fothergill
Consulting Engineers

62 Hill Street
Richmond upon Thames
Surrey TW9 1TW
Tel: 020 8948 4165
Email: info@fothergill.uk.com

# STRUCTURAL BASEMENT IMPACT ASSESSMENT

# FOR

# PROPOSED DEVELOPEMENT AT

# 45-49 STATION ROAD
# HAMPTON
# TW12 2BU

# FOR

# G KINGSBURY & SON LTD

Prepared by: Nigel Bostock BSc CEng MICE FConsE

Dated: September 2015

Report No: 11902/1

## 1. INTRODUCTION

1.1 Fothergill Consulting Engineers have been appointed to provide a Basement Impact Assessment in support of a Planning Application for the construction of a pair of semi-detached houses fronting Thames Street which form part of a larger development of the site known as 45-49 Station Road, Hampton TW12 2BU.

1.2 The houses either side of the proposed houses are Grade II listed.

1.3 The approximate National Grid Reference for the site is TQ 1381 6952.


Site Location

1.3 A walk over inspection of the site has been made but no intrusive investigations have been carried out at this stage. This report is based on this inspection and a desk study of available information to establish the potential ground conditions.

1.4 Plans of the proposed development have been provided by Clive Chapman Architects.

## 2 DESCRIPTION OF PROPOSALS

2.1 It is proposed to construct a pair of semi-detached houses which will have a basement and two floors above. To the rear (north side) the ground will be sloped up from the basement level to natural ground level over a distance of 9m.

2.2 The basement floor level will be approximately 1.0m below pavement level and at the rear approximately 2.4m below natural ground level.

2.3 The houses will be set in from the boundaries to the adjacent properties by a minimum distance of approximately 1.0m.

2.3 The proposed basement construction will be in reinforced concrete.

## 3 DESCRIPTION OF SITE

3.1 The site slopes north to south with a drop of approximately 1.0m over the depth of the properties (10m).

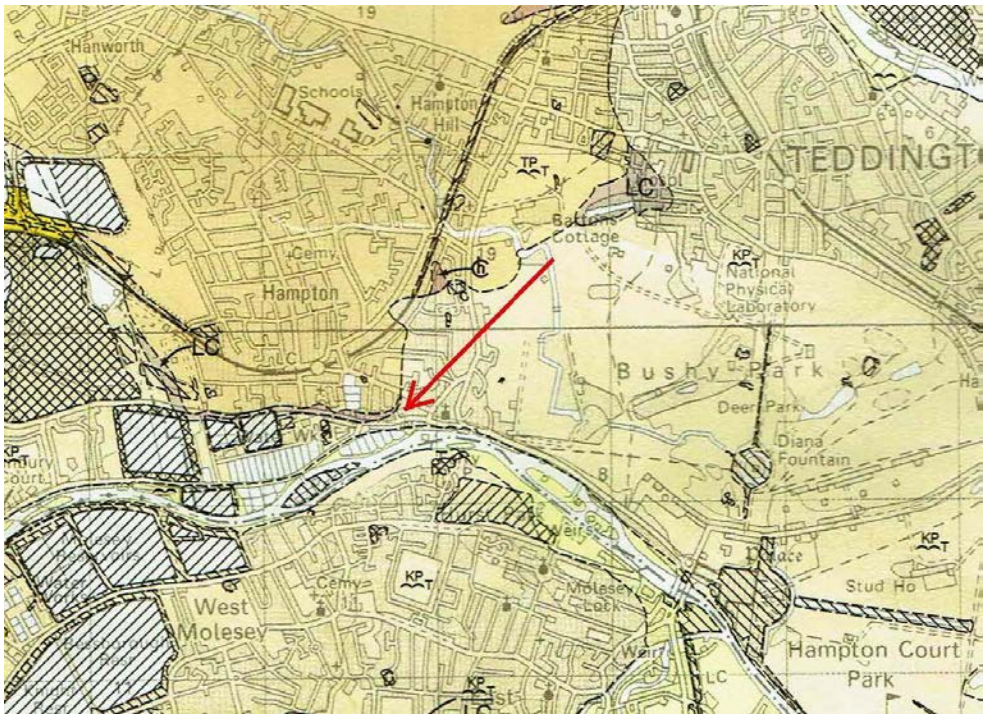
3.2 Reference to historical maps and data show that there was a substantial house on the site known as Jessamine House (58 Thames Street) dating from 1771. This property was demolished in 1957. The area is currently used as a vehicle display area for Kingsbury's garage.

3.3 No. 54 & 56 Thames Street are a pair of Grade II listed 18th Century 2-storey brick built houses. To the side of No.56 is a timber boarded 2-storey structure. Planning records show that permission for some work/alterations to this side structure was sought in 2004. No.56 will be alongside the prosed houses.

3.4 No.60 Thames Street (Canister House) is a Grade II listed house built c1740 with alterations of c1840. It is a 2-storey narrow stock brick building with mansard slate roof. There is a 2-storey mid-19th Century extension of 2 storeys to the right. The property is set back further from Thames Street and will be adjacent to the excavated garden area to the rear of the proposed houses.

## 4 GEOLOGY

4.1 Reference to British Geological Survey map 270 shows the site to be an area of Taplow Gravel but close to the boundary with Kempton Park Gravel both of which are River Terrace deposits which overly the London Clay. However there is also indicated a small band of London Clay running along the north side of Upper Sunbury Road ending just short of the site.




Extract from Sheet 270

4.2 Published local borehole records indicate the flowing:-

At sites in the High Street where from the map Kempton Park Gravel could be expected

i) 3-5 High Street – Gravel overlying London Clay at 6m, water struck at 4m
ii) Molesey Telephone Exchange – Gravel overlying Clay at 4.55m, water level measured with piezometer at 4.55m

At a site along Upper Sunbury Road

iii) Hampton Foul Sewer BH16 – Gravel overlying very sandy Clay at 2.5m, standing water at 2m

4.3 The Environmental Agencies website shows that the site is:-

- Not in a Flood risk area from Rivers although Flood Zone 2 extends up to south side of Thames Street
- Not in a Floor risk zone from Surface water

4.4 The River Thames is approximately 150m to the south of the site.

4.5 It is reasonable to assume that the natural ground water flow is in the gravel layer moving north to south towards the River Thames.

4.6 A site specific Site Investigation will be undertaken to confirm the above findings and to establish design criteria.

## 5 PROPOSED METHOD OF CONSTRUCTION

5.1 To enable the basement and rear lowered garden area to be constructed it will be necessary to install a retaining wall down each side of the site adjacent to the site boundaries. This could take the form of a secant bored pile wall, a driven sheet pile wall (silent piling) or a King post and panel construction. The most appropriate form will be chosen by the appointed designer after a geotechnical investigation has taken place.

5.2 Each of these forms of construction can, if properly designed and constructed, be successfully installed close to adjacent structures.

5.3 An important part of preventing movement of the ground and hence damage to adjacent properties is the careful design of the temporary works. These works should be agreed as part of the Party Wall Awards with the adjacent properties.

5.4 Within the working space created between the two walls conventional construction can take place with the retaining walls being incorporated in to the permanent works which will provide the bracing to the walls as the temporary works are removed.

5.5 There is likely to be water flowing through the site and a suitable method for controlling this water will be designed following the commissioning of a detailed Hydrology Report.

## 6 IMPACT ON NEIGHBOURING PROPERTIES

6.1 Piled retaining wall schemes are a well-established technique for creating basements near to adjoining buildings. When correctly designed with appropriate temporary works and installed by an experienced contractor there should be no noticeable structural damage to the adjacent properties.

6.2 Horizontal movement of piled walls will be in accordance with CIRIA Report number 580. The horizontal movement of the retaining wall adjacent to the neighbouring properties will be limited to 5.0mm.

6.3 Any existing cracking on the adjacent properties will be recorded by the Party Wall Surveyors as part of their Schedule of Condition. Monitoring measures will be put in place with the readings taken by an independent surveyor.

6.4 Ground water flows through the site will be carefully controlled during construction so as not to draw fine granular materials from the surrounding ground.

6.5 The site is not located in the flood plain and consideration will be given in the design to ensuring that there is minimal effect on the natural ground water flows.

## 7 SUMMARY

7.1 The works are to be designed using well established conventional techniques in order to minimize the impact on neighbouring properties.

7.2 If properly constructed in accordance with the design the structural impact on the adjacent properties can be controlled.

7.3 Site specific ground investigations will be undertaken prior to detailed design to cover the following issues:

- Statutory searches for below ground services
- Borehole to confirm the anticipated ground conditions at depth beneath the site
- Installation of a standpipe piezometer with subsequent monitoring to confirm ground water levels
- Geological laboratory testing to confirm soil properties for design
- Contamination testing of soils, including Waste Classification Testing (WAC) for disposal purposes

7.4 A Hydrology Report will be commissioned to enable the design to take in to account the presence of water and to mitigate the long term effect on ground water flows.

7.5 Inspection of adjacent buildings will be undertaken in the normal way in accordance with the Party Wall Act and monitoring procedures put in place during the construction period.

N.G. Bostock

Nigel Bostock BSc CEng MICE FConsE 18th September 2015