



November 2019

## **Peel Investments (North) Ltd**

### **Agricultural Land Quality**

**Land at Elton Parkland, Radcliffe**

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# 1 Introduction

- 1.1 Reading Agricultural Consultants Ltd (RAC) is instructed by Peel Investments (North) Ltd to assess the Agricultural Land Classification (ALC) of land at Elton Parkland, Radcliffe, by means of a desk appraisal of soil and site characteristics.
- 1.2 Paragraph 170 of the National Planning Policy Framework (NPPF<sup>1</sup>) indicates that planning policies and decisions should contribute to and enhance the natural and local environment by recognising, amongst other matters, the benefits from natural capital and ecosystem services, including the economic and other benefits of the best and most versatile (BMV) agricultural land.
- 1.3 Paragraph 171 goes on to state that plans should allocate land with the least environmental or amenity value, where consistent with other policies in the NPPF, and, in footnote 53, explains that where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.
- 1.4 Guidance for assessing the quality of agricultural land in England and Wales is set out in the Ministry of Agriculture, Fisheries and Food (MAFF) revised guidelines and criteria for grading the quality of agricultural land (1988)<sup>2</sup>, and summarised in Natural England's Technical Information Note 049<sup>3</sup>.
- 1.5 Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. The principal physical factors influencing grading are climate, site and soil which, together with interactions between them, form the basis for classifying land into one of the five grades.
- 1.6 Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use, and Grade 5 is very poor quality land, with severe limitations due to adverse soil, relief, climate or a combination of these. Grade 3 land is subdivided into Subgrade 3a (good quality

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<sup>1</sup> **Ministry of Housing, Communities and Local Government (2019)**. *National Planning Policy Framework*.

<sup>2</sup> **MAFF (1988)**. *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*. MAFF Publications.

<sup>3</sup> **Natural England (2012)**. *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition.

land) and Subgrade 3b (moderate quality land). Land which is classified as Grades 1, 2 and 3a in the ALC system is defined in Annex 2 of the NPPF as BMV agricultural land.

## 2 Site and climatic conditions

### General features, land form and drainage

- 2.1 The site extends to 244ha in total, of which approximately 184ha comprises agricultural grassland. Non-agricultural land includes Radcliffe Leisure Centre in the south, Radcliffe Cemetery in the west and the Elton Reservoir and Withins Reservoir in the north and centre. The site is bounded on all sides by existing settlements and infrastructure, primarily Radcliffe to the west and south, industrial estates to the east, and Elton and Bury to the north.
- 2.2 Drainage of the land is via a number of small tributaries which feed into the reservoirs and the now disused Manchester, Bolton and Bury Canal which flows through the east of the site. A number of small ponds are also present.
- 2.3 Topography is generally gently sloping, falling in altitude from around 110m above Ordnance Datum (AOD) in the north-west to 75m AOD in the south-east. Two shallow valleys contain watercourses that flow into and from the reservoirs.

### Agro-climatic conditions

- 2.4 Agro-climatic data for the site have been interpolated from the Meteorological Office's standard 5km grid point data set at a representative altitude of 90m AOD, and are given in Table 1. Climate at the site is cool and very wet. Moisture deficits are moderately small to small. The number of Field Capacity Days (FCD) is larger than is typical for lowland England (150) and is considered to be very unfavourable for agricultural land working.

**Table 1:** Local agro-climatic conditions

Parameter	Value
Average Annual Rainfall	1,077mm
Accumulated Temperatures >0°C	1,338 day°
Field Capacity Days	247 days
Average Moisture Deficit, wheat	63mm
Average Moisture Deficit, potatoes	44mm

- 2.5 There is an overriding climatic limitation to Grade 2, as shown in Appendix 1.

## Soil parent material and soil type

- 2.6 The bedrock geology mapped by the British Geological Survey<sup>4</sup> across the site is of the Pennine Coal Measures Group, including the Pennine Lower and Middle Coal Measures Formations. The formations include interbedded grey mudstone, siltstone and sandstone, with varying inclusions of coal seams and marine fossils. Bands dominated by sandstone run through the north of the site, predominantly aligned east to west.
- 2.7 Superficial deposits cover all of the site and provide the soil parent material. Glacial till overlies the bedrock across approximately the western half of the site and can include poorly sorted material ranging in size from clay to boulders. Glaciofluvial deposits of sand and gravel are present centrally and to the east of the site, within which there are also two pockets of glaciolacustrine clay and silt deposits.
- 2.8 The Soil Survey of England and Wales soil association mapping<sup>5</sup> (1:250,000 scale) shows the Brickfield 3 association across the whole site. The Brickfield 3 association is characterised by predominantly loamy and clayey surface-water gley soils that are waterlogged for much of the year (Wetness Class (WC) IV). These soils are mostly in permanent grassland or in a grass ley and cereal rotation as they are wet. Cultivation can be difficult and topsoil structure is quickly damaged when wet<sup>6</sup>.

## 3 Agricultural land quality and land use

### Existing data

- 3.1 Provisional ALC mapping shows the site as Grade 4. Grade 4 is defined as:

*“Grade 4 – poor quality agricultural land*

*Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.”*

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<sup>4</sup> **British Geological Survey (2019)**. *Geology of Britain viewer*, <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>.

<sup>5</sup> **Soil Survey of England and Wales (1984)**. *Soils of Midland and Western England (1:250,000)*, Sheet 3.

<sup>6</sup> **Ragg et al (1984)**. *Soils and Their Use in Midland and Western England*, Harpenden, Bulletin 12.

- 3.2 The provisional maps are not suitable for assessing the quality of individual sites, as explained in Natural England's TIN049:

*"These maps are not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. They show only five grades: their preparation preceded the subdivision of Grade 3 and the refinement of criteria, which occurred after 1976. They have not been updated and are out of print. A 1:250 000 scale map series based on the same information is available. These are more appropriate for the strategic use originally intended ..."*

- 3.3 TIN049 goes on to say:

*"Since 1976, selected areas have been resurveyed in greater detail and to revised guidelines and criteria. Information based on detailed ALC field surveys in accordance with current guidelines (MAFF, 1988) is the most definitive source. Data from the former Ministry of Agriculture, Fisheries and Food (MAFF) archive of more detailed ALC survey information (from 1988) is also available on <http://magic.defra.gov.uk/>."*

- 3.4 There is no detailed ALC data available for the site.

- 3.5 The main component soils of the Brickfield 3 association include slightly stony clay loam to 20cm depth. This overlies a mottled but permeable clay loam upper subsoil to 50cm depth, which in turn overlies a grey, mottled clay loam lower subsoil, which has a weak, coarse structure and poor permeability.

- 3.6 The WC of soil profiles is determined by the depth to the slowly permeable layer according to the climatic regime, namely the number of FCDs. With 247 FCDs, profiles which are gleyed within 40cm of the surface and slowly permeable at depths greater than 67cm are of WC III. Profiles which are slowly permeable at depths between 28cm and 67cm are of WC IV, and those which are slowly permeable within 28cm of the surface are of WC V.

- 3.7 Profiles of WC III or IV with medium clay loam topsoil are limited by wetness and workability to Subgrade 3b. Where of WC V, profiles are limited to Grade 4. Profiles of WC III, IV or V with heavy clay loam topsoil are limited by wetness and workability to Grade 4. The grades according to wetness are highlighted in Appendix 2.

- 3.8 There is an area of rough grassland in the south-east of the site adjacent to the canal which is mapped by the Environment Agency as being in Flood Zone 3, and an additional area to the east

is mapped as being in Flood Zone 2<sup>7</sup>. Aerial imagery shows these areas to have patchy, brown grass. It is considered more likely that these soils will be of Grade 4.

- 3.9 Based on the mapped soil type and aerial photography of the site, the ALC of land at Elton Parkland is predicted to be predominantly Subgrade 3b, with Grade 4 to the south and east, as shown in Figure RAC8581-1e.

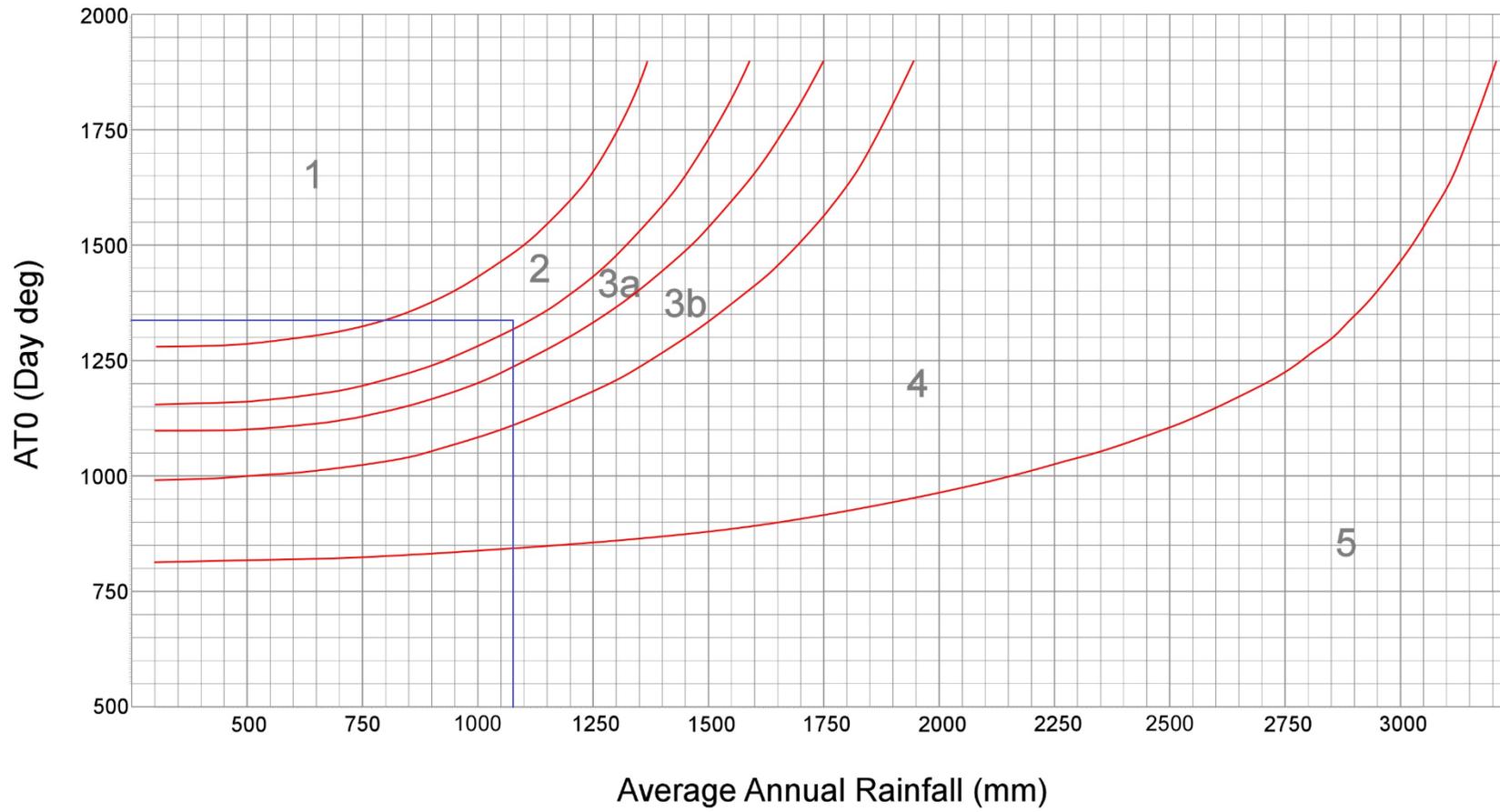
## 4 Summary

- 4.1 The site at Elton Parkland extends to 244ha of mostly agricultural grassland.
- 4.2 The site is provisionally mapped as Grade 4, which is poor quality agricultural land. There is no detailed ALC survey data available for the site.
- 4.3 The main soils mapped are affected by wetness and workability and are most likely to be of Subgrade 3b across a majority of the site. Small areas adjacent to the Manchester, Bury and Bolton Canal are mapped as being in EA Flood Zones and furthermore are shown in aerial imagery to have rough, brown patchy grass. These areas are considered more likely to be of Grade 4.

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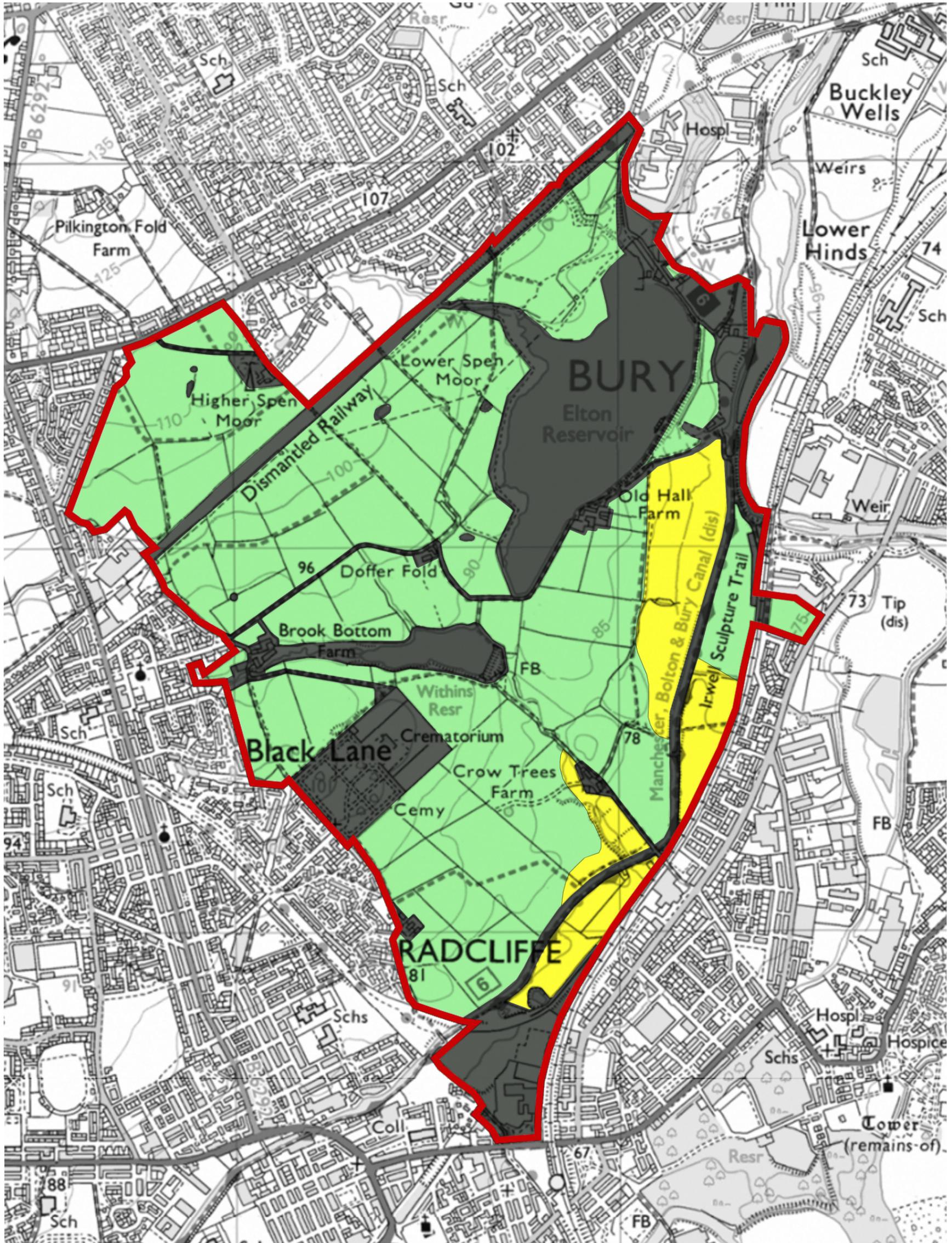
<sup>7</sup> **Environment Agency (2019)**. *Flood map for planning*, <https://flood-map-for-planning.service.gov.uk/confirm-location?easting=378393&northing=407215&placeOrPostcode=radcliffe>

**Appendix 1: ALC grade according to climate**



**Appendix 2: Table 6 of the ALC guidelines – grade according to wetness**

Wetness Class	Texture <sup>1</sup> of the top 25 cm	Field Capacity Days				
		<126	126-150	151-175	176-225	>225
I	S <sup>2</sup> LS <sup>3</sup> SL SZL	1	1	1	1	2
	ZL MZCL MCL SCL	1	1	1	2	3a
	HZCL HCL	2	2	2	3a	3b
	SC ZC C	3a(2)	3a(2)	3a	3b	3b
II	S <sup>2</sup> LS <sup>3</sup> SL SZL	1	1	1	2	3a
	ZL MZCL MCL SCL	2	2	2	3a	3b
	HZCL HCL	3a(2)	3a(2)	3a	3a	3b
	SC ZC C	3a(2)	3b(3a)	3b	3b	3b
III	S <sup>2</sup> LS SL SZL	2	2	2	3a	3b
	ZL MZCL MCL SCL	3a(2)	3a(2)	3a	3a	3b
	HZCL HCL	3b(3a)	3b(3a)	3b	3b	4
	SC ZC C	3b(3a)	3b(3a)	3b	4	4
IV	S <sup>2</sup> LS SL SZL	3a	3a	3a	3b	3b
	ZL MZCL MCL SCL	3b	3b	3b	3b	3b
	HZCL HCL	3b	3b	3b	4	4
	SC ZC C	3b	3b	3b	4	5
V	S LS SL SZL	4	4	4	4	4
	ZL MZCL MCL SCL	4	4	4	4	4
	HZCL HCL	4	4	4	4	4
	SC ZC C	4	4	4	5	5
Soils in Wetness Class VI - Grade 5						



- ★ Grade 1 - excellent quality
  - ★ Grade 2 - very good quality
  - ★ Subgrade 3a - good quality
  - ★ Subgrade 3b - moderate quality
  - ★ Grade 4 - poor quality
  - ★ Grade 5 - very poor quality
  - Non-agricultural
  - ★ Not Present
- } Best and most versatile land



Scale 1:10,000@A3 Nov/2019

Figure RAC8581-1e: Predicted Agricultural Land Classification  
 Site: GMA7, Elton Parkland, Radcliffe  
 Client: Peel Investments (North) Ltd

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