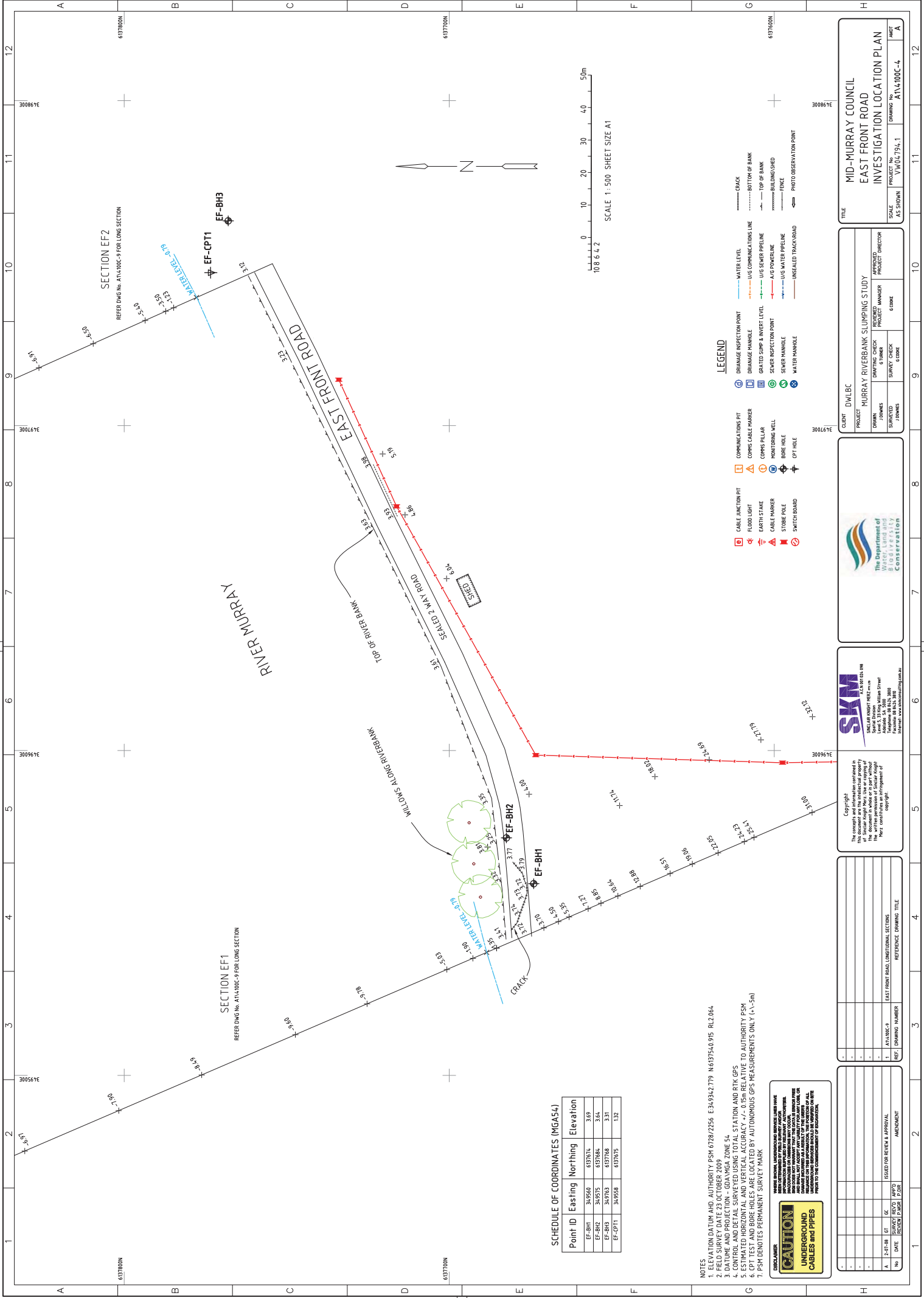




Appendix E East Front Road In-situ and Laboratory Data

Table of Contents

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CPTu Test Results	Page E-6
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SCHEDULE OF COORDINATES (MGAS4)

Point ID	Easting	Northing	Elevation
EF-BH1	349569	6137521	3.69
EF-BH2	349569	6137521	3.69
EF-BH3	349569	6137521	3.69
EF-CPT1	349568	6137525	1.32

- NOTES
- ELEVATION DATUM AHD. AUTHORITY PSM 4728/2256 E:349342.779 N:6137540.915 RL2.064
 - FIELD SURVEY DATE 23 OCTOBER 2009
 - DATUM AND PROJECTION - GDA/MGA ZONE 54
 - CONTROL AND DETAIL SURVEYED USING TOTAL STATION AND RTK GPS
 - ESTIMATED HORIZONTAL AND VERTICAL ACCURACY ± 7.0 mm RELATIVE TO AUTHORITY PSM
 - ESTIMATED HORIZONTAL AND VERTICAL ACCURACY ± 10.0 mm RELATIVE TO AUTHORITY PSM
 - PSM IDENTOTES PERMANENT SURVEY MARK

CAUTION

UNDERGROUND
CABLES AND PIPES

WARNING: UNDEVELOPED SERVICE LINES HAVE
NOT BEEN IDENTIFIED BY SURVEY. ANY
UNDEVELOPED SERVICE LINES MAY BE
PRESENT. ANY WORK SHOULD BE DONE
WITH CAUTION AND AVOIDANCE OF ALL
UNDEVELOPED SERVICE LINES. THE PRESENCE OF ALL
UNDEVELOPED SERVICE LINES IS NOT
GUARANTEED. THE PRESENCE OF ALL
UNDEVELOPED SERVICE LINES IS NOT
GUARANTEED. THE PRESENCE OF ALL
UNDEVELOPED SERVICE LINES IS NOT
GUARANTEED.

DATE	REVIEW	APPROVAL	ASSESSMENT
2-07-08	GT	GT	GT

DATE	REVIEW	APPROVAL	ASSESSMENT
2-07-08	GT	GT	GT

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SKM

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The Department of
Water, Land and
Conservation

CLIENT DWLBC
PROJECT MURRAY RIVERBANK SLUMPING STUDY

DRAWN	CHECKED	REVIEWED	APPROVED
J. DUNN	G. DUNN	G. DUNN	G. DUNN

MID-MURRAY COUNCIL
EAST FRONT ROAD
INVESTIGATION LOCATION PLAN

SCALE
AS SHOWN

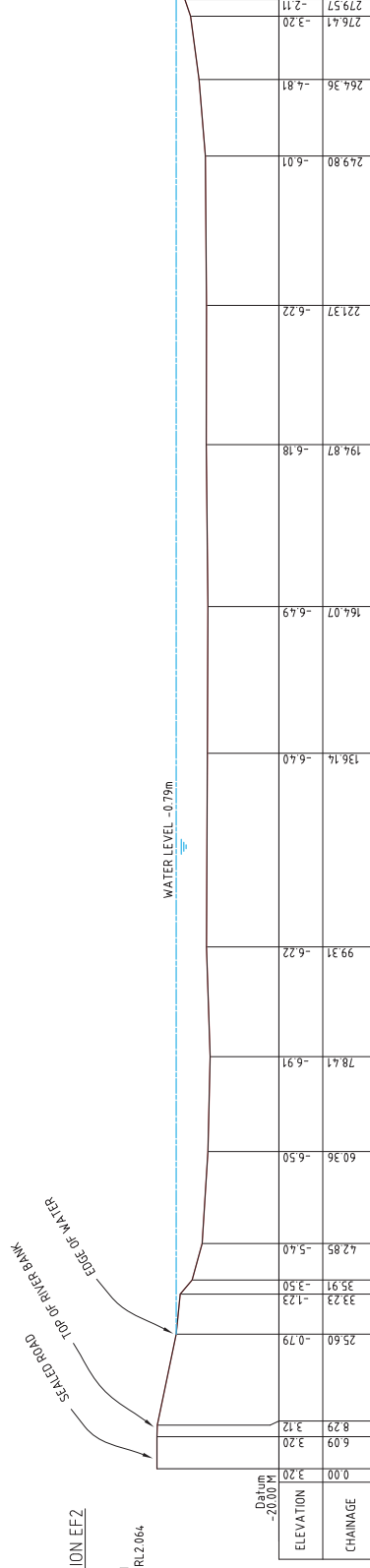
PROJECT No
VW021794.1

DRAWING No
ATN100C-4

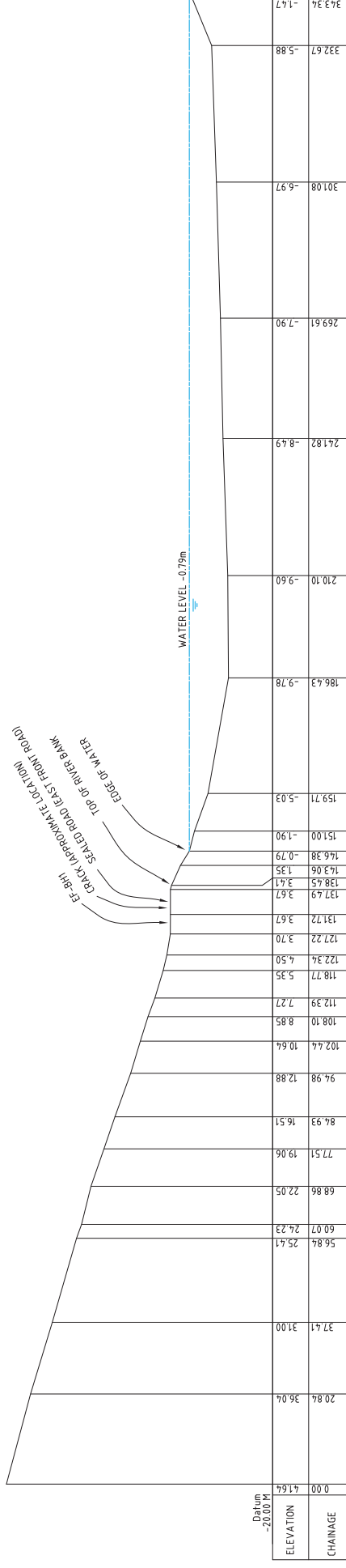
AUT
A

EAST FRONT ROAD

LONGITUDINAL SECTION EF2
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6728/2256 RL2.064



LONGITUDINAL SECTION EF1
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6728/2256 RL2.064



No	DATE	GT	GC	ISSUED FOR REVIEW & APPROVAL	
				SURVEY REV'D	APPR'D AMENDMENT
A	2-27-14				
-					
-					
-					
-					

-		
-		
-		
-		
-		
1	ATL1002-4	EAST FRONT ROAD, TOPOGRAPHICAL SURVEY REF. DRAWING NUMBER REFERENCE DRAWING TITLE

SKM
SINGULAR KNIGHT MERZ inc
Spatial Division
10000 Williams Street
Adelaide, SA 5000
Telephone: 08 8425 3800
Facsimile: 08 8425 3810
www.singular-knight-merz.com



The Department of
Water, Land and
Biodiversity
Conservation

CLIENT	DWLBC				
PROJECT	MURRAY RIVERBANK SLUMPING STUDY				
DRAWN	J DOWNES	DRAFTING CHECK	REVIEWED	APPROVED	
SURVEYED	J DOWNES	G TURNER	G COOPER	PROJECT MANAGER	PROJECT DIRECTOR
		SURVEY CHECK	G COOPER		

TITLE	MID-MURRAY COUNCIL EAST FRONT ROAD LONGITUDINAL SECTIONS			AMDT A
SCALE AS SHOWN	PROJECT No. VW/01.75/L 1	DRAWING No. A1/L4.100/-9		

Project: Lwr Murray Riverbank Collapse Client: DWLBC

Location: East Front Rd

Job No: VW04794.1

Start - Finish Date: 27/10 - 27/10/09

Bore dia: 100mm

Driller: Drilling Solution

Rig: MK5/2 Drill rig

Surface Conditions: Road base

Northings: 6137674.0mN

Eastings: 349560.0mE

RL:

Logged: MT

Checked: RT

Oriented: -90

LABORATORY DATA						FIELD DATA		SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m ³)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
						(7,5,6) (N=11)	●		FILL: Clayey Gravel: (GC) / Silty GRAVEL: (GM) brown, fine to coarse grained	MD	D	Hollow Stem Augering 150mm diameter
							●		FILL: Silty SAND: (SM) brown, fine to coarse grained sand, with fine to coarse gravel	MD		Small sample recovered
							●		Silty CLAY: (CH) dark brown-black, with some shells, with roots, with organic matter	F	D-M	Too hard to auger through
							2		Borehole terminated at 2.0m, refusal on rock			
							1					
							3					
							0					
							4					
							-1					
							5					
							-2					
							6					
							-3					
							7					
							-4					
							8					
							-5					
							9					
							-6					
							10					

LABORATORY DATA
 UQN Unconfined Comp. (Natural)
 UQC Unconfined Comp. (Compacted)
 TQN Uncons. Undrained Triax. (Natural)
 TQC Uncons. Undrained Triax. (Compacted)
 TRX Consolidated Undrained Triaxial
 with pwp measurement
 PSA Particle Size Analysis
 CS 1D oedometer Test
 LPM Laboratory Permeability

FIELD DATA ABBREVIATIONS
 Suv = Uncorrected vane shear (kPa)
 Sup = Pocket penetrometer (kPa)
 N = SPT blows per 300mm
 FPM = Field permeability
 GROUNDWATER SYMBOLS
 ▼ = Water level (static)
 ▼ = Water level (during drilling)
 → = Outflow / Inflow

FIELD DATA SYMBOLS
 × = Shear vane test
 ⊥ = Pocket Penetrometer test
 ▽ = Standard Penetration Test
 (SPT top = start of N blowcount)
 ▼ = SPT Spoon Sample (Pushed)
 ■ = Undisturbed Tube Sample
 ● = Disturbed Sample
 ○ = Environmental Sample

DENSITY (N-value)
 VL (very loose) 0 - 4
 L (loose) 4 - 10
 MD (medium dense) 10 - 30
 D (dense) 30 - 50
 VD (very dense) 50 - 100
 CO (compact) >50/150mm
 MOISTURE CONDITION
 D = Dry M = Moist W = Wet

CONSISTENCY (Su)
 VS (very soft) < 12 kPa
 S (soft) 12 - 25
 F (firm) 25 - 50
 St (stiff) 50 - 100
 VSt (very stiff) 100 - 200
 H (hard) > 200 kPa

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

Project: Lwr Murray Riverbank Collapse Client: DWLBC

Location: East Front Rd

Job No: VV04794.1

Start - Finish Date: 27/10 - 27/10/09

Bore dia: 100mm

Driller: Drilling Solution

Rig: MK5/2 Drill rig

Surface Conditions: Asphalt

Northings: 6137684.0mN

Eastings: 349575.0mE

RL: 3.7mAH

Logged: MT

Checked: RT

Oriented: -90

LABORATORY DATA						FIELD DATA		SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m ³)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type elevation (mAH) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
				32					ASPHALT	MD	D-M	Hollow Stem Augering 150mm diameter
							3		FILL: Silty GRAVEL: (GM) / Silty SAND: (SM) orange-brown, fine to coarse grained sand, fine to coarse grained gravels light brown, increase in coarse gravel, with clay			
				22			2		black			
	22	46	17			(3,6,7) (N=13)	2		FILL: Silty SAND: (SM) light brown, fine grained sand, with some fine to coarse grained, sub-rounded to sub-angular gravels	St		
							2		FILL: Silty CLAY: (CH) black, with shells			
						Sup=>225	1		FILL: Clayey GRAVEL: (GC) light grey, fine to coarse grained, angular gravel	MD		50mm of sample recovered in SPT
	13	33	17	20			3		FILL: Clayey SAND: (SC) grey, with trace of fine to medium grained gravel		M-W	
							0		FILL: Clayey GRAVEL: (GC) grey, fine to coarse grained, angular gravel			
							0		FILL: Clayey SAND: (SP) grey, compacted sand, gravel sized	VSt / VD		
						(12+,-,-) (N>50)	4		FILL: Sandy CLAY: (CH) / Clayey SAND: (SC) orange-brown, with trace of gravels			50mm of sample recovered in SPT
				15			-1		FILL: Clayey SAND: (SC) / Silty SAND: (SM) orange-brown, grey, with gravel			
							-2		FILL: Silty GRAVEL: (GM) / Clayey GRAVEL: (GC) brown, fine grained gravel, with coarse grained sand	D	W	Very soft silt band in last 50mm of SPT
						(8,24,16) (N=40)	6					
							-3		Borehole terminated at 6.2m, refusal on rock			
							7					
							-4					
							8					
							-5					
							9					
							-6					
							10					

LABORATORY DATA			FIELD DATA ABBREVIATIONS			FIELD DATA SYMBOLS			DENSITY (N-value)			CONSISTENCY (Su)		
UQN	Unconfined Comp. (Natural)		Suv	= Uncorrected vane shear (kPa)		×	= Shear vane test		VL	(very loose)	0 - 4	VS	(very soft)	< 12 kPa
UQC	Unconfined Comp. (Compacted)		Sup	= Pocket penetrometer (kPa)		⊥	= Pocket Penetrometer test		L	(loose)	4 - 10	S	(soft)	12 - 25
TQN	Uncons. Undrained Triax. (Natural)		N	= SPT blows per 300mm		▽	= Standard Penetration Test (SPT top = start of N blowcount)		MD	(medium dense)	10 - 30	F	(firm)	25 - 50
TQC	Uncons. Undrained Triax. (Compacted)		FPM	= Field permeability		▼	= SPT Spoon Sample (Pushed)		D	(dense)	30 - 50	St	(stiff)	50 - 100
TRX	Consolidated Undrained Triaxial with pwp measurement					■	= Undisturbed Tube Sample		VD	(very dense)	50 - 100	VSt	(very stiff)	100 - 200
PSA	Particle Size Analysis					●	= Disturbed Sample		CO	(compact)	>50/150mm	H	(hard)	> 200 kPa
CS	1D oedometer Test					○	= Environmental Sample		MOISTURE CONDITION					
LPM	Laboratory Permeability								D = Dry	M = Moist	W = Wet			

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

Project: Lwr Murray Riverbank Collapse Client: DWLBC

Location: East Front Rd

Job No: VV04794.1

Start - Finish Date: 27/10 - 27/10/09

Bore dia: 100mm

Driller: Drilling Solution

Rig: MK5/2 Drill rig

Surface Conditions: Road base

Northings: 6137768.0mN

Eastings: 349763.0mE

RL:

Logged: MT

Checked: RT

Oriented: -90

LABORATORY DATA						FIELD DATA		SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m ³)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/density	moisture condition	drilling method, well construction, water and additional observations
				23			3		FILL: Clayey GRAVEL: (GC) / Silty GRAVEL: (GM) orange-brown, fine to coarse grained gravel, with fine to coarse grained sand			Hollow Stem Augering 150mm diameter
							2		decrease in gravel content	MD		
						(4,7,7) (N=14)	1		FILL: SAND: (SP) / Clayey SAND: (SC) orange-brown, fine grained sand, with fine to coarse grained gravel			
		23	2	21			2		FILL: Silty SAND: (SM) / Sandy SILT: (MH) light brown, fine grained sand, with coarse grained gravel	L / S		
						(4,2,3) (N=5)	1		with clay			150mm of sample recovered in SPT
	17	37	15				3		Silty CLAY: (CH) dark grey, with shells	S		
	27	63	14				0					
						Sup=110			Silty CLAY: (CH) dark grey-black		M	
	15	33	19				4		light grey, with some orange veins, with roots, with organic matter	VS		
	26					(1,1,2) (N=3)			dark green-grey		W	Pocket penetrometer test attempted
	63	71	42	99			5		with yellow leaves, with organic matter			
	79					Suv=29 Sur=11	-2		with mottled white			
	61	61	38			(0,0,0) (N=0)	6		Clayey SAND: (SC) dark green-grey, fine to coarse grained sand, trace of fine grained gravel			
	59			20			-3					No sample recovered from SPT
						(7+,-,-) (N>50)	7			D		
							8		Borehole terminated at 7.45m			
							-5					
							9					
							-6					
							10					

LABORATORY DATA	FIELD DATA ABBREVIATIONS	FIELD DATA SYMBOLS	DENSITY (N-value)	CONSISTENCY (Su)
UQN Unconfined Comp. (Natural)	Suv = Uncorrected vane shear (kPa)	× = Shear vane test	VL (very loose) 0 - 4	VS (very soft) < 12 kPa
UQC Unconfined Comp. (Compacted)	Sup = Pocket penetrometer (kPa)	⊥ = Pocket Penetrometer test	L (loose) 4 - 10	S (soft) 12 - 25
TQN Uncons. Undrained Triax. (Natural)	N = SPT blows per 300mm	▽ = Standard Penetration Test (SPT top = start of N blowcount)	MD (medium dense) 10 - 30	F (firm) 25 - 50
TQC Uncons. Undrained Triax. (Compacted)	FPM = Field permeability	▼ = SPT Spoon Sample (Pushed)	D (dense) 30 - 50	St (stiff) 50 - 100
TRX Consolidated Undrained Triaxial with pwp measurement		■ = Undisturbed Tube Sample	VD (very dense) 50 - 100	VSt (very stiff) 100 - 200
PSA Particle Size Analysis	GROUNDWATER SYMBOLS	● = Disturbed Sample	CO (compact) >50/150mm	H (hard) > 200 kPa
CS 1D oedometer Test	▼ = Water level (static)	○ = Environmental Sample	MOISTURE CONDITION	
LPM Laboratory Permeability	▼ = Water level (during drilling)		D = Dry M = Moist W = Wet	
	→ = Outflow / Inflow			

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008.05.07_DS.GDT 14/12/09



EngTest

CONE PENETRATION TEST

Page 1 of 2

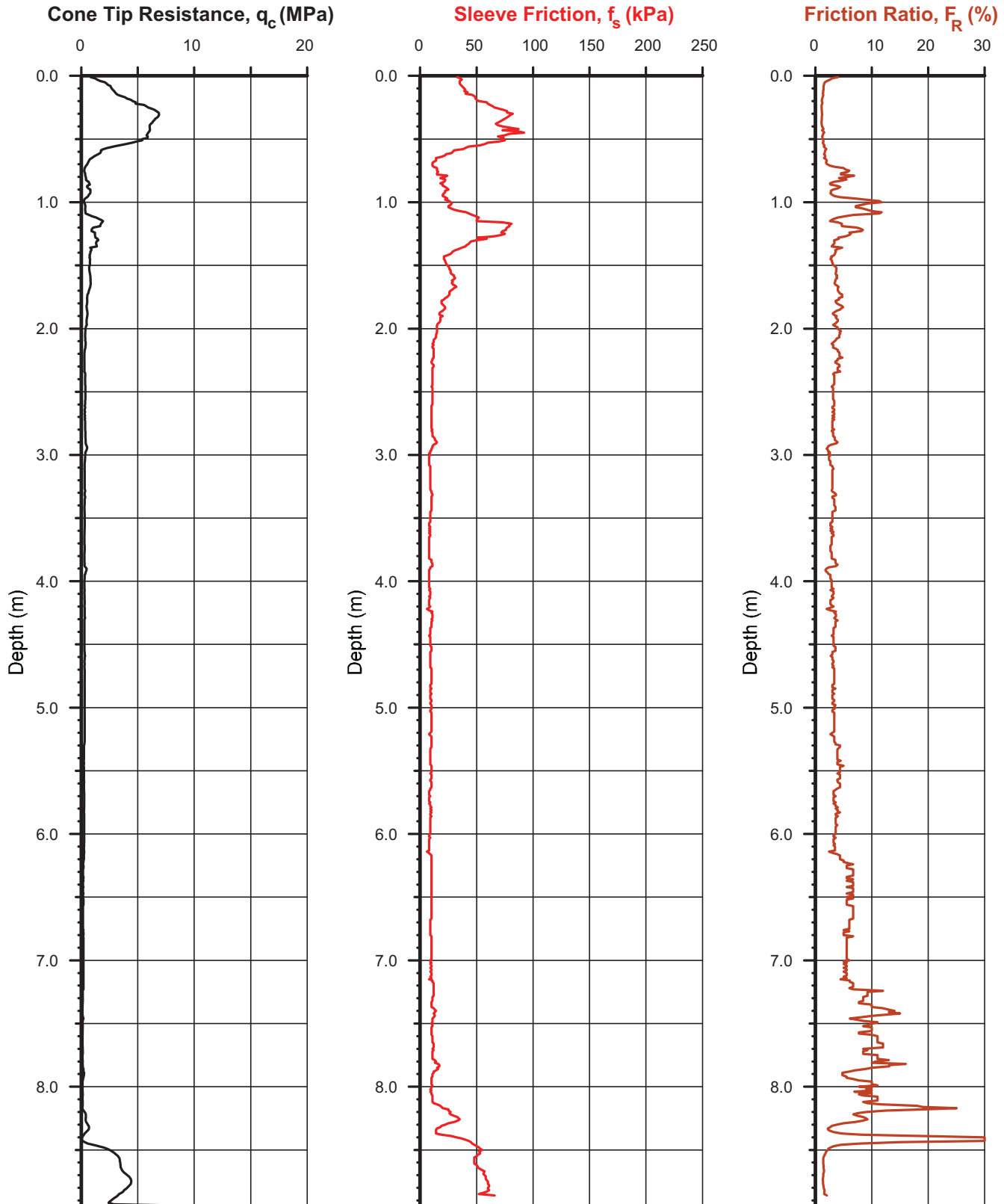
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: East Front Road CPT1

Surface RL: NA

Date: 28/10/2009



Test terminated at 8.9 m. Refusal.



EngTest

CONE PENETRATION TEST

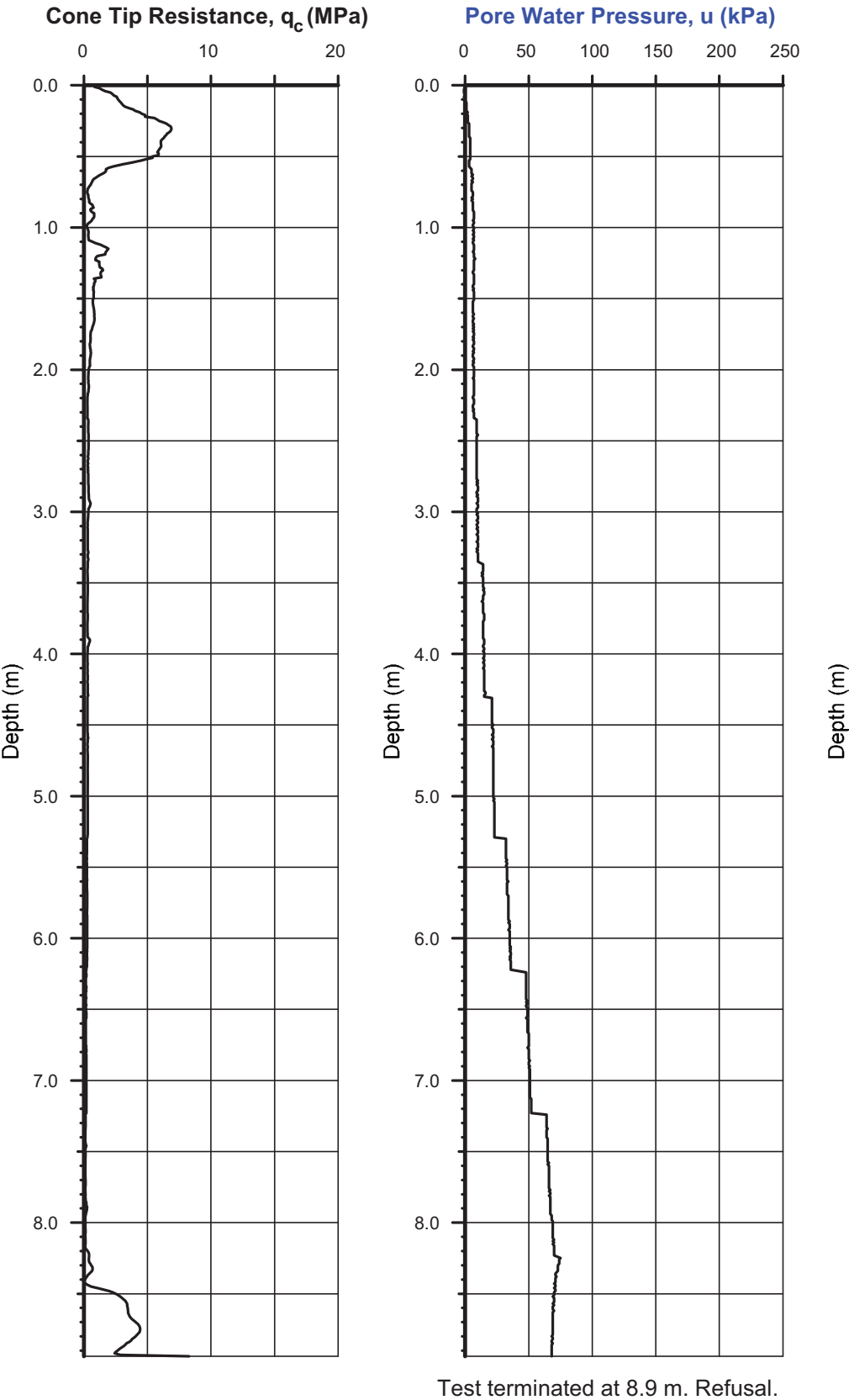
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: East Front Road CPT1

Surface RL: NA

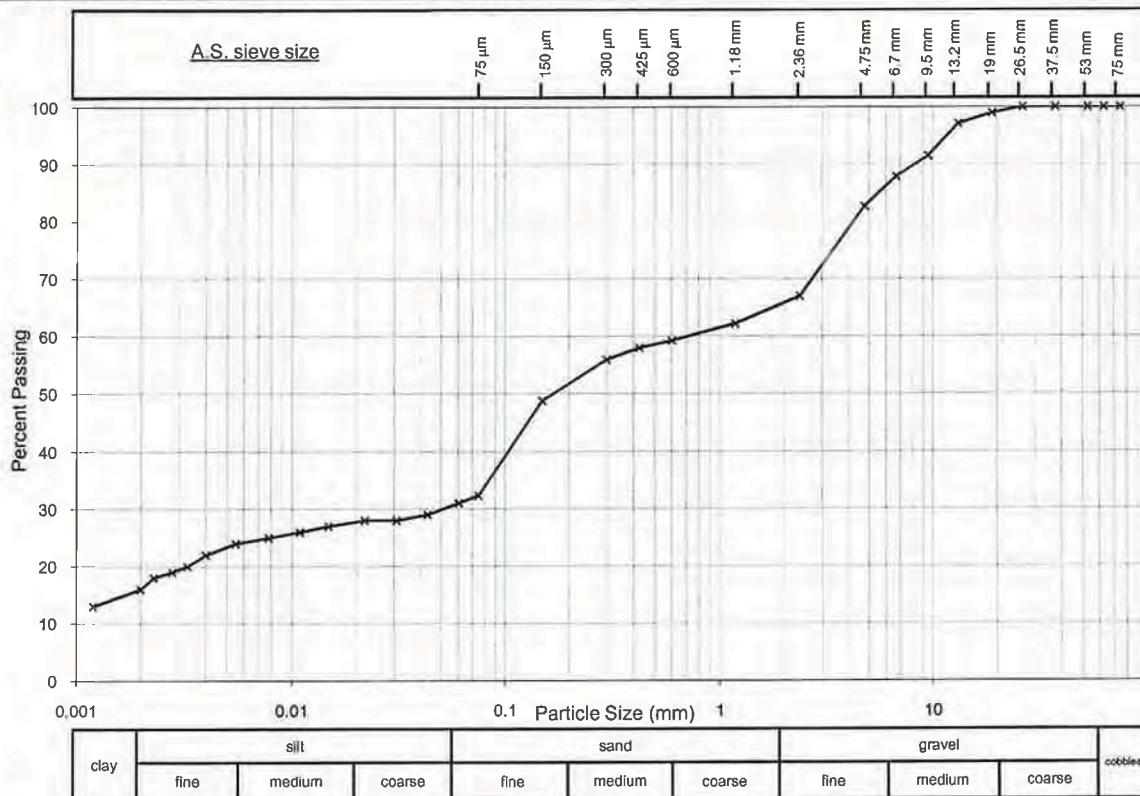
Date: 28/10/2009



Particle Size Distribution & Atterberg Limits

Client: SINCLAIR KNIGHT MERZ **Job No.** 00211/AA
Address: LEVEL 5, 33 KING WILLIAM STREET, ADELAIDE **Date:** 23-Nov-09
Principal: **Report No.** 00211/AA-R62
Project: SUBMITTED SAMPLES - 2009
Location: VW 04794

Sample No.: 12536 **Sample Identification:** EF-BH-2 0.0 - 0.3 m



Particle Size Distribution AS1289 3.6.2, 3.6.3

Sieve Size	% Passing	Specification
150 mm	100	
75 mm	100	
53mm	100	
37.5 mm	100	
26.5 mm	100	
19.0 mm	99	
13.2 mm	97	
9.5 mm	91	
6.7 mm	88	
4.75 mm	83	
2.36 mm	67	
1.18 mm	62	
600 um	59	
425 um	58	
300 um	56	
150 um	49	
75 um	32	

Atterberg Limits and Moisture Content

Test	Method	Result	Spec.
Liquid Limit	% AS1289 3.1.2	ND	
Plastic Limit	% AS1289 3.2.1	ND	
Plasticity Index	% AS1289 3.3.1	ND	
Linear Shrinkage	% AS1289 3.4.1	ND	
Moisture Content	% AS1289 2.1.1	ND	
Sample History: ☐ Natural State ☐ Air Dried ☒ Oven Dried Preparation Method: ☒ Dry Sieved ☐ Wet Sieved Linear shrinkage: ☐ Crumbling ☐ Curling Mould Length: 0 mm ND = not determined NO = not obtainable NP = non plastic			
Classification:			
Notes:			
Soil particle density - AS 1289 3.5.1		2.72	t/m ³
Dispersion		Mechanical	
Type of Hydrometer		grams / litre	



The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement. This document shall not be reproduced except in full.

NATA Accredited Laboratory
No. 431
Approved Signature:

ROSS DINGLE

Date: 25/11/09

Material Test Report

Report No: MAT:MEND09S-12537

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.:

TRN:



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12537
Client Sample: EF BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 1.6-2.0m

Other Test Results

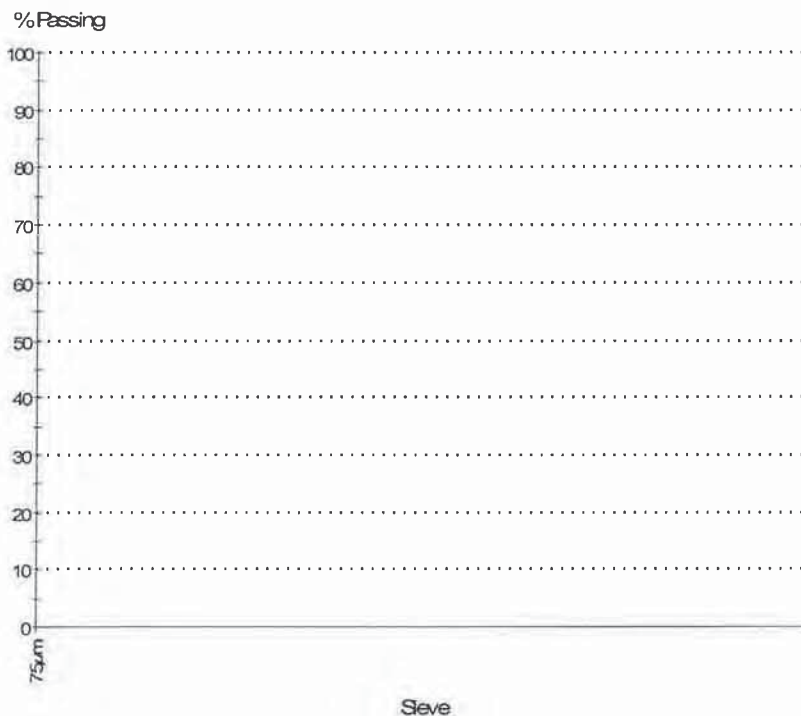
Description	Method	Result	Limits
-------------	--------	--------	--------

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	22	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12538

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number: 431
Date of issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12538
Client Sample: EF BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 2.0-2.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	21.6	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	10.0	
Mould Length (mm)		127	
Crumbling		No	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	46	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	29	
Plasticity Index (%)	AS 1289.3.3.1	17	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12539

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.:

TRN:



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12539
Client Sample: EF BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 3.0-3.5m

Other Test Results

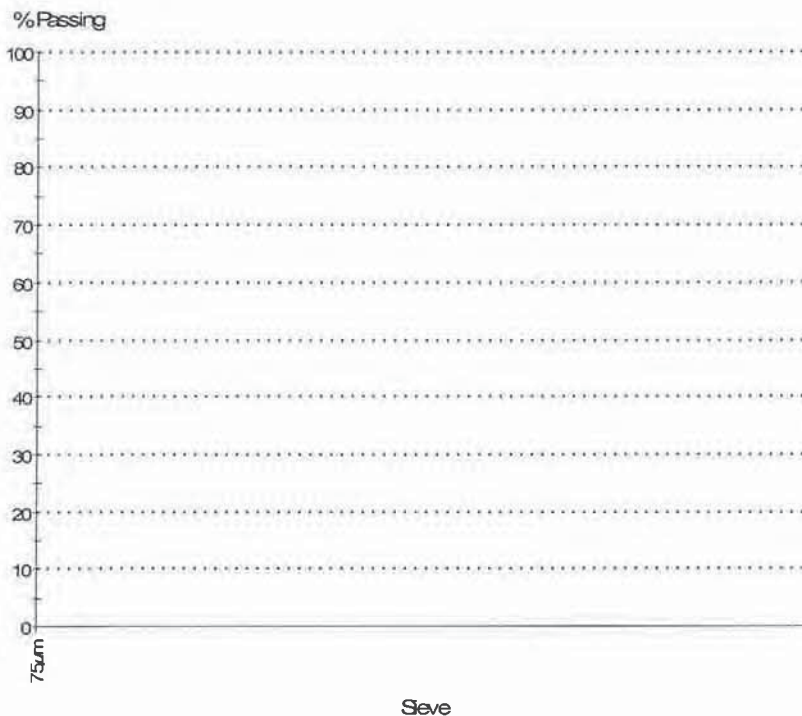
Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	6.5	
Mould Length (mm)		254	
Crumbing		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	33	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	16	
Plasticity Index (%)	AS 1289.3.3.1	17	
Moisture Content (%)	AS 1289.2.1.1	12.8	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size **% Passing** **Limits**
75µm 20

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12540

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: TRN:



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12540
Client Sample: EF BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 5.0-5.5m

Other Test Results

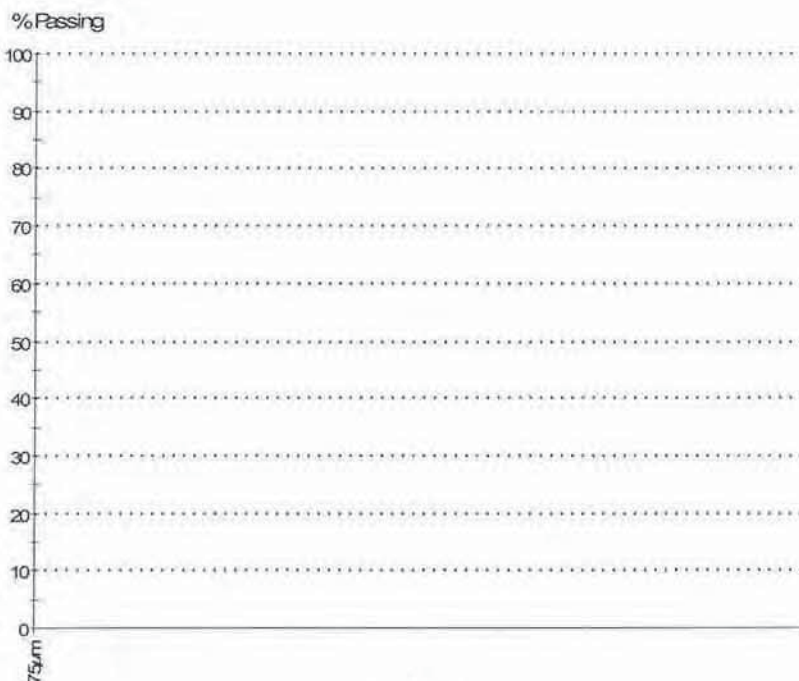
Description	Method	Result	Limits
-------------	--------	--------	--------

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Save

Sieve Size	% Passing	Limits
75µm	15	

Comments

N/A

Particle Size Distribution & Atterberg Limits

Client: SINCLAIR KNIGHT MERZ

Job No. 00211/AA

Address: LEVEL 5, 33 KING WILLIAM STREET, ADELAIDE

Date: 23-Nov-09

Principal:

Report No. 00211/AA-R63

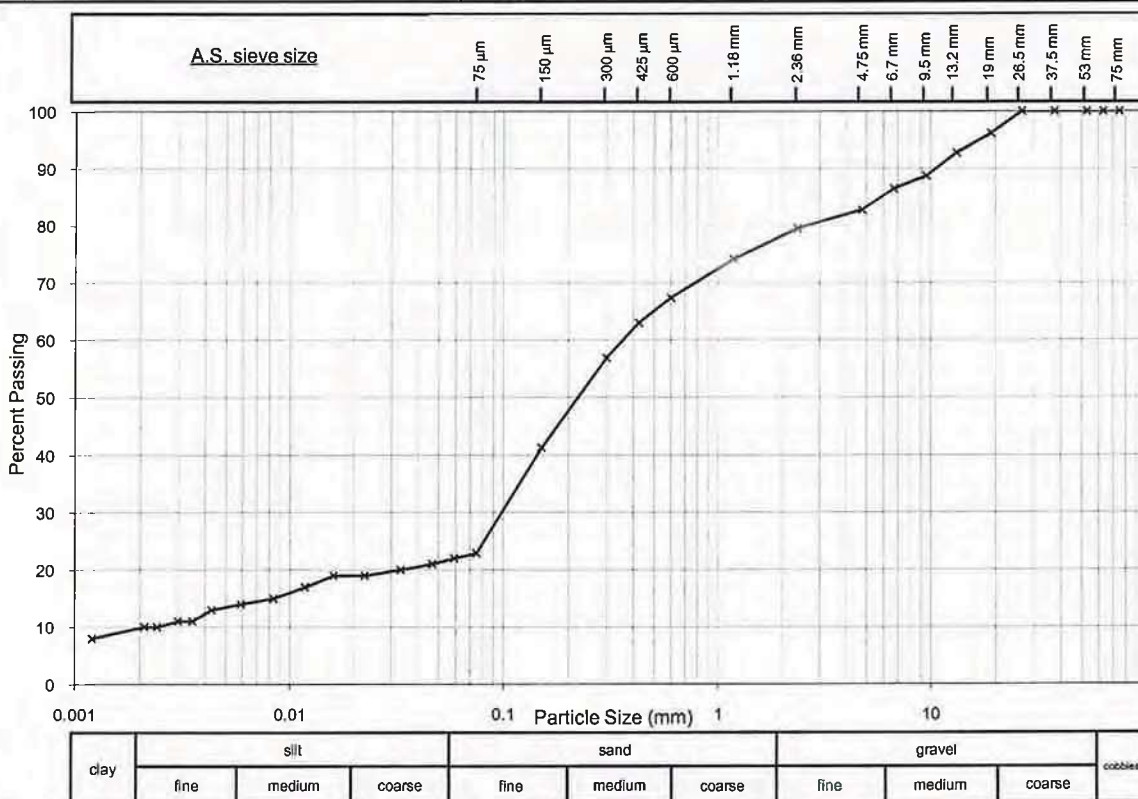
Project: SUBMITTED SAMPLES - 2009

Location: VW 04794

Sample No.: 12541

Sample Identification:

EF-BH-3 0.5 - 1.0 m



Particle Size Distribution AS1289 3.6.2, 3.6.3

Sieve Size	% Passing	Specification
150 mm	100	
75 mm	100	
53mm	100	
37.5 mm	100	
26.5 mm	100	
19.0 mm	96	
13.2 mm	93	
9.5 mm	89	
6.7 mm	86	
4.75 mm	83	
2.36 mm	80	
1.18 mm	74	
600 µm	67	
425 µm	63	
300 µm	57	
150 µm	41	
75 µm	23	

Atterberg Limits and Moisture Content

Test	Method	Result	Spec.
Liquid Limit	% AS1289 3.1.2	ND	
Plastic Limit	% AS1289 3.2.1	ND	
Plasticity Index	% AS1289 3.3.1	ND	
Linear Shrinkage	% AS1289 3.4.1	ND	
Moisture Content	% AS1289 2.1.1	ND	
Sample History: ☐ Natural State ☐ Air Dried ☒ Oven Dried			
Preparation Method: ☒ Dry Sieved ☐ Wet Sieved			
Linear shrinkage: ☐ Crumbling ☐ Curling			
Mould Length: 0 mm			
ND = not determined NO = not obtainable NP = non plastic			
Classification:			
Notes:			
Soil particle density - AS 1289 3.5.1		2.73	t/m ³
Dispersion		Mechanical	
Type of Hydrometer		grams / litre	



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NATA Accredited Laboratory

No. 431

Approved Signature:

ROSS DINGLE

Date:

23/11/09

Report No: MAT:MEND09S-12542

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: TRN:



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12542
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 1.5-2.0m

Other Test Results

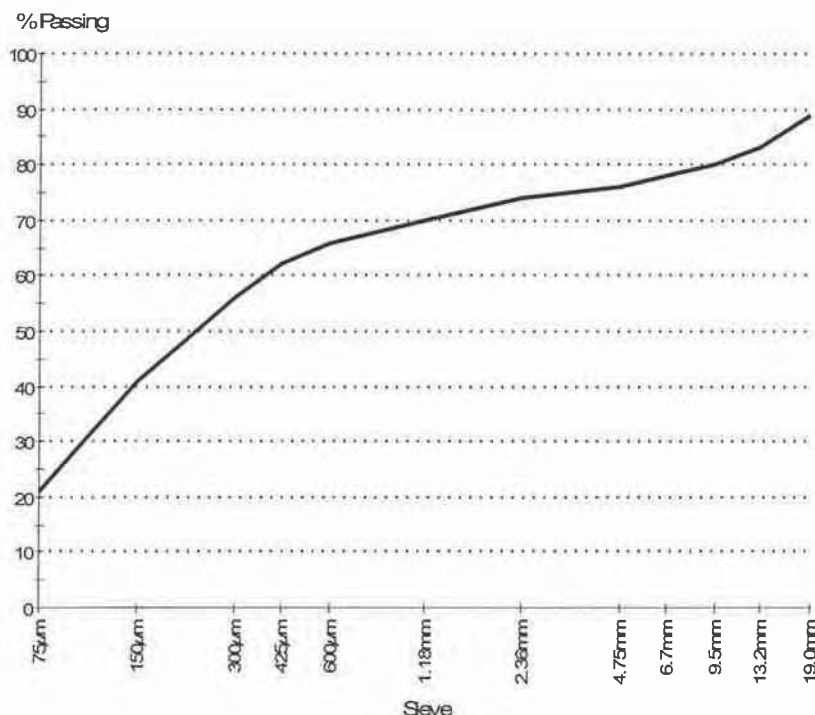
Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	0.5	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	23	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	21	
Plasticity Index (%)	AS 1289.3.3.1	2	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
19.0mm	89	
13.2mm	83	
9.5mm	80	
6.7mm	78	
4.75mm	76	
2.36mm	74	
1.18mm	70	
600µm	66	
425µm	62	
300µm	56	
150µm	41	
75µm	21	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12543

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.:

TRN:



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12543
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 2.8-2.9m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	17.1	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	8.0	
Mould Length (mm)		127	
Crumbling		No	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	37	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	15	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12544

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12544
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 3.0-3.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	26.6	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	16.0	
Mould Length (mm)		254	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	63	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	49	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12545

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12545
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 3.5-4.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	14.7	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	7.0	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	33	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	19	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12546

Issue No: 1

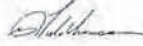
Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12546
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 4.0-4.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	26.0	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12547

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12547
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 4.5-5.0m

Other Test Results

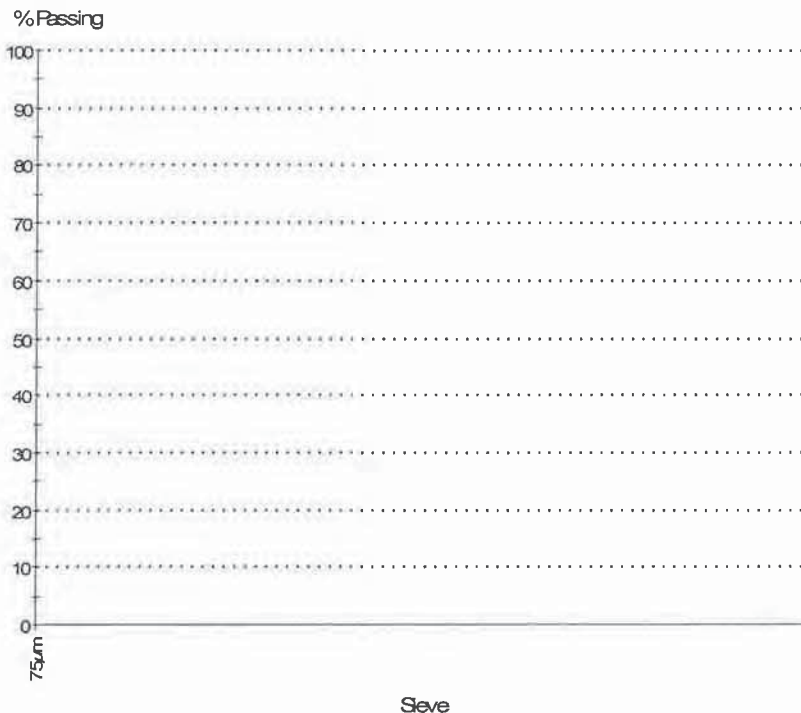
Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	62.5	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.5	
Mould Length (mm)		250	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	71	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	29	
Plasticity Index (%)	AS 1289.3.3.1	42	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	99	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12548

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number: 431

Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12548
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 5.0-5.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	79.0	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12549

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.:

TRN:



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12549
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 5.5-6.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	61.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	14.0	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	61	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	23	
Plasticity Index (%)	AS 1289.3.3.1	38	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12550

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12550
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 6.0-6.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	59.0	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12551

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.:

TRN:



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12551
Client Sample: EF BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 6.5-7.0m

Other Test Results

Description	Method	Result	Limits
-------------	--------	--------	--------

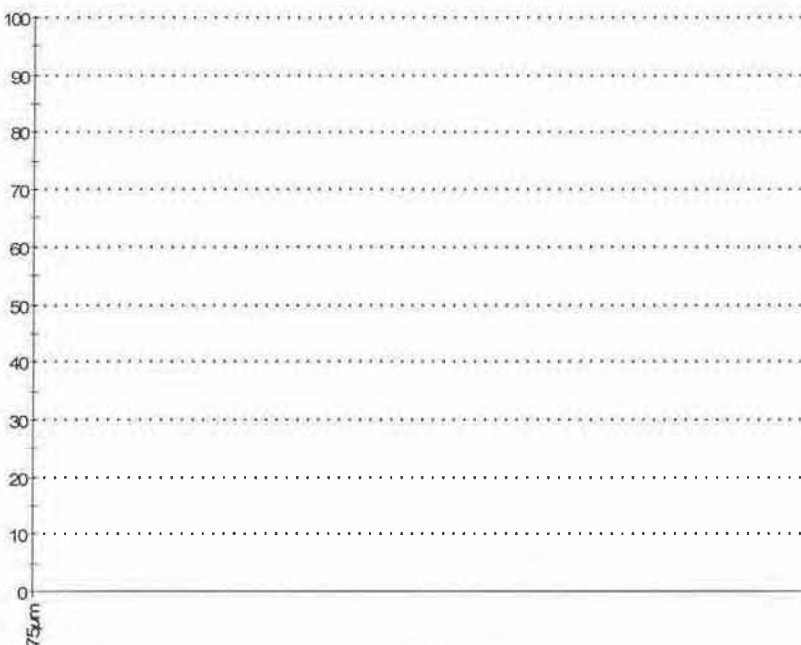
Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed

% Passing



Sieve Size	% Passing	Limits
75µm	20	

Comments

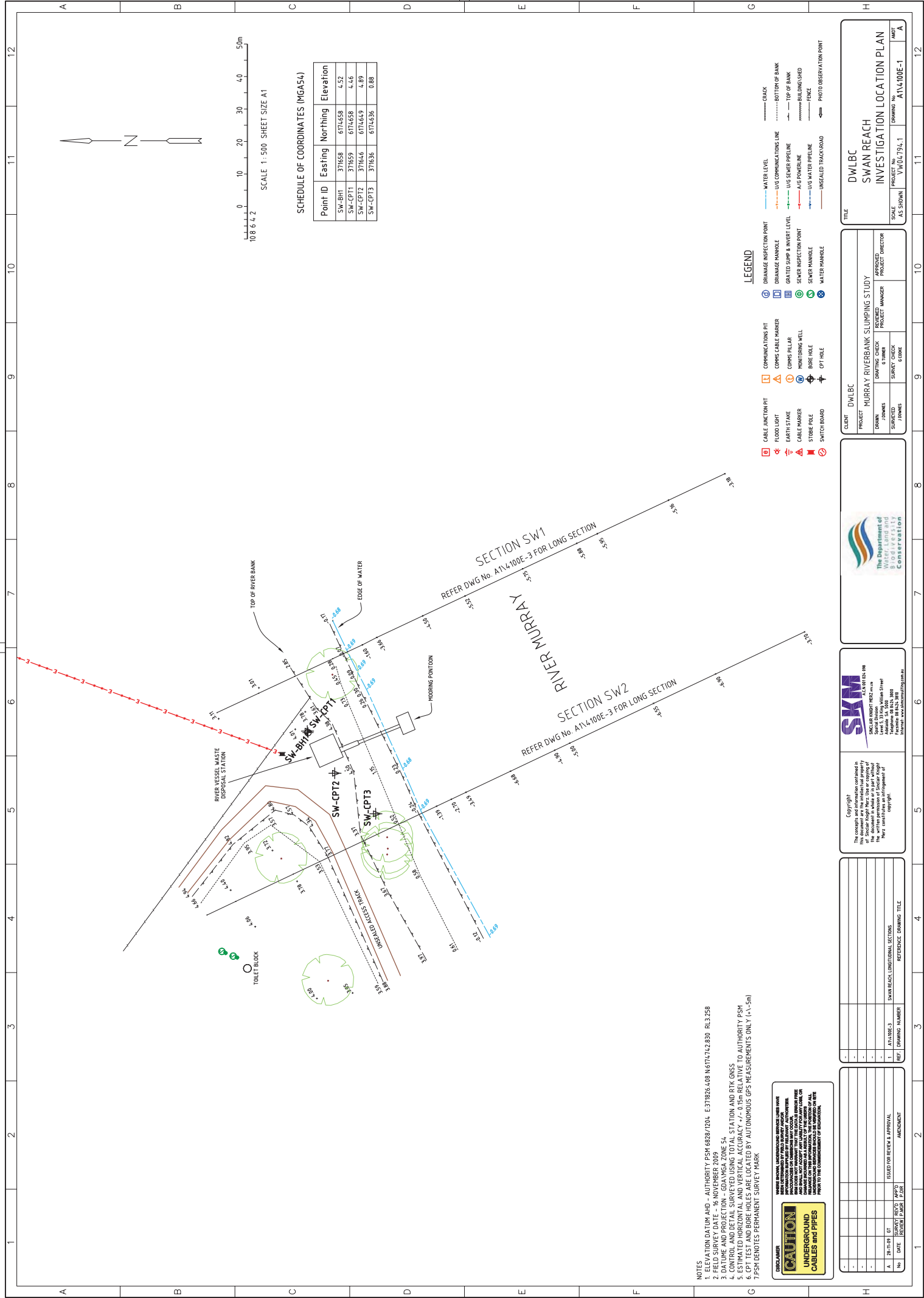
N/A



Appendix F Swan Reach In-situ and Laboratory Data

Table of Contents

Site and Investigation Location Plan	Page F-1
Longitudinal Sections	Page F-2
Borehole Logs	Page F-3
CPTu Test Results	Page F-4
Laboratory Test Certificates	Page F-10



- NOTES
- ELEVATION DATUM AND AUTHORITY: PSM 6828/7024, E:371625.408 N:6714742.830 RL3.258
 - DATE OF SURVEY: 14 NOVEMBER 2019
 - DATE AND PROJECTION: GDAL/MGA_ZONE 54
 - CONTROL AND DETAIL SURVEYED USING TOTAL STATION AND RTK GNSS
 - ESTIMATED HORIZONTAL AND VERTICAL ACCURACY +/- 0.5m RELATIVE TO AUTHORITY PSM
 6. CPT TEST AND BORE HOLES ARE LOCATED BY AUTONOMOUS GPS MEASUREMENTS ONLY (+/-5m)
 7. PSM DENOTES PERMANENT SURVEY MARK

CAUTION
UNDERGROUND
CABLES AND PIPES

WARNING: UNDEVELOPED SERVICES LAY HAVE BEEN IDENTIFIED BY SURVEY. ANY PENETRATION MAY CAUSE DAMAGE TO INFRASTRUCTURE. ANY PENETRATION MAY CAUSE DAMAGE TO INFRASTRUCTURE. ANY PENETRATION MAY CAUSE DAMAGE TO INFRASTRUCTURE.

NO.	DATE	SUBMIT	REV'D	APP'D	REVIEW	DATE	REVISION
1	2019-11-14	DT					

REF.	DRAWING	NUMBER	REFERENCE	DRAWING	TITLE
1	A14.100E-3				

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SKM Engineering Pty Ltd
10/100 Murray Street
Melbourne VIC 3000
Australia
Phone: 03 9412 1800
Fax: 03 9412 1801
Internet: www.skmengineering.com.au

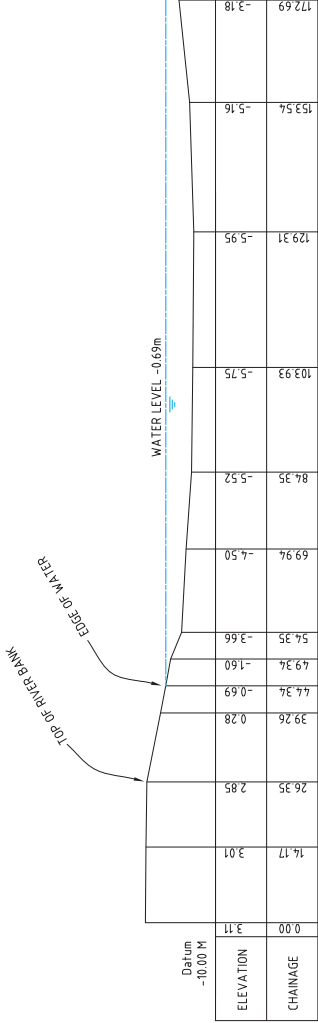
The Department of
BIOSECURITY
and
BIOLOGICAL
CONSERVATION

CLIENT	DWLBC
PROJECT	MURRAY RIVERBANK SLUMPING STUDY
DRAWN	J. DUNN
CHECKED	J. DUNN
APPROVED	J. DUNN

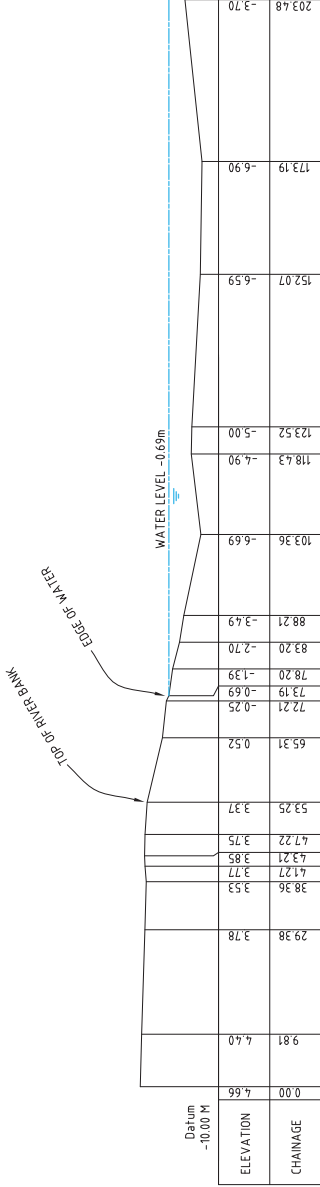
SCALE	AS SHOWN
PROJECT NO.	VW41794.1
DRAWING NO.	A14.100E-1
AUTH	A

SWAN REACH

LONGITUDINAL SECTION SW1
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6828/7204, RL3.258



LONGITUDINAL SECTION SW2
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6828/7204, RL3.258



NO	DATE	BY	CHKD	APP'D	REVISION	REASON	DATE
1	28-11-20	ET					

NO	DRAWING NUMBER	DATE	REVISION	REASON	DATE
1	SWAN REACH TOPOGRAPHICAL SURVEY	2020-11-20			

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10/100 Victoria Road
Melbourne, VIC 3000
Australia
Phone: 03 9422 8800
Internet: www.skmengineering.com.au



CLIENT	DWLBC
PROJECT	MURRAY RIVERBANK SLUMPING STUDY
DRAWN	J.OWENS
CHECKED	J.OWENS
APPROVED	J.OWENS

TITLE	DWLBC SWAN REACH LONGITUDINAL SECTIONS
PROJECT NO	VW04794.1
DRAWING NO	AT14100E-3
AUTH	A

Project: Lwr Murray Riverbank Collapse Client: DWLBC

Driller: Drilling Solution

Northings: 6174658.0mN Logged: MT

Location: Swan Reach

Start - Finish Date: 04/11 - 04/11/09

Rig: 4X4 truck mounted

Easting: 371658.0mE Checked: RT

Job No: VW04794.1

Bore dia: 100mm

Surface Conditions: Gravel

RL: 4.5mAHD Oriented: -90

LABORATORY DATA						FIELD DATA		SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m ³)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
	5	23	5	21					FILL: Clayey GRAVEL: (GC) pale grey-brown, coarse grained FILL: Clayey GRAVEL: (GC) / Clayey SAND: (SC) brown, fine to coarse grained, subangular to angular gravel, fine grained sand	MD		Solid Flight Augering 100mm diameter
	10	28	11	54			4		increase in rounded gravels, with very fine sand			Difficult to drill
	21	58	38				3		FILL : Sandy CLAY: (CL) dark grey-black, with shells, with roots, with organic matter	F		
	27	80	60	91		Sup=130	2		Silty CLAY: (CH) dark grey-black, with shells, with roots, with organic matter	F	D	
	42	67	38				2		dark black		D-M	
	86	77	49				1		dark grey-black		M	
	52	28	15	55			0		dark grey, with leaves and roots, with organic matter	S		
							5		black, mottled orange-brown, increase in roots and leaves	VS	W	
							-1		dark grey, increase in yellow leaves, with organic matter			
							6		with fine sand			
							-2		SAND: (SW) dark grey, green-grey, fine to coarse grained sand Borehole terminated at 8.1m	MD		
							-3					
							-4					
							-5					
							-6					
							-7					
							-8					
							-9					
							-10					

LABORATORY DATA

UQN

Unconfined Comp. (Natural)

UQC

Unconfined Comp. (Compacted)

TQN

Uncons. Undrained Triax. (Natural)

TQC

Uncons. Undrained Triax. (Compacted)

TRX

Consolidated Undrained Triaxial
with pwp measurement

PSA

Particle Size Analysis

CS

1D oedometer Test

LPM

Laboratory Permeability

FIELD DATA ABBREVIATIONS

Suv

= Uncorrected vane shear (kPa)

Sup

= Pocket penetrometer (kPa)

N

= SPT blows per 300mm

FPM

= Field permeability

GROUNDWATER SYMBOLS

= Water level (static)

= Water level (during drilling)

= Outflow / Inflow

FIELD DATA SYMBOLS

= Shear vane test

= Pocket Penetrometer test

= Standard Penetration Test
(SPT top = start of N blowcount)

= SPT Spoon Sample (Pushed)

= Undisturbed Tube Sample

= Disturbed Sample

= Environmental Sample

DENSITY (N-value)

VL (very loose)

0 - 4

L (loose)

4 - 10

MD (medium dense)

10 - 30

D (dense)

30 - 50

VD (very dense)

50 - 100

CO (compact)

>50/150mm

CONSISTENCY (Su)

VS (very soft)

< 12 kPa

S (soft)

12 - 25

F (firm)

25 - 50

St (stiff)

50 - 100

VSt (very stiff)

100 - 200

H (hard)

> 200 kPa

MOISTURE CONDITION

D = Dry

M = Moist

W = Wet



EngTest

CONE PENETRATION TEST

Page 1 of 2

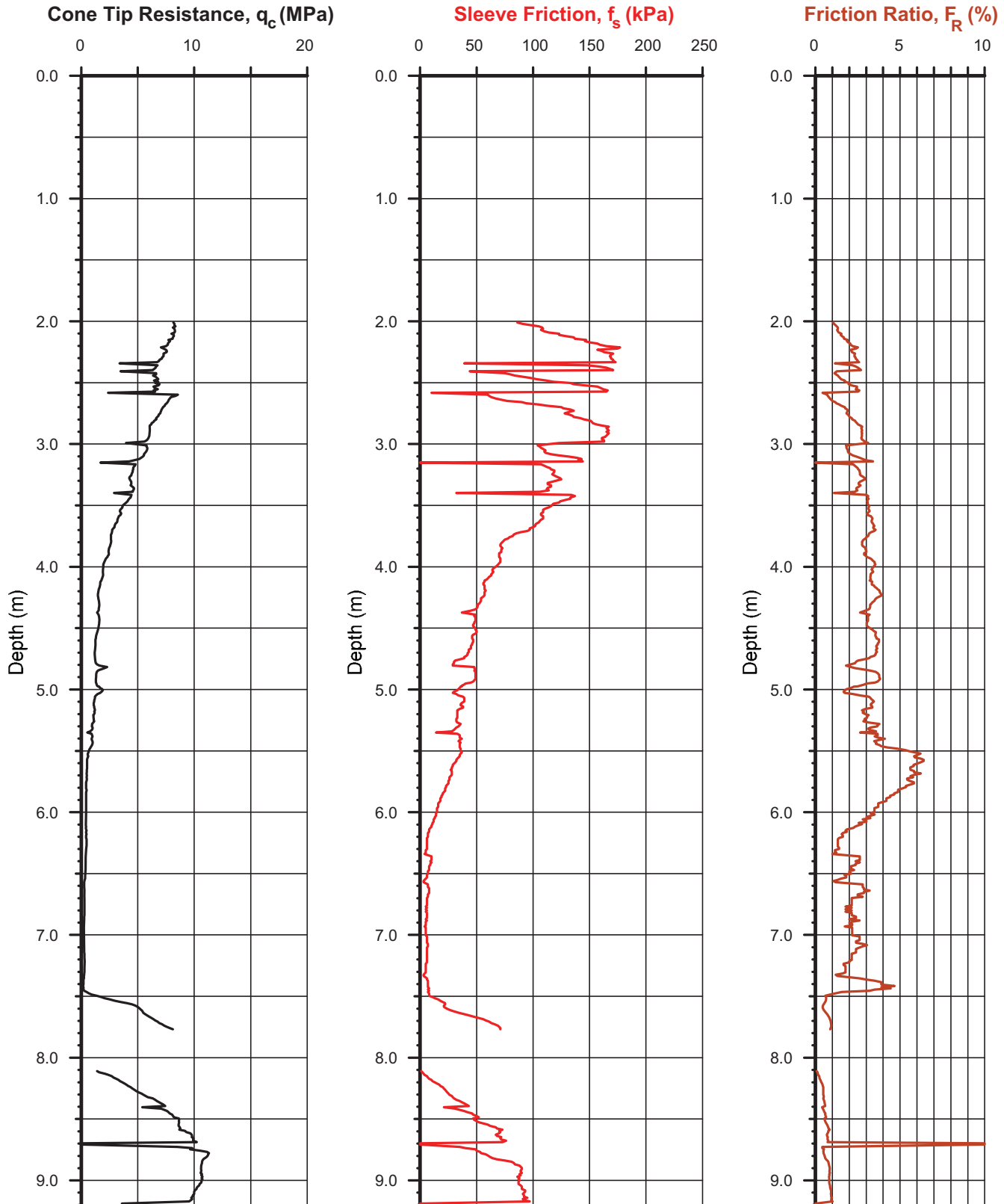
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Swan Reach CPT1

Surface RL: NA

Date: 4/11/2009



Test terminated at 9.2 m. Refusal. Relief drill 7.77-8.1m.



EngTest

CONE PENETRATION TEST

Page 2 of 2

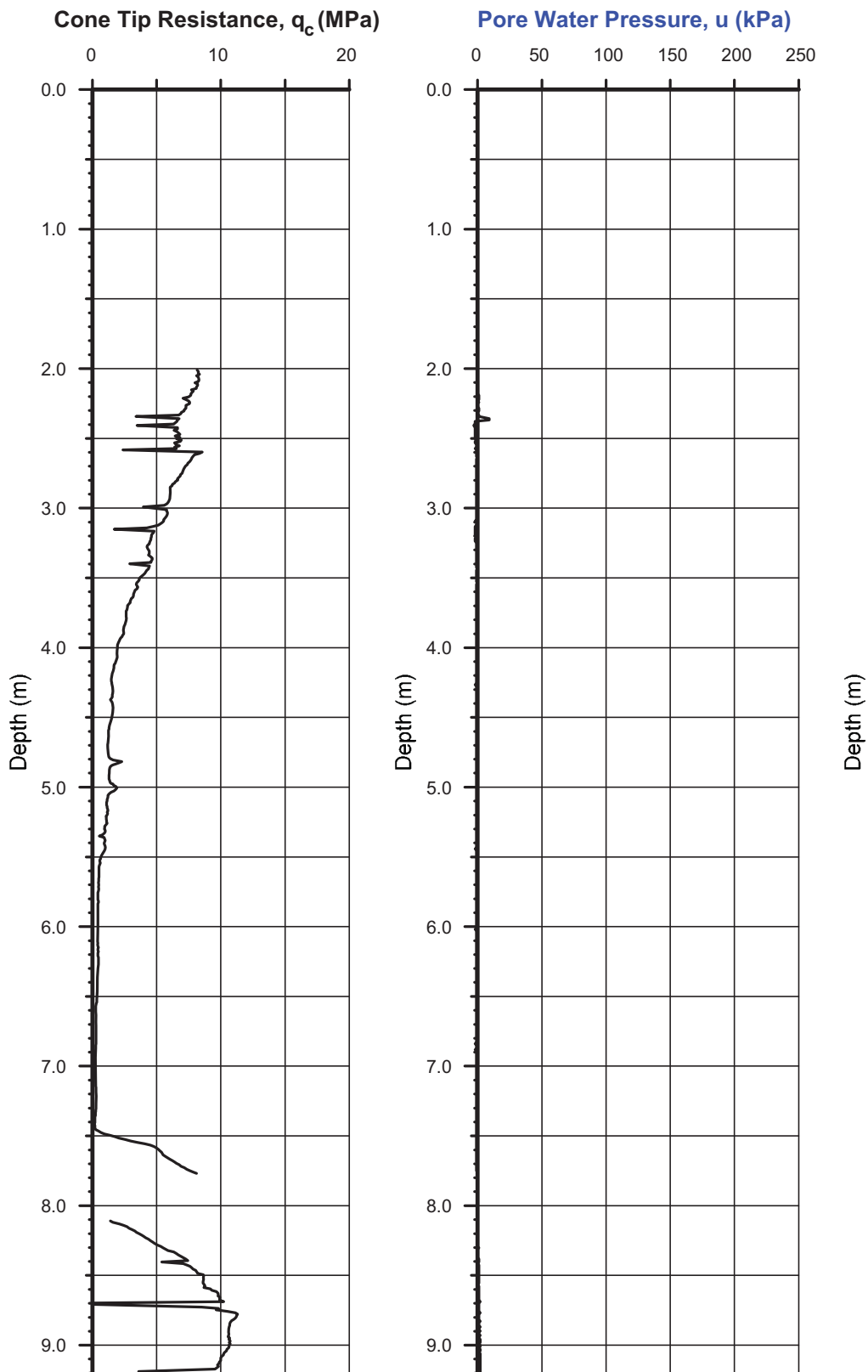
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Swan Reach CPT1

Surface RL: NA

Date: 4/11/2009



Test terminated at 9.2 m. Refusal. Relief drill 7.77-8.1m.



EngTest

CONE PENETRATION TEST

Page 1 of 2

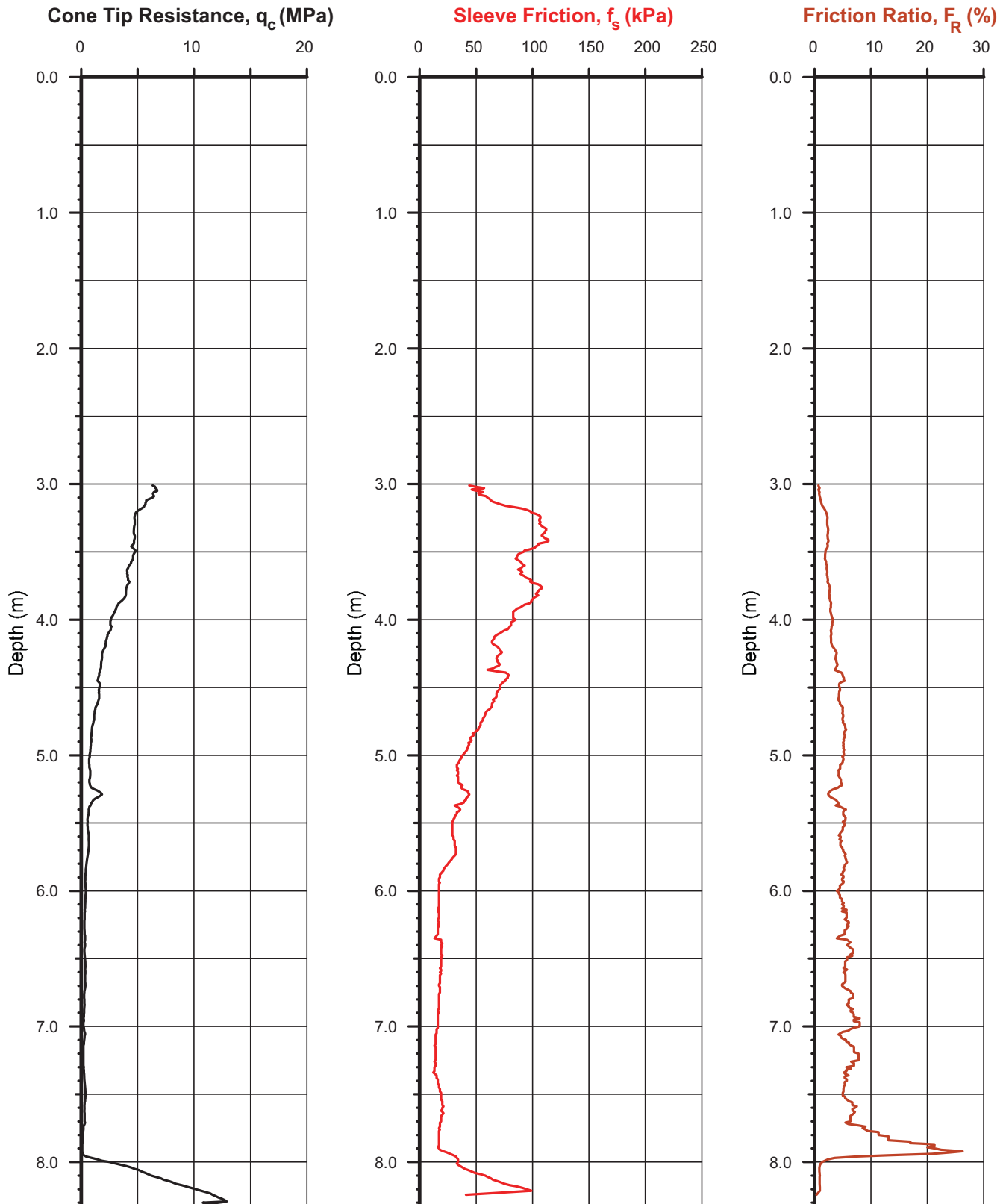
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Swan Reach CPT2

Surface RL: NA

Date: 4/11/2009



Test terminated at 8.3 m. Refusal.



EngTest

CONE PENETRATION TEST

Page 2 of 2

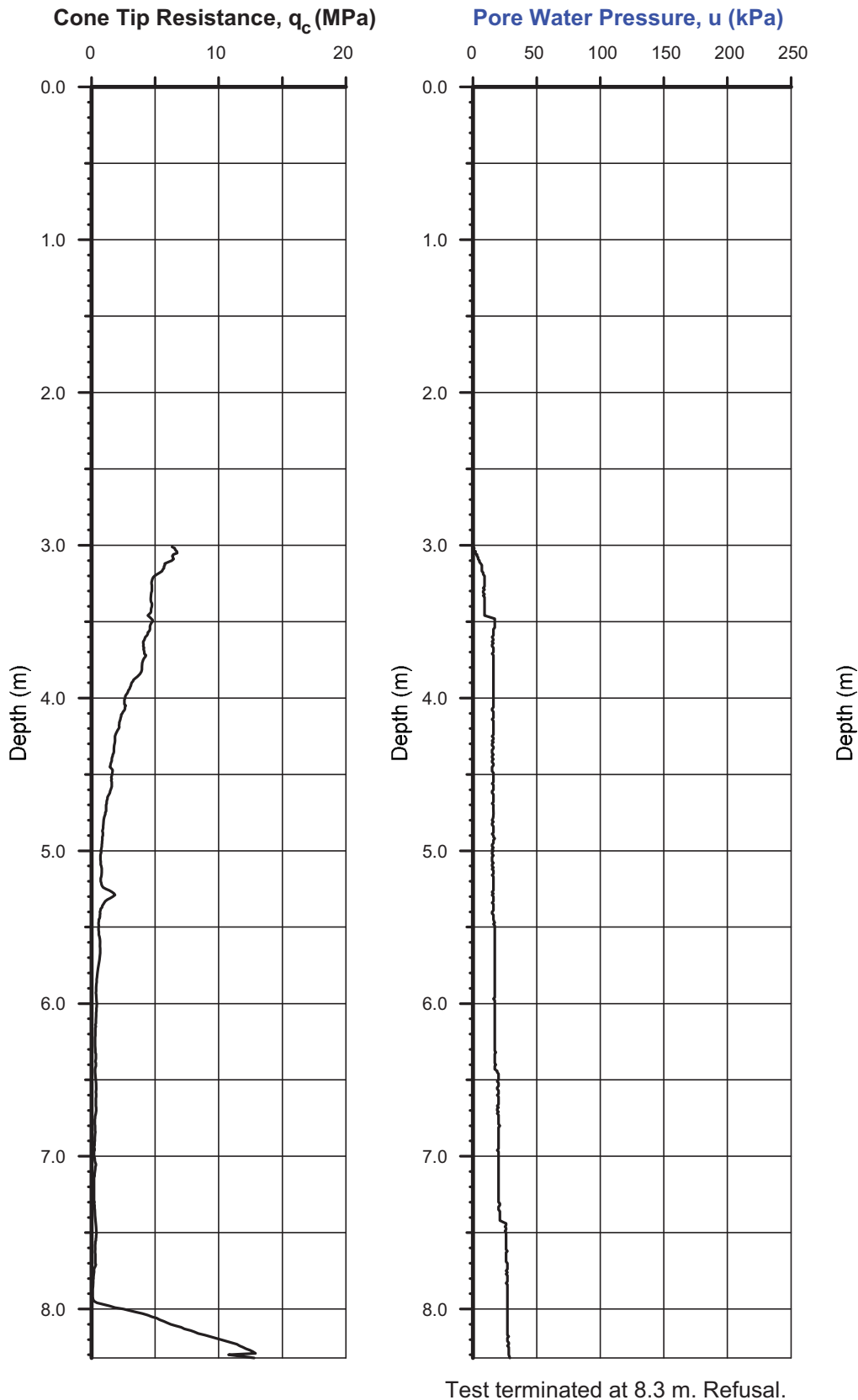
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Swan Reach CPT2

Surface RL: NA

Date: 4/11/2009





EngTest

CONE PENETRATION TEST

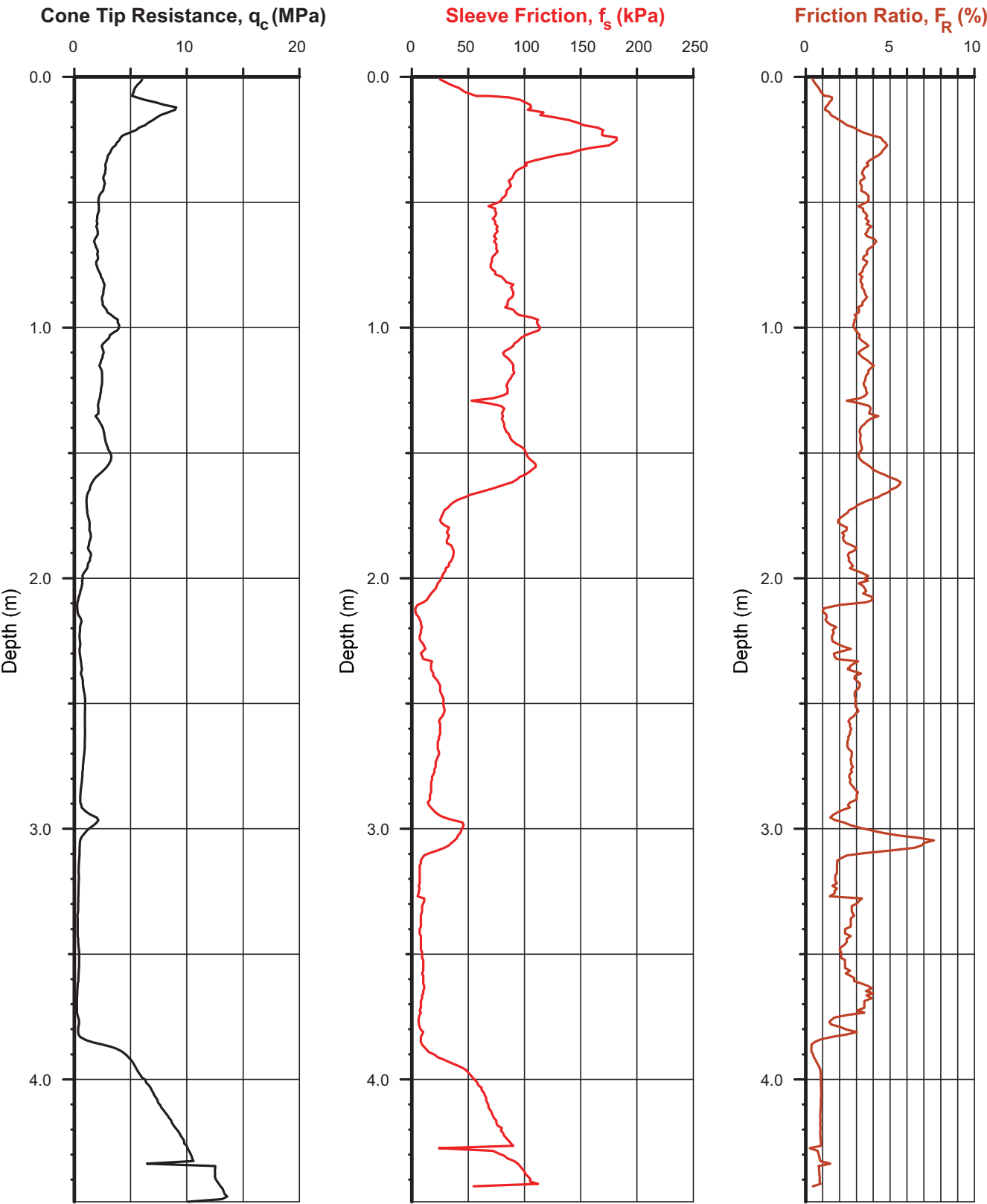
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Swan Reach CPT3

Surface RL: NA

Date: 4/11/2009





EngTest

CONE PENETRATION TEST

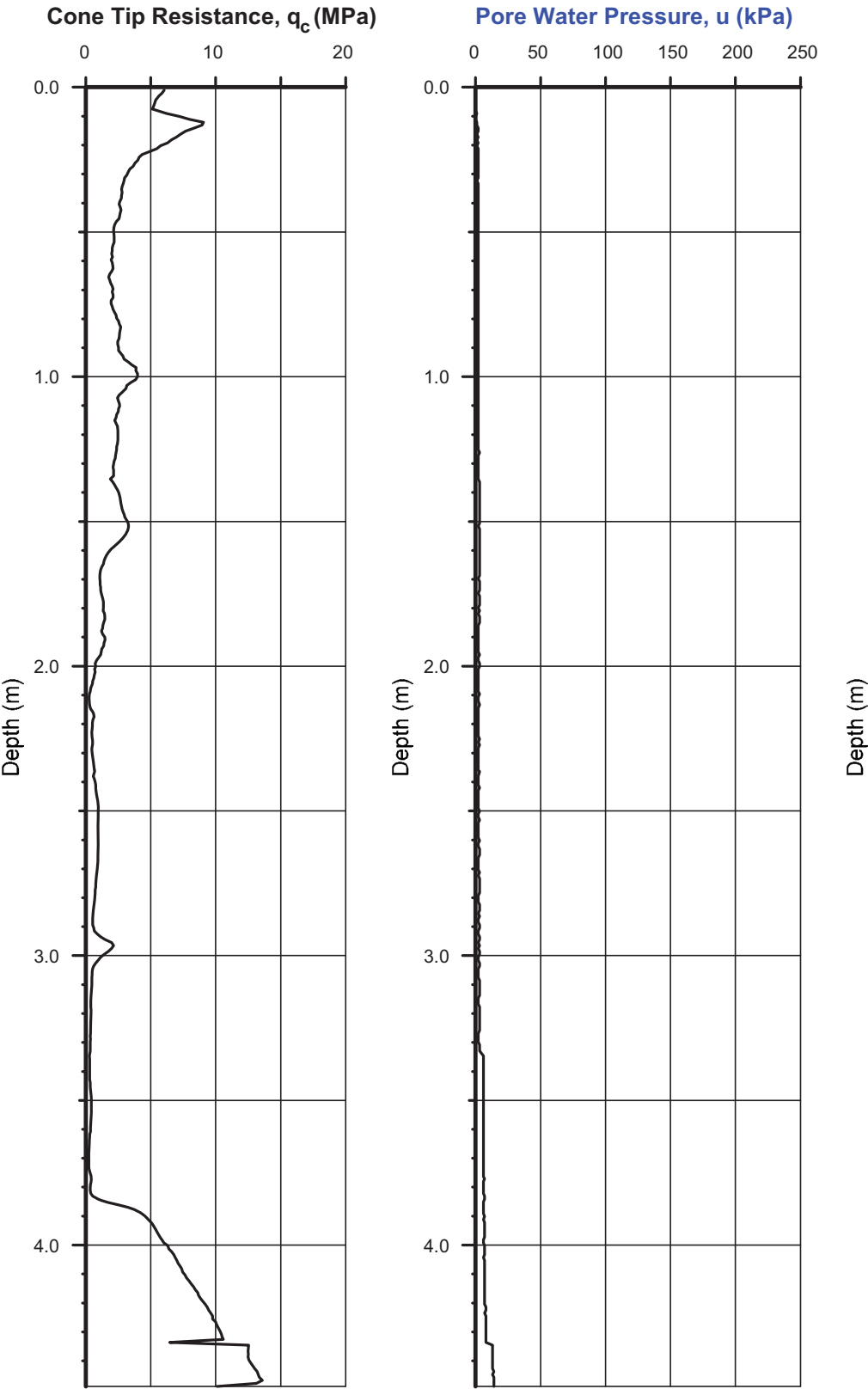
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Swan Reach CPT3

Surface RL: NA

Date: 4/11/2009



Test terminated at 4.5 m. Refusal.

Report No: MAT:MEND09S-12559

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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[Signature]
Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12559
Field Sample: 00232
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: SW-BH1
0.0 - 0.7 m

Other Test Results

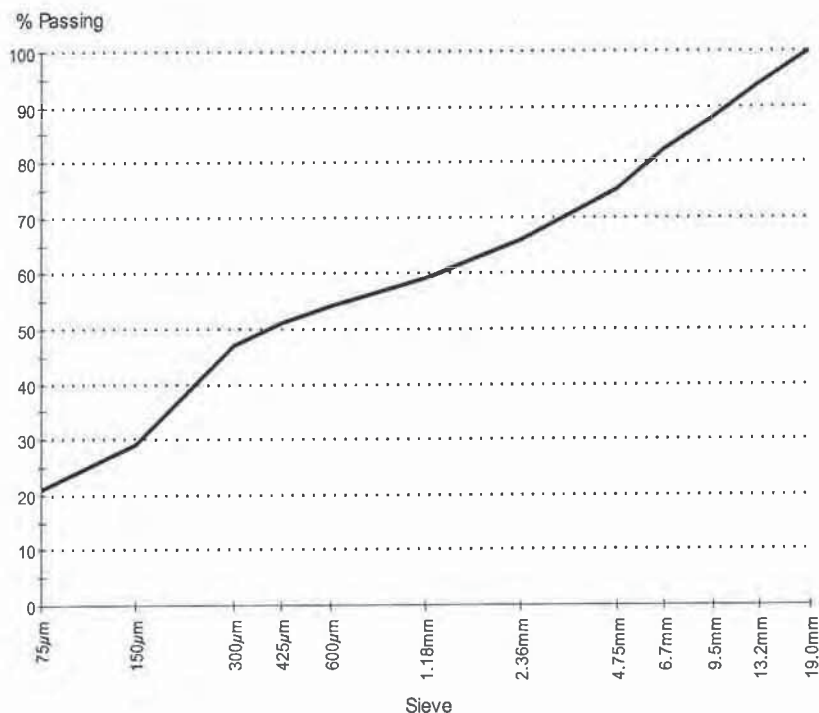
Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	2.5	
Mould Length (mm)		150	
Crumbling		No	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	23	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	18	
Plasticity Index (%)	AS 1289.3.3.1	5	
Moisture Content (%)	AS 1289.2.1.1	5.4	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
19.0mm	100	
13.2mm	94	
9.5mm	88	
6.7mm	82	
4.75mm	75	
2.36mm	66	
1.18mm	59	
600µm	54	
425µm	51	
300µm	47	
150µm	29	
75µm	21	

Comments

N/A

Particle Size Distribution & Atterberg Limits

Client: SINCLAIR KNIGHT MERZ

Job No. 00211/AA

Address: LEVEL 5, 33 KING WILLIAM STREET, ADELAIDE

Date: 23-Nov-09

Principal:

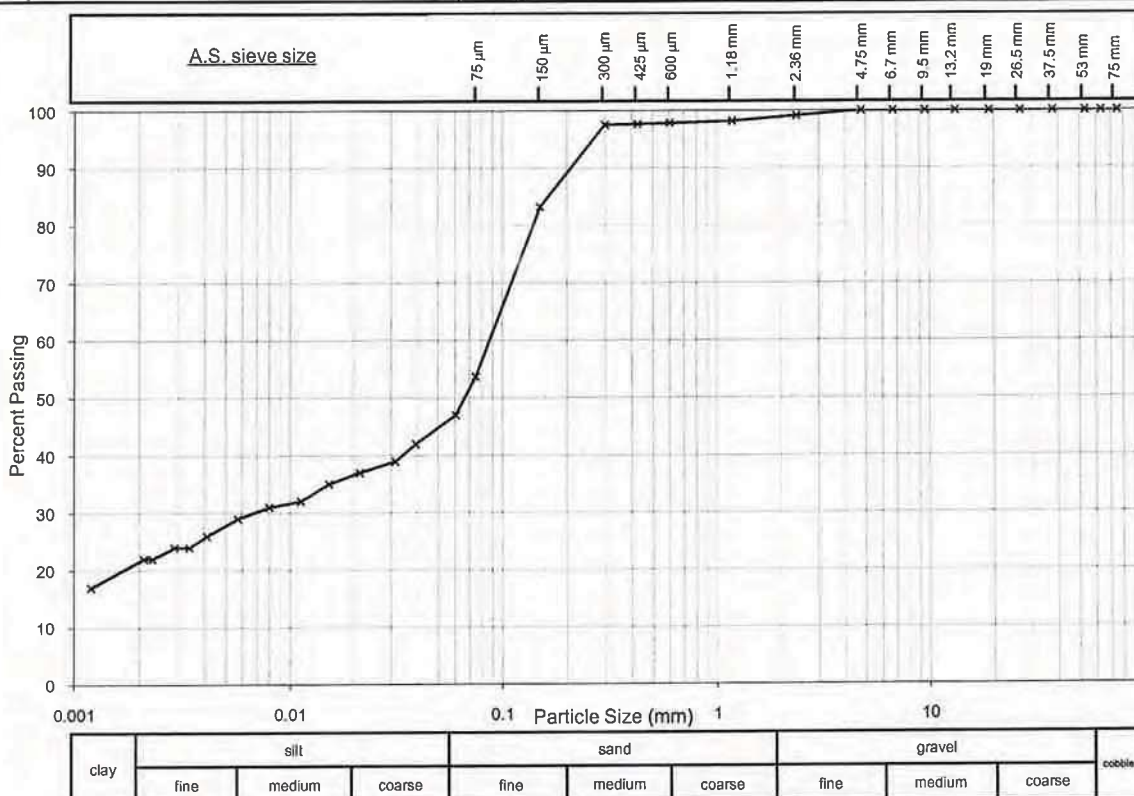
Report No. 00211/AA-R64a

Project: SUBMITTED SAMPLES - 2009

Location: VW 04794

Sample No.: 12560

Sample Identification: SW-BH-1 1.7 - 2.2 m



Particle Size Distribution AS1289 3.6.2, 3.6.3

Sieve Size	% Passing	Specification
150 mm	100	
75 mm	100	
53mm	100	
37.5 mm	100	
26.5 mm	100	
19.0 mm	100	
13.2 mm	100	
9.5 mm	100	
6.7 mm	100	
4.75 mm	100	
2.36 mm	99	
1.18 mm	98	
600 um	98	
425 um	98	
300 um	98	
150 um	83	
75 um	54	

Atterberg Limits and Moisture Content

Test	Method	Result	Spec.
Liquid Limit	% AS1289 3.1.2	28	
Plastic Limit	% AS1289 3.2.1	17	
Plasticity Index	% AS1289 3.3.1	11	
Linear Shrinkage	% AS1289 3.4.1	6.0	
Moisture Content	% AS1289 2.1.1	10.0	
Sample History: ☐ Natural State ☐ Air Dried ☒ Oven Dried			
Preparation Method: ☒ Dry Sieved ☐ Wet Sieved			
Linear shrinkage: ☐ Crumbling ☐ Curling			
Mould Length: 250 mm			
ND = not determined NO = not obtainable NP = non plastic			
Classification:			
Notes: This report replaces all previous issues of report no. 00211/AA-R64.			
Soil particle density - AS 1289 3.5.1		2.72	t/m ³
Dispersion		Mechanical	
Type of Hydrometer		grams / litre	



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NATA Accredited Laboratory

No. 431

Approved Signature:

ROSS DINGLE

Date: 21/2/09

Report No: MAT:MEND09S-12561

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12561
Field Sample: 00234
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: SW-BH1
3.0 - 3.5 m

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.5	
Mould Length (mm)		254	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	58	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	20	
Plasticity Index (%)	AS 1289.3.3.1	38	
Moisture Content (%)	AS 1289.2.1.1	20.8	

Comments

N/A

Report No: MAT:MEND09S-12562

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12562
Field Sample: 00235
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: SW-BH1
4.0 - 4.5 m

Other Test Results

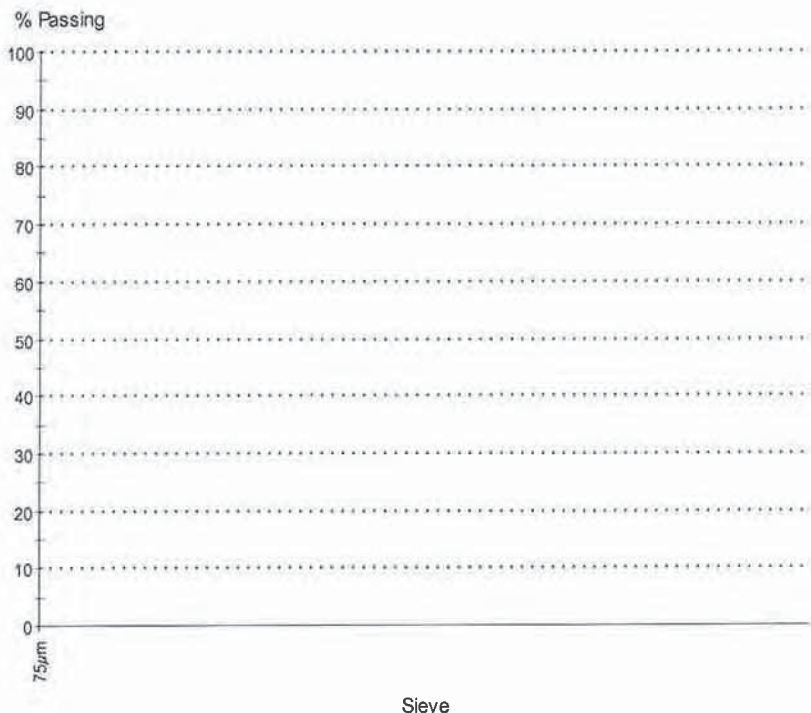
Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	21.0	
Mould Length (mm)		254	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	80	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	20	
Plasticity Index (%)	AS 1289.3.3.1	60	
Moisture Content (%)	AS 1289.2.1.1	27.4	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size **% Passing** **Limits**
75µm 91

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12563

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)

NATA Accredited Laboratory Number: 431

Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12563
Field Sample: 00236
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: SW-BH1
5.0 - 5.5 m

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.5	
Mould Length (mm)		254	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	67	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	29	
Plasticity Index (%)	AS 1289.3.3.1	38	
Moisture Content (%)	AS 1289.2.1.1	42.2	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12564

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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ACCREDITATION

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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12564
Field Sample: 00237
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: SW-BH1
6.0 - 6.5 m

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.5	
Mould Length (mm)		254	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	77	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	28	
Plasticity Index (%)	AS 1289.3.3.1	49	
Moisture Content (%)	AS 1289.2.1.1	86.0	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12565

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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[Signature]
Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12565
Field Sample: 00238
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: SW-BH1
7.8 - 8.1 m

Other Test Results

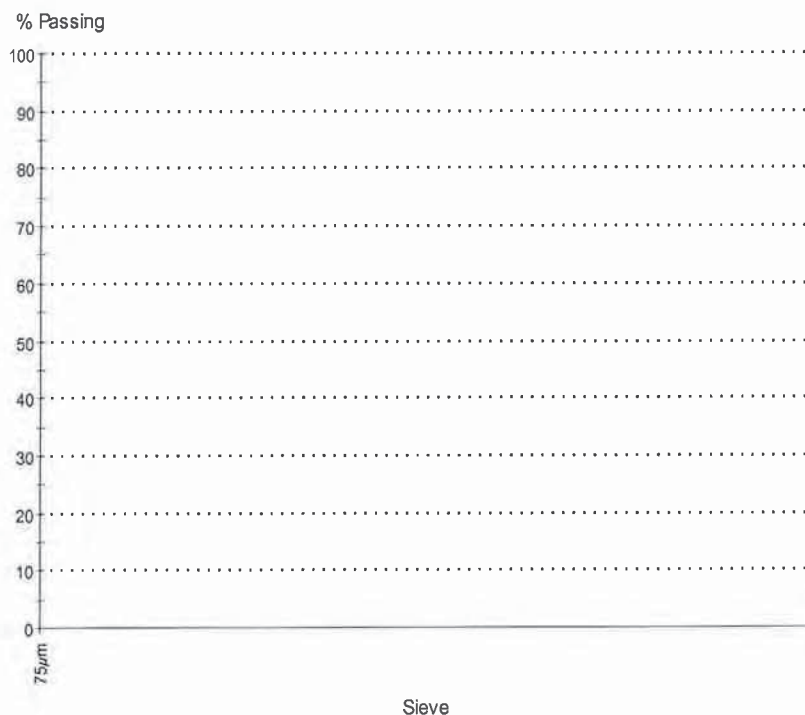
Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	51.5	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	6.0	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	28	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	13	
Plasticity Index (%)	AS 1289.3.3.1	15	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	55	

Comments

N/A



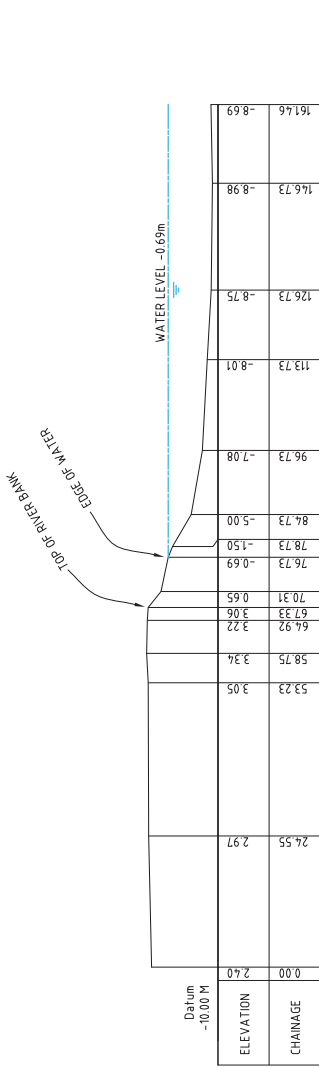
Appendix G Walker Flat In-situ and Laboratory Data

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Site and Investigation Location Plan	Page G-1
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CPTu Test Results	Page G-5
Laboratory Test Certificates	Page G-13

WALKER FLAT

LONGITUDINAL SECTION WF1
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6828/1032 RL35.953



Project: Lwr Murray Riverbank Collapse Client: DWLBC

Location: Walker Flat

Job No: VV04794.1

Start - Finish Date: 04/11 - 04/11/09

Bore dia: 100mm

Driller: Drilling Solution

Rig: 4X4 truck mounted

Surface Conditions: Dirt

Northings: 6153645.0mN

Eastings: 367898.0mE

RL:

Logged: MT

Checked: RT

Oriented: -90

LABORATORY DATA						FIELD DATA		SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m ³)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
	6	25	11	23			3		FILL: Clayey GRAVEL: (GC) brown, fine to coarse grained, round and angular gravel, with very fine grained sand	MD		Solid Flight Augering 100mm diameter
							1		with Sandstone cobbles and pebbles			
	15	32	15	59			2		Sandy CLAY (CL) green-grey	F	D	
							2					
	25	57	40				1		Silty CLAY (CH) dark green-grey, black	F	D-M	
									dark grey		M	
	39	69	50	96			0		with leaves and roots, with organic matter			
							4		dark grey-black, mottled yellow, increase in leaves, with organic matter			
									with yellow leaves, with organic matter			
	35	55	34				-1		mottled black			
							5		green-grey, with sand and silt lenses			
	42	56	37				-2		increase in brown leaves, with organic matter	VS	W	
							6					
							-3					
							7					
							-4					
							8					
							-5					
							9					
							-6					
							10					

LABORATORY DATA
 UQN Unconfined Comp. (Natural)
 UQC Unconfined Comp. (Compacted)
 TQN Uncons. Undrained Triax. (Natural)
 TQC Uncons. Undrained Triax. (Compacted)
 TRX Consolidated Undrained Triaxial with pwp measurement
 PSA Particle Size Analysis
 CS 1D oedometer Test
 LPM Laboratory Permeability

FIELD DATA ABBREVIATIONS
 Suv = Uncorrected vane shear (kPa)
 Sup = Pocket penetrometer (kPa)
 N = SPT blows per 300mm
 FPM = Field permeability
 GROUNDWATER SYMBOLS
 ▼ = Water level (static)
 ▼ = Water level (during drilling)
 → = Outflow / Inflow

FIELD DATA SYMBOLS
 × = Shear vane test
 ⊥ = Pocket Penetrometer test
 ▽ = Standard Penetration Test (SPT top = start of N blowcount)
 ▼ = SPT Spoon Sample (Pushed)
 ■ = Undisturbed Tube Sample
 ● = Disturbed Sample
 ○ = Environmental Sample

DENSITY (N-value)
 VL (very loose) 0 - 4
 L (loose) 4 - 10
 MD (medium dense) 10 - 30
 D (dense) 30 - 50
 VD (very dense) 50 - 100
 CO (compact) >50/150mm
 MOISTURE CONDITION
 D = Dry M = Moist W = Wet

CONSISTENCY (Su)
 VS (very soft) < 12 kPa
 S (soft) 12 - 25
 F (firm) 25 - 50
 St (stiff) 50 - 100
 VSt (very stiff) 100 - 200
 H (hard) > 200 kPa

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

Project: Lwr Murray Riverbank Collapse Client: DWLBC

Location: Walker Flat

Job No: VV04794.1

Start - Finish Date: 04/11 - 04/11/09

Bore dia: 100mm

Driller: Drilling Solution

Rig: 4X4 truck mounted

Surface Conditions: Dirt

Northings: 6153645.0mN

Eastings: 367898.0mE

RL:

Logged: MT

Checked: RT

Oriented: -90

LABORATORY DATA						FIELD DATA		SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m ³)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
	25	22	5	27			-7		Silty CLAY (CH) dark green-grey, black (continued) increase in sand content	VS	W	
							11		Sandy CLAY: (CH) / Clayey SAND: (SC) green-grey, fine grained sand	F / MD		
							-8		Borehole terminated at 11.5m			
							-12					
							-9					
							-13					
							-10					
							-14					
							-11					
							-15					
							-12					
							-16					
							-13					
							-17					
							-14					
							-18					
							-15					
							-19					
							-16					
							-20					

LABORATORY DATA		FIELD DATA ABBREVIATIONS		FIELD DATA SYMBOLS		DENSITY (N-value)		CONSISTENCY (Su)	
UQN	Unconfined Comp. (Natural)	Suv	= Uncorrected vane shear (kPa)	×	= Shear vane test	VL	(very loose) 0 - 4	VS	(very soft) < 12 kPa
UQC	Unconfined Comp. (Compacted)	Sup	= Pocket penetrometer (kPa)	⊥	= Pocket Penetrometer test	L	(loose) 4 - 10	S	(soft) 12 - 25
TQN	Uncons. Undrained Triax. (Natural)	N	= SPT blows per 300mm	▽	= Standard Penetration Test (SPT top = start of N blowcount)	MD	(medium dense) 10 - 30	F	(firm) 25 - 50
TQC	Uncons. Undrained Triax. (Compacted)	FPM	= Field permeability	▼	= SPT Spoon Sample (Pushed)	D	(dense) 30 - 50	St	(stiff) 50 - 100
TRX	Consolidated Undrained Triaxial with pwp measurement			■	= Undisturbed Tube Sample	VD	(very dense) 50 - 100	VSt	(very stiff) 100 - 200
PSA	Particle Size Analysis			●	= Disturbed Sample	CO	(compact) >50/150mm	H	(hard) > 200 kPa
CS	1D oedometer Test			○	= Environmental Sample	MOISTURE CONDITION			
LPM	Laboratory Permeability					D	= Dry M = Moist W = Wet		
		GROUNDWATER SYMBOLS							
		▼	= Water level (static)						
		▽	= Water level (during drilling)						
		→	= Outflow / Inflow						

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09



EngTest

CONE PENETRATION TEST

Page 1 of 2

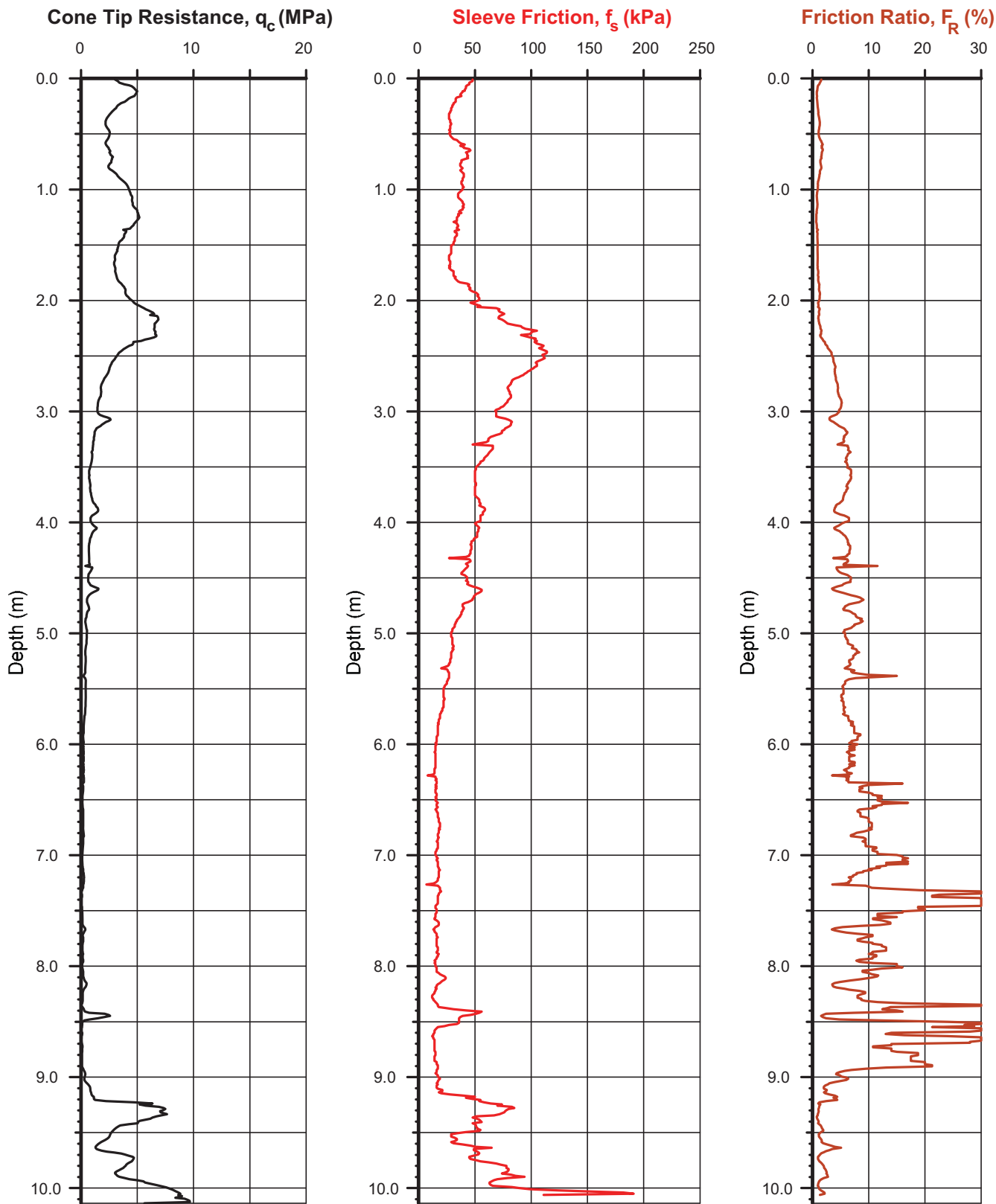
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Walker Flat CPT1

Surface RL: NA

Date: 4/11/2009



Test terminated at 10.1 m. Refusal.



EngTest

CONE PENETRATION TEST

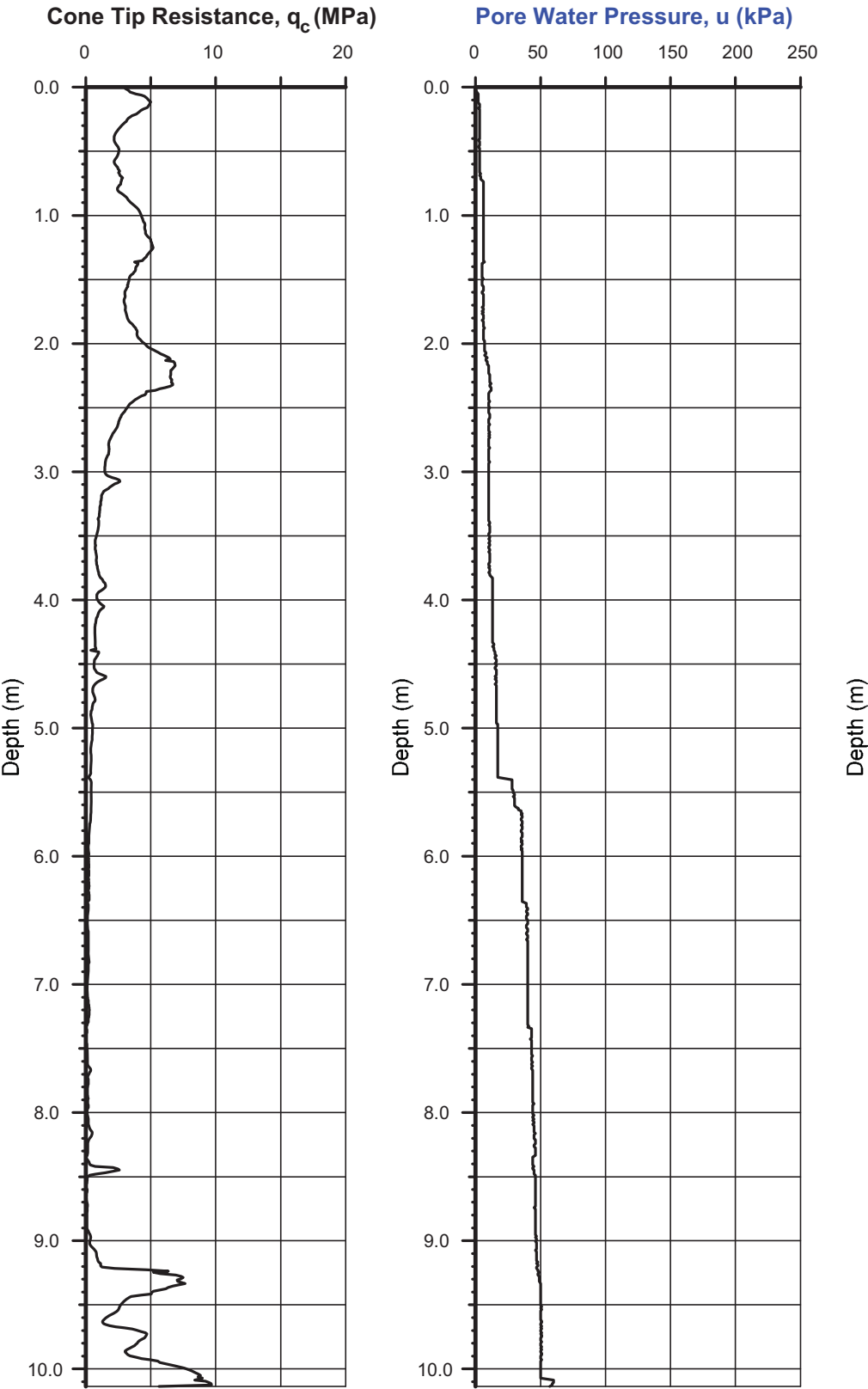
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Walker Flat CPT1

Surface RL: NA

Date: 4/11/2009



Test terminated at 10.1 m. Refusal.



EngTest

CONE PENETRATION TEST

Page 1 of 2

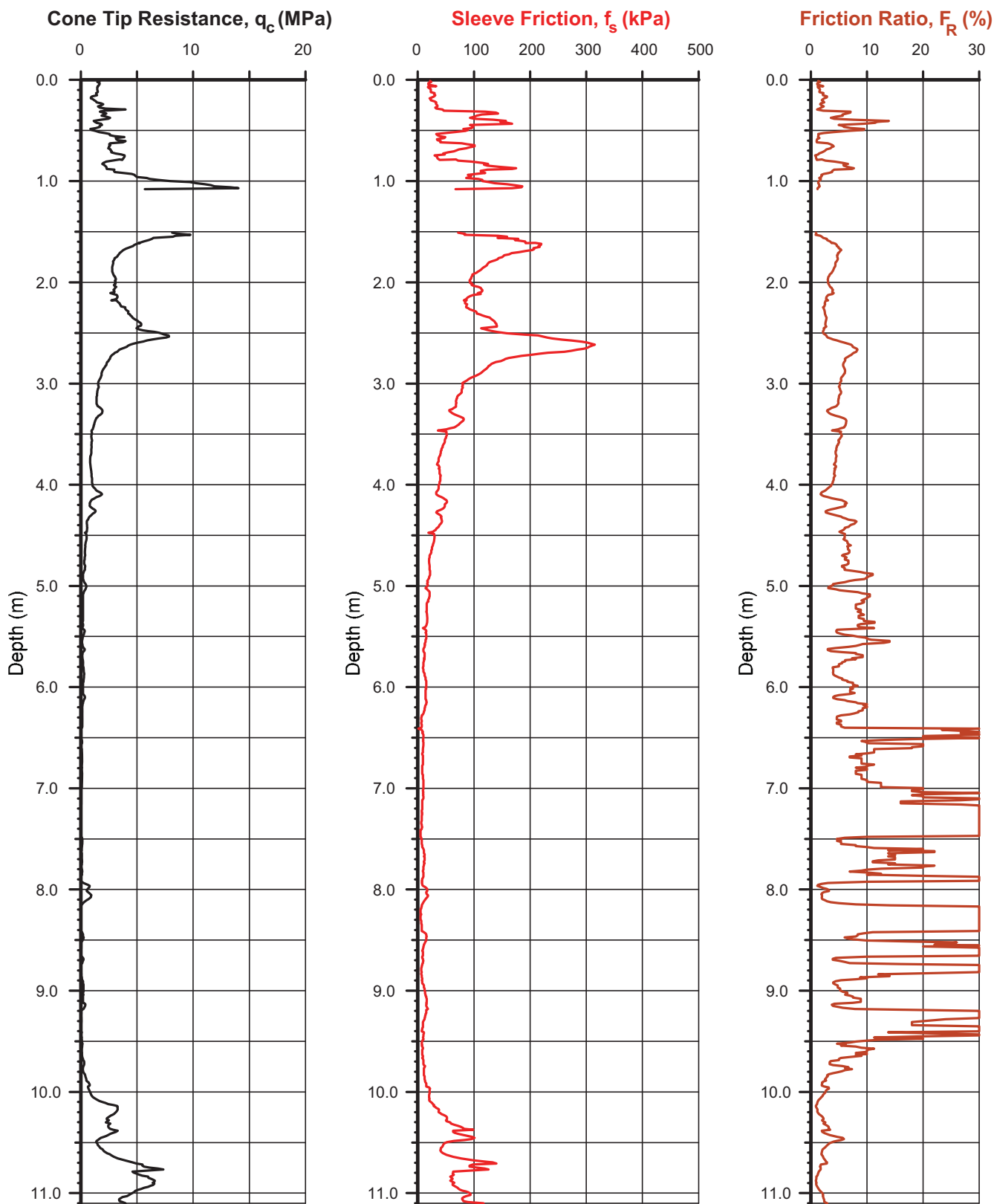
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Walker Flat CPT2

Surface RL: NA

Date: 4/11/2009



Test terminated at 11.1 m. Refusal. Relief drill 1.08-1.5m.



EngTest

CONE PENETRATION TEST

Page 2 of 2

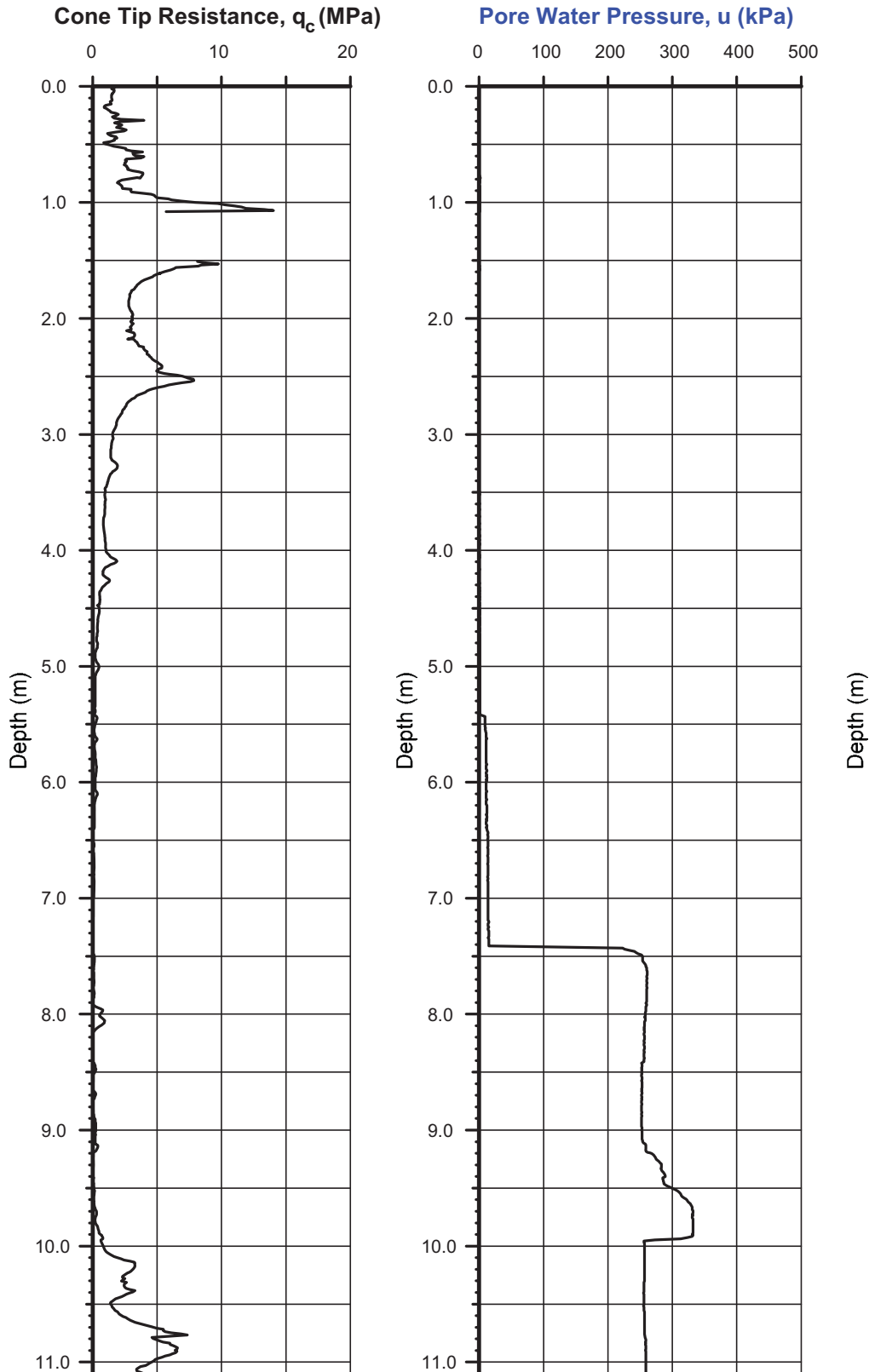
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Walker Flat CPT2

Surface RL: NA

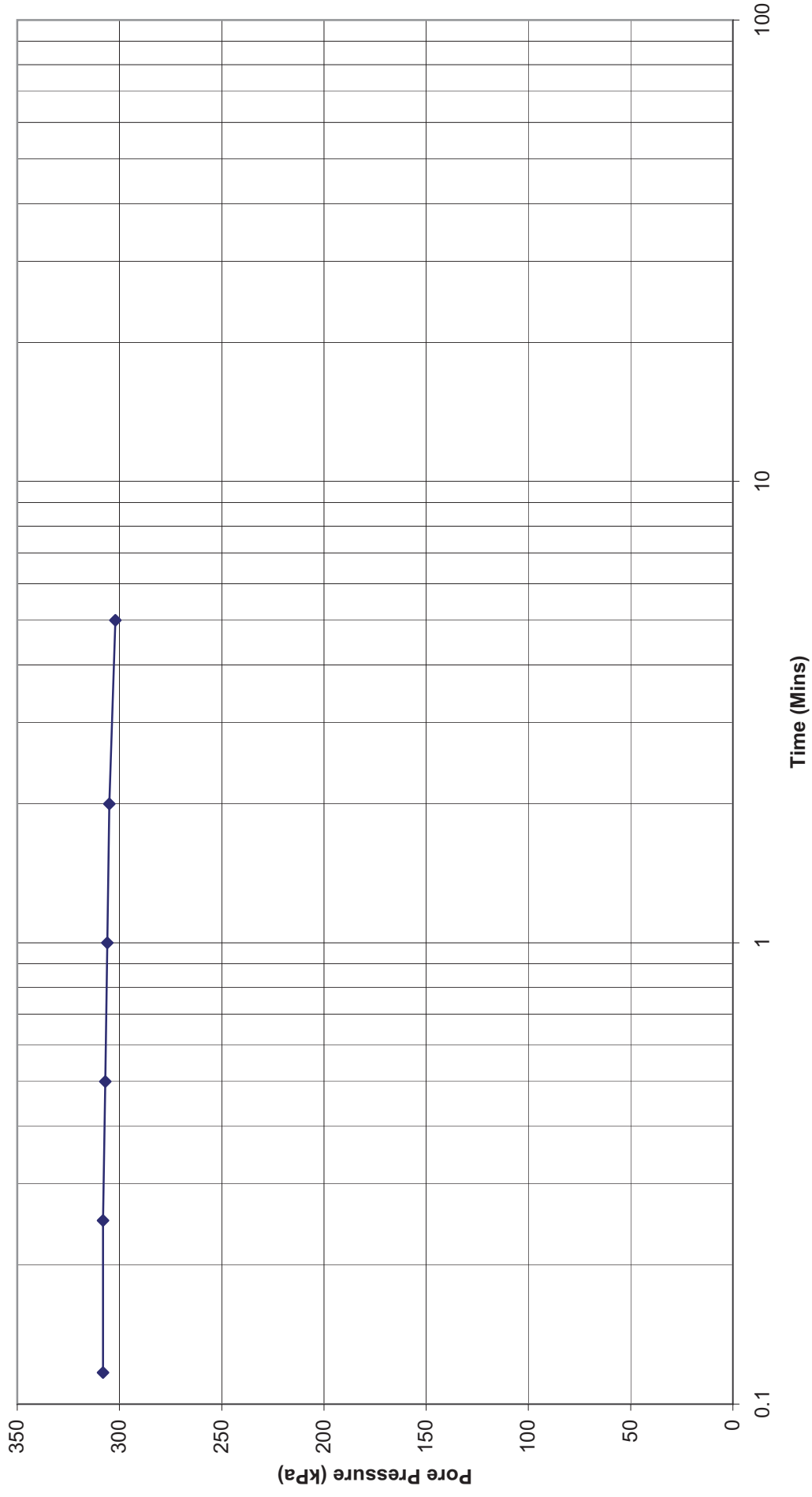
Date: 4/11/2009



Test terminated at 11.1 m. Refusal. Relief drill 1.08-1.5m.



**Walker Flat CPTu2
Dissipation test @ 11.1 m depth**





EngTest

CONE PENETRATION TEST

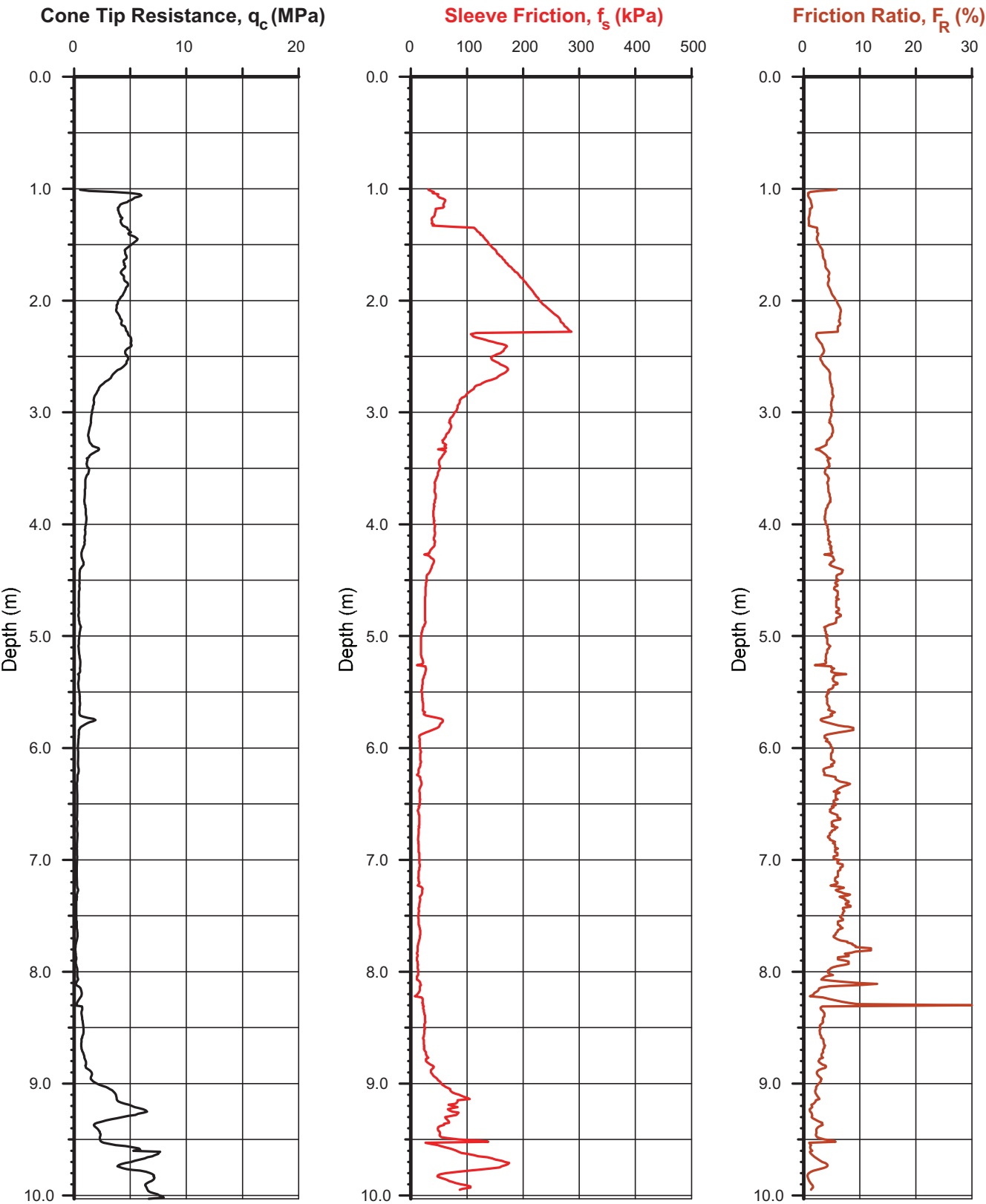
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

Test Location: Walker Flat CPT3

Surface RL: NA

Date: 4/11/2009



Test terminated at 10.0 m. Refusal.



EngTest

CONE PENETRATION TEST

Page 2 of 2

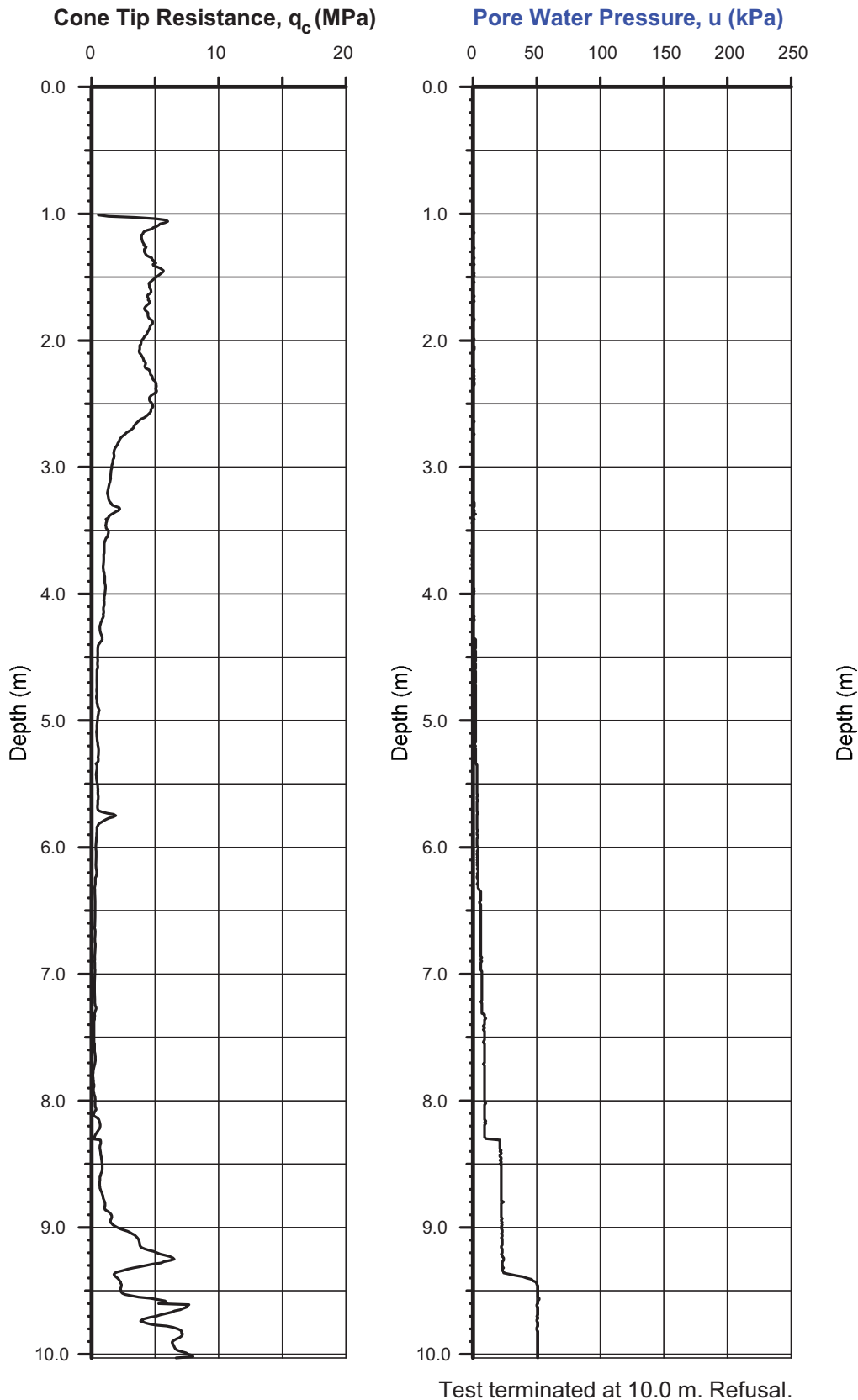
Client: Sinclair Knight Merz

Job Details: Murray Riverbank Geotechnical Investigations

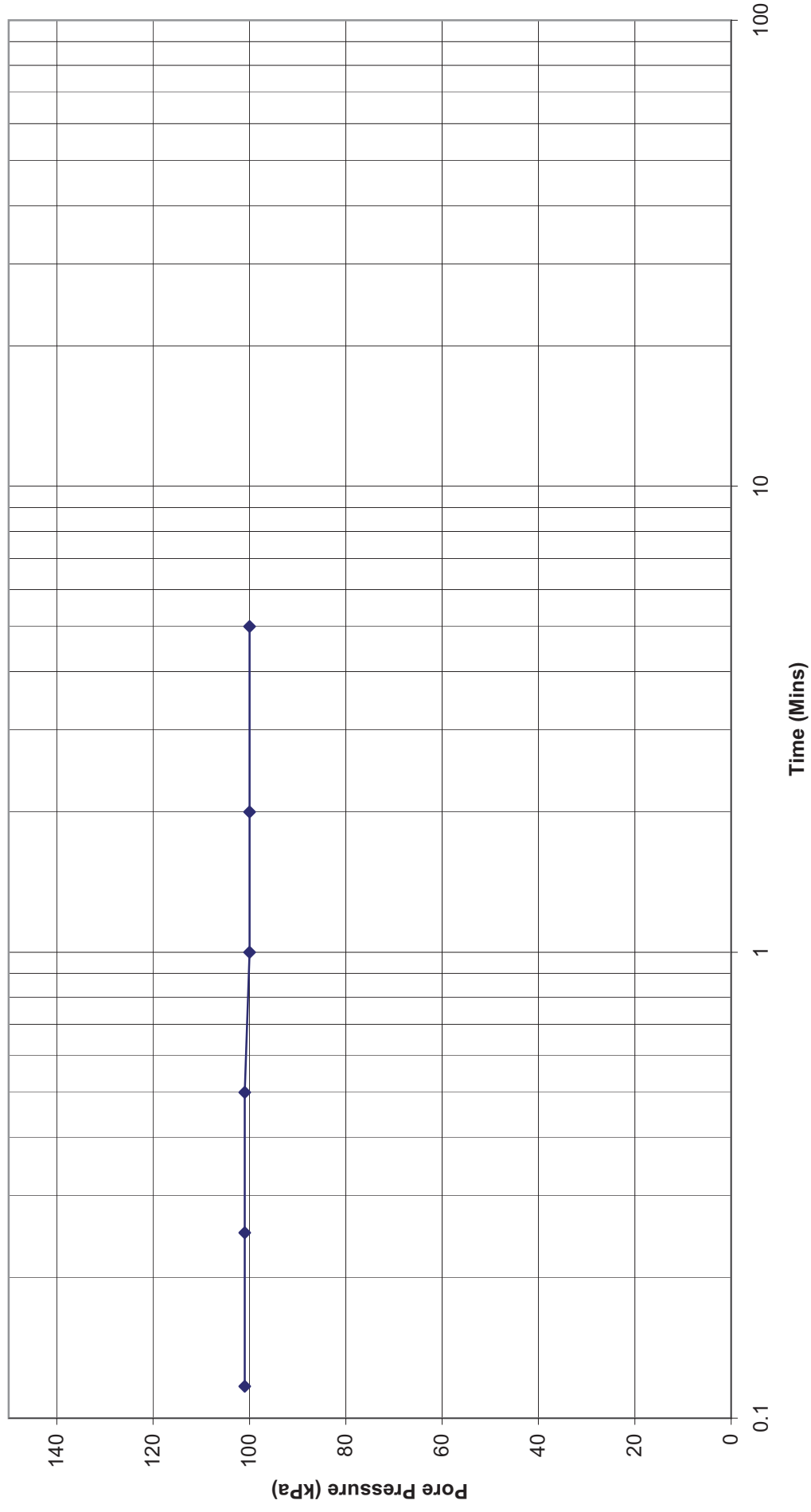
Test Location: Walker Flat CPT3

Surface RL: NA

Date: 4/11/2009



Walker Flat CPTu3
Dissipation test @ 10.0 m depth



Particle Size Distribution & Atterberg Limits

Client: SINCLAIR KNIGHT MERZ

Job No. 00211/AA

Address: LEVEL 5, 33 KING WILLIAM STREET, ADELAIDE

Date: 23-Nov-09

Principal:

Report No. 00211/AA-R65a

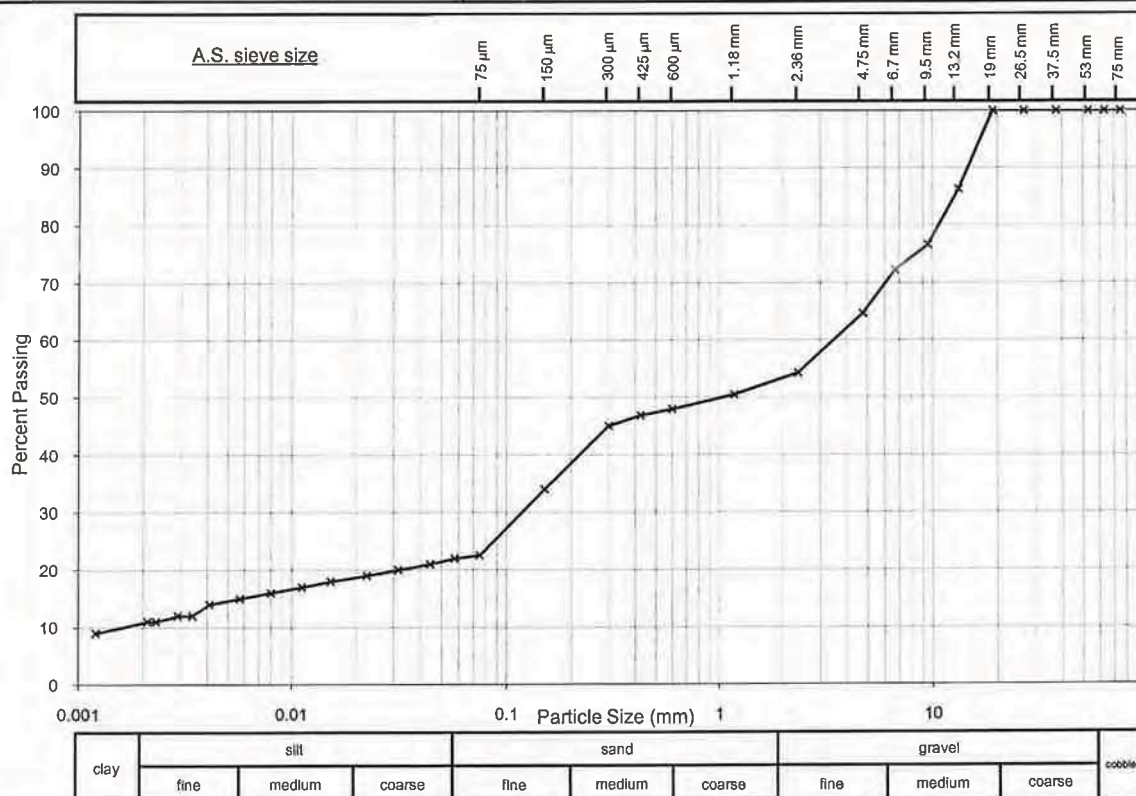
Project: SUBMITTED SAMPLES - 2009

Location: VW 04794

Sample No.: 12566

Sample Identification:

WF-BH-1 0.0 - 0.5 m



Particle Size Distribution

AS1289 3.6.2, 3.6.3

Atterberg Limits and Moisture Content

Sieve Size	% Passing	Specification	Test	Method	Result	Spec.
150 mm	100		Liquid Limit	% AS1289 3.1.2	25	
75 mm	100		Plastic Limit	% AS1289 3.2.1	14	
53mm	100		Plasticity Index	% AS1289 3.3.1	11	
37.5 mm	100		Linear Shrinkage	% AS1289 3.4.1	4.5	
26.5 mm	100		Moisture Content	% AS1289 2.1.1	6.4	
19.0 mm	100		Sample History:			
13.2 mm	86		Preparation Method:			
9.5 mm	77		Linear shrinkage:			
6.7 mm	72		Mould Length: 254 mm			
4.75 mm	65		ND = not determined NO = not obtainable NP = non plastic			
2.36 mm	54		Classification:			
1.18 mm	50		Notes:			
600 um	48		This report replaces all previous issues of report no. 00211/AA-R65.			
425 um	47		Soil particle density - AS 1289 3.5.1			
300 um	45		Dispersion			
150 um	34		Type of Hydrometer			
75 um	23		2.69 t/m ³			



The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement. This document shall not be reproduced except in full.

NATA Accredited Laboratory

No. 431

Approved Signature:

ROSS DINGLE

Date:

23/12/09

Material Test Report

Report No: MAT:MEND09S-12567

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12567
Field Sample: 00240
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: WF-BH1
1.5 - 2.0 m

Other Test Results

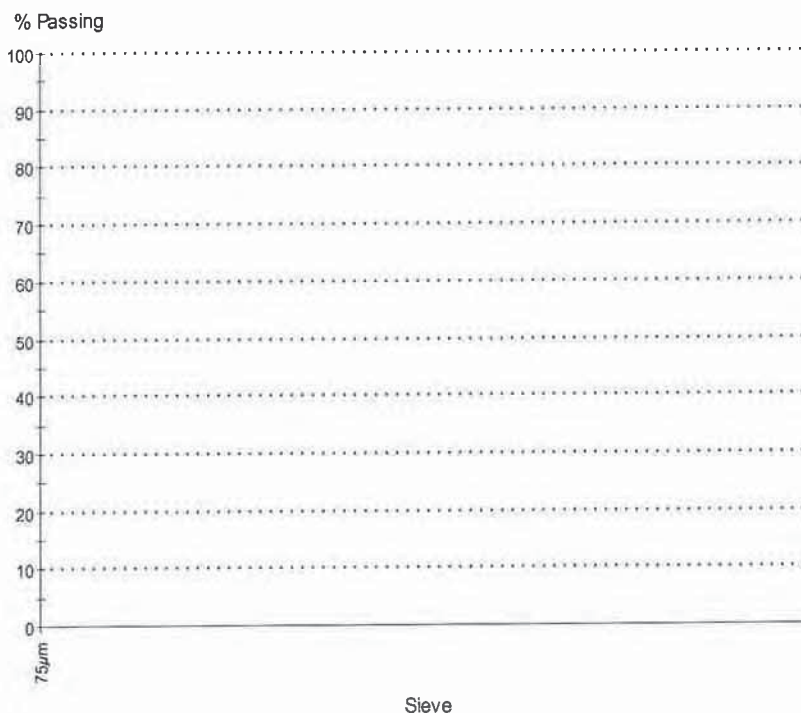
Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	7.0	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	32	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	15	
Moisture Content (%)	AS 1289.2.1.1	15.1	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	59	

Comments

N/A

Material Test Report

Report No: MAT:MEND09S-12568

Issue No: 1

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12568
Field Sample: 00241
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: WF-BH1
2.5 - 3.0 m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	25.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	15.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	57	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	40	

Comments

N/A

Report No: MAT:MEND09S-12569

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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Westley Fieldhouse
Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12569
Field Sample: 00242
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: WF-BH1
3.5 - 4.0 m

Other Test Results

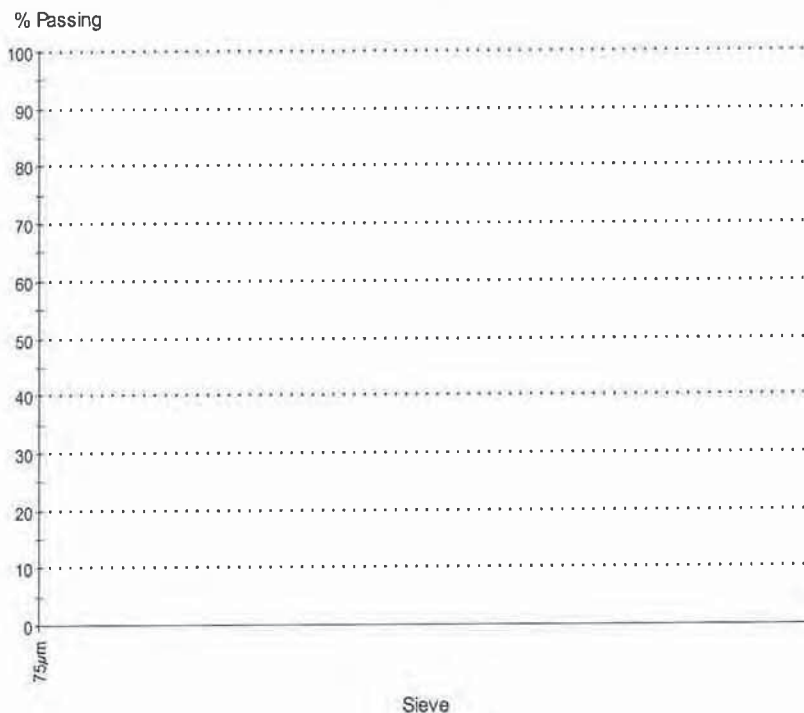
Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	38.6	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	17.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	69	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	19	
Plasticity Index (%)	AS 1289.3.3.1	50	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	96	

Comments

N/A

Report No: MAT:MEND09S-12570

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12570
Field Sample: 00243
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: WF-BH1
4.5 - 5.0 m

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	14.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	55	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	21	
Plasticity Index (%)	AS 1289.3.3.1	34	
Moisture Content (%)	AS 1289.2.1.1	35.4	

Comments

N/A

Report No: MAT:MEND09S-12571

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:

Project No.: INFOMEND00211AA

Project Name: SUBMITTED SAMPLES - 2009

Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12571
Field Sample: 00244
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: WF-BH1
5.5 - 6.0 m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	42.4	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	13.5	
Mould Length (mm)		254	
Crumbling		No	
Curling		Yes	
Liquid Limit (%)	AS 1289.3.1.2	56	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	19	
Plasticity Index (%)	AS 1289.3.3.1	37	

Comments

N/A

Report No: MAT:MEND09S-12572

Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**



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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number: 431
Date of Issue: 2/12/2009

Sample Details

Sample ID: MEND09S-12572
Field Sample: 00245
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: SWAN REACH & WALKER FLAT - VW04794
Sample Location: WF-BH1
10.5 - 11.0 m

Other Test Results

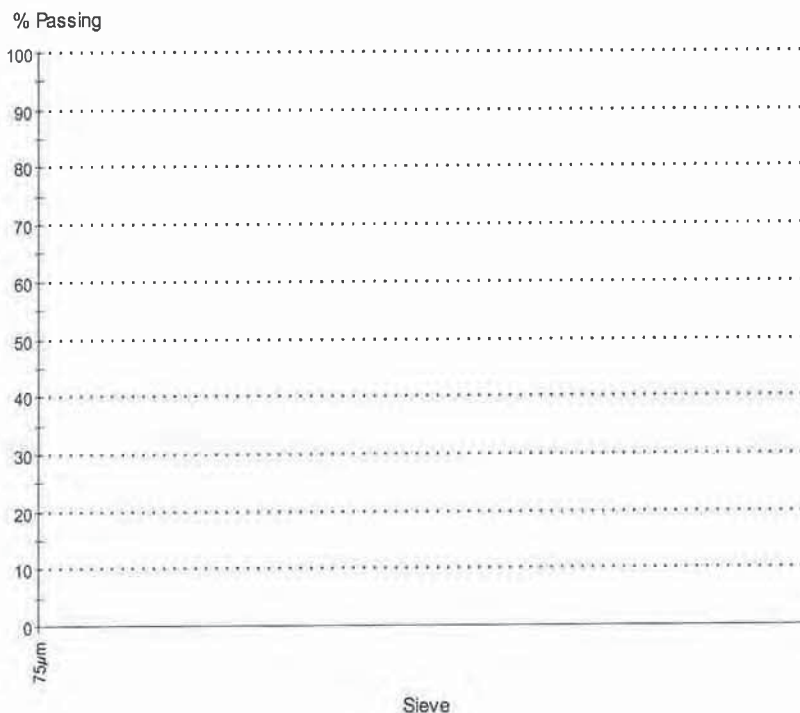
Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	24.6	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	2.0	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	22	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	5	

Particle Size Distribution

Method: AS 1289.3.6.1

Drying by:

Note: Sample Washed



Sieve Size **% Passing** **Limits**
75µm 27

Comments

N/A