



Document History and Status

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Author	F Drammeh, MEng
Project Partner	E M Brown, BSc MSc CGeol FGS
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1.0 NON-TECHNICAL SUMMARY

- 1.1. CampbellReith was instructed by London Borough of Camden, (LBC) to carry out an audit on the Basement Impact Assessment submitted as part of the Planning Submission documentation for 28 Compayne Gardens (planning reference 2015/6118/P). The basement is considered to fall within Category A as defined by the Terms of Reference.
- 1.2. The Audit reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development in accordance with LBC's policies and technical procedures.
- 1.3. CampbellReith was able to access LBC's Planning Portal and gain access to the latest revision of submitted documentation and reviewed it against an agreed audit check list.
- 1.4. The BIA has been prepared by Southern Testing Limited (STL) and was reviewed by individuals with suitable qualifications.
- 1.5. A structural feasibility statement has been prepared by Bird Associates.
- 1.6. Underpinning is proposed to extend the existing foundation by approximately 1m. Calculations have not been provided to substantiate this underpinning, however it is accepted that the works are minor in nature and the underpinning proposed is likely an acceptable solution.
- 1.7. It is accepted that ground movements should be negligible assuming good workmanship.
- 1.8. Underpinning has been proposed to the rear boundary wall and further details have been provided as requested t following the initial audit to substantiate the suitability of underpinning to this wall.
- 1.9. The proposed basement will be founded within the London Clay and the BIA states that the development will have a negligible impact on slope or ground stability of the surrounding area and will not affect the hydrogeology of the surrounding area and this is accepted.
- 1.10. It is accepted that although groundwater ingress is likely, simple mitigation measures such as pumping are likely to be sufficient.
- 1.11. Flood risk has now been considered and appropriate mitigation measures have been proposed.
- 1.12. The BIA proposes a full structural survey of the neighbouring properties and monitoring during construction and such a mitigation measure should be adopted as it will dictate the severity of any damage that could occur.



- 1.13. An underpinning sequence plan and anticipated works duration has been provided. It is accepted that a more detailed programme will be provided by the contractor as part of the party wall award.
- 1.14. It is accepted that the BIA and supplementary documents provided have adequately identified the potential impacts from the basement construction and propose sufficient mitigation where required.



2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 24 November 2015 to carry out a Category A Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 28 Compayne Gardens, Camden Reference 2015/6118/P.
- 2.2. The Audit was carried out in accordance with the Terms of Reference set by LBC. It reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development.
- 2.3. A BIA is required for all planning applications with basements in Camden in general accordance with policies and technical procedures contained within
 - Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
 - Camden Planning Guidance (CPG) 4: Basements and Lightwells.
 - Camden Development Policy (DP) 27: Basements and Lightwells.
 - Camden Development Policy (DP) 23: Water.
- 2.4. The BIA should demonstrate that schemes:
 - a) maintain the structural stability of the building and neighbouring properties;
 - b) avoid adversely affecting drainage and run off or causing other damage to the water environment; and,
 - c) avoid cumulative impacts upon structural stability or the water environment in the local area

and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.

2.5. LBC's Audit Instruction described the planning proposal as "*Alterations to two external windows, lowering of existing lower ground floor and associated works to rear garden."*

The Audit Instruction also confirmed 28 Compayne Gardens is not a listed building, nor is it a neighbour to listed buildings.



- 2.6. CampbellReith accessed LBC's Planning Portal on 11 December 2015 and gained access to the following relevant documents for audit purposes:
 - Basement Impact Assessment Report (Stages 1 &2 Screening/Scoping & Stage 3 Site Investigation & Study) Southern Testing Limited (STL), dated October 2015.
 - Design and Access Statement MWAI, dated October 2015
 - Heritage Statement –MWAI, dated October 2015
 - Structural Feasibility Statement Bird Associates Consulting Engineers, dated October 2015
 - Architects MWAI drawings:

Site location (OS 01)

Existing site plan (EX 01)

Proposed plan (PL 11)

Existing and proposed elevations (PL 12)

Existing and proposed sections (PL 13)

- 2.7. Additional information was received by email from MWAI between 4 and 7 January 2016 in response to queries raised in the initial BIA report. This information is included in Appendix 3 and is as follows:
 - Email from MWAI, dated 7 January 2016, giving an indication of anticipated works duration, confirmation of consultation with Thames Water indicating the site is not in an area at risk from sewer flooding and flood mitigation measures.
 - Structural Engineer's Bird Associates Drawing Nos

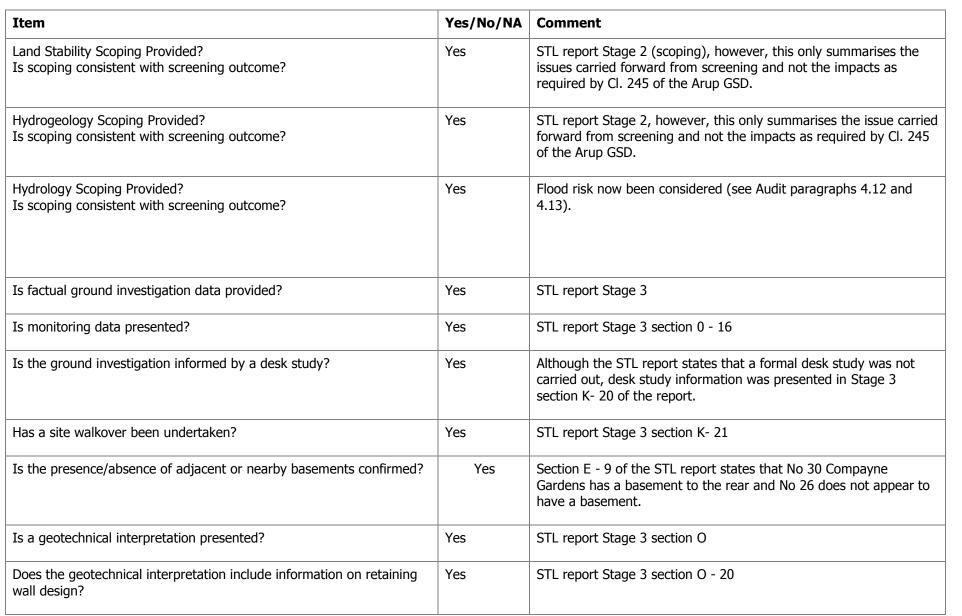
6724/03 A 6724/04 A 6724/07 A

• Thames Water Utilities Limited Drainage and Water Enquiry response



Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	The individuals involved in the review of the BIA have suitable credentials.
Is data required by Cl.233 of the GSD presented?	Yes	Most of the information required is presented in the BIA. An anticipated duration of works has been provided and it is stated a detailed programme of works will be presented by the Main Contractor.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	
Are suitable plan/maps included?	Yes	
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	The site is in a local flood risk zone and lies in a risk area for internal and external sewer flooding. Flood risk has now been considered (see Audit paragraphs 4.12 and 4.13).
Is a conceptual model presented?	Yes	STL BIA report Sections 13 & 16





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Item	Yes/No/NA	Comment	
Are reports on other investigations required by screening and scoping presented?	No	STL report Stage 2 states a flood risk assessment was outside the scope of their report. Flood risk has now been appropriately considered.	
Are baseline conditions described, based on the GSD?	Yes		
Do the base line conditions consider adjacent or nearby basements?	Yes		
Is an Impact Assessment provided?	No	The STL report summary states this stage was not considered necessary based on the findings of the screening, scoping and site investigation.	
Are estimates of ground movement and structural impact presented?	No	Only 1m depth of mass concrete underpinning is proposed and it is stated in the STL report summary that ground movements should be negligible assuming good workmanship.	
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	N/A	A formal impact assessment is not presented, however, Stage 3 of the STL report considers some of the aspects identified in the screening.	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	N/A	The BIA was not undertaken beyond Stage 3 (site investigation), however, pumping is suggested to deal with anticipated ground water ingress during excavation.	
Has the need for monitoring during construction been considered?	Yes	STL report Section F proposes monitoring on the 'western side of the building' (assumed to be No. 30 Compayne Gardens).	
Have the residual (after mitigation) impacts been clearly identified?	Yes	Supplementary information has been provided and is included in Appendix 3.	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	It appears that the underpinning has been considered as mass concrete traditional underpinning. Calculations have not been provided to demonstrate that this is a suitable solution to resist lateral forces, rather engineering judgement has been utilised. Given that nominal underpinning is proposed, whilst not	

Item	Yes/No/NA	Comment
		demonstrated, it is accepted that the structural stability of the nearby structures will be maintained assuming good workmanship (see Audit paragraphs 4.8 and 4.10).
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	No	A conventional ground movement assessment is not compatible with a mass concrete underpinned solution. However the BIA states ground movements should be negligible assuming good workmanship.
Are non-technical summaries provided?	No	Although a 'summary' is presented at the beginning of the STL report, a non technical summary after each stage as required by CPG4 is not presented.



4.0 **DISCUSSION**

- 4.1. The Basement Impact Assessment (BIA) has been carried out by a well-known firm of engineering consultants, Southern Testing Limited (STL) and the BIA was reviewed by individuals with suitable qualifications.
- 4.2. A structural feasibility statement has been prepared by Bird Associates.
- 4.3. The BIA states that an existing lower ground floor is present to the rear of the property. It is proposed to lower the floor level of this area, along with the external rear patio immediately adjacent, it by about 0.50m involving an excavation of 1m below the existing level.
- 4.4. The LBC Instruction to proceed with the audit identifies that neither 28 Compayne Gardens nor surrounding properties are listed.
- 4.5. It is acknowledged that the basement will be founded within the London Clay, which based on the ground conditions presented in the STL Stage 3 report, extends to within 1m of the existing site surface. The London Clay is overlain by Made Ground and clayey Head Deposits. It is accepted that although groundwater was monitored at 0.72 and 1.05m bgl within the Head Deposits and London Clay, groundwater is not expected to be an issue and pumping is likely to be sufficient to deal with any perched groundwater. The BIA however notes the need for long term monitoring.
- 4.6. Trial pits have indicated the foundations to the party wall with no 30 Compayne Gardens comprise brickwork to a maximum 400mm depth.
- 4.7. Underpinning is proposed to extend the existing foundations to facilitate the proposed basement. This underpinning is referred to as 'conventional underpinning' being 600mm wide and 1m deep, cast in bays with steel dowels cast between the individually cast bays. It is therefore assumed that mass concrete underpinning is proposed.
- 4.8. No preliminary design for the underpinning has been produced, rather the specifying engineer appears to have relied on his engineering judgement as to a mass concrete underpinning solution's suitability for this proposal. Typical basement underpinning would be of reinforced concrete in order to resist lateral forces, where the tension zone in the underpinning is reinforced with steel bars. A mass concrete underpinning solution would have to rely on the pre compression imposed by the structure above to prevent tension forming in the concrete, and therefore from cracking of the concrete and movements occurring. It is considered that in this instance of a relatively shallow depth of mass concrete underpinning, with a width of 600mm as proposed, it is an acceptable solution.

- 4.9. It is also proposed to underpin the existing boundary wall. Structural drawings have now been provided as requested following the initial audit and these indicate a reinforced concrete underpinning which is considered an acceptable solution.
- 4.10. The STL report states appropriate propping techniques will be utilised. The sequence of underpinning is described in the Structural Feasibility Statement. It is accepted that ground movements should be negligible assuming good workmanship.
- 4.11. It is accepted that the BIA has shown that the development will have no significant effect on slope or ground stability of the surrounding area and will not affect the hydrogeology of the surrounding area.
- 4.12. The BIA screening stage identified the site is in an area of potential risk from surface water flooding, however, the issue was not considered any further in the BIA. Reference to Camden's Strategic Flood Risk Assessment indicates the property is in a local flood risk zone and it lies in an area where properties have previously been affected by internal and external sewer flooding. These issues have now been considered as requested in the initial Audit report.
- 4.13. MWAI have stated in an email response that additional surface water slot drains will be installed. The response to a sewer flooding enquiry from Thames Water has been provided and this is included in Appendix 3. This indicates the site is not considered to be at risk from flooding as a result of sewer overload. MWAI have also stated the basement pump will reduce the risk of flood water entering the basement and the pump will be fitted with non-return valves.
- 4.14. The BIA proposes a full structural survey of the neighbouring properties and monitoring during construction. This is agreed with and should be adopted.
- 4.15. In response to a request to provide a works programme as required by Cl.233 of the GSD following the initial audit, MWAI have provided an underpinning sequence plan and anticipated works duration in an email and these are included in Appendix 3. MWAI have indicated a full construction programme will be provided by the contractor.

5.0 CONCLUSIONS

- 5.1. The BIA has been carried out by a well-known firm of engineering consultants and reviewed by individuals who possess suitable qualifications.
- 5.2. The BIA states that an existing lower ground floor is present beneath part of the property and the floor level is to be lowered together with a small rear patio immediately adjacent to it by about 0.50m. The construction involves an excavation of approximately 1m of soil and the underpinning of the existing walls.
- 5.3. The underpinning proposal appears to involve mass concrete underpinning. No design calculations have been produced and the design appears to have been carried out utilising the engineer's judgement. It is accepted that given the limited depth of the underpinning proposed a mass concrete solution is likely to be adequate.
- 5.4. Underpinning is proposed to the rear boundary wall and a structural drawing has been provided to indicate that this will be reinforced concrete which is considered an acceptable solution.
- 5.5. It is accepted that ground movements should be negligible assuming good workmanship, although no ground movement assessment has been produced.
- 5.6. The BIA states that the development will have a negligible impact on slope or ground stability of the surrounding area, and will not affect the hydrogeology of the surrounding area and the risk is accepted as being very low.
- 5.7. It is accepted that although groundwater could be encountered, this is likely to be perched groundwater within the clayey Head Deposits/London Clay and simple mitigation measures such as pumping should effectively control potential variations to the groundwater regime.
- 5.8. The risk of flooding has now been considered as requested following the initial audit and appropriate mitigation measures have been proposed.
- 5.9. The BIA proposes a full structural survey of the neighbouring properties and monitoring during construction and such a mitigation measure should be adopted as any damage will be dependent on their structural soundness.
- 5.10. An underpinning sequence plan and anticipated duration of works have now been provided as requested. It is accepted that a full works programme may be submitted by the contractor as part of the party wall award.
- 5.11. It is accepted that the BIA and supplementary documents provided have adequately identified the potential impacts from the basement construction and propose sufficient mitigation where required.

Appendix 1: Residents' Consultation Comments

None



Appendix 2: Audit Query Tracker



Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA – General	Works programme not been submitted as required by Cl.233 of the Arup GSD and this is requested.	Closed – Underpinning sequence plan and anticipated works duration provided by MWAI. MWAI email dated 7 January 2016 states full works programme to be provided by Main Contractor.	07/01/16
2	Surface flow and flooding	Site potentially at risk from flooding (see Audit paragraph 4.12). To be taken forward to scoping and assessed/mitigated as necessary	Closed – Flood risk assessed as requested. Thames Water consultation provided and mitigation measures proposed.	07/01/16
3	Stability	Details of underpinning to the rear boundary wall, including confirmation of suitability of solution proposed.	Closed – Structural drawing provided to indicate reinforced concrete underpinning to boundary wall.	07/01/16



Appendix 3: Supplementary Supporting Documents

Email response on queries from MWAI, dated 07/01/16

Structural Engineer's – Bird Associates Drawing Nos 6724/03 A, 6724/04 A and 6724/07 A

Thames Water Utilities Limited Drainage and Water Enquiry response



Subject: 28 Compayne Gardens - Additional Information

From:	John Roberts <j.roberts@mwai.co.uk></j.roberts@mwai.co.uk>
To:	"FatimaDrammeh@campbellreith.com" <fatimadrammeh@campbellreith.com></fatimadrammeh@campbellreith.com>
Cc:	"Martin, Carlos" <carlos.martin@camden.gov.uk>, "camdenaudit@campbellreith.com"</carlos.martin@camden.gov.uk>
	<camdenaudit@campbellreith.com></camdenaudit@campbellreith.com>
Date:	07/01/2016 10:31
Subject:	RE: 28 Compayne Gardens - Additional Information

Hi Fatima,

Programme:

The engineer's plans I sent before (attached again) show the hit and miss sequencing for pins. The underpinning works should take around 7 weeks, with the full works taking 25 weeks (including fit out and decorations). A full construction programme would normally only be available once a contractor is appointed after the planning decision, but if necessary now I'll see if I can get this drafted earlier.

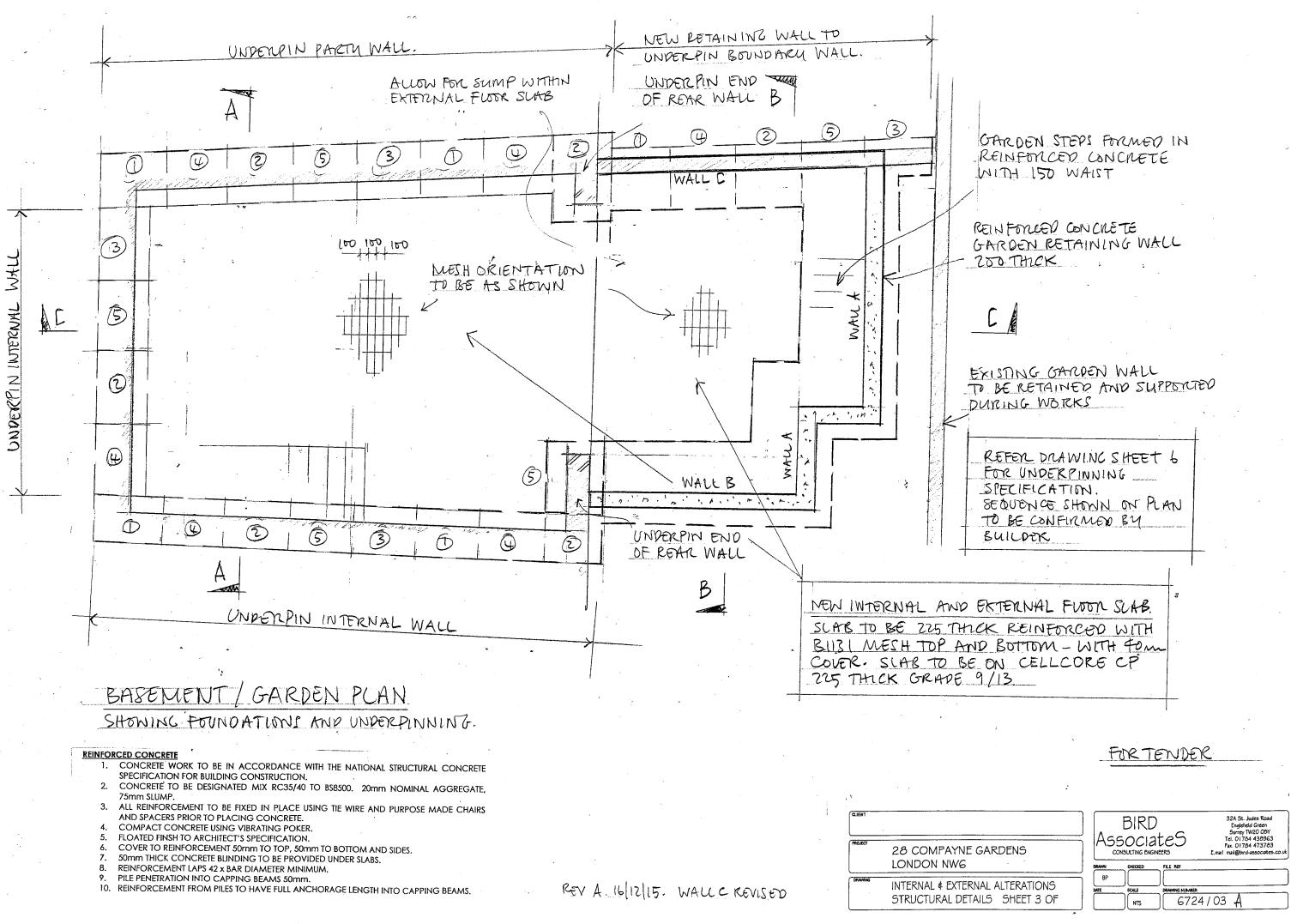
Thames water:

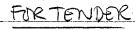
I can confirm we have been in touch with Thames water already regarding the proposed works. Attached is a document from them showing the property is not at risk from internal flooding from sewer overload (item 2.8). We have also been in touch with Thames water regarding locations of manholes/sewers and they have confirmed they are happy with our proposals. In regards to non-return valves, I can confirm the pumps will be fitted with these.

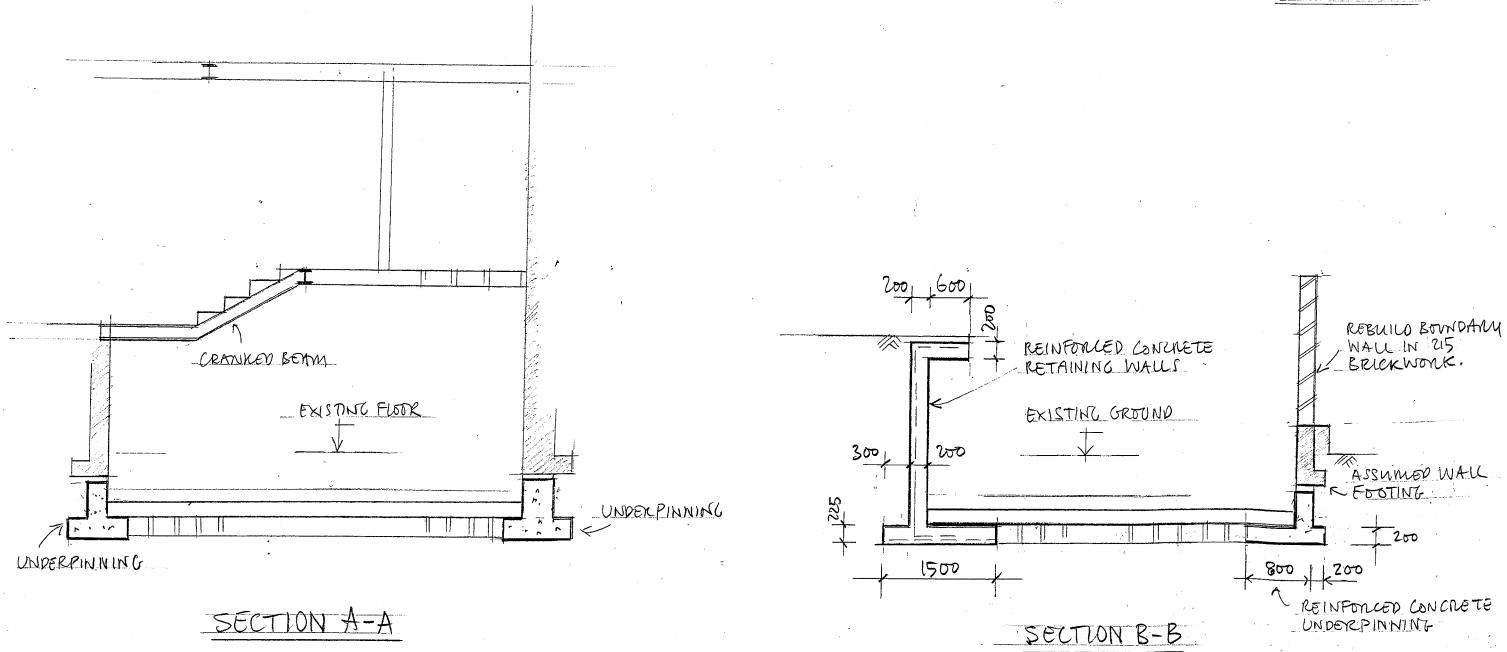
I trust the above satisfies your queries. Do let me know if you need anything further.

Kind regards, John







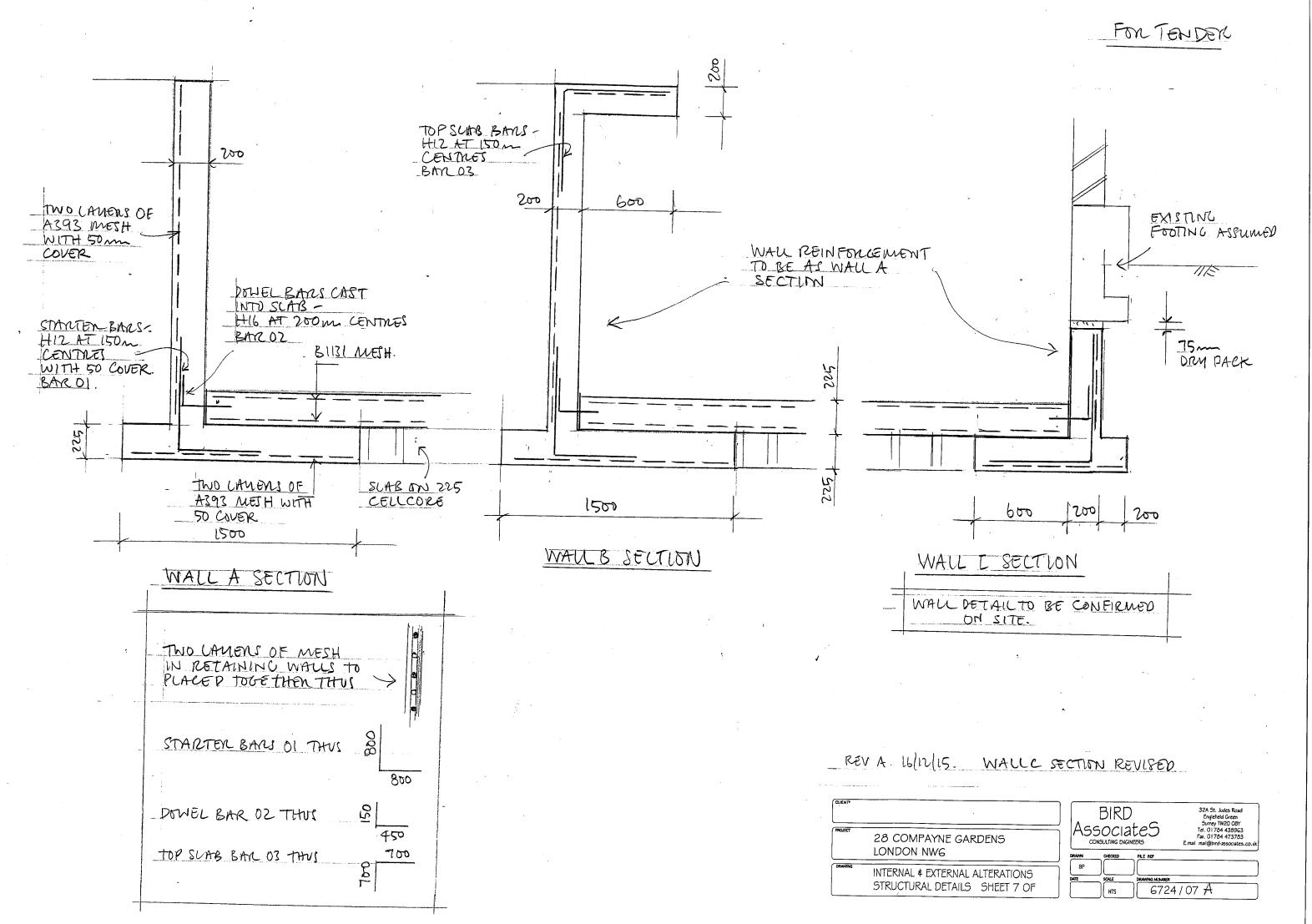


REV A. 16/12/15. SECTION R-R REVISED

PROJECT 28 COMPAYNE GARDEN LONDON NWG INTERNAL & EXTERNAL ALTER STRUCTURAL DETAILS SHE

FOR TENDER

IŞ	BIRD AssociateS CONSULTING ENGINEERS	32A St. Judes Road Engletield Green Surrey TW20 OBY Tel. 01784 438963 Fax. 01784 439783 E.mail mai@brid-associates.co.uk
RATIONS EET 4 OF		4/04 <u>A</u>



Residential



The Law Society's CON29DW Drainage & Water Enquiry

TM Property Service Ltd. 743360 Swindon 31

Search address supplied	GROUND FLOOR FLAT, 28, Compayne Gardens, London, Greater London, NW6 3DL
Your reference	14012014
Our reference	DWS/DWS Standard/2015_3077651
Received date	24 June 2015
Search date	24 June 2015

Important information

As of the 1 October 2013, the CON29DW has been updated with new question numbering and a helpful summary sheet showing questions and high level results. To find out more, please email searches@thameswater.co.uk.



Thames Water Utilities Ltd Property Searches, PO Box 3189, Slough SL1 4WW DX 151280 Slough 13



searches@thameswater.co.uk www.thameswater-propertysearches.co.uk



0845 070 9148





Residential



CON29DW Drainage & Water Enquiry

Quest	ion	Summary Answei
Maps		
1.1	Where relevant, please include a copy of an extract from the public sewer map.	Map Provided
1.2	Where relevant, please include a copy of an extract from the map of waterworks.	Map Provided
Draina	age	
2.1	Does foul water from the property drain to a public sewer?	Connected
2.2	Does surface water from the property drain to a public sewer?	Connected
2.3	Is a surface water drainage charge payable?	Charge Payable
2.4	Does the public sewer map indicate any public sewer, disposal main or lateral drain within the boundaries of the property?	No
2.5	Does the public sewer map indicate any public sewer within 30.48 metres (100 feet) of any buildings within the property?	Yes
2.6	Are any sewers or lateral drains serving, or which are proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
2.7	Has a sewerage undertaker approved or been consulted about any plans to erect a building or extension on the property over or in the vicinity of a public sewer, disposal main or drain?	No
2.8	Is any building which is or forms part of the property, at risk of internal flooding due to overloaded public sewers?	Not At Risk
2.9	Please state the distance from the property to the nearest boundary of the nearest sewage treatment works.	13.24 Kilometres
Water		
3.1	Is the property connected to mains water supply?	Connected
3.2	Are there any water mains, resource mains or discharge pipes within the boundaries of the property?	No
3.3	Is any water main or service pipe serving or which is proposed to serve the property, the subject of an existing adoption agreement or an application for such an agreement?	No
3.4	Is the property at risk of receiving low water pressure or flow?	No
3.5	Please include details of a water quality analysis made by the water undertaker for the water supply zone in respect of the most recent calendar year.	Passed
3.6	Please include details of any departures authorised by the Secretary of State or National Assembly for Wales under Part 6 of the 2000 Regulations from the provisions of Part 3 of those Regulations.	Passed
3.7	Please include details of the location of any water meter serving the property.	No Meter
Charg	ing	
4.1	Who are the sewerage and water undertakers for the area?	See Details
4.2	Who bills the property for sewerage services?	Thames Water
4.3	Who bills the property for water services?	Thames Water
4.4	What is the current basis for charging for sewerage and/or water services at the property?	See Details
4.5	Will the basis for charging for sewerage and water services at the property change as a consequence of a change of occupation?	No

London

Friars Bridge Court 41- 45 Blackfriars Road London, SE1 8NZ

T: +44 (0)20 7340 1700 E: london@campbellreith.com

Surrey

Raven House 29 Linkfield Lane, Redhill Surrey RH1 1SS

T: +44 (0)1737 784 500 E: surrey@campbellreith.com

Bristol

Wessex House Pixash Lane, Keynsham Bristol BS31 1TP

T: +44 (0)117 916 1066 E: bristol@campbellreith.com

Birmingham

Chantry House High Street, Coleshill Birmingham B46 3BP

T: +44 (0)1675 467 484 E: birmingham@campbellreith.com

Manchester

No. 1 Marsden Street Manchester M2 1HW

T: +44 (0)161 819 3060 E: manchester@campbellreith.com

UAE

Office 705, Warsan Building Hessa Street (East) PO Box 28064, Dubai, UAE

T: +971 4 453 4735 E: uae@campbellreith.com

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