

PHASE 1 DESK STUDY

Site

**ST CRISPINS CHURCH,
CHURCH PLACE, PULBOROUGH,
WEST SUSSEX RH20 1AF**

Client

EARLSWOOD HOMES SOUTH EAST LIMITED

Report Ref

21/12217/KJC

Issued

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The recommendations made and opinions expressed in this Report are based on the strata conditions revealed by the fieldworks as indicated on the exploratory records, together with an assessment of the data from in situ and laboratory tests. No liability can be accepted for conditions which have not been revealed by the fieldworks, for example, between exploratory positions. While this Report may offer opinions on the possible configuration of strata, both between the excavations and below the maximum depth achieved by the investigation, these comments are for guidance only and no liability can be accepted for their accuracy. The data obtained relate to the conditions which are relevant at the time of the investigation.

The groundwater observations entered on exploratory records are those noted at the time of the investigation. The normal rate of progress does not usually permit the recording of any equilibrium water level for any one water strike. It should be noted that groundwater levels are prone to seasonal variation and to changes in local drainage conditions. The word 'none' indicates that groundwater was sealed off by the borehole casing or that no water was observed in the exploratory hole upon completion.

REPORT REF: 21/12217/KJC

CONTRACT: CHURCH PLACE, PULBOROUGH

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1 INTRODUCTION

1.1 Objectives

The Desk Study comprises a review of the readily available geological, historical and environmental sources for information about the site, together with a walkover survey of the area. This includes the commissioning of an Enviro+Geo Insight report supplied by Groundsure Ltd. This report presents the findings of the Desk Study together with an outline Conceptual Site Model and preliminary risk assessment, based upon identified potential sources of contamination which may pose a significant risk to receptors or end-users of the site.

In preparing this report reference has been made to relevant guidance, which includes the 'Investigation of potentially contaminated sites. Code of Practice.' (BSI, 2011) and the Land Contamination: risk management (LCRM) guidance (2020).

1.2 Proposed Development

The Client proposes to redevelop the site at St Crispins Church, Church Place, Pulborough, ("the site") by the construction of seven new dwellings with associated gardens and parking areas.

2 THE SITE

2.1 Site Location

The site covers an area of 2300m², is irregular in shape and is located at Ordnance Survey National grid reference 504618, 118884. The site comprises the former Roman Catholic Church and associated access road, parking areas and soft landscaping. There is a residential property to the north east with other residential properties to the east, south and west. A railway line is present within a cutting on the north west boundary and Church Place is present to the south/south east.

2.2 Site Topography

The topographical survey supplied by the Client's representative indicates that levels reduce from 22.16mOD in the south east corner to 17.49mOD in the north west of the site.

3 SITE HISTORY

3.1 Historical Mapping

The historical Ordnance Survey mapping contained within the Groundsure report has been reviewed. The maps reviewed are included in Appendix 1. Reference has been made to the earlier tithe map of 1839 and this reveals that the site formed part of two plots; 913 – gardens, associated with the property to the south, and 929 – pasture “Orchard Meads”. The gardens and plot 913 are not shown on subsequent OS mapping. Moreover, a moat associated with Oldplace is replaced by the time of OS mapping by the railway line.

Table 1 - Historical Mapping Summary

Date	Source Scale	Relevant Information	
		On Site	Off Site
1876	1:2500	The site is undeveloped at this time and is part of a larger area of land referenced 1040.	A highway is present on the southern boundary. Church Place is present to the south of the site. A railway line forms the north west boundary. Sidings are shown 49m south west. A well is recorded. St Mary's Church with an associated grave yard is shown 100m to the south east. a water course is recorded 100m to the north. Oldplace farm is present to the north west of the railway line. A large pond is recorded to the north of the farm buildings.
1897	1:2500	No change. Area now designated as 927.	A second well and a pump are recorded to the south of the site. The pond to the north west is now a fish pond. A sand pit is now recorded 225m south west of the site.
1911 1913	1:2500 1:10560	No change.	Eastern end of fish pond now marsh. The highway to the south of the site is now Upper Street. The sand pit to the south west is now part of a brick field with an associated kiln and wind pump. The area of excavation extends to 200m from the site.
1938*	1:10560	No change.	A number of structures are present to the east.
1957	1:10560	A building designated Ch (Church) is now present in the eastern part of the site. a second building is recorded in the west.	No discernible change.
1974*	1:2500	The Church of St Crispin and St Crispinian (R C) is now present on site.	The brick field to the south west is no longer shown and is presumably backfilled. The wind pump (disused) is still

		The building in the west is no longer present.	recorded. A house called Milton is now present to the west of the site. Residences called The Bungalows and Caledonia are present to the east of the site. Property to south no longer called Church Place. Upper Street is now referred to as Church Place. Grave yard at St Maty's Church no longer recorded as such. Railway sidings no longer shown to be present to the south west. Garage (Fuel Station) 150m east.
1981 1984	1:10000 1:2500	No discernible change. Two small out buildings present on western boundary. Further access road now present north of existing building.	Site now designated as a Church. Four properties have been constructed to the east with access from Church Place. A factory is shown 110m to the north east. Former brick field now redeveloped by an industrial estate. Garage to east now Depot.
1992/3 *	1:2500	No change.	Drain now recorded between the houses and factory to the north east of the site.
2003	1:1250	No change.	No change.

*indicates partial mapping coverage

At the time of the earliest mapping the site formed part of open land. The site was developed at some time between 1938 and 1957 by a church, later St Crispins and St Crispinians.

3.2 Aerial Imagery

Consideration of the modern aerial imagery contained within Google Earth and the Enviro+Geo Insight report confirms that the site layout has remained unchanged since the earliest image c 1999.

4 GEOLOGY

4.1 Published Geology

An examination of the British Geological Survey (BGS) digital mapping and data contained within the Enviro+Geo Insight report indicates that the underlying bedrock is the Fittleworth Member. The Hythe Formation outcrops to the north and the Pulborough Sandrock Formation lies to the south. All of the above are of Aptian age. The data also notes that in the northern part of the site the bedrock is overlain by a superficial outcrop of Head of geologically Recent age.

4.2 Historical Borehole Records

The records of the BGS have been reviewed and a borehole record (BGS Ref TQ01NW35) from 1925 is noted 39m south east of the site at Caledonia Bungalow. The record is presented in Appendix 2 and shows the presence of 27ft (8.23m) of sandy clay overlying 115.5ft (35.02m) of blue clay. A band of rock 1.5ft (0.46m) thick was present below the blue clay, which was again revealed on penetration of the layer of rock. The borehole was concluded at 156ft (47.58m). The accuracy of the descriptions on the record cannot be guaranteed.

A 'tube' was installed in the borehole that incorporated a perforated section from 138ft (42.06m) to 150ft (45.72m). The rest water level was noted to be 17ft (5.18m) bgl. The borehole was reported to be disused c1941.

4.3 Hydrogeology

The northern part of the site is underlain by a superficial Secondary Undifferentiated aquifer associated with the underlying Head. The Fittleworth Formation at depth is classed as a Secondary A aquifer. However, the site is not underlain by a drinking water Source Protection Zone [SPZ].

There are no abstraction points within 500m of the site. The nearest abstraction point is for surface water 676m north east of the site at New Place Farm Reservoir.

4.4 Radon

The Enviro+Geo Insight report indicates that the site is not in a radon affected area as less than 1% of properties are above the action level. Moreover, no protective measures as described in BRE report BR211 are necessary in the construction of new properties or extensions.

5 ENVIRONMENTAL SETTING

5.1 Hydrology & Flood Risk

The nearest surface water feature is an inland river 60m north east and the associated lake. The site is not at risk of coastal or river flooding or surface water flooding. There is potential for flooding from the underlying groundwater table. The risk is negligible in the southern part of the site increasing to low risk in the north. The very northern tip of the site is moderate risk.

5.2 Landfill Data

There are no active or inactive registered landfill sites listed in the Enviro+Geo Insight report within 500m of the site.

5.3 Recent & Current Land Use

The site has been used for religious purposes at least for at least the last 70 years . No other relevant trade directory information is available for the site or immediate area.

The Enviro+Geo Insight report notes the close proximity of the railway line on the northern boundary of the site. The line is in cutting along the whole length of the northern boundary and, therefore, its presence is not considered to pose a risk to the proposed redevelopment.

Historic ground workings were also recorded. The brick field to the south west was backfilled and an industrial estate was constructed in the late 1970's/early 1980's. A grave yard was present at St Mary's Church, which was no longer recorded on the 1974 OS map. It is believed that burials ceased in 1957. Therefore, it considered that given the periods of time that have elapsed that these features will not provide credible sources of ground gas and ground gas monitoring is not deemed to be required.

5.4 Ecologically Sensitive Receptors

There are no sensitive environmental or ecological receptors within 500m of the site. The Enviro+Geo Insight report indicates that the site is in a conservation area, designated as such in 1973.

6 SITE RECONNAISSANCE

A visit to site was made on 27th September 2021 using the procedures outlined in CLR 2. At the time of the survey the conditions were dry and sunny with some cloud.

The former church building was still present at the time of the walkover survey and was no longer in use. The building is situated on the southern part of the site and is surrounded by soft landscaped areas comprising long grass. A macadam access road lies to the north of the church and leads to areas of car parking. There is an exit back out on to Church Place. The northern part of the site is covered with trees and is fairly overgrown. A timber shed is also present in the area on a concrete base.

The topographical survey showing the existing layout of the site is presented as Figure 1 and the proposed site layout is included in Figure 2. During the visit a number of photographs of the site were taken and these are presented in Figure 3 attached to this report.

7 PRELIMINARY RISK ASSESSMENT

7.1 Conceptual Site Model

In accordance with current LCRM guidance, a Conceptual Site Model has been prepared for this site. The model prepared for the site in tabular format below lists potential sources of contamination, identified receptors on and within the immediate vicinity of the site, together with the pathways between them. A pathway must exist for an identified source to pose a risk to a receptor, thereby forming an active pollutant linkage. The primary receptors are considered to be future residents (human health), surrounding ecology (plants and animals), controlled waters and proposed buildings.

A qualitative assessment of the risk of each potential pollutant linkage is given based upon the CIRIA guidance document 'Contaminated Land Risk Assessment: A Guide to Good Practice' (Rudland, Lancefield and Mayell, 2001). The risk is a combination of the probability or frequency of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.

Table 2 - Preliminary Conceptual Site Model			
Source(s)	Potential Pathway(s)	Receptor(s)	Risk Level
Infilled brick field and grave yard (off site) <i>- ground gases: carbon dioxide and methane</i>	Migration, ingress and accumulation	Proposed buildings (asphyxiation or explosion)	Very low

7.2 Groundwater

The information gained from the nearby borehole record suggests that groundwater is likely to be at some depth and not at risk from the proposed redevelopment.

7.3 Geotechnical Hazards

There are no geotechnical hazards highlighted in the Enviro+Geo Insight report. It should be noted that a number of trees are present on the north eastern and north western site

boundaries. Therefore, it would be advisable to confirm the shrinkage potential of the soils underlying the site.

7.4 Further Investigation

It would be prudent to carry out a limited intrusive investigation to prove the underlying natural strata and absence of any made ground and confirm that the near surface soils are suitable for their intended residential setting. The proposed scope of testing should include for a background suite of contaminants that includes heavy metals, hydrocarbons and asbestos. This analysis can be completed as part of a geotechnical investigation.

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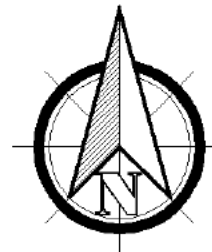
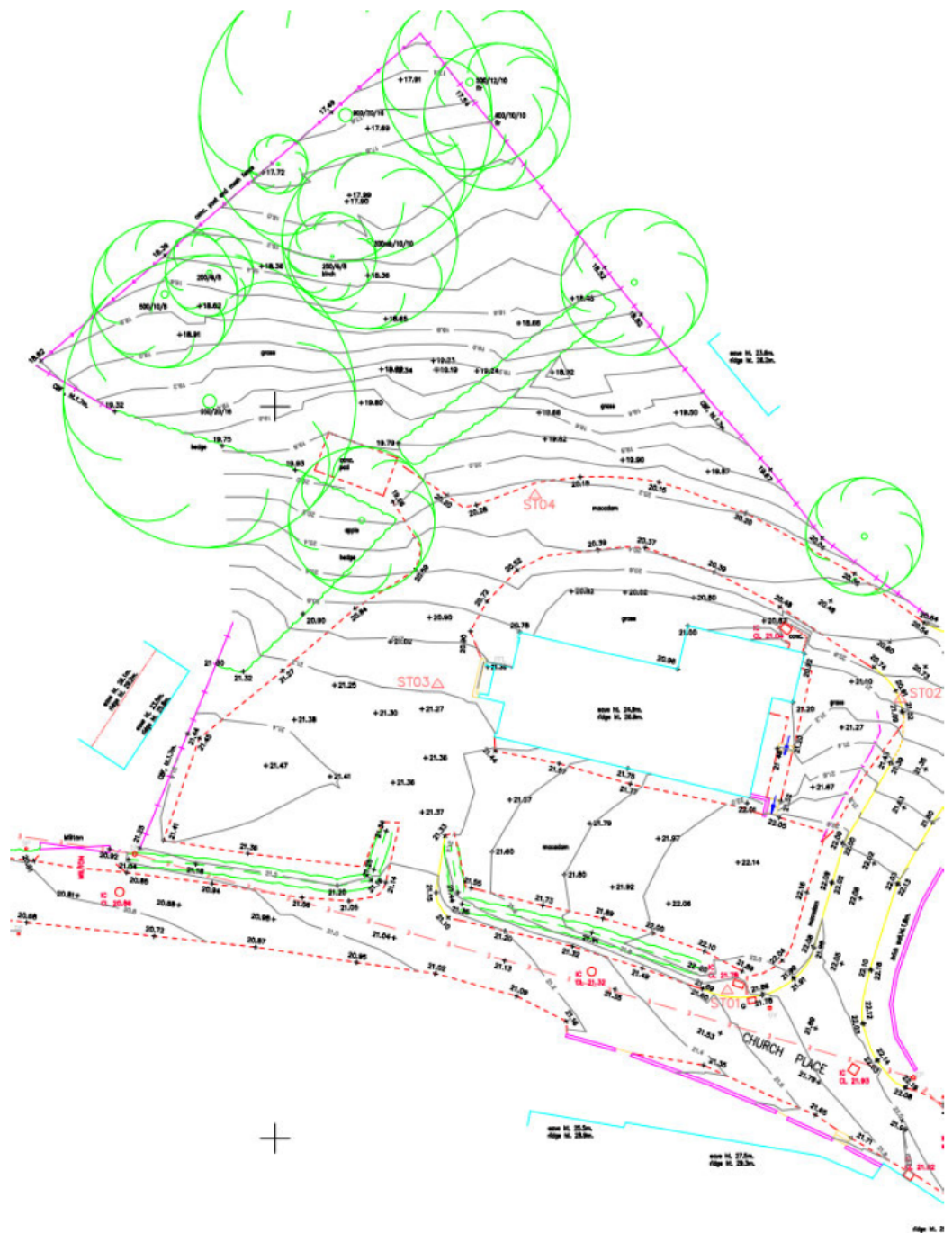
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LIST OF ABBREVIATIONS

AOD	-	Above Ordnance Datum
ACM	-	Asbestos-containing Material
AST	-	Above-ground Storage Tank
BGS	-	British Geological Survey
BH	-	Borehole
BRE	-	Building Research Establishment
BSI	-	British Standards Institution
BS	-	British Standard
C4SL	-	Category Four Screening Level
CIRIA	-	Construction Industry Research and Information Association
CP	-	Cable Percussive
DPH	-	Dynamic Probing Heavy
DPSH	-	Dynamic Probing Super Heavy
EA	-	Environment Agency
GAC	-	Generic Assessment Criteria
LL	-	Liquid Limit
mAOD	-	Metres Above Ordnance Datum
mBGL	-	Metres Below Ground Level
mOD	-	Metres Ordnance Datum
OS	-	Ordnance Survey
PAH	-	Polycyclic Aromatic Hydrocarbons
PCB	-	Polychlorinated Biphenyl
PID	-	Photo Ionisation Detector
PL	-	Plastic Limit
PSD	-	Particle Size Distribution
SGV	-	Soil Guideline Value
SOM	-	Soil Organic Matter
SPT	-	Standard Penetration Test
SPZ	-	Source Protection Zone
SVOC	-	Semi-volatile Organic Compounds
TPH	-	Total Petroleum Hydrocarbon
UST	-	Underground Storage Tank
UXB	-	Unexploded Bombs
UXO	-	Unexploded Ordnance
VOC	-	Volatile Organic Compound

FIGURE 1

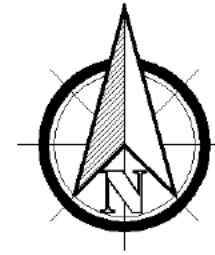
SITE LAYOUT PLAN (EXISTING)



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FIGURE 2

SITE LAYOUT PLAN (PROPOSED)



Title: Site Layout Plan
(Proposed)

Dwg No: 21/12217/2

Drawn by: KJC

Client: Earlswood Homes
South East Limited

Contract: Church Place,
Pulborough

Job Ref: 21/12217/KJC

Scale: NTS

Revision: 0

Issue Date: 04/10/2021



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FIGURE 3

SITE PHOTOGRAPHS



NORTHERN AREA OF SITE

Title: Site Photographs

Dwg No: 21/12217/3

Drawn by: KJC

Client: Earlswood Homes
South East Limited

Contract: Church Place,
Pulborough

Job Ref: 21/12217/KJC

Scale: NTS

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SOUTHERN AREA OF SITE

Title: Site Photographs

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Drawn by: KJC

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Contract: Church Place,
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Job Ref: 21/12217/KJC

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