FLOOD RISK ASSESSMENT

Land south of Chiswell Green Lane

Prepared for: Alban Developments Ltd and Alban Peter Pearson,
CALA Homes (Chiltern) Ltd and Redington Capital Ltd
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Glanville

Glanville Consultants is a multi-disciplinary engineering, design and surveying consultancy with the following expertise:

Structural Engineering | Transport and Highways
Civil Engineering | Geomatics | Building Surveying

Cornerstone House
62 Foxhall Road
Didcot
Oxfordshire OX11 7AD

Telephone: 01235 515550

Offices also at:

3 Grovelands Business Centre
Boundary Way
Hemel Hempstead
Hertfordshire HP2 7TE

Telephone: 01442 835999

postbox@glanvillegroup.com
www.glanvillegroup.com

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Executive Summary

This Flood Risk Assessment has been prepared to accompany an outline planning application associated with a development on land to the south of Chiswell Green Lane, near St Albans. The proposals include the provision of up to 391 dwellings and a 2 Form Entry (2FE) primary school with a capacity for 420 pupils.

The site had been identified Draft Local Plan for St Albans City and District as one of the "Broad Locations" for development to contribute towards addressing housing, infrastructure and other development needs over the period 2020 to 2036. Through the plan making process, it was recognised as a suitable Broad Location for release from the Green Belt, with the expectation that it would deliver a minimum of 365 dwellings.

Following the withdrawal of the Draft Local Plan from the Examination process, the City and District Council is preparing a new Local Plan and this site is being promoted once again for development.

St Albans City and District Council provided pre-application advice in January 2022 (Ref: PRE/2021/0177), which referred to advice and guidance on flooding and drainage from Hertfordshire County Council as Lead Local Flood Authority (LLFA). This report has been prepared in accordance with the relevant advice and guidance from the LLFA.

The report has also been prepared in accordance with the requirement of National Planning Policy Framework (NPPF), Planning Practice Guidance (PPG), flood risk and drainage guidance and with reference to the relevant Strategic Flood Risk Assessment.

This report has demonstrated that the proposed development:

- is in accordance with the National Planning Policy Framework;
- is in compliance with Local Policy and guidance listed in paragraphs 4.4 to 4.12 of this report including local Strategic Flood Risk Assessments and Flood Management Strategies;
- will not be at an unacceptable risk from fluvial flooding or other sources;
- will not increase flood risk elsewhere;
- will employ a surface water drainage strategy based on the principles of sustainable drainage; and
- will provide effective pollution mitigation measures for the surface water run-off from the proposed development, thereby avoiding any potential detrimental effects to groundwater.

Therefore, the site is considered suitable to accommodate the development proposed, and any potential impacts can be overcome through appropriate mitigation. As such, the proposals are considered to fully comply with National and Local planning policies in respect of flood risk and surface water drainage.

1.0 Introduction

1.1 This Flood Risk Assessment has been prepared by Glanville Consultants on behalf of Alban Developments Ltd and Alban Peter Pearson, CALA Homes (Chiltern) Ltd and Redington Capital Ltd to accompany an outline planning application associated with development on land to the south of Chiswell Green Lane, near St Albans. The proposals include the provision of up to 391 dwellings and a 2 Form Entry (2FE) primary school with a capacity for 420 pupils.

1.2 The site had been identified Draft Local Plan for St Albans City and District as one of the "Broad Locations" for development to contribute towards addressing housing, infrastructure and other development needs over the period 2020 to 2036. Through the plan making process, it was recognised as a suitable Broad Location for release from the Green Belt, with the expectation that it would deliver a minimum of 365 dwellings. Following the withdrawal of the Draft Local Plan from the Examination process, the City and District Council is preparing a new Local Plan and this site is being promoted once again for development.

1.3 St Albans City and District Council provided pre-application advice in January 2022 (Ref: PRE/2021/0177), which referred to advice and guidance on flooding and drainage from Hertfordshire County Council as Lead Local Flood Authority (LLFA). A copy of the advice from the Landscape / SuDS Officer at Hertfordshire County Council in a letter dated 11 November 2021 can be found at Appendix A.

1.4 The purpose of this document is to assess the existing level of flood risk to the site and its surroundings within the context of the development proposals and to demonstrate a suitable drainage strategy for the disposal of surface water from the site.

1.5 This assessment has been prepared in accordance with the National Planning Policy Framework (NPPF) and the Planning Practice Guidance (PPG) to the NPPF. It has also been prepared with reference to the relevant Strategic Flood Risk Assessment, published in August 2007, as well as South West Hertfordshire Level 1 Strategic Flood Risk Assessment – Final Draft – published in October 2018.

1.6 This assessment was undertaken with reference to information provided and/or published by the following bodies:

- Ordnance Survey;
- British Geological Survey;
- Affinity Water;
- Thames Water;
- St Albans City and District Council;
- Hertfordshire County Council; and
- Environment Agency.

1.7 This report concludes that the development is not at an unacceptable risk of flooding and the site can be developed safely without increasing flood risk elsewhere, and therefore the development proposals comply with relevant planning policy concerning flood risk. The report demonstrates that suitable provision for the disposal of surface water from the proposed development can be provided.

2.0 Site Description

Site Location & Description

2.1 The site comprises of agricultural land, a farmyard with stables and equine facilities, and a derelict farmhouse and outbuildings. The agricultural land is divided into four distinct fields separated by mature trees. The fields in the northern part are intensively grazed by horses whilst the fields in the south are currently unmanaged grassland.

2.2 The site is located adjacent to the village of Chiswell Green and is approximately 1.1km southeast of the cathedral city of St Albans. The northern boundary is formed by Chiswell Green Lane. The eastern and south-eastern boundaries are directly adjacent to the residential area of Chiswell Green with the site bordered by the gardens of the residential properties.

2.3 The site is located within the St Albans City and District Council authority area. The approximate centre of the site is located at Ordnance Survey National Grid reference TL 13104 04286 and the postcode is AL2 3EQ. The plan showing the extent of the site is included in Appendix B.

2.4 There is a small woodland area to the east of the site which is not included within the site boundary and sits between the site and the residential area. Beyond the western boundary of the site, a car park separates Miriam Lane from the western site boundary. Lying adjacent to Miriam Lane approximately 25m to the east is the site of the former 'Butterfly World' visitor attraction.

2.5 St Albans Polo Club lies approximately 80m northeast of the site with Chiswell Green Lane lying in. The M1 is 1.4km to the east and meets the M25 1.5km southeast of the site. The wider surrounding area comprises residential areas to the east and agricultural land to the west.

2.6 The site does not benefit from any planning history of relevance to the current proposals.

Existing Watercourses

2.7 The closest watercourses designated as a main river by the Environment Agency (EA) is the River Ver, located approximately 1.5km to the east of the site, which flows in a southerly direction.

Topographical Survey

2.8 Topographical surveys were carried out by Groundsurveys Ltd (Ref: 7290/06, date: January 2020), for the southern land parcel, and Greenhatch Group (Ref: 41518_T, date: September 2021), for the northern land parcel. The topographical surveys indicate that the site generally falls from a high point of approximately 101.72m AOD, adjacent to Chiswell Green Lane to the north of the site, to a low point of approximately 84.64m AOD to the southern corner of the site. The topographical surveys show the relatively steeply sloping nature of the site falling generally in a south-easterly direction. This constant fall across the site will assist in gravitating any run-off away from the proposed development. The topographical surveys are included in Appendix C.

Geological Characteristics

2.9 Geological records published by the British Geological Survey (BGS) indicate the entire site is likely to be underlain by bedrock geology comprising chalk from the Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated), as well as superficial deposits of sand and gravels from the Kesgrave Catchment Subgroup to the far north and south of the site. Extracts from BGS mapping are included in Appendix D.

2.10 Soilscapes mapping provided by Cranfield University on behalf of DEFRA shows that the site of the proposed development falls entirely on HOST soil class 6, which is described as "Freely draining slightly acid loamy soils". This soil type is described as being freely draining that drains to local groundwater. An extract from Cranfield University "Soilscapes" website is included in Appendix D.

Site Investigations

2.11 A Geo-Environmental Site Investigation was carried out by BRD Environmental Ltd for the southern land parcel between March and July 2020 verifying that ground conditions encountered were generally as expected from the anticipated geology shown on the available BGS geology maps, although superficial deposits were found across the entire land parcel. The site investigation report is included in Appendix E.

2.12 A total of 10 No. windowless sample boreholes and 22 No. trial pits were undertaken within the southern land parcel.

2.13 Superficial deposits of the Kesgrave Catchment Subgroup were recorded in all of the exploratory holes. These deposits were encountered as three different soil types, either gravelly, clay-rich or sandy soils. The thickness of these deposits is greater than 5.45m in some areas of the site.

2.14 Underlying the superficial deposits, the bedrock geology of the Lewes Nodular Chalk Formation and Seaford Chalk Formation was found in 6No. windowless sample boreholes and 4No. trial pit locations in two different areas of the site at depths between 1.70m and 4.10m bgl indicating an irregular undulating chalk surface beneath the superficial deposits. The Lewes Nodular Chalk Formation and Seaford Chalk Formation was typically described as 'structureless chalk excavated as off white, silty, clayey gravel.

2.15 Monitoring wells were installed in boreholes WS02, WS04, WS06, WS07 and WS10, to depths between 2.8m and 4.0m bgl. The 5 No. monitoring wells were found dry during the two monitoring visits carried out to date.

2.16 Trial pits TP01 to TP05 were utilised for soakage tests ranging from 2.00m to 2.70m depth. Due to the irregular undulating surface of the chalk across the site, the bedrock was only found in one of the proposed soakage pits (TP03).

2.17 Infiltration rates ranged between $6.68x10^{-7}$ m/s and $4.26x10^{-8}$ m/s. Given the infiltration rates recorded in TP01, TP02 and TP05, BRD concludes that the disposal of collected surface water to infiltration devices into the clay-rich soils of the Kesgrave Catchment Subgroup will be marginally feasible. The only exception was TP04 where surface granular soils and clay-rich soils with increased sand content gave better infiltration rates, ranging between $2.5x10^{-5}$ m/s and $3.9x10^{-5}$ m/s. Chalk was established in TP03 at a depth of 2.20m bgl and, as was expected, the infiltration rates were good ranging between $3.5x10^{-4}$ m/s and $3.7x10^{-4}$ m/s.

2.18 BRD states that in the areas where the chalk bedrock was recorded at shallower depth then soakaways could be considered. There may also be the potential to use deep borehole soakaways. There is also the possibility of using attenuation basins with trench excavated through their base to intercept the chalk bedrock with the trenches then backfilled with free draining gravel to provide a permeable pathway to facilitate infiltration into the chalk.

2.19 Furthermore, BRD states that the site has been classified with a moderate to high potential risk for solution features. It is considered that soakaways could concentrate rainfall ingress at the soakaway positions, which could result in the formation of solution features. As such, surface water drainage discharging into the chalk will require careful design. In particular, the potential to create dissolution features within the chalk by the ingress of water means that any soakaways should be located well away from foundations for buildings or roads. The guidance on this issue presented in CIRIA C574 is that for low to medium density chalk as proven at the site, soakaways should be sited a minimum of 20m away from any foundation.

Groundwater Vulnerability

2.20 The EA defines Source Protection Zones (SPZs) for groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The SPZs mapping indicates that the site is located within a SPZ II (Outer Protection Zone).

2.21 A Nitrate Vulnerable Zone (NVZ) is a conservative designation for areas of land that drain to nitrate polluted waters or waters which could become polluted by nitrates. The NVZs mapping indicates that the site is not located within a Surface Water NVZ.

2.22 The EA defines Drinking Water Safeguard Zones (SgZs) for water sources used for public drinking water supply. SgZs are catchment areas that influence the water quality for their respective Drinking Water Protected Area (Surface Water), which are at risk of failing the drinking water protection objectives. The site is located within a SgZ (Surface Water).

2.23 The bedrock Aquifer Designation Map published by the EA indicates that the bedrock underlying the site is classed as a Principal Aquifer. Principal Aquifers are layers of rocks that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage.

2.24 The superficial Aquifer Designation Map published by the EA indicates that the superficial drift to the far southern side of the site is classed as a Secondary A Aquifer. Secondary A Aquifers are permeable strata capable of supporting water supplies at a local rather than strategic scale and in some cases forming an important source of base flow to rivers.

Existing Surface Water Drainage

2.25 The incumbent drainage undertaker is Thames Water. From a review of Thames Water Asset Location plans, included in Appendix F, there are no public surface water sewers located within the site. The records indicate a 300mm diameter public surface water sewer along Chiswell Green Lane to the north-east of the site. The records also indicate public surface water sewers serving properties to the east and south of the site, along Hammers Gate, Forge End, Long Fallow and Watford Road. The surface water network at Forge End according to the asset plans discharge to a series of soakaways.

2.26 The records show only those sewers that are known to be maintained by Thames Water, other privately owned sewers may be present in the vicinity of the site that are not shown on public records.

3.0 Development Proposals

3.1 The proposal comprises the demolition of existing structures and construction of up to 391 dwellings (Use Class C3), the provision of land for a new 2FE primary school, open space provision and associated landscaping and new access arrangements.

3.2 The key components of the scheme comprise:

- up to 391 homes (of which 40% will be affordable and 60% private plots);
- land to construct a 2FE primary school;
- publicly accessible open space;
- publicly accessible children's play space;

3.3 The development will be split into two residential parcels separated by a Green Core at its centre.

3.4 It is proposed to provide three vehicular accesses into the site. Two of these will be on Chiswell Green Lane and will serve the northern residential development parcel and the future primary school.

3.5 The access to the southern parcel will connect with the northern end of the existing Forge End cul-de-sac which in turn will provide access to Watford Road. A secondary pedestrian / cycle / emergency access will be provided on Long Fallow.

3.6 An illustrative masterplan for the proposed development is provided in Appendix G.

3.7 A breakdown of the impermeable areas associated with the proposed development site is shown in Table 1.

Table 1: Proposed Impermeable Areas on Site

Catchment	**Area Description**	**Area (m^2)**
North Land Parcel	Roof areas and roads	32,085
	Total + 10% urban creep	**35,294**
South Land Parcel	Roof areas and roads	26,055
	Total + 10% urban creep	**28,661**

4.0 Planning Policy and Guidance

4.1 Set out below is a summary of the national and local planning policy and guidance relating to flood risk and surface water management that are relevant to the development proposals.

National

4.2 At a national level, the National Planning Policy Framework (NPPF) and the Planning Practice Guidance (PPG) to the NPPF ensure flood risk is taken into account at all stages of the planning process, to avoid inappropriate development in areas at risk of flooding and to direct development towards areas at lowest flood risk. The NPPF retains a risk-based approach to the planning process and defines four Flood Zones to be used as the basis for applying the sequential test to consider a development in terms of Flood Risk Vulnerability Classifications, which define the type of development that is considered appropriate within each zone.

4.3 The NPPF establishes the Flood Zones as the starting point for assessment with the overarching aim to steer new development to areas with the lowest probability of flooding. The Flood Zones are defined as follows:

- Flood Zone 1 (Low Probability) comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).
- Flood Zone 2 (Medium Probability) comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.
- Flood Zone 3a (High Probability) comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
- Flood Zone 3b (The Functional Floodplain) comprises land where water has to flow or be stored in times of flood.

Local Policy and Guidance

Dacorum Borough Council, St Albans City & District Council, Three Rivers District Council and Watford Borough Council Strategic Flood Risk Assessment (SFRA), August 2007

4.4 This SFRA was produced by these four councils to inform their planning process. The SFRA summarises the main causes of flooding in the district and key historic incidents and includes flood maps of the district.

4.5 The SFRA provides a reference and policy document to advise and inform developers of their obligations under the NPPF. The maps and accompanying report and guidance provide a sound framework enabling consistent and sustainable decisions to be made when making future planning decisions.

South West Hertfordshire Level 1 Strategic Flood Risk Assessment (SFRA), Final Draft, October 2018

4.6 This SFRA 2018 document for South West Hertfordshire replaces the Level 1 SFRA originally published by Dacorum Borough Council, St. Albans City and District Council, Three Rivers District Council and Watford Borough Council in August 2007. The purpose of this study is to provide a comprehensive and robust evidence base to support the production of Local Plans for the four Councils.

Hertfordshire County Council Local Flood Risk Management Strategy (LFRMS 2), 2019 – 2029

4.7 The aim of this Local Flood Risk Management Strategy, adopted in February 2019, is to give an understanding of local flood risk in Hertfordshire and the actions that will be taken to manage it most appropriately within available resources.

Hertfordshire County Council LLFA Summary Guidance for Developers, updated August 2021

4.8 The guidance provides a summary of information and a developer's checklist to assist with producing satisfactory Surface Water Drainage Assessment / Flood Risk Assessment for development in accordance with national planning policy.

Environment Agency's Approach to Groundwater Protection Guidance, Version 1.2, February 2018

4.9 This document contains position statements which provide information about the Environment Agency's approach to managing and protecting groundwater. It details how the Environment Agency delivers government policy for groundwater and adopts a risk-based approach where legislation allows.

4.10 The primary aim of the position statements is the prevention of pollution of groundwater and protection of it as a resource. Groundwater protection is long term, so these principles and position statements aim to protect and enhance this valuable resource for future generations.

Policy 84 – Flooding and River Catchment Management – and Policy 84A – Drainage Infrastructure – from the City and District of St Albans District Local Plan Review 1994 – Saved Policies, July 2020

4.11 The Council will consult with the National Rivers Authority (now the Environment Agency) on all matters likely to affect the water environment to reduce the risk of flooding and to ensure proper management of the river catchment.

4.12 The Council will consult Thames Water Utilities and the National Rivers Authority (now the Environment Agency) on all planning applications that might cause sewerage flooding.

5.0 Sources of Potential Flooding

5.1 Flood risk to the site has been considered from all likely sources of flooding, as defined in the NPPF and the Planning Practice Guidance to the NPPF. These include tidal, artificial sources (reservoir), fluvial, surface water, sewer and groundwater. The following paragraphs consider flood risk to the site from all these sources.

Tidal

5.2 Given that there is no tidally influenced watercourse on or within the vicinity of the site, tidal flooding is not an issue that would prevent the development of the site.

Fluvial

5.3 The Environment Agency (EA) publishes its Flood Map for Planning on the GOV.UK website which shows the maximum extent of fluvial flooding. The mapping indicates that the site is located within Flood Zone 1, beyond the limits of the 1 in 1,000-year fluvial flood event (<0.1%). It is therefore considered that the risk of fluvial flooding to the development is very low. An extract from the GOV.UK database is included within Appendix H.

Surface Water

5.4 The EA publishes a Flood Risk from Surface Water map on the GOV.UK website which indicates the predicted risk of surface water flooding in the event that rainwater does not drain away through normal drainage systems or soak into the ground. The mapping indicates that most of the site is at 'very low' risk of surface water flooding, with an annual probability of flooding of less than 1:1,000.

5.5 An isolated area to the south corner of the site is at 'low' (between 1:100 and 1,000 annual probability) and 'medium' (between 1:30 and 1:100 annual probability) risks of surface water flooding. An extract from the GOV.UK surface water flood map is included within Appendix I.

5.6 Since the EA Surface Water Flood Risk modelling does not consider either normal drainage systems or ground infiltration, the abovementioned isolated area is related to ground depressions which facilitate some surface water ponding. The topographic survey verifies this assumption by showing a lower ground level in that location.

5.7 The SFRAs (2007 and 2018) include records of historical surface water flooding incidents. They indicate that there have been no recorded surface water flooding incidents in Chiswell Green.

5.8 Therefore it is reasonable to conclude that the risk of surface water flooding is low and not an issue that would prevent the development of the site.

Reservoir

5.9 The EA publishes indicative mapping on the GOV.UK website which shows the maximum extent of reservoir flooding in the unlikely event that a reservoir should fail. The mapping indicates that the entire the site is located outside of a reservoir flood risk area. Therefore, reservoir flooding is not considered to be an issue that would prevent the development of the site for its intended end use.

Sewer

5.10 The SFRAs (2007 and 2018) includes data from Thames Water DG5 sewer flooding register. This register provides information on the number of recorded sewer flooding incidents by postcode area. The SFRA 2007 indicates that 20 properties have been flooded form overloaded sewers in the last ten years in the postcode area associated with the site (AL2). While the SFRA 2018 indicates a total of 10 recorded incidents of sewer flooding occurring within the AL2 3 postcode area.

5.11 It should be noted that maintenance work may have been undertaken by Thames Water or since the flooding incidents occurred and therefore the risk may have been reduced or removed. As such, these records do not necessarily represent the current of future sewer flood risk situation.

5.12 As previously noted in Section 2 of this report, there are currently no public foul or surface water sewers within the proposed development site.

5.13 It is therefore reasonable to conclude that the risk of sewer flooding to the site is low and is not an issue that would prevent the development of the site for its intended use.

Groundwater

5.14 The SFRA (2007) indicates that groundwater flooding occurred in the River Ver catchment in the Winter of 2000/01. This was limited to dry valleys, particularly high in the headwaters of the Ver. The cause of the groundwater flooding was thought to be exacerbated by developments on the floodplain further downstream. The SFRA indicated that the recorded incidents of groundwater flooding were not located on or in the vicinity of the site.

5.15 The updated SFRA (2018) states that the highest levels of groundwater flood risk are identified around the Tring Reservoirs and in the chalk valleys of the Rivers Bulbourne, Gade, Lee, Ver and Colne, where groundwater levels are estimated to lie within 0.025m of the ground surface. High groundwater levels of approximately 0.025m to 0.5m below the ground surface are across the east of the study area, affecting north-east St Albans.

5.16 The JBA Groundwater Flood Map from the updated SFRA (2018) for South West Hertfordshire indicates groundwater levels of approximately 0.025m to 0.5m below the ground surface within the site.

5.17 As described in Section 2, windowless sample boreholes and trial pits, along with groundwater monitoring visits, carried out by BRD Environmental Ltd during site investigation works confirm that no groundwater was found within the boreholes. In addition, no basements will be proposed for the development site and proposed mitigation measures will be provided to protect the development against surface water flooding, which would also positively deal with with any likely groundwater flood event. Therefore, the risk of groundwater flooding is considered to be low, and no special measures are required to mitigate this risk in the design of the development.

Historic Flooding

5.18 The SFRAs (2007 and 2018) include historic flooding data which includes locations of known historical flood incidents. These maps indicate that there have been no historical flood incidents within the site boundary or surrounding area.

Summary

5.19 The site is located entirely within Flood Zone 1, which is land at the lowest risk of fluvial flooding and is at very low risk from all other potential sources of flooding.

6.0 Flood Risk Assessment

Fluvial

6.1 The NPPF encourages a sequential, risk-based approach to determine the suitability of land for development. This document advises that the development of sites within Flood Zone 1 should be given preference where available.

6.2 Table 2 of the Planning Practice Guidance to the NPPF categorises different types of development into five flood risk vulnerability classifications:

- Essential Infrastructure;
- Highly Vulnerable;
- More Vulnerable;
- Less Vulnerable; and
- Water Compatible Development.

6.3 The NPPF classifies residential development and non-residential educational establishments as being 'More Vulnerable' in flood risk terms. Table 3 of the PPG states that 'More Vulnerable' development is compatible with Flood Zones 1 and 2.

6.4 As discussed in Section 5 of this report, the entire site is located within Flood Zone 1. Table 3 of the PPG states that all uses are appropriate within Flood Zone 1. Therefore, the proposed development uses are compatible with the flood zone of the site and developing the site for its intended purposes is considered appropriate in terms of flood risk. As such, the Sequential Test and Exception Test do not need to be applied to this development.

Surface Water

6.5 The risk of surface water flooding to the site is very low, with an annual probability of flooding of less than 1:1,000. However, the proposed development would cause an increase in terms of impermeable area and the respective increase in run-off, which would need to be appropriately managed to ensure flood risk does not increase.

6.6 A suitable drainage strategy will offer protection against surface water flooding by providing a positive drainage system, which will intercept overland flows generated within the site. The drainage system will be designed to ensure that no flooding takes place up to and including the design rainfall event (1 in 100 year return period), with additional capacity within the system to allow for the potential future effects of climate change.

6.7 Therefore, after applying this drainage strategy (described in Section 7), surface water flooding is not considered to be an issue that would prevent the development of the site for its intended end use.

Other Sources

6.8 A review of sources of potential flooding in Section 5 of this report has concluded that there is a low risk to the proposed development from all other sources of flooding examined. As such, no flood risk mitigation measures are necessary.

7.0 Surface Water Drainage

7.1 The PPG recommends that priority should be given to the use of Sustainable Drainage Systems (SuDS) as they are designed to control surface water run-off where it falls and mimic natural drainage characteristics as closely as possible. Source control techniques will be incorporated into the drainage strategy to ensure that surface water run-off is managed as close to source as possible. Sustainable drainage systems (SuDS) also provide opportunities for the following:

- Reducing the causes and impacts of flooding;
- Removing pollutants from urban run-off at source; and
- Combining water management and green space with benefits for amenity, recreation and wildlife.

7.2 SuDS encompass a wide range of drainage techniques intended to minimise the rate of discharge, volume and environmental impact of run-off and include:

- pervious pavements;
- swales and basins;
- green roofs and rainwater reuse;
- infiltration trenches and filter drains; and
- ponds and wetlands.

7.3 When used across a site these techniques control the rate of discharge, attenuate flow, provide storage and improve water quality. The combination of techniques that are appropriate will be dependent upon ground conditions, topography and other site-specific characteristics.

7.4 The Building Regulations part H3 stipulates that rainwater from roofs and paved areas is carried away from surface to discharge to one of the following, listed in order of priority:

a) An adequate soakaway or some other adequate infiltration system; where that is not practical;
b) A watercourse; or, where that is not practical
c) A sewer.

7.5 Infiltration based techniques, such as porous paving and soakaways, are high up in the hierarchy of techniques available due to the ability for close to source dispersion of surface water. These techniques are considered the closest solution to mimic the natural drainage of undeveloped sites.

Groundwater Source Protection Zone

7.6 As shown in Section 2, the development site is located in a Source Protection Zone 2 (Outer Protection Zone). As such, the proposed surface water drainage strategy has been designed in accordance with the Environment Agency's Approach to Groundwater Protection Guidance, Version 1.2 (February 2018).

7.7 The Environment Agency may object in principle to, or refuse to permit, some activities or developments if they have potential to adversely affect groundwater. However, it should be noted that SPZs and aquifer designation are not site-specific risk assessments. The Environment Agency uses them as generic indicators of risk. Developers or operators may need to supply site-specific information to demonstrate that the risks are acceptable and can be mitigated.

7.8 The Environment Agency's guidance states that some discharges to ground, such as clean roof drainage or highway drainage, may not require permits. However, they can still have the potential to cause pollution if the discharge is not carefully designed or managed.

7.9 The discharge of clean roof water to ground is acceptable both within and outside SPZ1, provided that all roof water down-pipes are sealed against pollutants entering the system from surface water run-off, effluent disposal or other forms of discharge. The method of discharge must not create new pathways for pollutants to groundwater or mobilise contaminants already in ground. No permit is required if the above criteria can be met.

7.10 The Government's expectation is that sustainable drainage systems (SuDS) will be provided in new developments wherever this is appropriate. The Environment Agency supports this expectation. Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should:

- be suitably designed;
- meet Government's non-statutory technical standards for sustainable drainage systems – these standards should be used in conjunction with the NPPF and PPG; and
- use a SuDS management treatment train – that is, use drainage components in series to achieve a robust surface water management system that does not pose an unacceptable risk of pollution to groundwater.

7.11 In addition, the CIRIA document C753 'The SuDs Manual' (2015) states that in England and Wales, where the discharge is to protected surface waters or groundwater, an additional treatment component (i.e. over and above that required for standard discharges), or other equivalent protection, is required that provides environmental protection in the event of an unexpected pollution event or poor system performance.

7.12 A number of SuDS components in series (forming a management train) through a development site facilitates the capture, conveyance and storage of surface water run-off while delivering interception and pollution risk management.

7.13 Therefore, in accordance with Hertfordshire County Council pre-application advice, a robust surface water drainage strategy has been designed for this site, as shown in the following paragraphs, by using different SuDS features established in 'cascade' (i.e. in-line) in order to provide a suitable SuDS management train, as well as potential ecological and biodiversity benefits to the proposed development site.

Sustainable Drainage

7.14 The choice of SuDS features has been assessed against site / development constraints. Table 2 includes details of various SuDS features as set out in the SuDS Manual and identifies those features most suited for Highbury Works.

Table 2: SuDS Features

SuDS Feature	Description	Water Quality	Amenity	Biodiversity	Site-Specific Suitability
Rainwater harvesting	Systems that collect runoff from roofs / surfaces for re-use		Y		Use of these features will be considered on a plot-by-plot basis at detailed design stage.
Green roofs	Planted soil layers on flat roofs that slow and store runoff	Y	Y	Y	
Filter strips	Grass strips that promote sedimentation and filtration as water flows over the surface	Y	Y	Y	Filter strips could be provided adjacent to hardstanding areas to replace conventional piped systems within the development wherever appropriate, conveying water to downstream SuDS features.
Filter drains	Shallow stone-filled trenches that provide attenuation, conveyance and treatment	Y	Y	Y	Swales provide higher pollution mitigation measures compared to filter drains, so these SuDS features were not considered for this site.
Swales	Vegetated channels used to convey and treat runoff	Y	Y	Y	Swales will be provided along the edge of the major access roads, which will collect and treat run-off from the road.
Trees / bio-retention	Trees within soil-filled tree pits, tree planters or structural soils used to collect, store and treat runoff	Y	Y	Y	Tree pit systems and bioretention systems could be used to enhance other features, such as swales and filter strips. Tree pits will be provided along the edge of the major access road, along the swales, to enhance water quality entering the downstream features.
Raingarden	Shallow landscaped depressions used to collect, store and treat runoff	Y	Y	Y	Use of these features will be considered on a plot-by-plot basis at detailed design stage.
Infiltration systems	Systems that collect and store runoff, allowing it to infiltrate into the ground	Y	Y	Y	Infiltration basins will be used to provide attenuation and treatment of run-off prior discharging into the underlying chalk strata via deep boreholes.

Pervious pavements	Paving through which runoff soaks and is stored in the sub-base beneath, and/ or allowed to infiltrate into the ground	Y	Y	Y	Pervious paving with lined sub-base will be used to collect and treat run-off from shared surface streets and private drives.
Attenuation storage (geo-cellular storage tanks)	Below-ground geo-cellular crates used to temporarily store run-off before infiltration, controlled release or use	Y	Y	Y	Above-ground SuDS features have been prioritized over geo-cellular storage tanks, so these SuDS features were not considered for this site.
Detention basins	Vegetated depressions that store and treat runoff	Y	Y	Y	Attenuation basins will be used to provide attenuation and treatment of run-off.
Ponds and wetlands	Permanent pools of water used to treat runoff with storage above the pool	Y	Y	Y	Due to the use of infiltration basins within the drainage design, these SuDS features were not considered for this site.

7.15 A Drainage and SuDS Strategy is included in Appendix J which indicates proposed SuDS features to be incorporated within the development, in accordance with Hertfordshire County Council's requirements, which are described below.

Proposed Surface Water Drainage Strategy

7.16 The proposed strategy strives to utilise sustainable drainage techniques in accordance with the guidance described in CIRIA document C753 'The SuDS Manual' (2015) to accommodate run-off from all rainfall events up to and including the 1 in 100-year event, with a 40% allowance for climate change.

7.17 The proposed surface water drainage system has been designed to adoptable standards in accordance with *Sewers for Adoption (7th Edition)* to produce a robust design.

7.18 As discussed in Section 2 of this report, site investigation works carried out by BRD Environmental Ltd within the southern land parcel concluded that the disposal of collected surface water to infiltration devices into the clay-rich soils of the Kesgrave Catchment Subgroup will be marginally feasible and therefore recommended discharging into the underlying chalk bedrock using deep boreholes.

7.19 Due to the similarity between the northern and southern land parcels in terms of geological characteristics and ground conditions, as shown in Section 2 of this report, the drainage strategies for both parcels have been designed following the same approach.

7.20 All surface water run-off from the proposed development is to be discharged by gravity to infiltration basins to provide sufficient storage volumes before discharging to the underlaying chalk bedrock via deep boreholes, with no direct discharges off-site.

7.21 The initial surface water drainage proposals will provide SuDS storage for both northern and southern land parcels, maximising the use of above ground storage and source control as described below.

Northern Catchment

- Two above-ground infiltration basins in the open space in the south-east corner of the catchment (in the centre of the wider site), established in cascade.
- An above-ground attenuation basin discharging into the aforementioned downstream infiltration basin at a restricted rate.
- An additional above-ground attenuation basin whereby excesses from the aforementioned infiltration basins will be discharged into the downstream drainage system allocated within the southern land parcel at a restricted rate.

Southern Catchment

- Three above-ground infiltration basins in the open space area to the south-east, behind the treeline and in the landscape buffer in the south-west corner of the site.

7.22 Surface water run-off from the proposed major access roads will be drained towards kerb inlets established along the road margins and then discharged into tree pits and swales established along the edge of the roads. Run-off will be then treated and conveyed towards the underground drain established beneath the access road, thereby allowing water to flow into the pipework downstream towards the infiltration basins. These SuDS features will provide a first level of water quality treatment. Filter strips could also be accommodated alongside the access road within the development to provide a further level of treatment, if required.

7.23 The proposed shared surface streets and private drives are proposed to be constructed with permeable surfacing and a lined / tanked sub-base constructed with a minimum 30% void ratio. This construction will provide attenuation storage as well as a first level of water quality treatment.

7.24 The proposed shared surface streets and private drives will drain under their own footprint into the porous sub-base beneath. Perforated pipes will be provided in trenches below the permeable paving, with gravel around the pipe to connect with the pavement, thereby allowing water to flow into the pipework downstream towards the infiltration basins. The sub-base formation level will fall towards the perforated pipes.

7.25 Attenuation basins will be established within the northern land parcel in order to provide additional surface water storage, before discharging into the adjacent downstream infiltration basin located in the open space (in the centre of the wider site) and into the downstream drainage system allocated within the southern land parcel at a restricted rate.

7.26 The site investigation carried out by BRD Environmental Ltd, described in Section 2 of this report and provided in Appendix E, recorded infiltration rates of the order of 10^{-4}m/s in the chalk bedrock, which are indicative of good drainage characteristics. As such, deep borehole soakaways will be assigned to the base level of the infiltration systems, to reach the chalk bedrock (Lewes Nodular Chalk and Seaford Chalk Formations) and allow run-off from the proposed development to infiltrate into the underlying chalk bedrock.

7.27 A maximum infiltration rate of 1.0l/s has been considered for each borehole soakaway as an initial approach. As such, by establishing minimum offset distances of 10m between boreholes and 20m between boreholes and adjacent building foundations, a maximum number of 13 boreholes have been allocated to the infiltration features of the northern land parcel, giving a total infiltration rate of 13.0l/s, and 14 boreholes for the southern land parcel, giving a total infiltration rate of 14.0l/s.

7.28 As shown in Section 3 of this report, the total impermeable area of the proposed development within the northern land parcel is approximately 3.53ha, while the total impermeable area of the southern land parcel is approximately 2.87ha, which also include the areas allocated to the proposed shared surface streets and private drives, which will be built using permeable materials. A 10% allowance for urban creep has been included within the proposed impermeable areas in accordance with the Hertfordshire County Council Local Flood Risk Management Strategy (LFRSM 2).

7.29 For the northern land parcel, results from the MicroDrainage model show that two infiltration basins with base areas between 291m^2 and 411m^2 and depths between 1.4m and 1.7m, along with two attenuation basins with base areas between 181m^2 and 176m^2 and depths between 1.4m and 1.09m, would be capable of managing run-off from the impermeable surface areas during the 1:100 year+40%CC rainfall event. Both infiltration and attenuation basins have been designed with sides slopes of 1/3 between the basin and the adjacent trees and roads and 1/6 between the basins and those areas publicly accessible.

7.30 A maximum of 13no. deep boreholes has been established within the base level of the basins. The infiltration and attenuation basins would reach a maximum flood depth of between 1.67m and 1.07m, as well as maximum storage volume of between 1,123m^3 and 311m^3.

7.31 For the southern land parcel, results from the MicroDrainage model show that three infiltration basins with base areas between 427m^2 and 169m^2, depths between 1.0m and 1.57m and with sides slope of 1/3, would be capable of managing run-off from the impermeable surface areas during the 1:100 year+40%CC rainfall event. The infiltration basins would reach a maximum flood depth of between 0.87m and 1.47m, as well as maximum storage volume of between 1,113m^3 and 208m^3.

7.32 Due to the good infiltration rates recorded in the chalk bedrock and MicroDrainage model results showing the system draining from full to half full within 24 hours, it has been concluded that infiltration basins will only show standing water at times of exceptionally heavy rainfall events when people and local residents would not choose to be outside using the public open space allocated for these SuDS features. On this basis, MicroDrainage results indicate that water within the infiltration basins would swiftly drain into the underlying soil strata, and therefore these basins would be dry and useable as public open space the vast majority of the time.

7.33 Refer to Appendix K for the full hydraulic calculations for the SuDS features and surface water drainage network.

7.34 The indicative surface water drainage strategy is presented in Appendix J.

7.35 At source techniques, such as rainwater harvesting, green roofs and raingardens, will be considered on a plot-by-plot basis at detailed design stage. These will reduce the rate and/or volume discharging into downstream SuDS features, as well as providing additional water quality treatment.

7.36 As discussed in Section 6, the proposed drainage strategy will provide protection against any surface water flood risk by providing a positive drainage system, which will intercept overland flows generated within the site. Existing flow routes though the site will also be preserved. The development layout incorporates road routes throughout the site, whereby any potential overland exceedance flows would be routed via the road network, away from buildings.

Summary

7.37 The proposed surface water drainage strategy is in accordance with Building Regulations Part H where discharging run-off by infiltration to ground is the most appropriate drainage solution.

Pollution Control

7.38 The use of SuDS on the site would help to remove urban pollutants from run-off before discharge to the ground or watercourses.

7.39 The SuDS Manual indicates that a SuDS management train is a robust pollutant removal strategy. Using a number of different SuDS components in series will help target a good range of particulate-bound and dissolved pollutants, will deliver gradual improvement in water quality and will act as a buffer for accidental spills and intermittent high pollutant loads. The SuDS Manual verifies the suitability of different SuDS components, including pervious pavement, bioretention, swales and basins within the management train as are proposed in this case.

7.40 Due to the surface water disposal from the infiltration basins via deep boreholes distributed at different locations of the base, it is concluded that pollutant mitigation measures from the infiltration basins could be comparable with those of 'detention' basins.

7.41 Detention basins provide a useful stage in pollution control; the slowing of flows allows the settlement of suspended solids and allows biological uptake of pollutants by plants, algae and bacteria. Basins can also deliver biodiversity, ecology and amenity benefits to a development.

7.42 The Pollution Prevention Guidance advises that oil interceptors may not be required if SuDS are used within a development. The need for interceptors will be assessed when detailed proposals for the development are available.

Maintenance and Adoption

7.43 SuDS serving single properties will be owned and maintained by the owner of that property.

7.44 SuDS serving more than one property would be the responsibility of the local authority or private management company as appropriate. The maintenance of above ground features within open space areas could be undertaken by the local authority or by a private management company as appropriate, with the outlets and underlying pipework maintained by a private management company.

7.45 Suitable adoption and maintenance regimes for SuDS will be developed when detailed proposals for the development are available.

8.0 Summary and Conclusions

Summary

8.1 This Flood Risk Assessment has been prepared by Glanville Consultants on behalf of Alban Developments Ltd and Alban Peter Pearson, CALA Homes (Chiltern) Ltd and Redington Capital Ltd to accompany an outline planning application associated with development on land to the south of Chiswell Green Lane, near St Albans. The proposals include the provision of up to 391 dwellings and a 2 Form Entry (2FE) primary school with a capacity for 420 pupils.

8.2 The site had been identified Draft Local Plan for St Albans City and District as one of the "Broad Locations" for development to contribute towards addressing housing, infrastructure and other development needs over the period 2020 to 2036. Through the plan making process, it was recognised as a suitable Broad Location for release from the Green Belt, with the expectation that it would deliver a minimum of 365 dwellings. Following the withdrawal of the Draft Local Plan from the Examination process, the City and District Council is preparing a new Local Plan and this site is being promoted once again for development.

8.3 St Albans City and District Council provided pre-application advice in January 2022 (Ref: PRE/2021/0177), which referred to advice and guidance on flooding and drainage from Hertfordshire County Council as Lead Local Flood Authority (LLFA). This report has been prepared in accordance with the relevant advice and guidance from the LLFA.

8.4 This assessment has also been prepared in accordance with the requirement of National Planning Policy Framework (NPPF), Planning Practice Guidance (PPG), flood risk and drainage guidance and with reference to the relevant Strategic Flood Risk Assessments.

8.5 The site is located entirely within Flood Zone 1, which is land at the lowest risk of fluvial flooding and is at very low risk from all other potential sources of flooding.

8.6 Site investigation works carried out by BRD Environmental Ltd within the southern land parcel concluded that the disposal of collected surface water to infiltration devices into the clay-rich soils of the Kesgrave Catchment Subgroup will be marginally feasible and therefore recommended discharging into the underlying chalk bedrock using deep boreholes.

8.7 Due to the similarity between the northern and southern land parcels in terms of geological characteristics and ground conditions, the drainage strategies for both parcels have been designed following the same approach.

8.8 All surface water run-off from the proposed development is to be discharged by gravity to infiltration basins in order to provide sufficient storage volumes before discharging to the underlaying chalk bedrock via deep boreholes, with no direct discharges off-site, maximising the use of above ground storage and source control.

8.9 The proposed surface water drainage scheme will provide storage for the 1 in 100 year plus 40% climate change event without flooding from surface water.

8.10 As well as allowing infiltration and attenuation, the drainage strategy employed will also include SuDS measures as part of a robust treatment train, including pervious pavement, bioretention, swales and basins, to degrade pollutants, improve the quality of surface water discharged to the ground and protect groundwater.

8.11 Suitable adoption and maintenance regimes for SuDS will be developed when detailed proposals for the development are available.

Conclusion

8.12 In conclusion, this report has demonstrated that the proposed development:

- is in accordance with the National Planning Policy Framework;
- is in compliance with Local Policy and Guidance listed in paragraphs 4.4 to 4.12 of this report, including local Strategic Flood Risk Assessments and Flood Management Strategies;
- will not be at an unacceptable risk from fluvial flooding or other sources;
- will not increase flood risk elsewhere;
- will employ a surface water drainage strategy based on the principles of sustainable drainage; and
- will provide effective pollution mitigation measures for the surface water run-off from the proposed development, thereby avoiding any potential detrimental effects to groundwater.

8.13 Therefore, the site is suitable to accommodate the development proposed, and any potential impacts can be overcome through appropriate mitigation. As such, the proposals are considered to fully comply with National and Local planning policies in respect of flood risk and surface water drainage.

Appendices

Appendix A

Hertfordshire County Council's Pre-Application Advice

Director of Environment & Infrastructure:
Mark Kemp

Hertfordshire

[redacted]

[redacted]

RE: 5/2021/2905 – Land South of Chiswell Green Lane, St Albans, Hertfordshire

Dear Ruth,

Thank you for consulting us on the above application for the Screening Opinion – Development of between 415 – 450 residential dwellings, a new two form entry primary school, landscaping, and support infrastructure.

As the Lead Local Flood Authority, we will assess Surface Water Drainage Assessments and Flood Risk Assessments as part of a formal full / outline application. An FRA / Surface Water Drainage Assessment should be carried out to demonstrate that the proposed development will not create an increased risk of flooding from surface water to the development site and the surrounding area. It should be carried out in accordance with the National Planning Policy Framework and the National Planning Practice Guidance.

Due to the nature of the development, we will expect the development to demonstrate that the surface water drainage from the development can be managed in a suitable manner, giving priority to above ground storage and source control. By giving preference to infiltration, then discharge to a watercourse thereafter surface water sewer. The development should also seek to manage the flow route on site.

We would expect any FRA submitted to support any future planning applications to demonstrate that the proposed drainage system can be designed to cater within the site and the post development surface water run-off rates and volumes for its lifetime for all rainfall events up to and including the 1 in 100-year rainfall event + 40% allowance for climate change. The FRA should also demonstrate that any existing areas of surface water flood risk can be managed within the site without increasing flood risk elsewhere.

Where it will be proposed to infiltrate ground investigations should be carried out and provided within the FRA. This should include detailed assessment of ground conditions, groundwater levels, permeability of the underlying geology, with infiltration tests carried

out in accordance BRE Digest 365. The FRA should also demonstrate that there will be sufficient surface water quality treatment by implementing an appropriate amount of water quality treatment stages through the use of SuDS. We would recommend a minimum of two SuDS treatment stages should be provided to manage any potential contaminants from surface water run-off from car parking areas and access roads.

We note the site lies over a groundwater source protection zone 2 Outer catchment Source protection zone. For this reason, we recommend the applicant to implement appropriate treatment stages in case infiltration is considered as means of discharge for the surface water. The applicant should also consider consulting the Environment Agency in relation to water quality.

Details of required maintenance of any SuDS features and structures and who will be adopting these features for the lifetime of the development should be provided. It is up to the Local Planning authority to ensure that the drainage/SuDS system can be managed for the lifetime of the development.

For further guidance on HCC's policies on SuDS, HCC Developers Guide and Checklist and links to national policy and industry best practice guidance please refer to our surface water drainage webpage:

https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/water/surface-water-drainage/surface-water-drainage.aspx#

Please note that if the LPA decides to grant planning permission we wish to be notified for our records.

Appendix B

Location Plan

Notes:
The contractor must verify all dimensions on site before commencing any work on shop drawings, do not scale from this drawing
McBains Ltd copyright

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KEY:

Planning Application Boundary

Revision	Amendment	Date
P5	Issued for planning approval	30.03.2022
P5d	Issued for comments	30.03.2022
P4	Issued for comments	28.03.2022
P3	Issued for comments	18.03.2022
P2	Issued for comments	08.03.2022

Drawn by	Reviewed by	Approved by
CA	ES	FC

MCB Number	Date created	Scale
61860	MAR. 22	1:2500@ A3

McBains Ltd
5th Fl, 26 Finsbury Square London EC2A 1DS
+44 (0)20 7786 7900 mcbains.co.uk

Client

CALA

REDINGTON CAPITAL

Project
Land South of Chiswell Green Lane
St. Albans

Drawing Title
SITE LOCATION PLAN

ARCHITECTURE

Drawing / Document Reference								Status	
REDC01	MCB	ZZ	ZZ	DR	A		0201	D5	P5
Project Iden	Originator	Zone	Level	Type	Discipline		Number	Suitability	Revision

Appendix C

Topographical Survey

LEGEND

FEATURE STYLES

SURVEY CONTROL
FENCE
HEDGE
FWS
SWS
WATER
POWER LINE (OVERHEAD)
TELECOM LINE (OVERHEAD)
ELECTRIC MAIN
GAS MAIN
EMBANKMENT

FEATURE ABREVIATIONS

AV	Air Valve
BS	Bus Stop
BT	British Telecom
BW	Brick Wall
CB	Conc Bollard
CL	Cover Level
CTO	cable TV outlet
EB	Electric Box
EC	Electric Cover
EP	Electricity Pole
FH	Fire Hydrant
FL	Floor level
G	Gully
GM	Gas Meter
GV	Gas Valve
IL	Invert Level
IC	Inspection Chamber
KLS	Keep Left Sign
KO	Kerb Offlet
LB	Letter Box
LP	Lamp Post
MKR	Marker
MP	Metal Post
MH	Manhole
MB	Metal Bollard
P	Post
PI	Petrol Interceptor
RG	Road Gully
RNB	Road Name Board
RS	Road Sign
RW	Retaining Wall
SA	Soakaway
SC	Stopcock
SV	Sluice Valve
TP	Telegraph Pole
TCB	Telephone Box
TJB	Tel.Junc.Box
TL	Traffic Light
V	Valve
VP	Vent Pipe
WL	Water Level
WM	Water Meter
WO	Water Outlet
WV	Water Valve

FENCE TYPES

BWR	Barbed Wire
CB	Close Board
CI	Corrugated Iron
CL	Chain Link
CPL	Conc Panel
CP	Chestnut Paling
CW	Chicken Wire
IW	Interwoven
IR	Iron Railing
OB	Openboard
PR	Post and rail
PW	Post and Wire

DATUM
GRID – ORDNANCE SURVEY NATIONAL GRID (OSTN15)
LEVELS – ORDNANCE SURVEY (OSGM15)

SURVEY CONTROL			
STN	–E–	–N–	–Z–
1	513212.435	204272.917	88.341
2	513123.287	204141.874	87.036
3	513224.045	204115.424	85.291
4	513261.764	204158.768	85.031
5	513252.745	204314.484	88.782
6	513281.000	204318.140	88.670
7	513299.337	204290.192	87.711
8	513385.340	204310.801	86.990
9	513323.250	204174.544	84.697
10	513291.759	204136.905	84.498
11	513259.250	204097.547	85.246
12	513224.420	204071.090	85.530
13	513196.611	204019.805	85.750

NOTES

Surveyed boundaries are not necessarily the site legal boundaries. Client should refer to the relevant Land Registry document for confirmation of title.

Drainage and service covers that were buried, obscured or not visible at the time of the survey cannot be shown. Sewer connections between manholes are assumed to be straight and only pipes visible from the cover are shown.

Tree canopy measured values are written as maximium spreads.
Tree species and condition to be confirmed by an arboriculturist

SURVEYED BY
groundsurveys ltd
land & engineering surveyors
The Old Forge
Unit 1, Paddicks Yard
Pearson Road
Sonning on Thames
Berkshire
RG4 6UH

t: 01628 485200
f: 01628 485300
e:office@groundsurveys.com
www.groundsurveys.com

CLIENT

CALA HOMES (CHILTERN) LTD

SITE

LAND AT CHISWELL GREEN
ST ALBANS
HERTFORDSHIRE
AL2 3EQ

TITLE

SITE SURVEY

AS EXISTING

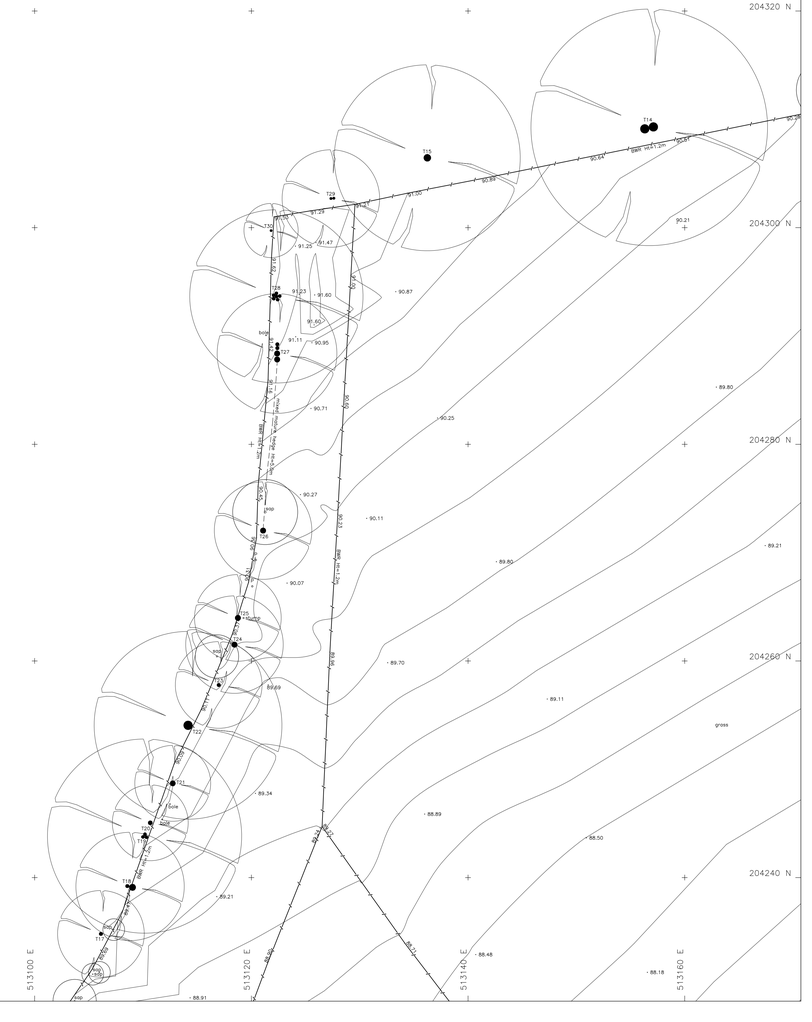
SCALE	1/200 (A0)	DATE	JAN 2020
DRAWING No.	01	JOB No.	7290

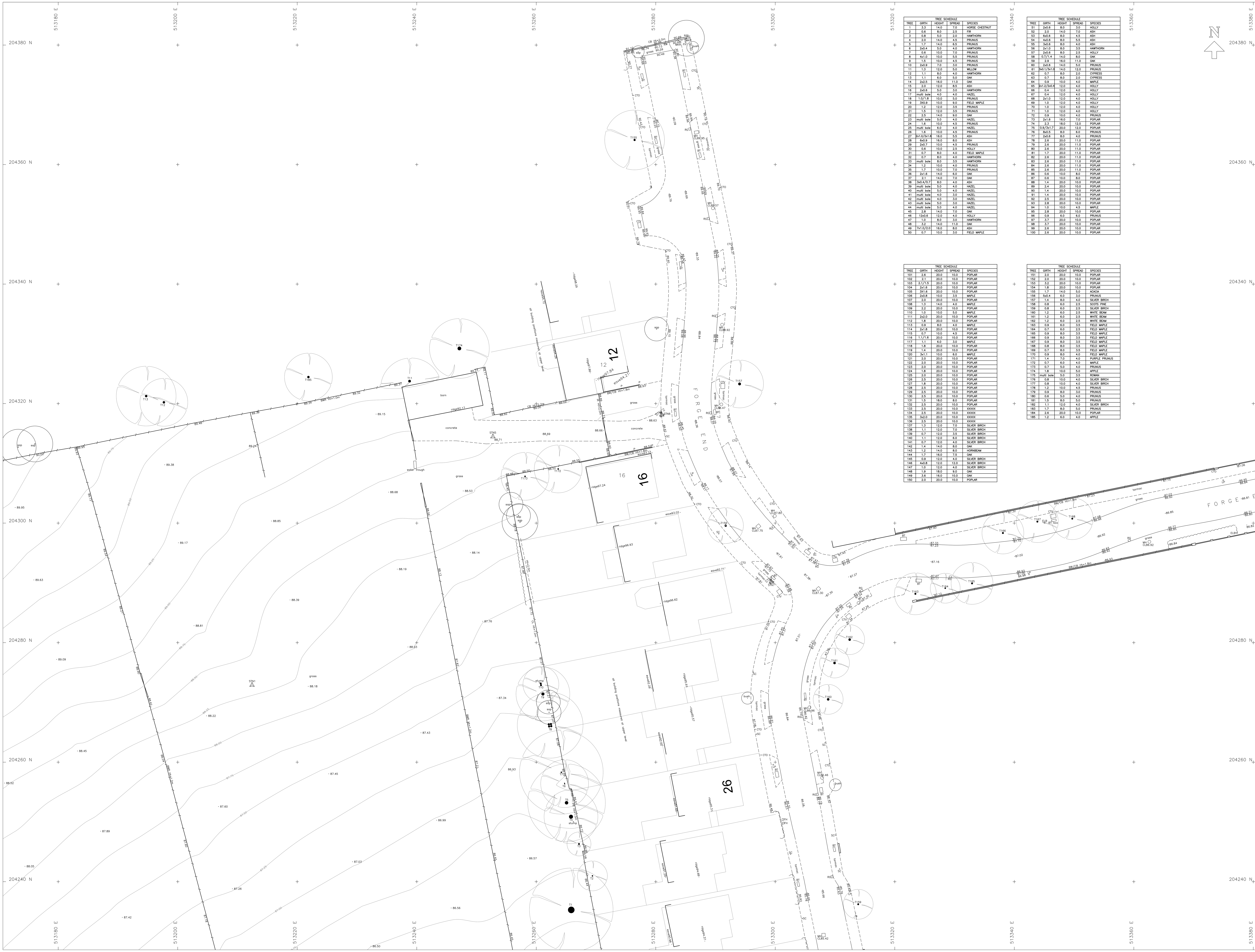
TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
1	3.3	14.0	7.0	HORSE CHESTNUT
2	0.6	8.0	2.5	FIR
3	0.8	5.0	2.0	HAWTHORN
4	2.0	14.0	4.5	PRUNUS
5	1.7	14.0	6.5	PRUNUS
6	2x0.4	5.0	4.0	HAWTHORN
7	0.6	10.0	7.0	PRUNUS
8	4x1.0	10.0	5.5	PRUNUS
9	1.5	10.0	4.5	PRUNUS
10	2x0.9	7.0	3.0	PRUNUS
11	1.3	12.0	5.0	WILLOW
12	1.1	8.0	4.0	HAWTHORN
13	1.1	6.0	5.0	OAK
14	2x2.5	16.0	11.0	OAK
15	2.0	12.0	8.5	ASH
16	2x0.6	5.0	3.0	HAWTHORN
17	multi bole	4.0	4.0	HAZEL
18	1.0/1.8	10.0	5.0	PRUNUS
19	3X0.9	10.0	9.0	FIELD MAPLE
20	1.2	12.0	3.5	PRUNUS
21	1.5	12.0	3.5	PRUNUS
22	2.5	14.0	9.0	OAK
23	multi bole	5.0	4.0	HAZEL
24	1.6	10.0	4.5	PRUNUS
25	multi bole	6.0	4.0	HAZEL
26	1.6	10.0	4.5	PRUNUS
27	2x1.0/2x1.6	16.0	5.5	ASH
28	6x0.9	16.0	8.0	ASH
29	2x0.7	10.0	4.5	PRUNUS
30	0.6	10.0	2.5	HOLLY
31	0.7	8.0	4.0	FIELD MAPLE
32	0.7	8.0	4.0	HAWTHORN
33	multi bole	8.0	3.5	HAWTHORN
34	1.2	10.0	4.0	PRUNUS
35	1.7	10.0	7.0	PRUNUS
36	2x1.6	14.0	6.0	OAK
37	2.1	14.0	7.0	OAK
38	3x0.4/0.7	8.0	4.0	ASH
39	multi bole	5.0	4.0	HAZEL
40	multi bole	5.0	4.0	HAZEL
41	multi bole	4.0	3.0	HAZEL
42	multi bole	4.0	3.0	HAZEL
43	multi bole	5.0	3.0	HAZEL
44	multi bole	5.0	4.0	HAZEL
45	2.8	14.0	7.0	OAK
46	12x0.6	12.0	4.0	HOLLY
47	1.0	8.0	3.0	HAWTHORN
48	3.2	14.0	11.0	OAK
49	7x1.0/2.0	16.0	8.0	ASH
50	0.7	10.0	3.0	FIELD MAPLE

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
51	2x0.6	8.0	3.0	HOLLY
52	2.0	14.0	7.0	ASH
53	6x0.6	8.0	4.5	ASH
54	4x0.6	8.0	5.5	ASH
55	3x0.6	8.0	4.0	ASH
56	2x1.0	8.0	3.5	HAWTHORN
57	2x0.6	8.0	2.5	HOLLY
58	0.7/1.4	14.0	8.0	OAK
59	2.9	16.0	11.0	OAK
60	2x0.6	14.0	5.0	PRUNUS
61	3x0.1/3x1.0	14.0	12.0	PRUNUS
62	0.7	8.0	2.0	CYPRESS
63	0.7	8.0	2.0	CYPRESS
64	0.9	10.0	4.0	MAPLE
65	2x1.2/2x0.4	12.0	4.0	HOLLY
66	0.4	12.0	4.0	HOLLY
67	0.4	12.0	4.0	HOLLY
68	2x1.0	12.0	4.0	HOLLY
69	1.0	12.0	4.0	HOLLY
70	1.0	12.0	4.0	HOLLY
71	1.0	12.0	4.0	HOLLY
72	0.9	10.0	4.0	PRUNUS
73	2x1.6	16.0	7.0	POPLAR
74	2.3	18.0	12.0	POPLAR
75	0.9/3x1.7	20.0	12.0	POPLAR
76	8x0.5	8.0	6.0	PRUNUS
77	2x0.6	8.0	4.0	PRUNUS
78	2.6	20.0	11.0	POPLAR
79	2.6	20.0	11.0	POPLAR
80	2.6	20.0	11.0	POPLAR
81	1.7	20.0	11.0	POPLAR
82	2.6	20.0	11.0	POPLAR
83	2.6	20.0	11.0	POPLAR
84	2.6	20.0	11.0	POPLAR
85	2.6	20.0	11.0	POPLAR
86	0.6	10.0	8.0	POPLAR
87	0.6	10.0	8.0	POPLAR
88	1.4	20.0	10.0	POPLAR
89	2.4	20.0	10.0	POPLAR
90	1.4	20.0	10.0	POPLAR
91	1.4	20.0	10.0	POPLAR
92	2.5	20.0	10.0	POPLAR
93	2.8	20.0	10.0	POPLAR
94	1.0	10.0	4.5	MAPLE
95	2.8	20.0	10.0	POPLAR
96	0.9	6.0	6.0	PRUNUS
97	3.7	20.0	10.0	POPLAR
98	3.7	20.0	10.0	POPLAR
99	2.6	20.0	10.0	POPLAR
100	2.6	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
101	2.6	20.0	10.0	POPLAR
102	2.1	20.0	10.0	POPLAR
103	2.1/1.5	20.0	10.0	POPLAR
104	2x1.6	20.0	10.0	POPLAR
105	3X1.6	20.0	10.0	POPLAR
106	2x0.8	10.0	3.5	MAPLE
107	2.0	20.0	10.0	POPLAR
108	1.3	14.0	4.0	MAPLE
109	2.2	20.0	10.0	POPLAR
110	1.0	10.0	5.0	MAPLE
111	2x2.0	20.0	10.0	POPLAR
112	1.8	20.0	10.0	POPLAR
113	0.9	8.0	4.0	MAPLE
114	2x1.8	20.0	10.0	POPLAR
115	0.7	10.0	4.5	POPLAR
116	1.1/1.6	20.0	10.0	POPLAR
117	1.1	6.0	3.0	MAPLE
118	1.8	20.0	10.0	POPLAR
119	1.4	20.0	10.0	POPLAR
120	3x1.1	10.0	6.0	MAPLE
121	2.0	20.0	10.0	POPLAR
122	2.0	20.0	10.0	POPLAR
123	2.0	20.0	10.0	POPLAR
124	1.8	20.0	10.0	POPLAR
125	2.0	20.0	10.0	POPLAR
126	2.5	20.0	10.0	POPLAR
127	1.8	20.0	10.0	POPLAR
128	2.5	20.0	10.0	POPLAR
129	2.5	20.0	10.0	POPLAR
130	2.5	20.0	10.0	POPLAR
131	1.5	18.0	8.0	POPLAR
132	2.5	20.0	10.0	POPLAR
133	2.5	20.0	10.0	XXXXX
134	2.5	20.0	10.0	XXXXX
135	3x2.0	20.0	10.0	XXXXX
136	2.5	20.0	10.0	XXXXX
137	1.3	12.0	7.0	SILVER BIRCH
138	1.1	12.0	7.0	SILVER BIRCH
139	0.7	12.0	3.5	SILVER BIRCH
140	1.1	12.0	6.0	SILVER BIRCH
141	0.7	12.0	4.0	SILVER BIRCH
142	1.4	14.0	8.0	OAK
143	1.2	14.0	8.0	HORNBEAM
144	1.7	16.0	7.5	OAK
145	0.9	12.0	4.0	SILVER BIRCH
146	4x0.8	12.0	12.0	SILVER BIRCH
147	1.0	12.0	4.0	SILVER BIRCH
148	1.9	18.0	9.0	OAK
149	3.6	16.0	10.0	OAK
150	2.0	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
151	2.0	20.0	10.0	POPLAR
152	2.0	20.0	10.0	POPLAR
153	3.2	20.0	10.0	POPLAR
154	1.8	20.0	10.0	POPLAR
155	1.7	14.0	5.0	ACACIA
156	5x0.4	6.0	3.0	PRUNUS
157	1.4	8.0	4.0	SILVER BIRCH
158	0.8	6.0	2.5	SCOTS PINE
159	0.8	6.0	2.5	SILVER BIRCH
160	1.2	6.0	2.5	WHITE BEAM
161	1.2	6.0	2.5	WHITE BEAM
162	1.2	6.0	2.5	WHITE BEAM
163	0.9	6.0	3.5	FIELD MAPLE
164	0.7	6.0	2.5	FIELD MAPLE
165	0.9	8.0	3.5	FIELD MAPLE
166	0.9	8.0	3.5	FIELD MAPLE
167	0.9	8.0	3.5	FIELD MAPLE
168	0.8	8.0	3.5	FIELD MAPLE
169	0.7	8.0	3.5	FIELD MAPLE
170	0.9	8.0	4.0	FIELD MAPLE
171	1.4	7.0	4.0	PURPLE PRUNUS
172	0.7	6.0	4.0	MAPLE
173	0.7	5.0	4.0	PRUNUS
174	1.8	10.0	5.0	APPLE
175	multi bole	5.0	3.5	ROWAN
176	0.8	10.0	4.0	SILVER BIRCH
177	0.8	10.0	4.0	SILVER BIRCH
178	1.2	10.0	4.5	PRUNUS
179	0.9	8.0	3.0	PRUNUS
180	0.6	5.0	4.0	PRUNUS
181	1.5	8.0	5.0	PRUNUS
182	1.1	12.0	4.0	SILVER BIRCH
183	1.7	8.0	5.0	PRUNUS
184	2.6	20.0	10.0	POPLAR
185	1.2	6.0	4.0	APPLE





TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
1	3.3	14.0	7.0	HORSE CHESTNUT
2	0.6	8.0	2.5	FIR
3	0.8	5.0	2.0	HAWTHORN
4	2.0	14.0	4.5	PRUNUS
5	1.7	14.0	6.5	PRUNUS
6	2x0.4	5.0	4.0	HAWTHORN
7	0.6	10.0	7.0	PRUNUS
8	4x1.0	10.0	5.5	PRUNUS
9	1.5	10.0	4.5	PRUNUS
10	2x0.9	7.0	3.0	PRUNUS
11	1.3	12.0	5.0	WILLOW
12	1.1	8.0	4.0	HAWTHORN
13	1.1	6.0	5.0	OAK
14	2x2.5	16.0	11.0	OAK
15	2.0	12.0	8.5	ASH
16	2x0.6	5.0	3.0	HAWTHORN
17	multi bole	4.0	4.0	HAZEL
18	1.0/1.8	10.0	5.0	PRUNUS
19	3X0.9	10.0	9.0	FIELD MAPLE
20	1.2	12.0	3.5	PRUNUS
21	1.5	12.0	3.5	PRUNUS
22	2.5	14.0	9.0	OAK
23	multi bole	5.0	4.0	HAZEL
24	1.6	10.0	4.5	PRUNUS
25	multi bole	6.0	4.0	HAZEL
26	1.6	10.0	4.5	PRUNUS
27	2x1.0/2x1.6	16.0	5.5	ASH
28	6x0.9	16.0	8.0	ASH
29	2x0.7	10.0	4.5	PRUNUS
30	0.6	10.0	2.5	HOLLY
31	0.7	8.0	4.0	FIELD MAPLE
32	0.7	8.0	4.0	HAWTHORN
33	multi bole	8.0	3.5	HAWTHORN
34	1.2	10.0	4.0	PRUNUS
35	1.7	10.0	7.0	PRUNUS
36	2x1.6	14.0	6.0	OAK
37	2.1	14.0	7.0	OAK
38	3x0.4/0.7	8.0	4.0	ASH
39	multi bole	5.0	4.0	HAZEL
40	multi bole	5.0	4.0	HAZEL
41	multi bole	4.0	3.0	HAZEL
42	multi bole	4.0	3.0	HAZEL
43	multi bole	5.0	3.0	HAZEL
44	multi bole	5.0	4.0	HAZEL
45	2.8	14.0	7.0	OAK
46	12x0.6	12.0	4.0	HOLLY
47	1.0	8.0	3.0	HAWTHORN
48	3.2	14.0	11.0	OAK
49	7x1.0/2.0	16.0	8.0	ASH
50	0.7	10.0	3.0	FIELD MAPLE

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
51	2x0.6	8.0	3.0	HOLLY
52	2.0	14.0	7.0	ASH
53	6x0.6	8.0	4.5	ASH
54	4x0.6	8.0	5.5	ASH
55	3x0.6	8.0	4.0	ASH
56	2x1.0	8.0	3.5	HAWTHORN
57	2x0.6	8.0	2.5	HOLLY
58	0.7/1.4	14.0	8.0	OAK
59	2.9	16.0	11.0	OAK
60	2x0.6	14.0	5.0	PRUNUS
61	3x0.1/3x1.0	14.0	12.0	PRUNUS
62	0.7	8.0	2.0	CYPRESS
63	0.7	8.0	2.0	CYPRESS
64	0.9	10.0	4.0	MAPLE
65	2x1.2/2x0.4	12.0	4.0	HOLLY
66	0.4	12.0	4.0	HOLLY
67	0.4	12.0	4.0	HOLLY
68	2x1.0	12.0	4.0	HOLLY
69	1.0	12.0	4.0	HOLLY
70	1.0	12.0	4.0	HOLLY
71	1.0	12.0	4.0	HOLLY
72	0.9	10.0	4.0	PRUNUS
73	2x1.6	16.0	7.0	POPLAR
74	2.3	18.0	12.0	POPLAR
75	0.9/3x1.7	20.0	12.0	POPLAR
76	8x0.5	8.0	6.0	PRUNUS
77	2x0.6	8.0	4.0	PRUNUS
78	2.6	20.0	11.0	POPLAR
79	2.6	20.0	11.0	POPLAR
80	2.6	20.0	11.0	POPLAR
81	1.7	20.0	11.0	POPLAR
82	2.6	20.0	11.0	POPLAR
83	2.6	20.0	11.0	POPLAR
84	2.6	20.0	11.0	POPLAR
85	2.6	20.0	11.0	POPLAR
86	0.6	10.0	8.0	POPLAR
87	0.6	10.0	8.0	POPLAR
88	1.4	20.0	10.0	POPLAR
89	2.4	20.0	10.0	POPLAR
90	1.4	20.0	10.0	POPLAR
91	1.4	20.0	10.0	POPLAR
92	2.5	20.0	10.0	POPLAR
93	2.8	20.0	10.0	POPLAR
94	1.0	10.0	4.5	MAPLE
95	2.8	20.0	10.0	POPLAR
96	0.9	6.0	6.0	PRUNUS
97	3.7	20.0	10.0	POPLAR
98	3.7	20.0	10.0	POPLAR
99	2.6	20.0	10.0	POPLAR
100	2.6	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
101	2.6	20.0	10.0	POPLAR
102	2.1	20.0	10.0	POPLAR
103	2.1/1.5	20.0	10.0	POPLAR
104	2x1.6	20.0	10.0	POPLAR
105	3X1.6	20.0	10.0	POPLAR
106	2x0.8	10.0	3.5	MAPLE
107	2.0	20.0	10.0	POPLAR
108	1.3	14.0	4.0	MAPLE
109	2.2	20.0	10.0	POPLAR
110	1.0	10.0	5.0	MAPLE
111	2x2.0	20.0	10.0	POPLAR
112	1.8	20.0	10.0	POPLAR
113	0.9	8.0	4.0	MAPLE
114	2x1.8	20.0	10.0	POPLAR
115	0.7	10.0	4.5	POPLAR
116	1.1/1.6	20.0	10.0	POPLAR
117	1.1	6.0	3.0	MAPLE
118	1.8	20.0	10.0	POPLAR
119	1.4	20.0	10.0	POPLAR
120	3x1.1	10.0	6.0	MAPLE
121	2.0	20.0	10.0	POPLAR
122	2.0	20.0	10.0	POPLAR
123	2.0	20.0	10.0	POPLAR
124	1.8	20.0	10.0	POPLAR
125	2.0	20.0	10.0	POPLAR
126	2.5	20.0	10.0	POPLAR
127	1.8	20.0	10.0	POPLAR
128	2.5	20.0	10.0	POPLAR
129	2.5	20.0	10.0	POPLAR
130	2.5	20.0	10.0	POPLAR
131	1.5	18.0	8.0	POPLAR
132	2.5	20.0	10.0	POPLAR
133	2.5	20.0	10.0	XXXXX
134	2.5	20.0	10.0	XXXXX
135	3x2.0	20.0	10.0	XXXXX
136	2.5	20.0	10.0	XXXXX
137	1.3	12.0	7.0	SILVER BIRCH
138	1.1	12.0	7.0	SILVER BIRCH
139	0.7	12.0	3.5	SILVER BIRCH
140	1.1	12.0	6.0	SILVER BIRCH
141	0.7	12.0	4.0	SILVER BIRCH
142	1.4	14.0	8.0	OAK
143	1.2	14.0	8.0	HORNBEAM
144	1.7	16.0	7.5	OAK
145	0.9	12.0	4.0	SILVER BIRCH
146	4x0.8	12.0	12.0	SILVER BIRCH
147	1.0	12.0	4.0	SILVER BIRCH
148	1.9	18.0	9.0	OAK
149	3.6	16.0	10.0	OAK
150	2.0	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
151	2.0	20.0	10.0	POPLAR
152	2.0	20.0	10.0	POPLAR
153	3.2	20.0	10.0	POPLAR
154	1.8	20.0	10.0	POPLAR
155	1.7	14.0	5.0	ACACIA
156	5x0.4	6.0	3.0	PRUNUS
157	1.4	8.0	4.0	SILVER BIRCH
158	0.8	6.0	2.5	SCOTS PINE
159	0.8	6.0	2.5	SILVER BIRCH
160	1.2	6.0	2.5	WHITE BEAM
161	1.2	6.0	2.5	WHITE BEAM
162	1.2	6.0	2.5	WHITE BEAM
163	0.9	6.0	3.5	FIELD MAPLE
164	0.7	6.0	2.5	FIELD MAPLE
165	0.9	8.0	3.5	FIELD MAPLE
166	0.9	8.0	3.5	FIELD MAPLE
167	0.9	8.0	3.5	FIELD MAPLE
168	0.8	8.0	3.5	FIELD MAPLE
169	0.7	8.0	3.5	FIELD MAPLE
170	0.9	8.0	4.0	FIELD MAPLE
171	1.4	7.0	4.0	PURPLE PRUNUS
172	0.7	6.0	4.0	MAPLE
173	0.7	5.0	4.0	PRUNUS
174	1.8	10.0	5.0	APPLE
175	multi bole	5.0	3.5	ROWAN
176	0.8	10.0	4.0	SILVER BIRCH
177	0.8	10.0	4.0	SILVER BIRCH
178	1.2	10.0	4.5	PRUNUS
179	0.9	8.0	3.0	PRUNUS
180	0.6	5.0	4.0	PRUNUS
181	1.5	8.0	5.0	PRUNUS
182	1.1	12.0	4.0	SILVER BIRCH
183	1.7	8.0	5.0	PRUNUS
184	2.6	20.0	10.0	POPLAR
185	1.2	6.0	4.0	APPLE

SURVEY CONTROL			
STN	-E-	-N-	-Z-
1	513212.435	204272.917	88.341
2	513123.287	204141.874	87.036
3	513224.045	204115.424	85.291
4	513261.764	204158.768	85.031
5	513252.745	204314.484	88.782
6	513281.000	204318.140	88.670
7	513299.337	204290.192	87.711
8	513385.340	204310.801	86.990
9	513323.250	204174.544	84.697
10	513291.759	204136.905	84.498
11	513259.250	204097.547	85.246
12	513224.420	204071.090	85.530
13	513196.611	204019.805	85.750

LEGEND

FEATURE STYLES

SURVEY CONTROL
FENCE
HEDGE
FWS
SWS
WATER
POWER LINE (OVERHEAD)
TELECOM LINE (OVERHEAD)
ELECTRIC MAIN
GAS MAIN
EMBANKMENT

FENCE TYPES

BWR Barbed Wire
CB Close Board
CI Corrugated Iron
CL Chain Link
CPL Conc Panel
CP Chestnut Paling
CW Chicken Wire
IW Interwoven
IR Iron Railing
OB Openboard
PR Post and rail
PW Post and Wire

FEATURE ABREVIATIONS

AV Air Valve
BS Bus Stop
BT British Telecom
BW Brick Wall
CB Conc Bollard
CL Cover Level
CTO cable TV outlet
EB Electric Box
EC Electric Cover
EP Electricity Pole
FH Fire Hydrant
FL Floor level
G Gully
GM Gas Meter
GV Gas Valve
IL Invert Level
IC Inspection Chamber
KLS Keep Left Sign
KO Kerb Offlet
LB Letter Box
LP Lamp Post
MKR Marker
MP Metal Post
MH Manhole
MB Metal Bollard
P Post
PI Petrol Interceptor
RG Road Gully
RNB Road Name Board
RS Road Sign
RW Retaining Wall
SA Soakaway
SC Stopcock
SV Sluice Valve
TP Telegraph Pole
TCB Telephone Box
TJB Tel.Junc.Box
TL Traffic Light
V Valve
VP Vent Pipe
WL Water Level
WM Water Meter
WO Water Outlet
WV Water Valve

DATUM
GRID – ORDNANCE SURVEY NATIONAL GRID (OSTN15)
LEVELS – ORDNANCE SURVEY (OSGM15)

NOTES

Surveyed boundaries are not necessarily the site legal boundaries. Client should refer to the relevant Land Registry document for confirmation of title.

Drainage and service covers that were buried, obscured or not visible at the time of the survey cannot be shown. Sewer connections between manholes are assumed to be straight and only pipes visible from the cover are shown.

Tree canopy measured values are written as maximium spreads.
Tree species and condition to be confirmed by an arboriculturist

SURVEYED BY
groundsurveys ltd
land & engineering surveyors
The Old Forge
Unit 1, Paddicks Yard
Pearson Road
Sonning on Thames
Berkshire
RG4 6UH

t: 01628 485200
f: 01628 485300
e:office@groundsurveys.com
www.groundsurveys.com

CLIENT

CALA HOMES (CHILTERN) LTD

SITE

LAND AT CHISWELL GREEN
ST ALBANS
HERTFORDSHIRE
AL2 3EQ

TITLE

SITE SURVEY

AS EXISTING

SCALE	DATE
1/200 (A0)	JAN 2020
DRAWING No. 02	JOB No. 7290

LEGEND

FEATURE STYLES

SURVEY CONTROL
FENCE
HEDGE
FWS
SWS
WATER
POWER LINE (OVERHEAD)
TELECOM LINE (OVERHEAD)
ELECTRIC MAIN
GAS MAIN
EMBANKMENT

FENCE TYPES

BWR Barbed Wire
CB Close Board
CI Corrugated Iron
CL Chain Link
CPL Conc Panel
CP Chestnut Paling
CW Chicken Wire
IW Interwoven
IR Iron Railing
OB Openboard
PR Post and rail
PW Post and Wire

FEATURE ABREVIATIONS

AV Air Valve
BS Bus Stop
BT British Telecom
BW Brick Wall
CB Close Board
CS Cover Seived
CTO cable TV outlet
EB Electric Box
EC Electric Cover
EP Electricity Pole
FH Fire Hydrant
FL Floor level
G Gully
GM Gas Meter
GV Gas Valve
IL Invert Level
IC Inspection Chamber
KGS Keep Left Sign
KO Kerb Offset
LB Letter Box
LP Lamp Post
MKR Marker
MP Metal Post
MH Manhole
MB Metal Bollard
P Post
PI Petrol Interceptor
RG Road Gully
RNB Road Name Board
RS Road Sign
RW Retaining Wall
SA Soakaway
SP Soil Pipe
SV Sluice Valve
TP Telegraph Pole
TCB Telephone Box
TJB Tel.Junc.Box
TL Traffic Light
V Valve
VP Vent Pipe
WL Water Level
WM Water Meter
WO Water Outlet
WV Water Valve

DATUM
GRID – ORDNANCE SURVEY NATIONAL GRID (OSTN15)
LEVELS – ORDNANCE SURVEY (OSGM15)

SURVEY CONTROL			
STN	-E-	-N-	-Z-
1	513212.455	204272.817	88.341
2	513123.287	204141.874	87.036
3	513224.045	204115.424	85.291
4	513281.764	204156.768	85.031
5	513252.745	204314.484	88.782
6	513281.000	204318.140	88.670
7	513299.337	204290.192	87.711
8	513385.340	204310.801	86.990
9	513323.250	204174.544	84.697
10	513291.759	204136.905	84.498
11	513259.850	204097.547	85.245
12	513224.400	204071.090	85.550
13	513198.611	204019.805	85.750

NOTES

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Client should refer to the relevant Land Registry document for confirmation of title.

Drainage and service covers that were buried, obscured or not visible at the time of the survey cannot be shown. Sewer connections between manholes are assumed to be straight and only pipes visible from the cover are shown.

Tree canopy measured values are written as maximum spreads.
Tree species and condition to be confirmed by an arboriculturist.

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RG4 6UH

t: 01628 485200
f: 01628 485300
e:office@groundsurveys.com
www.groundsurveys.com

CLIENT

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SITE

LAND AT CHISWELL GREEN
ST ALBANS
HERTFORDSHIRE
AL2 3EQ

TITLE

SITE SURVEY

AS EXISTING

SCALE 1/200 (A0)	DATE JAN 2020
DRAWING No. 03	JOB No. 7290

TREE SCHEDULE

TREE	GIRTH	HEIGHT	SPREAD	SPECIES
1	3.3	14.0	7.0	HORSE CHESTNUT
2	0.6	8.0	2.5	FIR
3	0.8	5.0	2.0	HAWTHORN
4	2.0	14.0	4.5	PRUNUS
5	1.7	14.0	6.5	PRUNUS
6	2x0.4	5.0	4.0	HAWTHORN
7	0.6	10.0	7.0	PRUNUS
8	4x1.0	10.0	5.5	PRUNUS
9	1.5	10.0	4.5	PRUNUS
10	2x0.9	7.0	3.0	PRUNUS
11	1.3	12.0	5.0	WILLOW
12	1.1	8.0	4.0	HAWTHORN
13	1.1	6.0	5.0	OAK
14	2x2.5	16.0	11.0	OAK
15	2.0	12.0	8.5	ASH
16	2x0.6	5.0	3.0	HAWTHORN
17	multi bole	4.0	4.0	HAZEL
18	1.0/1.8	10.0	5.0	PRUNUS
19	3X0.9	10.0	9.0	FIELD MAPLE
20	1.2	12.0	3.5	PRUNUS
21	1.5	12.0	3.5	PRUNUS
22	2.5	14.0	9.0	OAK
23	multi bole	5.0	4.0	HAZEL
24	1.6	10.0	4.5	PRUNUS
25	multi bole	6.0	4.0	HAZEL
26	1.6	10.0	4.5	PRUNUS
27	2x1.0/2x1.6	16.0	5.5	ASH
28	6x0.9	16.0	8.0	ASH
29	2x0.7	10.0	4.5	PRUNUS
30	0.6	10.0	2.5	HOLLY
31	0.7	8.0	4.0	FIELD MAPLE
32	0.7	8.0	4.0	HAWTHORN
33	multi bole	8.0	3.5	HAWTHORN
34	1.2	10.0	4.0	PRUNUS
35	1.7	10.0	7.0	PRUNUS
36	2x1.6	14.0	6.0	OAK
37	2.1	14.0	7.0	OAK
38	3x0.4/0.7	8.0	4.0	ASH
39	multi bole	5.0	4.0	HAZEL
40	multi bole	5.0	4.0	HAZEL
41	multi bole	4.0	3.0	HAZEL
42	multi bole	4.0	3.0	HAZEL
43	multi bole	5.0	3.0	HAZEL
44	multi bole	5.0	4.0	HAZEL
45	2.8	14.0	7.0	OAK
46	12x0.6	12.0	4.0	HOLLY
47	1.0	8.0	3.0	HAWTHORN
48	3.2	14.0	11.0	OAK
49	7x1.0/2.0	16.0	8.0	ASH
50	0.7	10.0	3.0	FIELD MAPLE

TREE SCHEDULE

TREE	GIRTH	HEIGHT	SPREAD	SPECIES
51	2x0.6	8.0	3.0	HOLLY
52	2.0	14.0	7.0	ASH
53	6x0.6	8.0	4.5	ASH
54	4x0.6	8.0	5.5	ASH
55	3x0.6	8.0	4.0	ASH
56	2x1.0	8.0	3.5	HAWTHORN
57	2x0.6	8.0	2.5	HOLLY
58	0.7/1.4	14.0	8.0	OAK
59	2.9	16.0	11.0	OAK
60	2x0.6	14.0	5.0	PRUNUS
61	3x0.1/3x1.0	14.0	12.0	PRUNUS
62	0.7	8.0	2.0	CYPRESS
63	0.7	8.0	2.0	CYPRESS
64	0.9	10.0	4.0	MAPLE
65	2x1.2/2x0.4	12.0	4.0	HOLLY
66	0.4	12.0	4.0	HOLLY
67	0.4	12.0	4.0	HOLLY
68	2x1.0	12.0	4.0	HOLLY
69	1.0	12.0	4.0	HOLLY
70	1.0	12.0	4.0	HOLLY
71	1.0	12.0	4.0	HOLLY
72	0.9	10.0	4.0	PRUNUS
73	2x1.6	16.0	7.0	POPLAR
74	2.3	18.0	12.0	POPLAR
75	0.9/3x1.7	20.0	12.0	POPLAR
76	8x0.5	8.0	6.0	PRUNUS
77	2x0.6	8.0	4.0	PRUNUS
78	2.6	20.0	11.0	POPLAR
79	2.6	20.0	11.0	POPLAR
80	2.6	20.0	11.0	POPLAR
81	1.7	20.0	11.0	POPLAR
82	2.6	20.0	11.0	POPLAR
83	2.6	20.0	11.0	POPLAR
84	2.6	20.0	11.0	POPLAR
85	2.6	20.0	11.0	POPLAR
86	0.6	10.0	8.0	POPLAR
87	0.6	10.0	8.0	POPLAR
88	1.4	20.0	10.0	POPLAR
89	2.4	20.0	10.0	POPLAR
90	1.4	20.0	10.0	POPLAR
91	1.4	20.0	10.0	POPLAR
92	2.5	20.0	10.0	POPLAR
93	2.8	20.0	10.0	POPLAR
94	1.0	10.0	4.5	MAPLE
95	2.8	20.0	10.0	POPLAR
96	0.9	6.0	6.0	PRUNUS
97	3.7	20.0	10.0	POPLAR
98	3.7	20.0	10.0	POPLAR
99	2.6	20.0	10.0	POPLAR
100	2.6	20.0	10.0	POPLAR

TREE SCHEDULE

TREE	GIRTH	HEIGHT	SPREAD	SPECIES
101	2.6	20.0	10.0	POPLAR
102	2.1	20.0	10.0	POPLAR
103	2.1/1.5	20.0	10.0	POPLAR
104	2x1.6	20.0	10.0	POPLAR
105	3X1.6	20.0	10.0	POPLAR
106	2x0.8	10.0	3.5	MAPLE
107	2.0	20.0	10.0	POPLAR
108	1.3	14.0	4.0	MAPLE
109	2.2	20.0	10.0	POPLAR
110	1.0	10.0	5.0	MAPLE
111	2x2.0	20.0	10.0	POPLAR
112	1.8	20.0	10.0	POPLAR
113	0.9	8.0	4.0	MAPLE
114	2x1.8	20.0	10.0	POPLAR
115	0.7	10.0	4.5	POPLAR
116	1.1/1.6	20.0	10.0	POPLAR
117	1.1	6.0	3.0	MAPLE
118	1.8	20.0	10.0	POPLAR
119	1.4	20.0	10.0	POPLAR
120	3x1.1	10.0	6.0	MAPLE
121	2.0	20.0	10.0	POPLAR
122	2.0	20.0	10.0	POPLAR
123	2.0	20.0	10.0	POPLAR
124	1.8	20.0	10.0	POPLAR
125	2.0	20.0	10.0	POPLAR
126	2.5	20.0	10.0	POPLAR
127	1.8	20.0	10.0	POPLAR
128	2.5	20.0	10.0	POPLAR
129	2.5	20.0	10.0	POPLAR
130	2.5	20.0	10.0	POPLAR
131	1.5	18.0	8.0	POPLAR
132	2.5	20.0	10.0	POPLAR
133	2.5	20.0	10.0	XXXXX
134	2.5	20.0	10.0	XXXXX
135	3x2.0	20.0	10.0	XXXXX
136	2.5	20.0	10.0	XXXXX
137	1.3	12.0	7.0	SILVER BIRCH
138	1.1	12.0	7.0	SILVER BIRCH
139	0.7	12.0	3.5	SILVER BIRCH
140	1.1	12.0	6.0	SILVER BIRCH
141	0.7	12.0	4.0	SILVER BIRCH
142	1.4	14.0	8.0	OAK
143	1.2	14.0	8.0	HORNBEAM
144	1.7	16.0	7.5	OAK
145	0.9	12.0	4.0	SILVER BIRCH
146	4x0.8	12.0	12.0	SILVER BIRCH
147	1.0	12.0	4.0	SILVER BIRCH
148	1.9	18.0	9.0	OAK
149	3.6	16.0	10.0	OAK
150	2.0	20.0	10.0	POPLAR

TREE SCHEDULE

TREE	GIRTH	HEIGHT	SPREAD	SPECIES
151	2.0	20.0	10.0	POPLAR
152	2.0	20.0	10.0	POPLAR
153	3.2	20.0	10.0	POPLAR
154	1.8	20.0	10.0	POPLAR
155	1.7	14.0	5.0	ACACIA
156	5x0.4	6.0	3.0	PRUNUS
157	1.4	8.0	4.0	SILVER BIRCH
158	0.8	6.0	2.5	SCOTS PINE
159	0.8	6.0	2.5	SILVER BIRCH
160	1.2	6.0	2.5	WHITE BEAM
161	1.2	6.0	2.5	WHITE BEAM
162	1.2	6.0	2.5	WHITE BEAM
163	0.9	6.0	3.5	FIELD MAPLE
164	0.7	6.0	2.5	FIELD MAPLE
165	0.9	8.0	3.5	FIELD MAPLE
166	0.9	8.0	3.5	FIELD MAPLE
167	0.9	8.0	3.5	FIELD MAPLE
168	0.8	8.0	3.5	FIELD MAPLE
169	0.7	8.0	3.5	FIELD MAPLE
170	0.9	8.0	4.0	FIELD MAPLE
171	1.4	7.0	4.0	PURPLE PRUNUS
172	0.7	6.0	4.0	MAPLE
173	0.7	5.0	4.0	PRUNUS
174	1.8	10.0	5.0	APPLE
175	multi bole	5.0	3.5	ROWAN
176	0.8	10.0	4.0	SILVER BIRCH
177	0.8	10.0	4.0	SILVER BIRCH
178	1.2	10.0	4.5	PRUNUS
179	0.9	8.0	3.0	PRUNUS
180	0.6	5.0	4.0	PRUNUS
181	1.5	8.0	5.0	PRUNUS
182	1.1	12.0	4.0	SILVER BIRCH
183	1.7	8.0	5.0	PRUNUS
184	2.6	20.0	10.0	POPLAR
185	1.2	6.0	4.0	APPLE

LEGEND

FEATURE STYLES

SURVEY CONTROL △
FENCE
HEDGE
FWS
SWS
WATER
POWER LINE (OVERHEAD)
TELECOM LINE (OVERHEAD)
ELECTRIC MAIN
GAS MAIN
EMBANKMENT

FEATURE ABREVIATIONS

AV	Air Valve
BS	Bus Stop
BT	British Telecom
BW	Brick Wall
CB	Conc Bollard
CL	Cover Level
CTO	cable TV outlet
EB	Electric Box
EC	Electric Cover
EP	Electricity Pole
FH	Fire Hydrant
FL	Floor level
G	Gully
GM	Gas Meter
GV	Gas Valve
IL	Invert Level
IC	Inspection Chamber
KLS	Keep Left Sign
KO	Kerb Offlet
LB	Letter Box
LP	Lamp Post
MKR	Marker
MP	Metal Post
MH	Manhole
MB	Metal Bollard
P	Post
PI	Petrol Interceptor
RG	Road Gully
RNB	Road Name Board
RS	Road Sign
RW	Retaining Wall
SA	Soakaway
SC	Stopcock
SV	Sluice Valve
TP	Telegraph Pole
TCB	Telephone Box
TJB	Tel.Junc.Box
TL	Traffic Light
V	Valve
VP	Vent Pipe
WL	Water Level
WM	Water Meter
WO	Water Outlet
WV	Water Valve

FENCE TYPES

BWR	Barbed Wire
CB	Close Board
CI	Corrugated Iron
CL	Chain Link
CPL	Conc Panel
CP	Chestnut Paling
CW	Chicken Wire
IW	Interwoven
IR	Iron Railing
OB	Openboard
PR	Post and rail
PW	Post and Wire

DATUM
GRID – ORDNANCE SURVEY NATIONAL GRID (OSTN15)
LEVELS – ORDNANCE SURVEY (OSGM15)

SURVEY CONTROL

STN	–E–	–N–	–Z–
1	513212.435	204272.917	88.341
2	513123.287	204141.874	87.036
3	513224.045	204115.424	85.291
4	513261.764	204158.768	85.031
5	513252.745	204314.484	88.782
6	513281.000	204318.140	88.670
7	513299.337	204290.192	87.711
8	513385.340	204310.801	86.990
9	513323.250	204174.544	84.697
10	513291.759	204136.905	84.498
11	513259.250	204097.547	85.246
12	513224.420	204071.090	85.530
13	513196.611	204019.805	85.750

NOTES

Surveyed boundaries are not necessarily the site legal boundaries. Client should refer to the relevant Land Registry document for confirmation of title.

Drainage and service covers that were buried, obscured or not visible at the time of the survey cannot be shown. Sewer connections between manholes are assumed to be straight and only pipes visible from the cover are shown.

Tree canopy measured values are written as maximium spreads.
Tree species and condition to be confirmed by an arboriculturist

SURVEYED BY
groundsurveys ltd
land & engineering surveyors
The Old Forge
Unit 1, Paddicks Yard
Pearson Road
Sonning on Thames
Berkshire
RG4 6UH

t: 01628 485200
f: 01628 485300
e:office@groundsurveys.com
www.groundsurveys.com

CLIENT

CALA HOMES (CHILTERN) LTD

SITE

LAND AT CHISWELL GREEN
ST ALBANS
HERTFORDSHIRE
AL2 3EQ

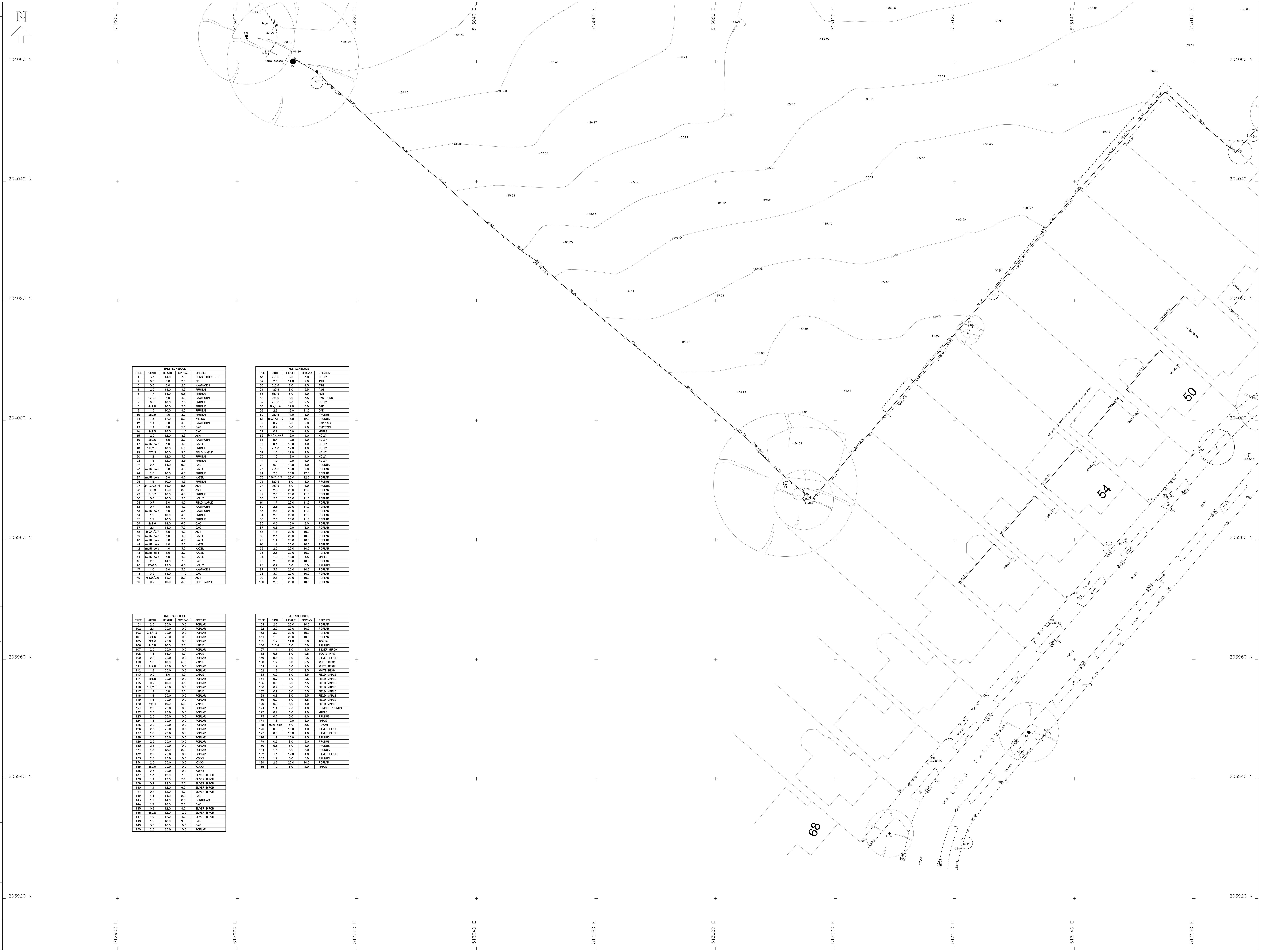
TITLE

SITE SURVEY

AS EXISTING

SCALE	DATE
1/200 (A0)	JAN 2020

DRAWING No.	JOB No.
04	7290



LEGEND

FEATURE STYLES
SURVEY CONTROL
FENCE
HEDGE
FWS
SWS
WATER
POWER LINE (OVERHEAD)
TELECOM LINE (OVERHEAD)
ELECTRIC MAIN
GAS MAIN
EMBANKMENT

FEATURE ABREVIATIONS
AV Air Valve
BS Bus Stop
BT British Telecom
BW Brick Wall
CB Conc Bollard
CL Cover Level
CTO cable TV outlet
EB Electric Box
EC Electric Cover
EP Electricity Pole
FH Fire Hydrant
FL Floor level
G Gully
GM Gas Meter
GV Gas Valve
IL Invert Level
IC Inspection Chamber
KLS Keep Left Sign
KO Kerb Offset
LB Letter Box
LP Lamp Post
MKR Marker
MP Metal Post
MH Manhole
MB Metal Bollard
P Post
PI Petrol Interceptor
RG Road Gully
RNB Road Name Board
RS Road Sign
RW Retaining Wall
SA Soakaway
SC Stopcock
SV Sluice Valve
TP Telegraph Pole
TCB Telephone Box
TJB Tel.Junc.Box
TL Traffic Light
V Valve
VP Vent Pipe
WL Water Level
WM Water Meter
WO Water Outlet
WV Water Valve

FENCE TYPES
BWR Barbed Wire
CB Close Board
CI Corrugated Iron
CL Chain Link
CPL Conc Panel
CP Chestnut Paling
CW Chicken Wire
IW Interwoven
IR Iron Railing
OB Openboard
PR Post and rail
PW Post and Wire

DATUM
GRID – ORDNANCE SURVEY NATIONAL GRID (OSTN15)
LEVELS – ORDNANCE SURVEY (OSGM15)

SURVEY CONTROL			
STN	–E–	–N–	–Z–
1	513212.435	204272.917	88.341
2	513123.287	204141.874	87.036
3	513224.045	204115.424	85.291
4	513261.764	204158.768	85.031
5	513252.745	204314.484	88.782
6	513281.000	204318.140	88.670
7	513299.337	204290.192	87.711
8	513385.340	204310.801	86.990
9	513323.250	204174.544	84.697
10	513291.759	204136.905	84.498
11	513259.250	204097.547	85.246
12	513224.420	204071.090	85.530
13	513196.611	204019.805	85.750

NOTES

Surveyed boundaries are not necessarily the site legal boundaries. Client should refer to the relevant Land Registry document for confirmation of title.

Drainage and service covers that were buried, obscured or not visible at the time of the survey cannot be shown. Sewer connections between manholes are assumed to be straight and only pipes visible from the cover are shown.

Tree canopy measured values are written as maximium spreads. Tree species and condition to be confirmed by an arboriculturist

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Berkshire
RG4 6UH

t: 01628 485200
f: 01628 485300
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SITE

LAND AT CHISWELL GREEN
ST ALBANS
HERTFORDSHIRE
AL2 3EQ

TITLE

SITE SURVEY

AS EXISTING

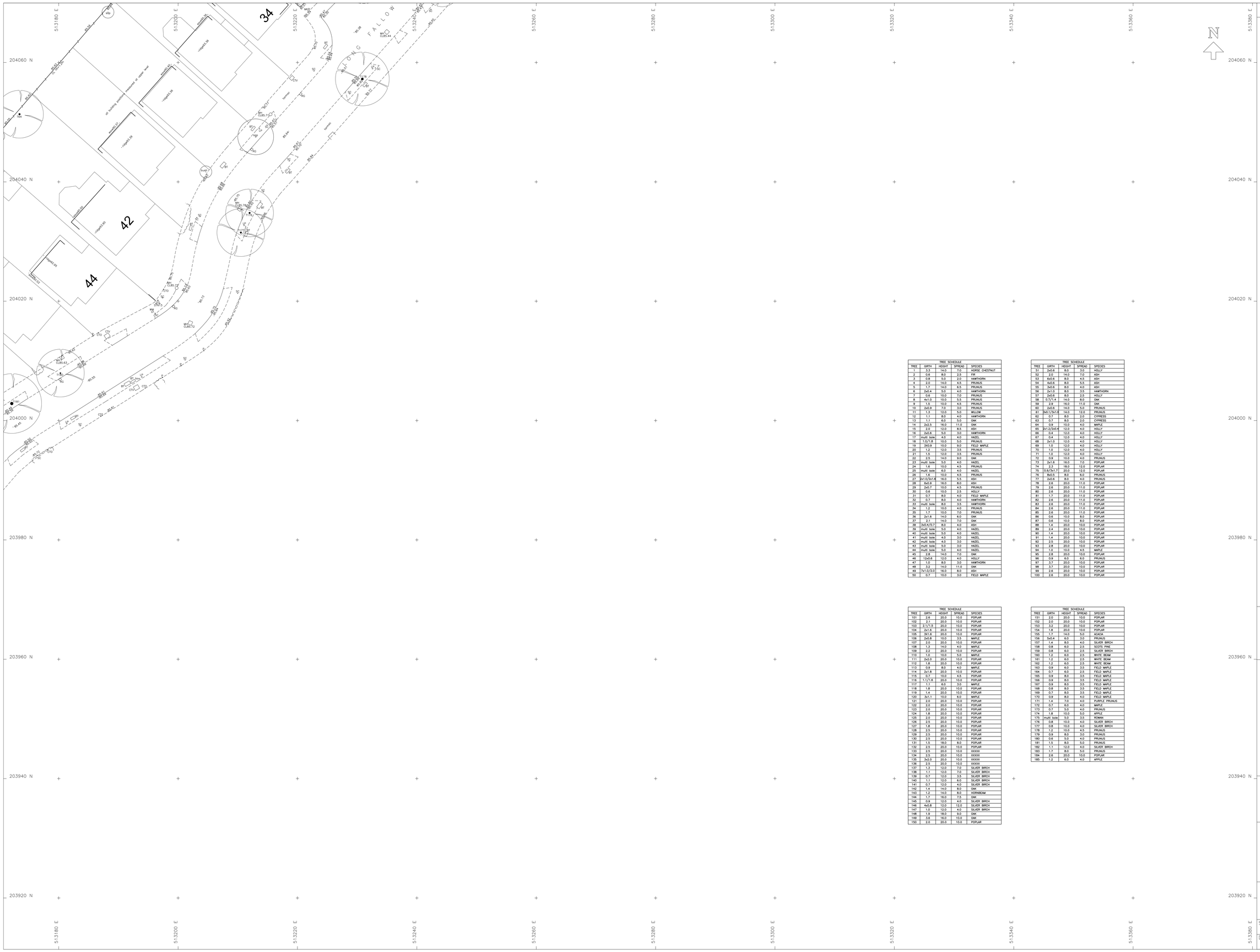
SCALE	DATE
1/200 (A0)	JAN 2020
DRAWING No. 05	JOB No. 7290

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
1	3.3	14.0	7.0	HORSE CHESTNUT
2	0.6	8.0	2.5	FIR
3	0.8	5.0	2.0	HAWTHORN
4	2.0	14.0	4.5	PRUNUS
5	1.7	14.0	6.5	PRUNUS
6	2x0.4	5.0	4.0	HAWTHORN
7	0.6	10.0	7.0	PRUNUS
8	4x1.0	10.0	5.5	PRUNUS
9	1.5	10.0	4.5	PRUNUS
10	2x0.9	7.0	3.0	PRUNUS
11	1.3	12.0	5.0	WILLOW
12	1.1	8.0	4.0	HAWTHORN
13	1.1	6.0	5.0	OAK
14	2x2.5	16.0	11.0	OAK
15	2.0	12.0	8.5	ASH
16	2x0.6	5.0	3.0	HAWTHORN
17	multi bole	4.0	4.0	HAZEL
18	1.0/1.8	10.0	5.0	PRUNUS
19	3X0.9	10.0	9.0	FIELD MAPLE
20	1.2	12.0	3.5	PRUNUS
21	1.5	12.0	3.5	PRUNUS
22	2.5	14.0	9.0	OAK
23	multi bole	5.0	4.0	HAZEL
24	1.6	10.0	4.5	PRUNUS
25	multi bole	6.0	4.0	HAZEL
26	1.6	10.0	4.5	PRUNUS
27	2x1.0/2x1.6	16.0	5.5	ASH
28	6x0.9	16.0	8.0	ASH
29	2x0.7	10.0	4.5	PRUNUS
30	0.6	10.0	2.5	HOLLY
31	0.7	8.0	4.0	FIELD MAPLE
32	0.7	8.0	4.0	HAWTHORN
33	multi bole	8.0	3.5	HAWTHORN
34	1.2	10.0	4.0	PRUNUS
35	1.7	10.0	7.0	PRUNUS
36	2x1.6	14.0	6.0	OAK
37	2.1	14.0	7.0	OAK
38	3x0.4/0.7	8.0	4.0	ASH
39	multi bole	5.0	4.0	HAZEL
40	multi bole	5.0	4.0	HAZEL
41	multi bole	4.0	3.0	HAZEL
42	multi bole	4.0	3.0	HAZEL
43	multi bole	5.0	3.0	HAZEL
44	multi bole	5.0	4.0	HAZEL
45	2.8	14.0	7.0	OAK
46	12x0.6	12.0	4.0	HOLLY
47	1.0	8.0	3.0	HAWTHORN
48	3.2	14.0	11.0	OAK
49	7x1.0/2.0	16.0	8.0	ASH
50	0.7	10.0	3.0	FIELD MAPLE

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
51	2x0.6	8.0	3.0	HOLLY
52	2.0	14.0	7.0	ASH
53	6x0.6	8.0	4.5	ASH
54	4x0.6	8.0	5.5	ASH
55	3x0.6	8.0	4.0	ASH
56	2x1.0	8.0	3.5	HAWTHORN
57	2x0.6	8.0	2.5	HOLLY
58	0.7/1.4	14.0	8.0	OAK
59	2.9	16.0	11.0	OAK
60	2x0.6	14.0	5.0	PRUNUS
61	3x0.1/3x1.0	14.0	12.0	PRUNUS
62	0.7	8.0	2.0	CYPRESS
63	0.7	8.0	2.0	CYPRESS
64	0.9	10.0	4.0	MAPLE
65	2x1.2/2x0.4	12.0	4.0	HOLLY
66	0.4	12.0	4.0	HOLLY
67	0.4	12.0	4.0	HOLLY
68	2x1.0	12.0	4.0	HOLLY
69	1.0	12.0	4.0	HOLLY
70	1.0	12.0	4.0	HOLLY
71	1.0	12.0	4.0	HOLLY
72	0.9	10.0	4.0	PRUNUS
73	2x1.6	16.0	7.0	POPLAR
74	2.3	18.0	12.0	POPLAR
75	0.9/3x1.7	20.0	12.0	POPLAR
76	8x0.5	8.0	6.0	PRUNUS
77	2x0.6	8.0	4.0	PRUNUS
78	2.6	20.0	11.0	POPLAR
79	2.6	20.0	11.0	POPLAR
80	2.6	20.0	11.0	POPLAR
81	1.7	20.0	11.0	POPLAR
82	2.6	20.0	11.0	POPLAR
83	2.6	20.0	11.0	POPLAR
84	2.6	20.0	11.0	POPLAR
85	2.6	20.0	11.0	POPLAR
86	0.6	10.0	8.0	POPLAR
87	0.6	10.0	8.0	POPLAR
88	1.4	20.0	10.0	POPLAR
89	2.4	20.0	10.0	POPLAR
90	1.4	20.0	10.0	POPLAR
91	1.4	20.0	10.0	POPLAR
92	2.5	20.0	10.0	POPLAR
93	2.8	20.0	10.0	POPLAR
94	1.0	10.0	4.5	MAPLE
95	2.8	20.0	10.0	POPLAR
96	0.9	6.0	6.0	PRUNUS
97	3.7	20.0	10.0	POPLAR
98	3.7	20.0	10.0	POPLAR
99	2.6	20.0	10.0	POPLAR
100	2.6	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
101	2.6	20.0	10.0	POPLAR
102	2.1	20.0	10.0	POPLAR
103	2.1/1.5	20.0	10.0	POPLAR
104	2x1.6	20.0	10.0	POPLAR
105	3X1.6	20.0	10.0	POPLAR
106	2x0.8	10.0	3.5	MAPLE
107	2.0	20.0	10.0	POPLAR
108	1.3	14.0	4.0	MAPLE
109	2.2	20.0	10.0	POPLAR
110	1.0	10.0	5.0	MAPLE
111	2x2.0	20.0	10.0	POPLAR
112	1.8	20.0	10.0	POPLAR
113	0.9	8.0	4.0	MAPLE
114	2x1.8	20.0	10.0	POPLAR
115	0.7	10.0	4.5	POPLAR
116	1.1/1.6	20.0	10.0	POPLAR
117	1.1	6.0	3.0	MAPLE
118	1.8	20.0	10.0	POPLAR
119	1.4	20.0	10.0	POPLAR
120	3x1.1	10.0	6.0	MAPLE
121	2.0	20.0	10.0	POPLAR
122	2.0	20.0	10.0	POPLAR
123	2.0	20.0	10.0	POPLAR
124	1.8	20.0	10.0	POPLAR
125	2.0	20.0	10.0	POPLAR
126	2.5	20.0	10.0	POPLAR
127	1.8	20.0	10.0	POPLAR
128	2.5	20.0	10.0	POPLAR
129	2.5	20.0	10.0	POPLAR
130	2.5	20.0	10.0	POPLAR
131	1.5	18.0	8.0	POPLAR
132	2.5	20.0	10.0	POPLAR
133	2.5	20.0	10.0	XXXXX
134	2.5	20.0	10.0	XXXXX
135	3x2.0	20.0	10.0	XXXXX
136	2.5	20.0	10.0	XXXXX
137	1.3	12.0	7.0	SILVER BIRCH
138	1.1	12.0	7.0	SILVER BIRCH
139	0.7	12.0	3.5	SILVER BIRCH
140	1.1	12.0	6.0	SILVER BIRCH
141	0.7	12.0	4.0	SILVER BIRCH
142	1.4	14.0	8.0	OAK
143	1.2	14.0	8.0	HORNBEAM
144	1.7	16.0	7.5	OAK
145	0.9	12.0	4.0	SILVER BIRCH
146	4x0.8	12.0	12.0	SILVER BIRCH
147	1.0	12.0	4.0	SILVER BIRCH
148	1.9	18.0	9.0	OAK
149	3.6	16.0	10.0	OAK
150	2.0	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
151	2.0	20.0	10.0	POPLAR
152	2.0	20.0	10.0	POPLAR
153	3.2	20.0	10.0	POPLAR
154	1.8	20.0	10.0	POPLAR
155	1.7	14.0	5.0	ACACIA
156	5x0.4	6.0	3.0	PRUNUS
157	1.4	8.0	4.0	SILVER BIRCH
158	0.8	6.0	2.5	SCOTS PINE
159	0.8	6.0	2.5	SILVER BIRCH
160	1.2	6.0	2.5	WHITE BEAM
161	1.2	6.0	2.5	WHITE BEAM
162	1.2	6.0	2.5	WHITE BEAM
163	0.9	6.0	3.5	FIELD MAPLE
164	0.7	6.0	2.5	FIELD MAPLE
165	0.9	8.0	3.5	FIELD MAPLE
166	0.9	8.0	3.5	FIELD MAPLE
167	0.9	8.0	3.5	FIELD MAPLE
168	0.8	8.0	3.5	FIELD MAPLE
169	0.7	8.0	3.5	FIELD MAPLE
170	0.9	8.0	4.0	FIELD MAPLE
171	1.4	7.0	4.0	PURPLE PRUNUS
172	0.7	6.0	4.0	MAPLE
173	0.7	5.0	4.0	PRUNUS
174	1.8	10.0	5.0	APPLE
175	multi bole	5.0	3.5	ROWAN
176	0.8	10.0	4.0	SILVER BIRCH
177	0.8	10.0	4.0	SILVER BIRCH
178	1.2	10.0	4.5	PRUNUS
179	0.9	8.0	3.0	PRUNUS
180	0.6	5.0	4.0	PRUNUS
181	1.5	8.0	5.0	PRUNUS
182	1.1	12.0	4.0	SILVER BIRCH
183	1.7	8.0	5.0	PRUNUS
184	2.6	20.0	10.0	POPLAR
185	1.2	6.0	4.0	APPLE



TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
1	3.3	14.0	7.0	HORSE CHESTNUT
2	0.6	8.0	2.5	FIR
3	0.8	5.0	2.0	HAWTHORN
4	2.0	14.0	4.5	PRUNUS
5	1.7	14.0	6.5	PRUNUS
6	2x0.4	5.0	4.0	HAWTHORN
7	0.6	10.0	7.0	PRUNUS
8	4x1.0	10.0	5.5	PRUNUS
9	1.5	10.0	4.5	PRUNUS
10	2x0.9	7.0	3.0	PRUNUS
11	1.3	12.0	5.0	WILLOW
12	1.1	8.0	4.0	HAWTHORN
13	1.1	6.0	5.0	OAK
14	2x2.5	16.0	11.0	OAK
15	2.0	12.0	8.5	ASH
16	2x0.6	5.0	3.0	HAWTHORN
17	multi bole	4.0	4.0	HAZEL
18	1.0/1.8	10.0	5.0	PRUNUS
19	3X0.9	10.0	9.0	FIELD MAPLE
20	1.2	12.0	3.5	PRUNUS
21	1.5	12.0	3.5	PRUNUS
22	2.5	14.0	9.0	OAK
23	multi bole	5.0	4.0	HAZEL
24	1.6	10.0	4.5	PRUNUS
25	multi bole	6.0	4.0	HAZEL
26	1.6	10.0	4.5	PRUNUS
27	2x1.0/2x1.6	16.0	5.5	ASH
28	6x0.9	16.0	8.0	ASH
29	2x0.7	10.0	4.5	PRUNUS
30	0.6	10.0	2.5	HOLLY
31	0.7	8.0	4.0	FIELD MAPLE
32	0.7	8.0	4.0	HAWTHORN
33	multi bole	8.0	3.5	HAWTHORN
34	1.2	10.0	4.0	PRUNUS
35	1.7	10.0	7.0	PRUNUS
36	2x1.6	14.0	6.0	OAK
37	2.1	14.0	7.0	OAK
38	3x0.4/0.7	8.0	4.0	ASH
39	multi bole	5.0	4.0	HAZEL
40	multi bole	5.0	4.0	HAZEL
41	multi bole	4.0	3.0	HAZEL
42	multi bole	4.0	3.0	HAZEL
43	multi bole	5.0	3.0	HAZEL
44	multi bole	5.0	4.0	HAZEL
45	2.8	14.0	7.0	OAK
46	12x0.6	12.0	4.0	HOLLY
47	1.0	8.0	3.0	HAWTHORN
48	3.2	14.0	11.0	OAK
49	7x1.0/2.0	16.0	8.0	ASH
50	0.7	10.0	3.0	FIELD MAPLE

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
51	2x0.6	8.0	3.0	HOLLY
52	2.0	14.0	7.0	ASH
53	6x0.6	8.0	4.5	ASH
54	4x0.6	8.0	5.5	ASH
55	3x0.6	8.0	4.0	ASH
56	2x1.0	8.0	3.5	HAWTHORN
57	2x0.6	8.0	2.5	HOLLY
58	0.7/1.4	14.0	8.0	OAK
59	2.9	16.0	11.0	OAK
60	2x0.6	14.0	5.0	PRUNUS
61	3x0.1/3x1.0	14.0	12.0	PRUNUS
62	0.7	8.0	2.0	CYPRESS
63	0.7	8.0	2.0	CYPRESS
64	0.9	10.0	4.0	MAPLE
65	2x1.2/2x0.4	12.0	4.0	HOLLY
66	0.4	12.0	4.0	HOLLY
67	0.4	12.0	4.0	HOLLY
68	2x1.0	12.0	4.0	HOLLY
69	1.0	12.0	4.0	HOLLY
70	1.0	12.0	4.0	HOLLY
71	1.0	12.0	4.0	HOLLY
72	0.9	10.0	4.0	PRUNUS
73	2x1.6	16.0	7.0	POPLAR
74	2.3	18.0	12.0	POPLAR
75	0.9/3x1.7	20.0	12.0	POPLAR
76	8x0.5	8.0	6.0	PRUNUS
77	2x0.6	8.0	4.0	PRUNUS
78	2.6	20.0	11.0	POPLAR
79	2.6	20.0	11.0	POPLAR
80	2.6	20.0	11.0	POPLAR
81	1.7	20.0	11.0	POPLAR
82	2.6	20.0	11.0	POPLAR
83	2.6	20.0	11.0	POPLAR
84	2.6	20.0	11.0	POPLAR
85	2.6	20.0	11.0	POPLAR
86	0.6	10.0	8.0	POPLAR
87	0.6	10.0	8.0	POPLAR
88	1.4	20.0	10.0	POPLAR
89	2.4	20.0	10.0	POPLAR
90	1.4	20.0	10.0	POPLAR
91	1.4	20.0	10.0	POPLAR
92	2.5	20.0	10.0	POPLAR
93	2.8	20.0	10.0	POPLAR
94	1.0	10.0	4.5	MAPLE
95	2.8	20.0	10.0	POPLAR
96	0.9	6.0	6.0	PRUNUS
97	3.7	20.0	10.0	POPLAR
98	3.7	20.0	10.0	POPLAR
99	2.6	20.0	10.0	POPLAR
100	2.6	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
101	2.6	20.0	10.0	POPLAR
102	2.1	20.0	10.0	POPLAR
103	2.1/1.5	20.0	10.0	POPLAR
104	2x1.6	20.0	10.0	POPLAR
105	3X1.6	20.0	10.0	POPLAR
106	2x0.8	10.0	3.5	MAPLE
107	2.0	20.0	10.0	POPLAR
108	1.3	14.0	4.0	MAPLE
109	2.2	20.0	10.0	POPLAR
110	1.0	10.0	5.0	MAPLE
111	2x2.0	20.0	10.0	POPLAR
112	1.8	20.0	10.0	POPLAR
113	0.9	8.0	4.0	MAPLE
114	2x1.8	20.0	10.0	POPLAR
115	0.7	10.0	4.5	POPLAR
116	1.1/1.6	20.0	10.0	POPLAR
117	1.1	6.0	3.0	MAPLE
118	1.8	20.0	10.0	POPLAR
119	1.4	20.0	10.0	POPLAR
120	3x1.1	10.0	6.0	MAPLE
121	2.0	20.0	10.0	POPLAR
122	2.0	20.0	10.0	POPLAR
123	2.0	20.0	10.0	POPLAR
124	1.8	20.0	10.0	POPLAR
125	2.0	20.0	10.0	POPLAR
126	2.5	20.0	10.0	POPLAR
127	1.8	20.0	10.0	POPLAR
128	2.5	20.0	10.0	POPLAR
129	2.5	20.0	10.0	POPLAR
130	2.5	20.0	10.0	POPLAR
131	1.5	18.0	8.0	POPLAR
132	2.5	20.0	10.0	POPLAR
133	2.5	20.0	10.0	XXXXX
134	2.5	20.0	10.0	XXXXX
135	3x2.0	20.0	10.0	XXXXX
136	2.5	20.0	10.0	XXXXX
137	1.3	12.0	7.0	SILVER BIRCH
138	1.1	12.0	7.0	SILVER BIRCH
139	0.7	12.0	3.5	SILVER BIRCH
140	1.1	12.0	6.0	SILVER BIRCH
141	0.7	12.0	4.0	SILVER BIRCH
142	1.4	14.0	8.0	OAK
143	1.2	14.0	8.0	HORNBEAM
144	1.7	16.0	7.5	OAK
145	0.9	12.0	4.0	SILVER BIRCH
146	4x0.8	12.0	12.0	SILVER BIRCH
147	1.0	12.0	4.0	SILVER BIRCH
148	1.9	18.0	9.0	OAK
149	3.6	16.0	10.0	OAK
150	2.0	20.0	10.0	POPLAR

TREE SCHEDULE				
TREE	GIRTH	HEIGHT	SPREAD	SPECIES
151	2.0	20.0	10.0	POPLAR
152	2.0	20.0	10.0	POPLAR
153	3.2	20.0	10.0	POPLAR
154	1.8	20.0	10.0	POPLAR
155	1.7	14.0	5.0	ACACIA
156	5x0.4	6.0	3.0	PRUNUS
157	1.4	8.0	4.0	SILVER BIRCH
158	0.8	6.0	2.5	SCOTS PINE
159	0.8	6.0	2.5	SILVER BIRCH
160	1.2	6.0	2.5	WHITE BEAM
161	1.2	6.0	2.5	WHITE BEAM
162	1.2	6.0	2.5	WHITE BEAM
163	0.9	6.0	3.5	FIELD MAPLE
164	0.7	6.0	2.5	FIELD MAPLE
165	0.9	8.0	3.5	FIELD MAPLE
166	0.9	8.0	3.5	FIELD MAPLE
167	0.9	8.0	3.5	FIELD MAPLE
168	0.8	8.0	3.5	FIELD MAPLE
169	0.7	8.0	3.5	FIELD MAPLE
170	0.9	8.0	4.0	FIELD MAPLE
171	1.4	7.0	4.0	PURPLE PRUNUS
172	0.7	6.0	4.0	MAPLE
173	0.7	5.0	4.0	PRUNUS
174	1.8	10.0	5.0	APPLE
175	multi bole	5.0	3.5	ROWAN
176	0.8	10.0	4.0	SILVER BIRCH
177	0.8	10.0	4.0	SILVER BIRCH
178	1.2	10.0	4.5	PRUNUS
179	0.9	8.0	3.0	PRUNUS
180	0.6	5.0	4.0	PRUNUS
181	1.5	8.0	5.0	PRUNUS
182	1.1	12.0	4.0	SILVER BIRCH
183	1.7	8.0	5.0	PRUNUS
184	2.6	20.0	10.0	POPLAR
185	1.2	6.0	4.0	APPLE

LEGEND

FEATURE STYLES

SURVEY CONTROL
FENCE
HEDGE
FWS
SWS
WATER
POWER LINE (OVERHEAD)
TELECOM LINE (OVERHEAD)
ELECTRIC MAIN
GAS MAIN
EMBANKMENT

FENCE TYPES

BWR	Barbed Wire
CB	Close Board
CI	Corrugated Iron
CL	Chain Link
CPL	Conc Panel
CP	Chestnut Paling
CW	Chicken Wire
IW	Interwoven
IR	Iron Railing
OB	Openboard
PR	Post and rail
PW	Post and Wire

FEATURE ABREVIATIONS

AV	Air Valve
BS	Bus Stop
BT	British Telecom
BW	Brick Wall
CB	Conc Bollard
CL	Cover Level
CTO	cable TV outlet
EB	Electric Box
EC	Electric Cover
EP	Electricity Pole
FH	Fire Hydrant
FL	Floor level
G	Gully
GM	Gas Meter
GV	Gas Valve
IL	Invert Level
IC	Inspection Chamber
KLS	Keep Left Sign
KO	Kerb Offlet
LB	Letter Box
LP	Lamp Post
MKR	Marker
MP	Metal Post
MH	Manhole
MB	Metal Bollard
P	Post
PI	Petrol Interceptor
RG	Road Gully
RNB	Road Name Board
RS	Road Sign
RW	Retaining Wall
SA	Soakaway
SC	Stopcock
SV	Sluice Valve
TP	Telegraph Pole
TCB	Telephone Box
TJB	Tel.Junc.Box
TL	Traffic Light
V	Valve
VP	Vent Pipe
WL	Water Level
WM	Water Meter
WO	Water Outlet
WV	Water Valve

DATUM
GRID – ORDNANCE SURVEY NATIONAL GRID (OSTN15)
LEVELS – ORDNANCE SURVEY (OSGM15)

SURVEY CONTROL			
STN	–E–	–N–	–Z–
1	513212.435	204272.917	88.341
2	513123.287	204141.874	87.036
3	513224.045	204115.424	85.291
4	513261.764	204158.768	85.031
5	513252.745	204314.484	88.782
6	513281.000	204318.140	88.670
7	513299.337	204290.192	87.711
8	513385.340	204310.801	86.990
9	513323.250	204174.544	84.697
10	513291.759	204136.905	84.498
11	513259.250	204097.547	85.246
12	513224.420	204071.090	85.530
13	513196.611	204019.805	85.750

NOTES

Surveyed boundaries are not necessarily the site legal boundaries.
Client should refer to the relevant Land Registry document for confirmation of title.

Drainage and service covers that were buried, obscured or not visible at the time of the survey cannot be shown. Sewer connections between manholes are assumed to be straight and only pipes visible from the cover are shown.

Tree canopy measured values are written as maximium spreads.
Tree species and condition to be confirmed by an arboriculturist

SURVEYED BY
groundsurveys ltd
land & engineering surveyors
The Old Forge
Unit 1, Paddicks Yard
Pearson Road
Sonning on Thames
Berkshire
RG4 6UH

t: 01628 485200
f: 01628 485300
e:office@groundsurveys.com
www.groundsurveys.com

CLIENT

CALA HOMES (CHILTERN) LTD

SITE

LAND AT CHISWELL GREEN
ST ALBANS
HERTFORDSHIRE
AL2 3EQ

TITLE

SITE SURVEY

AS EXISTING

SCALE	DATE
1/200 (A0)	JAN 2020
DRAWING No.	JOB No.
06	7290

Station Information:

Station	Easting (m)	Northing (m)	Level (m)
GH1	513039.162	204531.768	101.716
GH2	513091.588	204557.042	101.280
GH3	513149.007	204574.717	100.823
GH4	513153.814	204518.108	98.850
M1	512922.932	204505.087	103.408
M2	512976.680	204512.872	102.683
M3	512922.092	204470.678	102.723
M4	512974.105	204457.462	101.100
M5	512981.079	204435.599	100.434
M6	513070.374	204474.317	99.122

OS Note:

Some services may have been omitted due to parked vehicles. The Ordnance Survey tile is to be used as a guide only.

OS Buildings — *Surveyed Buildings*

This survey has been orientated to the Ordnance Survey (O.S) National Grid OSGB36(15) via Global Navigation Satellite Systems (GNSS) and the O.S. Active Network (OS Net).

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

The survey has been correlated to this point and a further one or more OSGB36 (15) points established to create a true O.S. bearing for angle orientation.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

Please refer to Survey Station Table to enable establishment of the on-site grid and datum.

Legend:

Buildings, Wall, Kerb line, Line marking, Drop kerb, Centre line, Top of bank, Overhead Cable, Concrete edge, Tarmac edge, Grass verge, Canopy/Overhang, Verge, Bottom of bank, Station and Name

IC Inspection chamber; PInv Pipe invert; Gy Gully; Bg Back gully; Dp Down pipe; Pipe Pipe above ground; MH Manhole; WL Water level; Bo Bollard; IB Illuminated bollard; Bin Rubbish bin; Vp Vent pipe; Grl Ground light; Lbox Letter box; Stmp Tree Stump; Sty Stile

P\W Post & Wire; C\L Chain Link; W\P Wooden Panels; C\B Close Boarded; S\P Steel Palisade

BB Belisha beacon; CTV Cable tv; Mkr Marker post; Gmkr Gas marker post; So Soffit; Fh Fire hydrant; G: Girth; MG Multi girth; IC Inspection chamber; CL: Cover level; IL: Invert level; UTR Unable to raise

Rev	Date	Description	Drawn	Q. Ref.

greenhatch group

- Topographical Surveys
- Site Engineering
- Utility / CCTV Surveys
- Measured Building Surveys
- 3D Laser Scanning
- Revit & BIM Models

Rowan House
Duffield Road
Little Eaton
Derby
DE21 5DR
Tel (01332) 830044 Fax (01332) 830055
admin@greenhatch-group.co.uk
www.greenhatch-group.co.uk

St Albans: Unit B, The Courtyard, Alban Park, St Albans, Hertfordshire, AL4 0LA, t. (01727) 854481

Newcastle: 24 Riverside Studios, Amethyst Road, Newcastle Bus. Park, Newcastle-U-Tyne, NE4 7YL, t. (01912) 736391

London: 27, Cornwall Terrace Mews, Regents Park, London, NW1 5LL, t. (02072) 241806

CLIENT
Redington Capital Limited

PROJECT
Chiswell Green Lane
Chiswell Green, St Albans
AL2 3AJ

TITLE
Topographical Survey

SCALE	DATE
A0@ 1: 500	27.09.21
DRAWN	QUALITY REF
ST	GH11716

Level datum	See note
Grid orientation	See note
Job number	41518
Drawing No.	41518_T
Rev.	0

Comments
This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.

All dimensions should be checked on site prior to design and construction.

Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.

Notes:

Appendix D

Geological Mapping and Soilscape Mapping

KEY

Approximate site location

Bedrock Geology

Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) - Chalk

Superficial Geology

Kesgrave Catchment Subgroup - Sand and Gravels

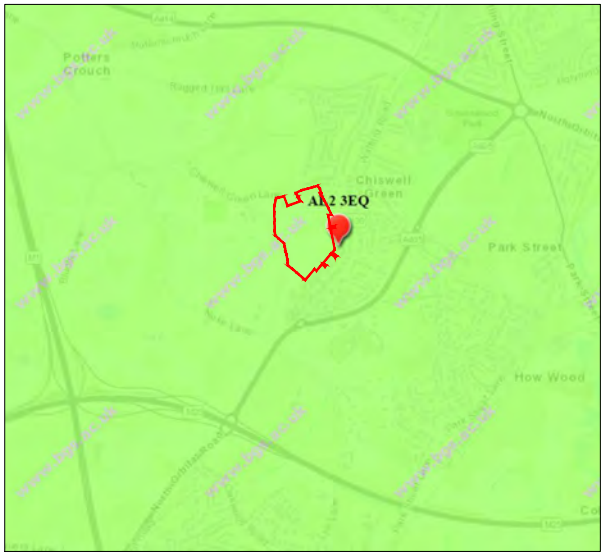
Soilscapes Map

Freely draining slightly acid loamy soils

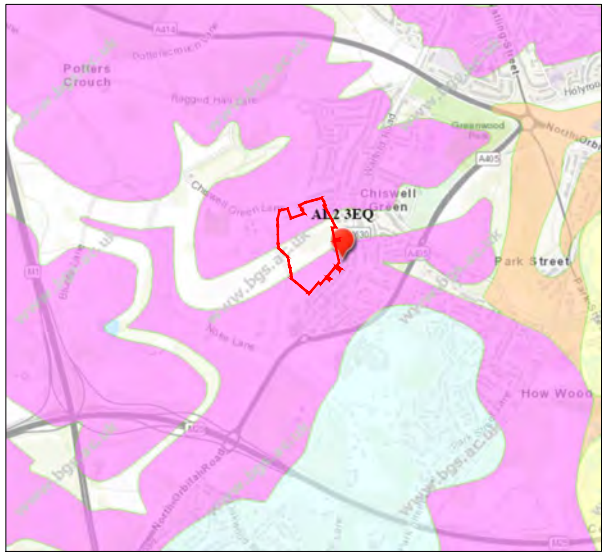
NOTES

1. This drawing is to be read in conjunction with all other documents and specifications
2. Dimensions not to be scaled from drawing

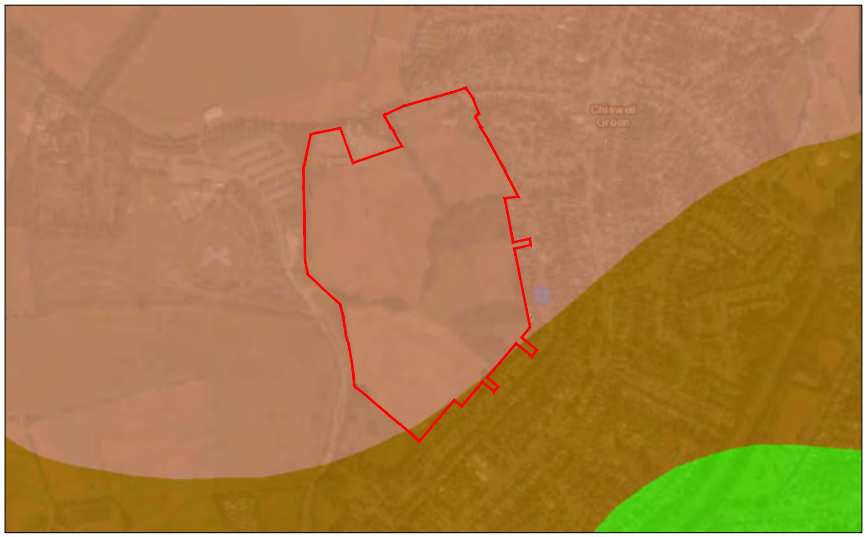
Bedrock Geology



Superficial Geology



Soilscapes Map_Cranfield University



Glanville
Cornerstone House
62 Foxhall Road, Didcot
Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Project :	Land West of Chiswell Green, St Albans				
Title :	British Geological Survey & Soilscapes Mapping Extract				
Project Engineer :	A. Quigley	Scale :	NTS	Drawing No.	CV8210856 - BGS
Project Director :	J. Birch	Date :	February 2022		Rev -

Appendix E

Site investigation Report

Report Title: **Geo-Environmental Site Investigation**

Project Name: **Forge End, Chiswell Green**

Report Reference: **BRD3604-OR2-C**

Date: **July 2020**

BRD Environmental Ltd
Hawthorne Villa, 1 Old Parr Road,
Banbury, Oxfordshire, OX16 5HT
01295 272244 info@brduk.com
www.brduk.com

SUMMARY REPORT - GENERAL INFORMATION

SUBJECT	COMMENTS
CURRENT SITE CONDITION	The site currently comprises mainly open fields. To the south of the site is a small coppice of mature trees. Within the area of trees are several shipping containers, building materials and used containers where a building contractor previously utilised the coppice to store building supplies. In the east of the site is a small fenced off paddock and a dilapidated breezeblock building
PROPOSED DEVELOPMENT	It is proposed that the site will be developed as residential houses with private gardens, access roads and public open spaces.
HISTORICAL SUMMARY	The site has remained largely undeveloped comprising open fields and paddocks. A building was constructed in the early 1990s in the northeast corner of the site and more recently the coppice in the eastern part of the site has been utilised by a building contractor to store materials.
PUBLISHED GEOLOGY	The north western to northern fringe of the site is shown to be devoid of superficial deposits. The southern extents of the site is shown to be underlain by superficial deposits comprising sand and gravels of the Kesgrave Catchment Subgroup. The shallowest bedrock unit is shown to be Lowes Nodular Chalk Formation and Seaford Chalk Formation (Undifferentiated).
ACTUAL GROUND CONDITIONS	The ground conditions encountered were generally as expected from the anticipated geology shown on the available BGS geology maps, although superficial deposits were found across the entire site. Generally, a layer of Topsoil or Made Ground Topsoil was generally found overlying the superficial deposits of the Kesgrave Catchment Subgroup, which in turn were found overlying the chalk bedrock. The bedrock was either found as shallow as 1.70m bgl or not proven in some of the windowless sample boreholes (>7.45m depth) across the site with the top of the chalk beneath the superficial deposits having an irregular undulating surface.
HYDROGEOLOGY	A proportion of the site is situated upon superficial deposits designated a Secondary A Aquifer. The underlying bedrock geology is designated a Principal Aquifer. The site is located within a groundwater Source Protection Zone 2 (Outer Protection Zone).
HYDROLOGY	The closest surface water feature to the site is a pond group of small ponds approximately 50m to 70m west of the site. The River Ver is approximately 1.5km east of the site running north to south. The site is not in an area indicated to be at risk of flooding.
PREVIOUS GROUND REPORTS	BRD is not aware of any previous ground investigations having been conducted at the site. However, BRD has undertaken geo-environmental desk study research for a larger area and this has been reported separately.

SUMMARY REPORT - GEOTECHNICAL

SUBJECT	COMMENTS
EXCAVATIONS	It should be possible to forward excavations employing normal equipment. Specific groundwater control unlikely to be required at this site. Limited groundwater control in the form of pumping from sumps is likely to be required. It is unlikely that requirements of the Party Wall Act will apply to the development.
SLOPE STABILITY	It is considered that slope stability is unlikely to be a concern at this site.
SUB-SURFACE CONCRETE	Design Sulphate Class of DS-1 and Aggressive Chemical Environment for Concrete class of AC-1s applies.
SOAKAWAYS	Site is generally not suitable for surface water disposal to conventional soakaways, but deep drainage into the chalk is available subject to careful design.
PAVEMENT DESIGN	A preliminary design California Bearing Ratio (CBR) of 4% has been recommended.
FOUNDATIONS	
LIKELY FOUNDATION TYPE	The site is suitable for the adoption of shallow strip/trench fill footings to bear on the Kesgrave Catchment Subgroup clay and or gravelly soils. Due to the difficulty in distinguishing different soil types, they will need to be reinforced with steel mesh.
VOLUME CHANGE POTENTIAL	The Kesgrave Catchment Subgroup soils have been shown to have a low volume change potential when assessed against NHBC standards.
ESTIMATED FOUNDATION DEPTHS	The minimum footing depth required is 0.75m, but 1.00m where required to allow for restricted new tree planting. Foundations up to 2.45m depth will be required for some plots due to the tree influence.
HEAVE PROTECTION	Will not be required.

SUMMARY REPORT - CONTAMINATION ISSUES

SUBJECT	COMMENTS
SOIL RISKS TO HUMAN HEALTH	A mound of soil with bonfire residues was found to be contaminated. A single fragment of asbestos cement was found in one area of soil and removed.
LANDFILL GAS	No landfill gas risks have been identified.
RADON GAS	Radon gas protection measures are not required.
RISKS TO THE WATER ENVIRONMENT	No unacceptable contamination risks to water resources have been identified by this investigation.
RISKS TO BUILDING MATERIALS AND SERVICES	No unacceptable contamination risks to building materials and services have been identified by this investigation.
REMEDIATION	The remediation of the mound of soil and bonfire arisings would be best achieved by disposing of this discrete pile from site. Whilst no more asbestos cement fragments were found in the additional phase of ground investigation, it would be prudent to have a watching brief by a competent person during the stripping of topsoil at the site so that if any further such fragments are discovered they can be safely removed.
ASBESTOS	Stacks of suspected corrugated Asbestos Cement sheets have been observed on site. These sheets will need safe removal as part of demolition / site clearance.
WASTE SOIL DISPOSAL	It is considered that the any natural sub-soils disposed of from the site would be classified as 'inert waste'. The mound of mixed soils and bonfire waste remains should be disposed of from site as 'non-hazardous' waste. The asbestos containing materials will need disposal as 'hazardous waste'.

SUMMARY REPORT - KEY RECOMMENDATIONS

RECOMMENDATIONS
No further ground investigation is recommended at this stage. The need may arise for further targeted geotechnical investigation, e.g. deep infiltration, as the design of the development evolves. A remediation strategy should be developed to formalise the planned removal of the bonfire waste mound, removal of asbestos sheets and watching brief during the topsoil strip.

2. SITE CHARACTERISTICS

2.1. SITE SETTING

SITE ADDRESS AND POST CODE	Land off 16 Forge End, Chiswell Green, St Albans, Hertfordshire, AL2 3BN.
NATIONAL GRID REFERENCE	Approximately centred at 513160E, 204175N.

2.2. SITE DESCRIPTION

SUBJECT	COMMENTS
CURRENT SITE DESCRIPTION	The southern part of the site comprises primarily a large grassed open field and a small coppice near the eastern boundary, which surrounds an area previously used by a building contractor to store materials. In the northeast of the site is a disused breezeblock building adjacent to several small paddocks.
SURROUNDING LAND USE	The site is set in a mixed area of residential and agricultural land.
PROPOSED DEVELOPMENT	It is proposed that the site will be developed as residential houses with private gardens, access roads and public open spaces.
HISTORICAL SUMMARY	The site has remained largely undeveloped comprising open fields and paddocks. A building was constructed in the early 1990s in the northeast corner of the site and more recently the coppice in the eastern part of the site has been utilised by a building contractor to store materials.
PUBLISHED GEOLOGY	The north western to northern fringe of the site is shown to be devoid of superficial deposits. The southern extents of the site is shown to be underlain by superficial deposits comprising sand and gravels of the Kesgrave Catchment Subgroup. The shallowest bedrock unit is shown to be Lowes Nodular Chalk Formation and Seaford Chalk Formation (Undifferentiated) and is present underneath the whole site.
RADON	Radon protection measures are not required.
HYDROGEOLOGY	A proportion of the site is situated upon superficial deposits designated a Secondary A Aquifer. The underlying bedrock geology is designated a Principal Aquifer. The site is located within a groundwater Source Protection Zone 2 (Outer Protection Zone).

SUBJECT	COMMENTS
HYDROLOGY	The closest surface water feature to the site is a pond group of small ponds approximately 50m to 70m west of the site. The River Ver is approximately 1.5km east of the site running north to south. The site is not in an area indicated to be at risk of flooding.
DISSOLUTION HAZARDS	Due to the risk of dissolution hazards, BRD employed Stantec (formerly Peter Brett Associates) to undertake a cavities occurrence assessment and this is included in Appendix 2. On the basis of the geological, hydrogeological and geomorphological conditions for the site it has been concluded that the potential for solution feature formation is moderately-high.
CHALK MINING	Chalk mining is commonly associated with brick making and agricultural purposes and us also considered within the Stantec assessment. In consideration of the geology, topography and history of the area it is considered that the potential for past chalk mining at the site is considered to be high.

2.3. PREVIOUS INVESTIGATIONS

BRD is unaware of any previous ground investigations having been conducted at the site. However, the site is part of far larger area that has been the subject of geo-environmental desk study research by BRD and this has been reported separately in 'Phase 1 Environmental Desk Study - Chiswell Green Lane, St Albans', BRD Environmental Ltd, report ref. BRD3604-OR1-A, dated January 2020. This current report should be read in conjunction with the previous desk study report.

3. GROUND INVESTIGATION

3.1. INVESTIGATION DESIGN

METHODOLOGY	The investigation was proposed to be a combination of trial pits and windowless sample boreholes to provide information on the general soils across the site. For the additional investigation, dynamic probe tests were also included to identify any potential solution features as well as assessing the strength of the underlying soils. Trial pits were selected as they expose more soils which enables a more reliable record of the ground conditions encountered, as well as facilitating BRD365 soakage tests. Windowless sample boreholes were selected as monitoring installations and in-situ density of the soils were required. Both the trial pits and windowless samples boreholes provided a sufficient number of soil samples to be tested for contamination and geotechnical assessment purposes.	
DATES OF SITE WORKS	The main field works were undertaken between 16th and 19th March 2020. The additional ground investigation was undertaken on 22nd to 25th June and the 3rd July 2020. Monitoring visits undertaken on 24th March, 1st, 9th and 21st April, and 6th and 20th May 2020.	
CONSTRAINTS TO EXPLORATORY HOLE LAYOUT	No constraints to exploratory hole layout were found.	
EXPLORATORY HOLE SPACING	Generally, approximately 20-50m grid but hole spacing of about 10m or less in areas suspected of potential solutions features.	
LAYOUT RATIONALE	SOURCE / FEATURE	EXPLORATORY HOLE
CONTAMINATION SOURCES TARGETED	Derelict building - storage of fuel containers.	TP08, TP22 & WS10.
	Area of the site used as building materials storage.	TP06, TP07, WS06 & WS107.
	Mound of unknown soils.	TP18
	Area around previous TP20 where one piece of asbestos cement was encountered.	TP116 to TP119.
GROUND FEATURES TARGETED	Soil permeability.	TP01-TP05
	General site coverage.	All initial exploratory holes.
	Central band running southwest to northeast of the site to further characterise the ground conditions coverage.	WS101 to WS122, TP101 to TP115 and DP101 to DP110.

CONTAMINATION SAMPLING PLAN	Based on the proposed end use, the sampling and analysis plan is more positively biased towards near surface samples as these represent the soils most likely to be available to future site users. Samples have also been analysed from the typical depths where services pipes will be placed. Trial pit TP20 was targeted by TP116 to TP119 due to one fragment of asbestos cement found in TP20. However, from visual inspection no further suspected Asbestos Containing Materials (ACM) were found by the additional pits and so no samples were sent for testing.
ANALYSIS PLAN	Given the history of the site, it was considered that the majority of the site soils should be targeted with a general suite of contaminants, including metals, polycyclic aromatic hydrocarbons (PAHs), asbestos fibres and pesticides. In addition to this, the soils were also analysed for total petroleum hydrocarbons (TPH), hydrocarbons, benzene, toluene, ethylbenzene and xylene (BTEX) compounds, methyl tertiary butyl ether (MTBE), volatile organic compound (VOC) and semi volatile organic compounds (SVOC) in order to confirm the water supply pipe specification.

3.2. BRD FIELDWORK

TRIAL PITS	
REFERENCES	TP01 to TP22. Additional investigation pits: TP101 to TP119.
DEPTH RANGE	From 0.30m to 3.30m.
EXCAVATOR	JCB 3CX style wheeled backactor.
BACKFILL	Trial pits TP01 to TP05 were backfilled with coarse gravel and an observation well for the soakage tests. Topsoil was reinstated. The surplus spoil was stockpiled at the edge of the field. The observation wells were removed at the end of the works. All the remaining trial pits were backfilled with arisings upon completion and compacted with rams of the excavator bucket. TP22, located adjacent to the derelict building, was logged in one of the two open holes left on site by the energy supplier company. It is understood these trial holes were excavated to locate and cut off the power cable that fed the derelict building.

DYNAMIC PROBING	
REFERENCES	DP101 to DP110.
DEPTH RANGE	From 0.70m to 7.00m.
RIG TYPE	DPSH-A (Super Heavy): 63.5kg mass, 750mm fall.
CONE TYPE	Sacrificial cone.

WINDOWLESS SAMPLING BOREHOLES	
REFERENCES	WS01 to WS10. Additional investigation boreholes: WS101 to WS122.
DEPTH RANGE	From 2.80m to 7.45m.
RIG TYPE	Premier Drilling Rig.
INSTALLATION / BACKFILL	Boreholes WS01, WS03, WS05, WS08, WS09 and WS101 to WS122 were backfilled with arisings only. Boreholes WS02, WS04, WS06, WS07 and WS10 had monitoring wells installed. These comprised 50mm nominal diameter standpipes fitted with a gas tap finished with a flush metal cover. The slotted response length of the well is shown on the individual logs. Bentonite seals are also indicated on the logs. The filter medium used was pea gravel.

LIGHT WEIGHT DEFLECTOMETER	
REFERENCES	LWD01 to LWD10.
DEPTH RANGE	From 0.40m to 0.60m.
METHODOLOGY	Light Weight Deflectometer.

MONITORING	
TYPE	Ground gases. Groundwater monitoring.
DATES	Monitoring visits undertaken on 24th March, 1st, 9th and 21st April, and 6th and 20th May 2020.
GROUNDWATER SAMPLING METHOD	Boreholes were found dry.

4. GROUND CONDITIONS

4.1. OVERVIEW

The ground conditions encountered were generally as expected from the anticipated geology shown on the available BGS geology maps except that a site wide cover of superficial deposits was found.

Generally, a layer of Topsoil or Made Ground Topsoil was found overlying the superficial deposits of the Kesgrave Catchment Subgroup, which in turn were found overlying the bedrock identified as the Lewes Nodular Chalk Formation and Seaford Chalk Formation (Undifferentiated). For ease, the bedrock is sometimes abbreviated within the report and the logs to Chalk.

The bedrock was either found as shallow as 1.70m bgl or not proven in some of the windowless sample boreholes (maximum 7.45m depth bgl) across the site. This implies that the top of the chalk beneath the superficial deposits has an irregular undulating surface and significant variations were noted in short distances between exploratory points.

Details of the various stratigraphic units are given in the following sections.

4.2. ARTIFICIAL GROUND

Limited Made Ground was encountered in a few areas around the site.

Trial pits TP08 and TP22 targeted the area around the derelict building located in the northeast corner of the site. In TP08 a thin layer of granite gravel over reworked Topsoil down to 0.2m bgl were encountered. A layer of Made Ground comprising a dark brown, very gravelly clay with brick and charcoal fragments was found in TP22.

Made Ground was found in TP01, TP20 and TP21 in the northern part of the site, up to 0.60m bgl and was generally described as dark brown, gravelly, sandy clay with occasional bricks, scrap metal and plastic fragments. A single suspected asbestos cement fragment was found in TP20.

Made Ground was also encountered in exploratory point WS107 beneath surface Made Ground Topsoil. It was described as a brown, gravelly, sandy clay. The gravel included flint, quartzite, charcoal and brick fragments and was found between 0.30m bgl and 0.40m bgl.

Trial pit TP18 targeted the soil mound located in the western boundary of the site. Two differentiated layer of Made Ground were recorded, the shallower comprising up to 1.0m of 'dark brown, ashy, gravelly, sandy, silty topsoil with brick, concrete, clinker, timber fragments and bonfire waste'. The deeper layer comprised up to 0.70m of 'dark brown to light brown, sandy, gravelly clay with occasional brick fragments and decaying plant remains'.

4.3. TOPSOIL AND MADE GROUND TOPSOIL

The majority of the site was surfaced in either a Topsoil or Made Ground Topsoil. The Topsoil was generally described as a gravelly, sandy clay or slightly sandy, gravelly silt with rootlets. Gravel includes both flint and quartzite.

The Made Ground Topsoil was of a similar composition but generally included charcoal and brick fragments. Glass and ceramic was also found in TP118 and plastic, electrical wire and tarmac in TP115. The depth to the base of the Topsoil varied between 0.05m bgl and 0.50m bgl. The depth to the base of the Topsoil/Made Ground Topsoil varied between 0.10m bgl and 0.50m bgl.

4.4. SUPERFICIAL DEPOSITS

4.4.1. Kesgrave Catchment Subgroup

The Kesgrave Catchment Subgroup was encountered in all of the exploratory holes (except TP116, TP117 and TP119 that were terminated at the base of the Topsoil). These deposits were encountered as three different soil types, either gravelly, clay-rich or sandy soils. The thickness of these deposits is greater than 5.45m in some areas of the site.

Typically, there was a consistent thin sub-soil layer of light brown varying from slightly gravelly silt to silty gravel beneath the Topsoil/Made Ground Topsoil.

Gravelly soils were mostly found in the central and northern part of the site underlying the topsoil cover and were generally described as 'brown, red brown and orange brown, slightly clayey, sandy gravel of fine to coarse, subangular to subrounded flint'. When recorded from near surface, the gravelly soils have been recorded with a variable thickness from 0.2m to 0.8m. Deeper gravel layers, recorded below the clay-rich soils, were found in some of the exploratory holes across the site comprising 'orange brown, clayey, medium to coarse gravel and cobbles of subangular to subrounded flint'.

Clay-rich soils were generally found underlying the gravelly soils, across the site and below the topsoil in the southern section of the site. The clay-rich soils were generally described as 'firm to stiff, orange brown with occasional reddish brown mottling, slightly gravelly to gravelly, slightly sandy to sandy, clay. Gravel of fine to coarse, subangular to subrounded flint and occasional cobbles'. The clayey soils sometimes had natural black specks (probable manganese deposits) that increased in number and size with depth.

Sandy soils were found at variable depths and thickness intercalated within the clay-rich soils. Generally were described as 'orange brown to brown, slightly gravelly, slightly silty sand'.

The superficial deposits had notable clay content, flint content and distinctive red brown colouration in part. It is conjectured that the Kesgrave Catchment Subgroup at the site is a combination of locally eroded and re-deposited Clay-with-Flints together with the sand and quarzitic gravel from further afield.

In a couple of trial pits it was noted that towards the base of the pits there were nodular cobbles to boulders of flint that had a 'putty' chalk matrix adhering to them. Some trial pits recorded large pockets of chalk within the Kesgrave Catchment Subgroup. Borehole WS113 appears to have gone through one such pocket with it going through superficial clay, into chalk and then back into superficial clay. Other boreholes included pockets of off white chalk. These features are suggestive of geological re-working and erosion of the chalk bedrock surface. Where proven, this features were indicative of the transition to chalk bedrock was not much deeper.

The superficial deposits as a whole were found to depths varying between 1.70m bgl to often below the typical maximum depth of the windowless sampling boreholes at 5.45m bgl. In exploratory point WS121, however, the superficial deposits were proven to 7.45m bgl and no Chalk was encountered.

4.5. BEDROCK

4.5.1. Lewes Nodular Chalk Formation and Seaford Chalk Formation

The Lewes Nodular Chalk Formation and Seaford Chalk Formation (Undifferentiated) was encountered in just over a third of the exploratory holes.

The Chalk bedrock was encountered in trial pits TP03, TP07, TP10, TP13, TP105, TP106, TP109 and TP11 as well as 20No. of the boreholes. The majority of these were in a central band running south west to north east across the site. The bedrock geology was found as an irregular undulating chalk surface with the depth to reach the chalk varying significantly in short distances.

The widest area, located from the western boundary of the site (WS02) and extending to the east towards WS07 and north up to WS08. The second area comprises an area between TP07, WS06 and WS09 located to the east of the site.

Based on the trial pits, which show a more reliable description, the Chalk bedrock was typically described as 'structureless chalk excavated as off white, silty, clayey gravel. Gravel of weak, low density, fine to coarse, subangular chalk with occasional fine to coarse gravel and cobbles of flint. Orange staining on surfaces and frequent black specks'.

It was notable that initially the chalk was encountered in a very disturbed state with a soft consistency. This matrix dominated structureless chalk contained chalk gravel that had been rounded. The rounding of the chalk gravel suggests geological movement and re-working of this upper chalk surface.

4.6. GEOTECHNICAL COMMENTS

The ground conditions varied throughout the site with variable thicknesses of the coarse and fine soils of the Kesgrave Catchment Subgroup recorded. It should be noted that any changes in ground conditions over short distances will have an effect on the foundation design.

With the benefit of the additional investigation, it is concluded that there is no evidence of significant dissolution of the chalk. Instead, the irregular surface of the chalk and its initial poor condition is a result of the fluvial erosion and re-working during the deposition of the Kesgrave Catchment Subgroup.

No physical evidence of possible chalk mining was found by this investigation, but the risk cannot be ruled out entirely.

4.7. CONTAMINATION OBSERVATIONS

No visual or olfactory evidence of contamination was noted during the forwarding of exploratory holes with the exception of a single fragment of asbestos cement removed from trial pit TP20.

4.8. GROUNDWATER BEHAVIOUR

Groundwater was not encountered whilst forwarding the exploratory holes.

4.9. GROUNDWATER MONITORING

DATE	RESTING GROUNDWATER RANGE	COMMENTS
24/03/2020	Dry.	Monitoring wells were installed in boreholes WS02, WS04, WS06, WS07 and WS10, to depths between 2.8m and 4.0m bgl. The three monitoring visits recorded all the boreholes to be dry.
01/04/2020	Dry.	
09/04/2020	Dry.	
21/04/2020	Generally dry. 4.02m bgl in WS04.	Ground water was only detected in borehole WS04 situated in the lowest part of the site. However, it is possible that the water detected is that which has slowly accumulated in the end cap of the monitoring well installation rather than true groundwater.
06/05/2020	Generally dry. 4.03m bgl in WS04.	
20/05/2020	Generally dry. 4.02m bgl in WS04.	

6.4. SUB-SURFACE CONCRETE

ALL ON-SITE SOILS	
SITE / SOIL CATEGORY	Natural ground.
DESIGN SULPHATE CLASS	DS-1
GROUNDWATER REGIME	Static.
AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE (ACEC) CLASS	AC-1s
COMMENTS	Static groundwater conditions have been selected as groundwater is expected to be permanently below the lowest level of proposed construction.

6.5. SOAKAWAYS

6.5.1. Soil Infiltration Rate

The records of the soakage tests are presented in the Appendices that includes the calculation of the soil infiltration rate. A summary of results are presented in the table below:

TRIAL PIT	SOIL INFILTRATION RATE		STRATUM TESTED
TP01	Test 1	6.88×10^{-7} m/s Result extrapolated and so guide only	0.60m - 0.90m: Brown, clayey, slightly sandy GRAVEL. 0.90m - 2.10m: Fissured, orangish brown to brown mottled reddish brown, slightly gravelly, silty CLAY.
	Test 2	9.88×10^{-7} m/s	
TP02	Test 1	6.68×10^{-7} m/s Result extrapolated and so guide only.	0.80m - 2.10m: Orangish brown mottled reddish brown, gravelly, silty CLAY. 2.10m - 2.60m: Orangish brown, slightly gravelly, slightly clayey SAND.
	Test 2	8.91×10^{-7} m/s	
TP03	Test 1	3.72×10^{-4} m/s	0.50m - 2.20m: Orangish brown mottled reddish brown, gravelly, sandy CLAY. 2.20m - 2.70m: Structureless CHALK, excavated as slightly sandy, silty gravel with occasional cobbles.
	Test 2	3.67×10^{-4} m/s	
	Test 3	3.57×10^{-4} m/s	
TP04	Test 1	2.51×10^{-5} m/s	0.20m - 0.90m: Brown, slightly clayey, sandy GRAVEL. 0.90m - 2.10m: Brown to orangish brown, slightly gravelly, sandy CLAY. Occasional sand pockets.
	Test 2	2.89×10^{-5} m/s	
	Test 3	3.92×10^{-5} m/s	

TRIAL PIT	SOIL INFILTRATION RATE		STRATUM TESTED
TP05	Test 1	3.99×10^{-8} m/s Result extrapolated and so guide only.	0.20m - 2.00m: Orangish brown to brown to orangish brown, slightly gravelly, silty CLAY.
	Test 2	4.26×10^{-8} m/s Result extrapolated and so guide only.	

6.5.2. Soakaway Design Advice

Trial pits TP01 to TP05 were undertaken for soakage tests ranging from 2.00 to 2.70m depth. Due to the irregular undulating surface of the chalk across the site, the bedrock was only found in one of the proposed soakage pits (TP03). The rest of the trial pits recorded the variable soils of the superficial deposits that comprised both clay and gravel with a no distribution pattern with depth nor laterally.

6.5.2.1. Kesgrave Catchment Subgroup

Infiltration rates of the order of 10^{-7} m/s and 10^{-8} m/s which are indicative of poor drainage characteristics were recorded in trial pits TP01, TP02 and TP05. It is notable that clay-rich soils were predominant in these pits. The only exception was TP04 where surface granular soils were recorded up to 0.9m depth and clay-rich soils to the base of the pit, but significantly with occasional sand pockets. Moderate infiltration rates of the order of 10^{-5} m/s were recorded.

Based on the above, it is considered that the disposal of collected surface water to soakaways will not generally be feasible at this site due to the variable soil nature of the Kesgrave Catchment Subgroup and proved low permeability of these soils.

6.5.2.2. Chalk

As mentioned above, within the soakage test pits the chalk bedrock was only proven in TP03 at a depth below 2.20m bgl. As expected, good infiltration rates of the order of 10^{-4} m/s were recorded which are indicative of good drainage characteristics.

In the areas where the Chalk bedrock is recorded at shallower depth then soakaways could be considered. There may also be the potential to use deep borehole style soakaways, but this would require specific investigation. There is also the possibility of using attenuation basins with trench excavated through their base to intercept the chalk bedrock with the trenches then backfilled with free draining gravel to provide a permeable pathway for infiltration into the chalk to occur.

Furthermore, it is worth noting that the site has been classified with a moderate to high risk potential risk for solution features. It is considered that soakaways could concentrate rainfall ingress at the soakaway positions, which could result in formation of solution features. On this basis it is considered that soakaway storm water drainage discharging into the chalk will require careful design if pursued. In particular, the potential to create dissolution features within the chalk by the ingress of water means that any soakaways should be located well away from foundations for buildings or roads. The guidance on this issue presented in CIRIA C574 is that for low to medium density chalk as proven at the site, soakaways should be sited at least 10m away from any foundation.

KEY:

- BRD Additional Trial Pit (TP101-TP120)
- BRD Additional Windowless Sample Borehole (WS101-WS122)
- BRD Dynamic Probing
- BRD Trial Pit
- BRD Windowless Sample Borehole
- BRD Windowless Sample Borehole with Monitoring Well Installation
- BRD Light Weight Deflectometer test (LWD)
- Site boundary

NOTES:

Drawing reproduced from Groundsurveys Ltd, "Site Survey, Land at Chiswell Green, St. Albans", Drawing ref. 01-06 – 7290. Dated January 2020.

The locations of all BRD exploratory points were positioned by topographical survey.

All boundaries are approximate.

EXPLORATORY POINT PLAN

CHISWELL GREEN, ST. ALBANS

CALA HOMES (CHILTERNS) LTD

1:750	A1 / C	17/07/2020
RM	MK	BD

BRD3604-OD1 | B

BRD Environmental Ltd

BRD

01293 372244
info@brdltd.com
www.brdltd.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	R Marina
Date Completed:	16/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP01

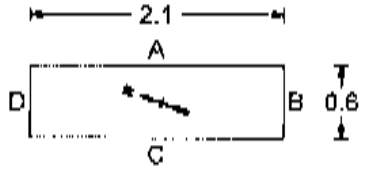
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.15	J1		MADE GROUND / TOPSOIL: Grass over dark brown, slightly gravelly, clay with rootlets. Gravel of fine to course, subangular to subrounded flint. Occasional brick fragments.	0.20 (89.88)	M/T	
0.50	J2		MADE GROUND: Brown, gravelly, slightly sandy clay. Gravel of fine to coarse, subangular flint with occasional cobbles. Occasional scrap metal and brick fragments.	0.60 (89.48)	MG	
0.80	B1		Medium dense, brown, clayey, slightly sandy GRAVEL. Gravel of fine to coarse, subangular to subrounded flint.	0.90 (89.18)	KESGRAVE CATCHMENT SUBGROUP	
0.95	SV	110/104/112 kPa	Firm to stiff, fissured, orangish brown to brown mottled reddish brown, slightly gravelly, silty CLAY. Gravel of fine to coarse, subangular to subrounded flint with occasional cobbles becoming frequent between 1.50m and 1.80m bgl.			
1.10	D1		1.50 - 1.80 m: Cobbles becoming frequent.			
2.00	B2			2.10 (86.98)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
89.08 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.10m bgl for soakage testing.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email. info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	R Marina
Date Completed:	16/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP02

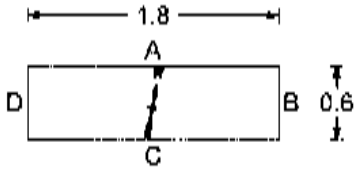
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			MADE GROUND / TOPSOIL: Grass over dark brown, gravelly, slightly sandy clay with frequent rootlets. Gravel of fine to coarse, subangular to subrounded flint. Rare brick fragments.	0.25 (85.39)	MAT	
			Medium dense, brown, orangish brown, clayey, slightly sandy GRAVEL. Gravel of fine to coarse, subangular to subrounded flint.	0.80 (84.84)	KESGRAVE CATCHMENT SUBGROUP	
1.50	B1		Firm to stiff, orangish brown mottled reddish brown, gravelly, silty CLAY. Gravel of fine to coarse, subangular to subrounded flint with occasional cobbles. Occasional black to frequent black specks.			
1.90	SV	100/100/98 kPa		2.10 (83.54)		
2.40	B2		Moist, orangish brown, slightly gravelly, slightly clayey SAND.			
				2.60 (83.04)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.64 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.60m bgl for soakage testing.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	R Marina
Date Completed:	16/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP03

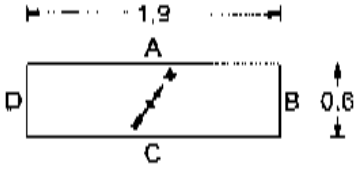
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	J1		TOPSOIL: Grass over dark brown, gravelly, slightly sandy, silty clay with rootlets. Gravel of fine to coarse, subangular to subrounded flint.		TS	
			Medium dense, brown, orangish brown, clayey, slightly sandy GRAVEL. Gravel of fine to coarse, subangular to subrounded flint.	0.25 (87.09)	KESGRAVE CATCHMENT SUBGROUP	
			Firm, orangish brown mottled reddish brown, gravelly, sandy CLAY. Occasional cobbles. Gravel of fine to coarse, subangular to subrounded flint.	0.60 (86.84)		
0.70	SV	120/112/105 kPa				
0.80	J2					
1.30	B1					
			Structureless CHALK excavated as off white, silty, clayey gravel. Gravel of weak, low density, fine to coarse, subangular chalk with fine to coarse cobbles of flint. Orange staining on surfaces and frequent black specks. (CIRIA Grade Dc)	2.20 (85.14)	CHALK	
2.40	D1			2.70 (84.64)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation (AOD)
87.34 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.70m bgl for soakage testing.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	R Marina
Date Completed:	16/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP04

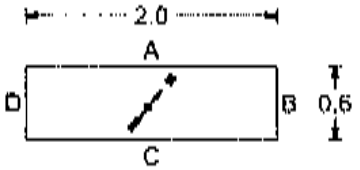
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Grass over dark brown, gravelly, slightly sandy, silty clay with rootlets. Gravel of fine to coarse, subangular to subrounded flint.	0.20 (87.07)	TS	
			Medium dense, brown, slightly clayey, sandy GRAVEL. Gravel of fine to coarse, subangular to subrounded flint.		KESGRAVE CATCHMENT SUBGROUP	
0.80	B1		0.70 m: Occasional sand pockets.			
0.95	D1		Firm to stiff, brown to orangish brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Occasional flint cobbles	0.90 (86.37)		
1.30	SV	80/86/82 kPa	1.30 - 1.80 m: Occasional sand pockets.			
1.80	D2					
				2.10 (85.17)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
87.27 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.10m bgl for soakage testing.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	R Marina
Date Completed:	16/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP05

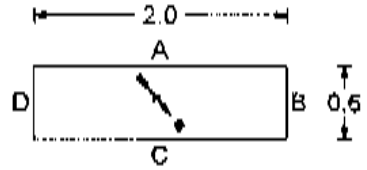
Sheet 1 of 1

Samples & Tests Depth	Type & No	Value	Description of Strata	Depth / (Level)	Geology	Legend
0.15	J1		TOPSOIL: Grass over dark brown, slightly gravelly, very silty clay with rootlets. Gravel of fine to course, subangular to subrounded flint.	0.20 (85.35)	TS	
0.70	SV	80/74/62 kPa	Firm, orangish brown to brown, slightly gravelly, silty CLAY. Gravel of fine to course, subangular to subrounded flint. Occasional grey mottling and black specks.		KESGRAVE CATCHMENT SUBGROUP	
0.70	J2					
1.00	D1					
			1.20 Occasional gravel.			
1.80	D2			2.00 (83.55)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.55 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.00m bgl for soakage testing.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: R Marina
Date Completed: 16/03/2020
Method Used: 180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP06

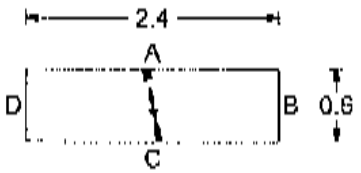
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10 0.15	J1 PID	2.1 ppm	MADE GROUND / TOPSOIL: Loose, dark brown, gravelly, sandy clay with roots and rootlets. Gravel of fine to coarse, subangular to subrounded flint. Occasional brick fragments and rare clinker.	0.20 (85.51)	MAT	
			Medium dense, brown, orangish brown, clayey, sandy GRAVEL. Gravel of fine to coarse, subangular to subrounded flint.		KESGRAVE CATCHMENT SUBGROUP	
0.80	B1			0.80 (84.91)		
			Firm, orangish brown mottled reddish brown, gravelly, silty CLAY. Gravel of fine to coarse, subangular to subrounded flint. Occasional to frequent flint cobbles.	1		
1.40	B2					
2.70	B3			3.00 (82.71)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.71 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgt.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01296 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	R Marina
Date Completed:	16/03/2020
Method Used:	180" Backhoe excavator (JCB 3CX type)

Trial Pit No

TP07

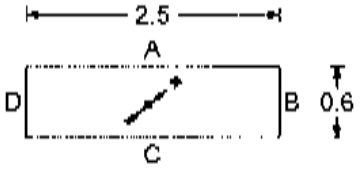
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.15	J1		MADE GROUND / TOPSOIL: Dark brown, gravelly, sandy clay with rootlets. Gravel of fine to coarse, subangular to subrounded flint. Occasional brick fragments.	0.20 (85.54)	MG	
			Medium dense, brown, clayey, sandy GRAVEL. Gravel of fine to coarse, subangular to subrounded flint.	0.50 (85.24)	KESGRAVE CATCHMENT SUBGROUP	
0.65	J2		Firm, orangish brown, occasional mottled reddish brown, gravelly, silty CLAY. Gravel of fine to coarse, subangular to subrounded flint. Occasional to frequent cobbles.			
			1.70 - 2.10 m: FACE B/C: Pocket of chalk 0.50m width.			
			Structureless CHALK excavated as off white, silty, clayey gravel. Gravel of weak, low density, fine to coarse, subangular chalk with fine to coarse cobbles of flint. Orange staining on surfaces and frequent black specks. (CIRIA Grade Dc)	2.70 (83.04)	CHALK	
3.20	B1			3.30 (82.44)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.74 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.30m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272744
Email: info@brduk.com

TRIAL PIT RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: I Hibberd
Date Completed: 17/03/2020
Method Used: 180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP08

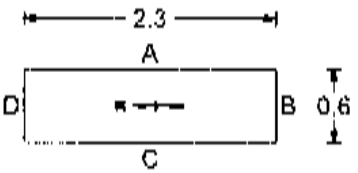
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	J1		MADE GROUND: Loose to medium dense, purplish brown, gravel of subangular to angular granite.	0.05 (88.79)	MG	
			MADE GROUND: Compact, dark brown, very silty clay topsoil. Gravel of fine to coarse, subangular to subrounded flint with occasional brick fragments.	0.20 (88.64)		
0.50	SV	70/72/74 kPa	0.05 m: Terram membrane			
0.50	J2		Firm, orange brown with some black specks, slightly silty, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and chalk.	0.70 (88.14)	KESGRAVE CATCHMENT SUBGROUP	
0.80	D1		Stiff, brown, slightly gravelly to gravelly, slightly sandy CLAY. Gravel of fine to coarse with cobbles, subangular to subrounded flint and occasional chalk.			
1.00	SV	86/88/92 kPa				
			Firm to stiff, orange brown with occasional black specks, very gravelly CLAY. Gravel of fine to coarse with cobbles, subangular to subrounded flint and occasional chalk.	1.20 (87.64)		
1.70	D2					
1.80	J3					
			2.30 m: Becoming firm, very gravelly, sandy CLAY.			
				2.00 (86.84)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
88.84 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.30m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272744
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Completed:	17/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP09

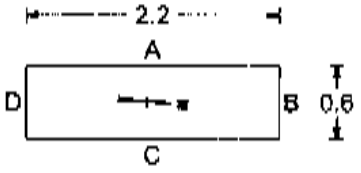
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.20	J1		TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint. Frequent rootlets.		TS	
			Medium dense, orange brown, slightly clayey, sandy GRAVEL of fine to coarse with occasional cobbles of subangular to subrounded flint.	0.35 (87.20)		
0.60	J2					
0.70	B1					
			0.80 - 1.30 m: FACE D: Stiff, friable in places, orange brown with black specks, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.80 (86.75)	KESGRAVE CATCHMENT SUBGROUP	
1.20	SV	50/45 kPa				
1.20	D1		1.20 m: Too gravelly to undertake three shear vane tests.			
			Stiff, friable in places, orange brown with black specks, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	1.30 (86.25)		
2.30	D2		Medium dense, orange brown, clayey, gravelly SAND. Gravel of fine to coarse, subangular to subrounded flint. Occasional cobbles of fine.	2.20 (85.35)		
2.80	D3		Stiff, orange brown with black specks, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	2.70 (84.85)		
				2.90 (84.65)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
87.55 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.90m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Completed: 17/03/2020
Method Used: 180° Backhoe excavator (JCB 3CX type)

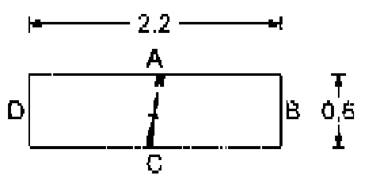
Trial Pit No.
TP10
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.05	J1		TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint. Frequent rootlets.	0.10 (88.45)	T	
0.70	J2		Medium dense, orange brown, slightly clayey, gravelly SAND. Gravel of fine to corse, subangular to subrounded flint.		KESGRAVE CATCHMENT SUBGROUP	
1.00	B1			1.10 (87.45)		
1.20	J3		Firm, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse with occasional cobbles of subangular to subrounded flint. 1.10 m: Small pocket of chalk in FACE A. 1.30 m: Difficult to undertake shear vane tests due to gravel content.			
1.30	SV	[illegible] kPa				
1.30	D1			1.70 (86.85)		
2.50	B1		Structureless CHALK excavated as off white, clayey gravel. Gravel of weak, low density, fine to coarse, subangular chalk with fine to coarse cobbles of flint.. Orange staining on surfaces and black specks. (CIRIA Grade Dc) 1.70 - 2.10 m: FACE C. Pocket of gravelly sandy clay 0.80m wide. 1.70 - 2.90 m: Infilled solution feature of gravelly, sandy clay.		CHALK	
2.60	J3			3.00 (85.55)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level: 88.55 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone 01295 272244
Email: info@brduk.com.

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Completed:	17/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP11

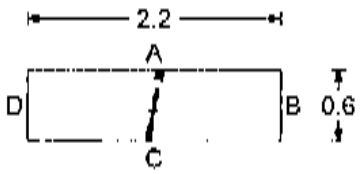
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.20	J1		TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint. Frequent rootlets.	0.30 (89.69)	MT	
0.50	D1		Firm, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.60 (89.39)	KESGRAVE CATCHMENT SUBGROUP	
0.70	J2		Medium dense, clayey, sandy GRAVEL of fine to coarse, subangular to subrounded flint.	1.10 (88.89)		
1.20 1.20	SV D2	56/78/80 kPa	Reddish brown with black specks, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and chalk. Occasional cobbles of flint.			
2.50 2.60	J3 D3			2.70 (87.29)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
89.99 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.70m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Completed:	17/03/2020
Method Used:	180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP12

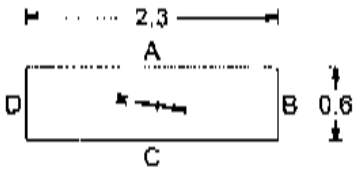
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.20	J1		TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint.	0.30 (91.21)	MIT	
0.50	J2		Firm, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Occasional cobbles of flint.		KESGRAVE CATCHMENT SUBGROUP	
1.00	SV	80/60/60 kPa				
1.00	D1					
			Medium dense, orange brown with black specks, clayey, gravelly SAND with occasional clay lumps. Gravel of fine to coarse with occasional cobbles of subangular to subrounded flint and sandstone.	1.50 (90.01)		
1.90	B1					
				3.10 (88.41)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
91.51 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.10m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	I Hibberd
Date Completed:	17/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP13

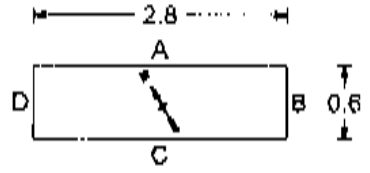
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.15	J1		TOPSOIL: Grass over soft, dark brown, slightly gravelly, very sandy clayey silt. Gravel of fine to coarse, subangular to subrounded flint.	0.25 (88.14)	MT	
0.60	J2		Medium dense, light brown, slightly silty SAND and GRAVEL of fine to coarse, subangular to subrounded flint.	0.80 (87.59)	KESGRAVE CATCHMENT SUBGROUP	
1.00	D1		Medium dense, red / brown, clayey, gravelly SAND with pockets of firm to stiff clay. Gravel of fine to coarse with cobbles, subangular to subrounded flint.	1.40 (86.99)		
1.70	SV	50/52/54 kPa	Firm, red brown, very gravelly, very sandy CLAY. Gravel of fine to coarse with cobbles, subangular to subrounded flint and rare sandstone. 1.70 m: Difficult to shear vane on excavated clay due to high gravel content.			
2.00	J3			2.30 (86.09)		
2.60	D2		Medium dense, orange brown, clayey, gravelly SAND with clay lumps. Gravel of fine to coarse with cobbles, subangular to subrounded flint. 2.60 - 2.90 m: FACE A. Abundant flint cobbles with some dark brown clay.	2.90 (85.49)	CH	
			Structureless CHALK excavated as weak, low to medium density, white with some orange staining and black specks, clayey, medium to coarse gravel and cobbles in a silty clay matrix. (CIRIA Grade Dc)	3.10 (85.29)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
88.39 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.10m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	I Hibberd
Date Completed:	17/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP14

Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.20	J1		TOPSOIL: Grass over soft, brown, slightly gravelly, sandy, silty clay / clayey silt. Gravel of fine to medium, subangular to subrounded flint	0.30 (85.62)	TS	
0.50	SV	50/48/50 kPa	Firm, light brown, slightly gravelly, sandy, silty CLAY. Gravel of fine to coarse, subangular to subrounded flint.			
0.50	D1			0.80 (85.32)		
1.00	SV	100/102/100 kPa	Stiff, orange brown, slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.		KESGRAVE CATCHMENT SUBGROUP	
1.00	D2					
1.70	J2		Firm, friable, dark orange brown with some light grey, slightly gravelly, very sandy, silty CLAY. Gravel of fine to medium, subangular to subrounded flint. Some black specks.	1.50 (84.42)		
1.90	SV	50/48/48 kPa	1.90 m: Difficult to shear vane due to sand content and clay lumps breaking up.			
2.00	D3					
2.60	SV	42/46/48 kPa	Firm, partially fissured, light brown with rare light grey, sandy, silty CLAY. Occasional sand lenses with rare fine, subangular to subrounded flint gravel.	2.50 (83.42)		
2.70	D4					
				3.10 (82.82)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.92 mAOD

Plan of Trial Pit:

General Remarks:
Trial pit terminated at 3.10m bgl.
Relative density based on visual assessment only.
Very low gravel content throughout.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	I Hibberd
Date Completed:	17/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP15

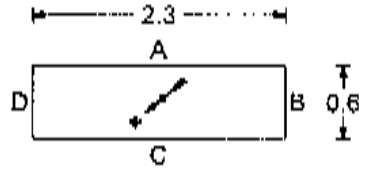
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Grass over soft, brown, slightly gravelly, sandy, silty clay / clayey silt. Gravel of fine to medium, subangular to subrounded flint.		TS	
				0.30 (86.14)		
0.50	SV	40/42/40 kPa	Soft to firm, light brown, slightly gravelly, silty, sandy CLAY. Gravel of fine to medium, subangular to subrounded flint.			
				0.60 (85.84)		
0.80	SV	100/110/102 kPa	Stiff, dark orange brown, very gravelly, slightly sandy CLAY. Gravel of fine to coarse with cobbles of subangular to subrounded flint.		KESGRAVE CATCHMENT SUBGROUP	
0.90	J1					
1.00	D1					
			1.40 m: Occasional sandy pockets.			
				1.00 (84.64)		
			Dense to very dense, orange brown, clayey GRAVEL and COBBLES of subangular to subrounded flint.			
				2.60 (83.84)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
86.44 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.60m bgl as hard to dig.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: I Hibberd
Date Completed: 18/03/2020
Method Used: 180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP16

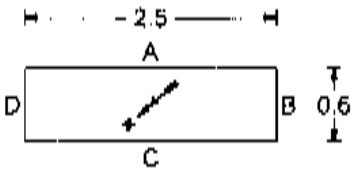
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	J1		TOPSOIL: Grass over soft, brown, slightly gravelly, sandy, silty clay. Gravel of fine to coarse, subangular to subrounded flint with occasional rootlets.		TS	
			Firm, light orange brown, slightly gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.25 (85.38)	KESGRAVE CATCHMENT SUBGROUP	
0.50	J2					
0.60	SV	52/70/54 kPa				
0.60	D1		0.60 m: Becoming gravelly.	0.70 (84.93)		
			Medium dense to dense, light brown with orange, sandy, clayey GRAVEL and COBBLES of subangular to subrounded flint.			
1.20	B1					
1.30	J3					
			Firm, orange brown, sandy, very gravelly CLAY. Gravel of medium to coarse with cobbles of subangular to subrounded flint.	1.50 (84.13)		
			1.70 m: Unable to shear vane due to high gravel and cobble content.			
			2.20 m: Becoming stiff			
2.50	SV	72/74/74 kPa				
2.50	D2					
				3.00 (82.63)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.63 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	I Hibberd
Date Completed:	18/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP17

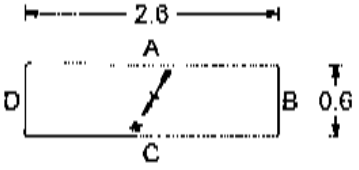
Sheet 1 of 1

Samples & Tests			Description of Stratu	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.20	J1		TOPSOIL: Grass over soft, brown, slightly gravelly, sandy, silty clay. Gravel of fine to coarse, subangular to subrounded flint with occasional rootlets.	0.30 (86.00)	TS	
			Soft to firm, friable, light brown, slightly gravelly, sandy, very silty CLAY. Gravel of fine to medium, subangular to subrounded flint.	0.90 (85.40)	KESGRAVE CATCHMENT SUBGROUP	
1.00 1.00	SV D1	70/80/88 kPa	Firm to stiff, orange brown, very gravelly, slightly sandy CLAY. Gravel of fine to coarse with cobbles of subangular to subrounded flint.	1		
1.80	D2		Medium dense to dense, orange brown, clayey, medium to coarse, GRAVEL and COBBLES of subangular to subrounded flint. 1.80 m: Difficult to dig.	1.80 (84.49) 2		
				2.80 (83.49) 3 4		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
86.29 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.80m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272744
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	I Hibberd
Date Completed:	18/03/2020
Method Used:	180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP18

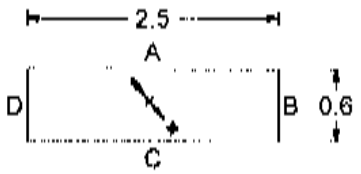
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	J1		MADE GROUND: Loam, dark brown, ashy, gravelly, sandy, silty topsoil. Gravel of fine to coarse with cobbles of subangular to subrounded flint, brick, concrete, clinker and fragments of plastic, timber and general waste (evidence of bonfire waste).	1.00 (89.05)	MADE GROUND MOUND	
1.30	J2		MADE GROUND: Soft, dark brown and light brown, sandy, gravelly clay. Gravel of fine to coarse with cobbles of subangular to subrounded flint, clinker. Occasional brick and decaying plant remains.	1.70 (88.35)		
			Soft to firm, light brown, slightly gravelly, sandy CLAY. Gravel of fine to medium, subangular to subrounded flint. 1.70 m: Evidence of bonfire waste.	1.80 (88.25)	K	

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
90.05 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated once underlying natural soils encountered.
Excavated in a mound.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: I Hibberd
Date Completed: 18/03/2020
Method Used: 180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP19

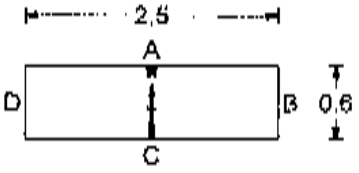
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	J1		TOPSOIL: Soft, brown, slightly gravelly, sandy, silty clay. Gravel of fine to medium, subangular to subrounded flint. Abundant roots.	0.20 (85.97)	TS	
0.60	J2		Medium dense, light brown, silty, very sandy GRAVEL of fine to coarse, subangular to subrounded flint with rootlets.	1.00 (85.17)	KESGRAVE CATCHMENT SUBGROUP	
1.10	SV	88/100/92 kPa	Stiff, dark orange, very gravelly, sandy CLAY with rootlets. Gravel of fine to course with cobbles of subangular to subrounded flint.			
1.10	D1		1.10 m: Values affected by high gravel content.			
1.60	D2					
1.70	J3		1.60 m: Unable to shear vane on excavated soil as very gravelly, very silty and friable.	1.80 (84.37)		
2.40	B1		Medium dense to dense, orange brown, clayey, very gravelly, silty SAND. Gravel of medium to coarse with cobbles of subangular to subrounded flint. Some clay lumps with abundant cobbles.	3.00 (83.17)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
86.17 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.
Difficult to excavate.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01255 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	I Hibberd
Date Completed:	18/03/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP20

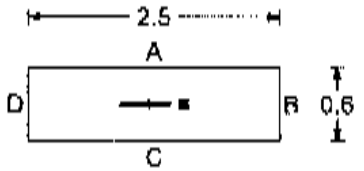
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10 0.20	J1 J2		MADE GROUND: Grass over soft, brown, very sandy, gravelly, silty clay topsoil. Gravel of fine to coarse, subangular to subrounded flint with occasional brick and metal fragments. Single fragment of suspected asbestos cement.	0.30 (87.79)	MG	
			Medium dense, light brown, very clayey, slightly sandy, fine to coarse, subangular to subrounded flint GRAVEL with some clay lumps.	0.70 (87.39)	KESGRAVE CATCHMENT SUBGROUP	
1.00	SV	86/82/86 kPa	Stiff, orange with red mottling, slightly sandy, gravelly CLAY. Gravel of fine to coarse with cobbles of subangular to subrounded flint.			
			1.40 m: Becoming very gravelly.			
1.60	J3		Medium dense to dense, orange brown, sandy, clayey GRAVEL and COBBLES of subangular to subrounded flint.	1.80 (86.29)		
				2.80 (85.29)		

Pit Stability: Slight spalling of sides
Groundwater: Not encountered

Surface Elevation Level
88.09 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.80m bgl.
Relative density based on visual assessment only.
Slight spalling of sides due to high cobble content.
Difficult to dig.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: I Hibberd
Date Completed: 18/03/2020
Method Used: 180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP21

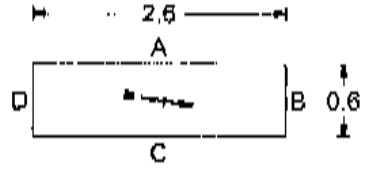
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10	J1		MADE GROUND: Soft, dark brown, gravelly, sandy clayey silt topsoil. Gravel of fine to coarse with occasional cobbles of subangular to subrounded flint and occasional brick, plastic and metal. Extends to 0.40m bgl in FACE B.	0.20 (90.36)	MG	
0.40	J2		Medium dense, light brown, sandy clayey, fine to coarse, subangular to subrounded flint GRAVEL with occasional clay lumps.			
1.00	SV	82/80/82 kPa	Firm, dark orange brown, slightly sandy in parts, slightly gravelly CLAY. Gravel of fine to coarse with occasional cobbles of subangular to subrounded flint.	0.90 (89.66)	KESGRAVE CATCHMENT SUBGROUP	
1.00	D1					
1.60	D2		1.60 m: Becoming very sandy and silty.			
1.80	SV	42/50/48 kPa				
			Medium dense, orange brown with some light brown, slightly clayey, slightly gravelly, silty SAND. Gravel of fine to coarse, subangular to subrounded flint. Occasional clay lumps.	2.10 (88.46)		
2.50	D3					
				3.00 (87.56)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
90.56 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272241
Email: info@brduk.com

TRIAL PIT RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: I Hibberd
Date Completed: 18/03/2020
Method Used: 180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP22

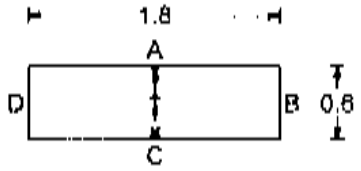
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
0.10 0.10	PID J1	0.0 ppm	MADE GROUND: Grass over dark brown, very gravelly clay. Gravel of fine to coarse, subangular to subrounded flint with rare brick and charcoal.		MG	
			Firm to stiff, orange brown mottled red, gravelly to very gravelly CLAY. Gravel of fine to coarse with cobbles of subangular to subrounded flint.	0.30 (88.71)	KESGRAVE	
0.60 0.60	PID J2	0.0 ppm		0.90 (88.11)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level:
89.01 mAOD

Plan of Trial Pit:



General Remarks:
Existing excavation logged as trial pit.
Relative density based on visual assessment only.

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email. info@brduk.com

TRIAL PIT RECORD

Client: Cala Homes (Chiltern) Ltd
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: B Devonshire
Date Completed: 22/06/2020
Method Used: 180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP101

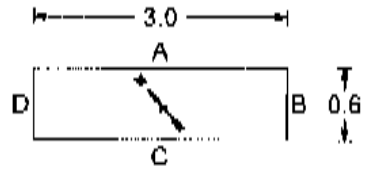
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Rough grass over, firm, dry, brown and dark brown, slightly sandy, slightly gravelly, slightly organic silt, with rare roots and rootlets. Gravel is medium to coarse, angular flint.	0.25 (86.24)	TSOIL	
			Firm, dry, light brown, slightly sandy, gravelly SILT. Gravel is fine to coarse, rounded to angular flint and quartzite.	0.70 (85.79)	KESGRAVE CATCHMENT SUBGROUP	
1.10	D1		Firm to stiff, red brown, gravelly CLAY. Gravel is fine to coarse, rounded and subangular quartzite and flint.			
1.60	B1		1.50 m: Gravel increasing to cobble in size.			
			2.00 m: Increasing gravel content making digging progress slow.	2.75 (83.74)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
86.493 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.75m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP102

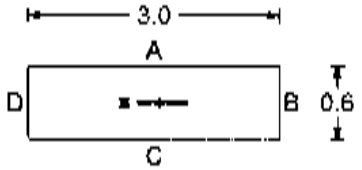
Sheet 1 of 1

Samples & Tests: Depth	Type & No	Value	Description of Strata	Depth / (Level)	Geology	Legend
			TOPSOIL. Rough grass over. firm, dry, brown, slightly sandy, slightly organic silt, with rare medium to coarse, subrounded to subangular flint and quartzite gravel and rootlets.	0.30 (85.62)	TOPSOIL	
			Firm, dry, light brown, slightly sandy, gravelly SILT. Gravel is fine to coarse, rounded to angular flint and quartzite.	0.60 (85.32)	KESGRAVE CATCHMENT SUBGROUP	
			Medium density, brown to red brown, very clayey GRAVEL. Gravel is fine to coarse, rounded to subangular flint and quartzite.			
			1.50 m: Large pockets of gravelly clay.			
			Firm, red brown, gravelly to very gravelly CLAY. Gravel is fine to coarse, subangular to rounded quartzite and flint. Rare cobbles.	1.05 (84.27)		
				2.90 (83.02)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.922 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.90m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No

TP103

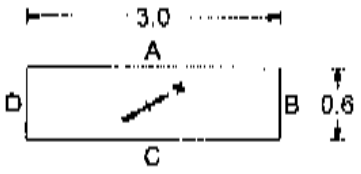
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Rough grass over, firm, dry, brown, slightly sandy, slightly organic silt, with rare medium to coarse, subrounded to subangular flint and quartzite gravel, with rootlets and roots to 5mm diameter.	0.25 (85.31)	TSOIL	
			Firm, dry, light brown, slightly sandy, gravelly SILT. Gravel is fine to coarse, rounded to angular flint and quartzite.	0.80 (84.76)	KESGRAVE CATCHMENT SUBGROUP	
1.10	D1		Firm to stiff, red brown, slightly gravelly CLAY. Gravel is fine to medium, rounded to subangular quartzite and flint.			
			2.00 m: Only rare gravel and with some black manganese mottling and light grey brown mottling.			
2.20	D2		2.50 m: Gravel absent. Manganese specks less frequent and no light grey mottling.			
				3.20 (82.36)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
85.564 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.20m bgl.

All dimensions in metres
Log Scale: 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP104

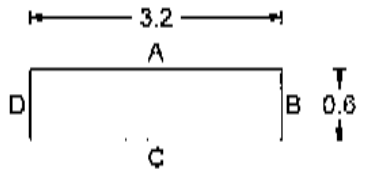
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL : Rough grass over, coarse, dark brown, slightly organic, slightly sandy, very gravelly Silt with rootlets. Gravel is fine to coarse, subangular to rounded quartzite and flint.		TOPSOIL	
				0.60 (86.02)		
			Medium dense, light brown, very silty GRAVEL. Gravel is fine to coarse, subangular to rounded flint and quartzite. 0.80 m: Undulating strata divide.			
				0.80 (85.72)		
			Firm to stiff, red brown mottled black manganese in parts, very gravelly CLAY. Gravel is medium to coarse to cobbles of subangular to subrounded flint, and a lesser amount of medium to coarse, rounded quartzite.	1	KESGRAVE CATCHMENT SUBGROUP	
1.20	B1					
			1.50 m: Less manganese mottling and slight reduction in gravel. Sandy gravelly clay in pockets. Quartzite size increase to cobbles.			
1.80	D1			2		
			2.00 m: Flint occasionally up to nodular boulder size. Difficult to excavate.			
				3		
				3.00 (83.52)		
				4		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
86.522 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone 01295 272214
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP105

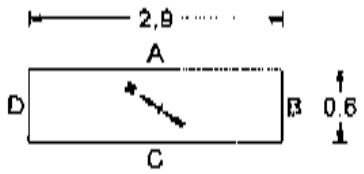
Sheet 1 of 1

Samples & Tests: Depth	Type & No.	Value	Description of Strata	Depth / (Level)	Geology	Legend
			TOPSOIL: Rough grass over, coarse, dark brown, slightly organic, slightly sandy, very gravelly silt with rootlets. Gravel is fine to coarse, subangular to rounded quartzite and flint.	0.30 (85.90)	TOPSOIL	
			Firm, red brown, very gravelly CLAY/very clayey GRAVEL. Gravel is medium to coarse to cobbles, subangular flint (cobbles dominant size fraction) and lesser component of medium to coarse rounded quartzite gravel.		KESGRAVE CATCHMENT SUBGROUP	
			1.50 m: Flints increasing to nodular boulder in size and shattered by excavation. 1.60 m: Face B: Pocket of soft, white, structureless chalk, consistency of slightly gravelly silt. Chalk gravel is very fine to medium, subrounded to angular and crushes easily with light finger pressure. 1.60 m: The pocket is approximately 0.6m wide initially, expanding with depth towards centre of the pit. 1.80 m: Chalk becoming very gravelly silt. Chalk gravel angular, fine to coarse with occasional cobbles. Some light brown mottling to surface of the chalk.			
			2.29 m: Chalk across whole pit from above.	2.30 (83.90)		
			Structureless CHALK: Excavated as white with red brown staining to some surfaces, silty, fine to coarse gravel to cobbles of angular, medium density chalk. Rare course flint gravel. (CIRIA Grade Dc).		CHALK	
				3.00 (83.70)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation (Ave)
86.197 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.
No evidence of dissolution profile just normal irregular surface from some re-working of the chalk surface (rounded chalk gravel initially).

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP106

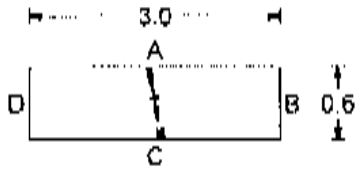
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Rough grass over, coarse, dark brown, slightly organic, slightly sandy, gravelly silt with rootlets. Gravel is fine to coarse, subangular to rounded quartzite and flint.		TOPSOIL	
				0.50 (87.79)		
			Medium dense, light brown, sandy, silty, fine to coarse GRAVEL with occasional cobbles. Gravel predominantly medium to coarse, rounded quartzite with some subangular to subrounded flint. 0.80 m: Red brown, sandy pockets.		KESGRAVE CATCHMENT SUBGROUP	
				1.10 (87.19)		
			Firm red brown, gravelly to very gravelly CLAY. Gravel is fine to coarse with occasional cobbles of rounded quartzite and subrounded to subangular flint.			
1.40	D1					
2.20	D2		2.20 m: Face A/B: Pockets of white structured chalk around nodules of flint. 2.40 m: Gravel cobbles increasing in size. Chalk pocket expanding out from the corner diagonally on faces A and B and towards centre of pit.			
			2.69 m: Chalk across pit from above.	2.70 (85.59)		
			Structureless CHALK. Excavated as silty gravel to cobbles of angular, low to medium density chalk and some flint gravel. Chalk occasionally has dark black specking, or light orange brown staining to surface. (CIRIA Grade Dc)		CHALK	
				3.10 (85.19)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
88.285 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.10m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP107

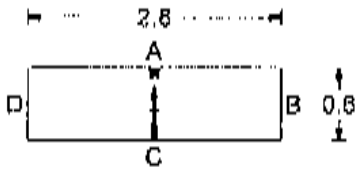
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Rough grass over, coarse, dark brown, slightly organic, slightly sandy, very gravelly silt with rootlets. Gravel is fine to coarse, subangular to rounded quartzite and flint.	0.25 (89.93)	TSOIL	
			Medium dense, light brown, sandy, very clayey, fine to coarse GRAVEL with occasional cobbles. Gravel is rounded quartzite and subangular to subrounded flint.	1.00 (89.18)	KESGRAVE CATCHMENT SUBGROUP	
1.20	B1		Medium dense, red brown, sandy, very clayey GRAVEL. Gravel is fine, rounded to subangular flint and quartzite.			
			1.50 m: Becoming clayey, very gravelly SAND.			
			2.00 m: Occasional flint cobbles.			
				3.00 (87.18)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
90.177 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP108

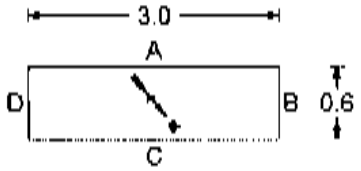
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Rough grass over, coarse, dark brown, slightly organic, slightly sandy, gravelly silt with rootlets. Gravel is fine to coarse, subangular to rounded quartzite and flint.	0.25 (88.50)	TSOIL	
			Medium dense, light brown, sandy, silty, fine to coarse GRAVEL with occasional cobbles. Gravel predominantly medium to coarse, rounded quartzite with some subangular to subrounded flint.	1.00 (87.75)	KESGRAVE CATCHMENT SUBGROUP	
1.60	D1		Firm to stiff, red brown, gravelly, cobbly CLAY. Gravel is predominantly nodular cobbles and possible boulders (shattered on excavation) of flint. Lesser gravel component of rounded medium and rare cobbles of quartzite.			
			2.00 m. Becoming red brown, clayey, gravelly SAND in large pockets.			
2.20	D2			3.00 (85.75)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level:
88.753 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP109

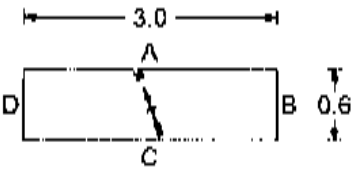
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Rough grass over. Coarse, dark brown, slightly organic, slightly sandy, slightly gravelly Silt with rootlets. Gravel is fine to coarse, subangular to rounded quartzite and flint.	0.25 (87.04)	TSOIL	
			Firm, dry, light brown, very gravelly SILT. Gravel is predominantly rounded quartzite, but some subrounded to subangular flint.	0.40 (86.84)		
			Firm to stiff, red brown with some black manganese specks, very gravelly CLAY Gravel is medium to cobbles of subrounded to subangular flint and coarse, rounded gravel. Desiccated in upper 300mm.			
1.00	D1					
1.60	B1					
			2.00 m: Face C: Pocket of structureless chalk partially worked into surrounding clay. White gravelly silt. Gravel is fine occasionally coarse, white chalk. With depth expanding to face D.			
			2.60 m: Chalk across whole pit except FACE D. Chalk gravel in size but with slight rounding.			
			Structureless CHALK: Excavated as very silty gravel/very gravelly SILT. No black specks. Rare flint nodular cobbles. Occasional light orange brown staining to surfaces. (CIRIA Grade Dc)	2.80 (84.48)	CHALK	
				3.20 (84.08)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
87.292 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.20m bgl.
Rounding of initial chalk suggestive of slight reworking of chalk surface.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01285 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP110

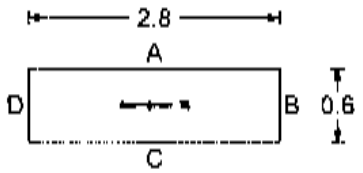
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Rough grass over, firm, dry, dark brown, organic, very gravelly silt. Gravel is fine to medium occasional cobbles, subangular flint and rounded quartzite with rootlets.	0.25 (88.27)	TSOIL	
			Firm, dry, brown, gravelly to very gravelly SILT. Gravel is fine to coarse, subangular to rounded quartzite and flint.	0.50 (88.02)		
			Firm to stiff, red brown, slightly gravelly CLAY. Gravel is coarse to cobble, subangular flint.	1.00 (87.52)	KESGRAVE CATCHMENT SUBGROUP	
1.20	D1		Firm, red brown, slightly gravelly to very gravelly CLAY with pocket of red brown, gravelly sand. Gravel is fine to coarse occasionally cobble of subangular to rounded flint and quartzite. 1.50 m: Clayey GRAVEL in pockets. 1.70 m: Rounded quartzite gravel dominant. 2.40 - 2.90 m: Face C: Large pocket of white chalk silt matrix around nodular cobbles to boulders of flint.			
				3.10 (85.42)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
88.516 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.10m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP111

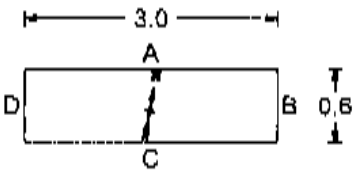
Sheet 1 of 1

Samples & Tests: Depth	Type & No	Value	Description of Strata	Depth / (Level)	Geology	Legend
			TOPSOIL: Rough grass over, firm, dry, dark brown, organic, slightly gravelly silt. Gravel is fine to medium occasional cobbles, subangular flint and rounded quartzite with rootlets.	0.25 (85.93)	TSOIL	
			Medium dense, light brown, very silty GRAVEL. Gravel is fine to coarse, predominantly rounded quartzite and some rounded to subangular flint.	1.00 (85.18)	KESGRAVE CATCHMENT SUBGROUP	
			Medium dense, red brown, slightly sandy, clayey GRAVEL. Gravel is fine to coarse, predominantly rounded quartzite and subrounded to subangular flint.	1.50 (84.68)		
			Firm, red brown, gravelly to very gravelly CLAY with occasional clayey sand pockets. Gravel is predominantly medium to coarse to cobbles, subangular flint and rare medium to coarse rounded quartzite.			
			1.90 m: Large nodular cobbles of flint sometimes have coating of white chalk silt around them.			
			2.30 m: Face B: Large pocket of white, very gravelly, silty chalk. Some of chalk gravel with rounded edges. Slight mixing with clay around the edges of pocket.			
			2.60 m: Chalk pocket expanding towards centre of pit. Cobbles of flint present. Chalk gravel becoming fine to coarse, angular with some orange brown staining or black speckling to surfaces in part.			
			2.89 m: Chalk across whole pit.	2.89 (83.29)	CH	
			Structureless CHALK: Excavated as white, very gravelly silt. Gravel is fine to coarse, occasionally cobbles of white, low to medium density chalk with extensive orange brown staining to surfaces and rare flint cobbles. (CIRIA Grade Dm towards Dc)	3.10 (83.08)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
86.176 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.10m bgl.
Chalk initially had slight rounding suggestive of reworking of the upper surface.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	22/06/2020
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP112

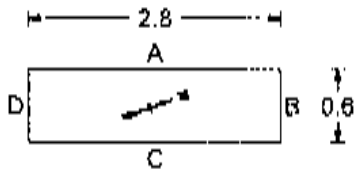
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Firm, dry, dark brown, organic, slightly sandy, slightly gravelly to gravelly silt with rootlets. Gravel is fine to coarse quartzite and occasional flint of cobble size.	0.25 (87.28)	TSOIL	
			Firm, light brown, gravelly SILT. Gravel is predominantly rounded quartzite but with some flint.	0.45 (87.08)	KESGRAVE CATCHMENT SUBGROUP	
			Firm, red brown, slightly sandy in places, gravelly CLAY. Gravel is fine to coarse, rounded quartzite and medium to cobbles, subrounded to subangular flint.			
1.00	D1					
			Medium dense, red orange brown, slightly clayey to clayey, sandy to very sandy GRAVEL. Gravel is predominantly fine to coarse, rounded flint, some nodular flint cobbles. Minor component of quartzitic gravel.	2.00 (85.53)		
			2.50 m. Flint cobbles more frequent. Rarely with a bit of chalk silt adhering to them.			
				2.80 (84.73)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
87.533 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 2.80m bgt.

All dimensions in metres
Log Scale 1.25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	23/06/2019
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP113

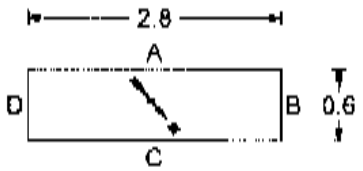
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL : Firm, dry, dark brown, organic, slightly sandy, slightly gravelly silt with rootlets. Gravel is fine to coarse quartzite and occasional flint of cobble size.	0.20 (87.51)	TSOIL	
			Firm, dry, light brown, gravelly SILT becoming silty GRAVEL with depth. Gravel is fine to coarse, rounded quartzite, and fine to coarse, subrounded to subangular flint, increasing to cobble size with depth.	0.90 (86.81)	KESGRAVE CATCHMENT SUBGROUP?	
			Firm, red brown, very gravelly CLAY. Gravel is fine to coarse, rounded quartzite, and fine to coarse to cobble, subrounded to subangular flint. Clayey sand partings and small pockets in places.			
			Loose to medium dense, orange brown, gravelly SAND. Gravel is fine to coarse, rounded quartzite and fine to coarse subrounded to subangular flint.	2.20 (85.50)		
			2.20 m. Face B/C corner: Irregular pocket of white silty gravel chalk. Some of the chalk has rounded edges.			
			2.50 m. Becoming gravelly clayey SAND/gravelly sandy CLAY. Chalk wedge continues to base of pit about 0.5m wide.			
				3.10 (84.60)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
87.76 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.10m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	23/06/2019
Method Used:	180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP114

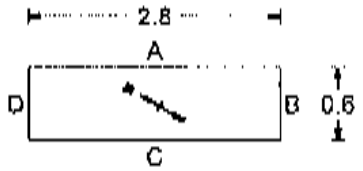
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Firm, dry, dark brown, organic, slightly sandy, slightly gravelly silt with rootlets. Gravel is fine to coarse quartzite and occasional flint of cobble size.	0.20 (88.09)	TSOIL	
			Medium dense, light brown, silty, fine to coarse GRAVEL with occasional cobbles. Very silty at top of horizon. Gravel is predominantly fine to coarse, rounded quartzite, and some subangular to subrounded flint.		KESGRAVE CATCHMENT SUBGROUP	
			Medium dense, red brown, slightly clayey, slightly sandy, fine to coarse GRAVEL and COBBLES. Gravel is rounded quartzite and subrounded to subangular flint.	1.20 (87.14)		
			Firm, red brown, slightly sandy, gravelly CLAY. Gravel is fine to coarse, rounded to subangular quartzite and flint.	1.80 (86.74)		
			2.20 m: Face C: Two small pockets of chalk matrix around nodular cobbles and boulders of flint.			
				3.00 (85.34)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
88.342 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.00m bgl.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	23/06/2019
Method Used:	180° Backhoe excavator (JCB 3CX typo)

Trial Pit No

TP115

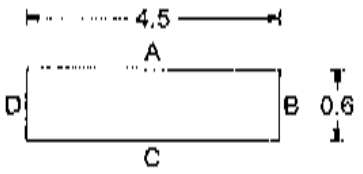
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			MADE GROUND/TOPSOIL: Friable, dark brown gravelly silt with rootlets. Gravel is fine to coarse with occasional cobbles of rounded quartzite and subrounded flint. Rare brick fragments to whole bricks, fragments of plastic, fragment of electrical wire and a single fragment of tarmac. Extraneous materials likely pushed into natural topsoil.	0.15 (89.23)	MOT	
			Loose to medium density, light brown, very silty, fine to coarse, subrounded to subangular GRAVEL of flint and quartzite.		KESGRAVE CATCHMENT SUBGROUP	
			Firm, red brown, gravelly to very gravelly CLAY. Gravel is fine to course, rounded quartzite and subrounded to subangular flint.	0.95 (88.43)		
			2.10 m: Occasional large pockets of red brown clayey sand. Gravel becoming predominantly flint includes some cobbles.			
				3.10 (86.28)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
89.384 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 3.10m bgl.
Pit extended to check there is no made ground to significant depth in the area.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01285 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client: Cala Homes (Chiltern) Ltd
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: B Devonshire
Date Completed: 23/06/2019
Method Used: 180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP116

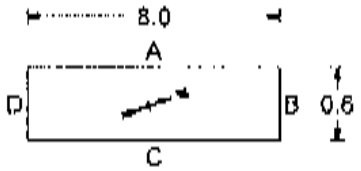
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Firm, dry, dark brown, organic, slightly sandy, gravelly silt with rootlets. Gravel is fine to coarse quartzite and occasional flint of cobble size	0.30 (87.49)	TOPSOIL	
			0.30m: Pit terminated on light brown, gravelly silt.			

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
87.789 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 0.30m bgl.
Trial pit terminated when natural ground proven. No suspected ACM identified.

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	23/06/2019
Method Used:	180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP117

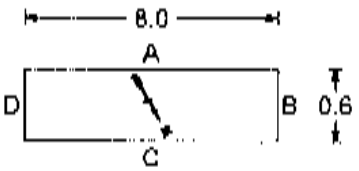
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Firm, dry, dark brown, organic, slightly sandy, gravelly silt with rootlets. Gravel is fine to coarse quartzite and occasional flint of cobble size.		TOPSOIL	
			0.30m: Pit terminated on light brown gravelly silt.	0.30 (87.46)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
87.759 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 0.30m bgl.
Trial pit terminated when natural ground proven. No suspected ACM identified.

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client:	Cala Homes (Chiltern) Ltd
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	B Devonshire
Date Completed:	23/06/2019
Method Used:	180" Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP118

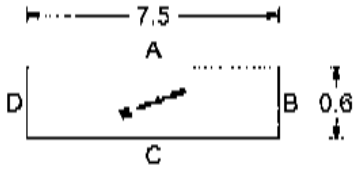
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			MADE GROUND/TOPSOIL: Firm, dry, organic, very gravelly silt. Gravel is fine to coarse, rounded quartzite and some subangular to subrounded flint. Rare brick fragments up to whole brick in size. Couple of glass fragments and a single fragment of ceramic. Extraneous materials worked in from above.	0.30 (87.78)	MGTS	
			Medium density, light brown, very silty GRAVEL. Gravel is fine to coarse, predominantly quartzite with some flint.	0.50 (87.58)	K	

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
88.082 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 0.30m bgl.
Trial pit terminated when natural ground proven. No suspected ACM identified.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

TRIAL PIT RECORD

Client: Cala Homes (Chiltern) Ltd
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: B Devonshire
Date Completed: 23/06/2019
Method Used: 180° Backhoe excavator (JCB 3CX type)

Trial Pit No.

TP119

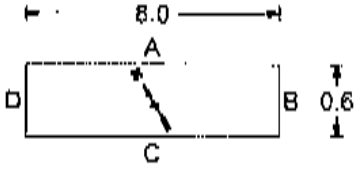
Sheet 1 of 1

Samples & Tests			Description of Strata	Depth / (Level)	Geology	Legend
Depth	Type & No	Value				
			TOPSOIL: Very gravelly silt. Single large fragment of rubber mat.		TOPSOIL	
			0.30m: Pit terminated on light brown, gravelly silt.	0.30 (87.81)		

Pit Stability: Generally stable throughout
Groundwater: Not encountered

Surface Elevation Level
88.112 mAOD

Plan of Trial Pit:



General Remarks:
Trial pit terminated at 0.30m bgl.
Trial pit terminated when natural ground proven. No suspected ACM identified.

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS01

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.20	J1			TOPSOIL: Grass over dark brown, gravelly, sandy clay with frequent rootlets. Gravel of fine to coarse, subangular to subrounded flint.	0.50 (88.87)		TS	
0.70	J2			Firm, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and chalk.				
1.00	SPT	17 N			1.0 1.00 (88.37)			
1.50	D1			Reddish brown, gravelly, very sandy CLAY / very clayey SAND. Gravel of fine to coarse, subangular flint. 1.00 m: SPT: 2,3/3,4,5,5			KESGRAVE CATCHMENT SUBGROUP	
2.00	SPT	30 N			2.0 2.00 (87.37)			
2.50	D2			Medium dense, reddish brown, slightly clayey, very gravelly SAND. Gravel of fine to coarse, subangular flint. 2.00 m: SPT: 6,6/10,7,6,7				
3.00	SPT	27 N		3.00 m: SPT: 6,7/6,8,7,6 3.00 - 4.00 m: 70% recovery.	3.0			
				Stiff, brown, sandy, very gravelly CLAY. Gravel of fine to coarse, subangular flint.	3.40 (85.97)			
4.00	SPT	10 N		4.00 m: SPT: 3,2/2,2,3,3 4.00 - 5.00 m: 50% recovery.	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
89.37 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.
WS01
Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 3.40m: Stiff, brown, sandy, very gravelly CLAY. Gravel of fine to coarse, subangular flint.				
5.00	SPT	10 N		5.00 m: SPT: 1,1/0,4,4,2	4.0			
					5.45 (83.92)		KESGRAVE CATCHMENT	
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
89.37 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS02

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, gravelly, sandy clay with frequent rootlets. Gravel of fine to coarse, subangular to subrounded flint.				
0.40	J1				0.50 (88.92)		TOPSOIL	
				Firm, orange brown, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
0.90	J2							
1.00	SPT	8 N			1.00 (88.42)			
				Firm, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
1.20	D1			1.00 m: SPT: 1,1/1,2,2,3				
				1.50 - 1.60 m: Wet, gravelly sand.			KESGRAVE CATCHMENT SUBGROUP	
2.00	SPT	5 N		2.00 m: SPT: 1,1/1,2,1,1 2.00 - 3.00 m: 60% recovery.	2.0			
3.00	SPT	5 N		3.00 m: SPT: 2,1/2,1,1,1	3.0			
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and fine to coarse flint. Orange staining on surfaces. (CIRIA Grade Dc)	3.50 (85.92)		CHALK	
3.70	D2							
4.00	SPT	0 N		4.00 m: SPT: 1,1/1,2,3,3	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
89.42 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01296 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS02

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 3.50m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and fine to coarse flint. Orange staining on surfaces. (CIRIA Grade Dc)				
5.00	SPT	12 N		5.00 m: SPT: 2,3/3,3,3,3	5.0		CHALK	
					5.45 (83.97)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
89.42 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS03

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation / Backfill
Depth	Type & No	Value						
0.20	J1			TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint. Frequent rootlets.			TS	
					0.30 (85.64)			
0.60	J2			Firm, reddish brown, slightly sandy, gravelly CLAY. Gravel of fine to coarse, subangular to subrounded flint.			KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	9 N		1.00 m: SPT: 1,2/2,2,2,3 1.00 m: No SPT recovery. 1.00 m: Becomes more sandy with depth.	1.0			
1.70	D1							
2.00	SPT	2 N		2.00 m: SPT: 1,0/1,0,1,0 2.00 - 3.00 m: 30% recovery. 2.00 m: No SPT recovery.	2.0			
2.50	D2							
3.00	SPT	3 N		3.00 m: SPT: 1,1/1,0,1,1 3.00 - 4.00 m: 50% recovery.	3.0			
					3.50 (82.43)			
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and fine to coarse flint. Orange staining on surfaces (CIRIA Grade Dc)			CHALK	
4.00	SPT	9 N		4.00 m: SPT: 1,1/1,1,4,3 4.00 m: Becoming moist.	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
85.93 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone 01795 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.
WS03
Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
4.50	D3			Continued from 3.50m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and fine to coarse flint. Orange staining on surfaces. (CIRIA Grade Dc)				
5.00	SPT	Y N		5.00 m: SPT: 2,2/2,2,1,2	5.0		CHALK	
					5.45 (80.48)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgt.

Surface Elevation Level:
85.93 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.
WS04
Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /(backfill)
Depth	Type & No	Value						
0.30	J1			TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and chalk. Frequent rootlets.	0.40 (84.53)		TS	
0.70	J2			Firm to stiff, orange brown, slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	1.0 1.00 (83.93)		KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	12 N		Stiff, reddish brown, slightly sandy CLAY with black specks and rare flint gravel. 1.00 m: SPT: 1,2/3,3,3,3				
1.60	D1							
2.00	SPT	15 N		2.00 m: SPT: 1,3/2,4,4,5	2.0			
2.80	D2							
3.00	SPT	12 N		3.00 m: SPT: 2,2/2,3,3,4	3.0			
				Stiff, reddish brown, slightly gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	3.50 (81.43)			
3.70	D3							
4.00	SPT	13 N		4.00 m: SPT: 1,2/3,3,3,4	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
84.93 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS04

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Medium dense, reddish brown, slightly gravelly SAND. Gravel o fine to coarse, subangular to subrounded flint			KESGRAVE CATCHMENT	
5.00	SPT	21 N		5.00 m: SPT: 2,4/5,5,5,6	5.0			
					5.45 (79.48)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
84.93 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brouk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS05

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint. Frequent rootlets.			TS	
0.30	J1				0.40 (85.38)			
0.50	J2			Firm to stiff, orange brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
0.90	D1							
1.00	SPT	13 N		1.00 m: SPT: 2,3/3,3,4,3	1.0			
2.00	SPT	12 N			2.0 2.00 (83.78)			
2.10	D2			Firm to stiff, orange brown, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. 2.00 m: SPT: 2,2/3,2,3,4			KESGRAVE CATCHMENT SUBGROUP	
3.00	SPT	9 N		3.00 m: SPT: 1,1/2,2,2,3	3.0			
4.00	SPT	5 N		4.00 m. SPT. 1,1/1,1,2,1	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
85.78 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01255 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 16/03/2020
Date Completed: 16/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS05

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
4.50	D3			Continued from 2.00m: Firm to stiff, orange brown, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.			KESGRAVE CATCHMENT	
5.00	SPT	9 N		5.00 m: SPT: 2,3/3,3,2,1	5.0			
					5.45 (80.33)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
85.78 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 17/03/2020
Date Completed: 17/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.
WS06
Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				MADE GROUND/TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, charcoal, brick fragments and clinker.			MGTS	
0.30	J1							
0.45	J2			Firm, brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.40 (84.64)			
				Medium dense, orange brown, slightly clayey, sandy GRAVEL of fine to coarse, subangular to subrounded flint.	0.50 (84.54)			
				Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.70 (84.34)			
0.90	D1							
1.00	SPT	17 N		1.00 m: SPT: 3,3/5,4,4,4	1.0		KESGRAVE CATCHMENT SUBGROUP	
1.50	J3							
2.00	SPT	11 N		2.00 m: SPT: 4,4/4,3,2,2 2.00 m: Becomes very gravelly.	2.0			
				Structureless CHALK recovered as an off white, clayey gravel. Gravel of weak, low density, fine to course, subrounded chalk. Orange staining on surfaces and black specks. (CIRIA Grade Dc)	3.00 (82.14)			
3.00	SPT	8 N		3.00 m: SPT: 2,2/3,2,1,2	3.0			
3.40	D2						CHALK	
4.00	SPT	10 N		4.00 m: SPT: 3,2/3,2,2,3	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
85.04 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	17/03/2020
Date Completed:	17/03/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS06

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.00m; Structureless CHALK recovered as an off white, clayey gravel. Gravel of weak, low density, fine to coarse, subrounded chalk. Orange staining on surfaces and black specks. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	15 N		5.00 m: SPT: 3,2/3,2,4,6	5.45 (79.59)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
85.04 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3504
Logged By: N Kimber
Date Commenced: 17/03/2020
Date Completed: 17/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS07

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.20	J1			TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to medium, subangular to subrounded flint. Frequent rootlets	0.30 (86.75)		TOPSOIL	
0.60	J2			Firm, reddish brown, very gravelly, sandy CLAY with black specks. Gravel of fine to coarse, subangular to subrounded flint.			KESGRAVE CATCHMENT	
1.00	SPT	15 N		1.00 m: SPT: 2,2/3,3,5,4	1.0			
1.60	D1							
2.00	SPT	4 N		2.00 m: SPT: 2,2/1,1,1,1	2.0			
				Structureless CHALK recovered as off white, clayey gravel. Gravel of weak, low density, off white, fine to coarse, subrounded chalk and occasional subangular flint gravel. Orange staining on surfaces and black specks. (CIRIA Grade Dc)	2.90 (84.70)		CHALK	
2.80	D2							
3.00	SPT	7 N		3.00 m: SPT: 1,2/2,1,2,2 3.00 - 4.00 m: 70% recovery.	3.0			
4.00	SPT	7 N		4.00 m: SPT: 1,2/2,1,2,2 4.00 - 5.00 m: 60% recovery.	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
87.05 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 17/03/2020
Date Completed: 17/03/2020
Mothod Used: Windowless Percussive Sampling Rig

Borehole No.

WS07

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
5.00	SPT	23 N		Continued from 2.30m. Structureless CHALK recovered as off white, clayey gravel. Gravel of weak, low density, off white, fine to coarse, subrounded chalk and occasional subangular flint gravel. Orange staining on surfaces and black specks. (CIRIA Grade Dc) 5.00 m: SPT. 2,4/5,6,5.7	5.0 5.45 (81.60) 6.0 7.0 8.0 9.0		CHALK	

General Remarks:
Borehole terminated at 5.45m bgl.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level
87.05 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 17/03/2020
Date Completed: 17/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS08

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				MADE GROUND/TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, charcoal and brick fragments. Frequent rootlets.			MGTS	
0.20	J1				0.40 (68.26)			
				Medium dense, orange brown, slightly clayey, gravelly SAND / sandy GRAVEL. Gravel of fine to coarse, subangular to subrounded flint.				
					0.70 (67.96)			
0.80	J2			Firm, reddish brown, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
1.00	SPT	16 N		1.00 m: SPT: 1,3/3,3,4,6	1.0			
				Medium dense, reddish brown, slightly clayey, gravelly SAND. Gravel of fine to coarse, subangular to subrounded flint.	1.50 (67.16)		KESGRAVE CATCHMENT SUBGROUP	
1.90	D1							
2.00	SPT	42 N		Medium dense, reddish brown, slightly clayey, sandy GRAVEL of fine to coarse, subangular to subrounded flint. 2.00 m: SPT: 7,8/8,10,12,12	2.0 2.00 (66.66)			
				Stiff, reddish brown, very gravelly, sandy CLAY.	2.70 (65.96)			
2.80	J3							
3.00	SPT	15 N		3.00 m: SPT: 4,4/3,4,4,4 3.00 - 4.00 m: 60% recovery.	3.0			
3.70	D2							
4.00	SPT	1 N		4.00 m: SPT: 2,1/0,1,0,0 4.00 - 5.00 m: 45% recovery.	4.0			
				Structureless CHALK recovered as off white, clayey gravel. Gravel of weak, low density, fine to coarse, subangular to subrounded chalk. Orange staining on surfaces and occasional flint gravel. (CIRIA Grade Dc)	4.10 (64.56)		CHALK	
					5.45			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
68.66 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272744
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	17/03/2020
Date Completed:	17/03/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS08

Sheet 2 of 2

Samples & Tests Depth	Type & No	Value	Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation / Backfill
				Continued from 4.10m: Structureless CHALK recovered as off white, clayey gravel. Gravel of weak, low density, fine to coarse, subangular to subrounded chalk. Orange staining on surfaces and occasional flint gravel. (CIRIA Grade Dc)				
5.00	SPT	13 N		5.00 m: SPT: 2,1/1,2,5,5	5.0			
					5.45 (83.21)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
88.66 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 17/03/2020
Date Completed: 17/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS09

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.20	J1			MADE GROUND TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, charcoal and brick fragments.			MGTS	
0.50	J2			Firm, moist, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Black specks.	0.40 (86.02)		KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	17 N		1.00 m: SPT: 2,2/3,4,5,5	1.0			
1.10	D1							
1.50	J3							
2.00	SPT	8 N		2.00 m: SPT: 3,2/2,2,2,2	2.0			
2.30	D2							
				Stiff, dark brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	2.50 (83.92)			
				Structureless CHALK recovered as off white, clayey gravelly. Gravel of weak, low density, fine to coarse, subangular to subrounded chalk with occasional flint. Orange staining at surfaces. (CIRIA Grade Dc)	2.60 (83.82)		CHALK	
3.00	SPT	6 N		3.00 m: SPT: 2,2/2,1,1,2	3.0			
3.50	D3							
4.00	SPT	9 N		4.00 m: SPT: 2,2/3,2,2,2 4.00 - 5.00 m: 60% recovery.	4.0			
					4.90			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
86.42 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 17/03/2020
Date Completed: 17/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS09

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.50m: Structureless CHALK recovered as off white, clayey gravelly, Gravel of weak, low density, fine to coarse, subangular to subrounded chalk with occasional flint. Orange staining at surfaces. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	17 N		5.00 m: SPT: 4,5/6,4,3,4	5.45 (80.97)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
86.42 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brauk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 17/03/2020
Date Completed: 17/03/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS10

Sheet 1 of 1

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.10	J1			MADE GROUND TOPSOIL. Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and charcoal.	0.30 (87.91)		MGTS	
0.40	J2			MADE GROUND: Firm, orange brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and charcoal.	0.50 (87.71)		MG	
				Firm to stiff, orange brown with grey mottling, slightly sandy CLAY. Rare fine to medium, subangular to subrounded flint gravel.				
0.90	D1							
1.00	SPT	16 N		1.00 m: SPT: 1,2/3,3,4,6	1.0			
				Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Occasional black specks.	1.40 (86.81)		KESGRAVE CATCHMENT	
1.60	D2							
				Medium dense, orange brown, slightly clayey SAND with rare flint gravel and black specks.	1.80 (86.41)			
2.00	SPT	40 N		2.00 m: SPT: 7,8/10,11,12,13	2.0			
2.40	D3							
				Dense, brown, slightly clayey, gravelly SAND. Gravel of fine to coarse, subangular to subrounded flint. Occasional small orange brown sand pockets.	2.80 (85.61)			
2.70	D4							
2.80	SPT	>50 N		2.80m: Sampler bouncing. 2.80m: SPT: 10,15 for 50mm / 20,15,15 for 45mm	2.80 (85.41)			
					3.0			
					4.0			

General Remarks:
Borehole terminated at 2.80m bgl due to refusal.
Borehole installed with 50mm pipe, gas tap and flush metal cover.

Surface Elevation Level:
88.21 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	22/06/2020
Date Completed:	22/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS101

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded quartzite and flint. Frequent rootlets.	0.20 (86.93)		TS	
				Brown, friable, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint, quartzite and chalk.			KESGRAVE CATCHMENT SUBGROUP	
				Stiff, reddish brown, gravelly CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.70 (86.43)			
1.00	SPT	14 N		1.00 m: SPT: 3,3/2,5,3,4	1.0			
1.20	D1							
2.00	SPT	18 N		2.00 m: SPT: 2,2/3,4,5,6	2.0			
				2.30 m: Becomes very gravelly.				
2.90	PEN	3.25/2.25x2 kg/cm²						
3.00	SPT	17 N		3.00 m: SPT: 6,3/4,4,4,5	3.0			
3.10	D2							
				Structureless CHALK recovered as off white and brown, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)	3.00 (83.53)		CHALK	
4.00	SPT	5 N		Structureless CHALK recovered as off white, gravelly clay with pockets of brown clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)	4.0 4.00 (83.13)			
				4.00 m: SPT: 2,2/2,1,1,1	4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
87.13 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	22/06/2020
Date Completed:	22/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS101

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 4.00m: Structureless CHALK recovered as off white, gravelly clay with pockets of brown clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)				
5.00	SPT	14 N		5.00 m: SPT: 1,3/2,3,5,4	5.0		CHALK	
					5.45 (81.68)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
87.13 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 22/06/2020
Date Completed: 22/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS102

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				MADE GROUND TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, quartzite, charcoal and brick fragments. Frequent rootlets.	0.40 (89.00)		MGTS	
				Brown, friable, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.90 (88.48)			
1.00	SPT	12 N		Stiff, reddish brown, slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse subangular to subrounded flint. 1.00 m: SPT: 3,2/2,2,3,5	1.0			
1.80 1.80	PEN D1	2.5/2.25x2 kg/cm²						
2.00	SPT	24 N		Medium dense, reddish brown, very clayey SAND. 2.00 m: SPT: 4,5/5,7,7,5	2.0 2.00 (87.36) 2.10 (87.26)		KESGRAVE CATCHMENT SUBGROUP	
				Stiff, reddish brown, very gravelly CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
2.80 2.80	PEN D2	2.5/3.5x2 kg/cm²						
3.00	SPT	22 N		3.00 m: SPT: 3,3/4,5,6,7	3.0			
				Medium dense, reddish brown, very clayey SAND.	3.80 (85.70)			
3.95 4.00	PEN SPT	3.0/2.5x2 kg/cm² 10 N		Stiff, reddish brown, very gravelly CLAY. Gravel of fine to coarse, subangular to subrounded flint. 4.00 m: SPT: 2,3/3,3,2,2 4.00 - 5.00 m: 60% recovery.	3.90 (85.46) 4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
89.364 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 22/06/2020
Date Completed: 22/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS102

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 3.90m: Stiff, reddish brown, very gravelly CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
4.80	PEN	3.0/2.0x2 kg/cm²						
5.00	SPT	6 N		5.00 m: SPT: 2,2/2,2,1,1	5.0			
					5.45 (83.91)		KESGRAVE CATCHMENT	
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
89.364 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01255 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 22/06/2020
Date Completed: 22/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS103

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL - Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint. Frequent rootlets.	0.10 (88.21)		TS	
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
				Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.80 (87.51)			
1.00	SPT	19 N		1.00 m: SPT: 2,4/4,5,4,5	1.0			
1.70	PEN	2.75/2.25x2 kg/cm²		1.60 m: Very sandy.			KESGRAVE CATCHMENT SUBGROUP	
2.00	SPT	14 N		Stiff, reddish brown, silty CLAY with grey silty pockets throughout.	2.00 (86.31)			
				2.00 m: SPT: 1,2/3,3,4,4				
2.50	D1							
2.70	PEN	2.5x3 kg/cm²		Very stiff, reddish brown, gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	2.70 (85.61)			
3.00	SPT	41 N		3.00 m: SPT: 5,6/7,10,11,13	3.0			
				Very stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Becomes sandier with depth	3.20 (85.11)			
3.70	PEN	3.5/3.25x2 kg/cm²		Stiff, reddish brown, slightly gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Natural black specks (possibly manganese deposits).	3.70 (84.61)			
4.00	SPT	20 N		4.00 m: SPT: 2,3/5,5,5,5	4.0			
					5.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
88.31 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 22/06/2020
Date Completed: 22/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No
WS103
Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation / Backfill
Depth	Type & No	Value						
4.50	D2			Continued from 3.70: Stiff, reddish brown, slightly gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Natural black specks (possibly manganese deposits).			KESGRAVE CATCHMENT	
4.70	PEN	2.5/2.25/3.0 kg/cm²						
5.00	SPT	19 N		5.00 m: SPT: 3,3/5,5,4,5	5.0			
					5.45 (82.86)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
88.31 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 22/06/2020
Date Completed: 22/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS104

Sheet 1 of 2

Samples & Tests Depth	Type & No	Value	Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
				MADE GROUND TOPSOIL: Grass over dark brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and charcoal. Frequent rootlets.	0.30 (86.51)		MGTS	
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	1.0 1.00 (85.81)		KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	11 N		Stiff, reddish brown, slightly gravelly, slightly sandy CLAY. Gravel of fine to coarse subangular to subrounded flint and quartzite. 1.00 m: SPT: 4,3/3,2,3,3				
1.40	D1							
1.80	PEN	2.5/2.25x2 kg/cm²		Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	1.80 (85.01)			
2.00	SPT	19 N		2.00 m: SPT: 2,3/4,5,4,6	2.0			
					2.50 (84.31)			
2.70	D2			Stiff, reddish brown, slightly gravelly, slightly sandy CLAY Gravel of fine to coarse subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits).				
2.80	PEN	3.5/3.25x2 kg/cm²						
3.00	SPT	23 N		Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. 3.00 m: SPT: 5,3/5,6,5,7	3.0 3.00 (83.81)			
4.00	SPT	29 N		4.00 m: SPT: 5,6/5,5,10,9	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
86.805 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 22/06/2020
Date Completed: 22/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS104

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 3.00m: Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
5.00	SPT	24 N		5.00 m: SPT: 3,6/5,7,7,5	5.0		KESGRAVE CATCHMENT	
					5.45 (81.36)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
86.805 mAOD

All dimensions in metres
Log Scale 1.25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	22/06/2020
Date Completed:	22/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS105

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint. Frequent rootlets.	0.00 (87.91)		TS	
				Brown, friable, slightly gravelly CLAY. Gravel of fine to coarse, subangular to subrounded flint.	1.0 1.00 (86.91)		KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	10 N		Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Natural black specks (possibly manganese deposits). 1.00 m: SPT 5,6/6,5,4,4				
2.00	SPT	13 N			2.0 2.00 (85.91)			
2.10	D1			Stiff, reddish brown, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 2.00 m: SPT: 6,4/4,3,3,3 2.00 m: No SPT recovery				
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining and black specks. (CIRIA Grade Dc)	2.70 (85.21)		CHALK	
3.00	SPT	9 N		3.00 m: SPT: 2,2/3,3,1,2	3.0			
3.50	D2							
4.00	SPT	7 N		4.00 m: SPT: 2,1/2,1,2,2 4.00 - 5.00 m: 50% recovery.	4.0			
					4.60			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
87.913 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	22/06/2020
Date Completed:	22/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS105

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.70m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining and black specks. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	18 N		5.00 m: SPT: 1,4/5,5,4,4				
					5.45 (82.46)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
87.913 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	22/06/2020
Date Completed:	22/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS106

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.	0.70 (88.00)		TS	
				Stiff, reddish brown, slightly gravelly becoming gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.			KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	20 N			1.0 1.00 (88.10)			
				Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Natural black specks (possibly manganese deposits).				
1.30	D1			1.00 m: SPT: 3,4/6,5,5,4				
1.90	D2							
2.00	SPT	23 N		2.00 m: SPT: 3,8/7,7,5,4	2.0			
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining. (CIRIA Grade Dc)	2.70 (86.40)		CHALK	
3.00	SPT	11 N		3.00 m: SPT: 2,2/3,2,3,3	3.0			
4.00	SPT	5 N		4.00 m: SPT: 1,2/1,2,1,1	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
89.104 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 22/06/2020
Date Completed: 22/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS106

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 4.50m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining. (CIRIA Grade Dc)				
5.00	SPT	13 N		5.00 m: SPT: 1,0/2,2,3,6	5.0		CHALK	
					5.45 (83.66)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
89.104 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email. info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	23/06/2020
Date Completed:	23/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS107

Sheet 1 of 2

Samples & Tests Depth	Type & No	Value	Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
0.20	J1			MADE GROUND TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, quartzite charcoal and brick fragments. Frequent rootlets.	0.30 (85.12)		MGTS	
0.35	J2			MADE GROUND: Brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, quartzite, charcoal and brick fragments.	0.40 (85.02)		MG	
0.50	J3			Brown, friable, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.80 (84.62)			
1.00	SPT	24 N		Very stiff, orange brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possible manganese deposits). 1.00 m: SPT: 3,3/4,4,6,10	1.0			
1.30	D1				1.50 (83.92)		KESGRAVE CATCHMENT SUBGROUP	
2.00	SPT	18 N		Very stiff, orange brown, very gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 2.00 m: SPT: 3,4/3,4,5,6 2.00 - 3.00 m: Dark orange brown and natural black specks (possibly manganese deposits).	2.0			
3.00	SPT	16 N		3.00 m: SPT: 3,4/3,5,3,5	3.0			
4.00	SPT	14 N		4.00 m: SPT: 4,3/3,3,3,5 4.00 - 5.00 m: 60 % recovery. 4.10 - 4.50 m: Little gravel content.	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
85.42 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01296 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 23/06/2020
Date Completed: 23/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS107

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 1.50m: Stiff, orange brown, very gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.				
5.00	SPT	6 N		5.00 m: SPT: 2,2/2,2,1,1	5.0			
					5.45 (79.97)		KESGRAVE CATCHMENT	
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
85.42 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 23/06/2020
Date Completed: 23/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS108

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.20	J1			MADE GROUND TOPSOIL. Grass over dark brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint, quartzite and charcoal. Frequent rootlets and a root.	0.30 (86.31)		MGTS	
				Brown, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint, quartzite and chalk.	0.40 (86.21)			
				Stiff, orange brown, gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.				
1.00	SPT	27 N		1.00 m: SPT: 3,2/4,4,6,13	1.0			
				Stiff, orange brown, very gravelly CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits).	1.50 (86.11)		KESGRAVE CATCHMENT SUBGROUP	
2.00	SPT	18 N		2.00 m: SPT: 7,4/5,5,3,5	2.0			
2.50	D1							
3.00	SPT	21 N		3.00 m: SPT: 3,3/4,5,5,7	3.0			
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining and blacks specks. (CIRIA Grade Dc)	3.80 (82.81)		CHALK	
4.00	SPT	17 N		4.00 m: SPT: 1,2/3,3,5,6	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
86.605 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brdltd.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 23/06/2020
Date Completed: 23/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS108

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation / Backfill
Depth	Type & No	Value						
				Continued from 3.80m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining and blacks specks. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	17 N		5.00 m: SPT: 1,7/3,5,5,4				
					5.45 (81.16)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation (AOD)
86.605 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 23/06/2020
Date Completed: 23/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS109

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				MADE GROUND TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, quartzite and charcoal.	0.30 (88.20)		MGTS	
0.40	J1			Brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	0.50 (88.00)			
				Stiff, reddish brown, gravelly, sandy CLAY with very gravelly pockets. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits).	1.0			
1.00 1.00	SPT D1	20 N		1.00 m: SPT: 3,7/9,9,7,4	1.10 (87.40)		KESGRAVE CATCHMENT SUBGROUP	
				Stiff, reddish brown, very gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Natural black specks (possibly manganese deposits).				
2.00	SPT	8 N		2.00 m: SPT: 1,2/2,2,2,2	2.0			
3.00	SPT	5 N		Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining. (CIRIA Grade Dc)	3.00 (85.50)		CHALK	
				3.00 m: SPT: 1,1/1,1,1,2				
4.00	SPT	4 N		4.00 m: SPT: 1,1/1,1,1,1	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
88.503 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	23/06/2020
Date Completed:	23/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS109

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 3.00m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Orange staining. (CIRIA Grade D6)	5.0		CHALK	
5.00	SPT	12 N		5.00 m: SPT: 1,2/2,2,4,4	5.45 (83.05)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
88.503 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	23/06/2020
Date Completed:	23/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS110

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.10	J1			TOPSOIL: Grass over dark brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.	0.20 (88.34)		TS	
				Brown, friable, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite	0.40 (88.14)			
				Firm, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	1.0 1.00 (87.54)		KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	8 N		Firm, reddish brown, gravelly, very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 1.00 m: SPT: 2,2/2,1,2,3				
1.90	D1				2.0 2.00 (86.54)			
2.00	SPT	6 N		Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. 2.00 m: SPT: 1,2/2,2,1,1				
3.00	SPT	6 N		Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc) 3.00 m: SPT: 1,0/1,1,1,2	3.0 3.00 (85.54)		CHALK	
4.00	SPT	12 N		4.00 m: SPT: 2,2/3,3,3,3	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
88.537 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 23/06/2020
Date Completed: 23/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.
WS110
Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 4.50m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	17 N		5.00 m: SPT: 1,3/3,4,4,6	5.45 (83.09)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
88.537 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 23/06/2020
Date Completed: 23/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.
WS111
Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.			TS	
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint, quartzite and chalk.	0.30 (87.42)		KESGRAVE CATCHMENT SUBGROUP	
				Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.50 (87.22)			
0.80	J1							
1.00	SPT	16 N		Stiff, reddish brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	1.0 1.00 (86.72)			
1.00	SPT	16 N		1.00 m: SPT: 2,3/4,3,4,5				
1.30	D1							
2.00	SPT	12 N		2.00 m: SPT: 4,4/3,3,3,3	2.0			
3.00	SPT	11 N		Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)	2.90 (84.82) 3.0		CHALK	
3.00	SPT	11 N		3.00 m: SPT: 2,1/2,3,2,4				
4.00	SPT	11 N		4.00 m: SPT: 1,1/2,3,3,3	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
87.719 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01205 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	23/06/2020
Date Completed:	23/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS111

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.90m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)				
5.00	SPT	12 N		5.00 m: SPT: 2,2/2,3,4,3	5.0		CHALK	
					5.45 (82.27)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
87.719 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	24/06/2020
Date Completed:	24/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS112

Sheet 1 of 1

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.20	J1			TOPSOIL : Grass over dark brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.			TS	
					0.40 (89.29)			
				Loose to medium dense, brown to orange brown, gravelly SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite.			KESGRAVE CATCHMENT SUBGROUP	
					0.70 (88.99)			
				Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.				
					0.90 (88.79)			
1.00	SPT	22 N		Medium dense, reddish brown, gravelly, very clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 1.00 m: SPT: 6,4/4,4,6,8	1.0			
					1.30 (88.39)			
				Stiff, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.				
					1.70 (87.99)			
				Dense, reddish brown, gravelly, very clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite				
2.00	SPT	42 N		2.00 m: SPT: 6,9/11,12,10,9	2.0			
					3.0			
					3.00 (86.69)			
3.00	SPT	>50 N		3.00m: SPT: 7,11/10,14,14,12 for 60mm				
					4.0			

General Remarks:
Borehole terminated at 3.00m bgl due to refusal.

Surface Elevation Level
89.694 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 24/06/2020
Date Completed: 24/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS113

Sheet 1 of 2

Samples & Tests Depth	Type & No	Value	Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
				TOPSOIL: Grass over dark brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.	0.30 (87.20)		TS	
0.30	J1			Brown, friable, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.50 (86.99)		KESGRAVE CATCHMENT SUBGROUP	
				Stiff to very stiff, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possible manganese deposits).	1.0			
1.00	SPT	24 N		1.00 m: SPT: 5,5/6,5,6,7				
1.20	D1							
				Medium dense, reddish brown, slightly gravelly, clayey SAND. Gravel of fine to coarse, subangular to subrounded flint.	1.80 (85.69)			
2.00	SPT	14 N		2.00 m: SP1: 3,4/4,3,3,4	2.0			
3.00	SPT	5 N		Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)	3.0 3.00 (84.49)		REWORKED CHALK	
				3.00 m: SPT: 2,2/1,2,1,1				
				3.00 - 4.00 m: 40% recovery.				
4.00	SPT	7 N		Stiff, dark brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Pockets of off white chalk.	4.0 4.00 (83.49)		KCS	
				4.00 m: SP1: 2,2/1,1,2,3				
				4.00 - 5.00 m: 40% recovery.				
				4.00 m: No SPT recovery.	4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
87.492 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	24/06/2020
Date Completed:	24/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS113

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 4.00m: Stiff, dark brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint. Pockets of off white chalk.				
5.00	SPT	5 N		5.00 m: SPT: 3,3/2,1,1,1	5.0			
					5.45 (82.04)		KESGRAVE CATCHMENT	
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
87.492 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 24/06/2020
Date Completed: 24/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS114

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
0.20	J1			TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.30 (88.09)		TS	
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.50 (87.80)		KESGRAVE CATCHMENT SUBGROUP	
				Stiff, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded, flint and quartzite.	1.0			
1.00	SPT	14 N		1.00 m: SPT: 1,3/3,3,3,5				
1.60	PEN	2.0/2.25x2 kg/cm²						
2.00	SPT	20 N		Medium dense, reddish brown, slightly gravelly, clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 2.00 m: SPT: 6,6/6,5,4,5	2.0 1.80 (86.40)			
				Stiff, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits).	2.50 (85.80)			
2.70	D1							
2.80	PEN	3.0/2.75x2 kg/cm²						
3.00	SPT	20 N		3.00 m: SPT: 5,5/4,4,6,6	3.0			
4.00	SPT	20 N		4.00 m: SPT: 2,3/5,4,5,6	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
88.295 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 24/06/2020
Date Completed: 24/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS114

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.60m: Stiff, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits).				
5.00	SPT	6 N		4.90 - 5.00 m: Dark brown in colour. Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc) 5.00 m. SPT. 1,1/2,1,2,3	5.00 (81.30)		KCS	
					5.45 (80.85)		CHALK	
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
86.295 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 24/06/2020
Date Completed: 24/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS115

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.	0.20 (67.02)		TS	
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.40 (66.82)		KESGRAVE CATCHMENT SUBGROUP	
				Stiff, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.				
0.80	J1							
1.00	SPT	13 N		1.00 m: SPT: 2,2/3,3,3,4	1.0			
2.00	SPT	15 N		2.00 m: Becoming more gravelly and has natural black specks (possibly manganese deposits). 2.00 m: SPT: 2,3/3,3,5,4	2.0			
					2.00 (64.22)			
3.00	SPT	8 N		Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc) 3.00 m: SPT: 2,1/2,2,2,2	3.0		CHALK	
4.00	SPT	13 N		4.00 m: SPT: 3,2/4,2,3,4 4.00 - 5.00 m: 70% recovery.	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level:
87.216 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email. info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	24/06/2020
Date Completed:	24/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS115

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.90m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)				
5.00	SPT	8 N		5.00 m: SPT: 1,2/1,2,3,2	5.0		CHALK	
					5.45 (81.77)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
87.216 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brdux.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	24/06/2020
Date Completed:	24/06/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS116

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.	0.20 (86.05)		TS	
0.30	J1			Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.50 (85.85)		KESGRAVE CATCHMENT SUBGROUP	
				Stiff to very stiff, reddish brown, gravelly, sandy CLAY. Gravel of fine to coarse subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits).				
1.00	SPT	13 N		1.00 m: SPT: 2,3/3,4,3,3	1.0			
2.00	SPT	22 N		2.00 m: SPT: 7,6/6,7,4,5	2.0			
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)	2.80 (83.95)		CHALK	
3.00	SPT	10 N		3.00 m: SPT: 3,2/2,2,2,4	3.0			
4.00	SPT	8 N		4.00 m: SPT: 1,2/1,2,2,3	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
86.145 mAOD

All dimensions in metres
Log Scale 1.25

BRD
Telephone: 01205 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 24/06/2020
Date Completed: 24/06/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS116

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.80m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc)				
5.00	SPT	9 N		5.00 m: SPT: 1,2/2,2,2,3	5.0		CHALK	
					5.45 (80.70)			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
86.145 mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS117

Sheet 1 of 2

Samples & Tests Depth	Type & No	Value	Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
				TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.	0.10			
				Brown, friable, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.60			
				Stiff, brown, very gravelly, slightly sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	1.0			
1.00	SPT	13 N		1.00 m: SPT: 0,5/4,2,3,4	1.40			
				Firm to stiff, orange brown, silty CLAY. Natural black specks (possibly manganese deposits).	2.0			
2.00	SPT	20 N		2.00 m: SPT: 3,4/4,4,5,7	2.40			
				Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	3.0			
3.00	SPT	14 N		3.00 m: SPT: 2,3/3,3,4,4	3.10			
				Stiff, orange brown, sandy CLAY with rare quartzite gravel.	4.0			
4.00	SPT	28 N		Medium dense, orange brown, gravelly, clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 4.00 m: SPT: 5,7/8,8,5,5	4.00			
					4.50			

XESGRAVE CATCHMENT SUBGROUP

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS117

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No.	Value						
				Stiff, dark brown, silty CLAY with natural black specks (possibly manganese deposits).	4.00		KGS	
5.00	SPT	14 N		Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. (CIRIA Grade Dc) 5.00 m. SPT. 4,4/4,4,3,3	5.0		CHALK	
					5.45			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272744
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS118

Sheet 1 of 2

Samples & Tests Depth	Type & No	Value	Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
				TOPSOIL. Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to medium, subangular to subrounded flint and quartzite. Frequent rootlets.	0.05			
				Brown, friable, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.50			
				Stiff, brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint.	1.0 1.00			
1.00	SPT	4 N		Firm, brown, sandy CLAY. 1.00 m: SPT: 1,1/1,1,1,1	1.70		KESGRAVE CATCHMENT SUBGROUP	
2.00	SPT	5 N		Firm, light brown, sandy CLAY with occasional fine to coarse, subangular to subrounded flint and quartzite gravel. Natural black specks (possibly manganese deposits). 2.00 m: SPT: 2,2/1,1,1,2	2.0 2.10			
				Firm to stiff, orange brown, sandy CLAY with natural black specks (possibly manganese deposits).				
3.00	SPT	11 N		3.00 m: SPT: 1,1/3,2,3,3	3.0			
4.00	SPT	5 N		4.00 m: SPT: 1,1/1,1,1,2	4.0			
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No

WS118

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 2.10m: Stiff, orange brown, sandy CLAY with natural black specks (possibly manganese deposits).				
5.00	SPT	4 N		5.00 m: SPT: 1,1/1,1,1,1	5.0		XCS	
					5.45			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 03/07/2020
Date Completed: 03/07/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS119

Sheet 1 of 2

Samples & Tests Depth	Type & No	Value	Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation / backfill
				TOPSOIL. Grass over dark brown, slightly gravelly, sandy clay. Gravel of fine to medium, subangular to subrounded flint and quartzite. Frequent rootlets.	0.00			
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.30			
				Loose, light brown, very gravelly SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	1.0 1.00			
1.00	SPT	14 N		Orange brown, gravelly, very clayey SAND / very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 1.00 m: SPT: 3,4/3,3,4,4				
2.00	SPT	9 N		Stiff, orange brown, slightly gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits). 2.00 m: SPT: 2,2/2,2,2,3	2.0 2.00		KESGRAVE CATCHMENT SUBGROUP	
3.00	SPT	4 N		3.00 m: SPT: 1,1/1,1,1,1 3.00 - 4.00 m: 50 % recovery. 3.00 m: No SPT recovery.	3.0			
4.00	SPT	8 N		4.00 m: SPT: 2,2/1,2,2,3	4.0			
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Some orange staining in places and black specks. (CIRIA Grade Dc)	4.10		CHALK	
					4.50			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS119

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 4.10m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to course, subangular to subrounded chalk and occasional flint. Some orange staining in places and black specks. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	9 N		5.00 m. SPT. 1,1/2,1,2,4				
					5.45			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272744
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS120

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL: Grass over dark brown, gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Frequent rootlets.	0.10		TS	
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.20			
				Brown, gravelly, slightly clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.70			
				Orange brown, gravelly, slightly clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	1.0 1.00			
1.00	SPT	15 N		Orange brown, gravelly, very clayey SAND / very sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 1.00 m: SPT: 6,6/4,4,3,4			KESGRAVE CATCHMENT SUBGROUP	
2.00	SPT	13 N		Medium dense, orange brown, gravelly, clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 2.00 m: SPT: 4,3/3,4,3,3 2.00 - 3.00 m: 50% recovery.	2.0 2.00			
3.00	SPT	13 N		Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits). 3.00 m: SPT: 1,2/3,3,4,3 3.00 - 4.00 m: 50% recovery.	3.0 3.00			
4.00	SPT	5 N		Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Some orange staining in places and black specks. (CIRIA Grade Dc) 4.00 m: SPT: 1,1/1,1,1,2 4.00 - 5.00 m: 80 % recovery.	4.0 4.00 4.50		CHALK	

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimber
Date Commenced: 03/07/2020
Date Completed: 03/07/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS120

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Continued from 4.00m: Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Some orange staining in places and black specks. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	12 N		5.00 m: SPT: 1,2/2,3,3,4	5.45			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone. 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS121

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				TOPSOIL : Dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	0.10		TS	
				Brown, friable, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint, quartzite and chalk.	0.70		KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	7 N		Firm, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 1.00 m: SPT: 1,1/2,1,2,2	1.0			
2.00	SPT	8 N		Loose to medium dense, orange brown, gravelly, clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 2.00 m: SPT: 1,2/3,2,1,2	2.0 2.00			
3.00	SPT	12 N		Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 3.00 m: SPT: 1,1/3,2,3,4	2.90 3.0			
4.00	SPT	10 N		4.00 m: SPT: 3,4/3,3,2,2 4.00 - 5.00 m: 50% recovery.	4.0			
					4.50			

General Remarks:
Borehole terminated at 7.45m bgl.

Surface Elevation Level: mAOD

All dimensions in metres
Log Scale: 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client: CALA Homes (Chiltern) Ltd.
Project Title: Forge End, Chiswell Green
Project No: BRD3604
Logged By: N Kimbor
Date Commenced: 03/07/2020
Date Completed: 03/07/2020
Method Used: Windowless Percussive Sampling Rig

Borehole No.

WS121

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Stiff, orange brown, slightly gravelly, very sandy CLAY / clayey SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite.				
5.00	SPT	10 N		5.00 m: SPT: 2,3/3,2,2,3	5.0		KESGRAVE CATCHMENT SUBGROUP	
6.00	SPT	11 N		6.00 m: SPT: 2,2/2,3,2,4	6.0			
7.00	SPT	10 N		7.00 m: SPT: 2,2/2,3,2,3	7.0			
					7.45			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 7.45m bgl.

Surface Elevation Level:
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS122

Sheet 1 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				MADE GROUND TOPSOIL: Dark brown, slightly gravelly, sandy clay. Gravel of fine to coarse, subangular to subrounded flint, quartzite and charcoal.	0.10		MADE GROUND	
				Loose, brown, gravelly SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite.	1.0 1.00		KESGRAVE CATCHMENT SUBGROUP	
1.00	SPT	18 N		Stiff, orange brown, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits). 1.00 m: SPT: 3,3/4,5,4,5				
2.00	SPT	24 N		Medium dense, brown, gravelly SAND. Gravel of fine to coarse, subangular to subrounded flint and quartzite. 2.00 m: SPT: 4,5/4,4,7,9	2.0 2.00 2.20			
				Stiff, orange brown, very gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint and quartzite. Natural black specks (possibly manganese deposits).	3.0 3.00			
3.00	SPT	12 N		Stiff, dark brown mottled off white, gravelly, sandy CLAY. Gravel of fine to coarse, subangular to subrounded flint, quartzite and chalk. 3.00 m: SPT: 3,3/3,2,3,4	3.30			
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, subangular to subrounded chalk and occasional flint. Some orange staining. (CIRIA Grade Dc)			CHALK	
4.00	SPT	10 N		4.00 m: SPT: 2,3/3,2,2,3	4.0			
					4.60			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01295 272244
Email: info@brduk.com

PROBEHOLE RECORD

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Forge End, Chiswell Green
Project No:	BRD3604
Logged By:	N Kimber
Date Commenced:	03/07/2020
Date Completed:	03/07/2020
Method Used:	Windowless Percussive Sampling Rig

Borehole No.

WS122

Sheet 2 of 2

Samples & Tests			Water	Description of Strata	Depth / (Level)	Legend	Geology	Installation /Backfill
Depth	Type & No	Value						
				Structureless CHALK recovered as off white, gravelly clay. Gravel of weak, fine to coarse, angular to subangular chalk and occasional flint. Some orange staining. (CIRIA Grade Dc)	5.0		CHALK	
5.00	SPT	14 N		5.00 m: SPT: 4,3/2,4,4,4	5.45			
					6.0			
					7.0			
					8.0			
					9.0			

General Remarks:
Borehole terminated at 5.45m bgl.

Surface Elevation Level
mAOD

All dimensions in metres
Log Scale 1:25

BRD
Telephone: 01285 272244
Email: info@brduk.com

SOIL INFILTRATION RATE

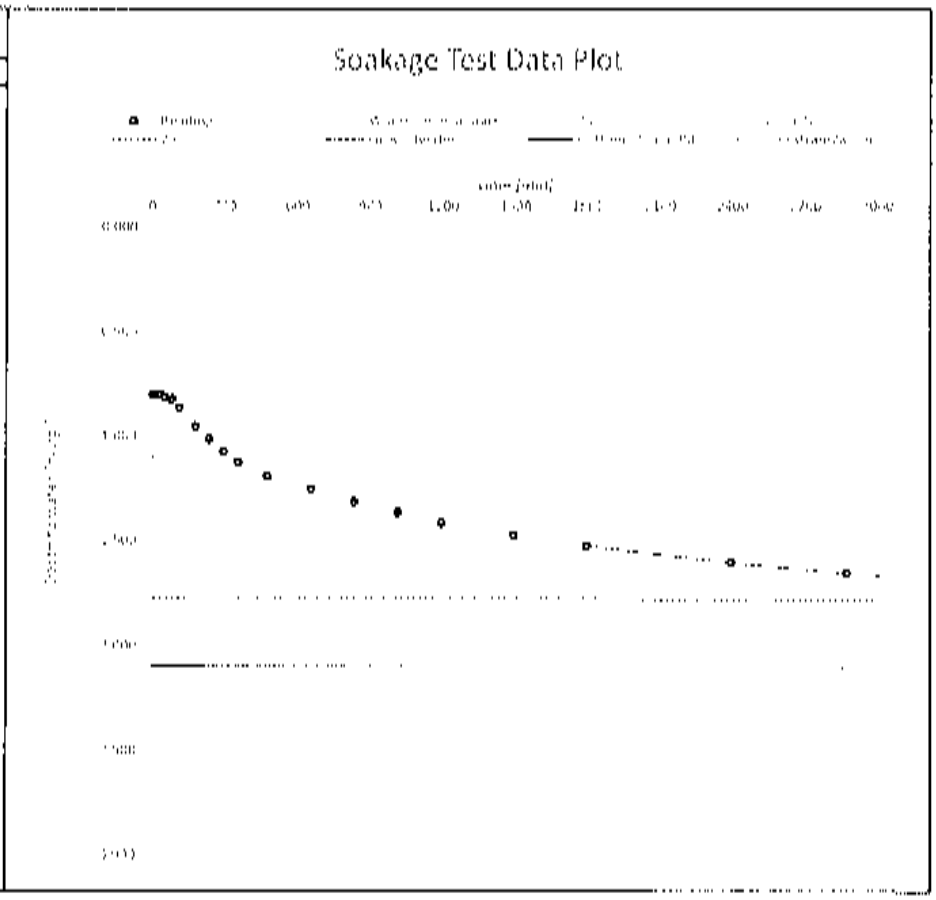
In accordance with BRE Digest 365 2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd
Project Title:	Chiswell Green
Project No:	BRD3604

Trial Pit No:	TP01	Length *(m)* :	2.10
Test No:	1	Depth *(m)* :	2.10
Date:	17/03/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

Ground Conditions	from - to *(m bgl)*		Description
	0.60	0.90	Brown, clayey, slightly sandy GRAVEL.
	0.90	2.10	Fissured, orangish brown to brown mottled reddish brown, slightly gravelly, silty CLAY.

Time	Water Depth
[min]	*[m bgl]*
0	0.800
1	0.800
2	0.800
3	0.800
4	0.800
5	0.800
6	0.800
7	0.800
8	0.800
9	0.800
10	0.800
12	0.800
17	0.800
22	0.800
47	0.810
77	0.820
107	0.850
177	0.950
232	1.010
292	1.070
357	1.120
472	1.190
652	1.250
832	1.310
1012	1.360
1192	1.410
1492	1.470
1792	1.520
2392	1.600
2872	1.650



Soil Infiltration Rate (m/s): $f = \frac{V_{p75\_25}}{a_{50\%} \cdot t_{75\_25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth *(m³)*	0.82
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m²)*	4.77
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	2.5.E+05

Soil Infiltration Rate *(m/s)* : 6.88E-07

Remarks: Calculation of soil infiltration rate based on extrapolated results

SOIL INFILTRATION RATE

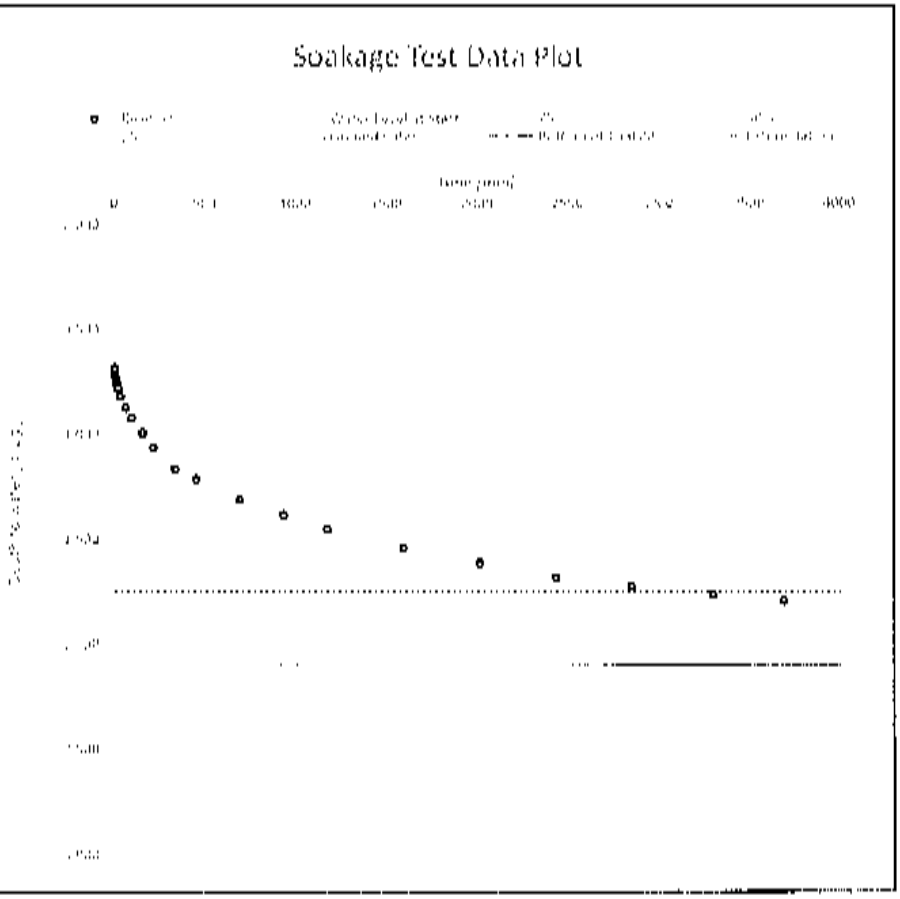
In accordance with BRE Digest 365:2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd
Project Title:	Chiswell Green
Project No:	BRD3606

Trial Pit No:	TP01	Length *(m)* :	2.10
Test No:	2	Depth *(m)* :	2.10
Date:	19/03/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

		from	to *(m bgl)*	Description
Ground	Conditions	0.60	0.90	Brown, clayey, slightly sandy GRAVEL.
		0.90	2.10	Fissured, orangish brown to brown mottled reddish brown, slightly gravelly, silty CLAY.

Time	Water Depth
(min)	*(m bgl)*
0	0.680
1	0.710
2	0.720
3	0.720
4	0.730
5	0.730
6	0.740
7	0.740
8	0.750
9	0.750
10	0.750
12	0.760
17	0.780
32	0.820
62	0.870
92	0.920
152	0.990
212	1.060
332	1.160
452	1.210
692	1.310
932	1.380
1172	1.450
1592	1.540
2012	1.610
2432	1.680
2852	1.730
3107	1.760
3692	1.790



Soil Infiltration Rate [m/s]: $f = \frac{V_{p75\_25}}{a_{50\%} \cdot t_{p75-25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth *[m³]*	0.89
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *[m²]*	5.09
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *[s]*	1.8E+05

Soil Infiltration Rate *[m/s]*: 9.88E-07

Remarks:

SOIL INFILTRATION RATE

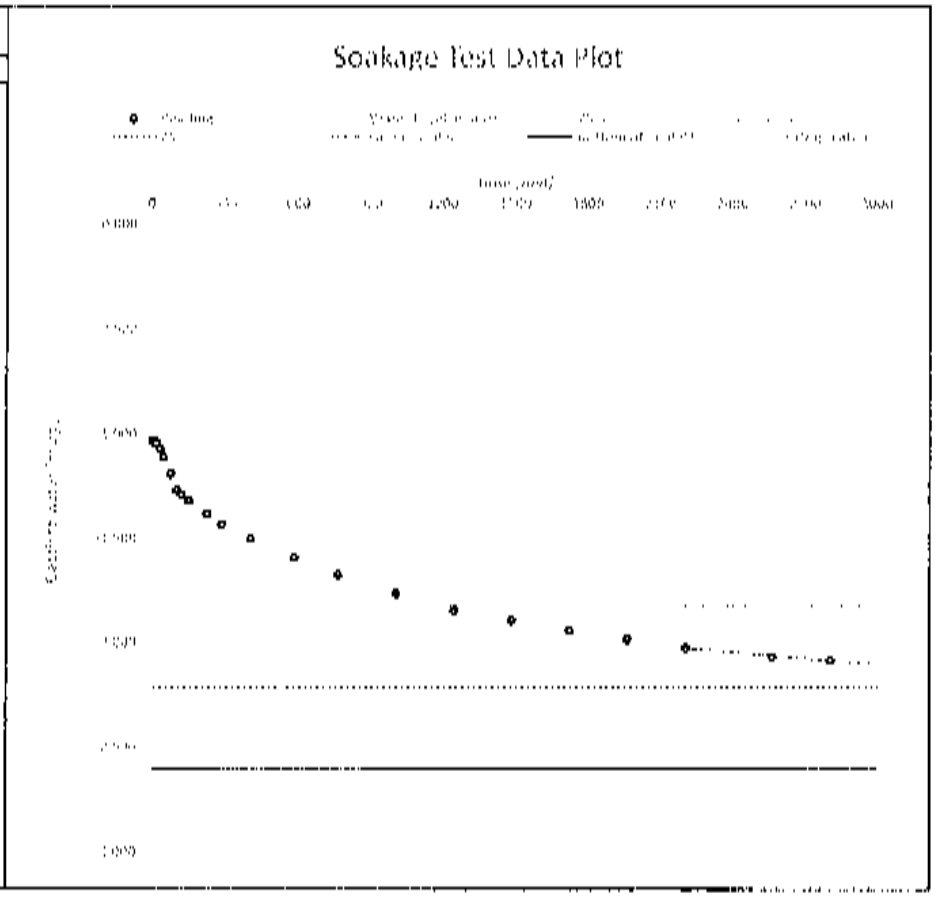
In accordance with BRE Digest 365 2016 - SoakAway Design

Client:	CALA Homes (Chiltern) Ltd
Project Title:	Chiswell Green
Project No:	BRD3604

Trial Pit No.	TP02	Length *(m)* :	1.80
Test No:	1	Depth *(m)* :	2.60
Date:	17/03/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

		from - to *(m bgl)*		Description
Ground	Conditions	0.80	2.10	Orangish brown mottled reddish brown, gravelly, silty CLAY.
		2.10	2.60	Orangish brown, slightly gravelly, slightly clayey SAND.

Time	Water Depth
(min)	*(m bgl)*
0	1.030
1	1.030
2	1.030
3	1.030
4	1.030
5	1.030
6	1.040
7	1.040
8	1.040
9	1.040
10	1.040
14	1.040
29	1.070
44	1.110
74	1.190
99	1.270
119	1.290
149	1.320
224	1.380
284	1.430
404	1.500
584	1.590
764	1.670
1004	1.760
1244	1.840
1484	1.890
1724	1.940
1964	1.980
2204	2.020
2564	2.060
2804	2.080



Soil Infiltration Rate *(m/s)*: $f = \frac{V_{p75\_25}}{a_{50\%} \times t_{p75\_25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth *(m^3)*	0.85
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m^2)*	4.85
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	2.6E+05

Soil Infiltration Rate *(m/s)* : 6.68E-07

Remarks: Calculation of soil infiltration rate based on extrapolated results

SOIL INFILTRATION RATE

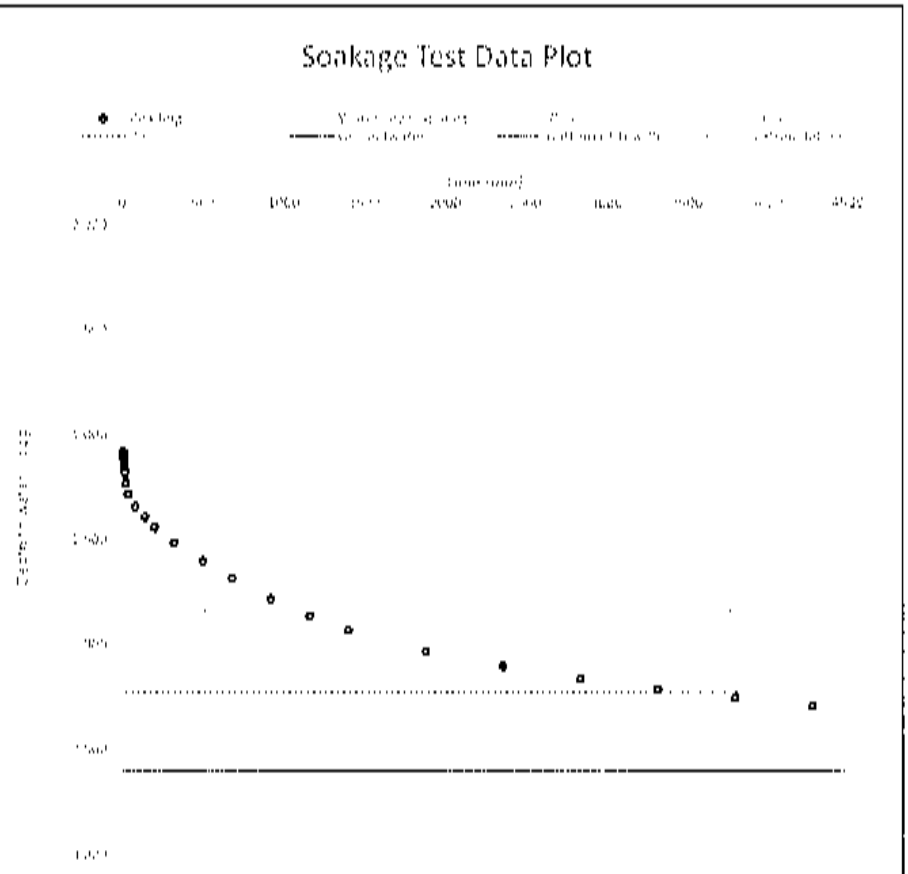
In accordance with BRE Digest 365:2016 - Soakaway Design

Client:	CALA Homes (Chilterns) Ltd
Project Title:	Chiswell Green
Project No.	BRD3604

Trial Pit No:	TP02	Length *(m)* :	1.80
Test No:	2	Depth *(m)* :	2.60
Date:	19/01/2020	Width *(m)* :	0.60
Logged by:	NM	Groundwater *(m bgl)* :	Dry

		from - to *(m bgl)*		Description
Ground	Conditions	0.80	2.10	Orangish brown mottled reddish brown, gravelly, silty CLAY
		2.10	2.60	Orangish brown, slightly gravelly, slightly clayey SAND.

Time	Water Depth
(min)	*(m bgl)*
0	1.080
1	1.080
2	1.090
3	1.100
4	1.110
5	1.120
6	1.130
7	1.140
8	1.150
9	1.160
10	1.170
11	1.180
16	1.230
31	1.280
76	1.340
136	1.390
196	1.440
316	1.510
496	1.600
676	1.680
916	1.780
1156	1.860
1396	1.930
1876	2.010
2356	2.100
2836	2.160
3316	2.210
3796	2.260
4276	2.290



Soil Infiltration Rate (m/s): $f = \frac{V_{p75\_25}}{a_{50\%} \, t_{p75-25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth (m^3)	0.82
a_{p50}	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area (m^2)	4.73
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	1.9E+05

Soil Infiltration Rate *(m/s)* : **8.91E-07**

Remarks:

SOIL INFILTRATION RATE

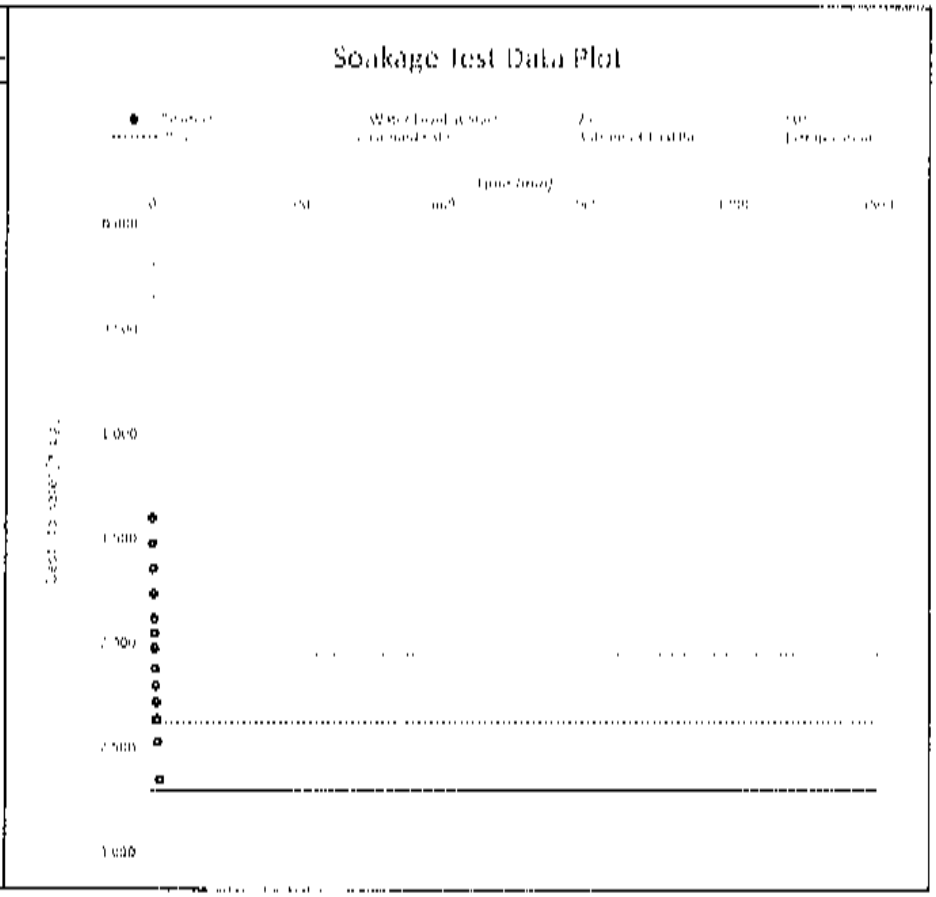
In accordance with BRE Digest 365 2016 Soakaway Design

Client:	CALA Homes (Chilterns) Ltd
Project Title:	Chilwell Grove
Project No:	BRD3604

Trial Pit No:	TP03	Length *(m)* :	1.90
Test No:	1	Depth *(m)* :	2.70
Date:	17/03/2020	Width *(m)*	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

Ground Conditions	from - to *(m bgl)*		Description
	0.50	2.20	Firm, orangish brown mottled reddish brown, gravelly, sandy CLAY
	2.20	2.70	Structureless CHALK, excavated as slightly sandy, silty GRAVEL with occasional cobbles

Time *(min)*	Water Depth *(m bgl)*
0	1.400
1	1.520
2	1.640
3	1.760
4	1.880
5	1.950
6	2.020
7	2.120
8	2.200
9	2.280
10	2.360
17	2.470
17	2.650



Soil Infiltration Rate (m/s): $f = \frac{V_{75\_25}}{a_{50\%} \, t_{75\_25}}$

With:

V_{75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth *(m^3)*	0.74
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m^2)*	4.39
t_{75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	4.5.E+02

Soil Infiltration Rate *(m/s)* : 3.72E-04

Remarks:

SOIL INFILTRATION RATE

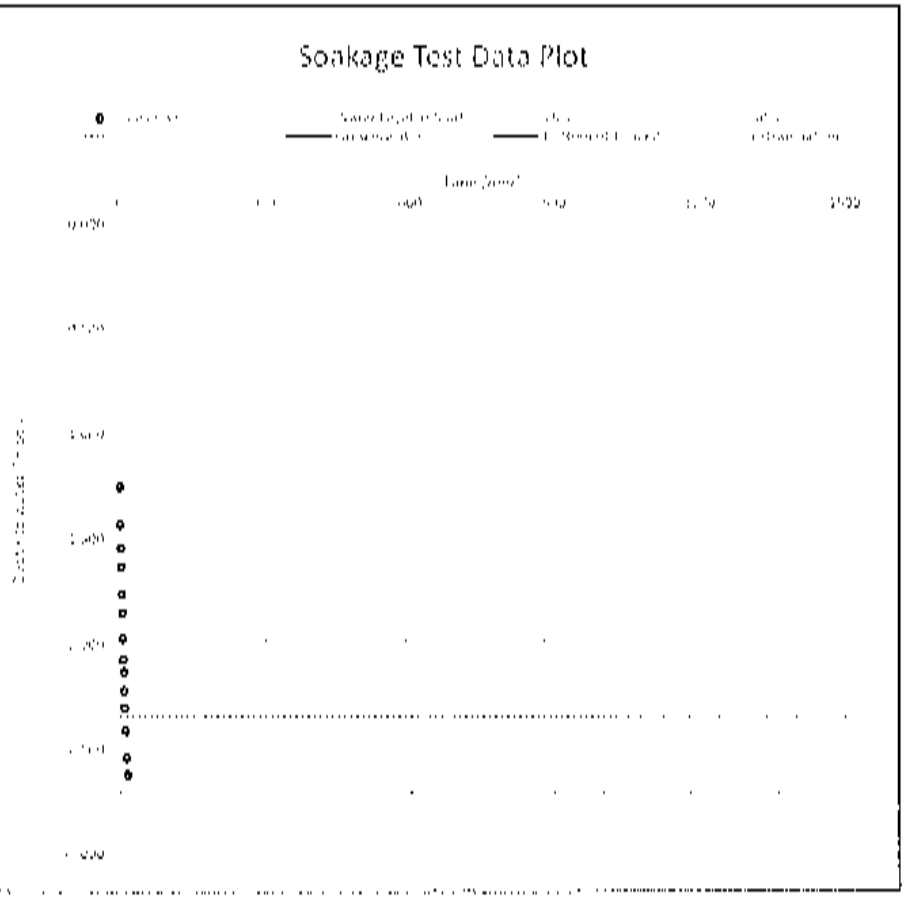
In accordance with BRE Digest 365:2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd
Project Title:	Chiswell Green
Project No:	BRD3004

Trial Pit No:	TP03	Length *(m)* :	1.90
Test No:	7	Depth *(m)* :	2.70
Date:	28/03/2020	Width *(m)* :	0.60
Logged by:	KM	Groundwater *(m bgl)* :	Dry

		from - to *(m bgl)*		Description
Ground	Conditions	0.50	2.20	Firm, orangish brown mottled reddish brown, gravelly, sandy CLAY.
		2.20	2.70	Structureless CHALK, excavated as slightly sandy, silty GRAVEL with occasional cobbles.

Time *(min)*	Water Depth *(m bgl)*
0	1.250
1	1.430
2	1.540
3	1.630
4	1.700
5	1.850
6	1.970
7	2.070
8	2.130
9	2.220
10	2.300
12	2.410
14	2.500
16	2.620



Soil Infiltration Rate (m/s): $f = \frac{V_{p75\_25}}{a_{50\%} \times t_{p75-25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth (m^3)	0.83
a_{50}	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area (m^2)	4.77
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	4.7E+02

Soil Infiltration Rate *(m/s)* : 3.67E-04

Remarks:

SOIL INFILTRATION RATE

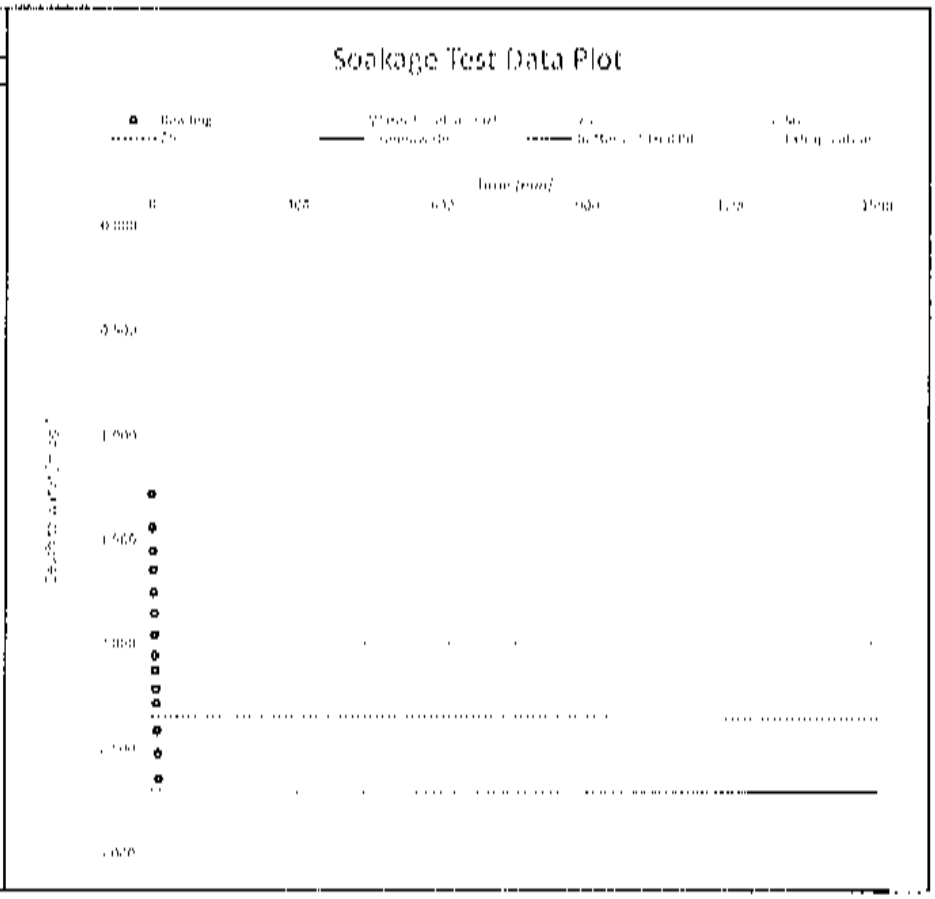
In accordance with BRE Digest 365:2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Chiswell Green
Project No:	BRD1604

Trial Pit No:	TP03	Length *(m)* :	1.90
Test No:	3	Depth *(m)* :	2.70
Date:	18/03/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

Ground Conditions	from - to *(m bgl)*		Description
	0.50	2.20	Firm, orangish brown mottled reddish brown, gravelly, sandy CLAY.
	2.20	2.70	Structureless CHALK, excavated as slightly sandy, silty GRAVEL with occasional cobbles.

Time	Water Depth
(min)	*(m bgl)*
0	1.280
1	1.440
2	1.550
3	1.640
4	1.750
5	1.850
6	1.950
7	2.050
8	2.120
9	2.210
10	2.280
12	2.410
14	2.520
16	2.640



Soil Infiltration Rate (m/s): $f = \frac{V_{p75\_25}}{a_{50\%} \times t_{75-25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth *(m³)*	0.81
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m²)*	4.69
t_{p75-25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	4.E+02

Soil Infiltration Rate *(m/s)* : 3.57E-04

Remarks:

SOIL INFILTRATION RATE

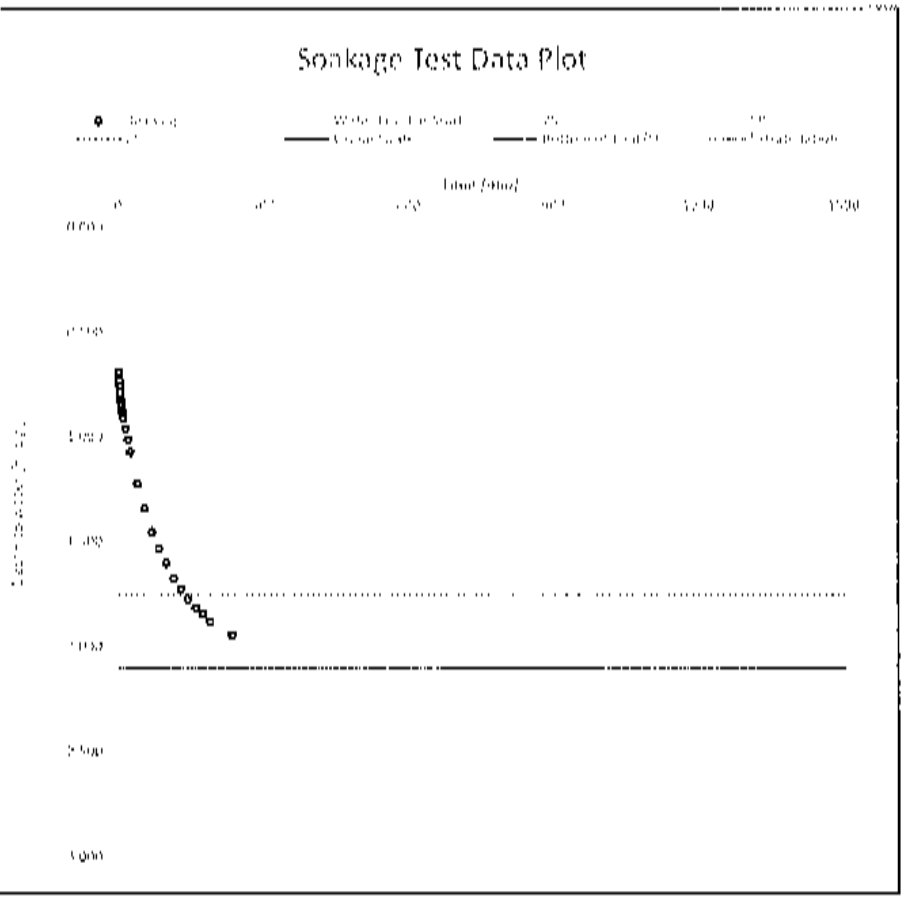
In accordance with BRE Digest 365:2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Chiswell Green
Project No:	BRD3604

Trial Pit No:	TP04	Length *(m)* :	2.00
Test No:	1	Depth *(m)* :	2.10
Date:	17/03/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

Ground Conditions	from - to *(m bgl)*		Description
	0.20	0.90	Brown, slightly clayey, sandy GRAVEL.
	0.90	2.10	Brown to orange/b brown, slightly gravelly, sandy CLAY

Time	Water Depth
(min)	*(m bgl)*
0	0.690
1	0.690
2	0.710
3	0.760
4	0.790
5	0.820
6	0.840
7	0.850
8	0.870
9	0.880
10	0.910
15	0.960
20	1.010
25	1.070
40	1.220
55	1.340
70	1.450
85	1.530
100	1.600
115	1.670
130	1.720
145	1.770
160	1.810
175	1.840
190	1.880
235	1.940



Soil Infiltration Rate (m/s): $f = \frac{V_{p75\_25}}{a_{50\%}\, t_{p75\_25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth *(m³)*	0.85
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m²)*	4.87
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	6.9E+03

Soil Infiltration Rate *(m/s)* : **2.51E-05**

Remarks:

SOIL INFILTRATION RATE

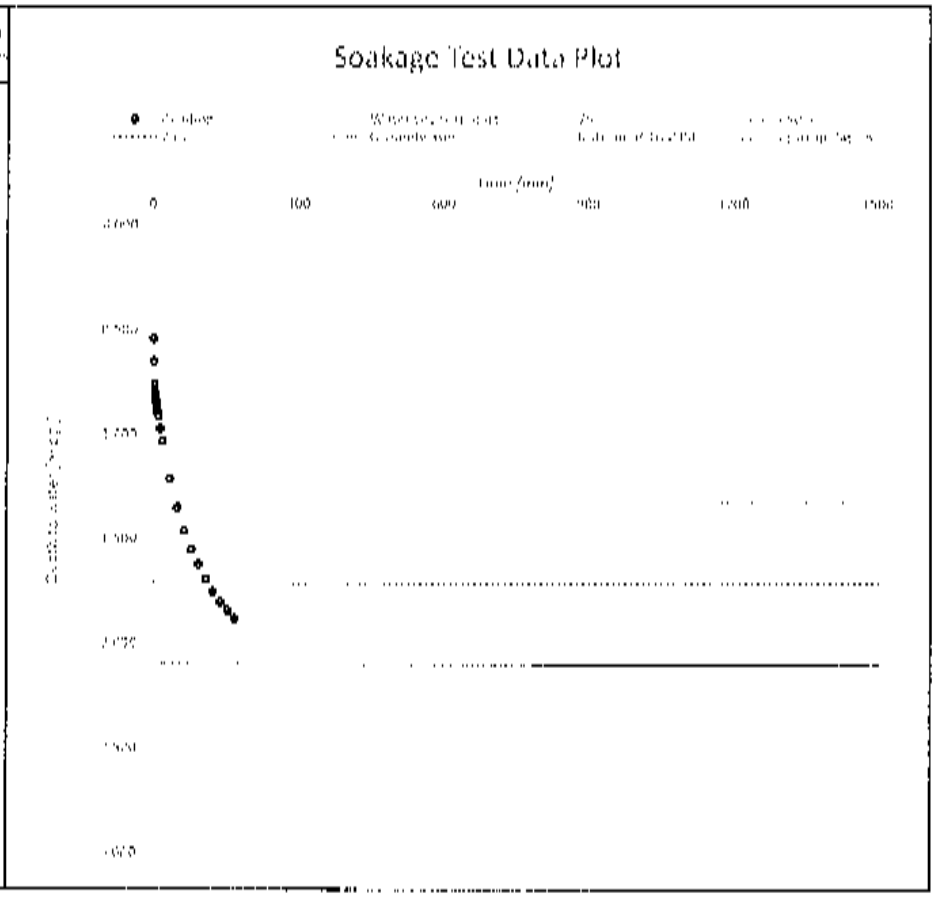
In accordance with BRE Digest 365 2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd
Project Title:	Chiswell Green
Project No:	BRD1604

Trial Pit No:	TP04	Length *(m)* :	2.00
Test No:	2	Depth *(m)* :	2.10
Date:	18/03/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

		from	to *(m bgl)*	Description
Ground	Conditions	0.20	0.90	Brown, slightly clayey, sandy GRAVEL
		0.90	2.10	Brown to orangish brown, slightly gravelly, sandy CLAY.

Time *(min)*	Water Depth *(m bgl)*
0	0.640
1	0.650
2	0.760
3	0.800
4	0.820
5	0.840
6	0.860
7	0.880
8	0.890
9	0.900
10	0.910
14	0.970
19	1.030
34	1.210
49	1.350
64	1.460
79	1.550
94	1.620
109	1.690
124	1.750
139	1.800
154	1.840
169	1.880



Soil Infiltration Rate (m/s): $f = \frac{V_{p75\_25}}{a_{50\%} \times t_{p75\_25}}$

With:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth *(m³)*	0.94
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m²)*	5.26
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	6.2.E+03

Soil Infiltration Rate *(m/s)* : **2.89E-05**

Remarks:

SOIL INFILTRATION RATE

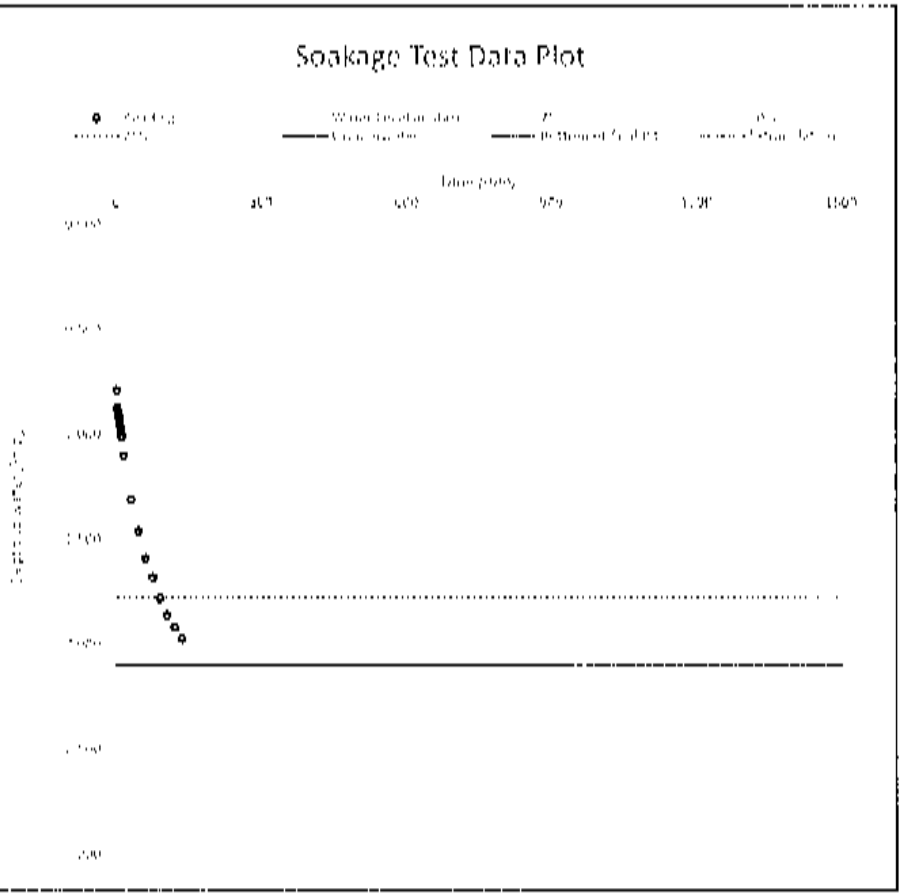
In accordance with BRE Digest 365 2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd
Project Title:	Chiswell Green
Project No:	BRD4604

Trial Pit No:	TP04	Length *(m)*	2.00
Test No:	3	Depth *(m)* :	2.10
Date:	18/03/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

		from - to *(m bgl)*		Description
Ground	Conditions	0.20	0.90	Brown, slightly clayey, sandy GRAVEL.
		0.90	2.10	Brown to orangish brown, slightly gravelly, sandy CLAY

Time	Water Depth
(min)	*(m bgl)*
0	0.790
1	0.870
2	0.890
3	0.900
4	0.910
5	0.920
6	0.930
7	0.950
8	0.970
9	0.990
10	1.010
15	1.100
30	1.310
45	1.460
60	1.590
75	1.680
90	1.780
105	1.850
120	1.920
135	1.970



Soil Infiltration Rate *(m/s)*: $f = \frac{V_{p75\_25}}{a_{50} \times t_{p75\_25}}$

with:

V_{p75_25}	as Effective Storage Volume of water between 75% and 25% effective storage depth (m^3)	0.79
a_{50}	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area (m^2)	4.61
t_{p75_25}	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	4.4.E+03

Soil Infiltration Rate *(m/s)* : **3.92E-05**

Remarks:

SOIL INFILTRATION RATE

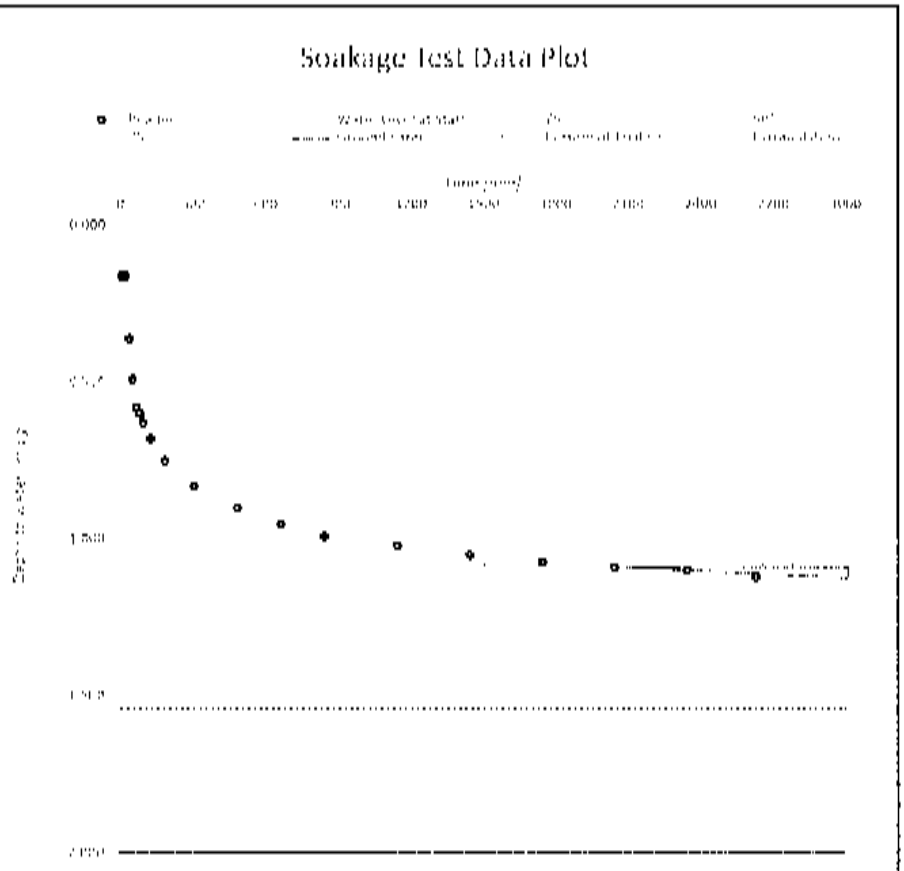
In accordance with BRE Digest 365:2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd
Project Title:	Chiswell Green
Project No:	BRD1608

Trial Pit No:	TP05	Length *(m)* :	2.00
Test No:	1	Depth *(m)* :	2.00
Date:	17/01/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

Ground Conditions	from - to *(m bgl)*		Description
	0.20	2.00	Orangish brown to brown, slightly gravelly, silty CLAY

Time	Water Depth
(min)	*(m bgl)*
0	0.160
1	0.160
2	0.160
3	0.160
4	0.160
5	0.160
6	0.160
7	0.160
8	0.160
9	0.160
10	0.160
17	0.160
32	0.160
47	0.490
62	0.580
77	0.600
92	0.630
122	0.680
182	0.750
302	0.830
482	0.900
662	0.950
842	0.990
1142	1.020
1442	1.050
1742	1.070
2042	1.090
2342	1.100
2627	1.120



Soil Infiltration Rate *(m/s)*: $f = \frac{V_{p75\%-25\%}}{a_{50\%} \cdot t_{75\%-25\%}}$

with:

$V_{p75\%-25\%}$	as Effective Storage Volume of water between 75% and 25% effective storage depth *(m^3)*	1.10
$a_{50\%}$	as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m^2)*	5.98
$t_{75\%-25\%}$	as Time for the water level to fall from 75% to 25% effective storage depth *(s)*	4.6E+06

Soil Infiltration Rate *(m/s)*: 3.99E-08

Remarks: Calculation of soil infiltration rate based on extrapolated results.

SOIL INFILTRATION RATE

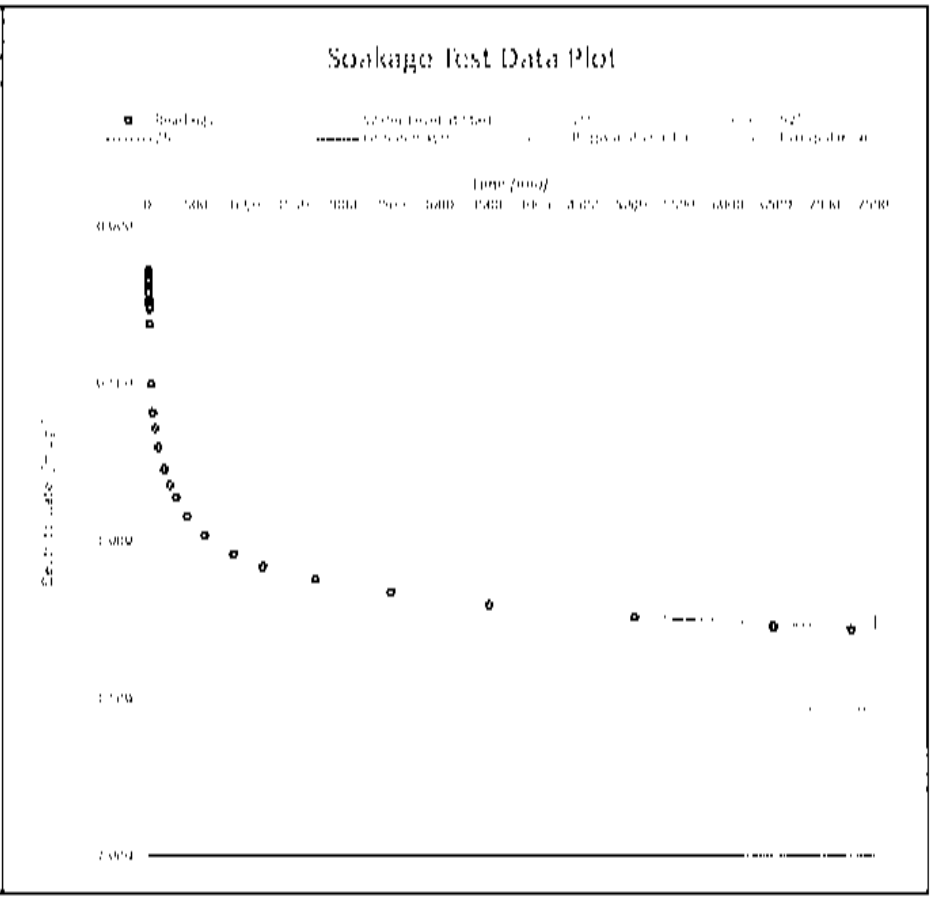
In accordance with BRE Digest 365:2016 - Soakaway Design

Client:	CALA Homes (Chiltern) Ltd.
Project Title:	Chiswell Green
Project No.	BRD3604

Trial Pit No:	TP05	Length *(m)* :	2.00
Test No	2	Depth *(m)* :	2.00
Date:	19/07/2020	Width *(m)* :	0.60
Logged by:	RM	Groundwater *(m bgl)* :	Dry

Ground Conditions	from - to *(m bgl)*		Description
	0.20	2.00	Orangish brown to brown, slightly gravelly, silty CLAY

Time	Water Depth
(min)	*(m bgl)*
0	0.160
1	0.150
2	0.160
3	0.170
4	0.190
5	0.200
6	0.210
7	0.230
8	0.240
9	0.250
10	0.260
15	0.310
20	0.500
45	0.590
75	0.640
105	0.700
165	0.770
225	0.820
285	0.860
405	0.930
585	0.980
885	1.040
1185	1.080
1775	1.120
2565	1.160
3575	1.200
5025	1.240
6465	1.270
7275	1.280



Soil Infiltration Rate (m/s): $f = \frac{V_{p75\_25}}{a_{50} \cdot tp_{75-25}}$

with:

V_{p75_25}	= Effective Storage Volume of water between 75% and 25% effective storage depth *(m³)*	1.12
a_{50}	= Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area *(m²)*	6.00
t_{p75_25}	= Time for the water level to fall from 75% to 25% effective storage depth *(s)*	4.38E+06

Soil Infiltration Rate *(m/s)* : 4.26E-08

Remarks: Calculation of soil infiltration rate based on extrapolated results

Groundwater Monitoring Record

Project: Forge End, Chiswell Green
Client: CALA Homes (Chilterns) Ltd.
Project No: BRD3604

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS02	24/03/2020	RM	3.83	-	Dry	Dry	N/A	N/A	
WS04	24/03/2020	RM	4.12	-	Dry	Dry	N/A	N/A	
WS06	24/03/2020	RM	4.02	-	Dry	Dry	N/A	N/A	
WS07	24/03/2020	RM	4.04	-	Dry	Dry	N/A	N/A	
WS10	24/03/2020	RM	2.78	-	Dry	Dry	N/A	N/A	

Appendix F

Thames Water Records

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

ALS/ALS Standard/2016_3226081

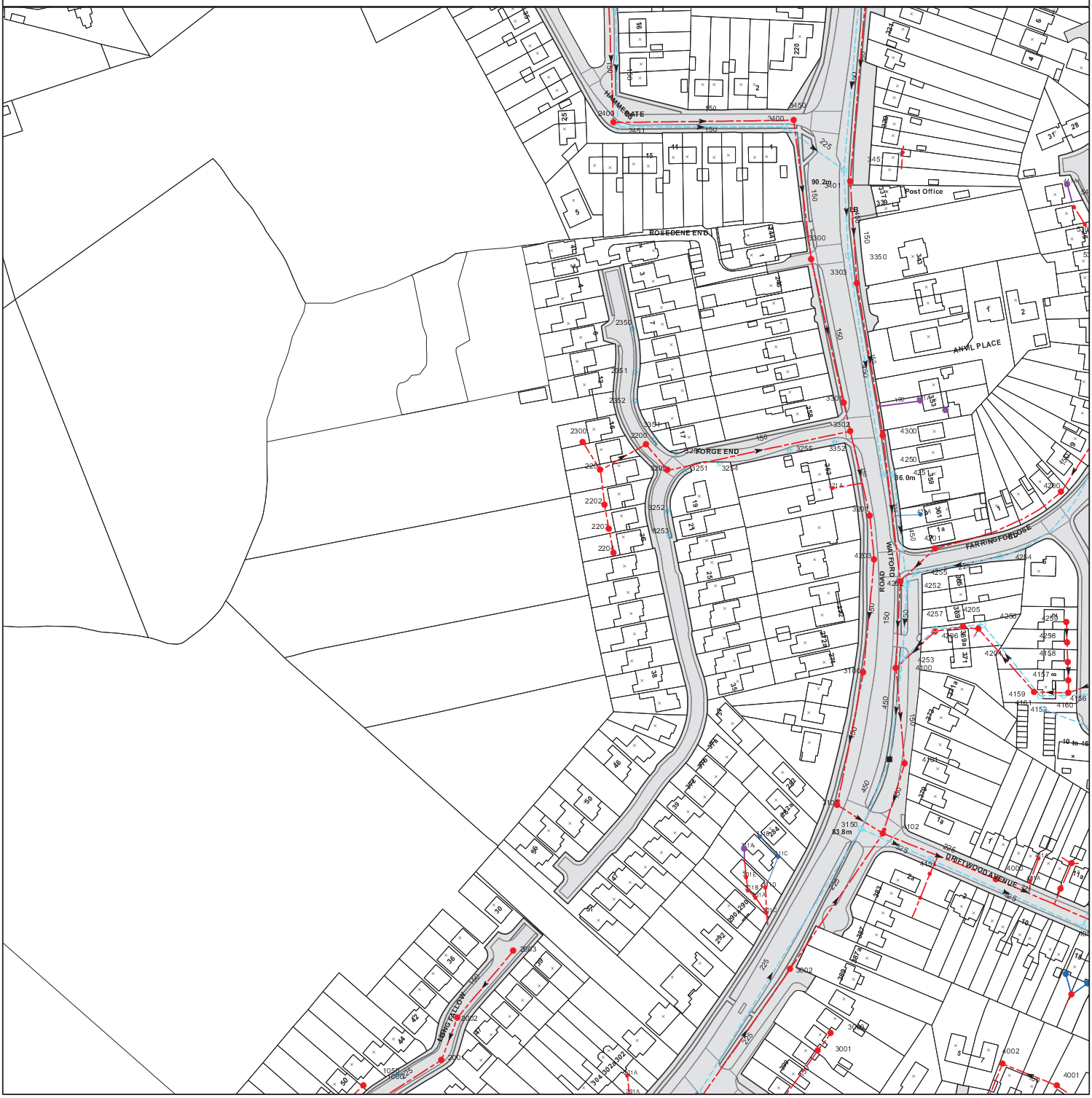
0 40 80 160 240 320 Meters

Scale:	1:6447
Width:	1801m
Printed By:	VBALAKRI
Print Date:	06/01/2016
Map Centre:	513098,204281
Grid Reference:	TL1304SW

Comments:

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

ALS/ALS Standard/2016_3226081



0 10 20 40 60 80 Meters

Scale:	1:1789
Width:	500m
Printed By:	VBALAKRI
Print Date:	06/01/2016
Map Centre:	513250,204250
Grid Reference:	TL1304SW

Comments:

ALS/ALS Standard/2016_3226081

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
4050	83.17	80.91
401A		
411A		
4202	85.45	83.73
4101	83.98	82.38
4255	85.67	84.56
421A		
4201	86.05	84.78
431B		
4204	86.04	83.64
4254	87.15	85.74
4161		
4200	88.5	87
4259		
4158		
4157		
4002	85.86	84.8
3000	85.26	84.5
301C		
301A		
301D		
301E		
4151	83.23	81.31
311A		
4102	83.61	80.76
3101	84.18	81.18
3300	89.49	88.12
4401	90.24	89.5
441A		
3451	91.24	89.53
2451	93.25	91.95
2400	93.36	91.21
2450	95.19	94.13
2201	87.77	86.07
2203	87.04	86.2
2350	89.59	88.47
2352	88.49	87.15
3351	87.81	86.38
3200	87.35	85.93
3250	87.49	86.11
3254	87.18	85.73
321A		
3301	87.27	85.97
3100	84.82	83.22
4203	85.58	84.19
4300	86.76	84.81
4001		
40BB		
1000	85.55	83.79
2001	85.75	83.79
2003	85.45	84.15

REFERENCE	COVER LEVEL	INVERT LEVEL
4051		
4162		
4100	84.8	83.1
4253	84.89	83.49
4252	85.67	84.03
431A		
4206	85.43	83.46
4257	85.44	83.76
4205	85.51	83.6
4256	86	84.02
4159		
4152	85.34	83.49
4160		
4258		
4156		
201A		
3001	85.49	84.34
3002		
401B		
301B		
4000	83	80.68
411B		
311C		
311B		
3150	83.95	82.05
3303	88.92	87.6
3350	89.21	87.91
4400	90.63	90
3401	91.13	89.82
441B		
3450	92.26	91.02
3400	92.16	90.12
2300		
2202	87.26	86.23
2204	86.88	86.26
2351	88.93	88.06
2200	87.75	86
3252	86.98	85.52
3253	86.48	85.13
3251	87.31	85.59
3255	86.94	85.53
3352	86.84	85.64
3302	86.71	85.59
3201	85.91	84.5
4250	86.29	84.81
4251	86.57	84.77
40BC		
40BA		
1050	85.69	84.44
2002	85.81	83.94

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

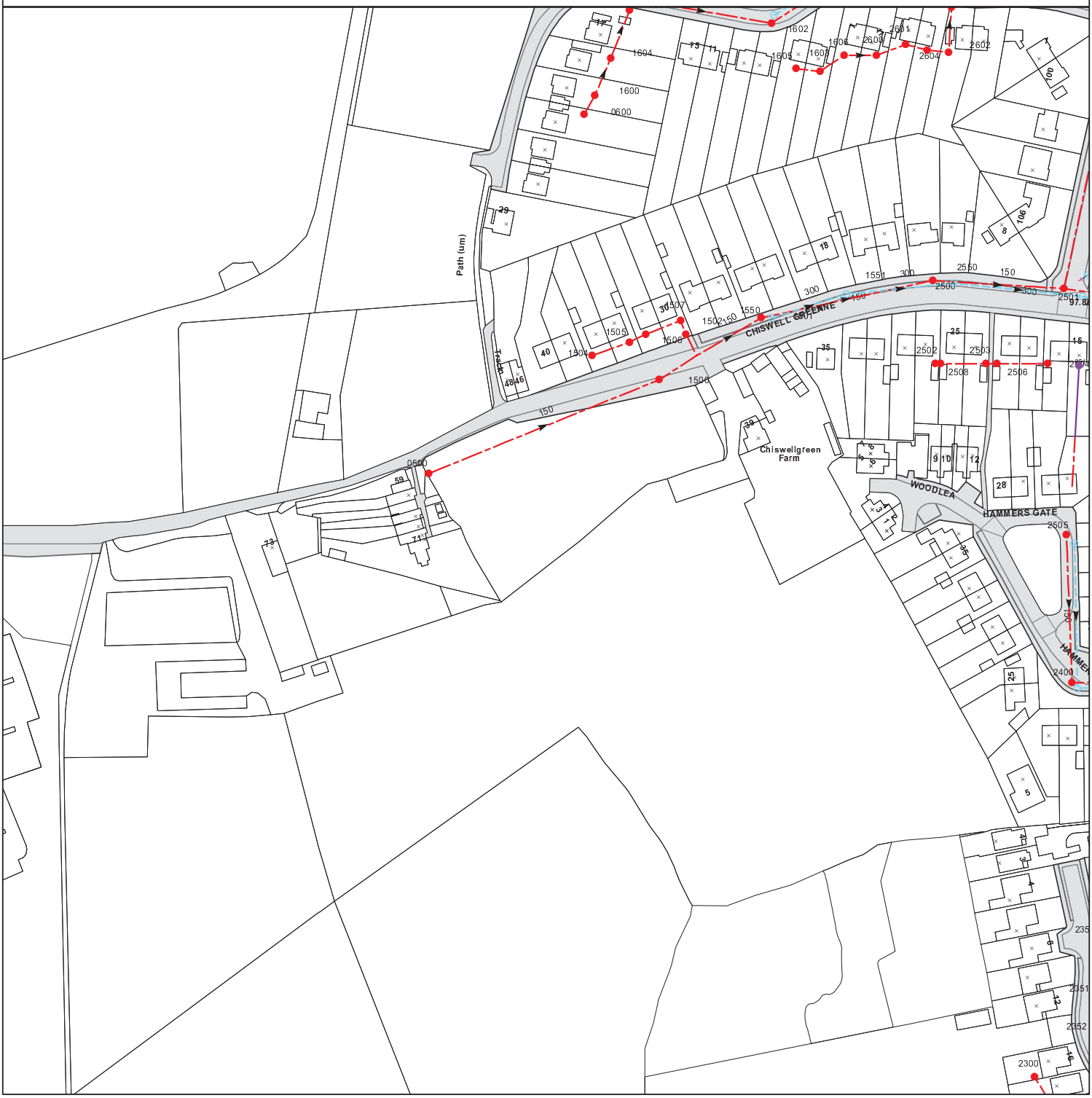
Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plans are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole level indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

ALS/ALS Standard/2016_3226081



The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified before any works are undertaken. Crown copyright Reserved

Scale:	1:1451
Width:	405m
Printed By:	jgrosvenor
Print Date:	12/01/2016
Map Centre:	513085,204496
Grid Reference:	TL1304SW

Comments:

ALS/ALS Standard/2016_3226081

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
2551	97.98	96.44
2550	99.72	98.27
2602	102.4	101.83
2400	93.36	91.21
2505	95.11	93.72
2504	97.56	96.66
2503	98.33	97.38
2508	98.71	97.83
0600		
1600	103.64	102.59
1505	101.72	100.27
1506	101.71	100.16
1507	101.64	99.94
1501	100.98	97.98
1550	100.71	99.41
1605	103.08	102.45
1606	102.8	102.2
2600	102.85	102
2604	102.71	101.89
0500	101.73	99.91

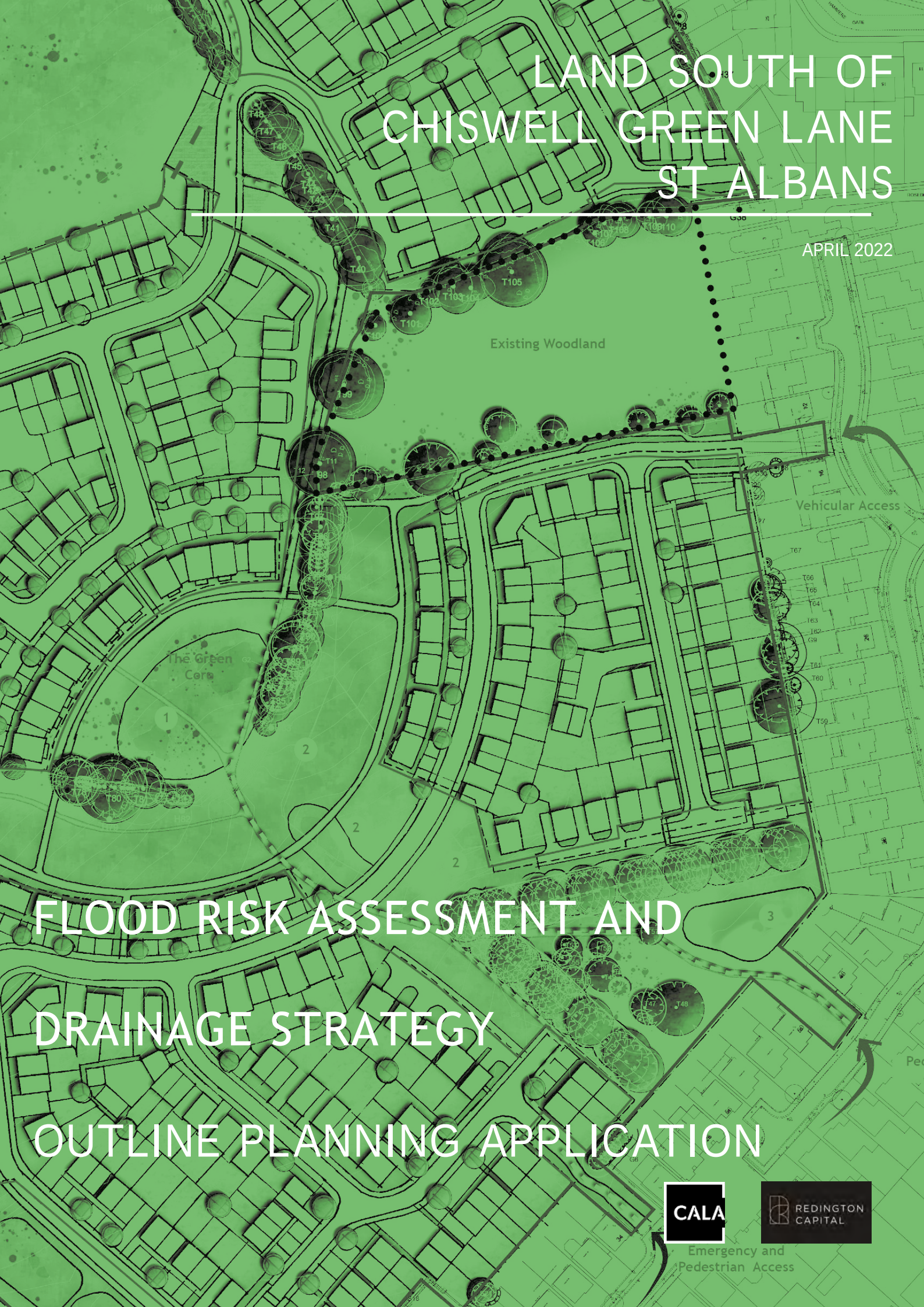
REFERENCE	COVER LEVEL	INVERT LEVEL
2501	98.09	96.39
2552	98.35	96.75
2451	93.25	91.95
2450	95.19	94.13
251A		
2502	98.77	97.87
2506	98.15	97.25
2300		
1504	101.73	100.48
1604	103.88	102.43
1601	104.13	102.32
1500	100.91	98.66
1502	101.38	99.71
1602	103.44	101.93
1650	103.46	101.96
1603	102.93	102.33
1551	100.49	98.99
2601		
2500	99.78	97.03

Appendix G

Site Proposals

LAND SOUTH OF CHISWELL GREEN LANE ST ALBANS

APRIL 2022



FLOOD RISK ASSESSMENT AND DRAINAGE STRATEGY

OUTLINE PLANNING APPLICATION

CALA

REDINGTON CAPITAL