VikingCCS

Viking CCS Pipeline

Environmental Statement Volume IV – Appendix 6-3: Otter and Water Vole Survey Report

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Prepared by		Verified by		Approved by
AR		MWH		NP
Ecologist		Associate Ecologist		EIA Technical Director

Prepared by:

AECOM Limited
Exchange Station
Tithebarn Street
Liverpool
Merseyside
L2 2QP

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1 Introduction

1.1.1 This Appendix has been prepared for the Viking CCS Pipeline Environmental Statement (ES). It provides details on the methodologies used whilst compiling information and ecological baseline conditions relating to otter (*Lutra lutra*) and water vole (*Arvicola amphibius*). Baseline data presented in this Appendix has been used to inform the assessment within *ES Volume II Chapter 6: Ecology and Biodiversity (Application Document 6.2.6)*.

1.1.2 The Viking CCS Pipeline ('the Proposed Development') comprises a new 24 " (609 mm) diameter onshore pipeline of approximately 55.5 km in length, which will transport Carbon Dioxide (CO_2) from the Immingham industrial area to the Theddlethorpe area on the Lincolnshire coast, where it will connect into the existing 36 " (921 mm) diameter offshore LOGGS pipeline.

1.1.3 The Proposed Development is an integral part of the overall Viking CCS Project, which intends to transport compressed and conditioned CO_2 received at a facility at Immingham to store in depleted gas reservoirs under the Southern North Sea. The offshore elements of the Viking CCS Project, including the transport of CO_2 through the LOGGS pipeline to the Viking gas fields under the North Sea, are subject to a separate consenting process.

1.1.4 The key components of the Proposed Development comprise:

- Immingham Facility;
- Approximately 55.5 km 24 inch (") onshore steel pipeline (including cathodic protection);
- Three Block Valve Stations;
- Theddlethorpe Facility;
- Existing LOGGS pipeline and isolation valve to the extent of the Order Limits at Mean Low Water Springs (MLWS);
- Permanent access to facilities;
- Mitigation and landscaping works;
- Temporary construction compounds, laydown, parking and welfare facilities;
- Temporary access points during construction.

1.1.5 Further details of each element of the Proposed Development are set out in Chapter 3 of the Environmental Statement (ES) Volume II *(Application Document 6.2.3).*

1.1.6 The Proposed Development is using three techniques for crossing watercourses (and one two temporary crossing techniques) these are:

- Horizontal Directional Drilling (HDD) – a technique which can bore deeper than 20m below the surface to bury the pipeline, however this is being limited to 20m for the Proposed Development. Watercourses where this technique is being used have been scoped out for water vole survey as an appropriate buffer will be used to avoid impacts to water vole. However, where a watercourse is also being crossed by flume or bailey bridge then they have been included in the assessment;

- Auger-bore – technique involves a pipe being pushed into the ground whilst the soil is cut away by an auger which moves material back along the pipe. This is typically installed at 4m to 6m below the surface. Watercourses where this technique is being used have been scoped out for water vole as an appropriate buffer will be used to avoid impacts to water vole. However, where a watercourse is also being crossed by flume or bailey bridge then they have been included in the assessment;
- Open cut – involves digging a trench directly across the watercourse to lay the pipeline, this is then backfilled;
- Flume – involves installing a temporary pipe on the river bed along the length of works, allowing water to flow through the pipe whilst the rest of construction can be undertaken below the flume, whilst allowing access across watercourses; and
- Bailey bridge – a temporary bridge which allows access across watercourses.

1.1.7 For more information on the techniques used for watercourse crossings refer to Section 3.13 of *ES Volume II Chapter 3: Description of the Proposed Development (Application Document 6.2.3));*

1.1.8 For the purpose of presenting results the Proposed Development has been divided up into five sections (including associated Crossing Points) which are detailed in **Table 1** below and on **Figure 1**.

Table 1: Section Numbers and Areas Covered of the Proposed Development

Section Number	Area Covered by Section	Crossing Points of Watercourses Located Within the Section
1	Immingham Facility to A180	**Open cut** – DX001AP, RVX001GP, DX003P, DX004P, DX008P, DX008AP, DX012P & DX013P **HDD** – DX005P, DX005AP, DX006AP, DX006P & DX007P **Auger-bore** – DX001P, DX010P & DX011P **Auger-bore and Flume** – DX009P & DX014P
2	A180 to A46	**Open cut** – DX016P, DX017P, DX018P DX019P, RVX001AP, DX023BP, DX023CP, DX025P, DX026P, DX028P, DX029P & DX029AP **HDD** – DX021P, DX022P & DX023P **Auger-bore and Flume** – DX015P, DX023AP, DX023DP, DX024P & DX027P
3	A46 to Pear Tree Lane	**Open cut** – DX030P, DX031P, DX032P, DX034P, DX035P, DX035AP, DX037P, DX038P, DX038AP, DX040P, DX041P, DX042P, DX043P, DX044P, DX045P, DX045AP, DX046AP, DX048P & DX049P, **HDD** – RVX001CP **Auger-bore and Flume** – DX039P, DX046P, DX047P & DX049AP **Auger-bore and Bailey Bridge** – RVX001BP & RVX001DP
4	Pear Tree Lane to Manby Middlegate (B1200)	**Open cut** – DX050P, DX051P, DX052P, DX053P & DX054P, DX056P, DX057P, DX059P, DX060P, DX060AP, DX061P, DX063AP, DX066P, DX067P, DX068P, DX073P, DX074P, DX075P, DX078P & DX079P **HDD** – RVX001P & CNX001P

Section Number	Area Covered by Section	Crossing Points of Watercourses Located Within the Section
		HDD and Bailey Bridge – RVX003AP **HDD and Flume** – DX080P **Auger-bore** – RVX001FP **Auger-bore and Bailey Bridge** – RVX001EP **Auger-bore and Flume** – DX055P, DX058P, DX063P, DX064P, DX069P, DX071P, DX072P & DX077P
5	Manby Middlegate (B1200) to Theddlethorpe and down to Mean Water Low Springs	**Open cut** – DX083AP, DX084P, DX085P, DX086P, DX087P, DX089AP,DX090P, DX090AP, DX090BP, DX091P, DX092P, DX093P, DX093AP, DX094P, DX095P, DX095AP, DX096P, DX097P, DX100P, DX101P, DX102P, DX103P, DX104P, DX105P, DX105AP, DX108P, DX109P, DX110P & DX114P & DX114Pa **HDD** – DX097AP, RVX007P, DX098P, DX111P & RVX008P **HDD and Flume** – DX081P, DX082P & DX088P **Auger-bore and Flume** – DX083P, DX089P, DX099P, DX106P, DX107P, DX111AP, DX112P, DX113P, DX111APa, DX112Pa & DX113Pa

Survey Aims and Objectives

1.1.9 The Aims and objectives of the survey work and the subsequent report were to:

- Review existing ecological data to identify any records of water vole and otter within the Study Area;
- Incidentally record the presence of other riparian mammals through their field sings, where present (notably mink (*Neovison vison*) and brown rat (*Rattus norvegicus*)); and
- Determine the status (presence/likely absence) of water vole and otter within the Survey Area in order to inform the Ecological Impact Assessment (EclA) for the Proposed Development.

2 Wildlife Legislation and Planning Policy

2.1 Legislation

2.1.1 The following wildlife legislation is potentially relevant to the Proposed Development. This legislation has been considered when undertaking the otter and water vole survey using the methods described in Section 3.

2.1.2 Although the UK is no longer a member of the European Union (EU), all international nature conservation obligations that applied within England on 31 December 2020 remain part of national domestic legislation.

Water vole

2.1.3 The water vole is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (WCA). This makes it an offence to:

- Intentionally capture, kill or injure water voles;
- Intentionally or recklessly damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
- Intentionally or recklessly disturb them in a place of shelter or protection (on purpose or by not taking enough care); and
- Possess, sell, control or transport live or dead water voles or parts of them (excluding water voles bred in captivity).

2.1.4 The Act provides a defence against the offences outlined above. However, the defence is only sustained if it can be argued that the potential offence was '*the incidental result of a lawful operation*' and '*could not reasonably have been avoided*' as set out in the WCA. In order to demonstrate these two elements of the defence, as far as is reasonable, appropriate action would need to be taken to safeguard water vole and their shelters to ensure there is as little risk as possible of interfering with them. Short-term low-level disturbance which '*allows water vole to flee and then later return*' is not considered likely to trigger an offence under the WCA. Where development cannot avoid potential offences then a licence may be required.

2.1.5 The Government has published standing advice (Natural England and Department for Environment, Food and Rural Affairs (Defra)) to guide decision-makers on the determination of proposals with potential to affect protected species such as water vole. The guidance sets out responsibilities and minimum requirements for survey and mitigation.

2.1.6 The water vole is also considered a 'Species of Principal Importance for Nature Conservation in England' pursuant to Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act requires that local planning authorities have regard to the conservation of biodiversity in England, when carrying out their normal functions. The water vole is also included as a priority species for nature conservation within the Lincolnshire Local Biodiversity Action Plan (LBAP) (Ref 3).

Otter

2.1.7 Otter and their resting places receive protection under both British and European legislation. Under European legislation the otter is protected under EC Directive (92/43/EEC), being listed under Annexes Iia and Iva. This is implemented in Britain under the Conservation of Habitats and Species Regulations, 2017 (as amended). Under this legislation it is an offence to *"deliberately capture, injure or kill an otter; deliberate disturbance of otters; or damage or destroy a breeding site or resting place used by an otter."*

2.1.8 The otter is listed under Annexe II of the Bern Convention and is also protected under Schedule 5 and 6 of the WCA. Under the WCA it is a criminal offence to:

- intentionally or recklessly damage, destroy, or obstruct access to a place used by an otter for shelter or protection; and
- Possess, sell, control or transport live or dead otters, or parts of otters.

2.1.9 The otter is also a 'Species of Principal Importance for Nature Conservation in England' pursuant to Section 41 of the NERC Act 2006.

2.1.10 The Government has published standing advice (Natural England and Defra, 2019) to guide decision-makers on the determination of proposals with potential to affect protected species such as otter. The guidance sets out responsibilities and minimum requirements for survey and mitigation.

2.1.11 Where development cannot avoid potential offences, then it is possible to apply for a European Protected Species Mitigation Licence (EPSML). A licence is only likely to be granted for developments that can demonstrate compliance with the relevant standing advice.

2.1.12 The disturbance offence within the Habitat Regulations 2017 (as amended) is not concerned with levels of disturbance which would be unlikely to adversely affect otter. Under this legislation there would only be a conflict with the above legislation where disturbance is of sufficient extent or magnitude to:

- Impair the ability of otter to survive, to breed or reproduce, or to rear or nurture their young; or
- Significantly affect the local distribution or abundance of the species.

3 Methodology

3.1 Desk Study

3.1.1 An initial desk study was conducted in 2022. Lincolnshire Environmental Records Centre (LERC) was contacted in March 2022 to obtain data for otter and water vole, and other riparian mammals (e.g. American mink) within the Study Area.

3.1.2 The desk study was restricted to data within the last 10 years (post-2012) so that the data collected would be more likely to reflect the current baseline conditions associated with the Study Area. Where data is not present within the last 10 years then older data was also considered.

3.2 Field Survey

3.2.1 Watercourses were appraised for their suitability to support otter and water vole during the extended Phase 1 Habitat surveys (refer to ES Volume IV Appendix 6.1; Phase 1 Habitat Survey of this ES). Watercourses that were considered suitable were included in the presence/absence surveys. Any watercourse that had also subsequently dried out were scoped out at the time of survey.

3.2.2 A total of 147 crossing points were initially classified as requiring assessment for their suitability for otter and/or water vole from the Extended Phase 1 Habitat Surveys. Of these, 80 crossing points were determined to not need otter and water vole surveys as they were dry (refer to **Table 6** in Section 4).

3.2.3 Otter and water vole surveys were undertaken between May 2022 – April 2023 (Annex C) which encompasses the part of the optimal window for water vole survey (mid-April to September) enabling the identification of breeding territories as well as being a suitable time for surveying for otter (otter surveys can be undertaken throughout the year).

3.2.4 Surveys were conducted in suitable weather conditions, i.e. dry, mild, with no recent heavy rain. Occasionally surveys were undertaken in light rain, or recent light rainfall and it was considered that field signs of water vole or otter would not be unduly affected.

3.2.5 Surveys involved searching both banks of watercourses within the Survey Area for signs of water vole and otter presence. The search focussed on stretches of up to 500 m (up to 250 m in either direction from the point where the Proposed Development crosses the watercourse), with searches taking place up to 10 m from the water's edge including in-channel survey where safe for the surveyor to do so.

3.2.6 Incidental records of water vole and otter were also recorded from landowners and members of the public, and from other field surveys completed to inform the Proposed Development.

Water Vole Field Signs

3.2.7 Two water vole surveys were undertaken following guidance provided in the Water Vole Conservation Handbook (Ref 3) and The Water Vole Mitigation Handbook (Ref 4). Depending on access, watercourses were searched for signs up to 250m up and downstream of the crossing point of the route. Water vole field signs that were searched for during the survey include:

- direct sightings;

- faeces;
- latrines;
- feeding stations;
- burrows;
- lawns – around burrows there is often an area of grazed vegetation;
- nests;
- footprints – as with other rodents, the footprints of the fore foot, show four toes in a star arrangement, with the hind foot showing five toes. The size of footprints for the hind foot is 26-34 mm;
- runways – these are low tunnels within the vegetation; and
- auditory noises – characteristic 'plop' sound as animals enter a waterbody.

3.2.8 The presence/absence of mink and brown rat was also recorded through their field signs, where present. These species may influence habitat suitability for water vole in particular and may help explain an absence of field signs in habitats that otherwise appear to be highly suitable.

3.2.9 Where possible, an approximate number of water vole territories were determined. To calculate this the total length of survey and location of latrines were recorded.

3.2.10 Water vole watercourses were categorised using the information provided in **Table 2** below.

Table 2: Summary of Categories for Water Vole Presence, Potential Presence and Absence

Water vole Results Category	Data Collected to Determine Category
Present	Confirmed identification of droppings / latrines or actual sightings of water vole .
Potentially present	Evidence of field signs other than droppings or actual sightings or a watercourse which is directly connected to one where water vole have been confirmed and/or recent confirmed desk study record.
Likely absent	No field signs or data from local reliable sources. Local habitat conditions suggest water voles are absent.
Scoped out	Lack of suitable habitat to support water vole.
Assessed as suitable, but not surveyed	Initial field appraisal identified suitable habitat, but further survey has not been undertaken.
Not accessed	Land access not available to conduct habitat appraisal or detailed survey

Otter Field Signs

3.2.11 Otter surveys were undertaken following guidance provided in the Environment Agency's Fifth Otter Survey of England 2009-2010 (Ref 6) and Monitoring the Otter (Ref 1, Ref 6). Watercourses were searched for signs 250m up and downstream of the crossing point subject to access constraints. Otter field signs that were searched for during the survey include:

- spraints;
- anal jelly;
- footprints;
- slides;
- suitable habitat for holts (breeding sites);
- direct sightings;
- holts and couches; and
- feeding remains.

3.2.12 In most cases the presence of faeces/latrines and footprints are the most reliable field evidence for otter, in the absence of direct sightings. Not all other field signs are necessarily definitive to species level, or other factors may prevent a conclusive identification. However, a precautionary approach has been undertaken when inferring otter presence from the observed field signs.

3.2.13 Where otter terrestrial habitat has been identified (see below), then two surveys have been conducted to infer presence or likely absence of otter. Where two surveys have not yet be completed these have been planned to happen in the summer of 2023. At all other locations a single survey has been completed to infer presence or likely absence. Otter watercourses were assigned a category according to the criteria set out in **Table 3** below.

Table 3: Summary of Categories for Otter Presence, Potential Presence and Absence

Otter Results Category	Data Collected to Determine Category
Present	Evidence of otter field signs recorded, including spraints, footprints, actual sightings and active holts and couches.
Potentially present	Watercourses directly connected to a watercourse where otter signs have been found. Evidence from data search combined with an assessment of the watercourse and surrounding habitat suggest otter may be present.
Likely absent	No field signs or data from local reliable sources. Local conditions suggest otter are absent.
Scoped out	Lack of suitable habitat.
Assessed as suitable, but not surveyed	Initial field appraisal has identified suitable habitat, but further survey has not been undertaken
Not accessed/surveyed	Land access not available to conduct habitat appraisal or detailed survey

Otter Terrestrial Habitat

3.2.14 The otter field surveys were extended to include terrestrial habitat suitable for otter where the habitat was located within 200m of the Proposed Development, over 1 ha in size and within 100 m of a watercourse in accordance with published survey guidance (Ref 1, Ref 2 and Ref 7).

3.2.15 Suitable terrestrial habitats for otters comprise woodlands, extensive reedbeds, large areas of scrub, and rocky areas/ boulders (Liles Ref 9). Terrestrial habitat surveys were conducted by an experienced otter surveyor to check for signs of breeding activity (e.g., well used paths, play areas, or large accumulations of spraint). The location of such features was recorded, along with details of the feature and associated habitat (e.g., large wood pile within area of semi-natural woodland). In addition, the survey identified and mapped any linear features that may be important in the movement of otter between adjacent watercourses.

3.3 Assumptions and Limitations

3.3.1 The information collected from the desk study record search represents only those records submitted to records centres and is therefore not considered to be a definitive list of water vole or otter records within the Study Area. If records have not been provided, this does not confirm absence of water vole or otter from this area.

3.3.2 All of the surveys were undertaken at an appropriate time of year and during suitable weather conditions. There was no substantive rainfall prior to the surveys that might have washed field signs away.

3.3.3 Land access has been restricted in some areas of the route which has limited the completion of surveys at the optimal times of the year for water vole surveys, and in some cases has only allowed for the completion of a habitat assessment. Where a full complement of surveys has not been completed on a particular watercourse for either otter or water vole then that species has been assumed to be present. This precautionary approach is considered sufficient to provide an assessment of impacts and inform appropriate mitigation.

3.3.4 Due to land access constraints an area of woodland within 200m of the DCO Site Boundary and with otter field signs nearby has not been assessed for the potential for otter holts. Access is likely to be permitted for survey to be undertaken here prior to works being started. For the purposes of assessment and mitigation using a precautionary approach it is assumed a holt is present at this location.

3.3.5 The presence of dense vegetation in the summer months does pose a constraint to surveyors as field signs can be missed. However, this is a common constraint affecting all otter and water vole surveys in general undertaken at this time of year. For instance, dense bramble scrub was located within the watercourse at crossing point DX029P. Every effort was made to search for otter and water vole field signs and on this basis the survey was not considered significantly constrained and therefore did not impact the results.

3.3.6 Banks of a number of watercourses had recently been cut prior to survey visits. Although this did aid the search for water vole burrows along the banks, other evidence for both otter and water vole such as feeding remains, lawns, runs, paths and couches may have been lost as a consequence. However, this is unlikely to have impacted the search for reliable in-channel features to identify presence such as latrines/ spraints and footprints. Similarly, if water vole were present, it would have still been possible to find field signs on unaffected banks. As such, the cutting of banks is not considered a significant limitation.

4 Results

4.1 Desk Study

4.1.1 A total of 1,166 records were received for water vole within the Study Area, with 122 of these located within the DCO Site Boundary. The desk study also returned a total of 145 records of otter within the Study Area, with 19 within the DCO Site Boundary (see **Table 4** below with data for the previous 10 years shown in Annex C and in full in **Figure 2**).

Table 4: Summary of Otter and Water Vole Records Received from GLNP

Species	Number of Records	Closest Distance from DCO Site Boundary	Associated Crossing Points
Water vole	1,166	Within (122 records)	DX074P, DX078P, DX083P, DX90BP, DX095AP, DX110P & DX111P
Otter	145	Within (19 records)	RVX002P, RVX007P & RVX001CP

4.2 Field Survey

4.2.1 Full survey data of all five sections of the Proposed Development are shown in Annex C, with a data summary provided in **Table 7** for the results of water vole surveys and **Table 9** for the results of otter surveys.

4.2.2 **Table 5** below shows the crossing points scoped out from further survey during Phase 1 Habitat Survey. These were scoped out for being dry and therefore unsuitable for otter and water vole. Further information of these can be found in Annex C of this Appendix.

Table 5: Crossing Points Scoped Out from Assessment during Phase 1 Habitat Survey

Sector	Crossing Point
Section 1	DX001P, DX001AP, RVX001GP, DX006P, DX008AP, DX009P & DX014P
Section 2	DX015P, DX016P, DX021P, DX023AP, DX023DP, DX024P, DX026P, DX027P, DX028P & DX029AP
Section 3	DX030P, DX031P, DX032P, DX034P, DX035P, DX035AP, DX037P, DX038P, DX038AP, DX041P, DX042P, DX043P, DX044P, DX045P, DX045AP, DX046P, DX046AP & DX049AP
Section 4	DX051P, DX052P, DX053P, DX056P, DX057P, DX058P, DX060P, DX60AP, DX063P, DX063AP, DX068P, DX069P, DX075P & DX079P
Section 5	DX082P**,** DX083AP, DX086P, DX087P, DX089P, DX090P, DX090AP, DX091P, DX093P, DX093AP, DX094P, DX095P, DX096P, DX097P, DX099P, DX100P, DX101P, DX102P, DX103P, DX104P, DX105P, DX105AP, DX106P, DX107P, DX108P, DX109P, DX112P, DX113P, DX114P, DX112Pa, DX113Pa & DX114Pa

4.4 Water Vole

Locations Scoped Out

4.4.1 In addition to the crossing points scoped out for both otter and water vole habitat suitability, all locations on watercourse that are being crossed using either HDD and Auger-bore and which are not flumed or crossed by Bailey bridges will have appropriate working stand-offs buffers to avoid impacts on water vole. These locations are also scoped out of further survey and are listed in **Table 6** below.

Table 6: Crossing Points Scoped Out from Assessment Through Impact Avoidance

Section	HDD	Auger-Bore
Section 1	DX005P, DX005AP, DX006AP & DX007P	DX010P, DX011P
Section 2	DX022P	N/A
Section 3	RVX001CP	N/A
Section 4	CNX001P & RVX001P	RVX001FP
Section 5	RVX002P, DX097AP, RVX007P & DX098P	N/A

Survey Results

4.4.2 In total water vole surveys were undertaken at 52 crossing points (**Table 7** and **Figure 3**). Water vole were confirmed absent at four crossing point locations; DX008P, DX039P, DX089AP & DX090BP.

4.4.3 Water vole were confirmed to be present on five crossing points (consisting of three watercourses). Consistent with desk study records this confirmed that water vole are present at crossing point DX110P and DX111P. Water vole are also potentially present on a further four crossing points due to desk study records, where survey has not confirmed absence and there are pre-existing records are either on the same watercourse or are directly connected to it.

4.4.4 A further 39 crossing points were also classified as having water voles being potentially present on a precautionary basis due to only a single field survey being completed at the time of writing.

Table 7: Summary of Water Vole Results

Water Vole Results Category	Section and Crossing Point
Present	**Section 4:** RVX003AP **Section 5:** DX110P, DX111P, DX111AP & DX111Apa
Potentially present (desk study records)	**Section 4:** DX074P & DX078P **Section 5:** DX083P & DX095AP
Potentially present (limited field survey results)	**Section 1:** DX003P, DX004P, DX012P & DX013P, **Section 2:** DX017P, DX018P, DX019P, DX023P, RVX001AP, DX023BP, DX023CP, DX025P & DX029P **Section 3:** RVX001BP, RVX001DP, DX040P, DX047P, DX048P, DX049P, DX050P, DX054P & DX055P

Water Vole Results Category	Section and Crossing Point
	Section 4: DX059P, DX061P, DX064P, DX066P, DX067P, DX071P, DX072P, DX073P, DX077P, DX080P & RVX001EP **Section 5:** DX081P, DX084P, DX085P, DX088P & DX092P
Likely absent	**Section 1:** DX008P **Section 3:** DX039P **Section 5:** DX089AP & DX090BP

Confirmed Presence

4.4.5 The following provides a description of the locations where water vole have been confirmed to be present.

RVX003AP (Grayfleet Drain)

4.4.6 Grayfleet Drain is approximately 1m wide and of variable water depths which are less than 0.6m throughout. The banks are earth, and suitable for water vole burrowing. The drain and its banks support stands of suitable foodplants, including emergent grasses and sedges. Bankside trees are absent and there is no shading of the channel.

4.4.7 The drain is connected to a network of drains in the wider landscape and provides potential movement corridors for water vole between other areas of suitable habitat.

4.4.8 Evidence of water vole was observed at three discrete locations across the 500m survey length, and these consisted of a total of two burrows and one latrine. Mink footprints were also identified during the survey located close to the water vole signs.

4.4.9 Despite the suitability of available habitat, given the presence of predatory mink and the low abundance of field signs it is considered that Grayfleet Drain supports a minimum of two water vole territories.

DX110P and DX111P (Unnamed Drain)

4.4.10 Crossing points DX110P and DX111P occur on the same unnamed drain. The drain located at DX110P and DX111P is approximately 2m wide and approximately 0.7m deep. The banks are earth, and suitable for water vole burrowing. The drain and its banks supports stands of suitable foodplants. Bankside trees are absent and there is no shading of the channel.

4.4.11 The drain is connected to a network of drains in the wider landscape and provides potential movement corridors for water vole between other areas of suitable habitat.

4.4.12 Evidence of water vole was observed throughout the drain and consisted of a total of 23 burrows and 15 latrines across a 500m long survey area. The burrows and latrines were mainly located to the west of the drain, and where the drain was parallel with the road the burrows and latrines began to become less frequent. The large number of burrows and latrines suggests the drain supports multiple water vole territories.

DX111AP & DX111Apa (The Cut)

4.4.13 Crossing points DX111AP and DX111Apa both occur on The Cut. The Cut is approximately 5m wide and approximately 1m deep. The banks are earth, and suitable for water vole burrowing. The drain and its banks supports stands of suitable foodplants. Bankside trees are absent and there is no shading of the channel.

4.4.14 The drain is connected to a network of drains in the wider landscape and provides potential movement corridors for water vole between other areas of suitable habitat.

4.4.15 Evidence of water vole was observed within the drain and consisted of a total of two burrows and one potential latrine across 250m of survey. The small number of signs suggests The Cut supports a minimum of one territory.

Other Watercourses

4.4.16 No water vole signs were recorded on any of the remaining watercourses however, four watercourses had recent records of water vole associated with them and as such have potential to still support populations of water vole. These are listed in **Table 5** above.

4.5 Otter

Locations Scoped Out

4.5.1 With the exception for those locations that had been scoped out because they lacked suitable habitat (**Table 5** and **Figure 4**), all other locations were surveyed for suitable terrestrial habitat and the presence of otter.

Terrestrial Habitat

4.5.2 **Table 8** below describes the 15 locations that are both linked with suitable watercourses and within 200m of the Proposed Development and where there is potential for otter holt creation and / or laying up areas to be present. These locations are illustrated in **Figure 5**. Only suitable terrestrial habitat located within 100m of a watercourse was scoped into the assessment.

4.5.3 Two additional locations (DX063AP and DX093P) with suitable terrestrial habitat for otter, were scoped out due to lack of any associated aquatic habitat.

Table 8: Suitable Terrestrial Otter Habitat within 200m of the Proposed Development

Crossing Point	Otter Holt Potential	Laying Up Potential	Location Relevant to DCO Site Boundary
DX003P	Areas of woodland to the west and adjacent to the watercourse. Area has been surveyed and no features suitable to serve as otter holts were observed. Woodland and scrub are not dense, with clear lines of sight through the vegetation.	Woodland located adjacent to the watercourse. The location has some limited potential to provide a laying up site for otters.	Within

Crossing Point	Otter Holt Potential	Laying Up Potential	Location Relevant to DCO Site Boundary
	Considered unlikely to provide any potential for otter holts.		
DX011P	Area of woodland with a pond located adjacent to the watercourse. This area has not been subject to direct survey and has precautionarily been classified as suitable for otter holts.	Area of woodland with a pond located adjacent to the watercourse. Precautionarily considered suitable habitat for a laying up site.	Immediately adjacent
DX025P	Small area of woodland directly linked via ditches to the south of the watercourse. The woodland is not dense, with clear lines of sight through the vegetation. The location is undisturbed. Has some potential for otter holts.	Small area of woodland directly linked via ditches to the south of the watercourse. The location has some potential to provide a laying up site for otter.	Within
DX029P	None	Scrub located on the watercourse that has some limited potential to provide a laying up site for otter.	Within
RVX001BP	Woodland at Welbeck Spring. Woodland is undisturbed and has some dense areas. The location has some limited potential for otter holts.	Woodland at Welbeck Spring and scrub and trees on watercourse. The location has potential for laying up sites for otter.	Immediately adjacent
RVX001CP	Woodland adjacent to the watercourse. The woodland is newly planted with no dense understorey. Considered unlikely to provide any potential for otter holts.	Woodland adjacent to the watercourse that has some potential for laying up sites for otter.	Within
DX054P	None	Hedgerow adjacent to the watercourse that has some potential for laying up sites for otter.	Within
DX064P	Woodland located adjacent to the watercourse. This area has not been subject to direct survey.	Woodland located adjacent to the watercourse and mature trees adjacent to the watercourse.	Immediately adjacent

Crossing Point	Otter Holt Potential	Laying Up Potential	Location Relevant to DCO Site Boundary
	Precautionarily considered suitable for otter holts.	Precautionarily considered suitable habitat for a laying up site.	
RVX001FP	Woodland adjacent to watercourse. The woodland is dense with a well-developed understorey. Area is not disturbed. The location has potential for otter holts.	Woodland adjacent to watercourse. Has potential for laying up sites.	Within
DX066P	None	Mature trees and scrub adjacent to watercourse. The location has potential for laying up sites.	Within
DX067P	None	Scrub adjacent to watercourse. The location has potential for laying up sites.	100m east
DX085P	None	Areas of scrub adjacent to the watercourse. The location has potential for laying up sites.	Within
DX092P	None	Areas of scrub adjacent to the watercourse and on connecting ditches. The location has potential for laying up sites.	Within
DX110P	Small area of woodland located to the north-east of the watercourse connected by other watercourses. Woodland and scrub are not dense. Considered unlikely to provide any potential for otter holts.	Small area of woodland located to the north-east of the watercourse connected by other watercourses and areas of scrub connected by other watercourses. The location has some potential for laying up sites.	Immediately adjacent
DX111P	Small area of woodland located to the north-east of the watercourse connected by	Small area of woodland located to the north-east of the watercourse	Immediately adjacent

Crossing Point	Otter Holt Potential	Laying Up Potential	Location Relevant to DCO Site Boundary
	other watercourses. Woodland and scrub not particularly dense. Considered unlikely to provide any potential for otter holts.	connected by other watercourses and areas of scrub connected by other watercourses. The location has some potential for laying up sites.	

4.5.4 The assessment of terrestrial habitat suitability in **Table 8** has taken a precautionary approach where locations were not accessible to survey. The assessment has scoped out terrestrial habitat where it is considered unsuitable for otter or is located further than 200m from the DCO Site Boundary. Unsuitable habitat includes areas of sparse woodland and sparse scrub, young hedgerows and areas of suitable habitat that are unsuitable due to the likelihood of high levels of disturbance.

4.5.5 All 15 locations were considered to provide potential otter laying up sites.

4.5.6 Ten of the locations were assessed as not providing potential opportunities for holt sites. The remaining five locations were considered to provide potentially suitable habitat for otter holts. None of these locations were separated from the DCP Site Boundary by features (such as undulating ground topography, earth banks, walls or other manmade structures) which are likely to reduce the potential for disturbance to otters.

4.5.7 There were three areas of habitat that had potential for otter holts were located within the DCO Site Boundary and in the vicinity of the following locations:

- DX025P;
- RVX001CP; and
- RVX001FP

4.5.8 The remaining two were located within 200m of the DCO Site Boundary:

- RVX001BP; and
- DX064P

Aquatic Habitat

4.5.9 A total of 80 crossing points were scoped out from further assessment because of habitat suitability (See **Table 5** above).

4.5.10 The results of the otter survey are illustrated in **Figure 4**. At the time of writing, six crossing point locations have not been surveyed and here otter have been assumed to be present on a precautionary basis. The remaining 61 crossing point locations were subject to otter survey.

4.5.11 Where suitable terrestrial habitat has been identified within 200m of the DCO Site Boundary then two surveys were undertaken to confirm likely absence. Where there is no suitable terrestrial habitat present then otter are assessed as likely absent from watercourses where

one survey had been undertaken and no signs were observed. Following assessment otter were deemed to be likely absent from 41 crossing point locations (**Table 9**). This included the locations DX066P and DX067P where potential laying-up sites had been identified.

4.5.12 Otter were found to be present at seven crossing points, none of which were associated with potential holt or laying-up sites.

4.5.13 Otter are considered to be potentially present on a further 19 crossing point locations (including the six crossing points not yet surveyed), and 13 of these were associated with potential holt or laying-up sites.

Table 9: Summary of Otter Results

Otter Results Category	Section and Crossing Point
Present	**Section 1:** DX012P **Section 4:** RVX003AP **Section 5:** DX089AP, DX090BP, DX095AP, RVX002P & RVX007P
Potentially present (desk study results)	**Section 1:** DX011P **Section 2:** RVX001CP **Section 5:** DX092P
Potentially present (otter holt suitability)	**Section 2:** DX025P & RVX001BP **Section 4:** RVX001FP & DX064P
Potentially present (laying up suitability)	**Section 1:** DX003P **Section 2:** DX029P **Section 4:** DX054P **Section 5:** DX085P, DX110P & DX111P
Potentially present (limited field survey results)	**Section 2:** DX023P, RVX001AP, DX023BP & DX023CP **Section 3:** RVX001DP **Section 4:** CNX001P
Likely absent	**Section 1:** DX004P, DX005P, DX005AP, DX006AP, DX007P, DX008P, DX010P & DX013P **Section 2:** DX017P, DX018P, DX019P & DX022P **Section 3:** DX039P, DX040P, DX047P, DX048P & DX049P **Section 4:** DX050P, DX055P DX059P, DX061P, DX066P, DX067P, DX071P, DX072P, DX073P, DX074P, DX077P, DX078P, DX080P, RVX001P & RVX001EP **Section 5:** DX081P, DX083P, DX084P, DX088P, DX097AP, DX098P, DX111AP & DX111Apa

Confirmed Presence

4.5.14 The following provides a description of the habitat where otter have been confirmed present.

DX012P (Unnamed ditch)

4.5.15 The ditch is approximately 1m wide and 30cm deep, it is comprised of earth banks and is connected to another larger watercourse to the east.

4.5.16 The drain is connected to a network of drains in the wider landscape and provides potential movement corridors for otter between other areas of suitable habitat.

4.5.17 Evidence of otter was observed in the form of footprints located near the ditch where crossing point DX011P is present, however no field signs of otter were found on this watercourse. Otter likely only use the ditch present at DX012P for transitory purposes as the ditch likely dries in the summer and is not deep enough to hold sufficient food resources.

4.5.18 No holts or laying up areas were observed during the survey.

RVX003AP (Grayfleet Drain)

4.5.19 Grayfleet Drain is approximately 1m wide and of variable water depths which are less than 0.6m throughout. The drain is deep enough to hold food resources for otter.

4.5.20 The drain is connected to a network of drains in the wider landscape and provides potential movement corridors for otter between other areas of suitable habitat.

4.5.21 Evidence of otter was observed underneath the road bridge at Pickhill Lane, and these consisted of a large number of footprints.

4.5.22 No holts or laying up areas were observed during the survey.

RVX002P (Long Eau)

4.5.23 Long Eau is approximately 5m wide and 1m deep throughout. The river is deep enough to hold a range of food resources for otter.

4.5.24 The river is connected to the wider landscape through a number of large drains, woodland areas and ponds and provides potential movement corridors for otter between other areas of suitable habitat.

4.5.25 An otter was sighted swimming within the river channel during a survey.

4.5.26 No holts or laying up areas were observed during the survey.

DX089AP (Unnamed Drain)

4.5.27 The drain is approximately 3m wide and of variable water depths which are less than 0.7m throughout. The drain is large enough to hold a range of food resources for otter.

4.5.28 The drain is connected to a network of drains and ditches in the wider landscape and provides potential movement corridors for otter between other areas of suitable habitat.

4.5.29 Evidence of otter was observed through one area of feeding remains in the way of oyster shells.

4.5.30 No holts or laying up areas were observed during the survey.

DX090BP (Two Mile Bank Drain)

4.5.31 Two Mile Bank Drain is approximately 3m wide and of variable water depths which are less than 0.7m throughout. The drain is large enough to hold a range of food resources for otter.

4.5.32 The drain is connected to a network of drains and ditches in the wider landscape and provides potential movement corridors for otter between other areas of suitable habitat.

4.5.33 Evidence of otter was observed throughout the drain, and these consisted of a number of footprints and one area of feeding remains in the way of oyster shells.

4.5.34 No holts or laying up areas were observed during the survey.

DX095AP (Unnamed drain)

4.5.35 The Drain is approximately 5m wide and of variable water depths which are less than 0.7m throughout. The drain is large enough to hold a range of food resources for otter.

4.5.36 The drain is connected to a network of drains in the wider landscape and provides potential movement corridors for otter between other areas of suitable habitat.

4.5.37 Evidence of otter was found in one location and consisted of a number of footprints.

4.5.38 No holts or laying up areas were observed during the survey.

RVX007P (Great Eau)

4.5.39 Great Eau is approximately 7m wide and of variable water depths which are less than 1m throughout. The river is large enough to support a range of food resources for otter.

4.5.40 The river is connected to a network of drains in the wider landscape and provides potential movement corridors for otter between other areas of suitable habitat.

4.5.41 No evidence of otter was recorded during field surveys however, an otter was sighted further upstream in other survey work. Otter are likely to use the Great Eau regularly.

4.5.42 No holts or laying up areas were observed during the survey.

5 Summary

5.1 Water Vole

5.1.1 Water vole is identified as a species of priority importance in the Lincolnshire Biodiversity Action Plan (LBAP) The LBAP states that the population of water vole in Lincolnshire is of national importance due to their widespread nature across the county. Lincolnshire has two Regional Key Areas for water vole located in Lincolnshire Coastal Grazing Marshes and in the Welland and Deeping area. It notes extensive colonies are often found adjacent to and within urban areas where human disturbance affects predators more than water vole, namely American mink (*Neovison vison*).

5.1.2 From crossing points that have been scoped into the assessment, water vole are likely absent at four crossing point locations, including DX090BP where there were historical records of water vole.

5.1.3 The presence of water vole has been confirmed on five crossing points, including at DX110P and DX111P where there were existing desk study records. DX110P and DX111P location associated with abundant water vole field signs and it is likely that a significant population is present here. The other locations are associated with a low abundance of field signs that may represent smaller or more dispersed populations. Where a full complement of surveys has not been completed water vole are also assumed to be present on a further 42 crossing point locations.

5.2 Otter

5.2.1 Otter are a wide-ranging species that is likely to be present on all catchments within Lincolnshire.

5.2.2 Field surveys have confirmed the likely absence of otter from 41 crossing point locations. These locations are therefore either not used by otter or, at most, are used on an occasional basis for commuting between other areas of more suitable habitat.

5.2.3 Field survey confirmed the presence of otter at seven of the crossing points scoped into the survey, no one of which were associated with either potential holt or laying-up sites. These confirmed locations are therefore likely to also be used for otter as commuting or foraging as they move between other areas of similar habitat in the surrounding landscape.

5.2.4 Where a full completement of surveys have not been completed, otter are assumed to be present at 19 crossing point locations. Of these 13 locations are associated with potential holt or laying-up sites that are located within 200m of the Proposed Development. At the time of writing no evidence of use of these features by otter has been recorded.

6 References

Ref 1 *Chanin, P. (2003a)*. Ecology of the European Otter. Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature, Peterborough.

Ref 2 *Natural England (2019)* Otters: surveys and mitigation for development projects. Available at: https://www.gov.uk/guidance/otters-protection-surveys-and-licences

Ref 3 *Strachan, R. and Moorhouse, T. (2011)*. Water Vole Conservation Handbook. Third Edition. Wildlife Conservation Research Unit (WildCRU), Oxon

Ref 4 *Dean, M., Strachan, R., Gow, D., Andrews, R., Mathews, F. and Chanin, P. (2016).* The Water Vole Mitigation Handbook. The Mammal Society, London.

Ref 5 *Crawford, A. (2010).* Fifth Otter Survey of England 2009- 2010. Environment Agency

Ref 6 *Chanin, P. (2003b).* Monitoring the Otter Lutra Lutra. Conserving Natura 2000 Rivers Monitoring Series No.10 English Nature, Peterborough.

Ref 7 *NatureScot (2018).* Standing advice for planning consultants. Protected species: Otter. Available at: [redacted]

Ref 8 *Liles, G. (2003).* Otter Breeding Sites. Conservation and Management. Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough.

Annex A Figures

Revision: 3 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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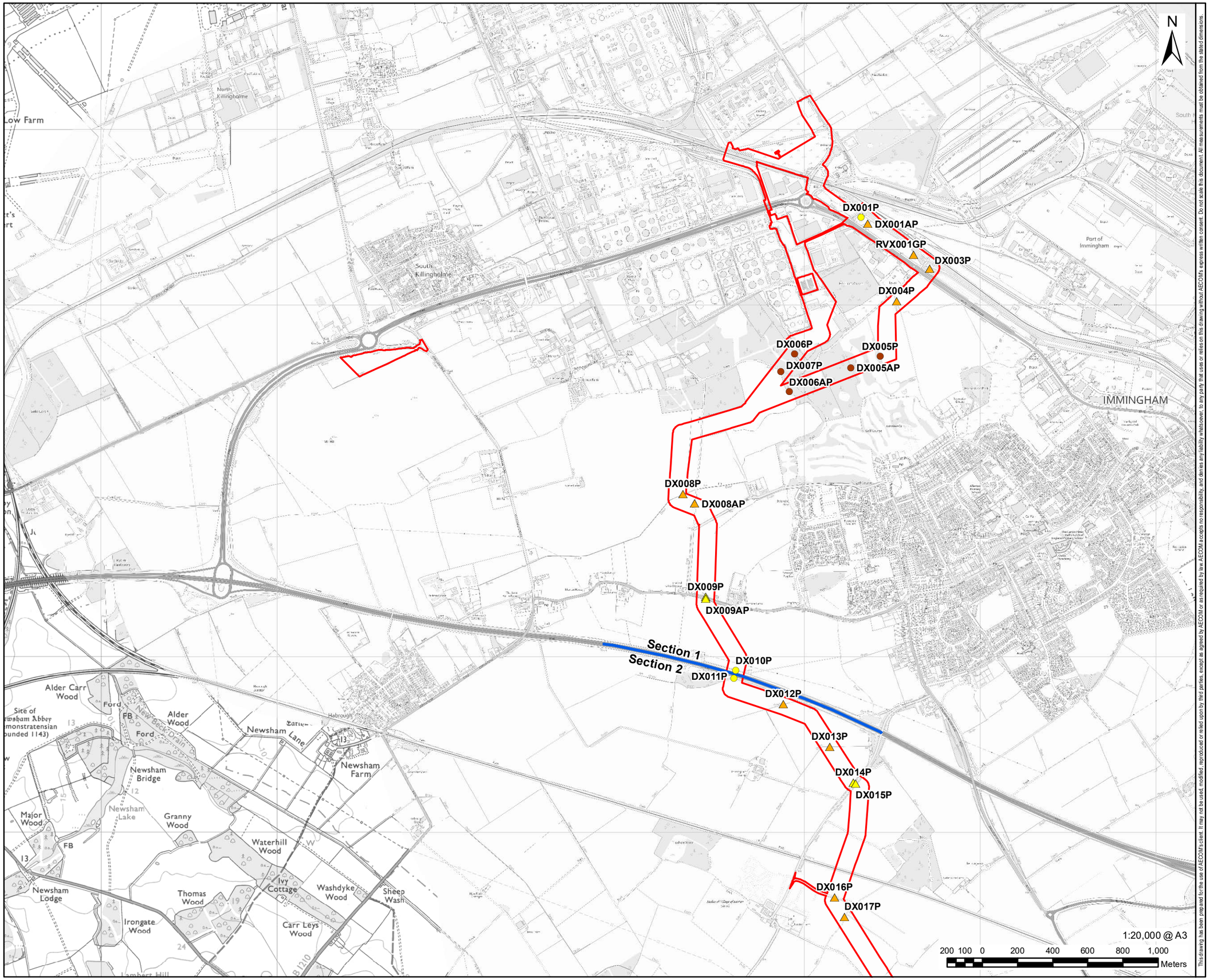

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break

Crossing Location - Type

- Augur Bore
- Augur Bore - Flumed
- HDD
- Open Cut - Flumed

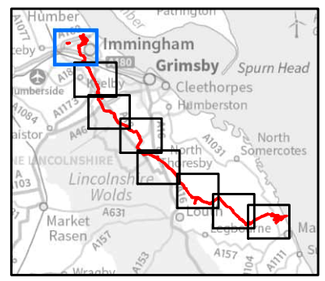

FIGURE TITLE

Figure 1 (1 of 8)
Crossings Point Locations

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

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DX017P
DX018P
DX019P
DX021P
DX022P
RVX001AP
DX023P
DX023AP
DX023BP
DX023CP
DX023DP
DX024P
DX025P
DX026P
DX027P

Little London
Stallingborough
Pidgeon Cote Farm
Manor Farm
Primrose Cottage
Meadows Farm
Meadow Cottages
The Meadows
Oldfleet Drain
Sports Ground
Healing
Ther Manor
Moat
Maud Hole Covert
AYLESBY CP
Pyewipe Farm
Aylesby Road
Stepney
South End
Manor Farm
Bratlands
Riby
Aylesby
Bellows Pipe
Grange Wold Farm

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200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary

Crossing Location - Type

- Augur Bore - Flumed
- HDD
- Open Cut - Flumed

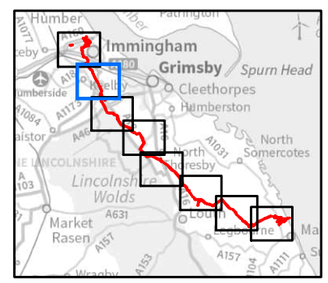

FIGURE TITLE

Figure 1 (2 of 8)
Crossings Point Locations

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

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DX028P
DX029P
DX029AP
Section 2
Section 3
DX030P
DX031P
DX032P
RVX001BP
DX034P
DX034AP
DX035P
DX035AP
RVX001CP
RVX001DP

Sewage Works
Manor House
Manor Farm
Pigeon Cote
Grimsby Road
Council Farm
Bradley Manor
Woodlands Farm Hospital
Bradley Wood
Bradley Road
BRADLEY
Laceby
Irby upon Humber
The Folly
Rookery Farm
Beelsby Road
Pit (dis)
Mog's Hollow
Beelsby Hall
Greenwood House
Barnoldby le Beck

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200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break

Crossing Location - Type

- Bailey Bridge Only
- Augur Bore
- Augur Bore - Bailey Bridge
- Augur Bore - Flumed
- Open Cut - Flumed

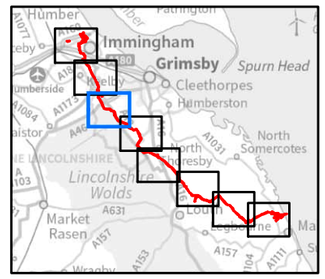

FIGURE TITLE

Figure 1 (3 of 8)
Crossings Point Locations

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

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DX035P
DX035AP
RVX001DP
RVX001CP
DX037P
DX038P
DX038AP
DX039P
DX039AP
DX040P
DX041P
DX042P
DX043P

Barnoldby le Beck
Waltham Windmill If Club
FBs
Airfield (dis)
Holton le Clay
LE CLAY CP
Farm
KARTING
Driving Range
side
A16
East Lodge Farm
Station Road
Holton Lodge
Holton Grange
Waithe Mill
Waithe
29
WAITHE CP
Waithe House Farm
AINSBY CP
Brigsley
Ashby cum Fenby
Ashby Hill
East Ravendale
Hall
Grainsby
North Thoresby
Woodbine House
Petterhil
Pit (dis)
FB
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Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary

Crossing Location - Type

- Bailey Bridge Only
- Augur Bore
- Augur Bore - Flumed
- Open Cut - Flumed

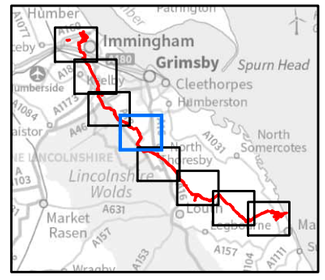

FIGURE TITLE

Figure 1 (4 of 8)
Crossings Point Locations

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

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DX043P
DX044P
DX045P
DX045AP
DX046P
DX046AP
DX047P
DX048P
DX049P
DX049AP
DX050P
DX051P
DX052P
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DX060AP
DX061P
RVX001EP
Section 3
Section 4

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VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break

Crossing Location - Type

- Augur Bore - Bailey Bridge
- Augur Bore - Flumed
- Open Cut - Flumed

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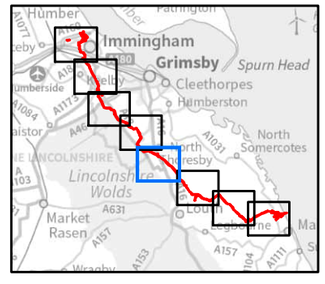

FIGURE TITLE

Figure 1 (5 of 8)
Crossings Point Locations

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

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DX061P
RVX001EP
DX063P
DX063AP
DX064P
RVX001FP
DX066P
DX067P
DX068P
CNX001P
RVX001P
DX069P
DX071P
DX072P
DX073P
DX074AP

YARBURGH CP
CONISHOLME
Poulton Drain
Wind Farm
Conisholme Fen
Alvingham Fen
Poultry Farm
America Farm
Black Dike
Nunnitts Farm
Poplar Grove
High Bridge
High Bridge House
Seven Tow
Covenham St Mary
Yarburgh
North End
Alvingham
North Cockerington
Little Grimsby
Dismantled Railway
Shamrock

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200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary

Crossing Location - Type

- Augur Bore
- Augur Bore - Bailey Bridge
- Augur Bore - Flumed
- HDD
- Open Cut - Flumed

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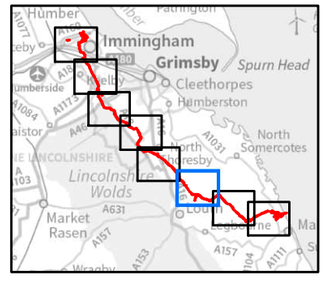

FIGURE TITLE

Figure 1 (6 of 8)
Crossings Point Locations

ISSUE PURPOSE

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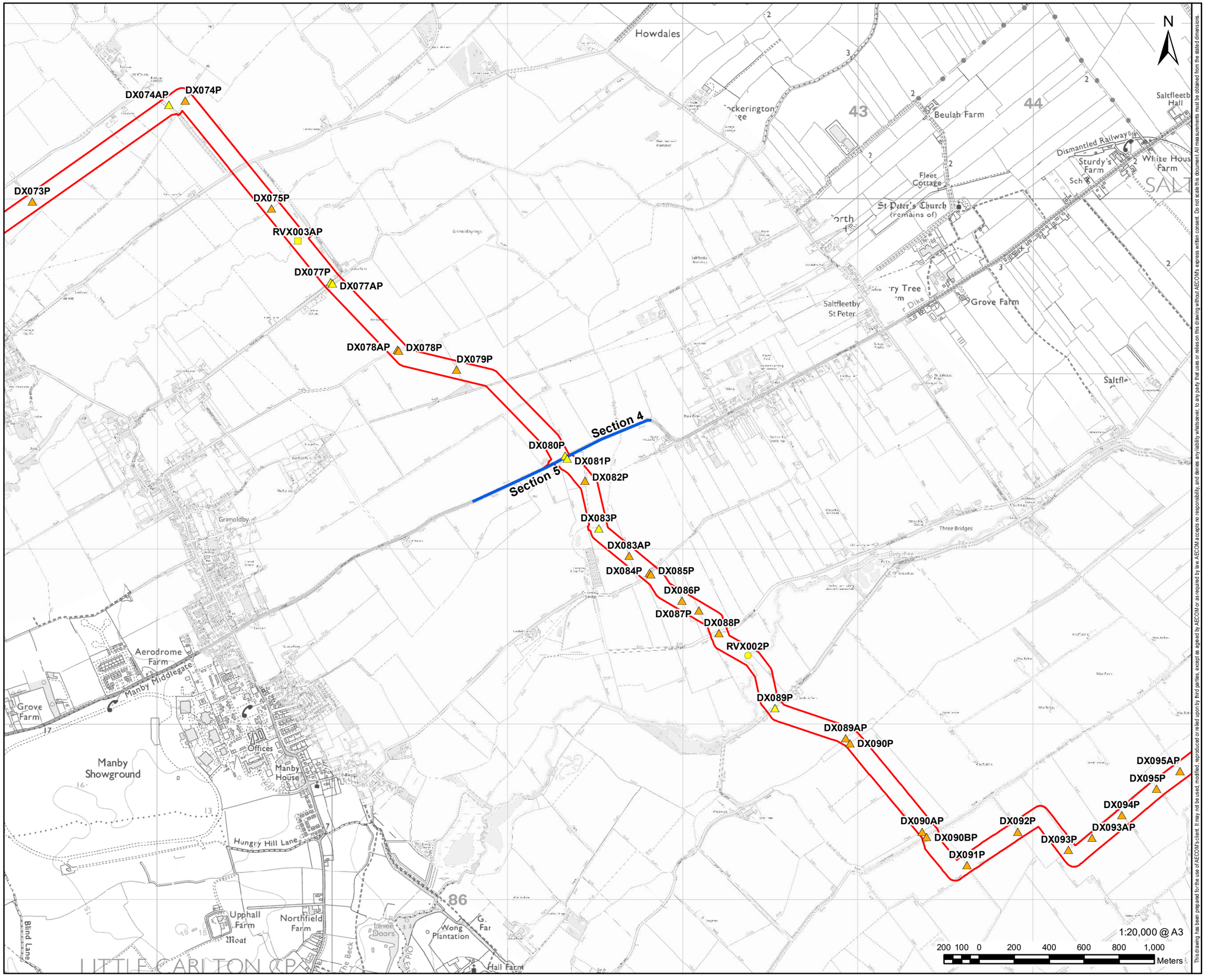

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break

Crossing Location - Type

- Augur Bore
- Augur Bore - Bailey Bridge
- Augur Bore - Flumed
- Open Cut - Flumed

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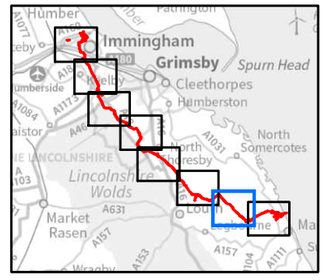

FIGURE TITLE

Figure 1 (7 of 8)
Crossings Point Locations

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-1

Revision: 3 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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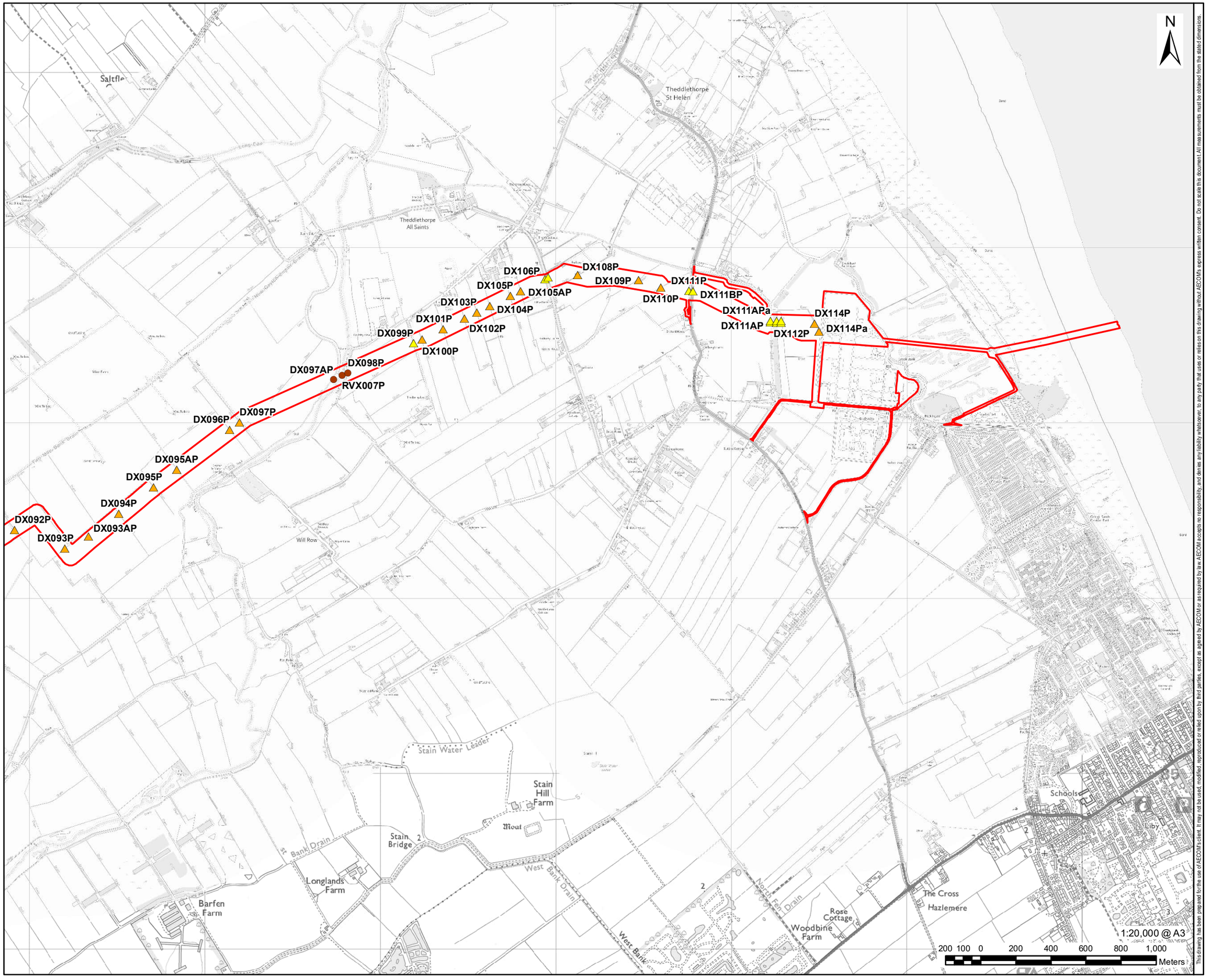

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary

Crossing Location - Type

- Augur Bore - Flumed
- HDD
- Open Cut - Flumed

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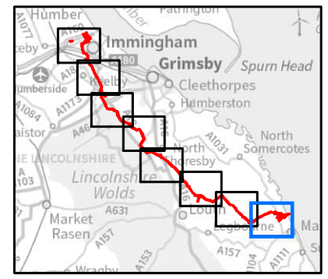


FIGURE TITLE

Figure 1 (8 of 8)
Crossings Point Locations

ISSUE PURPOSE

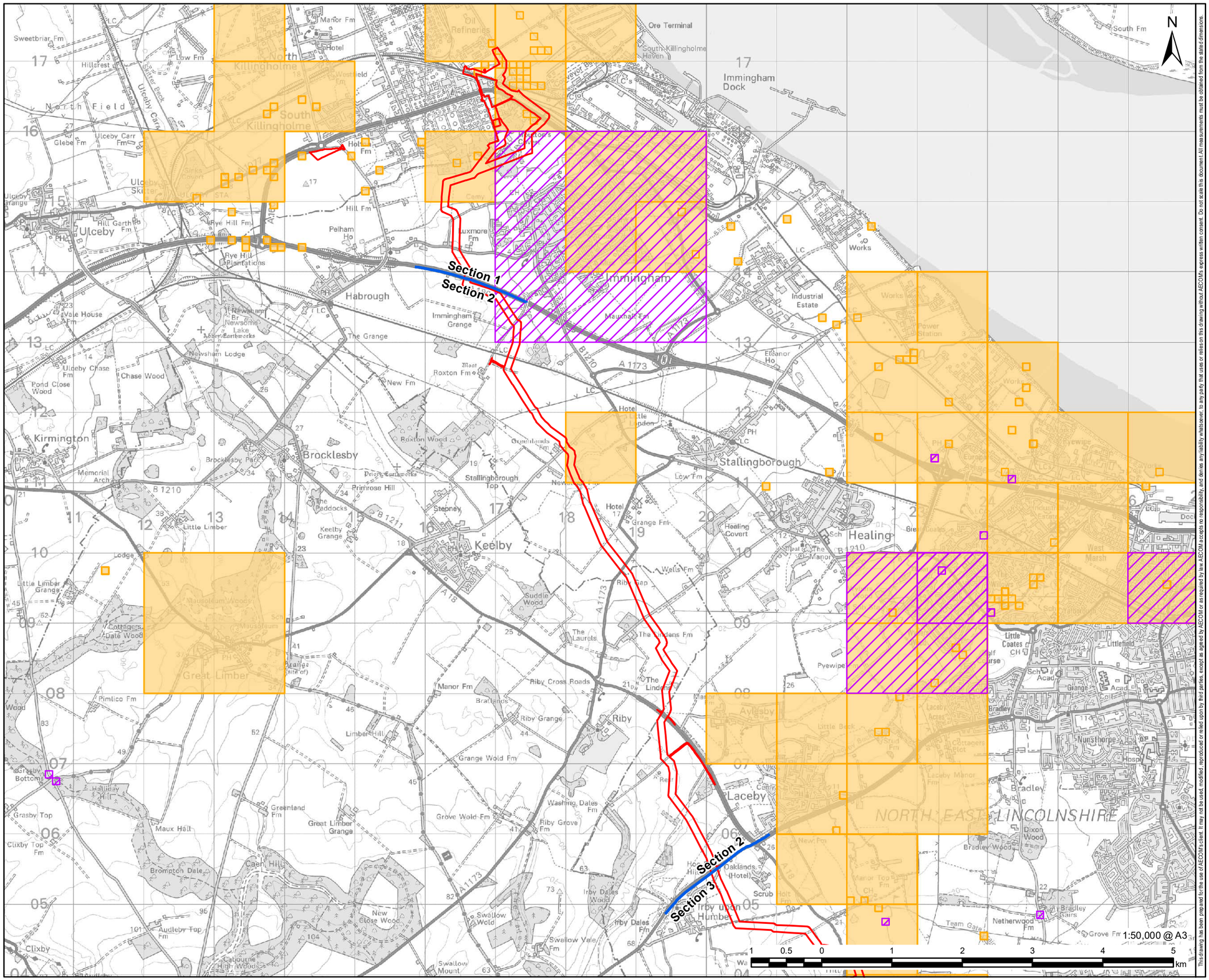
RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-1

Revision: 2 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

Filename:\\eu.aecomnet.com\EMA\UK\UKNCL2\Jobs\60668955\V_Net_Zero_Project\900_CAD_GIS\920_GIS\02_Maps\ES Appendix\VCCS_ESA_6-3-2_Desk_Study_Results_v2_20230925_LC.mxd



N

1:50,000 @ A3

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Protected and Priority Species (Otter)
- Protected and Priority Species (Water Vole)

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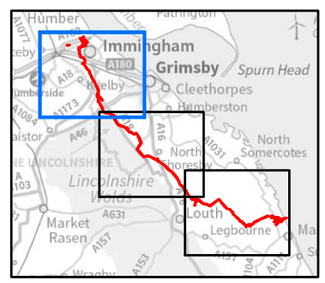


FIGURE TITLE

Figure 2 (1 of 3)
Otter and Water Vole Desk Study Results

ISSUE PURPOSE

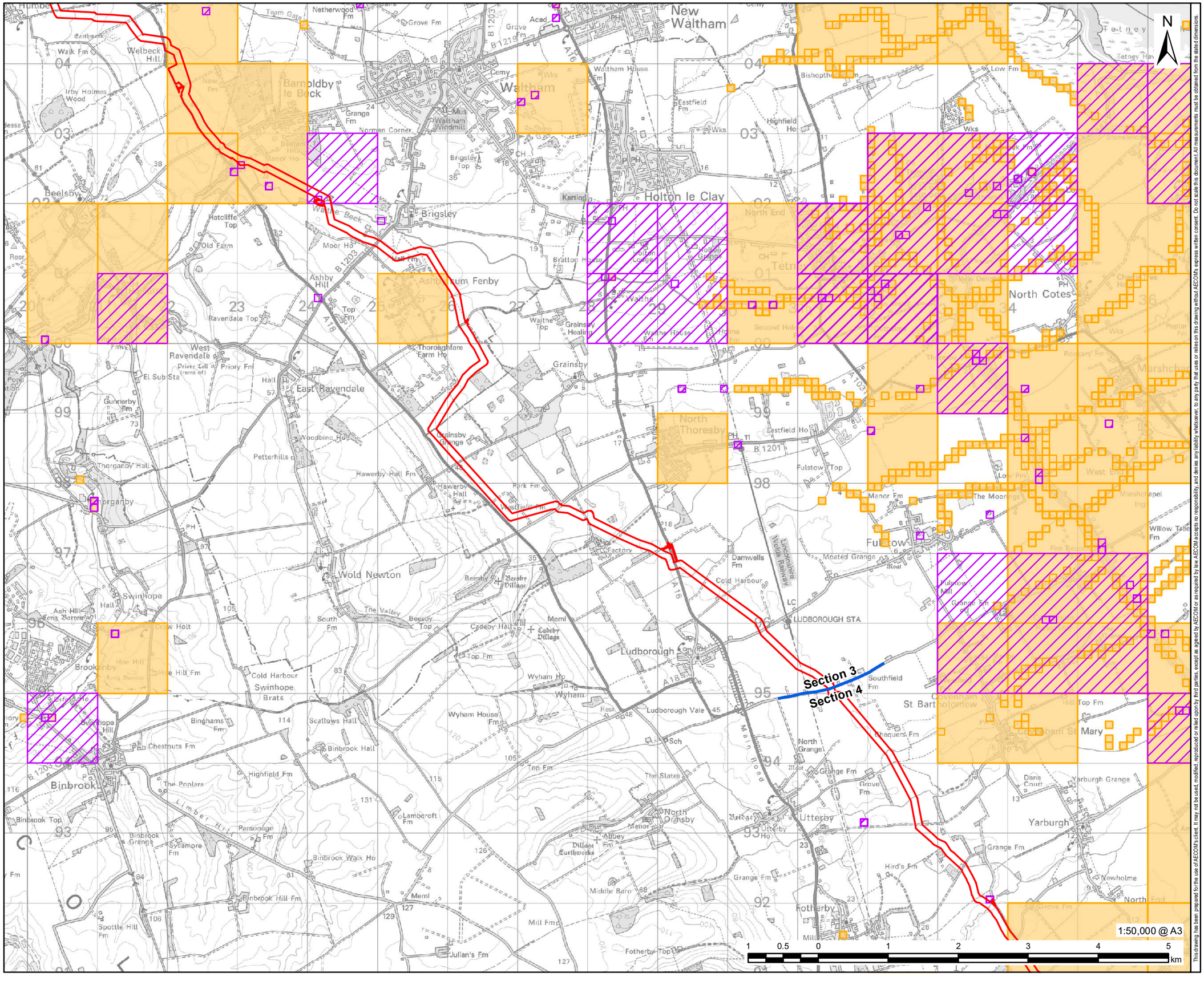
RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-4-2

Revision: 2 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

Filename: \\eu.aecomnet.com\EMIA\UK\UKNCL2\Jobs\60668955 V_Net_Zero_Project\900_CAD_GIS\920_GIS\02_Maps\ES Appendix\VCCS_ESA_6-3-2_Desk_Study_Results_v2_20230925_LC.mxd



VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Protected and Priority Species (Otter)
- Protected and Priority Species (Water Vole)

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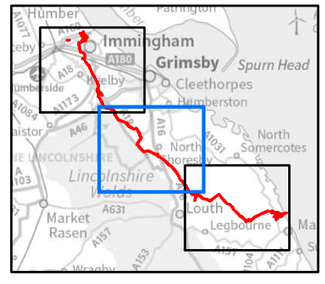

FIGURE TITLE

Figure 2 (2 of 3)
Otter and Water Vole Desk Study Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-4-2

Revision: 2 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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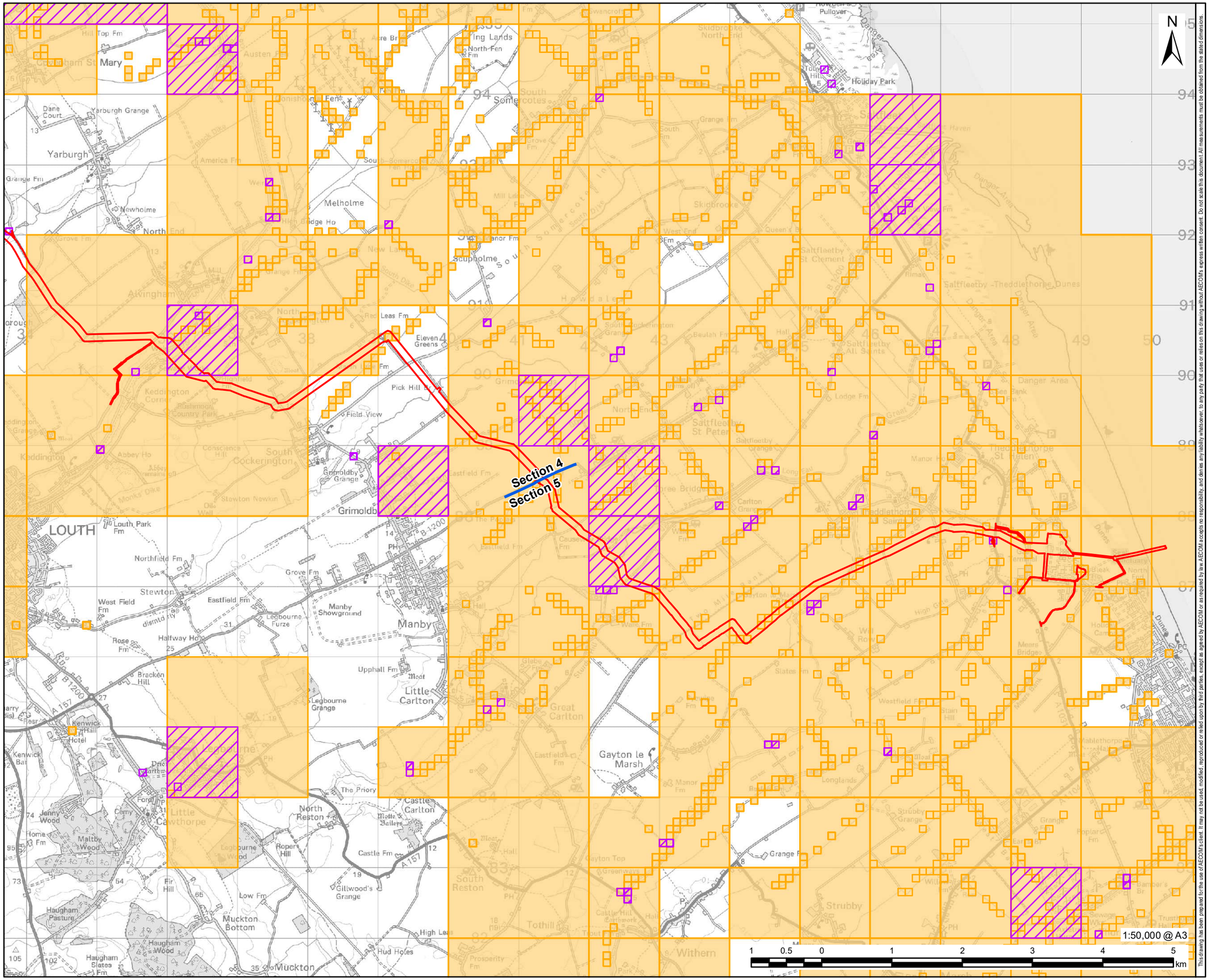

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Protected and Priority Species (Otter)
- Protected and Priority Species (Water Vole)

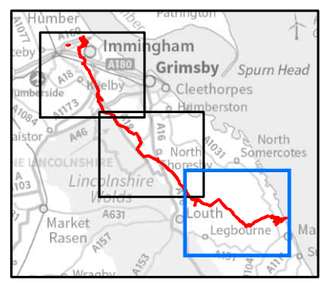

FIGURE TITLE

Figure 2 (3 of 3)
Otter and Water Vole Desk Study Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-4-2

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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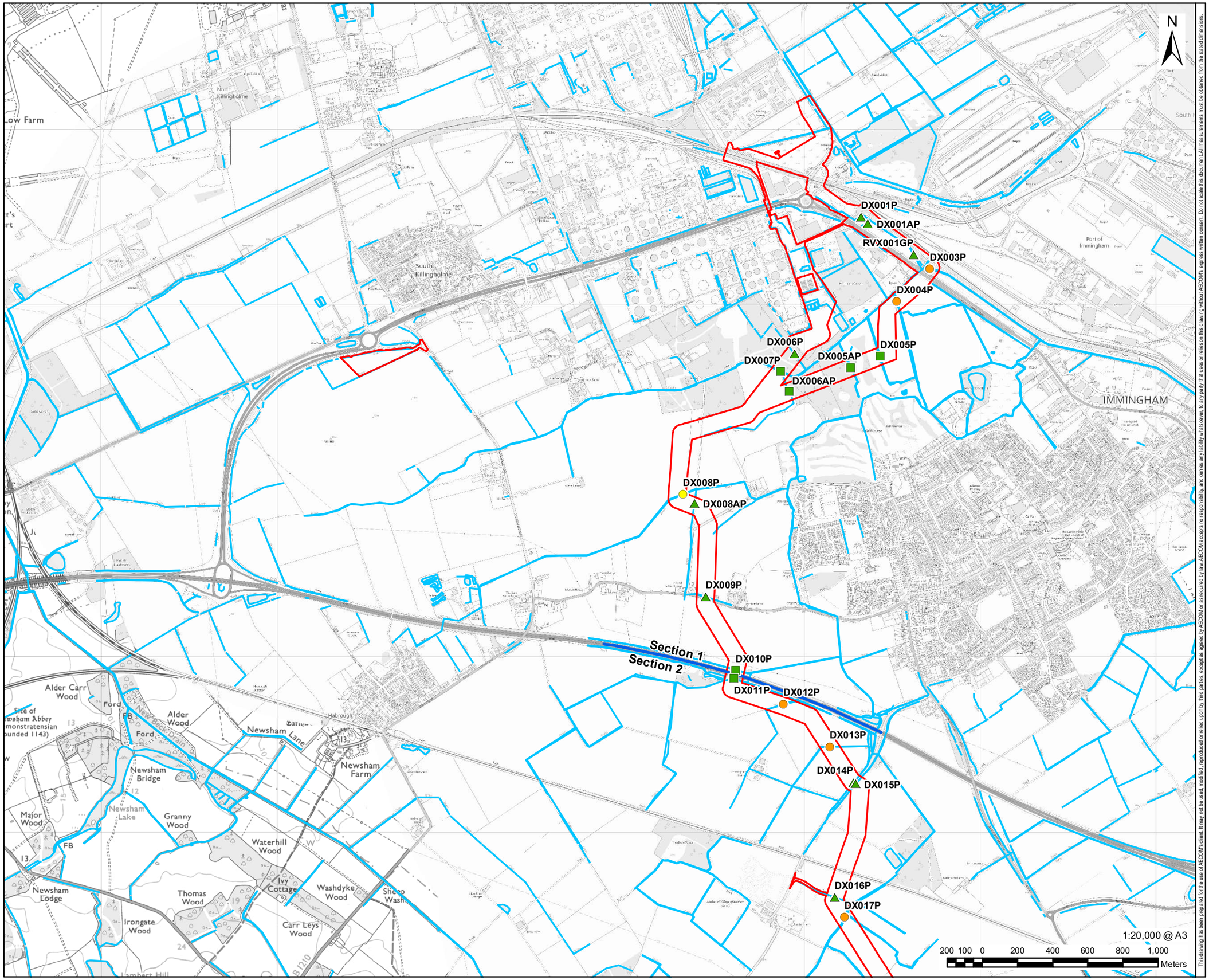

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Water Vole Survey Results

- Potentially Present
- Likely Absent
- Scoped Out - Impact Avoidance
- Scoped Out - Unsuitable Habitat

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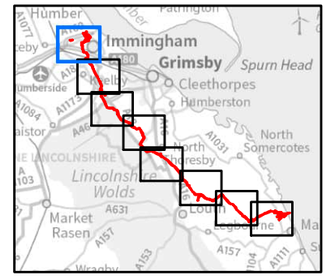

FIGURE TITLE

Figure 3 (1 of 8)
Water Vole Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX017P
DX018P
DX019P
DX021P
DX022P
RVX001AP
DX023P
DX023AP
DX023BP
DX023CP
DX023DP
DX024P
DX025P
DX026P
DX027P

Stepney
Little London
Stallingborough
Pidgeon Cotes Farm
Manor Farm
Primrose Cottage
Meadow Farm
Meadow Cottages
The Meadows
Sports Ground
Healing
Ther Manor
Moat
Maud Hole Covert
AYLESBY CP
Pyewipe Farm
Aylesby Road
Aylesby
Riby
Bratlands
Manor Farm
Bellows Pipe
Grange Wold Farm
Outfleet Drain

1:20,000 @ A3
200 100 0 200 400 600 800 1,000 Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Water Vole Survey Results

- Potentially Present
- Scoped Out - Impact Avoidance
- Scoped Out - Unsuitable Habitat

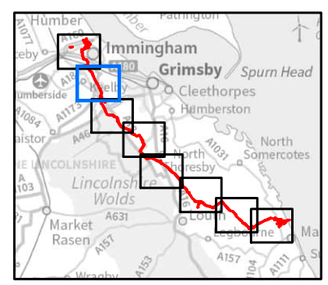


FIGURE TITLE

Figure 3 (2 of 8)
Water Vole Survey Results

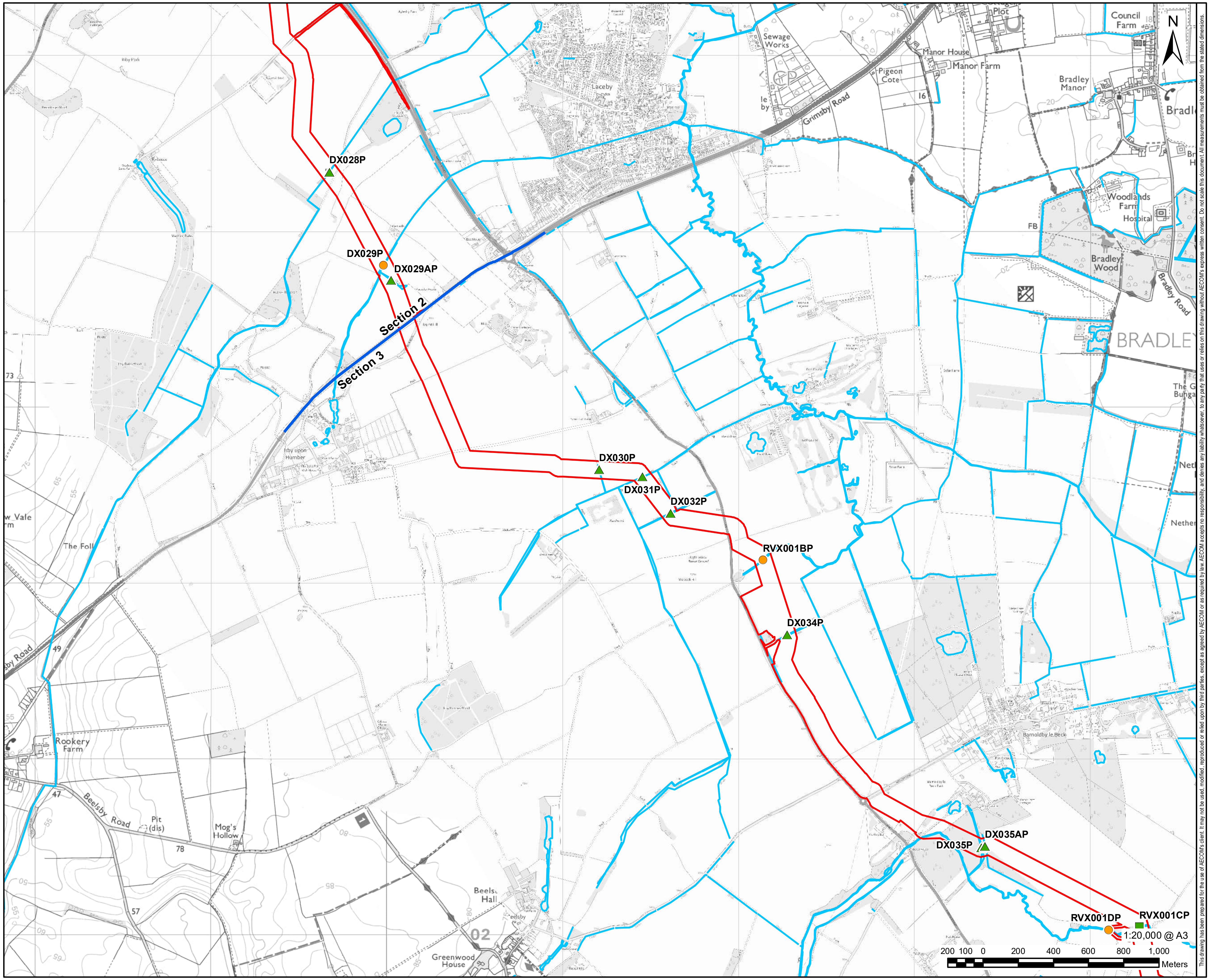
ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25



VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Water Vole Survey Results

- Potentially Present
- Scoped Out - Impact Avoidance
- Scoped Out - Unsuitable Habitat

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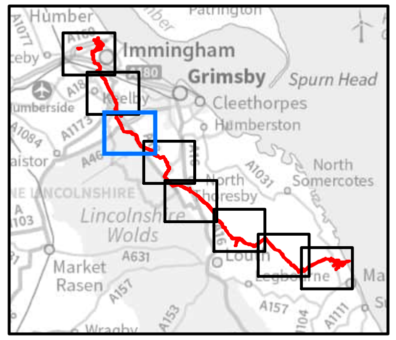

FIGURE TITLE

Figure 3 (3 of 8)
Water Vole Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX035AP
DX035P
RVX001DP
RVX001CP
DX037P
DX038P
DX038AP
DX039P
DX040P
DX041P
DX042P
DX043P

Barnoldby le Beck
Waltham Windmill
FBs
Airfield (dis)
Holton le Clay
KARTING
Driving Range
side
A16
East Lodge Farm
Station Road
Holton Lodge
Holton Grange
Waithe Mill
Waithe
WAITHE CP
Waithe House Farm
AINSBY CP
Grainsby
North Thoresby
Brigsley
Ashby cum Fenby
Ashby Hill
East Ravendale
Hall
Woodbine House
Petterhil
Pit (dis)

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Water Vole Survey Results

- Potentially Present
- Likely Absent
- Scoped Out - Impact Avoidance
- Scoped Out - Unsuitable Habitat

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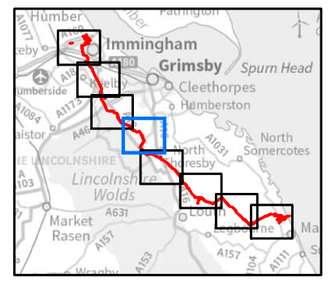

FIGURE TITLE

Figure 3 (4 of 8)
Water Vole Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX043P
DX044P
DX045P
DX045AP
DX046P
DX046AP
DX047P
DX048P
DX049P
DX049AP
DX050P
DX051P
DX052P
DX053P
DX054P
DX055P
DX056P
DX057P
DX058P
DX059P
DX060P
DX060AP
DX061P
RVX001EP

Section 3
Section 4

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000 Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Water Vole Survey Results

- Potentially Present
- Scoped Out - Unsuitable Habitat

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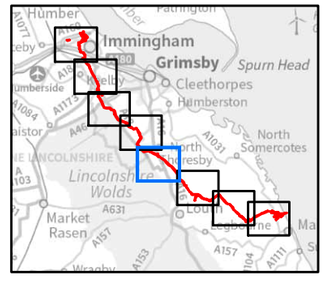

FIGURE TITLE

Figure 3 (5 of 8)
Water Vole Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX061P
RVX001EP
DX063P
DX063AP
DX064P
RVX001FP
DX066P
DX067P
DX068P
CNX001P
RVX001P
DX069P
DX071P
DX072P
DX073P

Poulton Drain
YARBURGH CP
Poultry Farm
Black Dike
America Farm
Alvingham Fen
CONISHOLME
Conisholme Fen
Wind Farm
Nunnitts Farm
Poplar Grove
High Bridge
High Bridge House
North End
Yarburgh
Alvingham
North Cockerington
Little Grimsby
Dismantled Railway
Shamrock
Immingham
Grimsby
Spurn Head
Cleethorpes
Humberston
North Somercotes
Lincolnshire Wolds
Louth
Market Rasen

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000 Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Water Vole Survey Results

- Potentially Present
- Scoped Out - Impact Avoidance
- Scoped Out - Unsuitable Habitat

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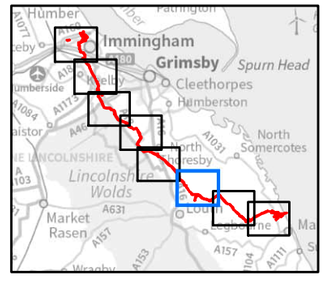

FIGURE TITLE

Figure 3 (6 of 8)
Water Vole Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX074P
DX073P
DX075P
RVX003AP
DX077P
DX078P
DX079P
DX080P
DX081P
DX082P
DX083P
DX083AP
DX084P
DX085P
DX086P
DX087P
DX088P
RVX002P
DX089P
DX089AP
DX090P
DX090AP
DX090BP
DX091P
DX092P
DX093P
DX093AP
DX094P
DX095P
DX095AP
Section 4
Section 5
Howdales
Grimoldby
Manby Showground
Aerodrome Farm
Grove Farm
Manby House
Offices
Hungry Hill Lane
Manby Middlegate
Blind Lane
Upphall Farm
Northfield Farm
Moat
Wong Plantation
Hall Farm
Three Bridges
Beulah Farm
Fleet Cottage
St Peter's Church (remains of)
Saltfleetby St Peter
Grove Farm
Dismantled Railway
Sturdy's Farm
White House Farm
Saltfleetby Hall
43
44
86
N
1:20,000 @ A3
200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Water Vole Survey Results

- Present
- Potentially Present
- Likely Absent
- Scoped Out - Impact Avoidance
- Scoped Out - Unsuitable Habitat

NOTES:

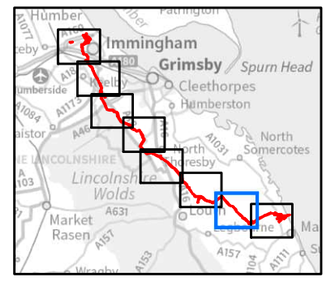

FIGURE TITLE

Figure 3 (7 of 8)
Water Vole Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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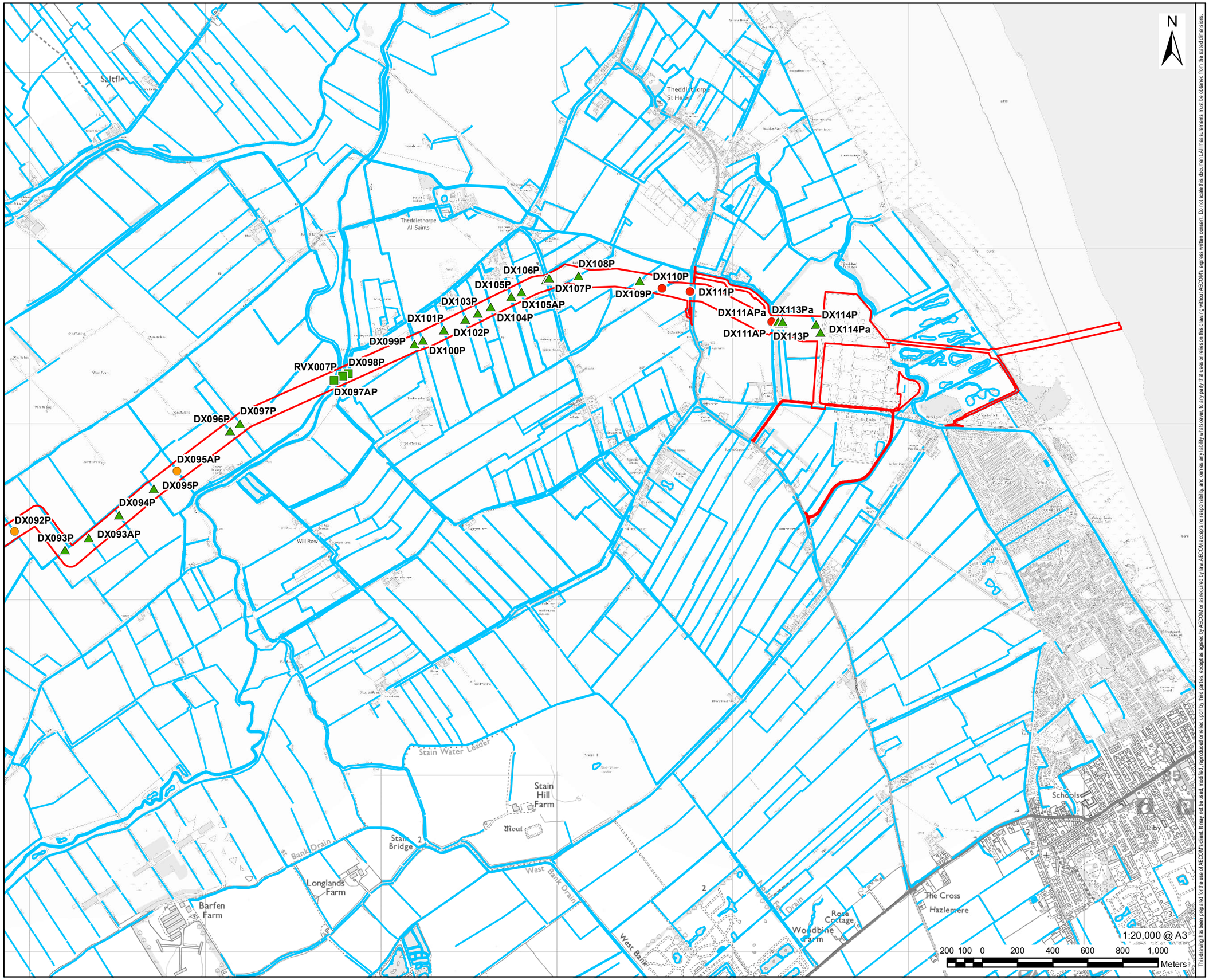

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Water Vole Survey Results

- Present
- Potentially Present
- Scoped Out - Impact Avoidance
- Scoped Out - Unsuitable Habitat

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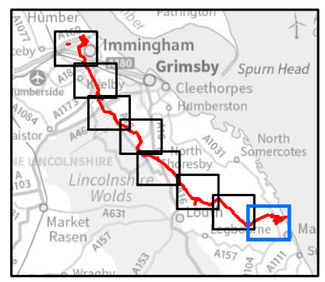

FIGURE TITLE

Figure 3 (8 of 8)
Water Vole Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-3

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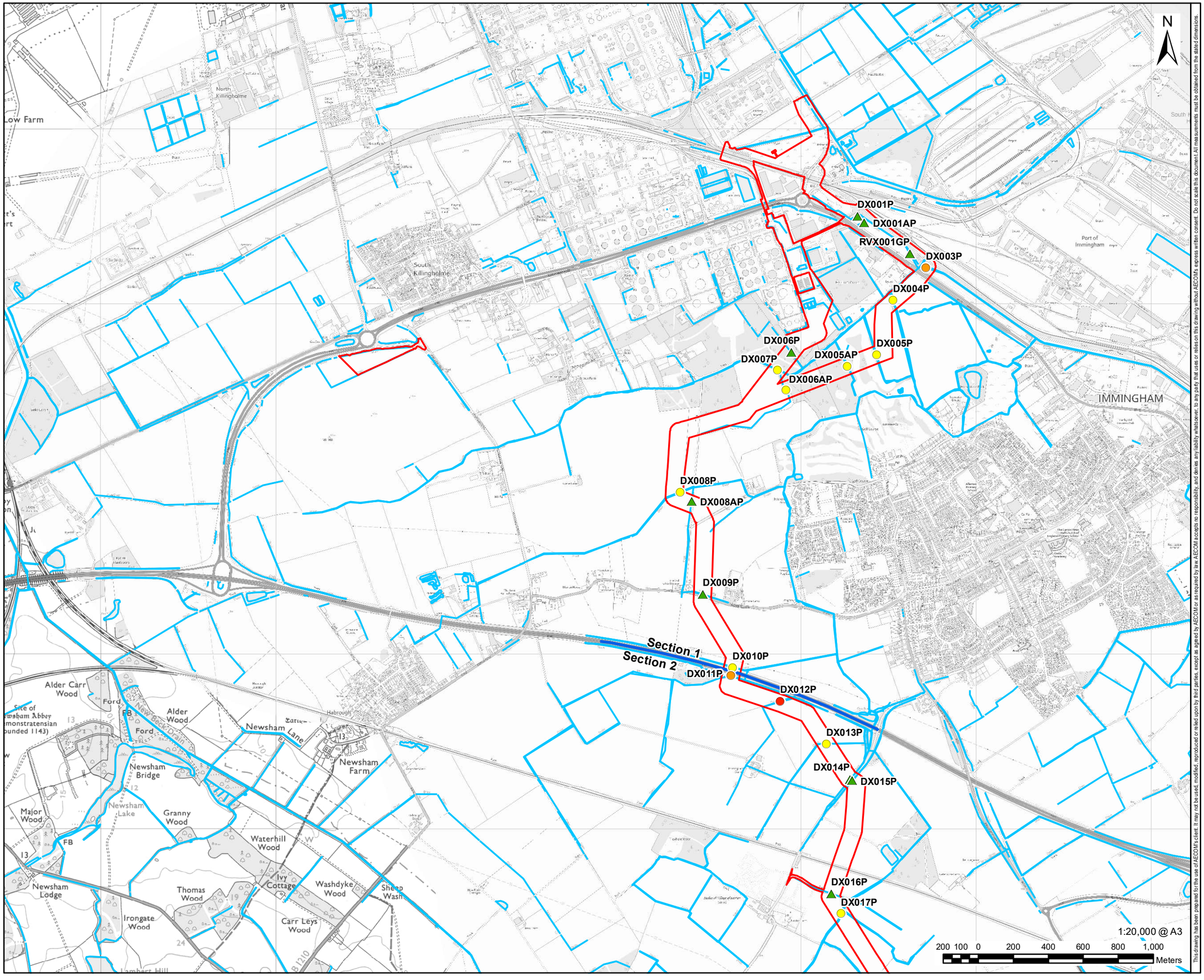

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Otter Survey Results

- Present
- Potentially Present
- Likely Absent
- Scoped Out - Unsuitable Habitat

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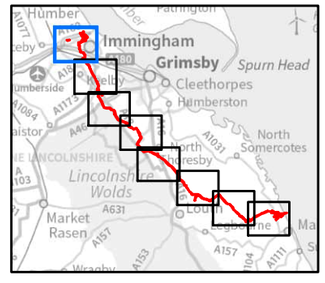

FIGURE TITLE

Figure 4 (1 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

Filename: \\eu.aecomnet.com\EMIA\UKIUKNCL2\Jobs\60668955 V_Net_Zero_Project\900_CAD_GIS\920_GIS\02_Maps\ES Appendix\VCCS_ESA_6-3-4_Otter_Survey_Results_v4_20230925_LC.mxd

DX017P
DX018P
DX019P
DX021P
DX022P
RVX001AP
DX023P
DX023AP
DX023BP
DX023CP
DX023DP
DX024P
DX025P
DX026P
DX027P

Stepney
Little London
Stallingborough
Pidgeon Cote Farm
Manor Farm
Primrose Cottage
Meadow Farm
Meadow Cottages
The Meadows
Sports Ground
Healing
Ther Manor
Moat
Maud Hole Covert
AYLESBY CP
Pyewipe Farm
Aylesby Road
Aylesby
Riby
Bratlands
Manor Farm
Bellows Pipe
Grange Wold Farm
Outfleet Drain

1:20,000 @ A3

200 100 0 200 400 600 800 1,000 Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Otter Survey Results

- Potentially Present
- Likely Absent
- Scoped Out - Unsuitable Habitat
- Not Surveyed

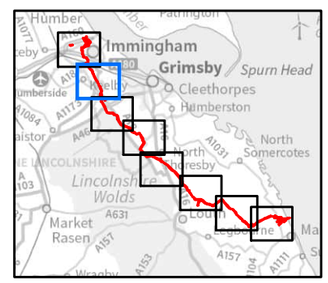

FIGURE TITLE

Figure 4 (2 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

Filename: \\eu.aecomnet.com\EMA\UK\UKNCL2\Jobs\60668955 V_Net_Zero_Project\900_CAD_GIS\920_GIS\02_Maps\ES Appendix\VCCS_ESA_6-3-4_Otter_Survey_Results_v4_20230925_LC.mxd

DX028P
DX029P
DX029AP
Section 2
Section 3
DX030P
DX031P
DX032P
RVX001BP
DX034P
DX035AP
DX035P
RVX001DP
RVX001CP

Sewage Works
Grimsby Road
Manor House
Manor Farm
Pigeon Cote
Bradley Manor
Council Farm
Plot
Woodlands Farm
Hospital
Bradley Wood
Bradley Road
BRADLEY
Laceby
Irby upon Humber
Rookery Farm
Beelsby Road
Pit (dis)
Mog's Hollow
Greenwood House
Barnoldby le Beck
The Foll

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Otter Survey Results

- Potentially Present
- Scoped Out - Unsuitable Habitat

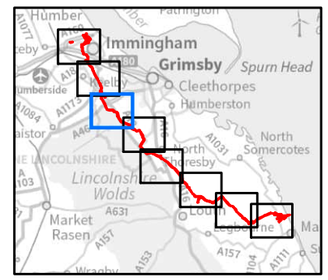

FIGURE TITLE

Figure 4 (3 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX035AP
DX035P
RVX001DP
RVX001CP
DX037P
DX038P
DX038AP
DX039P
DX040P
DX041P
DX042P
DX043P

Barnoldby le Beck
Waltham Windmill
FBs
Airfield (dis)
Holton le Clay
KARTING
Driving Range
side
A16
East Lodge Farm
Station Road
Holton Lodge
Holton Grange
Waithe Mill
Waithe
WAITHE CP
Waithe House Farm
AINSBY CP
Grainsby
North Thoresby
Brigsley
Ashby cum Fenby
Ashby Hill
East Ravendale
Woodbine House
Petterhil
Pit (dis)

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Otter Survey Results

- Potentially Present
- Likely Absent
- Scoped Out - Unsuitable Habitat

NOTES:

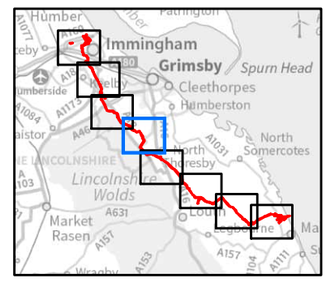

FIGURE TITLE

Figure 4 (4 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

Filename: \\eu.aecomnet.com\EMIA\UK\UKNCL2\Jobs\60668955 V_Net_Zero_Project\900_CAD_GIS\920_GIS\02_Maps\ES Appendix\VCCS_ESA_6-3-4_Otter_Survey_Results_v4_20230925_LC.mxd

DX043P
DX044P
DX045P
DX045AP
DX046P
DX046AP
DX047P
DX048P
DX049P
DX049AP
DX050P
DX051P
DX052P
DX053P
DX054P
DX055P
DX056P
DX057P
DX058P
DX059P
DX060P
DX060AP
DX061P
RVX001EP
Section 3
Section 4

Cadeby Park
Pit (dis)
Top Farm
Pits (dis)
Wyham
Wyham House
Medieval Village of Wyham (site of)
YHAM CUM CADEBY CP
Six Houses
Wyham Gorse
Reservoir
Wyham House Farm
Wyham Top Farm
Wyham Motopark
The Vale Farm
The Slates
Chalk Pit
North Ormsby
Abbey Farm
Manor
Priory (site of)
Medieval Village of North Ormsby (site of)
Ludborough
Utterby
Double Tunnel Bridge
Manor Farm
Glebe Farm
The Vicarage

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000 Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Otter Survey Results

- Potentially Present
- Likely Absent
- Scoped Out - Unsuitable Habitat

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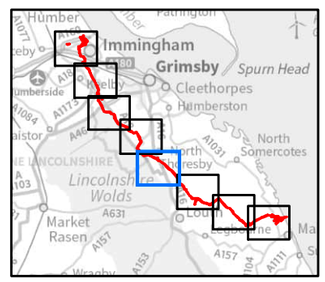

FIGURE TITLE

Figure 4 (5 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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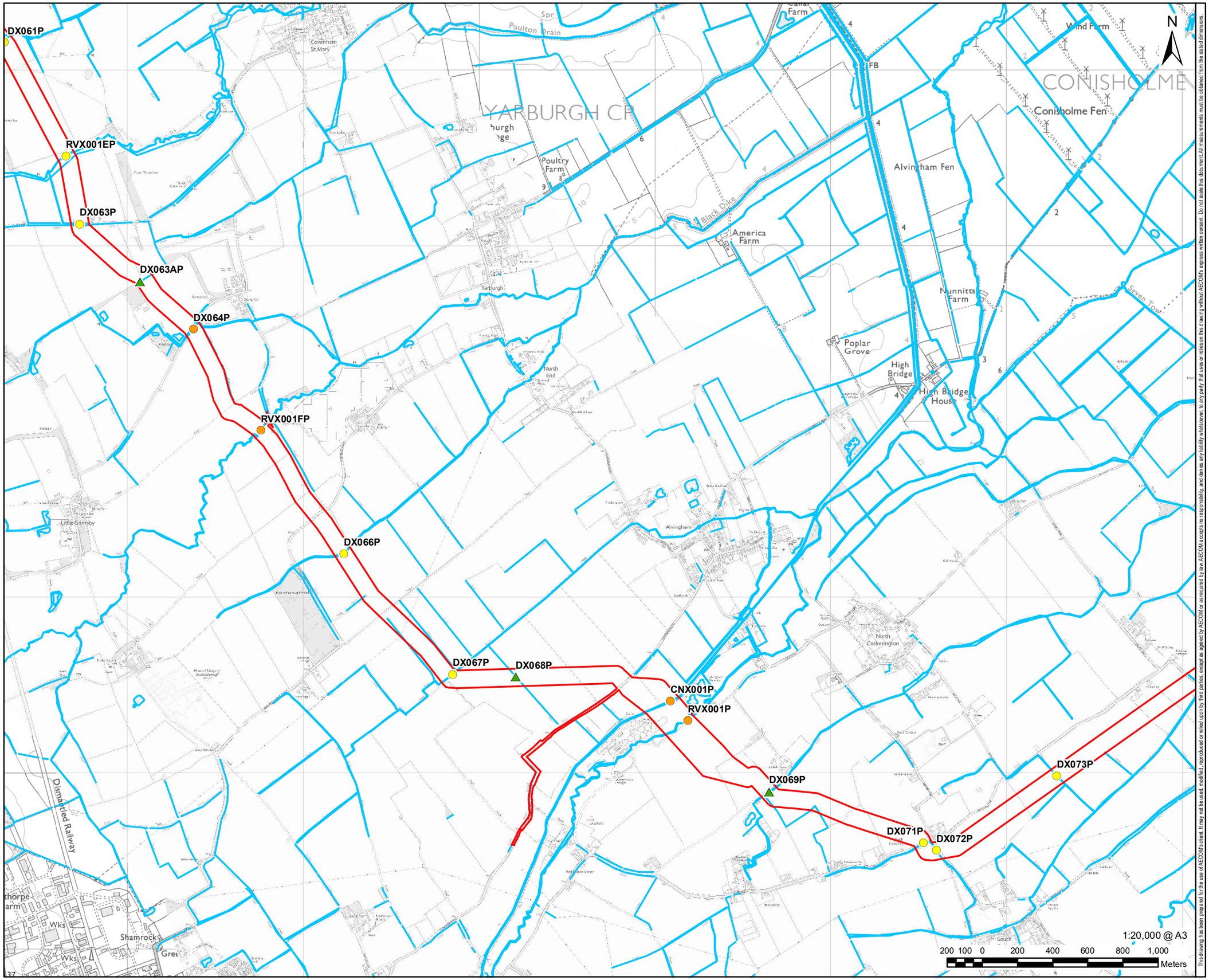

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Otter Survey Results

- Potentially Present
- Likely Absent
- Scoped Out - Unsuitable Habitat

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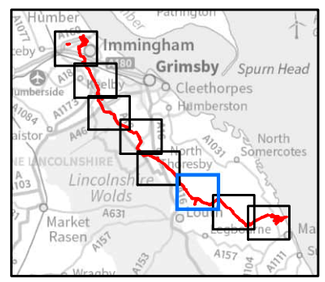

FIGURE TITLE

Figure 4 (6 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

Filename:\\eu.aecomnet.com\EMEA\UK\UKNCL2\Jobs\60668955 V_Net_Zero_Project\900_CAD_GIS\920_GIS\02_Maps\ES Appendix\VCCS_ESA_6-3-4_Otter_Survey_Results_v4_20230925_LC.mxd

DX074P
DX073P
DX075P
RVX003AP
DX077P
DX078P
DX079P
DX080P
DX081P
DX082P
DX083P
DX083AP
DX084P
DX085P
DX086P
DX087P
DX088P
RVX002P
DX089P
DX089AP
DX090P
DX090AP
DX090BP
DX091P
DX092P
DX093P
DX093AP
DX094P
DX095P
DX095AP
Section 4
Section 5
Howdales
Beulah Farm
Fleet Cottage
St Peter's Church (remains of)
Saltfleetby St Peter
Grove Farm
Dismantled Railway
Sturdy's Farm
Three Bridges
Grimoldby
Aerodrome Farm
Manby Middlegate
Manby Showground
Offices
Manby House
Hungry Hill Lane
Upphall Farm
Northfield Farm
Moat
Wong Plantation
Hall Farm
Blind Lane
LITTLE CARLTON CP
43
44
86

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000 Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Watercourse / Waterbody

Otter Survey Results

- Present
- Potentially Present
- Likely Absent
- Scoped Out - Unsuitable Habitat

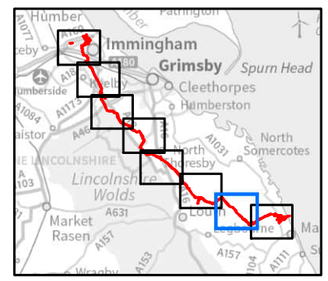

FIGURE TITLE

Figure 4 (7 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 4 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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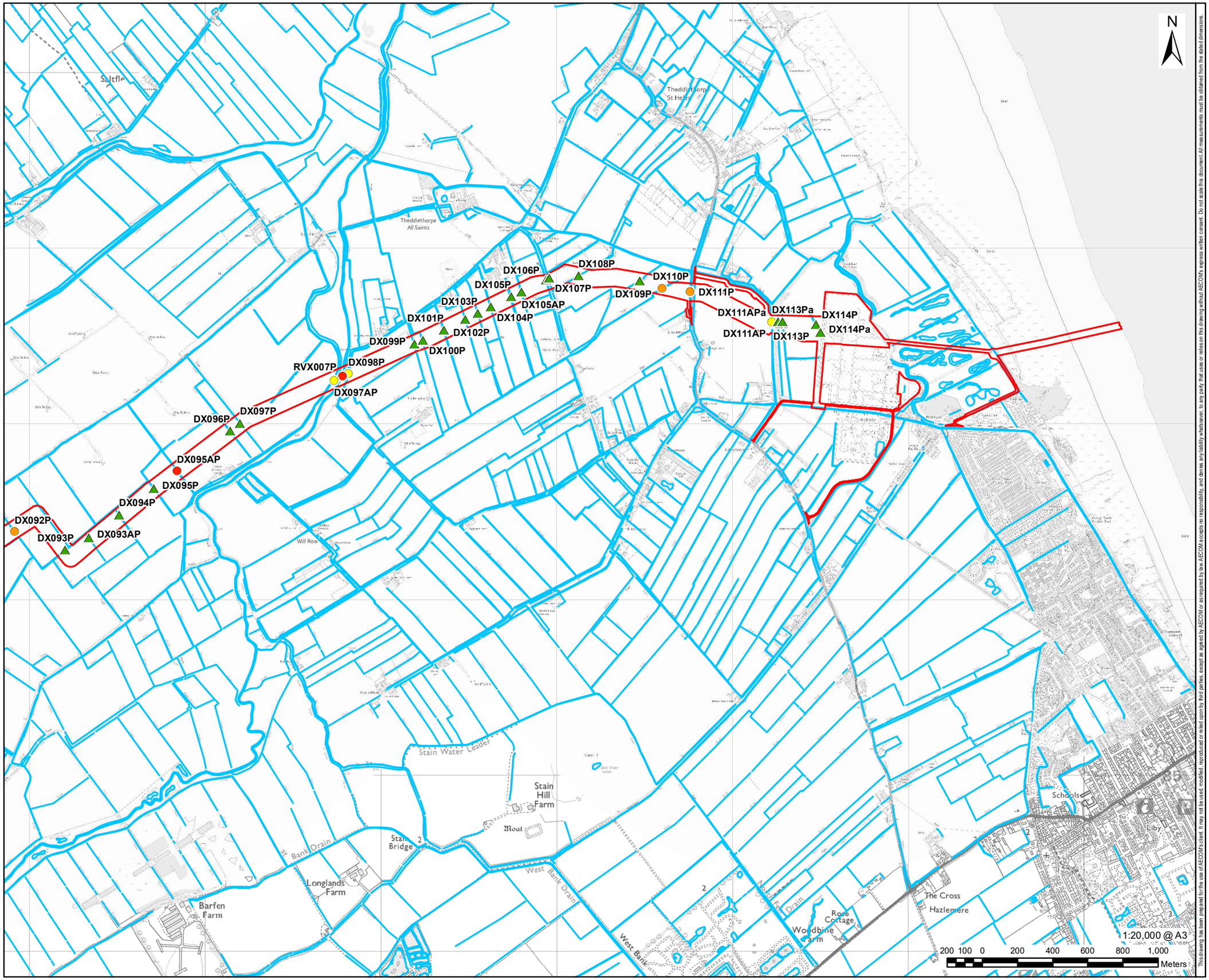

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Watercourse / Waterbody

Otter Survey Results

- Present
- Potentially Present
- Likely Absent
- Scoped Out - Unsuitable Habitat

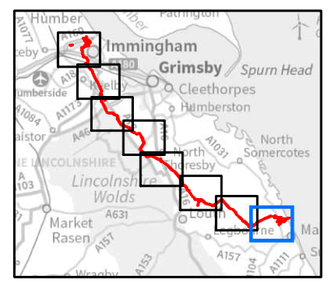

FIGURE TITLE

Figure 4 (8 of 8)
Otter Survey Results

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-4

Revision: 5 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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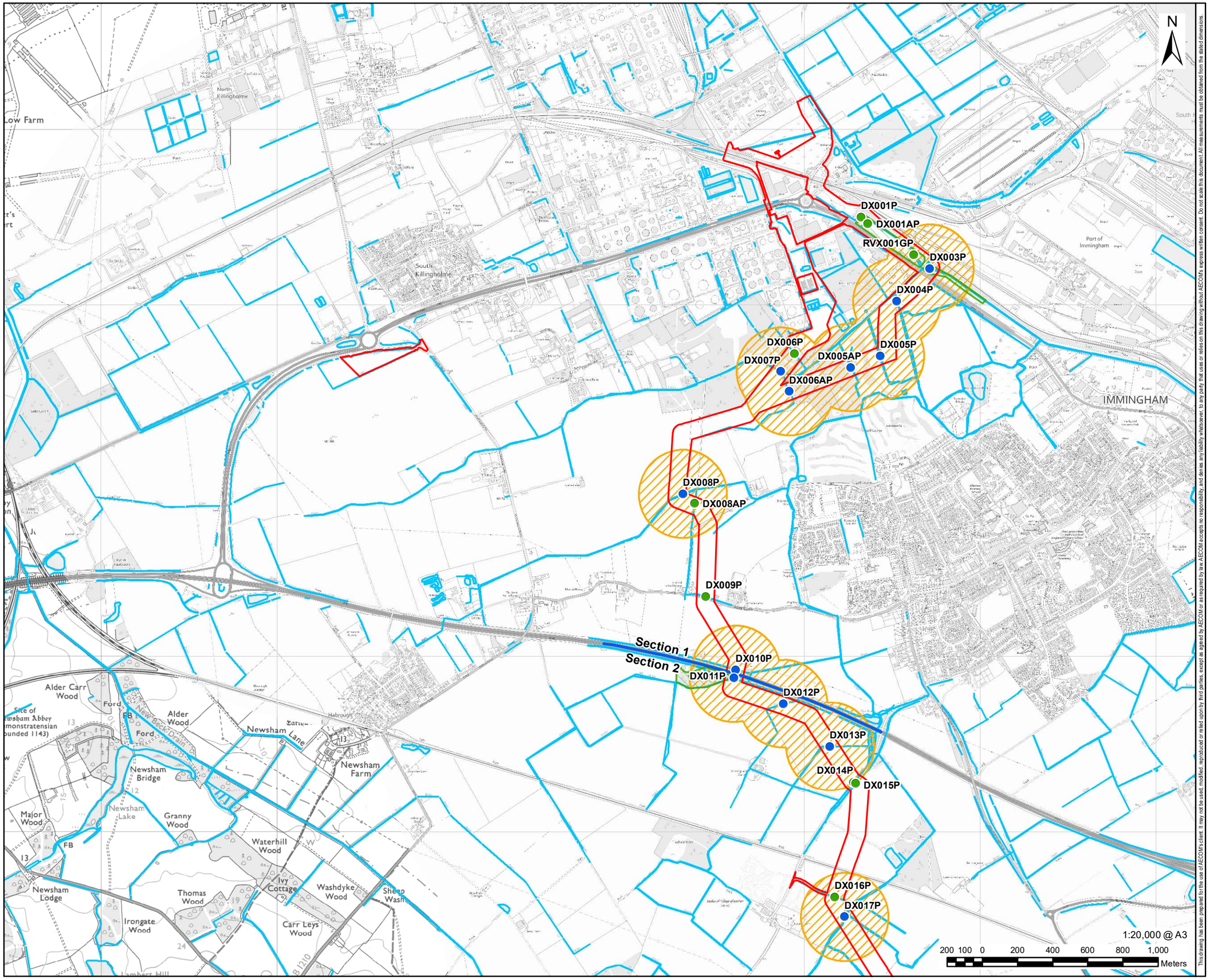

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Crossing Location
- Crossing Location - Scoped Out
- Watercourse / Waterbody
- Suitable Terrestrial Otter Habitat
- Extent of Potential Impact

NOTES:

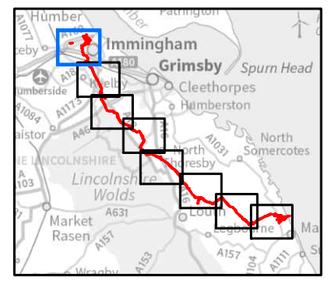

FIGURE TITLE

Figure 5 (1 of 8)
Suitable Terrestrial Otter Habitat

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-5

Revision: 5 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX017P
DX018P
DX019P
DX021P
DX022P
RVX001AP
DX023P
DX023AP
DX023BP
DX023CP
DX023DP
DX024P
DX025P
DX026P
DX027P

Stepney
Stallingborough
Little London
Pidgeon Cote Farm
Manor Farm
Primrose Cottage
Meadows Farm
Meadow Cottages
The Meadows
Sports Ground
Healing
Ther Manor
Moat
Maud Hole Covert
AYLESBY CP
Pyewipe Farm
Aylesby Road
Aylesby
Riby
Bratlands
Manor Farm
Bellows Pipe
Grange Wold Farm
Outfleet Drain

N

1:20,000 @ A3

200 100 0 200 400 600 800 1,000 Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Crossing Location
- Crossing Location - Scoped Out
- Watercourse / Waterbody
- Suitable Terrestrial Otter Habitat
- Extent of Potential Impact

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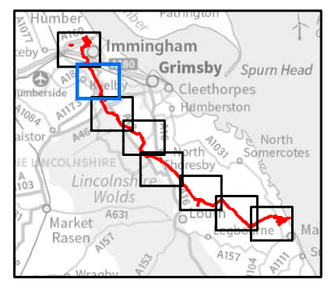

FIGURE TITLE

Figure 5 (2 of 8)
Suitable Terrestrial Otter Habitat

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-5

Revision: 5 Drawn: LC Checked: AR Approved: KA Date: 2023-09-25

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DX028P
DX029P
DX029AP
Section 2
Section 3
DX030P
DX031P
DX032P
RVX001BP
DX034P
DX035AP
DX035P
RVX001DP
RVX001CP
Laceby
Grimsby Road
Sewage Works
Manor House
Manor Farm
Pigeon Cote
Bradley Manor
Council Farm
Woodlands Farm
Hospital
Bradley Wood
Bradley Road
BRADLEY
Irby upon Humber
Rookery Farm
Beelsby Road
Pit (dis)
Mog's Hollow
Greenwood House
Barnoldby le Beck
The Foll
1:20,000 @ A3
200 100 0 200 400 600 800 1,000
Meters

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Crossing Location
- Crossing Location - Scoped Out
- Watercourse / Waterbody
- Suitable Terrestrial Otter Habitat
- Extent of Potential Impact

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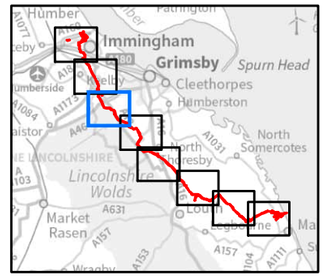

FIGURE TITLE

Figure 5 (3 of 8)
Suitable Terrestrial Otter Habitat

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-5

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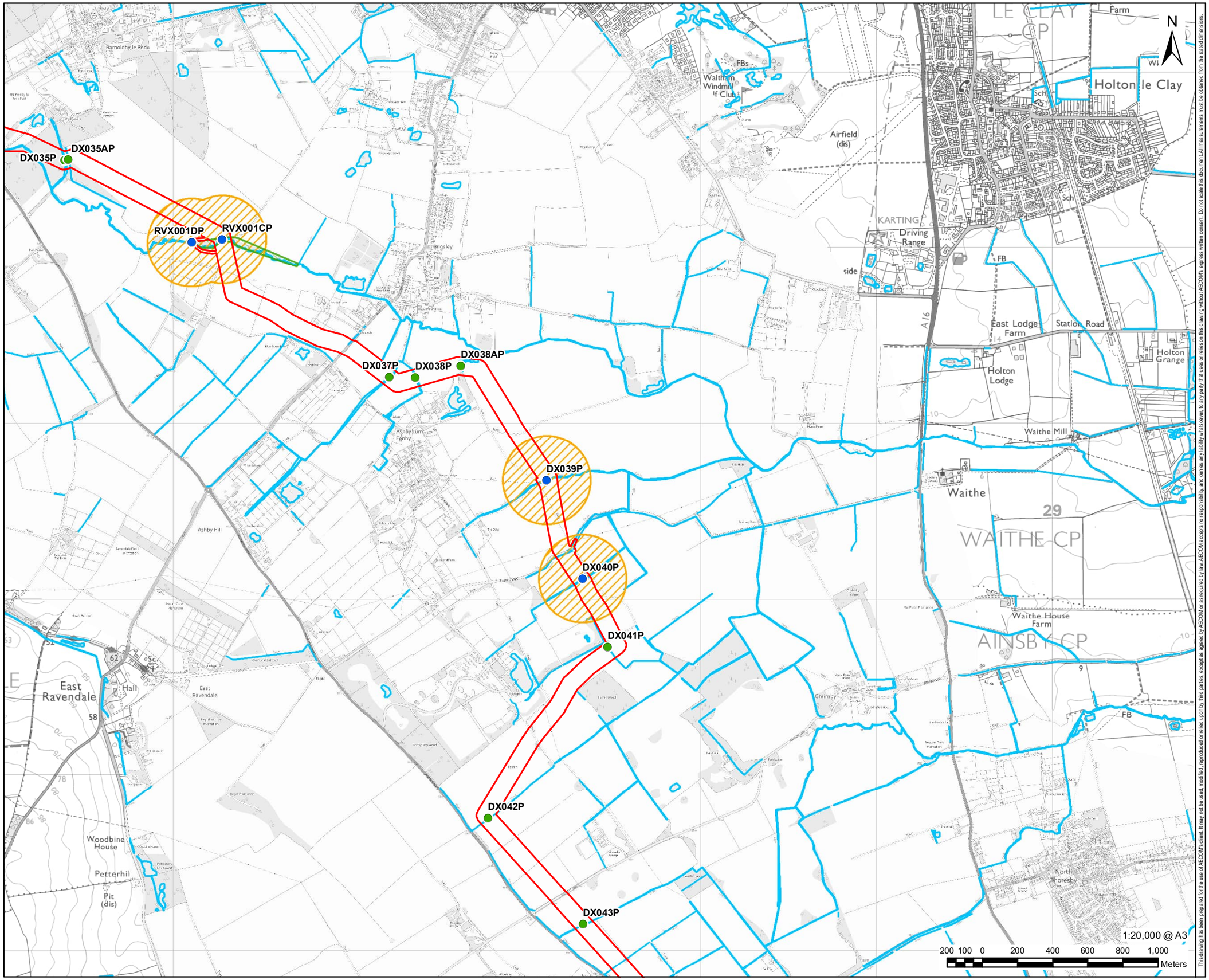

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Crossing Location
- Crossing Location - Scoped Out
- Watercourse / Waterbody
- Suitable Terrestrial Otter Habitat
- Extent of Potential Impact

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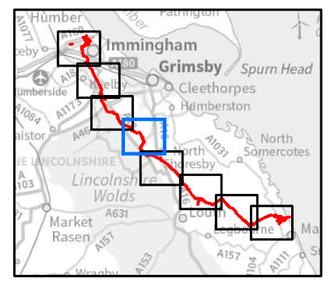

FIGURE TITLE

Figure 5 (4 of 8)
Suitable Terrestrial Otter Habitat

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

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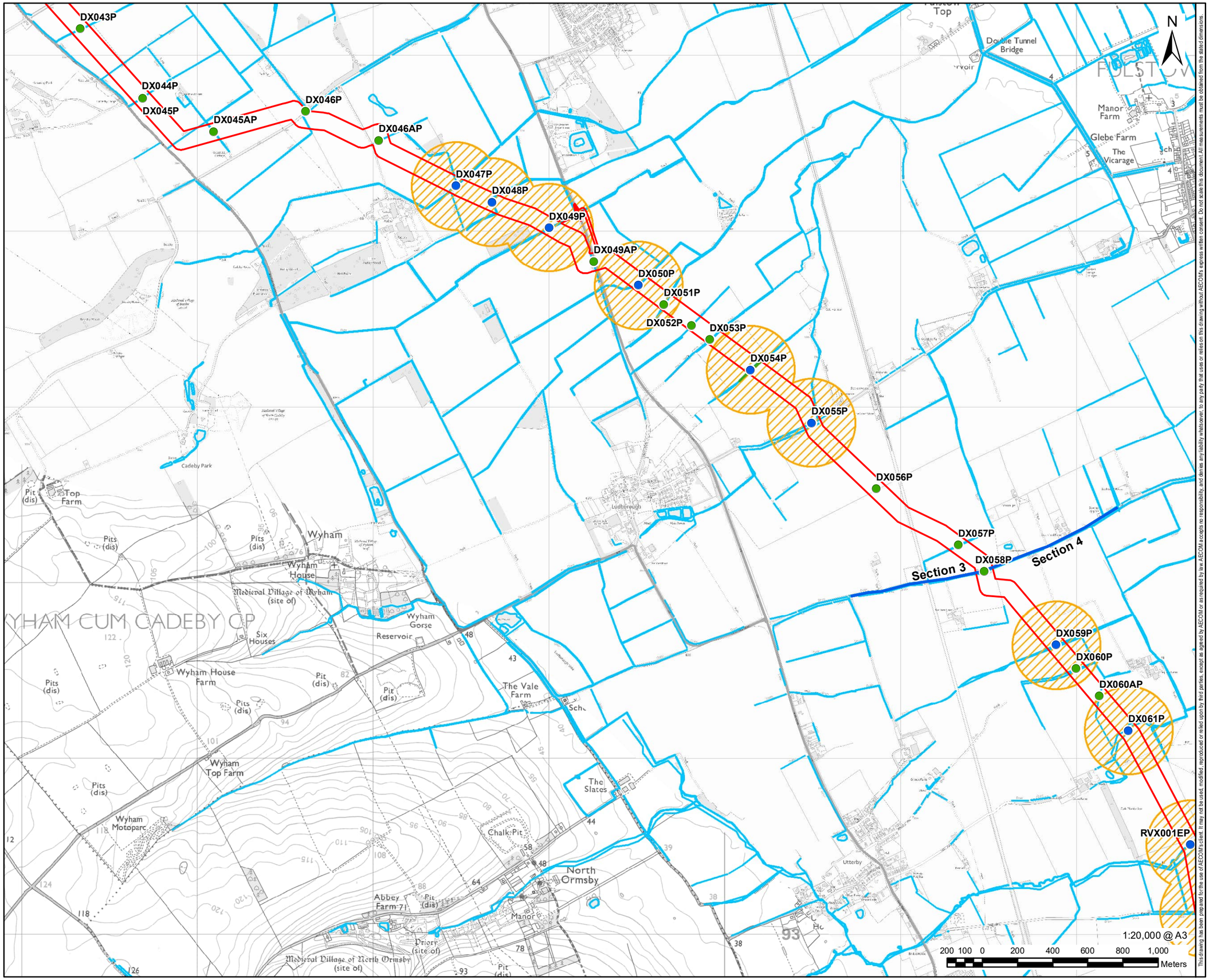

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Route Section Break
- Crossing Location
- Crossing Location - Scoped Out
- Watercourse / Waterbody
- Suitable Terrestrial Otter Habitat
- Extent of Potential Impact

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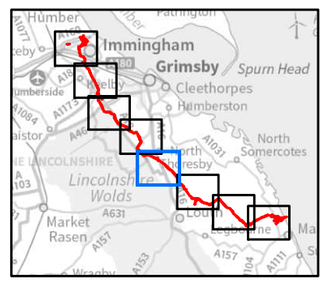

FIGURE TITLE

Figure 5 (5 of 8)
Suitable Terrestrial Otter Habitat

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-5

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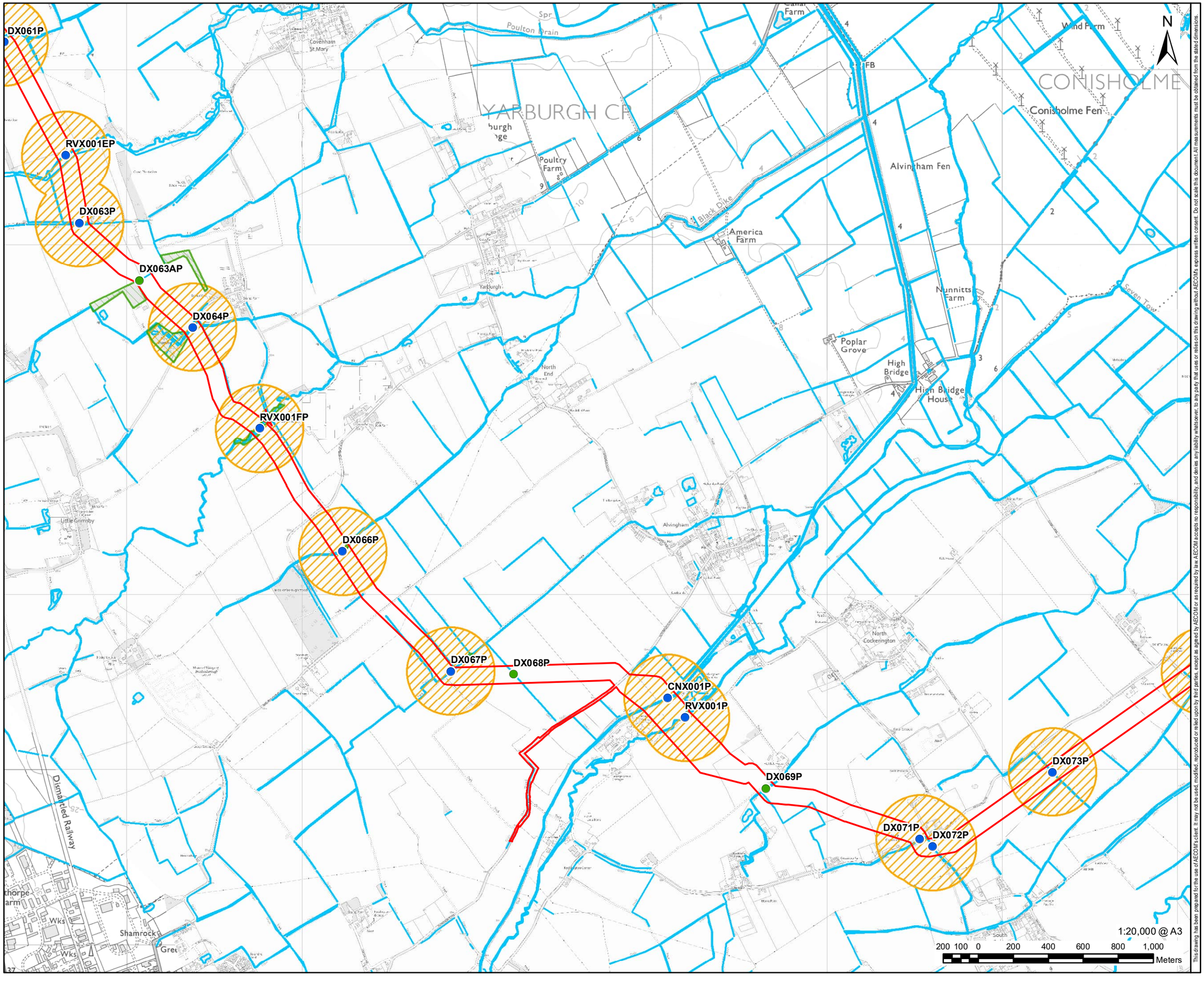

VikingCCS

AECOM

PROJECT

Viking CCS Pipeline

LEGEND

- DCO Site Boundary
- Crossing Location
- Crossing Location - Scoped Out
- Watercourse / Waterbody
- Suitable Terrestrial Otter Habitat
- Extent of Potential Impact

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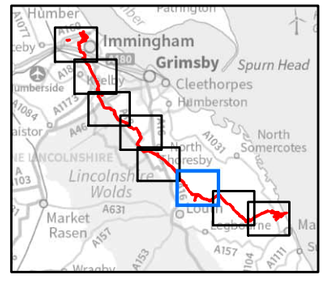

FIGURE TITLE

Figure 5 (6 of 8)
Suitable Terrestrial Otter Habitat

ISSUE PURPOSE

RIPARIAN MAMMAL SURVEY

PROJECT NUMBER / REFERENCE

60668955 / VCCS_230925_ESA_6-3-5

Annex B Desk Study Records from Previous 10 Years

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
Lutra lutra	Otter	Immingham	Not given	Lincolnshire Environmental Records Centre	Not given	Not given	18/06/2020	Field Observation	Bern-A2; ECCITES-A; England_NERC_S.41; HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	No
Lutra lutra	Otter	Laceby Beck	TA 225 047	Lincolnshire Environmental Records Centre	Not given	Not given	29/03/2012	Field Observation	Bern-A2; ECCITES-A; England_NERC_S.41; HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	No
Lutra lutra	Otter	Barnoldyle Beck	TA 234 022	Lincolnshire Environmental Records Centre	Not given	Not given	26/02/2015	Trail Camera	Bern-A2; ECCITES-A; England_NERC_S.41; HabDir-A4;	No

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	
Lutra lutra	Otter	Waithe Beck	TA 24 02	Lincolnshire Environmental Records Centre	Not given	Not given	July 2011	Field observation (1 juvenile male)	Bern-A2; ECCITES-A; England_NERC_S.41; HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	No
Lutra lutra	Otter	Brigsley	TA 250 017	Lincolnshire Environmental Records Centre	Not given	Not given	05/03/2015	Trail Camera	Bern-A2; ECCITES-A; England_NERC_S.41; HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	No
Lutra lutra	Otter	Grimoldby	TF 39 88	Lincolnshire Environmental Records Centre	Not given	Not given	27/06/2019	Field observation	Bern-A2; ECCITES-A; England_NERC_S.41;	No

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	
Lutra lutra	Otter	Mar Dike	TF 42 88	Lincolnshire Environmental Records Centre	Not given	Not given	27/11/2012	Field observation (dead)	Bern-A2; ECCITES-A; England_NERC_S.41; HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	No
Lutra lutra	Otter	Long Eau	TF 421 869	Lincolnshire Environmental Records Centre	Not given	Chris Manning	12/06/2012	Field observation (1 adult)	Bern-A2; ECCITES-A; England_NERC_S.41; HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	No
Lutra lutra	Otter	Long Eau	TF 422 869	Lincolnshire Environmen	Not given	Not given	12/06/2012	Field observation	Bern-A2; ECCITES-A; England_NER	No

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
				tal Records Centre					C_S.41; HabDir-A4; HabReg-Sch2; WACA-Sch5_sect9.4b; WACA-Sch5_sect9.5a	
Arvicola amphibius	Water vole	Scarsbridge Sewer East	TF48	Lincolnshire Environmental Records Centre	Not given	Not given	25/10/2013	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Meers Bank South Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Not given	01/08/2013	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Meers Bank South Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Chris Manning	23/09/2017	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a;	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									WACA-Sch5_sect9.4b	
Arvicola amphibius	Water vole	Grove Road Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	15/08/2013	Field observation (Abundance of 2)	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Mablethorpe Middle Cut	TF428868	Lincolnshire Environmental Records Centre	Not given	Not given	18/08/2016	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Mablethorpe Middle Cut	TF429869	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	18/08/2016	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
Arvicola amphibius	Water vole	Rotten Row Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	16/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Upper South Drain	TF39Q	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	27/10/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Highgate Connection Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	30/08/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Fleet Drain	TF	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	14/09/2015	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									Sch5_sect9.4a; WACA-Sch5_sect9.4b	
Arvicola amphibius	Water vole	Grove Road Drain Diversion	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	18/07/2019	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Grove Road Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	18/07/2019	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Harrowsea Drain	TF391905	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	25/08/2015	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
Arvicola amphibius	Water vole	Crook Bank Drain West	TF487877	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	27/07/2012	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Crook Bank Drain West	TF489872	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	27/07/2012	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Gayton North Fen Drain	TF445865	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	31/07/2012	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Gayton North Fen Drain	TF444865	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	31/07/2012	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									Sch5_sect9.4a; WACA-Sch5_sect9.4b	
Arvicola amphibius	Water vole	Sudales Drain	TF481870	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	22/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Sudales Drain	TF481869	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	22/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Sudales Drain	TF481870	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	22/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
Arvicola amphibius	Water vole	Crook Bank Drain West	TF490871	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	03/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Crook Bank Drain West	TF490872	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	03/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Crook Bank Drain West	TF490872	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	03/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Crook Bank Drain West	TF489873	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	03/09/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									Sch5_sect9.4a; WACA-Sch5_sect9.4b	
Arvicola amphibius	Water vole	Harrowsea Drain	TF391905	Lincolnshire Environmental Records Centre	Not given	Not given	08/09/2016	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Highgate Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	23/07/2019	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Beangare Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	05/09/2013	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
Arvicola amphibius	Water vole	Mill and Harps Drain	TF475877	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	31/07/2012	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Millfield Drain Branch No. 1	TF481877	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	30/07/2012	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Millfield Drain Branch No. 1	TF481877	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	30/07/2012	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Little Mardyke	TF415883	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	18/09/2013	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									Sch5_sect9.4a; WACA-Sch5_sect9.4b	
Arvicola amphibius	Water vole	Little Mardyke	TF415882	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	18/09/2013	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Mill and Harps Drain	TF475877	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	02/09/2013	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Mill and Harps Drain	TF476878	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	02/09/2013	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
Arvicola amphibius	Water vole	Middle Sykes Road Sewer	TF406891	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	02/10/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Mablethorpe Middle Cut	TF428868	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	16/08/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Mablethorpe Middle Cut	TF428868	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	16/08/2014	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Gayton North Fen Drain	TF444864	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	04/08/2015	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									Sch5_sect9.4a; WACA-Sch5_sect9.4b	
Arvicola amphibius	Water vole	Mill and Harps Drain	TF476878	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	16/09/2015	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Harrowsea Drain	TF392905	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	17/08/2017	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	New Gayton Engine Drain	TF448867	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	29/07/2020	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
Arvicola amphibius	Water vole	Mill and Harps Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	28/08/2020	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Plough Lane Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	02/10/2020	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Butt Lane Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	19/08/2020	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP
Arvicola amphibius	Water vole	Grove Road Drain Diversion	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	21/08/2020	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-	Lincolnshire LBAP

Scientific Name	Common Name	Location	Grid Reference	Custodian	Survey	Recorder (s)	Date(s)	Record Type	Designation(s)	LBAP
									Sch5_sect9.4a; WACA-Sch5_sect9.4b	
Arvicola amphibius	Water vole	Sudales Drain	TF48	Lincolnshire Environmental Records Centre	Not given	Lindsey Marsh Drainage Board	03/09/2020	Field observation	England_NERC_S.41; RedList_GB_post2001-EN; WACA-Sch5_sect9.4a; WACA-Sch5_sect9.4b	Lincolnshire LBAP

Annex C Survey Results

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX003P	18/04/2023	3m wide 50cm deep ditch with steep earth banks vegetated with grasses and emergent plant species. The watercourse has slow flow and is connected to the wider landscape	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX004P	18/04/2023	Ditch associated with hedgerow with earth banks. Bankside vegetation includes tall grasses and ruderals.	None	None	
DX007P	09/06/2022	Steep banks on both sides of the ditch, vegetation includes tall ruderals and common reed.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX008P	09/06/2022 18/04/2023	1m wide 20cm ditch with steep banks. Vegetation includes dense scrub and shading occurs along 30% of the ditch.	None	None	
DX011P	18/04/2023	3m wide 20cm deep ditch. Bankside vegetation consists of tall ruderals	None	None	No photograph taken

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX012P	18/04/2023	Dry ditch	None	Otter footprints recorded	
DX013P	19/04/2023	1m wide and 25cm deep ditch. Earth banks and slow flow with emergent vegetation present	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX017P	19/04/2023	1m wide and 20cm deep ditch with steep earth banks with vegetation of tall grasses and tall ruderals	None	None	
DX018P	19/04/2023	50cm wide 30cm deep ditch with steep earth banks and bankside vegetation of tall grasses and tall ruderals.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX019P	19/04/2023	1m wide 30cm deep ditch with earth banks and emergent vegetation present.	None	None	
DX023P	28/07/2023	Dry ditch overgrown with vegetation	None	None – but linked with RVX001AP where otter activity has been recorded	No photograph available
DX025P	19/04/2023	1m wide ditch with limited macrophytes	None	None	No photograph available

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX029P	19/04/2023	Heavily vegetated ditch with bramble.	None	None	
RVX001BP	20/04/2023	50cm wide 25cm deep chalk stream with grass banks. Banks largely unshaded.	None	None	No photograph available

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX039P	19/05/2022 20/04/2023	50cm wide 10cm deep ditch with earth banks which are moderately sloped. Banks largely unshaded with tall grasses as vegetation	None	None	
DX040P	20/04/2023	75cm wide 30cm ditch with steep earth banks vegetated by tall grasses and ruderals, emergent plants present within the channel.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX047P	20/04/2023	50cm wide 25cm deep ditch with earth banks vegetated by grasses and ruderals.	None	None	No photograph available
DX048P	20/04/2023	Small ditch with steep banks which likely dries in the summer. Depth is approximately 10cm	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX049P	20/04/2023	50cm wide 25cm deep ditch with some aquatic macrophytes present including marginals and emergent species. No shading.	None	None	
DX050P	20/04/2023	50cm wide 10cm deep ditch with moderately sloped earth banks vegetated by grasses and tall ruderals. No shading.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX054P	20/04/2023	50cm wide 30cm deep ditch with moderately sloped earth banks vegetated by grasses and tall ruderals	None	None	
DX055P	24/04/2023	20cm wide 10cm deep ditch with moderately sloped banks vegetated by grasses and tall ruderals	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX059P	24/04/2023	1m wide 50cm deep ditch with steep earth banks vegetated by dense scrub on one bank and tall grasses on the other. No shading, and some emergent plant species present	None	None	
DX061P	24/04/2023	1m wide 25cm deep ditch with shallow earth banks vegetated by grasses and tall ruderals. The channel had emergent aquatic vegetation present.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
RVX001EP	24/04/2023	5m wide 60cm deep river with earth banks and moderate water flow. Banks vegetated by tall grasses and ruderal.	None	None	
DX064P	24/04/2023	1m wide 30cm deep ditch with moderately sloped earth banks with tall grasses and tall ruderals.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX066P	24/04/2023	1m wide 30cm deep ditch with steep earth banks vegetated by tall ruderals and occasional trees. Limited shading.	None	None	
DX067P	24/04/2023 DX085P	50cm wide ditch with tall ruderal vegetation on the banks which are steeply sloped and consist of earth.	None	None	No photograph available

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX071P	25/04/2023	20cm x 20xm ditch with moderately sloped earth banks which are vegetated by grasses and tall ruderals.	None	None	
DX072P	25/04/2023	30cm wide 30cm deep ditch with moderately sloped earth banks vegetated by tall grasses and associated with a hedgerow. Some shading.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX073P	25/05/2023	50cm wide 30cm deep ditch with earth banks vegetated with tall grasses and tall ruderals	None	None	No photograph available
DX074P	25/04/2023	5m wide drain with steep earth banks vegetated with tall grasses. Emergent vegetation present, no shading.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
RVX003AP	25/04/2023	3m wide 50cm deep river with earth banks which are vegetated by tall grasses. Emergent plant species present in the channel. Mink footprints also observed.	Two burrows and one latrine	Footprints	 

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX077P	25/04/2023	30cm x 20cm ditch which likely dries in the summer. Bankside vegetation consists of brambles and grasses.	None	None	No photograph available
DX078P	25/04/2023	30cm x 20cm ditch with severely sloped earth banks vegetated by grasses.	None	None	
DX080P	25/04/2023	50cm wide 30cm deep ditch with earth banks vegetated by tall grasses. Emergent vegetation present within the channel.	None	None	
DX081P	25/04/2023	30cm wide 25cm deep ditch with earth banks vegetated by tall grasses.	None	None	No photograph available

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX083P	25/08/2022	5m wide 30cm deep ditch with dominant emergent vegetation in the channel. Shallow bank on south bank and a moderately sloped bank on the north bank both vegetated by tall grasses and herbs.	None	None	
DX084P	25/04/2023	30cm wide 20cm deep dich associated with a hedgerow. South bank vegetated by grasses and moderately sloped.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX085P	25/04/2023	30cm wide 10cm ditch with moderately sloped earth banks.	None	None	
DX089P	25/08/2022 25/04/2023	5m wide 1m deep drain with steep earth banks vegetated by grasses. Emergent vegetation present within the channel.	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX089AP	25/08/2022 25/04/2023	3m wide 70cm deep drain with tall grasses and emergent vegetation.	None	Feeding remains.	
DX090BP	25/08/2022 25/04/2023	7m wide 75cm deep ditch with earth banks vegetated by grasses. Sumberged and emergent vegetation present	None	Footprints and feeding remains	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX092P	25/04/2023	30cm wide 20cm deep ditch with emergent vegetation and earth banks vegetated by grassed	None	None	
DX095AP	26/04/2023	7m wide 1m deep drain with moderately sloped earth banks vegetated by grasses. Marginals are present within the channel	None	Footprints	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
					
DX108P	26/04/2023	50cm wide 40cm deep ditch with steep earth banks vegetated by grasses. Common reed dominates the channel	None	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX110P	26/04/2023	4m wide 1m dep drain. Steep earth banks vegetated by grasses.	23 burrows and 15 latrines	None	No photograph available
DX111P	26/04/2023	5m wide 1m deep drain. Moderately sloped earth banks vegetated by grasses	Footprints and a burrow	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
RVX002P	25/08/2022	5m wide 1.5m deep river. Moderately sloped earth banks vegetated by grasses.	None	Live otter seen swimming in river	
RVX007P	25/08/2022	7m wide 1m deep river. Moderately sloped earth banks vegetated by grasses.	None	Live otter observed swimming in the river further upstream	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX111APa & DX11AP	25/04/2023	5m wide and 1m deep drain. Moderately sloped earth banks	Burrow and latrine	None	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
RVX002P	25/08/2022	5m wide 1.5m deep river. Moderately sloped earth banks vegetated by grasses.	None	Live otter seen swimming in river	
RVX007P	25/08/2022	7m wide 1m deep river. Moderately sloped earth banks vegetated by grasses.	None	Live otter observed swimming in the river further upstream	

Crossing Point	Survey Dates	Watercourse description	Water vole field signs	Otter field Signs	Photograph
DX111APa & DX11AP	25/04/2023	5m wide and 1m deep drain. Moderately sloped earth banks	Burrow and latrine	None	

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