Land East of Ashby Road, Hinckley, Leicestershire

Mineral Resource Assessment Desk Study

On behalf of **Davidsons Homes Ltd**

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For and on behalf of Stantec UK Limited				

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-	24/04/25	First issue	LT	OB	OB
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Contents

Figures

1 Introduction

1.1 Brief

1.1.1 Stantec UK Ltd has been commissioned by Davidsons Homes Ltd (the Client) to prepare a Qualitative Mineral Resource Assessment (desktop study) for the proposed residential development of the site known as Land at Land East of Ashby Road, Hinckley, Leicestershire.

1.1.2 The site comprises agricultural land approximately 5.0 Ha in area that is being considered for residential development.

1.2 Background

1.2.1 The National Planning Policy Framework (NPPF) includes at Section 17, the UK Government's policy for sustainable use of minerals. Current UK Government guidance to planning authorities regarding safeguarding mineral resources is given on the UK.Gov website (Minerals - GOV.UK (www.gov.uk)). The Leicestershire Minerals and Waste Local Plan[1] adopted 25 September 2019, includes at Policy M11 the advice on safeguarding of mineral resources as follows:

Policy M11: Safeguarding of Mineral Resources

Sand and gravel, limestone, igneous rock, surface coal, fireclay, brickclay and gypsum resources within the Minerals Safeguarding Areas shown on the figures contained within the Mineral and Waste Safeguarding documents, will be protected from permanent sterilisation by other development.

Planning permission will be granted for development that is incompatible with safeguarding mineral within a Mineral Safeguarding Area if:

(i) the applicant can demonstrate that the mineral concerned is no longer of any value or potential value; or

(ii) the mineral can be extracted satisfactorily prior to the incompatible development taking place; or

(iii) the incompatible development is of a temporary nature and can be completed and the site restored to a condition that does not inhibit extraction within the timescale that the mineral is likely to be needed; or

(iv) there is an overriding need for the incompatible development; or

(v) the development comprises one of the types of development listed in Table 4.

Planning applications for non-mineral development within a Mineral Safeguarding Area should be accompanied by a Mineral Assessment of the effect of the proposed development on the mineral resource beneath or adjacent to it.

Planning permission for mineral extraction that is in advance of approved surface development will be granted where the reserves would otherwise be permanently sterilised provided that operations are only for a temporary period. Where planning permission is granted, conditions will be imposed to ensure that the site can be adequately restored to a satisfactory after-use should the main development be delayed or not implemented.

[1] Leicestershire Minerals and Waste Local Plan Up to 2031 Adopted 25th September 2019.

1.2.2 The site lies within a Sand and Gravel Mineral Safeguarding Area (MSA) which has been produced by the British Geological Survey (BGS) for the (Leicestershire) County Council[2].

1.2.3 The British Geological Survey provides guidance to planning practitioners on how to implement national policy with respect to the safeguarding and as appropriate prior extraction of minerals[3].

1.3 Minerals Assessment Desk Study

1.3.1 This report comprises a first stage (qualitative) desktop study. The report describes the geology of the site and presents an initial assessment of the potential mineral resources and resultant potential sterilisation from development based on a review of:

- Geological data from the British Geological Survey including mapping and other publications/ data sets in the public domain;
- Local Minerals Plans prepared by Leicestershire County Council[4];
- Phase I Geoenvironmental Desk Study report prepared for the site by GRM[5]; and
- Review (in March 2021) of public domain aerial imagery of the site and surrounding lands on the Google Earth, Bing Maps and BGS OpenGeoscience Borehole scans platforms.

[2] Provision of geological information and updating of Mineral Consultation Areas for Leicestershire County Council. Economic Minerals Programme Commissioned Report CR/05/034/N. Published 2005.

[3] Mineral safeguarding in England: good practice advice. Minerals and Waste Programme Open Report OR/11/046. Published 2011.

[4] Supporting document S2/2015 Mineral and Waste Safeguarding Hinckley & Bosworth Borough] – SUB5 Hinckley Safeguarding 2015.

[5] Ashby Road, Hinckley Phase I Desk Study GRM/P10657/DS.1 Rev. August 2024. GRM.

2 Site Setting

2.1 General Location

2.1.1 The site covers approximately 5 hectares and comprises agricultural land, lying approximately 1.3km south-west of the centre of Barwell and centred at approximate Grid Reference SK 431 960 (443175E, 296072N).

2.1.2 A map showing the site and its general location, setting and salient local features is presented as **Figure 1**.

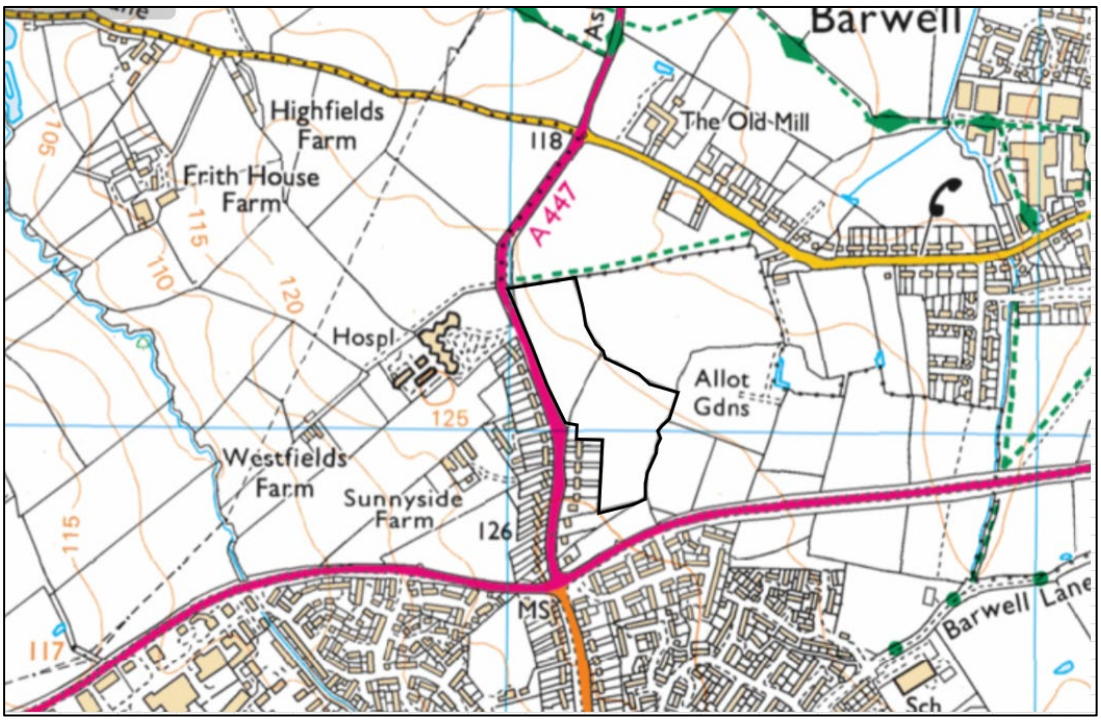

Figure 1 - Site Location Plan

2.2 Description

2.2.1 The site comprises agricultural land currently set to crops and split into two field parcels separated by a hedgerow. The site is accessed from Ashby Road to the west.

2.2.2 The site slopes gently downhill with a fall of approximately 5 to 6m from the south-western corner of the site (which stands at around 125m OD) to the north-eastern side.

2.2.3 The site is bordered by:

- Allotments adjacent to the south;
- Ashby Road with residential properties beyond to the west;
- Residential properties on Ashby Road adjacent to the south-west;
- Fields to the east; and

- Public footpath with field beyond to the north.

2.2.4 The historical map record indicates that the site has apparently been agricultural land since at least the mid-19th century.

2.3 Hydrological Setting

2.3.1 The site lies within the catchment of the River Tweed which lies approximately 600m to the east.

2.4 Ecology/ Geodiversity

2.4.1 The site does not lie within 1km of any Local or National Nature Reserves, Ramsar sites, Special Areas of Conservation, Sites of Special Scientific Interest (SSSI), Local Geological Sites or Geological SSSIs.

3 Geology

3.1 Published Geology

3.1.1 The BGS Digital geological map at 1:50,000 scale indicates that the site and surrounding area are underlain by strata of the Mercia Mudstone Group which are overlain by various superficial strata of the Wolston Glacigenic Formation and by Glaciofluvial Deposits. Details of the strata on or near the site are given below.

3.1.2 The BGS Onshore GeoIndex viewer (https://mapapps2.bgs.ac.uk/geoindex/home.html) does not contain any records of Faults, Mass Movements or Artificial Ground on or near the site.

3.2 Superficial Geology

3.2.1 The Wolston Glacigenic Formation were deposited by glacial action and are formed of several members, as follows:

- Dunsmore Sand and Gravel, overlying
- Oadby Member, overlying
- Wigston Sand and Gravel Member, overlying
- Bosworth Clay Member.

3.2.2 The Glaciofluvial Deposits are a proglacial deposit that comprises sediments deposited by glacial meltwaters in the proglacial environment and are not part of the Wolston Glacigenic Formation. Glaciofluvial Deposits are often found within the Oadby Member.

3.2.3 **Figure 2** below shows the disposition of Wolston Glacigenic Formation superficial strata relative to the site boundary taken from the BGS Digital geological map at 1:50,000 scale.

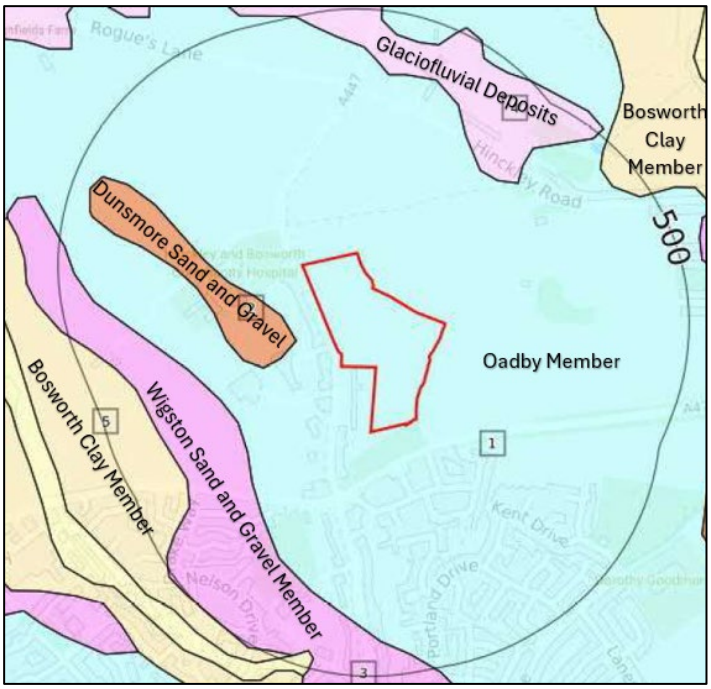

Figure 2 - Extract of Geological Map (Superficial Strata)

3.2.4 The highest strata in the Wolston Glacigenic Formation, the Dunsmore Sand and Gravel and the Oadby Member, outcrop over the higher ground with the lower parts of the sequence (Wigston Sand and Gravel Member and Bosworth Clay Member) outcropping progressively downslope.

3.2.5 The table below summarises the descriptions of the superficial strata given in the BGS Lexicon of Named Rock Units:

Unit	BGS Description
Glaciofluvial Deposits	Includes mostly coarse-grained sediments (i.e. sand and gravel) with some finer-grained layers (i.e. clay and silt). Sand and gravel, locally with lenses of silt, clay or organic material.
Dunsmore Sand and Gravel[6]	Red, brown and yellow, commonly ochreous, matrix-supported flinty gravel with lenses of coarse sand. Most deposits are poorly sorted and clay-rich. Sand and gravel, clayey brown and yellow. Variable, generally from 1 - 3m thick but up to 7.8m proven where channelised.
Oadby Member[7]	Diamicton, grey, weathering brown, characterised by Cretaceous and Jurassic rock fragments; subordinate lenses of sand and gravel, clay and silt. Clay, brown to grey, and silty clay, with chalk and flint fragments. Variable up to 20m thick; typically 1-7m.
Wigston Sand and Gravel Member[8]	Glaciofluvial sands and gravels with clasts generally dominated by lithologies such as Bunter pebbles and coal. It attains a probable maximum thickness of over 25m in the area between Leicester and Coventry.
Bosworth Clay Member[9]	Lacustrine, commonly laminated clays and silts. It reaches over 25m in thickness in the Wolvey area.

3.3 Solid (bedrock) Geology

3.3.1 The Triassic aged Mercia Mudstone Group is typically described by the BGS[10] as “Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite are widespread; thin sandstones are also present”.

3.4 BGS Onshore Boreholes Database

3.4.1 The BGS GeoRecords Index indicates that there are no available historical boreholes records within 500m of the site boundaries.

3.5 Hydrogeology

3.5.1 The Mercia Mudstone Group underlying the site is classifed as a Secondary B Aquifer and the Oadby Member as a Secondary (undifferentiated) Aquifer.

[6] https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=DMG
[7] https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=ODT
[8] https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=WIGS
[9] https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=BOSW
[10] https://webapps.bgs.ac.uk/lexicon/lexicon.cfm?pub=MMG

4 Mineral Resources

4.1 BGS Data

4.1.1 An extract of the BGS Mineral Resources Map[11] covering the site and surrounding area is shown below as Figure 3.

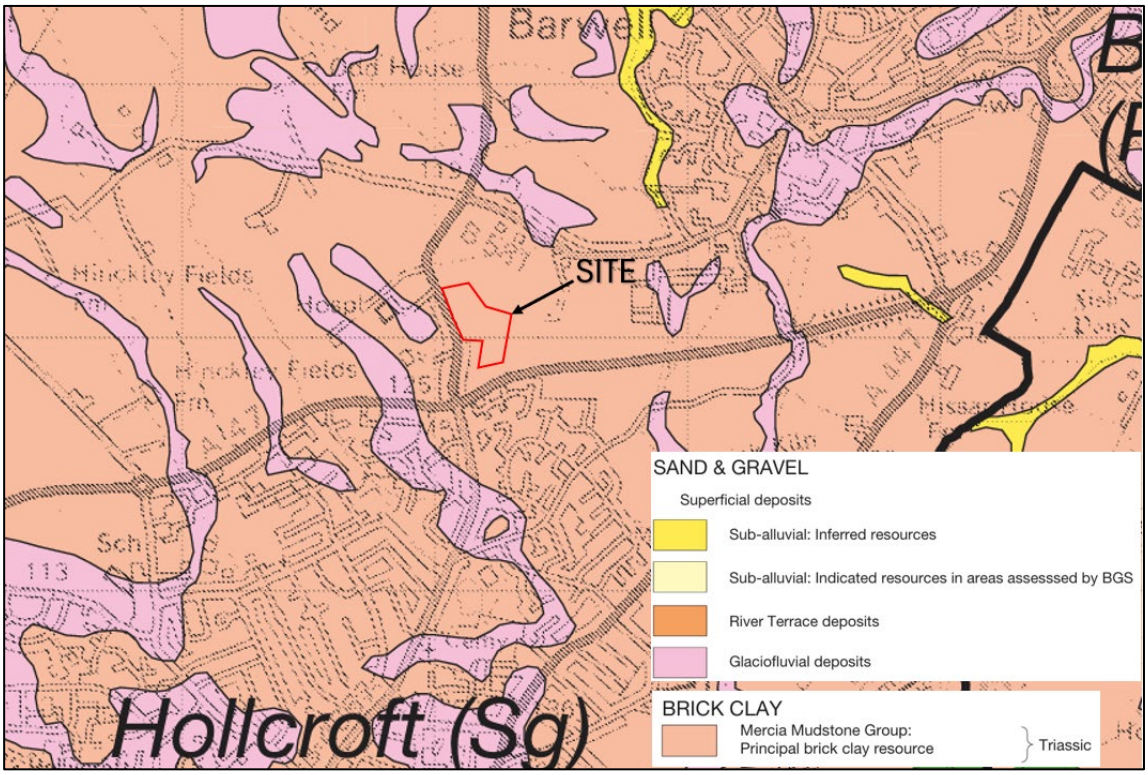

Figure 3 - Extract of BGS Minerals Resources Map

4.1.2 The map identifies the mapped outcrops of the Dunsmore Sand and Gravel, Wigston Sand and Gravel Member and Glaciofluvial Deposits (see Figure 2) as sand and gravel mineral resource of the glaciofluvial type. The map identifies the Mercia Mudstone strata as a brick clay mineral resource.

4.1.3 Review of historical and geological maps covering the site has identified no evidence of past historical working of sand and gravel or brick clay. The BGS BritPits database does not identify any currently active or closed surface or underground mineral workings within 500m of the site.

4.2 Sand and Gravel Resources

Potential Mineral (Sand and Gravel) Reserves

4.2.1 The Leicestershire Minerals and Waste Local Plan (MWLP) identifies that there are two types of sand and gravel deposit within the County, namely: (i) sub-alluvial and river terrace; and (ii) glaciofluvial.

[11] Leicestershire and Rutland (comprising City of Leicester, Leicestershire and Rutland) Mineral Resources Scale 1:100,000. Published 2002.

4.2.2 Glaciofluvial sand and gravel deposits tend to be more irregular in thickness and quality but can locally have more superior yields than sub-alluvial or river gravels. Whilst these deposits are worked, they can be of poor and mixed quality and the river deposits are generally worked in preference. The MWLP states that these "glaciofluvial deposits occur in a complex series of isolated deposits in areas to the south and west of Leicester. The full extent of this resource is unknown due to the extensive boulder clay [including the Oadby Member] and other drift deposits concealing potential resources".

4.2.3 The geological mapping evidence that the Wigston Sand and Gravel Member deposits underlie the Oadby Member indicates that there is likely to be concealed sand and gravel mineral resource beneath the site. This is reflected in the Hinckley and Bosworth Borough Council mineral safeguarding map which has designated large areas of the borough as mineral safeguarding areas (MSA) for sand and gravel. An extract of the plan from the HBBC mineral safeguarding document[12] showing the areas of the borough that are safeguarded for sand and gravel is presented as Figure 4 below.

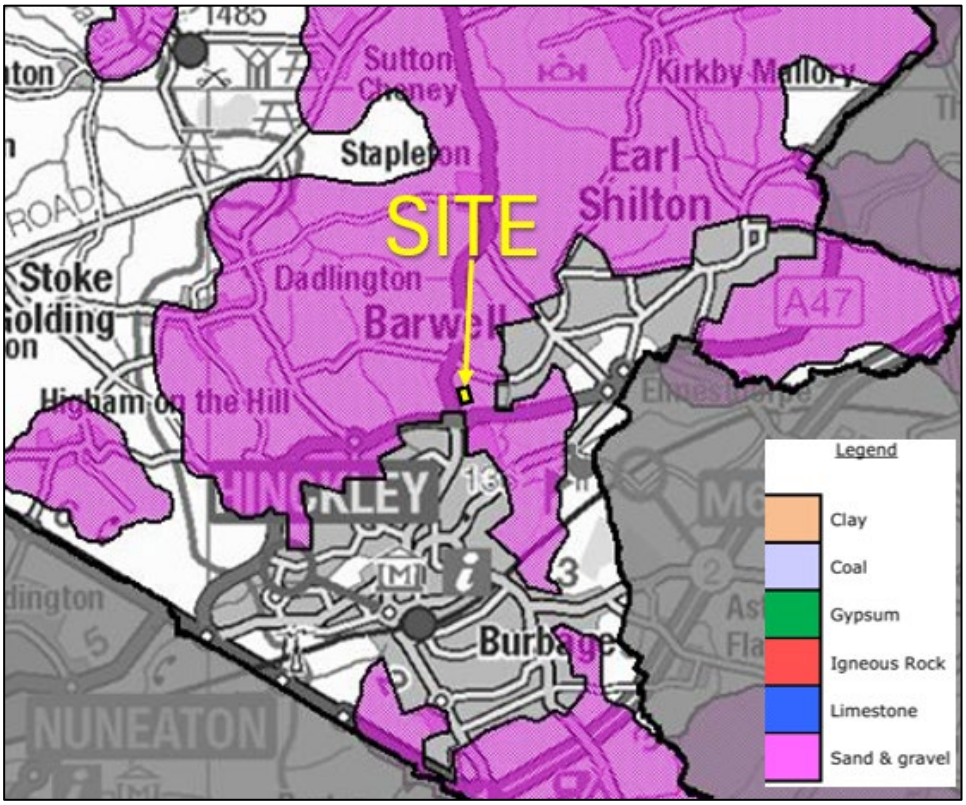

Figure 4 - Extract of HBBC Mineral Safeguarding Plan

4.2.4 The available evidence indicates that development of the site will sterilise concealed sand and gravel mineral resource beneath the site.

4.3 Brick Clay Resources

4.3.1 Hinckley and Bosworth Borough Council (see Figure 4) do not safeguard brick clay in the vicinity of the site.

[12] Supporting document S2/2015 Mineral and Waste Safeguarding Hinckley & Bosworth Borough] – SUB5 Hinckley Safeguarding 2015.

5 Constraints to Mineral Extraction and Conclusions

5.1 Potential Constraints

5.1.1 The MSA for sand and gravel deposits identified in the Minerals and Waste Local Plan covers the entire site area and is associated with sand and gravel deposits that underlie the whole site and are overlain and masked (or concealed) by deposits of the Oadby Member.

5.1.2 Potential constraints to the viability of mineral extraction at the site and surrounding area are considered to arise from:

- the proximity of the site to existing residential properties and a hospital (sensitive receptors); and
- concealment of the mineral resource below overburden material.

5.1.3 The sensitive receptors are the existing residential properties that border the site to the south-west and residential properties and a hospital that lie across the Ashby Road from the site to the west. Usually, the assessment of potential workable mineral reserves is a planning rather than technical consideration with, for sand and gravel extraction, a 100m buffer or stand-off from these receptors. The buffer requirement would reduce the extent of the sand and gravel deposits that can be extracted to the eastern side of the site only and as such it is unlikely that the mineral deposit upon which the site sits would be large enough to be economic to extract.

5.1.4 The Oadby Member deposit that overlies the mineral is a potential economic constraint. This overburden would have to be stripped to extract the mineral and, depending on its thickness, could make efforts to win the mineral beneath it uneconomic to extract. Furthermore, quarry side slopes would need to be battered through the overburden and into the mineral to prevent ground instability. This would further reduce the volume of potential mineral resource that could be extracted further reducing the economic viability of mineral extraction at the site.

5.2 Conclusions

5.2.1 With regards to Policy M11: Safeguarding of mineral resources, the study has identified that whilst the proposed development will sterilise mineral resources on the site, the sand and gravel mineral is unlikely to be of potential economic viability. This is because of its limited extent once planning constraint buffers are taken into account and the engineering constraints that stripping of the overburden present.

5.2.2 Where practicable, underlying mineral that is extracted as part of any cut/ fill engineering works should, where suitable, be used positively within the proposed development replacing import of an equivalent volume of primary aggregate. However this is considered unlikely in the planned residential development due to the anticipated thickness of Oadby Member overburden.