Mineral Resource Assessment

Lancashire Central, South Ribble, Lancashire

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This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

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Comments

Third Issue – following Client Team & Legal Review

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1. Introduction

This Minerals Resource Assessment (MRA) has been prepared for submission to Lancashire County Council (LCC) as part of an outline planning application by Maple Grove Developments Limited and Lancashire County Council ('the Applicant') for a major mixed-use development.

The Site, also known as Lancashire Central, extends to approximately 51 hectares and comprises land to the south of the M65 and Lostock Lane, to the west of A49 Wigan Road, and east of Stanifield Lane (hereafter termed "the Site"). The Site forms part of the 'Cuerden Strategic Employment Site'; an employment led allocation within the South Ribble Local Plan. The extent of the Site is shown in **Appendix A**.

This Statement provides an overview and analysis of the following:

- The prevailing National Planning Policy and Local Planning context in respect of mineral working;
- The extent of minerals in situ under the Site through interrogation of available data sources and recent ground investigations;
- The extent of minerals landbank (sand bank) through an aggregate assessment; and,
- An assessment against Policy M2 of the Joint Lancashire Minerals and Waste Local Plan.

1.1. Proposed Development

The Proposed Development is a multi-stage mixed end use development consisting of the following:

- Zone A Development for retail, commercial, hotel, health and employment uses plus soft landscaping and green infrastructure, highways infrastructure, servicing and associated hardstanding;
- Zone B Development for mainly employment uses plus green infrastructure and highways infrastructure;
- Zone C Development for employment/ business and leisure uses, green infrastructure and highways infrastructure;
- Zone D Development for employment/ business and leisure uses, green infrastructure and highways infrastructure; and
- Zone E for residential development with associated highways, hardstanding and soft landscaping).

A planning application is being made for an Outline Planning Permission (with all matters reserved save for access from the public highway and strategic green infrastructure/landscaping) for a mixed-use development including the provision of Employment use (Use Classes B2/B8/E(g)); retail (use Class E(a)); food, drink and drive-through restaurant use (Use Class E(b)/Sui Generis Drive-Through); hotel use (Use Class C1); health, fitness and leisure use (Use Classes E(d)/F(e)/F2(b)); creche/nursery (Class E(f)); car showrooms (Use Class Sui Generis Car Showroom); Residential use (C3) the provision of associated car parking, access, public open space, landscaping and drainage.

Full details of the proposed land usage, including breakdown of land usage by type and area are included in **Appendix A**. The Future Development Phases shown on this plan are not included within the outline planning application.

1.2. Form of Application

The application takes the form of an outline planning application, with all matters reserved for future consideration except for access from the public highway and strategic green infrastructure/landscaping. The application is supported by a set of Parameter Plans and a Design Code document that will control future reserved matters applications (via planning condition).

The submitted Parameter Plans define the principles of development sought within the planning application which cover the following:

- Site Boundary;
- Development Plots;
- Land Use & Quantum;
- Building Heights; and
- Access (including diversion of footpaths across the Site) and green infrastructure.

The Design Code document details the major elements of land use, layout, form and scale, maximum and minimum floorspace quanta and other key development principles. Once approved, these will provide a basis for future Reserved Matters submissions.

1.3. Regulatory Context

The Site, and wider Cuerden Strategic Site provides a once in a generation opportunity to deliver a comprehensive development that will generate significant, economic and employment benefits across the region.

It has been central to regional and local planning policy as an employment site for over 20 years having been identified in the former Lancashire Structure Plan and the North West Regional Spatial Strategy (RSS). It remains at the heart of sub-regional and local planning policy having been expressly identified as a Strategic Employment Site in both the Joint Lancashire Core Strategy and South Ribble Local Plan. It is also central plank within the Lancashire Enterprise Partnership (LEP)'s Strategic Economic Plan1 and is the largest economic development site in the Preston, South Ribble and Lancashire City Deal.

Notwithstanding its specific land use allocation, a proportion of the Site is located within a Mineral Safeguarding Area (MSA); the extent of which is shown in **Appendix A**. The vast majority of the MSA comprises of land to south of the Site which is currently being extracted for sand and gravel (Lydiate Sand Quarry).

As the Site lies within a MSA, policy M2 of the Joint Lancashire Minerals and Waste Local Plan (MWLP) indicates that planning permission, within a MSA, would not be supported for any form of development which may be considered incompatible with the working of mineral unless the developer can demonstrate that:

- "The mineral concerned is no longer of any value or has been fully extracted;
- The full extent of the mineral can be extracted satisfactorily prior to the incompatible development taking place.
- The incompatible development is of a temporary nature and can be completed and the site returned to its original condition prior to the minerals being worked.
- There is an overarching need for the incompatible development that outweighs the need to avoid the sterilisation of the mineral resource.
- That prior extraction of minerals is not feasible due to the depth of the deposit.
- Extraction would lead to land stability problems."

[1] Lancashire Strategic Economic Plan – A Growth Deal for the Arc of Prosperity, March 2014

1.4. Constraints

The assessment was undertaken in accordance with the scope agreed between Waterman and Maple Grove Developments Limited. The benefit of this report is made to Maple Grove Developments Ltd and Lancashire County Council.

The information contained in this report is based on a review of available historical, geological and hydrogeological sources, consultation with the regulatory authorities and observations made during an initial site walkover on 21st June 2016, and an updated visit undertaken on the 18th January 2022.

Waterman has endeavoured to assess all information provided to them during this assessment but makes no guarantees or warranties as to the accuracy or completeness of this information.

The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the Site.

2. Planning Policy Context

2.1. National Planning Policy Context

2.1.1. Minerals Policy Statement 1: Planning and Minerals (November 2006)

Prior to the first publication of the National Planning Policy Framework in March 2012 (NPPF), Minerals Policy Statement 1: *Planning and minerals* (November 2006) (MPS 1) and the accompanying Planning and Minerals: Practice Guide provided the national planning policy for mineral safeguarding. Paragraph 15 set out national policy on safeguarding mineral reserves with the following intent:

- To place an obligation on all Mineral Planning Authorities (MPAs) to define Minerals Safeguarding Areas (MSAs) in Local Development Documents (LDDs) to ensure that 'proven' resources are not needlessly sterilised;
- To encourage the prior extraction of minerals 'where practicable' if non-mineral development is necessary in MSAs;
- In two-tier planning areas include policies and proposals to safeguard minerals resources within MSAs in county LDDs and MSAs in district LDDs;
- Counties should define Mineral Consultation Areas (MCAs) based on MSAs. Where a planning application is submitted within a MCA, the District Council should consult the County Council on the application. District Council's responsible for spatial planning of land defined in MSAs should not normally include policies and proposals in their LDDs for non-minerals development in those areas, or sensitive development around MSAs, where such policies would affect the potential for future extraction of minerals.

It is important to note that it was never intended for MSAs to impose a blanket restriction on development within them and there is no presumption that minerals resources will be worked in these areas. Furthermore, the delineation of minerals resources does not involve consideration of the full range of land use constraints that might apply if future extraction was to be considered.

2.1.2. National Planning Policy Framework, 2021

The purpose of MSAs is to ensure that the presence of mineral resources is both adequately and effectively considered in land-use planning decision making.

The National Planning Policy Framework (NPPF), published in July 2021, it has at its heart, a presumption in favour of sustainable development which should be seen as 'the golden thread' running through plan-making and decision taking.

At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without comprising the ability of future generations to meeting their own needs. There are three dimensions to sustainable development:

- ***Economic role*** – sustainable development should contribute to building a strong economy and ensure that development requirements are identified and co-ordinated on land of the right type, in the right place and at the right time;
- ***A social role*** – sustainable development should contribute to strong communities by providing an appropriate supply of housing to meet the needs of present and future generations;
- ***An environmental role*** – sustainable development should contribute to protecting and enhancing natural, built and historic environment while helping to improve the environmental climate.

The three roles should not be undertaken in isolation. To achieve sustainable development all aspects and gains should be sought simultaneously. This assists in weighing up the balance in the decision-making process. The sustainable credentials of the proposed mixed-use development are an important consideration when determining the planning balance.

Section 17 of the NPPF covers the sustainable use of minerals. NPPF recognises the important role minerals have in supporting growth and the need to plan for sufficient supply. Minerals resources are finite and should be used with that in mind. Consideration needs to be given to whether the extraction of minerals alongside this proposal is sustainable.

Clearly minerals are finite and can only be worked where they occur. Sterilisation of minerals can occur as a result of surface development on top of reserves or by development that is close to the boundary of a resource. Where mineral resources exist below a development the prior extraction of those minerals should be considered.

NPPF states, in paragraph 210, that the MPA should adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked) and set out policies to encourage the prior extraction of minerals, where *practical and environmentally* feasible, if it is necessary for non-mineral development to take place. There is no explicit reference to *practicability or environmental feasibility* in the MPAs adopted policies which are considered below.

2.1.3. Planning Practice Guidance

The Planning Practice Guidance (PPG) which was first published in March 2014 and is subject to rolling updates, includes guidance on planning for mineral extraction in the plan making and application process. Section 2 of the Minerals Guidance addresses minerals safeguarding, Section 3 covers planning for mineral extraction and Section 4 provides guidance on assessing the environmental effects from mineral extraction.

2.1.4. Minerals Safeguarding

The PPG states that minerals safeguarding is the process of ensuring that non-minerals development does not *needlessly* prevent the future extraction of minerals resources of local and national importance. Needless means without cause or reason. Reflective of the NPPF, the PPG does not impose a complete restriction on non-minerals development in MSAs that does not provide for prior extraction where there is cause and reason for that decision.

Minerals Planning Authorities (MPAs) are advised to adopt a systematic approach to safeguarding mineral resources, which:

- Uses best available information on the location of all mineral resources;
- Involves consultation with stakeholders to define MSAs;
- Sets out MSAs on the polices map that accompanies the local plan; and
- Adopts *clear* development management policies which set out how proposals for non-mineral development in MSAs will be handled, and what action applicants for development should take to address the risk of losing the ability to extract the resource. This may include policies that encourage the prior extraction of minerals, *where practicable,* if it is necessary for non-mineral development to take place in MSAs and to prevent the unnecessary sterilisation of minerals.

District Councils, and by inference Unitary Authorities, are advised to:

- Have regard to the local minerals plan when identifying suitable areas for non-mineral development and should show MSAs on their policy maps;
- Consult the MPA and take account of the policies in the local minerals plan before determining applications for non-mineral development; and
- When determining planning applications, doing so in accordance with development policy on minerals safeguarding, and taking account of the views of the MPA on the risk of preventing extraction.

The PPG contains a link to Mineral safeguarding in England: good practice advice Open Report OR/11/046, British Geological Survey 2011. This is the second edition of the guide, the first having been produced in 2007. This guide provides clearer guidance and assistance with implementing certain aspect of the mineral safeguarding process.

The BGS Report, while published pre NPPF, remains relevant. At paragraph 1.1.2 it states:

> *'The essence of any safeguarding process is that it should introduce the consideration of minerals into the decision-making balance, so that access to mineral resources for future generations is preserved as far as possible'.*

This recognises that it will not be possible to safeguard minerals resources in all cases. The Guide sets out a 7 stage safeguarding methodology:

- Identify the best geological and resource information

  The definition of up-to-date MSAs requires up to date, factual information on the physical location of mineral resources and should be based principally on the best available mineral resource information at the time they are prepared. A robust credible starting point is BGS data. Mineral deposits do not necessarily equate to viable mineral resources. Where available other data should also be incorporated e.g., from industry, sand and gravel assessments, Coal Authority data.

- Decide which minerals to safeguard and the physical extent of MSAs

  The best available data gathered from Stage 1 should then be used as a basis for deciding those minerals that are of economic importance and should be safeguarded. Information should be used to compile resource maps best done using GIS. MSAs should usually cover the whole resource and not be curtailed by other planning considerations. Decisions and modifications to the extent of any resources should be fully recorded and justified. It may be appropriate to extend the MSA beyond the resource boundary to take account of the risks associated with sterilisation by incompatible development nearby. In urban areas MPAs should define MSAs to highlight the potential for extracting minerals beneath large regeneration projects and brownfield sites. In exceptional circumstances the definition of MSAs to exclude urban areas may be justified e.g. where the method of working the mineral may not acceptable.

- Undertake consultation on Draft MSAs

  The proposed list of minerals to be safeguarded and the justification together with maps of mineral resources and draft MSAs should be the subject of specialist consultations. Key consultees include the Coal Authority, English Heritage, BGs and neighbouring MPAs. Consultation may take many forms.

- Decide on the approach to safeguarding in the Core Strategy

  It is essential that the approach to safeguarding is defined in the Core Strategy.

- Include Mineral Assessments in the local list of information requirements

The definition of MSAs will not in itself safeguard mineral resources. Effective safeguarding will only be achieved by outlining criteria against which planning applications for land use and development in the MSAs will be considered. A criteria based safeguarding policy is advised, stating the circumstances where non mineral development would be appropriate. It may also be useful to set out exemption criteria e.g. householder development. MSA boundaries should be presented on proposals map that accompanies the relevant DPD.

- Include safeguarding in district level DPD

  This stage is only where there are two tier authorities.

- Include Mineral Assessments in local list requirements

  Sufficient information on mineral resources is necessary for local authorities to determine non-mineral planning applications submitted in MSAs. The requirement for a Mineral Assessment could be administered through the Local List.

The information that is required in a Mineral Assessment should be relevant, necessary, and material to the application in question. The Mineral Assessment should include a site-specific desk-based assessment of existing surface and solid geological information and an analysis of that information, its potential for use in forthcoming development and an assessment of whether it is feasible and viable to extract the mineral resources ahead of development to prevent unnecessary sterilisation.

Where an applicant proposes development within a MSA, the planning authority should ensure that the applicant has considered all the options to avoid sterilisation of the minerals.

An assessment of the viability of prior extraction will need to consider whether the environmental conditions are suitable to support extraction and whether extraction is achievable in an acceptable timeframe. Additional considerations may also include the availability of the market to deal with the supply and the financial outlay required to develop the subsequent excavation.

2.1.5. The Development Plan

The Statutory Basis for Determining the Planning Application

Section 38(6) of the Planning and Compulsory Purchase Act 2004 refers to the Development Plan as a whole and requires that:

'If regard is to be had to the Development Plan for the purpose of any determination to be made under the Planning Acts, the determination must be made in accordance with the Plan unless material considerations indicate otherwise'.

It is a matter of established planning law that, when considering application proposals, the Development Plan has to be considered as a whole and where one policy is at odds with one another or pulls in the opposite direction, the decision maker needs to decide where policy should be given greater weight in relation to a particular decision.

The Development Plan in this instance comprises the following:

- The Central Lancashire Core Strategy (adopted July 2012);
- The South Ribble Local Plan (adopted July 2015);
- The Joint Lancashire Minerals and Waste Plan Core Strategy (adopted February 2009);
- The Joint Lancashire Minerals and Waste Local Plan: Site Allocations and Development Management Policies (adopted September 2013).

The Central Lancashire Core Strategy

The Core Strategy was prepared jointly by Preston City Council, Chorley Council and South Ribble Council and was adopted in July 2012. The Core Strategy seeks to foster economic growth and prosperity.

Having been identified in the former Regional Spatial Strategy (RSS), the Site is identified within the Core Strategy as one of four Strategic Employment Sites which are considered central to the achievement of the Core Strategy.

The South Ribble Local Plan

The Site is identified, under Policy C4, as a strategic employment site. It is one of four major strategic development sites in the borough. It is identified in the plan as a sustainable and strategically significant site, capable of stimulating economic growth in Central Lancashire and the wider Lancashire sub region with the potential of attracting significant inward investment.

The Joint Lancashire Minerals and Waste Local Plan

As the Site lies within a Mineral Safeguarding Area – identified for sand and gravel reserves, Policy M2 of the MWLP applies to all non-minerals related development. Policy M2 of the MWLP states that non-mineral development within MSAs that do not allow for the prior extraction will only be permitted where the developer demonstrates that:

1) the mineral concerned is no longer any value or has been fully extracted;
2) the full extent of the mineral can be extracted satisfactorily prior to the incompatible development taking place;
3) the incompatible development is of a temporary nature and can be completed and the site returned to its original condition prior to the minerals being worked;
4) there is an overarching need for the incompatible development that outweighs the need to avoid the sterilisation of the mineral resource;
5) that prior extraction of minerals is not feasible due to the depth of the deposit;
6) extraction would lead to land stability problems.

Policy M2 is supported by a Lancashire Minerals and Waste Local Plan Guidance Note on policy M2 Safeguarding Minerals (Minerals Safeguarding Areas) December 2014. This sets out that the presence of a Minerals Safeguarding Area (MSA) does not necessarily preclude other forms of development being permitted, nor confer any presumption that the mineral will be worked. It is a policy tool to alert the applicant that minerals may be sterilised by the proposed development and that this should be taken into account by the planning process. Appropriate information in the form of a Minerals Resource Assessment should be submitted with applications to assist in the consideration of the application against Policy M2. This Minerals Resource Assessment sets out the key information and issues to enable the Site to be assessed against policy M2.

It is important to note that the policy justification, unlike other similar mineral policies2 or its supplementary guidance note, does not explicitly guide how the policy is to be interpreted and implemented. It is clear however that a developer cannot achieve all six provisions as a number of policy provisions contradict each other. One therefore needs to interpret the policy objectively and it is considered reasonable to assume that any developer needs to demonstrate one or more of the statement provisions to gain compliance with policy M2.

[2] See for example Policy 8 of the Joint Greater Manchester Minerals and Waste Plan, adopted April 2013

The implications for and application of these policies are discussed in Section 7.

3. Site Setting

3.1. Site Description and Reconnaissance

The Site is located at National Grid Reference 355468, 424624 (OS Ref. SD553246) bound by: A5083 Stanifield Lane to the west, the A582 Lostock Lane / M65 Junction 1A roundabout to the north; and A49 Wigan Road to the east. The Site is located in the Cuerden area of South Ribble approximately 4km south of Preston City centre. The current layout of the Site is show in **Appendix A**.

An initial Site walkover was undertaken on 21st June 2016, with an updated visit undertaken on the 18th January 2022; a selection of photographs from the site walkovers is presented in **Appendix B**.

The Site covers an area of approximately 51 hectares (ha), a significant amount of which is located within a Mineral Safeguarding Area3. Generally, the Site comprises agricultural land, predominantly rough grassland (pasture), some of which is in use for grazing animals. Field boundaries are formed by trees, tree belts and drainage ditches. A number of isolated residential properties are located immediately outside the Site Boundary adjacent to Old School Lane and Stoney Lane with a farm and associated farm buildings.

The northern boundary of the Site comprises hedgerows, adjacent to the A582 Lostock Lane, and a bank which slopes upwards towards the link road and the M65 Junction 1A roundabout. The eastern, southern and western boundaries of the Site are formed by hedgerows.

An initial site walkover was undertaken on 21st June 2016 (as part of a previous application), with an updated visit undertaken on the 18th January 2022; photographs taken as part of the most recent site walkover are presented within **Appendix B** of this report. Observations made during the site walkover are included below in **Table 1**.

Table 1: Observations Made During the Site Walkover

Site Wide Observations
• Predominantly agricultural land, much of which is rough grassland mostly in use for animal grazing;
• The topography of the Site is generally flat, with some undulation and pockets of depressed ground across the Site;
• During the visit it was noted that the ground was soft, with some particularly boggy / marshy areas - however the visit was undertaken during a prolonged period of rain, which may explain the ground conditions;
• There was significant rutting across some areas of the Site;
• The Site is well vegetated, with fields comprising rough grassland bounded by mature trees and ditches;
• Some trees and areas of the Site were protected by Heras fencing;
• Access is possible into most fields via a series of gates located on Stanifield Lane, Old School Lane, Stoney Lane, and Wigan Road;
• The presence of a number of ditches and ponds were noted, which were found to correspond with historical plans; and
• No visual or olfactory evidence of contamination was noted on the ground surface.

[3] Lancashire County Council (2013) Joint Lancashire Minerals and Waste Development Framework: Site Allocation and Development Management Policies DPD http://www.lancashire.gov.uk/media/305791/Proposals-Map-2-MSA-A0.pdf (accessed 24.06.2016)

Zone Specific Observations	
Zone A	• Road cuttings, subbase and marker posts for the approved highways infrastructure were observed. • Significant areas of land enclosed by Heras fencing. • Several raised covers for gas monitoring installations were noted. • Some stockpiled material, presumed to be topsoil observed to the west of the M65 roundabout. • An area of hardstanding, presumed to be a former works compound, was noted in the southwest of Zone A. • An electricity pylon and high voltage overhead line is located within the northern portion of the Zone. • The Stoney Lane Farm complex, on Stoney Lane immediately adjacent to the Zone, appears to contain a number of above ground fuel tanks (the nature of which was not known) and there was some evidence of informal tipping / dumping of wood, possibly the location of a bonfire pit. Caravans, old vehicles and farm vehicles were being stored within the farm complex, on areas of hardstanding and soft ground.
Zone B	• A significant quantity of crushed aggregate, including crushed sandstone, granite and in some places brick was noted in the north of this Zone, running east-west. The nature of the material suggest it is part of a proposed road construction or has been used as a temporary access road for plant. • An area of plantation previously recorded, adjacent to the M65 Junction 1A roundabout is no longer present and has been replaced by heavily rutted grassland and extensive marshland with deep drainage ditches. The isolated raised ground level (possibly made ground) is now clearer to see and extends towards the Quarry to the south of the Site. • Grassland in the southeast of Zone B was very boggy and rutted during the 2022 Site walkover. • Two bathtubs, presumed to be watering troughs for grazing animals were noted in the south of the Site.
Housing Development Zone	• The north-western most field (adjacent to Stanifield Lane and Lostock Hall Lane) is a gated compound, accessed via a padlocked gate. • There was evidence of building foundations close to the entrance of the compound, a series of wooden platforms and cleared ground throughout the compound, and some former animal enclosures and small sheds. It was observed that there had been some recent ground disturbance, close to the compound entrance. • An Electricity substation (No: 4151670) was recorded in the west of the Zone in a small compound adjacent to Stanifield Lane. • Informal tipping recorded during the 2016 Walkover was not noted at the time of the 2022 walkover.

Zone Specific Observations	
Zone C Development Zone	• A high voltage overhead line is located within the Southern portion of this Zone.
Zone D Development Zone	• No specific observations were made in this area of the Site.

According to the Landmark Envirocheck Report (January 2022), there is a Local Authority Recorded Landfill within the western part of the Site - to the south of Brookhouse Farm. This operation was not observed during the site walkover. No further licences or discharge consents are registered within the Site.

3.1.1. Site Surroundings

Land surrounding the Site comprises agricultural land, the M6 and other highways, a sand and gravel quarry (Lydiate Lane Quarry) adjacent to the southern site boundary, and a business park to the north.

A summary of the current surrounding land uses is shown in **Table 2** below.

Table 2: Summary of Surrounding Land Uses

Location	Description
North	The northern boundary is formed by the A582 Lostock Lane, beyond which are fields and residential properties, and a vegetated slope leading up to the M65 Junction 1A roundabout, beyond which is the South Rings Business Park, which includes retail and offices premises, leisure facilities and a hotel.
East	The eastern boundary is formed by the A49 Wigan Road, adjacent to which are fields, a car park and woodland associated with the Cuerden Valley Park beyond, together with the M6 / M65 Junction 1 slip road.
South	Agricultural land (pasture) is located to the south of the Site, together with Lydiate Lane Quarry – an active open cast sand and gravel extraction site and Licenced Waste Management Facility. Further south, beyond the quarry is a residential estate.
West	The western boundary is formed by Stanifield Lane, beyond which are isolated residential dwellings and farm premises surrounded by fields. Leyland Business Park and Lancashire Business Park are located to the south-west of the Site.

A groundwater abstraction permit and a licenced waste management facility are associated with the quarry immediately to the south of the Site.

3.2. History

A review of historical maps obtained from Landmark Information Group Historical Maps has been undertaken with full details included in the Preliminary Environmental Risk Assessment (Waterman Ref: WIE11556-110-1.2.2-PRA).

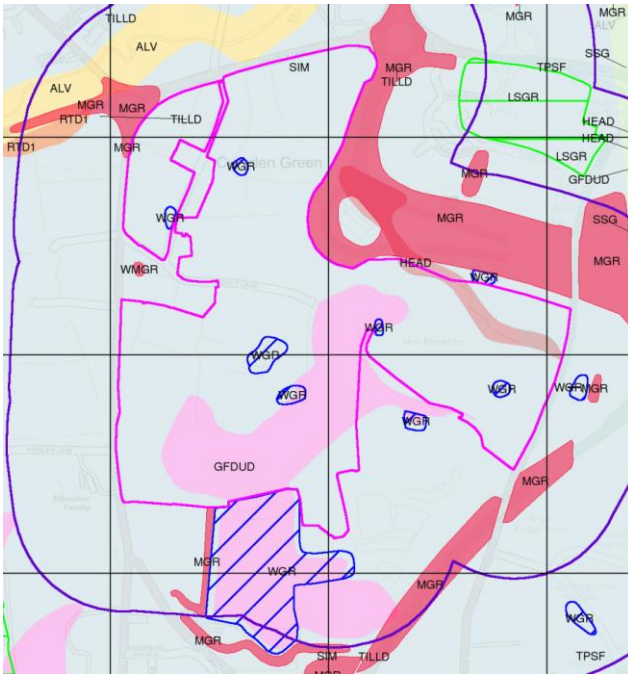
In summary, the Site is shown to have remained largely undeveloped from the earliest mapping in 1848, through to the present day. A number of ponds and sand pits are identified on the historical maps. Areas of lower lying ground identified during the site walkover may be associated with these features. Other ponds and pits may have been subject to backfilling, the nature of the backfill is currently poorly understood. A Local Authority Recorded Landfill is identified to be present in the west of the Site.

3.3. Geology

The geology beneath the Site has been established from information contained within the Landmark Envirocheck Report (**Appendix C**) together with information contained within historical borehole logs upon the British Geological Survey (BGS) website4, and borehole data.

In general, superficial deposits across the Site are recorded to comprise mostly of Glacial Deposits, with the bedrock anticipated to be the Sidmouth Mudstone Formation. The Sites' anticipated geology is shown in **Figure 1** below.

Figure 1: Geology



Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Holocene - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Holocene - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Holocene - Holocene
	LSGR	Landscaped Ground (Undivided)	Unknown/Unclassified Entry	Holocene - Holocene

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Pleistocene
	TILLD	Till, Devensian	CLAY, SANDY, GRAVELLY, SILTY [UNLITHIFIED DEPOSITS CODING SCHEME]	Devensian - Ipswichian
	GFDUD	Glaciofluvial Deposits, Devensian	SAND, GRAVEL AND SILT	Devensian - Ipswichian
	HEAD	Head	Clay, Gravelly, Silty, Sandy [Unlithified Deposits Coding Scheme]	Quaternary - Ryazanian
	HEAD	Head	Clay, Gravelly, Silty, Sandy [Unlithified Deposits Coding Scheme]	Quaternary - Ryazanian
	RTD1	River Terrace Deposits, 1	Clay, Silt, Sand and Gravel	Quaternary - Ryazanian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	SIM	Sidmouth Mudstone Formation	Mudstone and Halite-stone	Carnian - Olenekian
	TPSF	Tarporley Siltstone Formation	Siltstone and Sandstone	Anisian - Olenekian
	TPSF	Tarporley Siltstone Formation	Siltstone and Sandstone	Anisian - Olenekian
	SSG	Sherwood Sandstone Group	Sandstone	Ladinian - Late Permian

Source: Landmark Envirocheck Report Reference 289775268_1_1 (January 2022)

A summary of the geology is provided in **Table 3** below:

Table 3: Site Geology

Stratum	Area Covered	Estimated Thickness	Typical Description
Superficial Geology			
Glacial Till	Site Wide	Up to 7m	Boulder Clay. Superficial Deposits formed up to 2 million years ago in the Quaternary Period.
Glaciofluvial Deposits	Zone A, Zone B and Zone D Developments.	Up to 31m	Sand and Gravel. Superficial Deposits formed up to 2 million years ago in the Quaternary Period.
Head	Zone B Development	Unknown	Clay, Gravelly, Silty, Sandy. Superficial Deposits formed up to 3 million years ago in the Quaternary Period.

[4] British Geological Survey website, www.bgs.co.uk

Stratum	Area Covered	Estimated Thickness	Typical Description
Bedrock			
Sidmouth Mudstone Formation	Zone A, Zone B, Zone C and Zone D Developments	120m to 1.6km	Mudstone and Halite-stone. Sedimentary Bedrock formed approximately 217 to 250 million years ago in the Triassic Period.
Hambleton Mudstone Member	Zone B Development	30m to 37m	Mudstone. Sedimentary Bedrock formed 237 to 246 million years ago in the Triassic Period.

Stratum thickness has been estimated using depth information held on the BGS website and borehole data provided by the Client.

The Site is largely in agricultural use therefore it is unlikely that there is a significant amount of Made Ground beneath the Site, however there is some potential for Made Ground in the areas around farm buildings and the infilled ponds noted on historical maps.

3.3.1. Ground Stability

The BGS mapping reveals a geological fault that passes through the north-east corner of the Site and which divides the Sidmouth Mudstone Formation and Hambleton Mudstone Formation. The Site, in the main, is underlain by Sidmouth Mudstone Formation, proven to 289m below ground level (bgl), with Hambleton Mudstone Formation in the north-east part of the Site. As the geological fault is present at depth beneath the superficial deposits, it is not considered to have the potential to result in impact at the surface.

According to the information presented within the Landmark Envirocheck Report, the Site has very low / no potential stability hazards for: collapsible ground; compressible ground; ground dissolution; landslide ground; running sand; or shrinking or swelling clay. There are no further structural, geomorphological or geochemical features on or near the Site. The Site is not in an area that could be affected by coal mining activity.

3.4. Controlled Waters

3.4.1. Surface Waters

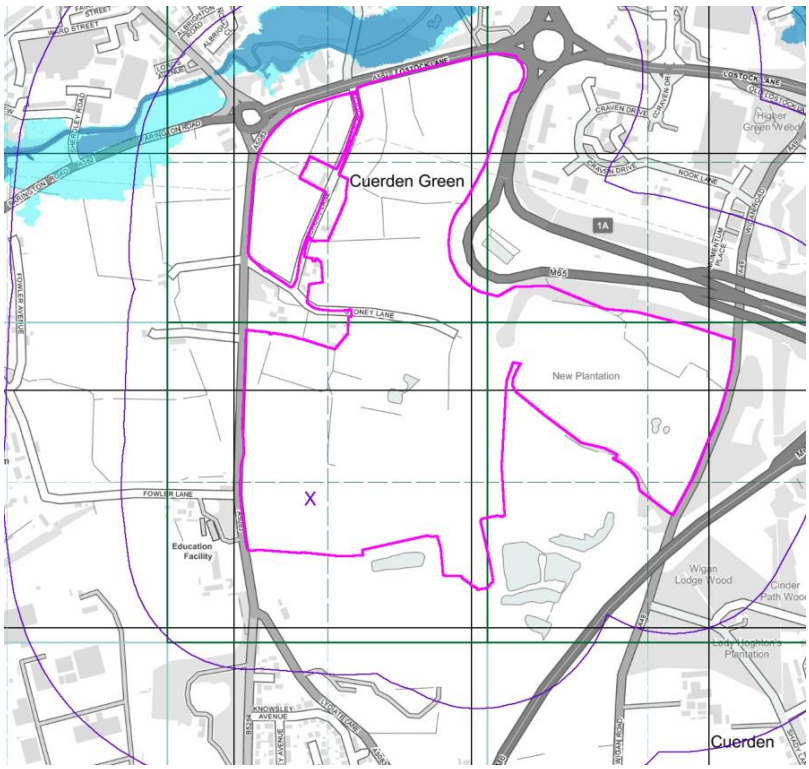
The nearest surface water to the Site is the River Lostock, approximately 75m to the north and flowing in a westerly direction towards the coast. Within the Site, there are several ‘ponds’, and numerous smaller surface water features, the majority of which flow towards the River Lostock and are denoted as ‘Drains’ and ‘Issues’ within the Landmark Envirocheck Report.

According to the Landmark Envirocheck Report, the water quality of the River Lostock has been classified as Grade C, at the nearest monitoring location - some 4.4km south-west of the Site. There are 10 current surface water discharge consents within a 1km radius of the Site, the closest of which is located approximately 80m east of the Site, licenced to discharge treated effluent to a tributary of the River Lostock.

The Landmark Envirocheck Report lists 15No. pollution incidents to controlled waters (surface water) within 500m of the Site. The closest of which was in 1995, approximately 10m to the north of the Site, where there was a release of inert suspended solids to a tributary of the River Lostock, classified as a ‘Category 2 - Significant Incident’.

It is understood that the Site is not located within an area of fluvial and surface water flooding; Waterman has prepared a separate Flood Risk Assessment report. The risk of surface water flooding (tidal and fluvial) is shown in **Figure 2** below:

Figure 2: Flood Risk



Source: Landmark Envirocheck Report Reference 289775268_1_1 (January 2022)

According to the EA's indicative flooding data, the Site is not located in an area of fluvial flooding / on a flood plain. There are no recorded flood defences in the area.

It should be noted that this boundary of the Site has been amended following purchase of the mapping. The report covers all aspects of the 2022 Site in a robust manner.

3.4.2. Groundwater

According to the EA Groundwater Vulnerability Mapping[5], the Site is not located within a groundwater Source Protection Zone; the geological deposits underlying the Site are classified as per **Table 4**.

[5] Environment Agency, Groundwater Vulnerability Mapping: http://maps.environment-agency.gov.uk/wiyby/wiybyController?value=PR5+5XP&lang=_e&ep=map&topic=groundwater&layerGroups=default&scale=11&textonly=off&submit.x=19&submit.y=14#x=355211&y=424579&lg=2,&scale=9 (accessed 27.06.2016)

Table 4: Summary of Hydrogeological Properties of the Main Geological Strata

Stratum	EA Classification	Hydrogeological Significance
Glacial Till	Secondary B Aquifer (undifferentiated)	May be important in supporting local abstractions or in providing baseflow to rivers and streams
Glaciofluvial Deposits	Secondary A Aquifer	May be important in supporting local abstractions or in providing baseflow to rivers and streams
Head	Secondary B Aquifer (undifferentiated)	May be important in supporting local abstractions or in providing baseflow to rivers and streams
Sidmouth Mudstone Formation	Secondary B Aquifer	May be important in supporting local abstractions or in providing baseflow to rivers and streams
Hambleton Mudstone Member	Secondary B Aquifer	May be important in supporting local abstractions or in providing baseflow to rivers and streams

Based on available information, it is anticipated that groundwater flow will be in a north-westerly direction.

There are four recorded groundwater abstractions within a 1km radius of the Site, the closest of which is located approximately 250m south of the Site, licensed to J.A. Jackson Contractors (Leyland) Limited for mineral washing.

The Landmark Envirocheck Report does not report details of any recorded pollution incidents to groundwater within 1km of the Site.

Overall, therefore, data suggests that underlying groundwater quality is likely to be of a good quality.

4. Environmental Assessments

The environmental reports detailed in **Table 5** were provided by the Client. A summary of these reports is provided below.

Table 5: List of Environmental Reports Reviewed

Author	Title	Date and Reference
AECOM Limited	Factual Ground Investigation Report for Cuerden Sand Study	March 2015 Ref 60323580-GEO/01
Soil Mechanics	Zone 2 Cuerden, Bamber Bridge: Factual Report on Ground Investigation (Volume 1)	September 2003 Ref. F3602
Waterman	Geo-Environmental Assessment, Cuerden Strategic Site	January 2017 WIE11556-102-R-1.2.2-MB and WIE11556-102-R-2.2.2-MB

4.1. AECOM Limited: Factual Ground Investigation Report

In 2015, AECOM Limited prepared a factual ground investigation report to establish the ground conditions, in relation to potential sand deposits at the Cuerden Strategic Site, and to assist in the derivation of the masterplan for the Cuerden Strategic Site. The ground investigation, undertaken in 2014, did not cover the entire Site, and excluded a land parcel within the north-west of the Site (east of Old School Lane, south of Lostock Lane) and a large parcel of land to the south-east of Stoney Lane Farm (north of Lydiate Quarry). The following was identified in the report:

- Five (5No.) cable percussive boreholes to a maximum depth of 10.0m bgl (3No. of which were installed with groundwater monitoring standpipes);
- Nineteen (19No.) dynamic window sample locations to a maximum depth of 4.0m bgl; and
- Thirteen (13No.) machine excavated trial pits to a maximum depth of 4.0m bgl.

All of the exploratory holes were found to be covered by grass/vegetation. Made Ground was recorded in a single location (WS24) in the south-west of the study area. The Made Ground was recorded at a depth of 1.2m bgl and comprised yellowish, brown gravelly clay with fragments of brick. Top soil was encountered in all exploratory holes where Made Ground was absent. It generally comprised a brown sandy silt and was encountered at depths of up to 1m bgl (WS05 and WS08).

The results of the ground investigation revealed that the superficial deposits comprising Sand, Sand and Gravel, Silt and /or Clay were recorded in all exploratory holes. Sand deposits were not recorded in the exploratory holes in the western or eastern section of the Cuerden Strategic Site. Laboratory contamination testing and groundwater / ground gas monitoring is absent or limited.

4.2. Soil Mechanics: Factual Report on Ground Investigation

In 2003, Soil Mechanics prepared a factual ground investigation report to establish the geotechnical and geo-environmental ground conditions to inform the design for the potential construction of two factory / light industrial units. The ground investigation was limited to the land parcels north of Stoney Lane, with the exception of the parcel to the west of Old School Lane / south of Lostock Lane) and comprised the following:

- Eight (8No.) cable percussion exploratory holes to a maximum depth of 15.5m;
- Thirty-five (35No.) machine excavated trial pits to a maximum depth of 4.5m; and
- Two (2No.) window sample exploratory holes to a maximum depth of 5.0m.

The ground investigation generally confirmed the published geology. Sand was generally found to be absent in the north-east and far north-west of the study area. Made Ground was recorded at a number of locations, principally in the western part of the study area.

Groundwater was encountered in the majority of boreholes, however the depth at which it was encountered varied across the study area, which suggests that there are pockets of perched groundwater, which are inconsistent within the superficial layers. The direction of flow was not determined.

Environmental and geochemical testing was undertaken on a selection of soil samples. Significant concentrations of contaminants were not recorded. However, since this analysis, laboratory testing and contamination testing has evolved and the results in the 2003 report are now considered to be out of date.

4.3. Waterman: Geo-Environmental Assessment

In 2016, Waterman prepared a geo-environmental assessment report to establish the geotechnical and geo-environmental ground conditions to inform the design for the potential development of the Site. The ground investigation was limited to the eastern end of the Site and comprised the following:

- Eighteen (18No.) cable percussion exploratory holes to a maximum depth of 30m;
- Seven (7No.) machine excavated trial pits to a maximum depth of 4.5m; and
- Three (3No.) window sample exploratory holes to a maximum depth of 5.0m.

The ground investigation generally confirmed the published geology. Sand was generally found to be absent in the east of the study area. Made Ground was recorded at a number of locations, principally at the north-eastern edge of the Site.

Based on the information obtained, it is considered that a continuous groundwater table is present across the Site at an approximate depth of 8m to 10m bgl, with the groundwater contained within the more permeable sand and gravel horizons of the Superficial Deposits.

Environmental and geochemical testing was undertaken on a selection of soil samples. Comparison of the laboratory results to the Waterman GACs identified no significantly elevated concentrations of contaminants. The risk from the Site soils to the proposed end-users are considered to be Low.

5. MSA and Aggregate Assessment

5.1. Mineral Safeguarding Areas

The current Joint Lancashire Minerals and Waste Local Plan (JLMWLP) identifies the Site as being partially located within a MSA. Immediately south of the Site is the Lydiate Lane Quarry, a permitted and active quarry operation which extracts sand and gravel.

The extent of the MSA is indicated on Drawing Ref. WIE11556-102_GR_GI_1A, included in **Appendix A**. For context, when the identified MSA is considered across Lancashire as a whole, the Site occupies a relatively small, discrete and isolated part of the MSA where the majority of it has been, or in the process of, being viably extracted through the adjoining quarry (Lydiate Lane).

5.2. Local Aggregate Assessment

The Joint Lancashire Local Aggregate Assessment report (LAA)[6] has been produced under the NPPF as an evidence base to support the review of the current Minerals and Waste Local Plan in line with the North West Aggregate Working Party (NWAWP). The previous sales and current permitted sand and gravel reserves are monitored annually and compared with future workings to calculate the land bank which should be 7 years, based on a rolling average of 10 years sales data.

The NWAWP Annual Monitoring Report states that the land bank for sands and gravel in Lancashire was 13.72 years at 31st December 2018.

The Joint Lancashire LAA provides a list of the permitted aggregate sites in Lancashire for 2020 and their estimated output; the active sand and gravel quarries are listed in **Table 6**.

Table 6: Active Quarries

Active Quarry	Location	Operator	Cessation Dates	Estimated Output tonnes/annum
Bradley's Sand Pit	SD 512 340	J A Jackson Ltd	2021	63,000
Lydiate Lane Quarry	SD 554 239	J A Jackson Ltd	2030	150,000
Sandons Farm	SD 592 131	Chorley Sand	2022	40,000
Sharples Quarry	SD 472 428	Hargreaves Quarries Ltd	2028	170,000

This latest evidence therefore indicates that the Lancashire mineral resource land bank as calculated in December 2018 is 13.72 years and this is significantly above the recommended 7 years.

Further reserves may also be extracted as a result of applications to extend the time periods allowed for minerals working at a number of active sites. Lancashire's mineral need appears to be sufficiently met by the existing permitted extraction sites. Extraction is also permitted at a site known as Runshaw Quarry. The Joint Lancashire LAA states that as of 2020 the majority of the permitted preserve will be held in Runshaw Quarry which is not yet extracting.

The LAA also states that although there are currently no marine dredged sand and gravel extractions in the area, there is existing consented marine aggregate reserve within the Northwest region to supply volumes in excess of historic landing levels for the Lancashire market. Additional marine aggregate reserves are likely to be developed in the region to allow further capacity to supply via forthcoming tender rounds operated by The Crown Estate.

[6] Joint Lancashire Local Aggregate Assessment (October 2021)

6. Geological Assessment, Mineral Recovery Potential and Viability of Prior Extraction

6.1. Ground Conditions

The BGS geological map for the area indicates that Glaciofluvial Deposits are present across the south of the Site. This material comprises the sands and gravels that would potentially be extracted as a mineral resource. The BGS maps are supported by the findings of the various phases of ground investigation that have been completed at the Site. Previous studies have concluded that it was difficult to correlate geological layers between exploratory holes, however, the available exploratory hole records generally indicate that the thickness of Glaciofluvial sand and gravels decreases and quickly pinches out in the southern-most areas of the Site.

A large number of exploratory holes excavated in the east of the Site did not encounter any potentially extractable sand and gravel within the top 4 to 5m, therefore it is considered that extraction of mineral in this area is unlikely to be feasible given the large thickness of overburden that would have to be removed to allow mineral extraction to take place.

Similarly, exploratory holes excavated in the centre, west and north of the Site did not encounter laterally extensive extractable sand and gravel within the top 4 to 5m, again meaning that extraction in this area is not likely to be feasible due to the thickness of overburden. Historical maps indicate that a number of former ponds have been infilled in this area of the Site. A historical landfill is also noted to be present in this area of the Site. The nature of the infill in the ponds and landfill is currently poorly understood.

In the central and southern area, a greater thickness of sand and gravel has been identified at shallower depths in the available historical exploratory hole logs. Logs indicate that extractable sand and gravel extends to up to 28m bgl in the southern area of the Site, adjacent to the existing quarry, beyond the southern site boundary. The greatest extent of extractable material is location adjacent but outside of the Site boundary to the south-east.

Therefore, based on the available exploratory hole logs, it is considered that only the ground conditions beneath the south and south-eastern area of the Cuerden Strategic Site, as indicated on Drawing Ref: WIE11556-102_GR_GI_1A in **Appendix A**, are likely to be suitable for sand and gravel extraction. The thickness of the sand and gravel diminishes towards the centre of the most southerly plots. The greatest extent of potentially extractable material is located adjacent but outside of the Site boundary to the south-east.

The previous ground investigations identified approximately 2.5m to 5.0m of Made Ground and cohesive material, not suitable for extraction as a product, beneath the central and southern area of the Cuerden Strategic Site. For the purposes of the volume calculations below, the thickness of these overburden materials, that would need to be removed prior to abstraction of any sand and gravels, has been averaged over the area of potential abstraction identified on Drawing Ref: WIE11556-102_GR_GI_1A, in **Appendix A**.

The available borehole records indicate that sand and gravel could extend to approximately 28m bgl. However, the quarry to the south is understood to have a limit on the depth of abstraction at 8m bgl, thought to be coincident with the groundwater table. Groundwater has been monitored at the Site at depths of between 5m bgl and 12m bgl, with a fairly consistent water table encountered at approximately 8m bgl across the Site. For the purposes of this assessment, a maximum depth of mineral abstraction of 8m bgl has been assumed.

6.2. Slope Stability

The resource volumes estimated below are based on the assumption that the excavation will have side walls at 1:2.5 to the anticipated full depth of excavation at 8m bgl.

Whilst 1:2.5 is considered to be conservative for a temporary excavation in Sand and Gravels, it is anticipated that there would likely be off-sets and benching between ground level and the base of the excavation. Therefore, the 1:2.5 slopes used in the calculation are considered to reasonably represent a quarry with 1:2 slopes (the steepest slope angle that is likely to be stable in Sands and Gravels) and off-sets/ benches to allow for access etc.

6.3. Resource Quantity

The volume of material within the Cuerden Strategic Site boundary, as indicated on Drawing Ref: WIE11556-102_GR_GI_1A, in **Appendix A**, to a depth of 8m bgl is 1,440,000m3. Of this volume, approximately 450,000m3 of material would be lost as overburden (2.5m across the whole site area).

At least an additional 129,000m3 of material would be lost in the sidewalls of the quarry to maintain stable slopes.

Therefore, it is estimated that at least 40% of the material present beneath the Cuerden Strategic Site is not viable as a resource due to the presence of overburden and the small size and geometry of the Cuerden Strategic Site. This leaves an approximate total volume of 861,000m3 extractable sand and gravel, that would be suitable for commercial use.

The Mineral Safeguarding Area does not cover the whole of the area beneath which it is anticipated sand and gravel deposits are present. Approximately 450,000m3 of the extractable material is present beneath the Minerals Safeguarding Area over the Cuerden Strategic Site. The volume that can be extracted from the Site is considered to be negligible due to the splitting of the area where extraction is possible between the south east corner of Zone D and the south eastern area of Zone A.

It should be noted that this is a best-case scenario, based on the assumption all materials at the Site between 2.5m bgl and 8m bgl being of a suitable quality to be economically extracted. However, exploratory hole logs indicate that bands of clay are present within the main sand deposit, which would further impact on viability of extraction and volume of materials that can be won. The lateral extent of these bands is limited, and it is difficult to accurately calculate the volume of material present within these lenses in the main sand deposit.

6.3.1. Anticipated Timescales for Extraction

Based on the 150,000 tonnes/annum output rate of the neighbouring Lydiate Lane Quarry, it is anticipated that it would take approximately 11 years to extract all of the available Sand and Gravel at the Cuerden Strategic Site.

In addition to the time taken to extract the mineral, restoration of the Cuerden Strategic Site is likely to take a significant time due to the scale of the extraction that would take place. Whilst restoration could be phased during the operation of the quarry a final period of restoration, likely to be undertaken over a number of years, will be required to prepare the Site for development.

In light of time-frames anticipated for extraction and restoration, it is considered that a minimum, best case overall time-frame of 16 years would be considered reasonable. This would undoubtedly and significantly postpone the delivery of the Cuerden Strategic Site and the significant benefits that would arise from the Development if it was allowed to be brought forward now. These significant benefits are articulated further in Section 8 of this report.

6.3.2. Environmental Impacts

The local community has lived next to the existing quarry (Lydiate Quarry) for over 20 years (since 1998). The quarry operation has a complicated planning history and has involved a number of different operators. The current quarry operators have been granted planning permission to extend extraction and restorative infilling operations until 2030.

The local community currently experience environmental effects from the existing quarrying activities, including noise, dust and increased vehicle movements, it is acknowledged that Lancashire County Council deem these effects to be overall acceptable, in consideration of the benefits brought to the area by the quarrying activities.

6.3.3. Impact on Proposed Development

The extraction of sand and gravels and subsequent restoration of the Cuerden Strategic Site will have an impact on the proposed Development.

In terms of extracting mineral ahead of any development, the foundation solution would be dictated by the detailed design of the restoration works (which are unknown) and the extraction of the sand and gravel could have a significant impact on the costs associated with the construction of the foundations, as the design bearing resistance of the restored materials is likely to be lower than that of the sand and gravel should they be left in-situ.

A phased prior extraction alongside the delivery of the Lancashire Central Site is also considered to be unfeasible and unworkable. Mineral extraction, to be undertaken 'on site' alongside the delivery of a prestigious and premium development is likely to blight the proposed Development, affecting the attractiveness of the Lancashire Central site to the market. Moreover, the sheer difference in levels and setback areas that would result between the phased delivery of the Lancashire Central site and any mineral extraction would be significant and impossible to reconcile in an acceptable manner.

Ultimately however, the location of the extractable resource within the Cuerden Strategic Site, as shown in Drawing Ref: WIE11556-102_GR_GI_1A (**Appendix A**), has a significant implication for the proposed Development, should it be required to extract the materials in a phased manner. The location of the extractable resource would preclude the installation of significant Site wide infrastructure, notably foul drainage and the required access and connection to the highway network. The delivery of this important infrastructure cannot be achieved alongside a phased extraction of the mineral.

6.4. Conclusions – Minerals Assessment

Available information and our interpretation of that evidence indicates that the east and west of the Site are unlikely to be underlain by economically extractable quantities of sand and gravel. However, in line with the BGS maps and previous site investigation data, the southern area of the Site, particularly the southeastern area, outside of the Site are underlain by a greater thickness of sand and gravel, which may be economically extractable. The Future Phase area of the Site is underlain by approximately 2.5m to 5m of Made Ground and clay, overlying up to 28m of Sand and Gravel. Sand and gravel extraction has been undertaken locally in these Glaciofluvial Deposits, including at Lydiate Lane Quarry immediately to the south of the Site. The quarry to the south is understood to have a limit on the depth of abstraction at 8m bgl, thought to be coincident with the groundwater table. Perched groundwater has been observed at depths as shallow as 5m bgl near the southern portion of the Site further limiting the quantity of resource available.

To maintain stability at the Site, and to avoid instability on adjacent land, it is estimated that gradients of no more than 1 in 2.5 could be formed in the side slopes of any quarrying operation.

The near surface materials (up to 2.5m) comprise Made Ground and clay and it is anticipated that these materials would be lost as overburden. It is estimated that approximately 450,000m3 of material will be lost as overburden.

A substantial volume of potentially workable sand and gravel (approx. 129,000m3) would also be lost in the sidewalls of the quarry to maintain stable slopes.

Approximately 40% of the material present beneath the area of the Site where extraction may be feasible is not viable as a resource due to the presence of overburden and the geometry of the excavation. This estimate assumes that all materials at deeper levels (up to 8m bgl) are of a suitable quality to be economically extracted and that no substantial clay lenses are present within the Sand and Gravel deposit. If these assumptions are incorrect, the percentage of non-viable material at the site would be higher. Logs show that bands of silt and clay as well as sands containing more cohesive materials become more prevalent in the centre, north and west of the Site. These deposits align more with that of the mapped glacial till deposits as opposed to the glaciofluvial resource materials. This is particularly true within the southwestern section of the Site. The majority of any viable deposit at the proposed development is located outside of the Site in the south-eastern portion of the Cuerden Strategic Site (within the proposed Future Phase).

An approximate total volume of 450,000m3 of extractable material is present beneath the Minerals Safeguarding Area, with 411,000m3 of sand and gravel lying outside the designated area, but within the Cuerden Strategic Site. The total volume extractable from the Site is negligible.

Based on reasonable assumptions in respect of extraction rates, it is estimated that it would take at least 11 years to extract the identified feasibly extractable mineral with further time associated with the restoration of the Cuerden Strategic Site.

Taking into account the limited available resource present at the Site, the increasingly heterogeneous nature and limited thickness of the sand deposit as it encroaches past the southern boundary of the Site, the suitability of the Site for mineral extraction is considered to be poor.

7. Proximal Sterilisation

The potential for proximal sterilisation would not be a significant issue in developing the Site. The Site is adjacent to an existing working sand and gravel quarry at Lydiate Lane. The Lydiate Lane quarry was granted planning permission in summer 2016 to extend the timing of operations to 2030. As part of the assessment of the proposed Development, consideration was given to the proximity of the quarry to the Site. Slope stability and buffer zones were found to be reasonable and acceptable. The proposed uses on the Site immediately adjacent to the quarry are focussed on manufacturing and distribution and would not be incompatible with anticipated quarry operations. These points would remain valid if in the future any further quarrying operations were to extend westwards. If this were to take place it is reasonable to assume that the slope stability and buffer zone parameters would be similar to those currently approved. The adjacent uses on the Site would be a further part of the manufacturing and distribution area and are unlikely to raise compatibility issues.

Given that the southern employment phase (Development Zone D) is unlikely to be complete until 2030 at the earliest, the proposed employment floorspace and existing quarry operation is likely to coexist at the same time. In the event that the quarrying operations were extended it is unlikely that any significant issues would arise.

8. M2 Policy Assessment

As the Policy M2 guidance note points out, the presence of a MSA does not necessarily preclude other forms of development being permitted nor confer any presumption that the mineral will be worked. It is a policy tool to alert the Applicant that minerals may be sterilised by the proposed Development and that this should be taken into account by the planning process; it is not a policy tool which safeguards reserves or seeks to ensure protection.

What is clear however from a policy perspective that any application that comes forward in a MSA must be considered against Policy M2 of JLMWLP.

Policy M2 provides criteria against which to judge the appropriateness of a development within a MSA. As explained in Section 2 of this report, it is reasonable to assume that any applicant needs to demonstrate compliance with one or more of this stated policy provisions in order to gain compliance with the policy.

An assessment of the proposed Development against each stated provision is provided below:

- The mineral concerned is no longer of any value or has been fully extracted.

  Not applicable.

- The full extent of the mineral can be extracted satisfactorily prior to the incompatible development taking place.

  The resource quality present can be commented on from the existing exploratory hole information. The exploratory hole logs indicate that bands of clay are present within the main sand deposit, which would impact on viability of extraction and volume of materials that can be won. The lateral extent of these bands is limited and it is difficult to accurately ascertain the extent of the Clay within these lenses in the main sand deposit, which impacts on the quality of the Sand deposit.

  The full extent of the mineral resource beneath the Site cannot be feasibly extracted due to overburden, geometry and constraints on the depth of extraction due to groundwater level.

  An approximate volume of 861,000m^3 is considered to be feasibly extractable from the Cuerden Strategic Site. This MRA identifies that extraction of the identified feasible mineral resource and comprehensive restoration would take at least 11 years to be completed. This would result in the socio-economic benefits of the proposed Development not being realised for a generation.

  Moreover, this MRA identifies that it is considered to be unfeasible to undertake the phased extraction of the feasibly extracted mineral alongside the delivery of the proposed Development. This is due to the location of the extractable resource in the centre of the Cuerden Strategic Site and the impact that extraction would have on the development layout, and particularly the significant highway and drainage infrastructure required to facilitate the first phases (and beyond) of the Lancashire Central site.

- The incompatible development is of a temporary nature and can be completed and the site returned to its original condition prior to the minerals being worked.

  Not applicable.

- There is an overarching need for the incompatible development that outweighs the need to avoid the sterilisation of the mineral resource.

  The Cuerden Strategic Site is a key gateway location within Central Lancashire, between Leyland and Preston. It is adjacent to the M6 and M65 motorways, with the M65 motorway directly serving the Site. The Site has been identified in the heart of development plan policy,

economic development policies and strategies for a number of years, both regionally and locally, as the single largest new employment development site in Central Lancashire.

Development of the Site forms an important component of a wider focus upon development and economic growth in the Preston, South Ribble and Lancashire City Deal, a 10-year strategic regeneration framework agreed by LEP, local authority partners and Government. The Cuerden Strategic Site is included in the document entitled 'Lancashire: Our Approach to Recovery 2020 and the Lancashire Independent Economic Review 2021'.

The Site provides a once in a generation opportunity to achieve a dynamic, sustainable, premium development that has the potential to generate significant economic and employment benefits in Lancashire. The significance of the Site as an economic driver for the area is supported further by its accessibility and location in an area that is home to a skilled population.

To support the planning application, Hatch Regeneris has undertaken an Economics Benefits Statement that quantifies the economic benefits that would arise from the proposed Development. It considers the temporary economic benefits that would result from construction activity, the permanent economic benefits which would arise once the Site is developed and, qualitatively considers the extent to which the economic benefits can be maximised to ensure that local residents and business benefit from such a significant regeneration and economic development initiative.

The identified socio-economic benefits are as follows:

- Between 2,200 and 5,600 FTE jobs would be supported at Lancashire Central once all of the proposed new employment sites are fully developed and occupied.
- Once developed and fully occupied, Lancashire Central could generate between £95m and £390m of GVA per annum.
- The 116 proposed new housing would make a positive contribution towards addressing the housing needs of the Borough. As well as increasing housing supply, the proposed development, once fully occupied, would be home to between 220 and 370 residents.
- Based on this population range it is estimated that between 150 and 260 residents would be of working age (16-64 years old), with a high proportion of these working-age residents likely to be economically active and working across a range of occupations.
- Around £2.1 million of household convenience and comparison expenditure would be generated annually. Residents would spend a proportion of their household income both in the immediate local area, across the borough and across Central Lancashire, supporting local employment and businesses.
- The completion and occupation of Lancashire Central would lead to four main sources of revenue for South Ribble Borough Council and the Preston, South Ribble and Lancashire City Deal area. These are:
  - Total annual Business Rates revenue of between £3.1m and £3.3m once the site is fully developed and occupied.
  - The construction of 116 homes would, when fully constructed and occupied, provide an income of £0.22m per annum in Council Tax for South Ribble Borough Council.
  - New Homes Bonus payments of approximately £0.63m to South Ribble Borough Council and approximately £0.16m to Lancashire County Council.
  - Based upon the proposed uses for which Community Infrastructure Levy (CIL) are charged, the CIL due by the Developer would be in the region of £1.8m.

- It is estimated that an average of around 300 temporary construction jobs per annum could be supported by the scheme. Construction jobs will be on-site roles, but also off-site pre-fabrication and supply chain roles through the various tiers of the construction supply chain. Given construction activity is likely to take place over multiple, overlapping phases, there will be some periods where construction related activity is more intensive and hence a greater level of employment will arise.

  The scale of socio-economic benefits to the local community, local borough and sub-region are substantial and significant. The socio-economic benefits which are estimated to be delivered by the proposed Development, the largest employment site in Central Lancashire, are powerful and compelling and provide strong justification and overarching need for the Development that outweighs the need to avoid the sterilisation of the mineral resource.

  It should be noted that the latest evidence indicates that the Lancashire mineral resource land bank as calculated in December 2018 is 13.7 years and this is significantly above the recommended 7 years.

- That prior extraction of minerals is not feasible due to the depth of the deposit.

  Not applicable.

- Extraction would lead to land stability problems

  Not applicable.

In light of the above, it is considered that compliance with Policy M2 of the JLMWLP is achieved.

9. Summary and Conclusions

This Mineral Resources Assessment (MRA) has been prepared for submission Lancashire Council (LCC) as part of an outline planning application by Maple Grove Developments Limited and Lancashire County Council ('the Applicant') for a major employment led development known as 'Lancashire Central'.

The MSA provides the following summary and conclusions:

(1) The Site is a key gateway location within Central Lancashire, between Leyland and Preston. It has been identified in the development plan and economic development polices for a number of years, both regionally and locally as the single largest new employment site in Central Lancashire.

(2) The Site provides a one in a generation opportunity to deliver a premium development which has the potential to deliver significant economic and employment benefits in Lancashire.

(2) The Site forms part of the Cuerden Strategic Site, which is partly located within a Mineral Safeguarding Area (MSA). The purpose of the MSA is to ensure that the presence of mineral resources is both adequately and effectively considered in land-use planning to avoid the sterilisation of mineral resources 'needlessly'. The use of the word *needlessly* is important as it is reflected in both policy and guidance. Needless means without cause or reason. Reflective of the NPPF, the PPG does not impose a complete restriction on non-minerals development that does not provide for prior extraction in MSAs, where there is cause and reason for that decision.

The presence of a MSA does not necessarily preclude other forms of development being permitted nor confer any presumption that the mineral will be worked. It is a policy tool to alert an applicant that minerals may be sterilised by a proposed development and that this should be taken into account by the planning process; it is not to policy tool which safeguards reserves or seeks to ensure protection.

(3) In terms of overarching need, Section 5 of this report confirms that the County has 13.7 years' worth of support of sand and gravel based on the NWAWP Annual Monitoring Report 2019.

(4) The MSA encroaches onto a portion of both the Application and Cuerden Strategic Site, however, due to the geometry of the Site and the small area where extractable sand and gravel is likely to be present, it is considered that a negligible quantity of mineral could be extracted from the Site. Across the wider Cuerden Strategic Site, an analysis of the existing geo-technical and environmental information reveals that approximately 40% of the mineral resource cannot be feasibly and viably extracted due to the presence of over-burden, geometry of excavation and groundwater level. Within the Cuerden Strategic Site, an approximate total volume of 450,000 cubic metres of mineral of suitable quality can be economically extracted. The most recent LAA report indicates that there are more viable resources within the area that are yet to be extracted.

(5) The full extraction of the feasible mineral ahead of the proposed development is considered to be impractical with an estimated 11 years anticipated for this process to occur. This would result in the socio-economic benefits associated with the proposed Development being lost for a generation.

(6) The Site is a cornerstone of the development plan and LEP economic policy which has the potential to generate significant economic and employment benefits in Lancashire. The socio-economic benefits associated with the proposed Development are considered to provide strong justification and overarching need for the proposed Development that outweighs the need to avoid the sterilisation of the mineral resource. In this respect Policy M2 of JLMWLP is satisfied.

APPENDICES

Appendix A **Site Plans**

Appendix B **Site Photographs**

Appendix C **Landmark Envirocheck Report**

Appendix A Site Plans

Appendix B Site Photographs

Appendix C Landmark Envirocheck Report

UK and Ireland Office Locations