



OAKLANDS FARM SOLAR PARK

Applicant: Oaklands Farm Solar Ltd

Environmental Statement

Appendix 3.1a – Agricultural Land and Sequential Study

January 2024

Document Ref: EN010122/APP/6.1/Appx 3.1a

Revision: -

Planning Act 2008

Infrastructure Planning (Application: Prescribed Forms and Procedure) Regulations 2009 - 5(2)(a)



Oaklands Farm Solar Park - Environmental Statement Volume 3

Appendix 3.1a: Agricultural Land and Sequential Study

Final report

Prepared by LUC

January 2024

BayWa

Agricultural Land & Sequential Study

Oaklands Farm Solar Park NSIP

Final report
Prepared by LUC
August 2020



BayWa

Agricultural Land & Sequential Study Oaklands Farm Solar Park NSIP

Project Number
11185

Version	Status	Prepared	Checked	Approved	Date
1.	Draft	L. McGowan, E. White, B. Packham	H. Kent	H. Kent	06.08.2020
2.	Final	L. McGowan, E. White, B. Packham, C Peachey	H Kent	H. Kent	19.08.2020

Contents

Chapter 1	
Introduction and Scope of Study	1
Phase 1: Identifying Broad Search Areas	1
Phase 2: Detailed Analysis of Broad Areas	2
Exclusions	2

Chapter 2	
Results of Phase 1 and Phase 2	3
Phase 1: Identifying Broad Search Areas - Desktop Study Results	3
Point of Connection Distance	3
Phase 2: Detailed Analysis of Broad Areas	4
Agricultural Land Quality	4
Landscape and Planning Review	5
Brownfield Land Register	11
Drakelow Power Station and Surrounding Area	11

Chapter 3	
Conclusions	13
Agricultural Land Quality	13
Planning Review	13
Landscape Review	14
Summary and Conclusions	14

Appendix A	
Solar Site Search GIS Constraints	A-1

Appendix B	
Aerial Views of Sites 1-5	B-1

Appendix C	
Kernon Countryside Consultants Potential Agricultural Land Quality Report	C-1

Chapter 1

Introduction and Scope of Study

Scope of Study

1.1 LUC have been appointed by BayWa to undertake a two phased study of agricultural land and sequential land review in relation to the proposed Oaklands Farm Solar Park development.

1.2 The Sequential Study seeks to determine whether there are any sequentially preferable sites on lower quality agricultural land and previously developed land, within a 10km radius of the proposed grid connection point for Oaklands Farm Solar Park.

1.3 Based on discussions with BayWa, a 10km study area around the grid connection point has been deemed appropriate for the study based on economic feasibility. Whilst it is noted that BayWa consider that a grid connection which is more than 4km from the solar park may be uneconomical, we suggest initially targeting a 10km radius study area from the grid connection point, to demonstrate to decision-makers and consultees that a flexible approach has been taken. This could be reduced at a later date.

1.4 The results of the study will be used to help to assess whether the Oaklands Farm site location which includes Best and Most Versatile Land will present a significant planning risk, due to the planning policy requirement¹ to preferably use land in areas of poorer quality (grades 3b, 4 and 5).

Phase 1: Identifying Broad Search Areas

1.5 Phase 1 of the study identify broad search areas within the 10km Study Area, by identifying exclusion zones due to relatively hard physical constraints (e.g. flood zones, woodland, developed land), as well as landscape, biodiversity and heritage designations.

Phase 1 Methodology

1.6 GIS data and tools have been used to ascertain constraint free areas within the study area that are theoretically suitable for development. A full list of constraints is presented in Appendix A.

¹ Overarching National Policy Statement for Energy (EN-1) para. 5.10.8; Planning Practice Guidance (Ref: ID: 5-013-20150327); National Planning Policy Framework para. 170 (b)

1.7 Areas of constraint and associated buffers were identified using a range of datasets across several themes.

1.8 All constraints identified using the tool were then combined to determine those areas that were not considered suitable for development. The constrained areas were removed from the study area.

1.9 Two sifting exercises were then conducted on the remaining areas to identify continuous, constraint free areas within the Study Area which met the following area thresholds:

- Areas that could potentially accommodate a similar development to the proposed Oaklands Farm site. To achieve this, a threshold of 90% of the proposed site area was set, which is 154.8ha. Areas that were irregularly shaped or divided by numerous constraints were not considered further. A visual assessment was undertaken whereby some constraint free areas that were adjacent to those identified by the tool and did not on their own meet the size threshold were combined with the areas identified by the tool. The boundaries of the areas identified were then refined using aerial imagery to follow obvious field boundaries and other physical constraints such as amenity areas for housing and other obstructive land uses. The resulting sites were labelled 1-5.
- Areas which could potentially accommodate smaller solar farm developments were identified. To achieve this, a threshold of 30% of the proposed site area was set, which is 51.6ha. Areas that were irregularly shaped or divided by numerous constraints were not considered further. The remaining areas identified by the tool were given generalised boundaries that may encompass areas of constraint but have a continuous, constraint free area within each that is in excess of the 30% threshold. Some of these areas have been combined, such as AOS5 to simplify the Phase 2 process. These areas were labelled AOS1 – 11.

1.10 The remaining areas were subject to further detailed analysis in Phase 2.

Phase 2: Detailed Analysis of Broad Areas

Phase 2 Methodology

1.11 Phase 2 involved a detailed study of the areas identified in phase 1 to consider further constraints and identify whether any alternative areas are likely to be on lower quality agricultural land or previously-developed land. This involved a review of five sites that met the 90% threshold and eleven sites that met the 30% threshold.

1.12 Phase 2 work focused on identifying further constraints as identified in Appendix A and determining suitable grid

connection routes and distances to the point of connection using the existing road network.

1.13 This phase has included a detailed desk based agricultural land quality analysis of the remaining areas by Tony Kernon (Kernon Consultants Ltd). This has taken into account:

- Soils and other climatic data sets.
- The provisional ALC maps from the 1970s, and the “predictive BMV” ALC maps (2017).
- A review of planning application registers and any available ALC data within the study area that is not shown on the DEFRA (MAGICMaps) website.
- A review of aerial photography and Streetview images to assess land use and farming practices.

1.14 The Phase 2 review has also considered the following additional constraints:

- A high-level criteria-based landscape and visual assessment to assess whether the alternative areas identified by the GIS study would be within a more or less sensitive landscape character area.
- Presence of existing land uses such as recreation and sport, education, military etc.
- Allocations by the local planning authority and planning permissions for residential, commercial or infrastructure.
- Local designations in the Local Plan.
- Review of Brownfield Land Registers in South Derbyshire District Council, East Staffordshire Borough Council, Litchfield District Council and North West Leicestershire District Council.

1.15 An additional task has been undertaken to identify any of the broad areas which are more than 4km from the grid connection point, via existing roads (results in **Table 2.1**).

Exclusions

1.16 The study has not included the potential for solar PV within built up urban areas or on rooftops as they are not considered an economically viable or practical alternative to a ground-based solar scheme of the size proposed.

1.17 It is assumed that BayWa would provide a view on the economic viability of any remaining areas. However, the road distance to the areas will be provided, to assist BayWa in ascertaining the likely costs of the cable route.

Chapter 2

Results of Phase 1 and Phase 2

Phase 1: Identifying Broad Search Areas - Desktop Study Results

2.1 After this exercise five sites that met the 90% threshold (shown as Sites 1-5 in Figure 1) and eleven sites that met the 30% threshold (shown as areas of search AOS1-AOS11 in Figure 1) were taken forward for further consideration in Phase 2.

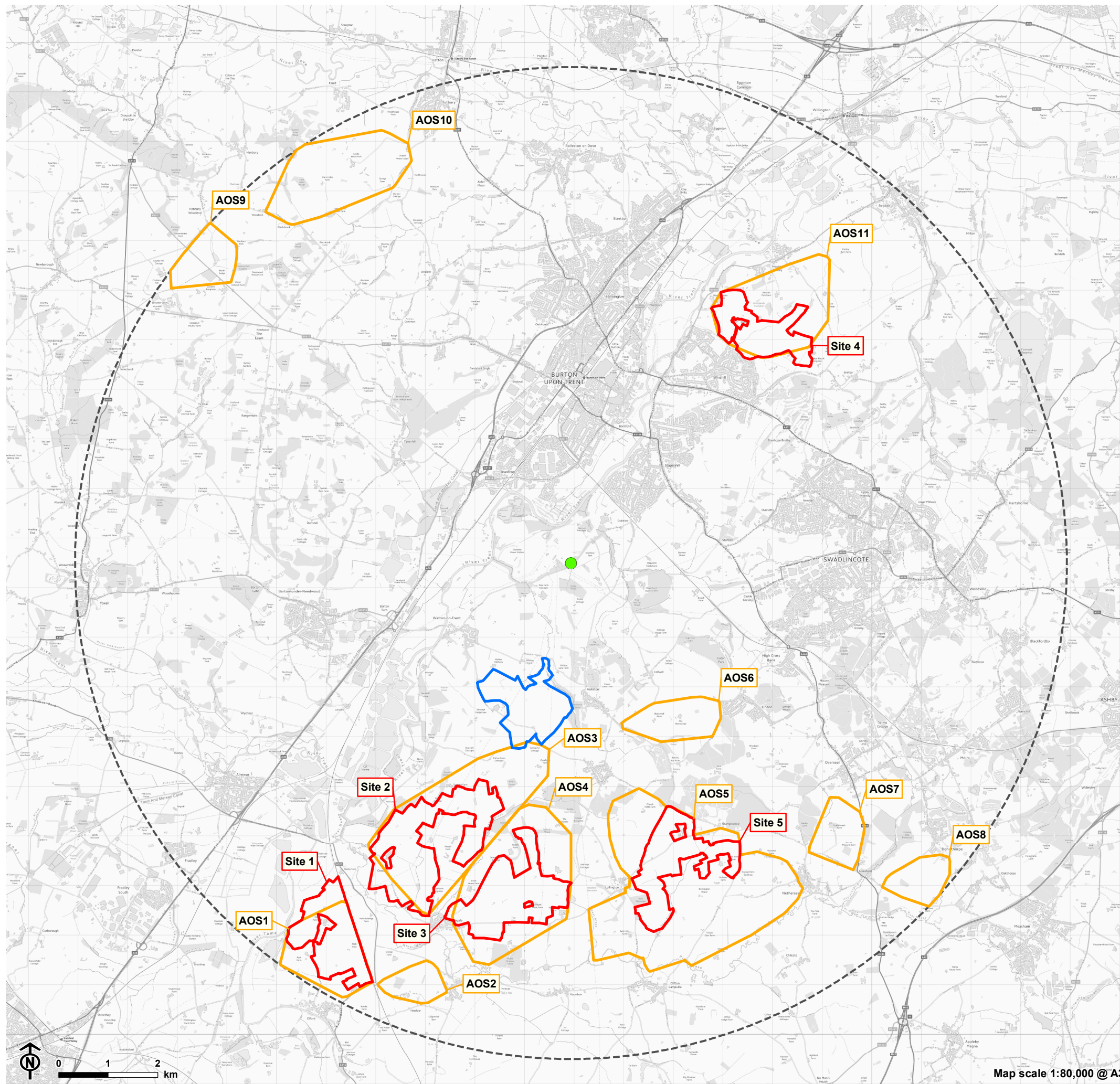
2.2 Sites labelled 1-5 have been taken from the developable area dataset and drawn up against aerial imagery to follow obvious field boundaries and other physical constraints, such as amenity areas for housing and other obstructive land uses. These were not considered as a constraint when identifying areas that are suitable for development, due to a lack of a comprehensive and accurate dataset. These sites may include some constraint free areas that were omitted in the first sifting exercise, due to not meeting the size threshold, but were deemed appropriate to include upon further analysis and combined with a larger area that met the threshold. Aerial views of Sites 1-5 are shown in **Appendix B**.

2.3 Areas labelled AOS1 – 11 have been derived from the constraint free area but have been given generalised boundaries, that may encompass areas of constraint but have a continuous, constraint free area within each that is in excess of the 30% threshold. Some of these areas have been combined, such as AOS5, this was done to simplify the Phase 2 process.

Point of Connection Distance

2.4 As noted above, we have identified the distances from each of the sites reviewed (90% threshold sites and the 30% threshold sites) to the point of connection using the existing road network. It has been identified that there are no sites within a 4km distance of the connection point. **Table 2.1** below provides the results of this connection point review.

Figure 1: Proposed Alternative Sites



- Proposed Site Boundaries for large sites (154ha and above)
- Proposed Areas of Search for small sites (52ha and above)
- 10km Point of Connect study area
- Point of Connection
- Proposed Oaklands Farm Site Boundary (172ha)



Map scale 1:80,000 @ A3

Table 2-1: Point of Connection Distances

Site Ref/Number	Total Site Area (ha)	Size of Constraint free zone within search area (ha)	Point of Connection (km)
AOS1	225.2	117	14.2
AOS2	75.9	55	14.6
AOS3	602.6	368.4	5.6
AOS4	523.7	412.4	9.3
AOS5	948.5	765.7	7.9
AOS6	131.1	106.5	4.6
AOS7	108.3	77	10.9
AOS8	90.4	77.9	12.6
AOS9	115.9	87.2	13.8
AOS10	347.9	235.9	15.2
AOS11	345.6	235.5	9.7
Site 1	182.847	N/A	14.692
Site 2	312.363	N/A	11.633
Site 3	245.341	N/A	11.059
Site 4	155.929	N/A	8.275
Site 5	202.238	N/A	7.775

Phase 2: Detailed Analysis of Broad Areas

Agricultural Land Quality

2.5 Following the outcome of the Phase 1 desk based study, a number of sites were identified (five 'larger' sites, and eleven 'small' areas of potential development (AOS1-AOS11)) which were reviewed by Kernon Countryside Consultants to identify whether any of these identified sites are located on unconstrained land on lower quality agricultural land.

2.6 The potential agricultural land quality report prepared by Kernon Countryside Consultants is provided in **Appendix B** of this report.

2.7 The following summaries were made in relation to the five larger sites which have been reviewed.

Site 1

2.8 Much of the ground immediately north of Elford is covered with river terrace deposits which give deep light loamy and sandy soils with variable amounts of stone. Around Elford Park there is less drift and soils are formed in the underlying sandstone and mudstone, albeit with an element of drift forming the surface and immediate subsoil layers. Given the evidence from detailed surveys on similar materials on the west side of the river Tame (Wyemoor Haye) ground near the village will be of moderate (Subgrade 3b) quality with moderately droughty and stony soils. Narrow strips of alluvial soils have wet heavy textured soils of similar quality and will cover of the order of 25% of the area. On the rest of the ground soil wetness will be a limitation to land quality with slow subsoil permeability giving mainly seasonally wet (Wetness Class III) soils with medium loamy or silty topsoils and land of Subgrade 3a quality. The area of subgrade 3a will be an estimated 55% of the area. The remaining 20% of the ground will have slightly wet (Wetness Class II) loamy over clayey soils and likely to be placed in the Grade 2 category.

2.9 The small-scale soil survey information (SSEW *op cit*) shows soils of the Wick association on the river terraces and loamy over clayey soils of the Brockhurst association over the rest of the ground, which broadly indicates the separation of the 3a and 3b quality.

2.10 Accordingly, it is predicted that the land quality will be 15-25% Grade 2, 50-60% Grade 3a and 20-30% Grade 3b.

2.11 Site 1 is thus expected to comprise a mixture mostly of Subgrades 3a and 3b.

Site 2

2.12 This area of land is mainly drift free with mudstone interbedded locally with siltstone forming the parent materials. A small area of sandstone occurs on the east side of Catton Wood to give some contrast to the parent materials on site. The small area of sandstone will give mainly freely drained soils which are slightly droughty and, depending on the depth to hard rock soils will be mainly of very good (Grade 2) quality covering about 15% of the area. For most of the rest of the land soils are variable with medium silty over clayey profiles interspersed with medium land light loamy soils on siltstone or sandstone which are slightly droughty, giving mainly Subgrade 3a land. Small areas of Grade 2 will occur on the slightly better drained patches over the mudstone parent materials.

2.13 Site 2 is expected to comprise a mixture mostly of Grades 2 and 3a, being 10-20% Grade 2 and the rest Grade 3a

Site 3

2.14 Sited mainly over mudstone and areas of siltstone the soil information indicates soils of the Whimple and Brockhurst association in this area. Profiles are loamy or silty over clayey with slow subsoil permeability and seasonal wetness (Wetness Class III), which will give mainly land of Subgrade 3a quality covering about half the site. A small valley east of Brookhouse Farm has some wet, heavy textured alluvial soils and mixed wet soils in Head to give a small area of land of poorer (Subgrade 3b) quality covering about 30% of the area. About 20% of the area will be slightly wet loamy or silty over loamy soils expected to fall into the Grade 2 category.

2.15 Site 3 is thus expected to comprise a mixture with about 15-25% Grade 2, 45-55% subgrade 3a and 25-35% subgrade 3b.

Site 4

2.16 All this land is over sandstones and siltstones of the Tarporley siltstone formation. Soils are mainly silty or light loamy texture with areas of heavier subsoil material creating slow permeability and resulting in slightly wet soil conditions from late autumn until early spring. (Wetness Class II and III). Wetness and a lack of available water are the principal limitations to land quality with both Grade 2 (20-30%) and Subgrade 3a (70-80%) quality land represented over this undulating site.

2.17 The soil information (SSEW *op cit*) shows soils of the Whimple association over all this land.

2.18 Site 4 is thus expected to comprise a mixture of Grade 2 and Subgrade 3a.

Site 5

2.19 This area has more variable parent materials than the other sites previously described with boulder clay and head covering the underlying mudstones in places. Land immediately east and south of the village sitting above the valley of Seal Brook has a sand and gravel cover and has stony, droughty soils mainly of Subgrade 3b quality. The valley of the Seal Brook has soils developed in Head and alluvium and wetness, here, is the principal limitation to land quality with this strip of ground also mainly of Subgrade 3b quality. Approximately half the area is expected to be of subgrade 3a.

2.20 Soils developed in till in the north and east of the site have predominantly loamy over clayey soils which are seasonally wet (Wetness Class III) and will be covered by a Subgrade 3a classification, as is much of the rest of the land situated over the *in situ*, basal rocks. Approximately half the area is expected to be of subgrade 3a.

2.21 Site 5 is therefore expected to comprise a mixture of Subgrades 3a (45-55%) and 3b (45-55%).

Conclusions

2.22 Of the five larger sites for which a more in-depth analysis has been carried out, the estimated land quality mix is as follows, with the soil survey results for Oaklands Farm site shown for comparison:

Table 2-2 Agricultural Review Summary

Site	ALC Grade by %			
	2	3a	3b	% BMV (Median)
Oaklands Farm	23	44	33	67
Site 1	15-25	50-60	20-30	75
Site 2	10-20	80-90	0	100
Site 3	15-25	45-55	25-35	70
Site 4	20-30	70-80	0	100
Site 5	0	45-50	45-55	50

2.23 Of the smaller sites reviewed, Sites AOS9 and AOS10 are expected to be generally lower quality than the land to the east, both expected to be about 30% BMV with 70% poorer quality land.

2.24 On the basis of the five site reviews, sites 1 and 3 have been identified as having a similar proportion of BMV land as the Oaklands Farm site, with Site 5 having a lower proportion. Of the smaller sites, AOS9 and AOS10 are expected to have a lower proportion of BMV land. In this regard, sites 1, 3 and 5 along with AOS9 & AOS10 will be reviewed further in relation to landscape and planning.

Landscape and Planning Review

2.25 Table 2.3 below provides a summary of the agricultural, landscape and planning review for the sites identified above.

Table 2-3: Landscape and Planning Review

Site No.	Site Size (ha)	Distance from Connection Point (km)	Agricultural Classification	Landscape Character Analysis	Planning Policy Review	Planning Applications/Permissions
1	182.847	14.692	<p>mix of mostly Subgrades 3a and 3b</p> <p>75% BMV (median)</p>	<p><u>Landscape Character</u></p> <p>Located within the Estate Farmlands LCT (<i>Update of Landscape Character, Lichfield District Council 2016</i>).</p> <p><u>Sensitivity</u>²</p> <p><i>"One of the special features of the Estate Farmlands is its rural, agricultural character. This is emphasised by the strongly nucleated settlement pattern and relatively few roads, giving this landscape a moderately high inherent sensitivity, relating primarily to the cultural dimension of the landscape. Visual sensitivity is also moderately high due to the relatively open, rolling nature of the landform and the general lack of woodland cover.</i></p> <p><i>Inherent</i>³: moderate</p> <p><i>Visual: moderate"</i></p> <p><u>Landscape Designations</u></p> <p>Does not lie within a national or local landscape designation. Also located outside of the National Forest.</p> <p><u>Initial Observation</u></p> <p>Site comprises low-lying ground adjacent to the River Tame which would limit the extent of visibility of a solar development. However, as per the sensitivity description, there is a lack of woodland / tree groups within the vicinity of the site, resulting in potentially open views towards a development.</p>	<p>Litchfield District Council only</p> <p>River Mease SAC Water Catchment. Would require an assessment under the Habitat Regulations</p> <p>Designated Neighbourhood Plan Area: Elford but no commentary on the site area.</p> <p>The site may overlap slightly on its western edge with policies on the Central Rivers Initiative and Wind Energy Areas of Opportunity</p> <p>Policy SC2: Renewable Energy</p>	<p>No applications or permissions on the site in the last 5 years.</p> <p>Neighbouring farm buildings have sought permissions for various including alterations to Listed Buildings.</p> <p>Current land use appears to be agricultural land⁴.</p>

² Described in *Update of Landscape Character, Lichfield District Council 2016*

³ Inherent sensitivity considers the ecological and cultural sensitivity of the landscape.

⁴ Google Aerial review

Site No.	Site Size (ha)	Distance from Connection Point (km)	Agricultural Classification	Landscape Character Analysis	Planning Policy Review	Planning Applications/Permissions
3	245.341	11.059	<p>mix of mostly Subgrade 3a with smaller areas of Subgrade 3b</p> <p>70% BMV (median)</p>	<p><u>Landscape Character</u></p> <p>Mostly located within the Estate Farmlands LCT (<i>Update of Landscape Character, Lichfield District Council 2016</i>).</p> <p>Eastern part of the site located within Village Estate Farmlands LCT (<i>The Landscape Character of Derbyshire - published 2003, updated 2013</i>).</p> <p><u>Sensitivity</u>⁵</p> <p><i>"One of the special features of the Estate Farmlands is its rural, agricultural character. This is emphasised by the strongly nucleated settlement pattern and relatively few roads, giving this landscape a moderately high inherent sensitivity, relating primarily to the cultural dimension of the landscape. Visual sensitivity is also moderately high due to the relatively open, rolling nature of the landform and the general lack of woodland cover.</i></p> <p><i>Inherent</i>⁶: moderate</p> <p><i>Visual</i>: moderate"</p> <p><u>Areas of Multiple Environmental Sensitivity (AMES)</u>⁷</p> <p>The eastern part of the site (located within South Derbyshire District) falls within a 'least sensitive' area.</p> <p><u>Landscape Designations</u></p> <p>Does not lie within a national or local landscape designation. Located entirely within the National Forest.</p> <p><u>Initial Observation</u></p> <p>Site comprises sloping ground that rises up to local high points within the north-eastern part of the site. Potential for relatively extensive visibility, particularly as field boundary hedgerows appear to be low and there is a lack of woodland / tree</p>	<p>Litchfield District Council</p> <p>National Forest (core policy 1, 13, 14, policies SC2, NR3, Air1, NR11) The Council looks to support the safeguarding of ecological networks including restoration and creation of new habitats, etc through opportunities provided in the National Forest. Restoration and creation of habitats should be in line with the National Forest Biodiversity Action Plan.</p> <p>Policy SC2: Renewable Energy</p> <p>River Mease SAC Water Catchment. Would require an assessment under the Habitat Regulations.</p> <p>South Derbyshire District Council</p> <p>No other designations on the Southern Villages Area policies map other than INF8: The National Forest (all of the Southern Villages Area is covered by this designation).</p> <p>Policy SD6: Sustainable Energy and Power Generation.</p>	<p>No applications or permissions on the site in the last 5 years (Litchfield).</p> <p>One application in the red line boundary for 2 wind turbines (57.64m) withdrawn in 2016 (9/2015/0737). No further applications within the boundary. (South Derbyshire)</p> <p>Current land use appears to be agricultural land⁸.</p>

⁵ Described in *Update of Landscape Character, Lichfield District Council 2016*

⁶ Inherent sensitivity considers the ecological and cultural sensitivity of the landscape.

⁷ Information provided in *The Landscape Character of Derbyshire - published 2003, updated 2013*

⁸ Google Aerial review

Site No.	Site Size (ha)	Distance from Connection Point (km)	Agricultural Classification	Landscape Character Analysis	Planning Policy Review	Planning Applications/Permissions
				groups within the vicinity of the site. Adjacent to the settlement of Edingale which will be a key visual receptor.		
5	202.238	7.775	<p>mix of mostly Subgrades 3a and 3b</p> <p>50% BMV (median)</p>	<p><u>Landscape Character</u></p> <p>Village Estate Farmlands LCT (<i>The Landscape Character of Derbyshire - published 2003, updated 2013</i>).</p> <p><u>Areas of Multiple Environmental Sensitivity (AMES)</u>⁹</p> <p>The site falls entirely within a 'least sensitive' area.</p> <p><u>Landscape Designations</u></p> <p>Does not lie within a national or local landscape designation. Located entirely within the National Forest.</p> <p><u>Initial Observation</u></p> <p>Most of the site comprises higher ground which could result in visibility from the surrounding area. There are however woodland / tree groups within the vicinity of the site and a large area of woodland to the north which would assist in providing visual screening to a solar development. Adjacent to the settlement of Lullington which will be a key visual receptor.</p>	<p>South Derbyshire District Council</p> <p>No other designations on the Southern Villages Area policies map other than INF8: The National Forest (all of the Southern Villages Area is covered by this designation).</p> <p>Policy SD6: Sustainable Energy and Power Generation</p>	<p>Southern part of the site has consent for the change of use from agricultural land to use as a fishing pond (9/2004/0654) granted in 2004.</p> <p>Within the site, an application for the Construction of an earth banked slurry lagoon to serve dairy farm was withdrawn in 2012 (9/2012/0687).</p> <p>Within the site, Formation of commercial fishing pond (9/2005/0725) permitted 2005.</p> <p>Various householder and agricultural apps in the surrounding area. Including prior approval for forestry tracks to the north of the site.</p> <p>Current land use appears to be agricultural land¹⁰.</p>
AOS9/ AOS10	115.9 (AOS9) 347.9 (AOS10)	13.8 (AOS9) 15.2 (AOS10)	Mostly 3b, with a smaller proportion of 3a	<p><u>Landscape Character</u></p> <p>AOS9 is within the Surveyor enclosed plateau farmlands LCT. The eastern half of ASO10 is within the Settled plateau farmland slopes LCT and the western half is within the Settled Plateau Farmlands Estates LCT (<i>Planning for Landscape</i></p>	<p>East Staffordshire Borough Council</p> <p>AOS9:</p> <p>Site contains an area of Biological importance: policy</p>	<p>Within the AOS9 site:</p> <p>Permission granted for a 8.6m high wind turbine (PA/07850/003/J1) 2009.</p>

⁹ Information provided in *The Landscape Character of Derbyshire - published 2003, updated 2013*

¹⁰ Google Aerial review

Site No.	Site Size (ha)	Distance from Connection Point (km)	Agricultural Classification	Landscape Character Analysis	Planning Policy Review	Planning Applications/Permissions
				<p><i>Change: Supplementary Planning Guidance to the Staffordshire and Stoke on Trent Structure Plan 1996 – 2011 Landscape Descriptions)</i></p> <p>Sensitivity¹¹</p> <p>The western half of AOS10 falls within an 'area of highest sensitivity'.</p> <p>Landscape Designations</p> <p>Both sites do not lie within a national or local landscape designation. AOS9 is located within the National Forest, AOS10 is not.</p> <p>Initial Observation</p> <p>AOS9 comprises a small site and is crossed centrally by the Mare Brook resulting in slopes to gently rise to both the north and south. Although this would result in there being some visibility of a solar development (particularly if located on the higher parts of the slopes in the north and south), the site is generally of a lower-lying elevation in comparison to the surrounding area. Furthermore, there a several woodland / tree groups, and treelined hedgerows within the vicinity of the site which would assist in providing screening to development.</p> <p>AOS10 is a larger site comprising gently undulating topography with more complex landform in the north at Stonepit Hills. The site generally forms the upper slopes to the River Dove. It is likely that development within the site would result in visibility from across the valley to the north. There are some woodland / tree groups that would assist in providing screening to development. The site is crossed by a number of PRoWs and lies adjacent to the settlement of Tutbury which will be key visual receptors.</p>	<p>SP29 (association with pockets of woodland)</p> <p>Site within the National Forest: policy SP26</p> <p>Policy SP28: Renewable and low Carbon Energy Generation</p> <p>AOS10:</p> <p>Site contains an area of Biological importance: policy SP29 (association with pockets of woodland)</p> <p>Adjoins an area of geological importance: policy SP29</p> <p>On edge of the National Forest: policy SP26</p> <p>Policy SP28: Renewable and low Carbon Energy Generation</p>	<p>Various householder/agricultural approvals</p> <p>On boundary of AOS9:</p> <p>Permission for change of use of disused buildings to dog kennels (CU/16856/001) 2015</p> <p>12,000 bird free range egg unit approved (DC/18918/005/CEH) 2009</p> <p>Agricultural buildings to ice cream manufacturing unit (CU/18918/001) 2010</p> <p>Current uses contained within AOS9 are largely agricultural with associated buildings, agricultural businesses and residential properties¹².</p> <p>Within site AOS10:</p> <p>Various householder/agricultural approvals (including Listed Building).</p> <p>Change of use of existing free range egg production units to Class B8 for storage of fireworks (P/2017/01345) 2017</p> <p>On boundary of AOS10:</p> <p>Various householder/agricultural approvals</p>

¹¹ Refer to Map 1: Landscape Policy Objectives in *Planning for Landscape Change: Supplementary Planning Guidance to the Staffordshire and Stoke on Trent Structure Plan 1996 – 2011 Supporting Documentation*

¹² Google Aerial review

Chapter 2
 Results of Phase 1 and Phase 2
 Agricultural Land & Sequential Study
 August 2020

Site No.	Site Size (ha)	Distance from Connection Point (km)	Agricultural Classification	Landscape Character Analysis	Planning Policy Review	Planning Applications/Permissions
						<p>Rolleston solar farm is located to the east of the site (P/2014/00830)</p> <p>Current uses contained within AOS10 are largely agricultural with associated buildings, agricultural businesses, residential properties and pockets of woodland¹³.</p>

¹³ Google Aerial review

Brownfield Land Register

2.26 In order to identify whether there are any areas of previously developed land in the 10km study area which are of a similar size but already identified as being suitable for residential development (and therefore hold a higher land value), we have reviewed the Brownfield Land Registers for the four Local Authority areas within the study area boundary;

- South Derbyshire District Council¹⁴
- East Staffordshire Borough Council¹⁵
- Litchfield District Council¹⁶; and
- North West Leicestershire District Council¹⁷.

2.27 In reviewing the above Brownfield Site Registers, we looked for only sites of 50ha or above.

2.28 It should be noted that in line with the Town and Country Planning (Brownfield Land Register) Regulations 2017 Local Authorities in England are required to prepare, maintain and publish registers of previously developed land within their area that they consider appropriate for residential development (brownfield land/site registers). Local planning authorities are required to publish their brownfield land registers and to review them at least once a year.

2.29 The Brownfield Land/Site Registers reviewed in this study are all the most up to date registers available from the four local authority areas, from 2019.

2.30 When reviewing the registers, it is noted that there are no sites of 50ha and above in either South Derbyshire District Council, East Staffordshire Borough Council or in North West Leicestershire District Council areas.

2.31 In Litchfield District Council there was one site over 50ha; Rugeley Power Station (83.76ha). There is currently a live planning application (19/00753/OUTMEI) submitted to Litchfield District Council seeking outline planning permission for a mixed use scheme which includes 2,300 residential units, 1.2ha of mixed use (Classes A1-A5, C1-C3, D1 and D2 uses), 5ha of employment land Class B1a, b and c and B2), school, open space, ground and roof mounted solar panels. The site has not been considered any further as it is located out with the 10km search area identified by this study.

2.32 Whilst slightly less than the 50ha criteria, it was also noted that there two areas identified in the Litchfield Brownfield Site Register, that, when combined together (they are located adjacent to one another) total 46ha and these two

sites lie just out with the 10km study area at Fradley Park. The sites are land at Halifax Avenue, Fradley (34ha) and the land off Gorse Lane, Fradley Park (12ha). The 34ha site is currently under construction for residential use and the 12ha site is subject to a live planning application for residential use (17/00686/OUTM). These sites have been discounted due to their size, distance and planning status which make the sites unviable options for development of a solar farm.

Drakelow Power Station and Surrounding Area

2.33 The Former Drakelow C Power Station is currently subject of an application to the County Council (reference CW9/0420/7) for the construction and operation of an 18MW Renewable Energy Centre and associated infrastructure. South Derbyshire District Council have raised no objections to the proposals. The application is still under consideration.

2.34 In 2018 permission was granted at the Power Station for the installation of up to 28 containerised gas fired standby generators with ancillary infrastructure (9/2017/1336).

2.35 In 2015 consent was granted for the creation of a solar park on land within the former power station (9/2015/0256) which is now constructed on site.

2.36 In 2007 an application for the construction and operation of a combined cycle gas turbine power station on the site of the former power station (Drakelow D) was granted permission by the Secretary for Energy and Climate Change under Section 36 of the Electricity Act 1989. A variation to the Section 36 consent was granted in January 2018 to approve a generating capacity of up to 1,220MW and the consent runs from 3 years from the date of the Section 36C variation (i.e. 3 years from 12th January 2018).

2.37 In the immediately surrounding area of the former power station site, the Local Plan for South Derbyshire (2017) identifies the following land use allocations (as per **Figure 2.1** below):

- Housing Allocation H6 – 2,239 homes and community uses, household waste centre. Planning permission has been granted and residential development constructed on the western edge of the site.
- Committed Employment Site E1F – 12 ha B Uses. Planning Permission has been granted for development.

¹⁴ <https://www.southderbyshire.gov.uk/our-services/planning-and-building-control/planning/planning-policy/monitoring>

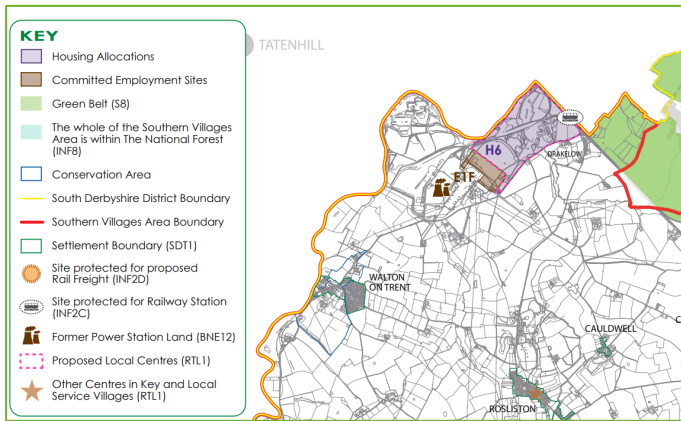
¹⁵ <https://www.eaststaffsbc.gov.uk/planning/planning-policy/brownfield-register>

¹⁶ <https://www.litchfielddc.gov.uk/evidence-base/brownfield-land-register/1>

¹⁷ https://www.nwleics.gov.uk/pages/brownfield_land_register

- Drakelow INF2C – Safeguarded Land for passenger Rail Station. No known applications for permission.

Figure 2.1: Extract from South Derbyshire Southern Villages Policy Map



Chapter 3

Conclusions

Agricultural Land Quality

3.1 Of the five larger sites for which a more in-depth analysis has been carried out, the estimated land quality mix is as follows, with the soil survey results for Oaklands Farm site shown for comparison:

Table 3-1 Agricultural Review Summary

Site	ALC Grade by %			
	2	3a	3b	% BMV (Median)
Oaklands Farm	23	44	33	67
Site 1	15-25	50-60	20-30	75
Site 2	10-20	80-90	0	100
Site 3	15-25	45-55	25-35	70
Site 4	20-30	70-80	0	100
Site 5	0	45-50	45-55	50

3.2 Of the smaller sites reviewed, Sites AOS9 and AOS10 are expected to be generally lower quality than the land to the east, both expected to be about 30% BMV with 70% poorer quality land.

3.3 On the basis of the five site reviews, sites 1 and 3 have been identified as having a similar proportion of BMV land as the Oaklands Farm site, with Site 5 having a lower proportion. Of the smaller sites, AOS9 and AOS10 are expected to have a lower proportion of BMV land. In this regard, sites 1, 3 and 5 along with AOS9 & AOS10 have been reviewed further in relation to landscape and planning.

Planning Review

3.4 In planning policy terms, the sites reviewed through Phase 2 are all fairly similar in nature and there are no obvious 'show stoppers' in terms of land designations in the adopted Local Plans or any approved development within or

immediately adjacent to the sites that would indicate that development of a solar farm would be unduly restricted.

3.5 Site AOS9 and AOS10 would require giving greater consideration to the proximity to residential properties and local businesses, as the areas identified within AOS9 and AOS10 are quite active in terms of local businesses associated with agriculture and ancillary residential uses.

3.6 All sites would be subject to further detailed scrutiny through the planning application assessment and would need to be considered in terms of the relevant renewable energy policies (and all other relevant policies, e.g. biodiversity, historic environment, etc.).

Landscape Review

3.7 The high-level landscape and visual review has considered sites 1,3, 5 and AOS9 / AOS10.

3.8 Sites 1,3 and 5 are located within a similar landscape character type - either the Village Estate Farmlands LCT if located within the South Derbyshire District or the Estate Farmlands LCT if located within the Lichfield District. None of the sites are subject to any national or local landscape designations.

3.9 The different approaches to assessing sensitivity between South Derbyshire, Lichfield and East Staffordshire Districts, results in some inconsistency when comparing sites. Sites 1 and 3 (which mostly lie within the Lichfield District) are within a LCT that records a 'moderate' visual sensitivity, whereas Site 5 (within South Derbyshire District) is within a LCT considered to be a 'least sensitive area' within Derbyshire County's Areas of Multiple Environmental Sensitivity (AMES) assessment. This assessment considers biodiversity, historic environment, and visual unity collectively. The AOS10 site (within East Staffordshire District) is partly located within an 'area of highest landscape sensitivity' whereas the AOS9 site is not.

3.10 Overall, it is considered that all of the sites have the potential from a landscape and visual perspective of accommodating solar development, although the AOS10 site is likely to be more sensitive from a landscape perspective. Key receptors are likely to be local such as from surrounding roads, PRowS and nearby settlements. Careful design, siting and mitigation would need to be considered to minimise adverse effects upon landscape and visual receptors.

Summary and Conclusions

3.11 This Sequential Study has identified five sites which could accommodate a similar sized development to the Oaklands Farm proposal, within 10km of the grid connection. The search was extended to include smaller sites of at least

54ha. Phase 1 identified 5 larger sites and 11 smaller sites, some of which overlapped, as shown in **Figure 1**. These were taken forward for consideration of their agricultural land quality.

3.12 Four of the larger areas identified for further consideration were identified as being of similar or poorer agricultural quality when compared with the Oaklands Farm site, in terms of their likely proportion of Best and Most Versatile (BMV) Land (as shown in the table above). These areas (Sites 1, 3 and 5, as well as AOS9&10 considered together), were subject to further consideration of their landscape and planning policy context. This did not identify any particular 'show stoppers' in landscape or planning policy terms. However, AOS9&10 were identified as being slightly more sensitive in landscape and biodiversity terms than the other sites, including a local nature conservation designation and more sensitive landscape type.

3.13 Of those sites considered in more detail, the closest site to the grid connection was Site 5 at 7.7km away. AOS9&10 lie a significant distance away to the north west of Burton, and it is expected these sites would require an alternative grid connection. No sites were identified which are closer to the grid connection than Oaklands Farm.

3.14 In parallel a check of the local brownfield registers and the planning context of the Drakelow Power Station has been carried out; however, this has not identified any further potential sites.

Appendix A
Solar Site Search GIS
Constraints

GIS layers	Source	Notes
Background mapping		
OS Base Maps	LUC/ESRI	Use of free mapping on server and via ESRI
Aerial photography	ESRI	
Boundaries		
Local Authorities	OS	Relevant Local Authorities within 10km search area
Areas of Search	LUC	Within 10km of identified Grid Connection point.
Topography		
OS Terrain 5	OS	Used in Phase 1. Slope and Aspect tools used on data.
Slope	OS	Slopes below 7° considered suitable for development. Slopes >7° form part of the exclusion zone.
Aspect	OS	North-east to north-west aspects considered suitable for development. Aspects outside of this range form part of the exclusion zone.
Physical and Land Use		
Roads	OS	Added to exclusion zone in Phase 1. 10m Buffer for A roads, 5m for B roads and 2m for all other roads.
Rail	OS	Added to exclusion zone in Phase 1. 7.5m buffer applied.
Watercourses and Waterbodies	OS	Added to exclusion zone in Phase 1.
National Grid and DNO Overhead Lines	National Grid	Will influence the detailed design work of a site if overhead lines cross the landholding. Initial buffer of 1m to account for tool use. Buffers to be applied in Phase 2 once suitable sites are identified. 50m buffer for High Voltage lines, 15m for Medium Voltage lines.

Public Rights of Way	ROW Maps/LPA	Will influence the detailed design of a site if PRow within landholding. Initial buffer of 1m to account for tool use. Further buffers to be applied in Phase 2 once suitable sites are identified.
National Trails	Natural England	Will influence the detailed design of a site if PRow within landholding. Initial buffer of 1m to account for tool use. Further buffers to be applied in Phase 2 once suitable sites are identified. None in study area.
Airports and Airfields	CAA/NATS	Operational Airfields and Airports will form part of the exclusion zone in Phase 1. Any disused airfields will be considered suitable for development.
Agricultural Land Classification	Natural England	Not added to exclusion zone, dataset included for reference. Dataset to be treated as indicative and referred to in Phase 2.
National and regional cycle routes	Sustrans	Expected to follow roads so likely to have negligible impact. Buffers to be applied in Phase 2 once suitable sites are identified. 1m buffer for cycle routes.
Existing Renewable Energy Installations	BEIS/LUC	Location of site identified in Phase 1. Boundary of site to be added in Phase 2.
Other Land Use	Aerial Imagery/OS Mapping	Other land uses may include recreation and sport, education, military etc. Can determine using Google Earth/Aerial Imagery/OS Mapping.
Landscape and Historic environment		
AONB	Natural England	Added to exclusion zone in Phase 1. None in study area.
National Park	Natural England	Added to exclusion zone in Phase 1. None in study area.
Listed Buildings	English Heritage	Point dataset, approximated buffer of 5m used for buildings. Added to exclusion zone in Phase 1. Further detailed analysis in Phase 2.
Registered Parks and Gardens	English Heritage	Added to exclusion zone in Phase 1.

Scheduled Monuments	English Heritage	Added to exclusion zone in Phase 1.
World Heritage Sites	English Heritage	Added to exclusion zone in Phase 1. None in study area.
Registered battlefields	English Heritage	Added to exclusion zone in Phase 1. None in study area.
Biodiversity		
LNR	Natural England	Added to exclusion zone in Phase 1.
SSSI	Natural England	Added to exclusion zone in Phase 1.
Possible SAC	Natural England	Added to exclusion zone in Phase 1. None in study area.
SAC	Natural England	Added to exclusion zone in Phase 1.
Potential SPA	Natural England	Added to exclusion zone in Phase 1. None in study area.
SPA	Natural England	Added to exclusion zone in Phase 1. None in study area.
Ramsar	Natural England	Added to exclusion zone in Phase 1. None in study area.
Proposed Ramsar	Natural England	Added to exclusion zone in Phase 1. None in study area.

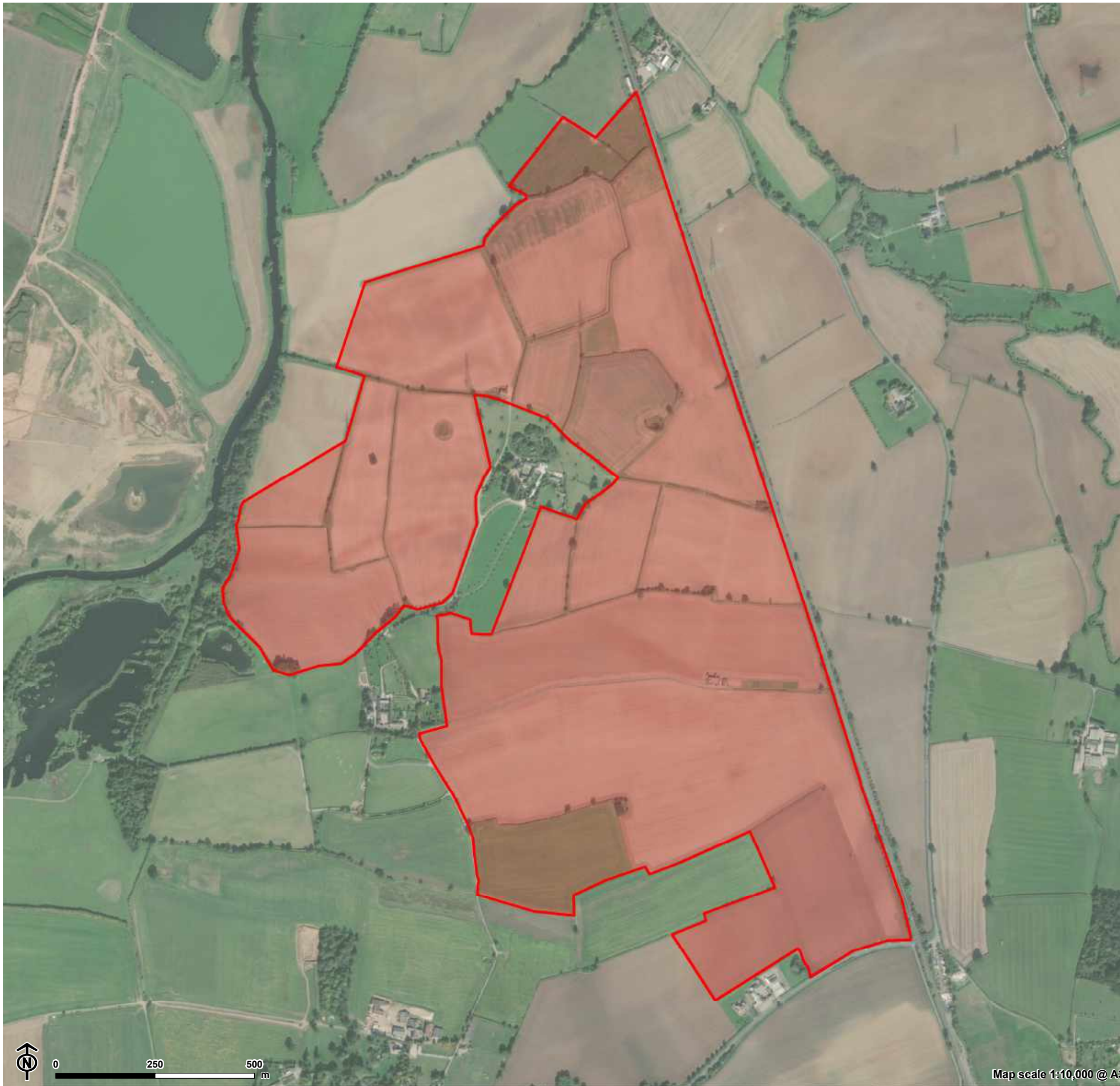
NNR	Natural England	Added to exclusion zone in Phase 1. None in study area.
Ancient woodland	Natural England	Added to exclusion zone in Phase 1.
National Forest Inventory	Forestry Commission	Added to exclusion zone in Phase 1. Non Woodland Category removed
RSPB reserves	RSPB	Added to exclusion zone in Phase 1. None in study area.
Flood zone 2	Environment Agency	Added to exclusion zone in Phase 1.
Flood zone 3	Environment Agency	Added to exclusion zone in Phase 1.
Common land	Natural England	Added to exclusion zone in Phase 1.
National trust open/restricted land	National Trust	Added to exclusion zone in Phase 1. None in study area.
Country Parks	Natural England	Added to exclusion zone in Phase 1
Planning		
Local Designations	Local Authority	To be considered during Phase 2. This includes any local landscape and ecological designations.
Past planning approvals and current applications	Local Authority	To be considered during Phase 2 for 5 Local authorities within 10km study area.

Appendix A
Solar Site Search GIS Constraints
Agricultural Land & Sequential Study
August 2020

Site allocations in local plan	Local Authority	To be considered during Phase 2 for 5 Local authorities within 10km study area.
Brownfield Register	Local Authority	To be considered for opportunities
Buildings	OS	Buffered by 10m and Added to exclusion zone in Phase 1

Appendix B

Aerial Views of Sites 1-5



Oaklands Farm Solar
BayWa

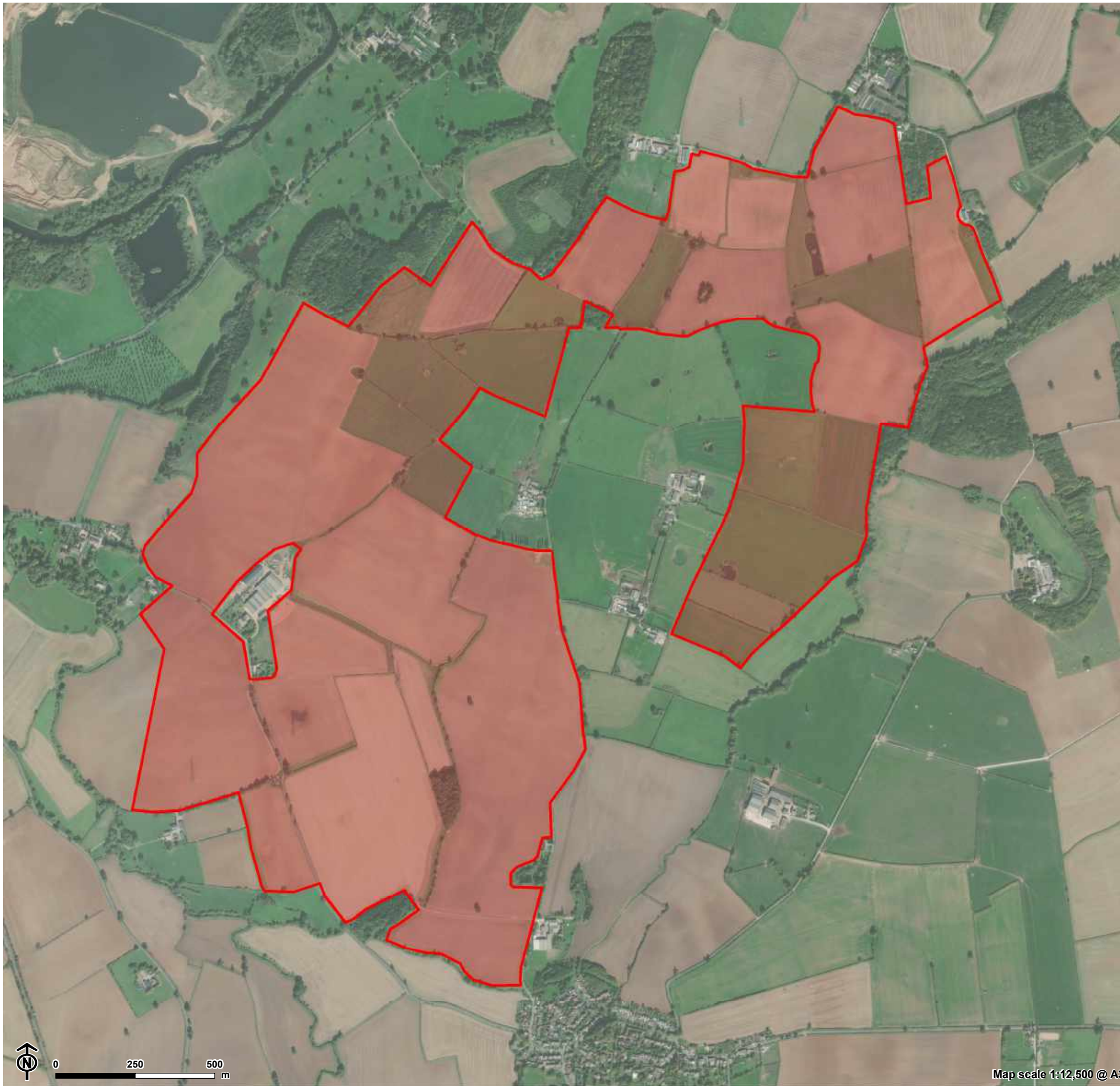


BayWa Alternative Sites

Site 1
Area: 182.847ha
Distance to Point of Connection: 7.87km



Map scale 1:10,000 @ A3



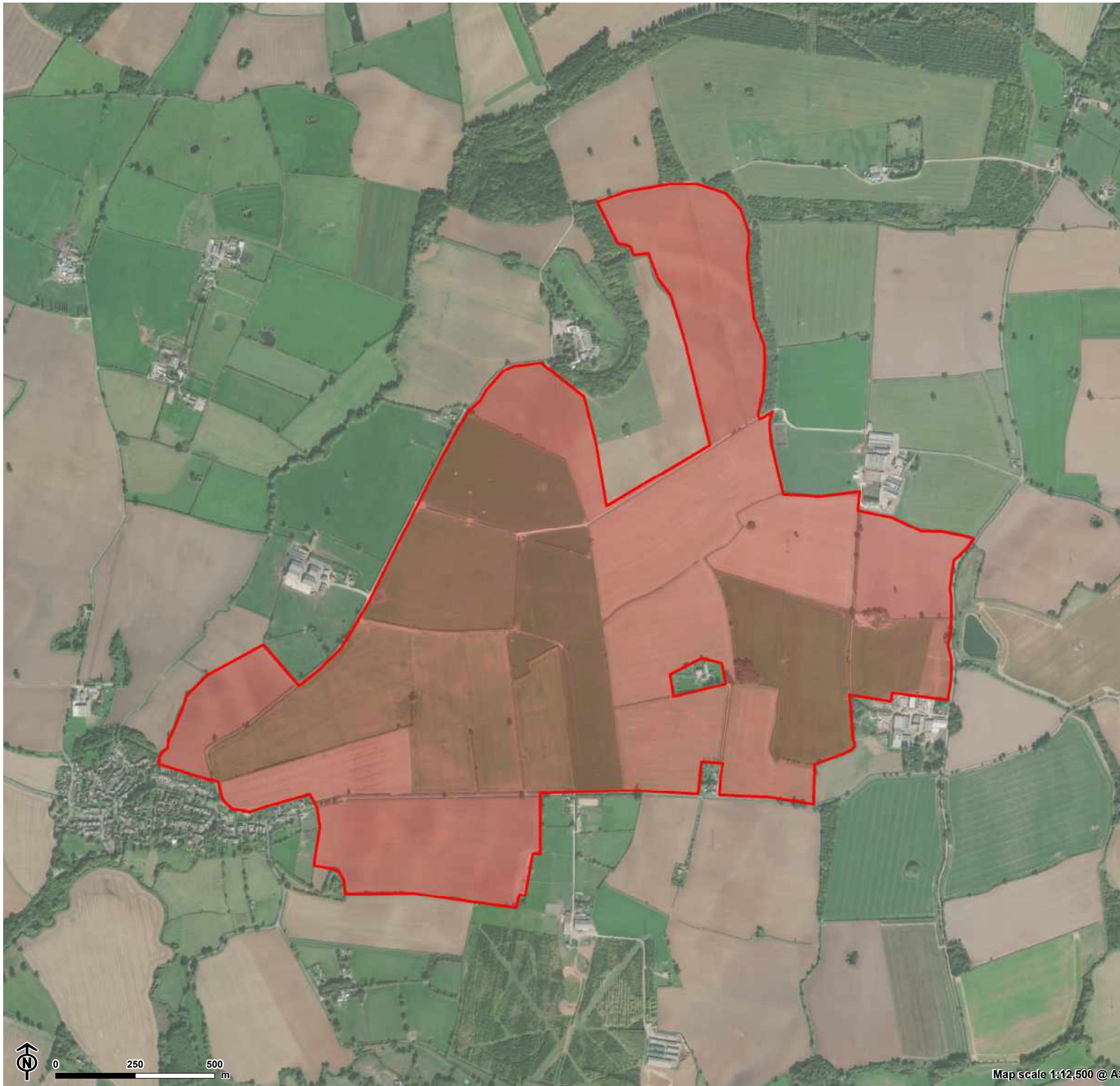
Oaklands Farm Solar
BayWa



BayWa Alternative Sites

Site 2
Area: 312.363ha
Distance to Point of Connection: 7.87km

Map scale 1:12,500 @ A3

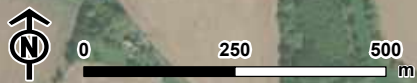


Oaklands Farm Solar
BayWa

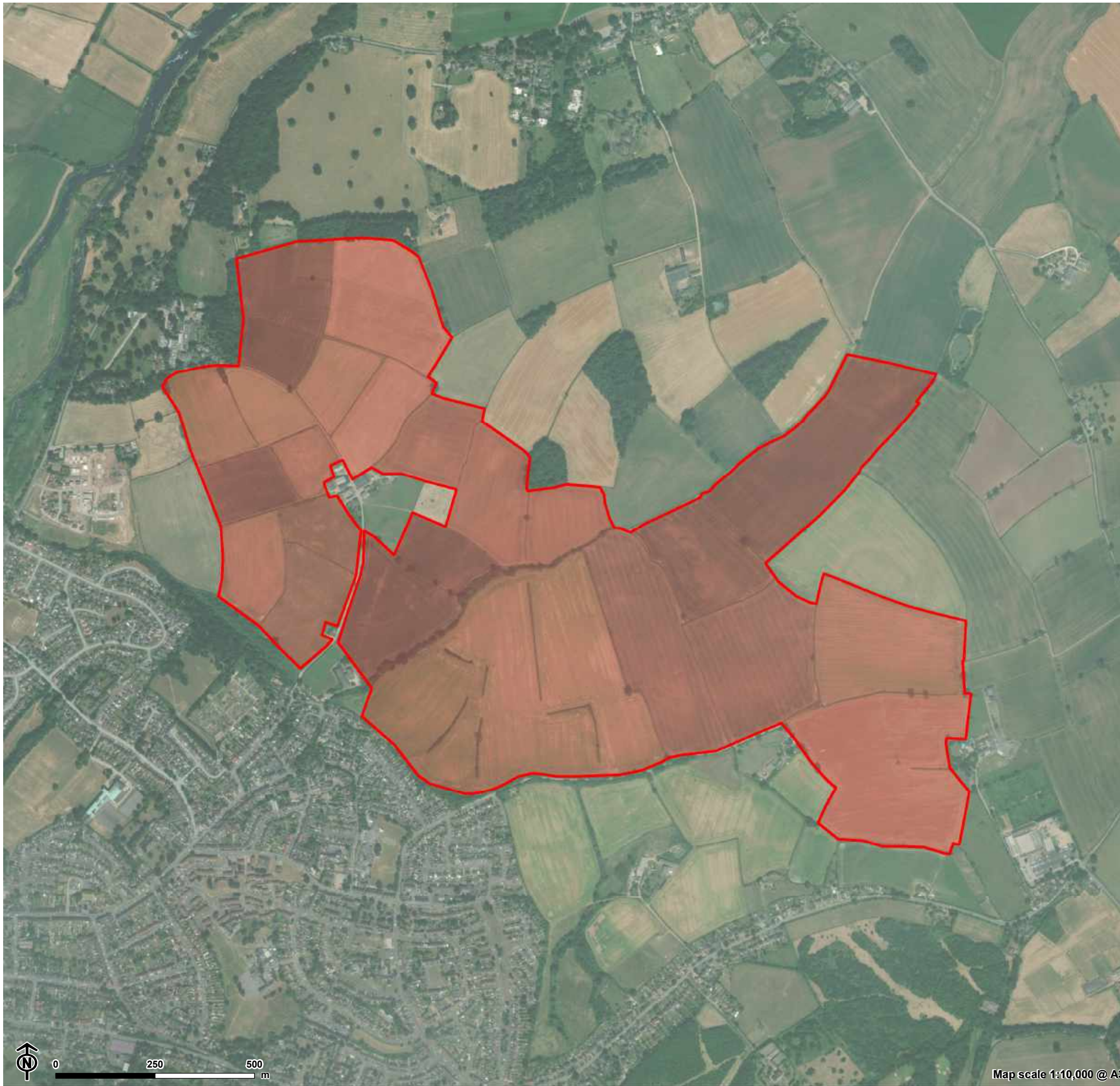


BayWa Alternative Sites

Site 3
Area: 245.341ha
Distance to Point of Connection: 7.87km



Map scale 1:12,500 @ A3

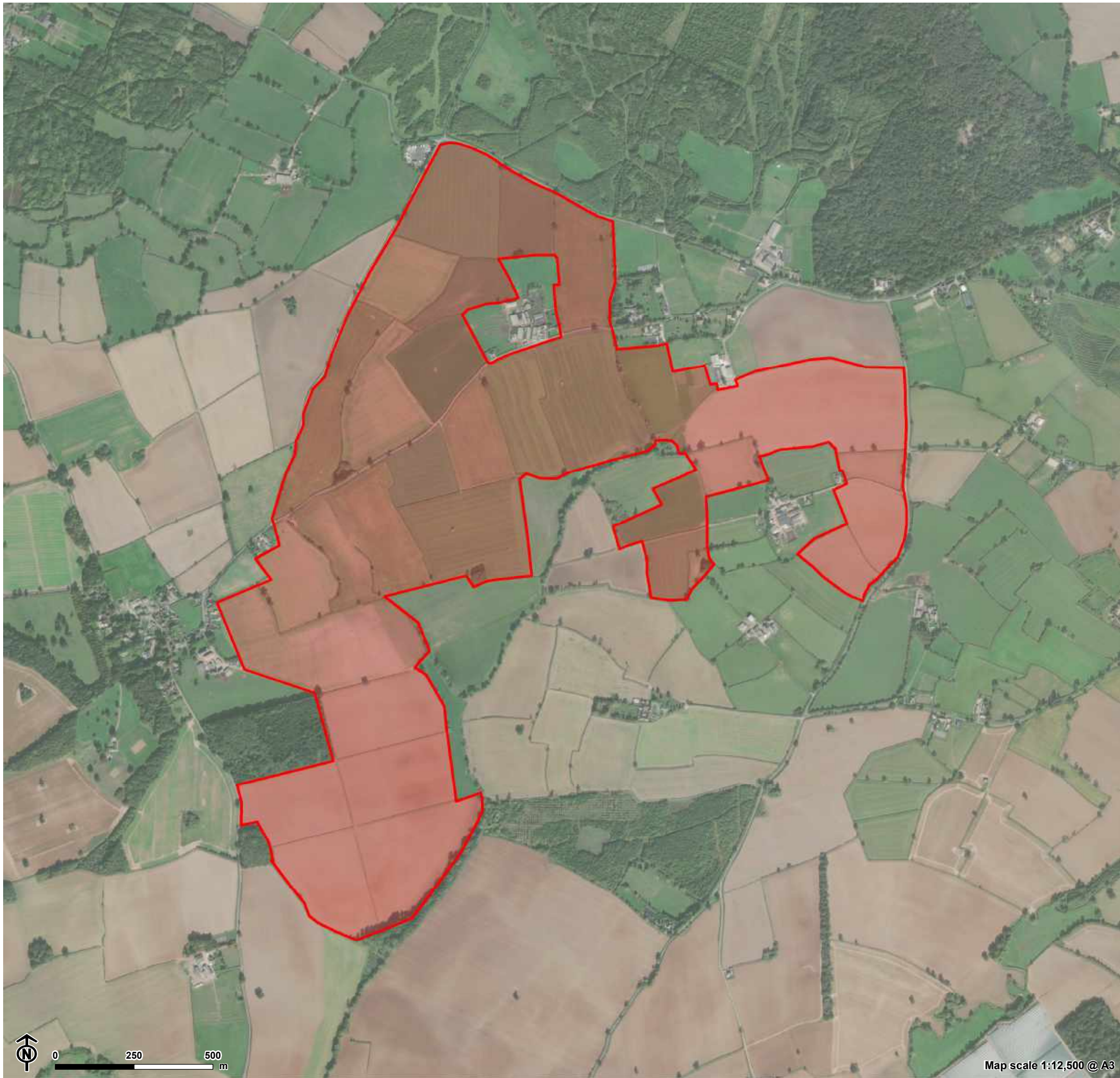


BayWa Alternative Sites

Site 4
Area: 154.446ha
Distance to Point of Connection: 7.87km



Map scale 1:10,000 @ A3

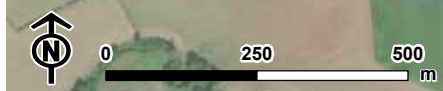


Oaklands Farm Solar
BayWa



BayWa Alternative Sites

Site 5
Area: 202.238ha
Distance to Point of Connection: 7.87km



Map scale 1:12,500 @ A3

Appendix C

Kernon Countryside Consultants Potential Agricultural Land Quality Report

POTENTIAL SITES FOR SOLAR

**LAND WITHIN 10KM OF
CONNECTION POINTS
BURTON ON TRENT AREA**

August 2020





POTENTIAL SITES FOR SOLAR

LAND WITHIN 10KM OF CONNECTION POINTS BURTON ON TRENT AREA

August 2020

COPYRIGHT

The contents of this document must not be copied in whole or in part without the written consent of Kernon Countryside Consultants.

Authorised By APK 01/24

*Greenacres Barn, Stoke Common Lane, Purton Stoke, Swindon SN5 4LL
T: 01793 771333 Email: info@kernon.co.uk Website: www.kernon.co.uk*

*Directors - **Tony Kernon** BSc (Hons), MRAC, MRICS, FBIAC **Sarah Kernon**
Chartered Surveyor - **Verity Drewett** BSc (Hons), MRICS, MBIAC
Consultants - **Sam Eachus** BSc (Hons) MRICS **Pippa Glanville** BSc (Hons)*

CONTENTS

- 1 Introduction
- 2 Methodology
- 3 Known and Available Data Relevant to ALC
- 4 Oaklands Farm ALC
- 5 Larger Areas of Search
- 6 Smaller Areas of Search
- 7 Summary
- 8 References

Appendices

- KCC1 Known ALCS
- KCC2 Site Maps

1 INTRODUCTION

- 1.1 This analysis reviews the known and likely land quality of various sites with possibility for installation of solar arrays in the Burton Upon Trent and Swadlincote areas.
- 1.2 These sites have been identified following a review of other potential constraints. This review then considers the likely agricultural land quality of the areas.
- 1.3 These sites are compared to a potential site at Oaklands Farm.
- 1.4 This short Statement:
- (i) sets out the methodology (**section 2**);
 - (ii) reviews the available data and the geology and climate data for the area (**section 3**);
 - (iii) sets out in brief the agricultural land quality of the site at Oaklands Farm (**section 4**);
 - (iv) sets out the likely / predicted land quality mix for each of the larger sites in the wider area of search (**section 5**);
 - (v) then sets out more detailed analysis of a greater number of potential smaller sites (**section 6**);
 - (vi) ending with a summary (**section 7**).

2 METHODOLOGY

2.1 For this analysis we have studied:

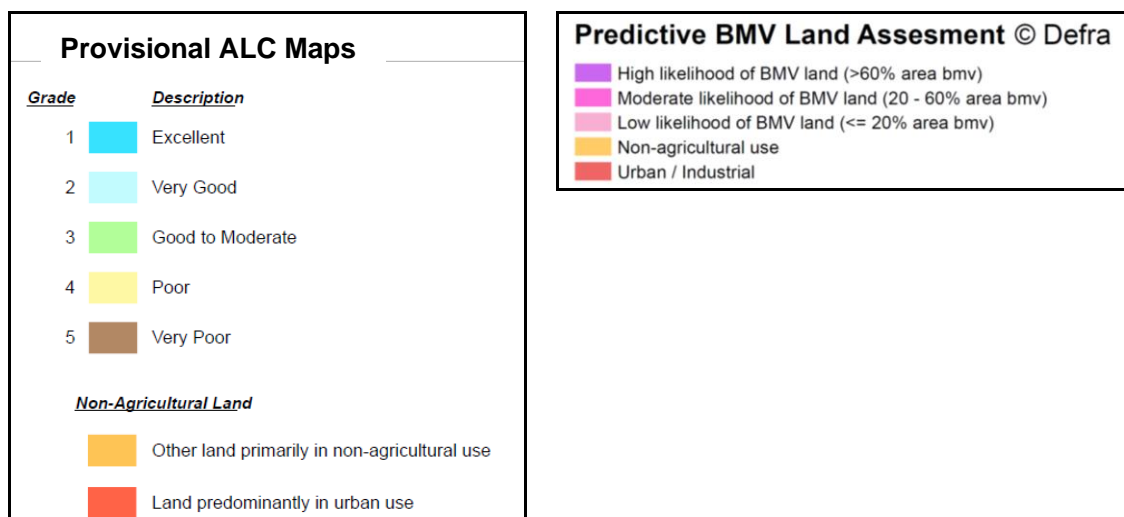
- (i) available “provisional” ALC maps (produced before Grade 3 was split into subgrades and accordingly showing all Grade 3 as undifferentiated);
- (ii) available “predictive best and most versatile” land maps (which divide land into low (<20% area bmv), moderate and high (>60% area bmv) zones);
- (iii) available soil maps and associated records and books;
- (iv) available climatic data, including temperature, rainfall and other factors;
- (v) review of Ordnance Survey maps;
- (vi) review of aerial images;
- (vii) review of available detailed ALC reports and records.

2.2 Reference is made to agricultural land quality. This is measured by grades within the Agricultural Land Classification, a methodology last revised by MAFF in 1988. The National Planning Policy Framework (2019) defines land in Grades 1, 2 and 3a of the ALC as the “**best and most versatile**” (bmv) agricultural land. Across England approximately 42% of agricultural land is thought likely to fall within Grades 1, 2 and 3a¹.

2.3 There is limited ALC survey data for the area. What is available is in **Appendix KCC1**.

2.4 The following analysis refers widely to the “provisional” ALC maps and the “predictive bmv” maps. The keys for each are as follows.

Inserts 1 and 2: Keys to “Provisional” ALC Maps and “Predictive bmv” Maps



¹ Natural England Technical Information Note, TIN049, 2012.

3 KNOWN AND AVAILABLE DATA RELEVANT TO ALC

- 3.1 ALC is a methodology that determines land quality according to its limitations, and is a combination of factors including climate, soils, site characteristics and the important interactions between them.

Geology and Soils

- 3.2 The large area of search covers a range of landscape facets from level land of river terraces along the main watercourses to undulating, drift free, ground of the reddish Mercia Mudstone, which forms the predominant soil parent material over much of the areas of interest.

- 3.3 Small scale soil information (SSEW 1983) is available for all these sites and shows a range of soil associations. In the north an area of Hodnet association covers all the land, comprising reddish fine and coarse loamy soils on interbedded sandstones and mudstones. The southern areas are dominated by reddish mudstones and much of the soil cover is of medium loamy or silty, over clayey soils of the Whimple association with wetter soils of the Brockhurst association in the lower ground.

Climate

- 3.4 The climate of the area is characterised by moderately low rainfall amounts, ranging from about 630mm to 680mm. There is a moderately high plant water demand and much of the land will have insufficient water to fully sustain plant growth and drought will be a limitation to land quality over the area. The field capacity period, that period when soils are potentially saturated, is relatively short at around 145 days and there is, therefore, an opportunity for spring sowing. There are no climate limitations to land quality.

Relief and Drainage

- 3.5 Height ranges from about 50m AOD to around 90m AOD over a generally slightly undulating landscape. By contrast the small areas of river terrace present a level aspect. Gradient is not limiting to land quality over any of these sites. The regional drainage is dominated by the rivers Trent and Tame which flow on the western side of the area and all minor watercourses drain towards these larger rivers.

Recent Land Quality Reports

- 3.6 A series of detailed land quality survey along the Trent and Tame valleys between Lichfield Alrewas and Barton under Needwood associated mainly with gravelly river terraces, shows much of the land to be of Subgrade 3a and 3b quality with drought and stoniness the principal limitation to land quality. None cover the sites of interest, see

Appendix KCC1.

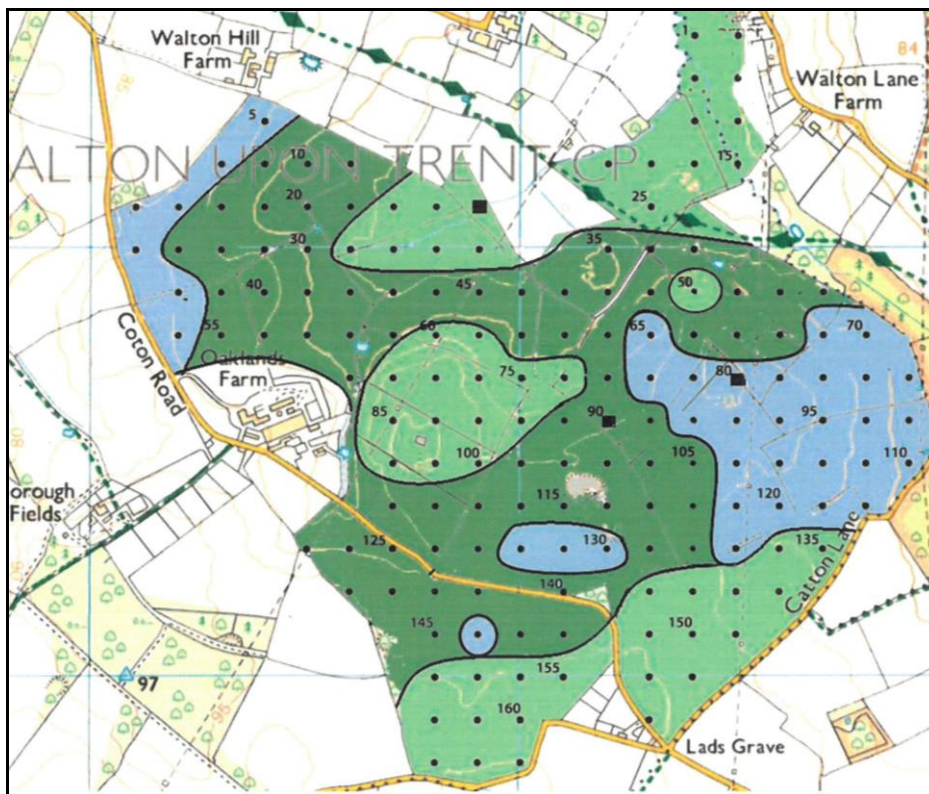
4 OAKLANDS FARM ALC

4.1 Oakland Farm extends to approximately 162 ha.

4.2 An Agricultural Land Classification of this area has been carried out by Soil Environment Services. Their report of July 2020 concludes that the land quality of the site is as follows:

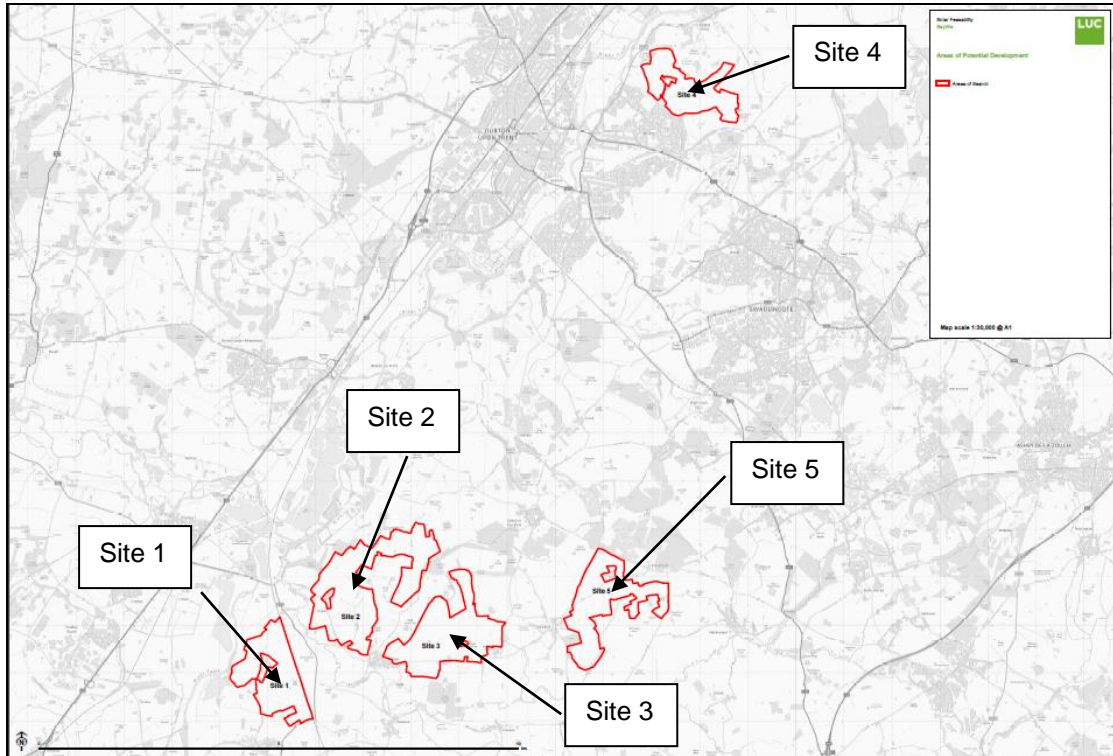
ALC Grade	Area (ha)	Area (%)
2 Very good	37	22.8
3a Good	71	43.8
3b Moderate	54	33.4
Total	162	100

4.3 The distribution is shown on their ALC plan, reproduced below.



5 DETAILED AREAS OF SEARCH

5.1 Five detailed areas of search have been considered. These fall within the wider areas numbered as follows, with the larger plan in **Appendix KCC2**.

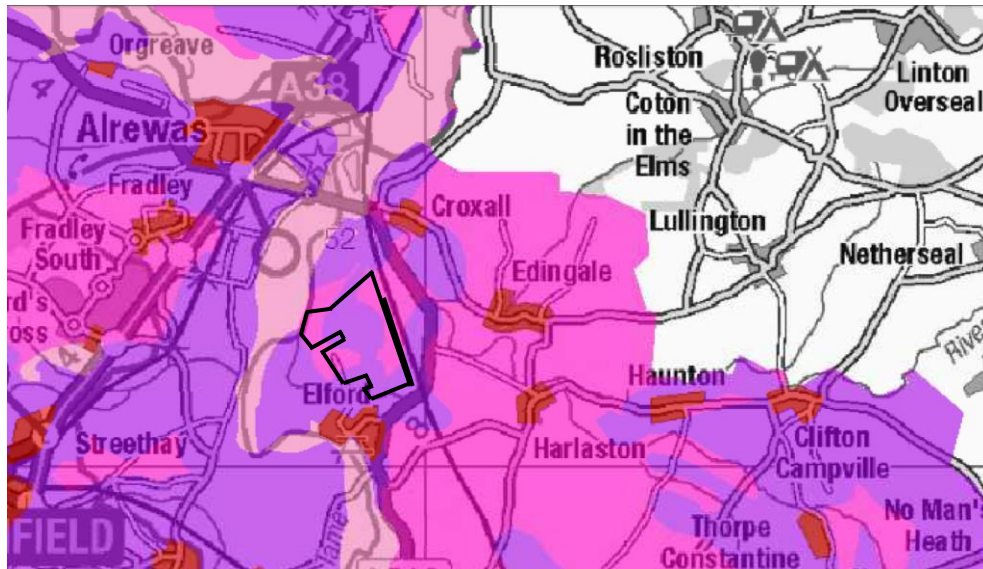


Site 1: Land north of Elford

5.2 The site is shown as a mixture of Grade 2 and undifferentiated Grade 3 on the provisional ALC map.



- 5.3 The area is shown on the predictive bmv maps as a mixture of land within the moderate (20-60% area bmv) and high (>60% area bmv) category, as shown below.

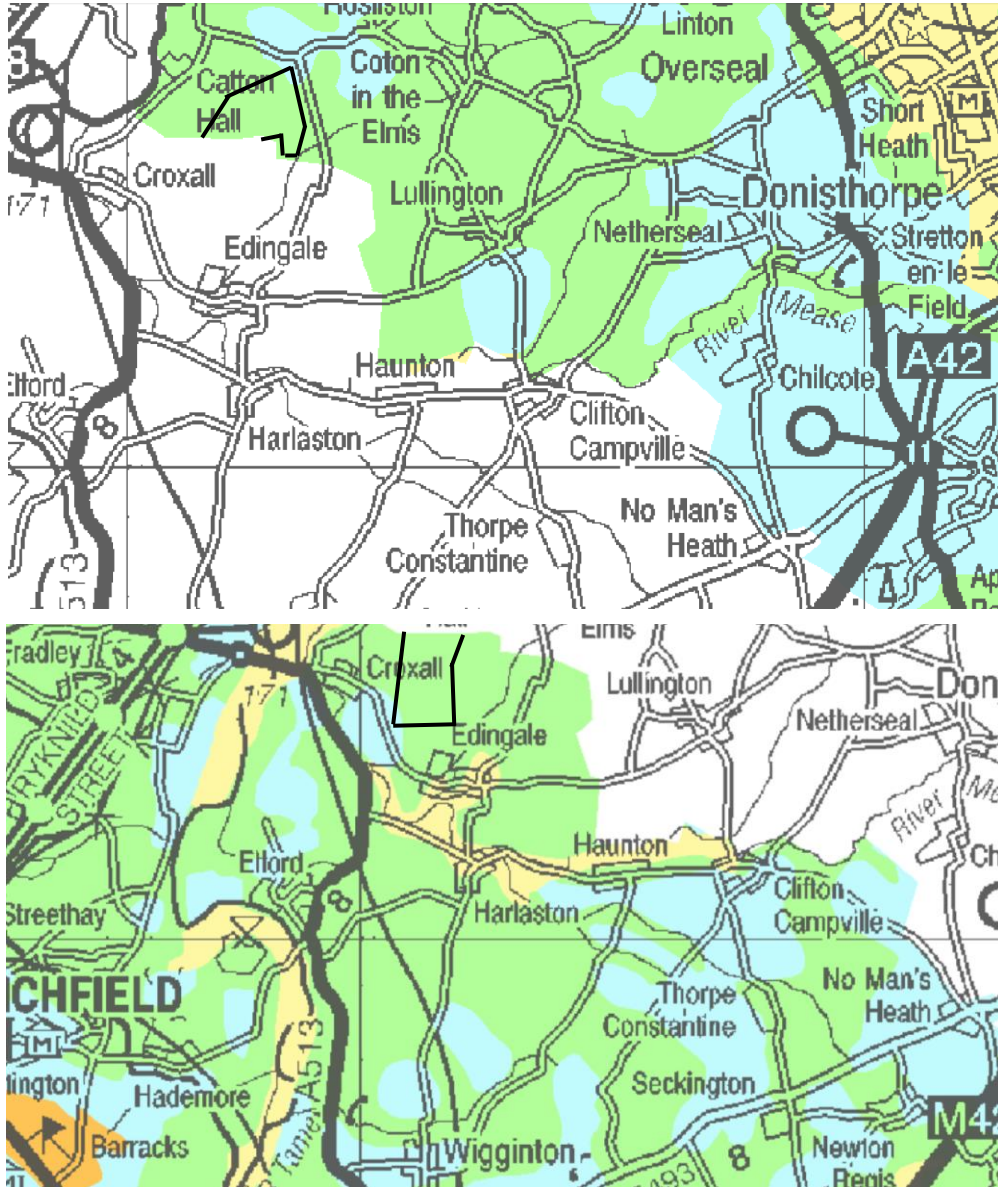


- 5.4 Much of the ground immediately north of Elford is covered with river terrace deposits which give deep light loamy and sandy soils with variable amounts of stone. Around Elford Park there is less drift and soils are formed in the underlying sandstone and mudstone, albeit with an element of drift forming the surface and immediate subsoil layers. Given the evidence from detailed surveys on similar materials on the west side of the river Tame (Wyemoor Haye) ground near the village will be of moderate (Subgrade 3b) quality with moderately droughty and stony soils. Narrow strips of alluvial soils have wet heavy textured soils of similar quality and will cover of the order of 25% of the area. On the rest of the ground soil wetness will be a limitation to land quality with slow subsoil permeability giving mainly seasonally wet (Wetness Class III) soils with medium loamy or silty topsoils and land of Subgrade 3a quality. The area of subgrade 3a will be an estimated 55% of the area. The remaining 20% of the ground will have slightly wet (Wetness Class II) loamy over clayey soils and likely to be placed in the Grade 2 category.
- 5.5 The small-scale soil survey information (SSEW *op cit*) shows soils of the Wick association on the river terraces and loamy over clayey soils of the Brockhurst association over the rest of the ground, which broadly indicates the separation of the 3a and 3b quality.
- 5.6 Accordingly we predict that the land quality will be 15-25% Grade 2, 50-60% Grade 3a and 20-30% Grade 3b.

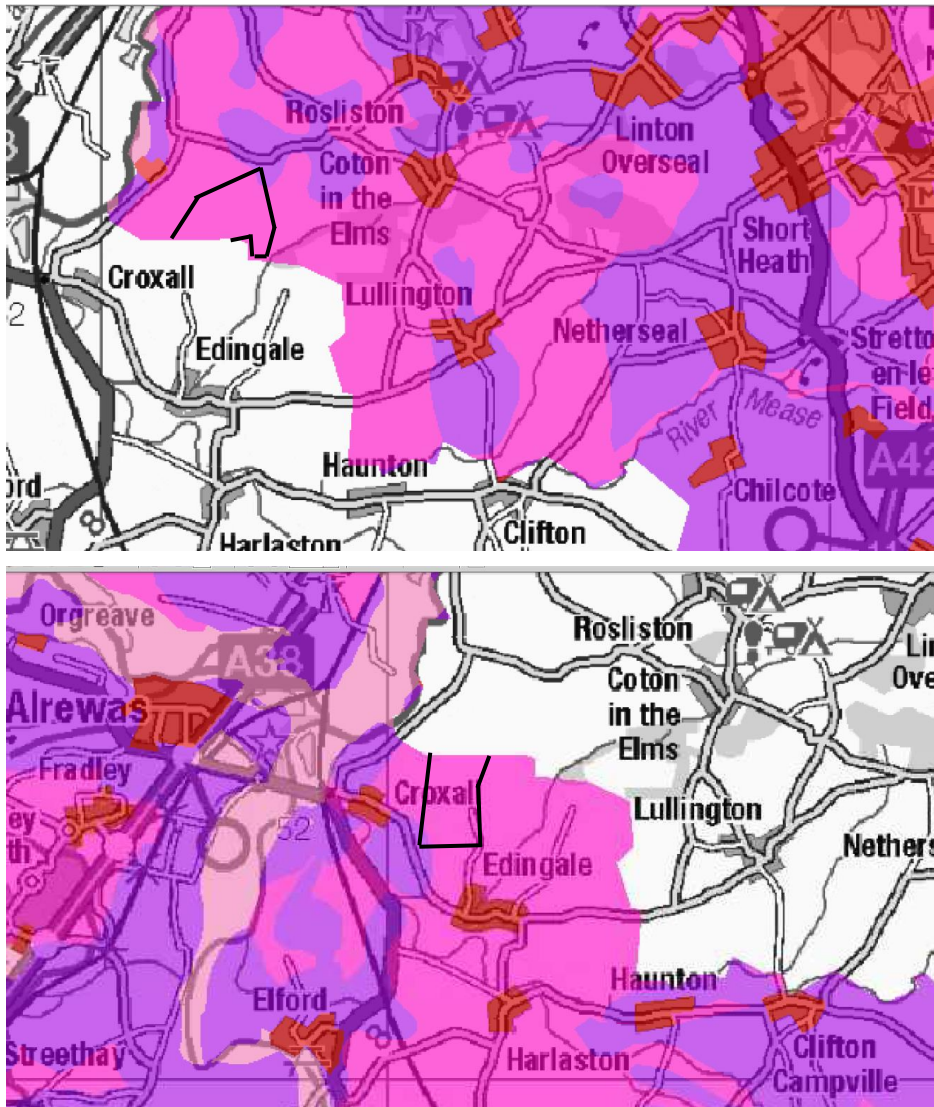
5.7 Site 1 is thus expected to comprise a mixture mostly of Grades 2 and Subgrades 3a and 3b.

Site 2: Land north of Edingale

5.8 The site is shown on the provisional ALC map as almost all undifferentiated Grade 3. The site straddles two maps.



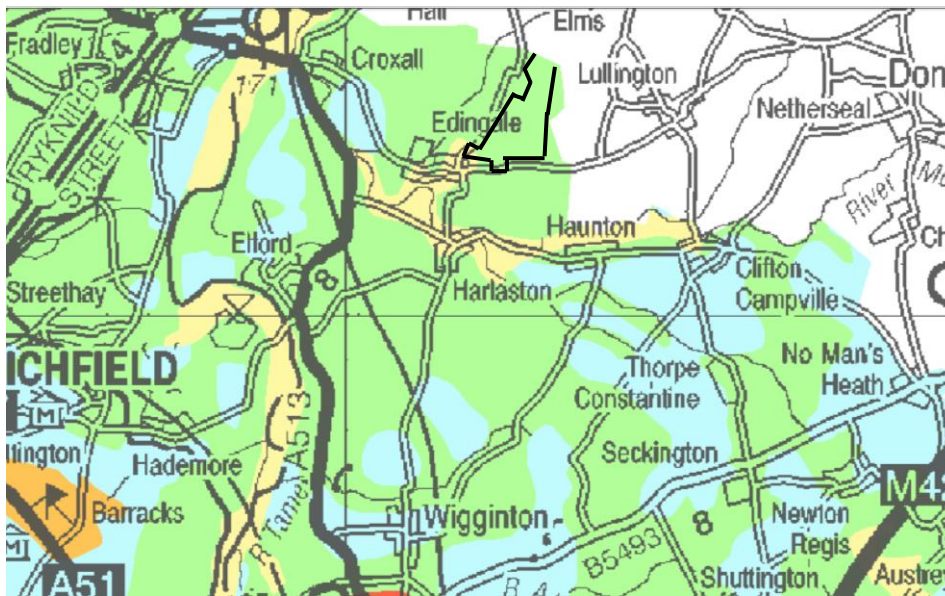
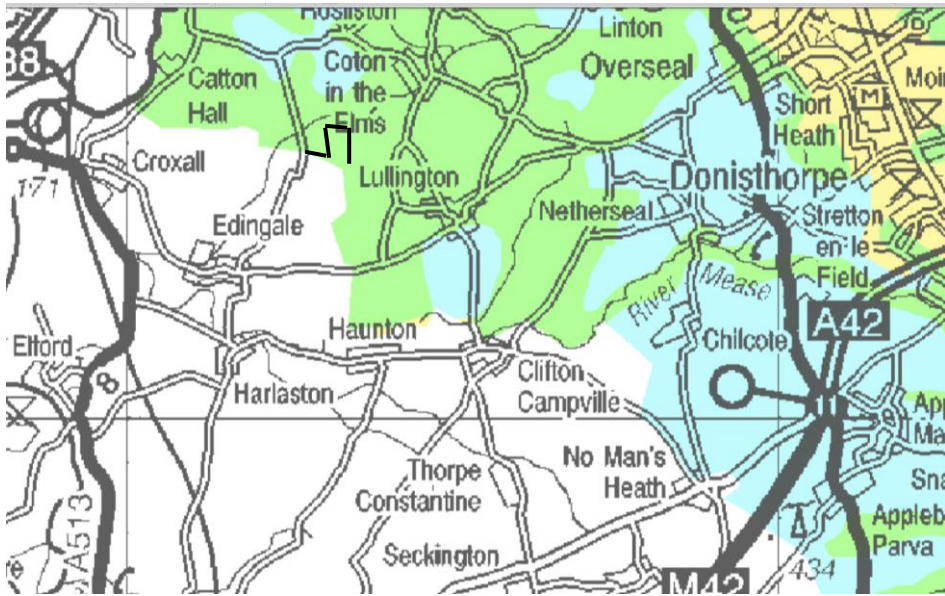
5.9 The site is shown as almost all of moderate likelihood (20-60% area bmv) on the predictive BMV maps.

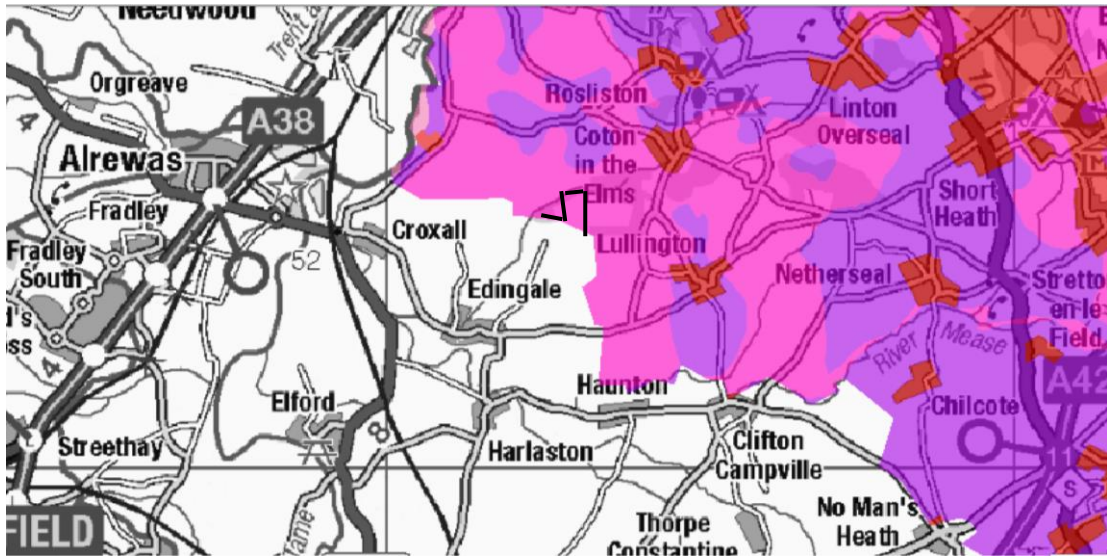


- 5.10 This area of land is mainly drift free with mudstone interbedded locally with siltstone forming the parent materials. A small area of sandstone occurs on the east side of Catton Wood to give some contrast to the parent materials on site. The small area of sandstone will give mainly freely drained soils which are slightly droughty and, depending on the depth to hard rock soils will be mainly of very good (Grade 2) quality covering about 15% of the area. For most of the rest of the land soils are variable with medium silty over clayey profiles interspersed with medium land light loamy soils on siltstone or sandstone which are slightly droughty, giving mainly Subgrade 3a land. Small areas of Grade 2 will occur on the slightly better drained patches over the mudstone parent materials.
- 5.11 Site 2 is expected to comprise a mixture mostly of Grades 2 and 3a, being 10-20% Grade 2 and the rest Grade 3a.

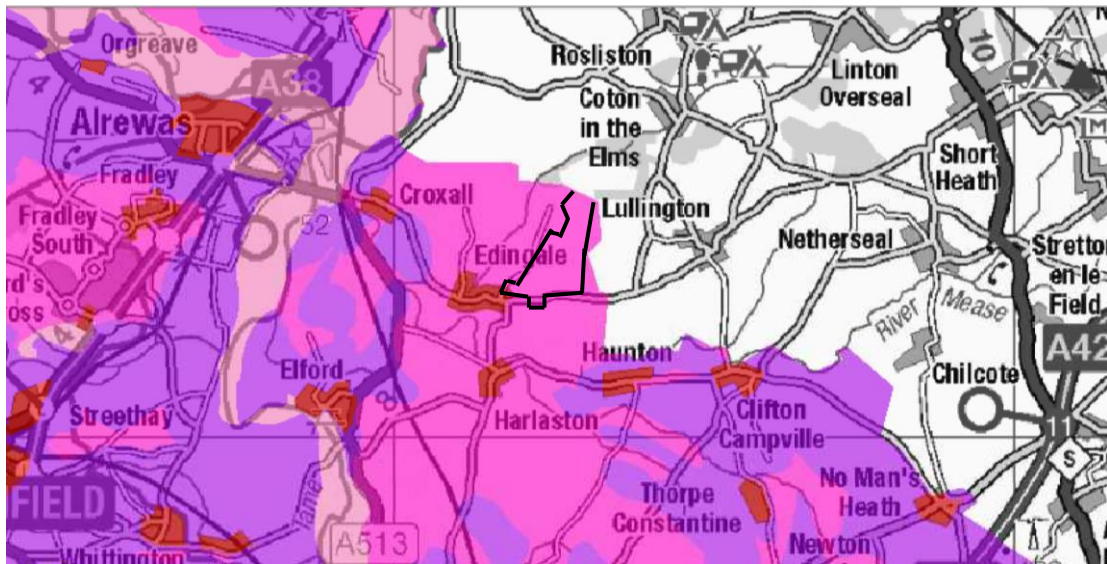
Site 3: Land east of Edingale

5.12 The site is shown as almost all Grade 3.





5.13 It is shown on the predictive BMV maps as in the moderate (20-60% area) bmv maps.

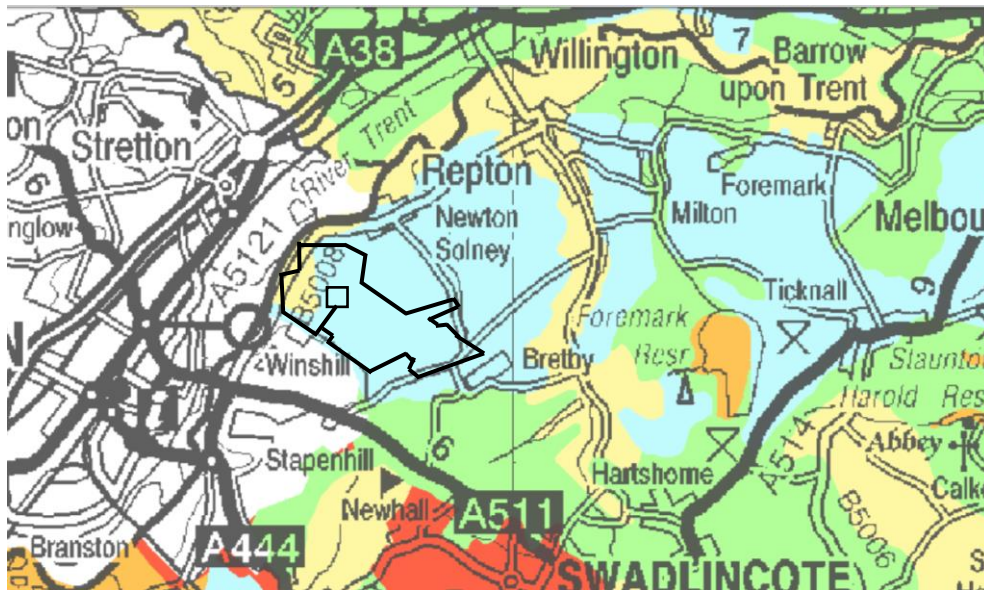


5.14 Sited mainly over mudstone and areas of siltstone the soil information indicates soils of the Whimple and Brockhurst association in this area. Profiles are loamy or silty over clayey with slow subsoil permeability and seasonal wetness (Wetness Class III), which will give mainly land of Subgrade 3a quality covering about half the site. A small valley east of Brookhouse Farm has some wet, heavy textured alluvial soils and mixed wet soils in Head to give a small area of land of poorer (Subgrade 3b) quality covering about 30% of the area. About 20% of the area will be slightly wet loamy or silty over loamy soils expected to fall into the Grade 2 category..

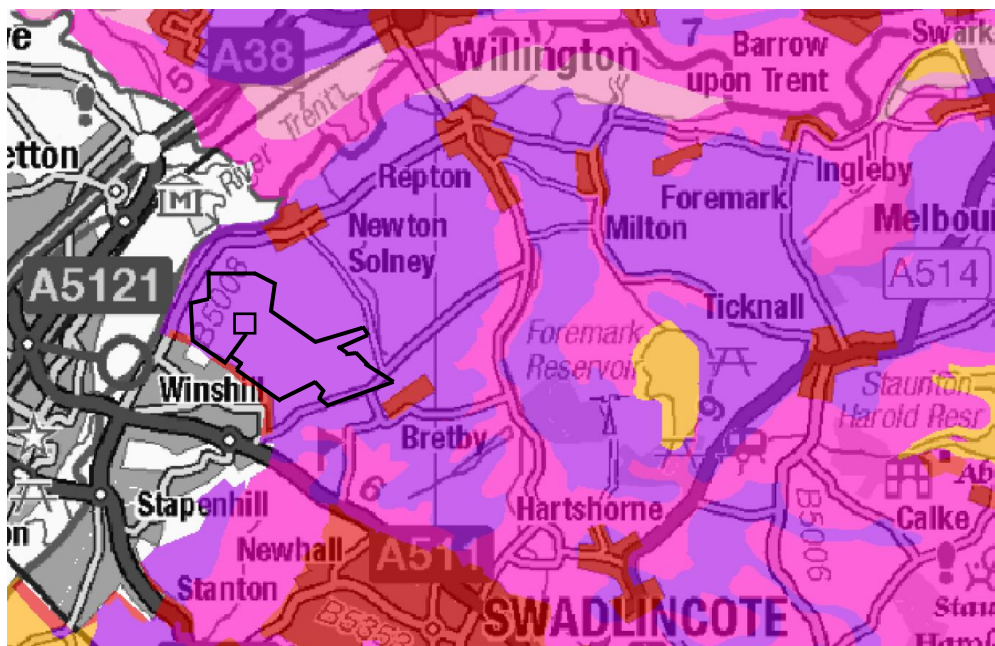
5.15 Site 3 is thus expected to comprise a mixture with about 15-25% Grade 2, 45-55% subgrade 3a and 25-35% subgrade 3b.

Site 4: Land at Newton Solney

- 5.16 The site is shown on the provisional ALC as mostly Grade 2 with a small amount of Grade 4.



- 5.17 The site falls wholly within the high (>60% area bmv) on the predictive maps.



- 5.18 All this land is over sandstones and siltstones of the Tarpoley siltstone formation. Soils are mainly silty or light loamy texture with areas of heavier subsoil material creating slow permeability and resulting in slightly wet soil conditions from late autumn until early spring. (Wetness Class II and III). Wetness and a lack of available water are the principal limitations to land quality with both Grade 2 (20-30%) and Subgrade 3a (70-80%) quality land represented over this undulating site.

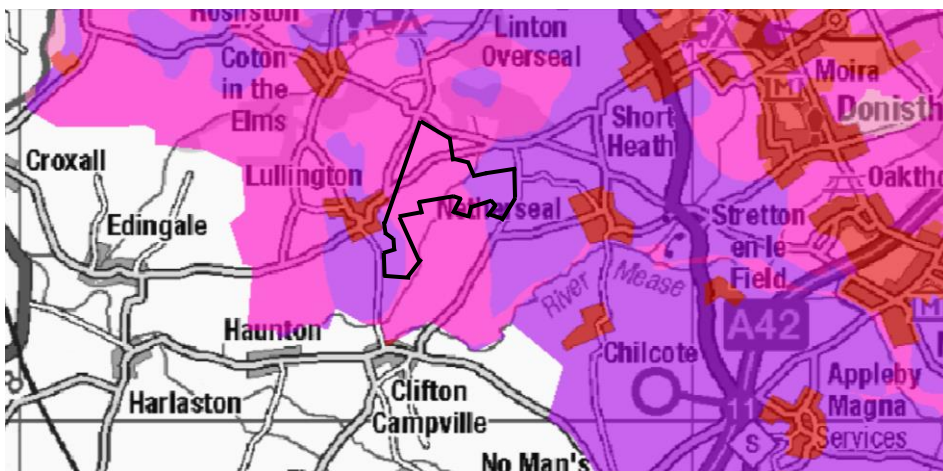
- 5.19 The soil information (SSEW *op cit*) shows soils of the Whimpe association over all this land.
- 5.20 Site 4 is thus expected to comprise a mixture of Grade 2 and Subgrade 3a.

Site 5: Land east of Lullington

- 5.21 The site is shown as mostly undifferentiated Grade 3 with some grade 2 at the edges.



- 5.22 It is shown as mostly in the moderate bmv category, with some hgh on the edges.

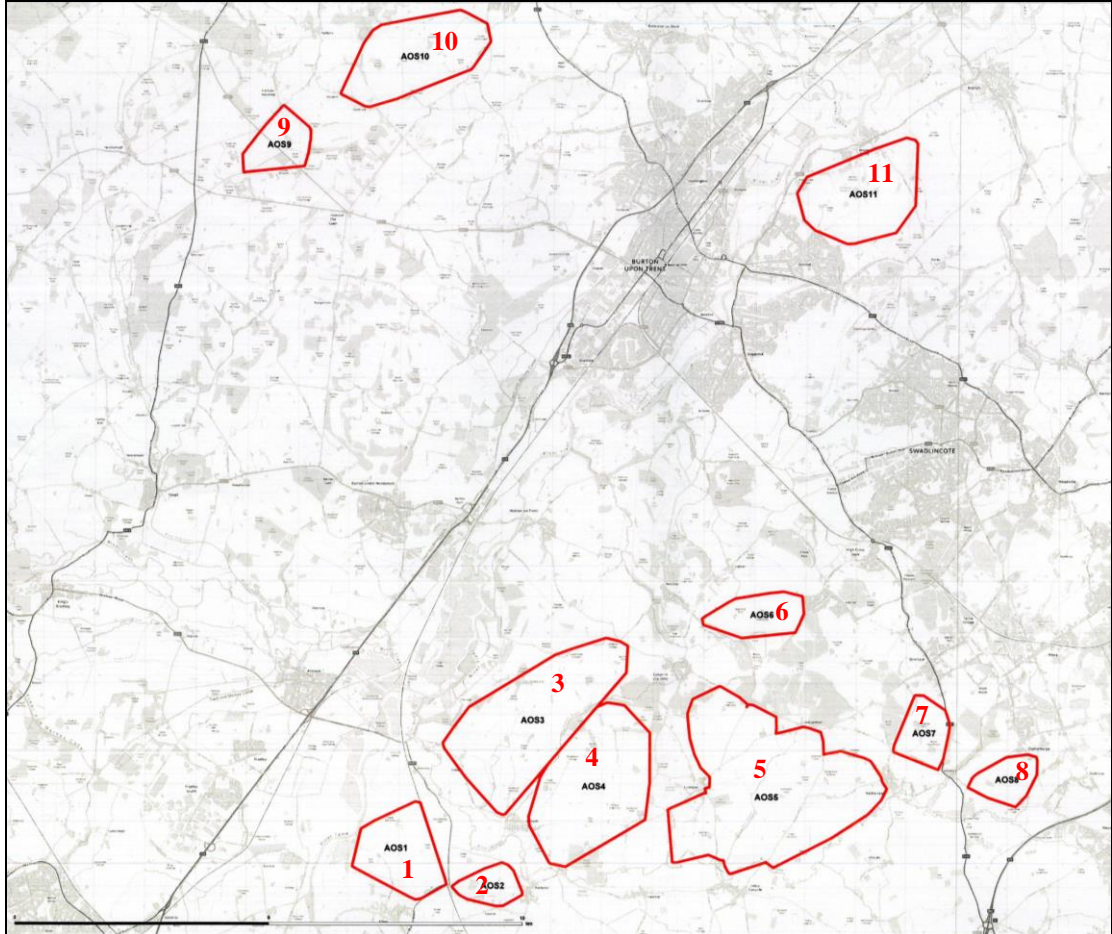


- 5.23 This area has more variable parent materials than the other sites previously described with boulder clay and head covering the underlying mudstones in places. Land immediately east and south of the village sitting above the valley of Seal Brook has a sand and gravel cover and has stony, droughty soils mainly of Subgrade 3b quality. The valley of the Seal Brook has soils developed in Head and alluvium and wetness, here, is the principal limitation to land quality with this strip of ground also mainly of Subgrade 3b quality. Approximately half the area is expected to be of subgrade 3a.

- 5.24 Soils developed in till in the north and east of the site have predominantly loamy over clayey soils which are seasonally wet (Wetness Class III) and will be covered by a Subgrade 3a classification, as is much of the rest of the land situated over the *in situ*, basal rocks. Approximately half the area is expected to be of subgrade 3a.
- 5.25 Site 5 is therefore expected to comprise a mixture of Subgrades 3a (45-55%) and 3b (45-55%).

6 WIDER AREAS OF SEARCH

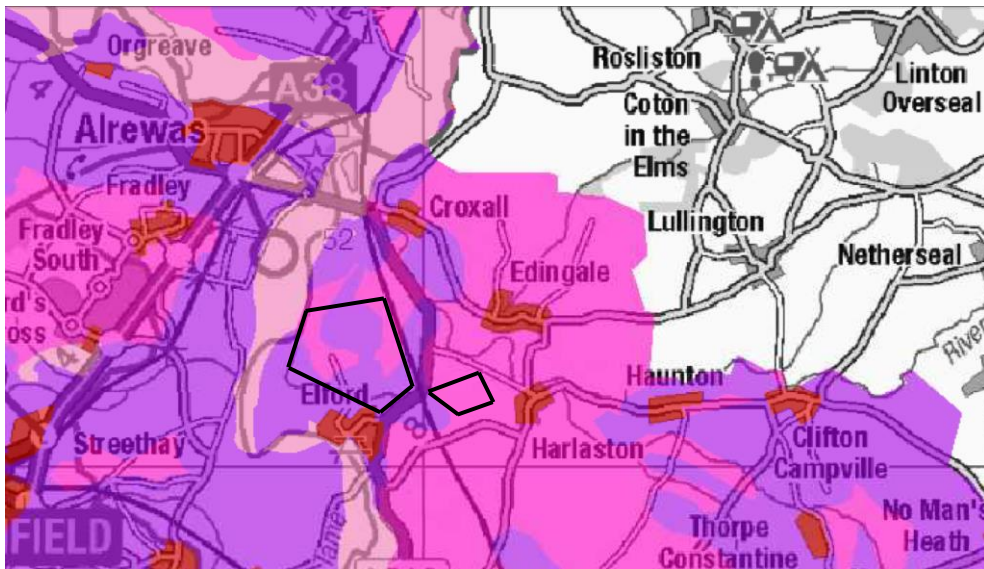
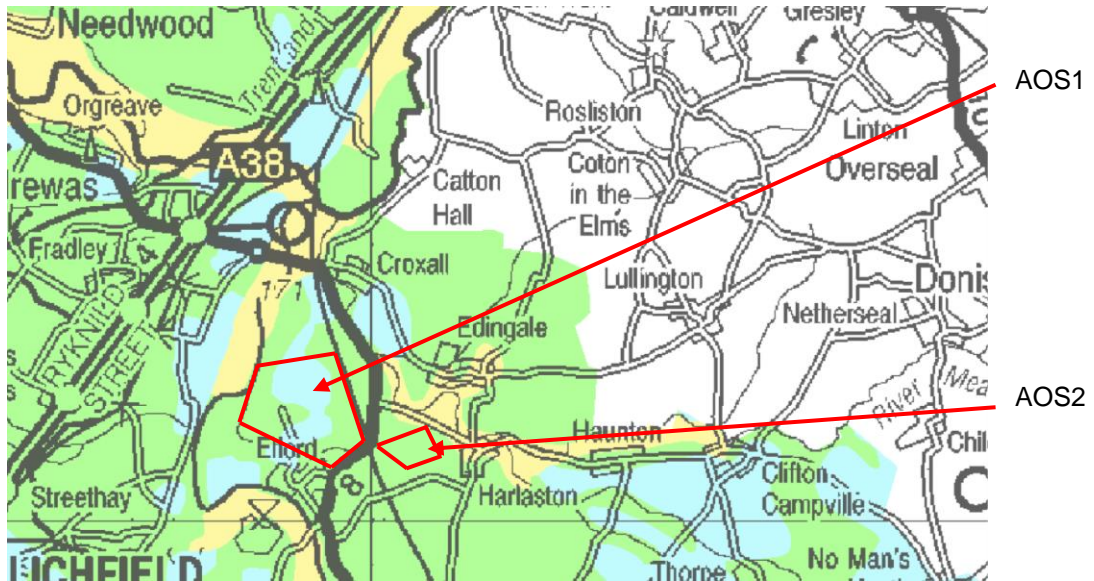
6.1 The wider areas of search are set out in **Appendix KCC2**. They are numbered as shown below.



AOS1 and 2

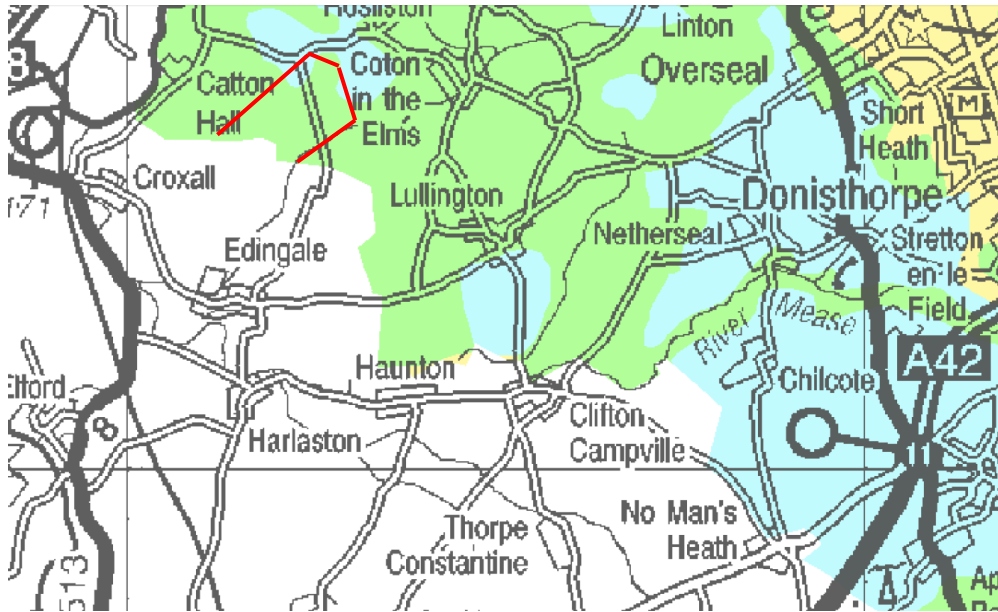
6.2 AOS1 is shown on the provisional ALC map as a mixture of Grade 2 and undifferentiated Grade 3. The area is shown on the predictive map as a mixture of about half as “high (>60% area bmv)” and half in the “moderate (20-60% area bmv)” category, as shown on the predictive map below.

6.3 Site AOS2 is shown on the provisional maps as undifferentiated Grade 3, and falling into the “moderate (20-60% area bmv)” category on the predictive map.

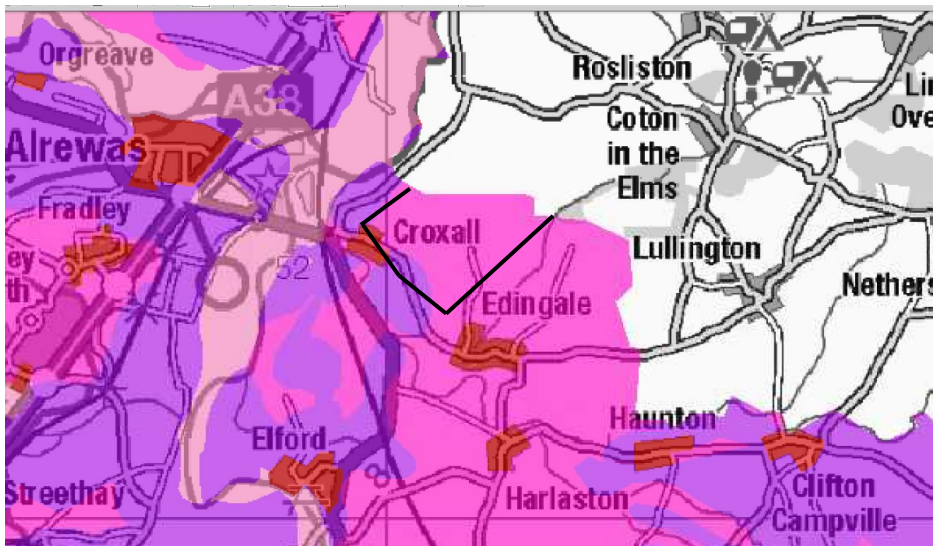
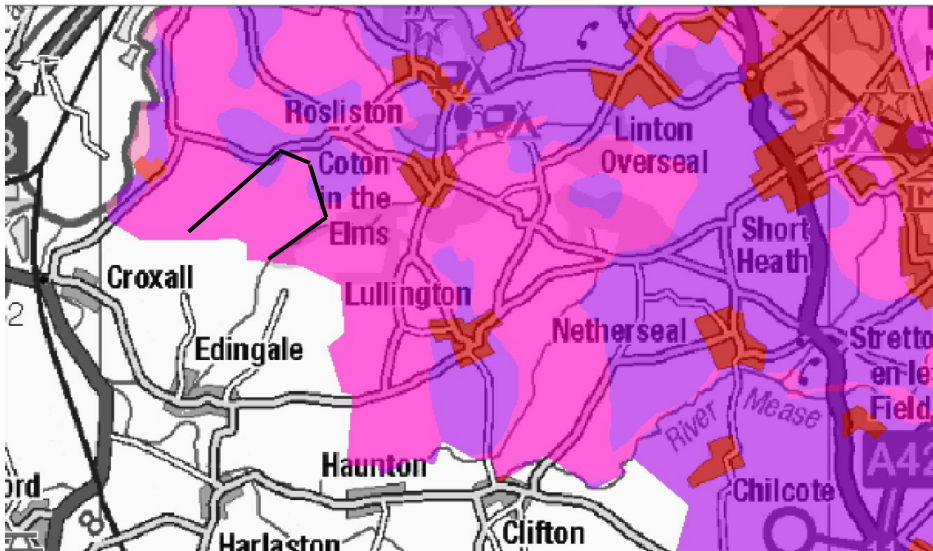


AOS3

6.4 Site AOS3 is shown on the provisional ALC as almost all undifferentiated Grade 3, with Grade 2 at the very peripheries. The site straddles two regional maps.

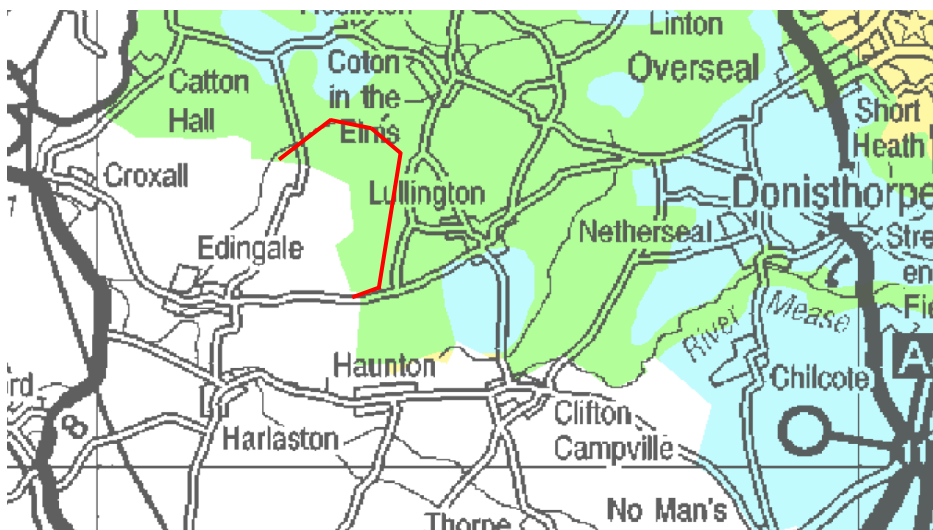


- 6.5 The area is shown on the predictive bmv maps as almost all within the “moderate (20-60 area bmv)” category, also with a high probability of bmv on the peripheries.



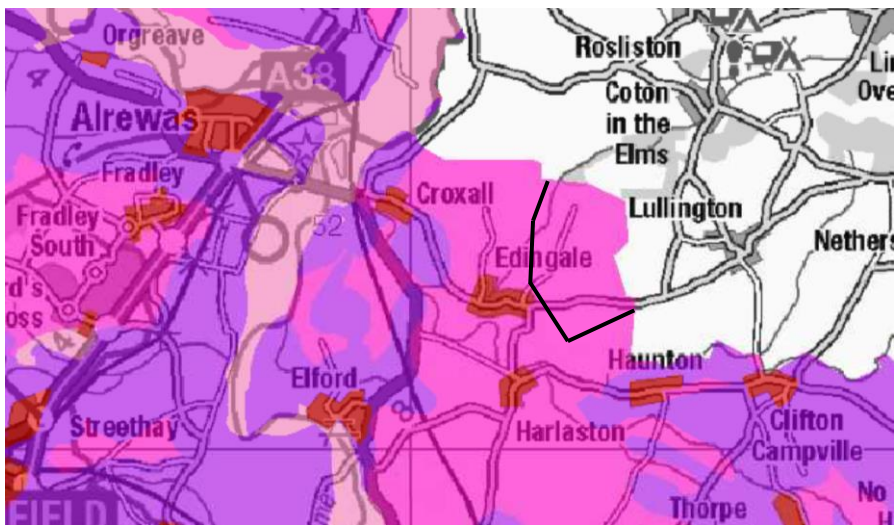
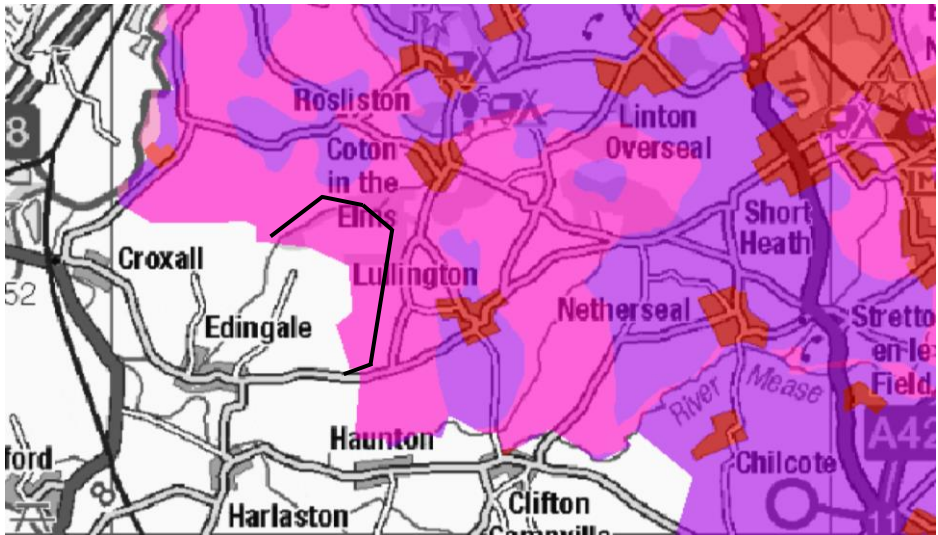
AOS4

6.6 AOS4 straddles two maps, as shown below. It is shown as mostly Grade 3 with a small area of Grade 4 on the very periphery, close to Edingale.



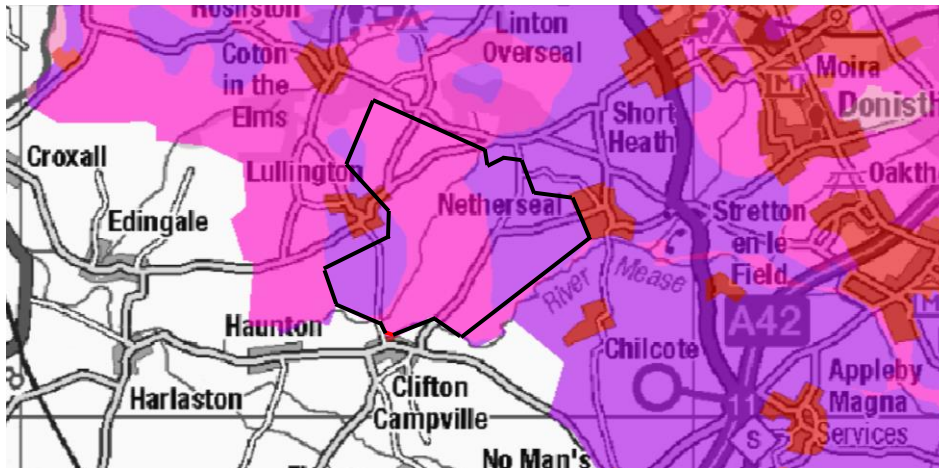


6.7 In terms of the predictive BMV maps, the area is shown as all within the moderate (20 – 60% area bmV) category.



Area AOS5

6.8 Site 5 is shown on the provisional ALC as a mixture of Grade 2 and undifferentiated Grade 3. It is shown on the predictive bmv maps as about half in the high (>60% area bmv)” and half in the “moderate (20-60% area bmv)” category, as shown below.

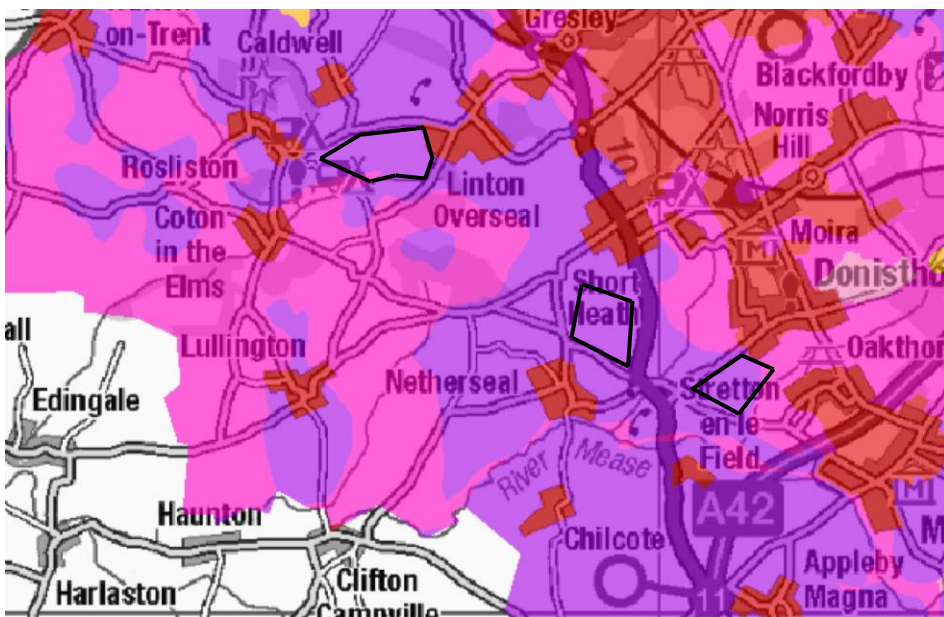
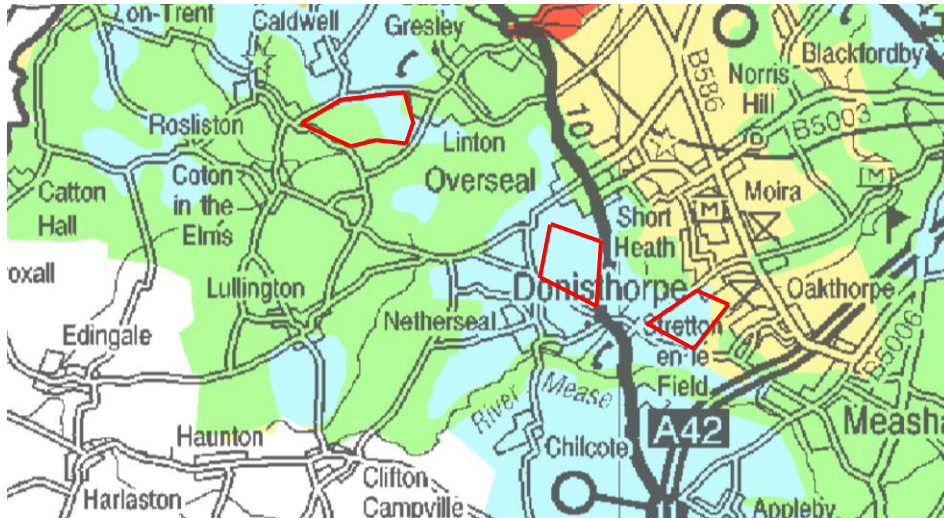


Areas AOS6, 7 and 8

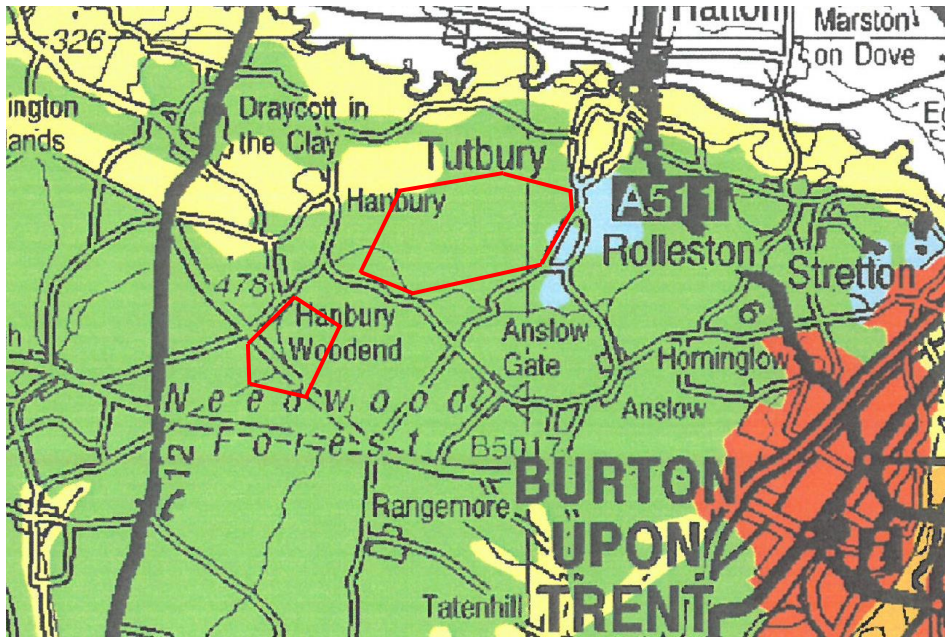
6.9 Site AOS6 is shown on the “provisional” ALC as a mix of Grade 2 and undifferentiated Grade 3, and on the predictive bmv map as wholly within the “high (>60% area bmv)” category.

6.10 Site AOS7 is shown on the “provisional” ALC as wholly Grade 2, and on the predictive bmv map as also wholly within the “high (>60% area bmv)” category.

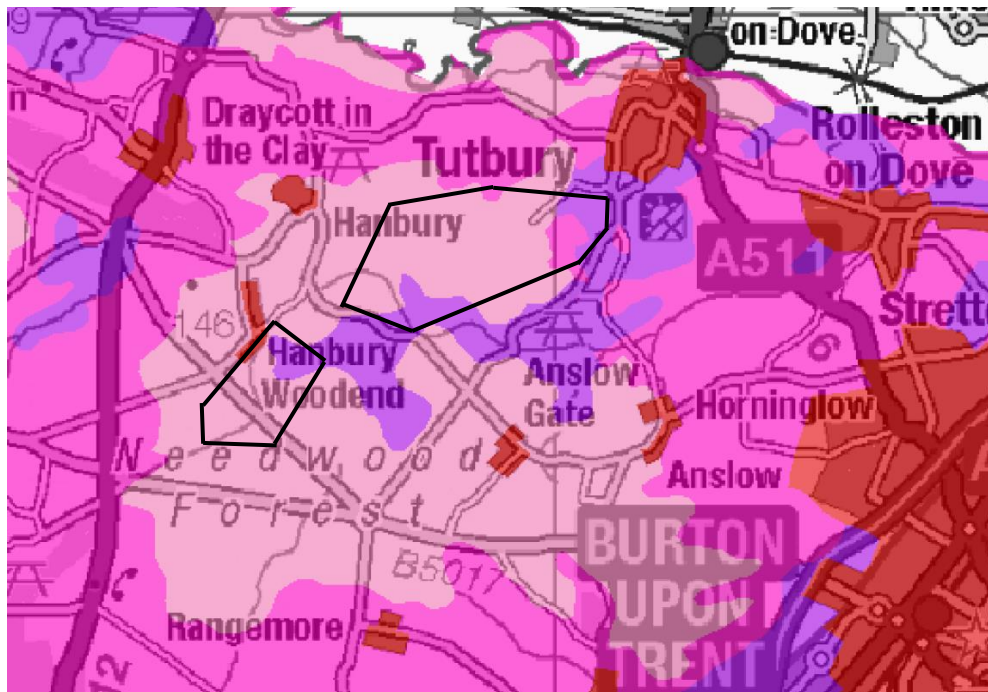
6.11 Site AOS8 is shown as almost all Grade 2, with the very eastern edge touching Grade 4. It is shown as wholly within the high probability (>60% area bmv) category.



6.12 These lie to the north-west of Burton upon Trent. Site 10 is shown on the published ALC maps as undifferentiated Grade 3, with a small area of Grade 2 on the eastern edge. Site 9 is shown as wholly undifferentiated Grade 3.



- 6.13 On the predictive maps it is shown as falling into different predictive types as follows:
- site 9: a mix of low probability (<20% area bmv) and high probability (>60% area bmv);
 - site 10: a mix of low probability (in the centre of the site) with moderate and high probability at the southern and north-eastern edges.



6.14 As these areas show as potentially lower quality than the others we have considered them in more depth.

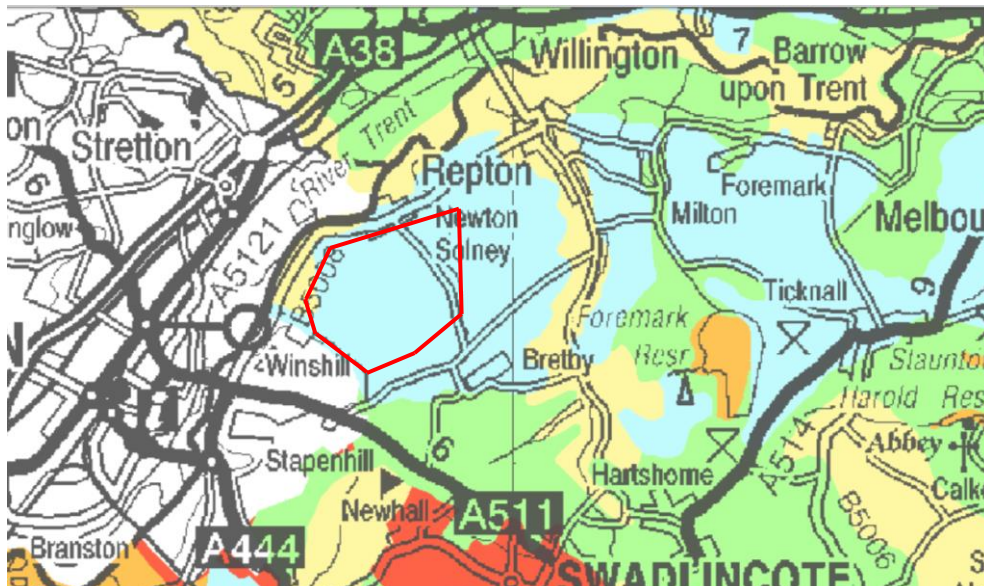
6.15 Area 9 is situated on a till plateau at around 120-130m AOD. This ground is much higher than the sites already described and the parent materials are dominated by a range of

boulder clays. Detailed soil information (SSEW 1982) shows soils of the Salop series over much of the ground with medium loamy over clayey profiles that are seasonally wet. The soil description (SSEW 1983) indicate that there is a distinct slowly permeable layer at moderate depth and much of the ground will be of Wetness Class IV. Small areas of clayey till occur on the eastern and western edge of the site and support seasonally wet clay soils in Wetness Class III or IV. The bulk of this ground (70%) will be of moderate quality (subgrade 3b) with the remaining land classified as subgrade 3a quality.

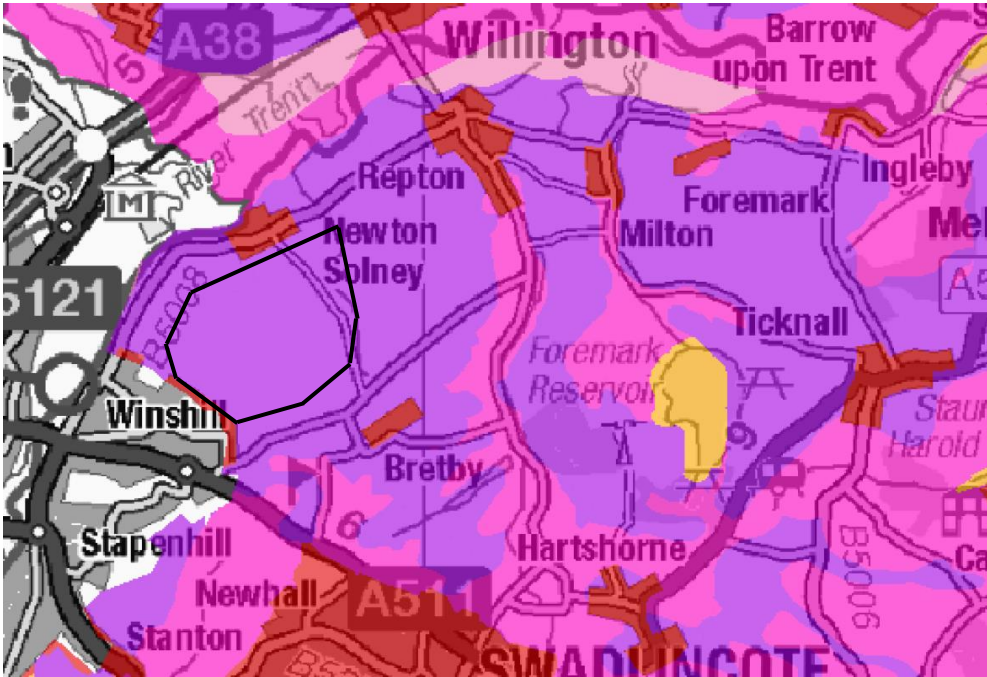
- 6.16 Area 10 is located on the Needwood Forest Plateau. This site, as Site 9, is covered with till with soils of the Salop and Crewe series covering much of the ground. The relatively shallow depth to the slowly permeable clay subsoils places most of the covering soils in Wetness Class IV with a subGrade 3b classification and will cover approximately 70 per cent of the total area. A further 10 per cent of the land associated with moderately steep gradients on the Stonepit Hills will also fall into the moderate category. Over the remainder of the till covered landscape the seasonally wet loamy over clayey soils will have deeper clay substrates and will be of Wetness Class III, resulting in a subgrade 3a classification.

Areas AOS11

- 6.17 Site AOS11 lies to the north-east of Burton upon Trent. It is shown on the provisional MAFF ALC sheets as almost all of Grade 2, except for a small amount of Grade 4 in the north west corner nearest the river.



6.18 On the predictive map the whole area falls into the “high probability of bmv (>60% area bmv)” area.



7 SUMMARY

- 7.1 Situated in a generally favourable climatic zone much of the land will suffer from a lack of available water to fully sustain plant growth and there will be a yield loss in most years. Small areas of ground covered with stony drift will suffer more from drought and these areas will be mainly of moderate quality. Soils over much of the ground are developed in mudstones and sandstones with seasonally wet loamy over clayey profiles, which will fall into the Subgrade 3a category. Small strips of heavy textured alluvial soils associated with the floodplains are generally wet and have land of moderate quality.
- 7.2 None of the areas of search have been the subject of detailed ALCs for which survey data is available.
- 7.3 Therefore we have reviewed published soil, land quality, geology and topography information to estimate likely land quality.
- 7.4 Of the five sites for which a more in-depth analysis has been carried out, the estimated land quality mix is as follows.

Site	ALC Grade by %			
	2	3a	3b	% BMV (Median)
Oaklands Farm	23	44	33	67
Site 1	15-25	50-60	20-30	75
Site 2	10-20	80-90	0	100
Site 3	15-25	45-55	25-35	70
Site 4	20-30	70-80	0	100
Site 5	0	45-50	45-55	50

- 7.5 Of the smaller sites, sites AOS1-8 and AOS11 are all expected to comprise a similar mix with a significant proportion of BMV land.
- 7.6 Sites AOS09 and AOS10 are, however, on very different parent material. Those sites are expected to be generally lower quality than the land to the east, both expected to be about 30% BMV with 70% poorer quality land.

8 REFERENCES

British Geological Survey.www.bgsviewer

MAFF (1988) Report of the Agricultural Land Classification survey (Alrewas).

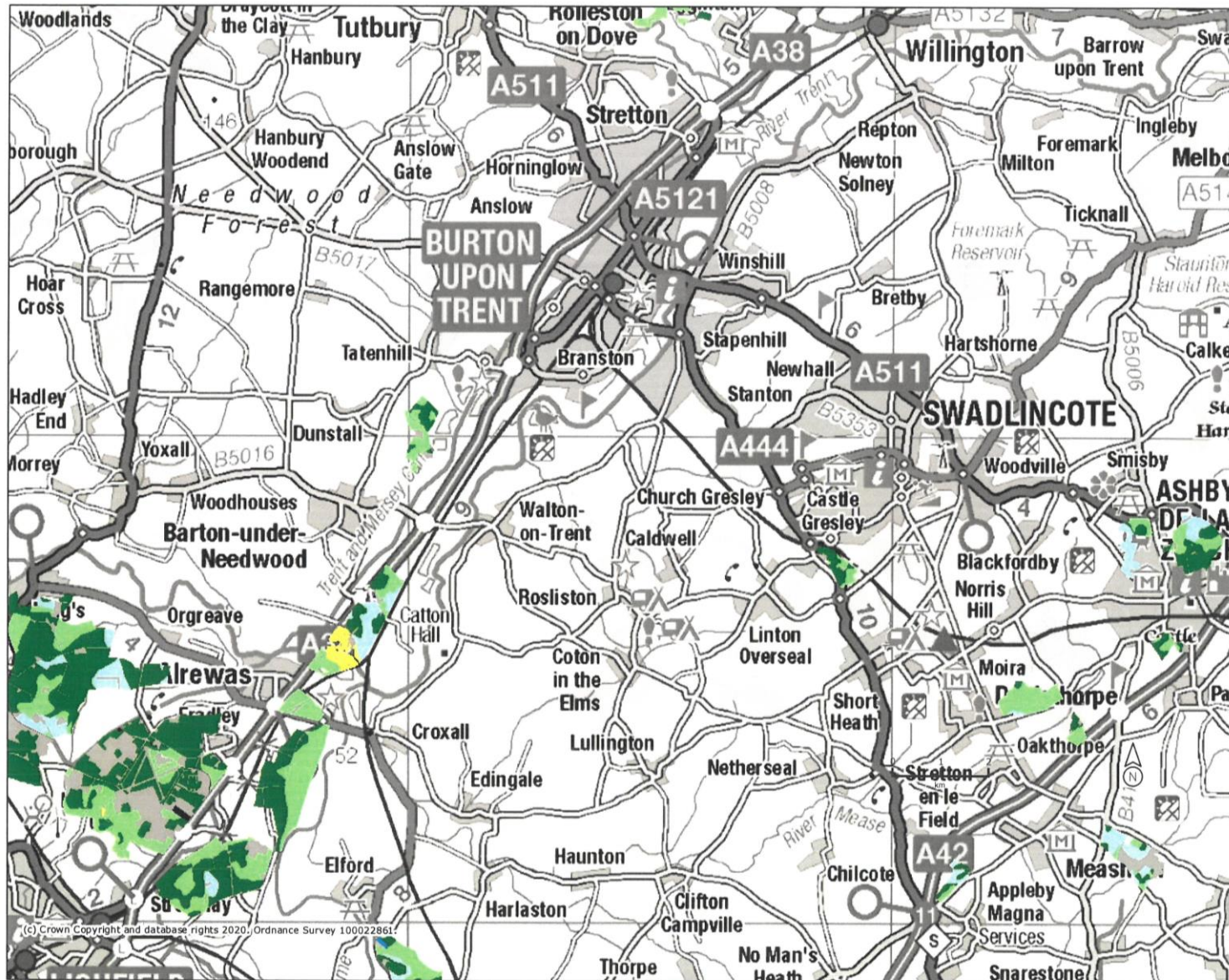
MAFF (1999) Agricultural Land Classification Report Alrewas south

MAFF (2016) East Staffordshire local plan – Barton Business Park

SSEW (1983) 1:250,000 scale National Soil Map – Sheet 3 – Soils of Midlands and Western England.

Soil Environmental Services (2016) Agricultural Land Classification – Oaklands Farm

APPENDIX KCC1
Available Site-Specific ALC Data



Legend
 Post 1988 Agricultural Land Classification (England)

- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Not Surveyed
- Other

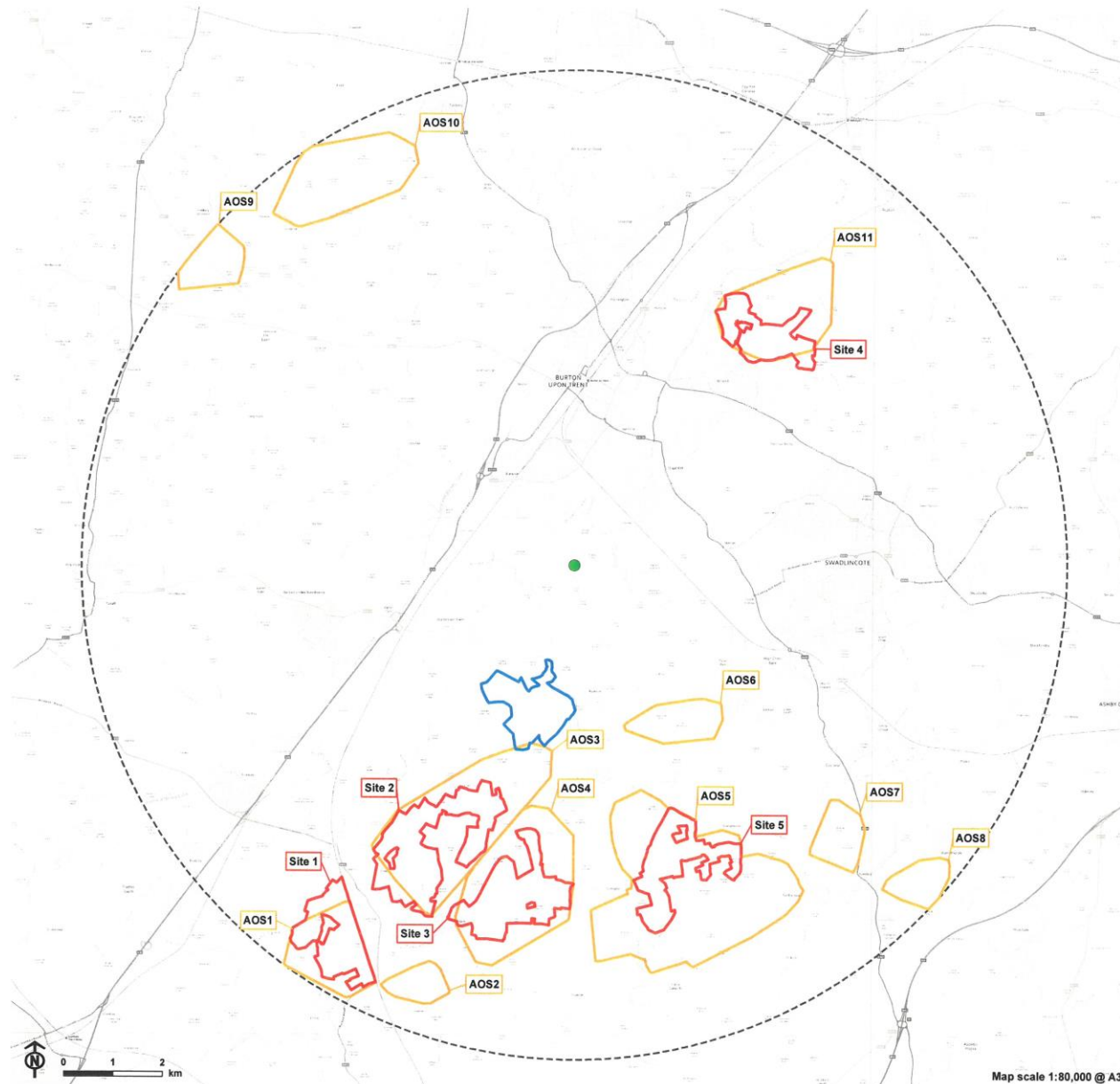
Projection = OSGB36
 xmin = 409200
 ymin = 310500
 xmax = 439700
 ymax = 327100

Map produced by MAGiC on 31 July, 2020.
 Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGiC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

APPENDIX KCC2
Plan Showing Areas of Search



Figure 1: Proposed Alternative Sites



- Proposed Site Boundaries for large sites (154ha and above)
- Proposed Areas of Search for small sites (52ha and above)
- 10km Point of Connect study area
- Point of Connection
- Proposed Oaklands Farm Site Boundary (172ha)

Contains Ordnance Survey data © Crown copyright and database right 2020

Map scale 1:80,000 @ A3
CB: EB Packham_B LUC Figure_1_11185_0_Alternative_Sites_05/08/2020
Source: BayWa, LUC





Greenacres Barn, Stoke Common Lane, Purton Stoke, Swindon, Wiltshire SN5 4LL
Telephone: 01793 771333 • Email: info@kernon.co.uk • Website: www.kernon.co.uk

