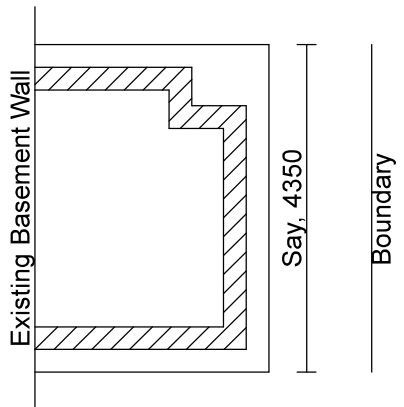


Consider INITIAL evaluation of Lightwell construction :



For INITIAL evaluation calcs, ASSUME :

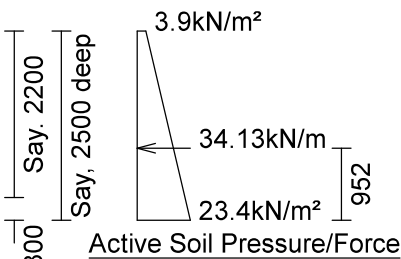
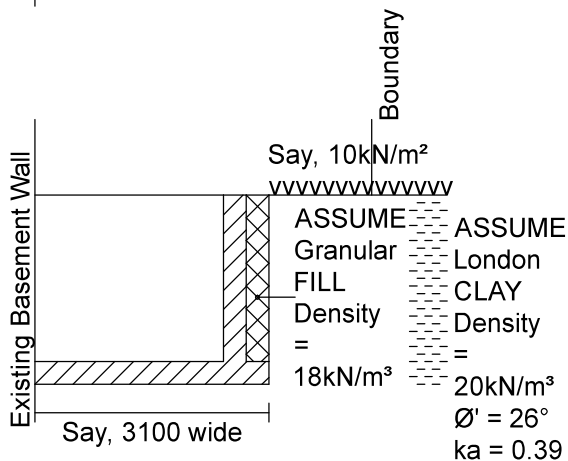
No groundwater present.

London CLAY soil.

Lightwell construction to be reinforced concrete.
(NB: Final construction may be reinforced brickwork/blockwork on reinforced concrete slab.)

"Backfill to wall stems to be granular FILL.

10kN/m² surface surcharge.



Consider weight of Lightwell (per m run) :

Base slab = $3.1 \times 0.3 \times 24\text{kN/m}^3 = 22.32\text{kN/m}$

Wall stem = $2.2 \times 0.3 \times 24\text{kN/m}^3 = 15.84\text{kN/m}$

Backfill = $2.2 \times 0.3 \times 18\text{kN/m}^3 = 11.88\text{kN/m}$

i.e. Total Weight = 50.04kN/m

Take moments at and above u/s slab/existing basement wall :

$22.34 \times 1.55 + 15.84 \times 2.65 + 11.88 \times 2.95 - 32.50$
= say, 79kNm/m

Hence,
Resultant at $79/50.04 = 1.579\text{m}$ from existing basement wall.

Therefore, eccentricity (e) = $1.550 - 1.579$
= -0.029m from C/L base slab

Thus, $q_{\text{ref(after Meyerhof)}} = 50.04 / (3.1 - (2 \times 0.029))$
= say, 16.5kN/m²/m

Consider moments above u/s of base for Active Force (per m run) :

$34.13 \times 0.952 = \text{say, } 32.50\text{kNm/m}$

By Inspection,
Bearing Capacity of London CLAY
and
structural adequacy of lightwell construction
OK!

NOTES

1.

CLIENT:

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PROJECT:

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TITLE:

INITIAL Evaluation
of
Lightwell Construction

Drawn:

IFG

Checked:

??

Date:

18/08/17

Scale:

1:100

Original Sheet Size:

A4

Status:

PRELIM

Drawing No:

17-135-D-002

Revision:

00

00	Preliminary/Initial Issue	IFG	18/08/17
Rev	Revision Detail	Drawn	Date

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