



Preliminary Minerals Resource Assessment

at
Kingscroft Farm, Meyrick Road, Havant, Hampshire PO9 1FJ

for
Foreman Homes

Reference: 21117/PMRA
October 2023

Control Document

Project

Kingscroft Farm, Meyrick Road, Havant, Hampshire PO9 1FJ

Document Type

Preliminary Minerals Resource Assessment (PMRA)

Document Reference

21117/PMRA

Document Status

FINAL

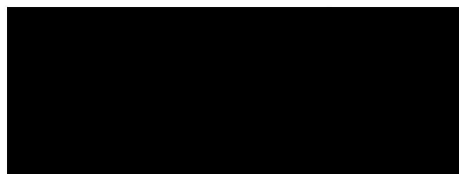
Date

October 2023

Prepared by

Olia Kontogianni BSc, MSc

(ok@soilslimited.co.uk)



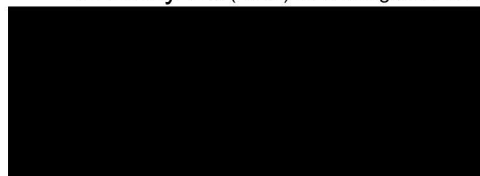
First check by

Eur Ing R B Higginson BSc, PGDip, CEng, MICE, FGS.



Second check by

R Biney BSc (Hons) MSc CEng MICE CEnv CSci MEnvSc MCI MIET FGS RoGEP



This is not a valid document for use in the design of the project unless it is titled Final in the document status box.

Current regulations and good practice were used in the preparation of this report. The recommendations given in this report must be reviewed by an appropriately qualified person at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.



Commission

This document comprises the Preliminary Minerals Resource Assessment (PMRA).

Commission Record	
Client	Foreman Homes
Site Name	Kingscroft Farm, Meyrick Road, Havant, Hampshire PO9 1FJ
Grid Reference	SU 707 061
Soils Limited Quotation Ref	Q27891, dated 26 th June 20
Clients Purchase Order	HFM-503/0021, dated 13 th September 20

Documents associated with this development that must be referred to are given below.

Record Of Associated Document:			
Reference	Type	Date	Prepared By
17877/PIR_R26	Preliminary Investigation Report	November 2019	Soils Limited
17877/MIR	Main Investigation Report	November 2019	Soils Limited
17877/SGLR	Soil Gas Letter Report	January 2020	Soils Limited

General Documents Used	
Minerals and Waste Safeguarding in Hampshire	2015
Hampshire Minerals and Waste Plan	2013
British Geological Society (BGS) Mineral Resources Information in Support of National, Regional and Local Planning	2003
BGS Mineral safeguarding in England: good practice advice	2001
Institute of Geological Sciences Mineral Assessment Reports (where available)	
The Minerals and Waste Safeguarding in Hampshire Supplementary Planning Document SPD	2016

The purpose of a PMRA is to establish the following by review of desk-based information sources:

- Identification of the potential for a mineral resource to underlie the site
- Identification of any safeguarding issues e.g. would development of the site result in the sterilisation of viable mineral resources
- To establish if sufficient desk-based information is available in relation to the site or whether further information may be required
- Identification of potential opportunities to eliminate, reduce or mitigate any safeguarding issues should the site be carried forward for development
- Identification of potential constraints associated with minerals extraction prior to development

The comments given in this report and the opinions expressed are based on the information obtained thus far, within the scope identified above. However, there may be conditions pertaining to the site that have not been disclosed from the desk-based sources of information reviewed and, therefore, could not have been taken into account.

Contents

Section 1	Introduction	1
1.1	Objective of Investigation.....	1
1.2	Location	1
1.3	Site Description.....	1
1.4	Proposed Development	2
1.5	Limitations and Disclaimers	2
Section 2	Site Geology	5
2.1	Geology	5
2.1.1	Alluvium	5
2.1.2	River Terrace Deposits	5
2.1.3	Lewes Nodular Chalk Formation.....	5
2.1.4	Chalk General.....	5
2.2	Geological Context	6
2.3	Groundwater Records.....	8
2.4	Mineral Safeguarding.....	9
2.5	Estimated Gravel Extent	10
2.6	Groundwater	11
2.7	Local Extraction Opportunities and Constraints	11
2.8	Additional On-line Data	11
Section 3	Conclusions	13
3.1	General.....	13
3.2	Recommendations.....	13

List of Figures

Figure 1 – Site Location Map	16
Figure 2 – Aerial Photograph	17
Figure 3 – Trial hole Locations Plan (Report ref: 17877/MIR)	18

List of Appendices

Appendix A Engineers Logs (17877/MIR) & Historical Borehole Records

Appendix B Geotechnical Laboratory Results (17877/MIR)

Section 1 Introduction

1.1 Objective of Investigation

Soils Limited was commissioned by Foreman Homes to prepare a Preliminary Minerals Resource Assessment to supply the Client and their designers with information regarding the potential impact of any identified extant mineral resources on the site that may affect or be affected by proposed development of the site.

The scope of works for this assessment includes:

- the potential sterilisation of viable mineral resources
- site setting (such as nature conservation designations, landscape character, proximity to local communities, highways infrastructure, utilities)
- the planning status of the site
- the mineral potential e.g. quality and quantity (review of all available borehole records for the site or those in the near vicinity)
- any likely opportunities for the prior extraction of mineral resources
- any constraints to the prior extraction of mineral resources
- any opportunities for incidental extraction as part of the development of the site (e.g. during excavation of foundations and footings).

An intrusive investigation has been carried out for the site, for Foreman Homes, by Soils Limited in October 2019. Reference must therefore be made to the above report (and the terms of commission) and relevant extracts are included within the following sections.

1.2 Location

The site is located immediately north of the A27, Havant Bypass and to the east of the A27/ A3(M) interchange in the Bedhampton area of the Borough of Havant.

The site location plan is given in Figure 1.

1.3 Site Description

At the time of the intrusive investigation (October 2019) the site of the proposed development comprised a field with several tracks crossing used for horse grazing, with a few corrugated structures potentially being used as barns, located close to the north-western boundary. The site is adjacent to residential properties to the north-east and a commercial area/business park to the east. "Hermitage" stream is bounding the site to the north and to the west and Havant Bypass (A27) delineates the site to the south. Fields with sparse wooded areas and residential properties are noted to the west across the "Hermitage" stream and further to the north and a business centre further to the south across the A27.

Vegetation is present on the perimeter of the site comprising mature trees and shrubbery. The area is generally flat lying with a gentle slope of <1° to the southwest and

is predominantly covered in grass. The main access is provided via Meyrick Road to the northeast.

An aerial photograph of the site and its close environs is included in Figure 2.

1.4 Proposed Development

At the time of reporting, the most recent proposal comprised the construction of 120No. residential dwellings with garages and car ports. The proposed development would include hard landscaping such as access roads, driveways and pavements and soft landscaping such as public open space and private gardens.

In compiling this report reliance was placed on the Illustrative Site Plan (drawing number 18.099.02, dated April 2022 prepared by HGP Architects and on email sent by the SLR Consulting Limited working on behalf of Foreman Homes, to Soils Limited, in June 2023. Soils Limited must be notified about any change or deviation from the scheme outlined in the drawing.

1.5 Limitations and Disclaimers

The report was prepared solely for the brief described in Section 1.1 of this report.

The contents, recommendations and advice given in the report are subject to the Terms and Conditions given in Soils Limited's Quotation

Soils Limited disclaims any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report has been prepared by Soils Limited, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Conditions of Contract of Business and taking into account the resources devoted to us by agreement with the Client.

The report is personal and confidential to the Client and Soils Limited accept no responsibility of whatever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report wholly at its own risk.

The Client may not assign the benefit of the report or any part to any third party without the written consent of Soils Limited.

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the Client in accordance with their brief. As such these do not necessarily address all aspects of ground behaviour at the site.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

If the term “competent person” is used in this report or any Soils Limited document, it means an engineering geologist or civil engineer with a minimum of three years post graduate experience in the understanding and application of the appropriate codes of practice.

Unless the site investigation works have been designed and specified in accordance with EC7, this report is a Geotechnical Investigation Report and is not necessarily a Ground Investigation Report as defined by EC7 (Eurocode 7 Part 1, §3.4, Part 2, §6.1) or a Geotechnical Design Report (Eurocode 7 Part 1, §2.8) as defined by Eurocode 7 and as such may not characterise the ground conditions and additional works may be required to comply with the requirements of EC7.

Within the report reference to ground level relates to the site level at the time of the investigation, unless otherwise stated.

Exploratory hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sample borehole implies the specific technique used to produce an exploratory hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The Client is responsible for establishing the depth to roots and/or of desiccation on a plot by plot basis prior to the construction of foundations. Supplied site surveys may not include substantial shrubs or bushes and is also unlikely to have data on any trees, bushes or shrubs removed prior to or following the site survey.

Where trees are mentioned in the text this means existing trees, substantial bushes or shrubs, recently removed trees (approximately 20 years to full recovery on cohesive soils) and those planned as part of the site landscaping).

The geotechnical laboratory testing was performed by GEO Site & Testing Services Ltd (GSTL) in accordance with the methods given in BS 1377:1990 Parts 1 to 8 and their UKAS accredited test methods.

For the preparation of this report, the relevant BS code of practice were adopted for the geotechnical laboratory testing technical specifications, in the absence of the relevant Eurocode specifications (ref: ISO TS 17892).

Ordinary watercourses (OWs) are defined as rivers (which are not designated as main rivers), streams, ditches, drains, culverts, cuts and sewers (other than public sewers). This includes all OWs that are not mapped. Ordinary watercourse consent (OWC) is required from the Lead Local Flood Authority (LLFA) when changing/adapting/adding to

the cross sections of OWs. Installations of any structure or obstruction into an OW that impedes the flow without consent is prohibited by the Land Drainage Act 1991 Section 23.

Failure to remove obstructions may result in legal action by the LLFA with powers under Section 25 of the Land Drainage Act 1991.

Soils Limited suggest surveying the site for OW usually seen in rural areas as boundary ditches in order to avoid potential impacts to residents downstream and prosecution. OWC can be applied for from your LLFA.

Ownership of land brings with it onerous legal liabilities in respect of harm to the environment. "Contaminated Land" is defined in Section 57 of the Environment Act 1995 (as updated 2021) as:

"Land which is in such a condition by reason of substances in, on or under the land that significant harm is being caused or that there is a significant possibility of such harm being caused or that pollution of controlled waters is being or is likely to be caused".

It must be noted that a detailed survey of the possible presence or absence of invasive species, such as Japanese Knotweed, is outside of the scope of investigation.

Deleterious materials may be present in any Made Ground that pose a potential risk to site workers, end users and adjacent vulnerable receptors. These could include a range of contaminants, including asbestos, especially if the material includes large fractions of demolition derived materials.

The investigation, analysis or recommendations in respect of contamination are made solely in respect of the prevention of harm to vulnerable receptors, using where possible best practice at the date of preparation of the report. The investigation and report do not address, define or make recommendations in respect of environmental liabilities. A separate environmental audit and liaison with statutory authorities is required to address these issues.

All environmental works are undertaken in the context of, and in compliance with, BS10175+A2 2017 and LCRM (EA 2021) and all other pertinent planning, standards, documentation and guidance appropriate to the site at the time of production which may include, but are not necessarily limited to, documents provided by BS/CEN/ISO, NHBC, AGS, CIEH, CIRIA, SoBRA and CLAIRE.

Ownership of copyright of all printed material including reports, survey data, drawings, laboratory test results, trial pit and borehole log sheets, including drillers log sheets remains with Soils Limited. License is for the sole use of the client and may not be assigned, transferred or given to a third party. This license is only valid once we have been paid in full for this engagement. In the event of non-payment for our services, we reserve the right to retract the license for all project data, preventing their use and any reliance upon such data by the client or any other third party. We may also contact parties other than the client to notify them of this retraction.

Section 2 Site Geology

2.1 Geology

The 1:50,000 BGS map showed the site to be underlain by the bedrock Lewes Nodular Chalk Formation with overlying superficial River Terrace Deposits to the east and superficial deposits of Alluvium to the west.

2.1.1 Alluvium

Alluvium is the most recent river or estuarine deposit and generally comprises silty clays usually with an appreciable organic content. Lenses of sand and gravel are also commonly found, as are pockets of peat.

The BSI Code of Practice for Foundations, BS8004: 1986, Clause 2.2.2.3.4 Peat and organic soils, includes the caveat that 'all these soils are highly compressible, and even lightly loaded foundations will be subject to considerable settlements over a long period if placed on them. For this reason, these soils are not suitable for carrying the loads for 'important' structures.

2.1.2 River Terrace Deposits

The rivers Test and Itchen have deposited extensive spreads of River Terrace Deposits in the Hampshire area, representative of ancient floodplains. In total, eleven terraces have been recorded. The River Terrace Deposits consist predominantly of gravels made up of sub angular to sub rounded flints with a significant sand component locally with lenses of silt, clay or peat.

The five highest terraces have appreciable clay content. Poorly sorted, clayey and sandy silts and silty clays overlie the 1st, 3rd, 5th and 6th terraces and locally at above terrace gravels.

2.1.3 Lewes Nodular Chalk Formation

Composed of hard to very hard nodular chalks and hardgrounds (which resist scratching by fingernail) with interbedded soft to medium hard chalks (some grainy) and marls; some griotte chalks. The softer chalks become more abundant towards the top. Nodular chalks are typically lumpy and iron-stained (usually marking sponges). Brash is rough and flaggy or rubbly and tends to be dirty. First regular seams of nodular flint, some large, commence near the base and continue throughout.

2.1.4 Chalk General

Chalk is a weak rock and as such it should be noted that the drilling, excavating and sampling process is detrimental to its fabric and structure. Chalk samples that have been machine sampled will therefore appear to be of a lower descriptive grade, as given in CIRIA C574, than the in-situ chalk. Soil sampling and visual observations from open excavations i.e. trial pits would allow chalk description and classification in accordance with CIRIA 574 including commenting for any aperture and discontinuities in the chalk structure.

Erosional features, such as pipes, swallow holes and solution cavities, usually in-filled with drift deposits, are occasionally found in the chalk, sometimes manifesting themselves at the surface as shallow circular depressions. Solution features may be reactivated by the concentrated ingress of water from leaking drains or soakaways. Reactivation may lead to surface collapse.

2.2 Geological Context

In addition to the information outlined in Sections 2.2 to 2.3, presented within the Main Investigation Report (ref: 17877/MIR, dated November 2019, by Soils Limited), a review of the available BGS historical borehole records (<https://mapapps2.bgs.ac.uk/geoindex/home.html>) identified four relevant locations across the site and one location situated approximately 25m to the south.

The following records were accessed, and copies are enclosed in Appendix A:

SU70NW77 (BH No.106) – north site corner, completed in 1968

SU70NW78 (BH No.110) – close to east site boundary, completed in 1968

SU70NW94 (BH No.81) – next to west site boundary, completed in 1967

SU70NW95 (BH No.82) – central area in the south part of the site, completed in 1967

SU70NW96 (BH No.83) – 25m/S, completed in 1967

A location map for the boreholes identified on site is presented in Figure A:

Figure A Historical Borehole Locations



The generalised ground conditions from the above boreholes has been summarised in Table 2.1. For more complete information about the soils encountered within the general area of the site reference should be made to the BGS records in Appendix A.

Topsoil (TS)
River Terrace Deposits (RTD)
Lewes Nodular Chalk Formation (LPCK)

Table 2.1 BGS Borehole Ground Conditions Summary

Strata	Depth Encountered (m bgl)		Typical Thickness (m)	Typical Description
	Top	Bottom		
TS	G.L.	0.30 - 0.60	0.45	Topsoil
RTD	0.30 - 0.60	2.10 - 6.00 ¹	2.00	Soft dark brown CLAY with pebbles and chalk gravel becoming firm light brown with depth.
LPCK	2.10 - 2.60	6.70 ¹ - 7.30 ¹	Not proven ²	Soft CHALK with flints.

Note: ¹ Final depth of trial hole. ² Base of strata not encountered G.L. - Ground Level

Unfortunately, the available logs are limited and were unlikely to have been undertaken for mineral resource purposes and as such do not include any relevant geotechnical testing, PSD gradings or other data, however, the descriptions do suggest a significant gravel content was present in the River Terrace Deposits.

It must be noted that the bedrock of Lewes Nodular Chalk Formation was only encountered within the boreholes BH106 and BH110 located close to the northern and eastern site boundaries respectively, being broadly in accordance with the findings of the former investigation undertaken on site (ref: 17877/MIR, dated November 2019, by Soils Limited), where the Lewes Nodular Chalk Formation bedrock had been mainly encountered close to the northern and north-eastern site boundaries.

The general ground conditions encountered during the former intrusive investigation undertaken on the site (ref: 17877/MIR) can be summarised as:

Made Ground/Topsoil (MG/TS)
Alluvium (ALV) [not encountered]
River Terrace Deposits (RTD)
Lewes Nodular Chalk Formation (LPCK)

The ground conditions encountered in the trial holes are summarised in Table 2.2.

It must be noted, whilst anticipated on the western site area, soils of the Alluvium were not encountered within any of the trial holes during the intrusive investigation.

Table 2.1 Ground Conditions (ref: 17877/MIR)

Strata	Period/Age	Depth Encountered (m bgl)		Typical Thickness (m)	Typical Description
		Top	Bottom		
TS/MG	Anthropocene	G.L.	0.10-0.40	0.25	MG: Soft, brown, slightly gravelly, silty, friable CLAY. Occasional carbonised plant material observed. Frequent fine roots and rootlets noted. TS: Firm, brown, slightly gravelly, silty CLAY to clayey SILT. Abundance of fine roots and rootlets encountered.
RTD	Quaternary	0.10-0.40	1.50-5.00 ¹	3.00	Orangish brown to greyish brown, gravelly, sandy CLAY becoming light brown mottled white, gravelly, fine to coarse SAND to gravelly SILT, becoming whitish brown, slightly clayey, sandy fine to coarse angular flint GRAVEL in a calcareous silt matrix with depth.
LPCK	Turonian	1.50-5.00 ¹	4.00 ¹ -5.00 ^{1,3}	Not proven ²	Off-white weathered structureless CHALK composed of sandy GRAVEL within light brown comminuted calcareous matrix.

Note: ¹ Final depth of trial hole. ² Base of strata not encountered. ³ Inferred from dynamic probes

More complete information about the soils encountered within the site during the former intrusive investigation (ref: 17877/MIR) are presented within the logs included as Appendix A.

2.3 Groundwater Records

The groundwater levels as noted within the available historical borehole records is presented in Table 2.2.

Table 2.2 Groundwater Historical Records

Trial Hole	Depth to Water (m bgl)	
	August 1967	January 1968
BH81	1.20	-
BH82	1.80	-
BH83	2.40	-
BH106	-	2.10
BH110	-	Dry

During the former intrusive investigation undertaken on the site (ref: 17877/MIR, dated October 2019) groundwater was encountered within one trial hole (TP2) and was struck at a depth of 3.50m bgl within the River Terrace Deposits.

Post-works groundwater monitoring was undertaken comprising six readings from three standpipes installed onsite (WS1, WS2 and WS4) between 22nd October 2019 and 31st December 2019, and results are presented in Table 2.3.

Table 2.3 Groundwater Monitoring (ref: 17877/MIR)

Trial Hole	Well Depth (m BGL)	Depth to Water (m bg					
		22/10/19	07/11/19	19/11/19	05/12/19	16/12/19	31/12/19
W S1	4.00	Dry	2.36	2.36	Dry	1.99	2.17
WS2	4.00	Dry	2.56	2.68	2.67	2.37	2.51
WS4	4.00	Dry	3.72	Dry	3.81	3.50	3.64

The locations of the trial holes undertaken during the intrusive investigation are presented in Figure 3.

Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The intrusive investigation and post-works groundwater monitoring was conducted between October and December (2019), when groundwater levels should be rising from their annual minimum (lowest) elevation, which typically occurs around September to their annual maximum (highest) which typically occurs around March.

The online historical borehole logs and the post-works groundwater monitoring from the former intrusive site investigation (ref:17877/MIR), indicate a relatively consistent groundwater table, possibly under pressure in underlying gravel units, fairly typical of this type of landscape. This could also be attributed to the presence of the 'Hermitage Stream' along the western site boundary which could indicate that the area has a high local water table and/or the underlying material is not very permeable and may respond quickly to rainfall and stream water levels.

2.4 Mineral Safeguarding

The criteria presented below is adopted from the Institute of Geological Sciences Mineral Assessments Report, it is to be used in defining if a resource can be reasonably exploited:

- *The deposit should average at least 1m in thickness*
- *The ratio of overburden to sand and gravel should be no more than 3:1*
- *The proportion of fines should ideally be below 25% and should not exceed 40%*
- *The deposit should lie within 25m from the surface*

Based on the information presented within the Main Investigation Report (ref. 17877/MIR, dated November 2019, by Soils Limited), the below statements would be correct:

- The superficial River Terrace Deposits, encountered within all trial hole locations undertaken across the site, are more than 1m in thickness and are within 25m of surface.
- Soils of mineral interest were encountered from circa 1.50m bgl and persisted to an average depth of 3.50m bgl, i.e. typically 2.00m in thickness. Therefore, overburden ratio is less than 3:1.

- The proportion of fines was ranging between 10 and 14% within all 3No. samples subjected to PSD testing, obtained from the granular soils of River Terrace Deposits during the former intrusive investigation (ref: 17877/MIR).

However, it must be noted that the PSD testing undertaken at the above samples during the former investigation was done for reasons other than minerals assessment and therefore samples may have targeted granular horizons rather than being representative of the unit in general.

Further testing (Atterberg tests) undertaken during the intrusive investigation (ref: 17877/MIR), on 2No. samples obtained from the River Terrace Deposits, indicated plastic soils at a depth of 1.20m bgl. This can potentially be attributed to the clayey nature of the soils encountered on site reaching to an average depth of 2.10m bgl. Consequently, the potential plasticity of the soils is considered likely to negatively impact the viability of the asset.

However, it must be as above noted that both samples subjected to Atterberg testing during the former investigation, were aiming the cohesive beds of the stratum rather than being representative of the unit in general.

It should hence be clarified that the number of samples (5No. in total) which were subjected to PSD and Atterberg tests during the previous investigation (ref: 17877/MIR) were not selected for the purposes of minerals assessment and thus, were limited in number.

Based on the above information follows that there is the potential for viable mineral assets underlying the site.

The Atterberg Limit and PSD test results are presented within the laboratory report in Appendix B.

2.5 Estimated Gravel Extent

On the basis of the limited intrusive investigation undertaken on the site (ref: 17877/MIR) and the BGS historical borehole records located within the general site area, it is estimated that the superficial River Terrace Deposits could comprise an area of approximately 77,500 square metres across the whole of the study area.

Overburden as Topsoil and cohesive soils are anticipated to comprise approximately 1.50m on average, giving rise to a figure for removal of 116,250m³ over the whole site.

Underlying "Gravel" of at least 1m depth as encountered within the Main Investigation Report (ref:17877/MIR), would therefore give rise to an estimated recoverable resource of 77,500m³. However, this is unlikely to be recovered as pure sand and gravel in the circumstances and in light of the relatively low number of investigation locations, soil descriptions and limited laboratory results, a recovery of potentially only 40-50% of viable material could be estimated.

2.6 Groundwater

As noted in Section 2.3, the depth to water was relatively consistent, likely to be mostly related to the granular material through which it will flow and collect overlying the largely impermeable strata of the bedrock. Therefore, it can reasonably be anticipated that the soils underlying the site contribute to the local hydrology of on and off-site sources and streams as base flow and are ultimately in continuity with them.

As such, if extraction of the sands and gravels across the site is proposed, it will potentially have a significant effect on the local groundwater regime and pose potential detrimental effects on localised base flow rates in, on and off-site surface water features unless materials exhibiting similar properties are backfilled into the resultant excavation. The absence of sand and gravel (or similar material) will significantly reduce the holding capacity of groundwater in the soils, therefore during periods of heavy rainfall will increase the risk of surface water flooding on site and in the surrounding area and may result in a reduction of flow within the on-site surface water bodies during dry periods. These effects may also result in an overall deterioration in water quality within the on-site and nearby surface waters and potentially also affect the biological diversity within these areas as a result.

2.7 Local Extraction Opportunities and Constraints

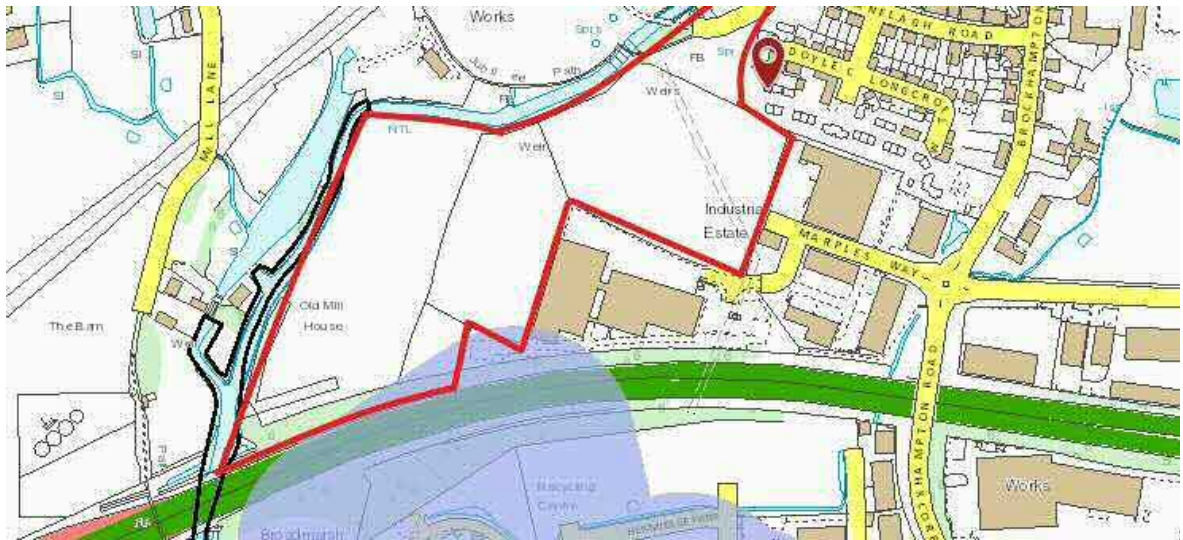
Development of the site can offer the opportunity for incidental extraction to be undertaken with the agreement of the regulator. In accordance with The Minerals and Waste Safeguarding in Hampshire Supplementary Planning Document SPD 2016, it is recommended that during excavation of foundations, footings or landscaping, any natural sand and gravel deposits encountered are segregated and re-used onsite to increase the sustainability of the development. This will also leave the material on site.

2.8 Additional On-line Data

On-line Mineral Consultation Data from Hantsweb accessed in October 2023 indicate that the site (<https://maps.hants.gov.uk/mineralsconsultationareas/>) does not contain any Minerals and Waste Consultation Areas (MWCA) for either Brick Clay, Silica Sand or Soft Sand to a radius of over 300m from the site. However, a segment marked as Safeguarded Sites (Mineral Safeguarding Area) is noted, indicating the potential presence of valuable mineral resources covering an approximate area of 2,500 square metres in the southern side of the site, which needs to be considered during the future development of the site to ensure that these resources are not unnecessarily sterilised.

A copy of the map is reproduced in Figure B.

Figure B Minerals and Waste Consultation Areas (MWCA)



Section 3 Conclusions

3.1 General

It is suggested, following review of the available data for the site, which was obtained for reasons other than a minerals assessment and therefore could be considered as limited, there is a potentially economically viable mineral resource on-site and it is considered that there could be a case for limited abstraction at this location.

In light of the geological site model (variable cover on undulating rolling sub-surface which appears to be confirmed by the limited former site investigation undertaken on site) and BGS map data, the depth of extractable material is likely to be highly variable across the site but may average just over 1m in thickness with a 3:1 or less ratio of overburden. However, this potentially only relates to conditions on approximately half of the total site area, which considering also the likely high groundwater table, will make large scale abstraction difficult. In addition, given the urbanisation of the surrounding area, exploiting the mineral assets may not be beneficial due to the likely detrimental effect imposed on the groundwater regime, possible increased flood risk and the presence of local neighbouring residential occupiers.

The variable nature of the sub-surface may also have potential impact on foundations and local drainage, and these shall be considered in any proposed development of the site in addition to the potential for a very variable and in places potentially shallow groundwater level. Minerals can potentially be extracted, but can also have significant local impacts on flooding, hydrology, hydrogeology and biodiversity if not appropriately managed and/or replaced. However, localised abstraction during development for footings etc. is unlikely to significantly affect the local environment, so efforts should be made to retain and reuse such materials on site where possible. A strategy of design and development that leaves the majority of material in-situ and re-uses any such materials produced on site is likely to be more acceptable to the regulator and more sustainable, possibly leading to cost savings during the development.

Additionally, the Mineral Safeguarding Area indicated by the 'Hantsweb' maps covering an approximate area of 2,500 square metres in the southern side of the site, needs to be considered during the future development of the site to ensure that these resources are not unnecessarily sterilised.

These preliminary findings could be established by the acquisition of further site-specific data and as such can be obtained through additional intrusive site investigation phases leading to the development of an appropriate MMP and development strategy by a competent designer.

3.2 Recommendations

In light of the above Soils Limited concludes that the River Terrace Deposits, where present, are likely to be of sufficient quality for incidental extraction only during development. The following action or actions are recommended:

- The regulator must be consulted in regard to the site in relation to its priority and policy in this area and to determine if additional investigation is warranted.
- Cost savings during development by retention of materials on site will also improve sustainability of the project as a whole and mitigate potential detrimental effects if undertaken appropriately and must be considered.

List of Figures

Figure 1 – Site Location Map 16

Figure 2 – Aerial Photograph 17

Figure 3 - Trial Hole Locations (Report ref: 17877/MIR).....18

List of Appendices

Appendix A Engineers Logs (17877/MIR) & Historical Borehole Records

Appendix B Geotechnical Laboratory Results (17877/MIR)

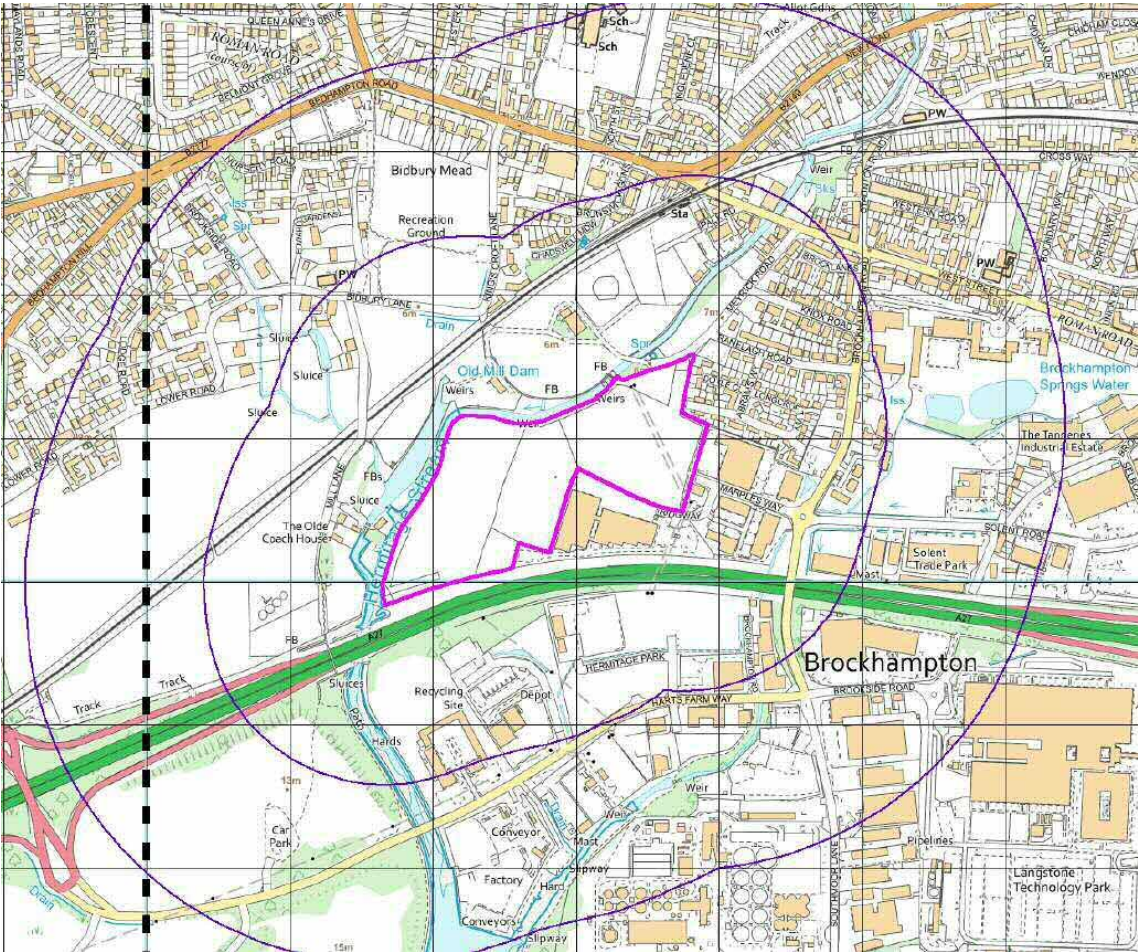


Figure 1 - Site Location Map

Job Number 21117	Project Kingscroft Farm, Meyrick Road, Havant, Hampshire PO9 1FJ
Client Foreman Homes	Date October 2023

Figure 2 - Aerial Photograph

Project

Kingscroft Farm, Meyrick Road,
Havant, Hampshire PO9 1FJ

Client

Foreman Homes

Date

October 2023

Job Number

21117

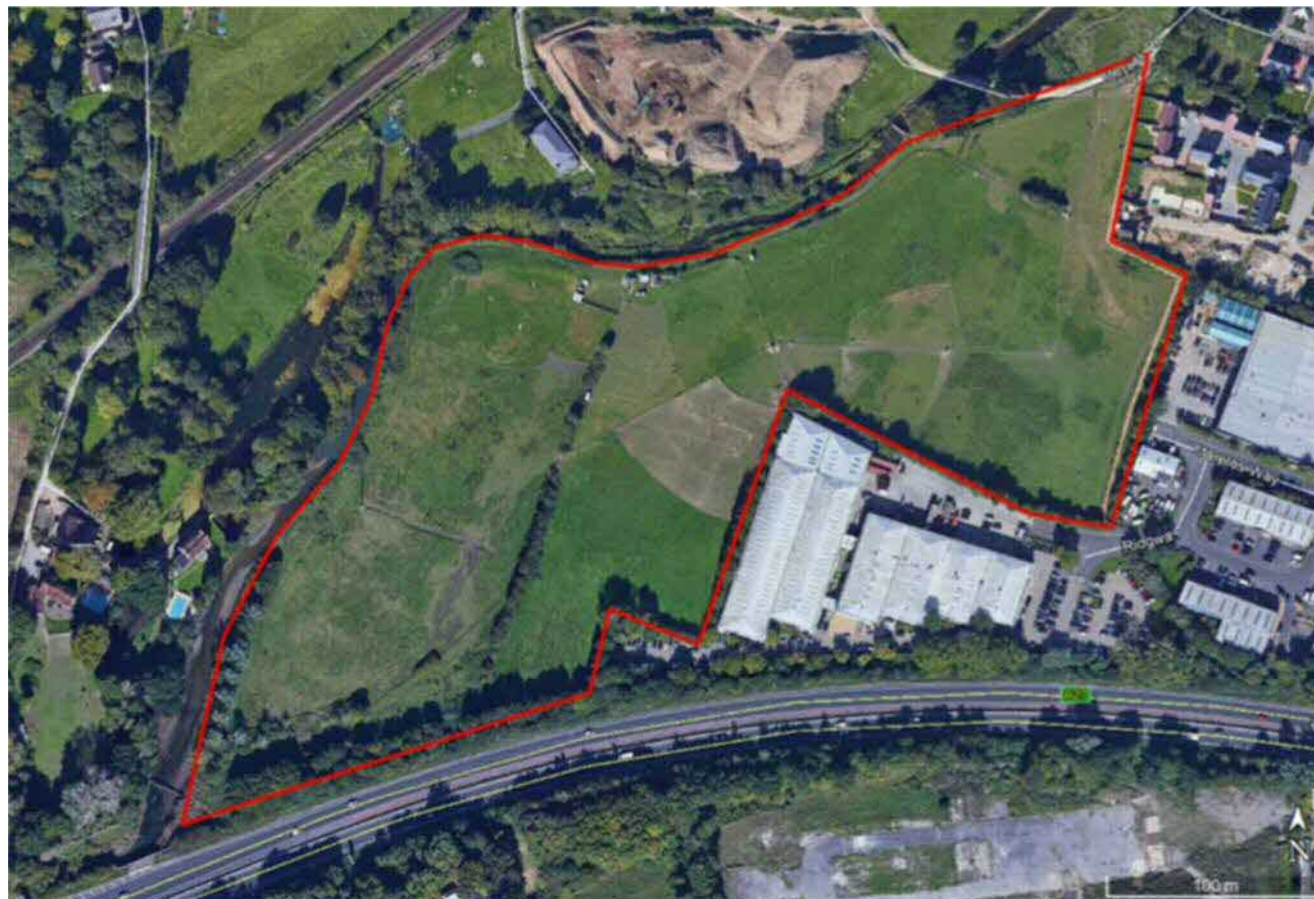


Figure 3 - Trial Hole Locations
(Report ref:17877/MIR)

Project

Kingscroft Farm, Meyrick Road,
Havant, Hampshire PO9 1FJ

Client

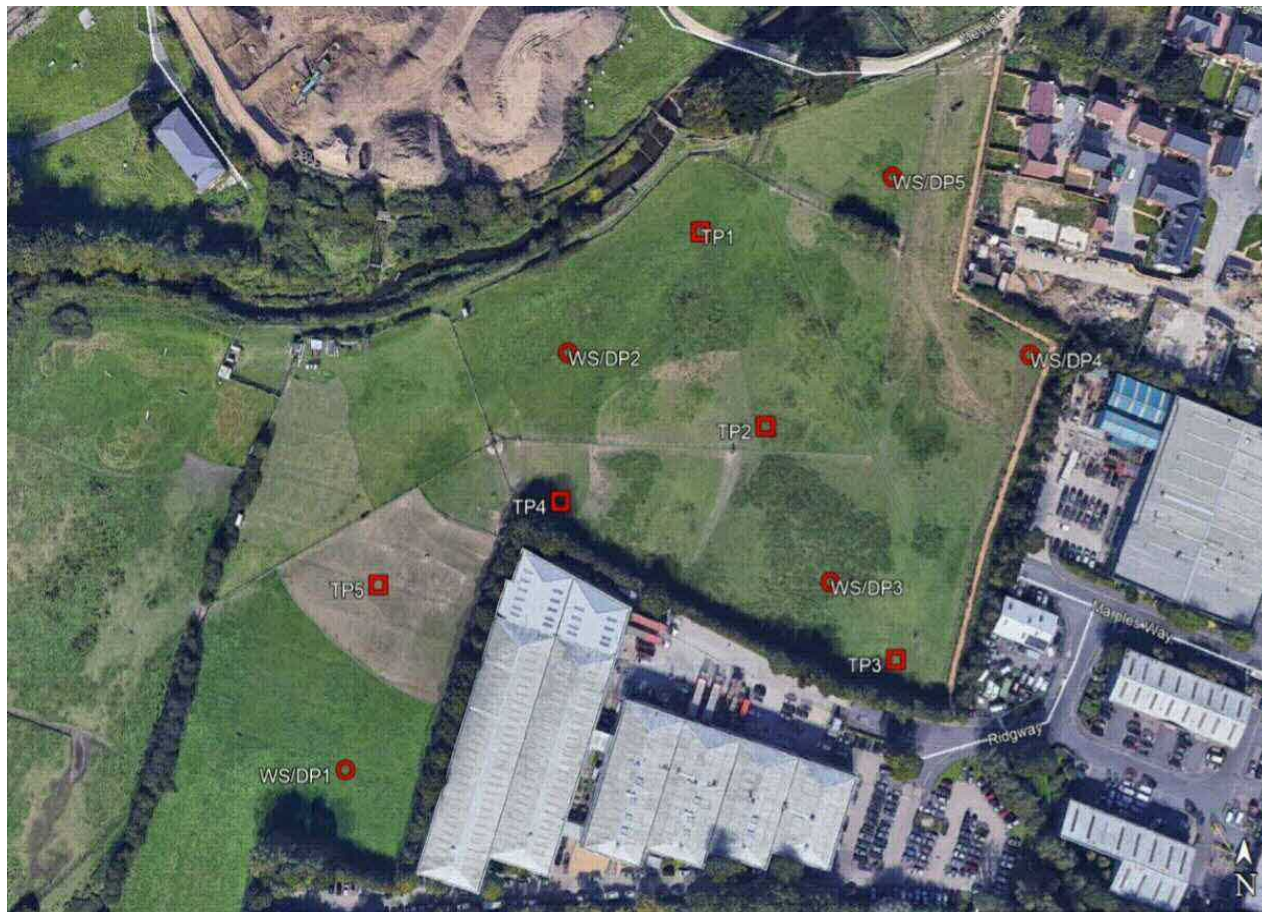
Foreman Homes

Date

October 2023

Job Number

21117



Appendix A **Engineers Logs (17877/MIR) & Historical Borehole Records**

Samples & In Situ Testing			Strata Details		
Depth	Type	Results	Level (mAOD)	Depth (m) (Thickness)	Legend
				0.25	
				(1.00)	
				1.25	
				(1.05)	
				2.30	
				2.50	
				(0.30)	
				2.80	
				3.00	
				(1.00)	
				4.00	

Samples & In Situ Testing			Strata Details		
Depth	Type	Results	Level (mAOD)	Depth (m) (Thickness)	Legend
				(0.30) 0.30	
				(0.80)	
				1.10	
				(0.50)	
				1.60	
				(2.40)	
				4.00	

Samples & In Situ Testing			Strata Details		
Depth	Type	Results	Level (mAOD)	Depth (m) (Thickness)	Legend
				(0.30) 0.30	
				(0.70)	
				1.00	
				(0.60)	
				1.60	
				(0.55)	
				2.15	
				(0.55)	
				2.70	
				(1.30)	
				4.00	

Samples & In Situ Testing			Strata Details		
Depth	Type	Results	Level (mAOD)	Depth (m) (Thickness)	Legend
				(0.30) 0.30	
				(0.60) 0.90	
				(1.00) 1.90 2.00	
				(0.70) 2.70	
				(0.60) 3.30	
				(0.70) 4.00	

Samples & In Situ Testing			Strata Details			
Depth	Type	Results	Level (mAOD)	Depth (m) (Thickness)	Legend	
				(0.40)		
				0.40		
				(0.60)		
				1.00		
				(0.50)		
				1.50		
				(2.50)		
				4.00		

Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend
	Depth	Type	Results			
				0.10		
				0.80		
				0.90		
				1.30		
				1.90		
				1.95		

Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend
	Depth	Type	Results			
				0.30		
				1.70		
				3.50		

Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend
	Depth	Type	Results			
				0.20		
				0.50		
				1.00		
				2.60		

Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend
	Depth	Type	Results			
				0.20		
				1.10		
				2.25		
				2.30		

Water Strike	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend
	Depth	Type	Results			
				0.25		
				1.00		
				1.90		
				2.70		



STRUCTURAL SOILS LTD.

SU 70 NW 94

7042 0617

SHEET No. 11 OF 11

CONTRACT No. 4195

BOREHOLE RECORD

CONTRACT Havant DATE STARTED 5/8/67 FINISHED 5/8/67
BOREHOLE No. 81 OPERATOR D Smith
ELEVANCE DATUM LEVEL 8.1 TYPE OF PENETRATION TEST -
TYPE OF BORING Shell & Auger WEIGHT - DROP -
METER OF BORING 0 STANDING WATER LEVEL 5.0
UNITS

Depth Feet	O.D. Inches	Type & No of Sample	Boring Details		Legend	Description of Material and Observations
			Penetration	Standing Water		
		D				Tapeout & flint
5		D		Entry		flint with traces of sandy clay
10		D				Brown sandy clay & flint
15		D				Brown clay with flint.

Borehole terminated

R.T.V.
11.8.67



SU 70NW/95
7047 0609

SHEET No. 12 OF 17

CONTRACT No. 4195

BOREHOLE RECORD

Havant

82

DATE STARTED 5/8/67 FINISHED 5/8/67

OPERATOR D. Smith

9.0

TYPE OF PENETRATION TEST

Shell & Auger

WEIGHT DROP

STANDING WATER LEVEL 5.0'

Depth (ft)	Type & No. of Sample	Boring Details			Legend	Description of Material and Observations
		Penetration	Logging	Weight		
	D					Topsoil
5	D					Firm brown clay with flint.
10	D					Brown sandy clay & flint.
15	D					

Borehole terminated

R.S.W.
191033



SU70NW/96
7052 0602

SHEET No. 13 OF 17

BOREHOLE RECORD

CONTRACT No. 4193

CONTRACT Havant DATE STARTED 8/8/67 FINISHED 8/8/67
BOREHOLE No. 83 OPERATOR D. Smith
ORDNANCE DATUM LEVEL 12.8 TYPE OF PENETRATION TEST -
TYPE OF BORING Shell & Auger WEIGHT - DROP -
DIAMETER OF BORING 3" STANDING WATER LEVEL 2.0'
REMARKS

Depth Feet	O.D. Level	Type & No. of Sample	Boring Details			Legend	Description of Material and Observations	
			Penetration	Lining	Water			
		D					Topsoil & light brown firm clay	BE
5		D					Flint debris in firm brown clay matrix	↓ G,
10		D			Entry		Flint debris in chalk matrix	
15		D						UMCK
20								
			Borehole terminated					



SU 70NW/77
7075 0633

BOREHOLE RECORD

CONTRACT No. 4195

CONTRACT HAVANT DATE STARTED 17/1 FINISHED 17/1/08
BOREHOLE No. 106 OPERATOR D Smith
ORDNANCE DATUM LEVEL 18.58 TYPE OF PENETRATION TEST CPT
TYPE OF BORING Shell & Ayr WEIGHT 140 lbs DROP 2-6'
DIAMETER OF BORING 6 STANDING WATER LEVEL 7-0'
REMARKS

Depth Feet	O D Level	Type & No of Sample	Boring Details			Legend	Description of Material and Observations
			Penetration	Lining	Water		
						////	Topsoil
						---	Dark brown clay.
						---	Dark brown clay with pebble & chalk inserts
5						---	light brown clay & chalk
					SWL		
10						---	Medium & large flint in soft chalk
		C.P.T.	82 for 12'				
15							
		C.P.T.	87 for 12'				
20						---	
25						---	
			BOREHOLE TERMINATED				

R.F.W.
2-11-11



STRUCTURAL SOILS LTD.

SU 70NW/78

SHEET No 9 OF 13

7075 0617

CONTRACT No 4195

BOREHOLE RECORD

CONTRACT HAVANT DATE STARTED 30/1 FINISHED 30/1/68
BOREHOLE No 110 OPERATOR D. Smith
ORDNANCE DATUM LEVEL 20.99 TYPE OF PENETRATION TEST —
TYPE OF BORING Shall & Auger WEIGHT — DROP —
DIAMETER OF BORING 2 STANDING WATER LEVEL NIL
REMARKS

Depth Feet	O D Level	Type & No of Sample	Boring Details			Legend	Description of Material and Observations	
			Penetration	Lining	Water			
						///	Brown clay topsoil	
							Soft to firm light brown clay.	BE
5							Firm brown clay with stone fragments	CS
10							Soft chalks & flint	
15							chalk & flint.	UMCK
20								
25			BOREHOLE TERMINATED					R.F.W. 20/10/82

Appendix B Geotechnical Laboratory Results (17877/MIR)



Laboratory Report



GEO Site & Testing Services Ltd

Contract Number: 46249

Client Ref: **17877**

Report Date: **31-10-2019**

Client PO: **17877**

Client **Soils Limited**
Newton House
Cross Road
Tadworth
Surrey
KT20 5SR

Contract Title: **Kingscroft Farm**
For the attention of: **Tim Rudkin**

Date Received: **22-10-2019**

Date Completed: **31-10-2019**

Test Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	2
1 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.4 & 5.3 - * UKAS	2
PSD Wet Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	3
Saturated Moisture Content of chalk (SMC) BS 1377:1990 - Part 2 : 3.3 - * UKAS	1
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:

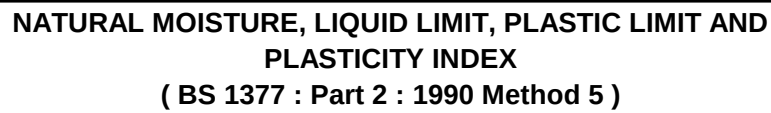
Emma Sharp (Office Manager) - Paul Evans (Quality/Technical Manager) - Richard John (Advanced Testing Manager)

Sean Penn (Administrative/Accounts Assistant) - Shaun Jones (Laboratory manager) - Wayne Honey (Administrative/Quality Assistant)

GEO Site & Testing Services Ltd

Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN

Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

[illegible]



Contract Number	46249	
Site Name	Kingscroft Farm.	
Date Tested	22/10/2019	

[illegible]

<u>Key</u>	<u>Reported As</u>	<u>Clause</u>
Moisture Content	%	3.2
Bulk Density	Mg/m ³	7.2
Dry Density	Mg/m ³	7.2
SMC	%	3.3.6

If there is a NON-STANDARD in the remarks next to the reported SMC result this means there was no lump of chalk of sufficient volume (300mL-500mL) present in the samples received to meet the testing requirements of the stated standard.

Operators	Checked	30/10/2019	Emma Sharp
CJ	Approved	31/10/2019	Paul Evans





PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number **46249**

Borehole/Pit No. **WS1**

Site Name **Kingscroft Farm.**

Sample No.

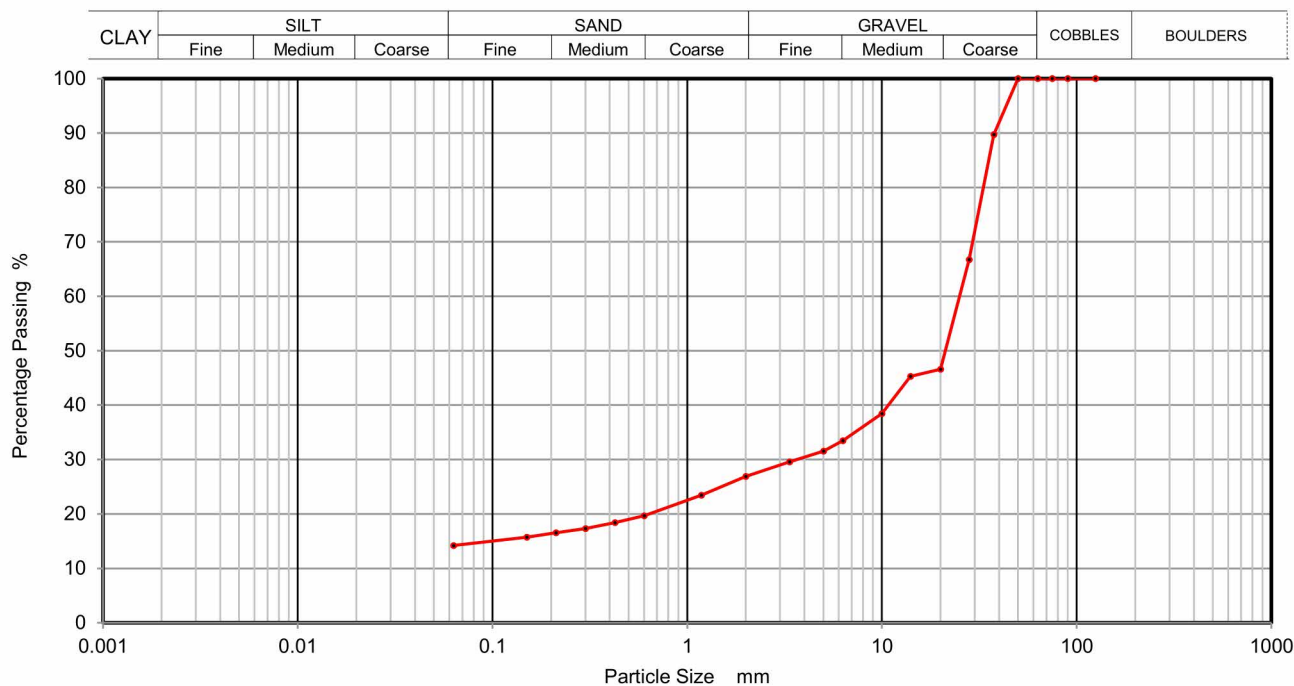
Soil Description **Brown sandy silty clayey GRAVEL.**

Depth Top **3.20**

Depth Base

Date Tested **24/10/2019**

Sample Type **D**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	90		
28	67		
20	47		
14	45		
10	38		
6.3	33		
5	32		
3.35	30		
2	27		
1.18	23		
0.6	20		
0.425	18		
0.3	17		
0.212	17		
0.15	16		
0.063	14		

Sample Proportions	% dry mass
Cobbles	0
Gravel	73
Sand	13
Silt and Clay	14

Remarks
Preparation and testing in accordance with BS1377 unless noted below

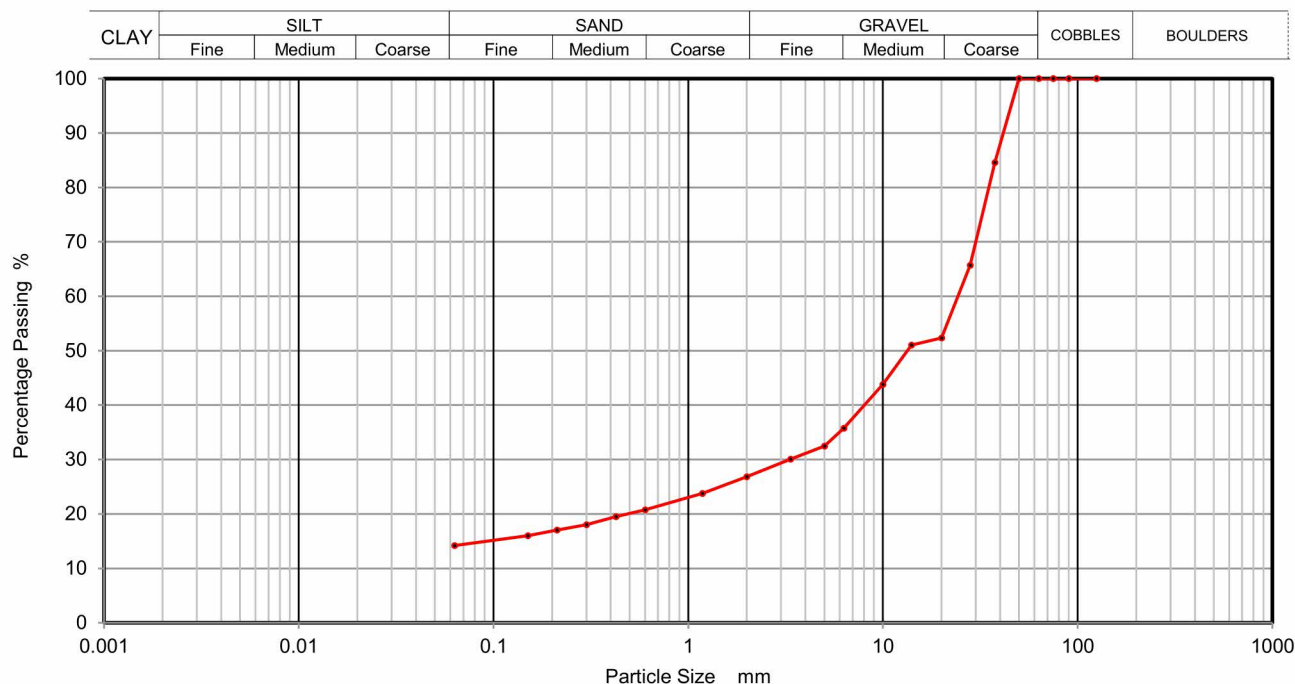
Operators	Checked	30/10/2019	Wayne Honey
RO/MH	Approved	31/10/2019	Paul Evans





**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	46249	
	Borehole/Pit No.	WS4
Site Name	Kingscroft Farm.	
Soil Description	Brown sandy silty clayey GRAVEL	Sample No.
		Depth Top 2.20
Date Tested	24/10/2019	Depth Base
		Sample Type D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	85		
28	66		
20	52		
14	51		
10	44		
6.3	36		
5	32		
3.35	30		
2	27		
1.18	24		
0.6	21		
0.425	19		
0.3	18		
0.212	17		
0.15	16		
0.063	14		

Sample Proportions	% dry mass
Cobbles	0
Gravel	73
Sand	13
Silt and Clay	14

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	30/10/2019	Wayne Honey
RO/MH	Approved	31/10/2019	Paul Evans





PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2

Contract Number **46249**

Borehole/Pit No. **TP1**

Site Name **Kingscroft Farm.**

Sample No.

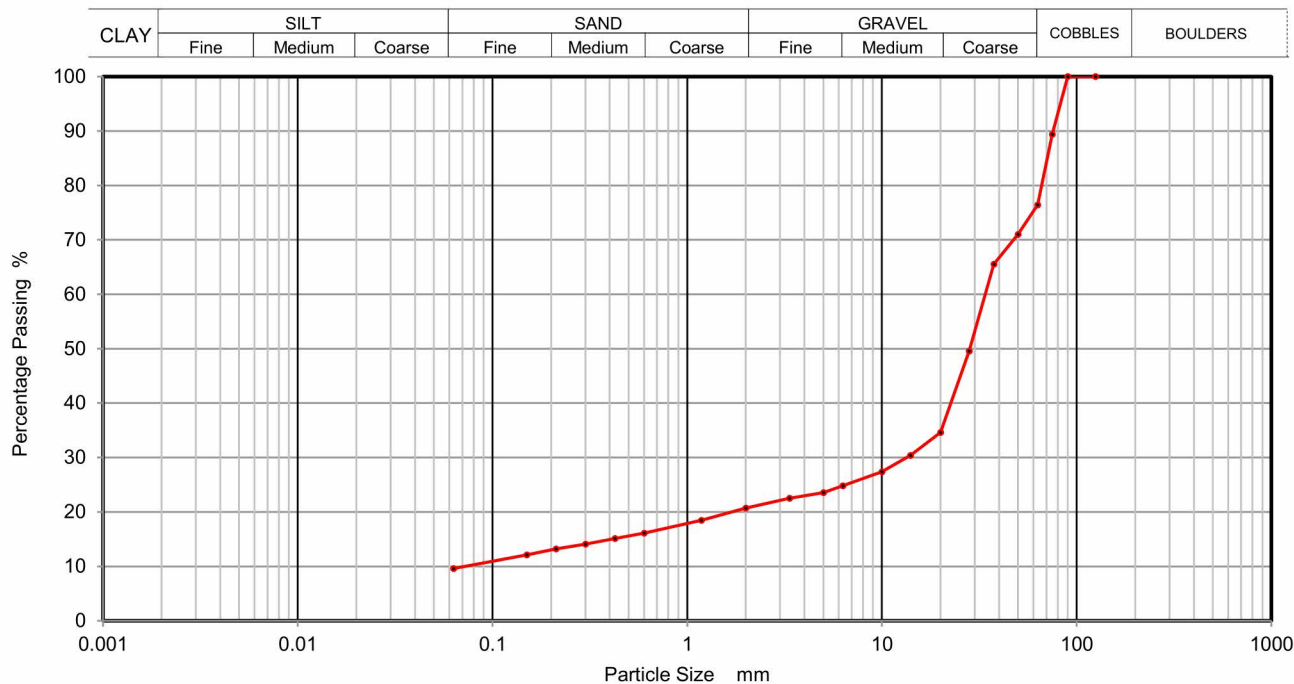
Soil Description **Brown sandy silty clayey GRAVEL. With cobbles**

Depth Top **1.70**

Depth Base

Date Tested **24/10/2019**

Sample Type **B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	89		
63	76		
50	71		
37.5	66		
28	50		
20	35		
14	30		
10	27		
6.3	25		
5	24		
3.35	22		
2	21		
1.18	18		
0.6	16		
0.425	15		
0.3	14		
0.212	13		
0.15	12		
0.063	10		

Sample Proportions	% dry mass
Cobbles	24
Gravel	55
Sand	11
Silt and Clay	10

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	30/10/2019	Wayne Honey
RO/MH	Approved	31/10/2019	Paul Evans



Soils Limited
Geotechnical & Environmental Consultants

Newton House
Cross Road, Tadworth
Surrey KT20 5SR

T 01737 814221
W soilslimited.co.uk