



High Speed Rail (West Midlands - Crewe)

Environmental Statement

Volume 5: Technical appendices

CA1: Fradley to Colton

Agriculture, forestry and soils data (AG-001-001)



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Department for Transport

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1 Introduction

1.1.1 This document is the agriculture, forestry and soils assessment Appendix for the Fradley to Colton community area (CA1), and comprises:

- soils and agricultural land classification surveys (Section 2);
- forestry (Section 3); and
- farm holding impact assessment summaries (Section 4).

1.1.2 Maps referred to throughout this agriculture, forestry and soils Appendix are contained in the Volume 5, Agriculture, Forestry and Soils Map Book.

2 Soils and agricultural land classification surveys

2.1 Background

2.1.1 The soils and agricultural baseline conditions reported have been established from desktop studies and site surveys.

2.1.2 Information gathered by desktop studies has related primarily to the identification of soil resources in the study area, the associated physical characteristics of geology, topography and climate which underpin the assessment of agricultural land quality, and the disposition of land uses. The main sources of information have included:

- National Soil Map;¹
- Soils and Their Use in Midland and Western England;²
- solid and superficial deposits from the Geology of Britain viewer;³
- Gridpoint meteorological data for Agricultural Land Classification of England and Wales;⁴
- Provisional Agricultural Land Classification of England and Wales (1:250,000);⁵
- Likelihood of Best and Most Versatile Agricultural Land (1:250,000);⁶
- agri-environment schemes;⁷
- aerial photography from Google Earth; and
- on-site soil and Agricultural Land Classification surveys.

2.1.3 Information gathered by field survey has related to the enhancement of desk-based information on soils and agricultural land quality, and the engagement with landowners and tenants to establish the nature and extent of agricultural, forestry and related rural enterprises.

2.1.4 Where the collection of agricultural site information has enabled a review/refinement of published information, this was undertaken in accordance the methodology prescribed by Ministry of Agriculture, Fisheries and Food (MAFF)⁸.

2.1.5 Information obtained from farm impact assessment interview surveys has been taken as a factual representation of local agricultural and forestry interests and has not been subject to further evaluation.

¹ Cranfield University (2001), *The National Soil Map of England and Wales 1:250,000 scale*, Cranfield University: National Soil Resources Institute

² Soil Survey of England and Wales (1984), *Soils and Their Use in Midland and Western England*, Harpenden

³ British Geological Survey, www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html

⁴ Meteorological Office (1989), *Grid point Meteorological data for Agricultural Land Classification of England and Wales and other Climatological Investigations*

⁵ Ministry of Agriculture, Fisheries and Food (1983), *Agricultural Land Classification of England and Wales (1:250,000)*

⁶ Department for Environment, Food and Rural Affairs (2005), *Likelihood of Best and Most Versatile Agricultural Land (1:250,000)*

⁷ Multi-Agency Geographical Information for the Countryside (MAGIC), www.magic.gov.uk

⁸ Ministry of Agriculture, Fisheries and Food (1988), *Agricultural Land Classification of England and Wales – Revised guidelines and criteria for grading the quality of agricultural land*

2.2 Soils and land resources

- 2.2.1 This part of the technical appendix describes the findings of a desktop study and targeted soil survey and Agricultural Land Classification (ALC) survey that identified existing soil and agricultural land resources in the study area.
- 2.2.2 The location and extent of different soil types and agricultural land in the different ALC grades are influenced by topography and drainage, and by geology and soil parent materials, which are described in turn in the following sections. This section then provides a description and distribution of the main soil types encountered within the study area.

2.3 Topography and drainage

- 2.3.1 Topography in the area has been influenced by the actions of the River Trent, which has cut a broad valley and river terraces into the underlying geology. In the south of the area between Fradley and Hill Ridware, the land is relatively low-lying at around 60m to 70m above Ordnance Datum (AOD). Further north, between Hill Ridware and Colton, irregular outcrops reaching around 100m AOD slope down to the River Trent at moderate gradients.
- 2.3.2 A second valley system associated with the Moreton Brook has been cut within the landform in the north of the area, to the north-west of Colton, where altitudes fall from 100m to 80m AOD.
- 2.3.3 Drainage of the land is predominantly via the River Trent which flows eastward from Rugeley to Kings Bromley. The Bourne Brook feeds into the Trent from the south-west. In the north, drainage is via the Moreton Brook which is aligned roughly north to south and drains land southward to Colton.

2.4 Geology and soil parent materials

- 2.4.1 The Proposed Scheme passes predominantly across reddish early-Triassic mudstones of the Mercia Mudstone Group. An outcrop of early-Triassic sandstone of the Helsby Sandstone Formation is present at Rugeley and extends eastward to the south of Blithbury and south of Hill Ridware.
- 2.4.2 A list of geological strata occurring within the study area is provided in age order in Table 1 and shown on Map WR-02-201 (Volume 5, Water Resources and Flood risk Map Book).

Table 1: Bedrock and soil forming materials

Formation	Composition/soil parent material
Mercia Mudstone Group	Mudstones and subordinate siltstone with some halite-bearing units, gypsum beds and sandstones
Helsby Sandstone	Sandstones, commonly pebbly, interbedded with siltstone or mudstone

- 2.4.3 The Proposed Scheme passes through the following superficial deposits:
- glaciofluvial sheet deposits of sand and gravel;

- extensive River Terrace deposits within the Trent Valley from Rileyhill to Hill Ridware, comprising sand and gravel;
- alluvium, associated with the three main watercourses and comprising predominantly silty clay, but also with silt, sand, peat and gravel; and
- Glacial Till deposits across the plateaux and shallower slopes at higher elevations, between Hamstall Ridware and Blithbury. These deposits include a range of unsorted material ranging in size from clay to boulders.

2.5 Description and distribution of soil types

2.5.1 The characteristics of the soils are described by the Soil Survey of England and Wales that accompanies the National Soil Map. The soils are grouped into soil associations of a range of soil types (soil series) and are summarised in Table 2, and their distribution is shown on Map AG-02-101 (Volume 5, Agriculture, Forestry and Soils Map Book).

Table 2: Soil associations

Soil association ⁹ : code shown on map AG-02-101	Soil association: name	Description	Wetness class ¹⁰
541b	Bromsgrove	Well drained, reddish coarse loamy soils, developed over sandstone and naturally well drained.	I
541r	Wick 1	Deep well drained sandy loam and sandy soils, locally over gravel; some similar soils affected by groundwater.	I-II
551d	Newport 1	Deep well drained sandy and coarse loamy soils, some affected by groundwater.	I
572f	Whimple 3	Reddish clay loam and silty clay loam over clayey soils with slowly permeable subsoils and slight seasonal waterlogging; some similar clayey soils on brows; slowly permeable seasonally waterlogged clay loam over clayey soils on lower slopes.	II-III
572l	Flint	Reddish fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging.	II-III
572m	Salwick	Deep reddish fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging.	III
711b	Brockhurst 1	Slowly permeable seasonally waterlogged reddish clay loam over clayey, with some similar soils with slowly permeable subsoils and slight seasonal waterlogging.	III-IV
711m	Salop	Slowly permeable seasonally waterlogged reddish clay loam over clayey, clay loam and clayey soils with slowly permeable subsoils and slight seasonal waterlogging.	IV
813a	Midelney	Stoneless clayey soils mostly overlying peat. The soil is variably affected by groundwater.	IV-V

⁹ Cranfield University (2017), <http://www.landis.org.uk/data/nsi.cfm>

¹⁰ The Wetness Class (WC) of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six categories from WC I which is well drained to WC VI which is very poorly drained

Soil association ⁹ : code shown on map AG-02-101	Soil association: name	Description	Wetness class ¹⁰
813c	Fladbury 2	Stoneless clayey soils variably affected by groundwater. Some profiles with sandy subsoils. Typically waterlogged for long periods in winter.	IV
821b	Blackwood	Deep permeable sandy and coarse loamy soils, affected by fluctuating groundwater.	III-IV
831c	Wigton Moor	Permeable fine and coarse loamy soils, variably affected by groundwater and commonly seasonally waterlogged.	III

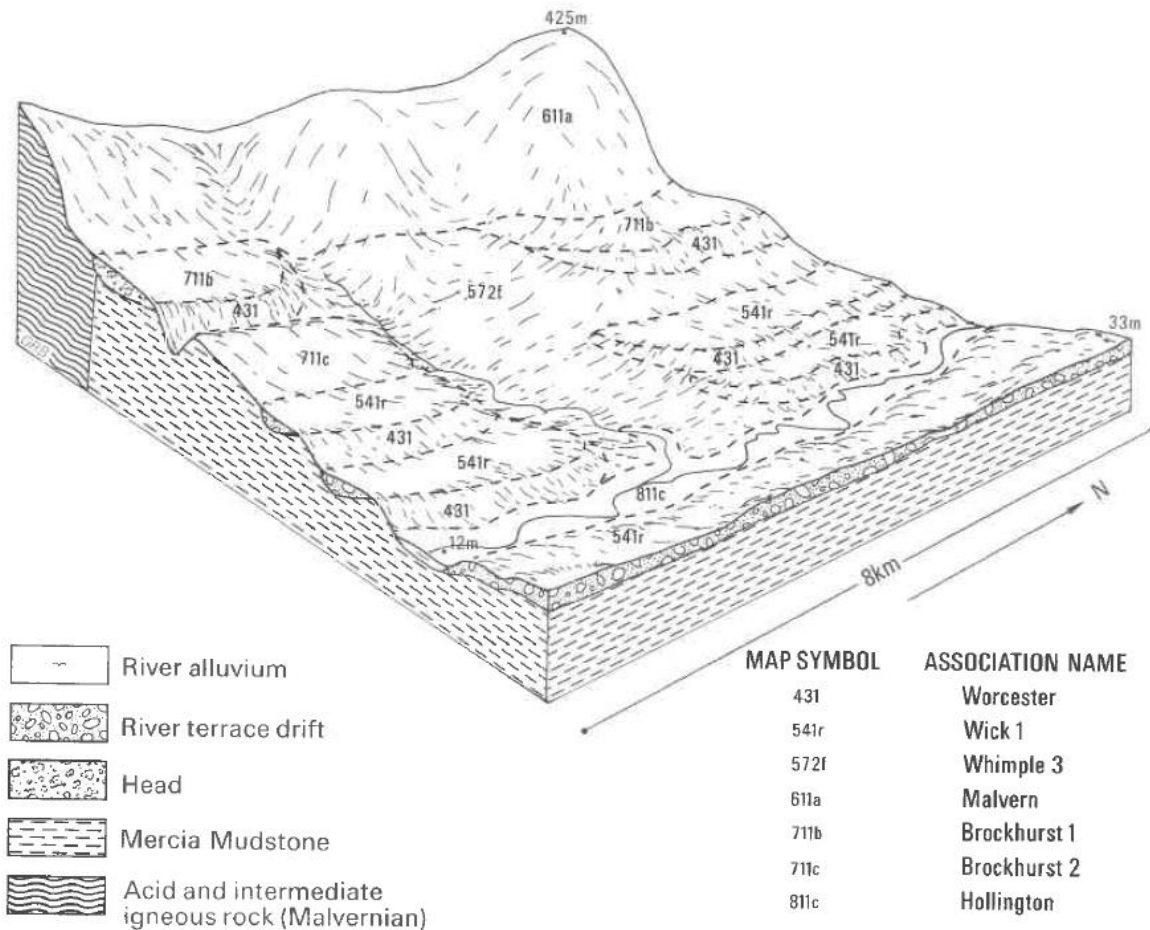
2.5.2 The National Soil Map shows the following twelve soil associations in the study area:

- the Newport 1 and Blackwood associations develop in glaciofluvial drift and are mapped across low-lying land between Fradley and Rileyhill. The Newport 1 association also extends westward from Kings Bromley. Newport 1 soils are characterised by sandy loam topsoils over sand whilst the Blackwood soils comprise loamy sand overlying sand at depth;
- the Wigton Moor association is developed in River Terrace deposits and broadly follows the Bourne Brook and River Trent around Kings Bromley and Handsacre. Soil profiles are characterised by sandy clay loam or clay loam textures and are seasonally waterlogged;
- Fladbury 2 soils are mapped in association with the River Trent between Kings Bromley and Mavesyn Ridware. Profiles develop in alluvium, are typically clay throughout and are poorly drained;
- the Wick 1 association is mapped on the footslopes of the River Trent around Hill Ridware, comprising sandy loams and sands, locally over gravel, and which are mostly well drained;
- the Salwick association develops in reddish till and occupies irregular, shallow to moderate slopes between Hill Ridware and Hamstall Ridware. Profiles include sandy loam and clay loam and are imperfectly drained;
- Bromsgrove soils are characterised by sandy loam profiles developed over soft weathered sandstone. These soils are mapped over the shallow slopes and plateau north of Rake End;
- the Brockhurst 1 and Salop associations develop over reddish mudstone and till and comprise clay loam over clay. The soils occupy shallow slopes and a narrow valley system to the west of Blithbury;
- the Whimple 3 soils occupy shallow irregular slopes to the north-east of Colton and are developed in glacial drift. Typical profiles include clay loam or silty clay loam over clay which is imperfectly drained;
- Midelney soils are associated with the Moreton Brook and include clay upper horizons developed over peat. Slow permeability and high groundwater levels result in severe waterlogging; and

- the Flint association develops in reddish till and occupies the slopes and plateaux to the west of Stockwell Heath. Typically comprising clay loam over clay, Flint soils are slowly permeable in the subsoils such that even with drainage measures, seasonal waterlogging remains.

2.5.3 Soils of the Wick 1, Whimple 3 and Brockhurst 1 associations⁹ are shown in a landscape context in Figure 1.

Figure 1: Wick 1, Whimple 3 and Brockhurst 1 soil associations in a landscape context⁹



2.5.4 Detailed descriptions are available for the predominant soil series of the Brockhurst 1, Fladbury 2 and Wigton Moor associations, and are given in Table 3.

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Table 3: Dominant soil series

Brockhurst series
0 – 15cm, Very dark brown (7.5YR2/2 ¹¹) very slightly stony clay loam; medium rounded, quartzite; moist; moderately developed fine subangular block; low packing density; moderately porous; moderately weak soil strength; moderately firm ped strength; abundant fine fibrous roots; slightly calcareous; abrupt smooth boundary.
15 – 28cm, Brown (7.5YR5/4) very slightly stony clay loam with common fine yellowish red (5YR5.8) mottles; medium rounded, quartzite; moist; moderately developed medium subangular blocky; medium packing density; moderately firm soil and ped strength; abundant fine fibrous roots; non-calcareous; few irregular soft ferri-manganiferous concentrations; abrupt smooth boundary.
28 - 47cm, Pale brown (10YR6/3) very slightly stony clay loam with many coarse yellowish brown (10YR5/6) mottles; medium rounded quartzite; moist; strongly developed medium prismatic; high packing density; very firm soil strength; abundant fine fibrous roots; non-calcareous; common irregular soft ferruginous concentrations; clear irregular boundary.
47 - 79cm, Reddish brown (5YR4/4) stoneless clay with many medium greenish grey (5GY6/1) mottles; moist; strongly developed coarse prismatic with reddish brown (5YR5/4) faces; high packing density; very firm soil strength; common very fine fibrous roots; non-calcareous; common irregular soft ferri-manganiferous concentrations; many stress oriented coats; clear irregular boundary.
79 - 104cm, Reddish brown (5YR4/4) very slightly stony clay with common very fine greenish grey (5GY6/1) mottles; small angular and platy, siltstone; moist; strongly developed fine angular blocky with reddish brown (5YR5/4) faces; high packing density; moderately weak soil strength; moderately firm ped strength; non-calcareous; common irregular ferri-manganiferous nodules; common clay coats.
Fladbury series
0 - 24cm, Dark brown (10YR3/3) stoneless clay; moist; moderately developed medium angular blocky; low packing density; moderately weak soil strength; few very fine fibrous roots; non-calcareous; sharp smooth boundary.
24 - 53cm, Greyish brown (2.5Y5/2) stoneless clay with very many fine strong brown (7.5YR5/8) mottles; moist; moderately developed coarse prismatic with greyish brown (10YR5/2) faces; medium packing density; moderately firm ped strength; few very fine fibrous roots; non-calcareous; few irregular soft ferri-manganiferous concentrations; abrupt smooth boundary.
53 - 78cm, Dark grey (10YR4/1) slightly stony clay with many medium yellowish brown (10YR5/6) mottles; very small subangular, sandstone; very moist; moderately developed coarse prismatic with dark greyish brown (10YR4/2) faces; medium packing density; moderately firm soil strength; few very fine fibrous roots; non-calcareous; few rounded ferri-manganiferous nodules; clear smooth boundary.
78 - 94cm, Dark greyish brown (10YR4/2) stoneless clay loam with many medium reddish brown (5YR4/4) mottles; very moist; moderately developed medium prismatic with dark grey (10YR4/1) faces; medium packing density; moderately weak soil strength; common very fine fibrous roots; non-calcareous; common rounded soft ferruginous concentrations; abrupt wavy boundary.
94 - 120cm, Light grey to grey (10YR6/1) stoneless clay with many fine strong brown (7.5YR5/6) mottles; wet; weakly developed, adherent medium angular blocky with greyish brown (10YR5/2) faces; medium packing density; moderately firm soil strength; few very fine fibrous roots; non-calcareous.
Wigton Moor series
0 - 30cm, Very dark greyish brown (10YR3/2) slightly stony clay loam; small stones; moist; moderately developed medium subangular blocky with very dark grey (10YR3/1) faces; high packing density; moderately firm soil strength; abundant fine fibrous roots; non-calcareous; abrupt irregular boundary.
30 - 53cm, Strong brown (7.5YR5/6) slightly stony clay loam with many extremely fine brown (10YR5/3) mottles; very small stones; moist; coarse subangular blocky with dark greyish brown (10YR4/2) faces; high packing density; moderately strong soil strength; common fine fibrous roots; non-calcareous; few ferri-manganiferous nodules; clear irregular boundary.
53 - 70cm, Dark grey (N4/0) slightly stony clay loam with common very fine strong brown (7.5YR5/6) mottles; moist; coarse subangular blocky with dark greyish brown (10YR4/2) ped faces; high packing density; moderately strong soil strength; common fine fibrous roots; non-calcareous; few ferri-manganiferous nodules; clear irregular boundary.
70 - 120cm, Brown to dark brown (7.5YR4/4) slightly stony sandy clay loam with common very fine yellowish red (5YR5/6) mottles;

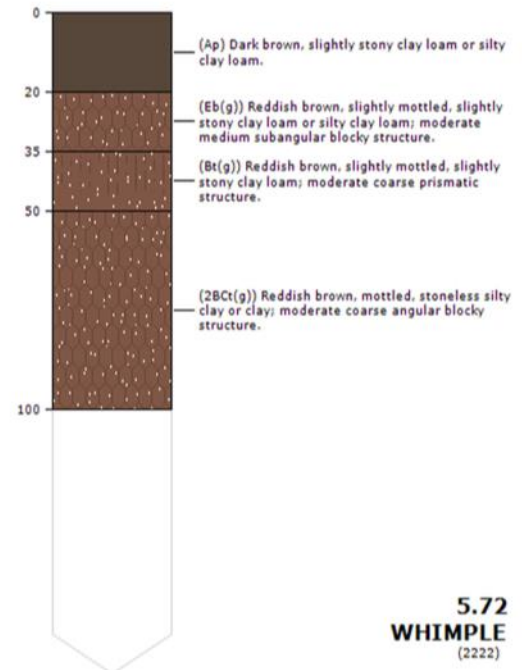
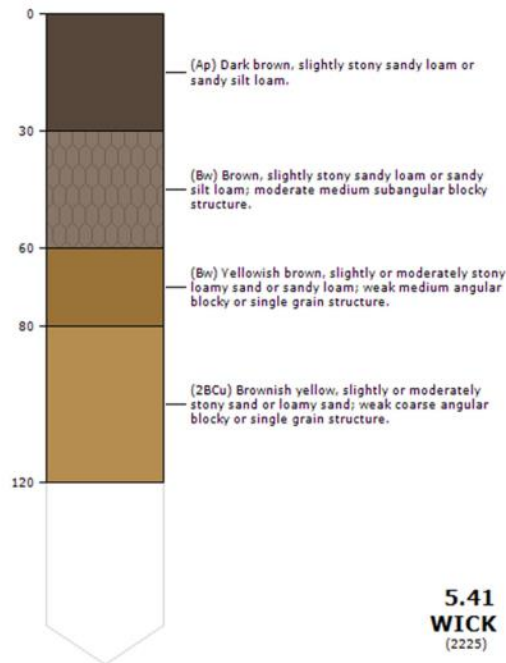
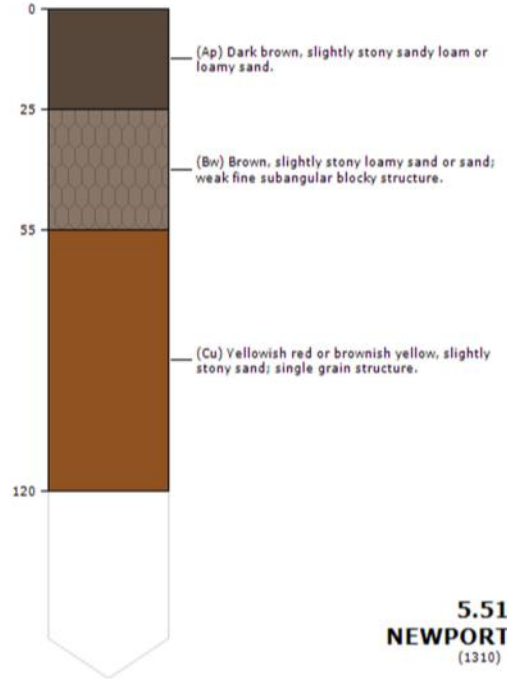
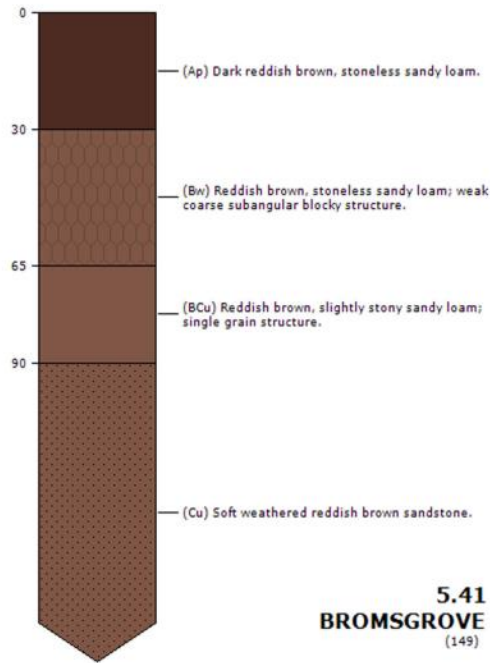
¹¹ Notations according to the Munsell Soil Color Book (2009). In this example, 7.5YR is the hue; 2/2 is the value/chroma

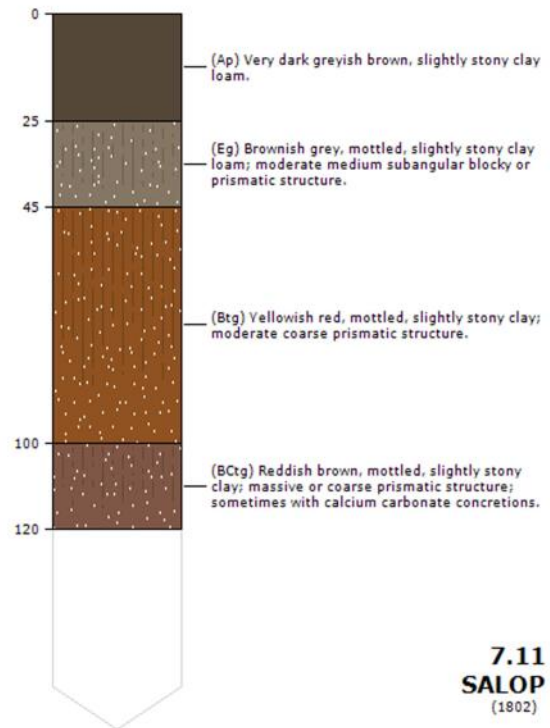
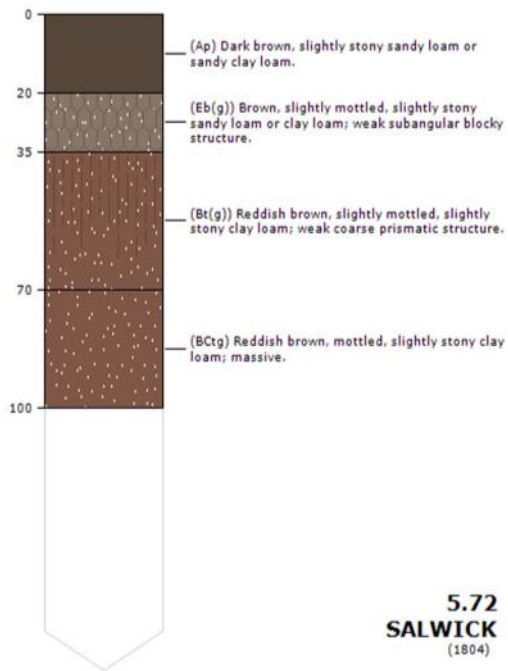
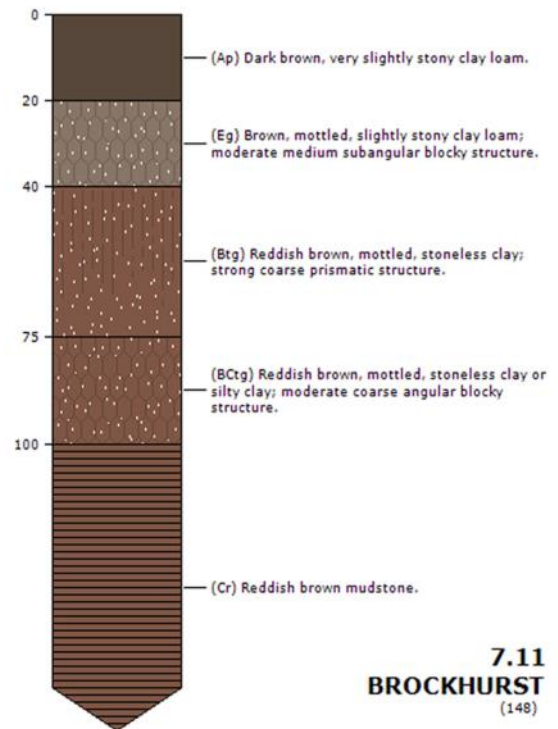
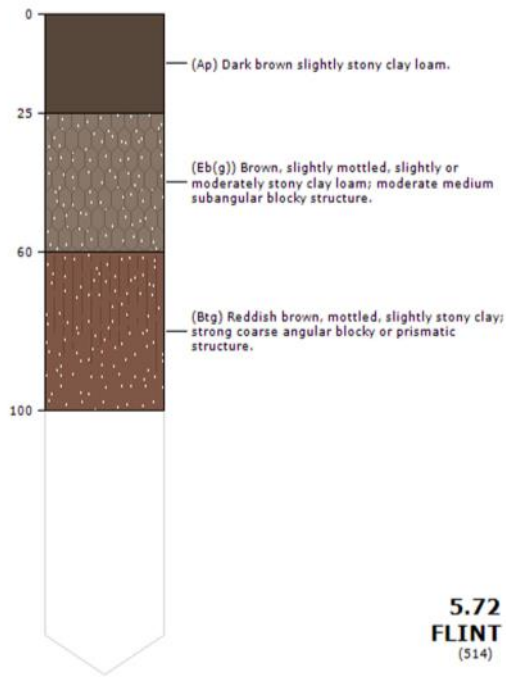
Brockhurst series

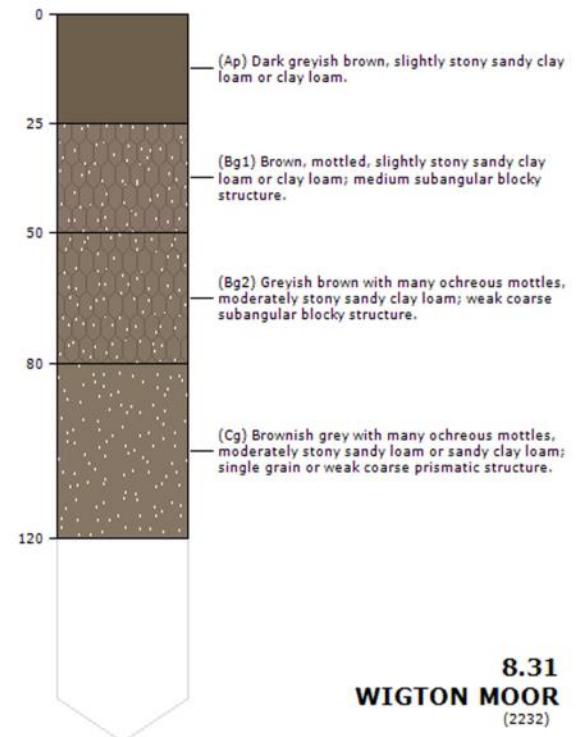
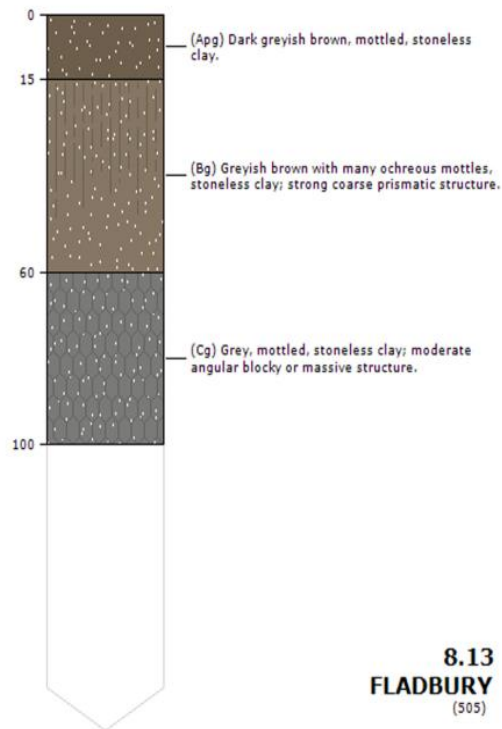
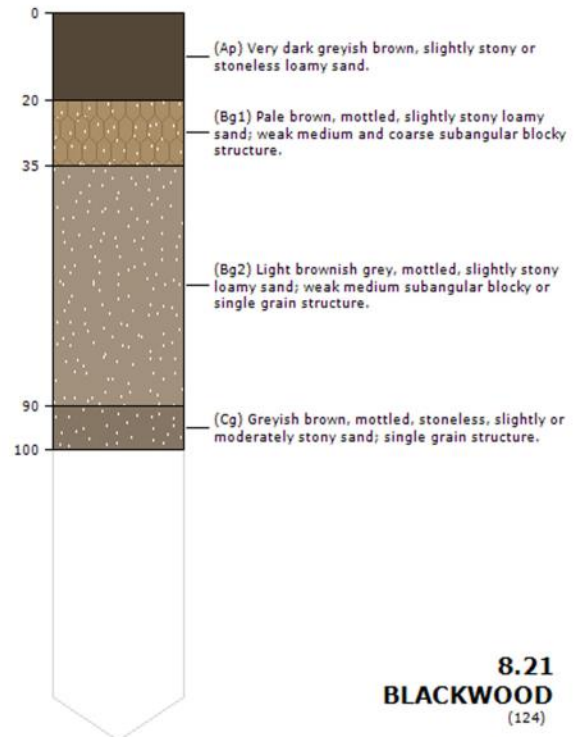
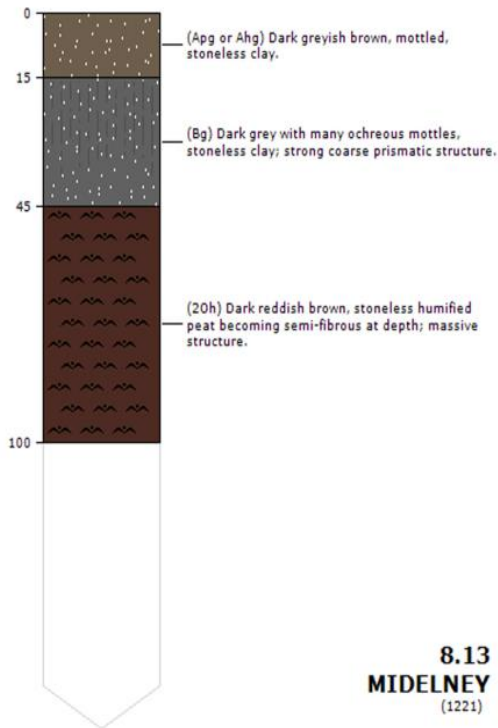
very small stones; moist; weakly developed very coarse prismatic with brown to dark brown (7.5YR4/2) ped faces; high packing density; moderately firm soil strength; common fine fibrous roots; non-calcareous; few ferri-manganiferous nodules.

2.5.5 Typical soil profiles of the main series⁹ of each association are depicted and described in Figure 2.

Figure 2: Predominant soil series profile descriptions







2.6 Soil and land use interactions

Agricultural land quality

- 2.6.1 A review of available ALC information has been undertaken to ascertain the agricultural land quality within the study area. The review also sought to identify the extent of existing detailed post-1988 ALC information to ensure that surveys are not repeated unnecessarily. Detailed ALC survey data is available for land at Fradley,¹² south of Kings Bromley,^{13, 14} south of Hamstall Ridware, east of Rugeley^{15, 16} and south of Colton¹⁷.
- 2.6.2 The assessment has been supplemented using archived Soil Survey records obtained from the National Soil Resources Institute (NSRI) at Cranfield University and with detailed soil surveys undertaken in 2016 specifically for the purpose of this assessment.

Detailed agricultural land classification

- 2.6.3 Archived auger bores from the NSRI were obtained and used for reference in this ALC assessment, though only two of the bore records are aligned with the route. Additional field surveys were undertaken in the northernmost extent of the study area, at Stockwell Heath.
- 2.6.4 The principal physical factors influencing agricultural production and land quality in this study area are climate, site and soil and the interactions between them. Soil wetness and workability and gradient of slope are particularly relevant limitations in this area.
- 2.6.5 During the detailed soil survey, soil profiles were examined using an Edelman (Dutch) auger and a spade. At each observation point the following characteristics were assessed for each soil horizon up to a maximum of 120cm where possible, or to any impenetrable layer:
- soil texture;
 - significant stoniness;
 - colour (including local gley and mottle colours);
 - consistency;
 - structural condition;
 - free carbonate; and
 - depth.

¹² MAFF (1993), *Agricultural Land Classification*, Lichfield Local Plan, Fradley

¹³ MAFF (1993), *Agricultural Land Classification*, Kings Bromley, MAFF Ref EL37/00073

¹⁴ MAFF (1993), *Agricultural Land Classification*, Lichfield Local Plan, Kings Bromley

¹⁵ MAFF (1998), *Agricultural Land Classification*, Rugeley, Rydal Farm (19,) MAFF Ref EL37/11746

¹⁶ MAFF (1998), *Agricultural Land Classification*, Rugeley, Cawarden Springs Farm (18), MAFF Ref EL37/11746.

¹⁷ MAFF (1993), *Agricultural Land Classification*, Report for Colton Farm, near Rugeley

- 2.6.6 Soil Wetness Class (WC) was inferred from the matrix colour, presence or absence of, and depth to, greyish and ochreous gley mottling and/or poorly permeable subsoil layers at least 15cm thick. Soil available water capacity, relevant to the assessment of drought risk, was estimated from texture, structure, organic matter content, stone content and profile depth.

Agro-climatic limitations

- 2.6.7 The local agro-climatic factors have been interpolated from the Meteorological Office's standard 5km grid point dataset at three points within the study area, as set out in Table 4. There is some variation across the study area. Average annual rainfall is from 695mm to 731mm, increasing with altitude. Median Field Capacity Days (FCDs) are from 161 days to 172 days. Moisture deficits are 94mm to 100mm for wheat and 82mm to 91mm for potatoes, with the lower values occurring on the higher ground.

Table 4: Interpolated agro-climatic data

Agro-climatic parameter	SK120155 Fradley	SK080198 Blithbury	SK055215 Colton
Altitude (AOD)	65m	90m	90m
Average annual rainfall	695mm	715mm	731mm
Accumulated temperature >0°C ¹⁸	1,400 day°	1,371 day°	1,371 day°
Field capacity days (FCD)	161 days	168 days	172 days
Average moisture deficit, wheat	100mm	95mm	94mm
Average moisture deficit, potatoes	91mm	84mm	82mm

- 2.6.8 Climate itself does not place any limitation upon the land in this study area but the interactions of climate with soil characteristics are important in determining the wetness and droughtiness limitations of the soil.
- 2.6.9 The influence of climate on soil wetness is assessed by reference to median FCDs (when the soil moisture deficit is zero), soil WC and topsoil texture. The ALC grade according to soil wetness is then determined by following the methodology set out in the ALC Guidelines⁸ and the information in Table 5.

¹⁸ Accumulated temperature is the excess of daily air temperatures above a selected threshold temperature (°C), summed over a specified period (January to June which is the critical growth period for most crops)

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Table 5: ALC grade according to soil wetness – mineral soils

Wetness class	Texture of the top 25cm	Field Capacity Days				
		<126	126-150	151-175	176-225	>225
I	Sand (S) Loamy Sand (LS) Sandy Loam (SL) Sandy Silt Loam (SZL)	1	1	1	1	2
	Silty Loam (ZL) Medium Silty Clay Loam (MZCL) Medium Clay Loam (MCL) Sandy Clay Loam (SCL)	1	1	1	2	3a
	Heavy Silty Clay Loam (HZCL) Heavy Clay Loam (HCL)	2	2	2	3a	3b
	Sandy Clay (SC) Silty Clay (ZC) Clay (C)	3a (2)	3a (2)	3a	3b	3b
II	S LS SL SZL	1	1	1	2	3a
	ZL MZCL MCL SCL	2	2	2	3a	3b
	HZCL HCL	3a (2)	3a (2)	3a	3a	3b
	SC ZC C	3a (2)	3b (3a)	3b	3b	3b
III	S LS SL SZL	2	2	2	3a	3b
	ZL MZCL MCL SCL	3a (2)	3a (2)	3a	3a	3b
	HZCL HCL	3b (3a)	3b (3a)	3b	3b	4
	SC ZC C	3b (3a)	3b (3a)	3b	4	4
IV	S LS SL SZL	3a	3a	3a	3b	3b
	ZL MZCL MCL SCL	3b	3b	3b	3b	3b
	HZCL HCL	3b	3b	3b	4	4
	SC ZC C	3b	3b	3b	4	5
V	S LS SL SZL	4	4	4	4	4
	ZL MZCL MCL SCL	4	4	4	4	4
	HZCL HCL	4	4	4	4	4
	SC ZC C	4	4	4	5	5

Notes. From Table 6 of ALC Guidelines⁸

For naturally calcareous soils with more than 1% calcium carbonate (CaCO₃) and between 18% and 50% clay in the top 25cm, the grade, where different from that of other soils, is shown in brackets.

Sand topsoil is not eligible for Grades 1,2 or 3a.

Loamy sand topsoil is not eligible for Grade 1.

2.6.10 Soil droughtiness is determined by comparing crop-adjusted available water (AP), with the moisture deficit (MD) for the locality for wheat and potatoes (MAFF ALC Guidelines, Appendix 4)⁸. Grading of the land can be affected if the AP is insufficient to balance the MD and droughtiness occurs. The calculation used in the ALC Guidelines to determine the severity of this limitation is given below in Figure 3.

Figure 3: Methodology for calculating the severity of a droughtiness limitation to ALC grading

$$AP \text{ wheat (mm)} = \frac{TA_{vt} \times LT_t + \sum (TA_{vs} \times LT_{50}) + \sum (EA_{vs} \times LT_{50-120})}{10}$$

where
 TA_{vt} is Total available water (TA_v) for the topsoil texture
 TA_{vs} is Total available water (TA_v) for each subsoil layer
 EA_{vs} is Easily available water (EA_v) for each subsoil layer
 LT_t is thickness (cm) of topsoil layer
 LT₅₀ is thickness (cm) of each subsoil layer to 50 cm depth
 LT₅₀₋₁₂₀ is thickness (cm) of each subsoil layer between 50 and 120 cm depth
 Σ means 'sum of'.

$$AP \text{ potatoes (mm)} = \frac{TA_{vt} \times LT_t + \sum (TA_{vs} \times LT_{70})}{10}$$

where
 LT₇₀ is thickness (cm) of each subsoil layer to 70 cm depth

MB (Wheat) = AP (Wheat) - MD (Wheat)
MB (Potatoes) = AP (Potatoes) - MD (Potatoes)

Where
 MB is the Moisture Balance
 AP is the Crop-adjusted available water capacity
 MD is the moisture deficit, as determined by the agro-climatic assessment.

Grade according to droughtiness

Grade/ Subgrade	Moisture Balance limits (mm)		
	<i>wheat</i>		<i>potatoes</i>
1	+30	<i>and</i>	+10
2	+5	<i>and</i>	-10
3a	-20	<i>and</i>	-30
3b	-50	<i>and</i>	-55
4	<-50	<i>or</i>	<-55

Derived from MAFF⁸

Site limitations

- 2.6.11 The assessment of site limitations is primarily concerned with the way in which topography influences the use of agricultural machinery and hence the cropping potential of land. In addition, gradient influences the risk of soil erosion on cultivated land, particularly where the soil is weakly structured. Gradient and microrelief are limiting to agricultural land quality to the south-east of Rugeley and in the north of the area at Colton and to the west of Hamley Heath. Slopes of 11 degrees were recorded at Rugeley, limiting the land to Subgrade 3b.
- 2.6.12 Flood risk is also limiting to agricultural land quality within the Trent Valley and particularly within the vicinity of Rileyhill, Kings Bromley and Handsacre. Existing ALC data shows the limitation at Kings Bromley to be to Subgrade 3b or Grade 4. Limitations of this severity are likely to also occur at Rileyhill and Handsacre.

Soil limitations

- 2.6.13 The main soil properties which affect the cropping potential and management requirements of land are texture, structure, depth, stoniness and chemical fertility. Together they influence the functions of soil and affect the water availability for crops, drainage, workability and trafficability. The main soil characteristics within the study area are:
- light loamy and sandy textures in river terrace or glaciofluvial drifts and Helsby Sandstone;
 - loamy over clayey textures, commonly with poor subsoil structure and slow permeability, over Mercia Mudstone and till; and
 - clayey textures, some over peat, developed in alluvium and affected by fluctuating groundwater.
- 2.6.14 Soil depth and chemical limitations are not encountered in this study area.

Interactive limitations

- 2.6.15 The physical limitations which result from interactions between climate, the site and soil are soil wetness, droughtiness and erosion. Each soil can be allocated a WC based on soil structure, evidence of waterlogging and the number of FCDs; the topsoil texture then determines its ALC Grade in accordance with Table 6 of the MAFF ALC guidelines (as detailed in Table 5).
- 2.6.16 Deep light loamy and sandy soils of the Wick 1, Newport 1 and Bromsgrove associations are most affected by soil droughtiness. The severity of limitation is determined by factors such as topsoil and subsoil textures, stone content and depth to the sandstone bedrock. As crop moisture deficits are moderate to moderately large, droughtiness limitations are mostly slight to Grade 2, but may be as severe as Subgrade 3b.
- 2.6.17 The presence of this soil type has been confirmed throughout the study area in detailed surveys undertaken at Fradley, Ravenshaw, Handsacre, Kings Bromley, Colton, Rugeley and to the south-east of Rugeley. NSRI profile data available along the route also identifies this soil type. The data identify medium sandy loam or sandy

clay loam topsoils of 33cm average thickness, over sandy loam or loamy sand subsoils, commonly with sand at depth.

- 2.6.18 The severity of the droughtiness limitation is largely determined by the stone contents recorded throughout the profiles. Where relatively low, the profiles are of Grade 2. Profiles at Rileyhill and Kings Bromley include moderately stony subsoil stone contents (one recorded at 25%) which increases the droughtiness limitation to Subgrade 3a. Where the subsoil stone content has been recorded as very stony and where the sand component of the subsoil is higher, the limitation is more severe again, to Subgrade 3b.
- 2.6.19 Soils of the Blackwood and Wigton Moor associations are likely to be of Grade 2 or Subgrade 3a. Although coarse, fluctuating groundwater affects the profiles such that they have a slight wetness and workability limitation, as identified in surveys undertaken at Stockwell Heath. Topsoil textures of sandy clay loam or medium clay loam of around 35cm thickness overlie sandy loam subsoil which is gleyed, indicating waterlogging. The soils are of WC II and limited to Grade 2 by wetness. Soils of this type of WC III are of Grade 2 where the topsoil texture is of sandy loam, or of Subgrade 3a where the topsoil is of sandy clay loam or clay loam.
- 2.6.20 The medium clay loams and sandy clay loams over clay loams and clays of the Whimple 3, Flint, Salwick, Salop and Brockhurst 1 associations have been confirmed to the south-west and north-east of Colton in survey data and NSRI profile data. Topsoil textures of clay loam and sandy clay loam are identified, with a depth of around 30cm. Subsoil layers comprise sandy loam or clay loam over clay. One profile records the clay from 57cm depth.
- 2.6.21 The profiles are slowly permeable in the subsoil layers and are of WC III or IV. Soils of WC III are limited by wetness and workability to Subgrade 3a where the topsoil texture is medium clay loam or sandy clay loam, or more severely to Subgrade 3b where the topsoil texture is of heavy clay loam. Profiles of WC IV with medium or heavy loamy topsoils are of Subgrade 3b.
- 2.6.22 The presence of alluvial clay soils of Midelney and Fladbury 2 associations has been confirmed alongside the River Trent to the north-west of Kings Bromley. The soil profiles comprise clay throughout, with a thin (13cm), slightly organic topsoil horizon. The clay is grey or green grey, mottled and has a very firm consistency. Drainage is poor and the profiles are affected by groundwater resulting in a wetness and workability limitation to Grade 4. In addition, the land is also affected by a severe flood risk, also assessed as restricting the land to Grade 4.

3 Forestry

- 3.1.1 Assessment of forestry resources has primarily had regard to the National Forestry Inventory¹⁹ and its predecessor, the National Inventory of Woodland and Trees²⁰, and to data collected from landowners and tenants in the farm impact assessments.
- 3.1.2 The area of woodland within a 4km wide corridor (2km either side of the route centre line of the Proposed Scheme) has been determined using GIS, and is shown in Table 6.
- 3.1.3 Woodland is found predominantly in the south of the study area to the north of Lichfield where woodland blocks include Brokendown Wood, Ravenshaw Wood and Rice's Spinney. Further north are smaller woodlands including Tomlinson's Spinney, Hurst Wood and Hurst Wood Pit. Although the majority of the woodland within the study area is not commercially managed, the woodland at Woodend Farm (CA1/2) and Common Farm (CA1/4), which includes Rice's Spinney, is managed as commercial forestry.

Table 6: Area of woodland within the study area and construction boundary

	Area of woodland within 2km either side of centreline		Woodland permanently required	
	ha	%	ha	%
Ancient woodland	55.4	18	0.0	0
Broadleaved	166.6	55	15.1	77
Coniferous	25.8	9	0.0	0
Other	53.7	18	4.6	23
Total woodland	301.5	100	19.7	100
Woodland as % of total land within 2km either side of centreline		5.6		

¹⁹ Forestry Commission, National Forest Inventory, <https://www.forestry.gov.uk/inventory>

²⁰ Forestry Commission, National Inventory of Woodland and Trees, <https://www.forestry.gov.uk/fr/infd-86xc6c>

4 Assessment of effects on holdings

4.1.1 The effects on farm holdings have been assessed according to the methodology set out in the Phase 2a Scope and Methodology Report (SMR) and the SMR Addendum which are set out in Volume 5: Appendix CT-001-001 and Appendix CT-001-002. A summary of the assessment is provided in Table 7. The nature of impacts considered comprises the temporary and permanent land required from the holding, the temporary and permanent severance of land, the permanent loss of key farm infrastructure and the imposition of disruptive effects (particularly noise and dust) on land uses and the holding's operations. These impacts occur primarily during the construction phase of the Proposed Scheme.

Table 7: Summary of assessment of effect on holdings

Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/1</p> <p>Land farmed by J T L Estate</p> <p>Owner-occupied</p> <p>Agricultural arm of the larger Leavesley Group.</p> <p>The holding extends to 1,620ha of which over 90% is used for arable crops or field scale vegetables. The wider business also rears over 30,000 pigs located at 40 farms, and smaller beef and sheep enterprise.</p> <p>The wider Leavesley Group is involved in many different sectors including commercial property, shipping containers and equipment scrappage contracts.</p> <p>The main crop storage facility is located near Fradley on a 121ha parcel of land affected by the scheme.</p>	<p>Land required: Negligible</p> <p>19.2ha; 1% of holding required for construction.</p> <p>Agricultural land required from one block north of the Trent and Mersey Canal for the construction of Pyford South embankment, stockpile and haul road.</p> <p>Cumulative land required for construction of HS2 Phase One and Phase 2a: 26.5ha; 2% of holding.</p> <p>Severance: Low</p> <p>Although construction of the Proposed Scheme would sever a parcel of land to the south of the holding, access would be provided via the proposed haul road passing under Trent and Mersey Canal east viaduct.</p> <p>Disruptive effects: Low</p> <p>Potential effects associated with damage to existing land drainage.</p>	<p>Land required: Negligible</p> <p>5.0ha; <1% of holding required.</p> <p>Agricultural land required from one block north of the Trent and Mersey Canal for Pyford South embankment, access track, balancing pond, and habitat creation.</p> <p>Cumulative land required permanently for construction of HS2 Phase One and Phase 2a: 12.3ha; 1% of holding.</p> <p>Severance: Low</p> <p>Access to severed land to be provided via the balancing pond access track.</p> <p>Infrastructure: Negligible</p>
<p>CA1/2</p> <p>Woodend Farm</p> <p>Owner-occupied</p> <p>97ha arable farmed under a contracting agreement.</p> <p>Residential let, forestry operations, floristry enterprise also at holding.</p>	<p>Land required: High</p> <p>Land required: 33.1ha; 34% of holding required for construction.</p> <p>Agricultural land required from two blocks: an area north of Pyford Brook for the Pyford Brook satellite compound, stockpile, borrow pits and haul road; and an area west of the A515 Lichfield Road for construction of the re-aligned highway and the Kings Bromley viaduct.</p> <p>Cumulative land required for construction of HS2 Phase One and Phase 2a: 40.4ha; 42% of holding.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Medium</p> <p>16.6ha; 17% of holding required.</p> <p>Agricultural land required from two blocks: an area north of Pyford Brook for the construction of Pyford North embankment and habitat creation; and an area west of the A515 Lichfield Road for the re-aligned highway and the Kings Bromley viaduct.</p> <p>Cumulative land required permanently for construction of HS2 Phase One and Phase 2a: 23.7ha; 24% of holding.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/3*</p> <p>Alrewas Hayes Farm</p> <p>15ha arable unit</p> <p>Wedding and event venue</p> <p>Land in Entry Level Stewardship (ELS).</p>	<p>Land required: Low</p> <p>Land required: 1.4ha; 9% of holding required for construction.</p> <p>Agricultural land required for works to improve the access track.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Medium</p> <p>Potential disruption to wedding/event venue from use of access road.</p>	<p>Land required: Negligible</p> <p>0.6ha; 4% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/4</p> <p>Common Farm</p> <p>Owner-occupied</p> <p>101ha arable farmed under a contracting agreement.</p> <p>Commercial forestry (Rice's Spinney), B&B, buildings let for office and retail uses.</p>	<p>Land required: High</p> <p>Land required: 30.6ha; 30% of holding required for construction.</p> <p>Agricultural land required from two blocks: an area south of Common Lane for stockpile and borrow pit and haul road; and an area east of A515 Lichfield Road for borrow pit.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>4.3ha; 4% of holding required.</p> <p>Agricultural land required from one block for the construction of Pyford North embankment and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/5</p> <p>Common Lane Farm</p> <p>Owner-occupied/grazing licence</p> <p>385ha dairy and beef</p> <p>Commercial, industrial and residential lets</p>	<p>Land required: Medium</p> <p>Land required: 41.8ha; 11% of holding required for construction.</p> <p>Agricultural land required from two blocks: an area east of the A515 Lichfield Road for the Common Lane satellite compound, stockpile, transfer node, haul road and national grid works; and an area south of Common Lane for borrow pit.</p> <p>Cumulative land required for construction of HS2 Phase One and Phase 2a: 46.3ha; 12% of holding.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Disruptive effects: Medium</p> <p>Works to Common Lane will cause disruption to farm operations.</p>	<p>Land required: Negligible</p> <p>5.1ha; 1% of holding required.</p> <p>Agricultural land required from one block east of the A515 Lichfield Road for the construction of Pyford North embankment and habitat creation.</p> <p>Cumulative land required permanently for construction of HS2 Phase One and Phase 2a: 9.5ha; 2% of holding.</p> <p>Severance: Low</p> <p>Access required via private way to severed land.</p> <p>Infrastructure: Negligible</p>
<p>CA1/6</p> <p>Barn Farm</p> <p>Owner-occupied</p> <p>43ha beef unit. Up to 100 calves reared to finishing. Maize grown to support beef production.</p>	<p>Land required: High</p> <p>Land required: 19.4ha; 45% of holding required for construction.</p> <p>Agricultural land required from one block south of Common Lane for stockpile, haul road, and borrow pit.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Disruptive effects: Medium</p> <p>Works to Common Lane will cause disruption to farm operations.</p>	<p>Land required: Medium</p> <p>5.8ha; 14% of holding required.</p> <p>Agricultural land required from one block east of the A515 Lichfield Road for the construction of Pyford North embankment and habitat creation.</p> <p>Severance: Low</p> <p>Access required via private way to severed land.</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/7*</p> <p>Land at Common Lane</p> <p>1ha grassland</p>	<p>Land required: Low</p> <p>Land required: 0.1ha; 10% of holding required for construction.</p> <p>Agricultural land required from one block north of Common Lane for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/8*</p> <p>Land east of A515 Lichfield Road</p> <p>1ha grassland</p>	<p>Land required: Low</p> <p>Land required: 0.1ha; 10% of holding required for construction.</p> <p>Agricultural land required from one block north of Common Lane for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/9*</p> <p>Woodshoot Nurseries</p> <p>32ha horticulture/protected cropping</p>	<p>Land required: Medium</p> <p>Land required: 3.5ha; 11% of holding required for construction.</p> <p>Agricultural land required from one block for National Grid works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/10*</p> <p>Longcroft Farm</p> <p>49ha dairy and arable</p> <p>Land in ELS</p>	<p>Land required: Low</p> <p>Land required: 4.1ha; 8% of holding required for construction.</p> <p>Agricultural land required from one block for National Grid works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/11*</p> <p>Land at New Buildings Farm (Kings Bromley)</p> <p>5ha arable and grassland</p> <p>Commercial and industrial lets</p>	<p>Land required: High</p> <p>Land required: 2.5ha; 49% of holding required for construction.</p> <p>Agricultural land required from one block for National Grid works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/12</p> <p>Hunts Farm</p> <p>32ha mixed arable and livestock</p> <p>Land in ELS and Higher Level Stewardship (HLS) schemes.</p>	<p>Land required: High</p> <p>Land required: 8.7ha; 27% of holding required for construction. Cumulative land required for construction of HS2 Phase One and Phase 2a: 22.3ha; 70% of holding.</p> <p>Agricultural land required from one block for National Grid works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Cumulative land required permanently for construction of HS2 Phase One and Phase 2a: 4.2ha; 3% of holding.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/13 Tuppenhurst Farm 304ha arable and agricultural contracting Land in ELS</p>	<p>Land required: Negligible Land required: 2.0ha; <1% of holding required for construction. Agricultural land required from one block for National Grid works. Cumulative land required for construction of HS2 Phase One and Phase 2a: 2.2ha; 1% of holding. Severance: Negligible Disruptive effects: Negligible</p>	<p>Land required: Negligible 0.0ha; 0% of holding required. Cumulative land required permanently for construction of HS2 Phase One and Phase 2a: 0.0ha; 0% of holding. Severance: Negligible Infrastructure: Negligible</p>
<p>CA1/14 Shaw Lane Farm 5ha grassland let on informal basis Industrial lets</p>	<p>Land required: High Land required: 2.2ha; 44% of holding required for construction. Agricultural land required from one block for the Kings Bromley viaduct and haul road. Severance: High. Area of land to be severed by constructions works with no access. Disruptive effects: Negligible</p>	<p>Land required: Medium 0.9ha; 17% of holding required. Severance: Negligible Infrastructure: High Dwelling and storage building demolished during construction.</p>
<p>CA1/15 Echills Farm Farm Business Tenancy (FBT) 160ha arable farmed under a contracting agreement. Other enterprises include bird seed production and DIY livery.</p>	<p>Land required: High Land required: 49.4ha; 31% of holding required for construction. Agricultural land required from one block south-west of A513 Rugeley Road for works to Bourne embankment, Bourne embankment satellite compound, Bourne embankment transfer node, Bourne embankment precast yard, Bourne embankment precast laydown yard, River Trent viaduct satellite compound and borrow pit. Severance: Low. Farm buildings severed from public highway with access provided by private way. Disruptive effects: Medium Disruption associated with construction would be likely to necessitate a change to scale or nature of land use or enterprise.</p>	<p>Land required: Low 13.5ha; 8% of holding required. Agricultural land required from one block south-west of A513 Rugeley Road for the construction of Bourne embankment, balancing pond and habitat creation. Severance: Low Access to public highway provided by private way. Infrastructure: Low Loss of farm access track. To be replaced with private way.</p>
<p>CA1/16 Trentside Meadows Owner-occupied 39ha grassland farm, grazed by suckler beef herd. Farm run as source of income for CHADS charity, and to provide an amenity area for users of charity. Land in ELS and HLS</p>	<p>Land required: Medium Land required: 4.1ha; 11% of holding required for construction. Agricultural land required from one block for works to River Trent viaduct. Severance: Low Access to severed land would be provided under viaduct during construction works. No substantial period of severance expected. Disruptive effects: Medium. Disruption associated with construction would be likely to necessitate a change to scale or nature of land use or enterprise.</p>	<p>Land required: Negligible 0.7ha; 2% of holding required. Severance: Low Access to public highway provided by private way. Infrastructure: Low Loss of farm access track. To be replaced with private way.</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/17*</p> <p>Bromley Lane Farm</p> <p>15ha let grassland used to graze livestock.</p>	<p>Land required: High</p> <p>Land required: 14.1ha; 94% of holding required for construction.</p> <p>Agricultural land required from one block for works to provide habitat creation.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Agricultural land required from one block for grassland habitat creation - to remain in agricultural use.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/18</p> <p>Pipe Hall Farm</p> <p>Owner-occupied, Farm Business Tenancy and grazing agreements</p> <p>405ha dairy, beef and arable farm</p> <p>Land in ELS</p>	<p>Land required: Medium</p> <p>Land required: 57.3ha; 14% of holding required for construction.</p> <p>Agricultural land required from three blocks: an area north of the River Trent for soils storage, haul road and borrow pit; an area east of Pipe Lane for stockpile and haul road; and an area east of Blithbury Road for National Grid connection works.</p> <p>Severance: Low</p> <p>Access to severed land would be provided under viaduct during construction works. No substantial period of severance expected.</p> <p>Disruptive effects: Medium</p> <p>Disruption associated with construction would be likely to necessitate a change to scale or nature of land use or enterprise.</p>	<p>Land required: Negligible</p> <p>7.0ha; 2% of holding required.</p> <p>Agricultural land required from two blocks: an area north of the River Trent for the River Trent viaduct and habitat creation and an area east of Pipe Lane for Pipe Ridware embankment, highway realignment, habitat creation and balancing ponds.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/19*</p> <p>Land at Littleton House Farm</p> <p>1ha grassland</p>	<p>Land required: Low</p> <p>Land required: 0.1ha; 10% of holding required for construction.</p> <p>Agricultural land required from one block south of Pipe Lane for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Agricultural land required from one block south of Pipe Lane for grassland habitat creation - to remain in agricultural use.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/20</p> <p>Church Farm</p> <p>Owner-occupied</p> <p>12ha grassland farm, grazed by suckler beef herd.</p>	<p>Land required: High</p> <p>Land required: 3.1ha; 25% of holding required for construction.</p> <p>Agricultural land required from one block east of Dawson Lane for Pipe Ridware satellite compound.</p> <p>Severance: High</p> <p>Parcel of land severed by scheme with no access available.</p> <p>Disruptive effects: Medium</p> <p>Disruption associated with construction would be likely to necessitate a change to scale or nature of land use or enterprise.</p>	<p>Land required: Medium</p> <p>2.4ha; 20% of holding required.</p> <p>Agricultural land required from one block east of Dawson Lane for highway realignment, balancing pond and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/21</p> <p>Woodhouse Farm</p> <p>Owner-occupied, Farm Business Tenancy and contract farmed</p> <p>1,680ha arable, potatoes (irrigated), beef cattle, sheep</p> <p>Other enterprises operating from the farm include potato marketing companies, agricultural chemical and fertiliser suppliers.</p> <p>Non-commercial shoot</p> <p>Land in HLS</p>	<p>Land required: Negligible</p> <p>Land required: 20.4ha; 1% of holding required for construction.</p> <p>Agricultural land required from three blocks: an area north of the A513 Rugeley Road for flood compensation works; an area north of Pipe Lane at Pipe Ridware for gas pipeline diversions; and an area east of Pipe Lane near Woodhouse Farm for stockpile and haul roads.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Disruptive effects: High</p> <p>Construction of the Proposed Scheme is likely to have a substantial impact on highways movements associated with the various enterprises at Woodhouse Farm. These impacts would be likely to necessitate changes to scale or nature of land use or enterprise, or potentially discontinue certain enterprises temporarily.</p>	<p>Land required: Negligible</p> <p>11.0ha; <1% of holding required.</p> <p>Agricultural land required from two blocks: an area north of Pipe Lane at Pipe Ridware for Pipe Ridware embankment, balancing pond, auto-transformer station, habitat creation and landscape mitigation planting; and an area east of Pipe Lane near Woodhouse Farm for maintenance access point, package substation, balancing pond and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/22*</p> <p>Land at Luthbur</p> <p>1ha grassland used to graze horses (non-commercial)</p>	<p>Land required: Low</p> <p>Land required: 0.1ha; 10% of holding required for construction.</p> <p>Agricultural land required from one block south of Pipe Lane for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Agricultural land required from one block south of Pipe Lane for grassland habitat creation - to remain in agricultural use.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/23*</p> <p>Land at Pipe Lane</p> <p>1.5ha grassland</p>	<p>Land required: High</p> <p>Land required: 1.5ha; 100% of holding required for construction.</p> <p>Agricultural land required from one block north of Pipe Lane for stockpile.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Medium</p> <p>0.2ha; 11% of holding required.</p> <p>Agricultural land required from one block north of Pipe Lane for Pipe Ridware embankment.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/24</p> <p>Blythe House Farm</p> <p>Owner-occupied</p> <p>49ha arable farmed under a contracting agreement. Other enterprises include caravan site/rallies and 16 commercial units.</p> <p>Land in HLS</p> <p>Non-commercial shoot</p>	<p>Land required: Medium</p> <p>Land required: 7.8ha; 16% of holding required for construction.</p> <p>Agricultural land required from one block east of Pipe Lane for stockpile and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>2.1ha; 4% of holding required.</p> <p>Agricultural land required from one block east of Pipe Lane for HS2 main line, balancing pond and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/25</p> <p>Quinton's Orchard Farm</p> <p>Owner-occupied</p> <p>316ha arable, beef and sheep farm (farmed with nearby Longacre Farm). Substantial fishery enterprise, and horse breeding enterprise.</p> <p>Land in HLS and ELS</p> <p>Non-commercial shoot</p>	<p>Land required: Negligible</p> <p>Land required: 14.6ha; 5% of holding required for construction.</p> <p>Agricultural land required from two blocks: an area east of Pipe Lane for stockpile and haul road; and an area east of Moreton Grange in CA2 for stockpile and haul road.</p> <p>Severance: Low</p> <p>Farm buildings severed from public highway with access provided by private way.</p> <p>Disruptive effects: Medium</p> <p>Construction of the Proposed Scheme has the potential to have an impact on the fishery enterprise at Quinton's Orchard Farm. These impacts could necessitate changes to scale or nature of land use or enterprise.</p>	<p>Land required: Negligible</p> <p>8.8ha; 3% of holding required.</p> <p>Agricultural land required from two blocks: an area east of Pipe Lane for HS2 main line, Mavesyn Ridware Footpath 38 accommodation overbridge and habitat creation; and an area east of Moreton Grange in CA2 for HS2 main line, ecological mitigation ponds and habitat creation.</p> <p>Agricultural land required from one block of land east of Pipe Lane.</p> <p>Severance: Low</p> <p>Loss of farm access track. To be replaced with private way.</p> <p>Infrastructure: Negligible</p>
<p>CA1/26</p> <p>Bentley Hall Farm</p> <p>Owner-occupied</p> <p>134ha arable</p> <p>Land in mid-tier Countryside Stewardship</p> <p>Non-commercial shoot</p>	<p>Land required: Low</p> <p>Land required: 12.0ha; 9% of holding required for construction.</p> <p>Agricultural land required from one block east of Pipe Lane for stockpile, haul road and works to local power lines.</p> <p>Severance: High</p> <p>Parcel of land severed by scheme with no access available.</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>5.8ha; 4% of holding required.</p> <p>Agricultural land required from one block east of Pipe Lane for HS2 main line and landscape earthworks.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Infrastructure: Negligible</p>
<p>CA1/27</p> <p>Manor Farm, Blithbury</p> <p>Owner-occupied</p> <p>225ha organic dairy, arable, beef farm. All organic forage grown on farm and fed to livestock. Some non-organic arable crops sold.</p> <p>Land in organic Countryside Stewardship</p> <p>Non-commercial shoot</p>	<p>Land required: Medium</p> <p>Land required: 44.1ha; 20% of holding required for construction.</p> <p>Agricultural land required from four blocks: an area west of the B5014 Uttoxeter Road for stockpile and haul roads; an area west of Hadley Gate Lane for stockpile and haul road; an area east and west of Newlands Lane for stockpile and haul roads; and an area east of the B5013 Uttoxeter Road for general construction works.</p> <p>Severance: High</p> <p>Two parcels of land severed by scheme with no access available. Severance of main grazing block.</p> <p>Disruptive effects: Medium</p> <p>The farm would be affected along its entire length, with the two main farms split by numerous highway realignments. These impacts would be expected to necessitate changes to scale or nature of land use or enterprise.</p>	<p>Land required: Medium</p> <p>27.8ha; 12% of holding required.</p> <p>Agricultural land required from four blocks: an area west of the B5014 Uttoxeter Road for HS2 main line, landscape earthworks, landscape mitigation planting and habitat creation, balancing ponds and ecological mitigation ponds; and the area east and of Newlands Lane for the Auto-Transformer Feeder Station and landscape mitigation planting.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/28</p> <p>Blithbury Reindeer Lodge</p> <p>Owner-occupied</p> <p>12ha grassland used to graze 180 reindeer. Other animals include sheep, donkeys, goats. Reindeer used for the on-site Christmas attraction, hire for film and TV, and reindeer workshops. Café and shop also at the farm.</p>	<p>Land required: Low</p> <p>Land required: 1.0ha; 8% of holding required for construction.</p> <p>Agricultural land required from one block east of the B5014 Uttoxeter Road for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Low</p> <p>Potential for noise arising from construction works to impact on the attractions at the holding. These impacts could necessitate changes to scale or nature of land use or enterprise.</p>	<p>Land required: Low</p> <p>0.9ha; 7% of holding required.</p> <p>Agricultural land required from one block east of the B5014 Uttoxeter Road for balancing pond.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/29*</p> <p>Land south of Blithbury Road</p> <p>3ha grassland</p>	<p>Land required: High</p> <p>Land required: 2.5ha; 82% of holding required for construction.</p> <p>Agricultural land required from one block south of Blithbury Road for construction works and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: High</p> <p>2.2ha; 75% of holding required.</p> <p>Agricultural land required from one block south of Blithbury Road for HS2 main line, landscape earthworks and landscape mitigation planting.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/30</p> <p>Land east of Hadley Gate Lane</p> <p>Owner-occupied</p> <p>4ha grassland used to graze horses (non-commercial).</p>	<p>Land required: High</p> <p>Land required: 2.6ha; 66% of holding required for construction.</p> <p>Agricultural land required from one block south of Blithbury Road for Blithbury Road satellite compound.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: High</p> <p>1.0ha; 26% of holding required.</p> <p>Agricultural land required from one block south of Blithbury Road for HS2 main line and highway realignment.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/31</p> <p>Hadley Gate Field Farm</p> <p>Owner-occupied</p> <p>33ha pigs and arable. Wheat fed to pig herd with remaining grains sold.</p> <p>Public weighbridge as separate enterprise.</p>	<p>Land required: Low</p> <p>Land required: 2.5ha; 8% of holding required for construction.</p> <p>Agricultural land required from one block north of Blithbury Road for construction works and haul road.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Disruptive effects: Low</p>	<p>Land required: Low</p> <p>2.3ha; 7% of holding required.</p> <p>Agricultural land required from one block north of Blithbury Road for HS2 main line, Hadley Gate Lane diversion, balancing pond and landscape mitigation planting.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/32</p> <p>Stoneyford</p> <p>9ha informally let grassland</p>	<p>Land required: High</p> <p>Land required: 7.9ha; 88% of holding required for construction.</p> <p>Agricultural land required from one block south of Blithbury Road for construction works and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: High</p> <p>7.8ha; 86% of holding required.</p> <p>Agricultural land required from one block south of Blithbury Road for HS2 main line, Blithbury Road diversion, ecological mitigation ponds and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/33*</p> <p>Hadley Gate Farm</p> <p>2ha grassland</p>	<p>Land required: Medium</p> <p>Land required: 0.2ha; 11% of holding required for construction.</p> <p>Agricultural land required from one block north of Blithbury Road for construction works and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Low</p> <p>0.2ha; 11% of holding required.</p> <p>Agricultural land required from one block north of Blithbury Road for HS2 main line.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/34</p> <p>Blackflatts Farm</p> <p>Owner-occupied</p> <p>84ha dairy and arable</p> <p>Land in ELS</p>	<p>Land required: Low</p> <p>Land required: 7.3ha; 9% of holding required for construction.</p> <p>Agricultural land required from two blocks: an area west of Stonyford Lane for construction works; and an area east of Blithbury Road for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.9ha; 1% of holding required.</p> <p>Agricultural land required from one block west of Stonyford Lane for new drainage ditches and hedgerows.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/35*</p> <p>Land at Hadley Gate Cottage</p> <p>1ha grassland used to graze horses (non-commercial).</p>	<p>Land required: Low</p> <p>Land required: 0.1ha; 10% of holding required for construction.</p> <p>Agricultural land required from one block south of Hadley Gate Lane for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p><0.1ha; <1% of holding required.</p> <p>Agricultural land required from one block south of Hadley Gate Lane for Hadley Gate Lane re-alignment.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/36</p> <p>Holding No. 6 - Old Wood Estate</p> <p>Staffordshire County Council (SCC) tenanted farm rented on Agricultural Holdings Act (AHA) agreement (soon to end).</p> <p>17ha dairy unit. 40-cow dairy herd plus replacements.</p>	<p>Land required: Low</p> <p>Land required: 1.4ha; 8% of holding required for construction.</p> <p>Agricultural land required from one block south of Blithbury Road for construction works.</p> <p>Severance: Medium. Access required via public highway to severed land.</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Low</p> <p>1.0ha; 6% of holding required.</p> <p>Agricultural land required from one block south of Blithbury Road for Blithbury Road re-alignment.</p> <p>Severance: Negligible</p> <p>Although land is severed, area is too small to be viably farmed.</p> <p>Infrastructure: Negligible</p>
<p>CA1/37</p> <p>Hurstwood Farm</p> <p>SCC tenanted farm rented on Farm Business Tenancy agreement</p> <p>27ha dairy and sheep unit. 55-cow dairy herd plus replacements, and 30 ewes.</p>	<p>Land required: High</p> <p>Land required: 9.7ha; 36% of holding required for construction.</p> <p>Agricultural land required from two blocks: an area north of Blithbury Road for stockpile and haul road; and an area south of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Medium</p> <p>3.0ha; 11% of holding required.</p> <p>Agricultural land required from two blocks: an area north of Blithbury Road for HS2 main line; and an area south of Hollow Lane for National Grid connection sealing compound and habitat creation.</p> <p>Severance: Negligible</p> <p>Although land is severed, area is too small to be viably farmed.</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/38</p> <p>Town End Farm</p> <p>Owner-occupied and annual grazing licence. Main farm distant from route.</p> <p>324ha dairy, beef and sheep unit. 420-cow dairy herd plus replacements.100-cow/bull beef herd reared from dairy herd. 50 ewes.</p> <p>Non-commercial shoot</p> <p>Land in ELS</p>	<p>Land required: Low</p> <p>Land required: 28.0ha; 9% of holding required for construction. Agricultural land required from three blocks: an area east of Newlands Lane for construction compound, stockpile and haul road; an area north of Newlands Lane for stockpile and haul road; and an area south of Moor Lane for construction works.</p> <p>Severance: High. Land severed by scheme with no access available.</p> <p>Disruptive effects: Low</p>	<p>Land required: Negligible</p> <p>14.0ha; 4% of holding required. Agricultural land required from three blocks: an area east of Newlands Lane for the HS2 main line, Auto-Transformer Feeder Station, landscape mitigation planting and habitat creation and ecological mitigation ponds; an area north of Newlands Lane for the HS2 main line and habitat creation; and an area south of Moor Lane for a balancing pond.</p> <p>Severance: Low. Access required via private way to severed land.</p> <p>Infrastructure: Negligible</p>
<p>CA1/39*</p> <p>Holding No. 8 - Old Wood Farm</p> <p>SCC tenanted farm</p> <p>21ha dairy unit</p> <p>Land in ELS</p>	<p>Land required: High</p> <p>Land required: 4.4ha; 21% of holding required for construction. Agricultural land required from one block north of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Low</p> <p>1.6ha; 8% of holding required.</p> <p>Agricultural land required from one block north of Hollow Lane for balancing pond.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/40*</p> <p>Land north of Hollow Lane</p> <p>2.3ha grassland</p>	<p>Land required: High</p> <p>Land required: 2.3ha; 100% of holding required for construction. Agricultural land required from one block north of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.1ha; 5% of holding required.</p> <p>Agricultural land required from one block north of Hollow Lane for drainage ditch.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/41*</p> <p>Land at Bank Top Farm</p> <p>1ha grassland</p>	<p>Land required: High</p> <p>Land required: 0.3ha; 30% of holding required for construction. Agricultural land required from two blocks either side of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/42*</p> <p>Hurst Wood Meadow</p> <p>0.3ha grassland used to graze horses (non-commercial).</p>	<p>Land required: High</p> <p>Land required: 0.3ha; 100% of holding required for construction. Land required from one block south of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/43*</p> <p>Holding No. 2 - Old Wood Farm</p> <p>SCC tenanted farm</p> <p>38ha dairy unit</p> <p>Land in ELS</p>	<p>Land required: High</p> <p>Land required: 12.3ha; 32% of holding required for construction.</p> <p>Agricultural land required from one block south of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>1.8ha; 5% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/44*</p> <p>Land at New Barn</p> <p>6ha grassland and non-commercial equestrian use</p> <p>Numerous lakes at the holding assumed to be associated with fishing enterprise.</p>	<p>Land required: Low</p> <p>Land required: 0.7ha; 10% of holding required for construction.</p> <p>Agricultural land required from one block south of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/45</p> <p>Cawarden Springs Farm</p> <p>121ha arable</p> <p>Reclaimed building materials suppliers, industrial lets</p> <p>Land in HLS</p>	<p>Land required: Medium</p> <p>Land required: 21.0ha; 17% of holding required for construction.</p> <p>Agricultural land required from one block south of Hollow Lane for works to construct 132kV power line from Rugeley Power Station to Newlands Lane Auto-Transformer Feeder Station.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>1.6ha; 1% of holding required.</p> <p>Agricultural land required from three blocks all west of Cawarden Springs Farm for National Grid connection sealing compound, access track and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/46*</p> <p>Land south of Longley Lane</p> <p>1ha grassland</p>	<p>Land required: High</p> <p>Land required: 0.3ha; 30% of holding required for construction.</p> <p>Agricultural land required from one block east of Newlands Lane for construction works to access track.</p> <p>Severance: High. Parcel of land severed by scheme with no access available.</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Medium</p> <p>0.1ha; 10% of holding required.</p> <p>Agricultural land required from one block east of Newlands Lane for access track.</p> <p>Severance: Negligible</p> <p>Although land is severed, area is too small to be viably farmed.</p> <p>Infrastructure: Negligible</p>
<p>CA1/47</p> <p>Crab Tree Farm</p> <p>Owner-occupied</p> <p>36ha grassland with herd of 12 beef cattle and two domestic horses grazing. Main enterprise is arboricultural contracting, with biomass for energy production, plank manufacture being related businesses.</p>	<p>Land required: Low</p> <p>Land required: 3.3ha; 9% of holding required for construction.</p> <p>Agricultural land required from one block east of Newlands Lane for construction works and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Low. Potential disruption impacts associated with access for arboricultural enterprise.</p>	<p>Land required: Low</p> <p>3.3ha; 9% of holding required.</p> <p>Agricultural land required from one block east of Newlands Lane for Stockwell Heath embankment, landscape mitigation planting and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: High</p> <p>Agricultural building demolished.</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/48</p> <p>Little Strongbrook Farm</p> <p>Owner-occupied</p> <p>4ha grassland. Non-commercial livestock holding.</p>	<p>Land required: Medium</p> <p>Land required: 0.7ha; 18% of holding required for construction.</p> <p>Agricultural land required from one block west of Newlands Lane for construction works and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Medium</p> <p>0.5ha; 11% of holding required.</p> <p>Agricultural land required from one block west of Newlands Lane for Stockwell Heath embankment, Moor Lane highway diversion and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/49</p> <p>Border Collie Trust (GB)</p> <p>Owner-occupied</p> <p>2ha dog rescue centre and boarding kennels. Grassland area used for exercise and rescue dog rehabilitation.</p>	<p>Land required: High</p> <p>Land required: 0.7ha; 33% of holding required for construction.</p> <p>Agricultural land required from one block west of Newlands Lane for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Medium</p> <p>Potential for noise associated with construction affecting rescue dog rehabilitation. This impact could necessitate changes to scale or nature of land use or enterprise.</p>	<p>Land required: Medium</p> <p>0.2ha; 11% of holding required.</p> <p>Agricultural land required from one block west of Newlands Lane for Stockwell Heath embankment, Moor Lane highway diversion and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Medium</p> <p>Loss of part of exercise area which includes constructed features.</p>
<p>CA1/50*</p> <p>Land at Hamley Fields</p> <p>1ha grassland used to graze horses (non-commercial).</p>	<p>Land required: High</p> <p>Land required: 0.3ha; 30% of holding required for construction.</p> <p>Agricultural land required from one block east of Newlands Lane for construction works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Medium</p> <p>0.2ha; 20% of holding required.</p> <p>Agricultural land required from one block east of Newlands Lane for Stockwell Heath embankment.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/51*</p> <p>Land at Stockwell Heath</p> <p>4ha grassland used to graze horses (non-commercial) and to take hay crop.</p>	<p>Land required: High</p> <p>Land required: 3.6ha; 89% of holding required for construction.</p> <p>Agricultural land required from one block south of Moor Lane for construction works and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: High</p> <p>3.6ha; 89% of holding required.</p> <p>Agricultural land required from one block south of Moor Lane for Stockwell Heath embankment and habitat creation.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/52</p> <p>Land at Rose Cottage</p> <p>Owner-occupied</p> <p>1ha grassland used in relation to agricultural contracting business and occasional let to third party to overwinter sheep.</p>	<p>Land required: High</p> <p>Land required: 1.0ha; 100% of holding required for construction.</p> <p>Agricultural land required from one block north of Moor Lane for construction works and haul road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: High</p> <p>0.3ha; 30% of holding required.</p> <p>Agricultural land required from one block north of Moor Lane for Stockwell Heath embankment.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/53</p> <p>Lea Hall Farm</p> <p>Owner-occupied</p> <p>182ha beef and arable unit. Calves bought-in and raised to 18-months. Majority of land in arable production.</p> <p>Farm shoot run by a third party, farm cottage rented out.</p> <p>Land in ELS</p>	<p>Land required: High</p> <p>Land required: 44.7ha; 25% of holding required for construction.</p> <p>Agricultural land required from two blocks: an area north of Moor Lane for stockpile and haul road; and an area east and west of the B5013 Uttoxeter Road for Stockwell Heath Cutting satellite compound, stockpile and haul road.</p> <p>Severance: Medium. Access required via public highway to severed land.</p> <p>Disruptive effects: Low</p>	<p>Land required: Low</p> <p>16.7ha; 9% of holding required.</p> <p>Agricultural land required from two blocks: an area north of Moor Lane for HS2 main line; and an area east and west of the B5013 Uttoxeter Road for HS2 main line, landscape earthworks, balancing pond and habitat creation.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Infrastructure: Negligible</p>
<p>CA1/54</p> <p>Hamley House Farm</p> <p>Owner-occupied</p> <p>16ha sheep farm with 75 ewes. Land not grazed by sheep in the summer cut for hay.</p>	<p>Land required: High</p> <p>Land required: 5.0ha; 31% of holding required for construction.</p> <p>Agricultural land required from one block north of Moor Lane for stockpile and haul road.</p> <p>Severance: High</p> <p>Parcel of land severed by scheme with no access available.</p> <p>Disruptive effects: Low</p>	<p>Land required: Medium</p> <p>1.7ha; 11% of holding required</p> <p>Agricultural land required from one block north of Moor Lane for HS2 main line and landscape mitigation planting.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Infrastructure: Negligible</p>
<p>CA1/55</p> <p>Little Dunstal Farm</p> <p>Owner-occupied and AHA agreement</p> <p>87ha dairy and sheep unit: located away from Proposed Scheme. 130-cow milking herd plus replacements and 200 ewes. Caravan site/rallies also located at the main farm.</p> <p>Land in mid-tier Countryside Stewardship.</p>	<p>Land required: Negligible</p> <p>Land required: 3.9ha; 5% of holding required for construction.</p> <p>Agricultural land required from one block east of the B5013 Uttoxeter Road for construction works.</p> <p>Severance: High</p> <p>Parcel of land severed by scheme with no access available.</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>2.9ha; 3% of holding required.</p> <p>Agricultural land required from one block east of the B5013 Uttoxeter Road for B5013 Uttoxeter Road highway re-alignment.</p> <p>Severance: Low</p> <p>Access required via private way to severed land.</p> <p>Infrastructure: Negligible</p>
<p>CA1/56*</p> <p>Hamley Cottage Farm</p> <p>20ha beef and sheep unit.</p>	<p>Land required: Negligible</p> <p>Land required: 0.9ha; 5% of holding required for construction.</p> <p>Agricultural land required from one block east of the B5013 Uttoxeter Road.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p><0.1ha; <1% of holding required.</p> <p>Agricultural land required from one block east of the B5013 Uttoxeter Road for landscape mitigation planting.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/57*</p> <p>Land at Jonghams Lane</p> <p>2ha grassland.</p>	<p>Land required: High</p> <p>Land required: 1.0ha; 50% of holding required for construction.</p> <p>Agricultural land required from one block west of B5013 Uttoxeter Road.</p> <p>Severance: Low; Access expected to be maintained during the construction phase.</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Agricultural land required from one block west of B5013 Uttoxeter Road for grassland habitat creation - to remain in agricultural use.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

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Holding reference, name and description	Temporary effects	Permanent effects
<p>CA1/58</p> <p>Lount Farm</p> <p>52ha beef unit. Approximately 60 beef cattle bought-in at two years old and reared to finishing.</p> <p>Land in ELS, HLS (Species-rich semi natural pasture) and 3ha of woodland in Woodland Grant Scheme.</p>	<p>Land required: High</p> <p>Land required: 14.8ha; 29% of holding required for construction.</p> <p>Agricultural land required from one block east and west of Moreton Brook for construction works, Moreton Brook viaduct satellite compound and National Grid power line works.</p> <p>Severance: Medium</p> <p>Access required via public highway to severed land.</p> <p>Disruptive effects: Low</p>	<p>Land required: Medium</p> <p>9.2ha; 18% of holding required.</p> <p>Agricultural land required from one block east and west of Moreton Brook for HS2 main line and habitat creation.</p> <p>Severance: Low</p> <p>Access required via private way to severed land.</p> <p>Infrastructure: Negligible</p>
<p>CA1/59</p> <p>Oakfields Farm</p> <p>Owner-occupied</p> <p>113ha beef, sheep and arable unit. 50-cow suckler herd including followers, 270 ewes.</p>	<p>Land required: Negligible</p> <p>Land required: 1.1ha; 1% of holding required for construction.</p> <p>Agricultural land required from one block east of Moreton Brook for National Grid power line works.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>
<p>CA1/60*</p> <p>Hanch Hall Farm</p> <p>40ha beef unit.</p>	<p>Land required: Negligible</p> <p>Land required: 2.0ha; 5% of holding required for construction.</p> <p>Agricultural land required from two blocks either side of B5014 for National Grid power line works and access track.</p> <p>Severance: Negligible</p> <p>Disruptive effects: Negligible</p>	<p>Land required: Negligible</p> <p>0.0ha; 0% of holding required.</p> <p>Severance: Negligible</p> <p>Infrastructure: Negligible</p>

* No Farm Impact Assessment interview conducted; data estimated.

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