Proposed Redevelopment of Land at Gondar Gardens

London NW6

Basement Impact Assessment Interpretative Report

November 2013

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on behalf of Linden Wates Homes (Hampstead) Limited

Contents

1. Introduction

Background

1.1 Linden Wates (West Hampstead) Limited are seeking planning permission to redevelop a former covered reservoir at Gondar Gardens, London NW6. The proposal comprises:

Redevelopment of the covered reservoir structure to provide 28 residential units with associated parking, refuse storage and landscaping of the site for Private Open Space, following substantial demolition of the roof and internal structure.

1.2 The current scheme has evolved from an earlier proposal, submitted in January 2012, which was refused planning permission on appeal in June 2013. The basement elements of the scheme have not changed.

Policy Context

1.3 The scheme includes the provision of both residential accommodation and parking at basement level, and therefore falls within the scope of Camden Development Policy DP27: Basements and lightwells. The policy states:

In determining proposals for basement and other underground development, the Council will require an assessment of the scheme's impact on drainage, flooding, groundwater conditions and structural stability, where appropriate. The Council will only permit basement and other underground development that does not cause harm to the built and natural environment and local amenity and does not result in flooding or ground instability.

1.4 The policy requires developers to demonstrate that their schemes:

(a) maintain the structural stability of the building and neighbouring properties;

(b) avoid adversely affecting drainage and runoff or causing other damage to the water environment; and

(c) avoid cumulative impacts upon structural stability or the water environment in the local area.

1.5 In determining proposals, the Council will consider whether they:

(d) harm the amenity of neighbours;

(e) lead to the loss of open space or trees of townscape or amenity value;

(f) provide satisfactory landscaping, including adequate soil depth;

(g) harm the appearance or setting of the property or the established character of the surrounding areas; and

(h) protect important archaeological remains.

1.6 Finally, the policy states that:

The Council will not permit basement schemes which include habitable rooms and other sensitive uses in areas prone to flooding.

1.7 Application of the policy is guided by Camden Planning Guidance (CPG) 4: Basements and Lightwells, which requires the preparation of a Basement Impact Assessment (BIA) for relevant applications.

Purpose of this Report

1.8 This document represents the interpretative part of the BIA for the Gondar Gardens development, as required in Para 2.27 of the guidance. It should be read in conjunction with the following technical reports:

- Geo-Environmental Site Assessment Report;
- Land Stability Report;
- Flood Risk and Drainage Assessment;
- Basement Hydrology Assessment;
- Construction Vibration Assessment;
- Archaeological Desk-Based Assessment; and
- Sunlight and Daylight Assessment.

2. Scope of the Assessment

Site Character

2.1 The western part of the application site comprises a covered reservoir. This was constructed in 1874 and emptied in the late 1990s, being formally decommissioned as a reservoir under the Reservoir Act in 2002.

2.2 It is of brick arch construction with a barrel roof and concrete floor, providing an internal height of up to 7m. It is about 92m long and 53m wide, giving an area of 4,878sqm, representing approximately 39% of the site. The condition of the barrel roof structure is deteriorating and, in the absence of remedial action, will continue to do so.

2.3 The reservoir is covered with soil and supported by earth bunds on each side. As a result, it forms a plateau-like feature raised above the level of the surrounding area at an elevation of around 80m AOD. This difference is most pronounced to the south and east, where levels slope steeply towards an elevation of about 72mAOD at the site boundary. Levels fall more gradually to the north and form a low bank to the west.

2.4 The reservoir and most of the site are covered with grass, which is cut periodically. A strip of scrub and trees runs along the eastern boundary, whilst there are also several trees along the southern boundary. Areas of hardstanding and ruderal vegetation, together with three small buildings, are located close to the western boundary.

2.5 The northern, eastern and southern boundaries of the site abut the rear gardens of residential properties in Gondar Gardens, Agamemnon Road and Hillfield Road respectively. The western boundary fronts onto Gondar Gardens, the opposite side of which comprises the garages and rear gardens of properties in Sarre Road.

Proposed Development

2.6 The proposal comprises the construction of 28 dwellings close to the Gondar Gardens frontage of the site. These will comprise blocks of 3-4 storeys above a basement level that will contain both residential accommodation and resident parking. The basement will be formed partly within a section of the reservoir and partly by excavation into the adjoining ground, requiring the construction of new retaining walls.

2.7 The roof and internal piers of the reservoir structure will be demolished, leaving the outer walls and buttresses. Fill material will be used to form grassed banks against these walls and the remaining void will be landscaped to enhance its biodiversity value.

Relevant Topics

2.8 Taking account of the scope of CPG 4, the character and location of the site, and the nature of the development, potential impacts on the following are considered to be of relevance in this case:

- land stability and the structural integrity of nearby buildings;

- the groundwater regime;
- surfacewater runoff;
- the amenity of nearby residents during construction;
- the amenity of residents occupying the new basement units;
- open space and trees; and
- archaeology.

2.9 The following sections consider each of these in turn, with reference to the technical reports.

3. Impact Assessment

Land Stability

3.1 The Geo-Environmental Site Assessment Report confirms that the geology of the site comprises London Clay (both weathered and unweathered), together with areas of Made Ground. It is likely that the reservoir was constructed by excavation into the natural ground level and that the spoil arising was then used to form the perimeter bunds.

3.2 The Land Stability Report identifies a potential for settlement of the surrounding ground levels to occur during and after the construction period. As a result, damage could be caused to nearby properties (Nos. 1-6 Chase Mansions and Nos. 1-6 St. Elmo Mansions) and to the roadway and footpath along the adjoining section of Gondar Gardens.

3.3 The Report predicts that this damage could, as a worst-case, reach Category 2 under the CIRIA C580 guidance (Embedded Retaining Walls – Guidance for Economic Design, 2003). The C580 categories range from 0 (negligible damage) to 5 (very severe damage). Category 2 represents "slight" damage and is described as follows:

Cracks easily filled. Redecoration probably required. Several slight fractures showing inside of building. Cracks are visible externally and some re-pointing may be required externally to ensure weathertightness. Doors and windows may stick slightly.

Groundwater

3.4 London Clay is an aquiclude and is defined as "unproductive strata" on the Environment Agency groundwater vulnerability maps. This was confirmed by the site investigations, which encountered no groundwater except for a minor seepage at depth. Although groundwater can occur within permeable formations "perched" on top of the clay, there is no evidence of this at the site.

3.5 The nature of the geology, together with the locally elevated location, suggests that there is unlikely to be a continuous flow of groundwater across the site. In addition, the reservoir structure is in effect impermeable, with rainwater running off its roof rather than percolating into the soil, thereby limiting the potential for local recharge.

3.6 As a result, the development is predicted to have a negligible impact on the groundwater regime, either through localised drawdown during the excavation of the basements or through the obstruction or diversion of flows once the new retaining walls are in place. Secondary effects due to changes in the groundwater regime off-site (e.g. shrinking of the clay or localised flooding) are therefore highly unlikely to occur.

Surfacewater

3.7 The Flood Risk and Drainage Assessment confirms that the site is located within Flood Zone 1, which denotes a "low probability" of flooding. This reflects its hilltop location, together with the absence of any watercourses or springs. Sources of flood risk are confined to the possibility of localised ponding of runoff or surcharging of sewers during storm events.

3.8 The development will not result in a significant increase in the impermeable coverage of the site, since most of the site will remain as landscaped open space with greenfield runoff rates. In addition, the developed area will remain within the footprint of the reservoir and ancillary structures close to the Gondar Gardens frontage, which are already of limited permeability.

3.9 The scheme will incorporate sustainable drainage features in order to manage runoff from the site, including green roofs and rainwater harvesting. Peak flows will be attenuated within a cellular storage structure, from which discharge will be pumped to the Thames Water sewer. There will be no discharge of runoff to the adjoining street or the perimeter of the site.

3.10 The basement accommodation and parking will be designed so as to exclude any possibility of ingress by runoff, with stormwater conveyed to the attenuation structure or sewer (from trafficked areas). Drainage systems will incorporate allowance for increased intensity of rainfall due to climate change. Residents will therefore not be exposed to any risk of surfacewater flooding.

Vibration during Construction

3.11 Demolition of the reservoir roof, together with activities associated with construction of the new retaining walls (e.g. piling, concrete pumps), are likely to be a source of vibration. Ground-borne vibration can cause nuisance in nearby properties where it may be perceived as re-radiated noise, and in extreme cases may be sufficient to cause cosmetic damage to building fabric.

3.12 The Construction Vibration Assessment confirms that there is a possibility of vibration levels being sufficient, on occasion, to cause annoyance. Levels will be insufficient to cause structural damage, except in the event that masonry is allowed to fall to the reservoir floor during the demolition phase.

3.13 Vibration risk is not unusual in a project of this type within a dense built-up area, and a range of mitigation measures are available. These include the adoption of non-percussive piling techniques, based on continuous flight auger (CFA) methods; the provision of a cushion mat of rubble during demolition; timing of the works to avoid sensitive periods; and liaison with local residents.

Amenity of New Residents

3.14 The basement residential units have been designed so as to optimise their amenity, specifically in terms of natural lighting. The Sunlight and Daylight Assessment confirms that all rooms would achieve or exceed the Average Daylight Factor (ADF) as recommended in BS8206 and the BRE guidelines. The rooms would also achieve good daylight distribution and will comply with the Mayor of London's Housing Design Guide in terms of glazing area.

Open Space and Trees

3.15 Whilst the development would displace the open land adjoining the Gondar Gardens frontage, the remainder of the site – including the reservoir void - would remain open and periodically accessible as private open space.

3.16 No significant vegetation (including mature trees) would be removed; such vegetation is confined to the southern and eastern boundaries of the site. Although a substantial degree of disturbance would occur during construction, including removal of much of the grassland cover, the site would be reinstated as green space, including measures to enhance its biodiversity and visual amenity.

Archaeology

3.17 The Desk-Based Archaeological Assessment confirms that the site is of negligible archaeological potential. This is mainly because any previous buried assets are likely to have been disturbed or removed during construction of the reservoir.

3.18 The reservoir itself is considered to be of low significance as a built heritage asset; it is neither locally nor statutorily listed, is a generic rather than unique structure, is in a deteriorating condition and has very little visible influence on the local area.

4. Monitoring and Mitigation

4.1 Various references have been made to the measures that will be adopted to mitigate the potential impacts of the development. Further details are provided in the technical reports supporting the application, including the Environmental Statement. This section summarises those measures of most relevance to the BIA.

Land Stability

4.2 A pre-construction condition survey (including photographic record) will be carried out of relevant properties and other physical assets (e.g. the footpath and roadway). Settlement targets will be installed, both internally and externally, and these will be monitored during and after the construction period, on the basis of a protocol to be agreed with the Council and with the owners/occupiers of residential properties.

4.3 Where damage occurs and may reasonably be attributable to the construction work, remedial action will be agreed and carried out.

Groundwater

4.4 Whilst no specific mitigation is considered to be required in relation to groundwater, the structural survey and monitoring described above would also be sufficient to capture any damage that may result indirectly from changes in soil moisture content (e.g. leading to shrinkage).

4.5 As part of routine construction management, any ingress of groundwater into the works will be noted and, if necessary, minimised. Dewatering of excavations will be carried out in accordance with best practice (e.g. discharge towards the site perimeter will not be permitted).

Surfacewater

4.6 The key features of the sustainable drainage system, which is to be incorporated into the design, have been described. This system will ensure that there is no net adverse impact either on the runoff regime of the site or on the urban drainage system. As a result, neither nearby receptors nor the new residents will be subject to any increase in flood risk.

Vibration

4.7 The measures described to minimise vibration will form part of a Construction Management Plan, which will be agreed with the Council and implemented by condition. The Plan will also include the use of best practicable means to minimise noise emissions during the demolition and construction phase.

Amenity of New Residents

4.8 Adequate levels of natural lighting have been ensured through the detailed design.

Open Space and Trees

4.9 The area of work will be fenced so as to ensure that the remainder of the site remains undisturbed. Tree protection measures will be adopted where necessary (e.g. exclusion of excavation, vehicle parking etc within root zones).

4.10 Restoration of the site will take place in accordance with a comprehensive landscape and ecological enhancement plan.

Archaeology

4.11 No specific archaeological mitigation is deemed to be required.

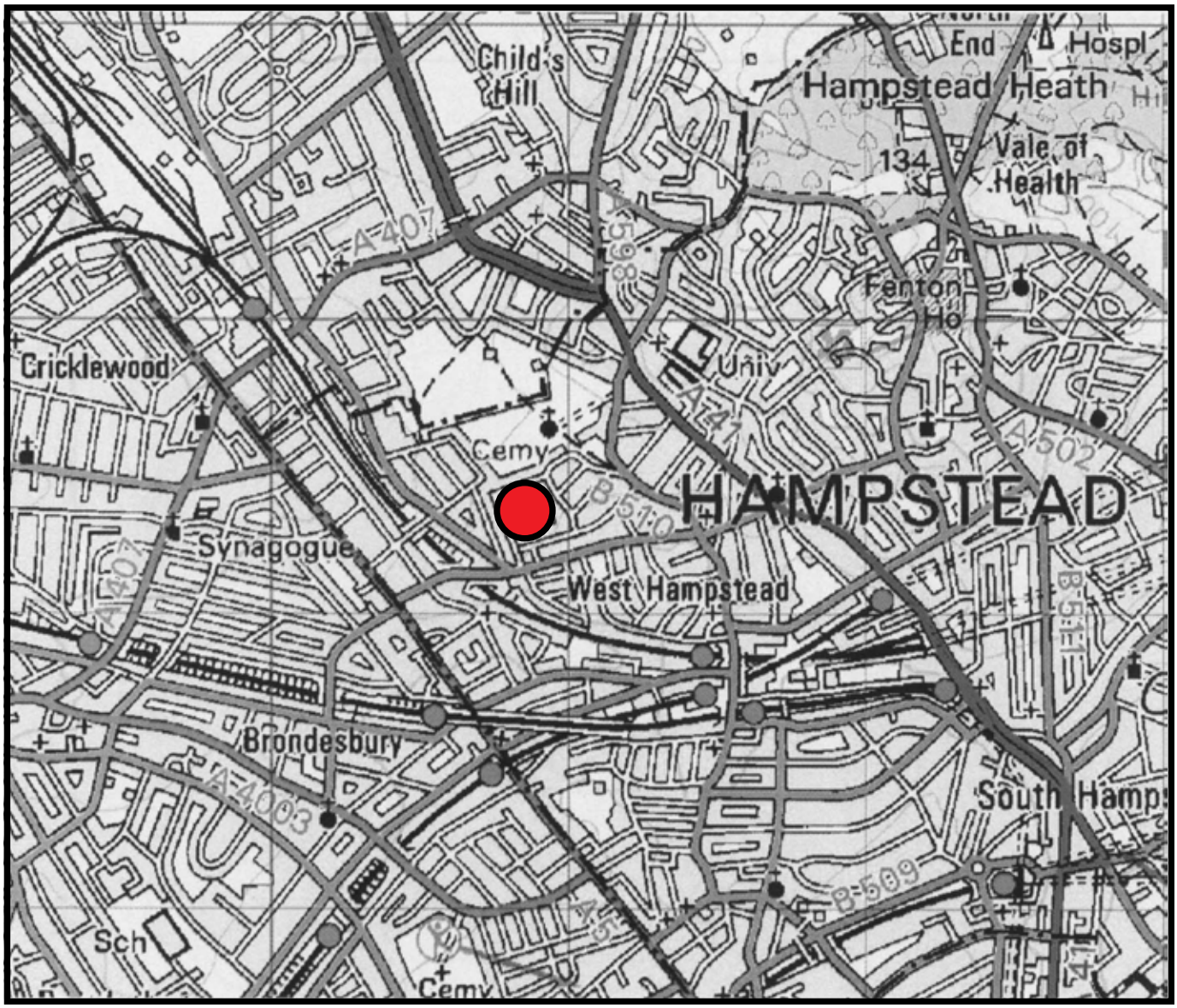
5. Conclusions

5.1 The proposed development involves the opening up of an existing basement structure (the covered reservoir) and the creation of a substantially smaller new basement, partly by excavating into the surrounding ground.

5.2 The assessment has concluded that there would be no significant effects associated with groundwater, surfacewater flooding, the amenity of the new residents, open space and trees, or archaeology.

5.3 A potential for significant effects has been identified in relation to ground settlement, giving rise to a risk of cosmetic damage to nearby buildings, and to vibration during construction. Ground settlement will be monitored and any need for remedial work to affected properties will be agreed with the Council and owner/occupiers. Vibration will be controlled by the adoption of appropriate methods and precautions (e.g. non-percussive piling) as part of a Construction Management Plan.

5.4 With monitoring and mitigation in place, the residual impacts will fall within the limits of acceptability for an urban location, and the policy requirements of the Council are considered to be met.



Site Location

Peter Radmall Associates

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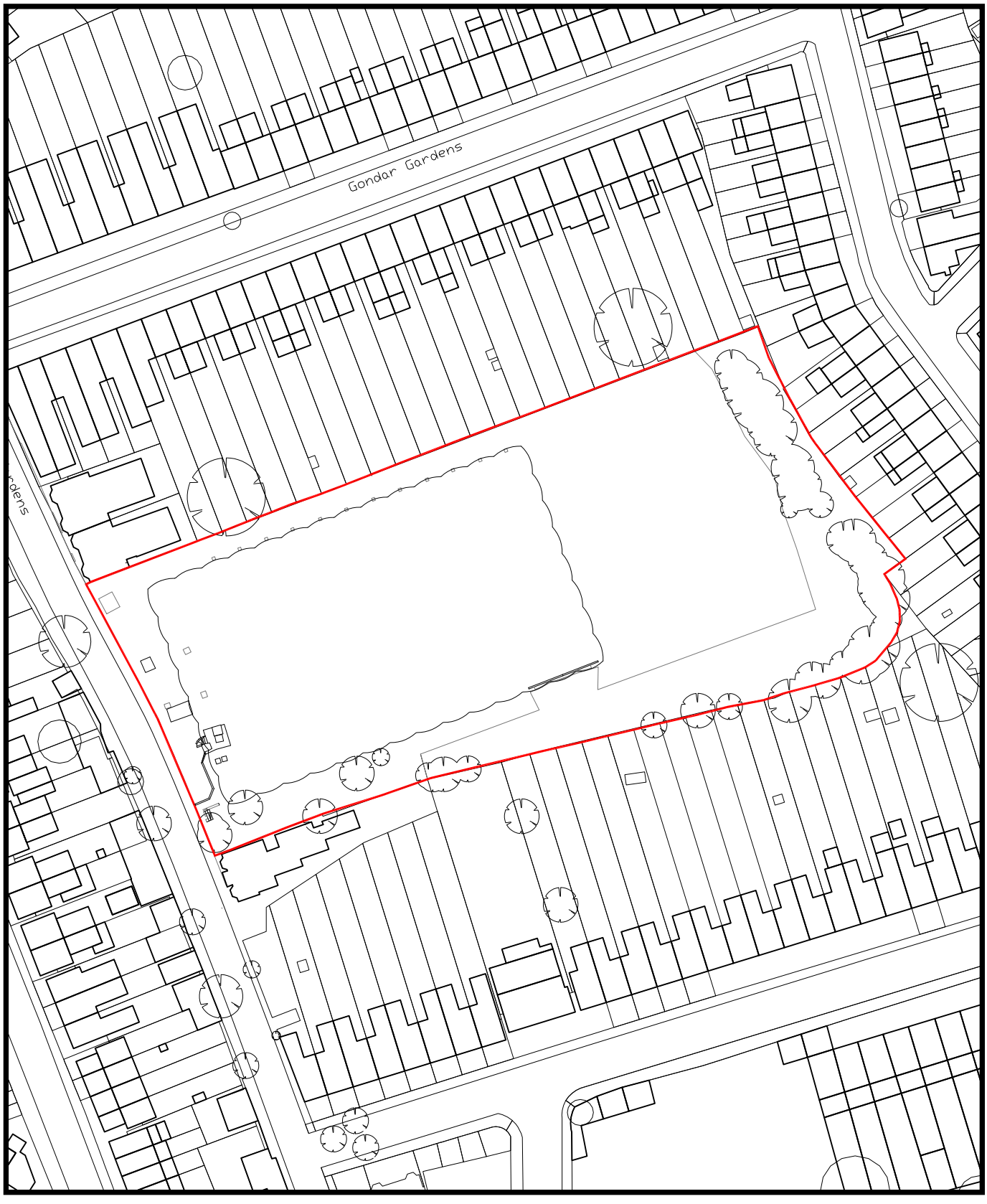

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Application Site

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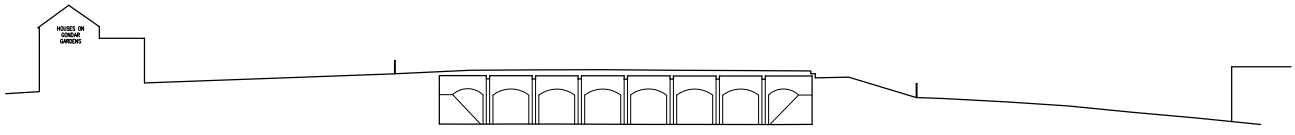

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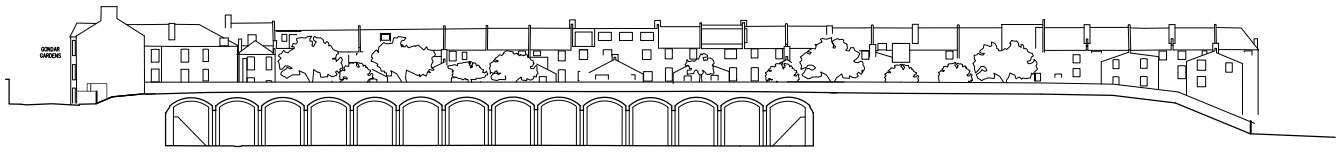

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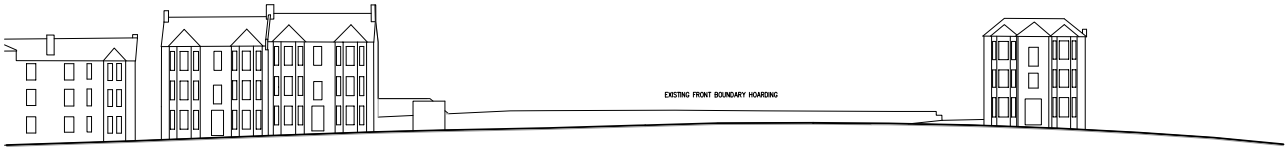

1 EXISTING GONDAR STREET ELEVATION
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Existing Site Sections

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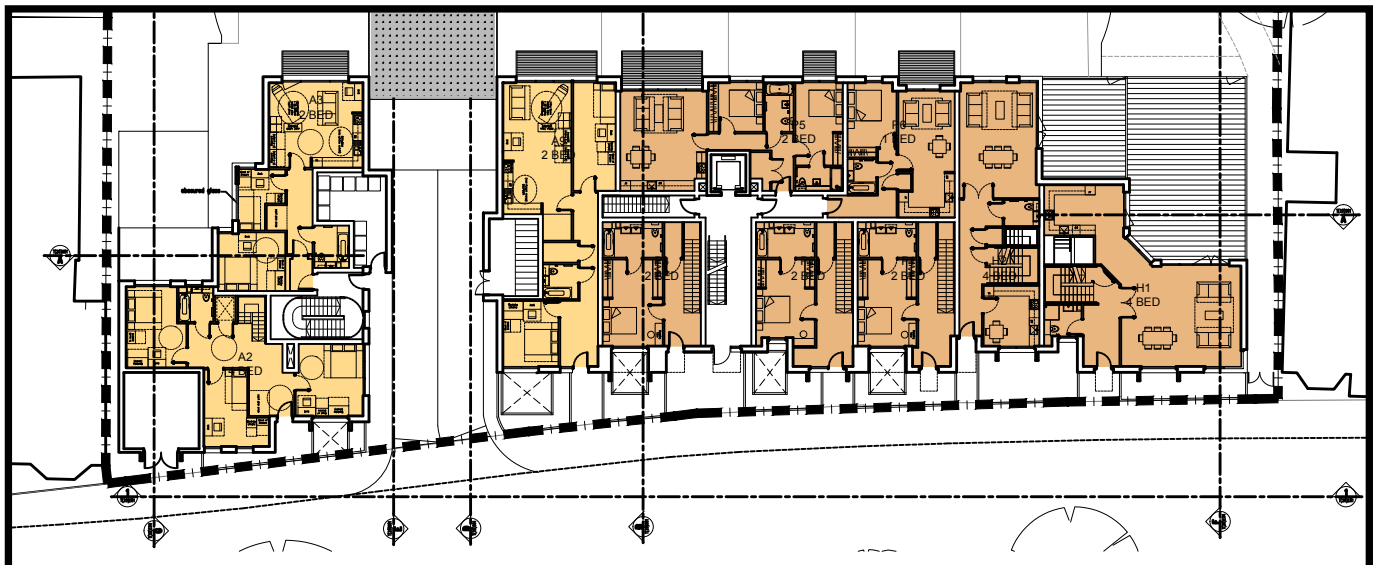
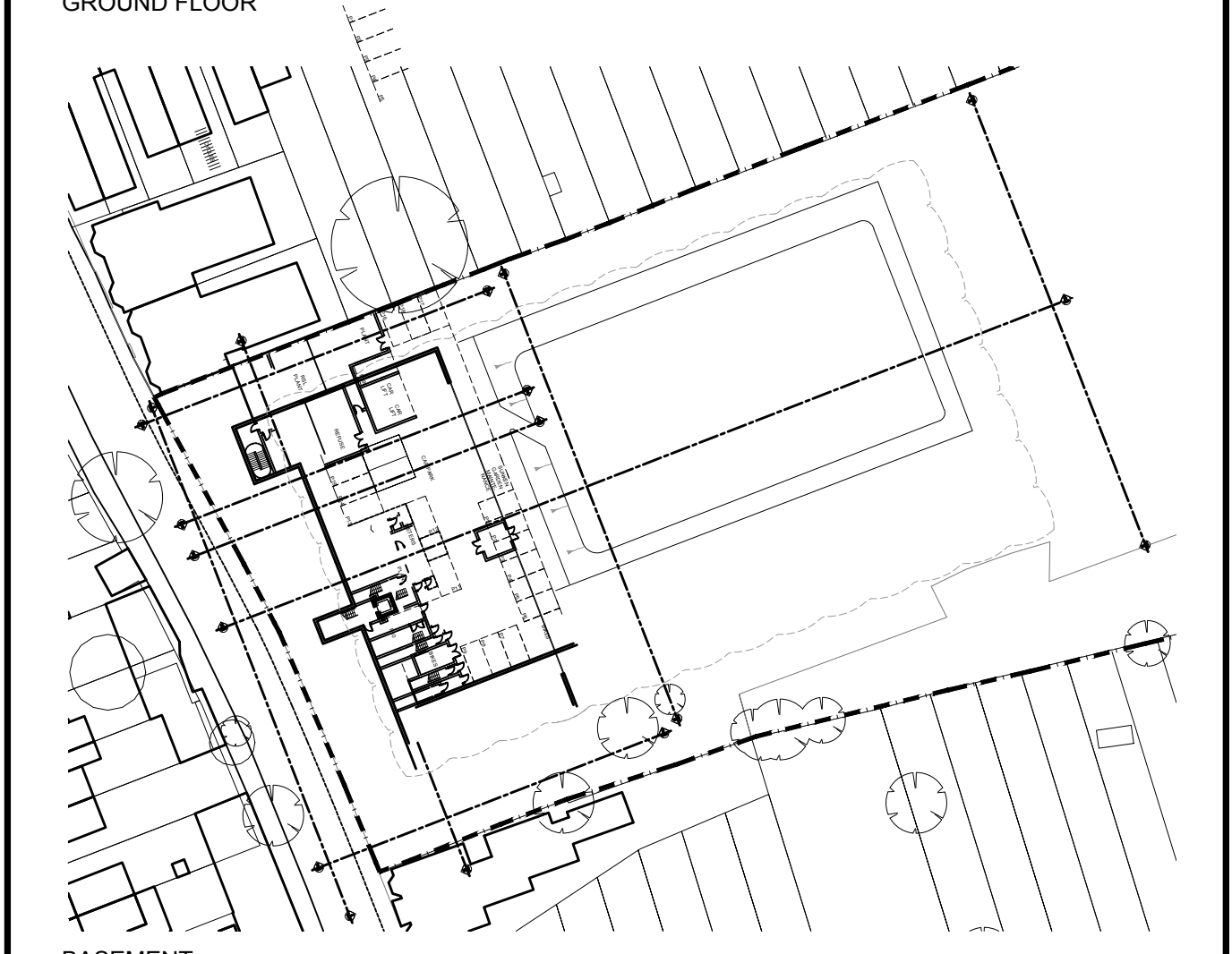


GROUND FLOOR



BASEMENT

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Ground-Level and Basement Plans

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2A SECTION A–A
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2B SECTION A–A
SCALE: 1:250 (A1)

4 SECTION D–D
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5 SECTION E–E
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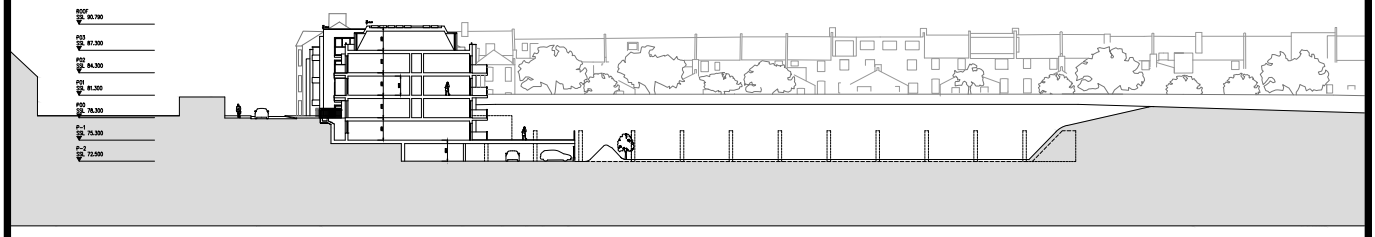

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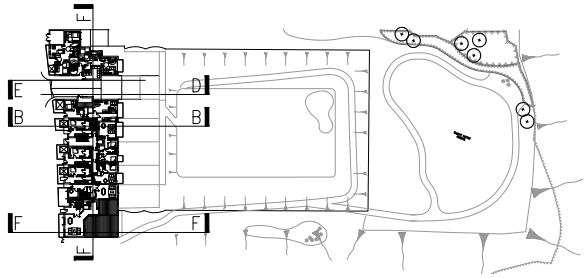

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Sections and Elevations

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Landscape Plan

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