

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

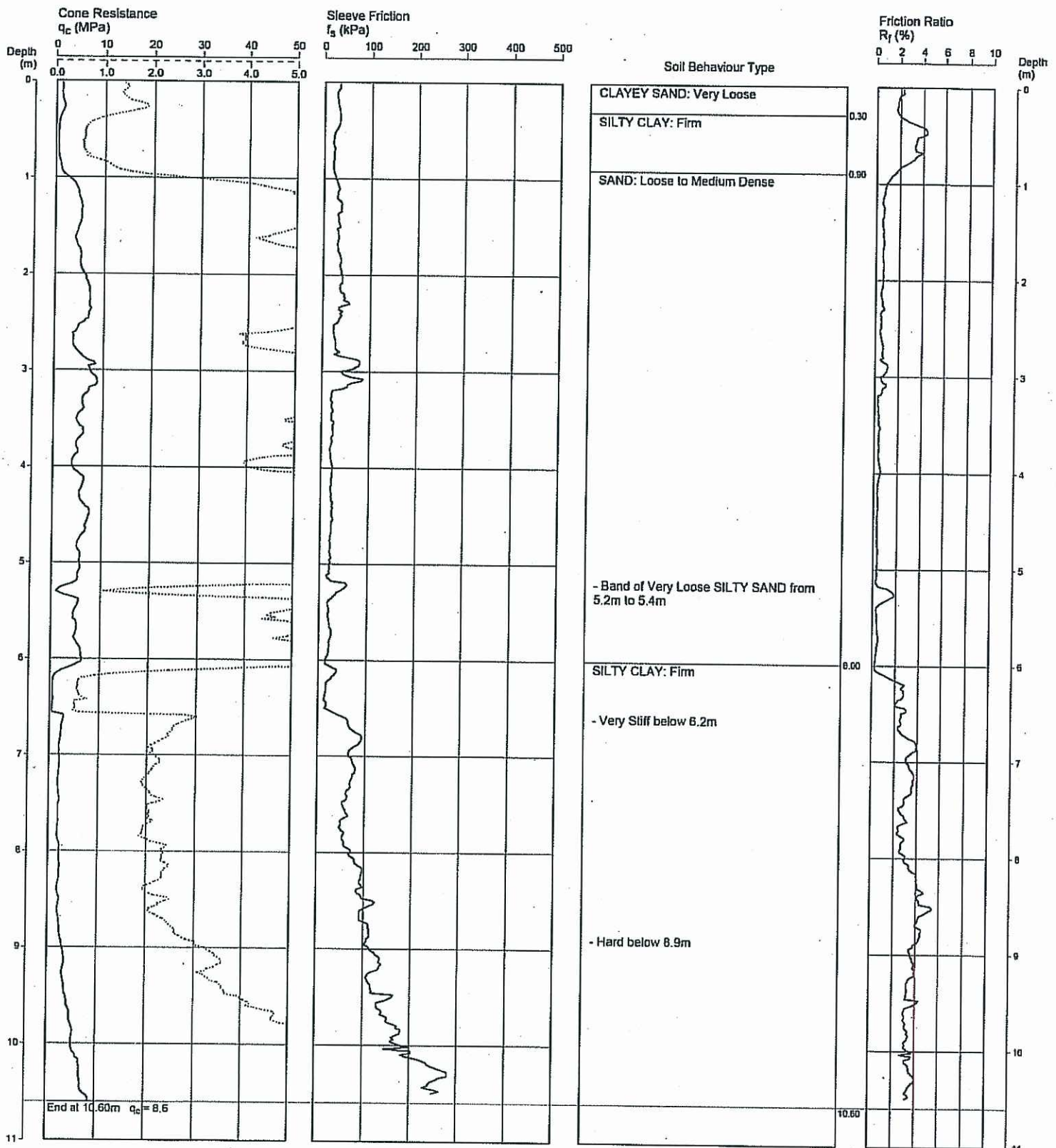
PROJECT No: 50888

22

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 4.4m AHD



REMARKS: SWL - Cave in of CPT hole at 3.2m - dry. GPS: 479991E, 7866904N

Date
Plotted
Checked

File: P:\50888 - OONONBA, Factual Geotechnical Investigation, DPI Site\Gint or CPT logs\50888-2
Cone ID: CONE-152 Type: 2 Standard

ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oronooba

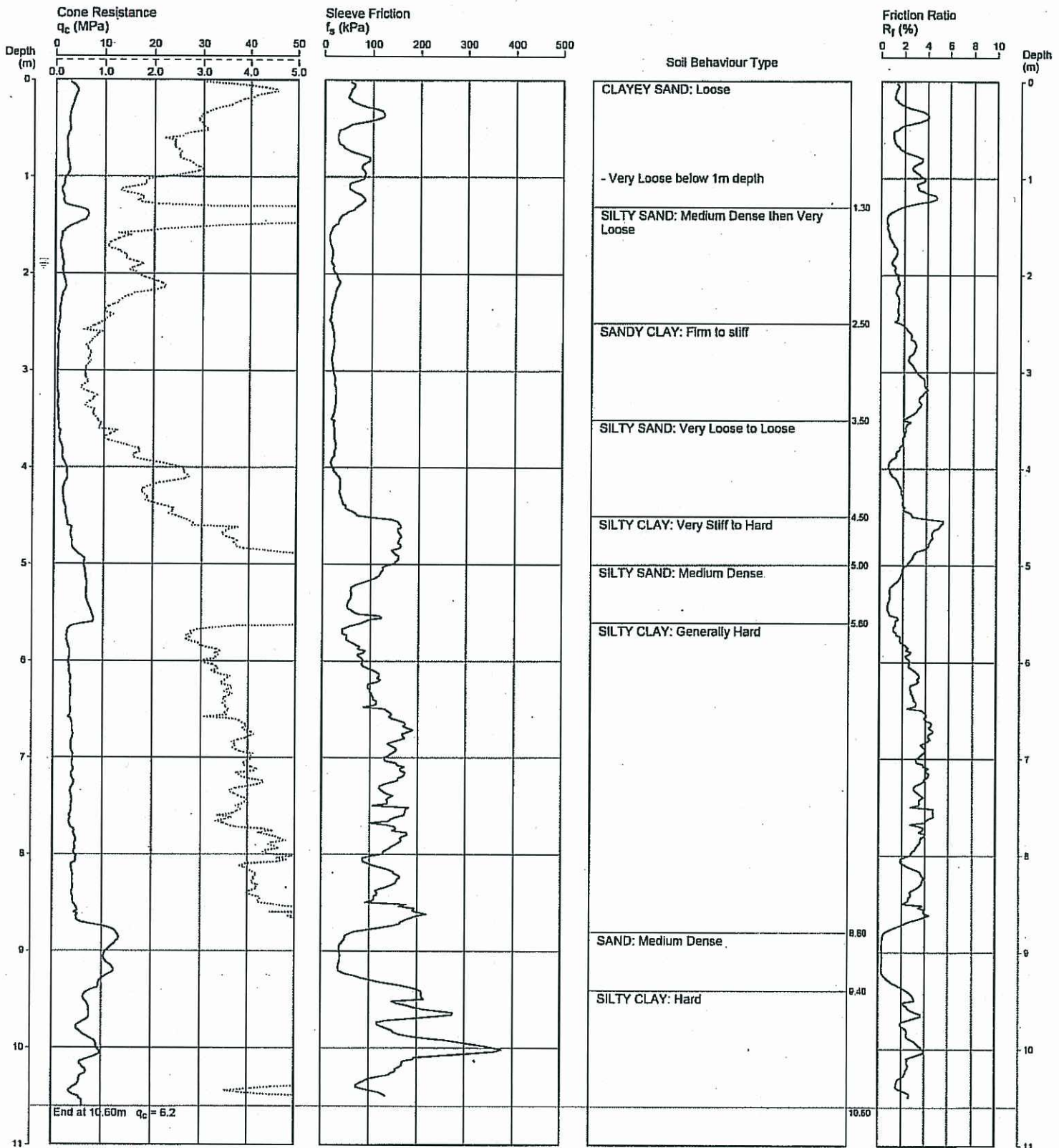
PROJECT No: 50888

27

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 4.1m AHD



REMARKS: GPS: 480447E, 7866818N

Date
Plotted
Checked

File: P:\50888 - OROONOBA, Factual Geotechnical Investigation, DPI Site\Gint or CPT logs\50888-2
Cone ID: CONE-152 Type: 2 Standard

ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

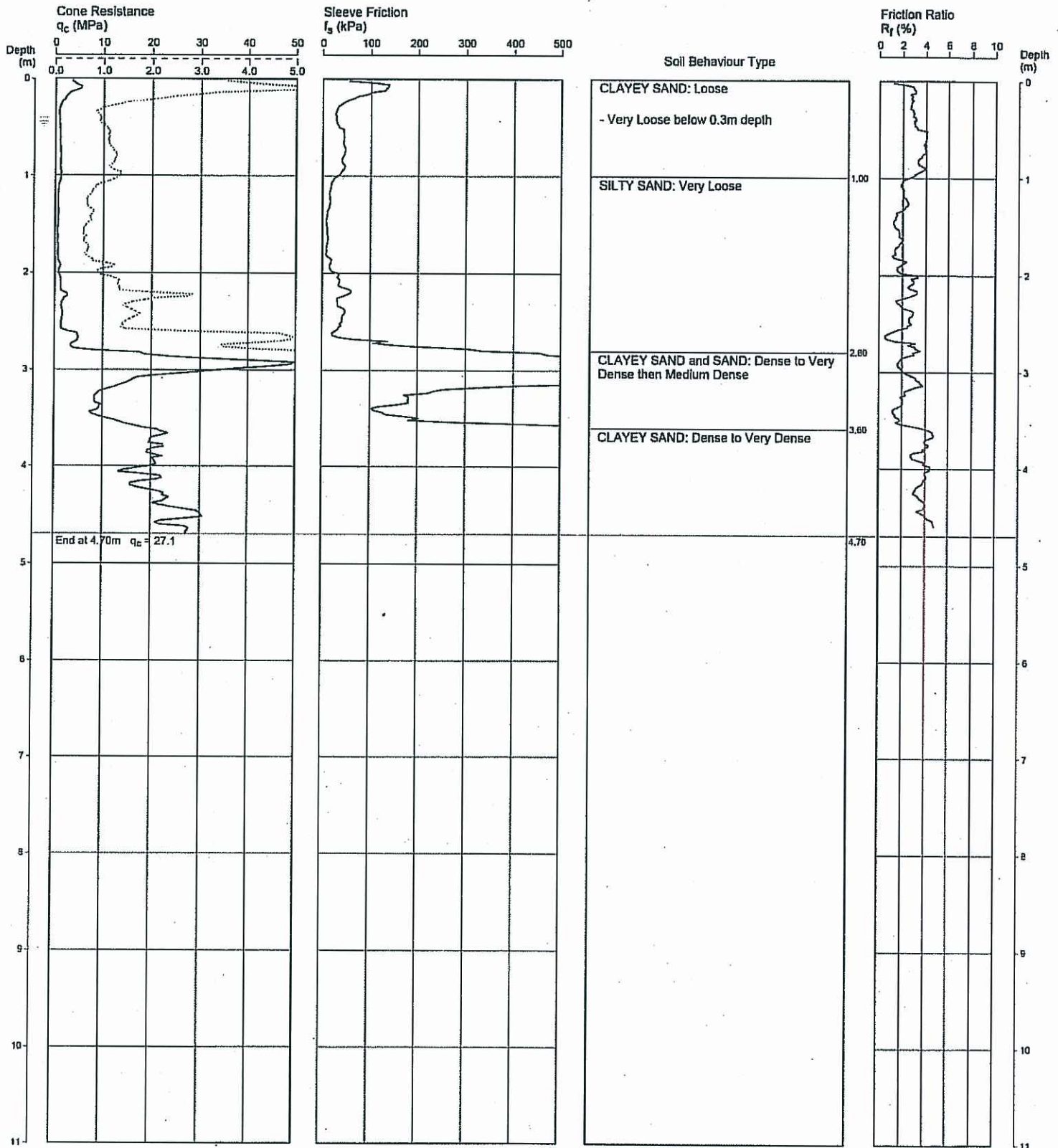
PROJECT No: 50888

28

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 3.4m AHD



REMARKS: GPS: 480020E, 786722N

Date
Plotted
Checked

File: P:\50888 - OONONBA, Factual Geotechnical Investigation, DPI Site\Gint or CPT logs\50888-2
Cone ID: CONE-152 Type: 2 Standard
ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

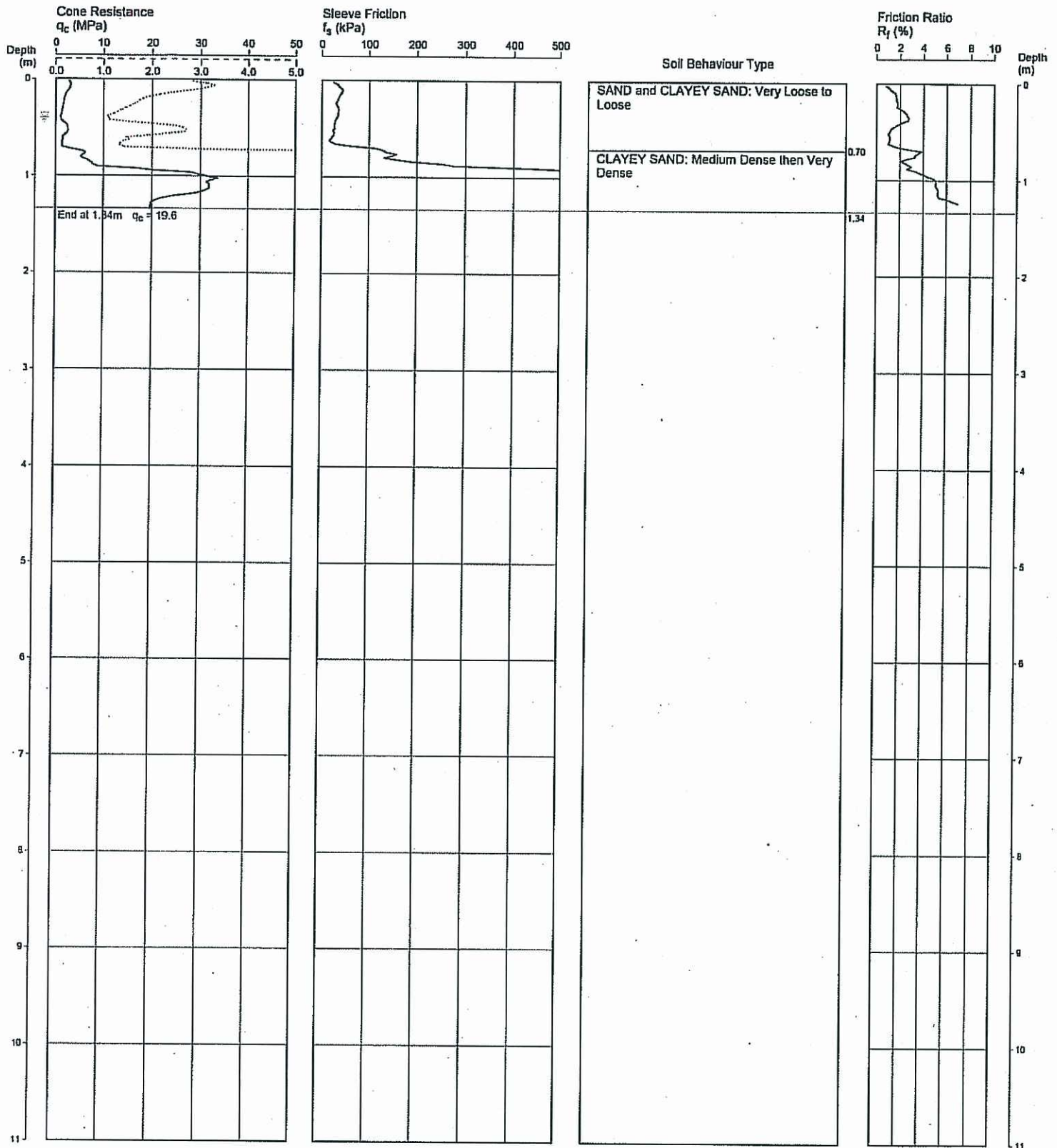
PROJECT No: 50888

29B

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 0.4m AHD



REMARKS: GPS: 479879E, 7867281N

Date
Plotted
Checked

File: P:\50888 - OONONBA, Factual Geotechnical Investigation, DPI Site\Gint or CPT logs\5088829
Cone ID: CONE-152 Type: 2 Standard

ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

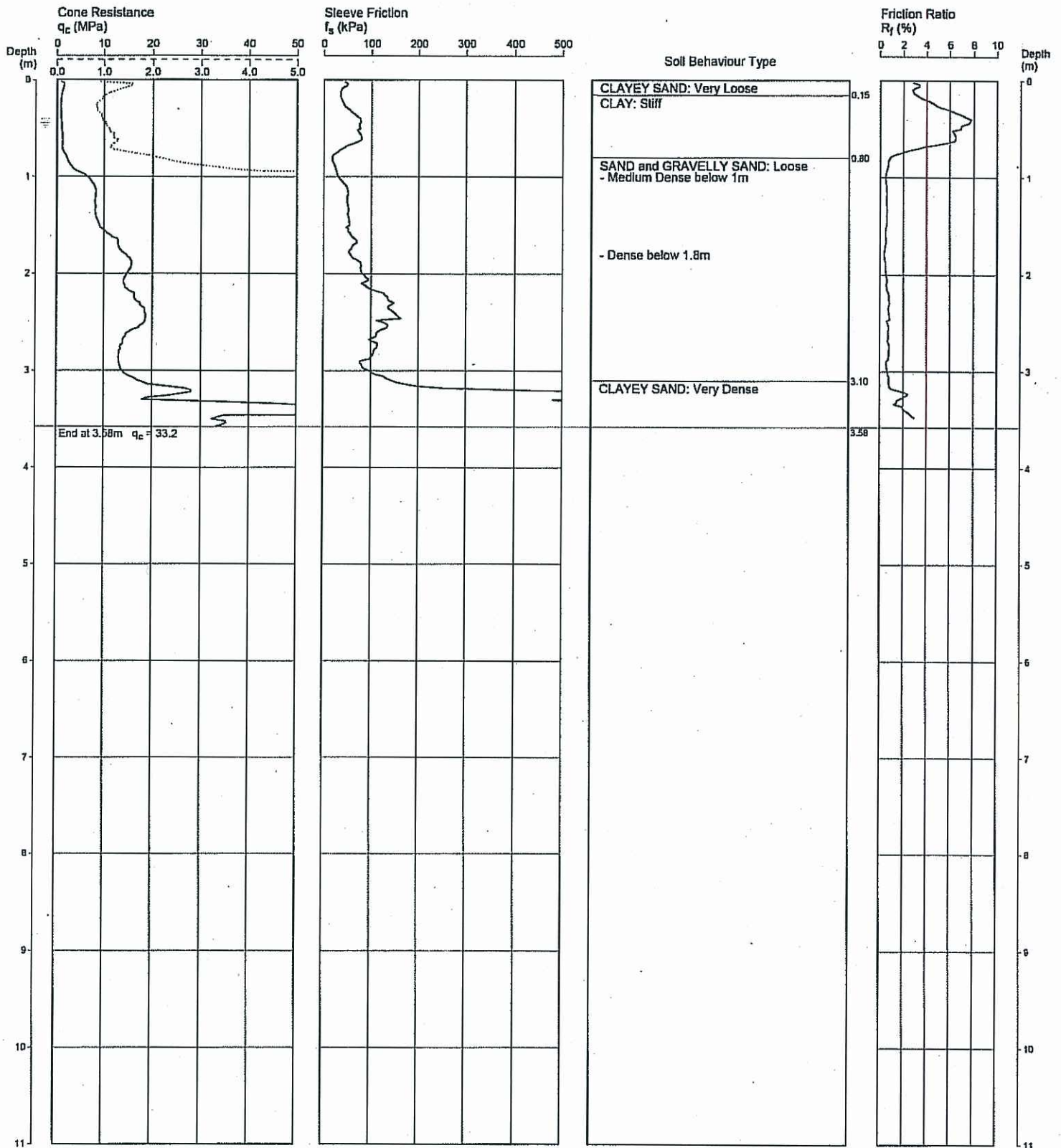
PROJECT No: 50888

30

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 4m AHD



REMARKS: GPS: 479987E, 7867360N

Date
Plotted
Checked

File: P:\50888 - OONONBA, Factual Geotechnical Investigation, DPI Site\Gint or CPT logs\50888-3
Cone ID: CONE-152 Type: 2 Standard
ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

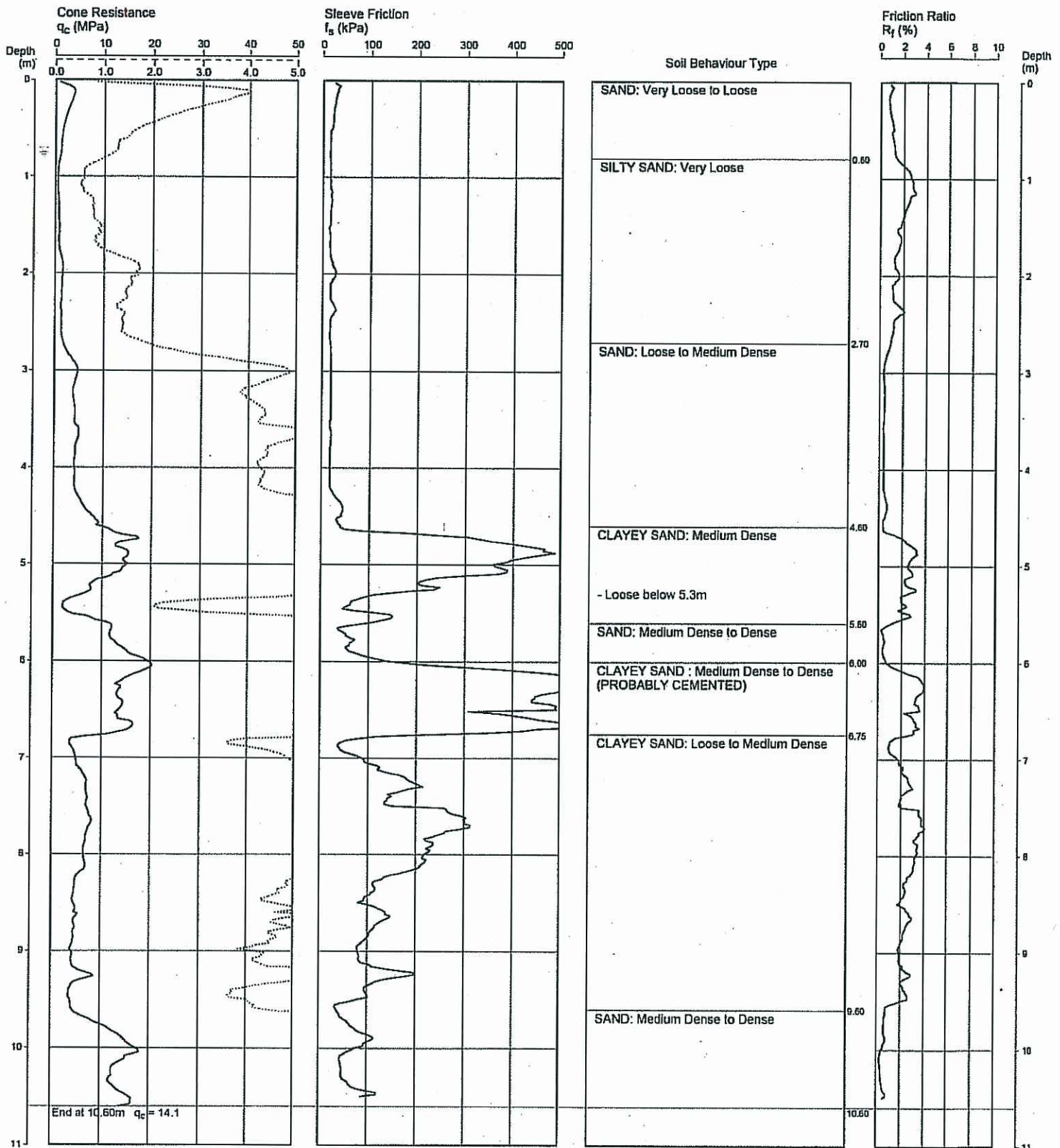
PROJECT No: 50888

31

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 5m AHD



REMARKS: GPS: 480122E, 7867386N

Date
Plotted
Checked

File: P:50888 - OONONBA, Factual Geotechnical Investigation, DPI Site/Gint or CPT logs\50888-3
Cone ID: CONE-152 Type: 2 Standard

ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

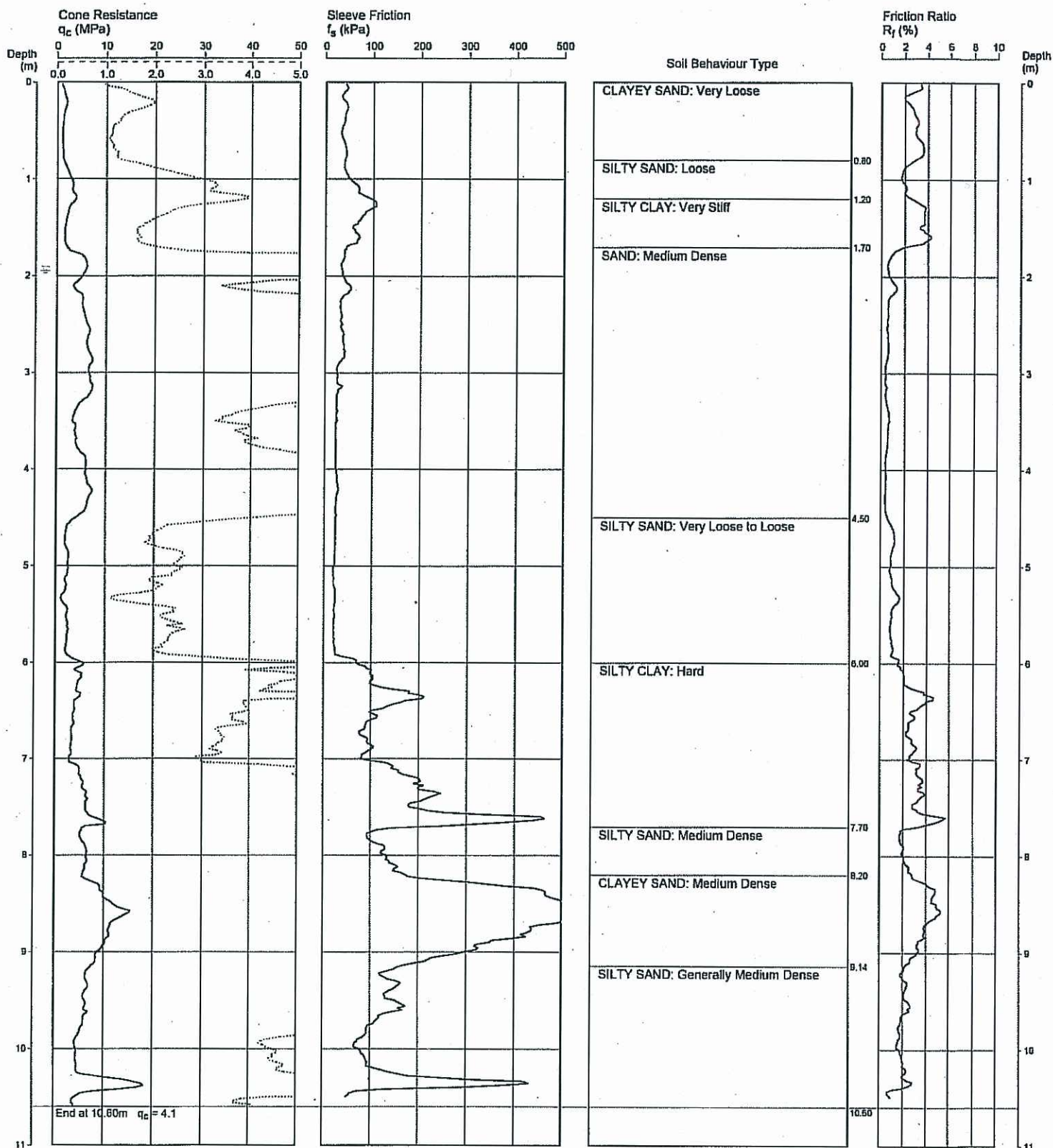
PROJECT No: 50888

33

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 3.4m AHD



REMARKS: GPS: 480375E, 7867599N

Date
Plotted
Checked

File: P:\50888 - OONONBA, Factual Geotechnical Investigation, DPI Site\Gint or CPT logs\50888-3

Cone ID: CONE-152 Type: 2 Standard

ConePlot Version 5.8.1

© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

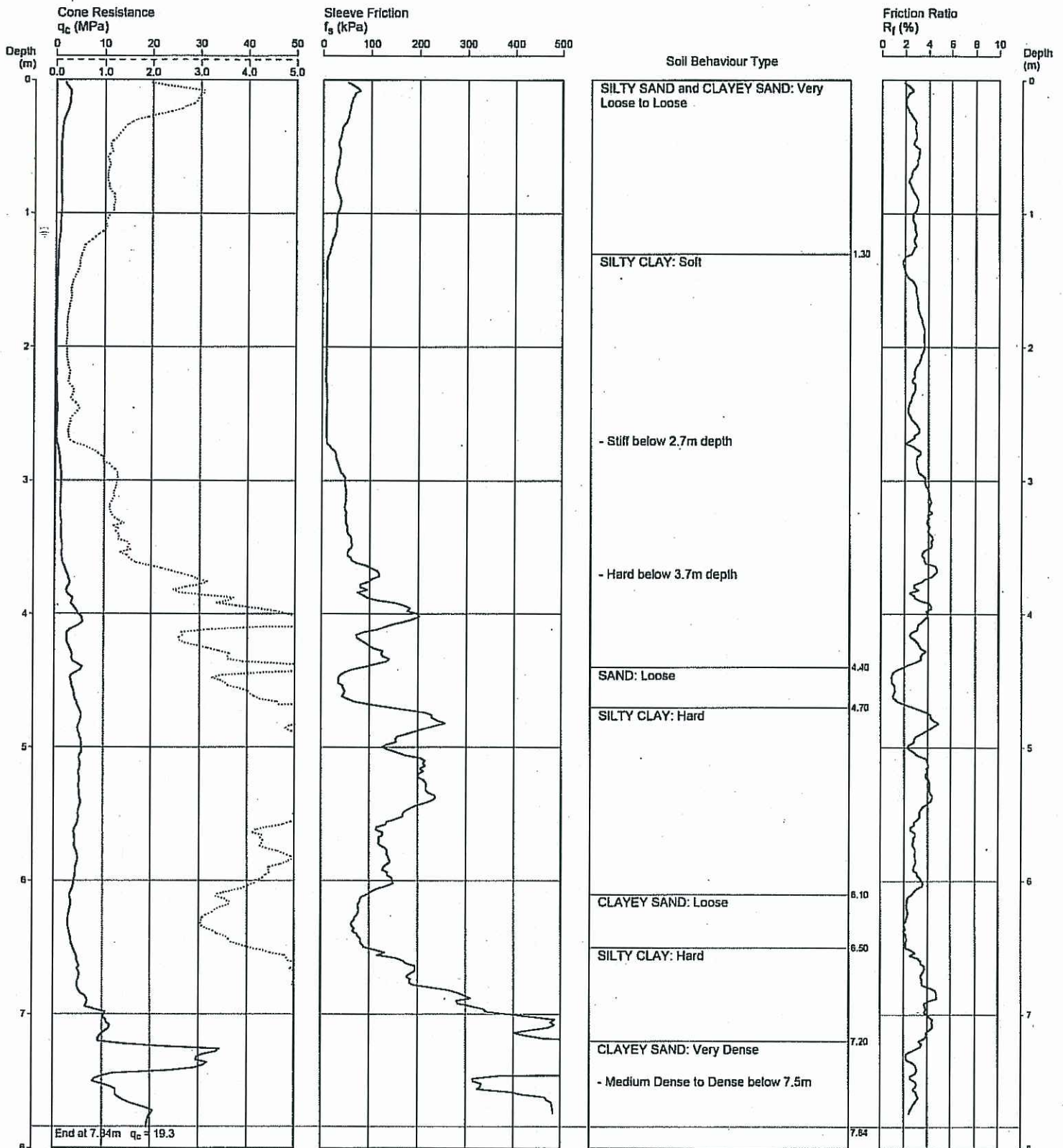
PROJECT No: 50888

35

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 2.6m AHD



REMARKS: GPS: 480366E, 7867355N

Date
Plotted
Checked

File: P:\50888 - OONONBA, Factual Geotechnical Investigation, DPI Site\Gint or CPT logs\50888-3
Cone ID: CONE-152 Type: 2 Standard
ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

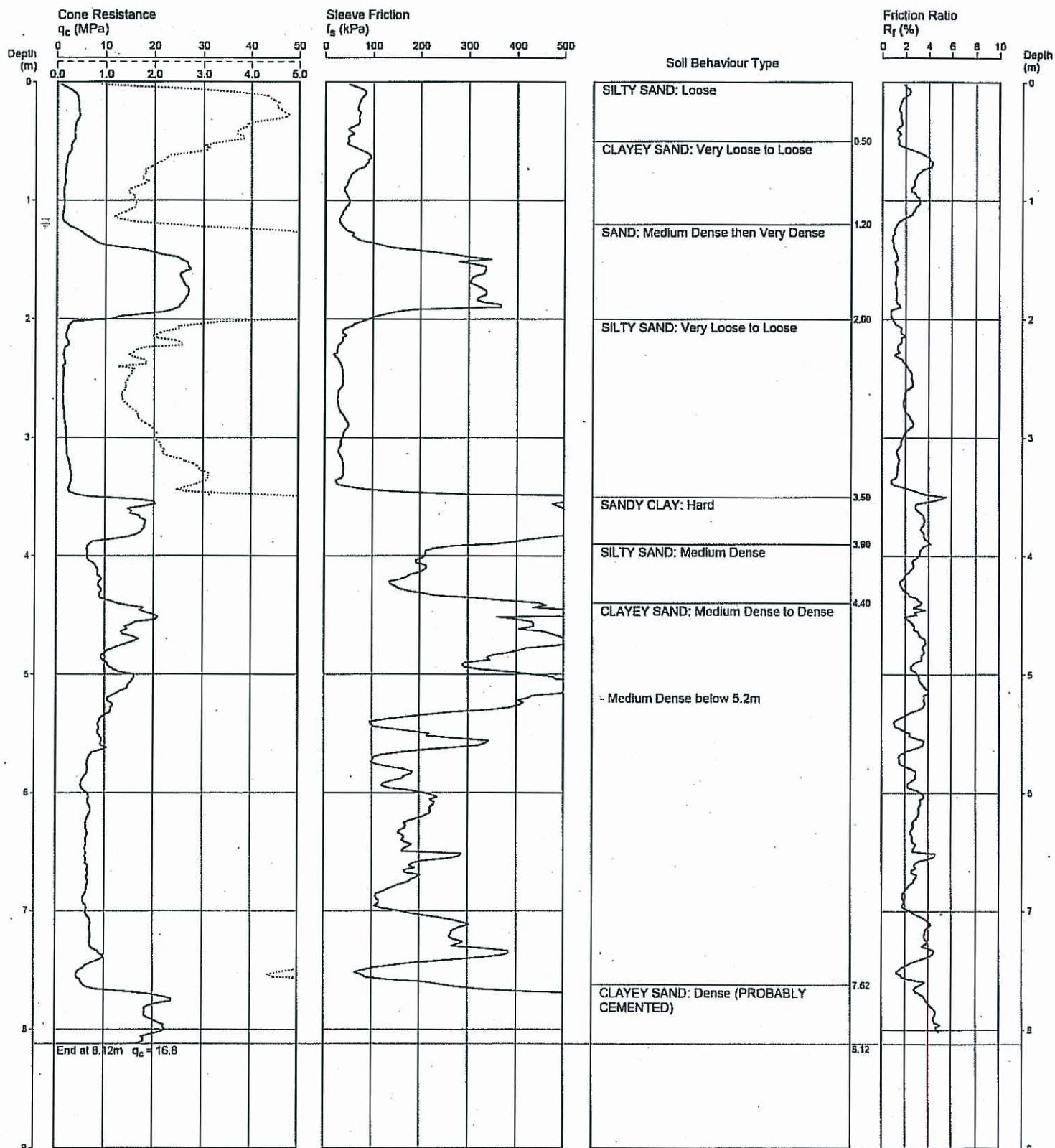
PROJECT No: 50888

38

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 3.3m AHD



REMARKS: GPS: 480320E, 7867183N

Date
Plotted
Checked

File: P:50888 - OONONBA, Factual Geotechnical Investigation, DPI Site/Gint or CPT logs\50888-3
Cone ID: CONE-152 Type: 2 Standard

ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

CONE PENETRATION TEST

CLIENT: AECOM Australia Pty Ltd

PROJECT: Department of Primary Industries

LOCATION: off Abbott Street, Oonoonba

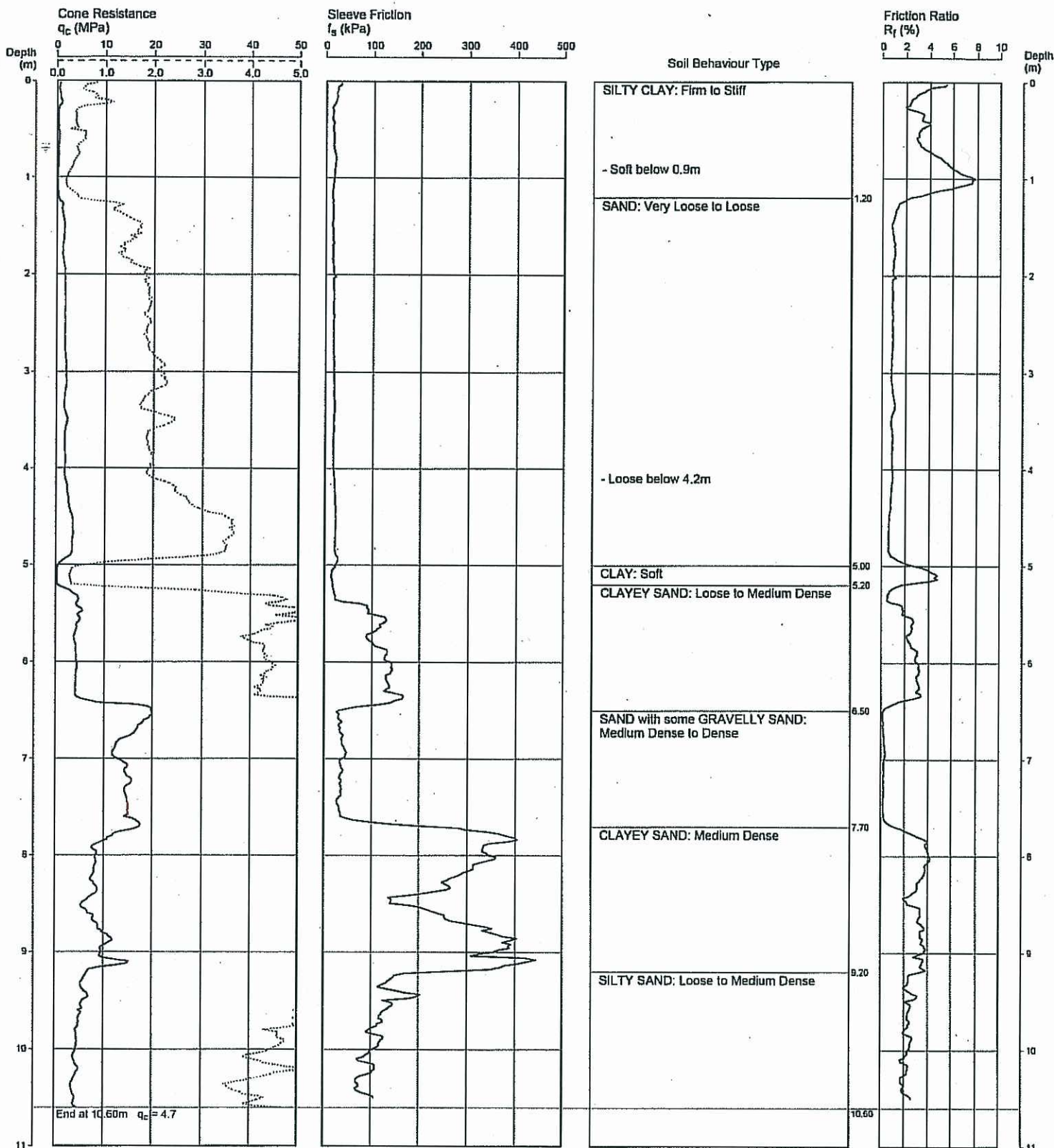
PROJECT No: 50888

39

Page 1 of 1

DATE 15/04/2010

SURFACE RL: 2.8m AHD



REMARKS: GPS: 479899E, 7867411N

Date
Plotted
Checked

File: P:\50888 - OONONBA, Factual Geotechnical Investigation, DPI SilletGint or CPT logs\50888-3
Cone ID: CONE-152 Type: 2 Standard
ConePlot Version 5.8.1
© 2003 Douglas Partners Pty Ltd



Douglas Partners
Geotechnics • Environment • Groundwater

TEST PIT LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Oonoonba DPI
LOCATION: Oonoonba

SURFACE LEVEL: 4 AHD
EASTING: 486410
NORTHING: 7867010
DIP/AZIMUTH: 90°/-

PIT No: 2
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - Light brown silty clay; M<<Wp										
	0.25	SILTY CLAY - Very stiff brown silty clay; M<<Wp			0.2		pp 80-120 kPa					
	0.35	SANDY GRAVELLY SILT - Medium dense dark brown sandy gravelly silt; fine to coarse grained sand fraction; humid			0.4		pp 150-240 kPa					
					0.5		pp 100-220 kPa					
	0.65	SILTY CLAY - Stiff to very stiff yellow brown silty clay with some fine grained sand; M<Wp		U50	0.75		pp 200-290 kPa					
					0.95							
-1	1.2	SILTY CLAY - Very stiff dark brown silty clay with a trace of fine grained sand; M<Wp										
	1.9	CLAYEY SAND - Medium dense grey orange clayey sand; fine to coarse grained sand fraction; damp										
-2					2.25		pp 140-230 kPa					
				U50								
					2.7							
-3	3.0	Pit discontinued at 3.0m depth - limit of investigation										

RIG: John Deere 315SJ excavator with 450mm wide toothed bucket

LOGGED: Lynch

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	D	Water seep
			Water level

CHECKED
Initials: <i>MLA</i>
Date: 17-5-10



Douglas Partners
Geotechnics • Environment • Groundwater

TEST PIT LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Ooonoonba DPI
LOCATION: Ooonoonba

SURFACE LEVEL: 4.5 AHD
EASTING: 486080
NORTHING: 7867077
DIP/AZIMUTH: 90°/--

PIT No: 4
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)				
				Type	Depth	Sample	Results & Comments		5	10	15	20	
	0.3	SILTY CLAY - Soft to firm dark brown silty clay with a trace of fine to medium grained sand; M<Wp		U50	0.5		pp 110-150 kPa						
	0.5	SILTY CLAY - Firm dark brown black silty clay with a trace of fine to medium grained sand; M<Wp											
	0.5	SLIGHTLY SANDY CLAY - Stiff to very stiff grey orange fine to medium grained sandy clay; M<Wp											
	1.3	SAND - Medium dense grey dark brown fine to coarse grained sand;		D	1.5								
	1.6	Pit discontinued at 1.6m depth due to pit wall collapse											
					</								

RIG: John Deere 315SJ excavator with 450mm wide toothed bucket

LOGGED: Lynch

WATER OBSERVATIONS: Groundwater seepage at 1.5m depth

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PD	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength (IS) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	D	Water seen
		W	Water level

CHECKED
Initials: <i>WJ</i>
Date: 17.5.10



Douglas Partners
Geotechnics • Environment • Groundwater

TEST PIT LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Oonoonba DPI
LOCATION: Oonoonba

SURFACE LEVEL: 4.5 AHD
EASTING: 480175
NORTHING: 7866897
DIP/AZIMUTH: 90°/-

PIT No: 8
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - Dark brown grey slightly clayey silty fine to medium grained sand; humid										
	0.2	SILTY SAND - Medium dense orange brown silty fine to medium grained sand with some clay; humid			0.3		pp 250-380 kPa					
	0.5	SAND AND SILTY CLAY - Medium dense to dense/very stiff orange brown sand and silty clay; fine to medium grained sand fraction; humid/M<Wp			0.6		pp 320-420 kPa					
	1.0			D	1.0		pp 210-270 kPa					
	1.2	SLIGHTLY SILTY SAND - Medium dense yellow brown fine to medium grained sand; damp			1.25		No sample retained					
				U50								
					1.7							
		- grading to wet below 1.8m depth										
	2.0			D	2.0							
	3.0	Pit discontinued at 3.0m depth - limit of investigation		D	3.0							

RIG: John Deere 315SJ excavator with 450mm wide toothed bucket

LOGGED: Lynch

WATER OBSERVATIONS: Groundwater seepage at 1.8m depth

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength fs(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		▽	Water level

CHECKED
Initials <i>MAP</i>
Date: 17.5.10



Douglas Partners
Geotechnics • Environment • Groundwater

TEST PIT LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Oonoonba DPI
LOCATION: Oonoonba

SURFACE LEVEL: 4 AHD
EASTING: 480483
NORTHING: 7866695
DIP/AZIMUTH: 90°/-

PIT No: 12
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		FILLING - Dark brown black silt and fine to medium grained sand filling; moist										
	0.25	SILTY CLAY - Soft to firm dark brown black silty clay with some fine to medium grained sand; M=Wp		D	0.25							
					0.5		pp 40-90 kPa					
	0.7	SAND AND SILT - Medium dense orange brown sand and silt; fine to medium grained sand; humid			0.75		pp 40-80 kPa					
				U50	1.0		pp 20-50 kPa					
					1.2							
				D	1.5							
	1.6	SANDY CLAY - Stiff to very stiff grey brown fine to medium grained sandy clay; M>Wp										
	1.8	CLAYEY SAND - Medium dense orange grey brown clayey fine to medium grained sand; damp										
	2.0	SANDY CLAY - Stiff to very stiff grey brown fine to medium grained sandy clay; M>Wp		D	2.25							
					2.4		pp 90-110 kPa					
	3.0	Pit discontinued at 3.0m depth - limit of investigation										

RIG: John Deere 315SJ excavator with 450mm wide toothed bucket

LOGGED: Lynch

WATER OBSERVATIONS: Groundwater seepage at 2.6m depth

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3

☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength ts(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		▽	Water level

CHECKED
Initials: <i>ML</i>
Date: 17.5.10



Douglas Partners
Geotechnics • Environment • Groundwater

PIT No: 15
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

Douglas Partners
Geotechnics • Environment • Groundwater

TEST PIT LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Oonoonba DPI
LOCATION: Oonoonba

SURFACE LEVEL: 4.2 AHD
EASTING: 479868
NORTHING: 7866791
DIP/AZIMUTH: 90°/-

PIT No: 17
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
	0.15	SILTY SAND - Loose light brown silty fine to medium grained sand; humid										
		SILTY SAND - Loose to medium dense light brown silty fine to medium grained sand; humid										
	1.0			D	1.0							
	1.3	SANDY CLAY - Stiff to very stiff dark brown to black fine grained sandy clay; M<Wp										
					1.5		pp 190-240 kPa					
				U50								
					1.95							
					2.2		pp 20-60 kPa					
				D	2.75							
	3.1	SAND - Medium dense light brown fine to coarse grained sand; damp										
				D	3.3							
	3.5	Pit discontinued at 3.5m depth - limit of investigation										

RIG: John Deere 315SJ excavator with 450mm wide toothed bucket

LOGGED: Lynch

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PLD	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength $f_{\text{p}}(50)$ MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		▽	Water level

CHECKED
Initials: <i>MA</i>
Date: 17.5.10



Douglas Partners
 Geotechnics • Environment • Groundwater

TEST PIT LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Oonoonba DPI
LOCATION: Oonoonba

SURFACE LEVEL: 4.5 AHD
EASTING: 479688
NORTHING: 7867204
DIP/AZIMUTH: 90°/-

PIT No: 25
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		SAND - Loose to medium dense brown fine to coarse grained sand with some gravel; humid		D	0.3							
	0.6	SAND - Medium dense dark brown fine to medium grained sand with some gravel; humid										
	1.8	Pit discontinued at 1.8m depth due to pit wall collapse										

RIG: John Deere 315SJ excavator with 450mm wide toothed bucket

LOGGED: Lynch

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	Δ	Water seep
		W	Water level

CHECKED	
Initials:	MA
Date:	17 Jul 10



Douglas Partners
 Geotechnics • Environment • Groundwater

TEST PIT LOG

CLIENT: AECOM Australia Pty Ltd
PROJECT: Oonoonba DPI
LOCATION: Oonoonba

SURFACE LEVEL: 4.3 AHD
EASTING: 479688
NORTHING: 7867408
DIP/AZIMUTH: 90°/-

PIT No: 26
PROJECT No: 50888
DATE: 16 Apr 10
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)			
				Type	Depth	Sample	Results & Comments		5	10	15	20
		SAND - Loose light brown fine to coarse grained sand; humid										
	0.4	SAND - Loose brown fine to coarse grained sand; humid		D	0.6							
	1.7	Pit discontinued at 1.7m depth due to pit wall collapse										

RIG: John Deere 315SJ excavator with 450mm wide toothed bucket

LOGGED: Lynch

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

- ☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	PID	Photo ionisation detector
B	Bulk sample	S	Standard penetration test
U	Tube sample (x mm dia.)	PL	Point load strength Is(50) MPa
W	Water sample	V	Shear Vane (kPa)
C	Core drilling	W	Water seep
			Water level

CHECKED
Initials: <i>MD</i>
Date: 17.5.10



Douglas Partners
Geotechnics • Environment • Groundwater

APPENDIX B

RESULTS OF LABORATORY TESTING



RESULTS OF MOISTURE CONTENT, PLASTICITY AND LINEAR SHRINKAGE TESTS

Client:	AECOM Australia Pty Ltd	Project No:	50888
Project:	Factual Geotechnical Investigation	Report No:	T10-298
		Report Date:	13/05/2010
Location:	Oonoomba DPI Site	Date Sampled:	16/04/2010
		Date of Test:	10/05/2010
		Page:	1 of 1

TEST LOCATION	DEPTH (m)	DESCRIPTION	CODE	W _F %	W _L %	W _P %	PI %	*LS %
Pit 2	0.5-0.95	Dark brown sandy gravelly silt	2,5	23.5	26	21	6	4
Pit 4	0.5-0.95	Grey orange slightly sandy clay	2,5	18.5	40	17	23	8
Pit 4	1.5	Dark brown sand	2,5	20.0	22	NP	NP	0
Pit 8	1.0	Orange brown sand and silty clay	2,5	11.6	33	15	18	10
Pit 8	2.0	Yellow brown slightly silty sand	2,5	16.0	23	NP	NP	1
Pit 12	0.25	Dark brown black silt and sand	2,5	16.6	23	22	1	3

Legend:

W_F Field Moisture Content
W_L Liquid limit
W_P Plastic limit
PI Plasticity index
LS Linear shrinkage from liquid limit condition (Mould length 250mm)

Test Methods:

Moisture Content: AS 1289 2.1.1
Liquid Limit: AS 1289 3.1.2
Plastic Limit: AS 1289 3.2.1
Plasticity Index: AS 1289 3.3.1
Linear Shrinkage: AS 1289 3.4.1

Code

Sample history for plasticity tests

1. Air dried
2. Low temperature (<50°C) oven dried
3. Oven (105°C) dried
4. Unknown

Method of preparation for plasticity tests

5. Dry sieved
6. Wet sieved
7. Natural

*Specify if sample crumbled CR or curled CU

Sampling Method(s): Sampled by Townsville Engineering Department

Remarks: NP - Nonplastic

Approved Signatory:

Tested: KT
Checked: DP

D. Pollock
Dean Pollock
Laboratory Manager



NATA Accredited Laboratory Number: 828

This Document is issued in accordance with
NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025



RESULTS OF MOISTURE CONTENT, PLASTICITY AND LINEAR SHRINKAGE TESTS

Client: AECOM Australia Pty Ltd		Project No: 50888	
Project: Factual Geotechnical Investigation		Report No: T10-300	
Location: Oonoonba DPI Site		Report Date: 13/05/2010	
		Date Sampled: 16/04/2010	
		Date of Test: 10/05/2010	
		Page: 1 of 1	

TEST LOCATION	DEPTH (m)	DESCRIPTION	CODE	W _F %	W _L %	W _P %	PI %	*LS %
Pit 12	0.75-1.2	Orange brown sand and silt	2,5	25.7	23	20	3	3
Pit 17	1.0	Light brown silty sand	2,5	22.3	37	NP	NP	0
Pit 17	1.5-1.95	Dark brown sandy clay	2,5	22.7	28	21	7	5
Pit 25	0.3	Brown sand with some gravel	2,5	3.1	28	NP	NP	0
Pit 26	0.6	Brown sand	2,5	6.3	31	NP	NP	0

Legend:

W_F Field Moisture Content
W_L Liquid limit
W_P Plastic limit
PI Plasticity index
LS Linear shrinkage from liquid limit condition (Mould length 250mm)

Test Methods:

Moisture Content: AS 1289 2.1.1
Liquid Limit: AS 1289 3.1.2
Plastic Limit: AS 1289 3.2.1
Plasticity Index: AS 1289 3.3.1
Linear Shrinkage: AS 1289 3.4.1

Code

Sample history for plasticity tests

1. Air dried
2. Low temperature (<50°C) oven dried
3. Oven (105°C) dried
4. Unknown

Method of preparation for plasticity tests

5. Dry sieved
6. Wet sieved
7. Natural

*Specify if sample crumbled CR or curled CU

Sampling Method(s): Sampled by Townsville Engineering Department

Remarks: NP - Nonplastic

Approved Signatory:

D. Pollock
Dean Pollock
Laboratory Manager



NATA Accredited Laboratory Number: 828

This Document is issued in accordance with
NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Tested: KT
Checked: DP



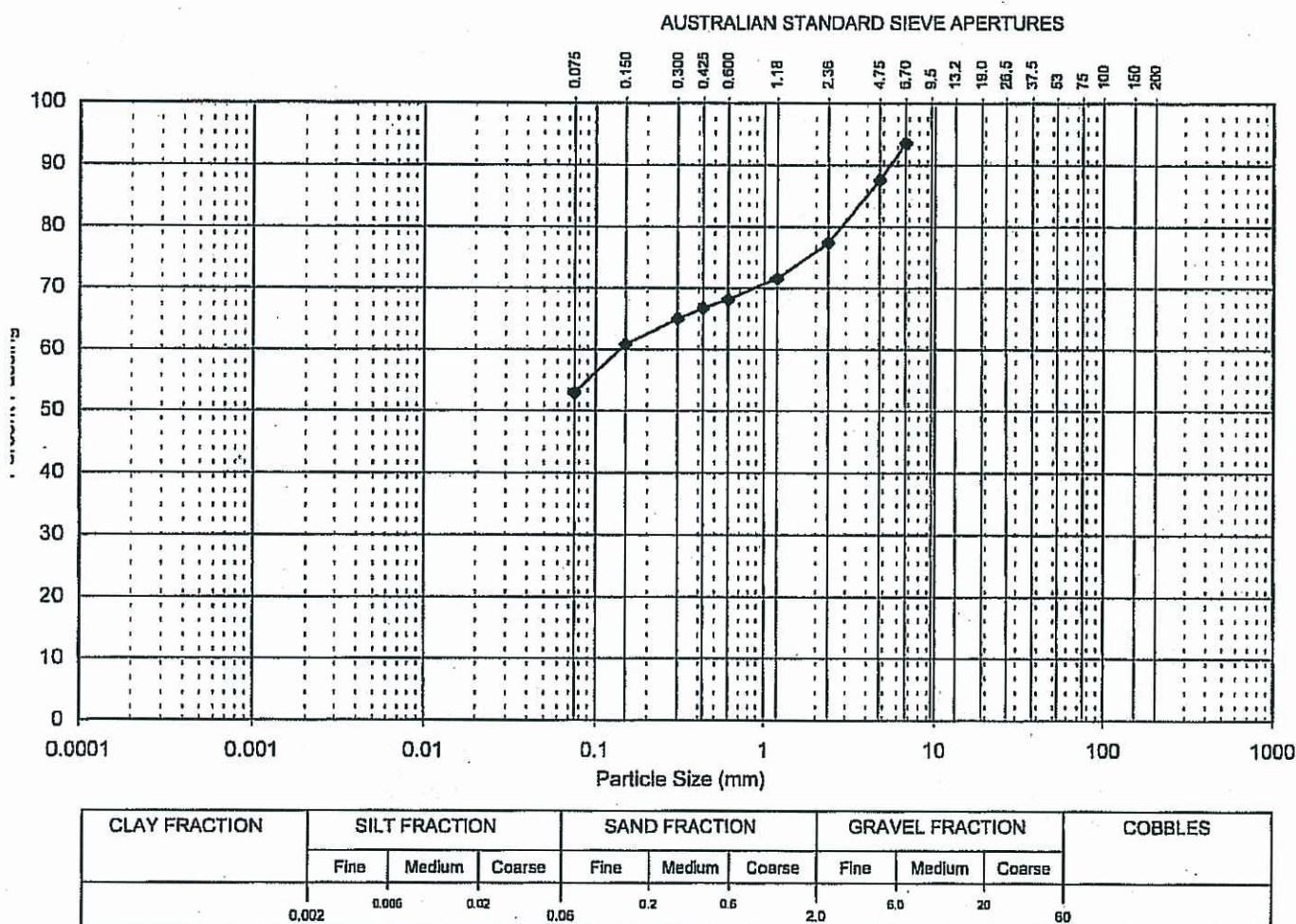
Douglas Partners
Geotechnics · Environment · Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-283
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 2	Date Sampled:	16/04/2010
Depth / Layer :	0.5-0.95m	Date of Test:	12/05/2010
		Page:	1 of 1



Description: Dark brown sandy gravelly silt

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



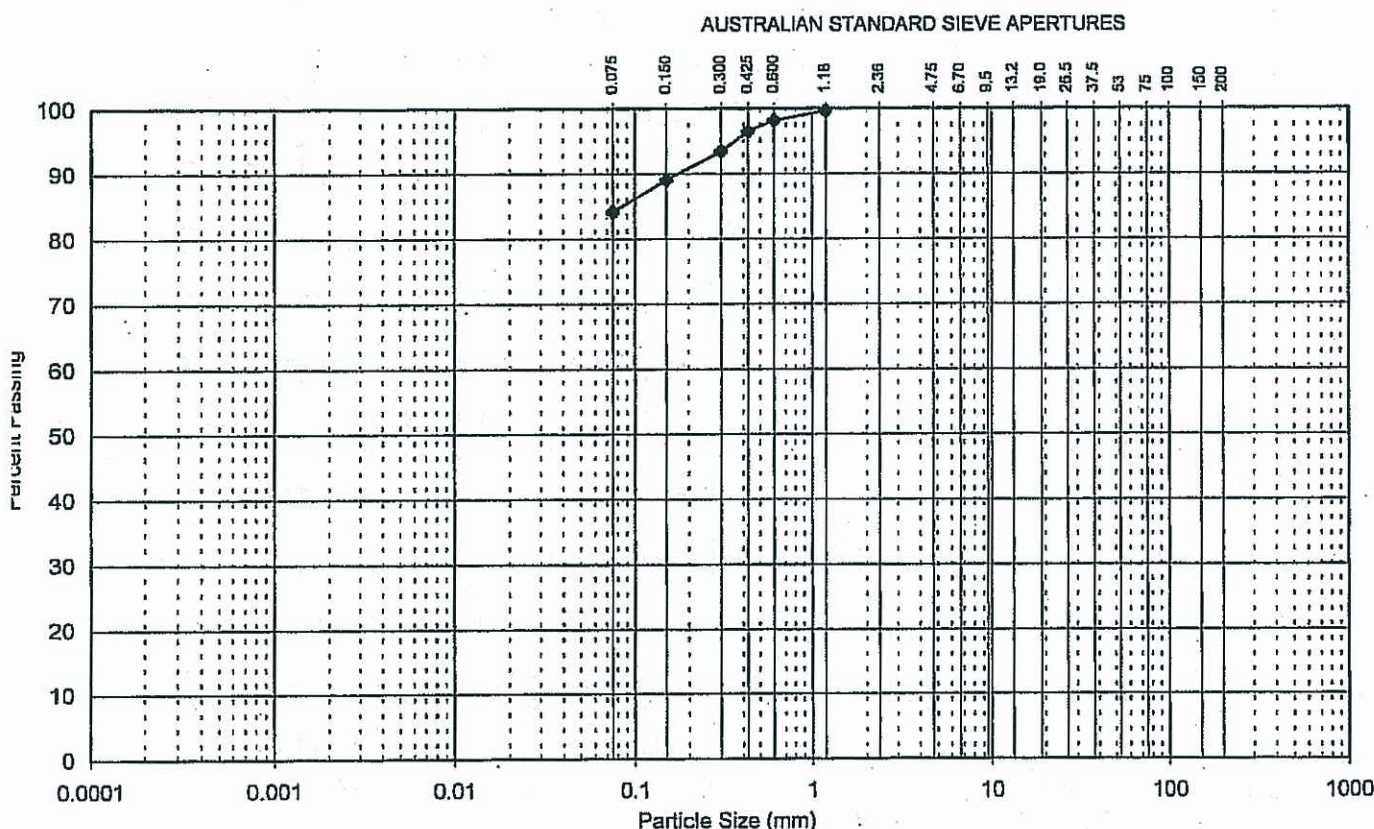
Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-289
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 4	Date Sampled:	16/04/2010
Depth / Layer :	0.5-0.95m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION			SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
			Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
			0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

Description: Grey orange slightly sandy clay

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

D. Pollock
Dean Pollock
Laboratory Manager



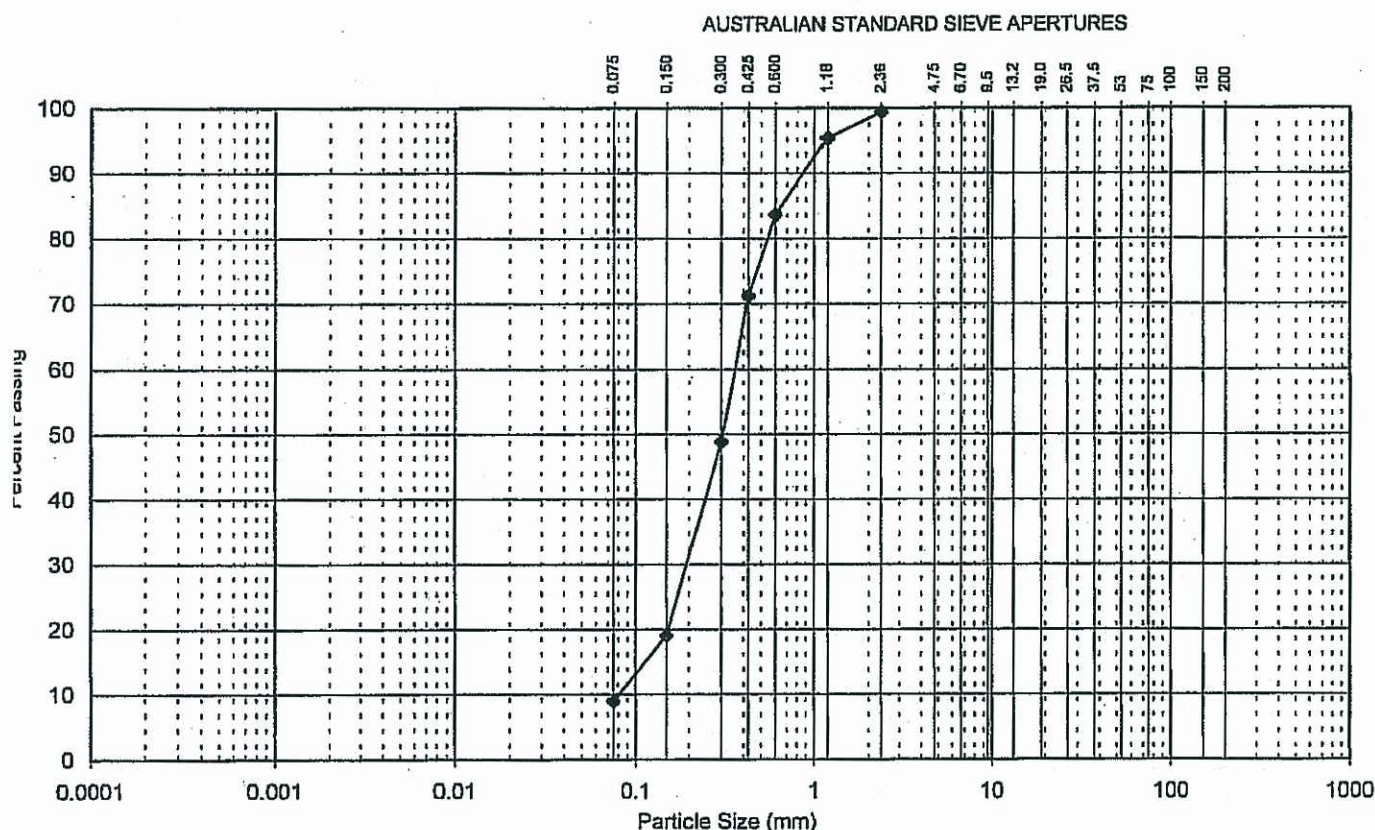
Douglas Partners
Geotechnics · Environment · Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-284
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 4	Date Sampled:	16/04/2010
Depth / Layer :	1.5	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.005	0.02	0.06	0.2	0.6	2.0	6.0	20	60

Description: Dark brown sand
 Test Method(s): AS 1289.3.6.1
 Sampling Method(s): Sampled by Townsville Engineering Department
 Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828

This Document is issued in accordance with NATA's accreditation requirements.
 Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested: KT
 Checked: DP

D. Pollock
 Dean Pollock
 Laboratory Manager



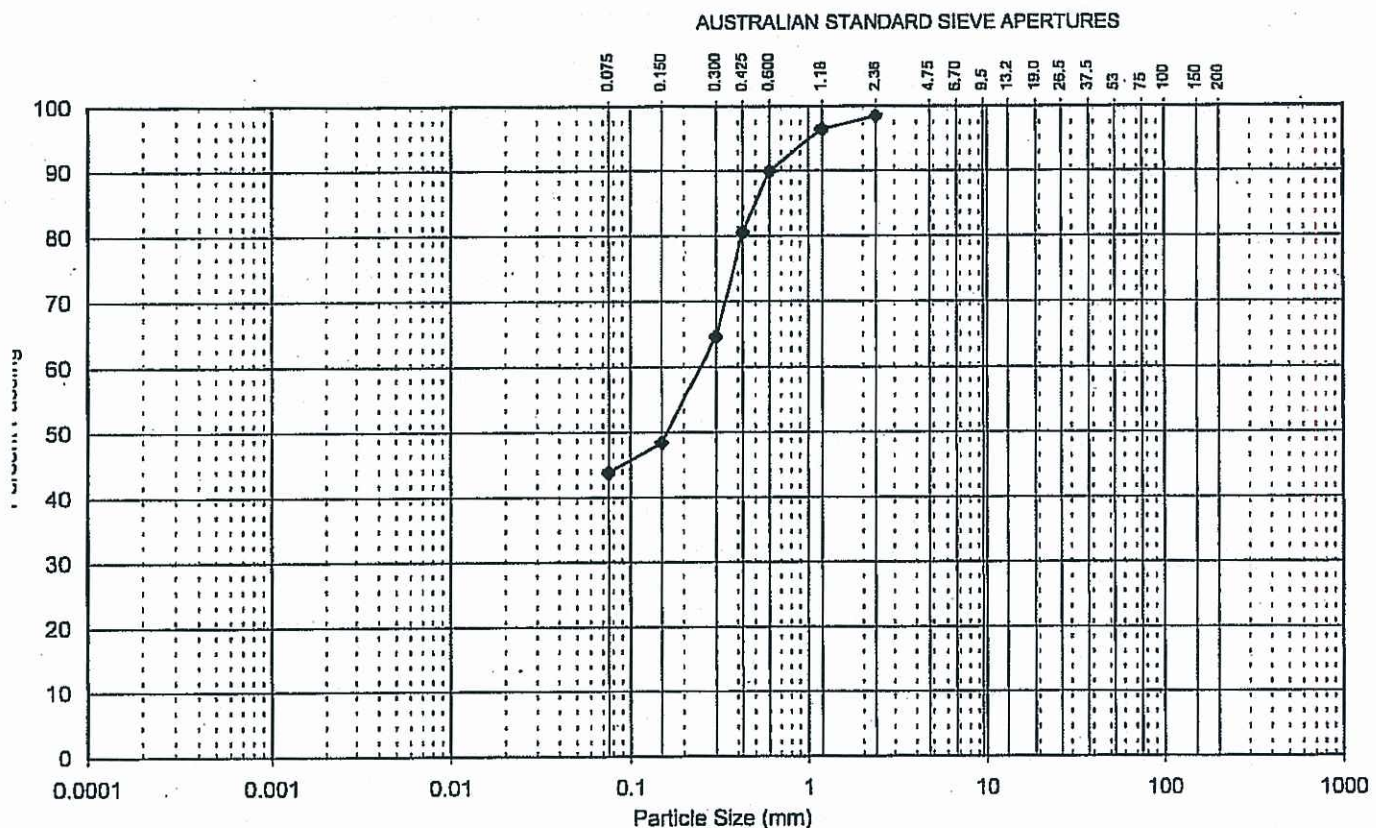
Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-285
Location :	Oonoomba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 8	Date Sampled:	16/04/2010
Depth / Layer :	1.0m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.005	0.02	0.06	0.2	0.6	2.0	6.0	20	60

Description: Orange sand and silty clay

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



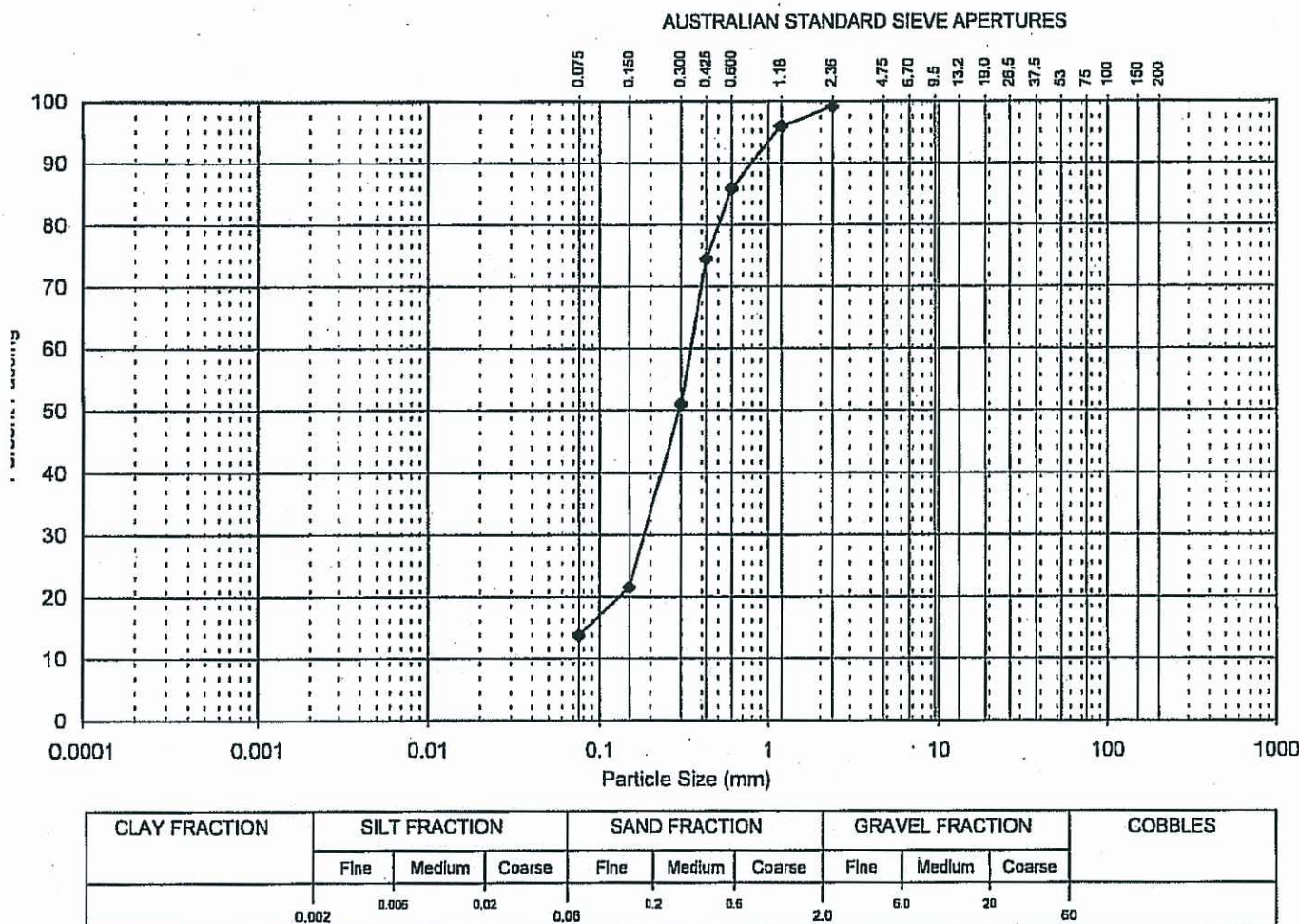
Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-286
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 8	Date Sampled:	16/04/2010
Depth / Layer :	2.0m	Date of Test:	12/05/2010
		Page:	1 of 1



Description: Yellow brown slightly silty sand

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



Douglas Partners
Geotechnics - Environment - Groundwater

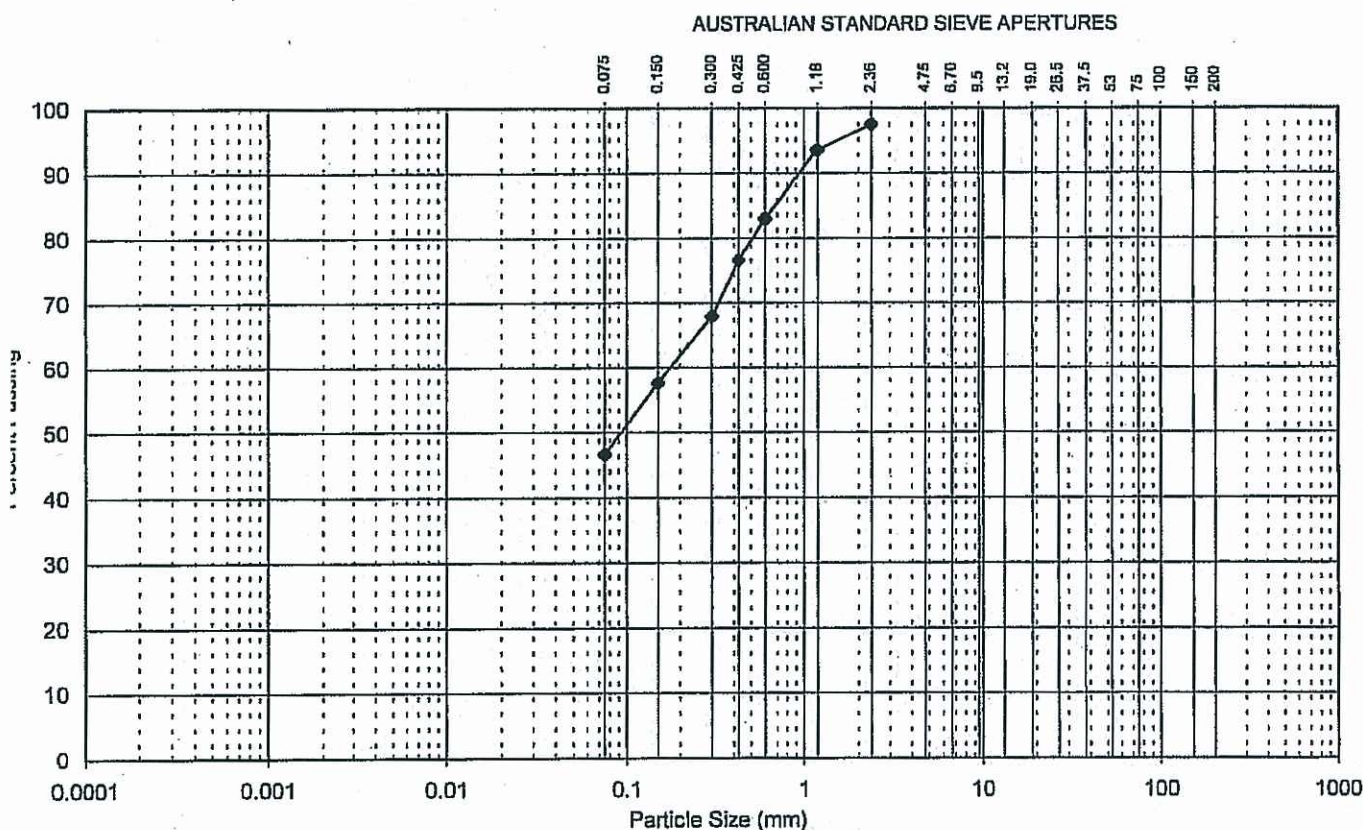
Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814

Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-287
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 12	Date Sampled:	16/04/2010
Depth / Layer :	0.25m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.005	0.02	0.06	0.2	0.6	2.0	6.0	20	60

Description: Dark brown black silt and sand

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



Douglas Partners
Geotechnics - Environment - Groundwater

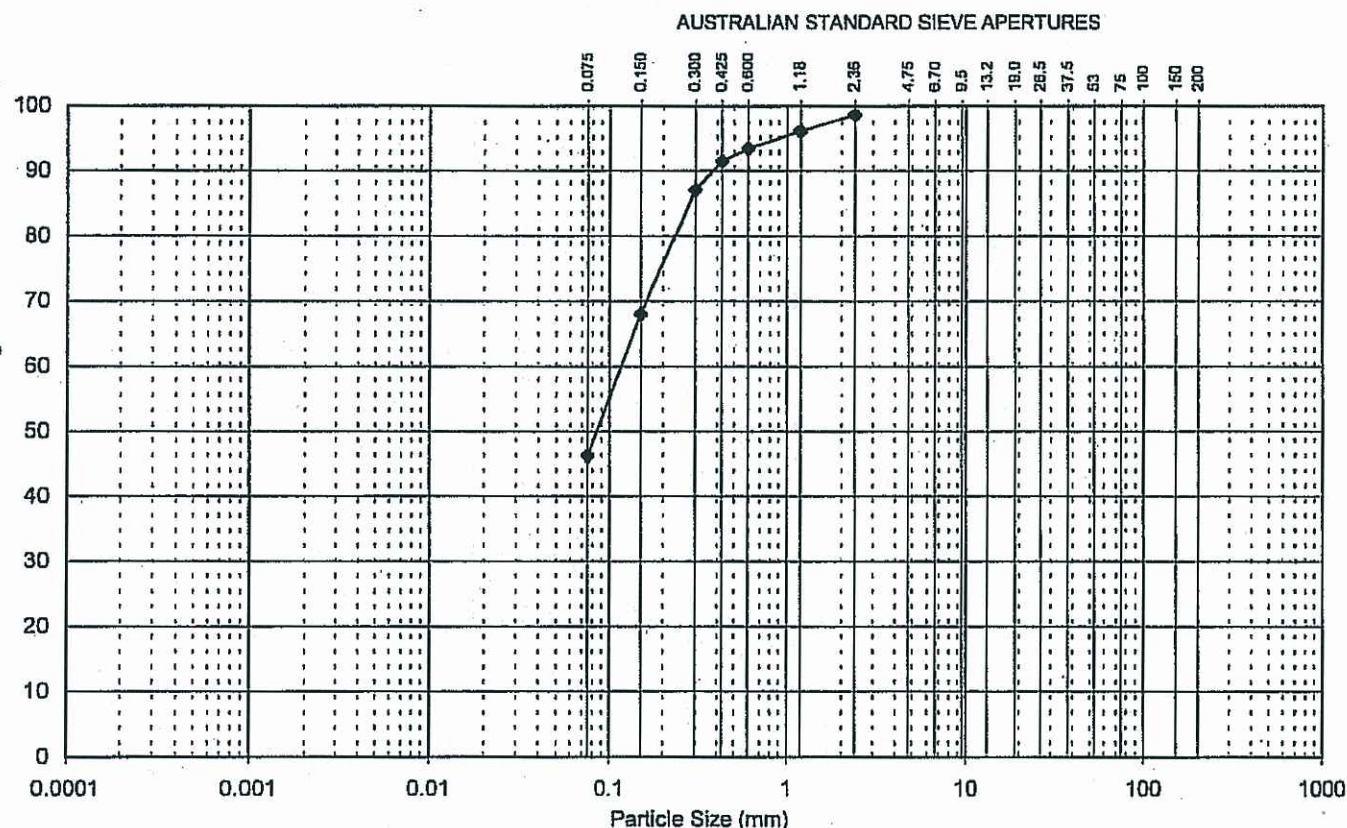
Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814

Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-288
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 12	Date Sampled:	16/04/2010
Depth / Layer :	0.75-1.2m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.005	0.02	0.06	0.2	0.6	2.0	6.0	20	60

Description: Orange brown sand and silt

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



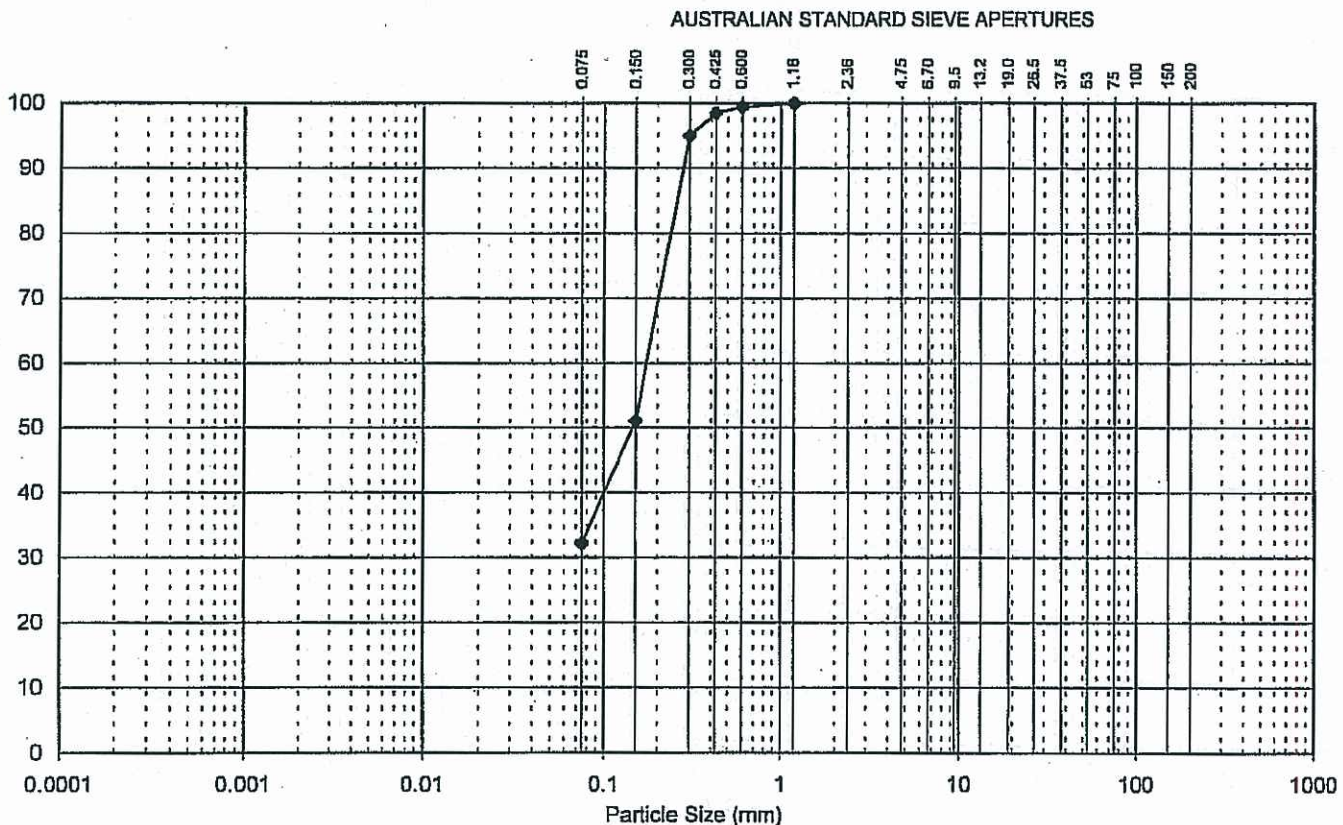
Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-290
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 17	Date Sampled:	16/04/2010
Depth / Layer :	1.0m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.005	0.02	0.06	0.2	0.6	2.0	50	20	50

Description: Light brown silty sand

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollack
Dean Pollock
Laboratory Manager



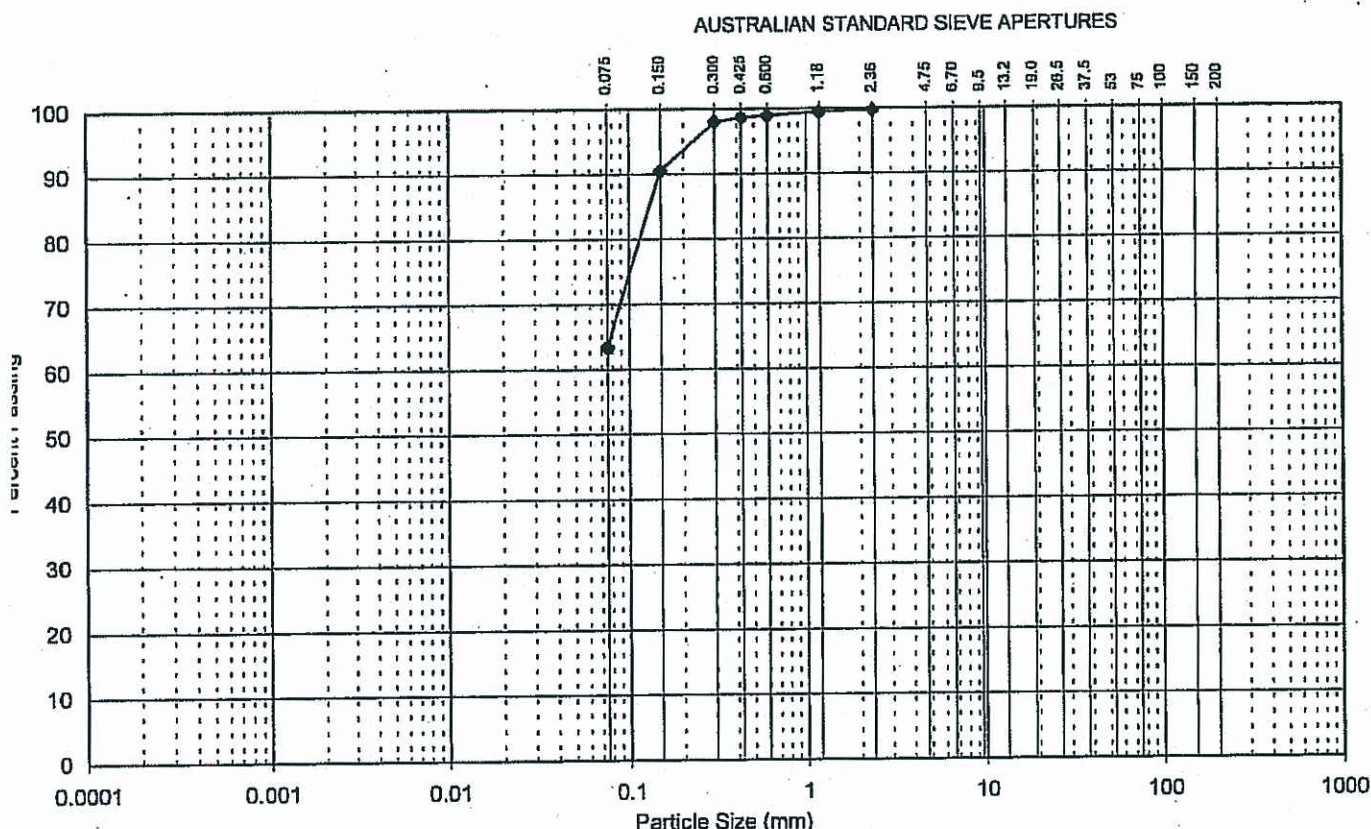
Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-291
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 17	Date Sampled:	16/04/2010
Depth / Layer :	1.5-1.95m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.005	0.02	0.05	0.2	0.5	2.0	6.0	20	60

Description: Dark brown sandy clay
Test Method(s): AS 1289.3.6.1
Sampling Method(s): Sampled by Townsville Engineering Department
Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
 This Document is issued in accordance with NATA's
 accreditation requirements.
 Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
 Dean Pollock
 Laboratory Manager



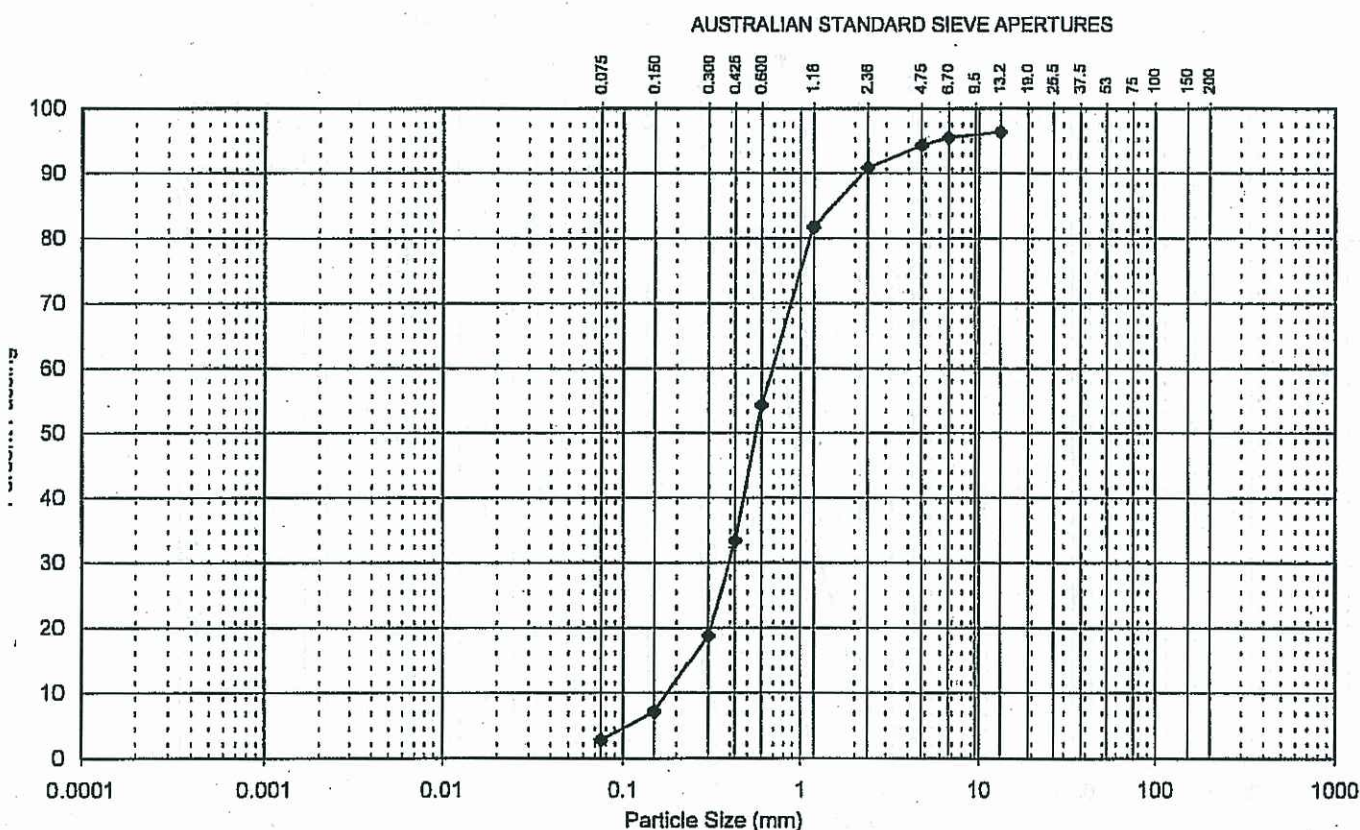
Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814
Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-292
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 25	Date Sampled:	16/04/2010
Depth / Layer :	0.3m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION			SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
0.002	0.006	0.02	0.05	0.2	0.6	2.0	6.0	20	60			

Description: Brown sand with some gravel

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested: KT
Checked: DP

DPollock
Dean Pollock
Laboratory Manager



Douglas Partners
Geotechnics - Environment - Groundwater

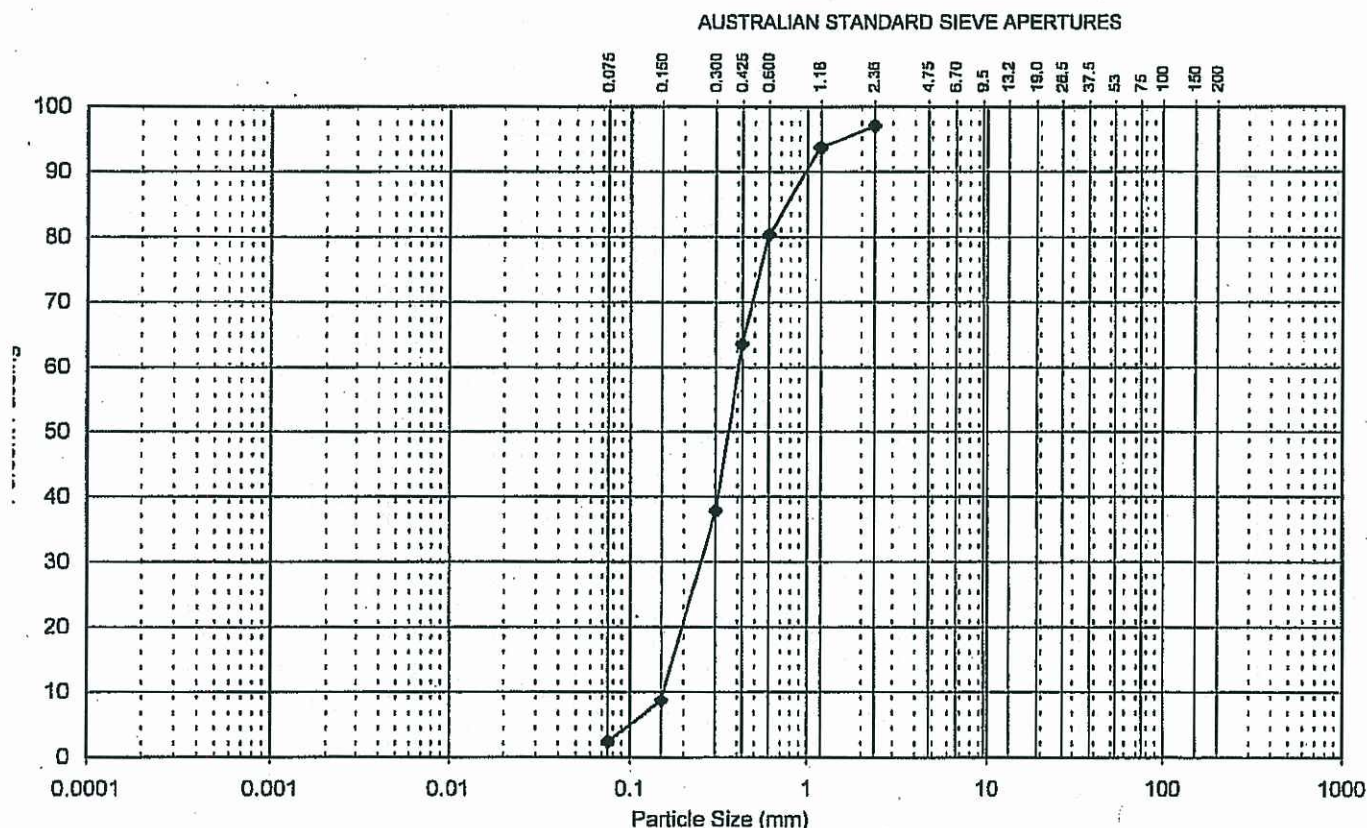
Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington Street
Garbutt QLD 4814

Phone 07 4779 9866
Fax: 07 4725 1224
townsville@douglaspartners.com.au

RESULTS OF PARTICLE SIZE DISTRIBUTION TEST

Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-293
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 26	Date Sampled:	16/04/2010
Depth / Layer :	0.6m	Date of Test:	12/05/2010
		Page:	1 of 1



CLAY FRACTION	SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
	0.002	0.005	0.02	0.05	0.2	0.6	2.0	8.0	20	60

Description: Brown sand

Test Method(s): AS 1289.3.6.1

Sampling Method(s): Sampled by Townsville Engineering Department

Method of Dispersion: Calgon

Remarks:



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's
accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



DETERMINATION OF EMERSON CLASS NUMBER OF SOIL

Client:	AECOM Australia Pty Ltd	Project No:	50888
Project:	Factual Geotechnical Investigation	Report No:	T10-301
		Report Date:	13/05/2010
Location:	Oonoonba DPI Site	Date of Test:	13/05/2010
		Page:	1 of 1

SAMPLE NO	DEPTH (m)	DESCRIPTION	WATER TYPE	WATER TEMP	CLASS NO.
Pit 2	0.5-0.95	Dark brown sandy gravelly silt	Distilled	26	6
Pit 4	0.5-0.95	Grey orange slightly sandy clay	Distilled	26	5
Pit 4	1.5	Dark brown sand	Distilled	26	5
Pit 8	1.0	Orange brown sand and silty clay	Distilled	26	5
Pit 8	2.0	Yellow brown slightly silty sand	Distilled	26	5
Pit 12	0.25	Dark brown silt and sand	Distilled	26	6

Test Method(s): AS 1289 3.8.1

Sampling Method(s): Sampled by Townsville Engineering Department

Remarks:

Approved Signatory:

Tested: KT
Checked: DP


Dean Pollock
Laboratory Manager



NATA Accredited Laboratory Number: 828

This Document is issued in accordance with
NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025



Douglas Partners
Geotechnics • Environment • Groundwater

Douglas Partners Pty Ltd
ABN 75 053 980 117

2/56 Pilkington St
Garbutt QLD 4814
Australia

2/56 Pilkington St
Garbutt QLD 4814

Phone (07) 4779 9866
Fax: (07) 4725 1224
townsville@douglaspartners.com.au

DETERMINATION OF EMERSON CLASS NUMBER OF SOIL

Client:	AECOM Australia Pty Ltd	Project No:	50888
Project:	Factual Geotechnical Investigation	Report No:	T10-302
		Report Date:	14/05/2010
Location:	Oonoomba DPI Site	Date of Test:	13/05/2010
		Page:	1 of 1

SAMPLE NO	DEPTH (m)	DESCRIPTION	WATER TYPE	WATER TEMP	CLASS NO.
Pit 12	0.75-1.2	Orange brown sand and silt	Distilled	26	6
Pit 17	1.0	Light brown sand	Distilled	26	6
Pit 17	1.5-1.95	Dark brown sandy clay	Distilled	26	6
Pit 25	0.3	Brown sand with some gravel	Distilled	26	6
Pit 26	0.6	Brown sand	Distilled	26	6

Test Method(s): AS 1289 3.8.1

Sampling Method(s): Sampled by Townsville Engineering Department

Remarks:

Approved Signatory:

Tested: KT
Checked: DP

Dean Pollock
Laboratory Manager



NATA Accredited Laboratory Number: 828

This Document is issued in accordance with
NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025



RESULT OF SHRINK-SWELL INDEX DETERMINATION

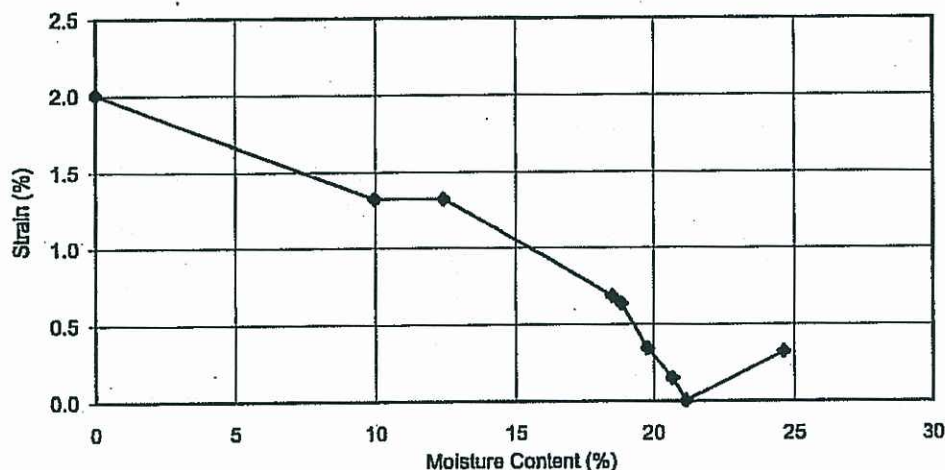
Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-294
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 2	Date Sampled :	16/04/2010
Depth / Layer :	0.5-0.95m	Date of Test:	6/05/2010
		Page:	1 of 1

CORE SHRINKAGE TEST

Shrinkage - air dried	1.3 %
Shrinkage - oven dried	2.0 %
Significant inert inclusions	0.0 %
Extent of cracking	HC
Extent of soil crumbling	0.0 %
Moisture content of core	21.2 %

SWELL TEST

Pocket penetrometer reading at initial moisture content	200 kPa
Pocket penetrometer reading at final moisture content	160 kPa
Initial Moisture Content	23.5 %
Final Moisture Content	24.6 %
Swell under 25kPa	-0.3 %



SHRINK-SWELL INDEX I_{ss} 1.1% per ΔpF

Description:	Dark brown sandy gravelly silt
Test Method(s):	AS 1289.7.1.1 - 2003, AS 1289.2.1.1 - 2005
Sampling Method(s):	AS 1289.1.3.1-1999
Extent of Cracking:	UC - Uncracked SC - Slightly cracked MC - Moderately cracked
Remarks:	HC - Highly cracked FR - Fractured

Note that NATA accreditation does not cover the performance of pocket penetrometer readings



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



RESULT OF SHRINK-SWELL INDEX DETERMINATION

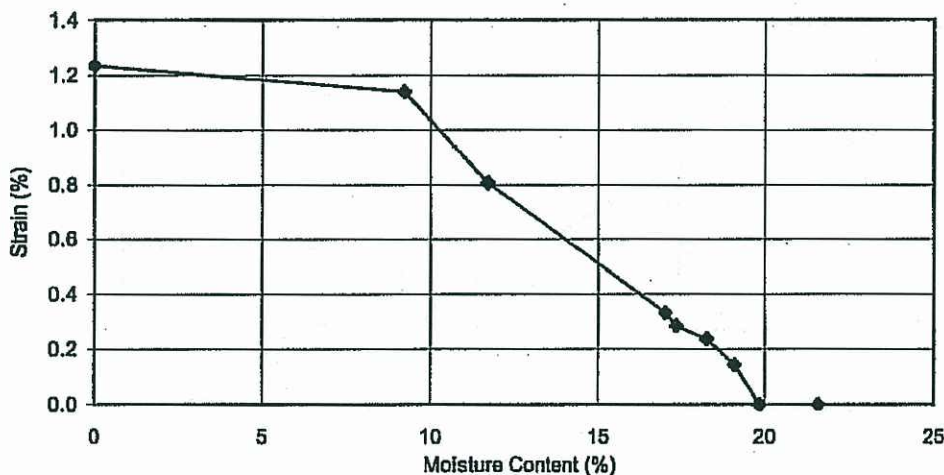
Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-296
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 4	Date Sampled :	16/04/2010
Depth / Layer :	0.5-0.95m	Date of Test:	6/05/2010
		Page:	1 of 1

CORE SHRINKAGE TEST

Shrinkage - air dried	1.1 %
Shrinkage - oven dried	1.2 %
Significant inert inclusions	0.0 %
Extent of cracking	
Extent of soil crumbling	0.0 %
Moisture content of core	19.8 %

SWELL TEST

Pocket penetrometer reading at initial moisture content	140 kPa
Pocket penetrometer reading at final moisture content	110 kPa
Initial Moisture Content	18.5 %
Final Moisture Content	21.6 %
Swell under 25kPa	0.0 %



SHRINK-SWELL INDEX I_{ss} 0.7% per ΔpF

Description:	Grey orange slightly sandy clay
Test Method(s):	AS 1289.7.1.1 - 2003, AS 1289.2.1.1 - 2005
Sampling Method(s):	AS 1289.1.3.1-1999
Extent of Cracking:	UC - Uncracked SC - Slightly cracked MC - Moderately cracked
Remarks:	HC - Highly cracked FR - Fractured

Note that NATA accreditation does not cover the performance of pocket penetrometer readings



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



RESULT OF SHRINK-SWELL INDEX DETERMINATION

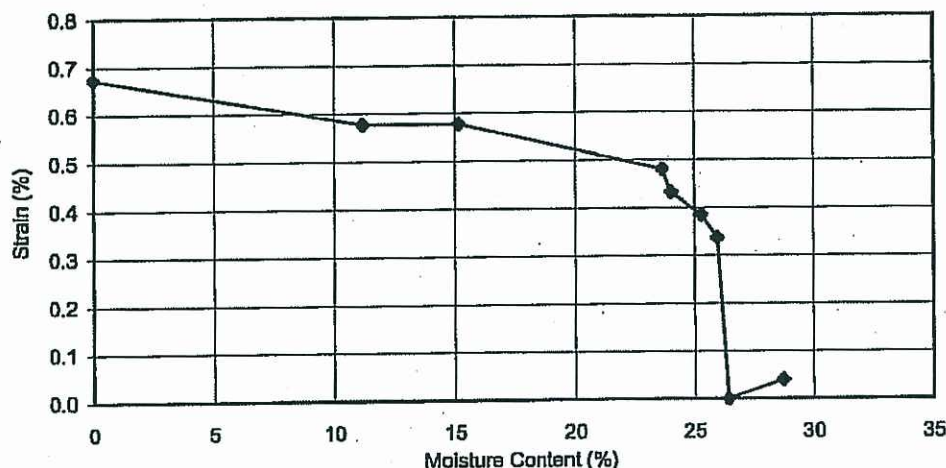
Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-295
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 12	Date Sampled :	16/04/2010
Depth / Layer :	0.75-1.2m	Date of Test:	6/05/2010
		Page:	1 of 1

CORE SHRINKAGE TEST

Shrinkage - air dried	0.6 %
Shrinkage - oven dried	0.7 %
Significant inert inclusions	0.0 %
Extent of cracking	
Extent of soil crumbling	0.0 %
Moisture content of core	26.4 %

SWELL TEST

Pocket penetrometer reading at initial moisture content	170 kPa
Pocket penetrometer reading at final moisture content	110 kPa
Initial Moisture Content	25.7 %
Final Moisture Content	28.8 %
Swell under 25kPa	0.0 %



SHRINK-SWELL INDEX I_{ss} 0.4% per ΔpF

Description:	Orange brown sand and silt
Test Method(s):	AS 1289.7.1.1 - 2003, AS 1289.2.1.1 - 2005
Sampling Method(s):	AS 1289.1.3.1-1999
Extent of Cracking:	UC - Uncracked SC - Slightly cracked MC - Moderately cracked HC - Highly cracked FR - Fractured
Remarks:	

Note that NATA accreditation does not cover the performance of pocket penetrometer readings



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

DPollock
Dean Pollock
Laboratory Manager



RESULT OF SHRINK-SWELL INDEX DETERMINATION

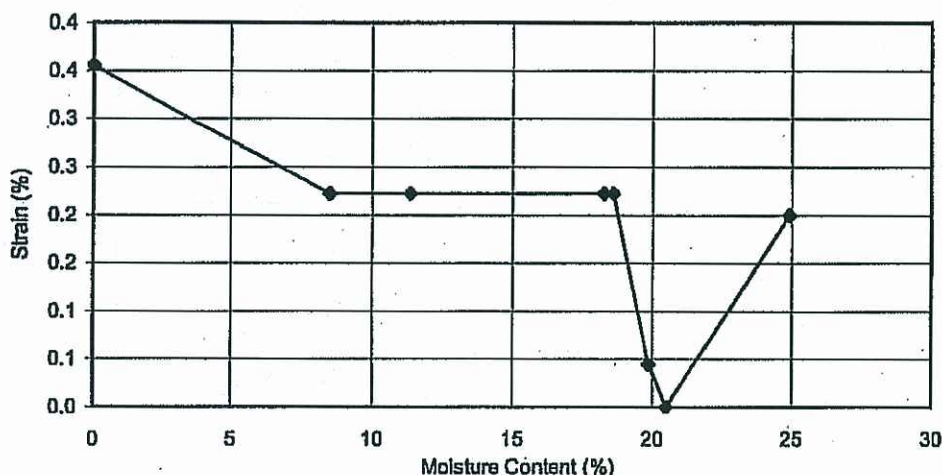
Client :	AECOM Australia Pty Ltd	Project No. :	50888
Project :	Factual Geotechnical Investigation	Report No. :	T10-297
Location :	Oonoonba DPI Site	Report Date :	13/05/2010
Test Location :	Pit 17	Date Sampled :	16/04/2010
Depth / Layer :	1.5-1.95m	Date of Test :	6/05/2010
		Page:	1 of 1

CORE SHRINKAGE TEST

Shrinkage - air dried	0.2 %
Shrinkage - oven dried	0.4 %
Significant inert inclusions	0.0 %
Extent of cracking	
Extent of soil crumbling	0.0 %
Moisture content of core	20.5 %

SWELL TEST

Pocket penetrometer reading at initial moisture content	100 kPa
Pocket penetrometer reading at final moisture content	100 kPa
Initial Moisture Content	22.7 %
Final Moisture Content	24.9 %
Swell under 25kPa	-0.2 %



SHRINK-SWELL INDEX I_{ss} 0.2% per ΔpF

Description:	Dark brown sandy clay
Test Method(s):	AS 1289.7.1.1 - 2003, AS 1289.2.1.1 - 2005
Sampling Method(s):	AS 1289.1.3.1-1999
Extent of Cracking:	UC - Uncracked SC - Slightly cracked MC - Moderately cracked
Remarks:	HC - Highly cracked FR - Fractured

Note that NATA accreditation does not cover the performance of pocket penetrometer readings



NATA Accredited Laboratory Number: 828
This Document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025

Approved Signatory:

Tested:	KT
Checked:	DP

D. Pollock
Dean Pollock
Laboratory Manager