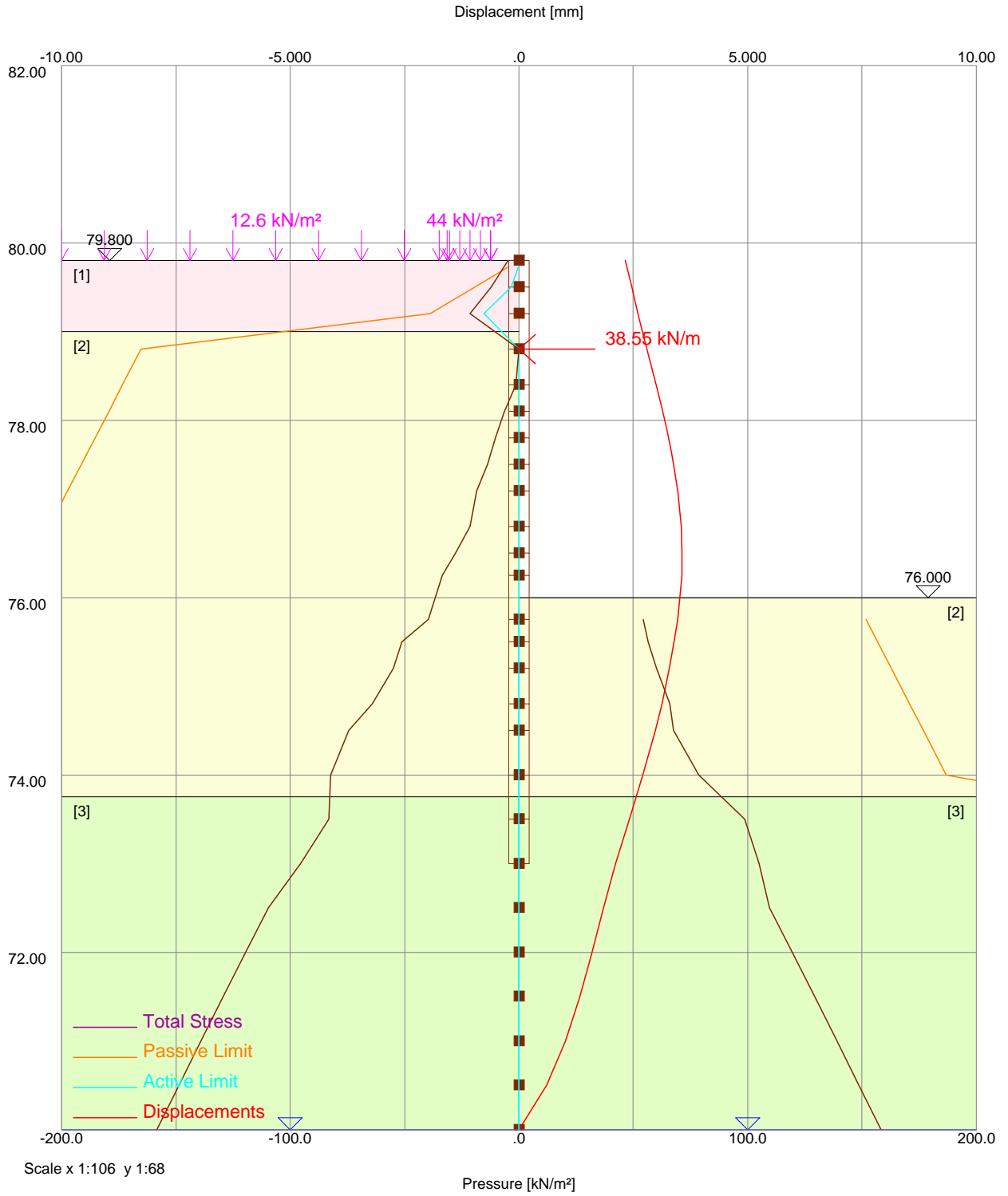


Job No.	Sheet No.	Rev.
Drg. Ref.		
Made by ALP	Date	Checked



STAGE 4 : Excavate to FL at +76



Job No.	Sheet No.	Rev.
Drg. Ref.		
Made by	Date	Checked
ALP		

INITIAL DATA

Notes
Downshire Studios footing assumed as carrying 4m of 220 brick (19 kN/m) with 5 kN/m2 roof loading on a half span of 4.2m or 21 kN/m: total 40 kN/m run over say 0.9m wide footing. Original filename F4-Revised.

Soil properties

No.	Description	Unit	Wt	K0	Ka	Kp	Kac	Kpc	Kr	Earth pressure coefficients.
1	Made Ground		18.00	0.50	0.34	3.60	1.17	3.79	0.25	Calculated
2	Claygate - Undrained		20.00	1.00	1.00	1.00	2.45	2.45	1.00	Calculated
3	LC - Undrained		20.00	1.00	1.00	1.00	2.45	2.45	1.00	Calculated

Parameters used to calculate Earth pressure coefficients

No.	Phi	Delta/Phi	Beta	Cw/C
1	25.00	0.50	0.00	0.00
2	0.00	0.00	0.00	0.50
3	0.00	0.00	0.00	0.50

Surcharge properties

No.	Stage	Side	Level	Pressure	Partial Factor	Offset	Width	Ks
1	0	- Left	79.80	12.60	1.00	0.50	9.50	1.00
2	0	- Left	79.80	44.00	1.00	0.50	0.90	0.25

Strut properties

No.	Stage	Node	Level	Prestress	Stiffness	Angle	Lever arm
1	3	- 4	0.00	0.00	30000.00	0.00	0.00

STAGE 0 : INITIAL CONDITION

Geometry

Node	Level	Soil	Boundary	EI below node
1	79.80	1	1 10.00 10.00	93935.
2	79.50	1	1 10.00 10.00	93935.
3	79.20	1	1 10.00 10.00	93935.
4	78.80	2	2 10.00 10.00	93935.
5	78.40	2	2 10.00 10.00	93935.
6	78.10	2	2 10.00 10.00	93935.
7	77.80	2	2 10.00 10.00	93935.
8	77.50	2	2 10.00 10.00	93935.
9	77.20	2	2 10.00 10.00	93935.
10	76.80	2	2 10.00 10.00	93935.
11	76.50	2	2 10.00 10.00	93935.
12	76.25	2	2 10.00 10.00	93935.
13	75.75	2	2 10.00 10.00	93935.
14	75.50	2	2 10.00 10.00	93935.
15	75.20	2	2 10.00 10.00	93935.
16	74.80	2	2 10.00 10.00	93935.
17	74.50	2	2 10.00 10.00	93935.
18	74.00	2	2 10.00 10.00	93935.
19	73.50	3	3 10.00 10.00	93935.
* 20	73.00	3	3 10.00 10.00	0.0
21	72.50	3	3 10.00 10.00	0.0
22	72.00	3	3 10.00 10.00	0.0
23	71.50	3	3 10.00 10.00	0.0
24	71.00	3	3 10.00 10.00	0.0
25	70.50	3	3 10.00 10.00	0.0
26	70.00	3	3 10.00 10.00	0.0

* Wall toe level: 73.00

Water data on LEFT side

No.	Level	Pressure	Unit
1	70.00	0.00	10.00

Water data on RIGHT side

No.	Level	Pressure	Unit
1	70.00	0.00	10.00

Analysis details

SAFE model with redistribution
and with friction at wall/soil interface
Left Right
E profile Generated
Boundary distances [m] : 10.00 10.00

Convergence control parameters

Maximum number of iterations : 900
Tolerance for displacement convergence [mm] : 0.01
Tolerance for pressure convergence [kN/m²] : 0.10
Damping coefficient : 1.00
Maximum incremental displacement [m] : 1.00

RESULTS FOR STAGE 0 : Initial condition

Surcharge or strut changes

Surcharge no. 1 applied at this stage
Surcharge no. 2 applied at this stage

Calculation details

E Profiles assumed for calculation (generated):
On the LEFT: E at ground level = 27698. E at bottom node = 81049. kN/m²
On the RIGHT: E at ground level = 27698. E at bottom node = 81049. kN/m²

Iter	Inc	Node	Disp	Node	Press	Node
no.	max	no.	error.	no.	error	no.
			displ			
			[mm]		[kN/m²]	
1	0.0	1	0.7331	2	0.00	1
2	0.7	2	0.0000	2	0.00	1
3	0.7	2	0.0000	2	0.00	1

Ground level left = 79.80 Ground level right = 79.80

Node	Level	Disp	Vt	Stress			Pore			Soil	Vt	Stress			Pore			BM	SF	
				Ve	Pt	Pe	Pressure	Ve	Pt			Pe	Pressure							
1	79.80	0.68	1.43	8.43	2.46	2.46	0.00	Left	Right	1	1	1.35	1.35	2.46	2.46	0.00	0.00	0.00	0.00	
2	79.50	0.73	8.80	8.80	8.38	8.38	0.00	1	1	5.40	5.40	8.38	8.38	0.00	0.00	0.00	0.00	0.00	0.00	
3	79.20	0.73	23.45	23.45	12.51	12.51	0.00	a	1	1	10.80	10.80	12.51	12.51	0.00	0.00	0.00	0.00	0.00	0.00
4	78.80	0.65	39.75	(39.75)	25.10	(25.10)	(0.00)	2	2	18.40	(18.40)	25.10	(25.10)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00
5	78.40	0.59	51.22	(51.22)	32.39	(32.39)	(0.00)	2	2	26.40	(26.40)	32.39	(32.39)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00
6	78.10	0.56	57.96	(57.96)	37.94	(37.94)	(0.00)	2	2	32.40	(32.40)	37.94	(37.94)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00



RKD CONSULTANT LIMITED

8 Pilgrims Lane
Piled Wall - SLS
Piled Wall around Deep Section

Job No.	Sheet No.	Rev.
Drg. Ref.		
Made by ALP	Date	Checked

Node	Level [m]	Disp [mm]	Stress			Pore Pressure [kN/m ²]	Soil		Stress			Pore Pressure [kN/m ²]	BM [kNm/m]	SF		
			Vt [kN/m ²]	Pt [kN/m ²]	Pe [kN/m ²]		Left	Right	Vt [kN/m ²]	Pt [kN/m ²]	Pe [kN/m ²]					
7	77.80	0.54	63.92	(63.92)	43.56	(43.56)	(0.00)	2	2	38.40	(38.40)	43.56	(43.56)	(0.00)	0.00	0.00
8	77.50	0.51	69.50	(69.50)	49.23	(49.23)	(0.00)	2	2	44.40	(44.40)	49.23	(49.23)	(0.00)	0.00	0.00
9	77.20	0.49	74.91	(74.91)	54.94	(54.94)	(0.00)	2	2	50.40	(50.40)	54.94	(54.94)	(0.00)	0.00	0.00
10	76.80	0.45	82.04	(82.04)	62.59	(62.59)	(0.00)	2	2	58.40	(58.40)	62.59	(62.59)	(0.00)	0.00	0.00
11	76.50	0.43	87.38	(87.38)	68.36	(68.36)	(0.00)	2	2	64.40	(64.40)	68.36	(68.36)	(0.00)	0.00	0.00
12	76.25	0.41	91.86	(91.86)	73.17	(73.17)	(0.00)	2	2	69.40	(69.40)	73.17	(73.17)	(0.00)	0.00	0.00
13	75.75	0.37	100.87	(100.87)	82.84	(82.84)	(0.00)	2	2	79.40	(79.40)	82.84	(82.84)	(0.00)	0.00	0.00
14	75.50	0.35	105.41	(105.41)	87.68	(87.68)	(0.00)	2	2	84.40	(84.40)	87.68	(87.68)	(0.00)	0.00	0.00
15	75.20	0.33	110.89	(110.89)	93.50	(93.50)	(0.00)	2	2	90.40	(90.40)	93.50	(93.50)	(0.00)	0.00	0.00
16	74.80	0.30	118.25	(118.25)	101.28	(101.28)	(0.00)	2	2	98.40	(98.40)	101.28	(101.28)	(0.00)	0.00	0.00
17	74.50	0.28	123.80	(123.80)	107.12	(107.12)	(0.00)	2	2	104.40	(104.40)	107.12	(107.12)	(0.00)	0.00	0.00
18	74.00	0.23	133.11	(133.11)	116.88	(116.88)	(0.00)	2	2	114.40	(114.40)	116.88	(116.88)	(0.00)	0.00	0.00
19	73.50	0.19	142.47	(142.47)	126.66	(126.66)	(0.00)	3	3	124.40	(124.40)	126.66	(126.66)	(0.00)	0.00	0.00
20	73.00	0.15	151.88	(151.88)	136.46	(136.46)	(0.00)	3	3	134.40	(134.40)	136.46	(136.46)	(0.00)	0.00	0.00
21	72.50	0.13	161.33	(161.33)	146.28	(146.28)	(0.00)	3	3	144.40	(144.40)	146.28	(146.28)	(0.00)	0.00	0.00
22	72.00	0.10	170.81	(170.81)	156.11	(156.11)	(0.00)	3	3	154.40	(154.40)	156.11	(156.11)	(0.00)	0.00	0.00
23	71.50	0.08	180.33	(180.33)	165.96	(165.96)	(0.00)	3	3	164.40	(164.40)	165.96	(165.96)	(0.00)	0.00	0.00
24	71.00	0.06	189.87	(189.87)	175.82	(175.82)	(0.00)	3	3	174.40	(174.40)	175.82	(175.82)	(0.00)	0.00	0.00
25	70.50	0.03	199.43	(199.43)	185.70	(185.70)	(0.00)	3	3	184.40	(184.40)	185.70	(185.70)	(0.00)	0.00	0.00
26	70.00	0.00	209.02	(209.02)	195.59	(195.59)	(0.00)	3	3	194.40	(194.40)	195.59	(195.59)	(0.00)	0.00	0.00

NOTE: Displacements from STAGE 0 are disregarded in later stages

Vt, Ve : vertical total and effective stress
Pt, Pe : horizontal total and effective stress

Surcharge 1 present in this stage
Surcharge 2 present in this stage

STAGE 1 : INSTALL 450 DIA AT 600 PILE WALL

Geometry

Node Level	Soil	Boundary	EI below node
1 79.80	1	1 10.00 10.00	93935
2 79.50	1	1 10.00 10.00	93935
3 79.20	1	1 10.00 10.00	93935
4 78.80	2	2 10.00 10.00	93935
5 78.40	2	2 10.00 10.00	93935
6 78.10	2	2 10.00 10.00	93935
7 77.80	2	2 10.00 10.00	93935
8 77.50	2	2 10.00 10.00	93935
9 77.20	2	2 10.00 10.00	93935
10 76.80	2	2 10.00 10.00	93935
11 76.50	2	2 10.00 10.00	93935
12 76.25	2	2 10.00 10.00	93935
13 75.75	2	2 10.00 10.00	93935
14 75.50	2	2 10.00 10.00	93935
15 75.20	2	2 10.00 10.00	93935
16 74.80	2	2 10.00 10.00	93935
17 74.50	2	2 10.00 10.00	93935
18 74.00	2	2 10.00 10.00	93935
19 73.50	3	3 10.00 10.00	93935
* 20 73.00	3	3 10.00 10.00	0.0
21 72.50	3	3 10.00 10.00	0.0
22 72.00	3	3 10.00 10.00	0.0
23 71.50	3	3 10.00 10.00	0.0
24 71.00	3	3 10.00 10.00	0.0
25 70.50	3	3 10.00 10.00	0.0
26 70.00	3	3 10.00 10.00	0.0

* Wall toe level: 73.00

RESULTS FOR STAGE 1 : Install 450 Dia at 600 Pile Wall

Calculation details

E Profiles assumed for calculation (generated):

On the LEFT: E at ground level = 27698. E at bottom node = 81049. kN/m²

On the RIGHT: E at ground level = 27698. E at bottom node = 81049. kN/m²

Iter no.	Inc no.	Node no.	Disp [mm]	Press [kN/m ²]	error no.	
1	0.0	11	0.0000	11	0.00	1
2	0.0	11	0.0000	11	0.00	1
3	0.0	11	0.0000	11	0.00	1

Ground level left = 79.80 Ground level right = 79.80

Node	Level [m]	Disp [mm]	Stress			Pore Pressure [kN/m ²]	Soil		Stress			Pore Pressure [kN/m ²]	BM [kNm/m]	SF		
			Vt [kN/m ²]	Pt [kN/m ²]	Pe [kN/m ²]		Left	Right	Vt [kN/m ²]	Pt [kN/m ²]	Pe [kN/m ²]					
1	79.80	0.00	1.43	1.43	2.46	2.46	0.00	1	1	1.35	1.35	2.46	2.46	0.00	0.00	0.00
2	79.50	0.00	8.80	8.80	8.38	8.38	0.00	1	1	5.40	5.40	8.38	8.38	0.00	0.00	0.00
3	79.20	0.00	23.45	23.45	12.51	12.51	0.00	1	1	10.80	10.80	12.51	12.51	0.00	0.00	0.00
4	78.80	0.00	39.75	(39.75)	25.10	(25.10)	(0.00)	2	2	18.40	(18.40)	25.10	(25.10)	(0.00)	0.00	0.00
5	78.40	0.00	51.22	(51.22)	32.39	(32.39)	(0.00)	2	2	26.40	(26.40)	32.39	(32.39)	(0.00)	0.00	0.00
6	78.10	0.00	57.96	(57.96)	37.94	(37.94)	(0.00)	2	2	32.40	(32.40)	37.94	(37.94)	(0.00)	0.00	0.00
7	77.80	0.00	63.92	(63.92)	43.56	(43.56)	(0.00)	2	2	38.40	(38.40)	43.56	(43.56)	(0.00)	0.00	0.00
8	77.50	0.00	69.50	(69.50)	49.23	(49.23)	(0.00)	2	2	44.40	(44.40)	49.23	(49.23)	(0.00)	0.00	0.00
9	77.20	0.00	74.91	(74.91)	54.94	(54.94)	(0.00)	2	2	50.40	(50.40)	54.94	(54.94)	(0.00)	0.00	0.00
10	76.80	0.00	82.04	(82.04)	62.59	(62.59)	(0.00)	2	2	58.40	(58.40)	62.59	(62.59)	(0.00)	0.00	0.00
11	76.50	0.00	87.38	(87.38)	68.36	(68.36)	(0.00)	2	2	64.40	(64.40)	68.36	(68.36)	(0.00)	0.00	0.00
12	76.25	0.00	91.86	(91.86)	73.17	(73.17)	(0.00)	2	2	69.40	(69.40)	73.17	(73.17)	(0.00)	0.00	0.00
13	75.75	0.00	100.87	(100.87)	82.84	(82.84)	(0.00)	2	2	79.40	(79.40)	82.84	(82.84)	(0.00)	0.00	0.00
14	75.50	0.00	105.41	(105.41)	87.68	(87.68)	(0.00)	2	2	84.40	(84.40)	87.68	(87.68)	(0.00)	0.00	0.00
15	75.20	0.00	110.89	(110.89)	93.50	(93.50)	(0.00)	2	2	90.40	(90.40)	93.50	(93.50)	(0.00)	0.00	0.00
16	74.80	0.00	118.25	(118.25)	101.28	(101.28)	(0.00)	2	2	98.40	(98.40)	101.28	(101.28)	(0.00)	0.00	0.00
17	74.50	0.00	123.80	(123.80)	107.12	(107.12)	(0.00)	2	2	104.40	(104.40)	107.12	(107.12)	(0.00)	0.00	0.00
18	74.00	0.00	133.11	(133.11)	116.88	(116.88)	(0.00)	2	2	114.40	(114.40)	116.88	(116.88)	(0.00)	0.00	0.00
19	73.50	0.00	142.47	(142.47)	126.66	(126.66)	(0.00)	3	3	124.40	(124.40)	126.66	(126.66)	(0.00)	0.00	0.00
20	73.00	0.00	151.88	(151.88)	136.46	(136.46)	(0.00)	3	3	134.40	(134.40)	136.46	(136.46)	(0.00)	0.00	0.00
21	72.50	0.00	161.33	(161.33)	146.28	(146.28)	(0.00)	3	3	144.40	(144.40)	146.28	(146.28)	(0.00)	0.00	0.00
22	72.00	0.00	170.81	(170.81)	156.11	(156.11)	(0.00)	3	3	154.40	(154.40)	156.11	(156.11)	(0.00)	0.00	0.00
23	71.50	0.00	180.33	(180.33)	165.96	(165.96)	(0.00)	3	3	164.40	(164.40)	165.96	(165.96)	(0.00)	0.00	0.00
24	71.00	0.00	189.87	(189.87)	175.82	(175.82)	(0.00)	3	3	174.40	(174.40)	175.82	(175.82)	(0.00)	0.00	0.00
25	70.50	0.00	199.43	(199.43)	185.70	(185.70)	(0.00)	3	3	184.40	(184.40)	185.70	(185.70)	(0.00)	0.00	0.00
26	70.00	0.00	209.02	(209.02)	195.59	(195.59)	(0.00)	3	3	194.40	(194.40)	195.59	(195.59)	(0.00)	0.00	0.00

Vt, Ve : vertical total and effective stress
Pt, Pe : horizontal total and effective stress

* Wall toe level: 73.00

Note: for undrained materials with user-defined pore pressures, the total stresses are correct, but the pore pressures are the nominal values given by the user. For these cases, tabulated pore pressures and effective stresses are usually unrealistic, and are shown in brackets.

WARNING - Residual moment > 1% of peak moment in wall
WARNING - Wall base moment > 20% of average wall moment

EXTREME values so far

Displacements [mm] Moments [kNm/m] Shears [kN/m]

Min Max Min Max Min Max

0.00 0.00 0.00 0.00 0.00 0.00

Surcharge 1 present in this stage

Surcharge 2 present in this stage

STAGE 2 : EXCAVATE FOR PROP AT +78.8



RKD CONSULTANT LIMITED

8 Pilgrims Lane
Piled Wall - SLS
Piled Wall around Deep Section

Job No.	Sheet No.	Rev.
Drg. Ref.		
Made by ALP	Date	Checked

Displacements [mm] Moments [kNm/m] Shears [kN/m]
Min Max Min Max Min Max

Geometry Node Level	Soil	Boundary	ET below node
[m]	Left	Right	Left Right [kNm2/m]
1 79.80	1	0	10.00 10.00 93935.
2 79.50	1	0	10.00 10.00 93935.
3 79.20	1	0	10.00 10.00 93935.
4 78.80	2	0	10.00 10.00 93935.
5 78.40	2	2	10.00 10.00 93935.
6 78.10	2	2	10.00 10.00 93935.
7 77.80	2	2	10.00 10.00 93935.
8 77.50	2	2	10.00 10.00 93935.
9 77.20	2	2	10.00 10.00 93935.
10 76.80	2	2	10.00 10.00 93935.
11 76.50	2	2	10.00 10.00 93935.
12 76.25	2	2	10.00 10.00 93935.
13 75.75	2	2	10.00 10.00 93935.
14 75.50	2	2	10.00 10.00 93935.
15 75.20	2	2	10.00 10.00 93935.
16 74.80	2	2	10.00 10.00 93935.
17 74.50	2	2	10.00 10.00 93935.
18 74.00	2	2	10.00 10.00 93935.
19 73.50	3	3	10.00 10.00 93935.
* 20 73.00	3	3	10.00 10.00 0.0
21 72.50	3	3	10.00 10.00 0.0
22 72.00	3	3	10.00 10.00 0.0
23 71.50	3	3	10.00 10.00 0.0
24 71.00	3	3	10.00 10.00 0.0
25 70.50	3	3	10.00 10.00 0.0
26 70.00	3	3	10.00 10.00 0.0

* Wall toe level: 73.00

RESULTS FOR STAGE 2 : Excavate for Prop at +78.8

Calculation details

E Profiles assumed for calculation (generated):
On the LEFT: E at ground level = 27698. E at bottom node = 81049. kN/m²
On the RIGHT: E at ground level = 37756. E at bottom node = 76549. kN/m²

Iter	Inc	Node	Disp	Node	Press	Node
no.	max	no.	error.	no.	error	no.
displ		[mm]		[kN/m²]		
1	0.0	1	1.5243	1	0.00	1
2	1.5	1	0.0758	1	10.349	3
3	1.6	1	0.0518	1	6.89	2
4	1.7	1	0.0350	1	5.01	3
5	1.7	1	0.0214	1	2.85	3
10	1.7	1	0.0010	1	0.11	3
11	1.7	1	0.0006	1	0.04	4

Ground level left = 79.80 Ground level right = 78.60

Node	Level [m]	Disp [mm]	Stress [kN/m²]			Pore Pressure [kN/m²]			Soil	Left	Right	Stress [kN/m²]			Pore Pressure [kN/m²]			BM [kNm/m]	SF [kN/m]
			Vt	Ve	Pt	Pe	Pt	Pe				Pt	Pe						
1	79.80	1.73	1.43	1.43	0.45	0.45	0.00	a	1	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	79.50	1.67	8.80	8.80	3.47	3.47	0.00	A	1	0	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.59	0.00
3	79.20	1.60	23.45	23.45	15.32	15.32	0.00	A	1	0	0.00	0.00	0.00	0.00	0.00	0.00	-0.35	3.79	0.00
4	78.80	1.51	39.75	39.75	-0.04	-0.04	(0.00)	a	2	0	0.00	0.00	0.00	0.00	0.00	0.00	-2.94	6.46	0.00
5	78.40	1.43	51.22	51.22	15.02	15.02	(0.00)	a	2	2	4.00	(4.00)	31.51	(31.51)	(0.00)	(0.00)	-5.52	3.57	0.00
6	78.10	1.38	57.96	57.96	23.12	23.12	(0.00)	a	2	2	10.00	(10.00)	30.79	(30.79)	(0.00)	(0.00)	-5.72	-0.47	0.00
7	77.80	1.33	63.92	63.92	30.57	30.57	(0.00)	a	2	2	16.00	(16.00)	34.96	(34.96)	(0.00)	(0.00)	-5.24	-2.28	0.00
8	77.50	1.28	69.50	69.50	37.43	37.43	(0.00)	a	2	2	22.00	(22.00)	39.36	(39.36)	(0.00)	(0.00)	-4.36	-3.23	0.00
9	77.20	1.24	74.91	74.91	44.07	44.07	(0.00)	a	2	2	28.00	(28.00)	44.12	(44.12)	(0.00)	(0.00)	-3.30	-3.53	0.00
10	76.80	1.19	82.04	82.04	51.43	51.43	(0.00)	a	2	2	36.00	(36.00)	51.80	(51.80)	(0.00)	(0.00)	-1.89	-3.60	0.00
11	76.50	1.15	87.38	87.38	57.76	57.76	(0.00)	a	2	2	42.00	(42.00)	56.69	(56.69)	(0.00)	(0.00)	-0.79	-3.62	0.00
12	76.25	1.13	91.86	91.86	63.06	63.06	(0.00)	a	2	2	47.00	(47.00)	61.08	(61.08)	(0.00)	(0.00)	0.06	-3.00	0.00
13	75.75	1.07	100.87	100.87	71.80	71.80	(0.00)	a	2	2	57.00	(57.00)	71.57	(71.57)	(0.00)	(0.00)	1.37	-2.59	0.00
14	75.50	1.04	105.41	105.41	78.15	78.15	(0.00)	a	2	2	62.00	(62.00)	74.93	(74.93)	(0.00)	(0.00)	2.01	-2.10	0.00
15	75.20	1.00	110.89	110.89	83.34	83.34	(0.00)	a	2	2	68.00	(68.00)	81.39	(81.39)	(0.00)	(0.00)	2.51	-1.32	0.00
16	74.80	0.94	118.25	118.25	91.24	91.24	(0.00)	a	2	2	76.00	(76.00)	89.04	(89.04)	(0.00)	(0.00)	2.90	-0.59	0.00
17	74.50	0.90	123.80	123.80	98.06	98.06	(0.00)	a	2	2	82.00	(82.00)	93.67	(93.67)	(0.00)	(0.00)	2.96	0.67	0.00
18	74.00	0.82	133.11	133.11	107.03	107.03	(0.00)	a	2	2	92.00	(92.00)	104.20	(104.20)	(0.00)	(0.00)	2.18	2.26	0.00
19	73.50	0.74	142.47	142.47	114.03	114.03	(0.00)	a	3	3	102.00	(102.00)	117.16	(117.16)	(0.00)	(0.00)	0.70	2.18	0.00
*20	73.00	0.65	151.88	151.88	124.01	124.01	(0.00)	a	3	3	112.00	(112.00)	126.81	(126.81)	(0.00)	(0.00)	0.00	0.00	0.00
21	72.50	0.57	161.33	161.33	135.19	135.19	(0.00)	a	3	3	122.00	(122.00)	135.19	(135.19)	(0.00)	(0.00)	0.00	0.00	0.00
22	72.00	0.49	170.81	170.81	144.96	144.96	(0.00)	a	3	3	132.00	(132.00)	144.96	(144.96)	(0.00)	(0.00)	0.00	0.00	0.00
23	71.50	0.41	180.33	180.33	154.78	154.78	(0.00)	a	3	3	142.00	(142.00)	154.78	(154.78)	(0.00)	(0.00)	0.00	0.00	0.00
24	71.00	0.33	189.87	189.87	164.58	164.58	(0.00)	a	3	3	152.00	(152.00)	164.58	(164.58)	(0.00)	(0.00)	0.00	0.00	0.00
25	70.50	0.19	199.43	199.43	174.41	174.41	(0.00)	a	3	3	162.00	(162.00)	174.41	(174.41)	(0.00)	(0.00)	0.00	0.00	0.00
26	70.00	0.00	209.02	209.02	184.37	184.37	(0.00)	a	3	3	172.00	(172.00)	184.37	(184.37)	(0.00)	(0.00)	0.00	0.00	0.00

Vt, Ve : vertical total and effective stress
Pt, Pe : horizontal total and effective stress

* Wall toe level: 73.00

Note: for undrained materials with user-defined pore pressures, the total stresses are correct, but the pore pressures are the nominal values given by the user. For these cases, tabulated pore pressures and effective stresses are usually unrealistic, and are shown in brackets.

EXTREME values so far

Displacements [mm]	Moments [kNm/m]	Shears [kN/m]			
Min	Max	Min	Max	Min	Max
0.00	1.73	-5.72	2.96	-3.60	6.46

Surcharge 1 present in this stage
Surcharge 2 present in this stage

STAGE 3 : PROP AT +78.8

RESULTS FOR STAGE 3 : Prop at +78.8

Surcharge or strut changes

Strut no 1 inserted at this stage

Calculation details

E Profiles assumed for calculation (generated):
On the LEFT: E at ground level = 27698. E at bottom node = 81049. kN/m²
On the RIGHT: E at ground level = 37756. E at bottom node = 76549. kN/m²

Iter	Inc	Node	Disp	Node	Press	Node
no.	max	no.	error.	no.	error	no.
displ		[mm]		[kN/m²]		
1	0.0	1	0.0001	1	0.02	4
2	0.0	1	0.0001	1	0.02	3
3	0.0	1	0.0001	1	0.01	4

Ground level left = 79.80 Ground level right = 78.60

Node	Level [m]	Disp [mm]	Stress [kN/m²]			Pore Pressure [kN/m²]			Soil	Left	Right	Stress [kN/m²]			Pore Pressure [kN/m²]			BM [kNm/m]	SF [kN/m]
			Vt	Ve	Pt	Pe	Pt	Pe				Pt	Pe						
1	79.80	1.73	1.43	1.43	0.46	0.46	0.00	A	1	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	79.50	1.67	8.80	8.80	3.46	3.46	0.00	A	1	0	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.59	0.00
3	79.20	1.60	23.45	23.45	15.32	15.32	0.00	A	1	0	0.00	0.00	0.00	0.00	0.00	0.00	-0.35	3.79	0.00
4	78.80	1.51	39.75	39.75	-0.01	-0.01	(0.00)	a	2	0	0.00	0.00	0.00	0.00	0.00	0.00	-2.94	6.47	0.00
78.80																	-2.94	6.46	0.00



RKD CONSULTANT LIMITED

8 Pilgrims Lane
Piled Wall - SLS
Piled Wall around Deep Section

Job No.	Sheet No.	Rev.
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Node	Level [m]	Disp [mm]	Stress			Soil	Vt [kN/m²]	Stress			Pore Pressure [kN/m²]	BM [kNm/m]	SF [kN/m]			
			Ve [kN/m²]	Pt [kN/m²]	Pe Pressure [kN/m²]			Ve [kN/m²]	Pt [kN/m²]	Pe Pressure [kN/m²]						
5	78.40	1.43	51.22	(51.22)	14.99	(14.99)	(0.00)	2	2	4.00	(4.00)	31.51	(31.51)	(0.00)	-5.53	3.57
6	78.10	1.38	57.96	(57.96)	23.12	(23.12)	(0.00)	2	2	10.00	(10.00)	30.79	(30.79)	(0.00)	-5.73	-0.47
7	77.80	1.33	63.92	(63.92)	30.57	(30.57)	(0.00)	2	2	16.00	(16.00)	34.96	(34.96)	(0.00)	-5.24	-2.28
8	77.50	1.28	69.50	(69.50)	37.42	(37.42)	(0.00)	2	2	22.00	(22.00)	39.36	(39.36)	(0.00)	-4.36	-3.23
9	77.20	1.24	74.91	(74.91)	44.07	(44.07)	(0.00)	2	2	28.00	(28.00)	44.12	(44.12)	(0.00)	-3.31	-3.53
10	76.80	1.19	82.04	(82.04)	51.43	(51.43)	(0.00)	2	2	36.00	(36.00)	51.80	(51.80)	(0.00)	-1.89	-3.60
11	76.50	1.15	87.38	(87.38)	57.76	(57.76)	(0.00)	2	2	42.00	(42.00)	56.69	(56.69)	(0.00)	-0.79	-3.52
12	76.25	1.13	91.86	(91.86)	63.06	(63.06)	(0.00)	2	2	47.00	(47.00)	61.08	(61.08)	(0.00)	0.05	-3.00
13	75.75	1.07	100.87	(100.87)	71.80	(71.80)	(0.00)	2	2	57.00	(57.00)	71.57	(71.57)	(0.00)	1.37	-2.59
14	75.50	1.04	105.41	(105.41)	78.15	(78.15)	(0.00)	2	2	62.00	(62.00)	74.93	(74.93)	(0.00)	2.01	-2.10
15	75.20	1.00	110.89	(110.89)	83.34	(83.34)	(0.00)	2	2	68.00	(68.00)	81.39	(81.39)	(0.00)	2.51	-1.32
16	74.80	0.94	118.25	(118.25)	91.24	(91.24)	(0.00)	2	2	76.00	(76.00)	89.04	(89.04)	(0.00)	2.90	-0.59
17	74.50	0.90	123.80	(123.80)	98.06	(98.06)	(0.00)	2	2	82.00	(82.00)	93.67	(93.67)	(0.00)	2.96	0.67
18	74.00	0.82	133.11	(133.11)	107.03	(107.03)	(0.00)	2	2	92.00	(92.00)	104.20	(104.20)	(0.00)	2.18	2.26
19	73.50	0.74	142.47	(142.47)	114.03	(114.03)	(0.00)	3	3	102.00	(102.00)	117.16	(117.16)	(0.00)	0.70	2.18
*20	73.00	0.65	151.88	(151.88)	124.01	(124.01)	(0.00)	3	3	112.00	(112.00)	126.81	(126.81)	(0.00)	0.00	0.00
21	72.50	0.57	161.33	(161.33)	135.19	(135.19)	(0.00)	3	3	122.00	(122.00)	135.19	(135.19)	(0.00)	0.00	0.00
22	72.00	0.49	170.81	(170.81)	144.96	(144.96)	(0.00)	3	3	132.00	(132.00)	144.96	(144.96)	(0.00)	0.00	0.00
23	71.50	0.41	180.33	(180.33)	154.78	(154.78)	(0.00)	3	3	142.00	(142.00)	154.78	(154.78)	(0.00)	0.00	0.00
24	71.00	0.31	189.87	(189.87)	164.58	(164.58)	(0.00)	3	3	152.00	(152.00)	164.58	(164.58)	(0.00)	0.00	0.00
25	70.50	0.19	199.43	(199.43)	174.41	(174.41)	(0.00)	3	3	162.00	(162.00)	174.41	(174.41)	(0.00)	0.00	0.00
26	70.00	0.00	209.02	(209.02)	184.37	(184.37)	(0.00)	3	3	172.00	(172.00)	184.37	(184.37)	(0.00)	0.00	0.00

Vt, Ve : vertical total and effective stress
Pt, Pe : horizontal total and effective stress

* Wall toe level: 73.00

Note: for undrained materials with user-defined pore pressures, the total stresses are correct, but the pore pressures are the manual values given by the user. For these cases, tabulated pore pressures and effective stresses are usually unrealistic, and are shown in brackets.

EXTREME values so far

Displacements [mm]	Max	Min	Moments [kNm/m]	Max	Min	Shears [kN/m]	Max	Min
0.00	1.73	-5.73	2.96	-3.60	6.47			

Surcharge 1 present in this stage
Surcharge 2 present in this stage

STRUT FORCES

No.	Node no.	Strut force	Horiz force	Moment	Max strut force
		[kN/m]	[kN/m]	[kNm/m]	[kN/m]
1	4	0.00	0.00	0.00	0.00

STAGE 4 : EXCAVATE TO FL AT +76

Geometry

Node Level	Soil	Boundary	EI below node
[m]	Left	Right	[kNm²/m]
1	79.80	1	0 10.00 10.00 93935.
2	79.50	1	0 10.00 10.00 93935.
3	79.20	1	0 10.00 10.00 93935.
4	78.80	2	0 10.00 10.00 93935.
5	78.40	2	0 10.00 10.00 93935.
6	78.10	2	0 10.00 10.00 93935.
7	77.80	2	0 10.00 10.00 93935.
8	77.50	2	0 10.00 10.00 93935.
9	77.20	2	0 10.00 10.00 93935.
10	76.80	2	0 10.00 10.00 93935.
11	76.50	2	0 10.00 10.00 93935.
12	76.25	2	0 10.00 10.00 93935.
13	75.75	2	2 10.00 10.00 93935.
14	75.50	2	2 10.00 10.00 93935.
15	75.20	2	2 10.00 10.00 93935.
16	74.80	2	2 10.00 10.00 93935.
17	74.50	2	2 10.00 10.00 93935.
18	74.00	2	2 10.00 10.00 93935.
19	73.50	3	3 10.00 10.00 93935.
* 20	73.00	3	3 10.00 10.00 0.0
21	72.50	3	3 10.00 10.00 0.0
22	72.00	3	3 10.00 10.00 0.0
23	71.50	3	3 10.00 10.00 0.0
24	71.00	3	3 10.00 10.00 0.0
25	70.50	3	3 10.00 10.00 0.0
26	70.00	3	3 10.00 10.00 0.0

* Wall toe level: 73.00

RESULTS FOR STAGE 4 : Excavate to FL at +76

Calculation details

E Profiles assumed for calculation (generated):

On the LEFT: E at ground level = 27698. E at bottom node = 81049. kN/m²

On the RIGHT: E at ground level = 38770. E at bottom node = 92476. kN/m²

Iter no.	Inc	Node no.	Disp error.	Press error no.
		[mm]	[kN/m²]	
1	0.0	1	2.4353	12
2	2.4	12	0.0083	1
3	2.4	12	0.0012	1
4	2.4	12	0.0010	1
5	2.4	12	0.0006	1

Ground level left = 79.80 Ground level right = 76.00

Node	Level [m]	Disp [mm]	Stress			Soil	Vt [kN/m²]	Stress			Pore Pressure [kN/m²]	BM [kNm/m]	SF [kN/m]			
			Ve [kN/m²]	Pt [kN/m²]	Pe Pressure [kN/m²]			Ve [kN/m²]	Pt [kN/m²]	Pe Pressure [kN/m²]						
1	79.80	2.33	1.43	(1.43)	4.84	(4.84)	0.00	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	0.00	0.00
2	79.50	2.47	8.80	(8.80)	12.30	(12.30)	0.00	1	0	0.00	(0.00)	0.00	(0.00)	(0.00)	-0.22	2.57
3	79.20	2.61	23.45	(23.45)	21.62	(21.62)	0.00	1	0	0.00	(0.00)	0.00	(0.00)	(0.00)	-1.54	2.20
4	78.80	2.80	39.75	(39.75)	-0.05	(-0.05)	(0.00)	a	2	0	0.00	(0.00)	0.00	(0.00)	-6.34	11.97
5	78.40	3.00	51.22	(51.22)	1.57	(1.57)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	-6.34	-26.58
6	78.10	3.14	57.96	(57.96)	6.38	(6.38)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	4.30	-26.31
7	77.80	3.28	63.92	(63.92)	10.37	(10.37)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	12.11	-25.08
8	77.50	3.39	69.50	(69.50)	13.73	(13.73)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	19.35	-22.57
9	77.20	3.48	74.91	(74.91)	18.57	(18.57)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	25.65	-18.95
10	76.80	3.56	82.04	(82.04)	21.42	(21.42)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	30.72	-13.64
11	76.50	3.57	87.38	(87.38)	27.95	(27.95)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	34.88	-6.65
12	76.25	3.56	91.86	(91.86)	33.66	(33.66)	(0.00)	2	0	0.00	(0.00)	0.00	(0.00)	(0.00)	35.75	0.95
13	75.75	3.47	100.87	(100.87)	39.77	(39.77)	(0.00)	2	2	5.00	(5.00)	54.46	(54.46)	(0.00)	25.84	14.66
14	75.50	3.40	105.41	(105.41)	51.25	(51.25)	(0.00)	2	2	10.00	(10.00)	56.54	(56.54)	(0.00)	22.87	11.17
15	75.20	3.30	110.89	(110.89)	55.02	(55.02)	(0.00)	2	2	16.00	(16.00)	60.34	(60.34)	(0.00)	19.74	9.15
16	74.80	3.13	118.25	(118.25)	64.28	(64.28)	(0.00)	2	2	24.00	(24.00)	66.23	(66.23)	(0.00)	16.30	8.24
17	74.50	2.98	123.80	(123.80)	74.48	(74.48)	(0.00)	2	2	30.00	(30.00)	67.72	(67.72)	(0.00)	13.93	8.25
18	74.00	2.71	133.11	(133.11)	82.49	(82.49)	(0.00)	2	2	40.00	(40.00)	78.71	(78.71)	(0.00)	8.63	11.55
19	73.50	2.42	142.47	(142.47)	83.30	(83.30)	(0.00)	3	3	50.00	(50.00)	98.76	(98.76)	(0.00)	2.38	8.63
*20	73.00	2.12	151.88	(151.88)	95.69	(95.69)	(0.00)	3	3	60.00	(60.00)	105.22	(105.22)	(0.00)	0.00	0.00
21	72.50	1.85	161.33	(161.33)	109.75	(109.75)	(0.00)	3	3	70.00	(70.00)	109.75	(109.75)	(0.00)	0.00	0.00
22	72.00	1.60	170.81	(170.81)	119.55	(119.55)	(0.00)	3	3	80.00	(80.00)	119.55	(119.55)	(0.00)	0.00	0.00
23	71.50	1.34	180.33	(180.33)	129.49	(129.49)	(0.00)	3	3	90.00	(90.00)	129.49	(129.49)	(0.00)	0.00	0.00
24	71.00	1.02	189.87	(189.87)	139.22	(139.22)	(0.00)	3	3	100.00	(100.00)	139.22	(139.22)	(0.00)	0.00	0.00
25	70.50	0.61	199.43	(199.43)	148.65	(148.65)	(0.00)	3	3	110.00	(110.00)	148.65	(148.65)	(0.00)	0.00	0.00
26	70.00	0.00	209.02	(209.02)	158.57	(158.57)	(0.00)	3	3	120.00	(120.00)	158.57	(158.57)	(0.00)	0.00	0.00

Vt, Ve : vertical total and effective stress
Pt, Pe : horizontal total and effective stress



Job No.	Sheet No.	Rev.
Drg. Ref.		
Made by ALP	Date	Checked

Node	Level [m]	Disp [mm]	Vt [kN/m ²]	Stress			Pore			Soil Left Right	Vt [kN/m ²]	Ve [kN/m ²]	Pt [kN/m ²]	Pore		BM [kNm/m]	SF [kN/m]
				Ve [kN/m ²]	Pt [kN/m ²]	Pe [kN/m ²]	Pressure [kN/m ²]										

* Wall toe level: 73.00

Note: for undrained materials with user-defined pore pressures, the total stresses are correct, but the pore pressures are the nominal values given by the user. For these cases, tabulated pore pressures and effective stresses are usually unrealistic, and are shown in brackets.

EXTREME values so far

Displacements [mm] Moments [kNm/m] Shears [kN/m]
 Min Max Min Max Min Max
 0.00 3.57 -6.34 35.75 -26.58 14.66
 Surcharge 1 present in this stage
 Surcharge 2 present in this stage

STRUT FORCES

No.	Node no.	Strut force [kN/m]	Horiz force [kN/m]	Moment [kNm/m]	Max strut force [kN/m]
1	4	38.55	38.55	0.00	38.55

Results Envelope

Node	Level [m]	Displacements [mm]		Moments [kNm/m]		Shears [kN/m]	
		Min	Max	Min	Max	Min	Max
1	79.80	0.00	0.00	2.33	0.00	0.00	0.00
2	79.50	0.00	0.00	2.47	-0.22	0.00	0.00
3	79.20	0.00	0.00	2.61	-1.54	0.00	0.00
4	78.80	0.00	0.00	2.80	-6.34	0.00	-26.58
5	78.40	0.00	0.00	3.00	-5.53	4.30	-26.31
6	78.10	0.00	0.00	3.14	-5.73	12.11	-25.08
7	77.80	0.00	0.00	3.28	-5.24	19.35	-22.57
8	77.50	0.00	0.00	3.39	-4.36	25.65	-18.95
9	77.20	0.00	0.00	3.48	-3.31	30.72	-13.64
10	76.80	0.00	0.00	3.56	-1.89	34.88	-6.65
11	76.50	0.00	0.00	3.57	-0.79	35.75	-3.52
12	76.25	0.00	0.00	3.56	0.00	34.55	-3.00
13	75.75	0.00	0.00	3.47	0.00	25.84	-2.59
14	75.50	0.00	0.00	3.40	0.00	22.87	-2.10
15	75.20	0.00	0.00	3.30	0.00	19.74	-1.32
16	74.80	0.00	0.00	3.13	0.00	16.30	-0.59
17	74.50	0.00	0.00	2.98	0.00	13.93	0.00
18	74.00	0.00	0.00	2.71	0.00	8.63	0.00
19	73.50	0.00	0.00	2.42	0.00	2.38	0.00
20	73.00	0.00	0.00	2.12	0.00	0.00	0.00
21	72.50	0.00	0.00	1.85	0.00	0.00	0.00
22	72.00	0.00	0.00	1.60	0.00	0.00	0.00
23	71.50	0.00	0.00	1.34	0.00	0.00	0.00
24	71.00	0.00	0.00	1.02	0.00	0.00	0.00
25	70.50	0.00	0.00	0.61	0.00	0.00	0.00
26	70.00	0.00	0.00	0.00	0.00	0.00	0.00