



8 Pilgrims Lane
Unloading Assessment
Short-Term

Job No.	Sheet No.	Rev.
Drg. Ref.		
Made by ALP	Date 17-May-2013	Checked

Analysis Options

Analysis: Mindlin - Horizontal displacements are calculated
Soil above horizontal load on horizontal plane dampens displacements below load : Yes
Soil above vertical load on horizontal plane dampens displacements below load : Yes
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: 0.0 [m OD]
Displacements at area centroids calculated.

Soil Profiles Soil Profile 1

Layer	Level at top	Number of intermediate displacement levels	Youngs Modulus	Poissons ratio	Non-linear curve
	[mOD]		Top [kN/m ²]	Btm [kN/m ²]	
1	82.000	6	40000	40000	0.20000 None
2	79.000	50	37500	67500	0.45500 None
3	74.000	64	75000	87000	0.45500 None

Soil Zones

zone	X coordinates min [m]	X coordinates max [m]	Y coordinates min [m]	Y coordinates max [m]	Profile
1	-10.000	15.000	-5.0000	23.000	Soil Profile 1

Load Data

Load ref.	Orientation	Centre of load (Global)		Loaded plane Z[level]	Angle of local x w.r.t. global X [Degrees]	Shape	Dimension		Loads		Number of rectangles
		X [m]	Y [m]				Width [m]	Depth [m]	Normal [kN/m ²]	Tangential [kN/m ²]	
1	Horizontal	4.6500	3.6500	78.900	0.0	Rectangular	9.3000	7.3000	-15.200	0.0	N/A
2	Horizontal	6.1000	8.7500	76.000	0.0	Rectangular	3.4000	2.9000	-77.900	0.0	N/A
3	Horizontal	2.2000	8.7500	78.900	0.0	Rectangular	4.4000	2.9000	-72.200	0.0	N/A
4	Horizontal	-1.2000	8.7500	76.000	0.0	Rectangular	2.4000	2.9000	-72.200	0.0	N/A
5	Horizontal	6.5000	14.000	76.000	0.0	Rectangular	5.6000	7.6000	-77.900	0.0	N/A
6	Horizontal	1.2000	14.000	76.000	0.0	Rectangular	5.0000	7.6000	-72.200	0.0	N/A
7	Horizontal	-1.8500	11.950	76.000	0.0	Rectangular	1.0000	3.5000	-49.400	0.0	N/A
8	Horizontal	-2.3000	15.100	76.000	0.0	Rectangular	2.0000	2.8000	-49.400	0.0	N/A

Displacement Data

Ref.	Type	Name	Direction of Extrusion	Line/Line for extrusion			No. of intrvl across extrusion/line	Extrusion Depth [m]	No. of intrvl along extrusion	Calculate	Show Detailed results			
				First point X [m]	Y [m]	Z[level]								
1	Line	6 PL - Front	N/A	9.3000	0.0	78.900	9.3000	7.3000	78.900	20	N/A	Yes	Yes	
2	Line	6 PL - Rear	N/A	9.3000	10.200	76.000	9.3000	17.800	76.000	20	N/A	Yes	Yes	
3	Line	DS - Rear	N/A	-1.3000	17.800	76.000	9.3000	17.800	76.000	30	N/A	Yes	Yes	
4	Grid	Overall	Global X	-5.0000	-5.0000	76.000	N/A	20.000	76.000	40	20.000	50	Yes	Yes

(ABOVE EXCAVATION)
MADE GROUND:-
+ B2 → +79 mD

RESULTS FOR GRIDS

Analysis: Mindlin
Maximum allowable ratio between values of E: 1.5
Displacements at area centroids calculated.

Type	Location			Displacement		
	X [m]	Y [m]	Z[level]	X [mm]	Y [mm]	Z [mm]
6 PL - Front	4.6500	3.6500	78.900	-0.0098633	-0.34019	-4.1333
	6.1000	8.7500	76.000	-0.47886	0.063518	-6.3489
	2.2000	8.7500	78.900	-0.10001	-0.62895	-7.6082
	-1.2000	8.7500	76.000	0.66366	0.11079	-5.5194
	6.5000	14.000	76.000	-0.33467	-0.32879	-6.7224
	1.2000	14.000	76.000	0.24719	-0.40356	-6.7572
	-1.8500	11.950	76.000	0.56649	-0.18331	-5.3309
	-2.3000	15.100	76.000	0.44077	-0.31376	-4.8074
	9.3000	0.0	78.900	0.063376	-0.24342	-2.0891
	9.3000	0.36500	78.900	0.062130	-0.24731	-2.2133
	9.3000	0.73000	78.900	0.061240	-0.25226	-2.3164
	9.3000	1.09500	78.900	0.060820	-0.25826	-2.4137
	9.3000	1.46000	78.900	0.061001	-0.26532	-2.5080
	9.3000	1.82500	78.900	0.061902	-0.27340	-2.6008
	9.3000	2.19000	78.900	0.062665	-0.28247	-2.6928
	9.3000	2.55500	78.900	0.066430	-0.29249	-2.7844
	9.3000	2.92000	78.900	0.070348	-0.30341	-2.8760
	9.3000	3.28500	78.900	0.075583	-0.31519	-2.9677
	9.3000	3.65000	78.900	0.082312	-0.32775	-3.0599
	9.3000	4.01500	78.900	0.090734	-0.34101	-3.1525
9.3000	4.38000	78.900	0.10102	-0.35483	-3.2456	
9.3000	4.74500	78.900	0.11339	-0.36902	-3.3393	
9.3000	5.11000	78.900	0.12803	-0.38329	-3.4333	
9.3000	5.47500	78.900	0.14506	-0.39729	-3.5272	
9.3000	5.84000	78.900	0.16458	-0.41055	-3.6206	
9.3000	6.20500	78.900	0.18655	-0.42253	-3.7125	
9.3000	6.57000	78.900	0.21082	-0.43268	-3.8010	
9.3000	6.93500	78.900	0.23712	-0.44047	-3.8826	
9.3000	7.30000	78.900	0.26505	-0.44548	-3.9412	
6 PL - Rear	9.3000	10.200	76.000	-0.56482	-0.017140	-4.5936
	9.3000	10.580	76.000	-0.55923	-0.038868	-4.7877
	9.3000	10.960	76.000	-0.55263	-0.060753	-4.8895
	9.3000	11.340	76.000	-0.54508	-0.082699	-4.9567
	9.3000	11.720	76.000	-0.53663	-0.10460	-5.0012
	9.3000	12.100	76.000	-0.52738	-0.12633	-5.0283
	9.3000	12.480	76.000	-0.51737	-0.14780	-5.0409
	9.3000	12.860	76.000	-0.50668	-0.16888	-5.0404
	9.3000	13.240	76.000	-0.49537	-0.18946	-5.0277
	9.3000	13.620	76.000	-0.48350	-0.20942	-5.0035
	9.3000	14.000	76.000	-0.47111	-0.22865	-4.9679
	9.3000	14.380	76.000	-0.45825	-0.24703	-4.9211
	9.3000	14.760	76.000	-0.44498	-0.26444	-4.8630
	9.3000	15.140	76.000	-0.43132	-0.28077	-4.7932
	9.3000	15.520	76.000	-0.41733	-0.29590	-4.7113
	9.3000	15.900	76.000	-0.40305	-0.30974	-4.6163
	9.3000	16.280	76.000	-0.38853	-0.32218	-4.5070
	9.3000	16.660	76.000	-0.37381	-0.33314	-4.3806
	9.3000	17.040	76.000	-0.35896	-0.34256	-4.2326
	9.3000	17.420	76.000	-0.34401	-0.35038	-4.0516
9.3000	17.800	76.000	-0.32903	-0.35658	-3.7814	
DS - Rear	-1.3000	17.800	76.000	0.22993	-0.41026	-3.9977
	-0.94667	17.800	76.000	0.28609	-0.42316	-4.2273
	-0.59333	17.800	76.000	0.27055	-0.43544	-4.3785
	-0.24000	17.800	76.000	0.25335	-0.44700	-4.5009
	0.11333	17.800	76.000	0.23457	-0.45774	-4.6048
	0.45667	17.800	76.000	0.21430	-0.46758	-4.6945
	0.82000	17.800	76.000	0.19267	-0.47643	-4.7726
	1.1733	17.800	76.000	0.16979	-0.48422	-4.8404
	1.5267	17.800	76.000	0.14580	-0.49088	-4.8988
	1.8800	17.800	76.000	0.12087	-0.49636	-4.9485
	2.2333	17.800	76.000	0.095152	-0.50061	-4.9897
	2.5867	17.800	76.000	0.068819	-0.50361	-5.0231
2.9400	17.800	76.000	0.042048	-0.50533	-5.0490	
3.2933	17.800	76.000	0.015020	-0.50576	-5.0682	
3.6467	17.800	76.000	-0.012084	-0.50492	-5.0833	

CLAY GATE :-

+79 → +74 mD

$C_u = 50 + 8z$ kN/m² (from Top)

$E_u/C_u = 750$. $\nu_u = 0.455$

LONDON CLAY :-

+74 → +66 mD

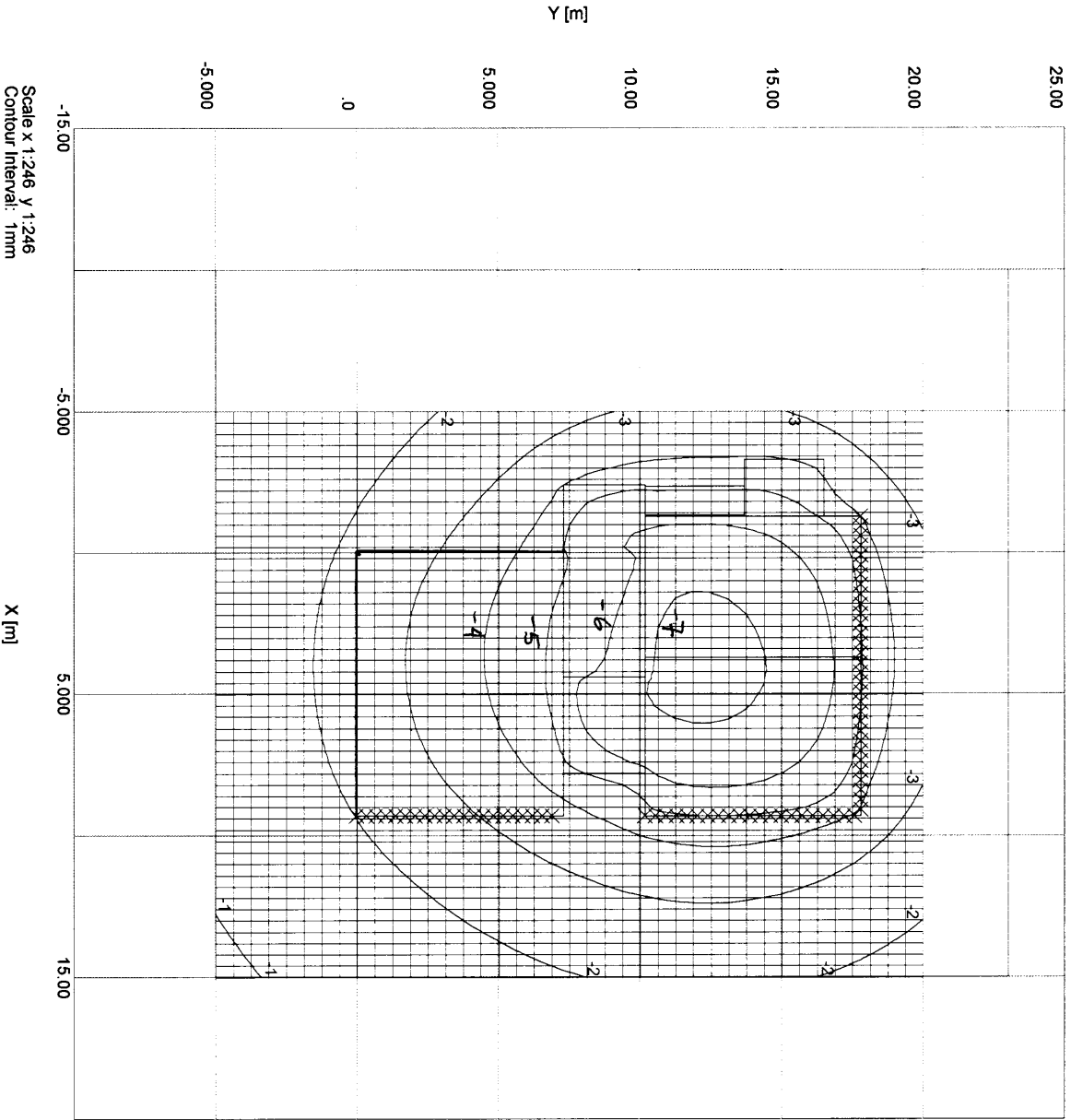
$C_u = 100 + 2z$ kN/m² (from Top)

$E_u/C_u = 750$. $\nu_u = 0.455$

Job No.	Sheet No.	Rev.
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Made by ALP	Date 17-May-2013	Checked

(vc = heave)

Settlement Contours : Grid 1 at 76.00m

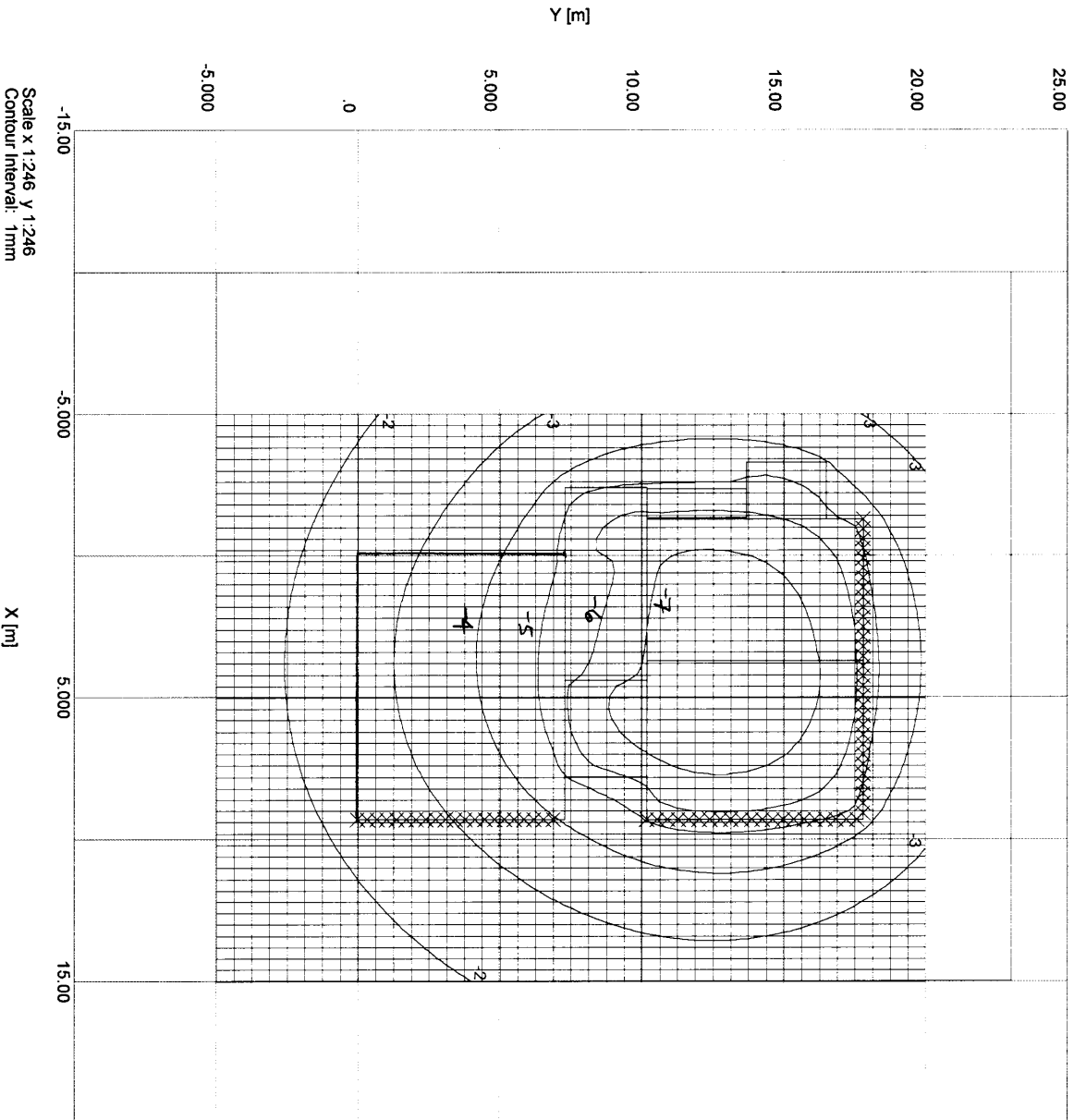


Scale x 1:246 Y 1:246
Contour Interval: 1mm

Job No.	Sheet No.	Rev.
Drq. Ref.		
Made by ALP	Date 17-May-2013	Checked

(-ve = Heave)

Settlement Contours : Grid 1 at 76.00m



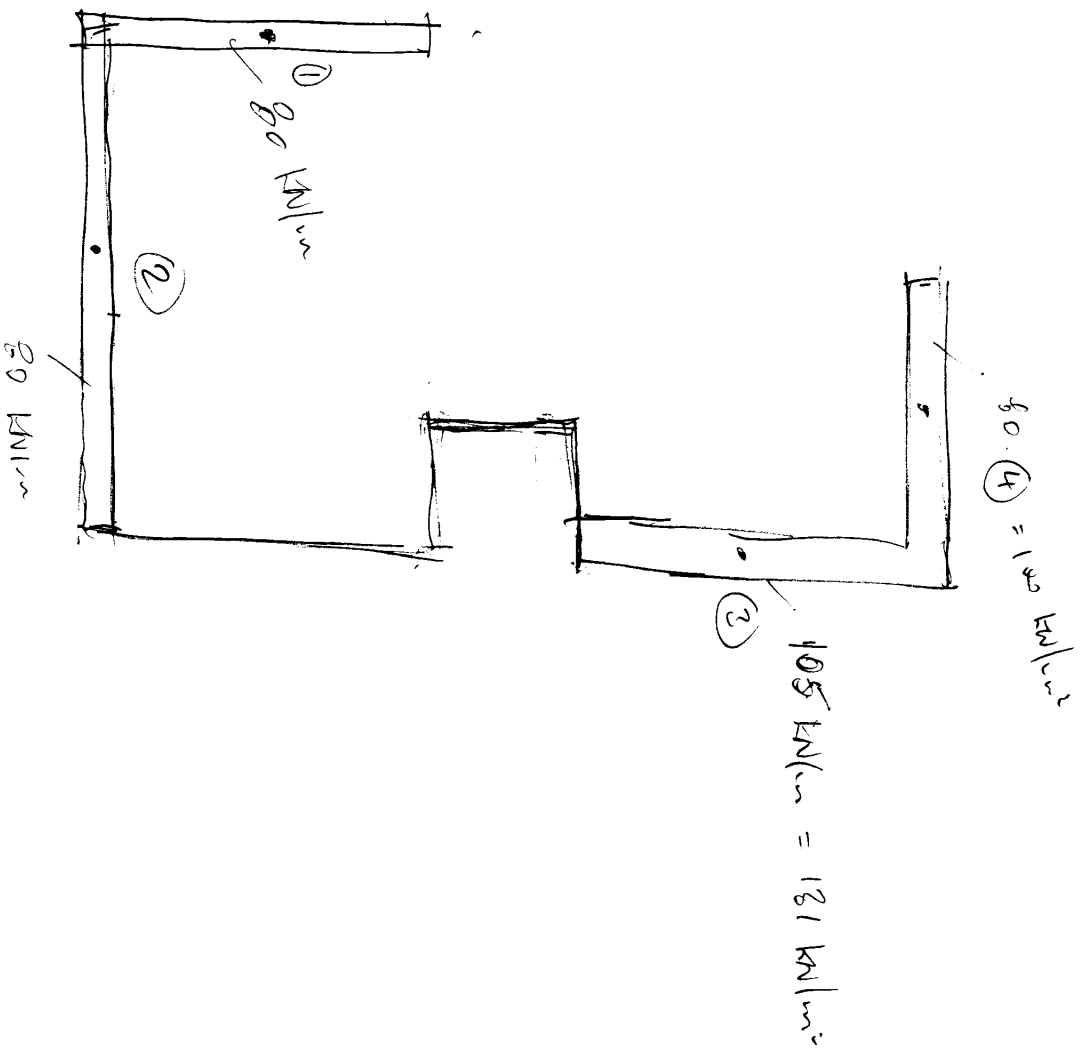
INCUBATORS FEEDING LITERS

LOAD

$$P_{IN} \text{ TL} = +75.7 \text{ m}^2 \text{ Deep. } 105 \text{ KN/m}$$

$$+78.6 \text{ Shallow}$$

Say 0.8m wide



$$\textcircled{1} \text{ Centre } x = 0.4 \text{ m, } y = 2.65 \text{ m. } w_x = 0.8 ; w_y = 7.3 \text{ } \tau$$

$$\textcircled{2} \quad x = 4.65 \text{ m ; } y = 0.4 \quad w_x = 9.3 ; w_y = 0.8$$

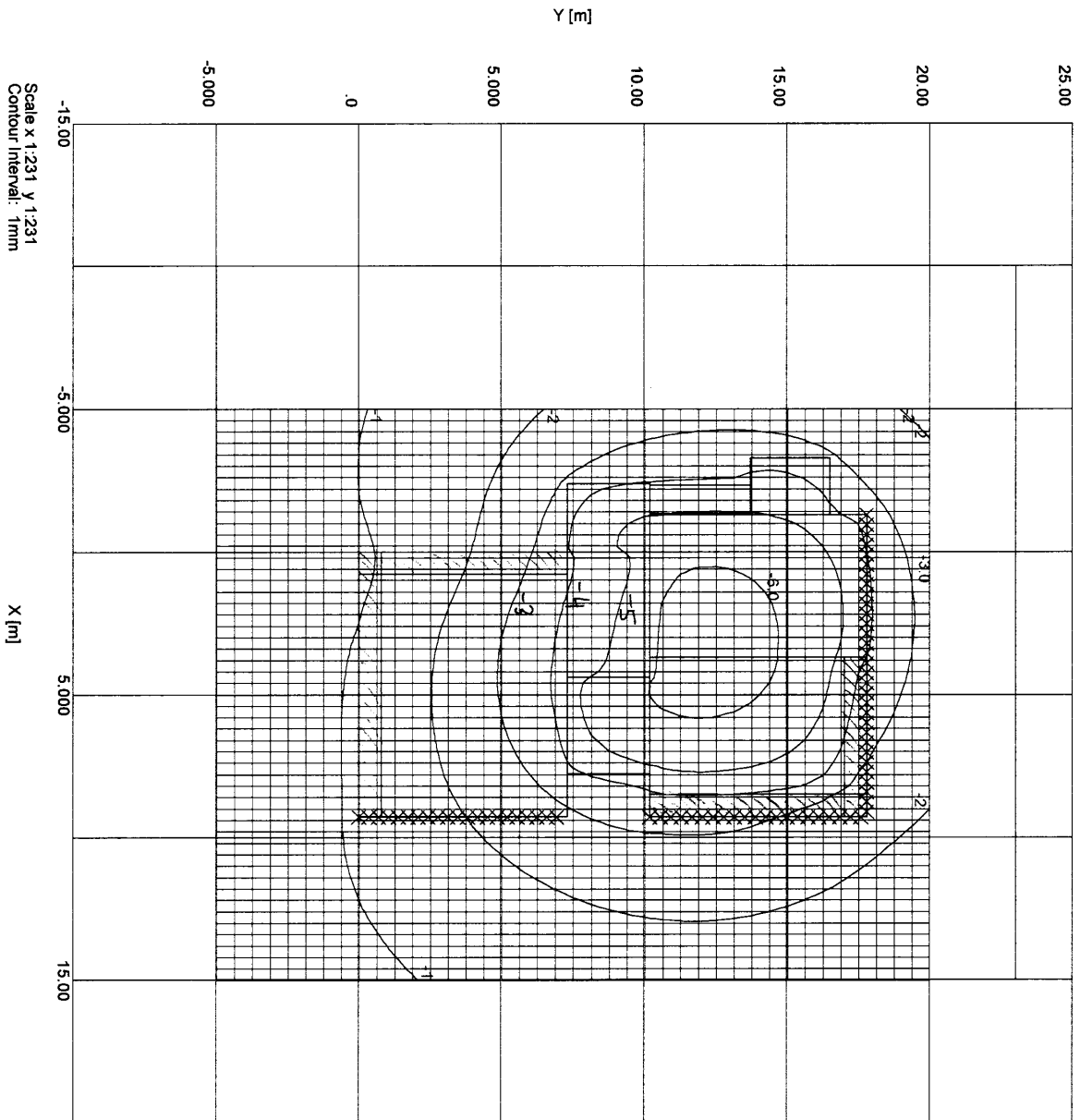
$$\textcircled{3} \quad x = 14.8 \text{ m}^{\text{H}}, \quad y = 2.7 \text{ m}^{\text{H}} \quad w_x = 0.8, \quad w_y = 7.6$$

121 KN/m²

$$\textcircled{4} \quad x = 6.5 \text{ m ; } y = 17.4 \quad w_x = 5.6 \quad w_y = 0.8$$

Job No.	Sheet No.	Rev.
Dwg. Ref.		
Made by	Date	Checked
ALP	10-Jul-2013	

Settlement Contours : Grid 1 at 76.00m



Scale x 1:231 Y 1:231
Contour Interval: 1mm

Job No.	Sheet No.	Rev.
Eng. Ref.		
Made by ALP	Date 10-Jul-2013	Checked

Analysis Options

Maximum horizontal and vertical displacements are calculated
Soil above horizontal load on horizontal plane dampens displacements below load : Yes
Soil above vertical load on horizontal plane dampens displacements below load : Yes
Maximum allowable ratio between values of E: 1.5
Maximum allowable ratio between values of E: 1.5
Displacements at free centroids calculated

Soil Profile/Soil Profile 1

Layer	Level at Top Levels	Number of Intervals	Young's Modulus kN/m ²	Poisson's ratio	Non-linear curve
1	6	6	0.20000 Norm		
2	79.000	50	32500. 67500. 0.45500 Norm		
3	74.000	64	75000. 87000. 0.45500 Norm		

Soil Zones

Zone	X coordinates min max	Y coordinates min max	Profile
1	-10.000	15.000	23.000 Soil Profile 1

Load Data

Load	Orientation	Centre of load (Global) Z [m]	Loaded plane Z [m]	Angle of local x w.r.t. global X [Degrees]	Shape	Width x Depth [m]	Dimension Normal x y [m]	Normal z x y [kN/m ²]	Load value x y z [kN/m ²]	Number of rectangles	Show Detailed results
1	Horizontal	4.6500	78.900	0.0	Rectangular	9.3000 7.3000	15.200	0.0	0.0	N/A	Yes
2	Horizontal	5.1000	8.7500	0.0	Rectangular	3.4000 2.9000	-17.200	0.0	0.0	N/A	Yes
3	Horizontal	5.1000	8.7500	0.0	Rectangular	3.4000 2.9000	-17.200	0.0	0.0	N/A	Yes
4	Horizontal	-1.2000	8.7500	0.0	Rectangular	2.4000 2.9000	-17.200	0.0	0.0	N/A	Yes
5	Horizontal	6.5000	14.000	0.0	Rectangular	5.6000 7.6000	-72.200	0.0	0.0	N/A	Yes
6	Horizontal	1.2000	14.000	0.0	Rectangular	5.0000 7.6000	-72.200	0.0	0.0	N/A	Yes
7	Horizontal	-1.2000	14.000	0.0	Rectangular	5.0000 7.6000	-72.200	0.0	0.0	N/A	Yes
8	Horizontal	-2.3000	15.100	0.0	Rectangular	2.0000 2.8000	-49.400	0.0	0.0	N/A	Yes
9	Horizontal	0.40000	3.6500	0.0	Rectangular	0.80000 7.3000	100.00	0.0	0.0	N/A	Yes
10	Horizontal	0.40000	3.6500	0.0	Rectangular	0.80000 7.3000	100.00	0.0	0.0	N/A	Yes
11	Horizontal	0.40000	3.6500	0.0	Rectangular	0.80000 7.3000	100.00	0.0	0.0	N/A	Yes
12	Horizontal	6.5000	17.400	0.0	Rectangular	5.6000 0.80000	100.00	0.0	0.0	N/A	Yes

Displacement Data

Ref.	Type	Name	Direction of Extension	First point X [m]	Line/line for extension Z [m]	Second point X [m]	No. of intervals across extension/line	Extrusion Depth [m]	Calculation along extension	Show Detailed results	
1	Line	6 PL - Front	N/A	9.3000	10.200	76.000	9.3000	17.800	20	N/A	Yes
2	Line	6 PL - Rear	N/A	-1.3000	17.800	76.000	9.3000	17.800	30	N/A	Yes
4	Grid	Overall	Global X	-5.0000	-5.0000	76.000	N/A	20.000	40	N/A	50 Yes

RESULTS FOR GRIDS

Analysis: Minimal
Maximum allowable ratio between values of E: 1.5
Displacements at area centroids calculated.

Type	X [m]	Y [m]	Z [m]	X [m]	Y [m]	Z [m]	X [m]	Y [m]	Z [m]	X [m]	Y [m]	Z [m]
6 PL - Front	9.3000	0.36500	78.900	0.0578887	-0.22809	-2.8680	0.0578887	-0.22809	-2.8680	0.0578887	-0.22809	-2.8680
	9.3000	0.36500	78.900	-0.39723	0.18975	-5.3651	-0.39723	0.18975	-5.3651	-0.39723	0.18975	-5.3651
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
	9.3000	0.36500	78.900	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6 PL - Rear	9.3000	10.200	10.200	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410
	9.3000	10.200	10.200	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423
	9.3000	10.200	10.200	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410
	9.3000	10.200	10.200	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423
	9.3000	10.200	10.200	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410
	9.3000	10.200	10.200	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423
	9.3000	10.200	10.200	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410
	9.3000	10.200	10.200	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423
	9.3000	10.200	10.200	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410
	9.3000	10.200	10.200	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423
	9.3000	10.200	10.200	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410	-0.60190	0.09120	-3.2410
	9.3000	10.200	10.200	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423	-0.55702	0.14821	-3.2423