

# Bicker Fen Solar Farm

## Report on surveys for breeding birds

Low Carbon

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### Quality information

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# 1. Introduction

## 1.1 Background

1.1.1 AECOM (on behalf of Low Carbon) undertook surveys of breeding birds for the proposed Bicker Fen Solar Farm (hereafter referred to as the 'Scheme'). The Preliminary Ecological Appraisal for the Scheme identified that the habitat within the Scheme boundary was suitable to support birds during the breeding season and that surveys were required to determine the presence and any assemblages of protected or notable breeding bird species within the Scheme boundary. Therefore, AECOM was instructed to undertake surveys of breeding birds within the main sites, proposed for solar photo-voltaic (PV) panels and an appropriate survey buffer (the survey area) to record the species, distribution and numbers of breeding bird territories within these areas.

## 1.2 The Scheme

1.2.1 The Bicker Fen Solar Farm (see Figures 1 to 74, Annex A) is a proposed new solar energy farm, co-located with battery storage. The Proposed Scheme would export or import up to 500MW of electricity to and from the National Grid. The proposed generation capacity of the Proposed Scheme means it is a Nationally Significant Infrastructure Project (NSIP) and as such would require a Development Consent Order (DCO).

## 1.3 Site Description

1.3.1 The Scheme is located on two sites (termed the 'northern site' and 'southern site' hereafter, where referring to specific locations and collectively as 'the Site'). The northern site is located to the east of the villages of Howell and Ewerby Thorpe (Ordnance Survey (OS) grid reference TF145474) and the southern site is located in the vicinity of Thorpe Latimer (OS grid reference at TF122404). The location of the Scheme is shown in Figures 1 to 74 (Annex A). Both sites are within the district of North Kesteven.

1.3.2 Both sites are dominated by arable fields with game crop strips, hedgerows, woodland blocks, numerous mature trees and plantation woodland. The Site is surrounded by mainly arable and improved grassland livestock fields.

1.3.3 Details of any grid connections between sites and to substations were unknown at the time of undertaking the surveys for breeding birds and therefore, the assessment within these areas does not form part of the commissioned scope reported in this document.

## 1.4 Report objectives

1.4.1 The objective of the surveys for breeding birds, reported in this document, is to determine the presence, assemblage and distribution of breeding bird species, within the Site and relevant zones of influence to determine any potential impacts of the Scheme on breeding birds.

1.4.2 This report includes the following information:

- relevant legislation and policy;
- methods for desk and field-based assessments undertaken in 2022;
- limitations to the surveys undertaken and any assumptions made as a result of incomplete data; and
- survey results.

## 2. Legislation and Guidance

### 2.1 Legislative Context

#### Wildlife and Countryside Act

- 2.1.1 The legislative provisions for the protection of wild birds in the UK are contained primarily in Sections 1-7 of the Wildlife and Countryside Act (WCA) 1981 (as amended) (Ref 5-1). Under the WCA, a wild bird is defined as any bird of a species that occurs in a wild state as a resident or a visitor to the European Territory of any member state.
- 2.1.2 When breeding, all birds, their nest, eggs and nestlings are afforded protection under the Wildlife and Countryside Act 1981, as updated by the 'Countryside Right of Way Act 2000' (Ref 5-2). Therefore, during the bird breeding season (typically March-August inclusive) it is an offence to:
- intentionally kill, injure or take any wild bird;
  - intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; and
  - intentionally take or destroy the eggs of any wild bird.
- 2.1.3 Additionally, special penalties exist for offences related to species listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 5-1), for which there are additional offences for disturbing these birds at their nest, or their dependent young. Schedule 1 birds cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. No licences are available for disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

#### Directive of the Conservation of Wild Birds

- 2.1.4 A number of bird species recorded within the UK (including those that are resident, overwintering and migratory) are protected under European legislation under the Directive of the Conservation of Wild Birds (EU Birds Directive) (Ref 5-3), which lists 193 species, or sub-species, of birds in Annex 1 which are:
- in danger of extinction;
  - are rare, or have restricted local distribution;
  - are vulnerable to specific changes in their habitat; or
  - require particular attention for reasons of the specific nature of habitat.
- 2.1.5 This Directive is reflected in English law by the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 5-4). Although the UK is no longer a member state of the European Union, the 2019 amendments to the Conservation of Habitats and Species Regulations 2017 (Ref 5-5) make it clear that provisions regarding the protection and designation of Special Protection Areas (SPAs) are maintained. Species listed on Annex 1 are those for which the UK Government takes special conservation measures including the designation of land as SPAs to ensure the survival and reproduction of these species throughout their distributions. These sites are automatically included within the National Site Network; a network of core breeding and resting sites that are protected for rare and threatened species.

#### Priority species

- 2.1.6 In addition to the above legislation, 49 bird species are listed as being Species of Principal Importance for conservation in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 5-6). These species are of material consideration during the planning process. Section 41 of the NERC Act 2006 requires the Secretary of State to publish a list of habitats and species which are of Principal Importance for the conservation

of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act. The Section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England when carrying out their normal functions.

2.1.7 The Joint Nature Conservation Committee (JNCC) UK Biodiversity Action Plan (UKBAP) (Ref 5-7) was launched in 1994 and identified UK BAP priority species of conservation concern that are the most threatened in the UK and requiring action under the UKBAP and for which action plans have been published. However, the work undertaken for the UKBAP is now focussed at a country level, rather than UK level, and the UKBAP has subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 5-8). However, the UK list of priority species remains an important reference source and has been used to help draw up statutory lists of priority species in England, Scotland, Wales and Northern Ireland. For the purpose of this assessment, the UK BAP is still used as one of the criteria to assist in assigning national value to any given ecological receptor.

## 2.2 Local Biodiversity Action Plan

2.2.1 The Scheme is located in the county of Lincolnshire. The Lincolnshire Biodiversity Action Plan (3rd edition) (Ref 5-9) provides the local nature conservation strategy for identifying threats to species within the county and set out the action plans necessary to conserve them. The action plan provides context to inform identification of threatened or uncommon species within the district and, or county. The plan also identifies priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.

2.2.2 The Lincolnshire BAP lists 16 bird species for which action plans have been prepared. These species are presented in Table 2-1.

**Table 2-1: Bird species for which action plans have been prepared in Lincolnshire**

Common Name	Scientific name
Barn Owl	<i>Tyto alba</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Corn Bunting	<i>Emberiza calandra</i>
Curlew	<i>Numenius arquata</i>
Grey Partridge	<i>Perdix perdix</i>
Lapwing	<i>Vanellus vanellus</i>
Linnet	<i>Linaria cannabina</i>
Redshank	<i>Tringa totanus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Skylark	<i>Alauda arvensis</i>
Snipe	<i>Gallinago gallinago</i>
Starling	<i>Sturnus vulgaris</i>
Tree Sparrow	<i>Passer montanus</i>
Turtle Dove	<i>Streptopelia turtur</i>

Yellow Wagtail

*Motacilla flava*

Yellowhammer

*Emberiza citrinella*

2.2.3 The Lincolnshire Biodiversity Action Plan (Ref 5-9) identifies the following threats to farmland birds in Lincolnshire:

- The loss of permanent and relatively species-rich grassland;
- Increased chemical usage including fertilisers, pesticides and use of broad spectrum and persistent animal treatments;
- Uniformity within crops, offering fewer opportunities for birds to feed and nest;
- The decline of mixed farming;
- Loss of hedgerow trees through old age and removal for safety and other reasons;
- Hedgerow removal and poor management of remaining hedges;
- Drainage of arable land decreasing the potential for nesting Lapwing and reducing the ability of chicks to probe for food;
- A reduction in crop mosaic; and
- Nest destruction by agricultural machinery and non-replacement of old nest boxes for Barn Owls, reducing future availability of nesting sites.

## 2.3 Birds of conservation concern

2.3.1 The Birds of Conservation Concern (BoCC) (Ref 5-9) is an assessment of the conservation status of all regularly occurring British birds. The lists (Red, Amber and Green), that indicate the level of conservation importance for each species, are derived from quantitative assessments from standardised criteria. The assessment is based on the most up-to-date evidence available and criteria include conservation status at global and European levels and, within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance. The lists are drawn together by the UK's leading bird conservation organisations, including the Royal Society for the Protection of Birds (RSPB) and British Trust for Ornithology (BTO).

2.3.2 The criteria for birds being included in the BoCC lists are as follows.

### Red List:

- are globally threatened (Critically Endangered, Endangered and Vulnerable, but not Near Threatened) under International Union for Conservation of Nature and Natural Resources (IUCN) guidelines;
- have shown a historical population decline between 1800 and 1995 and have not recovered;
- have suffered a severe non-breeding population decline of more than 50%; and
- whose UK range in the non-breeding season has declined by more than 50% between respective breeding and non-breeding atlases.

### Amber List:

- those that are threatened in Europe (Critically Endangered, Endangered and Vulnerable, but not Near Threatened as per IUCN Red List Guidelines);
- those that were previously red-listed for historical population decline, followed by an increase of at least 100% over 25 years or the longer-term period;
- those that have suffered a moderate non-breeding population decline of between 25% and 50%;
- whose UK range in the non-breeding season has declined by more than 50% between respective breeding and non-breeding atlases;
- non-breeding rarities (UK population <900 non-breeding individuals);
- non-breeding localisation whereby more than 50% of the UK population was found at ten or fewer sites in the non-breeding season; and



- non-breeding international importance whereby the UK holds at least 20% of the European population in the non-breeding (WI) season of a particular species.

**Green List:**

- Species that occur regularly in the UK but do not qualify under any of the above criteria.

2.3.3 The BoCC lists confer no legal status, however where any BoCC Red or Amber-listed species are present at a site, their conservation status should be taken into account when determining the likely impacts (and significance) of proposed plans and projects and in determining the level of mitigation that may be required when birds are to be affected by plans or projects.

## 3. Methods

### 3.1 Field Survey

#### Survey area

- 3.1.1 The survey area included all habitat within the Site and a minimum 50m survey buffer. Standardised survey buffers for assessing the impacts of development on bird populations do not exist, however, the survey area used provides information on the breeding birds within the area immediately surrounding the Scheme and includes areas contiguous with the Site, where birds may potentially be adversely affected. Depending on the sensitivity of the species, birds occurring outside of the survey area may also be adversely affected (such as those listed on Schedule 1 of the WCA (Ref 5-1)) and therefore where any such species were recorded beyond the 50m survey buffer (up to 200m from the Site), these were also recorded. However, the 50m survey buffer is sufficient to determine the likely impacts of the Scheme on the majority of breeding bird species occurring or likely to occur in the area.

#### Territory mapping survey – general breeding bird assemblage

- 3.1.2 The survey was undertaken based on a standard territory mapping methodology for surveying breeding birds as detailed in Bibby *et al.* (2000) (Ref 5-11) and Gilbert *et al.* (1998) (Ref 5-12). This method is based on the principle that many species during the breeding season are territorial. This is found particularly amongst passerines, where territories are often marked by conspicuous song, display and periodic disputes with neighbouring individuals.
- 3.1.3 Five survey visits, approximately two weeks apart, were undertaken between the beginning of April and mid-June 2022, as presented in Table 3-2. Owing to the size of the Site, each survey was split over four-five days. Furthermore, a sixth survey visit was undertaken to walk over the Site to record any territories of specially protected species that can breed later in the year (such as Hobby *Falco subbuteo*) or late-arriving summer breeding species (such as Spotted Flycatcher *Muscicapa striata*). Additionally, any sightings of other specially protected species that were observed during the course of other ecological surveys (such as during bat surveys) were also recorded.

**Table 3-2. Survey dates for each site visit**

Visit number	Survey Dates
1	3 <sup>rd</sup> to 11 <sup>th</sup> April 2022
2	25 <sup>th</sup> to 29 <sup>th</sup> April 2022
3	17 <sup>th</sup> to 20 <sup>th</sup> May 2022
4	29 <sup>th</sup> May to 2 <sup>nd</sup> June 2022
5	10 <sup>th</sup> to 16 <sup>th</sup> June 2022
6	29 <sup>th</sup> to 30 <sup>th</sup> June 2022

- 3.1.4 Survey routes followed the length of all hedgerows, fence-lines and field margins (including paths, tracks and roads). Deviations into areas of set-aside, stubble fields, scrub, woodland and other uncultivated habitats were made, where possible. The routes did not include ploughed or cultivated fields, due to the possibility of trampling and damaging crops. Fields containing livestock were avoided for safety reasons.
- 3.1.5 Regular stopping points were included along the survey route to record any species that may be passing through the survey area. Survey routes were mapped, and the direction walked alternated on each visit, to ensure that all areas were covered at various times of day across

the duration of the survey. Surveys were undertaken early in the morning, commencing just after sunrise and finishing before midday. Each survey was undertaken during appropriate weather conditions for survey when the weather was dry, warm and with little to no wind.

- 3.1.6 On each visit, the survey route was walked at a slow pace with start and finish times noted. All birds seen and heard were recorded directly onto paper maps or an ArcGIS base map using Collector software on hand-held Samsung Tablet devices, with a 1:10,000 scale Ordnance Survey base map of the survey area. All bird species were recorded and mapped across the entire survey area. Specific codes were used to record bird behaviour, including singing, calling, flights and movements between areas, carrying food, nest building, aggressive encounters and other bird behaviour.
- 3.1.7 The expected outcome from the surveys is that mapped registrations fall into clusters, approximately coinciding with territories. A cluster is generally a spatially distinct group of registrations that represent the activity of not more than one pair. Ideally, clusters include registrations of territorial behaviour across all visits and are clearly demarcated from adjacent clusters by simultaneous recording of neighbouring birds. Where a species has closely packed territories, the mapping of simultaneously singing birds becomes essential. Territory boundaries are assumed to be between such birds.
- 3.1.8 Territory mapping methods produce analysis maps of non-overlapping ellipses encircling clusters of records thought to relate to separate pairs of breeding birds. These ellipses may not show the entire extent of the pairs' actual breeding territory which may be significantly larger; however, they are likely to show those areas in which the pair is most active.
- 3.1.9 On completion of the surveys, analysis maps were produced for each species, consisting of all registrations recorded during surveys. From these species maps, the number of territories was calculated by identifying the number of clusters present.
- 3.1.10 For late-arriving (to the UK) trans-Saharan migrants, e.g. Spotted Flycatcher, for which fewer potential contacts are possible, only one registration is required to form a territory cluster. A number of species are not territorial and are dealt with appropriately, e.g. House Sparrow *Passer domesticus*, where data represent aggregations or loose colonies.
- 3.1.11 Standard registration mapping techniques were also used to record non-breeding species.
- 3.1.12 The following definitions were used to identify the breeding territory status of each species recorded:
- Confirmed: includes species for which territories were positively identified as a result of the number of registrations recorded; the location of an active nest; or the presence of recently fledged young / downy young;
  - Probable: includes a species pair observed in suitable nesting habitat during surveys; or agitated behaviour / anxiety calls from adults (suggesting the presence of a nest or young nearby). Behaviour was observed on insufficient occasions to confirm the presence of a territory;
  - Possible: includes species observed during surveys in suitable nesting habitat; or a singing male present (or breeding calls heard) in suitable breeding habitat; or
  - Non-breeding: species-specific information was used to determine fly-over species, or species suspected to be summering non-breeder.

## 3.2 Assessment of ornithological importance

- 3.2.1 An assessment of the ornithological importance of the survey area during the breeding season has not been made as it is beyond the scope of this commission. However, this can be achieved through evaluating any species afforded special statutory protection or those included on one, or more, of the lists of species of conservation interest, as detailed in section 2 of this report. These include:

- species listed on Annex 1 of the EU Birds Directive (Ref 5-3);
- species listed on Schedule 1 of the WCA, 1981 (as amended) (Ref 5-1);
- priority bird species in the UK (Ref 5-6), Lincolnshire (Ref 5-9); and
- species included in the Birds of Conservation Concern (BoCC) Red or Amber Lists (Ref 5-10).

### 3.3 Assumptions and limitations

- 3.3.1 There were no limitations to the survey undertaken. Therefore, sufficient representatives of all habitat types and species have been covered within the entirety of the breeding bird survey period, to allow for a comprehensive assessment of bird species and assemblages present within the Site.

## 4. Results

### 4.1 Field survey

#### General breeding bird assemblage

- 4.1.1 A total of 66 species were recorded during surveys of breeding birds between April and June 2022. Within the northern site survey area, 56 species were recorded and within the southern site survey area, 58 species were recorded.
- 4.1.2 Of the 66 species recorded within the survey area, territories of 50 species were confirmed and a further five species were considered to have probable or possible territories within the survey area, resulting in a breeding bird assemblage of 55 species. Records relating to the remaining 11 species were of non-breeding species. The breeding assemblages within the northern site and southern site were 45 and 48 species, respectively.
- 4.1.3 A summary of the breeding and conservation status of the 66 species recorded during the survey, with the numbers of territories identified (or thought likely in the case of probable and possible records) is provided in **Table 4-3**.
- 4.1.4 For species which are widespread throughout the survey area (e.g. Blue Tit *Cyanistes caeruleus*), are common within Lincolnshire and the UK and are not of conservation concern (i.e. not listed on one or more of the lists of conservation concern as detailed in this report), the number of breeding territories of these species (including probable or possible) have not been calculated and these are referred to in **Table 4-3** as being present (P). Where non-breeding species were recorded as present, within one of the Scheme locations (see section 1.2), these are referred to in **Table 4-3** using a tick (✓) to denote presence.
- 4.1.5 Breeding territory information for records of 'possible' or 'probable' breeders was also not calculated for some species, due to the low number of registrations of birds; however, an estimation of the possible number of territories is included in parentheses in **Table 4-3**.

**Table 4-3: Breeding status, number of territories and conservation status of birds recorded within the survey area in 2022**

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Number of territories	
			Northern Site	Southern Site
Mute Swan <i>Cygnus olor</i>	BoCC Amber	Confirmed	1	0
Gadwall <i>Mareca strepera</i>	BoCC Amber	Non-breeding	✓	-
Mallard <i>Anas platyrhynchos</i>	BoCC Amber	Confirmed	2	1
Tufted Duck <i>Aythya fuligula</i>	-	Non-breeding	✓	-
Red-legged Partridge <i>Alectoris rufa</i>	-	Probable	(P)	(P)
Grey Partridge <i>Perdix perdix</i>	BoCC Red, Priority Species, LBAP	Confirmed	0	3
Quail <i>Coturnix coturnix</i>	WCA Sch. 1, BoCC Amber	Confirmed	0	2
Pheasant <i>Phasianus colchicus</i>	-	Probable	(P)	(P)
Little Grebe <i>Tachybaptus ruficollis</i>	-	Confirmed	1	0
Buzzard <i>Buteo buteo</i>	-	Confirmed	0	1
Moorhen <i>Gallinula chloropus</i>	BoCC Amber	Confirmed	3	3
Lapwing <i>Vanellus vanellus</i>	Priority Species, BoCC Red, LBAP	Confirmed	0	1
Golden Plover <i>Pluvialis apricaria</i>	Annex 1	Non-breeding	-	✓
Snipe <i>Gallinago gallinago</i>	BoCC Amber, LBAP	Non-breeding	✓	✓
Stock Dove <i>Columba oenas</i>	BoCC Amber	Confirmed	1	2
Wood Pigeon <i>Columba palumbus</i>	BoCC Amber	Confirmed	5	16
Collared Dove <i>Streptopelia decaocto</i>	-	Confirmed	✓	2
Cuckoo <i>Cuculus canorus</i>	Priority Species, BoCC Red	Confirmed	1	✓
Barn Owl <i>Tyto alba</i>	WCA Sch. 1, LBAP	Confirmed	1	2

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Number of territories	
			Northern Site	Southern Site
Tawny Owl <i>Strix aluco</i>	BoCC Amber	Probable	0	(1)
Great Spotted Woodpecker <i>Dendrocopus major</i> -		Confirmed	1	1
Green Woodpecker <i>Picus viridus</i>	-	Confirmed	2	2
Kestrel <i>Falco tinnunculus</i>	BoCC Amber	Confirmed	1	✓
Hobby <i>Falco subbuteo</i>	WCA Sch. 1	Confirmed	0	1
Peregrine <i>Falco peregrinus</i>	Annex 1, WCA Sch. 1	Non-breeding	✓	✓
Jay <i>Garrulus glandarius</i>	-	Non-breeding	-	✓
Magpie <i>Pica pica</i>	-	Possible	(1)	(1)
Jackdaw <i>Coloeus monedula</i>	-	Confirmed	1	2
Rook <i>Corvus frugilegus</i>	BoCC Amber	Confirmed	✓	4 colonies
Carrion Crow <i>Corvus corone</i>	-	Confirmed	1	3
Raven <i>Corvus corax</i>	-	Non-breeding	-	✓
Blue Tit <i>Cyanistes caeruleus</i>	-	Confirmed	P	P
Great Tit <i>Parus major</i>	-	Confirmed	P	P
Skylark <i>Alauda arvensis</i>	Priority Species, BoCC Red, LBAP	Confirmed	71	58
Swallow <i>Hirundo rustica</i>	-	Confirmed	(1)	1
House Martin <i>Delichon urbicum</i>	BoCC Red	Possible	(1)	-
Long-tailed Tit <i>Aegithalos caudatus</i>	-	Confirmed	2	1
Willow Warbler <i>Phylloscopus trochilus</i>	BoCC Amber	Confirmed	2	1
Chiffchaff <i>Phylloscopus collybita</i>	-	Confirmed	3	5
Sedge Warbler <i>Acrocephalus schoenobaenus</i>	BoCC Amber	Confirmed	12	✓

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Number of territories	
			Northern Site	Southern Site
Reed Warbler <i>Acrocephalus scirpaceus</i>	-	Confirmed	2	0
Blackcap <i>Sylvia atricapilla</i>	-	Confirmed	11	12
Lesser Whitethroat <i>Sylvia curruca</i>	-	Confirmed	1	1
Whitethroat <i>Sylvia communis</i>	BoCC Amber	Confirmed	32	44
Wren <i>Troglodytes troglodytes</i>	BoCC Amber	Confirmed	34	60
Treecreeper <i>Certhia familiaris</i>	-	Non-breeding	✓	-
Starling <i>Sturnus vulgaris</i>	Priority Species, BoCC Red, LBAP	Non-breeding	✓	✓
Blackbird <i>Turdus merula</i>	-	Confirmed	P	P
Song Thrush <i>Turdus philomelos</i>	Priority Species, BoCC Amber	Confirmed	8	6
Mistle Thrush <i>Turdus viscivorus</i>	BoCC Red	Confirmed	0	1
Spotted Flycatcher <i>Muscicapa striata</i>	Priority Species, BoCC Red	Confirmed	1	3
Robin <i>Erithacus rubecula</i>	-	Confirmed	P	P
Wheatear <i>Oenanthe Oenanthe</i>	BoCC Amber	Non-breeding	✓	-
House Sparrow <i>Passer domesticus</i>	Priority Species, BoCC Red	Confirmed	2 colonies (up to 8 territories)	2 colonies (up to 4 territories)
Dunnock <i>Prunella modularis</i>	Priority Species, BoCC Amber	Confirmed	14	25
Yellow Wagtail <i>Motacilla flava</i>	Priority Species, BoCC Red, LBAP	Confirmed	2	4
Pied Wagtail <i>Motacilla alba</i>	-	Confirmed	✓	1
Meadow Pipit <i>Anthus pratensis</i>	BoCC Amber	Confirmed	8	6



Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Number of territories	
			Northern Site	Southern Site
Chaffinch <i>Fringilla coelebs</i>	-	Confirmed	P	P
Bullfinch <i>Pyrrhula pyrrhula</i>	Priority Species, BoCC Amber, LBAP	Confirmed	(1)	1
Greenfinch <i>Chloris chloris</i>	BoCC Red	Confirmed	2	1
Linnet <i>Linaria cannabina</i>	Priority Species, BoCC Red, LBAP	Confirmed	13	16
Goldfinch <i>Carduelis carduelis</i>	-	Confirmed	12	17
Corn Bunting <i>Emberiza calandra</i>	Priority Species, BoCC Red, LBAP	Non-breeding	✓	✓
Yellowhammer <i>Emberiza citrinella</i>	Priority Species, BoCC Red, LBAP	Confirmed	31	50
Reed Bunting <i>Emberiza schoeniclus</i>	Priority Species, BoCC Amber, LBAP	Confirmed	16	14
<b>Total number of species</b>			<b>56</b>	<b>58</b>
<b>Breeding assemblage</b>			<b>45</b>	<b>48</b>

- 4.1.6 From the total breeding assemblage of 55 species, recorded during field surveys:
- no species is listed on Annex 1 of the EU Birds Directive (Ref 5-3);
  - three species are listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 5-1);
  - 13 species are listed as a Priority Species in the UK (Ref 5-6);
  - 11 species are included on the BoCC Red List (Ref 5-10);
  - 18 species are included on the BoCC Amber List (Ref 5-10); and
  - nine species are listed as Lincolnshire Biodiversity Action Plan species (Ref 5-9).
- 4.1.7 The breeding assemblage for species of conservation interest within each Site are presented in Table 4-4.

**Table 4-4: Breeding assemblage for species of conservation interest recorded within each Site**

Conservation Designation	Northern Site	Southern Site
Annex 1	0	0
WCA Schedule 1	1	3
Priority Species	11	12
BoCC Red	11	12
BoCC Amber	14	16
Lincolnshire BAP	7	9

#### Specially protected species

- 4.1.8 Non-breeding species, included on Annex 1 of the EU Birds Directive (Ref 5-3) or Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 5-1), included Golden Plover and Peregrine. Both of these species were recorded as flying over the Site, with 100 Golden Plover circling (but not landing) the southern site during visit 1 and single Peregrines recorded flying over the northern site (visit 2) and the southern site (visit 1).
- 4.1.9 Species recorded within the survey area, included on Annex 1 of the EU Birds Directive or Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended), and with territories confirmed or thought probable / possible were Quail, Barn Owl and Hobby.
- 4.1.10 Two singing Quail were recorded within the southern site survey area on 29<sup>th</sup> May 2022 (visit 4). Both singing males were within wheat fields, with one territory within the southern site and the other outside of the southern site, but within 200m (see Figure 5, Annex A). Whilst both birds were only recorded on a single occasion, the secretive nature of this species during breeding has been considered when defining these as confirmed territories as this species can go un-detected, especially in consideration of the nocturnal habits of this species.
- 4.1.11 A pair of Barn Owl were recorded occupying a hawk / owl box in the northern site (near Carr Dyke, see Figure 17, Annex A), with sightings of birds leaving the box on more than one occasion. However, a pair of Jackdaw and a pair of Kestrel were also occupying this box (simultaneously). Two further territories of Barn Owl were recorded in the southern site, with birds frequenting (and landowner reports of historical breeding) a small building to the south of Screddington Road (see Figure 18, Annex A) and breeding confirmed (through the presence of audible Barn Owl chicks) in a dilapidated farm building to the west of Thorpe Latimer (see Figure 18, Annex A).
- 4.1.12 A pair of Hobby were recorded on more than one visit, utilising a tree belt on the south side of the southern site (see Figure 23, Annex A). Adult birds were highly vocal and breeding was thought to have taken place in an old Carrion Crow nest in this tree belt.

## Species of conservation importance

### Priority species

- 4.1.13 Thirteen species (Grey Partridge, Lapwing, Cuckoo, Skylark, Song Thrush, Spotted Flycatcher, House Sparrow, Dunnock, Yellow Wagtail, Bullfinch, Linnet, Yellowhammer and Reed Bunting) with breeding territories confirmed or having probable, or possible breeding territories within the survey area (see **Table 4-3**) are listed as Species of Principal Importance prepared under Section 41 of the Natural Environment and Rural Communities Act 2006.
- 4.1.14 Of the 13 Priority Species recorded, Grey Partridge and Lapwing had breeding territories within the southern site only, whilst Cuckoo had a breeding territory in the northern site only. The remaining ten species held breeding territories in both sites.

### Birds of conservation concern

- 4.1.15 Breeding territories were confirmed, or thought probable, or possible for 11 species (Grey Partridge, Lapwing, Cuckoo, Skylark, House Martin, Mistle Thrush, House Sparrow, Yellow Wagtail, Greenfinch, Linnet and Yellowhammer) within the survey area that are included on the BoCC Red List. Of the 11 BoCC Red-listed species recorded, Grey Partridge, Lapwing and Mistle Thrush had breeding territories within the southern site only, whilst Cuckoo and House Martin had breeding territories in the northern site only. The remaining nine species held breeding territories in both sites.
- 4.1.16 Breeding territories were confirmed, or thought probable, or possible for 18 species (Mute Swan, Mallard, Quail, Moorhen, Stock Dove, Wood Pigeon, Tawny Owl, Kestrel, Rook, Willow Warbler, Sedge Warbler, Whitethroat, Wren, Song Thrush, Dunnock, Meadow Pipit, Bullfinch and Reed Bunting) within the survey area that are included on the BoCC Amber List. Of the 18 BoCC Amber-listed species recorded, Quail, Tawny Owl, Kestrel and Rook had breeding territories within the southern site only, whilst Mute Swan and Sedge Warbler held breeding territories in the northern site only. The remaining 12 species held breeding territories in both sites.

### Lincolnshire BAP

- 4.1.17 Breeding territories were confirmed, or thought probable, or possible for nine species (Grey Partridge, Lapwing, Barn Owl, Skylark, Yellow Wagtail, Bullfinch, Linnet, Yellowhammer and Reed Bunting) for which action plans have been prepared within the Lincolnshire BAP (see **Table 2-1**).
- 4.1.18 Of these nine LBAP species, Grey Partridge and Lapwing held breeding territories within the southern site only. The remaining seven species held breeding territories in both sites.

## 4.2 Species distribution

- 4.2.1 The locations of species of conservation concern (see **Table 4-3**) are presented in **Figures 1-74**. In general, concentrations of species were found within the most suitable habitats to support each individual species' needs (*i.e.* species reliant on woodland habitat were found within or close to woodland habitat on Site, etc).
- 4.2.2 A summary of the distribution of Priority Species (see section 4.1.13) is presented below:
- Grey Partridge – recorded within arable and grassland habitats within the southern site.
  - Lapwing – one territory recorded within arable habitat in the southern site.
  - Cuckoo – one territory along the eastern boundary of the northern site.
  - Skylark – recorded within arable and grassland habitats throughout both the northern and southern sites.
  - Song Thrush – recorded within scrub and woodland habitats across the Site.
  - Spotted Flycatcher – associated with mature trees within boundary features of both Sites.
  - House Sparrow – recorded close to residential properties adjacent to the Site.

- Dunnock – found throughout the Site in scrub, hedgerows and near woodland.
- Yellow Wagtail – recorded within arable habitats, widely distributed across both sites.
- Bullfinch - associated with scrub with one probable territory in the northern site and another associated with scrub in the southern site.
- Linnet – found throughout the Site, mostly associated with hedgerows and scrub.
- Yellowhammer - found throughout the Site, mostly associated with hedgerows and scrub.
- Reed Bunting - found throughout the Site, mostly associated with hedgerows and scrub near watercourses / water bodies.

## 4.3 Evaluation of key habitat types for breeding birds

4.3.1 A summary of the broad habitat types present in the survey area and their key ornithological features, are presented in **Table 4-5**.

**Table 4-5: Key ornithological features of habitat within the survey area**

<b>Broad habitat type</b>	<b>Key ornithological features</b>
Water bodies (ponds) /watercourses	Supports species associated with wetland features, such as Mallard (and other waterfowl).
Arable farmland	The predominant habitat type occurring across the Site. Supports a number of notable breeding species of conservation concern, including Skylark.
Scrub / hedgerows	Scrub and hedgerows across the Site. Supports breeding species of conservation concern, such as Yellowhammer and Linnet.
Mature trees / woodland	Parcels of woodland and individual trees scattered throughout the Site. Supports species such as Song Thrush, as well as species often found in scrub / hedgerows.

## 5. References

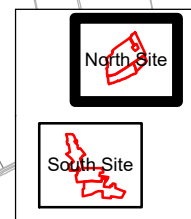
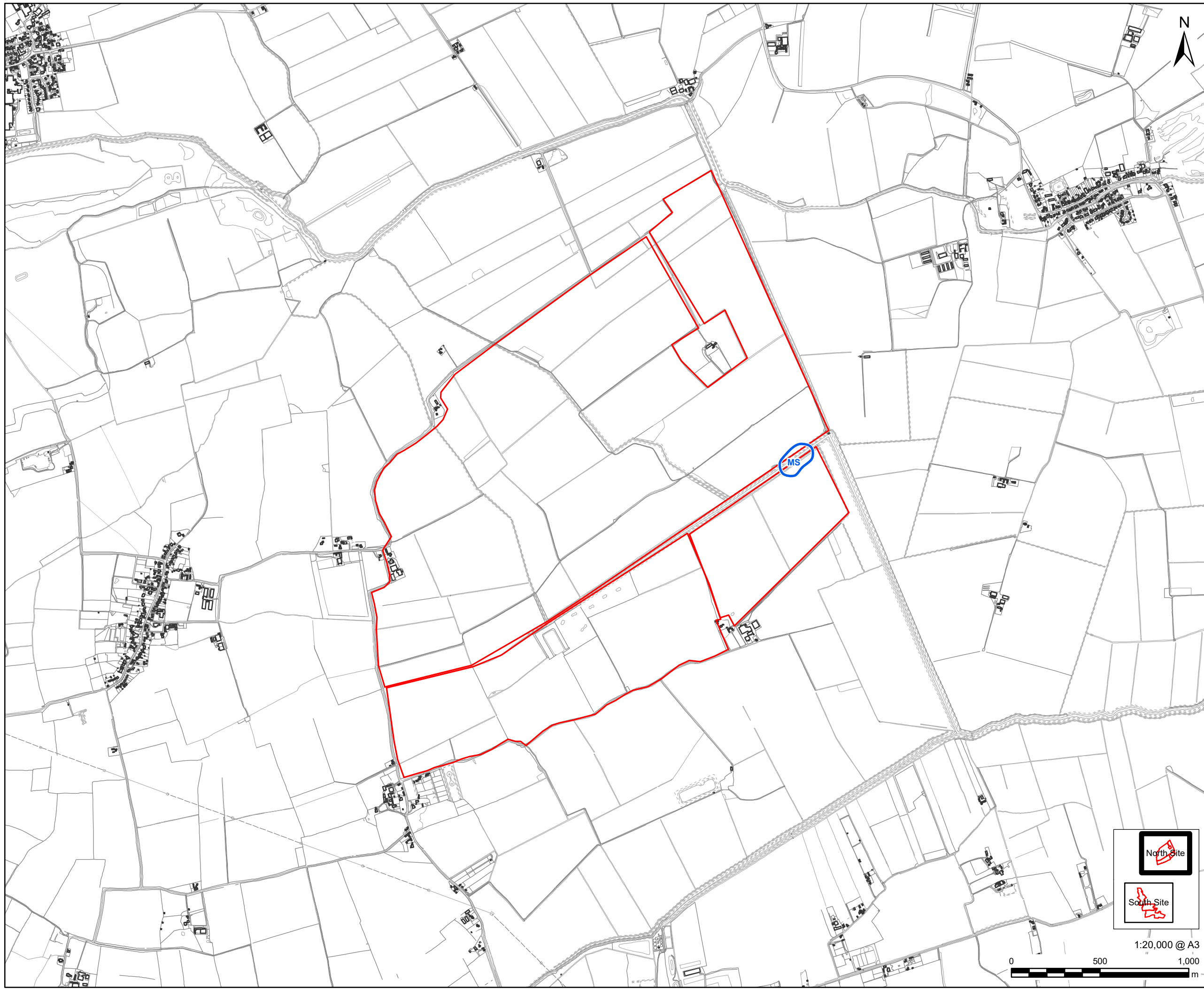
- Ref 5-1 HMSO. (1981). Wildlife & Countryside Act 1981 (as amended). <https://www.legislation.gov.uk/ukpga/1981/69>
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Terrestrial, Freshwater, Coastal and Marine.

## 6. Annexes

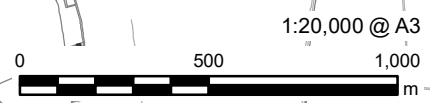
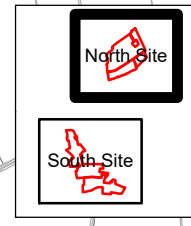
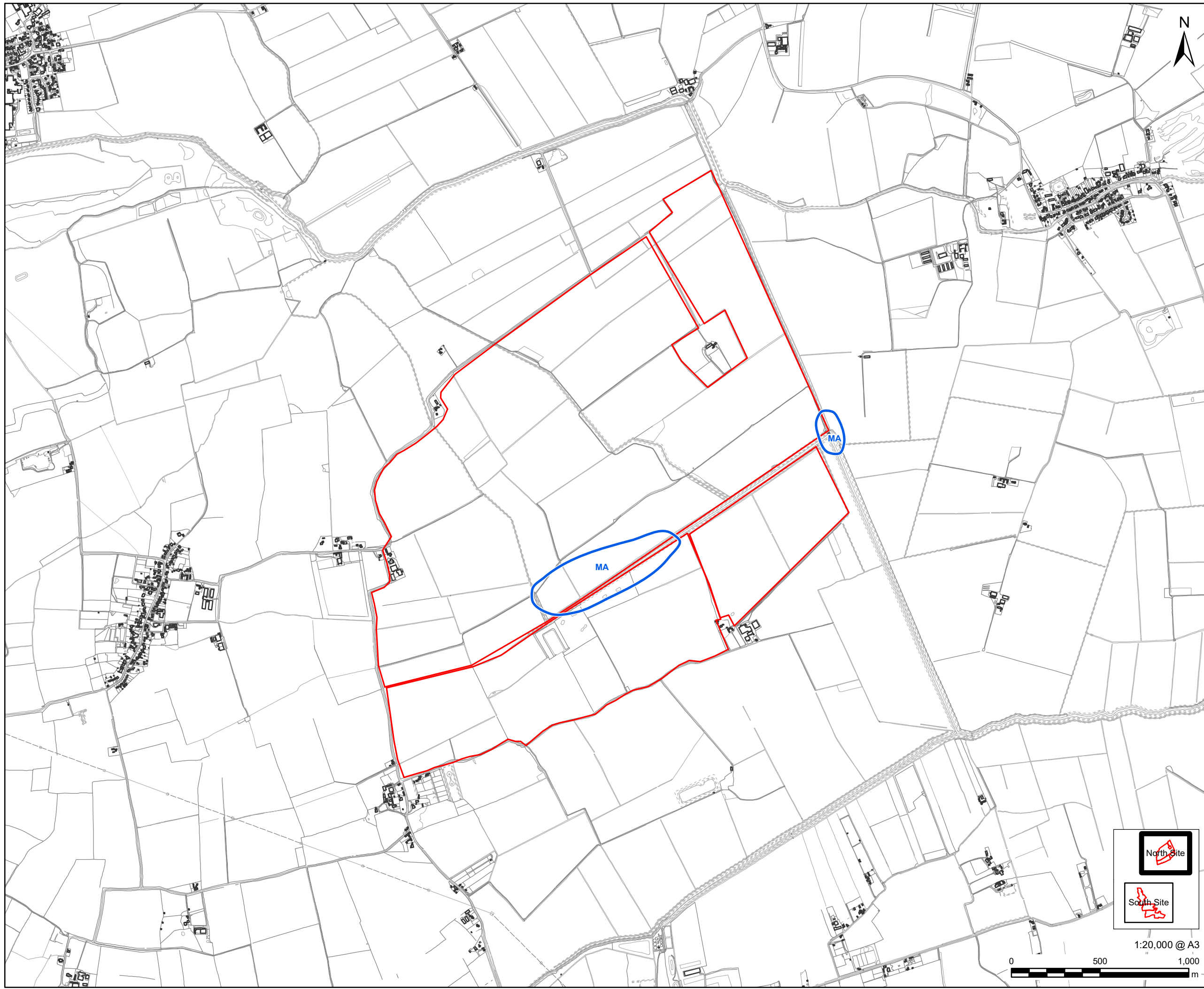
### Annex A Figures

Figure 1-74 Distribution of territories of species of conservation concern

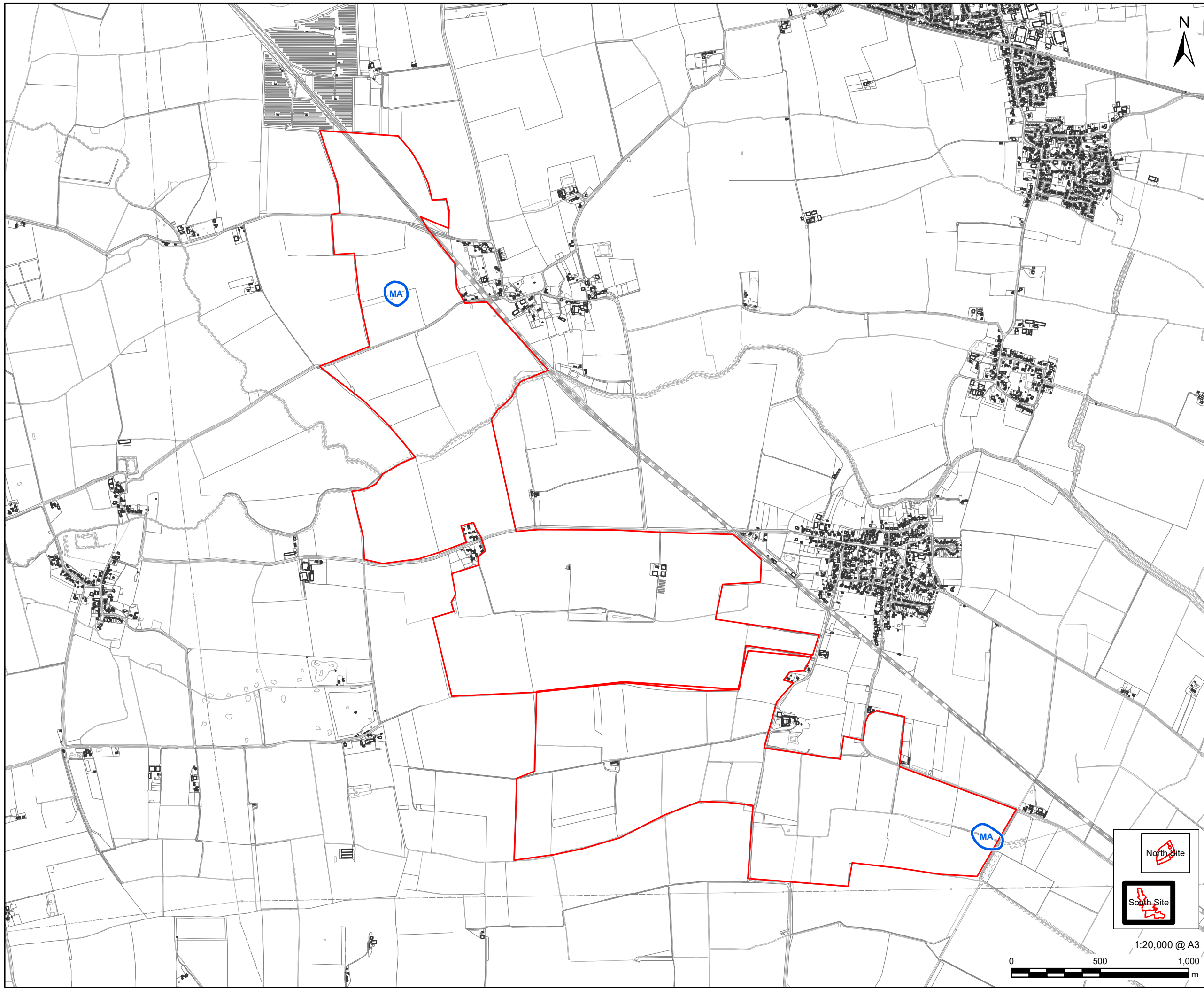


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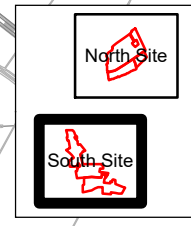
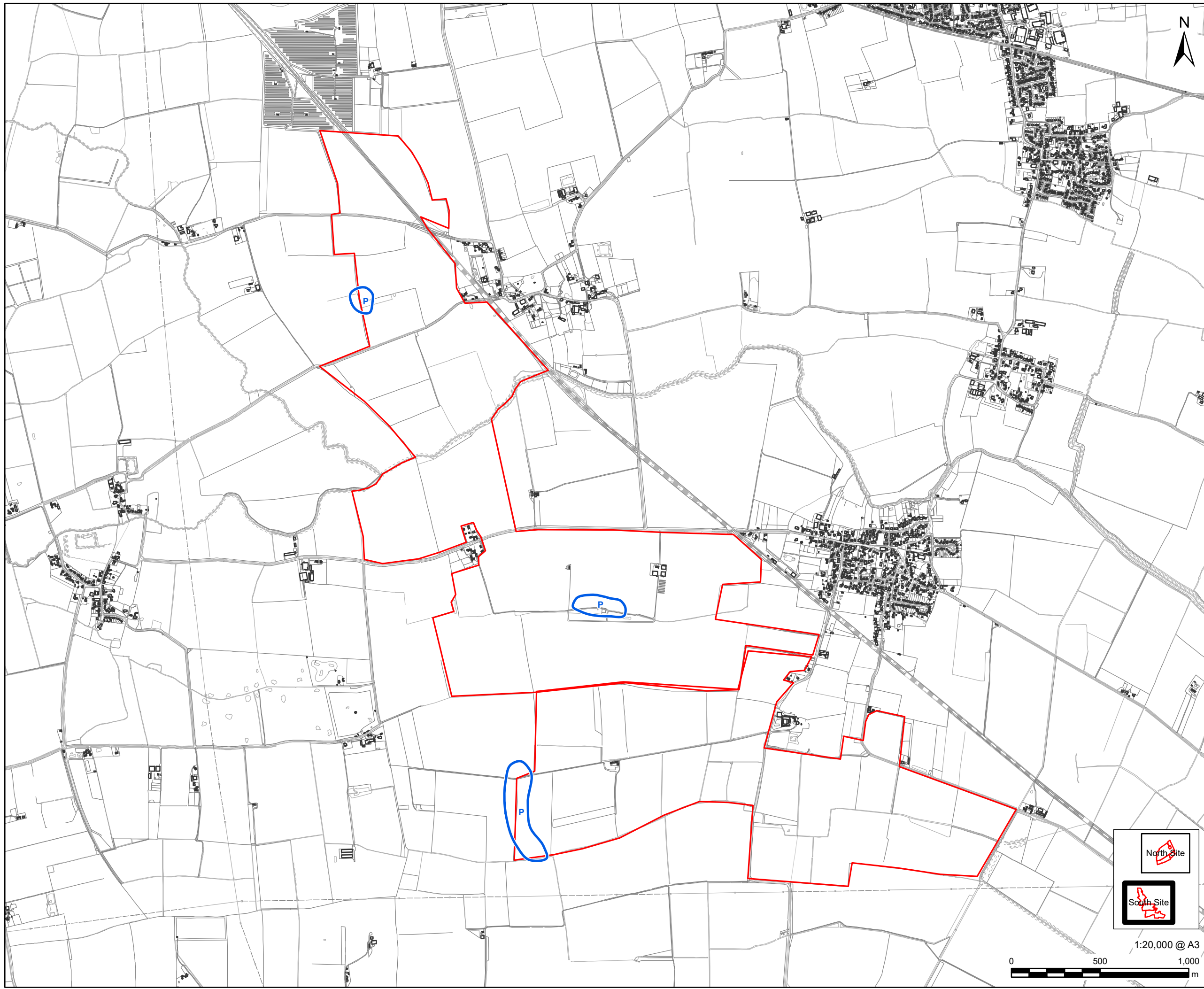




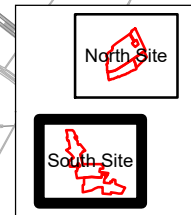
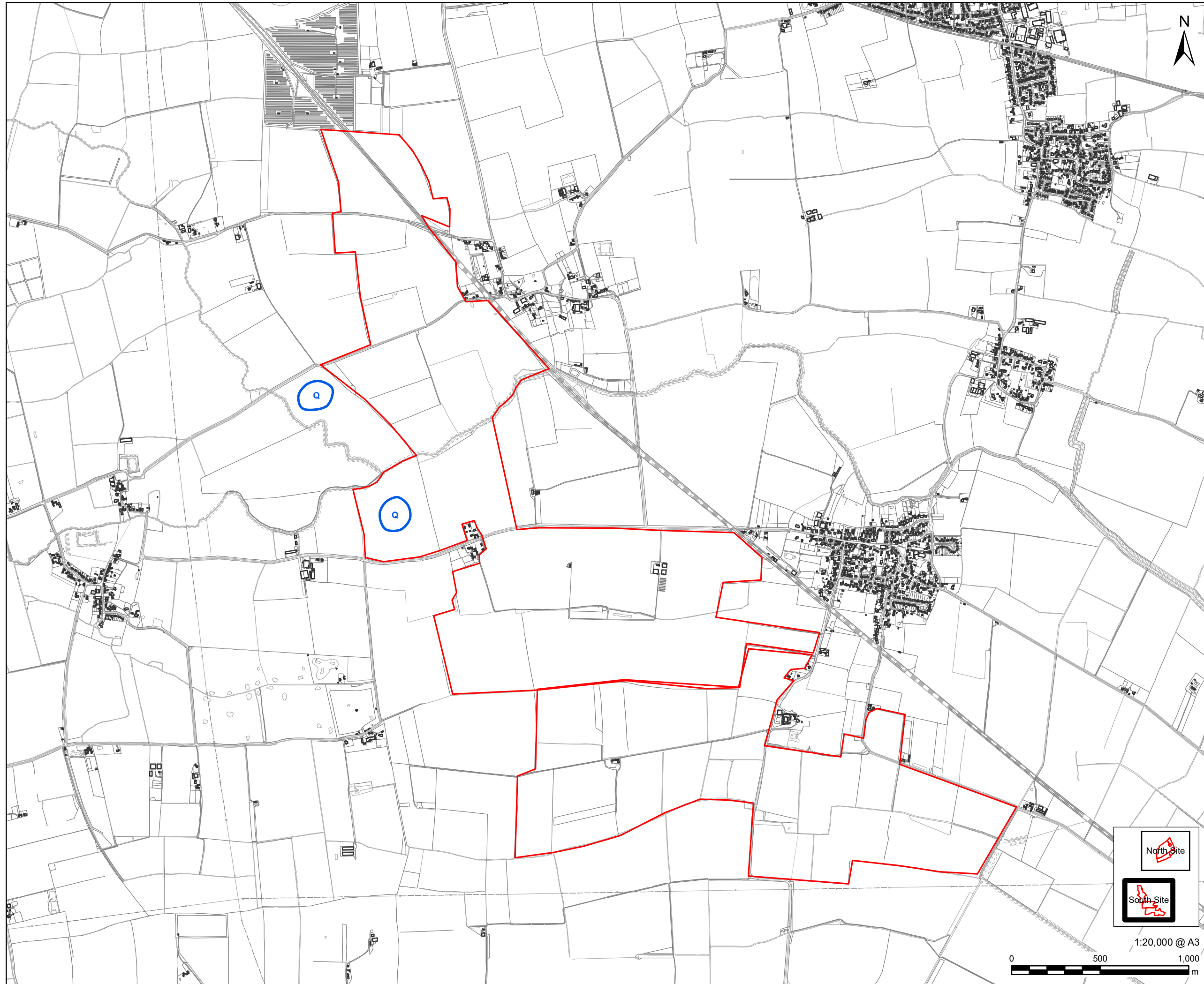
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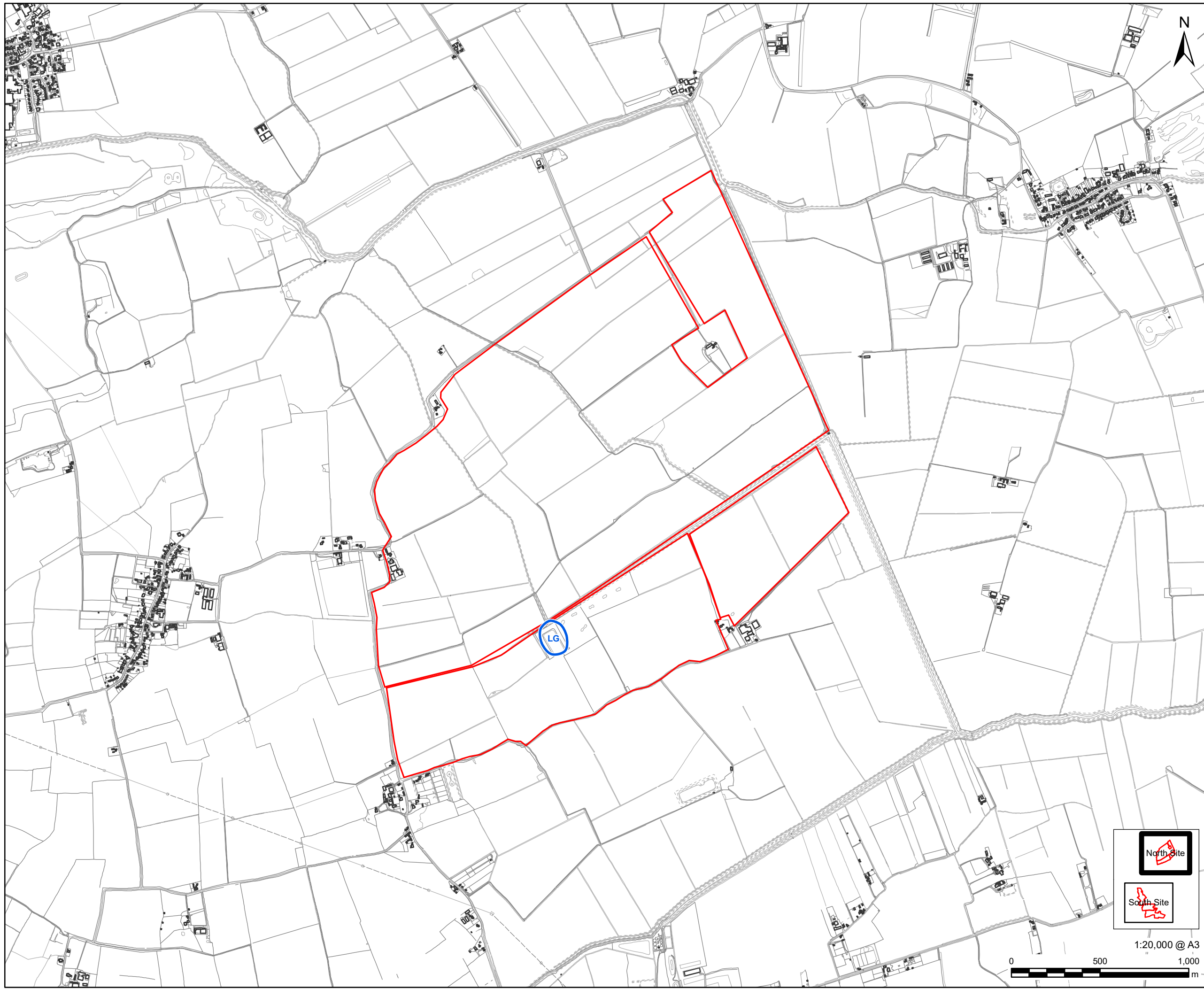
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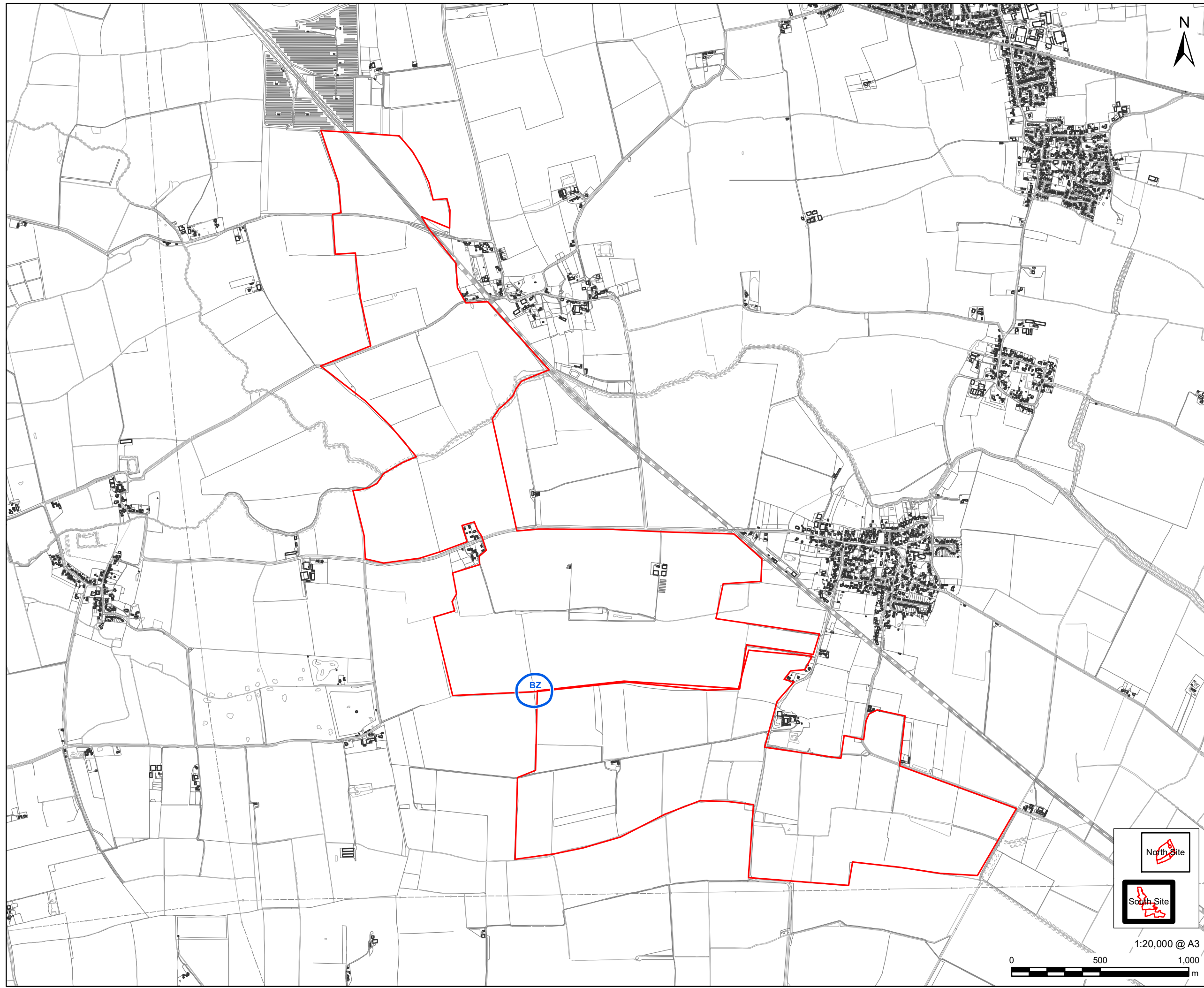
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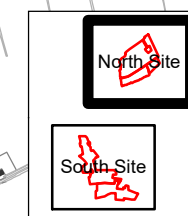
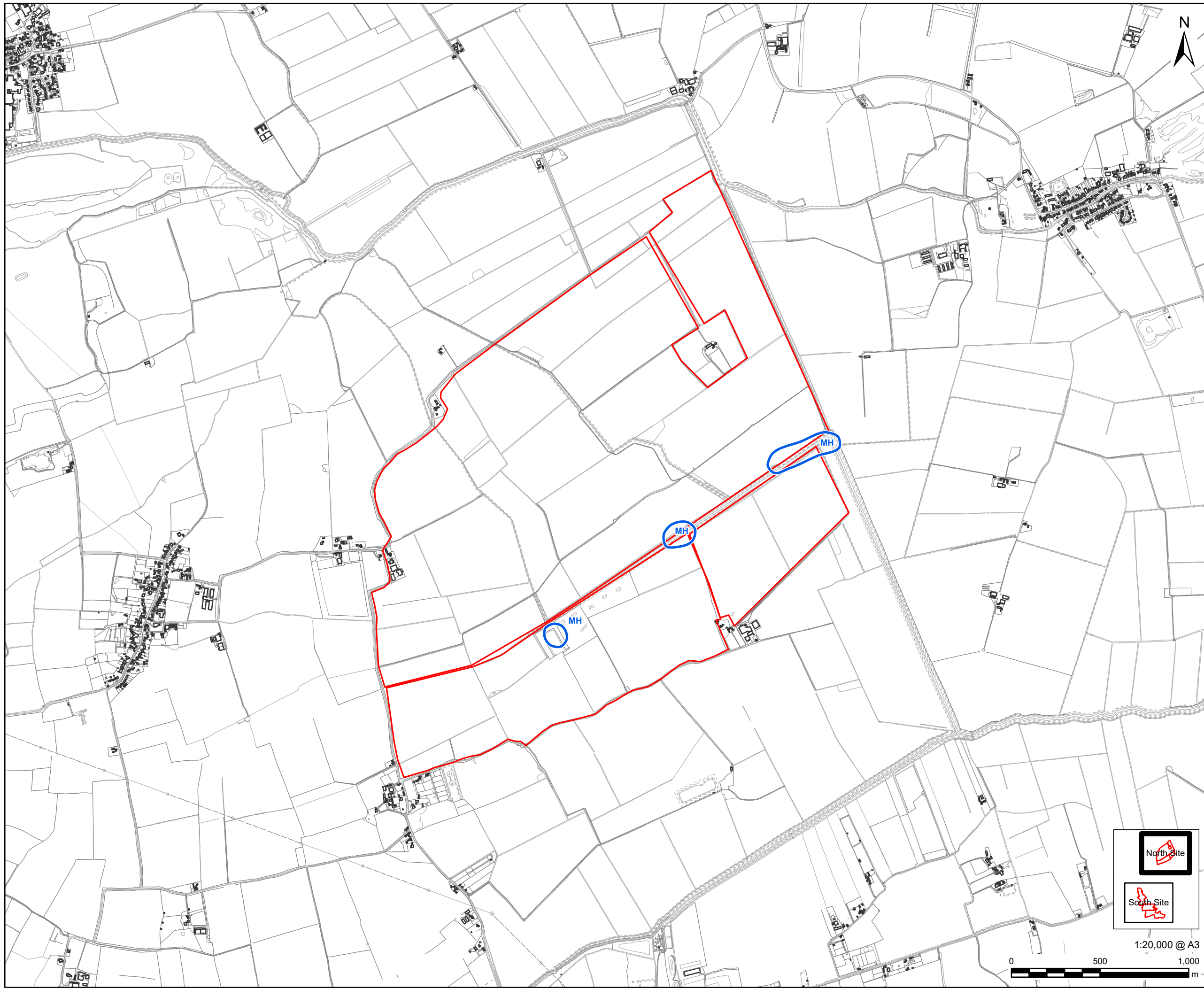
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Buzzard (BZ) Territory

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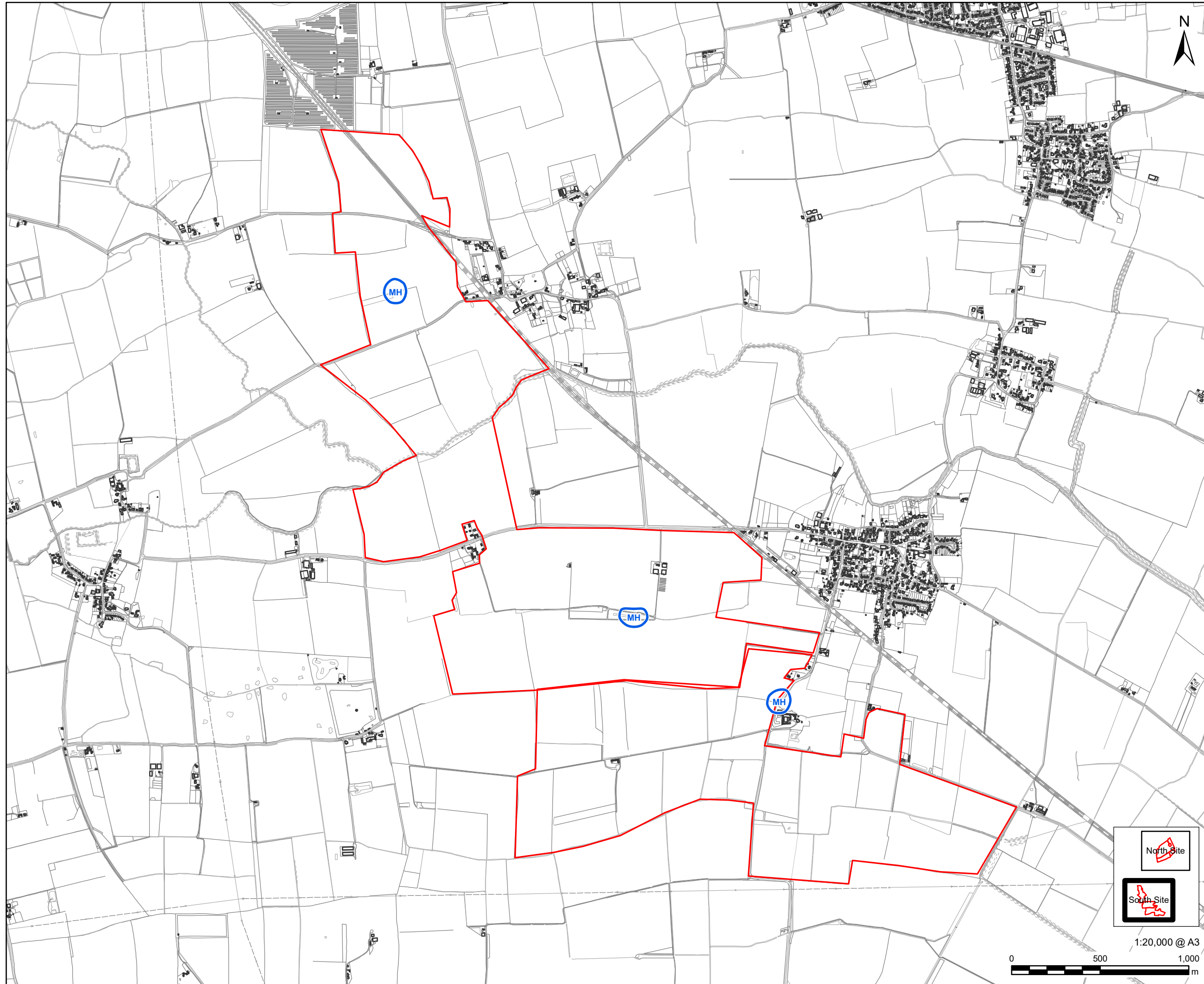
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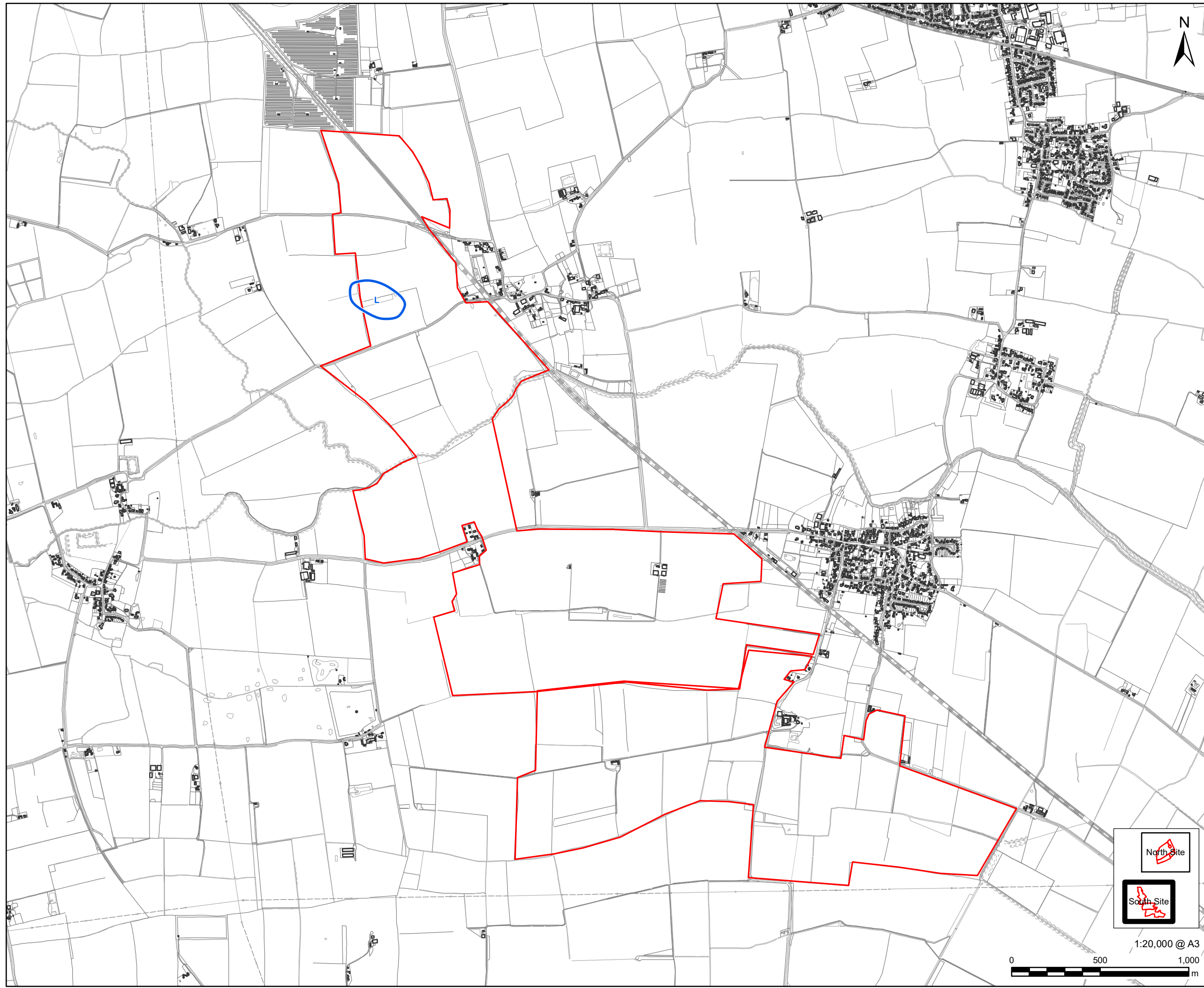


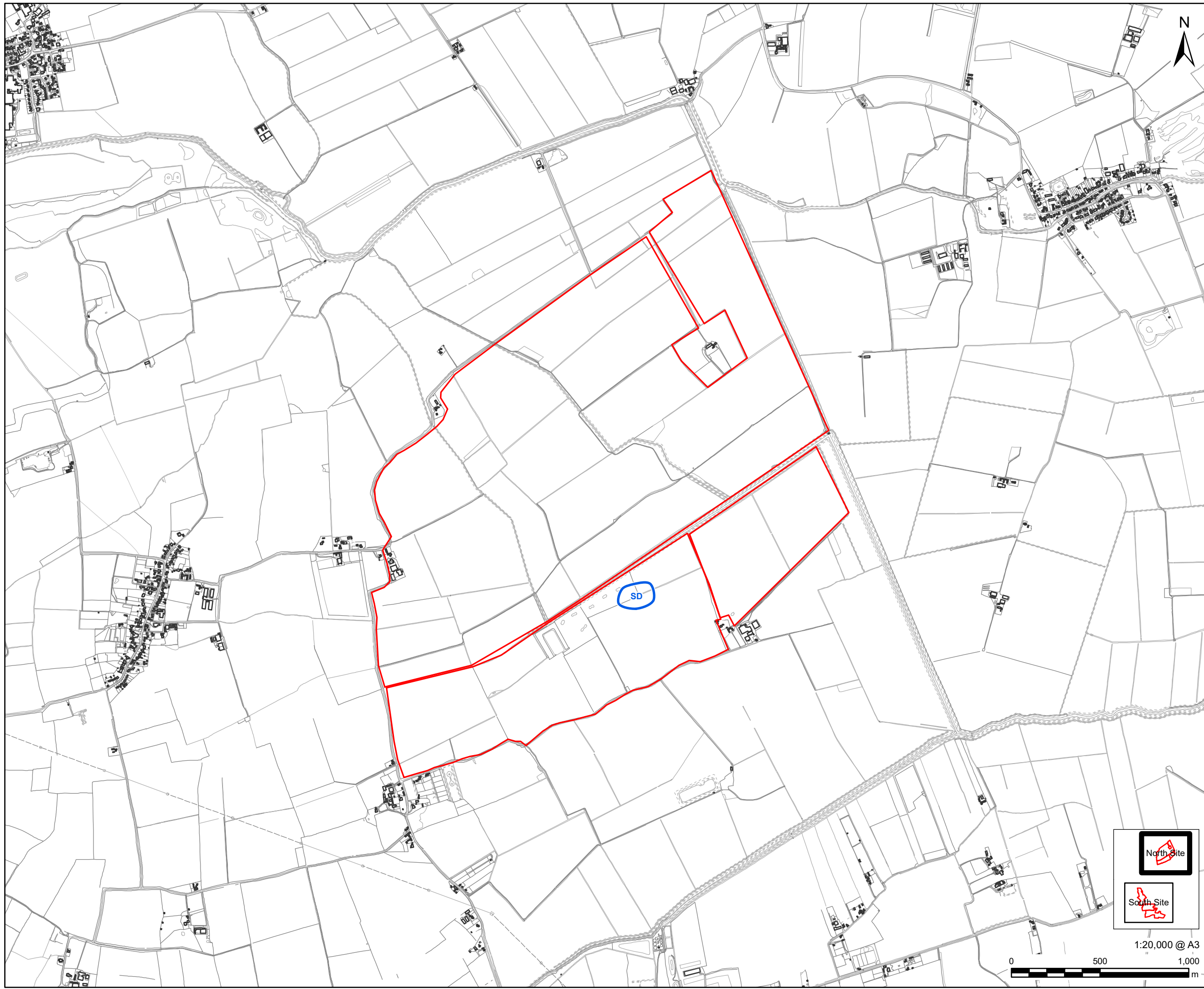
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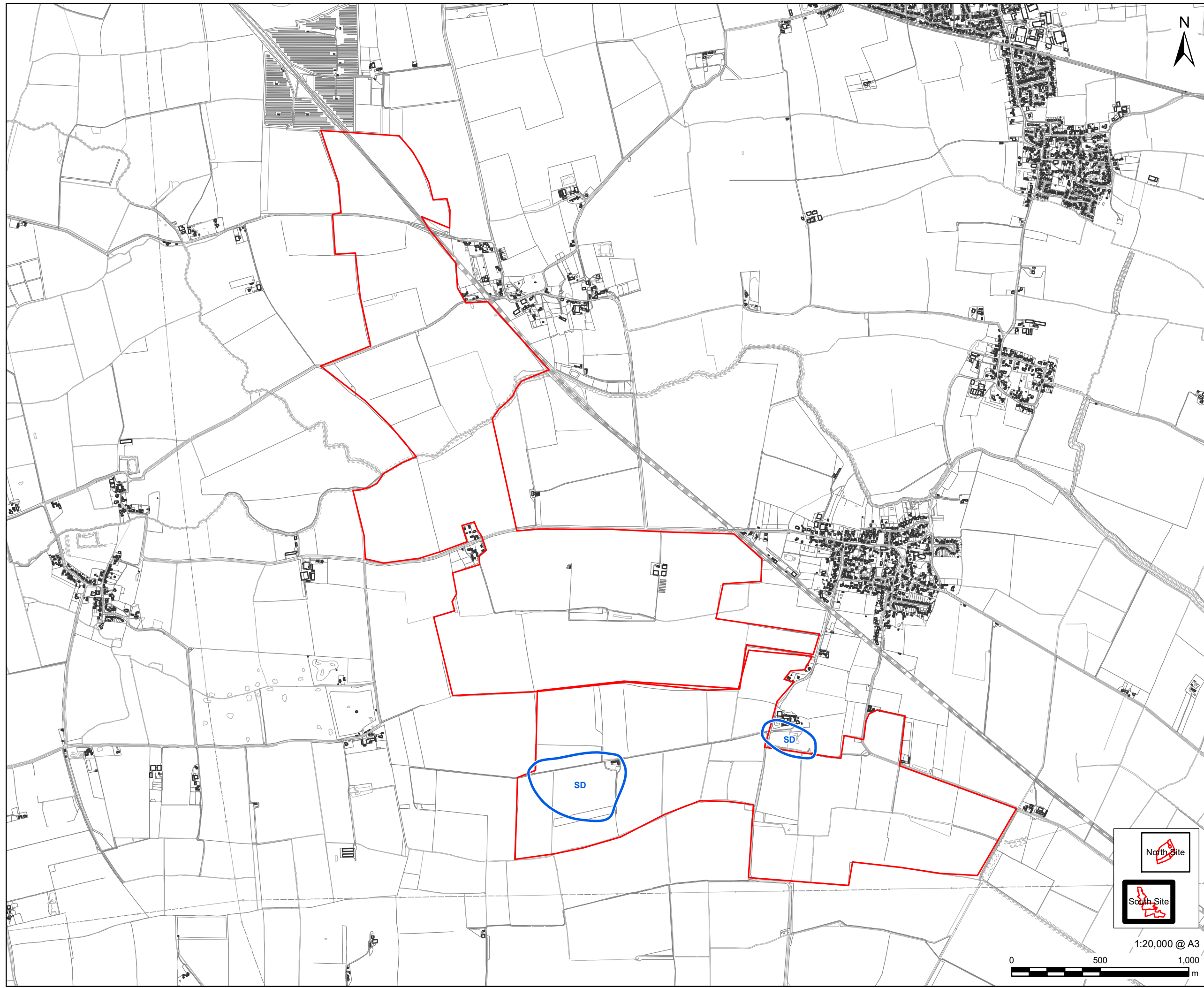
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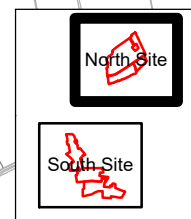
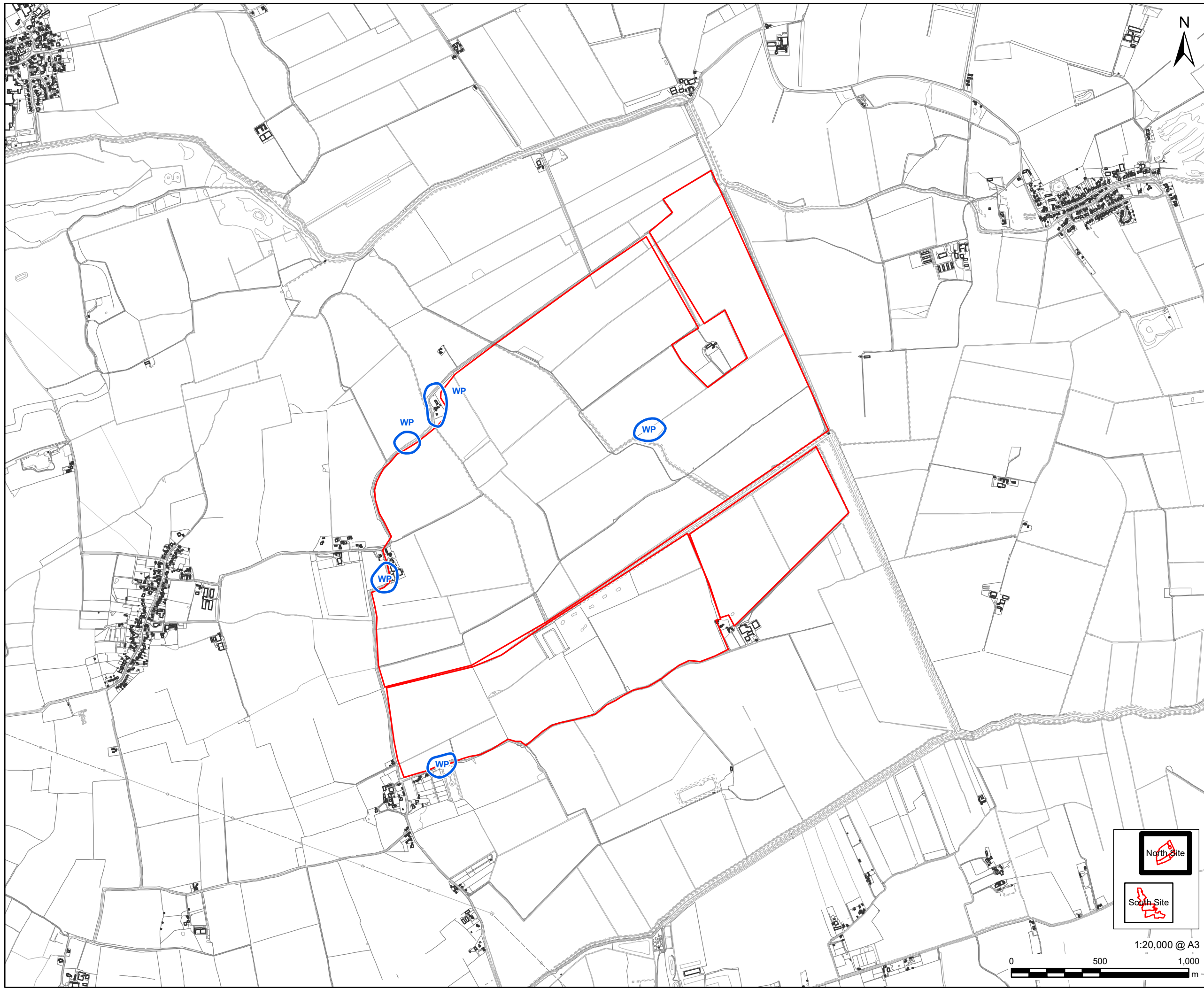




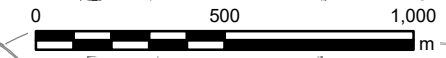
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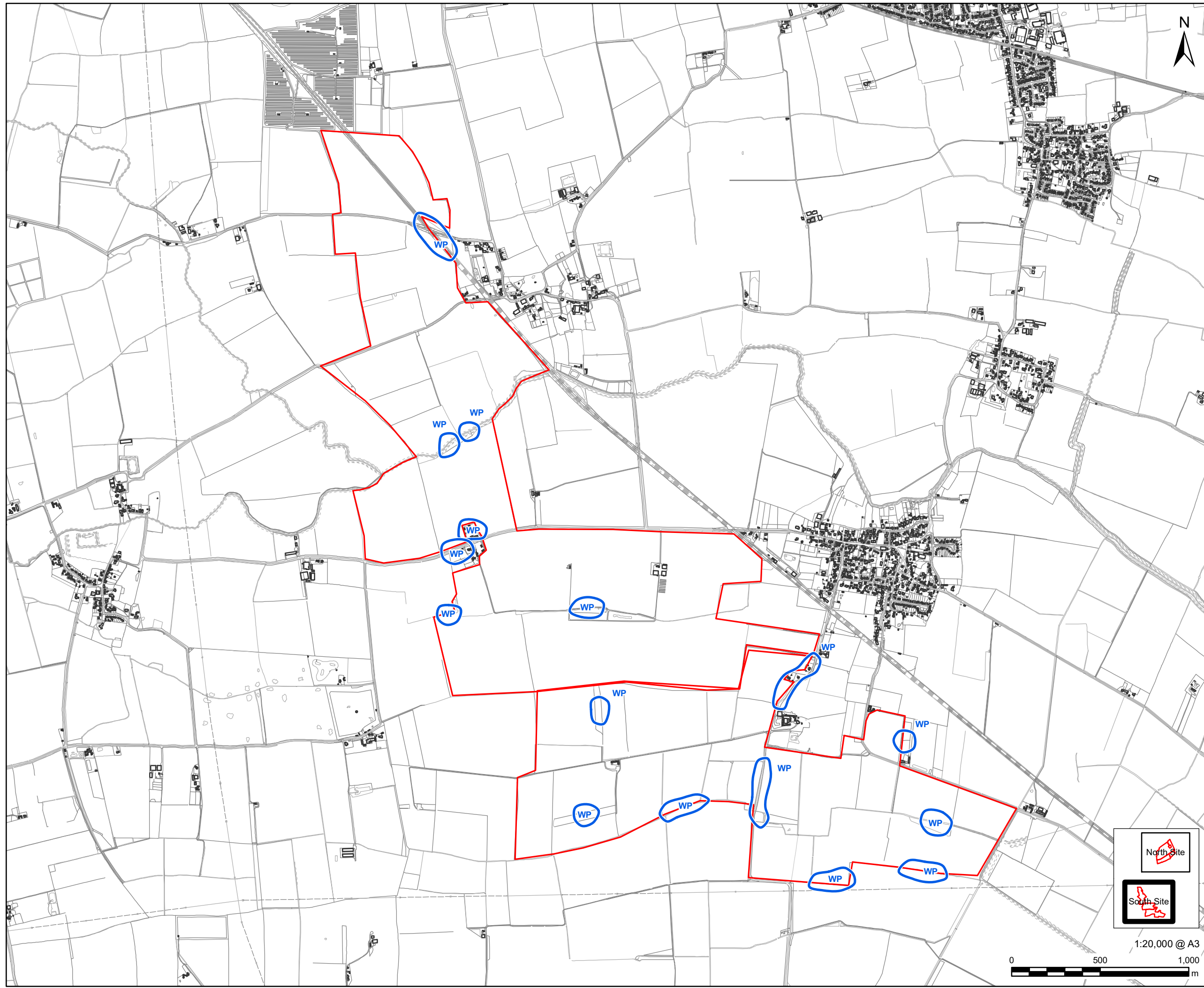
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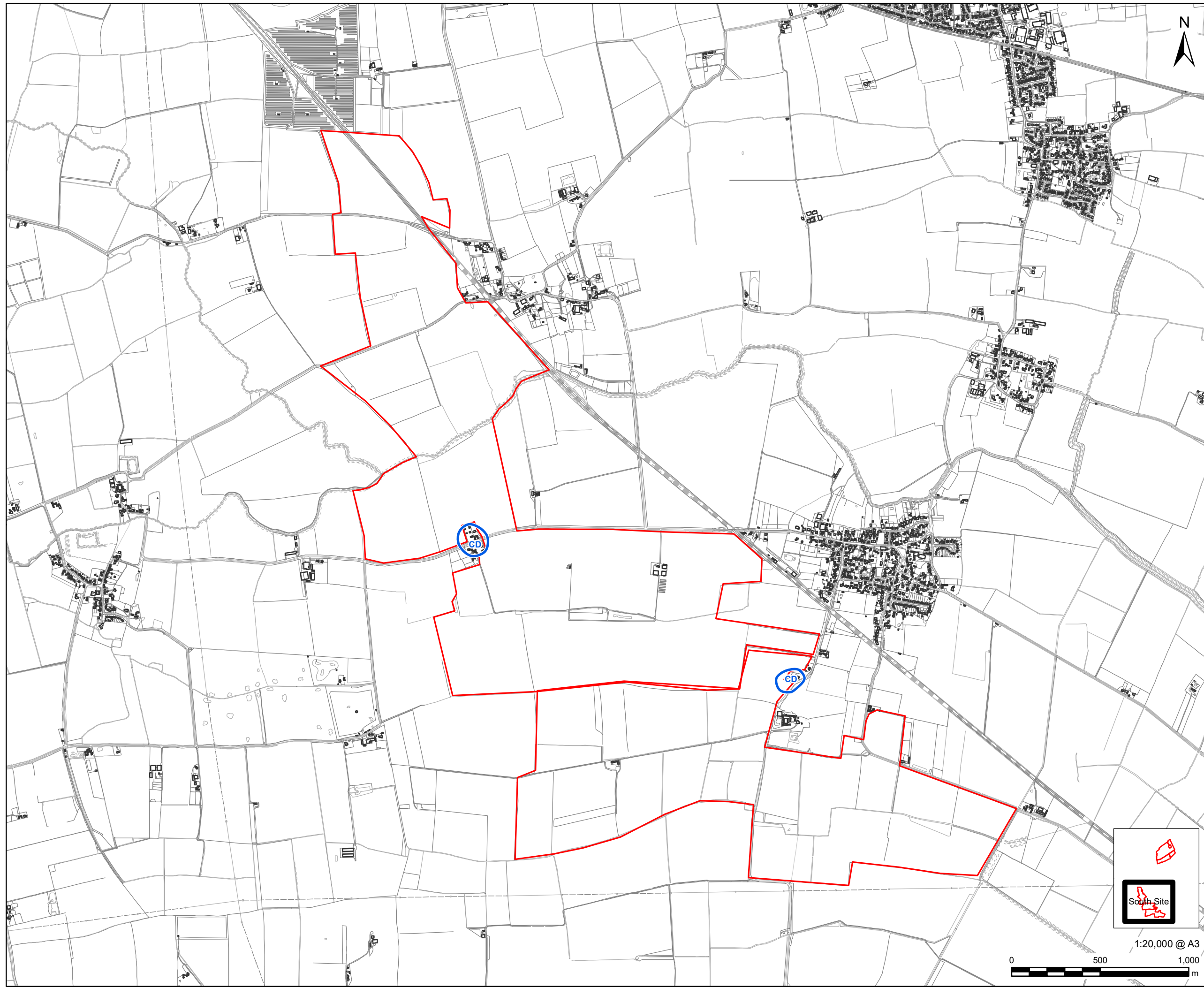


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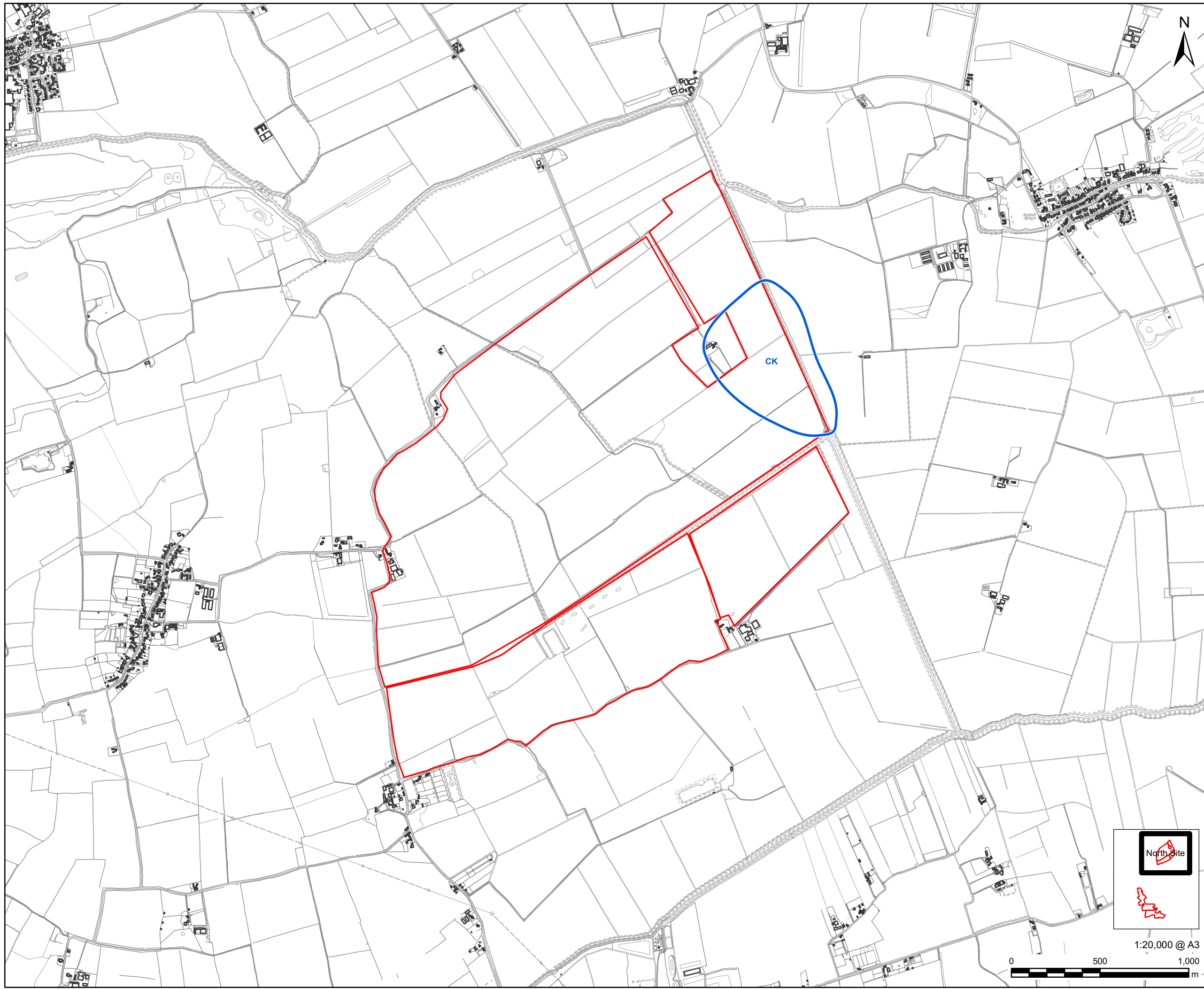


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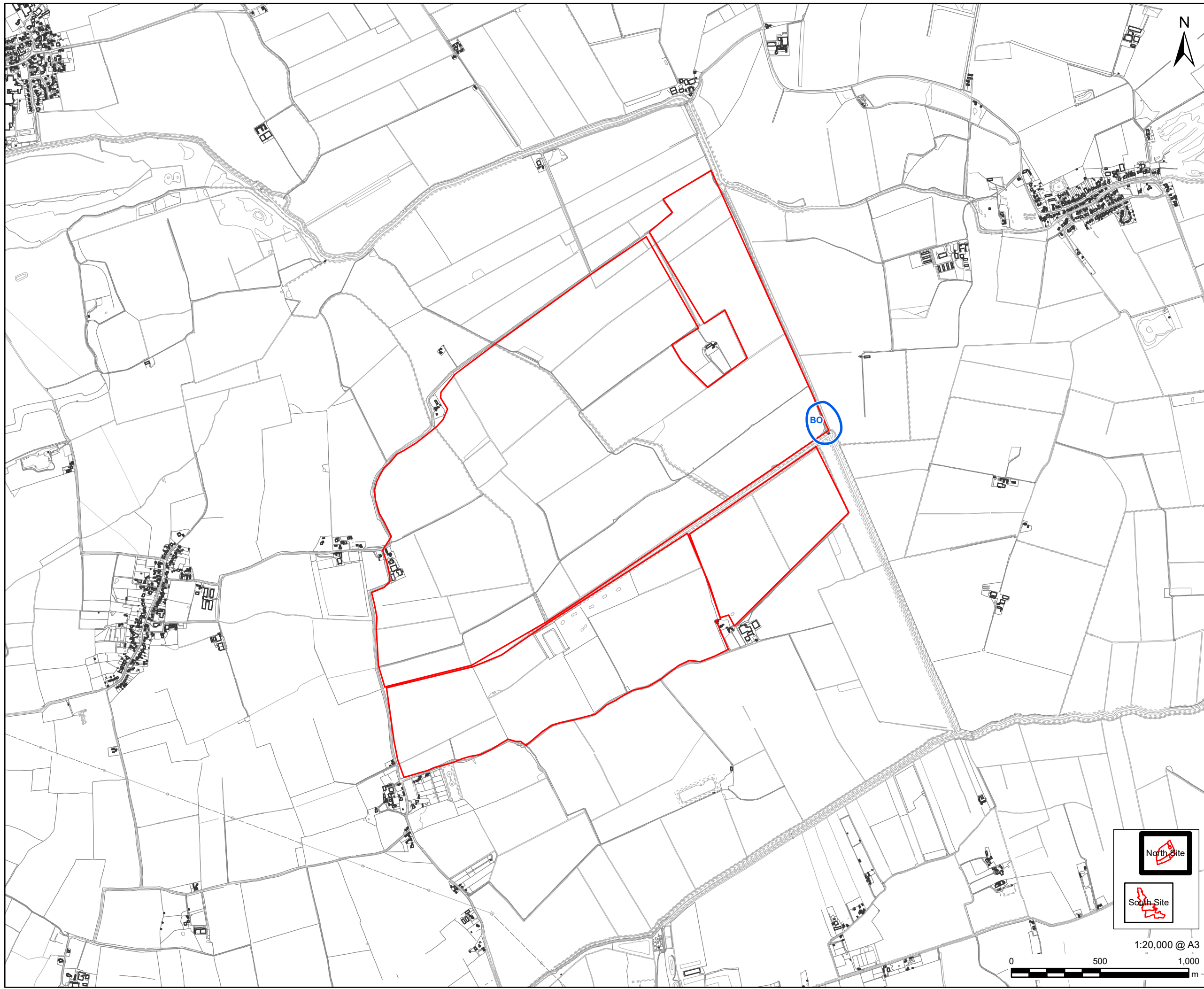




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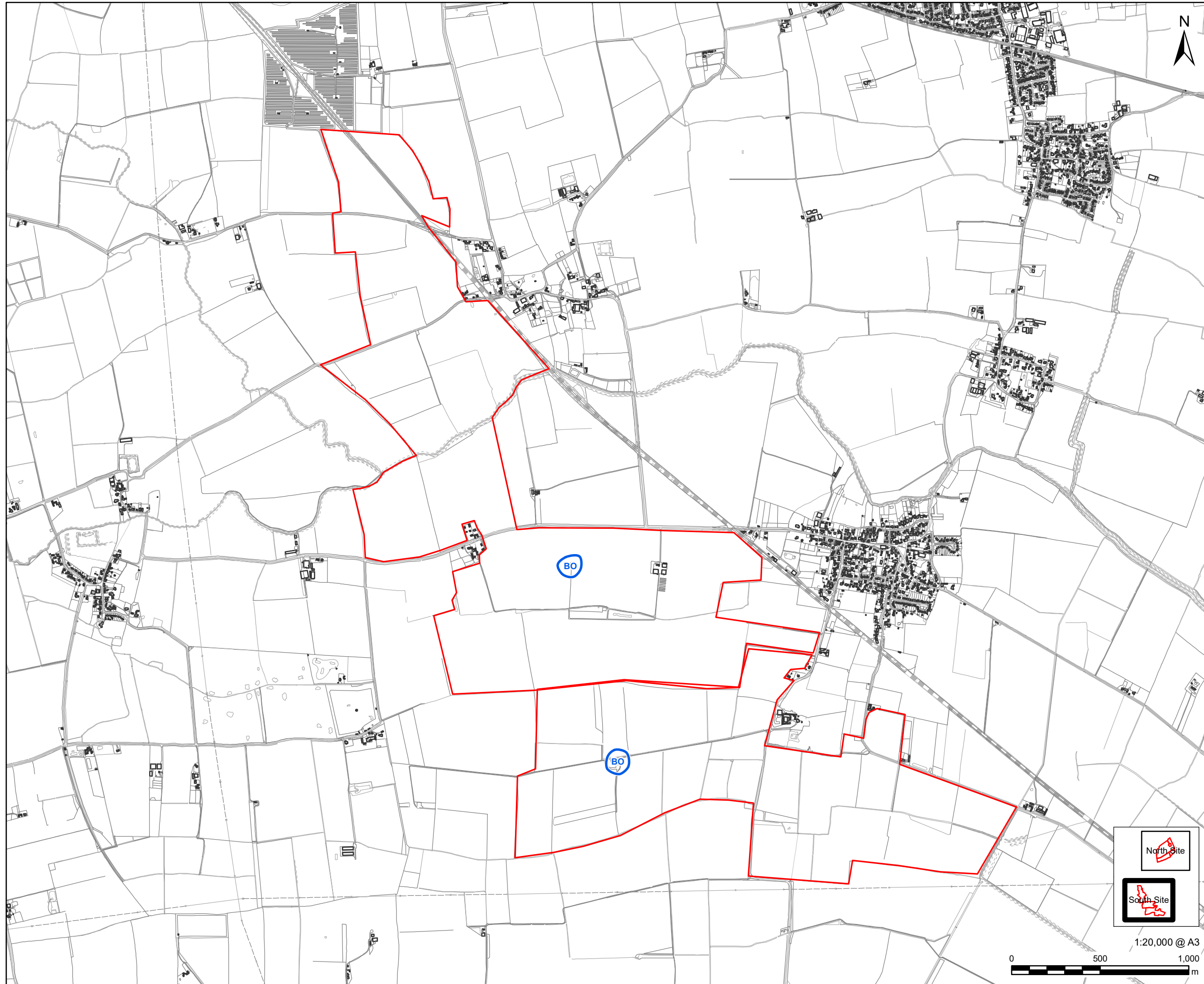


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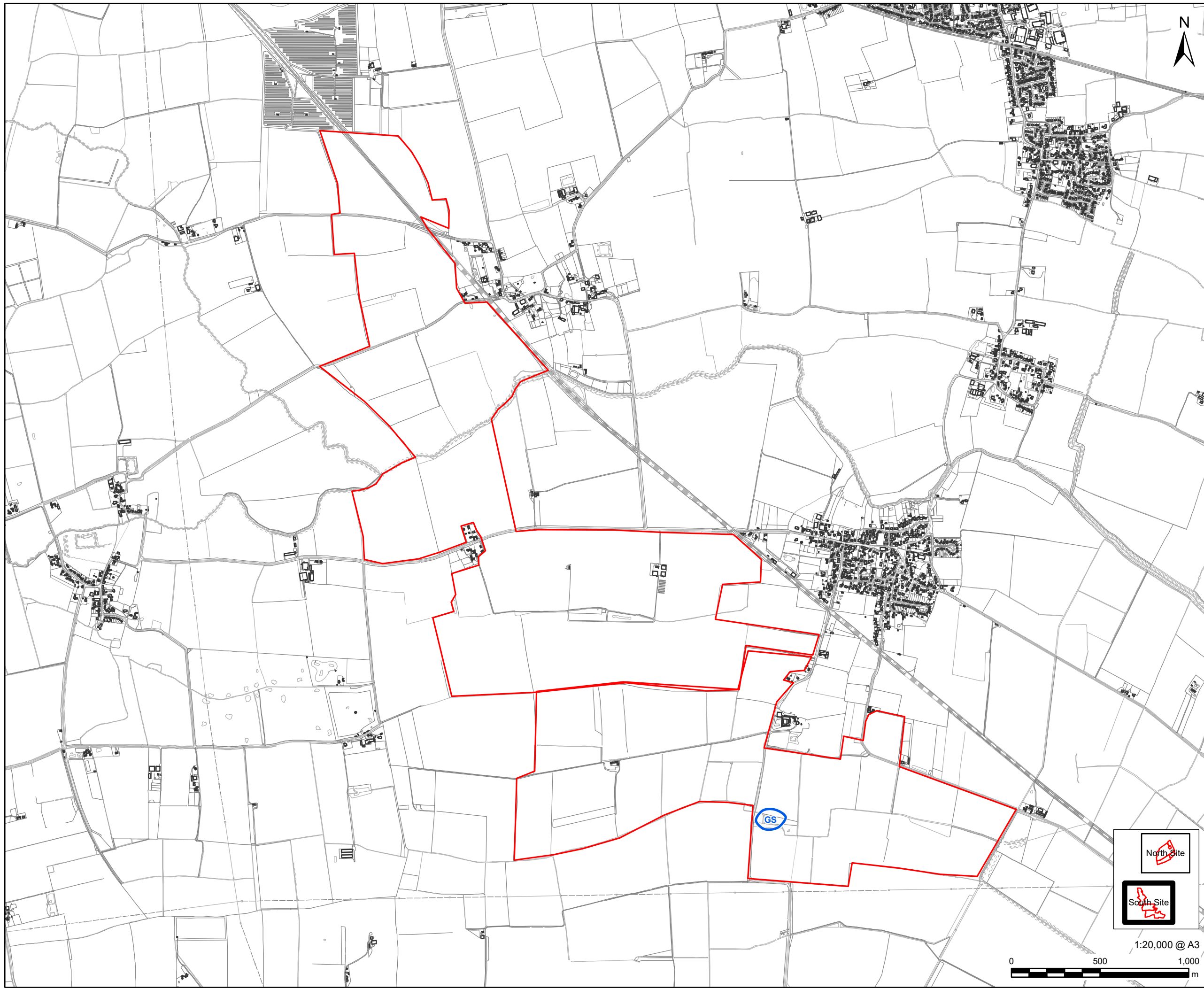


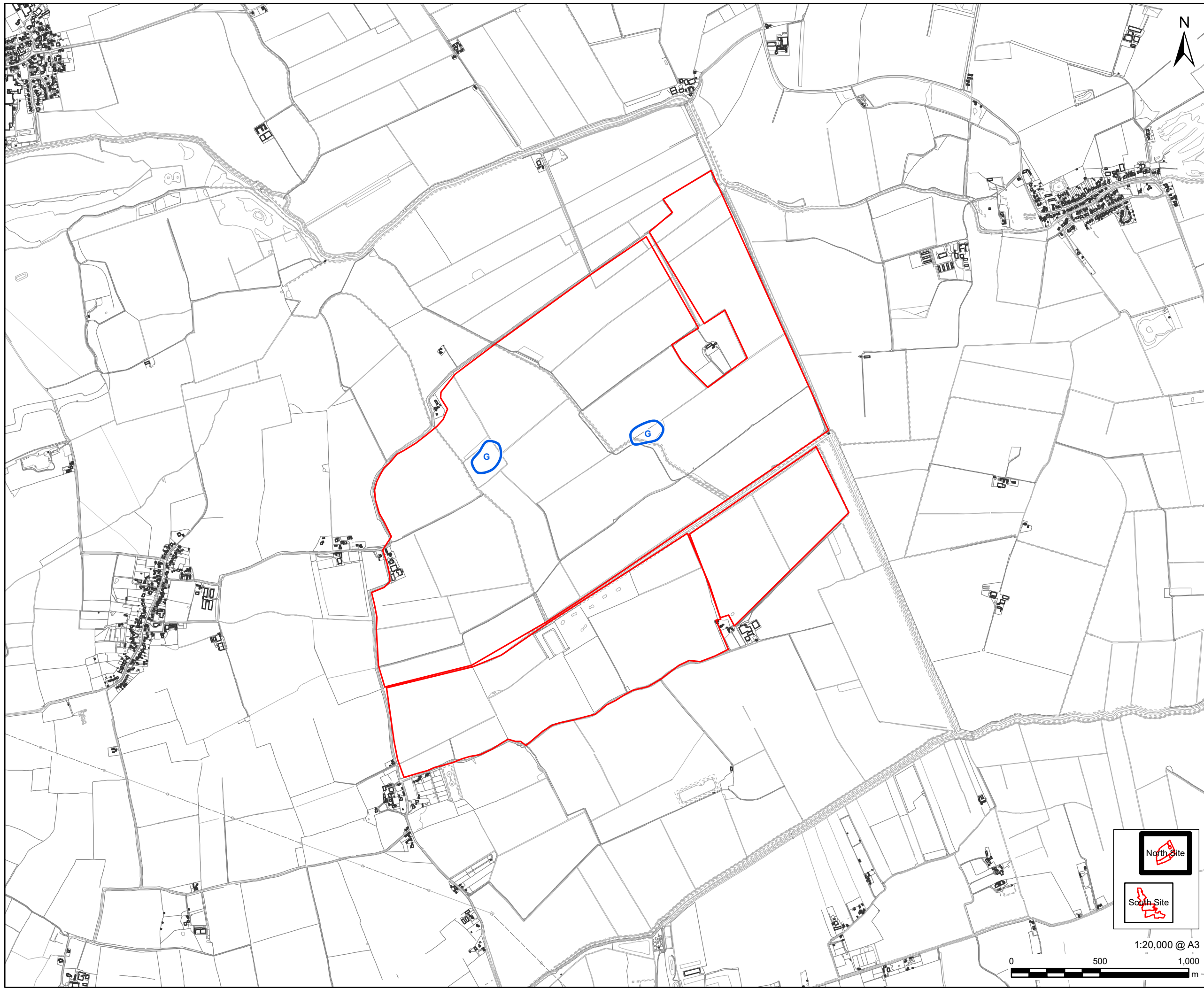
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Bicker Fen

**CLIENT**  
Low Carbon

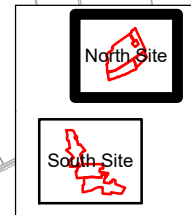
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 Green Woodpecker (G) Territory

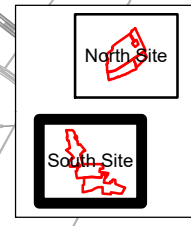
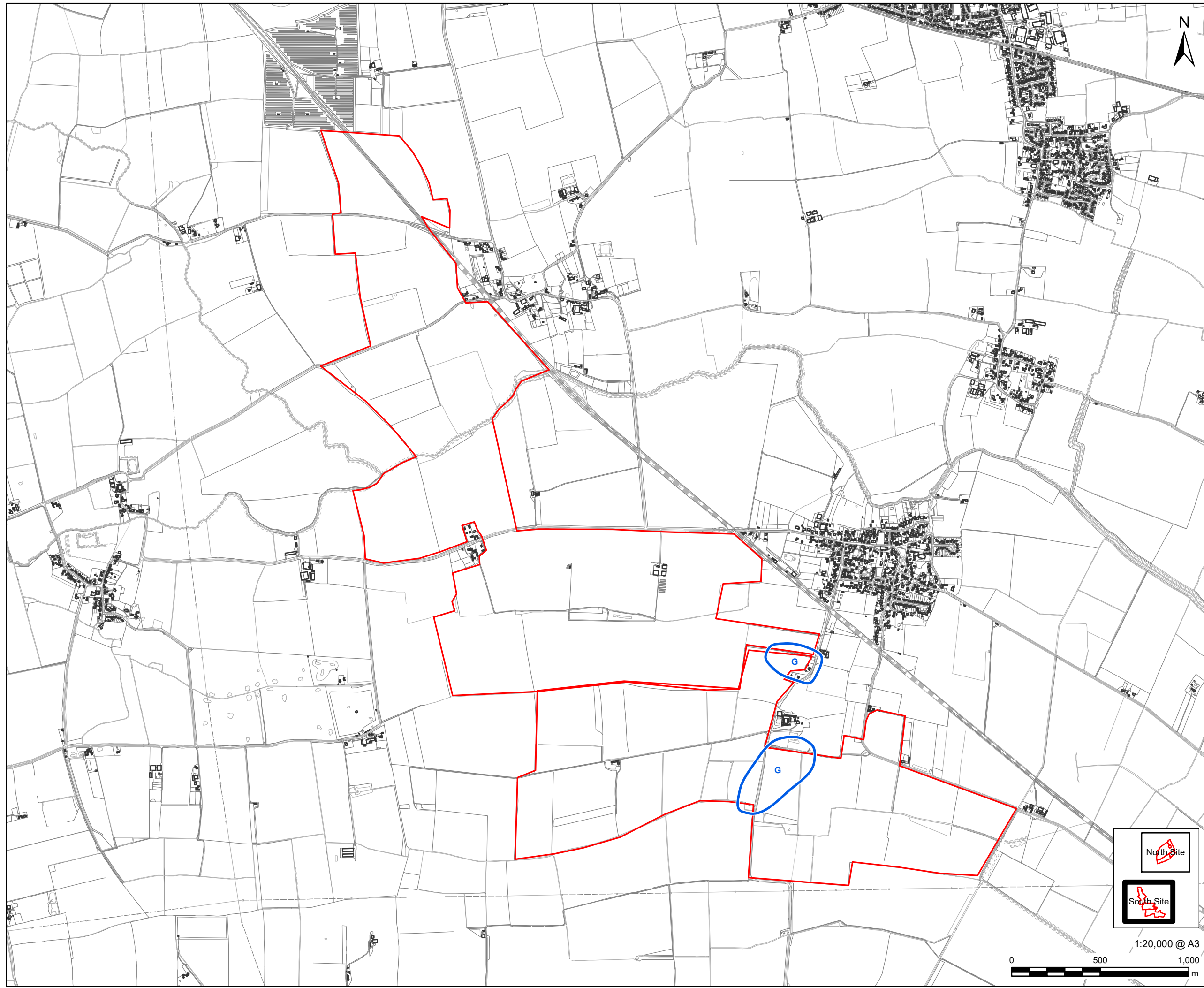
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FOR INFORMATION  
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60644715  
**FIGURE TITLE**  
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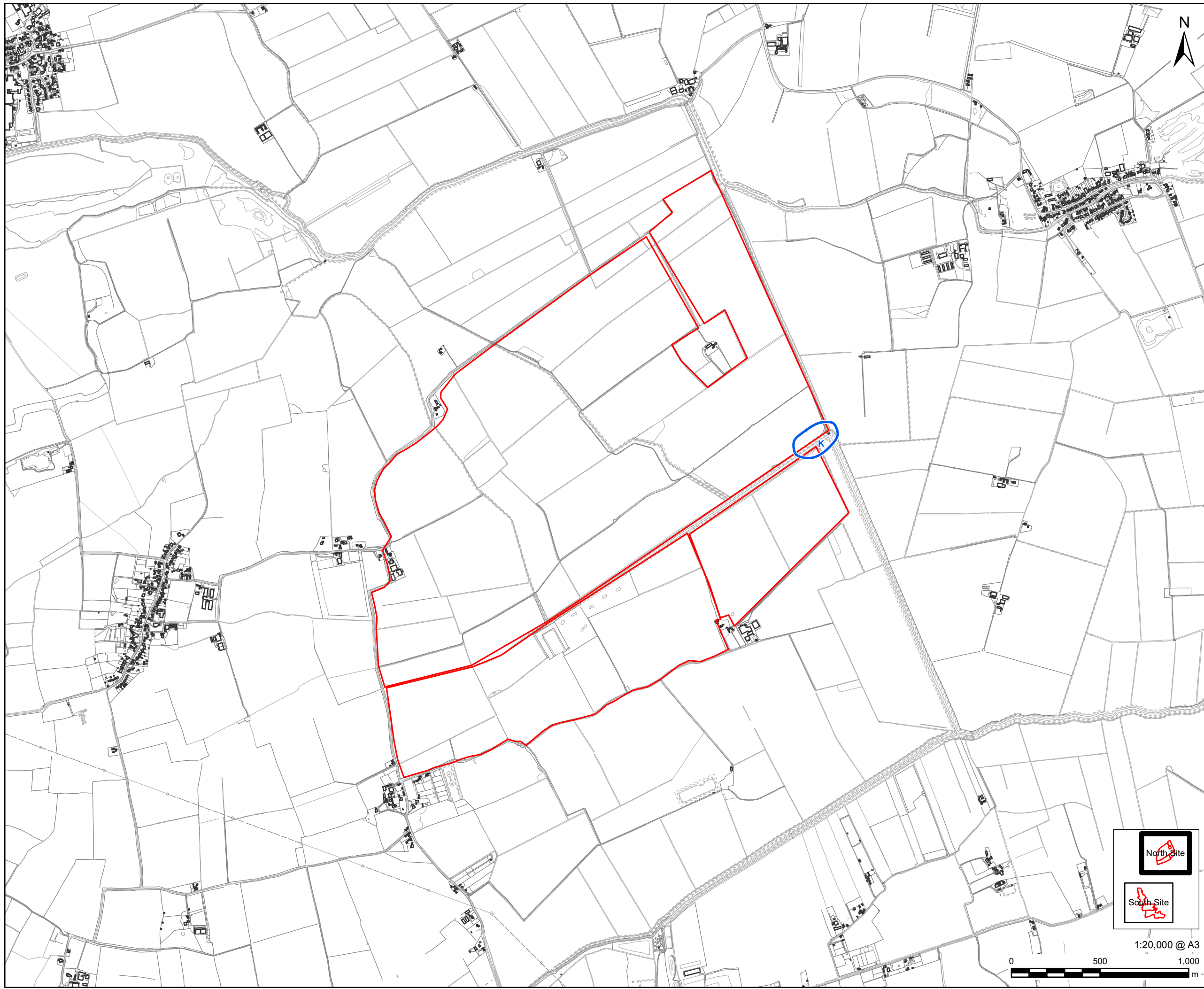
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FIGURE 20



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**PROJECT**  
Bicker Fen

**CLIENT**  
Low Carbon

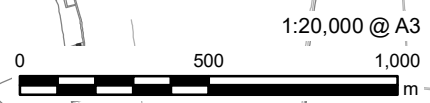
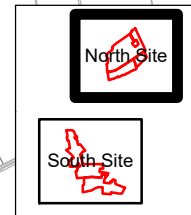
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**LEGEND**  
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[Blue circle with K] Kestrel (K) Territory

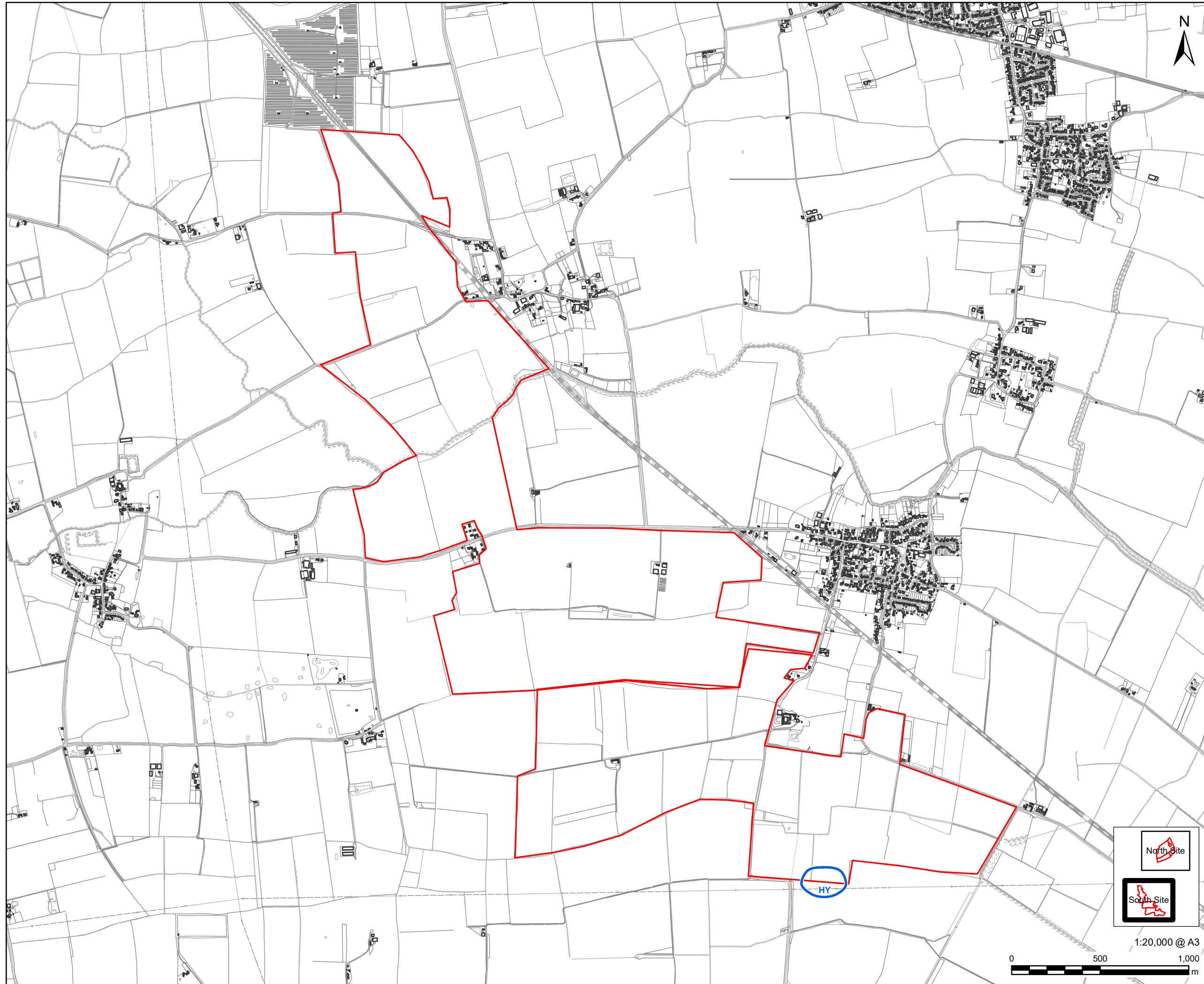
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Ordnance Survey 0100031673.

**ISSUE PURPOSE**  
FOR INFORMATION  
**PROJECT NUMBER**  
60644715  
**FIGURE TITLE**  
BREEDING BIRD SURVEY - NORTH SITE  
KESTREL (*FALCO TINNUNCULUS*)

**FIGURE NUMBER**  
FIGURE 22



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# AECOM

**PROJECT**  
Bicker Fen

**CLIENT**  
Low Carbon

**CONSULTANT**  
AECOM Limited  
Unit 1 Wellbrook Court,  
Girton, Cambridge,  
CB3 0NA  
www.aecom.com

**LEGEND**  
 Site boundary  
 Hobby (HY) Territory

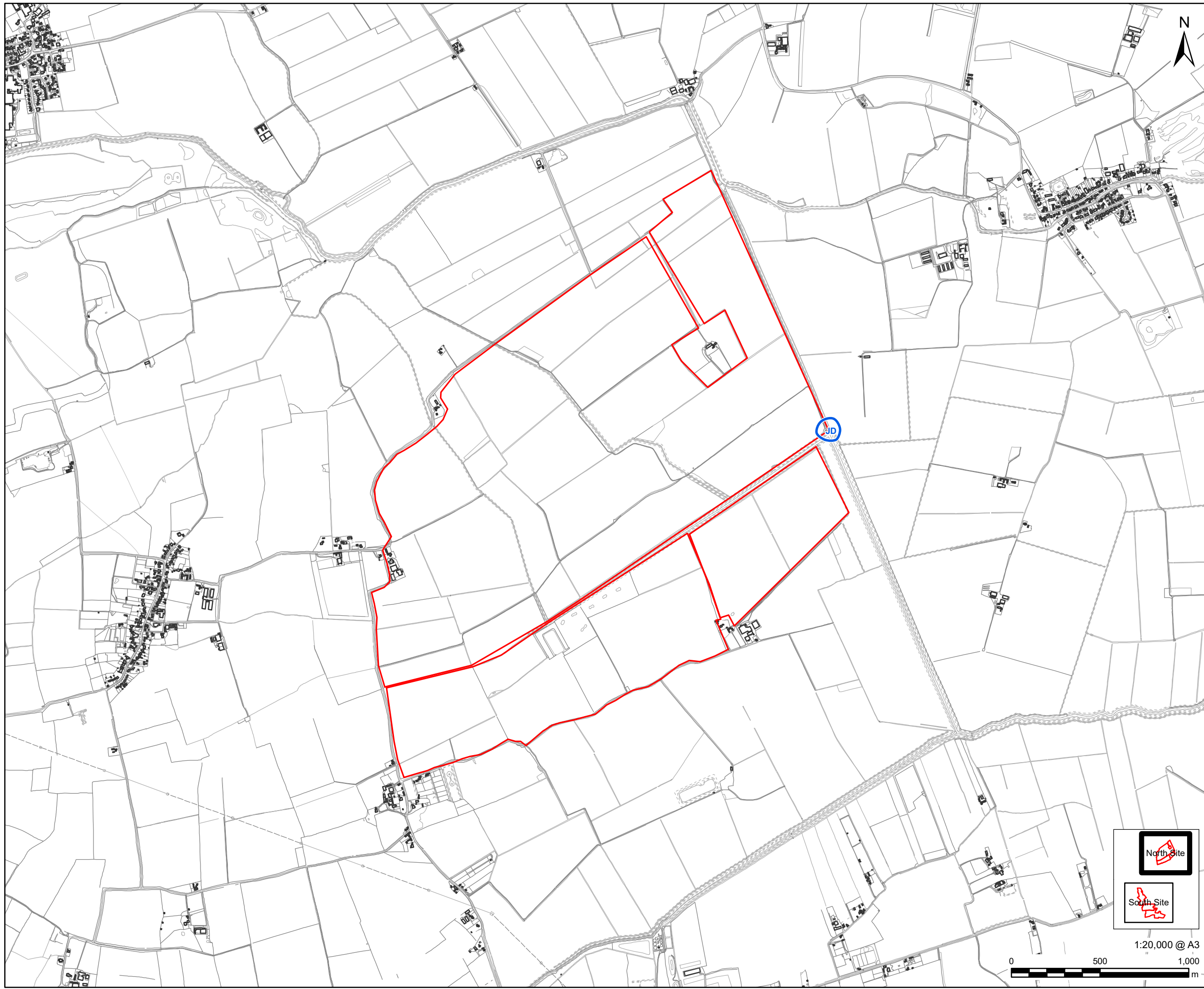
**NOTES**  
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**ISSUE PURPOSE**  
FOR INFORMATION

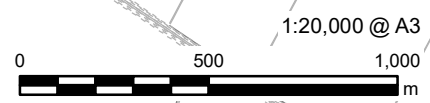
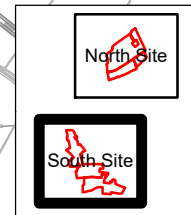
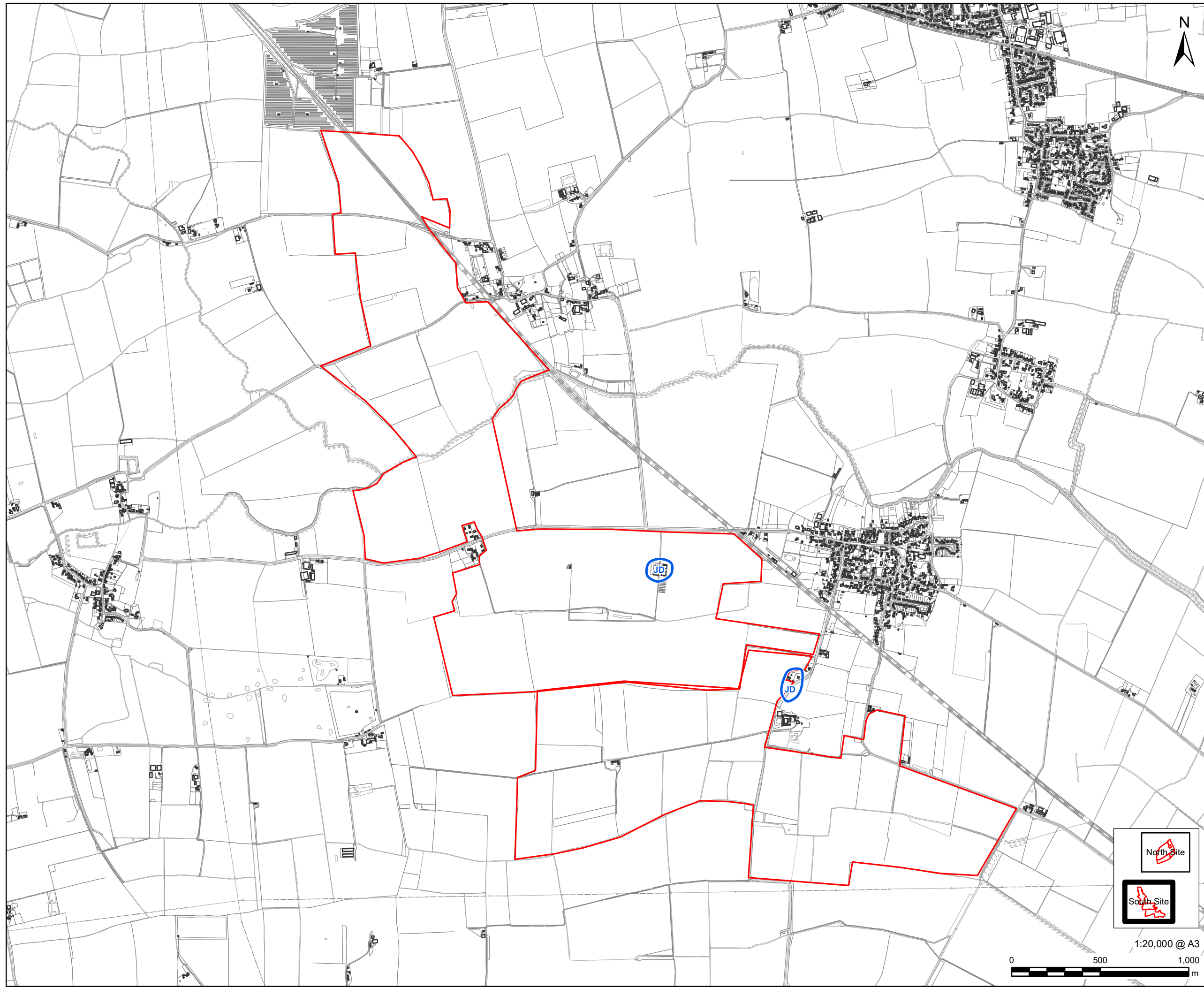
**PROJECT NUMBER**  
60644715

**FIGURE TITLE**  
BREEDING BIRD SURVEY - SOUTH SITE  
HOBBY (*FALCO SUBBUTEO*)

**FIGURE NUMBER**  
FIGURE 23

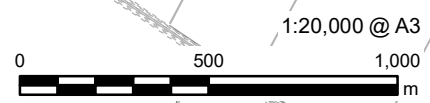
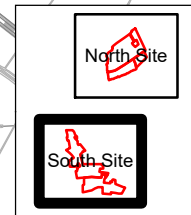
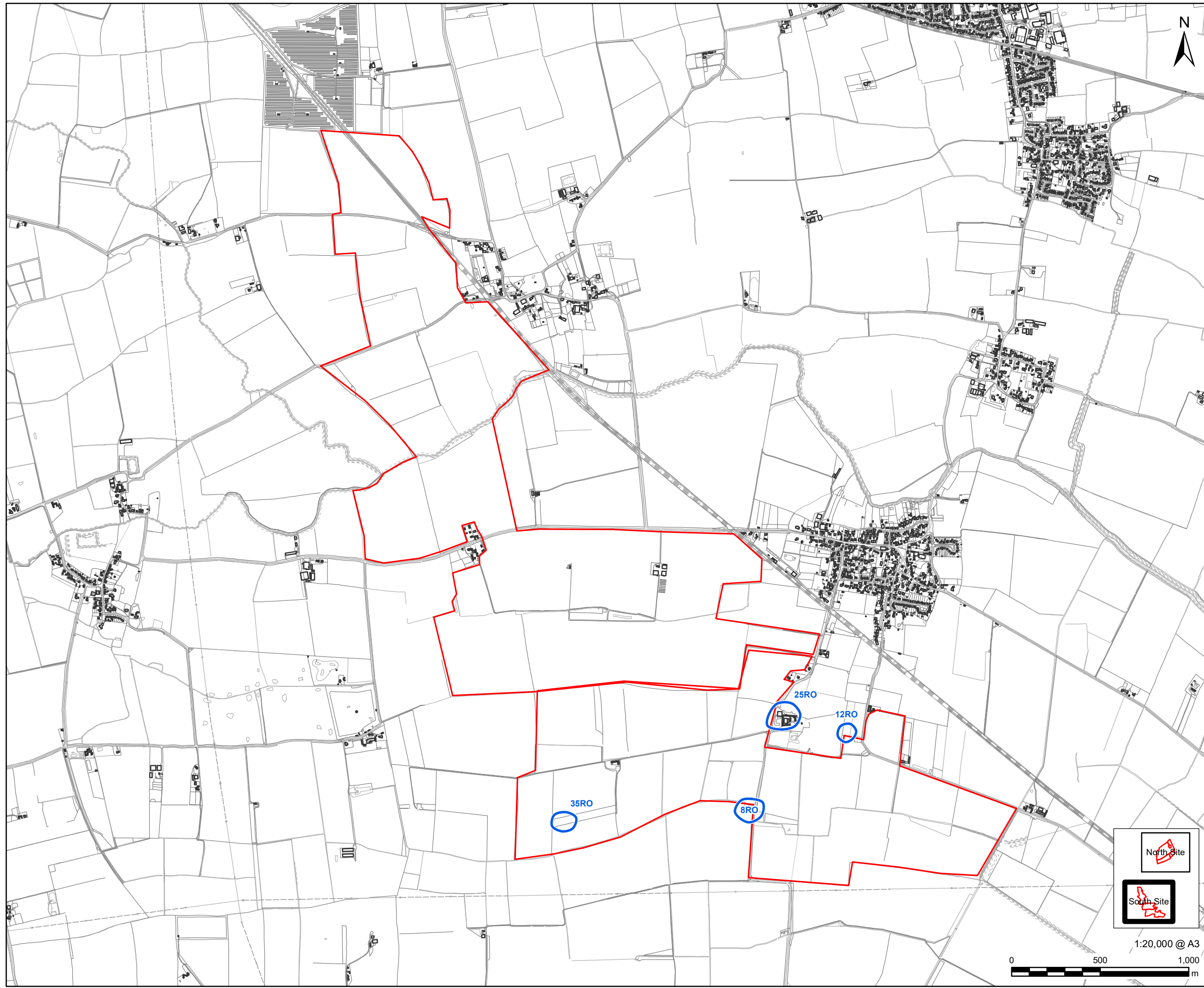


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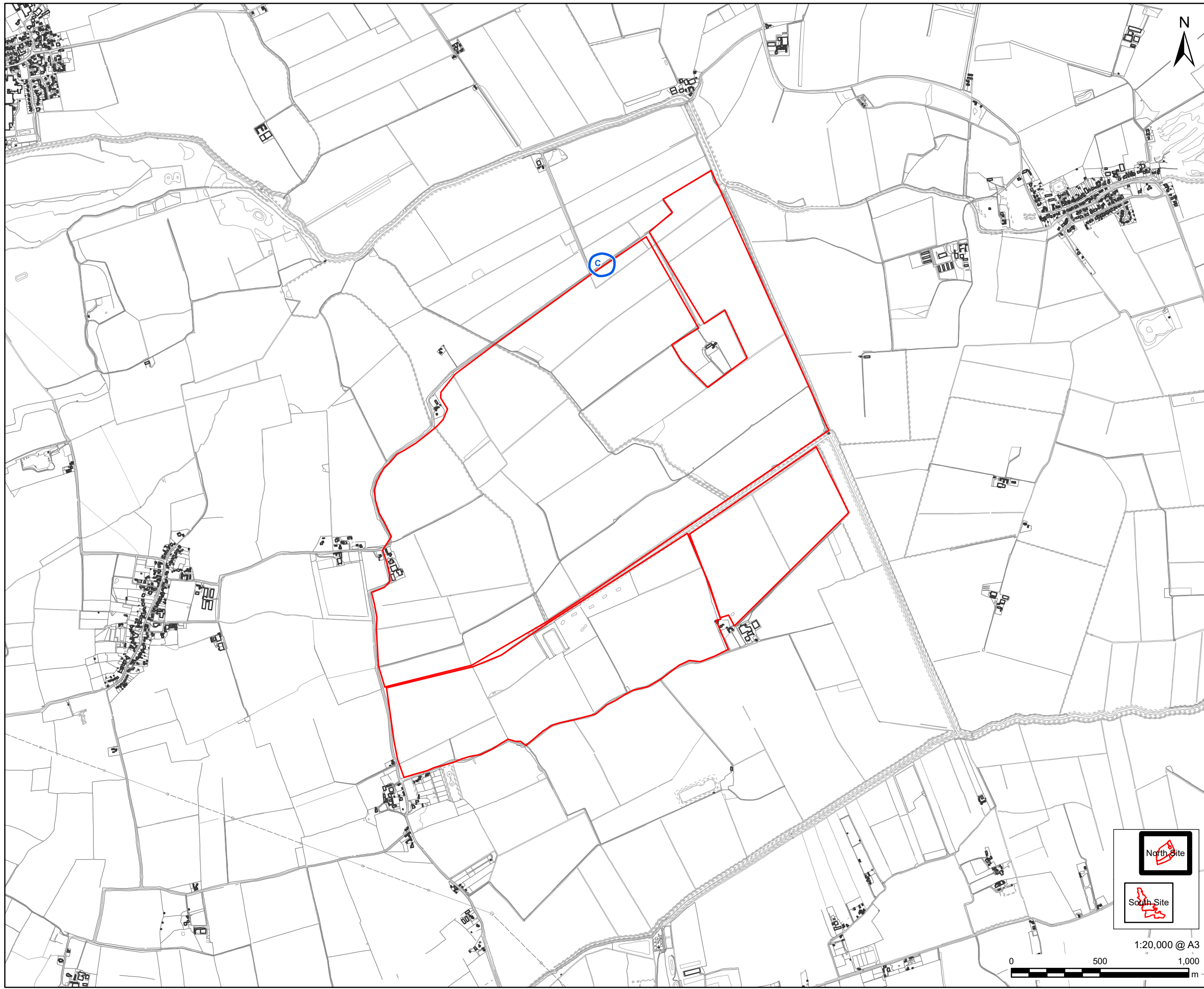


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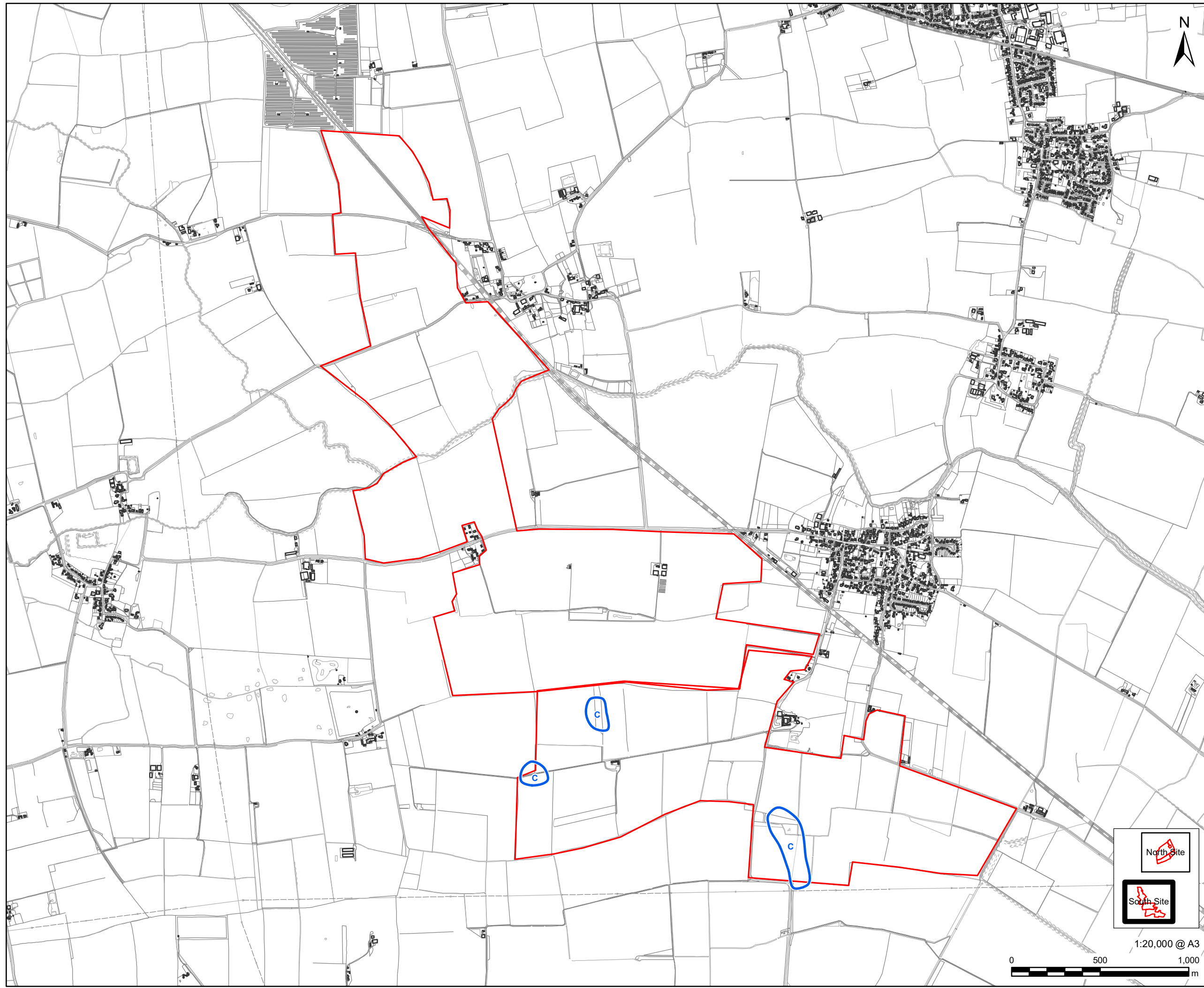
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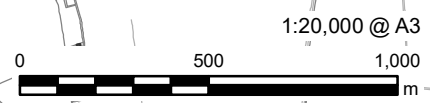
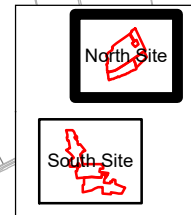
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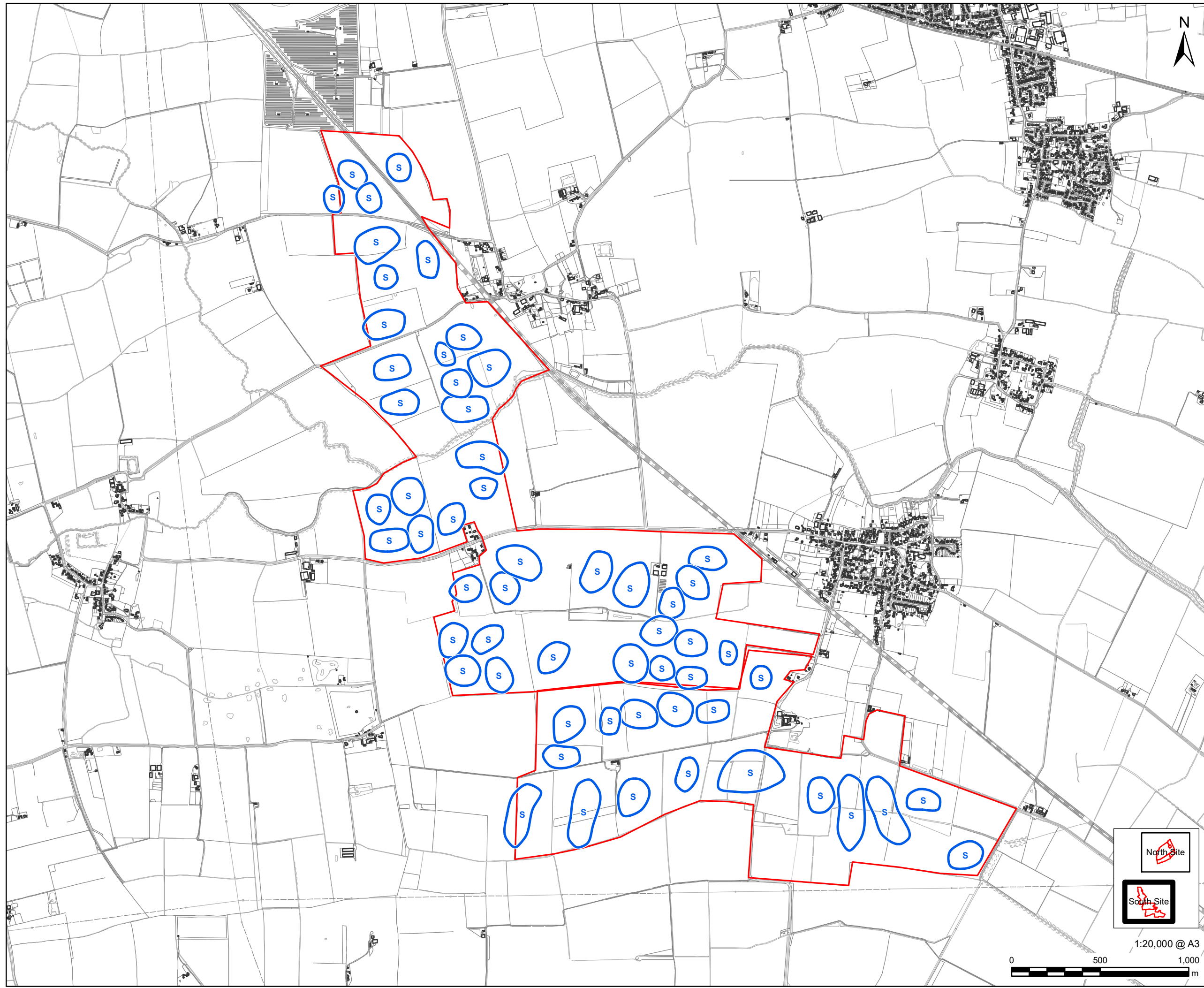
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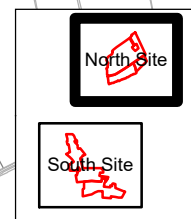
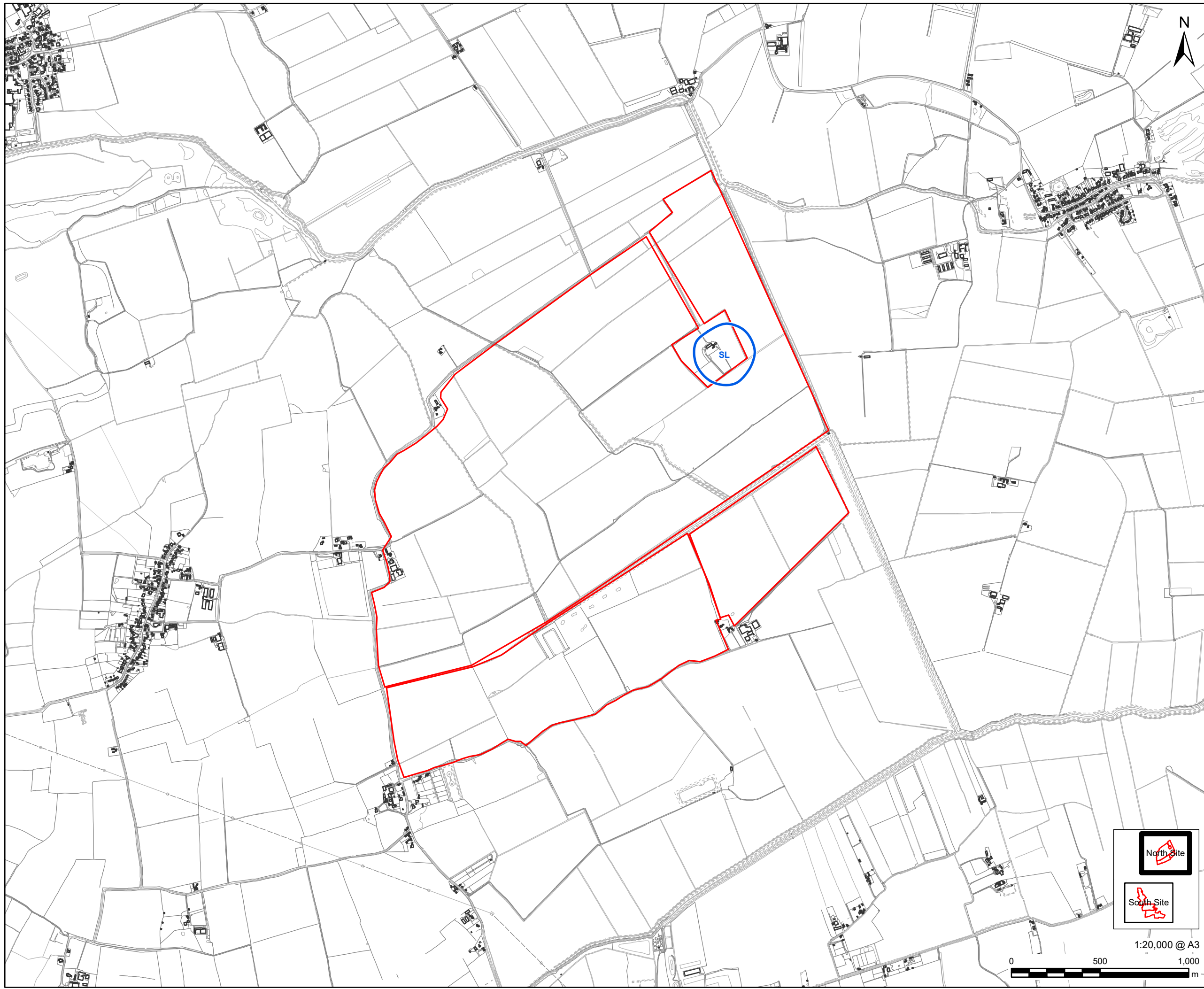


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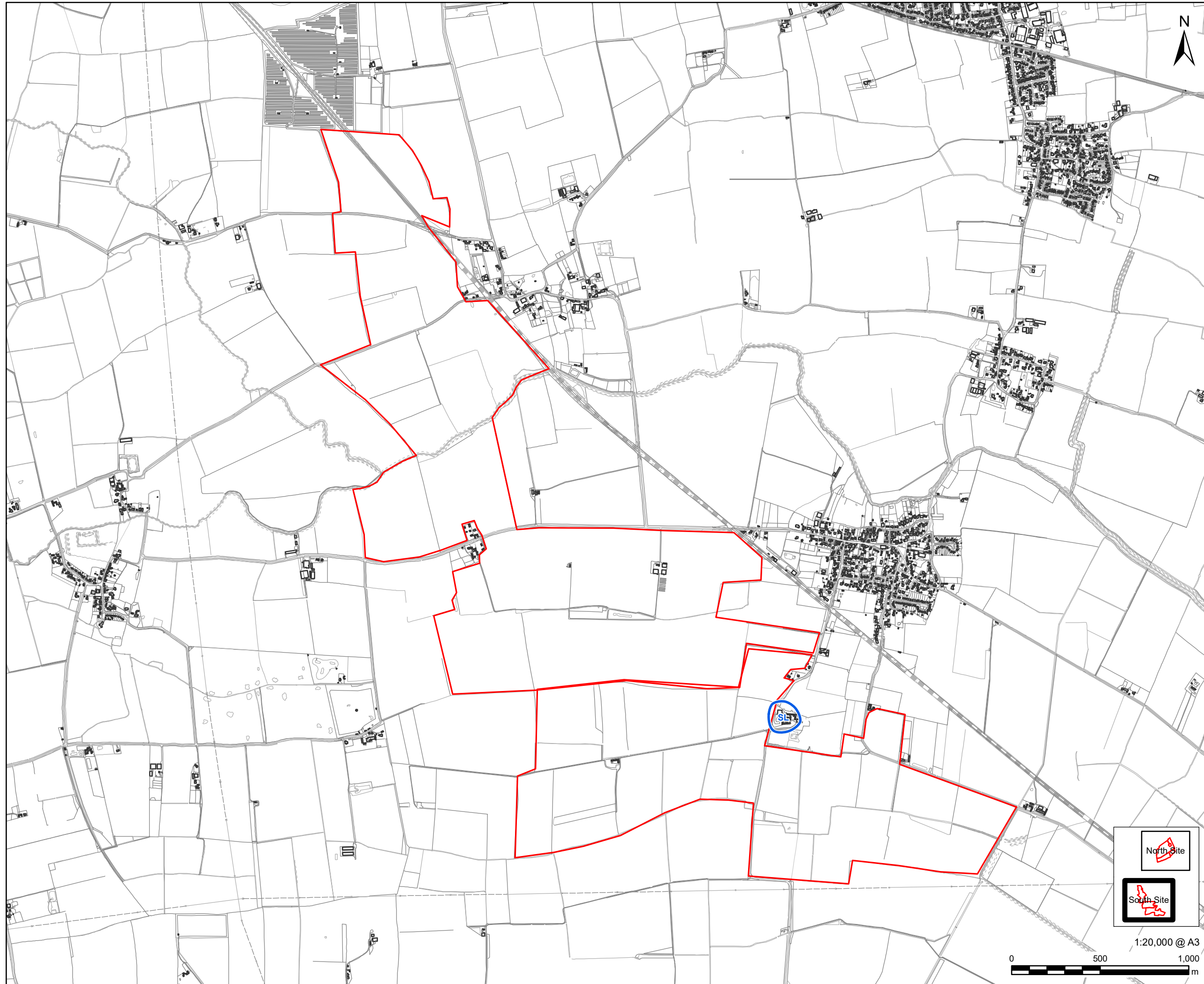


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**PROJECT**  
Bicker Fen

**CLIENT**  
Low Carbon

**CONSULTANT**  
AECOM Limited  
Unit 1 Wellbrook Court,  
Girton, Cambridge,  
CB3 0NA  
www.aecom.com

**LEGEND**

- Site boundary
- Swallow (SL) Territory

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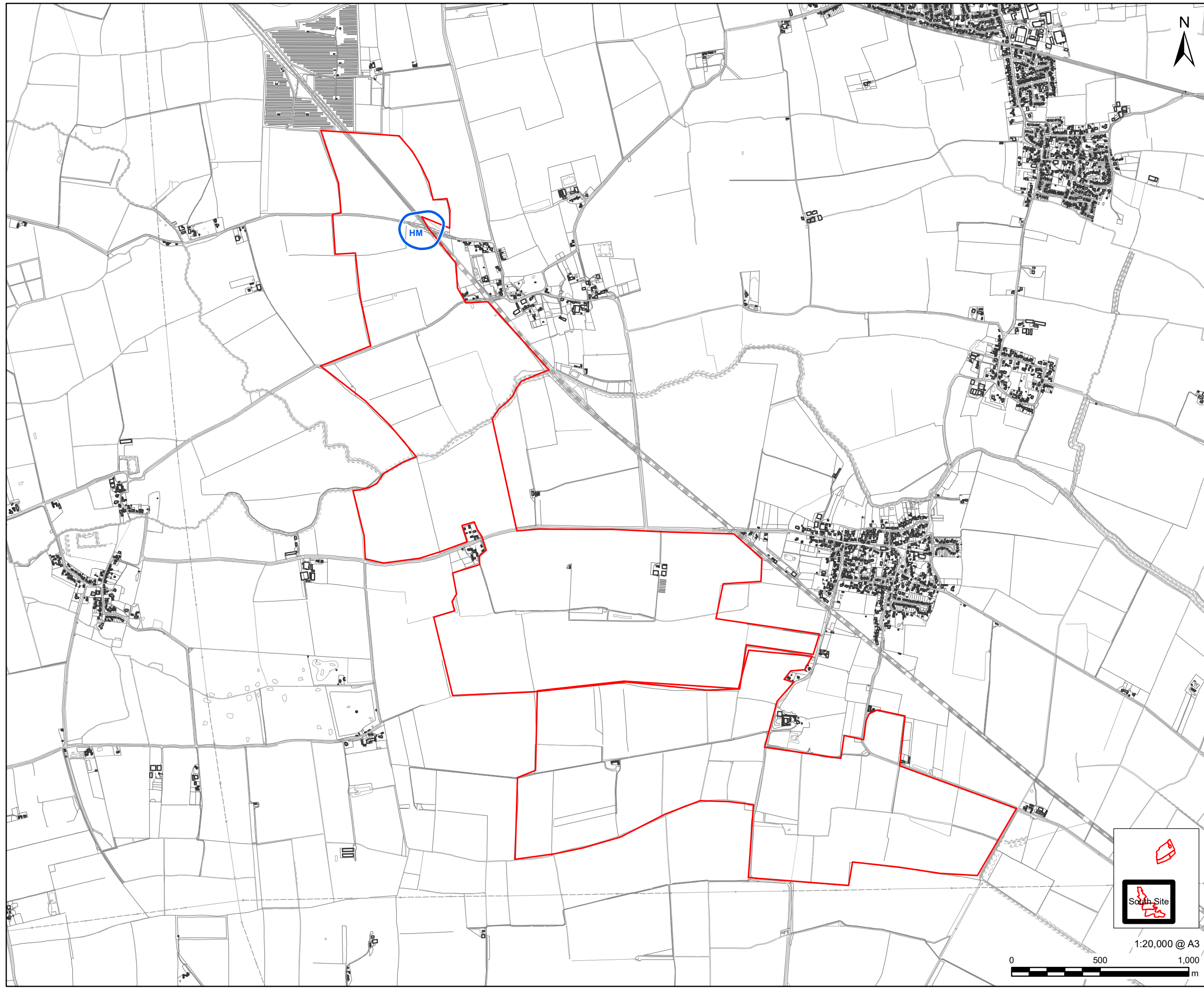
**ISSUE PURPOSE**  
FOR INFORMATION

**PROJECT NUMBER**  
60644715

**FIGURE TITLE**  
BREEDING BIRD SURVEY - SOUTH SITE  
SWALLOW (*HIRUNDO RUSTICA*)

**FIGURE NUMBER**  
FIGURE 32

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**PROJECT**  
Bicker Fen

**CLIENT**  
Low Carbon

**CONSULTANT**  
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Girton, Cambridge,  
CB3 0NA  
www.aecom.com

**LEGEND**  
[Red outline] Site boundary  
[Blue circle] House Martin (HM) Territory

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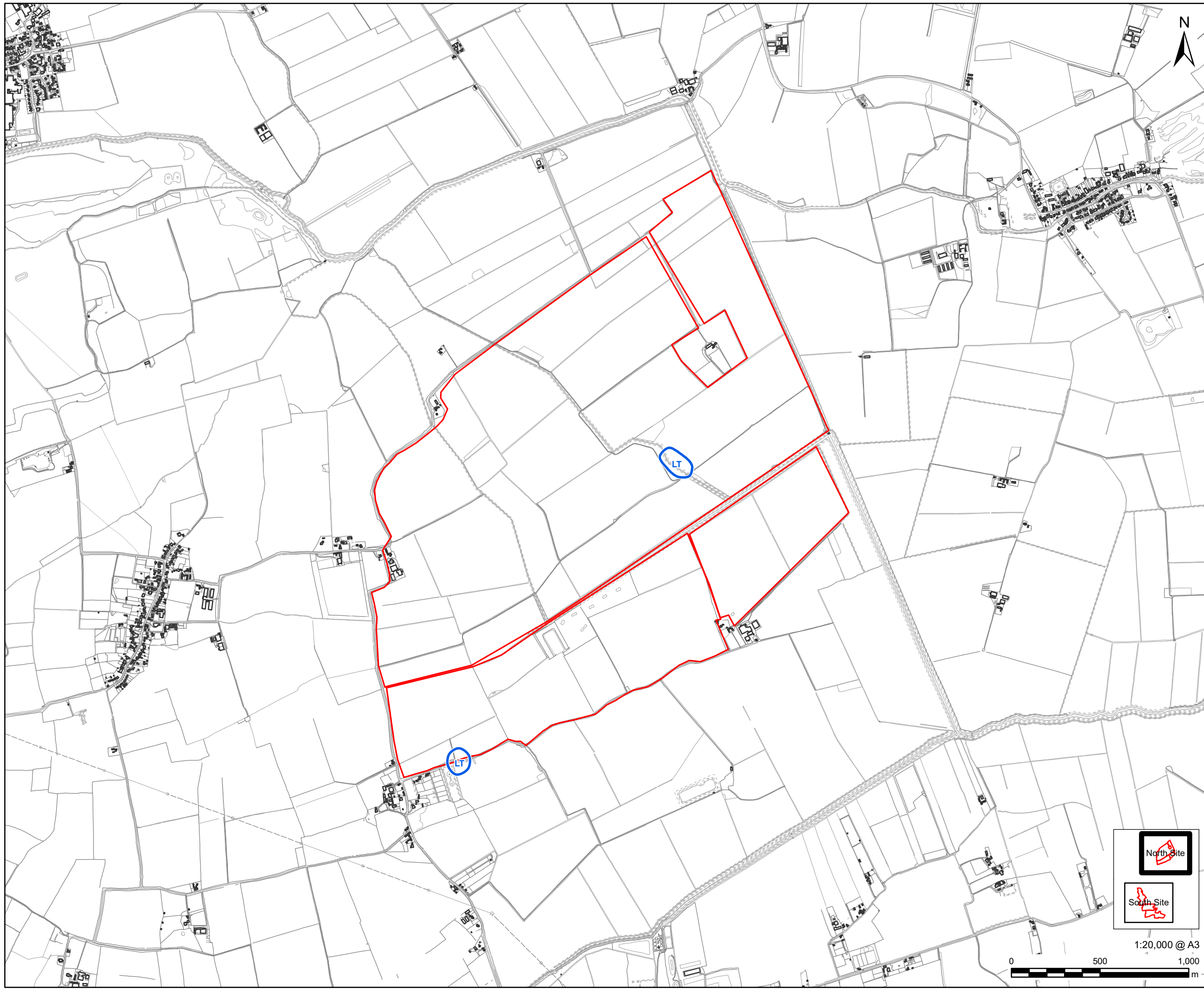
**ISSUE PURPOSE**  
FOR INFORMATION

**PROJECT NUMBER**  
60644715

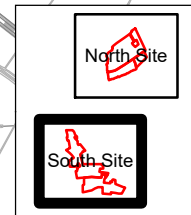
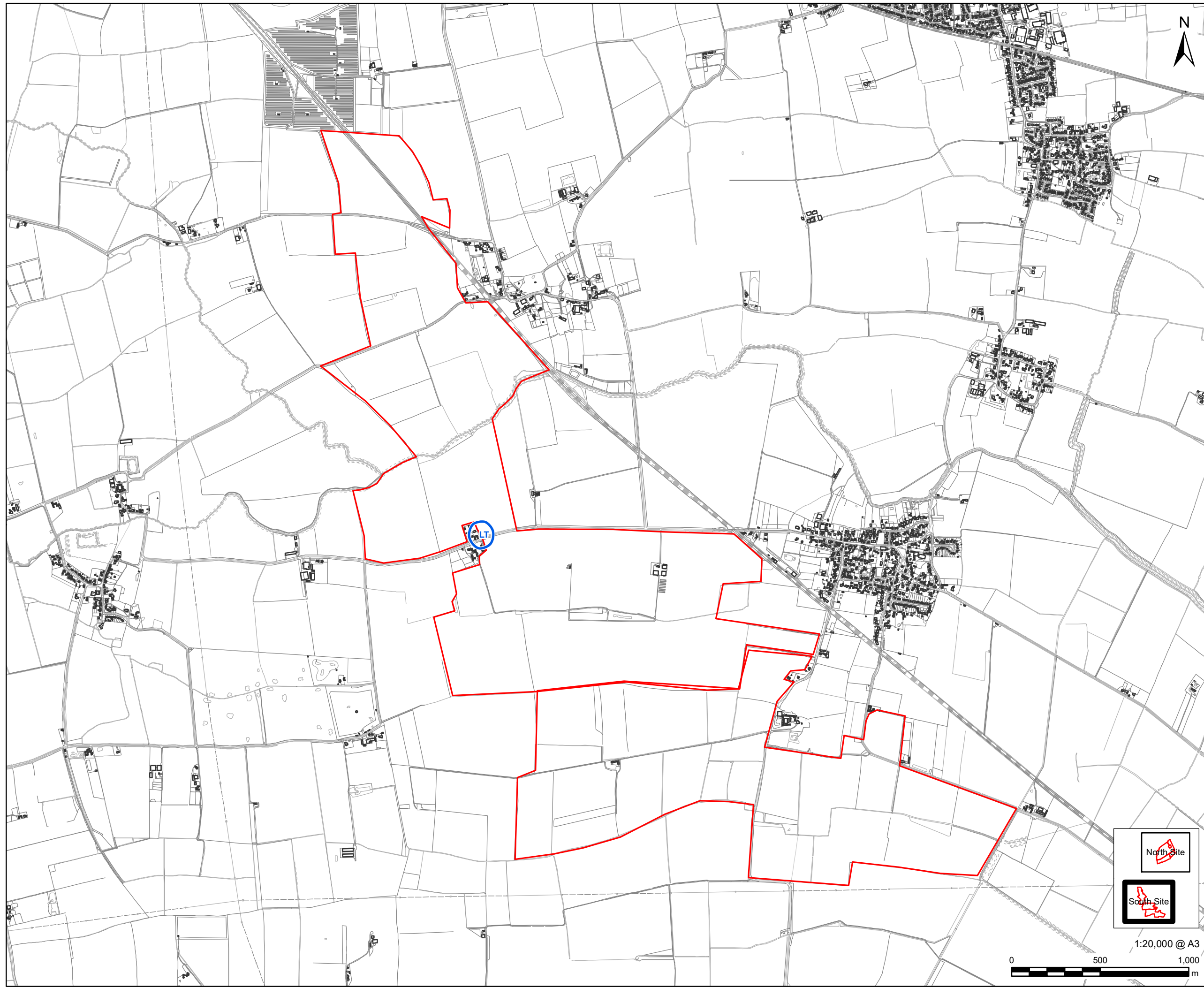
**FIGURE TITLE**  
BREEDING BIRD SURVEY - SOUTH SITE  
HOUSE MARTIN (*DELICHON URBICUM*)

**FIGURE NUMBER**  
FIGURE 33

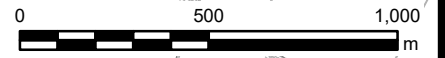




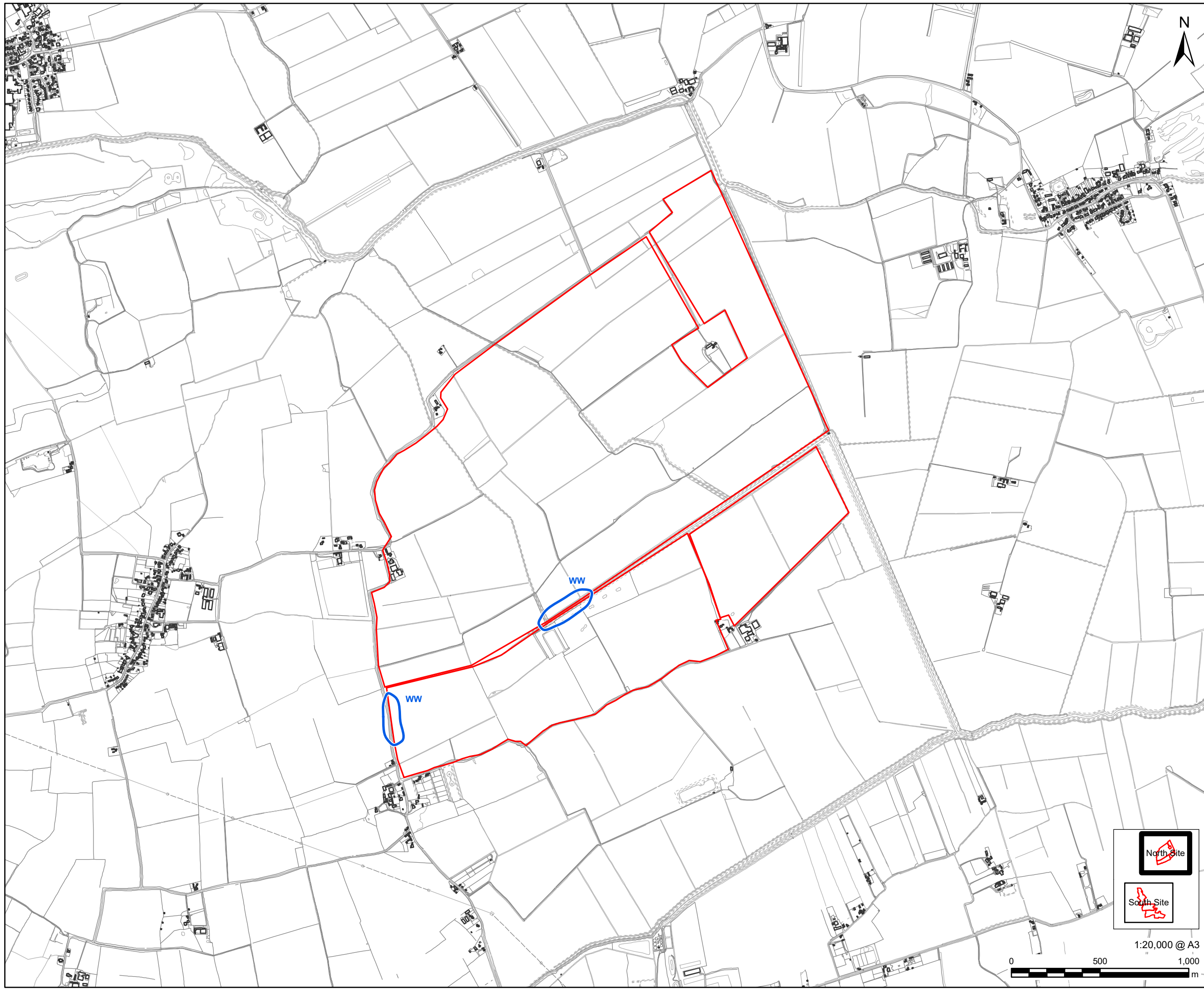
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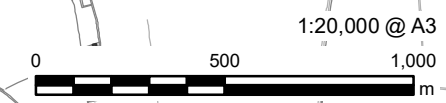
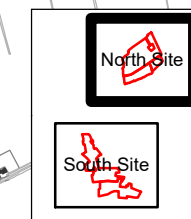
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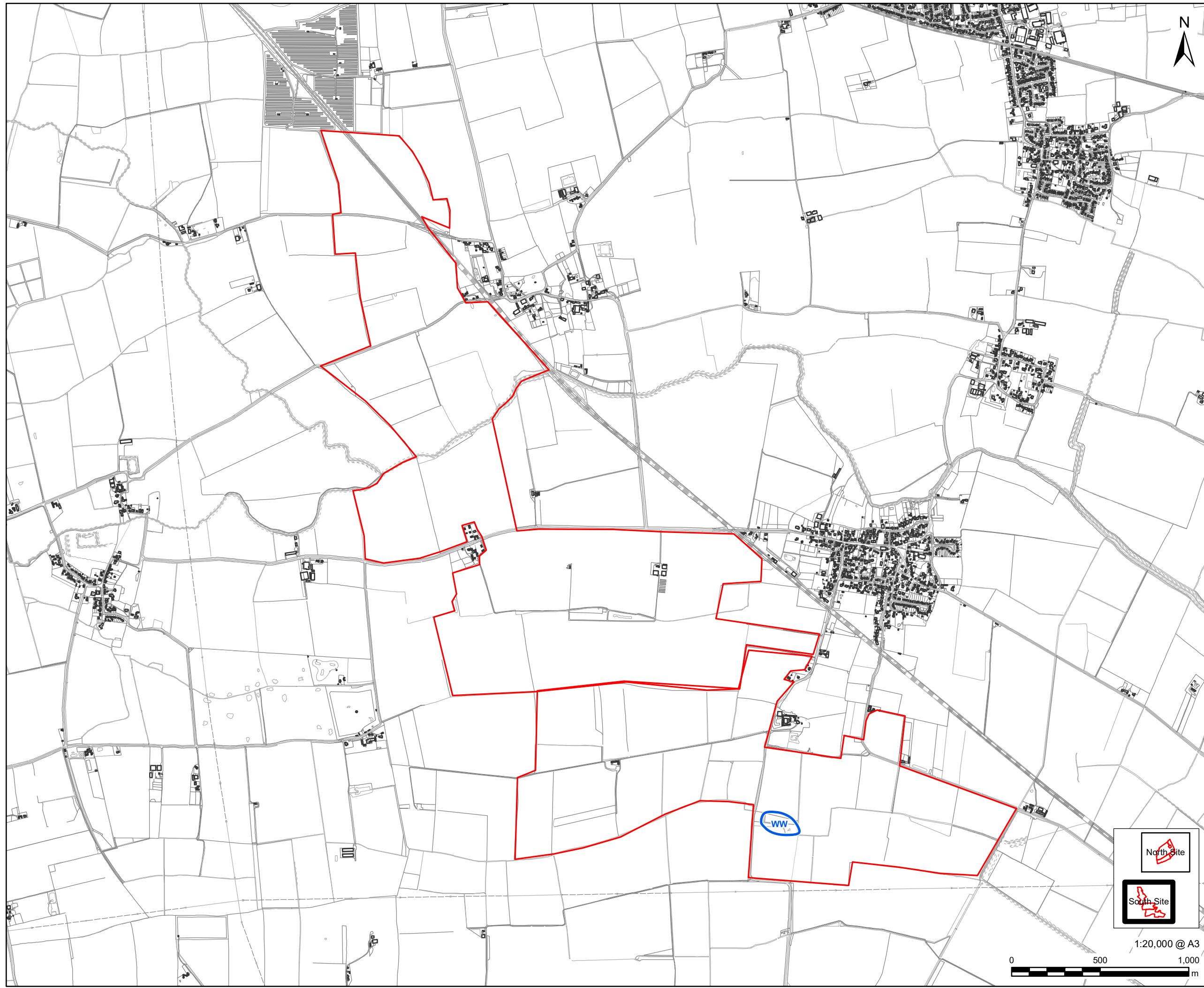


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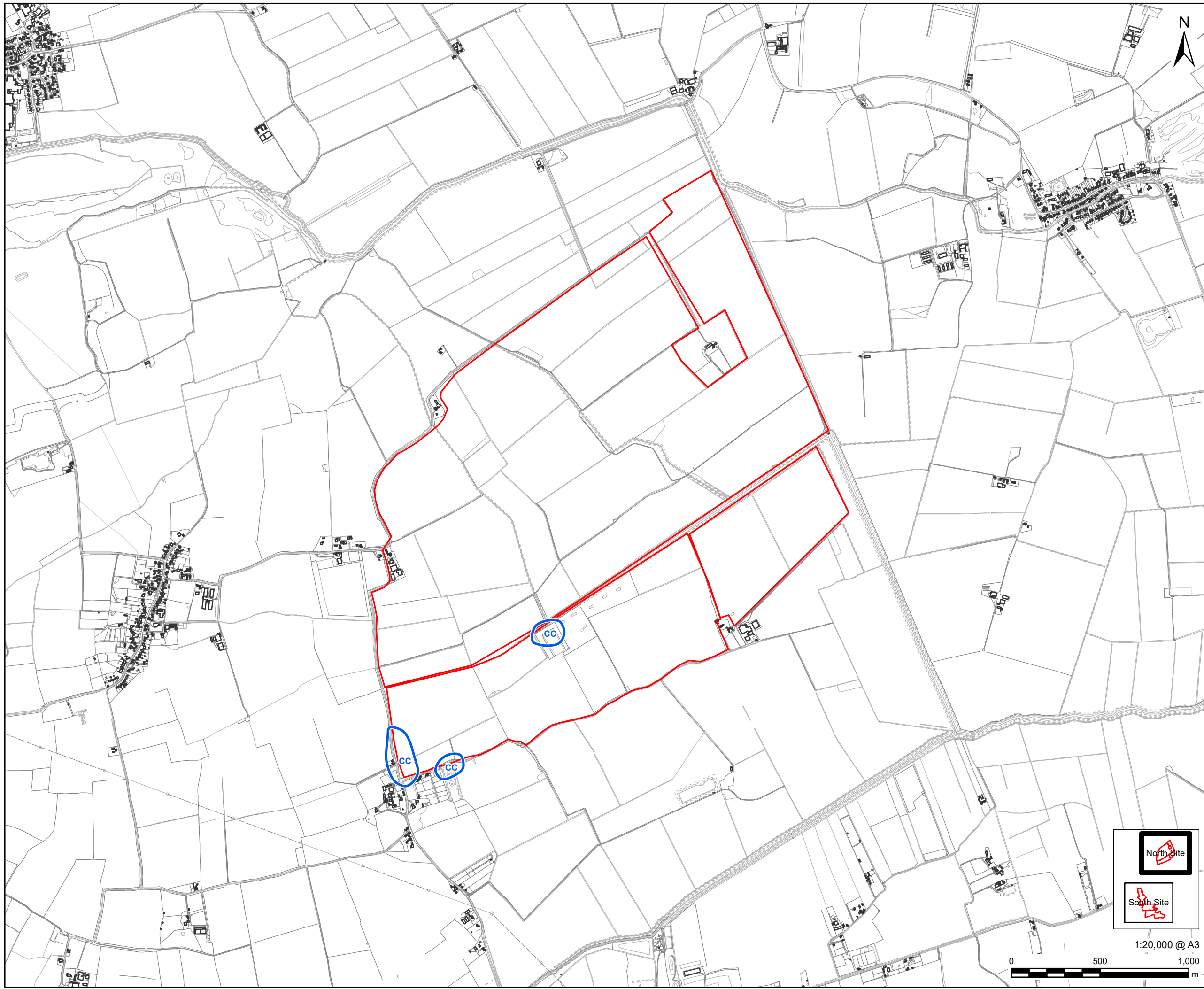


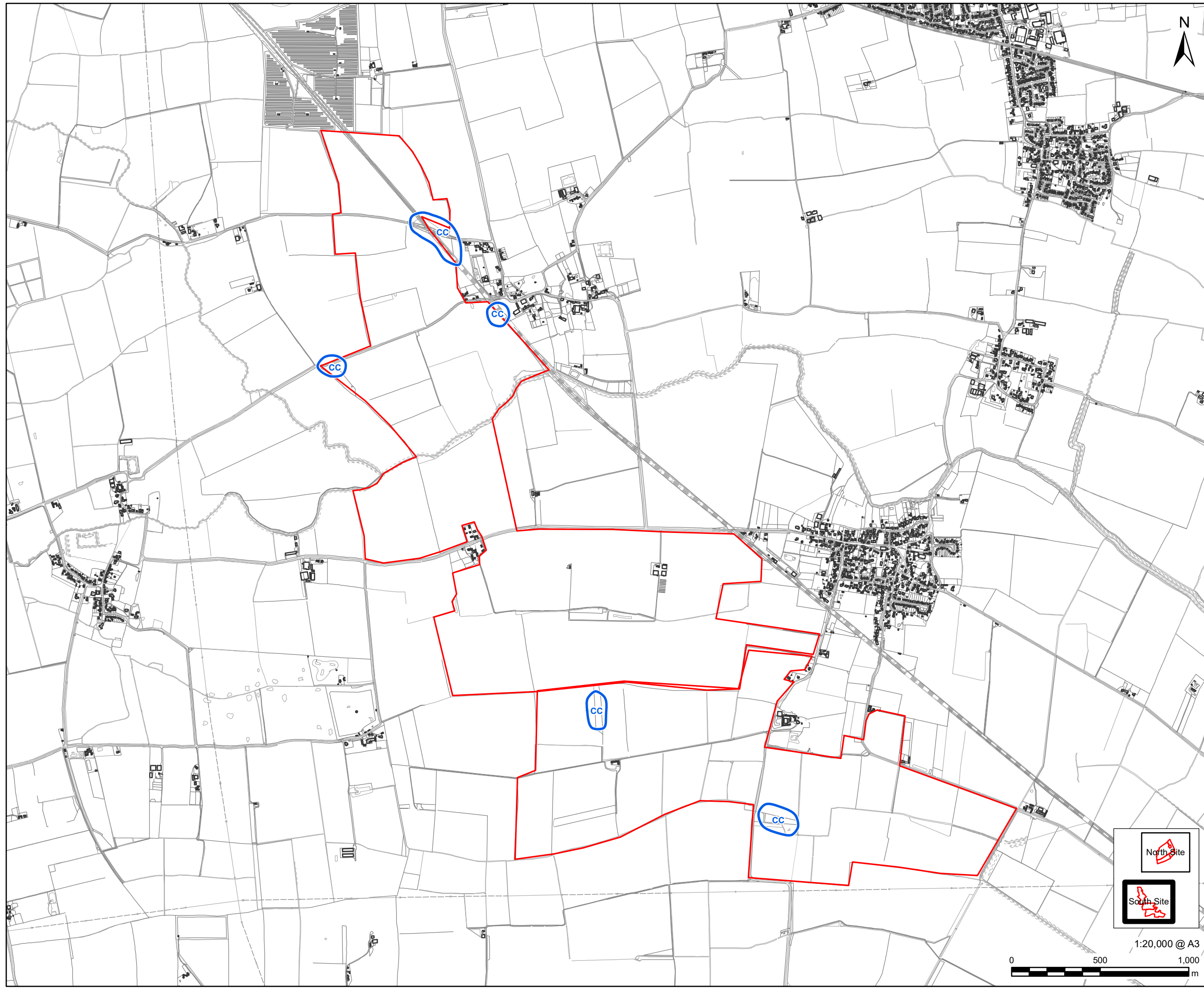
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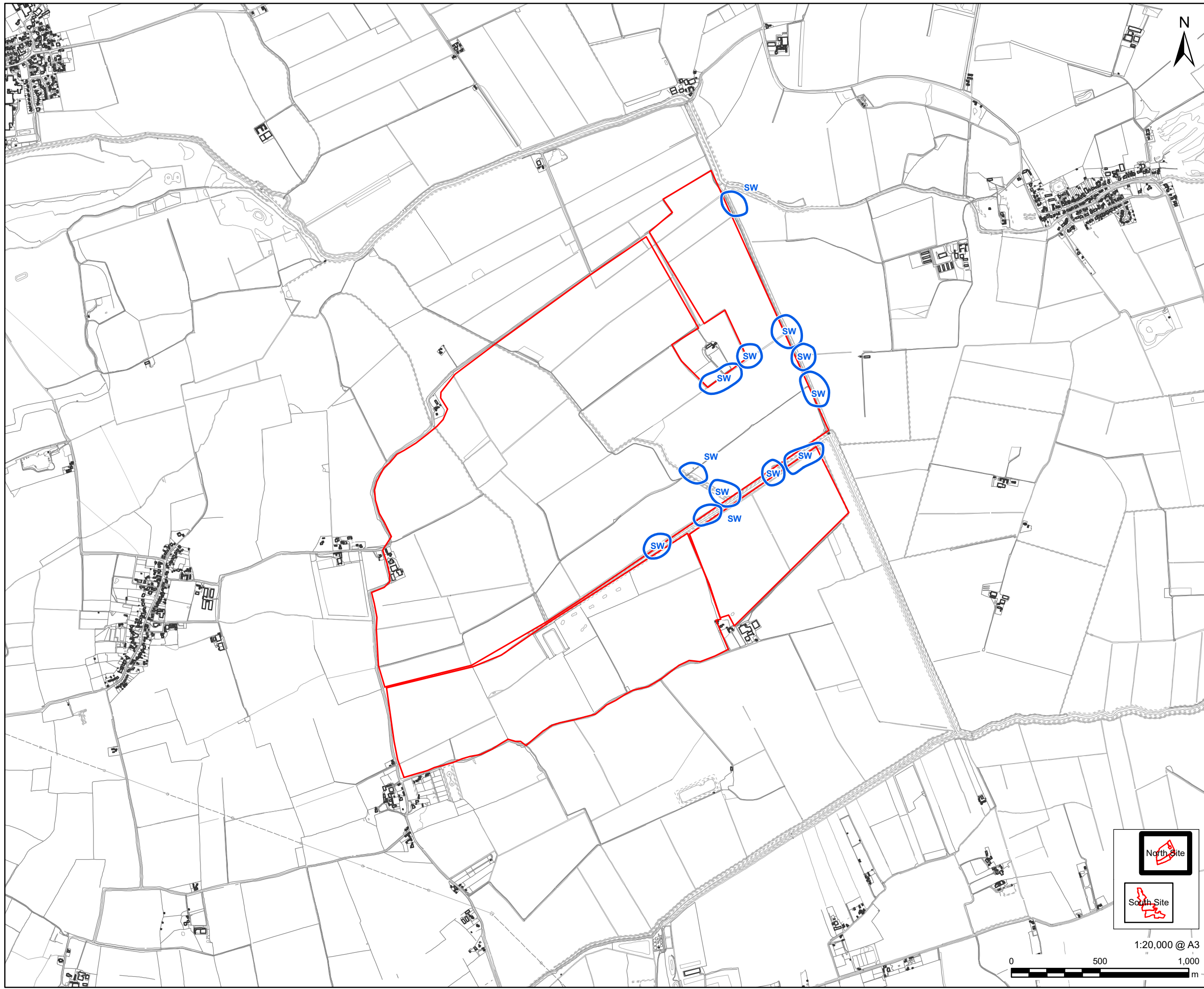


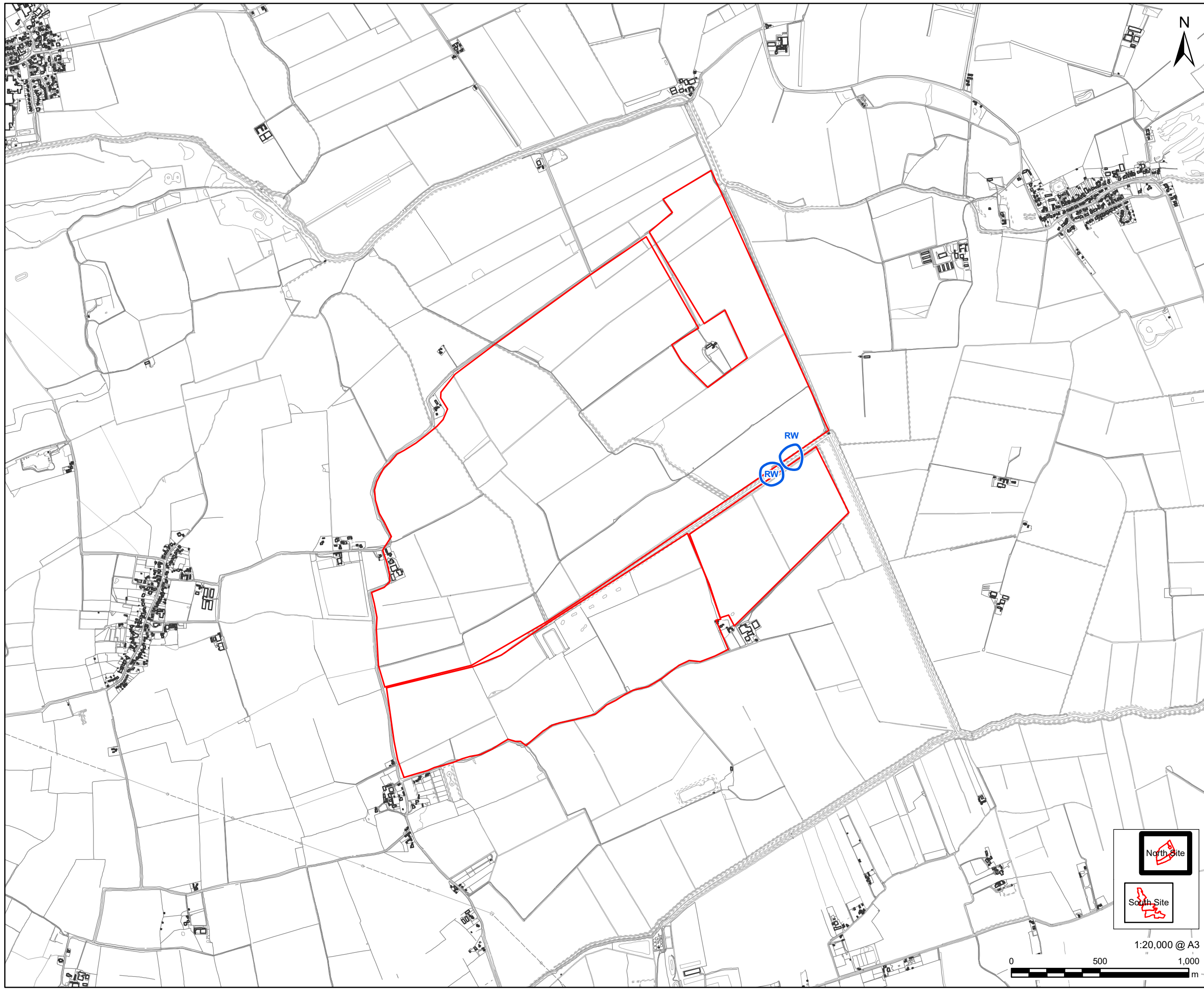
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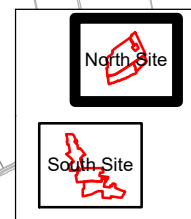
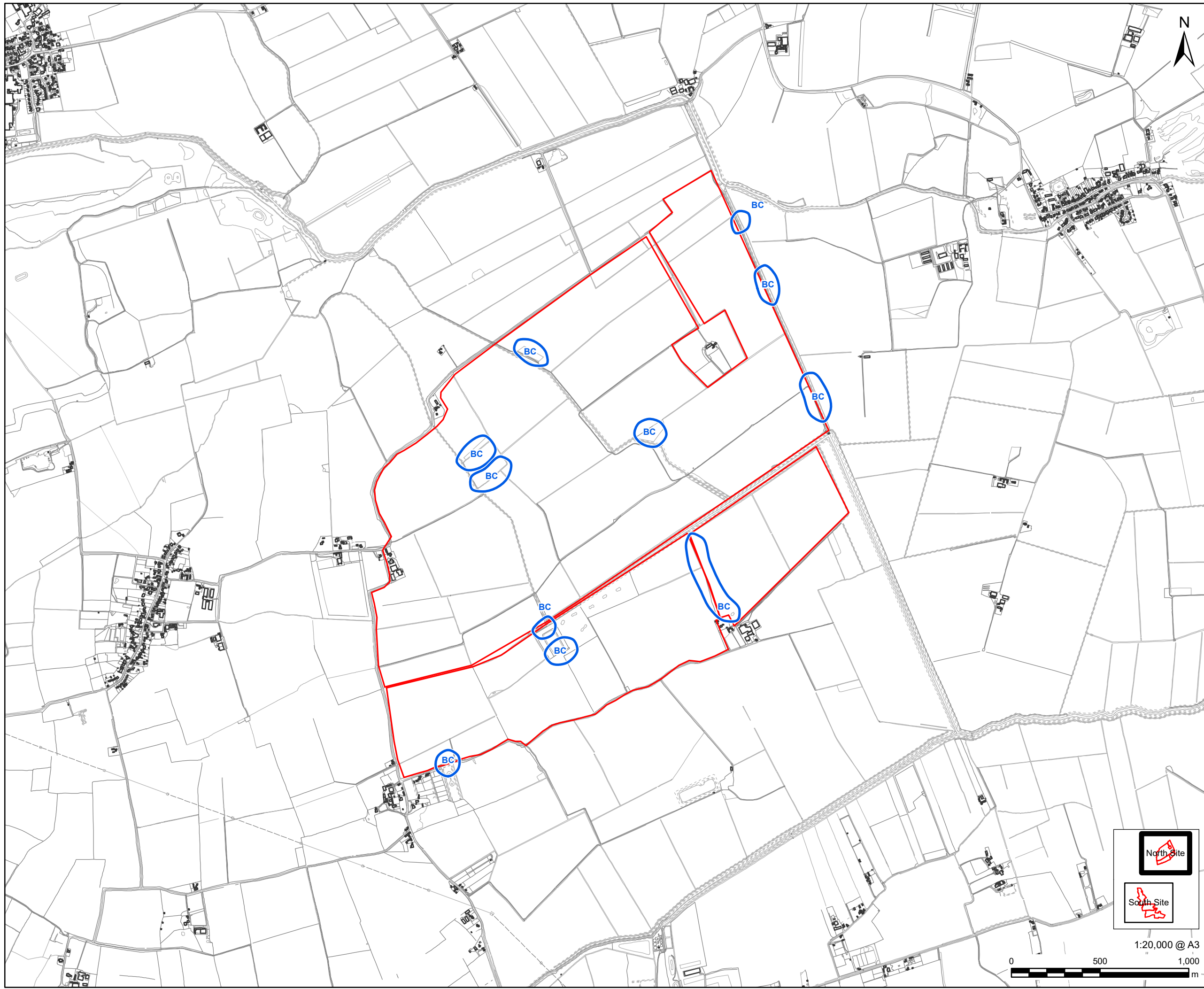


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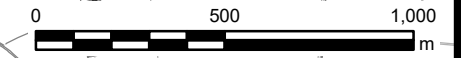




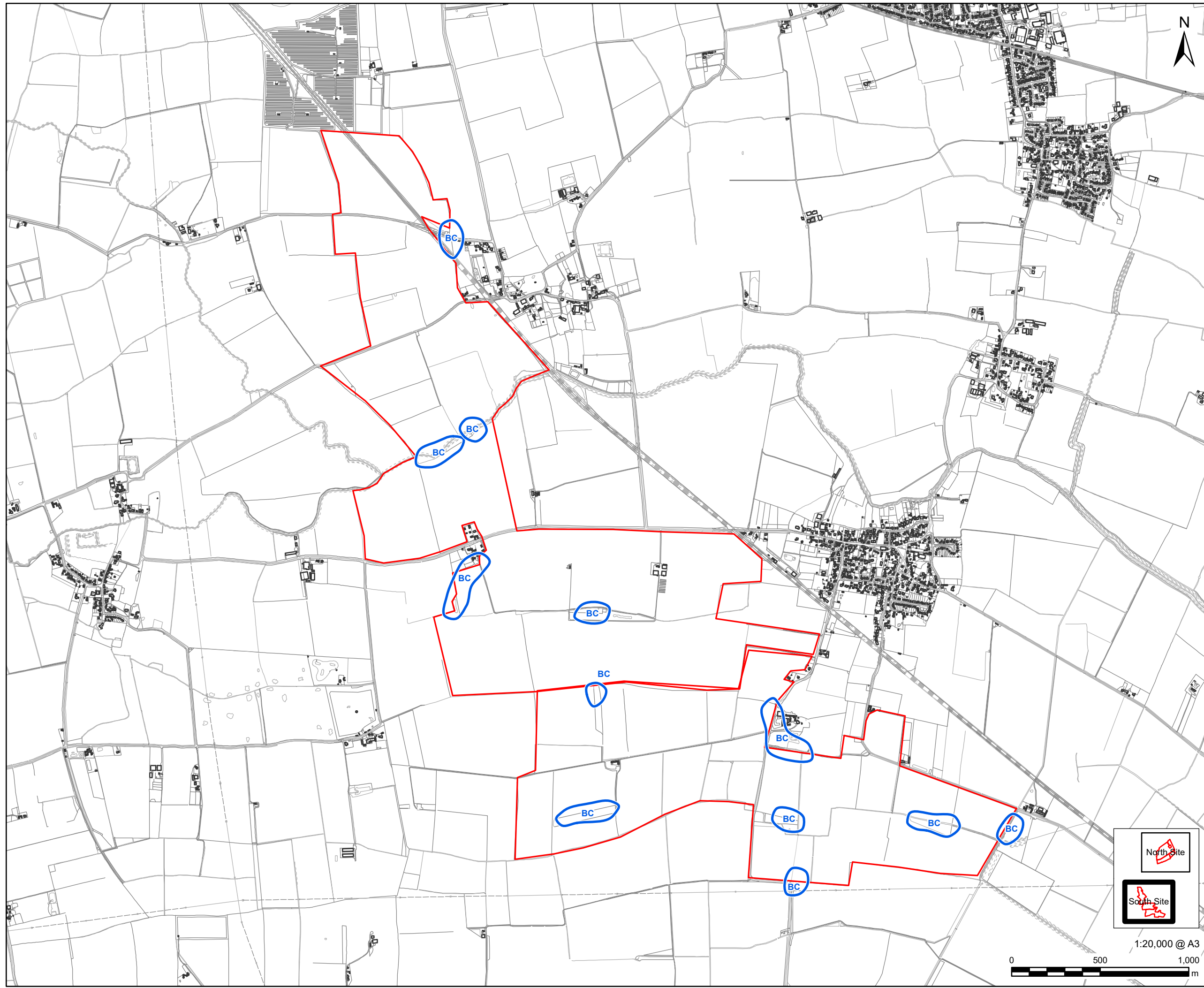




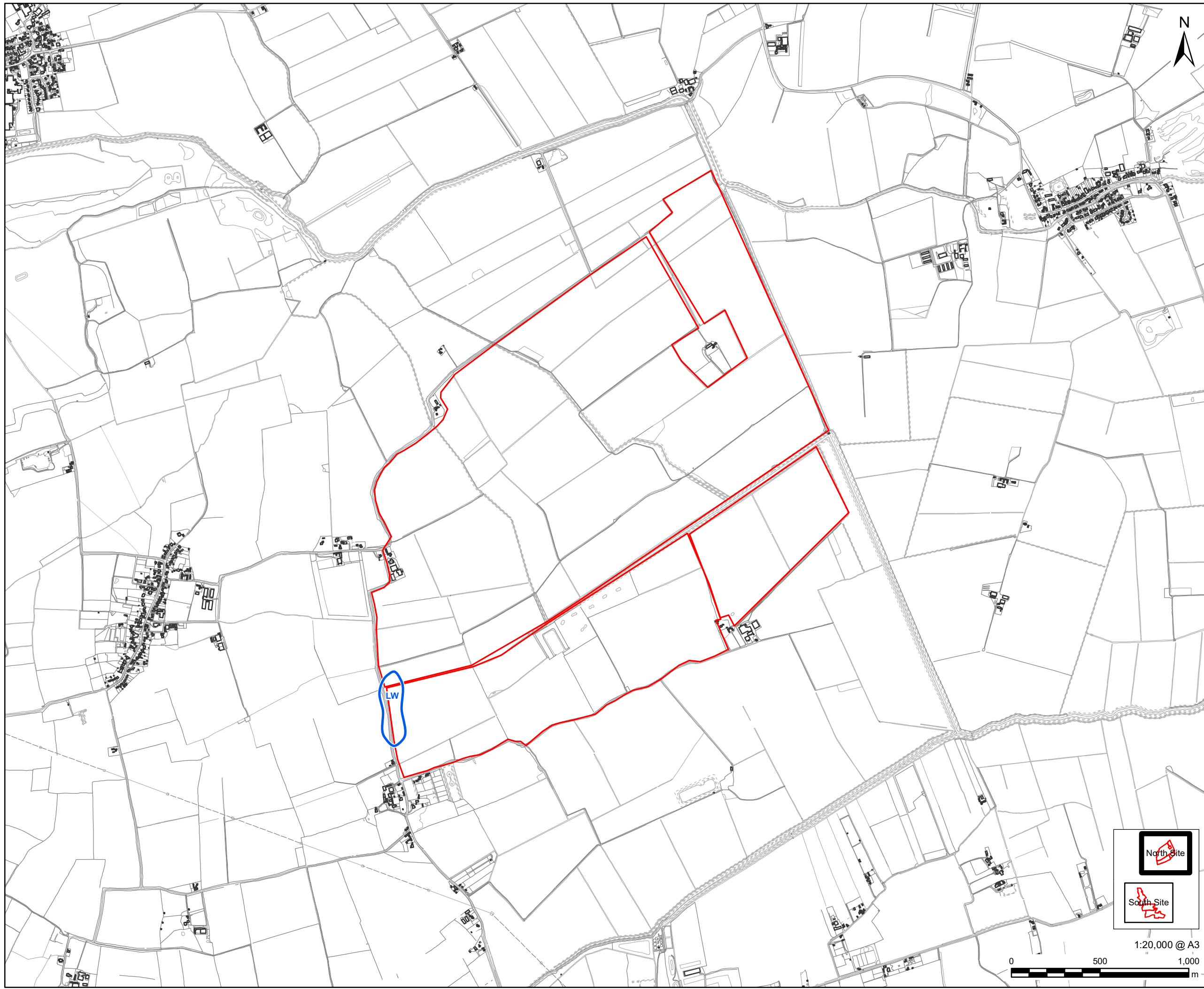
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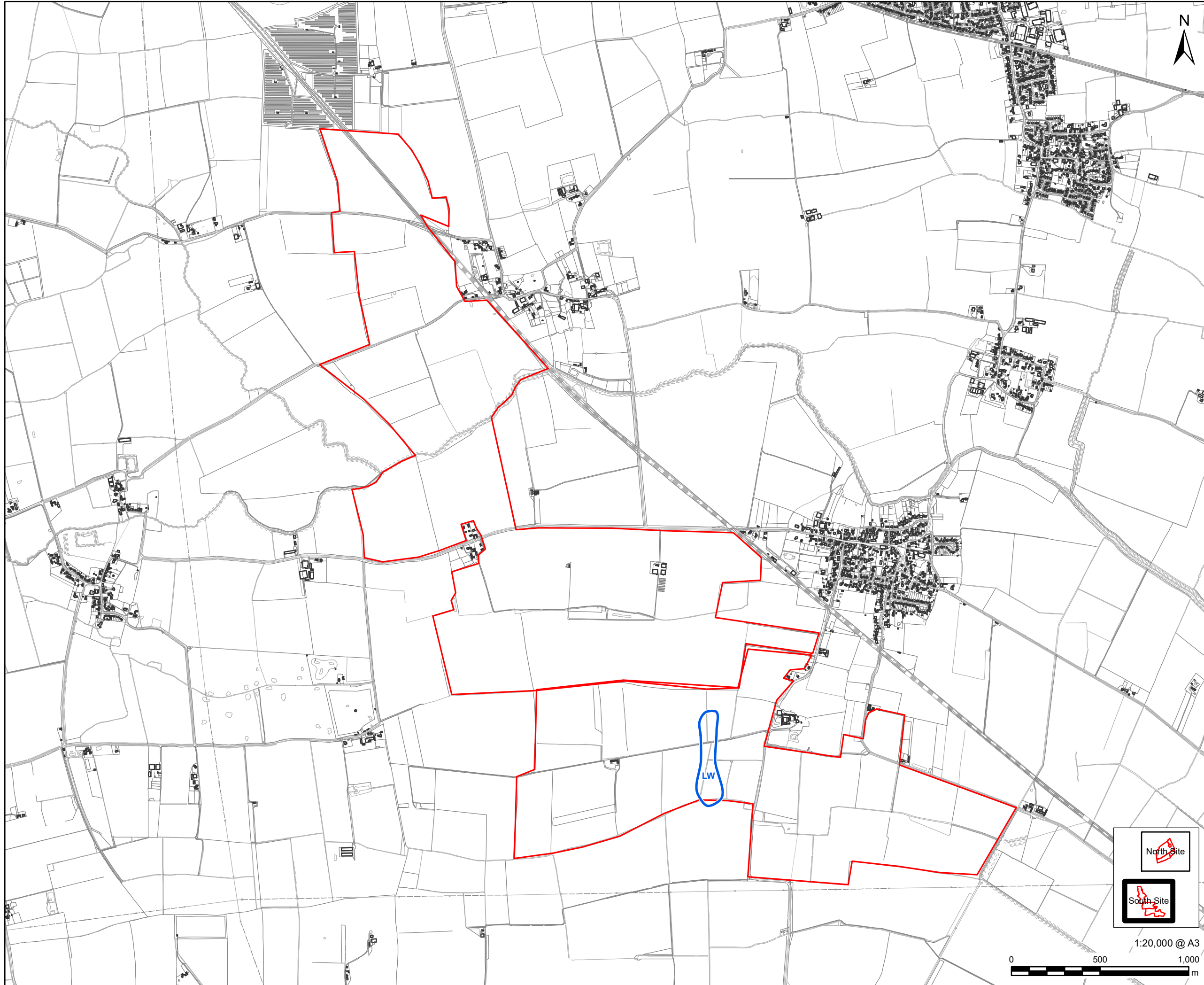
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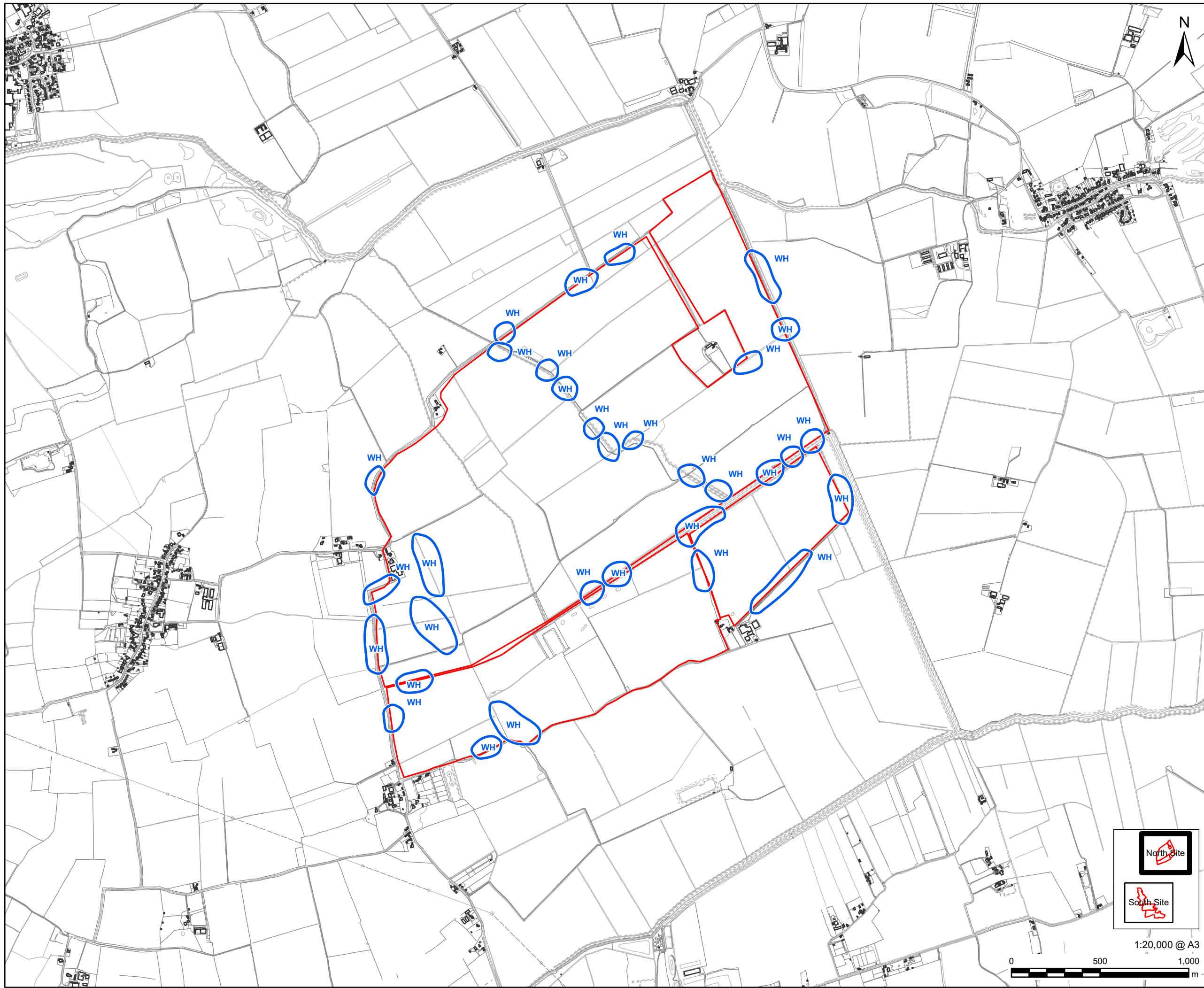
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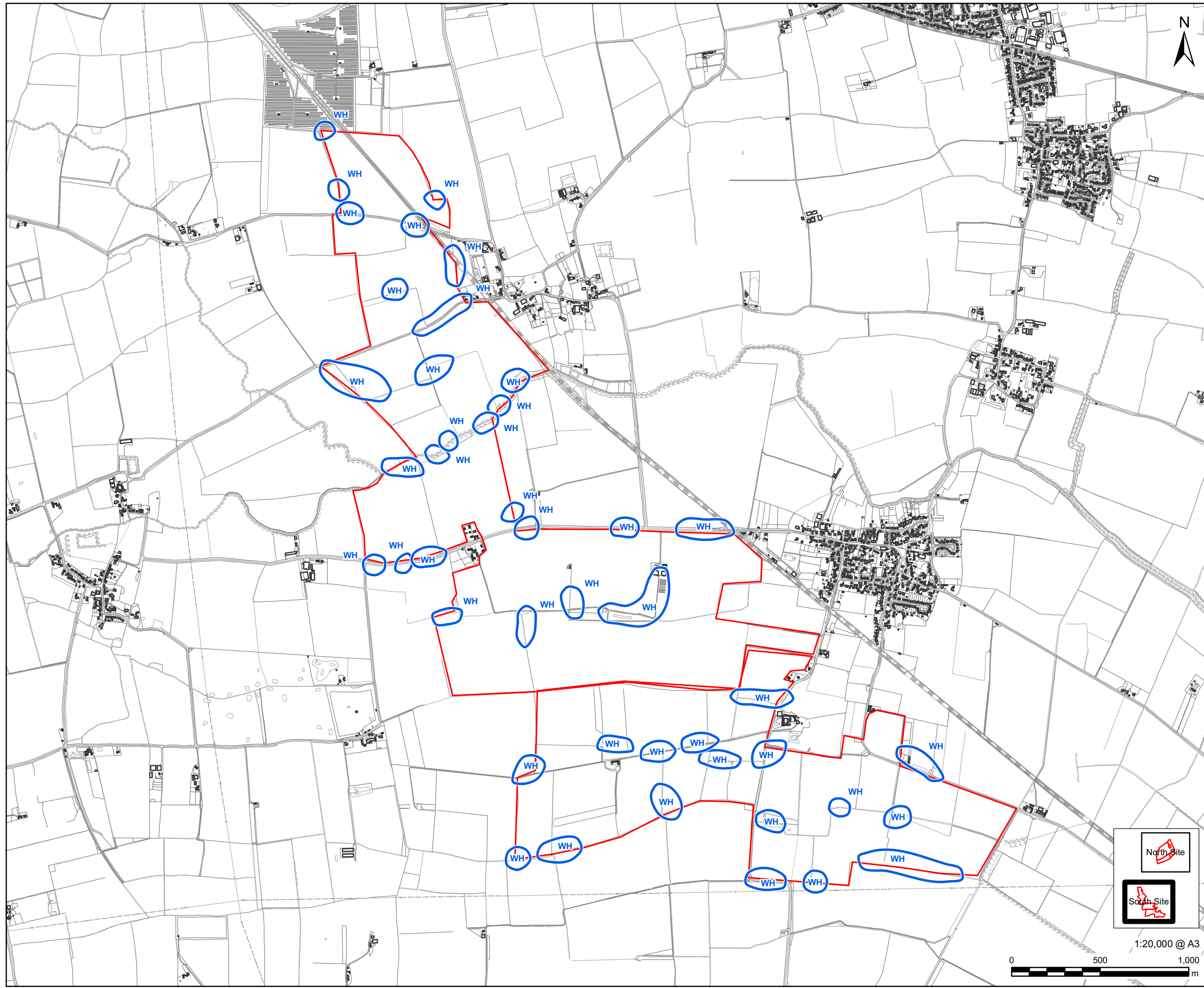
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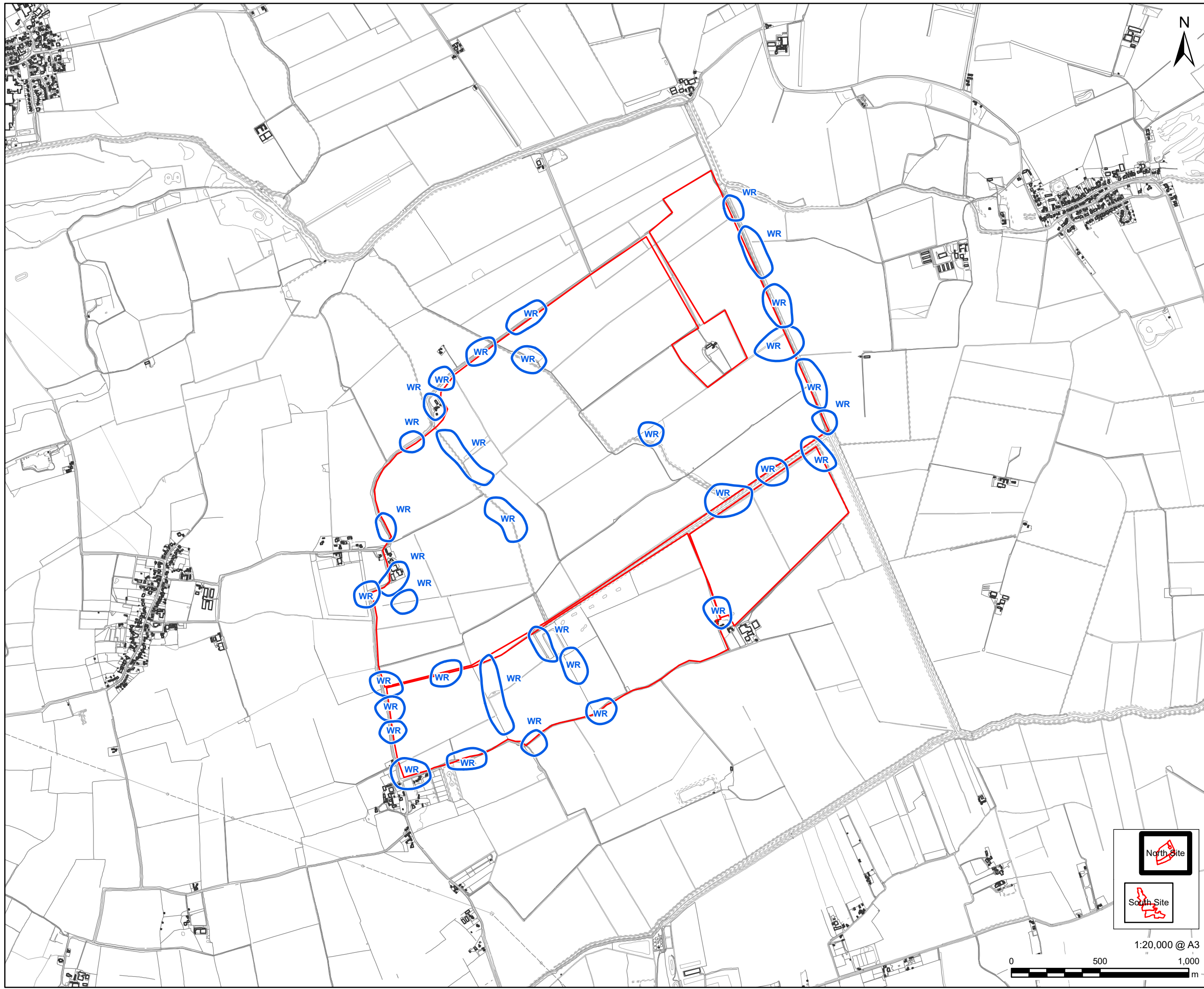
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**PROJECT**  
Bicker Fen

**CLIENT**  
Low Carbon

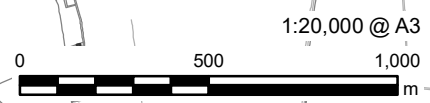
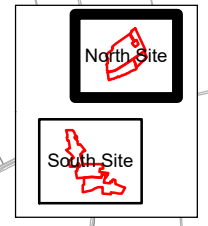
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Girton, Cambridge,  
CB3 0NA  
www.aecom.com

**LEGEND**  
 Site boundary  
 Wren (WR) Territory

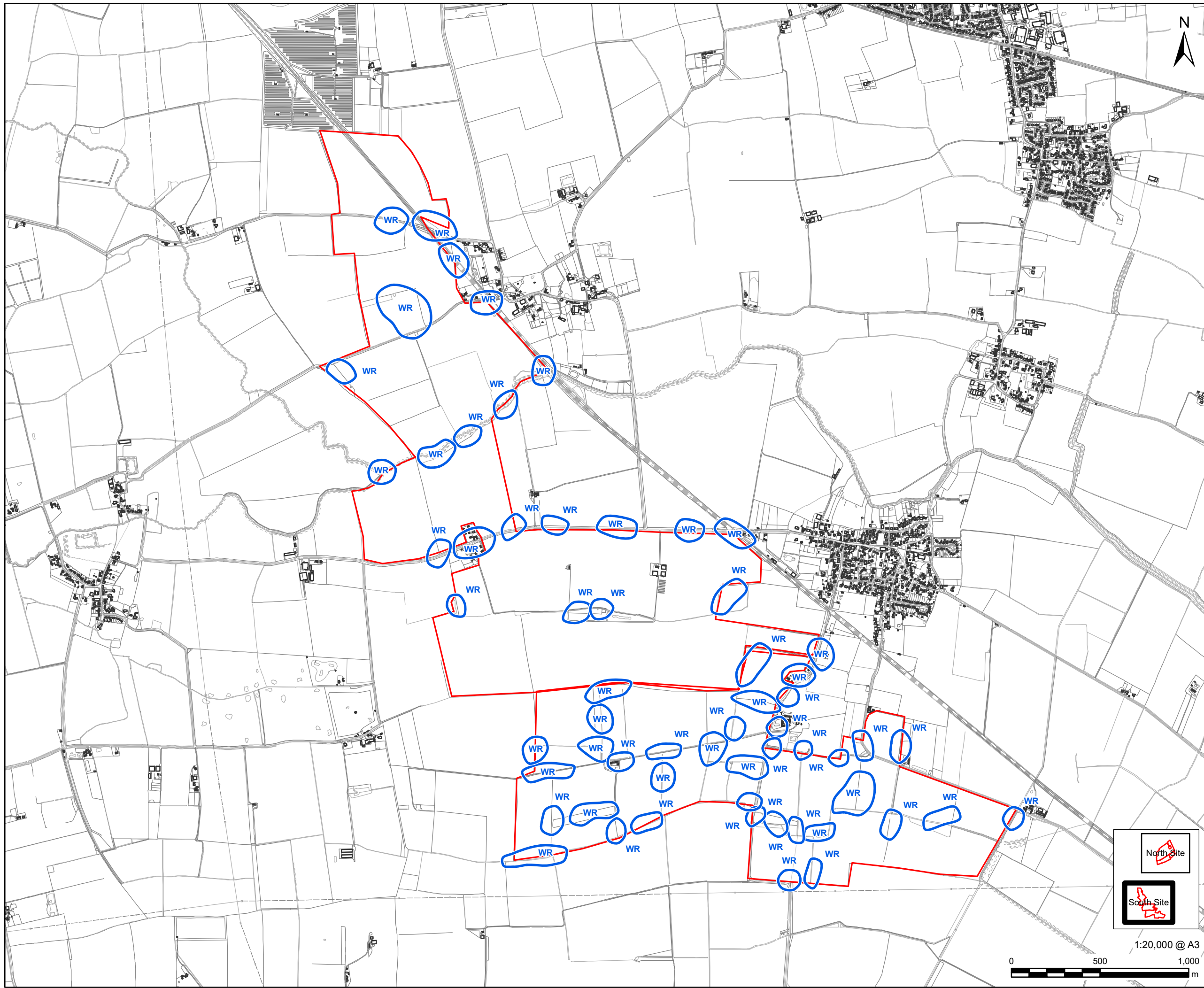
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**ISSUE PURPOSE**  
FOR INFORMATION  
**PROJECT NUMBER**  
60644715  
**FIGURE TITLE**  
BREEDING BIRD SURVEY - NORTH SITE  
**WREN (TROGLODYTES TROGLODYTES)**

**FIGURE NUMBER**  
FIGURE 48

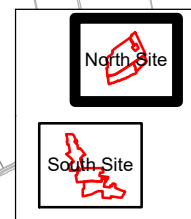
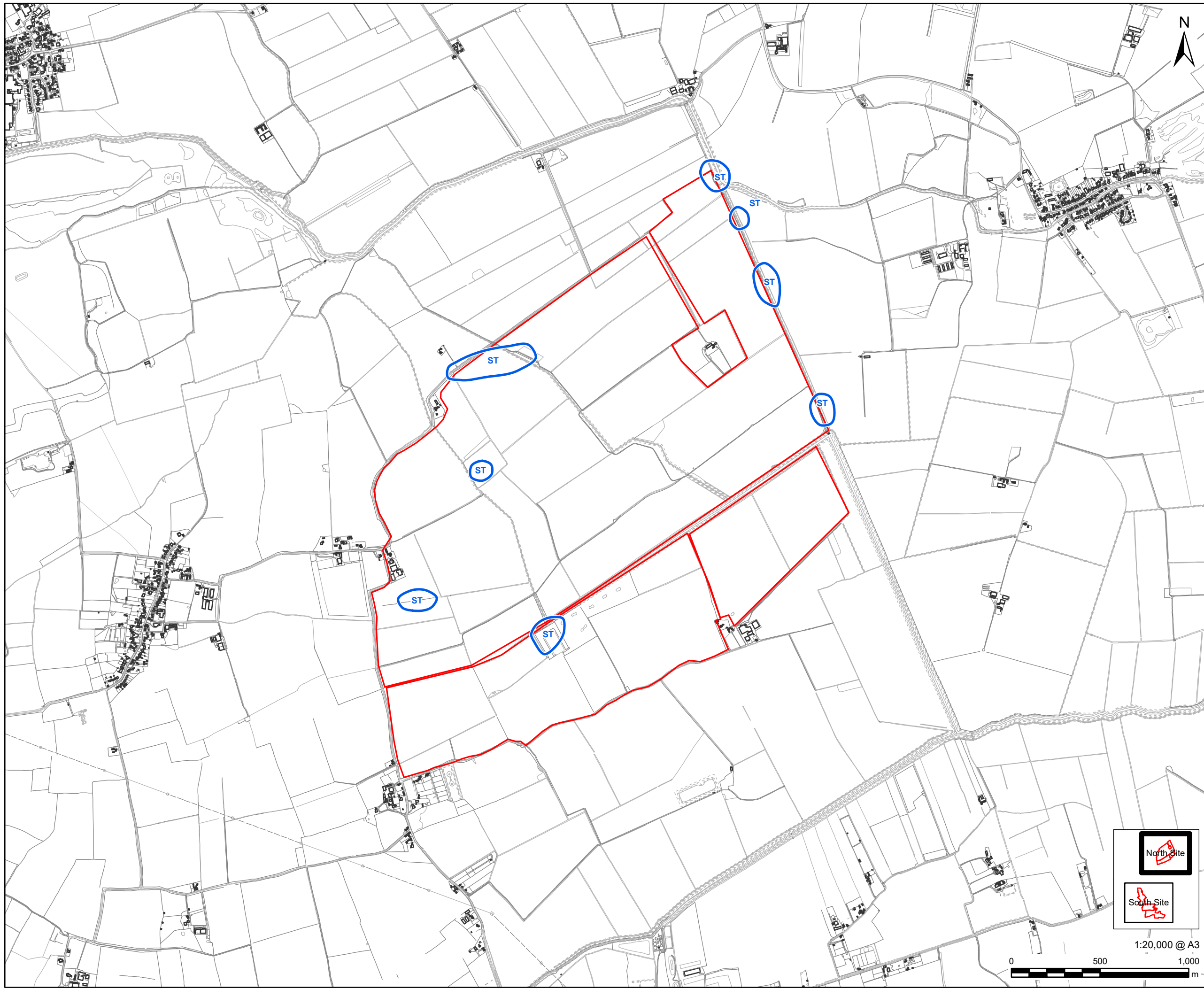


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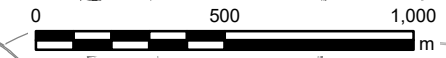


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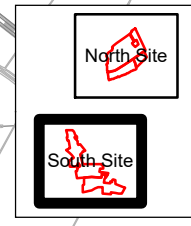
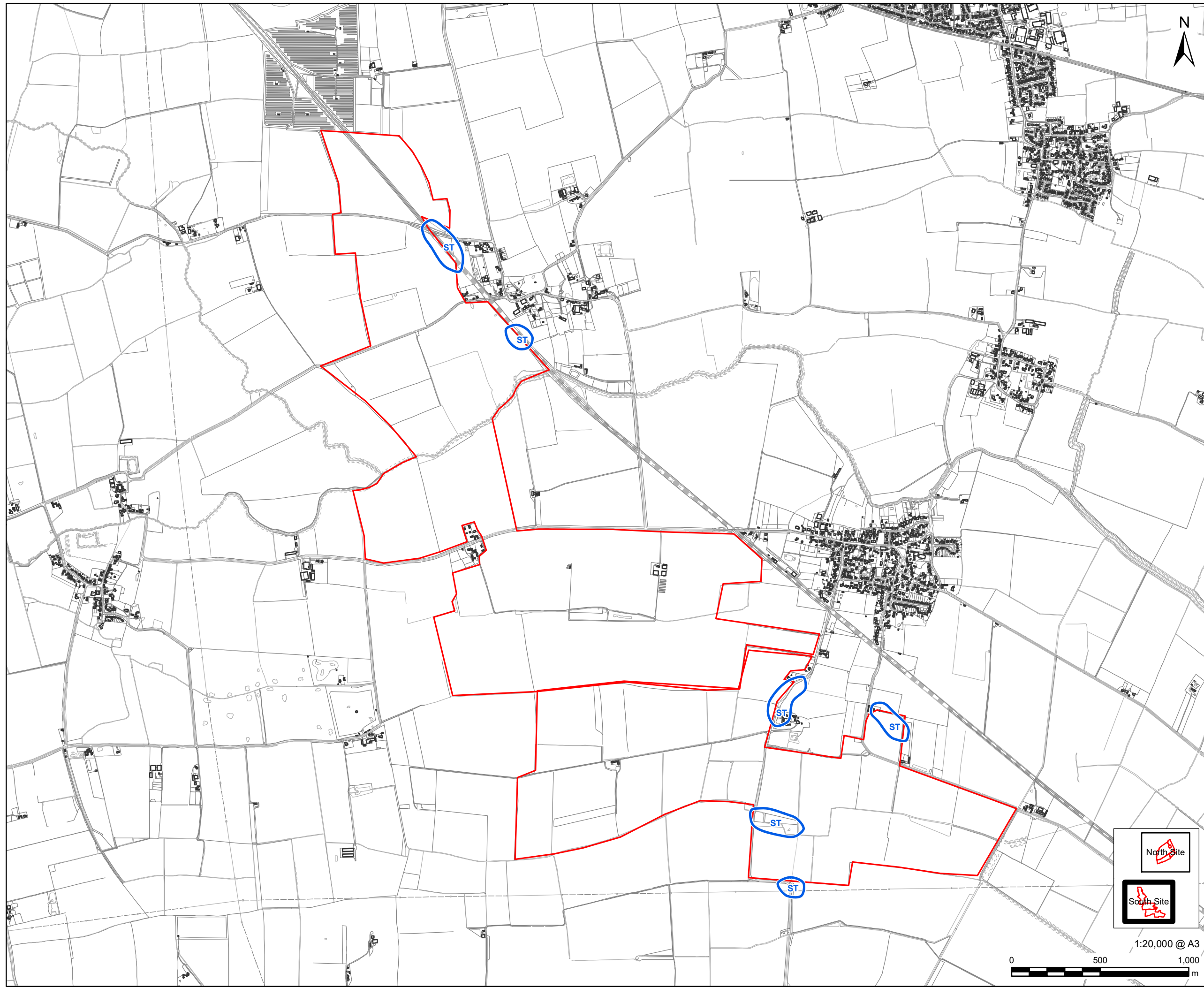




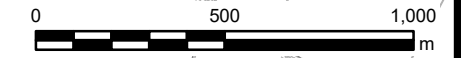
1:20,000 @ A3



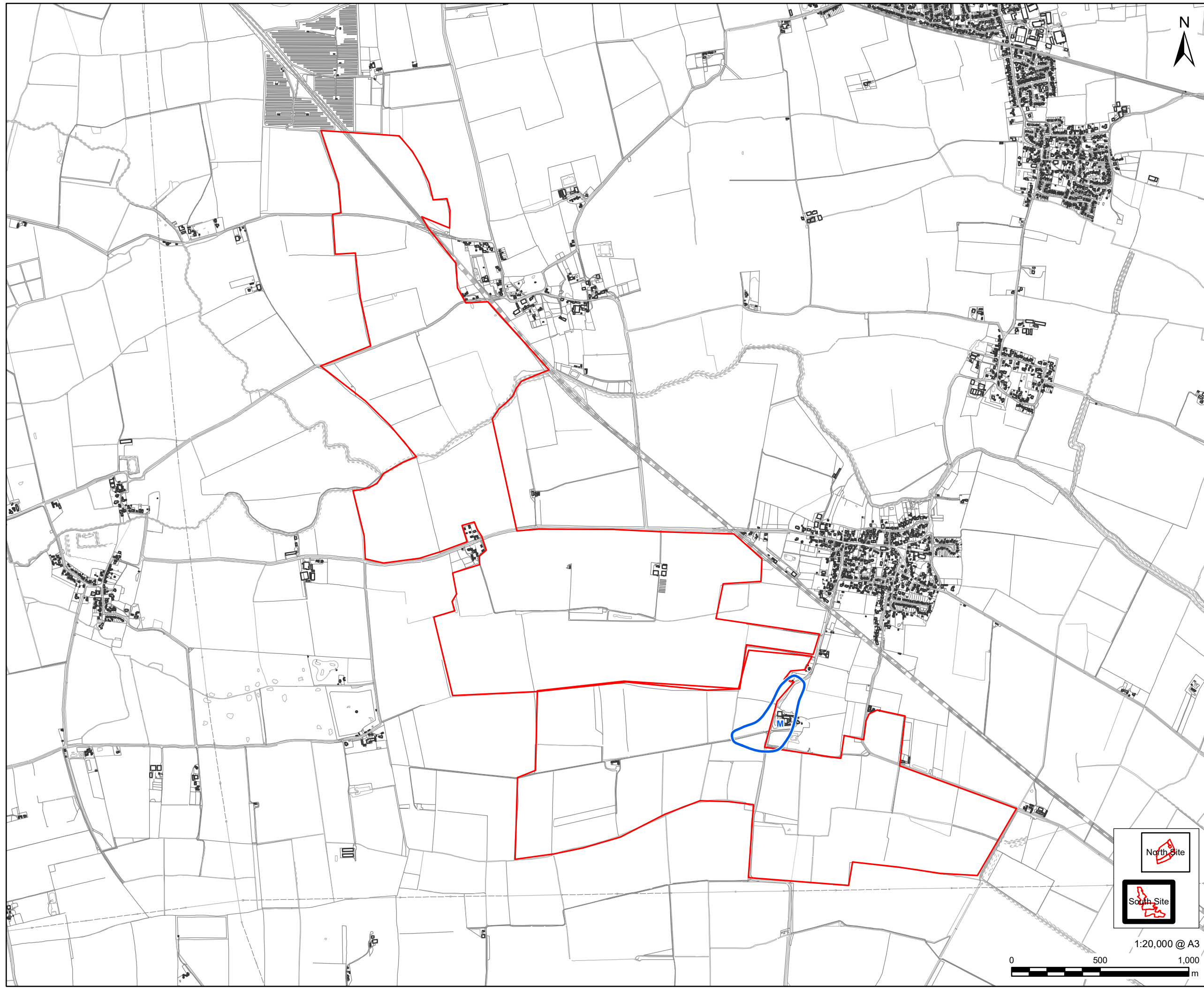
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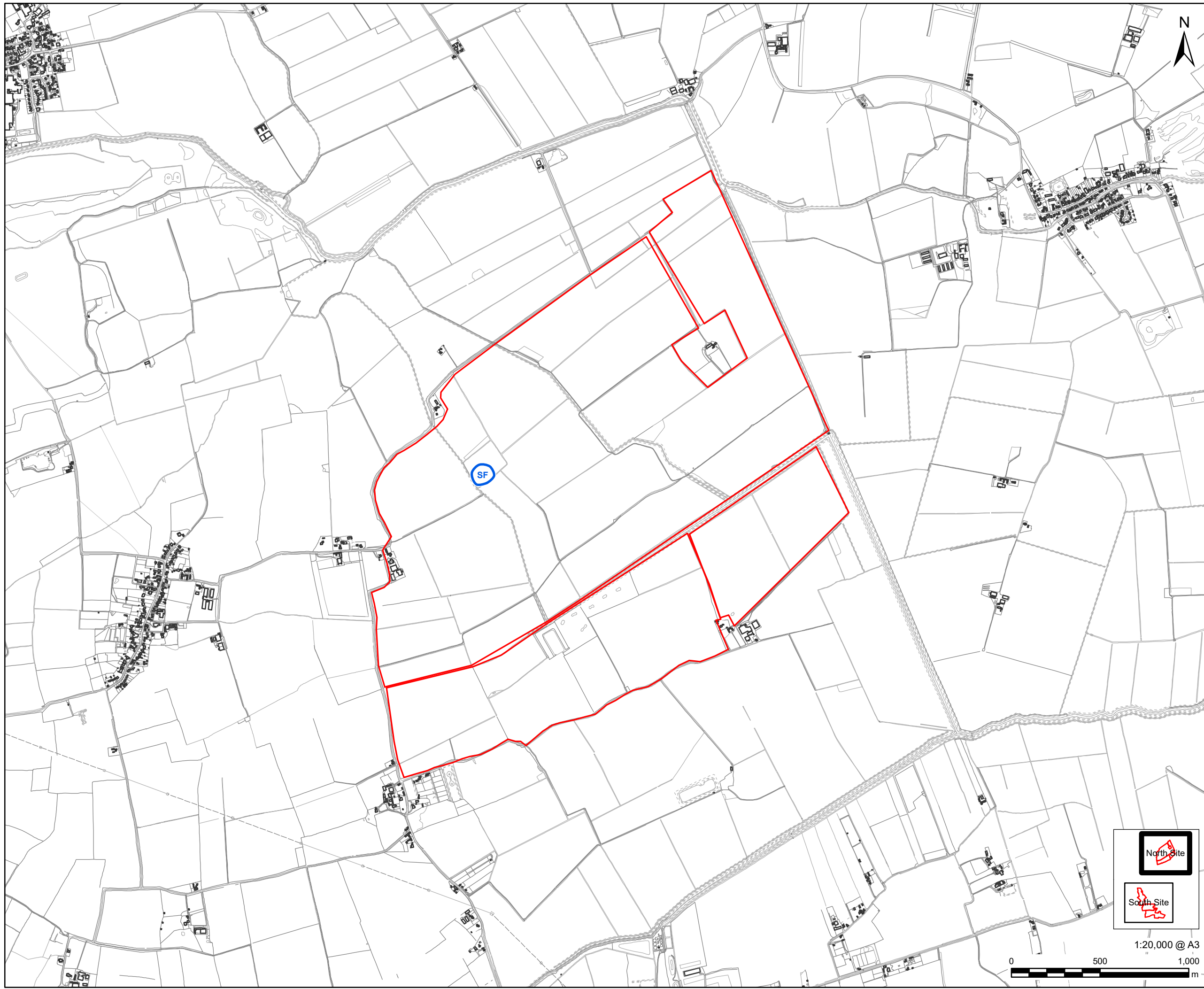
1:20,000 @ A3



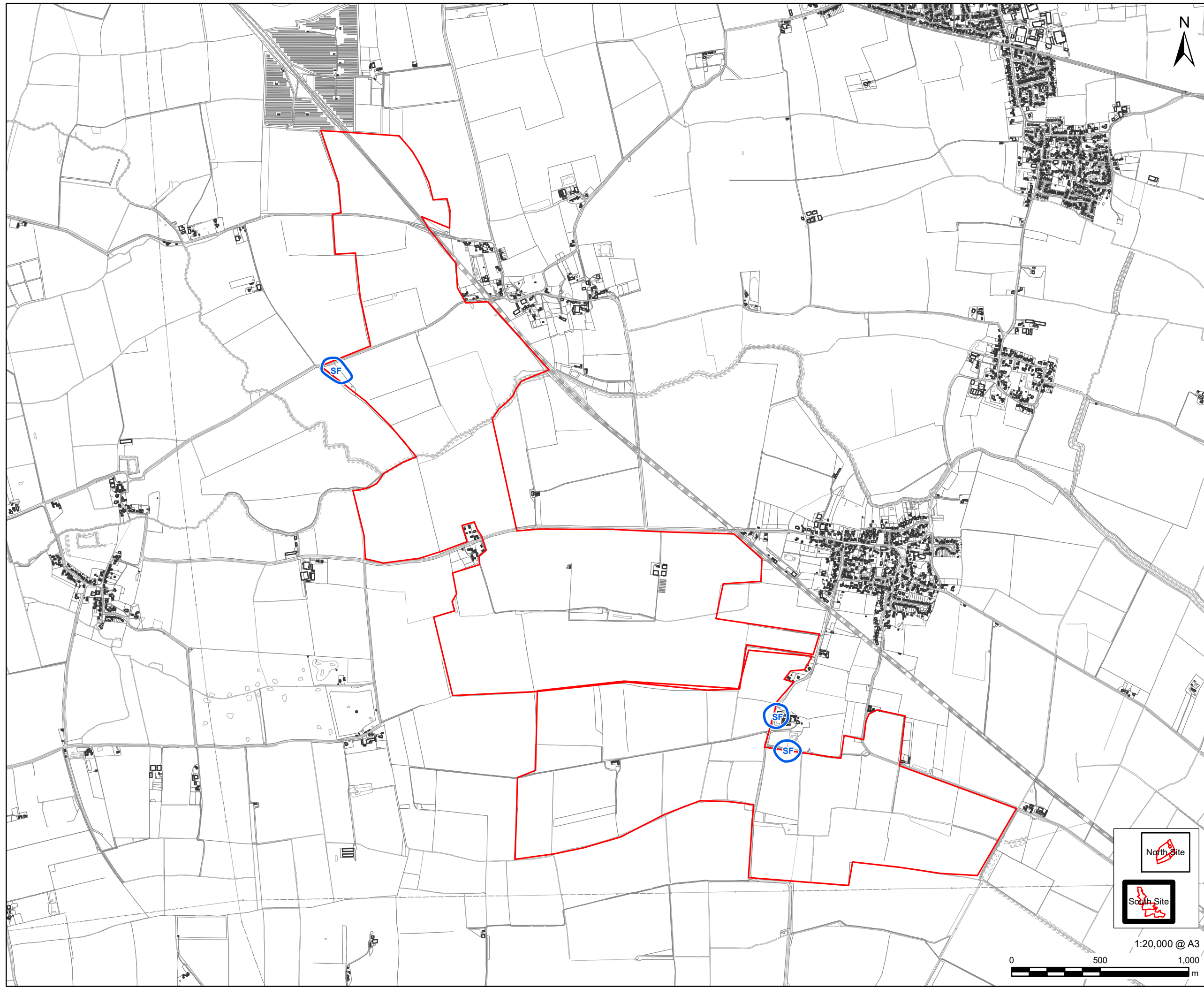
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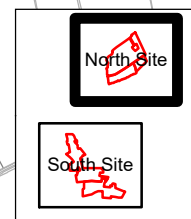
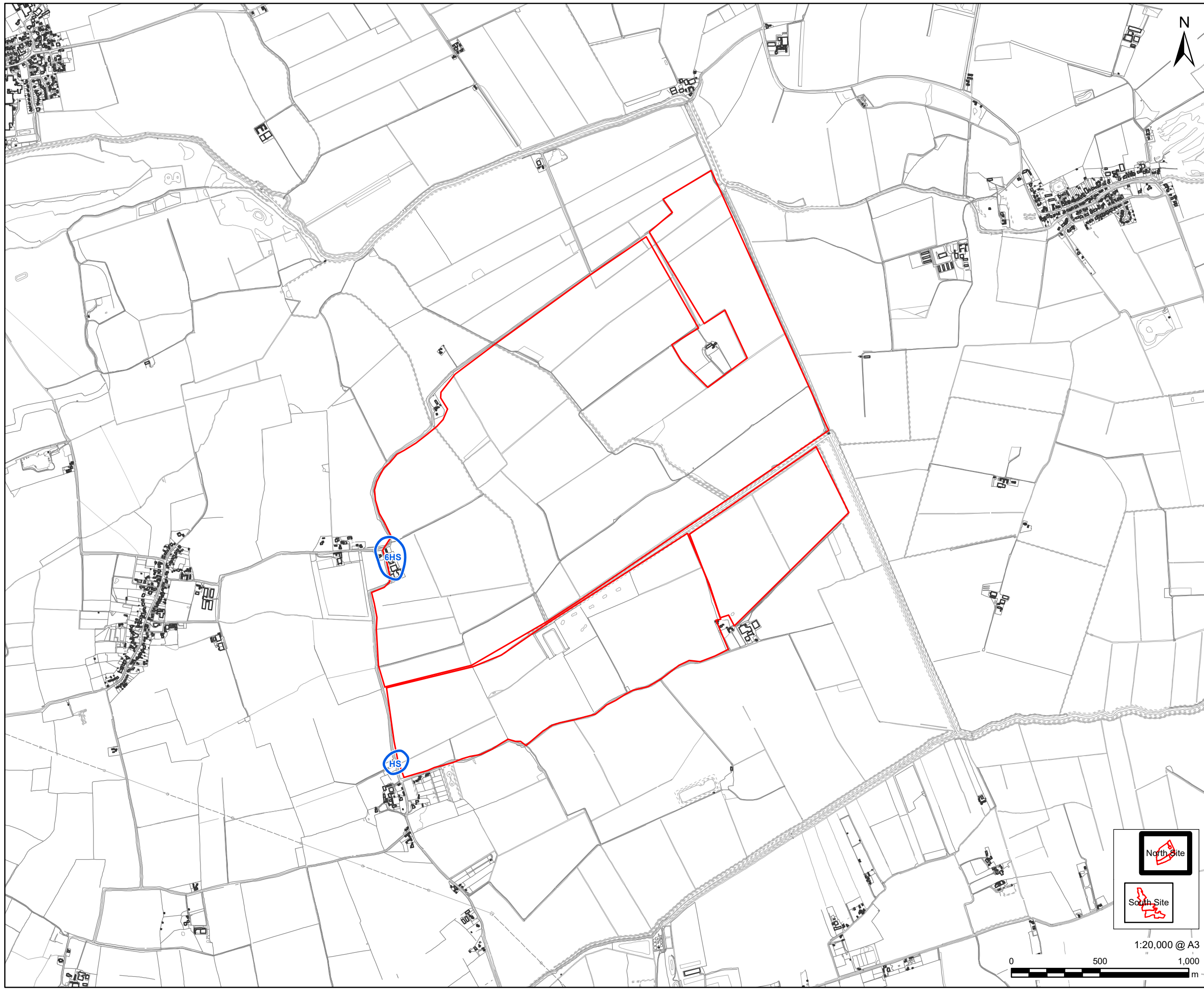


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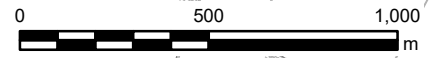
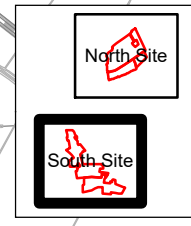
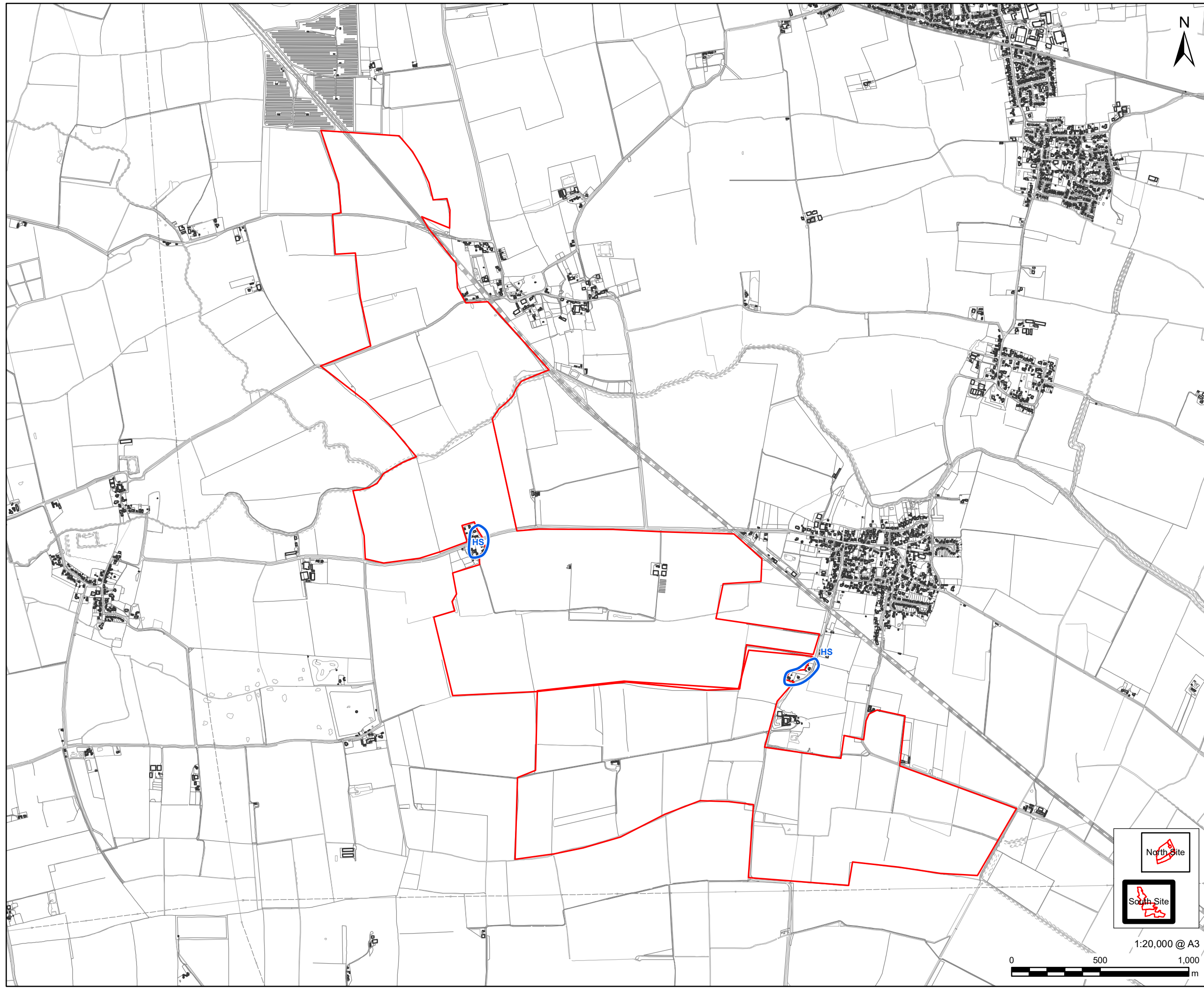


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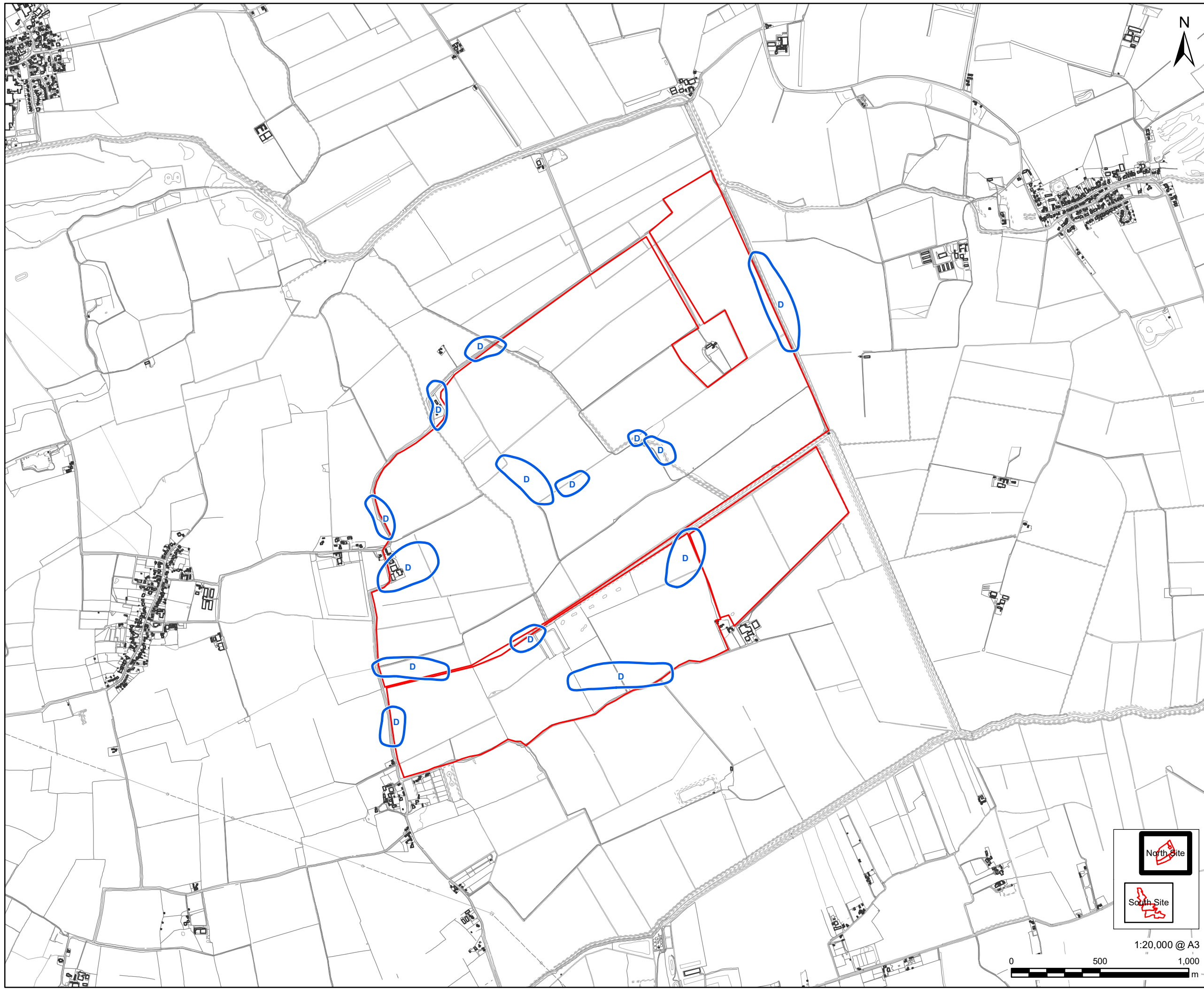




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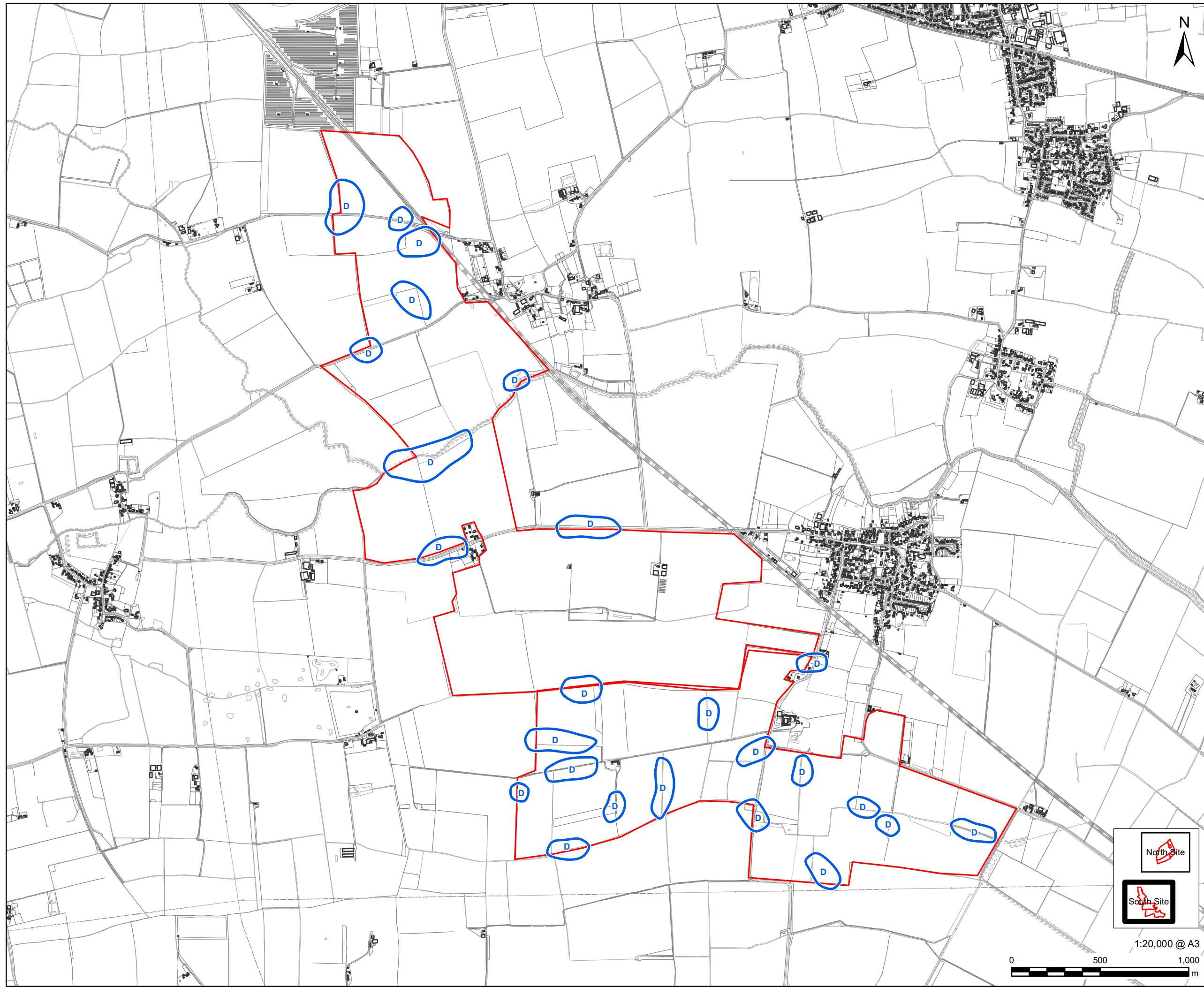


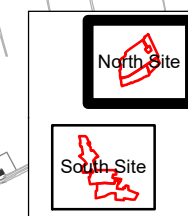
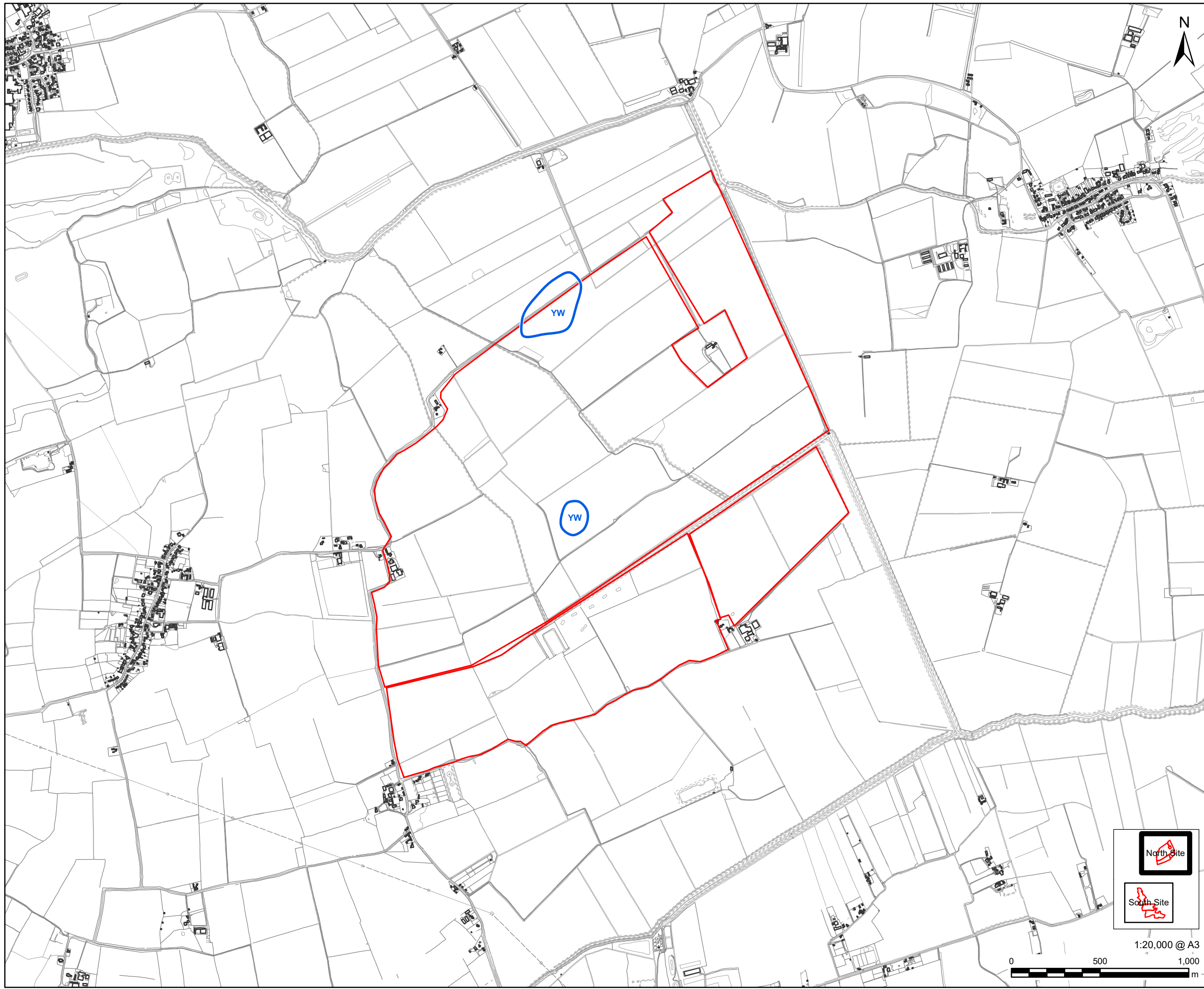
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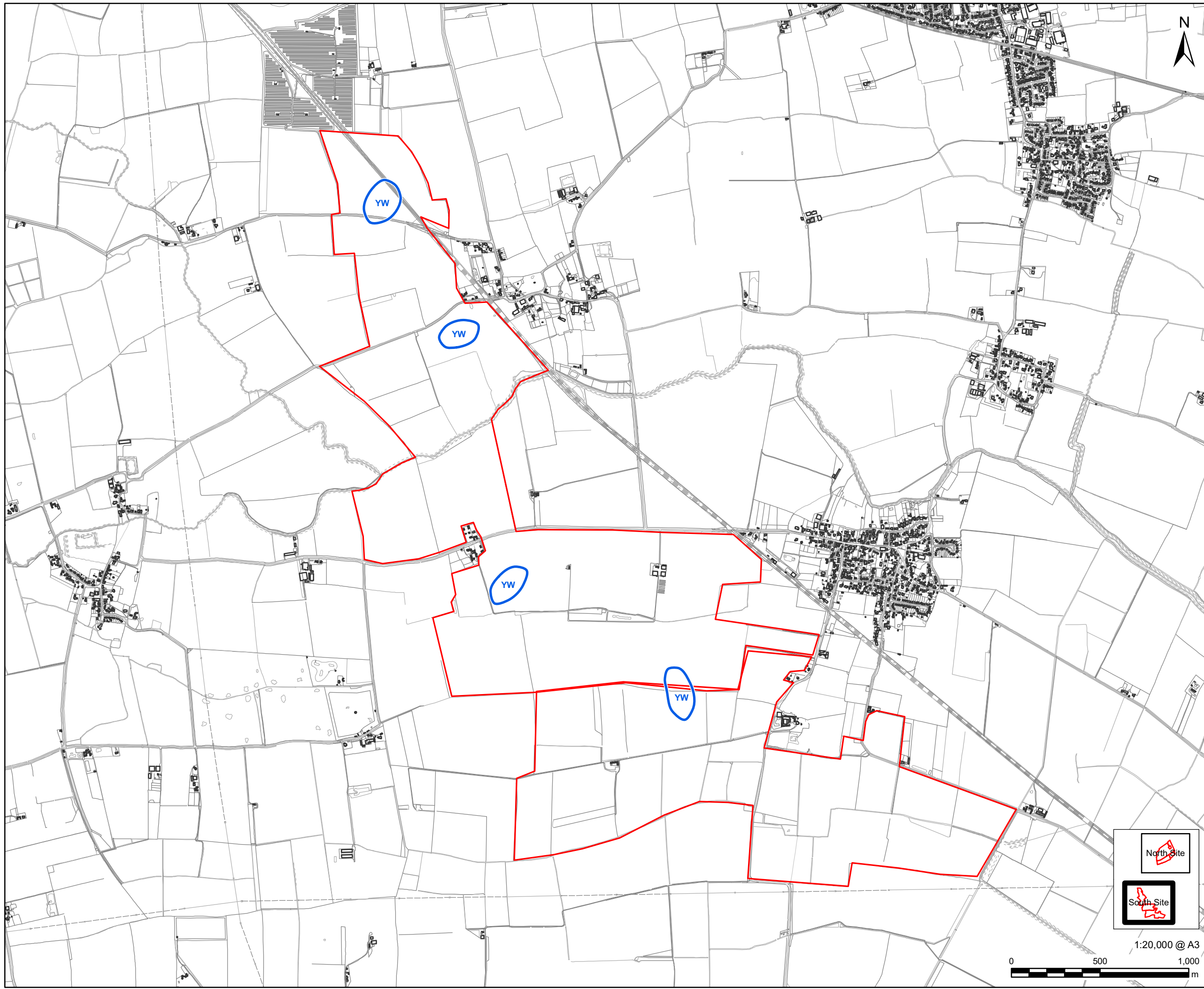
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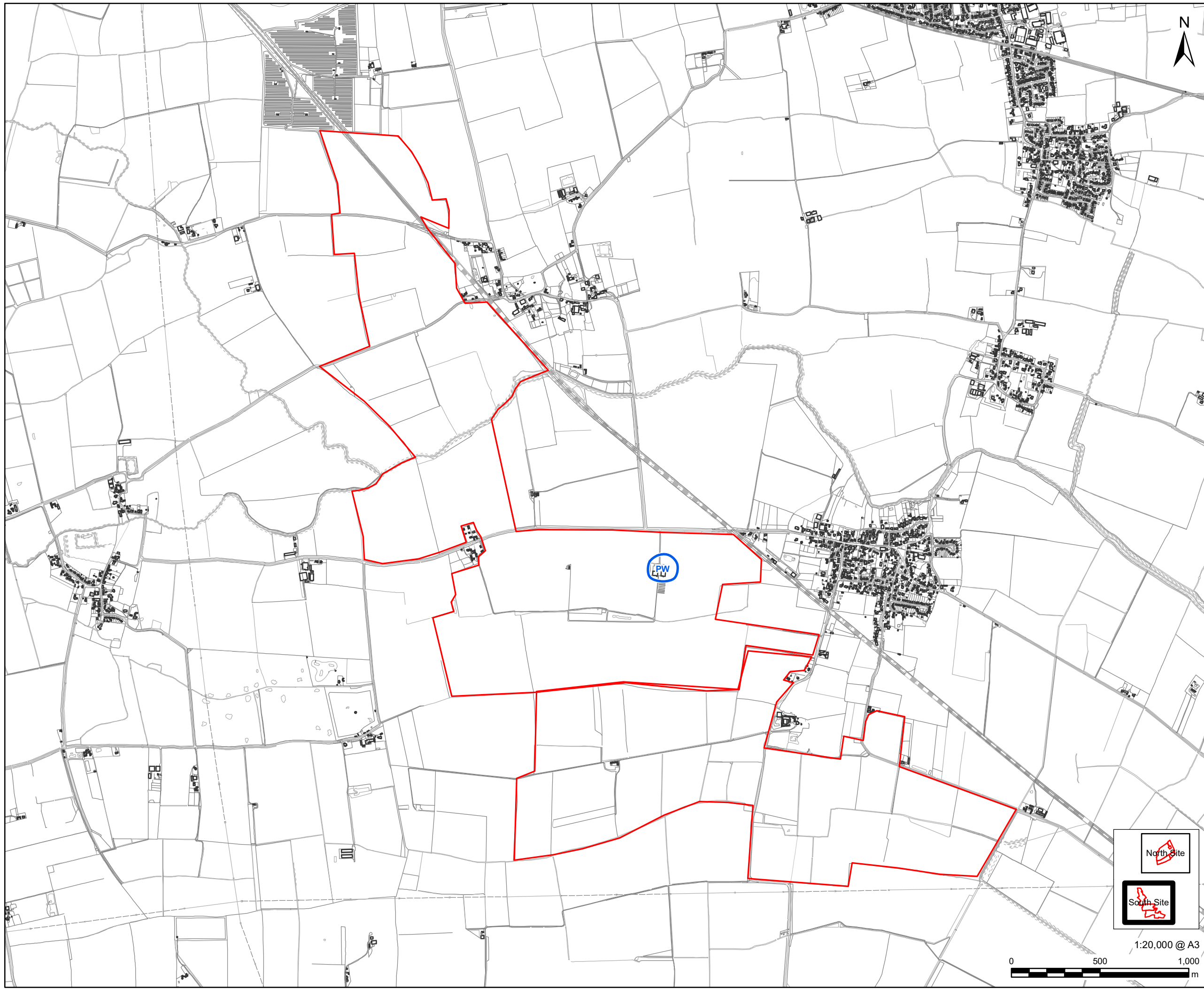




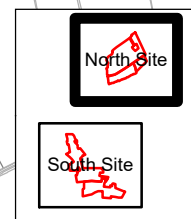
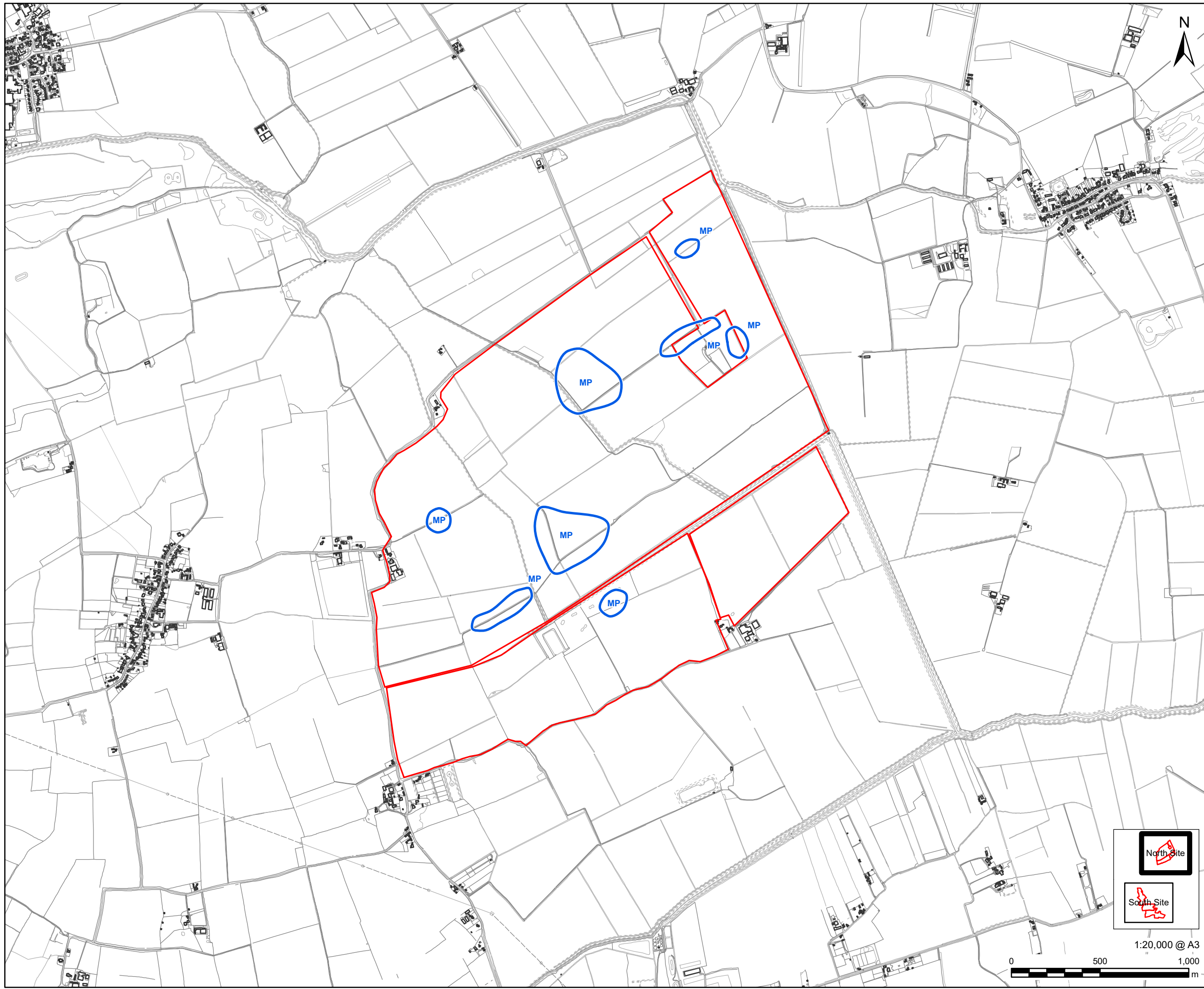
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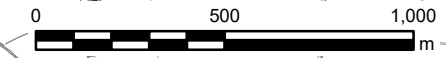
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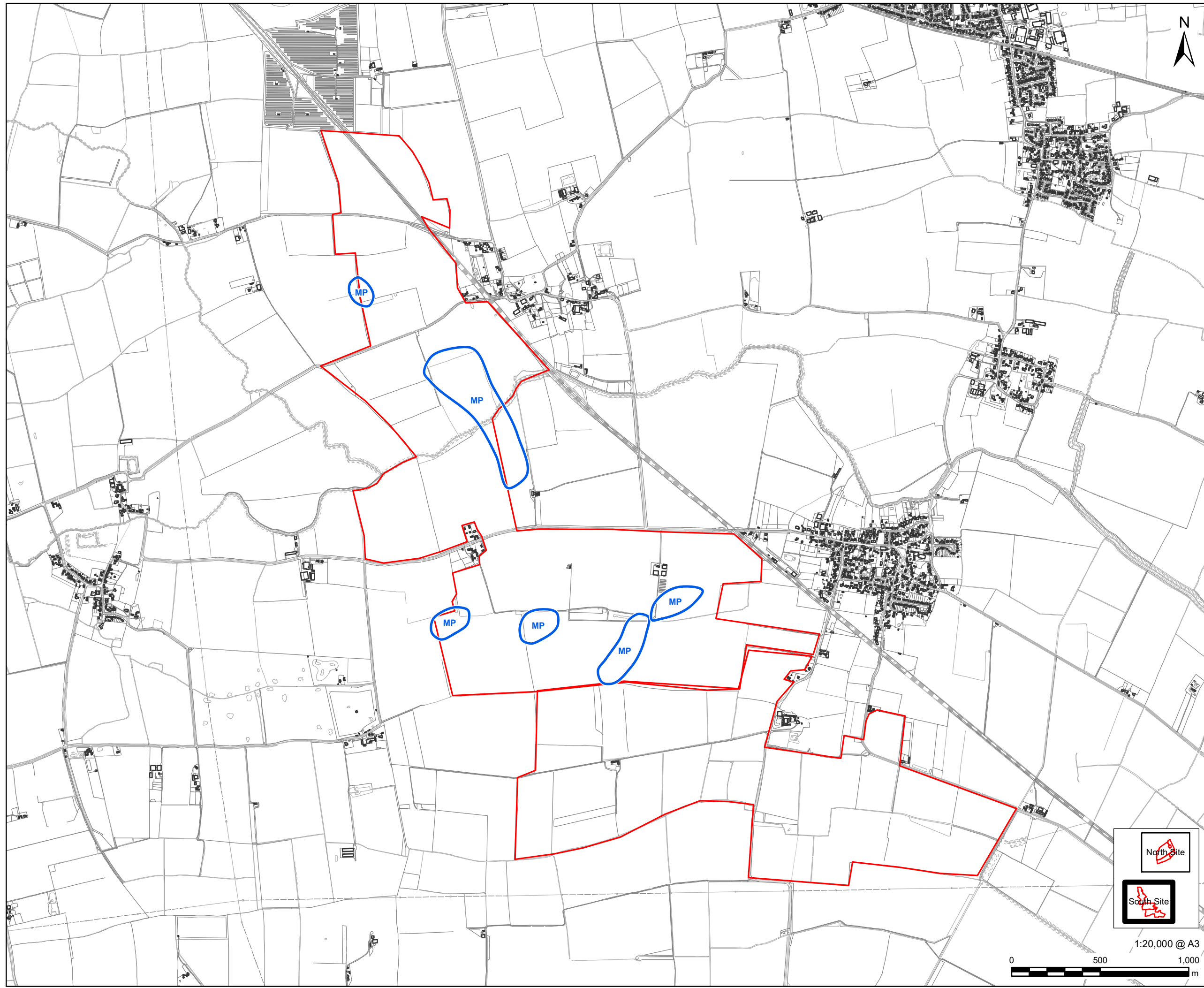
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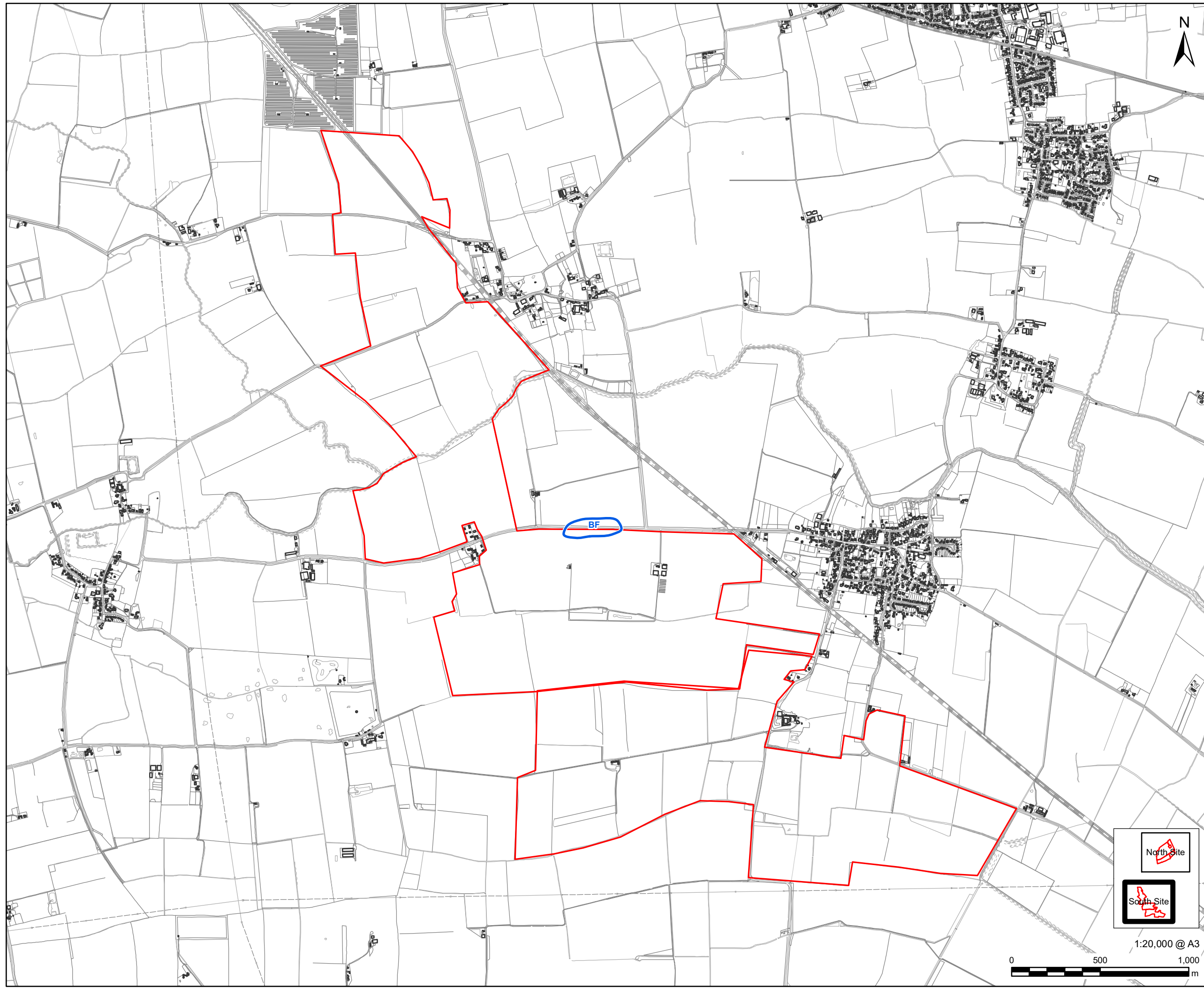
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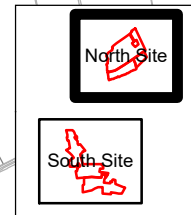
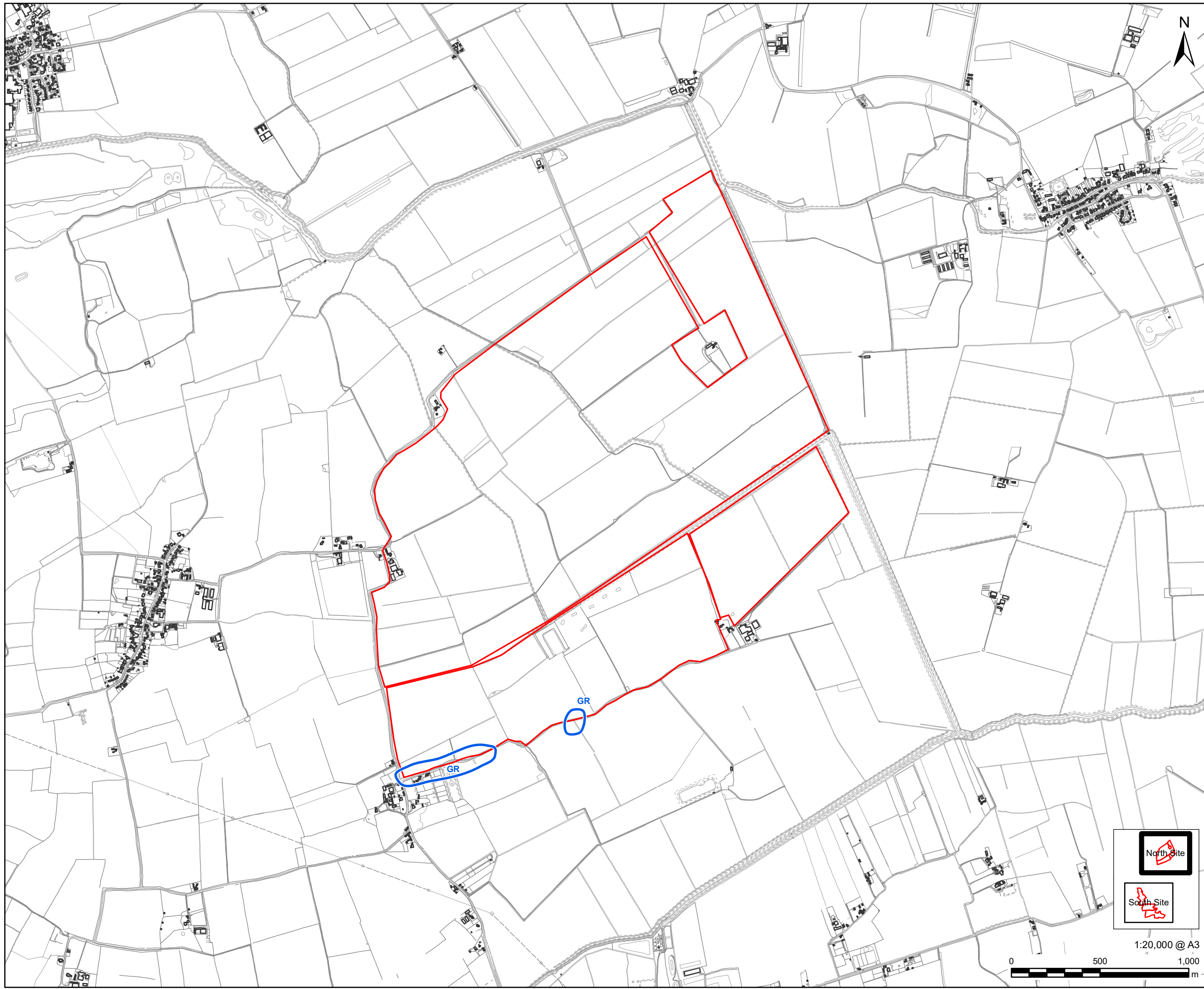


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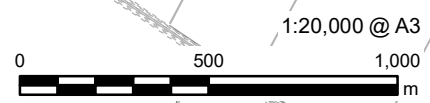
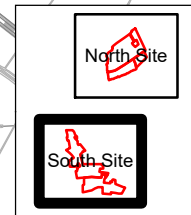
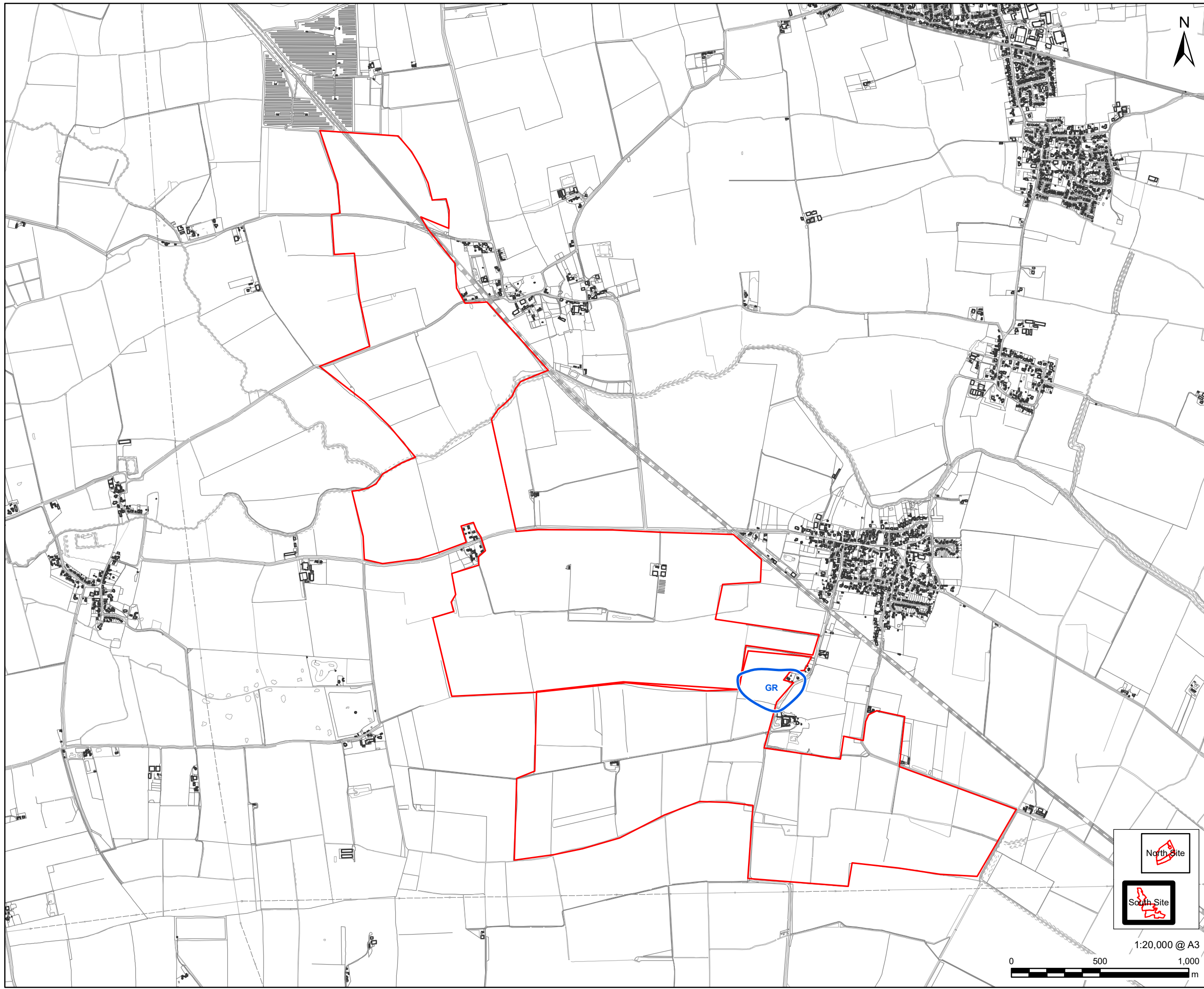
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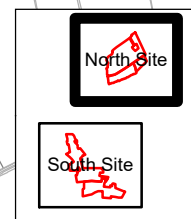
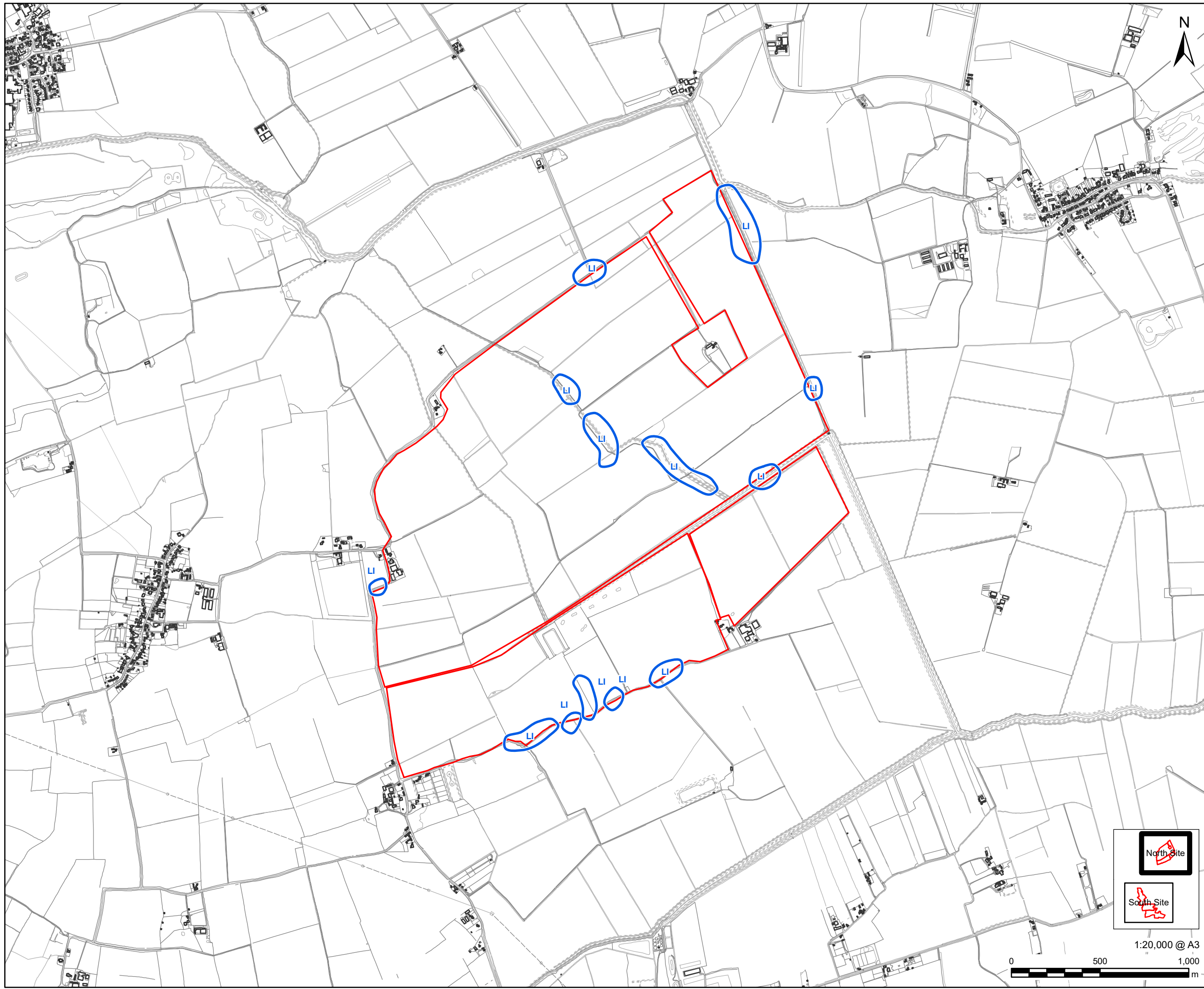


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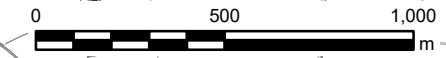




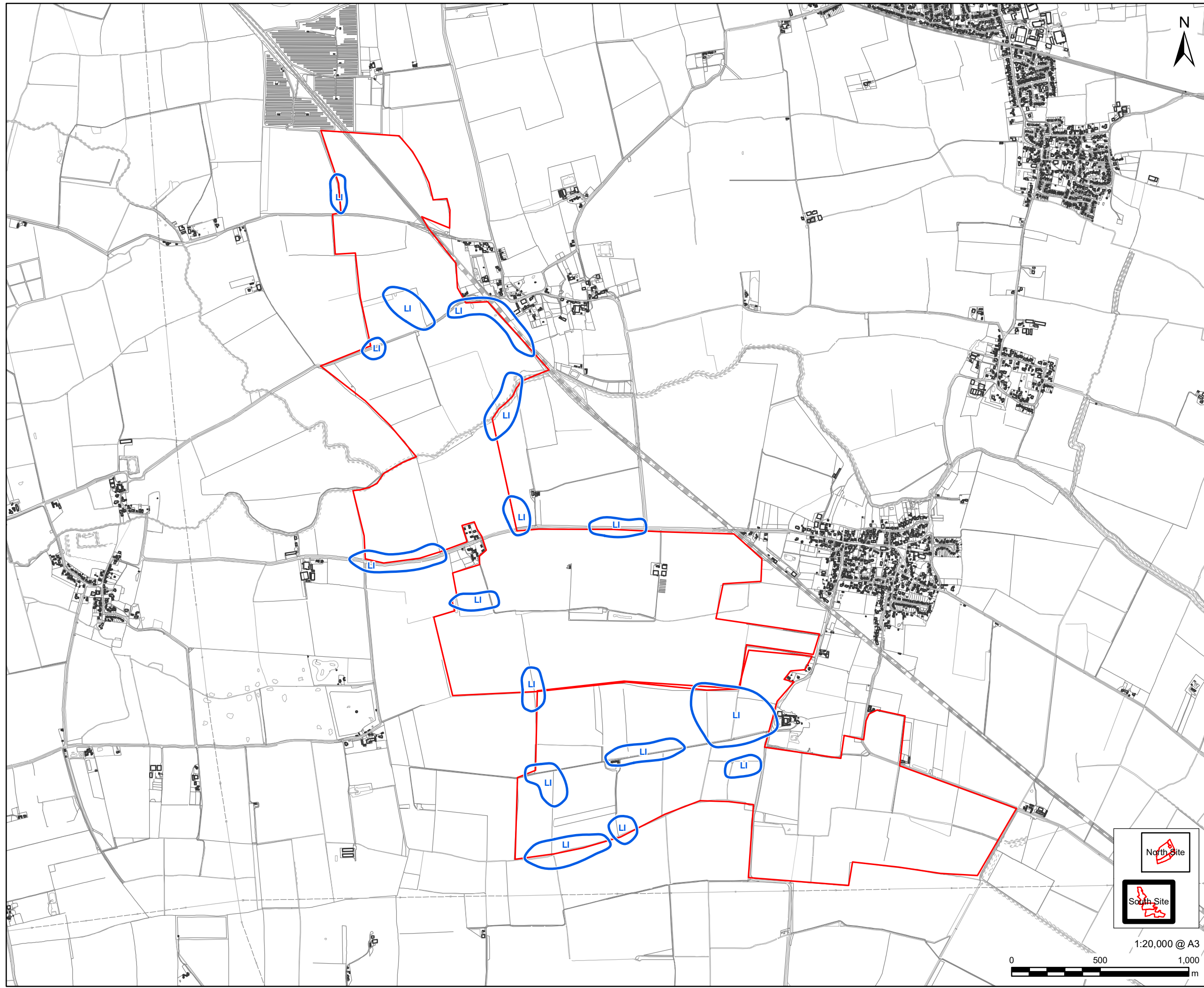
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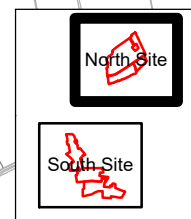
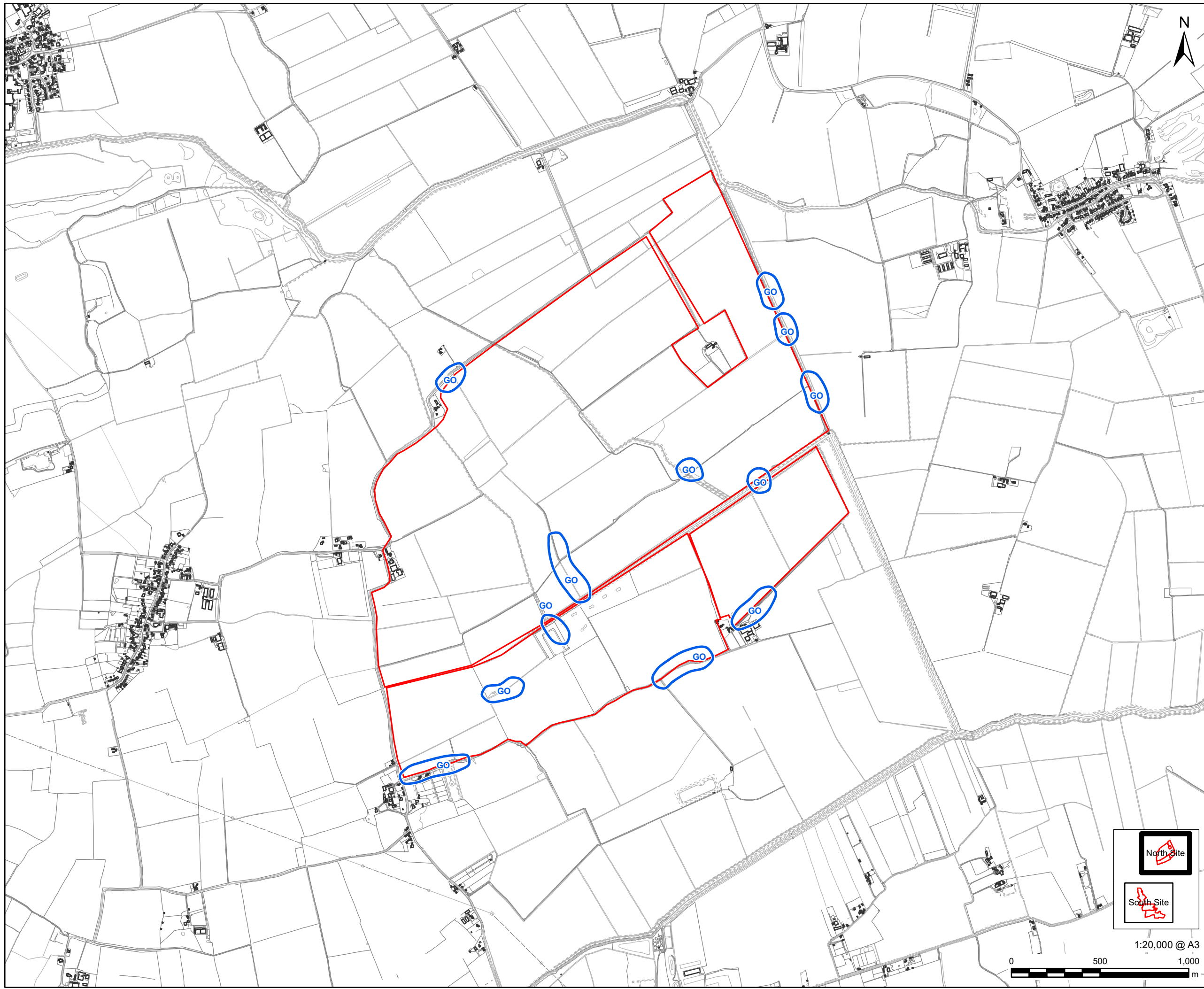
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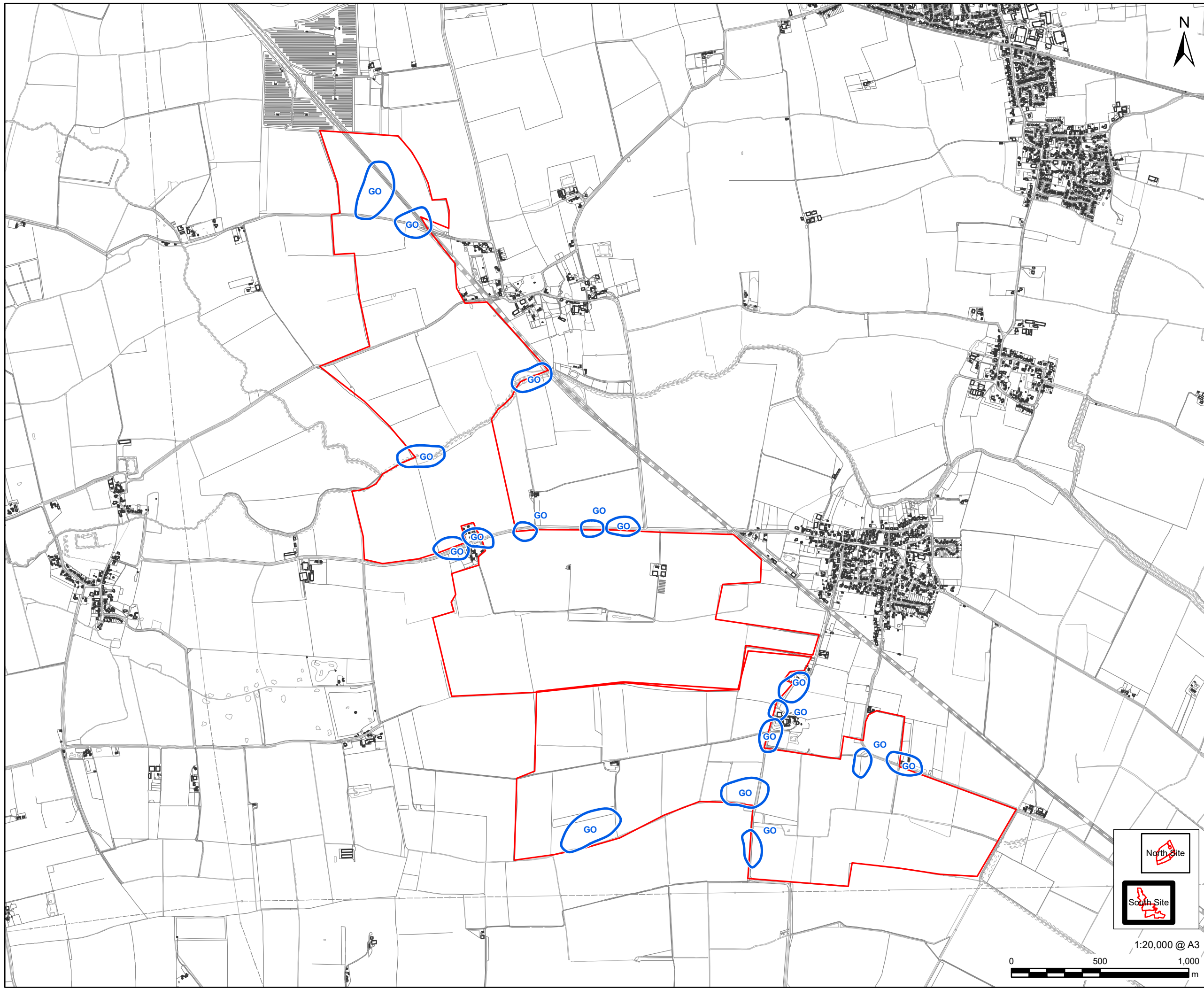
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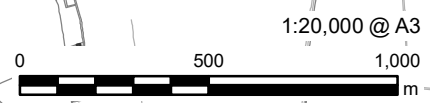
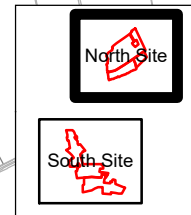
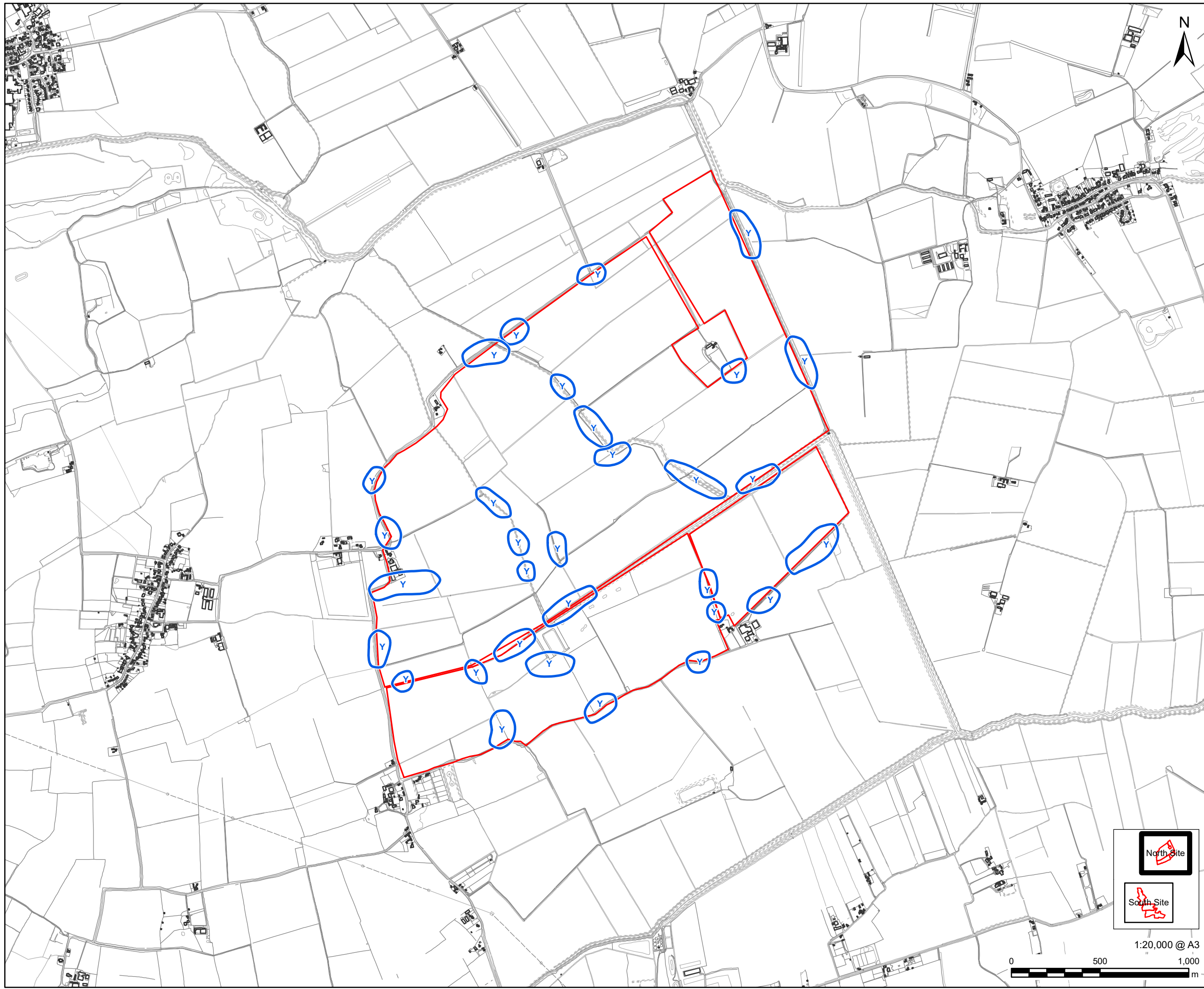
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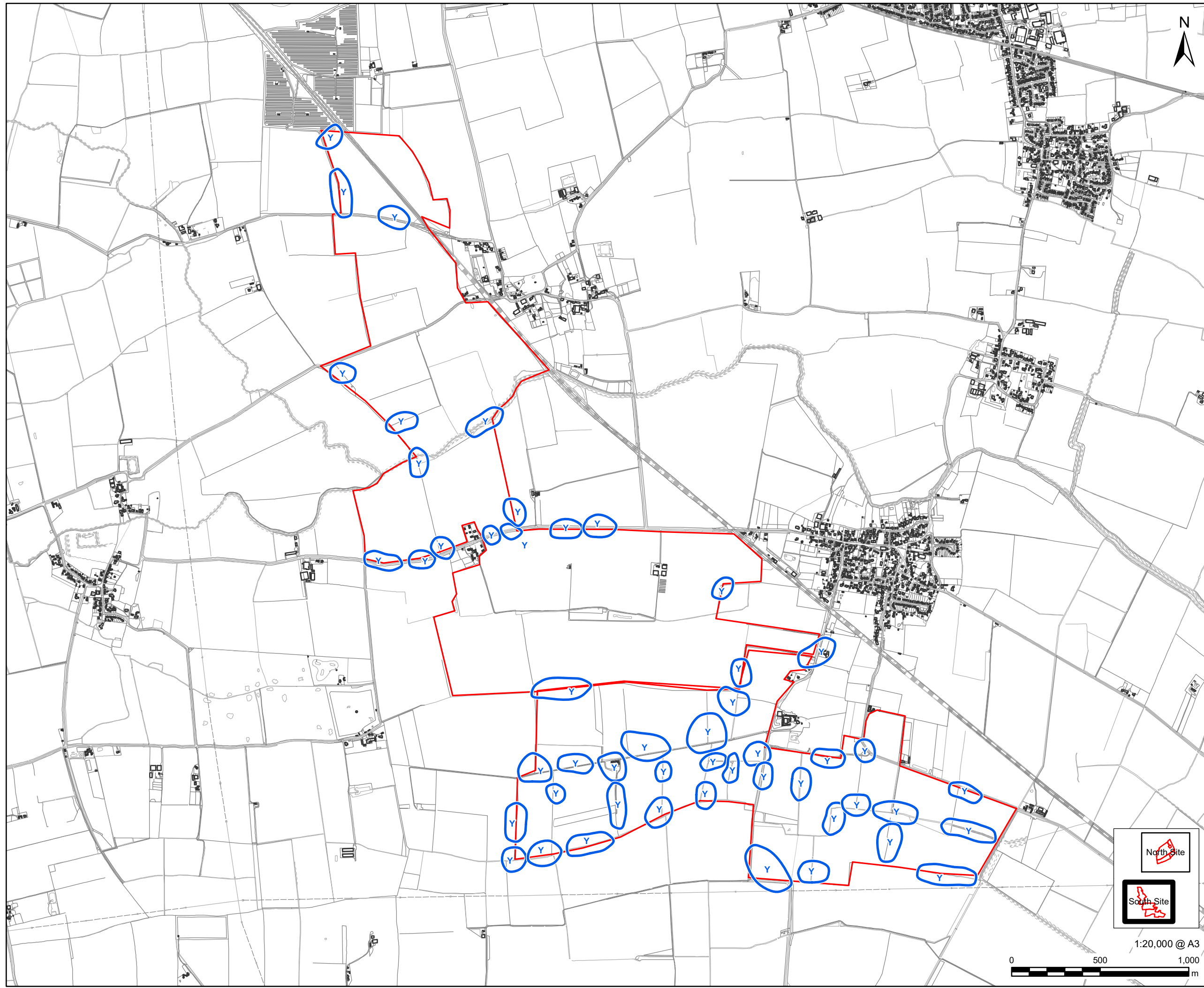
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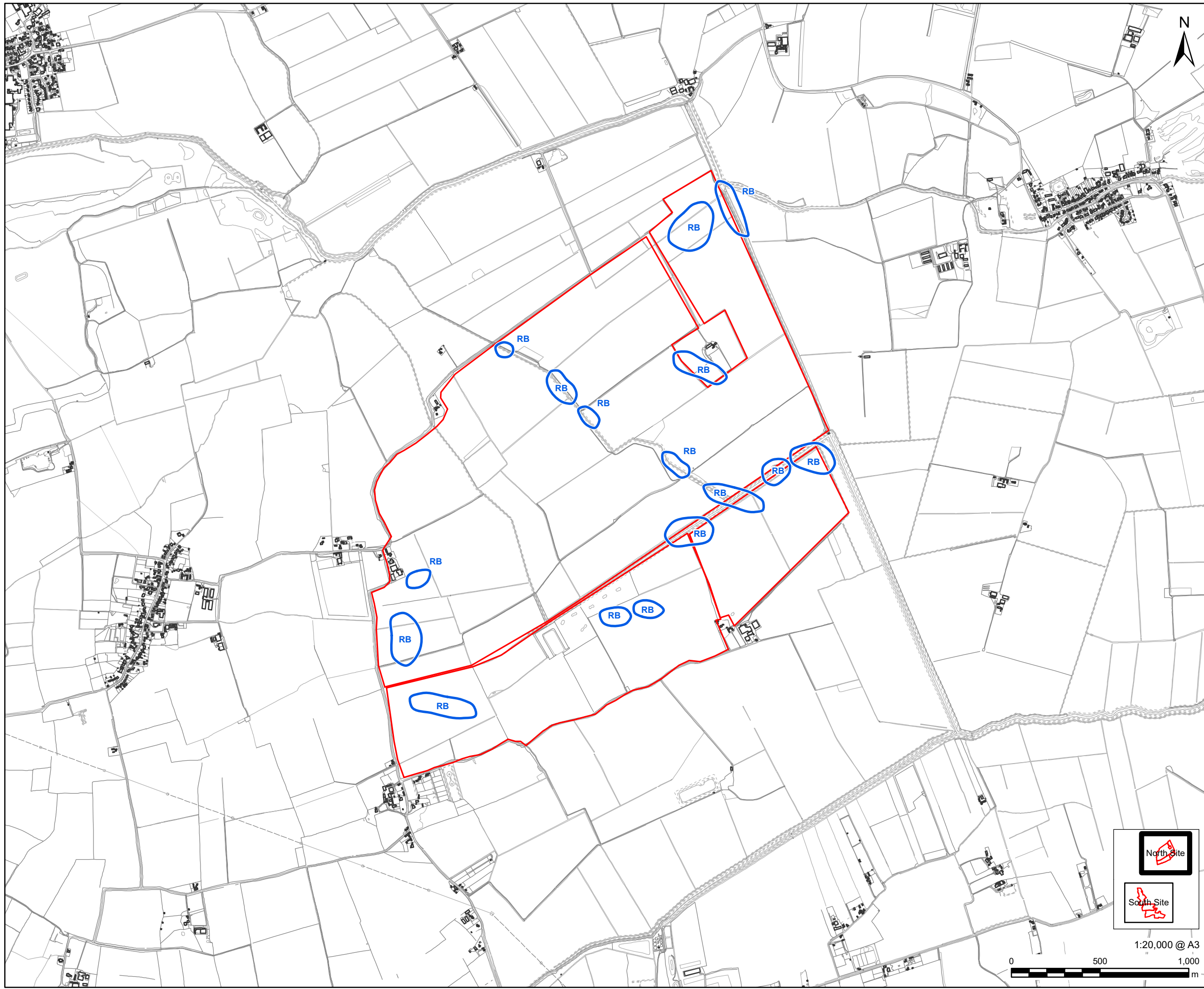
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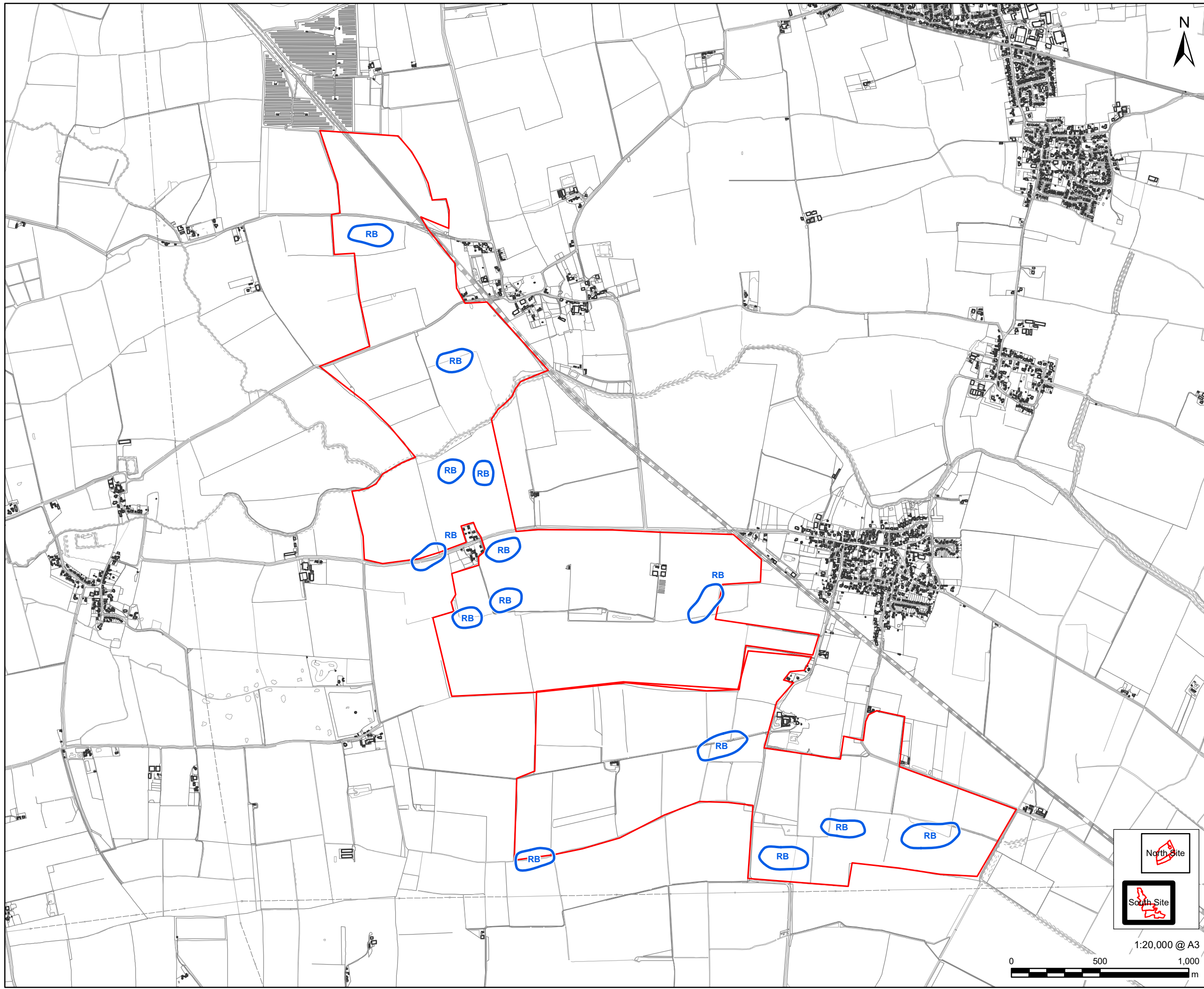
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