

AGRICULTURAL LAND CLASSIFICATION

PROPOSED UPGRADING OF THE A1

Survey of Land Between Hook Moor
and Ferrybridge, North and West Yorkshire

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1. AGRICULTURAL LAND CLASSIFICATION

Agricultural Land Classification Report on Land Affected by the Proposed Upgrading of the A1 between Hook Moor and Ferrybridge, North and West Yorkshire.

1. Introduction and Site Characteristics

1.1 Location

The original proposed line of development was surveyed during December 1991 and January 1992. The route lies parallel, or in close proximity, to the present A1 between Hook Moor in the North (NGR SE 4320 3550), and Darrington in the South (NGR SE 4840 2250). The route runs southwards from Hook Moor, to the east of Micklefield and on to the A1/A63 junction (NGR 4680 2970). It then departs from the existing carriageway to the east of Fairburn and then crosses back over to bypass Ferrybridge to the west. The proposed route then runs parallel to the existing carriageway before terminating just to the north of Darrington. The approximate distance between the northern and southern points is 15km. An additional alternative route (Alternative route No 6), running east of the present A1 from New Micklefield for a distance of 3km to Selby Fork, where it rejoins the original route, was surveyed in March 1992.

1.2 Survey Methods

Survey work was carried out along a 150-300m wide corridor centred over the route. Borings were made at 100m intervals along the corridor on a grid basis, predetermined by the National Grid, using a 1 metre hand auger.

All land quality assessments were made using the methods described in "Agricultural Land Classification of England and Wales: Revised Guidelines for grading the quality of Agricultural Land" (MAFF 1988)

1.3 Land Use

Most agricultural land is in arable production. Winter cereals tend to predominate in the southern and central areas, with smaller areas of vegetable crops such as cabbages and potatoes. In the north, cropping is more diverse, with a mix of sugar beet, potatoes, fodder crops and winter cereals. Large tracts of non-agricultural land use are also evident, particularly towards the southern end of the route where much land is in

urban use. In the north, non agricultural land use tends to consist of woodland, including farm, commercial and semi-natural.

1.4 Climate and Relief

Average Annual Rainfall (AAR) varies between 678mm in the north and 600mm in the south, and will vary along the route depending upon altitude and location. Accumulated temperatures above 0°C (between January and June) are 1334 to 1374 day °C. The number of field capacity days ranges from 153 days in the north to 126 days in the south.

Although the combination of rainfall and temperature along the route shows that there is no overall climatic limitation on ALC grade, summer moisture deficits of 97-105mm for winter wheat and 86-95mm for potatoes result in a slight to moderate drought limitation on the fine loamy soils overlying limestone.

Relief along the route tends to be flat to gently undulating, one small area in the southern part of the route at 'Longbull Hill' Ferrybridge, was subject to a gradient limitation.

1.5 Soils and Geology

Solid geology along the whole route consists of Permian Magnesian limestone and associated marls. There is little superficial drift except for isolated patches of boulder clay around Pontefract and Fairburn. Alluvial deposits occur along the Aire valley and colluvium on footslopes especially in the northern part of the route.

On the gentler slopes, soils derived from limestone consist typically of light to medium, calcareous topsoils, above stony, medium textured subsoils. Depth is often limited to between 40 cm and 60 cm. Soils of this type which belong to the Aberford association occur along the whole route. They are particularly widespread in the north around Hook Moor, to the east of Micklefield, and in the south between Darrington and Knottingley.

At the base of slopes soils tend to have a greater depth due to the accumulation of colluvium. These soils also consist of a light to medium calcareous topsoil, but subsoils tend to be deeper and more heavily textured, typically of medium or heavy clay loam. They are often slightly stony and may grade into soft, weathering limestone at depth. These soils occur to the west of the A1 - A63 junction, and to the East of the A1 at New Micklefield.

Where the limestone is interbedded with shales and marl (mudstone), soils tend to be more heavily textured, consisting of medium to heavy clay loam topsoils and upper subsoils, over clayey lower subsoils which often contain a large proportion of small angular limestones. These soils occur around the Selby Fork Hotel in the central part of the route and extend southwards towards Brotherton. They also occur in places in the Darrington area.

2.0 AGRICULTURAL LAND CLASSIFICATION GRADES

Areas and percentages of grades in the original survey corridor

GRADE/SUBGRADE	AREA (HECTARES)	% OF AGRICULTURAL AREA	% OF TOTAL AREA
1	9.7	3.5	2.9
2	98.6	36.0	28.8
3a	111.3	40.5	32.4
3b	54.8	20.0	16.0
4	-		
5	-		
Non-Agricultural	7.1		2.1
Farm Woodland	15.2		4.4
Agricultural Buildings	1.8		0.5
Open Water	1.0		0.3
Urban	37.2		10.9
Access Refused	5.9		1.7
Totals	342.6	100	100

Areas and percentage of grades along the alternative route No 6 corridor from New Micklefield to Selby Fork.

GRADE/SUBGRADE	AREA (HECTARES)	% OF AGRICULTURAL AREA	% OF TOTAL AREA
1	2.1	5.1	3.7
2	12.0	29.0	21.0
3a	12.0	29.0	21.0
3b	15.2	36.9	26.7
4	-	-	-
5	-	-	-
Non agricultural	2.0		3.5
Farm Woodland	8.0		14.0
Urban	5.8		10.1
Totals	57.1	100	100

AGRICULTURAL LAND CLASSIFICATION GRADES

2.1 GRADE 1

Two areas of grade 1 land occur in the Micklefield area; adjacent to the existing A1 to the east of New Micklefield and between the A63 and A1 to the south of Micklefield plantation.

Soils consist of medium textured topsoils, typically medium clay loam, between 30 cm and 40 cm in depth and containing 0-5% small angular limestones. Upper subsoils usually consist of medium clay loam between 50 and 60 cm in depth which are stoneless. These overlie a well drained lower subsoil varying from heavy clay loam to loamy fine sand.

Occasionally, soft weathering limestone may be encountered between 80 cm and 100 cm, leading to an increasing stone content with depth. On these soils there are no slowly permeable horizons, drainage or droughtiness problems and thus no overriding restrictions on ALC grade.

2.2 GRADE 2

This grade of land is common along the whole route. The main areas are in the north, to the north and east of Micklefield, in the central area to the south of the Selby Fork Hotel, and in the south at Ferrybridge, Knottingley and Darrington.

Two main soil types occur within this grade. The first is texturally similar to that in Grade 1, but passes into stony, weathering limestone within one metre of the surface. Soil droughtiness is, therefore, slightly restricting in summer months and is the main restriction on ALC grade. This soil type occurs in the north at Micklefield, and in the south around Ferrybridge and Knottingley.

The second soil type tends to occur in the central region between the Selby Fork Hotel and Brotherton, and adjacent to the existing carriageway to the north of Darrington. It consists of calcareous, medium clay loam topsoil passing to heavy clay loam or clay subsoils at between 30 and 35 cm depth. These soils fall into Wetness Class III and though imperfectly drained, fall within Grade 2, because of their calcareous nature. The presence of CaCO_3 improves structure and hence soil drainage and workability. Soil wetness is, therefore, less limiting than the Wetness Class would suggest.

2.3 Subgrade 3a

This subgrade is widespread along the whole route. Soils are variable and range from thin stony profiles over limestone bedrock to deep heavy clay loams and clays.

Soils formed on limestone consist usually of medium clay loam topsoils and upper subsoils passing into limestone bedrock between 50 cm and 60 cm depth. Soil droughtiness is, therefore, more restricting than on adjacent grade 2 land and forms the overriding restriction on ALC grade.

On more heavily textured soils, topsoils may consist of either non calcareous medium clay loam or calcareous heavy clay loam with heavy clay loam or clay subsoils occurring at depths of 35 to 60 cm. These soils fall within Wetness Class III and are restricted to subgrade 3a by topsoil wetness and workability problems.

2.4 Subgrade 3b

Small areas of this subgrade occur in the north but the more extensive tracts are in the central area to the east and south east of Street close plantation, in the south to the west of Ferrybridge 'C' power station and around Knottingley and Darrington.

In the north and south, these soils occur on magnesian limestone, and consist, typically of stony medium clay loam topsoils over shattered weathering limestone at depths of 30 cm to 50 cm. Soil droughtiness and stoniness are moderately to severely limiting and are the main restrictions on ALC grade.

In the centre, and occasionally towards the northern end of the route, soil textures tend to be heavier, typically non calcareous medium or heavy clay loam topsoils, over heavy clay loam or clay subsoils. The greater number of field capacity days in the centre and north of the route places these soils within wetness class IV, limiting them to subgrade 3b by wetness and workability problems.

In the south around Longbull Hill, Knottingley, slopes of between 7° and 11° also limit some land to subgrade 3b.

2.5 Non Agricultural

Most non-agricultural land occurs towards the northern end of the route. It consists mainly of farm woodland and plantations.

2.6 Urban

Land in this category includes existing roads and railways along the route, farm buildings and tracks. The large area northwest of Ferrybridge 'C' power station includes settling ponds, slurry lagoons and derelict land.

2.7 Open Water

This consists of the River Aire at Ferrybridge.

Resource Planning Group
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