

Kensington Forum

QUEENSGATE
INVESTMENTS

Rockwell

Kensington Forum Hotel – London

BASEMENT IMPACT ASSESSMENT | JUNE 2018

KENSINGTON FORUM HOTEL

BASEMENT CONSTRUCTION METHOD STATEMENT

JOB NO. A529

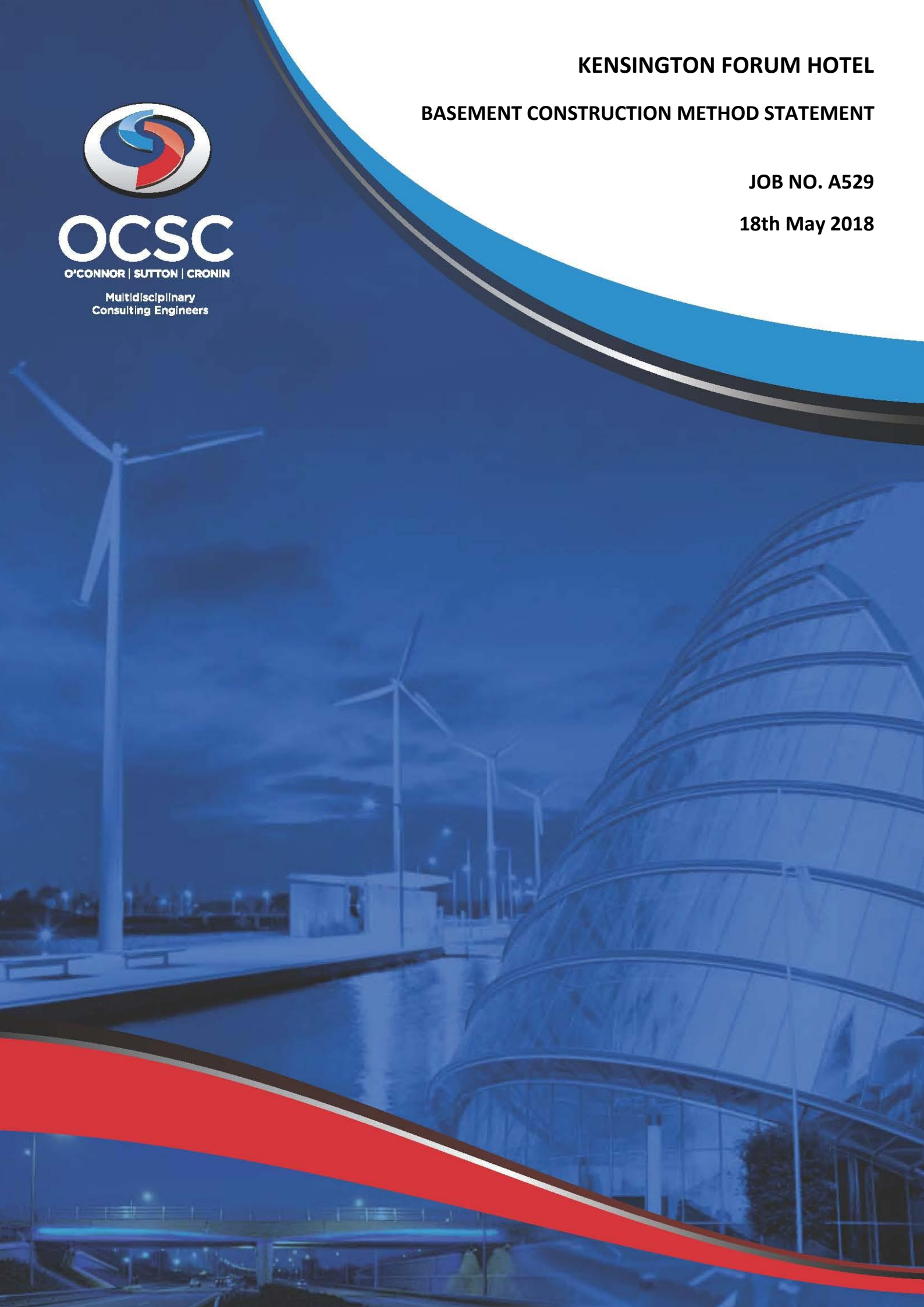
18th May 2018



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KENSINGTON FORUM HOTEL

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18th May 2018

PROJECT NO. A529 (L)



KENSINGTON FORUM HOTEL

BASEMENT CONSTRUCTION METHOD STATEMENT

1.0 INTRODUCTION AND SCOPE

On behalf of our Client, Rockwell Property, O'Connor Sutton Cronin (OCSC) has been commissioned to provide a Basement Construction Method Statement for the redevelopment of the Kensington Forum Hotel site on Cromwell Road, Kensington as outlined in Simpson Haugh Architect's documentation. This document supports the Planning Application for the scheme.

2.0 EXECUTIVE SUMMARY

This document sets out the initial design approach of the two level basement to the new Kensington Forum Hotel. The basement will be designed to ensure the structural stability of the nearby buildings and other infrastructure including surrounding roads and adjacent London Underground tunnel.

The report addresses key design and construction considerations with respect of the proposed basement including the historic context, development proposals and basement use, geology and hydrology, buried infrastructure and nearby buildings, construction sequencing and method and site logistics.

A high level summary of these key items are as follows:

Existing Site and Building

The hotel site is bounded by Cromwell Road to the north; Ashburn Place to the east; Courtfield Road to the south; and Ashburn Gardens to the west. The hotel basement car park is accessed from the car park off Courtfield Road to the south-east, with the exit onto Ashburn Gardens to the north-west. See Fig. 2.2

Gloucester Road Tube Station is to the east serving the Piccadilly, Circle and District lines with underground tunnels running westward under the junction of Cromwell Road and Ashburn Place at the north east corner of the site.

There is a 300mm combined Thames Water drainage sewer at the corner of Ashburn Place and Cromwell Road that traverses across the footpath adjacent to the entrance to the Taverns Pub. The reason the sewer traverses the junction at this angle is due to the proximity of the adjacent LU tube tunnel from Gloucester Road Station.



Fig 2.2: Site Location

Proposed Scheme

The scheme involves the demolition of the existing hotel on the site and the construction of a mixed hotel and residential development on the 0.76 ha site. The development includes:

- 749 Hotel units (including standard , superior and deluxe rooms, suites and penthouse suites
- 340 Serviced residences
- 46 Residential units (studio, one-, two and three-bedroom)
- Conference Rooms (and associate pre-function areas),
- Gym (incl. swimming pool
- Syndicate Rooms
- Food & Beverage facilities
- Kitchens
- Loading docks
- Plant Rooms
- Hotel cores, circulation and ancillary spaces,

Structural Proposals

Superstructure

It is proposed to frame the building with in-situ concrete, with upper level slabs being post-tensioned to minimise their thickness. There are building set-backs, cantilevers and large column-free areas to be addressed at various locations. These require the use of a number of storey-high wall beams at longer spans and walls to gather columns along residential and hotel party walls to allow set-backs.

The most prominent cantilever is at the north-west corner of the North Tower at Level 9. To achieve the 7m building extension at the corner, a two-storey (6m deep) concrete diagonal outrigger wall 18m long extends back to the core and is also supported by an intermediate column creating a 9m structural cantilever.

To minimise loading on the long-span Conference Room roof, the west side of the towers cantilever over this space, by utilising party walls as structural elements tied back to the core.

It is proposed to frame the long span over the Main Conference Room with deep steel trusses. Concrete on steel deck will form the slab over this space, with the deep trusses facilitating the provision of tree pits to suit landscaping requirements.

Lateral stability to the hotel towers will be provided by central cast in-situ concrete cores, sized for both the wind load and for lateral forces generated by the building set-backs.

Substructure

The two basement levels are contained within the footprint of the existing basement and will be designed with in-situ concrete framing, with the exception of the long-span roof over the Conference Room which will be steel trusses supporting concrete on steel deck. This slab will be designed to accommodate landscape loading including tree pits at agreed locations.

Foundations

The existing hotel sits on a raft foundation, which is supported, in part, by a grid of bored piles. These piles will be re-used to as great an extent as possible. These under-reamed piles are laid out in a cruciform arrangement under the existing tower. They will be supplemented by new piles to reflect the new arrangement of gravity and lateral loads from the building above.

Nearby Properties and Below Ground Infrastructure

The new development is the sole property within the block. The properties across surrounding roads are at least 10m away from the new basement. Below building cross sections illustrate these stand-off distances and line of influence of new basement walls. As the foundations of the existing buildings are sufficiently remote from the new development, there would be no additional surcharge loading from them on to the new basement walls.

Geology and Hydrology Considerations

The site stands at an elevation of circa 8mOD on generally level ground, 1.5km north of the River Thames.

The 1935 geological map for the area shows the site covered by superficial Flood Plain Gravel, and underlain by the solid geology of the London Clay. The more recent geological map, shows the site covered by the renamed Kempton Park Gravel, on the solid geology of the London Clay Formation. Immediately north of the site is an area of worked ground, where the tunnel for a railway line had been constructed.

A previous investigation on the site, for the current hotel development, found up to 3.80m of made ground, near surface clay River Terrace Deposits to a maximum 4.00m depth, underlain by Kempton Park Gravel to between 8.00m and 11.00m

depth, and in turn the solid geology London Clay to at least 45.00m depth. Groundwater was recorded at 9.50m below ground level.



Construction Sequencing and Method

After the demolition of the existing building to ground level, selective cutting and removal of areas of the existing sub-structure are to be undertaken sequentially to allow the installation of a secant wall around the perimeter as and subsequent excavation to the new basement level to proceed.

The sequence of activities can be started and run concurrently at different parts of the site.

On completion of the basement excavations, works will progress to the basement construction. The following sequence of works are then envisaged:

- Internal piling works for column support;
- Installation of waterproof membrane;
- Construction of pile caps and raft foundation;
- Construction of the basement slab;
- Construction of the basement walls, cores and columns to the underside of ground floor
- Complete the ground floor slab over the basement. The ground floor will be tied into the perimeter basement retaining wall and will act as a permanent prop to the wall.
- Construction of superstructure in normal sequential operations.

3.0 EXISTING SITE

Historic Environment

Research into the site history involved reference to historical Ordnance Survey (OS) maps, aerial photographs, plans and information obtained from the internet.

The site was part of market gardens in the 1800s, before being developed with housing by the 1890s see Fig 3.1. Houses in the south-eastern corner of the site suffered general blast damage due to bombing during the Second World War and were cleared. The Holiday Inn Hotel was built in the early 1970s. The hotel has remained to the present day.

By 1865, a tunnel for the London Underground had been built off-site adjacent the north-eastern boundary of the site, accessing Gloucester Road station to the east. In the 1860s, a gasometer was shown on the northern side of railway, which had been removed by 1916. Electricity sub-stations, control room and running shed associated with the railway were present to the north-west of the site. The railway land to the north-west was partly redeveloped as the 'West London Air Terminal' (opened in 1952), providing a hub for passengers to be transferred to Heathrow Airport in buses. The Air Terminal building was extended in the 1960s. This site is now 'Point West' a block of flats.



Fig. 3.1: Map of area based on Ordnance Survey of 1894-6

Site Location

Topography

The topographical survey drawings prepared by Plowman Craven illustrate that the site slopes from a highpoint of 8.65mOD at the junction of Courtfield Road and Ashburn Gardens to 7.5mOD at the junction of Cromwell Road and Ashburn Place. Courtfield Road falls from 8.65mOD at the junction with Ashburn Gardens to 8.38mOD at the junction with Ashfield Place. Ashfield Gardens falls from 8.65mOD at the junction with Courtfield Road to 7.89mOD at the junction with Cromwell Road. Ashburn Place falls from 8.38mOD to 7.5mOD at the junction with Cromwell Road while Cromwell Road falls from 7.89mOD at junction with Ashburn Gardens to 7.5mOD at the junction with Ashburn Place. Road levels continue to fall in an eastwardly direction towards Gloucester Road with Cromwell Road falling along Gloucester Road, to a level of 7.39mOD at the Crown Plaza Hotel and Courtfield Road to 7.74mOD at its junction with Gloucester Road, as shown on Fig.3.2.



Fig 3.2: Topographical Levels of Adjacent

The development site is super elevated above the existing highway with the main entrance to the Hotel at a level of circa 8.6mOD which is approximately 250mm higher than the vehicular entrance on Courtfield Road and 500mm higher than the exit onto Ashburn Place.

4.0 EXISTING BUILDING

The existing (Kensington Forum) Holiday Inn hotel was constructed in March 1970 and is 28 storeys high over a double basement with plant located in the basement and on the roof (Upper Roof Level 89.700). The building has a basement mezzanine and a basement (Basement Level 2.735). It occupies the entire block and comprises a bar (Tavern Bar), restaurant, function rooms, lounge gym and 910 guest rooms.

5.0 PROPOSED SCHEME

Overview

The scheme involves the demolition of the existing hotel on the site and the construction of a mixed hotel and residential development with a net NIA of 76,000 sqm, on the 0.76 ha site. The development includes:

- 749 Hotel units (including standard , superior and deluxe rooms, suites and penthouse suites)
- 340 Serviced residences
- 46 Residential units (studio, one-, two and three-bedroom)

- Conference Rooms (and associate pre-function areas),
- Gym (incl. swimming pool)
- Syndicate Rooms
- Food & Beverage facilities
- Kitchens
- Loading docks
- Plant Rooms
- Hotel cores, circulation and ancillary spaces



Basement

The basement will be used to house a main Conference Room including pre-function spaces, a kitchen, a gym, automated parking, and various plant rooms.

Structural Proposals

Superstructure

The building will generally be framed with in-situ concrete, with upper level slabs being post-tensioned to minimise their thickness. There are building set-backs, cantilevers and large column-free areas to be addressed at various locations. These require the use of a number of storey-high wall beams at longer spans and walls to gather columns along residential and hotel party walls to allow set-backs.

The most prominent cantilever is at the north-west corner of the North Tower at Level 9. To achieve the 7m building extension at the corner, a two-storey (6m deep) concrete diagonal outrigger wall 18m long extends back to the core and is also supported by an intermediate column creating a 9m structural cantilever.

To minimise loading on the long-span Conference Room roof, the west side of the towers cantilever beyond Grid K by using party walls as tension elements tied back to the cores via slab diaphragms on Levels 1 to 7.

It is proposed to frame the long span over the Main Conference Room with deep steel trusses. Concrete on steel deck or pre-cast hollow core units will form the slab over this space, with the deep trusses facilitating the provision of tree pits to suit landscaping requirements.

Lateral stability to the towers will be provided by central cast in-situ concrete cores, sized for both the wind load and for lateral forces generated by the building set-backs.

Basement Construction

The new Basement will have a slightly reduced footprint compared to the existing one. However, it will be lower than the existing. This will necessitate the provision of a secant piled wall around the perimeter. This will be located just inside the existing

basement walls and will require sequenced demolition, shoring and excavation activities.

The new building will be founded on a raft supported by augered piles. There are already under-reamed piles present in a cruciform configuration under the existing building. These will be retained and supplemented by new piles and together will be modelled to limit the maximum building settlement to 25mm.

At the north end of the site several new piles will be located beyond the existing basement. Due to the proximity of the London Underground exclusion zone, the upper portion of some of these piles will be sleeved to avoid load being shed to the existing LU infrastructure.

6.0 NEARBY BUILDINGS AND BELOW GRADE INFRASTRUCTURE

Buildings

As the site is surrounded by roads, the lines of influence of the Basement excavation generally stop short of neighbouring properties. This is illustrated on below Fig. 6.1 and 6.2. Below building cross sections illustrate these stand-off distances and line of influence of new basement walls.



Fig. 6.1 Basement: Cross-section looking south

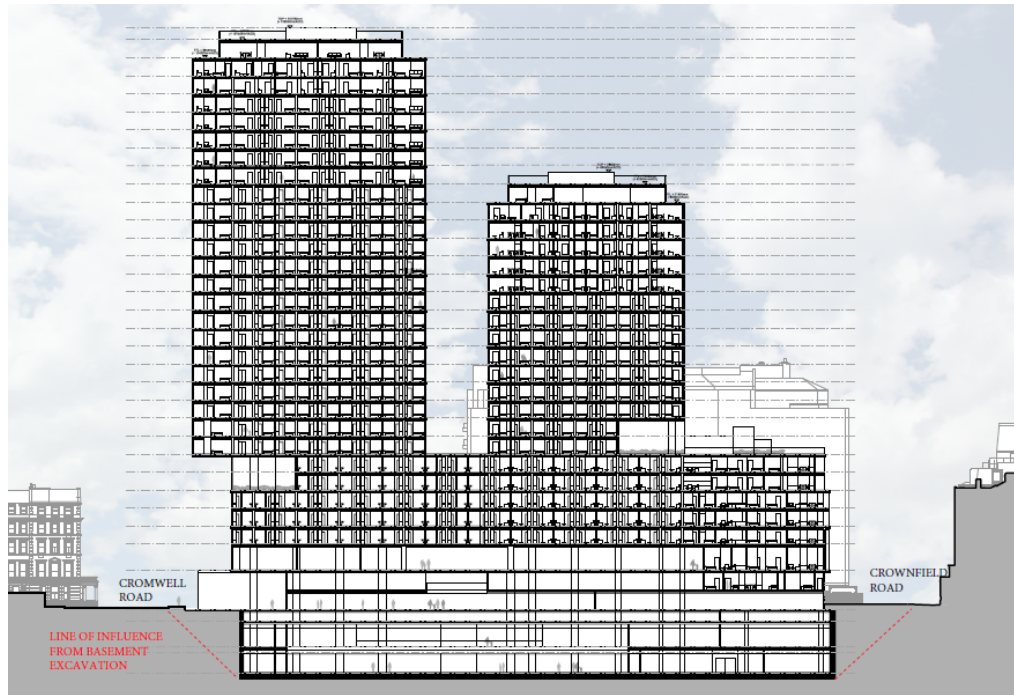


Fig. 6.2 Basement: Cross-section looking east

These offsets from nearby properties will also serve to dissipate any hydrological impacts on nearby properties, but this should be verified by a detailed hydrological study.

Below Ground Services

Foul Water Drainage

The development is located under the jurisdiction of Thames Water Ltd (TWL). From the asset location search there are no dedicated foul sewers in the immediate area of the development site. Combined drainage sewers are present on Cromwell Road (900x750mm sewer), Ashburn Place (1150x750mm), Ashburn Gardens (900x600mm) and on Courtfield Road (1150x750mm) (see Fig 6.2 for TWL sewer information).

There is a 300mm combined sewer at the corner of Ashburn Place and Cromwell Road that traverses across the footpath adjacent to the entrance to the Taverns Pub. The reason the sewer traverses the junction at this angle is due to the proximity of the adjacent LU tube tunnel from Gloucester Road Station. The 300mm sewer runs parallel with the tube line from the top of Ashburn Place until it meets the 1150x750 sewer on Cromwell Road with flows continuing to head westwards. Please refer to Fig 5.2 of an extract from the TWL sewer records.

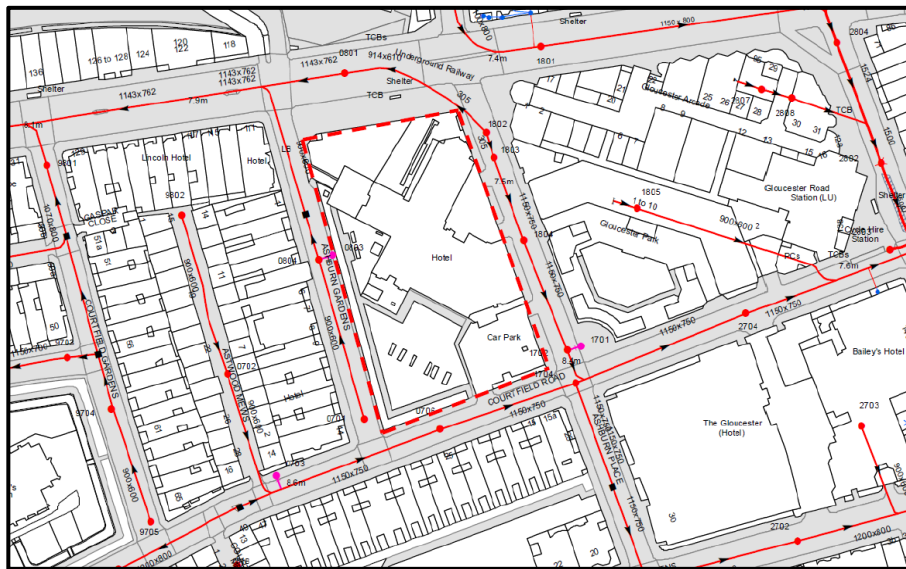


Fig 5.2: TWL Sewer Information

TWL will have a wayleave over their existing 300mm diameter sewer and any future development at the north east corner of the site which will encroach onto this wayleave will require agreements with TWL in the form of build over licenses etc.

Surface Water Drainage

The development is located under the jurisdiction of Thames Water Ltd (TWL). From an asset location search there are no surface water drains in the immediate area of the development site. All surface water generated from the site outfalls to the existing combined drainage sewers on Cromwell Road (900x750mm and 300mm sewers), Ashburn Place (1150x750mm sewer), Ashburn Gardens (900x600mm sewer) and on Courtfield Road (1150x750mm sewer).

7.0 GEOLOGY AND HYDROLOGY CONSIDERATIONS

Geology and Borehole Data

The site stands at an elevation of circa 8mOD on generally level ground, 1.5km north of the River Thames.

The 1935 geological map for the area shows the site covered by superficial Flood Plain Gravel, and underlain by the solid geology of the London Clay. The more recent geological map, sheet 270 (1998) at 1:50,000 scale, shows the site covered by the renamed Kempton Park Gravel, on the solid geology of the London Clay Formation. Immediately north of the site is an area of worked ground, where the tunnel for a railway line had been constructed.

A previous investigation on the site, for the current hotel development, found up to 3.80m of made ground, including a cellar, near surface clay River Terrace Deposits to a maximum 4.00m depth, underlain by Kempton Park Gravel to between 8.00m and 11.00m depth, and in turn the solid geology London Clay to at least 45.00m depth. Groundwater was recorded at 9.50m below ground level.

Appendix H contains information derived from Environmental Databases for a radius of up to 2,000m from the site. The information covers datasets held by the Groundsure with contributors including the local authority, the Environment Agency (EA), British Geological Survey, Ordnance Survey and the Coal Authority and the results, within a radius of 250m, are summarised below:

Table 7.1

1. Historical Industrial Sites		On-Site	0 - 250m		
Potentially Contaminative Uses (1:10,000 mapping)		0	43		
Historical Tank Database		0	9		
Historical Energy Features Database		0	13		
Historical Petrol & Fuel Site Database		0	0		
Historical Garage & Motor Vehicle Repair Database		0	6		
Potentially Infilled Land		0	12		
2. Environmental Permits, Incidents and Registers		On-Site	0 - 250m		
Sites Holding Environmental Permits/Authorisations		0	1		
Records of COMAH and NIHHS Sites		0	0		
Environment Agency Recorded Pollution Incidents		0	0		
Sites Determined as Contaminated Land under Part IIA EPA 1990		0	0		
3. Landfill and Other Waste Sites		On-Site	0 - 250m		
Landfill Sites		0	0		
Landfill and Other Waste Sites		0	0		
4. Current Land Use		On-Site	0 - 250m		
Current Industrial Sites Data		0	17		
Records of Petrol and Fuel Sites		0	0		
Underground High Pressure Oil and Gas Pipelines		0	0		
5. Geology					
Artificial Ground or Made Ground records		Yes			
Superficial Ground and Drift Geology records		Yes			
6. Hydrogeology and Hydrology		On-Site	0 - 250m		
Productive strata within superficial geology		Yes			
Productive strata within solid geology		No			
Groundwater Abstraction Licences		0	0		
Surface Water Abstraction Licences		0	0		
Potable Water Abstraction Licences		0	0		
Source Protection Zones		0	0		
River Quality Data		No	No		
Detailed River Network Entries		0	0		
Surface Water Features		No	No		
7. Flooding					
Environment Agency indicative Zone 2 floodplains within 250m of site		No			
Environment Agency indicative Zone 3 floodplains within 250m of site		No			
Risk of flooding from rivers & the sea (RoFRaS) rating		Very low			
Flood defences within 250m of site		No			
Any areas benefitting from flood defences within 250m of site		No			
Flood storage areas within 250m of site		No			
Maximum BGS groundwater flooding susceptibility within 50m of site		Potential at surface			
BGS confidence rating for groundwater susceptibility areas		Moderate			
8. Designated Environmentally Sensitive Sites		On Site	0 - 250m		
Environmentally sensitive sites		0	0		
9. Natural Hazards (on site)					
Hazard	Negligible	Very Low	Low	Moderate	High
Shrinking or Swelling Clay	-	-	-	On-site	-
Landslides	-	On-site	-	-	-
Soluble rocks	On-site	-	-	-	-
Compressible Ground	On-site	-	-	-	-
Collapsible Rocks	-	On-site	-	-	-
Running Sand	-	On-site	-	-	-
9.2. Radon					
The property is not in a Radon Affected Area, as less than 1% of properties are above the level. No Radon Protective Measures are required for new properties or extensions.					
10. Mining					
Coal mining areas within 75m of site		No			
Non-coal mining areas within 50m of site		No			
Brine affected areas within 75m of study site		No			

Database Summary

The potentially contaminative historical uses recorded around the site included the railway tunnel, cuttings, sidings and underground station close to the north and east of the site; railway buildings to the north-west; unspecified ground workings 109m to the west; and a hospital 230m to the south-west. There are no historic tanks recorded on the site; a gasometer is recorded 34m to the north of the site; and unspecified tanks 87m and 137m north-west. The energy features within 250m of the site, relate to the gasometer to the north; electricity transformer stations, sub-stations and electricity control room 158m to 197m to the north-west. There are no historical petrol or fuel sites recorded on, or within 250m of the site. A garage is recorded 197m north of the site. There are no areas of potentially infilled land on-site, the closest are the tunnel and cutting 2m north of the site, related to the underground railway. Unspecified ground workings are also recorded 109m west of the site.

There is a Part B permit for a dry cleaners 138m east of the site. There are no dangerous or hazardous sites, pollution incidents or landfills recorded on, or within 250m of the site. The current industrial land uses registered closest to the site relate to Galicia Motors 43m west; the office for 'South Kensington Rubbish Clearance' 55m north-west; 'Dornan' mechanical engineers 55m north; and Monaco VW vehicle repair, testing and servicing 63m west. There are no petrol or fuel sites, underground high pressure oil or gas pipelines on, or within 250m of the site.

The north-easternmost corner of the site is denoted as 'void', for the London Underground tunnel. The site is underlain by superficial Kempton Park Gravel Formation (sand and gravel), which is designated by the Environment Agency (EA) as a 'Secondary (A) Aquifer'. The site is underlain by solid geology London Clay Formation, which is designated by the EA as an 'Unproductive' stratum. The site is not within a Source Protection Zone. There are no groundwater abstraction licences on, or within 250m of the site. There are no detailed river network entries or surface water features recorded on, or within 250m of the site. The site is not within a Zone 2 or Zone 3 floodplain. The EA risk of flooding from rivers and the sea is 'very low' for the site. There are no flood defences within 250m of the site.

The site is assessed as having a 'moderate' hazard from shrinking or swelling clay; a 'very low' hazard from landslides, running sand and collapsible rocks; and a 'negligible' hazard from soluble rocks and compressible ground. No radon protection measures are required for new residential properties. The site is not located within an environmentally sensitive area. The site is not within a coal mining area, other mining area or brine affected area.

Conclusions

The site was a market garden, then housing, before being occupied by a hotel in 1973, which remains on-site to the present day and is currently operational. The site is anticipated to be underlain by superficial River Terrace Deposits and Kempton Park Gravel, covering the solid geology London Clay Formation.

Ground Gas

There are no historic landfills within 250m of the site. The site is anticipated to be underlain by superficial River Terrace Deposits and Kempton Park Gravel, covering the solid geology London Clay Formation. A London Underground tunnel is present off-site adjacent the North-eastern boundary of the site. There is a low

likelihood that any ground gas would affect future users of the site in the context of a residential or hotel development. There is a low likelihood that ground gas would affect ground workers during the construction phase, such as during excavations for foundation and service trenches. The property is not in a Radon Affected Area, as less than 1% of properties are above the action level. No Radon Protection Measures are required for new residential properties.

Water Environment

Groundwater was reportedly below 9m depth and is unlikely to be impacted by any contamination in the near-surface soils. Based on the available evidence, it is considered a low likelihood that there would be any sources of contamination on the site which would affect the surrounding groundwater environment.

Further Works

Recommendations on foundation design would be made following a ground investigation, which should determine the thickness of any made ground and nature of the underlying geology. Groundwater could present an issue with deepened foundations and basement construction. The investigation should include a check for soil and groundwater contamination in order to allow a full risk assessment to be evaluated. Appropriate professional advice should be sought if subsequent site work reveals materials that may appear to be contaminated.

Hydrology and Flooding

FLOODING

From a review of the Environment Agency's Flood Map the development site is confirmed to be in Flood Zone 1 see Fig 7.1 below Zone 1: low probability. This zone comprises land assessed as having less than 1 in 1000 annual probability of flooding in any year (<0.1% Annual Exceedance Probability (AEP)). The percentage coverage of this flood zone within RBKC Borough is 92%.

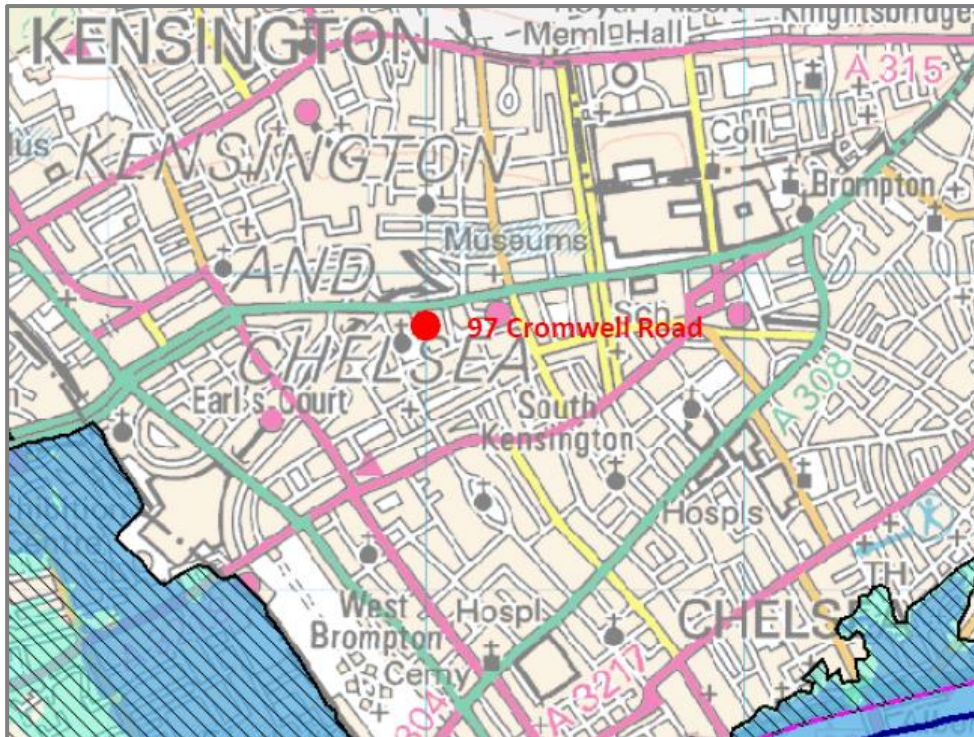


Fig 7.1: EA Flood Map for Fluvial and Tidal Flooding

Flood Risks

Fluvial and Tidal Flooding

Fluvial flooding is caused from adjacent rivers and streams. Tidal flooding is caused in areas adjacent to the sea or to rivers at tidal estuaries. From a review of the EA flood maps, there is a low risk of either fluvial or tidal flooding occurring on this site.

Pluvial Flooding

Pluvial flooding occurs due to extreme rainfall events where the capacity of the local surface water drainage cannot cater for the excess volumes of water. From a review of the EA Flood Maps several areas adjacent to the development site show pluvial flooding occurring. The existing development site is unaffected by this flooding due to the buildings being super elevated above the existing external road network. Any excess floodwater generated on Courtfield Road, Ashburn Gardens or Ashburn Place will traverse along the existing highway to Cromwell Road where it will flow eastwards towards central London and avoid interaction with the development site.

Groundwater Flooding

Groundwater flooding is defined as the emergence of groundwater at surface level away from perennial river channels or the rising of groundwater into man-made ground, under conditions where the 'normal' ranges of groundwater level and groundwater flow are exceeded. From a review of the EA flood maps for

groundwater flooding, the nearest record of flooding occurring is approximately 1.1 kilometres to the north east of the development, see Fig 6.2.

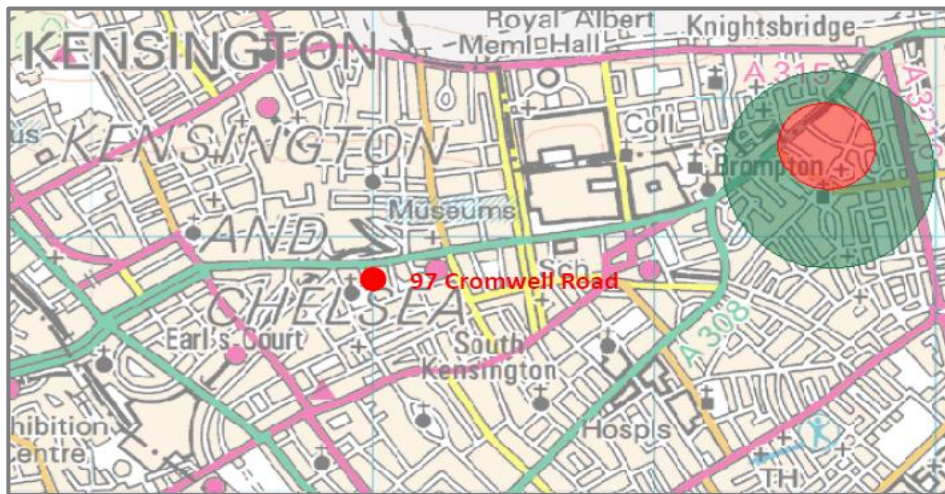


Fig 7.2: EA Flood Map for Groundwater Flooding

It is unclear at this stage what the groundwater level is at the development site and additional boreholes and standing pipes will be required to record the groundwater level in the event of future development. This will ensure the new basement can be adequately designed and measures are taken during constructing to ensure groundwater flooding does not occur.

Sewer and Watermain Flooding

Sewer and watermain flooding occurs due to the failure of local infrastructure. In sewer networks, this is usually due to blockages and in watermain networks, due to burst or damaged mains. The development is located under the jurisdiction of Thames Water Ltd. From an asset location search, there are existing combined sewers and potable watermain networks on Cromwell Road, Ashburn Place, Ashburn Gardens and Courtfield Road. Similarly to pluvial flooding the site would be unaffected by any sewer and watermain flooding due to the local topography surrounding the development guiding excess floodwater towards Cromwell Road where it would flow eastwards to central London.

However, the surcharging of sewers due to blockages may affect any new development due to backing up within the network and entering private sewer systems. It is recommended in areas where this occurs that non return valves are installed on the last private manholes or inspection chamber to prevent the surcharged floodwater from entering private drainage networks.

Strategic Flood Risk Assessment

A Strategic Flood Risk Assessment (SFRA) on behalf of RBKC was undertaken by URS Ltd in March 2014. This SFRA was prepared in accordance with current best practice, National Planning Policy Framework (NPPF) and its accompanying Technical Guidance. The SFRA Identified that the significant sources of flood risk within Royal

Borough of Kensington and Chelsea (RBKC) are surface water and sewer flooding, and the risk which arises from a failure in the Thames tidal defences.

Tidal flood risk is limited to the southern portion of the Borough and does not affect the development site, however at present the borough Kensington and Chelsea is fully defended against the 0.1% annual probability extreme tide level. Nevertheless, the areas benefiting from these tidal defences have the potential to experience high hazard should a breach in defences occur.

Sewer and surface water flooding is particularly problematic in the RBKC catchment, with the Borough experiencing significant problems historically and during heavy rainfall events. It is recognised that this is a larger scale issue and is recommended that RBKC Council continues in an active role in future strategic surface water management plans for London such as the reduction of surface water flows with the inclusion of Sustainable Urban Drainage Systems (SuDS) from new developments.

Ground Contamination

Preliminary Risk Assessment

A preliminary risk assessment has been undertaken for the site and provides a conceptual model based on a source-pathway-receptor pollutant linkage risk assessment as detailed in the Environment Agency's Model Procedures for the Management of Land Contamination (CLR 11, 2004). A summary of the preliminary risk assessment is provided below;

Currently, most of the site taken up by an existing building and as such, in the site's current form, there is limited potential for significant exposure pathways to exist.

Preliminary Conceptual Model:

Assessment of the potential linkage between ground contamination sources, human and environmental receptors have been assessed based on the desk study research documented in the preceding sections of this report.

A generalised preliminary conceptual model is presented below in Table 4E.

Table 4E: Preliminary conceptual model relative to proposed hotel & residential development

Receptors	Pathway	Estimated Potential for Linkage with Contaminant Sources			
		Drainage & Buildings	Soil Beneath Site	Soil Gas	Ground Contamination Outside Site Boundary
Human Health – ground or demolition workers	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Likely	Low likelihood	Low likelihood	Unlikely
Human Health – end users	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Unlikely	Low likelihood	Low likelihood	Unlikely
Water Environment	Migration through ground into surface water or surrounding groundwater	Low likelihood	Low likelihood	Low likelihood	Low likelihood
Flora	Vegetation on site growing on contaminated soil	Low likelihood	Low likelihood	Unlikely	Unlikely
Building Materials	Contact with contaminated soil	Low likelihood	Low likelihood	Unlikely	Low likelihood
Key to Table 4		Estimated Potential for Linkage with Contaminant			
		Definition			
High likelihood		There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.			
Likely		There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.			
Low likelihood		There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place, and is less likely in the shorter term.			
Unlikely		There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.			
N/A		Not Applicable.			

Conclusions

The site was a market garden, then housing, before being occupied by a hotel in 1973, which remains on-site to the present day and is currently operational. The site is anticipated to be underlain by superficial River Terrace Deposits and Kempton Park Gravel, covering the solid geology London Clay Formation.

Design Approach

Basement Retaining Walls

The basement shall be designed using the appropriate soil properties that will be determined from a full site ground and geotechnical investigation. The retaining embedded pile retaining walls shall be designed to resist the lateral earth pressures and the surcharge loads from the existing chimney foundation, Parkhouse St and the new external streets and communal spaces that form part of the new proposal. The basement retaining wall shall also be designed to resist hydrostatic pressure, assumed to be act at 1m below existing ground level.

The piled retaining wall design must consider both temporary and permanent loading conditions. The wall will be required to act as a cantilever, or be restrained with temporary props, during the construction period (temporary condition). In the permanent condition, the wall shall be propped by the ground floor slab and the wall shall resist the lateral loads by spanning from basement to ground floor level.

Piled Foundations

The building superstructure columns shall be supported on piled foundations, designed in accordance with the soil properties that will be determined from a full site ground and geotechnical investigation. The final number of piles and their arrangement shall be determined during the construction period by the piling contractor. The Contractor would also have to confirm the capacities of the existing piles being retained. The Contractor will also have to confirm new piles shall be designed in accordance with the settlement criteria that will be described in the geotechnical report. Depending on hydrostatic pressures and up-lift heave forces, tension piles may also be required.

Ground Bearing Slabs

The lower basement slab will need to consider upward ground heave forces from both swelling soils and any hydrostatic pressure. Tension piles would probably be required to resist these loads, especially at the long-span area under the Main Conference Room. These requirements will be confirmed when the detailed geotechnical assessment is available.

Waterproofing systems will need to be considered with respect to ground water and hydrostatic pressures, with appropriate environment grades assigned for the basement areas depending on the intended use.

8.0 CONSTRUCTION SEQUENCING AND METHOD



Outline Sequence and Phasing of Demolition and Construction

The overall demolition and construction programme is outlined in Chapter 5 of the Environmental Statement. After the dismantling and demolition of the existing tower above the existing ground floor, sequential localised ground floor demolition, basement slab demolition, new shoring and new secant piled work can be undertaken.

Demolition and Control of Dust Noise and Vibration

Please refer to the Environmental Statement, which addresses this aspect of the proposed development.

Basement Temporary Works and Permanent Support Solutions

The new basement will be lower than the existing. This will necessitate the provision of a secant piled wall around the perimeter. This will be located just inside the existing basement walls and will require sequenced demolition, shoring and excavation activities as shown on below diagram and notes:

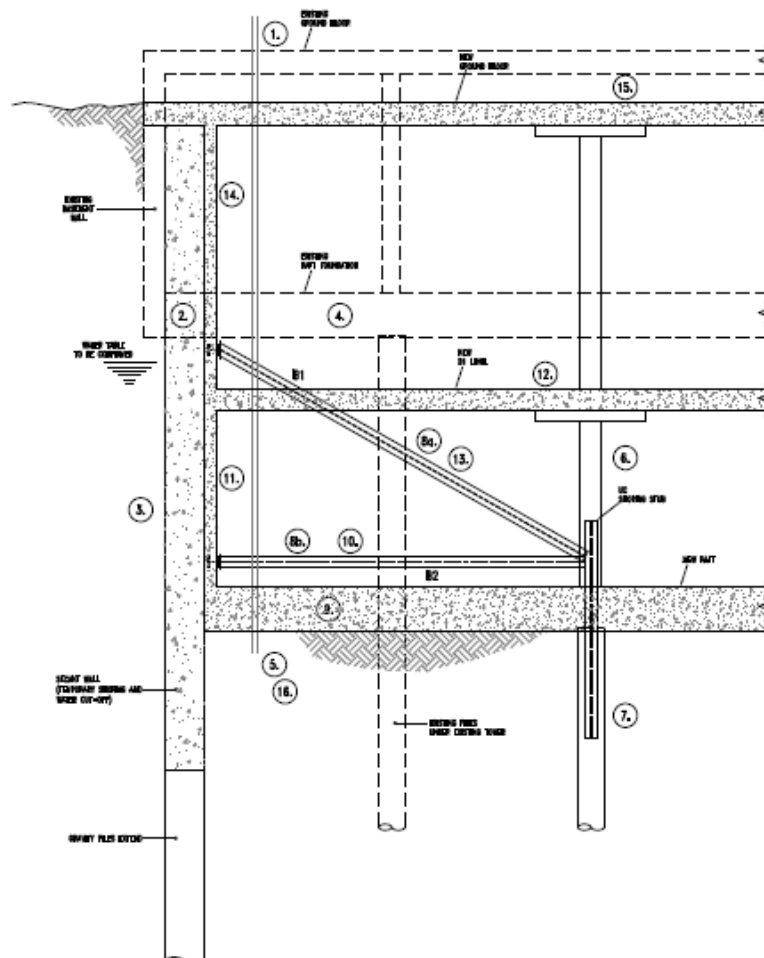


Fig. 8.3 – Basement Construction Sequence

The following sequence assumes that there will be access to piling equipment outside the footprint of the existing basement. If this is not the case, temporary propping will be needed between existing basement and ground floor and slots cut in both these levels to allow secant wall to be installed.



1. Demolish existing Ground Floor slab
2. Break out and remove slot in existing raft foundation
3. Install perimeter secant wall and install upper shoring waler
4. Remove remainder of existing Raft foundation
5. Install de-watering across site
6. Excavate central portion of site including demolition of existing piles down to underside of new raft, leaving earth berm at perimeter
7. Construct internal piles, some with temporary steel UC shoring stubs
8. Locally excavate and install upper shoring raker (8A) and continue excavation to install lower shoring waler and raker (8B)
9. Complete excavation at perimeter and construct new raft
10. Remove lower shoring waler and raker
11. Construct new perimeter wall and columns between raft and B1 level
12. Construct B1 Level
13. Remove upper waler and raker
14. Construct perimeter wall and columns between B1 Level and Ground Floor
15. Construct new Ground Floor

Dismantle de-watering system when Engineer is satisfied that construction has progressed sufficiently for new structure to overcome hydrostatic up-lift.

9.0 SITE LOGISTICS

Road Access

The development site is bounded on all four sides by adopted highways. Cromwell Road to the north comprises two lanes in both directions and forms part of the A4 highway which terminates to the east at Piccadilly Circus and to the west where it joins the M4 motorway which in turn, provides links to Heathrow, Reading and Western England and Wales. The total width of carriageway is approximately 17m and no street parking is provided on this section of Cromwell Road.

The remaining roads - Ashburn Gardens, Ashburn Place and Courtfield Road are two-way single carriageway roads varying in width from approximately 9.25m-9.5m with on street parking provided on both sides of each carriageway. The parking provision is pay and display on each road with permit parking for residents.

Signalised junctions serve both Ashburn Gardens and Ashburn Place onto Cromwell Road, however all vehicles exiting Ashburn Place onto Cromwell Road must turn left due to the central traffic island demarcating the dual carriageway off Cromwell Road. The junction of Ashburn Gardens onto Courtfield Road is a standard "Give-Way" junction with right of way given to traffic on Courtfield Road while the junction of Ashburn Place and Courtfield Road is a mini-roundabout scenario, see Fig 9.



Fig 9.2: Mini-roundabout at Ashburn Place and Courtfield Road

Servicing of Hotel

The main access to both the existing and new hotel is provided off Courtfield Road with access to set-down parking for hotel patrons to drop luggage off at the Hotel Reception. Car access will also be available at the turning circle located off Cromwell Road.

The Loading Docks for the development is set just south of the set-down area off Courtfield. It is sufficiently spacious and column-free to allow all vehicular movements occur within the property thus avoiding any on-street manoeuvring.

The limited car parking is accommodated by an automated car stacker in the basement, accessed just south of the loading Docks.

10.0 LIMITATION OF STUDY PARAMETERS

When considering this report, it must be noted that a site specific detailed ground investigation, a site specific hydrological survey and a detailed inspection of the nearby properties has yet to be undertaken. These investigations are necessary to develop a detailed assessment and inform the design of the substructure and basement structural elements, construction techniques, sequence, and temporary works

Ground investigation and adjacent properties surveys will include, but not be limited to, the following items:

- Geotechnical boreholes for soil strata levels, in situ soil testing, ground water monitoring, and samples.
- Laboratory testing of soil to obtain strength and stiffness properties and any contamination issues. Trial pits to determine existing footing levels and extents.
- Surveys to determine extents and conditions of below ground services.

Finally, it should also be noted that the proposals are subject to detailed design development and coordination with the design team.

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