



Short-term Heave

Job No.	Sheet No.	Rev.
J23122		
Drg. Ref.		
Made by MP	Date	Checked Date

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Job No.: J23122
Job Title: Wood Green Social Club
Sub-Title: GMA
Calculation Heading: Short-term Heave
Initials: MP
Checker:
Date Saved:
Date Checked:
Notes:
File Name: Short-term.pdd
File Path: G:\PROJECTS\2023\J23122 - Wood Green Social Club\GMA
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Date	Time	By	Notes
05-Jul-2023	14:00	Matthew Penfold	New
05-Jul-2023	14:50	Matthew Penfold	
06-Jul-2023	14:32	Matthew Penfold	Open

```
Global Poisson's ratio: 0.50
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: -11.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No
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Elastic : Yes

Consolidation : No

Layer ref.	Name	Level at top	Number of intermediate displacement levels	Youngs Modulus : Top	Youngs Modulus : Btm.	Poissons ratio	Non-linear curve
		[mOD]		[kN/m ²]	[kN/m ²]		
1	Made Ground	34.000	2	12000.	12000.	0.50000	None
2	Head Deposits	32.000	2	24000.	24000.	0.50000	None
3	London Clay	30.000	8	30000.	80000.	0.50000	None
4	London Clay	0.000	22	30000.	237000.	0.50000	None

Zone	Name	X min [m]	X max [m]	Y min [m]	Y max [m]	Profile
1	Soil Zone 1	-15.000	55.000	-15.000	30.000	Soil Profile 1

Load ref.	Name	Position : Level	Position : Polygon	Coords. : Polygon : Rect.	No. of Rectangles	Value : Normal (local z)
		[m]	[m]	[%]		[kN/m ²]
1	Basement	29.00000	(0,0) (12,0) (12,10) (0,10)	10.000	1	-60.000
2	Lower Ground Floor Extension	31.00000	(12,0) (30,0) (30,-2) (38,0) (37,8) (27,7) (26,5,10) (12,10)	10.000	9	-60.000

No.	Centre : x	Centre : y	Angle of local x from global X [Degrees]	Width x [m]	Depth y [m]
Load 1 : Basement (Edge 1 optimal)					
	6.000000	5.000000	0.0	12.000	10.000
Load 2 : Lower Ground Floor Extension (Edge 1 optimal)					
	1.19.250000	5.000000	0.0	14.500	10.000
	2.26.750000	4.250000	0.0	0.50000	8.50000
	3.28.500000	5.750000	0.0	3.0000	1.15000
	4.23.500000	3.262500	0.0	7.0000	8.77500



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Wood Green Social Club
GMA
Short-term Heave

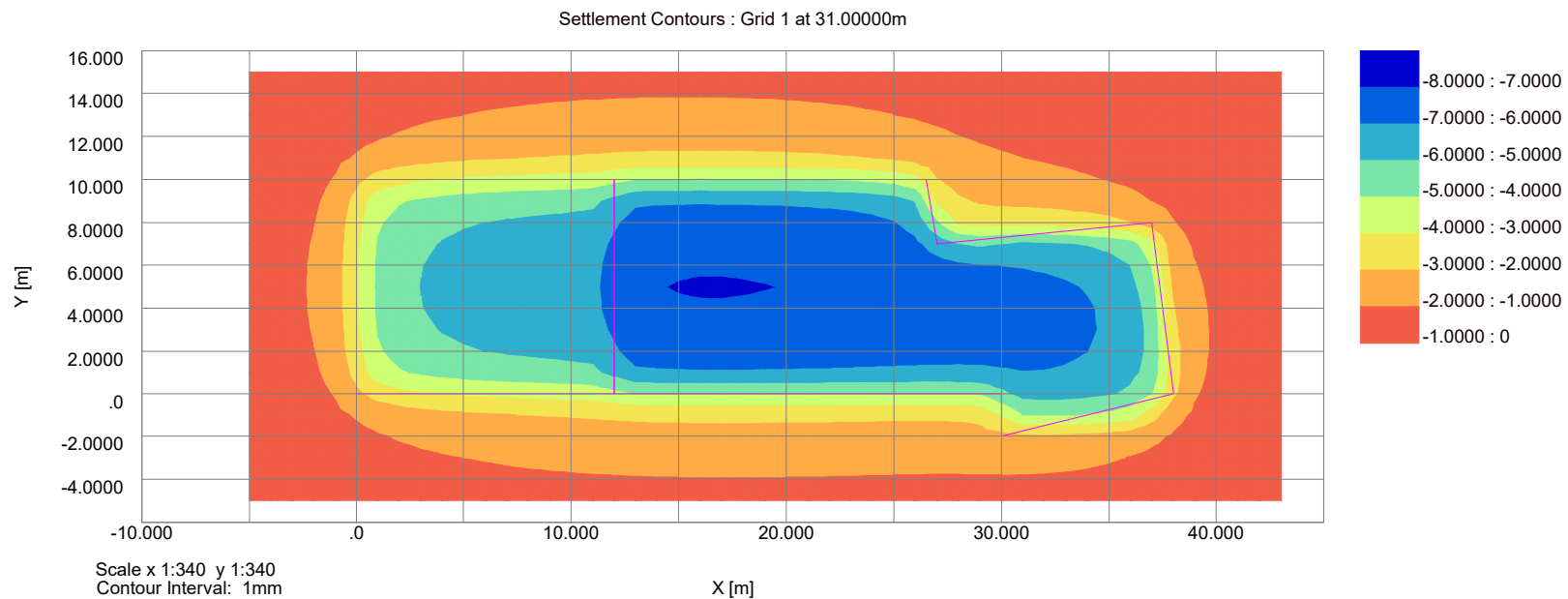
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No.	Centre x	Centre y	Angle of local x from global X	Width x	Depth y
5	37.10000	3.48750	0.0	0.20000	7.4250
6	37.30000	2.71250	0.0	0.20000	5.7750
7	37.50000	1.93750	0.0	0.20000	4.1250
8	37.70000	1.16250	0.0	0.20000	2.4750
9	37.90000	0.38750	0.0	0.20000	0.82500

Displacement Grids

Name	Extrusion: Direction	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals Along Line [No.]	Extrusion: Distance [m]	Extrusion: Intervals Along [No.]	Calculate	Detailed Results
Displacement Grid 1	Global X	-5.00000	-5.00000	31.00000	-	15.00000	31.00000	20	48.00000	48	Yes	No
Basement	Global X	0.00000	0.00000	29.00000	-	10.00000	29.00000	10	12.00000	12	Yes	No
Lower Ground Floor Extension	Global X	12.00000	-2.00000	31.00000	-	12.00000	29.00000	14	26.00000	26	Yes	No

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Wood Green Social Club

GMA

Total Heave

Job No.

Sheet No.

Rev.

J23122

Drg. Ref.

Made by

Date

Checked

Date

MP

Titles

Job No. : J23122

Job Title: Wood Green Social Club

Sub-title: GMA

Calculation Heading: Total Heave

Initials: MP

Checker:

Date Saved:

Date Checked:

Notes:

File Name: Total.pdd

File Path: G:\PROJECTS\2023\J23122 - Wood Green Social Club\GMA

History

Date	Time	By	Notes
05-Jul-2023	14:00	Matthew Penfold	New
05-Jul-2023	14:50	Matthew Penfold	
05-Jul-2023	15:20	Matthew Penfold	
06-Jul-2023	16:11	Matthew Penfold	Open

Analysis Options

General

Global Poisson's ratio: 0.20
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: -11.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No

Elastic

Elastic : Yes

Consolidation

Consolidation : No

Soil ProfilesSoil Profile 1

Layer ref.	Name	Level at top	Number of intermediate displacement levels	Youngs Modulus : Top	Youngs Modulus : Btm.	Poissons ratio	Non-linear curve
1	Made Ground	34.000	2	9000.0	9000.0	0.20000	None
2	Head Deposits	32.000	2	18000.	18000.	0.20000	None
3	London Clay	30.000	8	22500.	67500.	0.20000	None
4	London Clay	22.000	22	67500.	177750.	0.20000	None

Soil Zones

Zone	Name	X min	X max	Y min	Y max	Profile
1	Soil Zone 1	-15.000	55.000	-15.000	30.000	Soil Profile 1

Polygonal Load Data

Load ref.	Name	Position : Level	Position : Polygon	Coords. : Rect. tolerance	No. of Rectangles	Value : Normal (local z)
1	Basement	29.00000	(0,0) (12,0)	(12,10) (0,10)	10.000	1 -60.000
2	Lower Ground Floor Extension	31.00000	(12,0) (30,0) (30,-2) (38,0) (37,8) (27,7) (26.5,10) (12,10)		10.000	9 -60.000

Polygonal Loads' Rectangles

No.	Centre x	Centre y	Angle of local x from global X [Degrees]	Width [m]	Depth [m]
Load 1 : Basement (Edge 1 optimal)					
1	6.00000	5.00000	0.0	12.000	10.000
Load 2 : Lower Ground Floor Extension (Edge 1 optimal)					
1	19.25000	5.00000	0.0	14.500	10.000
2	26.75000	4.25000	0.0	0.50000	8.5000
3	28.50000	3.57500	0.0	3.0000	7.1500

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Time 16:12

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Wood Green Social Club
GMA
Total Heave

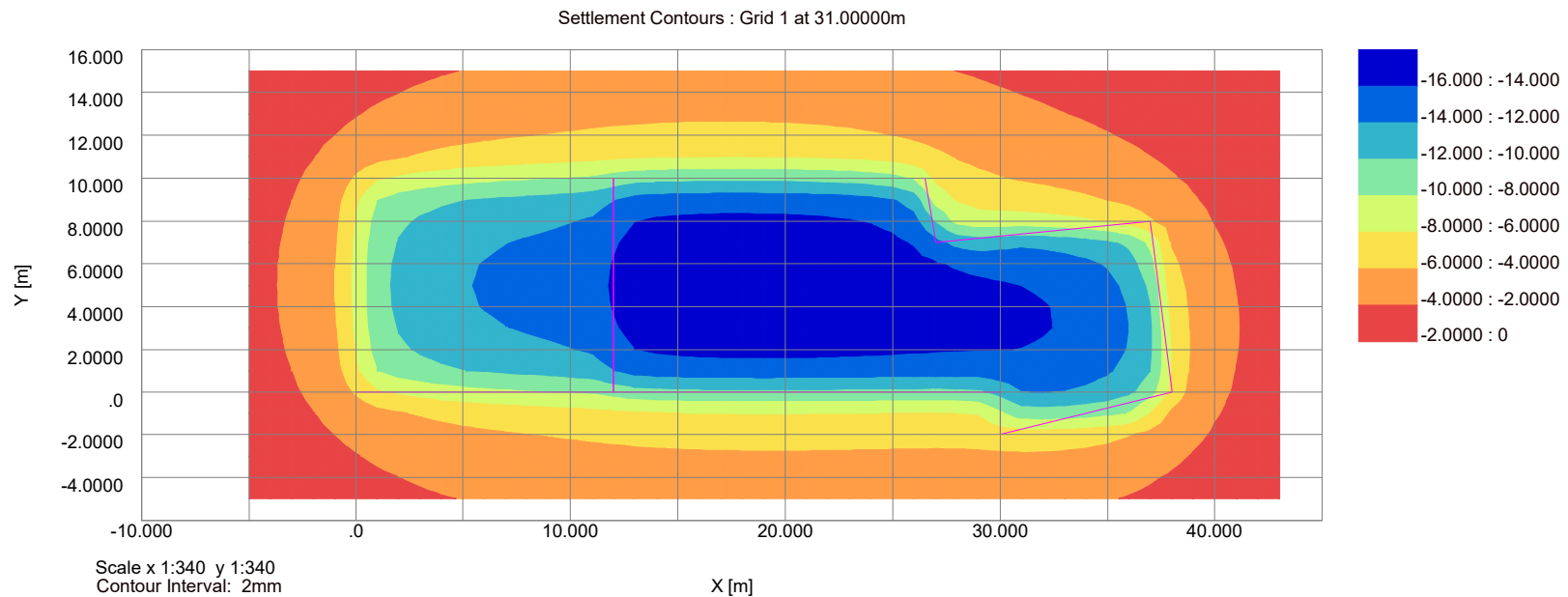
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No.	Centre x	Centre y	Angle of local x from global X	Width x	Depth y
4	33.50000	3.26250	0.0	7.0000	8.7750
5	37.10000	3.48750	0.0	0.20000	7.4250
6	37.30000	2.71250	0.0	0.20000	5.7750
7	37.50000	1.93750	0.0	0.20000	4.1250
8	37.70000	1.16250	0.0	0.20000	2.4750
9	37.90000	0.38750	0.0	0.20000	0.82500

Displacement Grids

Name	Extrusion: Direction	X1	Y1	Z1	X2	Y2	Z2	Intervals Along Line [No.]	Extrusion: Distance	Extrusion: Intervals Along [No.]	Calculate	Detailed Results
		[m]	[m]	[m]	[m]	[m]	[m]		[m]			
Displacement Grid 1	Global X	-5.00000	-5.00000	31.00000	-	15.00000	31.00000	20	48.00000	48	Yes	No
Basement	Global X	0.00000	0.00000	29.00000	-	10.00000	29.00000	10	12.00000	12	Yes	No
Lower Ground Floor Extension	Global X	12.00000	-2.00000	31.00000	-	12.00000	29.00000	14	26.00000	26	Yes	No

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Installation Phase

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Made by MP	Date 06-Jul-2023	Checked Date

Titles

Job No.: J23122
Job Title: Wood Lane Social Club
Sub-title: GMA
Calculation Heading: Installation Phase
Initials: MP
Checker:
Date Saved: 06-Jul-2023
Date Checked:
Notes:
File Name: XDispl.xdd
File Path: G:\PROJECTS\2023\J23122 - Wood Green Social Club\GMA

History

Date	Time	By	Notes
05-Jul-2023	15:07	Matthew Penfold	New
05-Jul-2023	15:33	Matthew Penfold	
06-Jul-2023	14:18	Matthew Penfold	
06-Jul-2023	14:20	Matthew Penfold	
06-Jul-2023	16:40	Matthew Penfold	Open

Displacement Lines

Ref.	Name	x1	y1	z1	x2	y2	z2	Intervals	Surface type for tunnels	Interpolate imported displacements	Calculate
		[m]	[m]	[m]	[m]	[m]	[m]	[No.]			
1	1&2SC - A	-10.00000	-10.00000	31.50000	-4.05000	-10.50000	31.50000	6	Surface	Yes	Yes
2	1&2SC - B	-4.00000	-10.50000	33.50000	-5.00000	-22.45000	33.50000	12	Surface	Yes	Yes
3	1&2SC - C	-5.00000	-22.50000	33.50000	-10.95000	-22.00000	33.50000	6	Surface	Yes	Yes
4	1&2SC - D	-10.00000	-10.05000	33.50000	-11.00000	-22.00000	33.50000	12	Surface	Yes	Yes
5	CC - A	-9.00000	-10.00000	31.50000	-8.25000	-1.50000	31.50000	8	Surface	Yes	Yes
6	CC - B	-8.30000	-1.50000	33.50000	-20.00000	-0.50000	33.50000	11	Surface	Yes	Yes
7	CC - C	-10.25000	-13.00000	33.50000	-20.00000	-12.25000	33.50000	10	Surface	Yes	Yes
8	5SC - A	31.00000	-25.45000	33.50000	29.50000	-10.00000	33.50000	15	Surface	Yes	Yes
9	5SC - B	29.55000	-10.00000	33.50000	34.00000	-9.50000	33.50000	4	Surface	Yes	Yes
10	5SC - C	34.00000	-9.45000	33.50000	33.90000	-7.50000	33.50000	2	Surface	Yes	Yes
11	5SC - D	33.95000	-7.50000	33.50000	38.00000	-7.00000	33.50000	4	Surface	Yes	Yes
12	5SC - E	38.00000	-7.05000	33.50000	38.35000	-11.25000	33.50000	4	Surface	Yes	Yes
13	5SC - F	38.40000	-11.25000	33.50000	40.50000	-11.05000	33.50000	2	Surface	Yes	Yes



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Ref.	Name	x1	y1	z1	x2	y2	z2	Intervals	Surface type for tunnels	Interpolate imported displacements	Calculate
14	5SC - G	40.50000	-11.10000	33.50000	42.00000	-24.50000	33.50000	13	Surface	Yes	Yes
15	5SC - H	41.95000	-24.50000	33.50000	31.00000	-25.50000	33.50000	10	Surface	Yes	Yes
16	6&7SC - A	45.00000	-26.00000	32.50000	43.00000	-12.05000	32.50000	14	Surface	Yes	Yes
17	6&7SC - B	45.05000	-26.00000	32.50000	57.00000	-24.50000	32.50000	12	Surface	Yes	Yes
18	6&7SC - C	57.00000	-24.45000	32.50000	55.00000	-10.50000	32.50000	14	Surface	Yes	Yes
19	6&7SC - D	54.95000	-10.50000	32.50000	43.00000	-12.00000	32.50000	12	Surface	Yes	Yes
20	6&7SC - E	51.00000	-25.25000	32.50000	49.00000	-11.25000	32.50000	14	Surface	Yes	Yes
21	6&7SC - F	43.00000	-11.95000	33.50000	42.50000	-8.00000	33.50000	4	Surface	Yes	Yes
22	6&7SC - G	42.55000	-8.00000	33.50000	48.50000	-7.20000	33.50000	6	Surface	Yes	Yes
23	6&7SC - H	49.00000	-11.20000	33.50000	48.50000	-7.25000	33.50000	4	Surface	Yes	Yes
24	11EG - A	42.00000	10.95000	33.50000	42.00000	8.00000	33.50000	3	Surface	Yes	Yes
25	11EG - B	42.05000	8.00000	33.50000	45.75000	8.25000	33.50000	3	Surface	Yes	Yes
26	11EG - C	45.75000	8.30000	33.50000	45.75000	11.25000	33.50000	3	Surface	Yes	Yes
27	11EG - D	45.70000	11.25000	33.50000	42.00000	11.00000	33.50000	3	Surface	Yes	Yes
28	17-21EG - A	0.00000	34.00000	33.50000	0.50000	26.00000	33.50000	8	Surface	Yes	Yes
29	17-21EG - B	0.05500	26.00000	33.50000	24.50000	27.00000	33.50000	24	Surface	Yes	Yes
30	17-21EG - C	24.50000	27.05000	33.50000	24.00000	35.00000	33.50000	8	Surface	Yes	Yes
31	17-21EG - D	9.00000	26.50000	33.50000	8.50000	34.50000	33.50000	8	Surface	Yes	Yes
32	17-21EG - E	16.00000	26.75000	33.50000	15.50000	34.75000	33.50000	8	Surface	Yes	Yes
33	9-15EG - A	25.50000	35.05000	33.50000	26.00000	27.05000	33.50000	8	Surface	Yes	Yes
34	9-15EG - B	26.05000	27.05000	33.50000	50.50000	28.00000	33.50000	24	Surface	Yes	Yes
35	9-15EG - C	32.50000	27.35000	33.50000	32.00000	35.35000	33.50000	8	Surface	Yes	Yes
36	9-15EG - D	38.50000	27.55000	33.50000	38.00000	35.55000	33.50000	8	Surface	Yes	Yes
37	9-15EG - E	44.50000	27.80000	33.50000	44.00000	35.80000	33.50000	8	Surface	Yes	Yes
38	9-15EG - F	26.75000	27.00000	33.50000	27.00000	24.00000	33.50000	3	Surface	Yes	Yes
39	9-15EG - G	27.05000	24.00000	33.50000	50.75000	25.00000	33.50000	23	Surface	Yes	Yes
40	9-15EG - H	32.50000	27.25000	33.50000	32.75000	24.25000	33.50000	3	Surface	Yes	Yes
41	9-15EG - I	38.50000	27.45000	33.50000	38.75000	24.45000	33.50000	3	Surface	Yes	Yes
42	9-15EG - J	44.50000	27.60000	33.50000	44.75000	24.60000	33.50000	3	Surface	Yes	Yes

Displacement Grids

Ref.	Name	Extrusion: Direction	Base line start: X	Base line start: Y	Base line start: Z (level) [m]	Base line end: X [m]	Base line end: Y [m]	Base line end: Z (level) [m]	Base line: Intervals [No.]	Extrusion: Distance [m]	Extrusion: Intervals [No.]	Surface type for tunnels	Calculate
1	Displacement Grid 1	Global X	-20.00000	-26.00000	34.00000	-	36.00000	34.00000	61	78.00000	78	Surface	Yes

Polygonal Excavations

Ref.	1
Excavation Name:	Installation
Surface level [m]:	34.000
Contribution:	Positive



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Installation Phase

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Ref.	Name	Extrusion: Direction	Base line start: X	Base line start: Y	Base line start: Z (level)	Base line end: X	Base line end: Y Z (level)	Base line end: Z (level)	Extrusion: Distance	Extrusion: Intervals	Surface type for tunnels	Calculate
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Surface movement curves which are selected are applied between surface and [m]:

Corner	x	y	Base Level	Arc Enabled	Stiffened	Linear Stiffening	Prev. Side: d	Prev. Side: p1	Prev. Side: p2*	Prev. Transition Zone Fraction	Side Next Side: d	Side Next Side: p1	Side Next Side: p2*	Side Next Transition Zone Fraction
	[m]	[m]	[m]				[m]	[%]	[%]		[m]	[%]	[%]	
1	0.0	0.0	26.000	Yes	No	-	-	-	-	-	-	-	-	-
2	12.000	0.0	26.000	Yes	No	-	-	-	-	-	-	-	-	-
3	12.000	0.0	28.000	Yes	No	-	-	-	-	-	-	-	-	-
4	30.000	0.0	28.000	Yes	No	-	-	-	-	-	-	-	-	-
5	30.000	-2.0000	28.000	Yes	No	-	-	-	-	-	-	-	-	-
6	38.000	0.0	28.000	Yes	No	-	-	-	-	-	-	-	-	-
7	37.000	8.0000	28.000	Yes	No	-	-	-	-	-	-	-	-	-
8	27.000	7.0000	28.000	Yes	No	-	-	-	-	-	-	-	-	-
9	26.500	10.000	28.000	Yes	No	-	-	-	-	-	-	-	-	-
10	12.000	10.000	28.000	Yes	No	-	-	-	-	-	-	-	-	-
11	12.000	10.000	26.000	Yes	No	-	-	-	-	-	-	-	-	-
12	0.0	10.000	26.000	Yes	No	-	-	-	-	-	-	-	-	-

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	0.0	0.0	12.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
2	12.000	0.0	12.000	0.0	No vertical ground movement	No horizontal ground movement
3	12.000	0.0	30.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
4	30.000	0.0	30.000	-2.0000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
5	30.000	-2.0000	38.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
6	38.000	0.0	37.000	8.0000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
7	37.000	8.0000	27.000	7.0000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
8	27.000	7.0000	26.500	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
9	26.500	10.000	12.000	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))



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Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
10	12.000	10.000	12.000	10.000	Fig. 6.8(b)) No vertical ground movement	Fig. 6.8(a)) No horizontal ground movement
11	12.000	10.000	0.0	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
12	0.0	10.000	0.0	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))

Ref. 2
Excavation Name: Existing LGF
Surface level [m]: 34.000
Contribution: Negative
Surface movement curves which are
selected are applied between
surface and [m]: 32.000

Corner	x	y	Base Level	Arc Enabled	Stiffened	Linear Stiffening	Prev. Side:	Prev. Side:	Prev. Side:	Prev. Side:	Side Transition Zone Fraction	Next Side:	Next Side:	Next Side:	Next Side: Transition Zone Fraction
	[m]	[m]	[m]				[m]	[%]	[%]			[m]	[%]	[%]	
1	0.0	0.0	32.000	Yes	No	-	-	-	-	-	-	-	-	-	-
2	12.000	0.0	32.000	Yes	No	-	-	-	-	-	-	-	-	-	-
3	12.000	10.000	32.000	Yes	No	-	-	-	-	-	-	-	-	-	-
4	0.0	10.000	32.000	Yes	No	-	-	-	-	-	-	-	-	-	-

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	0.0	0.0	12.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
2	12.000	0.0	12.000	10.000	No vertical ground movement	No horizontal ground movement
3	12.000	10.000	0.0	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
4	0.0	10.000	0.0	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))

Circular Excavations

Vertical Ground Movement Curves



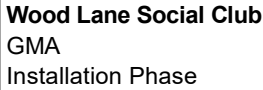
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Made by MP	Date 06-Jul-2023	Checked Date

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
Curve Name: No vertical ground movement						
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Settlement / wall depth or max. excavation depth (z) (%)]						
[0.000,0.000,0.000] [1.000,0.000,0.000] [0.000,1.000,0.000] [1.000,1.000,0.000]						
Curve Fitting Method: Polynomial						
x Order: 1						
y Order: 0						
Polynomial: z = 0.0x + 0.0						
Coeff. of Determination:						
Curve Name: Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))						
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Settlement / wall depth or max. excavation depth (z) (%)]						
[0.000,0.000,0.040] [2.000,0.000,0.000]						
Curve Fitting Method: Polynomial						
x Order: 1						
y Order: 0						
Polynomial: z = -2.0E-2x + 4.0E-2						
Coeff. of Determination: 1.0						

Horizontal Ground Movement Curves

Curve Name: No horizontal ground movement						
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Horizontal movement / wall depth or max. excavation depth (z) (%)]						
[0.000,0.000,0.000] [1.000,0.000,0.000] [0.000,1.000,0.000] [1.000,1.000,0.000]						
Curve Fitting Method: Polynomial						
x Order: 0						
y Order: 0						
Polynomial: z = 0.0						
Coeff. of Determination:						
Curve Name: Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))						
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Horizontal movement / wall depth or max. excavation depth (z) (%)]						
[0.000,0.000,0.041] [0.050,0.000,0.038] [0.100,0.000,0.036] [0.150,0.000,0.034]						
[0.200,0.000,0.032] [0.250,0.000,0.030] [0.300,0.000,0.029] [0.350,0.000,0.027]						
[0.400,0.000,0.025] [0.450,0.000,0.023] [0.500,0.000,0.022] [0.550,0.000,0.020]						
[0.600,0.000,0.019] [0.650,0.000,0.018] [0.700,0.000,0.016] [0.750,0.000,0.015]						
[0.800,0.000,0.014] [0.850,0.000,0.013] [0.900,0.000,0.011] [0.950,0.000,0.010]						
[1.000,0.000,0.009] [1.050,0.000,0.008] [1.100,0.000,0.007] [1.150,0.000,0.006]						



Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
					[1.200,0.000,0.005]	[1.250,0.000,0.004]
					[1.300,0.000,0.004]	[1.350,0.000,0.003]
					[1.400,0.000,0.002]	[1.450,0.000,0.001]
					[1.500,0.000,0.000]	
Curve Fitting Method:					Polynomial	
x Order:					3	
y Order:					0	
Polynomial: z =					-4.2486E-3x ³ + 1.9096E-2x ² - 4.6221E-2x + 4.0729E-2	
Coeff. of Determination:					1.0000	

Ref.	Name	0 (Negligible) to 1 (Very Slight)	1 (Very Slight) to 2 (Slight)	2 (Slight) to 3 (Moderate)	3 (Moderate) to 4 (Severe)
1	Burland Strain Limits	0.0	500.00E-6	750.00E-6	0.0015000

Ref. Poisson's Ratio	Building Name E/G	Sub-Building Name	Displacement	Distance	Distance	Vertical	Vertical	Damage	Category
			Line	Along	Along	Offsets from	Displacement		Strains
				Line: Start	Line: End	Line for Vertical Movement Calculations	Limit Sensitivity		
				[m]	[m]	[m]	[mm]		
0.20000	1 No 1 & 2 Stewart Crescent 2.6000	Retained Elevation	1&2SC - A	0.00000	5.97000	0.0	0.10000	Burland	Strain Limits
0.20000	2 No 1 & 2 Stewart Crescent 2.6000	South Eleavation	1&2SC - B	0.00000	11.99100	0.0	0.10000	Burland	Strain Limits
0.20000	3 No 1 & 2 Stewart Crescent 2.6000	Frontage	1&2SC - C	0.00000	5.97000	0.0	0.10000	Burland	Strain Limits
0.20000	4 No 1 & 2 Stewart Crescent 2.6000	North Eleavation	1&2SC - D	0.00000	11.99100	0.0	0.10000	Burland	Strain Limits
0.20000	5 Colab Court 2.6000	Retained Elevation	CC - A	0.00000	8.53300	0.0	0.10000	Burland	Strain Limits
0.20000	6 Colab Court 2.6000	Rear Elevation	CC - B	0.00000	11.74200	0.0	0.10000	Burland	Strain Limits
0.20000	7 Colab Court 2.6000	Frontage	CC - C	0.00000	9.77800	0.0	0.10000	Burland	Strain Limits
0.20000	8 No 5 Stewart Crescent 2.6000	North Elevation	5SC - A	0.00000	15.52200	0.0	0.10000	Burland	Strain Limits
0.20000	9 No 5 Stewart Crescent 2.6000	Rear Elevation	5SC - B	0.00000	4.47800	0.0	0.10000	Burland	Strain Limits
	10 No 5 Stewart Crescent	Rear Elevation	5SC - C	0.00000	1.95200	0.0	0.10000	Burland	Strain Limits



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J23122		
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Ref.	Building Name	Sub-Building Name	Displacement	Distance	Distance	Vertical	Vertical	Damage	Category
Poisson's Ratio	E/G		Line	Along	Along	Offsets from	Displacement	Strains	
0.20000	2.6000								
11 No 5	Stewart Crescent	Rear Elevation	5SC - D	0.00000	4.08000	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
12 No 5	Stewart Crescent	South Elevation	5SC - E	0.00000	4.21400	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
13 No 5	Stewart Crescent	South Elevation	5SC - F	0.00000	2.10900	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
14 No 5	Stewart Crescent	South Elevation	5SC - G	0.00000	13.48300	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
15 No 5	Stewart Crescent	Frontage	5SC - H	0.00000	10.99500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
16 No 6 & 7	Stewart Crescent	North Elevation	6&7SC - A	0.00000	14.09200	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
17 No 6 & 7	Stewart Crescent	Frontage	6&7SC - B	0.00000	12.04300	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
18 No 6 & 7	Stewart Crescent	South Elevation	6&7SC - C	0.00000	14.09200	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
19 No 6 & 7	Stewart Crescent	Rear Elevation	6&7SC - D	0.00000	12.04300	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
20 No 6 & 7	Stewart Crescent	Party Wall	6&7SC - E	0.00000	14.14200	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
21 No 6 & 7	Stewart Crescent	Extension - North Elevation	6&7SC - F	0.00000	3.98100	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
22 No 6 & 7	Stewart Crescent	Extension - Rear Elevation	6&7SC - G	0.00000	6.00300	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
23 No 6 & 7	Stewart Crescent	Extension - South Elevation	6&7SC - H	0.00000	3.98100	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
24 No 11	Ewart Grove	Garden Building - North Elevation	11EG - A	0.00000	2.94900	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
25 No 11	Ewart Grove	Garden Building - West Elevation	11EG - B	0.00000	3.70800	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
26 No 11	Ewart Grove	Garden Building - South Elevation	11EG - C	0.00000	2.94900	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
27 No 11	Ewart Grove	Garden Building - East Elevation	11EG - D	0.00000	3.70800	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
28 No 17 to 21	Ewart Grove	North Elevation	17-21EG - A	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
29 No 17 to 21	Ewart Grove	Near Elevation	17-21EG - B	0.00000	24.46500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
30 No 17 to 21	Ewart Grove	South Elevation	17-21EG - C	0.00000	7.96500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
31 No 17 to 21	Ewart Grove	No 19 / 21 Party Wall	17-21EG - D	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
32 No 17 to 21	Ewart Grove	No 17 / 19 Party wall	17-21EG - E	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
33 No 9 to 15	Ewart Grove	North Elevation	9-15EG - A	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
34 No 9 to 15	Ewart Grove	Near Elevation	9-15EG - B	0.00000	24.46800	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
35 No 9 to 15	Ewart Grove	No 13 / 15 Party Wall	9-15EG - C	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								



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Installation Phase

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Ref.	Building Name	Sub-Building Name	Displacement	Distance	Distance	Vertical	Vertical	Damage	Category
Poisson's	E/G		Line	Along	Along	Offsets from	Displacement	Strains	
Ratio									
36 No 9 to 15 Ewart Grove	No 11 / 15 Party Wall	9-15EG - D	0.00000	8.01500	0.0	0.10000	Burland Strain Limits		
0.20000 2.6000									
37 No 9 to 15 Ewart Grove	No 9 / 11 Party wall	9-15EG - E	0.00000	8.01500	0.0	0.10000	Burland Strain Limits		
0.20000 2.6000									
38 No 9 to 15 Ewart Grove	Extension - North Elevation	9-15EG - F	0.00000	3.01000	0.0	0.10000	Burland Strain Limits		
0.20000 2.6000									
39 No 9 to 15 Ewart Grove	Extension - Near Elevations	9-15EG - G	0.00000	23.72100	0.0	0.10000	Burland Strain Limits		
0.20000 2.6000									
40 No 9 to 15 Ewart Grove	Extension - No 13 / 15 Party Wall	9-15EG - H	0.00000	3.01000	0.0	0.10000	Burland Strain Limits		
0.20000 2.6000									
41 No 9 to 15 Ewart Grove	Extension - No 11 / 13 Party Wall	9-15EG - I	0.00000	3.01000	0.0	0.10000	Burland Strain Limits		
0.20000 2.6000									
42 No 9 to 15 Ewart Grove	Extension - No 9 / 11 Party Wall	9-15EG - J	0.00000	3.01000	0.0	0.10000	Burland Strain Limits		
0.20000 2.6000									

Specific Buildings - Bending Parameters

Ref.	Building Name	Sub-Building Name	Height	Default	Hogging: 2nd Mom. of Area (per unit width)	Hogging: Dist. of Bending Strain from N.A.	Hogging: Dist. of N.A. from Edge of Beam in Tension	Sagging: 2nd Mom. of Area (per unit width)	Sagging: Dist. of Bending Strain from N.A.	Sagging: Dist. of N.A. from Edge of Beam in Tension
			[m]		[m³]	[m]	[m]	[m³]	[m]	[m]
1 No 1 & 2 Stewart Crescent	Retained Elevation	9.0000	Yes	243.00	9.0000	9.0000	60.750	4.5000	4.5000	
2 No 1 & 2 Stewart Crescent	South Eleavation	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000	
3 No 1 & 2 Stewart Crescent	Frontage	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000	
4 No 1 & 2 Stewart Crescent	North Eleavation	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000	
5 Colab Court	Retained Elevation	9.0000	Yes	243.00	9.0000	9.0000	60.750	4.5000	4.5000	
6 Colab Court	Rear Elevation	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000	
7 Colab Court	Frontage	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000	
8 No 5 Stewart Crescent	North Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
9 No 5 Stewart Crescent	Rear Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
10 No 5 Stewart Crescent	Rear Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
11 No 5 Stewart Crescent	Rear Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
12 No 5 Stewart Crescent	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
13 No 5 Stewart Crescent	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
14 No 5 Stewart Crescent	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
15 No 5 Stewart Crescent	Frontage	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000	
16 No 6 & 7 Stewart Crescent	North Elevation	10.000	Yes	333.33	10.000	10.000	83.333	5.0000	5.0000	
17 No 6 & 7 Stewart Crescent	Frontage	10.000	Yes	333.33	10.000	10.000	83.333	5.0000	5.0000	
18 No 6 & 7 Stewart Crescent	South Elevation	10.000	Yes	333.33	10.000	10.000	83.333	5.0000	5.0000	
19 No 6 & 7 Stewart Crescent	Rear Elevation	10.000	Yes	333.33	10.000	10.000	83.333	5.0000	5.0000	
20 No 6 & 7 Stewart Crescent	Party Wall	10.000	Yes	333.33	10.000	10.000	83.333	5.0000	5.0000	
21 No 6 & 7 Stewart Crescent	Extension - North Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000	
22 No 6 & 7 Stewart Crescent	Extension - Rear Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000	
23 No 6 & 7 Stewart Crescent	Extension - South Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000	
24 No 11 Ewart Grove	Garden Building - North Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000	1.5000	



Wood Lane Social Club

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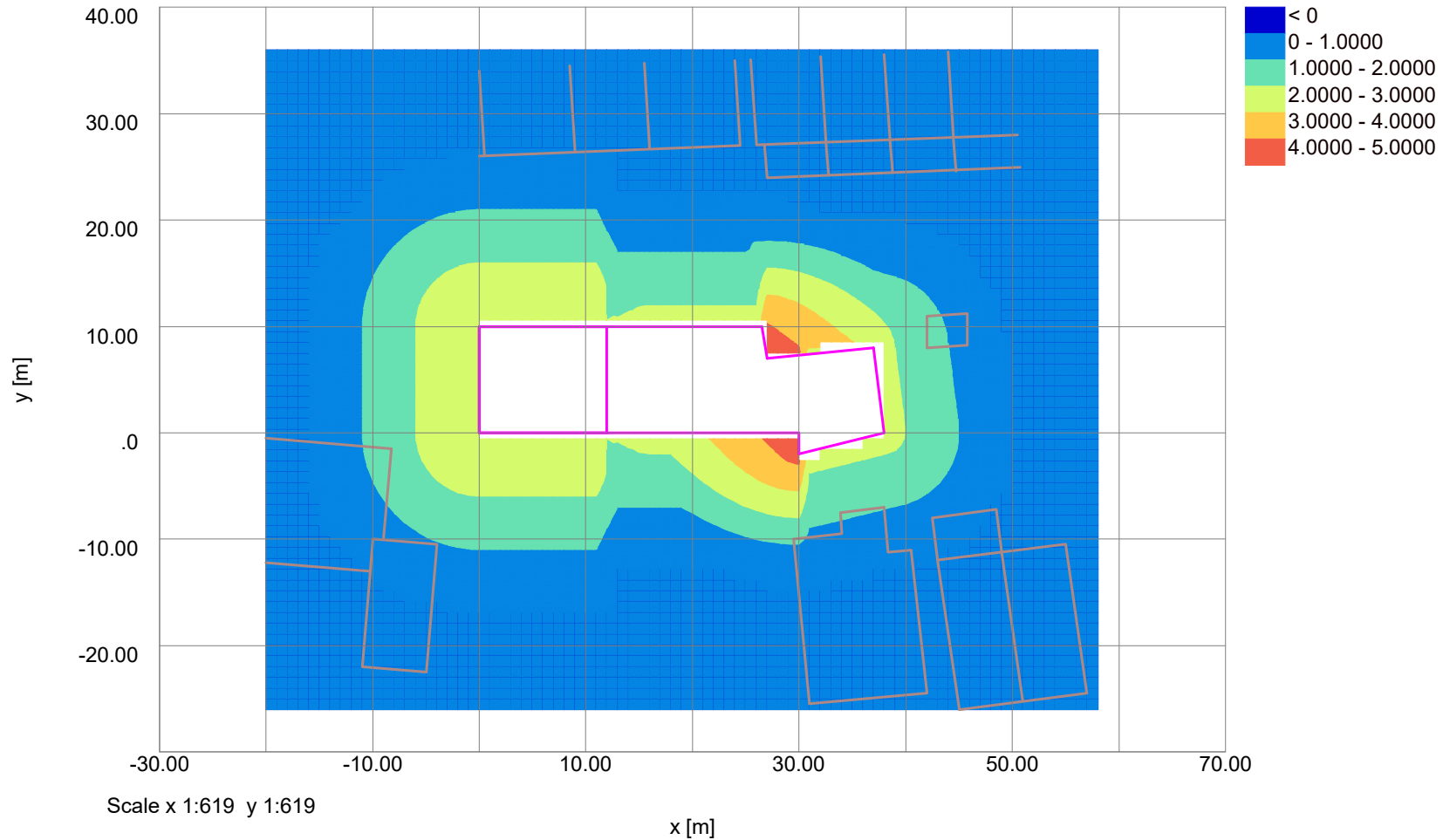
Installation Phase

Job No.	Sheet No.	Rev.
J23122		
Drg. Ref.		
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Ref.	Building Name	Sub-Building Name	Height	Default	Hogging: 2nd Mom. of Area (per unit	Hogging: Dist. of Bending Strain	Hogging: Dist. of N.A. from Edge of	Sagging: 2nd Mom. of Area (per unit	Sagging: Dist. of Bending Strain	Sagging: Dist. of N.A. from Edge of
25	No 11 Ewart Grove	Garden Building - West Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000	1.5000
26	No 11 Ewart Grove	Garden Building - South Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000	1.5000
27	No 11 Ewart Grove	Garden Building - East Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000	1.5000
28	No 17 to 21 Ewart Grove	North Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
29	No 17 to 21 Ewart Grove	Near Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
30	No 17 to 21 Ewart Grove	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
31	No 17 to 21 Ewart Grove	No 19 / 21 Party Wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
32	No 17 to 21 Ewart Grove	No 17 / 19 Party wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
33	No 9 to 15 Ewart Grove	North Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
34	No 9 to 15 Ewart Grove	Near Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
35	No 9 to 15 Ewart Grove	No 13 / 15 Party Wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
36	No 9 to 15 Ewart Grove	No 11 / 15 Party Wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
37	No 9 to 15 Ewart Grove	No 9 / 11 Party wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000	4.0000
38	No 9 to 15 Ewart Grove	Extension - North Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000
39	No 9 to 15 Ewart Grove	Extension - Near Elevations	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000
40	No 9 to 15 Ewart Grove	Extension - No 13 / 15 Party Wall	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000
41	No 9 to 15 Ewart Grove	Extension - No 11 / 13 Party Wall	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000
42	No 9 to 15 Ewart Grove	Extension - No 9 / 11 Party Wall	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000	2.0000

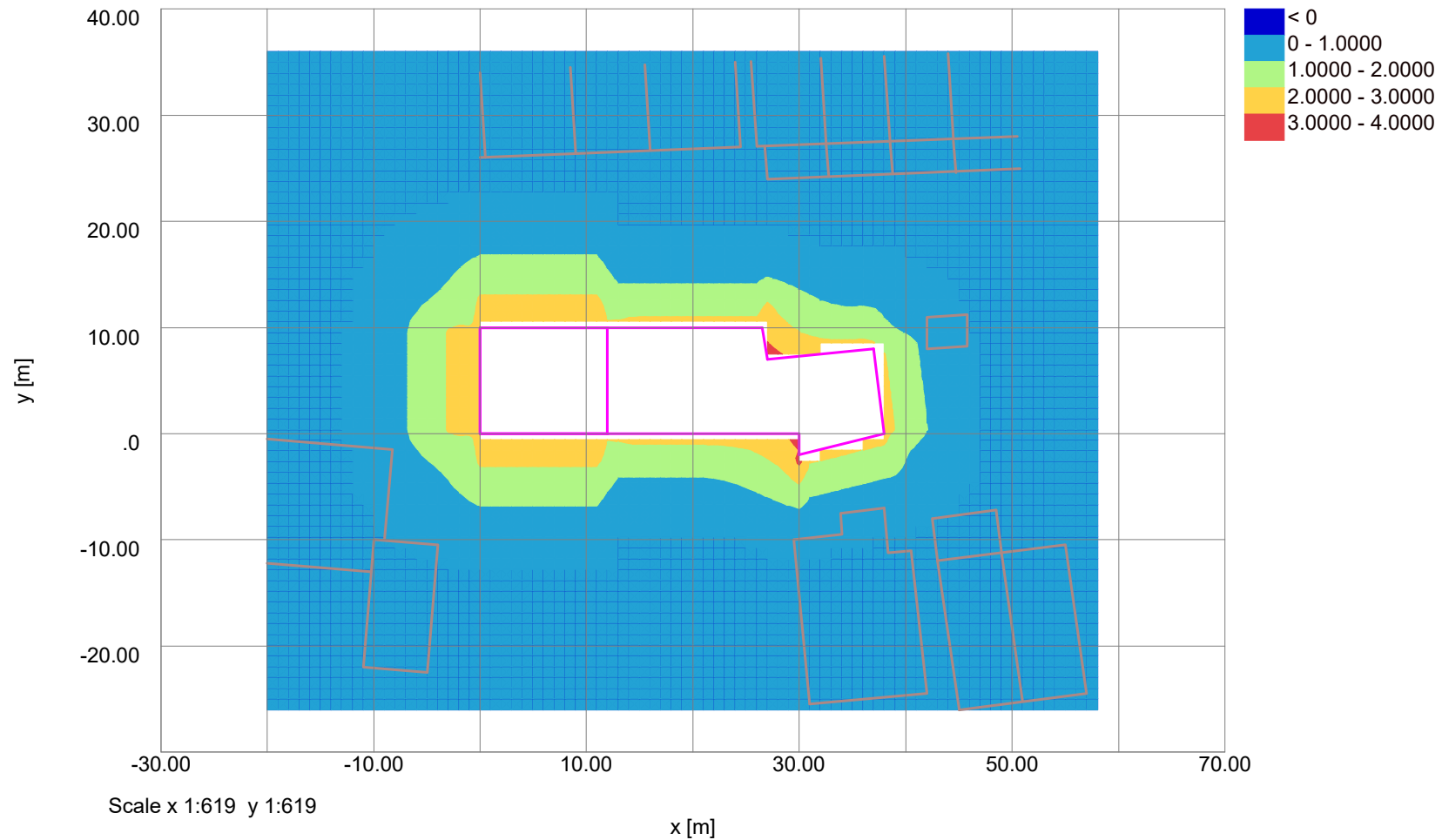
Job No.	Sheet No.	Rev.
J23122		
Drg. Ref.		
Made by MP	Date 06-Jul-2023	Checked Date

Vertical Settlement Contours: Grid 1 (level 34.000m) (Interval 1mm)



Job No.	Sheet No.	Rev.
J23122		
Drg. Ref.		
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Horizontal Displacement Contours: Grid 1 (level 34.000m) Interval 1mm





GEOTECHNICAL AND ENVIRONMENTAL ASSOCIATES LTD

Wood Lane Social Club
GMA
Combined Movements

Job No.	Sheet No.	Rev.
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Titles

Job No.: J23122
Job Title: Wood Lane Social Club
Sub-title: GMA
Calculation Heading: Combined Movements
Initials: MP
Checker:
Date Saved: 06-Jul-2023
Date Checked:
Notes:
File Name: XDisp2.xdd
File Path: G:\PROJECTS\2023\J23122 - Wood Green Social Club\GMA

History

Date	Time	By	Notes
05-Jul-2023	15:07	Matthew Penfold	New
05-Jul-2023	15:33	Matthew Penfold	
05-Jul-2023	15:43	Matthew Penfold	
06-Jul-2023	16:13	Matthew Penfold	

Displacement Lines

Ref.	Name	x1	y1	z1	x2	y2	z2	Intervals	Surface type for tunnels	Interpolate imported for displacements	Calculate
		[m]	[m]	[m]	[m]	[m]	[m]	[No.]			
1	1&2SC - A	-10.00000	-10.00000	31.50000	-4.05000	-10.50000	31.50000	6	Surface	Yes	Yes
2	1&2SC - B	-4.00000	-10.50000	33.50000	-5.00000	-22.45000	33.50000	12	Surface	Yes	Yes
3	1&2SC - C	-5.00000	-22.50000	33.50000	-10.95000	-22.00000	33.50000	6	Surface	Yes	Yes
4	1&2SC - D	-10.00000	-10.05000	33.50000	-11.00000	-22.00000	33.50000	12	Surface	Yes	Yes
5	CC - A	-9.00000	-10.00000	31.50000	-8.25000	-1.50000	31.50000	8	Surface	Yes	Yes
6	CC - B	-8.30000	-1.50000	33.50000	-20.00000	-0.50000	33.50000	11	Surface	Yes	Yes
7	CC - C	-10.25000	-13.00000	33.50000	-20.00000	-12.25000	33.50000	10	Surface	Yes	Yes
8	5SC - A	31.00000	-25.45000	33.50000	29.50000	-10.00000	33.50000	15	Surface	Yes	Yes
9	5SC - B	29.55000	-10.00000	33.50000	34.00000	-9.50000	33.50000	4	Surface	Yes	Yes
10	5SC - C	34.00000	-9.45000	33.50000	33.90000	-7.50000	33.50000	2	Surface	Yes	Yes
11	5SC - D	33.95000	-7.50000	33.50000	38.00000	-7.00000	33.50000	4	Surface	Yes	Yes
12	5SC - E	38.00000	-7.05000	33.50000	38.35000	-11.25000	33.50000	4	Surface	Yes	Yes
13	5SC - F	38.40000	-11.25000	33.50000	40.50000	-11.05000	33.50000	2	Surface	Yes	Yes
14	5SC - G	40.50000	-11.10000	33.50000	42.00000	-24.50000	33.50000	13	Surface	Yes	Yes



GEOTECHNICAL AND ENVIRONMENTAL ASSOCIATES LTD

Wood Lane Social Club
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Combined Movements

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J23122		
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Ref.	Name	x1	y1	z1	x2	y2	z2	Intervals	Surface type for tunnels	Interpolate imported displacements	Calculate
15	5SC - H	41.95000	-24.50000	33.50000	31.00000	-25.50000	33.50000	10	Surface	Yes	Yes
16	6&7SC - A	45.00000	-26.00000	32.50000	43.00000	-12.05000	32.50000	14	Surface	Yes	Yes
17	6&7SC - B	45.05000	-26.00000	32.50000	57.00000	-24.50000	32.50000	12	Surface	Yes	Yes
18	6&7SC - C	57.00000	-24.45000	32.50000	55.00000	-10.50000	32.50000	14	Surface	Yes	Yes
19	6&7SC - D	54.95000	-10.50000	32.50000	43.00000	-12.00000	32.50000	12	Surface	Yes	Yes
20	6&7SC - E	51.00000	-25.25000	32.50000	49.00000	-11.25000	32.50000	14	Surface	Yes	Yes
21	6&7SC - F	43.00000	-11.95000	33.50000	42.50000	-8.00000	33.50000	4	Surface	Yes	Yes
22	6&7SC - G	42.55000	-8.00000	33.50000	48.50000	-7.20000	33.50000	6	Surface	Yes	Yes
23	6&7SC - H	49.00000	-11.20000	33.50000	48.50000	-7.25000	33.50000	4	Surface	Yes	Yes
24	11EG - A	42.00000	10.95000	33.50000	42.00000	8.00000	33.50000	3	Surface	Yes	Yes
25	11EG - B	42.05000	8.00000	33.50000	45.75000	8.25000	33.50000	3	Surface	Yes	Yes
26	11EG - C	45.75000	8.30000	33.50000	45.75000	11.25000	33.50000	3	Surface	Yes	Yes
27	11EG - D	45.70000	11.25000	33.50000	42.00000	11.00000	33.50000	3	Surface	Yes	Yes
28	17-21EG - A	0.00000	34.00000	33.50000	0.50000	26.00000	33.50000	8	Surface	Yes	Yes
29	17-21EG - B	0.05500	26.00000	33.50000	24.50000	27.00000	33.50000	24	Surface	Yes	Yes
30	17-21EG - C	24.50000	27.05000	33.50000	24.00000	35.00000	33.50000	8	Surface	Yes	Yes
31	17-21EG - D	9.00000	26.50000	33.50000	8.50000	34.50000	33.50000	8	Surface	Yes	Yes
32	17-21EG - E	16.00000	26.75000	33.50000	15.50000	34.75000	33.50000	8	Surface	Yes	Yes
33	9-15EG - A	25.50000	35.05000	33.50000	26.00000	27.05000	33.50000	8	Surface	Yes	Yes
34	9-15EG - B	26.05000	27.05000	33.50000	50.50000	28.00000	33.50000	24	Surface	Yes	Yes
35	9-15EG - C	32.50000	27.35000	33.50000	32.00000	35.35000	33.50000	8	Surface	Yes	Yes
36	9-15EG - D	38.50000	27.55000	33.50000	38.00000	35.55000	33.50000	8	Surface	Yes	Yes
37	9-15EG - E	44.50000	27.80000	33.50000	44.00000	35.80000	33.50000	8	Surface	Yes	Yes
38	9-15EG - F	26.75000	27.00000	33.50000	27.00000	24.00000	33.50000	3	Surface	Yes	Yes
39	9-15EG - G	27.05000	24.00000	33.50000	50.75000	25.00000	33.50000	23	Surface	Yes	Yes
40	9-15EG - H	32.50000	27.25000	33.50000	32.75000	24.25000	33.50000	3	Surface	Yes	Yes
41	9-15EG - I	38.50000	27.45000	33.50000	38.75000	24.45000	33.50000	3	Surface	Yes	Yes
42	9-15EG - J	44.50000	27.60000	33.50000	44.75000	24.60000	33.50000	3	Surface	Yes	Yes

Displacement Grids

Ref.	Name	Extrusion: Direction	Base line start: X	Base line start: Y	Base line start: Z (level) [m]	Base line end: X [m]	Base line end: Y [m]	Base line end: Z (level) [m]	Base line: Intervals [No.]	Extrusion: Distance [m]	Extrusion: Intervals [No.]	Surface type for tunnels	Calculate
1	Displacement Grid 1	Global X	-20.00000	-26.00000	34.00000	-	36.00000	34.00000	62	78.00000	78	Surface	Yes

Polygonal Excavations

Ref.	1
Excavation Name:	Installation
Surface level [m]:	34.000
Contribution:	Positive
Surface movement curves which are	29.000



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Ref.	Name	Extrusion: Direction	Base line start: X	Base line start: Y	Base line start: Z (level)	Base line end: X	Base line end: Y	Base line end: Z (level)	Base line: Intervals	Extrusion: Distance	Extrusion: Intervals	Surface type for tunnels	Calculate	
selected are applied between surface and [m]:														
Corner	x	y	Base Level	Arc Enabled	Stiffened	Linear Stiffening	Prev. Side: d	Prev. Side: p1	Prev. Side: p2*	Prev. Side Transition Zone Fraction	Next Side: d	Next Side: p1	Next Side: p2*	Next Side Transition Zone Fraction
	[m]	[m]	[m]				[m]	[%]	[%]		[m]	[%]	[%]	
1	0.0	0.0	26.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
2	12.000	0.0	26.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
3	12.000	0.0	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
4	30.000	0.0	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
5	30.000	-2.0000	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
6	38.000	0.0	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
7	37.000	8.0000	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
8	27.000	7.0000	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
9	26.500	10.000	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
10	12.000	10.000	28.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
11	12.000	10.000	26.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
12	0.0	10.000	26.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical		G.M. Curve: Horizontal	
1	0.0	0.0	12.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		
2	12.000	0.0	12.000	0.0	No vertical ground movement	No horizontal ground movement		
3	12.000	0.0	30.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		
4	30.000	0.0	30.000	-2.0000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		
5	30.000	-2.0000	38.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		
6	38.000	0.0	37.000	8.0000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		
7	37.000	8.0000	27.000	7.0000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		
8	27.000	7.0000	26.500	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		
9	26.500	10.000	12.000	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))		



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Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
10	12.000	10.000	12.000	10.000	No vertical ground movement	No horizontal ground movement
11	12.000	10.000	0.0	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
12	0.0	10.000	0.0	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))

Ref. 2
Excavation Name: Existing LGF - Installation
Surface level [m]: 34.000
Contribution: Negative
Surface movement curves which are selected are applied between surface and [m]: 32.000

Corner	x	y	Base Level	Arc Enabled	Stiffened	Linear Stiffening	Prev. Side:	Prev. Side:	Prev. Side:	Prev. Side:	Side Transition Zone	Next Side:	Next Side:	Next Side:	Next Side:
	[m]	[m]	[m]				d	p1	p2*		Fraction	d	p1	p2*	Fraction
	[m]	[m]	[m]				[m]	[%]	[%]			[m]	[%]	[%]	
1	0.0	0.0	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0	0.0
2	12.000	0.0	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0	0.0
3	12.000	10.000	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0	0.0
4	0.0	10.000	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0	0.0

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	0.0	0.0	12.000	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
2	12.000	0.0	12.000	10.000	No vertical ground movement	No horizontal ground movement
3	12.000	10.000	0.0	10.000	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
4	0.0	10.000	0.0	0.0	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))

Ref. 3
Excavation Name: Excavation
Surface level [m]: 34.000
Contribution: Positive
Surface movement curves which are selected are applied between surface and [m]: 29.000



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Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical				G.M. Curve: Horizontal					
Corner	x	y	Base Level	Arc Enabled	Stiffened	Linear Stiffening	Prev. Side: d	Prev. Side: p1	Prev. Side: p2*	Prev. Transition Zone Fraction	Side d	Next Side: p1	Next Side: p2*	Next Side Transition Zone Fraction
	[m]	[m]	[m]				[m]	[%]	[%]		[m]	[%]	[%]	
1	0.0	0.0	29.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
2	12.000	0.0	29.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
3	12.000	0.0	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
4	30.000	0.0	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
5	30.000	-2.0000	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
6	38.000	0.0	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
7	37.000	8.0000	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
8	27.000	7.0000	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
9	26.500	10.000	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
10	12.000	10.000	31.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
11	12.000	10.000	29.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
12	0.0	10.000	29.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical				G.M. Curve: Horizontal					
1	0.0	0.0	12.000	0.0	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
2	12.000	0.0	12.000	0.0	No vertical ground movement				No horizontal ground movement					
3	12.000	0.0	30.000	0.0	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
4	30.000	0.0	30.000	-2.0000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
5	30.000	-2.0000	38.000	0.0	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
6	38.000	0.0	37.000	8.0000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
7	37.000	8.0000	27.000	7.0000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
8	27.000	7.0000	26.500	10.000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
9	26.500	10.000	12.000	10.000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))				Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))					
10	12.000	10.000	12.000	10.000	No vertical ground movement				No horizontal ground movement					
11	12.000	10.000	0.0	10.000	Exc. in front of high				Exc. in front of high					



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Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
12	0.0	10.000	0.0	0.0	stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b)) Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a)) Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))

Ref. 4
Excavation Name: Existing LGF - Excavation
Surface level [m]: 34.000
Contribution: Negative
Surface movement curves which are
selected are applied between
surface and [m]: 32.000

Corner	x	y	Base Level	Arc Enabled	Stiffened	Linear	Prev. Side:	Prev. Side:	Prev. Side:	Prev. Side	Next	Next	Next	Next Side
	[m]	[m]	[m]			Stiffening	d	p1	p2*	Transition Zone Fraction	d	p1	p2*	Transition Zone Fraction
	[m]	[m]	[m]				[m]	[%]	[%]		[m]	[%]	[%]	
1	0.0	0.0	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
2	12.000	0.0	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
3	12.000	10.000	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0
4	0.0	10.000	32.000	Yes	Yes	Yes	0.0	67.000	25.000	0.0	0.0	67.000	25.000	0.0

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	0.0	0.0	12.000	0.0	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))
2	12.000	0.0	12.000	10.000	No vertical ground movement	No horizontal ground movement
3	12.000	10.000	0.0	10.000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))
4	0.0	10.000	0.0	0.0	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))

Circular Excavations

Vertical Ground Movement Curves

Curve Name: No vertical ground movement
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall
depth or max. excavation depth (y), Settlement / wall depth or max. excavation



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Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
					depth (z) (%)]	
					[0.000,0.000,0.000] [1.000,0.000,0.000] [0.000,1.000,0.000] [1.000,1.000,0.000]	
Curve Fitting Method:					Polynomial	
x Order:					1	
y Order:					0	
Polynomial: z =					0.0x + 0.0	
Coeff. of Determination:						
Curve Name:					Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	
Coordinates:					[Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Settlement / wall depth or max. excavation depth (z) (%)]	
					[0.000,0.000,0.040] [2.000,0.000,0.000]	
Curve Fitting Method:					Polynomial	
x Order:					1	
y Order:					0	
Polynomial: z =					-2.0E-2x + 4.0E-2	
Coeff. of Determination:					1.0	
Curve Name:					Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	
Coordinates:					[Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Settlement / wall depth or max. excavation depth (z) (%)]	
					[0.000,0.000,0.039] [0.100,0.000,0.049] [0.200,0.000,0.056] [0.300,0.000,0.062]	
					[0.400,0.000,0.067] [0.500,0.000,0.070] [0.600,0.000,0.072] [0.700,0.000,0.073]	
					[0.800,0.000,0.073] [0.900,0.000,0.072] [1.000,0.000,0.070] [1.100,0.000,0.068]	
					[1.200,0.000,0.065] [1.300,0.000,0.061] [1.400,0.000,0.058] [1.500,0.000,0.054]	
					[1.600,0.000,0.050] [1.700,0.000,0.046] [1.800,0.000,0.042] [1.900,0.000,0.038]	
					[2.000,0.000,0.034] [2.100,0.000,0.030] [2.200,0.000,0.027] [2.300,0.000,0.023]	
					[2.400,0.000,0.020] [2.500,0.000,0.017] [2.600,0.000,0.014] [2.700,0.000,0.012]	
					[2.800,0.000,0.010] [2.900,0.000,0.008] [3.000,0.000,0.007] [3.100,0.000,0.005]	
					[3.200,0.000,0.004] [3.300,0.000,0.004] [3.400,0.000,0.003] [3.500,0.000,0.002]	
					[3.600,0.000,0.002] [3.700,0.000,0.002] [3.800,0.000,0.001] [3.900,0.000,0.001]	
					[4.000,0.000,0.000]	
Curve Fitting Method:					Polynomial	
x Order:					4	
y Order:					0	
Polynomial: z =					-2.6455E-3x ⁴ + 2.8495E-2x ³ - 1.0051E-1x ² + 1.0569E-1x + 3.8990E-2	
Coeff. of Determination:					9.9991E-1	

Horizontal Ground Movement Curves

Curve Name: No horizontal ground movement



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Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Horizontal movement / wall depth or max. excavation depth (z) (%)]						
[0.000,0.000,0.000] [1.000,0.000,0.000] [0.000,1.000,0.000] [1.000,1.000,0.000]						
Curve Fitting Method: Polynomial						
x Order: 0						
y Order: 0						
Polynomial: z = 0.0						
Coeff. of Determination:						
Curve Name: Inst. of contiguous bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))						
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Horizontal movement / wall depth or max. excavation depth (z) (%)]						
[0.000,0.000,0.041] [0.050,0.000,0.038] [0.100,0.000,0.036] [0.150,0.000,0.034]						
[0.200,0.000,0.032] [0.250,0.000,0.030] [0.300,0.000,0.029] [0.350,0.000,0.027]						
[0.400,0.000,0.025] [0.450,0.000,0.023] [0.500,0.000,0.022] [0.550,0.000,0.020]						
[0.600,0.000,0.019] [0.650,0.000,0.018] [0.700,0.000,0.016] [0.750,0.000,0.015]						
[0.800,0.000,0.014] [0.850,0.000,0.013] [0.900,0.000,0.011] [0.950,0.000,0.010]						
[1.000,0.000,0.009] [1.050,0.000,0.008] [1.100,0.000,0.007] [1.150,0.000,0.006]						
[1.200,0.000,0.005] [1.250,0.000,0.004] [1.300,0.000,0.004] [1.350,0.000,0.003]						
[1.400,0.000,0.002] [1.450,0.000,0.001] [1.500,0.000,0.000]						
Curve Fitting Method: Polynomial						
x Order: 3						
y Order: 0						
Polynomial: z = -4.2486E-3x ³ + 1.9096E-2x ² - 4.6221E-2x + 4.0729E-2						
Coeff. of Determination: 1.0000						
Curve Name: Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))						
Coordinates: [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Horizontal movement / wall depth or max. excavation depth (z) (%)]						
[0.000,0.000,0.150] [4.000,0.000,0.000]						
Curve Fitting Method: Polynomial						
x Order: 1						
y Order: 0						
Polynomial: z = -3.75E-2x + 1.50E-1						
Coeff. of Determination: 1.00						

Damage Category Strains

Ref.	Name	0 (Negligible)	1 (Very Slight)	2 (Slight)	3 (Moderate)
		to 1 (Very Slight)	to 2 (Slight)	to 3 (Moderate)	to 4 (Severe)
1	Burland Strain Limits	0.0	500.00E-6	750.00E-6	0.0015000

Specific Buildings - Geometry



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Ref.	Name	0 (Negligible) to 1 (Very Slight)	1 (Very Slight) to 2 (Slight)	2 (Slight) to 3 (Moderate)	3 (Moderate) to 4 (Severe)				
Ref.	Building Name	Sub-Building Name		Displacement	Distance	Distance	Vertical	Vertical	Damage Category
Poisson's Ratio	E/G			Line	Along	Along	Offsets from	Displacement	Strains
					Line: Start	Line: End	Line for Vertical Movement Calculations	Limit Sensitivity	
					[m]	[m]	[m]	[mm]	
1 No 1 & 2 Stewart Crescent	Retained Elevation			1&2SC - A	0.00000	5.97000	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
2 No 1 & 2 Stewart Crescent	South Eleavation			1&2SC - B	0.00000	11.99100	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
3 No 1 & 2 Stewart Crescent	Frontage			1&2SC - C	0.00000	5.97000	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
4 No 1 & 2 Stewart Crescent	North Eleavation			1&2SC - D	0.00000	11.99100	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
5 Colab Court	Retained Elevation			CC - A	0.00000	8.53300	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
6 Colab Court	Rear Elevation			CC - B	0.00000	11.74200	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
7 Colab Court	Frontage			CC - C	0.00000	9.77800	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
8 No 5 Stewart Crescent	North Elevation			5SC - A	0.00000	15.52200	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
9 No 5 Stewart Crescent	Rear Elevation			5SC - B	0.00000	4.47800	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
10 No 5 Stewart Crescent	Rear Elevation			5SC - C	0.00000	1.95200	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
11 No 5 Stewart Crescent	Rear Elevation			5SC - D	0.00000	4.08000	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
12 No 5 Stewart Crescent	South Elevation			5SC - E	0.00000	4.21400	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
13 No 5 Stewart Crescent	South Elevation			5SC - F	0.00000	2.10900	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
14 No 5 Stewart Crescent	South Elevation			5SC - G	0.00000	13.48300	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
15 No 5 Stewart Crescent	Frontage			5SC - H	0.00000	10.99500	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
16 No 6 & 7 Stewart Crescent	North Elevation			6&7SC - A	0.00000	14.09200	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
17 No 6 & 7 Stewart Crescent	Frontage			6&7SC - B	0.00000	12.04300	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
18 No 6 & 7 Stewart Crescent	South Elevation			6&7SC - C	0.00000	14.09200	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
19 No 6 & 7 Stewart Crescent	Rear Elevation			6&7SC - D	0.00000	12.04300	0.0	0.10000	Burland Strain Limits
0.20000 2.6000									
20 No 6 & 7 Stewart Crescent	Party Wall			6&7SC - E	0.00000	14.14200	0.0	0.10000	Burland Strain Limits



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Ref.	Building Name	Sub-Building Name	Displacement	Distance	Distance	Vertical	Vertical	Damage	Category
Poisson's Ratio	E/G		Line	Along	Along	Offsets from	Displacement	Strains	
0.20000	2.6000								
21 No	6 & 7 Stewart Crescent	Extension - North Elevation	6&7SC - F	0.00000	3.98100	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
22 No	6 & 7 Stewart Crescent	Extension - Rear Elevation	6&7SC - G	0.00000	6.00300	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
23 No	6 & 7 Stewart Crescent	Extension - South Elevation	6&7SC - H	0.00000	3.98100	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
24 No	11 Ewart Grove	Garden Building - North Elevation	11EG - A	0.00000	2.94900	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
25 No	11 Ewart Grove	Garden Building - West Elevation	11EG - B	0.00000	3.70800	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
26 No	11 Ewart Grove	Garden Building - South Elevation	11EG - C	0.00000	2.94900	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
27 No	11 Ewart Grove	Garden Building - East Elevation	11EG - D	0.00000	3.70800	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
28 No	17 to 21 Ewart Grove	North Elevation	17-21EG - A	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
29 No	17 to 21 Ewart Grove	Near Elevation	17-21EG - B	0.00000	24.46500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
30 No	17 to 21 Ewart Grove	South Elevation	17-21EG - C	0.00000	7.96500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
31 No	17 to 21 Ewart Grove	No 19 / 21 Party Wall	17-21EG - D	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
32 No	17 to 21 Ewart Grove	No 17 / 19 Party wall	17-21EG - E	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
33 No	9 to 15 Ewart Grove	North Elevation	9-15EG - A	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
34 No	9 to 15 Ewart Grove	Near Elevation	9-15EG - B	0.00000	24.46800	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
35 No	9 to 15 Ewart Grove	No 13 / 15 Party Wall	9-15EG - C	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
36 No	9 to 15 Ewart Grove	No 11 / 15 Party Wall	9-15EG - D	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
37 No	9 to 15 Ewart Grove	No 9 / 11 Party wall	9-15EG - E	0.00000	8.01500	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
38 No	9 to 15 Ewart Grove	Extension - North Elevation	9-15EG - F	0.00000	3.01000	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
39 No	9 to 15 Ewart Grove	Extension - Near Elevations	9-15EG - G	0.00000	23.72100	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
40 No	9 to 15 Ewart Grove	Extension - No 13 / 15 Party Wall	9-15EG - H	0.00000	3.01000	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
41 No	9 to 15 Ewart Grove	Extension - No 11 / 13 Party Wall	9-15EG - I	0.00000	3.01000	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								
42 No	9 to 15 Ewart Grove	Extension - No 9 / 11 Party Wall	9-15EG - J	0.00000	3.01000	0.0	0.10000	Burland Strain Limits	
0.20000	2.6000								

Specific Buildings - Bending Parameters

Ref.	Building Name	Sub-Building Name	Height Default	Hogging:	Hogging:	Hogging:	Sagging:	Sagging:	Sagging:
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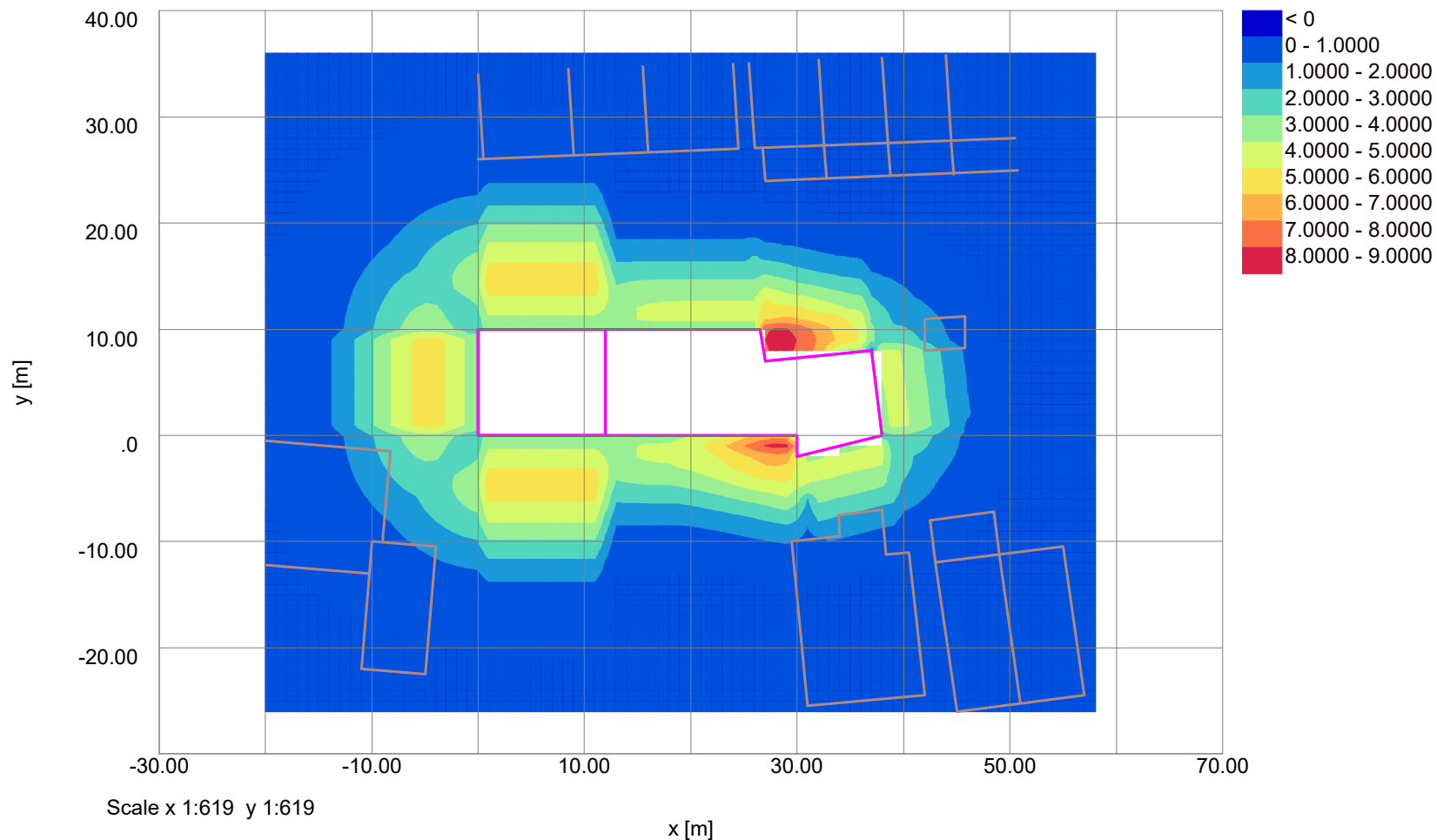
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			2nd Mom. of Area (per unit width)	Dist. of Bending Strain from N.A.	Dist. of N.A. from Edge of Beam in Tension	2nd Mom. of Area (per unit width)	Dist. of Bending Strain from N.A.	Dist. of N.A. from Edge of Beam in Tension
		[m]	[m³]	[m]	[m]	[m³]	[m]	[m]
1 No 1 & 2 Stewart Crescent	Retained Elevation	9.0000	Yes	243.00	9.0000	9.0000	60.750	4.5000
2 No 1 & 2 Stewart Crescent	South Eleavation	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000
3 No 1 & 2 Stewart Crescent	Frontage	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000
4 No 1 & 2 Stewart Crescent	North Eleavation	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000
5 Colab Court	Retained Elevation	9.0000	Yes	243.00	9.0000	9.0000	60.750	4.5000
6 Colab Court	Rear Elevation	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000
7 Colab Court	Frontage	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000
8 No 5 Stewart Crescent	North Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
9 No 5 Stewart Crescent	Rear Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
10 No 5 Stewart Crescent	Rear Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
11 No 5 Stewart Crescent	Rear Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
12 No 5 Stewart Crescent	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
13 No 5 Stewart Crescent	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
14 No 5 Stewart Crescent	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
15 No 5 Stewart Crescent	Frontage	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
16 No 6 & 7 Stewart Crescent	North Elevation	10.0000	Yes	333.33	10.0000	10.0000	83.333	5.0000
17 No 6 & 7 Stewart Crescent	Frontage	10.0000	Yes	333.33	10.0000	10.0000	83.333	5.0000
18 No 6 & 7 Stewart Crescent	South Elevation	10.0000	Yes	333.33	10.0000	10.0000	83.333	5.0000
19 No 6 & 7 Stewart Crescent	Rear Elevation	10.0000	Yes	333.33	10.0000	10.0000	83.333	5.0000
20 No 6 & 7 Stewart Crescent	Party Wall	10.0000	Yes	333.33	10.0000	10.0000	83.333	5.0000
21 No 6 & 7 Stewart Crescent	Extension - North Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000
22 No 6 & 7 Stewart Crescent	Extension - Rear Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000
23 No 6 & 7 Stewart Crescent	Extension - South Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000
24 No 11 Ewart Grove	Garden Building - North Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000
25 No 11 Ewart Grove	Garden Building - West Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000
26 No 11 Ewart Grove	Garden Building - South Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000
27 No 11 Ewart Grove	Garden Building - East Elevation	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000
28 No 17 to 21 Ewart Grove	North Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
29 No 17 to 21 Ewart Grove	Near Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
30 No 17 to 21 Ewart Grove	South Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
31 No 17 to 21 Ewart Grove	No 19 / 21 Party Wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
32 No 17 to 21 Ewart Grove	No 17 / 19 Party wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
33 No 9 to 15 Ewart Grove	North Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
34 No 9 to 15 Ewart Grove	Near Elevation	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
35 No 9 to 15 Ewart Grove	No 13 / 15 Party Wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
36 No 9 to 15 Ewart Grove	No 11 / 15 Party Wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
37 No 9 to 15 Ewart Grove	No 9 / 11 Party wall	8.0000	Yes	170.67	8.0000	8.0000	42.667	4.0000
38 No 9 to 15 Ewart Grove	Extension - North Elevation	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000
39 No 9 to 15 Ewart Grove	Extension - Near Elevations	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000
40 No 9 to 15 Ewart Grove	Extension - No 13 / 15 Party Wall	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000
41 No 9 to 15 Ewart Grove	Extension - No 11 / 13 Party Wall	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000
42 No 9 to 15 Ewart Grove	Extension - No 9 / 11 Party Wall	4.0000	Yes	21.333	4.0000	4.0000	5.3333	2.0000

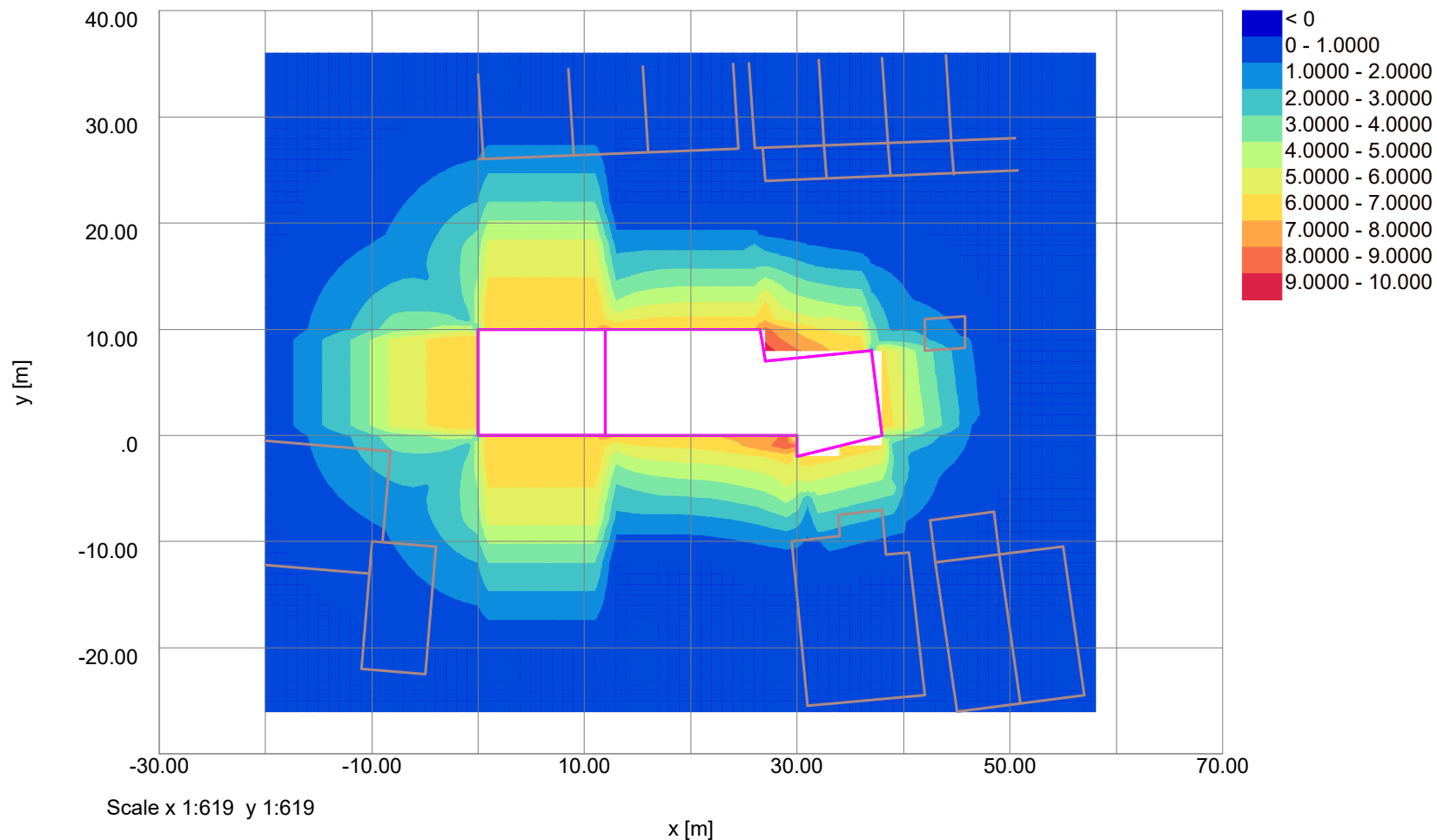
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Vertical Settlement Contours: Grid 1 (level 34.000m) (Interval 1mm)



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Horizontal Displacement Contours: Grid 1 (level 34.000m) Interval 1mm





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Specific Building Damage Results - Detail

Stage:	Stage: Name	Specific Building: Name	Specific Building: Name	Sub-building Name	Vertical Offset	Segment	Start	Length	Curvature		
Deflection	Average	Max	Max Gradient	Max Gradient	Min	Damage Category					
Ref.	Building:										
Ratio	Horizontal	Tensile	of	of Vertical	Radius of		from Line for				
Strain	Strain	Horizontal	Displacement	Curvature			Vertical				
Displacement	Curve						Movement				
Curve							Calculations				
[%]	[%]	[%]		[m]			[m]	[m]			
0	Base Model	1	No 1 & 2 Stewart Crescent	Retained Elevation			0.0	1	0.0	3.0526	None
235.59E-6	-0.0015162	331.56E-6	50.214E-6	-152.40E-6	109730.0 (Negligible)			2	3.0526	2.9174	None
280.81E-6	-0.0065662	0.0013227	83.687E-6	-152.40E-6	84660.0 (Negligible)						
		2	No 1 & 2 Stewart Crescent	South Eleavation			0.0	1	0.0	4.9966	None
0.0017791	0.017680	0.019408	-207.22E-6	288.34E-6	12756.0 (Negligible)						
		3	No 1 & 2 Stewart Crescent	Frontage			0.0	All vertical displacements are less than the			
limit sensitivity.											
		4	No 1 & 2 Stewart Crescent	North Eleavation			0.0	1	0.0	0.27070	None
0.0	0.0038004	0.0038005	-38.003E-6	135.48E-6	118600.0 (Negligible)			2	0.27070	1.7279	None
173.03E-6	0.0049084	0.0049731	-74.098E-6	135.48E-6	22050.0 (Negligible)						
		5	Colab Court	Retained Elevation			0.0	1	0.0	5.1142	None
0.0011734	0.0020053	0.0029526	-40.975E-6	-242.36E-6	22345.0 (Negligible)						
								2	5.1142	3.4188	None
539.92E-6	-0.0085699	0.0017403	124.55E-6	-242.36E-6	48078.0 (Negligible)						
		6	Colab Court	Rear Elevation			0.0	1	0.0	0.75104	None
0.0	0.024525	0.024525	-245.19E-6	352.76E-6	190090.0 (Negligible)						
								2	0.75104	7.7891	None
0.0035387	0.024232	0.028830	-290.60E-6	354.39E-6	12489.0 (Negligible)						
		7	Colab Court	Frontage			0.0	All vertical displacements are less than the			
limit sensitivity.											
		8	No 5 Stewart Crescent	North Elevation			0.0	1	12.418	3.0520	None
0.0063742	0.042119	0.045726	-597.71E-6	-436.78E-6	7144.7 0 (Negligible)						
								2	15.470	0.051886	None
0.0	0.059806	0.059806	-597.71E-6	-436.78E-6	192630.1 (Very Slight)						
		9	No 5 Stewart Crescent	Rear Elevation			0.0	1	0.0	2.7153	None
0.012903	-0.0095916	0.0099546	135.59E-6	-413.71E-6	2681.3 0 (Negligible)						
								2	2.7153	1.7627	None
0.010825	-0.0025466	0.0097816	86.757E-6	-413.71E-6	1632.2 0 (Negligible)						
		10	No 5 Stewart Crescent	Rear Elevation			0.0	1	0.0	1.9520	None
0.0020279	0.054216	0.054966	-547.58E-6	-531.13E-6	11920.1 (Very Slight)						
		11	No 5 Stewart Crescent	Rear Elevation			0.0	1	0.0	4.0800	None



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Stage:	Stage:	Name	Specific	Specific	Building:	Name	Sub-building	Name	Vertical	Segment	Start	Length	Curvature
Deflection	Average	Max	Max	Gradient	Max	Gradient	Min	Damage	Offset				
Ref.	Building:								from				
Ratio	Horizontal	Tensile	of	of	Vertical	Radius			Line				
52.304E-6	849.71E-6	888.17E-6	-8.5458E-6	69.571E-6	899240.0	(Negligible)							
	12	No 5	Stewart Crescent	South Elevation					0.0	1	0.0	4.2140	None
0.0041083	0.045746	0.048854	-545.98E-6	484.56E-6	10634.0	(Negligible)							
	13	No 5	Stewart Crescent	South Elevation					0.0	1	0.0	2.1090	None
8.7943E-6	837.74E-6	841.25E-6	-8.3773E-6	35.890E-6	2.9681E+6	0 (Negligible)							
	14	No 5	Stewart Crescent	South Elevation					0.0	1	0.0	0.0	None
0.0	0.0	35.763E-9	-223.93E-6	158.01E-6	5251.7	0 (Negligible)							
	15	No 5	Stewart Crescent	Frontage					0.0				All vertical displacements are less than the limit sensitivity.
	16	No 6 & 7	Stewart Crescent	North Elevation					0.0				All vertical displacements are less than the limit sensitivity.
	17	No 6 & 7	Stewart Crescent	Frontage					0.0				All vertical displacements are less than the limit sensitivity.
	18	No 6 & 7	Stewart Crescent	South Elevation					0.0				All vertical displacements are less than the limit sensitivity.
	19	No 6 & 7	Stewart Crescent	Rear Elevation					0.0				All vertical displacements are less than the limit sensitivity.
	20	No 6 & 7	Stewart Crescent	Party Wall					0.0				All vertical displacements are less than the limit sensitivity.
	21	No 6 & 7	Stewart Crescent	Extension - North Elevation					0.0	1	1.9908	1.9902	None
501.59E-6	0.018113	0.018474	-205.30E-6	-167.30E-6	25579.0	(Negligible)							
	22	No 6 & 7	Stewart Crescent	Extension - Rear Elevation					0.0	1	0.0	2.5142	None
53.743E-6	0.0013316	0.0013788	-34.642E-6	93.479E-6	603910.0	(Negligible)							
										2	2.5142	0.48758	None
0.0	0.0034643	0.0034643	-51.572E-6	89.785E-6	632540.0	(Negligible)							
	23	No 6 & 7	Stewart Crescent	Extension - South Elevation					0.0				All vertical displacements are less than the limit sensitivity.
	24	No 11	Ewart Grove	Garden Building - North Elevation					0.0	1	0.0	0.56063	None
0.0	-0.0083356	0.0016672	83.363E-6	-246.56E-6	4044.4	0 (Negligible)							
										2	0.56063	2.3884	None
0.019604	-0.0034707	0.017183	134.21E-6	-0.0010392	949.05	0 (Negligible)							
	25	No 11	Ewart Grove	Garden Building - West Elevation					0.0	1	0.0	3.7080	None
0.0032130	0.056933	0.061323	-589.30E-6	599.22E-6	10156.1	(Very Slight)							
	26	No 11	Ewart Grove	Garden Building - South Elevation					0.0	1	0.0	2.3611	None
0.0063323	986.84E-6	0.0076033	-51.499E-6	330.15E-6	2927.4	0 (Negligible)							
										2	2.3611	0.58787	None
0.0	-0.0013728	274.55E-6	13.728E-6	77.933E-6	11754.0	(Negligible)							
	27	No 11	Ewart Grove	Garden Building - East Elevation					0.0	1	0.0	3.7080	None
0.0012993	0.019846	0.021621	-232.82E-6	-277.35E-6	22616.0	(Negligible)							
	28	No 17 to 21	Ewart Grove	North Elevation					0.0	1	6.0117	2.0033	None
646.57E-6	0.037354	0.037599	-373.40E-6	-70.531E-6	32085.0	(Negligible)							
	29	No 17 to 21	Ewart Grove	Near Elevation					0.0	1	0.0	9.1760	None
7.4947E-6	62.651E-6	72.563E-6	-626.51E-9	3.6164E-6	14.382E+6	0 (Negligible)							
										2	9.1760	2.0373	None
1.5274E-6	62.651E-6	63.264E-6	-53.250E-6	176.88E-6	23474.0	(Negligible)							
	30	No 17 to 21	Ewart Grove	South Elevation					0.0				All vertical displacements are less than the limit sensitivity.
	31	No 17 to 21	Ewart Grove	No 19 / 21 Party Wall					0.0	1	0.0	1.0020	None
0.0	0.037354	0.037354	-373.40E-6	55.232E-6	45003.0	(Negligible)							
	32	No 17 to 21	Ewart Grove	No 17 / 19 Party wall					0.0				All vertical displacements are less than the limit sensitivity.



GEOTECHNICAL AND ENVIRONMENTAL ASSOCIATES LTD

Wood Lane Social Club
GMA
Combined Movements

Job No.	Sheet No.	Rev.
J23122		
Drg. Ref.		
Made by MP	Date 06-Jul-2023	Checked Date

Stage:	Stage: Name	Specific	Specific Building: Name	Sub-building Name	Vertical Offset	Segment	Start	Length	Curvature
Deflection	Average	Max	Max Gradient	Max Gradient	Min	Damage Category			
Ref.	Horizontal	Building: Tensile	of	of Vertical	Radius of				
Ratio									
limit sensitivity.	33	No 9 to 15 Ewart Grove	North Elevation		0.0	All vertical displacements are less than the			
limit sensitivity.	34	No 9 to 15 Ewart Grove	Near Elevation		0.0	All vertical displacements are less than the			
limit sensitivity.	35	No 9 to 15 Ewart Grove	No 13 / 15 Party Wall		0.0	All vertical displacements are less than the			
limit sensitivity.	36	No 9 to 15 Ewart Grove	No 11 / 15 Party Wall		0.0	All vertical displacements are less than the			
limit sensitivity.	37	No 9 to 15 Ewart Grove	No 9 / 11 Party wall		0.0	All vertical displacements are less than the			
limit sensitivity.	38	No 9 to 15 Ewart Grove	Extension - North Elevation		0.0	All vertical displacements are less than the			
limit sensitivity.	39	No 9 to 15 Ewart Grove	Extension - Near Elevations		0.0	All vertical displacements are less than the			
limit sensitivity.	40	No 9 to 15 Ewart Grove	Extension - No 13 / 15 Party Wall		0.0	All vertical displacements are less than the			
limit sensitivity.	41	No 9 to 15 Ewart Grove	Extension - No 11 / 13 Party Wall		0.0	All vertical displacements are less than the			
limit sensitivity.	42	No 9 to 15 Ewart Grove	Extension - No 9 / 11 Party Wall		0.0	All vertical displacements are less than the			
Tensile horizontal strains are +ve, compressive horizontal strains are -ve.									



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