Design Note

A-squared I Studio

Project	32 Percy Street, London W1T 2DE
Project no.	0341
Subject	Retaining Wall Design Parameters

Status	Date	Ref	Issued by	Checked by	Approved by
Retaining wall design parameters	12/12/16	0341-TN-02-00	Silvia Autuori	Alex Nikolic	Tony Stedman

1. Introduction

A ground movement and impact assessment has been carried out in order to estimate the potential damage induced by the proposed redevelopment of 32 Percy Street on selected surrounding properties. These are detailed in A-squared Design Note 0341-TN-01. This Design Note recommends preliminary retaining wall design parameters.

2. Ground Model

An idealised ground model has been evaluated based on the site specific investigation information reported in the site investigation report prepared by Jomas Associates Ltd.

Table 1 summarises the representative ground model adopted for ground movement assessment purposes.

Table 2 recommends particular geotechnical parameters for retaining wall design purposes.

Table 1 - Ground model summary and key geotechnical parameters adopted for analysis purposes

Stratum	Top of stratum (m bgl)	Assumed undrained strength, S_u (kPa)	Undrained Young's Modulus, E_u (MPa)	Drained Young's Modulus, E' (MPa)
Made Ground	0.00	-	-	10
Soft to very gravelly sandy silty CLAY	-4.20	75	30	24
Medium dense very sandy silty GRAVEL	-6.25	-	-	24
Silty gravelly sandy CLAY	-8.35	75	30	24
Stiff slightly gravelly sandy CLAY	-9.00	$50 + 6\ z^{[1]}$	$20 + 2.4\ z^{[1]}$	$16 + 1.9\ z^{[1]}$
Thanet Sand	-39.60	-	-	300

Notes: 1. z is the depth in metres below top of stratum concerned.

2. *Rigid boundary* assumed at -45.40 m AOD for analytical purposes.

3. Refer to ground investiagtion report prepatred by Jomas for further supporting information.

4. The stiffness data (E_u and E') has been evaluated empirically taking into consideration the nature of the geotechnical/soil-structure interaction mechanisms and level of anticipated strain within the soil mass.

Table 2 - Key geotechnical parameters for retaining wall design

Stratum	Top of stratum (m bgl)	Bulk Density (kN/m3)	Angle of shearing resistance in degrees	Apparent cohesion, c' (kPa)
Made Ground	0.00	18	28	0
Soft to very gravelly sandy silty CLAY	-4.20	19	21	0
Medium dense very sandy silty GRAVEL	-6.25	20	33	0
Silty gravelly sandy CLAY	-8.35	20	24	0
Stiff slightly gravelly sandy CLAY	-9.00	20	24	0
Thanet Sand	-39.60	20	36	0

Note: Groundwater encountered at 7m depth below ground level. It would be prudent to design for a higher groundwater level to allow for seasonal fluctuations.

3. Conclusions & Closing Remarks

A ground movement and impact assessment has been carried out in order to estimate the potential damage induced by the proposed redevelopment of 32 Percy Street on selected surrounding properties. These are detailed in A-squared Design Note 0341-TN-01. This Design Note recommends preliminary retaining wall design parameters.