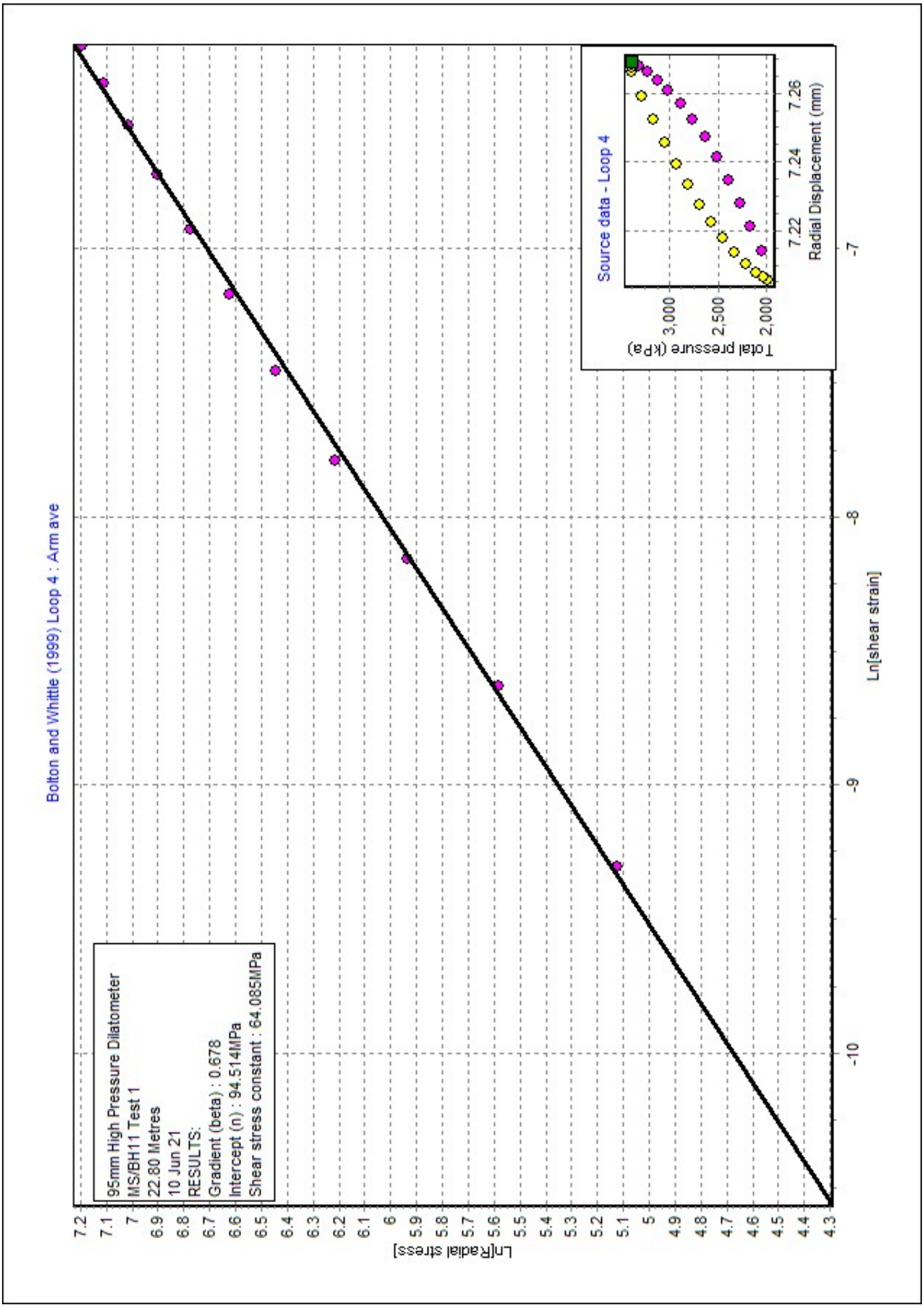
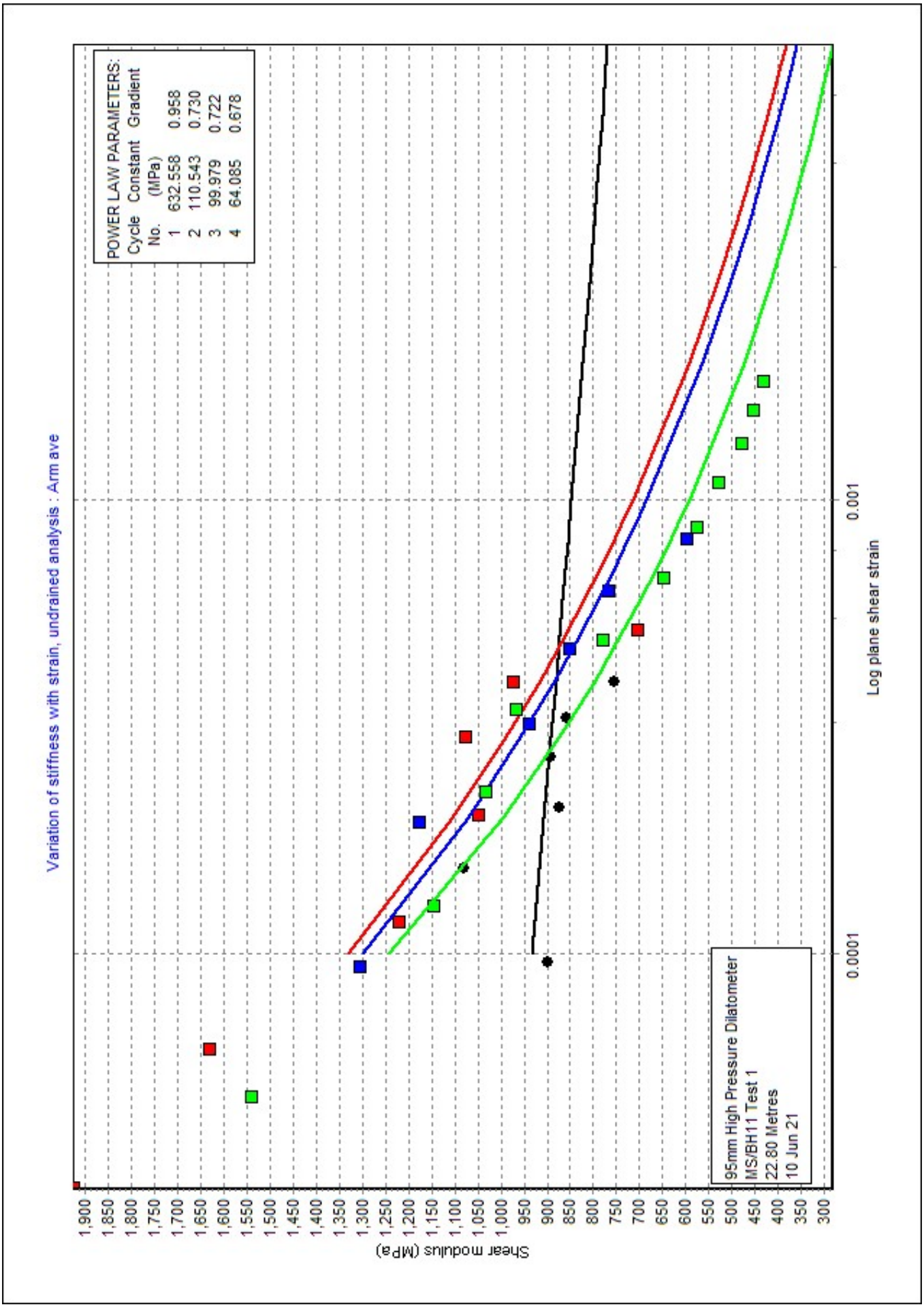
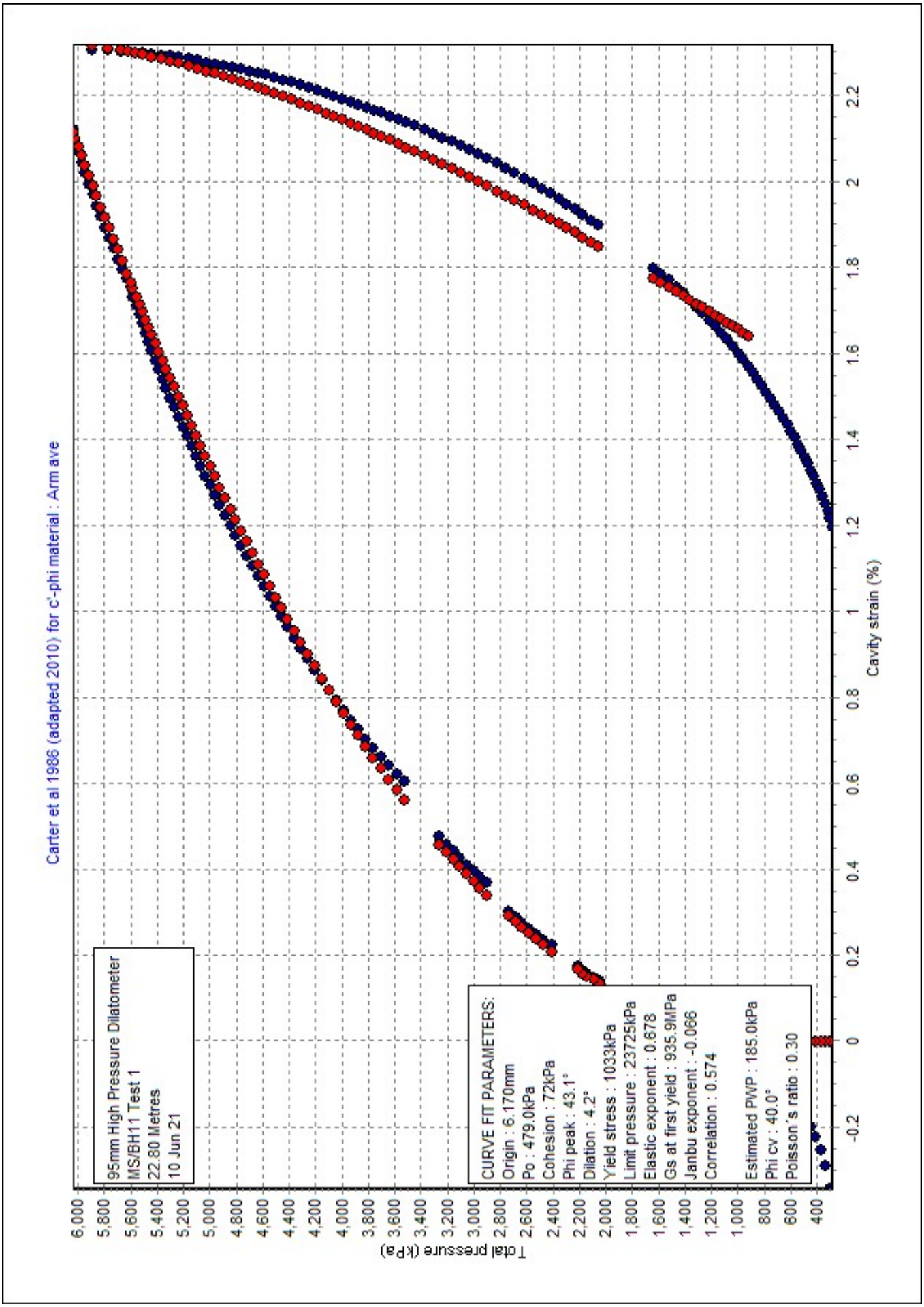
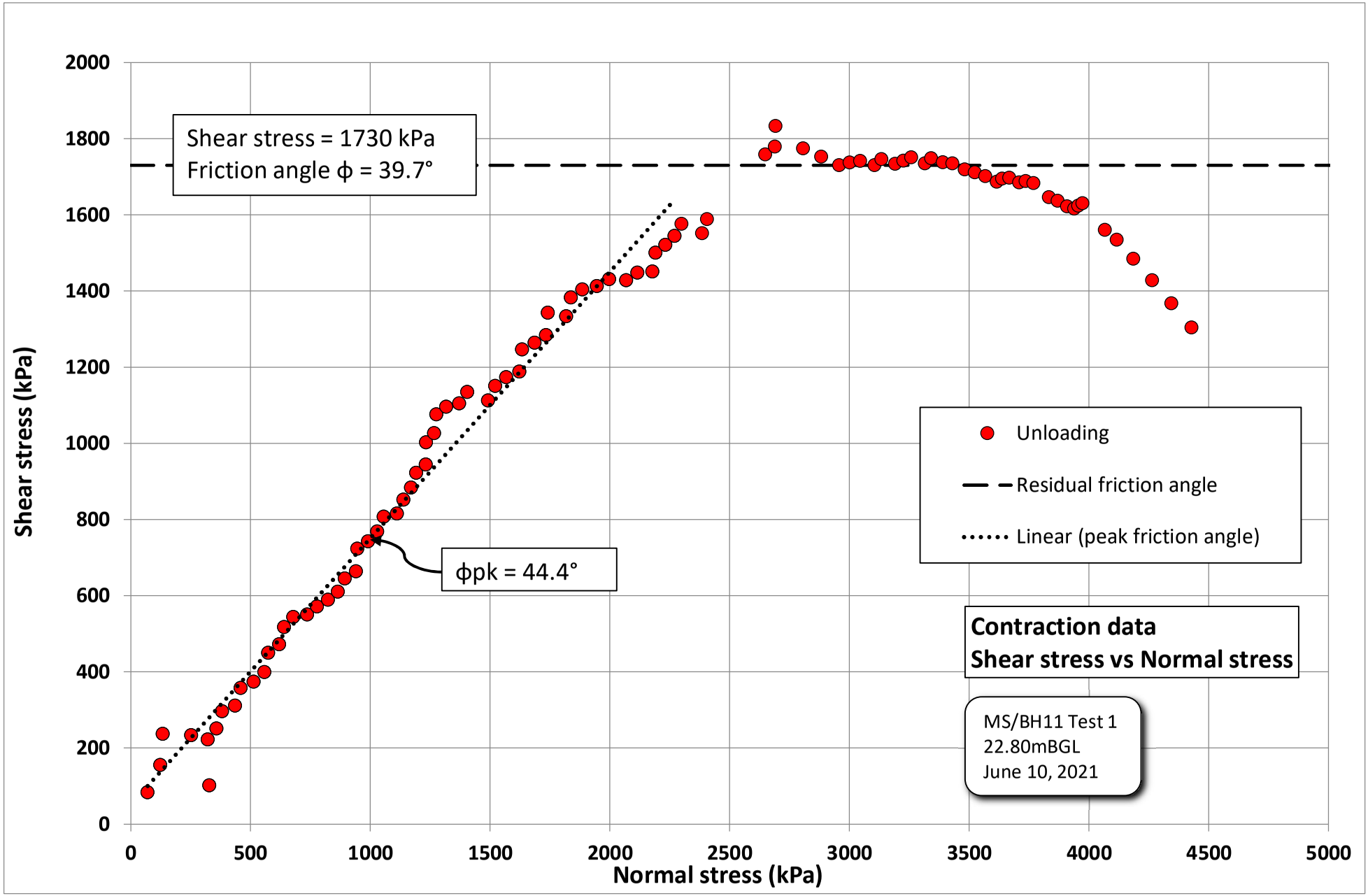
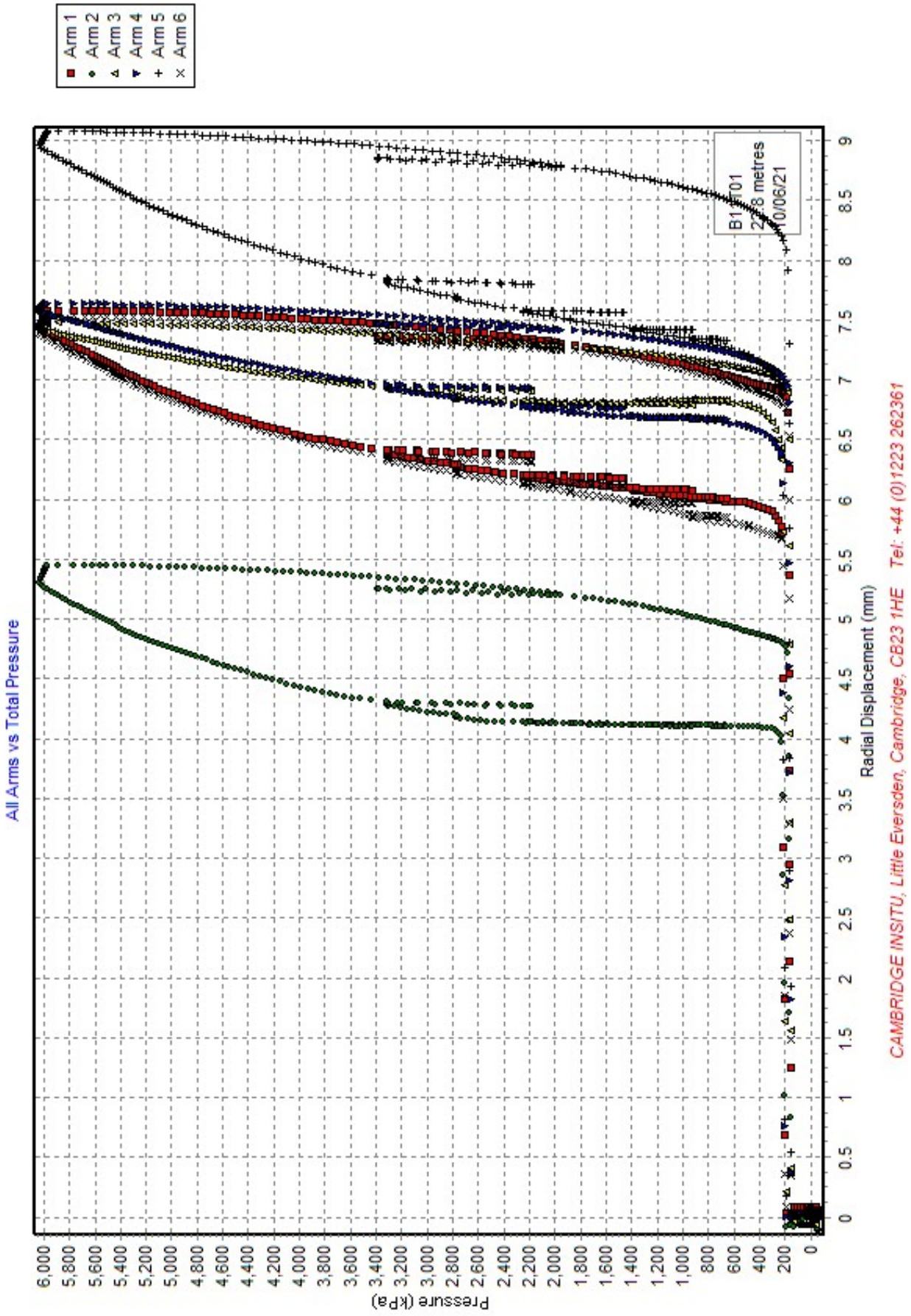
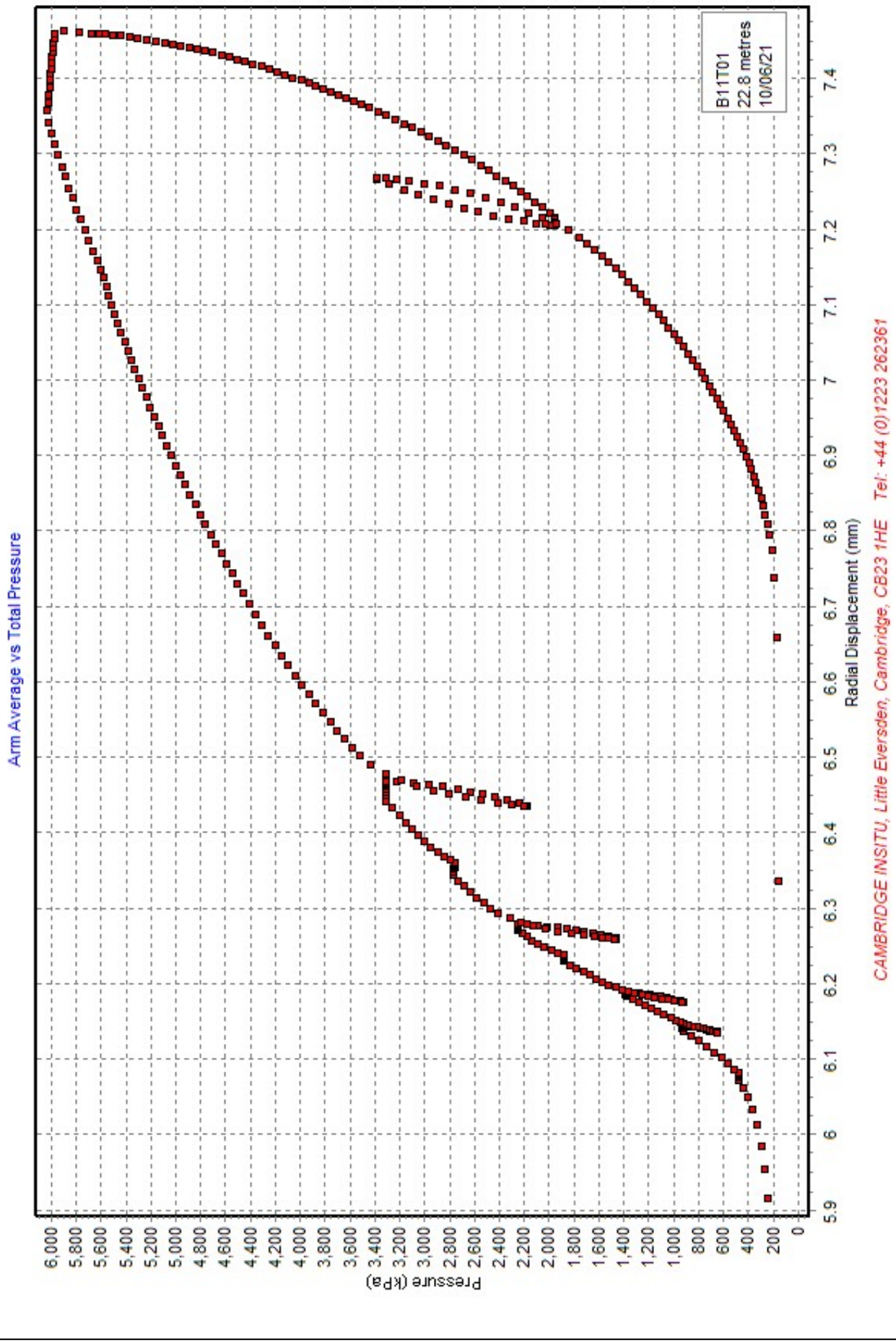

Bolton and Whittle (1999) Loop 4 : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 1
22.80 Metres
10 Jun 21
RESULTS:
Gradient (beta) : 0.678
Intercept (n) : 94.514MPa
Shear stress constant : 64.085MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 4
Total pressure (kPa)
Radial Displacement (mm)

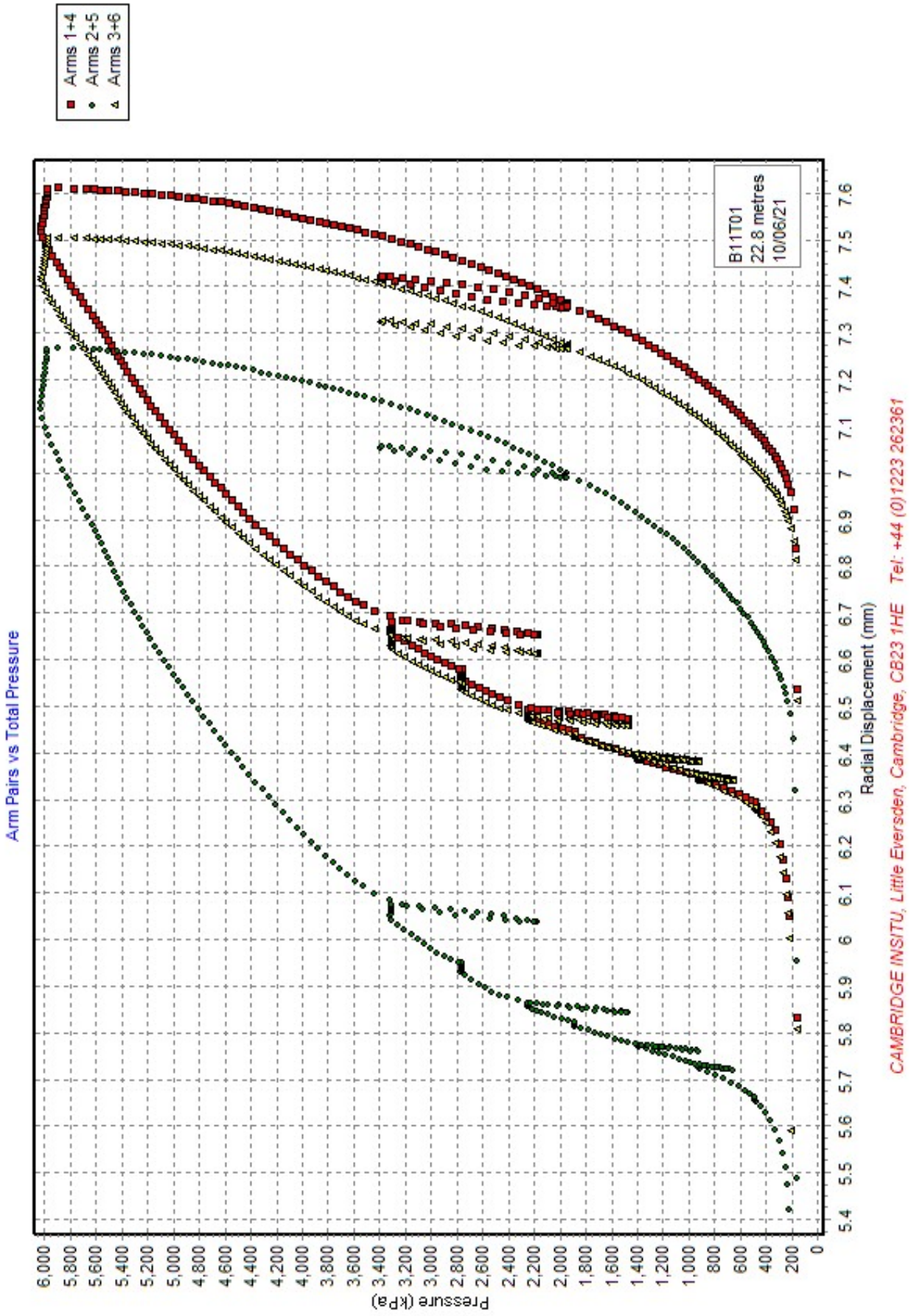

Variation of stiffness with strain, undrained analysis : Arm ave
POWER LAW PARAMETERS:
Cycle No. Constant (MPa) Gradient
1 632.558 0.958
2 110.543 0.730
3 99.979 0.722
4 64.085 0.678
Shear modulus (MPa)
Log plane shear strain
0.0001
0.001
95mm High Pressure Dilatometer
MS/BH11 Test 1
22.80 Metres
10 Jun 21

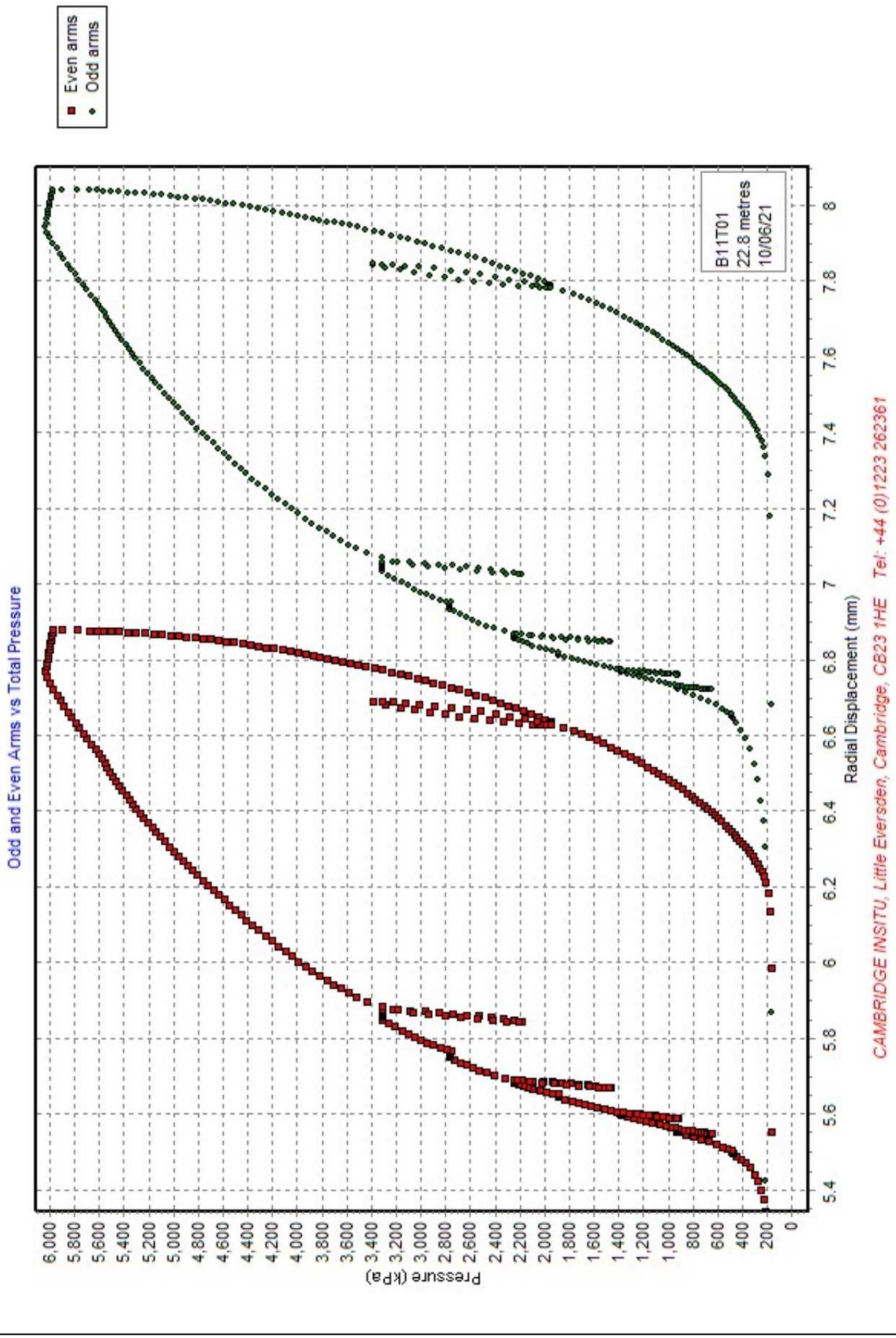

Carter et al 1986 (adapted 2010) for c'-phi material : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 1
22.80 Metres
10 Jun 21
CURVE FIT PARAMETERS:
Origin : 6.170mm
Po : 479.0kPa
Cohesion : 72kPa
Phi peak : 43.1°
Dilation : 4.2°
Yield stress : 1033kPa
Limit pressure : 23725kPa
Elastic exponent : 0.678
Gs at first yield : 935.9MPa
Janbu exponent : -0.066
Correlation : 0.574
Estimated PWP : 185.0kPa
Phi cv : 40.0°
Poisson's ratio : 0.30
Total pressure (kPa)
Cavity strain (%)


Shear stress = 1730 kPa
Friction angle ϕ = 39.7°
ϕpk = 44.4°
Unloading
Residual friction angle
Linear (peak friction angle)
Contraction data
Shear stress vs Normal stress
MS/BH11 Test 1
22.80mBGL
June 10, 2021
Shear stress (kPa)
Normal stress (kPa)
0
200
400
600
800
1000
1200
1400
1600
1800
2000
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000


Arm 1
Arm 2
Arm 3
Arm 4
Arm 5
Arm 6
B1 T01
2.8 metres
10/06/21
All Arms vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361


Arm Average vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
B11T01
22.8 metres
10/06/21
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361


Arms 1+4
Arms 2+5
Arms 3+6
B11T01
22.8 metres
10/06/21
Arm Pairs vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361


Even arms
Odd arms
Odd and Even Arms vs Total Pressure
B11T01
22.8 metres
10/06/21
Pressure (kPa)
Radial Displacement (mm)
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361

MS/BH11 Test 2 - SUMMARY OF RESULTS
[File made with WinSitu]

[DETAILS OF TEST]
Project : 4339
Site : Preliminary Ground Investigation NZT
Borehole : MS/BH11
Test name : MS/BH11 Test 2
Test date : 11 Jun 21
Test depth : 25.80 Metres
Water table : 3.9 Metres
Ambient PWP : 215.0 kPa
Material : Mudstone
Probe : 95mm High Pressure Dilatometer
Diameter : 97.0 mm
Data analysed using average arm displacement curve
A non-linear analysis of the rebound cycles has been carried out
The file includes results from a curve fitting analysis

Analysed by YB/RW on 22 Jun 21

Remarks: Unable to curve fit past 5% cavity strain due to significant creep.

[RESULTS FOR CAVITY REFERENCE PRESSURE]
Strain Origin (mm) : "Arm ave=4.32"
Po from Marsland & Randolph (kPa) : "Arm ave=577.6"
Best estimate of Po (kPa) : "Arm ave=651.0"

[UNDRAINED STRENGTH PARAMETERS]
Undrained yield stress (kPa) : "Arm ave=4823.5"

[DRAINED ANALYSIS OF SANDS]
[Hughes et al 1977]
Constant volume friction angle (°) : 38.0
Angle of internal friction (°) : "Arm ave=47.5"
Dilation angle (°) : "Arm ave=12.8"
Gradient of log-log plot : "Arm ave=0.519"

[Withers et al 1989]
Angle of internal friction (°) : "Arm ave=39.5"
Dilation angle (°) : "Arm ave=1.9"
Gradient of log-log plot : "Arm ave=-3.305"

[LINEAR INTERPRETATION OF SHEAR MODULUS G]
Initial slope shear modulus (MPa) :"Arm ave=80.3"

Axis	Loop No	Value (MPa)	Mean Strain (%)	Mean Pc (kPa)	dE (%)	dPc (kPa)
Arm ave	1	463.0	0.206	1633	0.113	523
Arm ave	2	612.5	0.858	2566	0.141	864
Arm ave	3	617.2	2.564	4208	0.214	1322
Arm ave	4	626.1	5.688	5553	0.254	1595
Arm ave	5	675.0	9.147	3654	0.270	1825

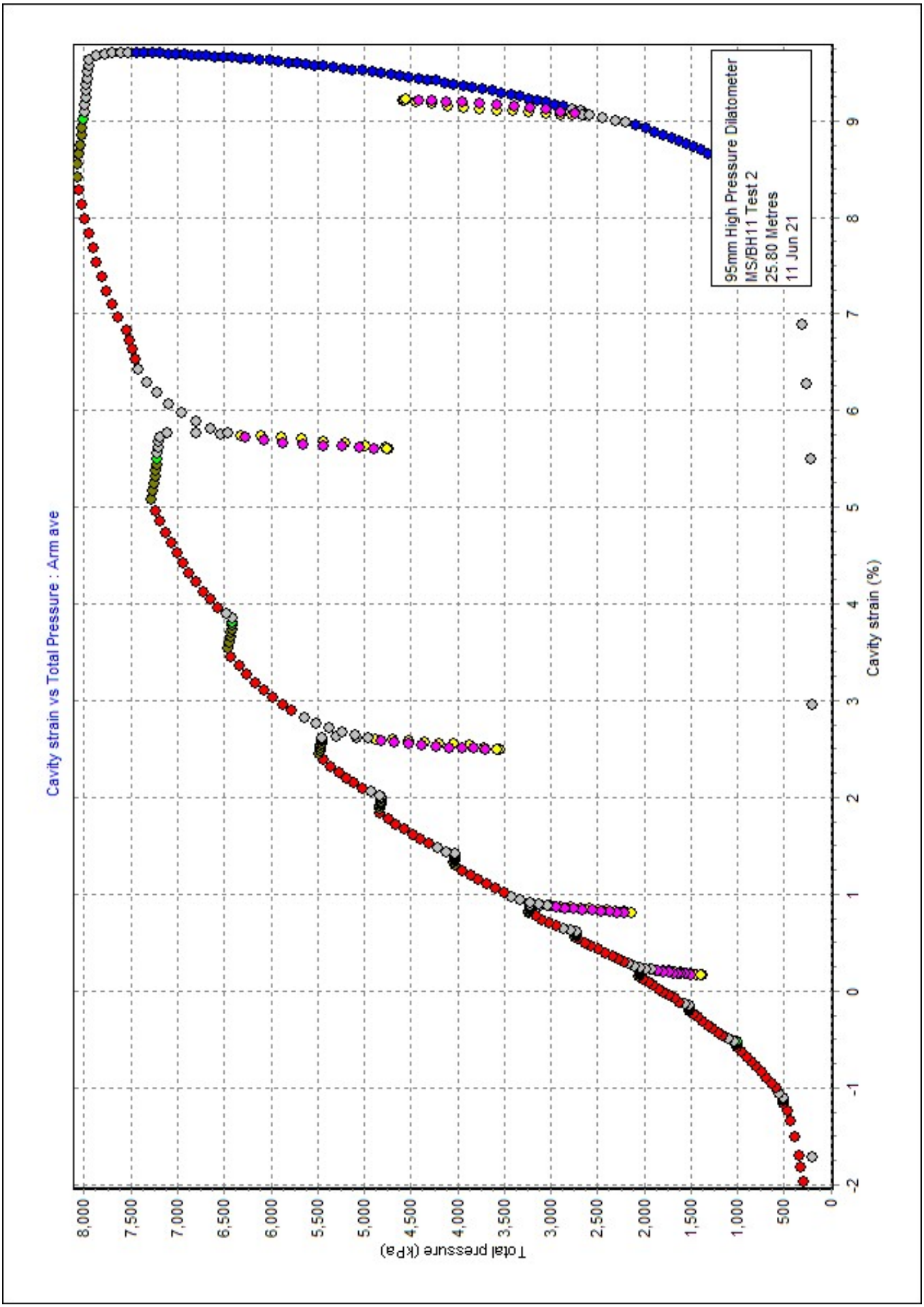
[UNDRAINED NON LINEAR INTERPRETATION OF SECANT SHEAR MODULUS]

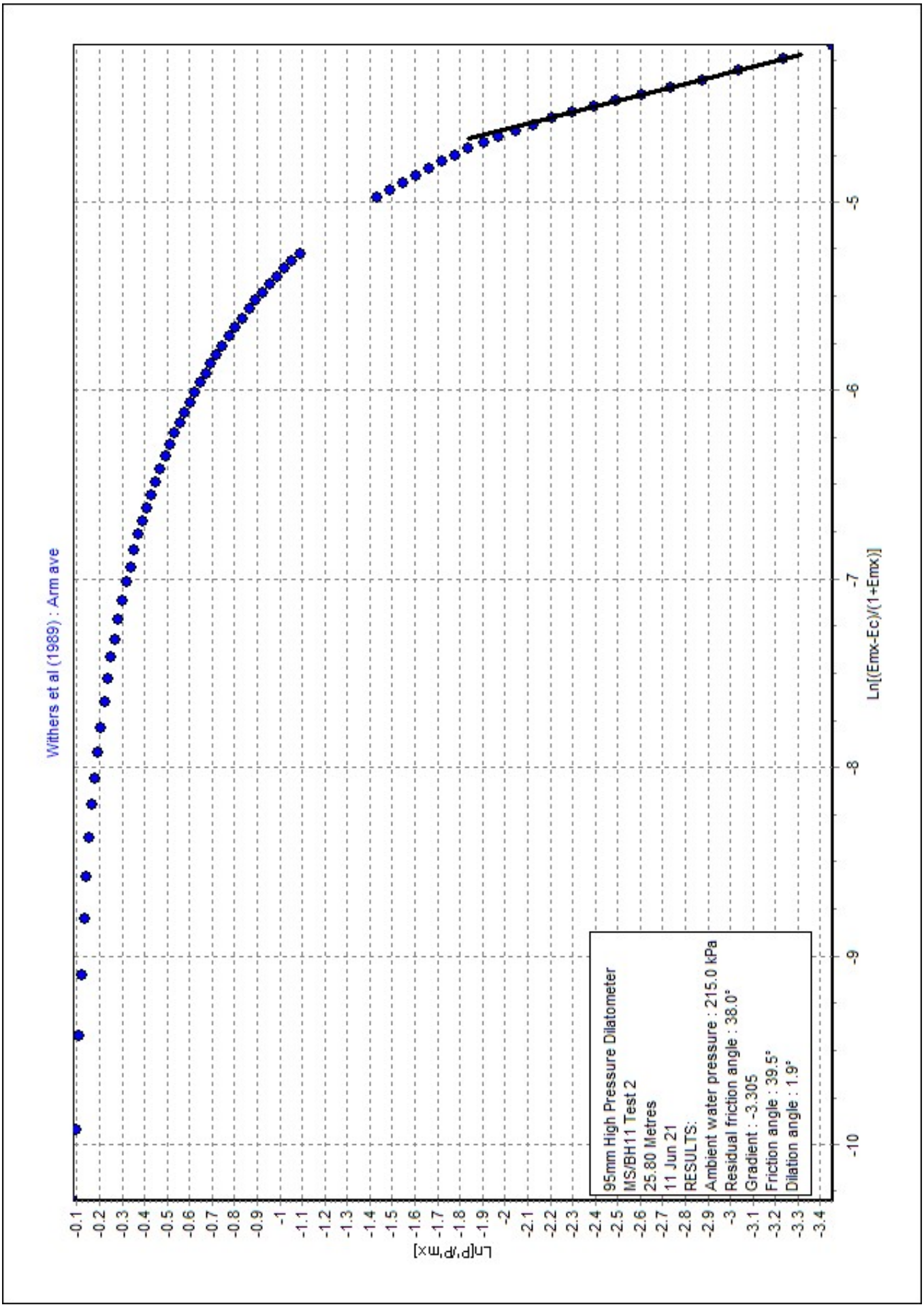
Axis	Loop No	Intercept (MPa)	Alpha (MPa)	Gradient
Arm ave	1	91.759	69.595	0.758
Arm ave	2	132.386	100.423	0.759
Arm ave	3	105.860	73.553	0.695
Arm ave	4	101.015	68.293	0.676
Arm ave	5	133.150	94.291	0.708

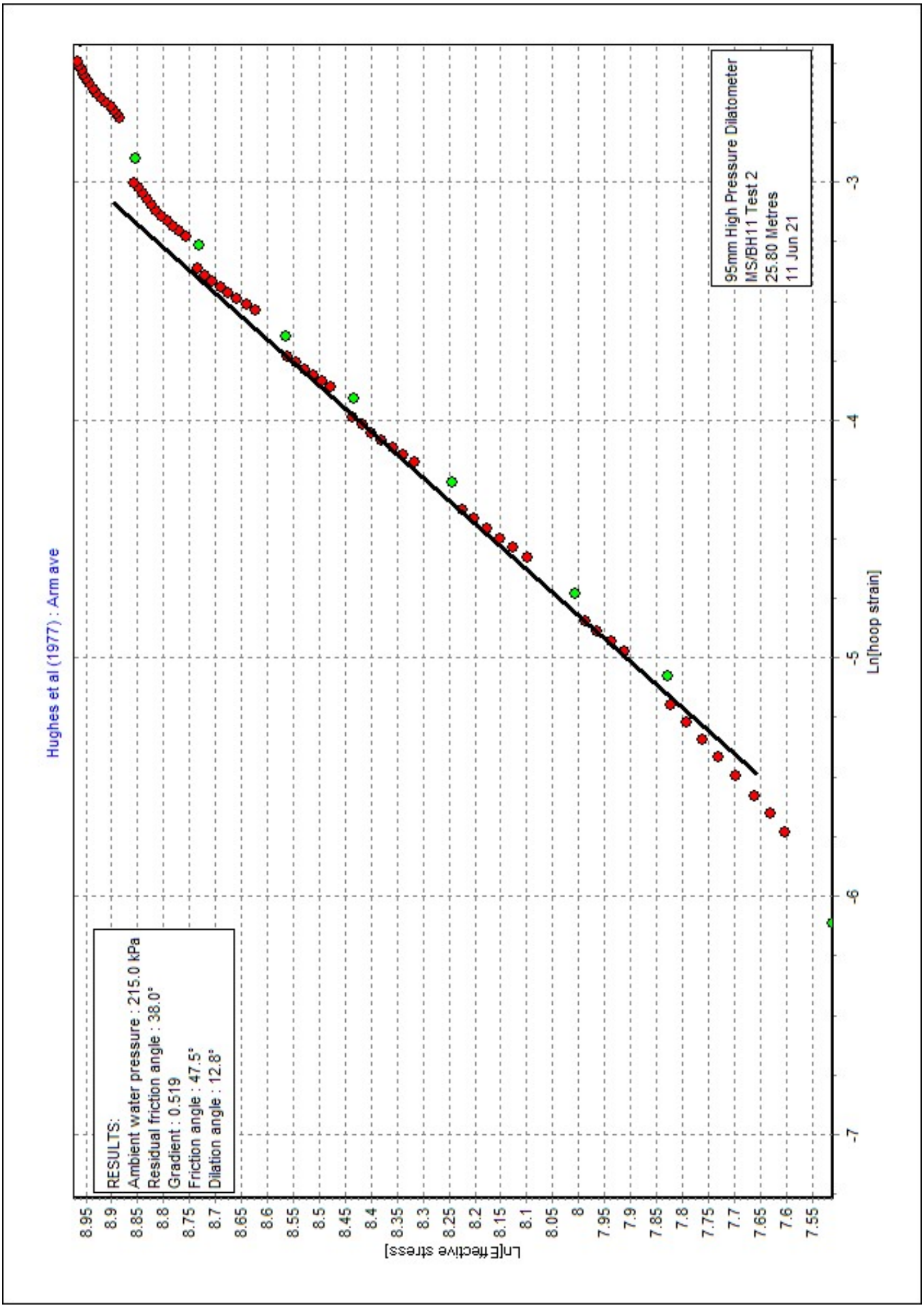
[PARAMETERS USED FOR DRAINED CURVE MODELLING]
{Axis is Arm ave}
Strain Origin (mm) : 4.32
Po (kPa) : 651
Cohesion (kPa) : 183

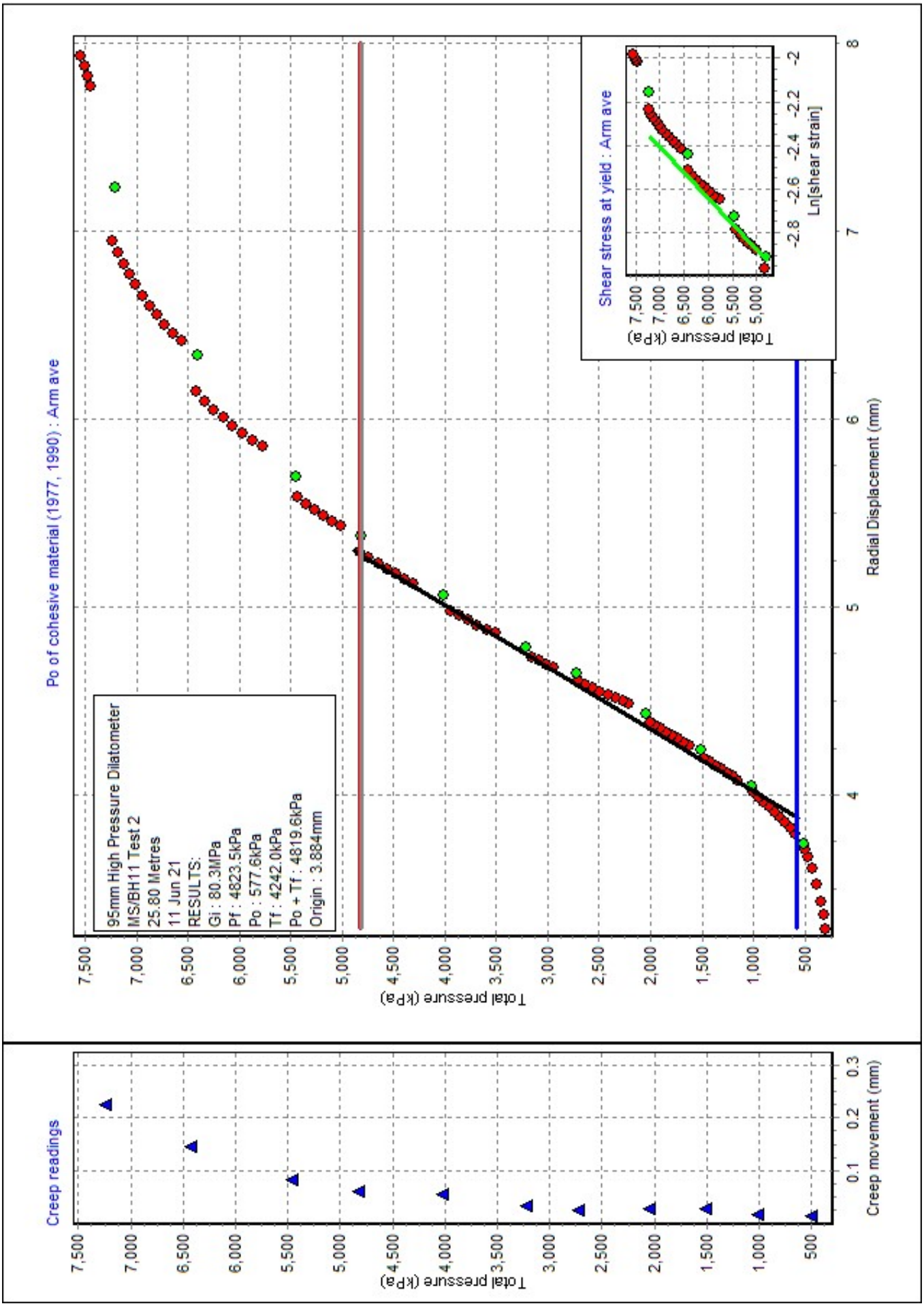
MS/BH11 Test 2 - SUMMARY OF RESULTS

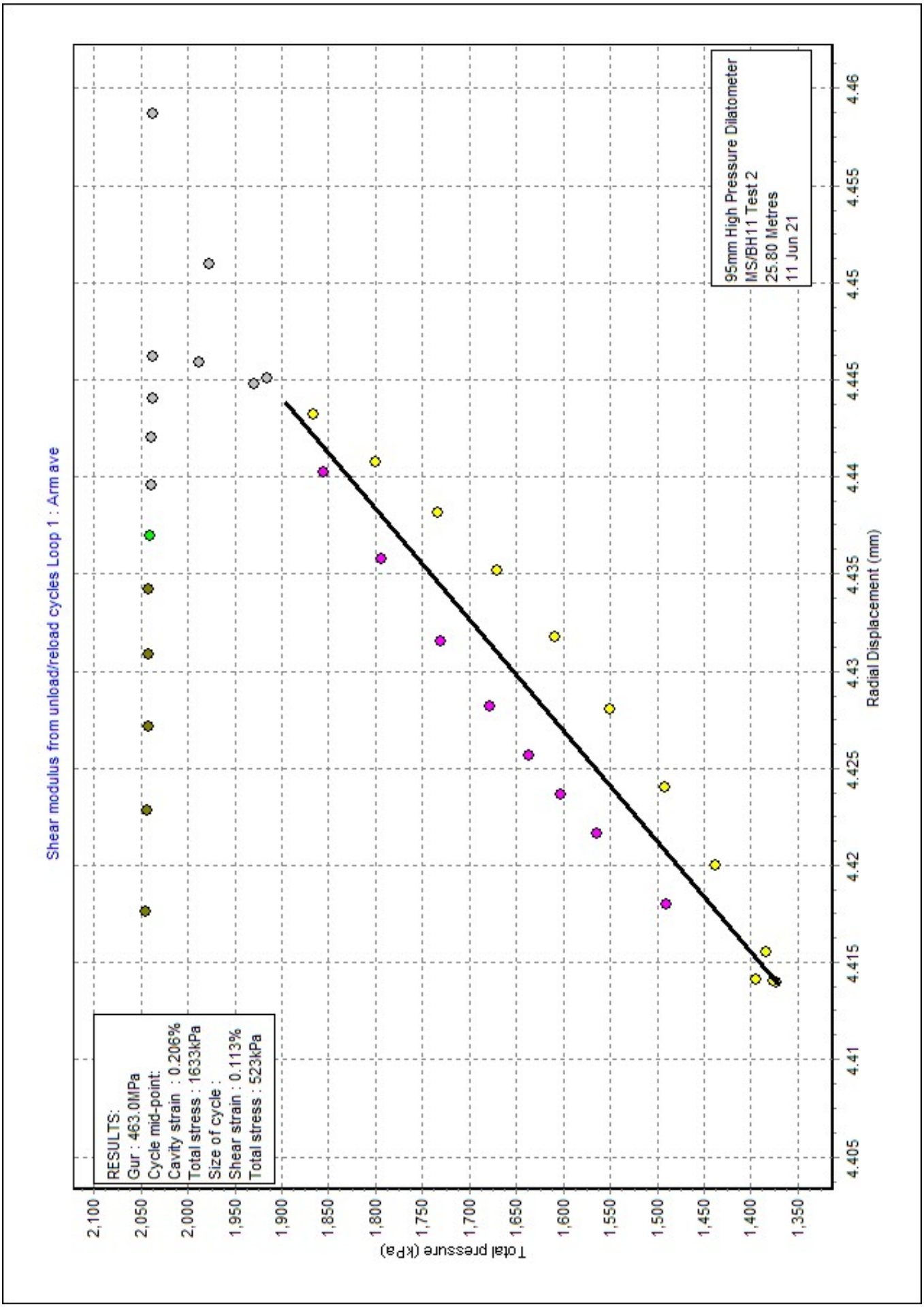
Angle of peak friction (deg)	:	47.5
Angle of peak dilation (deg)	:	12.8
Total yield stress (kPa)	:	1669
Total limit stress (kPa)	:	24843
G at first yield (MPa)	:	214.4
Non-linear exponent	:	0.676
Janbu exponent	:	0.323
Correlation	:	0.867
Ambient pore water pressure (kPa)	:	215
Residual friction angle (deg)	:	38.0
Poisson's ratio	:	0.30

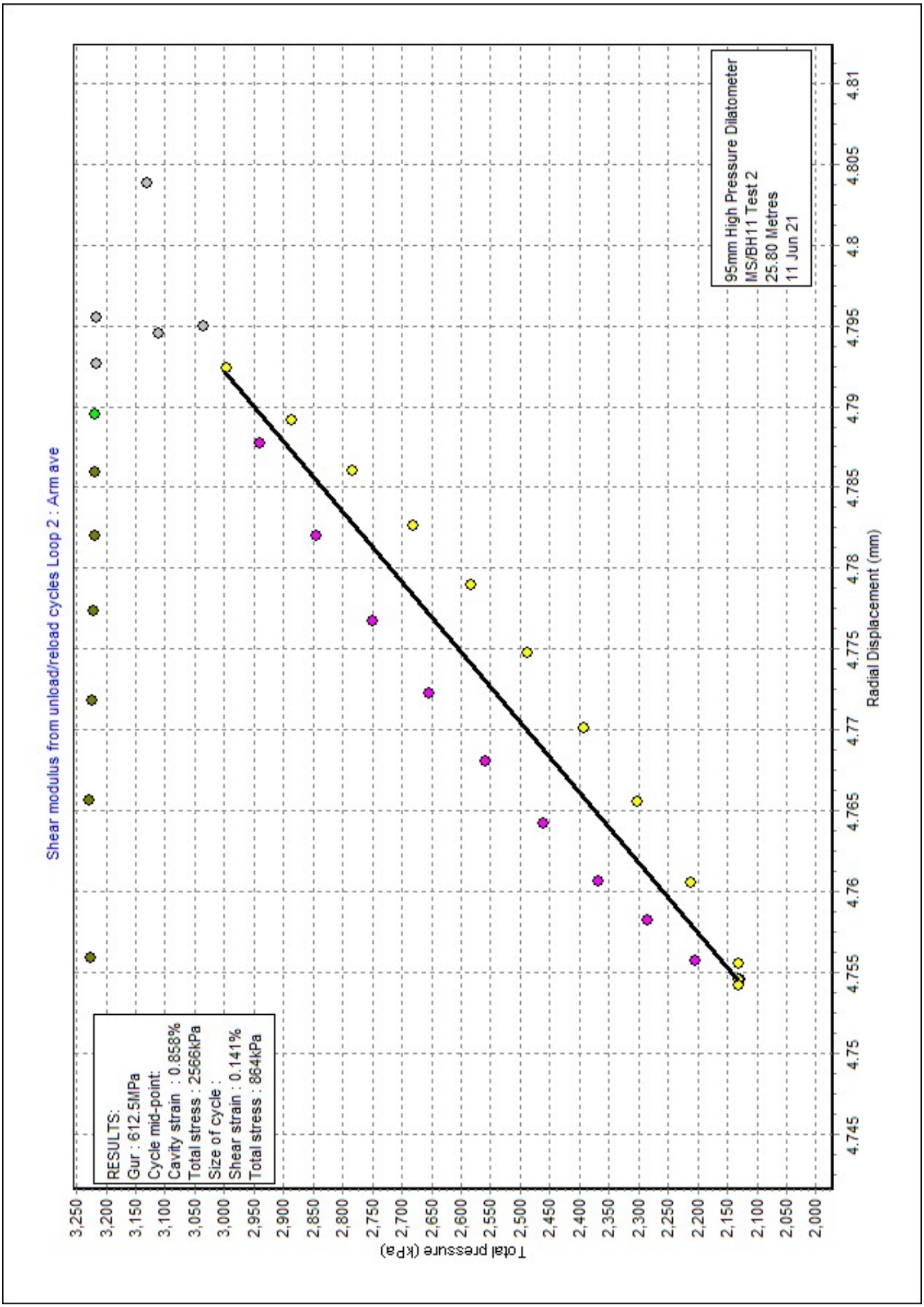

Cavity strain vs Total Pressure : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Total pressure (kPa)
Cavity strain (%)
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
-2
-1
0
1
2
3
4
5
6
7
8
9

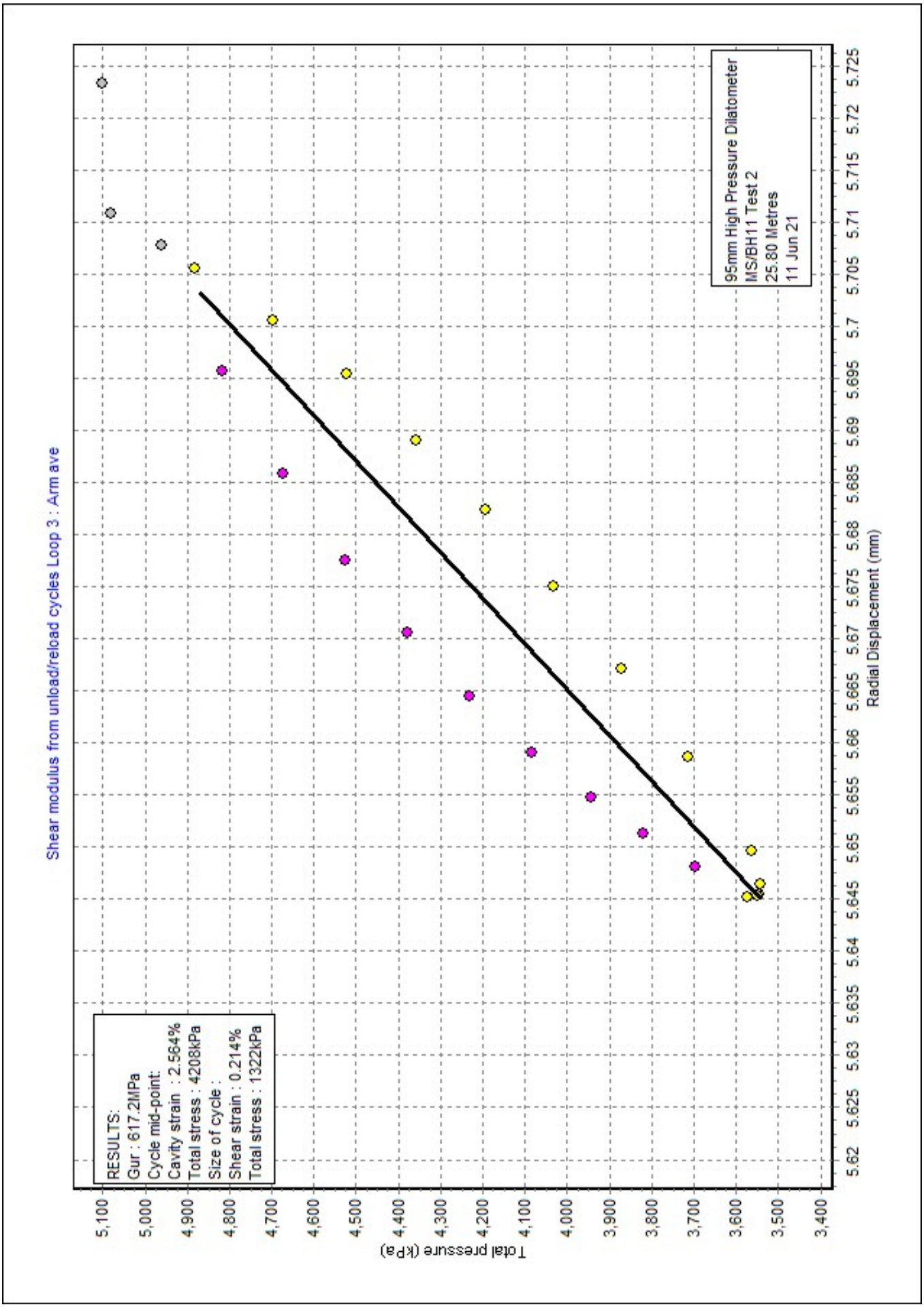

Withers et al (1989) : Arm ave
Ln[(Emx-Ec)/(1+Emx)]
Ln[P'/P'mx]
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
RESULTS:
Ambient water pressure : 215.0 kPa
Residual friction angle : 38.0°
Gradient : -3.305
Friction angle : 39.5°
Dilation angle : 1.9°

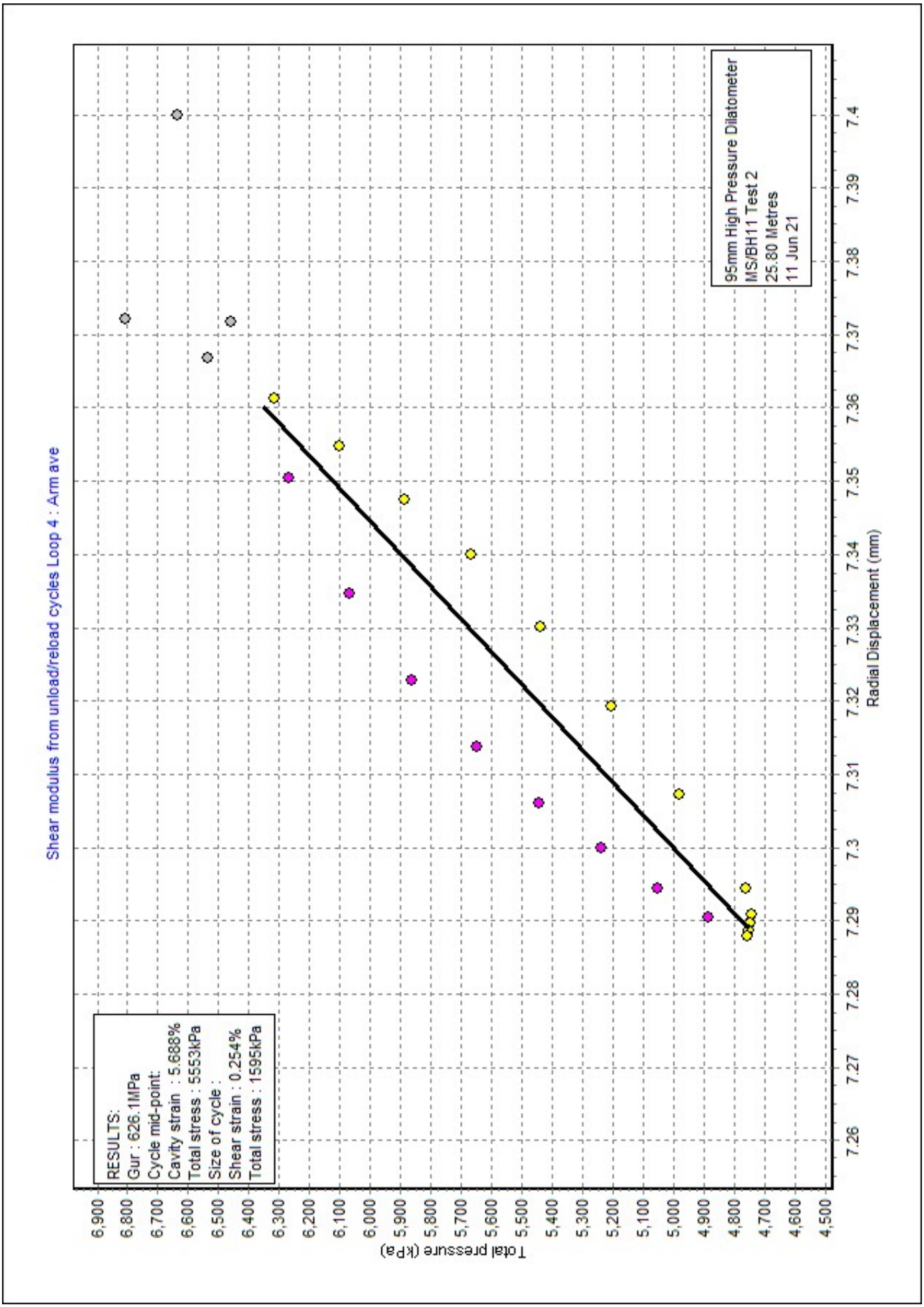

Hughes et al (1977) : Arm ave
RESULTS:
Ambient water pressure : 215.0 kPa
Residual friction angle : 38.0°
Gradient : 0.519
Friction angle : 47.5°
Dilation angle : 12.8°
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Ln[Effective stress]
Ln[hoop strain]

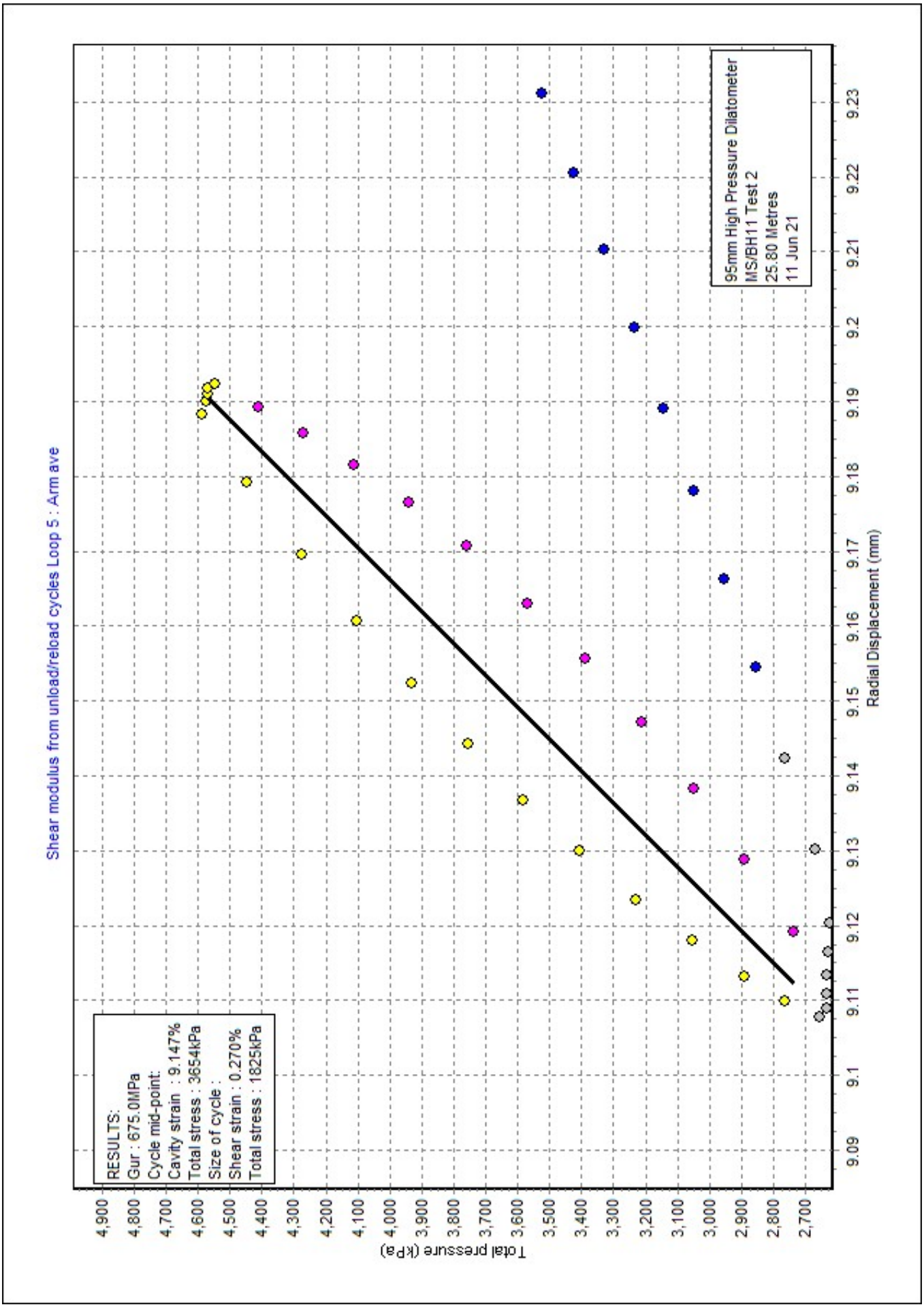

Po of cohesive material (1977, 1990) : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
RESULTS:
Gi : 80.3MPa
Pf : 4823.5kPa
Po : 577.6kPa
Tf : 4242.0kPa
Po + Tf : 4819.6kPa
Origin : 3.884mm
Total pressure (kPa)
Radial Displacement (mm)
Shear stress at yield : Arm ave
Ln[shear strain]
Creep readings
Creep movement (mm)

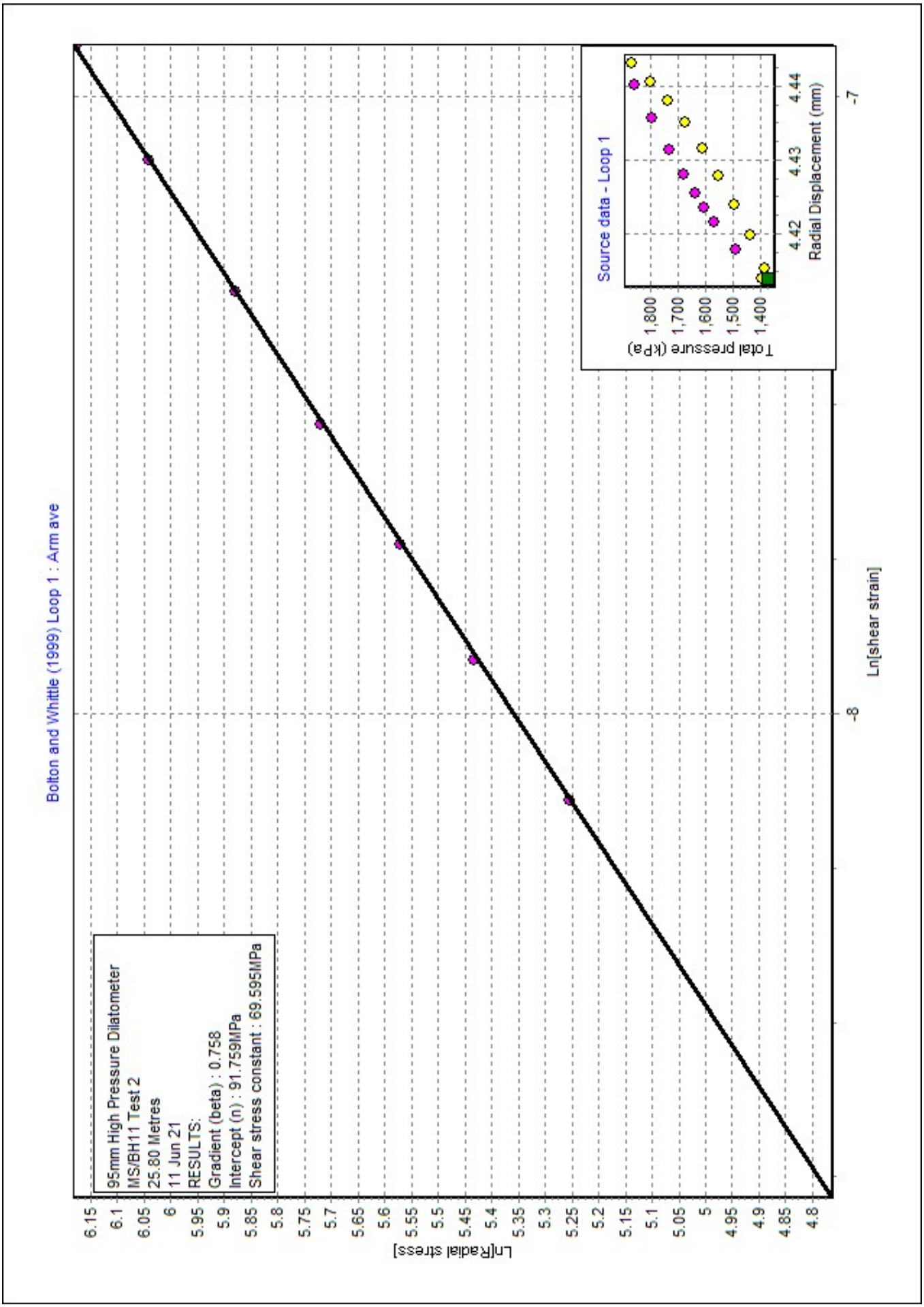

Shear modulus from unload/reload cycles Loop 1 : Arm ave
RESULTS:
Gur : 463.0MPa
Cycle mid-point:
Cavity strain : 0.206%
Total stress : 1633kPa
Size of cycle :
Shear strain : 0.113%
Total stress : 523kPa
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Total pressure (kPa)
Radial Displacement (mm)
2,100
2,050
2,000
1,950
1,900
1,850
1,800
1,750
1,700
1,650
1,600
1,550
1,500
1,450
1,400
1,350
4.405
4.41
4.415
4.42
4.425
4.43
4.435
4.44
4.445
4.45
4.455
4.46

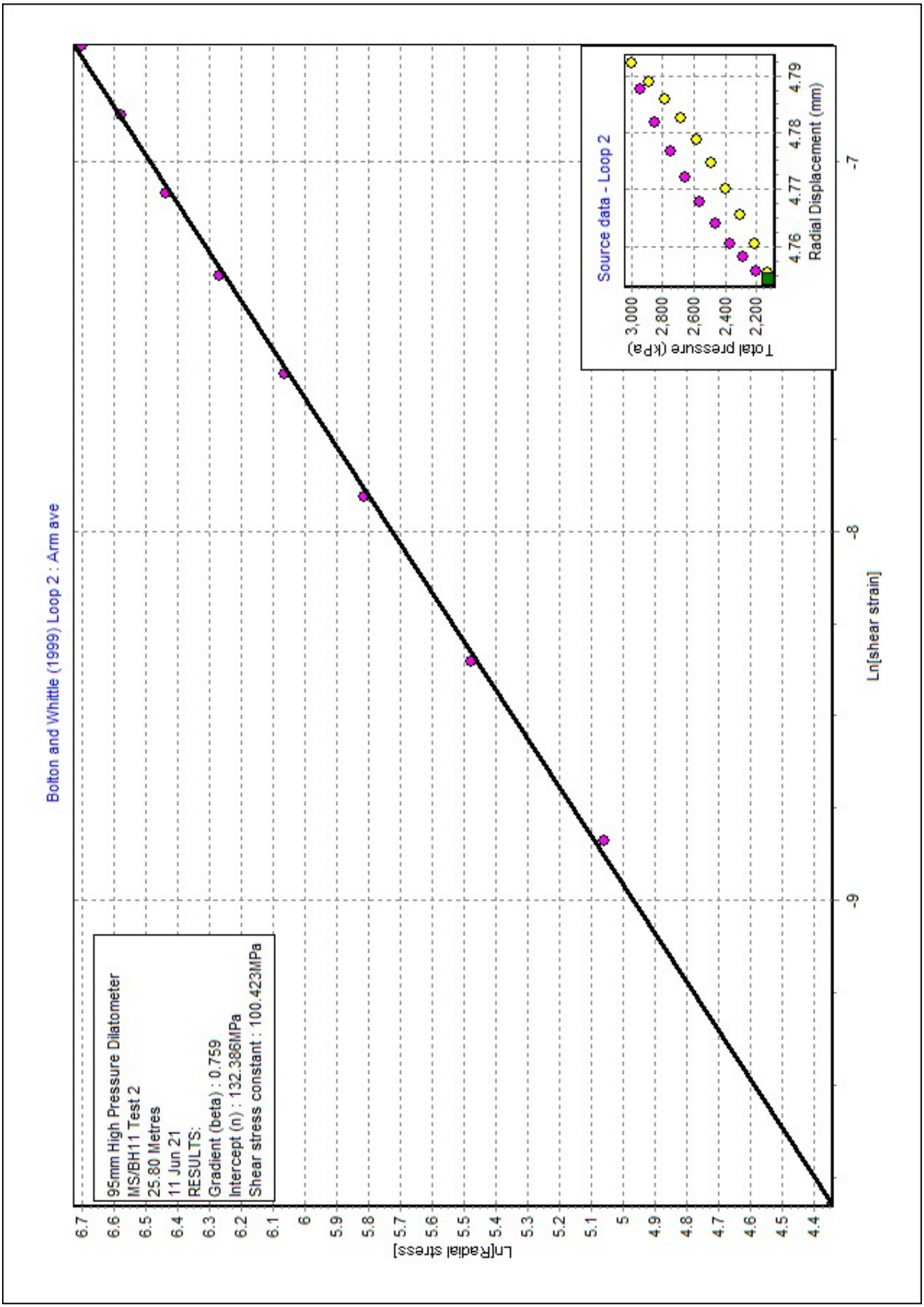

Shear modulus from unload/reload cycles Loop 2 : Arm ave
RESULTS:
Gur : 612.5MPa
Cycle mid-point:
Cavity strain : 0.858%
Total stress : 2566kPa
Size of cycle :
Shear strain : 0.141%
Total stress : 864kPa
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Total pressure (kPa)
Radial Displacement (mm)
3,250
3,200
3,150
3,100
3,050
3,000
2,950
2,900
2,850
2,800
2,750
2,700
2,650
2,600
2,550
2,500
2,450
2,400
2,350
2,300
2,250
2,200
2,150
2,100
2,050
2,000
4.745
4.75
4.755
4.76
4.765
4.77
4.775
4.78
4.785
4.79
4.795
4.8
4.805
4.81

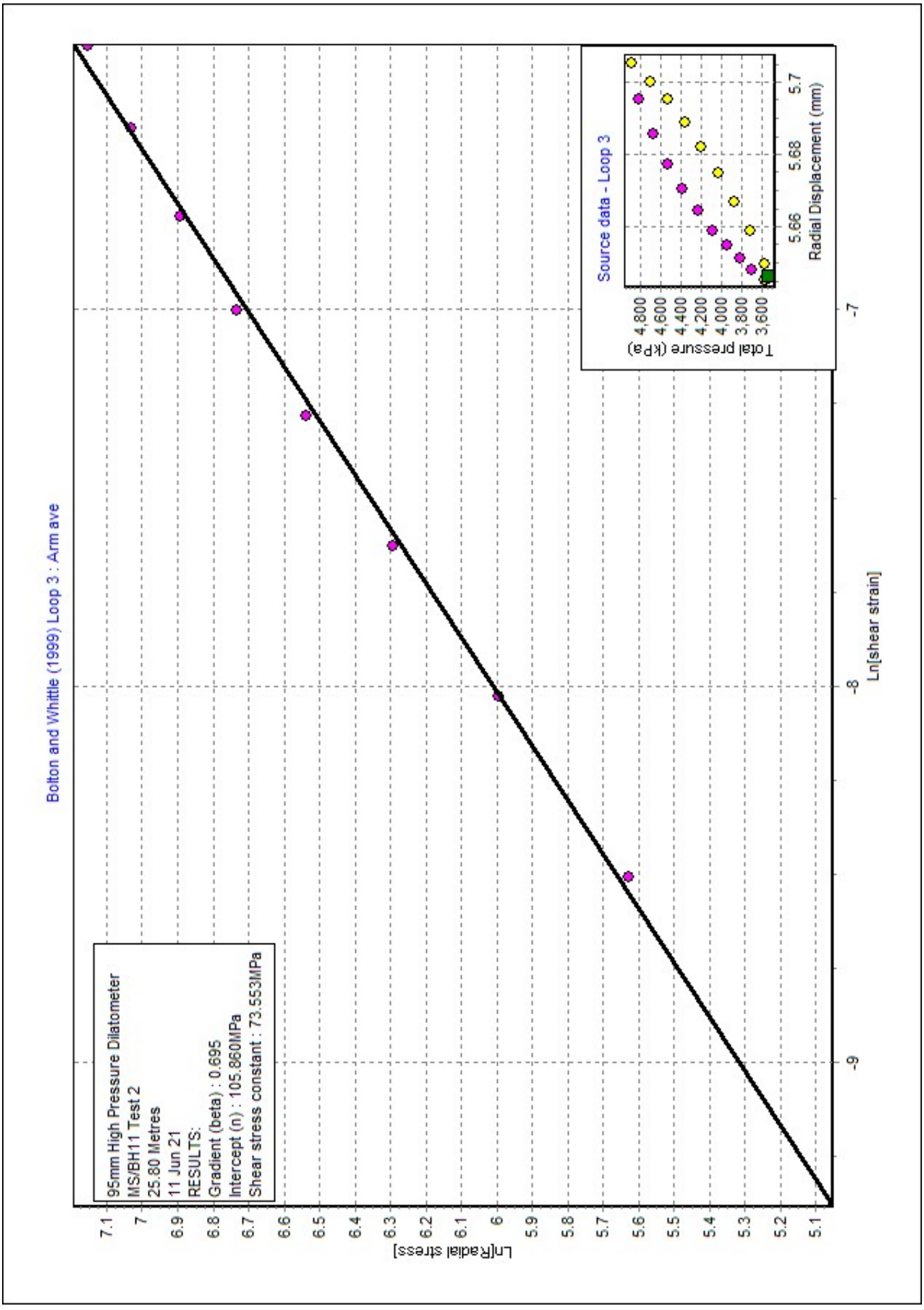

Shear modulus from unload/reload cycles Loop 3 : Arm ave
RESULTS:
Gur : 617.2MPa
Cycle mid-point:
Cavity strain : 2.564%
Total stress : 4208kPa
Size of cycle :
Shear strain : 0.214%
Total stress : 1322kPa
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Total pressure (kPa)
Radial Displacement (mm)
5,100
5,000
4,900
4,800
4,700
4,600
4,500
4,400
4,300
4,200
4,100
4,000
3,900
3,800
3,700
3,600
3,500
3,400
5.62
5.625
5.63
5.635
5.64
5.645
5.65
5.655
5.66
5.665
5.67
5.675
5.68
5.685
5.69
5.695
5.7
5.705
5.71
5.715
5.72
5.725

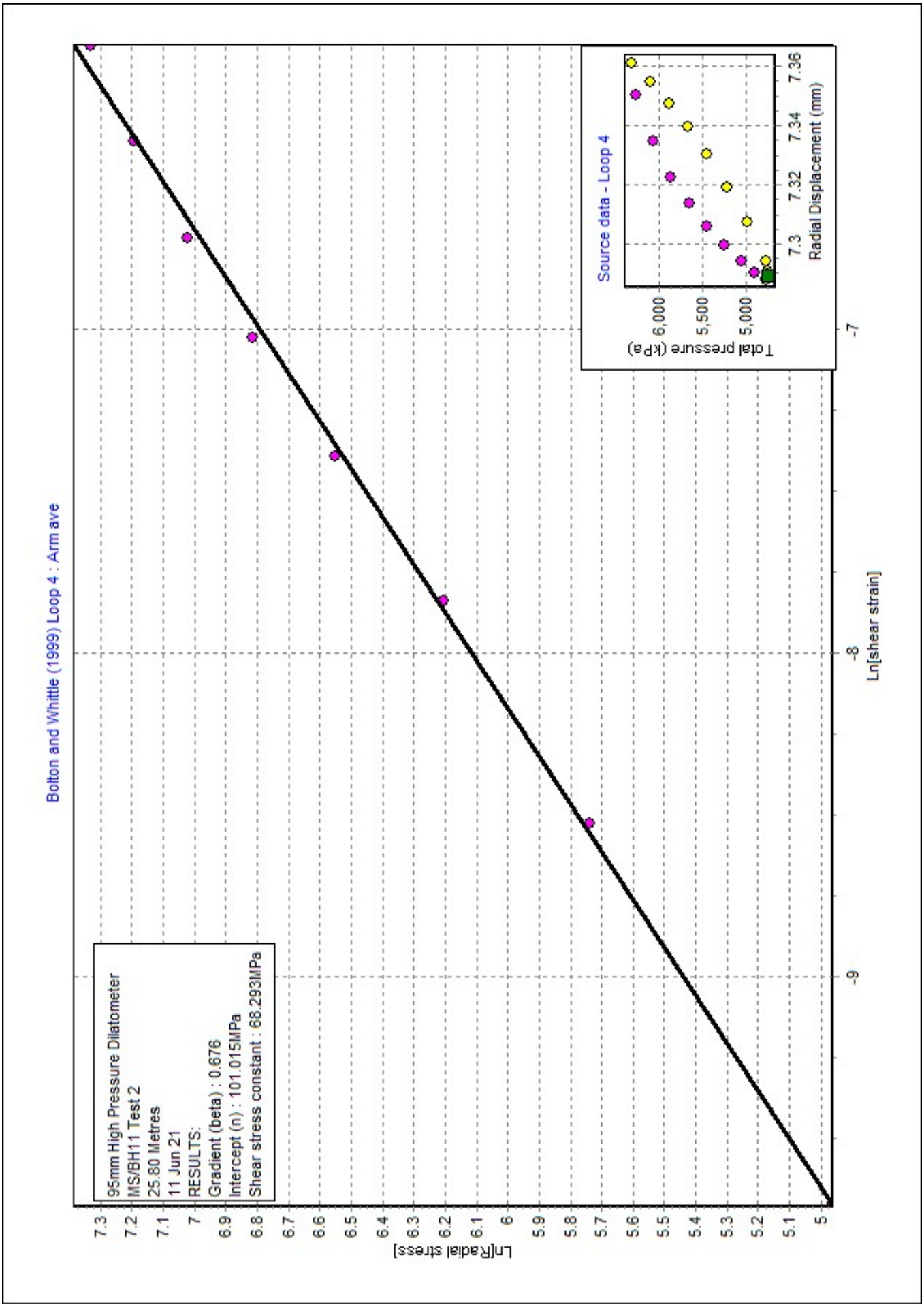

Shear modulus from unload/reload cycles Loop 4 : Arm ave
RESULTS:
Gur : 626.1MPa
Cycle mid-point:
Cavity strain : 5.688%
Total stress : 5553kPa
Size of cycle :
Shear strain : 0.254%
Total stress : 1595kPa
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Total pressure (kPa)
Radial Displacement (mm)
6,900
6,800
6,700
6,600
6,500
6,400
6,300
6,200
6,100
6,000
5,900
5,800
5,700
5,600
5,500
5,400
5,300
5,200
5,100
5,000
4,900
4,800
4,700
4,600
4,500
7.26
7.27
7.28
7.29
7.3
7.31
7.32
7.33
7.34
7.35
7.36
7.37
7.38
7.39
7.4

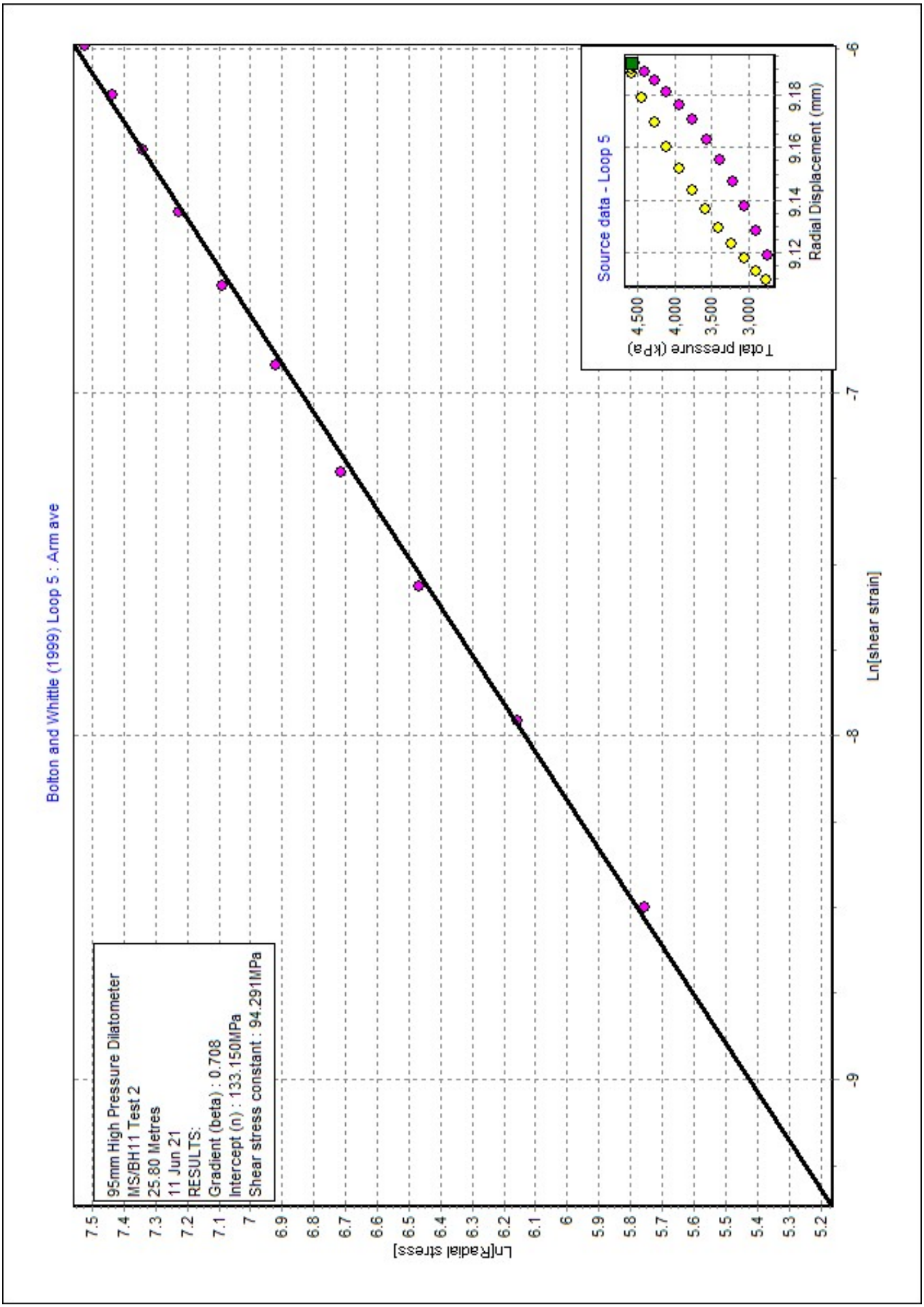

Shear modulus from unload/reload cycles Loop 5 : Arm ave
RESULTS:
Gur : 675.0MPa
Cycle mid-point:
Cavity strain : 9.147%
Total stress : 3654kPa
Size of cycle :
Shear strain : 0.270%
Total stress : 1825kPa
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Total pressure (kPa)
Radial Displacement (mm)

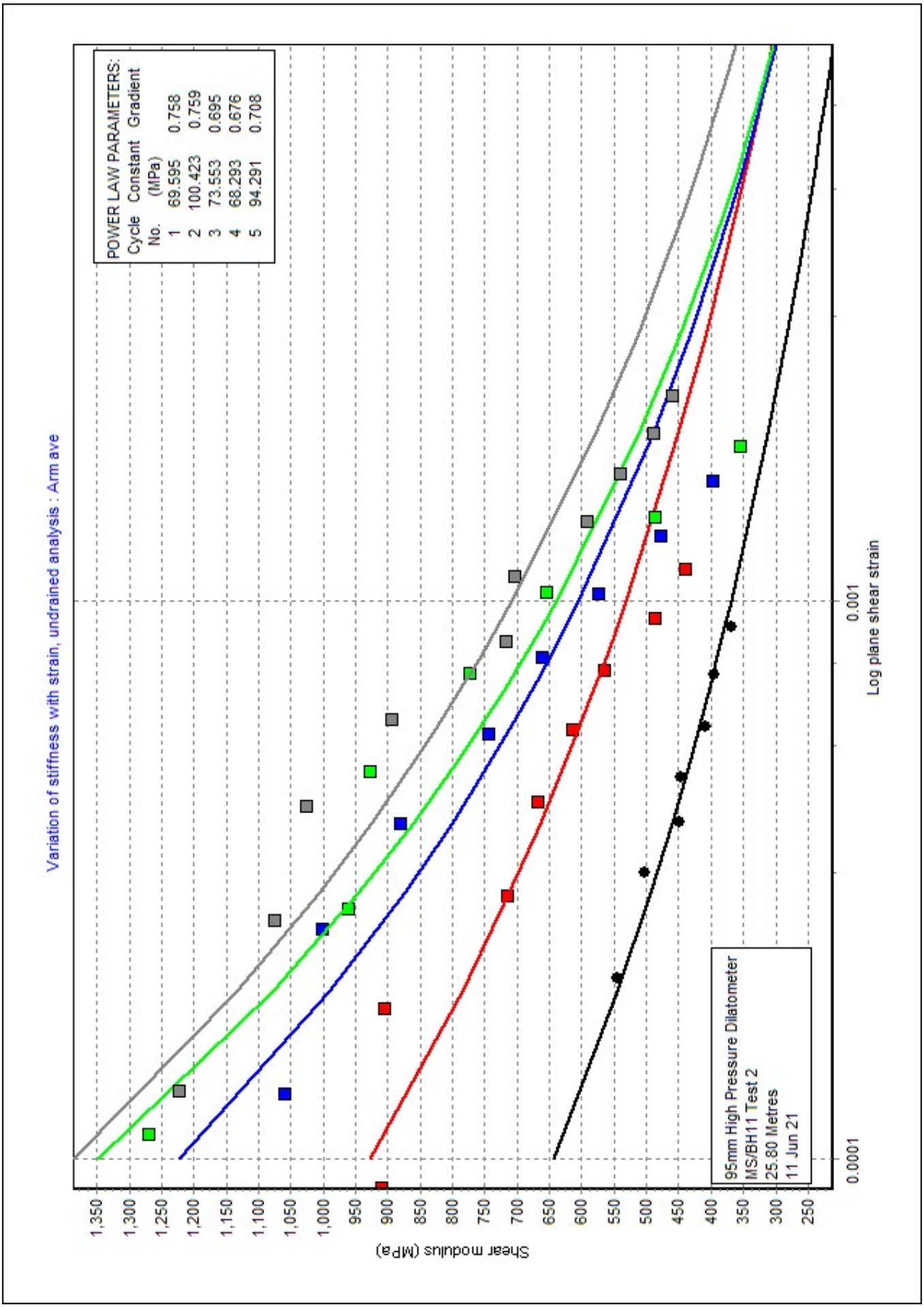

Bolton and Whittle (1999) Loop 1 : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
RESULTS:
Gradient (beta) : 0.758
Intercept (n) : 91.759MPa
Shear stress constant : 69.595MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 1
Total pressure (kPa)
Radial Displacement (mm)

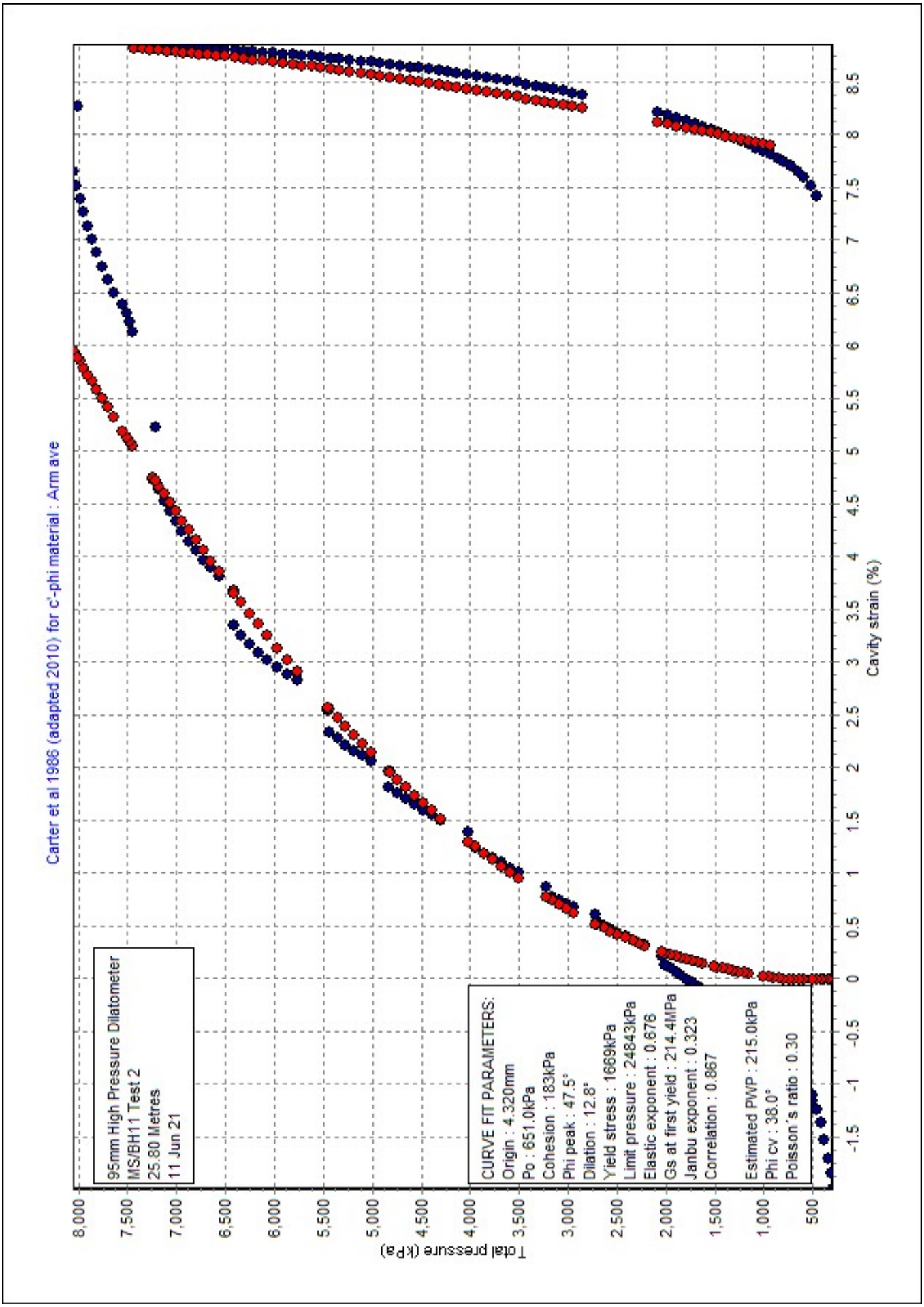

Bolton and Whittle (1999) Loop 2 : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
RESULTS:
Gradient (beta) : 0.759
Intercept (n) : 132.386MPa
Shear stress constant : 100.423MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 2
Total pressure (kPa)
Radial Displacement (mm)


Bolton and Whittle (1999) Loop 3 : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
RESULTS:
Gradient (beta) : 0.695
Intercept (n) : 105.860MPa
Shear stress constant : 73.553MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 3
Total pressure (kPa)
Radial Displacement (mm)

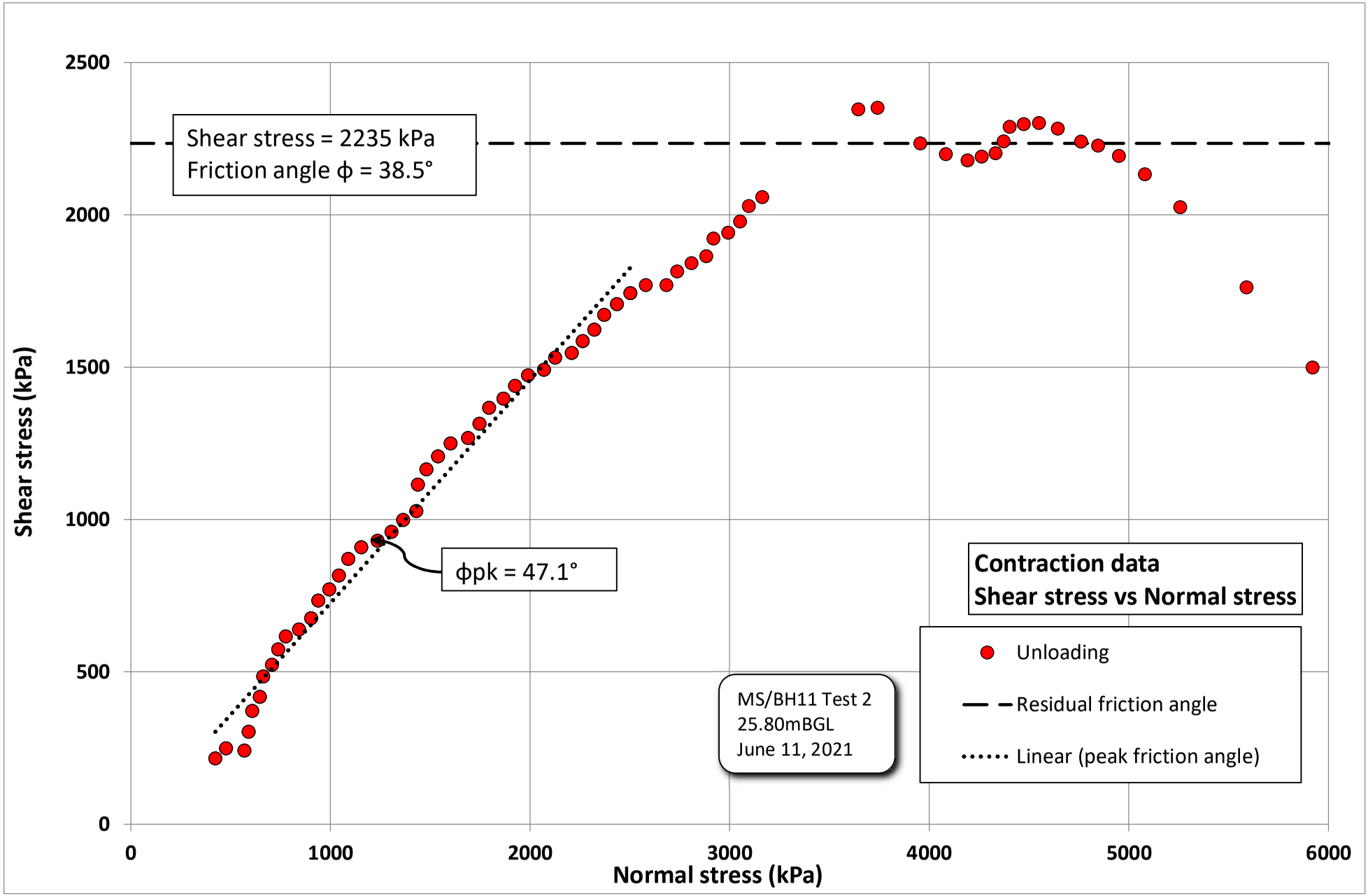

Bolton and Whittle (1999) Loop 4 : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
RESULTS:
Gradient (beta) : 0.676
Intercept (n) : 101.015MPa
Shear stress constant : 68.293MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 4
Total pressure (kPa)
Radial Displacement (mm)

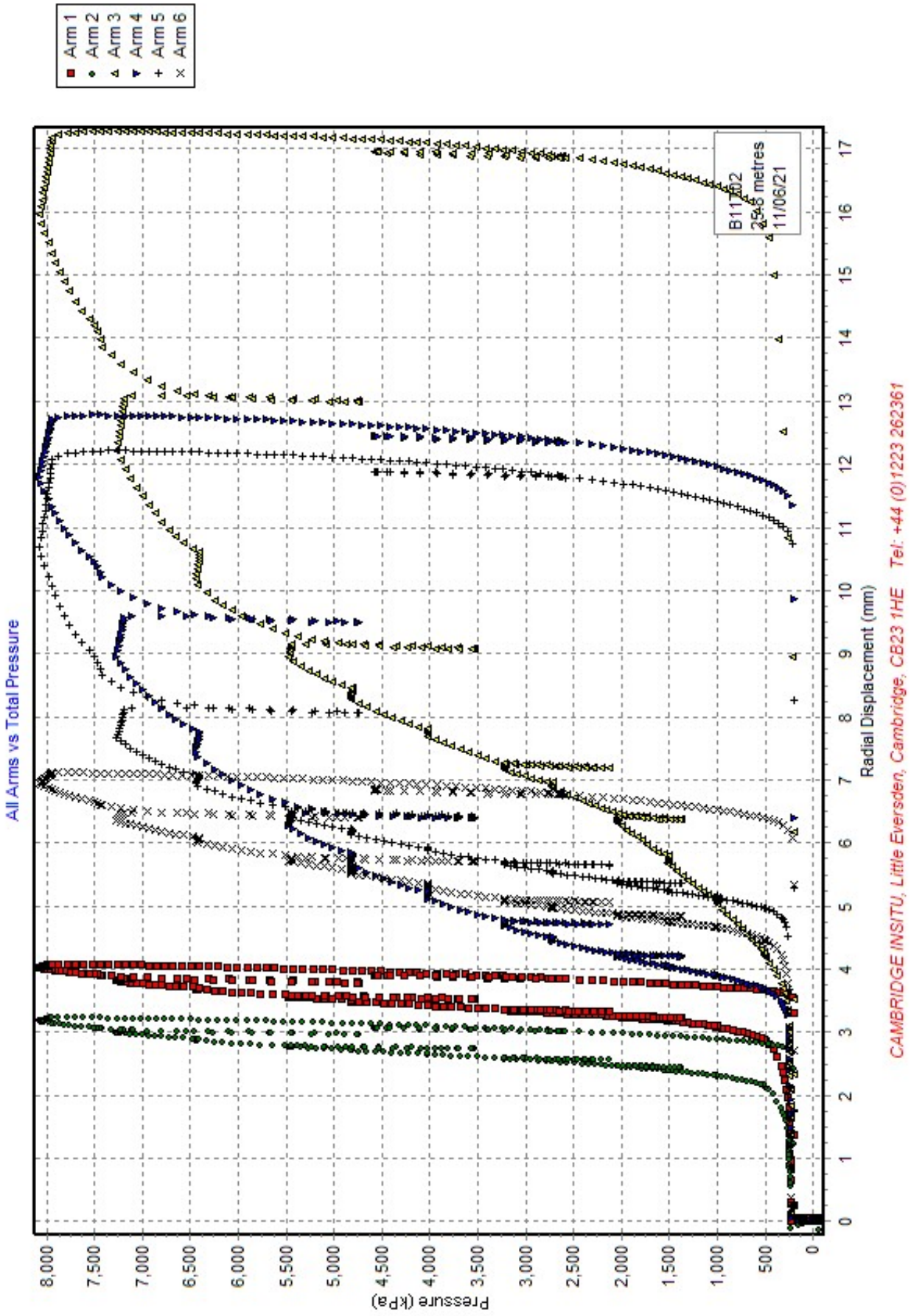

Bolton and Whittle (1999) Loop 5 : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
RESULTS:
Gradient (beta) : 0.708
Intercept (n) : 133.150MPa
Shear stress constant : 94.291MPa
Ln[Radial stress]
Ln[shear strain]
Source data - Loop 5
Total pressure (kPa)
Radial Displacement (mm)


Variation of stiffness with strain, undrained analysis : Arm ave
POWER LAW PARAMETERS:
Cycle No. Constant (MPa) Gradient
1 69.595 0.758
2 100.423 0.759
3 73.553 0.695
4 68.293 0.676
5 94.291 0.708
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
Shear modulus (MPa)
Log plane shear strain
0.0001
0.001
1,350
1,300
1,250
1,200
1,150
1,100
1,050
1,000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250


Carter et al 1986 (adapted 2010) for c'-phi material : Arm ave
95mm High Pressure Dilatometer
MS/BH11 Test 2
25.80 Metres
11 Jun 21
CURVE FIT PARAMETERS:
Origin : 4.320mm
Po : 651.0kPa
Cohesion : 183kPa
Phi peak : 47.5°
Dilation : 12.8°
Yield stress : 1669kPa
Limit pressure : 24843kPa
Elastic exponent : 0.676
Gs at first yield : 214.4MPa
Janbu exponent : 0.323
Correlation : 0.867
Estimated PWP : 215.0kPa
Phi cv : 38.0°
Poisson's ratio : 0.30
Total pressure (kPa)
Cavity strain (%)

Manassero (1989) analysis for sands




Arm 1
Arm 2
Arm 3
Arm 4
Arm 5
Arm 6
All Arms vs Total Pressure
Pressure (kPa)
8,000
7,500
7,000
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Radial Displacement (mm)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
B11/02
2.48 metres
11/06/21
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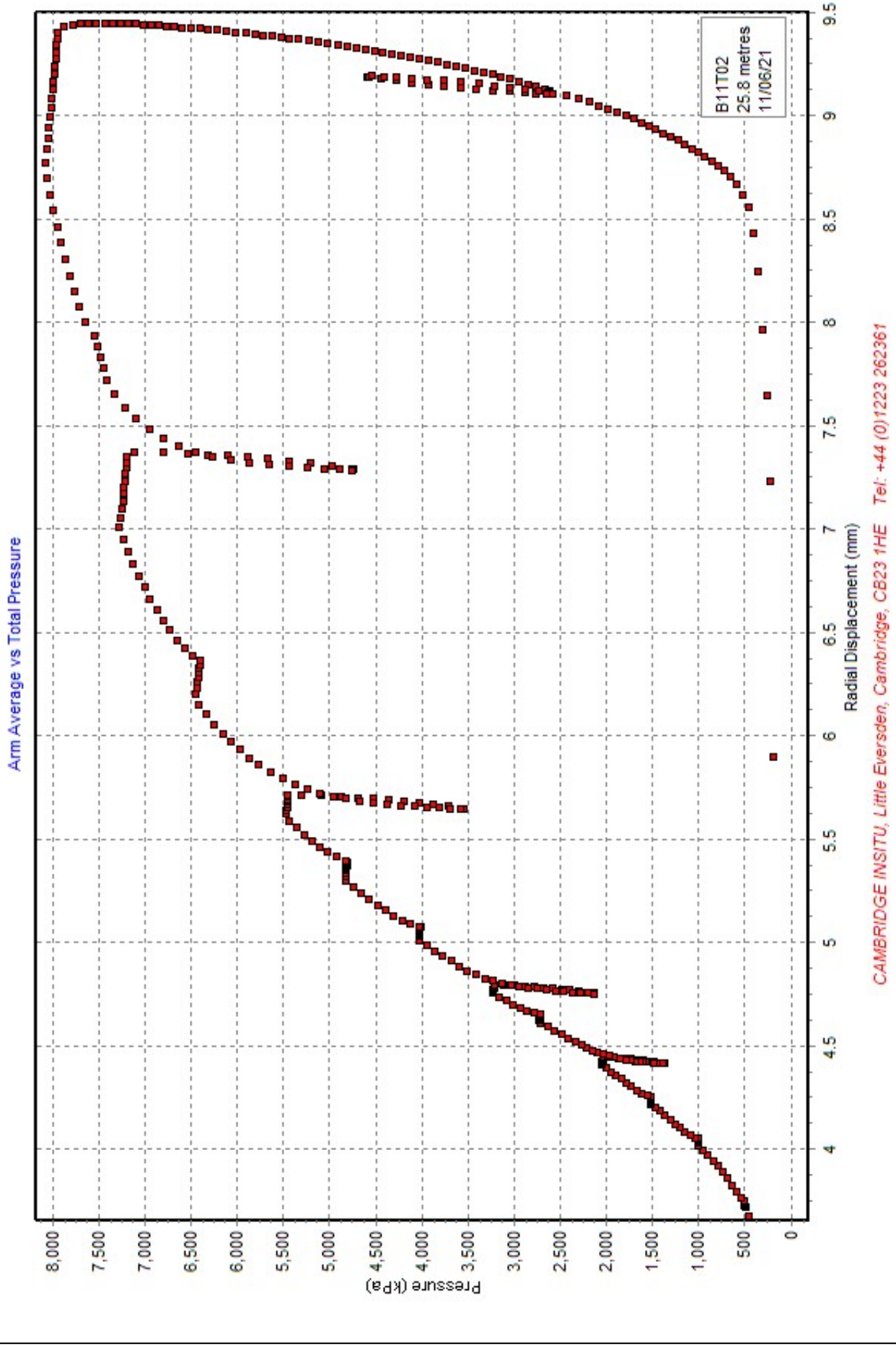
Arm Average vs Total Pressure
B11T02
25.8 metres
11/06/21
Pressure (kPa)
Radial Displacement (mm)
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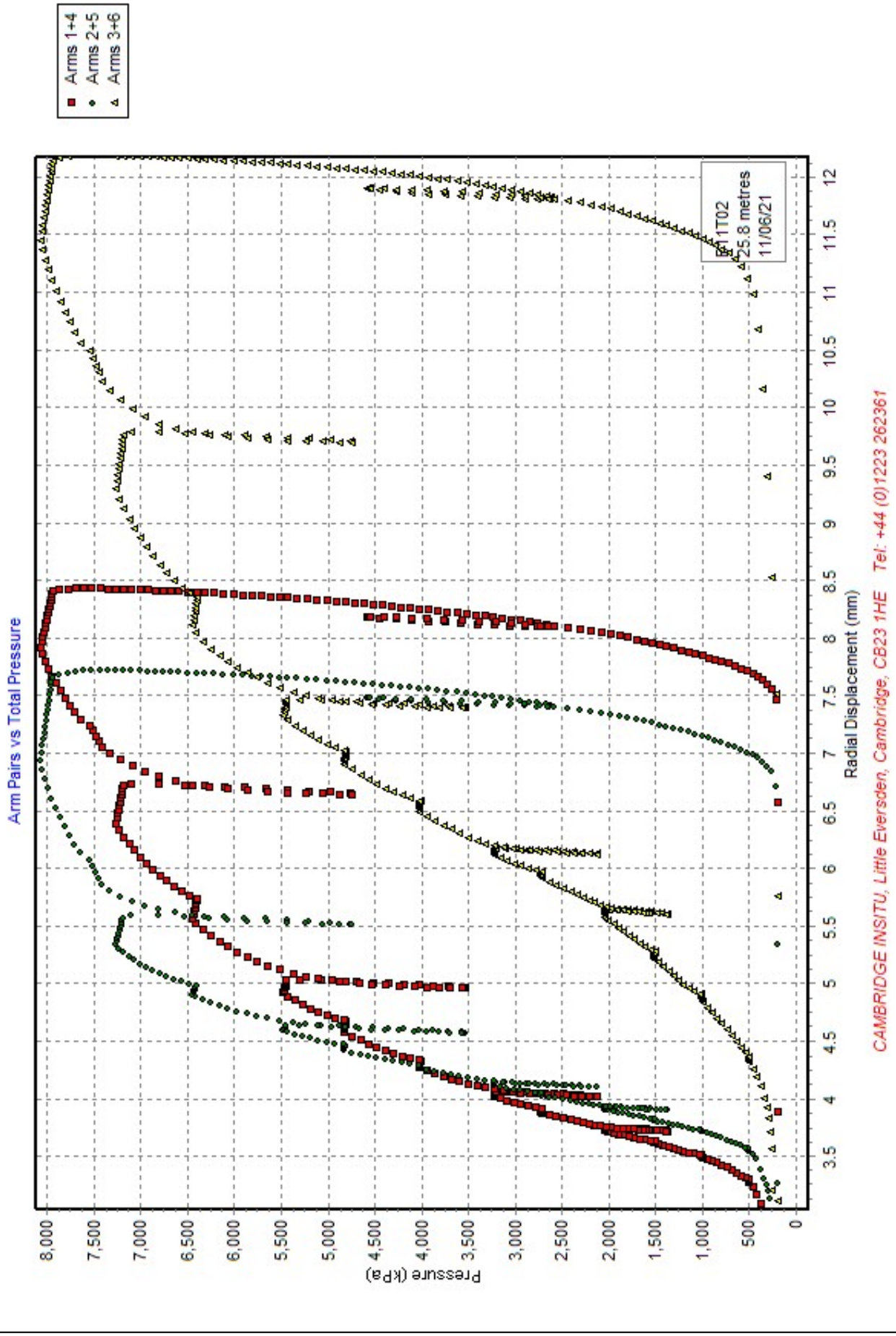
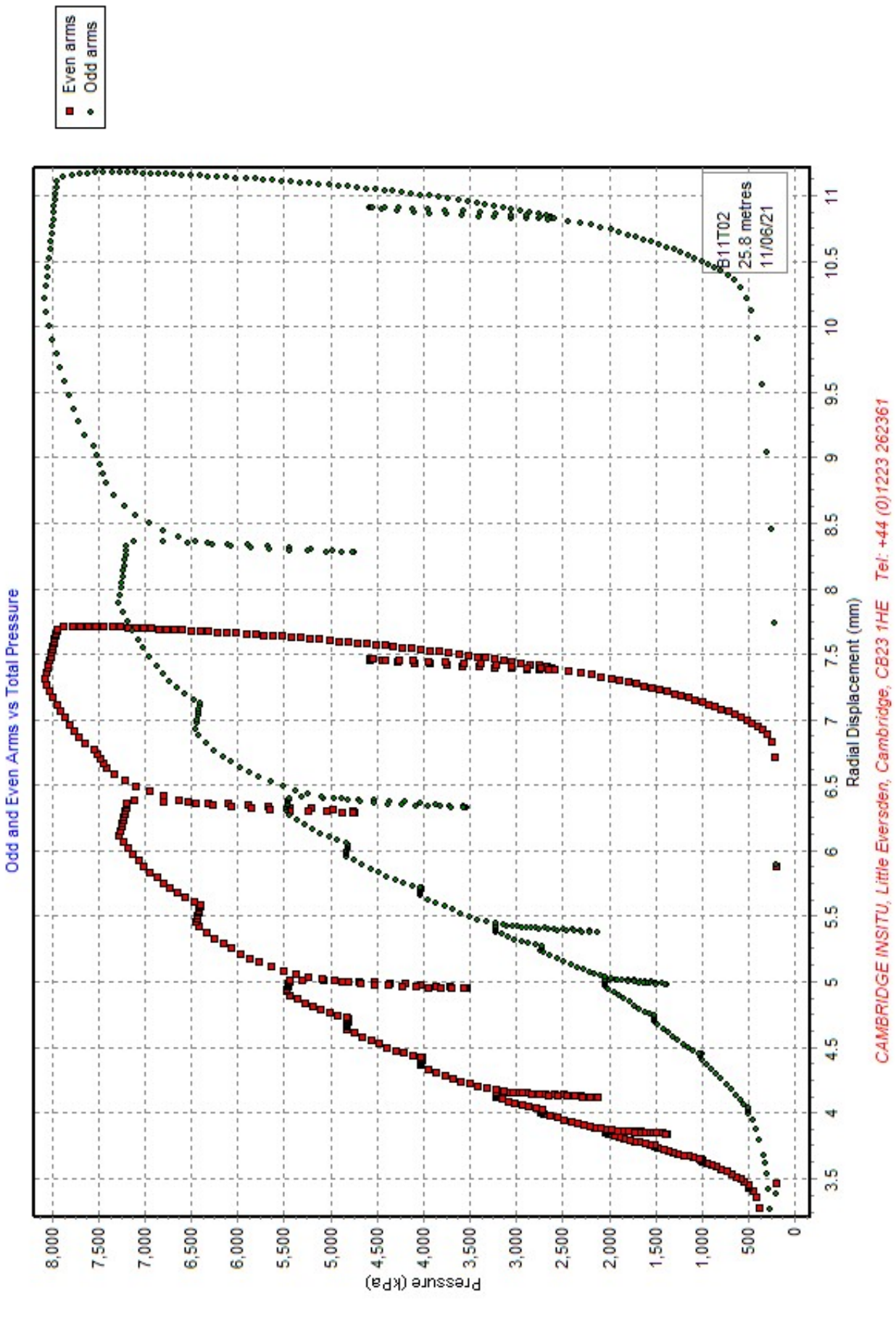

Arms 1+4
Arms 2+5
Arms 3+6
Arm Pairs vs Total Pressure
Pressure (kPa)
Radial Displacement (mm)
BH1T02
25.8 metres
11/06/21
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361


Even arms
Odd arms
Odd and Even Arms vs Total Pressure
B11T02
25.8 metres
11/06/21
Pressure (kPa)
Radial Displacement (mm)
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361

CALIBRATION DATA

DESCRIPTION	DATE	PROBE	NOTES
Transducers	17/05/2021	Wally (HPD)	Full calibration of all sensors
K1705T21	17/05/2021	Wally (HPD)	System compliance
K1705T21	17/05/2021	Wally (HPD)	Membrane stiffness
E0107T21	01/07/2021	Wally (HPD)	System compliance
E0107T21	01/07/2021	Wally (HPD)	Membrane stiffness
E0707T21	07/07/2021	Wally (HPD)	System compliance
E0707T21	07/07/2021	Wally (HPD)	Membrane stiffness
E0907T21	09/07/2021	Wally (HPD)	System compliance
E0907T21	09/07/2021	Wally (HPD)	Membrane stiffness

Calibration Date	Operator	Instrument Type	Serial Number	Instrument Name
17-May-21	SDB/KGC	HPD	160208	Wally

Notes: Arms calibrated 06/05/21; Arms 4 and 6 redone 13/05/21 KC; Pressure Cells 17/05/21

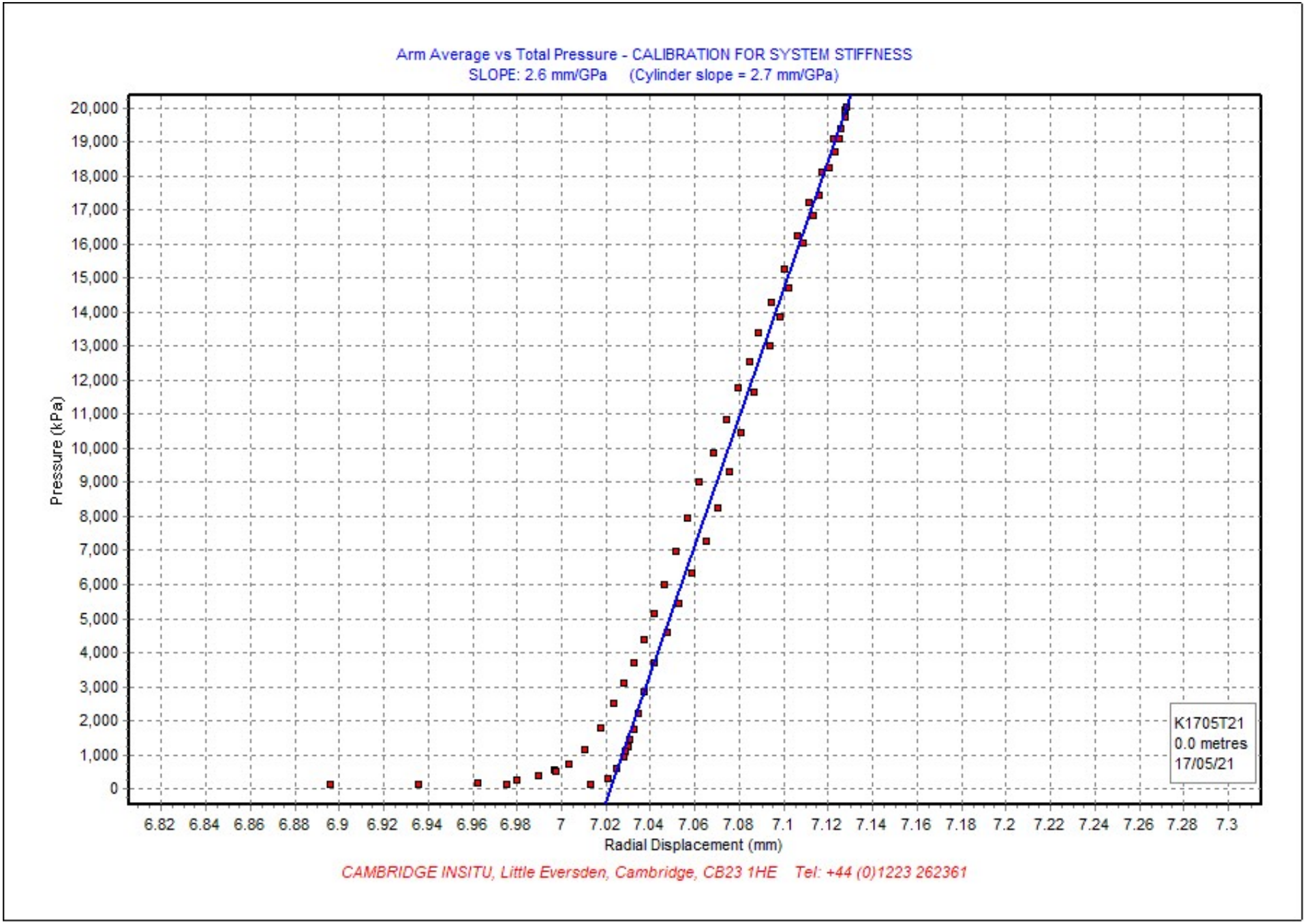
Arm Springs

mm	Arm 1	Linearity	Hysteresis	Arm 2	Linearity	Hysteresis	Arm 3	Linearity	Hysteresis	Arm 4	Linearity	Hysteresis	Arm 5	Linearity	Hysteresis	Arm 6	Linearity	Hysteresis
	(mV)	(%)	(%)	(mV)	(%)	(%)	(mV)	(%)	(%)	(mV)	(%)	(%)	(mV)	(%)	(%)	(mV)	(%)	(%)
0	-2006.0	103.3	0.05	-2624.1	103.3	0.04	-2252.7	102.3	0.05	-2062.5	98.1	0.00	-2278.1	102.5	0.02	-2041.8	109.2	0.08
2	-1704.4	102.2	0.11	-2337.0	102.0	0.03	-1953.7	101.7	0.07	-1786.5	102.6	-0.07	-1992.4	101.8	-0.03	-1768.1	103.1	0.03
4	-1406.1	101.6	0.14	-2053.6	101.3	-0.03	-1656.2	101.7	0.10	-1497.8	101.9	-0.05	-1708.8	101.2	-0.05	-1509.6	101.8	0.16
6	-1109.4	100.5	0.16	-1772.2	100.5	-0.09	-1358.7	101.4	0.12	-1211.2	100.9	-0.01	-1426.7	100.6	-0.06	-1254.5	100.5	0.07
8	-815.9	100.0	0.16	-1493.0	99.5	-0.12	-1062.2	99.9	0.16	-927.3	100.5	-0.01	-1146.4	100.2	-0.06	-1002.5	99.2	0.00
10	-523.9	99.7	0.18	-1216.7	99.5	-0.15	-770.0	99.2	0.19	-644.6	99.8	0.03	-867.2	99.5	-0.05	-753.9	98.7	-0.06
12	-232.9	98.7	0.20	-940.4	98.6	-0.15	-479.9	98.7	0.16	-363.7	98.9	0.03	-590.0	98.4	-0.06	-506.6	97.9	-0.09
14	55.2	98.1	0.17	-666.4	98.8	-0.16	-191.4	98.3	0.12	-85.3	98.1	0.04	-315.9	98.8	-0.07	-261.1	97.3	-0.12
16	341.6	98.4	0.15	-392.0	98.0	-0.12	96.1	98.2	0.10	190.8	98.1	-0.06	-40.7	98.7	-0.04	-17.3	97.7	-0.10
18	628.9	97.6	0.13	-119.7	98.9	-0.07	383.1	97.5	0.06	466.9	98.9	0.00	234.4	98.7	-0.02	227.6	96.7	0.00
20	913.9	-98.9		155.1	-98.2		668.3	-98.1		745.1	-98.9		509.4	-98.5		469.9	-96.7	
18	625.1	-98.6		-117.7	-97.6		381.4	-98.5		466.9	-97.5		235.0	-98.5		227.6	-96.8	
16	337.2	-98.3		-388.8	-98.3		93.3	-98.5		192.6	-99.2		-39.5	-98.5		-14.9	-97.0	
14	50.2	-98.9		-662.0	-98.7		-194.8	-99.1		-86.5	-98.8		-313.9	-98.5		-258.1	-98.3	
12	-238.6	-99.6		-936.2	-99.5		-484.5	-99.5		-364.5	-99.9		-588.3	-99.6		-504.4	-98.9	
10	-529.3	-99.8		-1212.6	-99.7		-775.5	-99.7		-645.5	-100.0		-865.8	-100.1		-752.4	-99.8	
8	-820.6	-100.5		-1489.6	-100.8		-1067.0	-101.0		-927.0	-100.9		-1144.8	-100.5		-1002.6	-101.2	
6	-1114.2	-101.4		-1769.6	-102.0		-1362.3	-101.5		-1211.0	-101.4		-1424.9	-101.4		-1256.3	-102.7	
4	-1410.3	-101.8		-2052.9	-102.6		-1659.1	-101.4		-1496.4	-102.4		-1707.5	-102.0		-1513.6	-101.9	
2	-1707.5	-102.7		-2337.9	-103.4		-1955.6	-102.1		-1784.4	-98.8		-1991.7	-103.0		-1768.9	-109.7	
0	-2007.5			-2625.1			-2254.1			-2062.4			-2278.7			-2043.8		
Intercept	**-1994.0**	**mV**		**-2611.1**	**mV**		**-2242.6**	**mV**		**-2058.7**	**mV**		**-2267.1**	**mV**		**-2017.6**	**mV**	
Slope	**146.0**	**mV/mm**		**138.9**	**mV/mm**		**146.2**	**mV/mm**		**140.7**	**mV/mm**		**139.3**	**mV/mm**		**125.3**	**mV/mm**	
ax Output		**mV**			**mV**			**mV**			**mV**			**mV**			**mV**	
lin Output		**mV**			**mV**			**mV**			**mV**			**mV**			**mV**	
lax Range		**mm**			**mm**			**mm**			**mm**			**mm**			**mm**	

Pressure Cells

Gauge Zero Offset: **0.0**

Bars	TPC A	Linearity	Hysteresis	TPC B	Linearity	Hysteresis
	(mV)	(%)	(%)	(mV)	(%)	(%)
0.0	-1592.4	100.5	-0.13	-2042.5	100.3	-0.09
20.0	-1373.6	99.5	-0.19	-1824.0	99.5	-0.18
40.0	-1157.0	99.9	-0.10	-1607.2	99.9	-0.07
60.0	-939.4	99.8	-0.09	-1389.6	100.0	-0.07
80.0	-722.0	100.2	-0.17	-1171.6	99.9	-0.17
100.0	-503.9	100.2	-0.12	-953.8	100.1	-0.15
120.0	-285.7	100.1	-0.11	-735.6	100.3	-0.05
140.0	-67.8	100.0	-0.13	-517.1	100.3	-0.14
160.0	150.0	100.5	-0.10	-298.6	99.8	-0.08
180.0	368.8	100.2	-0.05	-81.1	100.6	-0.07
200.0	587.1	99.8		138.1	99.9	
180.0	369.8	100.0		-79.6	99.7	
160.0	152.1	99.7		-296.9	99.7	
140.0	-65.0	100.2		-514.1	101.1	
120.0	-283.3	100.1		-734.5	99.1	
100.0	-501.2	99.7		-950.5	99.8	
80.0	-718.3	100.7		-1168.0	101.0	
60.0	-937.5	99.8		-1388.1	99.8	
40.0	-1154.8	98.6		-1605.6	98.4	
20.0	-1369.4	101.1		-1820.1	101.1	
0.0	-1589.6			-2040.5		
Intercept	-1590.9	mV		-2041.5	mV	
Slope	10.888	mV/Bars		10.896	mV/Bars	
Slope	108.9	mV/MPa		109.0	mV/MPa	


Arm Average vs Total Pressure - CALIBRATION FOR SYSTEM STIFFNESS
SLOPE: 2.6 mm/GPa (Cylinder slope = 2.7 mm/GPa)
Pressure (kPa)
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
6.82 6.84 6.86 6.88 6.9 6.92 6.94 6.96 6.98 7 7.02 7.04 7.06 7.08 7.1 7.12 7.14 7.16 7.18 7.2 7.22 7.24 7.26 7.28 7.3
Radial Displacement (mm)
K1705T21
0.0 metres
17/05/21
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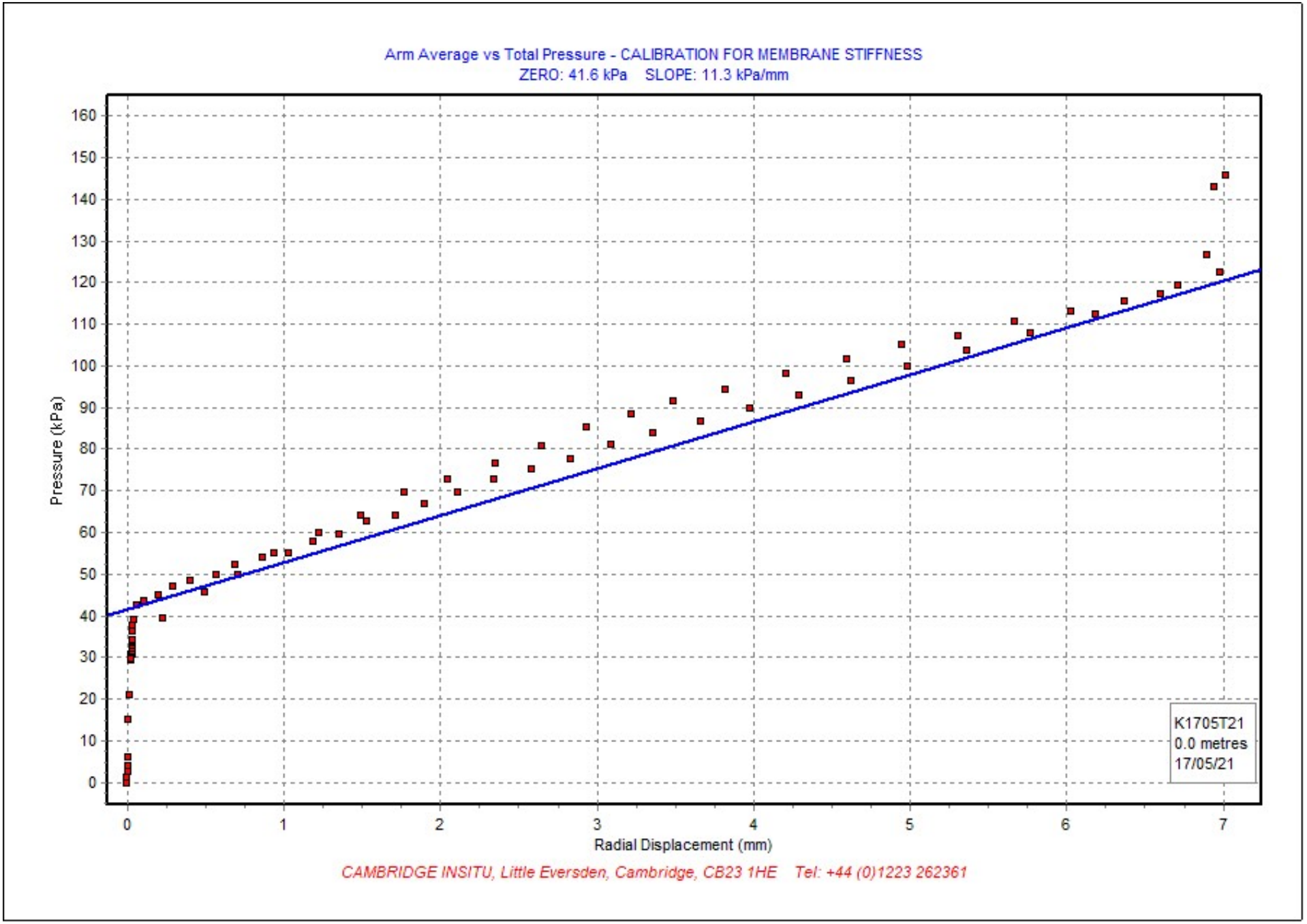
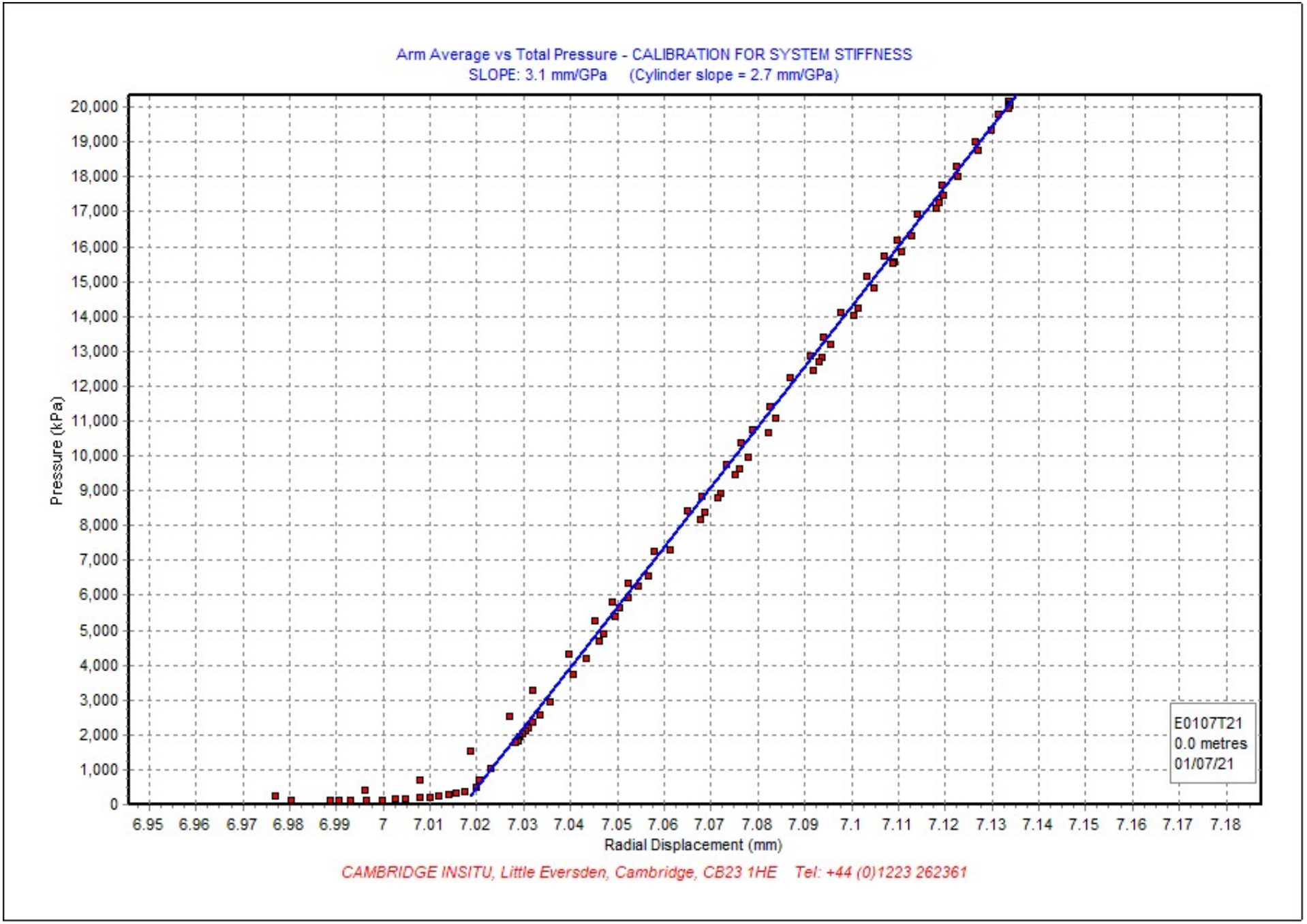

Arm Average vs Total Pressure - CALIBRATION FOR MEMBRANE STIFFNESS
ZERO: 41.6 kPa SLOPE: 11.3 kPa/mm
Pressure (kPa)
Radial Displacement (mm)
K1705T21
0.0 metres
17/05/21
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361


Arm Average vs Total Pressure - CALIBRATION FOR SYSTEM STIFFNESS
SLOPE: 3.1 mm/GPa (Cylinder slope = 2.7 mm/GPa)
Pressure (kPa)
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
6.95 6.96 6.97 6.98 6.99 7 7.01 7.02 7.03 7.04 7.05 7.06 7.07 7.08 7.09 7.1 7.11 7.12 7.13 7.14 7.15 7.16 7.17 7.18
Radial Displacement (mm)
E0107T21
0.0 metres
01/07/21
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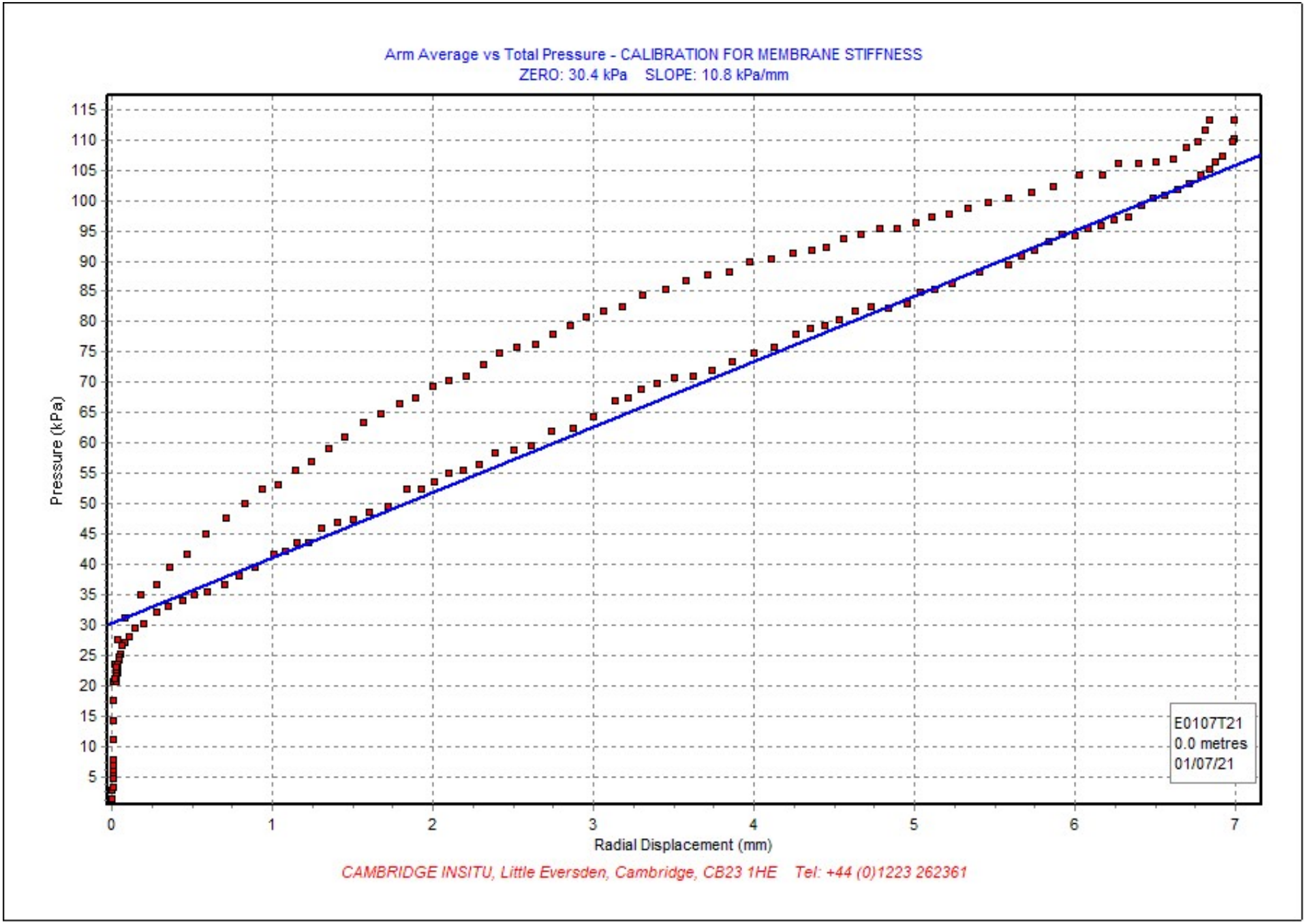
Arm Average vs Total Pressure - CALIBRATION FOR MEMBRANE STIFFNESS
ZERO: 30.4 kPa SLOPE: 10.8 kPa/mm
Pressure (kPa)
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1
2
3
4
5
6
7
Radial Displacement (mm)
E0107T21
0.0 metres
01/07/21
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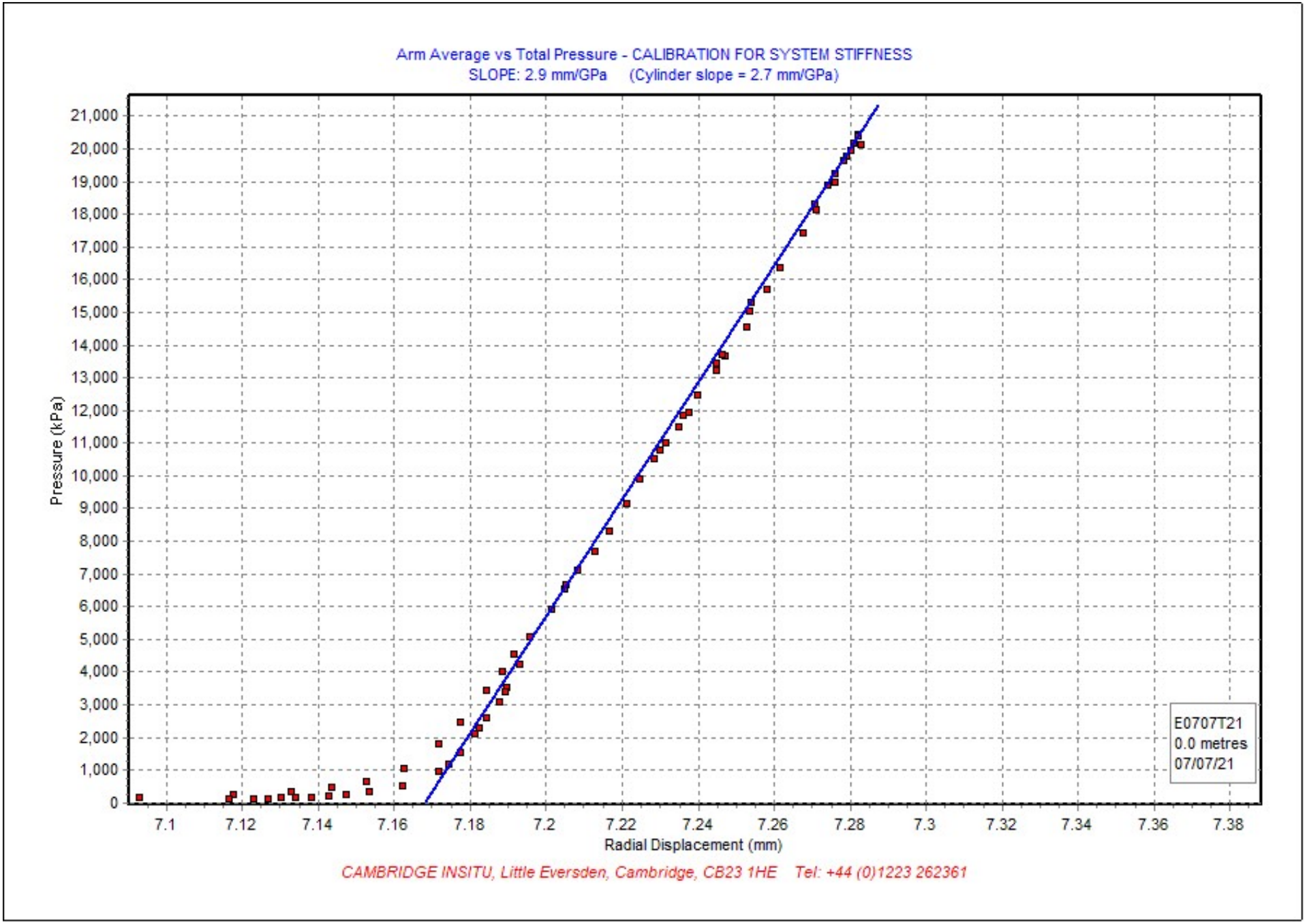
Arm Average vs Total Pressure - CALIBRATION FOR SYSTEM STIFFNESS
SLOPE: 2.9 mm/GPa (Cylinder slope = 2.7 mm/GPa)
Pressure (kPa)
21,000
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
7.1
7.12
7.14
7.16
7.18
7.2
7.22
7.24
7.26
7.28
7.3
7.32
7.34
7.36
7.38
Radial Displacement (mm)
E0707T21
0.0 metres
07/07/21
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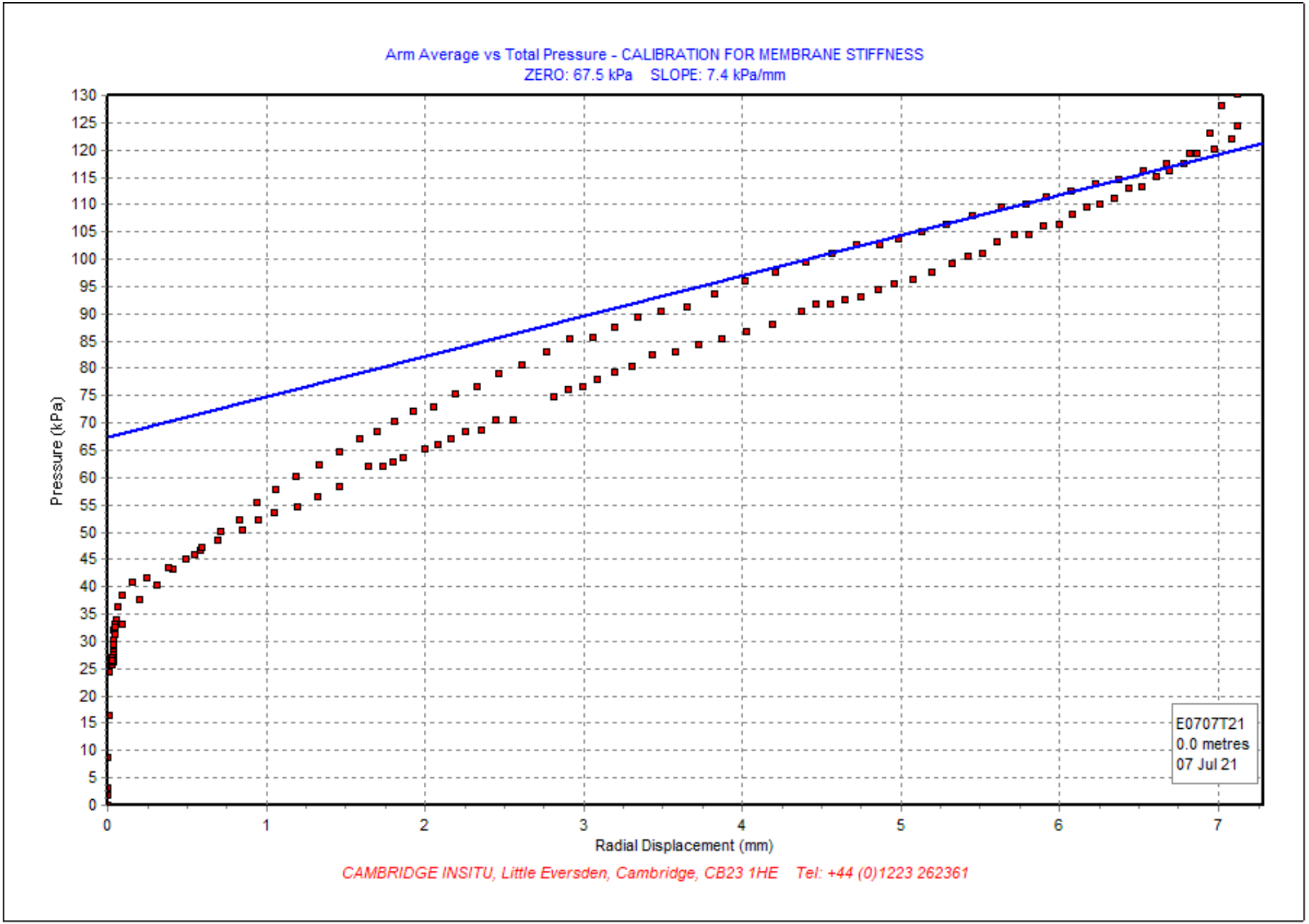
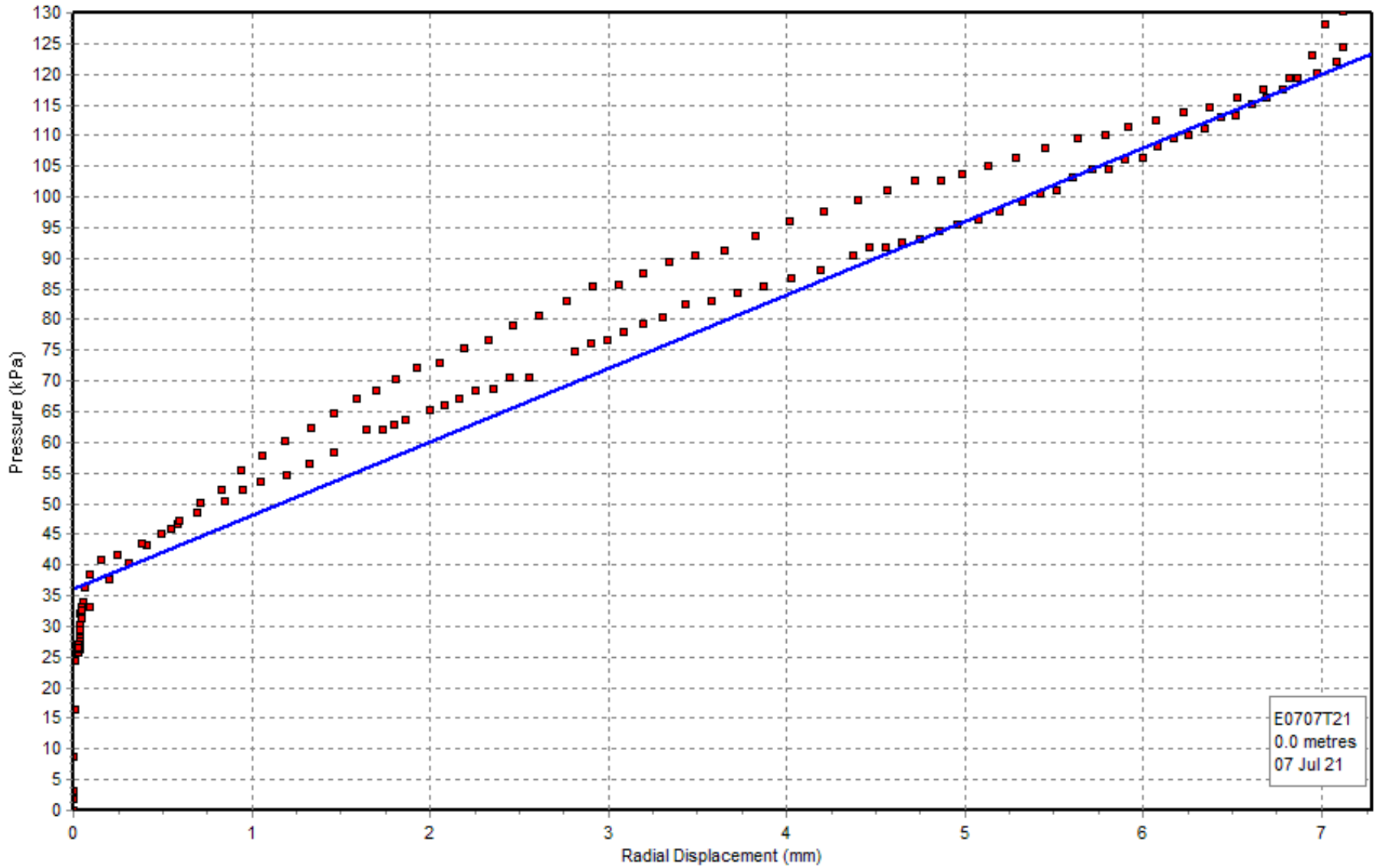

Arm Average vs Total Pressure - CALIBRATION FOR MEMBRANE STIFFNESS
ZERO: 67.5 kPa SLOPE: 7.4 kPa/mm
Pressure (kPa)
Radial Displacement (mm)
E0707T21
0.0 metres
07 Jul 21
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361

Arm Average vs Total Pressure - CALIBRATION FOR MEMBRANE STIFFNESS

ZERO: 36.2 kPa SLOPE: 12.0 kPa/mm



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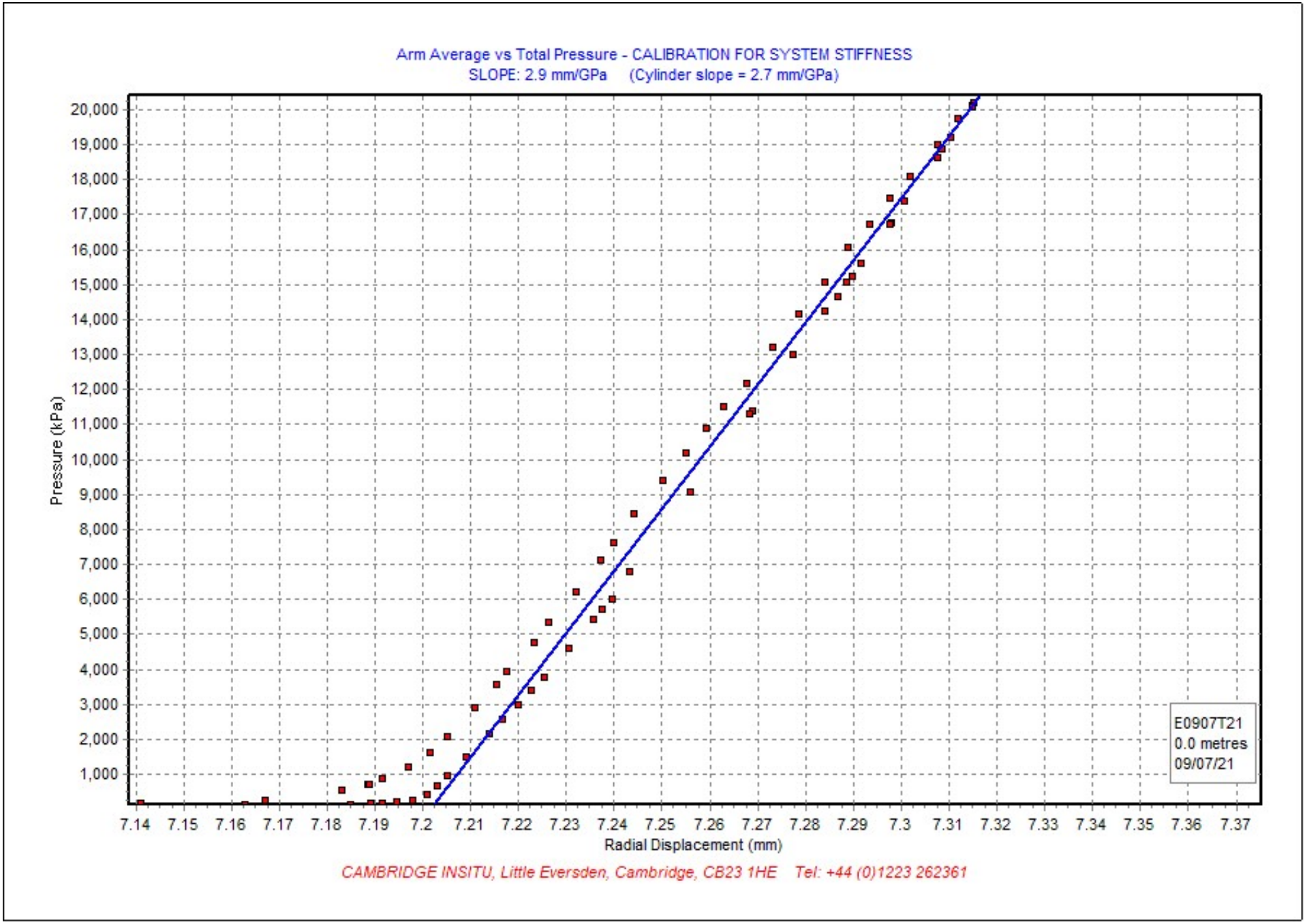
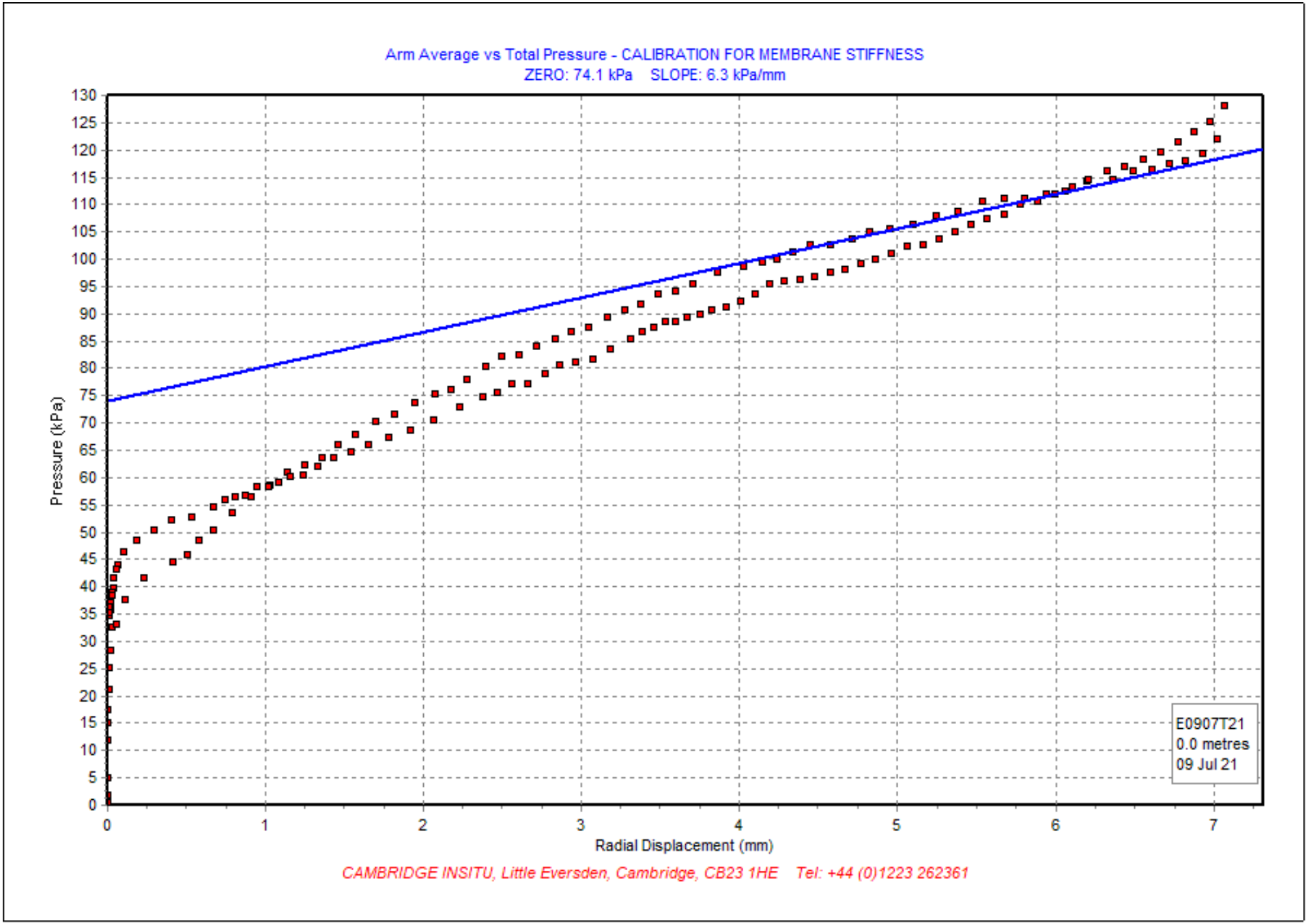

Arm Average vs Total Pressure - CALIBRATION FOR SYSTEM STIFFNESS
SLOPE: 2.9 mm/GPa (Cylinder slope = 2.7 mm/GPa)
Pressure (kPa)
20,000
19,000
18,000
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
7.14 7.15 7.16 7.17 7.18 7.19 7.2 7.21 7.22 7.23 7.24 7.25 7.26 7.27 7.28 7.29 7.3 7.31 7.32 7.33 7.34 7.35 7.36 7.37
Radial Displacement (mm)
E0907T21
0.0 metres
09/07/21
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361


Arm Average vs Total Pressure - CALIBRATION FOR MEMBRANE STIFFNESS
ZERO: 74.1 kPa SLOPE: 6.3 kPa/mm
Pressure (kPa)
Radial Displacement (mm)
E0907T21
0.0 metres
09 Jul 21
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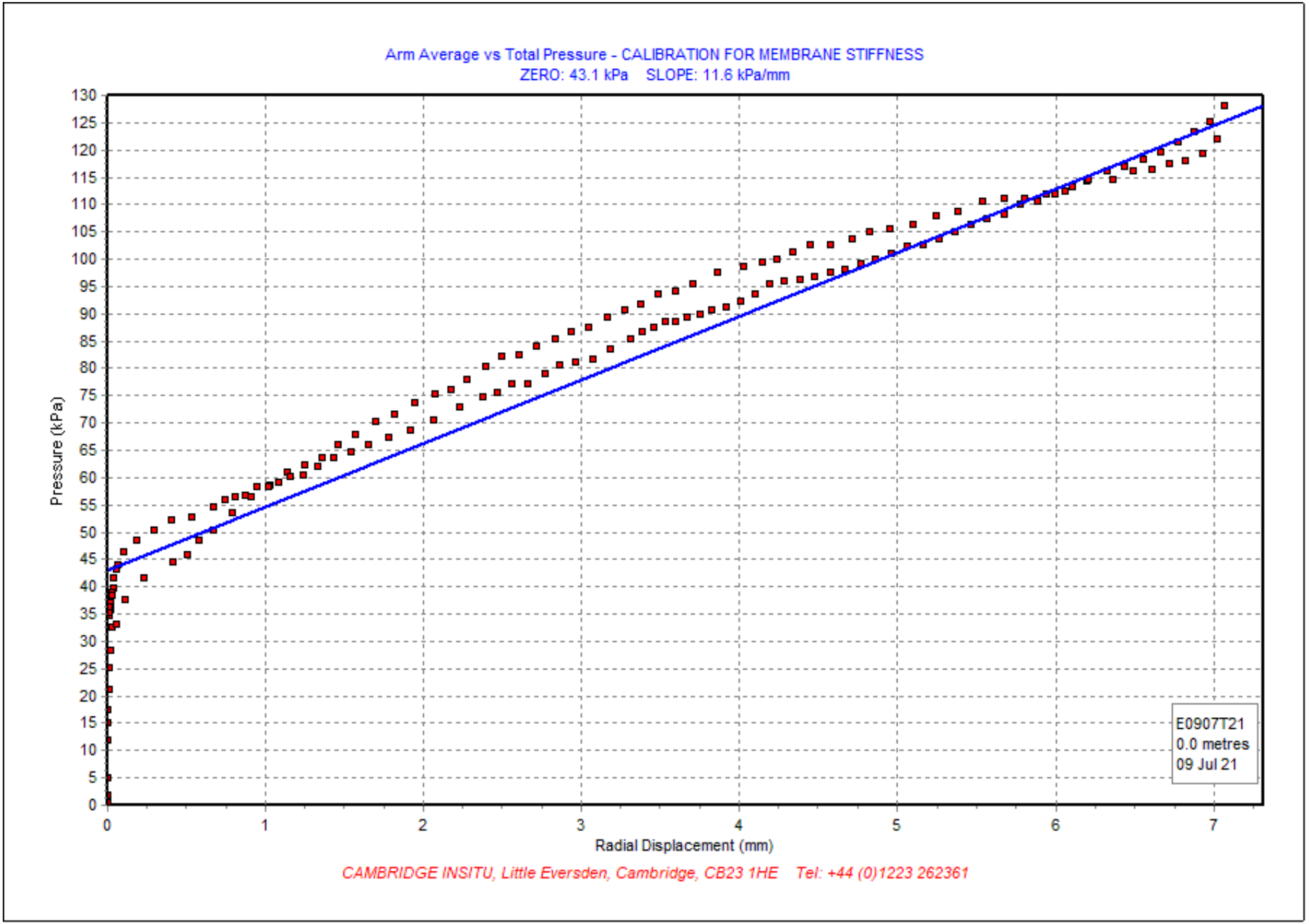
Arm Average vs Total Pressure - CALIBRATION FOR MEMBRANE STIFFNESS
ZERO: 43.1 kPa SLOPE: 11.6 kPa/mm
Pressure (kPa)
Radial Displacement (mm)
E0907T21
0.0 metres
09 Jul 21
CAMBRIDGE INSITU, Little Eversden, Cambridge, CB23 1HE Tel: +44 (0)1223 262361