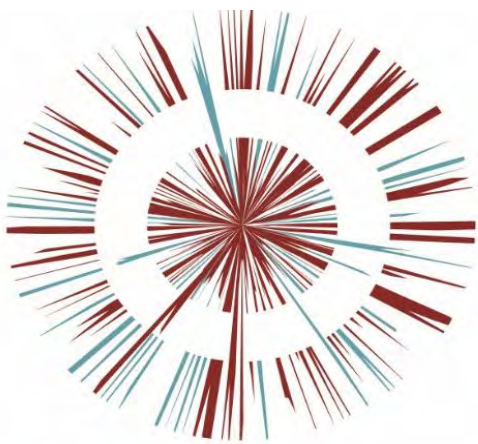




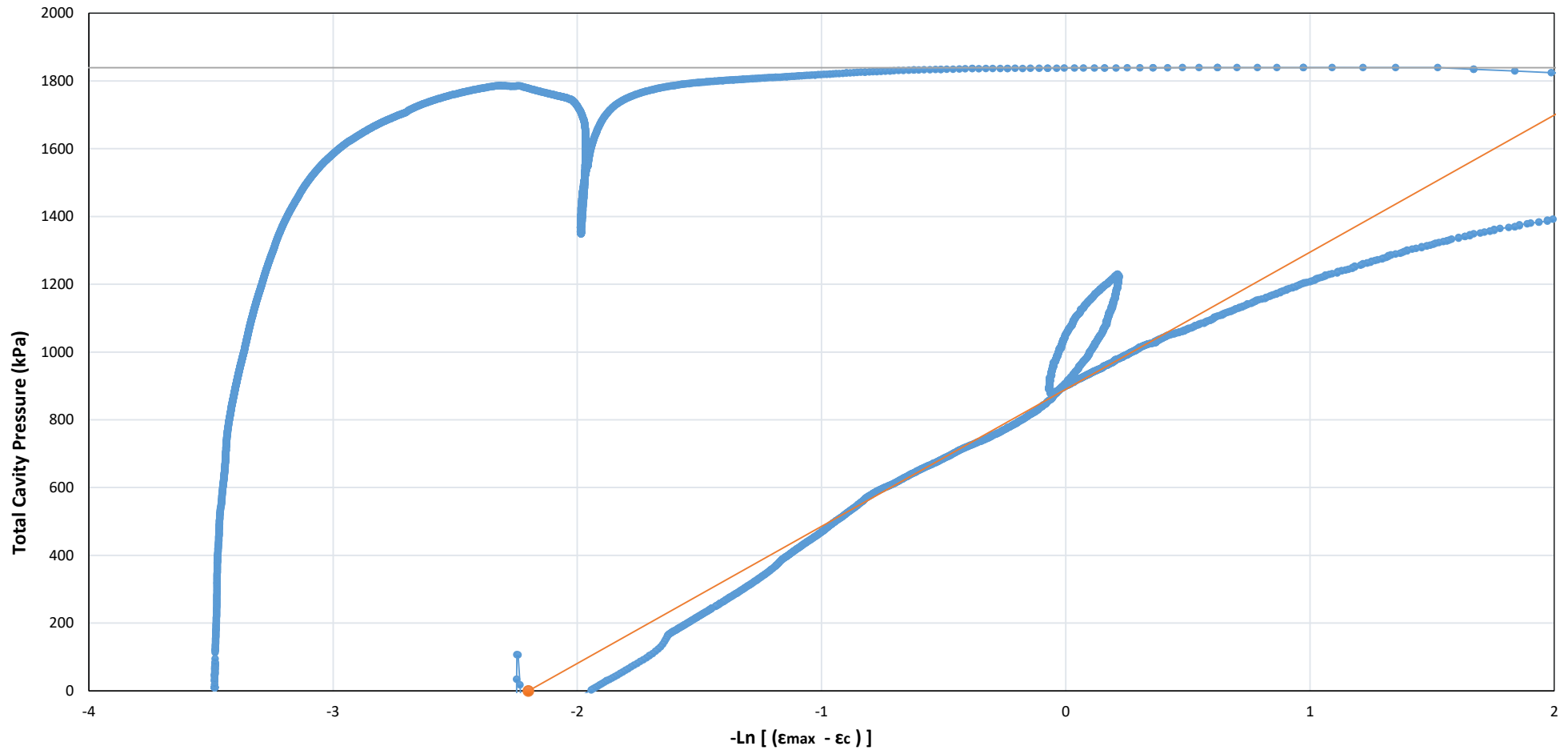
OMEGA ZONE 8, ST HELENS

Omega St Helens Ltd / T. J. Morris Limited



Ground Investigation Report
& Remediation Strategy
Appendix D Part 11
OPP DOC. 2.15

Houlsby & Withers (1988) Undrained Shear Strength Analysis

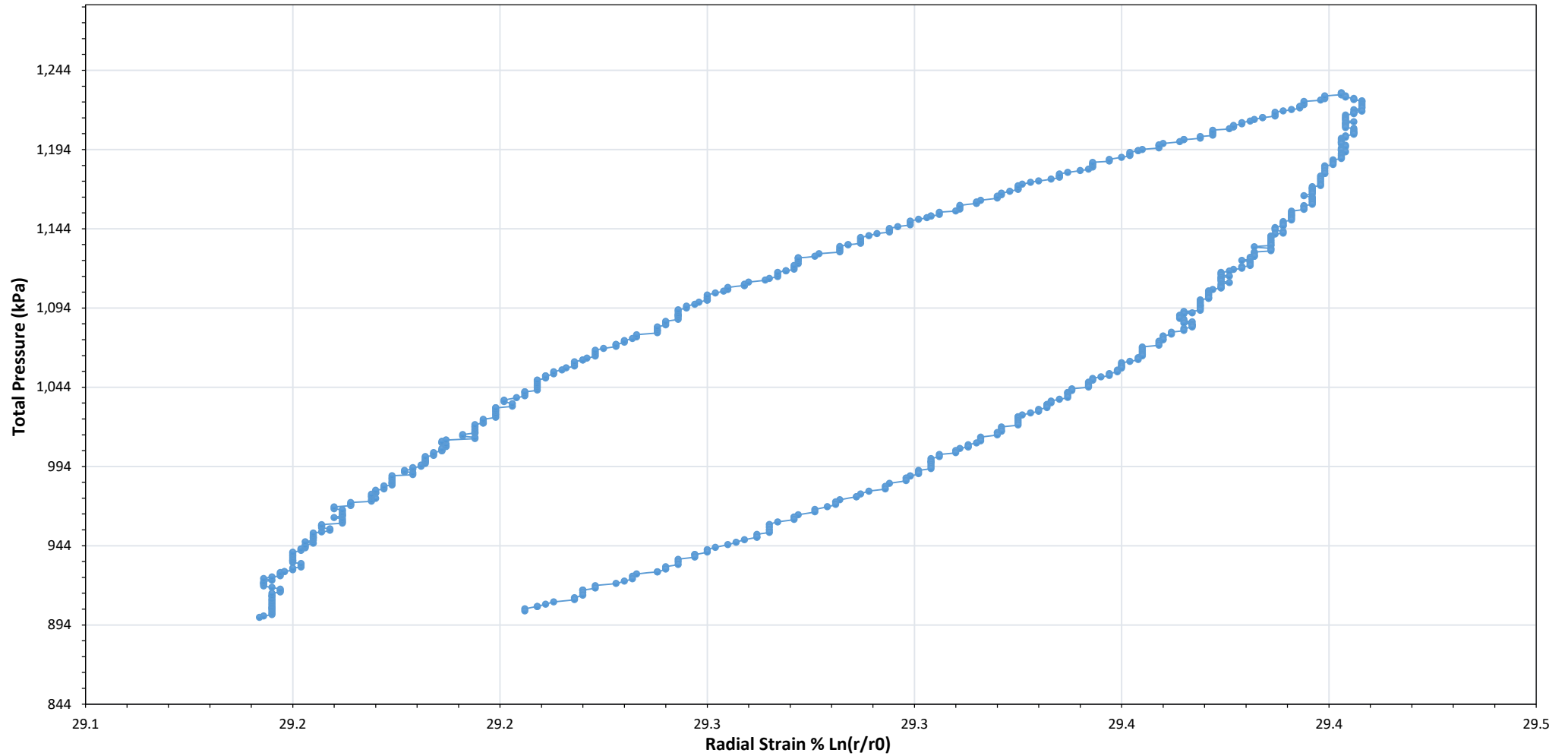


Project Ref: 107284
Client: Geotechnics
Client Ref:
Location: Warrington, UK

Shear strength S_u : 202 kPa
Drainage behaviour: Undrained

Location ID: CPTP8A04A
Depth: 2.5 m
Comments:

Loop 2 Total Pressure with Radial Cavity Strain



Project Ref: 107284

Client: Geotechnics

Client Ref:

Location: Warrington, UK

Drainage behaviour: Undrained

Test type: FDPM

Loop duration: 11.8 mins

Shear modulus G_{ur} : 6152.1 MPa

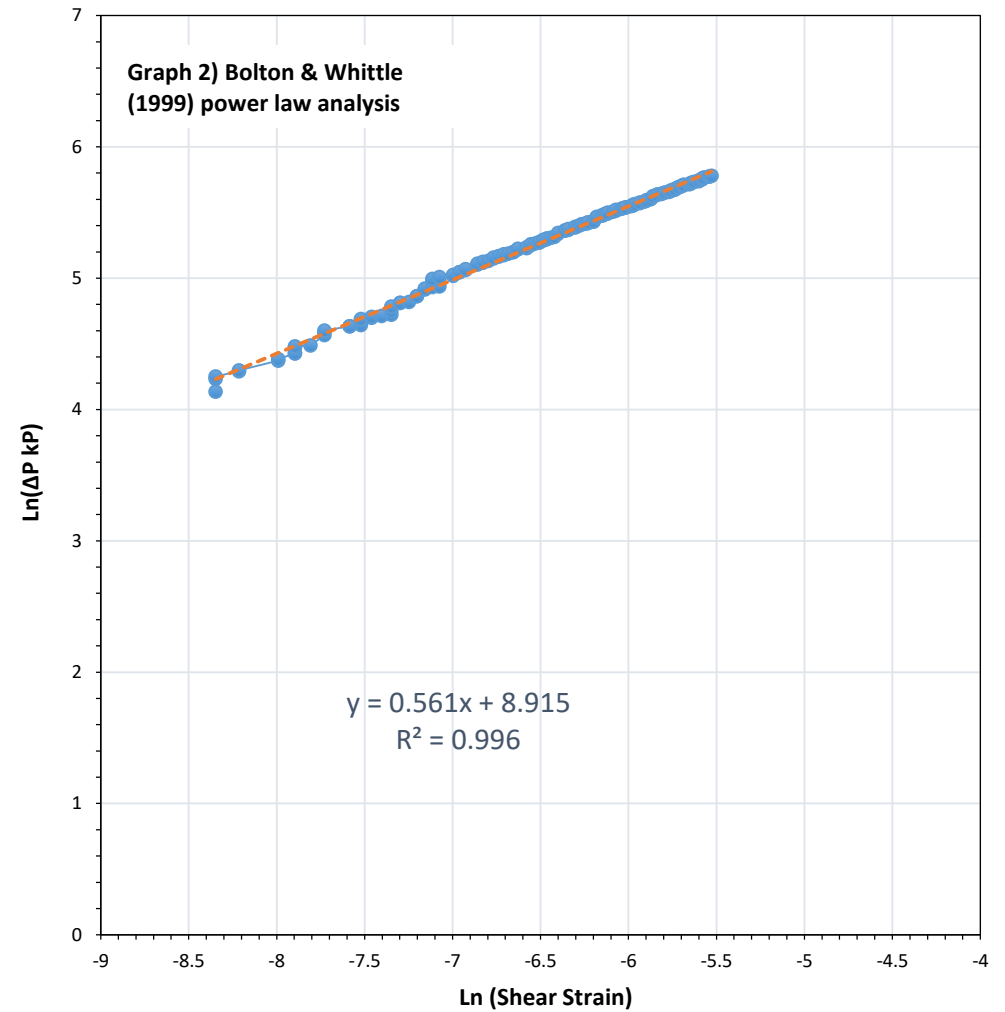
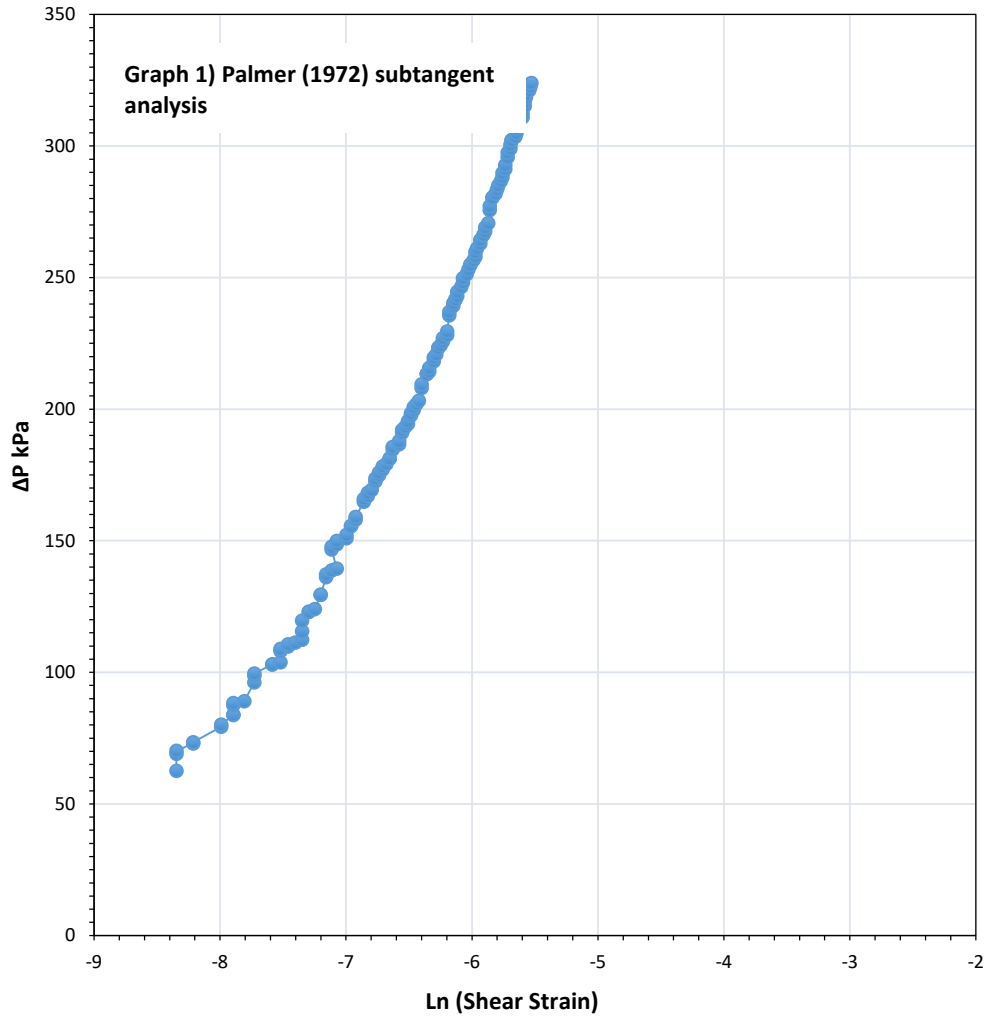
Cavity strain range: 0.15 %

Location ID: CPTP8A04

Depth: 2.5 m

Comments:

Loop 2 Non-Linear Stress-Strain Analysis



Project Ref: 107284

Client: Geotechnics

Client Ref:

Location: Warrington, UK

Obtained Power Law Parameters (right hand side graph)

Non-linearity exponent (β) (gradient): 0.561

Intercept (η): 7.44 MPa

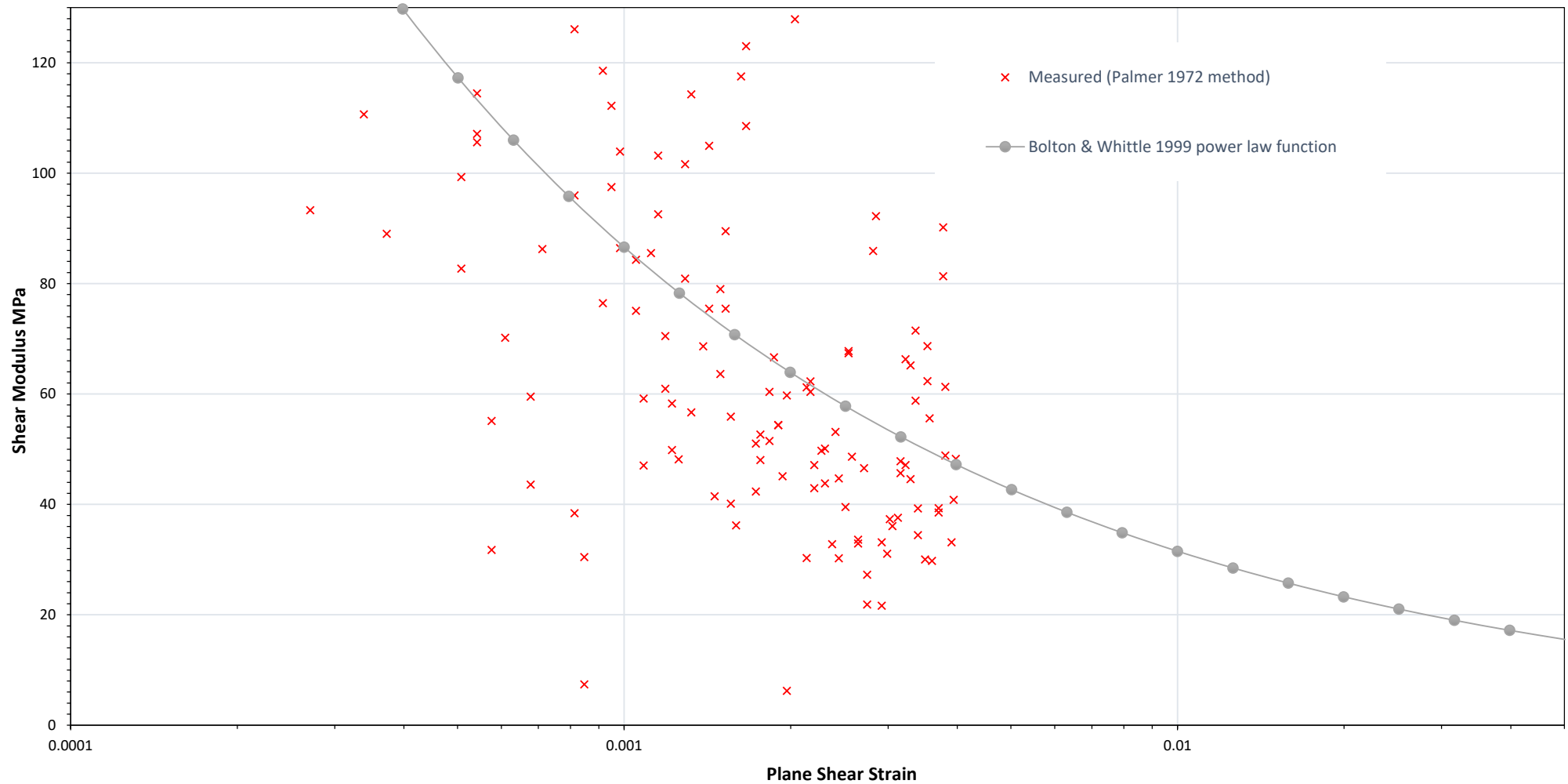
Shear stress constant α ($\beta \cdot \eta$): 4.174 MPa

Location ID: CPTP8A04A

Depth: 2.5 m

Comments:

Loop 2 Non-Linear Analysis - Secant Shear Modulus with Plane Shear Strain



Project Ref: 107284

Client: Geotechnics

Client Ref:

Location: Warrington, UK

Bolton & Whittle 1999 power law parameters applied

Non-linearity exponent (β): 0.561

Intercept (η): 7.44 MPa

Shear stress constant $\alpha = (\beta * \eta)$: 4.174 MPa

Location ID: CTP8A04A

Depth: 2.5 m

Comments: