

PHYSICAL CHARACTERISTICS REPORT FOR LOUNGE REMAINDER

INTRODUCTION

Following the request for detailed information of the physical characteristics of soil at Lounge, members of the Resource Planning Group visited the site during November 1990, and April 1991. An Agricultural Land Classification Survey was undertaken and soil pits dug to determine the physical characteristics of the soil.

Location, Altitude and Relief

The site lies 3 miles to the north-east of Ashby. The site is gently undulating, except in areas of current workings. Altitude and relief are non-limiting in the grading of this site.

Climate and Rainfall

The main parameters used in the assessment of the climatic limitations are Average Annual Rainfall (AAR) and Accumulated Temperature (ATO). For this site these figures are 676 mm and 1327°C respectively, indicating that there is a minor climatic limitation on this site, preventing any land being classified as grade 1.

Geology and Soils

The area is underlain by Carboniferous Coal Measures, which have given rise to sandy silt loam or clay loam topsoils, overlying silty clay loam, clay and silty clay subsoils, typical of the Ticknall Series. Many of the soils within the site have been disturbed, resulting in more variable soil profiles.

Land Use

At the time of survey the site included a large area of current workings, with smaller blocks of woodland, grass ley, permanent pasture and rough grazing, with an area of derelict land adjoining the site offices.

AGRICULTURAL LAND CLASSIFICATION

Sub-grade 3b accounts for 4.85 hectares and 4.3% of the site. It occurs in a limited part of the site, where the soils have not been disturbed. Soils are typically sand silt loam, sandy clay loam, or silty clay loam, overlying heavy clay loam and clay. Some profiles revealed bands of coarser sandier material, including weathering sandstone. Naturally occurring coal fragments were also common. These soils were poorly drained with evidence of gleying within 40 cms of the surface, and a slowly permeable layer occurring between 35 cms and 50 cms depth.

Grade 4 accounts for 5.15 hectares and 4.6% of the site. It occurs in the north-west of the site in an area which has been restored to agriculture within the last five years, following opencast mining. Soils are typically heavy clay loam overlying clay or silty clay, sometimes with coal waste at depth. Within these profiles there is some soil mixing, often with clay inclusions within a sandy matrix. These variations in the soil are the main limitation to the use of this land.

It should be noted that this area has been given an 'interim grading', as it has been restored within the last five years, and the structural development of the soil is still at an early stage. It is possible that the grading of this land might change after the five year period has elapsed.

Non-agricultural land accounts for 2.35 hectares and 2.1% of the site. It occurs in the east of the site where the soils are

covered by variable depths of coal shale, with correspondingly sparse vegetation.

Woodland accounts for 13.71 hectares and 12.2% of the site, covering the western part of the site, including Birch Coppice. It is comprised of a mixture of deciduous and coniferous woodland with limited areas of Rhododendron scrub.

Not surveyed land accounts for 86.24 hectares and 76.8% of the site. It includes the site offices, car park, access roads, and existing opencast workings.

Breakdown of ALC Grades

Grade	Area (ha)	% of site
3b	4.85	4.3
4	5.15	4.6
Non-agricultural	2.35	2.1
Woodland	13.71	12.2
Not surveyed/ existing opencast workings	<u>86.24</u>	<u>76.8</u>
TOTAL	115.30	100.0

SOIL UNITS

A detailed survey of the site was carried out using a hand held auger. All borings were to 100 cms, unless prevented from achieving this depth by coal shale, or tree roots. In addition, two soil pits were dug within the undisturbed soils, and a further six soil pits within the area of derelict land. This helped to determine the physical characteristics of the soil, from which six separate soil units have been identified. These have been separate according to their textures, which reflect their different handling characteristics and separate storage needs.

Unit 1

This is mapped in the area of woodland, including Birch Coppice, and accounts for 13.71 hectares and 12.2% of the site. Soils are typically of the Ticknall series, although these are overlain by 3-6 cms of humus material including pine needles, decomposing leaves and plant material. The topsoils are variable in texture from loamy sand and sandy silt loam to organic sandy clay loam. They extend to 25 cms where soils are more typical of a Ticknall Series soil with silty clay loam and heavy clay loam overlying heavier clay between 40 and 45 cms. Shallower topsoils were also found, particularly adjoining old bell pits within the woodland.

Unit 2

This accounts for 4.85 hectares and 4.3% of the site, and corresponds to the area of sub-grade 3b land. Soils are typical of the Ticknall Series with sandy silt loam to 25/30 cms overlying silty clay loam to 45 cms overlying silty clay. This unit includes areas of the more clayey Dale Series.

Unit 3

This occurs in the east of the site on part of the area formerly used for coal storage, and accounts for 1.45 hectares and 1.3% of the site. On average this area is covered by 10 cms of coal waste, which overlies a variable depth of topsoil. The topsoil is strongly compacted, and often mixed with coal shale, and in many places it is barely visible between the coal waste and the clay subsoils. It is not present in sufficient quantity to be recoverable separately. The subsoils are similar to those in Units 1 and 2, although the pits revealed several bands of weathered sandstone at depth.

Unit 4

This occurs in the extreme east of the site on the remaining part of the area formerly used for coal storage. It accounts for 0.9 hectares and 0.8% of the site. This area is covered by 5-10 cms of coal waste overlying up to 20 cms of red shale, with negligible topsoil, overlying the typical Ticknall Series Soils.

Unit 5

This occurs in the north-west and accounts for 5.15 hectares and 4.6% of the site. The soils are typically sandy clay loam or heavy clay loam extending to 15 to 30 cms overlying clay and silty clay. Coal waste occurs in some profiles between 80 and 120 cms.

Unit 6

This includes existing opencast workings, the site offices, car parks, and access roads. It accounts for 86.24 hectares and 76.8% of the site.

Breakdown of Soil Units

Soil Unit	Area (Ha)	% of site
1	13.71	12.2
2	4.85	4.3
3	1.45	1.3
4	0.90	0.8
5	5.15	4.6
6	<u>86.24</u>	<u>76.8</u>
	112.30	100

Resource Planning Group
Wolverhampton RO
April 1991

BORING	CLASS	WET TEXTURE	TOPSOIL STONES		DEPTH	COLOUR	CaCO3	MOTTLES
			>2	>6				
1	4	hcl			0-10	10YR41 00		few 10YR56 00
		c			10-80	10YR42 00		many 10YR58 00
		clwst			80-120	75YR20 00		common 10YR56 00
2	4	scl			0-28	10YR32 00		
		c			28-60	10YR42 00		common 10YR58 00
		zc			60-90	10YR53 00		many 10YR58 00
		clwst			90-120	10YR51 00		
3	4	hcl			0-23	10YR44 00		few 10YR56 00
		c			23-50	10YR42 00		many 10YR56 00
		scl			50-100	75YR34 00		common 10YR58 00
		clwst			100-120	75YR20 00		
4	4	hcl			0-26	10YR41 00		
		c			26-65	10YR53 00		common 10YR56 00
		zc			65-120	05YR43 00		many 10YR66 00
5	4	scl			0-30	10YR41 00		
		c			30-80	10YR42 00		common 10YR56 00
		scl			80-105	75YR34 00		
		rock			105-110	75YR20 00		
6	4	scl			0-15	10YR43 00		
		c			15-120	10YR51 53		many 10YR56 00
7	4	scl			0-20	10YR43 00		
		hcl			20-70	10YR41 00		many 10YR56 00
		clwst			70-120	10YR51 00		
8	4	scl			0-30	75YR30 00		
		c			30-70	10YR42 00		common 10YR56 00
9	4	hcl			0-30	10YR41 00		
		c			30-50	10YR53 00		
		scl			50-75	75YR43 00		
10	4	mcl			0-30	75YR20 00		
		coal			30-50	10YR21 00		
		c			50-120	10YR64 62		common 10YR56 00
11	4	mcl			0-30	10YR31 00		
		c			30-60	10YR53 00		common 10YR58 00
		scl			60-80	75YR34 00		
		zc			80-120	10YR51 00		many 10YR56 00
12	4	hcl			0-30	10YR41 00		
		c			30-120	10YR71 58		many 10YR56 00
13	4	mcl			0-30	10YR43 00		
		hcl			30-52	10YR41 00		common 10YR56 00
		c			52-120	10YR71 00		

```

-----
                TOPSOIL
                STONES
WET
BORING CLASS TEXTURE >2 >6 DEPTH COLOUR CaCO3 MOTTLES
14 . 4 zcl          0-23 10YR31 00
    hcl          23-45 10YR53 00      common 10YR56 00
    zc           45-120 10YR52 00      many 10YR58 00
15  4 mcl          0-27 10YR43 00
    c           27-120 10YR63 00      many 10YR58 00
16  4 mcl          0-27 10YR42 00
    mcl         27-36 10YR53 00      few 10YR56 00
    hcl         36-50 10YR42 00      many 75YR68 00
    c           50-120 10YR66 00      many 10YR58 00
17  4 hcl          0-26 10YR42 00
    c           26-120 10YR53 00      common 10YR58 00
18  4 zcl          0-26 10YR42 00
    c           26-45 10YR52 00      common 10YR46 00
    zc          45-120 10YR62 68      many 10YR56 00
19  4 mcl          0-25 10YR32 00
    hcl         25-60 10YR42 00      common 10YR58 00
    hcl         60-80 10YR53 00      many 10YR56 00
    zc          80-120 10YR51 56      many 10YR58 00
20  4 hcl          0-25 10YR42 00
    hcl         25-45 10YR53 00      common 10YR56 00
    zc          45-120 10YR66 62      many 10YR58 00
21  4 mcl          0-22 10YR32 00
    c           22-119 10YR52 00      many 10YR56 00
    zc          119-120 10YR51 56      many 10YR36 00
22  4 hcl          0-20 10YR32 00
    c           20-75 10YR51 00      many 10YR58 00
    zc          75-120 10YR61 00      many 10YR56 00
23  4 hcl          0-25 10YR42 00
    c           25-120 10YR53 00      many 10YR56 00
24  4 org          0-5 10YR21 00
    hcl         5-50 10YR42 00
    cwxz        50-120 10YR53 00      many 10YR56 00
25  4 zrg          0-3 10YR21 00
    szl         3-30 10YR32 00
    zc          30-120 10YR62 64      common 10YR56 00
26  4 org          0-5 10YR21 00
    szl         5-28 10YR42 00      few 10YR58 00
    c           28-90 10YR51 00      common 10YR58 00
    c           90-120 10YR53 00      many 10YR58 00

```

BORING	CLASS	WET TEXTURE	TOPSOIL		DEPTH	COLOUR	CaCO3	MOTTLES
			>2	>6				
27	4	mcl			0-4	10YR21 00		
		mcl			4-28	10YR41 00		few 10YR56-00
		c			28-60	10YR51 56		common 10YR58-00
		zc			60-120	10YR53		many 10YR56-
28	4	org			0-4	10YR22 00		
		szl			4-32	75YR30 00		
		c			32-50	10YR52 00		common 10YR58 00
		zc			50-120	10YR62 00		many 10YR56 00
29	4	org			0-5	10YR21 00		
		scl			5-35	10YR32 00		few 10YR58 00
		c			35-40	10YR52 56		many 10YR58 00
		c			40-120	25Y 64 00		common 10YR58 00
30	4	org			0-8	10YR21 00		
		mcl			8-25	10YR31 00		
		c			25-40	10YR53 00		common 10YR56 00
		c			40-120	10YR52 56		many 10YR58 00
31	4	clshl			0-15	10YR51 00		
		clshl			15-40	10YR31 00		
32	4	org			0-20	10YR21 00		
		ls			20-25	10YR32 00		
		c			25-120	10YR52 56		
33	4	org			0-2	10YR21 00		
		szl			2-20	10YR32 00		
		c			20-120	10YR62 56		many
34	4	org			0-5	10YR21 00		
		scl			5-40	10YR42 00		few 10YR56 00
		c			40-120	10YR58 00		many 10YR56 00