From: Marc Stone Sent: 27 October 2014 16:00 To: 'martin@gea-ltd.co.uk' Cc: Chris Gough-Willetts Subject: RE: 3 Downshire Hill

Dear Martin

Further to your letter of the 8 September and our subsequent telephone call we have carried out further testing and will be adding the following information to the BIA

1.0 Ground stability

The site is underlain by the London Clay Formation which generally comprises firm to stiff fissured laminated silty clay of medium compressibility and extends to a depth in excess of 8.45m below ground level with groundwater measured at some 1.9m below ground level. A preliminary heave assessment may be made based on conventional consolidation theory which assumes the clay to be an elastic material. The estimated heave value is generally more than actually occurs in practice as particle rearrangement which takes place during consolidation is largely irreversible. Therefore as an indication only, in this case stress relief of some 60kPa following removal of up to 3m of overburden, based on an estimated compressibility of 0.2m2/MN may result in an estimated heave of 11mm, though as indicated this is unlikely to be fully realised.

The basement will be excavated in metre strips from under the lower ground floor slab. This will not be a rapid excavation and the new basement slab will not be cast until all the underpinning and retaining wall have been constructed.

Therefor any heave under the basement slab will be minimal.

The construction of the basement walls will be in 1000mm wide section similar to underpinning. Only one pin will be open at any one time. Therefore underpinning of boundary walls will not be necessary.

Temporary works will be installed until all the permanent structure is in place and the ground stabilised.

2.0 Ground Water

The sub soil within the area is London clay and we are only expecting to encounter perched water or flow through gravel lenses from a depth of 1.7 to 1.8m Monitoring has been carried out to determine the permeability of the clay.(see attached) The infiltration results have proven the anticipate water flows, although higher than totally homogeneous clay, will be minimal.

Ian Farmer Associates have advised that a standard submersible pump would be suitable to deal with any water within the excavation.

I trust this is satisfactory and will amend the report and re issue

Kind regards

Marc

<image001.jpg> Incorporating Train & Kemp (Projects) Limited

Marc Stone BEng CEng FIStructE **Principal** Train & Kemp LLP (Consulting Engineers) LLP

10 Kennington Park Place, London SE11 4AS DDI: 020 7587 6685 Switchboard: 020 7582 1276 www.trainandkemp.co.uk Limited Liability Partnership No: OC305768

Please Note: This information contained in this e-mail and in any attachments is confidential and its contents may also be privileged. If you are not the intended recipient (s), you should not copy it, forward it, or use it for any purpose, nor disclose its content to any third party. Please also notify the sender immediately if you receive this e-mail in error. This email has been scanned for viruses prior to sending; however it is the responsibility of the recipient to conduct their own security measures when receiving emails. Train and Kemp accept no liability for loss or damage arising from the receipt or use of this email.

please consider the environment - do you really need to print this email?