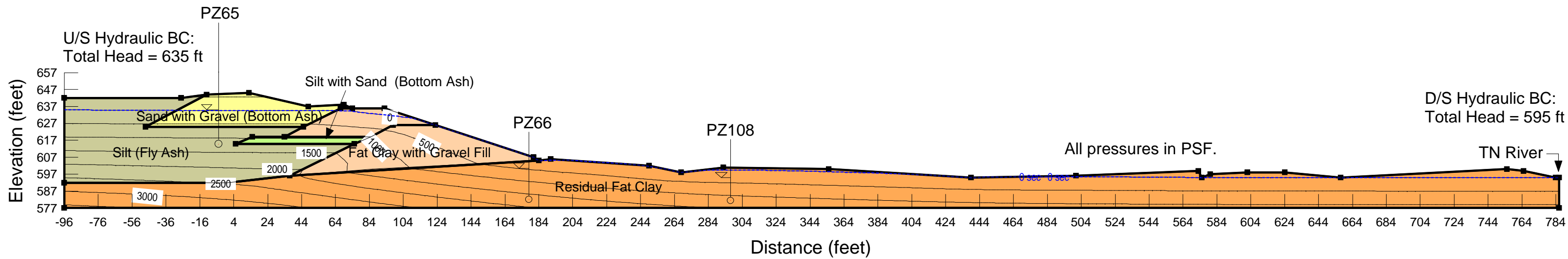
Widows Creek Ash Pond Section C - Dredge Cell Subsurface Profile and Boundary Conditions



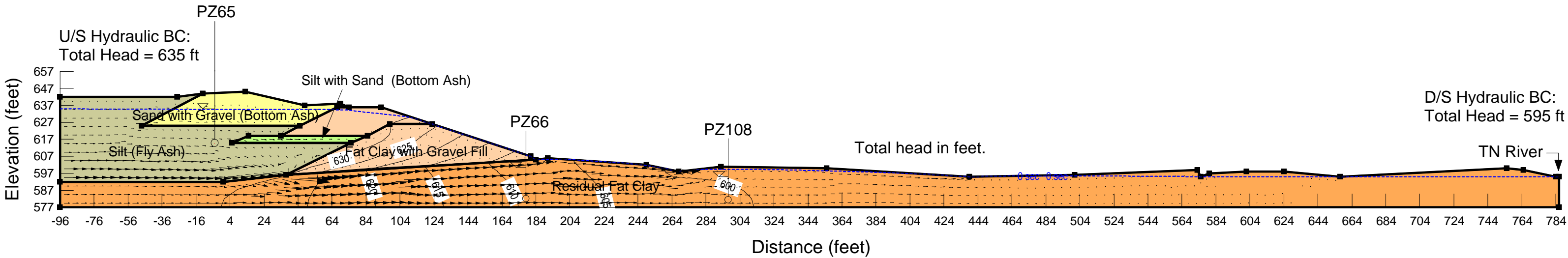
Widows Creek Ash Pond Section C - Dredge Cell Finite Element Mesh



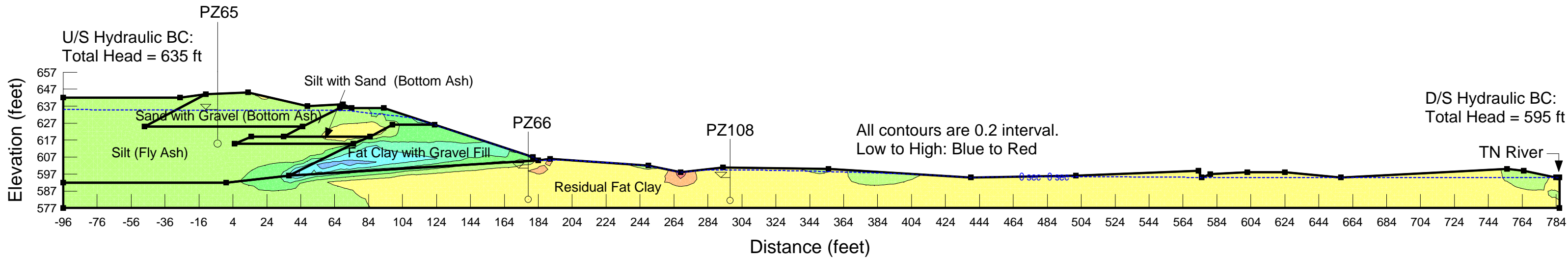
Widows Creek Ash Pond Section C - Dredge Cell Pore Water Pressure Contours



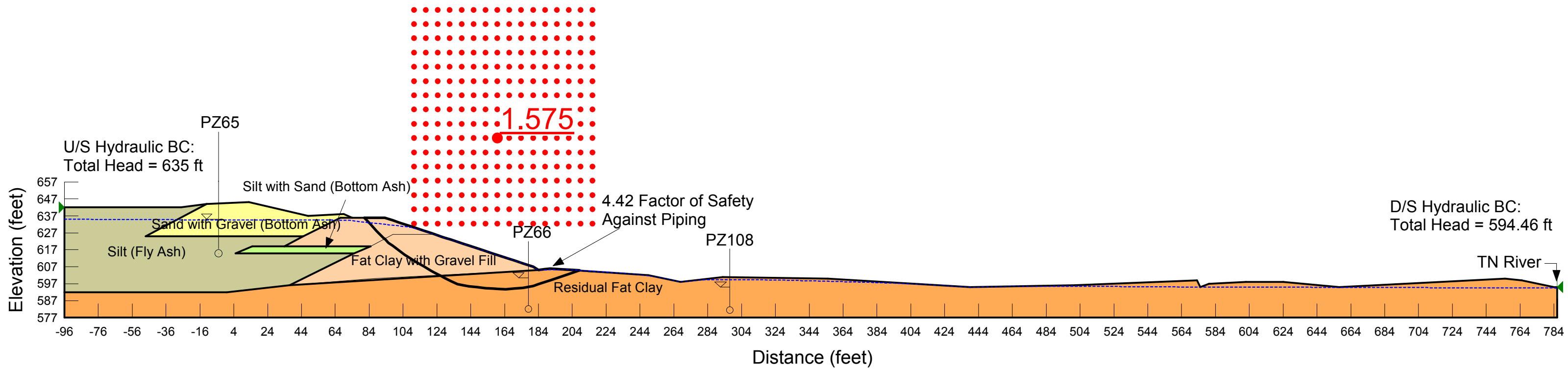
Widows Creek Ash Pond Section C - Dredge Cell Total Head Contours and Flow Vectors



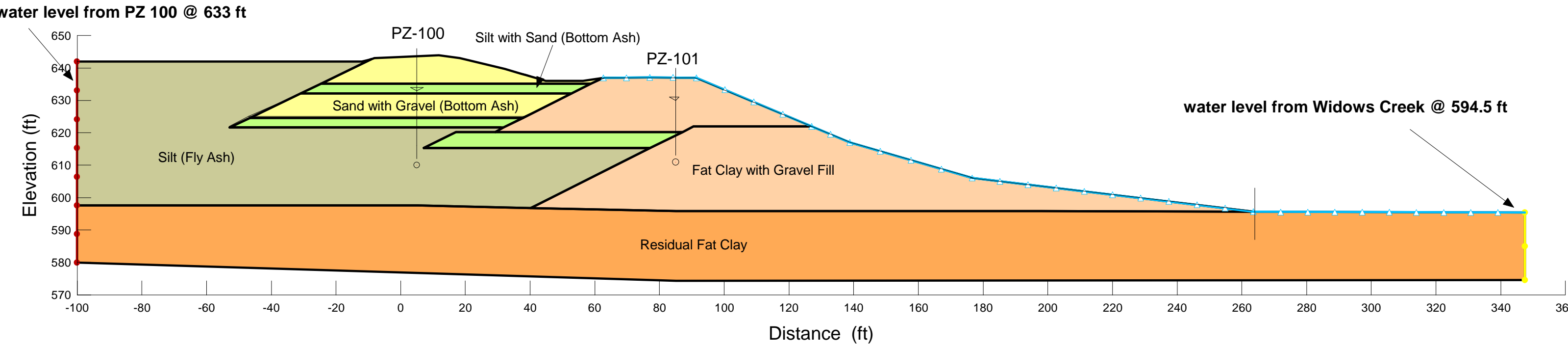
Widows Creek Ash Pond Section C - Dredge Cell Vertical Gradient Contours



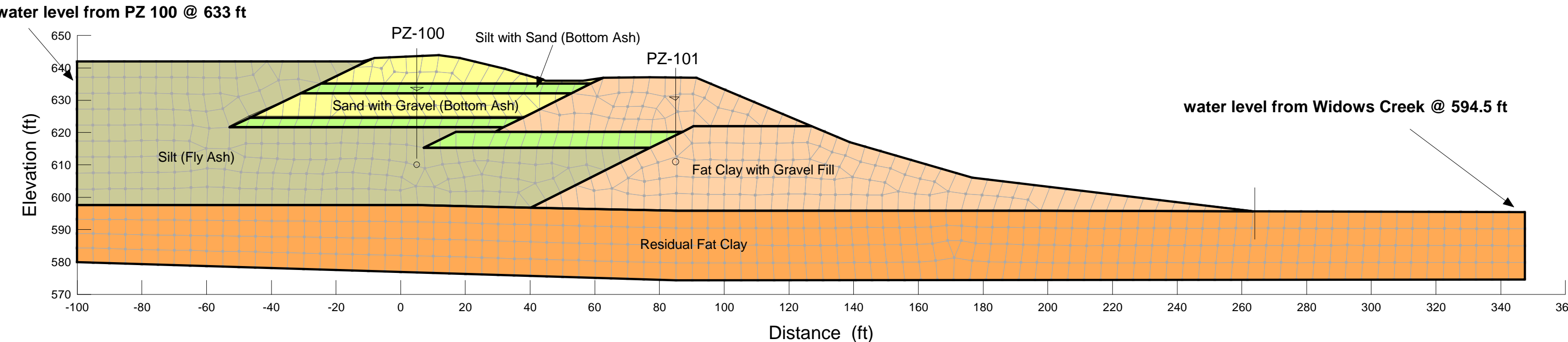
Widows Creek Ash Pond Section C - Dredge Cell Slope Stability



Widows Creek Ash Pond Section D - Dredge Cell Subsurface Profile and Boundary Conditions

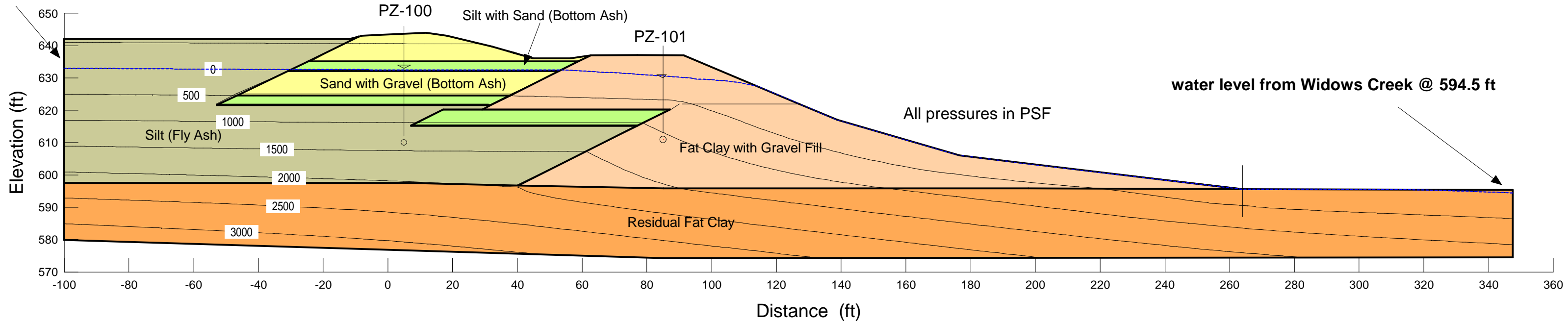


Widows Creek Ash Pond Section D - Dredge Cell Finite Element Mesh



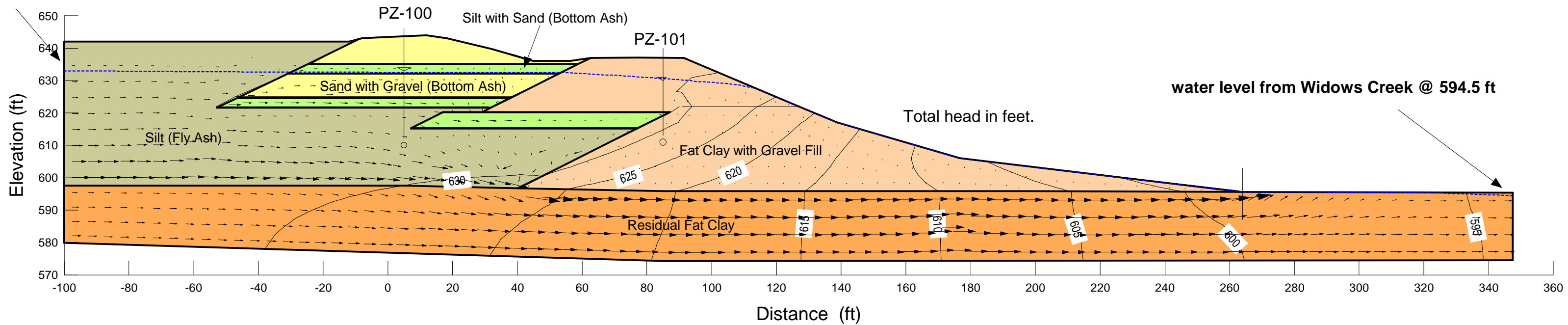
Widows Creek Ash Pond Section D - Dredge Cell Pore Water Pressure Contours

water level from PZ 100 @ 633 ft

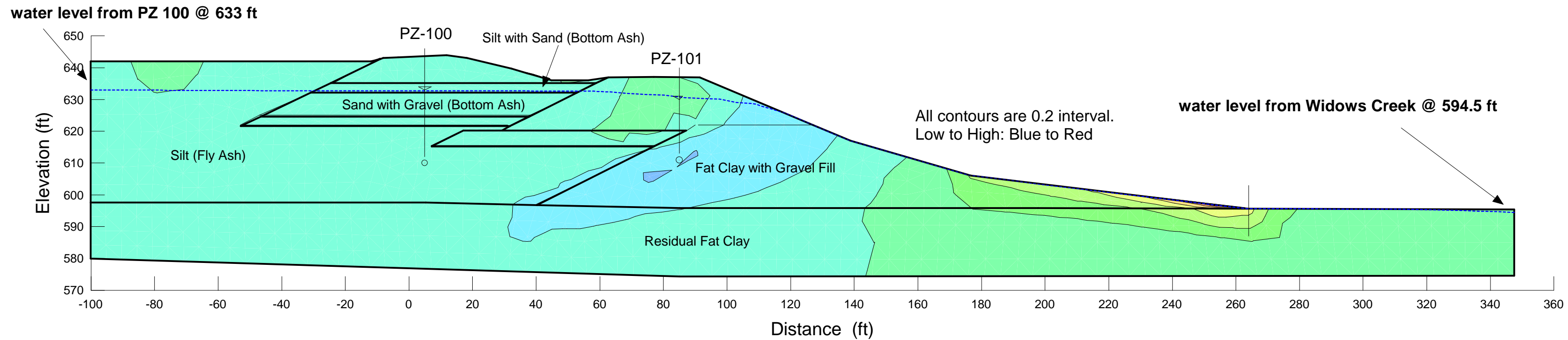


Widows Creek Ash Pond Section D - Dredge Cell Total Head Contours and Flow Vectors

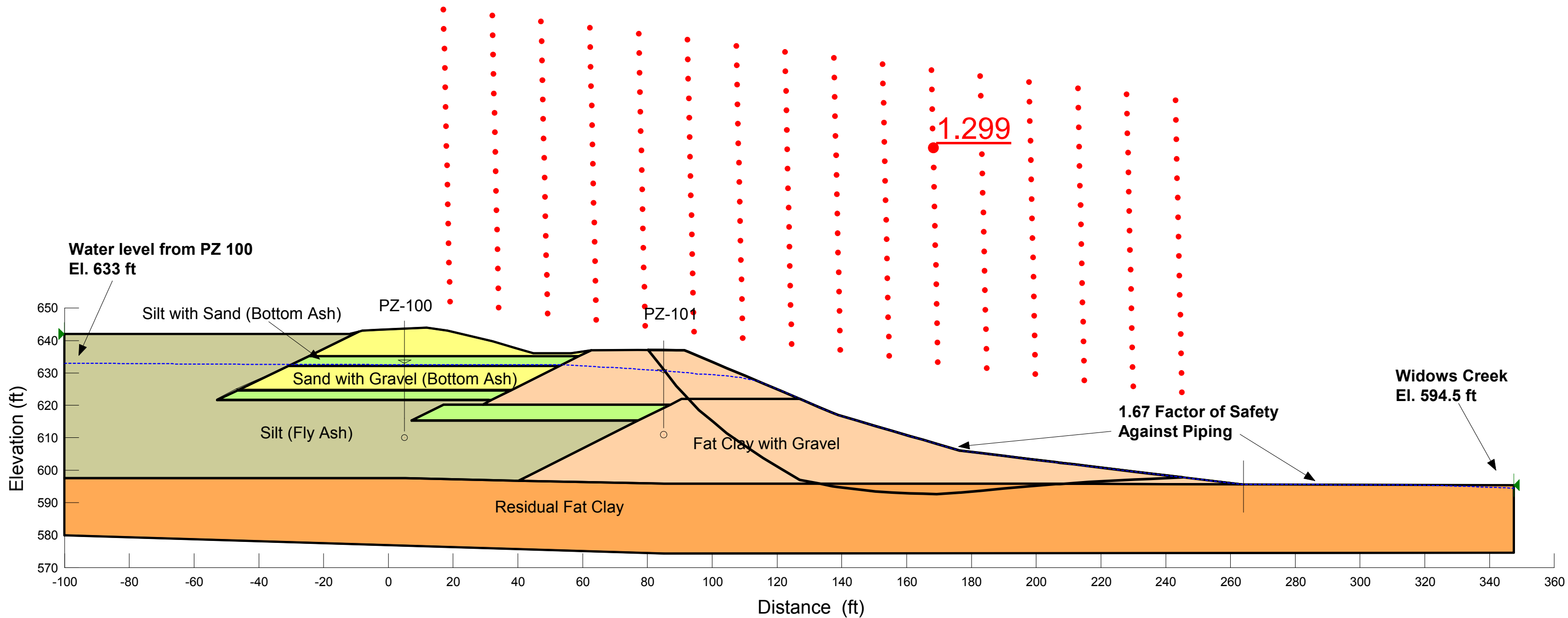
water level from PZ 100 @ 633 ft



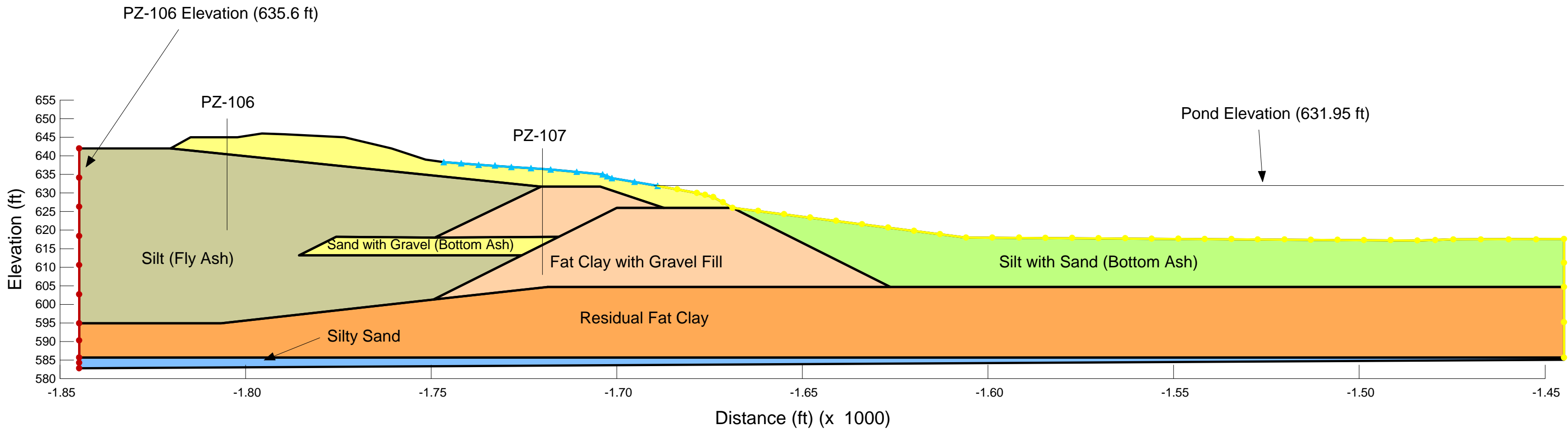
Widows Creek Ash Pond Section D - Dredge Cell Vertical Gradient Contours



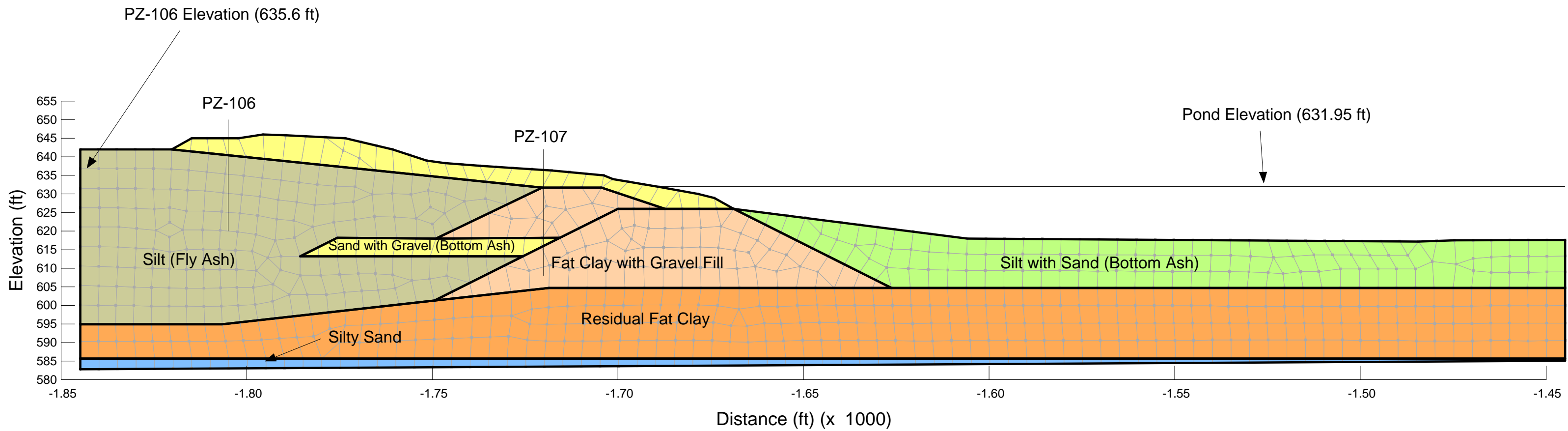
Widows Creek Ash Pond Section D - Dredge Cell Slope Stability



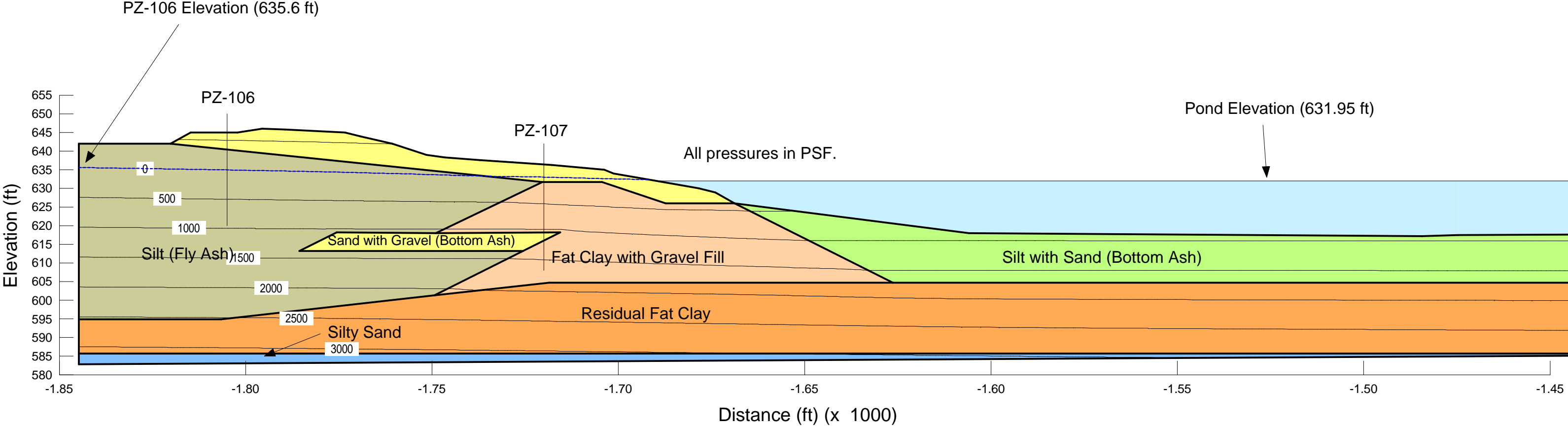
Widows Creek Ash Pond Section H - Dredge Cell Subsurface Profile and Boundary Conditions



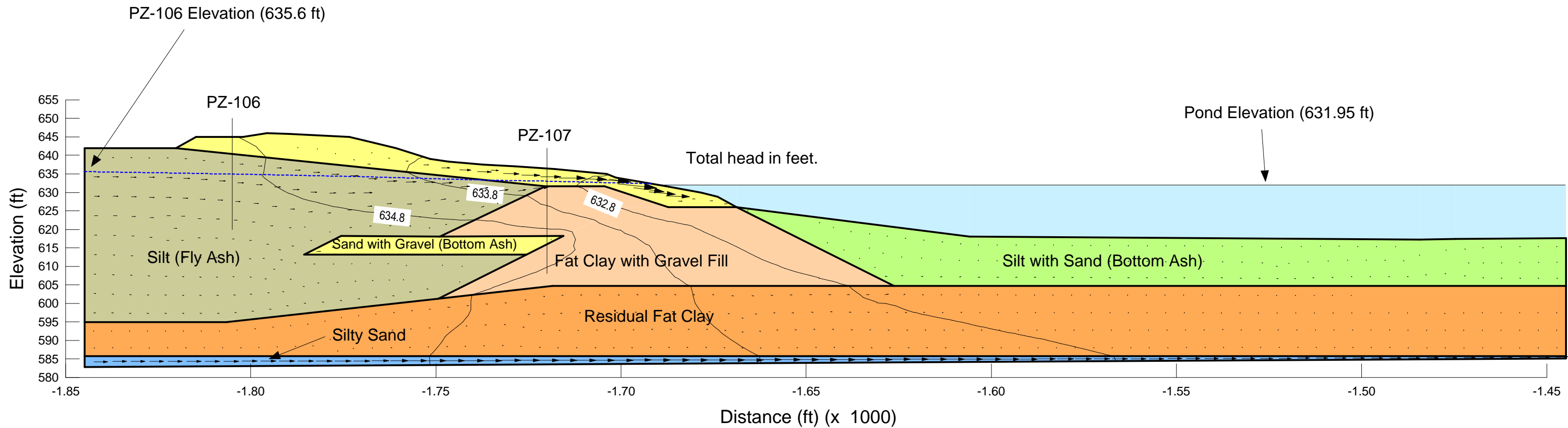
Widows Creek Ash Pond Section H - Dredge Cell Finite Element Mesh



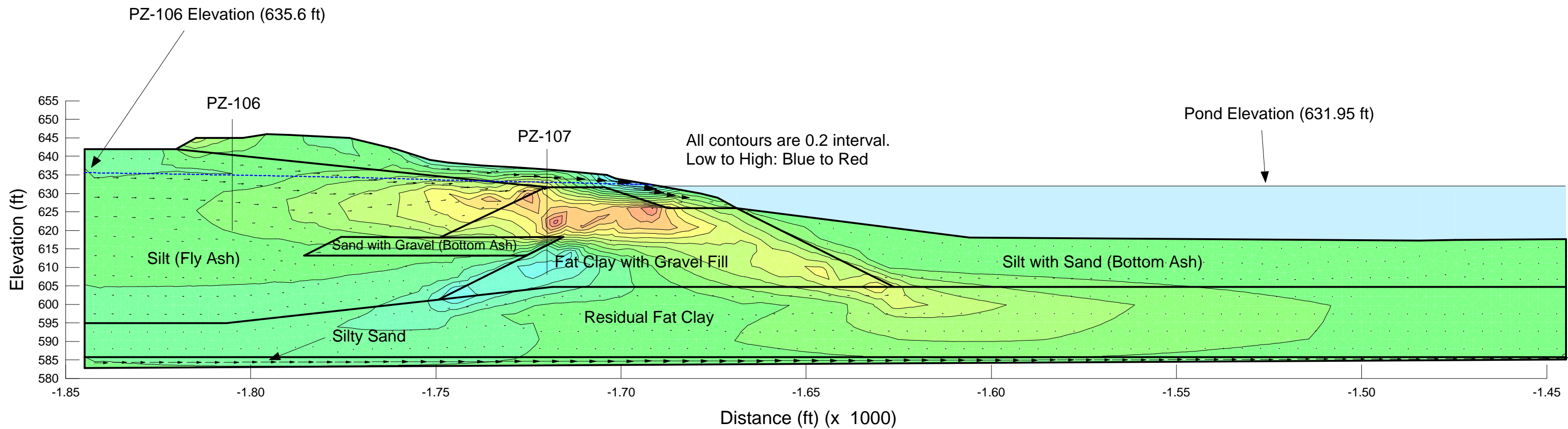
Widows Creek Ash Pond Section H - Dredge Cell Pore Water Pressure Contours



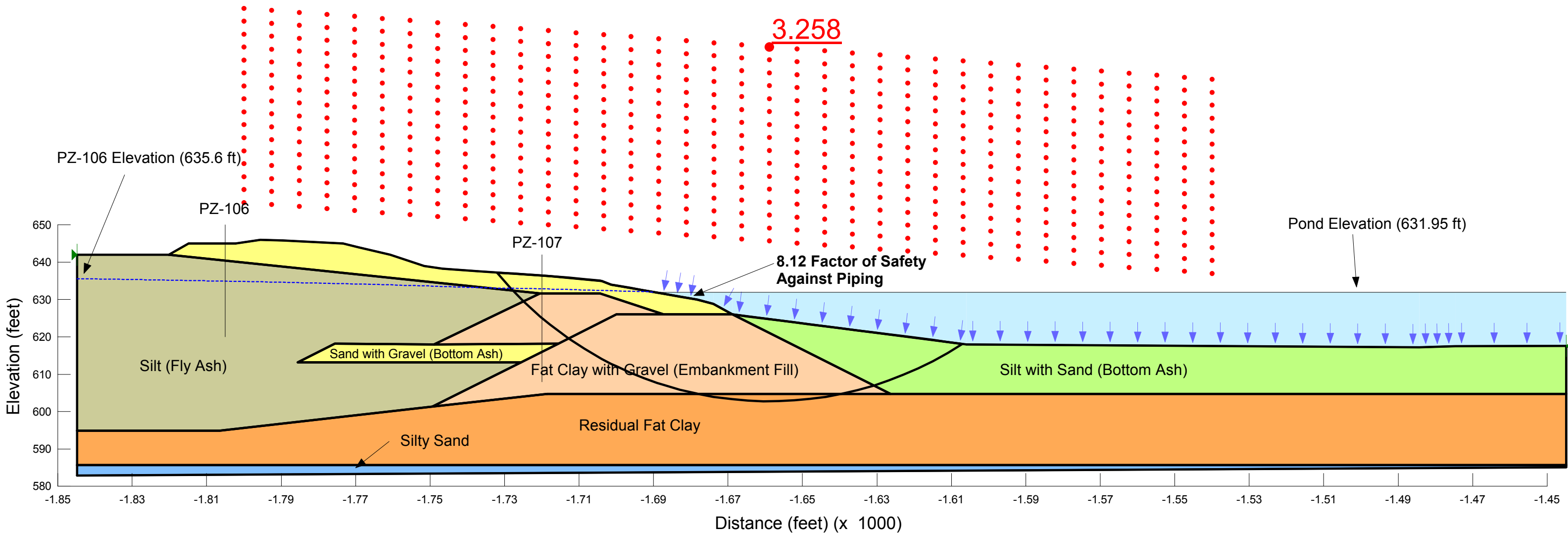
Widows Creek Ash Pond Section H - Dredge Cell Total Head Contours and Flow Vectors



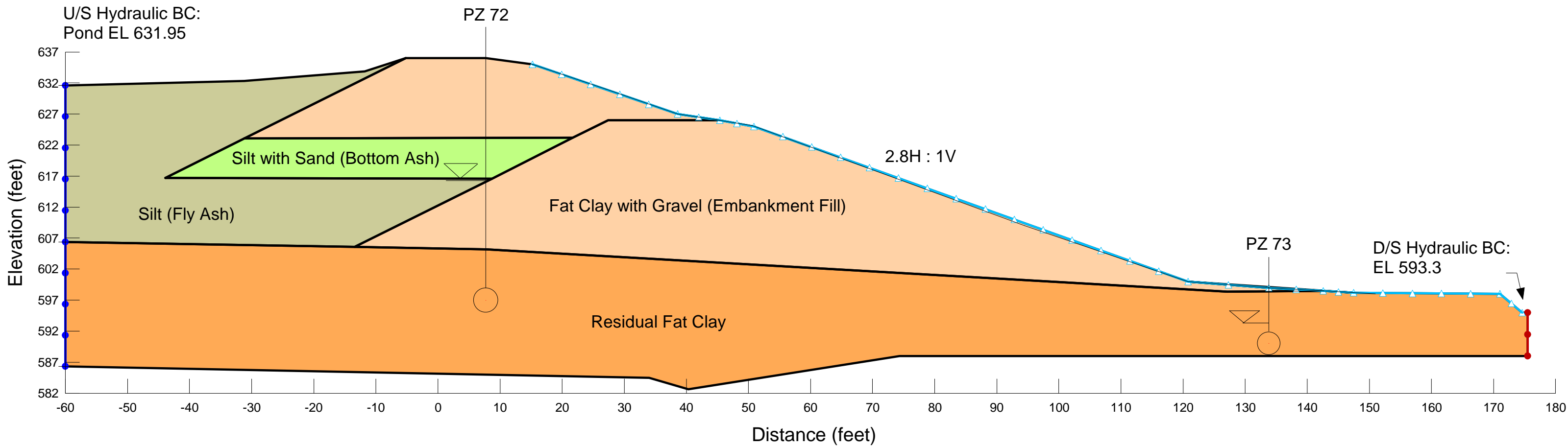
Widows Creek Ash Pond Section H - Dredge Cell Vertical Gradient Contours



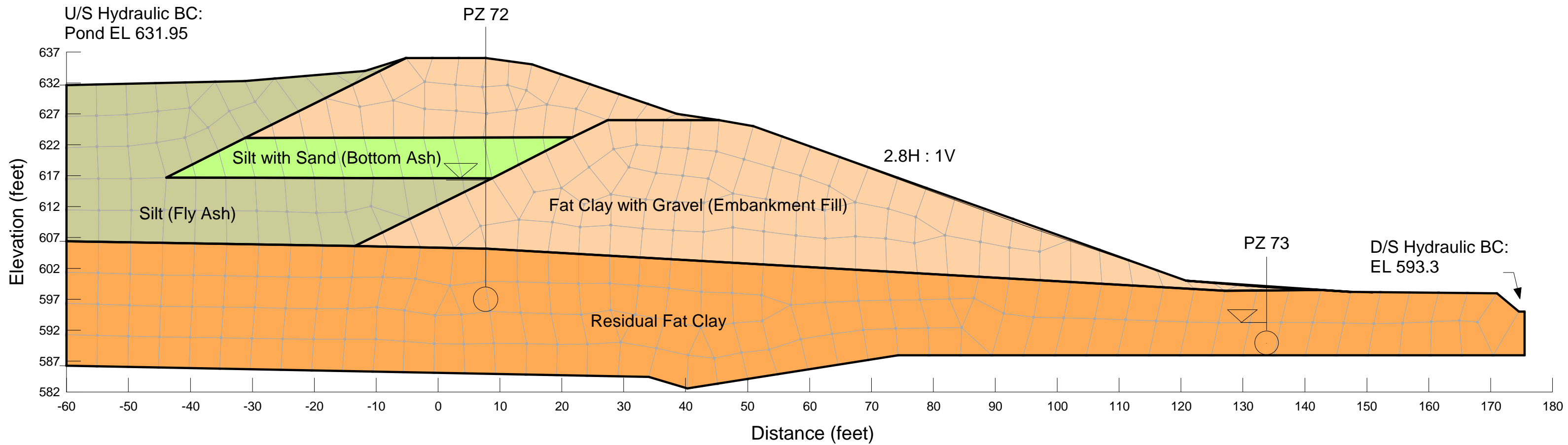
Widows Creek Ash Pond Section H - Dredge Cell Slope Stability



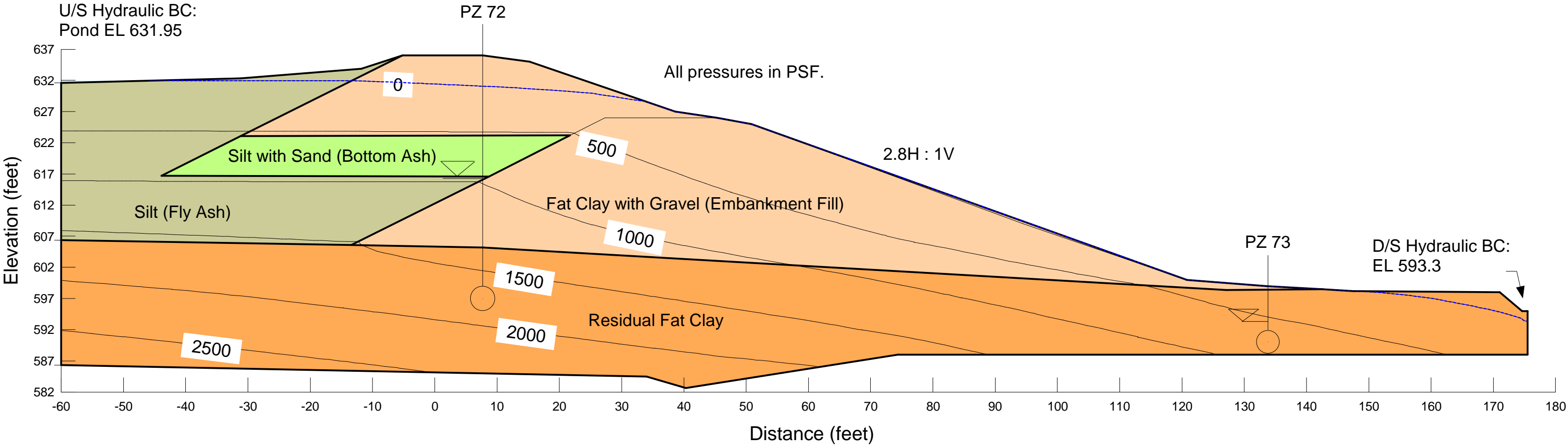
Widows Creek Ash Pond Section J - Main Ash Pond Subsurface Profile and Boundary Conditions



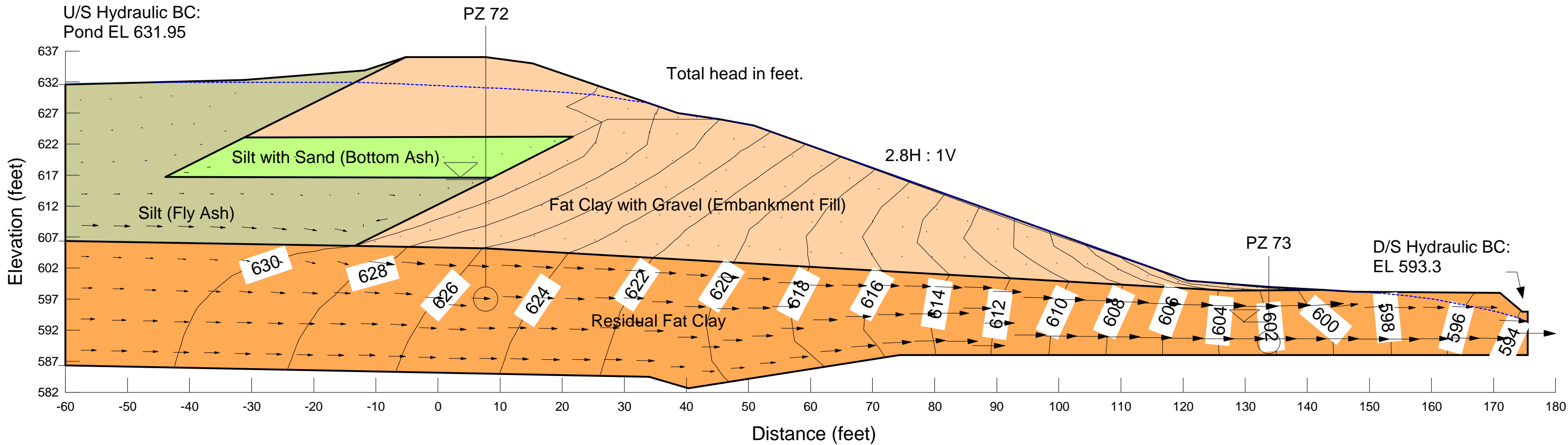
Widows Creek Ash Pond Section J - Main Ash Pond Finite Element Mesh



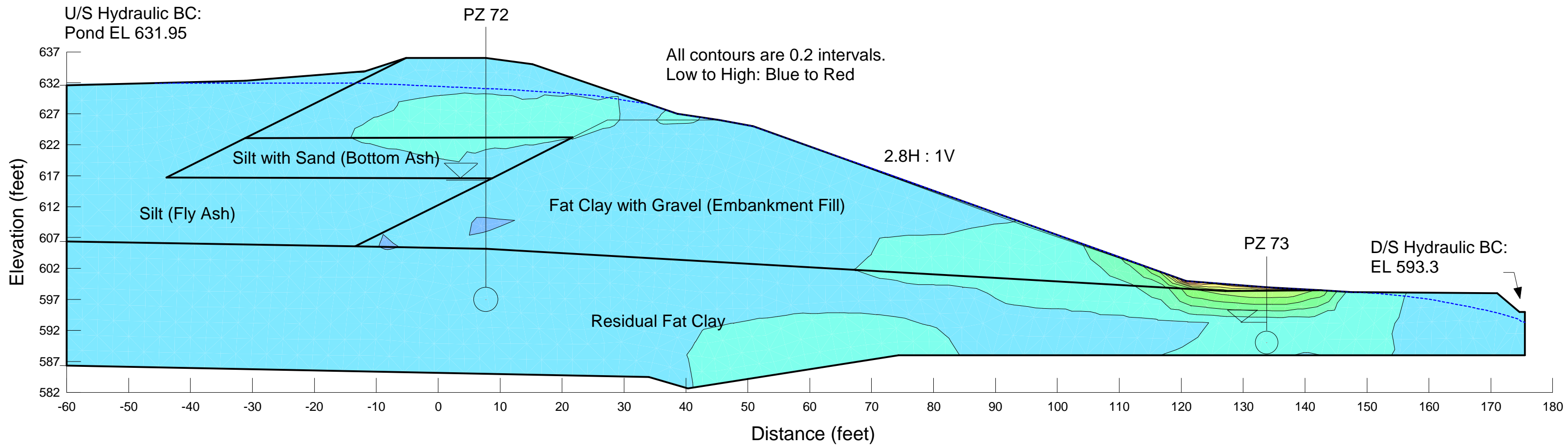
Widows Creek Ash Pond Section J - Main Ash Pond Pore Water Pressure Contours



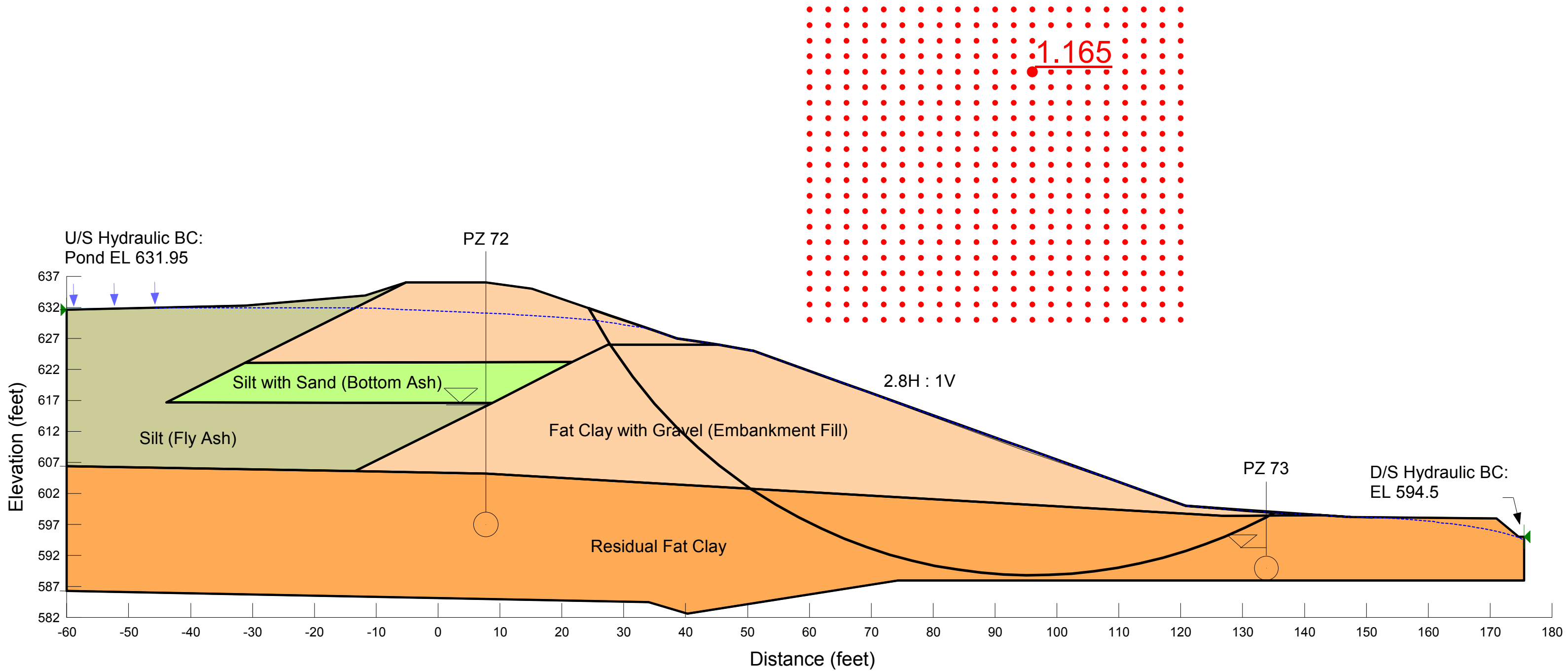
Widows Creek Ash Pond Section J - Main Ash Pond Total Head Contours and Flow Vectors



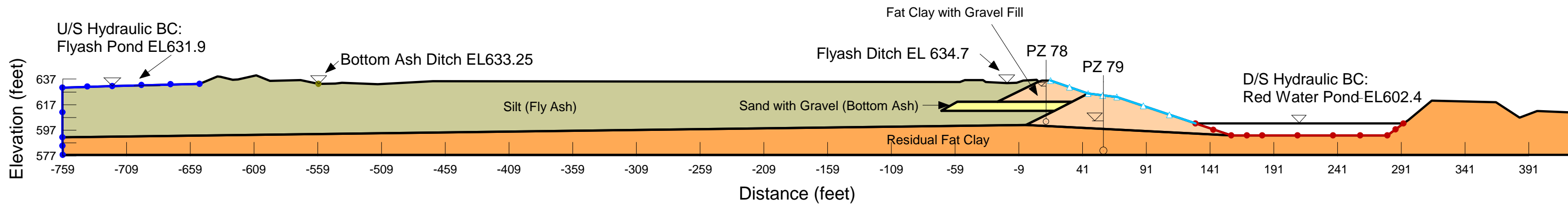
Widows Creek Ash Pond Section J - Main Ash Pond Vertical Gradient Contours



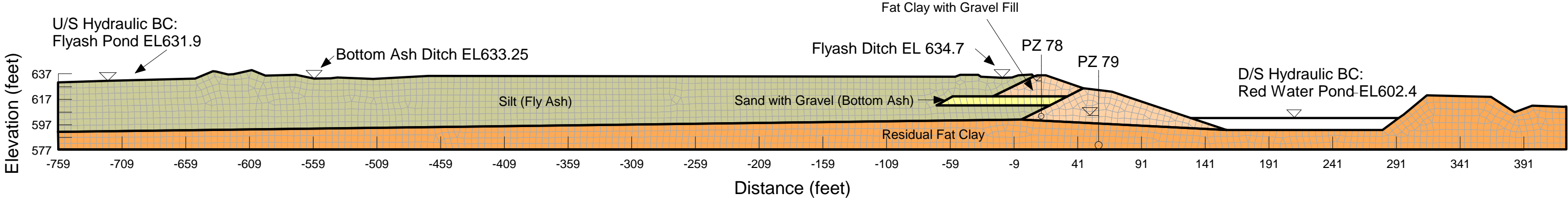
Widows Creek Ash Pond Section J - Main Ash Pond Slope Stability



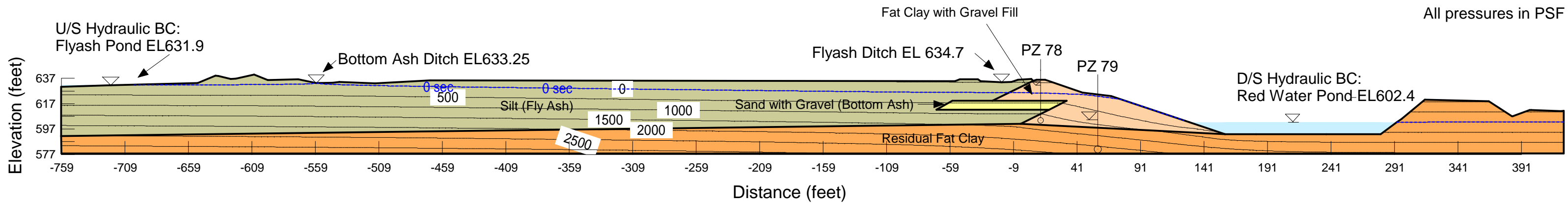
Widows Creek Ash Pond Section L - Main Ash Pond Subsurface Profile and Boundary Conditions



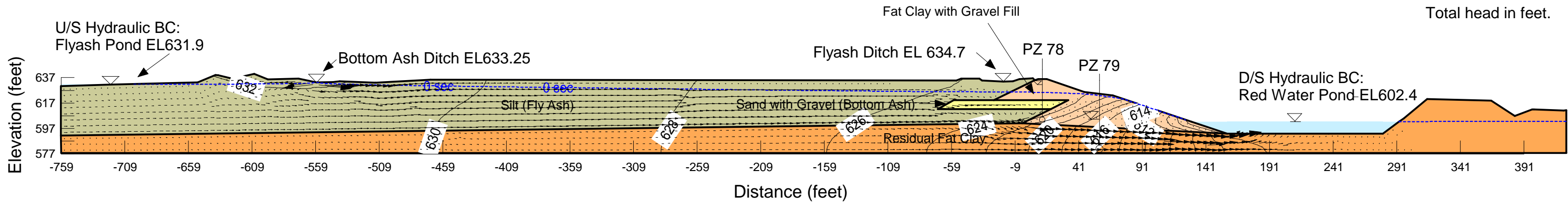
Widows Creek Ash Pond Section L - Main Ash Pond Finite Element Mesh



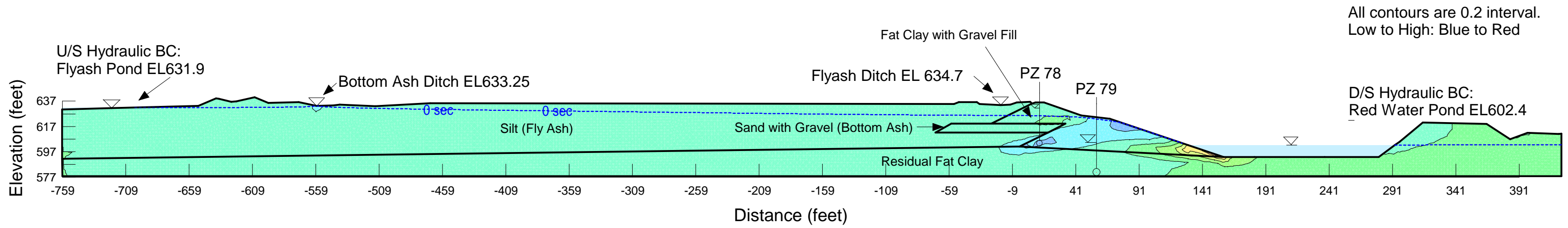
Widows Creek Ash Pond Section L - Main Ash Pond Pore Water Pressure Contours



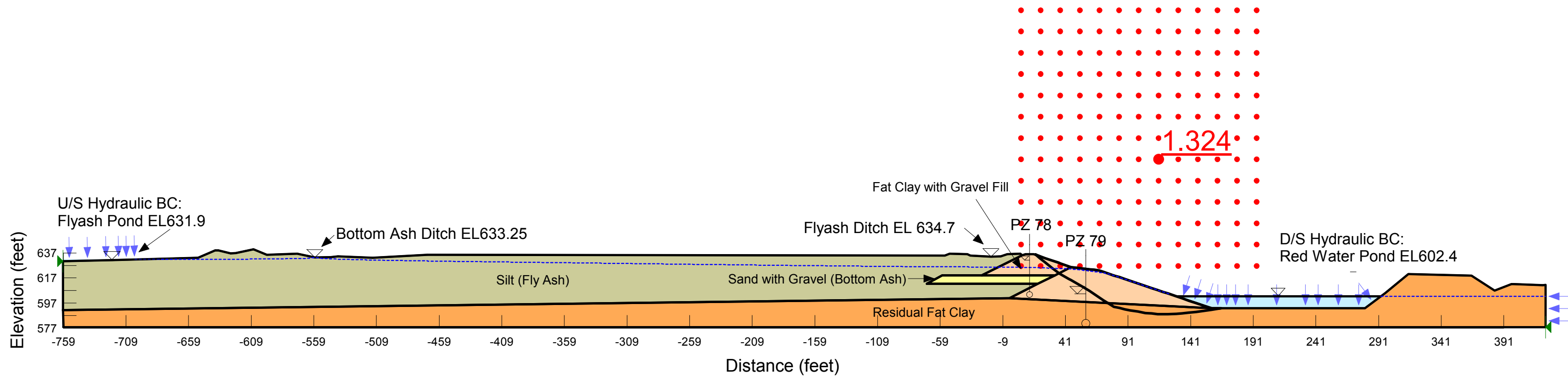
Widows Creek Ash Pond Section L - Main Ash Pond Total Head Contours and Flow Vectors



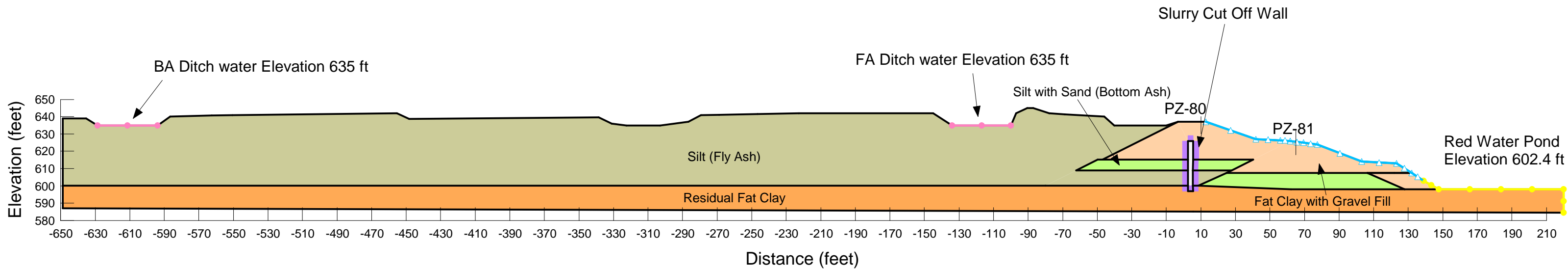
Widows Creek Ash Pond Section L - Main Ash Pond Vertical Gradient Contours



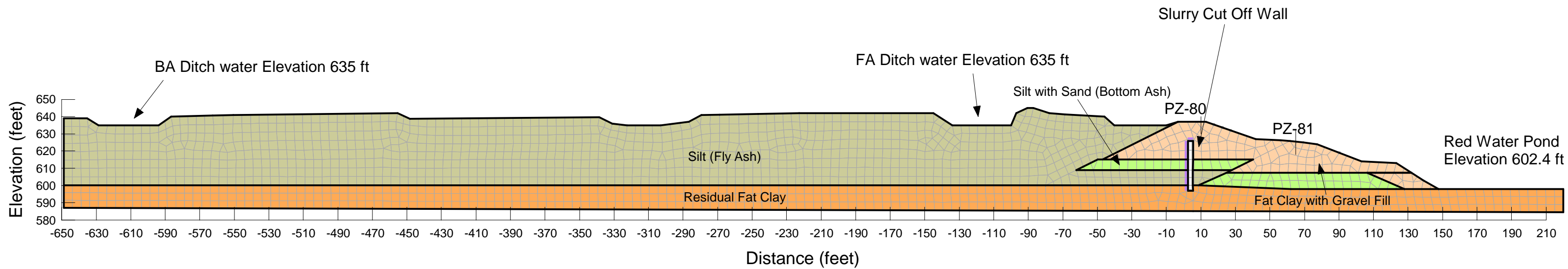
Widows Creek Ash Pond Section L - Main Ash Pond Slope Stability



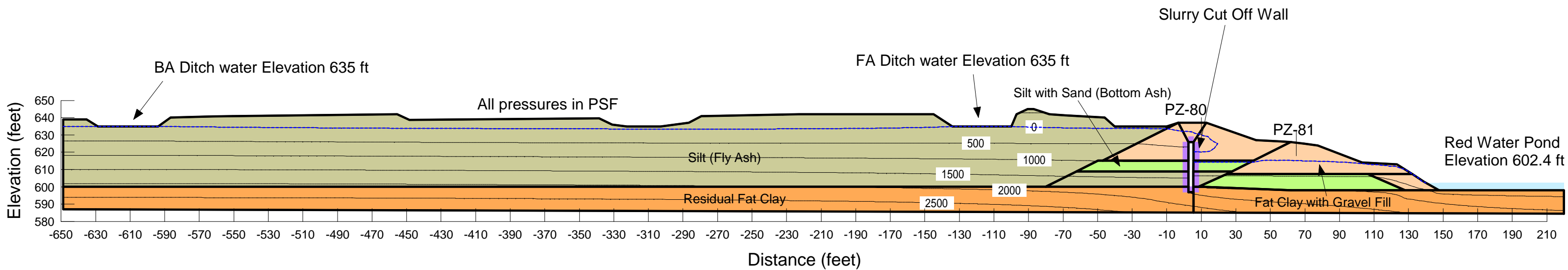
Widows Creek Ash Pond Section M - Bottom Ash Stack Subsurface Profile and Boundary Conditions



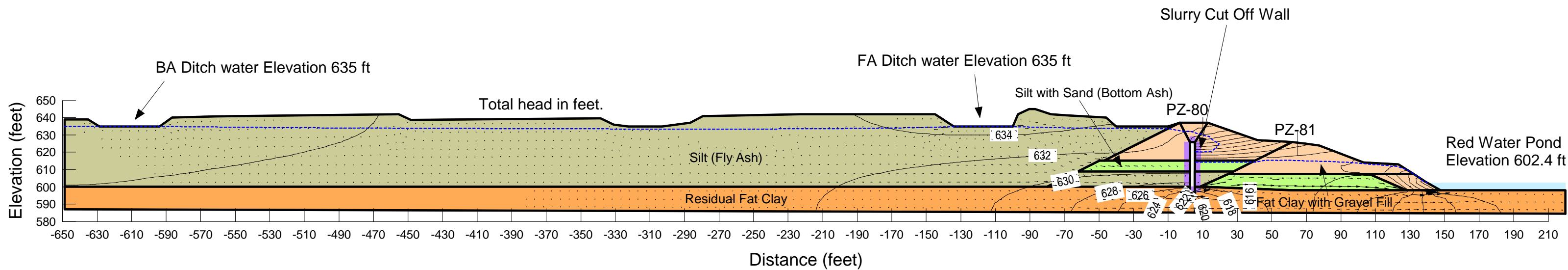
Widows Creek Ash Pond Section M - Bottom Ash Stack Finite Element Mesh



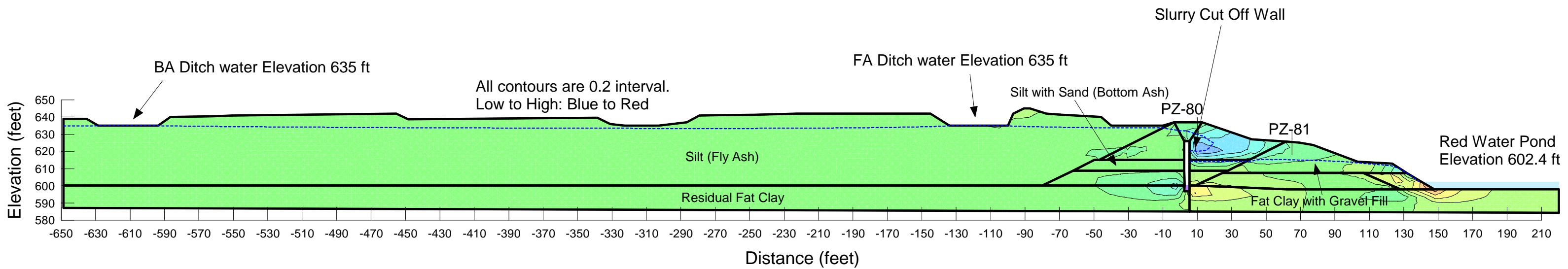
Widows Creek Ash Pond Section M - Bottom Ash Stack Pore Water Pressure Contours



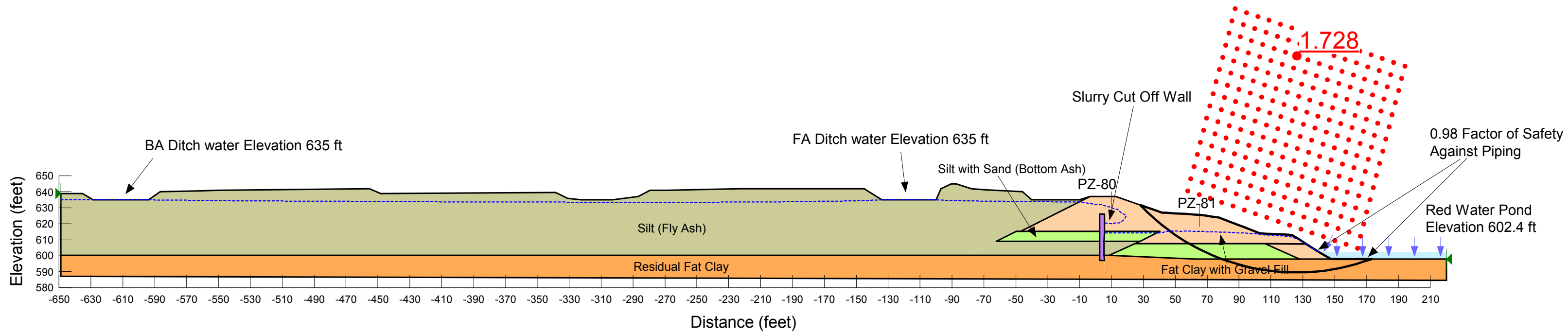
Widows Creek Ash Pond Section M - Bottom Ash Stack Total Head Contours and Flow Vectors



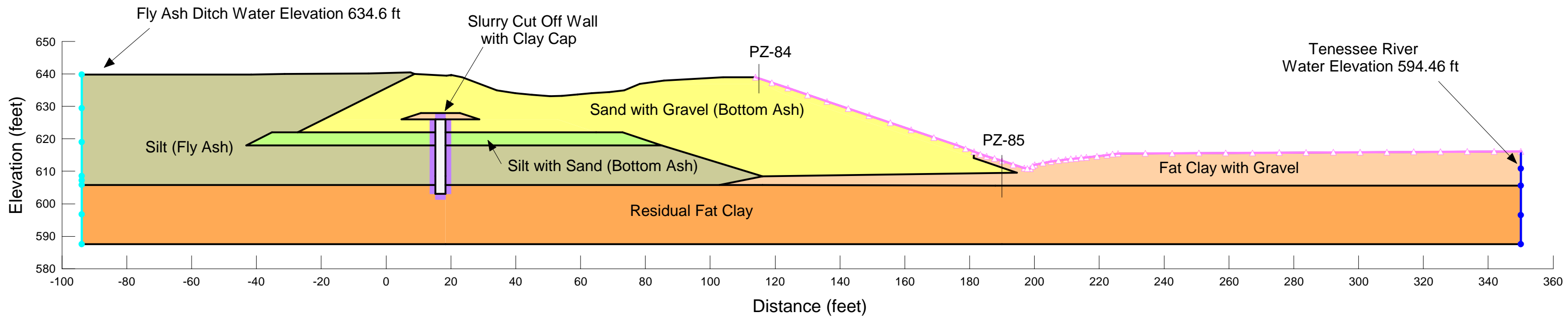
Widows Creek Ash Pond Section M - Bottom Ash Stack Vertical Gradient Contours



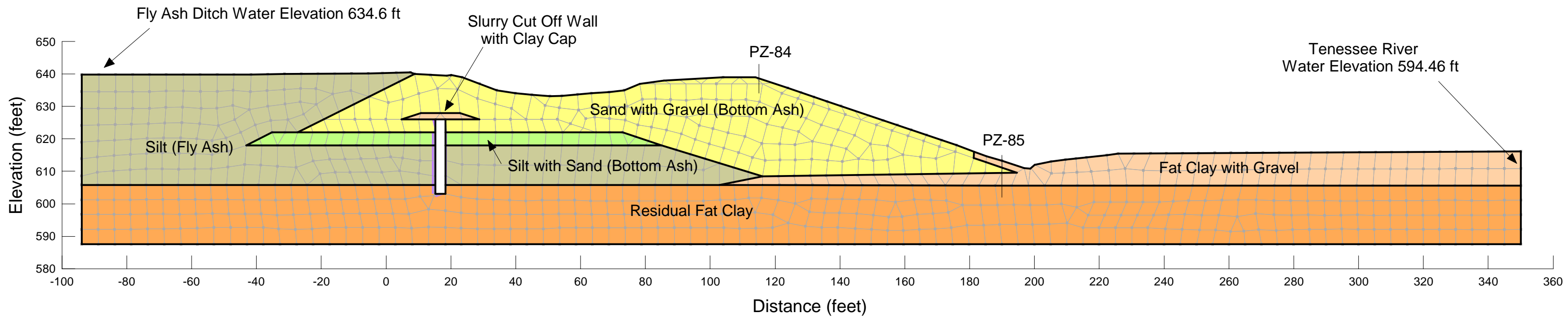
Widows Creek Ash Pond Section M - Bottom Ash Stack Slope Stability



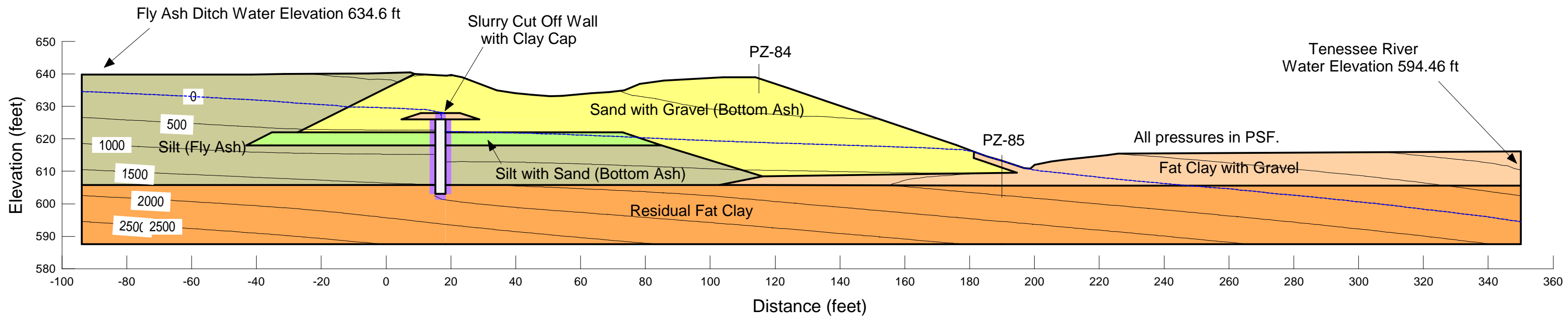
Widows Creek Ash Pond Section O - Bottom Ash Stack Subsurface Profile and Boundary Conditions



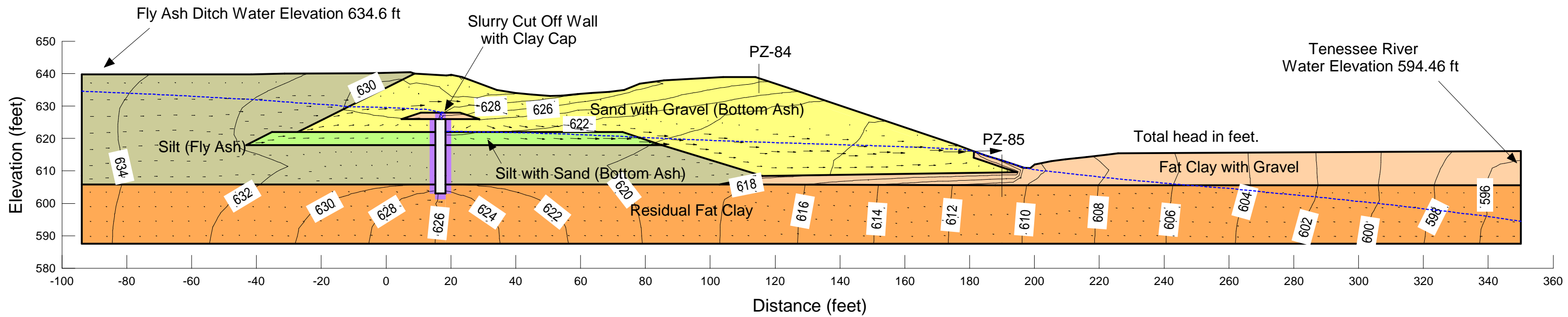
Widows Creek Ash Pond Section O - Bottom Ash Stack Finite Element Mesh



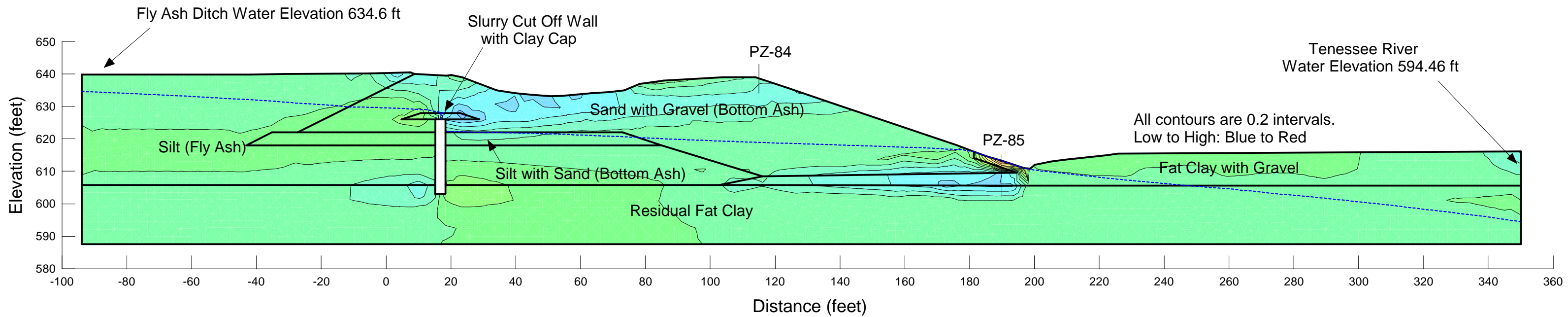
Widows Creek Ash Pond Section O - Bottom Ash Stack Pore Water Pressure Contours



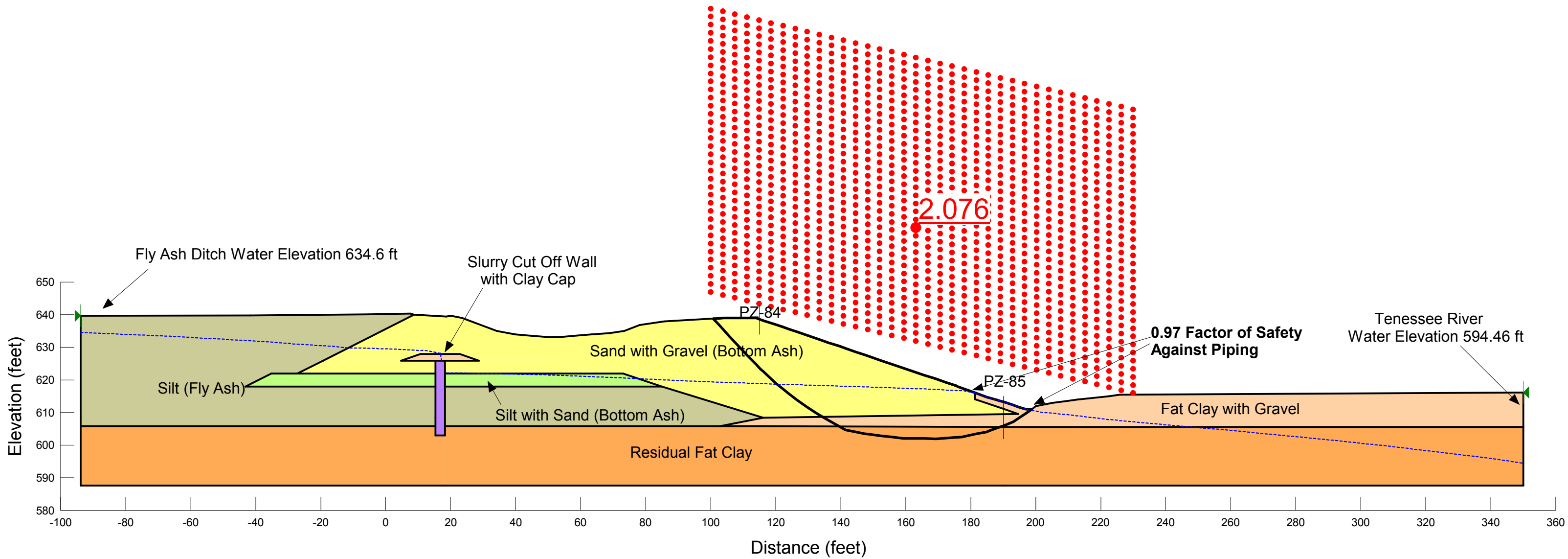
Widows Creek Ash Pond Section O - Bottom Ash Stack Total Head Contours and Flow Vectors



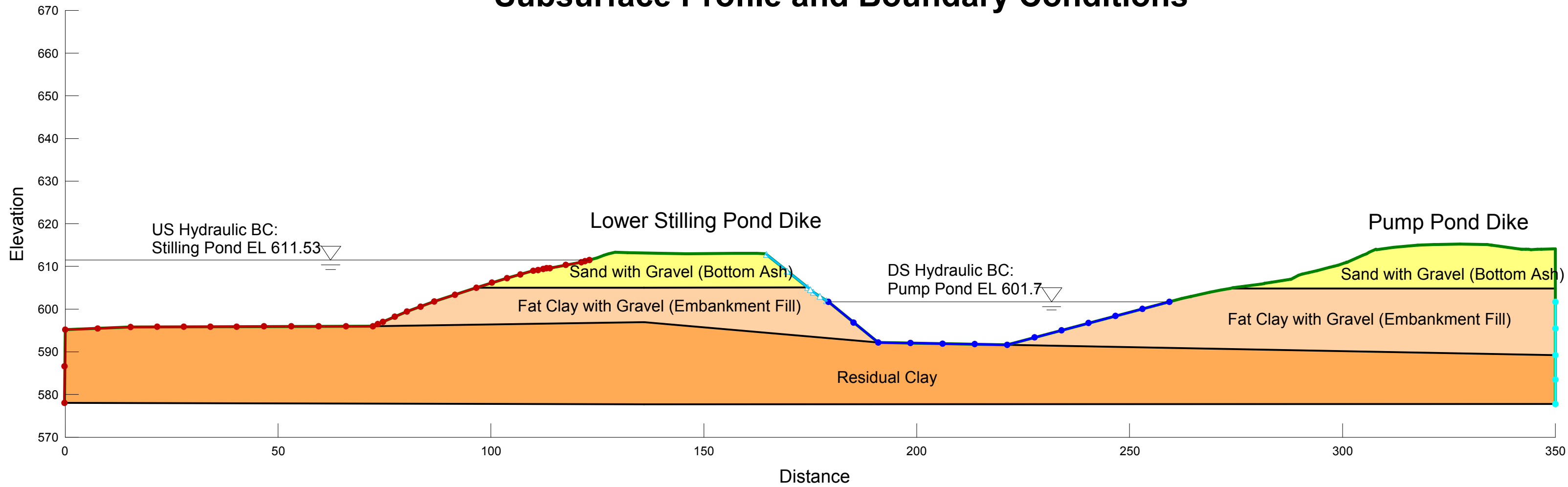
Widows Creek Ash Pond Section O - Bottom Ash Stack Vertical Gradient Contours



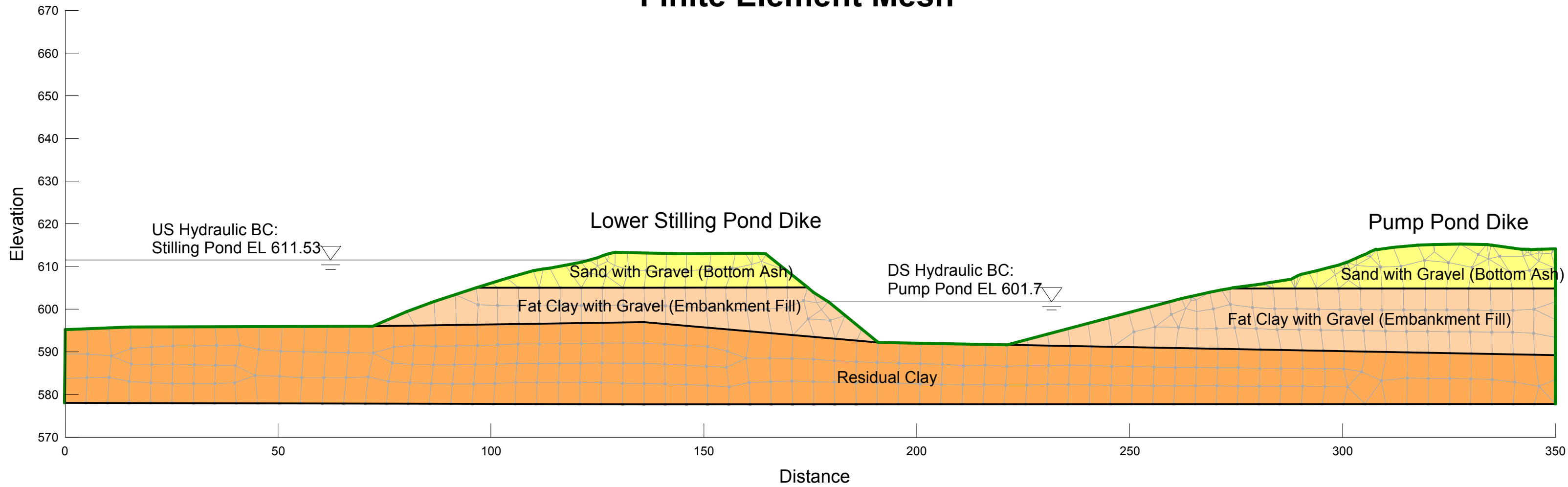
Widows Creek Ash Pond Section O - Bottom Ash Stack Slope Stability



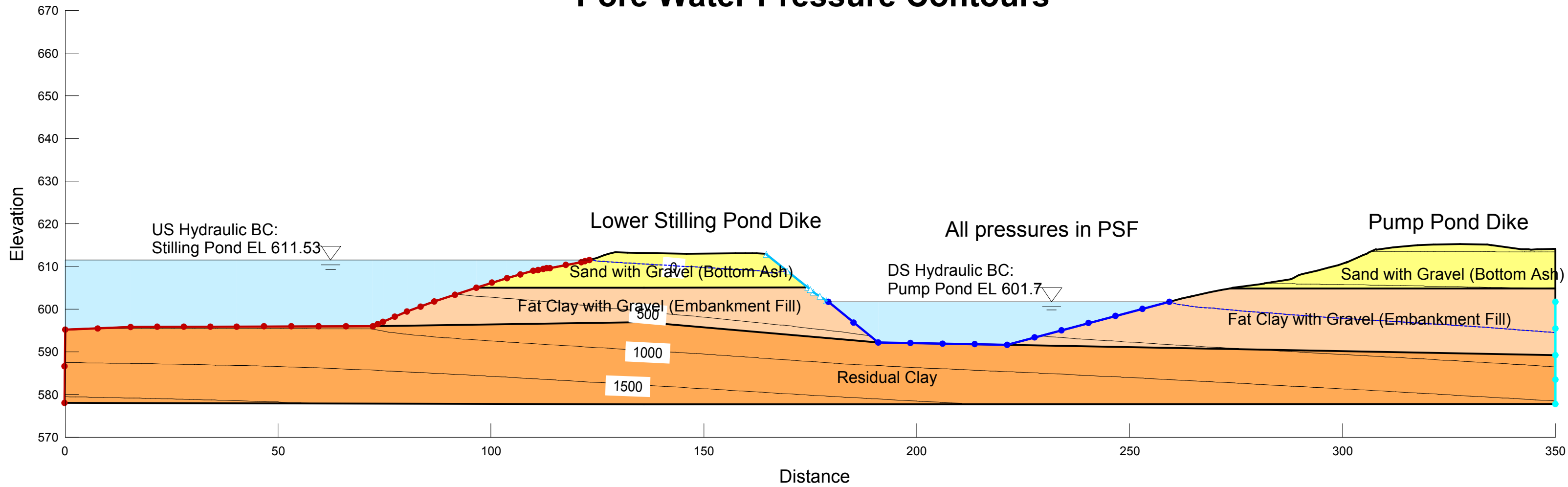
Widows Creek Ash Pond Section S - Lower Stilling Pond Subsurface Profile and Boundary Conditions



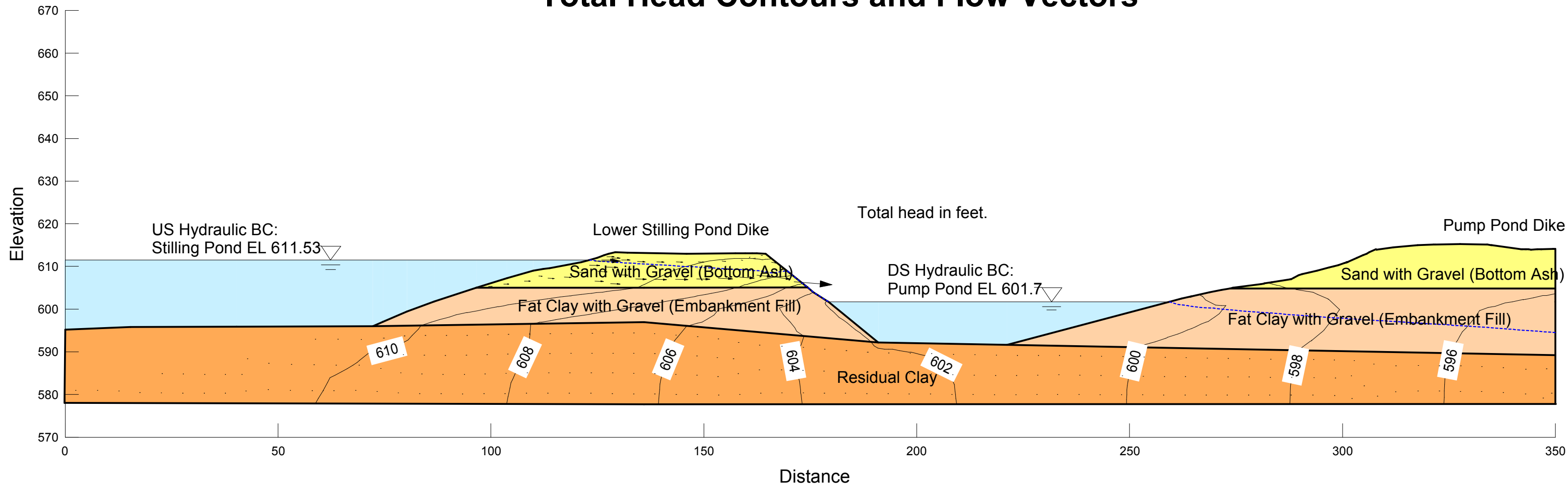
Widows Creek Ash Pond Section S - Lower Stilling Pond Finite Element Mesh



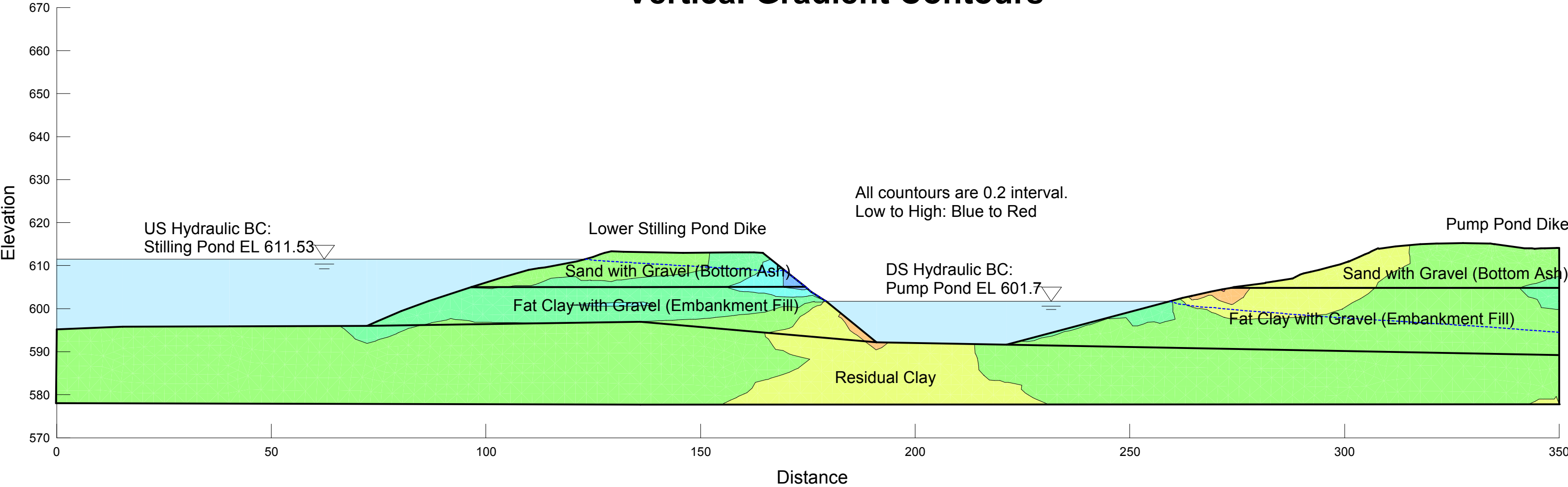
Widows Creek Ash Pond Section S - Lower Stilling Pond Pore Water Pressure Contours



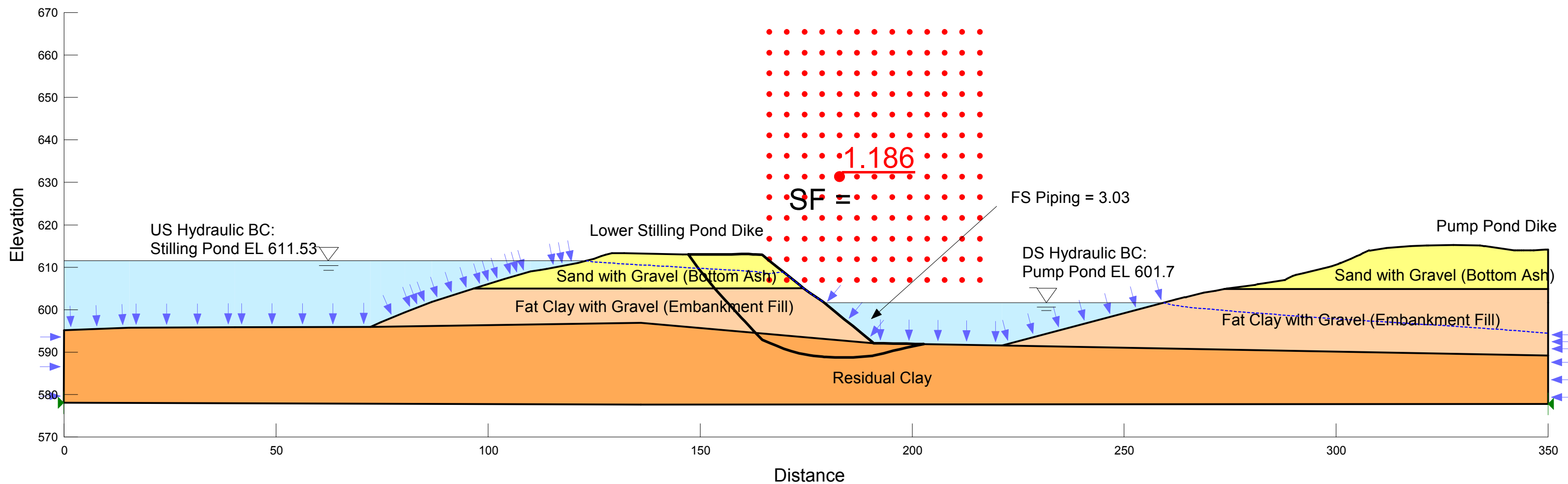
Widows Creek Ash Pond Section S - Lower Stilling Pond Total Head Contours and Flow Vectors



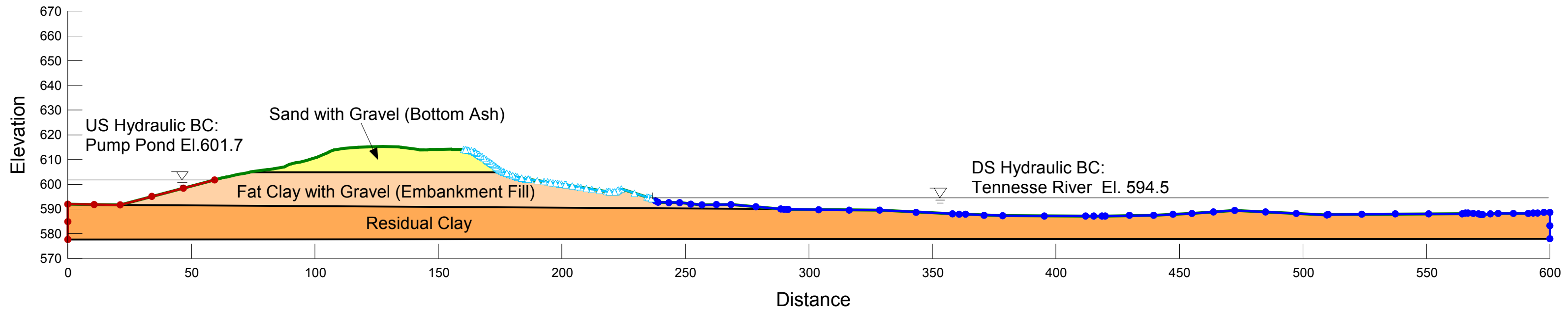
Widows Creek Ash Pond Section S - Lower Stilling Pond Vertical Gradient Contours



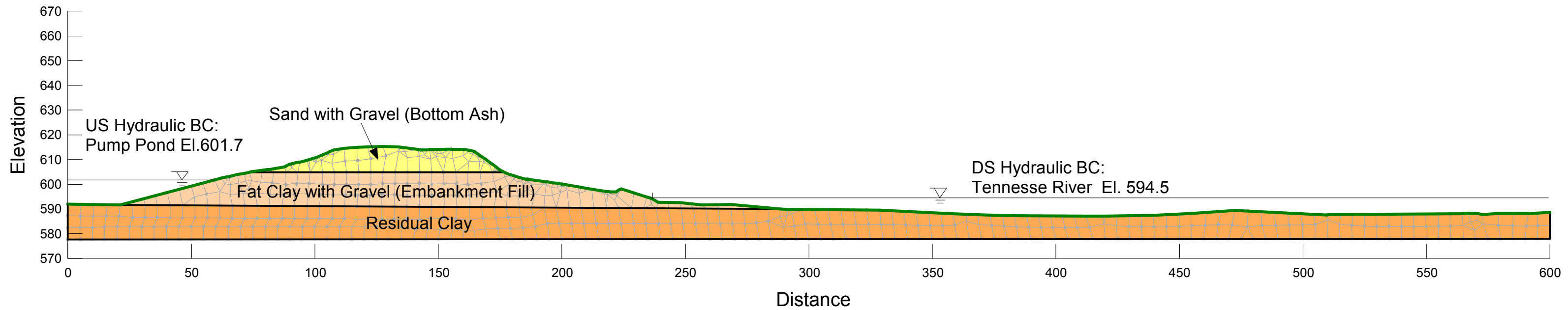
Widows Creek Ash Pond Section S - Lower Stilling Pond Slope Stability



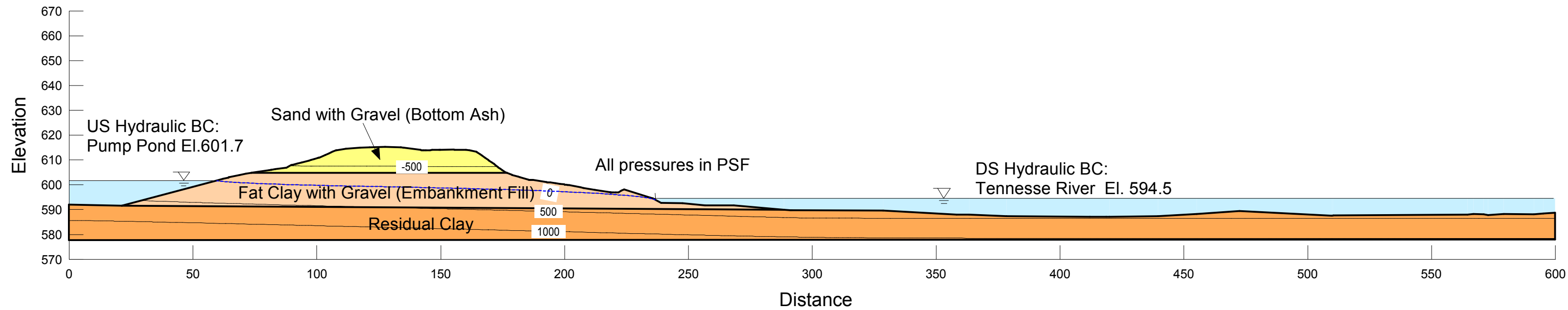
Widows Creek Ash Pond Section T - Pump Pond Subsurface Profile and Boundary Conditions



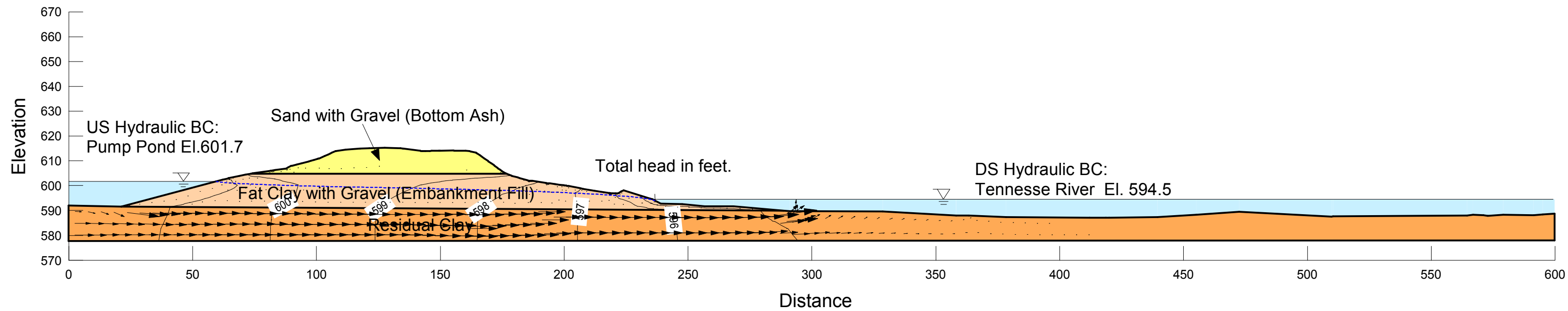
Widows Creek Ash Pond Section T - Pump Pond Finite Element Mesh



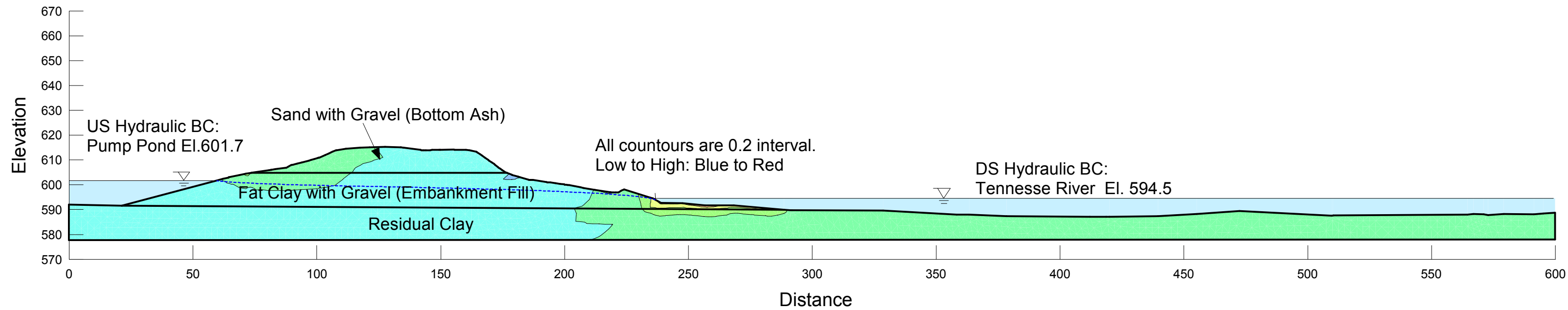
Widows Creek Ash Pond Section T - Pump Pond Pore Water Pressure Contours



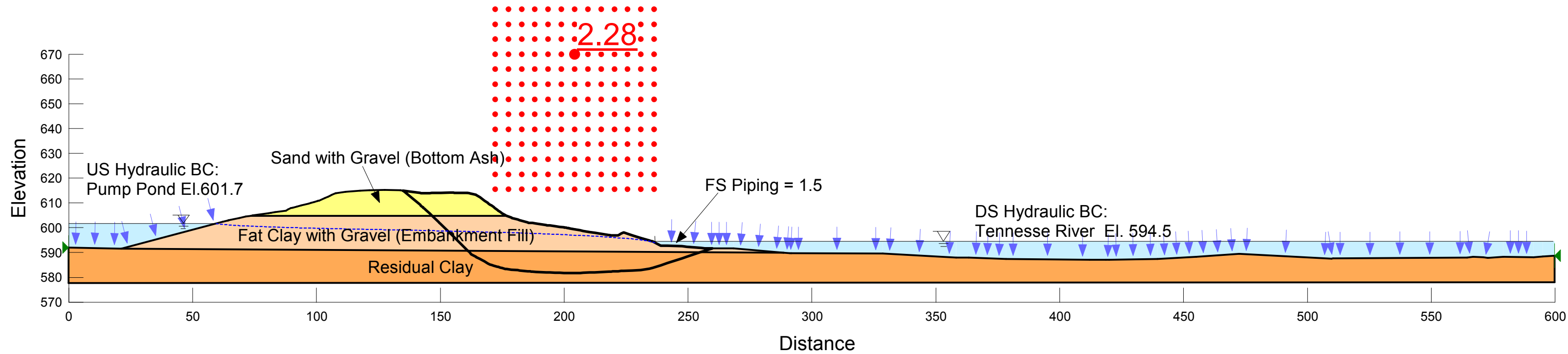
Widows Creek Ash Pond Section T - Pump Pond Total Head Contours and Flow Vectors



Widows Creek Ash Pond Section T - Pump Pond Vertical Gradient Contours



Widows Creek Ash Pond Section T - Pump Pond Slope Stability



CPT Data Analysis Summary

The coefficient of consolidation in the horizontal direction (c_h) was determined using the chart proposed by Robertson et al. (1992). Robertson et al. (1992) had reviewed dissipation data from piezocone tests and compared these with values obtained in the lab or field. In order to use the chart proposed by Robertson et al. (1992) the time to reach U_{50} is determined in minutes. This value is a function of the pore pressure measured at the start of the dissipation test (Push pore pressure) and the location of the static groundwater table (hydrostatic pressure). In order to accurately predict the static groundwater level, piezometer data taken from the nearest piezometers was used. In some cases, the dissipation tests were run long enough for the to reach hydrostatic pressure. When this occurred, the depth to the groundwater table was determined using the hydrostatic pressure measured during the dissipation test. The time to reach U_{50} (t_{50}) was then determined and used to determine c_h . It should be noted that the chart provided by Robertson et al. (1992) provides an upper and lower bound for c_h values. As such the c_h value presented on the graph is the average of the upper and lower bound c_h values determined using the chart.

The hydraulic conductivity in the horizontal direction (k_h) is determined in a similar fashion using the chart proposed by Robertson et al. (1992). Once again, a lower and upper value of k_h is determined using t_{50} , and an average k_h value is presented. In this case, the relationship between k_h values in laboratory and field tests, and t_{50} is not as good as that observed between c_h and t_{50} . This is reflected in the difference in k_h estimates (which is approximately 1.5 orders of magnitude). As such it is typically recommended that the k_h values obtained from dissipation tests be only used as a guide.

Soil parameters (angle of friction, N_{60} , and s_u) were determined using empirical correlations provided in the literature (and as presented by Lunne et al. 1997). These empirical relationships were determined using various natural soils. It should be noted that bottom ash and fly ash were not part of the data sets used to determine these relationships. As such these values should be used as a guide until enough empirical data can be used to verify that these relationships apply for bottom ash and fly ash.

Robertson, P.K., Sully, J.P., Woeller, D.J., Lunne, T., Powell, J.J.M., and Gillespie, D.G. (1992b) "Estimating coefficient of consolidation from piezocone tests" Canadian Geotechnical Journal, 29 (4), 551-557

Robertson, P.K., Woeller, D.J., and Finn, W.D.L. (1992) "Seismic cone penetration test for evaluating liquefaction potential under cyclic loading" Canadian Geotechnical Journal, 29 (4), 686-695

Lunne, T., Robertson, P.K., and Powell, J.J.M. (1997) "Cone Penetration Testing in Geotechnical Engineering", E&FN Spon, New York, NY



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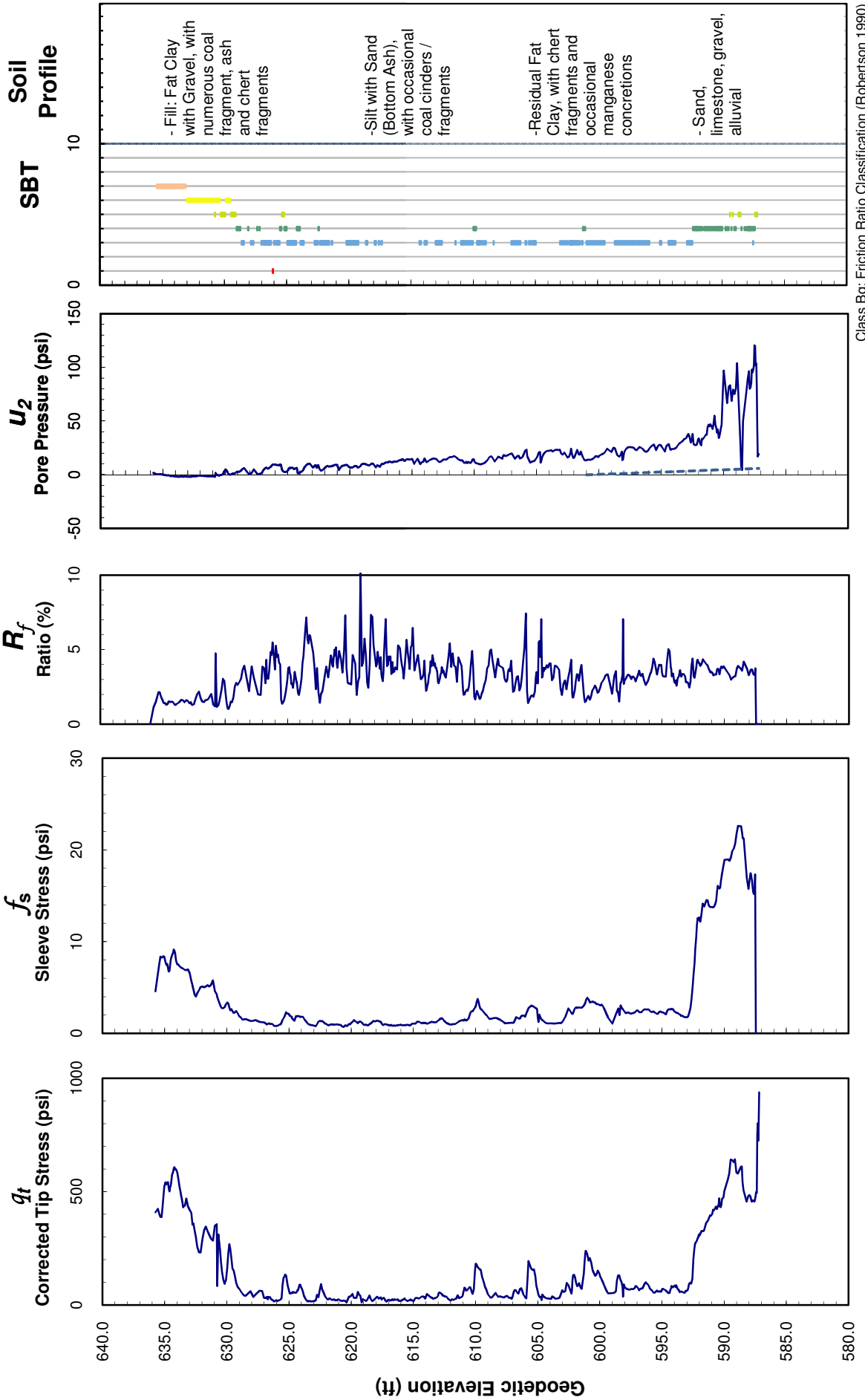
Elevation: 636.60 ft
 SCPTu Start Elevation: 636.60 ft
 Groundwater Elevation: 601.60 ft

Client: TVA

Project: Widows Creek Main Ash Pond

Test Date: June 10, 2009
 Project No. 175569036

CPT1



Class Bq: Friction Ratio Classification (Robertson 1990)

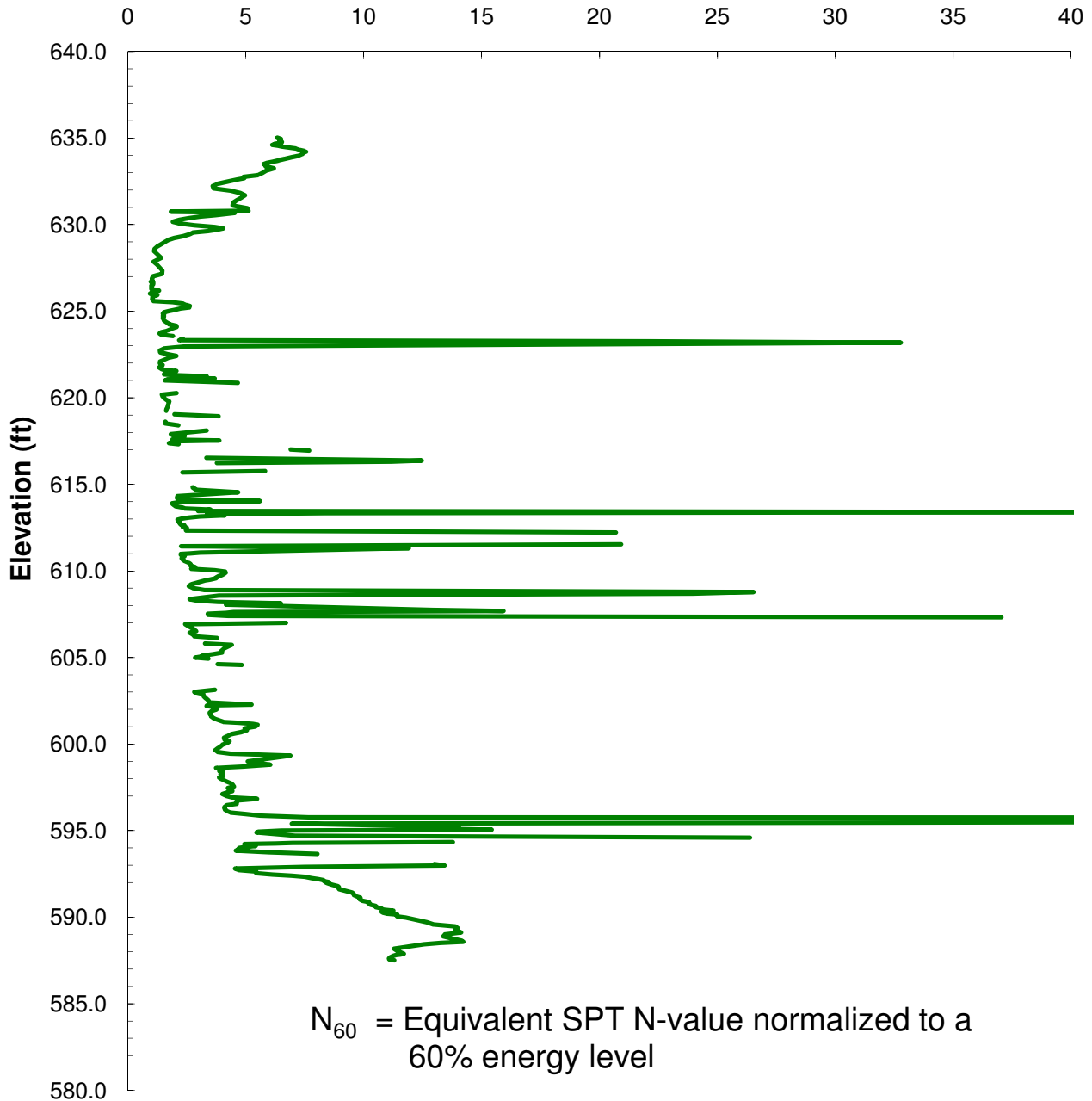


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SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



The correlation from SCPTu data to equivalent SPT N_{60} values is based on the Jefferies and Davies (1993) approach.

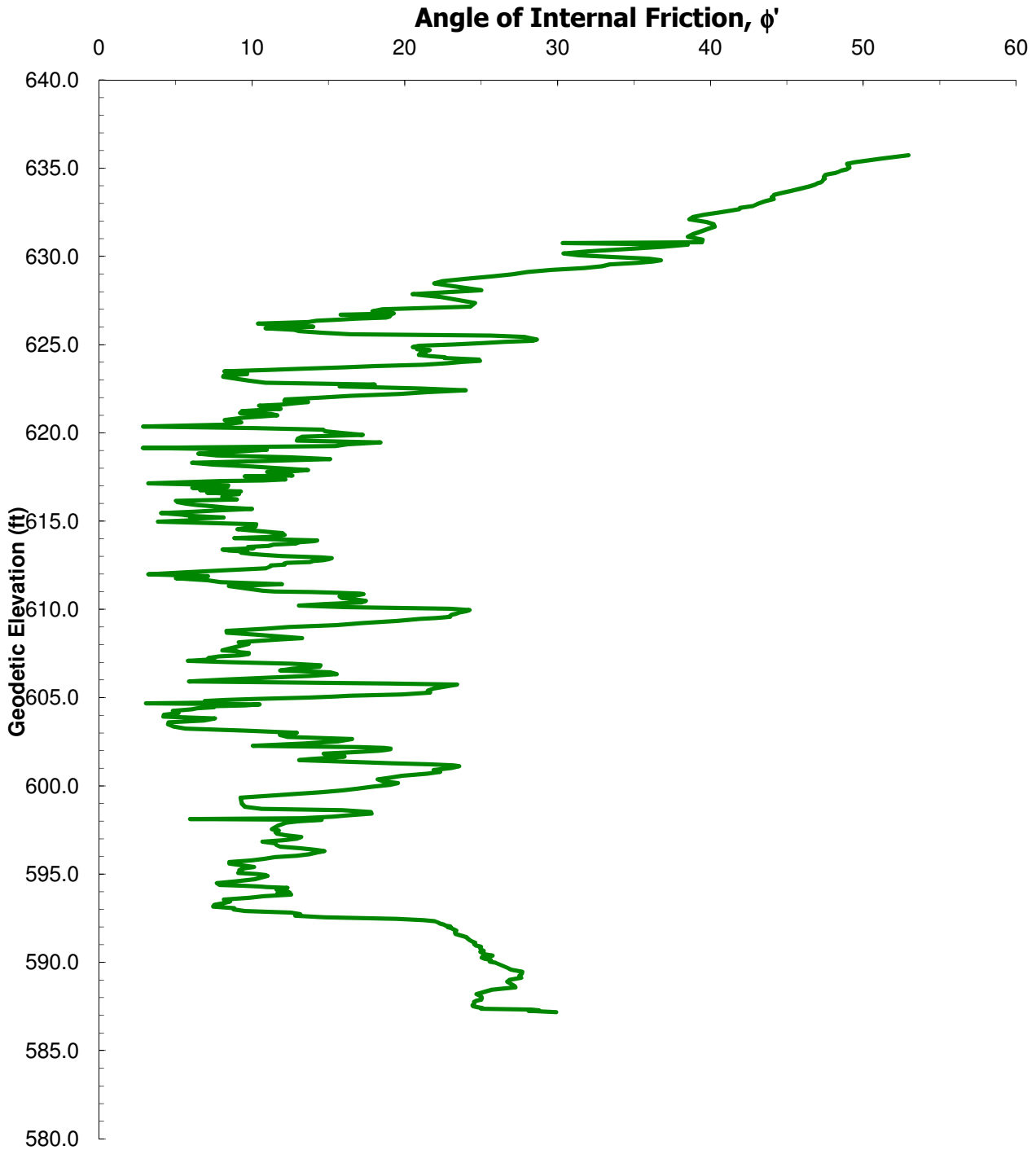
Project No. 175569036
CPT1



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SCPTu RESULTS

Effective Angle of Internal Friction



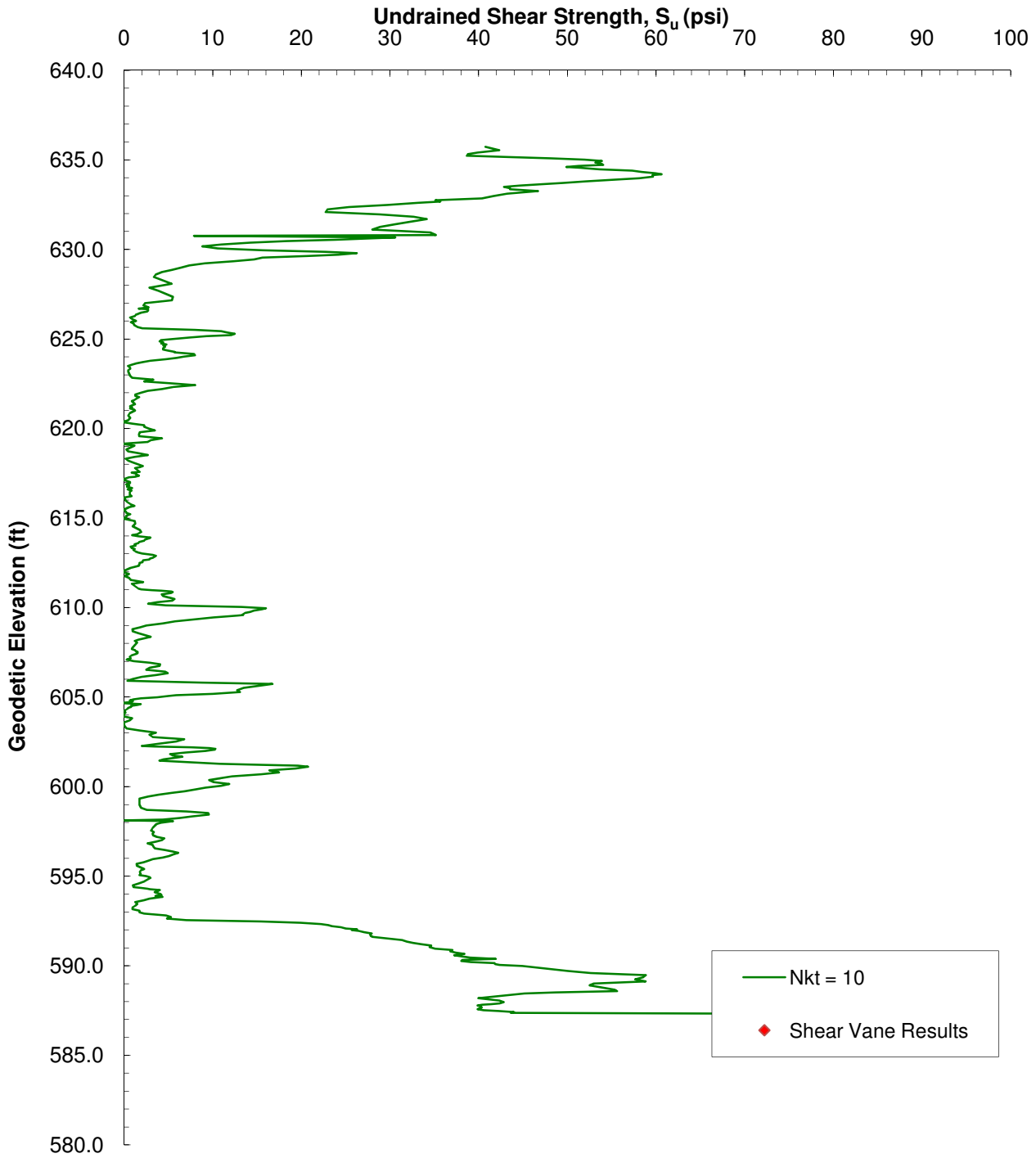
Project No. 175569036
CPT1



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SCPT_u RESULTS

Undrained Shear Strength, S_u



Project No. 175569036
CPT1

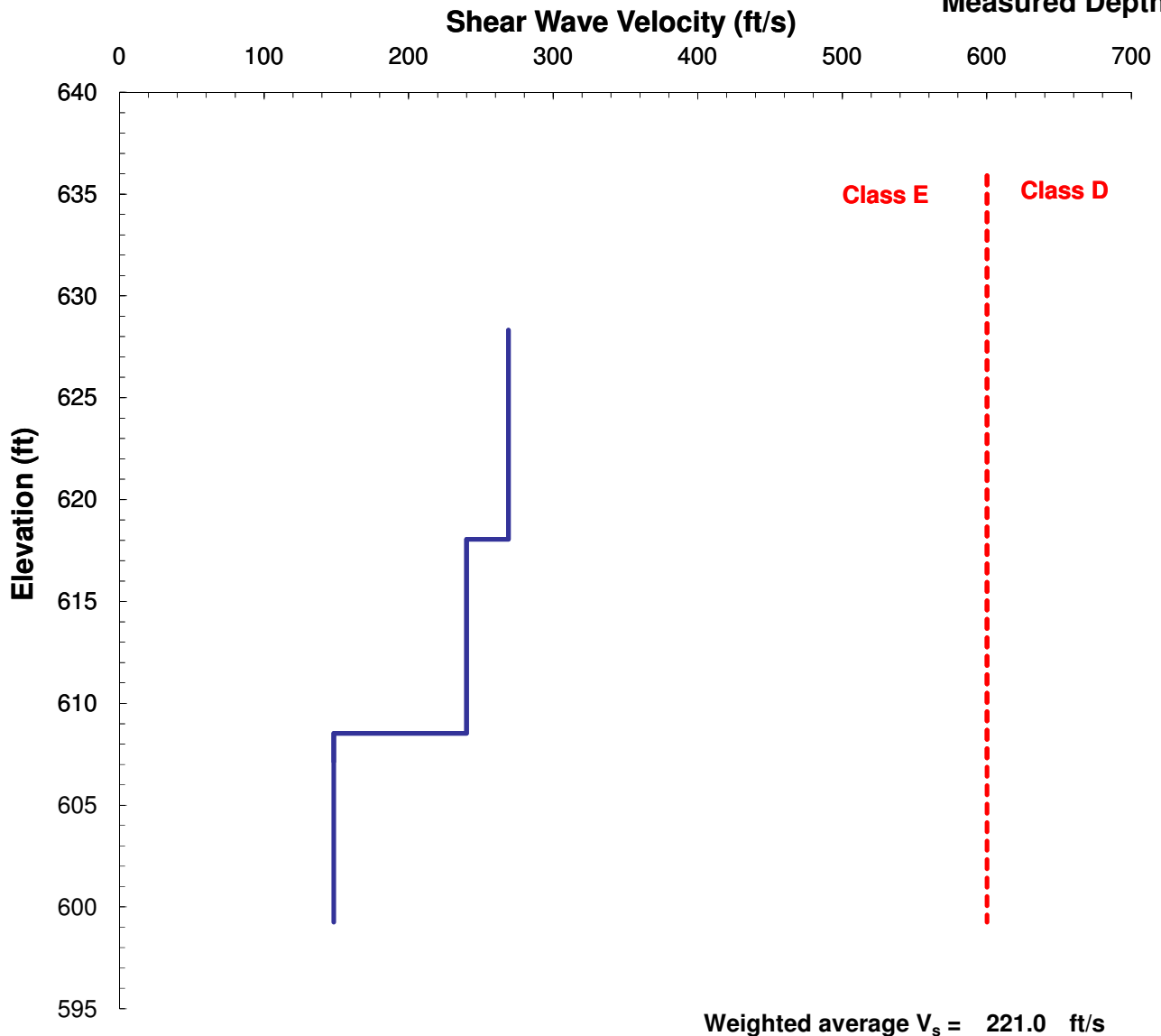


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SHEAR WAVE VELOCITY

Incremental Between Measured Depths



Shear Wave Velocity, V_s

- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
- The shear wave velocity at specific depths is measured by inducing a shear wave at surface and measuring the arrival time of the wave at depth.
- The incremental V_s values were calculated as

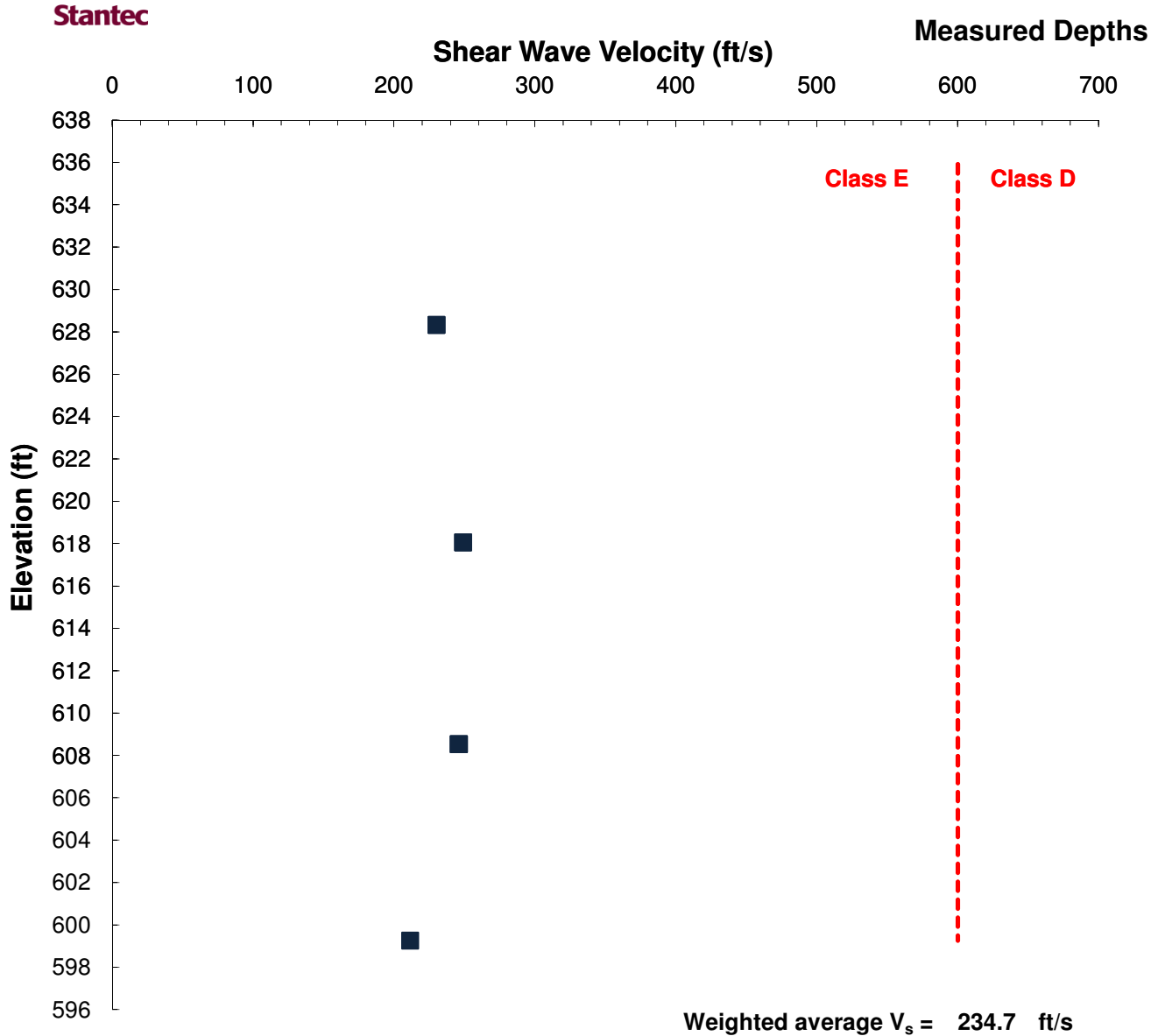
$$V_s = \frac{L_2 - L_1}{t_2 - t_1}$$

where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.

Project No. 175569036

CPT1

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Shear Wave Velocity, V_s

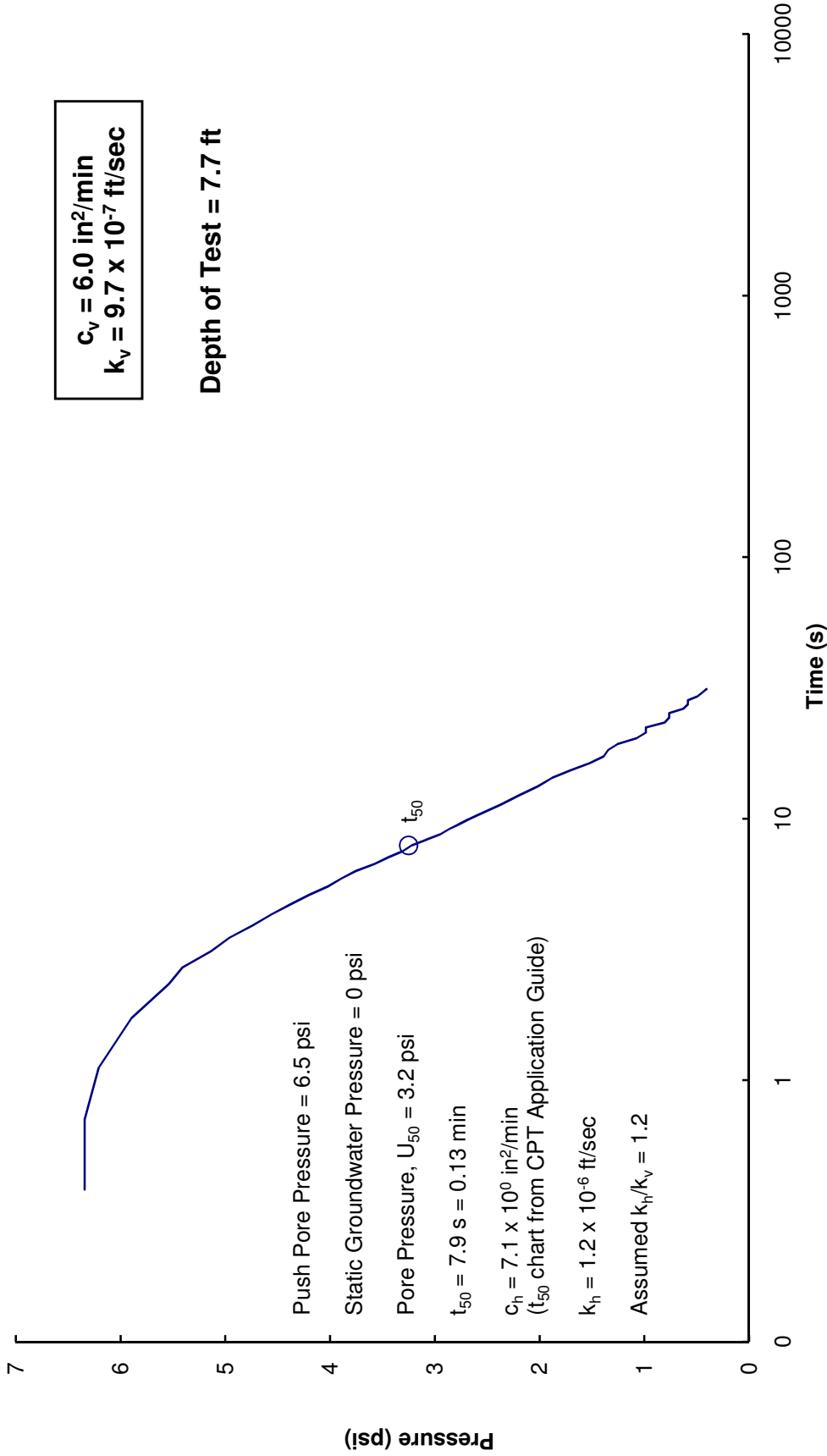
- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
- The shear wave velocity at specific depths is measured by inducing a shear wave at surface and measuring the arrival time of the wave at depth.



**Stantec Consulting
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SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



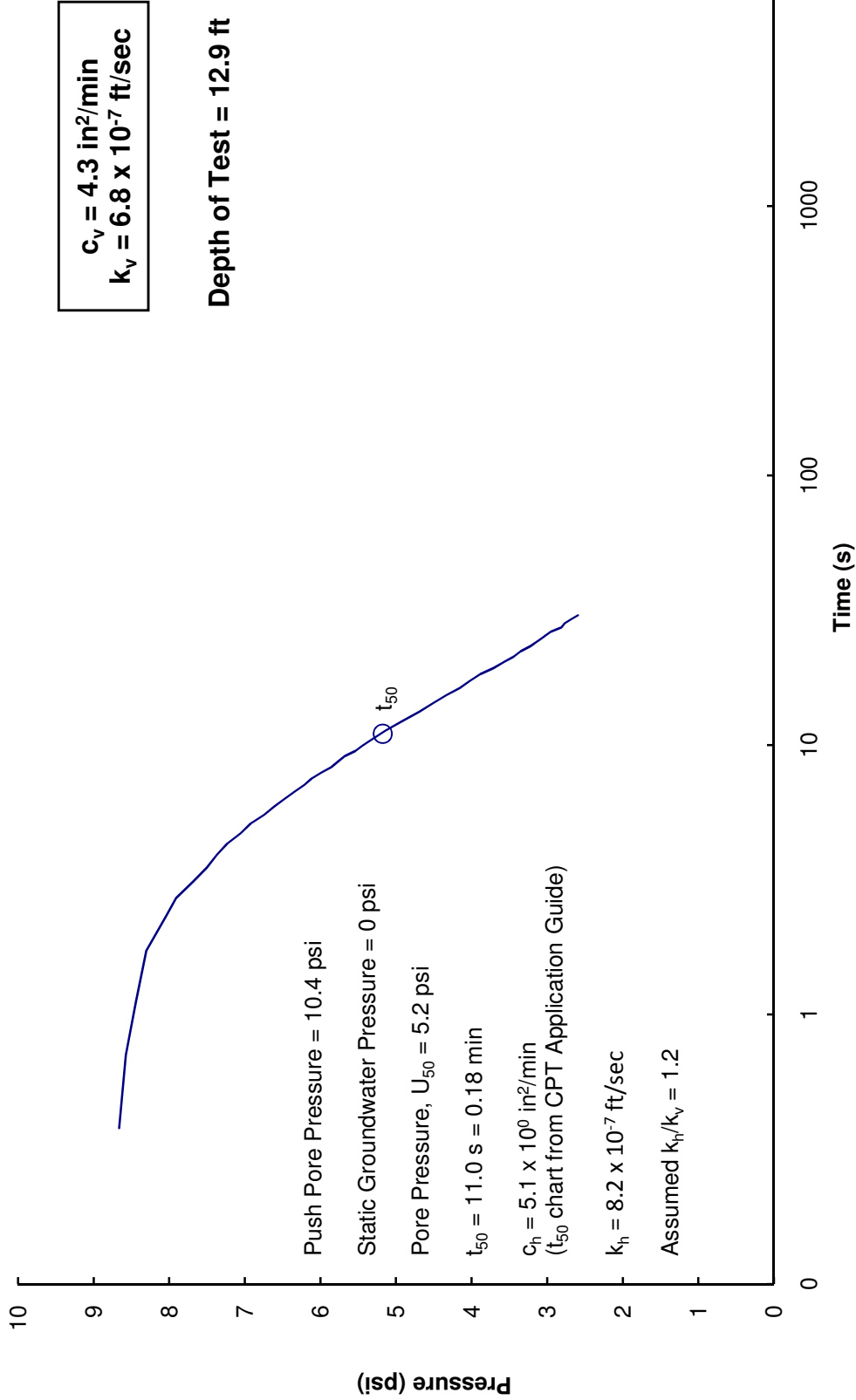
Project No. 175569036
CPT1



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



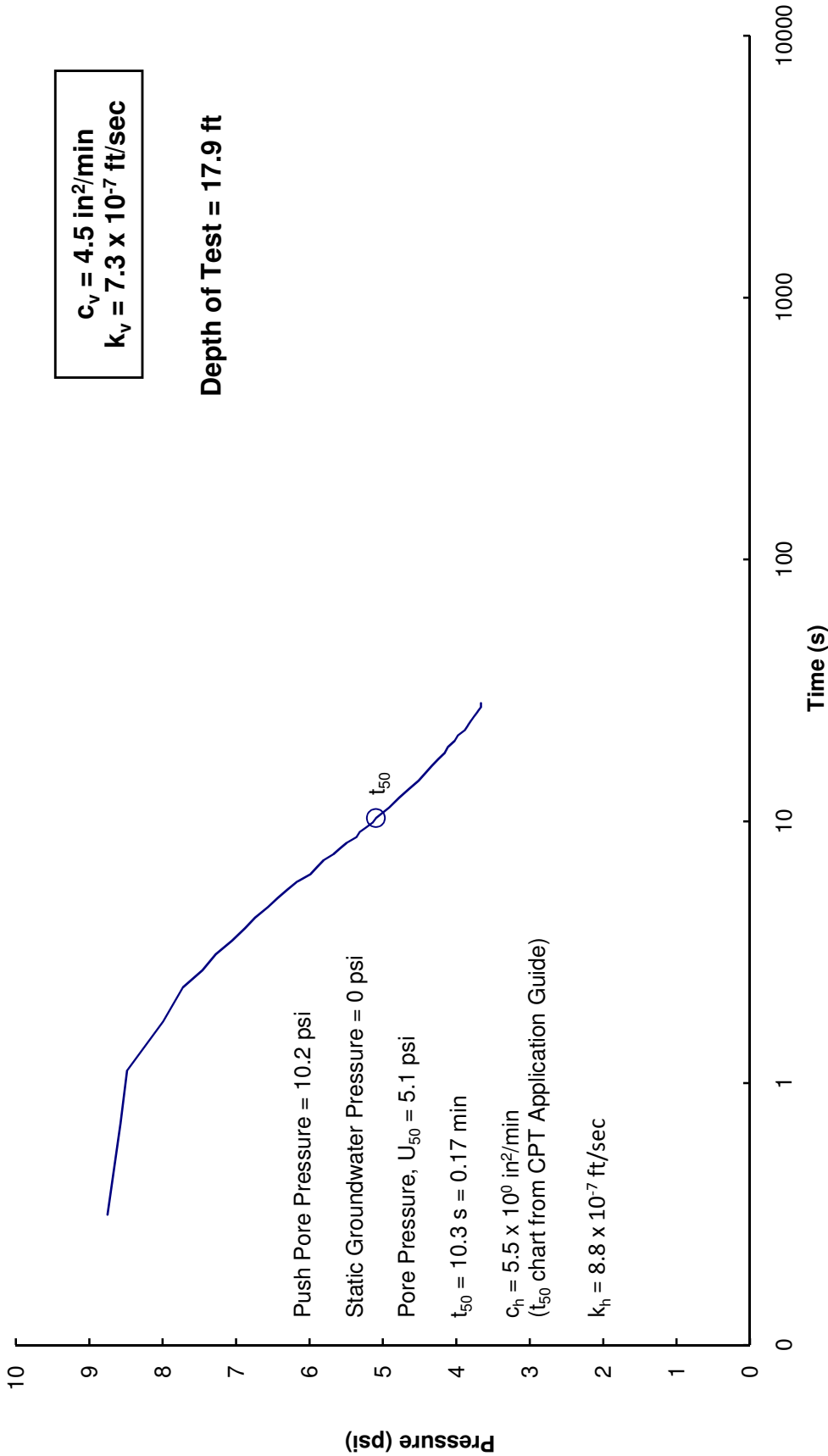
Project No. 175569036
CPT1



Stantec Consulting
Inc.

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



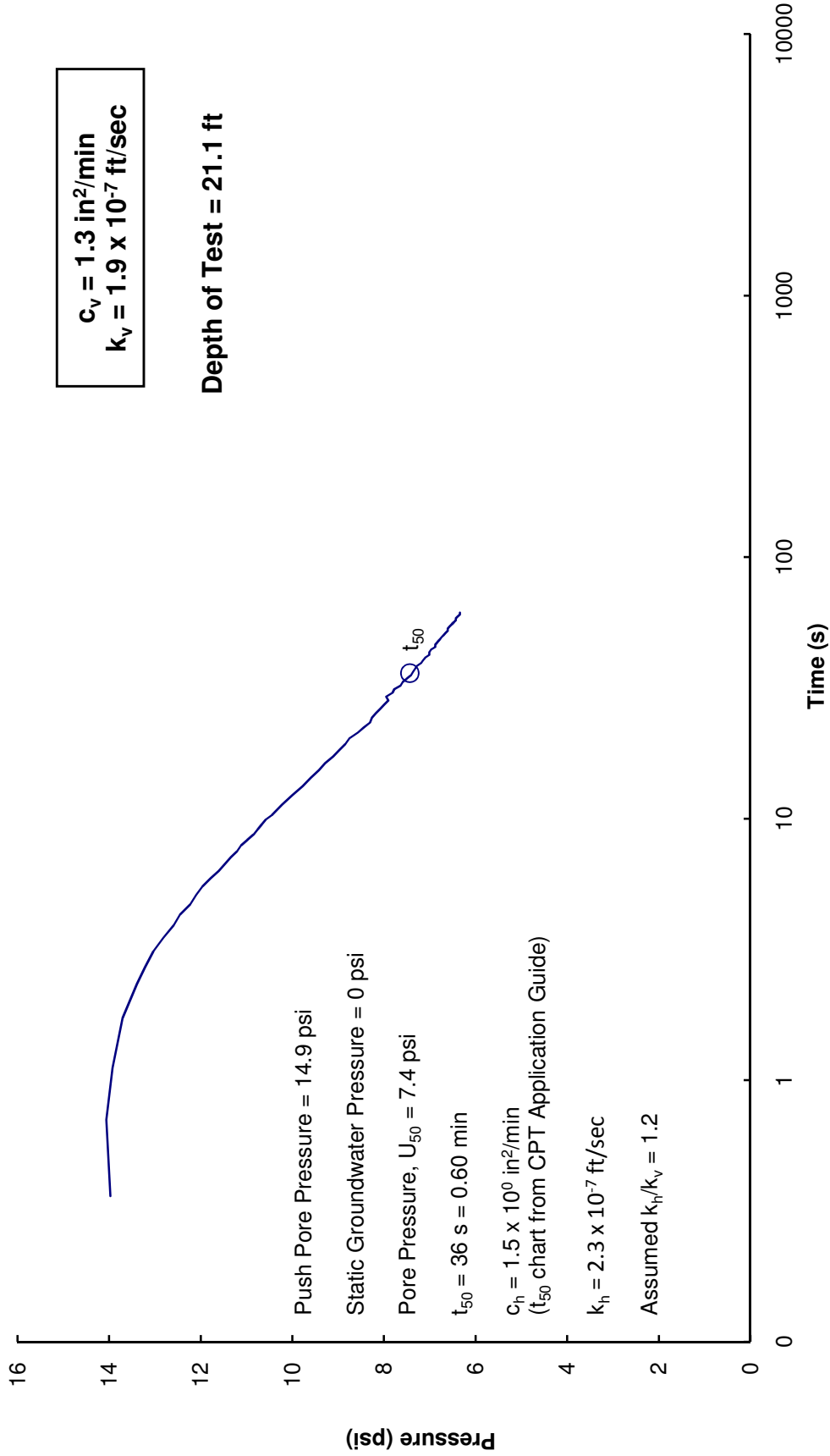
Project No. 175569036
CPT1



Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



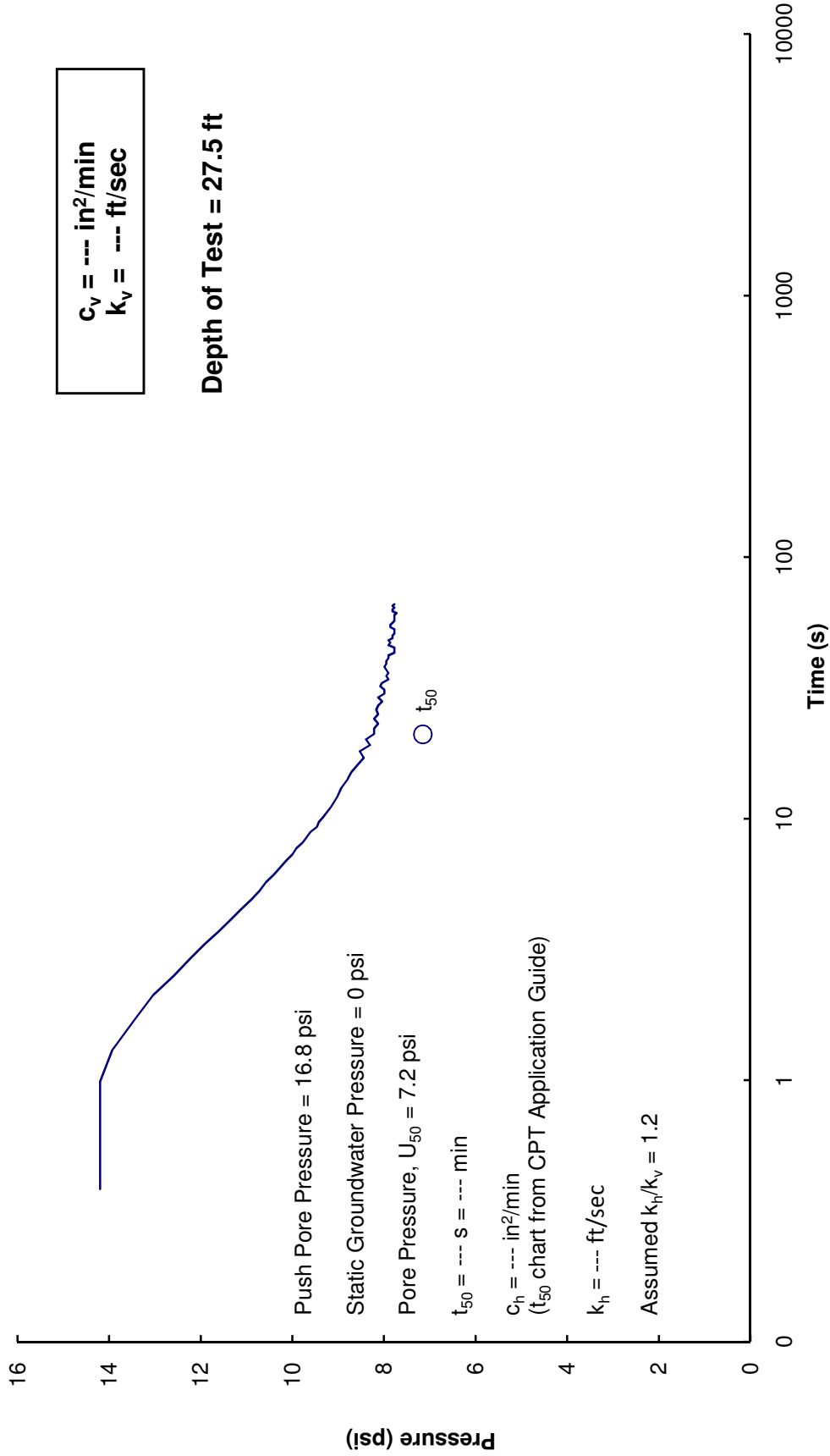
Project No. 175569036
CPT1



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT1

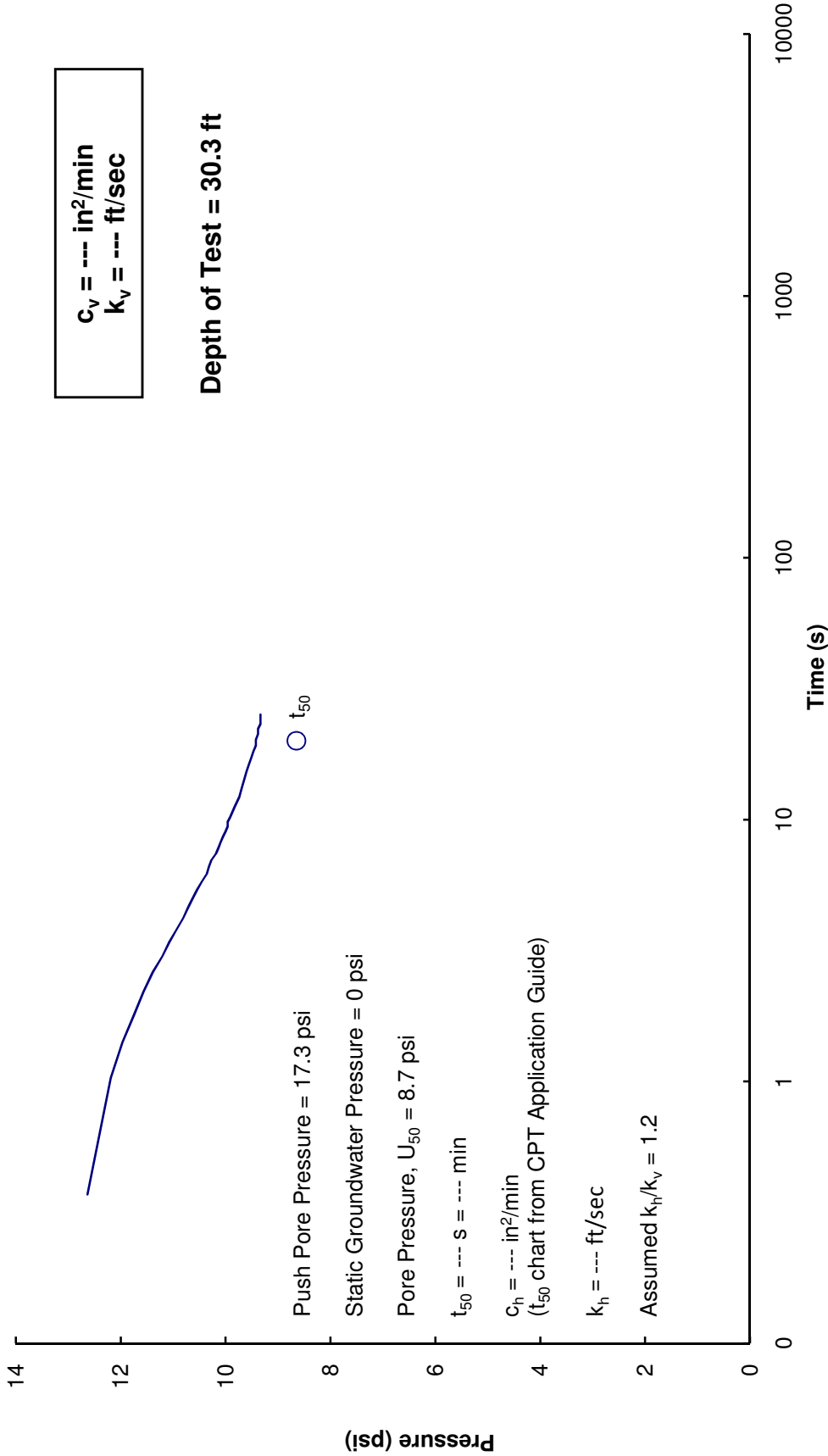


Stantec

**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



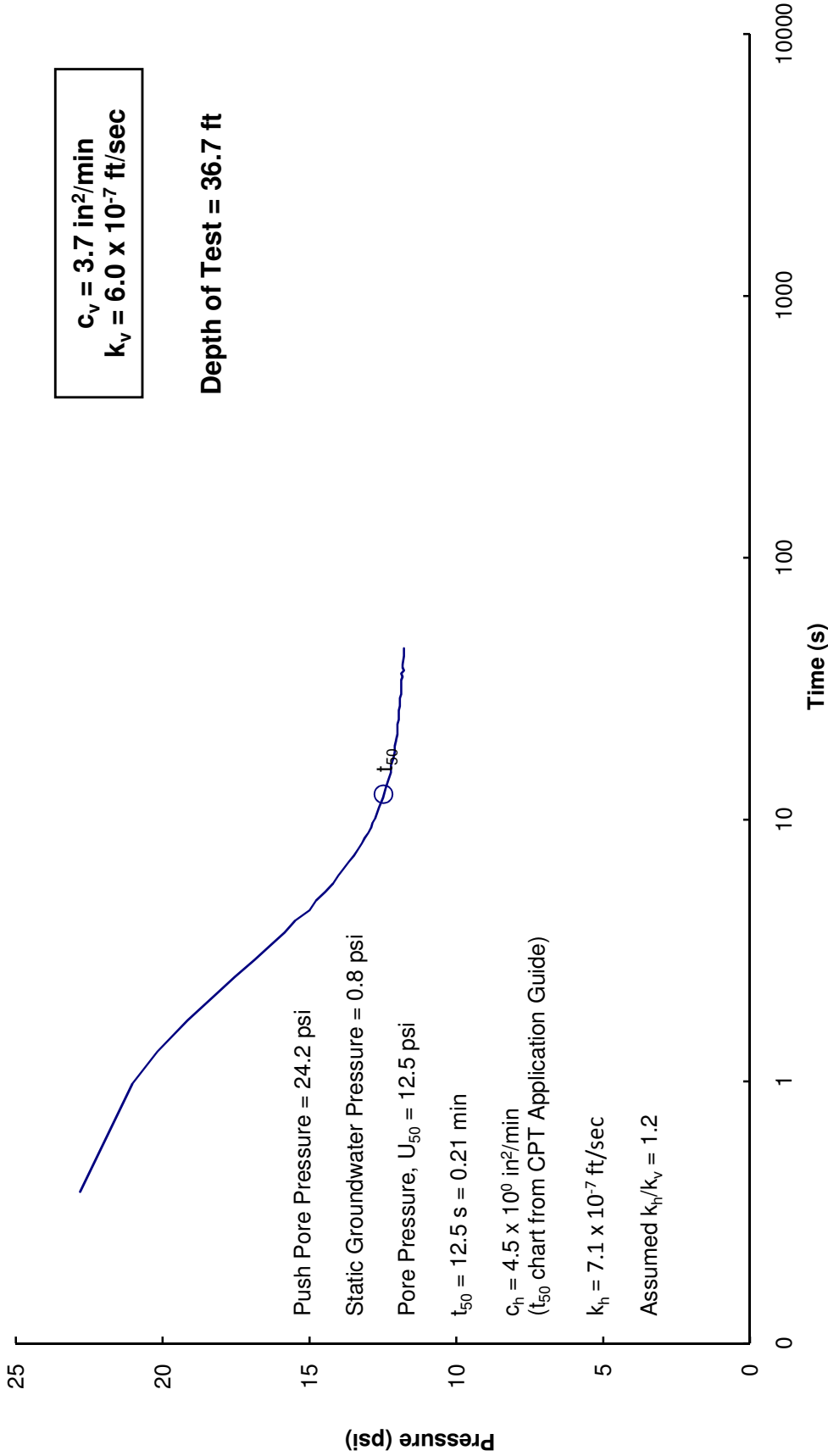
Project No. 175569036
CPT1



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



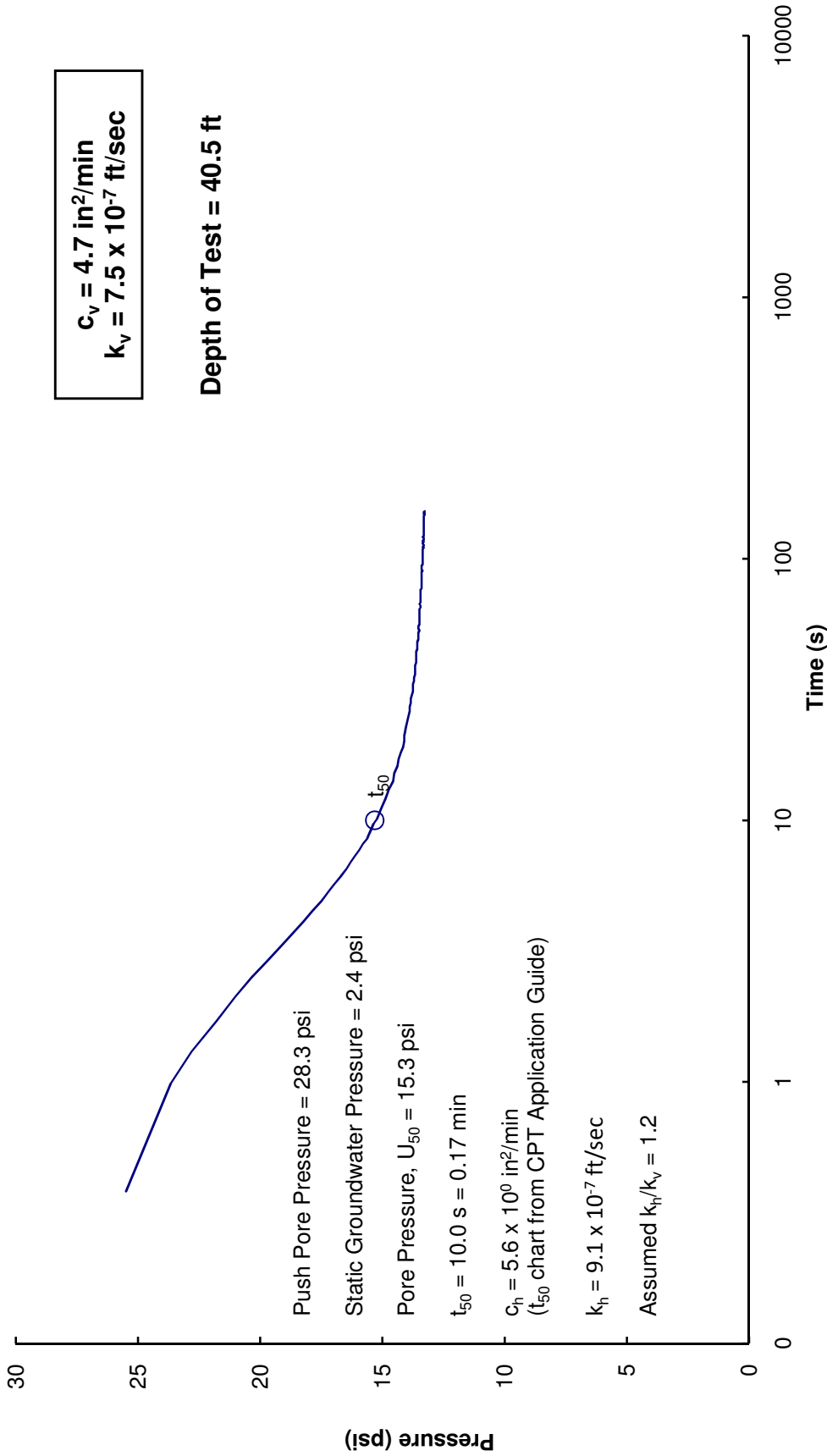
Project No. 175569036
CPT1



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



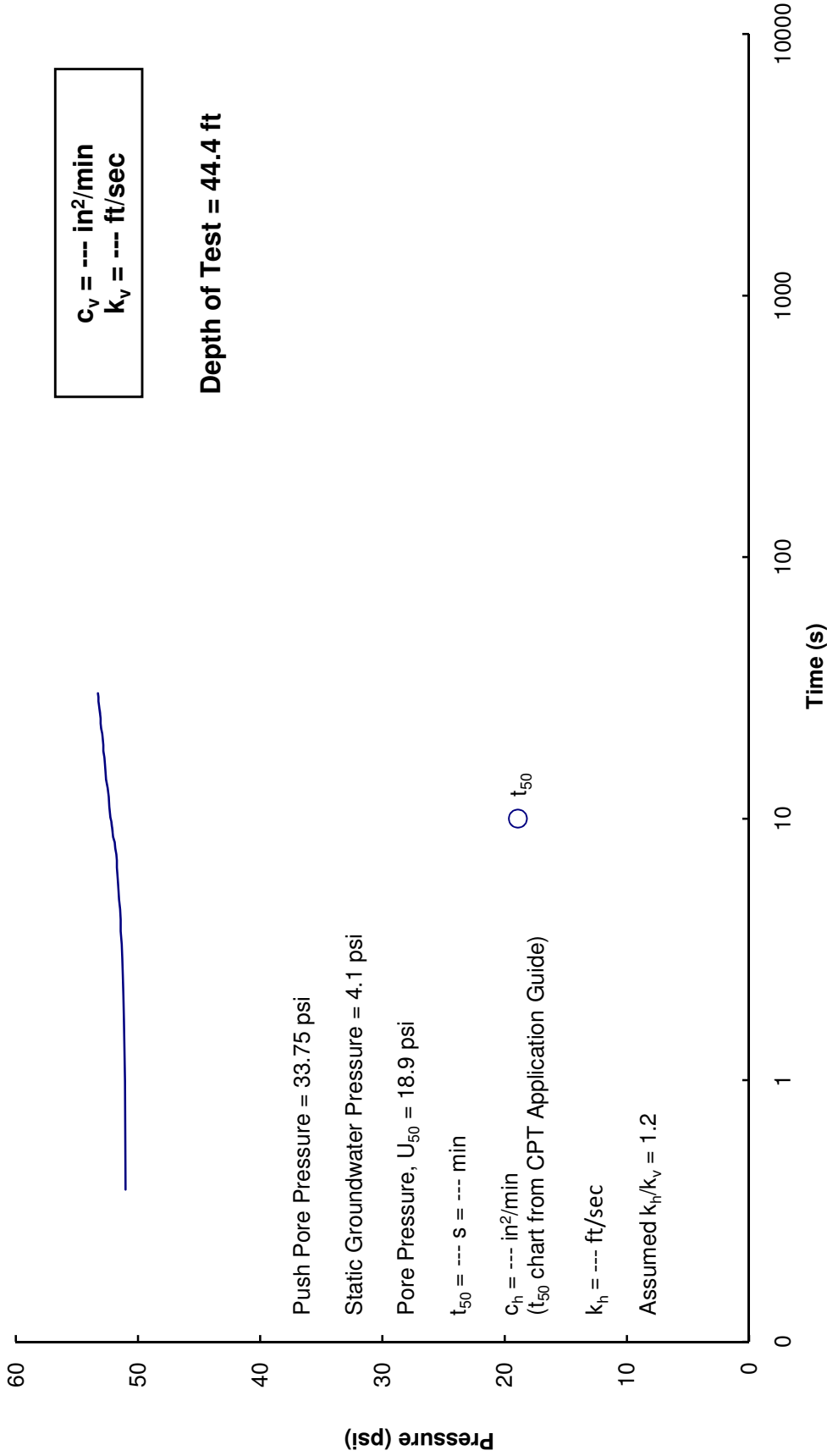
Project No. 175569036
CPT1



Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



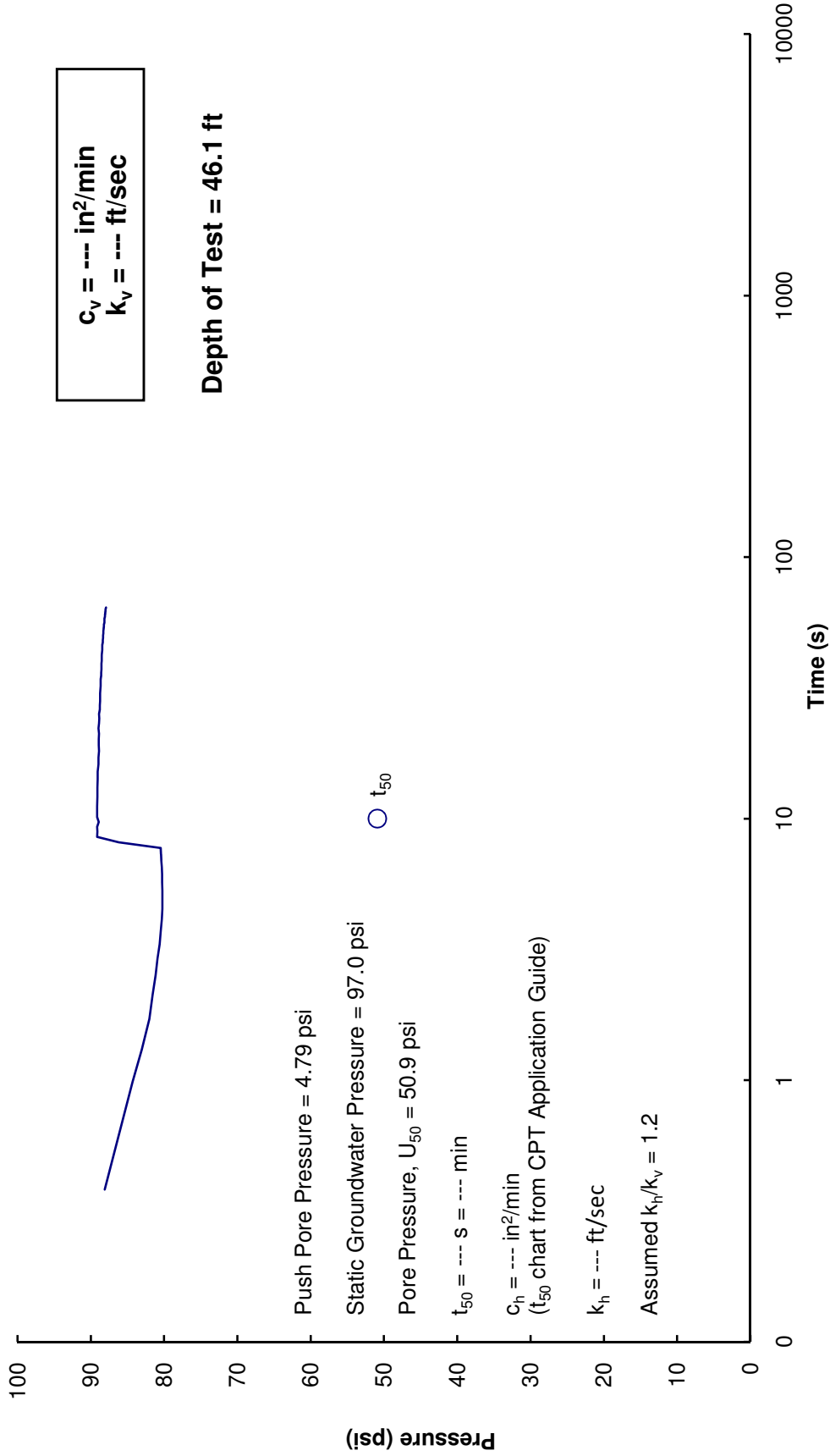
Project No. 175569036
CPT1



Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



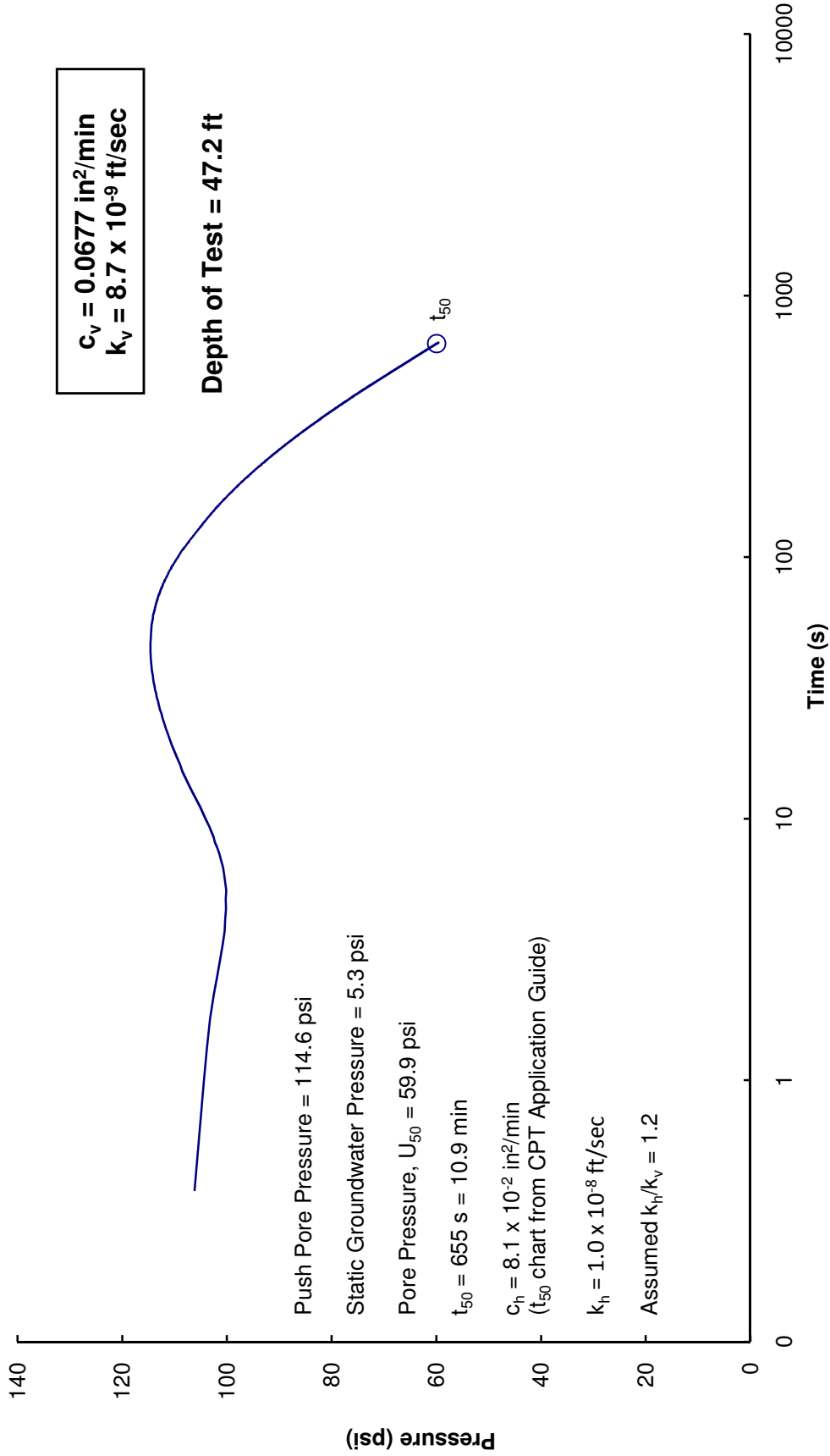
Project No. 175569036
CPT1



Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT1



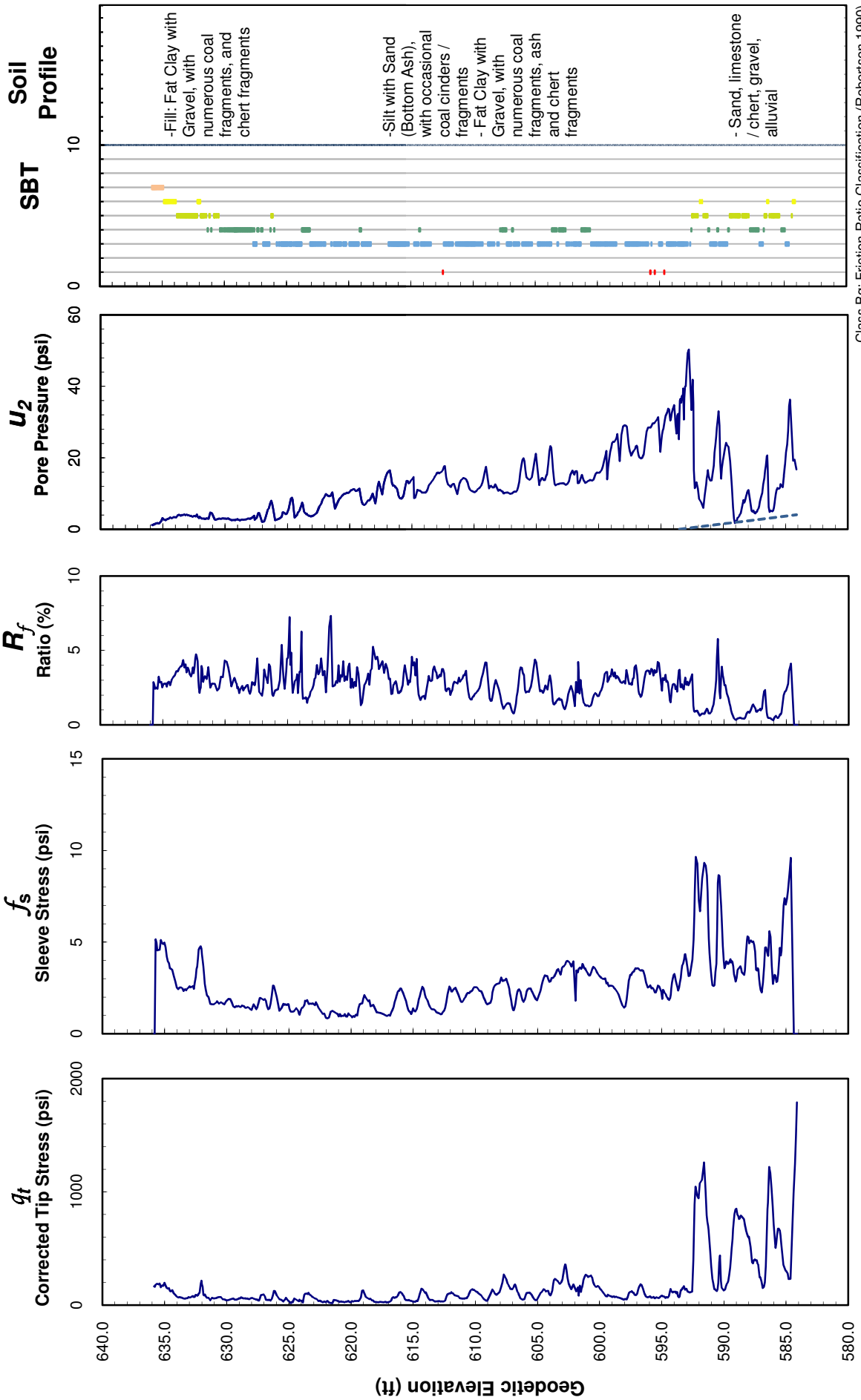
**Stantec Consulting
Inc.**

Stantec

Elevation: 636.70 ft
 SCPTu Start Elevation: 636.70 ft
 Groundwater Elevation: 594.20 ft
 Client: TVA
 Project: Widows Creek Main Ash Pond

Test Date: June 10, 2009
 Project No. 175569036

CPT2



Class Bq: Friction Ratio Classification (Robertson 1990)

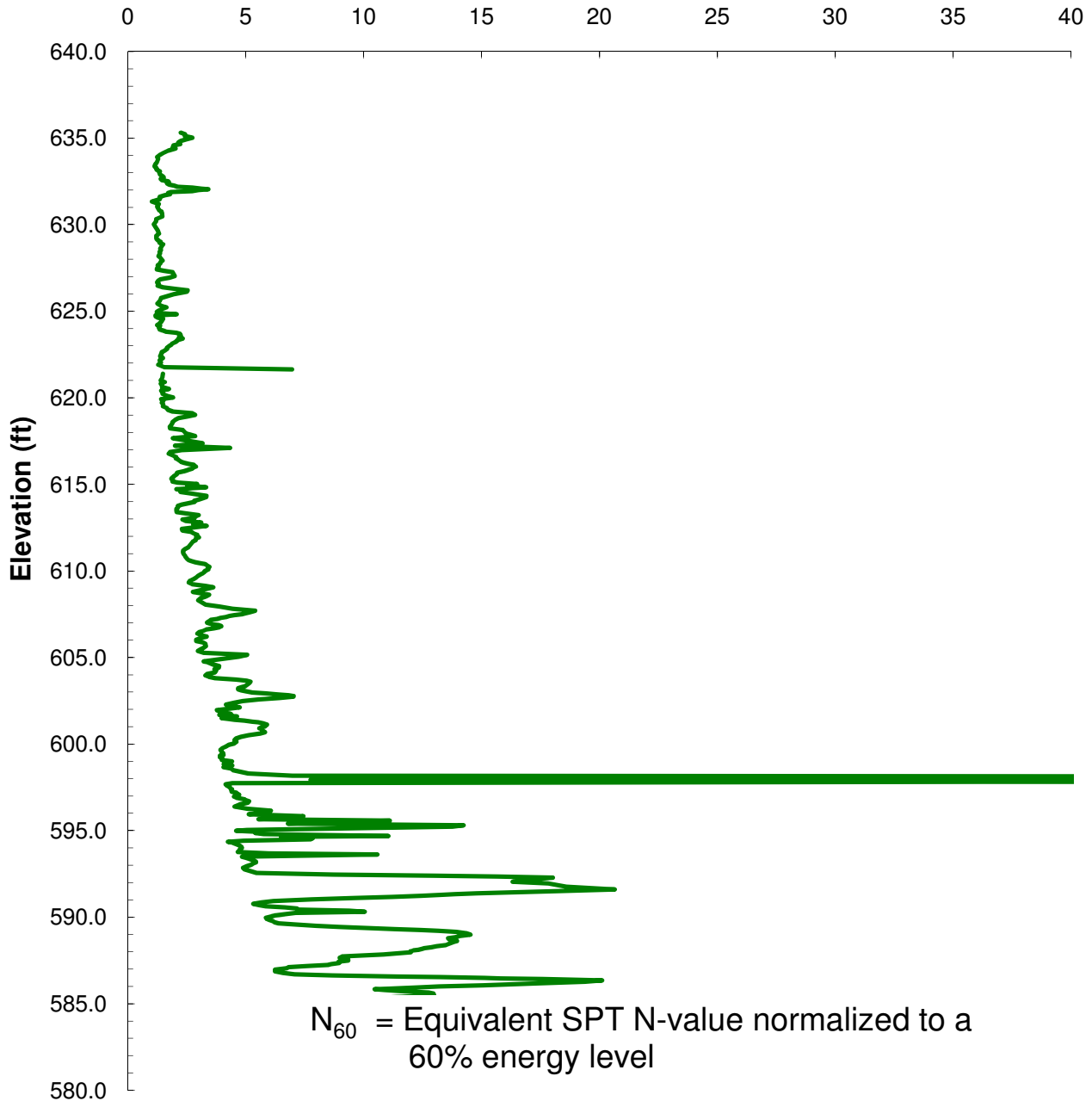


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



The correlation from SCPTu data to equivalent SPT N_{60} values is based on the Jefferies and Davies (1993) approach.

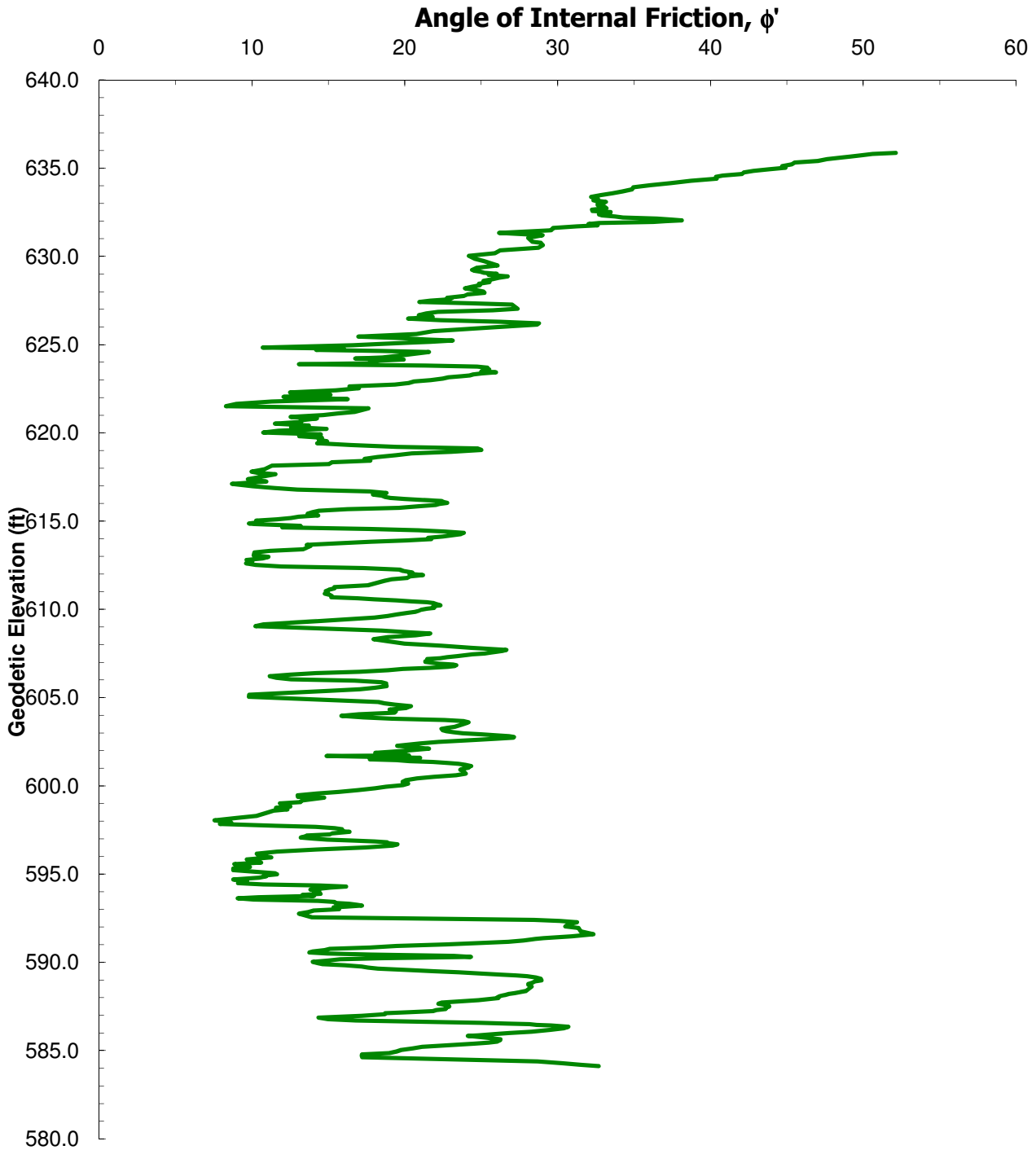
Project No. 175569036
CPT2



Stantec

SCPTu RESULTS

Effective Angle of Internal Friction



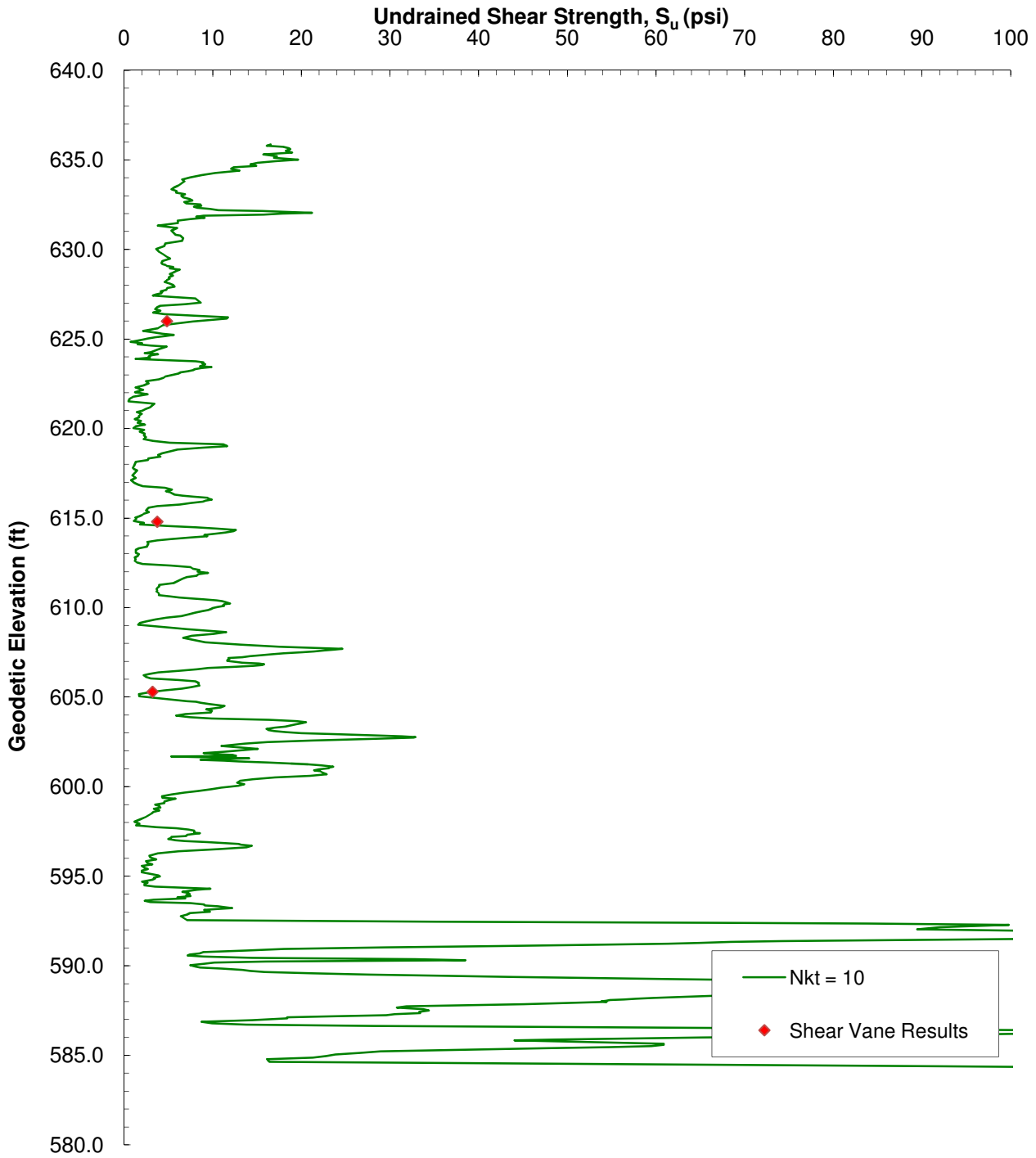
Project No. 175569036
CPT2



Stantec

SCPT_u RESULTS

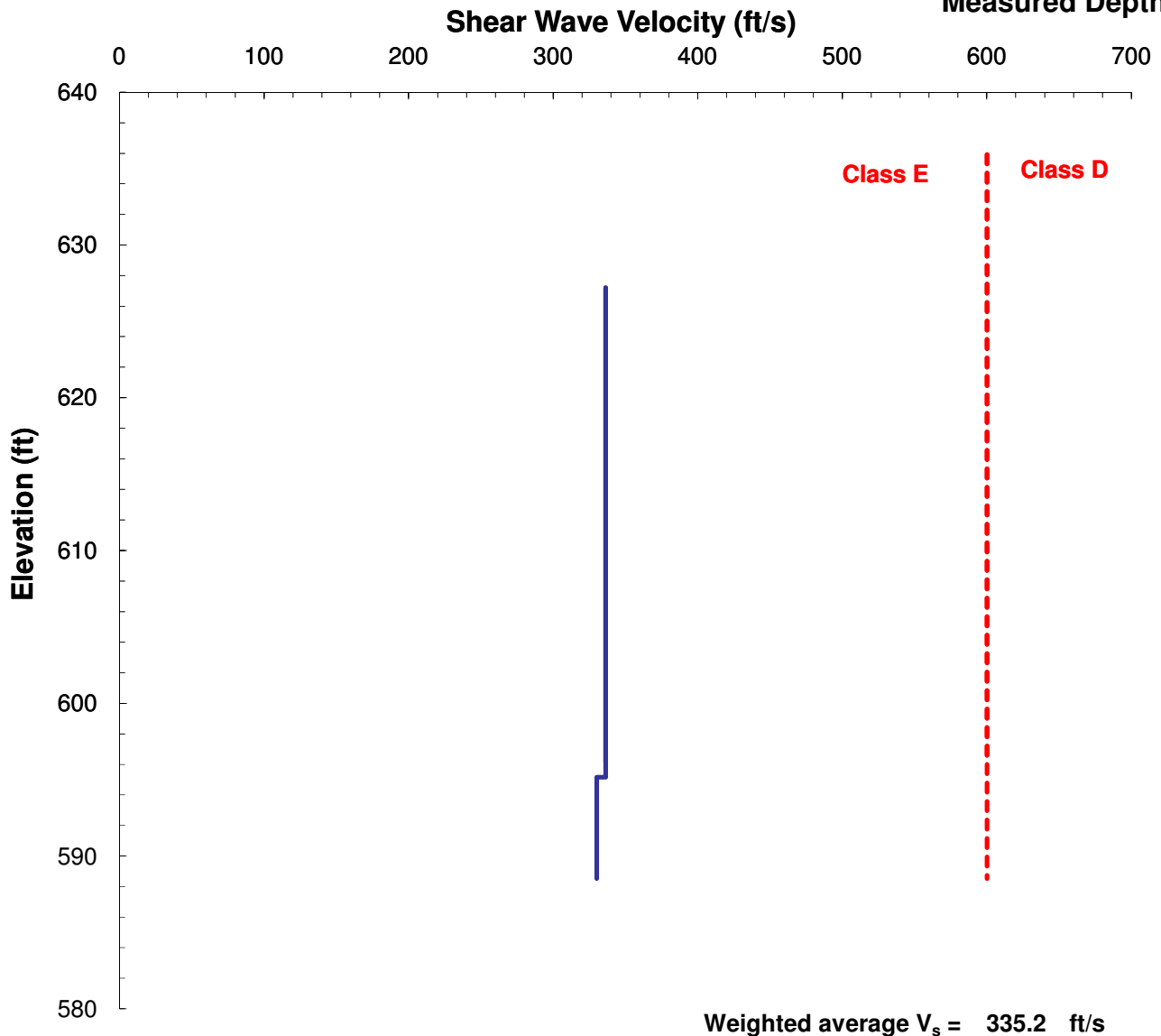
Undrained Shear Strength, S_u



Project No. 175569036
CPT2



Stantec

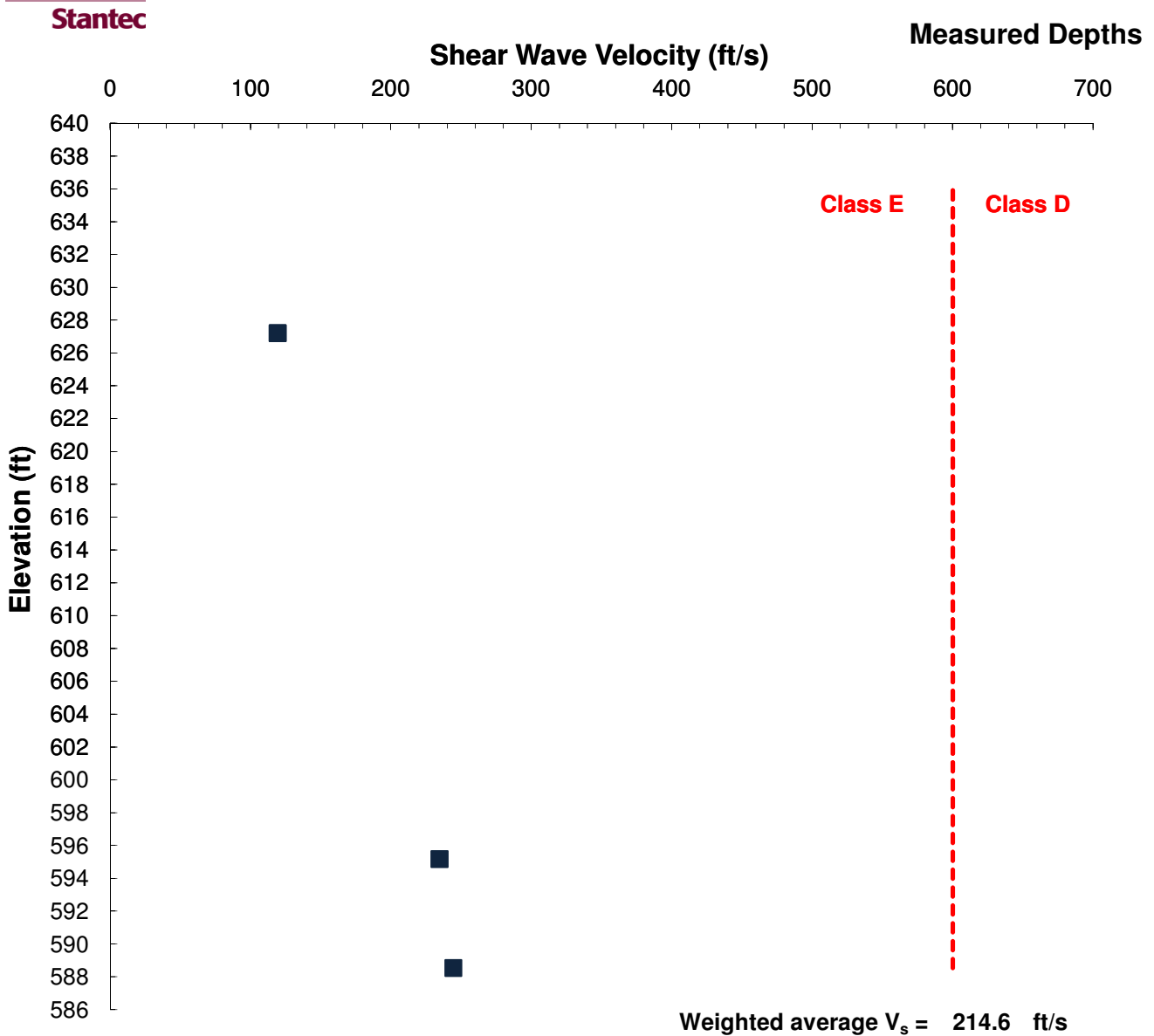


Shear Wave Velocity, V_s

- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
- The shear wave velocity at specific depths is measured by inducing a shear wave at surface and measuring the arrival time of the wave at depth.
- The incremental V_s values were calculated as

$$V_s = \frac{L_2 - L_1}{t_2 - t_1}$$

where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.



Shear Wave Velocity, V_s

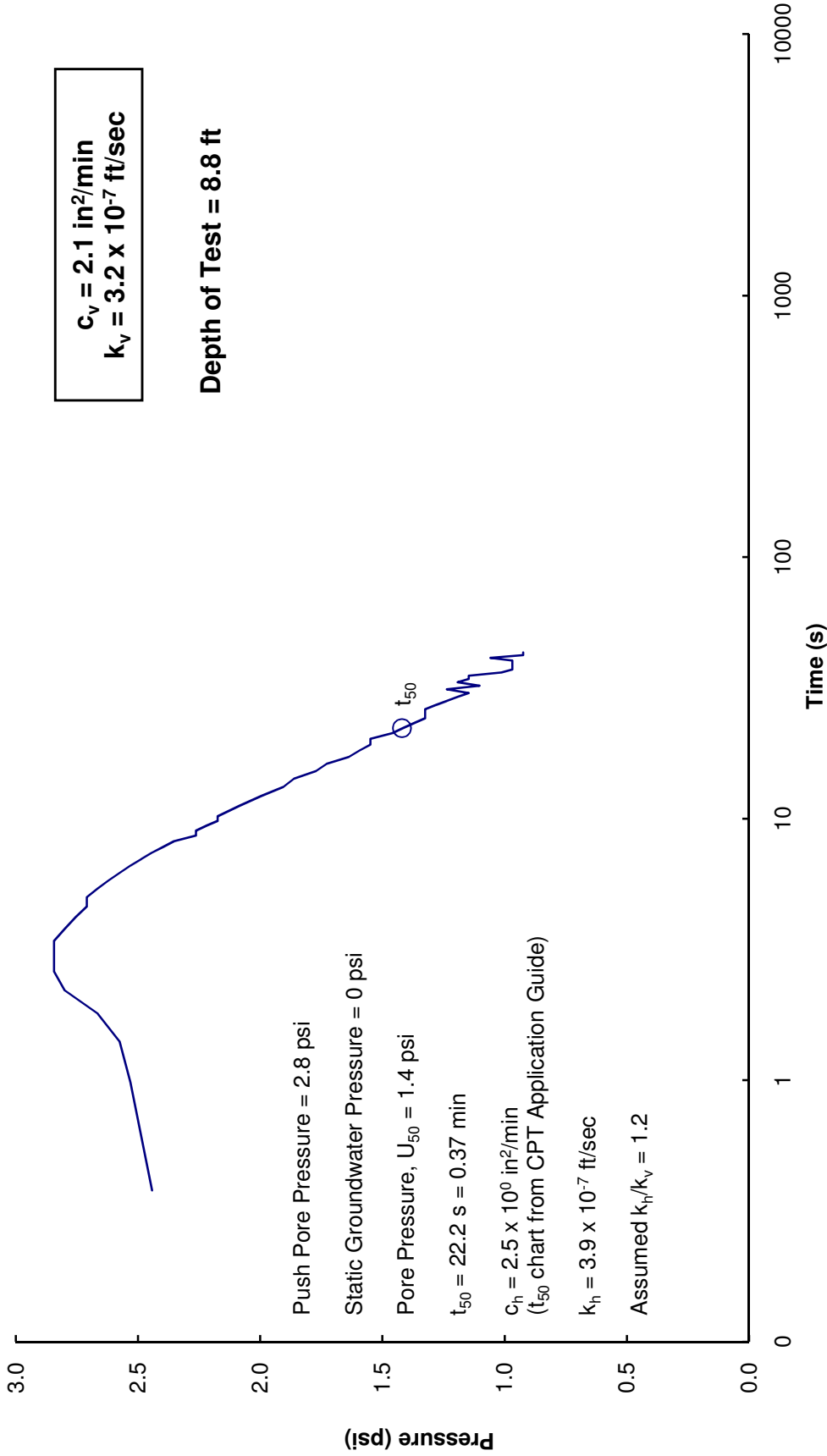
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- The shear wave velocity at specific depths is measured by inducing a shear wave at surface and measuring the arrival time of the wave at depth.



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SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



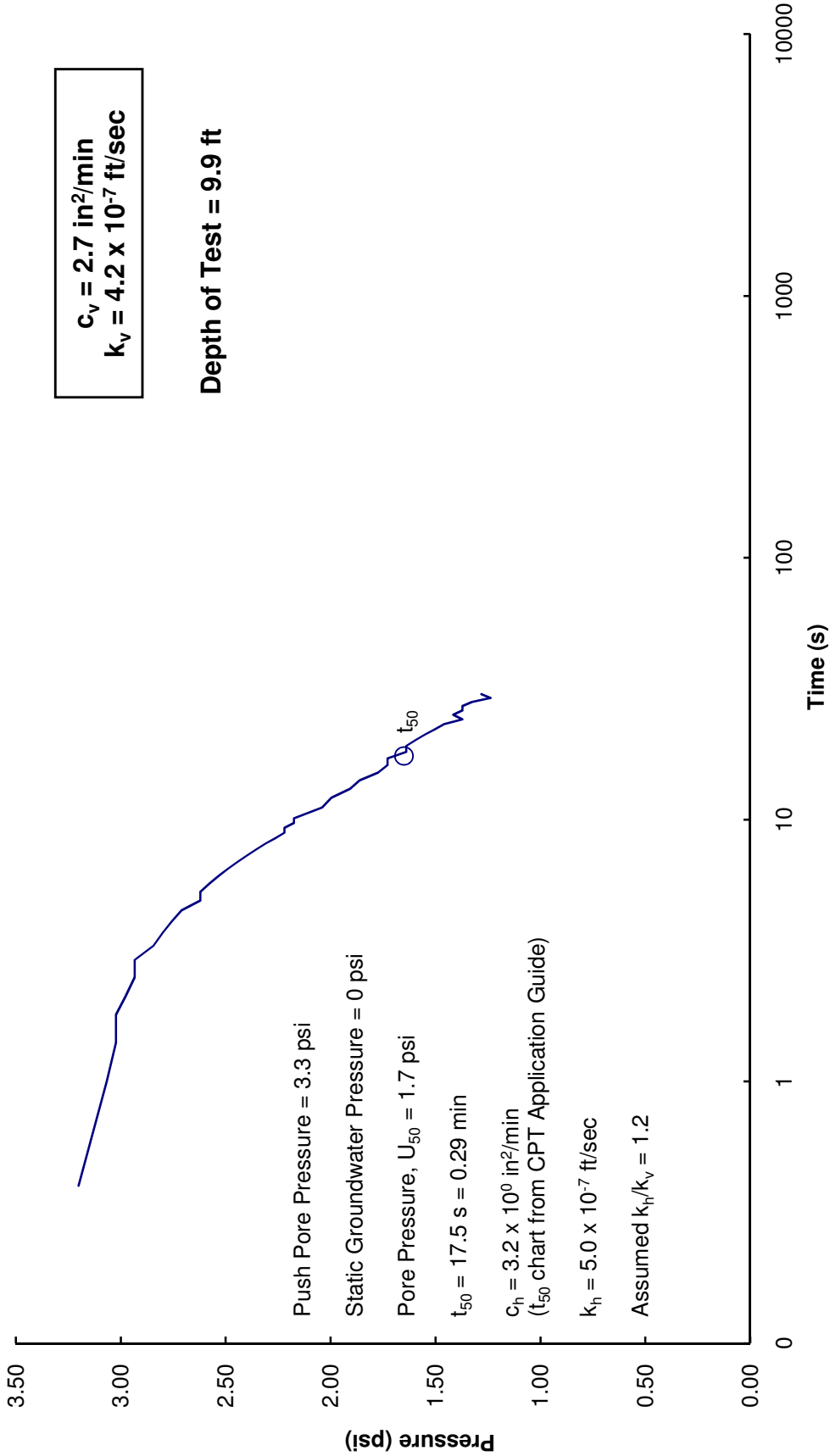
Project No. 175569036
CPT2



Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



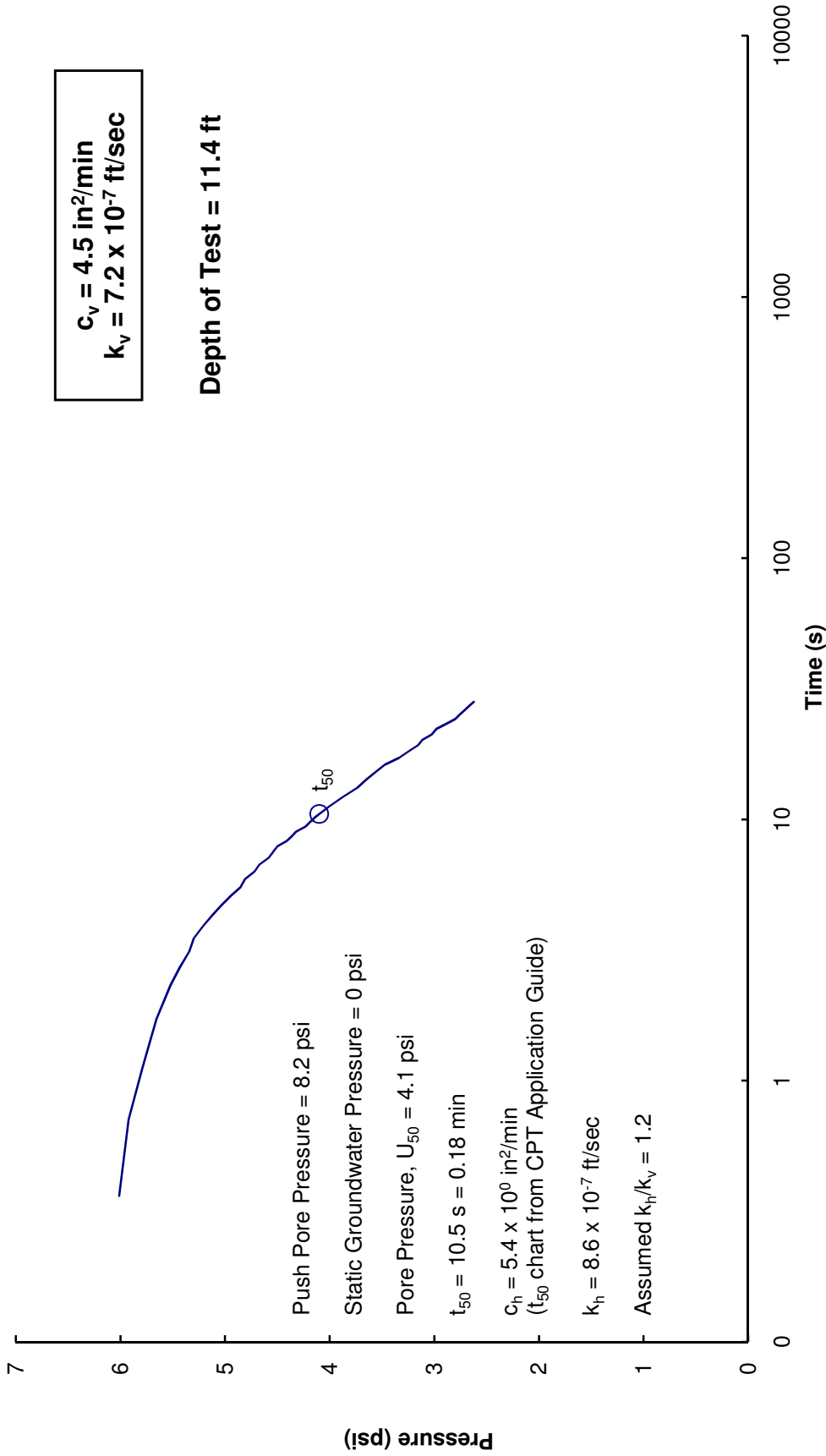
Project No. 175569036
CPT2



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



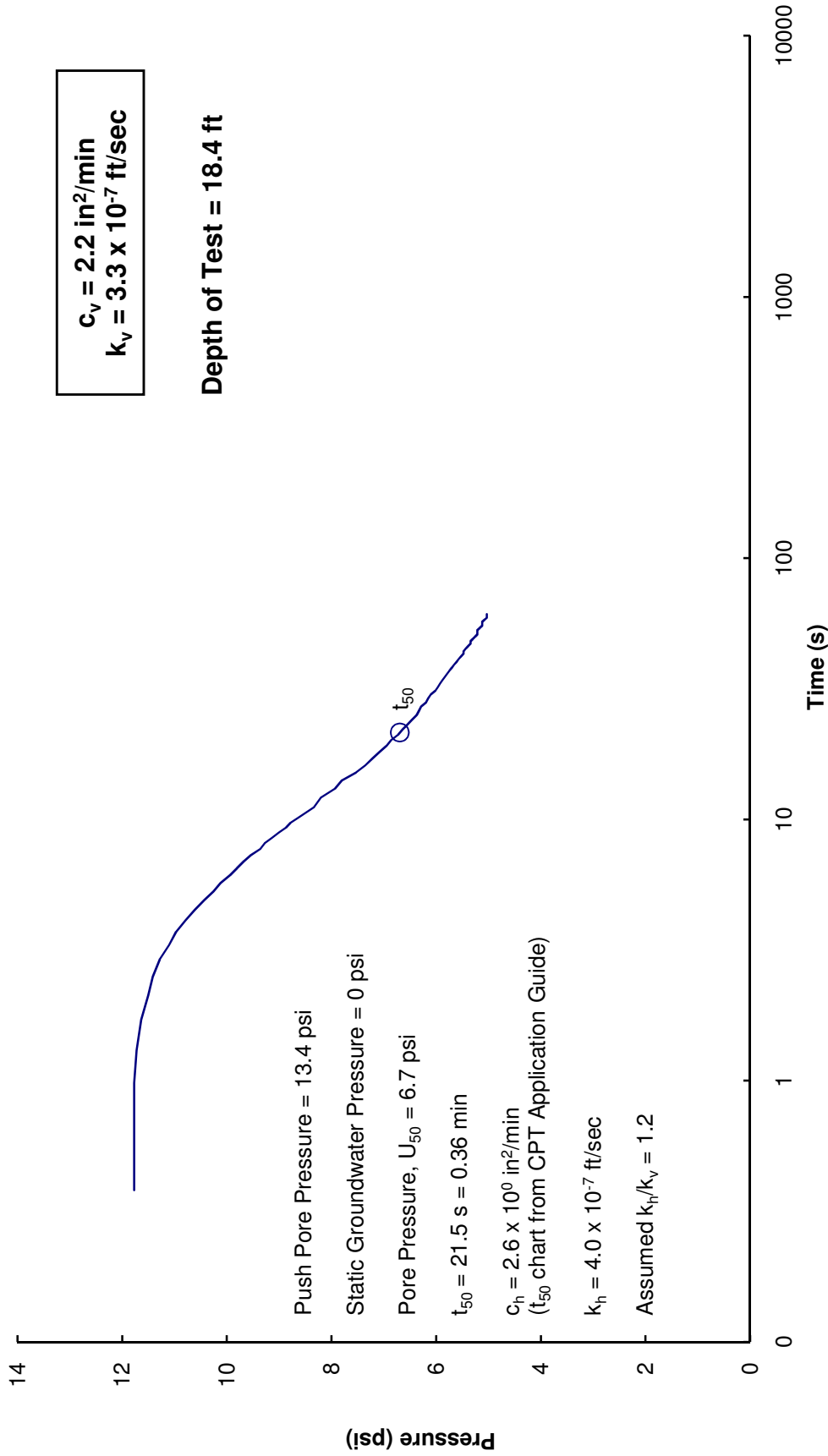
Project No. 175569036
CPT2



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



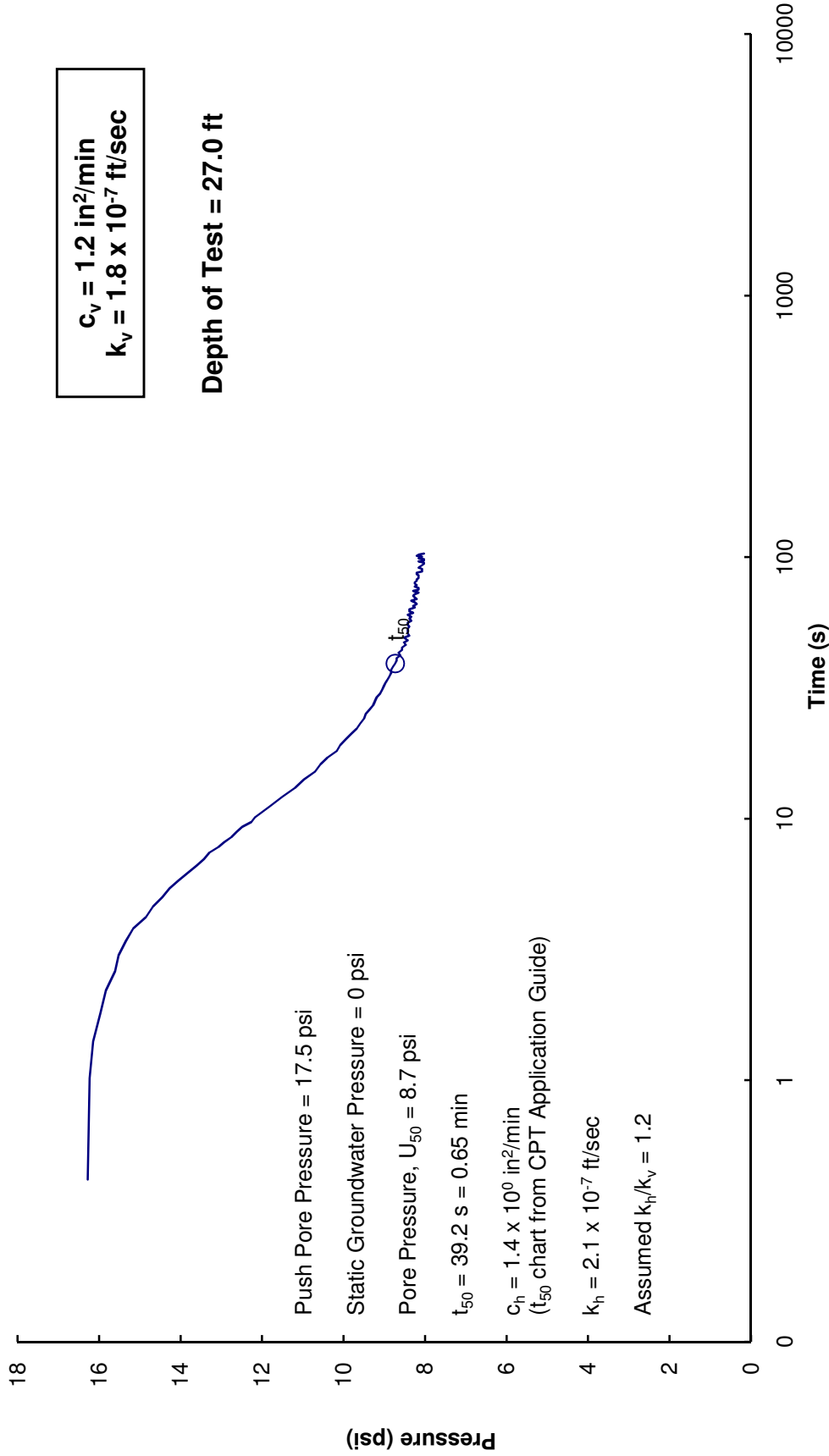
Project No. 175569036
CPT2



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



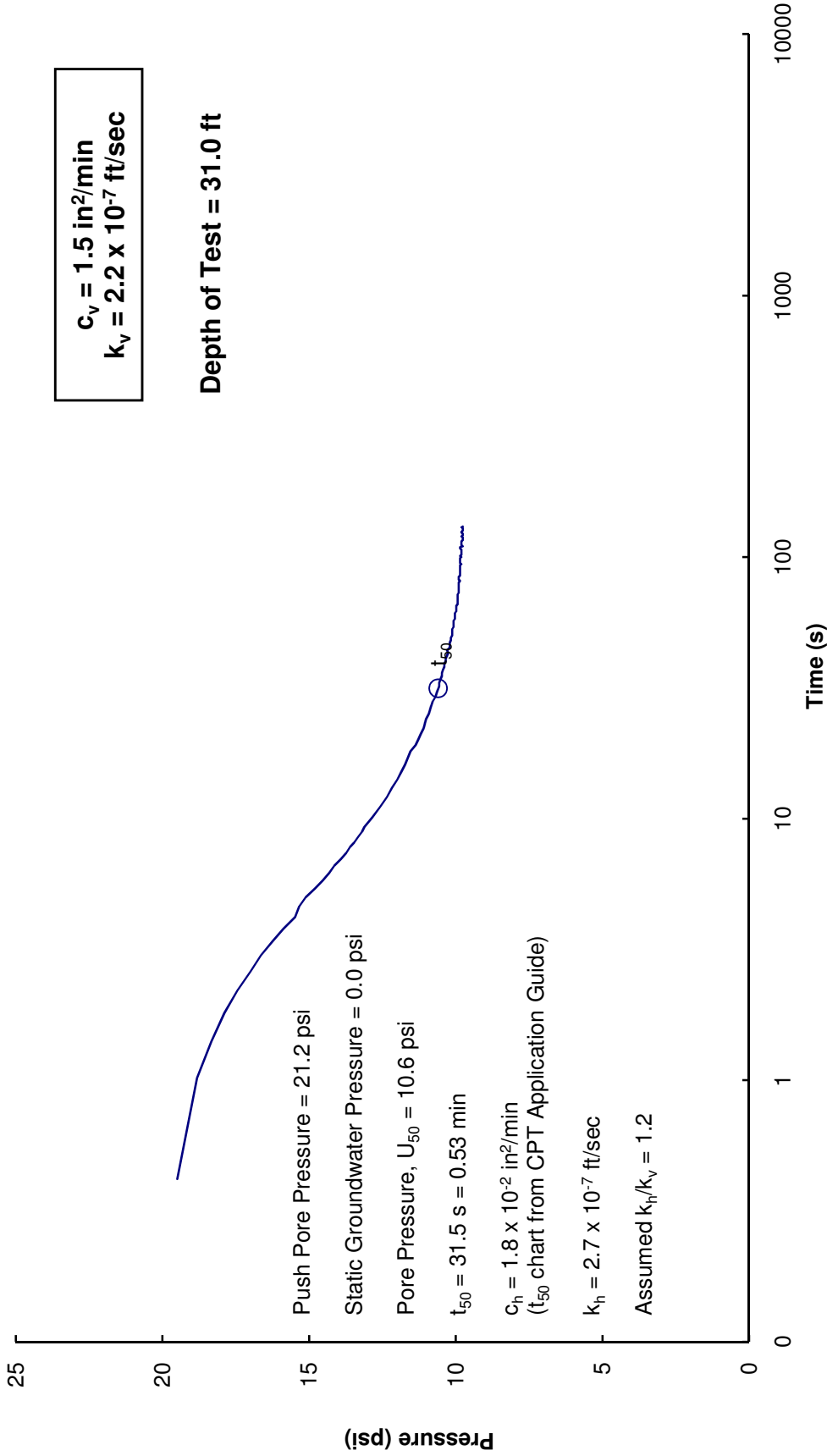
Project No. 175569036
CPT2



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation

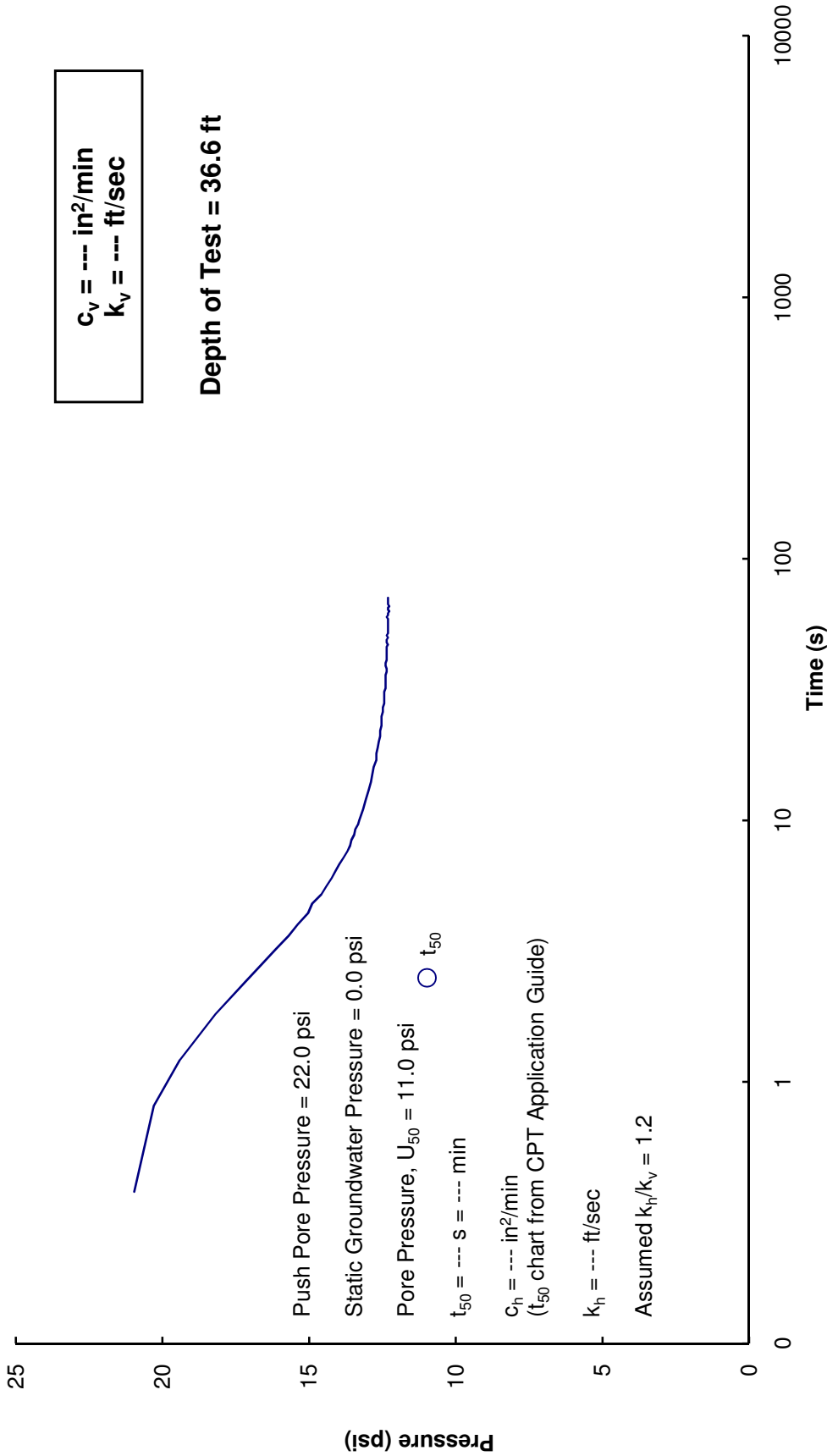




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SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



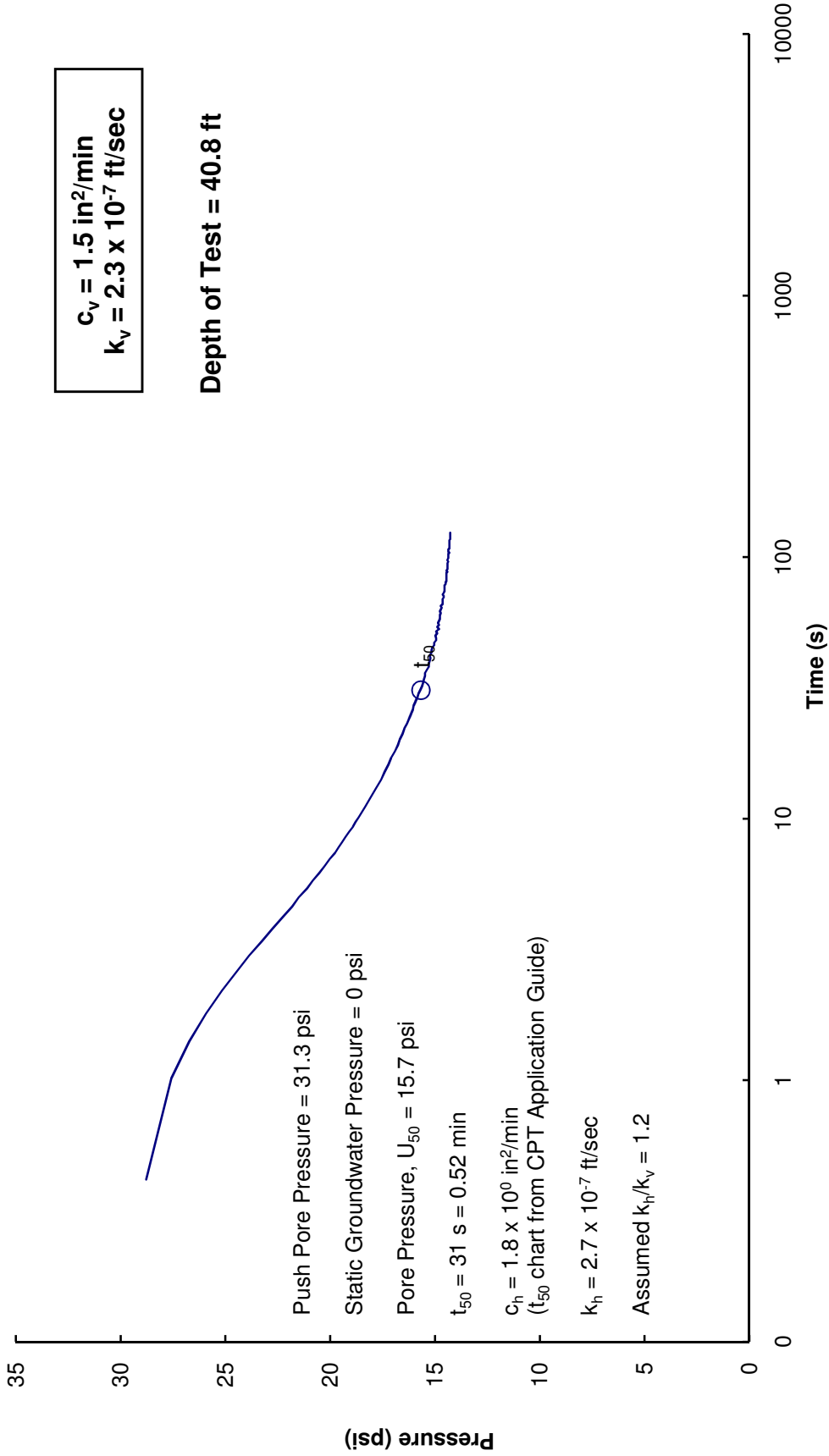
Project No. 175569036
CPT2



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



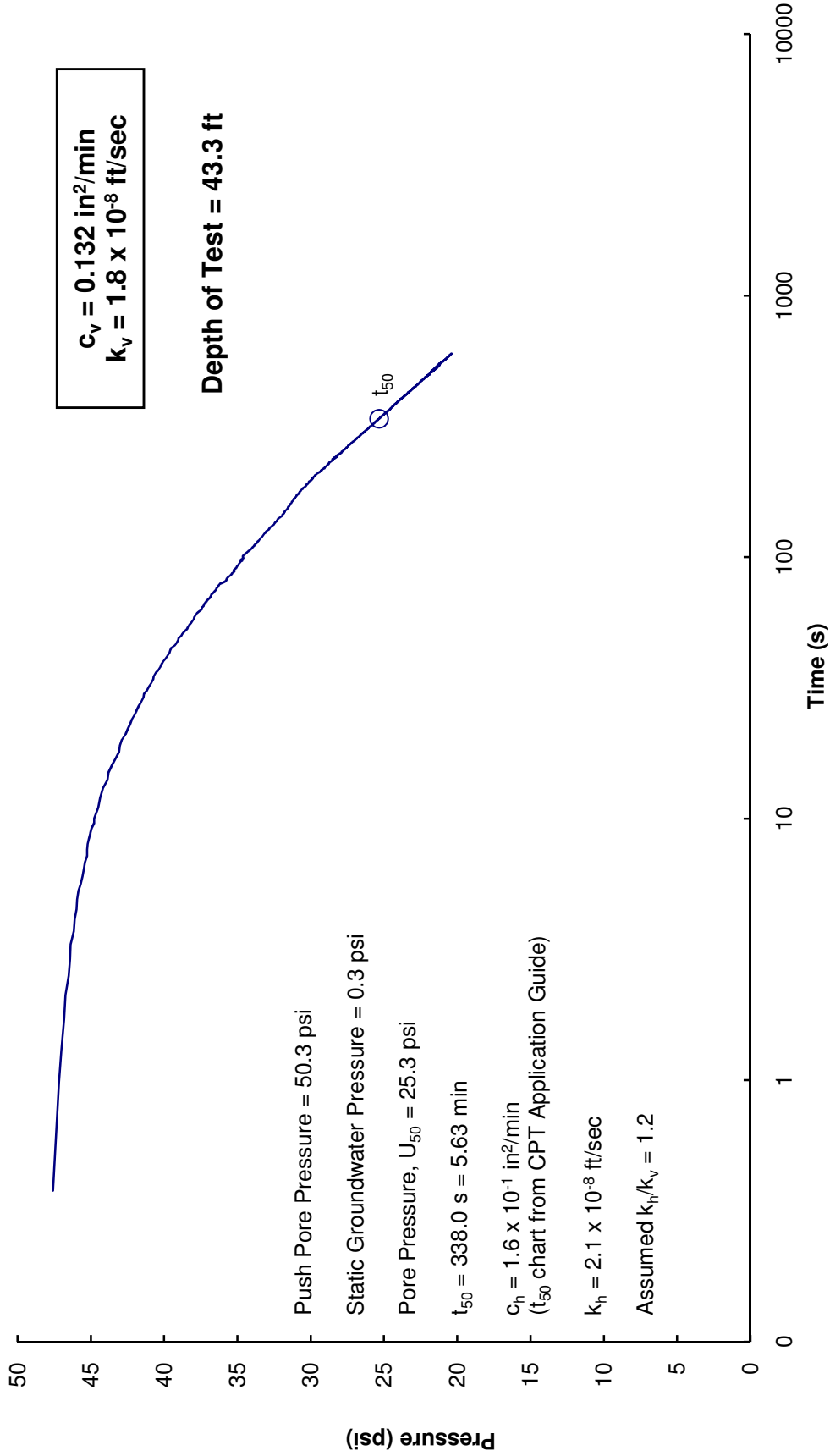
Project No. 175569036
CPT2



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation

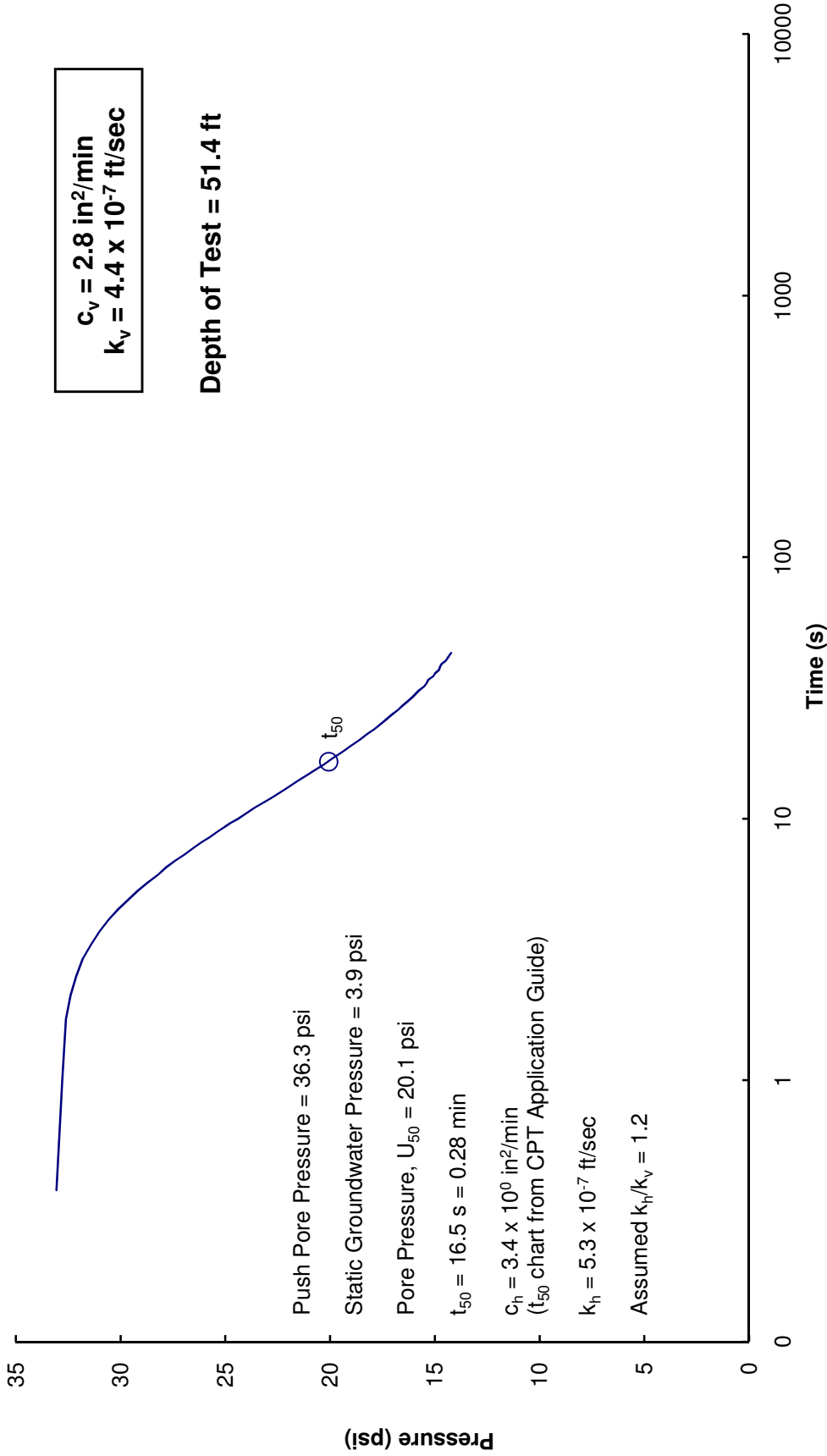




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SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT2



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Stantec

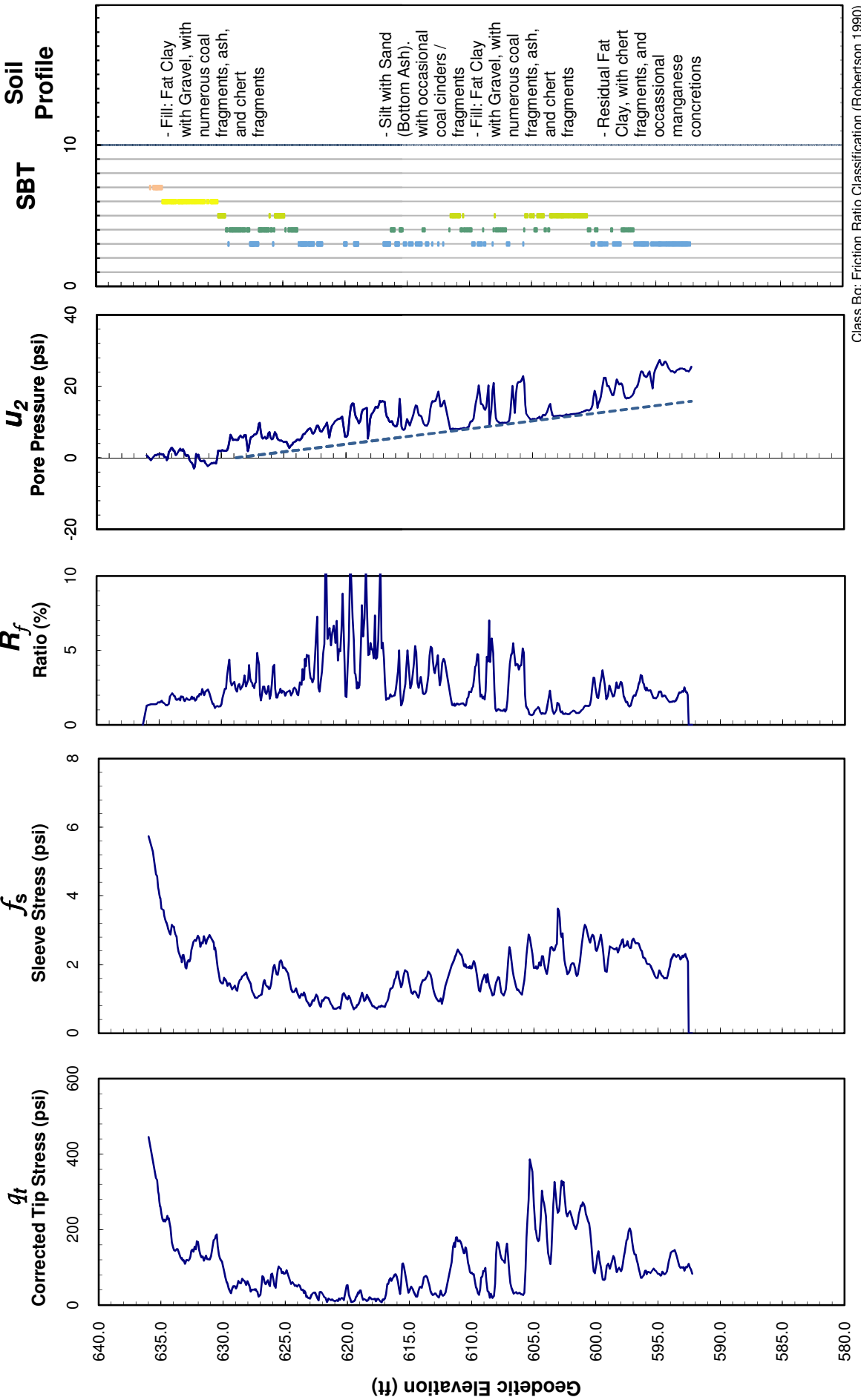
Elevation: 636.00 ft
 SCPTu Start Elevation: 636.00 ft
 Groundwater Elevation: 628.50 ft

Client: TVA

Project: Widows Creek Main Ash Pond

Test Date: June 10, 2009
 Project No. 175569036

CPT3



Class Bq: Friction Ratio Classification (Robertson 1990)

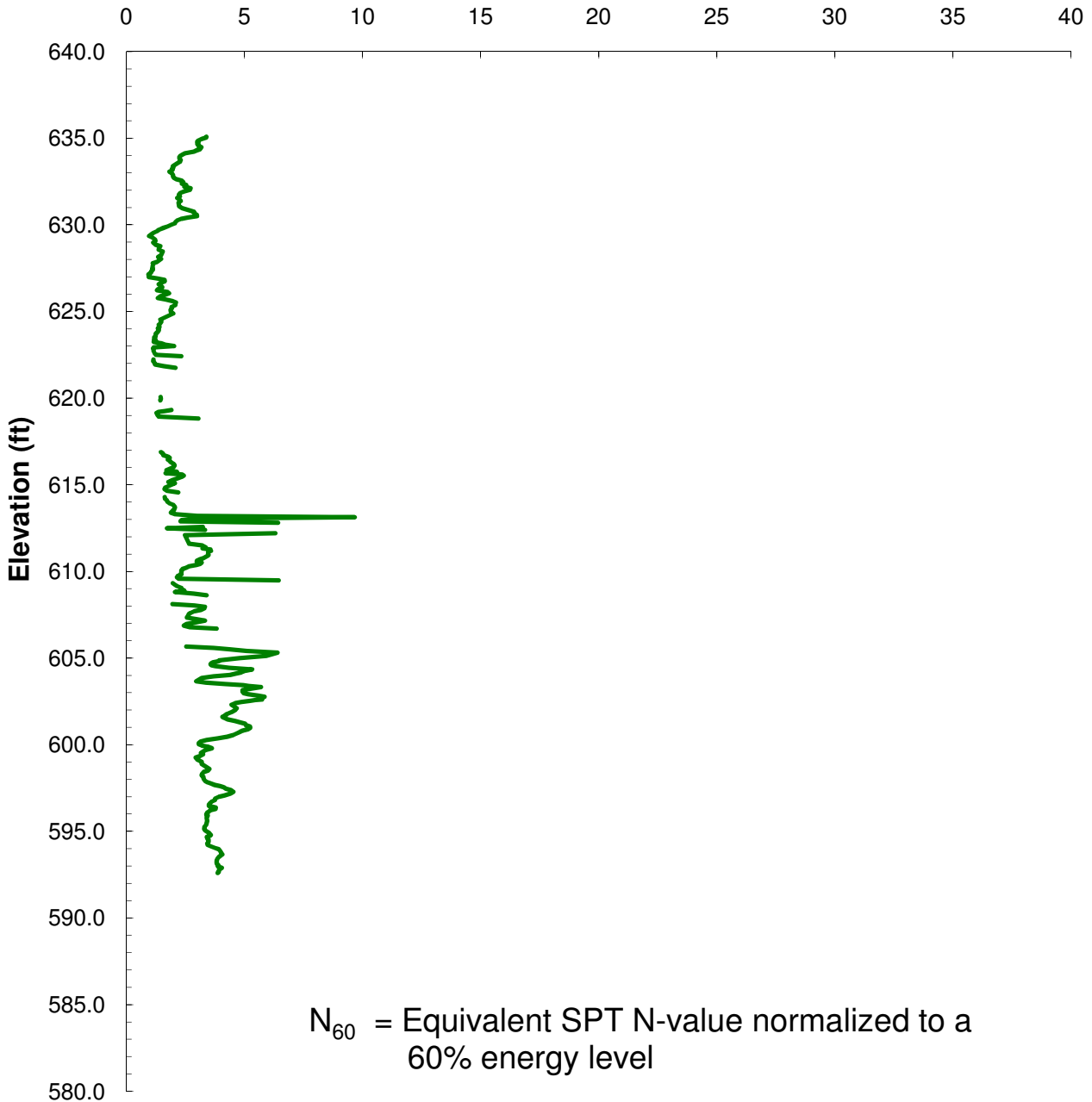


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



The correlation from SCPTu data to equivalent SPT N_{60} values is based on the Jefferies and Davies (1993) approach.

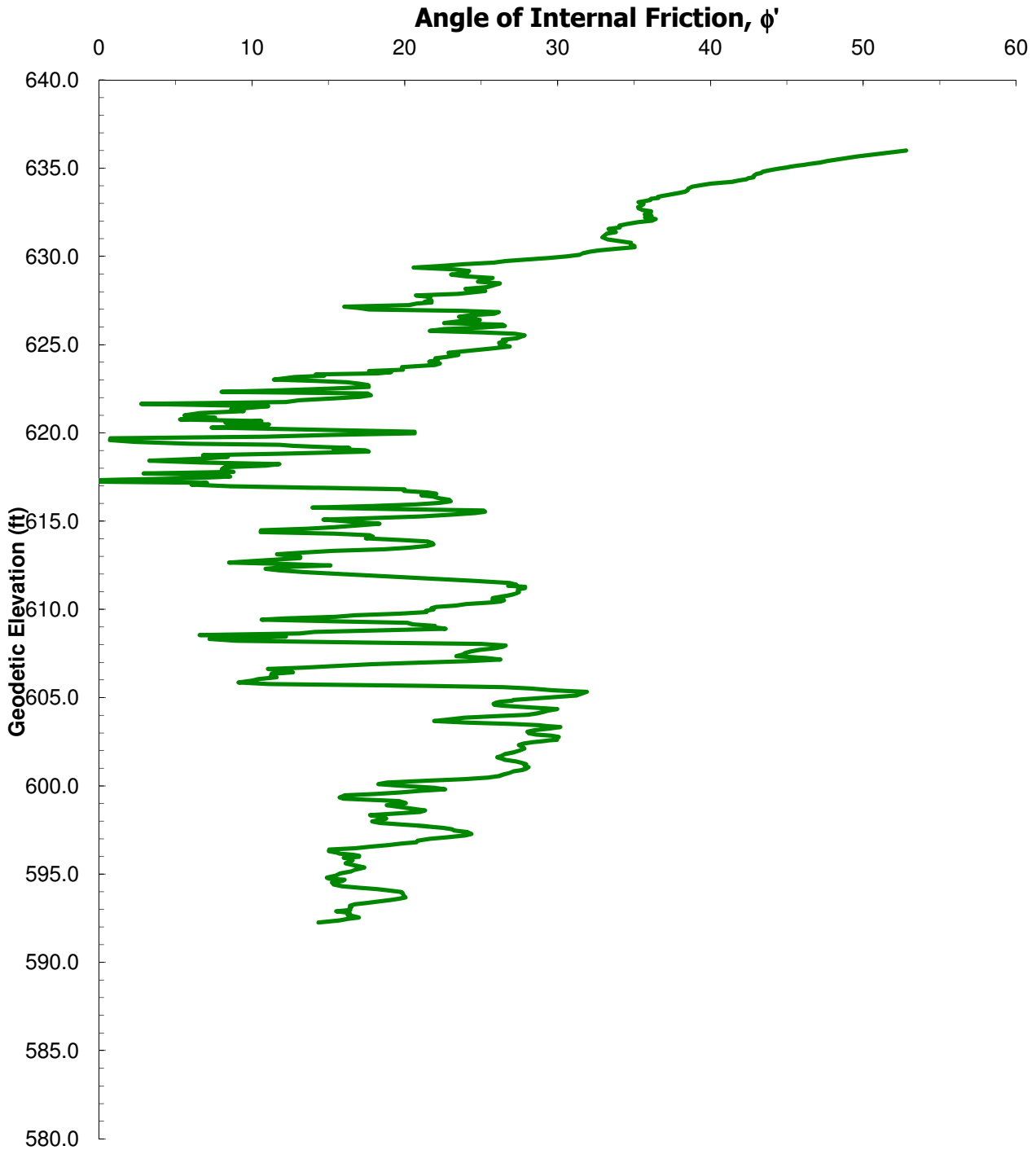
Project No. 175569036
CPT3



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SCPTu RESULTS

Effective Angle of Internal Friction



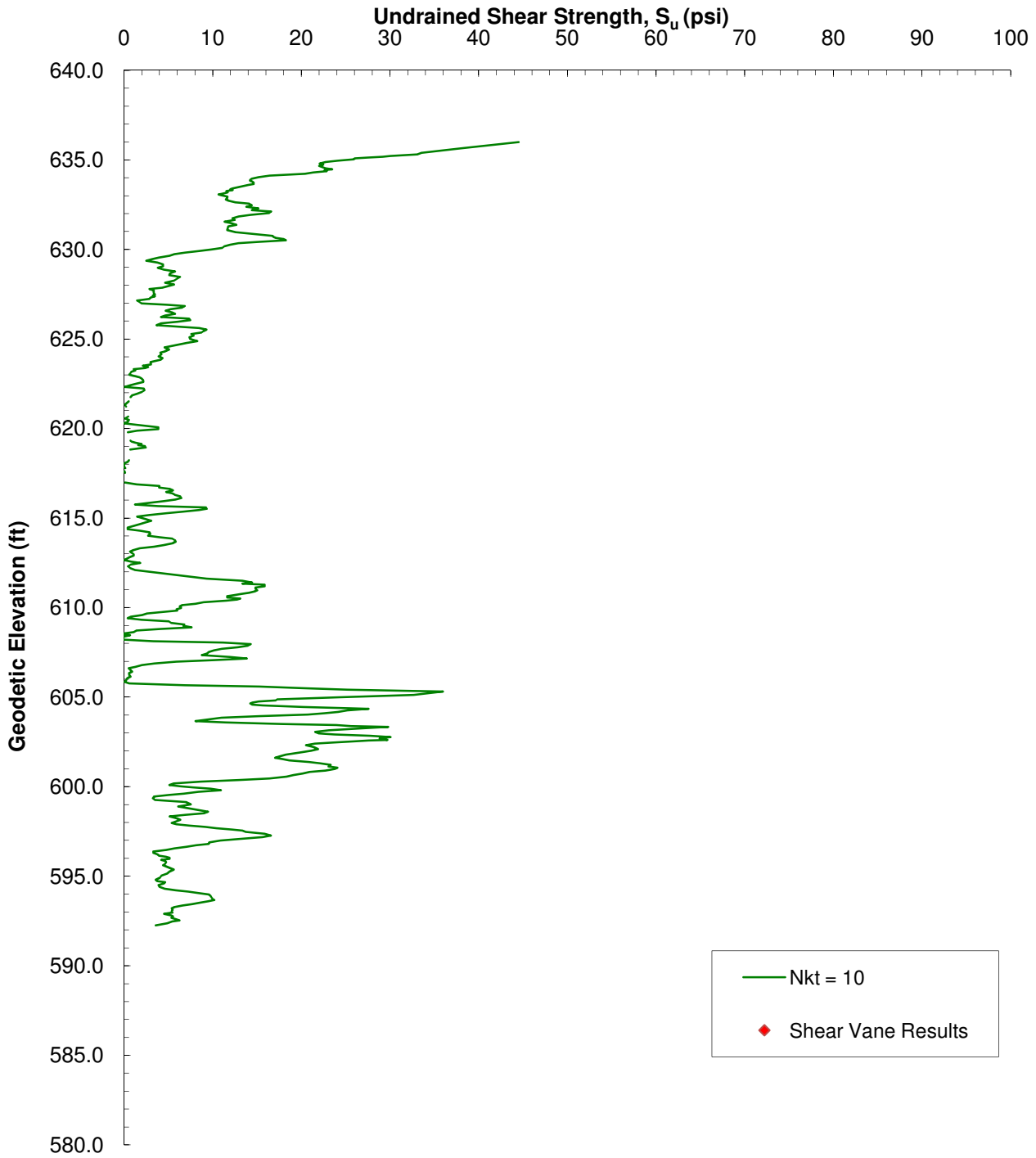
Project No. 175569036
CPT3



Stantec

SCPT_u RESULTS

Undrained Shear Strength, S_u



Project No. 175569036
CPT3

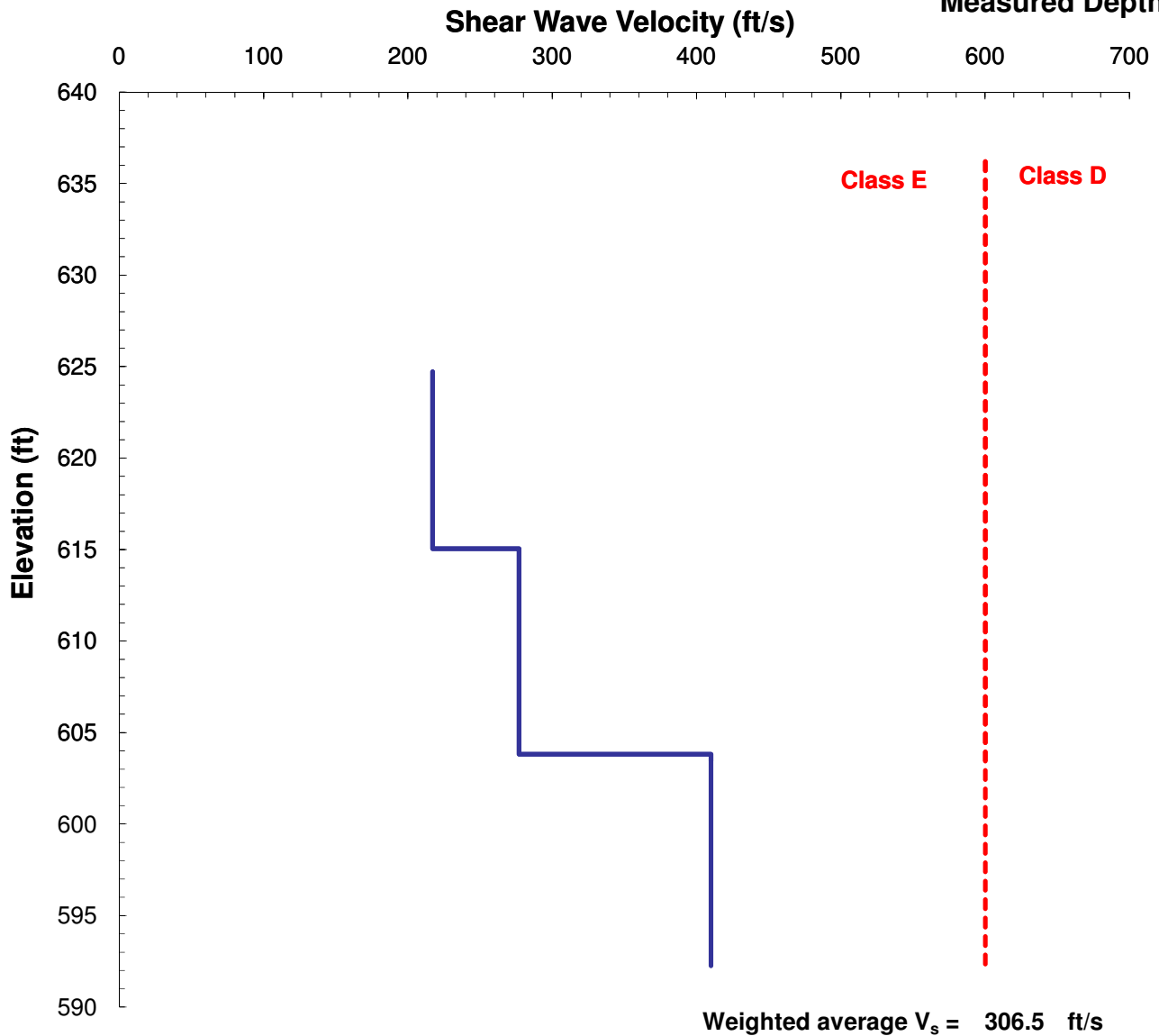


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SHEAR WAVE VELOCITY

Incremental Between Measured Depths



Shear Wave Velocity, V_s

- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
- The shear wave velocity at specific depths is measured by inducing a shear wave at surface and measuring the arrival time of the wave at depth.
- The incremental V_s values were calculated as

$$V_s = \frac{L_2 - L_1}{t_2 - t_1}$$

where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.

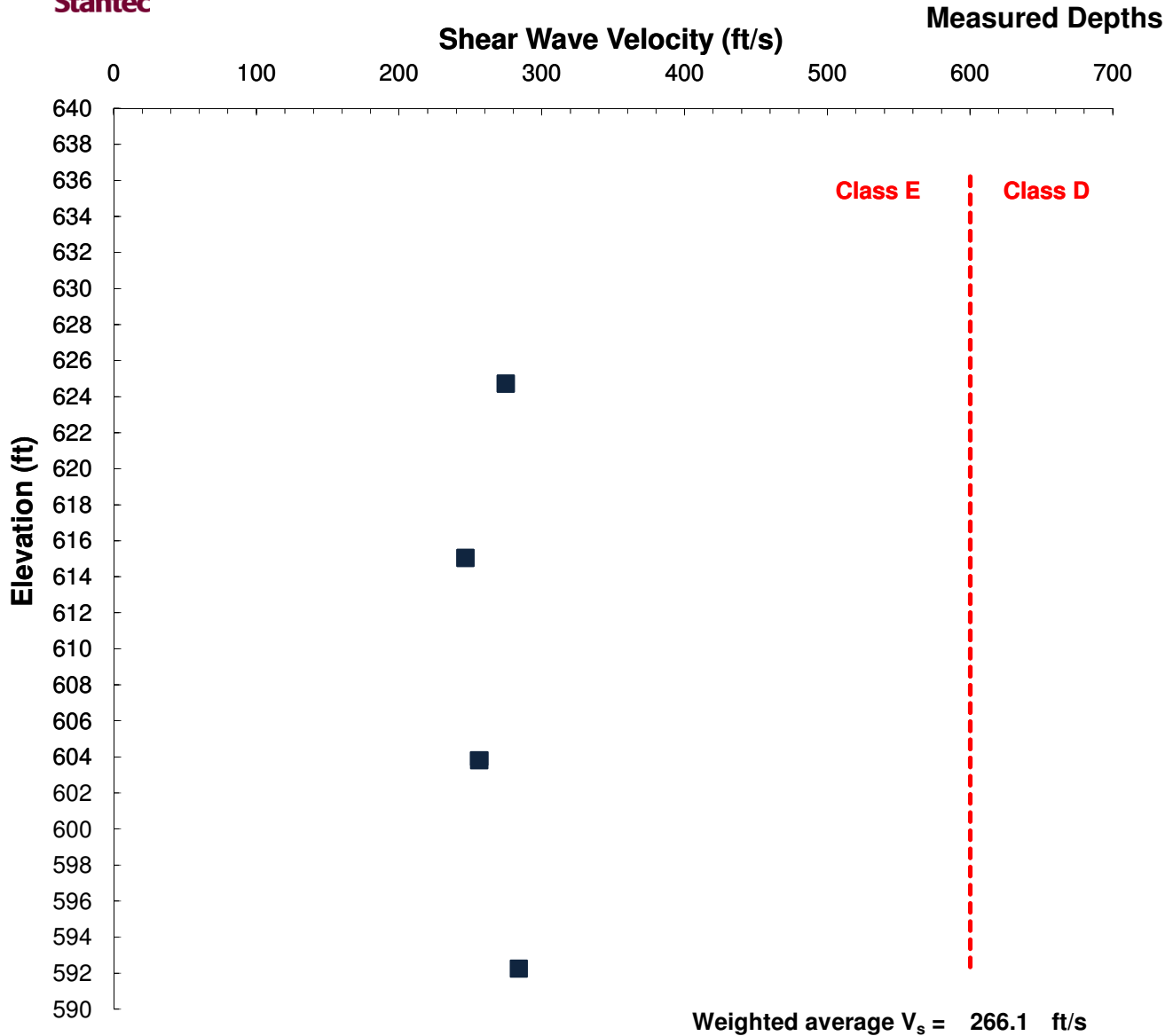
Project No. 175569036

CPT3

Appendix G-99 of 205



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Shear Wave Velocity, V_s

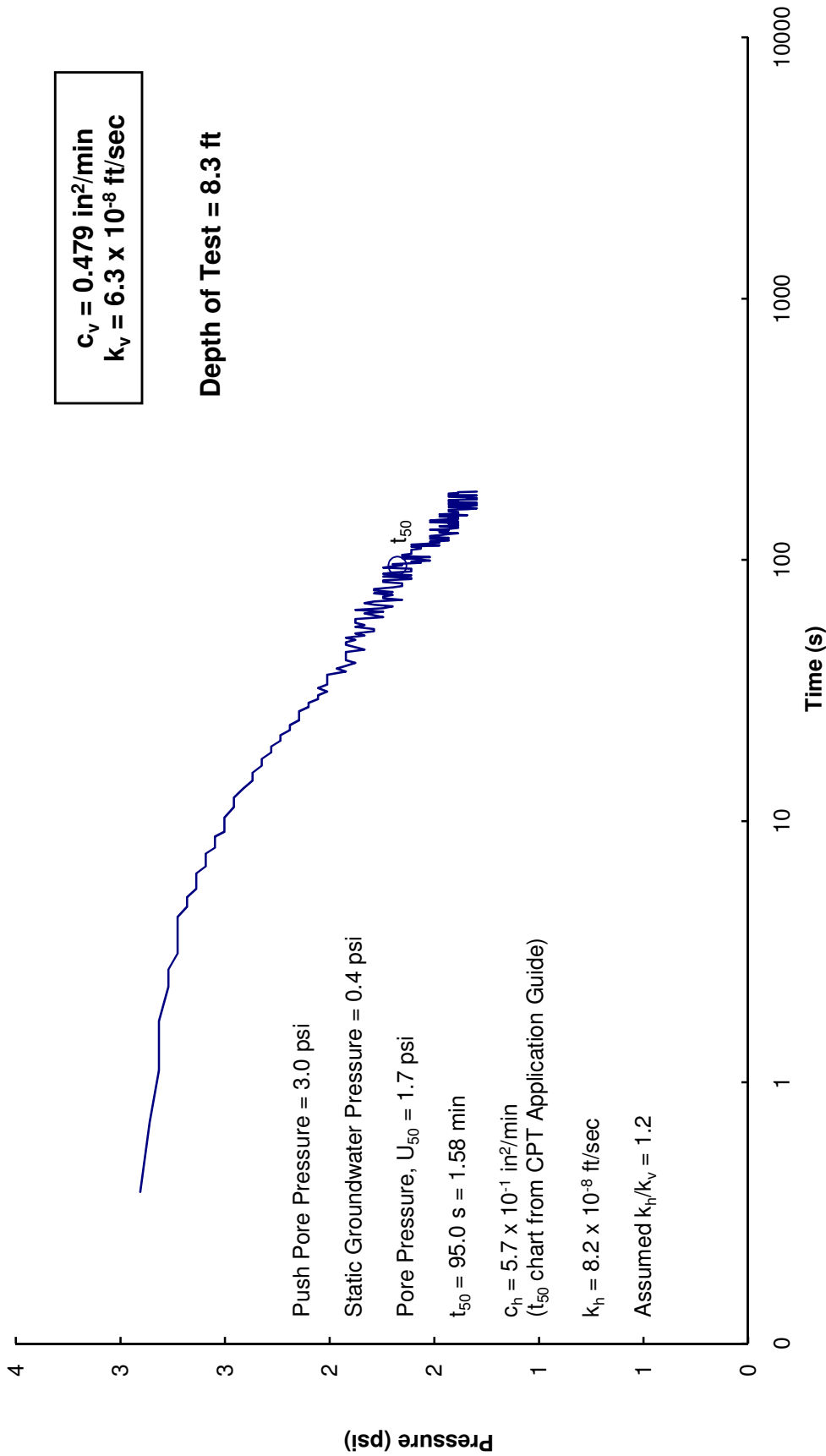
- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
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SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



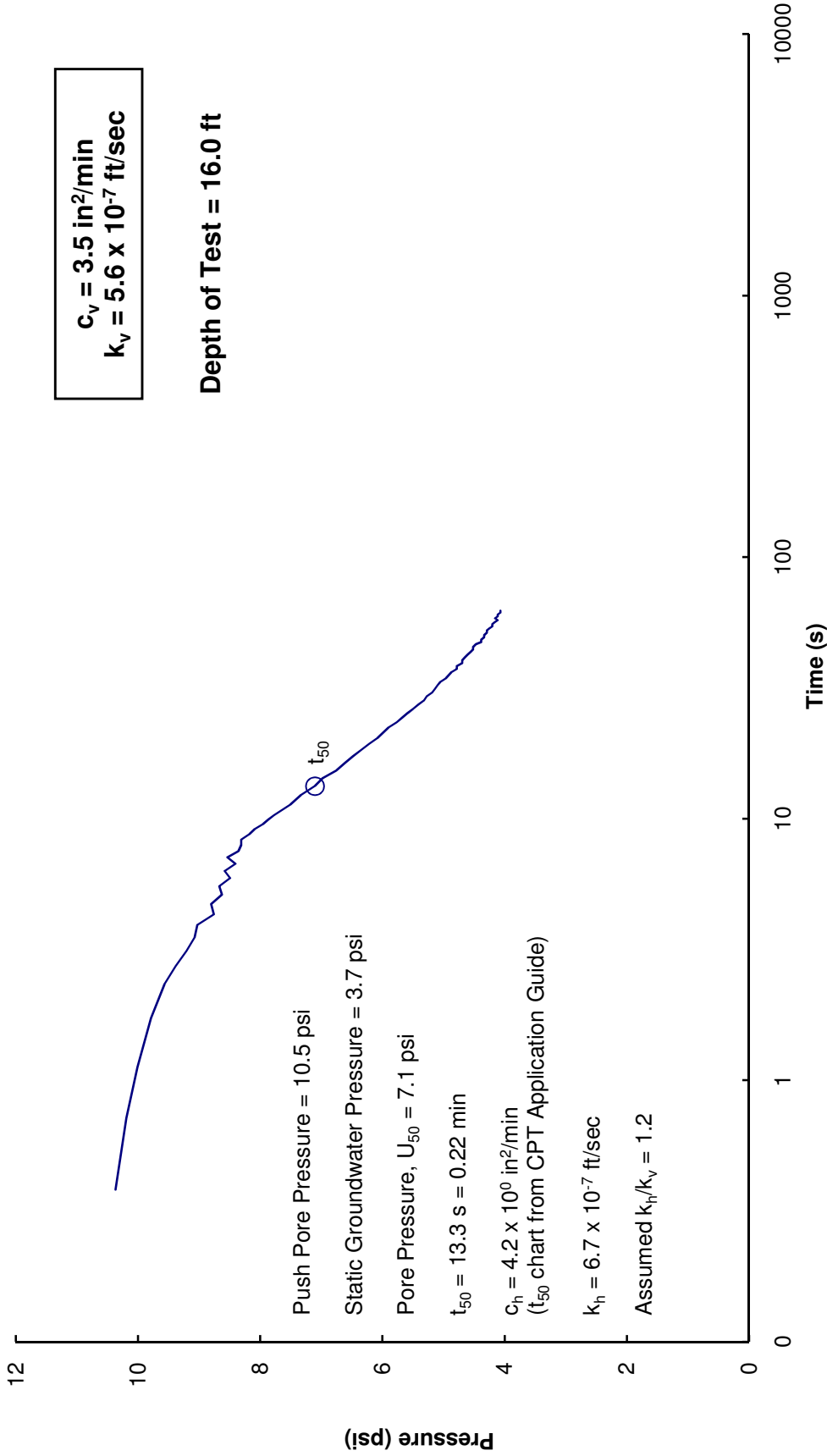
Project No. 175569036
CPT3



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



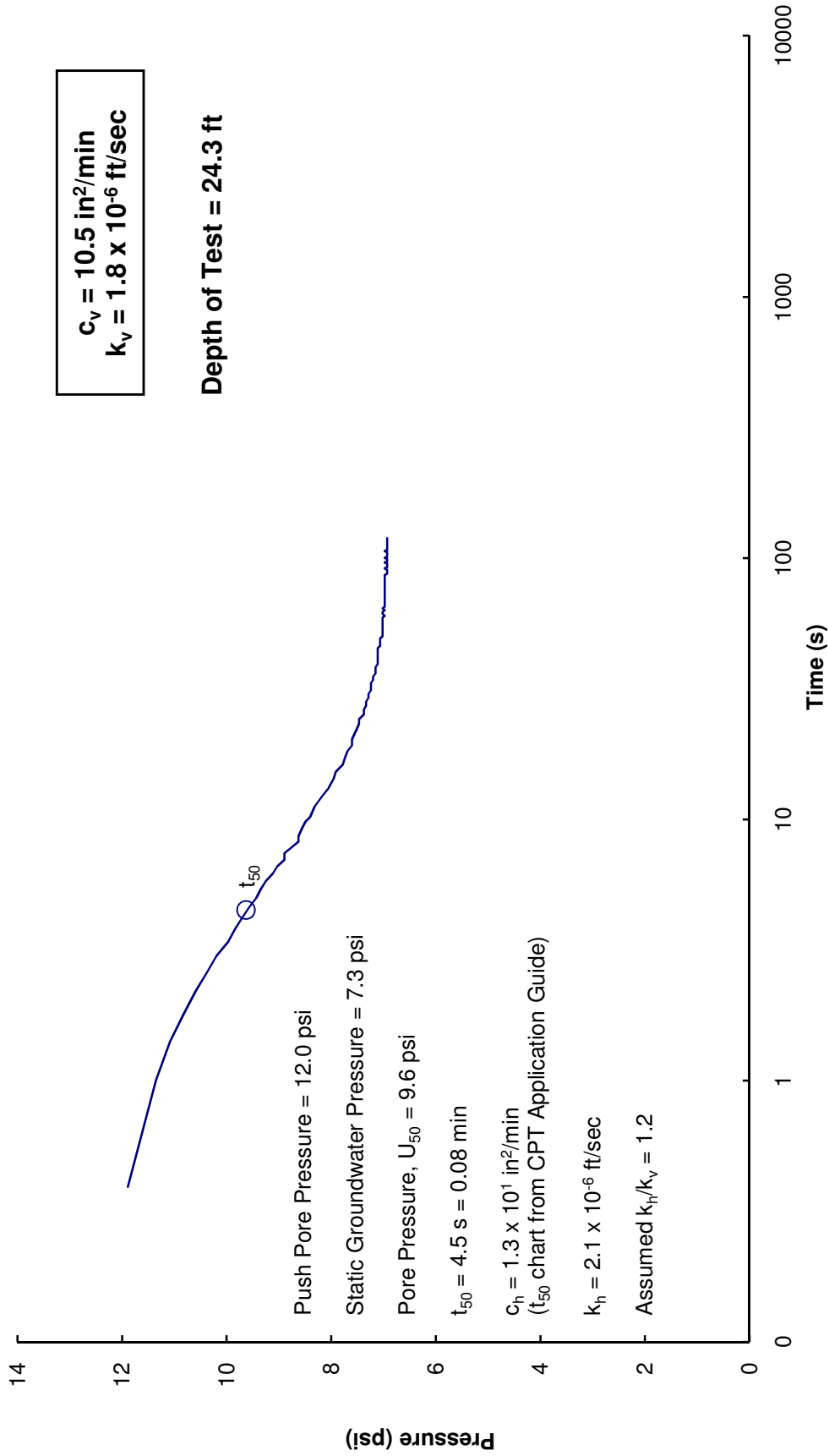
Project No. 175569036
CPT3



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



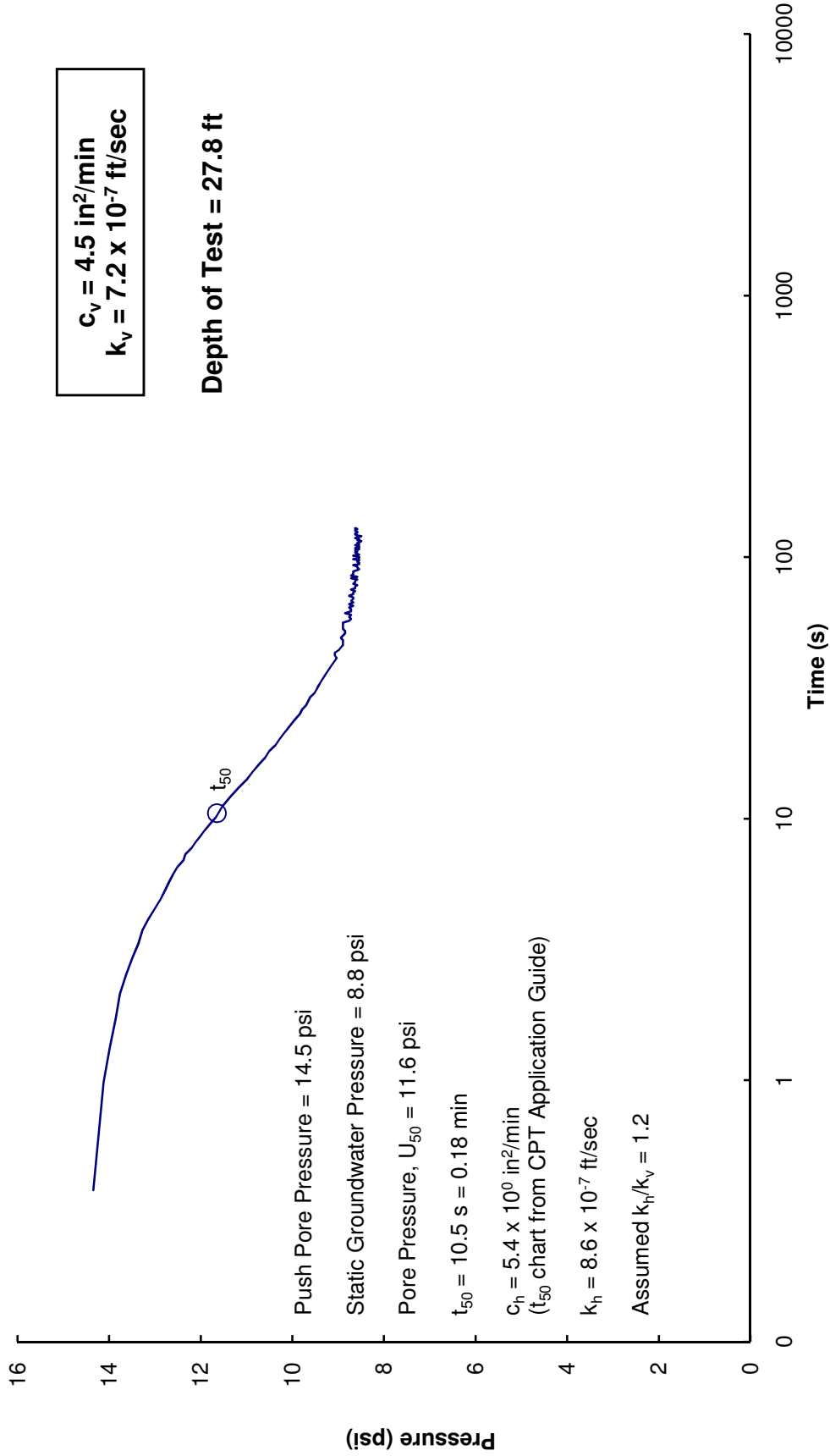
Project No. 175569036
CPT3



Stantec Consulting
Inc.

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



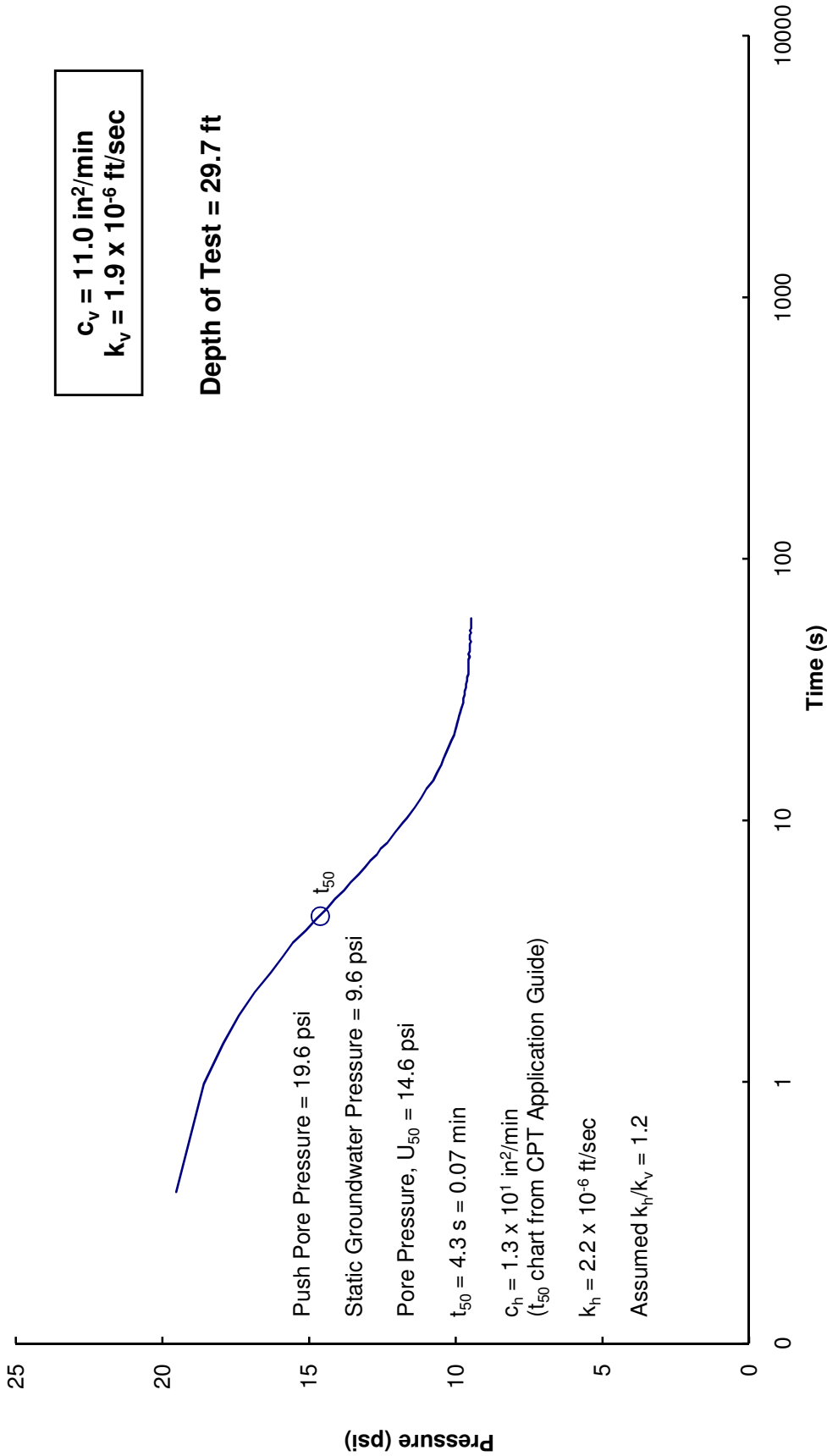
Project No. 175569036
CPT3



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



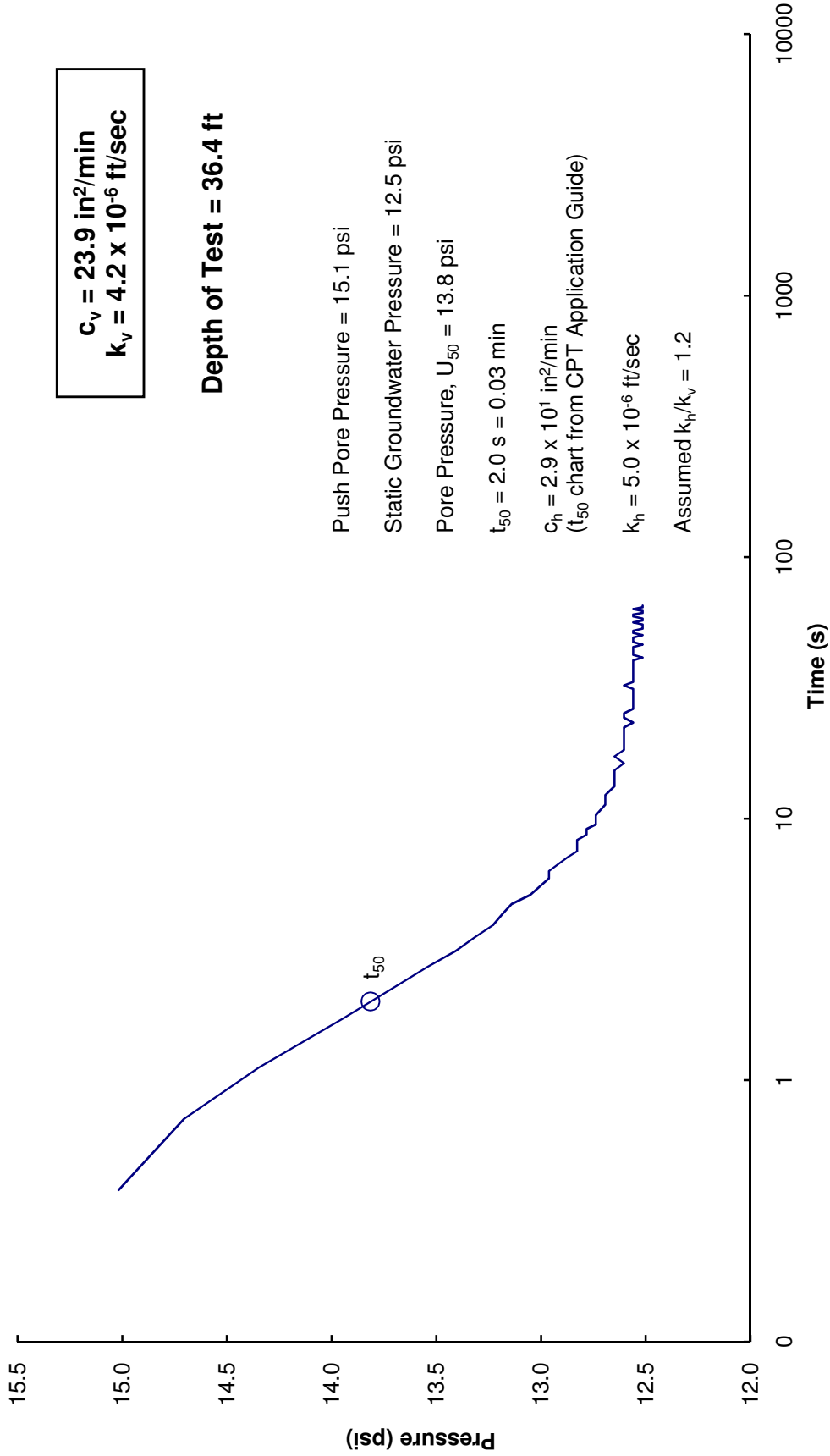
Project No. 175569036
CPT3



Stantec Consulting
Inc.

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



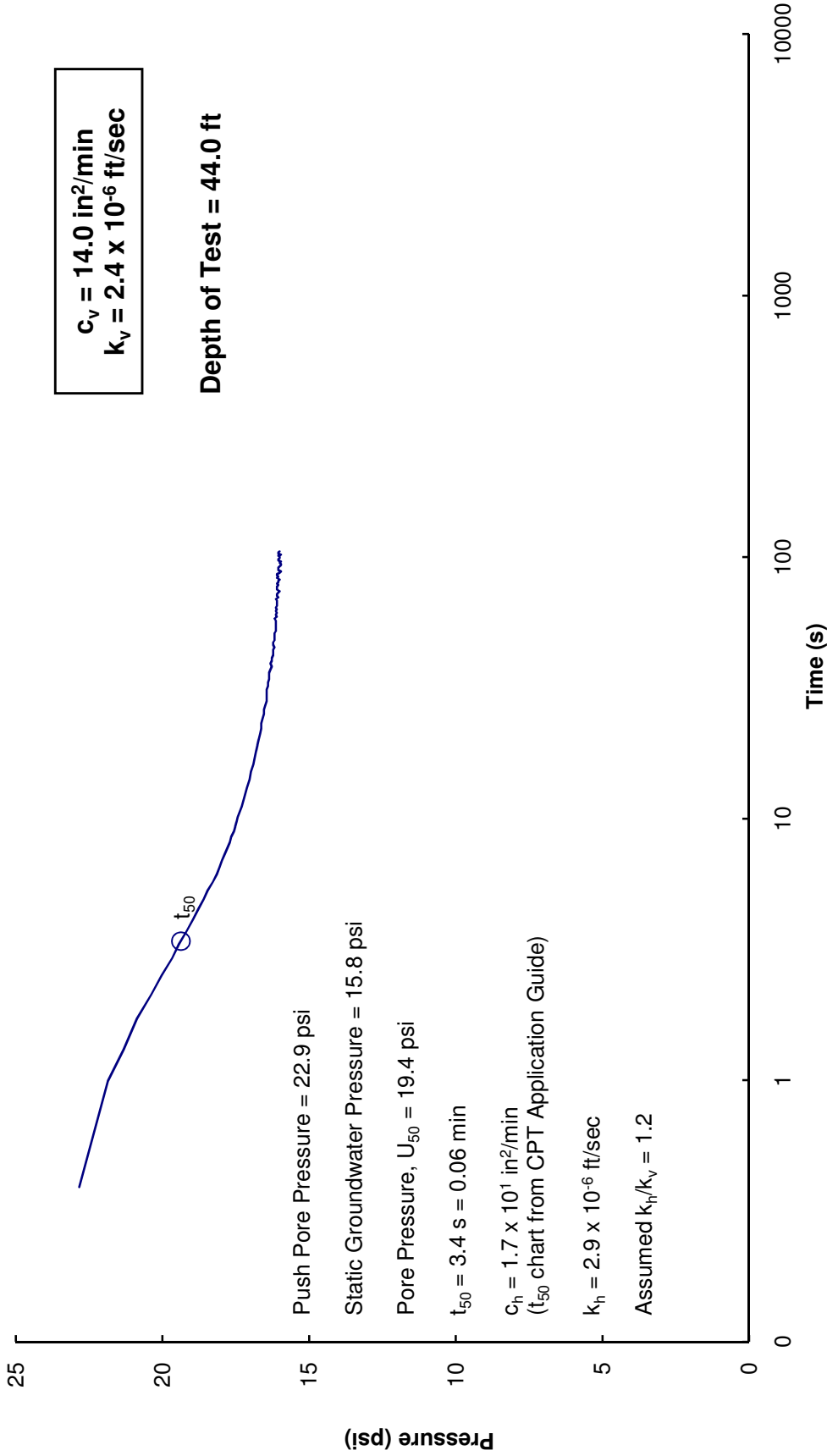
Project No. 175569036
CPT3



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT3



**Stantec Consulting
Inc.**



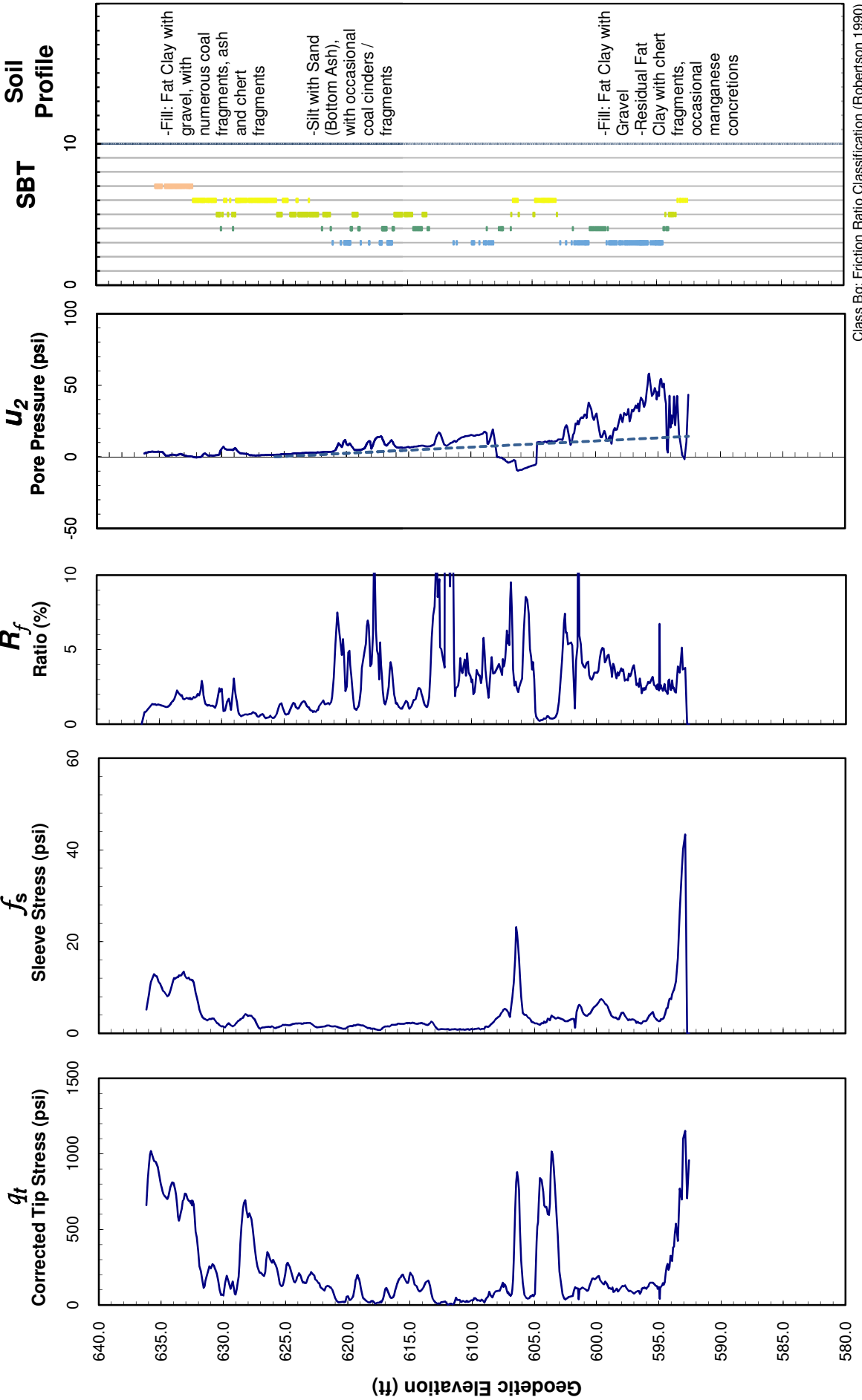
Elevation: 636.40 ft
 SCPTu Start Elevation: 636.40 ft
 Groundwater Elevation: 625.70 ft

Client: TVA

Project: Widows Creek Main Ash Pond

Test Date: June 10, 2009
 Project No. 175569036

CPT4



Class Bq: Friction Ratio Classification (Robertson 1990)

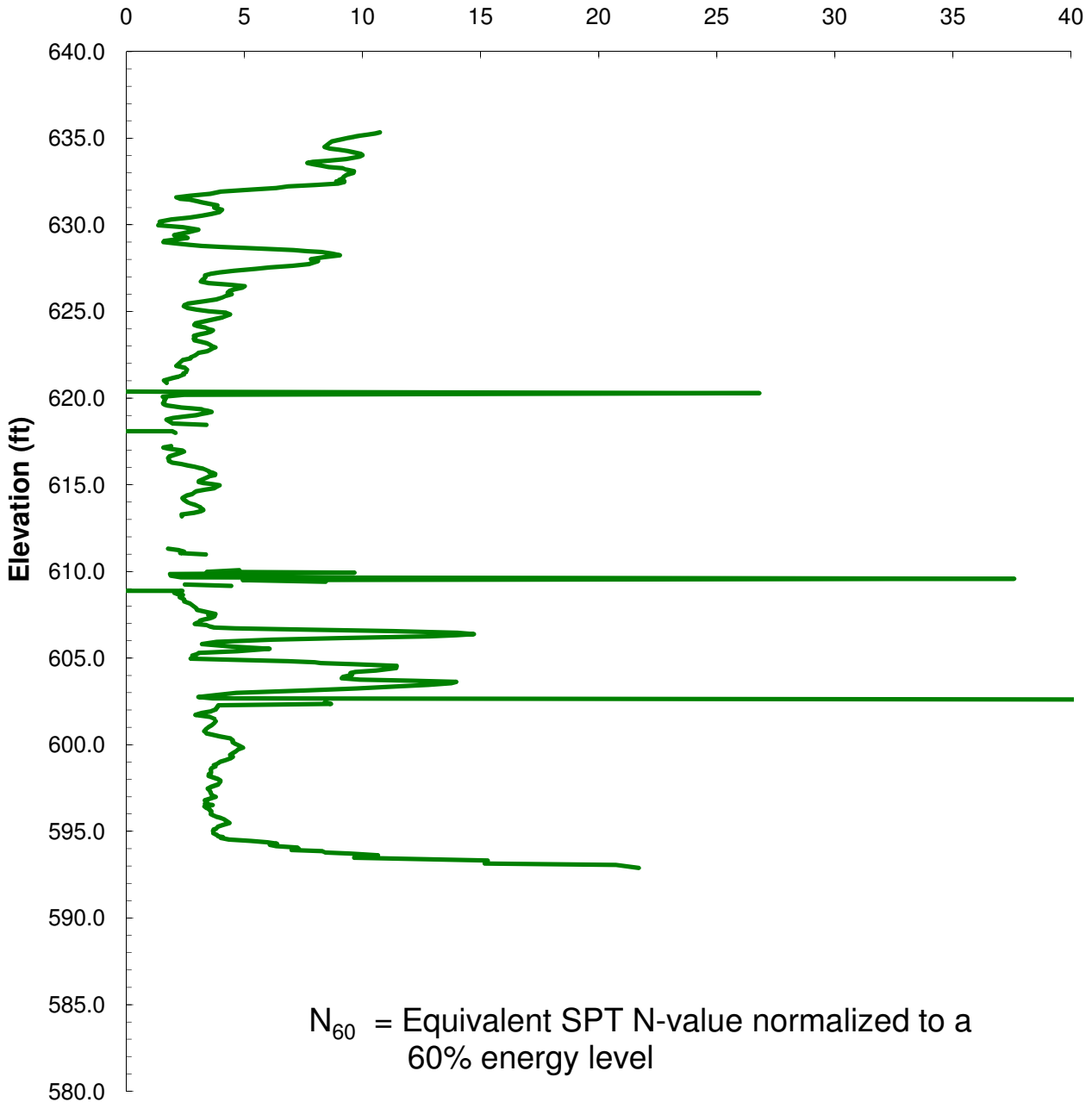


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



The correlation from SCPTu data to equivalent SPT N_{60} values is based on the Jefferies and Davies (1993) approach.

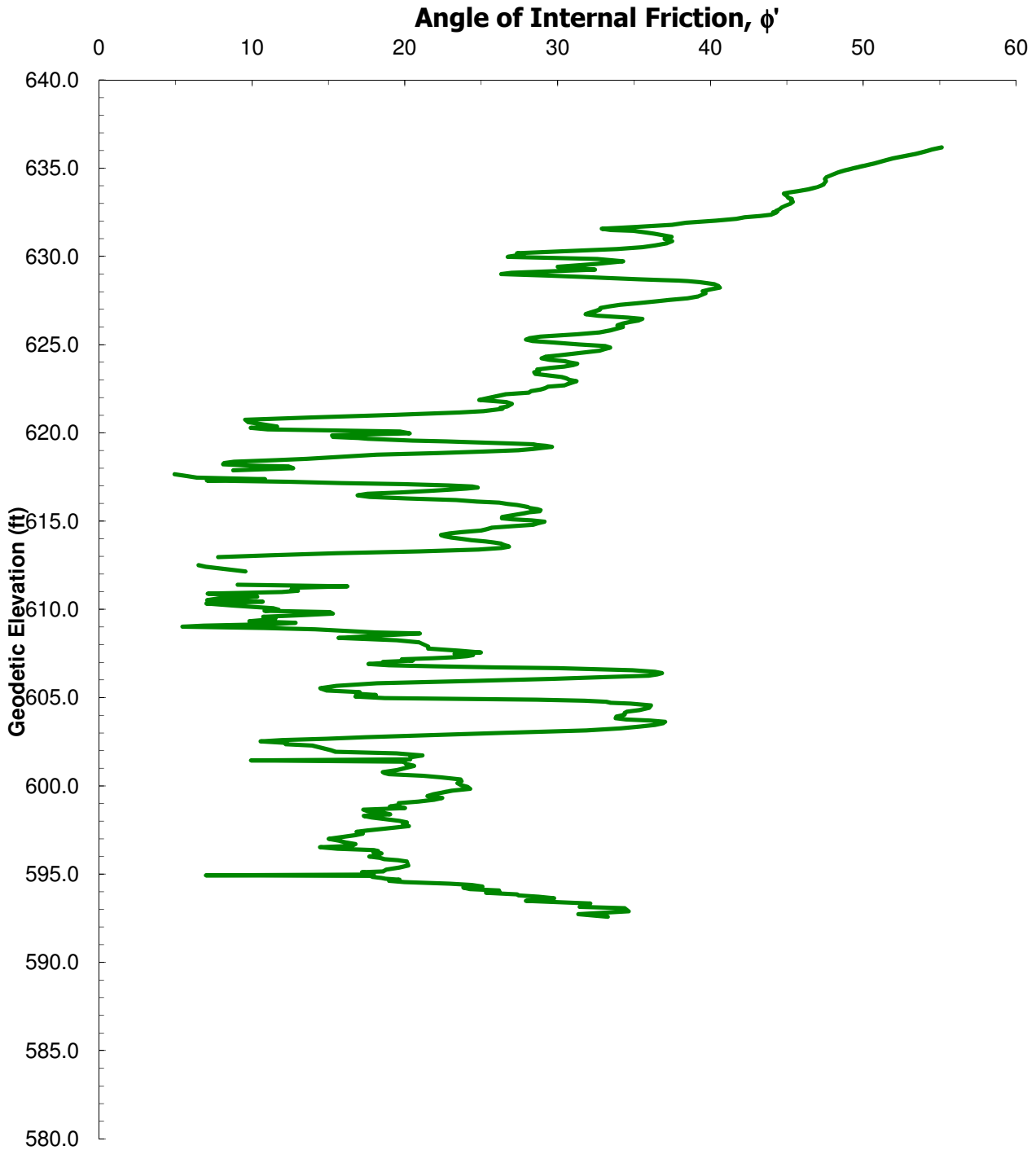
Project No. 175569036
CPT4



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SCPTu RESULTS

Effective Angle of Internal Friction



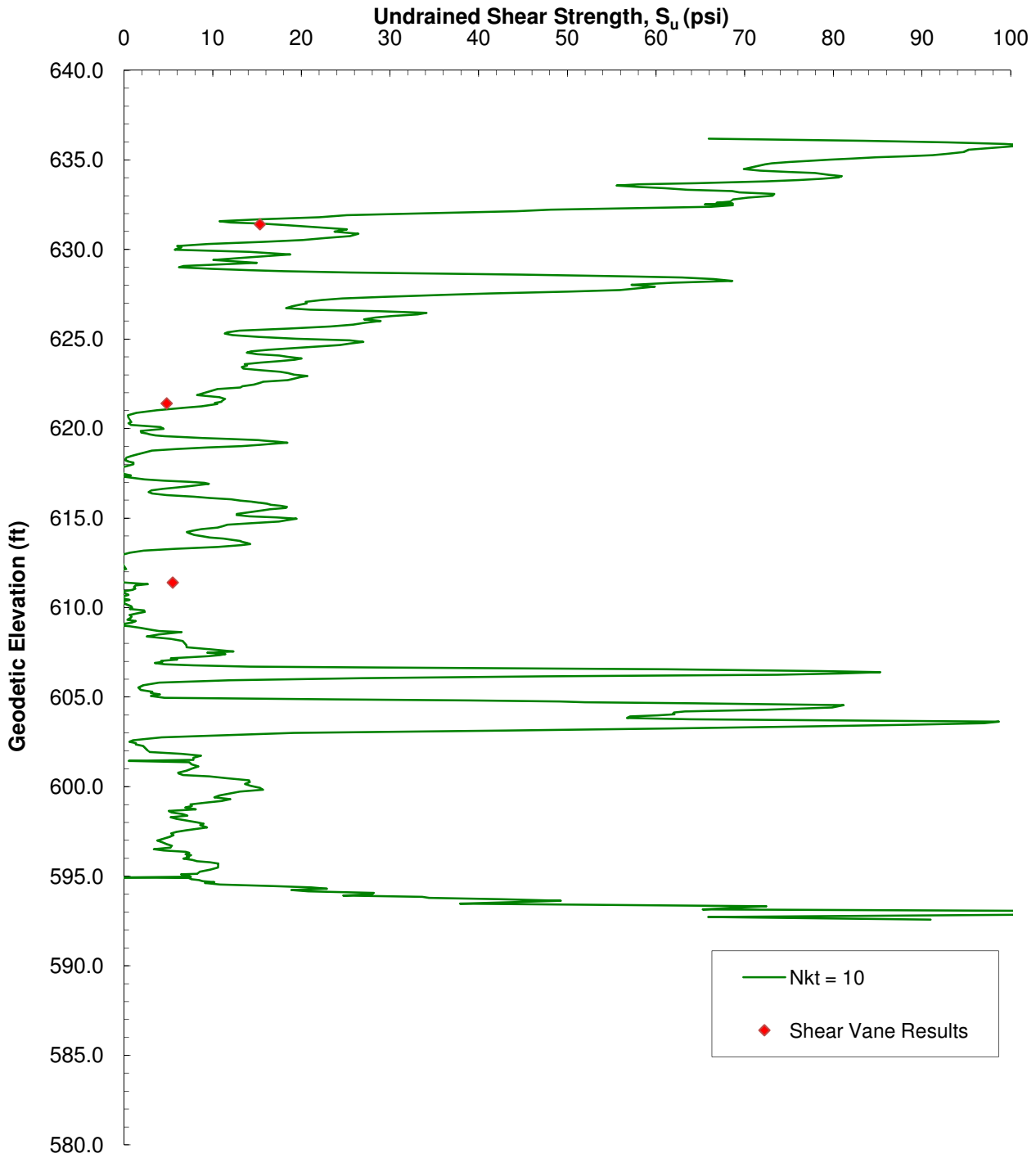
Project No. 175569036
CPT4



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SCPT_u RESULTS

Undrained Shear Strength, S_u



Project No. 175569036
CPT4

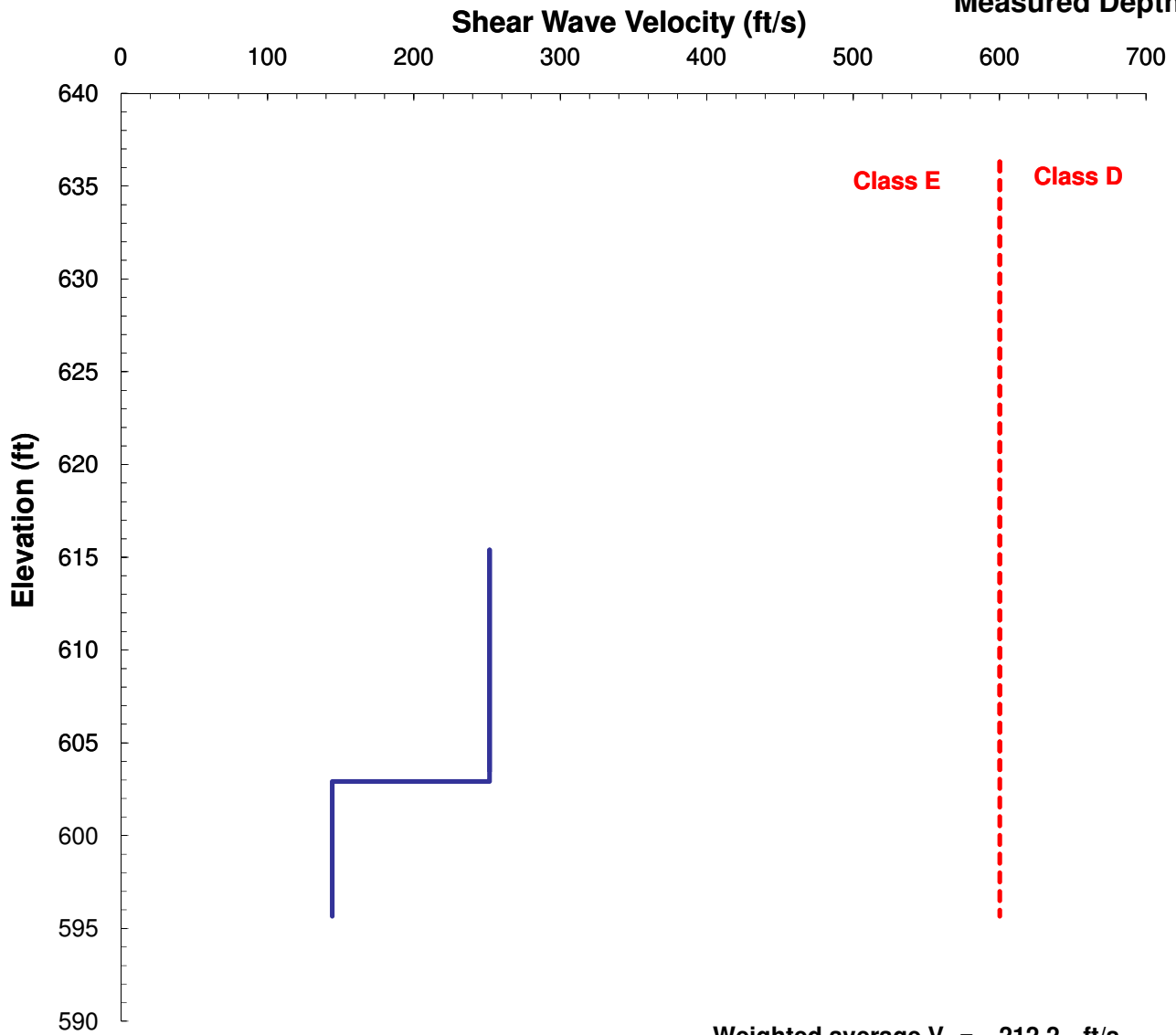


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Stantec Consulting Services, Inc.

SHEAR WAVE VELOCITY

Incremental Between Measured Depths



Weighted average $V_s = 212.2$ ft/s

Shear Wave Velocity, V_s

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$$V_s = \frac{L_2 - L_1}{t_2 - t_1}$$

where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.

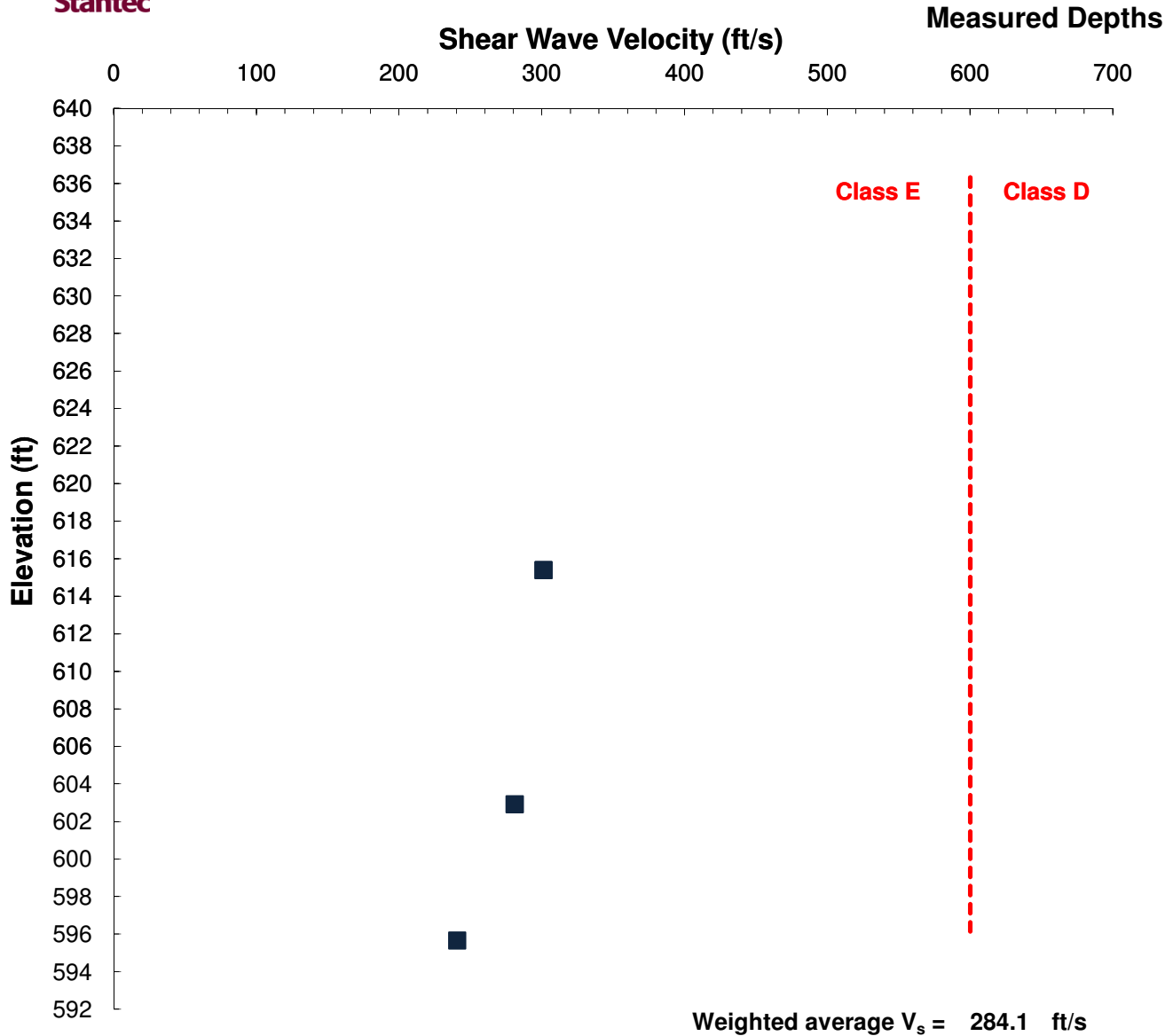
Project No. 175569036

CPT4

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Shear Wave Velocity, V_s

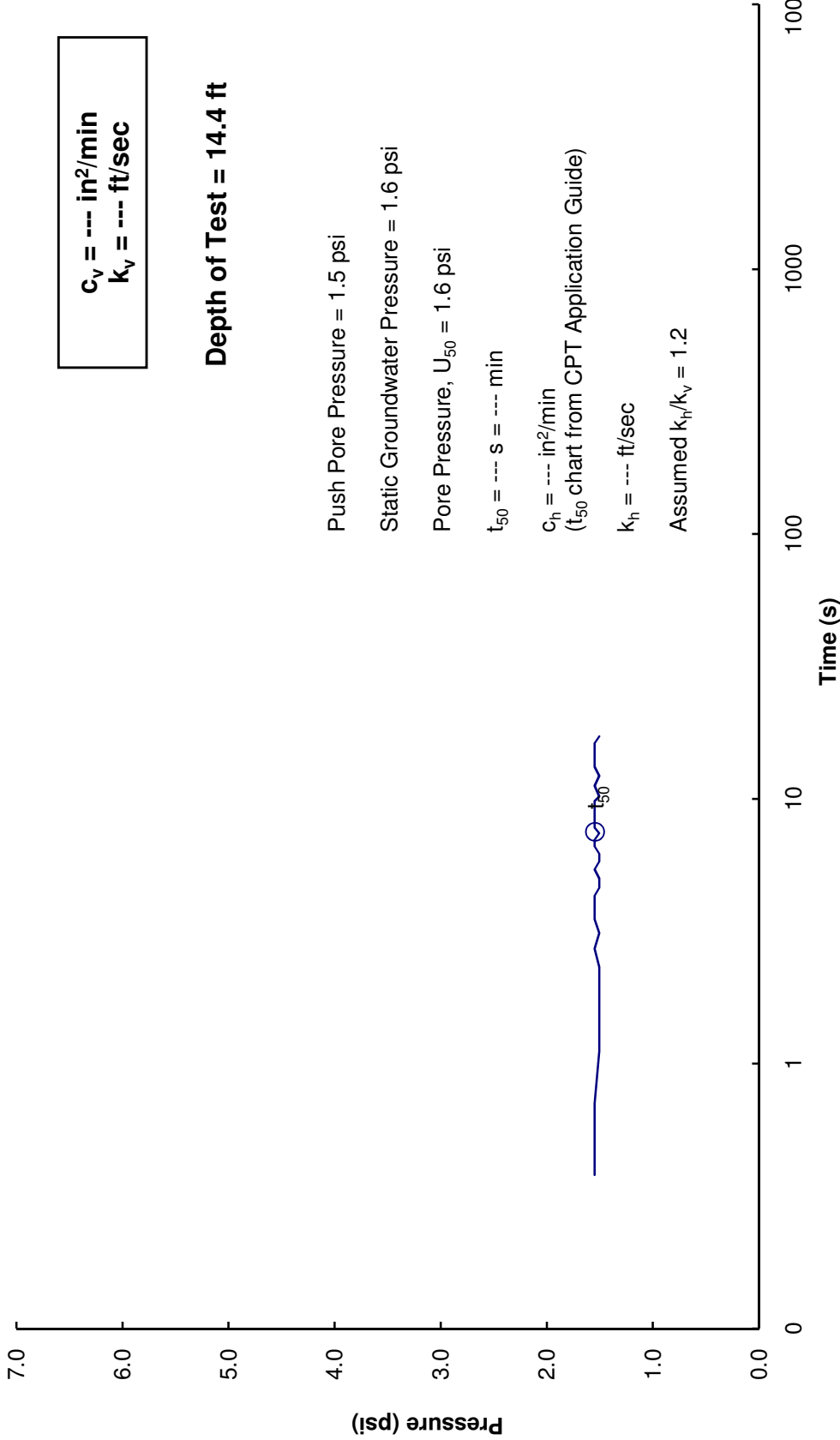
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Stantec Consulting
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SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



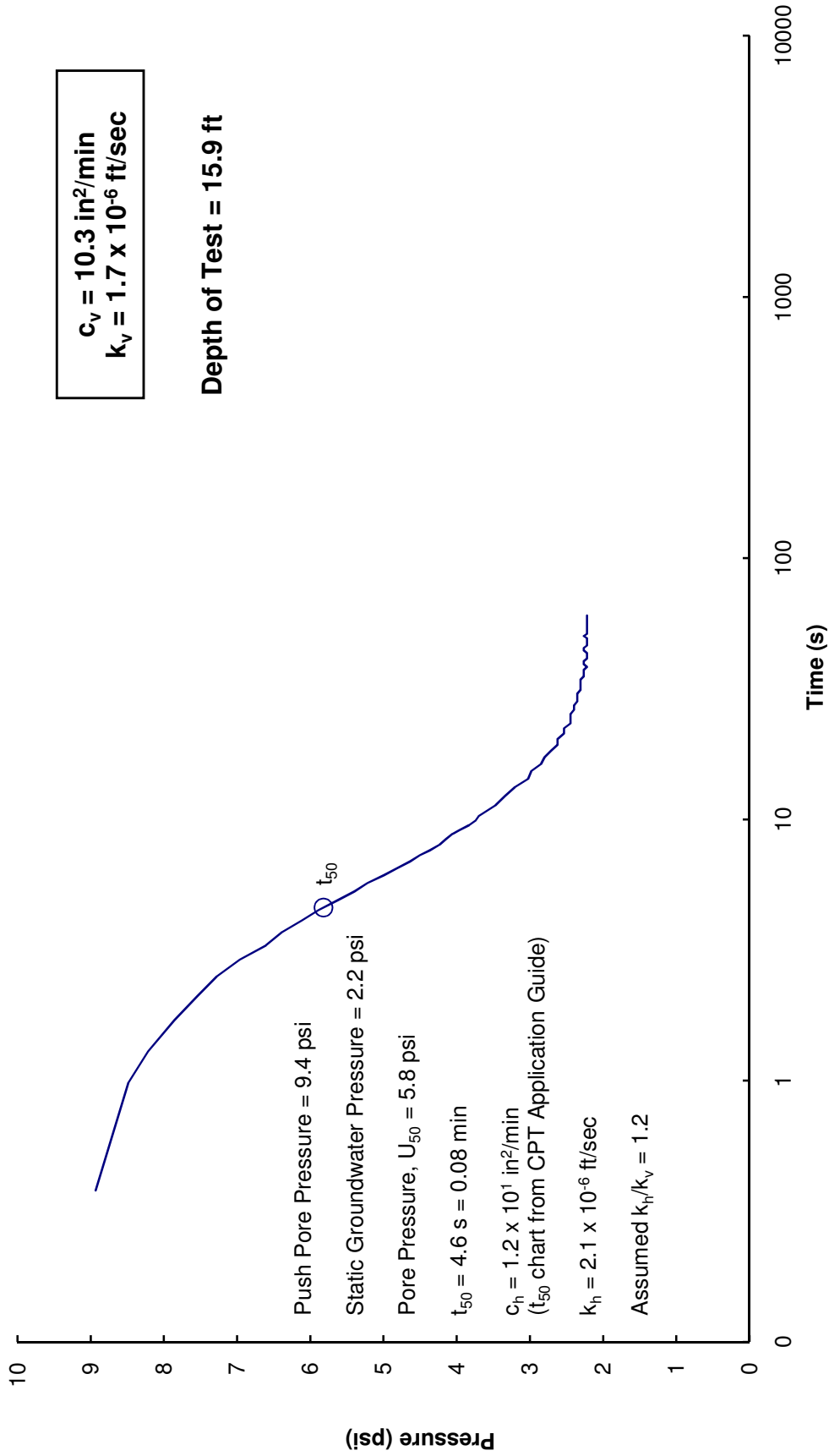
Project No. 175569036
CPT4



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



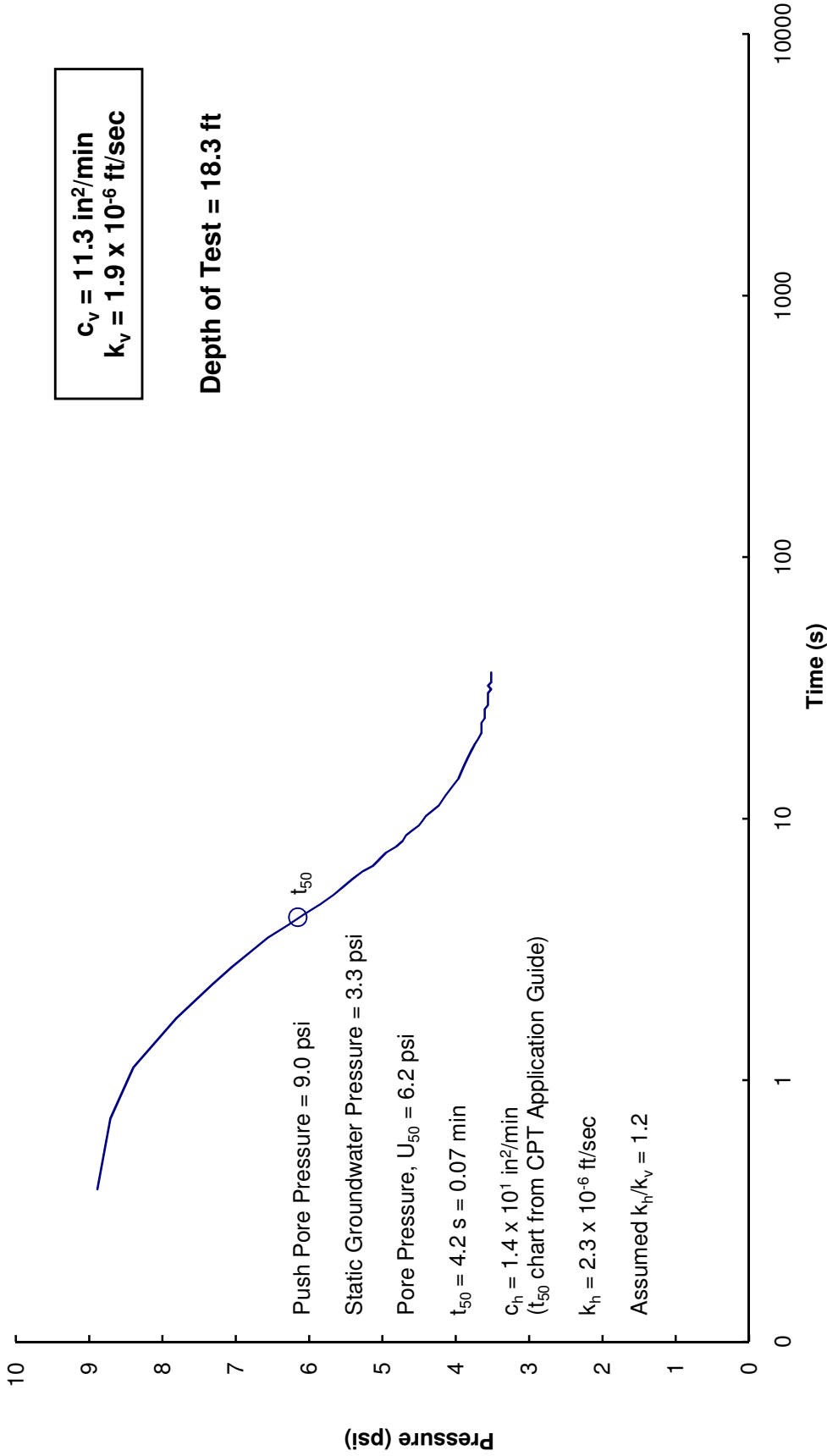
Project No. 175569036
CPT4



Stantec Consulting
Inc.

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



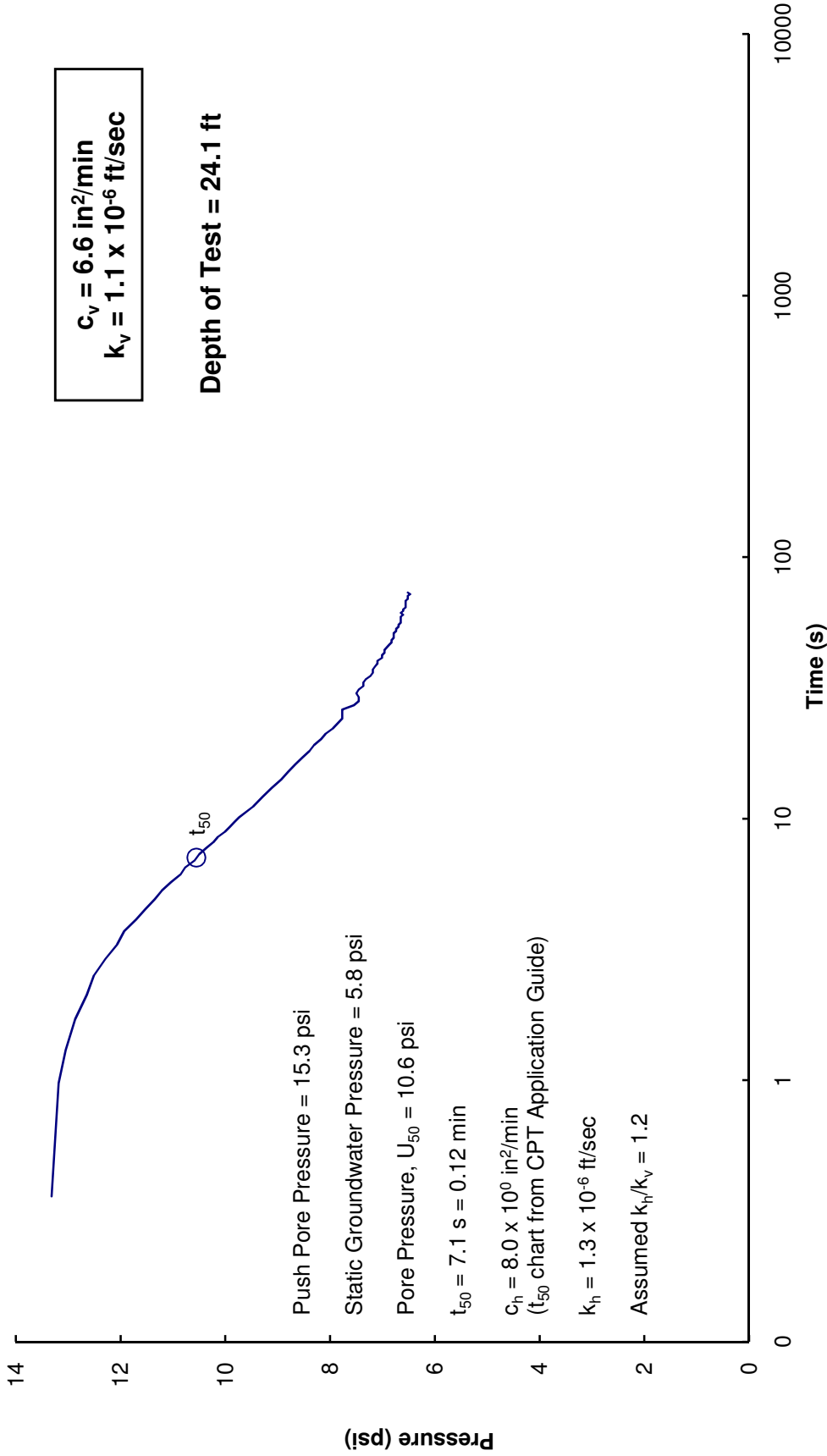
Project No. 175569036
CPT4



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



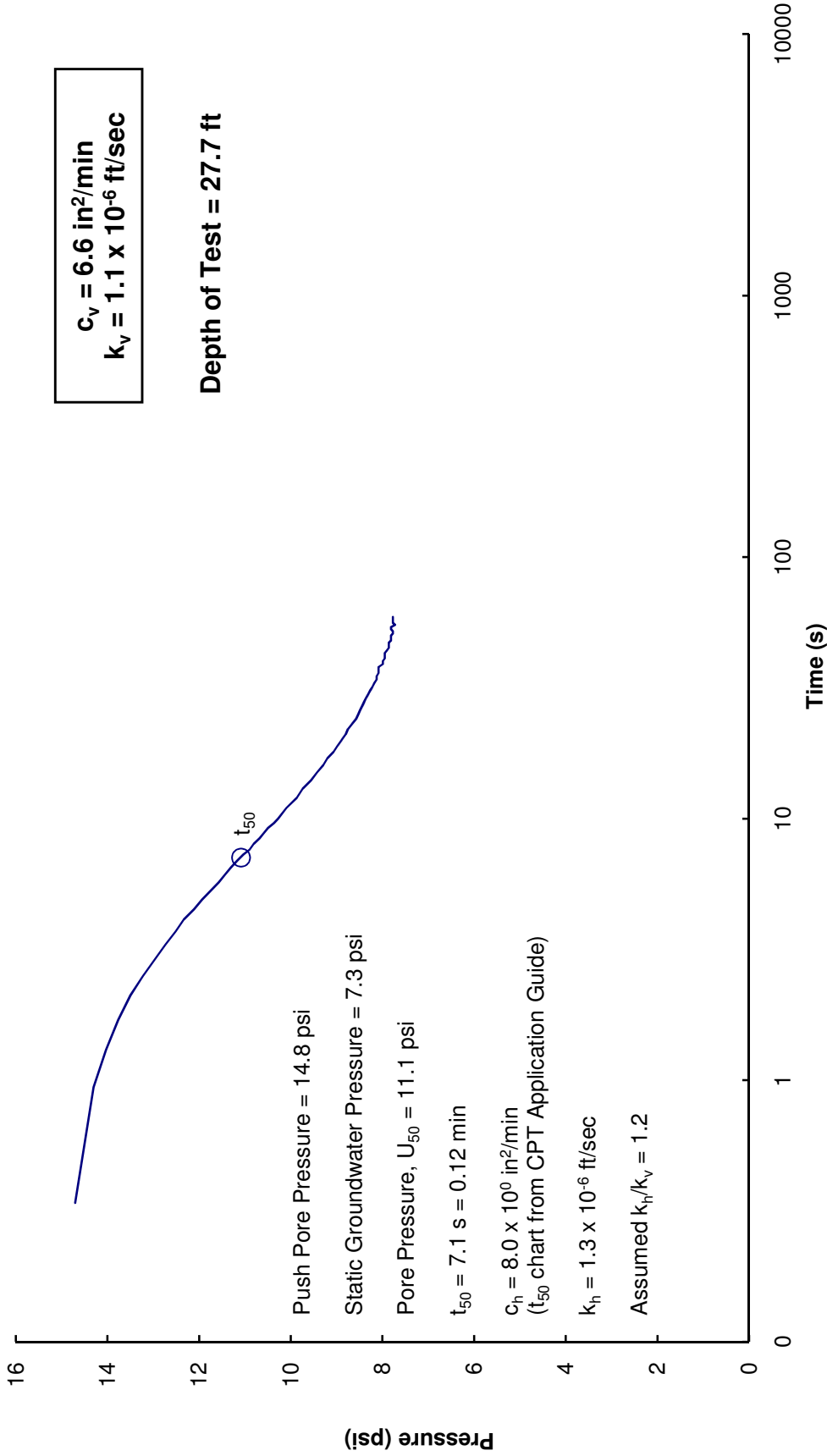
Project No. 175569036
CPT4



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT4

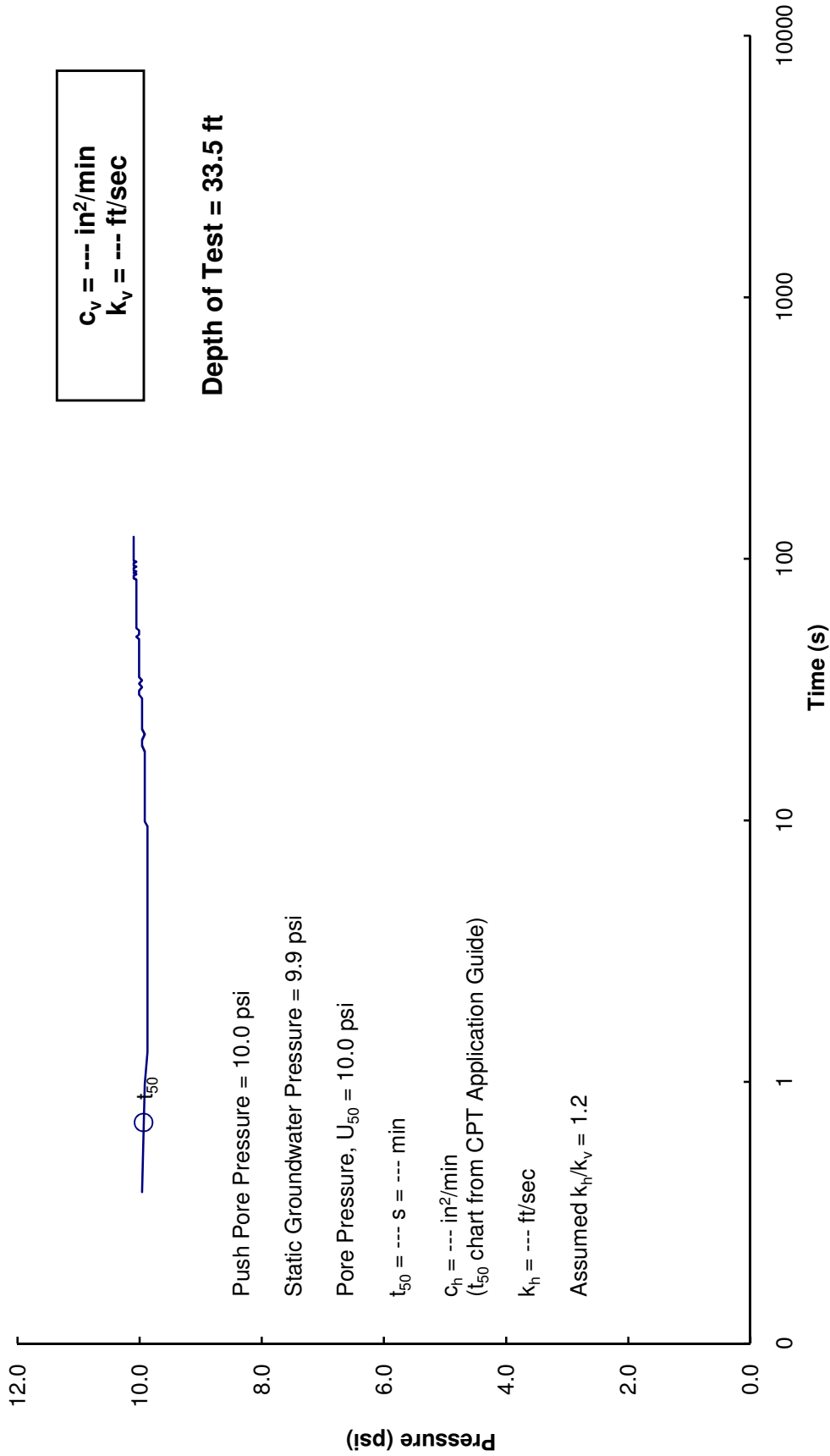


Stantec

**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



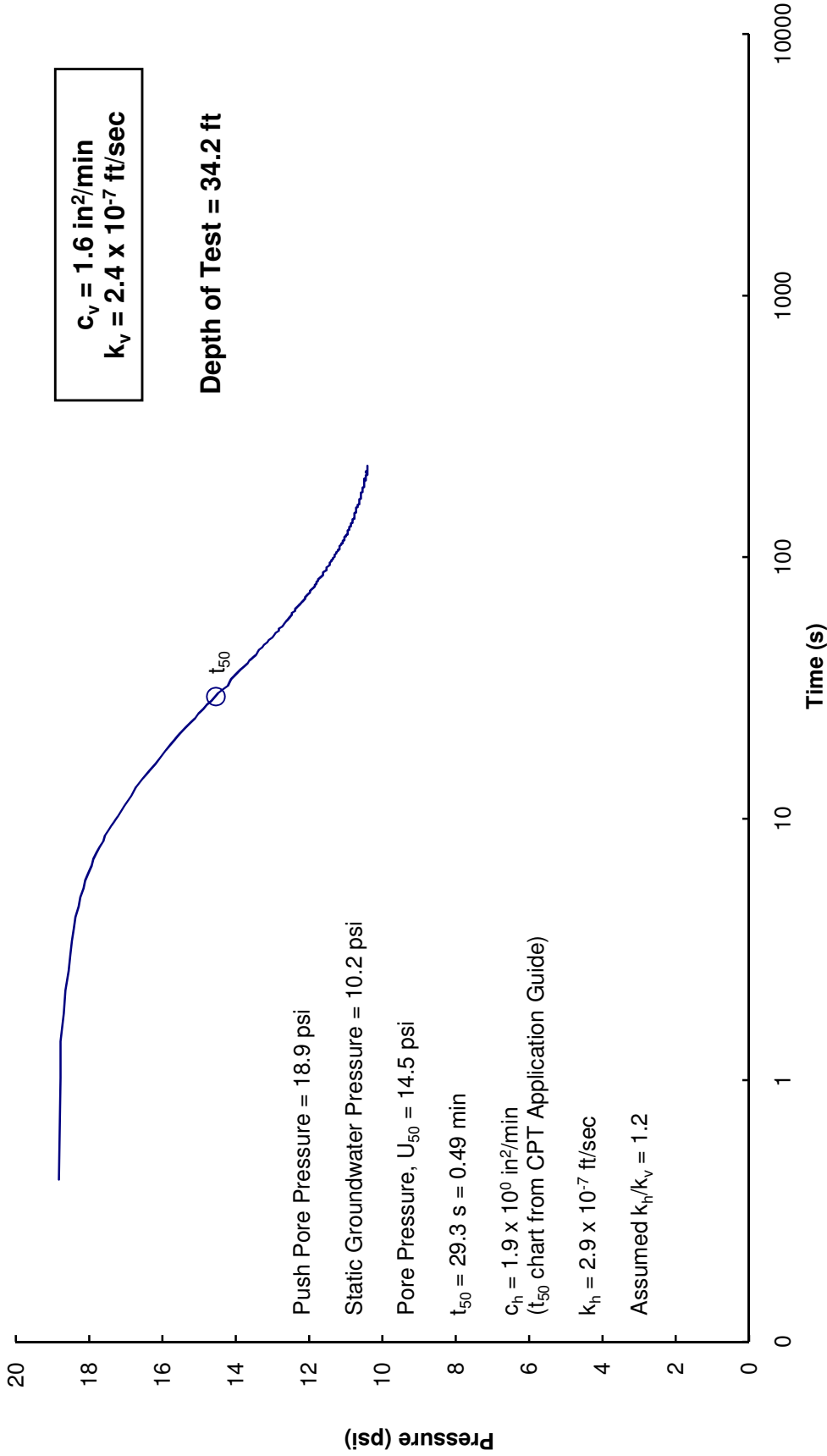
Project No. 175569036
CPT4



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



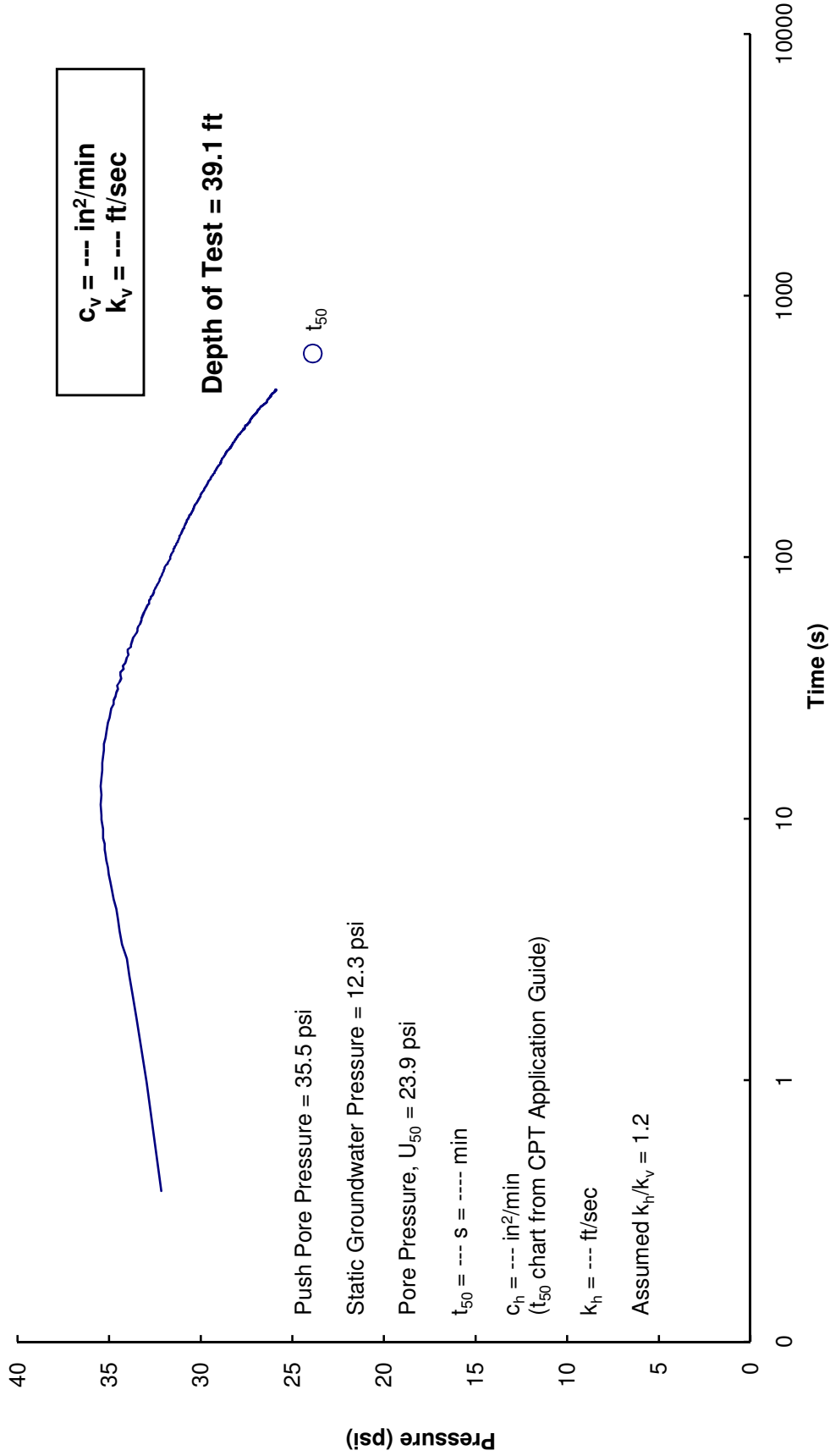
Project No. 175569036
CPT4



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



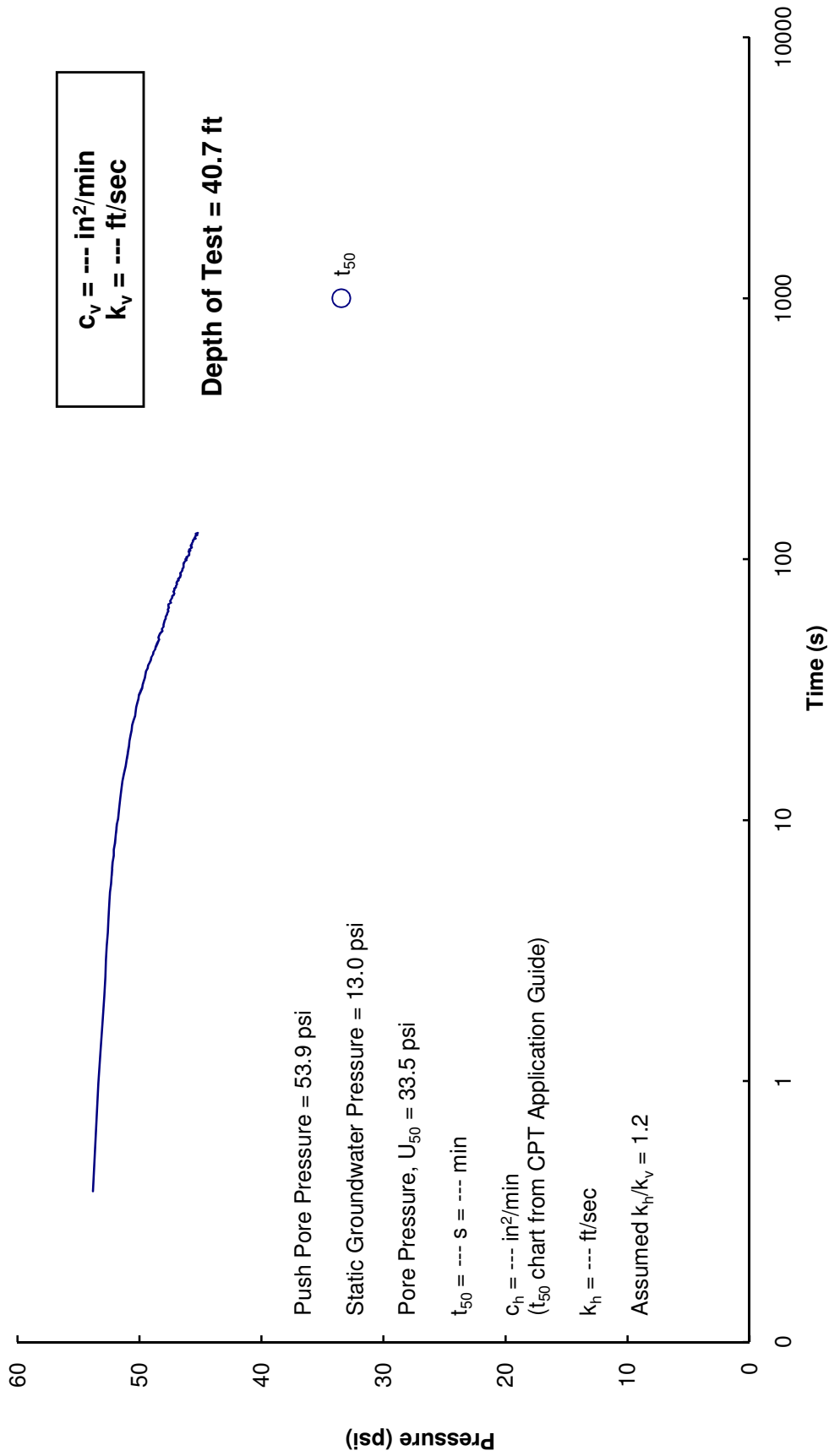
Project No. 175569036
CPT4



Stantec Consulting
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SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT4



**Stantec Consulting
Inc.**

Stantec

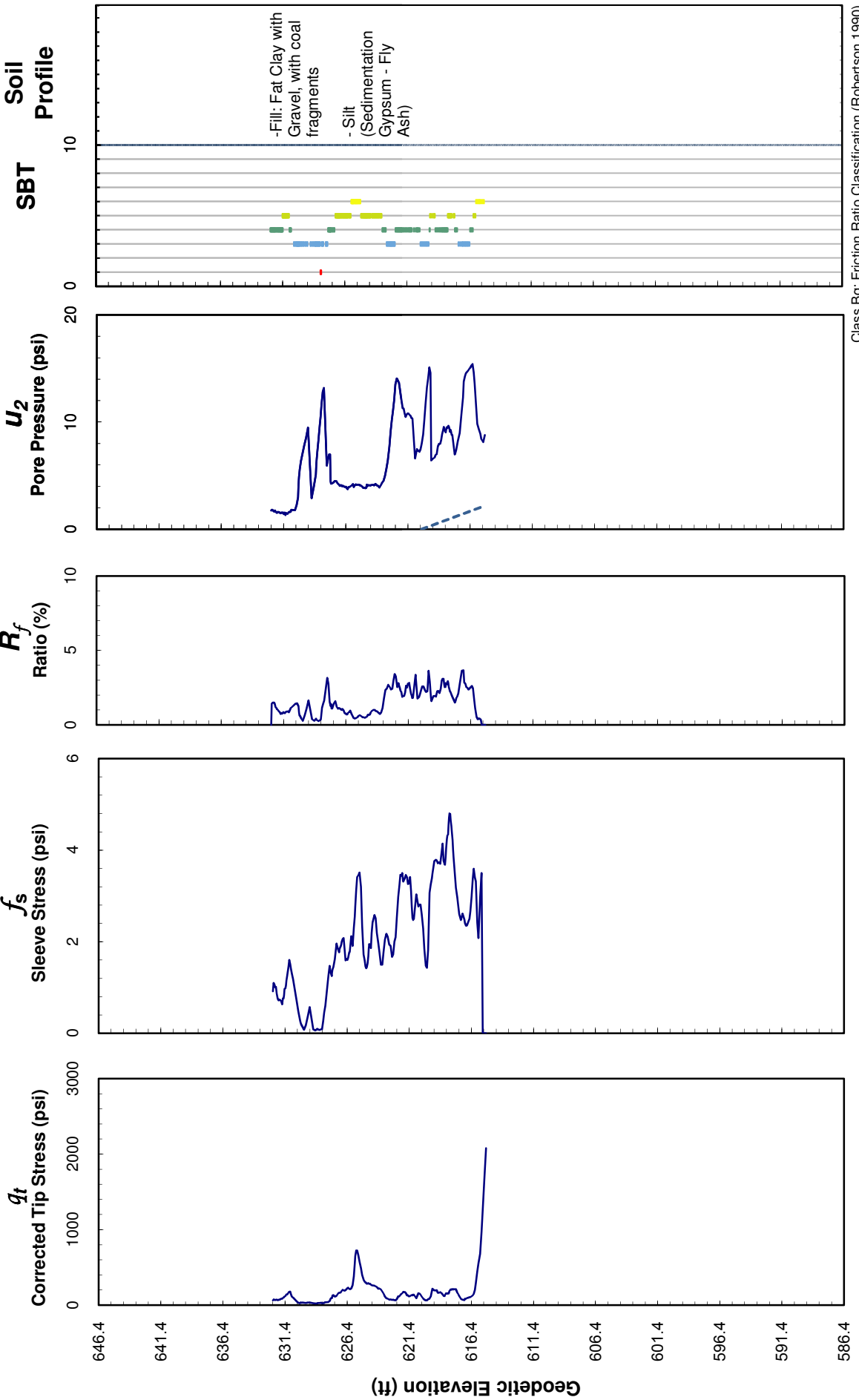
Elevation: 642.40 ft
SCPTu Start Elevation: 632.40 ft
Groundwater Elevation: 620.30 ft

Client: TVA

Project: Widows Creek Main Ash Pond

Test Date: June 10, 2009
Project No. 175569036

CPT5



Class Bq: Friction Ratio Classification (Robertson 1990)

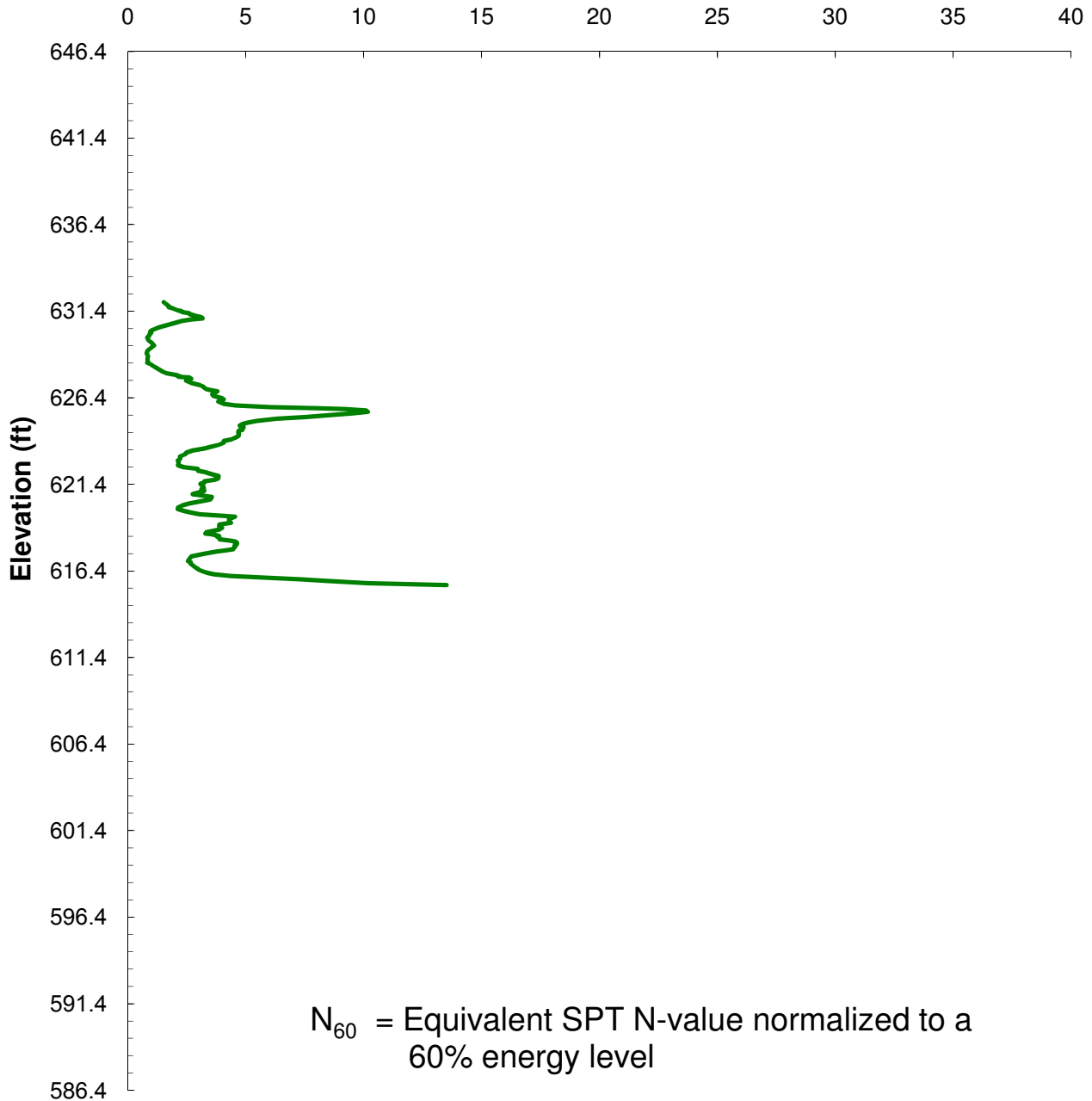


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



N_{60} = Equivalent SPT N-value normalized to a 60% energy level

The correlation from SCPTu data to equivalent SPT N_{60} values is based on the Jefferies and Davies (1993) approach.

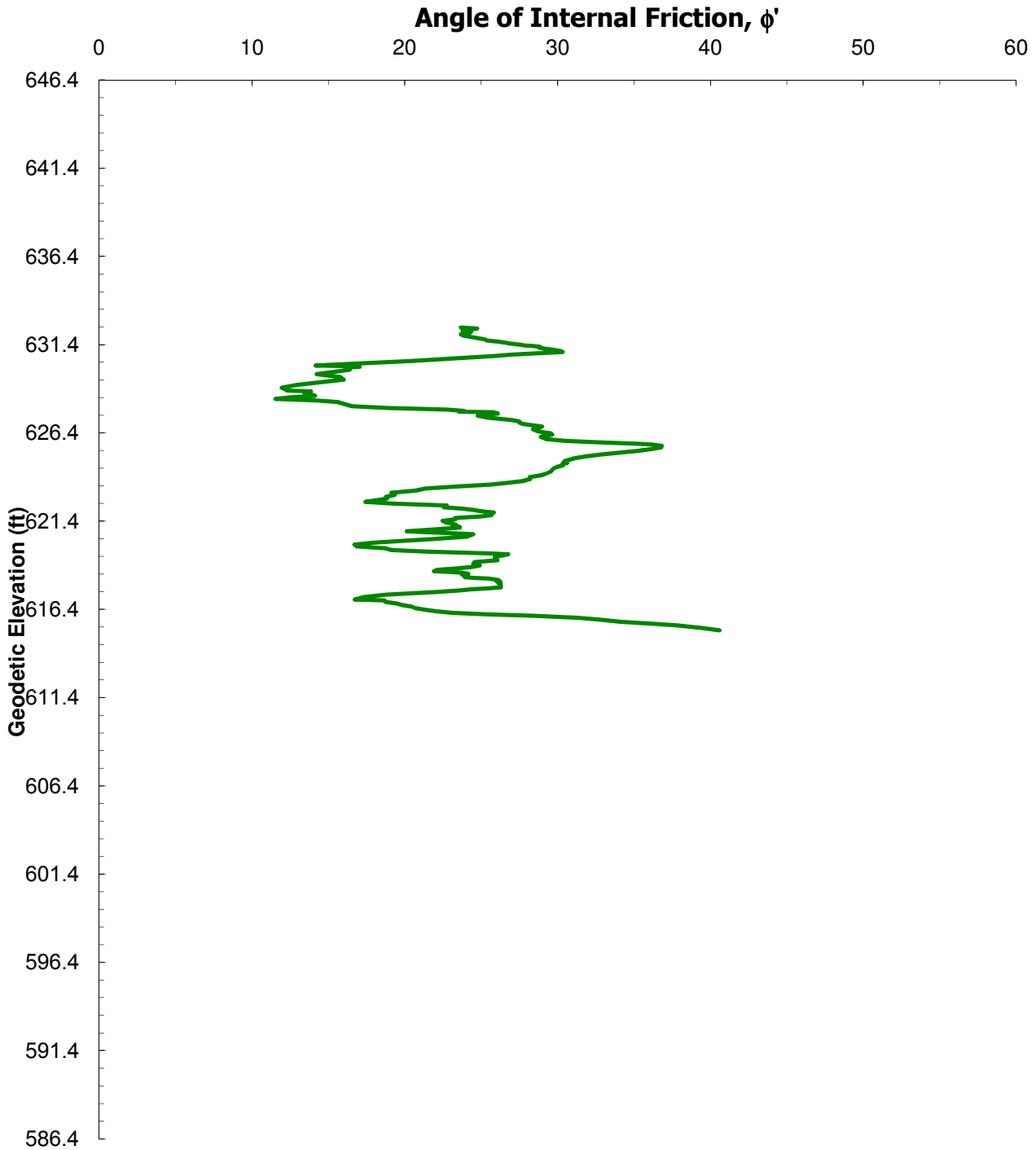
Project No. 175569036
CPT5



Stantec

SCPTu RESULTS

Effective Angle of Internal Friction



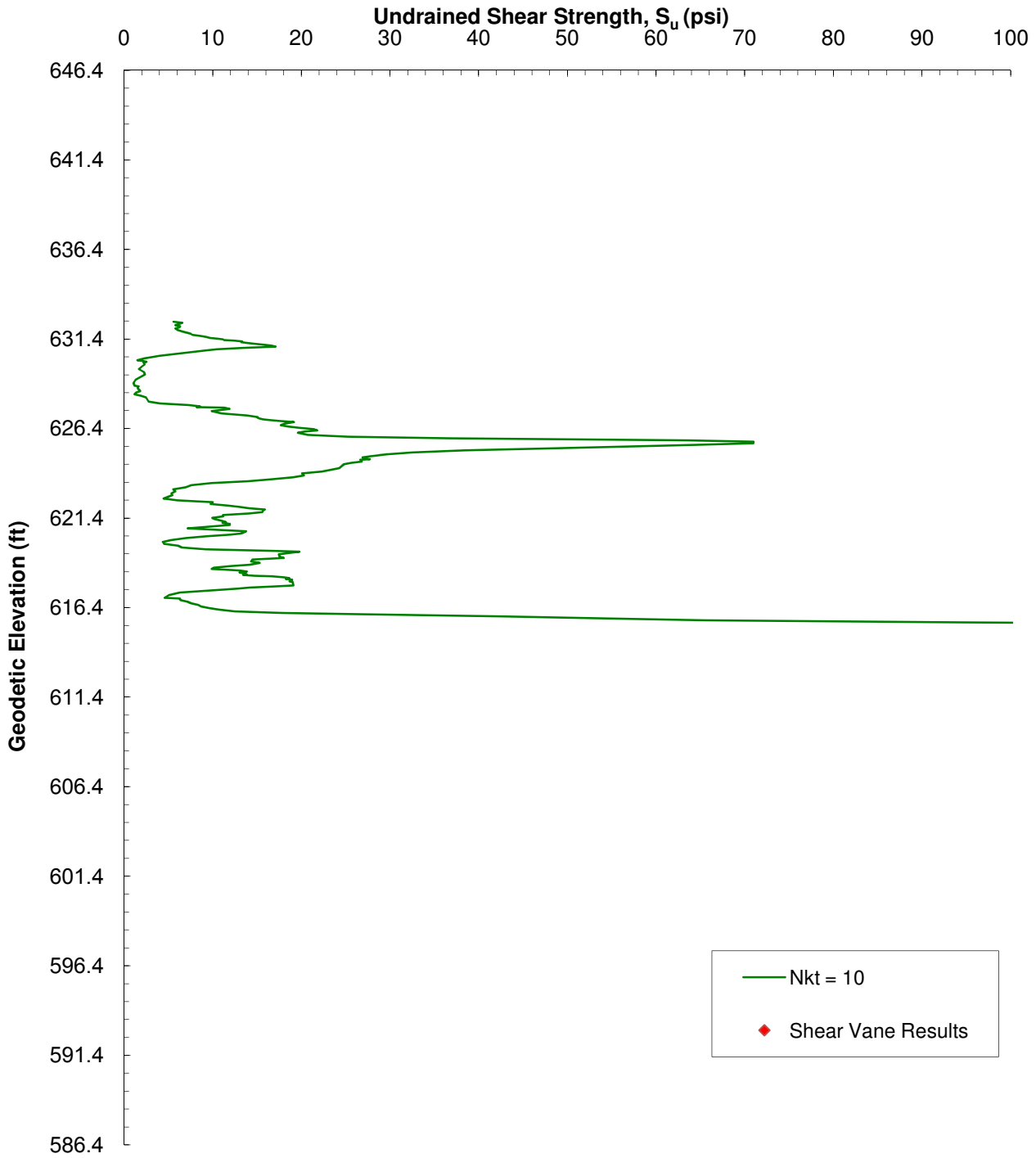
Project No. 175569036
CPT5



Stantec

SCPT_u RESULTS

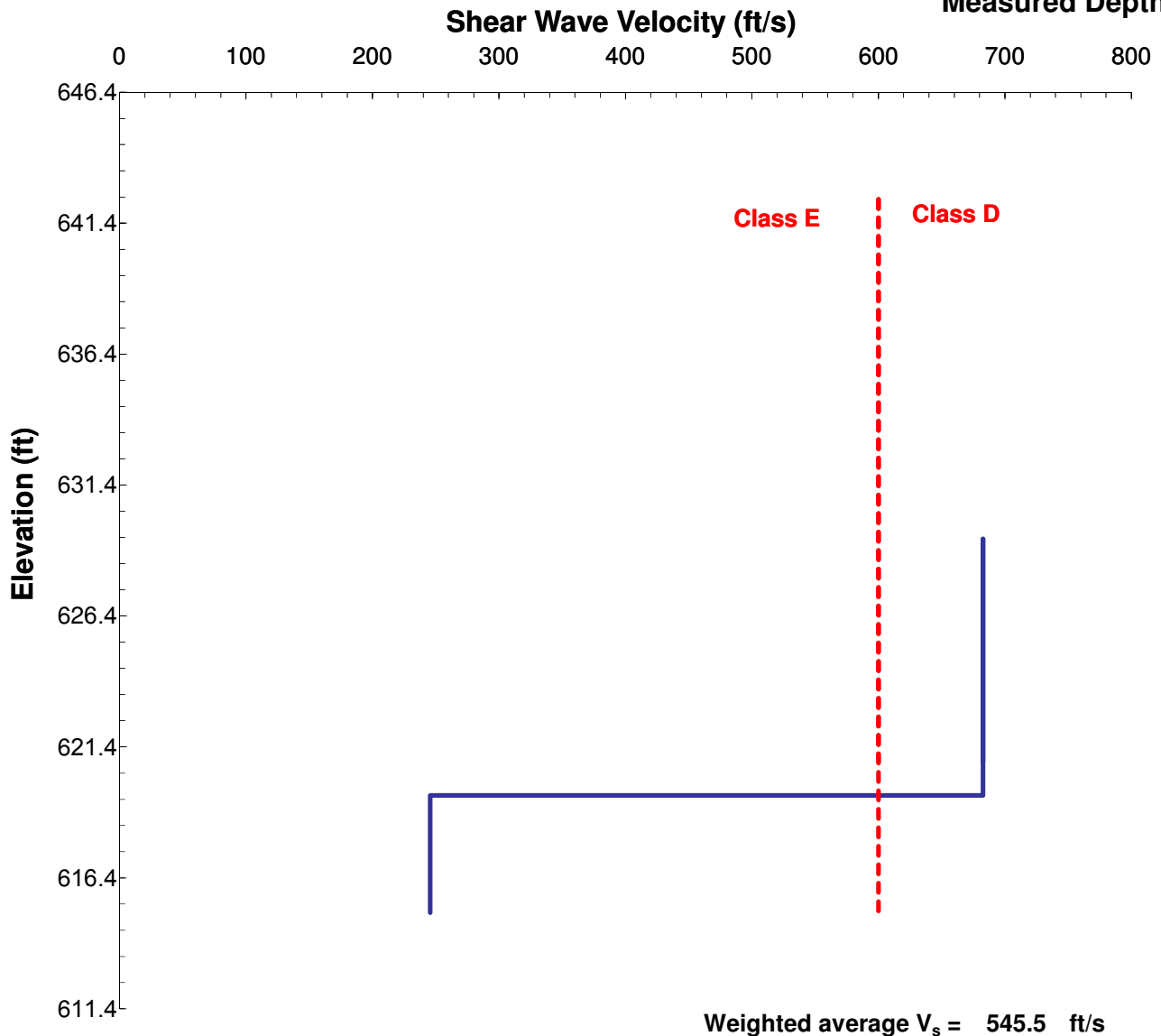
Undrained Shear Strength, S_u



Project No. 175569036
CPT5



Stantec



Shear Wave Velocity, V_s

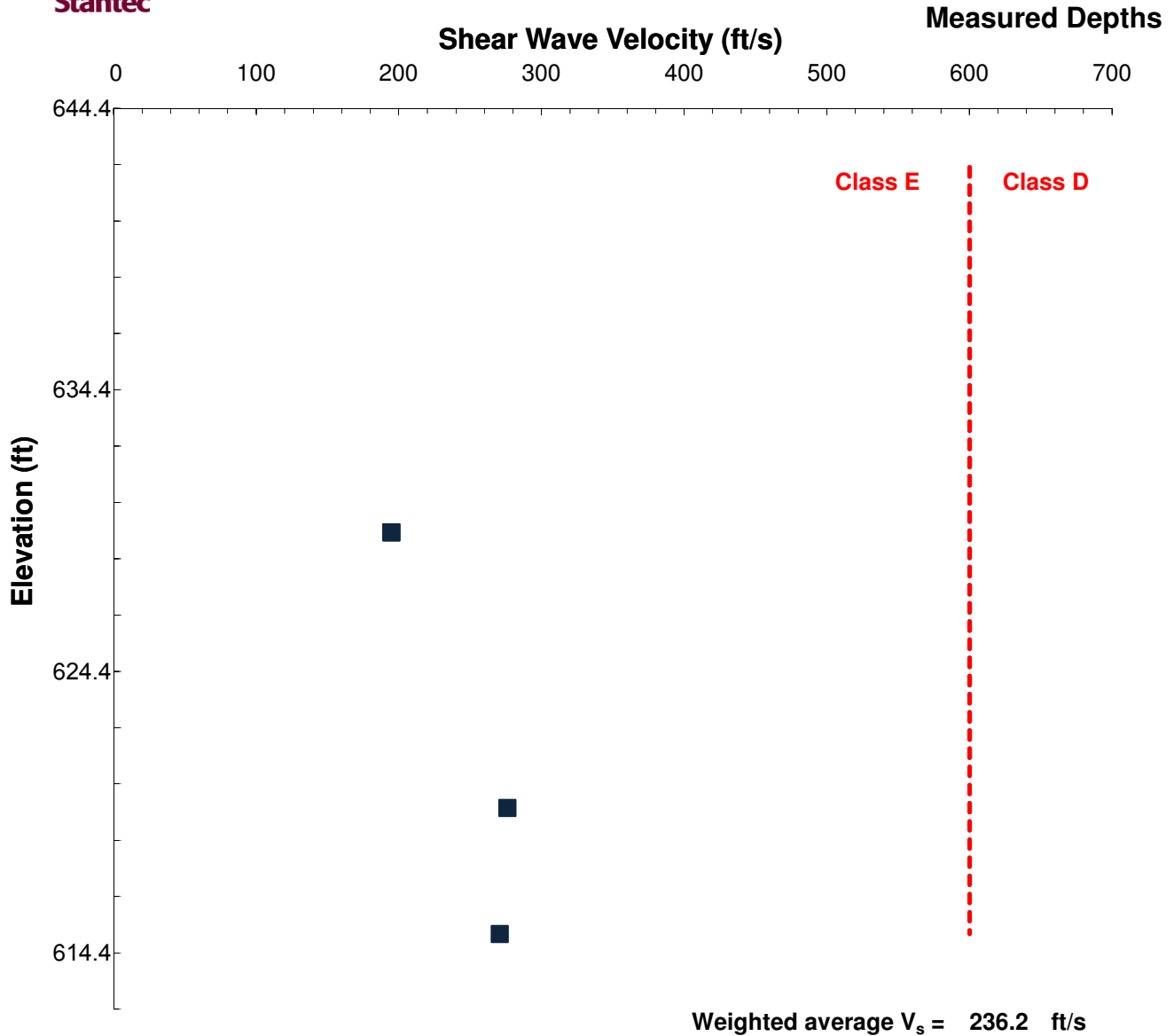
- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
- The shear wave velocity at specific depths is measured by inducing a shear wave at surface and measuring the arrival time of the wave at depth.
- The incremental V_s values were calculated as

$$V_s = \frac{L_2 - L_1}{t_2 - t_1}$$

where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.



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Shear Wave Velocity, V_s

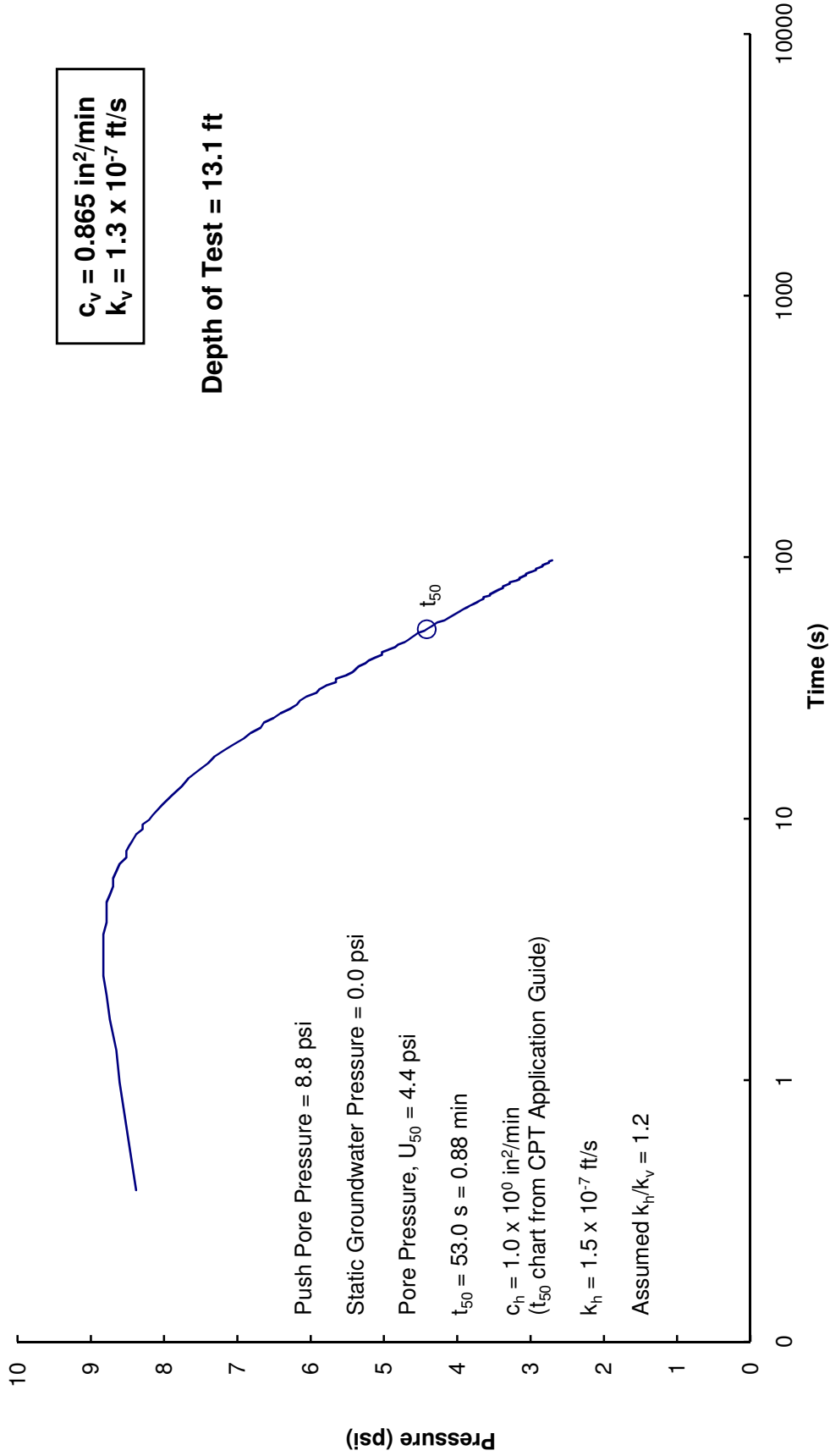
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**Stantec Consulting
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SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



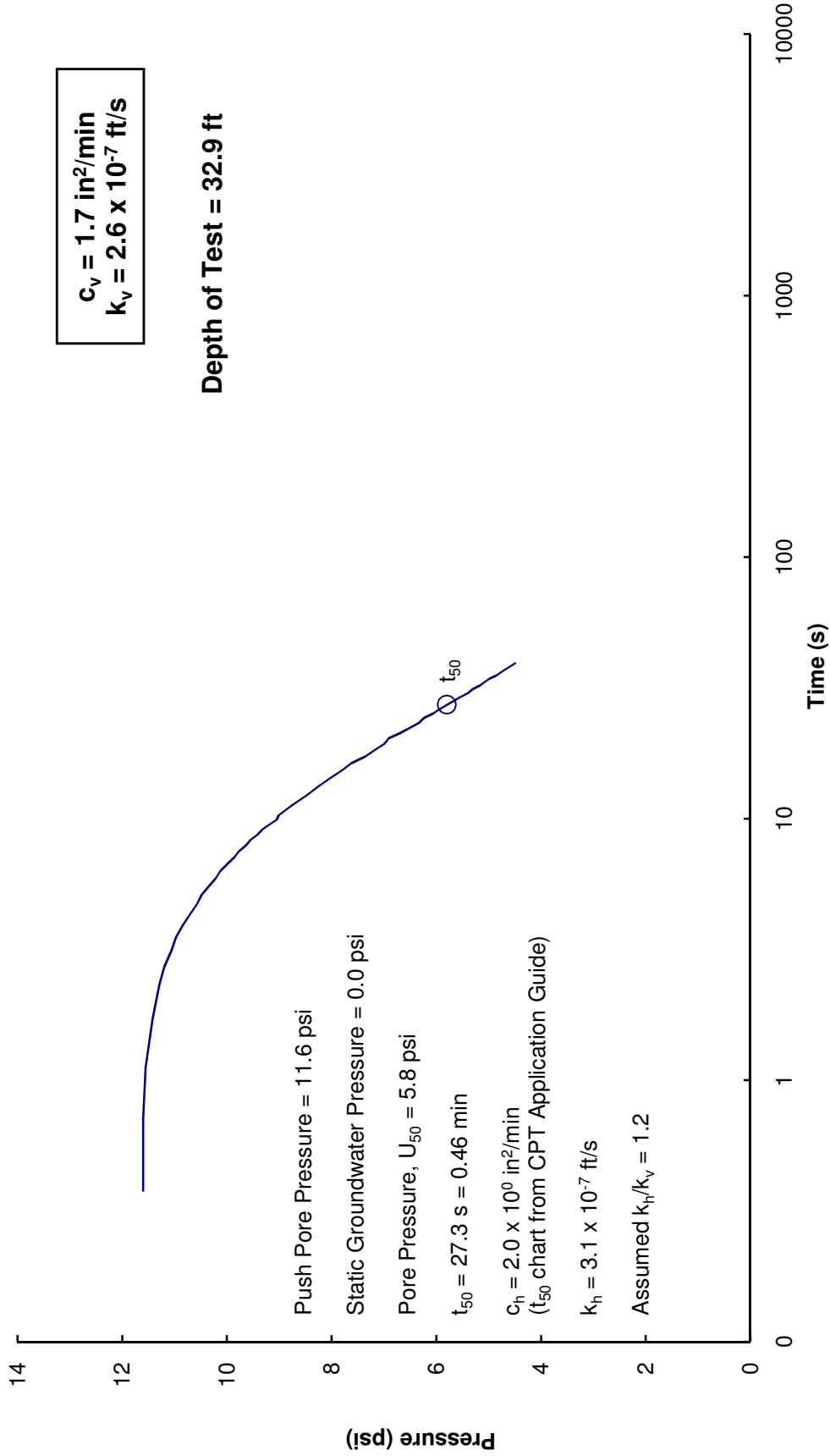
Project No. 175569036
CPT5



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



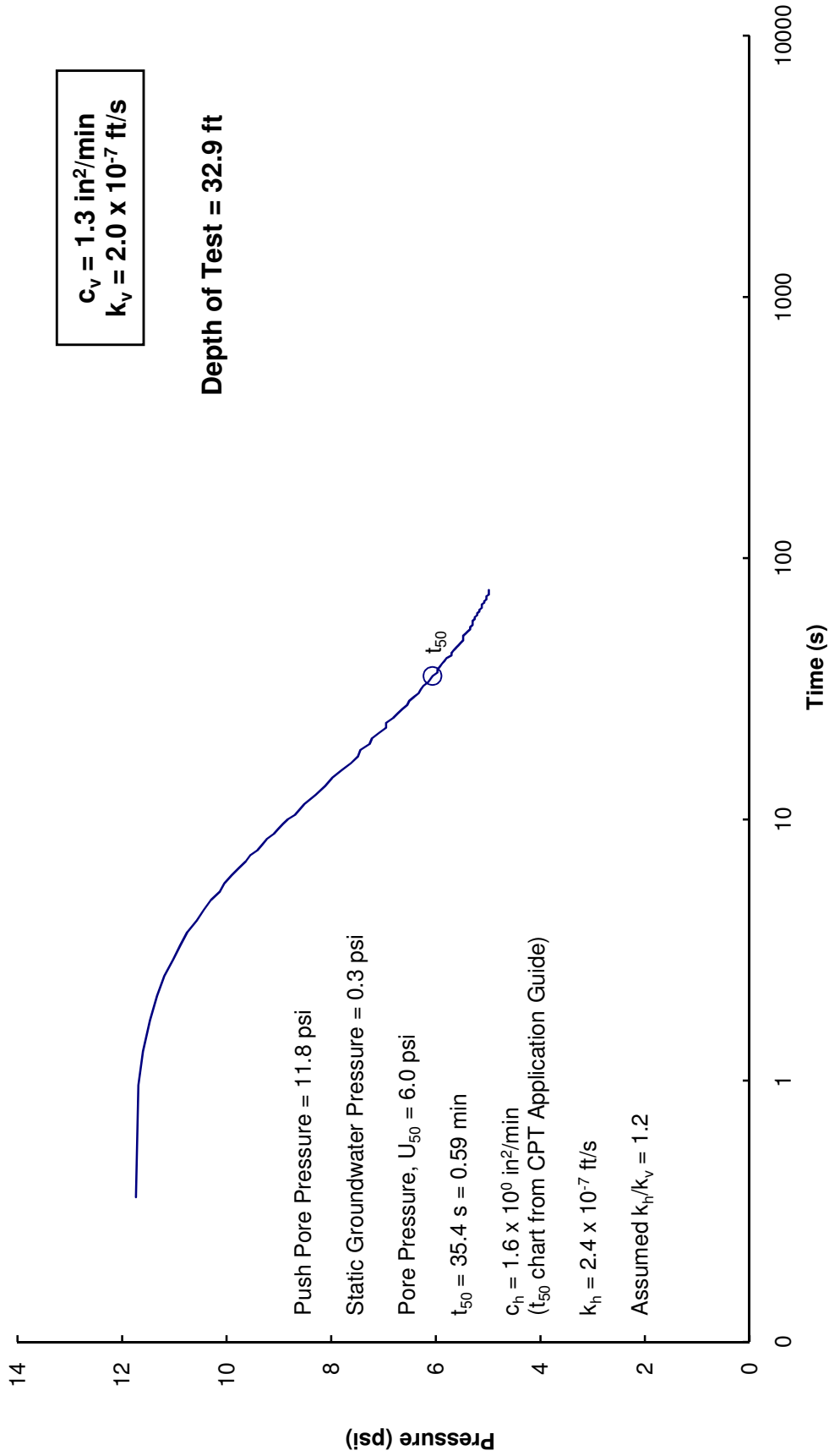
Project No. 175569036
CPT5



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT5



**Stantec Consulting
Inc.**



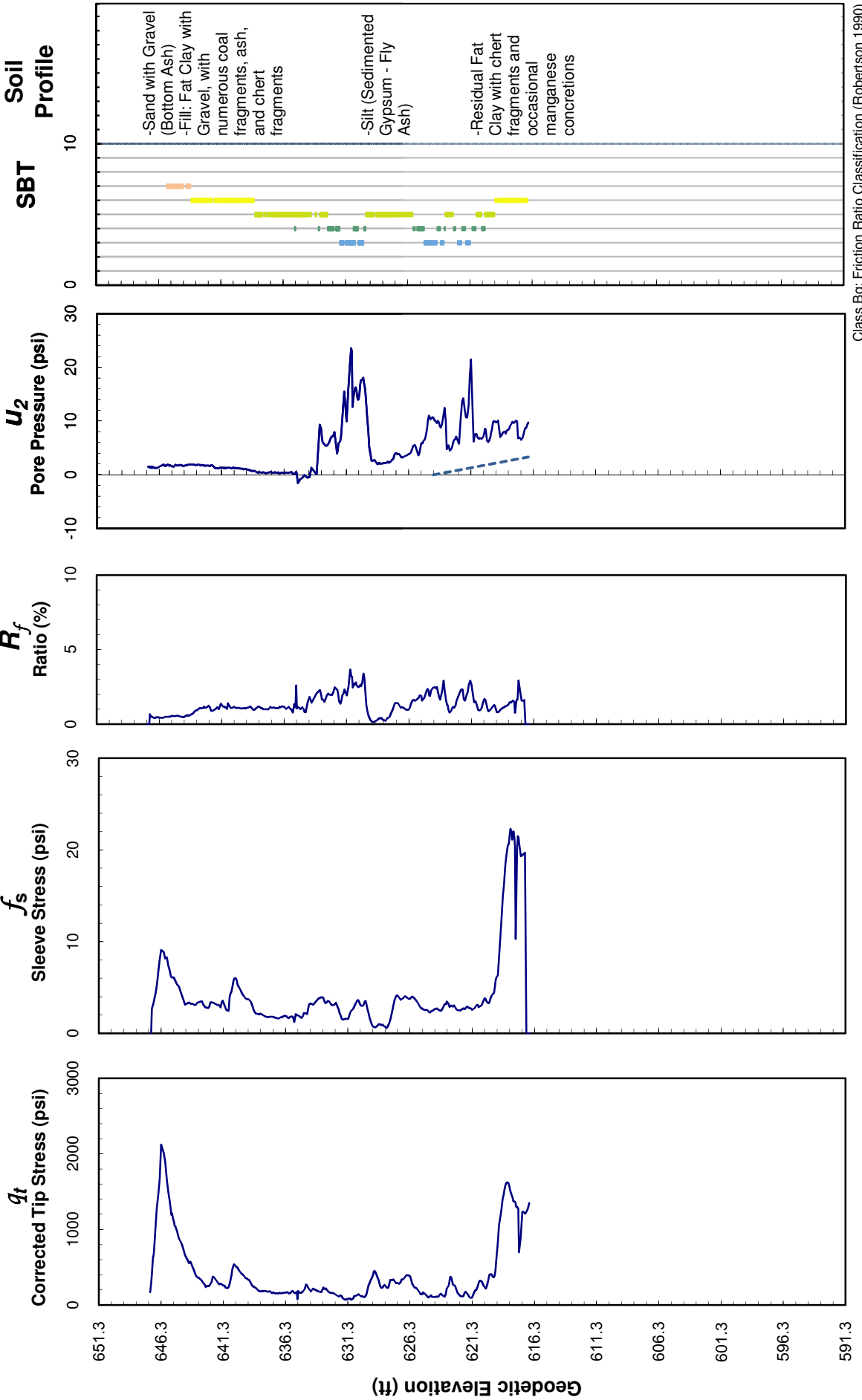
Elevation: 647.30 ft
 SCPTu Start Elevation: 647.30 ft
 Groundwater Elevation: 624.30 ft

Client: TVA

Project: Widows Creek Main Ash Pond

Test Date: June 10, 2009
 Project No. 175569036

CPT6



Class Bq: Friction Ratio Classification (Robertson 1990)

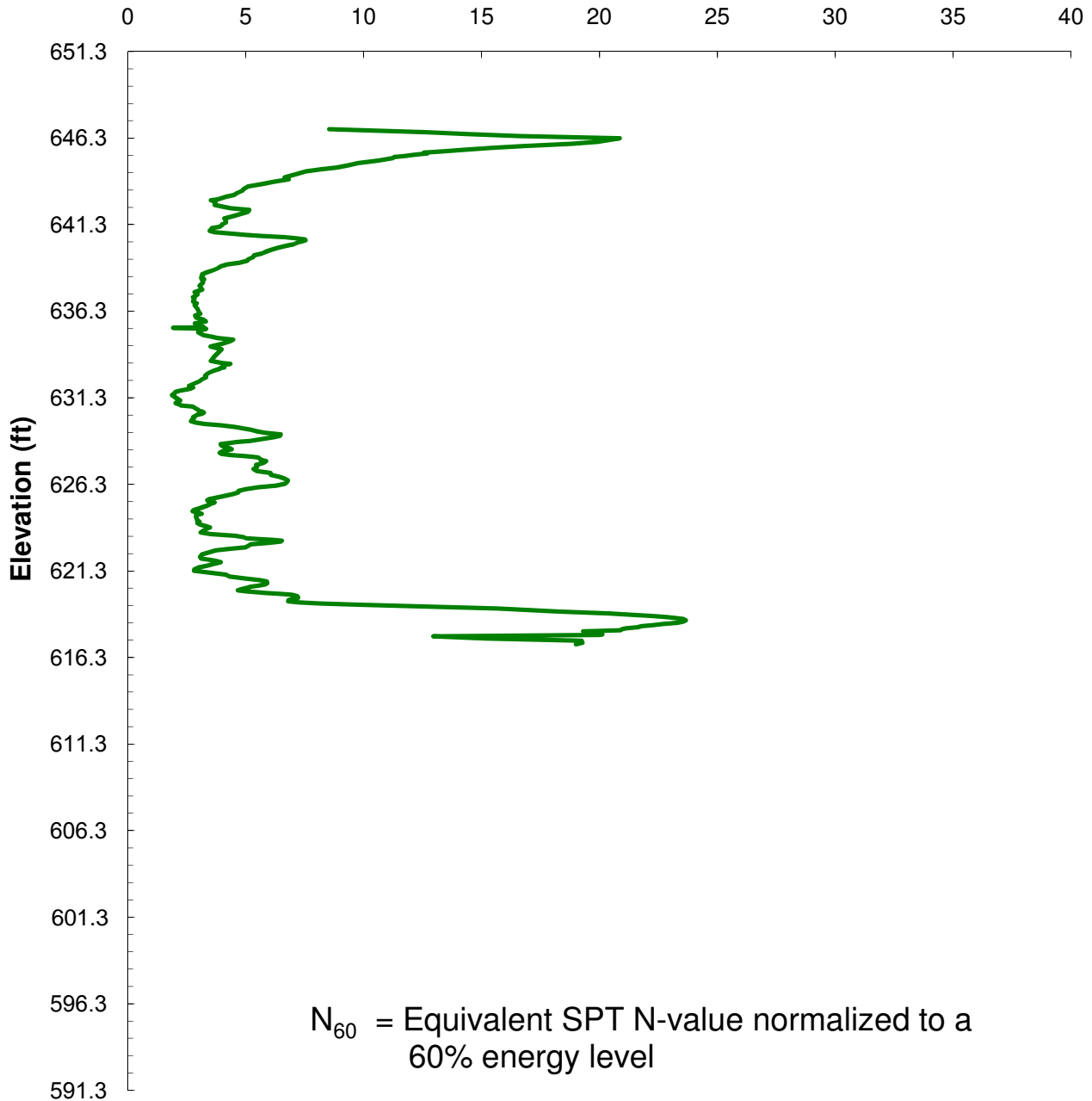


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



N_{60} = Equivalent SPT N-value normalized to a 60% energy level

The correlation from SCPTu data to equivalent SPT N_{60} values is based on the Jefferies and Davies (1993) approach.

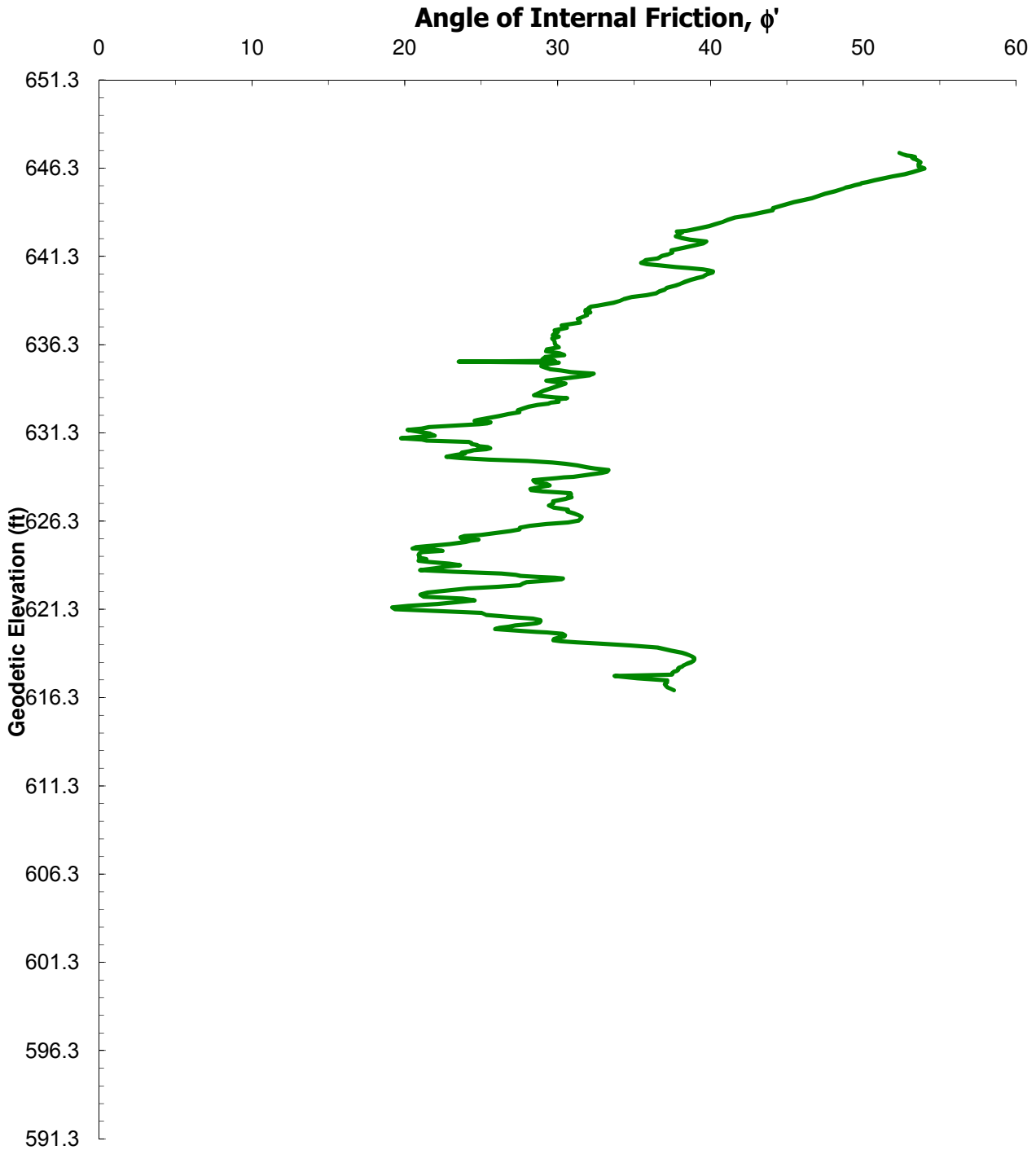
Project No. 175569036
CPT6



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SCPTu RESULTS

Effective Angle of Internal Friction



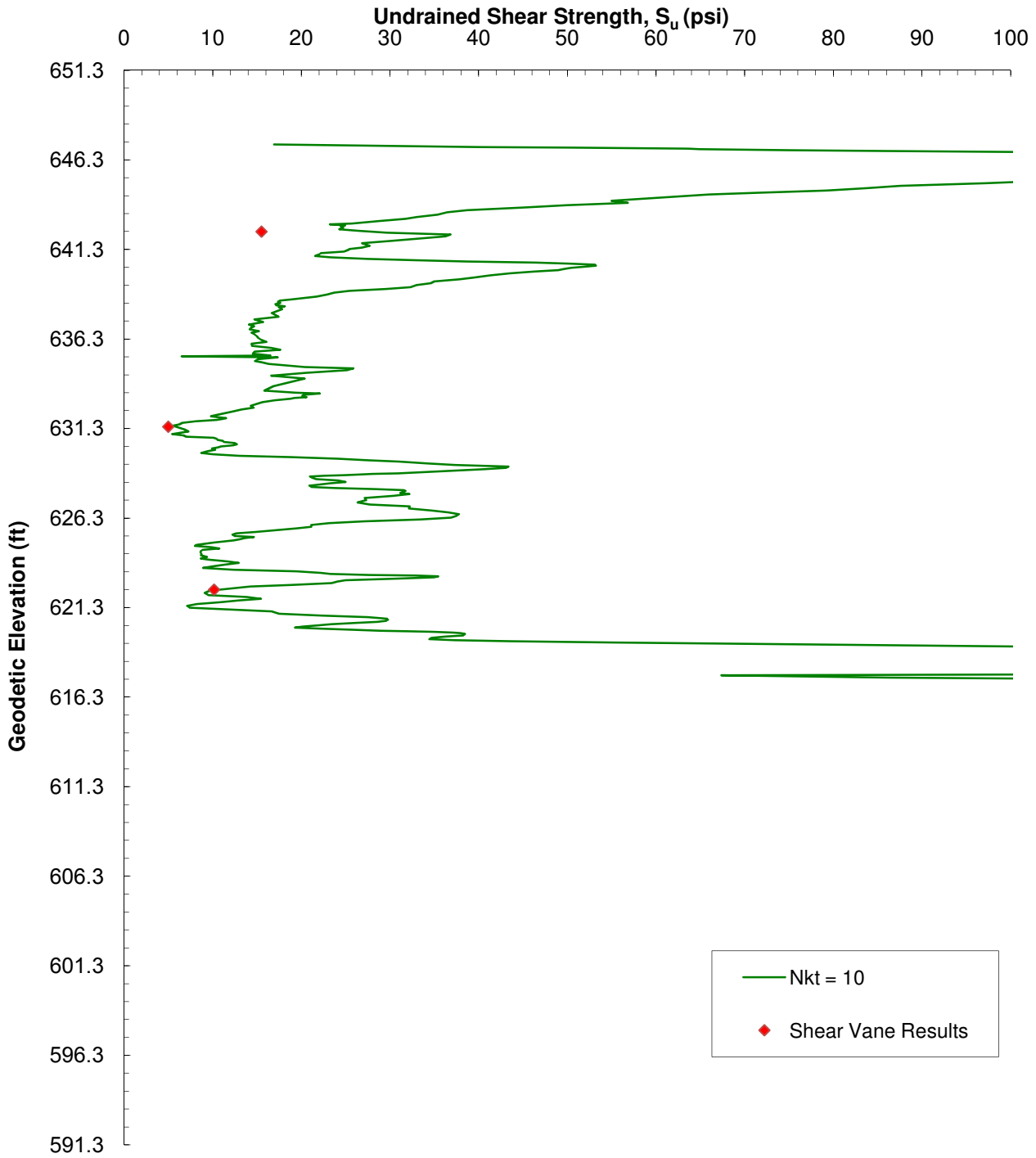
Project No. 175569036
CPT6



Stantec

SCPT_u RESULTS

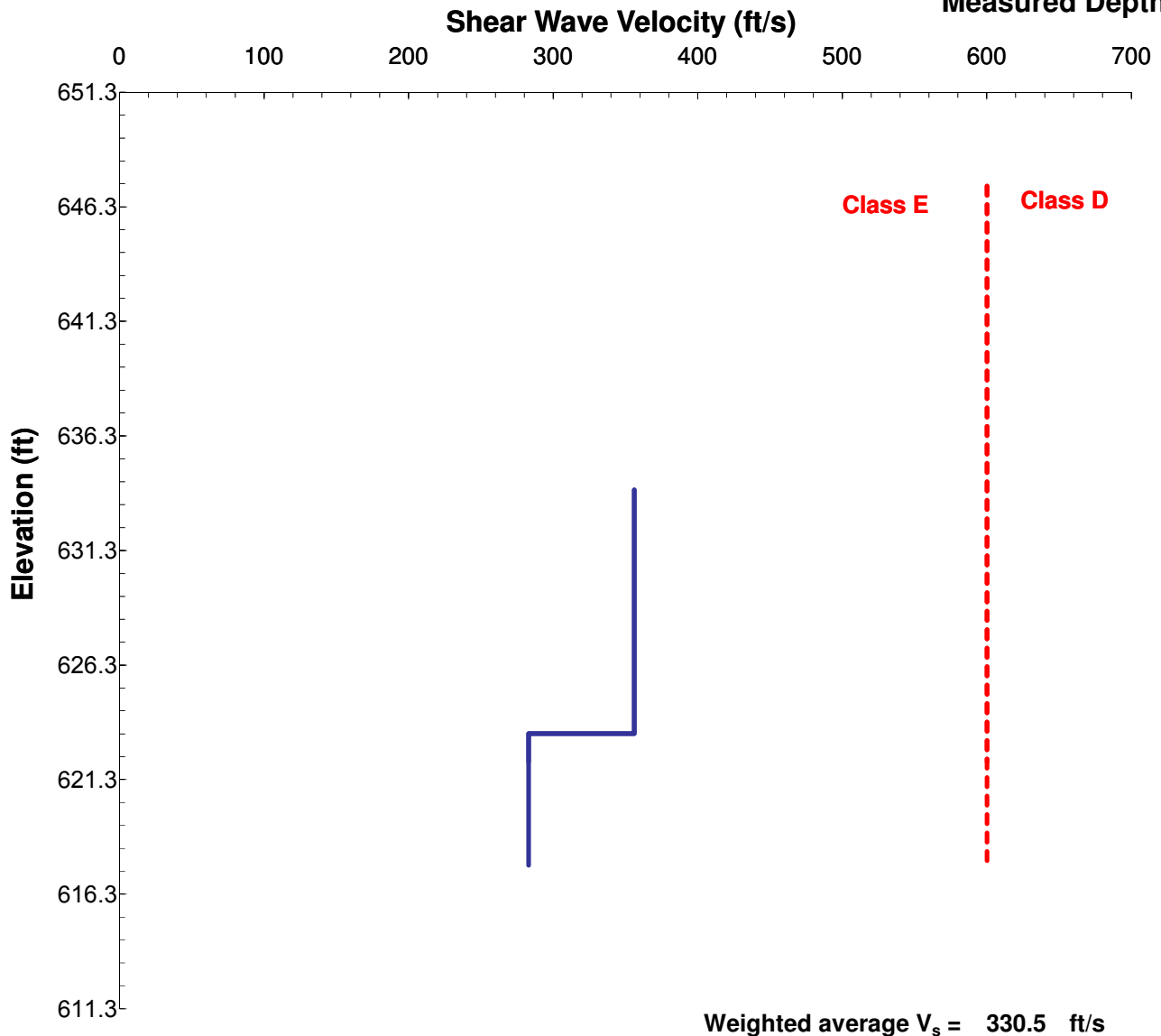
Undrained Shear Strength, S_u



Project No. 175569036
CPT6



Stantec



Shear Wave Velocity, V_s

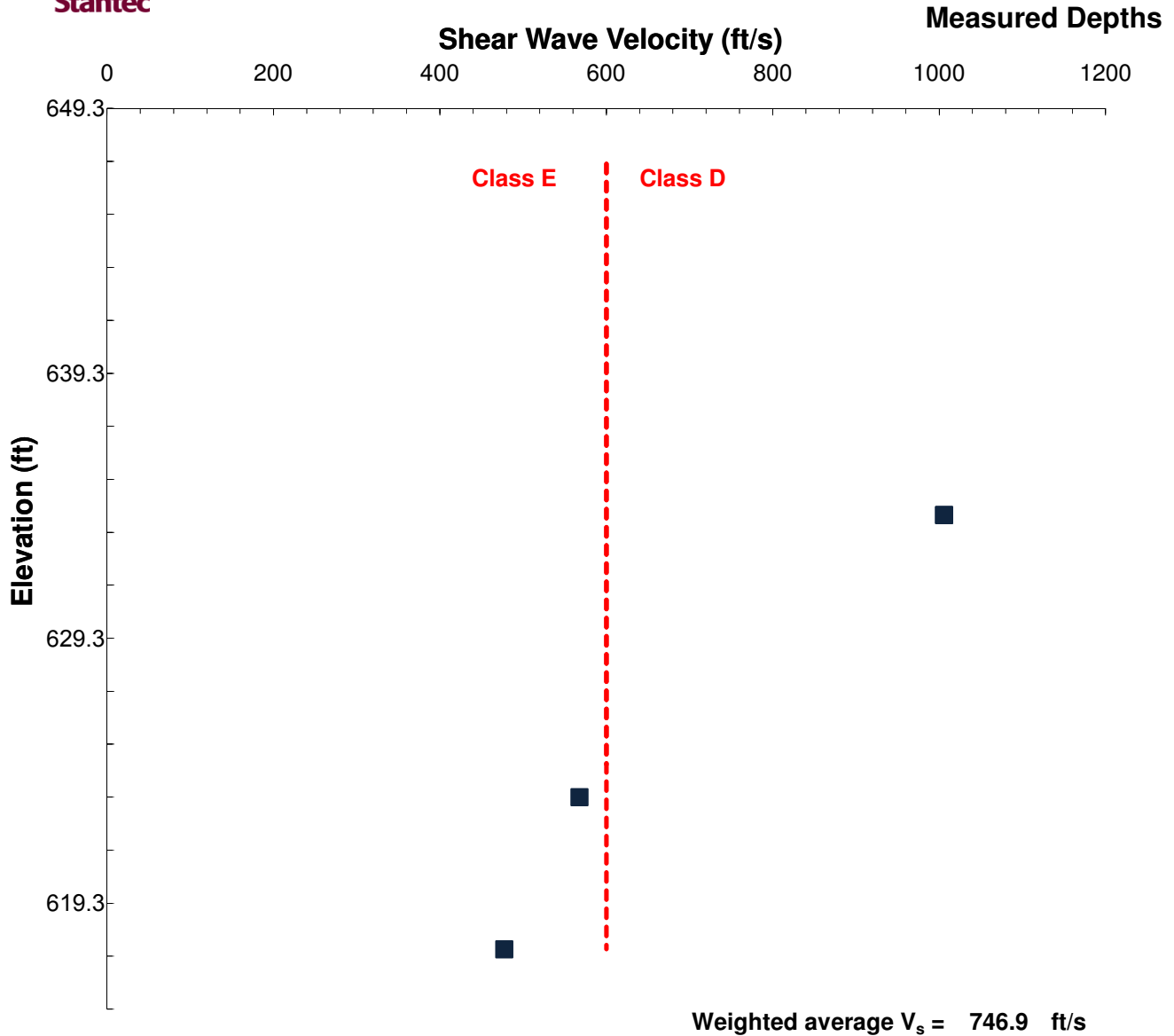
- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
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where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.



Stantec



Shear Wave Velocity, V_s

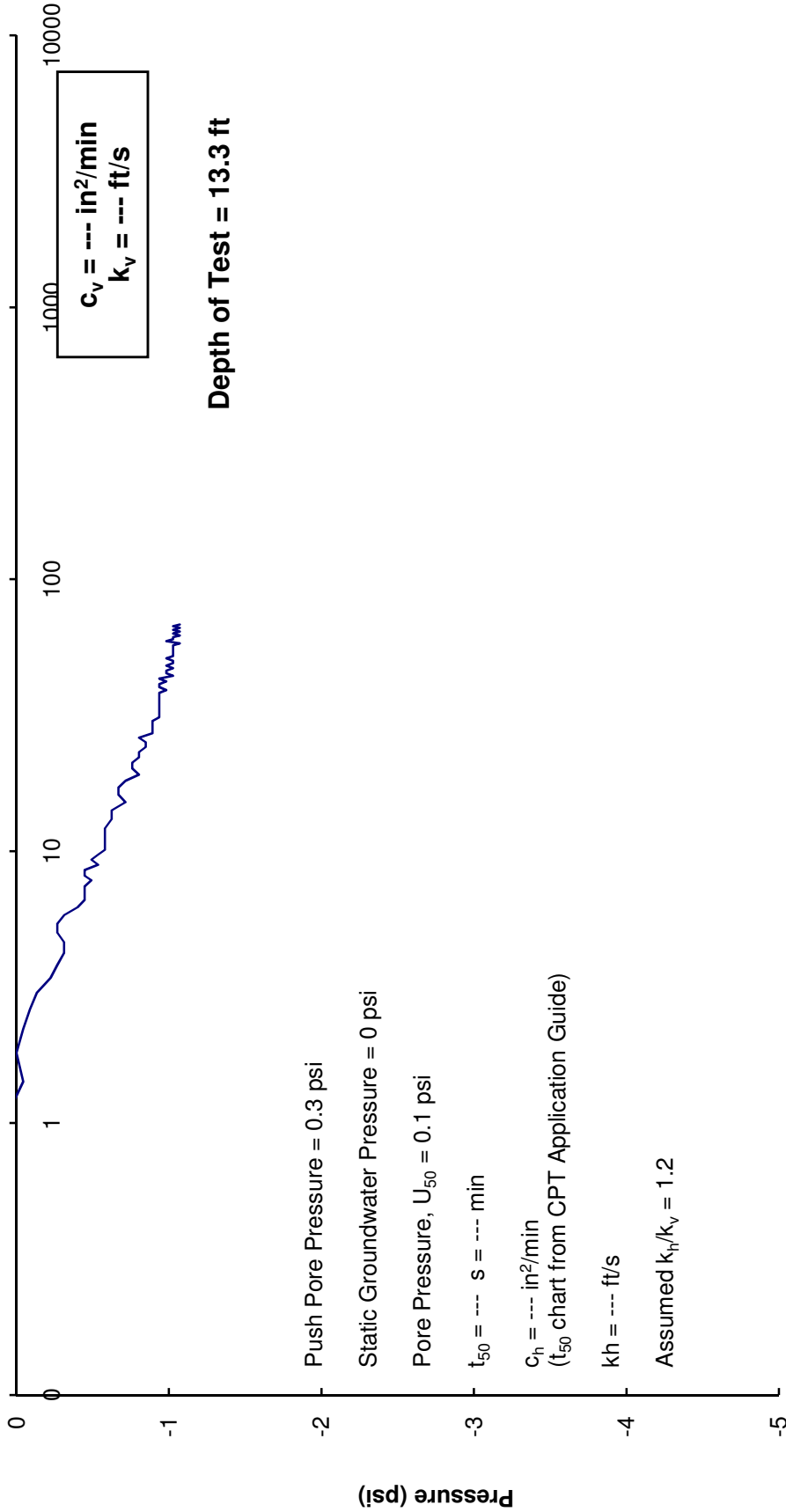
- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
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**Stantec Consulting
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SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Time (s)

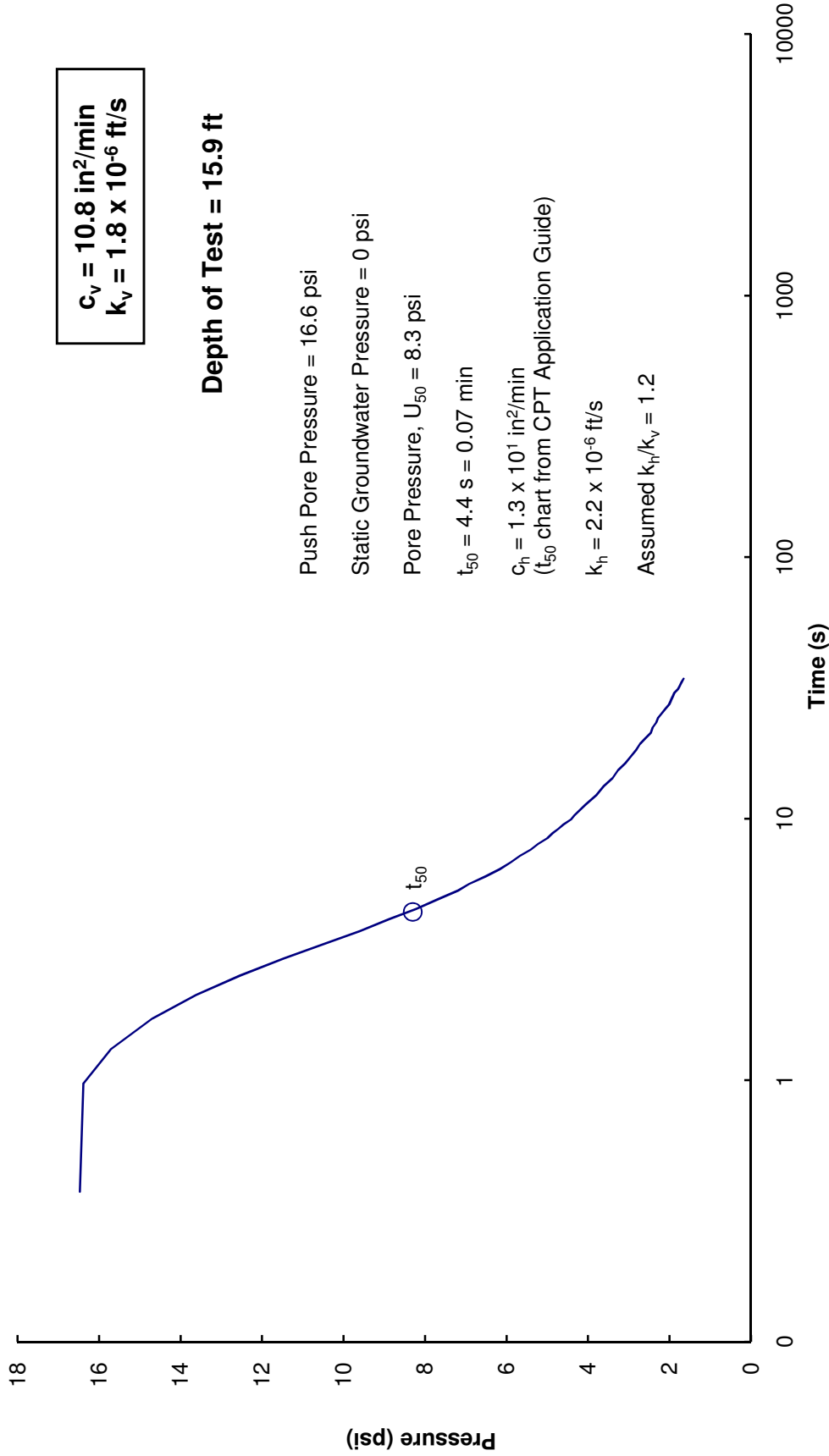
Project No. 175569036
CPT6



Stantec Consulting
Inc.

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



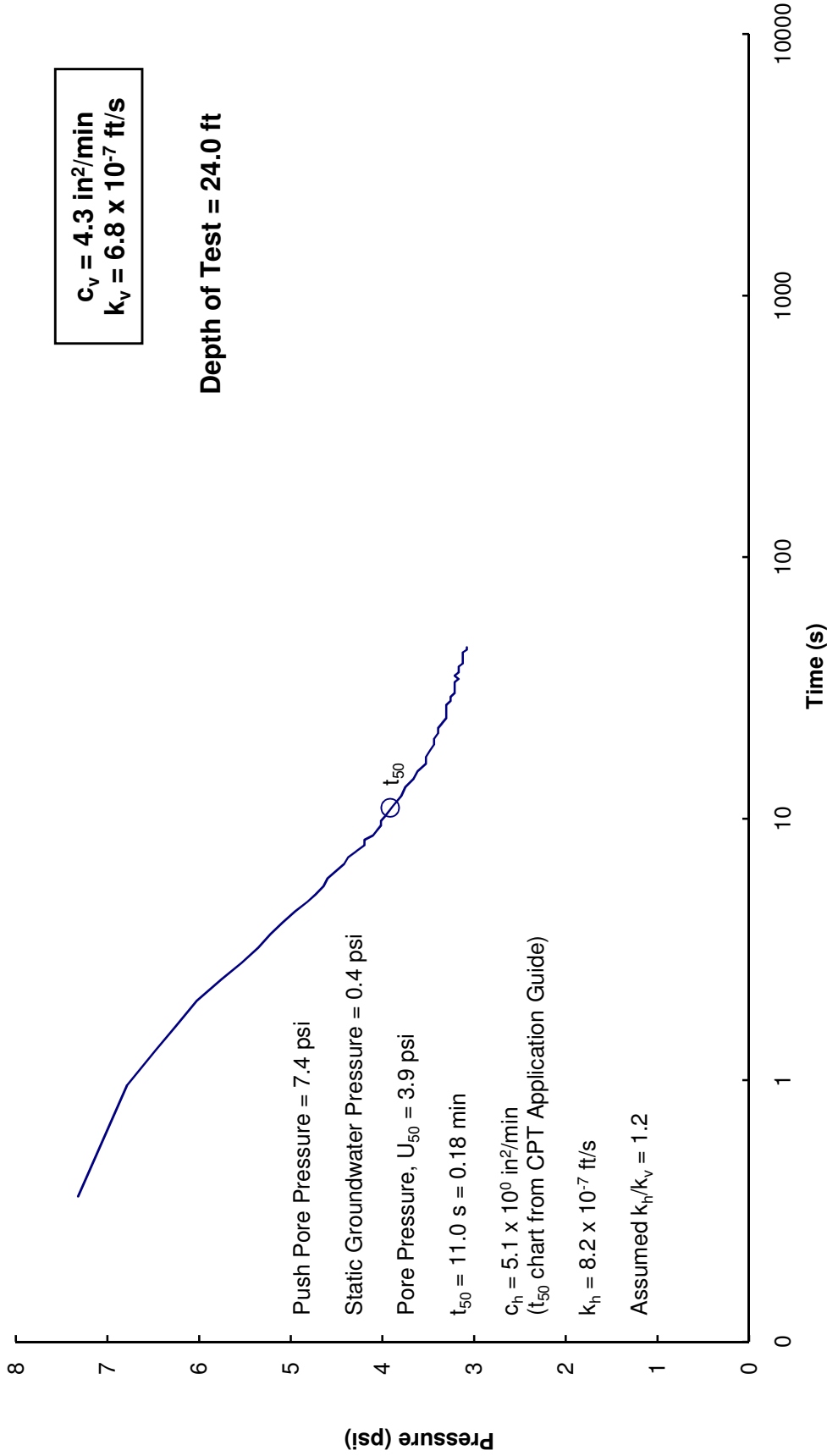
Project No. 175569036
CPT6



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



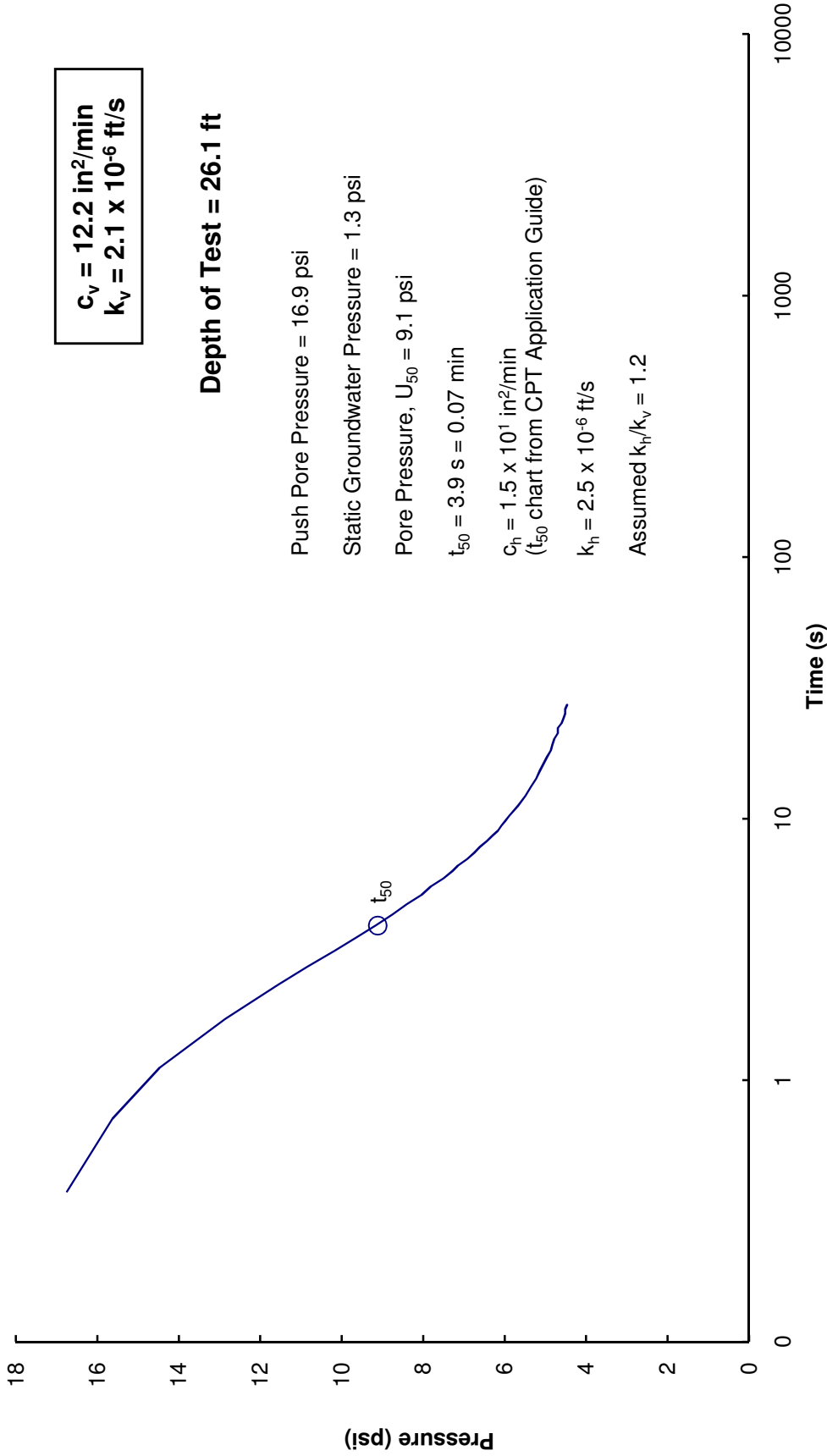
Project No. 175569036
CPT6



Stantec Consulting
Inc.

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



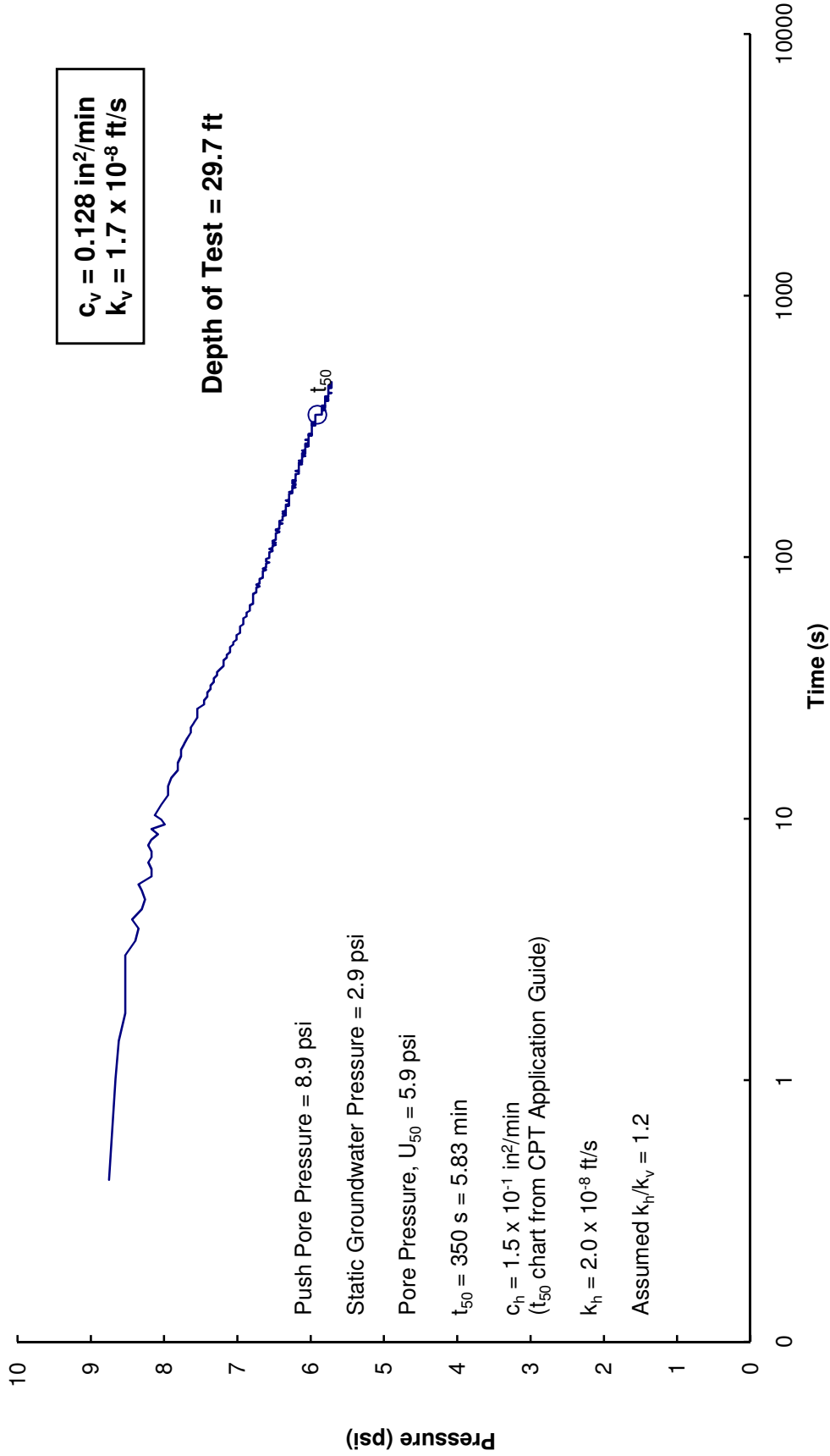
Project No. 175569036
CPT6



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT6



**Stantec Consulting
Inc.**

Stantec

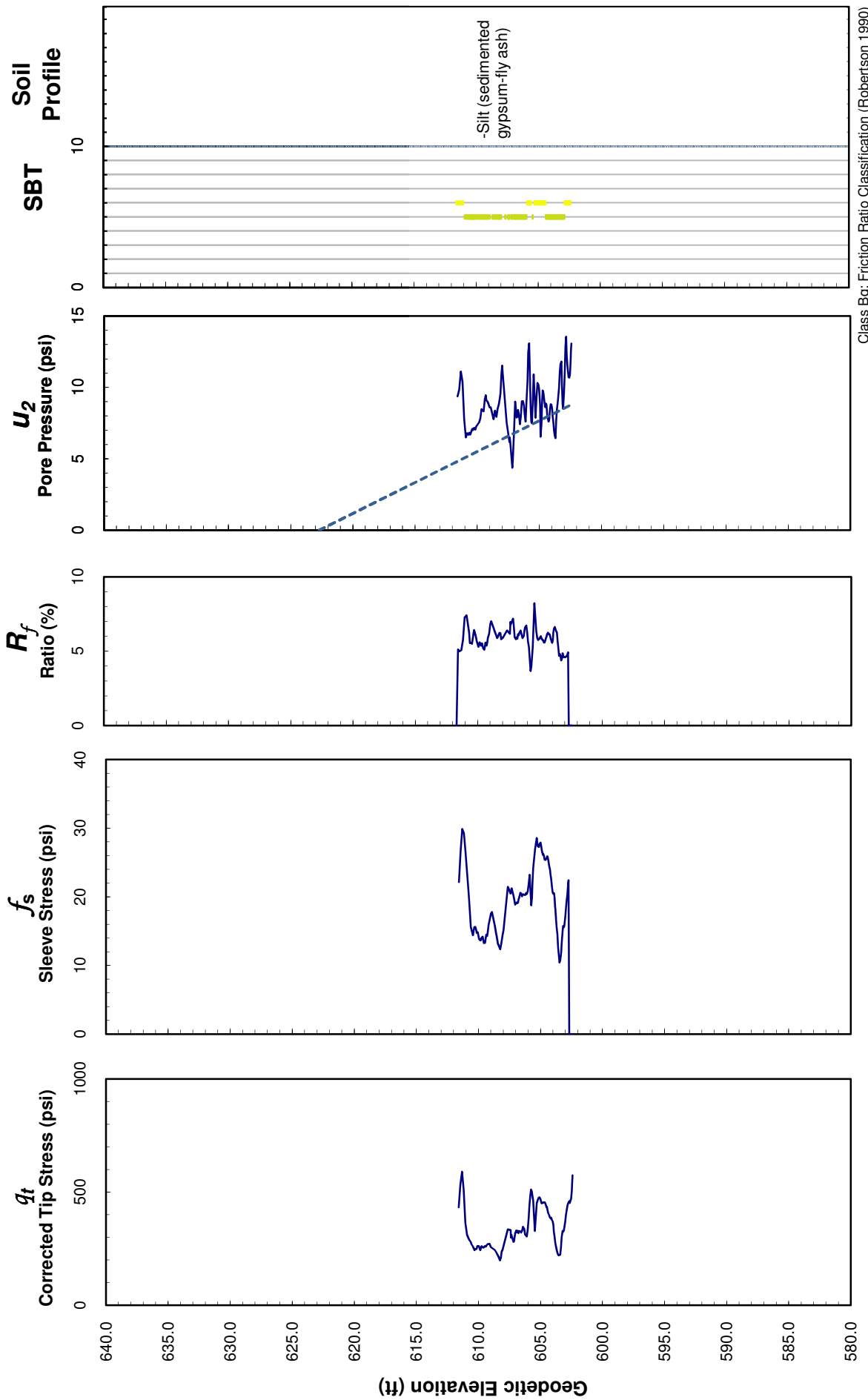
Elevation: 638.20 ft
SCPTu Start Elevation: 613.20 ft
Groundwater Elevation: 624.20 ft

Client: TVA

Project: Widows Creek Main Ash Pond

Test Date: June 11, 2009
Project No. 175569036

CPT7



Class Bq: Friction Ratio Classification (Robertson 1990)

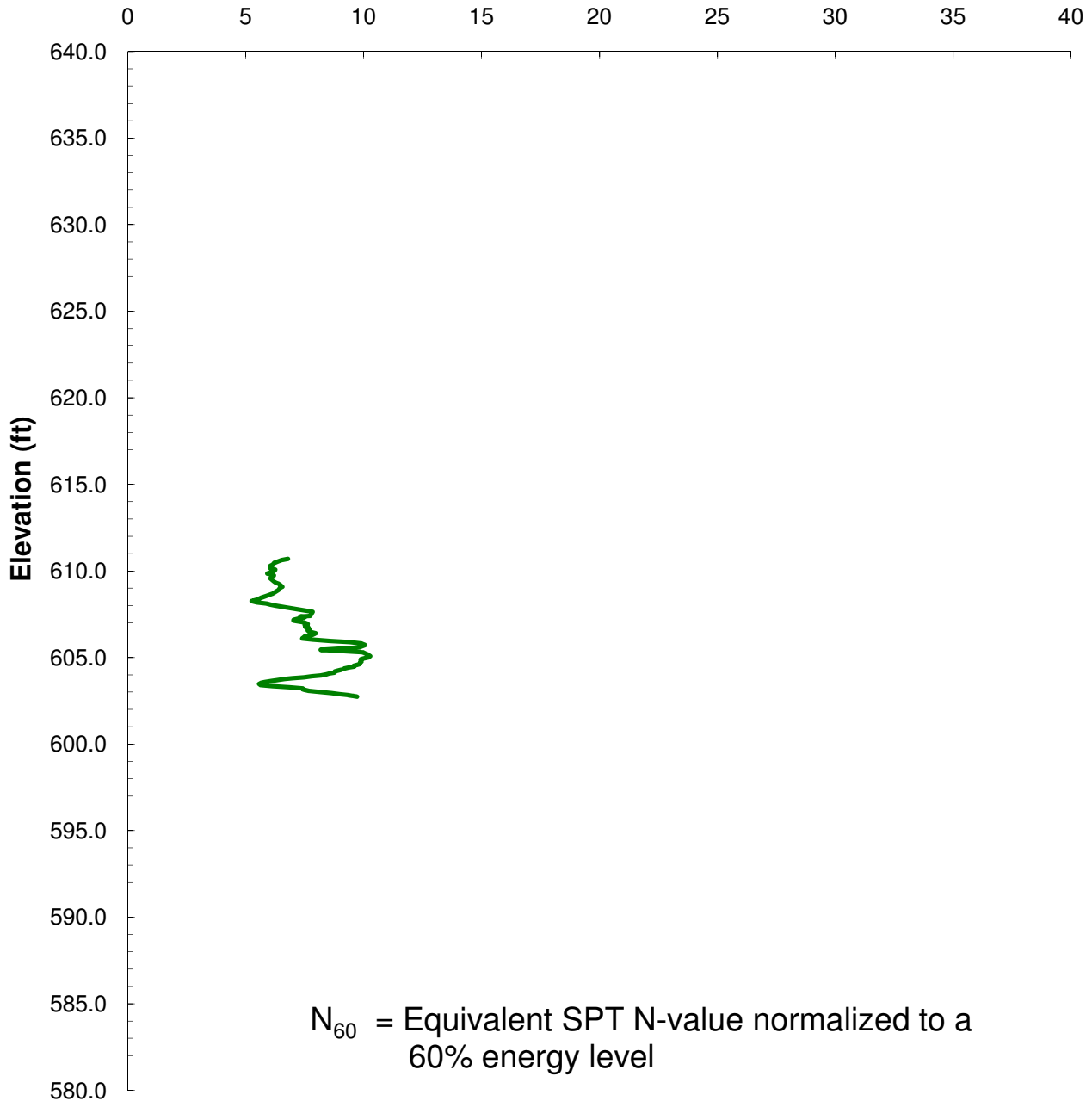


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



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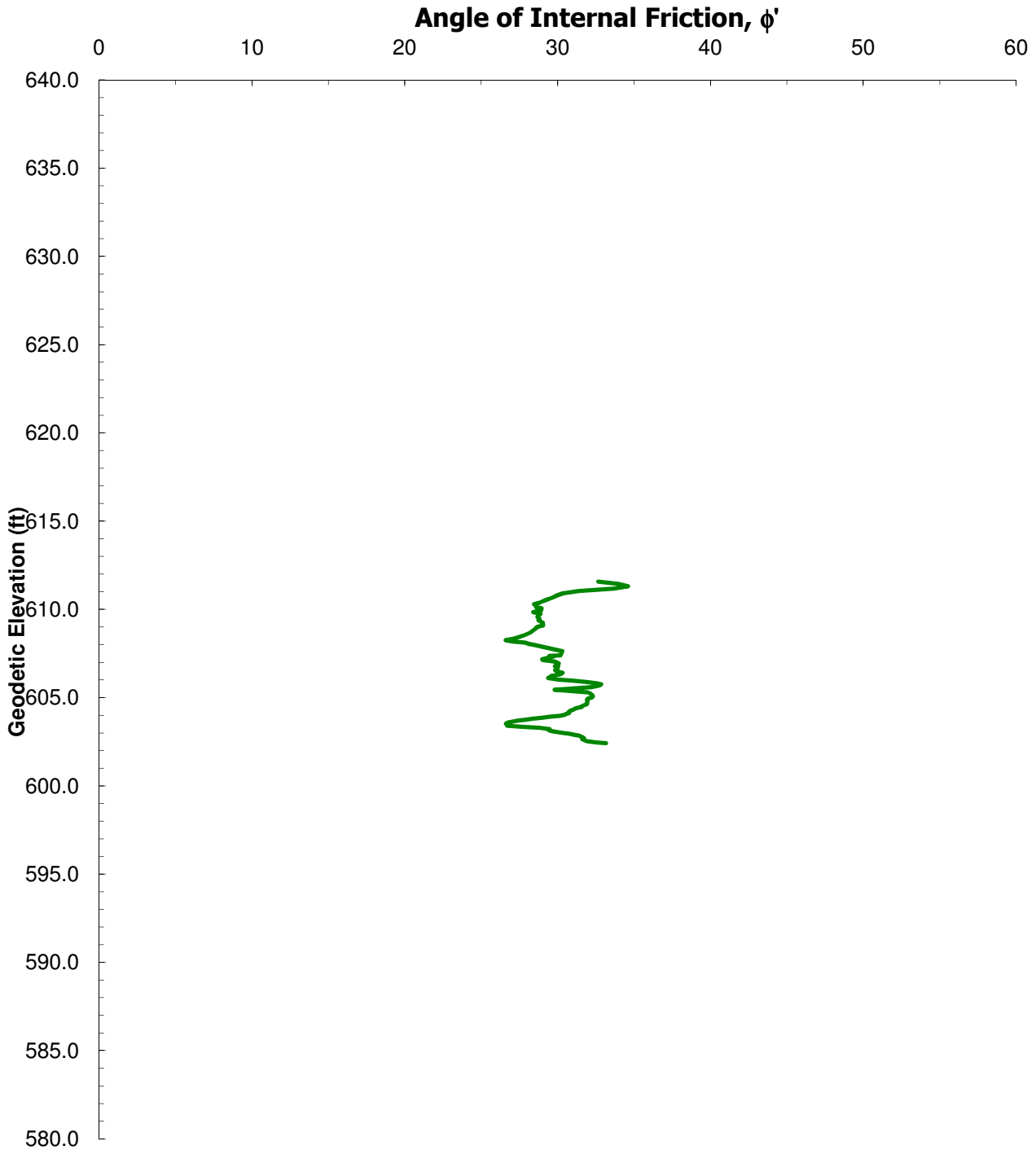
Project No. 175569036
CPT7



Stantec

SCPTu RESULTS

Effective Angle of Internal Friction



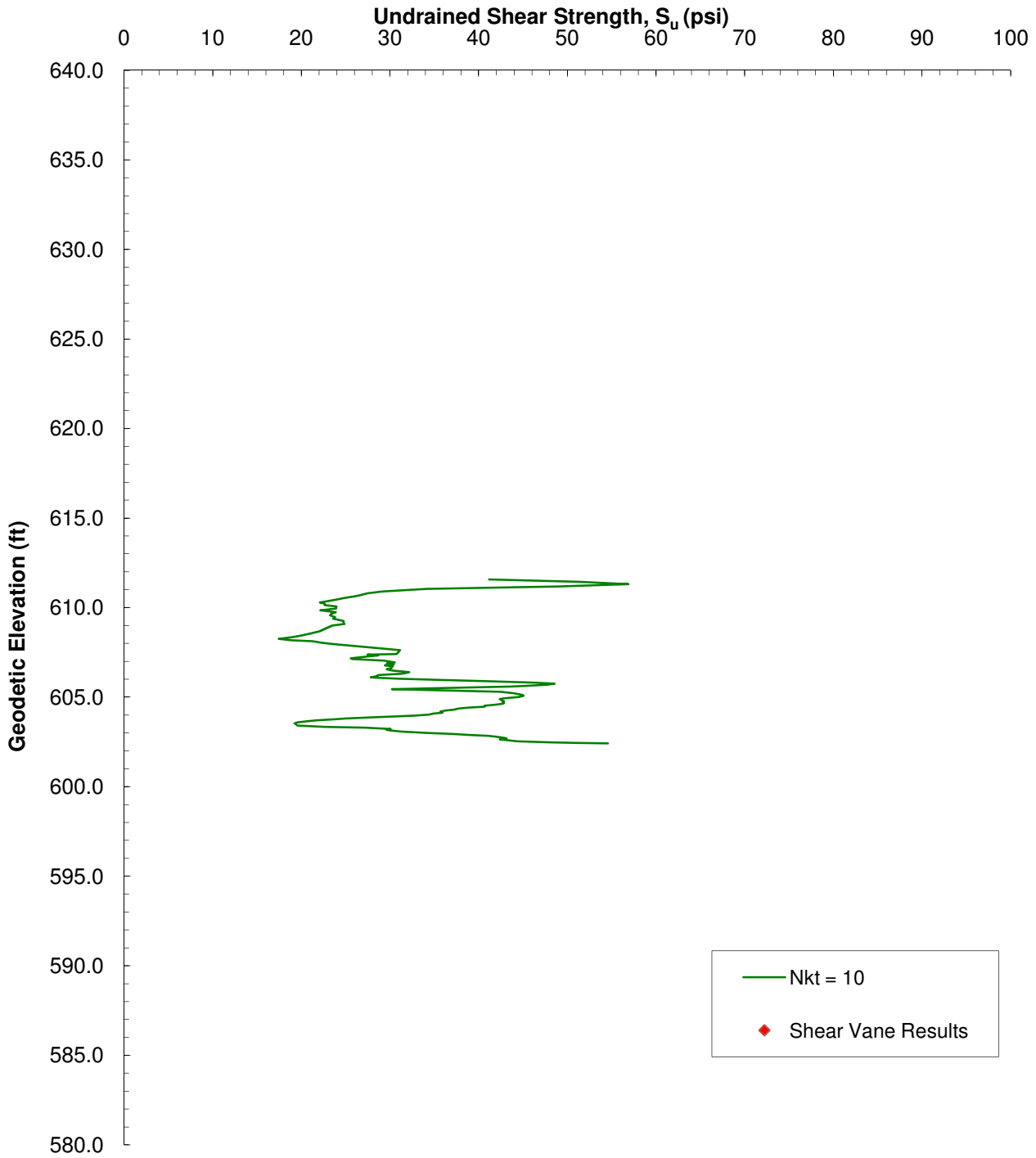
Project No. 175569036
CPT7



Stantec

SCPT_u RESULTS

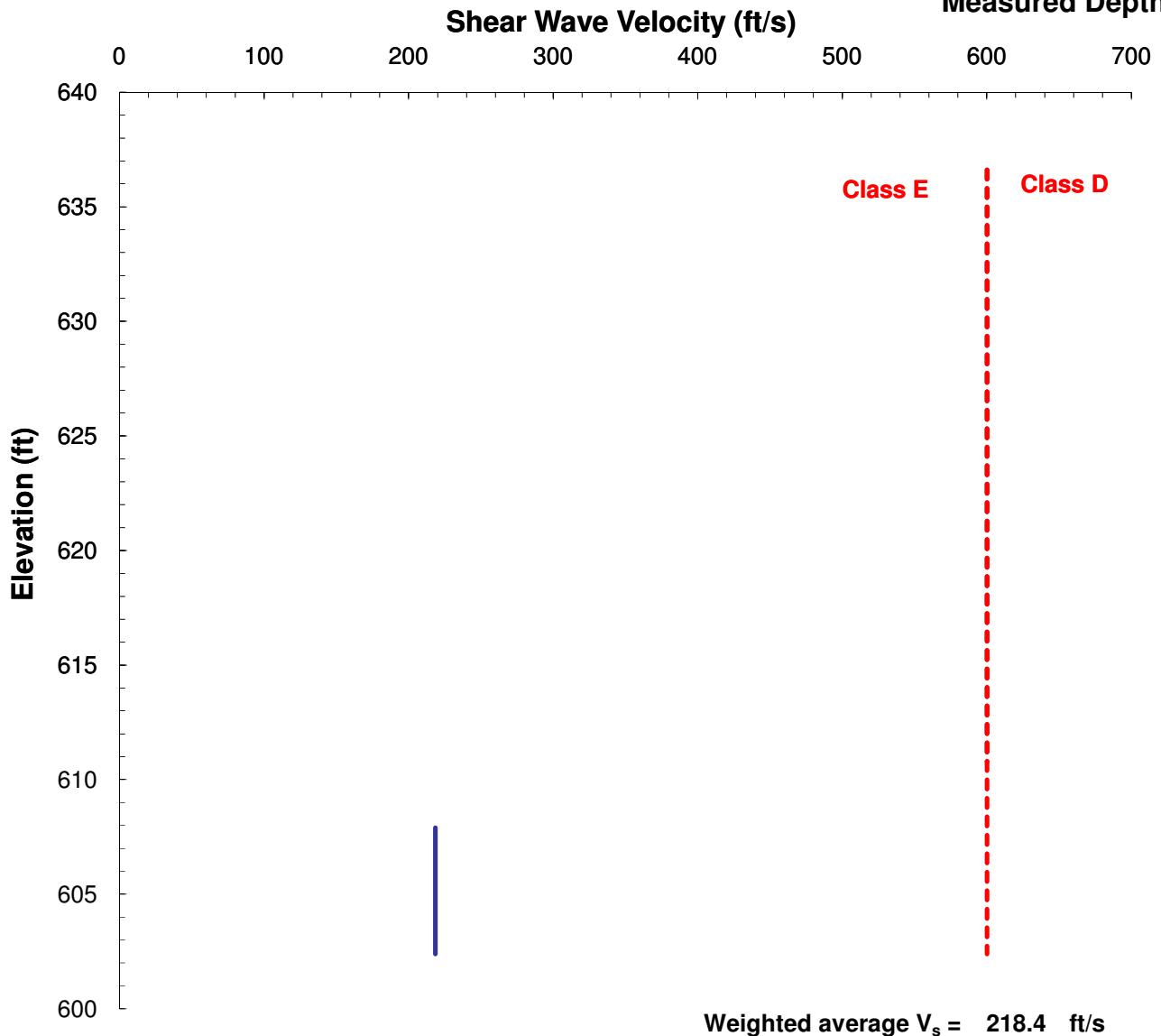
Undrained Shear Strength, S_u



Project No. 175569036
CPT7



Stantec



Shear Wave Velocity, V_s

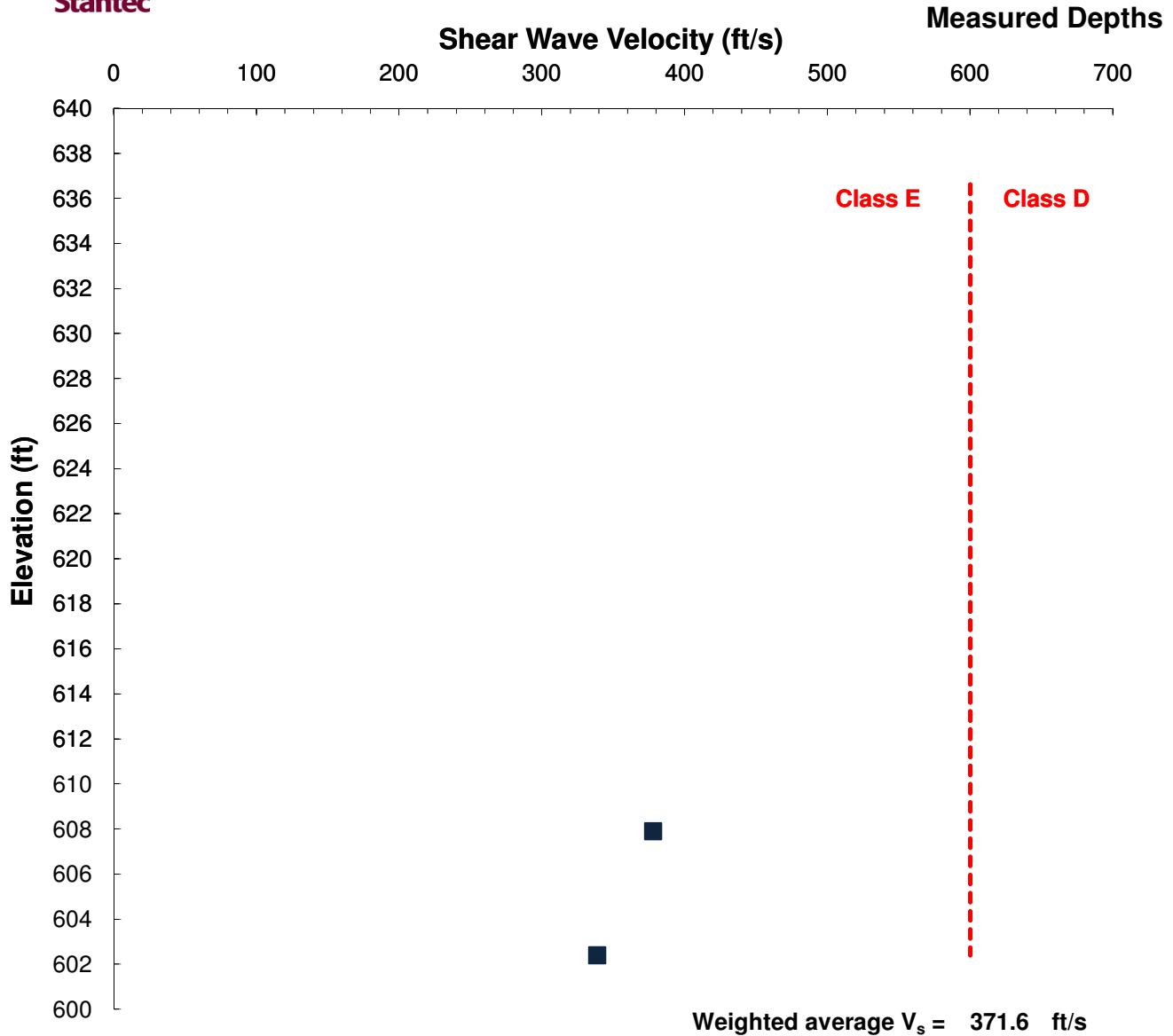
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where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.



Stantec



Shear Wave Velocity, V_s

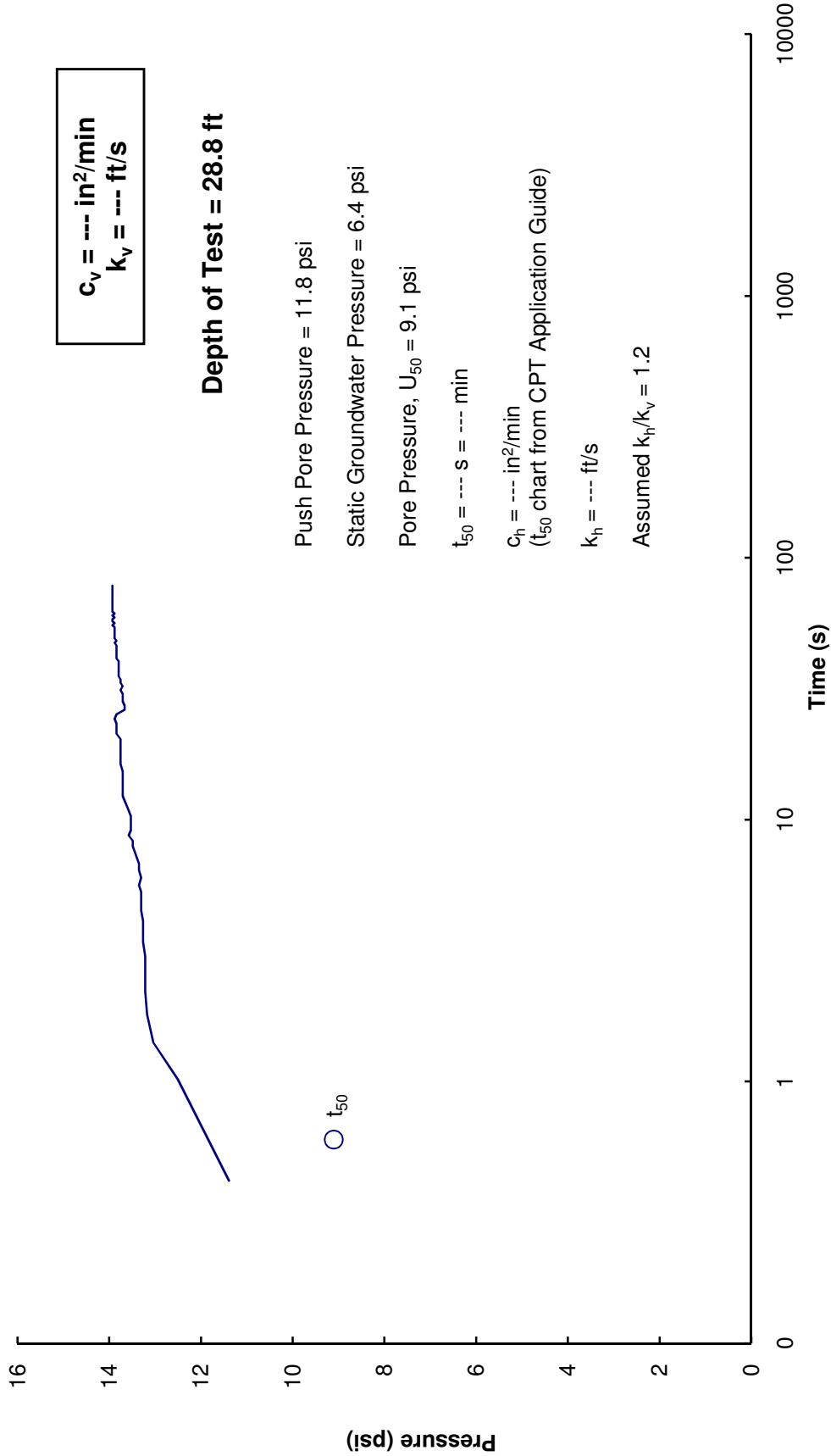
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Stantec Consulting
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SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



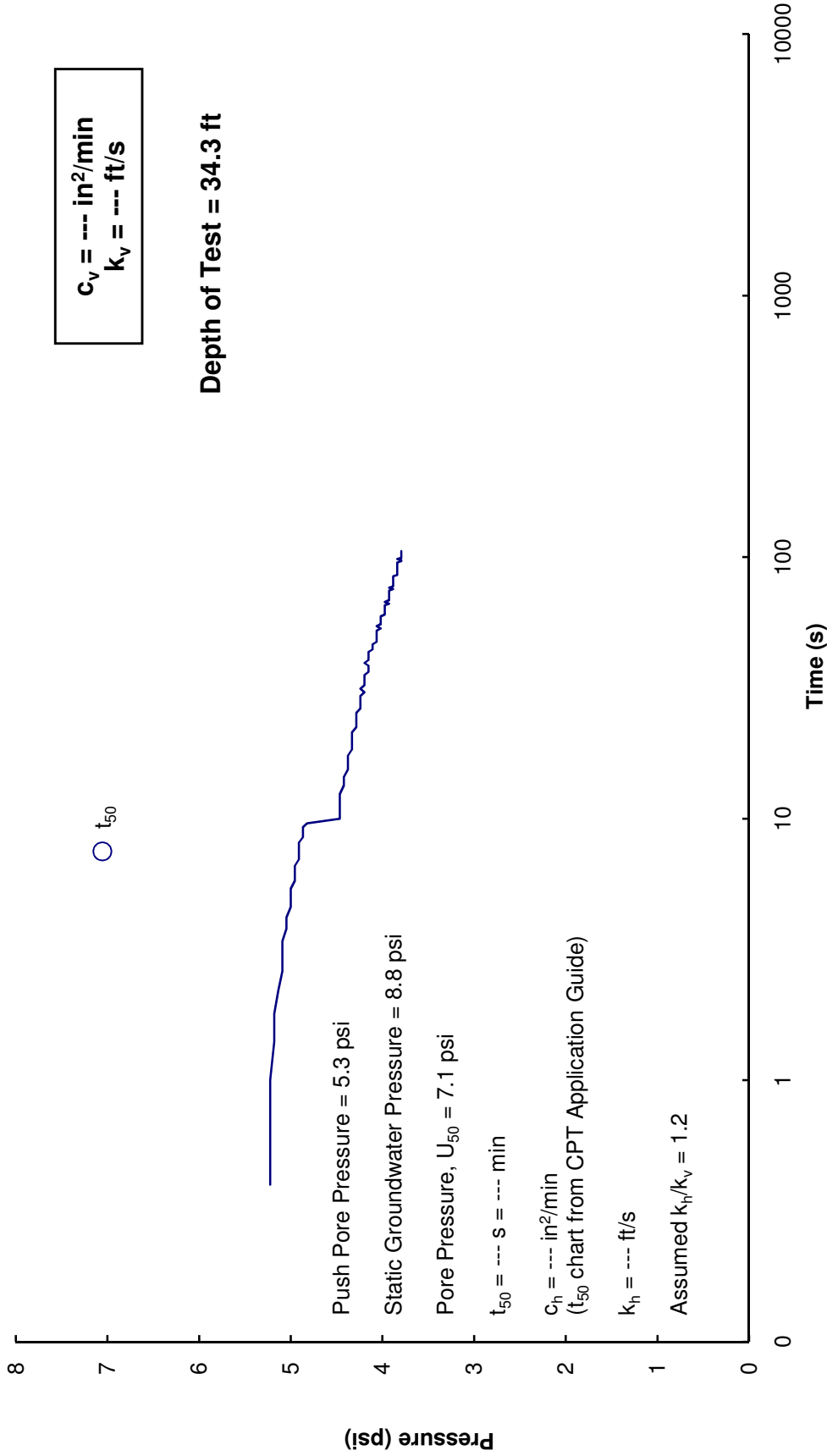
Project No. 175569036
CPT7



Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT7



**Stantec Consulting
Inc.**

Stantec

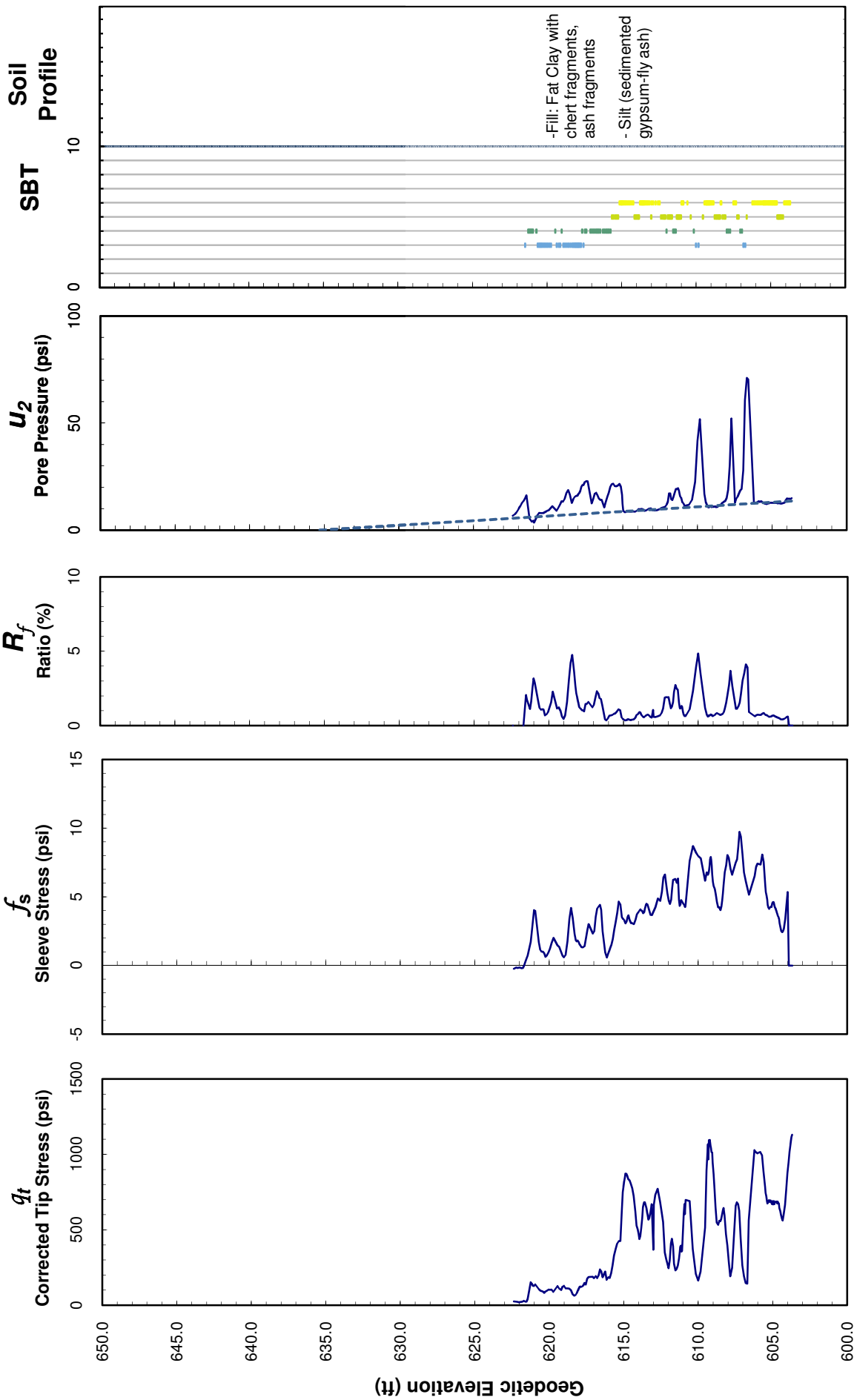
Elevation: 646.50 ft
SCPTu Start Elevation: 621.50 ft
Groundwater Elevation: 634.20 ft

Client: TVA

Project: Widows Creek Main Ash Pond

Test Date: June 11, 2009
Project No. 175569036

CPT8



Class Bq: Friction Ratio Classification (Robertson 1990)

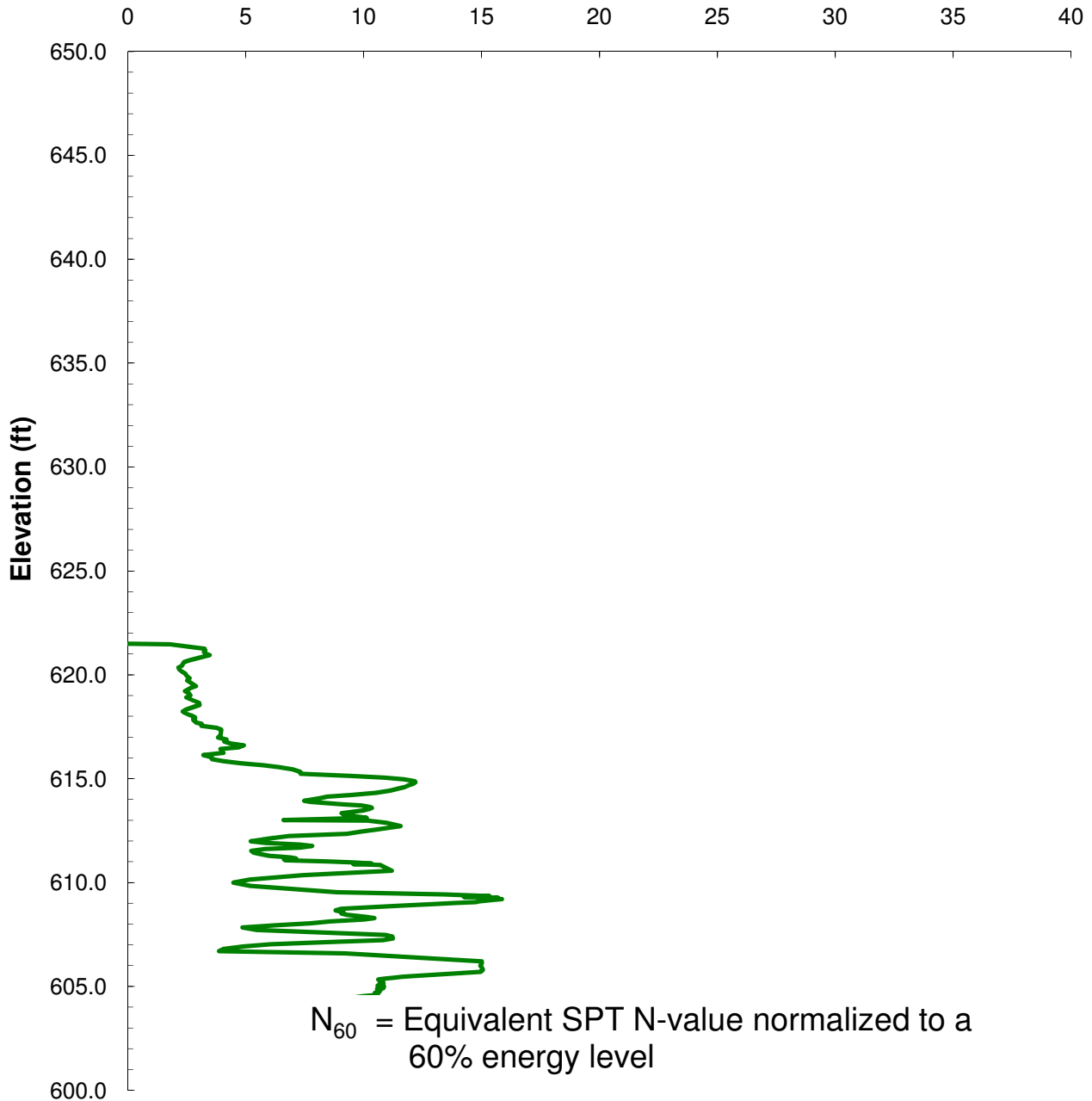


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



N_{60} = Equivalent SPT N-value normalized to a 60% energy level

The correlation from SCPTu data to equivalent SPT N_{60} values is based on the Jefferies and Davies (1993) approach.

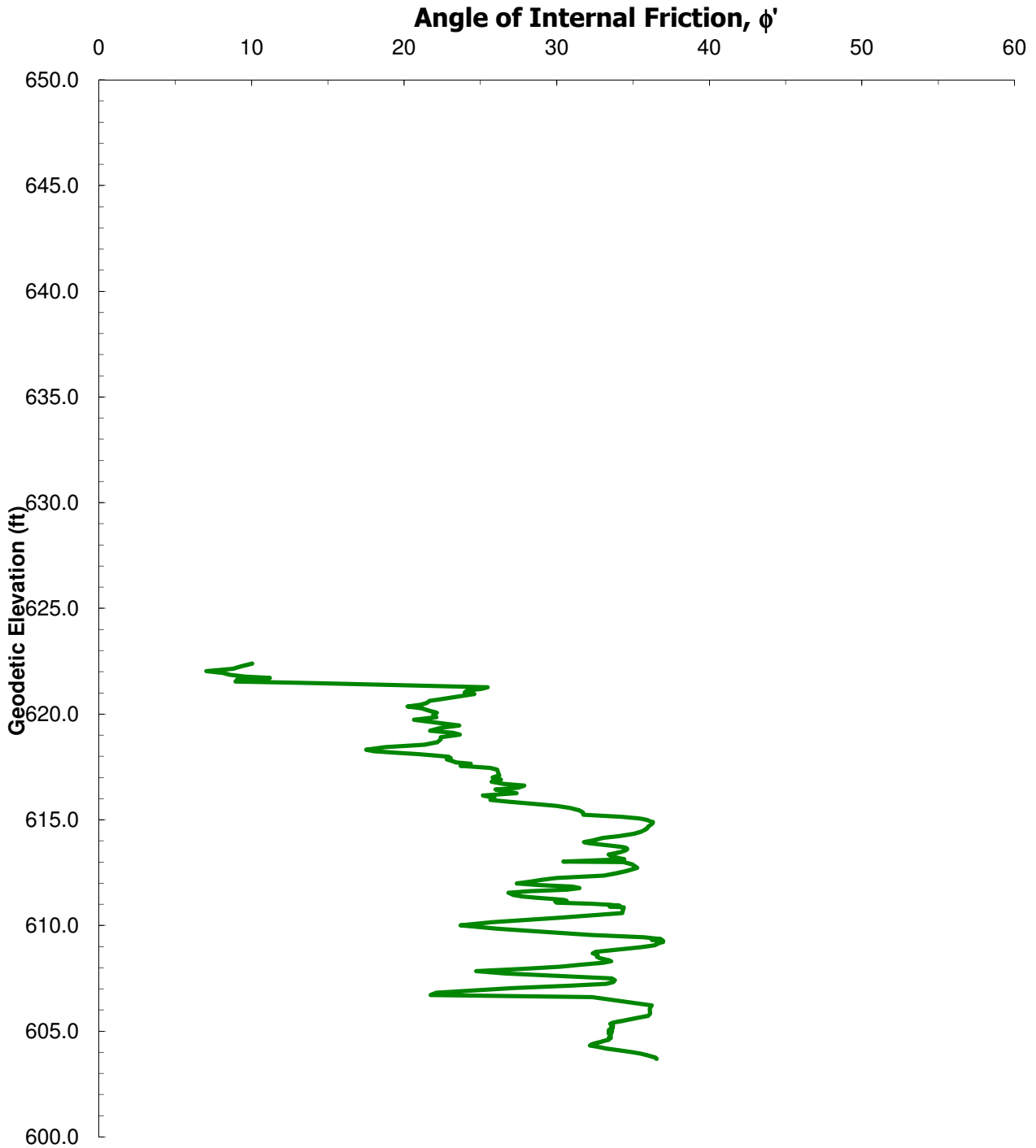
Project No. 175569036
CPT8



Stantec

SCPTu RESULTS

Effective Angle of Internal Friction



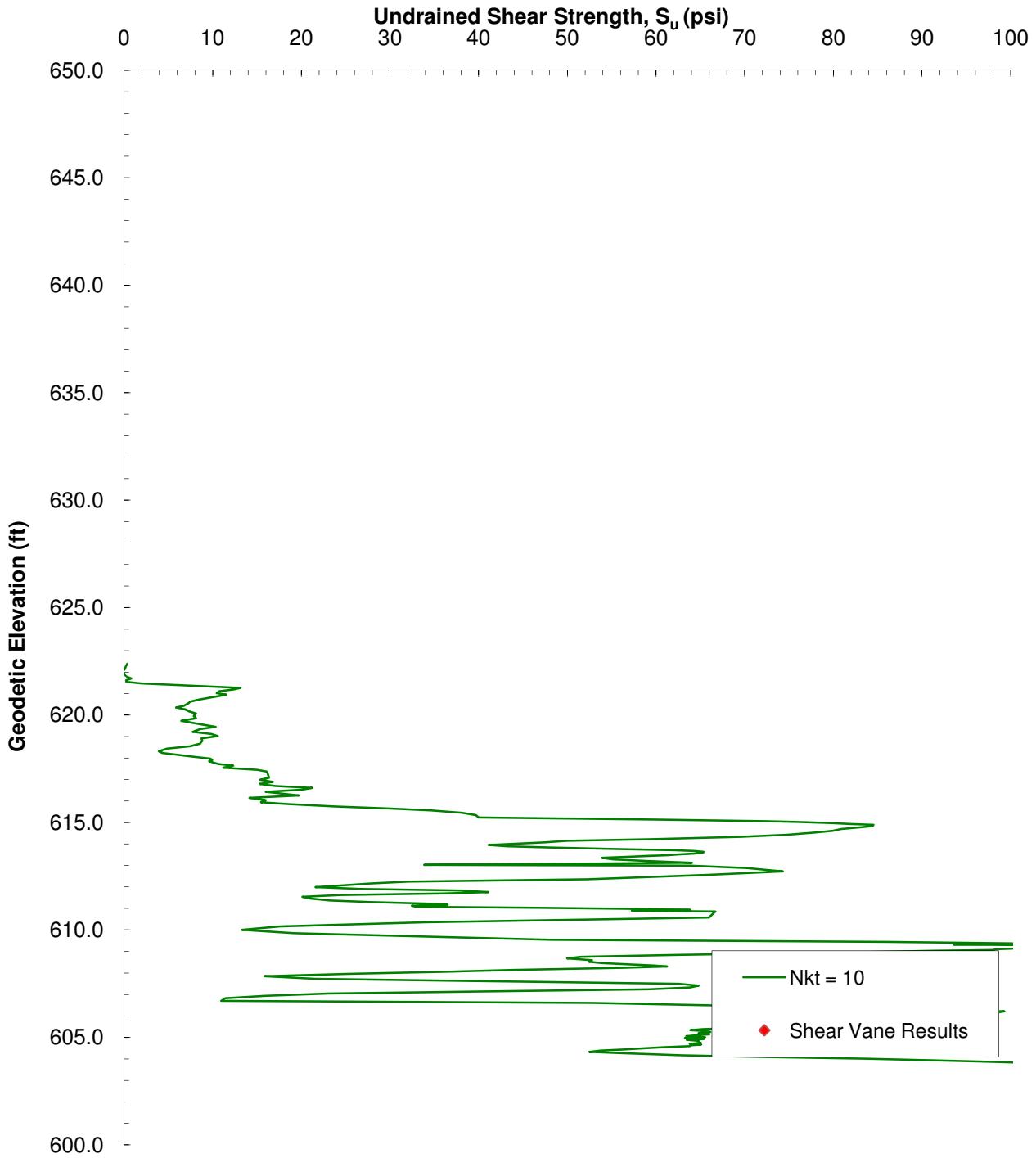
Project No. 175569036
CPT8



Stantec

SCPT_u RESULTS

Undrained Shear Strength, S_u



Project No. 175569036
CPT8

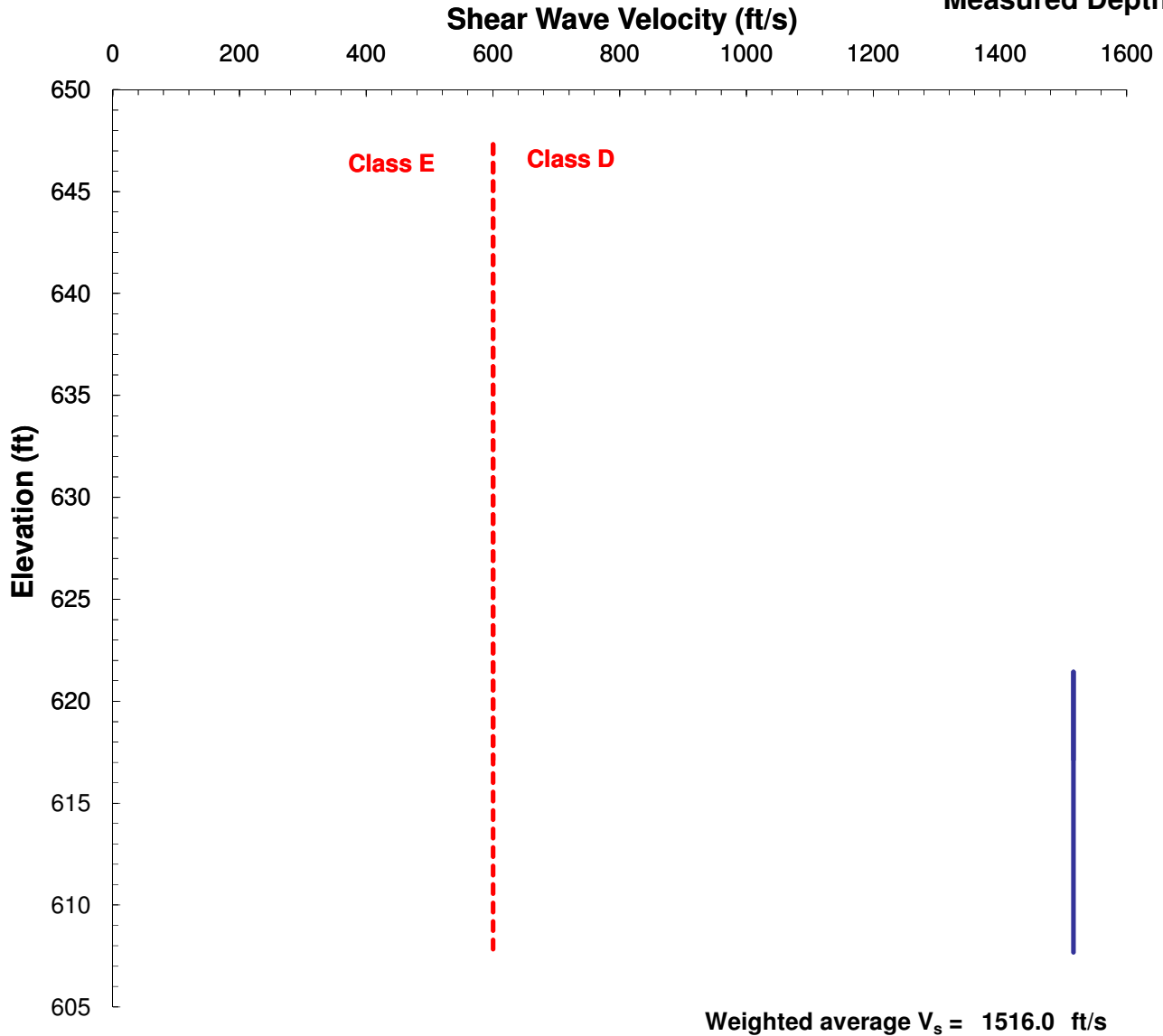


Stantec

Stantec Consulting Services, Inc.

SHEAR WAVE VELOCITY

Incremental Between Measured Depths



Shear Wave Velocity, V_s

- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
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where L_2 and L_1 are the shear wave travel length at two depths and t_2 and t_1 are the arrival times of the waves on the trace plots for the two corresponding depths.

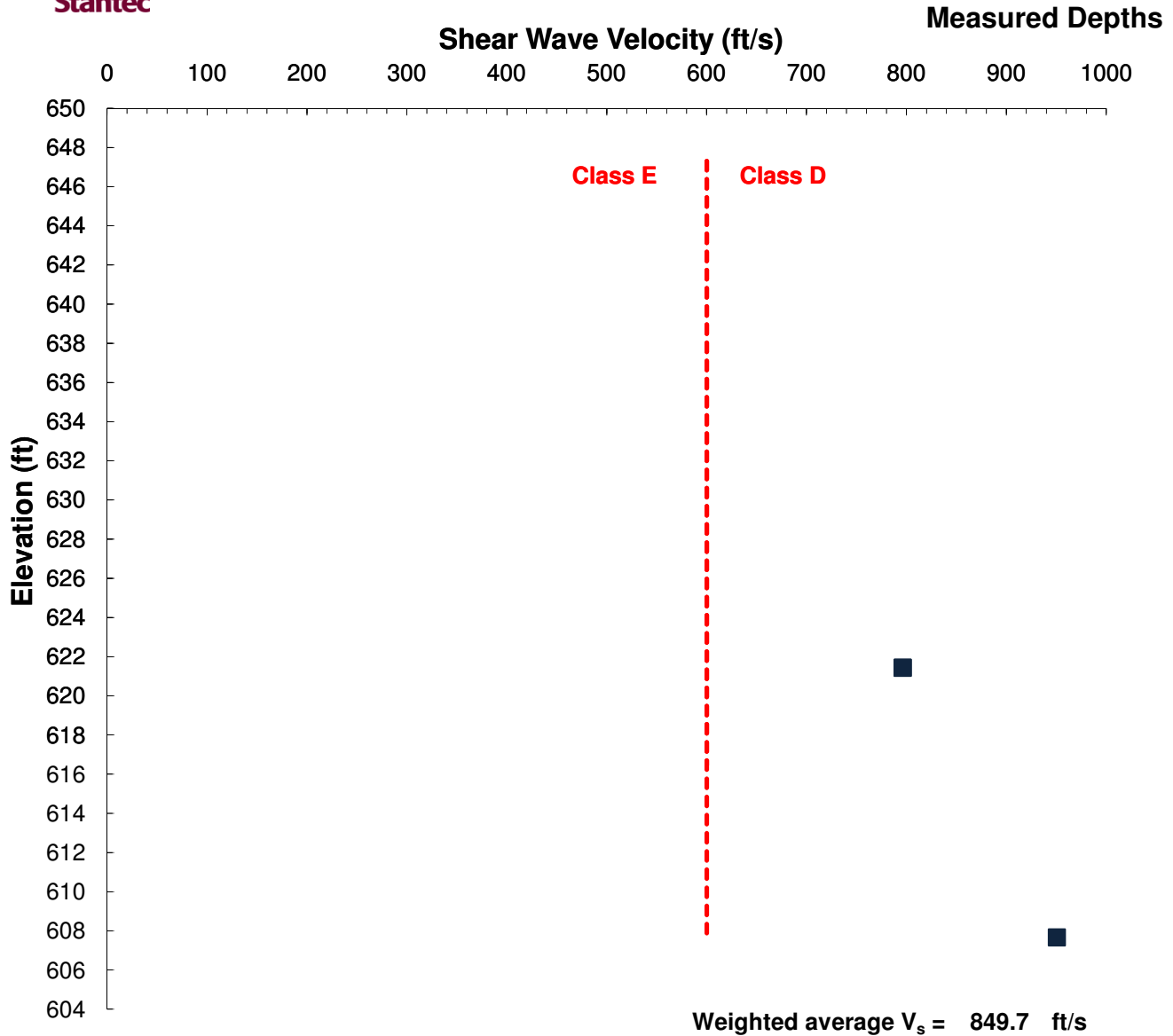
Project No. 175569036

CPT8

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Shear Wave Velocity, V_s

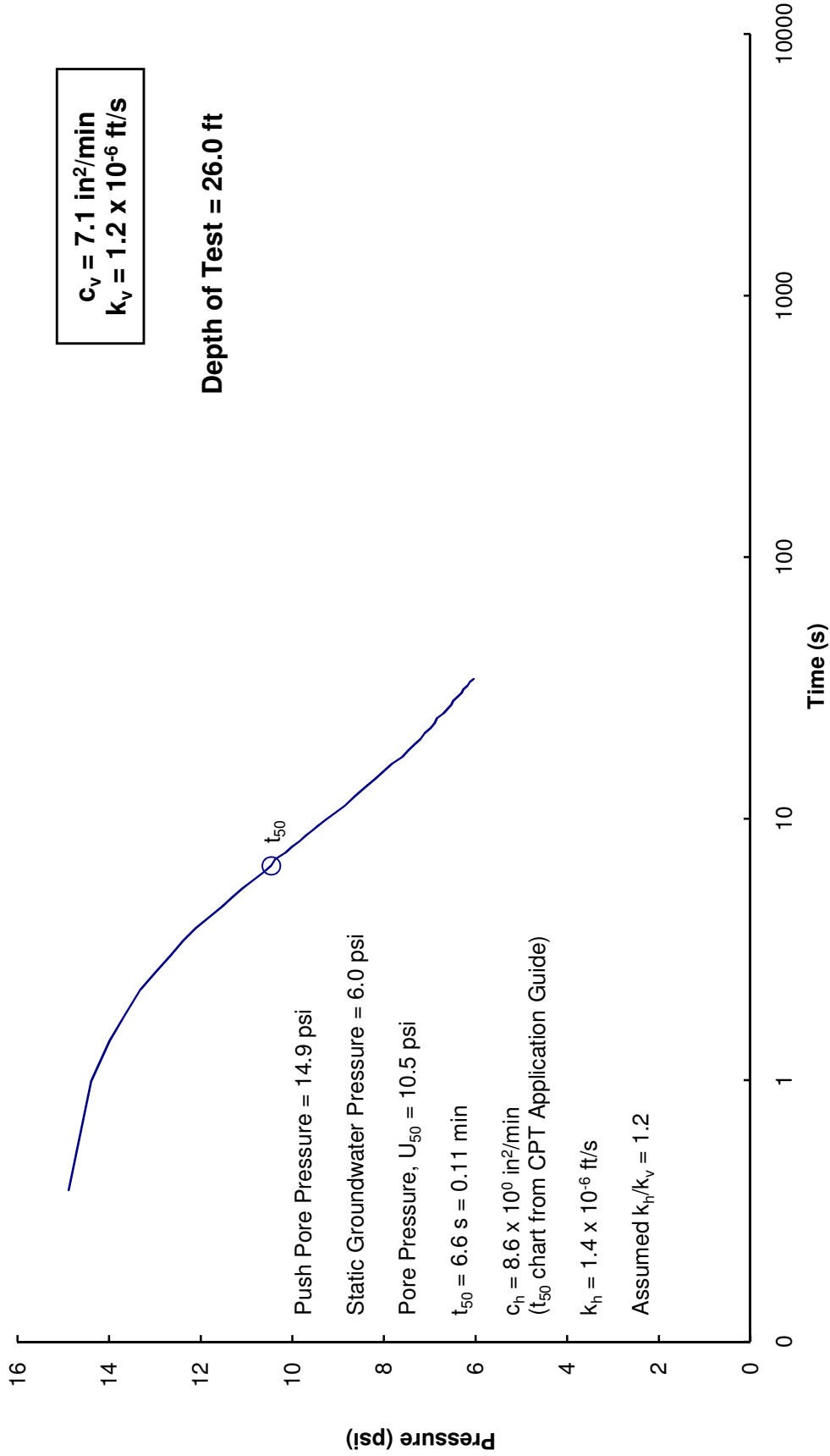
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**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



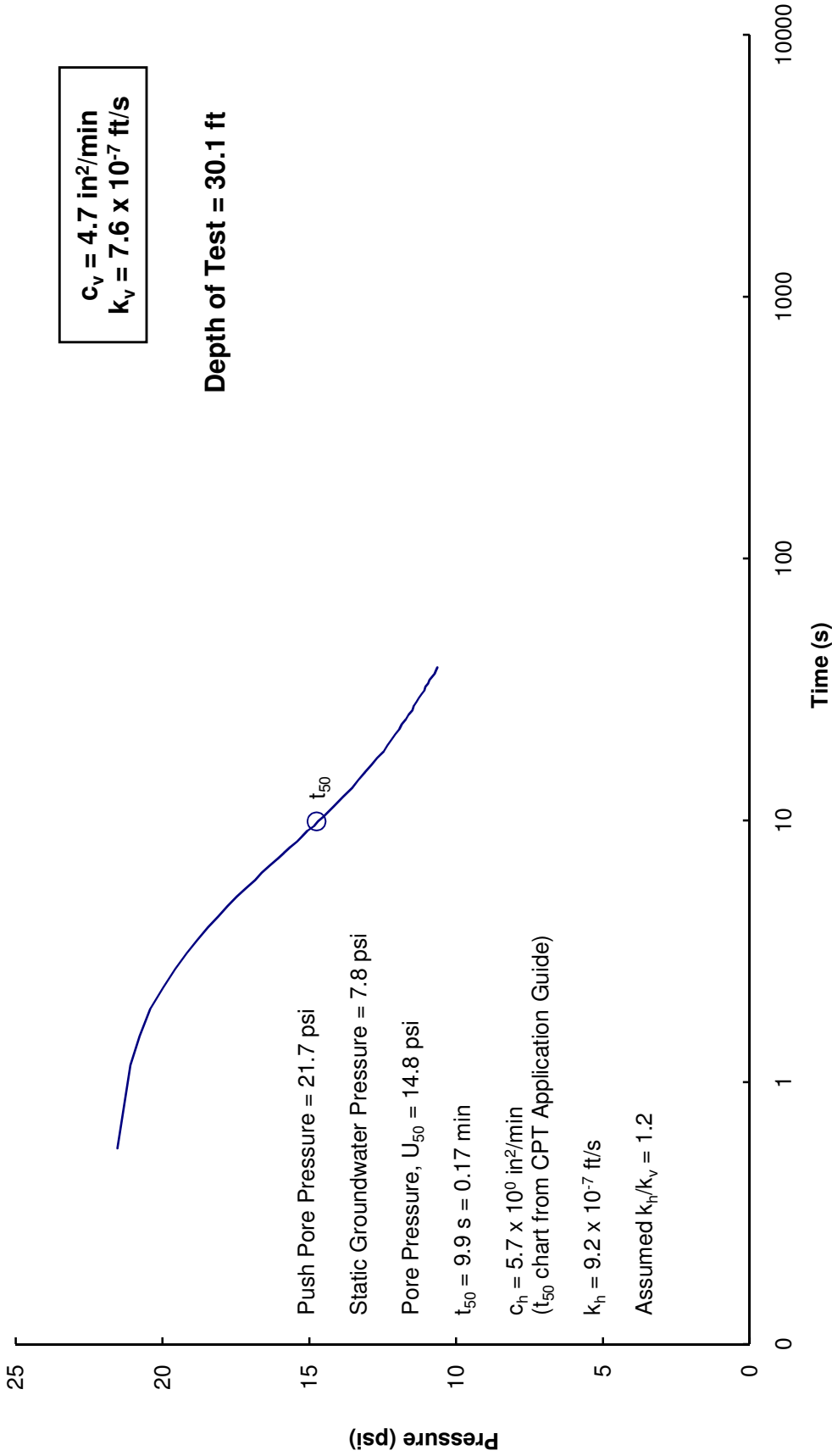
Project No. 175569036
CPT8



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



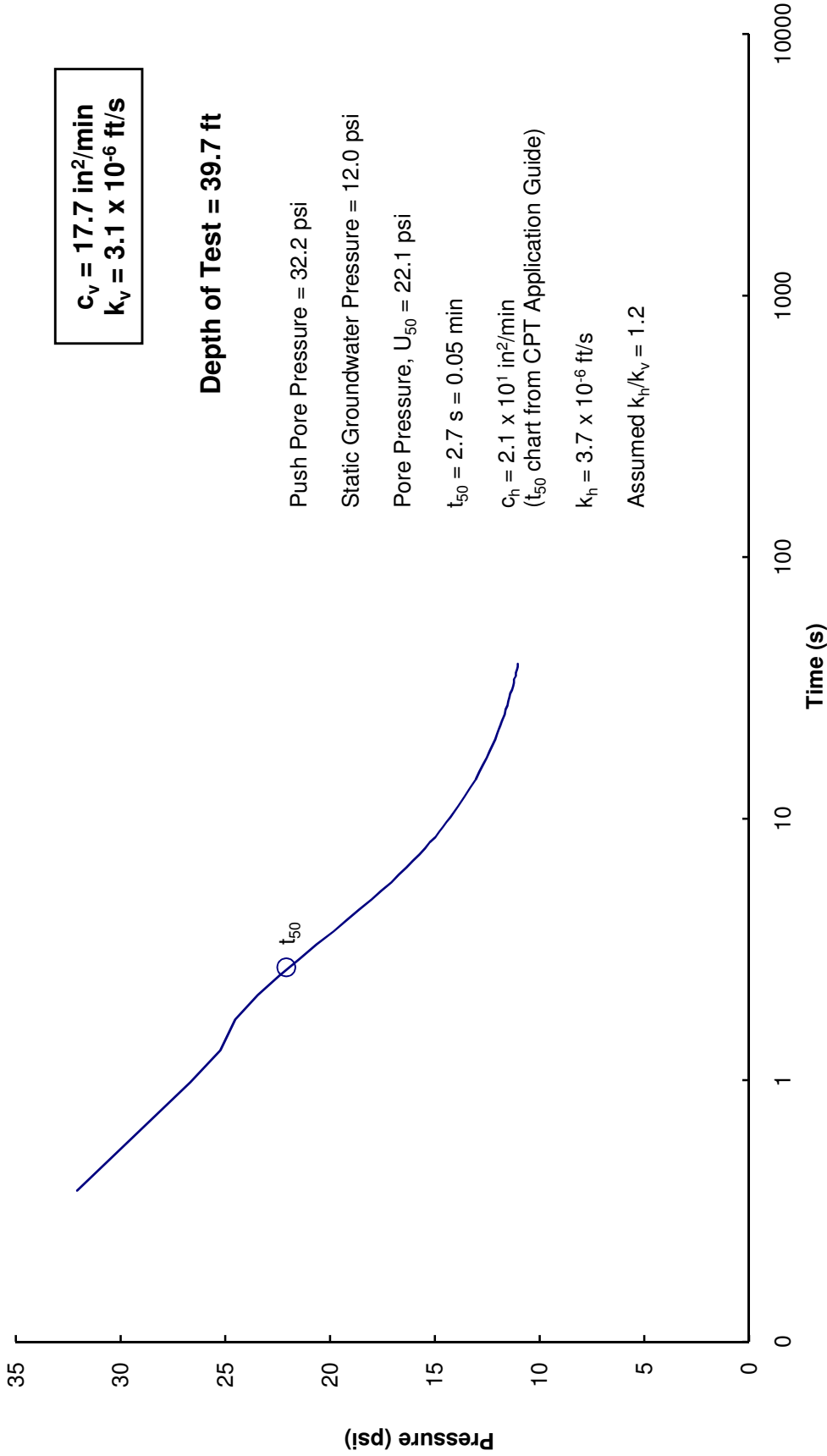
Project No. 175569036
CPT8



Stantec Consulting
Inc.

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



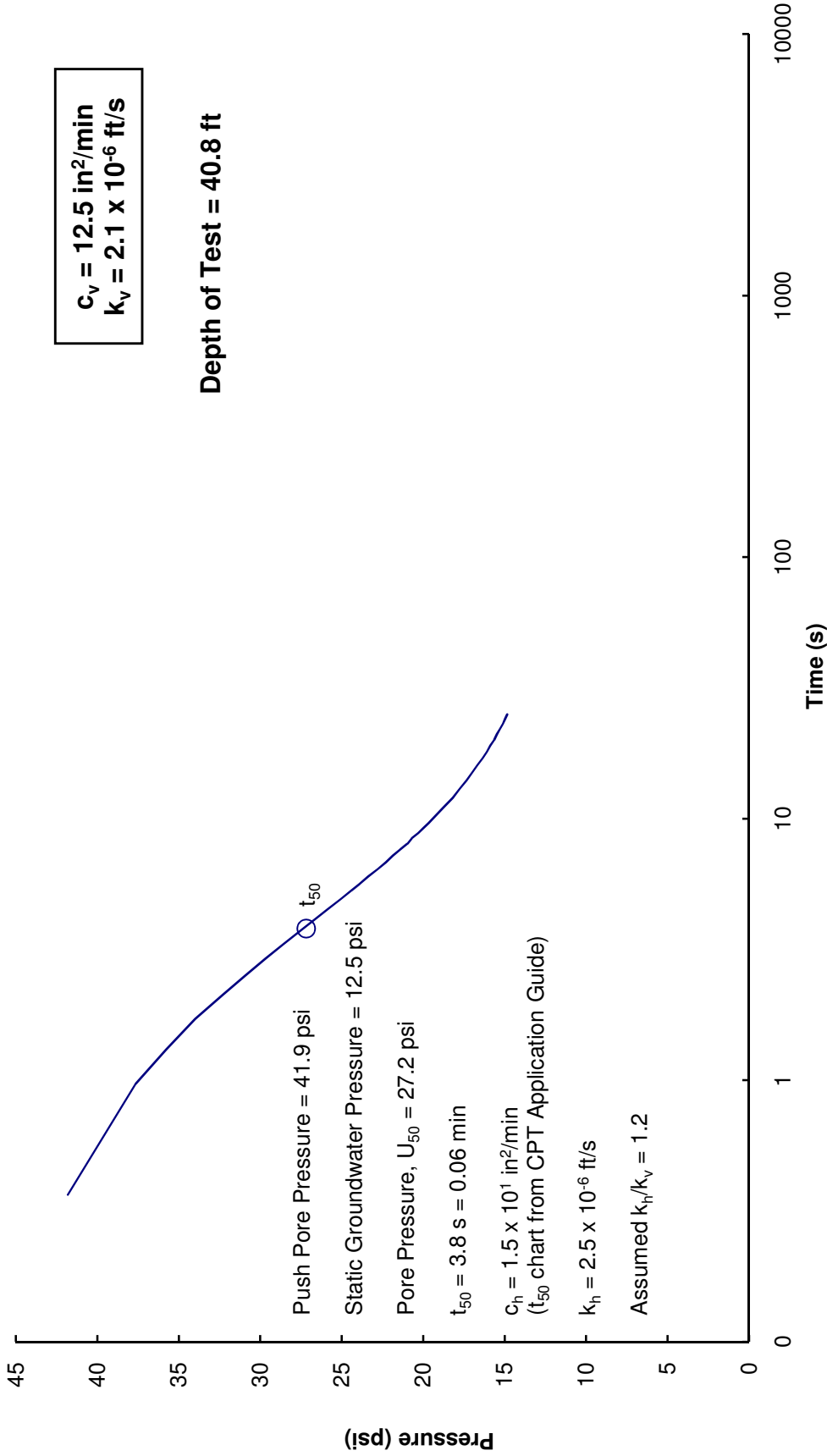
Project No. 175569036
CPT8



**Stantec Consulting
Inc.**

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT8



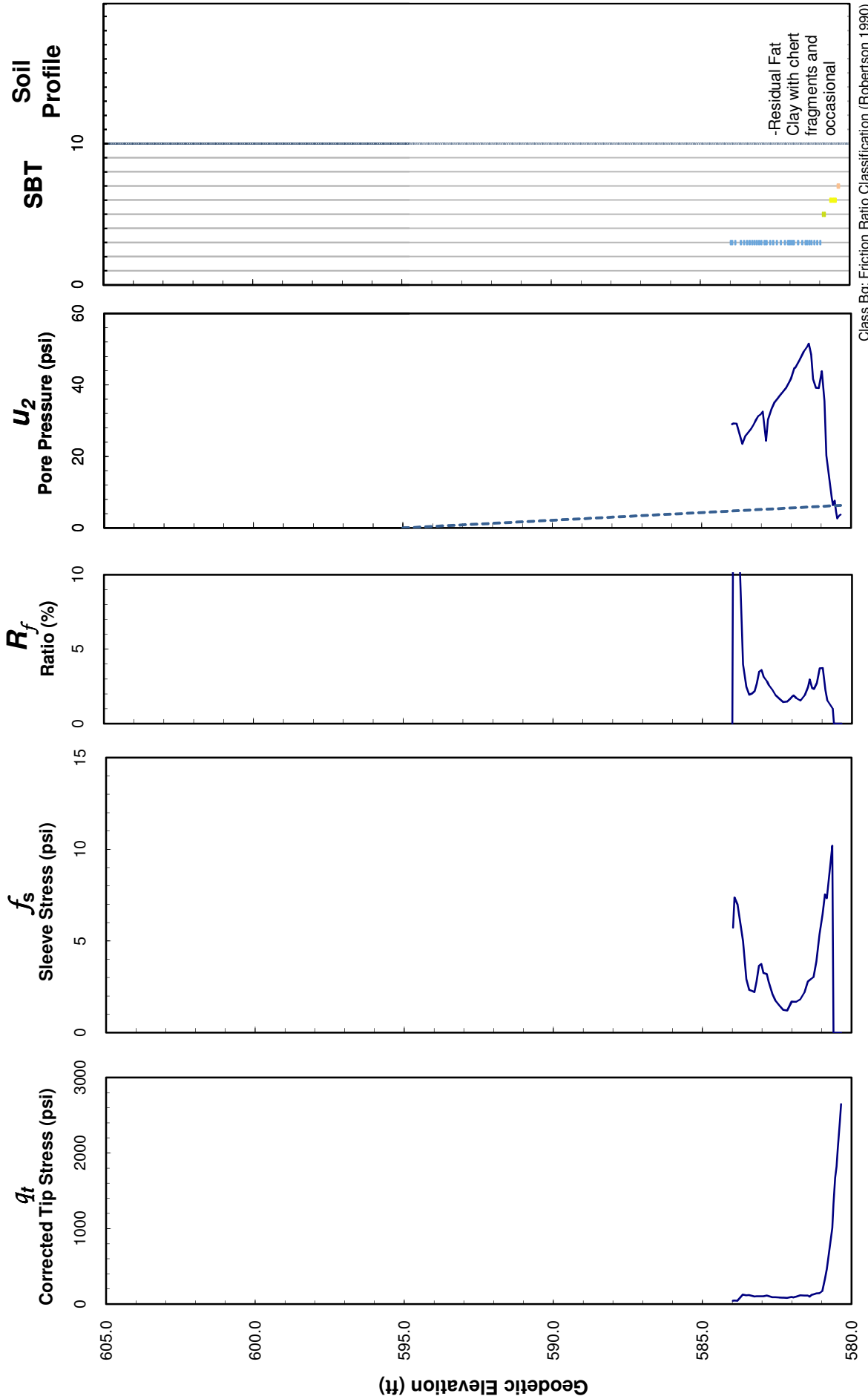
**Stantec Consulting
Inc.**

Stantec

Elevation: 604.30 ft
 SCPTu Start Elevation: 583.30 ft
 Groundwater Elevation: 594.30 ft
 Client: TVA
 Project: Widows Creek Main Ash Pond

Test Date: June 11, 2009
 Project No. 175569036

CPT9



Class Bq: Friction Ratio Classification (Robertson 1990)

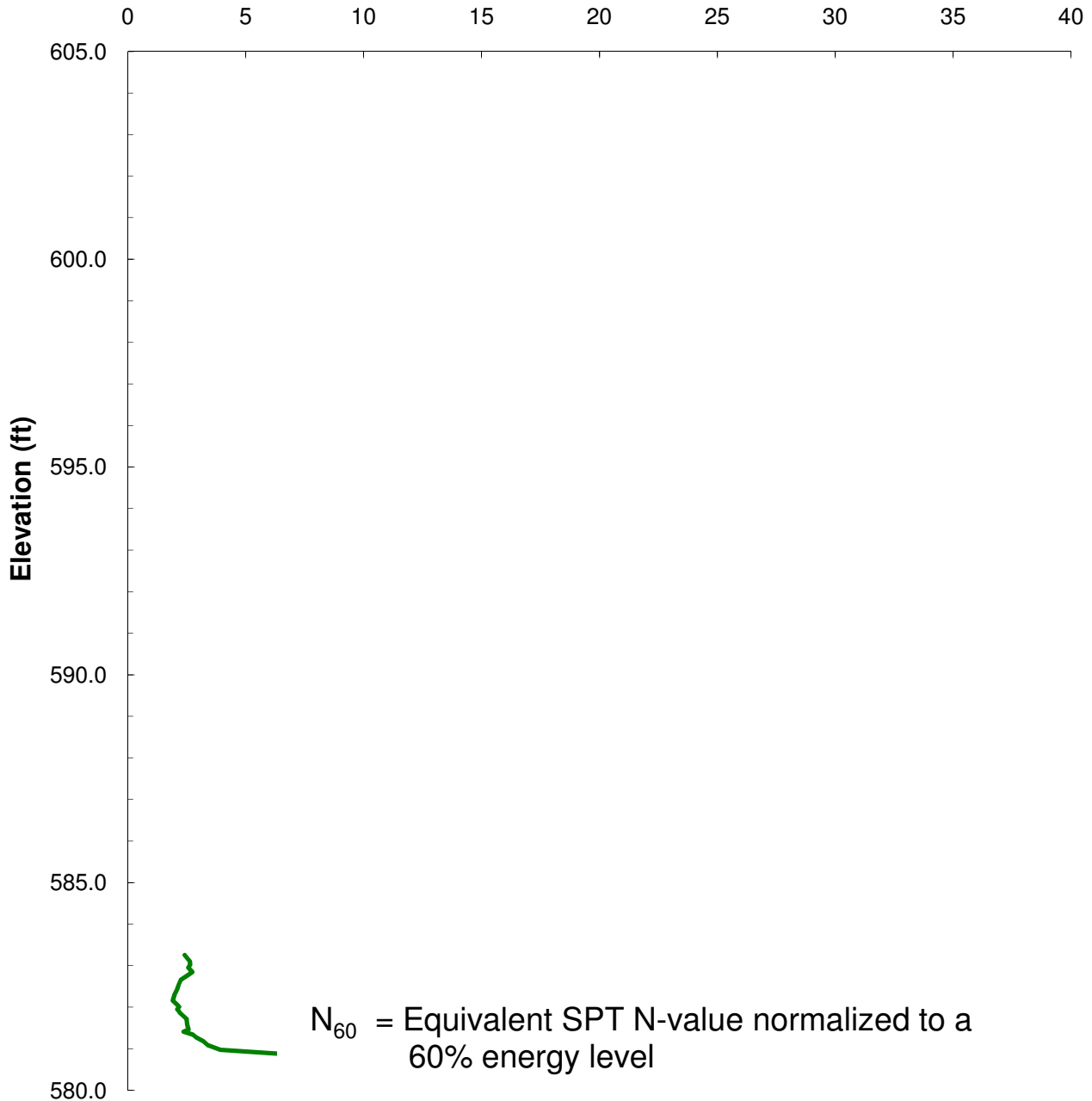


Stantec

SCPTu Results

SCPTu N_{60} Values

Equivalent SPT N_{60} Profile



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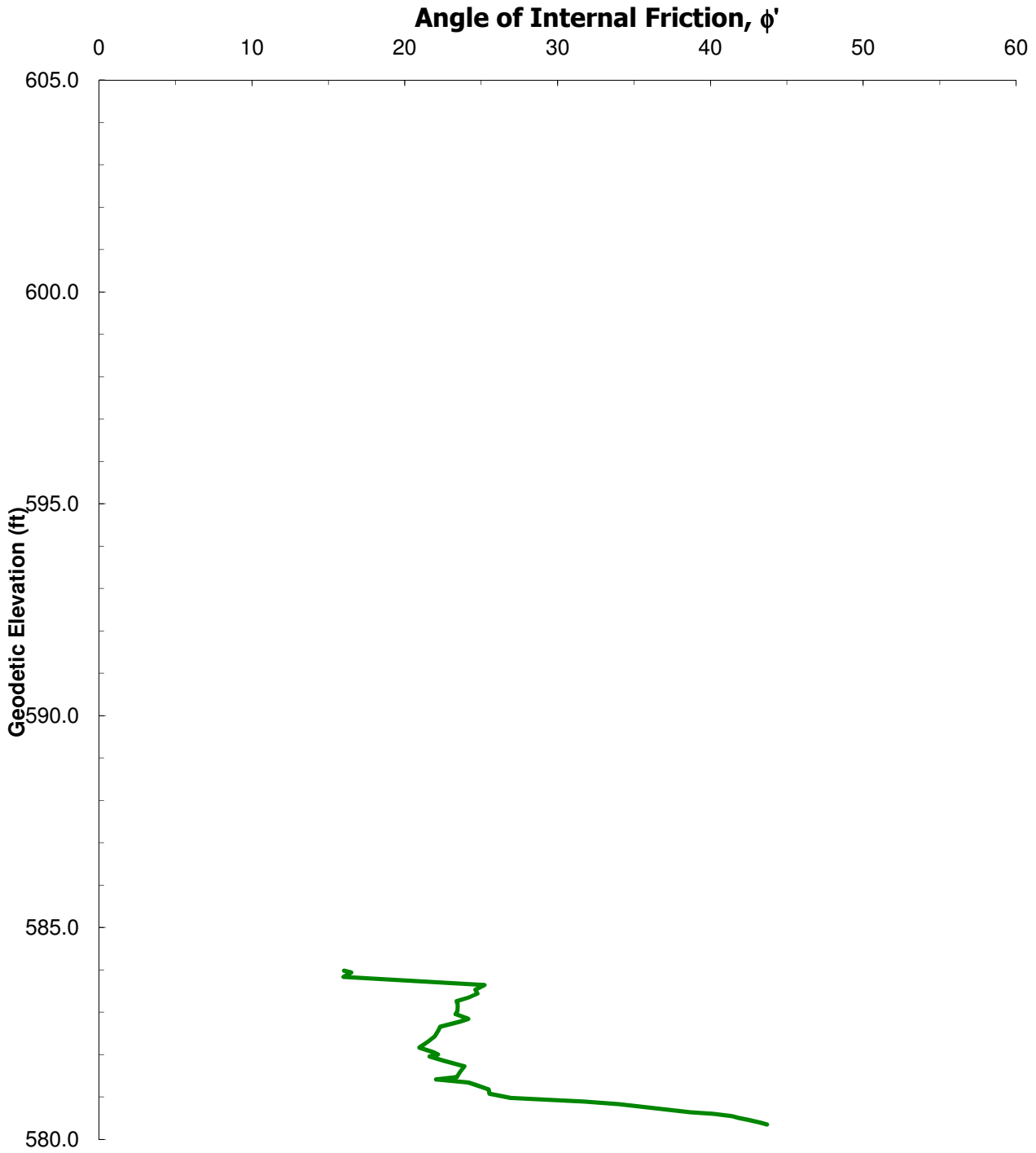
Project No. 175569036
CPT9



Stantec

SCPTu RESULTS

Effective Angle of Internal Friction



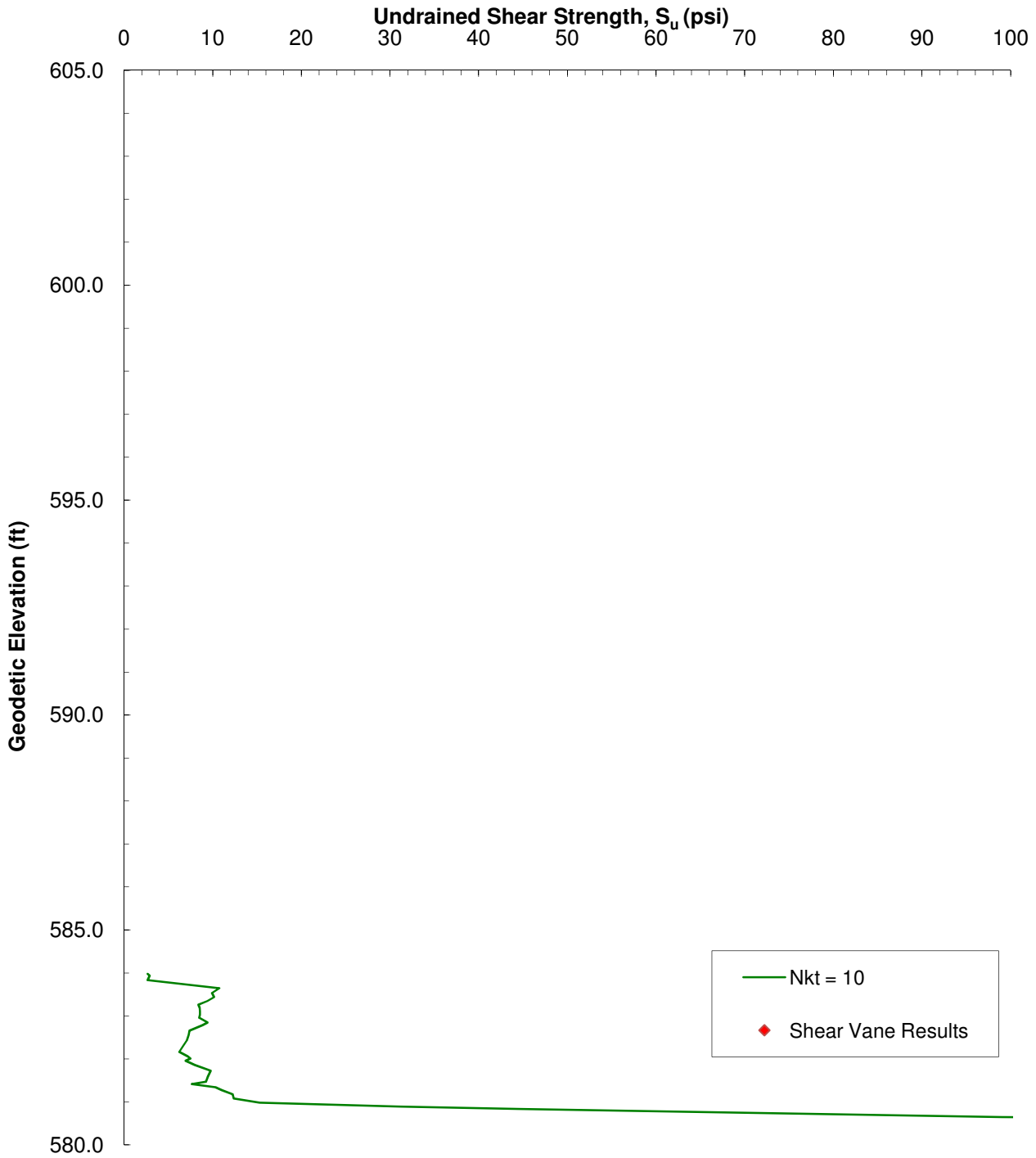
Project No. 175569036
CPT9



Stantec

SCPT_u RESULTS

Undrained Shear Strength, S_u



Project No. 175569036
CPT9

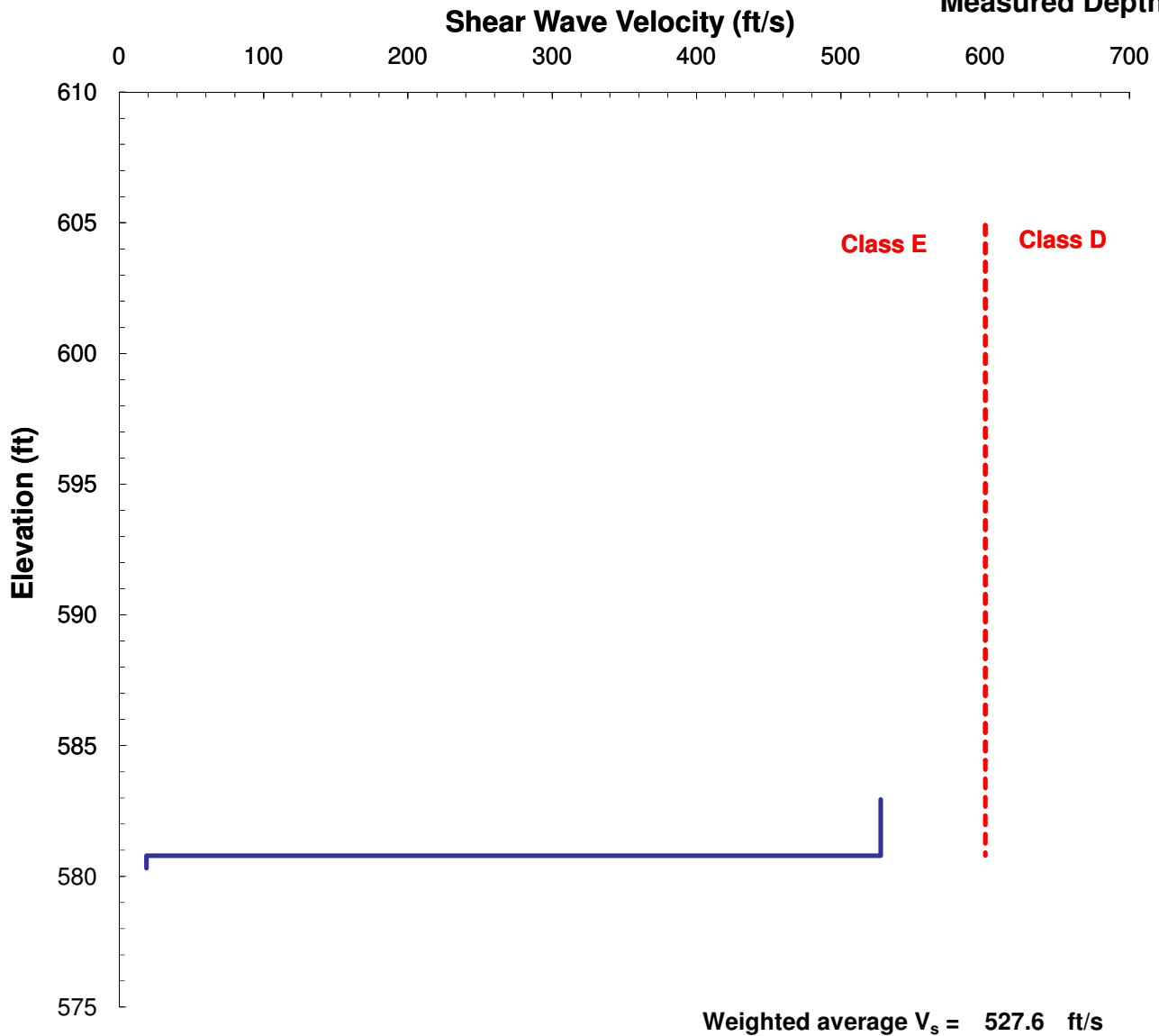


Stantec

Stantec Consulting Services, Inc.

SHEAR WAVE VELOCITY

Incremental Between Measured Depths



Shear Wave Velocity, V_s

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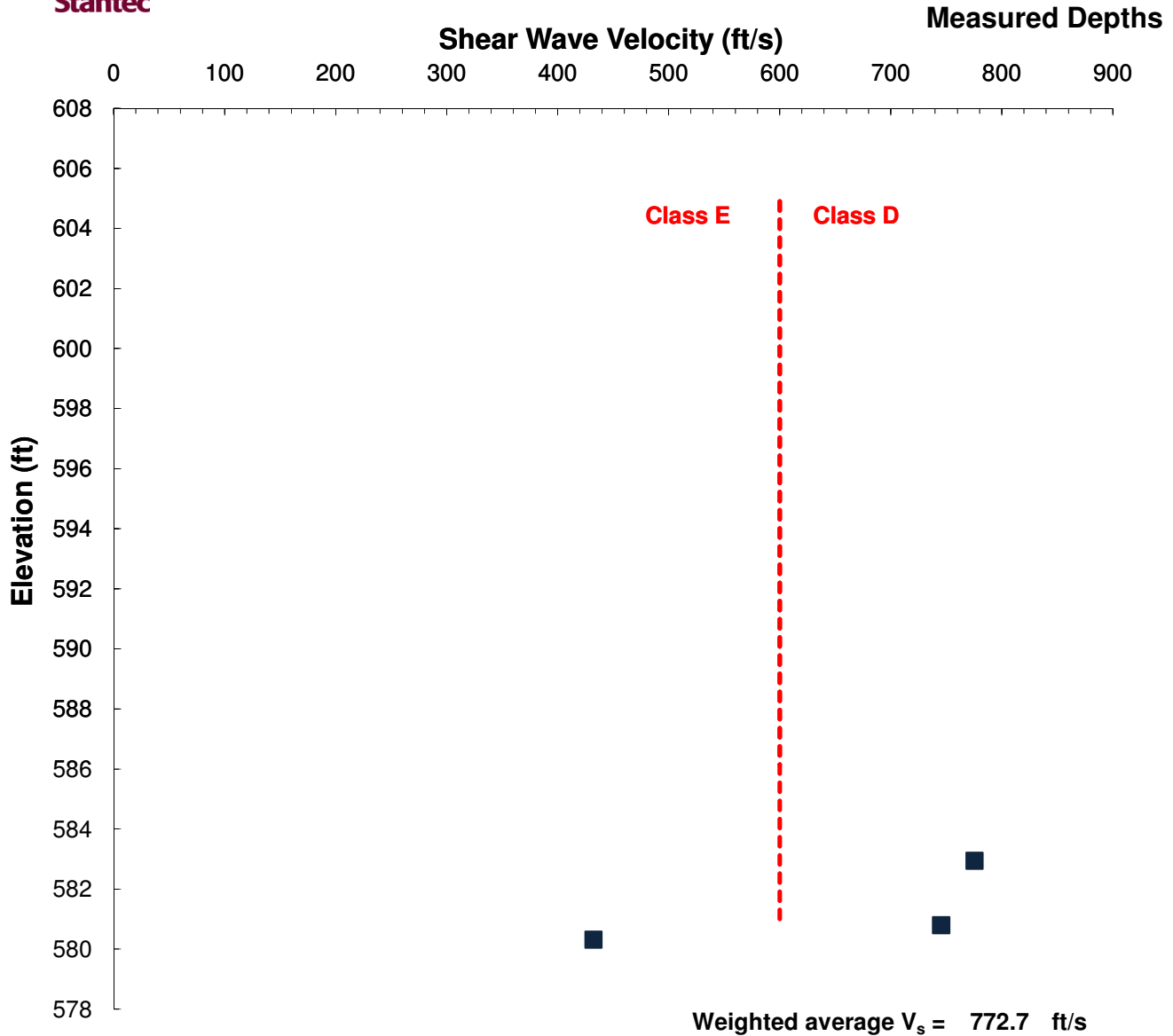
Project No. 175569036

CPT9

Appendix G-165 of 205



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Shear Wave Velocity, V_s

- The "shear wave velocity" of a soil represents the speed at which any shear wave will travel within this soil (or medium).
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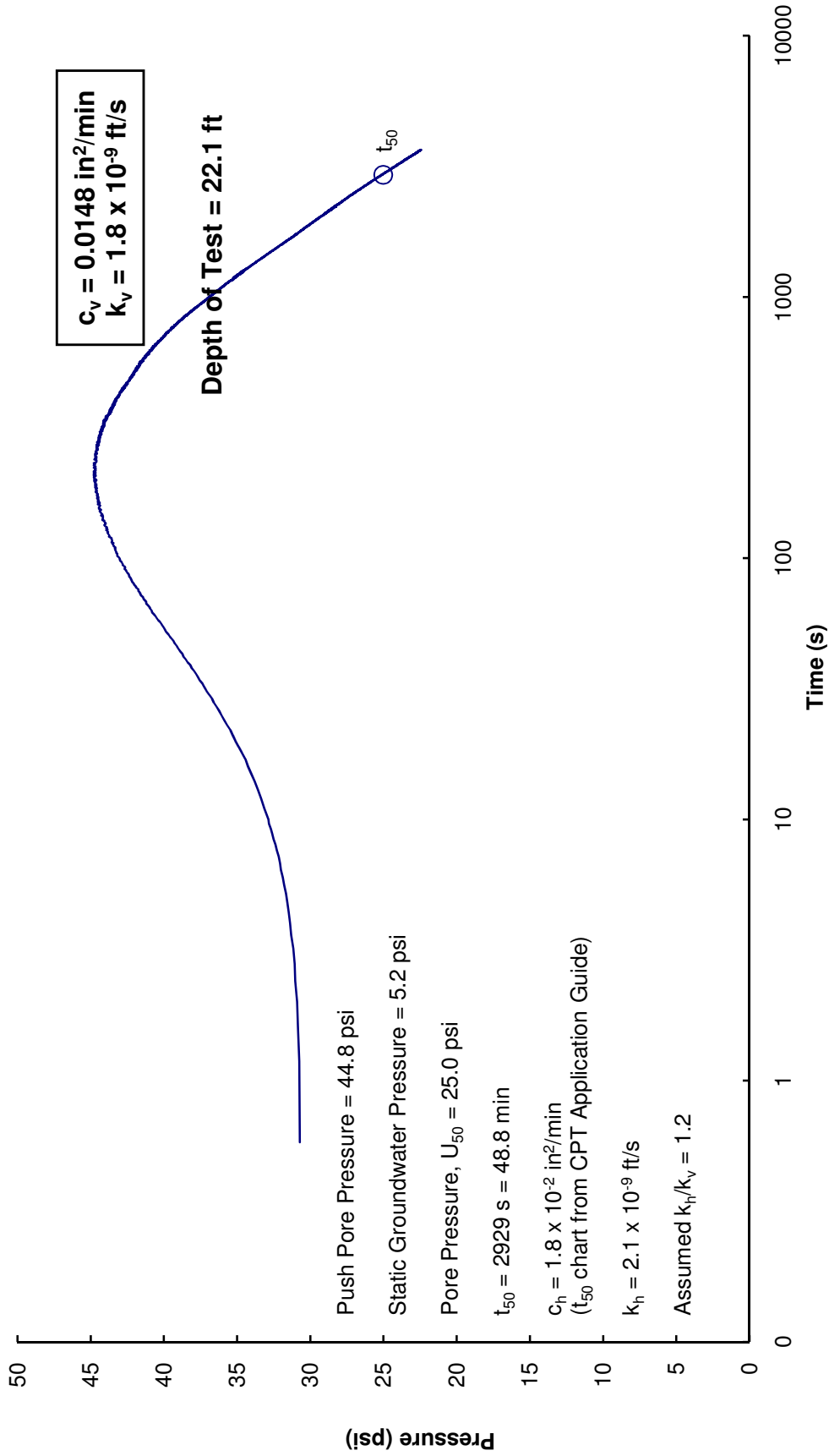


**Stantec Consulting
Inc.**

Stantec

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



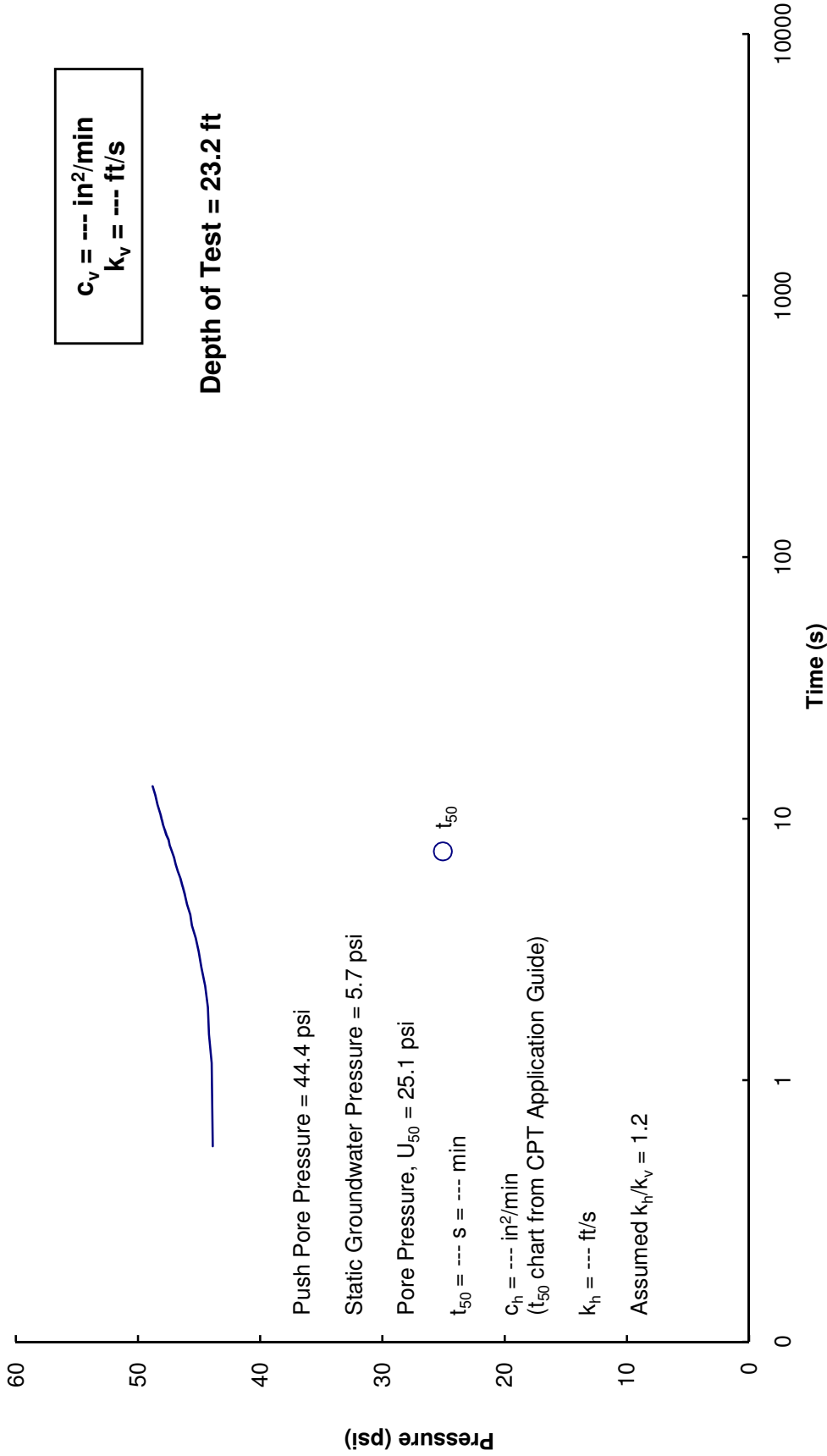
Project No. 175569036
CPT9



Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



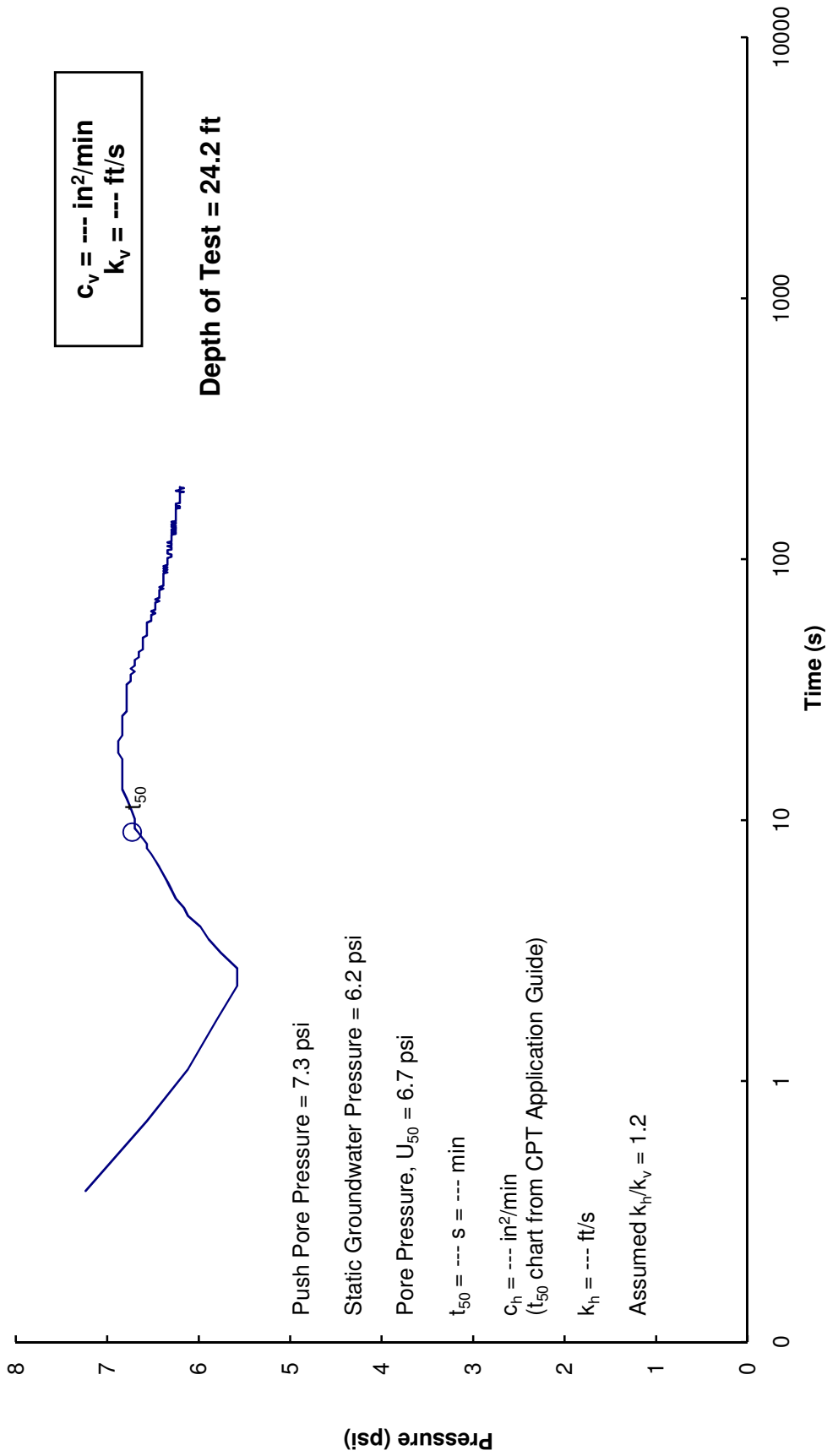
Project No. 175569036
CPT9



**Stantec Consulting
Inc.**

SCPTu DISSIPATION RESULTS

Coefficient of Consolidation



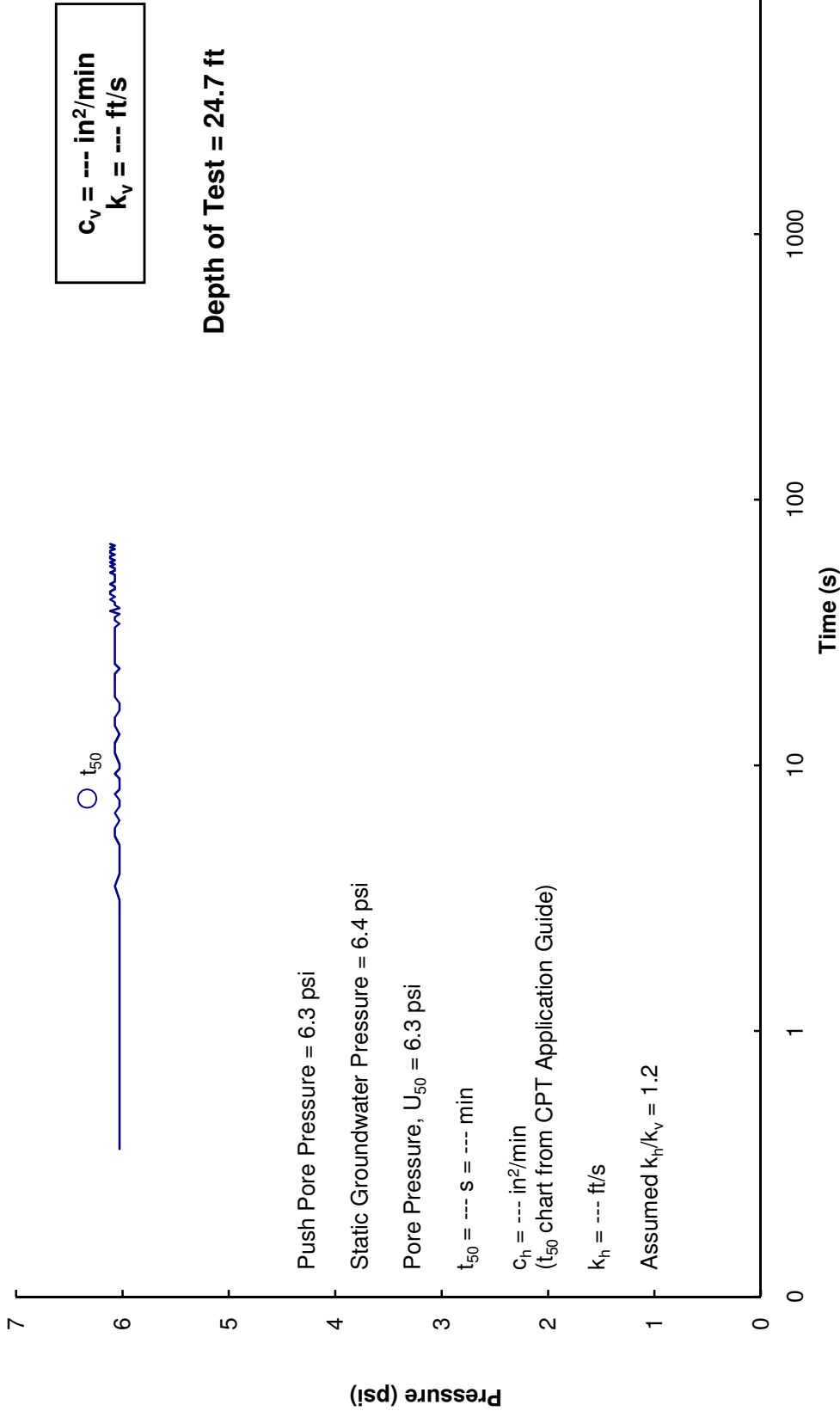
Project No. 175569036
CPT9



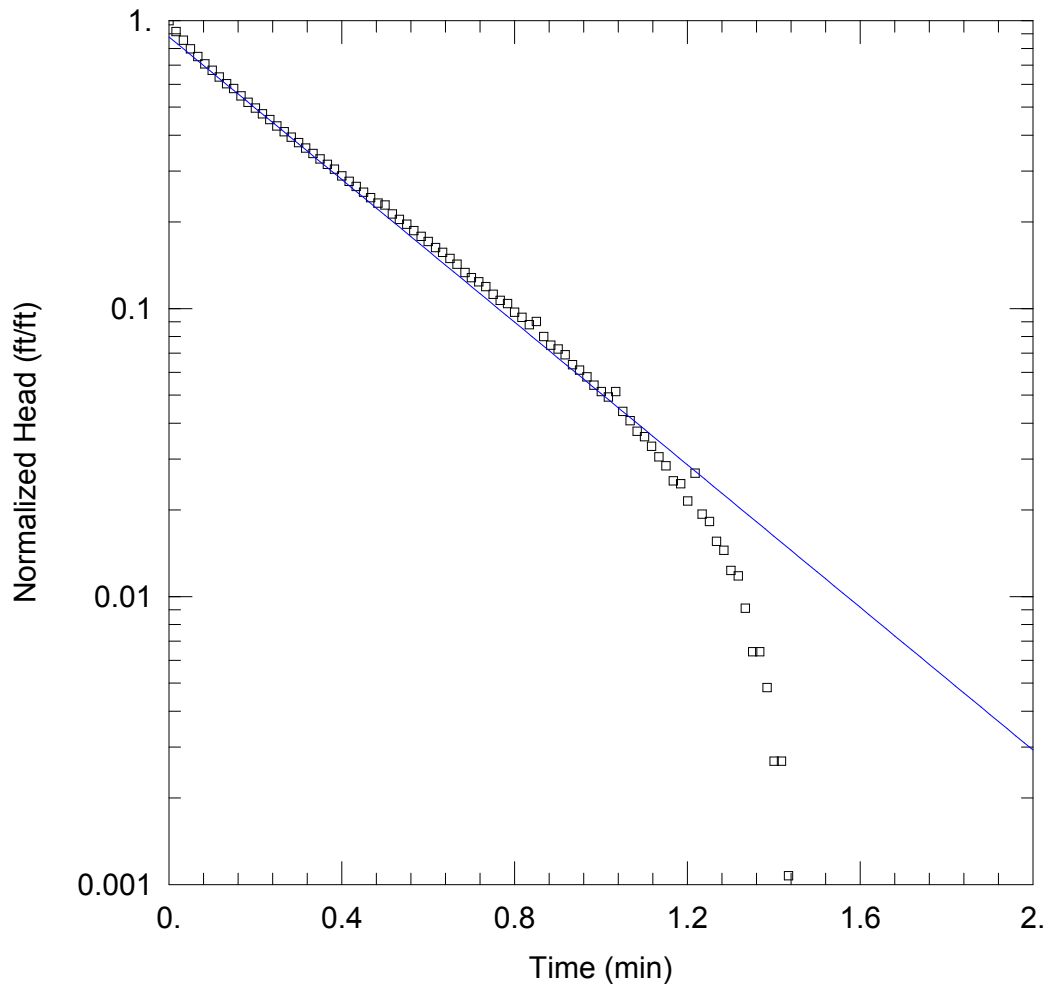
Stantec Consulting
Inc.

SCPT_u DISSIPATION RESULTS

Coefficient of Consolidation



Project No. 175569036
CPT9



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-62.aqt
 Date: 11/17/09 Time: 17:58:29

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-62
 Test Date: 9-2-09

AQUIFER DATA

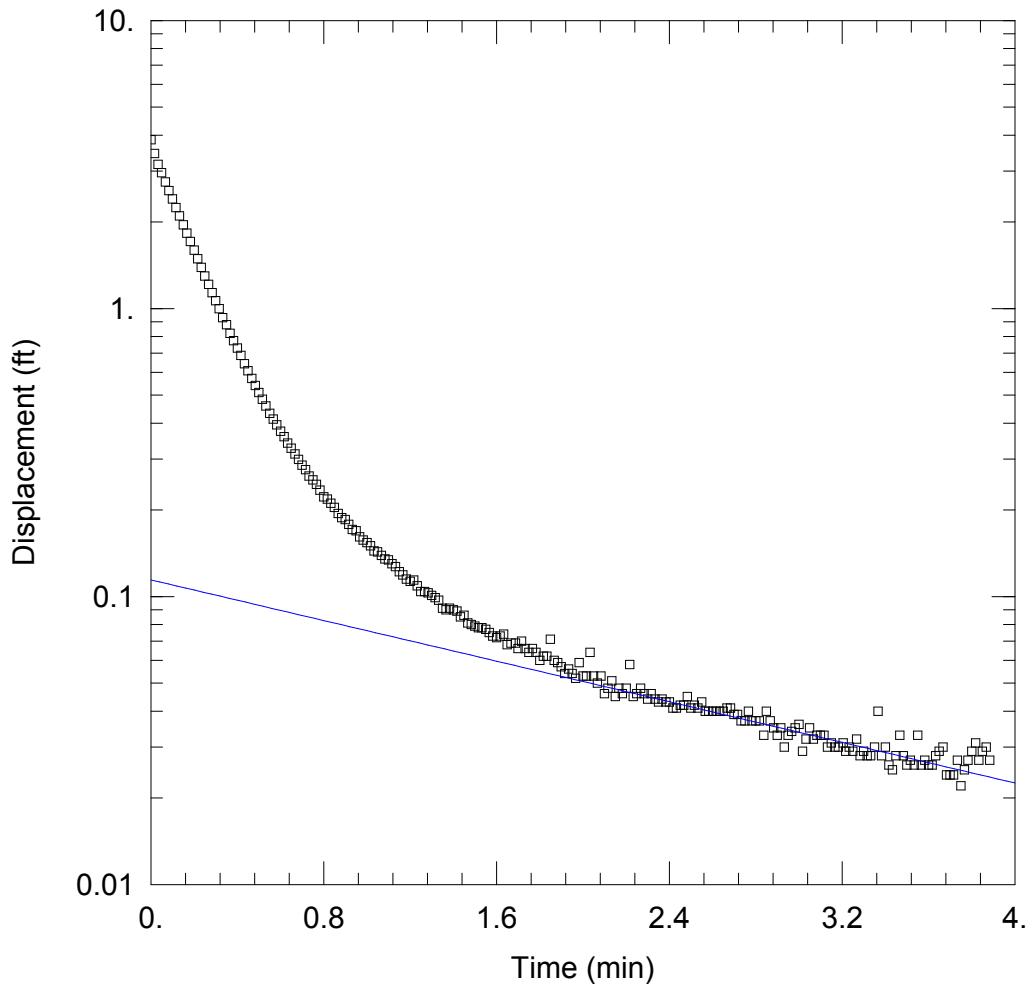
Saturated Thickness: 34.4 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-62)

Initial Displacement: 1.865 ft Static Water Column Height: 10.55 ft
 Total Well Penetration Depth: 10.55 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0004723 cm/sec y0 = 1.636 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\stn-63.aqt
 Date: 11/17/09 Time: 17:58:56

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-63
 Test Date: 9-2-09

AQUIFER DATA

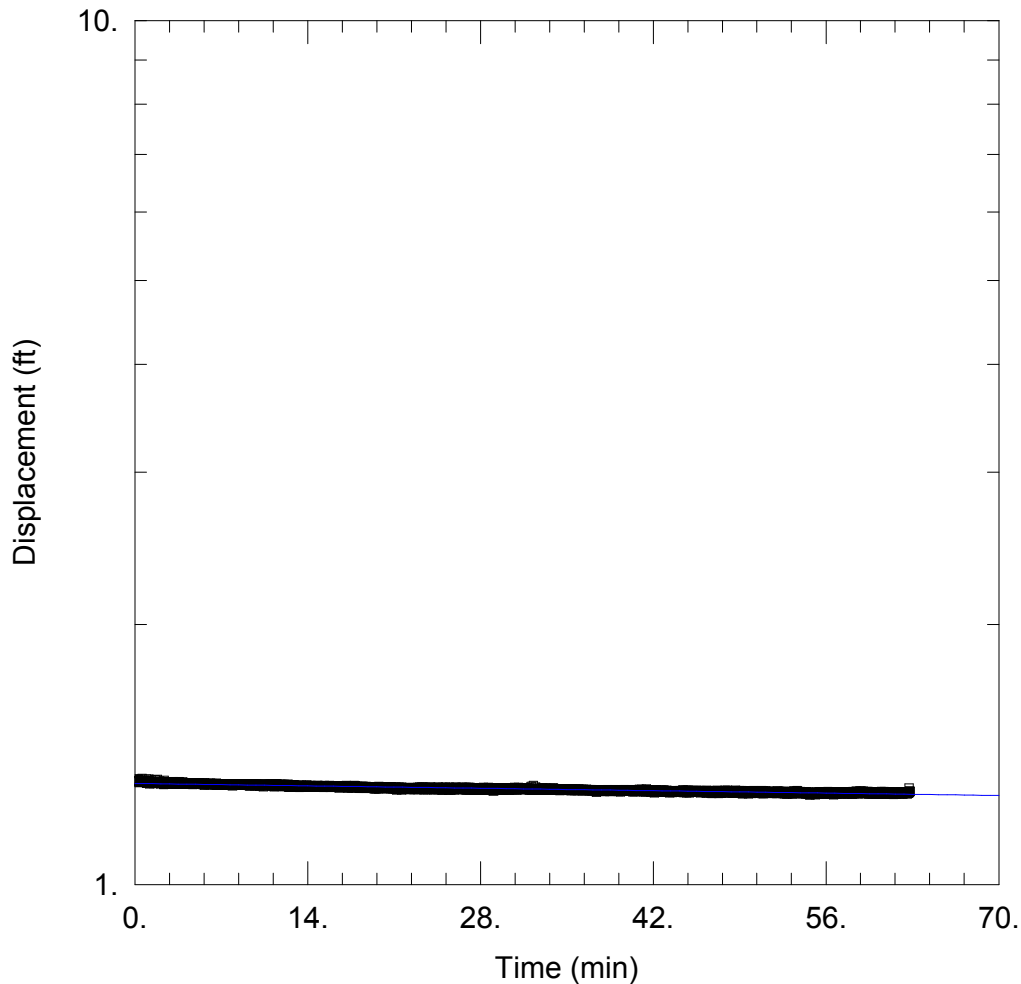
Saturated Thickness: 40.72 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-63)

Initial Displacement: 3.859 ft Static Water Column Height: 25.22 ft
 Total Well Penetration Depth: 25.22 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 7.427E-5 cm/sec y0 = 0.1142 ft **Appendix G-172 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\stn-64.aqt
 Date: 11/17/09 Time: 17:59:07

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-64
 Test Date: 9-2-09

AQUIFER DATA

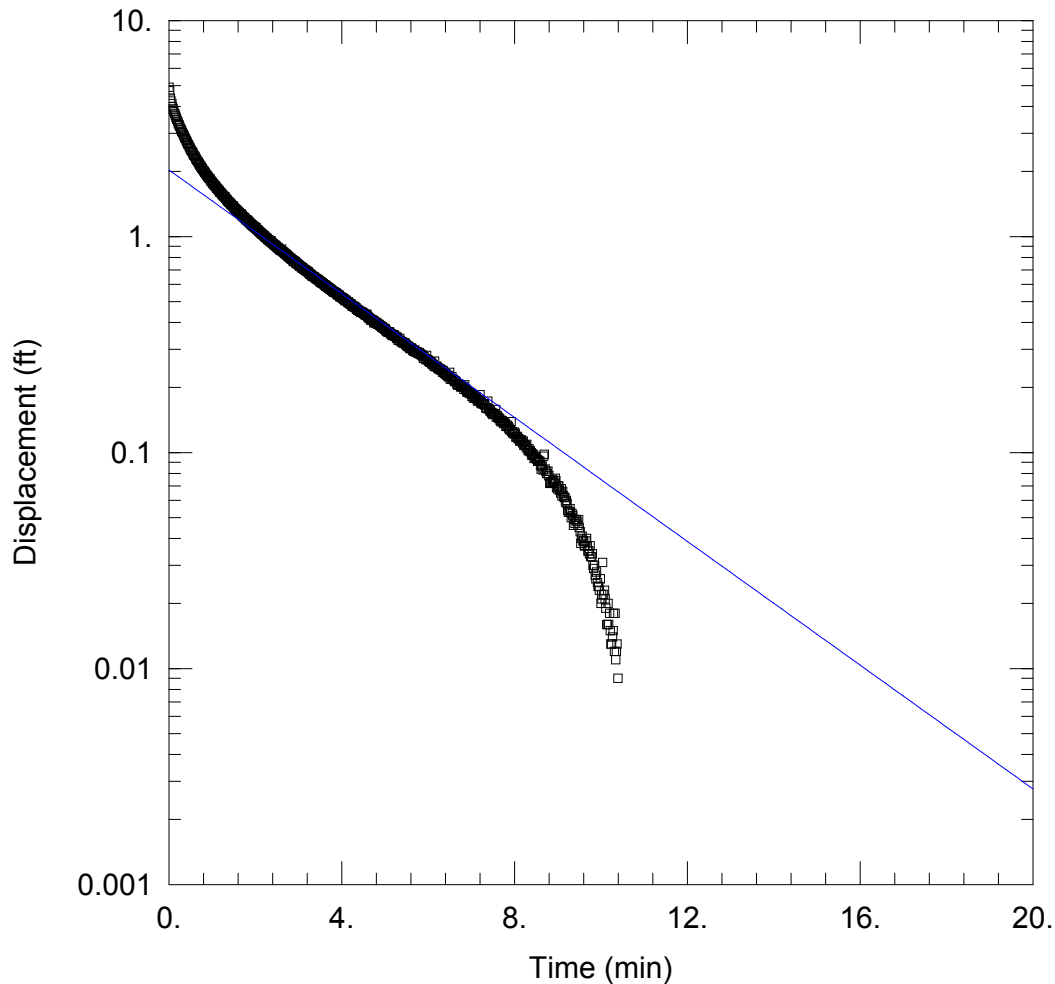
Saturated Thickness: 54.39 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-64)

Initial Displacement: 1.319 ft Static Water Column Height: 32.39 ft
 Total Well Penetration Depth: 32.39 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 8.633E-8 cm/sec y0 = 1.309 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-65.aqt
 Date: 11/17/09 Time: 17:59:15

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-65
 Test Date: 9-2-09

AQUIFER DATA

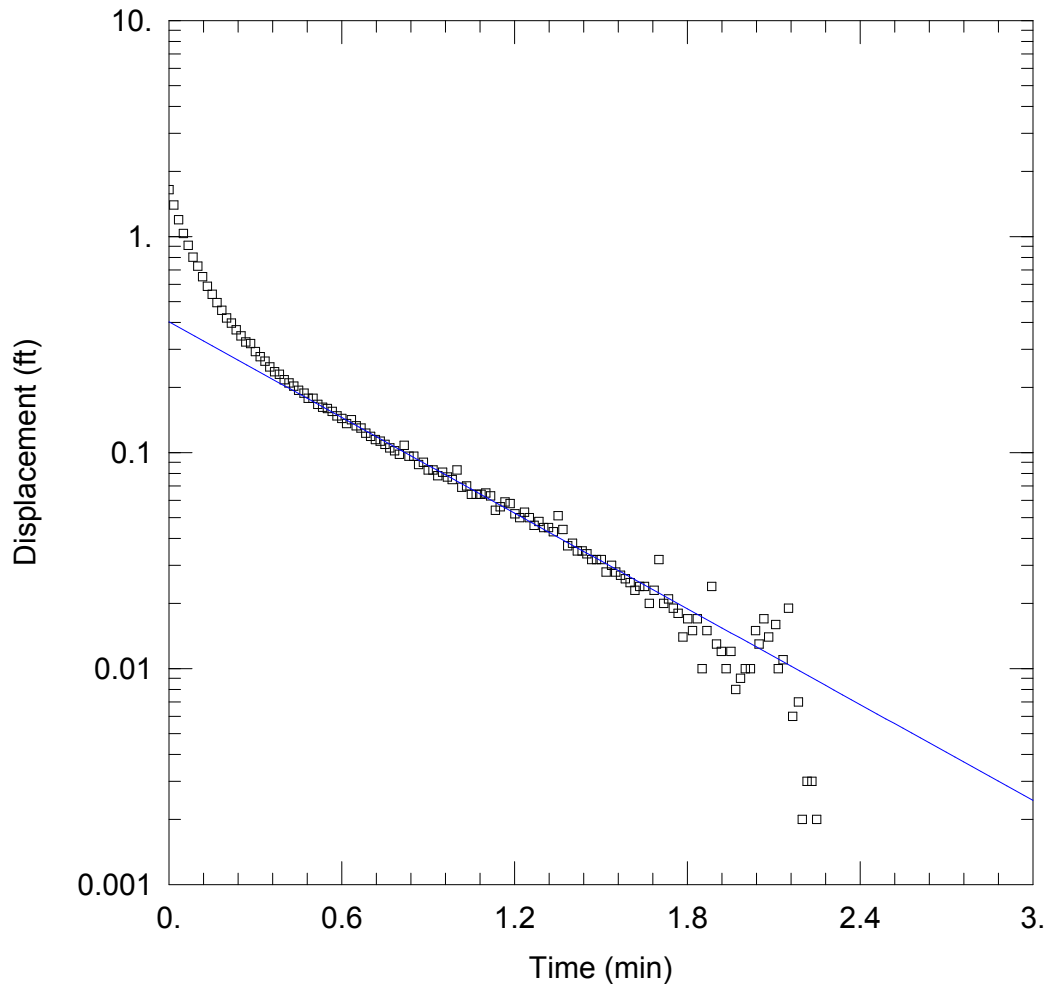
Saturated Thickness: 44.56 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-65)

Initial Displacement: 4.911 ft Static Water Column Height: 21.86 ft
 Total Well Penetration Depth: 21.86 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 5.943E-5 cm/sec y0 = 2.033 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-66.aqt
 Date: 11/17/09 Time: 17:59:24

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-66
 Test Date: 9-2-09

AQUIFER DATA

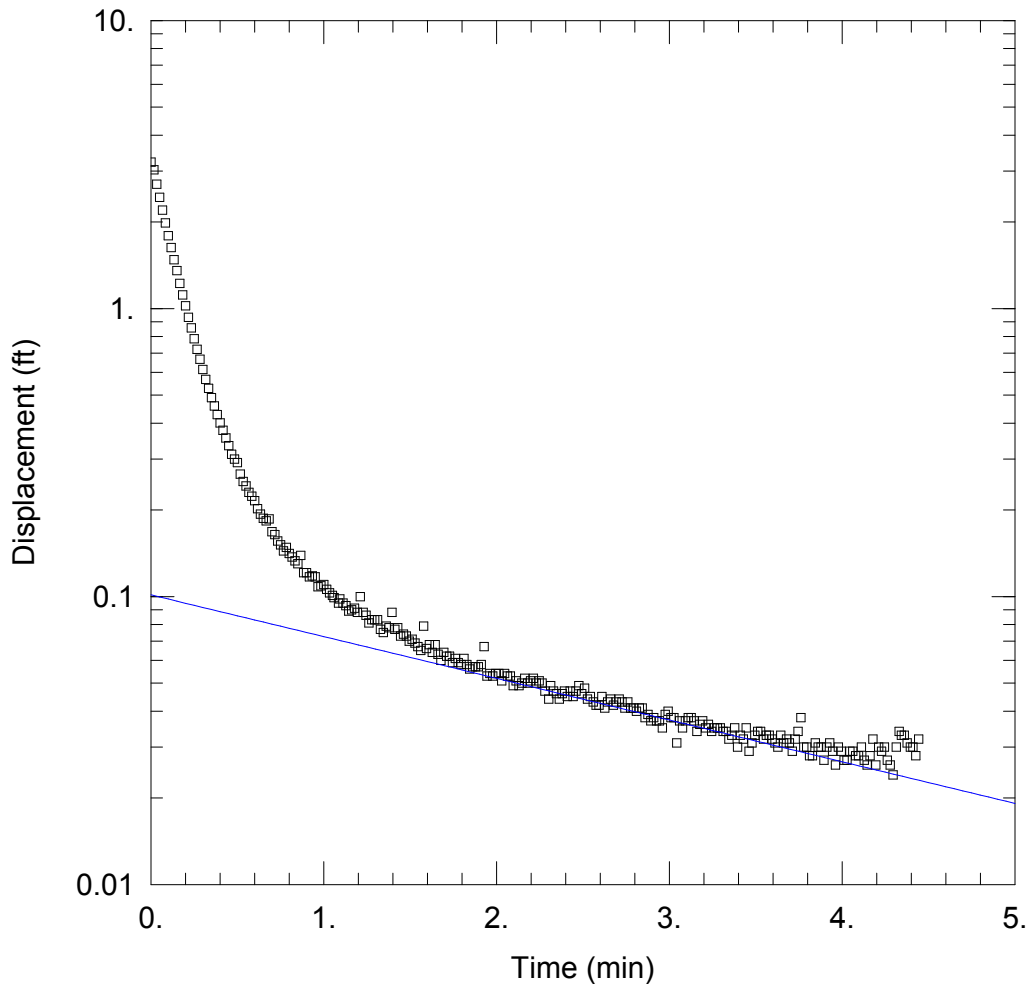
Saturated Thickness: 21.99 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-66)

Initial Displacement: 1.646 ft Static Water Column Height: 22.09 ft
 Total Well Penetration Depth: 22.09 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0003576 cm/sec $y_0 =$ 0.4025 ft **Appendix G-175 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-67.aqt
 Date: 11/17/09 Time: 17:59:34

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-67
 Test Date: 9-2-09

AQUIFER DATA

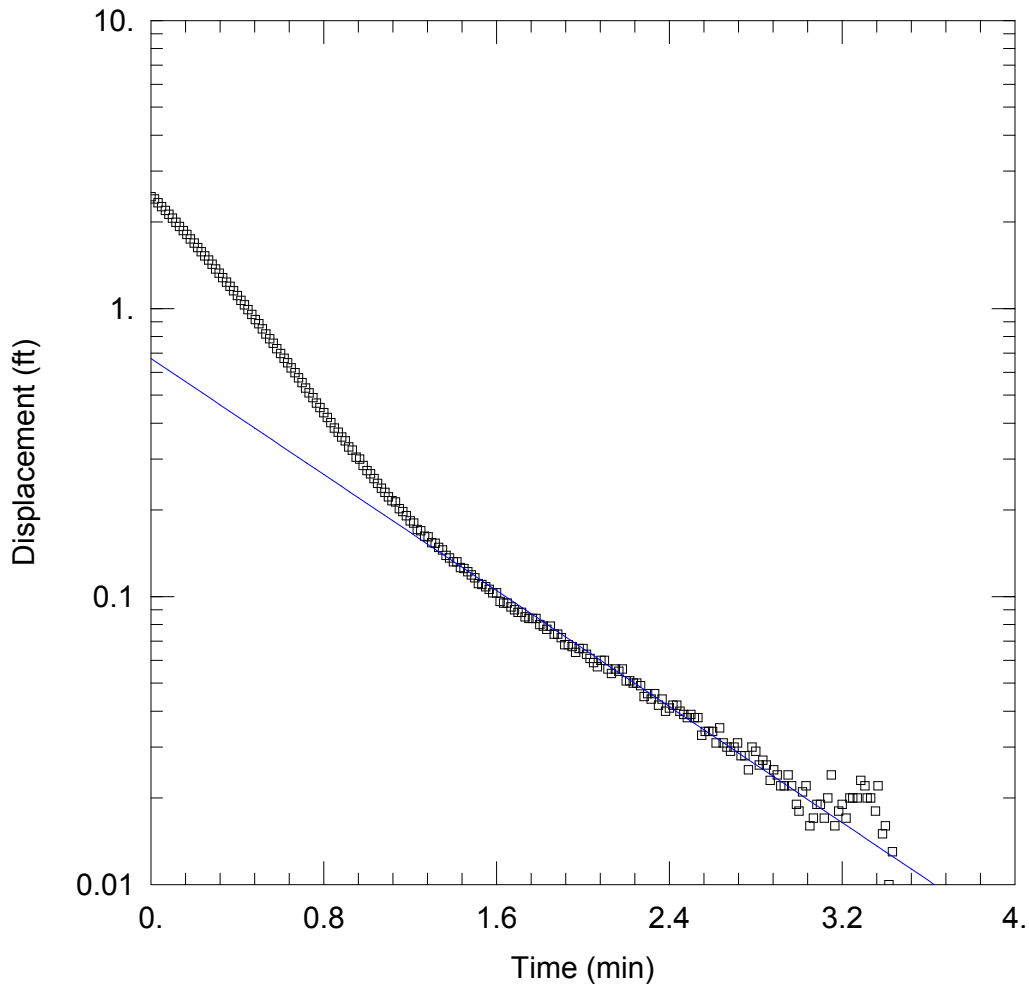
Saturated Thickness: 27.95 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-67)

Initial Displacement: 3.221 ft Static Water Column Height: 19.85 ft
 Total Well Penetration Depth: 19.85 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 6.014E-5 cm/sec $y_0 =$ 0.1013 ft **Appendix G-176 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-68.aqt
 Date: 11/17/09 Time: 17:59:40

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-68
 Test Date: 9-2-09

AQUIFER DATA

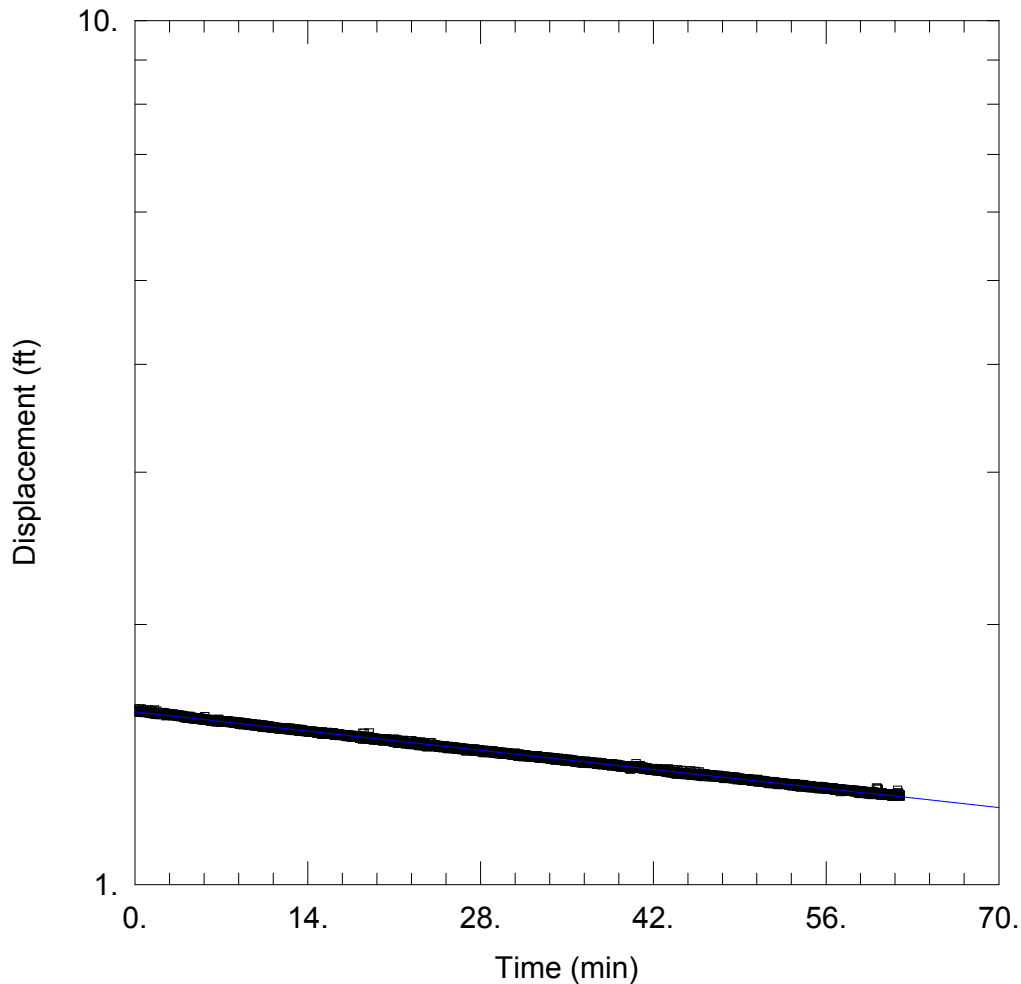
Saturated Thickness: 14.91 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-68)

Initial Displacement: 2.446 ft Static Water Column Height: 14.11 ft
 Total Well Penetration Depth: 14.11 ft Screen Length: 3. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0003356 cm/sec $y_0 =$ 0.6709 ft **Appendix G-177 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-70.aqt
 Date: 11/17/09 Time: 17:59:47

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-70
 Test Date: 9-2-09

AQUIFER DATA

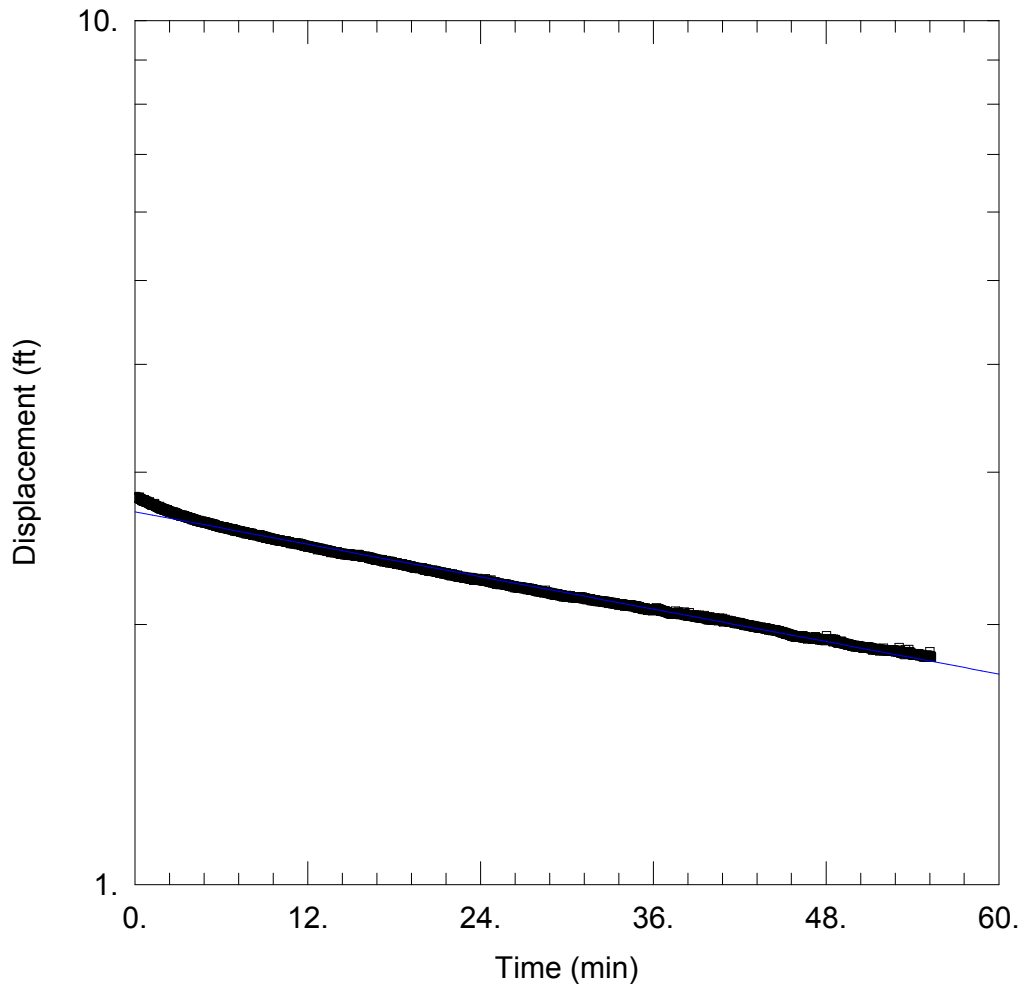
Saturated Thickness: 8.1 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-70)

Initial Displacement: 1.596 ft Static Water Column Height: 8.1 ft
 Total Well Penetration Depth: 8.1 ft Screen Length: 2. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 1.594E-6 cm/sec $y_0 =$ 1.584 ft **Appendix G-178 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-72.aqt
 Date: 11/17/09 Time: 17:59:54

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-72
 Test Date: 9-2-09

AQUIFER DATA

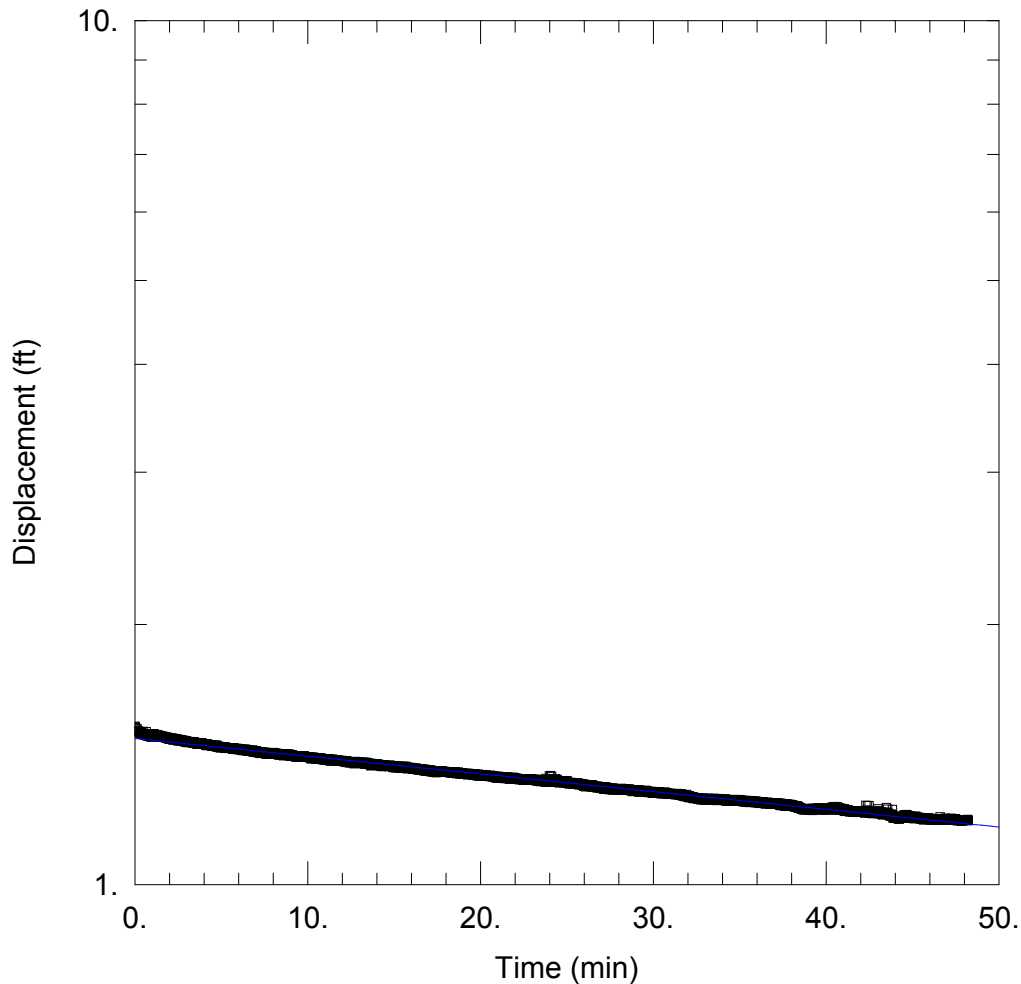
Saturated Thickness: 31.12 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-72)

Initial Displacement: 2.812 ft Static Water Column Height: 23.02 ft
 Total Well Penetration Depth: 23.02 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 1.321E-6 cm/sec y0 = 2.7 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-73.aqt
 Date: 11/17/09 Time: 18:00:03

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-73
 Test Date: 9-2-09

AQUIFER DATA

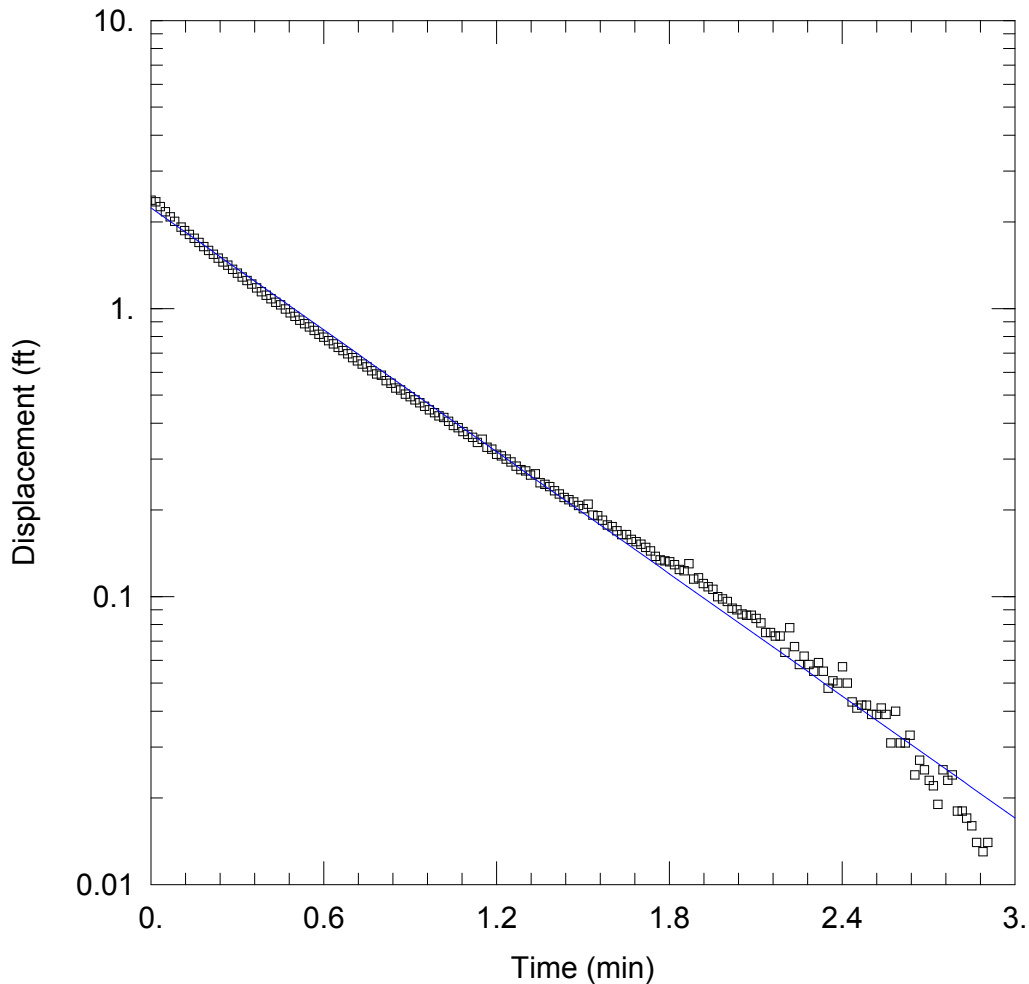
Saturated Thickness: 7.46 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-73)

Initial Displacement: 1.525 ft Static Water Column Height: 7.16 ft
 Total Well Penetration Depth: 7.16 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 8.118E-7 cm/sec y0 = 1.476 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-75.aqt
 Date: 11/17/09 Time: 18:00:13

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-75
 Test Date: 9-2-09

AQUIFER DATA

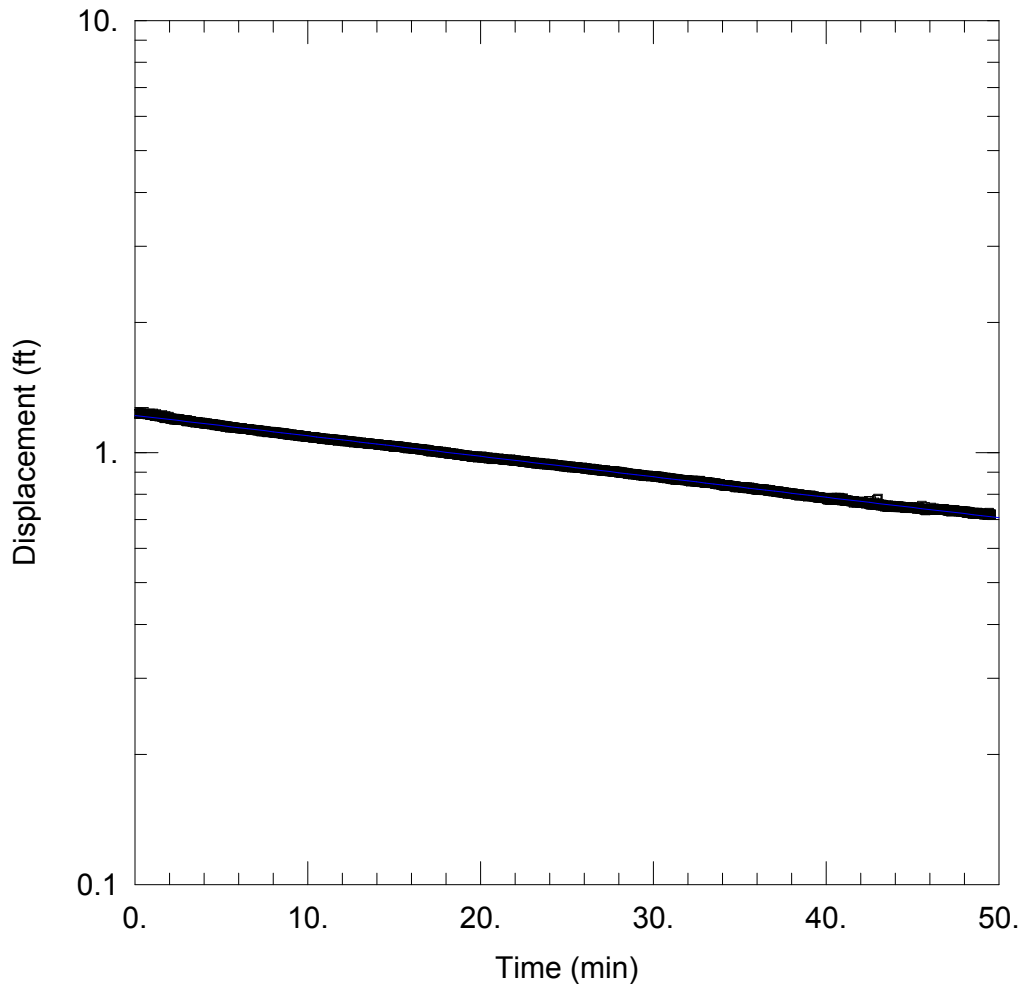
Saturated Thickness: 25.4 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-75)

Initial Displacement: 2.376 ft Static Water Column Height: 26.2 ft
 Total Well Penetration Depth: 26.2 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0003493 cm/sec y0 = 2.235 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-76.aqt
 Date: 11/17/09 Time: 18:00:20

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-76
 Test Date: 9-2-09

AQUIFER DATA

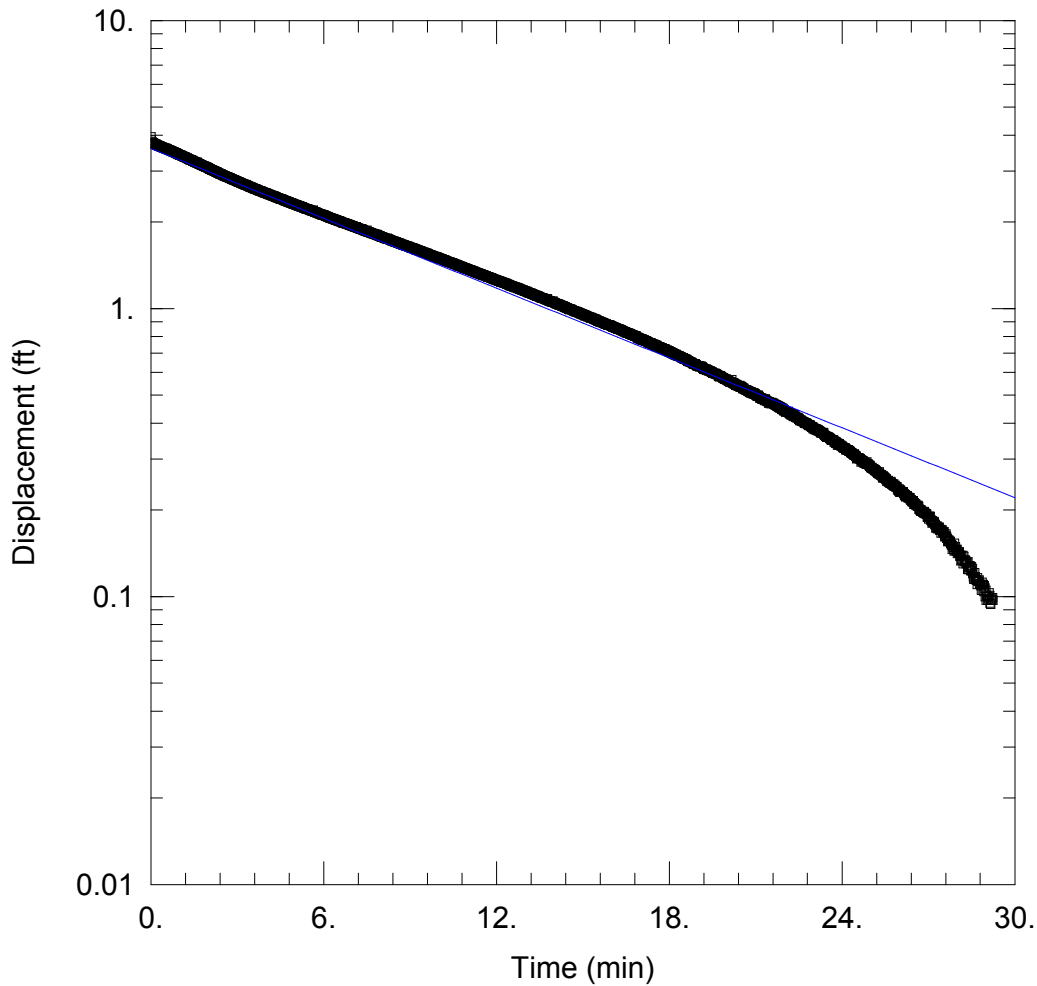
Saturated Thickness: 30.06 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-76)

Initial Displacement: 1.242 ft Static Water Column Height: 30.06 ft
 Total Well Penetration Depth: 30.06 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 2.383E-6 cm/sec y0 = 1.219 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-78.aqt
 Date: 11/17/09 Time: 18:00:26

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-78
 Test Date: 9-2-09

AQUIFER DATA

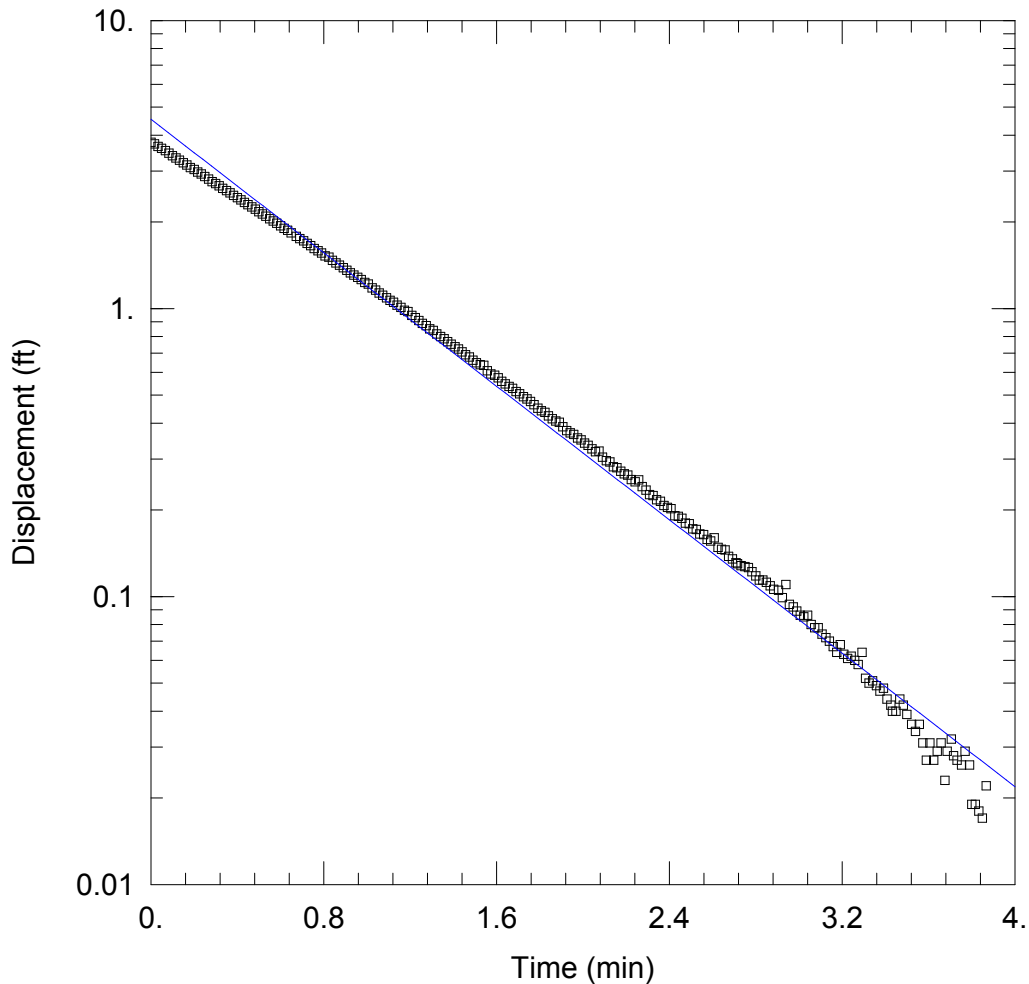
Saturated Thickness: 54.52 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-78)

Initial Displacement: 3.947 ft Static Water Column Height: 32.52 ft
 Total Well Penetration Depth: 32.52 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 1.747E-5 cm/sec y0 = 3.592 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-79.aqt
 Date: 11/17/09 Time: 18:00:33

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-79
 Test Date: 9-2-09

AQUIFER DATA

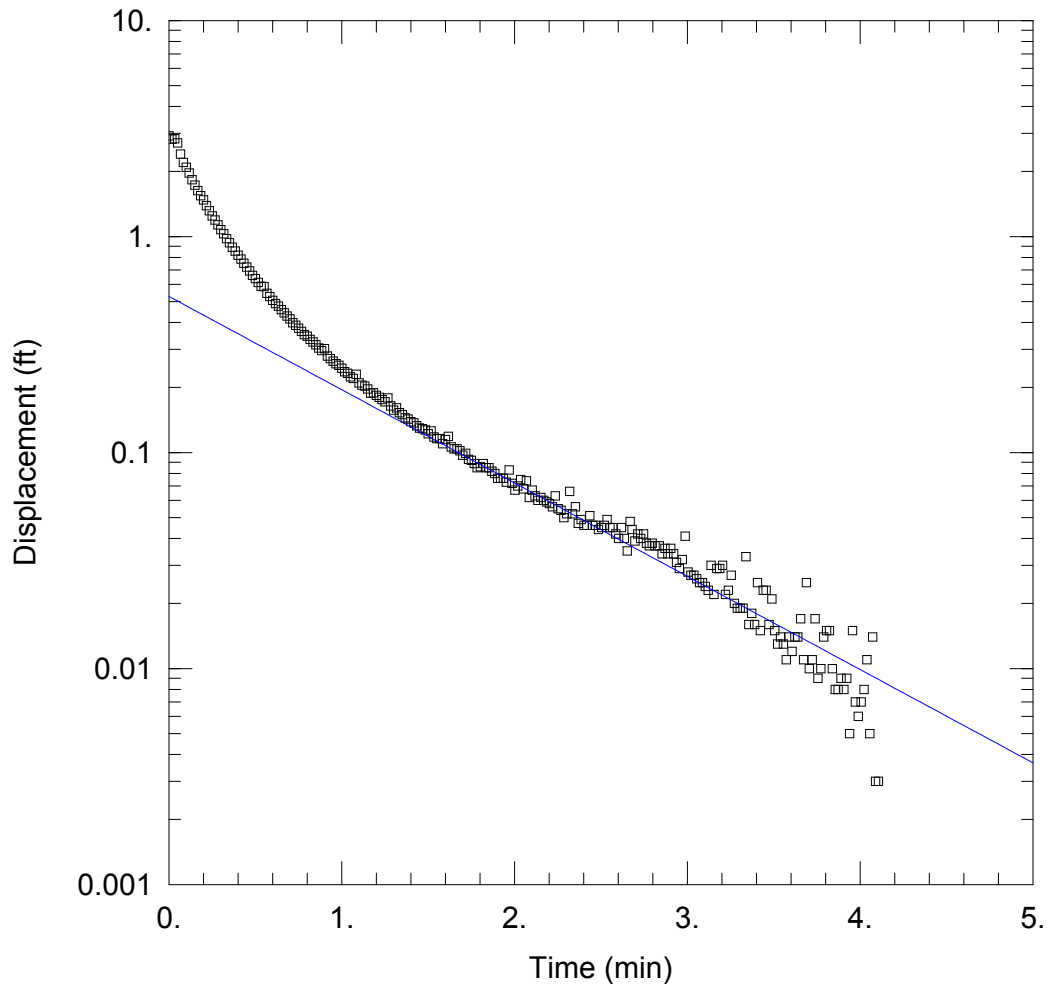
Saturated Thickness: 27.52 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-79)

Initial Displacement: 3.782 ft Static Water Column Height: 27.52 ft
 Total Well Penetration Depth: 27.52 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0002884 cm/sec $y_0 =$ 4.537 ft **Appendix G-184 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-80.aqt
 Date: 11/17/09 Time: 18:00:39

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-80
 Test Date: 9-2-09

AQUIFER DATA

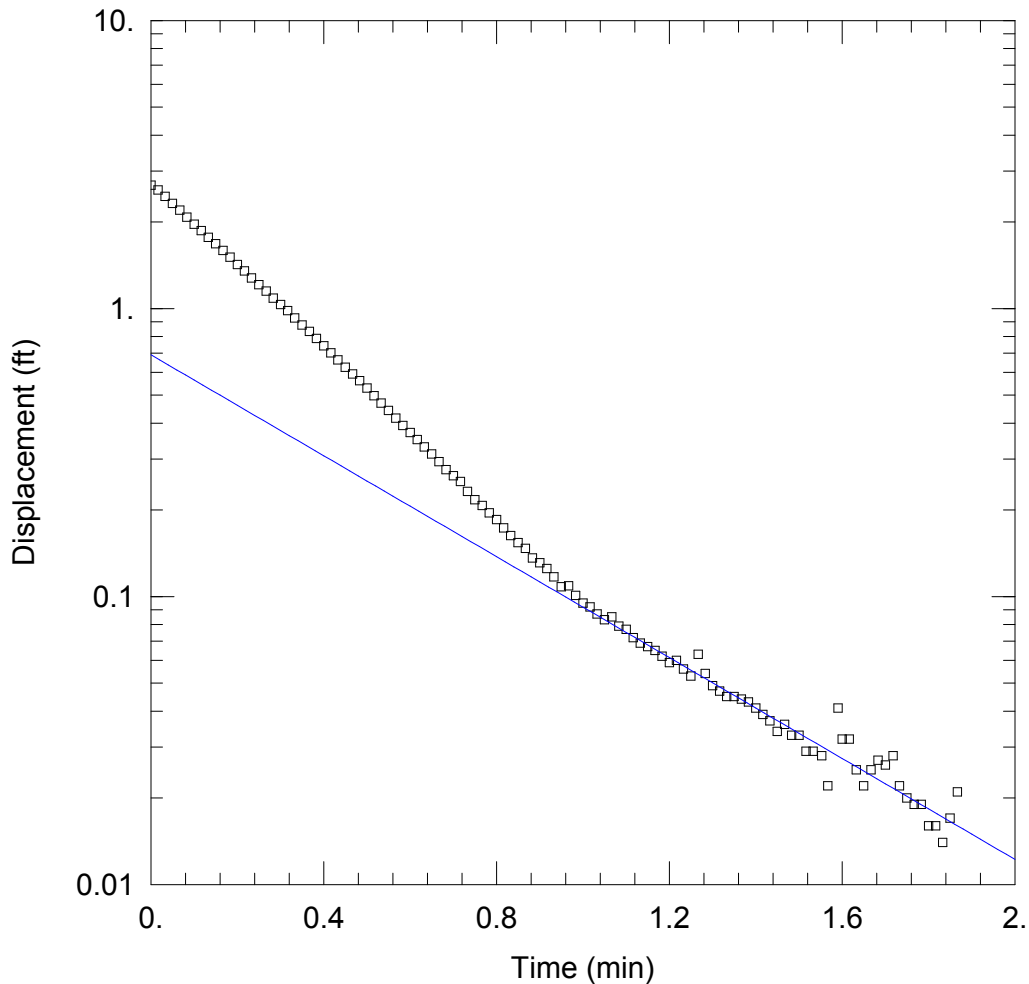
Saturated Thickness: 32.9 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-80)

Initial Displacement: 2.927 ft Static Water Column Height: 28.4 ft
 Total Well Penetration Depth: 28.4 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bowyer-Rice
 K = 0.0001892 cm/sec $y_0 =$ 0.5277 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-81.aqt
 Date: 11/17/09 Time: 18:00:47

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-81
 Test Date: 9-2-09

AQUIFER DATA

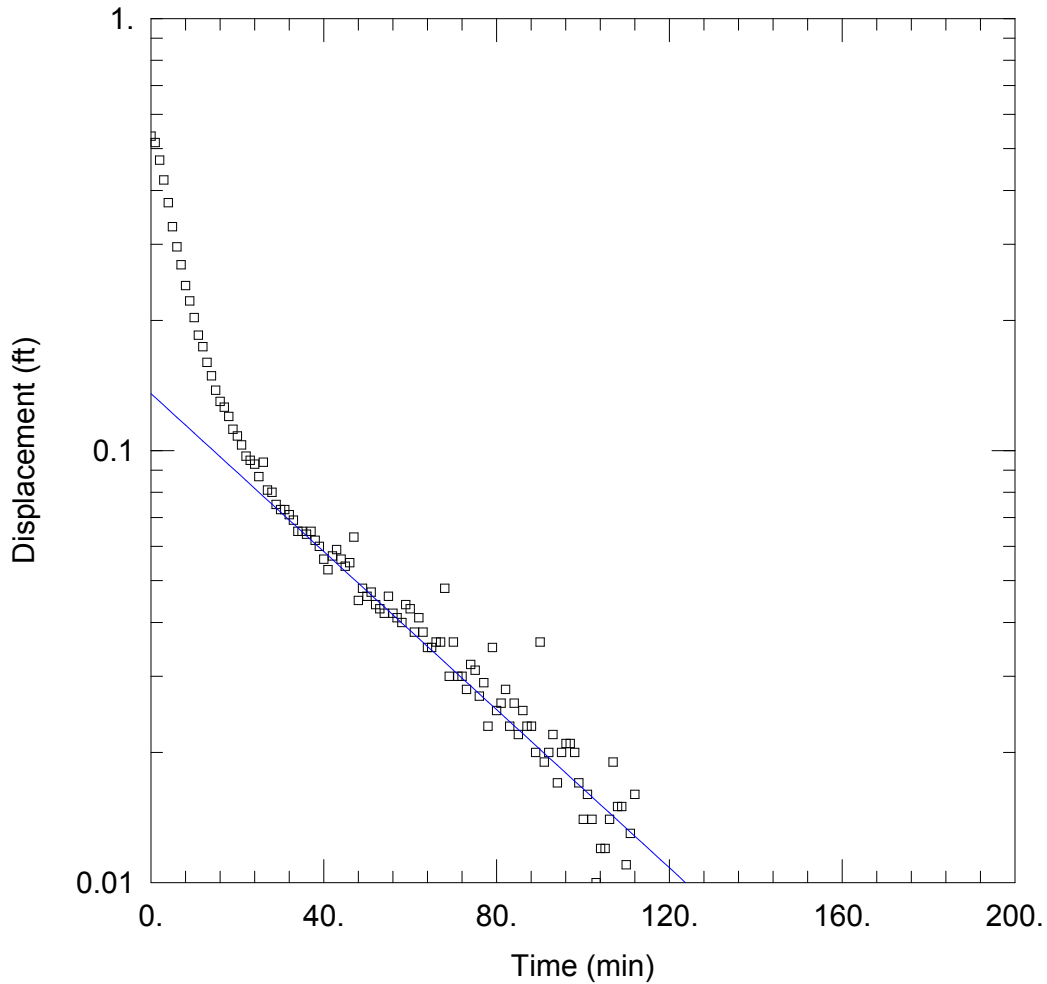
Saturated Thickness: 27.4 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-81)

Initial Displacement: 2.679 ft Static Water Column Height: 20.9 ft
 Total Well Penetration Depth: 20.9 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.000368 cm/sec $y_0 =$ 0.6904 ft **Appendix G-186 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-82.aqt
 Date: 11/17/09 Time: 18:00:50

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-82
 Test Date: 9-2-09

AQUIFER DATA

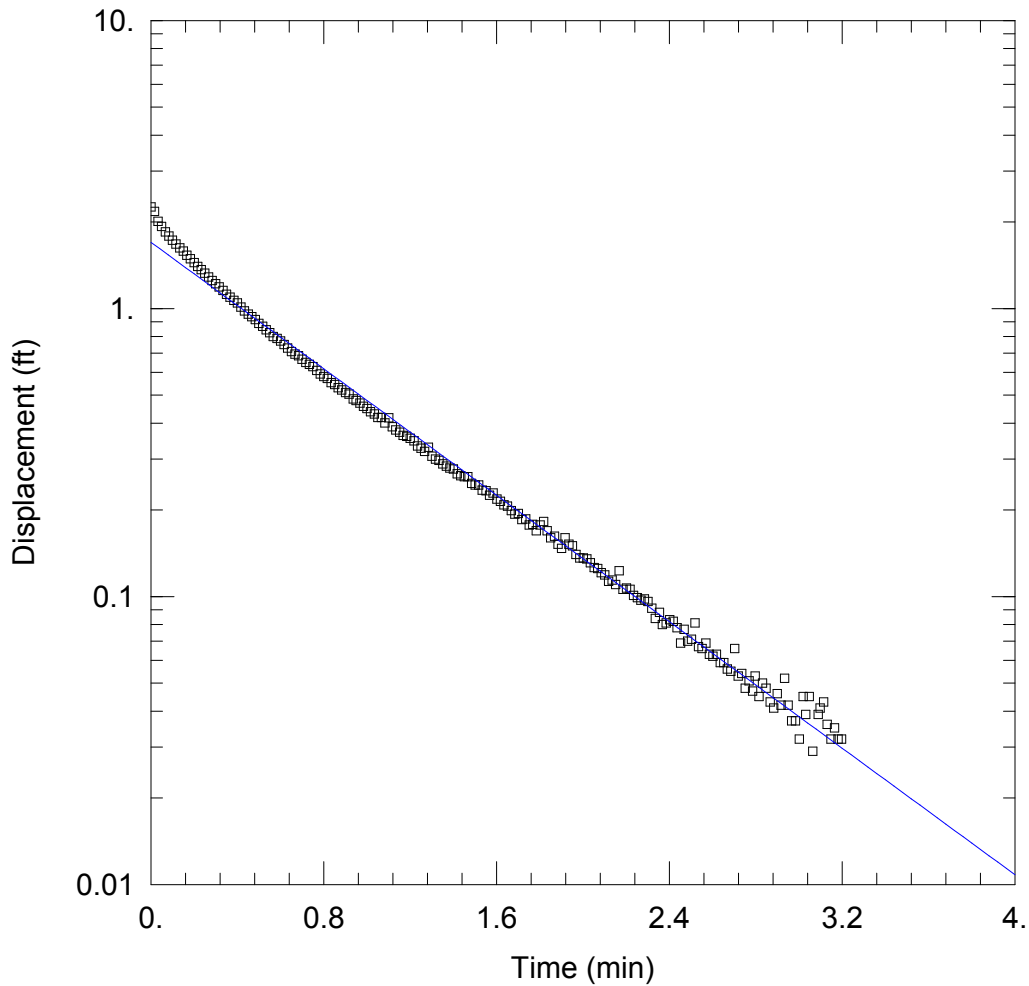
Saturated Thickness: 18.16 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-82)

Initial Displacement: 0.534 ft Static Water Column Height: 13.16 ft
 Total Well Penetration Depth: 13.16 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 3.667E-6 cm/sec $y_0 =$ 0.1355 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-83A.aqt
 Date: 11/17/09

Time: 18:01:27

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-83A
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 14.28 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-83A)

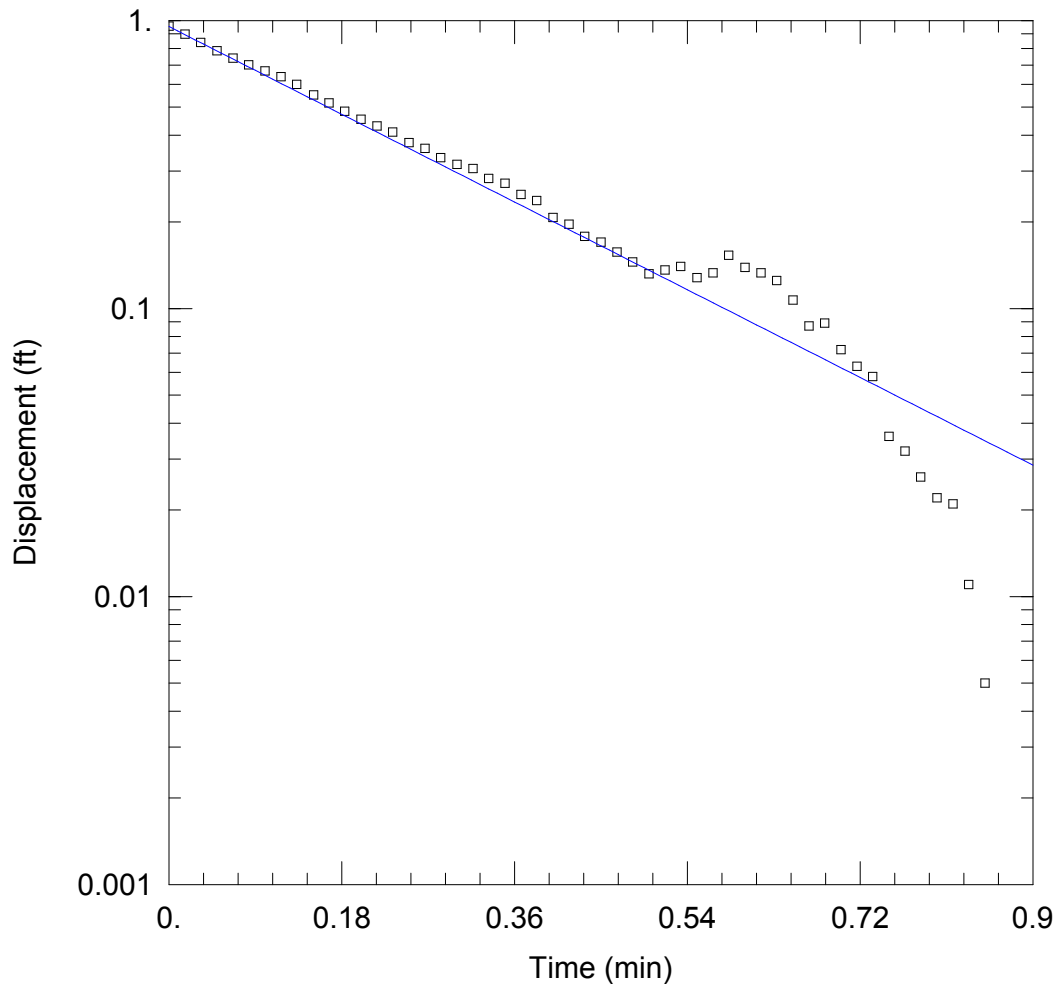
Initial Displacement: 2.253 ft
 Total Well Penetration Depth: 13.78 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 13.78 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.0002348 cm/sec

Solution Method: Bouwer-Rice
 y0 = 1.698 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-83b.aqt
 Date: 11/17/09

Time: 18:01:33

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-83B
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 14.27 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-83B)

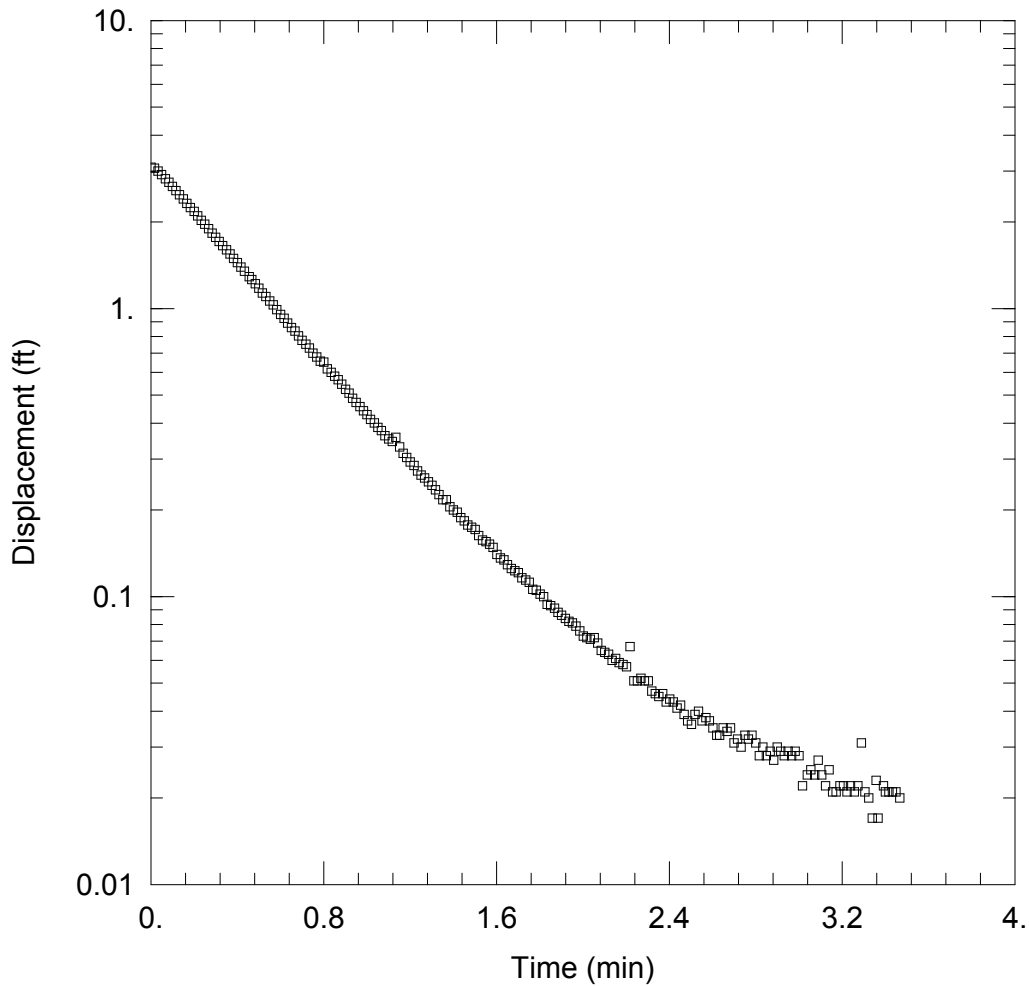
Initial Displacement: 0.956 ft
 Total Well Penetration Depth: 5. ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 4.77 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.0005873 cm/sec

Solution Method: Bouwer-Rice
 y0 = 0.9528 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-84.aqt
 Date: 11/17/09 Time: 18:01:42

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-84
 Test Date: 9-2-09

AQUIFER DATA

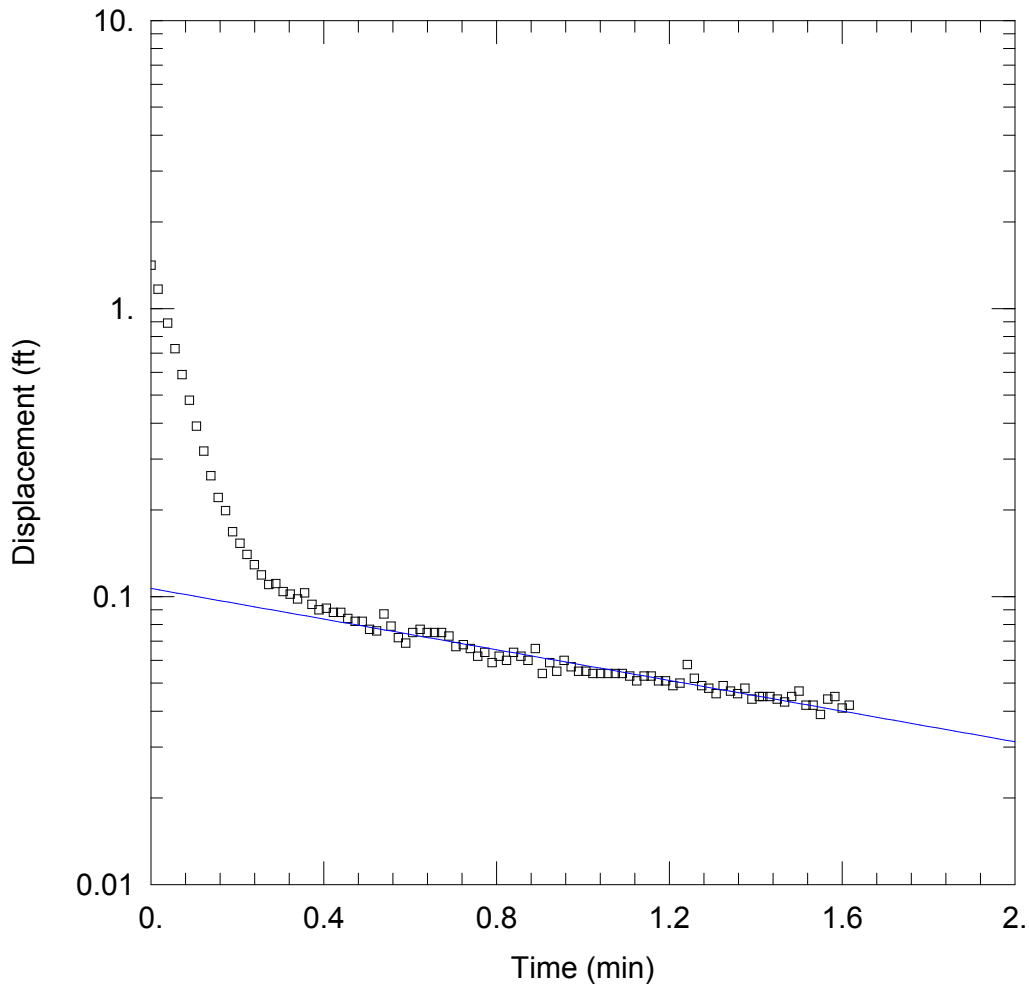
Saturated Thickness: 9.67 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-84)

Initial Displacement: 3.092 ft Static Water Column Height: 6.77 ft
 Total Well Penetration Depth: 6.77 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0001416 cm/sec $y_0 =$ 0.3506 ft **Appendix G-190 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-85.aqt
 Date: 11/17/09 Time: 18:01:50

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-85
 Test Date: 9-2-09

AQUIFER DATA

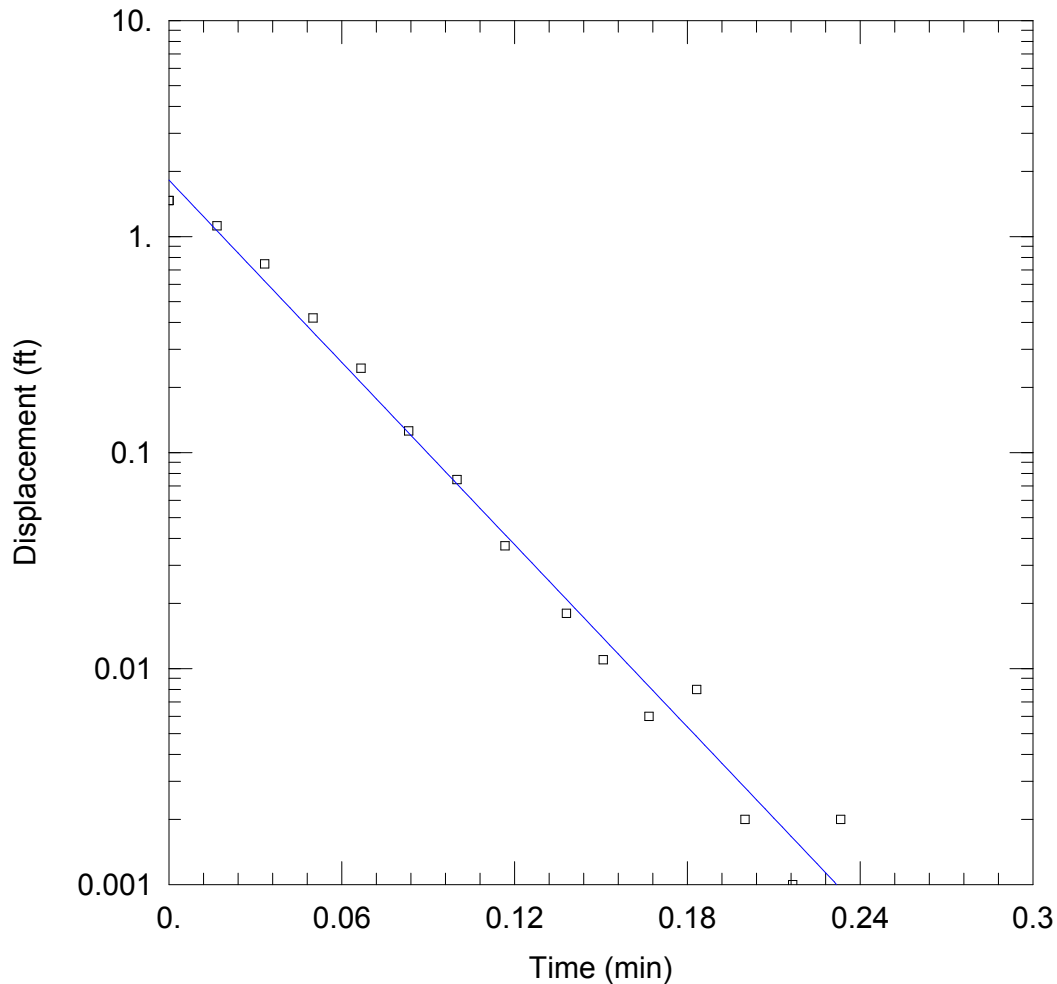
Saturated Thickness: 29.3 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (New Well)

Initial Displacement: 1.413 ft Static Water Column Height: 30. ft
 Total Well Penetration Depth: 30. ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0001339 cm/sec y0 = 0.1067 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-87.aqt
 Date: 11/17/09 Time: 18:01:57

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-87
 Test Date: 9-2-09

AQUIFER DATA

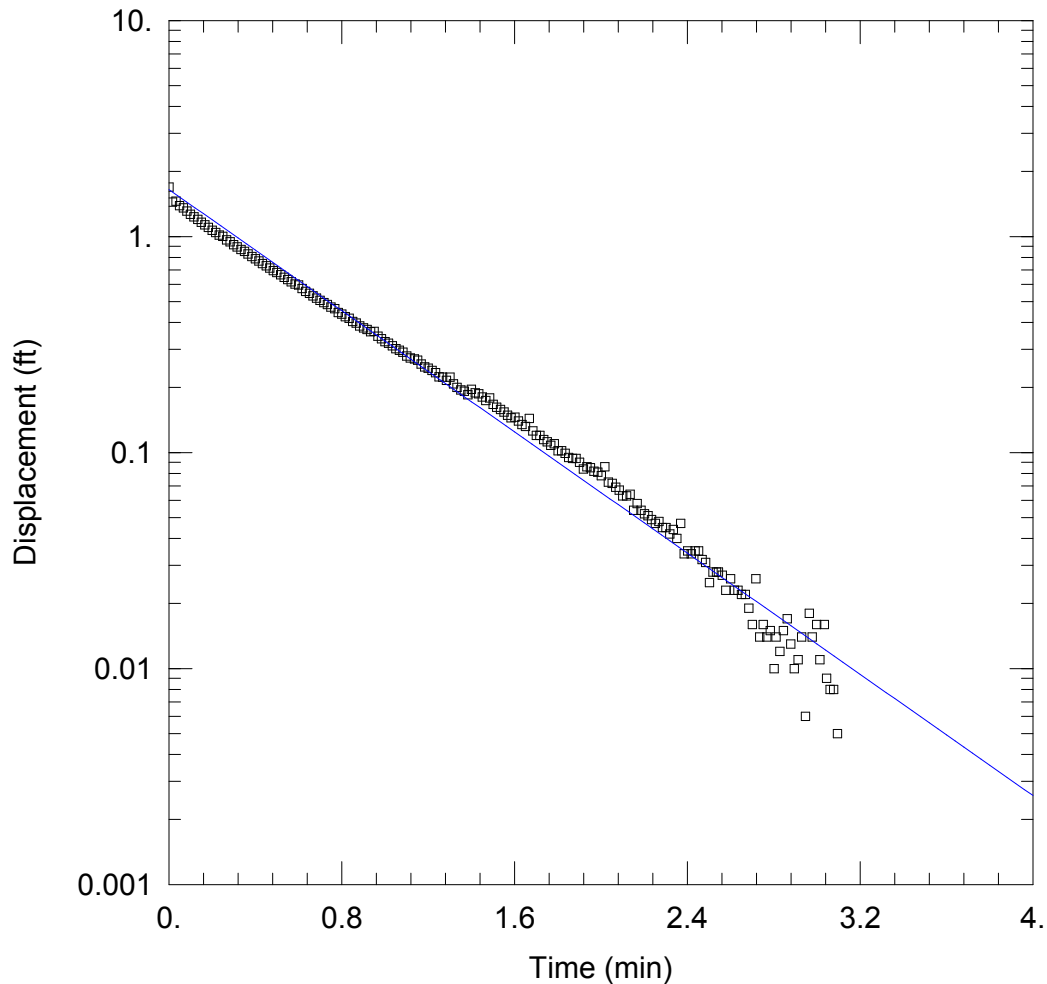
Saturated Thickness: 17.24 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-87)

Initial Displacement: 1.47 ft Static Water Column Height: 14.14 ft
 Total Well Penetration Depth: 14.14 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.005755 cm/sec y0 = 1.823 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-93.aqt
 Date: 11/17/09 Time: 18:02:06

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-93
 Test Date: 9-2-09

AQUIFER DATA

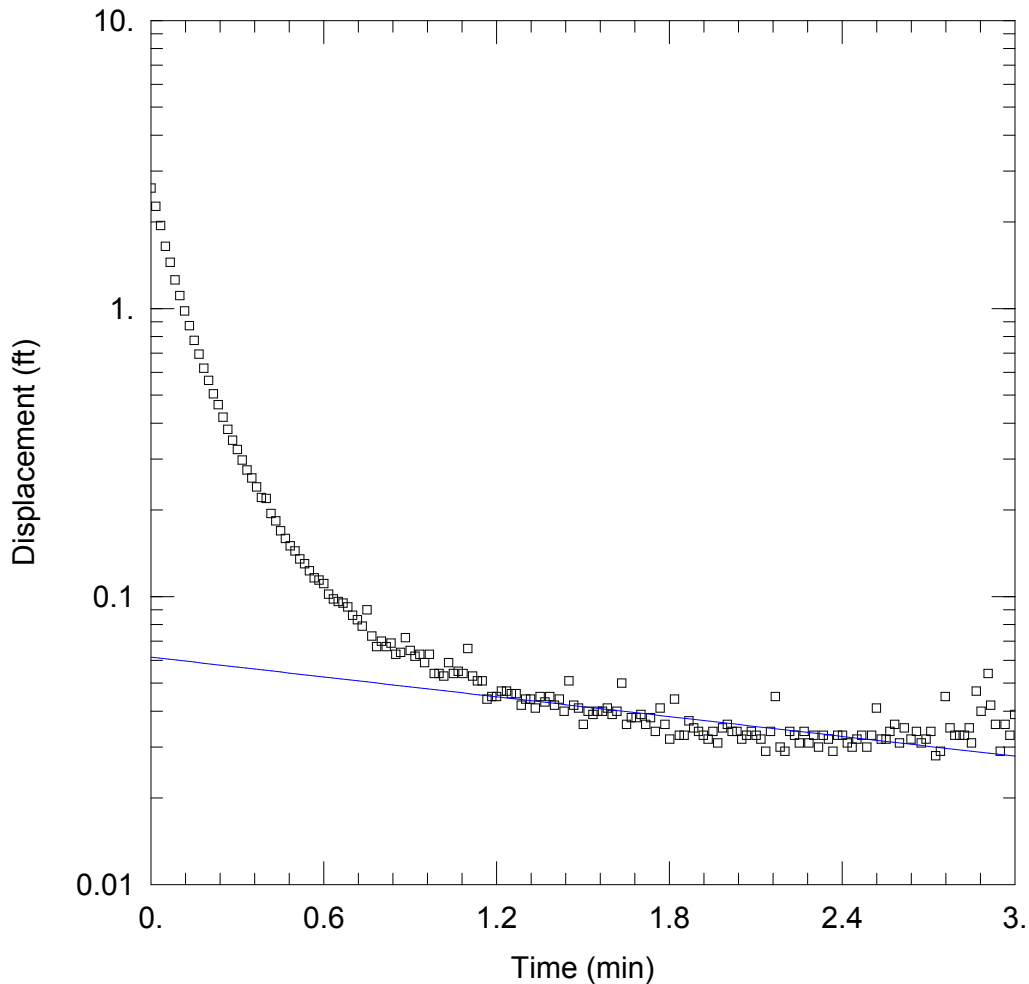
Saturated Thickness: 31.16 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-93)

Initial Displacement: 1.695 ft Static Water Column Height: 17.16 ft
 Total Well Penetration Depth: 17.16 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0002834 cm/sec y0 = 1.65 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-96.aqt
 Date: 11/17/09 Time: 18:02:19

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-96
 Test Date: 9-2-09

AQUIFER DATA

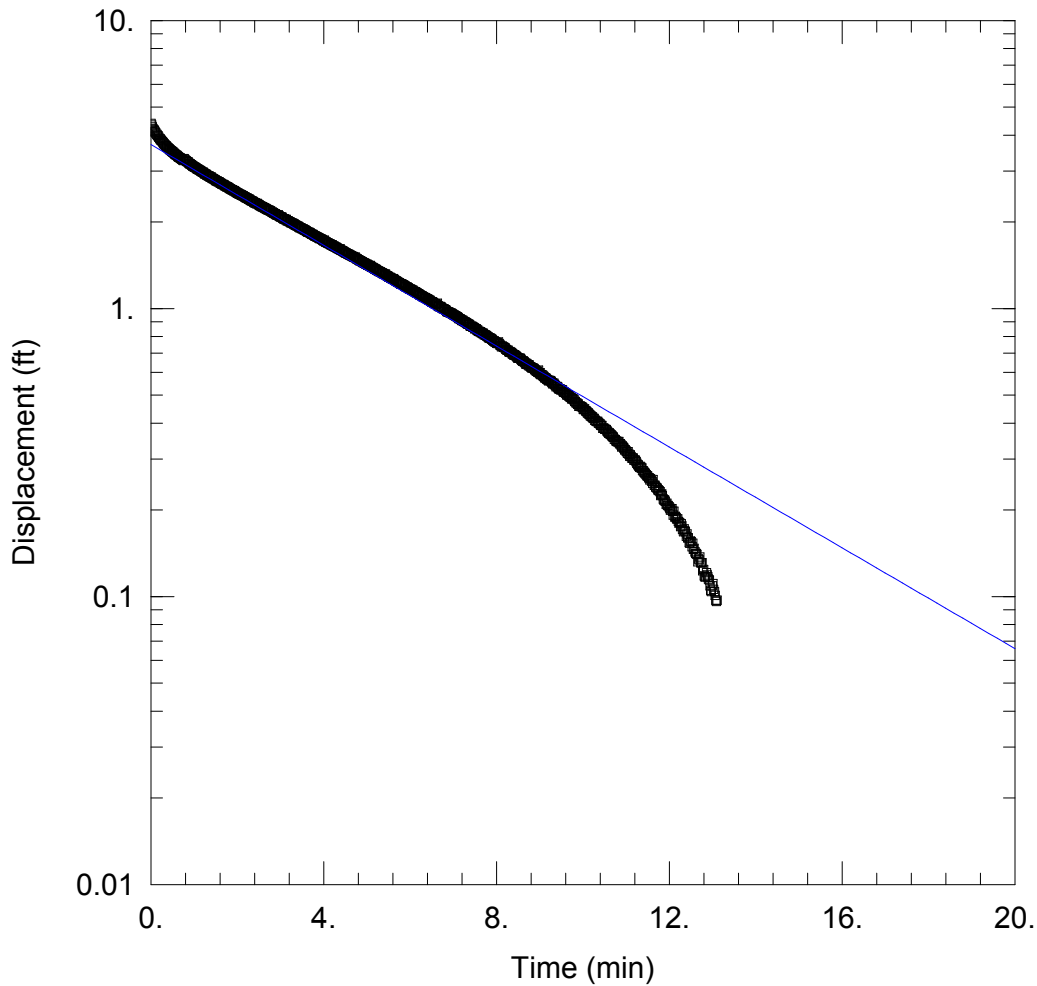
Saturated Thickness: 31.4 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-96)

Initial Displacement: 2.622 ft Static Water Column Height: 26.4 ft
 Total Well Penetration Depth: 26.4 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 4.971E-5 cm/sec y0 = 0.06158 ft **Appendix G-194 of 205**



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-97.aqt
 Date: 11/17/09 Time: 18:02:27

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-97
 Test Date: 9-2-09

AQUIFER DATA

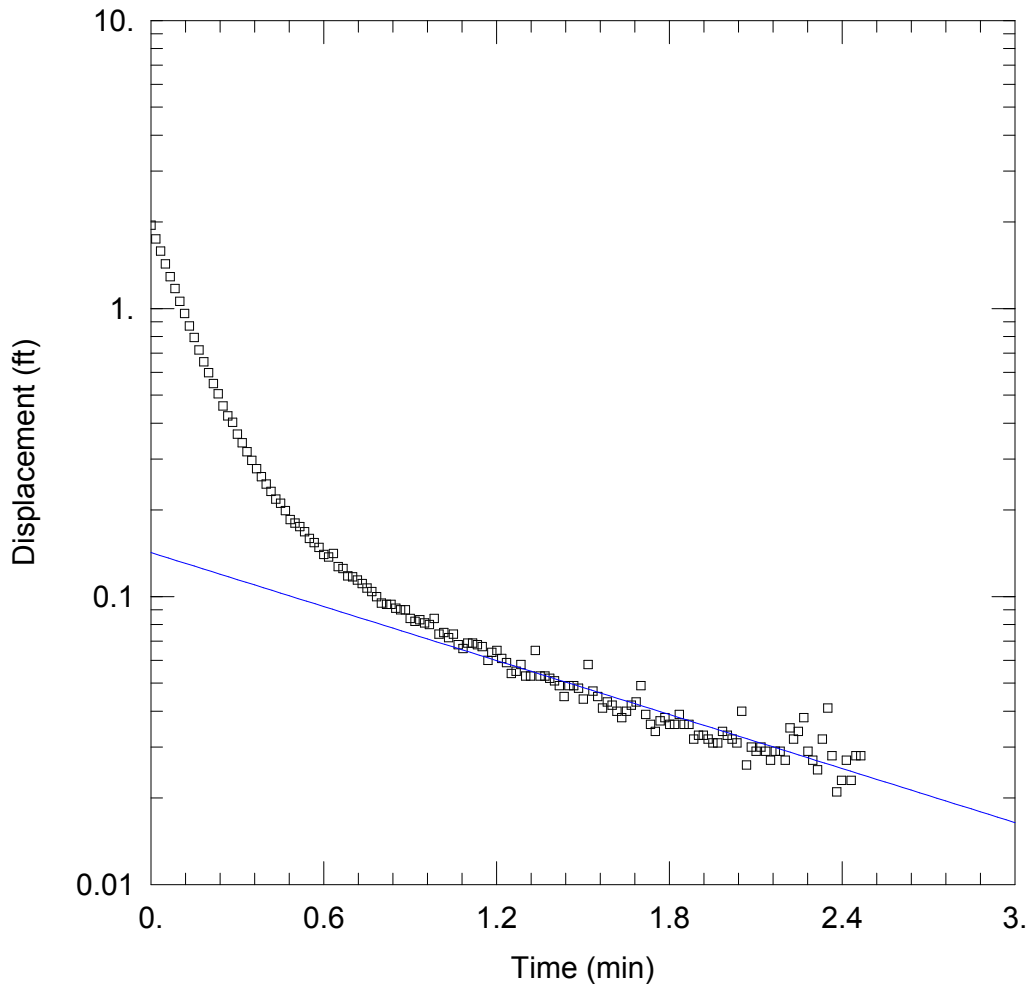
Saturated Thickness: 51.69 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-97)

Initial Displacement: 4.398 ft Static Water Column Height: 13.09 ft
 Total Well Penetration Depth: 13.09 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 3.427E-5 cm/sec y0 = 3.71 ft



WELL TEST ANALYSIS

Data Set: V:\1755\active\175569036\geotechnical\field_data\Slug Testing\AQTESOLV Files\STN-98.aqt
 Date: 11/17/09 Time: 18:02:37

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-98
 Test Date: 9-2-09

AQUIFER DATA

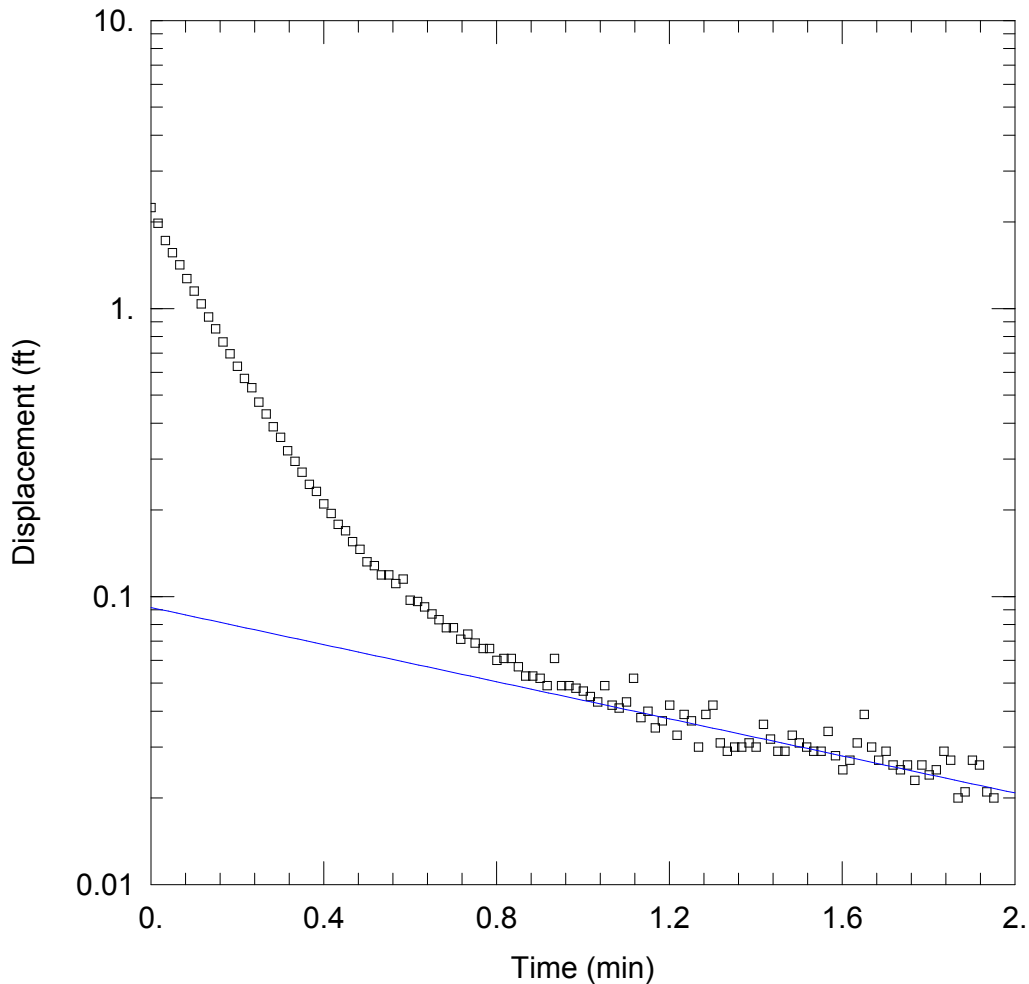
Saturated Thickness: 19.9 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-98)

Initial Displacement: 1.946 ft Static Water Column Height: 15.9 ft
 Total Well Penetration Depth: 15.9 ft Screen Length: 5. ft
 Casing Radius: 0.03125 ft Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.0001288 cm/sec y0 = 0.1421 ft **Appendix G-196 of 205**



WELL TEST ANALYSIS

Data Set: V:\...\STN-100.aqt
 Date: 11/17/09

Time: 18:02:53

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-100
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 35.74 ft

Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (STN-100)

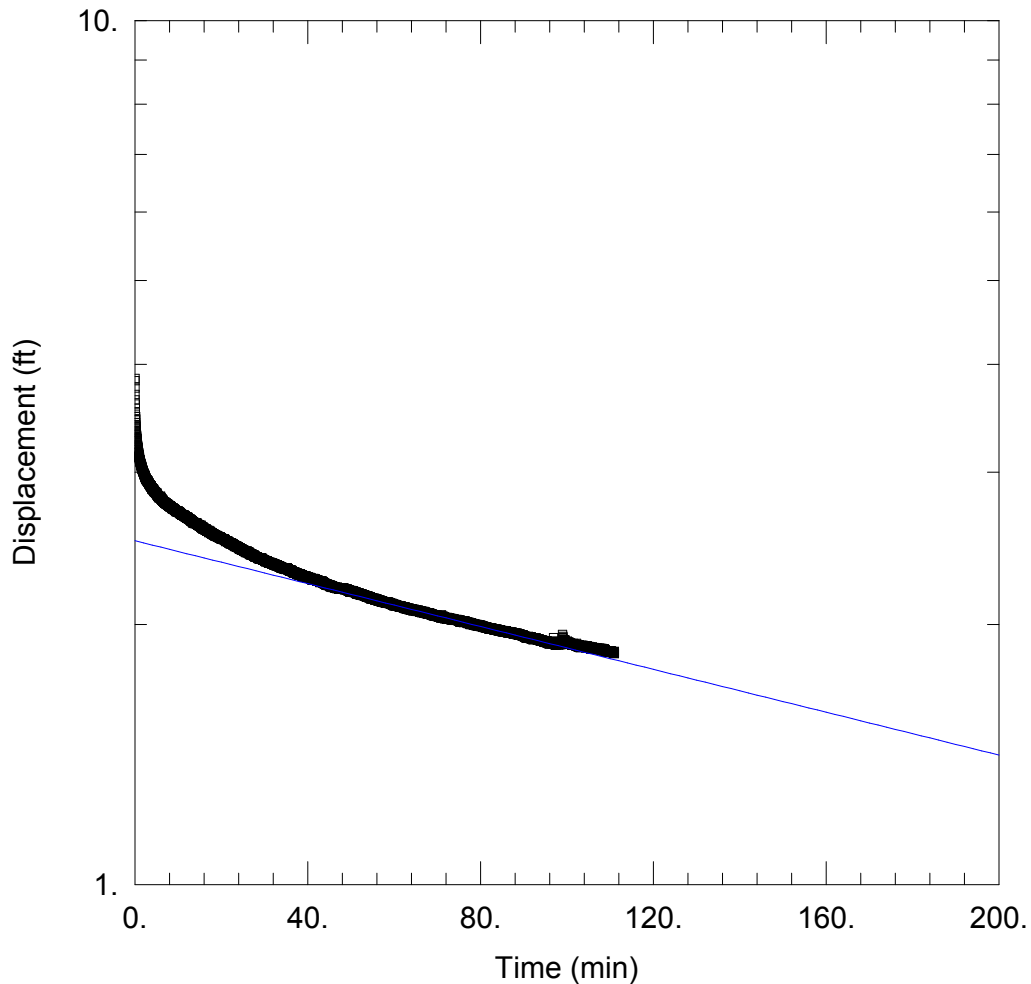
Initial Displacement: 2.242 ft
 Total Well Penetration Depth: 25.24 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 25.24 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.0001363 cm/sec

Solution Method: Bouwer-Rice
 y_0 = 0.09158 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-101.aqt
 Date: 11/17/09

Time: 18:02:57

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-101
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 55.46 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-101)

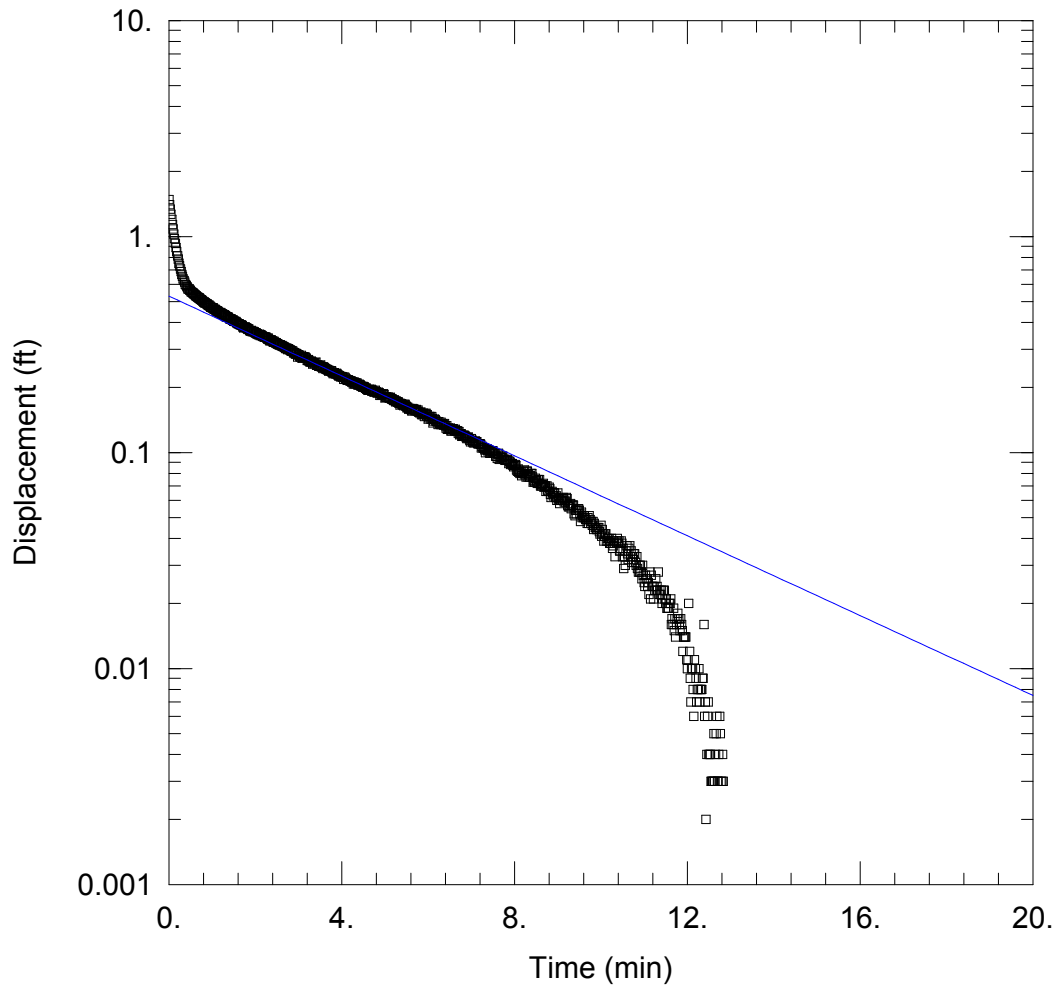
Initial Displacement: 3.852 ft
 Total Well Penetration Depth: 15.96 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 15.96 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 4.97E-7 cm/sec

Solution Method: Bouwer-Rice
 y0 = 2.499 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-102.aqt
 Date: 11/17/09

Time: 18:03:06

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-102
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 44.97 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-102)

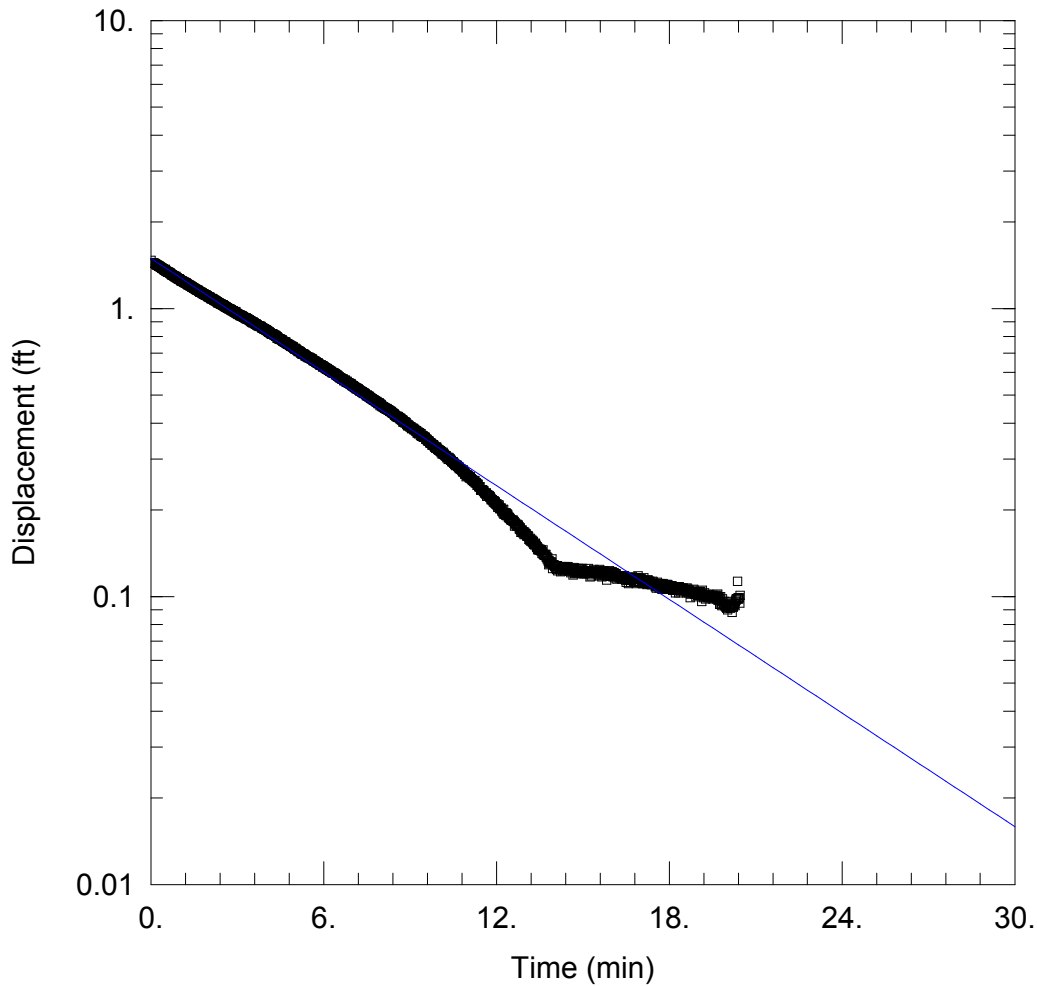
Initial Displacement: 1.483 ft
 Total Well Penetration Depth: 16.67 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 16.67 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 3.721E-5 cm/sec

Solution Method: Bouwer-Rice
 y0 = 0.5295 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-103.aqt
 Date: 11/17/09

Time: 18:03:18

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-103
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 24.11 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-103)

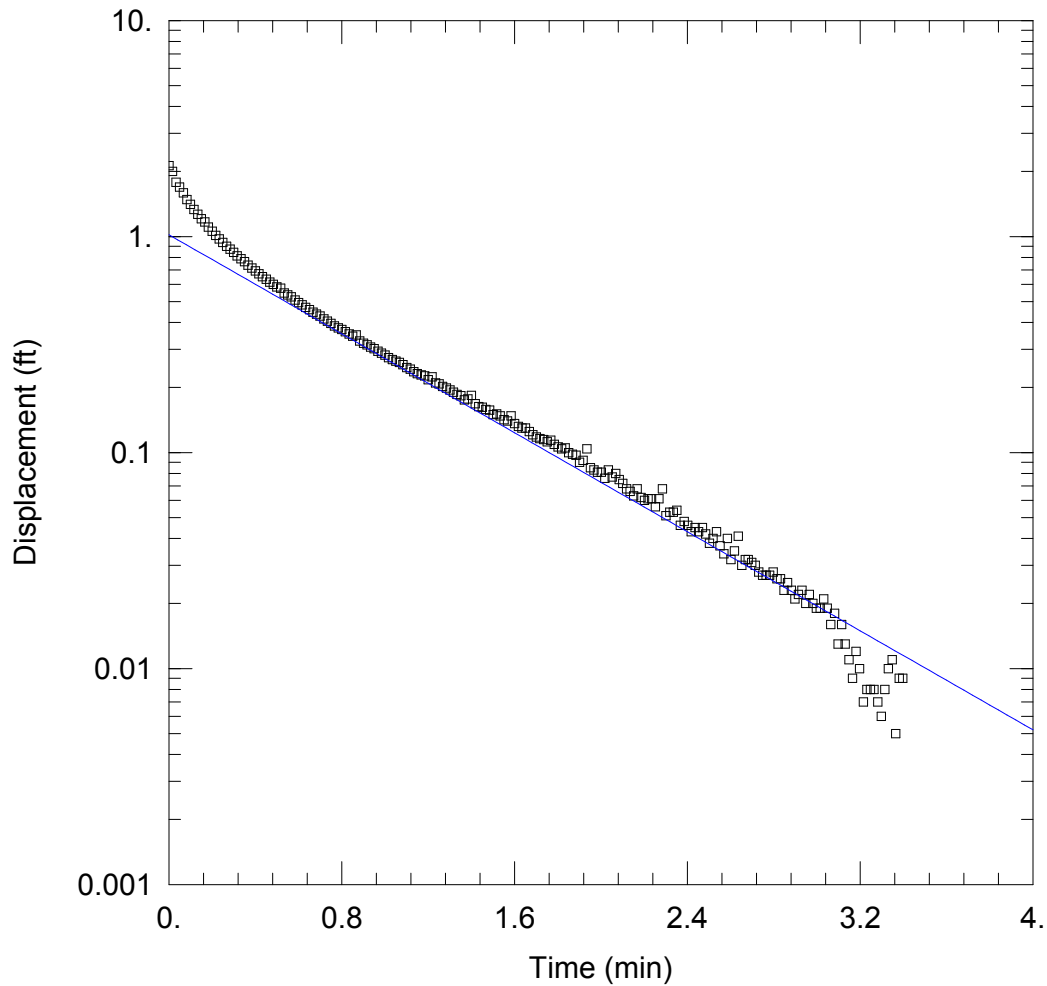
Initial Displacement: 1.469 ft
 Total Well Penetration Depth: 17.01 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 17.01 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 2.694E-5 cm/sec

Solution Method: Bouwer-Rice
 y0 = 1.493 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-104.aqt
 Date: 11/17/09

Time: 18:03:25

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-104
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 35.51 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-104)

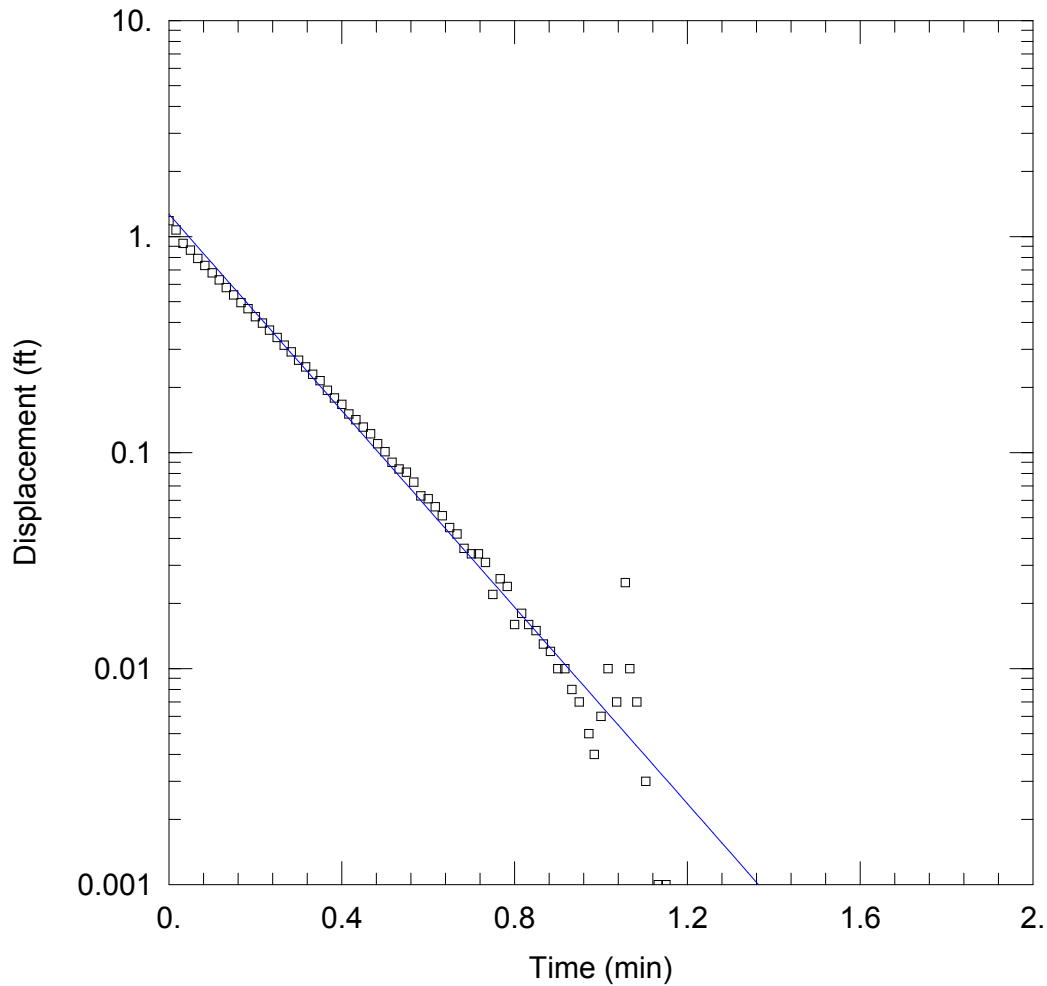
Initial Displacement: 2.127 ft
 Total Well Penetration Depth: 16.01 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 16.01 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.0002297 cm/sec

Solution Method: Bouwer-Rice
 y0 = 1.018 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-105.aqt
 Date: 11/17/09

Time: 18:03:28

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-105
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 38.95 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-105)

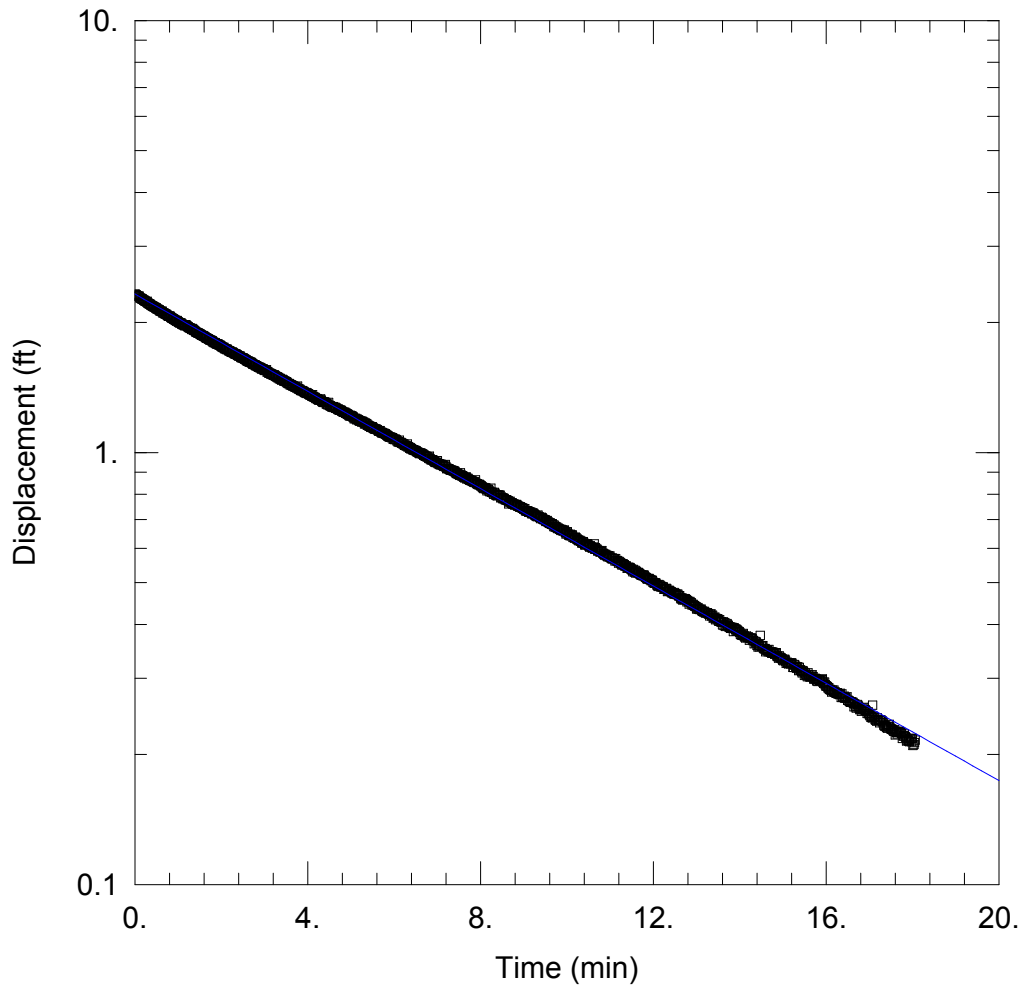
Initial Displacement: 1.183 ft
 Total Well Penetration Depth: 27.95 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 27.95 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.0009718 cm/sec

Solution Method: Bouwer-Rice
 y0 = 1.269 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-106.aqt
 Date: 11/17/09

Time: 18:03:32

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-106
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 42.22 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-106)

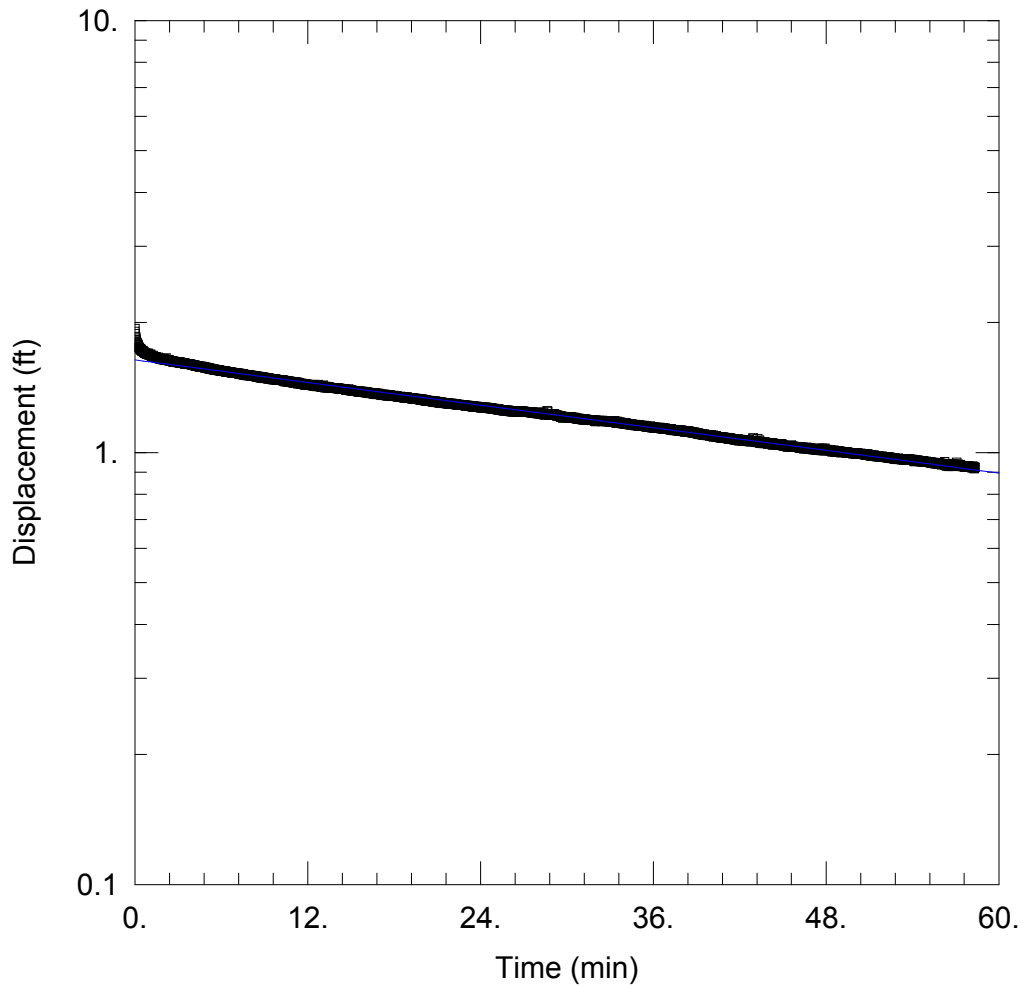
Initial Displacement: 2.328 ft
 Total Well Penetration Depth: 18.72 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 18.72 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 2.297E-5 cm/sec

Solution Method: Bouwer-Rice
 y0 = 2.327 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-107.aqt
 Date: 11/17/09

Time: 18:03:40

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-107
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 49.56 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-107)

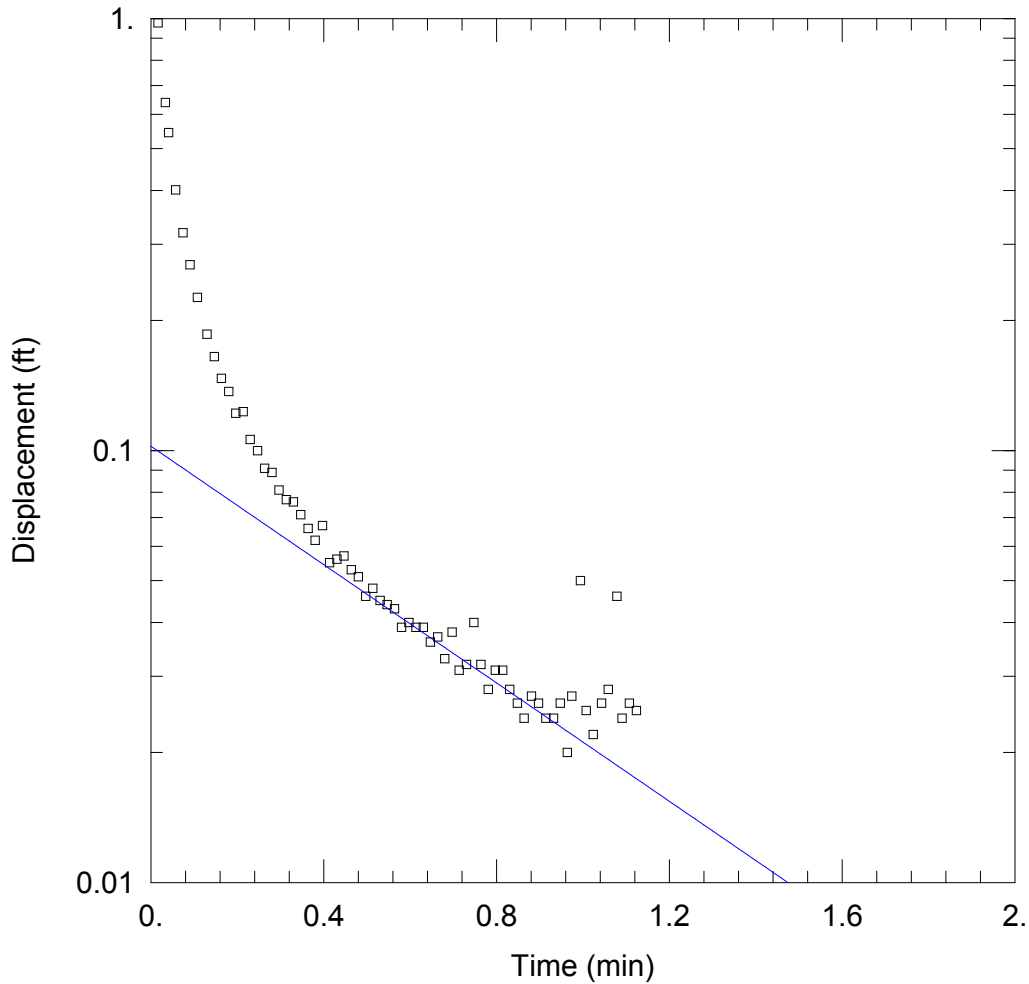
Initial Displacement: 1.937 ft
 Total Well Penetration Depth: 25.56 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 25.56 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 1.842E-6 cm/sec

Solution Method: Bouwer-Rice
 y0 = 1.638 ft



WELL TEST ANALYSIS

Data Set: V:\...\STN-108.aqt
 Date: 11/17/09

Time: 18:03:57

PROJECT INFORMATION

Company: Stantec
 Client: TVA
 Project: 175569036
 Location: Widows Creek
 Test Well: STN-108
 Test Date: 9-2-09

AQUIFER DATA

Saturated Thickness: 21.9 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STN-108)

Initial Displacement: 1.258 ft
 Total Well Penetration Depth: 21.9 ft
 Casing Radius: 0.03125 ft

Static Water Column Height: 21.9 ft
 Screen Length: 5. ft
 Well Radius: 0.03125 ft

SOLUTION

Aquifer Model: Unconfined
 K = 0.0003314 cm/sec

Solution Method: Bouwer-Rice
 y0 = 0.1022 ft