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2. Use figured dimensions only. DO NOT SCALE
3. All dimensions are in millimetres unless noted otherwise
4. All levels are in metres above ordnance datum unless noted otherwise
5. This drawing must be read in conjunction with all other relevant drawings and specifications from the architect and other consultants
6. All setting out to be confirmed on site prior to construction



APPLICATION BOUNDARY

OWNERSHIP BOUNDARY

rev	date	notes	drn	auc
B	17.06.10	OWNERSHIP BOUNDARY ADDED	CW	
A	14.05.10	ISSUED FOR PLANNING	CW	

drawing status: PLANNING

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drg title: SITE LOCATION PLAN	job no. 09_221	drg no. L(00)001	rev B

3.07.

Eastwood&Partners
CONSULTING ENGINEERS

E+P

A PHASE 1 REPORT

OF WOOD VIEW,

ELSECAR, BARNSLEY

FOR

GUINNESS NORTHERN COUNTIES

POLLARD THOMAS EDWARDS ARCHITECTS
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32526

FEBRUARY 2010

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A PHASE 1 REPORT

OF WOOD VIEW,

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Job No.	:	32526
Report Status	:	1
Document Date	:	February 2010
Approved	:	

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EXECUTIVE SUMMARY

1 Eastwood & Partners have been instructed to carry out a desktop study on approximately 0.2 hectares of land situated to the north of Wood View in Elsecar, Barnsley, at Grid Reference 438460, 400340.

2 The site is currently unoccupied grassland and is surrounded by residential properties.

3 Made ground is expected on site, most likely comprising reworked natural ground with building rubble resulting from the demolition of former buildings on site. Beneath the made ground natural clay is expected overlying sandstone. Groundwater is not expected at shallow depth.

4 Precautions against the effects of underground mining may be required. Further investigation should be undertaken by drilling and a trial pit investigation. If shallow coal workings are found, drilling and grouting of mine workings may also be required.

5 A mine shaft is thought to exist on site and will need to be accurately located and treated appropriately. Regulators will not allow construction to take place over a mine shaft.

6 The most suitable foundations are likely to be unreinforced strip or trench fill footings, taken through any made or soft ground and into competent natural ground at a probable minimum depth of 900 mm. If shallow workings are encountered, footings will need to be thickened and reinforced appropriately.

7 A suspended slab with a minimum 150 mm ventilated void will be required for ground floors.

8 Soakaways may be viable in the sandstone. Infiltration tests will be required to confirm this if an intrusive investigation shows the soil to be suitable.

9 Basic radon precautions are not required. However, due to the presence of a mine shaft and possible shallow coal workings, it may be necessary to incorporate a suitably resistant gas membrane and a ventilated void beneath all new dwellings on the site.

10 As made ground may be present on site, at least DS-2 AC-2 precautions should be assumed at this stage. Chemical testing will be needed to determine the actual sulphate levels.

11 The presence of significant contamination is not known, but is possible given the historical use of the site. If the site is to be redeveloped, an intrusive ground investigation should be undertaken to ascertain the ground conditions and any contaminative issues that are present. Any subsequent conclusions must be agreed with the Local Authority.

1.0 INTRODUCTION

This report presents the findings of a Phase 1 Report undertaken by Eastwood & Partners on behalf of Guinness Northern Counties. It is based on an inspection of relevant geological and hydrogeological maps, historical Ordnance Survey maps, an Envirocheck Report, a Coal Authority Report and a site walkover.

The recommendations are based on the assumption that the site is to be developed with residential properties with associated hardstanding and landscaping. It is also assumed that ground levels will remain similar to those at present.

This investigation comprises a basic desk study reviewing the site history, geology, hydrogeology and hydrology along with comment on any on-site and off-site potential sources of contamination. Any views expressed in this desk study are based purely on information obtained from the printed historical maps and reports and the site inspection.

This desk study is intended to present the current state of the land based on the above sources of information. It details, where possible, the geotechnical properties of the ground likely to be present and the nature of any contamination identified during the desk study. There may be factors at the site which have not been taken into account, such as unpredictable soil strata and water conditions.

This report was prepared for the sole and exclusive use of Guinness Northern Counties in response to particular instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

2.0 THE SITE

2.1 Description

The site covers an area of approximately 0.2 hectares. It is situated to the north of Wood View in Elsecar, Barnsley, at Grid Reference 438460, 400340.

The site is currently unoccupied and is open grassland. Several trees are located along the site boundaries. The site is bordered by residential properties to the north and west, by Wood View to the south and Zetland Road to the east. At the time of the walkover, work was being carried out on a gas line along the southern site boundary and a number of small trenches had been dug to expose the pipe.

2.2 History

An Envirocheck Report has been obtained and the historical Ordnance Survey maps have been reviewed. Copies of these maps are enclosed in the Appendix of this report.

2.2.1 The Site

The earliest map, dated 1855, shows the site to be open land. The site is used as allotments by the 1930s, and developed with nine detached houses by the 1950s. Some of the houses were demolished by the 1990s, with the remainder being demolished by 2000. The site remains open land today.

2.2.2 Local Area

The earliest map of 1855 shows the surrounding area to predominantly comprise open land with the villages of Stubbin and Elsecar to the west and east respectively. The construction of nearby collieries after the turn of the century allowed the villages to grow, creating housing to the south of the site. Residential development has occurred on land adjacent to the north by the 1950s and to the west by the 1970s. The area remains predominantly residential today.

2.3 Geology, Groundwater Vulnerability & Hydrology

Geology

The most recently surveyed geological map Sheet SE30SE (1:10,000) shows the site to overlie the Kent's Rock sandstone group of the Middle Coal Measures. The Kent's Thin coal seam is shown outcropping along the site's southern boundary. The strata are indicated to dip towards the north east at around 5 ° and a fault is shown off the north west corner of the site. It should not affect the site. No drift deposits are shown on the site.

Groundwater Vulnerability

The Groundwater Vulnerability map, Sheet 11, of the South Pennines (1:100000 scale) shows the site to lie on a minor aquifer. The overlying soils are classified as being of a high leaching potential. The site does not lie within a groundwater Source Protection Zone (as identified by the Environment Agency).

Hydrology

The nearest surface water feature are open drains over 230 m to the south west of the site. There are no water abstractions within 250 m of the site.

2.4 Coal Mining

Two geological maps have been reviewed. The more recent map shows the shallowest coal seam beneath the site to be the Kent's Thin coal, which outcrops along the southern boundary of the site, dipping towards the north east at around 5°. This seam is around 0.8 m thick. The Kent's Thick coal seam, estimated to be around 1 m thick in the area, is the next shallowest seam and is estimated to lie around 20 m below the Kent's Thin seam.

A Coal Authority Mining Report has been obtained and is included in the Appendix. The report states that the property is within the zone of likely physical influence from workings in six seams of coal at 50 to 410 m depth, last worked in 1975. On contacting the Coal Authority they have confirmed that the seam worked at 50 m depth was the Barnsley Coal. The former Elsecar Main Colliery, around 500 m to the east of the site, recorded the Kent's Thick seam to lie around 60 m above the Barnsley seam.

This information does not correlate with the annotations taken from the geological map.

Due to the discrepancies between the geological maps, the colliery logs and the information obtained from the Coal Authority, it would be prudent to undertake a borehole investigation to determine if the Kent's Thin seam occurs beneath the site at shallow depth. If the seam is found to be worked and poses a risk to the development, the workings will need to be drilled and grouted beneath the proposed houses.

The Coal Authority's records show one mine shaft to be present on site, adjacent to the southern boundary. The shaft is thought to have been treated although treatment details are not available. It is possible that more than one shaft is present on site.

The site is noted as being within an area for which a working facilities order has been made. This refers to the possible extraction of coal seams in the future, however, it is unlikely that coal mining will take place in the near future within the area.

2.5 Ground Gases

2.5.1 Landfill Gas

The Envirocheck Report indicates there are no recorded landfill sites within 250 m of the site. Migrating landfill gas should not pose a significant risk to the site.

2.5.2 Radon Gas

The Envirocheck Report states that the site lies within an area where no radon precautions are required.

2.5.3 Mine Gas

Due to the inferred presence of a mine shaft on the site, together with shallow coal seams, it is considered necessary to install Amber 1 gas precautions. These should consist of a suitably resistant gas membrane and a passively vented sub floor void of at least 150 mm.

2.6 Flooding

Information from the Envirocheck Report indicates that the site does not lie within a fluvial floodplain.

3.0 EXPECTED GROUND CONDITIONS

Based on the Geological Survey and historical maps, made ground is likely to be present beneath former buildings. The made ground is likely to comprise reworked natural ground with brick rubble from the demolition of surrounding buildings. The underlying natural ground is expected to consist of clay overlying sandstone.

The open trenches present at the time of the site walkover revealed less than 1 m of made ground over sandy clay containing sandstone cobbles.

Groundwater is not expected at shallow depth.

4.0 GEOTECHNICAL APPRAISAL

4.1 General

Made ground from the demolition of former buildings is expected across the site over natural clay and sandstone bedrock.

4.2 Mining Issues

Precautions against the effects of underground mining may be necessary however, further information will be required in order to confirm this. This information should be obtained through a drilling investigation.

The mine shaft on site will need to be accurately located and treated appropriately. Regulators will not allow buildings to be developed over the mine shaft.

4.3 Foundations

The most suitable foundations are likely to be unreinforced strip or trench fill footings, taken through any made or soft ground and into competent natural ground at a probable minimum depth of 900 mm. If shallow workings are encountered, footings will need to be thickened and reinforced appropriately.

4.4 Superstructure Precautions

Superstructure precautions may be required due to possible shallow mine workings.

4.5 Ground Slabs

The ground may be suitable for ground bearing floor slabs where less than 600 mm of made ground is present, however due to the requirements for Amber 1 gas precautions, a suspended slab with a sub floor void of at least 150 mm will be required.

4.6 Roadworks

A CBR value of at least 2 % may be appropriate for road design and the ground should be assumed to be frost susceptible. However, CBR tests should be undertaken along the line of any roads prior to construction so that accurate values can be obtained.

4.7 Problems Due To Past Development

Relic foundation structures and services associated with former buildings may still be present.

4.8 Excavation Problems

No specific excavation problems are anticipated, however the made ground is expected to relatively unstable. Where excavations which will be entered are over 1.2 m deep, or less where there is a risk of harm from collapse of the side of the excavation, the sides should be supported or battered back to make them safe.

4.9 Surface Water Drainage

Soakaways may be a suitable method of surface water drainage due to the presence of sandstone. This will need to be verified by undertaking infiltration tests at the site.

4.10 Sulphate Attack of Buried Concrete

As made ground is expected on site, at least DS-2 AC-2 precautions may be required. Chemical testing will be needed to determine the actual sulphate levels.

5.1.5 Ground Gas

Basic radon precautions are not required and migrating landfill gas is not thought to pose a significant risk to the site. However, due to the presence of a mine shaft and possible shallow coal workings, it is considered necessary to incorporate Amber 1 gas precautions in the construction of all new dwellings on the site.

5.1.6 Natural Ground

The natural ground is not expected to contain any significant contamination.

5.2 Possible Pollutant Linkages

Contaminant	Pathways	Receptor
Heavy metals, PAHs and asbestos from made ground	Ingestion, Inhalation, Dermal contact Migration through ground	Future residents, Visitors, Construction workers Minor aquifer
Sulphate within fill	Direct contact	Below ground concrete
Methane and carbon dioxide from mine workings	Migration through ground	Future residents

5.0 CONTAMINATION APPRAISAL

5.1 Source Characterisation

The site is around 0.2 hectares in size. The site is currently unoccupied and is within a residential area.

Made ground is expected overlying natural clay and sandstone. The groundwater table is not expected at relatively shallow depth.

5.1.1 Previous Development

Historical maps show the site to formerly comprise a number of residential properties, however these were demolished in the 1980s and 1990s. Allotment gardens occupied the site prior to the residential properties. Other than these, the site has not been occupied by any further development.

The historical uses in the area have been predominantly residential and as such are not thought to have caused significant contamination on the site.

5.1.2 Present Site Works

At present, the site is occupied by open grassland therefore the current use of the site should not pose a contamination risk.

5.1.3 Surrounding development

The majority of the surrounding development is residential at present and should not pose a risk to the site.

5.1.4 Made Ground

The fill expected to be present is likely to be reworked natural material with proportions of brick and concrete rubble from demolition of the former buildings located on the site. It is possible that this material will contain elevated concentrations of heavy metals and polycyclic aromatic hydrocarbon (PAH) compounds. Asbestos may also be present.

6.0 RATIONALE FOR FURTHER INVESTIGATION

If the site is to be redeveloped, an intrusive investigation will be required. We recommend any intrusive investigation be carried out via trial pits using a mechanical excavator. The position and thickness of the Kent's Thin coal seam should be confirmed in a drilling investigation. In addition the mine shaft identified within the Coal Authority report should be located if possible.

The potential pollutant linkages presented in the Contamination Appraisal will need to be investigated by means of soil analysis. The chemical testing suite should be chosen to cover the range of potential contaminants indicated above.

APPENDICES

Envirocheck Report

Coal Authority Report