conisbee

3 TRINITY CLOSE, WILLOUGHBY ROAD,

NW3 1SD

Basement Impact Assessment – Screening and Scoping Report.

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Rev No: Planning

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1.0 INTRODUCTION

1.1 It is proposed to construct a new basement and lightwells below the existing three storey dwelling that is the Willoughby Road end of a converted chapel. The basement will house a kitchen and dining areas and provide a much more open and well circulated living arrangement than present.

1.2 This report is in response to The Camden Development Policy DP27, with reference to para. 27.3., where the proposed basement remains within the footprint of the dwelling above, expect for four outset areas to allow light into the basement. It is only a single storey's depth, and as such as a reasonably small development.

1.3 Following the format guidance in The Camden Policy Guidance PG4, the stages for a Basement Impact Assessment are:

- Stage 1 - Screening; •
- Stage 2 - Scoping; •
- Stage 3 - Site investigation and study; •
- Stage 4 - Impact assessment; and •
- Stage 5 - Review and decision making.

This report follows the Flow Charts and uses the Figurative information given in the Camden Geological, Hydro-geological and Hydrological Study to submit data with relevance to the small scale of this project to address stages 1 and 2.

1.4 The Flowcharts of the Appendix E to the Camden Geological, Hydro-geological and Hydrological Study are completed in table format in section 3 of this report and form the screening element of this report, including:

- Surface Flow and Flooding Impact Identification
- Subterranean (groundwater) Flow Impact Identification
- Slope Stability screening flowchart

1.5 3 Trinity Close is located with an arrow on the relevant Figures of the Camden Geological, Hydro-geological and Hydrological Study, appended to this report, Appendix A.

1.6 Again reflecting the size of the scheme, a brief scoping report is provided in section 4, to be commented upon by Camden. It is hoped this will satisfy the requirement of DP27 in terms of consideration to the Geological, Hydro-geological and Hydrological effects of the development.

2.0 SITE INFORMATION

2.1 3 Trinity Close is a part of a Chapel, that appears to have stood on the site since circa. 1890, in the grounds of the Trinity Presbyterian Church that is now Essex Court on Rosslyn Hill. It is understood the Chapel was converted into dwellings circa. 1973.

2.2 The site and its adjacent surrounds are level, with Willoughby Road sloping down towards Hampstead heath.

2.3 Geological maps of the area highlight the strata as being Claygate member overlying London Clay Formation, this is confirmed by local borehole records from the geological society.

2.4 A report by Ground Engineering dated Aril 2012 is appended to this report which briefly describes the relevant geological & service in formation from a desk study and the Groundsure Envirosight Report dated 23rd April 2012. Both are in Appendix C.

2.5 The are no obvious signs of movement to this property nor it's neighbours.

2.6 The nearest property to the site is 1a Willoughby Road, a converted school building that has a basement storey which is approximately level with the proposed basement level.

2.7 There are a few mature trees near the site, although not next to the site, and the depth of the proposed basement should be well outside limits where trees may affects foundations. Nor will the proposed basement significantly affect the roots of trees.

2.8 Reference to the Environment Agency maps, as well as the maps appended, locate the site away from the ground source protection zones , however within a secondary aquifer as seen on the Environment Agency Map, below and Figure 8, appended.. However this is within the bedrock strata, and as such some 100m + below our site. See Figs 1 & 2 below.

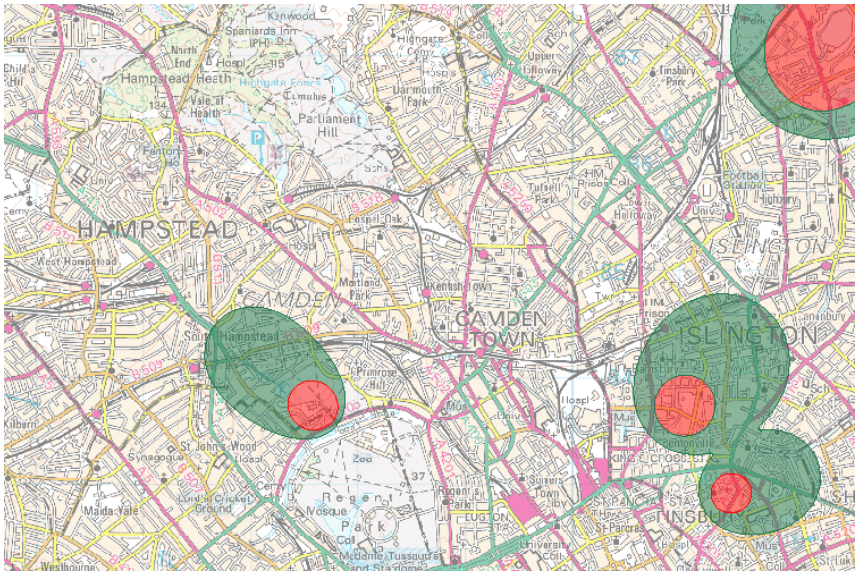

FIG 1. GROUND SOURCE PROTECTION ZONES

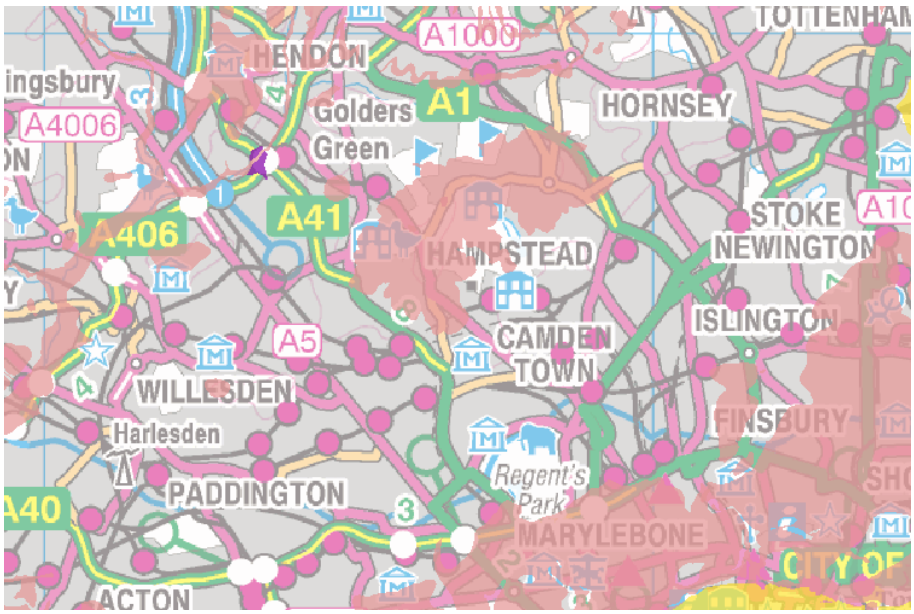

FIG 2. AQUIFER MAP BEDROCK DESIGNATION – PINK IS SECONDARY 'A'

2.9 A Structural Scheme for the basement is appended to this report, Appendix B.

3.0 RESPONSE TO BIA SCREENING FLOWCHARTS

Appendix E : Camden geological, hydrological and hydrology study: Guidance for subterranean development.

3.1	Surface Flow and Flooding Impact Identification	
3.1.1	**Is the site within the catchment of the pond chains on Hampstead Heath?**	**No, refer to Figures 14 & 15 appended.**
3.1.2	**As part of the site drainage, will surface water flows (e.g. rainfall and run-off) be materially changed from the existing one?**	**No, the areas of hard and permeable landscaping remains the same as the development lies under the existing footprint and surrounding landscaping is hard surfacing.**
3.1.3	**Will the proposed basement development result in a change in the proportion of hard surface / paved external areas?**	**No – as above.**
3.1.4	**Will the proposed basement development result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?**	**No – the there will be no alterations to the present flows of the site due to impermeable of permeable landscaping.**
3.1.5	**Will the proposed basement development result in a change to the quality of surface water being received by adjacent properties or downstream watercourses?**	**No change in water quality is expected.**

3.2	**Subterranean (groundwater) Flow Impact Identification**	
3.2.1	**Is the site located directly above an aquifer?**	**The site is over the Secondary A Aquifer, within the bedrock designation which covers the north parts of Camden, which lies under London Clay member, however is not over a source protection zone. Refer to Figure 8, Appended.**
	○ **Will the proposed basement extend beneath the water table surface?**	**The basement area is the claygate member, which is relatively shallow over impermeable London clay, therefore the site will not extend below the water table, however perched water lying over the London clay maybe encountered. As such pumping out in wet weather during construction and the design is to take into account the effects of perched water.**
3.2.2	**Is the site within 100m of a watercourse, well (used/disused) or potential spring line?**	**No, refer to Figure 11,appended**
3.2.3	**Is the site within the catchment of the pond chains on Hampstead Heath?**	**No, refer to Figures 14 & 15 appended**
3.2.4	**Will the proposed basement development result in a change in the proportion of hard surface / paved areas?**	**No, the areas of hard and permeable landscaping remains the same as the development lies under the existing footprint and surrounding landscaping is hard surfacing.**
3.2.5	**As part of the site drainage, will more surface water ((e.g. rainfall and run-off) than present be discharged to the ground? (e.g. via soak-aways and/or SUDS)**	**No – as above.**

3.3	Slope Stability screening flowchart	
3.3.1	**Does the existing site include slopes, natural or manmade, greater than 7 degrees (approx. 1 in 8)?**	**No – the site is flat.**
3.3.2	**Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7 degrees (approx. 1 in 8)?**	**No, the site boundaries are flat.**
3.3.3	**Does the development neighbour land, including railway cutting and the like, with a slope greater than 7 degrees (approx. 1 in 8)?**	**No, refer to slope angle map Figure 16 appended.**
3.3.4	**Is the site within a wider hill setting in which the general slope is greater than 7 degrees (approx. 1 in 8)?**	**No, refer to slope angle map Figure 16 appended.**
3.3.5	**Is the London Clay the shallowest strata at the site?**	**No – according to the geological long section, viewed in relation to topographical information from an OS Map, it is likely that some 100m of London Clay overlies the thinner Lambeth group. Some 5-20m of Claygate member overlies the London Clay.**
3.3.6	**Will any tree/s be felled as part of the proposed development and/or any works proposed within any tree protection zones where trees are to be retained?**	**No trees are to be felled as part of the proposals.**

3.3.7	**Is there a history of seasonal shrink-swell subsidence in the local area., and/or evidence of such effects on site?**	**London clay has high shrinkage potential, and as such some seasonal movement is to be expected, however generally differential movement that causes subsidence is due to trees and/or drains or poor subsoil. There is no visible evidence of such movement to the site.**
3.3.8	**Is the site within 100m of a watercourse or potential spring line?**	**No, refer to Figure 11.**
3.3.9	**Is the site within an area of previously worked ground.**	**The site appears to have formerly been the grounds of Trinity Church 1862-aprox 1890 , which itself was in the grounds of Carlisle House (which stood in Willoughby Road, prior to the road being laid down), and as such we do not think was worked, although may have had a few graves over 100 years ago.**
3.3.10	**Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?**	**The site is over the Secondary A Aquifer, within the bedrock designation which covers the north parts of Camden, which lies under London Clay member, however is not over a source protection zone. Refer to Figure 8, Appended. Being still shallow, the basement will not be below the water table, however it is possible with inclement weather, that perched water might affect the construction, therefore dewatering may be required.**
3.3.11	**Is the site within 50m of Hampstead Heath?**	**No, as indicated on most of the appended maps.**
3.3.12	**Is the site within 5m of a Highway or pedestrian right of way?**	**Yes, the development is adjacent to the pavement of a public highway. The excavations to the this area will need to be in a staged process with designed propping and necessary safe-hoardings and signs to warn public.**

3.3.13	**Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties.**	**Not to No 1 Willoughby Road, which also has a basement. No 2 Trinty Close is within the same church building, and so transition underpinning will be required to ensure there is not a sudden change in the relative stiffness of the foundations. Being an existing church with relatively thick walls, and buttressing to one side, however, highlight that the existing building is relatively stiff.**
3.3.14	**Is the site over (or within the exclusion zone of) any tunnels, e.g. railways lines?**	**No, the underground tunnel of the Northern line runs well to the east of the site, and the tunnel of the Overgound train between Hampstead heath and Finchley Road runs well south of the site.**

4.0 SCOPING

4.1 The screening undertaken as observations in reply to the flowcharts above highlights that the site is next to a public highway and the neighbours at no 2 Trinity Close will then have fair differential between theirs' and the reduced level footings to a basement at no 3.

4.1.1 *Public highway.* The site boundary is on Willoughby Road, a public highway. This is also the case to both Trinity Close itself and the entrance to the Mews on the other side of 3 Trinity Close. The site boundary and site management will need to be tightly controlled with timings agreed with the Highways dept of Camden and any privately managed thoroughfares. The sequencing of construction e.g. underpinning, and/or excavations and temporary propping will need to taken into account imposed and dead loadings, in the temporary and permanent conditions. Ditto the design of underpinning and retaining structures. This is highlighted in the scheme drawings, Appendix. B.

4.1.2 *Differential.* As No 2 Trinity Close is an adjacent neighbour, with original shared foundations, the design of the underpinning will need to be arranged to minimise any effects to no.2, a series of transition underpins would be proposed to ensure there is not a sudden change level of foundations and hence manage the foundations' stiffness across the two properties.

4.2 In conclusion, it is considered that there are no negative impacts anticipated in this basement proposal on the hydro-geological and hydrological conditions of the local environment that cannot be suitably addressed in the detailed design of this proposal.

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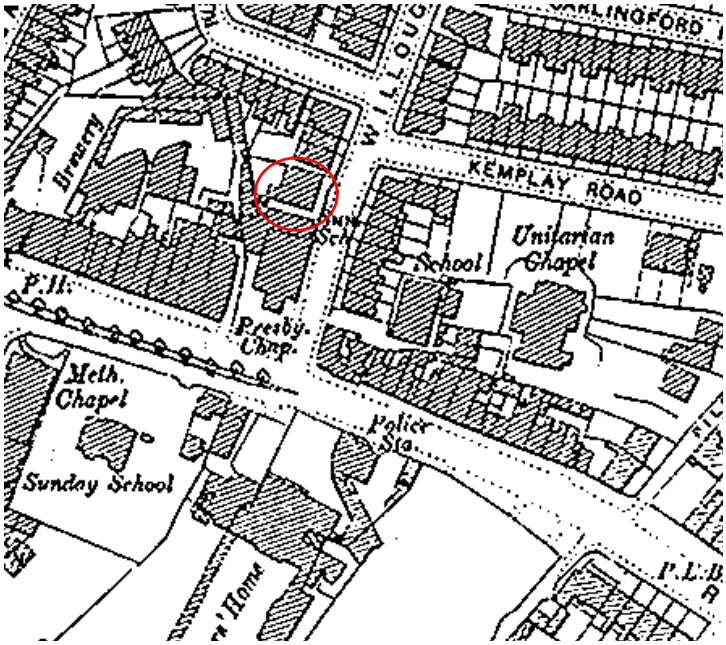
MSc BEng (Hons) CEng MIStructE

APPENDIX A

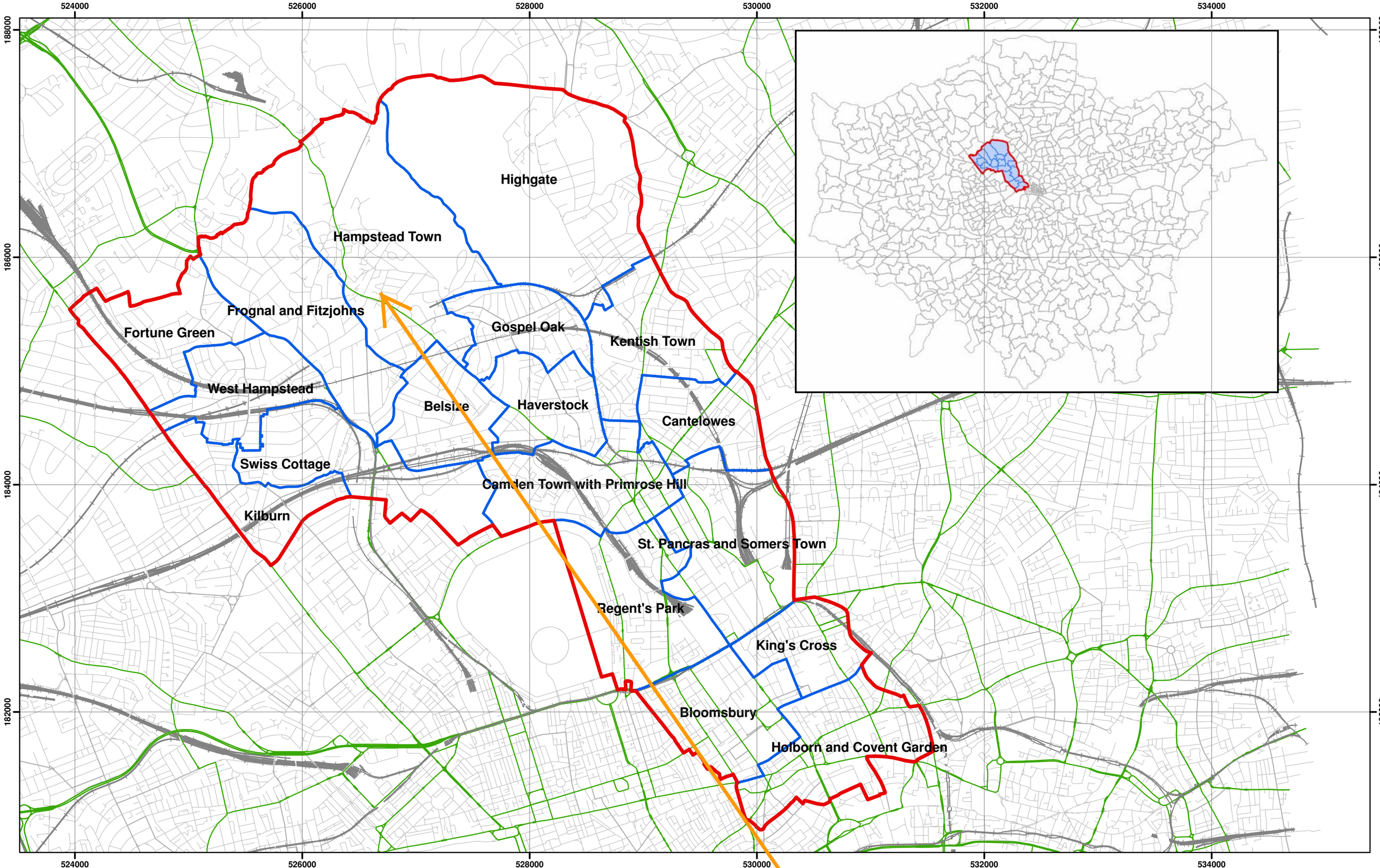
- OS MAPS 1866 & 1894

- FIGURES FROM THE CAMDEN GEOLOGICAL, HYDROGEOLOGICAL AND HYDROLOGICAL STUDY WITH 3 TRINITY CLOSE LOCATED.

Part OS Historical Map No 27 - Hampstead 1866



Part OS Historical Map No 27 – Hampstead 1894



N

Scale at A3: 1:30,000

Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.5 1 2 3
Kilometers

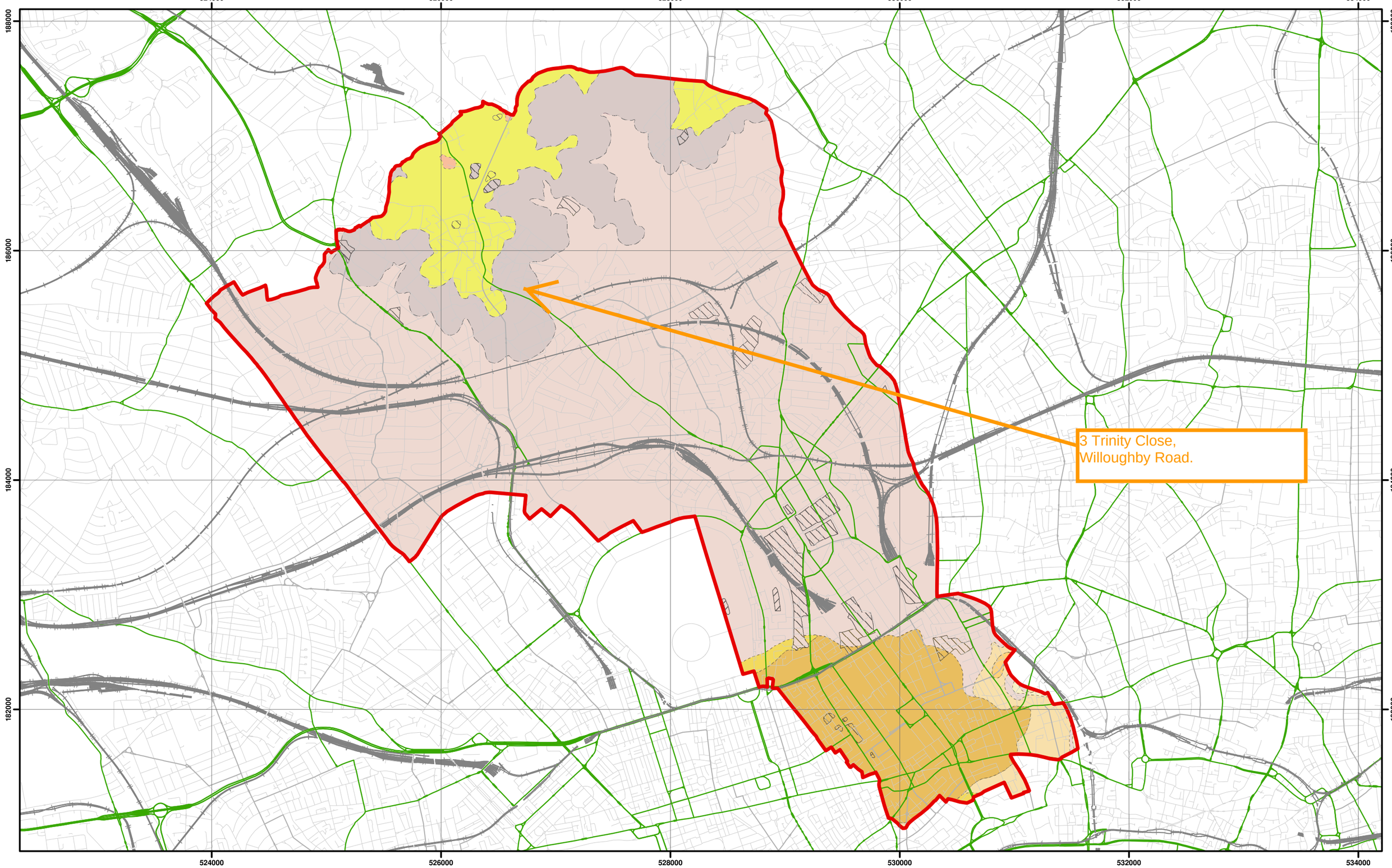
Legend

- London Borough of Camden
- Camden Wards
- Railway Lines
- A Roads

Camden Geological, Hydrogeological and Hydrological Study

Camden Administrative Boundaries

213923 FIGURE 1



Data source - BGS Mapping - Scale 1:10,000

N

Scale at A3: 1:30,000

Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.5 1 2 3
Kilometers

Legend

- London Borough of Camden
- Railway Lines
- A Roads

BGS 1:10K Artificial Ground

- MADE GROUND
- WORKED GROUND

BGS 1:10K Drift Geology

- ALLUVIUM
- HACKNEY GRAVEL FORMATION
- LANGLEY SILT FORMATION
- LYNCH HILL GRAVEL FORMATION
- STANMORE GRAVEL FORMATION

BGS 1:10K Solid Geology

- BAGSHOT FORMATION
- CLAYGATE MEMBER
- LAMBETH GROUP
- LONDON CLAY FORMATION

NB: Geological boundaries are largely indicative based on available geological mapping data

Camden Geological, Hydrogeological and Hydrological Study

Camden Geological Map

213923 FIGURE **3**

524000 526000 528000

186000

3 Trinity Close,
Willoughby Road.

Data Source: BGS Mapping - Scale 1:10,000

N

Scale at A3: 1:15,000

Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.25 0.5 1 1.5
Kilometers

Legend

- London Borough of Camden
- Railway Lines
- A Roads

BGS 1:10K Artificial Ground

- MADE GROUND
- WORKED GROUND

BGS 1:10K Drift Geology

- ALLUVIUM
- HACKNEY GRAVEL FORMATION
- LANGLEY SILT FORMATION
- LYNCH HILL GRAVEL FORMATION
- STANMORE GRAVEL FORMATION

BGS 1:10K Solid Geology

- BAGSHOT FORMATION
- CLAYGATE MEMBER
- LAMBETH GROUP
- LONDON CLAY FORMATION

NB. Geological boundaries are largely indicative based on available geological mapping data

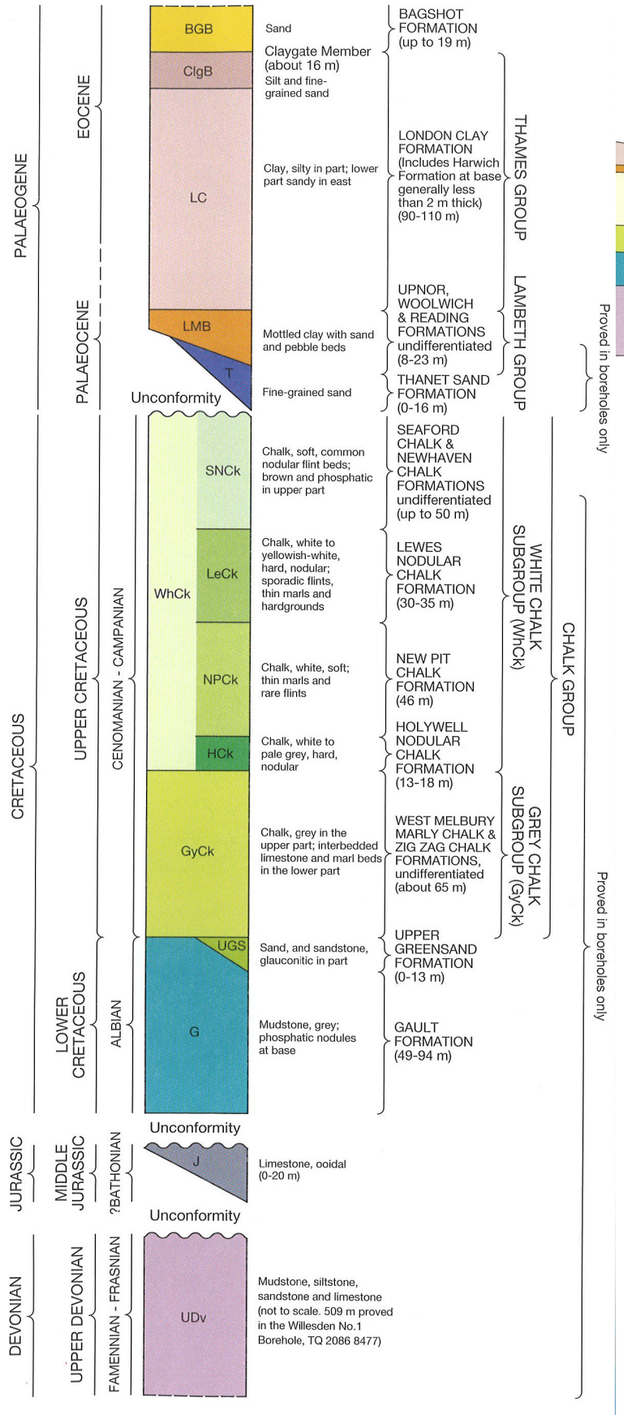
Camden Geological, Hydrogeological and Hydrological Study

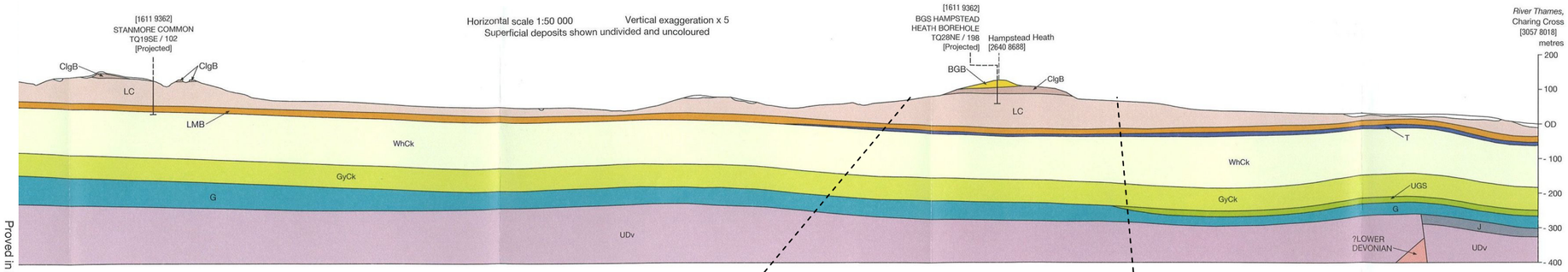
North Camden Geological Map

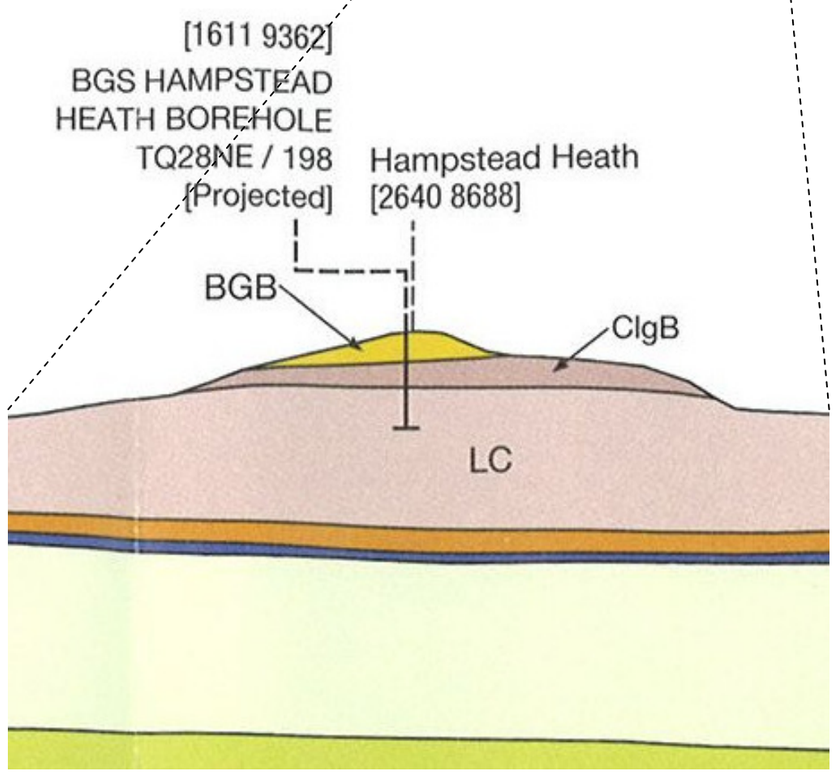
213923 FIGURE 4

GENERALIZED VERTICAL SECTION

Scale 1:2500 (1 cm to 25 m)





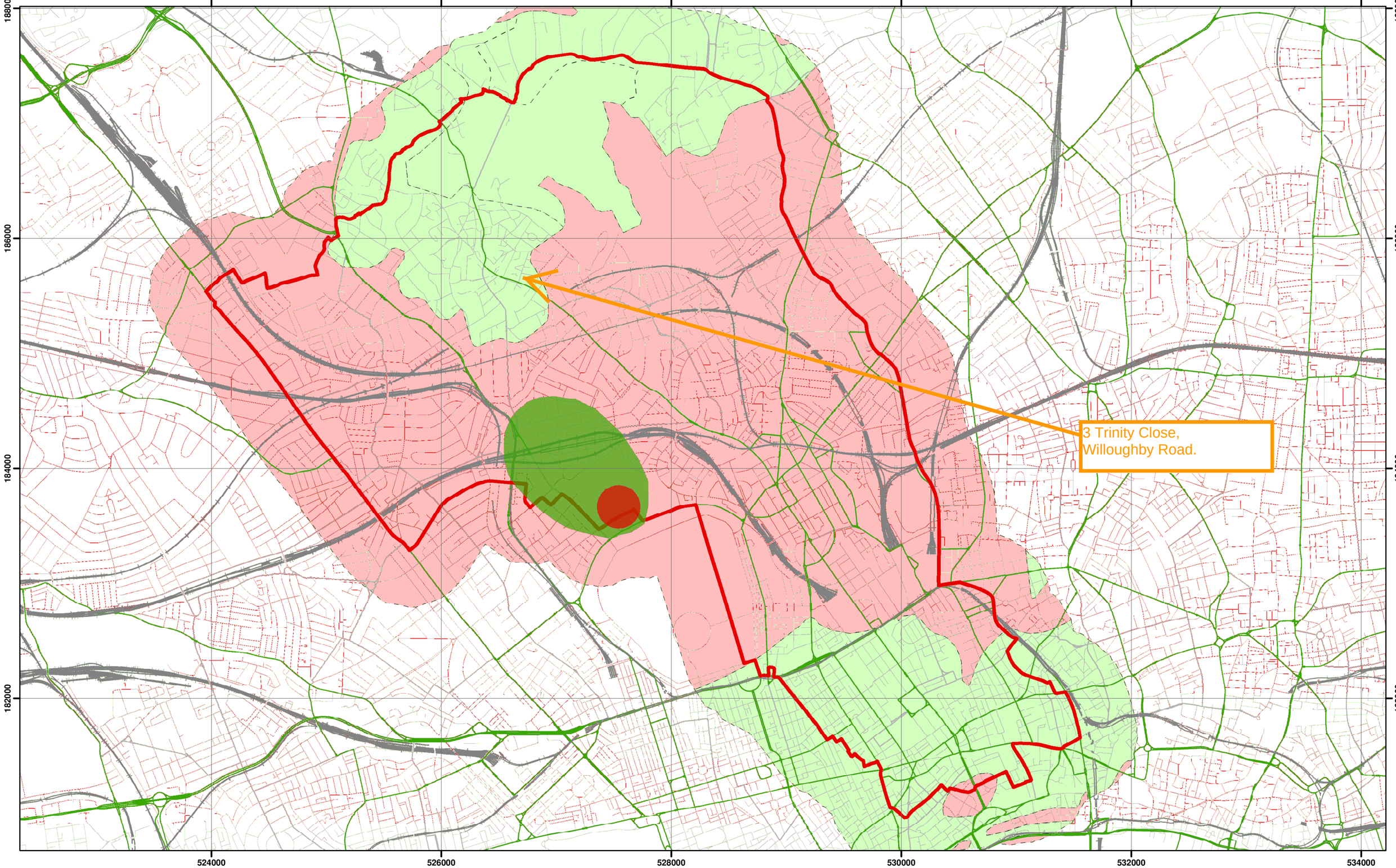


Source - British Geological Society, 1:50,000 Series
England and Wales Sheet 256 – North London

Camden Geological, Hydrogeological and Hydrological Study

Geological Long Section (NW – SE)

213923 **FIGURE 7**



Environment Agency Aquifer Designation based on BGS Mapping

N

Scale at A3: 1:30,000

Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.5 1 2 3
Kilometers

Legend

- Borough of Camden
- Railway Lines
- A Roads

Aquifer Designation

- Secondary A Aquifer
- Unproductive Strata

Source Protection Zone

- Outer Source Protection Zone
- Inner Source Protection Zone

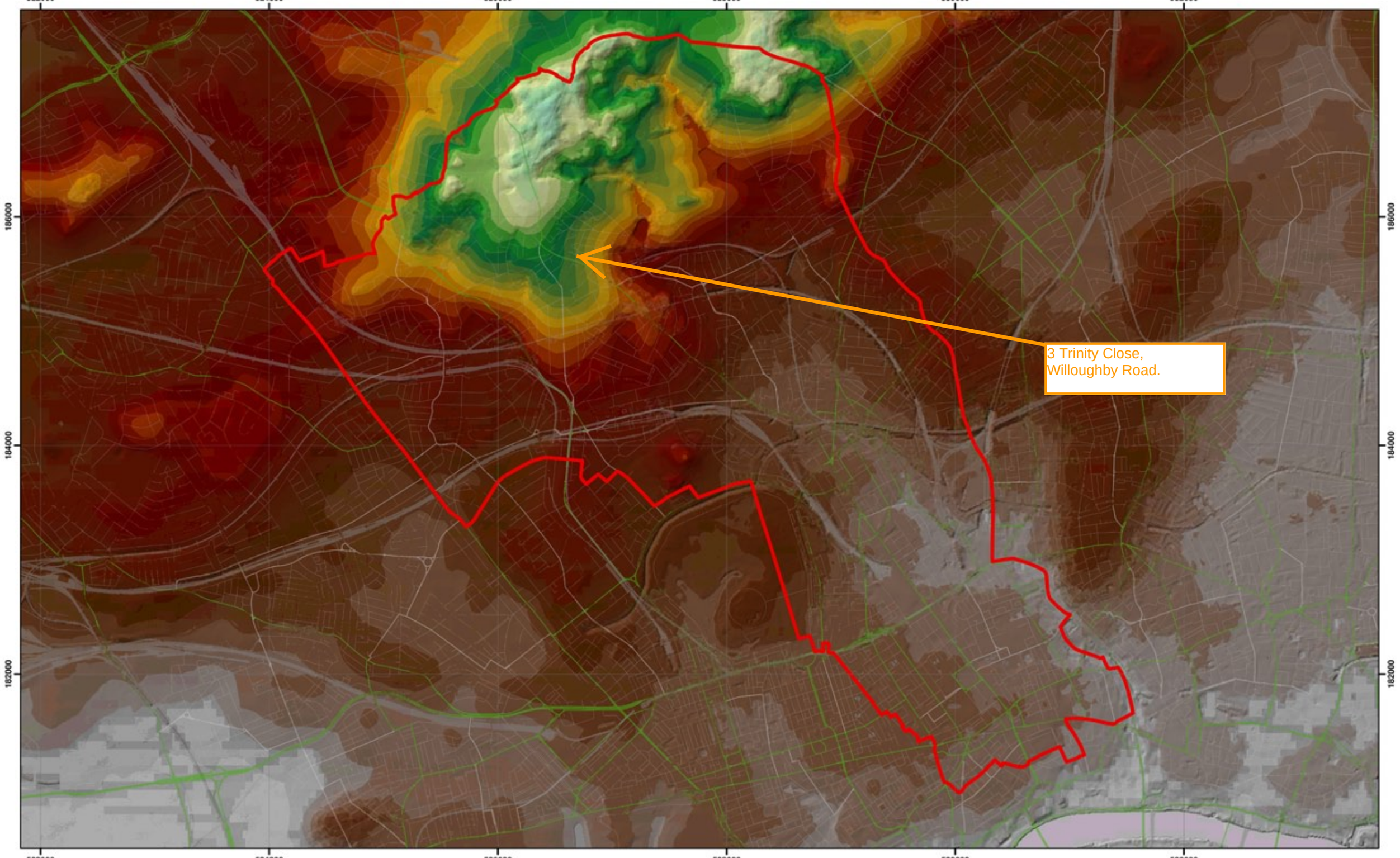
NB. Aquifer boundaries are indicative based on available geological mapping data

Camden Geological, Hydrogeological and Hydrological Study

Camden Aquifer Designation Map

213923

FIGURE 8



Topographic map based on digital terrain model provided by Camden Borough Council

N

Scale at A3: 1:30,000

Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.375 0.75 1.5 2.25 3 3.75
Kilometers

Legend
London Borough of Camden
Railway Lines
A Roads

DTM Terrain
* Window Size: 20.000

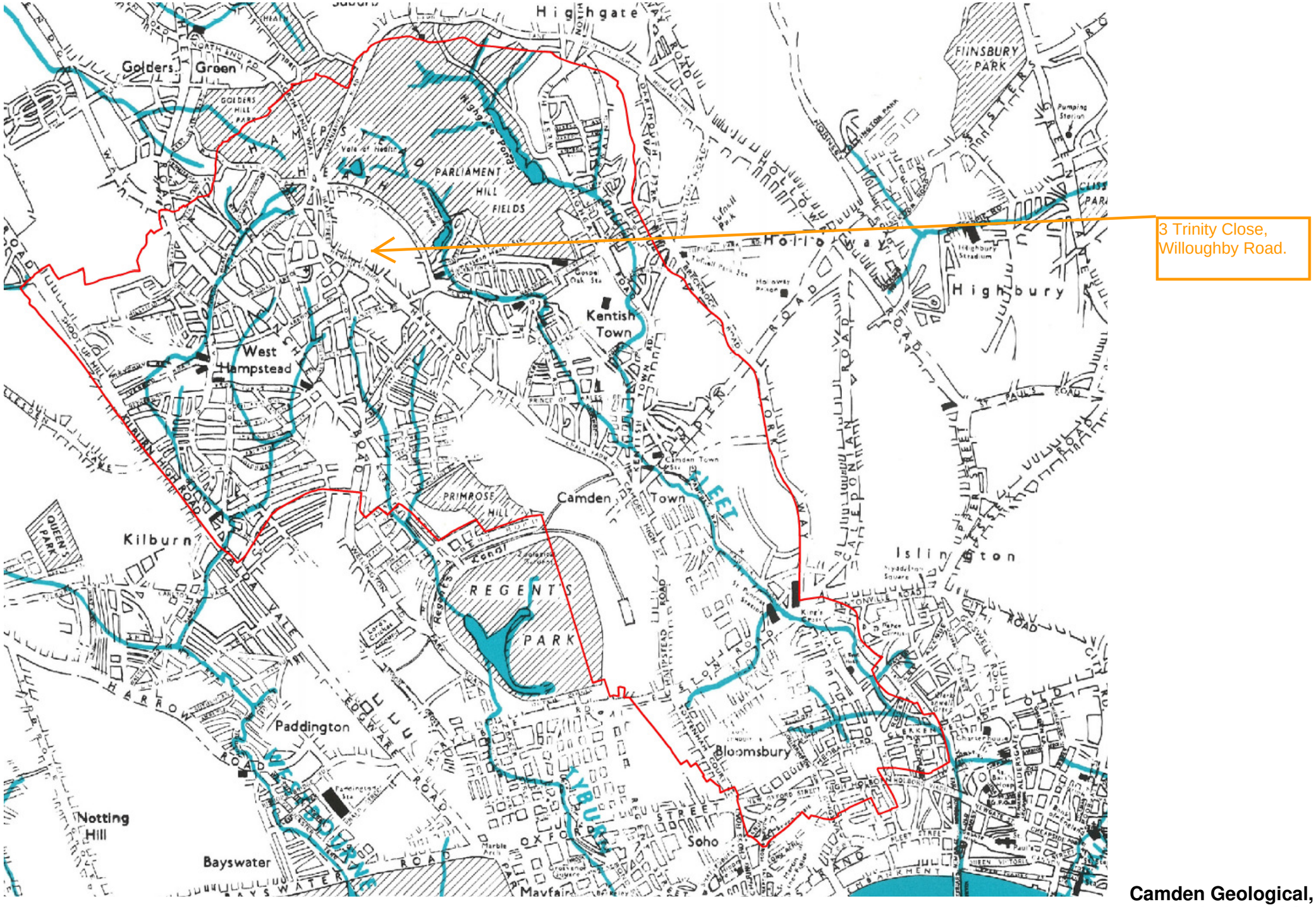
Elevation
145 - 150
140 - 145
135 - 140
130 - 135
125 - 130
120 - 125
115 - 120
110 - 115
105 - 110
100 - 105
95 - 100
90 - 95
85 - 90
80 - 85
75 - 80
70 - 75
65 - 70
60 - 65
55 - 60
50 - 55
45 - 50
40 - 45
35 - 40
30 - 35
25 - 30
20 - 25
15 - 20
10 - 15
5 - 10
0 - 5
-5 - 0
-7.4 - -5

Camden Geological, Hydrogeological and Hydrological Study

Camden Topographic Map

213923

FIGURE **10**



Source – Barton, Lost Rivers of London

Camden Geological, Hydrogeological and Hydrological Study
Watercourses

213923 FIGURE **11**

522000 524000 526000 528000 530000 532000

186000 184000 182000

Data Source: London Borough of Camden, 2010

N

Scale at A3: 1:30,000

Coordinate System:
British National Grid
GCS_OSGB_1936

0 0.5 1 2 3
Kilometers

Legend

- London Borough of Camden
- Surface water
- Railway Lines
- A Roads

3 Trinity Close,
Willoughby Road.

Camden Geological, Hydrogeological and Hydrological Study

Camden Surface Water Features

213923 FIGURE **12**