

OAKLANDS FARM SOLAR PARK

Applicant: Oaklands Farm Solar Ltd

Additional Land Classification Survey at Park Farm

October 2024

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AGRICULTURAL LAND CLASSIFICATION SURVEY

October 2024





LAND AT PARK FARM, WALTON ON TRENT

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1 INTRODUCTION

- 1.1 This report sets out the results of an Agricultural Land Classification (ALC) survey across a site of approximately 58.4 hectares east of Walton on Trent.
- 1.2 The ALC follows a detailed soil survey over 48 ha carried out in April 2021, plus an expanded area of 10.2 ha in two parcels, surveyed August 2024.

1.3 This report:

- describes the methodology in section 2;
- describes the factors affecting agricultural land quality in section 3;
- and sets out the ALC grades in section 4.

2 METHODOLOGY

- 2.1 The ALC was carried out by Robert Askew BSc(Hons), MSc, F.I. Soil Sci CSci. Rob is a Chartered Scientist (CSci), and a Fellow (F. I. Soil Sci) of the British Society of Soil Science (BSSS). This ALC survey has been carried out by a soil scientist who meets the requirements of the BSSS Professional Competency Standard (PSC) scheme for ALC (see BSSS PCS Document 2 'Agricultural Land Classification of England and Wales'1). The BSSS PSC scheme is endorsed, amongst others, by the Department for Environment, Food and Rural Affairs (Defra), Natural England, the Science Council, and the Institute of Environmental Assessment and Management (IEMA). The field survey was carried out by Adrian Rochford HND, Fellow of the Institute of Professional Soil Scientists. Adrian was a qualified ALC surveyor for the Farming and Rural Conservation Agency (part of MAFF) from 1996 to 2009 and has been an ALC and soil advisor since.
- 2.2 This assessment is based upon the findings of a study of published information on climate, geology and soil in combination with a soil investigation carried out in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) ² 'Agricultural Land Classification of England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land', October 1988 (henceforth referred to as the 'the ALC Guidelines').
- 2.3 The ALC system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The ALC system divides agricultural land into five grades (Grade 1 'Excellent' to Grade 5 'Very Poor'), with Grade 3 subdivided into Subgrade 3a 'Good' and Subgrade 3b 'Moderate'. Agricultural land classified as Grade 1, 2 and Subgrade 3a falls in the 'best and most versatile' category in Paragraphs 180 and 181 of the National Planning Policy Framework (NPPF), revised December 2023. Further details of the ALC system and national planning policy implications are set out by Natural England in its Technical Information Note 049³.

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¹ British Society of Soil Science. Professional Competency Scheme Document 2 'Agricultural Land Classification of England and Wales'. Available online @ https://www.soils.org.uk/sites/default/files/events/flyers/ipss-competency-doc2.pdf Last accessed September 2024

² The Ministry of Agriculture, Fisheries and Food (MAFF) was incorporated within the Department for Environment, Food and Rural Affairs (Defra) in June 2001

³ Natural England (December, 2012). 'Agricultural Land Classification: protecting the best and most versatile agricultural land (TIN049)'. Available online @ http://publications.naturalengland.org.uk/publication/35012 Last accessed September 2024

- 2.4 A detailed ALC survey was carried out in April 2021 and August 2024. The 2021 survey involved examination of the soil's physical properties at 49 auger-bore locations on a 100m by 100m grid, as shown on Plan KCC3018/01B. One soil pit (Pit 1) was excavated with a spade to examine certain soil physical properties, such as stone content and subsoil structure, in more detail.
- 2.5 An additional area was surveyed in August 2024 involving 10 auger-bore locations plus one soil pit. These are shown in red on **Plan KCC3018/01B**.
- 2.5 The sample locations were located using a hand-held Garmin E-Trec Geographic Information System (GIS) to enable the sample locations to be relocated for verification, if necessary.
- 2.6 The soil profile was examined at each sample location to a maximum depth of approximately 1.2 m by hand with the use of a 5 cm diameter Dutch (Edleman) soil auger. The soil profile at each sample location was described using the 'Soil Survey Field Handbook: Describing and Sampling Soil Profiles' (Ed. J.M. Hodgson, Cranfield University, 1997). Each soil profile was ascribed a grade following the ALC Guidelines.

3 FACTORS AFFECTING LAND QUALITY

- 3.1 As described in the ALC Guidelines, the main physical factors influencing agricultural land quality are:
 - climate;
 - site;
 - soil; and
 - interactive limitations.
- 3.2 These factors are considered in turn below.

Climate

3.3 Interpolated climate data relevant to determining of the ALC grade of land at the Study Area is given in Table 1 below.

Table 1: ALC Climate Data for Oaklands Solar Farm, Walton on Trent, Staffs

Climate Parameter	Grid Ref: SK237182
Average Altitude (m)	64
Average Annual Rainfall (mm)	640
Accumulated Temperature above 0°C (January – June)	1397
Moisture Deficit (mm) Wheat	105
Moisture Deficit (mm) Potatoes	96
Field Capacity Days (FCD)	139
Grade according to climate	1

- 3.4 Agricultural land quality at the Study Area is mainly not limited by climate regarding to Figure 1 'Grade according to climate' on page 6 of the ALC Guidelines, in which in absence of any other limiting factor the land will be determined as Grade 1.
- 3.5 Due to the average annual rainfall, agricultural land across the Study Area is predicted to be at field capacity (i.e., near saturation point) for approximately 139 days per year, mainly over the late autumn, winter and early spring. Moisture Deficit (MD) values range between approximately 105mm for wheat, and 96mm for potatoes.
- 3.6 The climate interacts with soil physical properties, i.e., soil texture and wetness class. It can limit agricultural land quality due to soil wetness, and/or soil droughtiness, as described under 'interactive limitations' below.

Study Area

- 3.7 The Study Area is located to the east of Walton-on-Trent, Staffordshire. The approximate centre of the study area is located at British National Grid (BNG) reference SK 23764 18281. The western boundary is formed by a tributary of the River Trent. The remainder of the Site is surrounded by agricultural land.
- 3.8 With regard to the ALC Guidelines, agricultural land quality can be limited by one or more of three main site factors as follows:
 - gradient;
 - micro-relief (i.e., complex change in slope angle over short distances); and
 - risk of flooding.
- 3.9 **Gradient and Micro-Relief**. The main part of the Study Area is located on a west-facing slope, with the highest elevation in the east at approximately 84 metres (m) Above Ordnance Datum (AOD) and descending to approximately 59 mAOD along the western boundary and along the northern boundary near Walton Road. The quality of agricultural land is limited by gradient in the north-west (Auger-bore locations 2, 4 and 5, **Plan KCC3018/01B**), where the gradient exceeds 7°, but is less than 11°, i.e., the land is limited to Subgrade 3b following Table 1 of the ALC Guidelines. No part of the Study Area is limited by micro-relief (i.e., complex changes in slope angle and direction over short distances).
- 3.10 **Risk of Flooding**. From the Government Flood Map for Planning website⁴, the Study Area is mainly within Flood Zone 1 with regions of Flood Zone 3 in the western region of the Study Area bordering the River Trent. Overall, the agricultural land within the study area is not limited by flooding (re Table 2 '*Grade according to flood risk in summer*' and/or Table 3 '*Grade according to flood risk in winter*' of the ALC Guidelines).

Soil

3.11 **Geology/Soil Parent Material**. British Geological Survey (BGS) online⁵ information has been utilised to identify the Bedrock underlying the Study Area and any Superficial (Drift) Deposits over the Bedrock. This information helps to determine the parent material⁶ from and within which a soil has formed. From the BGS information, the Park Farm Study Area is underlain entirely by sandstone (Edwalton Member), with mudstone (Gunthorpe Member) underlying the higher ground in the east.

⁴ Government Flood Map for Planning website. Available online @ https://flood-map-for-planning.service.gov.uk/ Last accessed September 2024

⁵ British Geological Survey 'Geology of Britain Viewer'. Available online @

http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/Viewer.html Last accessed September 2024

⁶ British Geological Survey. A 'parent material' is a soil science name for a weathered rock or deposit form and within which a soil has formed. In the UK, parent materials provide the basic foundations and building blocks of soil, influencing their texture, structure, drainage and chemistry. Available online @ Soil Parent Material Model – British Geological Survey (bgs.ac.uk) Last accessed September 2024

- 3.12 Most of the sandstone is not covered by any superficial deposits, and the soils are developed directly from the sandstone parent material. The sandstone along the western boundary, flanking the watercourse, is covered by a superficial covering of alluvium (clay, silt, sand and gravel). In the northwest, the sandstone is covered by glaciofluvial deposits of sand and gravel. The mudstone bedrock underlying the higher ground in the east is covered by glacial till (Thrussington Member).
- 3.13 Soil information on the National Soil Map^[1] indicates that land at the Site is covered by soils grouped in three soil associations, namely:
 - (i) Wick 1 Association (541r) around Park Farm buildings in the north of the Study Area underlain by sandstone not covered by any superficial deposits. This soil association consists of deep and well-drained coarse (sandy) loams and sandy soils that sometimes occur over gravel;
 - (ii) Dunnington Heath Association (572g) in the central part of the Study Area. This association consists of reddish, coarse (sandy) and fine (clay and or silt) loams over clayey soils with slowly permeable subsoils and slight seasonal waterlogging; and
 - (iii) Brockhurst 2 Association (711c) in the southern cable corridor near the tributary of the River Trent. This area is covered by alluvium. This association consists of slowly permeable and seasonally waterlogged, reddish, fine (clay and/or silt) loams over clay, or clay soils throughout;
 - (iv) Hodnet Association in the eastern part. This association consists of reddish fine loamy or coarse (sandy) loams with slowly permeable subsoils and slight seasonal waterlogging.
- 3.14 **Soil Survey**. The detailed soil surveys carried out in April 2021 and August 2024 determined sandy loam and sandy clay loam soils developed over sandstone on the lower ground in the central and western parts of the Site. Much of the lighter, sandier, soils are well drained (Wetness Class I) but some soils near the watercourse along the western boundary are slowly permeable and seasonally waterlogged (Wetness Class III).
- 3.15 The soils in the east, developed in glacial till over mudstone, comprise heavy clay loam soils which have slowly permeable subsoil (Wetness Class IV). The profiles are seasonally waterlogged as a result. Some of the topsoils on high ground in the east, i.e., auger-bore 34, 35, 36 40 and 41, **Plan KCC3018/01B**) are slightly to moderately stony, are and limited to Subgrade 3a by the size of stones (2-6cm), following Table 5 of the ALC Guidelines.

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^[1]Cranfield University (2024) Soil site report, Soil Report for location 423602E, 318487N, 2km x 2km, Cranfield University.

3.16 A log of all the soil profiles recorded from both surveys is given as Appendices KCC1 and KCC2. Two soil pits were excavated with a spade to examine certain soil physical properties, such as subsoil structure, in more detail. A description of the soil pits is given as Appendices KCC3 and KCC4.

Interactive Limitations

- 3.17 From the information above, together with the findings of the detailed soil survey (see Soil Profile Logs given as **Appendices KCC1** and **KCC2**), it has been determined that the quality of agricultural land over the Study Area is limited by soil droughtiness on lighter (sandier) and well drained soils during the growing season, and by soil wetness on heavier, seasonally waterlogged soils during the wettest times of the year (i.e., autumn and winter), as described below.
- 3.18 Soil Droughtiness. As shown in the soil profile logs given as Appendices KCC1 and KCC2, moisture balance (MB) calculations for the ALC reference crops (winter wheat and maincrop potatoes) have determined that the soil profiles mainly have MB values of between -20 to -50mm for wheat, and/or between -30mm to -55mm for potatoes. These MB values limit the quality of agricultural land to Subgrade 3b (re Table 8 'Grade according to droughtiness' of the ALC Guidelines).
- 3.19 Soil profiles that have calculated MB values of between +5mm and -20mm for wheat, and between -10mm and -30mm for potatoes. These profiles are limited by soil droughtiness to Subgrade 3a (re Table 8 'Grade according to droughtiness' of the ALC Guidelines).
- 3.20 Occasionally, soil profiles that have calculated MB values of between +30mm and +5mm for wheat, and between +10mm and -10mm for potatoes. These profiles are limited by soil droughtiness to Grade 2 (re Table 8 'Grade according to droughtiness' of the ALC Guidelines).
- 3.21 **Soil Wetness**. From the ALC Guidelines, a soil wetness limitation exists where 'the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock'. Agricultural land quality at the Study Area is limited by soil wetness as per Table 2 below (based on Table 6 'Grade According to Soil Wetness Mineral Soils' in the ALC Guidelines).

Table 2: Predicted ALC Grade According to Soil Wetness

Wetness	Texture of the Top 25 cm	126-150
Class		Field Capacity Days
I	Sandy Loam, Sandy Silt Loam	1
	Medium Clay Loam*, Sandy Clay Loam	1
	Heavy Silty Clay Loam**, Heavy Clay Loam**	2
	Clay, Silty Clay	3a
II	Sandy Loam, Sandy Silt Loam	1
	Medium Clay Loam*, Sandy Clay Loam	2
	Heavy Silty Clay Loam**, Heavy Clay Loam**	3a
	Clay, Silty Clay	3b
III	Sandy Loam, Sandy Silt Loam	2
	Medium Clay Loam*, Sandy Clay Loam	3a
	Heavy Silty Clay Loam**, Heavy Clay Loam**	3b
	Clay, Silty Clay	3b
IV	Sandy Loam, Sandy Silt Loam	3a
	Medium Clay Loam*, Sandy Clay Loam	3b
	Heavy Silty Clay Loam**, Heavy Clay Loam**	3b
	Clay, Silty Clay	3b
Key * <27% cla	ay; and ** >27% clay	

3.22 Therefore, in a climate area with 139 field capacity days (FCD), the soil profiles in Wetness Class III and IV with heavy clay loam topsoils are limited to Subgrade 3b. Whilst, the soil profiles in Wetness Class III with sandy clay loam topsoils are limited to Subgrade 3a.

Predicted ALC

3.23 MAFF Provisional ALC information (1:250,000) indicates that agricultural land around Walton-on-Trent is Grade 2 and Grade 3 (not differentiated between Subgrade 3a and Subgrade 3b). No detailed (post-1988) ALC survey information covers the Study Area. However, there is a large proportion of Subgrade 3b to the south and east, with smaller regions of Grade 1, Grade 2 and Subgrade 3a.

4 AGRICULTURAL LAND CLASSIFICATION GRADING AT THE SITE

4.1 The agricultural land within the study area has been classified mainly as Subgrade 3b with smaller regions of Subgrade 3a and Grade 2. The area and proportion of agricultural land in each ALC grade has been measured from an ALC map given as **Plan KCC3018/03**. The findings are reported in Table 3 below.

Table 3: Agricultural Land Classification – Oakland Solar Farm, Walton On Trent

ALC Grade	2021 Survey (Ha)	2024 Survey	Combined (Ha)	Area (% of Total Site)
Grade 1 (Excellent)	0	0	0	0
Grade 2 (Very Good)	4.5	0	4.5	8
Subgrade 3a (Good)	7.3	8.1	15.4	26
Subgrade 3b (Moderate)	36.4	2.1	38.5	66
Grade 4 (Poor)	0	0	0	0
Grade 5 (Very Poor)	0	0	0	0
Non-agricultural / Other land	0	0	0	0
Total	48.2	10.2	58.4	100

Appendix KCC1
2021 Soil Profile Logs

Project Number	Project Name				Parcel
C783	KCC3018 Oakland Fa	KCC3018 Oakland Farm, Walton on Trent, Derbyshire	Derbyshire		
Date of Survey	Survey Type		Surveyor(s)	Company	
14/04/2021	Detailed ALC		AR	Askew La	Askew Land and Soil
Weather		Relief		Land use and vegetation	tion
Mild, sunny, slight breeze.	oreeze.	West to southwest facing slope	acing slope	LEY (Ley Grass)	
Grid Reference			Postcode	Altitude	Area
SK237182			DE15 9UF	64	50
MAFF prov		MAFF detailed		Flooding	
Grade 2		No post 1988 ALC		Flood Zopne 1, with FZ3 to the west	FZ3 to the west
AAR	AT0	MDw	MDp	FCD	Climate grade
640	1397		105	96	1
Bedrock			Superficial deposits		
Edwalton Sandston	Edwalton Sandstone; Gunthorpe Mudstone in east	in east	Alluvium along west	Alluvium along west boundary; till in east	
Soil association(s) 1:250,000	:250,000		Detailed	Detailed soil information	
Whimple 3			No detail	No detailed SSFW soil surveys	
				במ ספר או ספר אר אם	

C783/KCC3018 Oakland Farm, Walton on Trent, Derbyshire Revision 2 Revision Date 30/04/2021

Date Revised 30/04/2021

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Matrix ck Munsell co	7.5YR4/3 5YR4/4 5YR4/4	7.5YR4/2 7.5YR5/6 7.5YR5/6	7.5YR4/2 7.5YR4/3 7.5YR5/4	7.5YR4/2 7.5YR4/3 5YR5/4	7.5YR4/3 7.5YR4/4 7.5YR5/4	7.5YR4/2 5YRS/4	7.5YR4/3 SYR5/3	7.5YR4/2 7.5YR4/3 7.5YR5/3	7.5YR4/2 5YR4/4	7.5YR4/2 SYR4/4	7.5YR4/3 7.5YR4/4 5YR4/4	10YR4/2 2.5Y6/2
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Gley	o o	es vo	0 N	Yes	Yes	Yes	Ves Yes	× × ×	2 2 2	Yes	Š	\$ 0.0
Grey Mottles												
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olour Form		888								8 8	M.	9
Matrix	7.5YR3/3 7.5YR3/4 7.5YR5/4	7.5YR3/3 7.5YR3/4 10YR6/3	7.5YR3/3 7.5YR3/4 7.5YR4/4	7.5YR4/3 5YR5/4 5YR4/4	7.5YR3/3 5YR5/3 5YR4/4	7.5YR3/3 5YR5/3	7.5YR3/2 7.5YR4/4 10YR6/3 7.5YR6/3	7.5YR3/2 7.5YR3/3 10YR6/3	7.5YR3/3 7.5YR4/3 5YR4/4 5YR4/4	7.5YR4/3 2.5Y6/2 2.5Y6/2	7.5YR4/3 5YR5/3	7.5YR4/3 5YR4/4
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Aspect Land use	W LEY	W LEY	W LEY	W LEY	W LEY	W LEY	W LEY	W LEY	W LEY	W LEY	W LEY	W LEY
Alt (m) Slope °	25	CS	ts	5	<i>L</i> 5	5	<i>C</i> 5	5	G	ts.	25	1/2
Alt	318200 81	318200 73	318200 68	318100 64	318100 76	318100 84	118100 84	18100 81	118100 71	18000 64	18000 76	18000 84
ind ref.	00 424100	00 424200	00 424300	00 423800	00 423900 3	00 424000	0 424100 3	0 424200 3	0 424300 3	0 423800 3	0 423900 3	0 424000 3
Point Grid ref. Alt	K 24100 182	SK 24200 18200 424200 318200 73	SK 24300 18200 424300 318200 68	SK 23800 18100 423800 318100 64	SK 23900 18100 423900 318100 76	SK 24000 18100 424000 318100 84	SK 24100 18100 424100 318100 84	SK 24200 18100 424200 318100 81	SK 24300 18100 424300 318100 71	SK 23800 18000 423800 318000 64	SK 23900 18000 423900 318000 76	SK 24000 18000 424000 318000 84
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Grade		[.								
	3	38	36	38	eg.	98	2	36	7	2
Final ALC Limitation 1 Limitation 2 Limitation 3	Droughtiness	Droughtiness	Wetness	Wetness	Wetness	Droughtiness	Droughtiness	Wetness	Droughtiness	Droughtiness Werness
Wet	-	-	WC IV 3b	WC IV 3b	WC III 3a	-	-	æ =	-	2 =
o Gd WC	3a WC	3a WCI	2 WC	2 WC	2 WC	3b WCI	2 WCI	2 WCIII	2 WC	2 WC II
Mn C SPL Drought	9 -15	11 -16	26 12	9 02	8 22	-31 -17	6-	28 15	6- 22	9 12
In C SPL	Non-calcarece NYes No NYes No	Non-calcaret-11 NNO NO NNO NO	NON - Non-calcaret 26 NON - NYes No NON - NYes Yes	Non-calcare: 20	Non-calcarer 22 No No NYes Yes	Non-calcaret-31	Non-calcarer 10 N Yes No N No No No No No No	Non-calcare(28 No No NYes Yes	NON - Non-calcaret 22 NON - NO No NON - NO No	Non-calcarer 21 No No NYes No NNo Yes
CaCO3	NON	NON NON .	NON - Non- NON - NYes NON - NYes	NON - Non-c	NON	NON - NON	NON	NON	NON - NON NON - NO NON - NO	NON -
SUBS STR	h a finger Moderate Poor	h a finger Moderate Moderate	h a finger Moderate Poor	h a finger Poor	h a finger Moderate Poor	h a finger Moderate Moderate	h a finger Moderate Moderate Moderate	h a finger Moderate Poor	h a finger Moderate Moderate	h a finger Moderate Moderate Poor
Ped Strength Size Shape	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger left. All hard rocks or stones (i.e. those which cannot be scratched withoderate life. All hard rocks or stones (i.e. those which cannot be scratched wifeoor left.).	HR - All had rocks or stores (i.e. those which cannot be scratched with a linger than had rocks or stores (i.e. those which cannot be scratched withoderate HR - All had rocks or stores (i.e. those which cannot be scratched withoderate HR - All had rocks or stores (i.e. those which cannot be scratched withoderate HR - All had rocks or stores (i.e. those which cannot be scratched withoderate had not be scratched withoderate with the property of the scratched withoderate with the scratched withoderate with the scratched withoderate with the scratched withoderate with the scratched with the screen with the scratched with the screen with the scratched with the scratched with the scratched with	HR - All hard rocks or stones (I.e. those which cannot be scratched with a finger HR - All hard rocks or stones (I.e. those which cannot be scratched wildhoderate HR - All hard rocks or stones (I.e. those which cannot be scratched wildhoderate Cannot have considered the All hard rocks or stones (I.e. those which cannot be scratched wildhoderate that the All hard rocks or stones (I.e. those which cannot be scratched wildhoderate).	HR - All hard rocks or stones (i.e. those which cannot be scratched with a linger. HR - All hard rocks or stones (i.e. those which cannot be scratched w/Poor	HR. All hard rocks or stores (i.e. those which cannot be scratched with a finger HR. All hard rocks or stores (i.e. those which cannot be scratched wilhoderate HR. All hard rocks or stores (i.e. those which cannot be scratched will poor hard rocks or stores (i.e. those which cannot be scratched will have a scratched will be a scratched with a scratched will be a scratched will be a scratched with a screen will be a scratched with a scratched will be a scratched with a screen will be a scratched with a scratched with a scratched will be a scratched with	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger (NON - Non-c) HR - All hard rocks or stones (i.e. those which cannot be scratched wiNoderate (NON - Non-c) HR - All hard rocks or stones (i.e. those which cannot be scratched wiNoderate (i.e. those which cannot be scratched winderate (i.e. those which cannot	HR - All had rocks or stores (i.e. those which cannot be scratched with a finger NON+. HR - All had rocks or stores (i.e. those which cannot be scratched withoutents NON+. HR - All had rocks or stores (i.e. those which cannot be scratched withoutents NON+. HR - All had rocks or stores (i.e. those which cannot be scratched withoutents NON+. HR - All had rocks or stores (i.e. those which cannot be scratched withoutents NON+. HR - All had rocks or stores (i.e. those which cannot be scratched withoutents NON+.	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger HR - All hard rocks or stones (i.e. those which cannot be scratched withoderate HR - All hard rocks or stones (i.e. those which cannot be scratched wifeon	HR - All hard rocks or stones (I.e. those which cannot be scratched with a finger HR - All hard rocks or stones (i.e. those which cannot be scratched wiModerate HR - All hard rocks or stones (i.e. those which cannot be scratched wiModerate CHR - All hard rocks or stones (i.e. those which cannot be scratched wiModerate	HR - All had nock or stones (i.e. those which cannot be scratched with a finger (NON - Non- HR - All had nock or stones (i.e. those which cannot be scratched withostera (NON - Non- HR - All had nock or stones (i.e. those which cannot be scratched withoder and NON - Non- HR - All had nocks or stones (i.e. those which cannot be scratched wifeor
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Texture %	SCL - San 20 LMS - Los 20 SC - Sand 10	MSL - Me 25 SCL - San 10 LMS - Log 5 MS - Med 5	HCL - Clars HCL - Clars C - Clay 0	C - Clay S	SCL - San S C - Clay S C - Clay 0	MSL - Md 25 MSL - Md 25 MSL - Md 50	SCL - San 20 SCL - San 15 LMS - Lod 15 MS - Med 10 SCL - San 10	C-Clay S C-Clay 0	SCL - San 8 LMS - Lof 5 SCL - San 5	SCL - San 10 SCL - San 5 SCL - San 10 C - Clay 0
Gley	Yes	N N N N N N N N N N	Yes Y	, se	Yes C S	2 Z Z	K N N S S S S S S S S S S S S S S S S S	Yes o	No S	Y Kes S S S
Grey Mottles Form Munsell colour										
Depth (cm) Matrix Ochreous Mottles Top (8ttm Thick Munsell colour Form Munsell colour	CD - C.7.5YRS/6 CD - C.10YR6/3		CP - C. 10YRS/6 CP - C. 2.5Y6/2	CP - G.2.5Y6/2	MP - h 7.5YR5/8 MD - f 2.5Y6/2		CD · C 5YRS/6	CD - C.10YRS/6 CD - C.2.5Y6/2	CD - C 10YR5/6	CD - C 7.5YR5/8 CD - C 2.5Y6/2
Matrix Munsell colo	7.5YR3/2 7.5YR5/3 5YR5/4	7.5YR3/2 7.5YR3/3 7.5YR5/4 7.5YR5/4	7.5YR4/3 2.5Y5/2 5YR5/4	7.5YR3/3 SYR5/3	7.5YR3/3 7.5YR5/3 5YR5/3	10YR4/2	7.5YR3/2 7.5YR4/3 7.5YR5/4 7.5YR6/4 5YR5/3	7.5YR3/3 10YR5/3 5YR5/3	7.5YR3/3 10YR5/3 5YR4/4	7.5YR3/3 7.5YR4/3 7.5YR6/3 5YR5/3
h (cm) m Thick	35 10 75	36 25 45	35 75	35 85 35	35 75	36	38 22 10 20 30	38 17 65	35 25 60	35 10 60
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Alt (m) Slope a Aspect Land use	LEY	FE.	FF	LEY	LEY	LEY	LEY	FF	LEY	431
Aspect	3	>	3	3	>	3	3	3	3	>
m) Slope	15	15	G	12	15	72	72	CS .	LS .	25
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x x	424100 3.	424200 3.	423800 3.	423900 3.	424000 3.	424100 3	424200 3.	423900 3	424000 3.	424100 3
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Point NGR										1
Poi	04	14	47	4 8	4	24	94	47	80	64

Grade	36	38	36	38	e.	38	2	35	36	36	38	æ
Final ALC Limitation 1 Limitation 2 Limitation 3												
Fina Limitation 2							2					
Limitation 3	Wetness	Wetness	Wetness	Wetness	Wetness	Wetness	Droughtiness	Wetness	Wetness	Wetness	Wetness	Wetness
Wc Gw	WC IV 3b	WCIII 3b	WC IV 3b	WCIV 3b	WCII 3a	WCIV 3b	WC! 1	WCIV 3b	WC IV 3b	WC IV 3b	WC IV 3b	WCIV 3b
	-2 2	9	2 6	40 1	11 1	9	0 2		2 2	÷	-3 2 N	4
Mn C SPL Drought MBw MBp Gd	Non-calcare 126	n-calcare 133	- Non-calcare 125	No No No No No No No	Non-calcare: 139	Non-calcares 122 NYes Yes	Non-calcare 126 NNo No NNo Yes	Non-calcaret 97 No No No No	Nyes Yes	Non-calcare 125 NNo Yes	Non-calcaret 125 NNo Yes	Non-calcares 124 No Yes
CaCO3	NON	er I NON - Non-c re NON - No NON - N'es	NON	te NON · Non- te NON · No te NON · No te NON · No	NON .	NON	NON .	NON . NON .	NON	NON	NON .	NON .
ape SUBS STR	ed with a fing	d with a fing d wi Modera d wi Poor	d with a fing	d with a fing d wi Modera d wi Modera d wi Modera d wi Modera	d with a finge d will Poor	d with a fings	d with a fing d wi Modera d wi Poor	d with a finge d with Moderal d with Moderal	d with a finge d will Poor	d with a finge d will poor	d with a finge d will Poor	d with a finge
Ped Strength Size Shape	HB - All hard rocks or stones (i.e. those which cannot be scratched with a finger HR - All hard rocks or stones (i.e. those which cannot be scratched willboar	All hard rocks or stones (i.e. those which cannot be scrattered with a linger. All hard rocks or stones (i.e. those which cannot be scrattered withoderate. All hard rocks or stones (i.e. those which cannot be scrattered without	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger HR - All hard rocks or stones (i.e. those which cannot be scratched w Poor	All had rocks or stone (i.e. those which cannot be scratched with finger. All hard rocks or stone (i.e. those which cannot be scratched without of the All hard rocks or stone (i.e. those which cannot be scratched withoderate. All hard rocks or stone (i.e., those which cannot be with without and the All hard rocks or stones (i.e., those which cannot be scratched withoderate. All hard rocks or stones (i.e., those which cannot be scratched withoderate.)	All hard rocks or stones (i.e. those which cannot be scratched with a finger All hard rocks or stones (i.e. those which cannot be scratched wiftoor	All hard rocks or stones (i.e. those which cannot be scratched with a linger All hard rocks or stones (i.e. those which cannot be scratched without	HB - All hard rocks or stores (i.e., those which cannot be scratched with a finger HB - All hard rocks or stores (i.e. those which cannot be scratched wiModerate HB - All hard rocks or stores (i.e., those which cannot be scratched wiPoor	All hard rocks or stones (i.e. those which cannot be scratiched with a linger. All hard rocks or stones (i.e. those which cannot be scratiched whoderate All hard rocks or stones (i.e. those which cannot be scratiched with	All hard rocks or stones (i.e. those which cannot be scratched with a finger. All hard rocks or stones (i.e. those which cannot be scratched we/Poor	All hard rocks or stores (i.e. those which cannot be scratched with a linger All hard rocks or stores (i.e. those which cannot be scratched will boar	All hard rocks or stores (i.e. those which cannot be scratched with a linger All hard rocks or stores (i.e. those which cannot be scratched will-boor	HR - All hard rocks or stores (i.e. those which cannot be scratched with a finger HR - All hard rocks or stores (i.e. those which cannot be scratched will boor
	se which can	se which can	se which can	se which can se which can se which can se which can se which can	se which can	se which can	se which canr se which canr se which canr	se which canr se which canr se which canr	se which can	se which cann	te which cann	se which cann
Stones - type 2 % > 2cm > 6cm Type	stones (i.e. the	stones (i.e. the stones (i.e. the	stones (i.e. the	tiones (i.e. the stones (i.e. the stones (i.e. the stones (i.e. the	itones (i.e. the	tones (i.e. tho	itones (i.e. tho itones (i.e. tho	tiones (i.e. tho dones (i.e. tho dones (i.e. tho	tones (i.e. tho	tones (i.e. tho	tones (i.e. tho	tones (i.e. tho
Ston % > 2cm	hard rocks or hard rocks or	hard rocks or hard rocks or	hard rocks or	hard rocks or ha	hard rocks or a	hard rocks or 1	hard rocks or s hard rocks or s hard rocks or s	hard rocks or s hard rocks or s hard rocks or s	hard rocks or s	hard rocks or s	hard rocks or s	hard rocks or s
type 1	HR - All	HR - All HR - All	HR - All	HR - All HR - All HR - All HR - All	HR - All	HR - All	HR - All HR - All	HR - All HR - All HR - All	HR - All	HR - All	HR - All	HR - AII
Stones - type 1 % > 2cm > 6cm Type												
Texture	HCL - Cla 0 C - Clay 0	HCL - Clar C - Clary C - Clary 0	HCL - Clay 10 C - Clay 0	C - Clay 0 C - Clay 0 HP - Hum 0 SCL - San 50 SCL - San 50	HCL - Claro C - Clay 0	HCL - Clar 15 C - Clay 0	HCL - Clay 10 C - Clay 15 C - Clay 0	C - Clay 5 OC - Orgs 0 SC - Sand 50 SC - Sand 50	HCL - Clay C - Clay 0	C - Clay 0	C - Clay 0	C - Clay 2
des Gley	Yes	Yes	Yes	No No	Yes	Yes	N N	N N	Yes	Yes	Yes	Yes
Grey Mottles Form Munsell colour												
s Mottles sell colour	R4/6	2/9	2/9	9/5	85/6	2/5			3/5	14/6	9/5	9/5
Ochreou Form Mun	CP - Ct 7.5YR4/6	CD - C2.5%6/2	CD · C2.5Y6/2	CD - C 10YRS/6	CP - C: 7.5YRS/6	CD · C 2.5Y6/2			CP - Ct 7.5YR5/6	CP - Cr7.5YR4/6	CP - Ct 7.5YR5/6	CP - G.7.5YR5/6
AR (m) Stope "Aspect Land use Depth (cm) Matrix Ochreous Mottles Top Bitm Thick Munsell colour Form Munsell colour	10YR4/2 2.5Y5/2	7.5YR4/2 7.5YR4/4 5YR5/4	SYR4/2 SYR5/4	2.5YS/3 10YR2/1 2.5YS/1	10YR4/3 2.5Y5/2	7.5YR4/2 5YR5/4	7.5YR4/2 7.5YR4/4 5YR5/4	10YR3/2 10YR2/1 2.5Y5/2	10YR4/2 2.5Y6/1	10YR4/2 10YR5/2	10YR4/2 SY5/1	7.5YR4/3 2.5Y5/3
Bttm Thick	24 24 120 96	35 35 55 20 120 65	32 32	25 25 45 20 45 20 25 20 20 35 20 35 20 35 20 35 30 30 35 30 30 30 30 30 30 30 30 30 30 30 30 30	50 50 120 70	32 32 120 88	35 35 95 60 120 25	35 45 10 55 10 75 20	32 32 120 88	28 28 120 92	27 27	34 34 120 86
De Top	24	S 33 0	35 0	0 85 85 85 85 85 85 85 85 85 85 85 85 85	0 95	32 0	0 8 8 8	98 48 88 88 88 88 88 88 88 88 88 88 88 88	32 0	58 0	27.0	34
Aspect land	3	>	3	*	*	>	*	3	*	*	*	>
m) Slope °	LS	15	15	LS.	5	G	7.5	6	15	15	ß	G
AIR (318300 59	318300 64	318300 80	318200 59	318200 59	318200 64	318200 80	318100 61	318100 61	318000 62	318000 61	318000 61
Grid ref.	SK 23700 18300 423700 318300 59	54.23800 18300 423800 318300 64	SK 23900 18300 423900 318300 80	SK 23600 18200 423600 318200 59	SK 23700 18200 423700 318200 59	SK 23800 18200 423800 318200 64	SK 23900 18200 423900 318200 80	SK 23600 18100 423600 318100 61	SK 23700 18100 423700 318100 61	SK 23500 18000 423500 318000 62	SK 23600 18000 423600 318000 61	SK 23700 18000 423700 318000 61
Point NGR	SK 23700 18	SK 23800 18	SK 23900 18	SK 23600 18	SK 23700 18	SK 23800 18	SK 23900 18	SK 23600 18	SK 23700 18	SK 23500 18	SK 23600 18	SK 23700 18
Point	13	14	15	91	17	88	19	20	21	22	23	75

	Grade	æ	æ	eg.	
Final ALC	Umitation 1 Limitation 2 Limitation 3 Grade	Wetness	Wetness	Wetness	
Wet	MBw MBp Gd WC Gw	g ≥ 2	& ≥	WCII 3a	
ht	M 99 d	7	8	2	t
Drought	MBw MB	125 -3	8- 811	130 3	
100	1	Yes	s Yes	No No	+
CO3 M		NO NO	ON - NO	ON - NO N - NO N - NO	t
S CTD	2	finger N	inger N	finger N derate N derate N	t
GLIB	abe	with a	with a	M With a	+
Ped	trength Size Sh	ch cannot be scratch ch cannot be scratch	ch cannot be scratch	ch cannot be scratch ch cannot be scratch ch cannot be scratch	
Stones - type 2	% > 2cm 2 6cm Type % > 2cm 2 6cm Type Strength Size Shape Shape Shape	H8 - All hard rocks or stones (i.e. those which cannot be scratched with a linger MOH - Mon calcare 125 - 3 2 WC IV 3b H8 - All hard rocks or stones (i.e. those which cannot be scratched will/hoor NOH - Mo Yes	HP. All hard rocks or stones (i.e. those which cannot be scratched with a linger NON -Non-calcare 119 - 8 2 WC IV 3b HP. All hard rocks or stones (i.e. those which cannot be scratched w/floor: NON -Nes Tres	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger (NON - Hon-calcure 130 HR - All hard rocks or stones (i.e. those which cannot be scratched withoderate (NON - 14%) No HR - All hard rocks or stones (i.e. those which cannot be scratched withoderate (NON - 14%) No HR - All hard rocks or stones (i.e. those which cannot be scratched withoderate (NON - 14%) No	
Stones - type 1	% > 2cm > 6cm Type	O HR.AII	80 U1	0 0 0	
Gley Texture		C - Clay	C - Clay	HCL - Clar 10 HCL - Clar 10 C - Clary 10	
		, es	ş	N Kes	L
Grey Mottles	Form Munsell colour				
Alt (m) Slope a Aspect Land use Depth (cm) Matrix Ochreous Mottles		MP - h7.5YR5/6	CP - C: 10YR5/6	CD - C.104RS/6	
Matrix	ck Munsell colour	10YR4/2 10YR5/2	7.5YR3/3 2.5Y6/2	7.5vR4/3 10vR5/3 10vR3/1	
th (cm)	tta Th	120 92	120 90	35 35 45 10 120 75	
Dep	Top 8	28 1 28 1	30 1	0 3 35 4 45 1	L
Land use					
Aspect		>	>	>	
Slope		G	G	15	
		17900 63	17900 66	17900 66	
_	×	SK 23500 17900 423500 317900 63	SK 23600 17900 423600 317900 66	SK 23700 17900 423700 317900 66	
Point	NGR	25 SK 23500	26 SK 23600	27 SK 23700	GNB

Ped. Shape	Ped. Siz
SG - Single grain	VF - Very Fine
GRA - Granular	F - Fine
SAB - Subangular Blocky	M - Medium
AB - Angular Blocky	C - Coarse
PRIS - Prismatic	VC - Very Coarse
PLAT - Platy	NA - N/A
MASS - Massive	
NA - N/A	Degree of Ped. De
	W - Weak
Subsoil Structure Condition	M - Moderate
Not Applicable	S - Strong
Good	NA - Not applicable
Moderate	
Poor	Wetness
	WCI
Soil or Ped, Strength	WCII
Loose	WC III
Very friable	WC IV
Friable	WC V
Firm	WCVI
Very firm	
Extremely firm	ALC Grac
Extremely hard	1
N/A	2
	3a
Calcareousness	3b
NON - Non-calcareous (<0.5% CaCO3)	4
VSC - Very slightly calcareous (0.5 - 1% CaCO3)	2
SC - Slightly calcareous (1 - 5% CaCO3)	Non-Ag
MC - Moderately calcareous (5 - 10% CaCO3)	
VC - Very calcareous (>10% CaCO3)	Gley
	None
	Gley
	N/A

FP - Fibrous and semifibrous peats

FS - Fine Sand FSL - Fine sandy loam FSZL - Fine sandy silt loam HCL - Clay loam (heavy) HP - Humified peats

CSZL - Coarse sandy silt loam

CSL - Coarse sandy loam

C - Clay CHK - Chalk CS - Coarse Sand

MD - Many Distinct
MP - Many Prominent
VF - Very many Faint
VD - Very many Distinct
VP - Very many Prominent

FP - Few Prominent
CF - Common Faint
CD - Common Distinct
CP - Common Prominent

MF - Many Faint

FD - Few Distinct

C783/KCC3018 Oakland Farm, Walton on Trent, Derbyshire Revision 2 Revision Date 30/04/2021

GS - Gravel with porous stones (mainly soft stone types listed above) HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)

GH - Gravel with non-porous (hard) stones

CH - Chalk or chalk stones FSST - Soft fine grained sandstones

MZ - Marine Light Silts
MZCL - Silty clay loam (medium)
Oc - Organic clays
OS - Organic sands
PL - Peaty loams
SC - Sandy clay
SCL - Sandy clay
SCL - Sandy peats
ZC - Silty clay

MSST - Soft, medium or coarse grained sandstones SI - Soft 'weathered' igneous or metamorphic rocks or stones

SLST - Soft aditic or dolomitic limestones ZR - Soft, argillaceous or silty rocks or stones

HZCL - Silty clay loam (heavy)
IMP - Impenetrable to roots
LCS - Loamy Coarse Sand
LFS - Loamy fine sand
LMS - Loamy medium sand
LP - Loamy peats
MCL - Clay loam (medium)

MS - Medium Sand MSL - Medium sandy loam MSZL - Medium sandy silt loam

Appendix KCC2 2024 Soil Profile Logs

Grid re	ef.						Depth (c	cm)	Matrix	Ochreous Mottles Grey Mottles	5		Stones - type 1 Stones - type 2 Ped		_	I		Dr	ought		Wet	Final ALC	
NGR X	Υ	Alt (m)	Slope °	Aspect	Land use	Тор	Bttm	Thick	_	Form Munsell a Form Muns	Glev	Texture %	> 2cm > 6cm Type % > 2cm > 6cm Type Strength Size Shap	SUBS ST	R CaCO3	Mn C	SPL	MBw MB		WC	Gw	Limitation Limitation Limitat	tion Gra
SK 23866 1 423866	319372	60	≤7	Level	CER	0	35	35	7.5YR4/2			MSL - Med 10	6 HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	nil)	NON - No	on-calcareou	ıs (<0.5% C) -6	3a	WCI	1	Droughtiness	3a
						35	55	20	7.5YR4/3			MSL - Med 15	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	il) Modera	te NON - No	or No	No						
						55	80	25	7.5YR5/3	MP - Many 5YR4/6	Yes	LMS - Loar 20	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	il) Modera	te NON - No	or No	No						
						80	120	40	10YR6/2		Yes	MS - Medi 0	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				No						
SK 23742 1 423742	319329	61	≤7	Level	CER	n	30	30	10YR3/2			MCL - Clay 10	8 HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger no	il)	NON - No	on-calcareou	ıs /<∩ 5% C	30 5	2	WCI	1	Droughtiness	2
3K 23/42 1423/42	313323	01	21	Level	CLIN	20	65	35		CD - Comr 10YR5/6	Voc	SCL - Sand 15	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				No.370 C.	5		WCI	1	Diougnuness	
						CF.	120	55	10YR4/1	CD - COIIII 101K3/0	Yes	MSL - Med 25	HR - All hard rocks of stones (i.e. those which cannot be scratched with a finger na				No						
						03	120	33	10114/1		INO	IVISE - IVIEU 23	HR - All flate focks of stolles (i.e. those which callifor be scratched with a fliger fie	iii) ivioueia	te INON - IN	DINO	INU						
																							_
						_																	
SK 23624 1 423624	319195	66	≤7	Level	CER	0	38	38	10YR4/2			MSL - Med 5	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na			on-calcareou	ıs (<0.5% C	8 -13	3a	WC I	1	Droughtiness	3a
						38	60	22	10YR4/1		No	LMS - Loar 10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				No						
						60	120	60	10YR6/2	CD - Comr 7.5YR5/6	Yes	LMS - Loar 25	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	iil) Modera	te NON - No	or No	No						
SK 23621 1 423621	318977	66	≤7	Level	CER	0	30	30	10YR4/2			MSL - Med 10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na			on-calcareou	ıs (<0.5% C	17 -18	3a	WC I	1	Droughtiness	3a
						30	50	20	10YR4/5		No	MSL - Med 25	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				No						
						50	120	70				LMS - Loar 50	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	il) Modera	te NON - No	on-calcareou	No						
SK 23597 1 423597	318850	66	≤7	Level	CER	0	38	38	10YR4/2			MSL - Med 10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	nil)	NON - No	on-calcareou	ıs (<0.5% C	13 -15	3a	WCI	1	Droughtiness	36
						38	50	12	10YR4/5		No	MSL - Med 25	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				No						
						50	120	70				LMS - Loar 50	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				No						
						30	120	70				LIVIS LOGIJSO	The Air hard rocks of stories (i.e. those which cannot be structive with a ringer in	iii) iviouciu	icinon in		140						
												-											
							_																
SK 23566 1 423566	210072	71	7	Laural	CER	0	20	20	10YR4/2		_	MSL - Med 10	6 HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	::1)	NON N	on-calcareou	1.0 F0/ C	11 10	3a	MC I	1	Draughtings	20
3K 23300 1 423300	3100/2	/1	≤7	Level	CER	0	30	30									15 (<0.5% C	11 -16	3d	WC I	1	Droughtiness	3a
						30	40	10	10YR4/4			MSL - Med 10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				NO						
						40	70	30	10YR5/6		No	LMS - Loar 15	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na				No						
						70	120	50	10YR6/6		No	MS - Medi 10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	iil) Modera	te NON - No	orNo	No						
SK 23448 1 423448	318663	71	≤7	Level	CER	0	30	30	10YR4/2			MSL - Med 10	6 HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na			on-calcareou	ıs (<0.5% C) -8	3a	WC I	1	Droughtiness	3a
						30	50	20	10YR4/4		No	MSL - Med 10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	il) Modera	te NON - No	or No	No						
						50	120	70	10YR5/6		No	LMS - Loar 10	HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger na	il) Modera	te NON - No	or No	No						
SK 23509 1 423509	317854	63	≤7	Level	CER	0	30	30	10YR4/3			C - Clay 0			NON - No	on-calcareou	ıs (<0.5% C	22 8	2	WC IV	3b	Wetness	3
						30	120	90		CP - Comn 7.5YR4/6	Yes	C - Clay 0		Poor	NON - No		Yes						
												1 ' 1											
																							H
																1							
										 		1 -				1							- 1
SK 23476 1 423476	317764	63	≤7	Level	CER	0	25	25	10YR4/2	CP - Comn 7.5YR4/6	Yes	HCL - Clay 0			NON - NA	n-calcareou	IS (<0.5% C	22 8	2	WC IV	3h	Wetness	- 1
5.1 25470 1 425470	31/104	0.5	2,	20,401	CEN	25	120	95		MP - Many 7.5YR5/8	Yes	C - Clay 0		Poor	NON - No		Yes	0		10010	30	···carcas	- 1
							120	33	2.310/1		103	C Clay		1.001	INCIN - INC	110							
						1	-					1 1				1							
						-	_					1		_		+							
						-	-							_	-	-							
						-										-							
OV 00 407 : :	045	c.	_		oen.	-	25	25	40017 : 17	00.0 7.5/04/5		10.01					(0						
SK 23427 1 423427	317631	65	≤7	Level	CER	0	25	25		CP - Comn 7.5YR4/6	Yes	C - Clay 0				on-calcareou	ıs (<0.5% C	20 6	2	WC IV	3b	Wetness	3
						25	120	95	2.5Y5/1	CP - Comn 7.5YR4/6	Yes	C - Clay 0		Poor	NON - No	orNo	Yes						
																1							

20

KCC3018 ALC Oct 2024 Final

Appendix KCC3
2021 Description of Soil Pit

Project]	Location									\Box	[Date			\Box	[Surveyor	(s)			Company		mpany		
C783			KCC3018 Oal	klands Solar	Farm, Walton o	n Trent,	Staffordshire	2						14-Apr-21					AR				Askew Lan	d and Soil	I		
Pit]	WC	[Grade]	Limitation(s)		I	Notes																
1			IV		3b		Wetness																				
Grid Ref.			Altitude	Nearest	Topography						Flora									Weather and	conditions						
Square		North	Altitude	point	Gradient	Aspect		Slope form		Surface	Culivation type	_	-	Vegetation ty	nes					Temp	Sky	Wind		Precipita	tion	-	
oquare	Lust	1401111		ponit	Gradient	поресс		Siope form		Surruce	cunvacion typ	_	7	vegetation ty	pes					Temp	JRY	· · · · ·		rrecipito	LIOIT	\neg	
SK	237	183	59	AB13	<7°	West		Straight					_							Mild	Cloudy	Slight		Dry			
Horizon	Denth		Matrix			Gleying	,		Mottle	ec .		Sto	ne c	content		lc.	alc N	Mn C	Ped/soil :	structure			Horizon bo	undany	Biopores	SDI	
Horizon		Bttm	Texture	Colour	Munsell		Colour			Colour	Munsell				S	Туре	dic.		Dev.	Size	Structure	Strength	Distinct		0.5mm	31.5	
1	0	24		Dark Greyish Brown	10YR4/2							0	П	,,			lon N		Mod	Fine	Subangular Blocky	Firm		Smooth	>0.5%	No	
2	24	120	Clay	Greyish Brown	2.5Y5/2	Yes	Greyish Bro	2.5Y5/2	CP	Strong Brown	7.5YR4/6	0				N	lon N	Vo	Poor	coarse	Angular	Firm	n/a	n/a	<0.5%	Yes	
		7		T		,				т																	
Pit		+	WC	-	Grade	-	Limitation(s)		-	Notes		—													\dashv	
Grid Ref.	1-	I	Altitude	Nearest	Topography						Flora									Weather and conditions							
Square	East	North		point	Gradient	Aspect		Slope form		Surface	Culivation type	-		Vegetation ty	pes					Temp	Sky	Wind		Precipita	tion	\dashv	
												_															
Horizon	_		Matrix		T	Gleying			Mottle					content	_		alc. N		Ped/soil		I_	I	Horizon bo		Biopores	SPL	
	Тор	Bttm	Texture	Colour	Munsell	Gley	Colour	Munsell	Form	Colour	Munsell	%	۳	Туре	S	Туре	\dashv		Dev.	Size	Structure	Strength	Distinct	Form		Н	
													Ц				_									Ш	
												П	\sqcap														
	-	-				-		-	-				\rightarrow		_		_								-		

Appendix KCC4
2024 Description of Soil Pit

Soil Survey							Surveyor	AR
Easting (X) 423476		Northing (Y)	Northing (Y) 317764		63		Grid Reference	SK 23476 17764
Land Use PGR		Reference	9 (Pit 1)	Slope °				
Edwalton Bedrock Member - Sandstone		Superficial	Glaciofluvial Deposits	Aspect			Date	15/08/2024
Lav	yer	Topsoil	2	3	4	5	6	7
Lower Depth (cm)		25	120					
Texture		HCL - Clay loam	C - Clav					
Matrix Colour		10YR4/2	2.5Y6/1					
Gley (Y/N)		Yes	Yes					
	Form	CP - Common P	MP - Many Prominent					
Ochreous Mottles	Munsell Colour	7.5YR4/6	7.5YR5/8					
Grey Mottles	Form							
	Munsell Colour							
Manganese (Y/N)			No					
% Stones (type 1)		0	0					
Stones > 2cm								
Stones > 6cm								
Stone Type								
% Stones (type 2)								
Stones > 2cm								
Stones > 6cm								
Stone Type								
CaCO3		NON - Non-calc	NON - Non-calcareous (<0	0.5% CaCO3)				
		AB - Angular Blo	PRIS - Prismatic					
		M - Medium	C - Coarse					
Subsoil Structure No		Not Applicable	Poor					
Soil or Ped. Strength Firm		Firm	Very firm					
Degree of Ped. Development M - Mode		M - Moderate	W - Weak					
Slowly Permeable L	ayer (Y/N)	No	Yes					
MDw	MDp	FCD					Class (WC)	WC IV

WIDW	MIDP	I CD	l v	Wetness	Class (VVC)	WCIV
104	95	140	v		Grade (WE)	3b
	•					

Notes Calculated Moisture Balance (MB): Wheat = 22mm; Potatoes = 8mm (Grade according to droughtiness = Grade 2)

Appendix KCC5
Laboratory Analysis



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD DATE ISSUED: 28/08/2024



Contract		KCC3018_Oaklands	Cable Ro	ute					
Serial No).	45579_1A							
Client:		ountryside Consulta	nts	Soil Property Testing Ltd					
	Limited Greenacre Stoke Com Purton Sto	nmon Lane,		15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG					
	Swindon SN5 4LL	,		Tel: 01480 4 Email: <u>enquirie</u>	155579	testing.com			
				Website: www.soilpropertytesting.com					
Samples	Submitted	d By:		Approved Signator	ies:				
	Kernon C Limited	ountryside Consulta	nts	☑ ,	.C. Garner B.E	ng (Hons) FGS			
					Technical Direc	tor & Quality Manager			
Samples	Labelled: KCC3018	_Oaklands Cable Rou	ıte	☐ W. Johnstone					
				Materials Lab Manager					
Date R	eceived:	21/08/2024	Samples	Tested Between:	21/08/2024	and 28/08/2024			
Remarks	:								
		ttention of Sarah Ke erence No: KCC3018	rnon						
		amended Test Repo nd silt fraction which		_		des the percentages			
Notes:	1	All remaining samples of unless we are notified t		from this contract will b	oe disposed of afte	er 21 days from today,			
	2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.								
	3	Tests marked "NOT UKA Schedule for this testing			are not included in	n the UKAS Accreditation			
	4	This test report may no issuing laboratory.	t be reprodu	uced other than in full e	xcept with the pri	ior written approval of the			
	5	The results within this r	eport only r	elate to the items tester	d or sampled.				



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD DATE ISSUED: 28/08/2024



Contract KCC3018_Oaklands Cable Route Serial No. 45579_1A **Target Date** 05/09/2024 Scheduled By Kernon Countryside Consultants Limited Schedule Remarks Sample Top Туре Ref. Depth No. Sample Remarks KCC3018_ D 0.00 1 1 AB3 End of Schedule Totals



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD DATE ISSUED: 28/08/2024

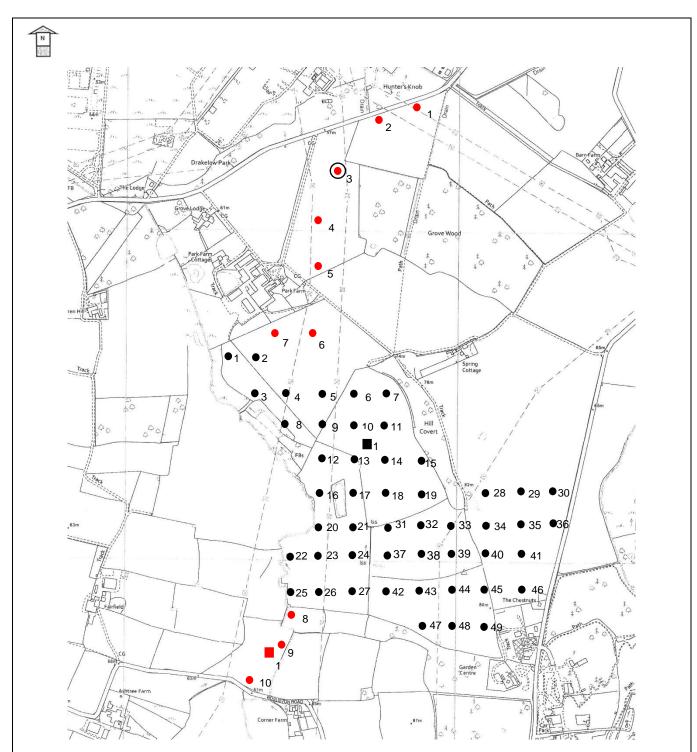


Contract	KCC3	018_Oak	lands Cab	le Route								
Serial No.	4557	45579_1A										
			DETE	RMINA	TION OF	PARTICL	E SIZE D	ISTRIBU	TION			
Borehole / Depth Sample Description Remarks												
CC3018_AB	0.00-	D D	1	frequent rec	ark brown slightly gravelly clayey very silty SAND/sandy SILT with equent recently active roots. Gravel is fine and medium subangular and before test							nm removed
Method	of Test:	Hydror	meter + Pr	re-sieve	Method	of Pretre	atment:			Not requi	red	
Percentage Passing (%)	00 90 80 70 50 40 30 20 10 0			0.06 Coarse	Fine Me	0.6 article Size		6 ine Med			200	600 DERS
н	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)		Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)		Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)	
y d r o m e t e	0.0258 0.0185 0.0097 0.0069 0.0049	25 23 21 16 13 12 10 7	27 Clay by Dry Mass (%)		2.00 1.18 0.600 0.425 0.300 0.212 0.150 0.063	100 98 95 88 74 57 47 35	65		300 125 90 63 50 37.5 28 20		0	
Method of Pr			7: Part 1: 20 7: Part 2: 19		<0.06	By Dry Ma:	35		10 6.3 5			
ype of Samp omments:			disturbed, B:			lar, W=Wat	er, SPT=Spli	it Spoon Sa	mple, C=Co	re Cutter		

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Page 3 of 3

Plan KCC3018/01B Auger Point Plan



Auger sample location

Soil pit

O Soil Sample

2024 Survey Samples

PLAN	KCC3018/01B							
TITLE	Auger Points Plan							
SITE	Oaklands Solar Farm (Park Farm)							
CLIENT	BayWa.r.e. UK Limited							
NUMBER KCC3018/01B 04/24hr								
DATE	August 2024 SCALE NTS							

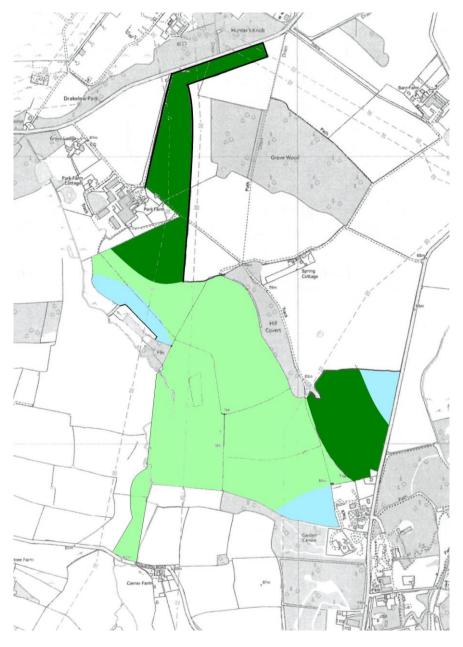
KERNON COUNTRYSIDE CONSULTANTS LTD GREENACRES BARN, PURTON STOKE, SWINDON, WILTSHIRE SN5 4LL

Tel 01793 771 333 Email: info@kernon.co.uk

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Plan KCC3018/03 Agricultural Land Classification Plan





KEY		На	%	PLAN	KCC3018/03			
	Grade 1			TITLE	Agricultural Land Classification			
	Grade 2	4.5	8	SITE	E Oakland Solar Farm (Park Farm)			
	Grade 3a	15.4	26	CLIENT	BayWa.r.e. UK Limited			
	Grade 3b	38.5	66	NUMBER	KCC3018/03 08/24hr			
	Grade 4			DATE	August 2024	SCALE	NTS	
	Grade 5			KERNON COUNTRYSIDE CONSULTANTS LTD				
	Non-agricultural			GREENACRES BARN, PURTON STOKE, SWINDON, WILTSHIRE, SN5 4LL				
	Urban			Tel 01793 771 333 Email: info@kernon.co.uk				
	Not surveyed			This plan is reproduced from the Ordnance Survey under copyright license 100015226				

