Appendix D2

Geotechnical investigations:

RMS Factual Geotechnical Investigation Report

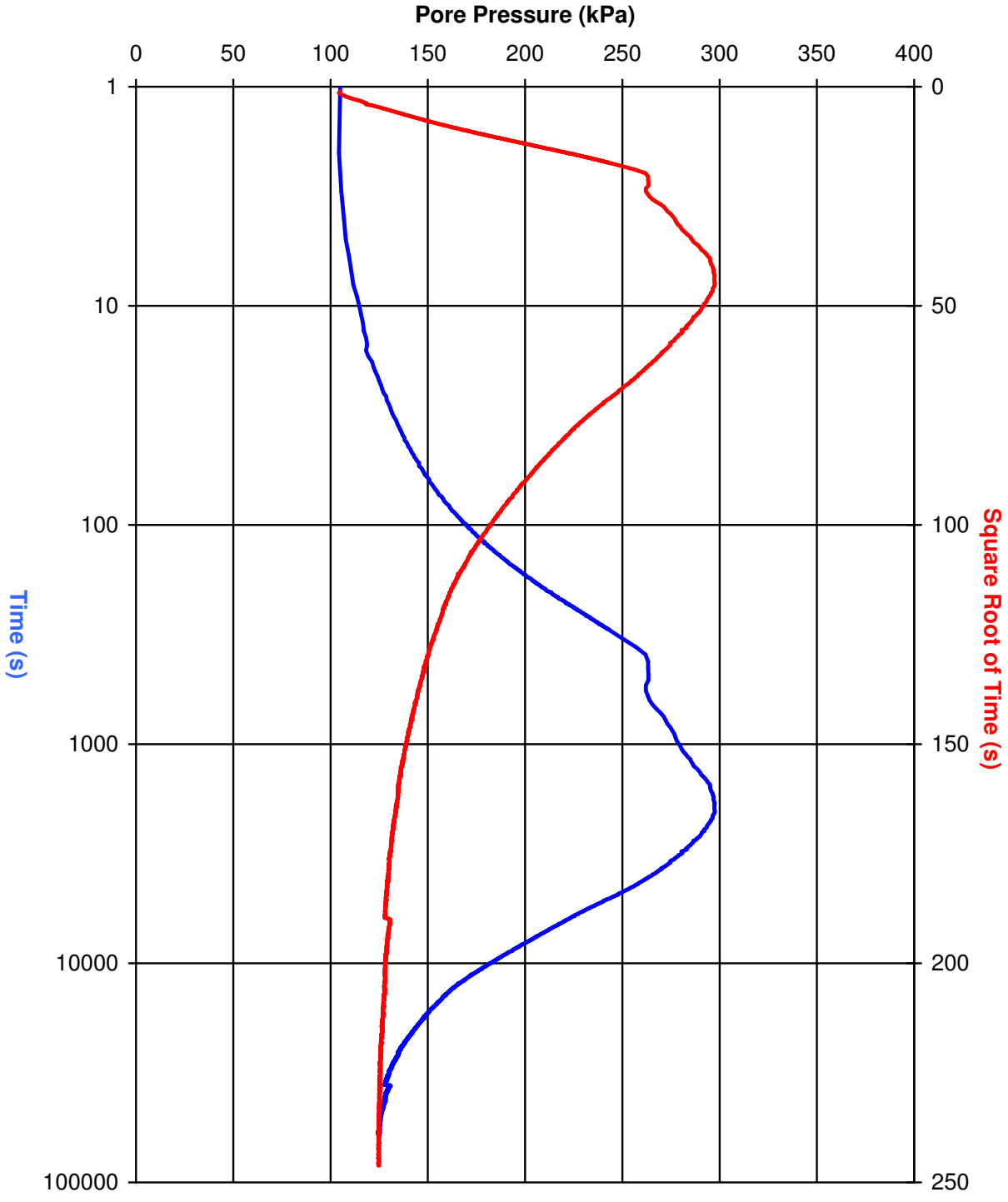
APPENDIX C

PORE PRESSURE DISSIPATION TEST RESULTS

PORE PRESSURE DISSIPATION TEST RESULT

RMS
Berry Bypass
Berry, NSW

CPT407
Depth: 2.84m



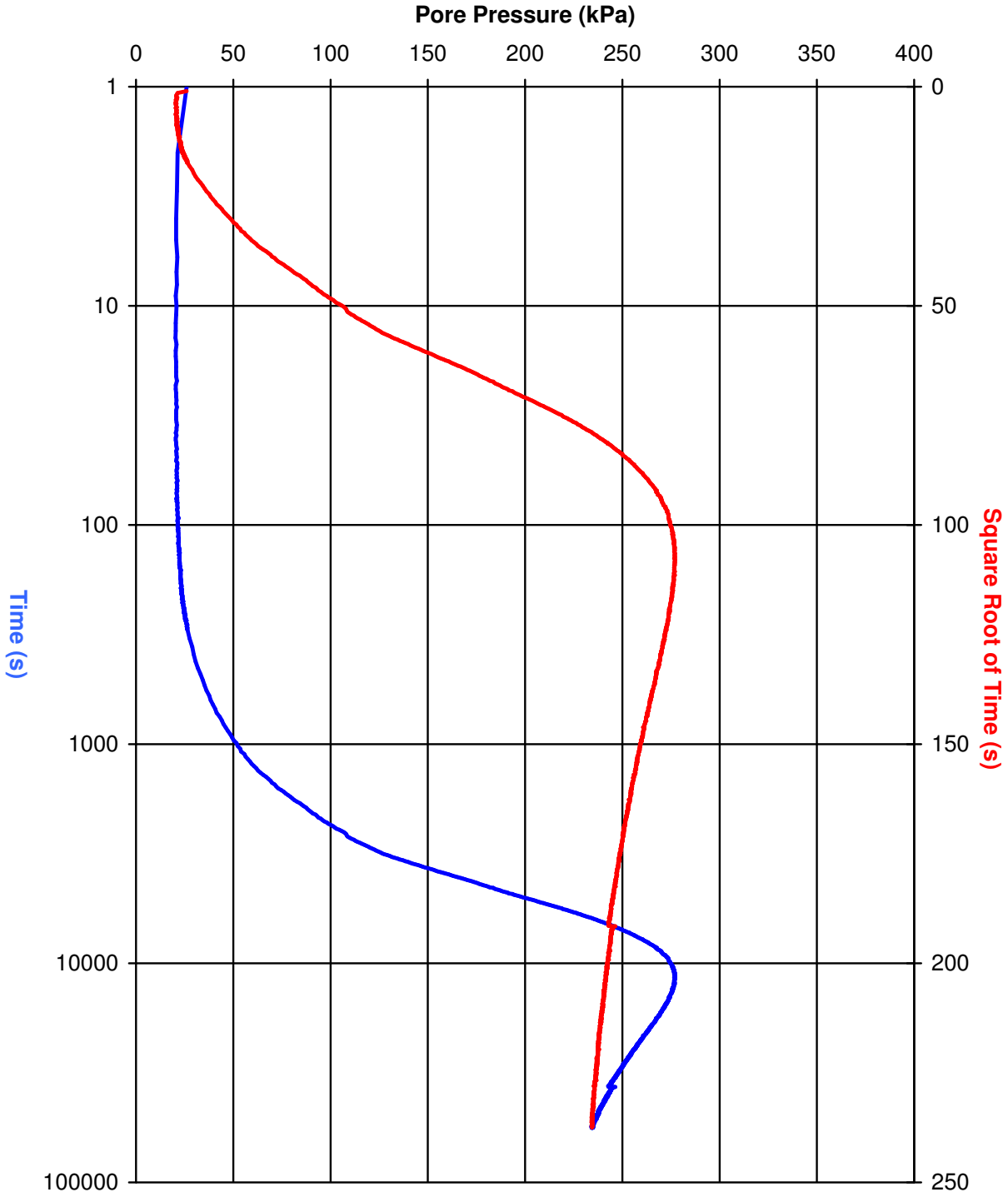
Tested By: Michael O'Rourke
Test Duration: 16 Hours, 49 Minutes
Test Date: 24/03/2012
Job No: G12-03-05
Cone: C10CFIIP.f63

Insitu Geotech Services Pty Ltd IGS

PORE PRESSURE DISSIPATION TEST RESULT

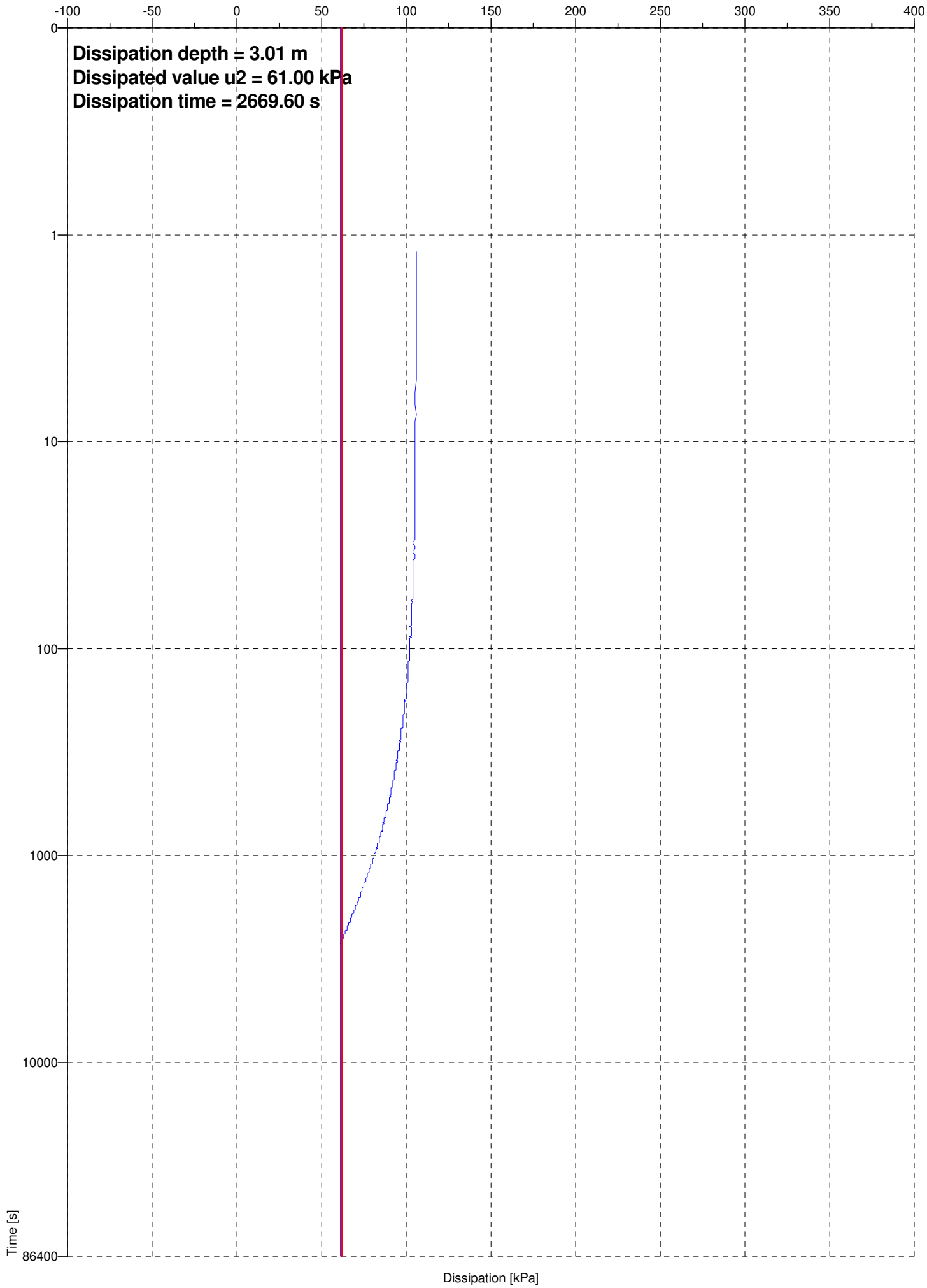
RMS
Berry Bypass
Berry, NSW

CPT403a
Depth: 6.68m



Tested By: Michael O'Rourke
Test Duration: 15 Hours, 39 Minutes
Test Date: 23/03/2012
Job No: G12-03-05
Cone: C10CFIIP.f63

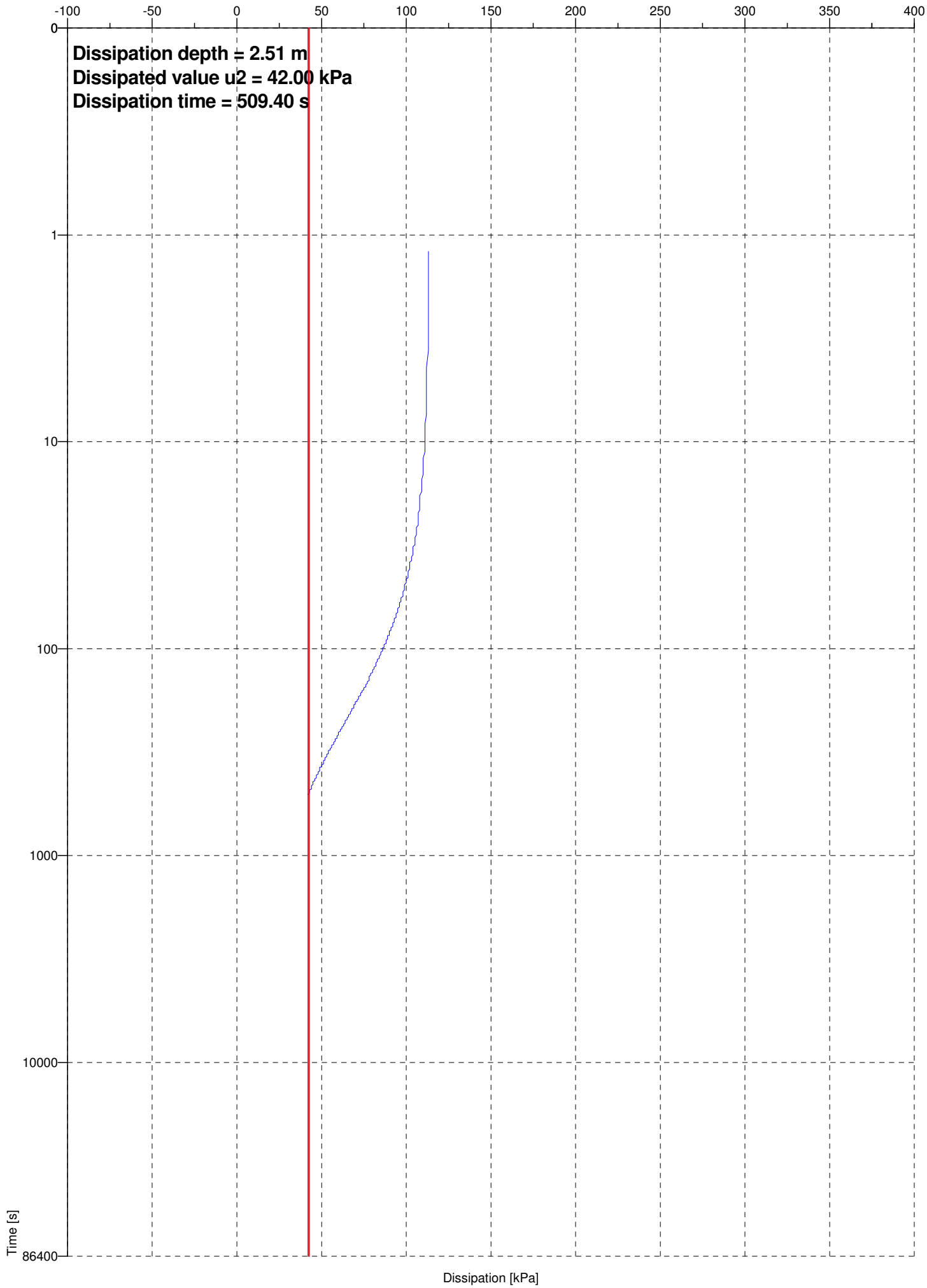
Insitu Geotech Services Pty Ltd IGS



U2

Cone No: 4254
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Berry	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test no: CPT409
Project ID: W07/1768	Client: RMS	Date: 28/3/2012	Scale: 1 : 60
Project: Berry Bypass		Page: 3/3	Fig:
		File: CPT409.CPT	



U2

Cone No: 4254
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: Berry	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test no: CPT410
Project ID: W07/1768	Client: RMS	Date: 28/3/2012	Scale: 1 : 60
Project: Berry Bypass		Page: 3/3	Fig:
		File: CPT410.CPT	

APPENDIX D

LABORATORY TEST RESULTS (GEOTECHNICAL)

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Unit 8/12 Mars Road Lane Cove West NSW 2066
ph: (61 2) 99 111 000 Fax: (61 2) 99 111 003
ABN 92 114 364 046

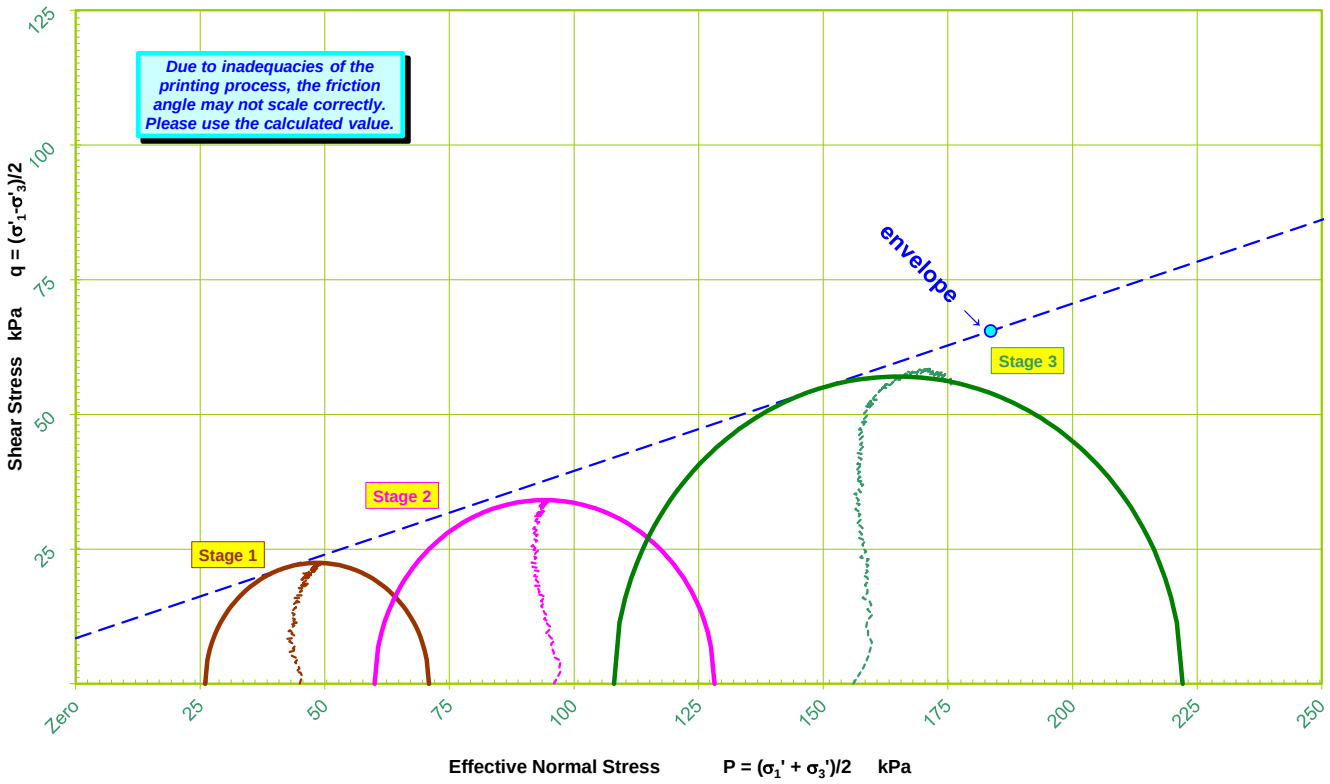
triaxial shear test: shear path & Mohr circle plot

client : ROADS AND MARITIME SERVICES, SOUTHERN REGION
principal : ROADS AND MARITIME SERVICES, SOUTHERN REGION
project : BERRY BYPASS
location : PRINCES HIGHWAY

job no : INFOLCOV00959AA
date : 16 May 2012
report number: IOLT 5557
laboratory number: LCOV12S-00423

sample number: B9 (2.00 to 2.35 m)
Test Method : AS1289.6.4.2 (Note 4)
failure criteria: Maximum principal effective stress ratio

material classification: (CH) SILTY CLAY - high plasticity, light grey, trace of fine to coarse sand.
note 1 : Single Individual Undisturbed Specimen - (Multistage)
note 2 : Initial Bar B Response = 0.98
note 3 : Initial Specimen Dimensions (mm):- 130.70 X 63.34 (Dia)



Type of Test: *Saturated, consolidated, undrained, with pore water measurements.*

Shear Stage Data

Stage	Strain Rate %/min	ε_f %	σ_3' kPa	σ_1' kPa	$(\sigma_1' + \sigma_3')/2$ kPa	$(\sigma_1' - \sigma_3')/2$ kPa	$\sigma 1' / \sigma 3'$	u_0 kPa	u_f kPa	$(\sigma_1 - \sigma_3)\phi$ kPa
1	0.004	1.982	26.000	70.923	48.462	22.462	2.728	505.000	524.000	44.923
2	0.004	3.956	60.000	128.193	94.097	34.097	2.137	504.000	540.000	68.193
3	0.004	5.812	108.000	222.063	165.031	57.031	2.056	544.000	592.000	114.063

Consolidation Stage Data

Stage	$\Delta\sigma_3$ kPa				Drainage Condition
1	45.00				one end and radial boundary
2	96.00				one end and radial boundary
3	156.00				one end and radial boundary

Angle of Friction: 17.5 degrees
Cohesion: 8.5 kPa

GLEN TRIAX 1 004 2010

Moisture Contents

Initial:		Stage 1:	42.5 %
Final:	Top:	Stage 3:	40.3 %
	Middle:	Stage 3:	40.4 %
	Bottom:	Stage 3:	42.1 %

Initial Dry Density: 1.22 t/m3
Initial Wet Density: 1.74 t/m3

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Authorised Signature: Garry K Collins 17/05/2012

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Unit 8/12 Mars Road Lane Cove West NSW 2066
ph: (61 2) 99 111 000 Fax: (61 2) 99 111 003
ABN 92 114 364 046

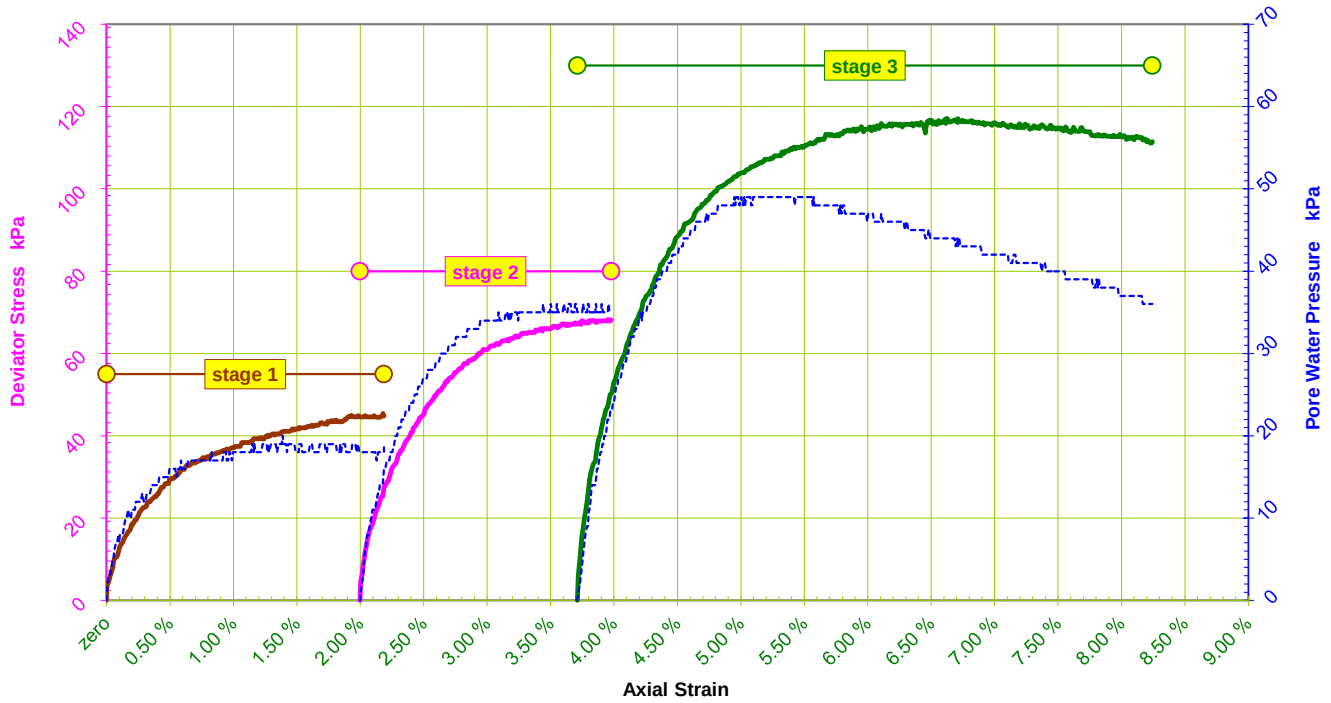
triaxial shear test: stress - strain plots

client : ROADS AND MARITIME SERVICES, SOUTHERN REGION
principal : ROADS AND MARITIME SERVICES, SOUTHERN REGION
project : BERRY BYPASS
location : PRINCES HIGHWAY

job no : INFOLCOV00959AA
date : 16 May 2012
report number: IOLT 5557
laboratory number: LCOV12S-00423

Sample Number: **B9** **(2.00 to 2.35 m)** Test Method : **AS1289.6.4.2 (Note 4)**
Failure Criteria: **Maximum principal effective stress ratio**

Material Classification: (CH) SILTY CLAY - high plasticity, light grey, trace of fine to coarse sand.
note 1 : Single Individual Undisturbed Specimen - (Multistage)
note 2 : Initial Bar B Response = 0.98
note 3 : Initial Specimen Dimensions (mm):- 130.70 X 63.34 (Dia)



Type of Test: Saturated, consolidated, undrained, with pore water measurements.

Shear Stage Data

Stage	Strain Rate	ε_f	σ_3'	u_0	u_f	$(\sigma_1 - \sigma_3)\phi$
	%/min	%	kPa	kPa	kPa	kPa
1	0.004	1.982	26.000	505.000	524.000	44.923
2	0.004	3.956	60.000	504.000	540.000	68.193
3	0.004	5.812	108.000	544.000	592.000	114.063

Back Pressure: 500.0 kPa

Cell Pressure(s):
Stage 1: 550.0 kPa
Stage 2: 600.0 kPa
Stage 3: 700.0 kPa

Consolidation Stage Data

Stage	$\Delta\sigma_3$ kPa				Drainage Condition
1	45.00				one end and radial boundary
2	96.00				one end and radial boundary
3	156.00				one end and radial boundary

Angle of Friction: 17.5 degrees
Cohesion: 8.5 kPa

GLEN TRIAX 2 004 2010

Moisture Contents:

Initial:		Stage 1:	42.5 %
Final:	Top:	Stage 3:	40.3 %
	Middle:	Stage 3:	40.4 %
	Bottom:	Stage 3:	42.1 %

Initial Dry Density: 1.22 t/m3
Initial Wet Density: 1.74 t/m3

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ph: (61 2) 99 111 000 Fax: (61 2) 99 111 003
ABN 92 114 364 046

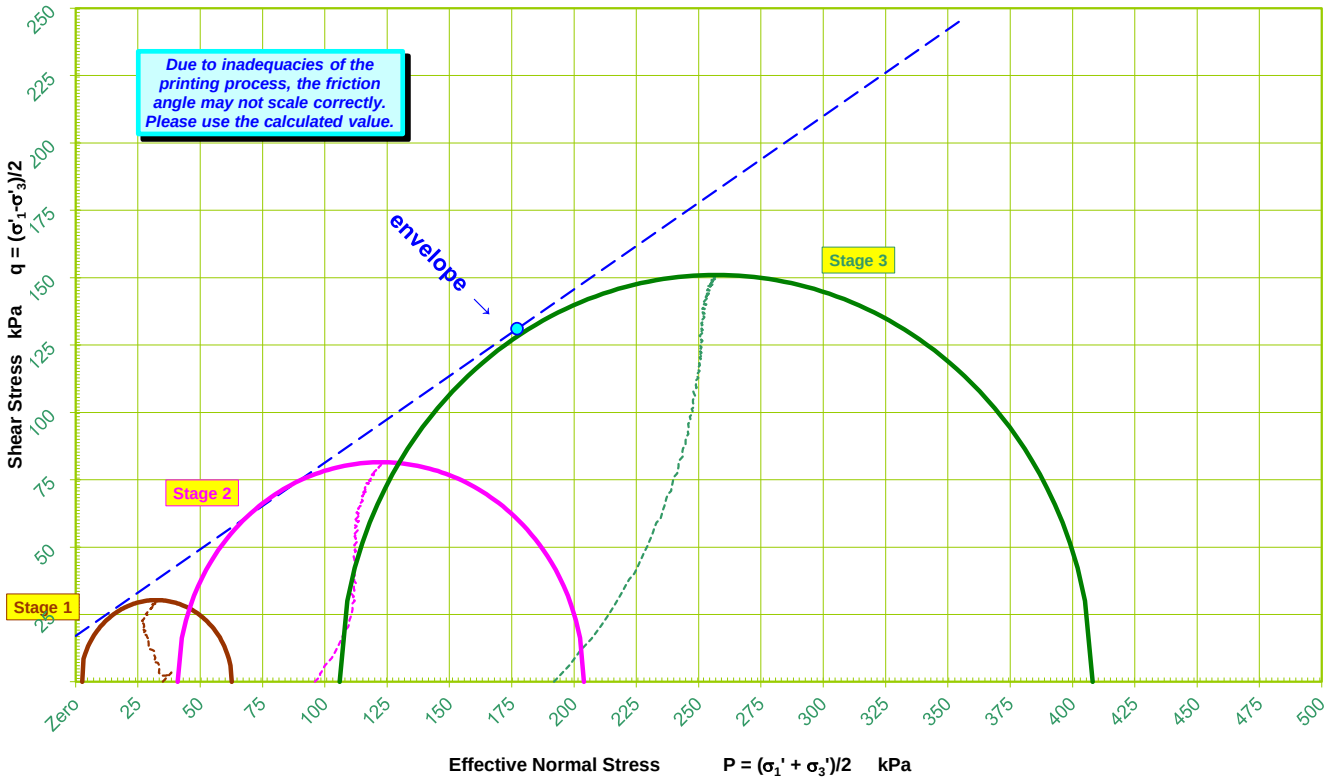
triaxial shear test: shear path & Mohr circle plot

client : ROADS AND MARITIME SERVICES, SOUTHERN REGION
principal : ROADS AND MARITIME SERVICES, SOUTHERN REGION
project : BERRY BYPASS
location : PRINCES HIGHWAY

job no : INFOLCOV00959AA
date : 24 May 2012
report number: IOLT 5584
laboratory number: LCOV12S-00421

sample number: B3 (2.00 to 2.35 m)
Test Method : AS1289.6.4.2 (Note 4)
failure criteria: Maximum principal effective stress ratio

material classification: (CI) SANDY SILTY CLAY - medium plasticity, mottled brown, fine to coarse sand.
note 1 : Single Individual Undisturbed Specimen - (Multistage)
note 2 : Initial Bar B Response = 0.95
note 3 : Initial Specimen Dimensions (mm):- 125.50 X 63.204 (Dia)



Type of Test: *Saturated, consolidated, undrained, with pore water measurements.*

Shear Stage Data

Stage	Strain Rate %/min	ε_f %	σ_3' kPa	σ_1' kPa	$(\sigma_1' + \sigma_3')/2$ kPa	$(\sigma_1' - \sigma_3')/2$ kPa	$\sigma 1' / \sigma 3'$	u_0 kPa	u_f kPa	$(\sigma_1 - \sigma_3)\phi$ kPa
1	0.006	0.557	2.000	62.699	32.349	30.349	31.349	215.000	248.000	60.699
2	0.006	2.061	41.000	204.003	122.502	81.502	4.976	204.000	259.000	163.003
3	0.006	3.977	106.000	408.032	257.016	151.016	3.849	208.000	294.000	302.032

Consolidation Stage Data

Stage	$\Delta\sigma_3$ kPa				Drainage Condition
1	35.00				one end and radial boundary
2	96.00				one end and radial boundary
3	192.00				one end and radial boundary

Angle of Friction: 32.5 degrees
Cohesion: 17.1 kPa

GLEN TRIAX 1 004 2010

Moisture Contents

Initial:		Stage 1:	27.9 %
Final:	Top:	Stage 3:	26.2 %
	Middle:	Stage 3:	25.7 %
	Bottom:	Stage 3:	25.6 %

Initial Dry Density: 1.52 t/m3
Initial Wet Density: 1.94 t/m3

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Authorised Signature: Garry K Collins 24/05/2012

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Unit 8/12 Mars Road Lane Cove West NSW 2066
ph: (61 2) 99 111 000 Fax: (61 2) 99 111 003
ABN 92 114 364 046

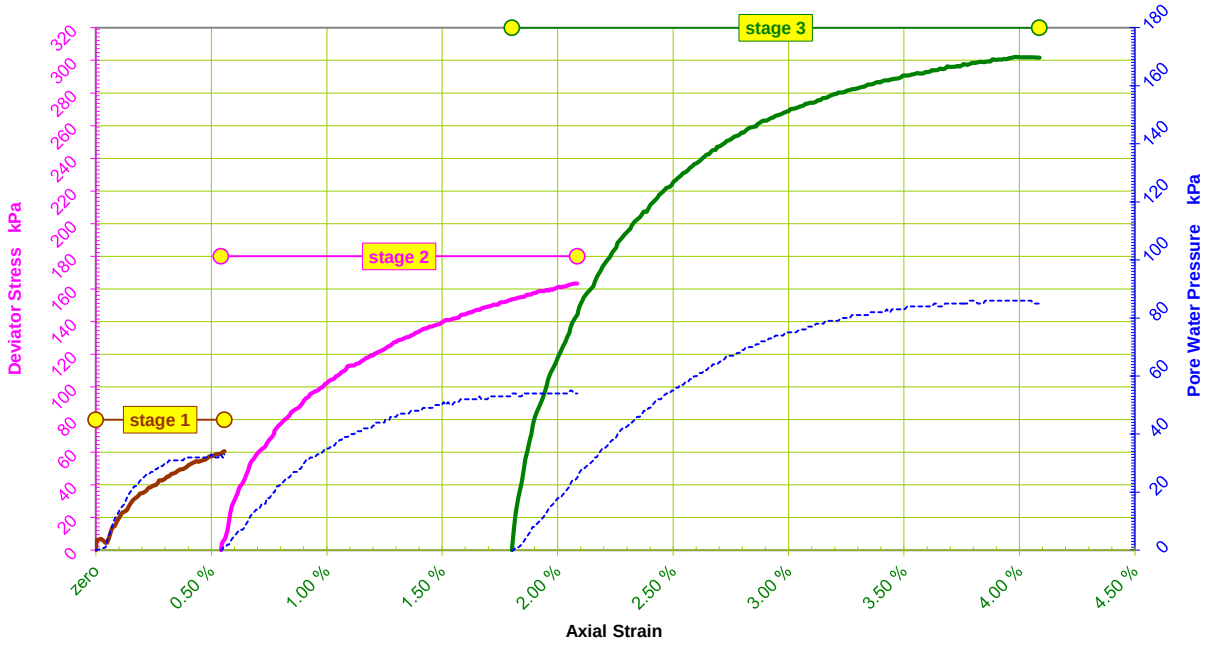
triaxial shear test: stress - strain plots

client : ROADS AND MARITIME SERVICES, SOUTHERN REGION
principal : ROADS AND MARITIME SERVICES, SOUTHERN REGION
project : BERRY BYPASS
location : PRINCES HIGHWAY

job no : INFOLCOV00959AA
date : 24 May 2012
report number: IOLT 5584
laboratory number: LCOV12S-00421

Sample Number: **B3** **(2.00 to 2.35 m)** Test Method : **AS1289.6.4.2 (Note 4)**
Failure Criteria: **Maximum principal effective stress ratio**

Material Classification: (CI) SANDY SILTY CLAY - medium plasticity, mottled brown, fine to coarse sand.
note 1 : Single Individual Undisturbed Specimen - (Multistage)
note 2 : Initial Bar B Response = 0.95
note 3 : Initial Specimen Dimensions (mm):- 125.50 X 63.20 (Dia)



Type of Test: *Saturated, consolidated, undrained, with pore water measurements.*

Shear Stage Data

Stage	Strain Rate	ε_f	σ_3'	u_0	u_f	$(\sigma_1 - \sigma_3)\phi$
	%/min	%	kPa	kPa	kPa	kPa
1	0.006	0.557	2.000	215.000	248.000	60.699
2	0.006	2.061	41.000	204.000	259.000	163.003
3	0.006	3.977	106.000	208.000	294.000	302.032

Back Pressure: 200.0 kPa

Cell Pressure(s):
Stage 1: 250.0 kPa
Stage 2: 300.0 kPa
Stage 3: 400.0 kPa

Consolidation Stage Data

Stage	$\Delta\sigma_3$ kPa				Drainage Condition
1	35.00				one end and radial boundary
2	96.00				one end and radial boundary
3	192.00				one end and radial boundary

Angle of Friction: 32.5 degrees
Cohesion: 17.1 kPa

GLEN TRIAX 2 004 2010

Moisture Contents:

Initial:		Stage 1:	27.9 %
Final:	Top:	Stage 3:	26.2 %
	Middle:	Stage 3:	25.7 %
	Bottom:	Stage 3:	25.6 %

Initial Dry Density: 1.52 t/m3
Initial Wet Density: 1.94 t/m3

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Unit 8/12 Mars Road Lane Cove West NSW 2066
ph: (61 2) 99 111 000 Fax: (61 2) 99 111 003
ABN 92 114 364 046

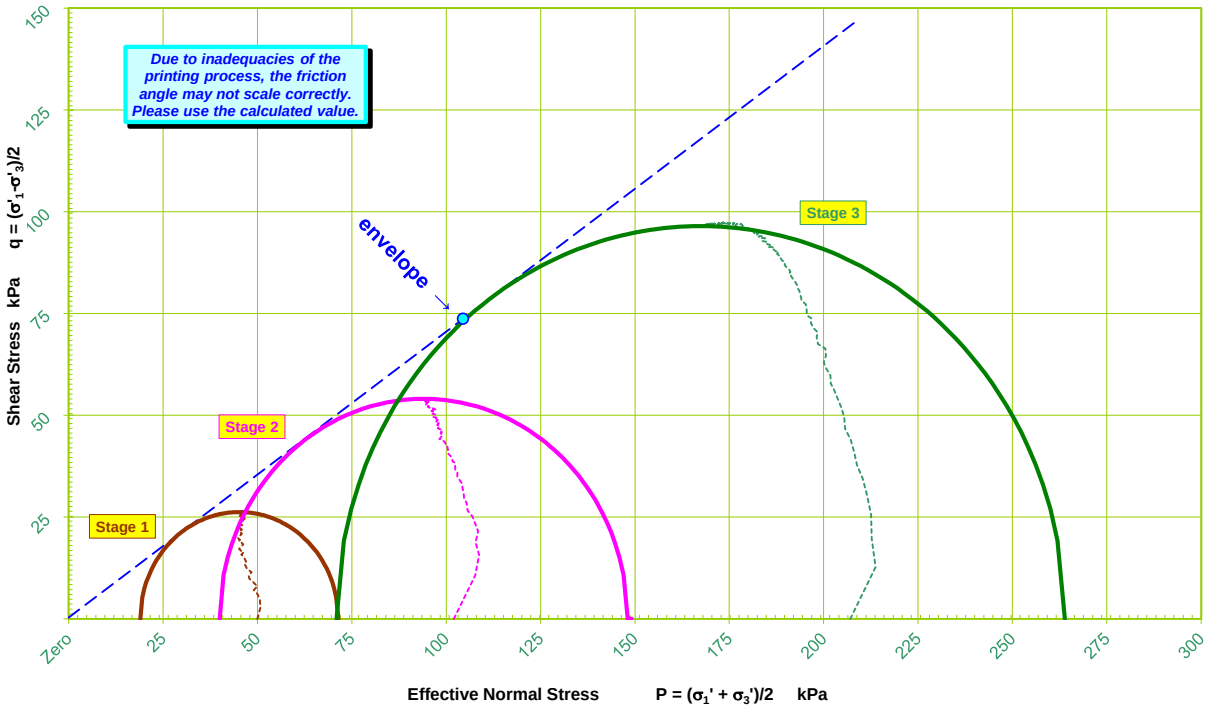
triaxial shear test: shear path & Mohr circle plot

client : ROADS AND MARITIME SERVICES, SOUTHERN REGION
principal : ROADS AND MARITIME SERVICES, SOUTHERN REGION
project : BERRY BYPASS
location : PRINCES HIGHWAY

job no : INFOLCOV00959AA
date : 29 May 2012
report number: IOLT 5591
laboratory number: LCOV12S-00422

sample number: **B5** **(1.05 to 1.55 m)**
Test Method : **AS1289.6.4.2 (Note 4)**
failure criteria: **Maximum principal effective stress ratio**

material classification: (SC) CLAYEY SAND - fine to coarse, mottled brown, fines of high plasticity.
note 1 : Single Individual Undisturbed Specimen - (Multistage)
note 2 : Initial Bar B Response = 0.95
note 3 : Initial Specimen Dimensions (mm):- 125.50 X 63.40 (Dia)



Type of Test: *Saturated, consolidated, undrained, with pore water measurements.*

Shear Stage Data

Stage	Strain Rate %/min	ε_f %	σ_3' kPa	σ_1' kPa	$(\sigma_1' + \sigma_3')/2$ kPa	$(\sigma_1' - \sigma_3')/2$ kPa	$\sigma 1' / \sigma 3'$	u_0 kPa	u_f kPa	$(\sigma_1 - \sigma_3)\phi$ kPa
1	0.015	1.164	19.000	71.448	45.224	26.224	3.760	600.000	631.000	52.448
2	0.015	3.216	40.000	148.068	94.034	54.034	3.702	598.000	660.000	108.068
3	0.015	7.263	71.000	263.877	167.438	96.438	3.717	593.000	729.000	192.877

Consolidation Stage Data

Stage	$\Delta\sigma_3$ kPa				Drainage Condition
1	50.00				one end and radial boundary
2	102.00				one end and radial boundary
3	207.00				one end and radial boundary

Angle of Friction: **35.0** degrees
Cohesion: **0.3** kPa

GLEN TRIAX 1 004 2010

Moisture Contents

Initial:		Stage 1:	35.1 %
Final:	**Top:**	Stage 3:	32.5 %
	Middle:	Stage 3:	32.4 %
	Bottom:	Stage 3:	32.0 %

Initial Dry Density: 1.28 t/m3
Initial Wet Density: 1.73 t/m3

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coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Unit 8/12 Mars Road Lane Cove West NSW 2066
ph: (61 2) 99 111 000 Fax: (61 2) 99 111 003
ABN 92 114 364 046

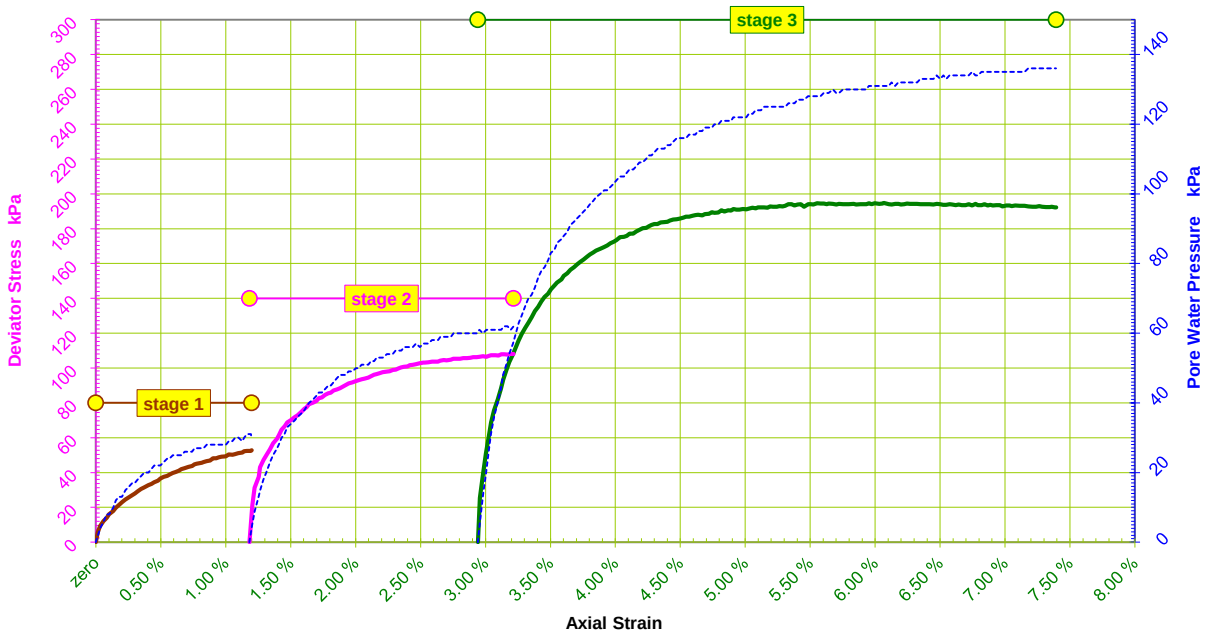
triaxial shear test: stress - strain plots

client : ROADS AND MARITIME SERVICES, SOUTHERN REGION
principal : ROADS AND MARITIME SERVICES, SOUTHERN REGION
project : BERRY BYPASS
location : PRINCES HIGHWAY

job no : INFOLCOV00959AA
date : 29 May 2012
report number: IOLT 5591
laboratory number: LCOV12S-00422

Sample Number: **B5** **(1.05 to 1.55 m)**
Test Method : **AS1289.6.4.2 (Note 4)**
Failure Criteria: **Maximum principal effective stress ratio**

Material Classification: (SC) CLAYEY SAND - fine to coarse, mottled brown, fines of high plasticity.
note 1 : Single Individual Undisturbed Specimen - (Multistage)
note 2 : Initial Bar B Response = 0.95
note 3 : Initial Specimen Dimensions (mm):- 125.50 X 63.40 (Dia)



Type of Test: *Saturated, consolidated, undrained, with pore water measurements.*

Shear Stage Data

Stage	Strain Rate	ε_f	σ_3'	u_0	u_f	$(\sigma_1 - \sigma_3)\phi$
	%/min	%	kPa	kPa	kPa	kPa
1	0.015	1.164	19.000	600.000	631.000	52.448
2	0.015	3.216	40.000	598.000	660.000	108.068
3	0.015	7.263	71.000	593.000	729.000	192.877

Back Pressure: 600.0 kPa

Cell Pressure(s):
Stage 1: 650.0 kPa
Stage 2: 700.0 kPa
Stage 3: 800.0 kPa

Consolidation Stage Data

Stage	$\Delta\sigma_3$ kPa				Drainage Condition
1	50.00				one end and radial boundary
2	102.00				one end and radial boundary
3	207.00				one end and radial boundary

Angle of Friction: 35.0 degrees
Cohesion: 0.3 kPa

GLEN TRIAX 2 004 2010

Moisture Contents:

Initial:		Stage 1:	35.1 %
Final:	Top:	Stage 3:	32.5 %
	Middle:	Stage 3:	32.4 %
	Bottom:	Stage 3:	32.0 %

Initial Dry Density: 1.28 t/m3
Initial Wet Density: 1.73 t/m3

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Authorised Signature: Garry K Collins 30/05/2012

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Job No: **INFOLCOV00959AA**

Consolidation Test

Sheet 1 of 1

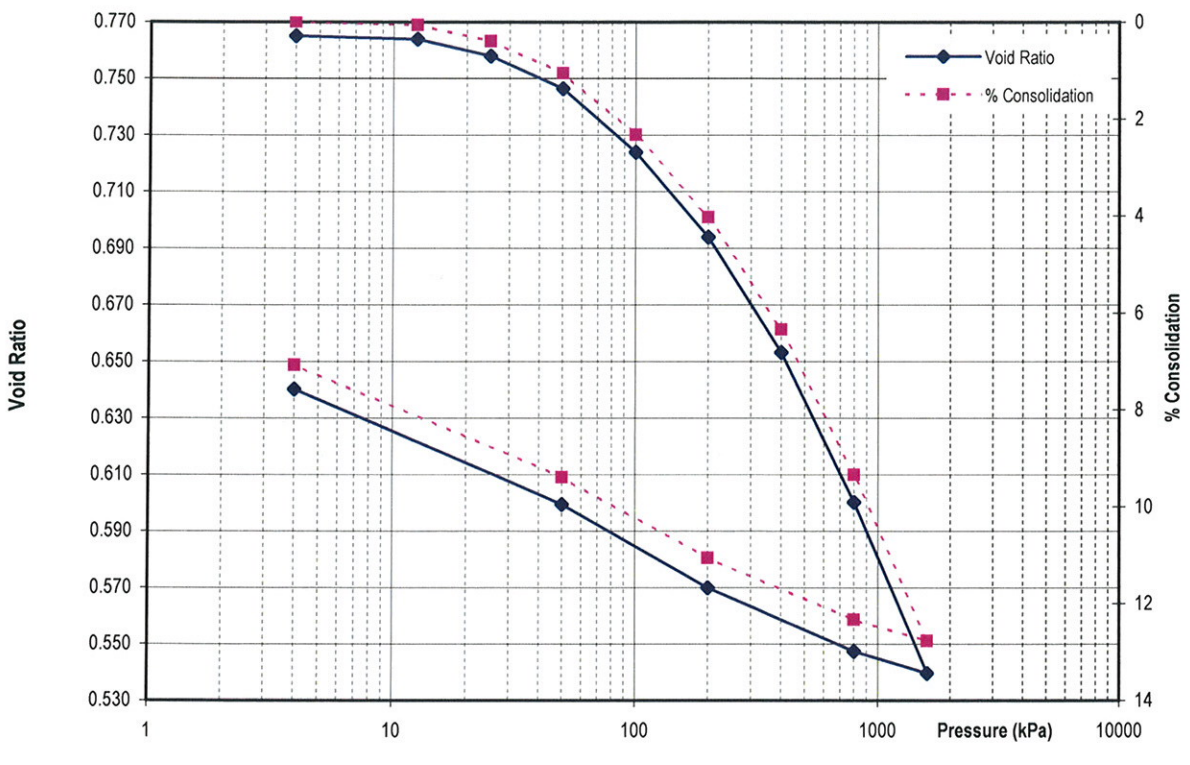
Client:	ROADS AND MARITIME SERVICES, SOUTHERN REGION	Office:	SYDNEY
Principal:	ROADS AND MARITIME SERVICES, SOUTHERN REGION	Date:	21/5/2012
Project:	BERRY BYPASS	By:	GKC
Location:	PRINCES HIGHWAY	Checked:	GKC

Test Procedure:	AS1289 6.6.1				
Borehole:	B3	Depth:	2.00 to 2.35 m	Report No:	IOLT 5558
Sample No.	B3	Laboratory No's	LCOV12S-00421	Sample Type:	Undisturbed

Material Description: (CI) SANDY SILTY CLAY - medium plasticity, mottled brown, fine to coarse sand.

Initial Dry Density (t/m^3):	1.50	Initial Moisture Content (%):	27.9	Initial Degree of Saturation (%):	96.7
Soil Particle Density (t/m^3):	2.65	Final Moisture Content (%):	26.2	Initial Specimen Height (mm):	20.026

Pressure Range (kPa)		Void Ratio		Consolidation	c_v	m_v	C_c	C_α
From	To	at start of load increment	at end of load increment	(%)	m^2/year	m^2/kN		
4	12.5	0.765	0.764	0.065	0.36233	0.00008	0.00232	
12.5	25	0.764	0.758	0.404	2.54112	0.00027	0.01991	
25	50	0.758	0.746	1.059	1.64453	0.00026	0.03836	
50	100	0.746	0.724	2.332	2.85215	0.00026	0.07466	
100	200	0.724	0.694	4.035	2.39086	0.00017	0.09984	
200	400	0.694	0.653	6.342	4.20848	0.00012	0.13527	
400	800	0.653	0.600	9.343	3.10037	0.00008	0.17597	
800	1600	0.600	0.540	12.773	3.51989	0.00005	0.20115	
1600	800	0.540	0.547	12.334				
800	200	0.547	0.570	11.061				
200	50	0.570	0.599	9.393				
50	4	0.599	0.640	7.081				



GLEN-CONS RPT-001-2010

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Lane Cove West Laboratory - Accreditation No. 431

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Garry K Collins

Approved Signatory

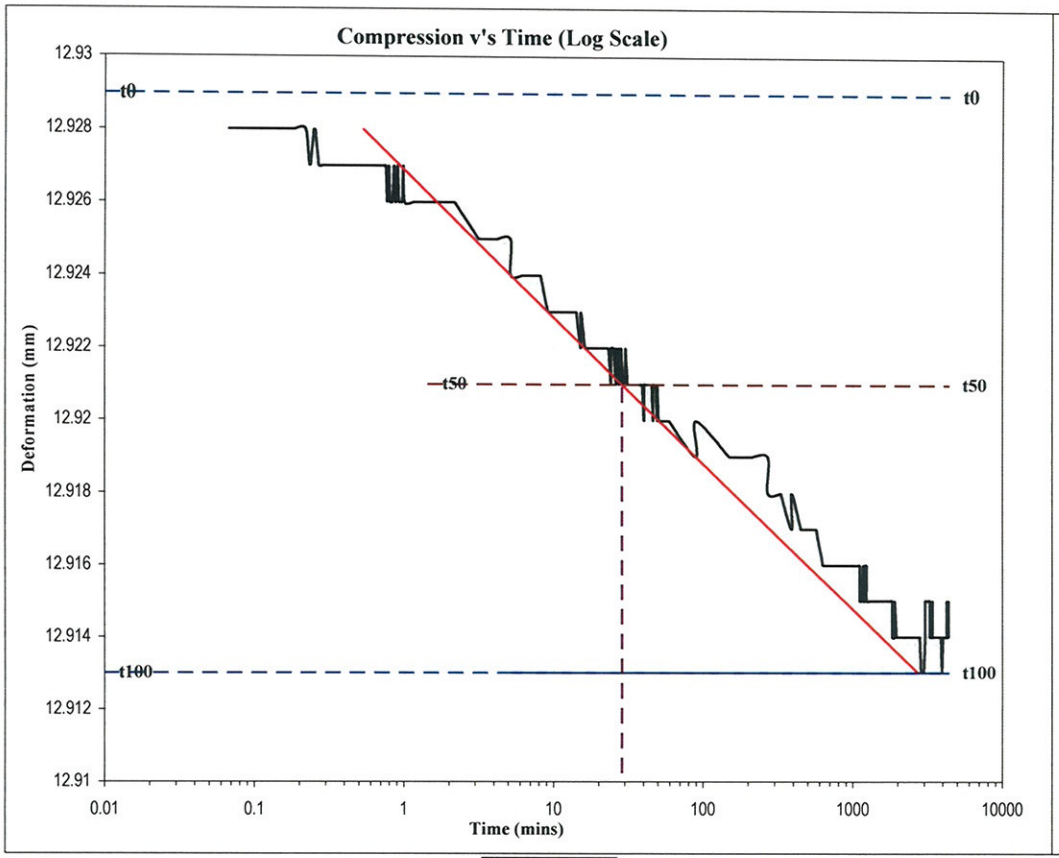
Stage Load : 13 kPa

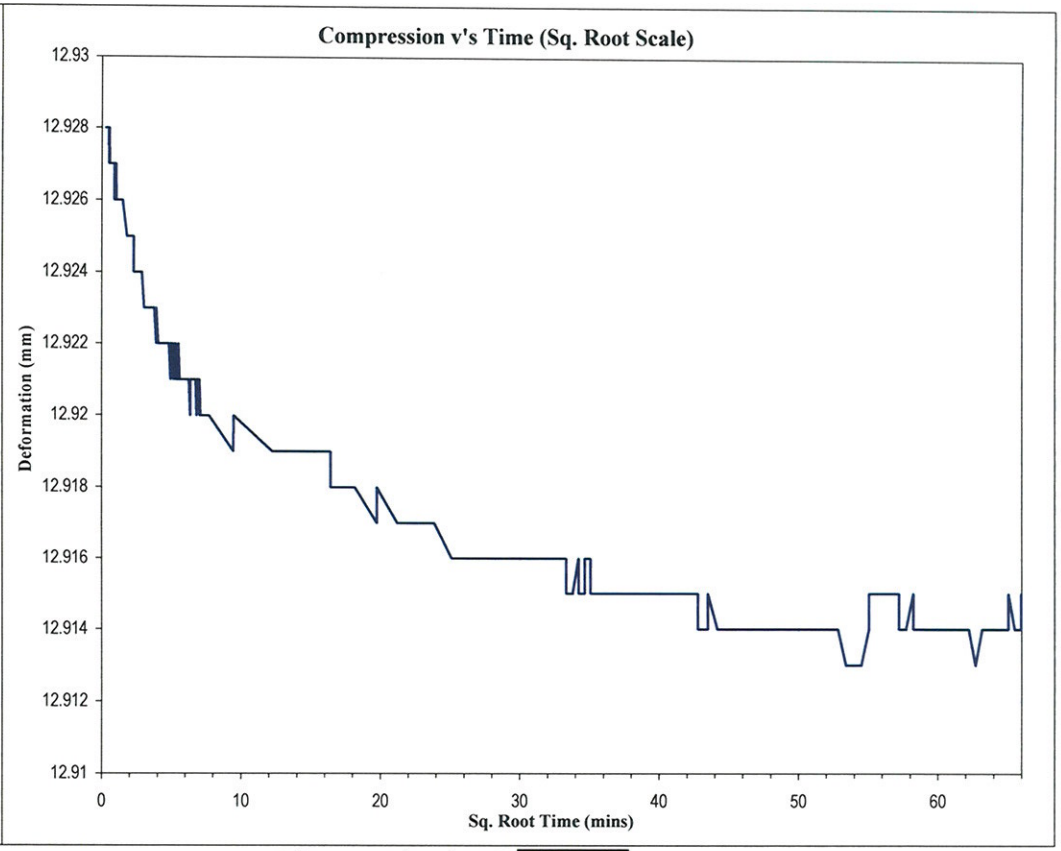
Rig Number : 9

Stage : 4.0 to 12.5

Stage 1

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Primary	
5.167	Time (mins)
89.167	Time (mins)

Secondary	
2849.167	Time (mins)
3929.167	Time (mins)

Adjust max value of x axis

Primary	
	Root Time
	Root Time

(Dial) t0 = 12.929 mm

(Dial) t100 = 12.913 mm

t100 = 2720.0 mins

(Dial) t50 = 12.921 mm

t50 = 28.5 mins

ΔHα 0 mm/log cycle

Initial dial gauge height = 12.928 mm

Final dial gauge height = 12.913 mm

t0 = #N/A mm

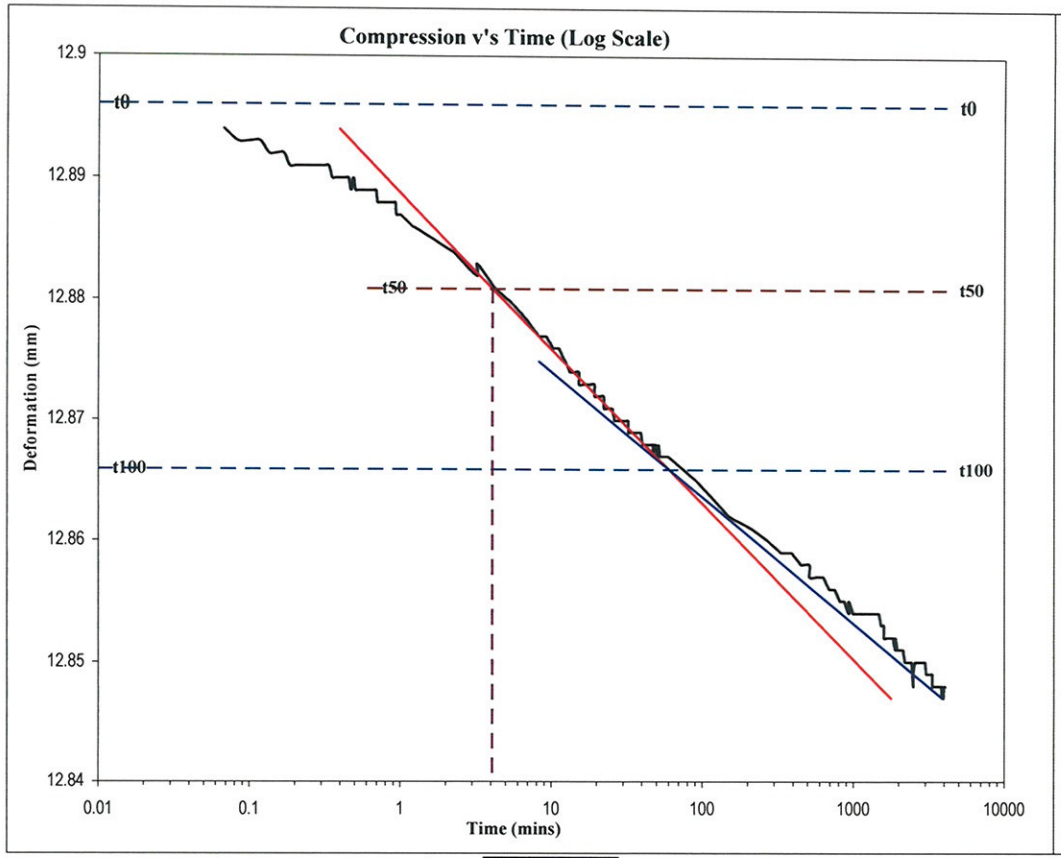
t90 = #N/A mm

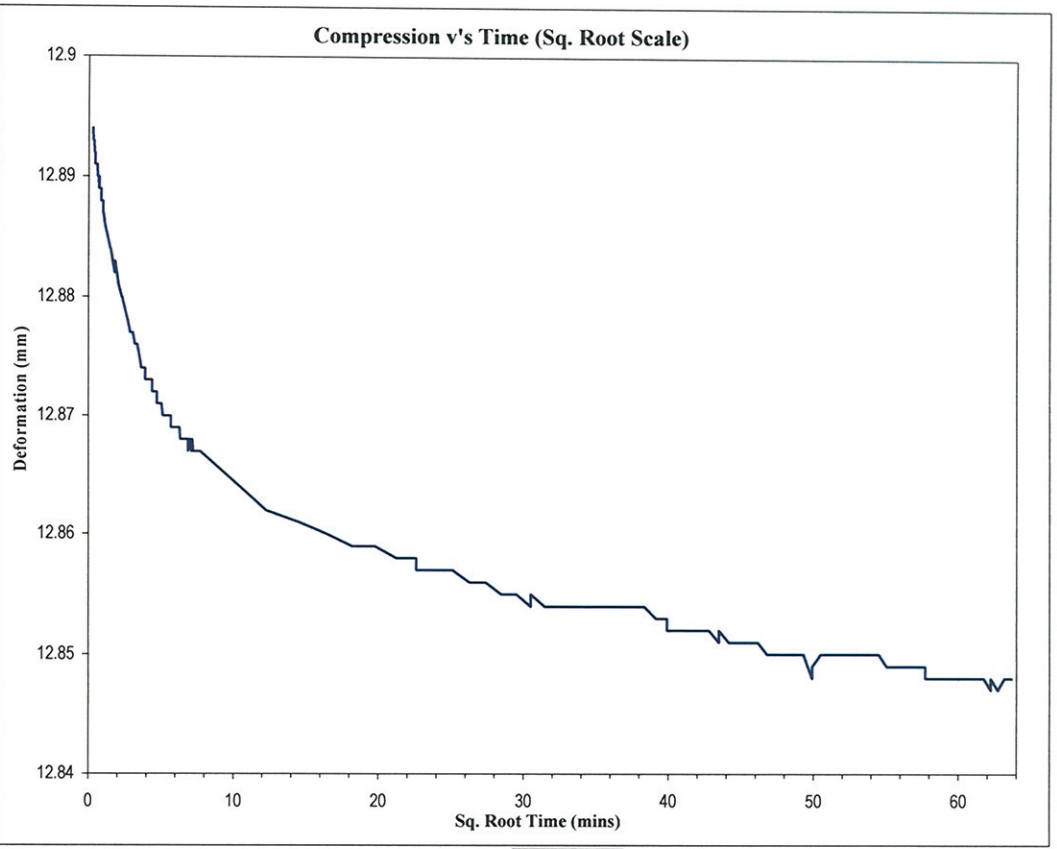
t90 = #N/A mins

Stage Load :	25 kPa
Rig Number :	9
Stage :	12.5 - 25

Stage 2

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
9	Time (mins)
41.2	Time (mins)

Secondary	
2500	Time (mins)
3870.2	Time (mins)

Primary	
	Root Time
	Root Time

(Dial) t0 = 12.896 mm
(Dial) t100 = 12.866 mm
t100 = 60.1 mins

(Dial) t50 = 12.881 mm
t50 = 4.1 mins

ΔHα 0.0104 mm/log cycle

Initial dial gauge height = 12.894 mm
Final dial gauge height = 12.847 mm

t0 = #N/A mm
t90 = #N/A mm
t90 = #N/A mins

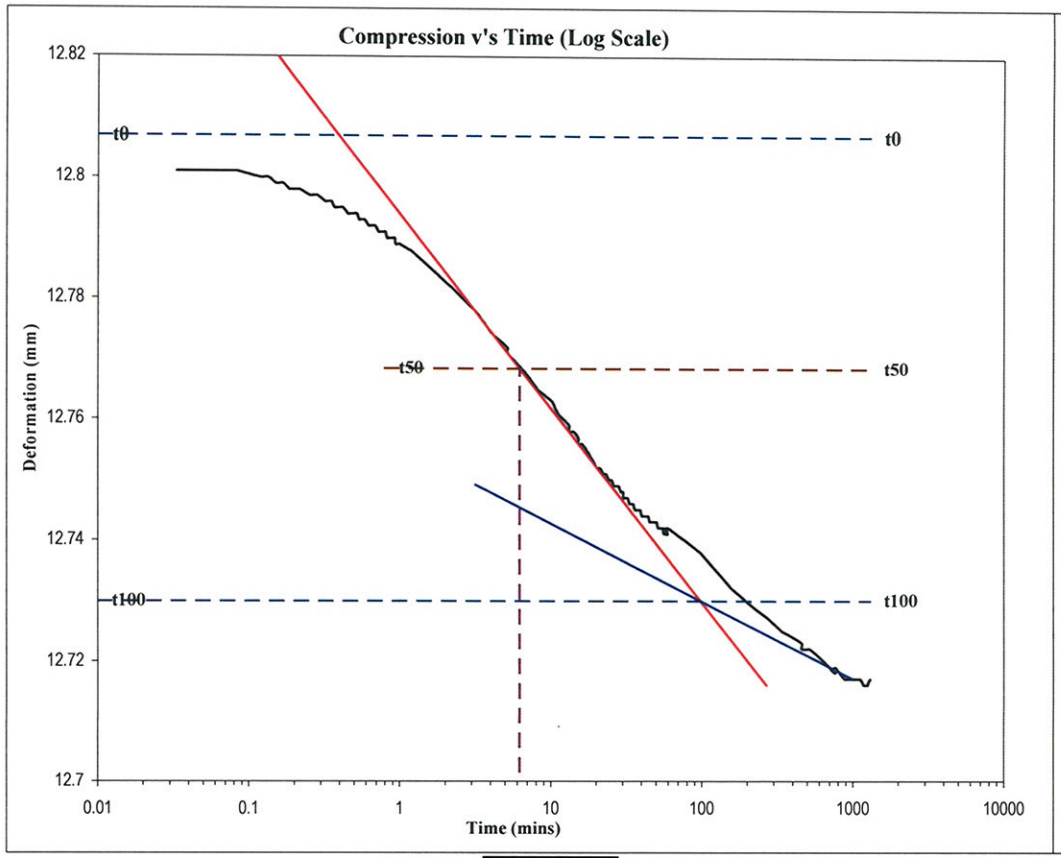
Stage Load : 50 kPa

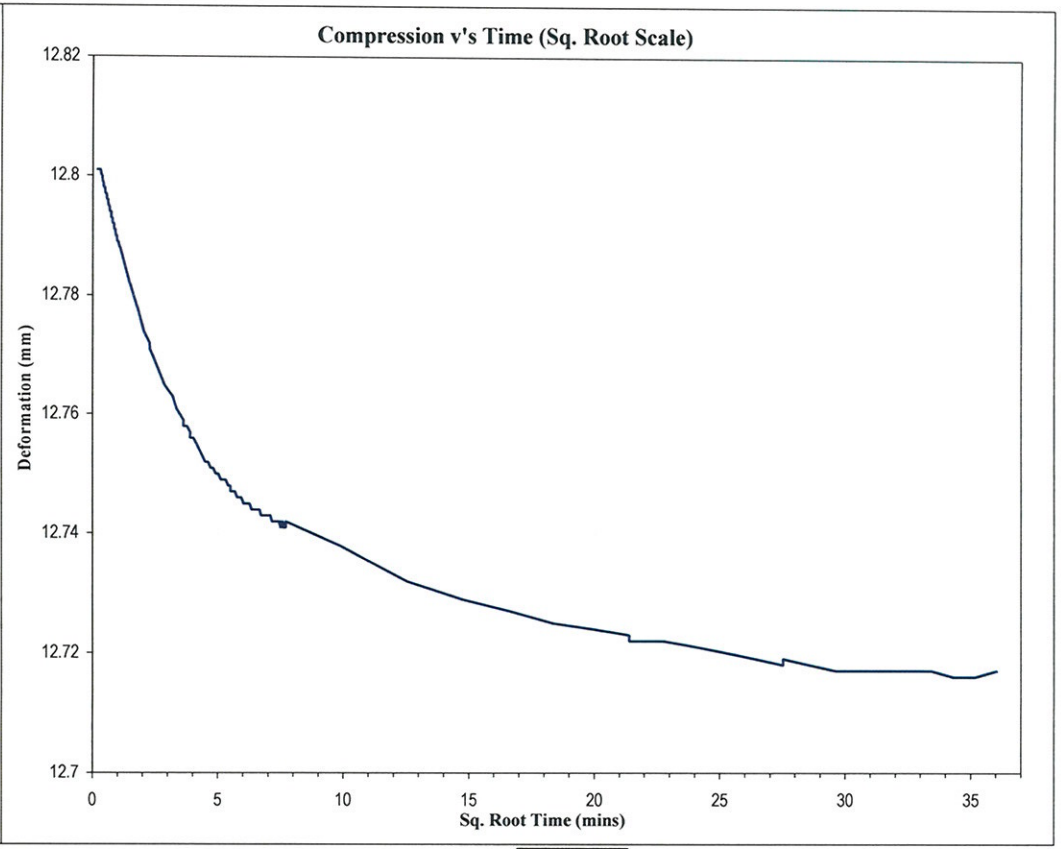
Rig Number : 9

Stage : 25 - 50

Stage 3

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
3.133	Time (mins)
15.167	Time (mins)

Secondary	
697.15	Time (mins)
1057.15	Time (mins)

Primary	
	Root Time
	Root Time

(Dial) t0 = 12.807 mm

(Dial) t100 = 12.730 mm

t100 = 98.1 mins

(Dial) t50 = 12.768 mm

t50 = 6.2 mins

ΔHα 0.0129 mm/log cycle

Initial dial gauge height = 12.848 mm

Final dial gauge height = 12.716 mm

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

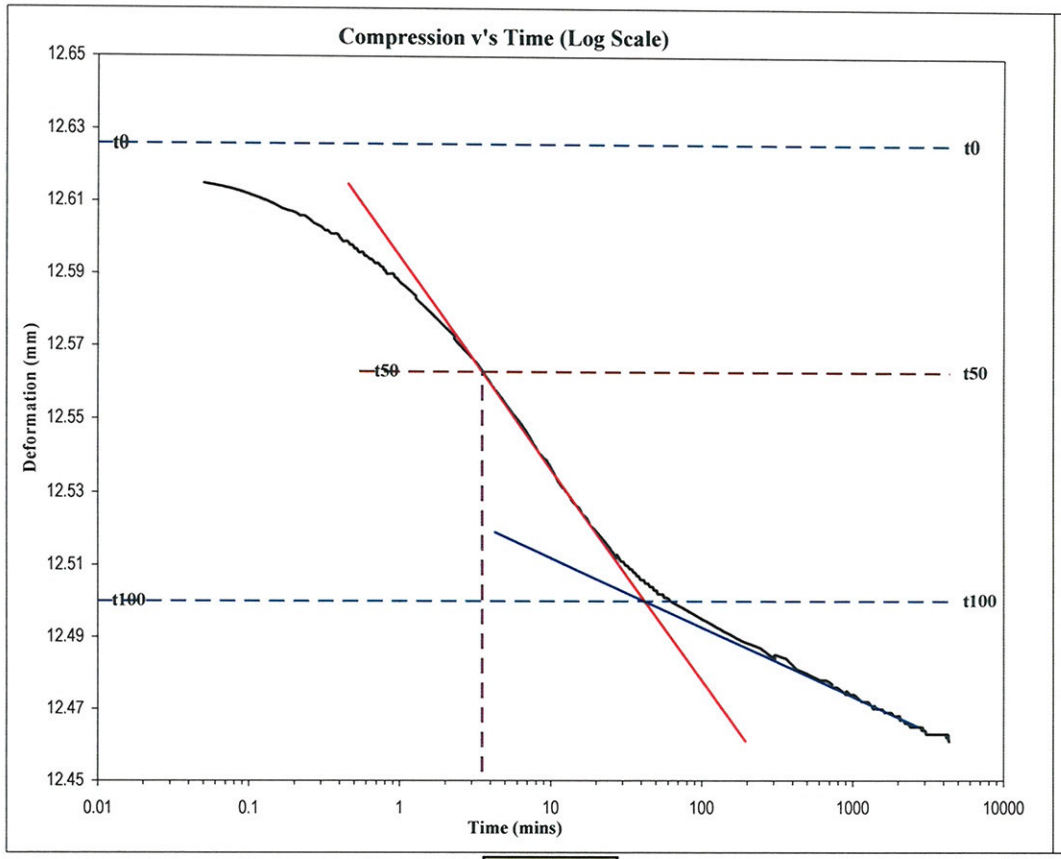
Stage Load : 100 kPa

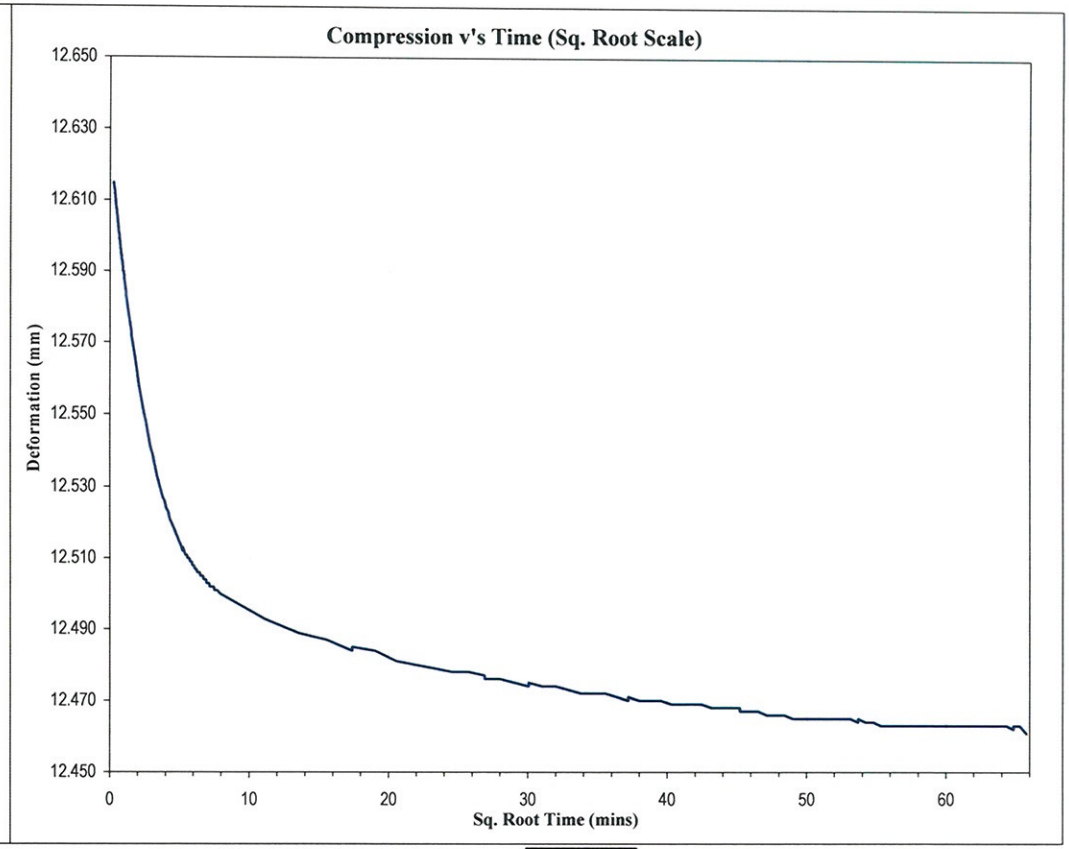
Rig Number : 9

Stage : 50 - 100

Stage 4

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
4.267	Time (mins)
16.267	Time (mins)

Secondary	
1322.283	Time (mins)
2702.283	Time (mins)

Primary	
	Root Time
	Root Time

(Dial) t0 = 12.626 mm

(Dial) t100 = 12.500 mm

t100 = 41.9 mins

(Dial) t50 = 12.563 mm

t50 = 3.5 mins

ΔHα 0.0193 mm/log cycle

Initial dial gauge height = 12.615 mm

Final dial gauge height = 12.461 mm

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

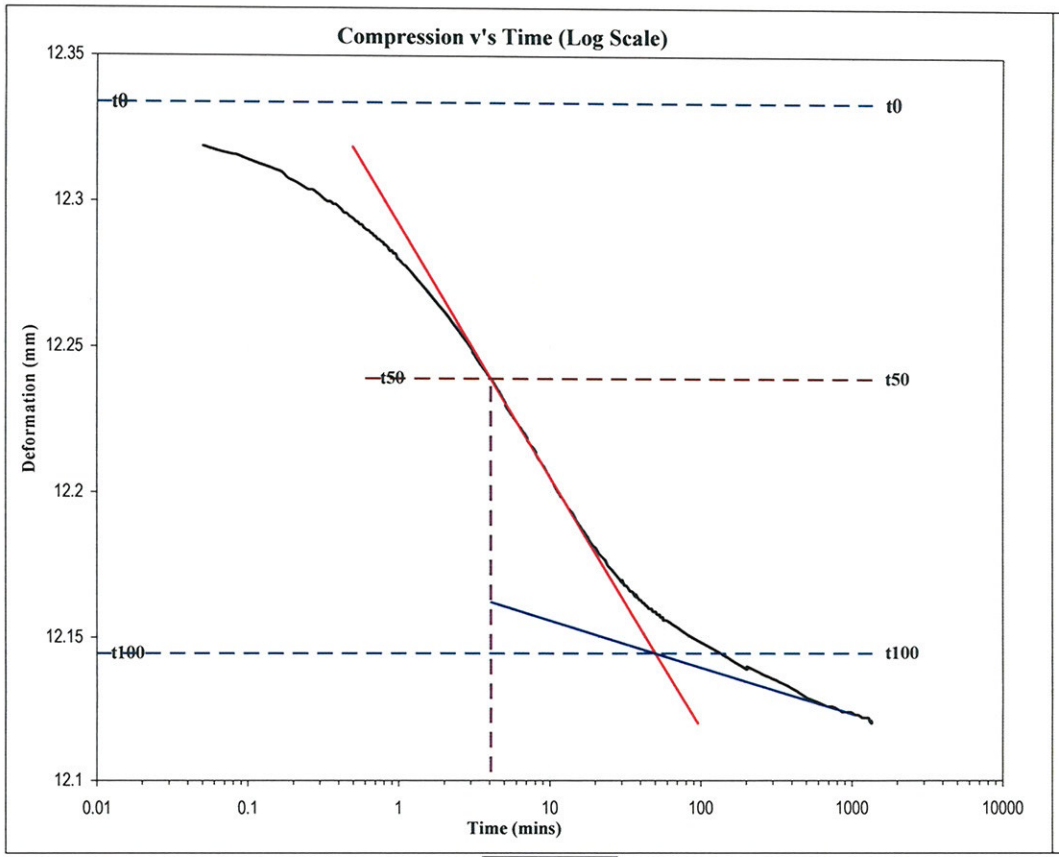
Stage Load : 200 kPa

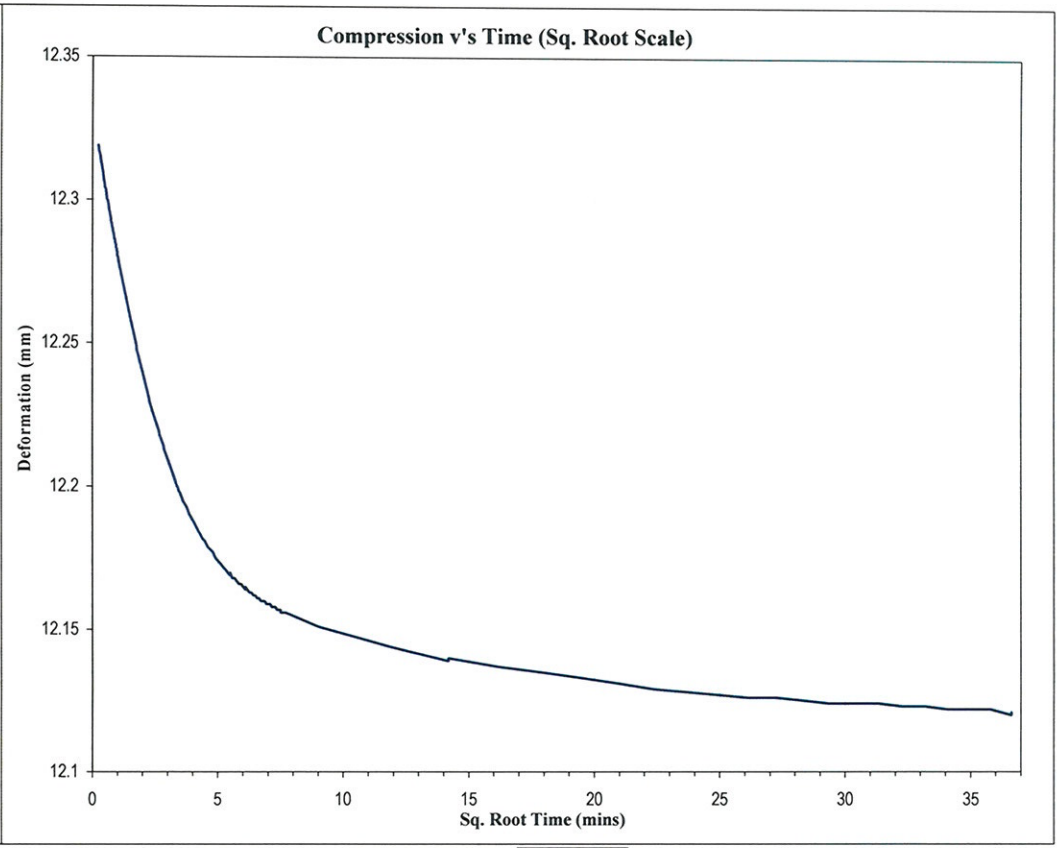
Rig Number : 9

Stage : 100 - 200

Stage 5

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
4.083	Time (mins)
13.083	Time (mins)

Secondary	
681.083	Time (mins)
1041.1	Time (mins)

Primary	
	Root Time
	Root Time

(Dial) t0 = 12.334 mm

(Dial) t100 = 12.144 mm

t100 = 49.8 mins

(Dial) t50 = 12.239 mm

t50 = 4.1 mins

ΔHα 0.0163 **mm/log cycle**

Initial dial gauge height = 12.319 mm

Final dial gauge height = 12.120 mm

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

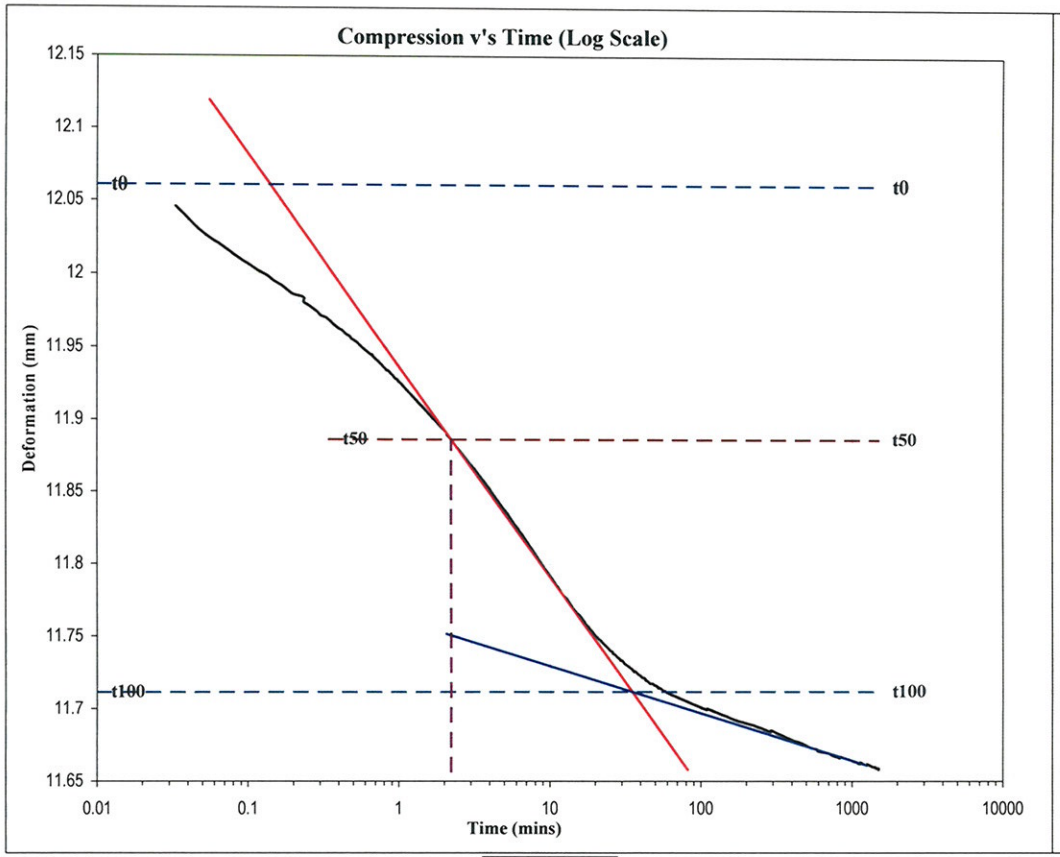
Stage Load : 400 kPa

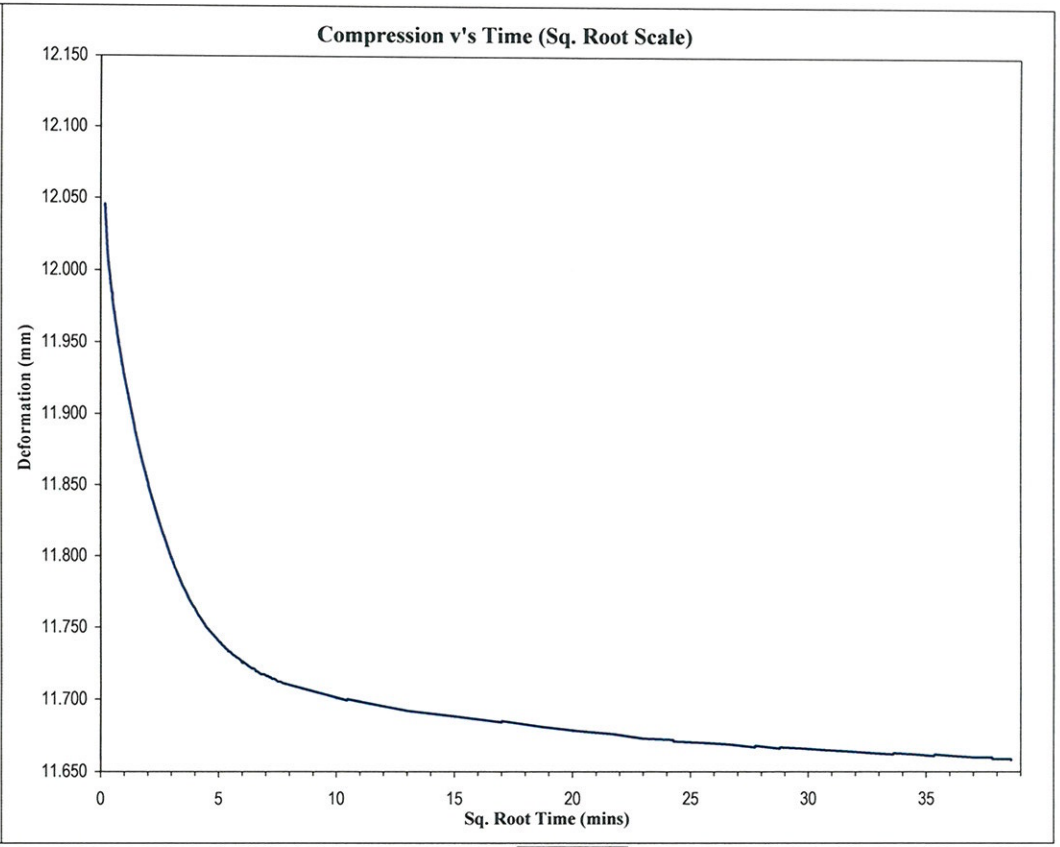
Rig Number : 9

Stage : 200 - 400

Stage 6

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
2.05	Time (mins)
12.05	Time (mins)

Secondary	
709.067	Time (mins)
1249.05	Time (mins)

Primary	
	Root Time
	Root Time

(Dial) t0 = 12.061 mm

(Dial) t100 = 11.711 mm

t100 = 35.0 mins

(Dial) t50 = 11.886 mm

t50 = 2.2 mins

ΔHα 0.0325 mm/log cycle

Initial dial gauge height = 12.120 mm

Final dial gauge height = 11.658 mm

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

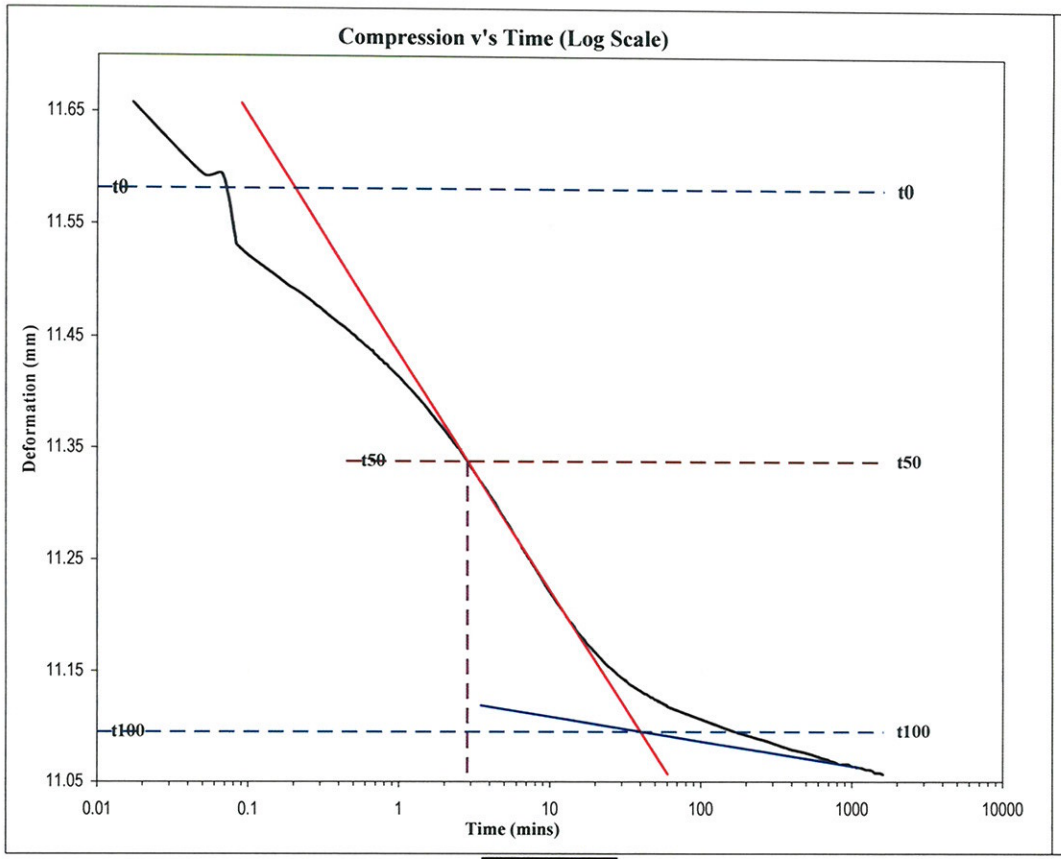
Stage Load : 800 kPa

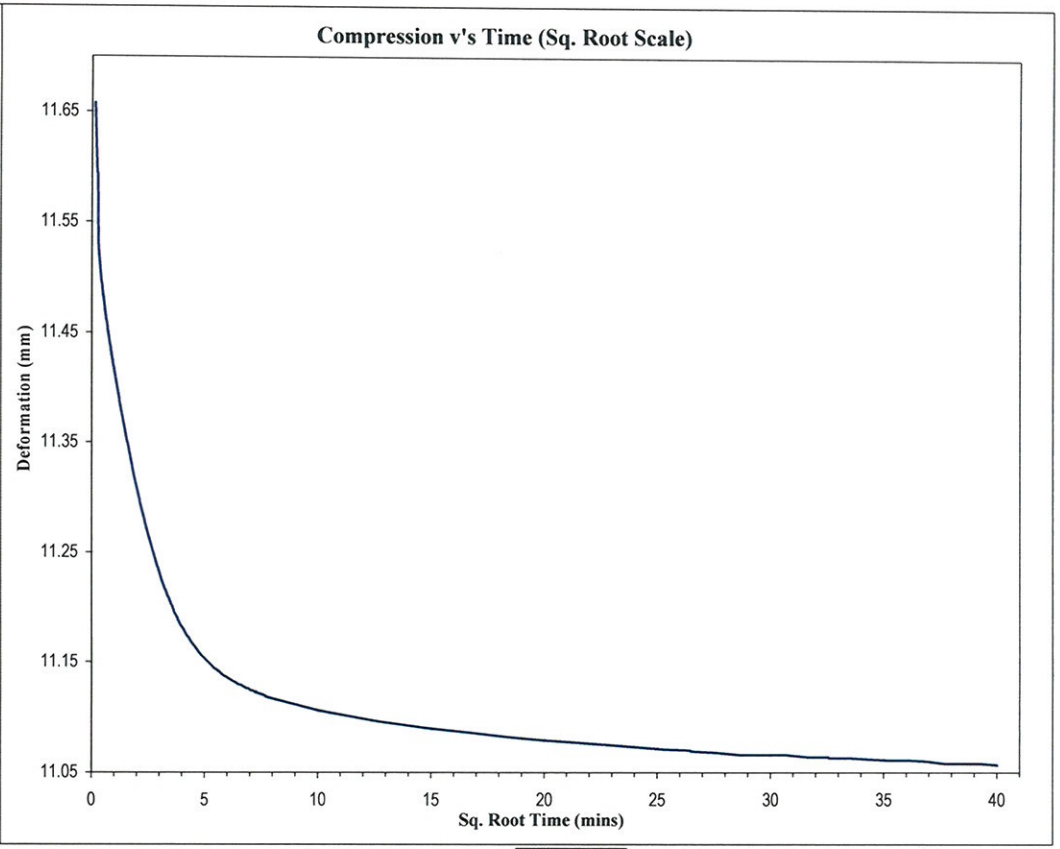
Rig Number : 9

Stage : 400 - 800

Stage 7

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
3.467	Time (mins)
13.45	Time (mins)

Secondary	
820.483	Time (mins)
1120.483	Time (mins)

Primary	
	Root Time
	Root Time

(Dial) t0 = 11.582 mm

(Dial) t100 = 11.095 mm

t100 = 39.7 mins

(Dial) t50 = 11.339 mm

t50 = 2.8 mins

ΔHα 0.0222 mm/log cycle

Initial dial gauge height = 11.658 mm

Final dial gauge height = 11.057 mm

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

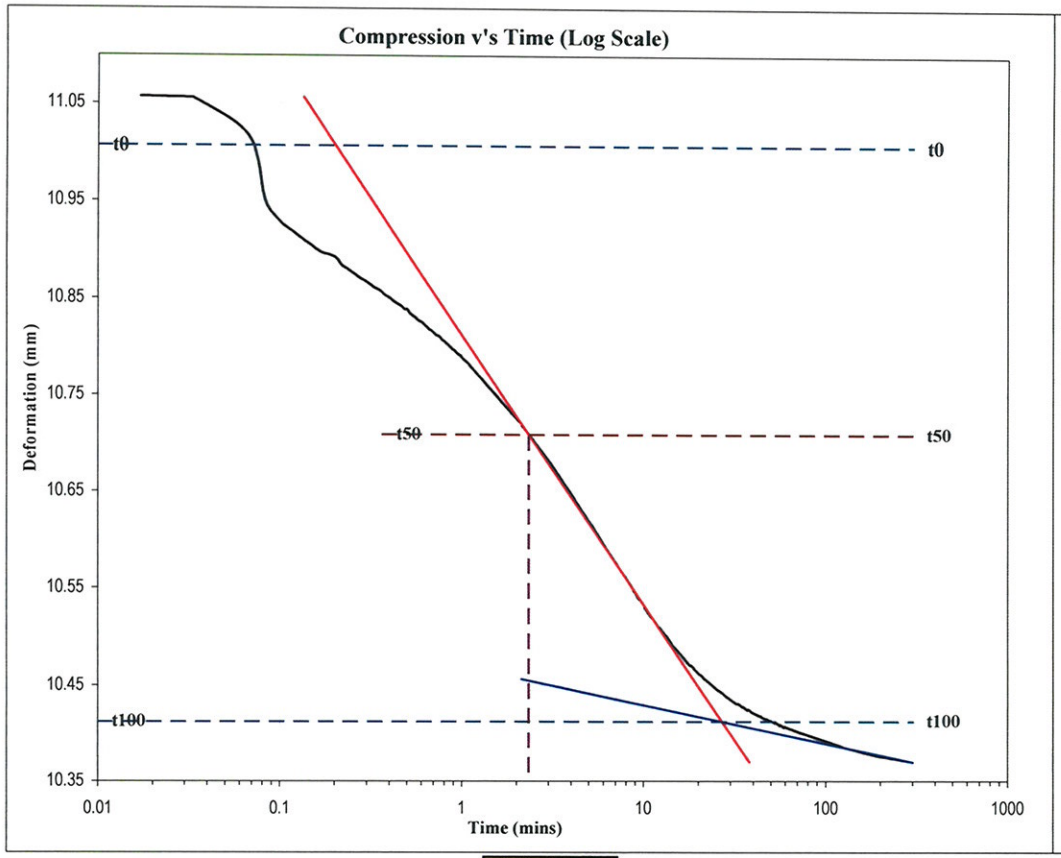
Stage Load : 1600 kPa

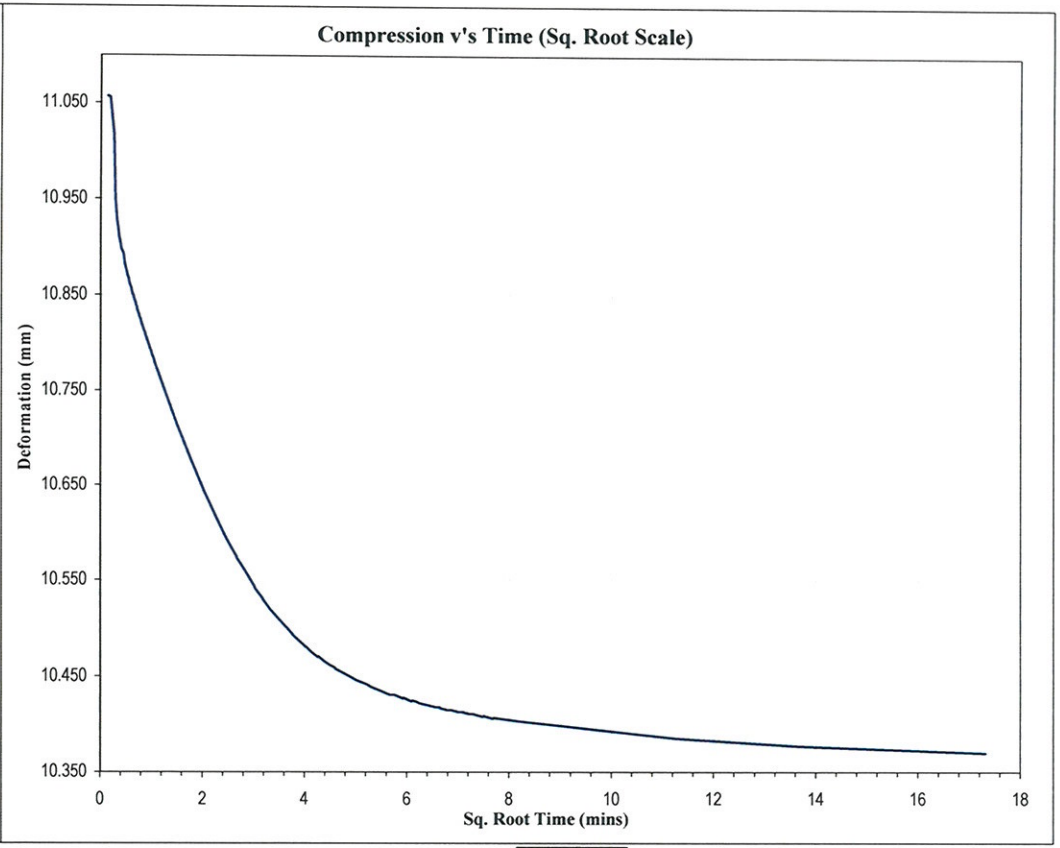
Rig Number : 9

Stage : 800 - 1600

Stage 8

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Primary	
2.117	Time (mins)
10.1	Time (mins)

Secondary	
127.117	Time (mins)
300	Time (mins)

Adjust max value of x axis

Primary	
	Root Time
	Root Time

(Dial) t0 = 11.007 mm

(Dial) t100 = 10.412 mm

t100 = 26.8 mins

(Dial) t50 = 10.710 mm

t50 = 2.3 mins

ΔHα 0.0402 mm/log cycle

Initial dial gauge height = 11.057 mm

Final dial gauge height = 10.370 mm

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

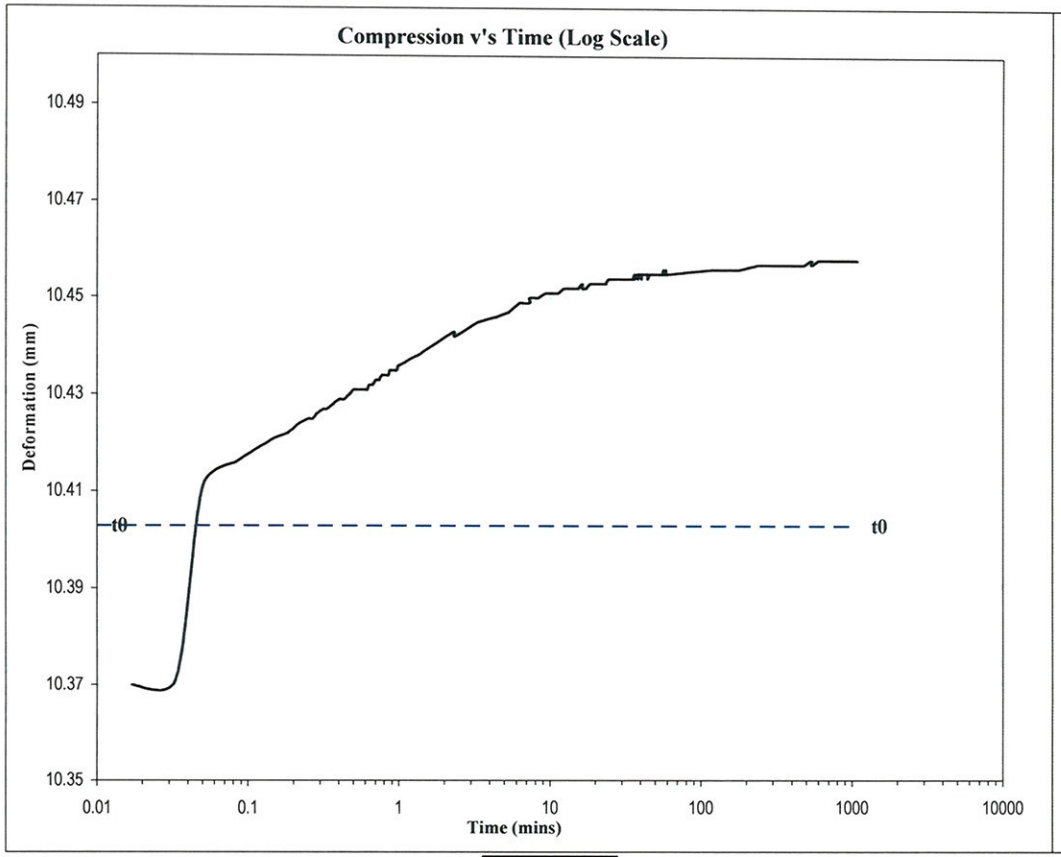
Stage Load : 800 kPa

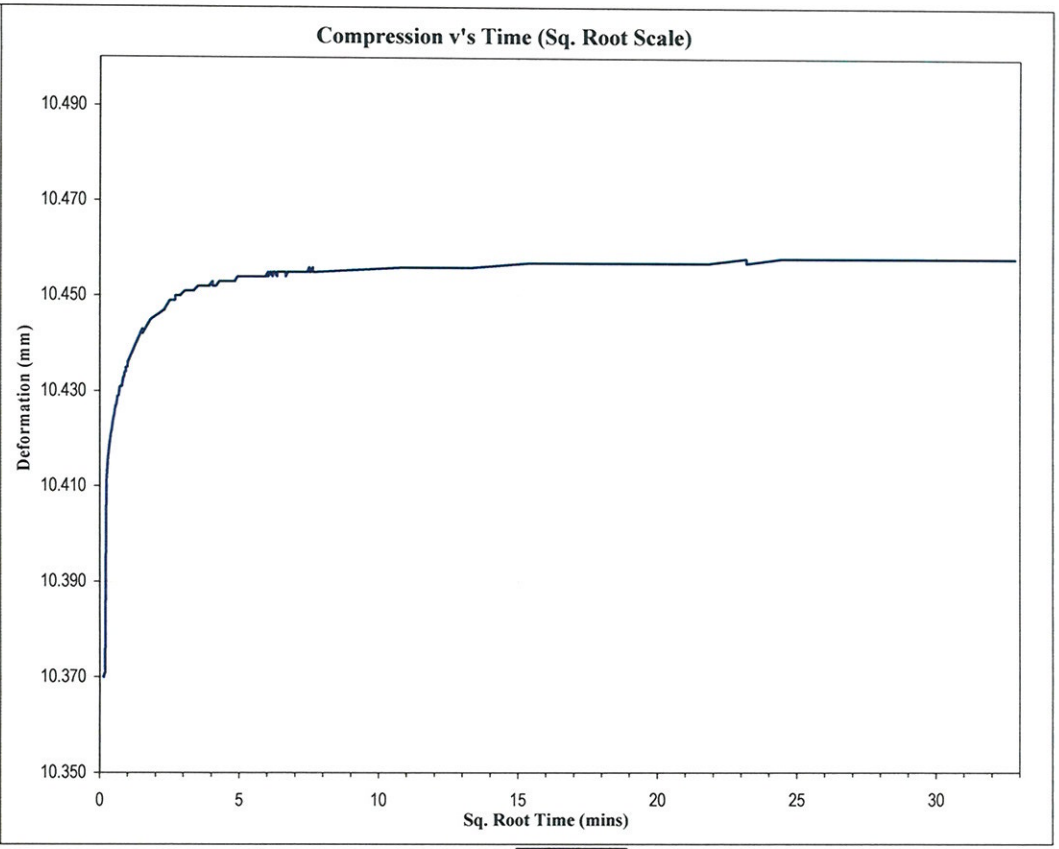
Rig Number : 9

Stage : 1600 - 800

Stage 9 (Rebound)

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Primary	
	Time (mins)
	Time (mins)

Secondary	
	Time (mins)
	Time (mins)

Adjust max value of x axis

Primary	
	Root Time
	Root Time

(Dial) t0 = 10.403 mm

(Dial) t100 = #N/A mm

t100 = #N/A mins

(Dial) t50 = #N/A mm

t50 = #N/A mins

ΔHα #N/A mm/log cycle

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

Initial dial gauge height = 10.370 mm

Final dial gauge height = 10.458 mm

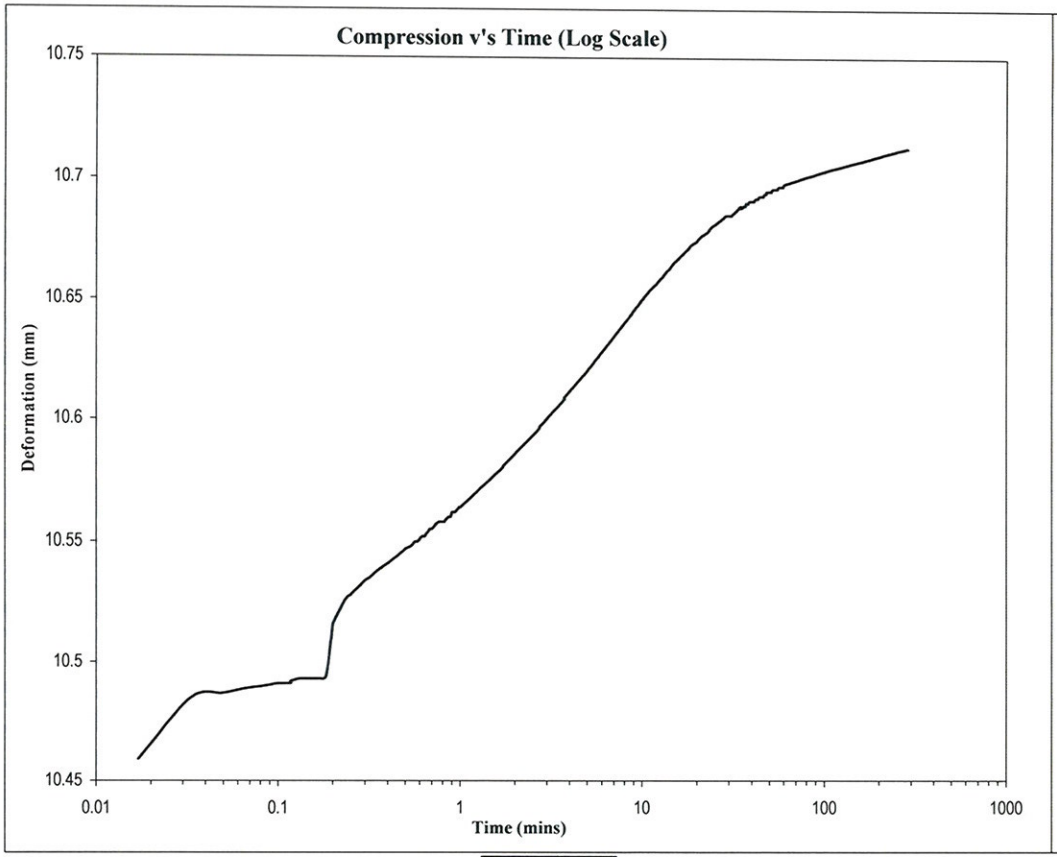
Stage Load : 200 kPa

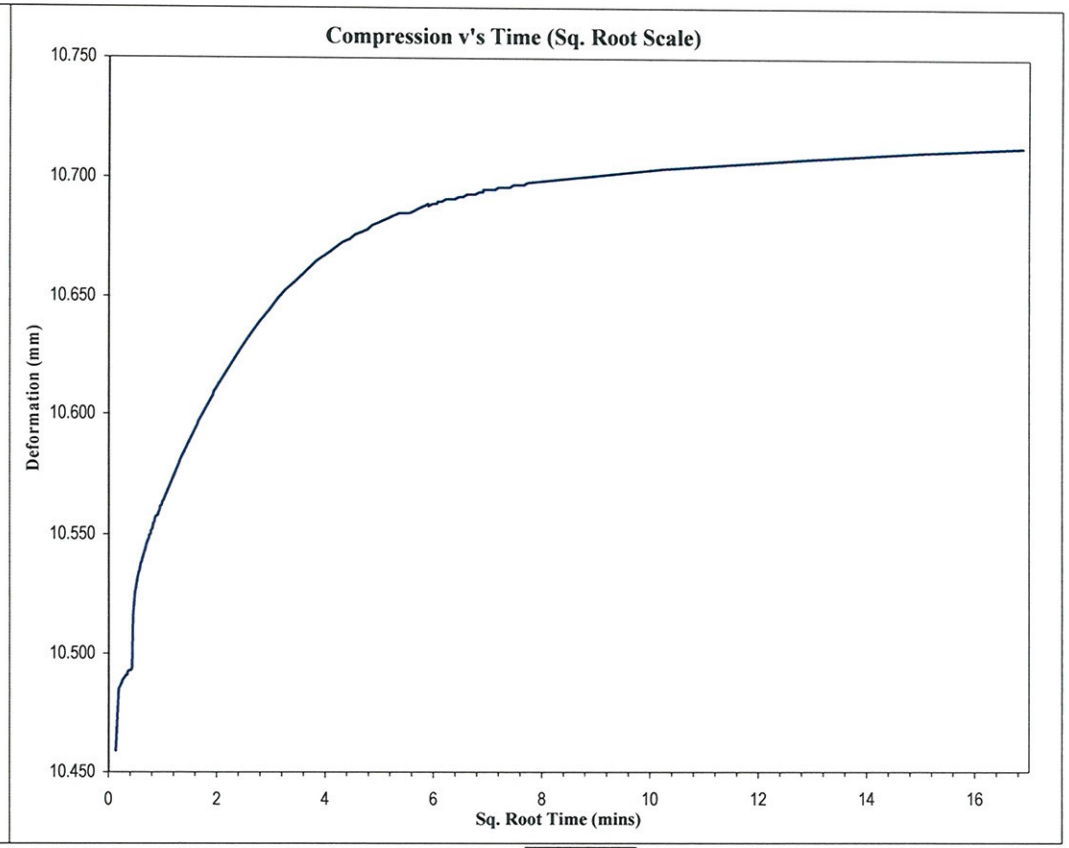
Rig Number : 9

Stage : 800 - 200

Stage 10 (Rebound)

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
	Time (mins)
	Time (mins)

Secondary	
	Time (mins)
	Time (mins)

Primary	
	Root Time
	Root Time

t0 = 10.441 mm

t100 = #N/A mm

t100 = #N/A mins

t50 = #N/A mm

t50 = #N/A mins

ΔHα #N/A mm/log cycle

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

Initial stage height = 10.458 mm

Final stage height = 10.713 mm

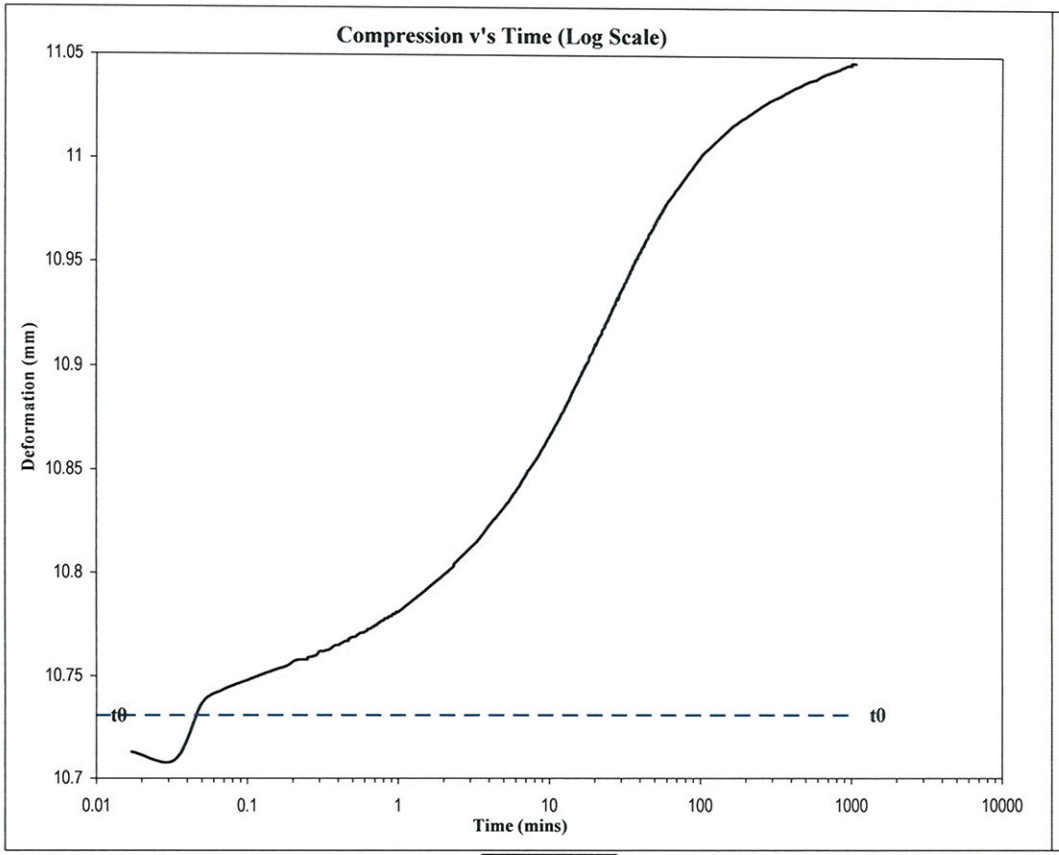
Stage Load : 50 kPa

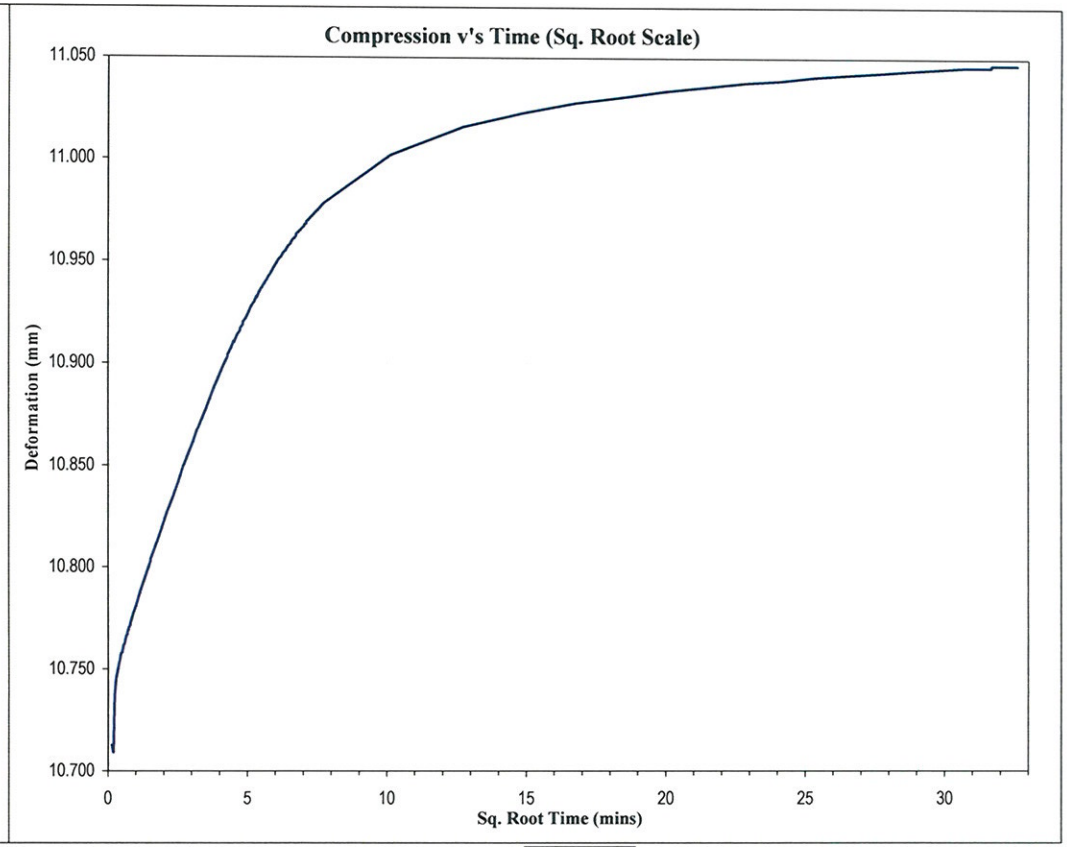
Rig Number : 9

Stage : 200 - 50

Stage 11 (Rebound)

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Adjust max value of x axis

Primary	
	Time (mins)
	Time (mins)

Secondary	
	Time (mins)
	Time (mins)

Primary	
	Root Time
	Root Time

t0 = 10.731 mm

t100 = #N/A mm

t100 = #N/A mins

t50 = #N/A mm

t50 = #N/A mins

ΔHα #N/A mm/log cycle

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

Initial stage height = 10.713 mm

Final stage height = 11.047 mm

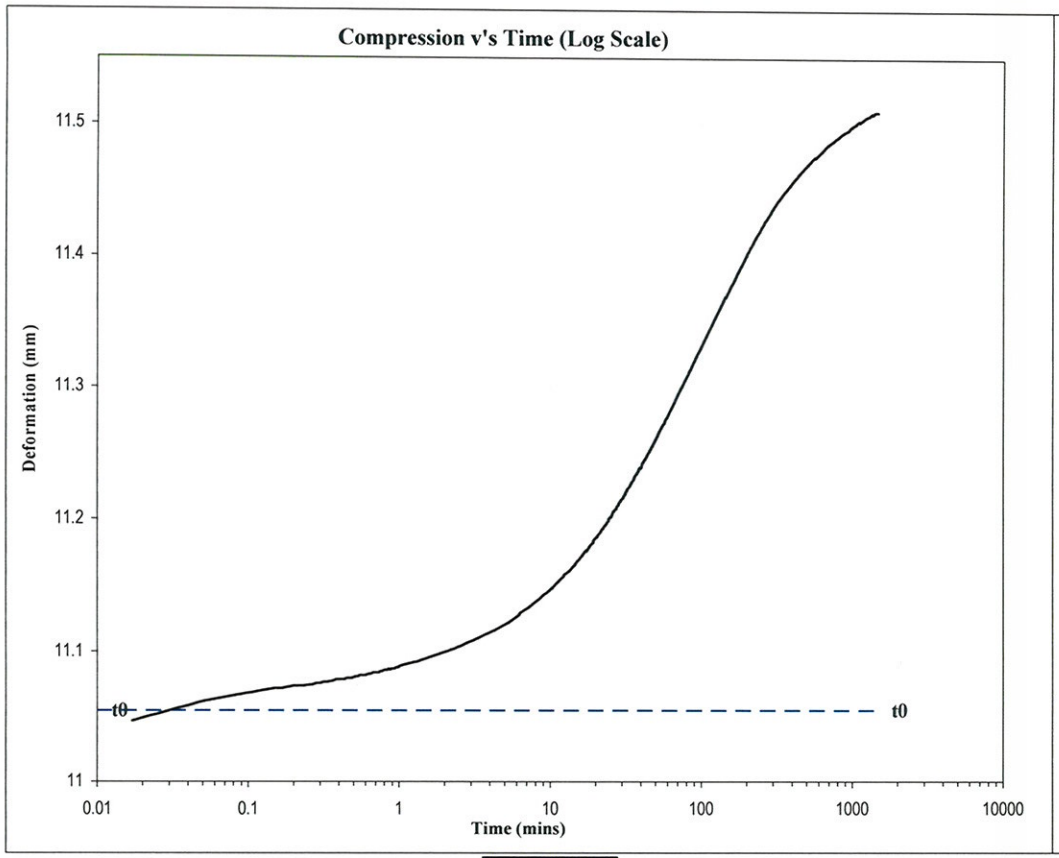
Stage Load : 4 kPa

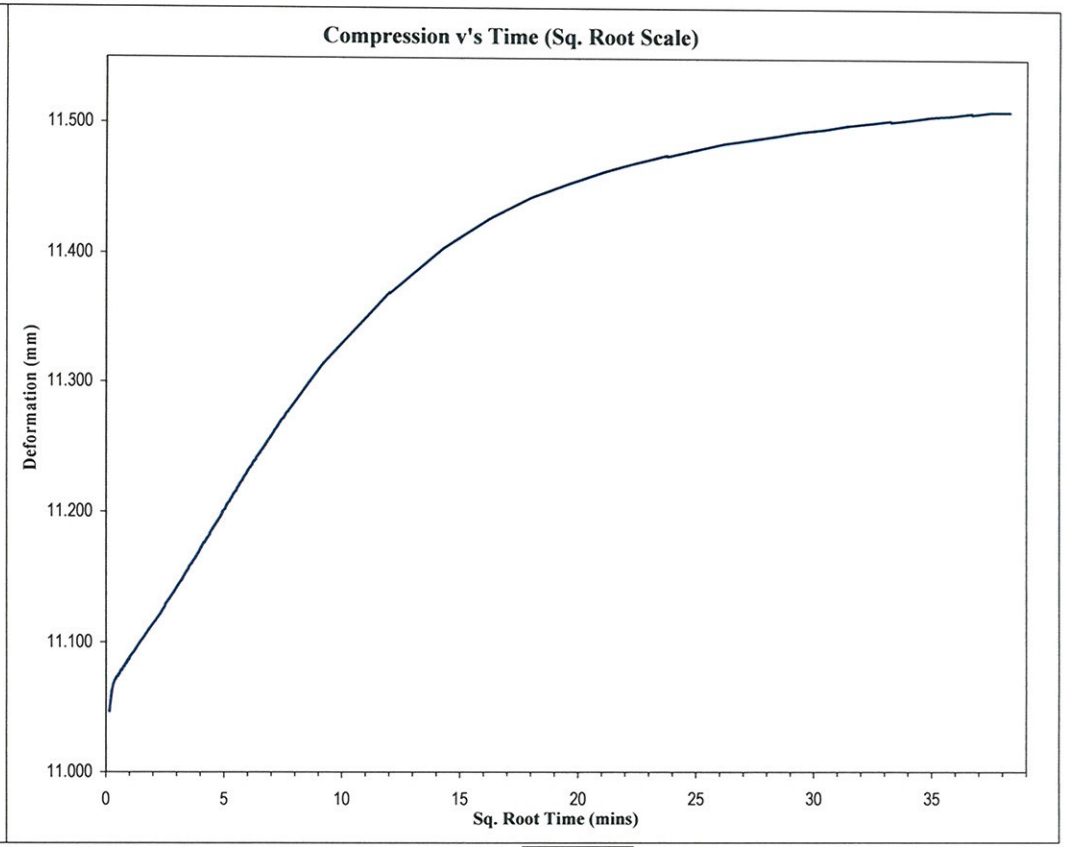
Rig Number : 9

Stage : 50 - 4

Stage 12 (Rebound)

SAMPLE NO : LCOV12S-00421





Adjust max value of x axis

Primary	
	Time (mins)
	Time (mins)

Secondary	
	Time (mins)
	Time (mins)

Adjust max value of x axis

Primary	
	Root Time
	Root Time

t0 = 11.055 mm

t100 = #N/A mm

t100 = #N/A mins

t50 = #N/A mm

t50 = #N/A mins

ΔHα #N/A mm/log cycle

t0 = #N/A mm

t90 = #N/A mm

t90 = #N/A mins

Initial height = 11.047 mm

Final height = 11.510 mm