Appendix 16.1 SOIL SURVEY, AGRICULTURAL LAND CLASSIFICATION and THE VIABILITY OF AGRICULTURAL BUSINESSES

Soil Survey and Agricultural Land Classification

Introduction

On 5th November 2009 Land Use Consultancy Services (LUCS) (**Appendix 16.2**) was instructed by Moorland Energy Ltd. to undertake detailed soil and Agricultural Land Classification (ALC) surveys of agricultural land within the Assessment Site in connection with the Ryedale Gas Project in North Yorkshire for inclusion within an ES in support of a planning application.

The Assessment Site extends from the existing wellsite on land at Givendale Head Farm off Ebberston Common Lane, Ebberston, on the southern edge of the North York Moors, via two new parallel pipelines. each 8.61km in length to be laid within a nominal 42m working width, running in a south westerly direction across Wilton Heights to a proposed gas processing plant at Hurrell Lane, Thornton-le-Dale in the Vale of Pickering.

Assessment Methodology

Fieldwork was undertaken during November and December 2009 and January and March 2010.

The soils were examined by hand auger borings to a depth of 120cm (or to weathering bedrock or solid strata if this was shallower) at 100 metre intervals, staggered across the Assessment Site and at other points predetermined by the National Grid. Additional observations were made to confirm soil types and boundaries. Soil profiles were inspected, where necessary, to assess soil physical characteristics and structural conditions.

Agricultural Land Classification (ALC) assessments were made using the revised guidelines and criteria of the Department for Environment, Food and Rural Affairs (Defra) - formerly the Ministry of Agriculture, Fisheries and Food (MAFF) - and described in "Agricultural Land Classification of England and Wales" (MAFF, 1988).

ALC grade is determined by the most limiting factor present, according to the degree to which these limitations affect long-term agricultural use. Climatic criteria are considered first, followed by site characteristics and, finally, soil limitations. The definition of land classification grades is given in **Appendix 16.3**.

Description of the Assessment Site

Typical altitude at Givendale Head Farm is 224m O.D., 118m O.D. at Wilton Heights and 23m O.D. at Hurrell Lane.

The agricultural land across the Assessment Site comprises all, or part, of fields in a number of different ownerships which were under arable cultivation or in permanent grassland at the time of the LUCS survey and occupies level and gently undulating land with slopes in the range 0 – 3 degrees in the north and south. Across the centre of the Assessment Site slopes were steeper and in the range 7 – 11 degrees (locally 8 – 11 degrees and occasionally 11 – 18 degrees).

Also included within the Assessment Site was land owned and managed by the Forestry Commission and other land where access to carry out the necessary fieldwork was refused by the landowner.

Climatic Limitations

Climate has a major, and in places an overriding, influence on land quality across the Assessment Site by affecting both the range of potential agricultural uses and the cost and level of production. It is therefore necessary to include within the ALC exercise an assessment of the overall climatic limitation in addition to interactive limitations which are assessed separately.

Site-specific Met Office data show that the combination of rainfall and temperature imposes a climatic limitation upon land grade across the whole of the Assessment Site.

The best possible grade at Givendale Head is Subgrade 3b, whilst at Wilton Heights and at Hurrell Lane it is Grade 2. Limitations of site, soil physical characteristics and interactive soil limitations further downgrade land quality across the Assessment Site.

Site-specific Met. Office data across the Assessment Site are as follows:

At Givendale Head: NGR SE 9000 8710; Altitude 224m O.D.

Average Annual Rainfall	813 mm
Accumulated Temperature (Above 0 degrees C Jan to June)	1126 day degrees C
Field Capacity Period	202 days
Moisture Deficit - Wheat	70 mm
- Potatoes	50 mm

These data show that the combination of rainfall and temperature imposes a climatic limitation upon land grade and that the best possible grade is Subgrade 3b. Limitations of soil depth, gradient and soil wetness further downgrade land quality across this part of the Assessment Site.

At Wilton Heights: NGR SE 8590 8380; Altitude 118m O.D.

Average Annual Rainfall	738 mm
Accumulated Temperature (Above 0 degrees C Jan to June)	1248 day degrees C
Field Capacity Period	190 days
Moisture Deficit - Wheat	87 mm
- Potatoes	72 mm

These data show that the combination of rainfall and temperature imposes a slight climatic limitation upon land grade and that the best possible grade is Grade 2. Limitations of soil depth, topsoil stoniness, gradient, soil droughtiness and soil wetness further downgrade land quality across this part of the Assessment Site.

At Hurrell Lane: NGR SE 8480 8190; Altitude 23m O.D.

Average Annual Rainfall	687 mm
Accumulated Temperature (Above 0 degrees C Jan to June)	1358 day degrees C
Field Capacity Period	177 days
Moisture Deficit - Wheat	102 mm
- Potatoes	93 mm

These data show that the combination of rainfall and temperature imposes a slight climatic limitation upon land grade and that the best possible grade is Grade 2. Limitations of topsoil stoniness and soil wetness further downgrade land quality across this part of the Assessment Site.

Site Limitations

The assessment of site factors is primarily concerned with the way in which topography influences the use of agricultural machinery and hence the cropping potential of land. Flood risk is also regarded as a site limitation as it is usually associated with well-defined topographic features.

Gradient limits ALC grade across part of the Assessment Site, but neither microrelief nor flood risk is a limiting factor in the final assessment of land grade.

Geology and Soils

The 1:50,000 scale geological map of the Scarborough area (British Geological Survey, 1998, Sheet 54, Solid and Drift Geology) shows that the A170 Pickering to Scarborough road marks the junction of solid, drift-free strata to the north and drift-covered strata to the south within the Assessment Site.

The solid strata to the north of the A170 form a complex lithological pattern of Calcareous Sandstone of the Lower Calcareous Grit Formation, Oolitic Limestones and Sandstones of the Coralline Oolite Formation (Passage Beds, Hambleton Oolite and Middle Calcareous Grit) and the Kimmeridge Clay Formation.

To the south of the A170 stony clay Till (boulder clay) and Lacustrine Deposits of silt, sand and clay overlie the Kimmeridge Clay Formation which itself is exposed at the surface in a narrow strip to the west of Wilton

The soils developed on these solid strata and drift deposits exhibit soil profiles which are mapped and described as soils of the Elmton 2, Rivington 1, Fyfield 3, Anglezarke, Belmont, Landbeach, Dunkeswick and Denchworth Associations by the Soil Survey of England and Wales (Soils of England and Wales, Sheet 1, Northern England, SSEW, 1983 and Soils and their Use in Northern England, SSEW, 1984).

The LUCS survey confirmed the general soil pattern described above and more accurately defined soil types and boundaries.

Elmton 2 Association soils are developed on Jurassic limestone and sandy limestone and are described by the Soil Survey of England and Wales as:

> **"Shallow, well drained brashy calcareous fine loamy soils over limestone. Some deeper fine loamy or fine loamy over clayey soils."**

A typical soil profile of the Elmton series (the major component of the Elmton 2 Association) as recorded during the LUCS survey was:

0 -25cm	Brown, slightly or moderately stony medium clay loam.
At 25cm	Limestone.

Soils of the Elmton series are well drained (Wetness Class I, **Appendix 16.4**), stony soils with medium clay loam (occasionally medium silty clay loam) topsoils over limestone at shallow depth. They are classified as typical brown rendzinas and are found across the dipslope of the North York Moors from Givendale Head southwards to the A170. The major

limitations to land grade within the Assessment Site are gradient, topsoil stoniness, soil droughtiness and soil depth.

Elmton soils are associated with deeper medium clay loam and medium clay loam over clay horizons where sandy limestone and limestone with thin sandy layers replace the pure limestone bedrock - proportions of these associated soils are difficult to assess in the field because no clear relationship exists between soil depth and slope or other landscape features - and occasional clay bands within the limestone or colluvial deposits in depressions and dry valleys give dominantly clayey soil profiles.

Because of the permeable substratum at shallow depth, winter rainfall is readily absorbed even at the highest elevations across the Assessment Site and underdrainage is not a requirement and makes little improvement to surface wetness caused by weak soil structure in Elmton soils.

Rivington 1 Association soils are developed on Carboniferous and Jurassic sandstone and described as:

> **"Well drained coarse loamy soils over sandstone. Locally associated with similar soils affected by groundwater."**

A typical soil profile of the Rivington series (the major component of the Rivington 1 Association) as recorded during the LUCS survey was:

0 -20cm	Dark greyish brown, slightly or moderately stony to stony sandy loam or sandy silt loam.
20-50cm	Yellowish brown, slightly or moderately stony sandy loam or sandy silt loam, weak medium subangular blocky structure.
At 50cm	Sandstone

Typical brown earths of the Rivington series are well drained (Wetness Class I) dominantly sandy loam soils on moderate and gentle slopes over sandstone. The main limitations to land grade within the Assessment Site are gradient, soil depth, topsoil stoniness and soil droughtiness Excess winter rainfall passes easily through the permeable substrate and artificial underdrainage is unnecessary.

Fyfield 3 Association soils are developed on Jurassic sand and sandstone and described as:

> **"Well drained stoneless loamy and sandy soils over soft sandstone. Some very acid soils with a peaty surface horizon and ironpan in woodland and moorland."**

A typical soil profile of the Fyfield series (the major component of the Fyfield 3 Association) as recorded during the LUCS survey was:

0 -20cm	Dark brown, stoneless sandy loam.
20-50cm	Yellowish brown, stoneless sandy loam, weak medium subangular blocky structure.
50-6cm	Strong brown, stoneless or slightly stony sandy loam or sandy clay loam, moderate medium angular blocky structure.
At 60cm	Sandstone

Fyfield soils are found across the Assessment Site on soft, thinly bedded, sometimes calcareous sandstone of the Passage Beds. They are found principally on the gently to moderately sloping dipslope of the North York Moors at Wilton Heights where there are also occasional steep-sided former meltwater channels. They are classified as typical

argillic brown earths. Fyfield soils are well drained (Wetness Class I) and surplus winter rainfall passes readily through the soil profile. The main limitations to land grade are gradient, soil depth and soil droughtiness.

Anglezarke Association soils are developed on Palaeozoic and Mesozoic sandstone and described as:

> **“Well drained very acid coarse loamy soils over sandstone with a bleached subsurface horizon. Rocks and boulders locally.”**

Soil profiles typical of the Anglezarke series (the major component of the Anglezarke Association) were not recorded during the LUCS survey.

Belmont Association soils are developed on Carboniferous and Jurassic sandstone and described as:

> **“Coarse loamy very acid upland soils with a wet peaty surface horizon and thin ironpan, Bare rock, scree and crag locally. Frequent steep slopes.”**

Soil profiles typical of the Belmont series (the major component of the Belmont Association) were not recorded during the LUCS survey.

Landbeach Association soils are developed on glaciofluvial sands and gravels and described as:

> **"Permeable calcareous coarse loamy soils affected by groundwater over chalky gravel. Some deep, in part non-calcareous, fine and coarse loamy soils affected by groundwater."**

Soil profiles typical of the Landbeach series (the major component of the Landbeach Association) were not recorded during the LUCS survey, although occasional profiles with clay loam topsoils and upper subsoils passed into sand or loamy sand at depth were noted at the site of the Hurrell Lane Gas Facility. These are Wetness Class II and III soils and experience slight or moderate seasonal waterlogging and respond well to artificial drainage.

Dunkeswick Association soils are developed on Till from Palaeozoic and Mesozoic sandstone and shale and described as:

> **“Slowly permeable seasonally waterlogged fine loamy and fine loamy over clayey soils associated with similar clayey soils.”**

A typical soil profile of the Dunkeswick series (the major component of the Dunkeswick Association) as recorded during the LUCS survey was:

0 - 25cm	Dark greyish brown slightly stony medium or heavy clay loam.
25 - 45cm	Greyish brown slightly stony medium or heavy clay loam, weak medium subangular blocky structure.
45 - 55cm	Yellowish brown slightly stony heavy clay loam to clay moderate medium subangular blocky structure.
55 - 100cm	Yellowish brown and grey slightly stony clay, moderate coarse prismatic structure.

The boulder clay (Till) deposits which overlie Kimmeridge Clay to the south of the A170 within the Assessment Site are dominated by soils of the Dunkeswick series.

Dunkeswick soils are classified as typical stagnogleys and have slightly stony medium or heavy clay loam topsoils and upper subsoils over slowly permeable clay which typically starts within 50 to 55cm of the surface. They suffer waterlogging for long periods in winter (Wetness Class IV) and soil wetness is the major limitation in the final assessment of land grade.

A narrow outcrop of Kimmeridge Clay around the A170 to the west of Wilton within the southern section of the proposed pipeline corridor forms a marked break of slope and locally contains soil profiles similar to those of the Dunkeswick series. Here, slightly stony medium and heavy clay loam topsoils and upper subsoils developed in boulder clay overlie *in situ* clay.

Denchworth Association soils are developed on Jurassic and Cretaceous clay and described as:

> **"Slowly permeable seasonally waterlogged clayey, fine loamy over clayey and fine silty soils on soft rock, often stoneless."**

A typical soil profile of the Denchworth series (the major component of the Denchworth Association) as recorded during the LUCS survey was:

0 - 20cm	Dark greyish brown slightly stony heavy clay loam or clay.
25 - 65cm	Grey stoneless clay, weak medium subangular blocky structure.
65 - 100cm	Grey slightly stony clay, weak coarse prismatic structure.

Denchworth soils are stoneless, clayey and waterlogged for long periods in winter and during the growing season (Wetness Class IV). Classified as pelo stagnogley, the soils are slowly permeable in the topsoil and at depth and excess rainfall is mainly by lateral flow, usually surface run-off. Artificial and are responsive to artificial drainage. The major limitation to land grade is soil wetness.

Soil Limitations

The main soil properties which affect the cropping potential and management requirements, and hence ALC, of land across the Assessment Site are texture, structure, depth, stoniness and chemical fertility.

Interactive Limitations

The physical limitations which result from interactions between climate, site and soil are soil wetness, soil droughtiness and erosion. Across the Assessment Site only soil wetness and soil droughtiness limits the final assessment of land grade.

Agricultural Land Classification

The maps of Agricultural Land Classification which cover the areas around Pickering and Scarborough published by the Ministry of Agriculture at a scale of one inch to one mile (Sheets 92, 1970 and 93, 1968), show the Application Site to be a mixture of Grade 4 land in the north at Givendale Head, Grade 3 land across Wilton Heights and Grades 3 and 4 around Hurrell Lane in the south. Forestry Commission land at Dalby Forest is classed as 'other land primarily in non-agricultural use'.

In the wider Pickering/Scarborough area Grade 2 is the dominant grade across the northern Vale of Pickering from Wilton eastwards to Seamer and to the east and west of Malton.

Grade 3 is widespread across the southern Vale of Pickering and on the dip slope of the North York Moors.

Grade 4 land occupies discrete areas within the Vale of Pickering and on the dip slope of the North York Moors and is widespread around Troutsdale, Lockton Low Moor and to the west of Cropton.

Grade 5 land – the worst category within the ALC system – occupies much of the North York Moors proper.

Non-agricultural land includes urban areas, Forestry Commission land, farm woodland, airfields and golf courses.

The MAFF ALC maps at this scale do not differentiate between the three subgrades of Grade 3 recognised at the time of publication.

It is acknowledged by MAFF/Defra that the published 1 inch to 1 mile ALC maps are accurate only to 80 ha (200 acres) and give only a general indication of land quality and, since 1996, they have been withdrawn from sale because they were often misused for site-specific surveys. Defra states that actual grades can only be determined following detailed survey by experienced and qualified soil scientists.

The classification system used to produce the MAFF ALC map was replaced in 1988 by a system which takes account of new knowledge and data and which improved the objectivity and consistency of assessments.

The current ALC system formed the basis of the present site-specific survey during which land quality was assessed and grade and subgrade boundaries determined.

An interpretation of the MAFF ALC map using the current ALC classification, information from the published soil maps and an examination of the available geological information indicates that the agricultural land classification grades found across the Assessment Site are typical of those to be found on similar sites in the wider Pickering/Scarborough area.

ALC across the Assessment Site

The ALC grades found across the Assessment Site during the LUCS survey are summarized in the tables below and are shown in **Tables 16.1** and **16.2** and are shown in **Figures 16.1** to **16.6.**

Table 1. ALC Assessment

Grade	***Description / Comments***
Grade 1	None.
Grade 2	None.
Subgrade 3a	Land in this subgrade occurs on the lower ground in the south of the Assessment Site - at the proposed Hurrell Lane Gas Facility - where soil wetness (Wetness Class II and III) is the major limitation. This subgrade also occurs on the higher ground across Wilton Heights on shallow limestone and sandstone where the main limitations are gradient, soil depth, topsoil stoniness and moderate soil droughtiness.
Subgrade 3b	This subgrade is found at Wilton Heights across the centre of the Assessment Site on shallow limestone and sandstone where the main limitations are gradient, soil depth, topsoil stoniness and moderately severe soil droughtiness.

	In the north at Givendale Head there is also land within this category where soil, site and interactive limitations do not outweigh those imposed by climate.
Grade 4	At Givendale Head and locally across Wilton Heights shallow, stony soils and steep slopes, either singly or in combination, form land within this Grade. Clayey, poorly drained (Wetness Class IV) soils developed in Kimmeridge Clay on the northern fringe of the Vale of Pickering between the A170 and the Hurrell Lane Gas Facility also form land within Grade 4.
Grade 5	None.
Non-agricultural land	Forestry Commission land at Dalby Forest forms land within this category.
Un-surveyed land	The Ebberston Well Site and access road was fenced and permanently out of agriculture at the time of survey. Land south of the A170 to the Hurrell Lane Gas Facility is also included within this category as access to undertake the soil and ALC surveys was refused by the landowner concerned.

Table 2. Proportion of land within each grade (approximate)

Grade	**Area (ha)**	**% of site**
Grade 1	Nil	Nil
Grade2	Nil	Nil
Subgrade 3a	14.34	24.50
Subgrade 3b	23.34	39.87
Grade 4	4.01	6.85
Grade 5	Nil	Nil
Non-agricultural land	2.54	4.34
Un-surveyed land	14.31	24.44
Total	58.54	100

The Viability of Agricultural Businesses

The assessment of the impact of a Proposed Development upon the economic viability and sustainability of affected farm businesses is based upon the following factors:

- Land quality;
- Land-take and financial implications;
- Effects on access;
- Effects on land drainage;
- Effects on buildings;
- Severance issues; and
- Accommodation works.

From information supplied to LUCS at the time of survey, the Ryedale Gas Project would affect 35 land owners.

The agricultural businesses located along the route of the proposed pipeline from the Ebberston Well Site to the Hurrell Lane Gas Facility will only experience temporary loss of agricultural land during the duration of the works.

The remaining agricultural land affected by the Proposed Development – at the Hurrell Lane Gas Facility and associated access road - would be permanently removed from agricultural production.

Land Quality

The results of an Agricultural Land Classification (ALC) survey of the Assessment Site is given above.

The total area of agricultural land temporarily affected (sort and medium term) by the Proposed Development is approximately 35.82ha, of which some 8.47ha falls within the 'best and most versatile' category.

The total area of agricultural land within the 'best and most versatile' category permanently affected by the Proposed Development is approximately 5.87ha.

Land Take and Financial Implications

Of the land in agricultural production and for which access was permitted at the time of the LUCS survey of the Assessment Site, the only irreversible land-take will be the loss of 5.87ha of Subgrade 3a land at the proposed Hurrell Lane Gas Facility. The land take is too insignificant to have any serious financial implication upon the affected farm business. Any long term losses would be offset under the terms of agreed purchase/compensation.

The short and medium term loss of 8.47ha of Subgrade 3a and 27.35ha of Subgrade 3b and Grade 4 land along the proposed pipeline route is, similarly, too insignificant to have any serious financial implication upon any of the businesses concerned. Any temporary financial loss would be offset under the terms of agreed compensation.

Effects on Access

There are no permanent access issues which would affect farm sustainability as a result Proposed Development.

Any temporary access issues during pipeline construction will be addressed to the satisfaction of the Local Planning Authority and the Planning Authority and the farmers/landowners concerned.

Effects on land Drainage

Much of the agricultural land affected by the Proposed Development is well drained and the effects upon land drainage are not an issue which would affect the sustainability of the farm businesses.

Within the areas of slowly permeable soils, particularly those in the south of the Assessment Site, a comprehensive remedial drainage scheme to intercept all disrupted drains within this area will be planned and implemented to the satisfaction of the Planning Authority and the farmers/landowners concerned. As a result, the long-term sustainability of the affected farm businesses would not be compromised.

Effects on Farm Buildings

There are no farm or other buildings affected by the proposals.

Severance Issues

Severance affects farm structure and sustainability when any part of a farm is physically separated from the remainder.

There are no severance issues which will affect the long term sustainability of the farm businesses within the Assessment Site.

Short and medium term disruption owing to pipeline construction work would be programmed to have the least possible affect upon farming operations.

The Proposed Development in connection with the Ryedale Gas Project has been designed and planned to cause the minimum of disruption to farming operations and there are no additional severance issues which would affect the long term sustainability of the farm businesses affected.

Accommodation Works

As no agricultural buildings would be destroyed or land permanently severed by the proposal there would be no requirement to provide new buildings or new access points to fragmented land.

Appendix 16.2 LAND USE CONSULTANCY SERVICES

Land Use Consultancy Services is an independent, science-based consultancy established in 1986 and specialising in soil research, land evaluation and advice on all aspects of soil and land use for government departments and local authorities, universities, industry, farmers and land owners.

S J King became Principal Consultant with LUCS in March 1992 after a career with the Soil Survey and Land Research Centre (formerly the Soil Survey of England and Wales).

He has worked in Cheshire, Cumbria, Durham, Lancashire, Lincolnshire, Northumberland and Yorkshire and was the Soil Survey's Senior Research Scientist and Agricultural Manager for the North of England based at Bishop Burton College of Agriculture, Beverley and latterly at York University.

He has published a wide range of maps, books and reports on the soils and land use of the country and is joint author of the Soil Survey of England and Wales publications referred to in the report above.

He is a Chartered Scientist recognised by the Science Council, a Fellow of the Institute of Professional Soil Scientists, a Member of the British Society of Soil Science, immediate past-Chairman of the North of England Soils Discussion Group and a Member of the National Farmers Union.

Appendix 16.3 DEFINITION OF LAND CLASSIFICATION GRADES

Grade 1 - excellent quality agricultural land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality

Grade 2 - very good quality agricultural land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

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 or 2.

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.

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 high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5 - very poor quality agricultural land

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Land in other categories

Urban

Built up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religious buildings, cemeteries. Also, hard-surfaced facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: golf courses, private parkland, public open spaces, sports fields, allotments and soft-surfaced area on airports/airfields. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Open Water

Includes lakes, ponds and rivers as map scale permits.

Woodland

Includes commercial and non-commercial woodland. A distinction can be made as necessary between farm and non-farm woodland.

Appendix 16.4 DEFINITION OF SOIL WETNESS CLASSES

Wetness Class	Duration of Waterlogging *
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.
II	The soil profile is wet within 70 cm depth for 31-90 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but not wet within 40 cm depth for more than 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31 and 90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days, but not wet within 40 cm depth for more than 210 days in most years *or*, if there is no slowly permeable layer within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

* the number of days specified is not necessarily a continuous period.

‘in most years’ is defined as more than 10 out of 20 years.