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TECHNICAL NOTE G1206-TN-02-E1

Project	8 PILGRIMS LANE NW3 1SL- 2012/5825/P - APPEAL	**Project Ref**	G1206
Subject	On City Basements Construction Method Statement and the Arup BIA.	**Date**	11/2014

METHOD STATEMENT OVERVIEW

The construction method statement (CMS) is general, avoids fundamental detail and, despite references to the Greig Ling (GL) drawings, is incompatible with the engineers' scheme. It also completely ignores the work by RKD which has hitherto been considered to be of prime importance during the assessment of the DP27 planning requirement.

The CMS is yet another example of the technically uncoordinated presentation of the developer's intentions. If the CMS is accepted it makes the GL scheme drawings and the RKD ground movement and damage assessments meaningless. They will have to be discarded, which will mean that nothing in the appeal bears any relevance to the DP27 requirement.

PART 3. SEQUENCE

According to the CMS the sequence intended is, in general terms:

To underpin the perimeter walls for a depth of about 2.5m
Install a secant pile perimeter wall
Install temporary piles internally to support the ground floor slab
Cast the ground floor slab on the ground and support it on temporary piles
Excavate below the slab, allowing it to support the underpinned and piled walls
Construct the permanent foundations and basement structure including floor and walls
Remove the temporary piles

All of this is said to avoid the need of any form of temporary support for the basement walls because the ground floor slab will provided all of the support required.

PART 3. PROBLEMS

The underpin statement ignores that the excavations will need to be about 5.2m deeper than ground in No.6 on the opposite side of the wall.

It also ignores that the Arup BIA Item 7.4.2 concludes that excavation in front of the underpinned wall at the No.6 boundary will cause incipient instability of the site and ground in No.6 until the basement floor has been constructed with a thickness greater than shown by the GL drawings and the lining wall design and constructed as a retaining wall.

The Arup analysis reaches this conclusion without placing groundwater at its currently measured level (approximately 3m higher than in the analysis) and did not account for the possibility of shallower groundwater being present in the filled ground behind the wall (recent trial pit records refer). These are factors which would worsen the situation.

The CMS requires a secant piled wall using 450mm diameter pies; the drawings show a contiguous wall using 250mm diameter piles. It seems that allowing for the clearance required between piles and adjoining structures, the CMS basement will be smaller than shown by the plans.

Reference to grouting to prevent seepage of water into the excavation presumably refers to the injection of material to seal leaks between adjacent piles rather that injection of grout into the ground behind the piled wall. As pointed out in G1206-TN-01-E1, the ground is unsuitable for grout injection.

The plans require permanent structural steel beams supporting the ground floor to be embedded in the thickness of the ground floor slab. That will not be possible if the CMS version is accepted.

The plans require the ground floor slab to be supported at its edges by the internal perimeter wall and it would not be until that wall was constructed, towards the end of the basement work, that the edges of the slab would be laterally supported. In that case how is the ground floor slab to provide the restraint normally associated with top down construction and assumed by the CMS?

It is highly unlikely that party wall surveyors would agree to the lateral forces involved being imposed on party walls.

PART 5.2. Support foundations of No 10

Neither the design drawings nor the CMS provide any better information about the foundations proposed for the columns which are critical for the stability of No 10 that existed before the planning application was rejected.

Yet again the CMS refers the foundations as being a matter for the party wall surveyors to agree upon. But those foundations are fundamental to the stability of the building and it is for the developer's engineer to design them. Any party wall award that might be agreed would state clearly that the surveyors had no responsibility for design or approval of the works.

Without a design and clear method statement for the construction of these foundations, a vitally important part of the information required to satisfy DP27 is absent.

ARUP BIA Groundwater drainage model

The MODFLOW simulation in the BIA shows that for the conditions modelled, a drainage blanket below the basement should prevent unacceptable damming of groundwater by the proposed basement. If the blanket silted up it would cease to be effective and if as shown by the GL drawing, it is replaced by a local drain its beneficial effect too would be localised. It is also important to realise that since its sole purpose would be to avoid the damming effect, the blanket or drain would not be intended to reduce either groundwater level generally or the uplift pressure of groundwater on the basement floor, or the risk of ground instability noted under Part 3. Problems above.