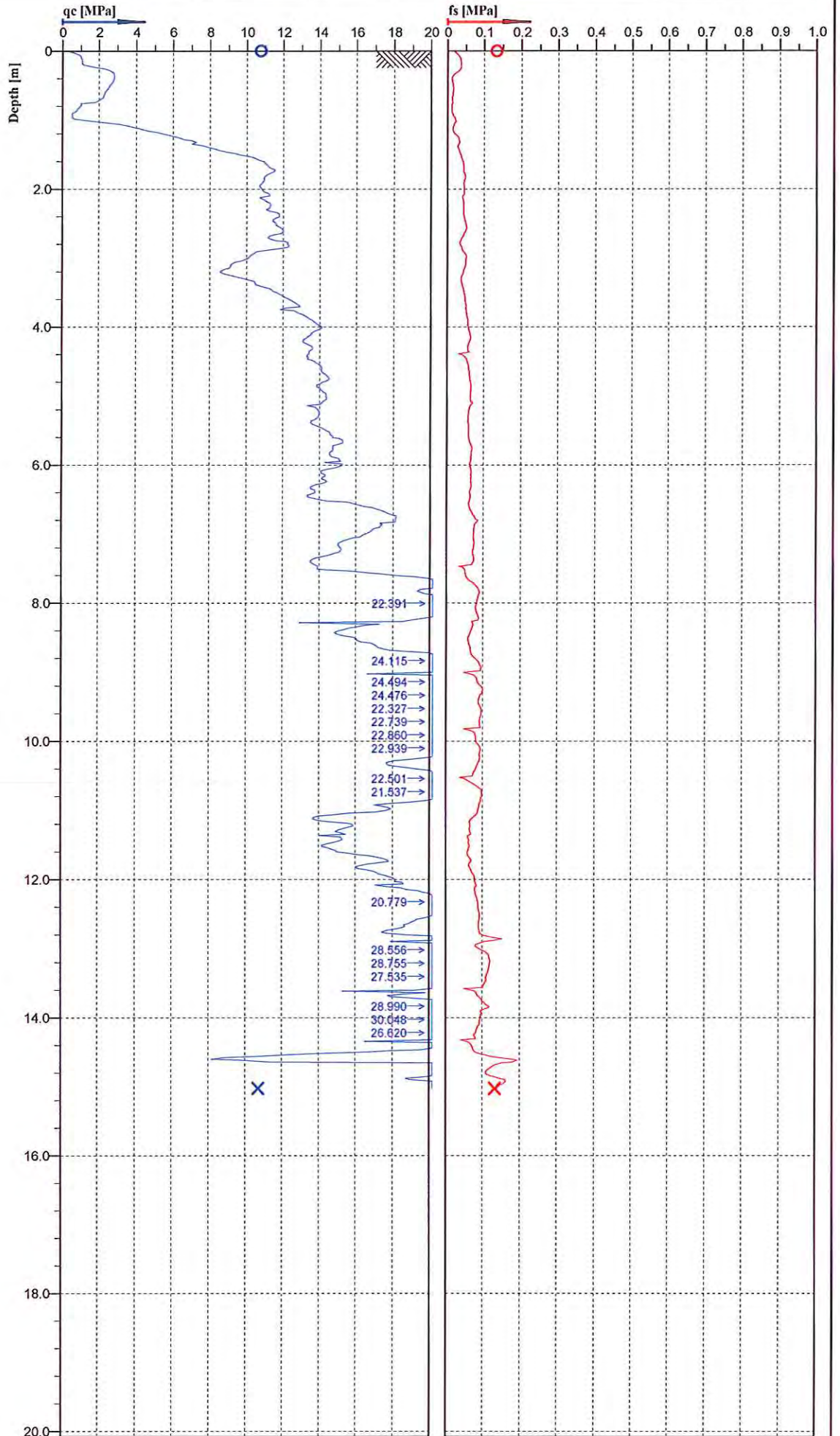
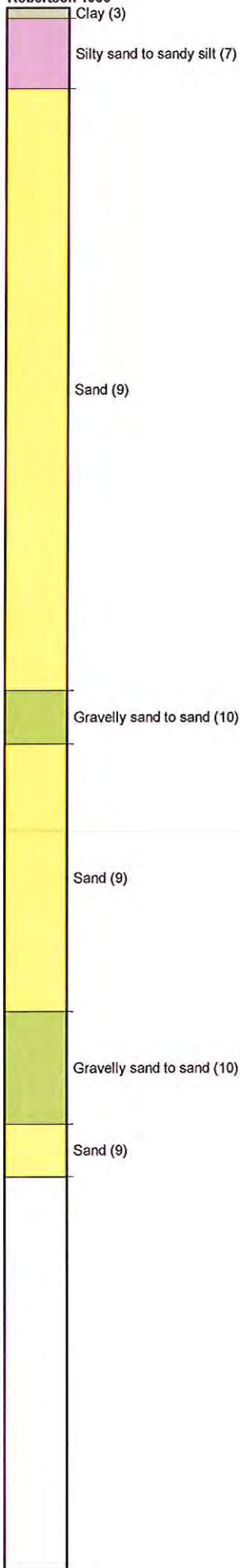


Appendix C

Pre-Compaction CPT Logs

Classification by
Robertson 1986

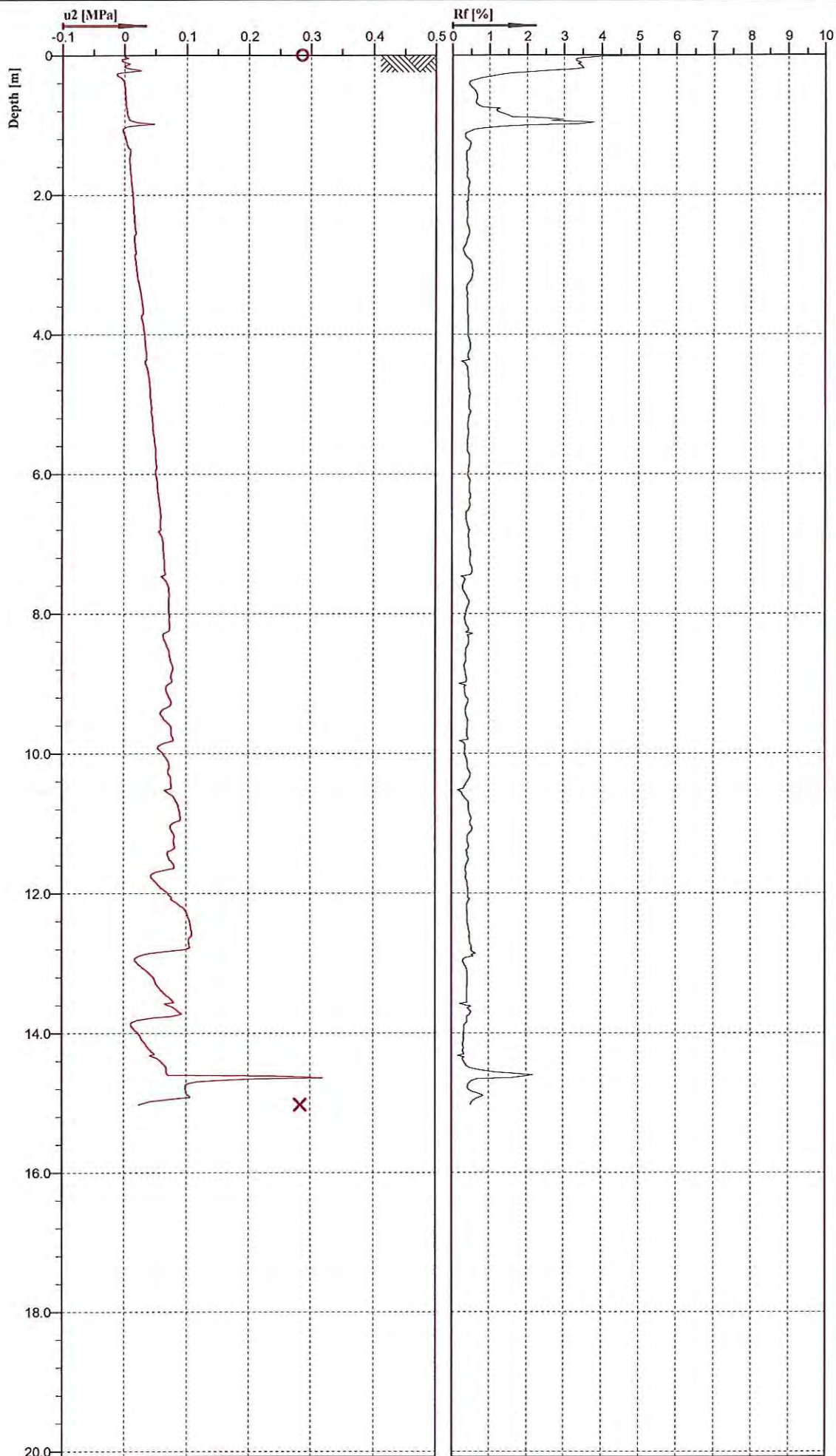
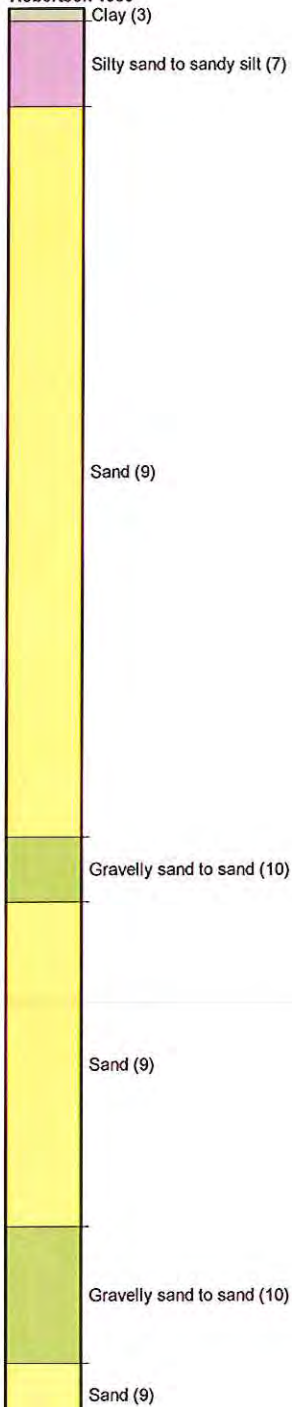


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	501
Project ID:		Client:	Aurecon	Date:	27/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase1CPT501.c		

Classification by
Robertson 1986



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	501
Project ID:		Client:	Aurecon	Date:	27/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase1CPT501.c		

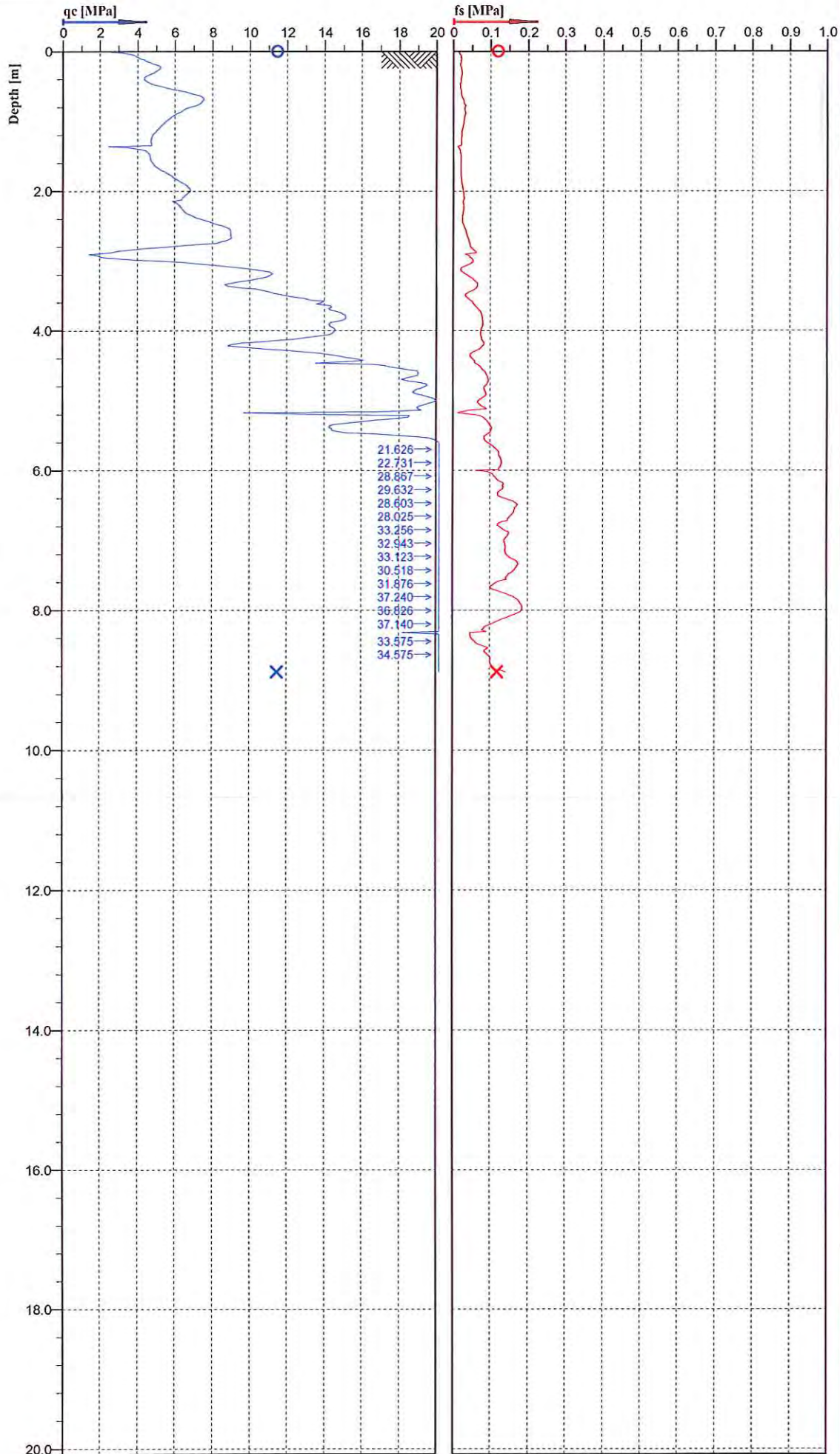
Classification by
Robertson 1986



Sand to silty sand (8)

Sand (9)

Gravelly sand to sand (10)



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

U2
Cone No: 4486
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	526
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT526.c		

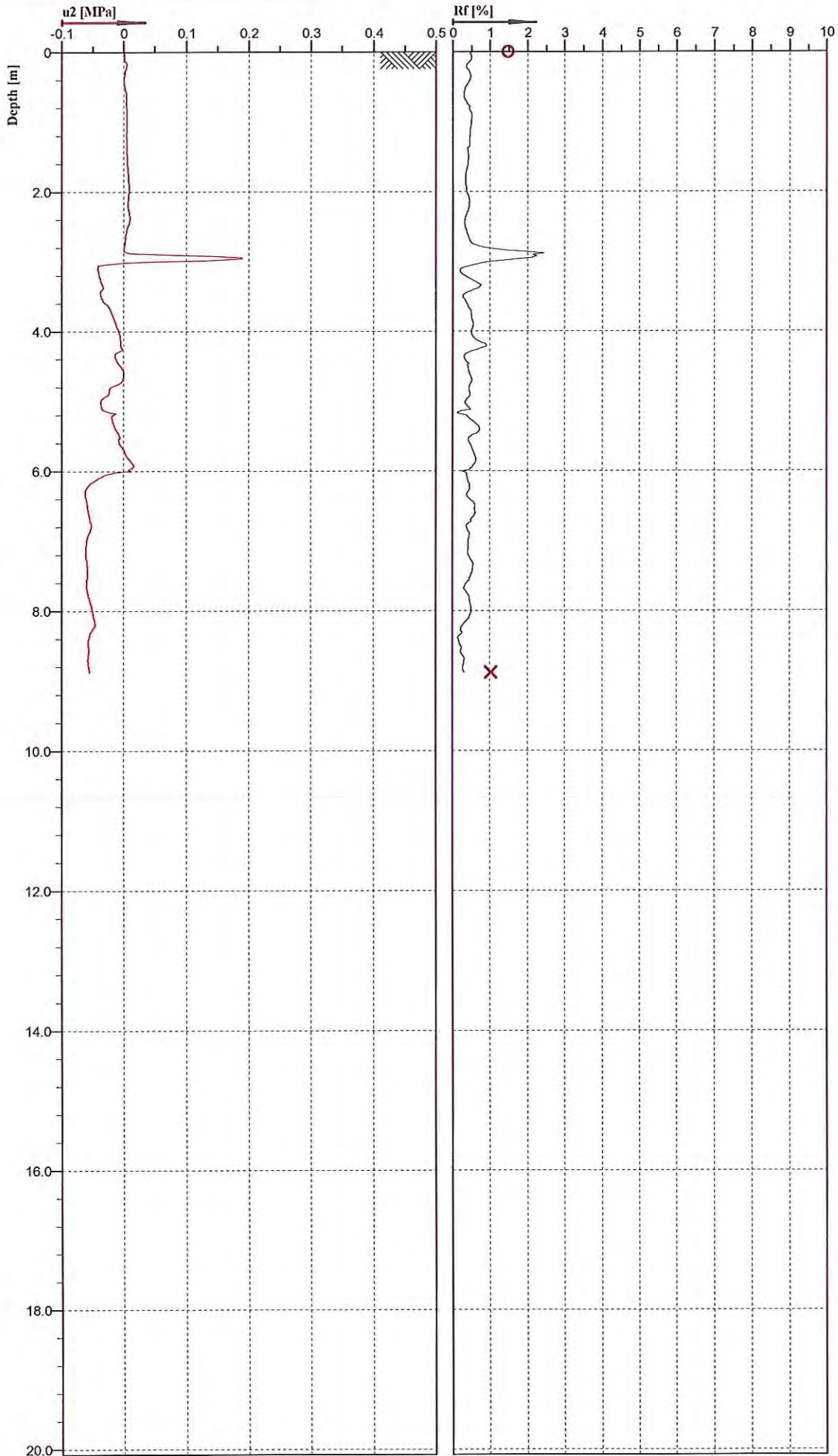
Classification by
Robertson 1986



Sand to silty sand (8)

Sand (9)

Gravelly sand to sand (10)

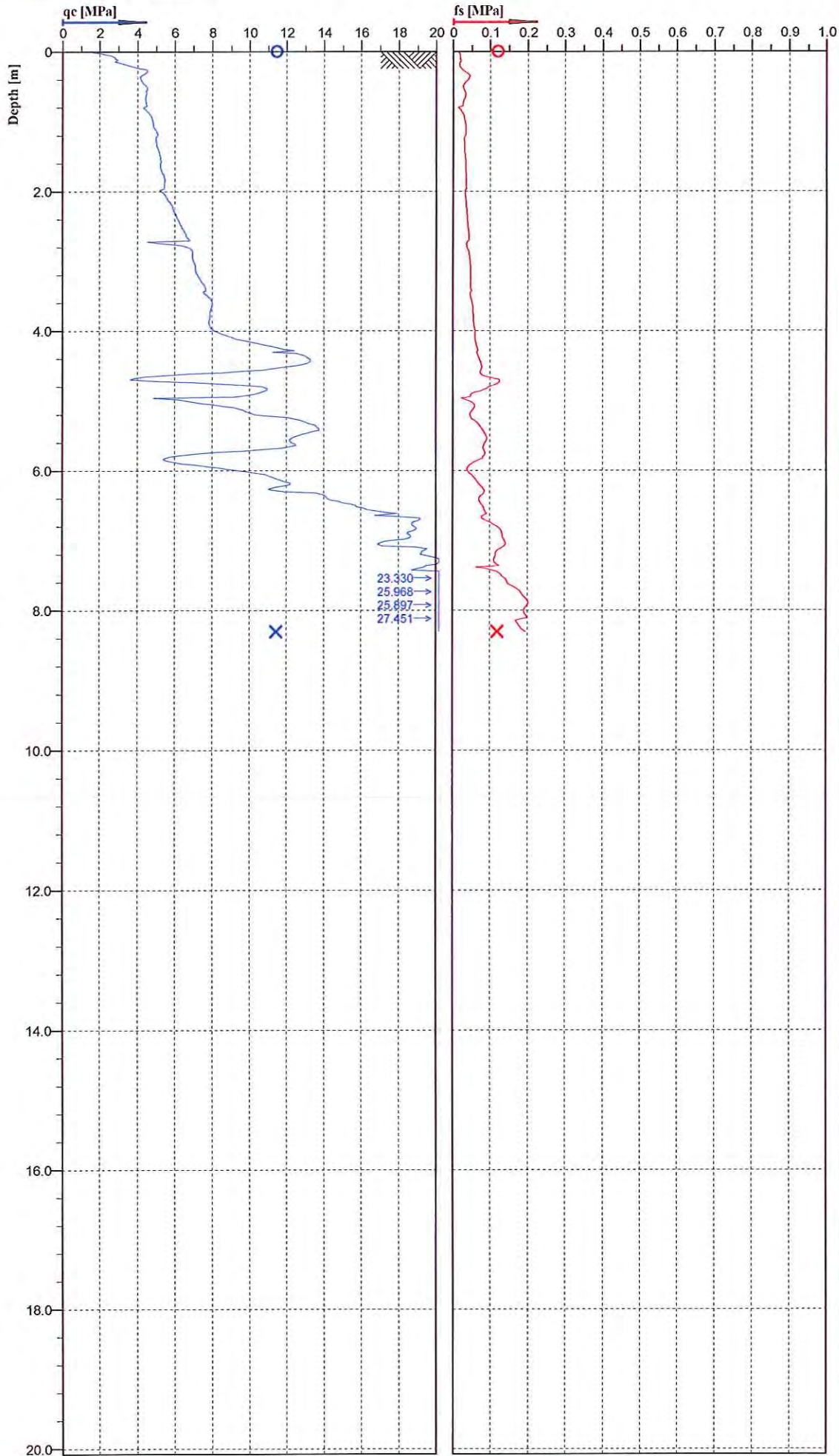
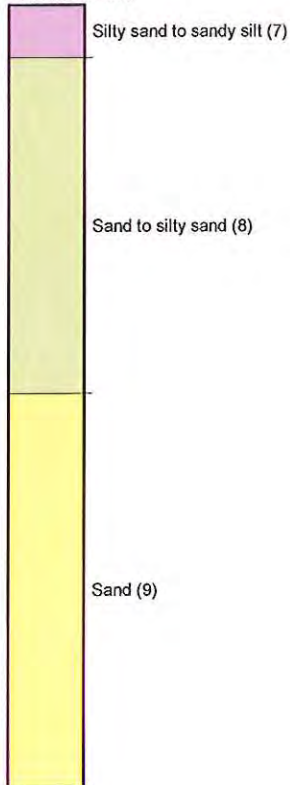


Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	526
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT526		

Classification by
Robertson 1986

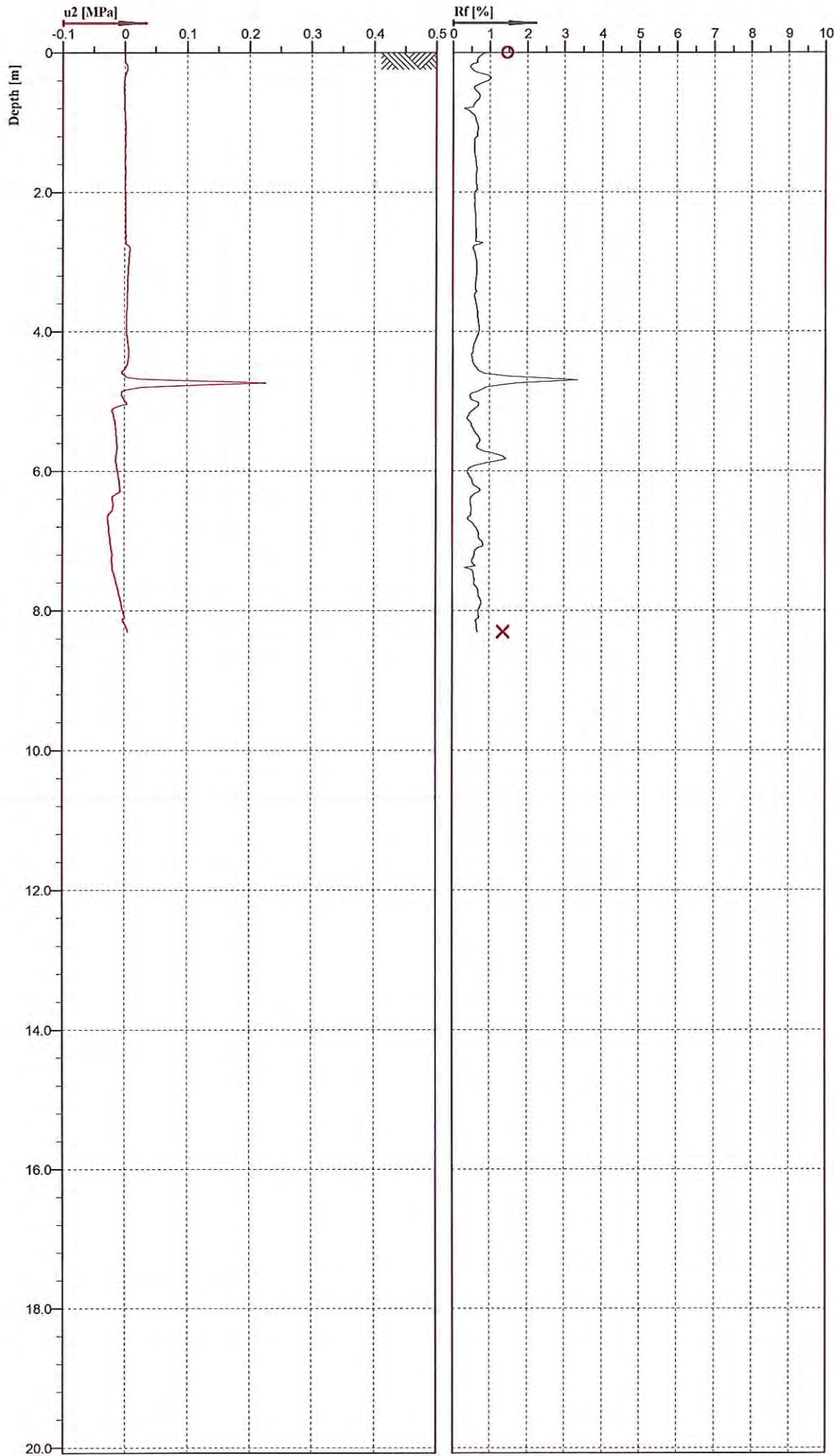
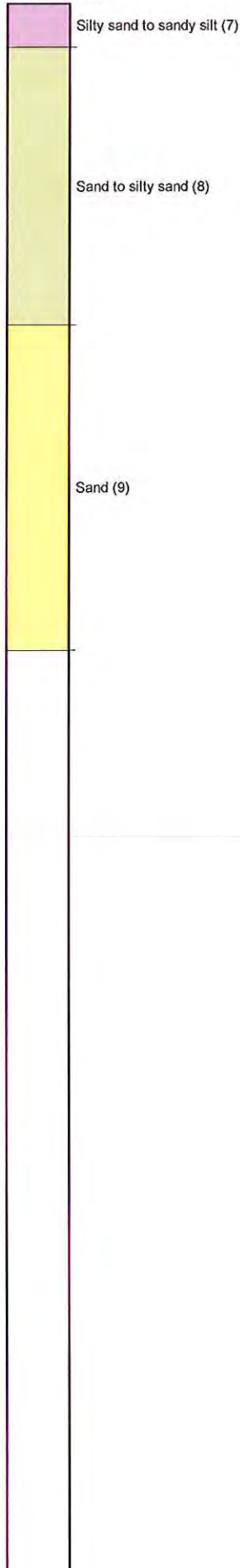


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

u2

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	527
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT527.c		

Classification by
Robertson 1986

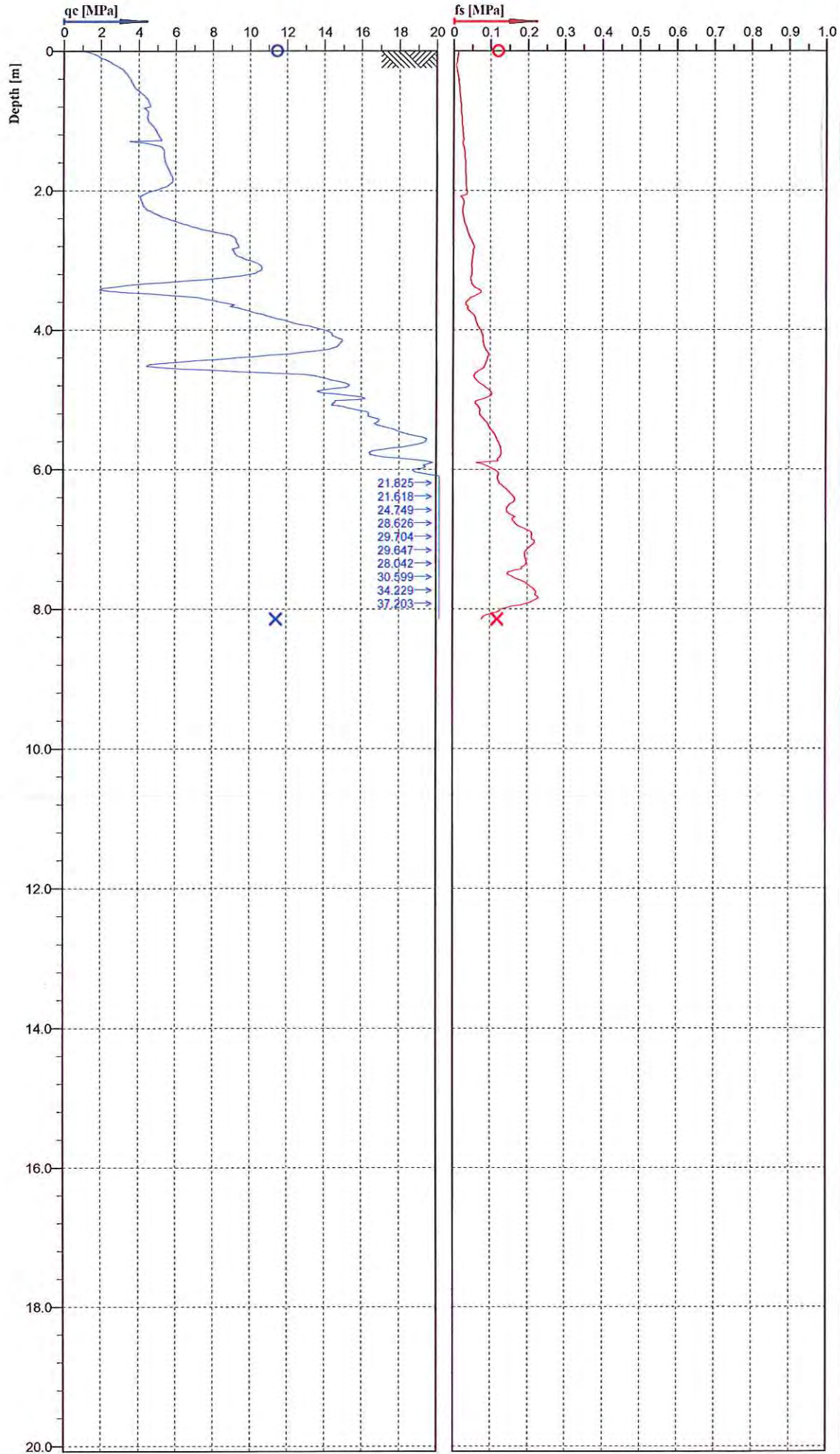
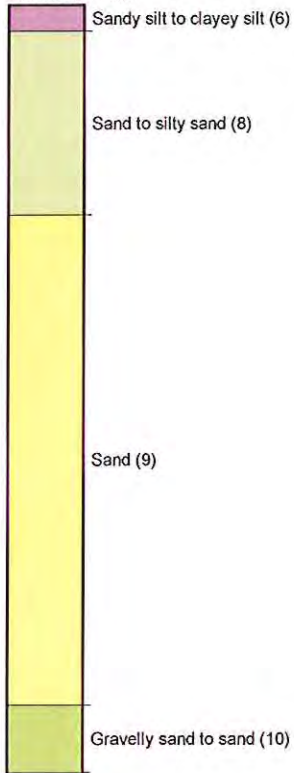


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	527
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT527.c		

Classification by
Robertson 1986

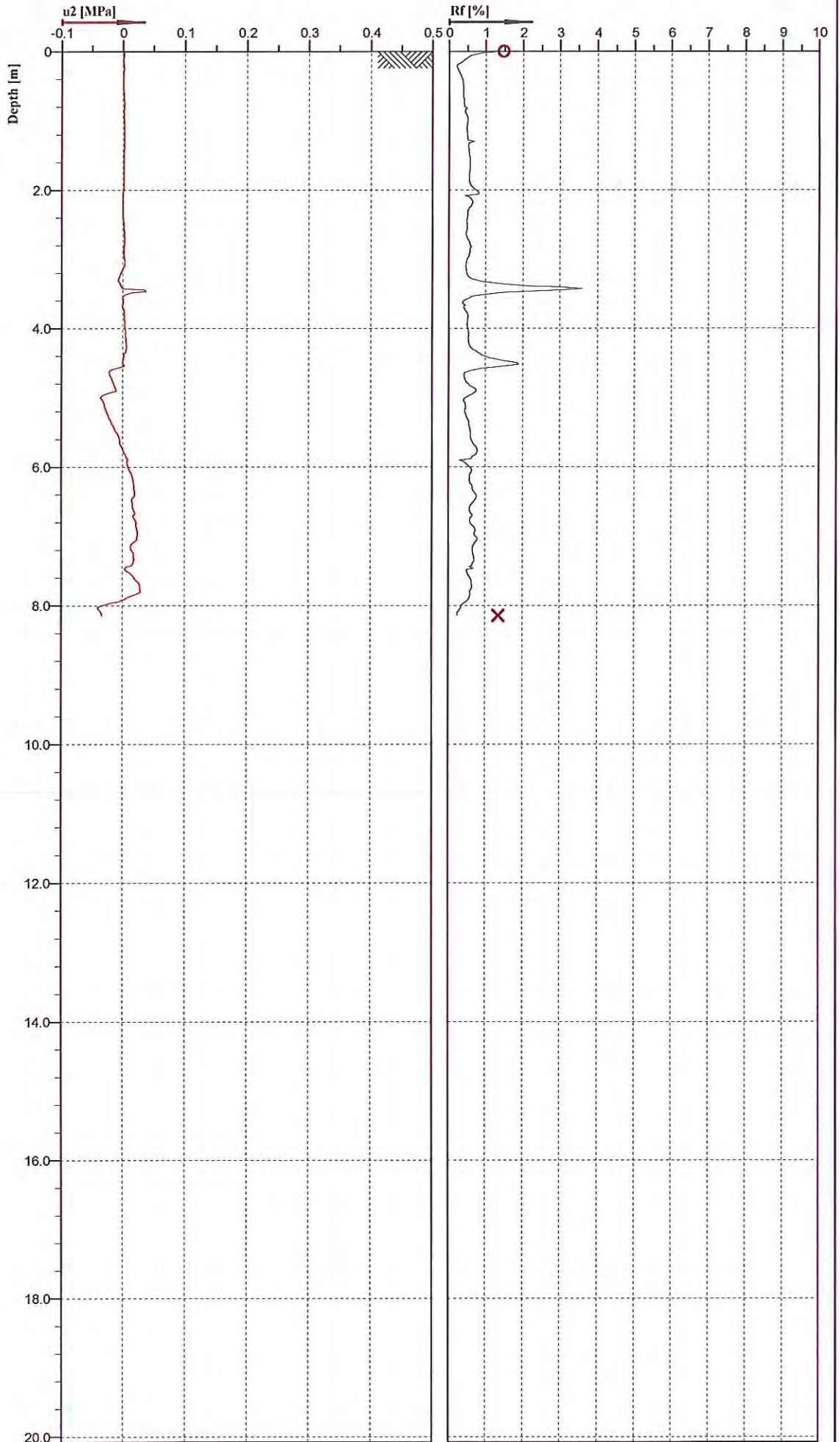
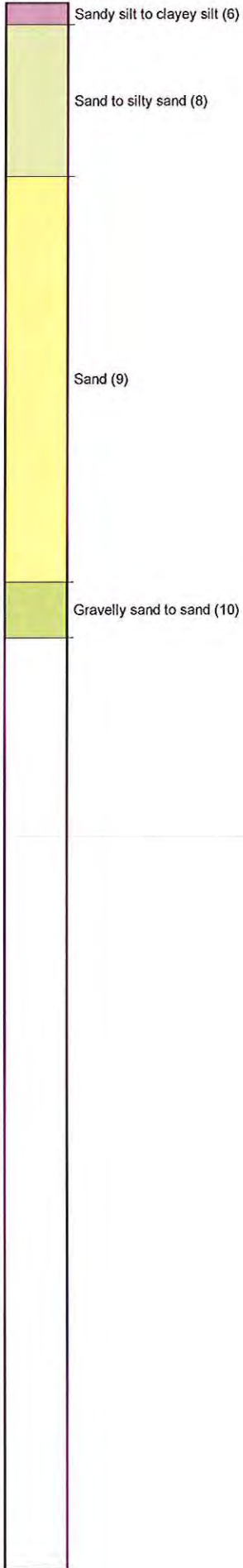


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	528
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT528.c		

Classification by
Robertson 1986

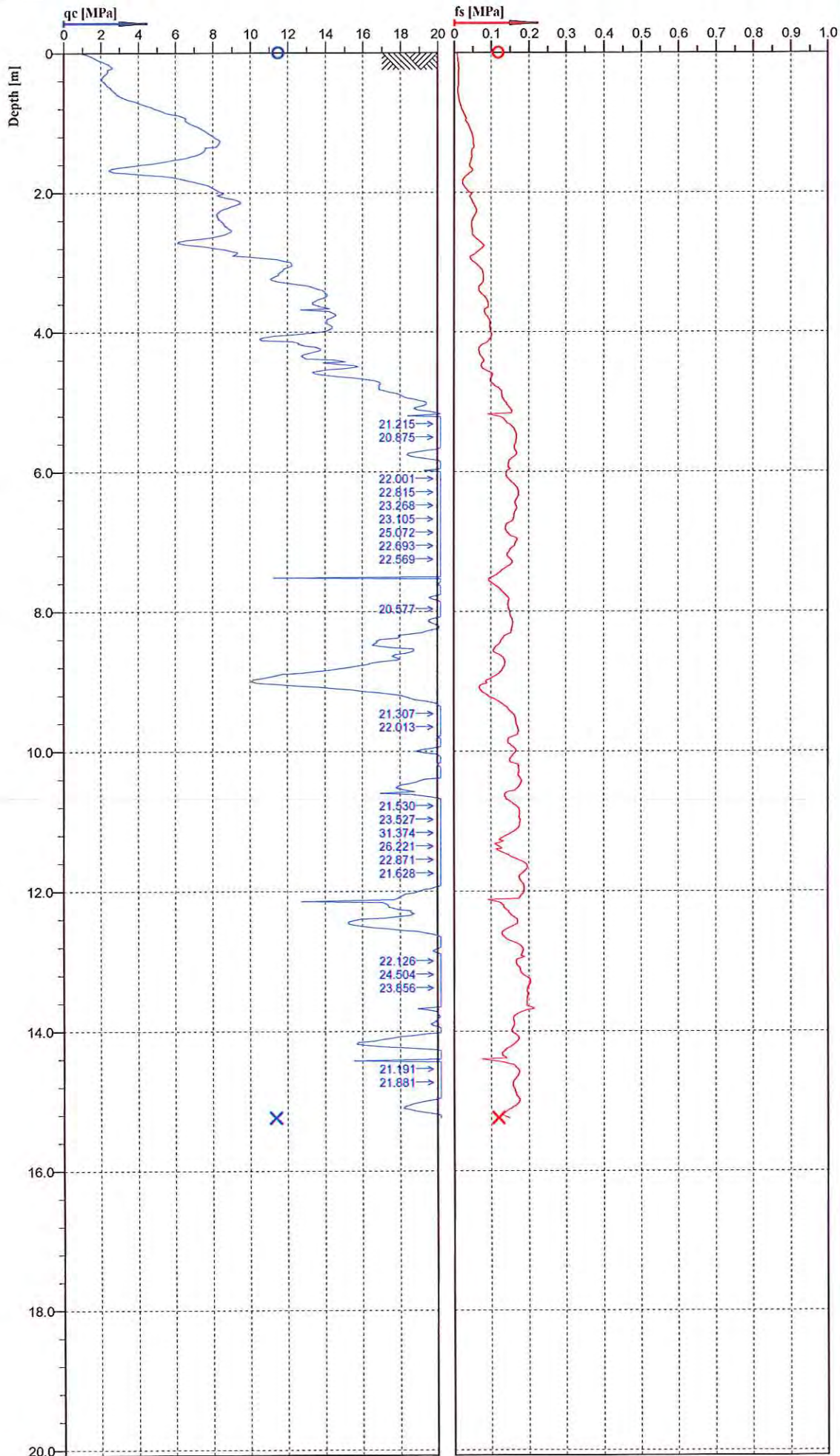
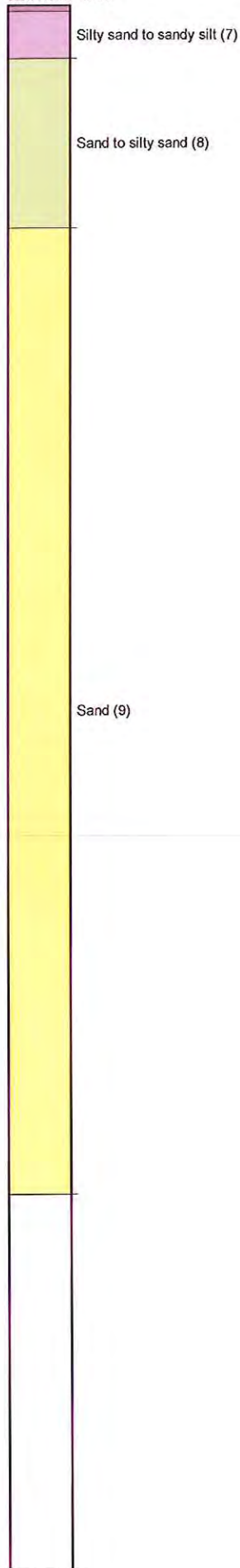


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	528
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT528.c		

Classification by
Robertson 1986

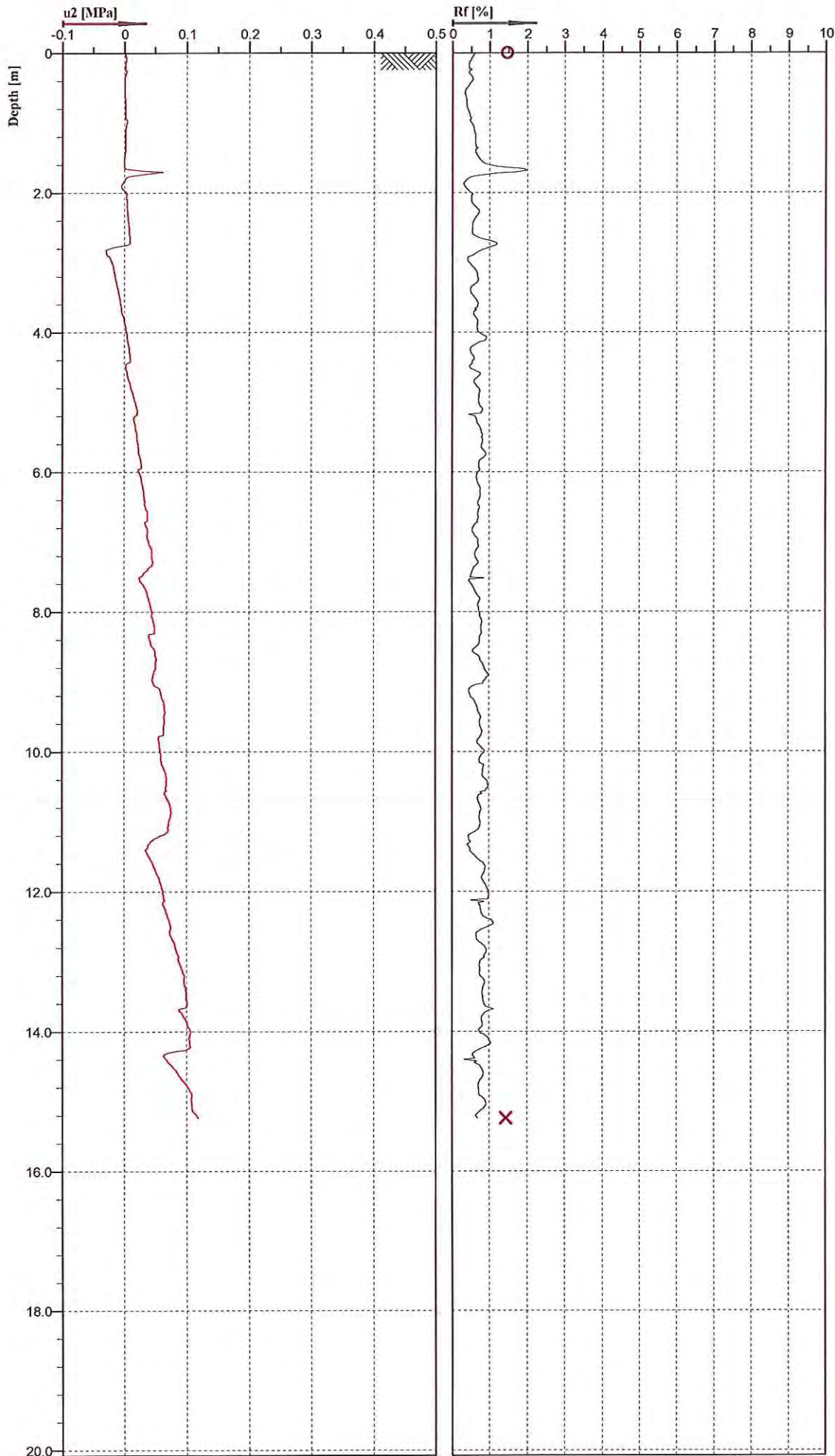
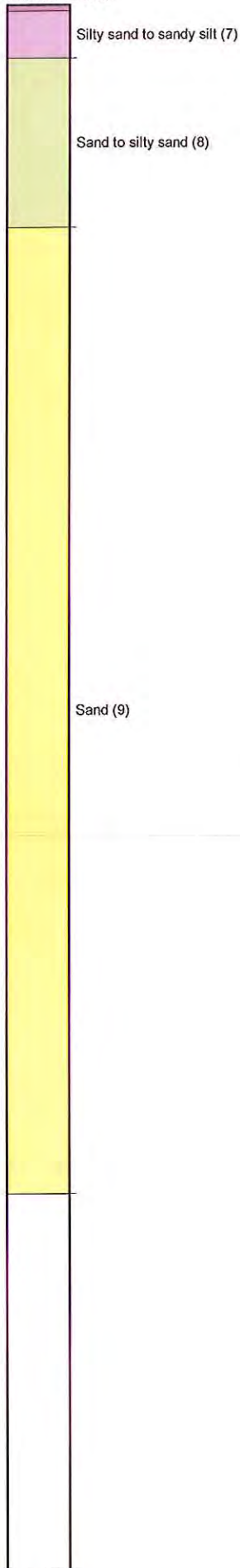


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	529
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT529		

Classification by
Robertson 1986



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

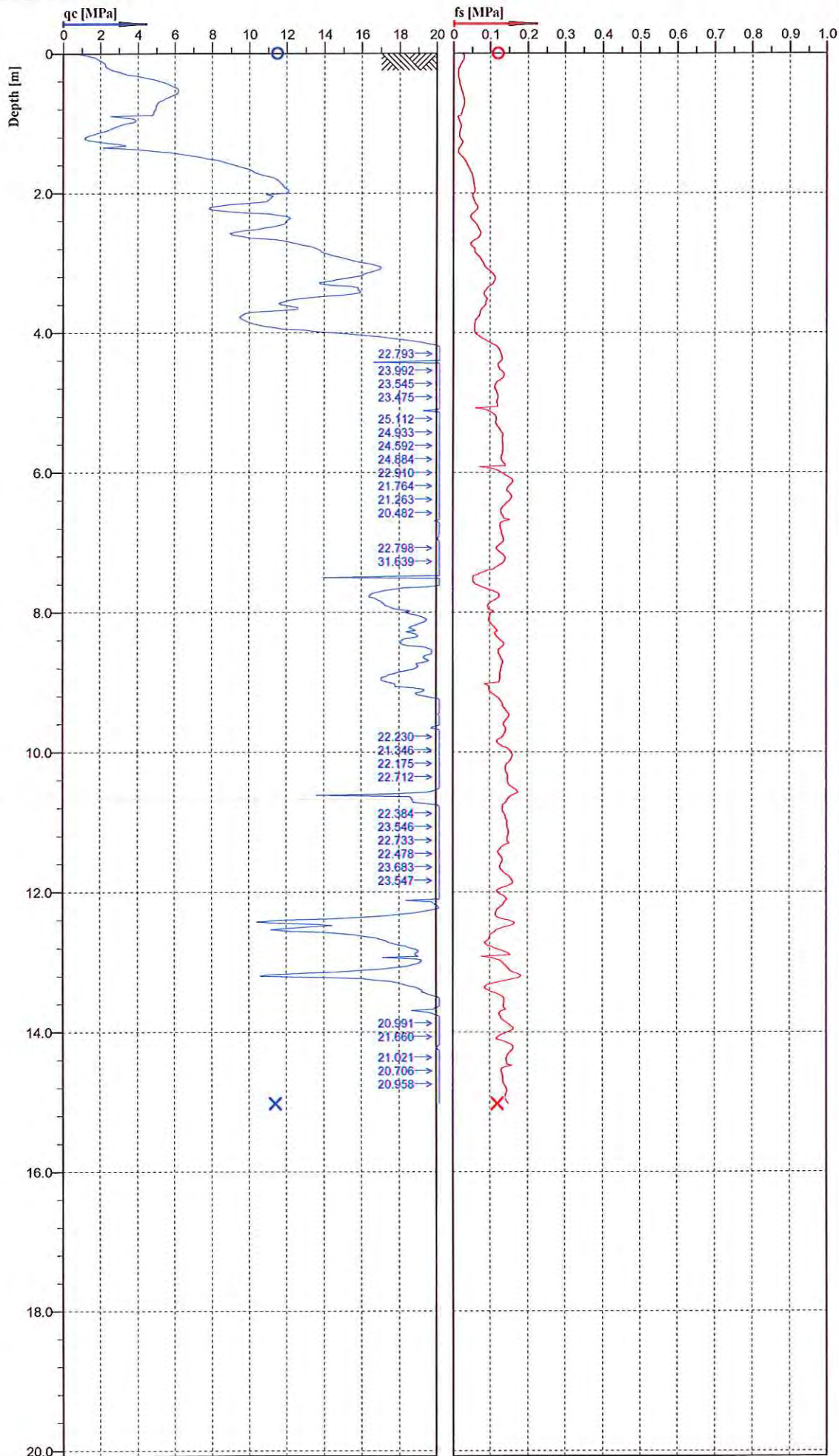
Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	529
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT529.c		

Classification by
Robertson 1986

Clayey silt to silty clay (5)

Sand to silty sand (8)

Sand (9)



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

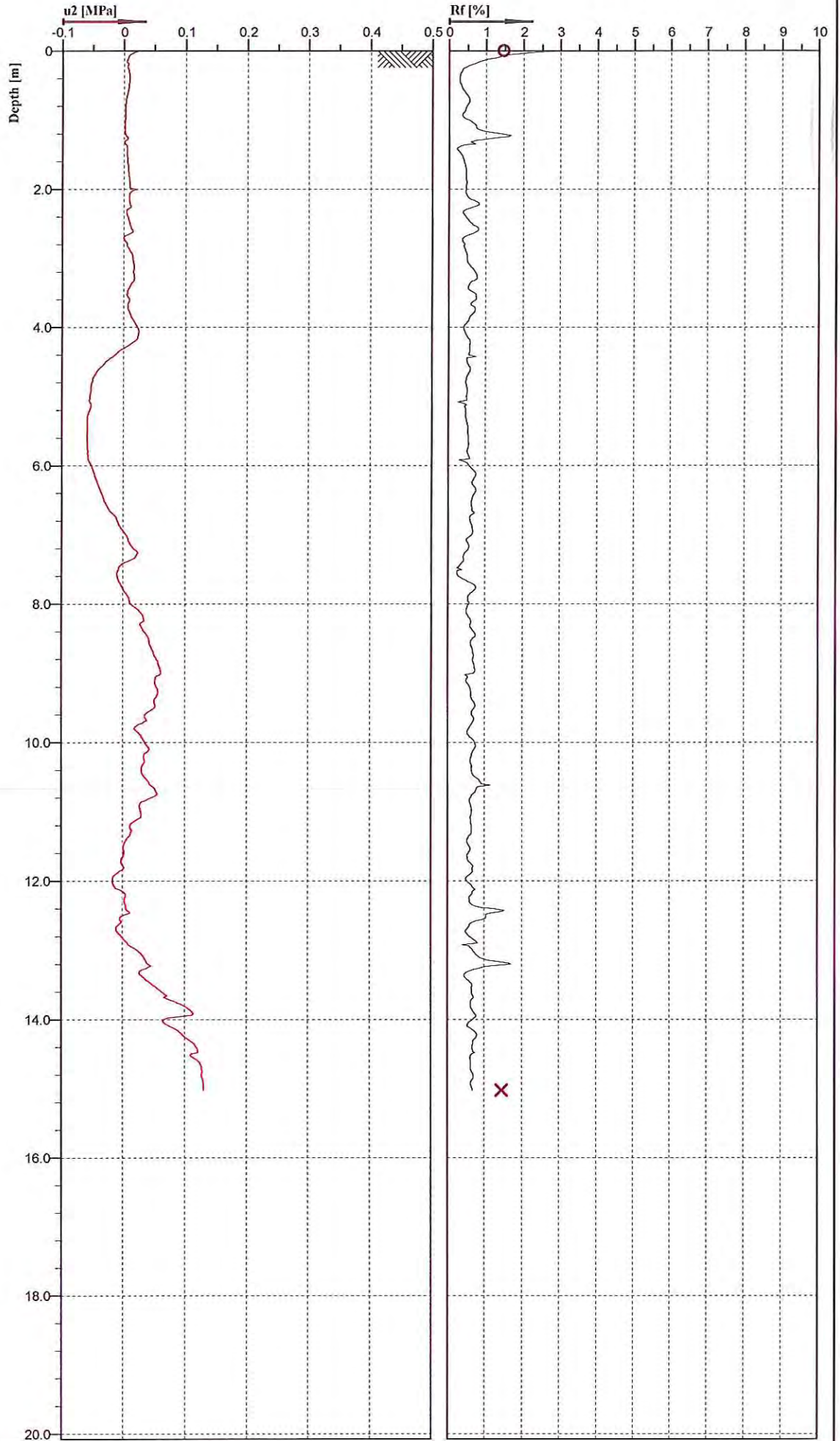
Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	530
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT530.c		

Classification by
Robertson 1986

Clayey silt to silty clay (5)

Sand to silty sand (8)

Sand (9)

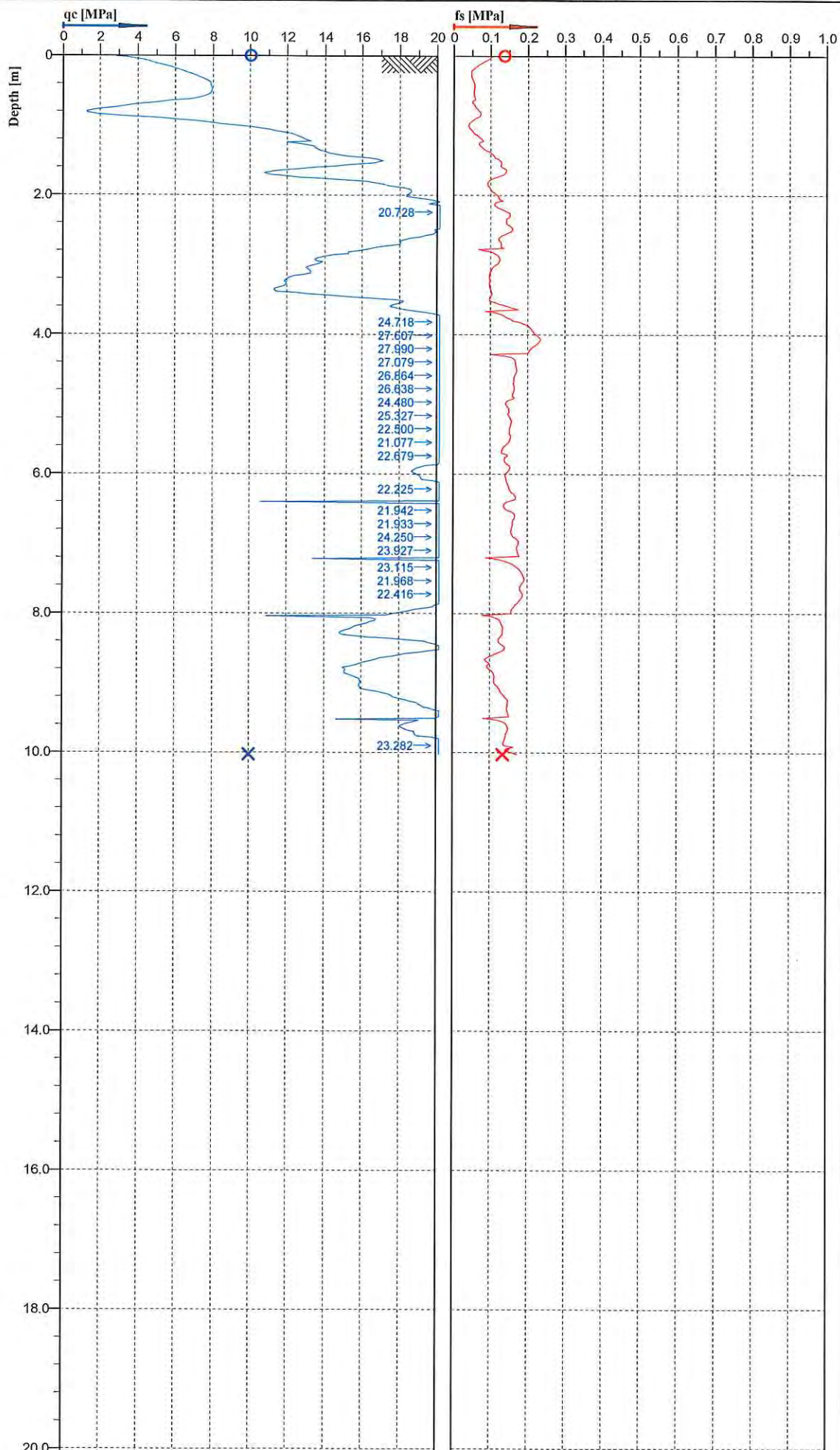
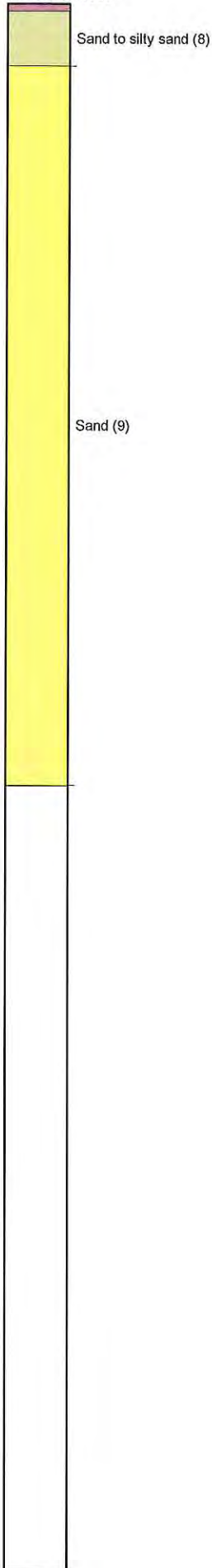


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4486
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	530
Project ID:		Client:	Aurecon	Date:	29/08/2013	Scale:	1 : 80
Project:	PRESTONS SOUTH PHASE 2			Page:	1/1	Fig:	
				File:	PrestonsSubdivisionPhase2CPT530.c		

Classification by
Robertson 1986



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4439
Tip area [cm²]: 10
Sleeve area [cm²]: 150

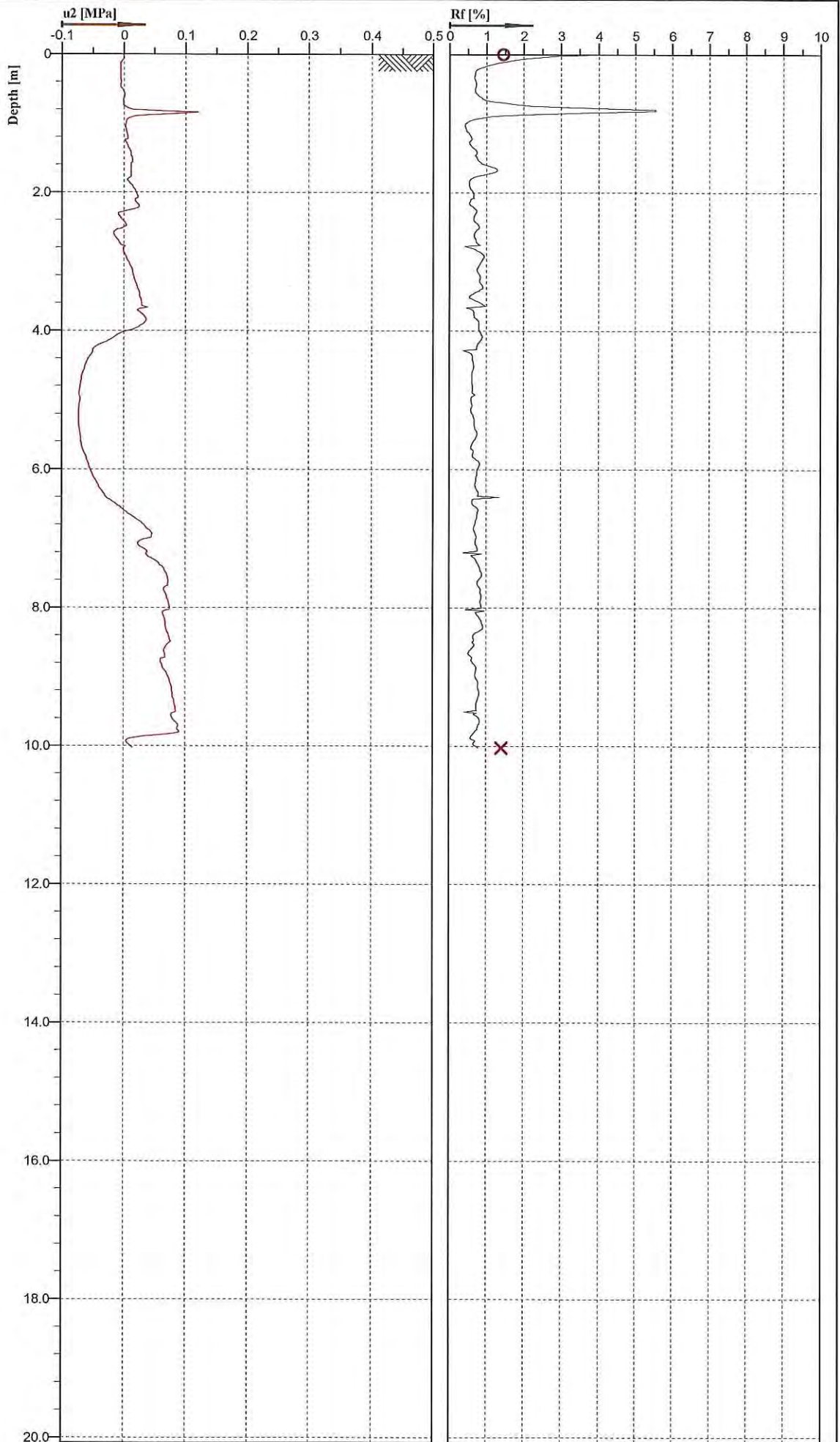
Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	651
Project ID:		Client:	AURECON	Date:	7/11/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT651.cpt		

Classification by
Robertson 1986



Sand to silty sand (8)

Sand (9)

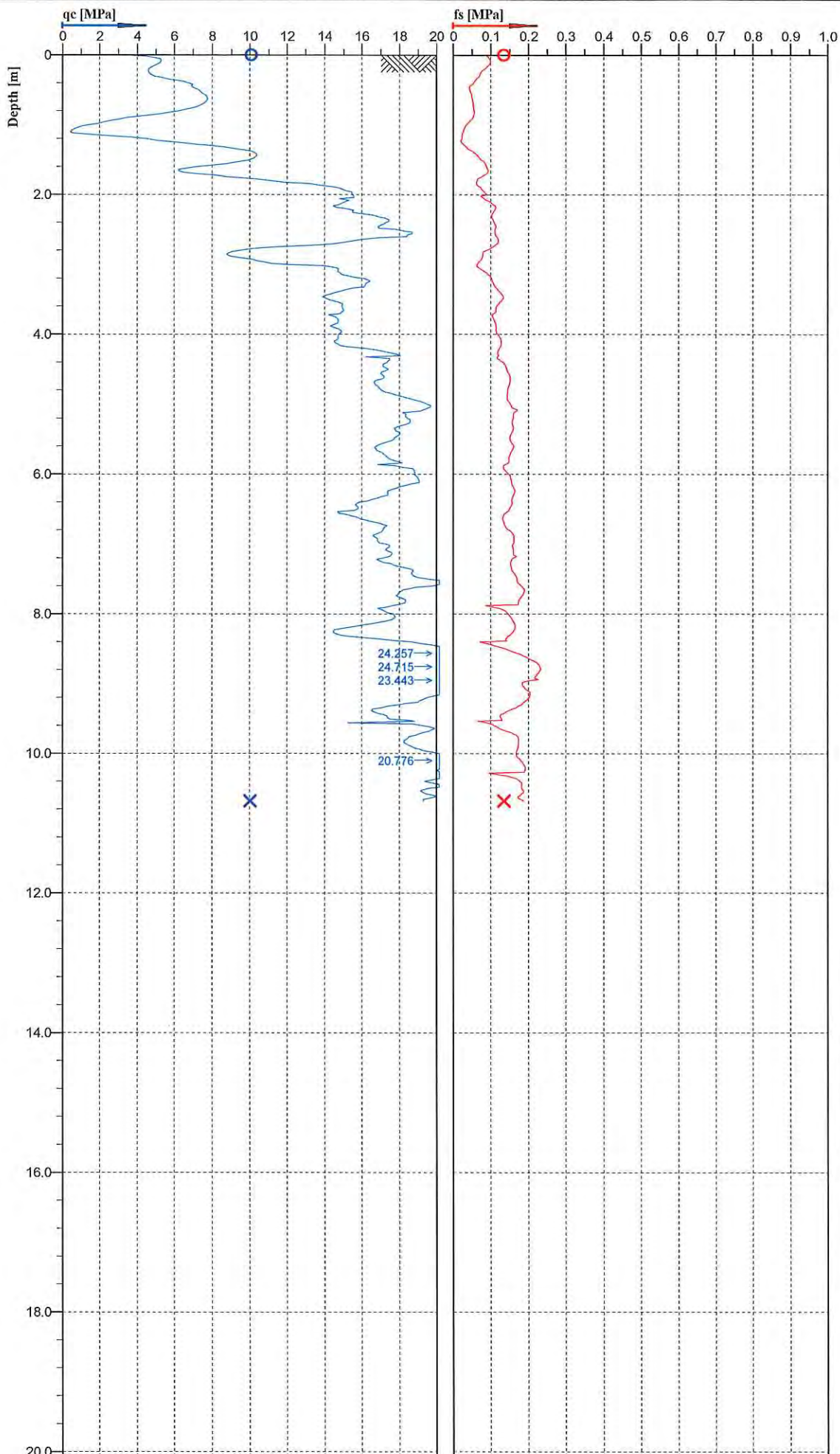
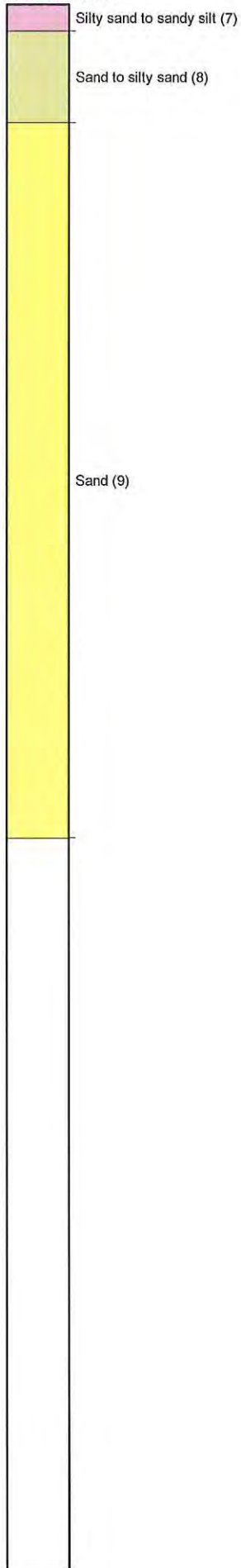


Cone No: 4439
Tip area [cm²]: 10
Sleeve area [cm²]: 150

PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	651
Project ID:		Client:	AURECON	Date:	7/11/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT651.cpt		

Classification by
Robertson 1986



Cone No: 4439
Tip area [cm²]: 10
Sleeve area [cm²]: 150

PRO-DRILL
SPECIALIST DRILLING ENGINEERS

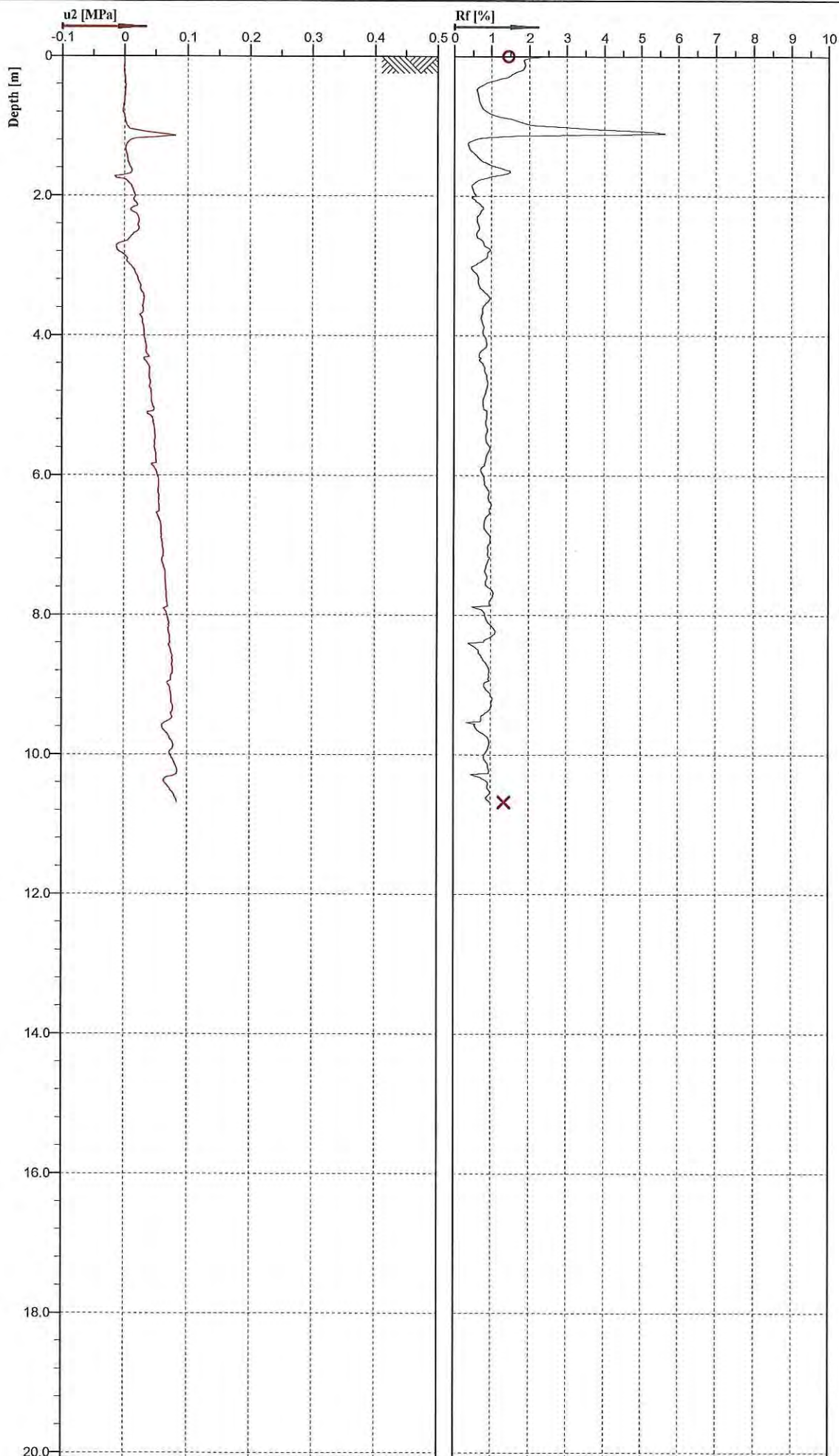
Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	652
Project ID:		Client:	AURECON	Date:	7/11/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH				Page:	1/1	Fig:
				File:	PrestonsSouthCPT652.cpt		

Classification by
Robertson 1986

Silty sand to sandy silt (7)

Sand to silty sand (8)

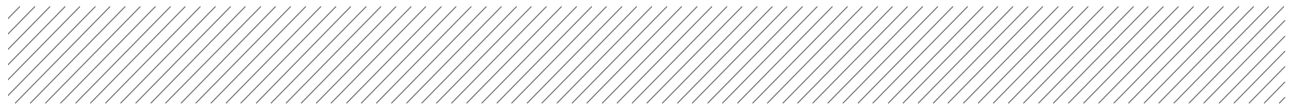
Sand (9)



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4439
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	652
Project ID:		Client:	AURECON	Date:	7/11/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT652.cpt		



Appendix D

Post Compaction CPT Logs

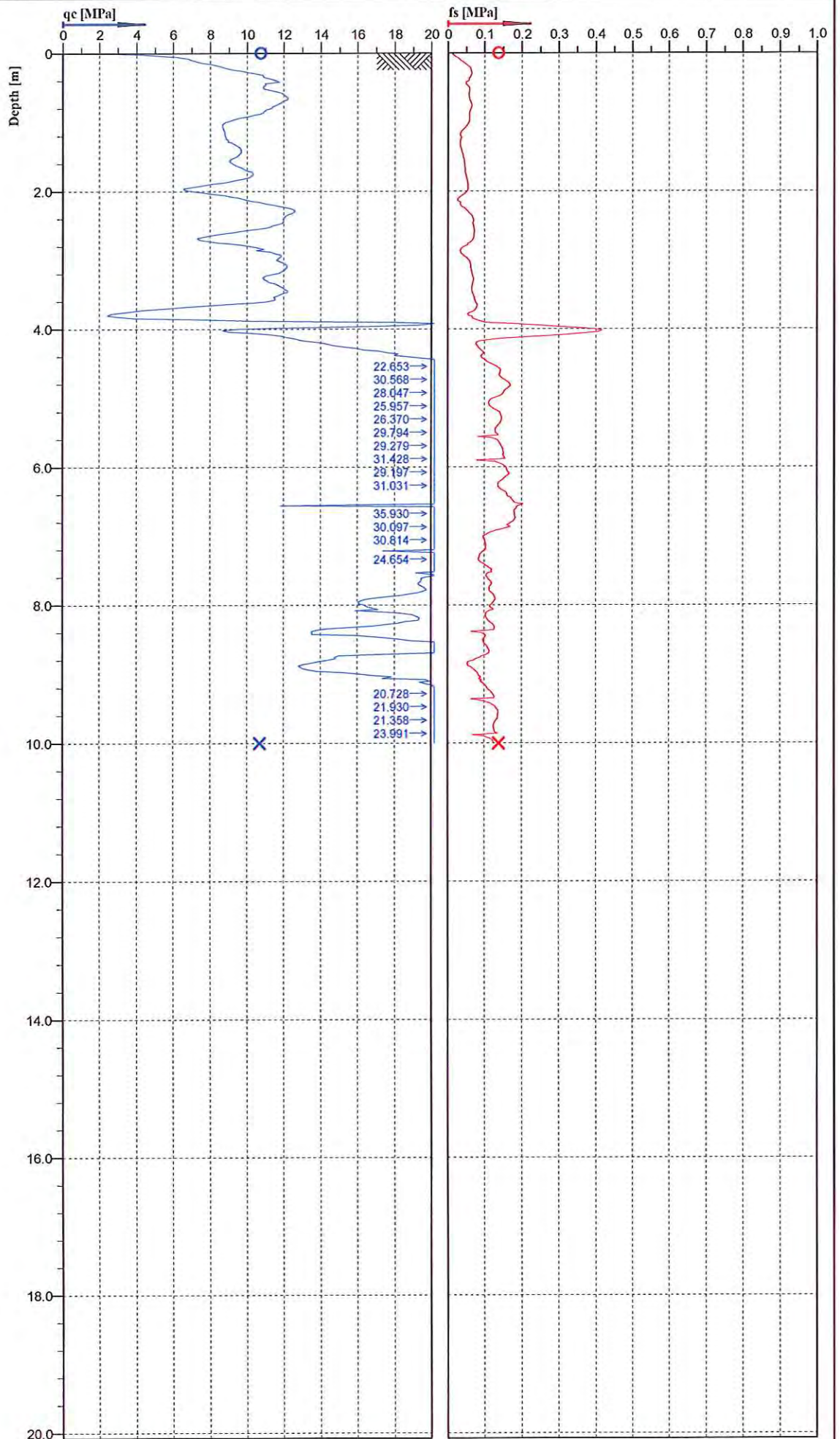
Classification by
Robertson 1986

Sand to silty sand (8)

Sand (9)

Gravelly sand to sand (10)

Sand (9)



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	526lCa
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT526lCa.cpt		

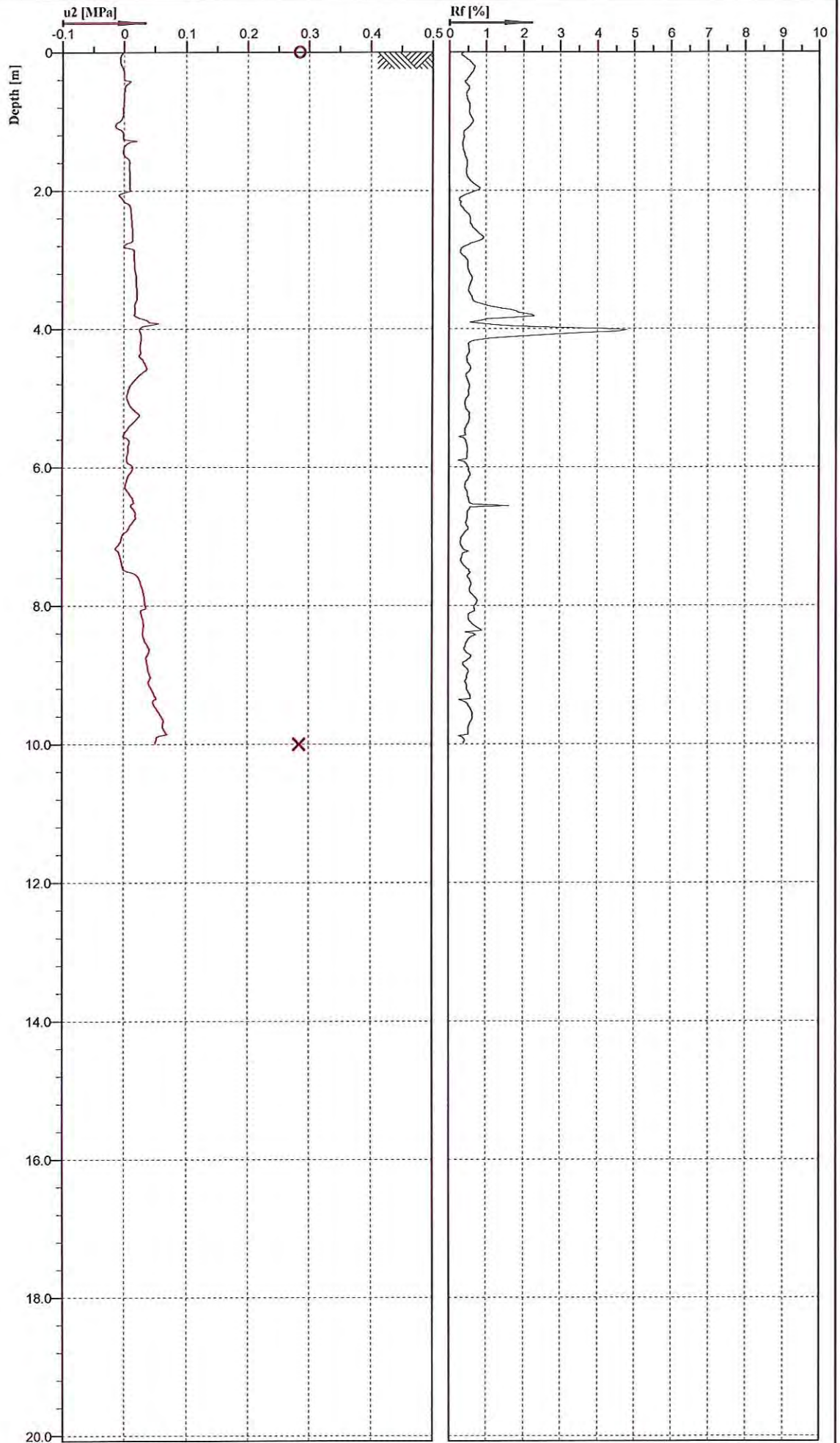
Classification by
Robertson 1986

Sand to silty sand (8)

Sand (9)

Gravelly sand to sand (10)

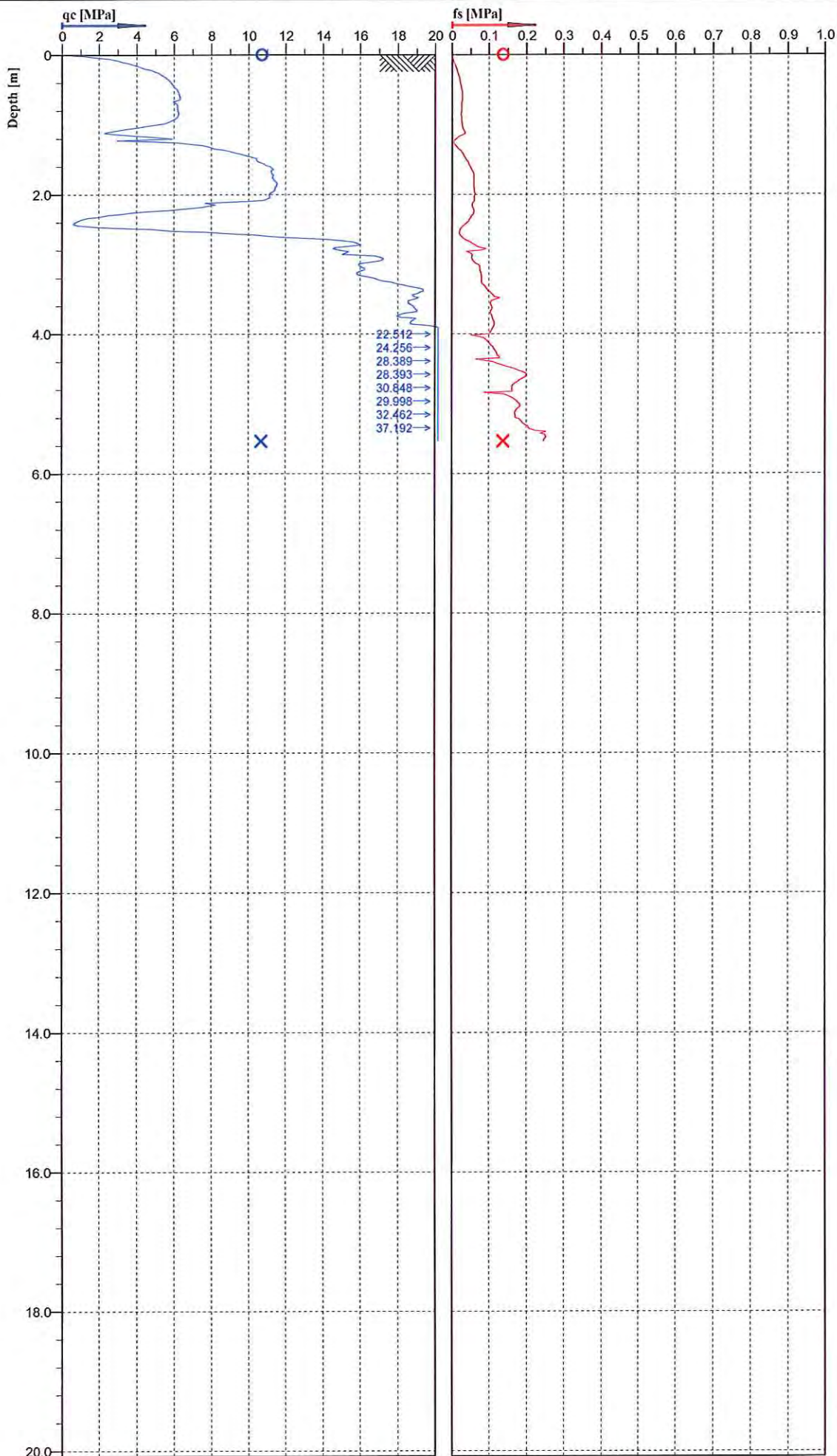
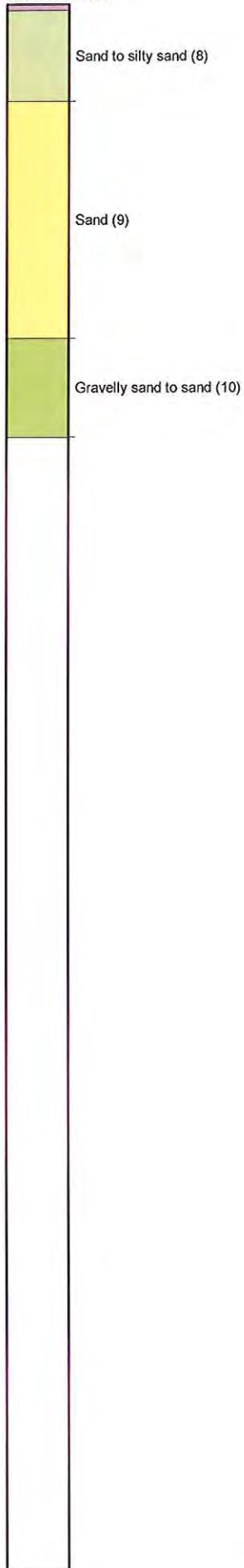
Sand (9)



Cone No: 4494
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	5261Ca
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT5261Ca.cpt		

Classification by
Robertson 1986

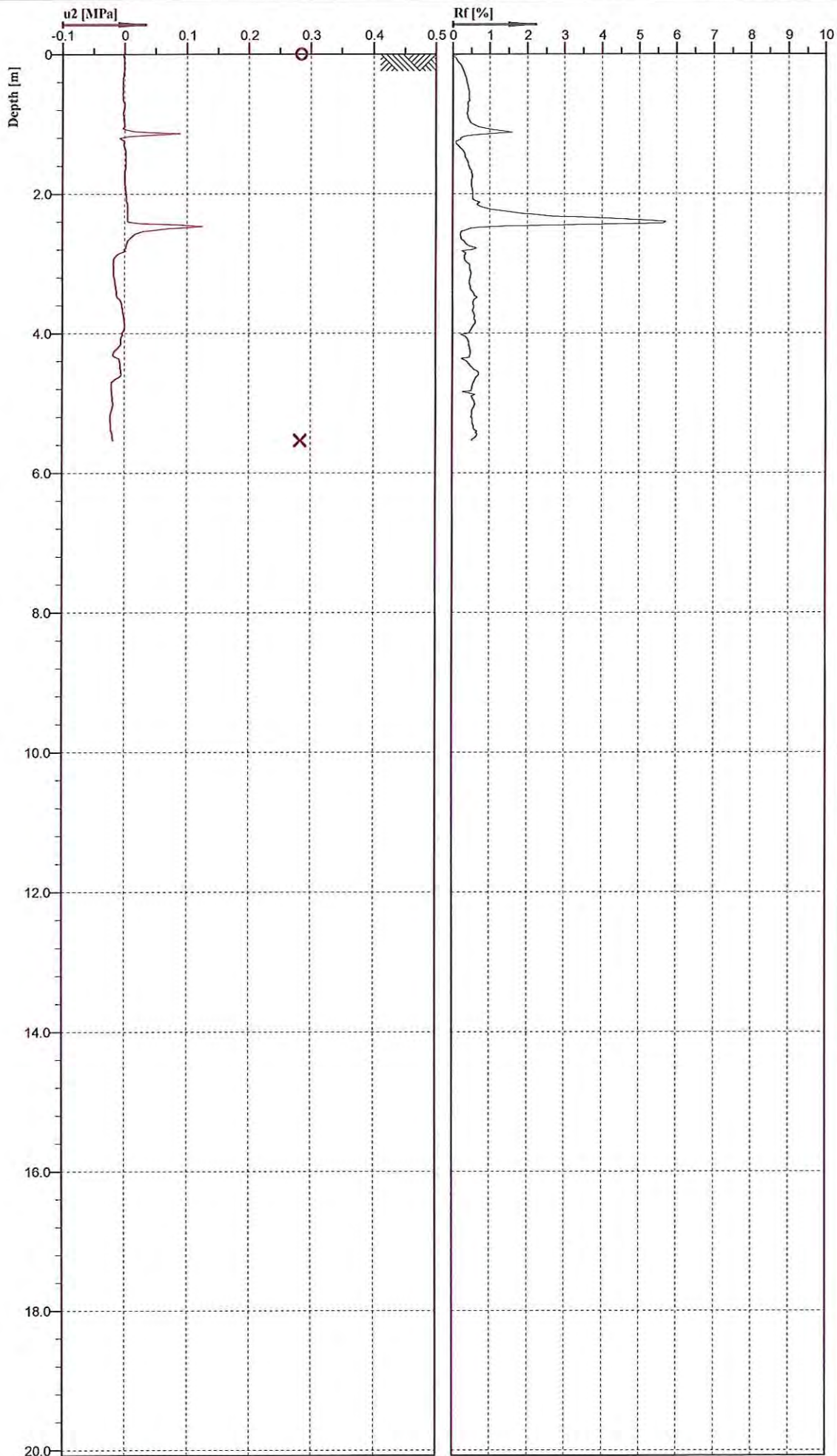
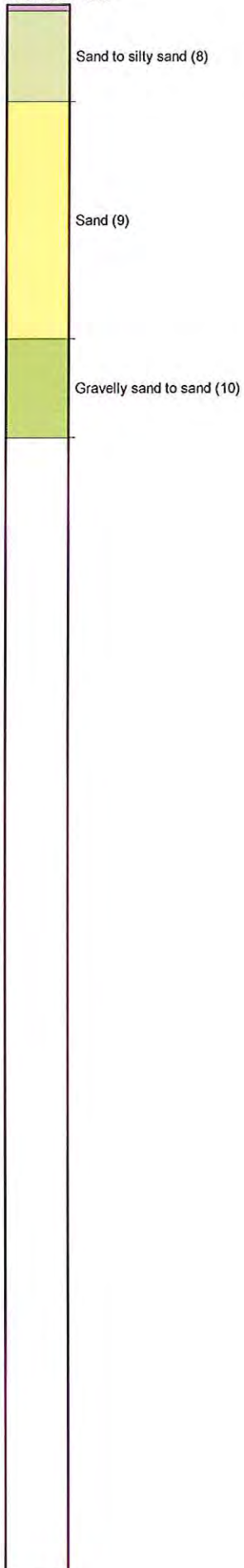


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	5271Ca
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT5271Ca.cpt		

Classification by
Robertson 1986

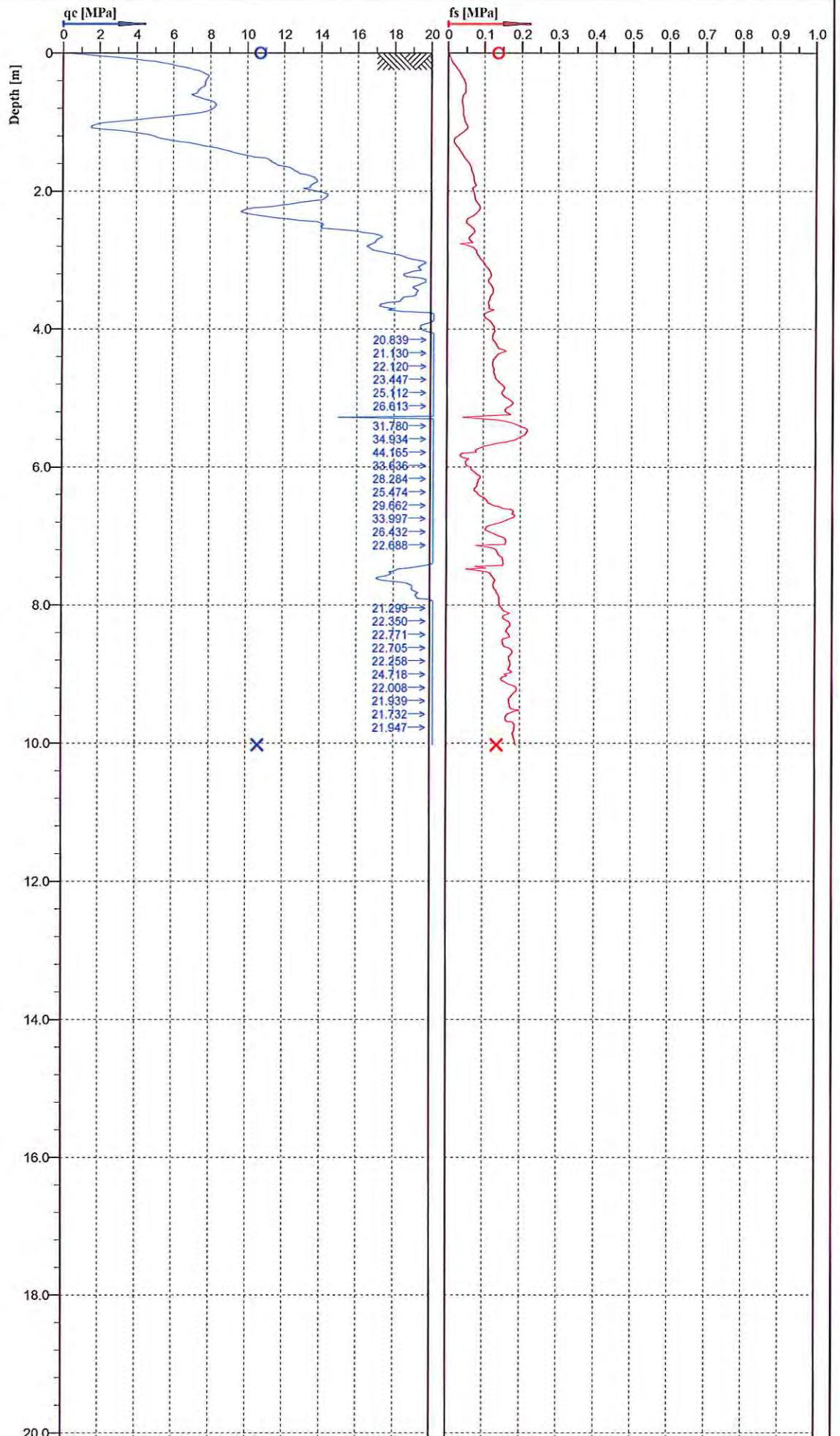
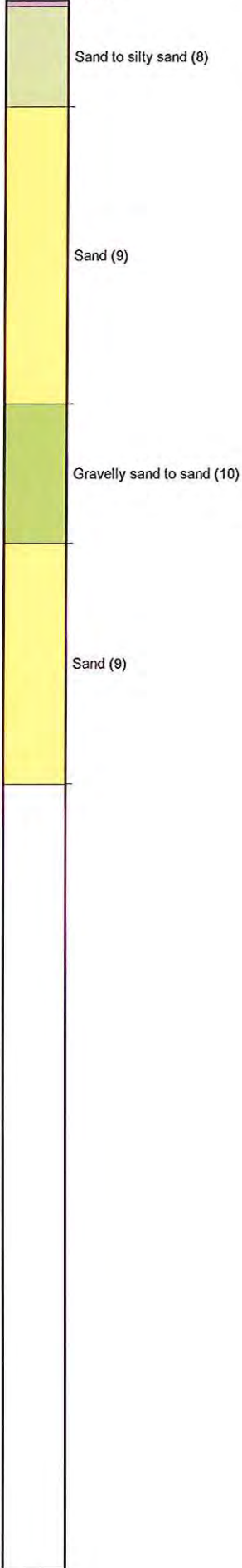


PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	527ICa
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT527ICa.cpt		

Classification by
Robertson 1986



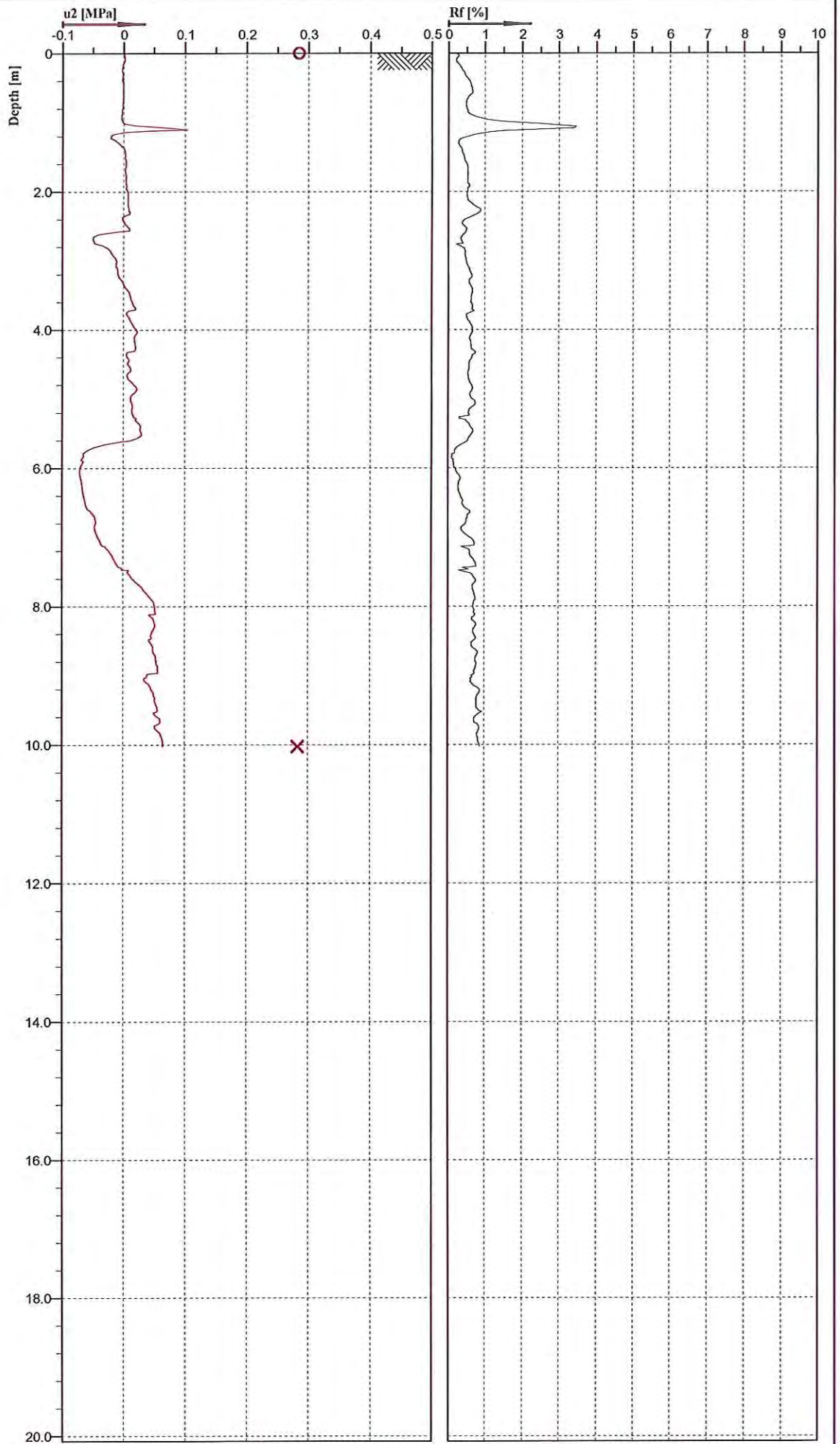
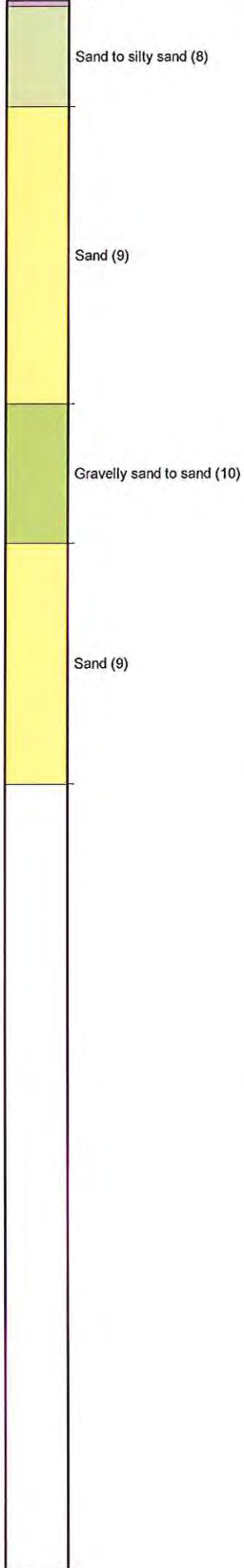
PRO-DRILL
SPECIALIST DRILLING ENGINEERS



Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	528IC
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT528IC.cpt		

Classification by
Robertson 1986



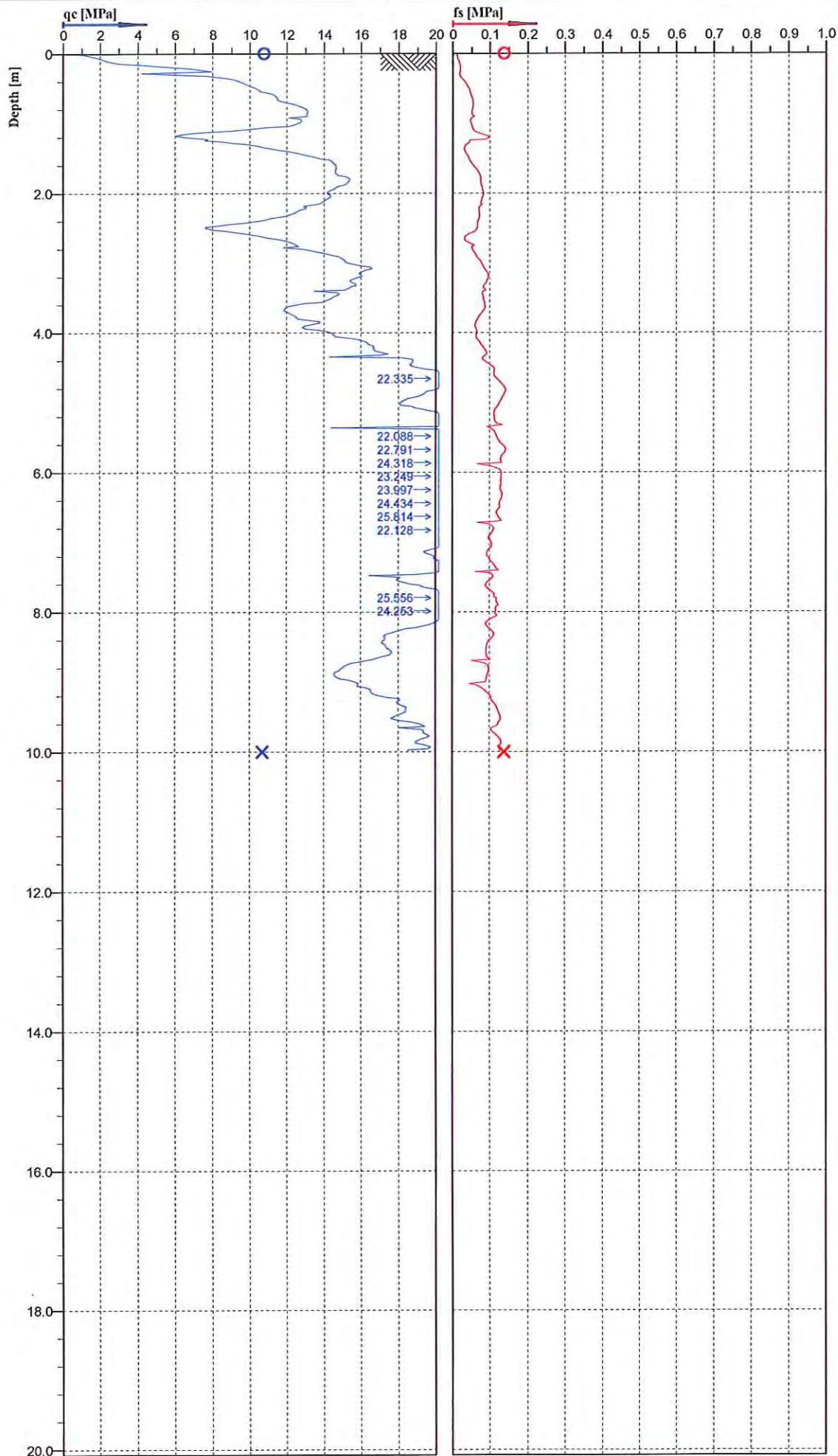
PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	528IC
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT528IC.cpt		

Classification by
Robertson 1986

Sand (9)



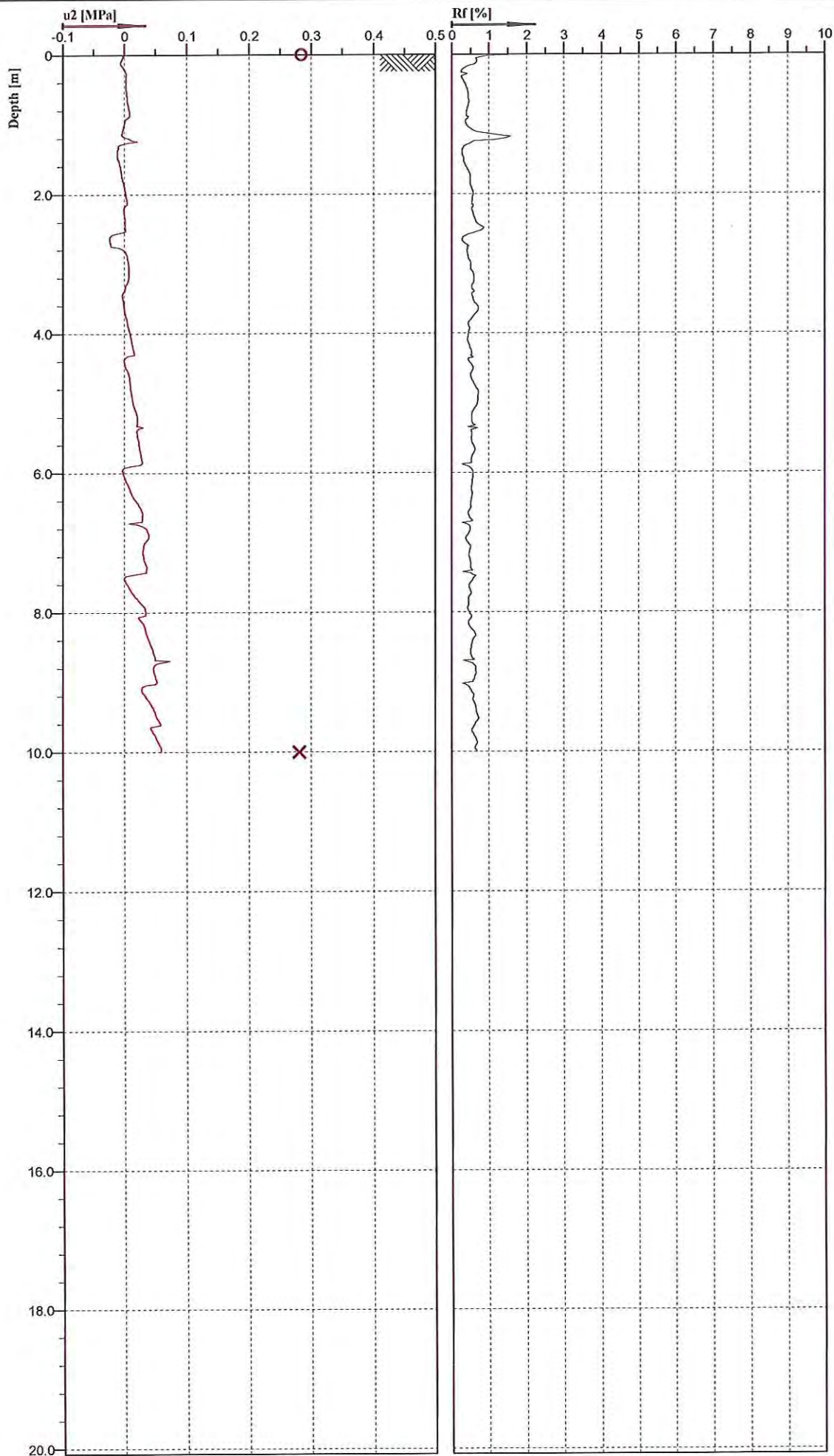
PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	529IC
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT529IC.cpt		

Classification by
Robertson 1986

Sand (9)



PRO-DRILL
SPECIALIST DRILLING ENGINEERS

Cone No: 4494
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location:	CHCH	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test no:	529IC
Project ID:		Client:	Aurecon	Date:	03/07/2014	Scale:	1 : 80
Project:	PRESTONS SOUTH			Page:	1/1	Fig:	
				File:	PrestonsSouthCPT529IC.cpt		

CPT & DPSH TEST LOG

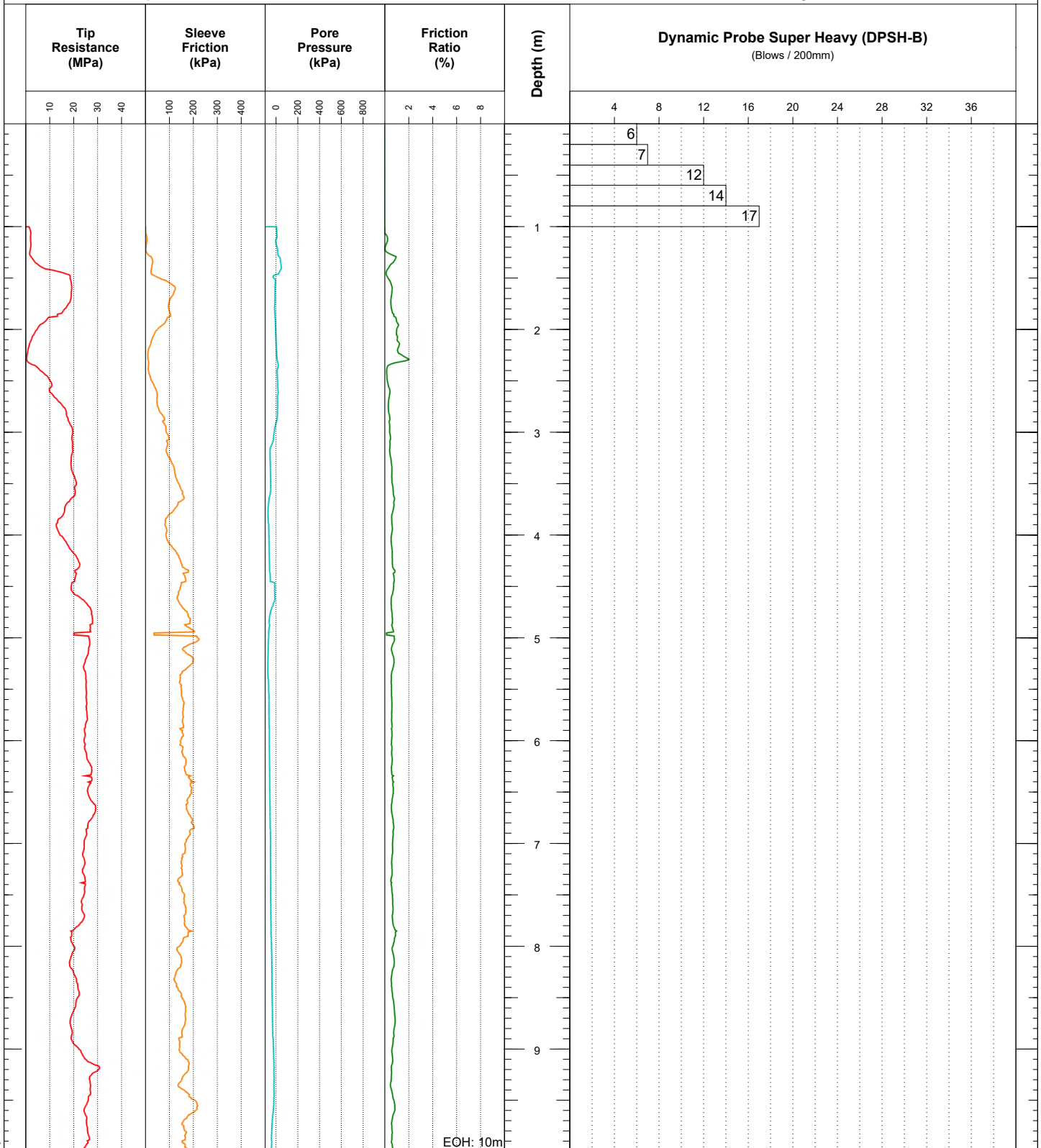
Job Number: 18156

Client: Aurecon
Project: Prestons Park Stage 2

Test Label: CPT703B

Site Location: Marshland, Christchurch
Test Date: 16/05/2018
Coordinates: -43.48283, 172.669077 (WGS84)
Supervisor: Kieran Foote

Operator: Gray Lewis
Piezocone (Rig): MKJ329 (P001245)
Hole Depth: 10m
EOH Reason: Target



Remarks

CPTu testing carried out to ASTM Standard D5778-12
10cm-sq piezocone used for each CPTu test
CPTu refusal at 50MPa on the tip, 500kPa on the friction sleeve or at 2500kPa pore pressure
DPSH-B - Weight 63.5kg, Drop Height 750mm, Tip Diameter 50.5mm
DPSH-B refusal at an increment of 40 blows or over

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

CPT TEST LOG

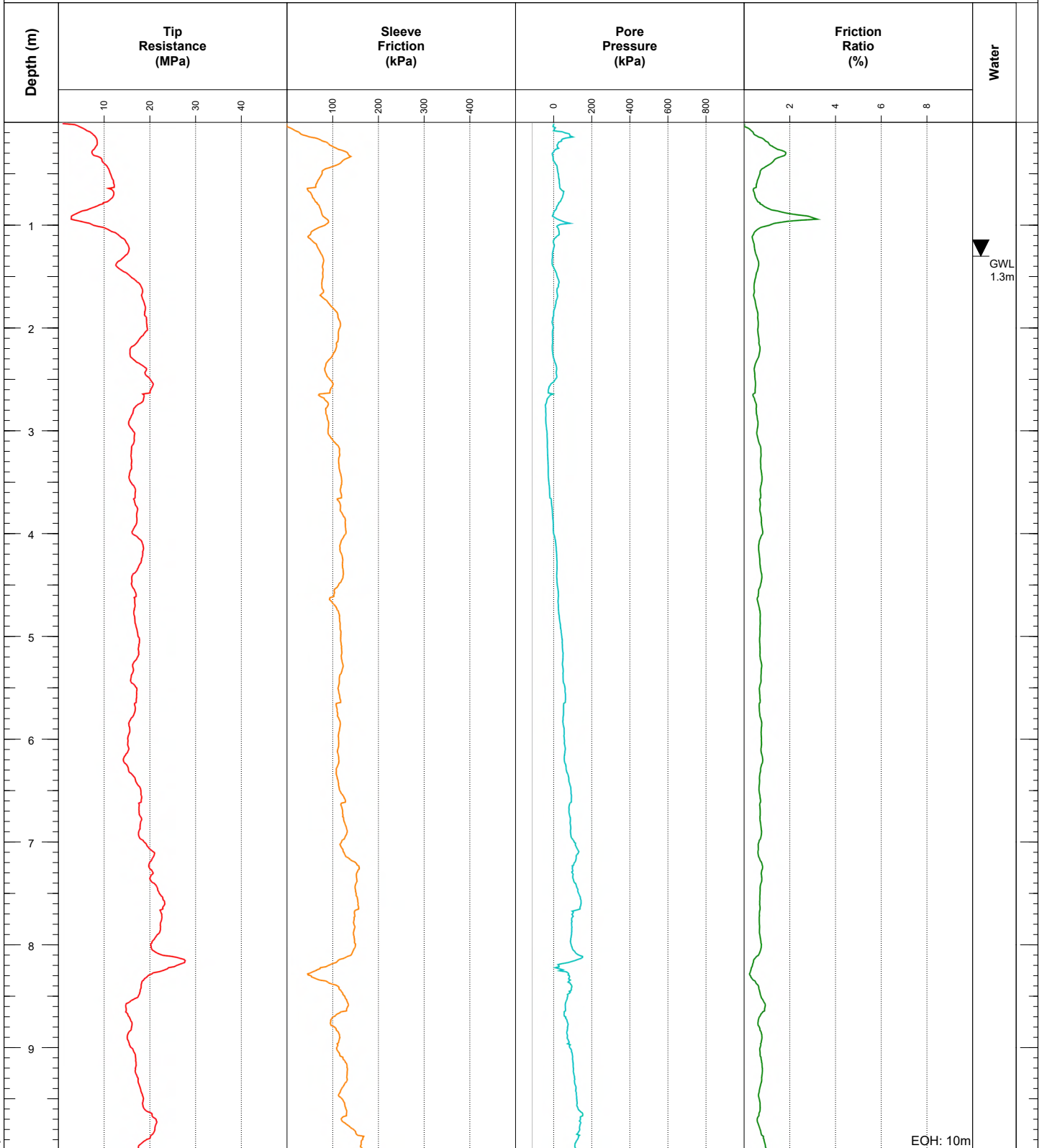
Job Number: 18156

Client: Aurecon
Project: Prestons Park Stage 2

Test Label: CPT704

Site Location: Marshland, Christchurch
Test Date: 10/05/2018
Coordinates: -43.482457, 172.670292 (WGS84)
Supervisor: Kieran Foote

Operator: Gray Lewis
Piezocone (Rig): MKJ329 (P001259)
Hole Depth: 10m
EOH Reason: Target



Remarks

CPTu testing carried out to ASTM Standard D5778-12
10cm-sq Pagani piezocone used for each CPTu test
CPTu refusal at 50MPa on the tip, 500kPa on the friction sleeve or at 2500kPa pore pressure

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

CPT TEST LOG

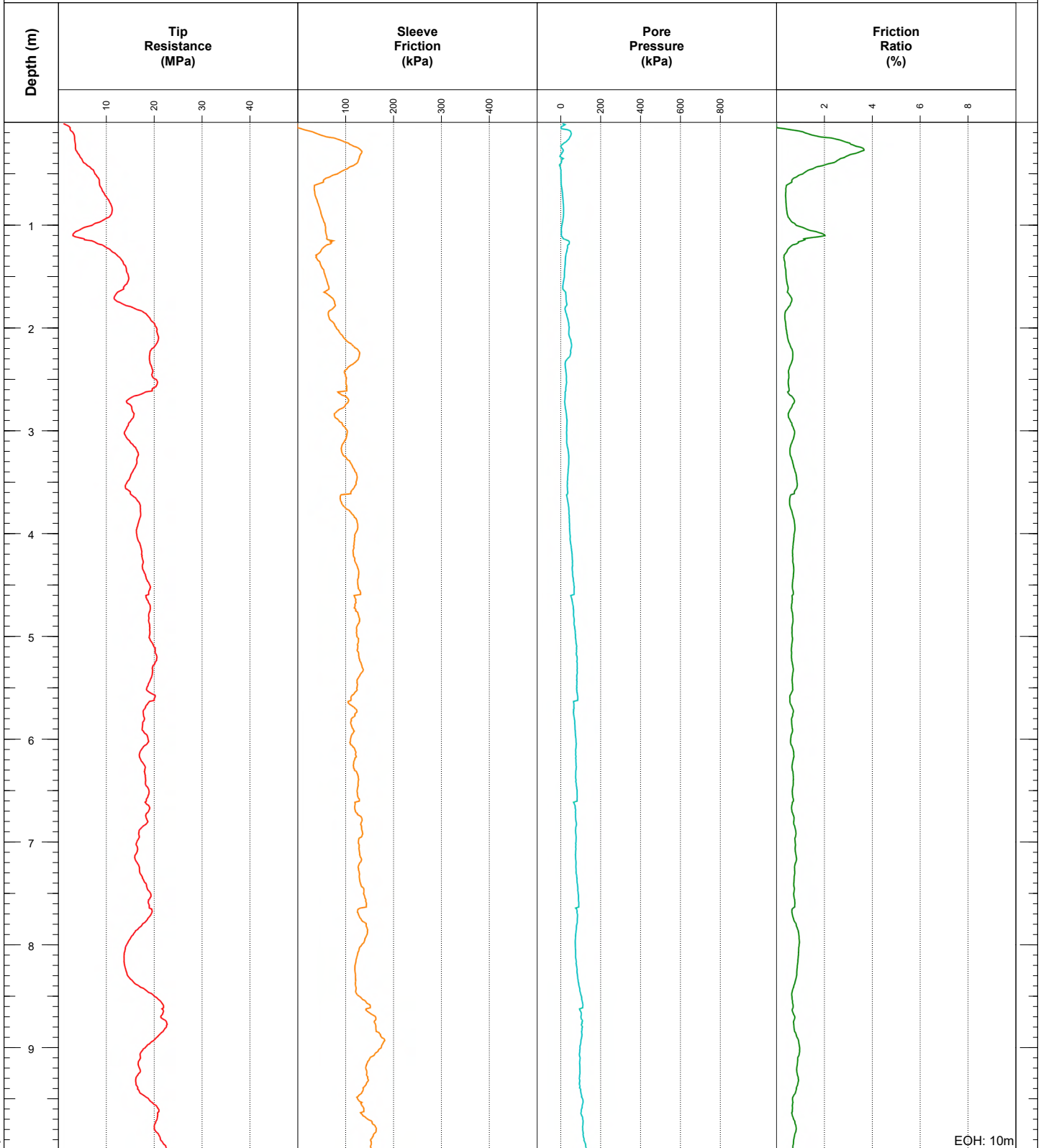
Job Number: 18156

Client: Aurecon
Project: Prestons Park Stage 2

Test Label: CPT705

Site Location: Marshland, Christchurch
Test Date: 10/05/2018
Coordinates: -43.483122, 172.671192 (WGS84)
Supervisor: Kieran Foote

Operator: Gray Lewis
Piezocone (Rig): MKJ329 (P001259)
Hole Depth: 10m
EOH Reason: Target



EOH: 10m

Remarks

CPTu testing carried out to ASTM Standard D5778-12
10cm-sq Pagani piezocone used for each CPTu test
CPTu refusal at 50MPa on the tip, 500kPa on the friction sleeve or at 2500kPa pore pressure

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014

CPT TEST LOG

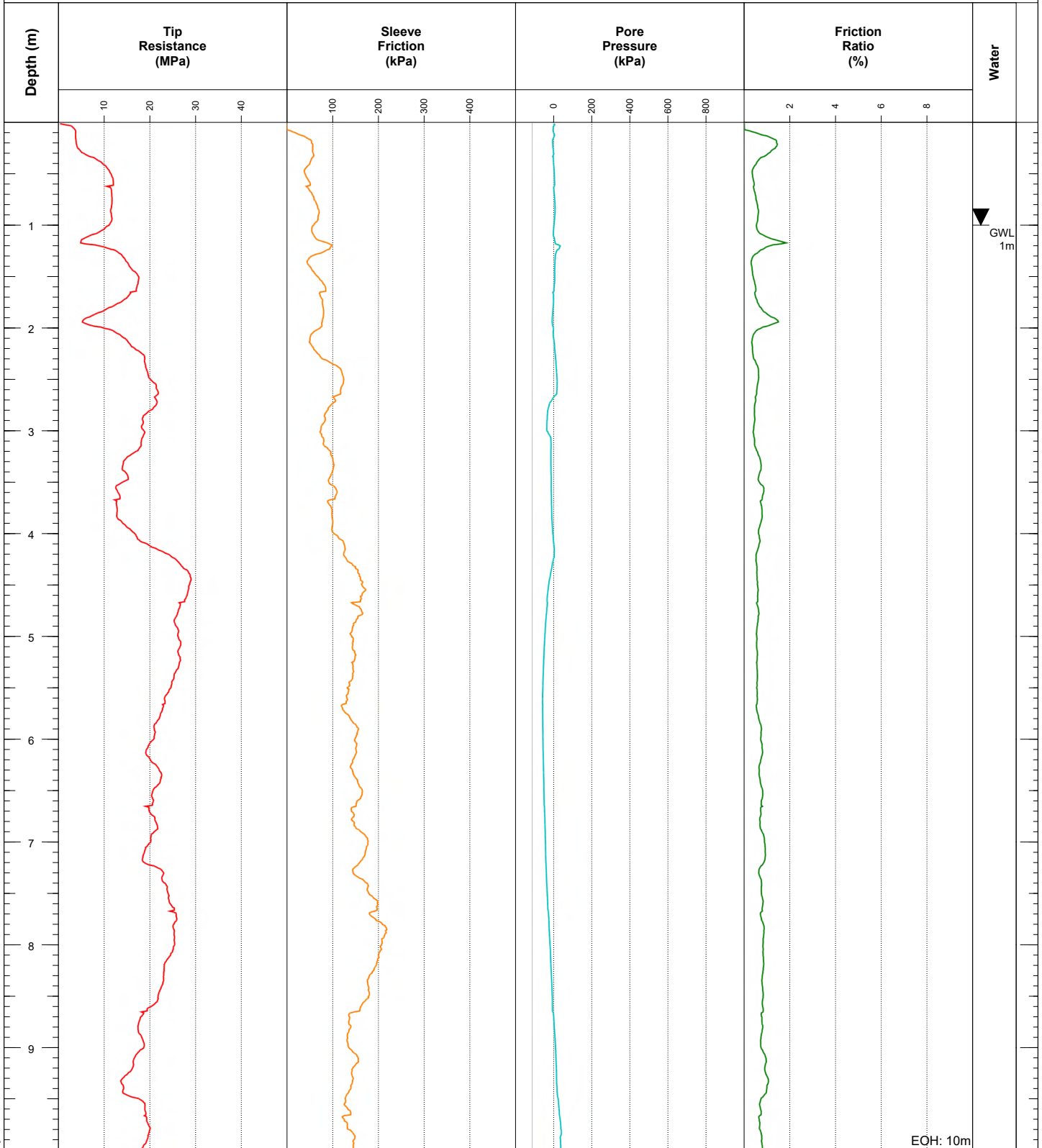
Job Number: 18156

Client: Aurecon
Project: Prestons Park Stage 2

Test Label: CPT706

Site Location: Marshland, Christchurch
Test Date: 10/05/2018
Coordinates: -43.483567, 172.670298 (WGS84)
Supervisor: Kieran Foote

Operator: Gray Lewis
Piezocone (Rig): MKJ329 (P001259)
Hole Depth: 10m
EOH Reason: Target



Remarks

CPTu testing carried out to ASTM Standard D5778-12
10cm-sq Pagani piezocone used for each CPTu test
CPTu refusal at 50MPa on the tip, 500kPa on the friction sleeve or at 2500kPa pore pressure

Average Energy Transfer Ratio for the DPSH-B hammer on each rig:

P 001245: 95%
P 001249: 90%

Calibration performed on 4th November 2014