ARUP

British Land Property Management Limited

Euston Tower

Drainage and SuDS Strategy

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Contents

Tables

Figures

Appendices

Glossary

Acronym	Definition
AEP	Annual Exceedance Probability
BGS	British Geological Society
EA	Environment Agency
CDA	Critical Drainage Area
FRA	Flood Risk Assessment
FRMS	Flood Risk Management Strategy
FZ	Flood Zone
LBC	London Borough of Camden
LFRZ	Local Flood Risk Zone
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
mAOD	Meters Above Ordnance Datum
NPPF	National Planning Policy Framework
PFRA	Preliminary Flood Risk Assessment
SFRA	Strategic Flood Risk Assessment
SPZ	(Groundwater) Source Protection Zone
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TWUL	Thames Water Utilities Ltd.

Executive Summary

Ove Arup and Partners Limited ("Arup") has been commissioned by British Land Property Management Limited (hereafter British Land) to prepare a Drainage Strategy report including a Building Research Establishment Environmental Assessment Method (BREEAM) New Construction 2018 Pol 03 Credit Assessment in support of the detailed planning application associated with the proposed development at Euston Tower.

Drainage proposals outlined in this report can be summarised as follows:

- Attenuation will be provided within a combination of both blue roofs and an attenuation tank within the basement.
- Surface water captured from the roofs will be harvested and re-used to serve the WC's within the building.
- In line with the significant redevelopment of the public realm surround Euston Tower, surface water drainage and SuDS features, including vegetated areas and bio-retention features are proposed.
- Infiltrating drainage techniques are not viable due to the presence of the basement extending beneath external areas and London clay geology below.
- The existing point of connection to the public sewer network will be maintained and will be reduced to a maximum of 5 l/s/ha for all storm events up to the critical design event of 1 in 100 year + climate change, in line with Thames Water Utilities Ltd requirements.
- Foul drainage flows are expected to increase due to the proposed building alterations and it is likely that these flows will be pumped within the building, utilising the existing connection to the public sewer.

Based on our understanding of the Site setting and the proposals, it is considered that the development can be constructed and operated safely and will not increase flood risk elsewhere.

1. Introduction

Ove Arup & Partners Limited ("Arup"), has been commissioned by British Land to prepare a Drainage Strategy Report and Building Research Establishment Environmental Assessment Method (BREEAM) Assessment for the proposed development works at Euston Tower, 286 Euston Road, London, NW1 3DP (hereafter referred to as "the Site")

The proposals include major retrofit and development at the current Euston Tower including the partial retention (retention of existing core, foundations and basement), disassembly, reuse and extension of the existing building. The 32-storey building will be for use as offices and research, development floorspace, learning and community space at ground, first and second floors, and associated external terraces.

This report should be read in conjunction with the Arup Flood Risk Assessment, report ref: 281835-ARP-XX-XX-RP-CD-0001.

1.1 Scope of Report

The scope and output of this report is as follows:

- Outline ways in which the site will manage surface water and assess the ability of the site to utilise sustainable drainage systems.
- Propose measures for the management of residual risks; and
- Assess the site against BREEAM UK New Construction 2018 Pol 03 and confirm eligibility for credits available.

1.2 Consultation

In preparation of this report Arup has consulted with Thames Water Utilities Limited (TWUL) as the local drainage authority in the submission of a pre-development enquiry to confirm local capacity.

1.3 Limitations

This report has been prepared for the use of British Land (the Applicant) in relation to the proposed development at Euston Tower. It takes into account the Applicant's particular instructions and requirements and addresses their priorities at the time. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party in relation to it, except as provided for in Arup's agreement with British Land.

Arup has based this report on the sources detailed within it and believes them to be reliable but cannot and does not guarantee the authenticity or reliability of third-party information. Reasonable skill and care have been exercised in preparation of this report in accordance with the technical requirements of the brief.

This report has been prepared based on current legislation, statutory requirements, planning policy and industry good practice at the time of writing. Any subsequent changes or new guidance may require the findings, conclusions and recommendations made in this report to be reassessed in light of the circumstances. Should the proposed layout or use of the site change, the assessments and conclusions presented in this report may need to be revised.

2. Policy and Guidance

The following section details specific local policy and guidance pertinent to flood risk and surface water drainage that are applicable to the proposals. This section does not outline National Legislation, Regulations or Guidance which is provided in Appendix A.

2.1 London Borough of Camden Local Plan 2017

The London Borough of Camden (LBC) Local Plan sets out the Council's planning policies ensuring Camden has an effective response to the changing circumstances of the borough. Published in 2017 it sets out the boroughs vision until 2031. The following policies directly relate to flood risk and climate change considerations.

Policy CC2: *Adapting to Climate Change*

Policy CC2 states all development should adopt appropriate climate change adaptation measures such as:

- *the protection of existing green spaces and promoting new appropriate green infrastructure*
- *not increasing, and wherever possible reducing, surface water run-off through increasing permeable surfaces and use of Sustainable Drainage Systems*
- *incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and*
- *measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.*

Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

Policy CC3: *Water and Flooding*

Specifically, policy CC3 states the following requirements for developments:

- *incorporate water efficiency measures*
- *avoid harm to the water environment and improve water quality*
- *consider the impact of development in areas at risk of flooding (including drainage)*
- *incorporate flood resilient measures in areas prone to flooding*
- *utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible*
- *not locate vulnerable development in flood-prone areas.*

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.

2.2 LBC Surface Water Management Plan (June 2013)

The LBC Surface Water Management Plan (SWMP) June 2013 study forms part of the wider Drain London Tier 2 project and builds on previous studies by the Borough in its role as a LLFA. It outlines the predicted risk and preferred surface water management strategy.

2.3 Camden Planning Guidance Water and Flooding CPG (March 2019)

CPG provides advice and information on how LBC apply planning policies. The adopted CPG documents are 'material considerations' in planning decisions. A number of CPG documents were adopted in March 2019 including "Water and Flooding CPG".

The Water and Flooding CPG encourages sites to meet London Plan runoff reduction targets (discussed further below) and drainage designs to accommodate all storm events up to and including the 1 in 100-year 6 hour storm event (including allowances for climate change).

It also continues to promote the use of the SuDS hierarchy when considering management of surface water and rainwater harvesting tanks and green roofs are preferred over other SuDS ranked lower down, such as attenuation tanks.

Specifically, the Water and Flooding CPG states that LBC expect the following to support planning:

"A drainage report is required for all major applications, basement development, and vulnerable development in areas identified as at risk of flooding (details of what this should include can be found in paragraph 8.67 of the Local Plan). The Council will expect plans and application documents to describe how water will be managed within the development, including an explanation of the proposed SuDS, the reasons why certain SuDS have been ruled out and detailed information on materials and landscaping The Council will expect developments to achieve a greenfield surface water run-off rate where feasible once SuDS have been installed."

2.4 The London Plan (March 2021)

Policy SI 12 – Flood Risk Management and Policy SI 13 – Sustainable Drainage (extracted below) are pertinent in the content this report.

2.4.1 Policy SI 13 – Sustainable Drainage

The key aims of Policy SI 13 are replicated below:

a. *Lead Local Flood Authorities should identify – through their Local Flood Risk Management Strategies and Surface Water Management Plans – areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water runoff outside these areas also need to be identified and addressed.*

b. *Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:*

   - *rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)*
   - *rainwater infiltration to ground at or close to source*
   - *rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)*
   - *rainwater discharge direct to a watercourse (unless not appropriate)*
   - *controlled rainwater discharge to a surface water sewer or drain*
   - *controlled rainwater discharge to a combined sewer.*

c. *Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.*

Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity and recreation.

2.5 Thames Water Utilities Limited

In accordance with the Building Act 2000 Clause H3.3, positive connections to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable.

The disposal hierarchy being: 1st Soakaways; 2nd Watercourses; 3rd Sewers.

Only when it can be proven that soakage into the ground or a connection into an adjacent watercourse is not possible would TWUL consider a restricted discharge into the public surface water sewer network.

TWUL request that every attempt should be made to use flow attenuation and SUDS/storage to reduce the surface water discharge from the Site as much as possible.

If they are consulted as part of any planning application, TWUL Planning team would ask to see why it is not practicable to attenuate the flows to Greenfield run-off rates i.e. **5l/s/hectare** of the total Site area (or if the Site is less than 1 hectare in size then the flows should be reduced by 95% of existing flows).

3. Environmental Setting

3.1 Site Location

Euston Tower is situated within the LBC, and the ward of Regent's Park. The Site is bounded by Euston Road (south), Hampstead Road (east), Brock Street (north) and Regent's Place (west). The Site covers an area of circa 0.81ha, comprised of a single, ground plus an existing 36-storey tower.

Ordnance Survey co-ordinates for the site are approximately: 529181E, 182344N and the approximate boundary of the site is shown in red in Figure 1 below.

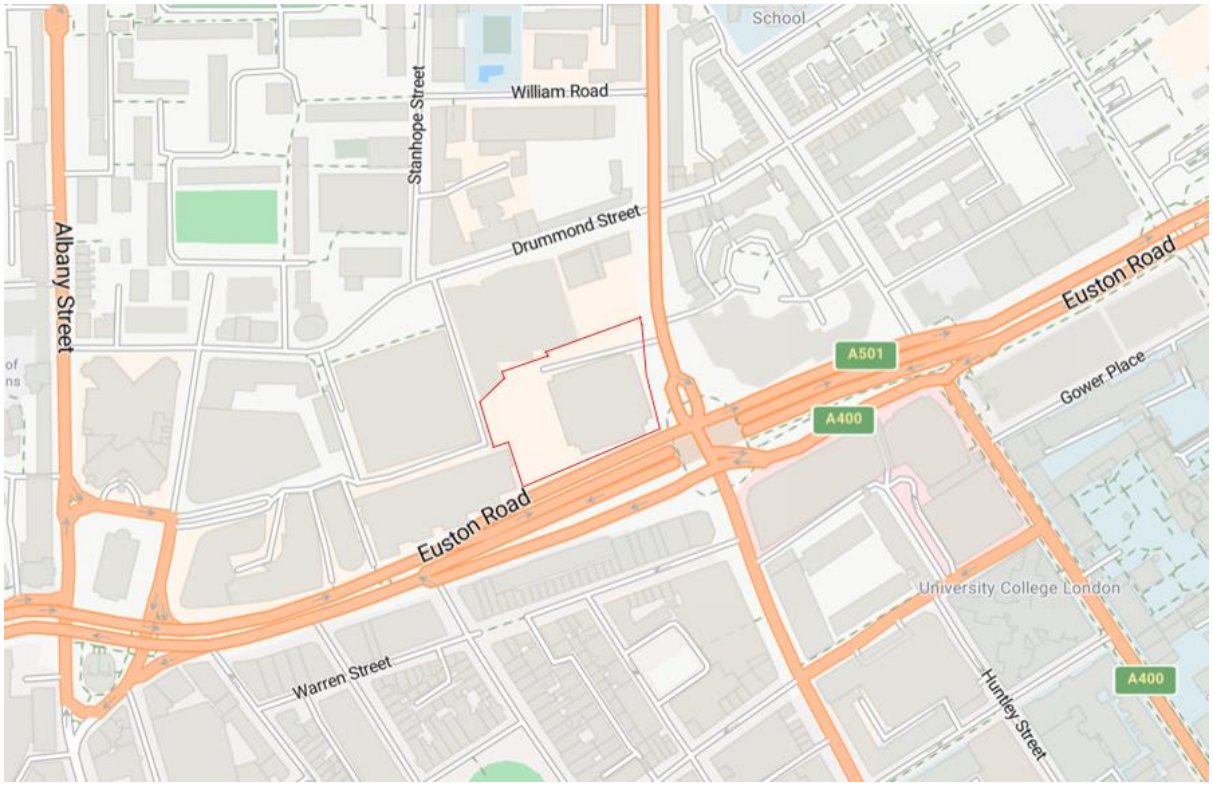


Figure 1: Site Location Map (Bing Maps – Indicative Red Line)

3.2 Existing Site

The tower has been largely vacant for several years, predominantly comprising office uses on the upper floors, however there are still retail uses currently in operation at ground floor level. The Site does not fall within a conservation area (CA); however, Fitzroy Square CA and Bloomsbury CA are both located in proximity (south). There are no elements of the Site that are statutory or locally listed. A Certificate of Immunity from listing has been submitted and at the time of submission is still pending in respect of the existing tower.

The building is made up of 4,395m^2 retail space on the ground & first floor, and 31,271m^2 of office space across the existing floors 2-36. Access to retail units is from ground level either within the building or from the street.

Located within the basement are plant rooms, services, transformer chambers (which are not accessible to the public), as well as a larger carpark which is accessible to the public.

3.3 Existing Topography

A topographical survey undertaken in June 2018 by Plowman Craven (ref 34979T-01-4 issue 1 and 34979T-01-2 issue 1 within Appendix B) shows that the current site levels are predominantly flat, ranging between approximately 27.0 and 28.0 metres Above Ordnance Datum (mAOD). The level immediate adjacent to the existing building is consistently 27.8mAOD.

Euston Road runs from west to east of the building, with a high point located at the junction of Hampstead and Euston Road of 27.70m AOD and a low point of 27.40m AOD further south-west of Euston Tower. Brock Street to the north of the building is also similarly level, ranging from 27.62mAOD north-east of the Site to 27.69m AOD on the north-west.

3.4 Existing Rivers/Water Bodies

The nearest major watercourse is the River Thames which is located 2.2km to the southeast of the Site.

The nearest surface water body identified is the Boating Lake in Regent's Park which is approximately 1.0km to the west of the site.

3.5 Geology

The British Geological Society (BGS) 1:50,000 geological mapping indicates that the Site is underlain with London Clay Formation with Clay, Silt, and Sand.

BGS 1:50,000 geological mapping indicates that the Site is underlain with superficial deposits of Lynch Hill Gravel with sand and gravel.

Made Ground is expected to be encountered below the surface and will be variable in composition. It is associated with the historical site development.

3.6 Hydrogeology

Shallow or perched ground water above the London Clay is expected to be present at this site due to the presence of

There are no groundwater source protection zones within 1 km radius from the site.

3.7 Existing Drainage Infrastructure

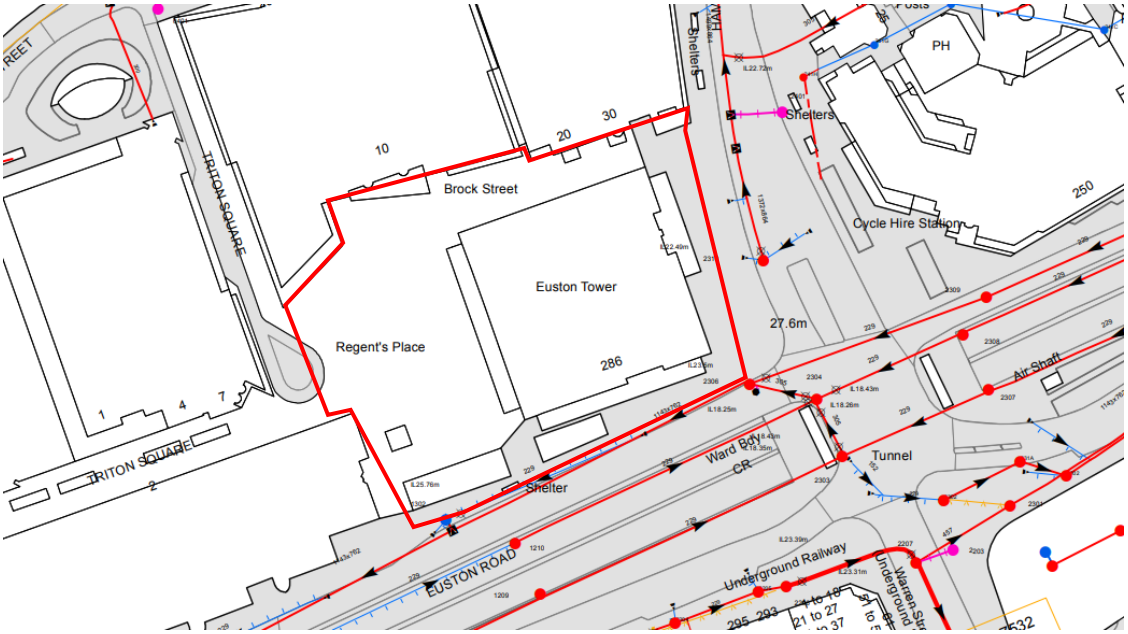


Figure 2: Existing Thames Water Sewers

As shown in Figure 2 above, Thames Water asset mapping identifies the following existing combined sewers within proximity to the Site:

- 1143 x 762 combined sewer in Euston Road immediately south of the Site draining east to west.
- 2no. 229 dia. combined sewers further south within Euston Road draining west to east.
- 1372 x 864 in Hampstead Road to the east of the Site draining in a northerly direction.

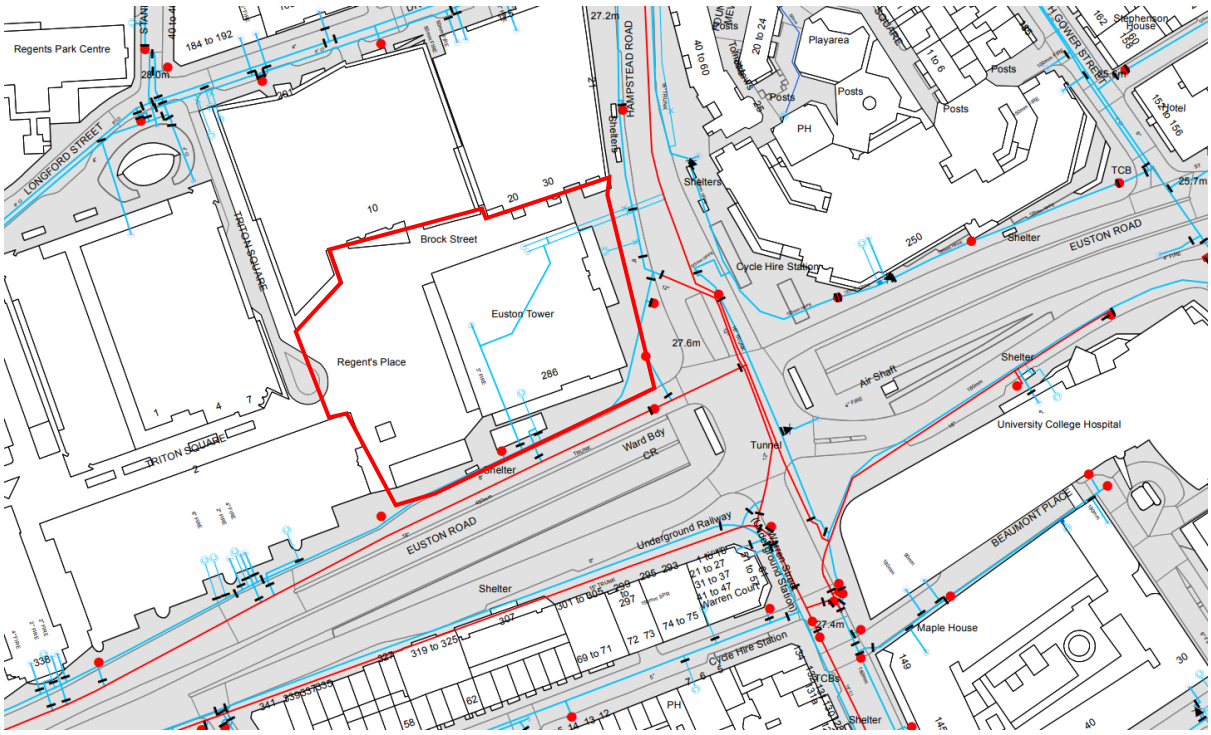


Figure 3: Existing Thames Water Potable Water Mains

As shown in Figure 3 above, Thames Water asset mapping identifies the following existing water mains within close proximity to the Site:

- 4inch water mains running within Euston Road, Hampstead Road and across the development site.
- 16inch trunk mains running in Euston Road and Hampstead Road.

4. Proposed Development

4.1 Development Proposals

Redevelopment of Euston Tower, including the partial retention (retention of existing core, foundations and basement), disassembly, reuse and extension of the existing building, to provide a 32-storey building for use as offices and research and development floorspace (Class E(g)) and office, retail, café and restaurant space (Class E) and learning and community space (Class F) at ground, first and second floors, and associated external terraces. Provision of public realm enhancements, including new landscaping, and provision of new publicly accessible steps and ramp. Provision of short and long stay cycle storage, servicing, refuse storage, plant and other ancillary and associated works.

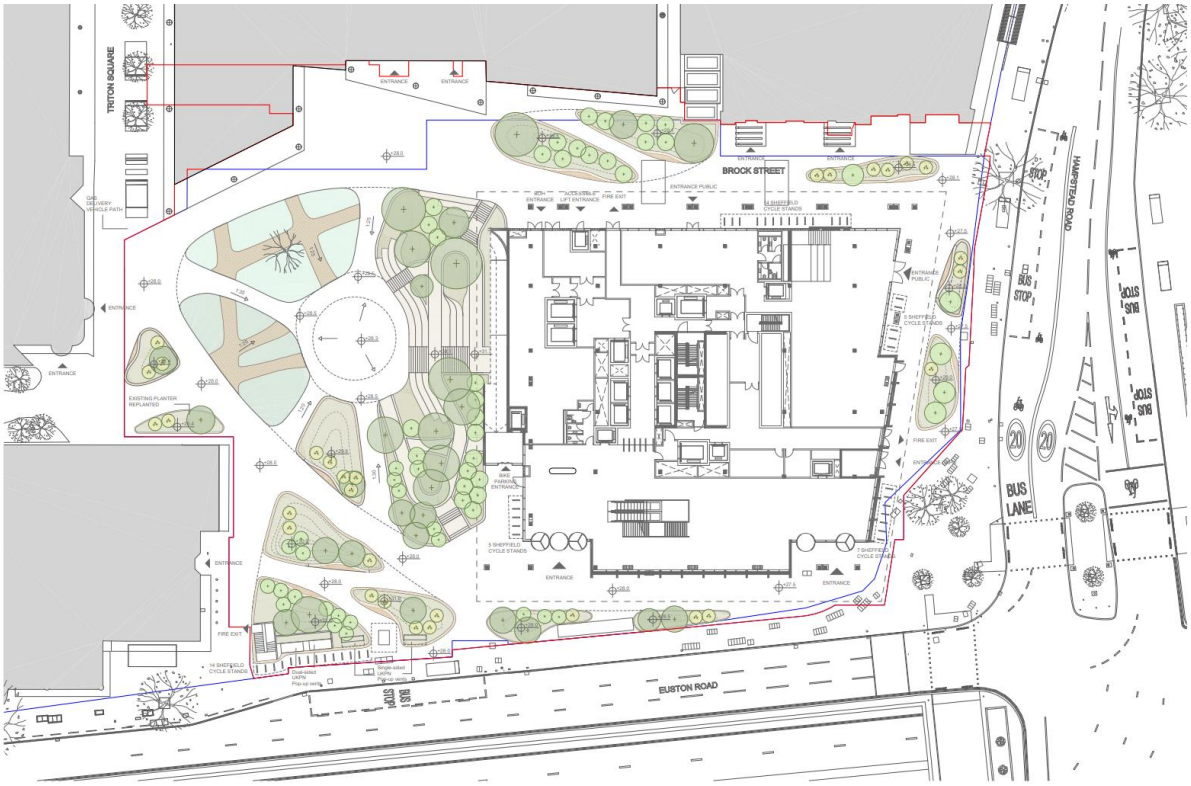


Figure 4: Proposed ground floor of development including landscaping

As shown in Figure 4 above, the public realm surrounding the development will also be significantly redeveloped to include vegetated areas and areas for surface water cleansing. In turn also reducing overall impermeable surfaces.

For detailed layout proposals see 3XN drawings included within Appendix C.

5. Drainage Strategy

5.1 Surface Water Drainage

The following section of the report provides details of the estimated existing brownfield runoff rates, an indicative calculation for the scale of attenuation required to facilitate the proposals and a review of appropriate SuDS that can be considered viable based on the development proposals.

5.1.1 Existing

Greenfield run off rates for this development have been calculated using IoH124 (FSR) data and are detailed in the below table (calculations included within Appendix E).

Table 1: Greenfield runoff rates

Rainfall Event	Total Existing Site Discharge Rate (l/s) (A=0.79ha)
1 in 1 Year	1.0
1 in 30 Year	2.8
1 in 100 Year	3.9
Qbar	1.2

Given this is a brownfield development, the modified rational method (based on 60minute winter rainfall event intensity) provides an estimate of existing surface water run-off rates from rainfall intensity. The proposed brownfield development sees no reduction of impermeable area in comparison to pre-development which equates to an impermeable area of 0.79ha.

Rainfall data has been obtained from Flood Estimation Handbook (FEH) online mapping to determine approximate existing discharge rates at the Site. The 60-minite storm durations were used within these calculations as typical duration storm events and the Rational Method applied:

Q = 2.78 CIA, where;

Q = flow (l/s);

C = runoff coefficient (1);

I = rainfall (mm/hr); and

A = catchment area (ha).

Table 2: Pre-development discharge rates

Rainfall Event	Intensity (mm/hr)	Total Existing Site Discharge Rate (l/s) (A=0.79ha)
1 in 1 Year	12.0	26.4
1 in 30 Year	37.3	81.9
1 in 100 Year	56.0	123.0

5.1.2 Existing Connections

A drainage survey has been undertaken by Plowman Craven in 2019 (Appendix B) which indicates a total of three connections into the existing TWUL combined sewers within the remit of this development. Two are located along the east and are assumed to connect into Hampstead Road and one along the south which is assumed to connect within Euston Road.

5.1.3 Proposed discharge rates

Given this is a brownfield development with existing flows of 26.4 l/s during the 1 in 1yr event, it is proposed that flows are restricted to 5.0l/s for the entire development. This provides significant betterment during all storm events (95% in the 1 in 100yr event) while also lowering the possibility of maintenance issues in the future due to significantly small flow control orifice diameters.

Flows are proposed to be restricted by the use of a pump which provides a constantly restricted discharge rate and optimises overall storage requirements.

Discussions with Thames Water regarding the proposed discharge rates are ongoing, however it is envisaged that this rate will pose no issue as they are significantly lower than existing.

5.1.4 Proposed discharge rates

As the development is not increasing in impermeable area, discharge volumes will remain the same as existing. However, the soft landscaping proposals include additional areas of vegetation which, whilst situated above the basement, will reduce overall runoff volume through evapotranspiration and depression storage.

5.1.5 Climate Change

Current NPPF Guidance stipulates that to allow for the predicted impacts of climate change on surface water runoff, increases to peak rainfall intensity should be used.

Table 3 is an extract from the updated government guidance in relation to climate change allowances for the London Management Catchment for the 1% annual exceedance event. For development with a lifetime beyond 2100 the upper end allowances should be assessed at both the 1% and 3.3% annual exceedance probability events for the 2070s epoch.

The development should be designed for the upper end allowance in the 1% annual exceedance probability event.

Table 3: Peak rainfall intensity allowance in small and urban catchments (use 1961 to 1990 baseline) (Source: Environment Agency Climate Change Guidance)

Annual Exceedance Probability Event	Allowance	Total potential change anticipated for the '2050s' (Development lifetime up to 2060)	Total potential change anticipated for the '2070s' (Development lifetime 2061 to 2125)
3.3%	Upper end	20%	35%
3.3%	Central	20%	40%
1%	Upper end	20%	40%
1%	Central	25%	40%

In line with Environment Agency guidance, an allowance of 40% for the effects of climate change to the year 2125 should be used to achieve the policy requirements for the proposed development.

Applying a 40% additional allowance will enable surface water from storm events up to and including the 1 in 100-year event plus climate change to be safely stored on-Site without detriment to existing

flood risk. As a result, the proposed surface water drainage strategy will serve to improve the resilience of the existing Site to the anticipated changes in rainfall patterns.

5.2 Opportunities for SuDS

Chapter 14 (paragraph 169) of the NPPF recommends that Sustainable Drainage Systems (SuDS) should be utilised, where possible, within all new drainage schemes. SuDS generally mimic the natural drainage patterns of the undeveloped Site allowing infiltration into the ground (where feasible) and controlling outflow rates from the development. This reduces the impact and risk of flooding on downstream developments and can provide additional benefits such as pollution control, increased biodiversity and provision of water-based amenity space.

Table 4 below provides a detailed Site-specific assessment of the suitability of a variety of SuDS considered within the proposed surface water drainage strategy.

Table 4: Detailed SuDS Suitability Appraisal

SuDS Type	Site Suitability		
Blue Roof	A roof specifically intended and designed to store water. This can be via open water surfaces, storage within or beneath porous medium or modular surfaces, within shallow geo-cellular crates or below a raised decking/impermeable surface.		
	Advantages	**Disadvantages**	
	No additional land take making them effective within dense urban Sites and can contribute significantly to overall Site attenuation requirements.	Additional weight and cost to structure (compared to normal roof design). Damage to waterproof membrane can be critical. Does not always provide treatment dependent on system.	✓
Site Suitability	**Blue roofs are considered feasible at the Site, but siting and sizing will need to be co-ordinated with structural design. It is likely that any blue roof system will have a restricted discharge rate to maximise attenuation.**		
Green Roof	Multi-layered system that covers the roof of a building with vegetation/landscaping over a drainage layer. Designed to intercept and retain rainfall, reducing the volume of runoff and attenuating peak flows. Typically, either defined as intensive or extensive systems depending on the nature of the selected flora.		
	Advantages	**Disadvantages**	
	Mimics greenfield state of building footprint for high density developments, good removal of pollutants, ecological benefits, insulates buildings, sound absorption.	Additional weight, not appropriate for steep roofs, maintenance of roof vegetation. Damage to waterproof membrane can be critical.	
Site Suitability	**Living roofs are considered a potential option once all plant details required on the roof are confirmed. Planting type, species, and layout will need to be co-ordinated with structural design.**		
Rainwater Harvesting	The collection of rainwater (usually within underground storage tanks) for later re-use in either buildings (treated), wash down facilities (commercial) or irrigation.		
	Advantages	**Disadvantages**	
	Can provide source control of storm water runoff, reduces demand on mains water.	Use is dependent on demand requirements, contributing surface area, and seasonal rainfall characteristics	✓
Site Suitability	**Rainwater harvesting is to be included within the proposals. Water harvested from the roof will be used to flush WCs within the building.**		

SuDS Type	Site Suitability		
Infiltration Systems/ Soakaways	Any system which stores and discharges water directly to the underlying soils. These are typically soakaways, infiltration trenches, infiltration basins or infiltration blankets.		✘
	Advantages	**Disadvantages**	
	Provides groundwater recharge, ease of construction and can have minimal land take subject to design. Manages surface water at source.	Increased risk of groundwater ingress and pollution. Not suitable for poor draining soils or where infiltrating water may pit structural foundations at risk. Uncertainty over long term performance. Requires comprehensive geotechnical knowledge of underlying soils.	
Site Suitability	**Given the underlying geology and basement beneath the building and public realm area, this is not a viable option.**		
Swales	Swales are linear vegetated drainage features in which surface water can be stored or conveyed. They can be designed to allow infiltration, where appropriate.		✘
	Advantages	**Disadvantages**	
	Can be incorporated into landscaping proposals, offers good removal of pollutants and reduces runoff rates and volumes. Relatively low cost.	Not suitable for steep areas and requires significant land take (not suitable for high density urban Sites). Not suitable in areas with roadside parking.	
Site Suitability	**Given the urban setting of the development the inclusion of swales is not viable or appropriate.**		
Filter Drains	Filter drains are shallow trenches filled with stone/gravel that accept runoff through sheet flow and provide temporary subsurface storage (typically provided adjacent to highways or as interception features). They can drain via infiltration or be lined and positively drained via a perforated collection pipe.		✘
	Advantages	**Disadvantages**	
	Hydraulic benefits achieved with filter trenches, trenches can be incorporated into Site landscaping and fit well beside roads and car parks.	High clogging potential without effective pre-treatment, limited to small catchments, high cost of replacing filter material.	
Site Suitability	**Given the urban setting of the development the inclusion of filter drains is not viable or appropriate.**		
Bio-retention Systems/Rain Gardens	Shallow planted features, which receive runoff directly from adjacent hardstanding. Typically under drained, surface water will infiltrate to the underlying piped drainage system and in doing so promote storage, plant up-take and filtration.		
	Advantages	**Disadvantages**	
	Easily incorporated into soft landscaping, flexible shape and planting mix and provide good degree of storage (reducing the below ground requirement). High degree of pollutant removal and high biodiversity potential. Reduces need for surface drainage (gullies, channels etc) and low cost.	Requires considered use of water tolerant plant species and landscaping & management. Susceptible to clogging if poorly managed and not suitable for steeply sloping Sites.	
Site Suitability	**Bio retention/rain gardens features would be suited to the public realm/landscaping proposals and should be considered at the detailed design stage. Surface water will drain directly into these features and into the below ground attenuation, hence providing surface water treatment before discharge to the existing network. However, due to the shallow depth between public**		

SuDS Type	Site Suitability		
	realm and top of basement and the high density of existing and proposed utilities, it may be difficult to provide bio-retention features in all desired locations.		
Tree Pits	Tree pit systems generally accept sheet runoff from adjacent hardstanding areas in the same manner as bio-retention systems. They can be used in urban settings and provide a range of aesthetic benefits.		
	Advantages	**Disadvantages**	
	Easily incorporated into soft landscaping with high degree of pollutant removal and high biodiversity potential. Reduces need for surface drainage (gullies, channels etc) and low cost.	Limited tree species/size depending on system and requires careful co-ordination with services due to root spread	✘
Site Suitability	**Due to the shallow depth between public realm and top of basement tree pits do not provide at a viable option.**		
Permeable Pavements	Pavements that allow rainwater to infiltrate through the surface and into the underlying layers. The water is temporarily stored before infiltrating the ground (unlined) or discharging to the sewerage system (lined).		
	Advantages	**Disadvantages**	
	Provides low-level treatment of highway-derived pollutants (as recognised by the EA) and reduces need for surface drainage (gullies, channels etc). Available in a range of surface types (not just block paving).	Often requires increased construction depth and not suitable for use with Type 1 sub-base. May not be applicable for heavy traffic loadings and irregular maintenance required in certain situations. Not suitable for utility routes.	
Site Suitability	**Due to the shallow depth between public realm and top of basement, a thin layer of tanked permeable paving could be provided across parts of the public realm to act as a cleansing feature for surface water. Further consideration is to be given to this at the detailed design stage.**		
Detention Basins	Detention basins are surface storage basins that provide flow control through attenuation of storm water runoff. They facilitate settling of particulate pollutants. Typically dry, they can also offer multi-functional recreational use.		
	Advantages	**Disadvantages**	
	Can cater for a wide range of rainfall events, easy to maintain, potential for dual land use, can be incorporated in to landscaping proposals and low cost.	Not suitable for steep areas, significant land take and little reduction in runoff volume	✘
Site Suitability	**Given the urban setting of the development, detention basins are not considered a suitable SuDS feature. However, see above bio-retention features which can act as vegetated storage features.**		
Ponds	Ponds can provide both storm water attenuation and treatment. They are designed to support emergent and submerged aquatic vegetation along their shoreline.		
	Advantages	**Disadvantages**	
	Good removal capability of urban pollutants, high potential ecological, aesthetic and amenity benefits, can cater for all storm events and good community acceptability.	No reduction in runoff volume; Anaerobic conditions can occur without regular inflow; Significantly land take; No suitable for steep Sites;	✘

SuDS Type	Site Suitability		
Site Suitability	**Given the urban setting of the development, ponds are not considered a suitable SuDS feature. However, see above bio-retention features which can act as vegetated storage features.**		
Sub-Surface/Geo-cellular Storage	As there is extremely limited public realm/external space and given the urban setting of the development the inclusion larger above ground features is not viable or appropriate.		✓
	Advantages	**Disadvantages**	
	Modular and flexible, dual usage (infiltration/storage, high void ratios, can be installed beneath trafficked and soft landscaped areas.	No water quality treatment.	
Site Suitability	**Attenuation tanks for surface water are proposed within the basement and shallow geo-cellular attenuation are also proposed within the public realm to supplement storage provided within the basement and blue roof.**		
Rills/Canals	Formal linear drainage features in which surface water can be stored or conveyed. They can be incorporated with water features such as ponds or waterfalls where appropriate.		
	Advantages	**Disadvantages**	
	Negate the need for underground pipework. Can provide some attenuation. Possible reduction in runoff volume via plant uptake and infiltration.	Potential trip/wheel hazard, disabled access issues.	
Site Suitability	**Rills could be well suited to public realm areas and provide shallow conveyance of water which would be well suited to this development. Further consideration should be undertaken at detailed design stage.**		

Legend

✓ - Suitable for consideration on Site

✘ - Not suitable for consideration on Site

- Further consideration to be carried out during detailed design

5.3 SuDS Selection Summary

Further to the assessment above, Table 6 provides a summary of SuDS that are considered viable within the context of the proposals, SuDS where opportunities to implement should be explored at detailed design stage and SuDS which are not appropriate for the proposals due to spatial constraints and existing ground conditions:

Table 5: SuDS Selection Summary

SuDS Type	Site Suitability		
	Suitable for consideration on Site	Further consideration to be carried out during detailed design	Not suitable for consideration on Site
Blue Roof			
Green Roof			
Rainwater Harvesting			
Infiltration Systems/Soakaways			
Swales			
Filter Drains			

Bio-retention Systems/Rain Gardens			
Tree Pits			
Permeable Pavements			
Detention Basins			
Ponds			
Sub-surface Storage			
Rills/Canals			

5.4 Surface Water Attenuation and Distribution

It is proposed that the surface water which falls directly onto the roof will be captured within blue roofs and a water harvesting system to be used to flush WC's throughout the Tower. However, it cannot always be assumed that there will be capacity within the water harvesting system, for example if two extreme rainfall events occur immediately after one another. Hence, attenuation storage is also proposed to be provided within shallow attenuation tanks within the public realm and the basement to supplement that within the blue roof system. When required, discharge from this attenuation tank will be pumped into the existing combined sewer (via a demarcation chamber and gravity pipe), utilising existing points of connection in Euston Road.

Surface water runoff generated from the public realm is proposed to be drained via a series of shallow high capacity channel drains towards shallow attenuation tanks before draining into the attenuation within the basement and discharging at the existing point of connection within Euston Road. Soft landscaping situated across the public realm will drain their own area with excess surface water being drained into the on site drainage system. Due to the basement below the soft landscaped areas, the entirety of the public realm has been assumed as impermeable. These proposals provide water quality benefits as well as valuable amenity space for local people and building users.

Microdrainage calculations and drainage strategy plan (Ref: 281835-ARP-XX-XX-DR-C-0001) for these proposals are provided within Appendix E.

5.5 Compliance with London Plan

In accordance with the London Plan 2021 development proposals should ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:

1. rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
2. rainwater infiltration to ground at or close to source
3. rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
4. rainwater discharge direct to a watercourse (unless not appropriate)
5. controlled rainwater discharge to a surface water sewer or drain
6. controlled rainwater discharge to a combined sewer.

In line with the above, Table 6 below demonstrates compliance with the drainage hierarchy.

Table 6: London Plan Drainage Hierarchy

Hierarchy	Surface Water Management	Considered Within Design?	Design Comments
1	Rainwater use as a resource	Yes	Rainwater harvesting will be included within the design.
2	Rainwater infiltration to ground at or close to source	No	Due to the basement beneath and London Clay beneath, infiltration is not possible.
3	Rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)	Yes	Blue/Green roofs are viable to attenuate storm water on site, with downstream outflows restricted to an approved/acceptable discharge rate before entering public surface water sewer.
4	Rainwater discharge direct to a watercourse (unless not appropriate)	No	No watercourses close to the Site
5	Controlled rainwater discharge to a surface water sewer or drain	No	No surface water sewers close to the Site
6	Controlled rainwater discharge to a combined sewer	Yes	The Site currently discharges to a combined public sewer and will continue to do so.

5.6 Exceedance Routes

In an exceedance level event where the drainage strategy is unable to accommodate rainfall effectively, it is anticipated that flows will follow the topography towards Hampstead Road and Euston Road. Existing levels across the development are very flat and therefore levels are to be designed in such a way to ensure flood waters are directed away from building thresholds.

5.7 SuDS Maintenance Schedules

It is the intention that the surface water drainage and SuDS features will be managed and maintained by the building management.

The following tables outline the minimum maintenance requirements for the different elements of the proposed strategy and are intended to form the basis of a final detailed operation and maintenance strategy document produced by the appointed private management company.

Maintenance requirements have been informed by the guidance outlined within CIRIA C753 and current best practice. The following information would also be supplemented by manufacturer's specifications and be dependent on the specific type of system/products used.

Blue roof maintenance information has been combined from two sources, namely the Stormwater Management Guidance Manual (Philadelphia) and the National Federation of Roofing Contractors Technical Guidance Note for the construction and design of Blue Roofs. The frequency of maintenance needs to be determined by conducting monthly inspections in the first year of installation.

Table 7: Operation and Maintenance Requirements for Blue roofs

Maintenance Schedule	Required Action	Frequency
Regular Inspections	Inspect outlet structures, and storage areas for trash and sediment accumulation	Annually and after severe storms
	Inspect waterproofing system visible at all upstands to ensure no gaps have formed	Annually and after severe storms
Regular Maintenance	Remove debris from drainage outlets and outlet screens to prevent clogging	Six months and after severe storms
	Remove excessive build-up of sediment around the outlet controls or within the storage cells	Six months and after severe storms
	Inspect for leaks	Six months and after severe storms
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed. Ensure all rainwater pipes are free from blockages and that water flows freely through them	As required
	Survey inside of tank for sediment build-up and remove if necessary	
Health & Safety	In accordance with Table 36.2 SuDS Manual C753, management is considered Medium Risk as extreme injury or death are possible when working on roofs, however these are considered an extremely low probability occurrence. Suitably Qualified Personnel should be appointed to undertake maintenance work on blue roof SuDS features.	NA

Table 8: Operation and Maintenance Requirements for Bio-retention Systems

Maintenance Schedule	Required Action	Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate) to determine is maintenance is necessary.	Quarterly
	Check operation of underdrains by inspection of flows after rain.	Annually
	Assess plants for disease infection, poor growth, invasive species and replace as necessary.	Quarterly
	Inspect inlets and outlets for blockage.	Quarterly
Regular Maintenance	Remove litter and surface debris and weeds.	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density.	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays.	Quarterly to biannually
Occasional Maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required.	As Required

Maintenance Schedule	Required Action	Frequency
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch.	As Required
Remedial Actions	Remove and replace filter medium and vegetation above.	As required but likely to be >20 years
Health & Safety	In accordance with Table 36.2, management is considered Low Risk as minor injury or health effects are unlikely to occur, hence the design is accepted and no reasonable requirement to review proposals.	NA

Table 9: Operation and Maintenance Requirements for Geo-Cellular Attenuation Tanks

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance).	Monthly
	Remove sediment from pre-treatment structures and/or internal forebays.	Annually, or as required
Remedial Actions	Repair/rehabilitate inlets, outlet, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build up and remove if necessary.	Every 5 years or as required.
Health & Safety	In accordance with Table 36.2, management is considered Low Risk as minor injury or health effects are unlikely to occur, hence the design is accepted and no reasonable requirement to review proposals.	NA

5.8 Foul Drainage

5.8.1 Existing

The Asset Location Search Sewer Map from Thames Water Utilities Limited (TWUL) (see Figure 5) shows that there are multiple combined sewers directly east within Hampstead Road and south within Euston Road. Refer to Appendix D for the full Asset Location Search from TWUL.

No adoptable Thames Water assets are located within the development parcel and therefore foul water is assumed to drain via private connection from Euston Tower into the adjacent combined sewer.

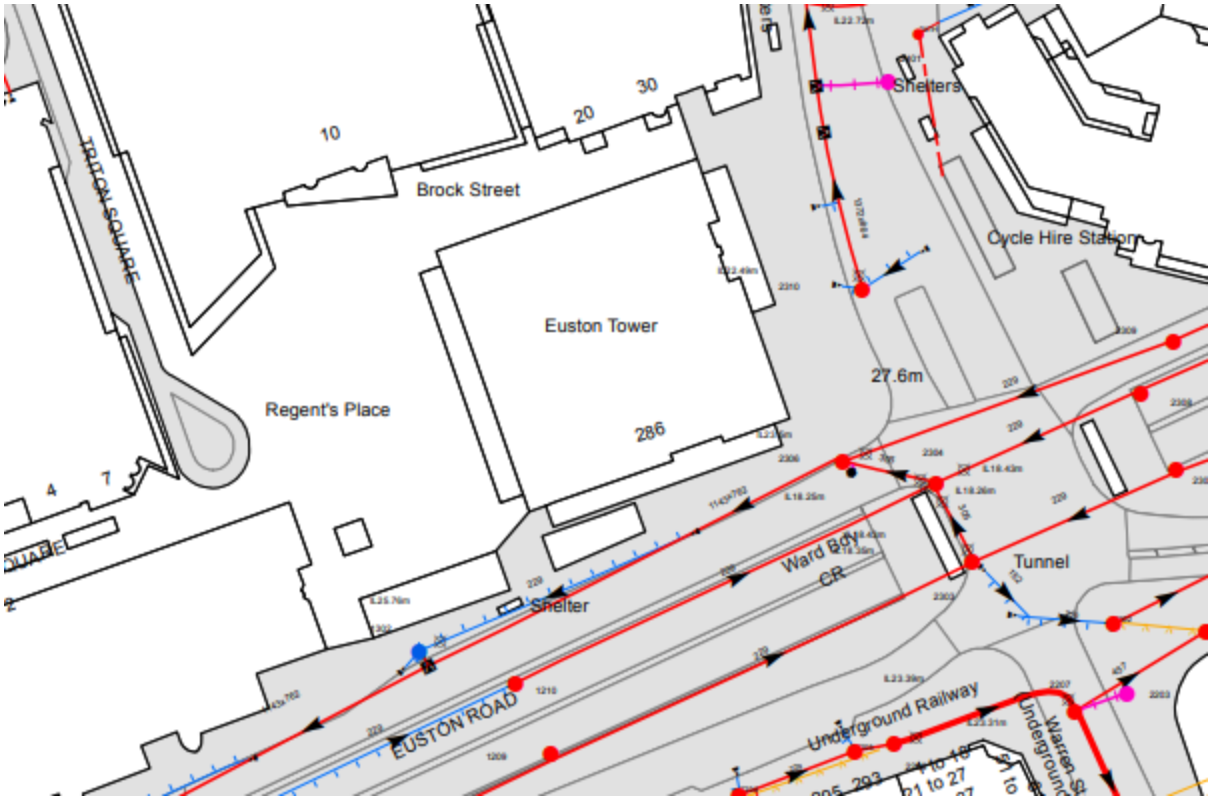


Figure 5: Extract from the Asset Location Search Sewer Map (TWUL, 2023)

5.8.2 Proposed

Foul flows from the building will be discharged to the TWUL combined sewer within Hampstead Road. Due to the change in building use, there will be an increase in the foul discharge from the building. The rate of discharge will be agreed with TWUL prior to connection. A pump system will be required to discharge flows into a demarcation chamber which then drains under gravity to the proposed point of connection.

6. BREEAM Assessment

The assessment criteria for BREEAM New Construction 2018 Pol 03 (Chapter 12.0 “Pollution”) is made up of three parts:

- Flood risk management (2 credits)
- Surface Water run-off (2 credits)
- Minimising water course pollution (1 credit)

The total number of credits available is 5 for Pol 03. The number of credits achieved in this assessment will be fed into the wider BREEAM assessment to determine the overall development rating. Developments are rated and certified on a scale of Unclassified (<30%), Pass (>30%), Good (>45%), Very Good (>55%), Excellent (>70%) and Outstanding (>85%).

6.1 Flood Resilience

Pol 03 – Flood Resilience is formed by a maximum of two credits. The aim of these credits is to encourage development in low flood risk areas (for which two credits are available), or to take measures to reduce the impact of flooding on buildings in areas with a medium or high risk of flooding (for which one credit is available).

To achieve the maximum two credits available for flood resilience, the following criterion must be met for sites. A prerequisite for both is that:

1. An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.

Low Flood Risk (Max 2 credits)

2. A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA takes all current and future sources of flooding into consideration.

Medium or high flood risk (1 credit)

3. A site-specific FRA confirms the development is in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain. The FRA must take all current and future sources of flooding into consideration.
4. To increase the resilience and resistance of the development to flooding, one of the following must be achieved:
    a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600 mm above the design flood level of the site's flood zone.
    b. The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2017

6.1.1 Flood Resilience – Compliance

As the site lies within Flood Zone 1 it is an area that has a low annual probability of flooding, classifying it as a low flood risk.

The site can therefore be assessed under criterion 1 and 2 and can therefore be awarded both credits for Flood Resilience.

6.2 Pol 03 – Surface Water Run-off

There are two credits available under *Pol 03 – Surface Water Runoff.* To achieve a maximum two credits, the following criterion must be met for sites. A prerequisite of both is that:

5. Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site.

One credit can be awarded – Surface Water runoff rate:

6. For brownfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events.

7. For Greenfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events.

8. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place.

9. Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance.

One credit can be awarded – Surface Water runoff volume:

10. Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance);

And Either

11. Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change (see criterion).

12. Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques.

OR (only where criteria 11 and cannot be achieved):

13. Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options.

14. Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options:

    a. The pre-development one-year peak flow rate

    b. The mean annual flow rate (Qbar)

    c. 2L/s/ha.

For the one-year peak flow rate, the one-year return period event criterion applies.

15. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.

16. For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.

6.2.1 Surface Water Run-off – Compliance

Surface water run-off design considers the specific site requirements and man-made environment of and surrounding the site.

One credit can be awarded for criterion 6, as post-development discharge rates are reduced by at least 30% compared to pre-developed site. This is compliant at both 1-year and 100-year events.

This design follows the modified rational method (based on 30minute winter rainfall event intensity), which provides a direct estimate of surface water run-off rates from rainfall intensity. The Proposed Development sees a decrease in discharge rate, as shown in Table 10.

Table 10: Pre and post-development discharge rates

Return Period	Existing Rate (l/s)	Proposed Rate (l/s)	Reduction (%)
1 in 2 Year	23.9	5.0	87
1 in 100 Year	83.9	5.0	96

A second credit can be awarded for meeting criterions 10, 13, and 14. Criterion 10 can be met as flooding of the property in the event of local drainage failure will be averted using the following methods:

1. Design of a site drainage model in order to map and understand flooding events so that a drainage system can be designed to mitigate the drainage failure.
2. Manipulate the surrounding landscape and site design to drain flooding to low points away from the property.

While criterion 11 is met as the post-development run-off volume won't increase due to the impermeable site area remaining unchanged, criterion 12 cannot be met. This is due to the impermeable urban nature of the site, halting any drainage via infiltration. The site itself is also susceptible to elevated groundwater levels due to the superficial deposit of permeable Lynch Hill gravel, suggesting that infiltration is difficult at the site as well. As such criterion 13 is met due to criterion 12 not being a technically viable option.

Criterion 14 outlines 3 parameters; a, b, and c as the potential limiting discharge rates. Listed below are the calculated rates:

a. The pre-development two-year peak flow rate = **23.9 l/s**

b. The mean annual flow rate (Qbar) **= 0.4 l/s**

c. 2L/s/ha. = **1.2 l/s**

A peak limiting discharge can be defined as 23.9 l/s as outlined in criterion 14. The post-development peak rate of runoff value of 5.0 l/s as shown in Table 10 is therefore less than the peak limit value, and so in line with criterion 14.

The criterion for both credits can therefore bet met and the site can be awarded both credits for Surface Water Run-off.

6.3 Pol 03 – Minimising Watercourse Pollution

One credit is available under *Pol 03 – Minimising Watercourse Pollution* providing that the following can be demonstrated:

17. There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant).
18. Areas with a low-risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques.
19. Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) are installed in surface water drainage systems.
20. Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure.
21. All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SuDS manual2 and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site.
22. A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers.
23. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.
24. All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance.

6.3.1 Pol 03 – Minimising Watercourse Pollution – Compliance

The proposals will not prevent the first 5mm of rainfall in any given event discharging into the receiving system from leaving the developed site.

Given the above, the development does not meet the minimum requirements for minimising watercourse pollution and therefore the associated credit cannot be awarded.

6.4 BREEAM Pol 03 Credit Summary

Table 11: BREEAM Pol 03 Credits Summary

Criteria	Credits Available	Criteria Satisfied?	Credits Awarded
Flood Risk	2	Yes Site located in Flood Zone 1 defended (very low risk)	**2**
Surface Water Runoff	1 1	Yes. The impermeable area of the site will not be increased Run off will be reduced by at least 50% from existing 1 in 100yr event.	**1** **1**

Criteria	Credits Available	Criteria Satisfied?	Credits Awarded
Minimising Watercourse Pollution	1	No Site cannot prevent first 5mm of rainfall from leaving the development in any given event.	**0**
		TOTAL	**4**

Therefore, in terms of BREEAM Pol 03 Chapter 12.0 “Pollution”, the measures taken across this development mean that 4 credits can be awarded and used in the overall BREEAM assessment, as explained above.

7. Conclusion

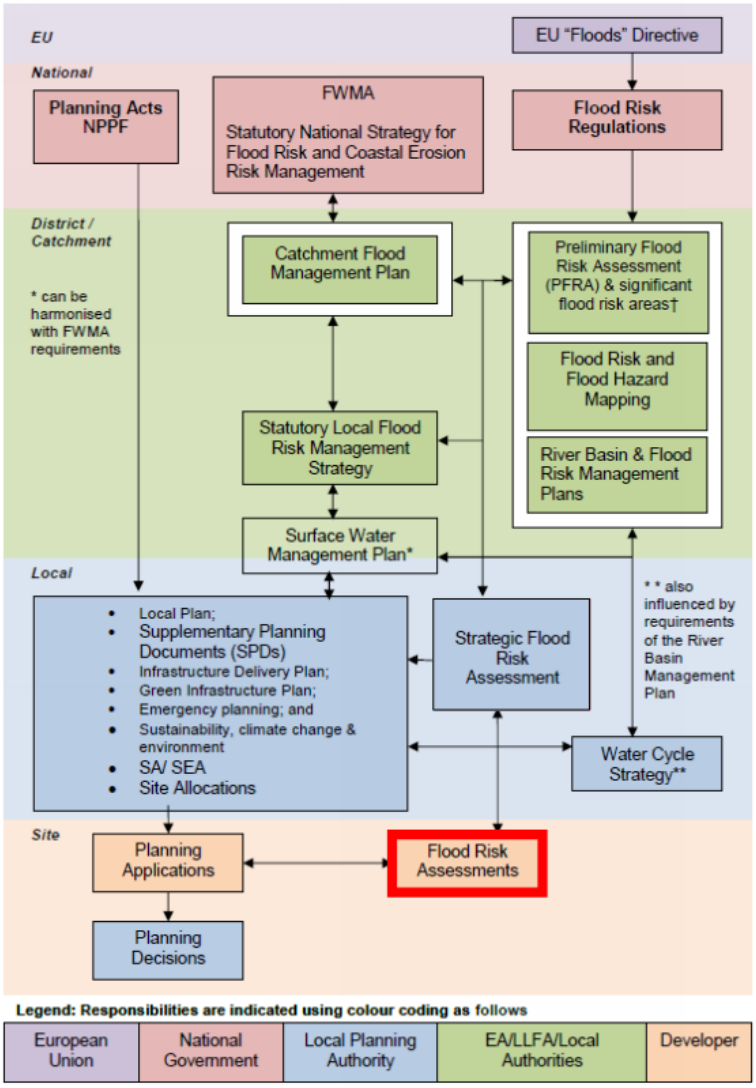
The following points are considered pertinent to the proposed development's suitability:

- It is proposed that the existing points of connection to TWUL assets will be maintained.
- Surface water that is captured within the roof will be harvested and re-used to flush WCs within the building.
- Attenuation will be provided within a combination of a blue roof system, attenuation across the public realm and storage within the basement.
- It is proposed that, where possible, green urban wetland and planting areas are provided to increase water cleansing and also provide local amenity space.
- Foul water flows are expected to increase due to the proposed alterations and it is proposed that these flows will be pumped within the building to the existing point of connection.
- A total of 4 credits can be awarded for the development proposal under BREEAM UK New Construction 2018 Chapter 12.0 "Pollution", Pol 03

Appendix A
Relevant Policy

National Legislation, Regulations, and Flood Risk Guidance

The overarching aim of development and flood risk planning policy in the UK is to ensure that the potential risk of flooding is considered at every stage of the planning process. The following diagram outlines the key planning policy for flood risk management and associated documents.



International Planning Policy

Water Framework Directive (2000/60/EC)

The Water Framework Directive (WFD) sets out objectives prioritising future water protection across the European Union, with the aim of achieving improvements in the quality of polluted water bodies and maintaining the quality of clean water bodies.

Member states were required to transpose the Water Framework Directive (WFD) into domestic law by December 2003. This took place in England and Wales through the WFD England and Wales

Regulations 2003 (WFD Regulations). In the UK, the Environmental Agency (EA) is the 'competent authority' under the WFD Regulations.

Member water bodies are categorised as: 'rivers'; 'lakes'; 'transitional waters'; 'coastal waters'; or 'groundwaters'. Each is identified within each category as being 'at risk'; 'probably at risk'; 'probably not at risk'; or 'not at risk' of failing WFD objectives with regard to 'water abstraction and flow regulation'; 'physical or morphological alteration'; or 'alien species'.

Under the WFD Regulations, each river basin district must have a river basin management plan in place which sets out environmental objectives for the district and a programme of measures to be applied in order to achieve those objectives. Water in rivers, estuaries, coasts and aquifers will improve as a result of the measures set out in the river basin management plans.

EU Floods Directive (2007/60/EC)

The aim of the Directive is to provide a consistent approach across the European Union to reducing and managing the risks posed by flooding to human health, the environment, cultural heritage and economic activity. The Floods Directive is to be delivered in conjunction with the objectives of the Water Framework Directive (2000/60/EC) to deliver a better water environment through river basin management.

In the UK, the Floods Directive is transposed into law via the Flood Risk Regulations by setting out the duties of local government in assessing flood risk to their area.

National Policy and Guidance

Environmental Permitting Regulations (2016)

The Environmental Permitting Regulations 2016 consolidate and replace the 2010 Regulations and subsequent amendments. The permitting regime covers a range of activities that release emissions to land, air and water, or that involve waste.

Schedule 21 relates to water discharge activities and Schedule 25 relates to flood risk activities. Schedule 22 relates to groundwater activities and the regulations place a duty on regulating authorities to implement the Water Framework Directive.

The Water Resources Act (1991) and Water Acts (2003, 2014)

The Water Resources Act 1991 provides legislation for the control of the pollution of water resources. Under this Act, offences of polluting controlled waters occur if a person knowingly permits any poisonous, noxious or polluting matter or any solid waste matter to enter any controlled waters. The Water Resources Act 1991 also provides an all-embracing system for the licensing of the abstraction of water for use, which is administered by the EA. The Water Acts (2003, 2014) modernise water legislation and amend the Water Resources Act 1991 to improve long-term water resource management.

Flood Risk Regulations (2009)

The Flood Risk Regulations 2009 transpose the Floods Directive (2007/60/EC) into law in England and Wales.

The regulations required the Lead Local Flood Authority (LLFA), to produce:

- A Preliminary Flood Risk Assessment (PFRA) by December 2011;
- Flood hazard and flood risk maps by December 2013; and
- A Local Flood Risk Management Strategy by December 2015.

The Flood and Water Management Act (2010)

The Flood and Water Management Act 2010 (FWMA), which received Royal Assent on 8 April 2010, takes forward some of the proposals in three previous documents published by the UK Government:

- Future Water;
- Making Space for Water; and
- The Government's Response to the Sir Michael Pitt's Review of the summer 2007 Floods.

The FWMA gives the EA a strategic overview of the management of flood and coastal erosion risk in England. In accordance with the Government's Response to the Pitt Review, it also gives upper tier local authorities in England responsibility for preparing and putting in place strategies for managing flood risk from groundwater, surface water and ordinary watercourses in their areas.

Land Drainage Acts (1991, 1994)

The water quality and flood risk management of controlled waters including rivers and aquifers is protected by legislation under the Land Drainage Acts (1991, 1994).

National Planning Policy Framework (2023)

The NPPF includes policies on flood risk and minimising the impact of flooding under Section 14, Meeting the challenge of climate change, flooding and coastal change (Paragraphs 165 – 175).

The NPPF states that:

Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.

All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:

- *applying the sequential test and then, if necessary, the exception test as set out below;*
- *safeguarding land from development that is required, or likely to be required, for current or future flood management;*
- *using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and*
- *where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.*

The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic

flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

If it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3. 49

The application of the exception test should be informed by a strategic or site specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that:

- *the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
- *the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

Both elements of the exception test should be satisfied for development to be allocated or permitted.

Where planning applications come forward on sites allocated in the development plan through the sequential test, applicants need not apply the sequential test again. However, the exception test may need to be reapplied if relevant aspects of the proposal had not been considered when the test was applied at the plan-making stage, or if more recent information about existing or potential flood risk should be taken into account

When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

- *Within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
- *the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
- *it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
- *any residual risk can be safely managed; and*
- *safe access and escape routes are included where appropriate, as part of an agreed emergency plan.*

Sewerage Section Guidance Appendix C – Design and Construction Guidance (2020)

[Design and Construction Guidance for foul and surface water sewers offered for adoption under the Code for adoption agreements for water and sewerage companies operating wholly or mainly in England ("the Code")]

Adopted drainage networks needs to meet the criteria outlined in the Design and Construction Guidance (2020). A piped drainage system is required to not surcharge for a 1 in 1-, 1 in 2-, or 1 in 5-year event depending on site conditions or flood the ground in a 1 in 30-year event using a design storm with the critical duration relevant to the site (i.e. the worst-case for a given return period). Private drainage systems also tend to use these criteria as a basis for design. Adoption of new sewers

or abandonment of old sewers should take place in accordance with the Water Industry Act 1991, Sections 104 and 116 respectively.

DEFRA Non-Statutory Technical Standards for Sustainable Drainage Systems (2015)

The DEFRA Non-Statutory Technical Standards for Sustainable Drainage Systems provides guidance on:

- Flood risk outside the development;
- Peak Flow Control;
- Volume Control;
- Flood Risk within the development;
- Structural Integrity;
- Designing for Maintenance Considerations
- Construction

Key extracts from this document are provided below:

Peak flow control

S2 For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event.

Volume control

S4 Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

S6 Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with S4 or S5 above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.

Flood risk within the development

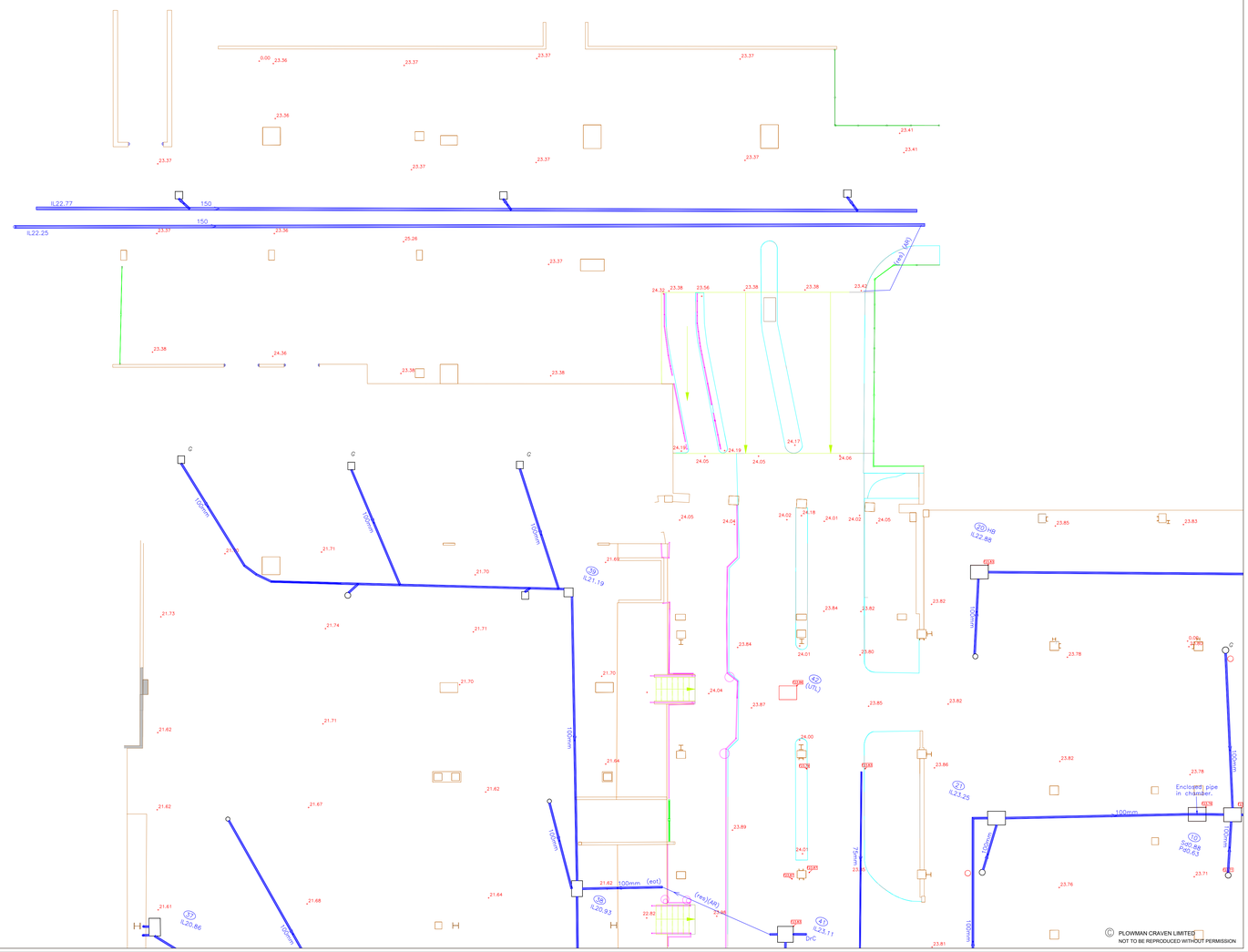
S7 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30 year rainfall event.

S8 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100 year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.

S9 The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100 year rainfall event are managed in exceedance routes that minimise the risks to people and property.

The standards are supported by Practice Guidance prepared by the Local Authority SuDS Officer Organisation (LASOO).

Appendix B
Topographical & Drainage Survey



STANDARD ABBREVIATIONS

A/C	Air Conditioner	IRF	Iron Railing Fence
AH	Arch Height	IRS	Illuminated Road Sign
AL	Arch Level	JB	Junction Box
ASH	Arch Spring Height	L	Light
ASL	Arch Spring Level	LB	Litter Bin
B	Bollard	LP	Lamp Post
BGP	Break Glass Point	Max	Maximum
BH	Bore Height	Min	Minimum
Br	Brick	Min	Minimum
BRW	Brick Retaining Wall	O/H	Overhead
BSL	Beam Soffit Level	OSBM	Ordnance Survey Bench Mark
BT	British Telecom	P	Post
BW	Brick Wall	PB	Pillar Box
CBF	Close Boarded Fence	PL1	Pavement Light
CCTV	Closed Circuit Television	PL2	Planting Bowls
Ch	Chimney	Rad	Radiator
CL	Cover Level	RDM	Recessed Door Mat
CLF	Chain Link Fence	RE	Rodding Eye
Col	Column	RS	Road Sign
Conc	Concrete	RSJ	Rolled Steel Joist
CPS	Concrete Paving Slabs	RWP	Rain Water Pipe
CTV	Closed Circuit Television C	S	Soakaway
Cvt	Culvert	s	Window Sill Height/Level
DH	Door Head Height	SBM	Site Bench Mark
DP	Down Pipe	SC	Stop Cock
DrC	Drainage Channel	SH	Spring Height
EC	Electrical Inspection Cover	SL	Sump Level
EJB	Electrical Junction Box	Sk	Skylight
EM	Electricity Meter	SO	Smoke Outlet
ER	Earthing Rod	SP	Sign Post
ERS	Emergency Switchgear	SR	Security Sensor
FA	Fire Alarm	SV	Stop Valve
FB	Flower Bed	T	Telephone
FE	Fire Extinguisher	Tac	Tactile Paving
FH	Fire Hydrant	TBM	Temporary Bench Mark
FHR	Fire Hose Reel	TCB	Telephone Call Box
FL	Floor Level	TIC	Telephone Inspection Cover
FP	Flowerlight	TJB	Telephone Junction Box
g	grid	TL	Traffic Light
G	Gully	TLCB	Traffic Light Control Box
GC	Gas Cock	TLIC	Traffic Light Inspection Cover
GM	Gas Meter	TP	Telephone Pole
GV	Gas Valve	Typ	Typical
H	Window Head Height/Level	V	Vent
HC	Hose Cock	VP	Vent Pipe
HB	Hand Basin	WH	Water Heater
HR	Handrail	WM	Water Meter
IC	Inspection Cover	WV	Water Valve
IL	Invert Level		

SERVICE ABBREVIATIONS

(AC)	Assumed Connection	IL	Invert Level
(AR)	Assumed Route	L	Level
BdL	Back Drop Level	(NPV)	No Pipes Visible
CR	Cable Riser	Pd	Depth to top of pipe
DP	Down Pipe	Sd	Sump Depth
G	Gully	(UTL)	Unable to Lift without damage
HB	Hatch Box	(UTT)	Unable to Trace
HbL	Hatch Box Level	VP	Vent Pipe

SERVICE LEGEND

SURFACE WATER DRAINAGE
WATER
GAS
ELECTRICITY
TELEPHONE
UNKNOWN SERVICE
UNDERGROUND CHAMBER

Electro-detection techniques have been used in the location of underground services. The results are not infallible and trial excavations must be carried out to confirm service identification, position and particularly depths.
Although all reasonable effort has been made in searching available record drawings the completeness of the underground services information cannot be guaranteed.

Unless otherwise stated, drainage pipes are 100mm diameter.

LEGEND

- 2.70 — Floor to ceiling height
- F2.70 — Floor to false ceiling height
- 22.70 — Ceiling level
- F22.70 — False ceiling level
- Stair/step arrows point up
- Sloping ceiling arrows point up
- Roof arrows point down
- Assumed detail

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SHEET LAYOUT

42746-002-01-1	42746-002-01-2
42746-002-01-3	42746-002-01-4

ISSUES & REVISIONS

Issue	Details	By	Date
A	Original Issue	PCL	11/12/2019

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Drawing units are metres

CLIENT

British Land Property Management Ltd

10 South Crescent
London
WC1E7BD

PROJECT TITLE

Euston Tower

N1

Basement Floor Plan

PRESENTATION SCALE 1:100 @ A0

DATE OF ORIGINAL SURVEY October 2019

PC PROJECT No. 42746-002 CHECKED MDW

DRAWING No. ISSUE

A

Plowman Craven

Plowman Craven House
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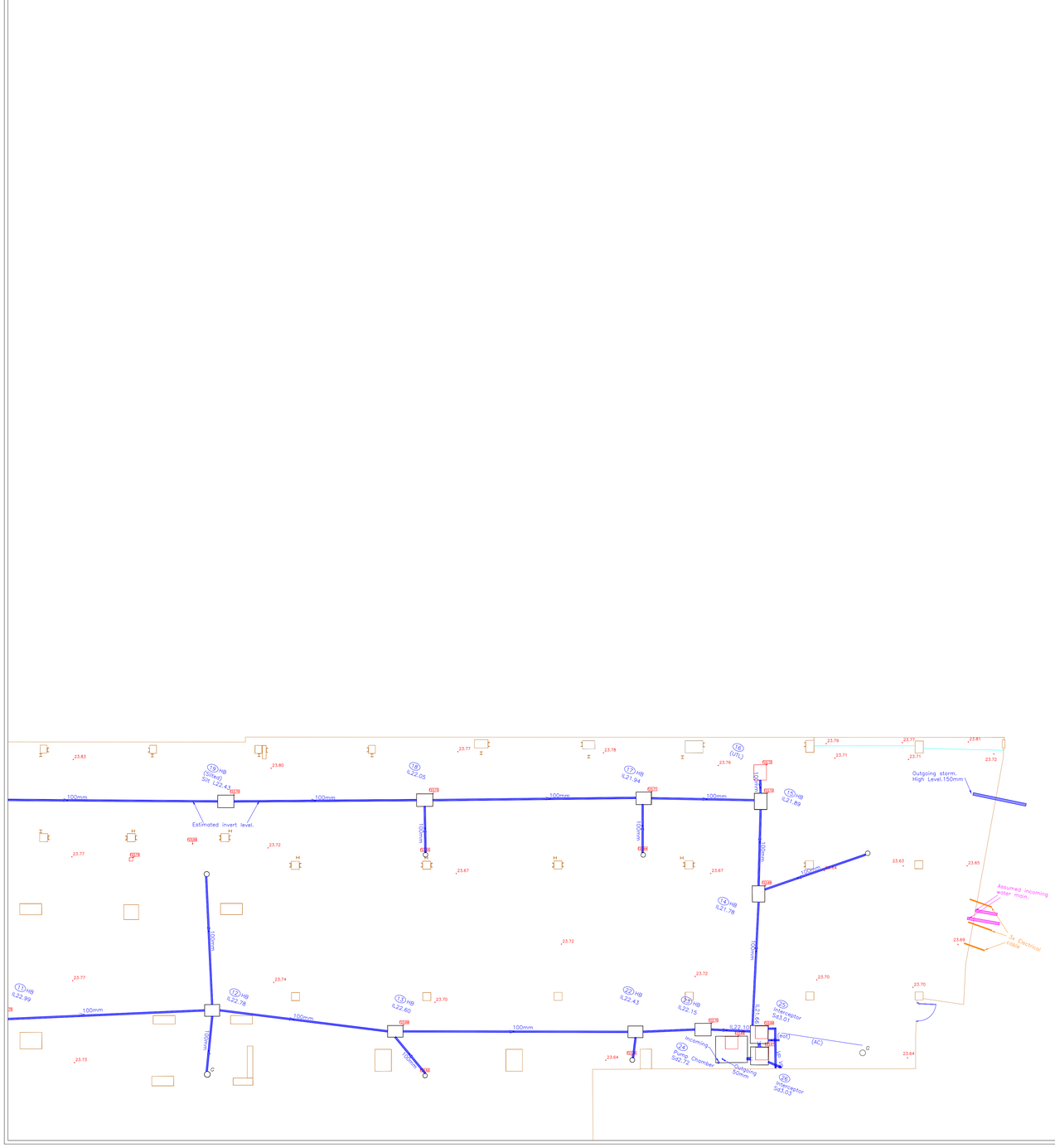

STANDARD ABBREVIATIONS

A/C	Air Conditioner	IRF	Iron Railing Fence
AH	Arch Height	IRS	Illuminated Road Sign
AL	Arch Level	JB	Junction Box
ASH	Arch Spring Height	L	Light
ASL	Arch Spring Level	LB	Litter Bin
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Conc	Concrete	RSJ	Rolled Steel Joist
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CTV	Cable Television IC	S	Stanchion
Cul	Culvert	s	Window Sill Height/Level
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EIC	Electrical Inspection Cover	SL	Sump Level
EJB	Electrical Junction Box	Sk	Skylight
EM	Electricity Meter	SO	Smoke Outlet
ER	Earthing Rod	SP	Sign Post
ERG	Electricity Switchgear	SV	Security Mirror
FA	Fire Alarm	SV	Stop Valve
FB	Flower Bed	T	Telephone
FE	Fire Extinguisher	Tac	Tactile Paving
FH	Fire Hydrant	TBM	Temporary Bench Mark
FHR	Fire Hose Reel	TCB	Telephone Call Box
FL	Floor Level	TIC	Telephone Inspection Cover
FP	Flood Light	TJB	Telephone Junction Box
g	grate	TL	Traffic Light
G	Gully	TLCB	Traffic Light Control Box
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GM	Gas Meter	TP	Telephone Pole
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H	Window Head Height/Level	V	Vent
HC	Hatch	VP	Vent Pipe
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SERVICE LEGEND

SURFACE WATER DRAINAGE
WATER
GAS
ELECTRICITY
TELEPHONE
UNKNOWN SERVICE
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42746-002-01-1	42746-002-01-2
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ISSUES & REVISIONS

Issue	Details	By	Date
A	Original Issue	PCL	11/12/2019

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10 South Crescent
London
WC1E7BD

PROJECT TITLE

Euston Tower

N1

Basement Floor Plan

PRESENTATION SCALE 1:100 @ A0

DATE OF ORIGINAL SURVEY October 2019

PC PROJECT No. 42746-002 CHECKED MDW

DRAWING No. ISSUE A

Plowman Craven

Plowman Craven House
2 Lea Business Park
Lower Luton Road
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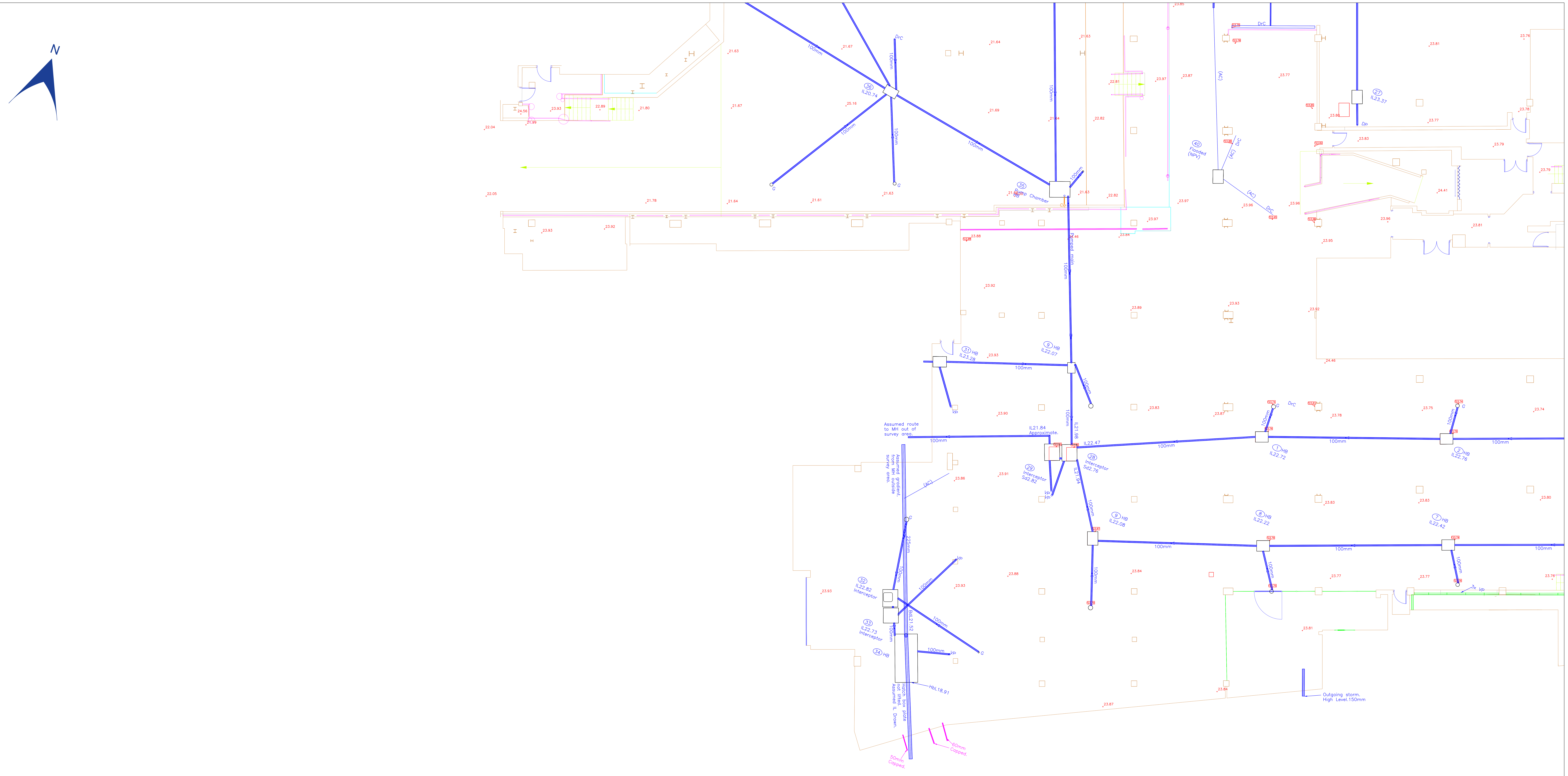

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42746-002-01-1	42746-002-01-2
42746-002-01-3	42746-002-01-4

ISSUES & REVISIONS

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Basement Floor Plan

PRESENTATION SCALE 1:100 @ A0

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DRAWING No. ISSUE A

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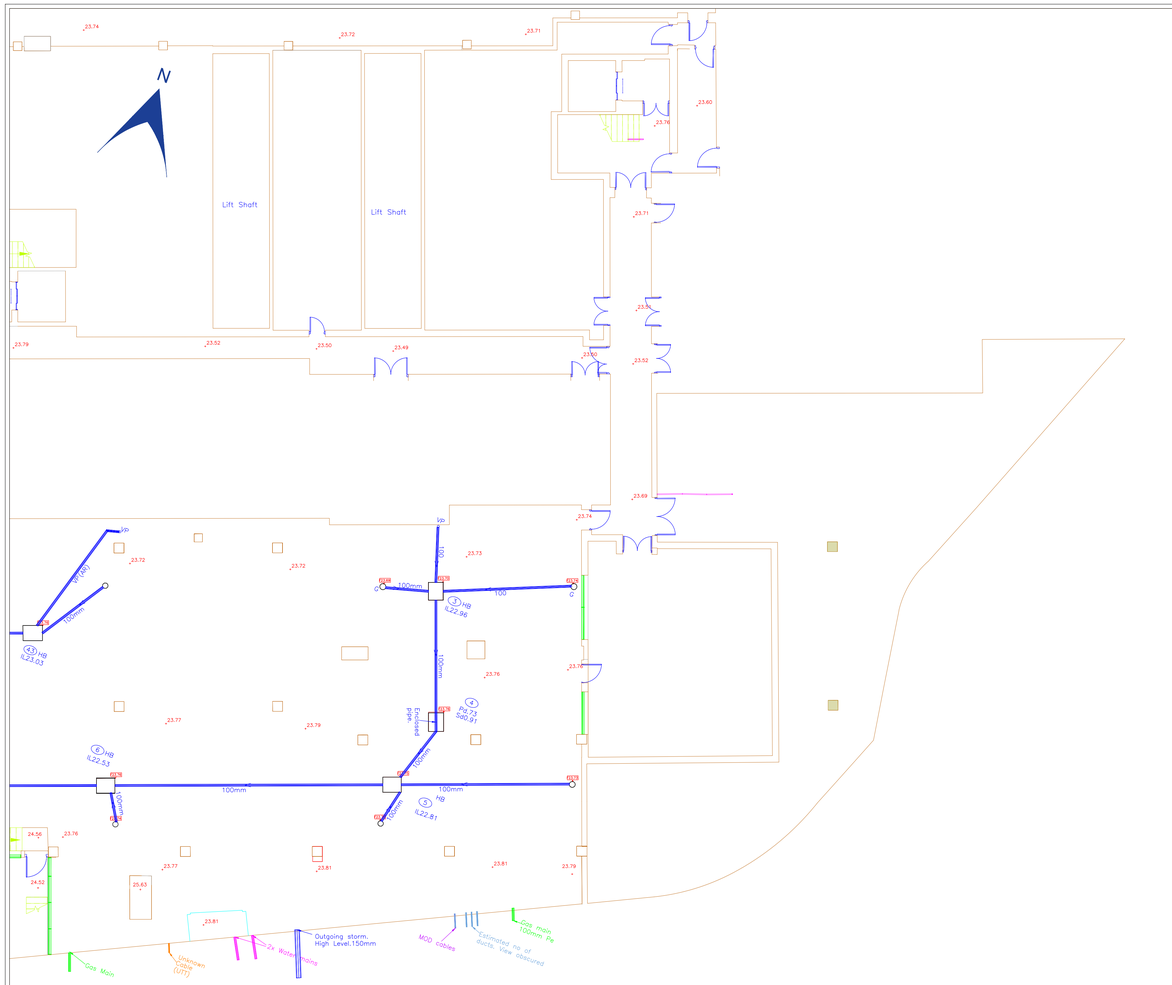

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SERVICE LEGEND

- SURFACE WATER DRAINAGE
- WATER
- GAS
- ELECTRICITY
- TELEPHONE
- UNKNOWN SERVICE
- UNDERGROUND CHAMBER

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SHEET LAYOUT

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ISSUES & REVISIONS

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10 South Crescent
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PROJECT TITLE

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Basement Floor Plan

PRESENTATION SCALE: 1:100 @ A0

DATE OF ORIGINAL SURVEY: October 2019

PC PROJECT No. 42746-002 CHECKED: MDW

DRAWING No. ISSUE: A

Plowman Craven

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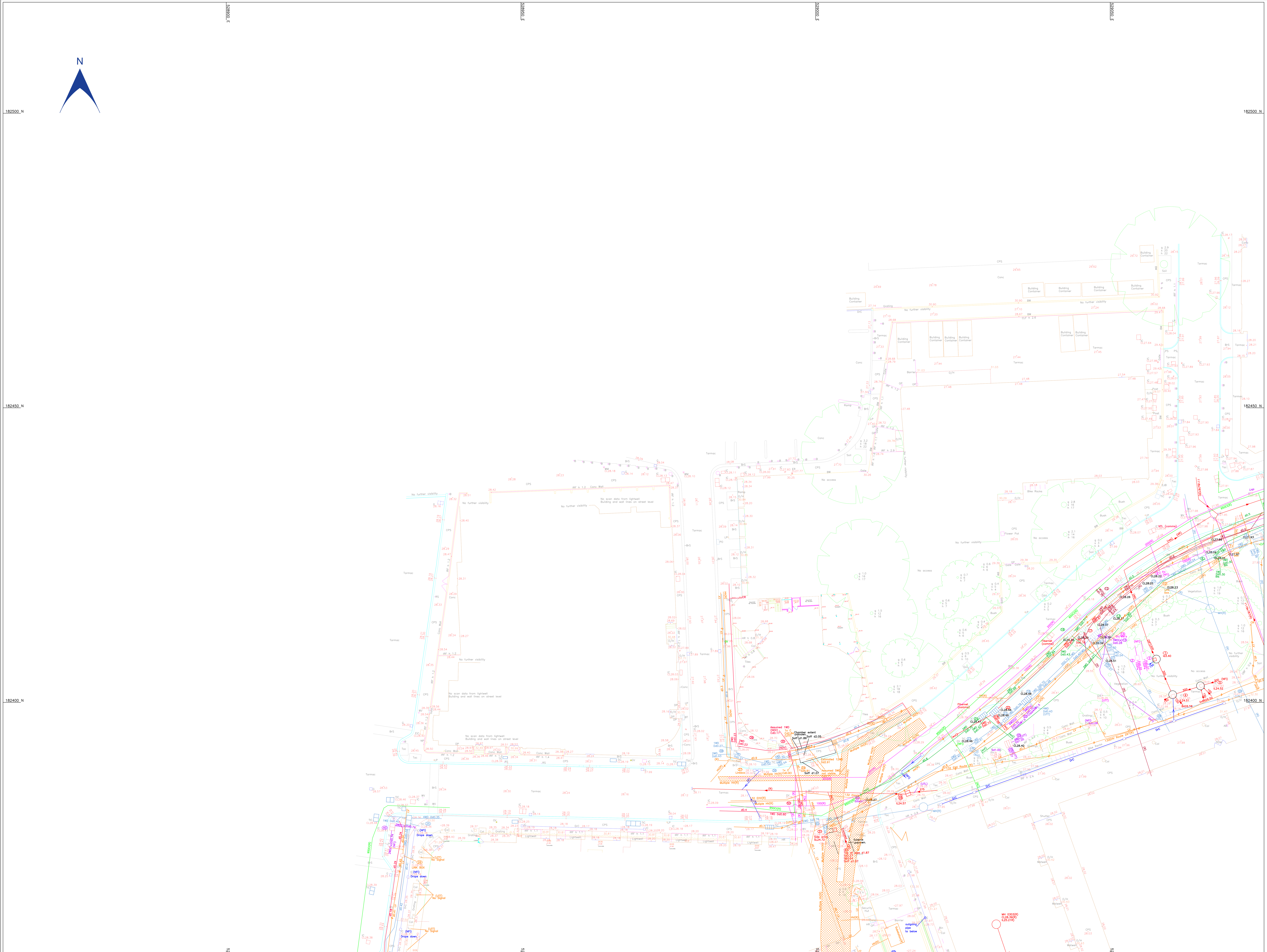

STANDARD ABBREVIATIONS

A/C	Air Conditioner	LB	Litter Bin
ATM	Automated Telling Machine	LP	Lamp Post
B	Bollard	Max	Maximum
BB	Belisha Beacon	Mb	Multibole
Bh	Borehole	MH	Manhole
Br	Brick	Min	Minimum
BrS	Brick Setts	Mkr	Marker
BRW	Brick Retaining Wall	NB	Notice Board
BS	Bus Stop	NP	Name Plate
BT	British Telecom	OBF	Open Boarded Fence
BW	Brick Wall	O/H	Overhead
BWF	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark
CBF	Close Boarded Fence	P	Post
CCTV	Closed Circuit Television	PB	Pillar Box
CIF	Corrugated Iron Fence	PGM	Permanent Ground Marker
CL	Cover Level	L	Pavement Light
CLF	Chain Link Fence	PM	Parking Meter
Col	Column	PRF	Post and Rail Fence
Conc	Concrete	PS	Paving Stones
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CPS	Concrete Paving Slabs	RE	Rodding Eye
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GV	Gas Valve	TJB	Telephone Junction Box
h	height	TL	Traffic Light
HR	Handrail	TLCB	Traffic Light Control Box
IB	Illuminated Bollard	TLIC	Traffic Light Inspection Cover
IC	Inspection Cover	TP	Telephone Pole
IL	Invert Level	Typ	Typical
IRF	Iron Railing Fence	V	Vent
IRS	Illuminated Road Sign	VP	Vent Pipe
JB	Junction Box	W	Window
KO	Kerb Outlet	WM	Water Meter
L	Light	WV	Water Valve

LEGEND

Stair/step arrows point up

Assumed detail

SERVICE LEGEND

FOUL DRAINAGE
SURFACE WATER DRAINAGE
WATER
GAS
ELECTRIC
TFL
VERIZON
COLT
CENTURY LINK
ZAYO GROUP
VODAFONE
BRITISH TELECOM
VIRGIN MEDIA
UNKNOWN SERVICE
UNDERGROUND CHAMBER

SERVICE ABBREVIATIONS

(AC)	Assumed Connection	IL	Invert Level
(AR)	Assumed Route	LV	Low Voltage
CI	Cast Iron	(NFI)	No Further Information
Cd	Depth to top of cable	(NPV)	No Pipes Visible
d	Depth of service (approx)	Pd	Depth to top of pipe
Dd	Depth to top of duct	Pe	Polyethylene
DI	Ductile Iron	(R)	From Records
(e)	Empty Duct	(s)	Service cable
EHV	Extra High Voltage	Sd	Sump Depth
HB	Hatch Box	(UTL)	Unable to Lift without damage
HbL	Hatch Box Level	(UTT)	Unable to Trace
HV	High Volatge	WD	Way Duct
		WL	Water Level

Electro-detection techniques have been used in the location of underground services in some areas. The results are not infallible and trial excavations must be carried out to confirm service identification, position and particularly depths.
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The identification of service covers in some locations has been made by a surface inspection only - critical identifications should be verified by the lifting of covers or a full utilities survey

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SHEET LAYOUT

42746T-01-1	42746T-01-2
42746T-01-3	42746T-01-4

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CLIENT
British Land

York House
45 Seymour Street
London
W1H 7LX

PROJECT TITLE

Regents Place
London, NW1

3D Topographic Survey

PRESENTATION SCALE: 1:200 @ A0

DATE OF ORIGINAL SURVEY: June 2018

PC PROJECT No. 42746 CHECKED GH

DRAWING No. 42746T-01-1 ISSUE I

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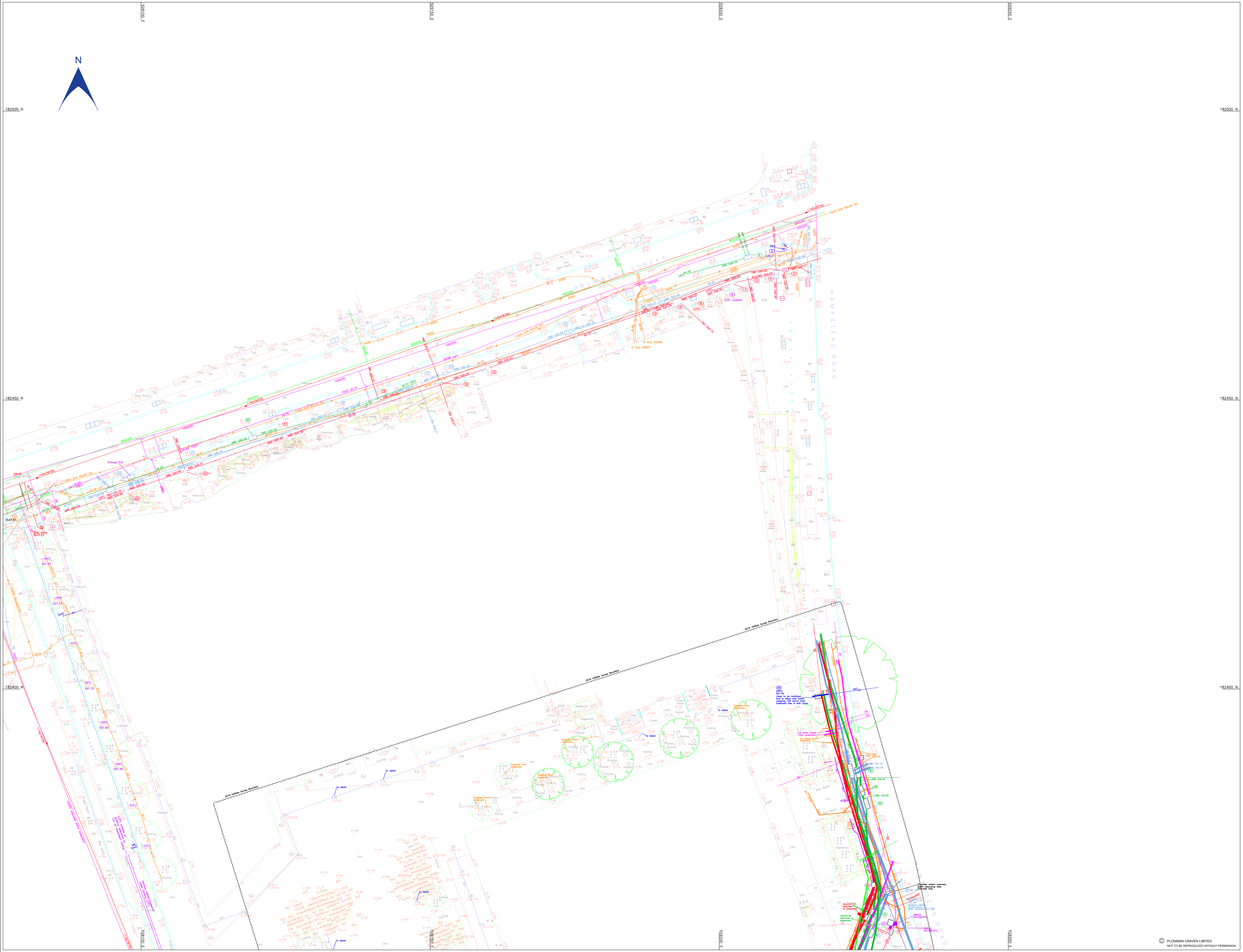

STANDARD ABBREVIATIONS

A/C	Air Conditioner	LB	Litter Bin
ATM	Automated Telling Machine	LP	Lamp Post
B	Bollard	Max	Maximum
BB	Belisha Beacon	Mb	Multibole
Bh	Borehole	MH	Manhole
Br	Brick	Min	Minimum
BrS	Brick Setts	Mkr	Marker
BRW	Brick Retaining Wall	NB	Notice Board
BS	Bus Stop	NP	Name Plate
BT	British Telecom	OBF	Open Boarded Fence
BW	Brick Wall	O/H	Overhead
BWF	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark
CBF	Close Boarded Fence	P	Post
CCTV	Closed Circuit Television	PB	Pillar Box
CIF	Corrugated Iron Fence	PGM	Permanent Ground Marker
CL	Cover Level	L	Pavement Light
CLF	Chain Link Fence	PM	Parking Meter
Col	Column	PRF	Post and Rail Fence
Conc	Concrete	PS	Paving Stones
CoW	Cable on Wall	PWF	Post and Wire Fence
CPS	Concrete Paving Slabs	RE	Rodding Eye
CTV	Cable Television IC	RG	Road Gully
d	depth	RS	Road Sign
DC	Duct Cover	RSJ	Rolled Steel Joist
DH	Duct Height	RWP	Rain Water Pipe
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EJB	Electrical Junction Box	SC	Stop Cock
EP	Electricity Pole	SF	Security Fence
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ESG	Electrical Switchgear	SL	Sump Level
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FH	Fire Hydrant	SP	Sign Post
FL	Floor Level	SV	Stop Valve
Flt	Floodlight	T	Telephone
g	girth	Tac	Tactile Paving
G	Gully	TBM	Temporary Bench Mark
GC	Gas Cock	TCB	Telephone Call Box
GM	Gas Meter	TCP	Traffic Control Post
GP	Gate Post	TIC	Telephone Inspection Cover
GV	Gas Valve	TJB	Telephone Junction Box
h	height	TL	Traffic Light
HR	Handrail	TLCB	Traffic Light Control Box
IB	Illuminated Bollard	TLIC	Traffic Light Inspection Cover
IC	Inspection Cover	TP	Telephone Pole
IL	Invert Level	Typ	Typical
IRF	Iron Railing Fence	V	Vent
IRS	Illuminated Road Sign	VP	Vent Pipe
JB	Junction Box	W	Window
KO	Kerb Outlet	WM	Water Meter
L	Light	WV	Water Valve

LEGEND

Stair/step arrows point up

Assumed detail

SERVICE LEGEND

FOUL DRAINAGE
SURFACE WATER DRAINAGE
WATER
GAS
ELECTRIC
TFL
VERIZON
COLT
CENTURY LINK
ZAYO GROUP
VODAFONE
BRITISH TELECOM
VIRGIN MEDIA
UNKNOWN SERVICE
UNDERGROUND CHAMBER

SERVICE ABBREVIATIONS

(AC)	Assumed Connection	IL	Invert Level
(AR)	Assumed Route	LV	Low Voltage
CI	Cast Iron	(NFI)	No Further Information
Cd	Depth to top of cable	(NPV)	No Pipes Visible
d	Depth of service (approx)	Pd	Depth to top of pipe
Dd	Depth to top of duct	Pe	Polyethylene
DI	Ductile Iron	(R)	From Records
(e)	Empty Duct	(s)	Service cable
EHV	Extra High Voltage	Sd	Sump Depth
HB	Hatch Box	(UTL)	Unable to Lift without damage
HbD	Hatch Box Depth	(UTT)	Unable to Trace
HV	High Volatge	WD	Way Duct
		WL	Water Level

Electro-detection techniques have been used in the location of underground services in some areas. The results are not infallible and trial excavations must be carried out to confirm service identification, position and particularly depths.
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CLIENT
British Land

York House
45 Seymour Street
London
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PROJECT TITLE

Regents Place
London, NW1

3D Topographic Survey

PRESENTATION SCALE 1:200 @ A0

DATE OF ORIGINAL SURVEY June 2018

PC PROJECT No. 42746 CHECKED GH

DRAWING No. 42746T-01-2 ISSUE I

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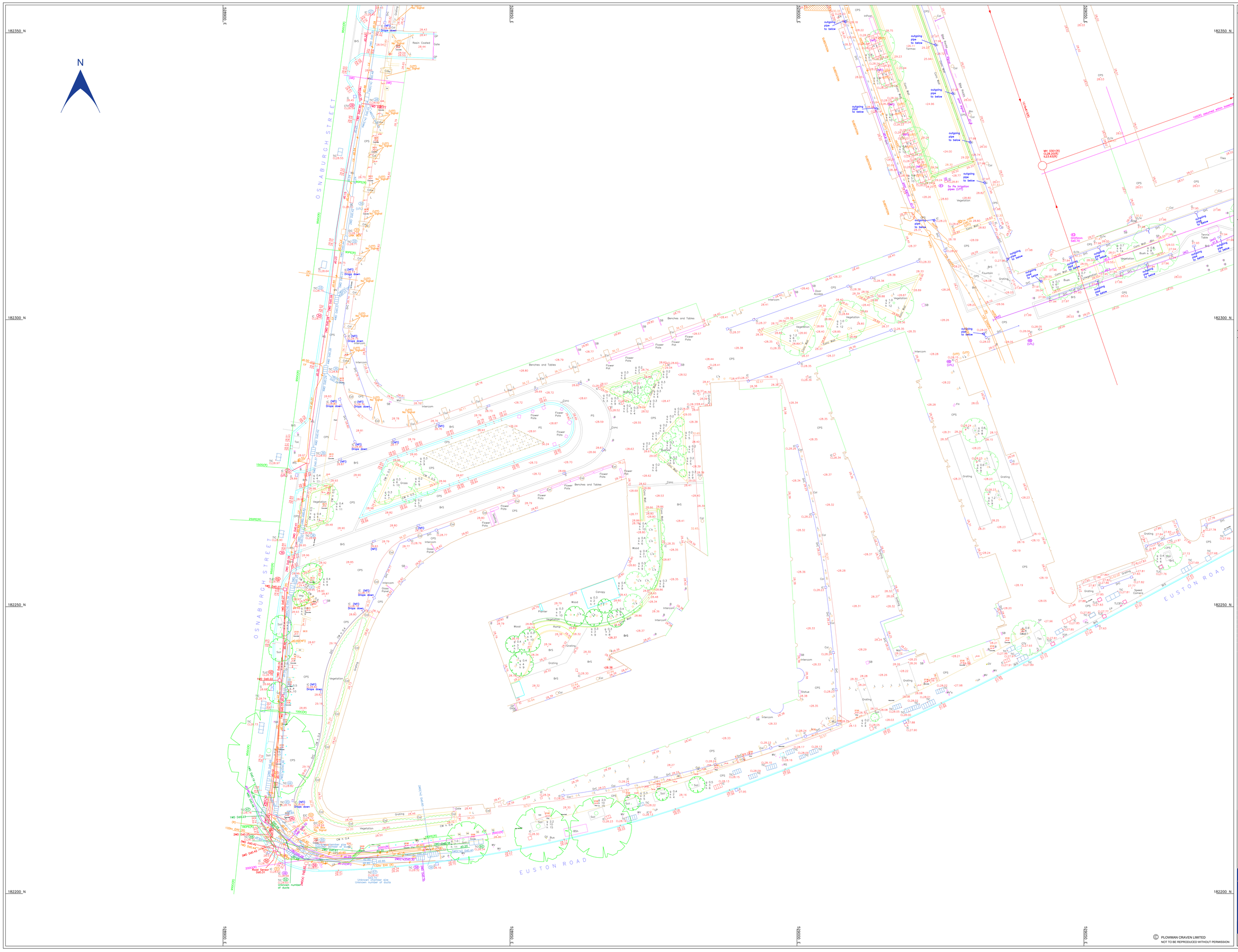

STANDARD ABBREVIATIONS

A/C	Air Conditioner	LB	Litter Bin
ATM	Automated Teller Machine	LP	Lamp Post
B	Bollard	Max	Maximum
BB	Bellsha Beacon	Mk	Multikote
Bh	Borehole	MH	Manhole
Bk	Brick	Min	Minimum
BrS	Brick Setts	Mk	Marker
BT	British Telecom Marking Wall	NB	Notice Board
BX	Box Xing	NP	Name Plate
BT	British Telecom	OBF	Open Boarded Fence
BW	Brick Wall	OH	Overhead
BWF	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark
CBF	Close Boarded Fence	P	Post
CCTV	Closed Circuit Television	PB	Pillar Box
CF	Corrugated Iron Fence	PCM	Pedestrian Ground Marker
Cl	Cross Lane	PL	Pavement Light
CLF	Chain Link Fence	PM	Parking Meter
Col	Column	PRF	Post and Rail Fence
Conc	Concrete	PS	Paving Stones
CoW	Cable on Wall	PWF	Post and Wire Fence
CPS	Concrete Paving Slabs	RE	Rodding Eye
CTV	Cable Television IC	RG	Rain Gauge
d	Depth	RS	Road Sign
DC	Duct Cover	RSJ	Rolled Steel Joist
DH	Duct Height	RWP	Rain Water Pipe
DP	Down Pipe	s	spread
DrC	Drainage Channel	SB	Sign Board
EIC	Electrical Inspection Cover	SBM	Site Bench Mark
EJB	Electrical Junction Box	SC	Stop Cock
EP	Electricity Pole	SF	Security Fence
ER	Earth Rod	SP	Sign Post
ESU	Electrical Switchgear	SL	Sump Level
FB	Flower Bed	SO	Smoke Outlet
FH	Fire Hydrant	SP	Sign Post
FL	Floor Level	SV	Stop Valve
FlL	Floodlight	T	Telephone
g	girth	Tac	Tactile Paving
GC	Gas Cock	TBM	Temporary Bench Mark
GC	Gas Cock	TCB	Telephone Call Box
GM	Gas Meter	TCP	Traffic Control Post
GP	Gate Post	TIC	Telephone Inspection Cover
GV	Gas Valve	TJB	Telephone Junction Box
h	height	TL	Traffic Light
HK	Handrail	TLCB	Traffic Light Control Box
HB	Hydrant/post Bollard	TLIC	Traffic Light Inspection Cover
IC	Inspection Cover	TP	Telephone Pole
IL	Invert Level	Typ	Typical
IRF	Iron Railing Fence	V	Vent
IRS	Illuminated Road Sign	VP	Vent Pipe
JB	Junction Box	W	Window
KO	Kerb Outlet	WM	Water Meter
L	Light	WV	Water Valve

LEGEND

Stair/step arrows point up

Assumed detail

SERVICE LEGEND

- FOUL DRAINAGE
- SURFACE WATER DRAINAGE
- WATER
- GAS
- ELECTRIC
- TFL
- VERIZON
- COLT
- CENTURY LINK
- ZAYO GROUP
- VODAFONE
- BRITISH TELECOM
- VIRGIN MEDIA
- UNKNOWN SERVICE
- UNDERGROUND CHAMBER

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(AC)	Assumed Connection	IL	Invert Level
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d	Depth of service (approx)	Pd	Depth to top of pipe
D	Depth to top of duct	PVC	Polyvinylchloride
DI	Ductile Iron	Pp	Pole Reference
(E)	Empty Duct	(U)	Service cable
EHV	Extra High Voltage	Sd	Sump Depth
HB	Hatch Box	(UTL)	Unable to Lift without damage
HbD	Hatch Box Depth	(UTT)	Unable to Trace
HV	High Voltage	WD	Wey Duct
		WL	Water Level

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PROJECT TITLE

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London, NW1

3D Topographic Survey

PRESENTATION SCALE 1:200 @ A0

DATE OF ORIGINAL SURVEY June 2018

PC PROJECT No. 42746 CHECKED GH

DRAWING No. ISSUE

42746T-01-3 I

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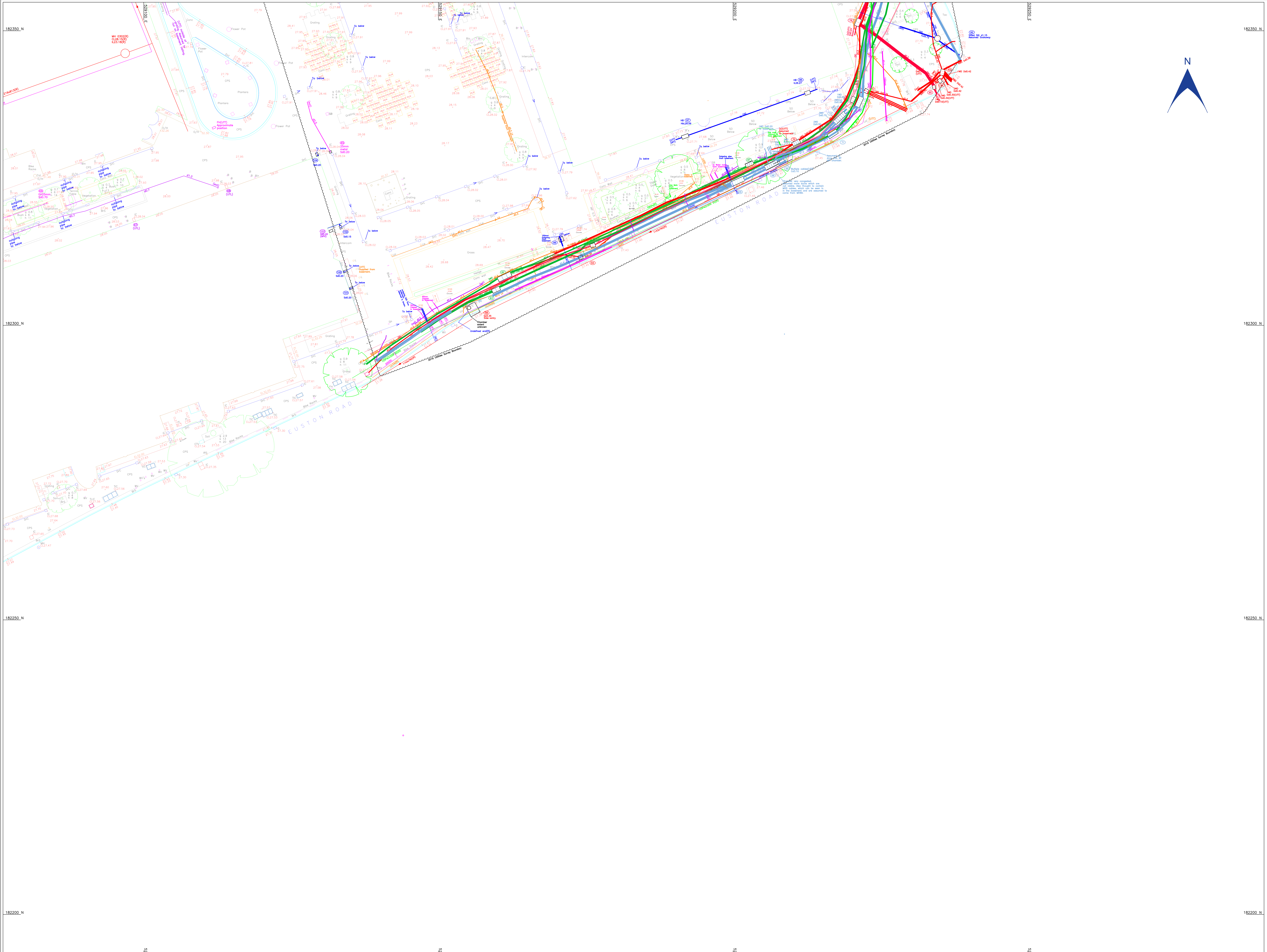

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LEGEND

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Appendix C
Development Proposals

10 BROCK STREET

THE TRITON BUILDING

TRITON SQUARE

BROCK STREET

BOH ENTRANCE

ACCESSIBLE LIFT ENTRANCE

FIRE EXIT

ENTRANCE PUBLIC

EXTENT OF BUILDING ABOVE

B-B ET-DR-A-30002

NORTH ET-DR-A-30011

C-C ET-DR-A-30003

HAMPSTEAD ROAD

BUS STOP

REGENTS PLACE PLAZA

WEST ET-DR-A-30013

CLASS E/F

ENTRANCE PUBLIC

D-D ET-DR-A-30004

EAST ET-DR-A-30012

A-A ET-DR-A-30004

FIRE EXIT

ENTRANCE UKPN

BIKE PARKING ENTRANCE

CLASS E (g)

325 EUSTON ROAD

ENTRANCE

ENTRANCE

SOUTH ET-DR-A-30010

EUSTON ROAD

Euston Tower

Notes

1. Do not scale drawings. Dimensions govern.
2. All dimensions are in millimeters unless noted otherwise.
3. All dimensions shall be verified on site before proceeding.
4. The author shall be notified in writing of any discrepancies.
5. This drawing is protected by copyright.

Revisions:

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-

3XN

PROJECT NAME	**EUSTON TOWER**
AUTHOR PROJECT NUMBER	**1312**
PROJECT PHASE	**PLANNING APPLICATION**
CLIENT	**BRITISH LAND**

York House 45, Seymour Street, London. W1H 7LX

info@britishland.com / Tel: +44 20 7486 4466

GRAPHIC SCALE	0 2M 4M 10M
SCALE	**1 : 200 (A1)**
AUTHOR	**3XN**
REVISION	**-**
ISSUE DATE	**22/09/2023**
DRAWING TITLE	**Level 00 Plan - Proposed**
DRAWING NUMBER	**ET-DR-A-20100**