

TECHNICAL NOTE

Job Name: Land Parcels Adjacent to Worsell Drive, Copthorne

Job No: 332612039

Note No: G.001 Rev 4

Date: 25 November 2025

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Subject: **Geo-environmental Summary Note**

1. Introduction

Stantec have been commissioned by Miller Homes to provide this Geo-environmental Summary Note in support of a Full Planning Application for this Development.

2. Planning History and the Site

The two parcels of land proposed for new homes sit within the existing Heathy Wood residential scheme. This benefitted from outline planning permission which was granted in May 2016 for 500 new homes. Various Reserved Matters applications have been approved to bring forward the detailed design of the Heathy Wood scheme at Copthorne.

The parcels were previously considered for a School and Doctor's Surgery. However, after extensive review, West Sussex County Council (WSCC) has confirmed that a new Primary School is not required at this location as a new school could undermine the sustainability of existing Schools. Instead, and in line with the obligations of the 2016 outline planning permission, significant financial contributions have been made towards education in the local area. The local medical group has advised it is not viable for it to bring forward a Doctor's Surgery. Therefore, as required by the outline planning permission, financial contributions have been made to support local healthcare facilities.

Accordingly, there are two sustainably located parcels of land at Heathy Wood that are vacant and unused. It is proposed to deliver new homes on these parcels to complement and integrate within the existing homes and wider Copthorne community.

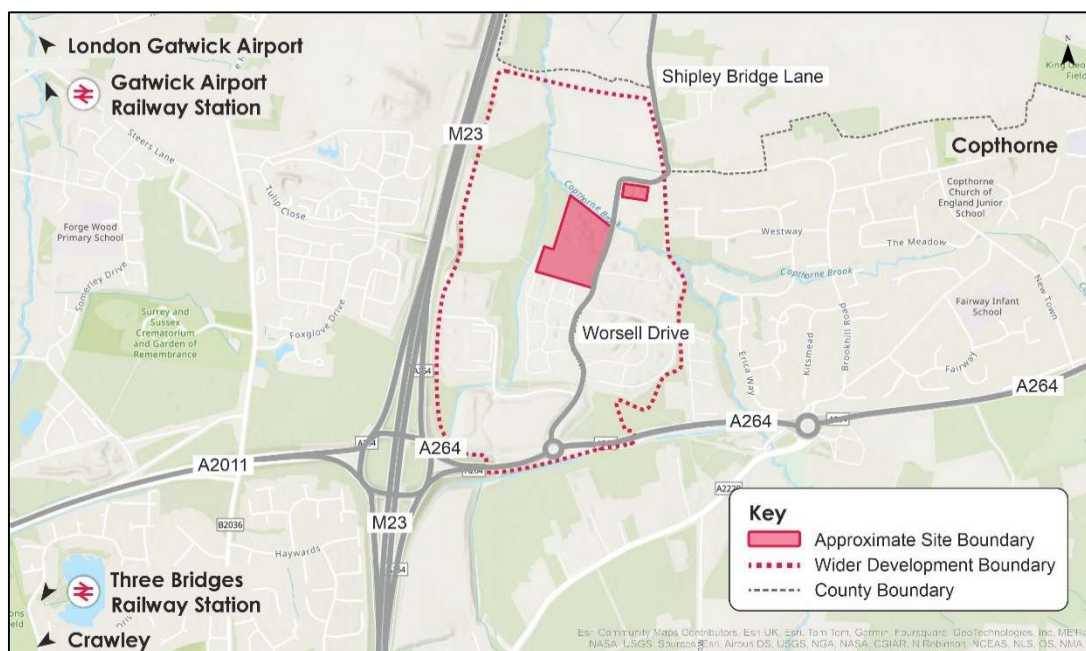
This report is prepared on the proposal of delivering 69 new homes at across the two parcels of land. The description of development for the application is:

Description of Development: Full planning application at two parcels of land adjacent to Worsell Drive, Copthorne, each accessed from existing bell-mouth junctions at Worsell Drive and Langridge Way, for the erection of new homes (Use Class C3) including affordable homes; internal access roads, landscaping and associated infrastructure.

The site is situated to the west of Copthorne, in the area administered by Mid Sussex District Council (MSDC) as the Local Planning Authority and West Sussex County Council (WSCC) as the Local Highway Authority. Copthorne village centre is approximately 4.5km to the west.

The site is directly bordered by the M23 to the west, the M23 junction 10 to the south west, the A264 to the south, Copthorne to the east and Shipley Bridge Lane to the North as shown on Figure 1.1.

Figure 1.1 Site Location Plan



This Technical Note relates to the parcels of land previously outlined to provide a GP Surgery on the smaller plot of land an education facility on the larger plot, however it was deemed nonviable by the council and a financial contribution was chosen instead. These sites are located on the eastern, and on the northwestern part of the wider development as illustrated on Figure 1.1.

3. Geo-environmental Investigation

Atkins produce their 'Geo-environmental Interpretative Report' dated May 2017, a copy of which is available on request. This report assessed the geo-environmental characteristics of the wider Heathy Wood development.

An intrusive ground investigation was undertaken on 2017 in support of the outline application. This is summarised in Ian Farmer Associates' 'Factual Ground Investigation Report' dated May 2017, a copy of which is available on request.

These reports cover the entirety of the Heathy Wood Development and so for ease of reference the relevant investigation locations are summarised as follows:

- Southern Plot – CP108, CP109 TP106, TP107 and TP108.
- Northern Plot – CP103, CP104 and TP105.

The relevant results of these investigations are summarised as follows:

3.1 Human Health Risks

The results of soil contamination testing have identified a low risk to future site users across most of the site.

3.2 Controlled Water Risks

Several elevated contaminant concentrations were recorded within the leachates, groundwater and surface waters on site.

Groundwater samples across the site were found to have contaminant exceedances in boreholes that were installed in both natural and Made Ground material. These groundwater samples

TECHNICAL NOTE

indicated that there may be naturally elevated concentrations of manganese and ammoniacal nitrogen within the site, but are higher in areas of Made Ground.

Surface waters were found to have exceedances for copper, nickel, manganese and ammoniacal nitrogen. Copper, nickel and ammoniacal nitrogen were determined to be resulting from an off-site source, as the highest concentrations for these contaminants was detected upstream and off-site.

3.3 Services and Foundations

There was a very low risk identified for sulphate attack on buried concrete (see Section 6.3) and a preliminary concrete classification of DS1 and ACEC class of AC1s is recommended for all soils encountered on site. However, this may require further assessment as part of a development-specific ground investigation.

3.4 Ground Gas

The preliminary ground gas assessment has classified the site as Characteristic Situation 1 (very low risk) in accordance with BS8485. No gas protection measures are considered necessary for this development based on the available data. However, there are three further gas monitoring rounds to be undertaken, and the ground gas assessment should be reviewed when the additional data is received to ensure that suitable gas protection measures are incorporated into any building design, if deemed necessary.

3.5 Engineering Ground Abnormalities / Development Constraints (relevant to this application)

- Groundwater seepages were recorded in the Upper Tunbridge Wells Sand Formation and hence there may be requirement for sump pumping in excavation;
- Due to the [previously] thickly wooded areas in the centre of the site, and localised wooded areas in various other parts of the site (See Constraints Drawing No. 17078/SK12A), there is a risk to the foundations for all permanent structures due to the effects of soil desiccation and potential soil swelling upon removal of the trees. This will need to be considered in the foundation design;
- Based on the results of the soil sulphate aggressiveness testing (in accordance with BRE Special Digest 1: 2005 (Ref. 17)), specialised concrete mixes are not anticipated to be necessary on this site;

3.6 Site Clearance

The root zone of any trees that are removed will need to be excavated and voids backfilled in accordance with an engineering specification.

3.7 Foundations

Large Plot. Three trial pits and two cable-percussion boreholes were undertaken in the area of the proposed primary school: CP108, CP109, TP106, TP107 & TP108. No Made Ground was encountered in this area. SPTs taken from between 1.2m – 4.0mbgl recorded N values in the range of 38 to 50, with a mean of 47, indicating a very stiff cohesive material, which concurs with the description of the UTWSF generally being firm to stiff. It is therefore considered that shallow spread foundations should be suitable, subject to details of the foundation loads and settlement tolerances at detailed design stage.

Small Plot. Three exploratory holes were undertaken in the general vicinity of the proposed doctor's surgery: TP105, CP104 and CP103. Weathered strata of the UTWSF were recorded at shallow depths of between 0.1mbgl (TP105) and 0.3mbgl (CP103 & CP104). SPTs taken from between 1.2mbgl – 3.2mbgl recorded N values in the range of 20 to 50, with a mean of 38. This indicates the material is a stiff to very stiff cohesive material. The UTWSF was described as soft to a depth of 1.2mbgl in CP103, after which it was described as stiff. It is therefore considered that shallow spread foundations should be suitable, subject to details of the foundation loads and settlement tolerances at detailed design stage. The foundations may need to be deepened slightly if soft clay such as that recorded in CP103 is encountered during the foundation excavations.

TECHNICAL NOTE

3.8 Excavations for Development and Services

It is not expected that the development works will encounter any significant obstruction to excavations during the development of the site. There is not likely to be significant inflows of groundwater during excavations. Excavations may not remain stable in the short term within some parts of the site, even to shallow depth, and may require support or battering back.

3.9 Earthworks

The site is relatively flat, with a slightly undulating surface which means that only minor earthworks may be required to permit development.

3.10 Topsoil

Given the general proposals for the site, it is anticipated that general multipurpose Topsoil would be required rather than specific acidic or calcareous topsoil. As such, the test results suggest that the existing Topsoil would need to be improved locally by the addition of carbon, potassium, phosphorus and nitrogen for use as multipurpose Topsoil (potentially through addition of organic matter).

3.11 Pavements and Hardstanding

The anticipated formation level for pavements and roads will vary slightly across the site due to its undulating nature. However, pavements and roads are generally expected to be constructed in the natural ground, principally the UTWSF deposits. Laboratory CBR tests undertaken on 25 samples of the UTWSF at natural moisture content indicated variable CBR values of between 0.1% and 52.5%. A moderately conservative CBR value of <2% may be adopted for the in situ (short term) condition.

The design CBR value should be the lower of the measured and equilibrium CBR values, and in the case of the UTWSF Deposits, the (short term) CBR value at natural moisture content should be adopted for preliminary design purposes i.e. a CBR of <2%. Therefore some form of subgrade improvement will be required, which could take the form of an increased thickness of capping layer or the inclusion of geogrid reinforcement at the base of the capping layer. In some areas of the site significantly higher CBR values were recorded and it should be possible to refine the design CBR recommendations further at detailed design stage, with some areas having a higher design value than the preliminary design recommendation.

3.12 Trees – Shrinking and Swelling Clays

Consideration will need to be given to the presence of existing trees that were removed, retained trees and the planting of future trees when considering the depths of the foundations. Foundation design should be undertaken in accordance with NHBC foundation guidance (Ref. 37) appropriate to the volume change potential of the soils at any particular location. In areas where trees are removed, consideration should be given to the potential for heave, as potentially desiccated materials are rehydrated, with material excavated and recompact as necessary in order to reduce the risk from heave, or sufficient time left between tree removal and development.

4. Conclusion

The geotechnical and geo-environmental conditions of the site present no impedance to its use for residential development.