



AS "Ceļuprojekts"
Ģeoloģijas nodaļa
Murjāņu iela 7a, Rīga
www.celuprojekts.lv

CPT: CPT-1

Total depth: 13.04 m, Date: 11.12.2015.

Surface Elevation: 3.90 m

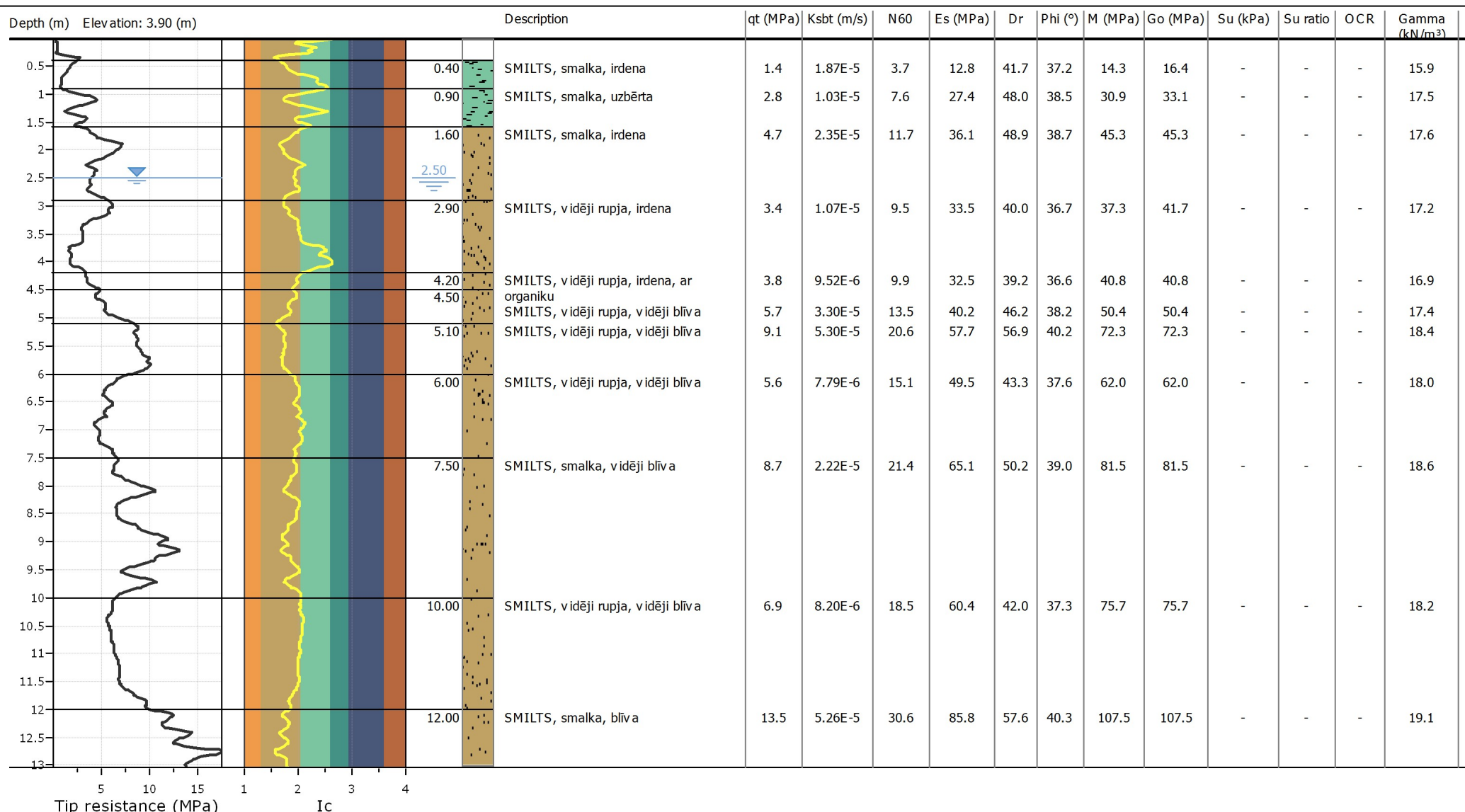
Coords: X:326281.00, Y:5197690.00

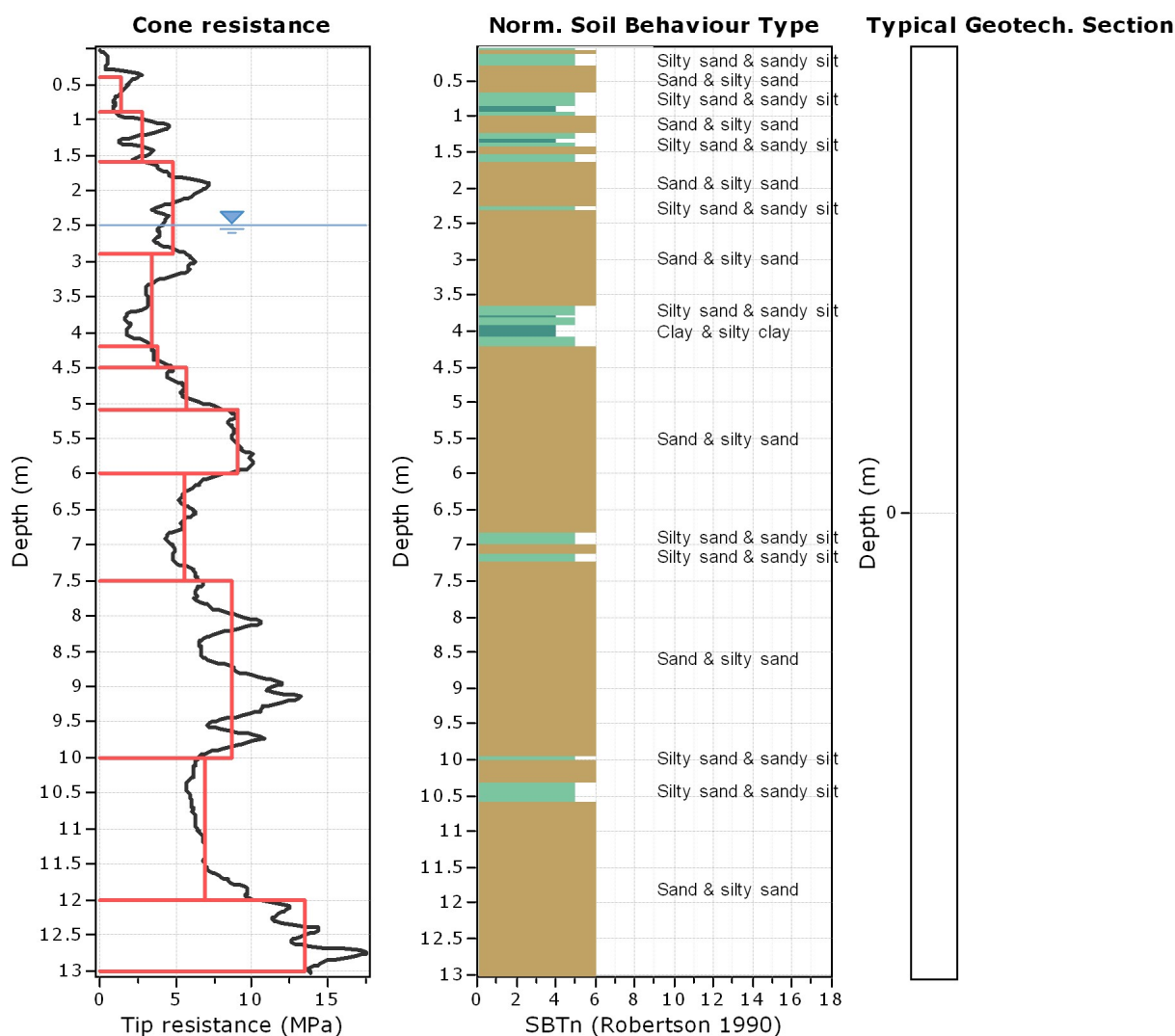
Cone Type: Type II, Nr.3908

Cone Operator: J.Ertners

Project: Ģeotehniskā priekšizpēte

Location: Attekas iela 16, Ādaži





Tabular results

::: Layer No: 1 :::

Code: T7 **Start depth:** 0.40 (m), **End depth:** 0.90 (m)

Description: SMILTS, smalka, irdena

Basic results

Total cone resistance: 1.38 ± 0.51 MPa

Sleeve friction: 13.74 ± 8.34 kPa

SBT_n: 5

SBT_n description: Silty sand & sandy silt

Estimation results

Permeability: $1.87E-05 \pm 2.45E-05$ m/s

N₆₀: 3.65 ± 0.75 blows

Es: 12.81 ± 0.90 MPa

Dr (%): 41.75 ± 5.23

ö (degrees): 37.17 ± 1.16 °

Unit weight: 15.90 ± 0.59 kN/m³

Constrained Mod.: 14.34 ± 1.76 MPa

Go: 16.37 ± 1.44 MPa

Su: 0.00 ± 0.00 kPa

Su ratio: 0.00 ± 0.00

O.C.R.: 0.00 ± 0.00

::: Layer No: 2 :::**Code:** T7 **Start depth:** 0.90 (m), **End depth:** 1.60 (m)**Description:** SMILTS, smalka, uzbērta**Basic results**

Total cone resistance: 2.75 ±1.05 MPa

Sleeve friction: 36.17 ±7.44 kPa

SBT_n: 5SBT_n description: Silty sand & sandy silt**Estimation results**

Permeability: 1.03E-05 ±1.43E-05 m/s

N60: 7.61 ±1.86 blows

Es: 27.36 ±2.91 MPa

Dr (%): 47.96 ±5.52

ö (degrees): 38.50 ±1.10 °

Unit weight: 17.45 ±0.20 kN/m³

Constrained Mod.: 30.91 ±7.61 MPa

Go: 33.10 ±4.76 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 3 :::**Code:** 7i **Start depth:** 1.60 (m), **End depth:** 2.90 (m)**Description:** SMILTS, smalka, irdena**Basic results**

Total cone resistance: 4.72 ±1.13 MPa

Sleeve friction: 33.73 ±8.31 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 2.35E-05 ±2.15E-05 m/s

N60: 11.67 ±1.84 blows

Es: 36.12 ±3.29 MPa

Dr (%): 48.86 ±5.63

ö (degrees): 38.68 ±1.07 °

Unit weight: 17.58 ±0.33 kN/m³

Constrained Mod.: 45.28 ±4.12 MPa

Go: 45.28 ±4.12 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 4 :::**Code:** 8i **Start depth:** 2.90 (m), **End depth:** 4.20 (m)**Description:** SMILTS, vidēji rupja, irdena**Basic results**

Total cone resistance: 3.44 ±1.51 MPa

Sleeve friction: 29.63 ±11.34 kPa

SBT_n: 5SBT_n description: Silty sand & sandy silt**Estimation results**

Permeability: 1.07E-05 ±1.48E-05 m/s

N60: 9.52 ±2.67 blows

Es: 33.50 ±5.31 MPa

Dr (%): 39.98 ±7.38

ö (degrees): 36.67 ±1.76 °

Unit weight: 17.25 ±0.43 kN/m³

Constrained Mod.: 37.30 ±9.89 MPa

Go: 41.73 ±6.28 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 5 :::**Code:** 8o **Start depth:** 4.20 (m), **End depth:** 4.50 (m)**Description:** SMILTS, vidēji rupja, irdena, ar organiku**Basic results**

Total cone resistance: 3.81 ±0.48 MPa

Sleeve friction: 19.16 ±3.53 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 9.52E-06 ±3.66E-06 m/s

N60: 9.94 ±1.06 blows

Es: 32.54 ±2.35 MPa

Dr (%): 39.18 ±2.12

ö (degrees): 36.62 ±0.50 °

Unit weight: 16.89 ±0.22 kN/m³

Constrained Mod.: 40.78 ±2.95 MPa

Go: 40.78 ±2.95 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 6 :::**Code:** 8v **Start depth:** 4.50 (m), **End depth:** 5.10 (m)**Description:** SMILTS, vidēji rupja, vidēji blīva**Basic results**

Total cone resistance: 5.66 ±1.13 MPa

Sleeve friction: 26.16 ±2.90 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 3.30E-05 ±3.15E-05 m/s

N60: 13.52 ±1.65 blows

Es: 40.21 ±2.20 MPa

Dr (%): 46.24 ±3.69

ö (degrees): 38.19 ±0.74 °

Unit weight: 17.40 ±0.10 kN/m³

Constrained Mod.: 50.39 ±2.76 MPa

Go: 50.39 ±2.76 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 7 :::**Code:** 8v **Start depth:** 5.10 (m), **End depth:** 6.00 (m)**Description:** SMILTS, vidēji rupja, vidēji blīva**Basic results**

Total cone resistance: 9.10 ±0.56 MPa

Sleeve friction: 53.66 ±9.76 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 5.30E-05 ±1.87E-05 m/s

N60: 20.59 ±1.33 blows

Es: 57.70 ±4.24 MPa

Dr (%): 56.92 ±1.38

ö (degrees): 40.20 ±0.23 °

Unit weight: 18.39 ±0.26 kN/m³

Constrained Mod.: 72.31 ±5.31 MPa

Go: 72.31 ±5.31 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 8 :::**Code:** 8v **Start depth:** 6.00 (m), **End depth:** 7.50 (m)**Description:** SMILTS, vidēji rupja, vidēji blīva**Basic results**

Total cone resistance: 5.60 ±0.82 MPa

Sleeve friction: 44.80 ±8.24 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 7.79E-06 ±3.32E-06 m/s

N60: 15.09 ±1.59 blows

Es: 49.48 ±4.00 MPa

Dr (%): 43.30 ±3.43

ö (degrees): 37.56 ±0.74 °

Unit weight: 18.00 ±0.24 kN/m³

Constrained Mod.: 62.02 ±5.01 MPa

Go: 62.02 ±5.01 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 9 :::**Code:** 7v **Start depth:** 7.50 (m), **End depth:** 10.00 (m)**Description:** SMILTS, smalka, vidēji blīva**Basic results**

Total cone resistance: 8.65 ±1.93 MPa

Sleeve friction: 63.85 ±14.24 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 2.22E-05 ±1.67E-05 m/s

N60: 21.37 ±3.49 blows

Es: 65.05 ±7.96 MPa

Dr (%): 50.21 ±5.23

ö (degrees): 38.95 ±0.98 °

Unit weight: 18.56 ±0.31 kN/m³

Constrained Mod.: 81.53 ±9.98 MPa

Go: 81.53 ±9.98 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 10 :::**Code:** 8v **Start depth:** 10.00 (m), **End depth:** 12.00 (m)**Description:** SMILTS, vidēji rupja, vidēji blīva**Basic results**

Total cone resistance: 6.88 ±1.17 MPa

Sleeve friction: 49.76 ±4.68 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 8.20E-06 ±5.37E-06 m/s

N60: 18.51 ±2.26 blows

Es: 60.36 ±4.46 MPa

Dr (%): 42.00 ±3.03

ö (degrees): 37.27 ±0.66 °

Unit weight: 18.21 ±0.15 kN/m³

Constrained Mod.: 75.65 ±5.59 MPa

Go: 75.65 ±5.59 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00

::: Layer No: 11 :::**Code:** 7b **Start depth:** 12.00 (m), **End depth:** 13.00 (m)**Description:** SMILTS, smalka, blīva**Basic results**

Total cone resistance: 13.46 ±1.84 MPa

Sleeve friction: 85.06 ±15.45 kPa

SBT_n: 6SBT_n description: Sand & silty sand**Estimation results**

Permeability: 5.26E-05 ±3.31E-05 m/s

N60: 30.59 ±3.02 blows

Es: 85.79 ±7.03 MPa

Dr (%): 57.59 ±3.85

ö (degrees): 40.29 ±0.63 °

Unit weight: 19.08 ±0.23 kN/m³

Constrained Mod.: 107.53 ±8.82 MPa

Go: 107.53 ±8.82 MPa

Su: 0.00 ±0.00 kPa

Su ratio: 0.00 ±0.00

O.C.R.: 0.00 ±0.00



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CPT: CPT-1

Total depth: 13.04 m, Date: 11.12.2015.
Surface Elevation: 3.90 m
Coords: X:326281.00, Y:5197690.00
Cone Type: Type II, Nr.3908
Cone Operator: J.Ertners

Summary table of mean values

From depth To depth (m)	Thickness (m)	Permeability (m/s)	SPT _{N60} (blows/30cm)	E _s (MPa)	D _r	Friction angle	Constrained modulus, M (MPa)	Shear modulus, G ₀ (MPa)	Undrained strength, S _u (kPa)	Undrained strength ratio	OCR	Unit weight (kN/m ³)
0.40	0.50	1.87E-05	3.7	12.8	41.7	37.2	14.3	16.4	0.0	0.0	0.0	15.9
0.90		(±2.45E-05)	(±0.7)	(±0.9)	(±5.2)	(±1.2)	(±1.8)	(±1.4)	(±0.0)	(±0.0)	(±0.0)	(±0.6)
0.90	0.70	1.03E-05	7.6	27.4	48.0	38.5	30.9	33.1	0.0	0.0	0.0	17.5
1.60		(±1.43E-05)	(±1.9)	(±2.9)	(±5.5)	(±1.1)	(±7.6)	(±4.8)	(±0.0)	(±0.0)	(±0.0)	(±0.2)
1.60	1.30	2.35E-05	11.7	36.1	48.9	38.7	45.3	45.3	0.0	0.0	0.0	17.6
2.90		(±2.15E-05)	(±1.8)	(±3.3)	(±5.6)	(±1.1)	(±4.1)	(±4.1)	(±0.0)	(±0.0)	(±0.0)	(±0.3)
2.90	1.30	1.07E-05	9.5	33.5	40.0	36.7	37.3	41.7	0.0	0.0	0.0	17.2
4.20		(±1.48E-05)	(±2.7)	(±5.3)	(±7.4)	(±1.8)	(±9.9)	(±6.3)	(±0.0)	(±0.0)	(±0.0)	(±0.4)
4.20	0.30	9.52E-06	9.9	32.5	39.2	36.6	40.8	40.8	0.0	0.0	0.0	16.9
4.50		(±3.66E-06)	(±1.1)	(±2.4)	(±2.1)	(±0.5)	(±3.0)	(±3.0)	(±0.0)	(±0.0)	(±0.0)	(±0.2)
4.50	0.60	3.30E-05	13.5	40.2	46.2	38.2	50.4	50.4	0.0	0.0	0.0	17.4
5.10		(±3.15E-05)	(±1.7)	(±2.2)	(±3.7)	(±0.7)	(±2.8)	(±2.8)	(±0.0)	(±0.0)	(±0.0)	(±0.1)
5.10	0.90	5.30E-05	20.6	57.7	56.9	40.2	72.3	72.3	0.0	0.0	0.0	18.4
6.00		(±1.87E-05)	(±1.3)	(±4.2)	(±1.4)	(±0.2)	(±5.3)	(±5.3)	(±0.0)	(±0.0)	(±0.0)	(±0.3)
6.00	1.50	7.79E-06	15.1	49.5	43.3	37.6	62.0	62.0	0.0	0.0	0.0	18.0
7.50		(±3.32E-06)	(±1.6)	(±4.0)	(±3.4)	(±0.7)	(±5.0)	(±5.0)	(±0.0)	(±0.0)	(±0.0)	(±0.2)
7.50	2.50	2.22E-05	21.4	65.1	50.2	39.0	81.5	81.5	0.0	0.0	0.0	18.6
10.00		(±1.67E-05)	(±3.5)	(±8.0)	(±5.2)	(±1.0)	(±10.0)	(±10.0)	(±0.0)	(±0.0)	(±0.0)	(±0.3)
10.00	2.00	8.20E-06	18.5	60.4	42.0	37.3	75.7	75.7	0.0	0.0	0.0	18.2
12.00		(±5.37E-06)	(±2.3)	(±4.5)	(±3.0)	(±0.7)	(±5.6)	(±5.6)	(±0.0)	(±0.0)	(±0.0)	(±0.2)
12.00	1.00	5.26E-05	30.6	85.8	57.6	40.3	107.5	107.5	0.0	0.0	0.0	19.1
13.00		(±3.31E-05)	(±3.0)	(±7.0)	(±3.8)	(±0.6)	(±8.8)	(±8.8)	(±0.0)	(±0.0)	(±0.0)	(±0.2)

Depth values presented in this table are measured from free ground surface