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Peel L&P Investments (North) Ltd

Agricultural Land Quality

Land at Bamford, Rochdale.

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1 Introduction

- 1.1 Reading Agricultural Consultants Ltd (RAC) is instructed by Peel L&P Investments (North) Ltd to assess the Agricultural Land Classification (ALC) of land at Bamford, Rochdale, by means of a desk appraisal of soil and site characteristics.
- 1.2 Paragraph 170 of the National Planning Policy Framework (NPPF¹) 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)², and summarised in Natural England's Technical Information Note 049³.
- 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

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

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

³ **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 34.7ha, predominantly comprising agricultural grassland, at the western boundary of Bamford, Rochdale. Non-agricultural land comprises residential properties in the east and south, and recreational grounds in the north-east and centre, including a cricket ground clubhouse. The site is roughly triangular, bounded to the north and east by the settlement of Bamford and to the west by Jowkin Lane and Furbarn Road.
- 2.2 Topography is gently sloping across the site. There is a shallow valley feature aligned east to west, with downward slopes also to the south. The highest altitude is in the north-west and is at around 165m above Ordnance Datum (AOD). The lowest altitude is in the south, at 145m AOD.

Agro-climatic conditions

- 2.3 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 155m AOD, and are given in Table 1. Climate at the site is cold and very wet. Moisture deficits are moderately small to small. The number of Field Capacity Days (FCD) is much 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	1,173mm
Accumulated Temperatures >0°C	1,261 day°
Field Capacity Days	262 days
Average Moisture Deficit, wheat	53mm
Average Moisture Deficit, potatoes	30mm

- 2.4 There is an overriding climatic limitation to Subgrade 3b (as shown in Appendix 1).

Soil parent material and soil type

- 2.5 The bedrock geology mapped by the British Geological Survey⁴ is the Pennine Lower Coal Measures Formation, which includes interbedded grey mudstone, siltstone and sandstone, commonly containing marine fossils and coal seams. Within the formation are bands of Lawrence Rock which are dominated by sandstone.
- 2.6 Superficial deposits of glacial till cover most of the site, and can include poorly sorted material ranging in size from clay to boulders. In the south of the site, there are glaciofluvial deposits of sand and gravel.
- 2.7 The Soil Survey of England and Wales soil association mapping⁵ (1:250,000 scale) shows the Wilcocks 1 association across much of the site, with Newport 1 soils in the south.
- 2.8 Wilcocks 1 soils are characterised by strongly gleyed soils, with acidic peaty or humose topsoils over fine loamy and clayey subsoils. There may be inclusions of a variant in which the subsoil is coarse textured and which is affected by groundwater. Profiles are severely waterlogged near the surface and are of Wetness Class (WC) V or VI.
- 2.9 Soils of the Newport 1 association are mainly well-drained, sandy soils formed in glaciofluvial deposits. In wetter districts, the association provides some of the only well-drained soils suitable for arable use⁶.

3 Agricultural land quality and land use

Existing data

- 3.1 Provisional ALC mapping shows the site as undifferentiated Grade 3, immediately bordering on Grade 4 to the north. Grade 3 is defined as:

“Grade 3 – good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.”

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

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

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

3.2 Grade 3 is further subdivided into Subgrades 3a and 3b, defined as:

“Subgrade 3a - good quality agricultural land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b - moderate quality agricultural land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.”

3.3 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.”

3.4 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 ..."

3.5 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/>.”

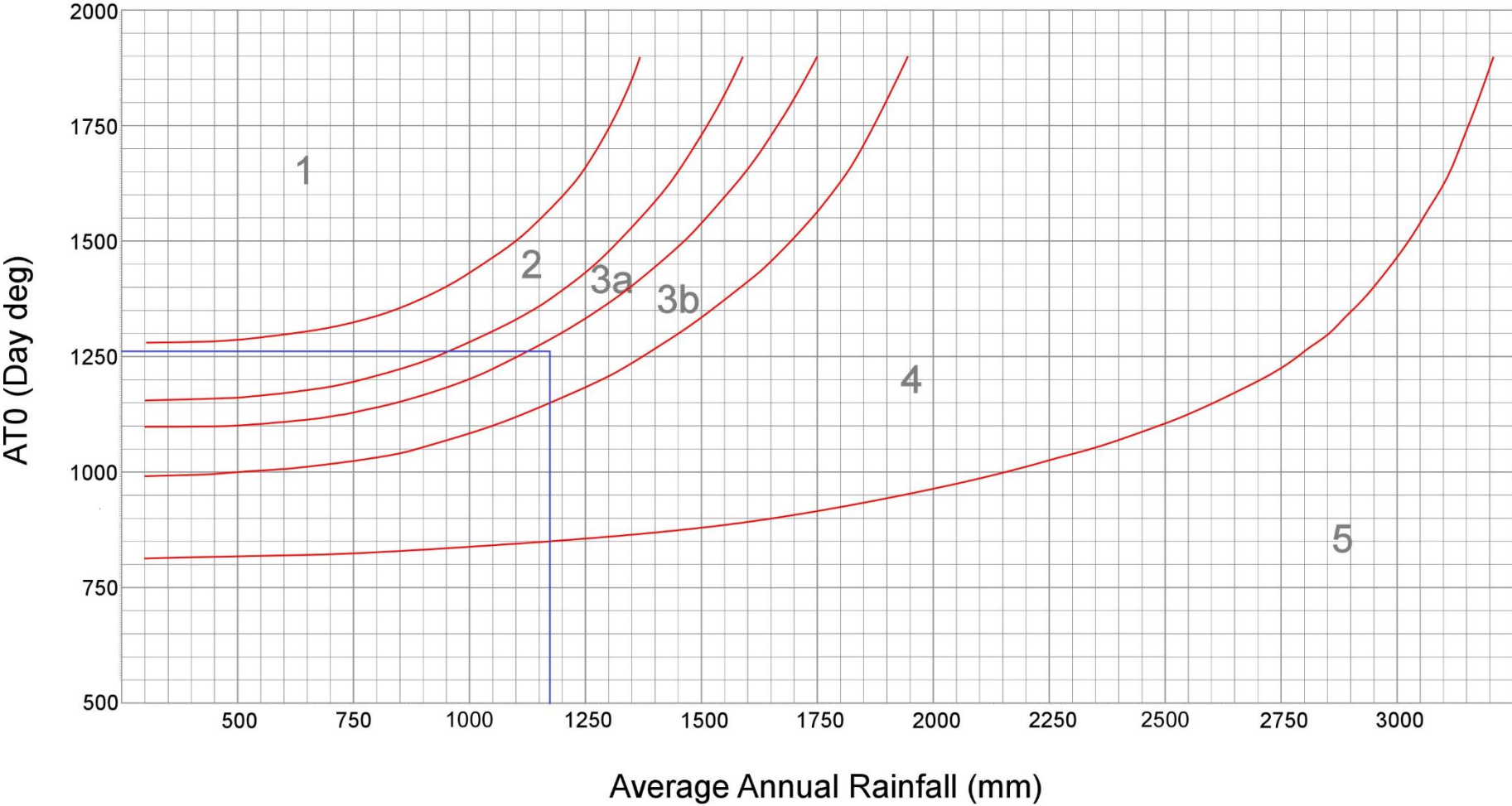
3.6 There is no detailed ALC data available for the site.

- 3.7 The main soils of the Wilcocks 1 association are described as having black peaty or humose topsoils of 20cm depth. Upper subsoil is described as light brownish grey, mottled clay loam or sandy clay loam and overlies slowly permeable, mottled grey clay. Profiles are typically very poorly drained due to a combination of high rainfall, slowly permeable subsoil and gentle relief. Profiles of WC V or VI with organic topsoils are limited by wetness and workability to Grade 5, as highlighted in Appendix 2.
- 3.8 By contrast, the Newport 1 association, with sandy loam or loamy sand topsoils over loamy sand and sand, is typically well-drained, of WC I. Although inherently of high quality, these soils if present will be affected by the overriding climatic limitation and will remain restricted to no better than Subgrade 3b.
- 3.9 Based on the distribution of the mapped soil types, a predicted distribution of ALC grades at Bamford is shown in Figure RAC8581-1b.

4 Summary

- 4.1 The site at Bamford, Rochdale, extends to 34.7ha of land predominantly comprising agricultural grassland.
- 4.2 The site is provisionally mapped as Grade 3, bordering on Grade 4 to the immediate north. There is no detailed ALC survey data available for the site.
- 4.3 There is an overriding climatic limitation to Subgrade 3b. Two soil types are mapped at the site. The main type is characterised by very poorly drained profiles with peaty or humose topsoils and is likely to be limited to Grade 5. Although of inherently better quality, the well-drained subordinate soil type mapped as being present is limited by climate and would be of Subgrade 3b at best.

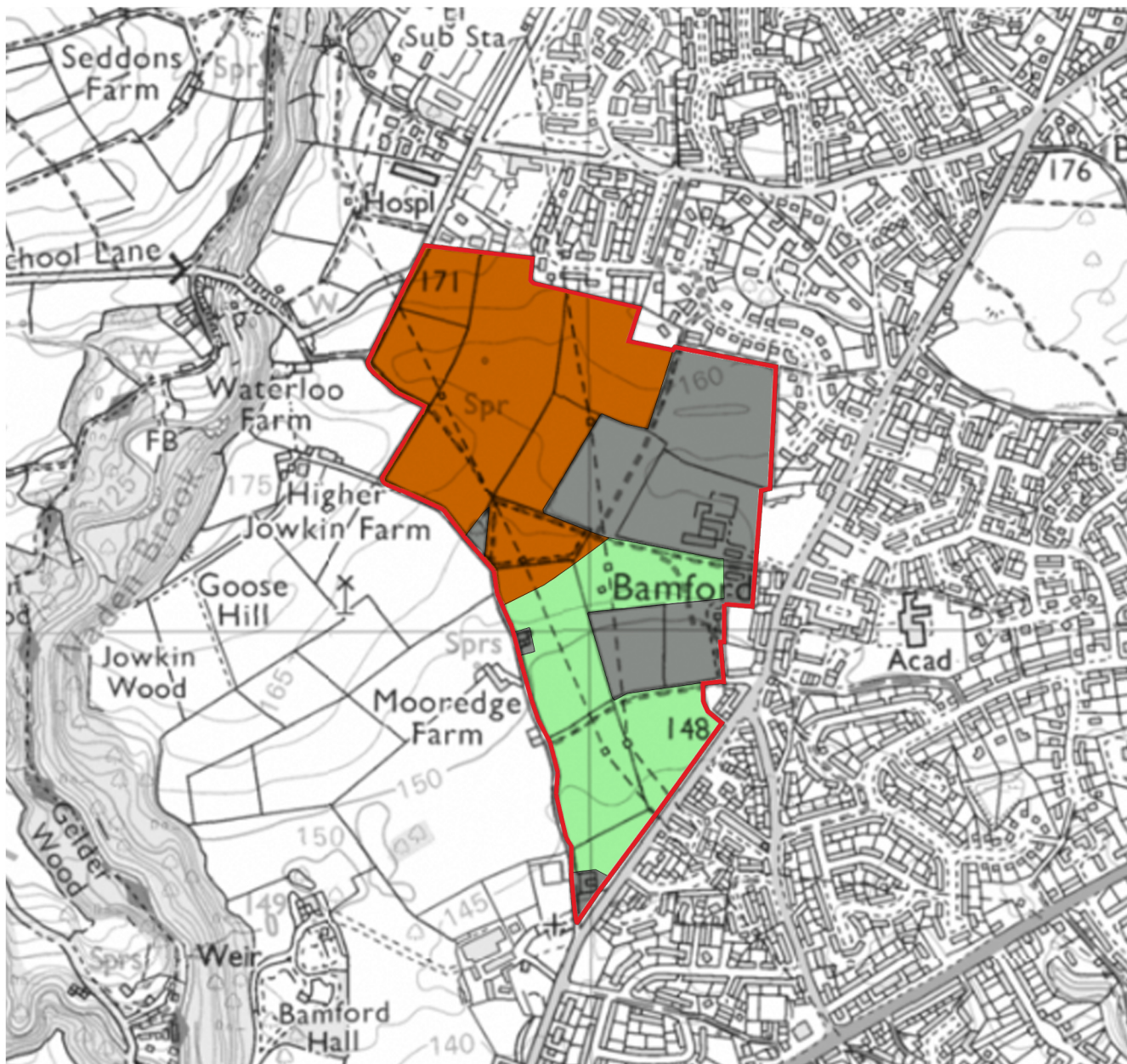
Appendix 1: ALC grade according to climate



Appendix 2: Table 7 of the ALC guidelines – grade according to wetness (organic mineral and peaty soils)

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

* Combinations which do not occur or occur very rarely.



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Scale 1:10,000@A4 Nov/2019

Figure RAC8581-1b: Predicted Agricultural Land Classification

Site: GMA23, Bamford / Norden

Client: Peel Investments (North) Ltd

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