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Our Ref: P7995/MRA/Rev.A

Date: 20th May 2024

Mr James Findlay,
Catesby Strategic Land Ltd,
Orchard House,
Papple Close,
Houlton,
Rugby CV23 1EW.

Dear James,

RE: Mineral Resource Assessment – Land to the East of Longwater Road, Finchampstead

Introduction

GRM Development Solutions Limited (GRM) has been instructed by Catesby Strategic Land Ltd and Stonebond Properties (Guildford) Ltd, to produce a Minerals Resource Assessment (MRA) for a proposed residential development off Longwater Road, Finchampstead.

GRM can comment on the geological considerations regarding Mineral Resources. However, a legal expert should be commissioned concerning Mineral and Manorial Rights.

The site is proposed to be developed with residential housing with private gardens, soft landscaping, and associated infrastructure. The site is located off Longwater Road, approximately 13.5km east of Reading city centre, and covers an area of 2.29 hectares. Site location and boundary plans (boundary for indicative purposes only) are included in Appendix A.

Published information that has been used in the production of this MRA and are listed below:

- British Geological Survey (BGS), Geological map 268 Reading, 1:50,000.
- BGS, Geological map SU76SE, Eversley, 1:10,000.
- BGS Borehole records SU76 SE12 and SU86 SW4.
- BGS, Mineral Resource Information for Development Plans Berkshire (comprising West Berkshire, Reading, Wokingham, Windsor and Maidenhead, Bracknell Forest and Slough): Resources and Constraints – DOE 2003.
- BGS, Mineral Resource Map of Berkshire 1:100,000, DOE 2023.
- BGS, Mineral Planning Factsheet: Construction Aggregates June 2019.



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- Central and East Berkshire Joint Minerals & Waste Plan January 2023.
- Central and East Berkshire, Local Aggregate Assessment (LAA) 2021 and 2018.
- Natural Environment Research Council (NERC) The Sand and Gravel Resources of the London Valley area.
- GRM Development Solutions Ltd, Phase I Desk Study Assessment (GRM/P7995/DS.1, June 2016, revised and updated December 2023).
- GRM Development Solutions Ltd, Soakaway Testing Letter Report (GRM/P7995/SA-1, 28th June 2017).

Site Setting

The site comprises 2.29 hectares of grazing land. The site is bounded by Longwater Road to the west, a housing estate to the north, a restored quarry to the south, a disused aggregates quarry to the south east, and private land to the east.

Information obtained from Emap as part of the revised Phase I Desk Study Assessment (2023) records numerous britpits located to the south east of the site boundary, which aerial photography confirms as sand and gravel extractions.

Local Authority Mineral Plans and Policies

The proposed development site is within the Mineral Planning Authority (MPA) Plan area and is located within a Minerals Safeguarding Area (MSA) for Sand and Gravel (Aggregates). The designated areas are shown on the Policies Map Local Plan a copy of which is presented in Appendix B.

The policy document recognises a planning application concerning a wider residential development which includes the subject site. The Local Minerals & Waste Plan adopted January 2023, states in policy M2 that:

1. Sharp sand and gravel and soft sand resources of economic importance, and around active mineral workings, are safeguarded against unnecessary sterilisation by non-minerals development.
2. Safeguarded mineral resources are defined by the Minerals Safeguarding Area illustrated on the Policies Map.
3. Non-minerals development in the Minerals Safeguarding Area may be permitted if it can be demonstrated through the preparation of a Mineral Resources Assessment, that the option of prior extraction has been fully considered as part of an application, and:
 - a. Prior extraction, where practical and environmentally feasible, is maximised, taking into account site constraints and phasing of development; or
 - b. It can be demonstrated that the mineral resources will not be permanently sterilised; or
 - c. It would be inappropriate to extract mineral resources in that location, with regard to other policies in the wider Local Plans.

Additionally, the Central and East Berkshire joint Mineral and Waste Plan states that the MSA will be based on “information about aggregate sand and gravel resources from the British Geological Survey and other sources of geological information, plus existing mineral working permissions and

the nature and duration of any such operations” as well as MSA applying to sand and gravel beneath built-up urban areas.

The Local Minerals & Waste Plan, Policy M3, for sand and gravel supply states;

- 1) Provision will be made for the release of land to allow a steady and adequate supply of sand and gravel for aggregate purposes in Central and Eastern Berkshire at an average rate of 0.628 million tonnes a year to 2036, subject to the impact of local circumstances on demand.
- 2) A landbank of permitted reserves for the winning and working of sharp sand and gravel sufficient for at least 7 years’ supply will be maintained through the Plan period.

As stated in the Local Minerals & Waste Plan “A Land Bank is a stock of mineral planning permissions which together allow the sufficient minerals to be extracted to meet a defined period at a given rater of supply.” These landbanks are recalculated each year and then reported in the LAA.

Based on the most up to date LAA figures from 2021 the current landbank is in excess of the seven year requirement and has remained unchanged.

Geology and Mineral Resource Map

The BGS Geological 1:50,000 maps indicate the whole site is underlain by bedrock geology comprised of the Bagshot Formation. Superficial strata of Alluvium and River Terrace deposits are recorded to overlie the solid geology.

BGS Borehole logs located 190m to the south west record:

- Topsoil from ground level to 0.2m begl.
- River Terrace Deposits between 0.2m and 4.5m begl comprising clayey, sandy gravel with gravel of flint/chert.
- London Clay Formation between 4.5m and the base at of the exploratory hole at 10.5m begl comprising silty clay.

BGS boreholes logs located 504m to the east record:

- Topsoil from ground level to 0.2m begl.
- Alluvium between 0.2m and 0.5m begl comprising sandy clay.
- River Terrace Deposits between 0.5m and 3.9m begl comprising sandy, clayey gravel with gravel of flint/chert.
- Bagshot Formation between 3.9m and the base of the exploratory hole at 5.9m begl comprising sandy clay.

A copy of the relevant borehole logs are presented in Appendix C.

The BGS Mineral Resource Map confirms there are no resources of economic importance other than the River Terrace Deposits, within and near the site area. The mineral resource map and an extract for the site area are provided in Appendix D.

Ground Conditions from Intrusive Investigation

GRMs previous intrusive works comprised four mechanically excavated trial pits for the purposes of soakaway testing (SA01, SA02, SA03 and SA04). The exploratory locations encountered the following ground conditions:

Geological Unit	Top (m)	Base (m)	Description
Topsoil	GL	0.30	Gravelly sand with gravel of chert and quartzite
River Terrace Deposits	0.30	1.70-1.90	• Clayey, gravelly sand with gravelly of quartzite and chert • Clayey sand • Gravelly clay with gravel of chert and quartzite. • Sandy clay • Sandy, gravelly clay with gravel of chert and quartzite
Bagshot Formation	1.70	2.00	Bagshot Formation was found only in SA04 comprising clayey sand

Groundwater was encountered in all of the exploratory holes at depths of between 1.2m and 1.7m bgl.

Mineral Resource of the River Terrace Deposits

The River Terrace Deposits are a major source of sand and gravel. The BGS Mineral Planning Factsheet for Construction aggregates states that its main is within the construction industry. Manor Farm Quarry, located south west of the site boundary, is named as supplying aggregates for this purpose.

Current Reserves within the Surrounding Area for Sand and Gravel

The Local Aggregate Assessment, records three active sites extracting sand and gravel from the River Terrace Deposits. The closest active and permitted quarries are detailed below:

Operator	Site/Location from site	Mineral extraction end date as stated in Aggregate Assessment	Status
Aggregate industries/Jayflex Aggregates Ltd	Horton Brook Quarry 26km north east	Sharp Sand & Gravel	Active
CEMEX	Riding Court Farm 24.5km north east	Sharp Sand & Gravel	Active
Summerleaze Ltd	Sheephouse Farm 22km north east	Sharp Sand & Gravel	Active

Although these quarries are significant distances away they are extracting the same source of materials conjectured by the BGS and Mineral resource map of Berkshire to be present on site.

Reserves within the Site Area

The previous onsite intrusive works confirmed the presence of River Terrace Deposits; however, the material was recorded to be variable comprising a combination of clayey sandy gravel, sandy gravelly clay, or clayey sand.

Practicality of Extraction

Sterilisation of the mineral reserve under the proposed development scheme is proposed; however, the MRA also has to consider the practicality and viability of extraction.

Based on a site area of 21,371m² and an estimated maximum thickness for the River Terrace Deposits of 4m this constitutes a maximum volume of 85,485m³ of material. Of this maximum volume it is reasonable to assume that approximately one third will be left in stand-off zone and batters thus reducing the extractable volume to c. 55,000m³ or approximately 82,000 tonnes, based on a conversion factor of 1m³ is equivalent to 1.5 tonnes.

Whilst the estimated tonnage is not inconsiderable the onsite River Terrace Deposits have been shown to be cohesive or where granular to contain a significant proportion of fines (clay and silt), whose removal would require additional and costly processing. In addition, the presence of shallow groundwater would entail working below the water table complicating extraction further.

Past viability of the material is evidenced by the old quarries to the south; however, notwithstanding potential ownership issues it is considered likely that the reason the quarries were not extended northwards could have been as a result of a decline in the quality of the reserve.

The site is bounded by existing residential development to the north and it is likely that mineral extraction will be controversial in such a setting. Commercial extraction would produce a void that would require filling, and use of the site as a landfill would also be controversial to local residents and have additional environmental impacts. Given the current land bank, issues with extraction and backfilling are considered to outweigh the benefit of full prior extraction.

Conclusion

The proposed development has the potential to sterilise a relatively small quantity of sand and gravel. Given the anticipated poor quality of the material, together with the presence of shallow groundwater it is considered unlikely that extraction will be an attractive proposition for a minerals operator. In addition, given the permitted land bank of sand and gravel resources available elsewhere within the county it is considered that better quality materials are more readily available and which would not require investment in new plant and upgrading of the local infrastructure.

Therefore, for the reasons outlined above, there is considered to be no merit in the commercial extraction of the mineral prior to development, though a mineral recovery plan should be considered to take advantage of any suitable site-won material for use during the construction of the residential development and reduce the impact of the development on local existing mineral reserves.

We trust this is suitable for your current requirements, should you require any further information or would like any clarification on the points raised please do not hesitate to contact us.

Yours sincerely,
for GRM Development Solutions Ltd

Appendix A – Site Location and Boundary Plan*
Appendix B – Policies Map from Local Plan Document
Appendix C – Geology and BGS borehole logs
Appendix D – BGS Mineral Resources Map Berkshire

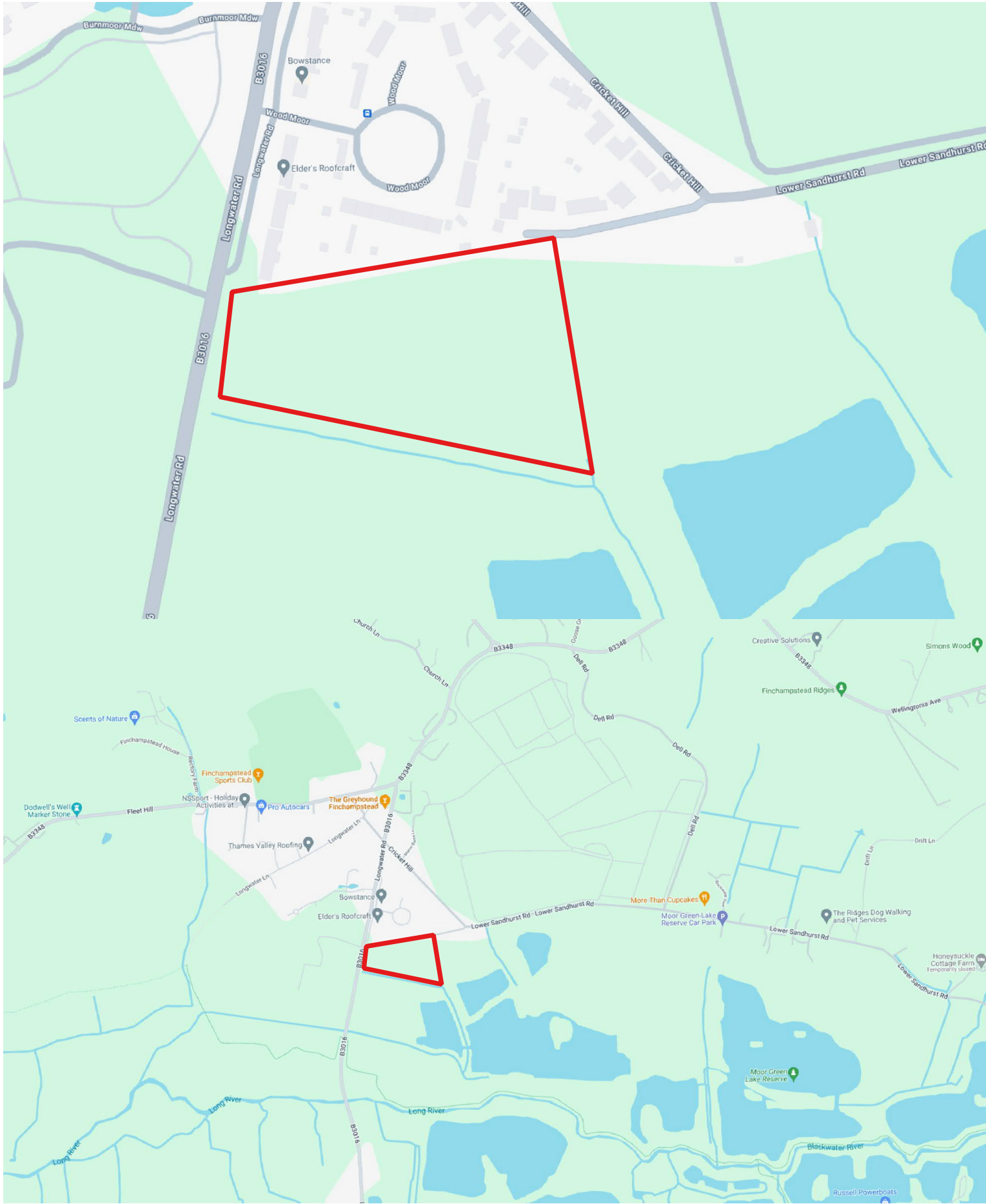
*Plan boundary is indicative. For an accurate site boundary reference should be made to Thrives Proposed Development Plan provided in the Phase I Desk Study Assessment (ref. GRM/P7995/DS.4).



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NOTES:

CLIENT: CATESBY STRATEGIC LAND LTD

PROJECT: LAND TO THE EAST OF LONGWATER ROAD, FINCHAMPSTEAD

TITLE: SITE LOCATION AND BOUNDARY PLAN

PROJECT No:	P7995	DATE:	DEC 2023	DESIGN/DRAWN:	MRL
DRAWING NUMBER:		ISSUE:			
001		Final			
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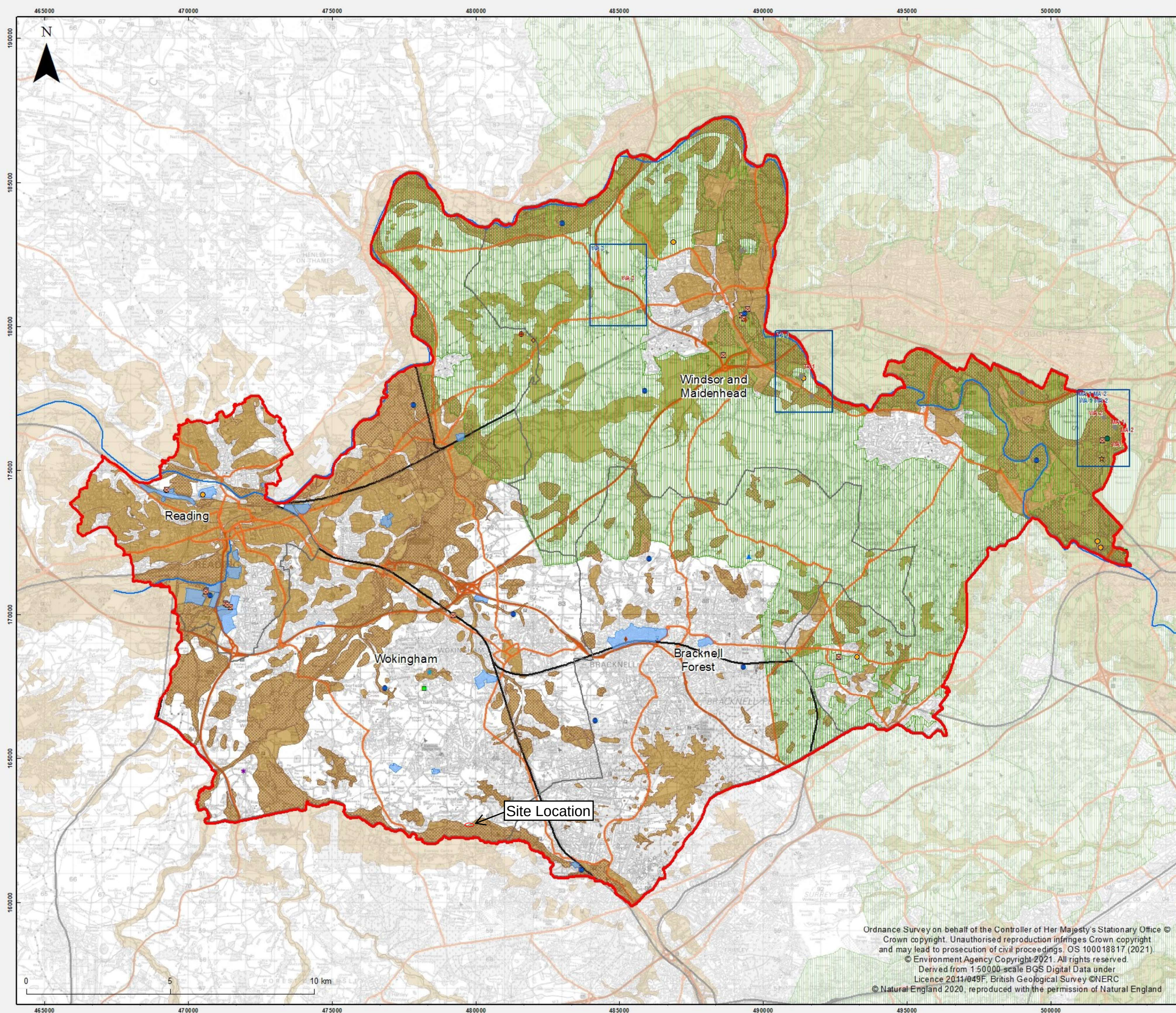
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Central & Eastern Berkshire - Joint Minerals & Waste Plan Policies Map

Proposed Allocations

- Mineral allocation (MA)
- Transport allocation (TA)
- ▲ Waste allocation (WA)

Preferred Waste Areas



Safeguarded Sites

- Aggregate recycling
- Clinical Waste
- ▲ Composting
- End of Life Vehicle
- Green Waste/Kitchen Waste
- Household Waste Recycling Centre
- ▲ Metal Recycling
- Sharp Sand and Gravel Extraction
- ★ Sharp Sand and Gravel Extraction/Soft Sand Extraction
- Sharp Sand and Gravel Processing
- Soft Sand
- Waste Electrical and Electronic Equipment
- Wastewater Treatment Works
- Waste Transfer Station

— Navigable Rivers

— Plan Area

— Administrative Boundaries

— Inset Maps

— Area of Search for Sand and Gravel

— Mineral Safeguarding Area

— Strategic Road Network and Main A Roads

— Railway Network

— Green Belt

Adopted by:

Royal Borough of Windsor and Maidenhead - TBC
Bracknell Forest Council – TBC
Wokingham Borough Council - TBC
Reading Borough Council - TBC



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SU 86 SW 3

8035 6264

Near Moorgreen Farm, Finchampstead Block C

Surface level +53.3 m (+175 ft)
Water struck at +52.3 m
Shell and auger, (152 mm) 6 in diameter
June 1974

Overburden 1.0 m
Mineral 4.4 m
Bedrock 3.6 m+

LOG

Geological Classification	Lithology	Thickness m	Depth m
	Clayey, loamy soil	0.2	0.2
Alluvium	Dark grey, silty clay	0.8	1.0
River Terrace Deposits (First Terrace)	A. Gravel; sandy below 4.0 m Gravel: fine to coarse, angular to subrounded, brown flint with occasional well rounded black flint. Some flint patinated Sand: fine to coarse quartz with flint; greyish brown	4.4	5.4
Bagshot Beds	B. 'Clayey' sand Sand: fine quartz, grey, with grey clay laminae	3.6+	9.0

GRADING

Mean for Deposit				Depth below surface (m)		Bulk Samples Percentages					Gravel	
	%	mm	%	From	To	Fines -1/16	+1/16-1/4	+1/4-1	+1-4		+4-16	+16
A.												
Gravel	55	+16	29	1.0	2.0	5	13	11	9		27	35
		-16 + 4	26	2.0	3.0	4	12	9	4		33	38
				3.0	4.0	1	5	15	7		31	41
Sand	40	- 4 + 1	7	4.0	5.4	7	36	21	8		19	9
		- 1 + 1/4	15									
		- 1/4 + 1/16	18									
Fines	5	- 1/16	5									
B.												
Gravel	0	+16	0	5.4	9.0	10	67	21	2		0	0
		-16 + 4	0									
Sand	90	- 4 + 1	2									
		- 1 + 1/4	21									
		- 1/4 + 1/16	67									
Fines	10	- 1/16	10									

SU 86 SW 4 8026 6287

Near Moorgreen Farm, Finchampstead Block C

Surface level +56.6 m (+186 ft)
Water struck at +55.1 m
Shell and auger, (152 mm) 6 in diameter
October 1974

Overburden 0.5 m
Mineral 3.4 m
Bedrock 2.0 m+

LOG

Geological Classification	Lithology	Thickness m	Depth m
	Dark brown, stony soil	0.2	0.2
Alluvium	Sandy clay	0.3	0.5
River Terrace Deposits (Third Terrace)	A. 'Clayey' gravel Gravel: fine to coarse, angular to rounded, flint Sand: fine to coarse quartz with flint, orange-brown	3.4	3.9
Bagshot Beds	B. Clay Orange-brown fine sandy clay becoming grey at 5.0 m	2.0+	5.9

GRADING

Mean for Deposit			Depth below surface (m)		Bulk Samples Percentages					
	%	mm	%	From	To	Fines -1/16	+1/16-1/4	+1/4-1/2	+1/2-3/4	Gravel +3/4-16
A.										
Gravel	55	+16	24	0.5	1.5	11	16	14	9	33
		-16 + 4	31	1.5	2.5	16	15	14	14	30
				2.5	3.9	6	9	9	7	32
Sand	35	- 4 + 1	10							
		- 1 + 1/4	12							
		- 1/4 + 1/16	13							
Fines	10	- 1/16	10							
B.										
Gravel	0	+16	0	3.9	4.9	46	41	12	1	0
		-16 + 4	0							
Sand	54	- 4 + 1	1							
		- 1 + 1/4	12							
		- 1/4 + 1/16	41							
Fines	46	- 1/16	46							



SU 76 SE 12 7942 6250 Nr. Finchampstead Bridge, Finchampstead

Block D

Surface level (+51.5 m) +169 ft
Water struck at +50.3 m
Shell and Auger 152 mm (6 in) diameter
June 1974

Overburden 0.2 m
Mineral 3.7 m
Bedrock 2.0 m +

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.2	0.2
River Terrace Deposits (1st Terrace)	'Clayey' gravel, with clay band between 0.6m and 1.2 m Gravel: fine to coarse, angular to subrounded with occasional rounded flint Sand: fine to coarse quartz and flint	4.3	4.5
London Clay	Clay, firm, grey, silty	2.0+	6.5

GRADING

Mean for deposit percentages			Depth below surface (m)	Bulk samples percentages					
Fines	Sand	Gravel		Fines	Sand		Gravel		
				- 1 $\frac{1}{16}$	+ 1 $\frac{1}{16}$ - 1	+ 1 $\frac{1}{4}$ - 1	+ 1 - 4	+ 4 - 16	+ 16
12	37	51	0.2-0.6	16	26	20	11	25	2
			0.6-1.2		Clay band				
			1.2-2.2	4	10	7	4	28	47
			2.2-3.2	4	9	10	5	31	41
			3.2-4.5	22	35	13	6	19	5
			Mean	12	20	11	6	25	26



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