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WEST OF IFIELD MINERALS RESOURCE ASSESSMENT

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1 INTRODUCTION

1.1 General Introduction

- 1.1.1 Ramboll UK Limited (Ramboll) was instructed by Turner and Townsend Project Management Ltd (the "Client") on behalf of Homes England (the "Applicant") to undertake a Minerals Resource Assessment (MRA) for the site at West of Ifield (the "Site" shown in Figure 1.1). It is understood that the Site is to be redeveloped to provide a residential-led mixed use development (the "Proposed Development"). This report has been produced to support a hybrid planning application.

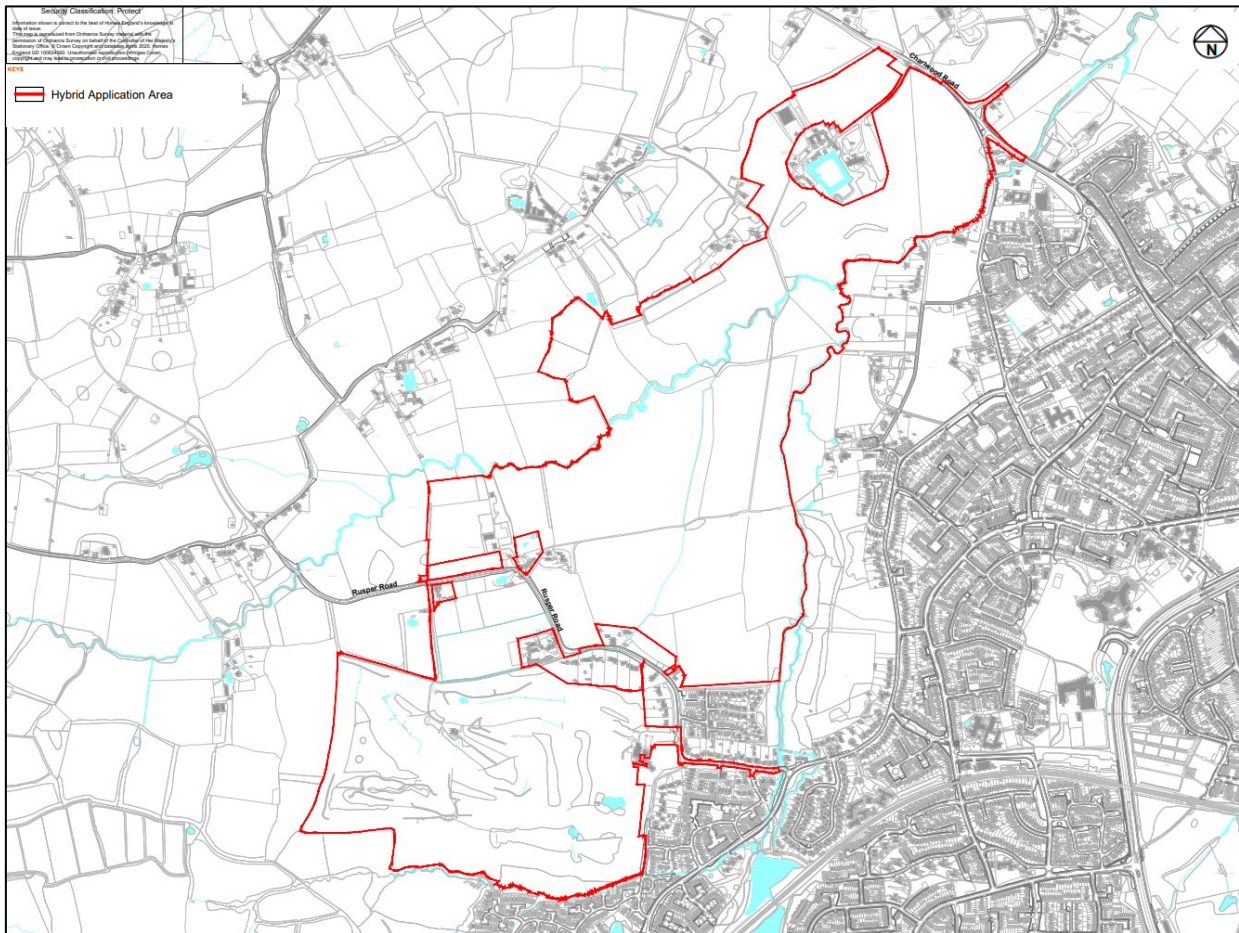


Figure 1.1: Site Location Plan (WOI-HPA-PLAN-LOC-01)

- 1.1.2 The Site is located at Ordnance Survey (OS) grid reference TQ 23679 36673, within the administrative minerals authority boundary of West Sussex County Council (WSCC).
- 1.1.3 This Hybrid planning application (part outline and part full planning application) for a phased, mixed use development comprising:
- 1.1.4 "A full element covering enabling infrastructure including the Crawley Western Multi-Modal Corridor (Phase 1, including access from Charlwood Road and crossing points) and access infrastructure to enable servicing and delivery of secondary school site and future development, including access to Rusper Road, supported by associated infrastructure, utilities and works, alongside
- 1.1.5 An outline element (with all matters reserved) including up to 3,000 residential homes (Class C2 and C3), commercial, business and service (Class E), general industrial (Class B2), storage or distribution (Class B8), hotel (Class C1), community and education facilities (Use Classes F1 and F2), gypsy and traveller pitches (sui generis), public open space with sports pitches, recreation, play and ancillary facilities, landscaping, water abstraction boreholes and associated infrastructure, utilities and works, including pedestrian and cycle routes and enabling demolition.

- 1.1.6 This hybrid planning application is for a phased development intended to be capable of coming forward in distinct and separable phases and/or plots in a severable way.”
- 1.1.7 The proposed areas of landscape and public realm associated with the outline elements of the Proposed Development is illustrated in Figure 1.2 below. The light grey shaded areas indicate built development plots (labelled as ‘Principal Building Zone’). The area and extent of the proposed Crawley Western Multi-Modal Corridor (CWMMC) is illustrated in dark grey in Figure 1.2, labelled as ‘Area Applied for in Detail’.
- 1.1.8 The outline elements of the Proposed Development are based on outline parameter plans. Therefore, it has been assumed that not all areas in the Principal Building Zone will necessarily be ‘cleared’ in their entirety. Additionally, the extent of ‘cleared’ land compared to areas of retained landscape is also unknown at this stage. Detailed layout plans will be developed as part of detailed design.

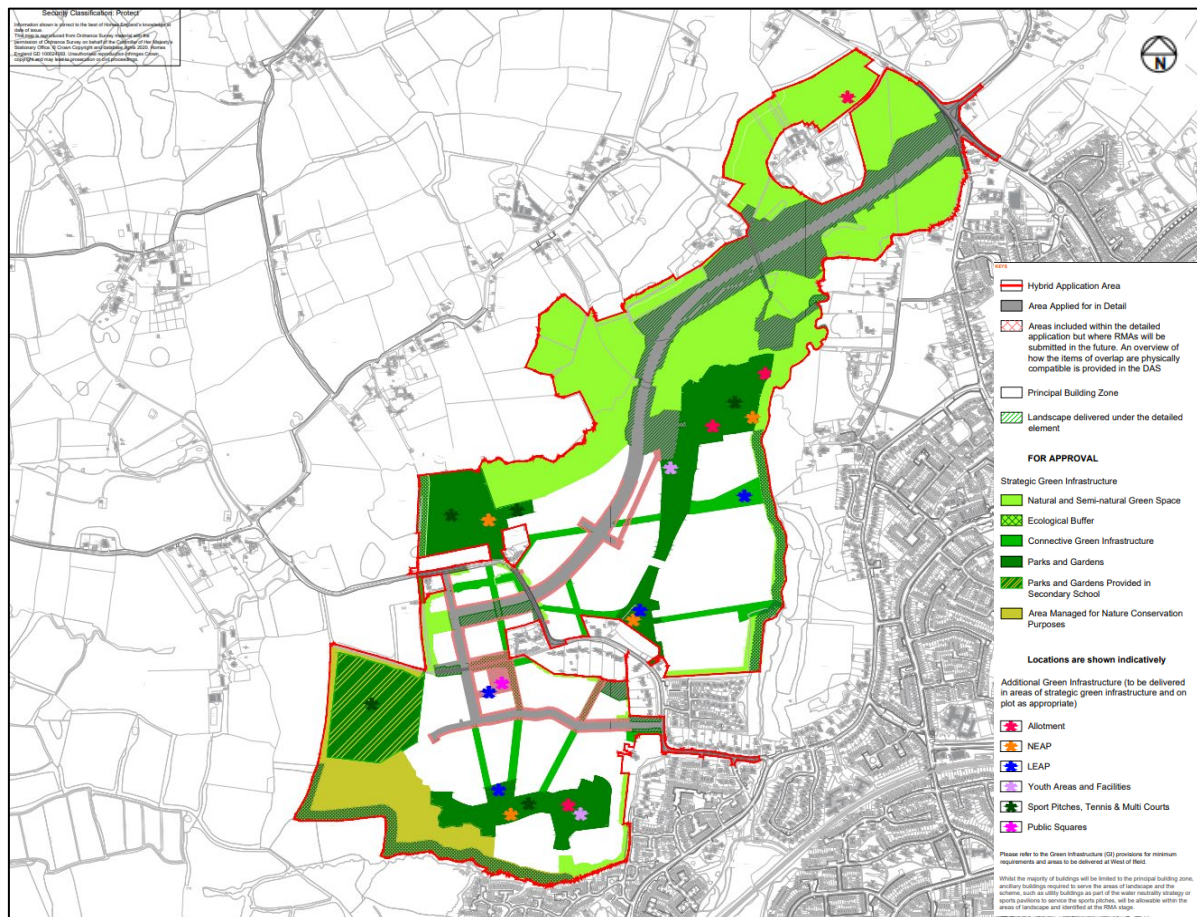


Figure 1.2: Landscape and Public Realm Parameter Plan (WOI-HPA-PLAN-PP01-01)

1.2 Key Project Objective

- 1.2.1 This MRA has been prepared to accord with the West Sussex Joint Minerals Local Plan (JMLP) (adopted July 2018, revised March 2021)¹ and the associated Mineral and Waste Safeguarding Guidance (March 2020)². It is noted that applications for non-mineral developments within the Weald Clay Formation Minerals Consultation Area (MCA) require a MRA to be undertaken if the development exceeds 3 hectares. The MRA must explain how the proposal addresses Policy M9 (as the relevant safeguarding policy) of the JMLP.

¹ West Sussex County Council and South Downs National Park Authority (2018). *West Sussex Joint Mineral Local Plan. July 2018 (Partial Review March 2021)*. Available at: https://www.westsussex.gov.uk/media/11736/mlp_adoption.pdf [Accessed February 2025]

² West Sussex County Council (2020). *Mineral and Waste Safeguarding Guidance. March 2020*. Available at: https://www.westsussex.gov.uk/media/13437/mw_safeguarding_guidance.pdf [Accessed February 2025].

- 1.2.2 The Proposed Development is located within the Weald Clay Formation MCA and the Site comprises an area of approximately 171 hectares (ha). Therefore, Ramboll understands that an MRA is required for the Site in order to support the Proposed Development.

1.3 General Limitations and Reliance

- 1.3.1 This report has been prepared by Ramboll exclusively for the intended use by the Client in accordance with the agreement between Ramboll and the Client defining, among others, the purpose, the scope and the terms and conditions for the services. No other warranty, expressed or implied, is made as to the professional advice included in this report or in respect of any matters outside the agreed scope of the services or the purpose for which the report and the associated agreed scope were intended or any other services provided by Ramboll.
- 1.3.2 In preparation of the report and performance of any other services, Ramboll has relied upon publicly available information, information provided by the Client and information provided by third parties. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.
- 1.3.3 Ramboll's services are not intended as legal advice, nor an exhaustive review of Site conditions and/or compliance. Ramboll neither owes nor accepts any duty to any third party, unless formally agreed by Ramboll through that party entering into, at Ramboll's sole discretion, a written reliance agreement.
- 1.3.4 Ramboll's scope of services for this assessment did not include intrusive site investigation or a Site inspection and is solely based on desk-based assessment.

2 SCOPE OF WORK

- 2.1.1 A desk-based assessment has been used to inform the baseline of this MRA. Where applicable, this has included a review of the West Sussex Joint Minerals Local Plan¹ and associated evidence based documentation.
- 2.1.2 A desk-based assessment of the baseline geology of the Site has been completed involving the collation of British Geological Survey (BGS) data and any readily available intrusive site investigation data.
- 2.1.3 The MRA has considered the following:
- The presence of mineral resources at the Site;
 - Whether extraction of the mineral resources is feasible as part of, or prior to, the Proposed Development; and
 - Whether the need for the Proposed Development would outweigh safeguarding mineral resources and if it can be demonstrated that prior extraction is not practicable or environmentally feasible.

3 SITE DESCRIPTION

3.1 Site Location

- 3.1.1 The Site lies to the west of the neighbourhood of Ifield, with other areas residential housing present to the south and east of the Site. Current vehicle access to the Site is via Charlwood Road in the north and Rusper Road to the south.
- 3.1.2 Predominantly occupied by a mixture of arable and pastoral fields, the area includes the Ifield Golf Course and Country Club (hereafter referred to as the 'golf course') in the south. The River Mole crosses the northern portion of the area, flowing from south-west to north-east.
- 3.1.3 The vast majority of the Site is within the category of Flood Zone 1 (< 0.1% annual chance), with areas of Flood Zone 2 (0.1% annual chance) and Flood Zone 3 (1% annual chance) associated with the Ifield Brook, which runs in a northerly direction within the east side of the Site, and the River Mole which runs through the northern portion of the Site. Further details available in the Flood Risk Assessment (FRA) [WOI-HPA-DOC-FRA-01].
- 3.1.4 An area to the east of the Site is occupied by Ifield Brook Wood and Meadows, which adjoins a wooded area and extends into an area of ancient woodland. Ifield Brook Wood and Meadows is designated as a Local Wildlife Site (LWS) and a Site of Nature Conservation Importance (SNCI). A Local Nature Reserve is present to the north-east of the Site (Willoughby Fields Local Nature Reserve, approximately 10m to the north-east).
- 3.1.5 The Site lies to the west of the neighbourhood of Ifield, with other areas residential housing present to the south and east of the Site.
- 3.1.6 Several public Rights of Way pass through the Site, as illustrated in Appendix 1.
- 3.1.7 The Site topography is generally low-lying, with ridges to the south and west. The first of these ridges passes through the southern part of the Site in an approximate east-west alignment and this rises up from 76m AOD in the south-west to approximately 85m Above Ordnance Datum (AOD) at Hyde Hill. The second ridge is located approximately 1km to the north-west at Russ Hill. It is orientated in an approximate south-west to north-east alignment which rises up from 68m AOD on Site and extends up to 100m AOD at Russ Hill. The low-lying land between these two ridges lies at approximately 60-70m AOD and is dissected by the narrow watercourses of Ifield Brook and the River Mole.
- 3.1.8 All other potential constraints on and adjacent to the Site are illustrated within Figure A-1, Appendix 1.

3.2 Underlying Geology

- 3.2.1 The Mineral Safeguarding Areas maps provided in the JMLP, locate the Site within a Brick Clay Resource Mineral Safeguarding Area, lying within the area of the Weald Clay Formation (or within a 250m buffer of the formation).
- 3.2.2 According to the British Geological Survey (BGS) online Geology Viewer Portal, the Site is underlain by superficial deposits of Alluvium in the area of the rivers and streams on and in the vicinity of the Site. There are also areas of River Terrace Deposits in the southern and central areas of the Site. Bedrock present underlying the Site predominantly comprises mudstones of the Weald Clay Formation, with clays and ironstones of the Weald Clay Formation present along the northern and eastern boundary. A thin band of limestone of the Weald Clay Formation underlies the southern area of the Site.
- 3.2.3 No BGS borehole records are available for the Site; one (1) BGS borehole record has been found to be available within 500m of the Site. The information within this record is summarised below:
- TQ23NW2 - BONWICKS PLACE-IFIELD, located circa 220m west of the Site. The borehole is 35.54m deep, with the geology encountered described as: Blue clay and rock.

- 3.2.4 No groundwater levels were recorded during construction of the borehole. However, during exploratory drilling in late 2024/ early 2025 to a depth of just over 200 metres below ground level (mbgl), groundwater levels were found to be close to ground level within the shallow bedrock; and close to ground level or slightly above ground level (artesian) at depth. All groundwater levels were found to be generally shallower than 4 mbgl.
- 3.2.5 The Alluvium and River Terrace Deposits recorded on Site are classified by the Environment Agency (EA) as a Secondary A Aquifer. The Weald Clay Formation, which underlies the Site, comprising mudstones, clays and ironstones and are classified by the EA as Unproductive Strata, while the limestone band is classified as a Secondary A aquifer. No designated Water Framework Directive (WFD) groundwater body is recorded to be underlying the Site; however, the nearest recorded catchment (the Copthorne Tunbridge Wells Sands) is classified as having a 'Good' overall under the WFD classification scheme. According to the EA, the Site is not located within a designated groundwater Source Protection Zone (SPZ).
- 3.2.6 No groundwater strikes were recorded on any of the borehole records available from the BGS. Boreholes drilled within the Site at the end of 2024 and early 2025 indicate shallow groundwater levels close to surface, i.e. only a few metres below ground level.

3.3 Minerals Safeguarding Area

- 3.3.1 Under the West Sussex Joint Minerals Local Plan¹ Policy M9 'Safeguarding Minerals', Mineral Safeguarding Areas (MSAs) have been defined for five Mineral Commodities (MC), as described below:
- Shard Sand and Gravel;
 - Soft Sand (including potential Silica Sand);
 - Brick Clay;
 - Chalk; and
 - Building Stone.
- 3.3.2 The Site falls within an area defined as an area of potential Brick Clay resource, due to its location within an area of the Weald Clay Formation. The Brick Clay Resource Mineral Safeguarding Area Plan is included within the West Sussex Joint Minerals Local Plan. The total area of the Weald Clay shown in the plan mentioned above is estimated to be in excess of approximately 50,000 hectares in area.

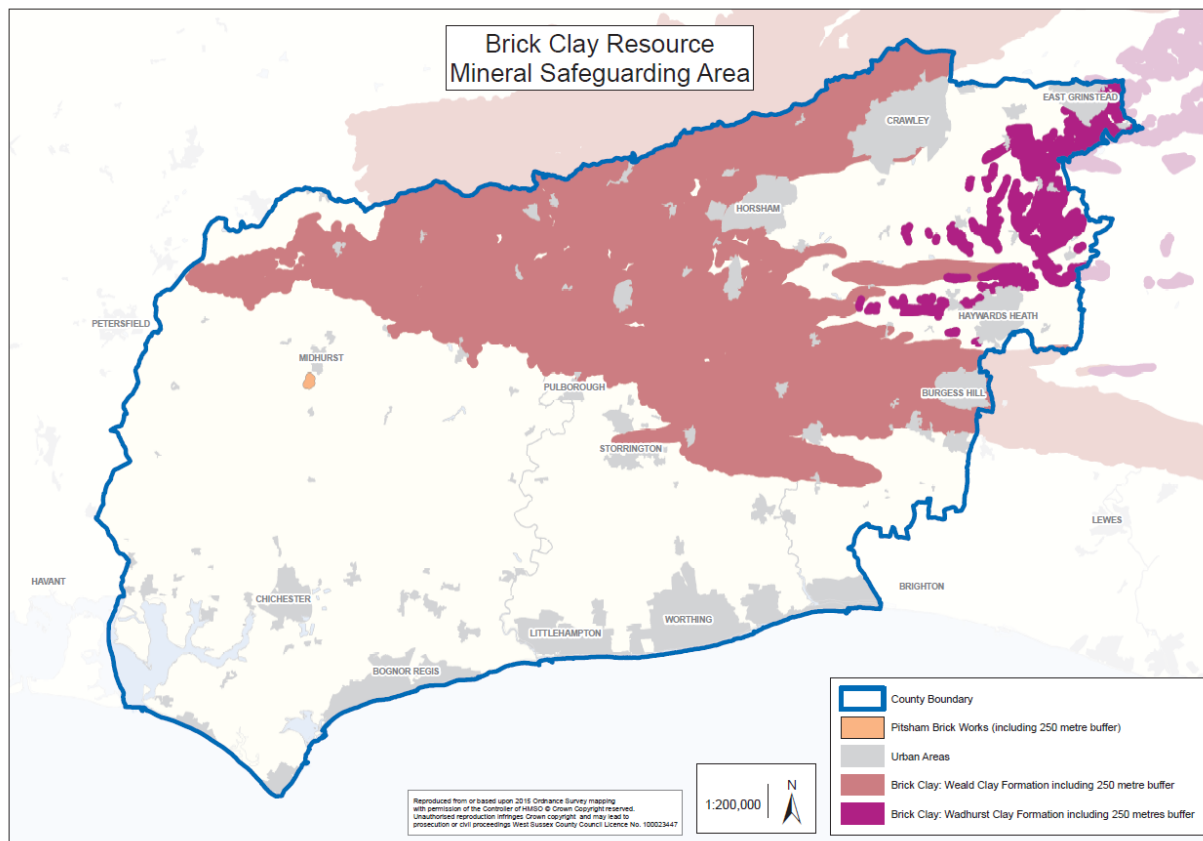


Figure 3.1: Brick Clay Resource Mineral Safeguarding Area Plan – obtained from the West Sussex Joint Minerals Local Plan¹

3.4 Proposed Development

- 3.4.1 The full element comprises Phase 1 of the Proposed Development which will include the infrastructure required for the delivery of the secondary school, including the first phase of the CWMCM (a new road with a dedicated bus lane and regular traffic lane in each direction), to form a connection from Charlwood Road to the east and the primary access route to the Proposed Development.
- 3.4.2 The outline element of the Proposed Development comprises mixed-use development of up to 3,000 homes, a Neighbourhood Centre and associated community facilities, a primary school and a secondary school, employment uses, public open space and multi-functional green space, and allowance for key infrastructure and utilities.
- 3.4.3 Further details on the Proposed Development, the Description of Development and the proposed land uses are set out within the Development Specification and Parameter Plan Framework (WOI-HPA-DOC-DSPPF-01) and the Design and Access Statement (WOI-HPA-DOC-DAS-01).
- 3.4.4 The Site topography is generally low-lying, with ridges to the south and west. Given the topography, it is likely that when considering the Site as a whole, some ground levelling may take place. However, as the Site is relatively flat overall, significant Site-wide cut and fill works aren't expected.
- 3.4.5 Additionally, it is understood that the Proposed Development will incorporate the 'ridge' topography which comprises the southern area.

4 POLICY CONTEXT

4.1 NPPF 2024

- 4.1.1 The National Planning Policy Framework (NPPF)³ is a material consideration in planning decisions. It states that the purpose of the planning system is to contribute to the achievement of sustainable development; and that planning decisions on individual applications must be in accordance with relevant development plans and statutory requirements.
- 4.1.2 Regarding minerals, the NPPF considers safeguarding these resources in paragraphs 222 to 230. It is noted that the NPPF encourages *"best use needs to be made of them to secure their long-term conservation."*
- 4.1.3 Paragraph 223 (d) encourages prior extraction of minerals *"where practical and environmentally feasible"*.
- 4.1.4 Paragraph 223(h) outlines that proposals should *"[take] account of aviation safety"*.
- 4.1.5 Specifically, regarding brick clay, the NPPF identifies that reserves should be *"at least 25 years"*.

4.2 National Planning Practice Guidance (2024)

- 4.2.1 The NPPG includes guidance on mineral extraction within the planning application process⁴. In respect of minerals, the NPPG includes guidance on minerals safeguarding, environmental impacts from mineral extraction, and review of minerals planning conditions.

4.3 M9: Safeguarding Minerals of the adopted West Sussex Joint Minerals Local Plan (JMLP)¹

- 4.3.1 The M9 Policy has been developed in order to safeguard the minerals resources of West Sussex County against non-mineral development that prejudices their ability to supply minerals in the manner associated with the permitted activities.
- 4.3.2 M9 identifies the following resources as requiring safeguarding against sterilisation:
- Soft sand (including potential silica sand);
 - Sharp sand and gravel;
 - Brick-making clay;
 - Building stone resources; and
 - Chalk reserves.
- 4.3.3 The mineral resources are extensive within the county, covering over 50% of the area. M9 aims to protect these resources by including them within the MSAs. The purpose of an MSA is to alert prospective developers to the existence of mineral resources, so they can be taken into account at the planning stage of a development.
- 4.3.4 Five separate MSA's have been developed for each resource identified. The MSA's have been developed using BGS mapping records of the relevant geological units, with a 250m proximal buffer applied. Within the Brick Clay MSA, three separate resource areas are identified:
- Pitsham Brick Works;
 - Brick Clay: Weald Clay Formation; and
 - Brick Clay: Wadhurst Clay Formation.
- 4.3.5 The policy also states that due its broader extent and lesser demand the MSA for the Weald Clay Formation excludes urban areas (paragraph 6.9.10).

³ Ministry of Housing, Communities & Local Government (2024). *National Planning Policy Framework. December 2024*. Available at: https://assets.publishing.service.gov.uk/media/67a610df6006e4154dc498a0/NPPF_December_2024.pdf [Accessed February 2025].

⁴ Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities. NPPG Guidance Minerals, published 17 October 2024. Available online at: <https://www.gov.uk/guidance/minerals>

- 4.3.6 The M9 policy states that there are opportunities to safeguard mineral resources through extraction in advance of development (*'prior extraction'*).
- 4.3.7 Although prior extraction is encouraged in all developments where feasible and appropriate, the requirement to demonstrate that minerals have not needlessly been sterilised only applies to developments on sites of 3 hectares and over (Table 1, West Sussex Joint Minerals Local Plan - Minerals and Safeguarding Guidance)².
- 4.3.8 According to the Five-Year Assessment of Relevance and Effectiveness⁵, and since adoption of the Plan, there have been two occasions where West Sussex district and borough planning authorities have refused planning permission for non-mineral development, citing mineral sterilisation as one of the reasons for refusal. Both of these applications were for outline permission for the development of homes.
- 4.3.9 There has been no significant sterilisation of safeguarded minerals since adoption of the JMLP.

4.4 M5: Clay - West Sussex Joint Minerals Local Plan¹

- 4.4.1 The West Sussex Joint Minerals Local Plan notes that there are five active brickworks within West Sussex, three of which have in excess of 25 years of clay reserves, the remaining two have 24 years and 10 years reserves respectively (the lowest reserves relating to West Hoathly brickworks). It is noted that under the current strategy an extension will be allocated to the claypit at West Hoathly brickworks in order to maintain supplies and similar extensions will be allowed, with new sites allowed if existing supplies are exhausted or if a particular source of clay is required to enable appropriate blends to be made. Proposals for non-allocated sites are to be assessed against Policy M5, which states that proposals will be permitted for the extraction of brick clay provided that:
- they would help maintain a stock of permitted reserves of at least 25 years of permitted clay reserves for individual brickworks; and
 - the clay required for appropriate blending for manufacture of bricks is no longer available adjacent to the brick making factory.
- 4.4.2 Proposals for the extraction of clay for uses other than brick making will be permitted provided that:
- there is a need for the clay for engineering purposes; and
 - the clay cannot be used for brick-making; or
 - the resource is within an existing sand and gravel quarry and the extraction of clay would be ancillary to the extraction of sand and gravel.
- 4.4.3 Provided that the above conditions are satisfied, proposals will be permitted provided that:
- they are located outside the High Weald area of natural beauty (AONB)/South Downs National Park unless there are exceptional circumstances and that it is in the public interest, in accordance with Policy M13, to locate within those areas;
 - they are extensions of time and and/or physical extensions to existing clay pits or, where this is not possible, they should be sited as close as possible to the site where the clay will be used; and
 - where transportation by rail or water is not practicable or viable, considering the Lorry Route Network.
- 4.4.4 According to the Five-Year Assessment, Policy M5 remains relevant and effective, although monitoring indicates potential future supply issues at two brickworks, which will continue to be reviewed annually.

⁵ West Sussex County Council and South Downs National Park Authority (2023). *West Sussex Joint Minerals Local Plan, Five-Year Assessment of Relevance and Effectiveness, April 2023*. Available at: https://www.westsussex.gov.uk/media/19244/mlp_review.pdf [Accessed February 2025].

4.5 M21: Aerodrome Safeguarding - West Sussex Joint Minerals Local Plan¹

- 4.5.1 The West Sussex Joint Minerals Local Plan details Policy M21 which states that the managing bodies of Gatwick, Shoreham and Goodwood airports and airfields must be consulted on all development likely to attract birds within a 13km radius. Gatwick airport is located approximately 1 km to the north-east of the Site.
- 4.5.2 Policy M21 further states "Proposals for minerals development will be permitted provided that they will not adversely affect the operational integrity or safety of aviation facilities." It is noted that minerals extraction can lead to an increase in the number of birds in an area and that restored mineral sites provide opportunities for feeding, roosting or breeding (particularly in areas where large water bodies are created), resulting in a bird hazard risk.
- 4.5.3 According to the Five-Year Assessment⁵, and since adoption of the JMLP, there have been no applications refused for minerals development on aerodrome safeguarding grounds, and all decisions made have been consistent with Policy M21.

4.6 Safeguarding Minerals Resources - Minerals and Waste Safeguarding Guidance (March 2020)²

- 4.6.1 The West Sussex Minerals and Waste Safeguarding Guidance Sections 2.6 to 2.8 outline the requirements for a Mineral Resource Assessment to address Policy M9 (detailed above).
- 4.6.2 Applicants are advised to discuss application with the Mineral Planning Authority (MPA) (in this instance West Sussex County Council (WSCC)) prior to submitting a planning application, in order to assess the need for minerals safeguarding on Site and the scope of any required MRAs. This consultation is covered in Section 6 of this report.
- 4.6.3 It is stated that an MRA should include the following:
- *"an assessment of the geological information about the site including quarrying history, Geological memoirs, mineral assessments, and market appraisals;*
 - *site investigations/borehole data (applicants may be required to carry out borehole testing if this information is not already available);*
 - *consideration of other locations for the development that are outside the MSA;*
 - *assessment of whether the proposal can be modified to avoid sterilisation;*
 - *assessment of the potential for the use of the mineral in the proposed development and whether it is feasible and viable to extract the mineral resource ahead of the development;*
 - *an explanation of the viability of prior extraction and how it will be carried out (e.g. environmental impacts, timescales, availability of the market to deal with the increase in the mineral);*
 - *discussions with potential 'users' of the mineral; and*
 - *an explanation of how any voids will be 'backfilled' in preparation for development and/or incorporated into the design and layout of the development".*
- 4.6.4 Sections 2.9 to 2.11 outline the requirements for approval of prior extraction as part of a development. Proposals for prior extraction will be considered as part of a proposal for non-mineral development overlying a safeguarded minerals resource. Proposals must not cause unacceptable adverse impacts to the environment or communities and will be considered in the same way as a mineral application. Consideration will be given to matters such as flood risk, noise and dust, highways impacts, the historic environment, and biodiversity.
- 4.6.5 Conditions will also be included to ensure that the site can be adequately restored to a satisfactory use in the event that the main development is delayed or not implemented.
- 4.6.6 It is also noted that consideration should be given to the void spaces created by prior extraction and how backfilling of these with inert material could be incorporated into the proposed development.

4.7 Monitoring Report 2022/2023⁶

- 4.7.1 The 2022/23 monitoring report identifies four out of five brick works in the county are active with a total permitted reserve of 12.8 million tonnes across the five sites and there are estimated to be two brickworks with at least 25 years of brick clay reserves.
- 4.7.2 Table 2 of the 2022/23 monitoring report notes that the 10-year average annual sales is 0.31 million tonnes, and the "*Total Brick Clay Reserve Remaining on Sites with Planning Permission*" is 12.8 million tonnes in 2022.
- 4.7.3 Where relevant the above policy issues are considered further in Section 5 of this report.

4.8 Horsham District Planning Framework (2015)⁷

- 4.8.1 West Sussex County Council is responsible for preparing statutory land use plans for minerals and waste. Any proposals for development should have regard to the defined County Minerals Safeguarding Area and Minerals Consultations Area guidance and policy produced by West Sussex County Council. Preparation of site plans will require liaison with West Sussex County Council at an early stage to ensure that any potential minerals and waste interests are fully considered in planning development.

⁶ West Sussex County Council (2023). *West Sussex Joint Minerals Local Plan and Waste Local Plan: Monitoring Report 2022/2023*. Available at: https://www.westsussex.gov.uk/media/20447/monitoring_report_2022_2023.pdf [Accessed February 2025].

⁷ Horsham District Council (2015) Horsham District Planning Framework (excluding South Downs National Park).

5 MINERAL SAFEGUARDING

5.1 Presence

- 5.1.1 The Site falls within the MSA for the Weald Clay Formation as determined by the West Sussex JMLP (refer to Figure 3.1 in Section 3 of this report).
- 5.1.2 Geological information for the Site (as per Section 3.2 of this report), has identified the presence of the Weald Clay Formation, with some areas of overlying superficial deposits in the area of the rivers and streams on and in the vicinity of the Site. This can be used for brick clay. Available BGS borehole information in the vicinity of the Site does not provide any indication as to the thickness of the Weald Clay Formation in this area.
- 5.1.3 The Proposed Development does not fall within an area which encroaches on an existing mineral development. Also, there are no records of historic quarrying on-Site.
- 5.1.4 Information on ground conditions on site has been provided from a ground investigation undertaken by Arcadis in September of 2023. These conditions are summarised below.
- 5.1.5 A Layer of made ground is sporadically present, up to 0.90m thick in one location (BH03), but generally around 0.4m in thickness where present. This is underlain by a layer of alluvium present to depths of between 1.25m and 3.7m below ground level (bgl). This material was generally slightly graded, with alluvial sands present at shallow depth, underlain by silts followed by clays. River Terrace Deposits were not recorded, with the Alluvium being directly underlain by clays and mudstones of the Weald Clay. Through additional ground investigation undertaken in 2024 / 2025 by WSP, boreholes have proven that the thickness of the Weald Clay Formation is over 100m bgl.

5.2 Alternatives Sites

- 5.2.1 Given the very large extent of the Brick Clay Resource MSA (refer to Figure 3.1 in Section 3 of this report) across the county, it's not considered feasible to consider alternative sites for the Proposed Development outside of the safeguarding area. Therefore, no further consideration of alternative sites in relation to MSAs is believed to be necessary.

5.3 Site Constraints

- 5.3.1 The following is a summary of constraints noted in relation to the Site (Refer Section 3 of this report and Figure A-1, Appendix 1):
- Residential housing receptors in the immediate vicinity of the Site;
 - Scheduled monument in the 'island' in the north of the Site (outside the Site boundary);
 - Public Rights of Way passing through the Site;
 - Public Roads passing through the Site;
 - Watercourses passing through the Site;
 - Conservation areas adjacent to the east of the Site;
 - A Local Nature Reserve to the north-east of the Site (approx. 100m);
 - Ancient Woodlands adjacent to the north-west, south and west of the Site; and
 - Flood Zone 2 and 3 areas associated with watercourses passing through the Site.

5.4 Potential for Avoidance of Sterilisation

- 5.4.1 Avoidance of sterilisation is not feasible for the Proposed Development – all other undeveloped areas in the vicinity of the Site also lie within the Brick Clay Resource Mineral Safeguarding Area and the nature of the development would not permit subsequent extraction on or in the vicinity of the Site.

- 5.4.2 The Proposed Development would not result in the permanent sterilisation of the whole of the Site. As illustrated in Figure 1.2 the built development primarily comprises the southern areas of the Site as well as the proposed CWMMC. The majority of the area in the north of the Site is to be retained and enhanced for biodiversity purposes (as outlined in Section 5.9 of this report). This means large areas of the Site, especially in the north, will not be 'sealed' by built development.

5.5 Feasibility of Extraction – Constraints due to proximity to Crawley

- 5.5.1 The Site is in close proximity to Crawley and areas of adjacent residential housing, refer to Appendix 1. While there is expected to be relatively little overburden material to be removed before reaching the Weald Clay Formation (i.e. there are limited superficial deposits on-Site), the location of the nearby roads, public rights of way, residential housing and a Scheduled Monument is likely to limit any potential extraction activities at the Site given the likely additional vehicle movements associated with extraction.

5.6 Feasibility of Extraction – Constraints due to proximate ecological receptors

- 5.6.1 The Site is located to the west of the town of Crawley and is divided by several roads. Land to the west and south-west is predominantly in agricultural use with small holdings and much of the eastern Site boundary is bordered immediately by rural land, beyond which are further residential buildings associated with the suburb village of Ifield. The River Mole and several streams acting as tributaries are also present in and adjacent to the Site. Given the close proximity of these sensitive receptors it is likely that any mineral extraction, even with mitigation, could have some adverse impacts on the water quality within the River Mole and other water bodies.
- 5.6.2 Ifield Brook Wood and Meadows is designated as a LWS and a Site of Nature Conservation Importance (SNCI) and is immediately to the east of the Site. In addition, there are areas of Ancient Woodland that surround part of the Site boundary, specifically in the north-west, south and west, with a small area on the eastern boundary. There is also a Local Nature Reserve (LNR) located to the north-east of the site. These ecological receptors would likely be adversely affected by immediately adjacent mineral extraction works. Protection of these ecological receptors has been considered as part of the Proposed Development, however the potential effects from on-Site mineral extraction are considered to be greater than those which would result from the construction phase of the Proposed Development (and the Proposed Development construction effects are considered easier to mitigate).
- 5.6.3 Buffer zones around the identified sensitive receptors could be utilised to minimise impacts on these receptors, however given the number of areas sensitive to potential extraction on the Site and in the vicinity of the Site, the buffer zones would likely cover enough of the Site to make mineral extraction economically impractical (the potential for prior extraction is considered further in Section 5.9 of this report). Please refer to Figure A-1, Appendix 1 for the illustrated buffer areas.

5.7 Feasibility of Extraction – Constraints due to flood risk

- 5.7.1 The Site is relatively low lying relative to the watercourses mentioned above, with areas of Flood Zones 2 and 3 present in the vicinity of these watercourses. Any removal of material would require mitigation measures to prevent the potential worsening of the flood risk on Site, and immediately off-Site. Given the nature of the low permeability strata, the mineral extraction area itself could also be vulnerable to flooding during operations, potentially requiring additional mitigation measures that would further reduce economic feasibility.

5.8 Policy M21 – Constraints due to Gatwick Airport

- 5.8.1 As stated above, Policy M21 of the West Sussex Joint Minerals Local Plan, states that the managing bodies of Gatwick, Shoreham and Goodwood airports and airfields must be consulted on all

development likely to attract birds (such as mineral extraction developments) within a 13km radius of each airport or airfield. The Site lies approximately 1 km to the south-west of Gatwick Airport and therefore consultation would be required.

- 5.8.2 It is considered that an increased bird hazard risk could occur during any potential mineral extraction and restoration phase. This will be particularly true for the Site given that the underlying low permeability strata will lead to longer 'drain down' times for standing water bodies which could be present for a sufficient duration and attract an increased numbers of birds to the Site (ES Volume 2 Appendix 8.16: Bird Hazard Management Plan – West of Ifield (July 2021)).
- 5.8.3 As part of the Proposed Development the Applicant has been liaising with Gatwick Airport and agreed principles for bird hazard management, including specific 'drain down' times for the proposed sustainable drainage systems (SuDS) and measures to help minimise the duration of cleared open areas of land which may attract larger bird species. Potential implementation of mineral extraction would be contrary to these principles as mineral extraction could lead to large areas of standing water and / or open 'cleared' land which would be difficult to manage in accordance with agreed bird hazard measures.

5.9 Feasibility of Prior Extraction – Potential for extraction during development works

- 5.9.1 The Proposed Development comprises predominantly housing. While foundation designs have yet to be confirmed they can reasonably be expected to comprise shallow 'strip and pad' foundations, bearing on the underlying clays. Consequently, any significant extraction of the clays would have cost implications for foundation design that would likely make extraction economically unfavourable due to the requirement for either deepened foundations or engineered backfill materials.
- 5.9.2 Other than the proposed CWMMC, the Proposed Development involves limited anticipated earthworks, reducing the need for fill material on Site. Given the nature of the mineral resource present (Brick Clay), if the resource was to be extracted, it would require processing and transport away from the Site.
- 5.9.3 Given that clay must be processed prior to use as bricks, and this processing requires significant infrastructure (and necessary permits), it is not considered feasible that extraction and on-Site processing of the underlying clay could be completed in a timely and cost-efficient fashion prior to or during the Proposed Development programme.
- 5.9.4 The Minerals and Waste Safeguarding Guidance (March 2020)² outlines that prior extraction from void spaces should be considered. The Proposed Development is not considered to create significant void spaces other than for SuDS. However, the creation of SuDS alone will not result in significant quantities of excess materials as the excavated arisings will be used as part of proposed landscaping, with the intention to, where feasible, reach a 'mass balance' during earthworks to avoid the importation or removal of materials from Site as far as possible. Also, in accordance with Policy M21 and the proposed bird hazard management plan, the intention will be to excavate and reprofile areas as quickly as feasible to avoid longer durations than necessary comprising 'bare earth' on Site.
- 5.9.5 The constraints and buffers as illustrated in Figure A-1 (Appendix 1) indicate that potentially the largest areas of the Site without constraints comprise the southern and eastern areas. These areas currently comprise the golf course and agricultural land.
- 5.9.6 Any proposals for prior extraction need to consider constraints regarding bird hazard management (as outlined above) but also the proposed landscaping and biodiversity net gain (BNG) strategy for the Site. As illustrated on Parameter Plan 6 Planning Application Tree Removal Plan (WOI-APP-PP06) the trees committed to be retained on-Site are highlighted in green which indicates a further constraint on prior extraction especially in the southern area of the Site (the golf course).

- 5.9.7 Furthermore, the general BNG principle is that areas of existing habitats will be retained wherever feasible and then ecologically enhanced (including within built development plots). This minimises biodiversity effects and also ensures that BNG policy requirements can be met. If additional areas of the Site were to be cleared than those proposed at present (i.e. to enable feasible prior extraction) this would result in a decreased habitat metric when compared to calculations for the Proposed Development and would mean that BNG targets are unlikely to be met.

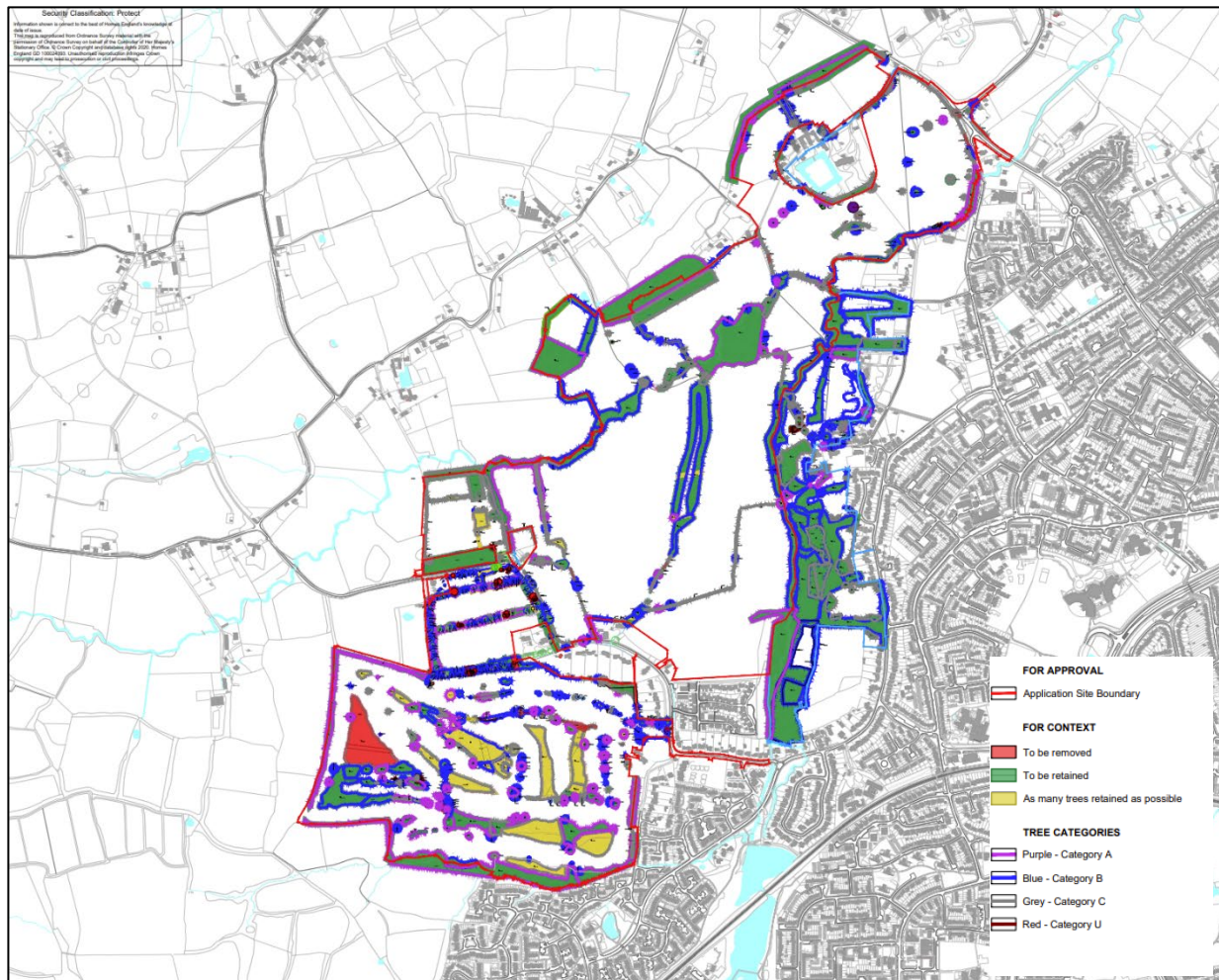


Figure 5.1: Parameter Tree Retention Plan (WOI-APP-PP06)

- 5.9.8 Potentially, the largest areas of the Site without constraints comprise the southern and eastern areas of the Site. However, these areas comprise the existing golf course and agricultural land. Where feasible, the Proposed Development will enable continued use of the agricultural land and golf course as long as possible, only requiring removal immediately prior to commencement of development in these respective areas. Prior extraction of minerals would be contrary to these objectives as it would require earlier cessation of these land use activities, as extraction would be a separate preliminary stage prior to commencement of development.

5.10 Policy M5 – Potential Material Requirements

- 5.10.1 In relation to policy M5, extraction on Site would only be required in the event that current brickwork activities could not maintain existing reserves or in the event that clay was required for engineering purposes. However, the clay is unlikely to be specifically required for blending given the wide availability of the Weald Formation clays across the county within current extraction locations; the 2022 / 2023 monitoring report identifies two brickworks with at least 25 years of brick clay reserves in the county.

5.11 Need for the Proposed Development

- 5.11.1 The NPPF sets out the Government's objective of significantly boosting the supply of homes, stating that it is important that a sufficient amount and variety of land can come forward where it is needed, and that the needs of groups with specific housing requirements are addressed. Under the new NPPF and planning reforms, the Government is proposing a new method for determining housing need. For Horsham, the proposed method generates a need figure of 1,294 homes to be delivered per year, which is a 41% increase to the existing target (excluding any consideration of unmet need arising in Crawley).
- 5.11.2 As described in the Planning Statement (WOI-HPA-DOC-PS-01), the hybrid planning application responds to this acute need for housing in HDC and is uniquely located to assist in playing an integral part of the future growth for both Horsham and Crawley. The proposals further seeks to deliver key enabling infrastructure to address identified unmet need for school provision in Crawley and simultaneously deliver a mixed-use place that creates value and benefit to local communities.

5.12 Policy M9 – Safeguarding Minerals

- 5.12.1 Policy M9 of the adopted West Sussex Joint Minerals Local Plan notes that proposals for non-mineral development within the MSAs 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."*
- 5.12.2 As outlined in Section 5.4 of this report, the Proposed Development would not result in significant sterilisation of the mineral resource. It is not considered that prior extraction is feasible given the details included in Section 5.9 of this report. Finally, Section 5.11 of this report outlines the need for the Proposed Development.

6 CONSULTATION

6.1.1 As outlined in Section 4.5 of this report, the West Sussex Minerals and Waste Safeguarding Guidance recommends consultation with West Sussex County Council (WSCC). Ramboll contacted WSCC and discussed the Proposed Development as part of this MRA. The details of the consultation are outlined below:

- Consultation with WSCC was undertaken by phone on 12th May 2023 (liaison with a representative from WSCC);
- WSCC outlined that prior extraction where feasible should be explored;
- Based on Site information provided by Ramboll and telephone discussion, WSCC stated that further specific pre-application consultation was not required, with information provided at this stage considered sufficient;
- WSCC suggested reviewing the latest Annual Monitoring Report (which is referenced in Section 4.6 of this report);
- Ramboll described the potential bird strike issues associated with the Site (as detailed in Section 5.8 of this report);
- WSCC suggested engagement with local operators if possible would be advisable;
- WSCC stated a key issue was whether extraction is economically viable; and
- WSCC suggested considering whether extraction could be combined with other assessment measures (such as archaeological excavation).

6.1.2 Noting the comments from WSCC above, all relevant aspects are considered to be addressed in this report. Ramboll has not engaged with local operators as this is not considered possible and it is not relevant given the constraints outlined in this assessment. In terms of considering combination of extraction with assessment measures, the only possible option would be archaeological excavation. However, given the likely areas of archaeological trenches relative to the overall size of the Site and also that this evaluation is likely to be undertaken in a phased manner, prior extraction as part of these assessment works is not considered feasible.

7 CONCLUSIONS

- 7.1.1 The Proposed Development of the Site has been considered under national and local policy, including the M9 Policy of the adopted West Sussex Joint Minerals Local Plan and in line with West Sussex County Council Minerals and Waste Safeguarding Guidance. The Site has been categorised as lying within an area of Brick Clay Resource and as such an assessment of the minerals at the Site and the feasibility of their extraction has been undertaken.
- 7.1.2 As part of the assessment Ramboll has consulted with West Sussex County Council.
- 7.1.3 Geological information available for the Site, obtained from the British Geological Survey has indicated the presence of strata containing brick clay (Weald Clay Formation) at the Site. Information on ground conditions on Site has been provided from a ground investigation undertaken by Arcadis in September of 2023. A layer of made ground is sporadically present, and is underlain by a layer of alluvium. River Terrace Deposits were not recorded, with the Alluvium being directly underlain by clays and mudstones of the Weald Clay. Boreholes have proven that the thickness of the Weald Clay Formation is over 100m bgl.
- 7.1.4 The WSCC 2022/23 monitoring report identifies four out of five brick works in the county are active with a total permitted reserve of 12.8 million tonnes across the five sites and there are estimated to be two brickworks with at least 25 years of brick clay reserves.
- 7.1.5 Given the size of the Proposed Development (approximately 171.6 ha), and its location in close proximity of an urban setting, it is considered reasonable to assume that the mineral resource will not be needlessly sterilised, especially considering the wide presence of brick clay reserves across large parts of the county.
- 7.1.6 Given the proximity of the Site to areas of existing residential housing, a Scheduled Monument, Public Rights of Way, public roads, ecological receptors (Ifield Brook Wood and Meadows, as well as adjacent areas of ancient woodland) and surface watercourses (some of which flow through the Site), it is considered unlikely that any significant mineral extraction works would be feasible to implement on Site without significant adverse effects. Protection of these environmental receptors has been considered as part of the Proposed Development, however the potential effects from on-Site mineral extraction are considered to be greater than those which would result from the construction phase of the Proposed Development.
- 7.1.7 The potential extraction constraints and buffers as illustrated in Figure A-1 (Appendix 1) indicate that large areas of the Site are not feasible for prior extraction. Potentially the largest areas of the Site without constraints comprise the southern and eastern areas. However, these areas have different constraints in terms of proposals to retain the golf course and agricultural land for as long as feasibly possible. Whereby potential prior extraction would be contrary to these objectives as it would require earlier cessation of these land use activities. Furthermore, proposed tree retention and biodiversity net gain (BNG) strategies for the Site restrict the opportunities for prior extraction. The general BNG principle is that areas of existing habitats will be retained wherever feasible and then ecologically enhanced (including within built development plots). This minimises biodiversity effects and also ensures that BNG policy requirements can be met. If additional areas of the Site are to be cleared than proposed at present (i.e. to enable feasible prior extraction) this would mean that BNG targets are unlikely to be met.
- 7.1.8 The Site lies approximately 1 km to the south-west of Gatwick Airport, and it is considered that an increased bird hazard risk could occur during any potential mineral extraction and restoration phase. As part of the Proposed Development the Applicant has been liaising with Gatwick Airport and agreed principles for bird hazard management. Potential implementation of mineral extraction would

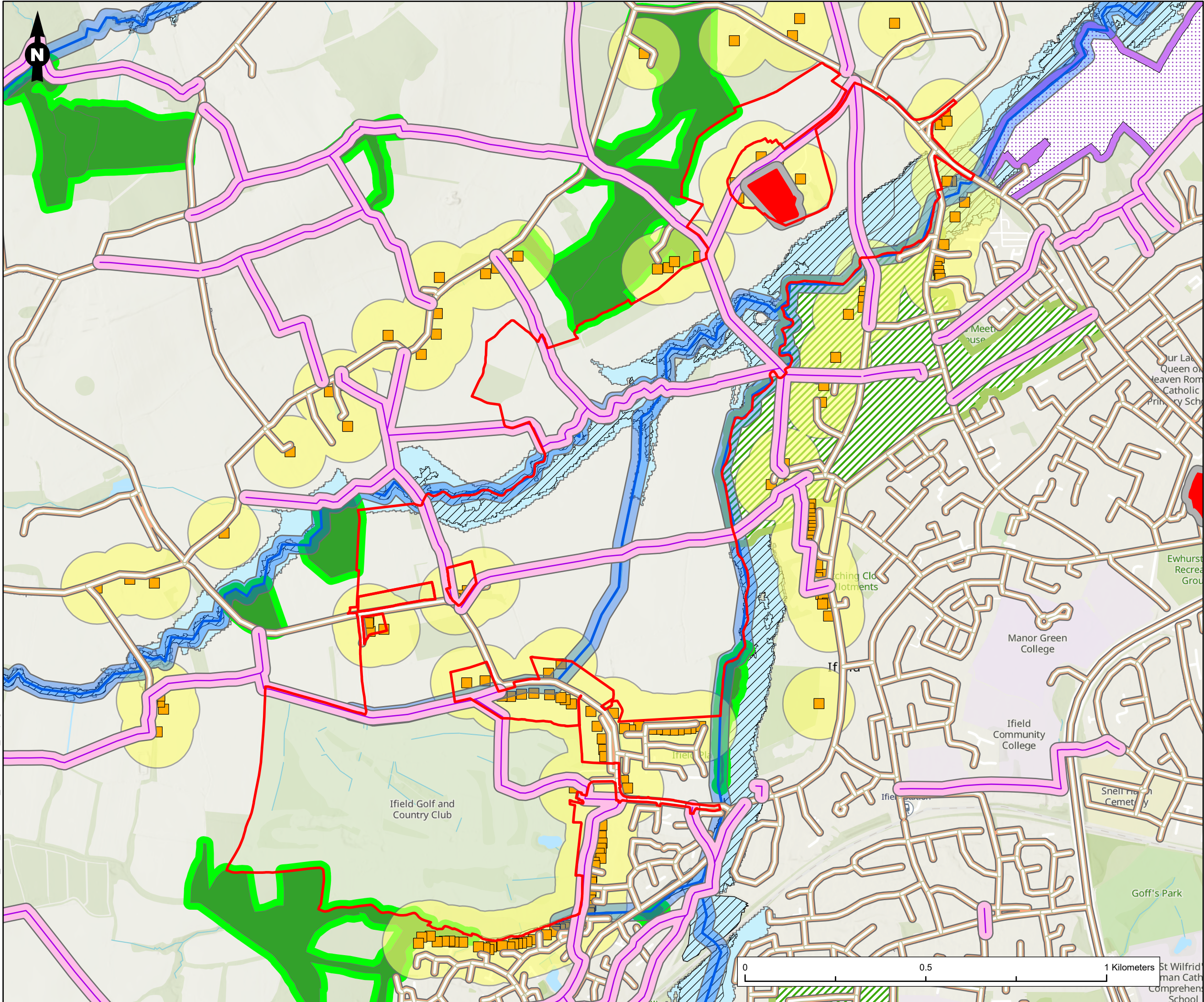
be contrary to these principles and would likely increase bird hazard risk when compared to the development of the Site as proposed (i.e. without prior mineral extraction).

7.1.9 Based on the information included within this assessment, the three tests within Policy M9 of the adopted West Sussex Joint Minerals Local Plan are considered to be satisfied.

7.1.10 In conclusion, it is considered that it would likely not be feasible to extract Brick Clay on the Site given: the size and location of the Site; the potentially excessive costs associated with potential processing of the material on Site in the event that prior extraction was attempted; the cost of geotechnical mitigation potentially required following extraction; the ecological / hydrological impacts on the Site and on nearby sensitive receptors; and the potential increase in bird hazard risk at nearby Gatwick Airport.

APPENDIX 1

MINERAL EXTRACTION CONSTRAINTS PLAN



Legend

- Site Boundary
- Scheduled Monuments
- 20 m Scheduled Monuments Buffer
- Public Right of Ways
- 20 m Public Rights of Way Buffer
- Public Roads
- 10 m Public Roads Buffer
- Identified Watercourses
- 25 m Identified Watercourses Buffer
- Surrounding Residential / Sensitive Receptors
- 100 m Surrounding Residential / Sensitive Receptors Buffer
- Conservation Areas
- 20m Conservation Areas Buffer
- Local Nature Reserves
- 20 m Local Nature Reserves Buffer
- Ancient Woodlands
- 20 m Ancient Woodlands Buffer
- Flood Zone 3
- Flood Zone 2

Note: The plan does not include all potential constraints, just those based on receptors detailed in this plan. Refer to the Minerals Resource Assessment report for details on further constraints such as biodiversity net gain requirements and aviation risks.

Figure Title

Mineral Extraction Constraints

Project Name

West of Ifield

Project No.

1620007949-003

Date	May 2025	Figure No.	A-1	Revision	2.0
Prepared By	MB	Scale	1:10,000 @A3		

Client

Homes England