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Ministry of
Agriculture
Fisheries
and Food

AGRICULTURAL LAND CLASSIFICATION
NORTHUMBERLAND MINERALS LOCAL PLAN
(SITES AT MARLEY KNOWE, BRANDON WEST, THORNBROUGH AND RIDLEY HALL)
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SUMMARY

Detailed Agricultural Land Classification surveys of sites at Marley Knowe, Brandon West, Thornbrough and Ridley Hall were carried out in late April and May 1995 in relation to Northumberland Minerals Local Plan. The following table summarises the grades found on each site.

	Area (ha)					
Site	2	3a	3b	4	Other Land	Total
Marley Knowe	-	26.3	8.1	-	22.9	57.3
Brandon West	14.9	21.5	10.6	-	10.7	57.7
Thornbrough	17.3	-	2.3	-	0.2	19.8
Ridley Hall	57.9	17.2	8.0	0.9	7.3	91.3

The soils on all of the sites are generally well drained, falling in Wetness Class I. All of the land except that at Thornbrough is limited to Grade 2 by climate, and varying degrees of topsoil stoniness, soil droughtiness and, at Thornbrough and Ridley Hall, flood risk, are the limiting factors which determine the ALC grade in most cases.

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AGRICULTURAL LAND CLASSIFICATION REPORT ON LAND AT MARLEY KNOWE, BRANDON WEST, THORNBROUGH AND RIDLEY HALL, IN RELATION TO NORTHUMBERLAND MINERALS LOCAL PLAN

1. INTRODUCTION

Survey work was carried out on these four sites in late April and May 1995, when the soils on each site were examined by hand auger borings at 100m intervals predetermined by the National Grid. At least two soil pits were dug on each site to allow the profiles to be described in greater detail and a number of topsoil samples were sieved where necessary to allow a more accurate estimate of topsoil stoniness. In each case the land quality was assessed using the methods described in "Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land " (MAFF, 1988).

2. MARLEY KNOWE

2.1 Location, Land Use and Relief

Marley Knowe lies 6½km north-west of Wooler, on the west side of the A697. It covers a total area of 57.3 ha of which 34.4 ha were sown to cereals at the time of survey. The remaining 22.9 ha consists principally of woodland.

The site is currently irrigated.

Site altitude varies from 54m AOD in the west to 49m AOD in the south and the land is generally level to gently sloping (0-2°) with variable aspect.

2.2 Climate

Grid Reference	:	NT 942 318
Altitude (m)	:	51
Accumulated Temperature above 0°C (January - June)	:	1281 day°C
Average Annual Rainfall (mm)	:	740
Climatic Grade	:	2
Field Capacity Days	:	195
Moisture Deficit (mm) Wheat	:	78
Moisture Deficit (mm) Potatoes	:	61

2.3 Geology, Soils and Drainage

The area is underlain by Lower Carboniferous Cementstone over which lie river terrace deposits and, in the south-east, alluvium.

The soils are well drained, falling in Wetness Class I, and consist of loamy medium sand or medium sandy loam topsoils over loamy medium sand or loamy coarse sand subsoils. Topsoils are slightly to moderately stony, with 10-25% stones greater than 2cm, while subsoils are very stony, with around 55% total stones.

The soils on the site correspond to the Newport 1 Association as mapped by the Soil Survey and Land Research Centre.

2.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	Percentage of Total Area
1		
2		
3a	26.3	46.0
3b	8.1	14.1
4		
5		
(Sub total)	(34.4)	(60.1)
Urban	0.3	0.5
Non Agricultural		
Woodland	22.6	39.4
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(22.9)	(39.9)
TOTAL	57.3	100

2.4.1 Subgrade 3a

Most of the agricultural land on the site falls in Subgrade 3a. The soils are well drained, falling in Wetness Class I, and consist of loamy medium sand or medium sandy loam topsoils overlying loamy medium sand or loamy coarse sand subsoils. The topsoils are typically slightly stony, with between 11% and 14% stones greater than 2cm in size, while the subsoils are very stony, with around 55% total stones. This land is limited to Subgrade 3a by topsoil stoniness and soil droughtiness. Although irrigation would reduce the droughtiness of this land, topsoil stoniness would still be an overriding limitation of Subgrade 3a.

2.4.2 Subgrade 3b

Parts of the north and east of the site have been mapped as Subgrade 3b. The topsoils are moderately stony, with between 16% and 23% stones greater than 2cm in size, and the subsoils are very stony, with around 55% total stones. In terms of texture, loamy medium sand or medium sandy loam topsoils overlie loamy medium sand or loamy coarse sand subsoils, but it is topsoil stoniness which limits this land to Subgrade 3b. Again topsoil stoniness problems override any ALC upgrading that would result from the benefit of irrigation.

2.4.3 Urban

This category includes a minor road in the south-east.

2.4.4 Woodland

A total of 22.6 ha of Woodland occurs on the site, mainly in the east.

3. BRANDON WEST

3.1 Location, Land Use and Relief

This site lies approximately 12km south-east of Wooler, on the north side of the River Breamish. It is centred on grid reference NU 033 169. It covers a total area of 57.7 ha of which 47 ha were in agricultural use at the time of survey, with the easternmost field having been recently ploughed and the remaining fields being in ley and permanent grass. The remainder of the site consists of Urban land (roads) and Non Agricultural land (scrub alongside the River Breamish).

Site altitude varies from 98m AOD in the east to 110m AOD in the west and the land is level to gently sloping (0-2°) with an easterly aspect.

3.2 Climate

Grid Reference	:	NU 033 169
Altitude (m)	:	105
Accumulated Temperature above 0°C (January - June)	:	1224 day°C
Average Annual Rainfall (mm)	:	762
Climatic Grade	:	2
Field Capacity Days	:	202
Moisture Deficit (mm) Wheat	:	76
Moisture Deficit (mm) Potatoes	:	57

3.3 Geology, Soils and Drainage

The site is underlain by Andesite and overlain by alluvium in the south and west and by river terrace deposits in the north-east. Isolated pockets of boulder clay occur in the far north of the site.

The soils are generally well drained, falling in Wetness Class I, and typically consist of sandy loam, sandy clay loam or medium clay loam topsoils and subsoils. Horizons of gravel occur below around 35cm depth over much of the site. The topsoils are very slightly to moderately stony, containing 2-18% hard stones, while the subsoils are very slightly to extremely stony, containing up to 80% very small to large hard stones.

The soils correspond to the Wick 1 Association as mapped by the Soil Survey and Land Research Centre.

3.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	Percentage of Total Area
1		
2	14.9	25.8
3a	21.5	37.3
3b	10.6	18.4
4		
5		
(Sub total)	(47.0)	(81.5)
Urban	2.2	3.8
Non Agricultural	8.5	14.7
Woodland		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(10.7)	(18.5)
TOTAL	57.7	100

3.4.1 Grade 2

A band of Grade 2 land is found in the centre and east of the site. The soils are well drained, falling in Wetness Class I, and consist of sandy loam, sandy clay loam or medium clay loam topsoils and subsoils, with horizons of loamy sand or sand occurring at depth. The topsoils are very slightly to slightly stony, containing 2-8% stones greater than 2cm, while the upper subsoils are typically slightly stony, with around 12% total stones, and the lower subsoils are slightly to very stony, containing up to 50% total stones. The ALC grade of this land is limited by the overall climate of the area and , in most cases, by topsoil stoniness, a slight topsoil workability limitation and/or slight soil droughtiness.

3.4.2 Subgrade 3a

Much of the site falls in Subgrade 3a. Again, the soils are generally well drained (Wetness Class I), with medium sandy loam or medium clay loam topsoils and upper subsoils overlying moderately to very stony loamy sand or sand lower subsoils. The topsoils and upper subsoils are typically slightly stony, containing 6-12% stones greater than 2cm in size, while the lower subsoils contain up to 50% stones. The ALC grade of this land is limited by soil droughtiness and/or topsoil stoniness.

3.4.3 Subgrade 3b

Two areas of Subgrade 3b land have been mapped, one in the east and one in the west. Slightly to moderately stony (with 7-20% hard stones greater than 2cm) sandy loam topsoils generally overlie very stony (with around 45% total hard stones) coarse or medium sand. This land is limited to Subgrade 3b by severe soil droughtiness and/or topsoil stoniness.

3.4.4 Urban

This category includes the minor roads which run through the site.

3.4.5 Non Agricultural

Non Agricultural land occurs in the form of scrub along the banks of the River Breamish.

4. THORNBROUGH EXTENSION

4.1 Location, Land Use and Relief

This site lies approximately 1½km south-east of Corbridge and is divided into two blocks on the north side of the River Tyne. It covers a total area of 19.8 ha, of which 19.6 ha was under cereals at the time of survey. The remaining 0.2 ha consists of a small block of woodland.

Site altitude varies from 55m AOD in the north-east to 25m AOD in the south-west. The land in the westerly block is level while the land in the easterly block is gently to strongly sloping (3-10°) with a westerly or southerly aspect. Slopes of between 8° and 10° limit parts of this block to Subgrade 3b.

4.2 Climate

Grid Reference	:	NZ 005 637
Altitude (m)	:	40
Accumulated Temperature above 0°C (January - June)	:	1322 day°C
Average Annual Rainfall (mm)	:	638
Climatic Grade	:	1
Field Capacity Days	:	170
Moisture Deficit (mm) Wheat	:	95
Moisture Deficit (mm) Potatoes	:	81

Although most of the site has no climatic limitation, land above 52m is restricted to Grade 2.

4.3 Geology, Soils and Drainage

The area is underlain by Corbridge Limestone and the westerly block is overlain by river terrace deposits while the easterly block is overlain by glacial sand and gravel.

The soils are well drained, falling in Wetness I, and consist of very slightly stony sandy loam, medium clay loam or medium silty clay loam topsoils overlying similar or lighter textured (sand or loamy sand) subsoils in most cases.

The soils correspond to the Wharfe and Wick 1 Associations as mapped by the Soil Survey and Land Research Centre.

4.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	Percentage of Total Area
1		
2	17.3	87.0
3a		
3b	2.3	12.0
4		
5		
(Sub total)	(19.6)	(99.0)
Urban		
Non Agricultural		
Woodland	0.2	1.0
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(0.2)	(1.0)
TOTAL	19.8	100

4.4.1 Grade 2

Most of the land has been mapped as Grade 2. The soils are well drained, falling in Wetness Class I, and consist of medium sandy loam, medium silty clay loam or medium clay loam topsoils and subsoils in most cases. In a few places loamy sand or sand occurs below 30cm depth. Both topsoils and subsoils are stoneless to very slightly stony, typically containing around 2% hard stones. The ALC grade of this land is limited by flood risk close to the River Tyne, by climate at the top of the site and, in places, by slight soil droughtiness.

4.4.2 Subgrade 3b

Two small areas of Subgrade 3b land occur in the easterly block. The soils are as those on the Grade 2 land but slopes of 8-10° limit this land to Subgrade 3b.

4.4.3 Woodland

A small block of trees is found in the west of the site.

5. RIDLEY HALL

5.1 Location, Land Use and Relief

This site runs along the south bank of the River Tyne between Haydon Bridge and Bardon Mill, and lies around grid reference NY 804 645. It covers a total area of 91.3 ha of which 84 ha were in agricultural use (principally under cereals and ley grass) at the time of the survey. The remainder consists of Woodland and Non Agricultural land.

Site altitude varies from 85m AOD in the south to just under 80m AOD alongside the River Tyne and River Allen. The land is generally level to gently sloping (0-2°) with variable aspect but slopes of up to 11° occur along the line of the river terrace in the east of the site. Where the slope is greater than 7° this land is restricted to Subgrade 3b.

5.2 Climate

Grid Reference	:	NY 804 645
Altitude (m)	:	80
Accumulated Temperature above 0°C (January - June)	:	1281 day°C
Average Annual Rainfall (mm)	:	796
Climatic Grade	:	2
Field Capacity Days	:	209
Moisture Deficit (mm) Wheat	:	79
Moisture Deficit (mm) Potatoes	:	62

5.3 Geology, Soils and Drainage

To the west of the River Allen this site is underlain by Upper Carboniferous Limestone while to the east it is underlain by Lower Carboniferous Limestone. The whole of the site is covered by a thick layer of river alluvium.

The soils on the site are generally well drained, falling in Wetness Class I, and consist of loamy sand, sandy loam, sandy clay loam or medium silty clay loam topsoils and subsoils. The topsoils vary from stoneless to moderately stony, with up to 20% stones greater than 2cm in size in some areas, while the subsoils vary from stoneless to very stony with up to 50% stones.

The soils correspond to the Wharfe Association as mapped by the Soil Survey and Land Research Centre.

5.4 Agricultural Land Classification

The ALC grades occurring on this site are as follows:

Grade/Subgrade	Hectares	Percentage of Total Area
1		
2	57.9	63.4
3a	17.2	18.8
3b	8.0	8.8
4	0.9	1.0
5		
(Sub total)	(84.0)	(92.0)
Urban		
Non Agricultural	1.7	1.9
Woodland	5.6	6.1
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(7.3)	(8.0)
TOTAL	91.3	100

5.4.1 Grade 2

Most of this site falls in Grade 2. The soils are well drained, falling in Wetness Class I, and generally consist of sandy loam, sandy clay loam or medium silty clay loam topsoils overlying similarly - textured subsoils. Horizons of loamy sand or sand occur below around 60cm depth in places. Topsoils and subsoils are stoneless to slightly stony, containing 0-10% subrounded stones greater than 2cm in size, but moderately to very stony horizons containing 16-50% stones occur at depth in places. This land is limited to Grade 2 by the overall climate of the area and, in some areas, by a slight flood risk, a slight topsoil workability restriction, slight soil droughtiness and/or topsoil stoniness.

5.4.2 Subgrade 3a

Four separate areas of Subgrade 3a land occur in the centre and east of the site. The soils are well drained (Wetness Class I) and consist of sandy loam or loamy sand topsoils overlying sandy loam, loamy sand or sand subsoils. Topsoils are generally stoneless to slightly stony, containing between 0% and 14% stones greater than 2cm, while subsoils are stoneless to very stony, with up to 50% very small to large subrounded sandstones. This land is limited to Subgrade 3a by flood risk where it lies alongside the River Tyne, and by topsoil stoniness and/or soil droughtiness elsewhere.

5.4.3 Subgrade 3b

An area of Subgrade 3b land is found in the east of the site. Again the soils are well drained (Wetness Class I), with medium sandy loam topsoils overlying medium sandy loam, loamy medium sand or medium sand subsoils. The topsoils are typically moderately stony, with between 16% and 20% stones greater than 2cm in size while the subsoils are moderately to very stony, with up to 50% stones. The ALC grade of this land is limited by topsoil stoniness and, along the line of a river terrace, by slopes of 8-11°.

5.4.4 Grade 4

A small area of Grade 4 land has been mapped in the west of the site. The soils are similar to those on the Subgrade 3b land but piles of stones in this area make regular ploughing impractical and for this reason the land is restricted to Grade 4.

5.4.5 Non Agricultural

Small areas of Non Agricultural land have been mapped on the west bank of the River Allen and on the bank of the River Tyne, south-west of Ridley Bridge.

5.4.6 Woodland

Seven small areas of woodland are found in the centre and west of the site.