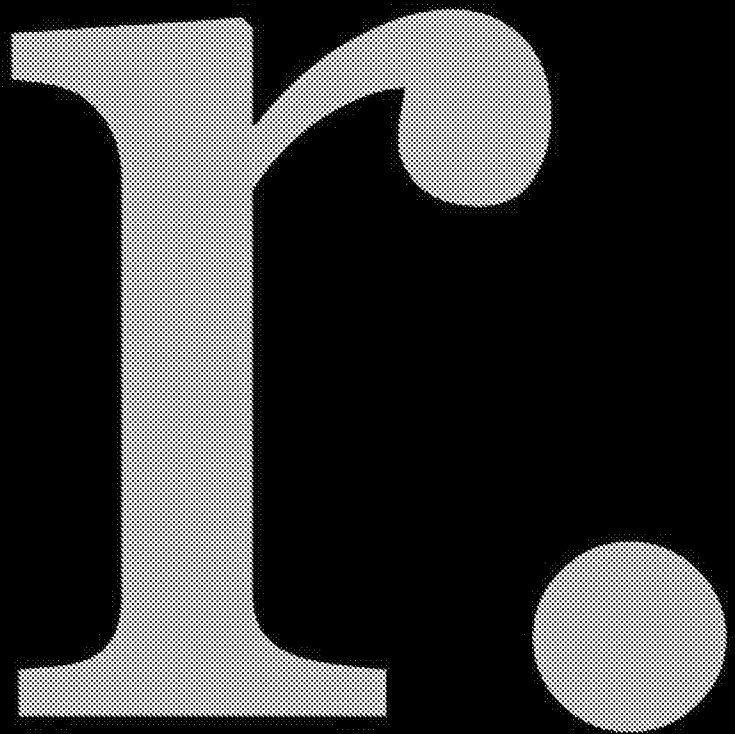


reside.

Land west of Fontwell Avenue, Eastergate

Minerals Assessment Report



**LAND WEST OF FONTWELL AVENUE
EASTERGATE
WEST SUSSEX**

Mineral Assessment Report

*on behalf of
Reside Homes*

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February 2020

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**LAND WEST OF FONTWELL AVENUE
EASTERGATE
WEST SUSSEX**

Mineral Assessment Report

1. INTRODUCTION

1.1 Instructions were received from Icen Projects, acting on behalf of Reside Homes, to carry out a desk based assessment of the mineral deposits underlying a c. 2.0 hectare site near Eastergate, West Sussex.

1.2 It is understood that an application is being considered for residential development. The site is located in an area that is 'safeguarded' as mineral deposits are mapped as being present. In order to inform a planning application a Mineral Assessment Report is needed.

2. PUBLISHED GEOLOGY

2.1 The location of the site is shown on plan 1911/L/1. The published Geological Sheet for Chichester and Bognor (number 317 / 332) shows the area to be underlain by 'Head Gravel' which is referred to as a 'clayey gravel'. An extract from the Geological Sheet is attached reference 1911/G/1.

2.2 In addition to the published geological maps the British Geological Survey commissioned a series of Mineral Assessment Reports that looked at the 'resource' potential of the mapped outcrop of sand and gravel. The report for Chichester and Bognor Regis (no. 138) covers the area of Easterbrook and an extract from the map that accompanied the report is attached, plan reference 1911/M/1.

2.3 The objective of the Mineral Assessment Report was to review the overall 'resources' of sand and gravel and each published report made clear that these are 'indicative' and further investigation will be needed to confirm / prove that a viable mineral deposit is present.

2.4 The extract from the published map shows the area to be within a zone where minerals may be present, but overlain by a layer of 'overburden'. A number of boreholes were carried out as part of the survey, but again these are widely spaced to provide general information on the nature of the mapped deposit.

3. FIELDWORK

3.1 Some investigative fieldwork has been carried out on the site by Soils Ltd and a shortened copy of their report is attached which covers the field data only. The scope of the report was to install three groundwater monitoring boreholes, not to assess the nature of the underlying strata which would normally be done as a more comprehensive site investigation survey following issuing of a planning permission.

3.2 The boreholes were 'logged' by a qualified geotechnical engineer who would have followed the method for describing the strata in accordance with BS5930 - Code of Practice for Site Investigations.

3.3 In addition to the Soils report a search of the British Geological Survey website was conducted to see if there are any published borehole data on or near the site. This confirmed there are none.

4. ASSESSMENT

4.1 The mapped geology of Head Gravel would suggest that the site should contain a deposit that could be of interest to the mineral industry. However, the Head Gravel in the locality is well known to be variable, both in quality and thickness. This horizon has been worked further to the north in the vicinity of Boxgrove and at Slindon. The Mineral Assessment Report (MAR) shows that this northern zone of Head Gravel is generally of greater average thickness, but also had a high proportion of silt / clay, hence the general description of 'clayey gravel'.

4.2 The MAR divides the area into 'Resource Blocks' and it is relevant to note that the better northern zone is in Resource Block C where the mean thickness of the mineral was c. 4.2 metres with a silt / clay content of 24%. The site is in Resource Block G where the mineral average was 3.1 metres with a silt / clay content of 18%.

4.3 The extract from the MAR map shows the mineral pinching out to the north west (see b/h 90 NW 75) and becoming deeper at the edge of Eastergate at b/h 90 NW 76. This indicates that the site is on the margin of any economic deposits, with the better material being noticeably to the south.

4.4 Turning to the site data the three boreholes are evenly spread across the site so provide a good representation of the likely distribution and nature of the underlying deposits. A summary of the logs are set out,

Borehole	Superficial Deposit	Basal Deposit
WS1	0.95 m gravelly CLAY	3.65+ m chalk
WS2	2.0 m gravelly CLAY	2.50+ m chalk
WS3	1.3 m gravelly CLAY	3.10+ m chalk

4.5 The 'superficial' deposits correlate to the Head Gravel. The engineering description of 'gravelly CLAY' is similar to 'clayey gravel' but the boreholes emphasised the presence of clay indicating that this represented a noticeable percentage of the deposit. In general terms gravelly CLAY or clayey gravel can be considered very similar, the principal common factor is that there is a high proportion of clay.

4.6 The boreholes indicated that the general trend of an increasing thickness towards the south may not apply as the greatest thickness was in WS2 in the centre of the site. What these three boreholes show is that the layer of superficial deposits is thin averaging less than 2.0 metres in thickness.

4.7 In terms of whether the minerals on the site have any economic significance, the first factor is the quality. The deposit is noticeably clayey so as an 'as dug' or unprocessed mineral it is most unlikely to have any use other than a general engineering fill.

4.8 In terms of suitability for processing, generally the quality would rule it out. However, it is known that similar high clay content sand and gravels are processed locally, but to

be successful considerable treatment (washing) is needed. Therefore there is a possibility the material could be taken to a washing / treatment plant, but the economics of distance and more importantly the cost of excavation and infrastructure would rule this out. Coupled with the above is the very limited quantity of c. 50,000 tonnes after processing. In short, the site is most unlikely to be of interest to the mineral industry.

4.9 This leaves the option of whether any usable mineral could be recovered in the form of excavation arisings from digging foundations, etc. This approach can be applicable where the quality of the 'as dug' material is of considerably better quality and can be used successfully without any form of treatment. Again this option is very unlikely due to the very high proportion of clay within the deposit.

5. POLICY

5.1 National Policy on the safeguarding of mineral resources is found at paragraph 204 of the NPPF. With regard to where non-mineral development is proposed within a Minerals Safeguarding Area the guidance states that policies should **'encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place'**.

5.2 This is seen as a 'balanced' policy, namely the excavation of the minerals needs to be practical, but in considering the prior extraction equal weight should be given to whether it is practical to carry out the non-mineral development should the minerals be extracted.

5.3 In relation to this site (as well as many other sites) the removal of minerals will leave a lowered land level which often results in the delivery of the non-mineral development as being impractical. This also opens up the possibility of infilling the site, and again this option is generally not practical due to land stability issues as well as regulatory permits.

5.4 The interpretation of the national guidance on prior-extraction has to give equal weight to both objectives as it is relevant to note that the policy 'encourages' prior extraction, it does not 'require' it.

5.5 The mineral planning authority for this area is West Sussex County Council who produced a Minerals & Waste Safeguarding Guidance document in October 2019. This focuses

on safeguarding the existing minerals and waste infrastructure as well as referring to 'Prior-Extraction'.

5.6 The relevant adopted Policy is M9 in the West Sussex Joint Minerals Plan (2018) and the relevant extract is

'... Proposals for non-mineral development within the Minerals Safeguarded Areas will not be permitted unless

(i) Mineral Sterilisation will not occur; or

(ii) it is appropriate and practicable to extract the mineral prior to the development taking place, having regards to the other policies in this Plan; or

(iii) the overriding need for the development outweighs the safeguarding of the mineral and it has been demonstrated that prior extraction is not practicable or environmentally feasible'.

5.7 The explanatory text at paragraph 2.10 - 2.12 of the Safeguarding Guidance notes that the impacts of prior-extraction will be considered in the same way as that for a mineral application. It is clear from the location of the site that the amenity impacts (noise, dust, visual) would be unacceptable due to the proximity of residential areas. This impact would be further exacerbated by the mineral related traffic. In short the site is unsuitably located to meet the criteria for mineral extraction.

5.8 If prior extraction is considered as part of the development work necessary for the non-mineral development, then many of the impacts are very short-term which could be seen as adequate mitigation. However, as referred to above, extraction will leave a 'hole' which would render the non-mineral development impracticable. Equally, infilling the hole will increase the impacts as well as impact on whether the 'new' ground conditions are suitable for the non-mineral development, again questioning the practicality of this approach for this site.

6. CONCLUSION

6.1 The site is c. 2.0 hectares and the geological setting shows it to be underlain by Head Gravel as shown on the published geological maps.

6.2 Intrusive site investigation has proved that the Head Gravel deposits are principally clay with a noticeable proportion of gravel. This is similar to the mineral that has been worked

locally (Boxgrove, Slindon) which needed extensive processing to make a usable mineral, both these sites no longer produce any minerals.

6.3 The thickness of this gravelly clay ranges between 0.95 - 2.0 metres indicating an average thickness of less than 2.0 metres. As a resource (whether usable or not) the quantity is in the order of 50,000 tonnes demonstrating that any contribution to the overall supply of minerals is 'de minimis'.

6.4 Without some form of extensive processing the 'as dug' material is not acceptable as a quality construction aggregate.

6.5 If the above conclusion that the deposit is not acceptable as a quality construction aggregate is not supported, then prior-extraction would render the site as unsuitable for development due to either the lowered landform or the unsuitability of the site if backfilled so conflicts with the national policy which states prior extraction must be practical, both for the minerals as well as the non-mineral development.

6.6 County Policy reflects the national policy and it has been shown that even if the mineral present was of sufficient quality to be usable, prior extraction would result in the non-mineral development being impracticable.

6.7 Should this view not be shared by the West Sussex County Council then, subject to a planning permission being granted, further information can be obtained on the underlying deposits as part of normal ground investigations. Should they be found to be of noticeably better quality then a materials management plan can be secured by condition to re-use in the development any material that may need to be excavated in the construction process.

DKS/yw/1911
25 February 2020



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In accordance with standard practice it must be stated that this report is confidential to the client for the specific purpose to which it refers and neither the whole nor any part of the report should be disclosed to a third party nor published in any form without our written approval of the manner or context in which it may be disclosed or published.

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