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LJG/222/0637

White Rock Developments Ltd
139 Vicarage Farm Road
Hounslow
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FAO Mr M Al-Rubaiee

29 April 2022

Dear Sir

Ref: Proposed new Care Home at 18 Pield Heath Road, Uxbridge UB8 3NF

In response to your request for consideration of a basement impact assessment on the means of construction to be provided for lower ground floor level accommodation to a proposed new Care Home at the above address we now attach for your attention an Appendix A Listing sequencing the manner in which these works can be carried out, together with our accompanying Drawing Nos. 222/0637/01/P1 and 02/P1 respectively.

Whilst no site investigation works have been carried out to date, reference to the data links available from the British Geological Society (BGS) website indicates that the subsoils at this location will consist of mixed granular material overlying London Clay.

Nearby boreholes indicate that these granular deposits will extend to around 3.60-4.50m below ground level, with the London Clay determined to depths of 28.0-30.0m below ground level.

Where the new development will extend quite close to boundary edges with two neighbouring properties and Pield Heath Avenue respectively, it will not be readily possible to form conventional open batterback excavations along these edges.

We would anticipate that the granular material will have a safe angle repose of around 30 degrees. Where that is the case, open batterback excavations can really only be considered along the southern/south eastern edge of the site, that is to the building elevation set parallel to Pield Heath Road.

In order to safely form the new lower ground floor accommodation required for the Care Home to the footprint indicated on Planning Stage drawings to date, we would correspondingly recommend provision of contiguous piled retaining walls around the majority of the three perimeter edges of the proposed development, to the approximate alignment noted on the attached drawings.

The piled retaining wall will be formed from ground level prior to any bulk excavations taking place. The piled retaining wall will be designed and constructed as a cantilever wall to support retained earth and water pressures, as well as any surcharge loading from either the neighbouring properties or the traffic on Pield Heath Avenue respectively.

Once this cantilever retaining wall has been formed, together with a continuous reinforced concrete capping beam over, then a traditional bulk excavation can be carried out to the footprint of the proposed lower ground floor level accommodation. This excavation will commence on the north western edge of the site, and be progressively brought through to the south eastern edge of the site in a controlled, phased, manner.

The contiguous piled wall will be designed as a cantilever retained construction which will allow the bulk excavation to be taken through to formation level up to the inner face of the exposed piles, without any further provision for temporary support works either along the edge of the capping beam or within the area of the open bulk excavation.

Across the southern/south eastern boundary, a more conventional open batterback slope approach can be adopted where there is suitable separation distance between the area of working and the Pield Heath Road boundary edge.

The historic borehole log information available on the BGS site indicates that ground water was present at around 9.0m below ground level. Assuming this still to be the case, then the batterback slopes, set to a nominal 30 degree angle of repose, should not require any supplementary support measures. This would need to be confirmed by on site borehole investigations at a later date.

The attached Appendix A listing sequences the manner in which the main substructure works for the proposed new Care Home can be adopted. This takes account of both on site construction requirements, and the need to ensure that no damage develops to neighbouring properties or adjoining roadways respectively.

We trust that this information meets your requirements at this time in respect of the proposed Planning Submission to be made for the new Care Home. Should any party require further clarification of matters referred to here or additional information in support of the suggested sequencing referred to on this documentation please let us know.

Yours faithfully

L J Gawn BSc. CEng. MIStructE, MICE, MIQA
for and on behalf of Gawn Associates

222/0637 **April 2022**

Proposed Care Home at 18 Pield Heath Road, Uxbridge UB8 3NF.

Appendix A: Outline method statement for construction of proposed lower ground floor level accommodation for a new Care Home.

Listing noted below to be cross referenced to associated architectural drawings commissioned by White Rock Developments Ltd, as well as the accompanying Engineer's Drawing Nos. 222/0637/01, 02.

The construction sequence referred to below is based on the use of cast in situ contiguous bored piles extending around the majority of the perimeter edge of the proposed new building, as referred to on the attached Engineer's Drawings 222/0647/01, 02, which will provide support around the edges of the site to facilitate the construction works required here whilst ensuring that there is no damage to adjoining properties.

Augered piling must be used throughout. Driven piles are not acceptable in consideration of the close proximity of the neighbouring properties.

The design of the piles will be by the appointed piling subcontractor to reflect their individual proprietary system requirements. These piles will be designed to provide initial temporary support around the perimeter edges of the site to allow bulk excavation works to proceed in the manner noted below, as well as support of retained earth pressures and surcharge loadings from adjacent buildings.

Prior to any works commencing detailed borehole investigations are to be carried out to confirm subsoil succession at depth, as well as establishing the presence, or otherwise, of any ground water at this location to the proposed depth of the new substructure works. These proposals are based on borehole log information linked to the British Geological Drift Map data for the area.

This information indicates that mixed granular material will be present to depths of around 3.60-4.50m below ground level. These granular subsoils in turn overlie London Clay which is identified as to extending approximately 28.0-30.0m below ground level at this location, with London Clay overlying Reading Beds. These are mixed deposits that in turn overlie chalk at depth.

Where the new building footprint extends close to boundary edges or neighbouring properties, conventional open excavations with batterback slopes will not be applicable. Accordingly, there is a requirement for quite extensive provision of contiguous piled walling as referred to on the attached drawings.

In general, the contiguous piled walling will be positioned a nominal 1.0m off the boundaries adjoining the neighbouring properties on both Pield Heath Road and Pield Heath Avenue respectively.

Along the Pield Heath Avenue roadway boundary, the contiguous piled wall will be positioned approximately centrally between the roadway boundary and the external wall line of the new building. This applies through to the south eastern corner of the proposed building as referred to on the proposed site plan layout drawing prepared on behalf of White Rock Developments.

Beyond this point, and parallel with the Pield Heath Road boundary edge, more conventional open excavations will be provided, where there is sufficient space to allow for traditional open faced batterback slopes set to a nominal 30 degree angle of repose.

Prior to any of these works commencing, borehole investigations will be required. We would propose that a minimum of four boreholes are formed here, set approximately centrally to each of the respective boundary edges to confirm consistency of subsoil succession across the site.

The boreholes will initially be assumed to be taken to a minimum of 15.0m below ground level, with a schedule of testing for samples from the boreholes to be agreed with the Engineer prior to site investigations commencing. Investigations are required to determine subsoil characteristics at depth as well as establishing the level of any standing water.

The works referred to below must be carried out in a careful and considerate manner, and take account of the occupational requirements of the neighbours in each of the adjacent properties.

The works must be carried out within any designated hours specified on a Planning Consent for the site.

The site should be kept in a clean, tidy and secure manner at all times with any debris or arisings from the works appropriately controlled, cleared away and removed from site as soon as reasonably possible. The public roadways directly adjoining the site must also be kept in a suitably clean, tidy and safe manner at all times.

Prior to any works commencing all relevant Statutory Consents must be obtained.

A.1 Following receipt of information from an initial borehole investigation, a specialist piling contractor will be responsible for designing a series of contiguous piled walls, to the approximate layout and extent noted on the attached Engineer's drawings. These walls should be designed to provide support to retained earth, hydrostatic pressures as appropriate, and surcharge loadings from adjoining properties or roadways respectively, all to allow for an open bulk excavation to be carried out across the site for the lower ground floor accommodation for the new Care Home.

A.2 Once the contiguous piled walls have been designed, to include allowance for provision of a reinforced concrete capping beam to be formed directly over the top of the piles, with the top of capping beam set a nominal 0.60m below the adjoining ground level, then relevant Statutory Consents should be secured for the works. This will include both a Party Wall Agreement and a Building Regulations Plan Stage Assessment of the temporary works proposals.

A.3 The existing property on the site should then be carefully demolished and the site cleared in preparation for development commencing. A detailed site survey is required to confirm the location of any below ground services. All existing services will need to be decommissioned and made safe.

A.4 A secure, nominal 2.4m high, timber hoarding needs to be placed around the full perimeter edge of the site, with allowance for temporary gates in the hoarding at each of the site entrance and egress locations noted on the block plan layout for the development. Around the corner edge at the roadway junction between Pield Heath Avenue and Pield Heath Road the fencing needs to be tapered back to provide appropriate visibility splays to details to be agreed with the Local Highways Authority as part of Planning Stage discussions.

A.5 All areas of soft landscaping need to be carefully stripped back and topsoil either set aside or removed from site to suit operating requirements. A hardcore piling mat should then be provided across the full footprint of the site close at existing ground level following removal of the topsoil.

A.6 A contiguous piled retaining wall can then be formed to the extent noted on the attached drawings. The piling rig will be set at ground level, with the centre line of the piles positioned approximately 1.0m off the boundary edges with the existing properties as referred to above, and approximately centrally in the gap between the outer edge of the new building and the Pield Heath Avenue roadway site boundary.

A.7 The appointed piling contractor will be responsible for providing a detailed method statement outlining the manner and sequence in which the piles are to be formed. This should include all necessary Health and Safety requirements as well as risk assessments for the works.

A.8 Particular care and attention must be given to ensuring that any arisings from the piling process are carefully controlled within the confines of the site to avoid any accidental spillage of materials beyond the line of the hoarding noted above.

A.9 These will be continuous flight augur (CFA) piles, provisionally approximately 400mm in diameter, with the piles taken to extend through the upper layer of mixed granular subsoils into the lower level London Clay. Final depth of piles to be determined by detailed design, allowing for a cantilever retained height in the temporary position of approximately 3.60m below existing ground level.

A.10 The piles need to be carefully formed in a sequential manner, with all piles formed from within the footprint of the site. The piles will initially be brought flush with top of the pile mat, that is existing ground level. All arisings from the piling works to be taken off site as piling proceeds.

A.11 For practical considerations, it is assumed that the location of the permanent site egress crossover will be the main entry and exit point to the site for earthworks generally.

A.12 Once all of the piles have been formed, an initial reduced level excavation can then be carried out to approximately 1.00-1.10m below ground level along the length of the piled wall. The excavation can be carried out in sections to suit operating requirements.

A.13 Piles can then be carefully cut back, leaving reinforcement exposed. A cast in situ concrete capping beam can then be formed along the top edge of the piles, with reinforcement from the piles bent and linked in with reinforcement for the capping beams to give a continuous cast in situ concrete ground beam finishing approximately 0.60m below the adjoining ground level.

A.14 This work can be carried out in a sequential manner around the perimeter edge of the piling, with reinstatement of finishes behind the capping beam, that is in the gap between the beam and the site hoarding.

A.15 Once the capping beam is cured, bulk excavation works can then commence. The excavation should start close inside the site confines adjacent to the boundary with the neighbouring property on Pield Heath Avenue.

A.16 Prior to bulk excavation commencing all necessary protection measures need to be set in place, to include dust suppression, wheel cleaning from vehicles, provision for banksmen both adjacent to the works and at the site egress point for vehicles entering and leaving the site and so on.

A.17 Bulk excavation should then continue in a south easterly direction away from the commencement line referred to above. This applies over the full section of the site contained by the contiguous piled walling, with bulk excavation taken down to formation level for the new lower ground floor level accommodation.

A.18 Adjacent to the area of the Residents' Garden on the north eastern edge of the site, where the piling is discontinuous, conventional open excavations are applicable with a safe batterback slope of the granular subsoils. In the event of there being any concerns with the stability of these slopes during excavation, a section of trenchfill sheeting could be set in place over the width of the open gap referred to on the attached drawing.

A.19 Towards the southern edge of the site, ramp access will be required to allow for removal of arisings from the excavation works, with the arisings brought up to ground level for loading onto tipper lorries for off site disposal. This ramp should remain in position for as long as possible, with accompanying provision of open safe batterback slopes provided to the granular subsoils around the southern and south eastern edges of the site.

A.20 Once all of the excavation has been completed down to formation level in this manner, then the temporary access ramp can be removed and any remaining works completed to form a clear open excavation in preparation for construction of the substructure works for the new Care Home.

A.21 Safety fencing will be required across the top edge of any open batterback excavations. Safety barriers are also required along the top edge of the capping beam, with safety measures progressively installed as the works proceed on site.

A.22 Surface preparation works then to be carried out in readiness for forming a new low level cast in situ reinforced concrete raft slab as the main substructure base for the new Care Home. The concrete base will be set on a proprietary damp proof protection which in turn will be set over a lean mix concrete blinding set on top of the compacted and prepared subsoils at formation level.

A.23 The base slab will be formed in sections, to structural details to be determined as part of subsequent design development. The slab will initially be brought through to a kicker level around the perimeter wall edges.

A.24 In conjunction with these measures, any below ground pipework will be installed for either outgoing drains or incoming service ducts respectively.

A.25 Cast in situ reinforced concrete retaining walls will then be formed to the full perimeter edge of the new substructure construction. These walls will be designed as freestanding cantilever members capable of resisting all applied earth and water retaining pressures, as well as any applied surcharge loadings. These walls will initially be brought to a nominal 450mm below finished ground level.

A.26 Any necessary service holes can then be formed through the external walling with provision for proprietary tanking protection at the service penetrations.

A.27 Full tanking of the external perimeter edge of the lower ground floor accommodation then needs to be provided to specialist details. Tanking initially to be brought up to, and over, the top edge of the concrete walling. Dual waterproof protection to be provided in the form of both proprietary external membrane protection and the use of waterproof concrete to all slab and wall elements in the substructure construction.

A.28 Once these measures are completed, then any working trenches between the outer face of the new walling and the exposed face of the contiguous piled walls or capping beams can be backfilled with clean free draining granular material and incorporation of barrier protection between the backfill and the tanking membrane. Consideration also to be given to external drainage provision in the backfill to details to be agreed as part of subsequent design development works.

A.29 Initially backfill to be brought to a nominal 0.60m below ground level with accompanying barrier protection moved across from the capping beam to the line of the new structural walling for health and safety considerations.

A.30 Internally all loadbearing wall elements then to be formed, built directly off the main reinforced concrete raft slab. These walls will be brought through to soffit of ground floor slab level.

A.31 Externally around the perimeter wall edges, new cavity masonry construction to be provided from top of the reinforced concrete walling through to soffit of ground floor slab level, with extension of damp proof protection along the line of junction between the respective wall elements.

A.32 Any remaining areas of open batterback excavations can then be carefully and progressively backfilled and brought through to ground level.

A.33 The backfill can also extend over the top of the previous excavations for the capping beams, all to ensure reinstatement of compacted hardcore fill to all of the perimeter edges of the site, with the fill material brought through to a nominal 300mm below finished external ground levels.

A.34 The ground floor slabs can then be lifted into position, enclosing the lower ground floor accommodation and providing a safe working deck at slab level.

A.35 Conventional construction techniques can then be progressed for the main superstructure elements of the building, once all below ground works are completed.