

By Email & Post

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RadcliffesLeBasseur

Mr Jonathan Markwell
Regeneration and Planning
Development Management
London Borough of Camden
Town Hall
Judd Street
London
WC1H 8ND

3 July 2013

Our Ref: TRS/MD/117281.001

Your Ref:

W 4219592 v1



Dear Sir

Klippan House, 50 Well Walk, London NW3 1BT
Application Ref. No: 2011/3636/P
Associated Ref. Nos: 2007/4759/P, 2007/4761/L and 2011/3639/L

We would refer to previous correspondence and we enclose with this letter the response from Hydrock dated 1 July 2013. You will note the conclusions on the last page. We are conscious that the London Borough of Camden take this type of development very seriously and we are conscious that some local planning authorities are calling for the final designs before granting planning permission rather than issuing a consent subject to conditions.

For the reasons alluded to in the consultant's report we believe that Camden should refuse this application. However, were Camden minded to consent, we would ask that they call for the final drawings to be a matter to be issued prior to any planning consent being issued. The alternative would have to be some very strictly worded conditions that adequately referred to the monitoring that would need to occur and to be approved prior to any completion occurring.

We enclose some suggested areas that could be made the subject of conditions, although we do this on a without prejudice basis.

Returning to the main thrust of our case, which is that this application should be refused, we would mention that our clients have noted movements in the house in the past such as cracking, doors sticking etc., due to periodic changes or due to building activity going on nearby. We will very shortly forward to you documentation of that evidence. We would hope to have that information with you very shortly, but would kindly ask you not to determine this application in the meantime. You will, of course, appreciate that in examining the submissions made by the applicants, it is vital to take into account the actual state of the premises that will be affected, in this case 8 East Heath Road. You will appreciate therefore that as number 8 East Heath Road has been subject to this sort of movement in the past, any movement caused by these works needs to be all the more critically assessed, since:-

- (a) there is already existing damage; and

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- (b) there is a predisposition of the property that would make any impact correspondingly *greater than that which the applicants are contending*.

Finally, we have copied this letter in to the appropriate ward councillors.

Kind regards.



Document ref: C11387/004.1

1st July 2013

RadcliffesLeBrasseur
5 Great College Street
Westminster
London
SW1P 3SJ

For the attention of Trevor Standen

Dear Trevor,

**PROPOSED BASEMENT SWIMMING POOL DEVELOPMENT AT
KLIPPAN HOUSE, 10 WELL WALK, NW3 1BT**

As requested in your email of 19th June, please find below our response to the correspondence provided regarding the planning application for the above proposed development at Klippan House, 50 Well Walk, adjacent to our mutual clients' property at 8 East Heath Road, London NW3. This letter aims to explain the reports and provide further comment.

Hydrock's letter of 13th September 2012 was forwarded to the planning department at London Borough of Camden and as a result, they commissioned Card Geotechnics Limited (CGL) to conduct an independent review of the data submitted and its suitability to meet the requirements for the Basement Impact Assessment (BIA) (CGL Letter ref CG/8352, 29th April 2013).

Following CGL's letter, Taylor Whalley and Spyr (TWS) undertook revised WALLAP computer analysis of ground movements due to installation of the retaining wall and excavation behind it.

Geotechnical Consulting Group (GCG) used the results of the computer analysis to undertake further assessment of settlements and also of heave predictions due to the excavation of the basement.

TWS prepared an updated Addendum to Basement Impact Assessment Report (GB/8414-BIA_ADDENDUM-Version 2.0, May 2013), incorporating the CGL comments, revised TWS WALLAP modelling, GCG's updated comments and TWS conclusions.

The following are comments on the various elements of the TWS Addendum report.

CGL letter

The CGL letter report agreed with aspects of Hydrock's report regarding concerns over the party wall stability. In particular, it identified that in the computer modelling analysis previously supplied (WALLAP Analysis) utilised unrealistically high values of stiffness (Youngs modulus E) and Moment of Inertia (I) for the retaining wall. As a result, CGL recommended revisions to the analyses including:



- revised retaining wall analysis, with sensitivity analysis to account for the uncertainties in the depth of the party wall foundation;
- preliminary heave analysis incorporating effect of basement excavation and long term re-loading of basement soils. To include effect of potential differential settlement between the underpinned Klippan House and the main basement box; and
- the results of the revised analysis should be used to make a Building Damage Assessment and to determine potential damage categories to 8 East Heath Road, in order to specify mitigation measures if required.

CGL concluded that stages 1 to 3 of the BIA (Screening, Scoping and Site investigation and study) have been provided appropriately and in accordance with CPG4. Hydrock can see no reason to challenge this therefore no further comment can be made.

The remaining elements of the BIA comprise stage 4 (Impact Assessment) and Stage 5 (Review and Decision Making. The remainder of the following review concentrates on Stage 4 (Impact Assessment), specifically relating to the Impact on 8 East Heath Road.

Construction stages

The following proposed construction sequence is outlined:

1. Install a line of piles 450mm diameter and 12m deep parallel to and 1.85m from the gable wall of 8 East Heath Road;
2. Excavate the basement to 1.50m and install a strut at 1.00m (which later becomes the roof of the structure);
3. Continue excavating to 4.00m depth and install a temporary strut at 3.50m depth;
4. Continue excavating to 5.80m and install a strut at 5.00m depth (actually the floor of the basement);
5. Remove the 3.50m strut when the top and base struts are complete.

Revised Retaining Wall Displacement Calculations

The WALLAP Analysis was undertaken by TWS to predict the lateral movement of the wall when the basement is excavated. The revised analysis has used more detailed geotechnical parameters and revised parameters for the wall itself than previously, together with alternative parameters to provide a sensitivity analysis.

The updated results indicate that when the basement has been excavated the wall will move laterally away from the party wall by up to 11mm. This compares with the maximum lateral displacement value obtained from the previous calculations of 6mm. This indicates that use of parameters appropriate for the pile type used in the retaining wall in response to CGL's comments have resulted in the predicted lateral displacement being increased by an additional 5mm.

Based on the empirical method outlined in C580, a lateral movement of 11mm could give rise to a settlement of around 5mm.

GCG Building Damage Assessment

GCG have followed the principles of the procedure set out in CIRIA C580 which gives a three stage approach for assessing potential damage to buildings near excavations supported by retaining walls. Further work is needed to complete this process and the reports agree that a full structural condition survey and investigation to determine the foundation depth of 8 East Heath Road is required. However, the further work would not be undertaken until after planning permission has been granted and would be part of the more detailed design process.

GCG's calculations for settlement due to the installation of the wall (which are empirical and based on CIRIA C580) show between 4mm and 5mm settlement within 5m from the retaining wall, reducing to approximately 3mm at 10m distance from the retaining wall.

The differential settlement is calculated to be 2mm perpendicular to the wall and 3mm along the length of the wall. This equates to strains of 0.014% and 0.02%, which GCG state that according to the CIRIA C580 report would give a damage category of below Category 0 (negligible) that is, in the words of the CIRIA report, "Hairline cracks of less than about 0.1mm, classed as negligible, with a crack width of less than one tenth of a millimetre and a limiting tensile strain of up to 0.05%". However, if the differential settlement reaches Category 1, this would give rise to "fine cracks that can easily be treated during normal decoration, with isolated slight cracks in the building and visible cracks in external brickwork, with cracks of up to 1mm width and tensile strain of 0.05 – 0.075%".

GCG have also assessed the predicted heave of the ground below the basement caused by removal of the load from the soil excavated from the basement. This gives a maximum heave of 14mm in the short term and 25mm in the long term in the centre of the basement. The predicted heave along the line of the party wall as shown on GCG's contour plans are of the order of 5mm and 8mm respectively. These estimates are empirical and are what would be expected, under well controlled construction conditions.

As such GCG propose an outline monitoring scheme to detect ground movements, using levelling surface studs in East Heath Road, precise levelling at ground level on the building and 3D retro targets at the top and bottom of the wall. These are to be levelled every one or two weeks during construction.

Monitoring which is not continuous throughout construction and with no associated target values or action plan will not be able to protect the structure from excessive movement.

GCG comments

Although the settlements caused by deflection of the retaining wall in the updated analyses have increased since the previous assessment, due to the use of different parameters, GCG concludes that the predicted damage to 8 East Heath Road is still only negligible. In addition, they have presented predictions of ground movements caused by heave of the order of 3mm, although as they point out these are likely to be exaggerated as the piled wall will project below the basement and will reduce the heave effects outside the wall. No explanation is given as to how the predicted elements of heave and the settlement are likely to interact in combination.

TWS Comments

In their text, TWS give some details confirming that the workmanship will be controlled by selecting experienced contractors and outlining some aspects of what will be included in the specification for the works.



The contributors to the TWS report still accept that there will be some movement to 8 East Heath Road, although the assessed damage from such movement is still predicted to be very slight. The design includes various precautions to keep such movements to a minimum.

The report accepts that further investigation is required, together with detailed condition surveys of neighbouring buildings and structures. As a result, further analyses and assessments will be required to further assess the predicted ground movements, in association with more detailed design.

Hydrock Comments and Conclusions

The analysis carried out in the TWS addendum report is still subject to further investigation and design. It will not be possible to assess the final design prior to giving planning consent unless the additional work is carried out during the application period. It is a matter for the planning authority to decide whether the final design should be carried out and submitted with the application.

The predicted movements are conditional on high standards of workmanship and supervision being maintained at all stages, including an action plan linked to the monitoring programme. These are matters to be considered in the planning process.

The designers predict that movement as a result of the proposed works is inevitable. The owners of 8 East Heath Road consider that any movement, however small, is unacceptable and will not accept damage to their property, however slight. These are matters which should be given serious consideration in the planning process.

We trust that this is useful, however if you require further assistance, please do not hesitate to contact me.

Yours sincerely,
for **Hydrock Consultants Ltd**,





The areas to be covered by conditions are suggested to be:

- 1) The further investigation recommended in the TWS report to be undertaken, including as a minimum 3 boreholes to confirm ground conditions and groundwater levels, including geotechnical testing to confirm the soil parameters needed for detailed retaining wall design. The borehole depths to be at least 15m depth with undisturbed U100 sampling at 1m intervals or alternately with SPTs where appropriate;
- 2) Groundwater monitoring for at least 3 months to establish long term groundwater levels;
- 3) At least two inspection pits to provide information on the foundation details and soil profile along the party wall with 8 East Heath Road;
- 4) Re-evaluation of the groundwater risk assessment in accordance with the BIA requirements under CPG 4 (Basements and Lightwells – London Borough of Camden);
- 5) Re-evaluation of the retaining wall designs and calculations for predicted horizontal and vertical ground movements and their effect on 8 East Heath Road taking into account the results of the investigations carried out;
- 6) Details of all contractors, subcontractors, consultants, designers and staff demonstrating their experience and competence for undertaking works of this nature;
- 7) Detailed construction method statements and risk assessments for all stages of construction including temporary works and permanent works;
- 8) Method statements to give details of all plant to be used, together with details of the noise and vibration to be generated;
- 9) Details of how construction will be supervised;
- 10) Details of how materials will be delivered to the site and how excavated materials and other waste materials will be transported away from the site, including traffic routes, number of vehicle movements;
- 11) Details of a monitoring scheme to be in place continuously throughout the basement construction, together with target maximum values of movement linked to the predicted ground movements. The scheme must demonstrate that damage will be kept within limits of acceptability;
- 12) A detailed plan of contingency actions to be taken when ground movements are detected exceeding the target values;
- 13) Written agreement that any damage to 8 East Heath Road will be fully repaired and reinstated to the standards and satisfaction of the owners of that property in a timely fashion and at no cost to the applicant;
- 14) All the above to be provided to London Borough of Camden for consultation and approval prior to commencement;
- 15) London Borough of Camden to consult with the owners of 8 East Heath Road and their professional advisors prior to giving approval;

Some of the above may already have been addressed in the documents provided but it would be worth having them submitted individually for satisfaction of planning conditions.

I hope this is useful,

Regards,

Chris Vincett

Principal Consultant

Hydrock

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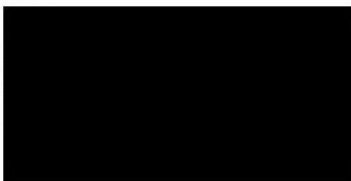
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My suggested letter is as attached - you will see that attached are all of Chris's letters - which I see were appended to his relevant e mail - I infer that it is No.1 which we will be sending but take the opportunity of copying this to him for confirmation whilst at the same time asking from him details of the areas for conditions to be communicated to me asap. Michael can you pl let me know when you can compile evidence relating to the movement as referrec to in my letter.

Best



03/07/2013