

AGRICULTURAL LAND CLASSIFICATION
NORTH YORKSHIRE MINERALS LOCAL PLAN
(SITES AT SMAWS QUARRY ALLERTON PARK,
URE VALLEY/BELL FLASK C,
AND DARRINGTON QUARRY

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ADAS
Leeds Statutory Group

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SUMMARY

Detailed Agricultural Land Classification surveys of sites at Smaws Quarry Extension, Allerton Park, Ure Valley/Bell Flask C and Darrinton Quarry were carried out in June 1995 in relation to the North Yorkshire Minerals Local Plan. The following table summarises the grades found on each site.

Site:

Land Classification Grade (ha)

	2	3a	3b	Woodland	Not Surveyed	Urban	Total
Smaws Quarry		3.9	2.4				6.3
Allerton Park	41.8	23.4	6.9		2.3		74.4
Ure Valley/Bell Flask C	6.0	12.0	2.4	0.5			20.9
Darrinton Quarry	2.2	7.8	21.6			1.2	32.8

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AGRICULTURAL LAND CLASSIFICATION REPORT ON LAND AT SMAWS QUARRY,
ALLERTON PARK, URE VALLEY/BELL FLASK C AND DARRINGTON QUARRY IN
RELATION TO THE NORTH YORKSHIRE MINERALS LOCAL PLAN

1. INTRODUCTION AND SITE CHARACTERISTICS

Survey work as carried out on these four sites in late May and June 1995, when the soils on each site were examined by hand auger borings at 100m intervals predetermined by the National Grid. At least 1 soil pit was 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. SMAWS QUARRY EXTENSION

2.1 Location, Land Use and Relief

Smaws Quarry lies 2km west of Tadcaster directly east of Rudgate (Roman Road). It covers a total area of 6.3 ha all of which was sown to cereals at the time of the survey.

Site altitude varies from 45m to 52m AOD and the land is generally level to gently sloping (0-3°) with variable aspect.

2.2 Climate

Grid Reference	: SE463432
Altitude (m)	: 48
Accumulated Temperature above 0°C (January - June)	: 1356 day °C
Average Annual Rainfall (mm)	: 680
Climatic Grade	: 1
Field Capacity Days	: 158
Moisture Deficit (mm) Wheat	: 99
Moisture Deficit (mm) Potatoes	: 88

2.3 Geology, Soils and Drainage

The area is underlain by Magnesian Limestone with no drift cover.

The soils are well drained, falling in Wetness Class I, and consist of very slightly stony, medium silty clay loam topsoils over similar subsoils over weathering limestone bedrock.

The soils on the site correspond to the Aberford Association as mapped by the Soil Survey and Land Research Centre. (1984)

2.4 AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2		
3a	3.9	62
3b	2.4	38
4		
5		
(Sub total)	(6.3)	(100)
Urban		
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)		
 TOTAL	 <u>6.3</u>	 <u>100</u>

2.4.1 Subgrade 3a

Land within this Subgrade lies centrally and in the south east. The soils are well drained (Wetness Class I) and consist of very slightly stony medium silty clay loam topsoils over similar subsoils. Weathering limestone bedrock is encountered between 50cm and 60cm depth. This land is limited to Subgrade 3a by moderate soil droughtiness restrictions.

2.4.2 Subgrade 3b

The remaining agricultural land falls within this subgrade. Soils are very similar to those of Subgrade 3a, however, subsoils are shallower, with weathering limestone occurring within 40cm depth. This land is limited to Subgrade 3b by severe soil droughtiness restrictions.

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MAP

3. ALLERTON PARK

3.1 Location, Land Use and Relief

The site lies approximately 6 km south east of Boroughbridge directly to the east of the A1(T). It is centred on National Grid Reference SE411605. It covers a total area of 74.4 ha all of which was in agricultural use at the time of the survey. Site altitude varies from 55m to 65m AOD and the land is level to moderately sloping (0-4°) with a variable aspect.

3.2 Climate

Grid Reference	: SE411605
Altitude (m)	: 60
Accumulated Temperature above 0°C (January - June)	: 1335 day °C
Average Annual Rainfall (mm)	: 664
Climatic Grade	: 1
Field Capacity Days	: 156
Moisture Deficit (mm) Wheat	: 100
Moisture Deficit (mm) Potatoes	: 89

3.3 Geology Soils and Drainage

The site is underlain by Sherwood Sandstone with a drift cover of till, and some alluvium to the west. Soils are well to poorly drained over the site (Wetness Class I-IV). Topsoils generally consist of medium sandy loam or medium clay loam. Upper subsoils are generally similar with slowly permeable heavy clay loam or clay subsoils occurring at various depths (30cm to 100cm over the site). Topsoil texture, depth to gleying and slowly permeable layers determine the Wetness Class over the site.

3.4 AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2	41.8	56
3a	23.4	31
3b	6.9	9
4		
5		
(Sub total)	(72.1)	(97)
Urban		
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed	2.3	3
(Sub total)	(2.3)	(3)
TOTAL	<u>74.2</u>	<u>100</u>

3.4.1 Grade 2

Grade 2 land is widespread. The soils are generally moderately well drained (Wetness Class II) with occasional well drained (Wetness Class I) profiles. Soils generally consist of medium sandy loam or occasionally medium clay loam topsoils with generally gleyed permeable upper subsoils in turn over gleyed slowly permeable heavy clay loam, sandy clay or clay subsoils. Slowly permeable layers occur between 50cm and 80cm depth. This land is limited by slight soil wetness limitations. Occasional profiles consisting of sandy loam topsoils over loamy sand or sand subsoils occur, the land being limited to Grade 2 by slight soil droughtiness restrictions.

3.4.2 Subgrade 3a

Subgrade 3a land occurs mainly to the centre and west of the site, with smaller areas to the north, south and east.

Soils consist of very slightly stony medium clay loam, with occasional medium sandy loam, topsoils. Upper subsoils generally consist of gleyed, permeable, medium clay loams or medium sandy loams in turn over slowly permeable heavy clay loam, sandy clay loam or clay subsoils. Soils are generally gleyed within 40cm depth and slowly permeable layers occur between 45cm and 70cm depth. These soils are imperfectly drained (Wetness Class III), and the land is limited to Subgrade 3a by moderate soil wetness limitations.

3.4.3 Subgrade 3b

The remaining agricultural land falls within this Subgrade. These soils occur in three small areas located centrally, to the east and far north west of the site. Soils located centrally and to the east consist of very slightly stony medium clay loam topsoils, overlying gleyed slowly permeable heavy clay loam and clay subsoils. Slowly permeable layers occur within 40cm depth and these soils are poorly drained falling into Wetness Class IV. Severe workability and wetness restrictions limit ALC grade. The small 3b area to the northwest is in a gully and soils consist of organic medium silty clay loam topsoils over organic silty clay subsoils. Again severe soil wetness and workability restrictions limit the ALC grade.

3.4.4 Not Surveyed

This area was left unsurveyed due to the presence of an aggressive bull.

MAP

4. URE VALLEY - BELL FLASK C

4.1 Location, Land Use and Relief

This site lies approximately 7km north-north-west of Ripon, north of the River Ure. It covers a total area of 20.9 ha of which 20.4 ha was arable land and 0.4 ha woodland at the time of survey.

Site altitude varies from 35m AOD in the north to around 32m AOD in the west and the land is level to gently sloping (0-2°) with a generally southerly aspect.

4.2 Climate

Grid Reference	: SE298 776
Altitude (m)	: 35
Accumulated Temperature above 0°C (January - June)	: 1359 day °C
Average Annual Rainfall (mm)	: 657
Climatic Grade	: I
Field Capacity Days	: 165
Moisture Deficit (mm) Wheat	: 104
Moisture Deficit (mm) Potatoes	: 94

4.3 Geology, Soils and Drainage

This area is underlain by Middle Permian Marl over which lie river terrace deposits.

The soils are well drained, falling in Wetness Class I, and consist of sandy loam topsoils, sandy loam or loamy sand upper subsoils and loamy sand or sand lower subsoils. The topsoils are generally very slightly stony, with up to 4% hard stones, but in parts of the east of the site the topsoils are slightly to moderately stony, with 12-20% total stones, of which 10-18% are greater than 2cm in size. The subsoils vary from stoneless to very stony, with up to 70% hard stones.

4.4 AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2	6.0	29
3a	12.0	57
3b	2.4	11
4		
5		
(Sub total)	(20.4)	(98)
Urban		
Non Agricultural		
Woodland -	0.5	2
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(0.5)	(2)
TOTAL	20.9	100

4.4.1 Grade 2

Grade 2 land occurs in the north and west of the site. The soils are well drained, falling in Wetness Class I, and consist of sandy loam topsoils overlying sandy loam upper subsoils and sandy loam, loamy sand or sand lower subsoils. The topsoils and upper subsoils are very slightly stony, typically containing around 3% total hard stones, while the lower subsoils are very slightly to very stony, with up to 70% total hard stones. The ALC grade of this land is limited by slight soil droughtiness and although some profiles meet the requirements for Grade 1, a pattern limitation prevents these being mapped as a separate unit.

4.4.2 Subgrade 3a

Much of the site falls in this Subgrade. The soils are well drained, falling in Wetness Class I, with sandy loam topsoils overlying loamy sand upper subsoils and sand lower subsoils. Topsoils and upper subsoils are typically very slightly to slightly stony, with up to 12% total hard stones, while subsoils are stoneless to very stony, with up to 70% hard stones. Soil droughtiness is the factor limiting the ALC grade of this land.

4.4.3 Subgrade 3b

An area of Subgrade 3b land occurs in the south-east. Sandy loam topsoils overlie loamy sand or sand subsoils and the profiles are well drained (Wetness Class I). The topsoils are slightly to moderately stony in most cases, with 10 to 20% total hard stones, of which 8-16% are greater than 2cm. The subsoils are very stony, with 60-70% total had stones. Soil droughtiness and, in places, topsoil stoniness, are the factors limiting this land to subgrade 3b.

4.4.4 Woodland

A block of recently planted woodland is found in the north-east.

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MAP

5. DARRINGTON QUARRY

5.1 Location, Land Use and Relief

The site covers two areas of interest. The first area lies 2½km north east of Darrington directly south of the M62 and west of the railway. The second area lies 1km east of this and directly east of the railway. The site covers a total area of 32.8 ha of which 31.6 ha was in agriculture at the time of the survey. The remaining 1.2 ha consists of a disused quarry and demolished farm buildings, on the western area. Altitude varies from 15m AOD on the eastern area to 42m AOD on the west, both areas are level (0-1°).

5.2 Climate

Grid Reference	: SE509219
Altitude (m)	: 35
Accumulated Temperature above 0°C (January - June)	: 1379 day °C
Average Annual Rainfall (mm)	: 600
Climatic Grade	: 1
Field Capacity Days	: 125
Moisture Deficit (mm) Wheat	: 105
Moisture Deficit (mm) Potatoes	: 96

5.3 Geology, Soils and Drainage

The western area of interest consists of Magnesian Limestone to the west and north and Permian Marl to the south. The eastern area is underlain wholly by Permian Marl.

Soils are well to imperfectly drained (Wetness Class I-III). Well drained soils occur to the west and north of the western area. Soils consist of very slightly stony medium clay loam topsoils, over medium clay loam, heavy clay loam or clay subsoils. These subsoils are permeable, with weathering limestone bedrock occurring between 35cm and 60cm depth.

The remaining soils over the south of the western area and the whole of the eastern area are moderately to imperfectly drained (Wetness Class II and III). Moderately well drained soils consist of medium clay loam topsoils overlying permeable heavy clay loam upper subsoils, in turn over slowly permeable clay subsoils. Imperfectly drained soils consist of medium or heavy clay loam topsoils over slowly permeable clay subsoils.

5.4 AGRICULTURAL LAND CLASSIFICATION

The ALC grades occurring on this site are as follows:

<u>Grade/Subgrade</u>	<u>Hectares</u>	<u>Percentage of Total Area</u>
1		
2	2.2	7
3a	7.8	23
3b	21.6	66
4		
5		
(Sub total)	(31.6)	(96)
Urban	1.2	4
Non Agricultural		
Woodland - Farm		
- Commercial		
Agricultural Buildings		
Open Water		
Land not surveyed		
(Sub total)	(1.2)	(4)
 TOTAL	 32.8	 100

5.4.1 Grade 2

A small area of Grade 2 land occurs over the north of the eastern area. Soils consist of very slightly stony medium clay loam topsoils, over similar subsoils, in turn over slowly permeable red clay. Soils are moderately well drained (Wetness Class II) and the land is limited to Grade 2 by slight soil wetness restrictions.

5.4.2 Subgrade 3a

The majority of Subgrade 3a land lies on the western area, with a smaller amount on the eastern area.

Soils over the western area consist of very slightly stony medium clay loam topsoils over very slightly stony permeable, heavy clay loam or clay subsoils. Weathering limestone bedrock occurs between 50cm and 60cm depth. These soils are well drained (Wetness Class I) and the land is limited to this subgrade by moderate soil droughtiness restrictions.

Remaining Subgrade 3a land is in the eastern site. Soils consist of very slightly stony medium clay loam topsoils over slowly permeable red clay subsoils. Soils are slowly permeable within 35cm depth and are imperfectly drained (Wetness Class III). Moderate soil wetness limits the ALC grade.

5.4.3 Subgrade 3b

Subgrade 3b soils occur over both areas of the site. Subgrade 3b on the eastern area consists of very slightly stony heavy clay loam topsoils over slowly permeable red clay subsoils. These soils are imperfectly drained (Wetness Class III), and the area is limited to Subgrade 3b by severe soil wetness and workability restrictions. The remaining Subgrade 3b land lies on the western area of the site. Soils to the west of this area consist of very slightly stony medium clay loam topsoils over slightly stony medium clay loam subsoils. Shattered limestone bedrock is encountered between 35cm and 40cm depth. This land contains well drained (Wetness Class I) soils and is limited to this subgrade by severe soil droughtiness restrictions. The remaining subgrade 3b land runs from the centre to the south of this area. Soils consist of medium clay loam topsoils over similar gleyed permeable upper subsoils, in turn over gleyed slowly permeable clay subsoils. The slowly permeable layer occurs at 50cm-55cm depth. These soils are imperfectly drained, falling into Wetness Class III. However, this land is adjacent to a landfill gas site. Gas appears to have travelled horizontally from the land fill into this part of the survey area causing

damage to the soil. A soil profile pit showed evidence of extreme anaerobic conditions and obnoxious smells in the subsoil and large areas of the crop had failed completely. These conditions severely restrict crop growth and limit the land to Subgrade 3b.

5.4.4 Urban

Urban land consists of a disused quarry and demolished farm on the western area.

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MAP