

HOMEBASE, 84 MANOR ROAD, NORTH SHEEN
APPLICANT NAME: AVANTON RICHMOND DEVELOPMENTS LTD
BASEMENT IMPACT ASSESSMENT

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1.0 INTRODUCTION

- a. This report has been prepared by Manhire Associates Ltd to demonstrate that sufficient investigations have been undertaken to show that the proposed basement will not adversely impact the site, neighbouring properties, and the wider natural environment. This includes impacts on groundwater and water transferred via throughflow.
- b. The Report describes the groundwater monitoring undertaken on site and measures being taken in the design of the substructures to minimize changes to the groundwater regime.
- c. The Report describes the new proposals and appraises the impact on neighbouring buildings, structures and infrastructure in the vicinity as well as drainage, structural stability and the groundwater regime.
- d. The Report is prepared for the use of Avanton Richmond Developments Ltd in connection with the development. The report is not intended for and should not be relied upon by any third party, and no responsibility is undertaken to any third party, without the express written agreement of Manhire Associates Ltd. Manhire Associates are Chartered Civil and Structural Engineers. This Basement Impact Assessment has been undertaken in accordance with LBRuT's Basement Assessment User Guide.

2.0 PROJECT DESCRIPTION

The development site is located approximately 600m northeast of Richmond town centre, National Grid Reference 518890,175430. It is accessed via Manor Road, which bounds the site to the east. Railway lines form the north-western and southern boundaries.

The site is located within the boundary of the London Borough of Richmond upon Thames Local Planning Authority.

The site is approximately triangular in shape, covering an area of about 1.842Ha and is currently occupied by a retail warehouse building (Homebase) in the central third, with associated car / bus parking in the north-eastern third and storage areas in the south-western third of the site.

In this pre-redevelopment layout, the site is almost fully paved with several small areas of vegetation and trees throughout the site. These can be seen on the Site Plan Topographical Survey (Point2Surveys Ltd, Drawing No. LS2024/T/01-10 dated August 2018) included in Appendix A to this report.

Surrounding land uses are mixed residential and commercial.

3.0 PLANNING HISTORY - ORIGINALLY SUBMITTED APPLICATION

A Planning Application (the 'Application') for the site was originally submitted to the London Borough of Richmond upon Thames ('LBRuT') on 14.02.2019 (Application Ref. 19/0510/FUL). LBRuT resolved to refuse the Application in July 2019 and the Application was referred to the Mayor of London (the 'Mayor') for his Stage 2 review. The Mayor set out, in his Stage 2 Report, that the Proposed Development is of a nature or scale that it would have a significant impact on

the implementation of the London Plan policies on housing and affordable Housing. On 29 July 2019, the Mayor issued a Direction pursuant to Article 7 of the Order and Powers conferred by Section 2A of the Town and Country Planning Act (1990) that he would act as the Local Planning Authority for the purposes of determining the application.

Since July 2019, amendments were submitted to the Mayor in July 2020. In October 2020, the Mayor granted conditional planning permission subject to the completion of a Section 106 Agreement.

In November 2021, following the adoption of the 2021 London Plan, the scheme was revised for conformity to the new policies as discussions regarding the Section 106 Agreement with the GLA and LBRuT had not been finalised. The current amendments include the amendments considered in November 2021.

This document forms part of a suite of updated documents which have been prepared to ensure compliance with the latest flood guidance.

The proposed development comprises the demolition of the current retail units and the development of 4 No. residential buildings, permeable paving, and soft landscaping. Building A is a part 3, part 4, part 7 and 8 storey building, Building B is an 11 storey building, Building C is a part 8 and 10 storey building and Building D is a part 4, part 7 and part 8 storey building. In addition, a basement plant room is proposed beneath Building A.

4.0 THE PROPOSED BASEMENT

4.1 Basement Development

The new basement is one storey and extends approximately 2.91m below the existing ground level and is 174m² on plan, measuring approximately 31m x 6m.

The proposed basement perimeter wall consists of 450 dia contiguous piled walls, required to retain the excavation.

The closest neighbouring property is 30m away to the east on Manor Road and the closest railway line is approximately 30m to the west.

Guidance has been taken from the London Borough of Richmond Upon Thames Basement Assessment User Guide to understand the requirements of the Basement Assessment process for a range of environmental impacts.

Policy LP11 from the Local Plan relates to basement development, as detailed below.

4.11 Subterranean Developments and Basements

Policy LP 11

Subterranean developments and basements

A. The Council will resist subterranean and basement development of more than one storey below the existing ground level to residential properties or those which were previously in residential use.

B. Proposals for subterranean and basement developments will be required to comply with the following:

1. extend to no more than a maximum of 50% of the existing garden land or more than half of any other undeveloped garden area (this excludes the footprint of the original building);
2. Demonstrate the scheme safeguards the structural stability of the existing building, neighbouring buildings and other infrastructure, including related to the highway and transport; a Structural Impact Assessment will be required where a subterranean development or basement is added to, or adjacent to, a listed building.
3. use natural ventilation and lighting where habitable accommodation is provided;
4. include a minimum of 1 metre naturally draining permeable soil above any part of the basement beneath the garden area, together with a minimum 200mm drainage layer, and provide a satisfactory landscaping scheme;
5. demonstrate that the scheme will not increase or otherwise exacerbate flood risk on the site or beyond, in line with policy LP 21 Flood Risk and Sustainable Drainage;
6. demonstrate as part of a Construction Management Statement that the development will be designed and constructed so as to minimise the impact during construction and occupation stages (in line with the Local Environmental Impacts, Pollution and Land Contamination policy of this Plan);

C. Proposals for subterranean and basement developments, including extensions, as well as lightwells and railings, will be assessed against the advice set out in the Council's SPDs relating to character and design as well as the relevant Village Planning Guidance and the forthcoming SPD on Basements and Subterranean Developments. Applicants will be expected to follow the Council's Good Practice Guide on Basement Developments.

Furthermore, the LBRUT planning advice note 'Good Practice Guide on Basement Developments, May 2015 identifies that all basement developments should take into account ground conditions, land instability, flooding and drainage. Adequate site investigation information, prepared by a competent person, should be provided to demonstrate that these impacts have been understood. Building Control and associated Regulations determine whether the detailed design of buildings and their foundations will allow the basement to be constructed and used safely. (Refer to Appendix B for details of the proposed basement.

5.0 SITE CONSTRAINTS

5.1 Geotechnical Data

Following the development of the preliminary CSM and assessment of engineering considerations, Fairhurst scoped and designed a preliminary intrusive ground investigation targeted to refine the understanding of the site for geo-environmental and geotechnical purposes.

The preliminary ground investigation was carried out by LMB Geosolutions Ltd, under the management of Fairhurst, between the 21st and 27th of April 2021 with three post-fieldwork monitoring visits between the 5th and 26th of May 2021. All exploratory locations were surveyed for below ground utilities and inspection hand pits were dug to 1.2 m bgl prior to drilling.

The original scope of works comprised the following:

5 No. rotary percussive boreholes to 15 m bgl (BH101 to BH105)

3 No. trial pits to 5 m bgl (TP01 to TP03)

Geotechnical and geo-environmental soil sampling

Installation of groundwater and ground gas monitoring installations at all boreholes

3 No. return monitoring visits across a 1 month period

1 No. round of groundwater sampling

The ground conditions revealed by the investigations were representative of the wider area and were consistent with the BGS records with Made Ground overlying Kempton Park Gravels over London Clay.

The stratigraphy is summarized in Table 1.

Geological Strata		
Geological Unit	Description	Estimated thickness (m)
Surfacing	Brick Paving and subbase (0.1m bgl) and tarmac over roadstone gravel (0.3m bgl)	0.10 – 0.30
Made Ground	Brown to dark brown clayey gravelly sand with occasional brick and concrete cobbles. Gravel sub - angular fine to coarse flint, brick, concrete and rare clinker	0.40 – 2.0
Kempton Park Gravel Member	Brown to orange slightly gravelly medium to coarse SAND. Gravel sub-angular to rounded medium to coarse flint.	1.55– 4.10
London Clay Formation	Dark grey to grey, brown CLAY. Closely fissured.	1.35 – 20.70

Table 1 - Geotechnical strata

A second round of ground investigations was undertaken to supplement the existing data in August 2022 by Manhire Associates Geo-Environmental Limited which comprised three boreholes drilled to 30m. These were supplemented by six windowless sampler holes to a maximum of 2½m depth. Representative soil and water samples were recovered from the boreholes for subsequent laboratory examination and testing; whilst Standard Penetration Tests (SPT) were carried out as appropriate. Standpipes were installed in the three percussive boreholes to allow monitoring of groundwater levels.

Details of the ground conditions and monitoring results are presented in Appendix C

5.2 Existing Buildings

The existing building occupying the site is a retail warehouse building (Homebase) which is located in the central third of the site, with associated car / bus parking in the north-eastern third and storage areas associated with Homebase in the south-western third of the site.

5.3 Adjacent Buildings

Surrounding land uses are mixed residential and commercial. District, Overground and National Rail tracks bound the site to the south and the west.

5.4 Buried Utilities

The pavements and Manor Road to the east of the site contain a number of buried services which have been surveyed and are shown on the topographical survey.

Asset plans have been obtained that indicate public foul and surface water sewers to the east of the site on Manor Road.

The Foul Sewer on Manor Road to the north of the site is 225mm in diameter and the surface water sewer is 915mm in diameter

Records indicate no public sewers within the site demise.

Existing utilities are likely to be present on-site associated with the existing development, including the electrical substation. Relic foundations and structures may also be present associated with the historic development of the site.

5.5 Contamination

A Phase 1 Geo-Environmental and Geotechnical Preliminary Risk Assessment and a Phase 2 Ground Investigation Report has previously been prepared by Fairhurst as part of the Amended Application. Their Phase 1 Report identified potential sources of contamination on-site and a moderate risk was identified typically. It recommended that a ground investigation be undertaken to further quantify potential risks. The Phase 2 investigation undertaken by Fairhurst in July 2021 found low levels of contamination in 2 trial pits and detected asbestos in 2 samples. The report recommended that in areas of proposed soft landscaping, the placement of an engineered capping layer formed from imported, chemically 'clean' soils be installed and noted that on completion of these remedial works it would be considered that the risks to future site users would be considered Low. Groundwater samples analysed were largely compliant with UKDWS with limited exceedances in 4 boreholes but were considered Low Risk to the shallow groundwater within the Kempton Park Gravel Member. Assessment of the ground gas indicated Very Low Risk for the site. The report recommended a second round of ground investigations to include boreholes, window sampling groundwater monitoring and geo-environmental and geo-technical sampling and testing to supplement the existing data.

The second round of ground investigations undertaken in August 2022 by Manhire Associates Geo-Environmental Limited found that contamination testing found low levels of contamination, which were below the relevant trigger concentrations, however chemical analysis found some contamination above trigger levels in 3 isolated locations which will require limited remediation.

The results of this analysis were in broad agreement with that previously found by Fairhurst.

Details of the ground conditions are presented in Appendix C

5.6 Ground Water and Hydrology

The nearest surface water feature to the site is a pond located approximately 310m south of the site. The River Thames is positioned approximately 1.4km to the northwest and 1.3km to the southeast at its closest positions, and generally flows in an easterly or south easterly direction at these locations.

The Environment Agency classifies the Superficial Kempton Park Gravel Member as Secondary A Aquifer and the London Clay Formation as an Unproductive Stratum.

The site is not within a source protection zone, nor are there any groundwater abstractions within 1km of the site.

Groundwater is considered to be present within the Kempton Park Gravel Member based on historical borehole records and likely to be perched above the low permeability London Clay Formation. Regionally groundwater is considered to flow in a north easterly direction towards and in hydraulic connectivity with the River Thames, the dominant surface water feature in the vicinity of the site.

During the ground investigations undertaken by Fairhurst, between the 21st and 27th of April 2021 with three post-fieldwork monitoring visits between the 5th and 26th of May 2021.

Groundwater monitoring was conducted in five boreholes across the site. All boreholes were installed with 50mm diameter combined ground gas and groundwater monitoring wells within the Made Ground, Kempton Park Gravel Member and London Clay Formation.

Refer to Appendix C for the ground investigations report.

Initial groundwater strikes reported during the ground investigations are summarised in Table 2 below.

Borehole	Groundwater Level		Stratum
	m bgl	m AOD	
BH101	4.50 rising to 4.30	2.20 rising to 2.40	Kempton Park Gravel Member
BH102	4.50 rising to 3.90	1.90 rising to 2.50	Kempton Park Gravel Member
BH103	3.50 rising to 2.80	3.04 rising to 3.74	Kempton Park Gravel Member
BH104	3.20 rising to 2.60	3.05 rising to 3.65	Kempton Park Gravel Member
BH105	2.80 rising to 3.00	3.45 rising to 3.25	Kempton Park Gravel Member

Table 2 – Summary of Groundwater strikes recorded during investigation.

In order to understand the groundwater regime more comprehensively following the completion of site investigation work, groundwater monitoring rounds were undertaken on 5th, 13th and 26th May 2021 as summarized below in Table 3.

BOREHOLE	RESPONSE ZONE		GROUNDWATER LEVEL	
	m bgl	STRATA	m bgl	m AOD
BH101	1.50 to 8.45	MG / KPGM / LC	2.46 to 2.56	4.24 to 4.14
BH102	1.00 to 7.00	MG / KPGM / LC	2.32 to 2.41	4.08 to 3.99
BH103	2.00 to 8.00	KPGM / LC	3.88 to 4.26	2.66 to 2.28
BH104	1.00 to 5.00	MG / KPGM / LC	3.66 to 4.68	2.59 to 1.57
BH105	1.00 to 6.00	MG / KPGM / LC	3.45 to 4.03	2.80 to 2.22

MG – Made Ground, KPGM – Kempton Park Gravel Member, LC – London Clay Formation

Table 3 – Summary of Groundwater levels recorded during return visit monitoring.

The findings suggest that a shallow body of groundwater is situated within the Kempton Park Gravel Member. The Kempton Park Gravel Member was saturated at varying levels across the site with recorded groundwater levels between 4.24m to 3.99m AOD in the north of the site (BH101 and BH102) lowering to between 2.80m to 1.57m AOD in the central and southern area of the site (BH103, BH104 and BH105).

It should be noted that groundwater levels are subject to variation as a result of seasonal changes and during following periods of adverse weather conditions.

As part of the ground investigations undertaken in August 2022 by Manhire Associates Geo-Environmental Limited also found that the Kempton Park Gravel Member was saturated at varying levels across the site with recorded groundwater levels at between 3.57m to 3.67m AOD in the east of the site (BH1) lowering to between 2.17m to 2.05m AOD in the central and northern area of the site (BH2 and BH3).

Location	BH1		BH2		BH3	
Red. level						
Date	m bgl	m OD	m bgl	m OD		
19/08/2022	2.51		4.11		4.15	
23/09/2022	2.54		4.15		4.17	
11/10/2022	2.61		4.21		4.23	

The standpipe records were in broad agreement with that previously found by Fairhurst. Details of the ground conditions are presented in Appendix C

5.7 Unexploded Ordnance

The site is within a high risk area with respect to unexploded ordinance. An UXO specialist watching brief is required for any below ground works.

5.8 Flood Risk

A Flood Risk Assessment has been undertaken by Fairhurst which was submitted as part of the Planning Submission. (Revised Flood Risk Assessment and Drainage Strategy July 2020). As part of the suite of additional information submitted in October 2022, an updated Flood Risk Assessment has been prepared by Hydrock. This report includes the latest flood risk information identified in Richmond's latest SFRA (2021).

A detailed assessment of flood risk has identified that the site is located within Flood Zone 1 (Low Risk) in respect of fluvial flood risk. Hydraulic modelling has been undertaken due to the identified risk of surface water flooding on the site through the current EA Mapping.

Results of the modelling confirm the site to be at risk of surface water flooding with the site being located in a key surface water flow route, entering in the southwestern and southern boundaries, and discharging onto adjacent railway land in the northwest. Post development modelling has been carried out to ensure the flow route is safely managed through preferential lowering on site to minimise any offsite risk. Where risk is still identified on site, a number of flood resistant measures have been recommended to incorporate within the design and construction of the development with a key feature being flood proof doors where there is a potential for internal flooding.

The site is indicated to be at low or negligible risk from all other assessed sources.

Due to the indicated surface water risk on site safe access and egress has been addressed through a Flood Warning and Evacuation Plan which highlights the flood risk to visitors and details the procedures to follow in the event of a Flood Warning from the EA being issued for the area and that the proposed development is also not considered to increase flood risk within the catchment through a loss of floodplain storage.

This report therefore demonstrates that, in respect of flood risk, the proposed development of the site:

- Is suitable in the location proposed.
- Will be adequately flood resistant and resilient.
- Will not place additional persons at risk of flooding and will offer a safe means of access and egress.
- Will not increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage or impedance of flood flows.
- Will put in place measures to ensure surface water is appropriately managed.

As such, the application is concluded to meet the flood risk requirements of the NPPF.

The FRA is presented in Appendix D

6.0 BASEMENT SCREENING ASSESSMENT

This Basement Impact Assessment has been undertaken in accordance with LBRuT's Basement Assessment User Guide.

The first stage of the assessment is the Screening Assessment, which is used to identify any potential matters that may have an adverse impact and determine if a Basement Impact Assessment is required. If the answer to any of the screening questions below is "yes", or is currently unknown, matters relating to that question will need to be addressed as part of a Basement Impact Assessment.

To determine if the proposed development requires a Screening Assessment the London Borough of Richmond upon Thames' SFRA map identified that the site falls within both of the two following designations:

- an area with \geq 25% susceptibility to groundwater flooding
- one of the four throughflow catchment areas

If the proposed development falls within one (or both) of these two designations and contains a basement, then the applicant needs to complete a Screening Assessment.

The Basement Assessment User Guide notes that as part of answering the Screening Assessment questions, applicants are required to provide information to justify their answers.

Examples of information that is expected as part of the Screening Assessment should include, but are not limited to:

- Description of the proposed basement, cellar, or other subsurface structure development (Refer to Section 4 for further details)
- Construction methods proposed. (Refer to Section 4 for further details)
- Characteristics of the site, including geological information (bedrock, superficial deposits, and aquifer confirmation) and topographical information. (Refer to section 5 for further details)
- Site borehole information with water levels. (Refer to Section 5 for further details)
- Characteristics of potential impacts (including the impact on soils, water quality and hydrology). (Refer to Section 5 for further details)
- Details of mitigation measures (where appropriate).

The three tables below document the considerations that need to be examined in the design of basements. Areas requiring further consideration have been highlighted in yellow.

Does the recorded water table extend above the base of the proposed subsurface structure?	No, the water levels recorded in BH103 & BH104 where the proposed basement is located varied between 1.57m and 2.66m AOD. The level of the underside of the proposed basement slab is 3.250m AOD.
Is the proposed subsurface development structure within 100m of a watercourse or spring line?	No, the nearest surface water feature to the site is a pond located approximately 310m south of the site.
Are infiltration methods proposed as part of the site's drainage strategy?	No, the sites drainage strategy is to discharge the surface water to the public sewer on Manor Road.
Does the proposed excavation during the construction phase extend below the local water table level or spring line (if applicable)?	No, the water levels recorded in BH103 & BH104 where the proposed basement is located varied between 1.57m and 2.66m AOD. The level of the underside of the proposed basement slab is 3.250m AOD.
Is the most shallow geological strata at the site London Clay?	No, Kempton Park Gravel Member is the shallowest strata.
Is the site underlain by an aquifer and/or permeable geology?	Yes. The Environment Agency classifies the Superficial Kempton Park Gravel Member as Secondary A Aquifer

Table 4: Subterranean Characteristics

Does the site, or neighbouring area, topography include slopes that are greater than 7°?	No, there are no slopes greater than 7deg on site or on neighbouring areas according to the topographical survey. (1:8 slope)
Will changes to the site's topography result in slopes that are greater than 7°?	No, there will be no changes to the sites topography that will result in slopes greater than 7 deg. (1:8 slope)
Will the proposed subsurface structure extend significantly deeper underground compared to the foundations of the neighbouring properties?	No, the closest neighbouring property is 30m away to the east.
Will the implementation of the proposed subsurface structure require any trees to be felled or uprooted?	No, there are no trees in the vicinity.
Has the ground at the site been previously worked?	No, the site has had no previous ground works.
Is the site within the vicinity of any tunnels or railway lines?	Yes, Railway lines form the north-western and southern boundaries. The closest railway line is approximately 30m to the west.

Table 5: Land Stability

Will the proposed subsurface development result in a change in impermeable area coverage on the site?	No, the existing site is 100% impermeable. The proposed development will be approximately 40% impermeable with the formation of soft landscaped areas.
Will the proposed subsurface development impact the flow profile of throughflow, surface water or groundwater to downstream areas?	No, the proposed basement does not extend down below the highest ground water level recorded as part of the site investigations. The proposed basement will have no impact at all on the flow profile of throughflow, surface water or groundwater to downstream areas.
Will the proposed subsurface development increase throughflow or groundwater flood risk to neighbouring properties?	No, the proposed basement does not extend down below the highest ground water level recorded as part of the site investigations. The proposed basement will not increase throughflow or groundwater flood risk to neighbouring properties.

Table 6: Flood Risk and Drainage

7.0 BASEMENT IMPACT ASSESSMENT

7.1 General

The screening assessment in section 6.0 identifies several items that require further consideration, as part of a Basement Impact Assessment:

- Effects of the Subterranean Characteristics- underlain aquifer and/or permeable geology
- Effects on land stability - tunnels or railway lines

The assessment undertaken is preliminary and is based upon the Revised Geoenvironmental & Geotechnical Preliminary Risk Assessment (July 2020) prepared by Fairhurst & Manhire Associates Geo-Environmental Limited Geo-Environmental Site Investigation Report referred to in section 5.

7.2 Effects of the Subterranean Characteristics

7.2.1. Groundwater Recharge

There is a decrease in impermeable surfaces for the proposed development in comparison to the current development. This will allow the underlying aquifers to be recharged naturally.

7.2.2. Groundwater Flow

The proposed single level basement will extend through the Kempton Park Gravel Member but will be above the shallow groundwater regime.

In theory, basement construction can lead to changes in groundwater levels and cause 'damming' where there is potential for levels to rise "upstream" of the development and reduce downstream'.

A planning advice note - Good Practice Guide on Basement Developments" has been published by the London Borough of Richmond Upon Thames which states:

"Basements constructed just above or below the groundwater table could act as a barrier in the ground, thereby diverting groundwater flow around them. A basement constructed below the groundwater table may locally obstruct the natural flow, and depending on the geology and topography, this could result in a local rise in the groundwater level. However, for small isolated basements this impact is likely to be very localised because a basement has a small building volume in a large expanse of aquifer. Therefore, groundwater will still be able to flow around and potentially below the basement, and thereby it would not affect the overall groundwater table. In general, a small basement is unlikely to have a significant effect on the groundwater regime of a local area".

7.2.3. Dewatering

Based on the current redevelopment proposals and data on groundwater levels monitored in the preliminary ground investigation, it is considered that no dewatering will be necessary. The contractor will not be permitted to draw down the water table and will not be allowed to install well points.

It is considered that the new small, isolated basement will not have any impact on the underlying aquifer and/or permeable geology as the basement is above the water table.

7.3 Effects on land stability - tunnels or railway lines

The North London Line runs approximately 30m at its closest from the northwest corner of the basement and the Southwestern Line runs approximately 78m at its closest from the south-eastern corner of the basement.

Network Rail and Transport for London have been contacted to confirm that works will not interfere with any of their infrastructure.

It is considered that the proposed basement construction will not have any impact on the adjacent railway lines due to the overall distance from the infrastructure.

7.4 Risk Register / Summary

Hazard	Cause	Consequences	Perceived Level of Risk without Control	Control Adopted	Perceived Level of Risk with Control	Risk Owner-ship
Impact on shallow groundwater regime	Basement construction	Effect on groundwater quality, level or flow	Low	None proposed due to low level of risk	Low	N/A
Damage to adjacent Infrastructure	Excavation induced ground movement	Remedial works required. Programme effects Cost	Low	None proposed due to low level of risk	Low	Contractor/Engineer
Buried obstructions	Previously Worked Ground	Programme effects Cost	Moderate	Contingency measures will be put in place should they impact on the design and construction of the foundations and basement excavation	Low	Contractor/Engineer

8.0 CONCLUSIONS

It has been demonstrated that there have been sufficient investigations carried out to understand the ground regime to facilitate the design of the substructure.

Whilst basement construction can lead to changes in groundwater level, the basement is small and isolated and does not extend into the groundwater so will not have any impact on the underlying aquifer and/or permeable geology.

The proposed basement construction will not have any impact on the adjacent railway lines due to the overall distance from the infrastructure.

The Report describes the new proposals and appraises the impact of the development on neighbouring buildings, structures and infrastructure in the vicinity as well as drainage, stability and the groundwater regime which complies with Policy LP11 from the Local Plan relating to basement development.

The risks are summarised in a Risk Register with details of how risks are minimised with controls.

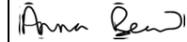
A site assessment verification form has been completed and provided below as required by the Basement Assessment User Guide.

8.1 Site and Assessment Verification Form

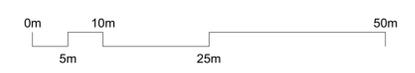
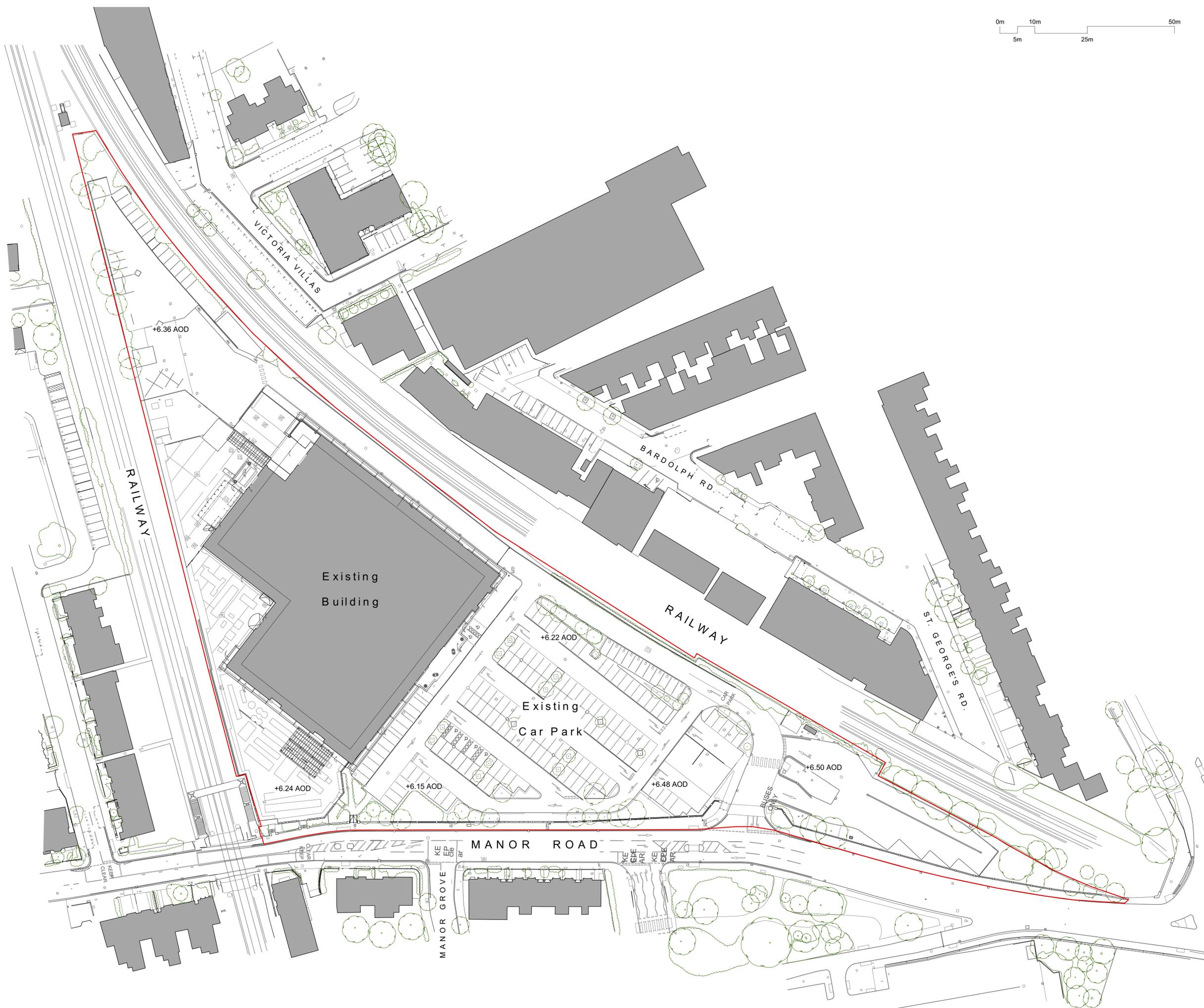
Site Details

Site Details	Applicant Information
Site name	Homebase, 84 Manor Road, North Sheen, Richmond
Planning application reference (If applicable)	19/0510/FUL
Address & postcode	Former Homebase, 84 Manor Road, North Sheen, Richmond, TW9 1YB
Brief description of the proposed works	The proposed development comprises the demolition of the current retail units and the development of 4 No. residential buildings, permeable paving, and soft landscaping. Building A is a part 3, part 4, part 7 and 8 storey building, Building B is an 11 storey building, Building C is a part 8 and 10 storey building and Building D is a part 4, part 7 and part 8 storey building. In addition, a basement plant room is proposed beneath Building A
Geology type	The ground conditions revealed by the investigations were representative of the wider area and were consistent with the BGS records with Made Ground overlying Kempton Park Gravels over London Clay.
Presence of aquifer?	The Environment Agency classifies the Superficial Kempton Park Gravel Member as Secondary A Aquifer and the London Clay Formation as an Unproductive Stratum.
Total site area (Ha)	1.65 ha
Is the site currently known to be at risk of flooding from any sources?	Results of the modelling within the FRA confirm the site to be at risk of surface water flooding.

Chartered Professional Verification

Professional Details	Applicant Information
Name	Anna Beard
Profession / area of expertise	Civil and Structural Engineer – reinforced concrete basements and concrete and steel frame buildings
Chartered institution and membership level	Institute of Civil Engineers - MICE CEng
Brief description of assessment involvement	Review and Approval of report.
Brief summary of the assessment results	Refer to section 8
Declaration of assessment results	
Signature	

APPENDIX A
SITE PLAN & TOPOGRAPHICAL SURVEY



General notes

All levels must be checked on site and refer to Ordnance Datum Newlyn unless alternative Datum given. All fixings and weatherings must be checked on site. All dimensions must be checked on site. This drawing must not be scaled. This drawing must be read in conjunction with all other relevant drawings, specification clauses and current design risk register. This drawing must not be used for land transfer purposes. Calculated areas in accordance with Assael Architecture's Definition of Areas for Schedule of Areas. This drawing must not be used on site unless issued for construction. Subject to survey, consultation and approval from all statutory Authorities.

Revision Status:
 P= Preliminary
 C= Contract

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Drawing notes

Electronic file reference
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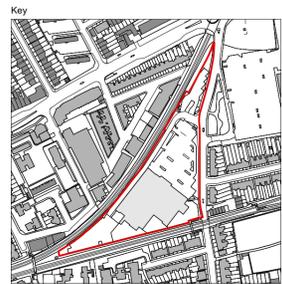
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1	Planning Draft	15/01/19	HB	JL	
2	For Planning	06/02/19	RD	HB	

Purpose of information

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Information	<input type="checkbox"/>
Comment	<input type="checkbox"/>
Client approval	<input type="checkbox"/>
Construction	<input type="checkbox"/>

All information on this drawing is not for construction unless it is marked for construction.



Client
Avanton

Project title
A3004 Manor Road Richmond

Drawing title
Site Plan Existing

Scale @ A1 size Date
1:500 Feb '19

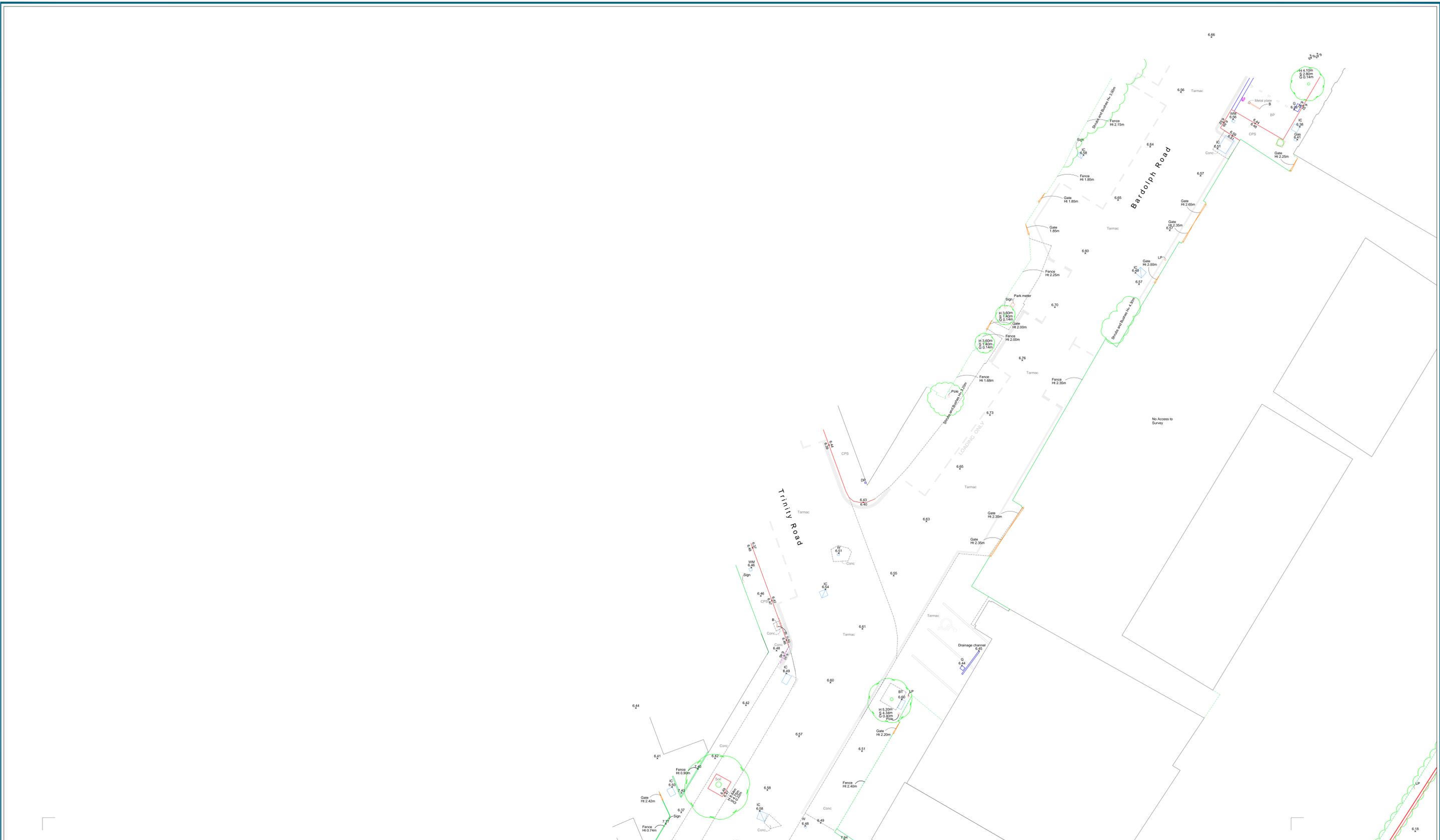
Drawing N°
MNR-AA-ALL-ZZ-DR-A-1100

Status & Revision
R2



Assael Architecture Limited
 123 Upper Richmond Road
 London SW15 2TL

+44 (0)20 7736 7744
 info@assael.co.uk
 www.assael.co.uk



Sources:
 Levels are related to Ordnance Survey Datum via GPS Observations
 Survey location is related to Ordnance Survey Grid via GPS Observations.
 All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Stations:
 STN01 - 518899.719, 175472.891, 6.147
 STN02 - 518970.579, 175484.687, 6.586
 STN03 - 518969.606, 175528.346, 6.724

Key:

A/C	Air Conditioning Unit	PO	Post
B	Bollard	RL	Ridge Level
BP	Brick Paving	SRFC	Surface Change
BT	BT Inspection Cover	S/O	Smoke Outlet
CATV	Cable Television Inspection Cover	SV	Stop Valve
CPS	Concrete Paving Slab	TCB	Telephone Call Box
DK	Dropped Kerb	TP	TacCPS Paving
DP	Down Pipe	W	Water Inspection Cover
EL	Eaves Level	WM	Water Meter
FH	Fire Hydrant		
G	Gully		
GP	Gate Post		
IC	Inspection Cover		
ILB	Illuminated Bollard		
IRS	Illuminated Road Sign		
JB	Junction Box		
LP	Lamp Post		
MH	Man Hole Cover		
PB	Post Box		
PL	Pavement Light		

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10



Project: Homebase, Richmond

Drawn By: SB

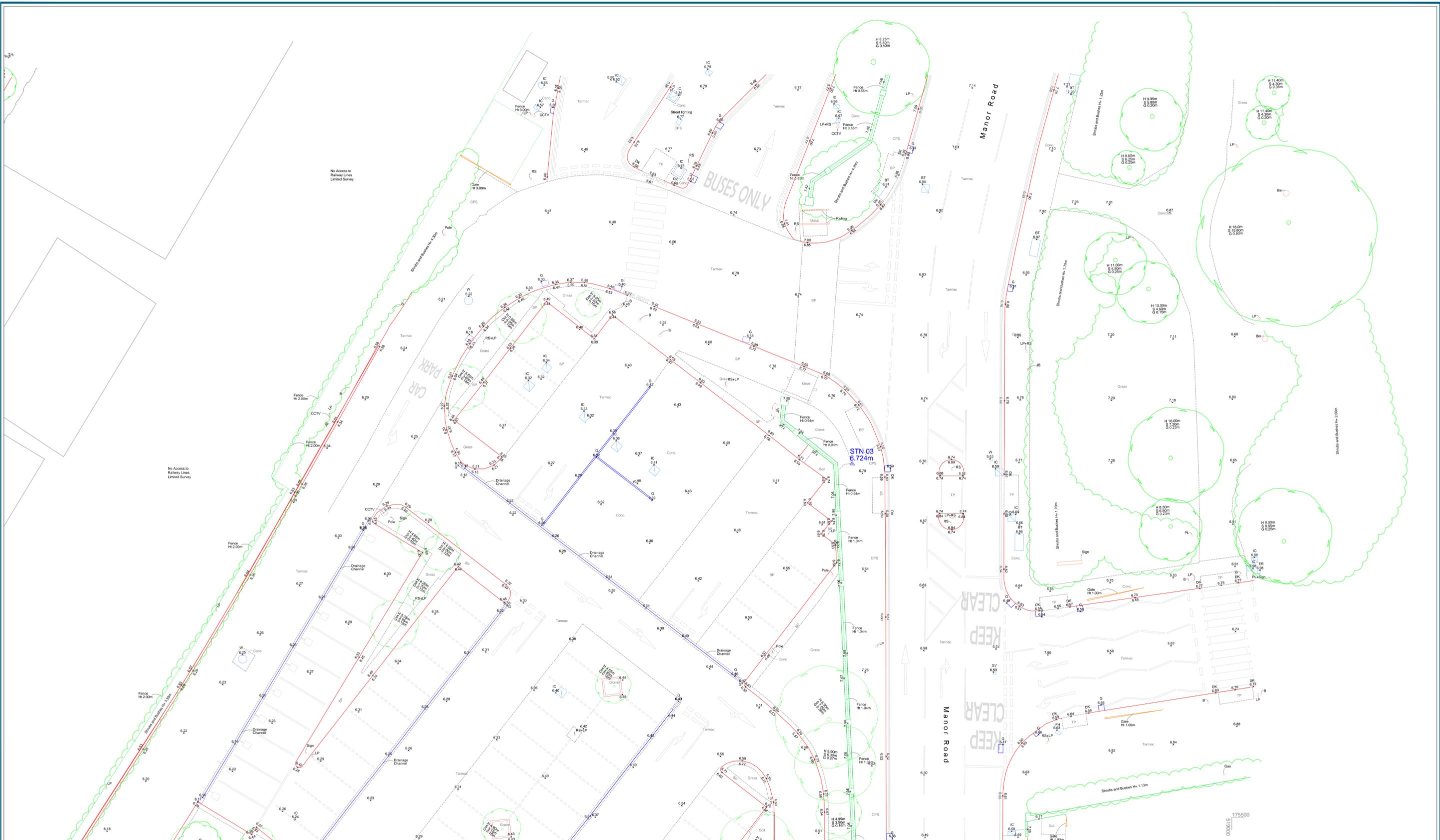
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Date: August 2018

Title: Topographic Survey Sheet 1

Dwg No: LS2024/T/01RevA

Point 2 Surveyors Ltd,
 3rd Floor,
 17 Slingsby Place,
 London WC2E 9AB,
 0207 836 5828
 www.point2surveyors.com



Sources:
 Levels are related to Ordnance Survey Datum via GPS Observations
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Stations:
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 STN02 - 518970.579, 175484.687, 6.586
 STN03 - 518969.606, 175528.346, 6.724

Key:

A/C	Air Conditioning Unit	PO	Post
B	Bollard	RL	Ridge Level
BP	Brick Paving	SRFC	Surface Change
BT	BT Inspection Cover	S/O	Smoke Outlet
CATV	Cable Television Inspection Cover	SV	Stop Valve
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JB	Junction Box		
LP	Lamp Post		
MH	Man Hole Cover		
PB	Post Box		
PL	Pavement Light		



S1	S2	
S3	S4	
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey Sheet 2

Point 2 Surveyors Ltd,
 3rd Floor,
 17 Slingsby Place,
 London WC2E 9AB,
 0207 836 5828
 www.point2surveyors.com

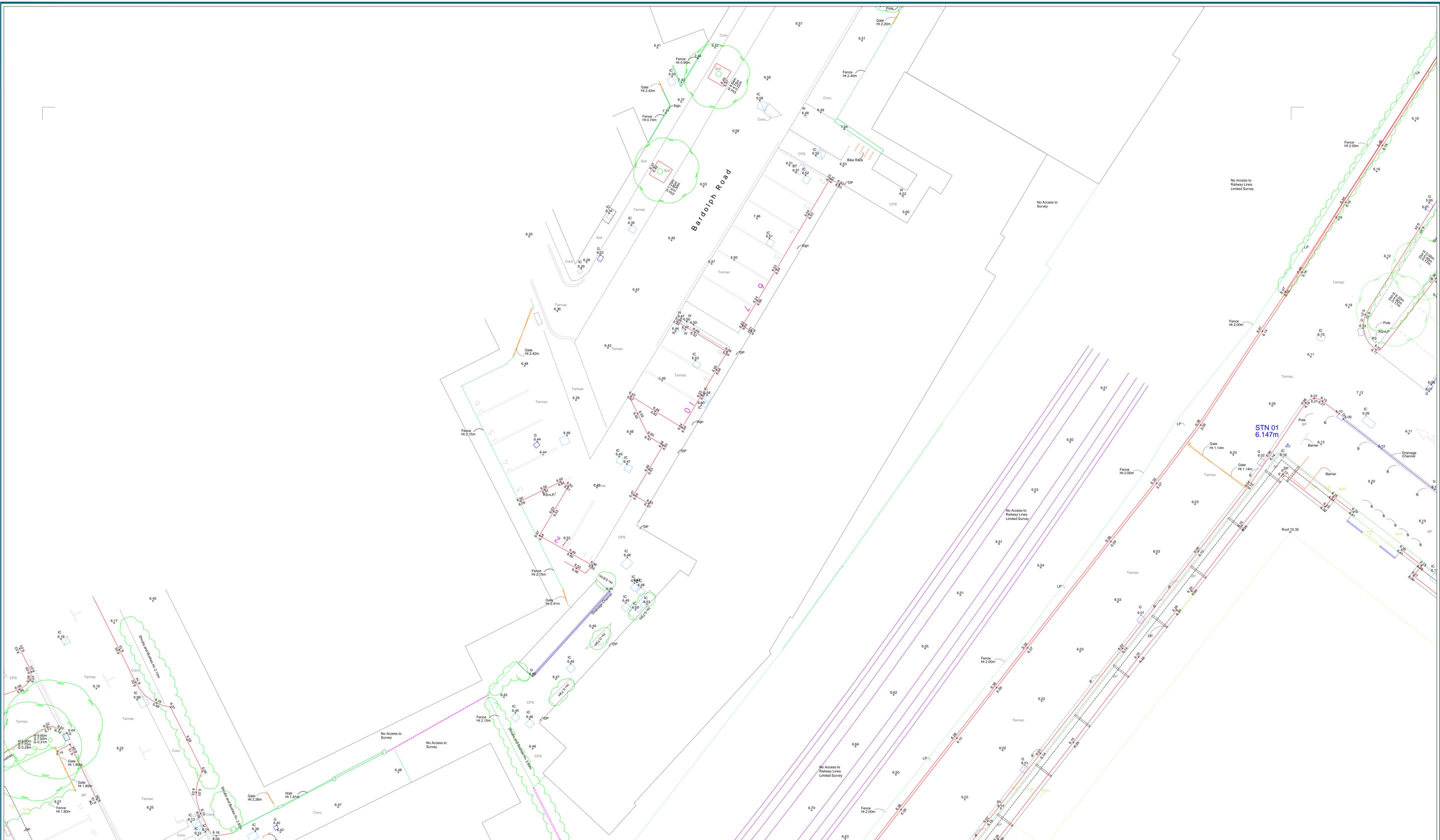


Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: **LS2024/T/02RevA**



Sources:
 Levels are related to Ordnance Survey Datum via GPS Observations
 Survey location is related to Ordnance Survey Grid via GPS Observations.
 All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Stations:
 STN01 - 518899.719, 175472.891, 6.147
 STN02 - 518970.579, 175484.687, 6.586
 STN03 - 518969.606, 175528.346, 6.724

Key:

A/C	Air Conditioning Unit	PO	Post
B	Bollard	RL	Ridge Level
BP	Brick Paving	SRFC	Surface Change
BT	BT Inspection Cover	S/O	Smoke Outlet
CATV	Cable Television Inspection Cover	SV	Stop Valve
CPS	Concrete Paving Slab	TCB	Telephone Call Box
DK	Dropped Kerb	TP	TacCPS Paving
DP	Down Pipe	W	Water Inspection Cover
EL	Eaves Level	WM	Water Meter
FH	Fire Hydrant		
G	Gully		
GP	Gate Post		
IC	Inspection Cover		
ILB	Illuminated Bollard		
IRS	Illuminated Road Sign		
JB	Junction Box		
LP	Lamp Post		
MH	Man Hole Cover		
PB	Post Box		
PL	Pavement Light		

S1	S2	
S3	S4	
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Title: Topographic Survey Sheet 3

Dwg No: LS2024/T/03RevA

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 3rd Floor,
 17 Slingsby Place,
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 0207 836 5828
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Sources:
 Levels are related to Ordnance Survey Datum via GPS Observations
 Survey location is related to Ordnance Survey Grid via GPS Observations.
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Stations:
 STN01 - 518899.719, 175472.891, 6.147
 STN02 - 518970.579, 175484.687, 6.586
 STN03 - 518969.606, 175528.346, 6.724

- Key:**
- | | | | |
|------|-----------------------------------|------|------------------------|
| A/C | Air Conditioning Unit | PO | Post |
| B | Bollard | RL | Ridge Level |
| BP | Brick Paving | SRFC | Surface Change |
| BT | BT Inspection Cover | S/O | Smoke Outlet |
| CATV | Cable Television Inspection Cover | SV | Stop Valve |
| CPS | Concrete Paving Slab | TCB | Telephone Call Box |
| DK | Dropped Kerb | TP | TacCPS Paving |
| DP | Down Pipe | W | Water Inspection Cover |
| EL | Eaves Level | WM | Water Meter |
| FH | Fire Hydrant | | |
| G | Gully | | |
| GP | Gate Post | | |
| IC | Inspection Cover | | |
| ILB | Illuminated Bollard | | |
| IRS | Illuminated Road Sign | | |
| JB | Junction Box | | |
| LP | Lamp Post | | |
| MH | Man Hole Cover | | |
| PB | Post Box | | |
| PL | Pavement Light | | |



	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Title: Topographic Survey Sheet 4

Point 2 Surveyors Ltd,
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 17 Slingsby Place,
 London WC2E 9AB,
 0207 836 5828
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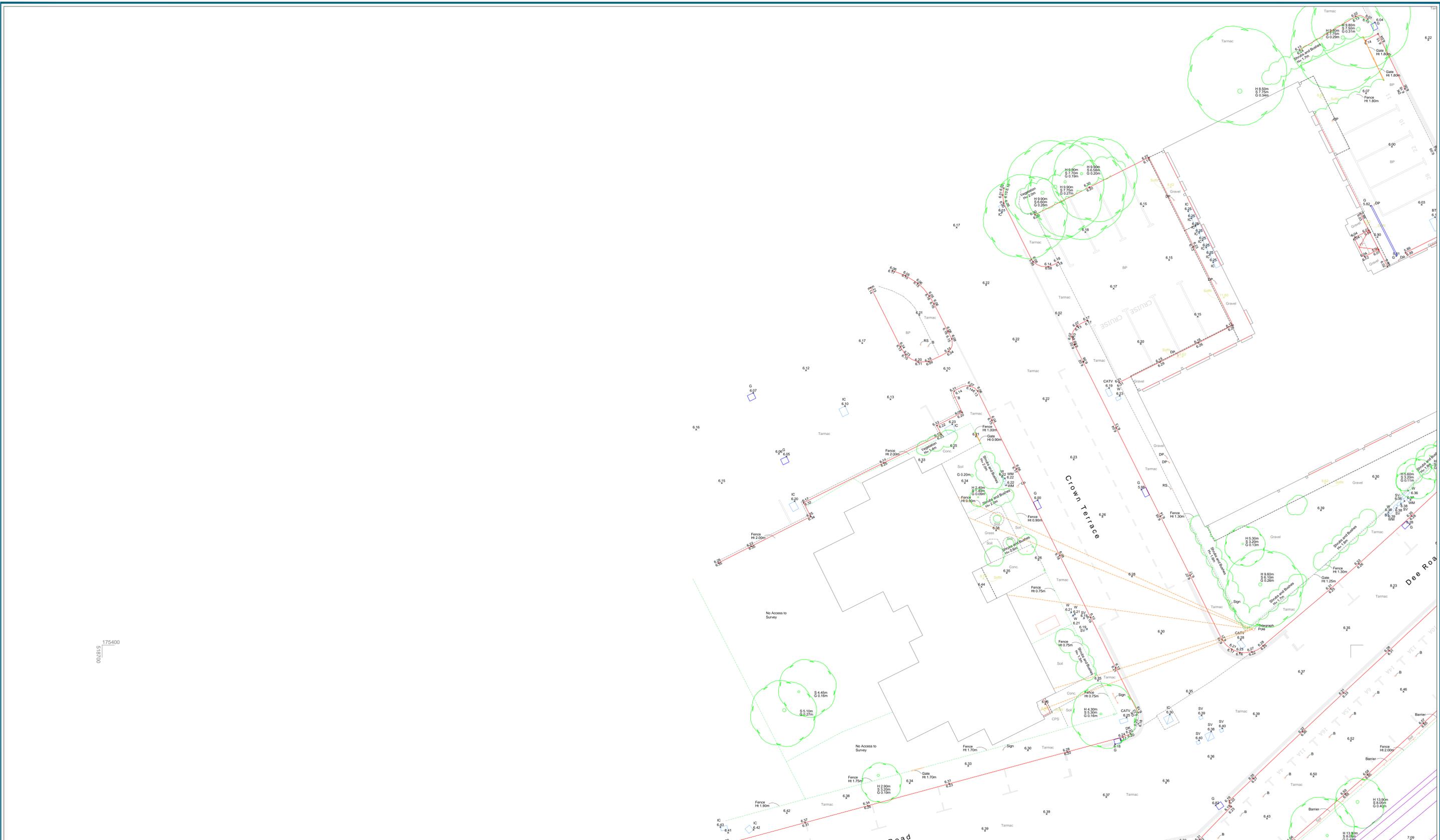


Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: LS2024/T/04RevA



Sources:
 Levels are related to Ordnance Survey Datum via GPS Observations
 Survey location is related to Ordnance Survey Grid via GPS Observations.
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Stations:
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 STN02 - 518970.579, 175484.687, 6.586
 STN03 - 518969.606, 175528.346, 6.724

- Key:**
- A/C Air Conditioning Unit
 - B Bollard
 - BP Brick Paving
 - BT BT Inspection Cover
 - CATV Cable Television Inspection Cover
 - CPS Concrete Paving Slab
 - DK Dropped Kerb
 - DP Down Pipe
 - EL Eaves Level
 - FH Fire Hydrant
 - G Gully
 - GP Gate Post
 - IC Inspection Cover
 - ILB Illuminated Bollard
 - IRS Illuminated Road Sign
 - JB Junction Box
 - LP Lamp Post
 - MH Man Hole Cover
 - PB Post Box
 - PL Pavement Light

- PO Post
- RL Ridge Level
- SRFC Surface Change
- S/O Smoke Outlet
- SV Stop Valve
- TCB Telephone Call Box
- TP TacCPS Paving
- W Water Inspection Cover
- WM Water Meter



	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Drawn By: SB

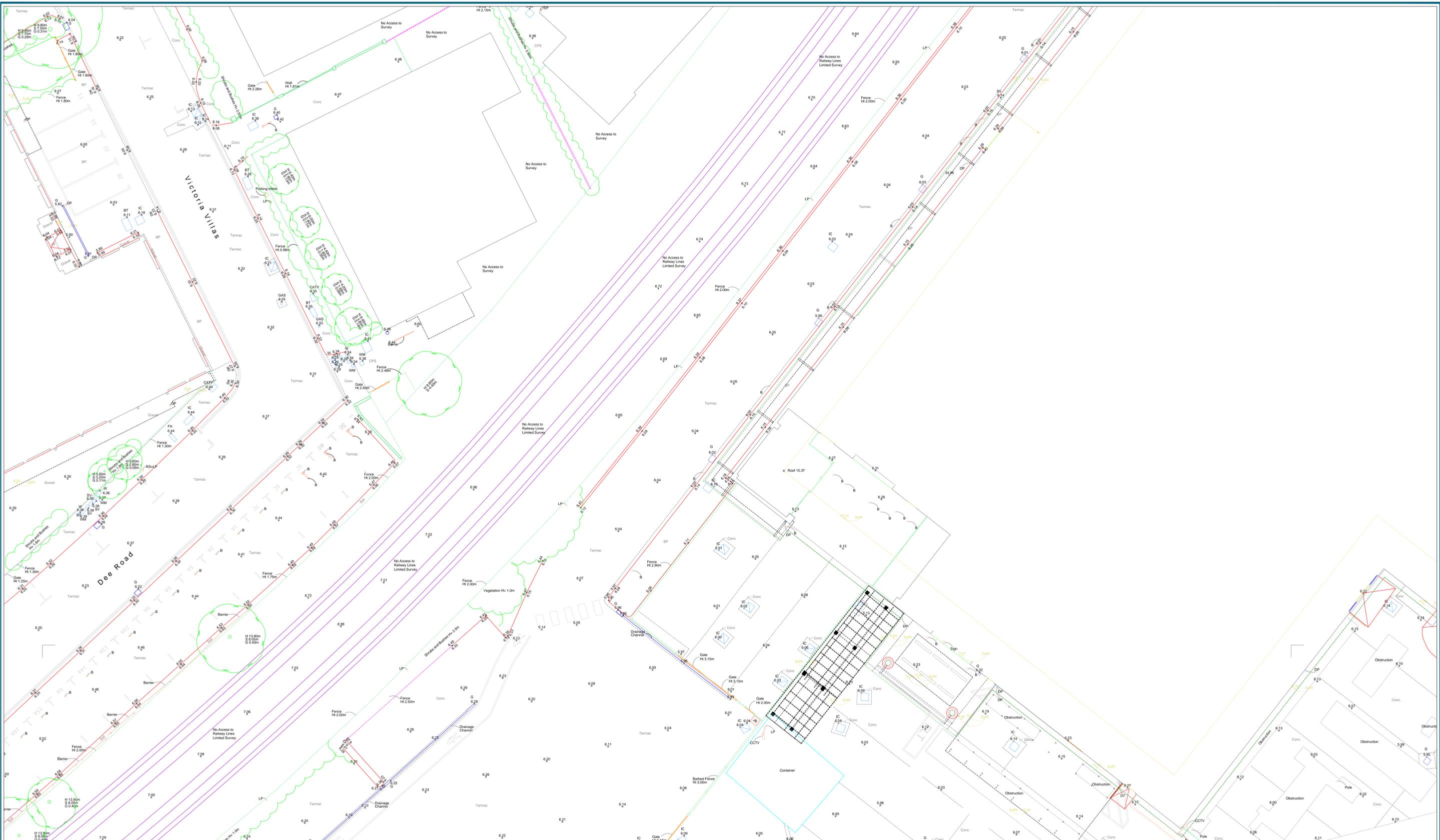
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Date: August 2018

Title: Topographic Survey Sheet 5

Dwg No: LS2024/T/05RevA

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Sources:
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Key:

A/C	Air Conditioning Unit	PO	Post
B	Bollard	RL	Ridge Level
BP	Brick Paving	SRFC	Surface Change
BT	BT Inspection Cover	S/O	Smoke Outlet
CATV	Cable Television Inspection Cover	SV	Stop Valve
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IRS	Illuminated Road Sign		
JB	Junction Box		
LP	Lamp Post		
MH	Man Hole Cover		
PB	Post Box		
PL	Pavement Light		

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Drawn By: SB

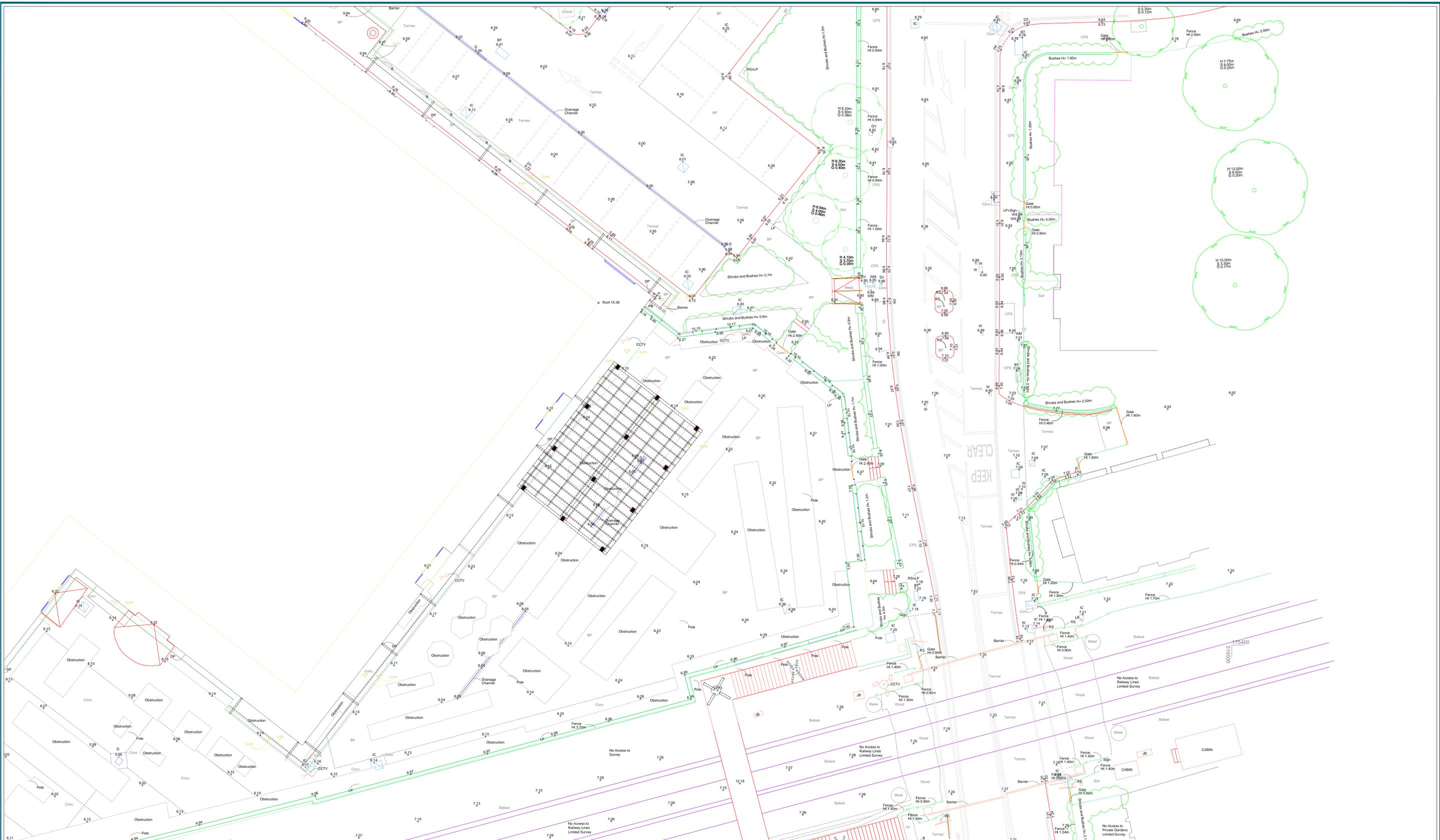
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Date: August 2018

Title: Topographic Survey Sheet 6

Dwg No: LS2024/T/06RevA

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 Survey location is related to Ordnance Survey Grid via GPS Observations.
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Key:

A/C	Air Conditioning Unit	PO	Post
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BP	Brick Paving	SRFC	Surface Change
BT	BT Inspection Cover	S/O	Smoke Outlet
CATV	Cable Television Inspection Cover	SV	Stop Valve
CP	Concrete Paving Slab	TCB	Telephone Call Box
DK	Dropped Kerb	TP	TacCPS Paving
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MH	Man Hole Cover		
PB	Post Box		
PL	Pavement Light		

S1	S2
S3	S4
S5	S6
S8	S9
	S7
	S10

Project: Homebase, Richmond

Drawn By: SB

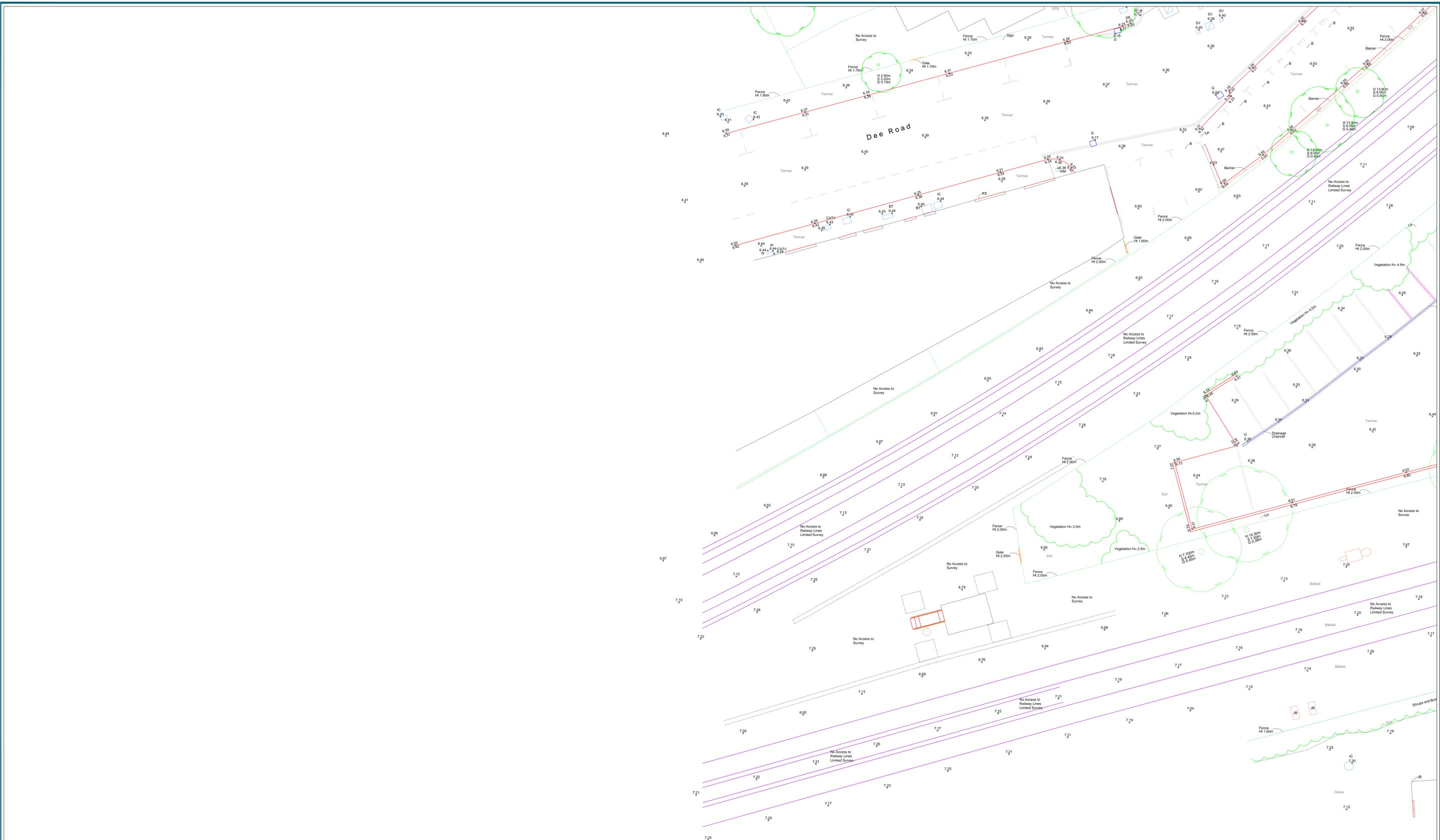
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Date: August 2018

Title: Topographic Survey Sheet 7

Dwg No: LS2024/T/07RevA

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Sources:
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 Survey location is related to Ordnance Survey Grid via GPS Observations.
 All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.

Stations:
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 STN02 - 518970.579, 175484.687, 6.586
 STN03 - 518969.606, 175528.346, 6.724

Key:

A/C	Air Conditioning Unit	PO	Post
B	Bollard	RL	Ridge Level
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BT	BT Inspection Cover	S/O	Smoke Outlet
CATV	Cable Television Inspection Cover	SV	Stop Valve
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FH	Fire Hydrant	W	Water Inspection Cover
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ILB	Illuminated Bollard		
IRS	Illuminated Road Sign		
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LP	Lamp Post		
MH	Man Hole Cover		
PB	Post Box		
PL	Pavement Light		

	S1	S2
	S3	S4
S5	S6	S7
S8	S9	S10

Project: Homebase, Richmond

Drawn By: SB

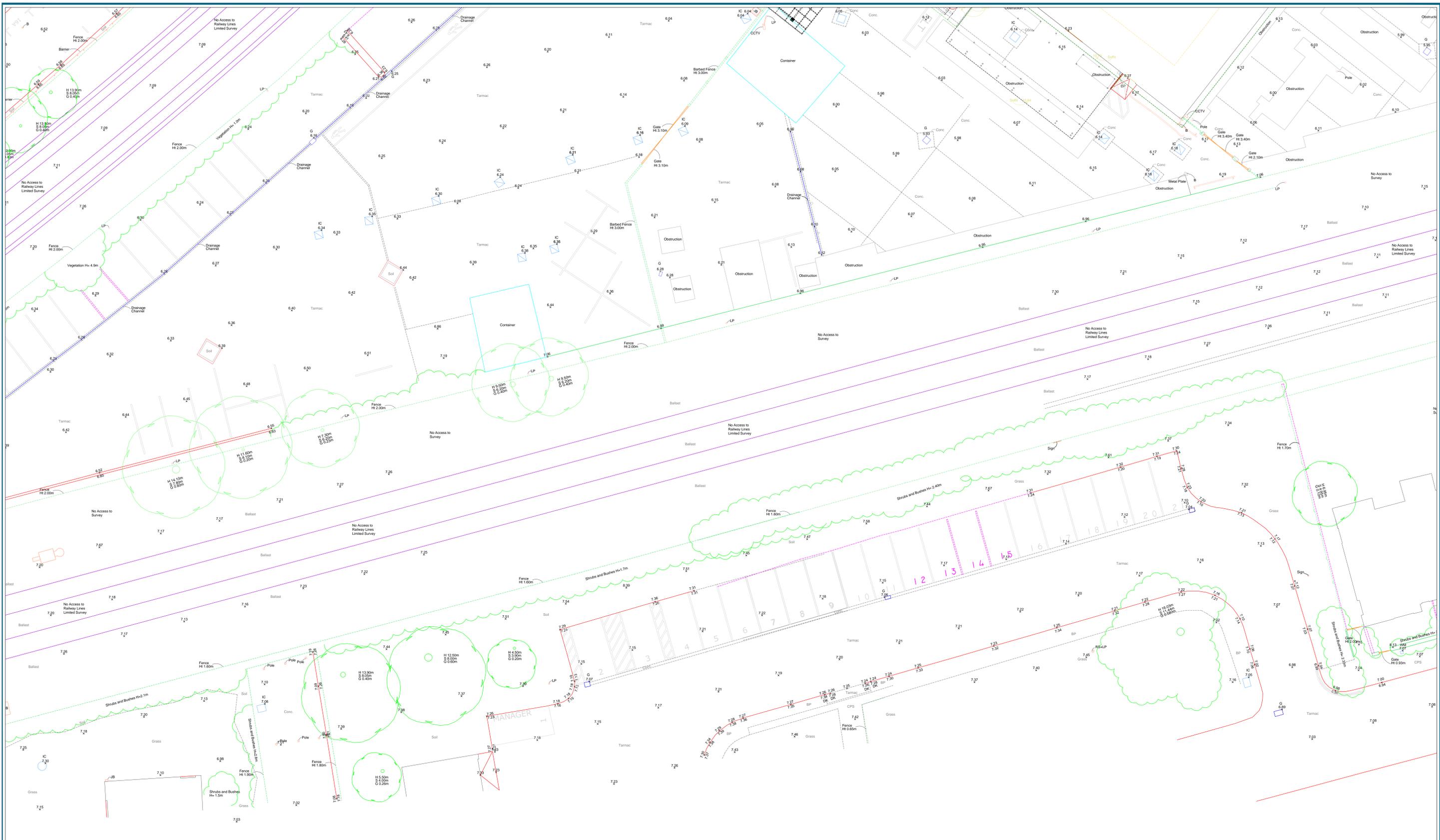
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Title: Topographic Survey Sheet 8

Date: August 2018

Dwg No: LS2024/T/08RevA

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Sources:
 Levels are related to Ordnance Survey Datum via GPS Observations
 Survey location is related to Ordnance Survey Grid via GPS Observations.
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Stations:
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- Key:**
- | | | | |
|------|-----------------------------------|------|------------------------|
| A/C | Air Conditioning Unit | PO | Post |
| B | Bollard | RL | Ridge Level |
| BP | Brick Paving | SRFC | Surface Change |
| BT | BT Inspection Cover | S/O | Smoke Outlet |
| CATV | Cable Television Inspection Cover | SV | Stop Valve |
| CPS | Concrete Paving Slab | TCB | Telephone Call Box |
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| FH | Fire Hydrant | | |
| G | Gully | | |
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| IC | Inspection Cover | | |
| ILB | Illuminated Bollard | | |
| IRS | Illuminated Road Sign | | |
| JB | Junction Box | | |
| LP | Lamp Post | | |
| MH | Man Hole Cover | | |
| PB | Post Box | | |
| PL | Pavement Light | | |



S1	S2
S3	S4
S5	S6
S8	S9
S7	S10

Project: Homebase, Richmond

Title: Topographic Survey Sheet 9

Point 2 Surveyors Ltd,
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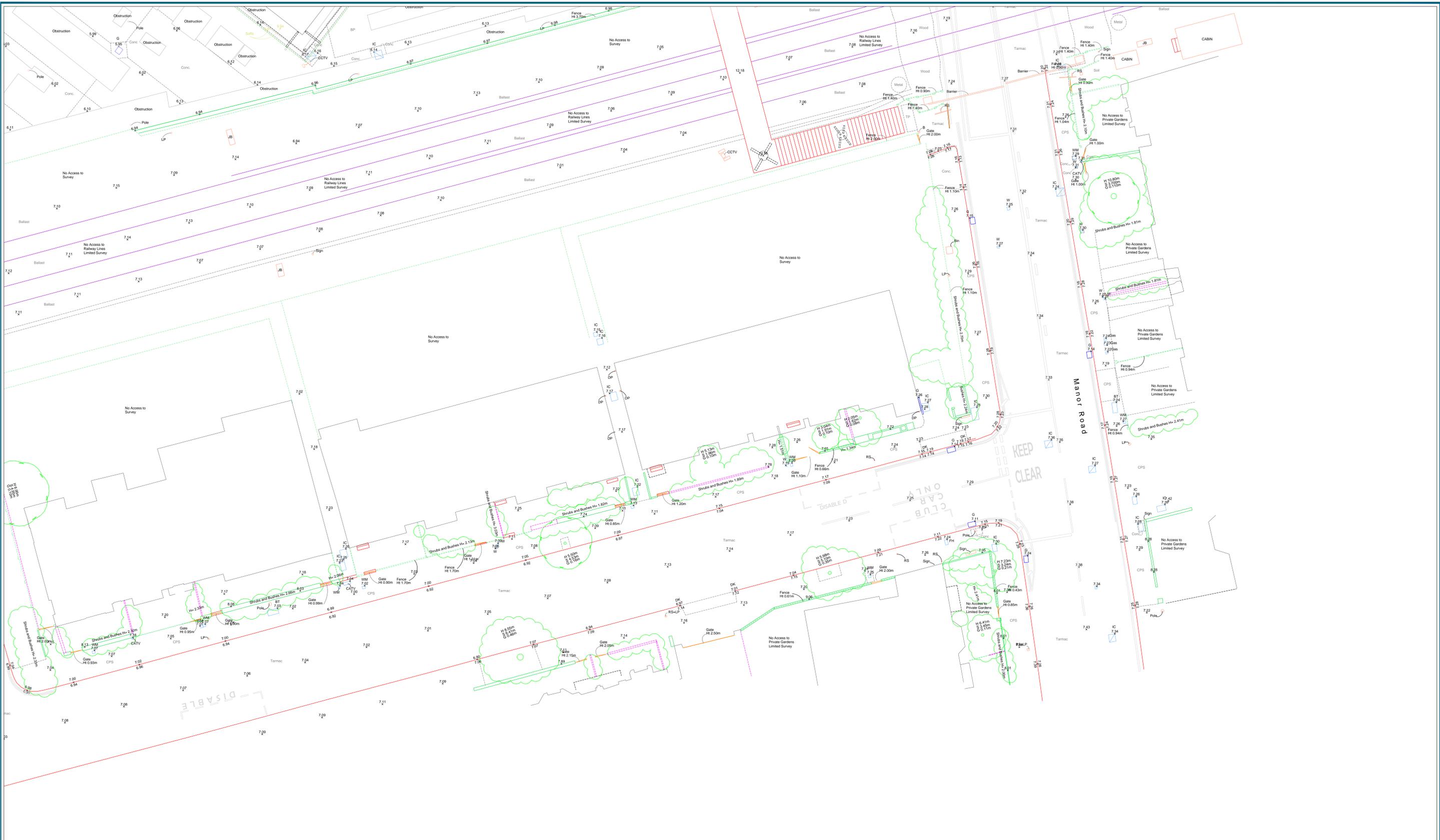


Drawn By: SB

Scale: 1:100 @ A0

Date: August 2018

Dwg No: LS2024/T/09RevA



Sources:
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 Survey location is related to Ordnance Survey Grid via GPS Observations.
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PL	Pavement Light		

S1	S2
S3	S4
S5	S6 S7
S8	S9 S10

Project: Homebase, Richmond

Drawn By: SB

Scale: 1:100 @ A0

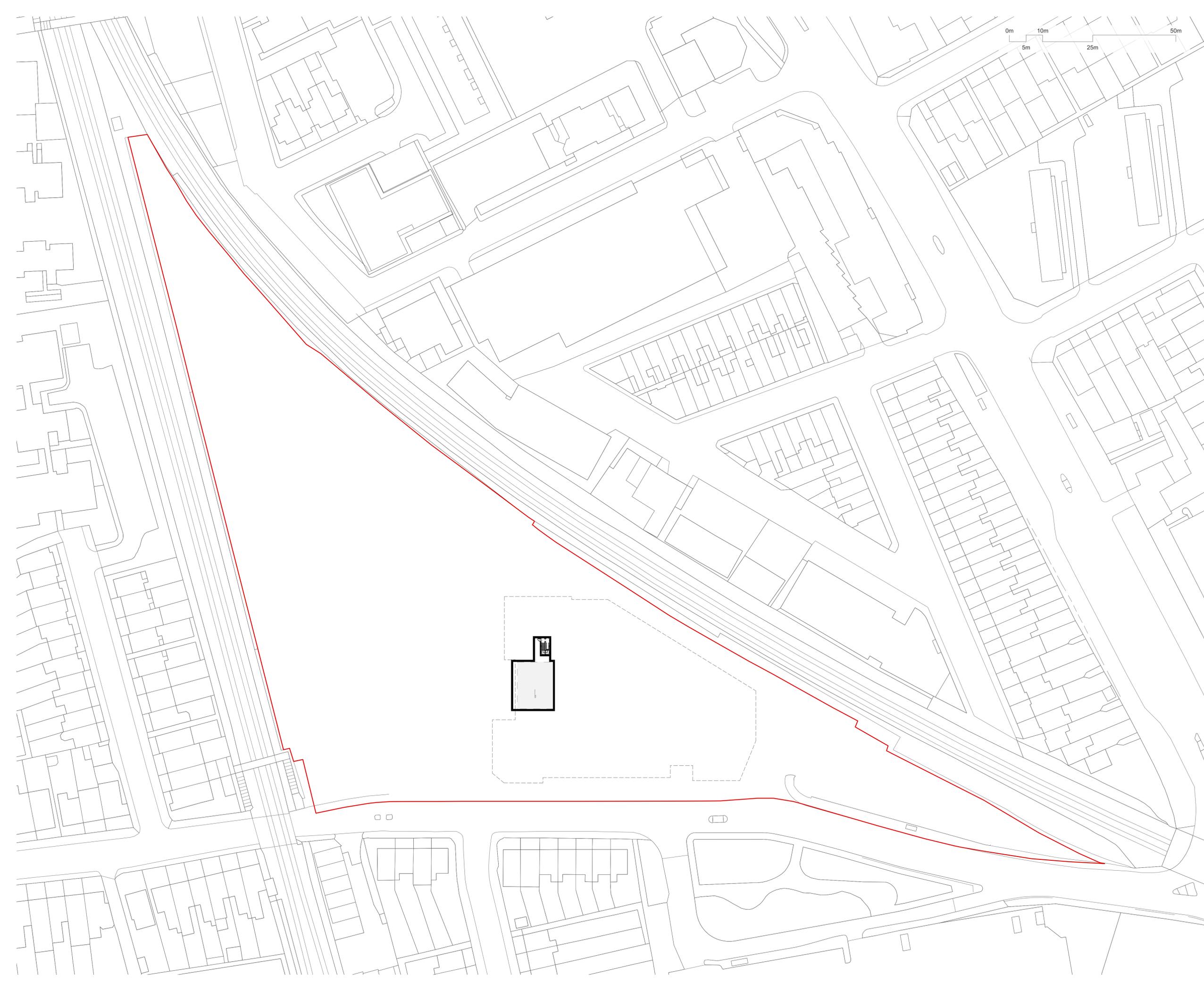
Date: August 2018

Title: Topographic Survey Sheet 10

Dwg No: LS2024/T/10RevA

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APPENDIX B
ARCHITECTURAL DRAWINGS



General notes

All setting out must be checked on site
 All levels must be checked on site and refer to Ordnance Datum Newlyn unless alternative Datum given
 All fixings and weathers must be checked on site
 All dimensions must be checked on site
 This drawing must not be scaled
 This drawing must be read in conjunction with all other relevant drawings, specification clauses and current design risk register
 This drawing must not be used for land transfer purposes
 Calculated areas in accordance with Assael Architecture's Definition of Areas for Schedules of Areas
 This drawing must not be used on site unless issued for construction
 Subject to survey, consultation and approval from all statutory Authorities

Revision Status:
 P= Preliminary
 C= Contract

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Drawing notes

Electronic file reference
 Enter Source Filename ' Eg AA Title Block'

Status R:	Revision	Date	DRN	CHK	CDM
13	Planning Issue	30/07/20	HB	JL	
14	For Information	23/04/21	TP	JL	
15	For Planning	05/11/21	HB	JL	

Key

	Studio	1 Bed	2B3P	2B4P	3 Bed
Market					
Shared Ownership					
London Affordable Rent					
London Living Rent					
Plant/Refuse/Bike Store					
Commercial					

Purpose of information

The purpose of the information on this drawing is for:

Planning	<input type="checkbox"/>
Information	<input checked="" type="checkbox"/>
Comment	<input type="checkbox"/>
Client approval	<input type="checkbox"/>
Construction	<input type="checkbox"/>

All information on this drawing is not for construction unless it is marked for construction.



Client

Avanton

Project title

**A3004
 Manor Road Richmond**

Drawing title

**GA Plans Proposed
 Basement**

Scale @ A1 size

1:500

Drawing N°

July '20

MNR-AA-ALL-B1-DR-A-1999

Status & Revision

R15

Assael

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 123 Upper Richmond Road
 London SW15 2TL

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 info@assael.co.uk
 www.assael.co.uk