

Phase 2 Site Investigation

Ploughley Road, Ambrosden



B05927-CLK-XX-XX-RP-GT-002


Bellway Homes (North)

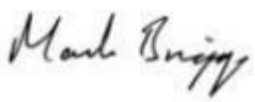
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Project
Ploughley Road, Ambrosden

Client Name
Bellway Homes (North)

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Executive Summary

Client	Bellway Homes (North)
Site	Ploughley Road, Ambrosden
Location	Ploughley Road, Ambrosden, OX25 2RB. NGR 460463, 220084.
Proposed development	Low rise residential with associated highways, drainage and public open space.
Geology	A mixture of bedrock formations comprising the Cornbrash Formation, Forest Marble Formation and Kellaways Clay Member (limestone and mudstone). No superficial Deposits.
Radon	No radon protective measures are required.
Previous site investigations	Clarkebond have not been made aware of any previous investigations undertaken at this site. Phase 1 Desk Study Report by Clarkebond (ref B05927-CLK-XX-XX-RP-GT-0001 dated November 2022).
This site Investigation	35 machine excavated trial pits with 11 infiltration tests to between 0.60m to 3.00m bgl.
Ground conditions	Thin Topsoil or Reworked Topsoil (G.L to 1.00m) over <ul style="list-style-type: none"> • Kellaways Clay Member - Brown to grey sandy clay (>3.00m). or • Cornbrash Formation - brown to orange clayey gravelly sand/clay at shallow depth becoming a medium dense a brown to orange clayey sandy gravel of limestone (0.55m to 1.45m), or • Forest Marble Formation - brown to orange sandy gravel/clay (0.65m to 2.05m). No groundwater during investigation.
Foundations	Strip footings suitable across the majority of the site. Bearing capacity of 100kPa for Kellaways Clay and 125kPa for Cornbrash and Forest Marble Formation may be assumed. Further assessment in the area of TP13 required to delineate soft area.
Shrinkable soils	Soils are high volume change potential.
Buried concrete	DS2 & AC1s.
Floor slabs	Suspended floors recommended.
Gas protection	No gas protection measures required. No radon protection measures required.
Slope stability	Gradients are considered generally stable but careful assessment of changes of elevation or construction near existing slopes would still be needed.
Pavement	Design CBR value of 3%.
Soakaways	Underlying geology mostly unsuitable for soakaway drainage, with 9 of 11 test locations failing. Only infiltration rates recorded of 6.4×10^{-5} m/s and 2.19×10^{-5} m/s encountered in TP02 & TP25 respectively.
Contamination Considerations	No risks to human health, plants, nor groundwater have been found on site. No remedial actions required. PE and PVC water supply pipes should be acceptable. No protection is required for Radon, ground gas and chemical vapours.
Waste Categorisation for Off-site Disposal	Initial Waste Classifications: The natural Cornbrash Formation, Forest Marble Formation, Kellaways Clay Member soils have been classified on their total material properties as non-hazardous. As natural soils they may be acceptable at a facility licensed to accept inert waste. The waste receiver may require WAC testing to confirm acceptably, notwithstanding the provenance the soils.
Further Data and Investigation	Further investigation consisting of rotary boreholes to inform pile design parameters for proposed land raising areas. Further investigation around the soft area identified at TP13. The design for a piling mat.

1 Introduction

Clarkebond (UK) Limited was commissioned by Bellway Homes to undertake a Phase 2 Site Investigation on a site known as Ploughley Road, Ambrosden, OX25 2RB.

1.1 Proposed Development

It is understood that the site is being considered for residential redevelopment. Although no proposed development plans were available at the time of reporting, it is assumed the development is to consist of two or three storey residential properties of traditional construction together with associated infrastructure.

1.2 Scope of Investigation

The objectives of the investigation were to determine the sub-surface conditions in respect of:

- Foundations for proposed structures.
- Floor slabs.
- Soakaway potential.
- Parameters for the design of new retaining walls.
- Contamination assessment to consider potential significant pollutant linkages arising from the historic land uses on and off site.

1.3 Previous Investigations

Clarkebond have not been made aware of any previous investigations that have been undertaken at this site.

1.4 Limitations

This report is provided for the benefit only of the party to whom it is addressed and we do not accept responsibility to any third party for the whole or any part of the contents and we exercise no duty of care in relation to this report to any third party.

Where intrusive investigations have been completed, information, comments and opinions given in this report are based on the ground conditions encountered during the site work and on the results of laboratory and field tests performed during the investigation. However, subsoils are inherently variable and hidden from view such that no investigation can be exhaustive to the extent that all soil conditions are revealed. Conditions may therefore be present beneath the site that were not apparent in the data reviewed as part of this assessment. In particular, it should be noted that groundwater levels vary due to seasonal and other effects, and may at times differ to those measured during the investigation.

This assessment has been based to a large extent on data acquired from Third Parties. This data has been taken at face value and has not been subjected to any third party validation.

2 Site Setting

Site Address: Ploughley Road, Ambrosden, OX25 2RB

National Grid Reference: E460463, N220084

The site is located approximately 500m north of Ambrosden town centre as shown on Figure 2.1 below.

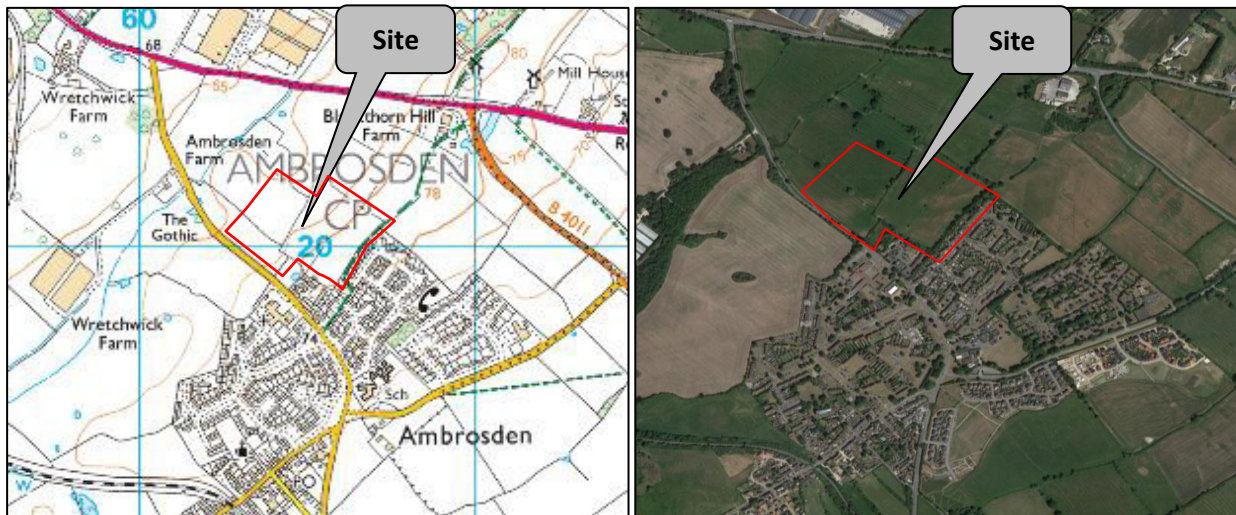


Figure 2.1 Site Location

2.1 Site Description

The site has remained undeveloped farmland since the earliest mapping available (1885). The surrounding area is predominantly rural, with the gradual residential expansion of Ambrosden to the south and southeast of the site. The site is bound to the south by Ploughley Road and to the north by the A41.

The land parcel comprised three fields, although tree locations suggest these may have been formed from an amalgamation of smaller fields in the past. The land slopes gently from the eastern boundary, at circa 77-78m AoD to the western boundary, at circa 65m AoD.

3 Summary of Previous Work

A Preliminary Land Contamination and Geotechnical Risk Assessment (Desk Study) for the site has been undertaken by Clarkebond (UK) (report reference B05927-CLK-XX-XX-RP-GT-0001 dated September 2022).

A summary of the salient findings of that report is presented below.

The 1:50,000 scale British Geological Survey (BGS) geological mapping indicates the site to be underlain the bedrock geology of the Kellaway Sand member (Interbedded Sandstone and Siltstone), Kellaway Clay member (Mudstone), Cornbrash Formation (Limestone) and Forest Marble Formation (Interbedded Limestone and Mudstone). There are no superficial deposits shown on the mapping so material below the topsoil is expected to be derivative of the underlying bedrock.

The Kellaway Sand member is described by the BGS as a sandstone/siltstone with interbeds of sandy and silty mudstone. The Kellaway Clay member is described as a mudstone with thin beds of siltstone and sandstone and nodules of limestone. The Cornbrash Formation is described as a limestone, while the Forest Marble Formation is described as a grainstone (limestone).

The areas of the site underlain by the Kellaway Sand Member, Cornbrash Formation and Forest Marble Formation have been designated as a Secondary A aquifer. Near surface soils are likely to be impermeable to infiltration of surface water due to the presence of potential subsoil clay. However, subsoil derived from the Kellaway Sand Member may have a bulk composition of sand and could result in higher infiltration rates. The area of the site underlain by the Kellaway Clay Member is designated as unproductive strata.

According to OS maps, there are no “ordinary watercourses” identified on site. Ordinary watercourses refer to those under the jurisdiction of the LLFA, which in this case is Cherwell district council.

To the Northwest of the site there is a tributary of The River Ray, and alongside it a pond known as the ‘Gothic pond’. The pond is known to fill and overflow onto the adjacent Ploughley Road and times of prolonged periods of wet weather.

The site has remained undeveloped land since the earliest mapping available to the most recent (1885-2021). Aerial photography suggests the greenfield site is currently being used as farmland and this has most likely been its use since 1885. Lack of any development on the land suggests that there should be no buried structures such as foundations and service infrastructure. Significant deposits of made ground that could be a source of contamination are unlikely, although localised infilling on areas such as access points may have occurred.

There are no licensed waste management facilities within 500m of the site, the only other areas of note within a 500m buffer zone are potentially infilled areas of land in multiple areas surrounding the site.

The Envirocheck report states that the site is in an area where the estimated probability of homes being above the action level of 200Bqm⁻³ is between 1 and 3%. Therefore, no radon protective measures are required in the construction of new buildings or extensions.

4 Site Investigation

The intrusive investigation was proposed by Clarkebond. No contamination or geotechnical risks that required specific investigation were identified from the desk study and site walkover. Consequently, the positions of the exploratory holes were intended to provide a reasonable coverage of the site for an assessment of general ground conditions.

The investigation was undertaken in October 2022.

The intrusive works comprised the following:

- Thirty-five machine excavated trial pits.
- Eleven BRE soakaway tests.

The procedures followed in this site investigation are based on BS 5930:1999 + Annex 2:2010 - Code of Practice for Site Investigations. The soils and rocks encountered have been described in accordance with BS5930:1999 + Annex 2:2010 and BS EN ISO 14688-1:2002 and BS EN ISO 14689-1:2003.

The majority of the trial pits were located within previously excavated archaeological inspection trenches to minimise disruption of the field. However, a small number of pits were also located outside trenches to confirm the undisturbed shallow soil profile. The approximate positions of the exploratory holes are shown on the Exploratory Hole Location Plan Drawing B05927-CLK-XX-XX-RP-GT-0001 P04 in Appendix B and the exploratory hole records are included in Appendix C.

4.1 Trial Pits

Thirty-five trial pits (TP01 to TP35) were excavated to depths varying between 0.60m and 3.00m below ground level (bgl) using a wheeled backhoe excavator.

The profiles of strata or other features were recorded as excavation proceeded and measurements taken from ground level. Representative samples were taken, where appropriate, for laboratory analysis. In situ hand shear vane tests were also carried out in suitable strata. Detailed descriptions of the strata encountered, groundwater observations and excavation stability notes, together with any other pertinent information observed, are included on the trial pit records, which are included in Appendix C.

4.2 Infiltration Testing

In order to determine the permeability of the ground to assess the suitability of soakaways for drainage at the site, infiltration testing was undertaken in eleven machine excavated trial pits (TP02/TP03/TP10/TP11/TP12/TP15/TP16/TP17/TP21/TP24/TP25).

Each pit was partially filled with water with the rate of inflow sufficiently rapid so that the pit was filled in a short time. The rate of dissipation was then monitored to obtain a plot of water level over time. Three full cycles of testing were attempted, in accordance with BRE 365 (2016).

Variations in soil conditions, areas of filled land, preferential underground seepage routes, variations in the level of groundwater and any geological factors likely to affect the long-term percolation and stability of the area surrounding the soakaway were assessed.

The results of the infiltration testing are presented in Appendix E.

5 Laboratory Analysis

Samples obtained during the investigation were subjected to a range of geotechnical and chemical testing at appropriate accredited laboratories.

Samples were submitted for geotechnical laboratory testing to characterise the engineering properties of the soil. The following testing was scheduled:

- 10 x Atterberg Limits
- 5 x Particle Size Distribution
- 10 x Moisture Content
- 11 x BRE SD1 sulphate suite

Testing was carried out in accordance with the procedures outlined in BS EN ISO 14688-1:2018, 14688-2:2018 and 14689:2018 (i.e. Eurocode 7). Geotechnical laboratory test data is presented in Appendix F.

Soil samples were sent for chemical analysis to i2 Analytical laboratories to be analysed for:

- 13 x Full suite comprising arsenic, cadmium, copper, chromium, lead, mercury, nickel, selenium, zinc, Speciated PAH, speciated Total Petroleum Hydrocarbons (TPHCWG), Soil organic matter content (SOM), pH and soluble sulphate.
- 4 x Organophosphorous Insecticides and Herbicides

The chemical laboratory test results are presented in Appendix G.

6 Ground Conditions

6.1 General

A summary of the strata encountered is presented in the following sections. For full details of the strata encountered reference should be made to the exploratory hole logs in Appendix C.

6.2 Topsoil

Topsoil was only encountered in TP03, TP11, TP12, TP13, TP15 TP19, TP20, TP22 and TP30 to between 0.15 and 0.20m below ground level (bgl). The material consisted of dark brown silty sand with rootlets.

6.3 Topsoil/Subsoil Reworked

Reworked materials were encountered in the majority of the trial pit locations, due to the actions of the previous archaeological investigations. The depth of disturbed ground ranged from G.L to 1.20m bgl. The materials generally comprised dark brown sandy gravelly silt. The reworked material originates from the recent backfilled archaeological trenches on site.

6.4 Kellaways Clay Member

The Kellaways Clay Member was encountered in the lower lying areas of the site, specifically TP09, TP10, TP11, TP12, TP15, TP17, TP18, TP19, TP20, TP21, TP22, TP23. This material generally comprised a brown to grey sandy clay extending to depths greater than 3.00m bgl.

6.5 Cornbrash Formation

The Cornbrash Formation was encountered in TP01 to TP08 and TP13 and TP14. This material comprised a brown to orange clayey gravelly sand/clay at shallow depth becoming a medium dense a brown to orange clayey sandy gravel of limestone, with intact limestone bedrock being encountered at depths of 0.55m to 1.45m bgl.

6.6 Forest Marble Formation

The Forest Marble Formation was encountered in the highest lying area of the site within the far southwest field. The material generally comprised brown to orange sandy gravel/clay to between 0.65 to 2.05m, with intact limestone bedrock being encountered at the base.

6.7 Groundwater

No groundwater was encountered during the intrusive works.

6.8 Field Observations of Contamination

No visual or olfactory evidence of contamination was encountered.

6.9 Soil Strength

The results of hand shear vane tests within the Cornbrash Formation ranged from 30kPa to 60kPa. The Kellaway Clay member ranged from 30kpa to 90kpa.

7 Geotechnical Assessment

7.1 Proposed Development

It is understood that the site is being considered for redevelopment with low rise residential properties together with access roads, infrastructure and open spaces. A preliminary proposed development layout plan was provided by Bellway Homes. A copy of this plan is included in Appendix A.

7.2 Shrinkable Soils

Cohesive soils (clay and silt) may undergo volume change when subject to changes in moisture content. This can cause ground movement of soils where seasonal changes or tree root action affect the moisture content. Where foundations are constructed in such soils these movements can lead to damage of the superstructure. These movements are greatest where trees are removed or tree root systems are severed as this allows the soils to regain their equilibrium moisture content resulting in expansion.

The NHBC (National House Building Council) has derived minimum foundation depths and other precautions relating to ground movements in shrinkable soils. These standards are set out in NHBC Chapter 4.2 "Building Near Trees" (2017) and are commonly adopted for both residential and non-residential structures.

The Modified Plasticity Index is related to volume change potential and NHBC recommended minimum foundation depths as indicated in Table 7.1.

Table 7.1 Volume Change Potential

Modified Plasticity Index	Volume Change Potential	Minimum Foundation Depth
40% or greater	High	1.00m
20% to <40%	Medium	0.90m
10% to <20%	Low	0.75m

Shrinkable soils are generally considered as clays having a modified plasticity index (I_p) of 10% or greater. The Modified Plasticity Index is defined as the Plasticity Index (I_p) of the soil multiplied by the percentage of particles less than $425\mu\text{m}$. Soils containing less than 35% fine particles ($< 63\mu\text{m}$) are non-shrinkable.

7.2.1 Kellaways Clay Member

The plasticity indices of ten soil samples of the natural clay strata ranged from 9% to 29%, with the percentage of the soil $<425\mu\text{m}$ ranging from 90% to 100%. The calculated modified plasticity indices ranged from 8% to 29%.

On the basis of the modified plasticity index the clay soils would therefore be considered to be of **high volume change potential** with respect to NHBC Chapter 4.2 "Building Near Trees" (NHBC, 2017). Consequently, a minimum foundation depth of 1.0m is recommended where foundations are outside the influence zone of trees.

7.2.2 Cornbrash Formation

The Cornbrash is a brashy limestone, with lenses of clay present. The plasticity index of one soil sample of cohesive strata from TP13 was 26%, with the percentage of the soil $<425\mu\text{m}$ at 100%. The calculated modified plasticity index is therefore 26%, corresponding to a medium volume change potential.

However, the dominant fraction is limestone, recovered as a granular deposit. The results of two particle size distribution tests on samples of the granular strata recorded < 63µm fractions ranging from 16 to 43%. Adopting a conservative approach, the brashy soils may be considered as cohesive. However, given the significant proportion of non-shrinkable soils present within the overall deposit, the Cornbrash Formation should be considered low volume change potential for design purposes.

7.2.3 Forest Marble Formation

The Forest Marble comprised a mixed deposit where weathered. The plasticity indices of three soil samples of clay strata ranged from 20% to 29%, with the percentage of the soil <425µm at 100%. The calculated modified plasticity indices ranged from 20% to 29%.

The results of two particle size distribution tests on samples of the more granular strata recorded < 63µm fractions ranging from 29 to 59%. On this basis the granular soils tested are considered to be shrinkable. As with the Cornbrash, the Formation comprises a mix of limestone, weathered limestone gravel and clay lenses, which, when considered as a combined unit, should be considered as low volume change potential.

7.3 Foundation Design

7.3.1 Traditional Foundations

Kellaways Clay Member

Based on the ground conditions encountered, conventional spread foundations would be suitable for the proposed structures in areas of the competent Kellaway Clays. These should be taken down through any reworked topsoil or soft deposits and constructed at a minimum depth of 1.00m bgl.

Assessment of the soil strengths and hand shear vane measurements and from the descriptions indicate that a safe bearing capacity of 100kPa would be appropriate for strip foundations within the clays of the Kellaways Clay Member.

Soft clays were identified in TP09, TP10, TP11 and TP12 however it is understood that these positions are outside any proposed building locations, therefore any geotechnical risk in this area is considered negligible and have been discounted as part of this assessment.

The clay soils of the Kellaways Clay Member are shrinkable (high volume change potential) and therefore foundations will need to be deepened and heave precautions adopted within the influence zone of existing, proposed, or felled trees, in accordance with NHBC Chapter 4.2.

A tree survey to determine species and height will be required to calculate foundation depths in shrinkable soils.

Cornbrash Formation

Based on the ground conditions encountered, conventional spread foundations would be suitable for the proposed structures in areas of the Cornbrash Formation. These should be taken down through any reworked topsoil and constructed at a minimum depth of 1.00m bgl or directly onto limestone bedrock wherever encountered at shallower depth.

Assessment of the soil strengths and hand shear vane measurements and from the descriptions indicate that a safe bearing capacity of 125kPa would be appropriate for strip foundations within the soils of the Cornbrash Formation.

A soft area was identified around TP13 with low cohesive soil strengths of 30kPa within the shallow Cornbrash Formation horizons. Foundations will likely require either deepening in this area or a piled

foundation solution adopted. Further investigation to determine the extent/cause of the softening is recommended prior to confirming the foundation solution in this area.

Forest Marble Formation

Based on the ground conditions encountered, conventional spread foundations would be suitable for the proposed structures in areas of the Forest Marble Formation. These should be taken down through any reworked topsoil and constructed at a minimum depth of 0.75m bgl or directly onto limestone bedrock wherever encountered at shallower depth.

Assessment of the soil strengths and hand shear vane measurements and from the descriptions indicate that a safe bearing capacity of 125kPa would be appropriate for strip foundations within the soils of the Forest Marble Formation.

Total settlements for foundations designed to the above pressures are likely to be no greater than 25mm, most of which would occur during construction. There will be negligible settlements of foundations placed on bedrock gravel. Consequently, foundations that span from clay strata to gravel or bedrock would need reinforcement to resist differential settlements. There would be a reduction in settlements with foundation depth, as the soil strength increases. Imposing a lower bearing pressure than the safe bearing capacity would also reduce settlement.

All foundations should be inspected by a suitably qualified and competent person to ensure that foundations are placed in competent material capable of supporting the intended loads and below any desiccated clay soils.

7.3.2 Piled Foundations

It is understood that an element of cut and fill will be undertaken to adjust site levels, with fill being placed in the lower area of the site. This area is underlain by the Kellaways Clay, where a bearing capacity of 100kPa is anticipated in the proposed development area. The potential for deeper trench footings, which may need to be widened being formed through placed fill and deepened to accommodate tree influence is likely to cause construction difficulties. Therefore, piled foundations may be required in areas proposed for land raising. Therefore, further investigation is likely required by piling contractors in the form of rotary drilling to determine pile design parameters.

Where foundations are within the influence of trees, a suitable compressible material or void former may be required for ring beams and sufficient longitudinal reinforcement incorporated into piles to resist tensile forces resulting from heave. The soils are of high-volume change potential.

In order to ensure the safe operation of tracked plant (e.g. piling rigs, cranes etc), it will be necessary to design a suitable working platform. This can only be done in the context of the precise rig to be used and the route it will take to gain access. The data will require specific study for this design case. In some cases further specific shallow investigation may be necessary.

7.4 Floor Slabs

The underlying near surface soils were of the Kellaways Clay Member were shrinkable (high volume change potential), while the weathered Cornbrash and Forest Marble may be considered low volume change. Therefore, a suspended floor slab is recommended with an appropriate underfloor void in these areas, see Appendix B.

It is understood a reduced level cut may be undertaken in the area of the Forest Marble, which may reduce levels to expose the underlying intact limestone. Should limestone be present at the proposed floor slab elevation, a ground bearing floor slab may be adopted, subject to design in accordance with NHBC guidance.

No radon or ground gas protection measures are considered to be necessary.

7.5 Concrete Protection

Buried concrete classification is based on guidelines provided in BRE Special Digest 1 (BRE, 2005).

Chemical Analysis was undertaken on six soil samples for pH and a total potential sulphate suite (water soluble sulphate, total sulphate and total sulphur).

An assessment for total potential sulphate indicates that the soils are not considered to be pyritic and the design class should be based on soluble sulphates.

The pH values were 7.3 to 8.4 with water soluble sulphate concentrations of 10mg/l to 1599mg/l. Therefore, it is recommended that a Design Class of DS2 and AC1s should be assumed for buried concrete in accordance with BRE Special Digest 1 assuming natural ground and mobile groundwater conditions.

7.6 Earthworks / Cut and Fill

It is understood that the existing ground profile will be required to be re-graded locally to create a suitable development platform. The fill materials are likely to comprise the Forest Marble Formation, which typically consist of a clayey/sandy cobbly gravel. The classification testing undertaken on two samples from the Forest Marble Formation indicate that the majority of these soils are likely to be classified as cohesive fill (Classes 2C) in accordance with Series 600 of the Highway Agency Specification for Highway Works (HA, 2016).

It should be noted that cohesive fills and slopes are sensitive to moisture changes, and it is important that cohesive fills are sealed using a smooth roller or covered prior to inclement weather conditions. It may also be necessary to remove the surface of previously compacted fills that have been exposed to inclement weather conditions prior to continuing with earthworks operations. Additional testing will be required to be carried out for the classification of the near surface materials to be re-used as engineered fill on Site. Any proposed earthworks should be carried out in accordance with an engineering specification.

As detailed in Section 7.8, shallow limestone is present below the higher ground in the east of the site. Dependent on the depth of cut undertaken, this may present an element of hard dig during any cut in the area.

7.7 Pavement Design

Equilibrium CBR values for various materials are given in Interim Advice Note 73/06 "Design Guidance for Road Pavement Foundations (Draft HD25)" produced by the Highways Agency and these are summarised in Table 7.2 assuming a high water table and thin pavement construction.

Table 7.2 Typical CBR Values

Soil Type	PI (%)	Equilibrium CBR (%)
Heavy clay	50-70	2
Silty clay	30	3
Sandy clay	10-20	3-4
Silt	-	1
sands and gravels		> 5%

The near surface soils are predominantly clays with plasticity indices of 9% to 29%. Based on Table 7.2 a design CBR of 3% should be achievable provided the formation is protected from water ingress and over-trafficking during construction.

Where highways will be constructed above existing site levels and therefore the formation will consist of recompacted site won materials, it is recommended that the materials used consist of carefully selected dry materials so that a design CBR of 3% is maintained. This should be reviewed once detailed engineering levels are available if a higher design value is required.

Care must be taken to avoid trafficking or working of soils in wet conditions. Reworked soils are prone to rapid degradation upon wetting; should soils become saturated during construction then CBR values of less than 2% may be encountered.

All Topsoil should be removed and the formation level should be proof rolled to identify any loose or soft spots, which should be removed and replaced with compacted granular fill. The conditions prevailing at the time of construction will affect the CBR of the sub-grade soil and its strength. Research has shown the importance of the equilibrium moisture content of the sub-grade. The relationship between soil suction and the moisture content shows that a soil that becomes wet during construction will retain water and will therefore be weaker under the pavement in the equilibrium condition than a foundation that has remained dry, particularly for soils of low to medium plasticity. Consequently the formation level will also need to be protected during inclement weather from deterioration; all slopes should be trimmed to falls to shed rain water and the surface sealed to limit infiltration.

7.8 Excavations

Conventional mechanical backhoe excavators should prove suitable for excavation within the weathered Cornbrash Formation and Kellaways Clay Member. Shallow limestone was encountered in areas of the Forest Marble Formation, which may provide a hard dig risk for any proposed excavations.

When dry the brashy and clay soils should remain stable in the short term to allow placement of concrete and services. However, during wet weather instability may occur and temporary support may be required. Entry into shallow excavations by personnel should be minimised, and excavation stability should be assessed by suitably qualified and experienced staff and shoring used when required. Entry into deeper excavations should not be permitted unless full support is provided.

No groundwater was encountered, however the investigation was undertaken in October 2022 after an extended dry period.

7.9 Soakaway Drainage

Infiltration testing was undertaken in accordance with BRE 365 (2016) in eleven locations (TP02, TP03, TP10, TP11, TP12, TP15, TP16, TP17, TP21, TP24, TP25). Testing was undertaken in all geological strata, ie the Cornbrash Formation, Forest Marble Formation, Kellaways Clay Member. Each test entailed attempting to fill and then drain the pit three times.

Nine of the eleven test locations failed to drain sufficiently to allow the calculation of an infiltration rate. At only two locations was sufficient infiltration recorded to allow repeat fills to be undertaken and infiltration rates derived. Within TP02 and TP25 the results recorded infiltration rate of 6.4×10^{-5} m/s and 2.19×10^{-5} m/s respectively.

The cohesive soils encountered in the remaining positions are likely to possess infiltration rates of less than 1×10^{-6} m/s and therefore efficient soakaway drainage is unlikely to be feasible.

The results of the infiltration testing are presented in Appendix E.

8 Contamination Assessment

8.1 Tier 1 Generic Quantitative Risk Assessment - Soil Risks to Humans

8.1.1 General

The redevelopment is a residential including private gardens, therefore the analytical data has initially been compared against the relevant available guidelines residential with plant uptake end-use to identify chemicals of potential concern.

The results have been used for subsequent comparison with:

- Cl:AIRE/EIC/AGS Soil Generic Assessment Criteria for Human Health Risk assessment, January 2010 and
- The LQM/CIEH S4ULs for Human Health Risk Assessment. Ref: S4UL3269, released January 2015, Land Quality Press, Nottingham and
- EA Science Report SC050021.

8.1.2 Metals

The results of the chemical analysis for heavy metal concentrations within the soil samples are summarised in Table 8.1:

Table 8.1 Values for Metals in Soils

Determinant	GAC	Concentration Range		No. samples tested	No. samples exceed GAC
		Min	Max		
Arsenic	37	9.5	31	13	0
Cadmium	14	<0.2	0.7	13	
Chromium (VI)	6.1	<1.8	1.8	13	
Chromium (total)	890	22	40	13	
Copper	2500	8.9	24	13	
Lead	200	11	90	13	
Mercury	170	<0.3	<0.3	13	
Nickel	130	14	38	13	
Selenium	360	<1	<1	13	
Zinc	3900	30	100	13	

None of the results exceeded the GAC values for residential with plant uptake end-use.

8.1.3 Organics – Soil Organic Matter

SOM tests were undertaken on three samples. The resulting average value is 3.7% and so a conservative figure of 2.5% SOM has been adopted when selecting the Generic Assessment Criteria (GAC) screening values for organics in the following sections.

8.1.4 Organics – PAHs

The results of the chemical analysis for PAH within the soil samples are summarised in Table 8.2.

Table 8.2 Values for PAH in Soils

Determinant	GAC	Concentration Range		No. samples tested	No. samples exceed GAC
		Min	Max		
Acenaphthene	510	<0.05	<0.05	13	0
Acenaphthylene	420	<0.05	<0.05	13	
Anthracene	5400	<0.05	<0.05	13	
Benz(a)anthracene	11	<0.05	<0.05	13	
Benzo(a)pyrene	5	<0.05	<0.05	13	
Benzo(b)fluoranthene	3.3	<0.05	<0.05	13	
Benzo(ghi)perylene	340	<0.05	<0.05	13	
Benzo(k)fluoranthene	93	<0.05	<0.05	13	
Chrysene	22	<0.05	<0.05	13	
Dibenz(a,h)anthracene	0.28	<0.05	<0.05	13	
Fluoranthene	560	<0.05	<0.05	13	
Fluorene	400	<0.05	<0.05	13	
Indeno(1,2,3-cd)pyrene	36	<0.05	<0.05	13	
Naphthalene	5.6	<0.05	<0.05	13	
Phenanthrene	220	<0.05	<0.05	13	
Pyrene	1200	<0.05	<0.05	13	

None of the results exceed the GAC values for residential with plant uptake end-use.

8.1.5 Organics – TPH

The results of the chemical analysis for TPH concentrations within the soil samples are summarised in Table 8.3:

Table 8.3 Values for TPH in Soils

Determinant	GAC	Concentration Range		No. samples tested	No. samples exceed GAC
		Min	Max		
Aliphatic C5-C6	78	<0.001	<0.001	13	0
Aliphatic C6-C8	230	<0.001	<0.001	13	
Aliphatic C8-C10	65	<0.001	<0.001	13	
Aliphatic C10-C12	330	<1	<1	13	
Aliphatic C12-C16	2400	<2	<2	13	
Aliphatic C16-C21	46000	<8	<8	13	
Aliphatic C21-C35	46000	<8	36	13	
Aliphatic C35-C40	92000	<8.4	26	13	
Aromatic C5-C7	140	<0.001	<0.001	13	
Aromatic C7-C8	290	<0.001	<0.001	13	
Aromatic C8-C10	83	<0.001	<0.001	13	
Aromatic C10-C12	180	<1	<1	13	
Aromatic C12-C16	330	<2	<2	13	
Aromatic C16-C21	540	<10	<10	13	
Aromatic C21-C35	1500	<10	<10	13	
Aromatic C35-C44	1500	<8.4	<8.4	13	
Benzene	0.16	<0.001	<0.001	13	

Determinant	GAC	Concentration Range		No. samples tested	No. samples exceed GAC
		Min	Max		
Toluene	270	<0.001	<0.001	13	
Ethylbenzene	150	<0.001	<0.001	13	
m&p-Xylene	99	<0.001	<0.001	13	
o-Xylene	110	<0.001	<0.001	13	
MTBE	84	<0.001	<0.001	13	

None of the results exceeded the GAC values for residential with plant uptake end-use.

8.1.6 Pesticides and Herbicides

Three samples were tested for a range of common pesticides and herbicides. All samples tested fell below the limit of detection.

8.2 Summary of Risks to Human Health

No elevated concentrations were recorded and therefore the soils tested are not considered to present a risk to Human Health.

8.3 Soil Risks to Plants (Phytotoxicity)

Copper, nickel and zinc can inhibit plant growth. The GAC for this pollutant linkage (see Table 8.4) have been taken from Department of the Environment Publication, Code of Practice for Agricultural Use of Sewage Sludge, 1996.

Table 8.4 GAC for Phytotoxic Risks

Compound	Max value recorded mg/kg	Generic Assessment Criteria (mg/kg)			
		pH 5.0 - <5.5	pH 5.5 - <6.0	pH 6.0 - <7.0	pH >7.0
Copper	24	80	100	135	200
Nickel	38	50	60	75	110
Zinc	100	200	200	200	300

The pH results varied from 6.7 to 8.3, as such, concentrations did not exceed the guidelines for any of the three phytotoxic elements.

8.4 Soil Risks to Water Supply Pipes

To assess possible risks to proposed water supply pipes, the laboratory test results have been subject, to initial assessment against the GAC presented in UKWIR. Full testing has not been undertaken to determine the suitability of metallic pipe materials.

It is assumed that water pipes will be placed no deeper than 1m below existing ground level and results that relate to strata below 1m are not considered in the following table. Assessment of the results versus the GAC is summarised in Table 8.5 as follows:

Table 8.5 GAC for Water Supply Pipes

Test Group	PE threshold	Laboratory Detection Limit	Maximum concentration at proposed pipeline depth	Locations and depths where concentrations exceed threshold
EC5-EC10 aliphatic and aromatic hydrocarbons	2	1	<0.001	None
EC10-EC16 aliphatic and aromatic hydrocarbons	10	2	<10	
EC16-EC40 aliphatic and aromatic hydrocarbons	500	8.4	<10	

Other parameters within UKWIR have not been assessed since they are not potential contaminants of concern for this site. No visual or olfactory indications of chemicals, or petroleum hydrocarbons (e.g. oil, petrol, diesel) were noted on site. The investigation and assessment has indicated no elevated concentrations of contaminants with the potential to attack plastics and as such standard pipework (PE & PVC) may be suitable for the site. It is recommended that this assessment be given to the relevant water supply company at an early stage to confirm its requirements, which may not necessarily be the same as those recommended by UKWIR.

No visual or olfactory indications of chemicals, or petroleum hydrocarbons (e.g. oil, petrol, diesel) were noted on site.

8.5 Risks to Water Resources

No sensory evidence of significant soil contamination was noted during the investigation. The results of the chemical analysis confirm this visual assessment and consequently the ground conditions present at the site are unlikely to pose a significant risk to controlled waters.

9 Ground Gas Assessment

9.1 Radon

The Groundsure report states that the site is in an area where the estimated probability of homes being above the action level of 200Bqm^{-3} is between 1 and 3%. Therefore, no radon protective measures are required in the construction of new buildings or extensions.

9.2 Landfill Gas

No current or historical landfills are known to exist within 250m of the site. No organic soils, evidence of buried biodegradable materials or other potential sources of ground gas were identified.

The site is greenfield in nature with no identified, or suspected, sources of ground gas. Developing a ground model as indicated in BS8485:2015+A1:2019 suggests that the site poses a negligible risk of ground gas generation and that no further assessment is required.

Consequently, the risks to end users from permeant ground gases at the site is considered to be very low and no further assessment is considered necessary.

10 Conceptual Model and Risk Assessment

10.1 Risk Assessment

The findings of the site investigation have been used to revise the conceptual model for the site, thus permitting assessment of potential risk associated with the condition of the land and the requirement, or otherwise, for further actions. The process adopted in follows the LCRM guidance published by the Environment Agency (2021), with the assessment of risk and consequence adopting the nomenclature given in CIRIA C552.

Table 10.1 Risk Classification System (after CIRIA 552)

Source(s)	Possible Pathway(s)	Receptor(s)	Probability	Consequence	Risk Level	Comment
Contaminants within made ground soils.	Ingestion, inhalation or direct dermal contact.	End users/ Site preparation workers.	Unlikely	Medium	Very low	No elevated levels of potential contaminants recorded.
	Migration of leachate through unsaturated zone.	Groundwater and/or surface waters.	Unlikely	Mild	Very low	
Naturally occurring contaminants within shallow weathered soils.	Ingestion, inhalation or direct dermal contact.	End users/ Site preparation workers.	Unlikely	Mild	Very low	
Ground gas from natural soils.	Inhalation.	End users/ Site preparation workers.	Unlikely	Severe	Very low	No sources identified.
Radon.	Accumulation in buildings and inhalation.	End users.	Unlikely	Medium	Very low	No protection required

The risk to various receptors has been classed as very low. Therefore, no specific remedial measures in respect of groundworks or management of soil contamination are considered necessary.

11 Material Reuse and Waste

Clean and natural soils may be re-used on site without any materials management plan (MMP).

The CL:AIRE Definition of Waste Code of Practice states the where soils are “*uncontaminated soil & other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated*” then there is no requirement for a formal materials management plan (MMP) registered with CL:AIRE and signed off by a Qualified Person (QP).

Based on the investigation undertaken the soils sampled do not pose a potential risk to human or environmental receptors and would be considered to be clean and suitable for re-use on site without a formal MMP.

However it may be prudent to prepare a Materials Management Strategy (MMS) for the development, to ensure that compliance with the requirement for certainty of use can be demonstrated. This would contain all the information that is required for a formal registered MMP but not signed off or registered. This would provide a readily available document to present to governing authorities should they have any concerns over material re-use.

The Made Ground soils are essentially excavated and replaced natural soils and may fall into the natural category.

It is recommended that confirmation is sought from the Environment Agency that any Made Ground soils are classed as ‘Clean and Natural’ and their re-use on site would not require an MMP. Alternatively to avoid risks of contravening waste management legislation an MMP can be undertaken.

Should the Made Ground be classed as non-natural then their re-use may be undertaken either under the Environmental Permitting Regulations 2007 (EPR), or under the CL:AIRE Voluntary Code of Practice (CoP) which is now widely accepted as an alternative regime to the EPR.

Under the CL:AIRE Voluntary Code of Practice (CoP) materials excavated on-site are not deemed contaminated if suitable for re-use at specified locations or generally within the site. The CoP regime requires that a ‘Qualified Person’ as defined under the CoP reviews the development of the Materials Management Plan, including review of Risk Assessments and Remediation Strategy/Design Statement together with documentation relating to Planning and Regulatory issues, and signs a Declaration which is forwarded to the Environment Agency and which confirms compliance with the CoP.

11.1 Information Required for MMP / MMS

Where it is considered that an MMP would be necessary, the following information would be required:

- Planning permission details.
- Cut/fill analysis for the development so that soil volumes can be assessed (this addresses the certainty of use criteria and quantity required).
- Records of any discussion with the Environment Agency.

It is important to note that an MMP cannot be registered after the surplus soils have been generated. Therefore sufficient time to produce the MMP must be allowed for prior to development.

The EA must be consulted prior to commencing the MMP to allow them to raise any objections. The standard time limit to await a response is 21 days. Therefore four weeks should be allowed for to produce and submit an MMP.

11.2 Waste Assessment

Assessment testing has been undertaken on eight soil samples broadly representative of the majority of site soils that might require off-site disposal. The classification was undertaken using the online HazWaste screening tool; the site soils were all classified as non-hazardous waste.

It is recommended that prior to offsite disposal or recovery of any waste soils; the receiving licensed treatment/landfill facility should be sent copies of all relevant chemical analysis, plus exploratory hole logs showing the engineering descriptions of the soils to which the sample depths relate. This will allow the facility to access the waste independently: as receiver of the waste they have a duty to ensure compliance with their site-specific licence conditions and must satisfy themselves that they can legally accept the waste.

12 Further Data and Investigation

As detailed in previous sections, the following is, or may be required, or is recommended:

- Further investigation consisting of rotary boreholes to inform pile design parameters.
- Further investigation around the soft area identified at TP13.
- The design for a piling mat.

Clarkebond can assist with all of these aspects if required.

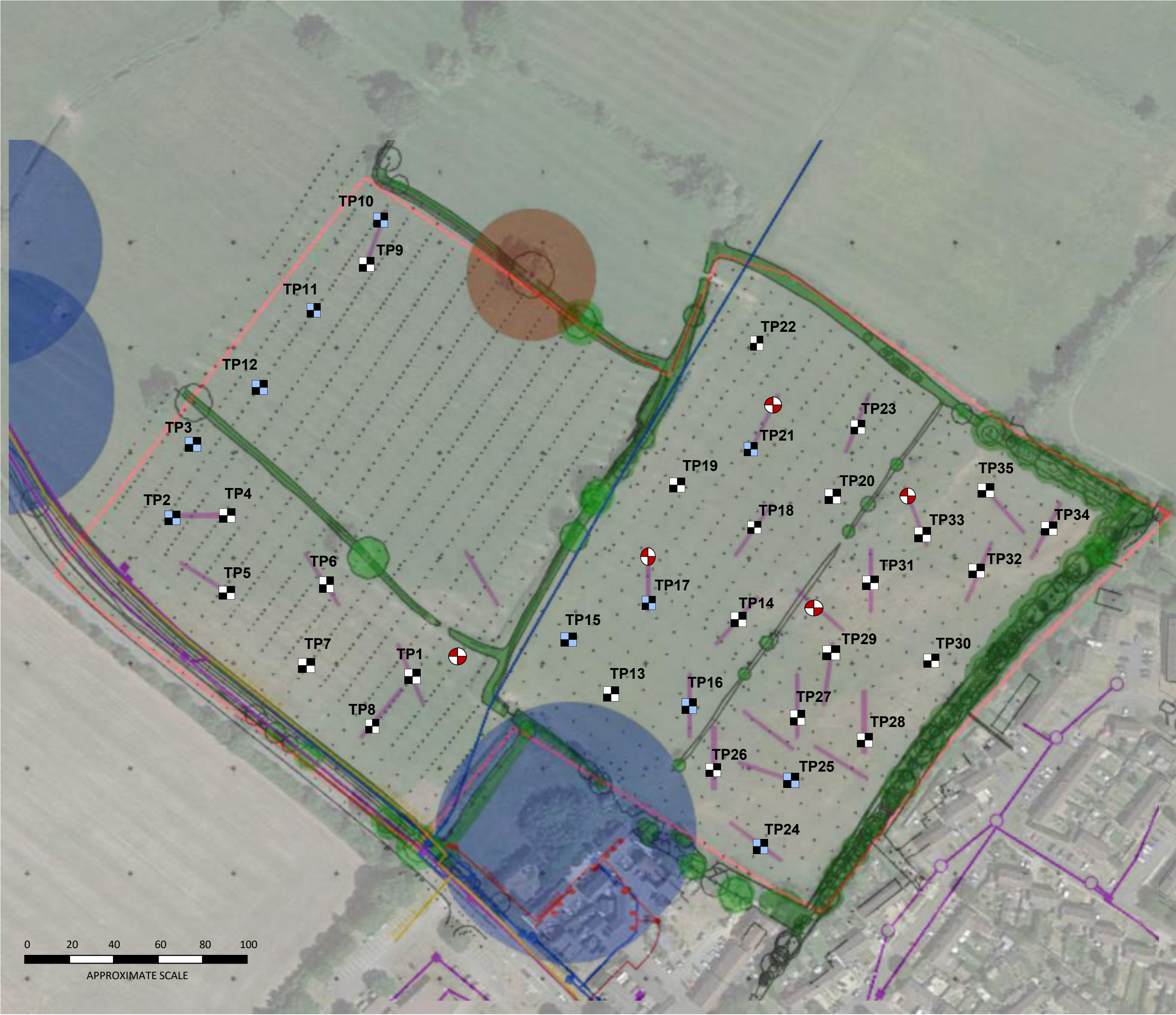
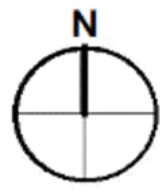
Appendices

- A Proposed Development Plan**
- B Exploratory Hole Plans**
- C Exploratory Hole Logs**
- D Trial Pit Photos**
- E Infiltration Test Results**
- F Geotechnical Test Certificates**
- G Chemical Test Certificates**
- H HazWaste Assessment**

A Proposed Development Plan



B Exploratory Hole Plans



Hole Locations Approximate. Sizes exaggerated for clarity.

Key

- Machine Excavated Trial Pit & Soakaway Test
- Machine Excavated Trial Pit
- Rotary Cored Borehole
- Low Value Tree Buffer
- Veteran Tree Buffer
- Pond Buffer
- Archaeological Trenches
- Hedgerow Buffer

Rev

- P1 First issue
- P2 Buffer and exclusion zones added. Trial Pits relocated and boreholes added.
- P3 Soakaway loactions revised



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Client
 Bellway Homes Ltd

Project
 Ploughley Road, Ambrosden

Drawing Title
 Proposed Exploratory Hole Location Plan

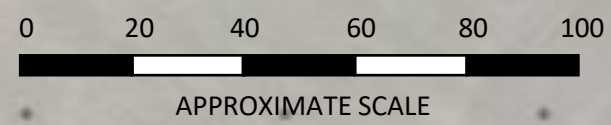
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 Information

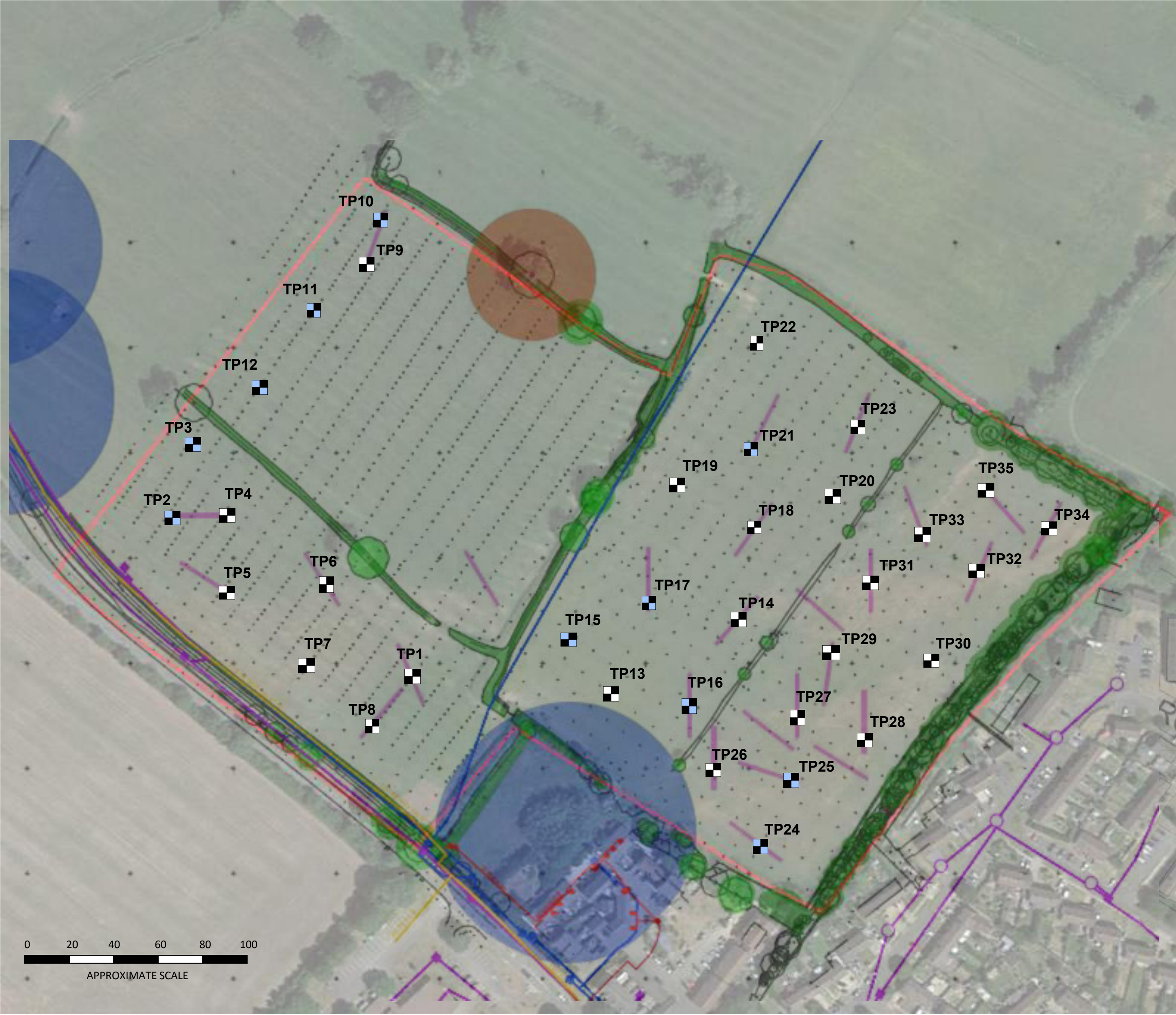
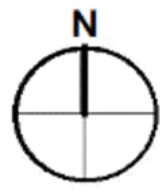
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<i>Scale</i> N/A	<i>Date</i> 15/07/22	<i>Revision</i> P3
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Hole Locations Approximate. Sizes exaggerated for clarity.

Key

-  Machine Excavated Trial Pit & Soakaway Test
-  Machine Excavated Trial Pit
-  Low Value Tree Buffer
-  Veteran Tree Buffer
-  Pond Buffer
-  Archaeological Trenches
-  Hedgerow Buffer

Rev

P1 First issue



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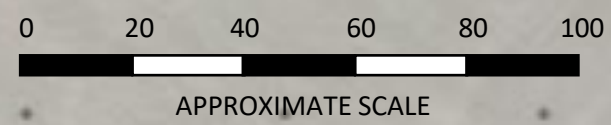
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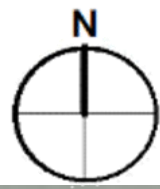
Project
 Ploughley Road, Ambrosden

Drawing Title
 Exploratory Hole Location Plan - GI October 2022

Purpose of Issue
Information







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Scale N/A		Date 28/11/22		Revision P1		
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Hole Locations Approximate. Sizes exaggerated for clarity.

Key

-  Machine Excavated Trial Pit & Soakaway Test
-  Machine Excavated Trial Pit
-  Soft spot encountered during Oct 22 GI (Extent Unknown)
-  Forest Marble Formation
-  Cornbrash Formation
-  Kellaways Clay Member

Rev

P1 First issue



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 Bristol Exeter London

Client
 Bellway Homes Ltd

Project
 Ploughley Road, Ambrosden

Drawing Title
 Exploratory Hole Location Plan -
 Geological Interpretation Plan

Purpose of Issue
 Information

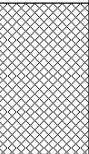

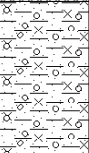

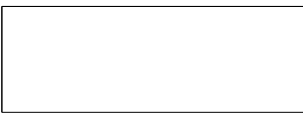
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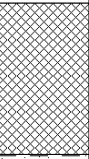

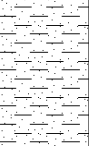

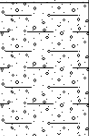



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


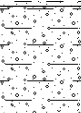

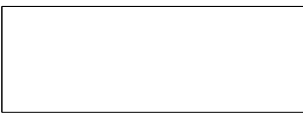
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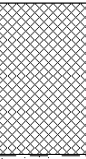








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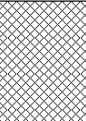


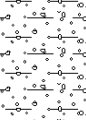


C Exploratory Hole Logs

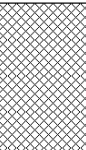

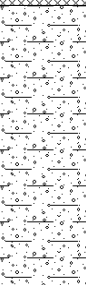

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Project Number: B05927			Ground Level (m OD): 67.18			End: 03/10/2022			
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well	
Depth (m)	Type	Results							
1.00	BRE D		0.50	66.68		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5		
			1.05	66.13		Firm to stiff light brown sandy cobbly CLAY. Cobbles of fine to coarse sub-angular to sub-rounded limestone. (CORNBRAsh FORMATION)	1.0		
			1.10	66.08		Medium strong off-white to light brown weathered Limestone. (CORNBRAsh FORMATION)	1.5		
						End of Pit at 1.10m		2.0	
								2.5	
								3.0	
								3.5	
								4.0	
								4.5	
								5.0	
2.10			General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY		
0.60 							Approved By: JY		
Stability: Stable							Scale: 1:25		
Shoring: N/A			Method/Plant Used: JCB 3CX				Sheet 1 of 1		








clarkebond		Trial Pit Log				Trial Pit No.: TP02		
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460261 E 220081 N			Start: 03/10/2022		
Project Number: B05927			Ground Level (m OD): 64.40			End: 03/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.50	63.90		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
			1.00	63.40		Firm to stiff brown to orange sandy CLAY. (CORNBASH FORMATION)	0.5	
			1.45 1.50	62.95 62.90		Medium dense brown to orange clayey sandy cobbly GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (CORNBASH FORMATION)	1.0	
						Medium strong off-white to light brown weathered LIMESTONE. (CORNBASH FORMATION)	1.5	
						End of Pit at 1.60m	2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
<div style="border: 1px solid black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> 0.60 <div style="border: 1px solid black; width: 150px; height: 40px; margin-left: 10px;"></div> </div>			General Remarks: No groundwater encountered. Refusal on limestone. Soakaway Test Performed. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY	
Stability: Stable							Approved By: JY	
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25	
						Sheet 1 of 1		

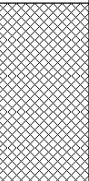

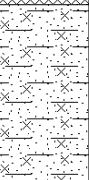

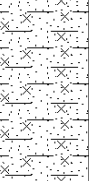

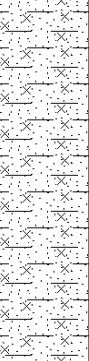








clarkebond		Trial Pit Log					Trial Pit No.: TP03		
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460277 E 220108 N			Start: 03/10/2022			
Project Number: B05927			Ground Level (m OD): 63.81			End: 03/10/2022			
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well	
Depth (m)	Type	Results							
0.10	E		0.25	63.56		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)	0.5		
0.50	D					Stiff brown to orange sandy CLAY. (CORNBASH FORMATION)			
			0.85	62.96		Medium dense brown to orange clayey sandy cobbly GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (CORNBASH FORMATION)			1.0
			1.25 1.30	62.56 62.51		Medium strong off-white to light brown weathered LIMESTONE. (CORNBASH FORMATION) End of Pit at 1.30m			1.5
							2.0		
							2.5		
							3.0		
							3.5		
							4.0		
							4.5		
							5.0		
2.00 			General Remarks: No groundwater encountered. Refusal on limestone. Soakaway Test Performed. mOD Level estimated from topographical plan.				Logged By: JY		
Stability: Stable							Approved By: JY		
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25		
						Sheet 1 of 1			

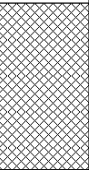



clarkebond		Trial Pit Log					Trial Pit No.: TP04	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460295 E 220078 N			Start: 03/10/2022		
Project Number: B05927			Ground Level (m OD): 64.80			End: 03/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.40	E		0.50	64.30		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
1.00	D	HVR=60.00	1.10	63.70		Firm medium strength brown to grey slightly sandy CLAY. (CORNBASH FORMATION)	0.5	
			1.35	63.45		Brown to orange sandy gravelly CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (CORNBASH FORMATION)	1.0	
			1.40	63.40		Medium strong off-white to light brown weathered LIMESTONE. (CORNBASH FORMATION)	1.5	
						End of Pit at 1.40m		
								2.0
								2.5
								3.0
								3.5
								4.0
								4.5
								5.0
<div style="display: flex; justify-content: space-between;"> 2.00 0.60 </div> 						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1

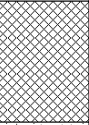

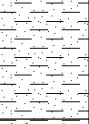

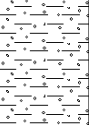

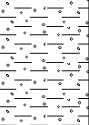

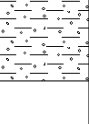


clarkebond		Trial Pit Log					Trial Pit No.: TP05	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460282 E 220048 N			Start: 03/10/2022		
Project Number: B05927			Ground Level (m OD): 65.30			End: 03/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
1.00	BRE		0.40	64.90		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
			0.60	64.70		Dark brown to dark orange slightly clayey gravelly medium grained SAND. (CORNBASH FORMATION)	0.5	
			1.15	64.15		Medium dense pale brown slightly clayey sandy cobbly GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (CORNBASH FORMATION)	1.0	
			1.20	64.10		Medium strong off-white to light brown weathered LIMESTONE. (CORNBASH FORMATION)	1.5	
						End of Pit at 1.20m		
								1.5
								2.0
								2.5
								3.0
								3.5
								4.0
								4.5
								5.0
1.90 						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1



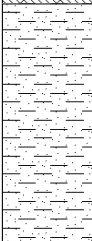

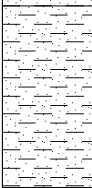



clarkebond		Trial Pit Log					Trial Pit No.: TP06	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460347 E 220044 N			Start: 03/10/2022		
Project Number: B05927			Ground Level (m OD): 65.70			End: 03/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.30	E		0.50	65.20		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
1.00	B					Medium dense light brown to light orange slightly clayey sandy cobbly GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (CORNBRAsh FORMATION)		
			1.45 1.50	64.25 64.20		Medium strong off-white to light brown weathered LIMESTONE. (CORNBRAsh FORMATION)	1.5	
						End of Pit at 1.50m		
								2.0
								2.5
								3.0
								3.5
								4.0
								4.5
								5.0
1.80			General Remarks:			Logged By:		
<div style="border: 1px solid black; width: 180px; height: 40px; display: flex; align-items: center; justify-content: center;"> 0.60 </div>			No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.			JY		
						Approved By:		
Stability: Stable						JY		
Shoring: N/A						Scale: 1:25		
			Method/Plant Used: JCB 3CX			Sheet 1 of 1		



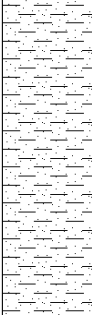




clarkebond		Trial Pit Log					Trial Pit No.: TP07	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460317 E 220017 N			Start: 03/10/2022		
Project Number: B05927			Ground Level (m OD): 67.10			End: 03/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.30	66.80		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)		
			0.55	66.55		Light brown to pale grey sandy cobbly GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (CORNBASH FORMATION)	0.5	
			0.60	66.50		Medium strong off-white to light brown weathered LIMESTONE. (CORNBASH FORMATION)		
						End of Pit at 0.60m		
								1.0
								1.5
								2.0
								2.5
								3.0
								3.5
								4.0
								4.5
								5.0
<div style="display: flex; justify-content: space-between;"> 2.20 0.60 </div> 						General Remarks: No groundwater encountered. Refusal on limestone. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1























clarkebond		Trial Pit Log					Trial Pit No.: TP08	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460359 E 219979 N			Start: 04/10/2022		
Project Number: B05927			Ground Level (m OD): 68.60			End: 04/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.60	68.00		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
1.00	BRE					Medium dense brown/orange to grey clayey slightly silty medium grained SAND. (CORNBRAH FORMATION)	1.0	
1.50	B						1.5	
			3.00	65.60		End of Pit at 3.00m	2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.00  0.60			General Remarks: No groundwater encountered. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY	
Stability: Stable							Approved By: JY	
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25	
						Sheet 1 of 1		

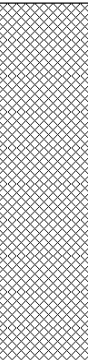

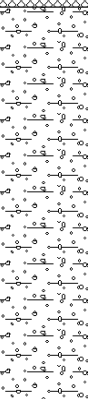

clarkebond		Trial Pit Log					Trial Pit No.: TP09		
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460372 E 220196 N			Start: 04/10/2022			
Project Number: B05927			Ground Level (m OD): 64.10			End: 04/10/2022			
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well	
Depth (m)	Type	Results							
0.40	E		0.55	63.55		Reworked dark brown silty gravelly sand. (TOPSOIL/SUBSOIL-REWORKED)	0.5		
1.00		HVR=30.00				Soft low strength becoming firm medium strength brown/ orange to grey sandy CLAY. (KELLAWAYS CLAY MEMBER)			1.0
1.50	BRE	HVR=45.00							1.5
2.00		HVR=50.00	2.30	61.80			2.0		
						End of Pit at 2.30m	2.5		
							3.0		
							3.5		
							4.0		
							4.5		
							5.0		
2.30 						General Remarks: No groundwater encountered. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY	
Stability: Stable								Approved By: JY	
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25	
								Sheet 1 of 1	






clarkebond		Trial Pit Log					Trial Pit No.: TP10	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460374 E 220223 N			Start: 04/10/2022		
Project Number: B05927			Ground Level (m OD): 64.35			End: 04/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.50		HVR=40.00	0.40	63.95		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
						Soft low strength brown/orange to grey sandy CLAY. (KELLAWAYS CLAY MEMBER)	0.5	
1.00	D	HVR=50.00	0.80	63.55		Firm medium strength dark grey slightly gravelly CLAY. Gravel of fine to coarse angular to sub-angular mudstone. (KELLAWAYS CLAY MEMBER)	1.0	
1.50	D						1.5	
			1.90	62.45		End of Pit at 1.90m	2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.00 						General Remarks: No groundwater encountered. Soakaway Test Performed. Reworked topsoil/subsoil is from backfilled archaeological trench.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1

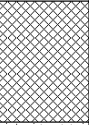

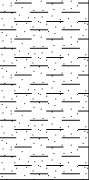
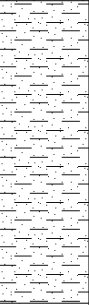
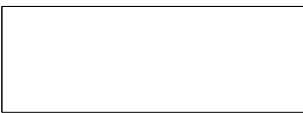
clarkebond		Trial Pit Log					Trial Pit No.: TP11	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460339 E 220172 N			Start: 04/10/2022		
Project Number: B05927			Ground Level (m OD): 64.20			End: 04/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.30	63.90		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)		
0.80		HVR=40.00				Soft low strength brown sandy CLAY. (KELLAWAYS CLAY MEMBER)	0.5	
1.20		HVR=50.00	1.10	63.10		Firm medium strength blue/grey to brown sandy CLAY. (KELLAWAYS CLAY MEMBER)	1.0	
			1.70	62.50		End of Pit at 1.70m	1.5	
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
1.80  0.60			General Remarks: No groundwater encountered. Soakaway Test Performed. mOD Level estimated from topographical plan.				Logged By: JY	
Stability: Stable							Approved By: JY	
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25	
						Sheet 1 of 1		



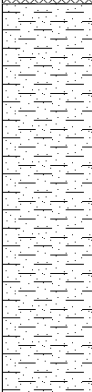
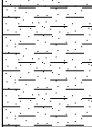

clarkebond		Trial Pit Log					Trial Pit No.: TP12	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460311 E 220138 N			Start: 04/10/2022		
Project Number: B05927			Ground Level (m OD): 64.10			End: 04/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.30	63.80		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)		
			1.40	62.70		Soft brown to grey slightly sandy CLAY. (KELLAWAYS CLAY MEMBER)	0.5	
			1.60	62.50		Brown to orange clayey medium grained SAND. (KELLAWAYS CLAY MEMBER)	1.5	
						End of Pit at 1.60m		
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
1.80  0.60			General Remarks: No groundwater encountered. Soakaway Test Performed. mOD Level estimated from topographical plan.				Logged By: JY Approved By: JY Scale: 1:25	
Stability: Stable			Method/Plant Used: JCB 3CX				Sheet 1 of 1	
Shoring: N/A								



clarkebond		Trial Pit Log					Trial Pit No.: TP13	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460472 E 219992 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 71.35			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.30			0.30	71.05		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)		
0.50		HVR=40.00				Soft low strength brown to orange sandy CLAY. (CORNBASH FORMATION)	0.5	
1.00	D	HVR=30.00					1.0	
1.50		HVR=30.00					1.5	
2.00	D	HVR=40.00					2.0	
2.20			2.20	69.15		Firm medium strength dark grey sandy gravelly CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (CORNBASH FORMATION)		
2.50		HVR=50.00					2.5	
2.70			2.70	68.65		End of Pit at 2.70m		
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.00 						General Remarks: No groundwater encountered. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1

clarkebond		Trial Pit Log					Trial Pit No.: TP14	
Project Name: Ploughley Road, Ambrosden				Co-Ordinates: 460543 E 220021 N		Start: 05/10/2022		
Project Number: B05927				Ground Level (m OD): 72.35		End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.60	E		1.20	71.15		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
2.00	BRE					Medium dense brown to orange clayey sandy cobbly GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (CORNBRAsh FORMATION)	1.5	
			2.50	69.85		End of Pit at 2.50m	2.5	
2.10 						General Remarks: Moderate seepage at base. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1



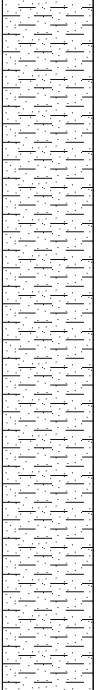


clarkebond		Trial Pit Log					Trial Pit No.: TP15	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460457 E 220021 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 68.90			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.20	E		0.30	68.60		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
0.50		HVR=60.00				Firm medium strength brown/orange to grey sandy CLAY. (KELLAWAYS CLAY MEMBER)	0.5	
1.00	BRE	HVR=50.00	1.80	67.10			1.0	
						End of Pit at 1.80m	1.5	
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.00  0.60			General Remarks: No groundwater encountered. Soakaway Test Performed. mOD Level estimated from topographical plan.				Logged By: JY	
Stability: Stable							Approved By: JY	
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25	
							Sheet 1 of 1	

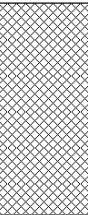




clarkebond		Trial Pit Log					Trial Pit No.: TP16	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460513 E 219980 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 73.14			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.50 0.60	D	HVR=70.00	0.40	72.74		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
						Stiff high strength brown/orange to grey sandy CLAY. (FOREST MARBLE FORMATION)	0.5	
			1.00	72.14		Stiff high strength grey to orange slightly sandy CLAY. (FOREST MARBLE FORMATION)	1.0	
1.50	D	HVR=80.00					1.5	
			2.00	71.14		End of Pit at 2.00m	2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.20  0.60						General Remarks: No groundwater encountered. Soakaway Test Performed. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1


clarkebond		Trial Pit Log					Trial Pit No.: TP17		
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460501 E 220036 N			Start: 05/10/2022			
Project Number: B05927			Ground Level (m OD): 68.30			End: 05/10/2022			
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well	
Depth (m)	Type	Results							
2.00	B		0.30	68.00		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0		
			1.60	66.70		Firm to stiff brown to orange very sandy CLAY. (KELLAWAYS CLAY MEMBER)			
			2.00	66.30		Firm to stiff grey to orange clayey sandy SILT. (KELLAWAYS CLAY MEMBER)			
			End of Pit at 2.00m						
2.10 			General Remarks: No groundwater encountered. Soakaway Test Performed. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY Approved By: JY Scale: 1:25		
Stability: Stable			Method/Plant Used: JCB 3CX				Sheet 1 of 1		
Shoring: N/A									

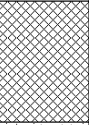
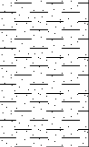
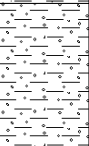
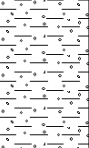
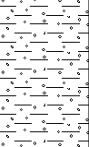
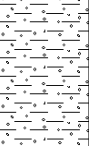
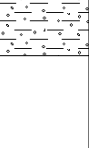

clarkebond		Trial Pit Log					Trial Pit No.: TP18	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460554 E 220065 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 70.15			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.20	E		0.30	69.85		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
0.50		HVR=70.00				Stiff high strength becoming soft low strength brown to grey slightly sandy CLAY with occasional lenses of off-white sand. (KELLAWAYS CLAY MEMBER)		
1.00		HVR=60.00						
1.50	BRE	HVR=40.00						
			3.00	67.15		End of Pit at 3.00m		
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 5px;">0.60</div> <div style="border: 1px solid black; width: 180px; height: 40px; margin-left: 10px;"></div> </div>						General Remarks: No groundwater encountered. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable						Approved By: JY		
Shoring: N/A						Scale: 1:25		
Method/Plant Used: JCB 3CX						Sheet 1 of 1		

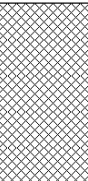




clarkebond		Trial Pit Log					Trial Pit No.: TP19	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460512 E 220083 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 66.90			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.30	66.60		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)		
			0.70	66.20		Brown to orange silty fine-grained SAND. (KELLAWAYS CLAY MEMBER)	0.5	
1.00	D	HVR=50.00				Firm medium strength to stiff high strength grey to light brown slightly sandy CLAY. (KELLAWAYS CLAY MEMBER)	1.0	
1.50		HVR=60.00					1.5	
2.00	D	HVR=70.00					2.0	
							2.5	
			2.80	64.10		End of Pit at 2.80m	3.0	
							3.5	
							4.0	
							4.5	
							5.0	
1.80 			General Remarks: No groundwater encountered. mOD Level estimated from topographical plan.				Logged By: JY	
Stability: Stable							Approved By: JY	
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25	
						Sheet 1 of 1		

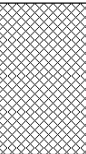




clarkebond		Trial Pit Log					Trial Pit No.: TP20	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460589 E 220077 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 72.20			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.20	E		0.20	72.00		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)		
						Stiff high strength brown to grey slightly sandy blocky CLAY. (KELLAWAYS CLAY MEMBER)	0.5	
1.00	BRE	HVR=80.00					1.0	
1.50		HVR=70.00					1.5	
2.00		HVR=90.00					2.0	
			2.50	69.70		End of Pit at 2.50m	2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
1.90 			General Remarks: No groundwater encountered. mOD Level estimated from topographical plan.				Logged By: JY	
Stability: Stable							Approved By: JY	
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25	
						Sheet 1 of 1		

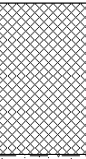


clarkebond		Trial Pit Log					Trial Pit No.: TP21	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460556 E 220117 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 67.44			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.50	E		0.70	66.74		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
1.00	D	HVR=90.00				Stiff high strength to firm medium strength brown to grey slightly sandy CLAY. (KELLAWAYS CLAY MEMBER)		
1.50		HVR=50.00	1.70	65.74		End of Pit at 1.70m	1.5	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
1.90  0.60			General Remarks: No groundwater encountered. Soakaway Test Performed. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY Approved By: JY Scale: 1:25	
Stability: Stable			Method/Plant Used: JCB 3CX				Sheet 1 of 1	
Shoring: N/A								



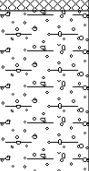
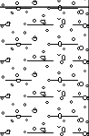

clarkebond		Trial Pit Log					Trial Pit No.: TP22	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460560 E 220159 N			Start: 05/10/2022		
Project Number: B05927			Ground Level (m OD): 66.15			End: 05/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.20			65.95		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)			
0.80		HVR=80.00			Stiff high strength brown to orange slightly sandy CLAY. (KELLAWAYS CLAY MEMBER)	0.5		
1.00			65.15		Firm medium strength brown to brown/orange to grey sandy CLAY. (KELLAWAYS CLAY MEMBER)	1.0		
1.50	BRE	HVR=60.00				1.5		
2.00	D	HVR=50.00				2.0		
2.50			63.65		End of Pit at 2.50m	2.5		
						3.0		
						3.5		
						4.0		
						4.5		
						5.0		
2.10 					General Remarks: No groundwater encountered. mOD Level estimated from topographical plan.		Logged By: JY	
Stability: Stable							Approved By: JY	
Shoring: N/A					Method/Plant Used: JCB 3CX		Scale: 1:25	
							Sheet 1 of 1	

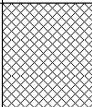

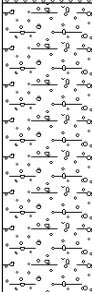


clarkebond		Trial Pit Log					Trial Pit No.: TP23	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460601 E 220116 N			Start: 06/10/2022		
Project Number: B05927			Ground Level (m OD): 71.22			End: 06/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.60 0.70	D	HVR=60.00	0.40	70.82		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
1.00		HVR=60.00	0.90	70.32		Firm medium strength brown to orange sandy CLAY. (FOREST MARBLE FORMATION)	0.5	
1.50	D	HVR=60.00				Firm medium strength brown/red to grey gravelly CLAY. Gravel of fine to coarse angular to sub-angular mudstone. (FOREST MARBLE FORMATION)	1.0	
2.00		HVR=60.00					1.5	
							2.0	
							2.5	
			3.00	68.22			3.0	
End of Pit at 3.00m							3.5	
							4.0	
							4.5	
							5.0	
2.20 						General Remarks: No groundwater encountered. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1

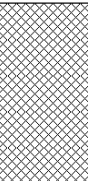

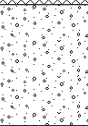

clarkebond		Trial Pit Log				Trial Pit No.: TP24		
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460556 E 219913 N			Start: 06/10/2022		
Project Number: B05927			Ground Level (m OD): 74.60			End: 06/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.60	74.00		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
			1.60	73.00		Firm to stiff light brown to orange silty sandy gravelly CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)	1.0	
						End of Pit at 1.60m	1.5	
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.10			General Remarks: No groundwater encountered. Soakaway Test Performed. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY	
0.60 							Approved By: JY	
Stability: Stable							Scale: 1:25	
Shoring: N/A			Method/Plant Used: JCB 3CX				Sheet 1 of 1	

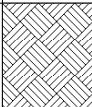

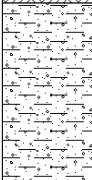


clarkebond		Trial Pit Log					Trial Pit No.: TP25	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460571 E 219943 N			Start: 06/10/2022		
Project Number: B05927			Ground Level (m OD): 74.55			End: 06/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.50	74.05		Reworked dark brown silty gravelly sand. (MADE GROUND)	0.5	
			1.50	73.05		Firm to stiff light brown to orange silty sandy gravelly CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)	1.0	
						End of Pit at 1.50m	1.5	
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.10			General Remarks: No groundwater encountered. Soakaway Test Performed. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY	
0.60 							Approved By: JY	
Stability: Stable			Method/Plant Used: JCB 3CX				Scale: 1:25	
Shoring: N/A							Sheet 1 of 1	








clarkebond		Trial Pit Log				Trial Pit No.: TP26		
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460532 E 219947 N			Start: 06/10/2022		
Project Number: B05927			Ground Level (m OD): 75.18			End: 06/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.40	E		0.50	74.68		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
1.00	B					Firm to stiff light brown to brown slightly sandy gravelly CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)		
			1.75	73.43		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION)	2.0	
			1.80	73.38				
<div style="border: 1px solid black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small; margin-right: 5px;">0.60</div> <div style="border: 1px solid black; width: 80%; height: 80%;"></div> </div>						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
							Sheet 1 of 1	



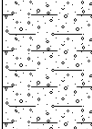




clarkebond		Trial Pit Log					Trial Pit No.: TP27		
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460566 E 219977 N			Start: 06/10/2022			
Project Number: B05927			Ground Level (m OD): 75.28			End: 06/10/2022			
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well	
Depth (m)	Type	Results							
1.00	BRE D		0.25	75.03		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)			
						Firm to stiff light brown to orange clayey sandy cobbly GRAVEL. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)	0.5		
				0.80	74.48		Brown to orange sandy gravelly CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)		1.0
				1.25 1.30	74.03 73.98		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION) End of Pit at 1.30m		1.5
<div style="border: 1px solid black; width: 100%; height: 100%; position: relative;"> 2.00 0.60 </div>			General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.				Logged By: JY		
Stability: Stable							Approved By: JY		
Shoring: N/A			Method/Plant Used: JCB 3CX				Scale: 1:25		
							Sheet 1 of 1		



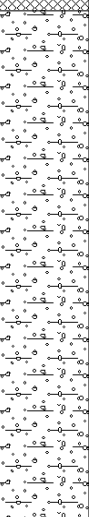

clarkebond		Trial Pit Log					Trial Pit No.: TP28	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460604 E 219969 N			Start: 06/10/2022		
Project Number: B05927			Ground Level (m OD): 75.55			End: 06/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.20	E		0.35	75.20		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
						Firm to stiff light brown clayey very sandy cobbly GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)	0.5	
			1.35 1.40	74.20 74.15		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION) End of Pit at 1.40m	1.5	
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.00  0.60						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1



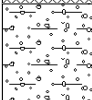


clarkebond		Trial Pit Log					Trial Pit No.: TP29	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460591 E 220008 N			Start: 06/10/2022		
Project Number: B05927			Ground Level (m OD): 74.30			End: 06/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.60	73.70		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
			1.00	73.30		Medium strong weathered light brown to off-white LIMESTONE recovered as a sandy gravel. (FOREST MARBLE FORMATION)	1.0	
						End of Pit at 1.00m	1.0	
							1.5	
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.30						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.	Logged By: JY	
<div style="border: 1px solid black; width: 150px; height: 40px; margin-bottom: 5px;"></div> <div style="border: 1px solid black; width: 150px; height: 40px;"></div>							Approved By: JY	
Stability: Stable						Scale: 1:25		
Shoring: N/A						Method/Plant Used: JCB 3CX		Sheet 1 of 1



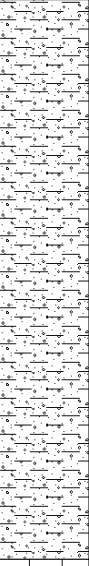

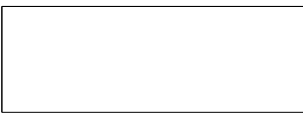
clarkebond		Trial Pit Log					Trial Pit No.: TP30	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460640 E 220008 N			Start: 06/10/2022		
Project Number: B05927			Ground Level (m OD): 75.30			End: 06/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.20	E		0.35	74.95		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)	0.5	
0.80	D					Brown to orange sandy gravelly CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)		
			0.95 1.00	74.35 74.30		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION) End of Pit at 1.00m	1.0	
							1.5	
							2.0	
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.00  0.60			General Remarks: No groundwater encountered. Refusal on limestone. mOD Level estimated from topographical plan.				Logged By: JY Approved By: JY Scale: 1:25	
Stability: Stable			Method/Plant Used: JCB 3CX				Sheet 1 of 1	
Shoring: N/A								

clarkebond		Trial Pit Log					Trial Pit No.: TP31	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460614 E 220048 N			Start: 07/10/2022		
Project Number: B05927			Ground Level (m OD): 74.13			End: 07/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.30	73.83		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
			0.65	73.48		Dense light brown slightly clayey sandy GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)	0.5	
			0.70	73.43		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION)		
						End of Pit at 0.70m		
								1.0
								1.5
								2.0
								2.5
								3.0
								3.5
								4.0
								4.5
								5.0
<div style="display: flex; justify-content: space-between;"> 1.80 0.60 </div> 						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1

clarkebond		Trial Pit Log					Trial Pit No.: TP32	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460663 E 220056 N			Start: 07/10/2022		
Project Number: B05927			Ground Level (m OD): 75.65			End: 07/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
			0.20	75.45		Dark brown sandy SILT with occasional rootlets. (TOPSOIL)		
			0.65	75.00		Dense light brown slightly clayey sandy GRAVEL of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)	0.5	
			0.70	74.95		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION)		
						End of Pit at 0.70m		
								1.0
								1.5
								2.0
								2.5
								3.0
								3.5
								4.0
								4.5
								5.0
<div style="display: flex; justify-content: space-between;"> 1.90 0.60 </div> 						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1

clarkebond		Trial Pit Log					Trial Pit No.: TP33	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460641 E 220074 N			Start: 07/10/2022		
Project Number: B05927			Ground Level (m OD): 73.40			End: 07/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
1.00	BRE D		0.25	73.15		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
						Medium dense off-white to light brown clayey cobbly GRAVEL with occasional lenses of firm to stiff sandy clay. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)		
2.00	D		1.95 2.00	71.45 71.40		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION) End of Pit at 2.00m	2.0	
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 5px;">0.60</div> <div style="border: 1px solid black; width: 150px; height: 40px; margin-left: 10px;"></div> </div>						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable						Approved By: JY		
Shoring: N/A						Scale: 1:25		
Method/Plant Used: JCB 3CX						Sheet 1 of 1		

clarkebond		Trial Pit Log					Trial Pit No.: TP34	
Project Name: Ploughley Road, Ambrosden				Co-Ordinates: 460697 E 220071 N		Start: 07/10/2022		
Project Number: B05927				Ground Level (m OD): 76.70		End: 07/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.60	BRE		0.30	76.40		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)	0.5	
			0.65	76.05		Light brown slightly clayey sandy cobbly GRAVEL. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)		
			0.70	76.00		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION)		
						End of Pit at 0.70m		
2.10						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
0.60 								Approved By: JY
Stability: Stable								Scale: 1:25
Shoring: N/A						Method/Plant Used: JCB 3CX		Sheet 1 of 1

clarkebond		Trial Pit Log					Trial Pit No.: TP35	
Project Name: Ploughley Road, Ambrosden			Co-Ordinates: 460670 E 220090 N			Start: 07/10/2022		
Project Number: B05927			Ground Level (m OD): 75.40			End: 07/10/2022		
Samples and In Situ Testing			Depth (m)	Level (m OD)	Legend	Stratum Description	Water Strike	Well
Depth (m)	Type	Results						
0.10	E		0.20	75.20		Reworked dark brown sandy gravelly silt. (TOPSOIL/SUBSOIL-REWORKED)		
						Firm to stiff light brown to beige gravelly sandy CLAY. Gravel of fine to coarse sub-angular to sub-rounded limestone. (FOREST MARBLE FORMATION)		
1.00	B						0.5	
1.50	D						<i>Becoming soft from 1.40m.</i>	1.0
			2.05	73.35		Medium strong off-white to light brown weathered LIMESTONE. (FOREST MARBLE FORMATION)	1.5	
			2.10	73.30			End of Pit at 2.10m	2.0
							2.5	
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	
2.10  0.60						General Remarks: No groundwater encountered. Refusal on limestone. Reworked topsoil/subsoil is from backfilled archaeological trench. mOD Level estimated from topographical plan.		Logged By: JY
Stability: Stable								Approved By: JY
Shoring: N/A						Method/Plant Used: JCB 3CX		Scale: 1:25
								Sheet 1 of 1