

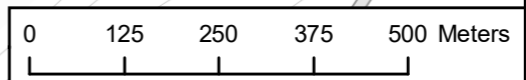
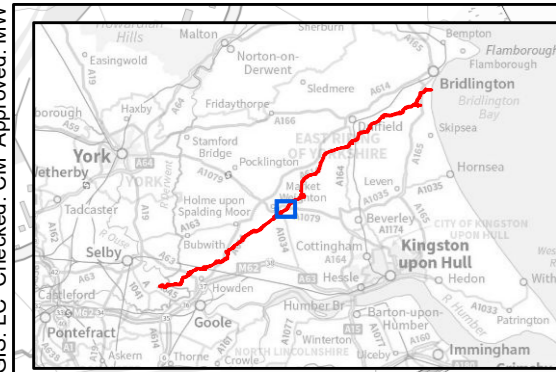
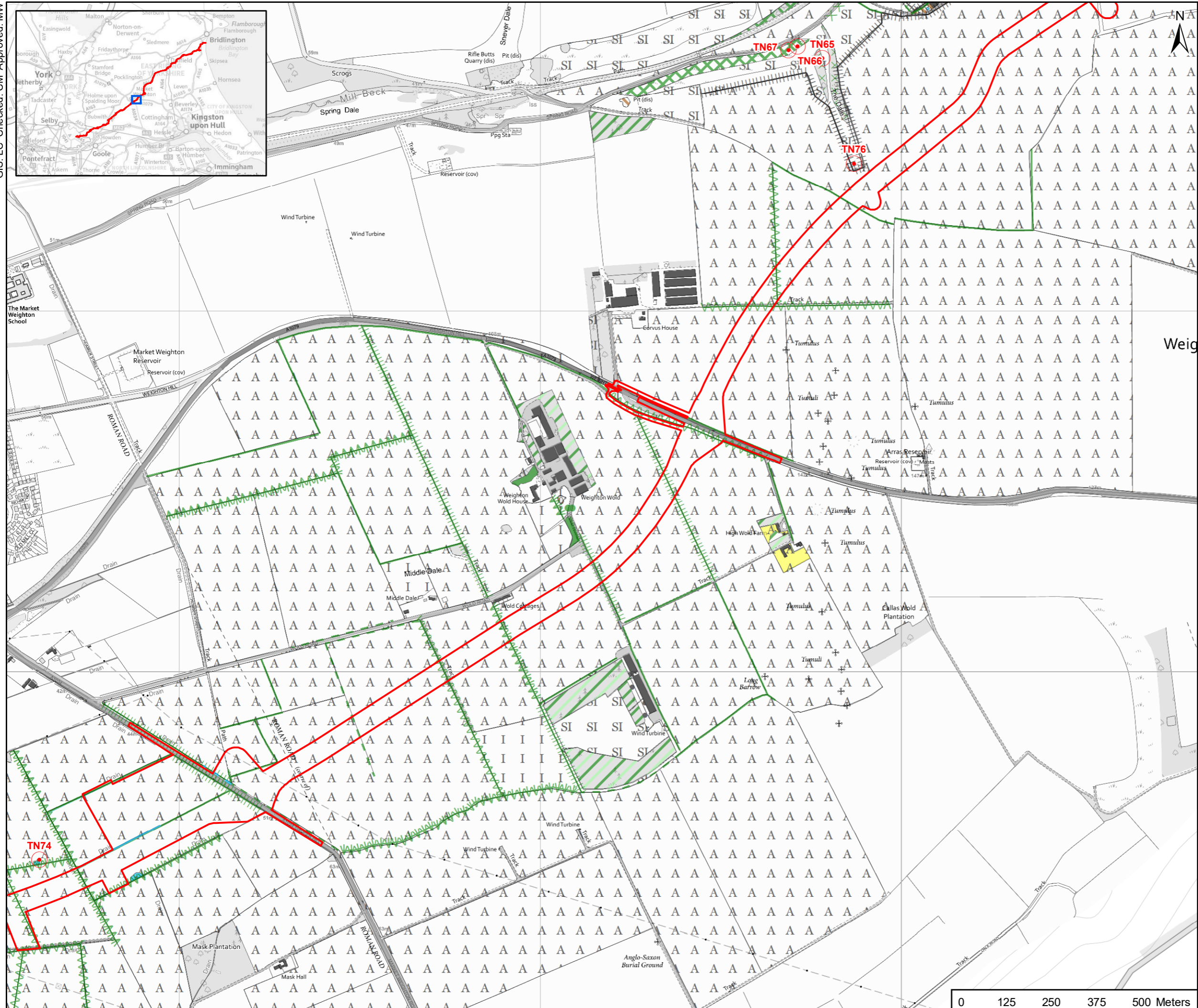
PROJECT
Scotland England Green Link 2

- KEY
- Planning Application Boundary
 - Target Note
 - A3.1 - Broadleaved parkland/scattered trees
 - X X X A2.2 - Scrub - scattered
 - G2 - Running water
 - ~ ~ ~ J2.1.1 - Intact hedge - native species-rich
 - — — J2.1.2 - Intact hedge - species-poor
 - - - J2.2.2 - Defunct hedge - species-poor
 - ~ ~ ~ J2.3.1 - Hedge with trees - native species-rich
 - + + + J2.3.2 - Hedge with trees - species-poor
 - + + + J2.4 - Fence
 - - - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - ▨ A1.1.2 - Broadleaved woodland - plantation
 - ▩ A1.3.2 - Mixed woodland - plantation
 - X X X A2.1 - Scrub - dense/continuous
 - X X X A2.2 - Scrub - scattered
 - ● ● A3.1 - Broadleaved parkland/scattered trees
 - I B4 - Improved grassland
 - B B6 - Poor semi-improved grassland
 - C C3.1 - Other tall herb and fern - ruderal
 - G G1 - Standing water
 - A J1.1 - Cultivated/disturbed land - arable
 - A J1.2 - Cultivated/disturbed land - amenity grassland
 - J3.6 - Buildings
 - J4 - Bare ground
 - Z Z99 - Hardstanding

TITLE
**Figure 7-3
Extended Phase 1 Habitat Survey**

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 12 of 21 DATE 31/05/2022



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PROJECT
Scotland England Green Link 2

KEY

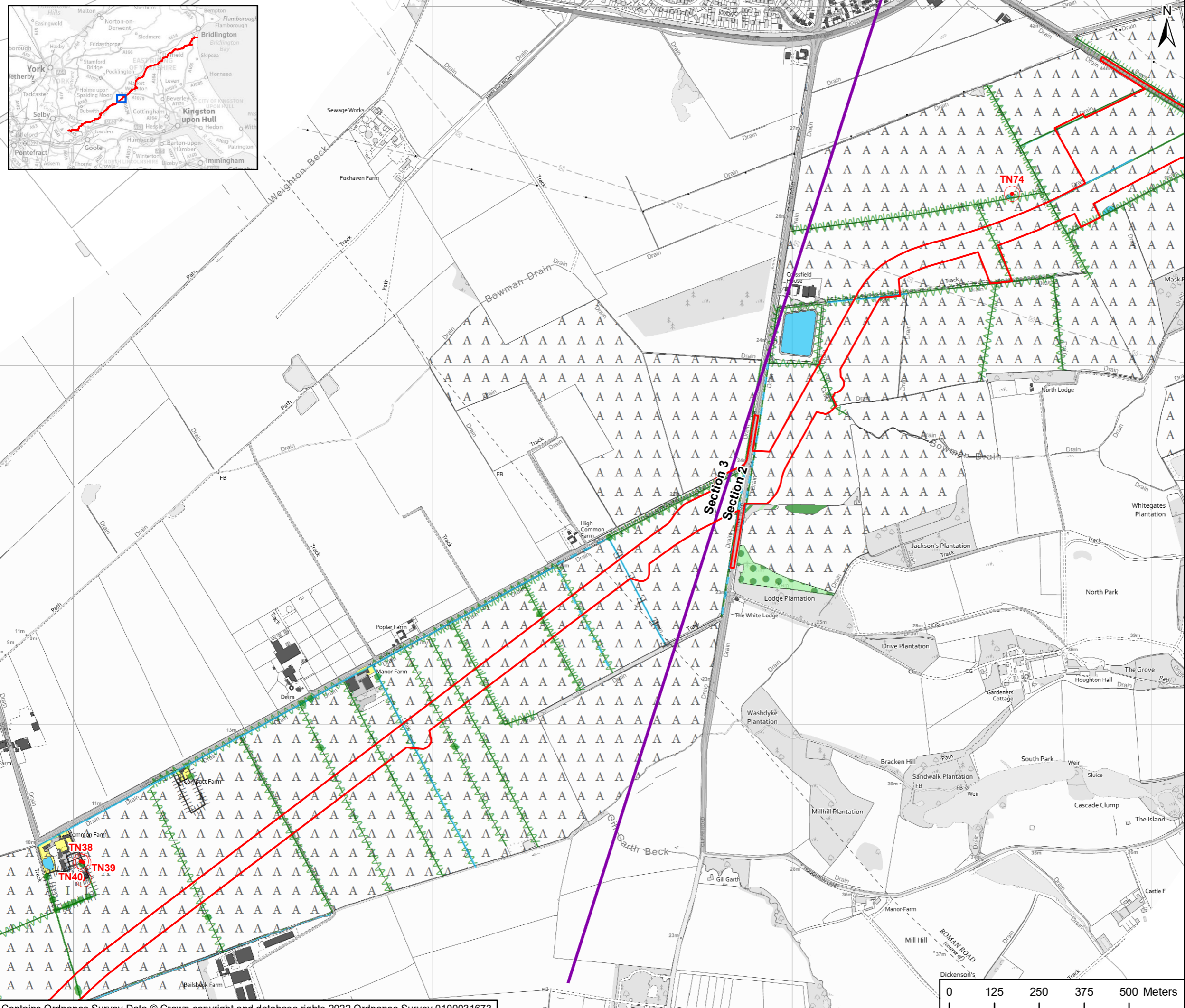
| | |
|--|--|
| | Planning Application Boundary |
| | Route Section Break |
| | Target Note |
| | A3.1 - Broadleaved parkland/scattered trees |
| | A3.1 - Broadleaved parkland/scattered trees |
| | G2 - Running water |
| | G2.1 - Running water - eutrophic |
| | J2.1.1 - Intact hedge - native species-rich |
| | J2.1.2 - Intact hedge - species-poor |
| | J2.2.1 - Defunct hedge - native species-rich |
| | J2.3.1 - Hedge with trees - native species-rich |
| | J2.3.2 - Hedge with trees - species-poor |
| | J2.4 - Fence |
| | J2.6 - Dry ditch |
| | A1.1.1 - Broadleaved woodland - semi-natural |
| | A1.1.2 - Broadleaved woodland - plantation |
| | A1.3.1 - Mixed woodland - semi-natural |
| | A1.3.2 - Mixed woodland - plantation |
| | A3.1 - Broadleaved parkland/scattered trees |
| | B4 - Improved grassland |
| | B6 - Poor semi-improved grassland |
| | G1 - Standing water |
| | G2 - Running water |
| | J1.1 - Cultivated/disturbed land - arable |
| | J1.2 - Cultivated/disturbed land - amenity grassland |
| | J3.6 - Buildings |
| | Z99 - Hardstanding |

TITLE
Figure 7-3
Extended Phase 1 Habitat Survey

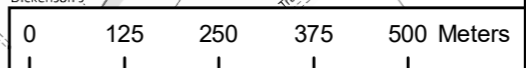
REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 13 of 21
DATE 31/05/2022

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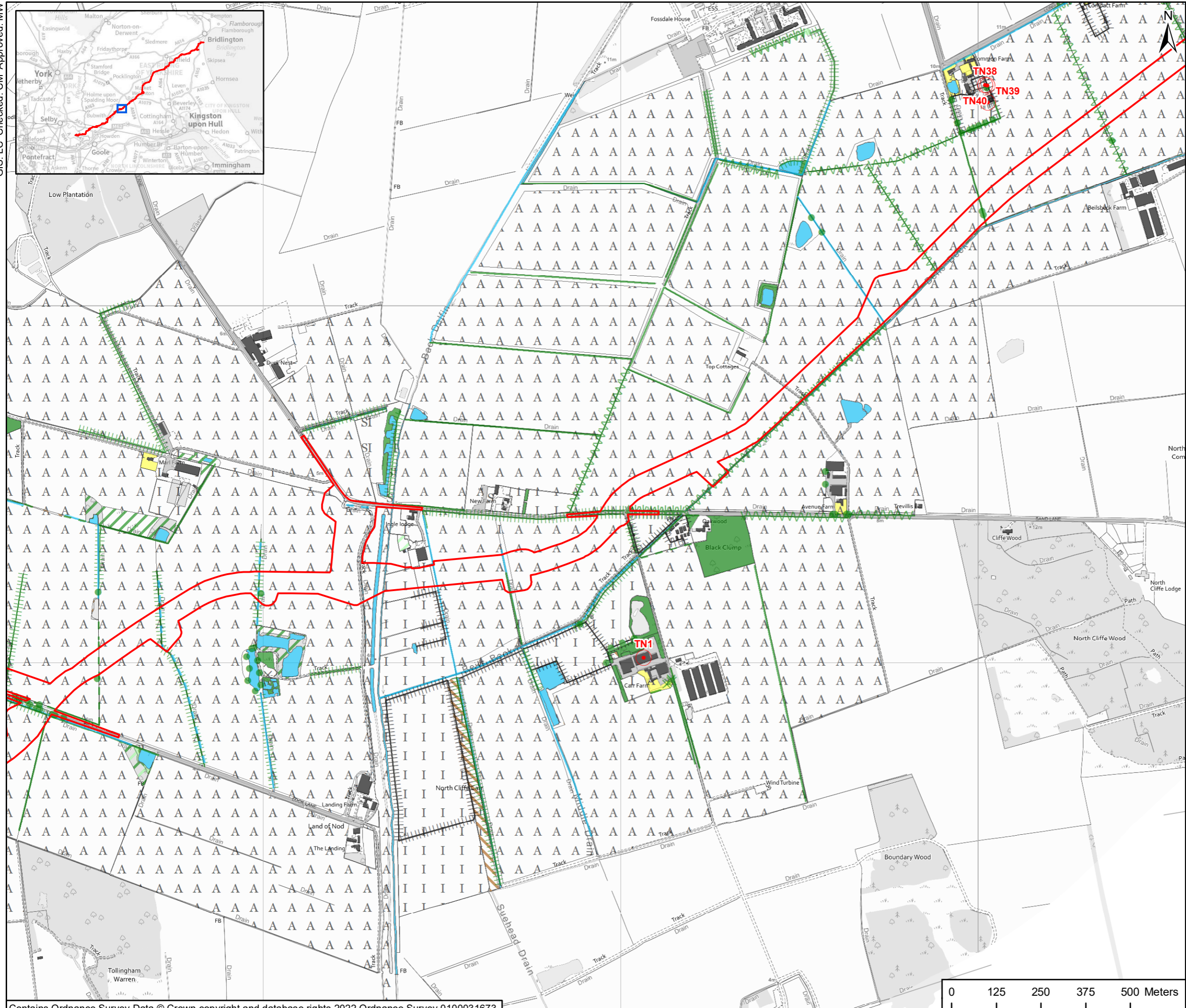
PROJECT
Scotland England Green Link 2

- KEY**
- Planning Application Boundary
 - Target Note
 - × A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.2 - Coniferous parkland/scattered trees
 - G2 - Running water
 - ∩ J2.1.1 - Intact hedge - native species-rich
 - ∩ J2.1.2 - Intact hedge - species-poor
 - ∩ J2.2.1 - Defunct hedge - native species-rich
 - ∩ J2.2.2 - Defunct hedge - species-poor
 - ∩ J2.3.1 - Hedge with trees - native species-rich
 - ∩ J2.3.2 - Hedge with trees - species-poor
 - ||||| J2.4 - Fence
 - J2.5 - Wall
 - - - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - ▨ A1.1.2 - Broadleaved woodland - plantation
 - ▨ A1.2.2 - Coniferous woodland - plantation
 - ▨ A1.3.1 - Mixed woodland - semi-natural
 - ▨ A1.3.2 - Mixed woodland - plantation
 - × A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - B4 - Improved grassland
 - B6 - Poor semi-improved grassland
 - C3.1 - Other tall herb and fern - ruderal
 - F2.2 - Marginal and inundation - inundation vegetation
 - G1 - Standing water
 - G2 - Running water
 - A J1.1 - Cultivated/disturbed land - arable
 - A J1.2 - Cultivated/disturbed land - amenity grassland
 - J1.3 - Cultivated/disturbed land - ephemeral/short perennial
 - J3.6 - Buildings
 - J4 - Bare ground
 - Z99 - Hardstanding

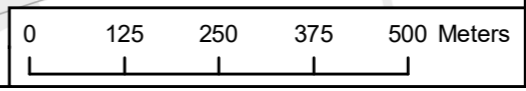
TITLE
Figure 7-3
Extended Phase 1 Habitat Survey

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 14 of 21
DATE 31/05/2022



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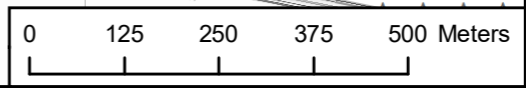
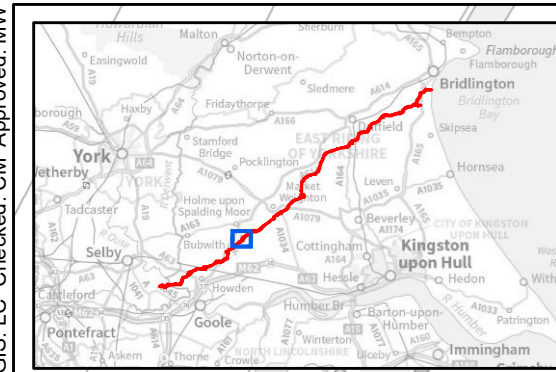
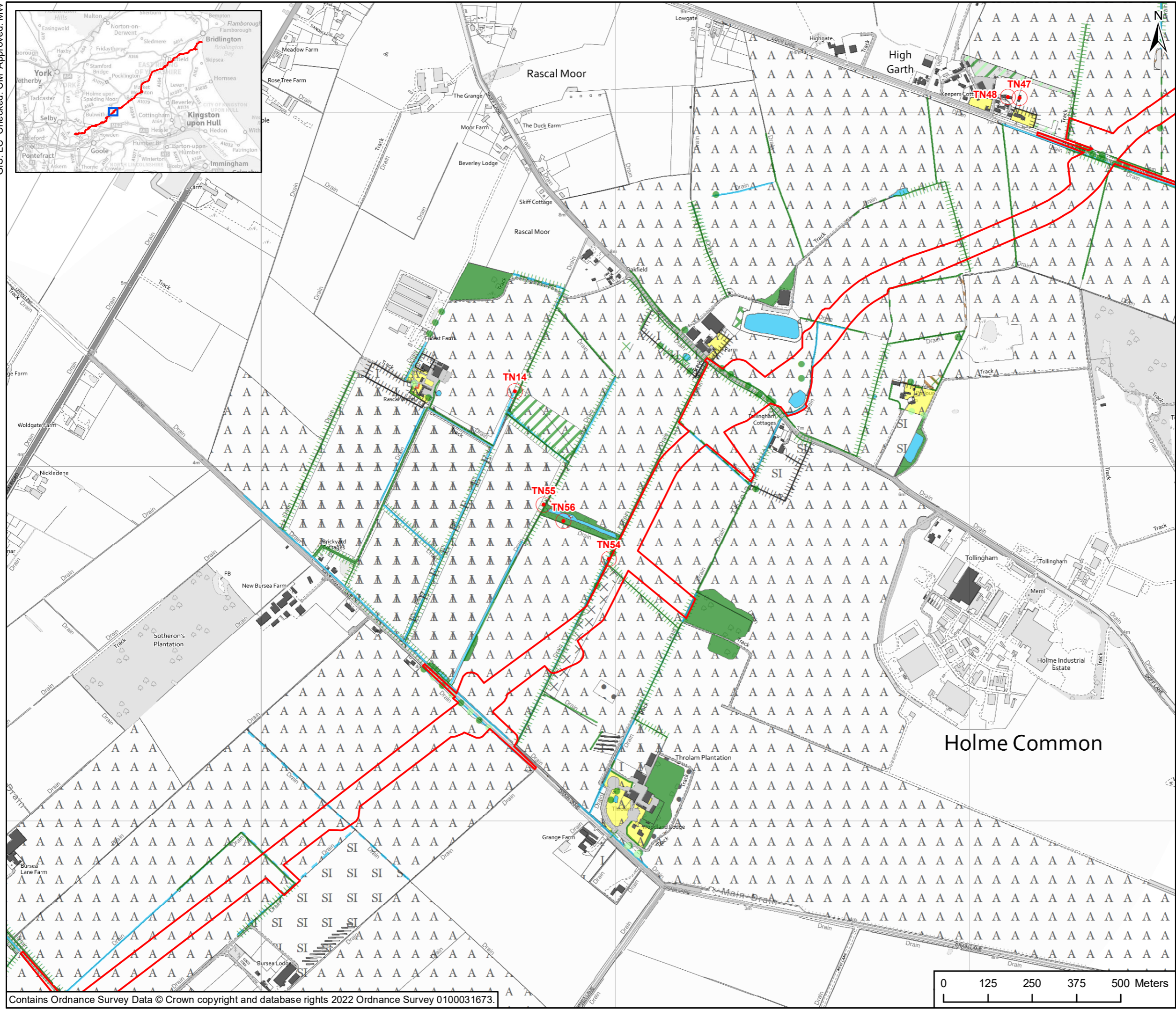
PROJECT
Scotland England Green Link 2

- KEY**
- Planning Application Boundary
 - Target Note
 - × A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.2 - Coniferous parkland/scattered trees
 - A3.3 - Mixed parkland/scattered trees
 - G2 - Running water
 - G2.1 - Running water - eutrophic
 - J2.1.1 - Intact hedge - native species-rich
 - J2.1.2 - Intact hedge - species-poor
 - J2.2.2 - Defunct hedge - species-poor
 - J2.3.2 - Hedge with trees - species-poor
 - J2.4 - Fence
 - J2.5 - Wall
 - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - A1.1.2 - Broadleaved woodland - plantation
 - A1.2.2 - Coniferous woodland - plantation
 - A1.3.2 - Mixed woodland - plantation
 - A2.1 - Scrub - dense/continuous
 - B4 - Improved grassland
 - B6 - Poor semi-improved grassland
 - C3.1 - Other tall herb and fern - ruderal
 - G1 - Standing water
 - G2 - Running water
 - J1.1 - Cultivated/disturbed land - arable
 - J1.2 - Cultivated/disturbed land - amenity grassland
 - J1.3 - Cultivated/disturbed land - ephemeral/short perennial
 - J1.4 - Introduced shrub
 - J3.6 - Buildings
 - J4 - Bare ground
 - J5 - Other habitat
 - Z99 - Hardstanding

TITLE
Figure 7-3
Extended Phase 1 Habitat Survey

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 15 of 21
DATE 31/05/2022



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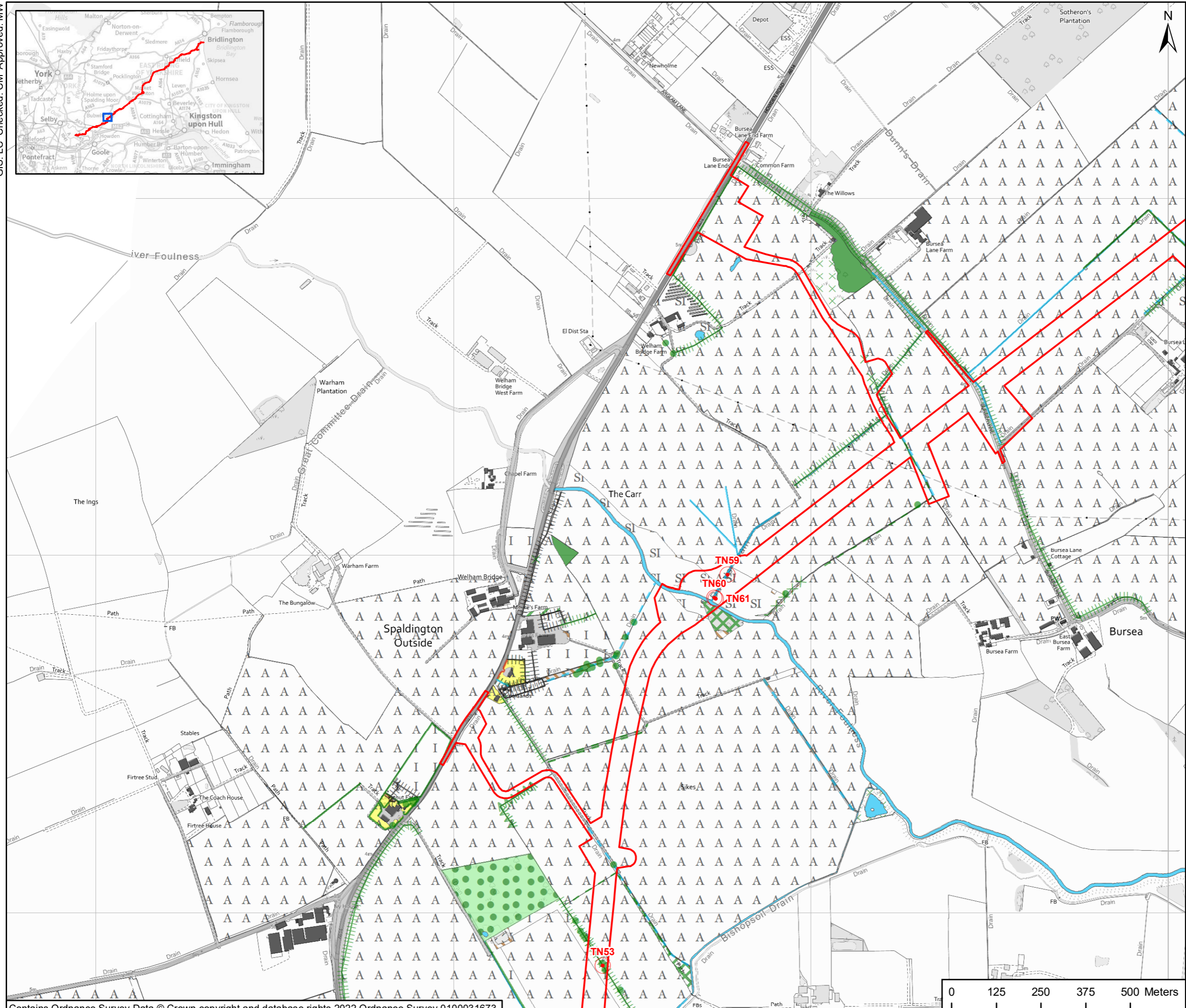
PROJECT
Scotland England Green Link 2

- KEY**
- Planning Application Boundary
 - Target Note
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - G2 - Running water
 - J2.1.2 - Intact hedge - species-poor
 - - J2.2.2 - Defunct hedge - species-poor
 - W J2.3.1 - Hedge with trees - native species-rich
 - H J2.3.2 - Hedge with trees - species-poor
 - ||||| J2.4 - Fence
 - J2.5 - Wall
 - - - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - ▨ A1.1.2 - Broadleaved woodland - plantation
 - A1.3.1 - Mixed woodland - semi-natural
 - X A2.1 - Scrub - dense/continuous
 - X A2.2 - Scrub - scattered
 - I B4 - Improved grassland
 - B6 B6 - Poor semi-improved grassland
 - C3.1 C3.1 - Other tall herb and fern - ruderal
 - G1 - Standing water
 - G2 - Running water
 - I2.2 I2.2 - Spoil
 - J1.1 J1.1 - Cultivated/disturbed land - arable
 - J1.2 J1.2 - Cultivated/disturbed land - amenity grassland
 - J1.3 J1.3 - Cultivated/disturbed land - ephemeral/short perennial
 - J1.4 J1.4 - Introduced shrub
 - J3.6 J3.6 - Buildings
 - J4 J4 - Bare ground
 - Z99 Z99 - Hardstanding

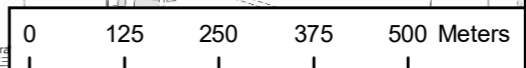
TITLE
Figure 7-3
Extended Phase 1 Habitat Survey

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 16 of 21
DATE 31/05/2022



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PROJECT
Scotland England Green Link 2

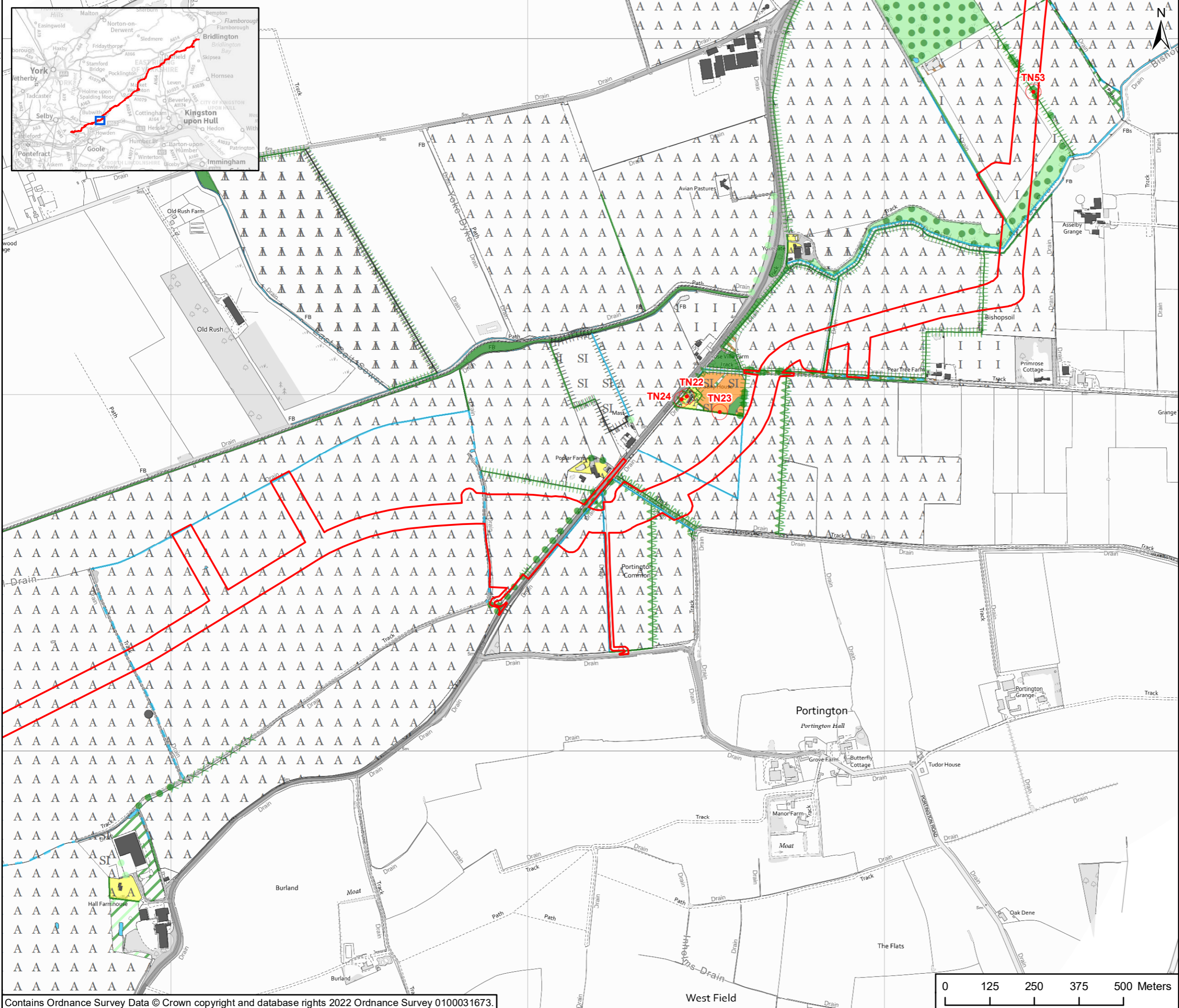
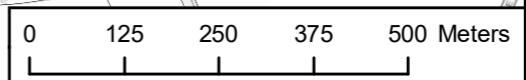
KEY

- Planning Application Boundary
- Target Note
- × A2.2 - Scrub - scattered
- A3.1 - Broadleaved parkland/scattered trees
- × A2.2 - Scrub - scattered
- A3.1 - Broadleaved parkland/scattered trees
- A3.2 - Coniferous parkland/scattered trees
- G2 - Running water
- J2.1.2 - Intact hedge - species-poor
- - - J2.2.2 - Defunct hedge - species-poor
- | | | | J2.3.1 - Hedge with trees - native species-rich
- | | | | J2.3.2 - Hedge with trees - species-poor
- | | | | J2.4 - Fence
- - - J2.6 - Dry ditch
- A1.1.1 - Broadleaved woodland - semi-natural
- ▨ A1.1.2 - Broadleaved woodland - plantation
- ▨ A1.2.2 - Coniferous woodland - plantation
- ▨ A1.3.1 - Mixed woodland - semi-natural
- ▨ A1.3.2 - Mixed woodland - plantation
- ▨ A2.1 - Scrub - dense/continuous
- B2.2 - Neutral grassland - semi-improved
- B4 - Improved grassland
- B6 - Poor semi-improved grassland
- ▨ C3.1 - Other tall herb and fern - ruderal
- G1 - Standing water
- G2 - Running water
- I2.2 - Spoil
- J1.1 - Cultivated/disturbed land - arable
- J1.2 - Cultivated/disturbed land - amenity grassland
- J1.3 - Cultivated/disturbed land - ephemeral/short perennial
- J3.6 - Buildings
- J4 - Bare ground
- J5 - Other habitat
- Z99 - Hardstanding

TITLE
Figure 7-3
Extended Phase 1 Habitat Survey

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 17 of 21
DATE 31/05/2022



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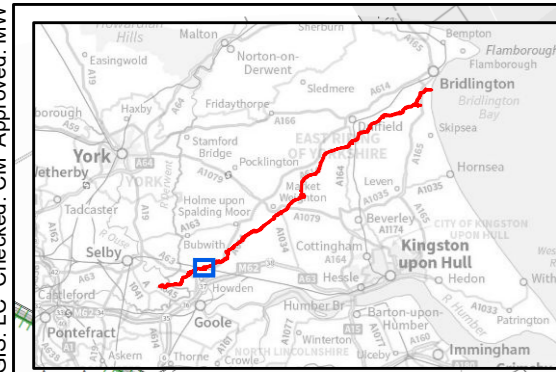
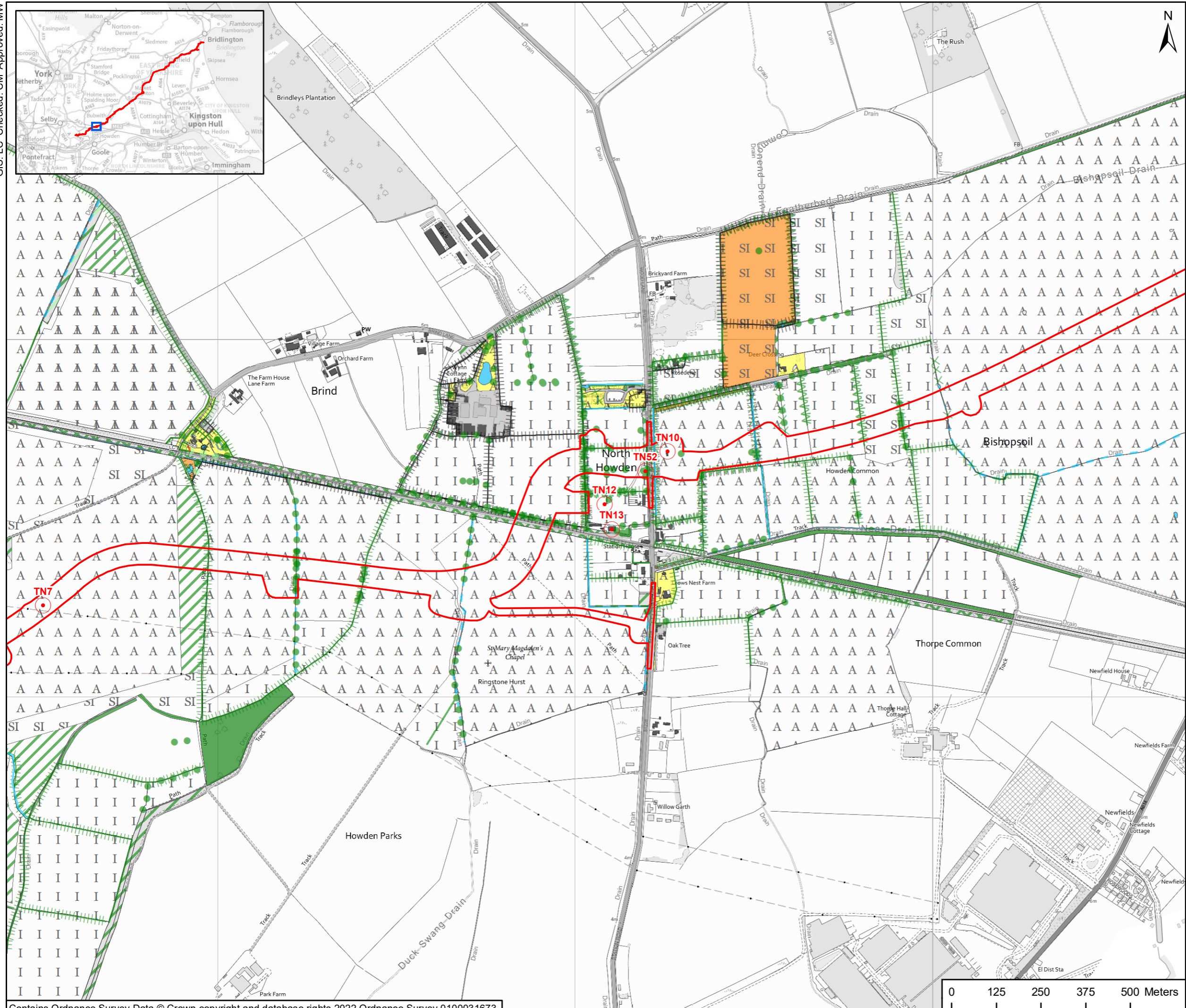
PROJECT
Scotland England Green Link 2

- KEY
- Planning Application Boundary
 - Target Note
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.2 - Coniferous parkland/scattered trees
 - G2 - Running water
 - J2.1.2 - Intact hedge - species-poor
 - - - J2.2.2 - Defunct hedge - species-poor
 - | | | | J2.3.1 - Hedge with trees - native species-rich
 - | | | | J2.3.2 - Hedge with trees - species-poor
 - | | | | J2.4 - Fence
 - J2.5 - Wall
 - - - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - ▨ A1.1.2 - Broadleaved woodland - plantation
 - ▨ A1.2.2 - Coniferous woodland - plantation
 - ▨ A1.3.2 - Mixed woodland - plantation
 - X A2.1 - Scrub - dense/continuous
 - X A2.2 - Scrub - scattered
 - B2.2 - Neutral grassland - semi-improved
 - B4 - Improved grassland
 - B6 - Poor semi-improved grassland
 - ▨ C3.1 - Other tall herb and fern - ruderal
 - G1 - Standing water
 - G1.2 - Standing water - mesotrophic
 - J1.1 - Cultivated/disturbed land - arable
 - J1.2 - Cultivated/disturbed land - amenity grassland
 - J1.3 - Cultivated/disturbed land - ephemeral/short perennial
 - J1.4 - Introduced shrub
 - J3.4 - Caravan site
 - J3.6 - Buildings
 - J4 - Bare ground
 - Z99 - Hardstanding

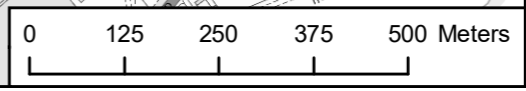
TITLE
**Figure 7-3
Extended Phase 1 Habitat Survey**

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 18 of 21 DATE 31/05/2022



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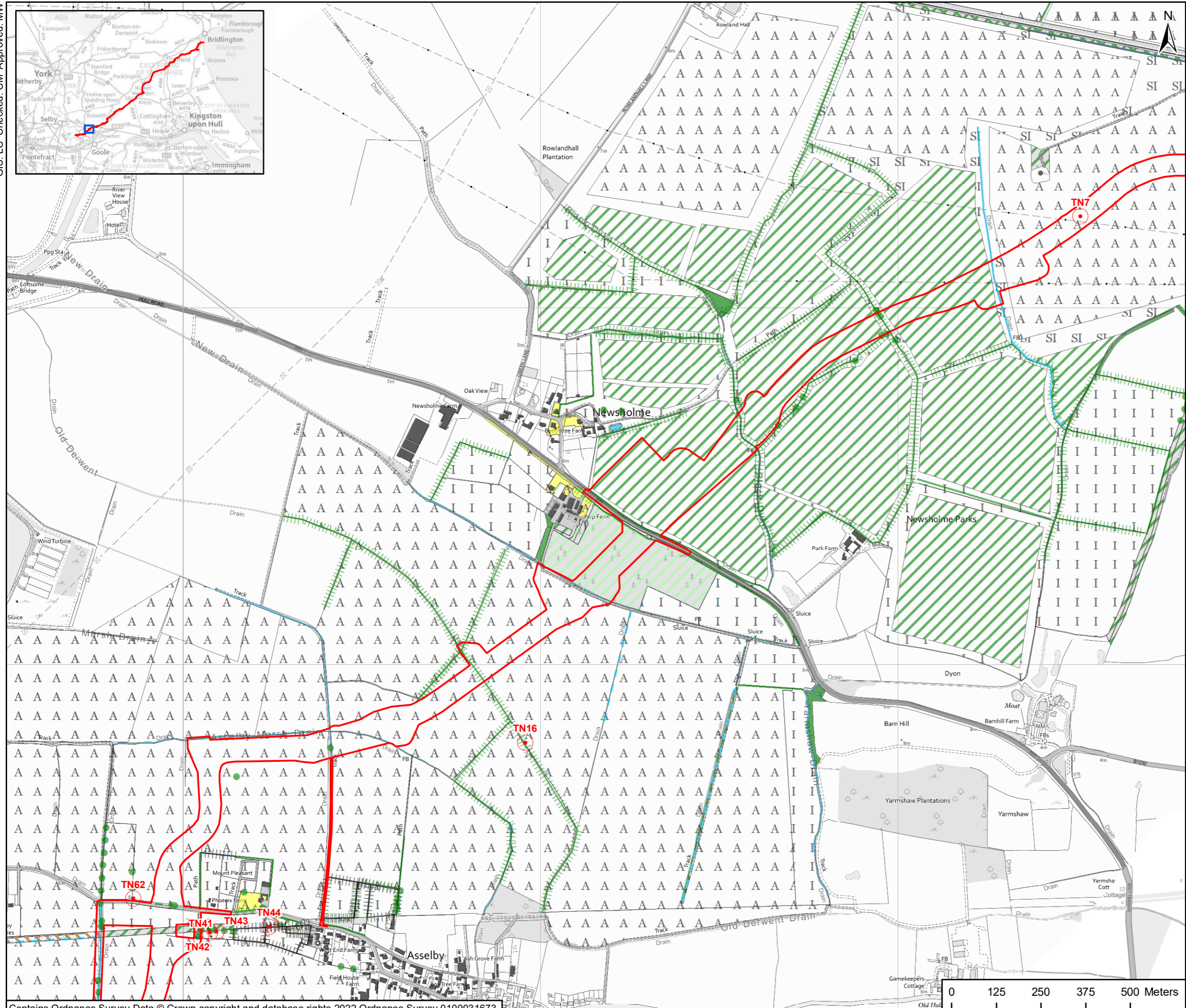
PROJECT
Scotland England Green Link 2

- KEY**
- Planning Application Boundary
 - Target Note
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.3 - Mixed parkland/scattered trees
 - G2 - Running water
 - V V V V J2.1.1 - Intact hedge - native species-rich
 - J2.1.2 - Intact hedge - species-poor
 - - - J2.2.2 - Defunct hedge - species-poor
 - H H H H J2.3.2 - Hedge with trees - species-poor
 - H H H H J2.4 - Fence
 - - - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - ▨ A1.1.2 - Broadleaved woodland - plantation
 - ▨ A1.2.2 - Coniferous woodland - plantation
 - ▨ A1.3.2 - Mixed woodland - plantation
 - X X X X A2.1 - Scrub - dense/continuous
 - I I I I B4 - Improved grassland
 - B B B B B6 - Poor semi-improved grassland
 - C C C C C3.1 - Other tall herb and fern - ruderal
 - G1 - Standing water
 - G1.1 - Standing water - eutrophic
 - G2 - Running water
 - J J J J J1.1 - Cultivated/disturbed land - arable
 - A A A A J1.2 - Cultivated/disturbed land - amenity grassland
 - ■ ■ ■ J3.6 - Buildings
 - ■ ■ ■ J4 - Bare ground
 - J J J J J5 - Other habitat
 - Z Z Z Z Z99 - Hardstanding

TITLE
Figure 7-3
Extended Phase 1 Habitat Survey

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 19 of 21
DATE 31/05/2022



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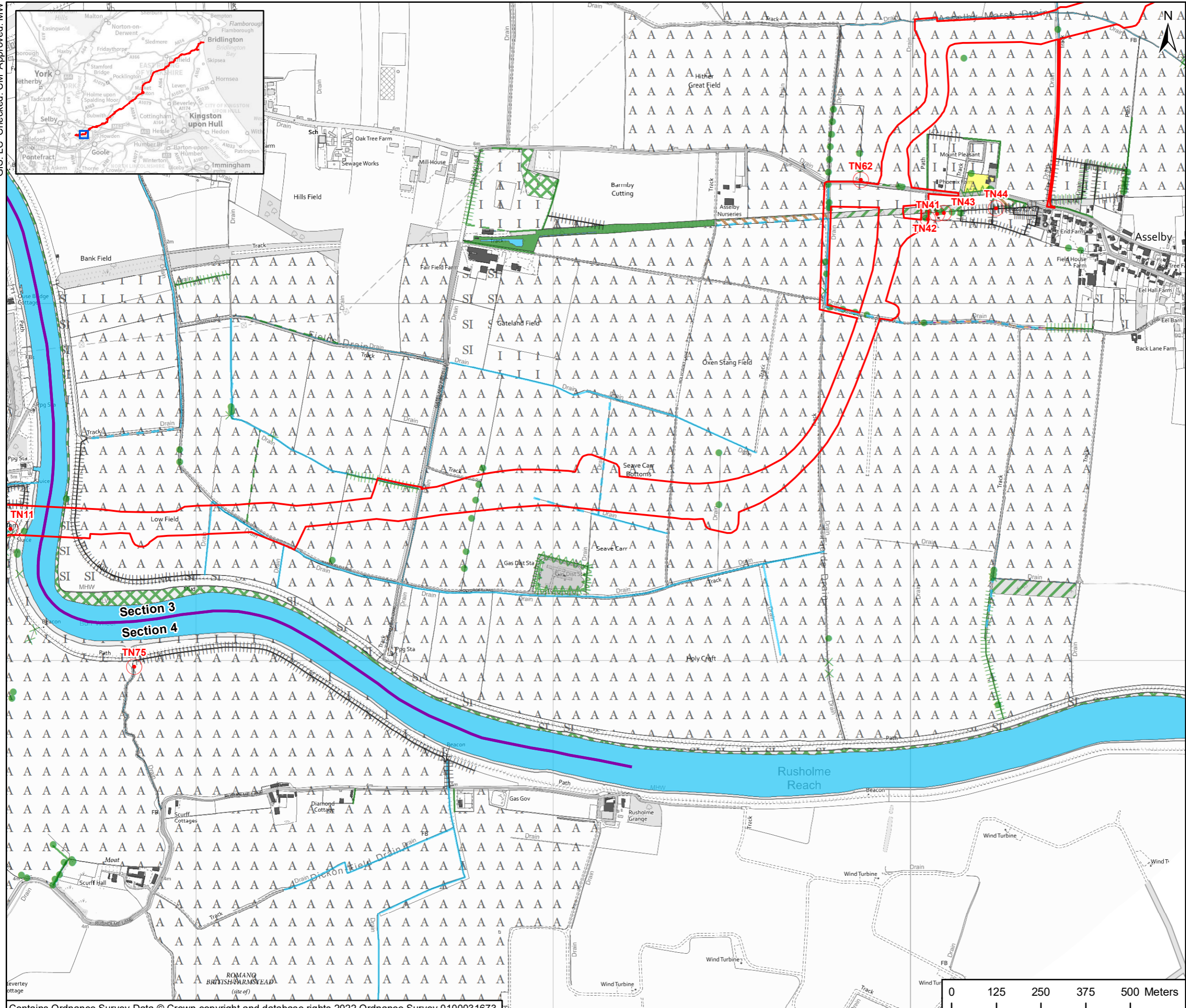
PROJECT
Scotland England Green Link 2

- KEY**
- Planning Application Boundary
 - Route Section Break
 - Target Note
 - Route Section Break
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.3 - Mixed parkland/scattered trees
 - G2 - Running water
 - J2.1.1 - Intact hedge - native species-rich
 - J2.1.2 - Intact hedge - species-poor
 - - - J2.2.2 - Defunct hedge - species-poor
 - J2.3.1 - Hedge with trees - native species-rich
 - J2.3.2 - Hedge with trees - species-poor
 - J2.4 - Fence
 - - - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - A1.1.2 - Broadleaved woodland - plantation
 - A2.1 - Scrub - dense/continuous
 - A2.2 - Scrub - scattered
 - B4 - Improved grassland
 - B5 - Marsh/marshy grassland
 - B6 - Poor semi-improved grassland
 - C3.1 - Other tall herb and fern - ruderal
 - F2.2 - Marginal and inundation - inundation vegetation
 - G1 - Standing water
 - G2 - Running water
 - J1.1 - Cultivated/disturbed land - arable
 - J1.2 - Cultivated/disturbed land - amenity grassland
 - J3.6 - Buildings
 - J4 - Bare ground
 - J5 - Other habitat
 - Z99 - Hardstanding

TITLE
Figure 7-3
Extended Phase 1 Habitat Survey

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

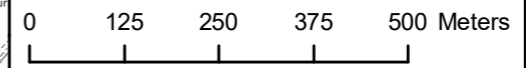
SHEET NUMBER 20 of 21
DATE 31/05/2022



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Coordinate System: British National Grid

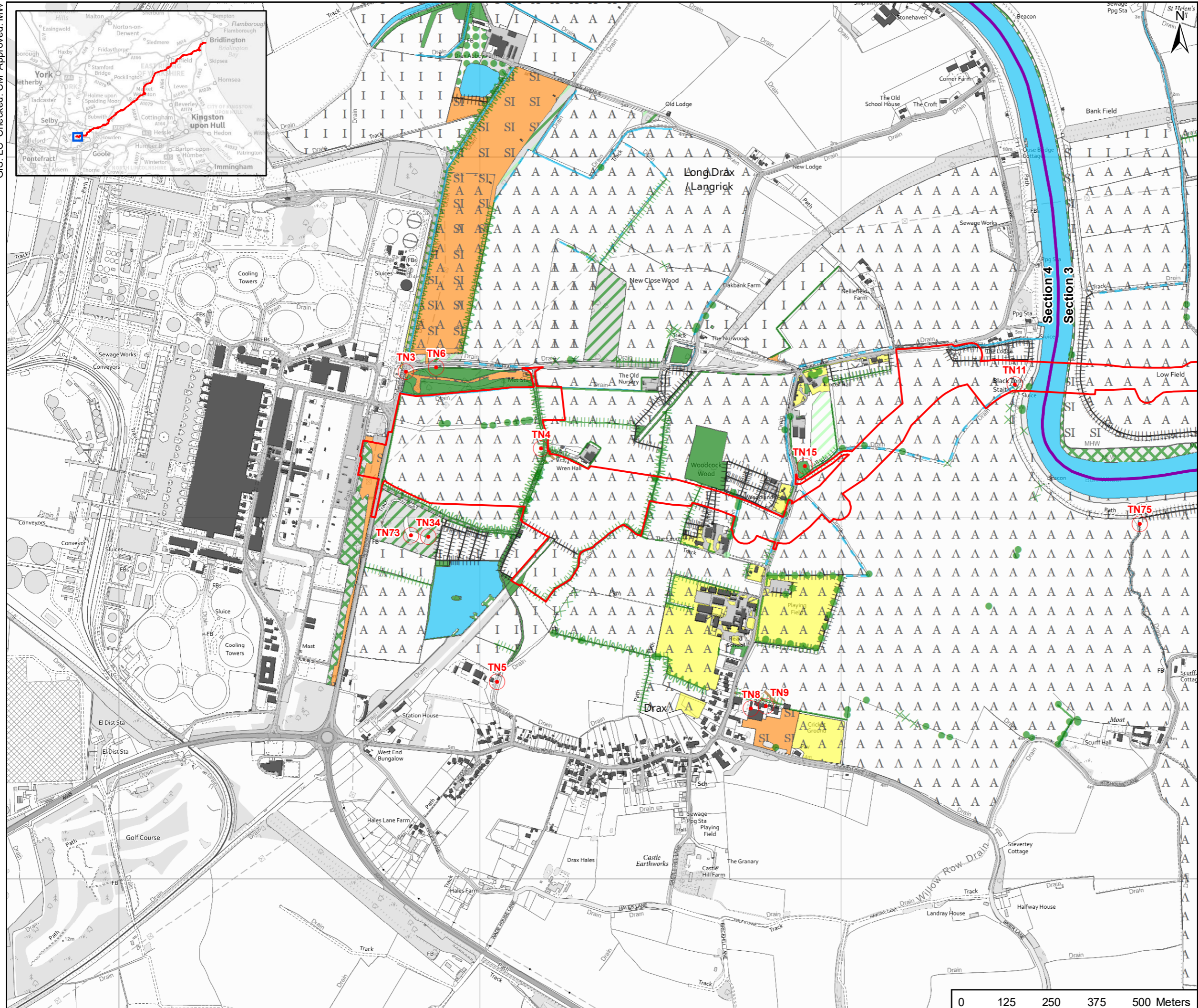
PROJECT
Scotland England Green Link 2

- KEY
- Planning Application Boundary
 - Route Section Break
 - Target Note
 - Route Section Break
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - A3.2 - Coniferous parkland/scattered trees
 - X A2.2 - Scrub - scattered
 - A3.1 - Broadleaved parkland/scattered trees
 - G2 - Running water
 - J2.1.1 - Intact hedge - native species-rich
 - J2.1.2 - Intact hedge - species-poor
 - - - J2.2.2 - Defunct hedge - species-poor
 - J2.3.1 - Hedge with trees - native species-rich
 - J2.3.2 - Hedge with trees - species-poor
 - J2.4 - Fence
 - - - J2.6 - Dry ditch
 - A1.1.1 - Broadleaved woodland - semi-natural
 - A1.1.2 - Broadleaved woodland - plantation
 - A1.2.2 - Coniferous woodland - plantation
 - A1.3.2 - Mixed woodland - plantation
 - A2.1 - Scrub - dense/continuous
 - A3.1 - Broadleaved parkland/scattered trees
 - B2.2 - Neutral grassland - semi-improved
 - B4 - Improved grassland
 - B6 - Poor semi-improved grassland
 - C3.1 - Other tall herb and fern - ruderal
 - G1 - Standing water
 - G2 - Running water
 - J1.1 - Cultivated/disturbed land - arable
 - J1.2 - Cultivated/disturbed land - amenity grassland
 - J1.3 - Cultivated/disturbed land - ephemeral/short perennial
 - J1.4 - Introduced shrub
 - J3.6 - Buildings
 - J4 - Bare ground
 - J5 - Other habitat
 - Z99 - Hardstanding

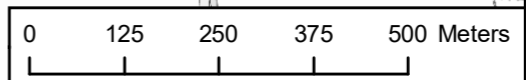
TITLE
**Figure 7-3
Extended Phase 1 Habitat Survey**

REFERENCE
SEGL2_T_ES_7-3_v2_20220531

SHEET NUMBER 21 of 21 DATE 31/05/2022



GIS: LC Checked: CM Approved: MW



Scale @ A3 1:10,000

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Table 7-11: Protected/ Notable Species Baseline Summary across all English Onshore Scheme Sections

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting detailed Results to Survey | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|---------------------------------|--|---|---|---|---|---|
| Badger (<i>Meles meles</i>) | 12 recent records, the closest of which is located 300 m from the Survey Area. | Broadleaved plantation and semi-natural woodland within the Survey Area, as well as embankments along the disused railway lines at Asselby and Hudson Way LNR, have potential as badger sett-building and foraging habitats. Arable land, permanent pastures and semi-improved grasslands within the Survey Area also provide potential foraging habitat for badger. | Eighteen active, partially active and disused badger setts were recorded in the Survey Area, four of which are located partially or entirely within the planning application boundary. Foraging activity within the Survey Area was also recorded. | Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report | Local | Yes |
| Bats (Roosting) | 60 recent records, the closest of which is located within the Survey Area. | Several trees and structures within and adjacent to the Survey Area have been identified with bat roosting potential, including mature trees such as sycamore, ash and oaks, and buildings and structures such as stables and barns. | Approximately 46 trees located with the extents of the planning application boundary were confirmed to have Moderate or High suitability to support roosting bats. Furthermore 38 Low potential trees are also present with the extents of the planning application boundary, and approximately 42 which were categorised as being of Negligible potential for roosting bats. Whilst numerous buildings and structures were subject to BRP assessment over the course of the surveys conducted, it has been confirmed that only two structures are located within the planning application boundary. These were confirmed to have Low suitability for roosting bats. The remainder have Negligible potential for roosting bats or are located outside the planning application boundary. Wherever possible all trees and with moderate and High potential to support roosting bats will be retained and protected during works. | Section 2.5 of Appendix 7A - Preliminary Ecological Appraisal Report Appendix 7B - Bat Survey Report | County | Yes |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Results | to Survey | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|---------------------------------|--|--|---|---|-----------|---|---|
| | | | Whilst the status of roosting bats has not been determined, based upon a reasonable assumption informed by species ecology and surveys conducted for previous similar projects, that small, non-breeding roosts of common species could be present within 25% of these trees, a reasonable precautionary value of County has been assigned. | | | | |
| Bats (foraging/ commuting) | 24 records of foraging and commuting activity by 36 individual bats, including noctule, common pipistrelle, soprano pipistrelle, brown long-eared, natterers and an unidentified bat in several areas. | There are areas of suitable habitat for foraging and commuting bats within the Survey Area, including intact hedgerows along field margins, along woodland edges, around waterbodies, along streams and along the margins of dense areas of scrub (such as the disused railway lines at Asselby and Hudson Way LNR). | <p>Bat activity surveys (walked transects and remote detector deployment) were undertaken in the areas of permanent land take at the converter site. The surveys recorded generally low numbers of five bat species, three of which are common and widespread in England and North Yorkshire (common pipistrelle, soprano pipistrelle and brown long-eared) and two are rarer within England and North Yorkshire (Daubenton's and noctule). Species other than common pipistrelle and Daubenton's were recorded rarely and it is likely that the other species recorded infrequently would therefore only use the habitats in the Survey Area on an occasional basis.</p> <p>Generally Low bat activity has been recorded across the converter station site and the levels of bat activity recorded are consistent with the types of habitats present. The value of commuting and foraging bat habitat within the converter station is assessed to be of Local value.</p> | Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report | | Local | Yes |
| Otter (<i>Lutra lutra</i>) | Five recent records provided by the desk study, the closest of these at Driffield and Skerne Wetlands associated with the River Hull and Driffield Canal which are crossed | There are a number of rivers, streams and drains crossed by the English Onshore Scheme, the majority of which are unsuitable for otter. Some of the larger rivers are suitable for commuting and foraging otter, including the River Ouse and River Hull catchments. | <p>Evidence of transient use by otter was identified on five watercourses crossed by the planning application boundary.</p> <p>No evidence of the presence of holt sites has been recorded within the planning application boundary and generally suitable features for holt creation are absent from within the planning application boundary.</p> <p>From the field surveys there are otter records for watercourses within Section 1 and Section 3, and highly</p> | Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report | | Local | Yes |
| | | | | Appendix 7B - Bat Survey Report. | | | |
| | | | | Appendix 7C – Riparian Mammal Survey Report | | | |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Results Survey | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|---|---|---|---|--|---|---|
| | <p>by the English Onshore Scheme.</p> <p>The River Hull and Kelk Beck associated tributaries and watercourses, are widely known to support otter on the River Hull.</p> | <p>Otters are known to occur on several river catchments within which the English Onshore Scheme is located, including the River Ouse, Foulness and Hull catchments. Surveys have confirmed that these rivers and several main drains have evidence of sporadic foraging and commuting.</p> | <p>likely they may be present in Sections 2 and 4 as they are known on the River Hull catchment. Furthermore, the River Ouse and associated tidal mud flats is a habitat link between the River Derwent SAC/SSSI SAC (where otter are known to be present) and the Humber Estuary and could be used by transient and foraging otter. However, the area of suitable habitat for this species within the planning application boundary will only represent a small proportion of an otters' potential home range (which can extend to around 20 km) and foraging resource available to otter populations within the regional area. Therefore, the habitat within the planning application boundary is considered as having Local value for otters.</p> | | | |
| <p>Water vole (<i>Arvicola amphibius</i>)</p> | <p>32 records of water vole in the Desk Study Area, the closest of which was from the River Hull.</p> | <p>There are a number of rivers, streams and drains crossed by the English Onshore Scheme, some of which are suitable for water vole. Drainage ditches are generally highly managed for agricultural use (with evidence of dredging) however there is a substantial network of suitable water vole habitat within the wider context of the planning application boundary, particularly in East Riding. Furthermore, there are a number of naturalised streams such as Nafferton Beck, Kelk Beck, Earl's Dyke and Gransmoor Drain which in some areas are less severely managed and as such have more optimal bankside habitat for burrowing and foraging.</p> | <p>Water vole were found to be present on seven watercourses, and potentially present on a further 11 cross by the planning application boundary. No evidence of the presence of water vole was recorded from drains located within proximity to the converter station.</p> <p>Water vole were deemed to be likely absent from 13 watercourses due to unsuitability and lack of evidence during surveys. Watercourses which were not able to be subject to detailed water vole survey but were considered suitable to support the species will be assumed to do so for the purposes of the EclA.</p> <p>Based upon the abundance of watercourses, and overall presence of suitable habitat, combined with confirmed presence of water vole in each geographical area, the habitats suitable to support water vole within the planning application boundary are considered as having County value for water voles.</p> | <p>Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report</p> <p>Appendix 7C – Riparian Mammal Survey Report</p> | <p>County</p> | <p>Yes</p> |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Survey Results | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|---|--|--|--|--|---|--|
| Great crested newt (<i>Triturus vulgaris</i>) | 56 recent records within the Desk Study Area, the closest of which is associated with Kelk and is within the Survey Area. | 125 waterbodies have been scoped into the assessment for great crested newt presence/absence, based on distance to the Survey Area, of which six are specially located (entirely or partially) within the application boundary. Suitable waterbodies are present within and adjacent to the Survey Area based on HSI assessments carried out during the Extended Phase 1 surveys. | GCN were identified by eDNA surveys within three waterbodies located within 250m of the planning application boundary, of which one (located at Little Kelk within Section 1) is within the application boundary. Whilst not all identified waterbodies within 250m of the planning application boundary could be surveyed. However, based upon the survey results (HSI and eDNA) and combined with desk study data, discrete GCN populations are likely to occur across the cable corridor within the 250 m of the planning application boundary. GCN are likely absent within 250 m of permanent habitat loss at the converter and from the majority of Section 2 across the Yorkshire Wolds where ponds are predominantly absent. | Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report Appendix 7C – Great Crested Newt Survey Report | Not Evaluated | No - The District Level Licensing Route will be adopted (as detailed in Section 7.5.3.1 and Appendix 7C) and therefore this species has been scoped out of the EclA. |
| Reptiles | Fifteen records of grass snake within the Desk Study Area, including 14 from 2011 to the north of Drax Power Station, 500 m north-west of the planning application boundary. The closest record is associated with Wansford, approximately 230 m from the planning application boundary. | Given the lowland location of the Survey Area, and the general absence of any significant areas of moderate/high quality reptile habitat, it is reasonable to conclude that adder is likely absent from within the planning application boundary. Grass snake were present within the survey area at Welham Bridge, and common lizard was seen on an arable margin east of Nafferton (outside the Survey Area). Given the footprint of the works and limited availability of suitable habitat within the Survey Area, there would be a negligible risk of fragmentation or isolation of any populations if present, as the temporary impacts on grassland habitats associated with the cable swathe would be fully restored post-construction. | Detailed field surveys for reptiles were not considered necessary to support the EclA. There is no permanent loss of habitat suitable to support reptile within the footprint of the converter site. Potential temporary impacts on small areas of suitable reptile habitat along the cable corridor within the planning application boundary (i.e. grassland verges or scrubby embankments) can be adequately mitigated through precautionary working methods to avoid direct killing/ injury. | Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report | Local | Yes |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Results | to Survey | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|---------------------------------|---|--|---|---|-----------|---|---|
| Terrestrial invertebrates | The desk study returned 31 records of terrestrial invertebrates within the Desk Study Area. These included the Section 41 and Red List butterfly species small heath butterfly (<i>Coenonympha pamphilus</i>) at Kiplingcoates Chalk Pit SSSI within the Survey Area north-east of Market Weighton (Section 2), and several species of notable Trichoptera (caddis flies), Coleoptera (beetles) and Diptera (true flies). | The majority of the Survey Area comprised arable farmland and permanent pasture, which provides habitat of negligible value for terrestrial invertebrates, and these habitats are unlikely to support any rare or notable species. The mosaic of rough grassland, scrub and bare ground associated with the Hudson Way LNR provide habitat of potentially higher quality for terrestrial invertebrates within the Survey Area, although none were seen during extended Phase 1 survey. | N/A It was not considered necessary to undertake specific terrestrial invertebrate surveys as the English Onshore Scheme avoids any direct impacts upon areas of habitat which may be of high value for terrestrial invertebrates. The English Onshore Scheme will result in no permanent impacts on habitats that may support rare or terrestrial invertebrate species such as the small heath butterfly. The habitat present within the converter station site is arable and so likely to be of negligible value to rare or notable invertebrates. Areas highlighted by the desk study as being of potential value for invertebrates, such as the rough grassland/scrub mosaic habitat associated with the Hudson Way LNR and associated LWSs, will be entirely avoided by adoption of trenchless cable installation methods and only minor temporary effects from associated construction activities likely to occur. Where small areas of unmanaged grassland or less well drained habitats are present, such as that adjacent to watercourses only temporary very localised effects will occur. Potential effects on populations and assemblages of invertebrates would therefore not be significant and as such they have been scoped out of the EclA. | Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report | Site | No | |
| Brown Hare | There were records of brown hare (<i>Lepus europaeus</i>) within the Desk Study Area. | No specific surveys were undertaken for this species, however incidental records of brown hare have been made throughout the planning application boundary in particular within the sections where the landscape is dominated by large open arable fields. It is therefore reasonably likely to be breeding within habitats that could be within proximity to working areas. Whilst a notable species (being listed as a Priority Species under the UK Post-2010 Biodiversity Framework) the habitats within the planning application boundary is unlikely to represent more than a very small proportion of the resource available within regional area. Therefore a Local value is considered to be appropriate. | | Appendix 7A – Preliminary Ecological Appraisal Report | Local | Yes | |
| Fish (and spawning habitats) | Records of European Eel (<i>Anguilla anguilla</i>), Bullhead (<i>Cottus gobio</i>), Brown/Sea | A number of watercourses which the English Onshore Scheme crosses are known to support populations of important fish species as detailed in Appendix 7A . The River Ouse, Hull, Foulness and associated catchment watercourses (where suitable habitat exists) are known to support populations of salmonid fish and other species of conservation concern. | | N/A Desk study records provided in Table 4 of Appendix 7A – | Local | Yes | |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Survey Results | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|--|--|--|--|---|--|---|
| | <p>Trout (<i>Salmo trutta</i>) and Grayling (<i>Thymallus thymallus</i>) provided from within Desk Study Area.</p> | <p>The Ouse and Hull also provide important habitats for migrating and spawning fish at certain times of the year.</p> <p>Whilst the planning application boundary only includes a discrete section of each of the main watercourses and therefore is considered likely to of a lower value for fish; based upon the overall importance of these catchments to fish the value of the receptor has been assigned as Local.</p> <p>Where fish are a designation feature of a designated site e.g., River Derwent SSSI the assessment if made of the designated site as the ecological feature.</p> | | <p>Preliminary Ecological Appraisal Report.</p> | | |
| Ornithological Features | | | | | | |
| <p>Non-breeding (wintering) waders– Landfall Survey Area (Section 1)</p> | <p>Numerous desk study records provided as detailed in Appendix 7D.</p> | <p>Wintering bird surveys have been undertaken at the landfall site and at the proposed converter site (where there is permanent habitat loss).</p> | <p>The results of the AECOM field surveys and desk study indicate that the shoreline and inter-tidal habitat at Bridlington Bay supports a fairly diverse assemblage of non-breeding (wintering) waders which generally occur in low-moderate numbers during the non-breeding (wintering) season. Also that the coastal fields are used by small numbers of curlew and oystercatcher (foraging/roosting).</p> <p>The results of the AECOM baseline surveys indicate that the intertidal habitat within and adjacent to the planning application boundary is not of national importance for Sanderling (peak count of 41 during the spring passage period). Therefore, a County conservation value has been assigned for this species individually.</p> <p>Although records of turnstone and purple sandpiper were returned from the desk study, these species were not recorded during the baseline surveys conducted by AECOM. These species prefer rocky shorelines or man-made features (e.g., seawalls), rather than sandy beaches, which is the prevailing intertidal habitat type within and adjacent to the planning application boundary. Numbers of curlew, oystercatcher, ringed plover and redshank, which have been highlighted by the baseline surveys and/or desk study, are small and are of no more than local importance.</p> | <p>Appendix 7D – Breeding and Wintering Bird Survey Report</p> | <p>County (Sanderling) Local (all other wader species)</p> | <p>Yes</p> |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Survey Results | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|--|---|--|---|--|---|---|
| <p>Breeding Bird Assemblage – Converter station, landfall and cable route (across all Sections of the English Onshore Route)</p> | <p>Numerous records of a range of notable bird species were provided, including records of declining farmland and Red List species such as skylark (<i>Alauda arvensis</i>), yellowhammer (<i>Emberiza citronella</i>) and linnet (<i>Linaria cannabina</i>). There is suitable nesting habitat within the planning application boundary.</p> | <p>Several habitat types found across the Survey Area have potential to support nesting birds, including arable, dense and scattered scrub, woodland of all types, tall ruderal vegetation and hedgerows.</p> <p>A large proportion of the habitat within and adjacent to the planning application boundary consists of arable habitat dissected by hedgerows. These habitat types typically support a diverse assemblage of breeding bird species of conservation concern (including lapwing, grey partridge, turtle dove, cuckoo, spotted flycatcher, skylark, song thrush, mistle thrush, dunnock, tree sparrow, house sparrow, linnet, starling, yellow wagtail, yellowhammer, reed bunting and corn bunting).</p> <p>Woodland habitat which is a localised habitat within the planning application boundary is likely to support notable species, such as, willow tit, marsh tit, song thrush, mistle thrush, bullfinch and lesser redpoll.</p> <p>Wetland areas associated with the river Hull Headwaters SSSI supported species such as gadwall and yellow wagtail.</p> | <p>No breeding species that are a designated feature of the Humber Estuary SPA/ Ramsar were recorded within the Survey Areas at the converter station and landfall.</p> <p>The results of the AECOM field surveys, and data search confirm that Red List and/or S41 farmland and woodland bird species are generally widespread within the Survey Area. The populations of these species are likely to be typical in comparison to the populations of Red List species which are associated with similar habitat which is ubiquitous throughout North Yorkshire and East Riding of Yorkshire. Red List and/or S41 species are of high conservation concern, however, the populations within and adjacent to the planning application boundary are unlikely to reach thresholds for national importance or regional value. In acknowledgement of the length of the scheme and the number of notable species present or likely to be present, the breeding bird assemblage is considered to be of County value. It should be noted, though, that none of the individual Section or elements of the English Onshore Scheme are likely to support species populations or a breeding bird assemblage of greater than local value in their own right.</p> | <p>Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report</p> <p>Appendix 7D – Breeding and Wintering Bird Survey Report</p> | <p>Up to County</p> | <p>Yes</p> |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Results Survey | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|--|---|--|--|--|---|---|
| <p>Non Breeding Bird Assemblage – Converter station, landfall and cable route (across all Sections of the English Onshore Route)</p> | <p>Numerous records of a range of notable bird species were provided, including records of declining farmland and Red List species such as skylark (<i>Alauda arvensis</i>), yellowhammer (<i>Emberiza citronella</i>) and linnet (<i>Linaria cannabina</i>). There is suitable nesting habitat within the planning application boundary.</p> | <p>Several habitat types found across the Survey Area have potential to support non-breeding birds, including arable, dense and scattered scrub, woodland of all types, tall ruderal vegetation and hedgerows.</p> <p>A large proportion of the habitat within and adjacent to the planning application boundary consists of arable habitat dissected by hedgerows. These habitat types typically support a diverse assemblage of non-breeding bird species of conservation concern (including lapwing, grey partridge, skylark, tree sparrow, house sparrow, linnet, starling, yellowhammer, reed bunting and corn bunting).</p> <p>Woodland habitat which is a localised habitat within the planning application boundary is likely to support notable species, such as, willow tit, marsh tit, song thrush, mistle thrush, bullfinch and lesser redpoll.</p> <p>Wetland areas associated with the river Hull Headwaters SSSI are likely to support waterbird species.</p> | <p>The results of the AECOM field surveys, and data search confirm that Red List and/or S41 farmland and woodland bird species are generally widespread within the Survey Area. The populations of these species are likely to be typical in comparison to the populations of Red List species which are associated with similar habitat which is ubiquitous throughout North Yorkshire and East Riding of Yorkshire. Red List and/or S41 species are of high conservation concern, however, the populations within and adjacent to the planning application boundary are unlikely to reach thresholds for national importance or regional value. In acknowledgement of the length of the scheme and the number of notable species present or likely to be present, the wintering bird assemblage is considered to be of county value. It should be noted, though, that none of the individual Sections or elements of the English Onshore Scheme are likely to support species populations or a wintering bird assemblage of greater than local value in their own right.</p> | <p>Appendix 7D – Breeding and Wintering Bird Survey Report</p> | <p>County</p> | <p>Yes</p> |
| <p>Schedule 1 species (across all Sections of the English</p> | <p>The desk study did not highlight breeding by Schedule 1 species within the planning</p> | <p>Several sightings of barn owl were recorded across the planning application boundary, generally in Sections 2 and 3. Barn owl boxes have been identified on mature trees, and</p> | <p>The results of the baseline surveys and desk study do not highlight breeding by quail, red kite, marsh harrier, peregrine or hobby, however suitable breeding habitat for these species is present with the planning application boundary. Any breeding populations of these species which may occur within or adjacent to the application</p> | <p>Section 2.5 of Appendix 7A – Preliminary Ecological Appraisal Report</p> | <p>Up to County</p> | <p>Yes</p> |

| Protected Species/Species Group | Summary of Desk Study Records | Appraisal of Survey Area | Survey Results | Signposting to detailed Survey Results | Evaluation of nature conservation value | Scoped into Ecological Impact Assessment? |
|---------------------------------|-------------------------------|--|--|--|---|---|
| Onshore Route) | application boundary. | some barn structures adjacent to the planning application boundary which have been deemed suitable to support nesting barn owl. Records of kingfisher and Cetti's warbler from the River Hull Headwaters provided. | boundary are unlikely to be considered significant in terms of the regional population. Up to two territories of Cetti's warbler were recorded at the Wansford Survey Area and a single kingfisher territory also at Wansford. Two Schedule 1 species and several other notable species were recorded within the planning application boundary, but not in numbers that would constitute a significant breeding population at the National (1%) or County (0.5%) level. As such Schedule 1 species are as receptor have been assigned as no greater than County value. | Appendix 7D – Breeding and Wintering Bird Survey Report | | |

7.5.3.1 Great Crested Newt and District Level Licensing

Following the submission of the SEGL2 Scoping report in Spring 2021, Natural England launched District Level Licensing (DLL) Schemes (**Error! Reference source not found.**) for GCN for North and East Yorkshire areas within which the English Onshore Scheme is located. DLL is an alternative licensing approach established by Natural England for GCN which is based upon a national landscape scale conservation of the species which involves the DLL Scheme applicant agreeing a compensation payment for projects which may have impacts upon GCN habitats. The potential impacts to GCN habitats (ponds and terrestrial habitat) within a given DLL Scheme area is calculated by Natural England based upon Species Distribution Models which are presented as risk zone maps. The GCN risk zones (Red, Amber and Green) seek to categorise the suitability of habitats present within the scheme area to support GCN based upon factors such as pond density and distribution, habitat type, topography and data records. The option to progress a DLL agreement for mitigation for GCN does not entirely rely upon the applicant collating GCN survey data as would be the case for 'traditional' European Protected Species mitigation licensing (Ref 7-28) where impacts are predicted. DLL can be secured using risk zone mapping data alone. Compensation payments are used to fund delivery of GCN mitigation through creation of pond habitats by DLL scheme partners such as Yorkshire Wildlife Trust in pre-selected offsite areas which are safeguarded from development and negate requirement for specific on site mitigation measures.

NGET initially conducted consultation with the Natural England DLL team in September 2021 to agree that a DLL could in principle be adopted for the English Onshore Scheme and clarify the level of survey information which would be required to support a DLL application. Natural England confirm that a DLL agreement could be adopted based upon a hybrid approach; partially using the risk model data they hold and taking into account the survey data collated by AECOM on behalf of NGET in 2021, as per the approach set out at Scoping. As such no additional eDNA surveys have been conducted in 2022. Where ponds within 250 m of the planning application boundary have not been surveyed the DLL calculation is based upon the Natural England risk modelling. A DLL Impact Assessment and Conservation Payment Certificate (IACPC) and associated compensation payment has been agreed between Natural England and NGET which commits to a DLL agreement for the English Onshore Scheme following any subsequent agreement of the planning permission. The DLL payment will fund the creation of 3.96 compensation ponds. A redacted copy of the countersigned DLL IACPC is appended as **Appendix 7G** to **Chapter 7: Ecology and Nature Conservation** of the ES.

On this basis, GCN have been scoped out of formal impact assessment based upon the commitment by NGET of the DLL route in accordance with Natural England guidance.

7.5.4 Future Baseline

To identify the effects of the English Onshore Scheme on ecological receptors, it is important to acknowledge that over time the ecological baseline conditions can evolve and that the baseline assessed for the purposes of this EclA, and at the year of construction, compared to the future baseline (at year of opening/ operation) may be different.

7.5.4.1 At Construction (2024)

It is reasonable to assume that the current agricultural/ grazing regime along the underground DC cable route would continue in the absence of development or any large-scale changes in agricultural policies or practice were to take place. Therefore, the habitats within the footprint of the planning application boundary and Study Areas for ecological receptors would not be expected to change significantly over this timeframe. Similarly, it is reasonable to assume that any protected species would remain present in these unchanged habitats over this timeframe if there are no significant changes in land use.

Similarly, the arable habitat located at the converter station site would not be reasonably expected to change over this timeframe assuming it was still farmed. The field boundaries and area of woodland to the north are unlikely to have matured in any real measurable amount within this period and thus unlikely to change the limited ecological value of the habitats present in the absence of any other development/project at the site.

7.5.4.2 At Opening (2029)

Whilst it is not entirely possible to accurately predict the baseline for the year 2029, it would again be anticipated that the habitats (and in turn populations of protected/notable species supported by them)

would remain predominantly unchanged across the majority of the cable route. Where grazing is present this is likely to remain so, or potentially be replaced by arable land due to recent trends unless small residential grazing pastures. Assuming the current management of the farmed habitats continues across the majority of the planning application boundary in the absence of development, there would be no significant changes in the ecological baseline conditions currently identified.

7.6 Potential Impacts

7.6.1 Introduction

In accordance with CIEEM guidance, embedded mitigation that forms part of the development whether by design or to meet standard legislative requirements during construction, has been taken into account when assessing the potential impacts on important ecological features.

As outlined in **Chapter 3: Description of the English Onshore Scheme**, the English Onshore Scheme comprises the terrestrial components of the SEGL2 Project from the landfall at Fraisthorpe, East Riding of Yorkshire, to the converter station at Drax, North Yorkshire (Selby). The components of the English Onshore Scheme with the potential to have impacts on ecology and nature conservation, and therefore considered within this assessment are as follows:

- *Converter station* – permanent loss of habitat within approximately 6 ha development footprint including permanent access road from New Road and creation of attenuation pond and landscaping;
- *Landfall site* – potential indirect disturbance effects upon ornithological receptors at the coast;
- HVDC cable route – temporary impacts on nationally and locally designated sites including crossing River Hull Headwaters SSSI and Hudson Way LNR associated with the working width for cable installation of up to 40 m, and temporary access and construction compounds;
- *HVDC cable route* – temporary on habitats/ species associated with approximately 69 km cable corridor consisting of a working width of up to 40 m, temporary construction/ laydown compounds and temporary access and haul roads; including potential indirect effects on the qualifying species and habitats of Humber Estuary SPA/Ramsar/SAC, Lower Derwent Valley SPA/Ramsar/ SAC and River Derwent SAC/ SSSI during construction; and
- *AC cable route* – temporary impacts on habitats/ species associated with 500 m of open-cut construction corridor and working width of up to 50 m for AC cable route connecting converter to Drax power station.

Construction of the English Onshore Scheme is currently and indicatively anticipated to take up to a total of 5 years commencing in 2024 as set out in **Chapter 3: Description of the English Onshore Scheme**. The appointed contractor will determine the exact phasing of activities, which is likely to include the use of multiple teams and simultaneous activities undertaken across the underground DC cable route. This will reduce the extent and duration of construction activity at any given location including the length of time that land remains disturbed for before re-instatement. The exact programme will depend on several factors including the underlying ground conditions and installation methods used.

The potential impacts of the Scheme that are likely to relate to important biodiversity features are:

- **Habitat loss or gain:** These are direct impacts related to the change in land use resulting from the English Onshore Scheme. This would include vegetation clearance, change in use such as the creation of drainage ponds, habitat creation and enhancement;
- **Fragmentation of populations or habitats:** Indirect impacts due to breaking up of a habitat, ecosystem, or land-use type into smaller parcels, or the creation of partial or complete barriers to the movement of species, with a consequent impairment of ecological function;
- **Disturbance:** An indirect impact resulting from a change in normal conditions (light, noise, vibration, human activity) that would result in the important biodiversity receptor changing its typical behaviour;
- **Habitat degradation:** A direct or indirect impact resulting in the reduction in the suitability of the habitat for the identified important receptor (such as the impact of shading, changes in water quality or change in the water regime); and

- Species mortality: A direct impact on a population of a species associated with mortalities due to construction activities.

7.6.2 Embedded Mitigation

7.6.2.1 Construction Phase

Where feasible embedded mitigation measures, or mitigation by design, have been incorporated into the design of the English Onshore Scheme such that they inform its detailed design and/or the approach to its construction. Through iterative assessment, potential impacts have been predicted and opportunities to mitigate them identified with the aim of preventing or reducing potential impacts as much as possible. The approach provides the opportunity to prevent or reduce adverse effects from the outset.

This mitigation by design has been taken into account when evaluating the significance of the potential impacts. Residual impacts described in Section 7.8 are those which remain taking into account any further proposed project specific mitigation. See Section 5.6 for further information on the approach to mitigation taken in this document.

Mitigation by design includes measures to ensure legal compliance during the construction of the English Onshore Scheme for habitats or species where specific legislative requirements are in place e.g. badger and avoidance of activities which would contravene The Protection of Badgers Act 1992 (as amended).

7.6.2.1.1 General Good Practice

The construction phase of the English Onshore Scheme will comply with industry good practice and environmental protection legislation during construction in relation to prevention of surface and ground water pollution, fugitive dust management and noise prevention or amelioration. In support of this, the construction contractor will prepare and implement a CEMP detailing all requirements for environmental protection and legal compliance. An Outline CEMP is included in **Chapter 18: Outline Construction Environmental Management Plan**.

The CEMP will also include commitments to ecological measures which are to be adopted by the appointed contractor, which for example will include:

- Pre-construction ecology surveys where required (water vole, otter and bats) and confirmation of mitigation /licencing requirements;
- Requirement for Ecological Clerk of Works (ECoW) to be present on site during construction phase to undertake pre-works surveys of checks and/or toolbox talks at specific sensitive locations e.g. River Hull Headwaters SSSI;
- Where specific timing of works to minimise ecological effects is required e.g. vegetation removal outside bird breeding season; and
- Re-instatement of habitats following completion of the construction phase are required e.g. hedgerow planting and reinstatement of arable habitat.

7.6.2.1.2 Avoidance of Statutory Designated Nature Conservation Sites

The landfall site has been chosen to avoid direct impacts, and to minimise the potential for indirect impacts, on the coastal designations of Flamborough Head SAC and Flamborough and Filey Coast SPA by selecting a landfall site outside statutory designation boundaries at Fraisthorpe. The nearest part of the SAC is located approximately 3.5 km to the north of the English Onshore Scheme.

The routing of the underground DC cable corridor has been designed through the feasibility and early-stage design phase to avoid direct impacts on the sensitive habitats associated with the Humber Estuary SPA/Ramsar/SAC and Lower Derwent Valley SPA/Ramsar/ SAC and River Derwent SAC/ SSSI and avoids several SSSIs identified within the initial Scoping stage including Kiplingcotes Chalk Pit SSSI, Barn Hill Meadows SSSI and South Cliffe Common SSSI.

The River Hull Headwaters SSSI which will be crossed at two locations by the English Onshore Scheme; at Wansford and at Kelk Beck using trenchless cable installation methods (i.e., HDD) to best avoid or minimise direct impacts to the designated features of the SSSI. In each case the working areas

and associated construction activities for the cable drilling will be entirely set back from the SSSI boundary and sited within arable habitats to either side of the River Hull and Kelk Beck. The trenchless drilling will span entirely beneath the watercourses.

7.6.2.1.3 Minimising impacts upon the River Hull Headwater SSSI

Whilst the cable will be drilled beneath the SSSI, due to lack of suitable alternative access options there is a requirement to construct a temporary haul road across Kelk Beck to allow construction access along the construction corridor. A temporary bridge will need to remain in-situ during the construction phase of the works (this could be up to 5 years but it is hoped that this would be closer to 2-3 years at this location). The exact design and layout of the temporary bridge will be finalised by the appointed contractor but will be based upon the following design principles in order to reduce the impacts upon the SSSI:

- Clean span bridge with no piers or foundations to be located within the channel or within 8 m of the channel and riparian zone;
- Width of temporary bridge to be kept to a minimum; estimated as up to 6 m wide;
- Water channel and riparian zone remain entirely unobstructed to allow passage of aquatic species including fish, invertebrates, riparian mammals and birds;
- Construction access routes to avoid habitats within 8 m of the river channel and remain entirely outside of the SSSI boundary and adjoining priority grassland habitat on south-west side of River Hull at Wansford;
- The detailed design of the temporary bridge will be submitted for approval to Natural England; and
- Adoption of pollution prevention measures as detailed in **Chapter 18: Outline Construction Environmental Management Plan**.

7.6.2.1.4 Avoidance of Non-statutory Designated Nature Conservation Sites

The English Onshore Scheme avoids direct impacts on the following LWSs that were identified within 100 m of the planning application boundary:

- Spring Dale cLWS - approximately 20 m east of the underground DC cable route;
- Kiplingcotes Road Earthworks LWS - approximately 30 m east of the underground DC cable route; and
- Etton Wold, West of Crossroads LWS - approximately 50 m east of the underground DC cable route;

Measures to ensure that the extent of the planning application boundary is demarcated and that protection buffers are put in place will form part of **Chapter 18: Outline Construction Environmental Management Plan**. This will ensure that direct disturbance of these LWSs will be entirely avoided. Potential indirect effects upon these LWSs are assessed below.

7.6.2.1.5 Woodland Buffer and Mature Tree Retention – Converter Station

As part of the layout design for the converter station, the potential sensitivity of the adjacent priority habitat woodland to the north of the site and mature trees with potential to support roosting bats within the arable field and along Wren Hall Lane were identified as a potential constraint at an early stage. As part of the design process, a minimum 8 m undeveloped buffer has been incorporated into the converter station site layout and associated construction compound, to ensure that the woodland edge habitat (and drain located alongside it) is not subject to physical disturbance/ damage or lighting impacts. The line of mature broadleaved trees located immediately north of the converter station site will be retained and protected during construction.

As set out in **Chapter 8: Landscape and Visual Amenity**, there will also be adoption of a landscape plan at the converter station (**Figure 8.5**) including wildflower grassland creation and scrub planting within the area around the converter station along with the implementation of a habitat management plan. This habitat creation will enhance the value of habitat present around the developed converter site.

7.6.2.1.6 Watercourse buffers

As set out in **Chapter 11: Hydrology and Land Drainage** at least a 15 m buffer will be adopted between working areas within the planning application boundary and watercourses (excluding where watercourses will be crossed or where drainage outfalls are required) to minimise indirect potential effects upon riparian and aquatic habitat. Furthermore, this will avoid direct effects upon species present within the watercourse channel including otter and water vole. The adoption of buffer zones between working activities and the watercourse bank top (for watercourses not crossed by the English Onshore Scheme) will also reduce indirect disturbance effects upon water vole.

7.6.2.1.7 Post-construction Habitat Reinstatement

All habitats crossed by open cut installation methods for the underground DC cable route, and all temporary construction compounds and temporary laydown areas will be fully reinstated to their previous use following completion of cable installation activities or the need for the construction compound in question as soon as practically possible. This includes all areas of arable land and pasture (which will be reseeded with an appropriate grass seed mix). Hedgerows will be fully reinstated as soon as practically possible after completion of the construction activities within a given area/Section of the planning application boundary with an appropriate native species rich mix to match or enhance that previously present.

This may also include measures to remove, store and replant more mature hedgerow planting if appropriate. Prior to construction the Contractor will prepare a Tree and Hedgerow Protection Strategy to include a schedule of all trees and hedgerows to be removed, a schedule of all trees which require pruning coppicing or pollarding, a schedule of all trees and hedgerows to be retained including specification for temporary physical protection, including root protection areas and details of an auditable system of compliance. It will also include details of any hedgerows where a remove/store/replant methodology has been identified as appropriate through landowner consultation. The like-for-like replacement of tree species may not be possible due to planting restrictions over cables (need to protect the integrity of the cables which may be compromised by deep roots). Impacts to trees and hedgerows will be minimised by retaining as much of the existing vegetation as possible in situ during construction.

Grassland verges and priority habitats such as that at North Howden, will adopted approach where top soil is retained specifically for reinstatement to maintain the seedbank for semi improved grassland. Where feasible bankside watercourse habitats temporarily disturbed by the trench cable installation and/or haul route construction will be reinstated and enhanced by supplementary planting to ensure they are reinstated to their previous condition or better.

7.6.2.1.8 Avoidance of offences under The Badger Protection Act 1991

Avoidance of direct effects upon badger setts will be addressed by construction design. For setts within 30 m of construction work, pre-construction surveys will be required to ascertain the level of usage by badger. Where direct effects upon badger setts cannot be entirely avoided monitoring may be required to fully determine the status of the sett (if it is not apparent). Where deemed to be active and cannot be avoided, a Natural England derogation licence will be obtained to fully or partially close the sett before works are undertaken.

In the event that a temporary partial or full closure of an active badger sett is required, it is considered that there would be sufficient alternative habitat and alternative existing setts available for the displaced badgers to utilise in the local area to the planning application boundary. As such the provision of an artificial replacement sett would not be warranted.

Micro-siting will be used to ensure that the working width is located at least 30 m from all active badger setts (preconstruction surveys will be undertaken to establish which are active – see below) to prevent disturbance of a badger sett whilst occupied; and that setts are located outside of the fenced working width.

Mitigation measures will be undertaken during construction works to minimise effects of habitat/territorial severance and disturbance to badger which may have territories which extend across the planning application boundary. These include the following:

- providing a means of escape from any trenches left open overnight within areas of known badger activity;

- allowing continued access along badger paths, where practical. For example in arable areas the working width will only be fenced with demarcation fencing (rope and stakes), therefore badger will be able to easily move around in such areas whilst works are not occurring;
- locate chemical storage areas/COSHH Store storing chemicals away from setts;
- any lighting, where required on site, to be directed away from setts; and
- daylight working hours only (except at certain crossings and for certain operations where 24 hours working may be required).
- Direct effects (damage/destruction) upon an active badger sett (and killing/injury of badgers).

7.6.2.1.9 Bats (roosting)

The EclA for roosting bats has been based upon an approach which assesses the likely potential effect of the English Onshore Scheme overall assuming the potential 'reasonable worst case scenario' assuming the loss of a proportion of the trees within the planning application boundary. This approach to the completion of the EclA combined with the commitment to conduct pre-construction surveys of any trees/structure which cannot be avoided and associated mitigation measures thereafter i.e. activities which result in a licensable effect upon bats would be subject to a Natural England EPS Mitigation Licence application.

7.6.2.2 Operational Phase

7.6.2.2.1 General Good Practice

The operational phase of the English Onshore Scheme will comply with industry good practice and environmental protection legislation during operation in relation to prevention of surface and ground water pollution, noise prevention or amelioration.

7.6.2.2.2 Lighting – Converter Station

The detailed lighting design for the converter station will be specified by the contractor but it is likely to comprise 6 m high lighting columns that are required during maintenance but are designed to avoid light pollution by facing inward, lighting only critical areas and lighting only when required during hours of darkness. Note that these could be arranged differently subject to the ongoing design process taking into account engineering, environmental and other constraints and requirements.

Operational lighting will be limited in extent and will be at a low level around walkways and car park areas for health and safety reasons. Lighting will be designed to avoid light pollution by facing inward, lighting only critical areas and being off by default during hours of darkness (**Chapter 3: Description of the English Onshore Scheme**). This will minimise the risk of light spillage onto habitats outside the development boundary and thus reduce the risk of disturbance/ displacement of foraging and commuting bats.

7.6.2.2.3 Water Quality

As set out in **Chapter 11: Hydrology and Land Drainage**, good industry practice design is embedded within the operational elements of the English Onshore Scheme to avoid adverse effects upon nearby aquatic habitats including the local drainage ditch, oil interceptors and the creation of an attenuation ponds for filtering run-off from the proposed converter.

7.6.3 Assessment of Potential Impacts: Construction Phase

This section describes the impacts and potential effects upon ecological features during the construction phase of the English Onshore Scheme. The potential impacts are assessed on the basis that all embedded mitigation as set out in other relevant chapters of the ES and within the **Chapter 18: Outline Construction Environmental Management Plan** are adopted. However, the magnitude and significance of the potential impacts does not take into account any project specific mitigation, i.e. that outlined in Section 7.7 and which is over and above that which is inherent to the design and/or required for legislative compliance during construction.

To enable a focussed impact assessment, screening was undertaken of potential impacts of the construction phase that are likely to result in adverse or beneficial effects on relevant ecological features and that require further impact assessment. The relevant impacts are taken forward in the more detailed

impact assessment that follows. Those impacts that are considered unlikely to result in effects are scoped out and not considered further.

The following potential source-receptor pathways have been scoped out of the impact assessment:

- Direct impacts on habitats and qualifying bird features of the Humber Estuary SPA/ Ramsar – the landfall area and cable route and converter have been designed to avoid direct impacts on this statutory designated site;
- Impacts on terrestrial land functionally linked to the qualifying features of the Humber Estuary SPA/ Ramsar – as detailed below and within the Habitat Regulations Assessment report (**Appendix 7E**), none of the habitats within or adjacent to the landfall site are suitable for SPA/ Ramsar bird species, and surveys concluded that the land was not functionally linked to the SPA/ Ramsar; and
- Changes in air quality affecting designated habitats. Air Quality effects have been scoped out of the ES as detailed in **Chapter 5: Approach to Environmental Assessment** and reaffirmed by **Chapter 14: Traffic and Transport**. As such it is concluded there are no sources of emissions to air arising from the construction phase that could result in measurable changes to air quality within the following designated sites: Flamborough Head SAC, River Derwent SAC/ SSSI, River Hull Headwaters SSSI, Kiplingcotes Chalk Pit SSSI, Barn Hill Meadows SSSI and South Cliffe Common SSSI.

7.6.3.1 All English Onshore Scheme Sections (1 - 4)

Where potential ecological impacts may occur to features which are relevant to all English Onshore Scheme Sections, these are discussed in combination below. Where potential impacts upon designated sites or effects upon species are predicted to occur only within specific Sections or relating only to a specific element of the English Onshore Scheme or geographical location i.e. converter station or landfall only, these are discussed in the relevant Section sub-headings thereafter to avoid repetition.

7.6.3.1.1 Humber Estuary SPA/Ramsar

There is no potential for direct impacts upon Humber Estuary SPA/ Ramsar qualifying features (birds) as it is entirely avoided by the English Onshore Scheme.

Potential indirect effects upon qualifying SPA/Ramsar features could occur during the construction phase as follows:

- Temporary loss of functionally-linked land outside the SPA/Ramsar boundary for SPA Qualifying Species (including Pink-footed Geese as an Assemblage feature) from within the planning application boundary; and
- Temporary indirect disturbance of SPA qualifying species present within functionally linked land outside the SPA/Ramsar boundary due to construction noise and visual disturbance.

Whilst pink-footed geese are not a primary qualifying feature of the Humber Estuary SPA, as a result of the desk study and consultation with Natural England it was agreed that the EclA would assess the potential effects of the English Onshore Scheme upon this species.

Temporary Habitat Loss

Construction of the proposed cable route would result in the temporary loss of arable and grassland functionally linked habitat (located outside the SPA/Ramsar boundary) that may be utilised for foraging and roosting by SPA/Ramsar birds; including non-breeding populations of golden plover and lapwing. Notably, while a very small amount of supporting habitat for certain SPA/Ramsar qualifying species may be temporarily lost, and compared to that available regionally, historic bird records for the area around the English Onshore Scheme obtained from different sources provide no indication that the affected farmland parcels would be specifically functionally linked to the Humber Estuary SPA / Ramsar. Furthermore, large sections of the arable fields adjoining the English Onshore Scheme would be unaffected and would remain available for continued use by SPA / Ramsar birds if they are temporarily displaced from habitat within the planning application boundary during construction.

Overall, given the relatively small amount of agricultural land affected (particularly considering the ubiquity of this habitat in the wider Humber region) and the temporary nature of the effects, it is concluded that the magnitude of the potential effect with embedded mitigation is assessed as Negligible

for a receptor of national value. The significance of the potential effect is therefore **Minor adverse and not significant**.

Noise and Visual Disturbance

Temporary disturbance to SPA/Ramsar birds wintering golden plover and lapwing is likely during the construction phase due to noise, artificial light, movement of construction plant and construction activities such as site clearance and cable drilling. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect wintering populations occurring within adjacent habitats. The disturbance has the potential to cause displacement of wintering birds, however it is expected that any negative effects relating to displacement will be minor considering the relatively small areas of farmland habitat potentially affected in comparison to the availability of similar habitat which is ubiquitous in the wider locality. Furthermore, noise modelling undertaken and detailed in **Chapter 13: Noise and Vibration** indicates that, in most locations along the cable route, the daytime noise levels emanating from the cable installation works will reduce to 69 dBA (a level of noise that is unlikely to result in disturbance) within 100 m from the working area. Guidance (Ref 7-31) indicates that consistent noise which is below 72 dB is generally acceptable.

Based on available bird record data, there is no evidence to indicate that arable fields surrounding the proposed landfall, along the cable route and within the converter station support significant assemblages of SPA / Ramsar birds (>1% of qualifying populations). Whilst construction activities will be undertaken year round the magnitude of the potential disturbance effect upon SPA/Ramsar species considering the above it not likely to be greater than Negligible upon less than 1% of SPA/Ramsar birds which may be present. The Habitat Regulations Assessment Report (**Appendix 7F**) has concluded that there will be no Likely Significant Effects of the English Onshore Scheme on the Humber Estuary SPA / Ramsar regarding visual and noise disturbance.

Potential temporary disturbance to areas which could be used by wintering pink-footed geese at very low levels during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect wintering populations occurring within adjacent habitats. The disturbance has the potential to cause displacement of wintering birds, however it is expected that any negative effects relating to displacement will be minor considering the relatively small areas of farmland habitat potentially affected in comparison to the availability of similar habitat which is ubiquitous in the wider locality. In terms of construction works affecting open farmland habitats undertaken during the wintering bird season, the magnitude of the potential effect in terms of the temporary disturbance is assessed as Negligible. The significance of the potential effect is therefore **Minor adverse and not significant**.

7.6.3.1.2 Humber Estuary SAC

This site does not fall within the planning application boundary is located approximately 2.8 km from it and therefore will not be directly affected by construction of the English Onshore Scheme. Sources of potential indirect effects upon the SAC rely on hydrological linkages or pathways to cause effects upon water quality as a result of construction activities close to watercourses which link to the Humber Estuary downstream of the planning application boundary. This could in turn result in effects upon the qualifying estuary and mudflat habitats and species i.e. sea and river lamprey and grey seal.

A Habitat Regulations Assessment Report (**Appendix 7F**) has been undertaken which outlines the potential pathways for indirect effects and concludes that as a result of embedded design including the crossing of the River Ouse via HDD installation techniques and embedded mitigation to avoid any potential effects upon water quality there are no likely significant effects on the overall integrity of the Humber Estuary Ramsar SAC by the English Onshore Scheme.

7.6.3.1.3 Lower Derwent Valley SPA / Ramsar

This SPA/Ramsar is located approximately 2.9 km from the planning application boundary and therefore will not be directly affected by construction of the English Onshore Scheme. There is potential that

some species of bird associated with the designation could be affected by the construction works, such as golden plover.

A Habitat Regulations Assessment Report (**Appendix 7F**) has been undertaken to determine the likely significant effects on the integrity of this European designated site. This has concluded that there will be no likely significant effect on the Lower Derwent Valley Ramsar and SPA.

7.6.3.1.4 Lower Derwent Valley SAC and River Derwent SAC/SSSI

The Lower Derwent Valley SAC River Derwent SAC (2.9 km and 1.1 km respectively from the planning application at their nearest point) have qualifying features (habitats and aquatic species) which are sensitive to negative water quality changes as a result of dust and pollutant release from construction works. The sole hydrological link between the English Onshore Scheme and the respective SAC site boundaries is via the River Ouse. The River Ouse will be entirely crossed by HDD installation methods. All construction activities will be located at least 50 m away from the east and western banks of the River Ouse and offset of at least 15 m will be adopted. Furthermore, the Ouse lies downstream from the two SACs therefore this is no link in terms of a pathways of water quality effects.

Chapter 18: Outline Construction Environmental Management Plan of the ES discusses a range mitigation measures that will be adopted during the construction of the English Onshore Scheme, aimed at minimising potential impacts on the water environment. The CEMP adequately addresses all major source of pollutants, including the storage of aquatic pollutants, operation and refuelling of plant / equipment, construction drainage and management of non-foul wastewater. As such it is concluded that the magnitude of potential effect upon water quality and associated SAC riverine habitats would be Negligible and the significance of the effect upon the SACs as **Negligible** (not significant)

Notwithstanding this, both SACs are designated for mobile species that depend on good water quality throughout their entire home ranges. Otters, qualifying species of both SACs, are unlikely to be directly impacted by water chemistry changes, unless major pollution incidents occur, which based upon adoption of embedded mitigation would be highly unlikely. The main pollutants of concern (e.g. polychlorinated biphenyls, pesticides and heavy metals) with regard to direct toxicity to otters are unlikely to be released during construction of the English Onshore Scheme. Instead, the primary negative water quality impacts are likely to occur as indirect effects on the otters' food supply (discussed in the following).

The River Derwent SAC is designated for bullhead, river lamprey and sea lamprey, all of which depend on water quality parameters to remain within naturally occurring limits. Anadromous fish (e.g. river and sea lamprey) will undertake seasonal migrations between the Humber Estuary and the River Derwent via the River Ouse, potentially being affected by water quality pollutants released from the English Onshore Scheme. Dust emission poses a particular threat to aquatic ecosystems because it can increase the sediment load in suspension, leading to higher turbidity in waterways. This can have various knock-on impacts in resident ecosystems, such as changing plant community composition (through reduced photosynthesis) and reducing the ability of fish, which are typically visual predators, to forage successfully. Furthermore, many fish spawn in clean gravels, which may be impacted by excessive sediment deposits.

A Habitat Regulations Assessment Report (**Appendix 7F**) has been undertaken to determine the likely significant effects on the integrity of the European designated sites (which also encompass the River Derwent SSSI). This has concluded that there will be no likely significant effect on the Lower Derwent Valley SAC and River Derwent SAC.

7.6.3.1.5 River Hull Headwaters SSSI

The River Hull Headwaters SSSI is crossed by the planning application boundary at two locations; River Hull at Wansford and the Kelk Beck near to the village of Kelk both in Section 1. Both cable crossing will be made using trenchless (HDD) cable installation methods. At the River Hull crossing the underground DC cable will be drilled to span, east to west the B1249 Wansford Road, Driffield canal, the River Hull/West Beck and associated riparian habitats and Main Drain. The working area for the cable drilling activities at both locations will be entirely outside the SSSI boundary and located within arable habitats. The cable drilling and receiving pits for the River Hull/West Beck crossing are located over 80 m from the boundary of the SSSI and with Main Drain and Driffield Canal and the B1249 located between the SSSI boundary and the working areas. As such there will be no direct impacts upon SSSI habitats at River Hull.

At Kelk Beck, a single span temporary haul road bridge will be installed across the Beck which will remain in situ for the construction period. No in channel works will be undertaken and the temporary span haul road will be designed in order to avoid and minimise potential indirect effects upon the qualifying features of the SSSI. The temporary bridge would be a single lane bridge approximately 6 m wide, which would be minimised where possible to reduce the temporary shading effects on the habitat within the channel and on the banks beneath. By the adoption of embedded mitigation including pollution prevention control and good practice, secured through the CEMP, alongside the integrated design of the English Onshore Scheme there would be an avoidance of adverse impacts on the integrity or functionality of the SSSI. The detailed design of the temporary bridge would be agreed with the regulatory authorities; Natural England and Environment Agency but would be based upon the principles in section 7.6.2.1.

As such the following potential indirect impacts upon the SSSI would be:

- Habitat degradation due to changes in water quality and shading impacts of the temporary bridge at Kelk Beck; and
- Disturbance of faunal species associated with the SSSI including breeding birds and aquatic invertebrates.

Effects upon riparian mammals, fish and other protected or notable species not specified on the SSSI citation are assessed separately below.

Habitat Degradation

The potential risk to water quality of the River Hull SSSI will be mitigated by the adoption of a pollution prevention and control measures as committed to in the **Chapter 18: Outline Construction Environmental Management Plan**. As such there are no pathways for effects upon the water quality to occur from the installation of the cable and the temporary haul road.

Shading effects of the presence of the temporary haul road upon the watercourse channel are considered to only be localised and temporary. Adverse shading effects upon vegetation generally rely on a lengthy period of exposure, and it is acknowledged that a period of up to a maximum of five years worst case for the entire construction period may result in some degree of localised shading and this may result in minor adverse effects on the bankside and marginal zone of the River Hull channel. However, the predicted effects are not considered likely to be sufficient to result in an irreversible adverse effect on the integrity or functionality of the habitats present within the SSSI and can be addressed through habitat reinstatement (and where possible enhancement) measures. It is therefore assessed that with embedded mitigation the effect is **Minor adverse** (not significant).

Disturbance (noise and visual) to SSSI associated species including breeding bird assemblage

Considering the proposed construction activity is likely to occur within a rural environment, it is likely that the predicted noise levels for the cable drilling works will exceed the background noise levels at the SSSI receptor. The final layout showing the spatial location of the cable drilling sites is subject to the finalisation following the appointment of the Contractor; however, a precautionary threshold of 55 dBA (based upon guidance in Ref 7-31 although recognised this does not relate specifically to breeding birds) for assessing potential disturbance to birds is considered reasonable for this EclA. This threshold however does not necessarily indicate the onset of disturbance to birds; including Cetti's warbler, a Schedule 1 species which receives special legal protection in relation to disturbance when nesting. As detailed in **Appendix 7D**, territorial ranges of the Schedule 1 birds identified at this location; namely kingfisher and Cetti's warbler) were identified to partially extend into the planning application boundary but are not entirely dependent only on the habitat within it.

If cable drilling works were to take place during the breeding season, temporary disturbance to breeding birds is likely due to noise, movement of heavy plant and construction activities such as the cable drilling in adjacent areas. This disturbance is likely to occur in the immediate footprint of the HDD drilling area which is located over 80 m from the river watercourse channel and associated riparian habitats suitable for birds of interest at the site. The cable installation works could also adversely affect SSSI breeding bird populations occurring within adjacent habitats (but outside the SSSI boundary). Increases in ambient noise levels are likely to occur within and near breeding bird territories in habitats immediately adjacent to the cable route corridor. There is therefore potential for effects on the audibility of territorial song and hence possible adverse effects on the ability of birds to hold territory and breed successfully.

However, this is considered to be a temporary and short-term impact and will be localised therefore may result in a level of temporary displacement of birds to other sections of the River Hull corridor and local tributaries where similar suitable nesting habitat is available. At Kelk Beck the channel narrower with limited availability of breeding bird habitats present only the occasional scrub and young trees scattered alongside the channel and grassland verge then opening out to arable land. The assemblage of breeding birds specifically using the SSSI channel and immediate embankment/verge habitats was more limited as a result. The specific location of the temporary bridge within the planning application boundary will be subject to additional agreement with Natural England and wherever possible will be installed outside the breeding bird season or following a thorough pre works EcOW nesting bird check. Therefore, the effect upon the SSSI breeding bird assemblage is assessed as Minor, resulting in a **Minor adverse effect (not significant)**.

7.6.3.1.6 Kiplingcotes Chalk Pit SSSI

There will be no direct impacts on the SSSI, which is entirely avoided by the English Onshore Scheme.

Indirect effects on SSSI habitats – water quality /dust

The planning application boundary is located approximately 415 m east of the SSSI which is designated for its grassland habitats. The site comprises of embanked calcareous grassland site over chalk substrate, is separated from the planning application boundary by Spring Road and sheep pasture and there are no hydrological linkages with the SSSI. Embedded mitigation for environmental legislative compliance during construction will ensure that there will be no significant fugitive dust emissions during topsoil stripping that could potentially smother vegetation within the SSSI although given distance to site this is negligible risk. It is therefore assessed that with embedded mitigation the effect is **Negligible (not significant)**.

7.6.3.1.7 Barn Hill Meadows SSSI

There will be no direct impacts on the SSSI, which is entirely avoided by the English Onshore Scheme. The following indirect effects may occur.

Effects on SSSI habitats via changes in water quality and hydrology of connecting watercourses

The planning application boundary is located approximately 340 m north of the nearest parcel of the Barn Hill Meadows SSSI, and therefore it is necessary to examine the potential for indirect effects on habitats during the construction phase. The nearest part of the planning application boundary to the SSSI comprises a proposed construction access route off the A63 Barnhill Lane. The two indirectly connecting watercourses are New Drain and Black Dyke which cross the A63 between the planning application boundary and the SSSI. The proposed temporary access route uses an existing farm track along the southern side of New Drain and crosses using existing culvert crossings which are not proposed to be widened. The cable route crosses New Drain and Black Dyke approximately 1 km north west (via hydrological links) from the SSSI using trenchless cable installation methods at both locations. Temporary haul roads crossings will be installed across New Drain and Black Dyke by means of a culvert within the 40 m working width.

As assessed in **Chapter 11: Hydrology and Land Drainage**, effects upon local surface water resources when construction temporary haul roads are mitigated through adoption of a project construction surface water management plan. This includes embedded measures to intercept run-off and ensure that any discharge from the installation of the cable and temporary haul road construction is controlled. These measures will be secured within the CEMP, along with pollution prevention measures to ensure water quality is maintained and water flow is not impeded by temporary culverts. It is therefore assessed that with embedded mitigation the potential effect upon the SSSI is **Negligible (not significant)**.

Dust Smothering

Embedded mitigation for environmental legislative compliance during construction will ensure that there will be no significant fugitive dust emissions during topsoil stripping that could potentially smother vegetation within the SSSI, the main parcel of which is located or 1 km from the working width. It is therefore assessed that the effect is **Negligible (not significant)**.

7.6.3.1.8 South Cliffe Common SSSI

There will be no direct impacts on the SSSI, which is entirely avoided by the English Onshore Scheme.

Effects on SSSI habitats via changes in water quality and hydrology of connecting watercourses

The planning application boundary is located approximately 1 km north of the SSSI, which is designated for heath, fen and rush pasture habitats which are likely to be highly dependent in the local water regime. Therefore, it is necessary to examine the potential for indirect effects on habitats during the construction phase. The cable route corridor is located immediately north on the far side of Beils Beck drain to the SSSI, and whilst the drainage network does extend between Beils Beck and localised drain feeding into South Cliffe Common SSSI this is not direct and would need to pass through several fields drains.

As assessed in **Chapter 11: Hydrology and Land Drainage**, run off from the construction of the cable route via open cut methods may capture pollution due to increased sedimentation, fuel spills, oils and lubricants. This would lead to smothering from fine sediment reducing dissolved oxygen, and sudden increases of nitrogen, ammonia or other chemicals which at sufficient concentration will result in reduced water quality within surface water dependant statutory designated sites. The impacts are predicted to be of local spatial extent, short term duration, intermittent occurrence and highly reversible. Embedded mitigation includes measures to intercept run-off and ensure that any discharge from the open cut construction is controlled in quality; these measures will be embedded within the CEMP as well as pollution prevention measures. Defined standard controls for the management of incidental run-off will be developed for the cable route, to minimise the potential release of sediments to the receiving environment. In addition, it is likely after a short-term pollution event, the levels would return to normal soon after. It is therefore assessed that with embedded mitigation the effect is **Negligible (not significant)**.

Dust Smothering

Embedded mitigation for environmental legislative compliance during construction will ensure that there will be no significant fugitive dust emissions during topsoil stripping that could potentially smother vegetation within the SSSI. It is therefore assessed that the effect is **Negligible (not significant)**.

7.6.3.1.9 Hudson's Way Local Nature Reserve (LNR)

The planning application boundary crosses the LNR site within Section 2. This LNR also includes two LWS sites; Etton to Gardham Disused Railway LWS and Granny's Attic LWS.

As the LNR is categorised as the same value (County) as the LWS and encompassed the same area within the planning application boundary, the assessment of effects upon designating features of the LNR are assessed in combination with these two LWSs below.

7.6.3.2 Non Statutory Designated Sites

The HVDC cable route avoids direct impacts on all non statutory designated LWS within 1km. For those which extend into the Application Boundary; Granny's Attic Railway LWS and Etton-Gardham Disused Railway LWS direct impacts are also avoided by the adoption of HDD installation methods as outlined below. Furthermore, access and haul routes have been designed to avoid direct impacts upon habitats within LWS boundaries.

7.6.3.2.1 Granny's Attic Railway LWS and Etton-Gardham Disused Railway LWS (including Hudson's Way LNR)

There will be no direct impacts on the LWSs, measures to ensure that there will be no encroachment of any construction activities into the LWS and LNR habitats will be adopted including demarcation of LWS/LNR boundaries by protective fencing and signage. This will include where the proposed haul road is proposed to cross the Etton-Gardham Disused Railway.

To allow engineering flexibility the planning application boundary has been widened at the Hudson Way crossing to allow for the most sensitive cable route options to be adopted across the LNR/LWS's. A commitment to avoidance of any direct impact upon the LNR and LWSs by the route adopted at detailed design stage is fully embedded into the mitigation commitments. The specific cable route option adopted at detailed design will be undertaken using HDD installation methods and the haul route to be located to the east of the cable route following the existing access route and avoiding direct loss/disturbance to

the LWS/LNR habitats. It is recognised that in this location the planning application boundary widens to the east for flexibility in the crossing, however given the same proposed installation and access approach is the same there is no significance difference in potential impacts upon these ecological receptors within this corridor.

Indirect effects upon LWS/LNR habitats – pollution / dust smothering

Potential indirect effects upon the LWSs/LNR habitat throughout the construction period would be managed through embedded mitigation to ensure that activities would not result in effects upon neighbouring retained and protected habitats. The LWS's/LNR combined habitat corridor is predominately elevated above the proposed HDD works. A buffer of at least 50 m to the south of the LWS will be maintained by default of the design to HDD drilling works. The LWS/LNR habitats are not those which are not ground or surface water dependant as they are chalk grassland and scrub and no watercourse linkages between the planning application boundary and the designated sites occur. Furthermore, the adoption of embedded mitigation measures throughout the construction phase will ensure that there are no risk of accidental pollution incidences and that environmental legislative compliance will be adhered to. The magnitude of the potential indirect effects upon the LNR/LWS habitats are predicted to be Negligible and the significance of **Negligible (not significant)**.

7.6.3.2.2 Spring Dale cLWS

There will be no direct impacts on the cLWS, which is entirely avoided by the English Onshore Scheme.

At its nearest point, the planning application boundary is approximately 20 m south east of the cLWS. Embedded mitigation for environmental legislative compliance will ensure that there will be no fugitive dust emissions during topsoil stripping that could potentially smother grassland or scrub habitats within the LWS. Similarly, embedded mitigation for environmental legislative compliance will ensure that there will be a negligible risk of pollution/ siltation to the LWS during construction. Working areas maintained a minimum of the 20 m buffer to the LWS will be delineated prior to any works activities commencing.

It is therefore assessed that the construction phase of the English Onshore Scheme will have no impacts on the habitats within the county designated site, and this is assessed as a **Negligible effect (not significant)**.

7.6.3.2.3 Kiplingcotes Road Earthworks LWS

There will be no direct impacts on the LWS, which is entirely avoided by the English Onshore Scheme.

At its nearest point, the application boundary is approximately 20 m east of the LWS. Embedded mitigation for environmental legislative compliance will ensure that there will be no fugitive dust emissions during topsoil stripping that could potentially smother grassland or scrub habitats within the LWS. Similarly, embedded mitigation for environmental legislative compliance will ensure that there will be a negligible risk of pollution/ siltation to the watercourse within the LWS during construction.

It is therefore assessed that the construction phase of the English Onshore Scheme will have no impacts on the habitats within the county designated site, and this is assessed as a **Negligible effect (not significant)**.

7.6.3.2.4 Etton Wold, West of Crossroads LWS

There will be no direct impacts on the LWS, which is entirely avoided by the English Onshore Scheme.

At its nearest point, the planning application boundary is approximately 50 m west of the nearest section of LWS designated grassland verge. Embedded mitigation for environmental legislative compliance will ensure that there will be no potential effects upon this LWS, furthermore construction access is to be made from the west from Market Weighton (via Spring Road) avoiding any direct disturbance to the grassland LWS.

It is therefore assessed that the construction phase of the English Onshore Scheme will have no impacts on the habitats within the county designated site, and this is assessed as a **Negligible (not significant)**.

7.6.3.2.5 North Howden Fishponds LWS

There will be no direct impacts on the LWS, which is entirely avoided by the English Onshore Scheme.

The only potential indirect hydrological linkage to the LWS from the planning application boundary is as a result of the cable route crossing a drainage ditch located immediately east of the B1228 Wood Lane and which links into the LWS. This drain may be crossed using open cut techniques by both the cable trench and the haul road. The drainage ditch is predominantly dry, with no evidence of holding water due to an absence of aquatic vegetation. The drain located approximately 300 m east of Wood Lane and forms part of the same drainage network is also predominantly dry. Furthermore, embedded mitigation measures at open cut crossing will be adopted to ensure there are no water quality effects by silt or pollution incidents nor there would be any discernible effects upon the local hydrology particularly given the lack of water. As such the potential for indirect effect upon North Howden Fishponds LWS habitats is **Negligible (not significant)**.

7.6.3.2.6 Yarmshaw Plantation LWS

There will be no direct impacts on the LWS, which is entirely avoided by the English Onshore Scheme.

There are no direct hydrological linkages between the planning application boundary and the LWS. The potential indirect hydrological linkages are discussed above for Barn Hill Meadows SSSI as these designations are overlapping spatially and potential effects the same as those discussed for the SSSI. The embedded mitigation measures will ensure that there are no potential indirect effects upon the LWS habitats from changes to water quality or hydrology to occur. It is therefore assessed that the effect is **Negligible (not significant)**.

7.6.4 Habitats

As summarised in **Table 7-10**, the majority of the underground DC cable route crosses arable farmland and permanent pastures that are of Site or lower ecological value. Furthermore, these habitats will be fully reinstated post-construction and have not been scoped into the ecological impact assessment on the basis that they are Site or lower value ecological features and therefore impacts would not be significant.

A summary of the habitats affected by each element of the English Onshore Scheme is provided in **Table 7-12** and has informed the assessment undertaken below.

Table 7-12: Summary of Habitats Impacted During Construction

| Construction Component | Route Section/ Location | Habitats Affected | Duration of Impact |
|-------------------------------------|---|--|--------------------|
| Landfall site construction compound | Section 1 Coastal landfall at Fraisthorpe/ east of Auburn Beck | Arable (1 Ha; 100m x 100m) | Temporary |
| HVDC cable route | Section 1 | Arable, improved grassland, poor semi-improved grassland, species-rich hedgerow, running water. | Temporary |
| | Section 2 | Arable, species-rich neutral grassland, improved grassland, poor semi-improved grassland, hedgerows, running water. | Temporary |
| | Section 3 | Arable, (semi-improved), broad-leaved plantation woodland, hedgerows, trees and watercourses. Priority habitat - grazing marsh grassland at Howden. | Temporary |
| | Section 4 | Arable, neutral grassland (semi-improved), hedgerows, trees and watercourses. | Temporary |
| Temporary Construction compounds | Section 1 Landfall | Arable (1 ha) | |
| | Section 1 west of A165 Fraisthorpe | Arable (2.65 ha) | Temporary |
| | Section 1 – Kelk lane Gransmoor | Arable (0.5 ha) | Temporary |

| Construction Component | Route Section/ Location | Habitats Affected | Duration of Impact |
|---|---|---|--------------------|
| | Section 1 – Wansford north-east of B1249 | Arable (1.25 ha) | Temporary |
| | Section 1 – Skerne Grange south-west of Driffield Road | Improved grassland 1.25 Ha | Temporary |
| | Section 1 – east of A164 Beverley Road, Hutton | Arable 1.2 ha (1 x 0.5 ha and 1 x 0.7 ha) | Temporary |
| | Section 2 – east of Middleton-on-the-Wolds | Arable (0.5 ha) | Temporary |
| | Section 2 -south of Beverley Road | Arable (1.25) | Temporary |
| | Section 2 north of Hudson/Wilberforce Way | Arable (0.5 ha) | Temporary |
| | Section 2 – Market Weighton west of A1034 | Arable (2.25 ha) | Temporary |
| | Section 3 – Cliffe Lane /Ingle Lodge | Arable (0.5 ha) | Temporary |
| | Section 3 – Tollingham south of Skiff lane | Arable (1.25 ha) | Temporary |
| | Section 3 - Bursea | Arable (1.25 ha) | Temporary |
| | Section 3 – west of A614 Spaldington | Arable (1.25 ha) | Temporary |
| | Section 3 east of A63 Newsholme | Commercial willow plantation (2.25 ha) | Temporary |
| | Section 4 – west of River Ouse and south of Redhouse lane | Arable (1.25 ha) | Temporary |
| | Section 4 Enabling compound – two parcels of land immediately north of converter and temporary access road. | Arable (2.5 ha) | Temporary |
| TOTAL <ul style="list-style-type: none"> • Arable 18.9 ha • Plantation woodland (young willow biomass crop) 2.25 ha • Improved Grassland 1.2 ha <p>These habitats are all of Low (Site or less) ecological value and will be subject to temporary loss for the period of the construction phase. No significant effects are predicted due to this temporary loss of these habitats.</p> | | | |
| Converter station | Buildings and infrastructure | Arable (5 ha) | Permanent |
| | Access road | Arable (0.03 ha). | Permanent |
| | Drainage (attenuation ponds) | Arable (0.8 ha) | Permanent |

7.6.4.1.1 Semi-natural Woodland and Trees (Local)

Less than 3% (17.5 ha of 628 ha) of the planning application boundary comprises woodland habitat, including both semi-natural and plantation. Of this less than 2.5 ha is semi-natural woodland. This is made of several very small areas (less than 0.5 ha) of semi-natural woodland which very slightly encroach/are present alongside the planning application boundary close to the extents of temporary construction compounds, alongside access routes of where temporary drainage works are proposed. The cable route crosses an area of young semi-natural woodland at Gransmoor Quarry/Drain. Other small areas are present in combination with field boundaries i.e., outgrown hedgerows/ dense mature scrub or small young/semi mature woodland alongside watercourses.

Construction areas will seek to avoid direct loss /impacts upon woodland and mature trees as much as possible at the very localised locations where it is present within the planning application boundary. Where this is not possible the working width will be kept to the minimum necessary to allow safe working

and safe access for plant and vehicles. The working width will be fenced to prevent encroachment onto adjacent areas of woodland. Areas of woodland will be replanted where possible within the planning application boundary (but not directly above the installed cable) with native tree species.

Embedded mitigation measures adopted during the detailed design stage will seek a commitment to the avoidance of mature trees where practicable. Commitments have been made to retain many of the mature trees located within the planning application boundary as detailed in **Chapter 18: Outline CEMP**.

Where removal of individual trees may be required, mature trees will be replaced on a 4 for 1 basis. Where young/semi mature trees (less than 75 mm diameter breast height) may need to be removed these will be replaced on a 1 for 1 basis, using like for like species. Tree planting will be undertaken allowing for restrictions such as planting density for commercial growing.

There is a potential effect of damaging retained trees from severance of roots, compaction of the soil, or exclusion of air and water to the soil during the construction phase.

Where trees are retained adjacent to the working area in particular the cable construction corridor and construction compounds, mitigation will be implemented to ensure that the trees and their root zones are not affected by the works. Where practical such trees will be protected by the means of a fence. If this is not practical, additional measures to mitigate effects may include bog matting and/or sand padding to distribute the weight of the machinery over the roots (where soil compaction may damage tree health). In addition, preliminary work will be carried out before construction to remove any overhanging branches likely to obstruct or be damaged by the works.

Therefore, the magnitude of the potential effects upon woodland and tree habitats following adoption of embedded mitigation is considered to be Minor with a resulting significance of **Minor adverse (not significant)**.

7.6.4.1.2 Species-rich Hedgerows (County)

Species rich hedgerows (approximately a total length of 5.4 km) are located within the planning application boundary, of which approximately 2.6 km is located specifically within the cable working width. Hedgerows will be retained and protected where these are located within the planning application boundary but not crossed by the cable installation corridor e.g. adjacent to drainage works, temporary compounds and where trenchless cable installation methods are to be adopted across field boundaries. Where open cut cable installation is proposed, new or widened accesses are required and/or the construction of the temporary haul road is required through hedgerow areas, this will result in the temporary loss and severance of species rich hedgerows, resulting in a **Moderate adverse (Significant)** impact to a resource of County value without mitigation.

The loss of some species rich hedgerows is unavoidable during construction owing to the presence and abundance of hedgerows entirely or partially located within the planning application boundary and which will be crossed with open cut methods by the cable. However, the alignment of the cable installation will seek to avoid and minimise removal of species rich hedgerows wherever possible. Furthermore, where hedgerows are located outside the main cable working width, i.e. adjacent to construction compounds, alongside existing access routes and adjacent to temporary drainage areas, these will be retained and protected. Also, embedded mitigation measures commit to ensure predicted hedgerow removed is fully addressed by replanting as soon as possible following completion of construction. Hedgerow planting will be undertaken to match with adjacent and surrounding field hedgerows in species composition, prioritising native species. It is acknowledged that hedgerow planting takes time to establish and reach the condition of the hedgerow removed. Therefore, the magnitude of the impact including the embedded mitigation is considered to be Minor with a resulting significance of **Minor adverse (not significant)**.

7.6.4.1.3 Standing Water (Local Value)

There are four areas of standing water present within the planning application boundary equating to a total area of less than 0.3 ha. These are as follows:

- Pond 30 located at Little Kelk (Section 1) where the cable route will be crossed using trenchless cable installation methods across Main Street (HDD_007, **Appendix 3A**). This pond will be entirely avoided by the working width and the haul road and the pond will therefore be retained;

- Section of Market Weighton Canal (disused) comprises of a standing water feature (Section 3). This area of standing water will be crossed using HDD installation (HDD_027, **Appendix 3A**) methods. The haul road will be installed by means of a culvert installed within the waterbody;
- Pond 122 Tollingham (Section 3) – waterbody located north of Skiff Lane retained and avoided; and
- Small waterbody Pond 182 (Section 3) at Spaldington Common within arable land outside of the working width, adjacent to an area proposed for drainage works only. This pond will therefore be retained.

None of these will be directly affected by the construction. However, there is potential for indirect effects on ponds from accidental spillages, silt laden run-off and dust.

Should pollution impacts be realised in these waterbodies, the habitat will decline in quality and would cease to function as a resource for breeding amphibians and for mammals and birds to utilise for drinking, in turn potentially having a knock-on impact on the local populations of certain fauna. Waterbodies are generally prevalent in the wider landscape, but each loss increases the value of surrounding waterbodies which in turn may be lost through other impacts. Without mitigation, the functional loss of these waterbodies would result in a **Minor adverse (not significant)** impact.

As assessed in **Chapter 11: Hydrology and Land Drainage**, effects upon local surface water resources when constructing temporary haul roads are mitigated through adoption of a project construction surface water management plan. This includes embedded measures to intercept run-off and ensure that any discharge from the installation of the cable and temporary haul road construction is controlled. These measures will be secured within the CEMP, along with pollution prevention measures to ensure water quality is maintained and water flow is not impeded by temporary culverts. With the full adoption of the embedded mitigation measures as outlined in the CEMP, the magnitude of the impact is considered to be **Negligible (not significant)**.

7.6.4.1.4 Running Water – Main rivers (County Value)

As detailed in **Chapter 3: Description of the English Onshore Scheme** and detailed in the Crossing Schedule (**Appendix 3A**), there is a commitment that all main rivers, including the River Ouse, River Hull, and Kelk Beck are to be crossed using HDD installation techniques, and as such severance impacts and disturbance of the benthic substrate are not predicted. However, there is potential for indirect effects on main rivers from accidental spillages, silt-laden run-off and dust, which without mitigation would cause degradation to the function of the habitat and downstream receptors and result in a **Moderate adverse (significant)** impact to a resource of County value.

Appropriate measures will be implemented to protect water quality from pollution sediment/silt run-off and dust during construction. These include measures to prevent sediment laden runoff entering watercourses as set out in the CEMP and to prevent accidents or bad practice causing water pollution. More detailed descriptions of mitigation regarding the protection of the surface water features can be found within **Chapter 11: Hydrology and Land Drainage**. With the full adoption of embedded mitigation measures as outlined, the magnitude of the impact is considered to be **Minor adverse (not significant)**.

7.6.4.1.5 Running Water – Dykes, becks and drains) – non designated (Local)

Appropriate measures will be implemented to protect water quality from pollution sediment/silt run-off and dust during construction. These include measures to prevent sediment laden runoff entering watercourses as set out in the CEMP and to prevent accidents or bad practice causing water pollution. More detailed descriptions of mitigation regarding the protection of the surface water features can be found within **Chapter 11: Hydrology and Land Drainage**.

As detailed in **Chapter 3: Description of the English Onshore Scheme** and detailed in the Crossing Schedule (**Appendix 3A**), at each watercourse crossing, the cable installation route will be selected to minimise the effect on the watercourse and adjacent vegetation where possible. The area of riparian habitat that will be temporarily affected will be restricted to an area no wider than the minimum required for safe working practice. The preconstruction bank and channel profiles will be restored on completion of the works and channel bed-substrates will be replaced to the same composition and topsoil reinstated to the banks.

The working width through the channel will be kept to the minimum required for safe working practice and will be clearly marked to prevent encroachment. The channel bed material will be removed prior to

the excavation of the trench, stored separately and replaced following the installation of the proposed pipeline to promote rapid colonisation of the area by aquatic invertebrates and aquatic plants. Where appropriate marginal vegetation of ecological value will be removed from the watercourse and stored upstream for use in reinstatement.

With the full adoption of the embedded mitigation measures as outlined, the magnitude of the impact is considered to be **Minor adverse (not significant)**.

7.6.5 Protected Species

7.6.5.1 Badger (Local)

In summary, badgers have been identified within and within proximity to the planning application boundary, including four setts within 30 m of potential construction working areas. These badger setts could be affected during construction of English Onshore Scheme and the following potential impacts could occur.

7.6.5.1.1 Temporary disturbance of badgers occupying a sett

With the adoption of the mitigation measures as outlined in Section 7.6.2, which will adopt buffers to known and setts identified by pre construction surveys this effect will be predominantly reduced and avoided. Minor residual effects cannot be ruled out however badgers are tolerant to a short term minor level of disturbance therefore overall the effect will not have a significant detrimental effect on the local badger population in the long term. Temporary impacts are therefore assessed as minor, giving rise to a **Minor adverse** impact on local populations (**not significant**).

7.6.5.1.2 Temporary severance of badger habitat

With the full adoption of embedded mitigation measures as outlined in Section 7.6.2, it is considered that the effect will be short term where it does occur due to presence of construction, predominantly relating to the partial severance of habitats due to the cable installation (although badger will be able to cross the construction areas with minimal effect. Therefore, the magnitude of the impact is assessed as negligible, giving rise to a **Negligible** effect on local populations (**not significant**).

7.6.5.1.3 Permanent damage to a badger sett

As outlined in Section 7.6.2, it is considered that the effect will be avoided entirely as badger setts will be avoided. Where direct effects on badger setts cannot be avoided due to changes at detailed design stage (or new badger setts being discovered at short notice to works being conducted) this potential effect will be fully mitigated by the adoption of embedded measures (as detailed in Section 7.6.2.1.8) to ensure the long term retention of the setts and only minor direct effect (following temporary closure of the sett) occur. This relates to the temporary displacement effects of badgers where temporary closure of setts under licence may need to be undertaken. Therefore, the magnitude of the impact is Minor, with a significance of **Negligible (not significant)**.

7.6.5.2 Bats (Roosting)

There are approximately 46 mature trees which have been assessed as having moderate or high bat roost potential located within the planning application boundary as shown on Figure 4 in **Appendix 7B**. The Outline CEMP (**Chapter 18**) includes a commitment to retain and protect trees with moderate or high bat roost potential. Therefore, there is no potential for direct impact on roosting bats to occur. However, the following indirect effects could occur.

7.6.5.2.1 Disturbance of bats whilst occupying a roost

Where identified mature trees with bat roost potential are to be retained within the planning application boundary, buffer zones will be adopted (the specific distance of which will be agreed on site through consultation with the Environmental Advisor/ Ecological Clerk of Works) around the tree. This will seek to ensure that the tree and root zone is not affected during the works and to minimise disturbance to bats which may be roosting within it. The tree will be sensitively demarcated with a protective fence to prevent encroachment by vehicles, machinery or contractor personnel and the fence will be retained throughout construction.

Programming of works will avoid night time working activities adjacent to potential bat roost trees. Lighting, where required on site, and it will be directed away from potential bat roost trees are not lit or disturbed during the hours of darkness. These measures will be secured by the construction hours as will be agreed in the CEMP.

Therefore, the magnitude of this impact is Minor, with a significance of **Minor adverse (not significant)**.

7.6.5.2.2 Direct effect on bats (killing/injury) and loss of bat roosts

Where potential bat roost trees are situated in a location where trees with potential to support roosting bats may need to be pruned or lopped during construction potential direct impacts upon bats and their roost may occur.

Trees with Moderate or High bat roost potential (as defined in **Appendix 7B**) specifically located within the planning application boundary and which cannot be entirely avoided may require minor pruning or lopping due to their proximity to the construction working areas will be subject to the following measures:

- Pre construction/pre-removal/pruning bat survey (May – September within year prior to first construction year) of each tree to be undertaken in accordance with current survey guidelines to re-affirm species and type of roost present as well as exact location of roost site;
- Subject to the outcome of the pre-construction surveys the requirement for a bat licence will be determined and a licence application and method statement prepared;
- Replacement or alternative roost sites will be provided within the planning application boundary close to the roost tree to be removed but outside of the working area in the form of bat boxes. These will be installed prior to exclusion and removal of the known roost to act as receptor locations for excluded bats;
- Exclusion measures to be undertaken by licensed ecologist in accordance with current best practice licence approach. during appropriate times of the year (generally must be undertaken within bat active period between May and end September subject to weather conditions) where the roost site could not be entirely avoided;
- Soft/section felling /pruning to be undertaken under the supervision of a licensed bat worker; and
- Where required, additional replacement bat boxes would be placed on adjacent suitable trees within proximity to the planning application boundary where required i.e. as part of licensed bat works or where temporary or permanent exclusions may be required.

Therefore, the magnitude of this impact is Minor, with a significance of **Minor adverse (not significant)**.

7.6.5.2.3 Loss of potential roosting features

During detailed design the cable installation working width will be refined and where possible trees that have been identified as having potential to support roosting bats; in particular the 46 Moderate and High potential trees (as shown on Figure 4 of **Appendix 7B**), will be avoided.

Where removal of any tree with potential to support roosting bats (including those with Low, Moderate and High potential as shown on Figure 4 of Appendix 7B) cannot be avoided by the cable installation working width and need to be removed, preconstruction assessments and/or dusk/dawn surveys (or supervised soft felling/pruning) will be carried out to re-assess the status of roosting bats. The contractor will be responsible for determining which specific trees cannot be avoided and will need to be removed in order to determine the scope of pre-construction bat assessments/surveys.

These pre construction bat surveys would be undertaken in the year prior to construction in order to allow for timescales for removal under licence, were a bat roost site to be identified. Where a roost site is identified, measures in principle i.e. under Natural England licence will then be followed.

As a precautionary approach any felling or pruning work on Moderate and High potential bat roost trees will be carried out under supervision of a licensed bat worker in accordance with best practice to avoid harming bats (Bat Conservation Trust Guidance Ref 7-29). As bat roosts in trees can be highly transient, to avoid the main breeding and hibernation roosting periods best practice will be applied and these trees will be removed within the least sensitive roosting periods; either the period September to end October or March/April. Subject to the findings of the pre-construction assessment and survey, trees which do not have any potential for hibernating bats may also be removed under supervision of a licensed bat worker within the interim winter months; November to end February. If bats are discovered at any times during works, a licensed bat worker is therefore present on site to be able to handle bats. Felling/pruning work on the tree will be stopped and advice sought from Natural England.

Where any Low risk potential trees (as defined by the preconstruction assessments/surveys), need to be removed these would be felled using reasonable avoidance measures in accordance with Bat Conservation Trust Guidance (Ref 7-29).

Therefore, the magnitude of this impact is Minor, with a significance of Negligible (not significant).

7.6.5.3 Bats (Foraging/Commuting)

In most areas of works the farmland habitat provides limited foraging opportunities and as summarised in **Table 7-11** low bat activity of common species was recorded at the proposed converter station. The temporary and permanent works would not lead to any potentially significant effect on foraging opportunities for bats as outlined below.

7.6.5.3.1 Temporary Displacement from Habitats within Cable Routes

The majority of the habitats within the planning application boundary offer limited opportunities for foraging and commuting bats, being dominated by arable fields and grazed pasture bound by fragmented and species-poor hedgerows and just by default of their extent within the wider landscape. The installation of the cable route and temporary construction laydown/ compounds will only result in temporary disturbance of habitats. Whilst it is recognised the installation of the cable will require sections of to a maximum of 40m of hedgerow per crossing to be removed during the construction period these short sections of severance, most species of bat likely to be present would be able to tolerate these habitat 'gaps' foraging and commuting across the planning application boundary. No additional significant construction phase lighting will be installed along the cable trench corridor except within compounds and where night -time works may be required at HDD locations. These habitats will be fully reinstated post-construction within around two years. Any localised disruption to foraging bats would therefore not reasonably affect populations at anything other than the Local value. It is assessed that temporary displacement impacts on foraging bats would be **Negligible (not significant)**.

7.6.5.4 Otter

Otter has been recorded as being present on at least five main watercourses crossed by the planning application boundary. The five watercourses where the presence of otter has been confirmed will be crossed using either open cut techniques or will be crossed by a temporary haul road (except the River Ouse which will be entirely crossed using trenchless installation methods). As otters have a large home range, they could potentially use other smaller watercourses present within the planning application boundary to navigate their territory where activity has not specifically been recorded (or surveys were not possible). Therefore, the following potential effects could occur.

7.6.5.4.1 Temporary disturbance of otter

As otter are mainly nocturnal, mitigation measures will focus on restriction of night time working in proximity to known otter habitat, to avoid disturbance to otter moving throughout their territory and the maintenance of barrier free movement. Where night time working is required at river crossings where HDD installation techniques are used, the works will be positioned as far away from watercourses as is practical to do so. The working area for the HDD installation crossing methods will be located more than 7 m from the river bank in areas of known otter habitat.

Lighting, where required on site, will be directed away from known otter habitats. A screen to provide a visual barrier between the works and the river will be placed along the riverward side of the working area.

Site compounds and storage or waste storage facilities will be located away from otter habitat and night working would be avoided where reasonably practicable in areas where otters are active (including at dawn and dusk). Whilst the mitigation measures outlined seek to substantially reduce the disturbance to otter during construction, effects of increased human and vehicular/machinery activity cannot be entirely eliminated. Otter are generally tolerant to a moderate level of activity; furthermore, the effects will be short term and with high level of certainty is unlikely to affect the local population of otter in the long term. The magnitude of this impact is considered to be Minor with a significance of **Minor adverse (not significant)**.

7.6.5.4.2 Direct effects on otter holts/couch sites

At watercourse crossings where presence of otter has been confirmed or potential to support otter has been identified (**Appendix 7C**) pre-construction otter surveys will be undertaken to inform detailed design to avoid habitat suitable to support otter holt sites. This will be undertaken to re-affirm the absence of any otter holt or potential holt sites located within the vicinity of the works.

Where practicable mature trees located on the banks of watercourses will be avoided by careful routeing of the cable and haul roads and the area of riparian habitat that will be temporarily disturbed during

construction will be kept to a minimum. The sections to be affected will be fenced to delineate the working area and to prevent damage to the surrounding banks. Within the context of the survey results, embedded mitigation and preconstruction surveys the magnitude of direct impacts upon otter holts is considered to be Minor with a significance of **Minor adverse (not significant)**.

7.6.5.4.3 Temporary loss of riparian otter habitat and effects upon otter food source

To minimise the effect of the loss of riparian otter habitat, the working width at open cut watercourse crossings which are confirmed to support otter will be kept to the minimum required for safe working practice and will be clearly marked to prevent encroachment.

On completion of the works, the bank side habitat would be re-instated. Areas of grassland will be reseeded with an appropriate grass mix, whilst the marginal zone will be left to colonise naturally.

For HDD installation crossings construction access is required such as, Kelk Beck, the area of bank habitat disturbed by the works will be kept to the minimum practicable for safe working. Once works are complete the construction access will be removed and the habitat will be reinstated.

Throughout construction and operation, adequate pollution prevention measures will be put in place as detailed in Section 7.6.2. These measures are outlined in the Outline CEMP (**Chapter 18**) and as such will be secured through planning commitments. Measures will be implemented with reference to prevention pollution measures (CIRIA) which minimise effects on fish; the otters' main food supply.

The magnitude of these impacts with the above measures adopted is considered to be Minor with a resulting significance of **Minor adverse (not significant)**.

7.6.5.5 Water Vole

Several watercourses which support water vole are partially or entirely present within the planning application boundary. The cable installation corridor will directly cross over 90 watercourses. Of these approximately 30 have been confirmed to support, or suitable to support water vole (with a further approximately 40 not able to be assessed/surveyed and therefore considered to support the species for the purposes of this assessment). Where HDD methods will occur as detailed in the Crossing Schedule (**Appendix 3A**) the following indirect impacts could occur:

- Temporary disturbance of water vole habitat during construction in adjacent areas; and
- Temporary disturbance of water vole whilst occupying a burrow.

Where open cut crossings are proposed (or HDD crossing but required a haul road across watercourses) there will be potential effects upon water vole habitat as a result of the installation of the cable and/or the construction of a temporary haul road across the watercourse/drain using means of a culvert or a temporary span bridge. Through embedded design measures and those included in the **Chapter 18: Outline CEMP**, measures to limit the width of the open cut crossings to a maximum of 30 m (comprising of the width for the temporary haul road and the cable trench) are secured. A maximum working width of 10 m would only be required where the cable installation will be undertaken by HDD installation techniques.

Therefore overall for the two types of crossings, the following potential effects upon water vole (and their habitats) could occur:

- Direct killing and injury of water vole and loss of water vole burrows;
- Temporary loss of bank side and marginal/aquatic habitat.

In the absence of project specific mitigation these potential impacts upon water vole and water vole habitats would be considered to be Moderate, giving rise to a significance of **Moderate adverse (Significant)** effect upon this species receptor of County value. As such project specific mitigation is proposed as detailed in Section 7.7.1.6.

7.6.5.6 Reptiles

Based upon the findings of the desk study and surveys conducted to support this EclA there is no evidence to indicate that anything more than small isolated populations of common lizard and grass snake may be present in some peripheral areas of planning application boundary. Furthermore the majority of the habitat is generally poor quality for reptiles being dominated by arable, and limited

connectivity or extent of suitable reptile habitat other than field boundaries crossed by the planning application boundary. Any such populations would be assigned no more than Local value.

Temporary impacts on these small areas of low potential reptile habitats would displace small numbers of reptiles, should they be present, but given the short timescale for the completion of the construction phase (most areas will be reinstated within two years of the commencement of construction) any such displacement would be short-term. Impacts would also be minor in extent when compared to the amount of unaffected similar habitat present outside the planning application boundary. Temporary impacts on reptiles are therefore assessed as Negligible, giving rise to a **Negligible** impact on local populations, if present (**not significant**). No project specific mitigation is deemed necessary.

7.6.5.7 Brown Hare

Brown hare have been identified transiently across all sections of the planning application boundary and as such the following potential effects may therefore occur from the construction of the English Onshore Scheme.

7.6.5.7.1 Temporary loss of brown hare habitat

The key areas within the planning application for this species will be large open arable habitats interspersed with field margins and boundaries (most dominant in Section 1 and 2). Whilst there will be temporary loss of arable and hedgerow habitat loss will be relatively localised to the construction working width and construction compounds. Furthermore, there is an abundance of suitable habitat present in the wider landscape to support this species and therefore the temporary loss of habitats within the planning application is not likely to result in more than negligible effects upon the ability of brown hare to breeding and foraging. Habitats will be reinstated back to former land use post construction. The magnitude of the impact is therefore assessed as Negligible with a significance of **Negligible (not significant)**. No project specific mitigation is deemed necessary.

7.6.5.7.2 Disturbance to brown hare during construction

Brown hare are not protected from disturbance and are generally able to tolerate a level of human and vehicular activity. Whilst it is acknowledged that the level of activity during the construction period will be greater than the current general level of human and vehicular activity, in the long term this is unlikely to have significant effect on the local population of brown hare. There will be no severance of habitats by the cable trench as there will be crossing points retained where HDD installation sections are present, furthermore (similarly for badger) a means of escape for mammals will be maintained. The magnitude of the impact is assessed as Negligible with a significance of **Negligible (not significant)**. No project specific mitigation is deemed necessary.

7.6.5.8 Fish

A number of non designated watercourses are present along the planning application boundary and are known to support populations of important fish species. Those which hold designation are assessed separately. A number of interconnecting drainage networks including those to the River Hull catchment will be crossed using both open cut and HDD installation crossing methods. A commitment is made within the embedded mitigation to maintain water flow where watercourse are crossed by open cut methods, either for the cable installation or by the haul road or both. As such the following potential indirect impacts on fish could occur.

7.6.5.8.1 Reduction in water quality from accidental spillages, silt laden run-off and dust

This potential indirect effect upon fish will be mitigated through the incorporation of mitigation measures during construction as detailed below. These measures will mitigate the effects upon water resources generally, but will also seek to avoid and minimise the potential indirect effects upon fish which are known to be present within a number of main watercourses.

Construction work will be undertaken in accordance with appropriate method statements and consents / licences obtained from environmental regulators. Good practice has been adopted in accordance with CIRIA and EA Pollution Prevention Guidance as detailed in **Chapter 11: Hydrology and Land Drainage**. These include measures to ensure the avoidance of siltation, run off, pollution incidents, effects to water flow or quality during construction and also as a result of drainage works within the FDA's. With the adoption of these embedded mitigation measures the significance of the potential effect is therefore **Negligible** and not significant.

7.6.5.9 Wintering Birds

7.6.5.9.1 Potential Impacts on Red List and/or S41 listed Farmland Wintering Bird Assemblage

Temporary loss of foraging and roosting habitat

Construction of the proposed cable route would result in the temporary loss of arable, hedgerow and grassland habitat that is utilised by wintering birds for foraging, roosting and resting. The minor habitat losses would not reasonably be expected to adversely affect populations of non breeding birds considering the ubiquity of similar farmland habitat within the surrounding landscape which would be available for any birds which may be displaced due to the temporary loss of habitat. With the adoption of embedded mitigation measures to restrict the extent of the working areas and reinstate the habitat temporarily affected by the construction as soon as reasonably possible. The magnitude of the potential effect is assessed as minor negative for a receptor of regional value. The significance of the potential effect is therefore **Minor adverse** and **not significant**.

Noise and Visual Disturbance

Temporary disturbance to wintering birds is likely during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect wintering populations occurring within adjacent habitats. The disturbance has the potential to cause displacement of wintering birds, however it is expected that any negative effects relating to displacement will be minor considering the relatively small areas of farmland habitat potentially affected in comparison to the availability of similar habitat which is ubiquitous in the wider locality. In terms of construction works affecting open farmland habitats undertaken during the wintering bird season, the magnitude of the potential effect in terms of the temporary disturbance is assessed as minor for a receptor of regional value. The significance of the potential impact is therefore **Minor adverse** and **not significant**.

7.6.5.10 Breeding Birds

7.6.5.10.1 Potential Impacts on Breeding Bird Assemblage

Potential for destruction/damage of nests

There is a commitment as part of the embedded mitigation to conduct vegetation clearance which may be required during the construction phase outside the bird breeding season to entirely avoid direct loss or damage to birds' nests (and their eggs) in accordance with The Wildlife and Countryside Act 1981. This may require vegetation clearance to be removed in advance of the construction activities commencing. In the event that this is not possible then a pre-clearance survey would be conducted by an ECoW to assess the presence of nests before clearance is undertaken. Where works are undertaken within arable habitats or other habitats which may be used by ground nesting birds measures to reduce the suitability of the habitats to deter commencement of ground nesting within the planning application boundary will be adopted wherever possible. Construction compounds will be established wherever possible outside of the nesting birds season or following the completion of a pre-construction ecological survey. The magnitude of the potential effect for breeding birds is assessed as moderate, therefore, with a County value, the significance of the impact is assessed as **Minor adverse (not significant)**.

Temporary Displacement from Habitats within Cable Route

The breeding bird survey and desk study identified a small number of Red List and/ or S41 breeding birds within the Survey Area, which may be present on arable farmland temporarily impacted by the HVDC cable route. These species were grey partridge, lapwing, cuckoo, skylark, starling, song thrush, mistle thrush, house sparrow, tree sparrow, dunnoek, yellow wagtail, linnets, yellowhammer, reed bunting and corn bunting. Similarly, a small number of Red List and S41 woodland nesting species were recorded in the semi-mature woodland and scrub across the route and within the proposed converter site, a small amount of which will be temporarily impacted for construction of the converter compound and access track. This included some of the species identified as farmland nesting species above, as well as notable species such as willow tit, marsh tit, song thrush, mistle thrush, bullfinch and lesser redpoll.

A small number of breeding individuals would likely be displaced from nesting habitat for the duration of the construction period (up to five breeding seasons, but in most case more likely to be two or three years maximum), but all habitats disturbed during works will be fully re-instated following completion. Given the temporary nature of the disturbance, this would not be expected to have a significant effect on the farmland breeding bird assemblage in the long term. Similarly, the removal of small areas of scrub and woodland within the cable route would not reasonably be expected to result in significant displacement of breeding birds. The impact is therefore assessed as minor, resulting in a **Minor adverse** effect on the local breeding bird assemblage (**not significant**).

Temporary Habitat Loss

Construction of the proposed cable route would result in the temporary loss of arable, hedgerow and grassland habitat that is utilised by breeding birds for nesting and foraging. Therefore, habitat loss due to construction is likely to be a short-term impact and, with a regional value, the magnitude of the potential impact is assessed as **minor adverse** and **not significant**.

Noise and Visual Disturbance During Construction

If works were to take place during the breeding season, temporary disturbance to breeding birds is likely during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect breeding populations occurring within adjacent habitats. Increases in ambient noise levels are likely to occur within and near breeding bird territories in habitats immediately adjacent to the construction works. Therefore, there is the potential for effects relating to the audibility of territorial song and hence possible adverse effects on the ability of birds to hold territory and breed successfully. However, this is considered to be temporary and a short-term impact given the works involved, with relatively low noise levels produced during the construction works. The magnitude of the potential effect without mitigation is assessed as minor negative for a receptor of county value. The significance of the predicted temporary impact is therefore **Minor adverse** and **not significant**.

Permanent Loss of Ground Nesting Habitat at Converter Station

The arable habitat within the converter construction footprint is approximately 5 ha in extent and was found to support small numbers of ground nesting skylark, as well as a small number of other farmland species around the periphery including meadow pipit. Skylark is S41 and Red List species, but the small area of habitat loss and displacement of a small number of breeding pairs is unlikely to affect populations at anything other than a local level. This impact is therefore assessed as a minor, resulting in a **Minor adverse (not significant)**.

7.6.5.10.2 Potential Impacts on Woodland Breeding Bird Assemblages

Noise and Visual Disturbance

If works were to take place during the breeding season, temporary disturbance to breeding birds is likely during the construction phase due to noise, artificial light, movement of heavy plant and construction activities such as site clearance and digging. This disturbance is likely to occur in the immediate footprint of the construction works and could also adversely affect breeding populations occurring within adjacent habitats. Increases in ambient noise levels are likely to occur within and near breeding bird territories in habitats immediately adjacent to the construction works. Therefore, there is the potential for effects relating to the audibility of territorial song and hence possible adverse effects on the ability of birds to hold territory and breed successfully. However, this is considered to be temporary and short-term impact given the works involved, with relatively low noise levels produced during the construction works. The magnitude of the potential effect with the adoption of embedded mitigation is assessed as minor negative for a receptor of regional value. The significance of the predicted temporary impact is therefore **Minor adverse (not significant)**.

7.6.6 Section 1 – Landfall to Bainton

There are no additional potential impacts within this Section beyond those previously discussed within sections 7.6.3 to 7.6.6 above.

7.6.7 Section 2 – Bainton to Market Weighton

There are no additional potential impacts within this Section beyond those previously discussed within sections 7.6.3 to 7.6.6 above.

7.6.8 Section 3 – Market Weighton to River Ouse

7.6.8.1 Priority Habitat – Coastal and floodplain grazing marsh

Approximately 3.1 ha of grassland which has been specifically identified on the Priority Habitats Inventory as coastal and floodplain grazing marsh is located within the planning application boundary east and west of Station Road at North Howden. The construction of the cable will therefore result in up to 3.1 ha of temporary loss of this habitat (of this approximately 1.8 ha is located within the 40 m cable working width). An area of an additional approximately 42 ha is present at this location outside the planning application boundary. This type of marsh grassland habitat relies on a maintenance of hydrology and local drainage network to allow periodic inundation and standing water to occur, in turn resulting in the characteristics of this habitat type. The potential impacts therefore include potential for changes in local hydrology from the construction activities. As outlined in **Chapter 11: Hydrology and Land Drainage** measures to ensure the maintenance of the local hydrology regime (water quality and quantity) will be adopted throughout construction. The adoption of embedded mitigation whereby habitat will be entirely reinstated post construction ensuring that topsoil which is removed from this area (e.g. within the cable trench) is reinstated directly back to its original location. Whilst it is acknowledged re-establishment of the habitat will not be immediate, this is not considered to have a significant effect upon the presence of this type of habitat present locally (and outside the planning application boundary) such that the integrity of the area of priority habitat would remain and re-establish in the medium term.

Overall, with the adoption of embedded mitigation the magnitude of the potential effect temporary loss of a small area of this priority habitat of Local value is not considered likely to have more than **Negligible** impact (**not significant**). No project specific mitigation is deemed necessary.

7.6.9 Section 4 – River Ouse – Drax Substation

There are no additional potential impacts upon valued ecological receptors (i.e. those valued as Local or above importance) within this Section beyond those previously discussed within sections 7.6.3 to 7.6.6 above.

7.6.10 Assessment of Potential Impacts: Operational Phase

The following potential source-receptor pathways for the operational phase of the English Onshore Scheme have been scoped out of the impact assessment:

- Direct or indirect impacts on habitats and qualifying features within the River Derwent SAC/ SSSI, Lower Derwent Valley SAC and Humber Estuary SAC – there are no pathways by which operation of the English Onshore Scheme could affect these designations because there are no above-ground structures or operational activities within the zone of influence of the designated site;
- Direct or indirect impacts on habitats and qualifying breeding and non-breeding birds of the Humber Estuary SPA/ Ramsar – there are no pathways by which operation of the English Onshore Scheme could affect the SPA/ Ramsar because there are no above-ground structures within the zone of influence of the designated site.

No potentially significant operational impacts are predicted. Where cable repairs or maintenance is required good practice will be followed with appropriate surveys undertaken in advance relative to the location and extent of the works necessary.

7.6.10.1 Section 4 – River Ouse to Drax Substation (Converter Station)

Operational effects are only considered relative to the proposed converter station. The impacts assessed for the operational phase are potential impacts of surface water drainage on localised watercourses and habitats and potential for lighting at the converter to have an adverse impact on bat activity in the vicinity. The assessment found no potentially significant effects, as shown in the sections below.

7.6.10.1.1 Surface Water Impacts

Surface runoff from the proposed converter station may contain a combination of fine sediments and toxic contaminants (e.g. oils and fuels from spillages and leaks), with the potential to affect both fauna and flora in European sites. Back Lane Drain is the only waterbody potentially receiving discharge from the site, which has been identified in **Chapter 11: Hydrology and Land Drainage** of the ES as having 'medium sensitivity' to water pollution. The hardstanding on which the proposed converter station is situated will be constructed will be a maximum of 8.5 ha in size, and thus the volume of surface runoff is likely to be limited. Furthermore, it is noted that an attenuation pond will be located immediately east of the proposed converter station, which will reduce surface flow to greenfield runoff rates. The extended residence time of water in the pond will allow for natural attenuation processes to minimise the volume of pollutants that reach surface waterbodies (e.g. through the settling of sediment to the base of the pond). Such mitigation measures are incorporated in the English Onshore Scheme to conform to legal requirements, which render it illegal to pollute the water environment. It is therefore assessed that operation impacts on local watercourse (and associated riparian and aquatic fauna) will be **Negligible (not significant)**.

7.6.10.1.2 Bats (Foraging/Commuting)

Permanent Loss of Habitat at Converter Station

Field surveys recorded low numbers of common species of bats foraging in habitats directly lost within the footprint of the converter station, with the focus of the limited bat activity being along the woodland edge to the north and hedgerow of Wren Hall Lane to the east. Given the low numbers of bats recorded, and the relatively low value of the arable habitat within the converter station footprint for foraging bats, permanent habitats losses would not reasonably adversely affect local populations of foraging bats such that they would no longer be able to forage and disperse through the wider landscape. There would be no fragmentation or isolation of habitats used by foraging/ commuting bats, as comparable habitats would be available in the wider local area post-construction. It is therefore assessed that the operation of the converter station and associated minor habitat losses would give rise to a **Negligible** impact on local populations of bats (**not significant**).

Lighting Disturbance from Converter

The substation is bordered by a small block of woodland to the north and mature field boundaries to the east and south of Wren Hall Lane which includes mature trees and links to potential foraging habitats of the woodland and lake to the south. Only very localised activity and small numbers of foraging and commuting bats have been recorded using these habitat features within limited or no activity within the central arable field within which the converter will be located. As the converter station will be lit, its operation therefore has the potential to result in disturbance to bats should they be foraging in habitats surrounding them, as these habitats are potentially within the zone of influence of 'flood lighting' impacts for bats. However, the converter station site is currently subject to a moderate level of local lighting effects from light spill of Drax power station and adjacent road lighting of New Road to the west of the converter station site.

Operational lighting will be limited in extent and will be at a low level around walkways and access route areas to the west of the converter for health and safety reasons. Field boundaries to the south and east of the converter station will not be subject to additional lighting beyond current levels. However, taking into account some light spillage around the immediate vicinity of the converter boundary and access road, significant exclusion of foraging or commuting bats by lighting disturbance is considered unlikely; the converter station footprint is relatively small and will not result in any fragmentation or isolation of habitats which may be used by bats. Even if foraging/ commuting bats chose to avoid this area during the operational phase, there is a large amount of undisturbed habitat in the wider local area to which the bats have access for foraging. Therefore, should there be light disturbance effects in the immediate zone of influence around the converter, any disruption to foraging bats would not be expected to result in significant adverse effects on local bat populations or their local conservation status. It is therefore assessed that this impact is minor, resulting in a **Minor adverse** impact on foraging and commuting bats (**not significant**).

7.6.11 Assessment of Potential Impacts: Decommissioning Phase

The scale and nature of activities undertaken during decommissioning would be similar to those described previously for construction, and they would be temporary during the period of

decommissioning activities on site. Following the removal of the structures and the reinstatement of the land there would be no further potential effects on ecological resources. The potential effects from decommissioning should therefore be regarded as the same as construction as described in greater detail above.

7.7 Project Specific Mitigation

7.7.1 Construction Phase Mitigation

In addition to the standard mitigation measures that will be employed during construction (section 7.6.2), a number of project-specific measures have been identified below and incorporated into the Outline CEMP (**Chapter 18**).

7.7.1.1 River Hull Headwaters SSSI

Specific mitigation measures for the SSSI include the following (in addition to the general measures set out in section 7.6 above):

- Preconstruction ecological surveys will be undertaken in advance of any works being undertaken to re-affirm the status of the site and construction working areas (at the detailed design stage) and inform the details of the EA consent application;
- During the construction of the single span temporary access bridge across the Kelk Beck a buffer zone of a minimum of 2 m will be retained to avoid direct effects upon bank side habitat and the SSSI designated river channel habitats;
- Working areas will be fenced to prevent encroachment onto adjacent habitat;
- Bank top habitats will be reinstated following construction which will be set out as part of the EA consent application and Scheme of Ecological Mitigation and Reinstatement; and
- Necessary consents will be obtained from the Environment Agency and works will be carried out in accordance with method statements and conditions applied to those consents.

7.7.1.1.1 Disturbance of faunal and breeding bird species associated with the SSSI

The working area for the HDD crossing at the River Hull Headwaters SSSI at Wansford will ensure that there is at least a 15 m buffer zone retained (to the river bank therefore a stand off from the boundary of the SSSI boundary will be adopted throughout the construction phase (excluding the temporary construction access at Kelk Beck). Working areas will be fenced to prevent encroachment by vehicles, machinery and contractor personnel onto adjacent habitat.

To reduce the effect of construction noise and human disturbance on breeding birds, site clearance and construction activities will begin before the breeding bird season (typically March-August for most bird species) commences. This will avoid contravention of the Wildlife and Countryside Act 1981 (as amended) by preventing disturbance to any established nests (Schedule 1 species such as barn owl, red kite or quail). It is assumed that any ground nesting species which establish territories and nests adjacent to the works after the onset of the construction phase will be tolerant of construction activities and human presence, however the working areas set up at the onset of construction should be strictly adhered to in order to prevent additional disturbance to breeding birds.

Any works that occur during the breeding season will comply with the Wildlife and Countryside Act 1981 (as amended). An Environmental Advisor/Ecological Clerk of Works (ECoW) will be appointed to monitor construction operations during the breeding bird season. If Schedule 1 species are found breeding within the working area, works will stop immediately and Natural England advised. An assessment will then be undertaken to determine if the continuation of works warrants the requirement for a Schedule 1 disturbance licence.

7.7.1.1.2 Pollution of the watercourse

During construction, a CEMP will be implemented which will include pollution control measures as detailed in **Chapter 11: Hydrology and Land Drainage** with reference to appropriate CIRIA construction guidance where relevant. These measures alongside those included in the CEMP which commits the contractor to the requirements for the appropriate notice and consent to be gained for works within a watercourse. Whilst the Environment Agency's Pollution Prevention Guidelines for Works

and maintenance in or near water (PPG5) was formally withdrawn in 2014, reference to this guidance is made as it remains a useful source of good practice guidance for the design and mitigation of works within and near watercourses. These measures combined will be adopted in order to avoid and minimise adverse effects on the water quality of aquatic habitats including those minor watercourses and drains which may link to the River Hull catchment and SSSI. Measures to prevent sediment laden runoff entering watercourses will also be undertaken to prevent water pollution.

7.7.1.2 Hudson Way LNR, Granny Attic Railways LWS and Etton-Gardham Disused Railway LWS (incorporating Hudson's Way LNR)

Specific mitigation measures for the LNR/LWS include the following (in addition to the general measures set out in section 7.6 above):

- Separate storage of topsoil and subsoil from other areas of construction excavations (not within the boundary of the LWS), so the seedbank specific to the LWS is retained; and
- Fencing of cable working width and haul road to ensure no impacts on habitats outside the construction area.

7.7.1.3 Bats (roosting)

It is assumed for the purposes of this assessment that mature trees including those with bat roost potential as identified in **Appendix 7B** and located within the planning application boundary will be avoided and retained. However, where mature trees with bat roost potential are subsequently identified as requiring removal or significant pruning the following measures will be adopted at the pre-construction phase:

- Completion of a pre-construction bat survey (May – September within year prior to first construction year) of each tree within bat roost potential which requires removal/pruning to be undertaken in accordance with current survey guidelines to re-affirm species and type of roost present as well as exact location of roost site;
- Subject to the outcome of the pre-construction surveys the requirement for a bat licence will be determined and a licence application and method statement prepared;
- Replacement or alternative roost sites will be provided within the planning application boundary close to the roost tree to be removed but outside of the working area in the form of bat boxes. These will be installed prior to exclusion and removal of the known roost to act as receptor locations for excluded bats;
- Exclusion measures to be undertaken by licensed ecologist in accordance with licence method statement during appropriate times of the year (generally must be undertaken within bat active period between May and end September subject to weather conditions) where the roost site could not be entirely avoided;
- Only once licensed exclusion has been undertaken in accordance with licence conditions, would trees be pruned/lopped. This would be undertaken under the supervision of a licensed bat worker; and
- Where required, additional replacement Bat roost boxes would be placed on adjacent suitable trees within the planning application boundary where required i.e. as part of licensed bat works or where temporary or permanent exclusions may be required.

Low bat roost potential trees which may require removal or pruning should be subject to soft-felling methods under an ecological watching brief or felling under Natural England EPSM licence (where bat roosts are confirmed).

Where mature trees require removal, a detailed log will be kept by the contractors on the decision-making process (including the reason for felling, the alternatives considered and why avoidance was not possible), as well as the arboricultural condition of the tree(s) and confirmation of the status in terms of bat roost potential (and where bat roost potential was identified, the outcome of any further surveys or inspections for bats).

7.7.1.4 Bats (foraging/commuting)

Site clearance and construction, particularly the removal of hedgerows could cause temporary disturbance of bat flight lines and reduce the amount of feeding habitat in the short term, until replacement planting has matured. This would be mitigated for by minimising the area of hedgerow removed, and the prompt reinstatement of hedgerows in the planting season following construction. All trees 'at risk' of removal will be surveyed in accordance with measures outlined in Section 7.6.6.2 by a bat specialist.

7.7.1.5 Otter

7.7.1.5.1 Direct effects upon otter holts/couch sites

At watercourse crossings where otter have been identified previously or potential for otter to be present (**Appendix 7C**) pre-construction otter surveys will be undertaken to inform detailed design to avoid habitat suitable to support otter holt sites. This will be undertaken to re-affirm the absence of any otter holt or potential holt sites located within the vicinity of the works.

Where practicable mature trees located on the banks of watercourses will be avoided by careful routeing of the cable corridor and the area of riparian habitat that will be temporarily disturbed to install the cables and/or haul road will be kept to a minimum. The sections to be affected will be fenced to delineate the working area and to prevent damage to the surrounding banks.

7.7.1.5.2 Temporary loss of riparian otter habitat

To minimise the effect of the loss of riparian otter habitat, the working width at open cut watercourse crossings which are confirmed to support otter will be kept to the minimum required for safe working practice and will be clearly marked to prevent encroachment.

On completion of the works, the bank side habitat would be re-instated. Areas of grassland will be reseeded with an appropriate grass mix, whilst the marginal zone will be left to colonise naturally.

For trenchless installation cable crossings but where construction haul roads are to be installed such as, River Foulness and Kelk Beck, the area of bank habitat disturbed by the works will be kept to the minimum practicable for safe working. Once works are complete the construction access will be removed and the habitat will be reinstated and enhanced where specific additional measures are agreed i.e. at River Hull Headwater SSSI.

7.7.1.5.3 Temporary Disturbance

As otter are mainly nocturnal, mitigation measures will focus on restriction of night time working in proximity to main otter watercourses along the cable corridor, to avoid disturbance to otter moving throughout their territory and the maintenance of barrier free movement. Where night time working is required at river crossings where HDD installation techniques are used, the works will be positioned as far away from watercourses as is practical to do so. The working area for the trenchless cable installation methods will be located more than 8 m from the river bank in areas of known otter habitat.

Lighting, where required on site, will be directed away from known otter habitats i.e. watercourses. Screening measures will be adopted where required at main rivers to provide a visual barrier between the working areas and the river particularly where longer term works are planned.

Site compounds and storage or waste storage facilities will be located away from watercourses and night working would be avoided where reasonably practicable in areas where otters are active (including at dawn and dusk).

7.7.1.5.4 Effects on food source for otter

Throughout construction and operation, and as detailed in Section 7.6, adequate pollution prevention measures will be put in place as detailed in **Chapter 11: Hydrology and Land Drainage**. These measures will also be secure through inclusion in the CEMP. Measures will be implemented with as detailed in Chapter 11: Hydrology and Land Drainage to minimise effects on aquatic habitats and fish; the otters' main food supply.

7.7.1.6 Water Vole

Mitigation measures to address the effects upon water vole will be adopted as set out below:

7.7.1.6.1 Temporary disturbance of water vole whilst occupying a burrow.

As stated as embedded mitigation, preconstruction surveys will be carried out to re-assess and determine status of water vole on all watercourses previously identified as being suitable to support water vole and which are crossed/intersected by the planning application boundary or construction access routes. Where possible the cable corridor will be specifically micro-sited to cross the watercourse at locations where there is lower quality water vole habitat and absence of burrows as informed by the pre-construction survey.

Where this is not possible, and temporary construction access is required, mitigation measures will be implemented as detailed below which involve the completion of relocation by displacement.

Burrows within the affected area would be removed following habitat manipulation and a destructive search. The displacement area would include the area to be directly affected by the works as well as an appropriate buffer to ensure that burrows adjacent to the works are not incidentally damaged. The retained habitat adjacent to the working area will be demarcated to prevent encroachment. Works would be completed in as short a time as possible to minimise the period of activity in the area. As detailed in **Chapter 3: Description of the English Onshore Scheme** and detailed in Crossing Schedule (**Appendix 3A**), there will be a number of watercourses crossed by the cable or by a haul road (or both) using open cut techniques. The following project specific mitigation measures will be implemented at these open cut crossings to address the potential effects on water vole.

7.7.1.6.2 Direct killing and injury of water vole and loss of water vole burrows.

At watercourses known to support water vole (or have been assigned as suitable to support water vole as detailed in **Appendix 7C**) and which cannot be avoided by the cable or construction activities, the area of bank habitat disturbed by the works will be kept to the minimum practicable for safe working (maximum section of 13 m per watercourse to accommodate access, pipeline installation and drainage outfalls). As only a short section of habitat and small numbers of water vole would be affected by the works, it is considered appropriate to move water vole from the working area using relocation by displacement methods. This involves habitat manipulation to encourage water vole to vacate a section of watercourse, moving into adjacent unaffected habitat, followed by a careful destructive search as described below.

Water voles would be displaced using the methodology outlined in the Water Vole Conservation Handbook (Ref 7-30). The mitigation strategy for water vole will be agreed through consultation with Natural England and EA.

Subject to weather conditions, displacement measures can be undertaken between late February and early April when this method is likely to be most successful. Vegetation on the banks within this period will be kept to a minimum to discourage water vole from colonising the banks. Where possible works will proceed immediately following a period of strimming followed by a destructive search. Where there may be delays between initial strimming and the completion of crossing work, strimming and inspections will be repeated periodically until works are commenced. Destructive searches (as described in Box 9:C of the Water Vole Conservation Handbook (9.36)), will only be undertaken as the very last stage of mitigation and involve a close inspection of bank habitat following a programme of strimming, and ideally following the exclusion of water from the affected section of watercourse. The search includes careful excavation of (non active) burrows using hand tools, and removal of habitat. Where this is not possible and works will be carried out several weeks after the destructive search, the area will be maintained free of water vole by regularly strimming the affected area, or the area will be enclosed using water vole proof fencing, with regular monitoring and inspections to ensure that water vole is still absent.

Affected areas would be re-instated on completion of the crossing works which would provide suitable habitat for water vole to burrow into.

7.7.1.6.3 Temporary loss of bank side and marginal/aquatic habitat.

The working area at watercourses known to support water vole will be kept to the minimum necessary to allow plant and vehicles safe operation and access; which will be approximately 13 m wide. The affected habitat within the working width will be re-instated as soon as possible following construction to minimise the time that the habitat is not available to water vole. Bank side habitat will be re-instated with removed bank side top soil and appropriate seed mix to aid re-vegetation immediately following completion of the works.

7.7.1.6.4 Temporary severance of water vole habitat.

At watercourses known to support water vole, crossing works will be undertaken as soon as possible after the destructive search has been completed and the section of ditch has been successfully excluded. Areas will be promptly re-instated following construction, allowing water vole access to the affected area. The working period at each crossing will be kept to a minimum but as described in **Chapter 3: English Onshore Scheme Description**, however will be dependent on the crossing method used.

7.7.1.6.5 Temporary disturbance of water vole habitat during construction in adjacent areas.

Where works are within the vicinity of a watercourse known to support water vole and suitable water vole habitat, but will not cross the watercourse, a 15 m (minimum) buffer zone will be maintained along the watercourse and the working area (storage of top soil or trench spoil). The area will be demarcated to prevent encroachment onto water vole habitat. A minimum of 5 m will be maintained between the watercourse and any deep excavations.

7.7.2 Operational Phase Mitigation

No operational phase mitigation is considered necessary, as no significant operational effects on habitats or protected species have been identified.

7.7.3 Biodiversity Net Gain

A draft BNG assessment has been undertaken for the English Onshore Scheme in accordance with the published Natural England Biodiversity Metric 3.0, with a target of 10% net gain in biodiversity to be delivered to meet emerging planning policy, and to meet National Grid's corporate BNG commitment to the delivery of 10% BNG on all construction projects. However, we would highlight that the target of 10% net gain does not apply to the English Onshore Scheme and National Grid's target of 10% net gain is an internal target only.

As much of the works are temporary, on-site options are limited due to the temporary easement of the cable route itself, however the following is a summary of the habitat reinstatement and enhancement measures are committed to and are embedded into the BNG metric assessment:

- Permanent and associated temporary construction areas at the converter station are subject to post-construction habitat management plan designed to maximise biodiversity opportunities where possible;
- Avoidance of high distinctiveness habitats (as defined by the BNG metric) including very small areas of lowland calcareous grassland at Hudson Way LNR/ Etton - Gardham Disused Railway LWS and lowland mixed deciduous woodland located alongside the boundary of the temporary construction routes and drainage areas;
- A commitment is made to re-instate and enhance species poor/defunct hedgerows and field boundaries to species-rich native hedgerows across the cable route; and
- Some ditches within the Application Boundary which are crossed by the cable route and construction haul roads will be re-instated to moderate condition where currently of poor condition.

Options to deliver the 10% net gain for the resultant units following the completion of the above measures are outlined in the Biodiversity Net Gain Assessment Report.

7.8 Residual Effects

Due to the embedding of design mitigation and project specific construction mitigation into the planning application boundary the residual effects of the English Onshore Scheme on most ecological features will remain unchanged from the potential effects outlined in section 7.6 (construction) and 7.7 (operational) above.

With respect to the potential ecological effects identified upon habitats within the planning application boundary during the construction phase, with the adoption of embedded and where required project specific mitigation, it is reasonable to conclude that once successfully established, these habitats will be of at least the same or higher biodiversity value. When considered in combination with the habitat enhancements proposed at the converter and along the cable route including reinstatement of species

poor hedgerow to species rich native hedgerows, it is concluded that the long-term residual effect of the construction phase of the English Onshore Scheme on habitats will therefore be **Negligible**.

No significant residual operational effects are predicted. **Table 7-13** provides a summary of the residual effects predicted for the English Onshore Scheme.

Table 7-13: Summary of Effects

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|------------------------------|---|---|-----------------|--|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| CONSTRUCTION PHASE | | | | | | | |
| Designated Sites | | | | | | | |
| Humber Estuary SPA/Ramsar/SAC | Very High (international) | Temporary habitat loss of functionally linked land (outside the SPA/Ramsar). | Negligible Arable land not functionally linked to SPA/Ramsar and unaffected land available for displaced individuals | Not significant | None required in addition to embedded measures | Minor adverse | Not significant |
| | | Arable land not functionally linked to SPA/Ramsar and unaffected land available for displaced individuals | Minor adverse | Not significant | None required in addition to embedded measures | Minor adverse | Not significant |
| | | Temporary indirect noise and visual disturbance to SPA qualifying species | Minor adverse | Significant | Embedded Mitigation/Design: crossing of the River Ouse via HDD installation techniques and buffer zones to watercourse to ensure direct effects upon watercourse are avoided. Embedded mitigation for legislative compliance during construction will ensure that there is no pollution to surface water that could indirectly affect SAC habitats downstream of watercourses crossed by the English Onshore Scheme. | Negligible | Not significant |
| Lower Derwent Valley SPA/Ramsar | Very High (International) | Temporary habitat loss of functionally linked land outside SPA/Ramsar | Minor adverse Arable land not functionally linked to SPA/Ramsar and | Not significant | None required in addition to embedded measures. | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|--|---|---|--|-----------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | | | unaffected land available for displaced individuals. | | | | |
| | | Temporary noise and visual disturbance to qualifying species | Negligible Significant populations of qualifying species are not present within zone of influence, and daytime noise will be reduced to levels below disturbance threshold. | Not significant | None required in addition to embedded measures. | Negligible | Not significant |
| | | Changes in water quality affecting habitats. | Negligible Upstream location relative to works ensures no linked pathway for impacts and embedded mitigation avoids potential impacts on water quality. | Not significant | Embedded design including the crossing of the River Ouse via HDD installation techniques and embedded mitigation to avoid any potential effects upon water quality. | Negligible | Not significant |
| Lower Derwent Valley SAC and River Derwent SAC/SSSI | SAC - Very High (International) SSSI – High (National) | Effects on SSSI habitats via changes in water quality and hydrology of connecting watercourses. | Negligible Significant populations of qualifying species are not present within zone of influence, and coastal topography provides visual and noise attenuation. | Not significant | None required | Negligible | Not significant |
| River Hull Headwaters SSSI (including Kelk Beck tributary) | High (National) | Changes in surface water quality affecting habitats. | Minor adverse Localised temporary impacts from shading from temporary haul road and embedded | Not significant | Embedded mitigation for legislative compliance during construction will ensure that there is no pollution to surface water that could affect SSSI habitats. | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|-----------------------|---|---|-----------------|--|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | | | mitigation ensures no pollution impact | | | | |
| | | Disturbance (noise and visual) to SSSI associated species including breeding bird assemblage. | Minor adverse Cable drilling resulting in localised temporary displacement of birds to other sections of the River Hull corridor and local tributaries | Not significant | Location of temporary bridge will be subject to agreement with Natural England and where possible will be installed outside the breeding bird season or following a thorough pre works EcOW nesting bird check. At River Hull Headwaters SSSI: Environmental barrier fencing to be installed around the HDD working area for works during the breeding season. Strict adherence to fenced construction working zones. | Minor adverse | Not significant |
| | | Temporary loss and disturbance of bank side habitat at Kelk Beck | Minor adverse | Significant | Embedded mitigation: Preconstruction ecological surveys will be undertaken in advance of any works being undertaken to re-affirm the status of the site and crossing location and inform the details of the EA consent application. During the construction of the temporary access bridge across the Kelk Beck a buffer zone of a minimum of 2 m will be retained to avoid direct effects upon bank side habitat and the SSSI designated river channel habitats. Working areas will be fenced to prevent encroachment onto adjacent habitat. | Negligible | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|---|------------------------|--|---|--------------|---|-------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | | | | | Bank top habitats will be fully reinstated following construction which will be set out as part of the EA consent application and Ecological Mitigation Plan. Necessary consents will be obtained from the Environment Agency (Flood Defence and Land Drainage consents, Environmental Permits as applicable) and works will be carried out in accordance with method statements and conditions applied to those consents. | | |
| Kiplingcotes Chalk Pit SSSI | High (National) | Changes in water quality affecting habitats. | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there is no pollution to surface water that could affect SSSI habitats. | Negligible | Not significant |
| | | Dust emissions during topsoil stripping resulting in smothering to vegetation. | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there are no fugitive dust emissions that could adversely affect SSSI habitats. | Negligible | Not significant |
| Barn Hill Meadows SSSI (and Yarmshaw Plantation LWS) | High (National) | Dust emissions during topsoil stripping resulting in smothering to vegetation | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there are no fugitive dust emissions that could adversely affect SSSI (and LWS) habitats. Embedded mitigation for legislative compliance during construction will ensure that there are no fugitive dust emissions that could adversely affect LWS habitats. | Negligible | Not significant |
| | | Effects on SSSI habitats via changes in water quality and hydrology of | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there are no impacts on | Negligible | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|--|-----------------------|--|---|--------------|--|-------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | | connecting watercourses | | | drains that could affect LWS habitats. | | |
| South Cliffe Common SSSI | High (National) | Effects on SSSI habitats via changes in water quality and hydrology of connecting watercourses | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there are no impacts on drains that could affect LWS habitats. | Negligible | Not significant |
| | | Dust emissions during topsoil stripping resulting in smothering to vegetation | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there are no fugitive dust emissions that could adversely affect LWS habitats. | Negligible | Not significant |
| Granny's Attic Railway LWS and Eton-Gardham Disused Railway LWS (incorporating Hudson's Way LNR) | Medium (County) | Pollution and emissions during topsoil stripping resulting in smothering to vegetation | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there is no pollution to surface water that could affect designated habitats and that there are no fugitive dust emissions that could adversely affect LWS (and LNR) habitats. | Negligible | Not significant |
| Spring Dale cLWS | Medium (County) | Changes in water quality affecting habitats | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there is no pollution to surface water that could affect LWS habitats. | Negligible | Not significant |
| | | Dust emissions during topsoil stripping resulting in smothering to vegetation | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there are no fugitive dust emissions that could adversely affect LWS habitats. | Negligible | Not significant |
| Kiplingcotes Road Earthworks LWS | Medium (County) | Changes in water/dust quality affecting habitats | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for legislative compliance during construction will ensure that there is no pollution to surface water that could affect LWS habitats. | Negligible | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|---|-----------------------|--|---|-----------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| Etton Wold, West of Crossroads LWS | Medium (County) | Indirect impacts as a result of proximity to the English Onshore Scheme. | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation for environmental legislative compliance will ensure that there will be no potential effects upon this LWS, furthermore construction access is to be made from the west from Market Weighton (via Spring Road) avoiding any direct disturbance to the grassland LWS. | Negligible | Not significant |
| North Howden Fishponds LWS | Medium (County) | Hydrological impact as a result of the cable route crossing a drainage ditch which links to the LWS. | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation measures at open cut crossing will be adopted to ensure there are no water quality effects by silt or pollution incidents nor there would be any discernible effects upon the local hydrology particularly given the lack of water. | Negligible | Not significant |
| Yarmshaw Plantation LWS | Medium (County) | Hydrological impact | Not applicable – assessment undertaken with embedded mitigation taken into account. | | Embedded mitigation measures will ensure that there are no potential indirect effects upon the LWS habitats from changes to water quality or hydrology to occur. | Negligible | Not significant |
| Habitats | | | | | | | |
| Coastal and floodplain grazing marsh (Section 3 only) | Medium (County) | Temporary loss of up to maximum of 3.2 ha of priority habitat | Minor adverse | Not significant | Embedded mitigation measures: Maintenance of local hydrological conditions to ensure long terms suitability of site to holds standing water and maintain floodplain grazing characteristics. Grassland habitat will be reinstated as soon as possible post construction using topsoil retained from the cable trench. | Negligible | Not significant |
| | Low (Local) | Temporary loss of woodland habitat and damage to retained | Minor adverse | Not significant | Embedded Mitigation: Avoidance of woodland by construction: Where the works are located close to | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|---------------------------------------|-----------------------|--|---------------|-----------------|--|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| Semi-natural Woodland and Trees | | trees from severance of roots, compaction of the soil, or exclusion of air and water to the soil | | | woodland the working width will generally be kept to the minimum necessary to allow safe working and safe access for plant and vehicles to avoid removal of woodland. The working width will be fenced to prevent encroachment onto adjacent areas of woodland. | | |
| | | Temporary loss of individual trees (including pruning/lopping) | Minor adverse | Not Significant | <p>Embedded Mitigation: During detailed design routing will avoid mature trees and their root zones where possible. Where practical such trees will be protected by the means of a fence. If this is not practical, additional measures to mitigate effects may include bog matting and/or sand padding to distribute the weight of the machinery over the roots (where soil compaction may damage tree health). In addition, preliminary work will be carried out before construction to remove any overhanging branches likely to obstruct or be damaged by the works.</p> <p>The pruning or lopping of trees will be avoided wherever possible. Where this is not possible the amount of pruning/lopping of trees will be kept to a minimum and will only be required to facilitate safe working. Pruning will only be minor and will only be undertaken subject to the completion of mitigation measures for bats as detailed below.</p> | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|---|-----------------------|--|--|-------------------------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| Hedgerows – species rich | Medium (County) | Temporary loss and severance due to cable installation. | Moderate adverse In the absence of mitigation, hedgerows will be lost as a County resource. | Significant (county level) | Embedded Mitigation: Hedgerows located alongside the planning application boundary (i.e. alongside construction compounds, existing access routes to be used and adjacent to temporary drainage areas) will be retained and protected. Sections to be removed in other areas (cable working width at open cut crossings) will be kept to a minimum. Hedgerow replanting will be undertaken to match with adjacent and surrounding field hedgerows in species composition, prioritising native species. | Minor adverse | Not significant |
| Standing Water (Ponds, Lakes and Canals) | Low (Local) | Indirect effects on ponds from accidental spillages, silt laden run-off and dust. | Minor adverse | Not significant | Embedded mitigation will be implemented to protect water quality including pollution control measures and preventing discharge or abstraction into waterbodies. | Negligible | Not significant |
| Running Water (Main Rivers) | Medium (County) | Indirect effects on running water quality and associated aquatic ecology from accidental spillages, silt laden run-off and dust (HDD installation methods) | Moderate adverse Decrease in quality and loss of habitat function to a resource of county value | Significant (county level) | Embedded mitigation will be implemented to protect water quality including pollution control measures and preventing discharge or abstraction into main rivers. | Minor adverse | Not significant |
| Running Water (Dykes, beckes and drains) – non designated | Low (Local) | Indirect effects on running water quality and associated aquatic ecology from accidental spillages, silt laden run-off and dust (HDD installation methods) | Minor adverse Decrease in quality and loss of habitat function to a resource of local value | Not significant | Embedded mitigation will be implemented to protect water quality including pollution control measures and preventing discharge or abstraction into watercourses. | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|---------------------------------|--------------------|---|--|-----------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | | Temporary disturbance of the benthic environment | Minor adverse Temporary loss of habitat for associated fauna and structural change to channel | Not significant | Embedded mitigation to minimise working width, reduce encroachment, removal and restoration of channel bed materials and reinstatement of marginal habitat. | Negligible | Not significant |
| | | Temporary loss of and severance of riparian habitat | Minor adverse Riparian vegetation temporarily lost and channel characteristics altered, resulting in isolation of dependent fauna populations | Not significant | Embedded mitigation to minimise effect on channel and adjacent vegetation. Reconstruction of bank and channel to preconstruction state. | Negligible | Not significant |
| Species | | | | | | | |
| Badger | Low (Local) | Temporary disturbance of badgers occupying a sett | Minor adverse Potential displacement of badger family group to alternative habitat in the wider area | Not significant | Embedded mitigation: Construction design will seek to avoid known badger setts. Where the design will be within 30 m of a sett, a pre-construction survey will determine the use of the sett. A Natural England derogation licence will be obtained to fully or partially close a sett. Mitigation measures will be put in place during construction to minimise effects of disturbance to badger (details in Section 7.6.2.1 – Badger) | Minor adverse | Not significant |
| | | Temporary severance of badger habitat | Minor adverse No significant severance will occur; badger will have access across working area and the cable installation by retain | Not significant | Mitigation measures will be put in place during construction to minimise effects of habitat/territorial severance and disturbance to badger | Negligible | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|-----------------------|--|---|-----------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | | | access and crossing points. | | | | |
| | | Permanent damage to a badger sett | Minor adverse Potential displacement of badger family group to alternative habitat in the wider area | Not significant | Embedded Construction design will seek to avoid known badger setts. Where the design will be within 30 m of a sett, a pre-construction survey will determine the use of the sett. A Natural England derogation licence will be obtained to fully or partially close a sett. | Negligible | Not significant |
| Bats (Roosting) | Medium (County) | Disturbance of bats whilst occupying a roost | Minor adverse | Not significant | Where identified mature trees with bat roost potential are to be retained within the planning application boundary, buffer zones will be adopted (the specific distance of which will be agreed on site through consultation with the Environmental Advisor/Ecological Clerk of Works) around the tree. Programming of works will avoid night time working activities adjacent to potential bat roost trees. Lighting, where required on site, and it will be directed away from potential bat roost trees are not lit or disturbed during the hours of darkness. These measures will be secured by the construction hours as will be agreed in the CEMP. Where potential bat roost trees are situated in a location where they may need to be pruned or lopped during construction the following potential effects may occur. | Negligible | Not significant |
| | | Direct effect on bats (killing/injury) and loss of bat roosts; and | Minor adverse | Nor significant | During detailed design the cable installation working width will be refined and where possible trees that have been identified as having | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|-----------------------|-------------------------------------|-----------|--------------|---|-----------------|--------------|
| | | | | | | Magnitude | Significance |
| | | Loss of potential roosting features | | | <p>potential to support roosting bats; in particular the 46 Moderate and High potential trees (as shown on Figure 4 of Appendix 7B), will be avoided.</p> <p>Where removal of any tree with potential to support roosting bats (including those with Low, Moderate and High potential as shown on Figure 4 of Appendix 7B) cannot be avoided by the cable installation working width and need to be removed, preconstruction assessments and/or dusk/dawn surveys (or supervised soft felling/pruning) will be carried out to re-assess the status of roosting bats. The contractor will be responsible for determining which specific trees cannot be avoided and will need to be removed in order to determine the scope of pre-construction bat assessments/surveys.</p> <p>Embedded mitigation includes a commitment to conduct pre-construction surveys of any trees/structure with bat roost potential which cannot be entirely avoided and associated mitigation measures thereafter i.e. activities which result in a licensable effect upon bats would be subject to a Natural England EPS Mitigation Licence application with the adoption of appropriate mitigation measures as detailed in Section 7.6.5.2.2.</p> | | |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|-----------------------|---|---------------|-----------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| Bats (foraging/ commuting) | Low (Local) | Temporary displacement from habitats within cable routes | Negligible | Not significant | Embedded mitigation: Limited night-time working and avoidance of lighting in proximity to key hedgerow/linear habitat features. Replacement (and enhancement) planting of hedgerow sections removed. | Negligible | Not significant |
| Otter | Low (Local) | Temporary disturbance of otter due to construction activities close to watercourses | Minor adverse | Not significant | Embedded mitigation: restriction of night time working in proximity to known otter habitat (as detailed in Appendix 7C), maintenance of barrier free movement particularly where open cut crossing and haul roads over watercourses are proposed. Adoption of watercourse buffers of 15m between working areas and watercourses where HDD installation crossing methods or areas adjacent to watercourse but outwith of the open cut crossing location. Site compounds and storage or waste storage facilities will be located away from watercourses and night working would be avoided where reasonably practicable in areas where otters are active (including at dawn and dusk). | Negligible | Not significant |
| | | Direct effects upon otter holts/couch sites | Minor adverse | Not significant | Embedded mitigation: At watercourse crossings where otter have been identified previously or potential for otter to be present (Appendix 7C) pre-construction otter surveys will be undertaken to inform detailed design to avoid habitat suitable to support otter holt sites. This will be undertaken to re-affirm the absence of any otter holt | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|-----------------------|--|----------------------|------------------------|---|-----------------------------|------------------------|
| | | | | | | Magnitude | Significance |
| | | | | | <p>or potential holt sites located within the vicinity of the works</p> <p>Where practicable mature trees located on the banks of watercourses will be avoided by careful routeing of the cable corridor and the area of riparian habitat that will be temporarily disturbed to install the cables and/or haul road will be kept to a minimum. Fencing will delineate the working area and to prevent damage to the surrounding banks.</p> | | |
| | | <p>Temporary loss of riparian habitat and effects on otter food source</p> | <p>Minor adverse</p> | <p>Not significant</p> | <p>To minimise the effect of the loss of riparian otter habitat, the working width will be kept to the minimum required for safe working practice and will be clearly marked to prevent encroachment.</p> <p>Bank side habitat would be re-instated. Areas of grassland will be reseeded with an appropriate grass mix, whilst the marginal zone will be left to colonise naturally.</p> <p>For trenchless installation cable crossings but where construction haul roads are to be installed such as, River Foulness and Kelk Beck, the area of bank habitat disturbed by the works will be kept to the minimum practicable for safe working. Once works are complete the construction access will be removed and the habitat will be reinstated and enhanced where specific additional measures are agreed i.e. at River Hull Headwater SSSI.</p> | <p>Minor adverse</p> | <p>Not significant</p> |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|-----------------------|---|------------------|--------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| Water Vole | Medium (County) | Temporary disturbance of water vole habitat during construction in adjacent areas | Minor adverse | Significant | Embedded mitigation: Embedded mitigation will be implemented to protect water quality including pollution control measures and preventing discharge or abstraction into watercourses. Commitment to conduct pre-construction surveys of watercourses confirmed or with potential to support water vole. Watercourse buffer of up to 15m to be adopted. The area will be demarcated to prevent encroachment onto water vole habitat. | Negligible | Not significant |
| | | Temporary disturbance of water vole whilst occupying a burrow. | Moderate adverse | Significant | Embedded mitigation: Preconstruction surveys will be carried out to re-assess and determine status of water vole on all watercourses previously identified as being suitable to support water vole and which will be open cut crossings. Where possible the cable corridor will be specifically micro-sited to cross the watercourse at locations where there is lower quality water vole habitat and absence of burrows as informed by the pre-construction survey. Project specific mitigation: Mitigation measures to as detailed in Section 7.7.1.6.1 will be adopted. | Minor adverse | Not significant |
| | | Direct killing and injury of water vole | Moderate adverse | Significant | Embedded mitigation: Preconstruction surveys will be carried out to re-assess and determine status of water vole on all | Negligible | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|-----------------------|---|------------------|----------------------|--|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | | | | | <p>watercourses previously identified as being suitable to support water vole and which will be open cut crossings. Where possible the cable corridor will be specifically micro-sited to cross the watercourse at locations where there is lower quality water vole habitat and absence of burrows as informed by the pre-construction survey.</p> <p>Project specific mitigation: Mitigation measures to as detailed in Section 7.7.1.6.1 will be adopted.</p> | | |
| | | Temporary loss and severance of bank side and marginal/aquatic habitat and loss of water vole burrows | Moderate adverse | Significant (County) | <p>Embedded mitigation: The working area at watercourses known to support water vole will be kept to the minimum necessary to allow plant and vehicles safe operation and access. The affected habitat within the working width will be re-instated as soon as possible following construction to minimise the time that the habitat is not available to water vole. Bank side grassland habitat will be re-seeded and plant species which are favoured by water vole e.g. rushes, sedges or reed will be included in the seed mix or supplemented by re-instatement of removed turves or bank side top soil immediately following completion of the works</p> | Minor adverse | Not significant |
| Reptiles | Low (Local) | Temporary loss and displacement/disturbance of reptiles | Negligible | Not significant | None required in addition to the embedded measures. | Negligible | Not significant |
| Brown Hare | Low | Temporary loss of brown hare habitat | Negligible | Not significant | None required in addition to the embedded measures. | Negligible | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|------------------------------------|---------------------------------------|--|--|-----------------|--|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| | (Local) | Disturbance to brown hare during construction | Negligible | Not significant | None required in addition to the embedded measures. | Negligible | Not significant |
| Ornithological Receptors | | | | | | | |
| Non-breeding (wintering) waders | Sanderling - Medium (County) | Noise/ visual disturbance during construction | Negligible – small number of species likely displaced and for a short period of time due to temporary nature of construction | Not significant | None required | Minor adverse | Not significant |
| | All other wader species – Low (Local) | Temporary habitat loss | Minor adverse | Not significant | None required | Minor adverse | Not significant |
| Breeding Bird Assemblage | Medium (up to County) | Damage/ destruction of nests during construction phase | Minor adverse | Significant | Embedded Mitigation: Site clearance and vegetation removal to occur outside the breeding bird season (typically March-August for most species). Strict adherence to fenced construction working zones are advised by the ECoW. In the event that this is not possible a pre-clearance survey would be conducted by an ECoW to assess the presence of nests before clearance is undertaken. | Minor adverse | Not significant |
| | | Temporary displacement from habitats and habitat loss | Minor adverse | Not significant | Embedded Mitigation: Habitat disturbed/lost during works will be reinstated. | Minor adverse | Not significant |
| | | Noise and visual disturbance during construction | Minor adverse | Not significant | Embedded Mitigation: | Minor adverse | Not significant |
| | Medium (County) | Temporary loss of foraging and roosting | Minor adverse | Not significant | Embedded mitigation: | Minor adverse | Not significant |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|--|--------------------------|--|--|-----------------|---|--------------------------|-----------------|
| | | | | | | Magnitude | Significance |
| Non Breeding (Wintering) Bird Assemblage | | habitat and displacement | | | Strict adherence to construction working zones and fencing around zones. Restricting access into wintering bird habitat will reduce potential effects on such species. Habitat disturbed/lost during works will be reinstated. | | |
| | | Noise and visual disturbance during construction | Minor adverse – Small number of species likely displaced and for a short period of time due to temporary nature of construction. Abundant alternative habitat in wider local area for birds temporarily displaced. | Not significant | Embedded Mitigation: Strict adherence to construction working zones and fencing around zones. Restricting access into wintering bird habitat will reduce potential effects on such species. | Minor adverse | Not significant |
| Schedule 1 species | Medium (up to County) | Potential for destruction/damage to nests and Temporary disturbance | Minor adverse | Not Significant | Embedded Mitigation: Site clearance to occur outside the breeding bird season (typically March-August for most species). Strict adherence to fenced construction working zones are advised by the ECoW Project Specific Mitigation: ECoW to advise micro-siting cable alignment to avoid clearance of trees which have potential to support nesting barn owl/red kite. | Negligible | Not significant |
| OPERATIONAL PHASE | | | | | | | |

| Receptor Description Table text | Value/ Sensitivity | Description of Potential Impact | Magnitude | Significance | Mitigation Measure(s) | Residual Effect | |
|--|-----------------------|--|--|-----------------|---|----------------------|-----------------|
| | | | | | | Magnitude | Significance |
| Surface water impacts at Beck Lane Drain | Low (Local) | Surface runoff from the proposed converter station may contain a combination of fine sediments and toxic contaminants (e.g. oils and fuels from spillages and leaks), with the potential to affect both fauna and flora. . | Minor Adverse | Not significant | Embedded Mitigation: An attenuation pond will be located immediately east of the proposed converter station, which will reduce surface flow to greenfield runoff rates. The extended residence time of water in the pond will allow for natural attenuation processes to minimise the volume of pollutants that reach surface waterbodies (e.g. through the settling of sediment to the base of the pond). | Negligible | Not significant |
| Bats (Foraging/Commuting) | Low (Local) | Permanent loss of habitat at converter station site | Negligible –habitats lost to construction of converter (arable) are of low quality for bat foraging/ commuting. | Not significant | Embedded Mitigation: Replacement planting of hedgerow sections removed. Replacement planting of trees and shrubs removed. Provisional of additional feature such as the attenuation pods could enhance the site for bats, | Negligible | Not significant |
| | | Lighting disturbance from the converter station | Minor Adverse – Low level of bat activity recorded. Main habitat features around converter site will be retained to maintain foraging/commuting corridors. | Not Significant | Embedded mitigation - Operational lighting will be limited in extent and will be at a low level around walkways and access route areas for health and safety reasons. | Minor adverse | Not significant |

7.9 Cumulative Effects

7.9.1 Assessment of Combined Effects

As outlined in **Chapter 1: Introduction**, the English Onshore Scheme forms one element of the wider Project, along with the Marine Scheme and Scottish Onshore Scheme. Due to the distances of separation between the English Onshore Scheme and the Scottish Onshore Scheme, intra-Project cumulative effects to individual receptors will not occur, for example no property or ecological site would experience effects from both the English Onshore Scheme and Scottish Onshore Scheme. Similarly, although there is a slight overlap of the English Onshore Scheme and Marine Scheme in the intertidal area between Mean High Water Springs and Mean Low Water Springs (as shown in Figure 1-2), as the HVDC cable reaches the landfall site (part of the English Onshore Scheme) via HDD, the works which could give rise to environmental impacts are physically separated and hence no significant intra-Project cumulative effects to individual receptors are predicted to occur. For receptors such as protected species where the resource or population could be considered as a whole across the entire Project, it is considered that there would be no significant cumulative effects due to the mitigation measures proposed by each element of the Project.

The separate EIA/EA reports produced for the English Onshore Scheme, Marine Scheme and Scottish Onshore Scheme provide an environmental assessment of each topic area for which potential environmental effects could arise from that element. Once the assessment of the other elements of the Project is complete, a Bridging Document will be prepared which summarises the main interactions of these three individual environmental assessments. The Bridging Document will be made available as soon as it is available, but as highlighted above, there are no significant in-combination impacts between the English Onshore Scheme, Marine Scheme or Scottish Onshore Scheme. This section, therefore, provides an assessment of the combined and cumulative effects relating to the English Onshore Scheme only. For full definitions of terminology and details of other projects considered in this assessment see **Chapter 17: Cumulative and In-Combination Assessment**.

The assessment undertaken above has already considered all combined elements of the English Onshore Scheme and therefore no separate combined effects assessment of the various elements of the English Onshore Scheme is required.

The impact assessment has concluded that construction of the English Onshore Scheme alone will not result in any significant disturbance/ displacement effects on qualifying bird species of the Humber Estuary SPA/ Ramsar or Lower Derwent Valley SPA/Ramsar and will not directly impact these designated sites.

7.9.2 Assessment of Cumulative Effects

This section of the EclA considers the potential cumulative effects on ecological receptors from simultaneous construction/ operation of the English Onshore Scheme with other Projects. Screening of the projects identified as potentially interacting with the English Onshore Scheme is outlined within **Chapter 17: Cumulative and In-Combination Effects** and shown on **Figure 17-2**. The full list of projects has been reviewed to determine which of these may result in potential in combination effects upon ecological receptors. Projects which do not result in any potential in combination effects due to their distance from the English Onshore Scheme and/or an absence of pathways or an overlap of the zone of influence of ecological receptors have been scoped out. Projects where a potential in combination effect is predicted are summarised in **Table 7-14** and consideration of the combination effect made.

Table 7-14: Projects Considered in Cumulative Assessment

| Project Name/Reference (Figure 17-2) | Brief Description | Status | Distance to planning application boundary | Assessment |
|---|--|-----------------|---|--|
| Hornsea Project Four Offshore Windfarm (NSIP-1) | NSIP - Development of the Hornsea Project Four offshore wind farm. | Tier 1 Approved | Approximately 530 m south of proposed landfall site | This project is likely to primarily impact upon marine habitats / species, which the English Onshore Scheme would not affect. Whilst the project |

| Project Name/Reference (Figure 17-2) | Brief Description | Status | Distance to planning application boundary | Assessment |
|---|--|----------------|---|---|
| | | | | includes a cable connection located approximately 2km south of the English Onshore Scheme landfall location predicted in combination effects upon coastal ecological receptors (birds and habitat) is unlikely to be more than Minor adverse if there were constructed simultaneously. |
| Drax BioEnergy with Carbon Capture and Storage (CCS) (NSIP-4) | NSIP - Post combustion carbon capture technology at up to two of the existing 600 MWe biomass power generating units at the Drax Power Station in Selby, North Yorkshire. | Tier 2 | Immediately adjacent to proposed converter station site | Whilst the CCS plant is proposed within very close proximity to the converter station, based upon the ecological receptors identified it is not considered that there would be significant cumulative effects from the CCS project assuming that similar mitigation measures would be adopted. There may be an additional level of disturbance to protected species i.e nesting birds and displacement of foraging bats during construction however this is unlikely that cumulative effects on these species arising from both projects would be greater than Minor adverse and not significant. |
| Humber Low Carbon Pipelines (NSIP-9) | NSIP - Construction of carbon dioxide (to facilitate CCUS) and hydrogen (H2) transportation pipelines between Drax in North Yorkshire and Easington in East Riding of Yorkshire, connecting various emitters and generators in the Humber. | Tier 3 Pending | Route corridor of Project intersects with cable route/converter of planning application boundary at Drax. The pipeline corridor will connect to various power stations (including Drax) and will cross the Humber through a tunnel. | There are potential cumulative impacts with the English Onshore Scheme regarding water quality, as well as otter mobility where the pipelines may interact or cross the same watercourses. However, while detailed proposals for this scheme are not available, it is unlikely that this project and SEGL2 the English Onshore Scheme will occur simultaneously in the same locations. Localised additional temporary loss of habitats and disturbance effects to protected species are likely. The EclA of the Humber Low Carbon Pipelines will need to demonstrate that adequate mitigation regarding water quality and otter mobility are delivered. |
| Gransmoor Quarry (ERYC-4) | Extension of excavation area to Gransmoor Quarry and remediation to lake following ceasing of operation. | Tier 1 | Overlapping / Adjacent to DC cable route | Potential additional effects upon habitats where projects overlap, potential additional effects upon Gransmoor Drain and Barf Hill woodland habitat were projects completed in combination. |

| Project Name/Reference (Figure 17-2) | Brief Description | Status | Distance to planning application boundary | Assessment |
|--------------------------------------|---|------------------------------|---|--|
| | | | | <p>An EclA was undertaken in 2020 which concluded that the project will result in Low Residual Impact upon Barf Hill woodland and bats with the adoption of mitigation measures including the delivery of a Biodiversity Enhancement Management Plan which includes habitat creation and restoration measures. The timescales for this work is likely to be undertaken in advance of the English Onshore Scheme however it is likely that in combination there would be a more than a Minor adverse additional effect upon Barf Hill woodland and Gransmoor Drain (and associated faunal interest) were both project to be under construction concurrently.</p> |
| ERYC-9 | <p>Change of use of land and excavation works to create access from Driffield Canal and from a 22 berth marina for mooring leisure boats with access and car park.</p> | Tier 1 Pending | Approximately 930 m east of the underground DC cable route | <p>Potential indirect effects (water quality and pollution risk) upon Driffield Canal and watercourses linking to the English Onshore Scheme via the local hydrology network (including the River Hull Headwaters SSSI). Additional indirect disturbance effects upon associated ecological receptors including otter, water vole, breeding birds and fish may also increase were the project constructed at the same time... although with the adoption would not likely be greater than Minor adverse. It is noted that an EclA for the project is still pending (May 2022).</p> |
| ERYC-22 | <p>Installation and operation of a solar farm with associated infrastructure, including photovoltaic panels, mounting frames, transformers/inverters, substation, access tracks, pole mounted CCTV cameras and fencing.</p> | Tier 1 Approved October 2020 | Immediately north of planning application boundary/west of River Hull at Wanford/Skerne | <p>Given the proximity of this project to the planning application boundary and also to the River Hull Headwaters SSSI there are potential cumulative impacts regarding indirect effects upon the SSSI; water quality and greater levels of noise and vibration disturbance to birds within areas water quality, as well as otter mobility where the pipelines may interact or cross the same watercourses. However, while detailed proposals for this scheme are not available, it is unlikely that this project and SEGL2 the English Onshore Scheme will occur simultaneously in the same locations. However were</p> |

| Project Name/Reference (Figure 17-2) | Brief Description | Status | Distance to planning application boundary | Assessment |
|--------------------------------------|---|--------------------------------|---|--|
| | | | | they to, there may be an additional Minor adverse cumulative effect on ecological receptors. |
| ERYC-15 | Change of use of existing buildings and land to provide a holiday park, artisan workshops with associated retail. Fishing lake including associated alterations to farm house and buildings, operational development, landscaping, vehicular access and drainage. | Tier 1 Approved Oct 2020 | Direct adjacent -to north of planning application boundary at Welham Bridge (Section 2) | The development adjacent to the planning application and the Featherbed Drain. Were this and the English Onshore Project constructed at the same time there would likely be an increased effects upon the watercourses from indirect potential water quality and noise/lighting disturbance to otter/water vole/bats supported by the watercourse. It is not clear if the development includes any drainage work from the proposed lake as documents were not available to review online. However, assuming that appropriate pollution prevention measures are adopted by the project to address potential effects upon the watercourse and associated fauna (otter/water vole/ foraging bats) the in combination effects is unlikely to be greater than Minor Adverse of a Local ecological receptor, and not significant. |

7.10 Summary of Assessment

A number of statutory and non-statutory nature conservation sites were identified within the potential zone of influence of the English Onshore Scheme as part of the desk study to inform the EclA. The siting of the landfall site and implementation of HDD installation methods to connect the cable to the Marine Scheme means that the English Onshore Scheme avoids direct impacts on the nearest international designations, which are the Greater Wash SPA and Flamborough and Filey Coast SPA and the Flamborough Head SAC.

The HVDC cable has been routed to avoid direct impacts on several SSSIs including Kiplingcotes Chalk Pit SSSI and Barn Hill Meadows SSSI. Whilst it has not been entirely possible to entirely avoid crossing the River Hull Headwaters SSSI, measures to minimise potential direct and indirect effects of the English Onshore Scheme will be adopted including the installation of the cable using HDD installation methods at both the River Hull and Kelk Beck crossing locations. The adoption of a number of other mitigation measures through embedded design and during construction approach are committed to including ensuring construction activities are located as far away from the SSSI as possible to help reduce noise and visual disturbance to breeding birds as a result. The temporary disturbance of Kelk Beck due to the installation of a construction haul road will ensure the design maintains the water flow and integrity of the watercourse, and minimises the disturbance of the Beck channel and banks. Appropriate mitigation measures have been embedded within the design to minimise potential indirect effects upon riparian fauna including passage by fish, otter and water vole. Habitats will be fully reinstated to the former condition and where possible enhanced. Appropriate measures to control dust emissions, pollution and surface water run-off during construction and operation are embedded within the CEMP to ensure legislative compliance, and overall it has been concluded that there will therefore be no significant effect upon the SSSI.

The English Onshore Scheme also avoids direct impacts upon several Local Wildlife Sites within East Yorkshire, which were taken into account at an early stage of the design following completion of the ecological desk study. Within Section 2, east of Market Weighton the planning application boundary crosses two LWS; Granny's Attic Railway and LWS Etton-Gardham Disused Railway LWS which are located within a section of the Hudson Way Local Nature reserve. HDD installation installation measures are committed to avoid direct effects upon the LWS calcareous grassland and mosaic habitats. The haul road and construction compound in this area are designed to avoid and protect LWS designated habitats by adoption of delineation fencing and ECoW monitoring during the construction phase.

Within Section 4, south of the River Ouse and within Selby District Council, the ecological effects of the construction of the converter station within an arable field east of Drax power station and New Road has been assessed. The habitats permanently lost equating to a total of approximately 8.5 ha are of Site or lower value (arable and species poor hedgerow) and were therefore scoped out of the EclA. Indirect effects of the construction of the converter station upon adjacent habitats (drains, hedgerows, trees and woodland) and species (including breeding and wintering birds, bats and water vole) have been subject to assessment. With the adoption of embedded design, construction mitigation or additional project specific measures significant effects of the construction of the converter station upon retained and protected neighbouring habitats and protected species are avoided.

The English Onshore Scheme will result in no significant residual effects on habitats including several areas of UK priority habitats. The English Onshore Scheme crosses predominantly agricultural land comprising mainly of intensively farmed arable fields, interspersed with smaller permanent grassland paddocks (used for horse and livestock grazing), which are species poor and of low ecological value. Where the application boundary crosses hedgerows and field boundaries the removal of these habitats will be minimised wherever possible and reinstated to at least equal or better value/condition as part of the embedded habitat reinstatement measures. Mature trees, including those with potential to support roosting bats will be entirely avoided wherever possible and protected during the construction phase to avoid impacts upon tree root zones.

No significant effects on protected species have been identified by the EclA. Appropriate precautionary mitigation to ensure legislative compliance will be employed prior to the commencement of site establishment and clearance works including where required pre-construction surveys. Measures to specifically address potential effects of temporary disturbance to habitats and protected species they support are committed to. These include the commitment to pre-construction surveys and mitigation for habitats having potential to /confirmed to support roosting bats, badger, water vole, otter and common species of reptiles. Mitigation for nesting birds and to reduce effects of disturbance to bird at sensitive locations such as at River Hull will also be employed site-wide during the construction phase. Habitats will be fully reinstated post-construction, and therefore there will be no significant effects on local populations.

7.11 References

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