A2AT Gate Two Submission

Regulatory Environmental Assessments
Informal Habitats Regulations Assessment

Affinity Water and Anglian Water

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Quality information

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1. Introduction

Overview

1.1 AECOM has been appointed to undertake an informal preliminary Habitats Regulations Assessment of the A2AT scheme for gate two to inform the development of the project.

1.2 The objective of this assessment is to identify any likely significant effects arising from the Project on international sites (Special Areas of Conservation (SACs), Special Protection Areas (SPAs)) including, as a matter of Government policy, Ramsar sites, either in isolation or in combination with other plans and projects, and to undertake appropriate assessment and advise on appropriate policy mechanisms for delivering mitigation where necessary.

1.3 This HRA Report is intended to inform the development of the project.

Legislative Framework

1.4 As part of the assessment of a proposed project it is necessary to consider whether the project is likely to have a significant effect on areas that have been designated for nature conservation purposes (i.e., 'European Sites'). If what is being considered could potentially interact with a European site, then this is classed as a project or a plan (and the distinction between the two would be immaterial), its potential effects should be assessed.

1.5 Should it be found that significant effects are likely, an 'Appropriate Assessment' should then be carried out in order to further assess those effects. Box 1 sets out the legislative basis for an Appropriate Assessment. Consent may only be given for the proposed scheme if, following assessment, it is established that it will not adversely affect the integrity of the designated site.

> **Conservation of Habitats and Species Regulations 2017 (as amended)**
>
> Regulation 63 of the 2017 Regulations states that:
>
> "*A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … must make an appropriate assessment of the implications for the plan or project in view of that site's conservation objectives… The competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site."*

Box 1. The Legislative basis for Appropriate Assessment

1.6 Regulation 105 of the same regulations (applicable specifically to plans) says something very similar, stating: *'Where a land use plan… is likely to have a significant effect on a European site (either alone or in combination with other plans or projects), and… is not directly connected with or necessary to the management of the site, the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives'.*

1.7 The Habitats Regulations applies the precautionary principle[1] to international sites SAC, SPA, and Ramsar. For the purposes of this assessment candidate SACs (cSACs), proposed SPAs (pSPAs) and proposed Ramsar (pRamsar) sites are all treated as fully designated sites. The most robust and defensible approach to the absence of fine grain detail at this gate two stage is to make use of the precautionary principle. In other words, the project is never given the benefit of the doubt (within the limits of reasonableness); it must be assumed that a project is likely to have an impact leading to a significant adverse effect upon an internationally designated site unless it can be clearly established otherwise.

[1] The Precautionary Principle, which is referenced in Article 191 of the Treaty on the Functioning of the European Union, has been defined by the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2005) as: "*When human activities may lead to morally unacceptable harm* [to the environment] *that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. The judgement of plausibility should be grounded in scientific analysis*".
People Over Wind and Sweetman v Coillte Teoranta (C-323/17)

1.8 If adverse effects are identified, alternatives should be considered to avoid those effects. However, where no alternative solution exists and so an adverse effect remains, a further assessment should be made of whether the scheme is required for imperative reasons of overriding public interest (IROPI). If the scheme meets that IROPI test, compensatory measures will be required in order to maintain the overall national site network.

1.9 The need for HRA is set out within the Conservation of Habitats & Species Regulations 2017 (as amended) and concerns the protection of European sites. European sites can be defined as actual or proposed/candidate Special Areas of Conservation (SAC) which are designated for habitats and non-avian fauna, or Special Protection Areas (SPA) which are designated for birds. It is also Government policy for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) which are wetlands of international importance to be treated as having equivalent status to European sites.

1.10 This entire process is called a Habitats Regulations Assessment (HRA). The HRA process follows available guidance including that published by UKWIR, by the government in February 2021[2] and in the Habitats Regulations Assessment Handbook.

1.11 Over the years, the phrase 'Habitats Regulations Assessment' (HRA) has come into wide currency to describe the overall process set out in the 2017 Regulations, from the screening for Likely Significant Effects through to identification of IROPI. This has arisen in order to distinguish the overall process from the individual stage of "Appropriate Assessment". Throughout this Report the term HRA is used for the overall process and restricts the use of Appropriate Assessment to the specific stage of that name.

1.12 Impacts on European sites were considered to the extent possible in the gate one informal HRA work undertaken for the A2A Transfer. However, since that HRA was undertaken, the project has been further developed and refined into two route options running south-east of Cambridge. From north to south, both options start west of Peterborough before the Western Route then turns east at Sawtry, and then heads south at Somersham past Cambridge to Newport. The Eastern Route lies entirely west of Peterborough until it heads south-east at Royston. Although two pipeline routes have been identified at this stage, there remains room for the pipeline routes to be moved for refinements and adjustments. Therefore, to inform assessment, a 2.5 km buffer has been applied either side of the pipeline to allow flexibility for the pipeline to be moved.

1.13 The RAPID gate two guidance suggests an 'informal HRA' should be carried out:

- *Although a full HRA for a solution is not required until a planning and/or permit application (or its equivalent, for example a Development Consent Order (DCO)) is submitted, it is strongly recommended that the principles of a HRA are followed to reduce the risk of noncompliance at the decision-making stage.*

1.14 The following general approach to informal assessment is suggested in the gate two guidance:

1. Updated informal Stage 1 screening.
2. Preparation of informal Stage 2: An informal appropriate assessment should be commenced with data available and associated informal site integrity test.
3. If required and if possible, and with evidence available, begin to plan for an informal (Appropriate Assessment) document at gate three.

1.15 The following European sites are discussed in this HRA: Nene Washes SAC/SPA/Ramsar site, the Ouse Washes SAC/SPA/Ramsar site, Portholme SAC, Woodwalton Fen Ramsar/Fenland SAC, Eversden & Wimpole Woods SAC and Orton Pit SAC. These are shown within the context of the scheme in the map Figure 1.

1.16 In accordance with WRMP environmental assessment guidance and applicability with SROs (All Companies Working Group, October 2020) consultation with relevant stakeholders should take place throughout the gated process. Consultation with Natural England on HRA reports will therefore need to be undertaken during gate three.

[2] https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site

2. Method

2.1 **Figure 2** below outlines the stages of HRA for projects. Although prepared by the Planning Inspectorate for Development Consent Orders, the process set out in the figure applies to all planning applications.

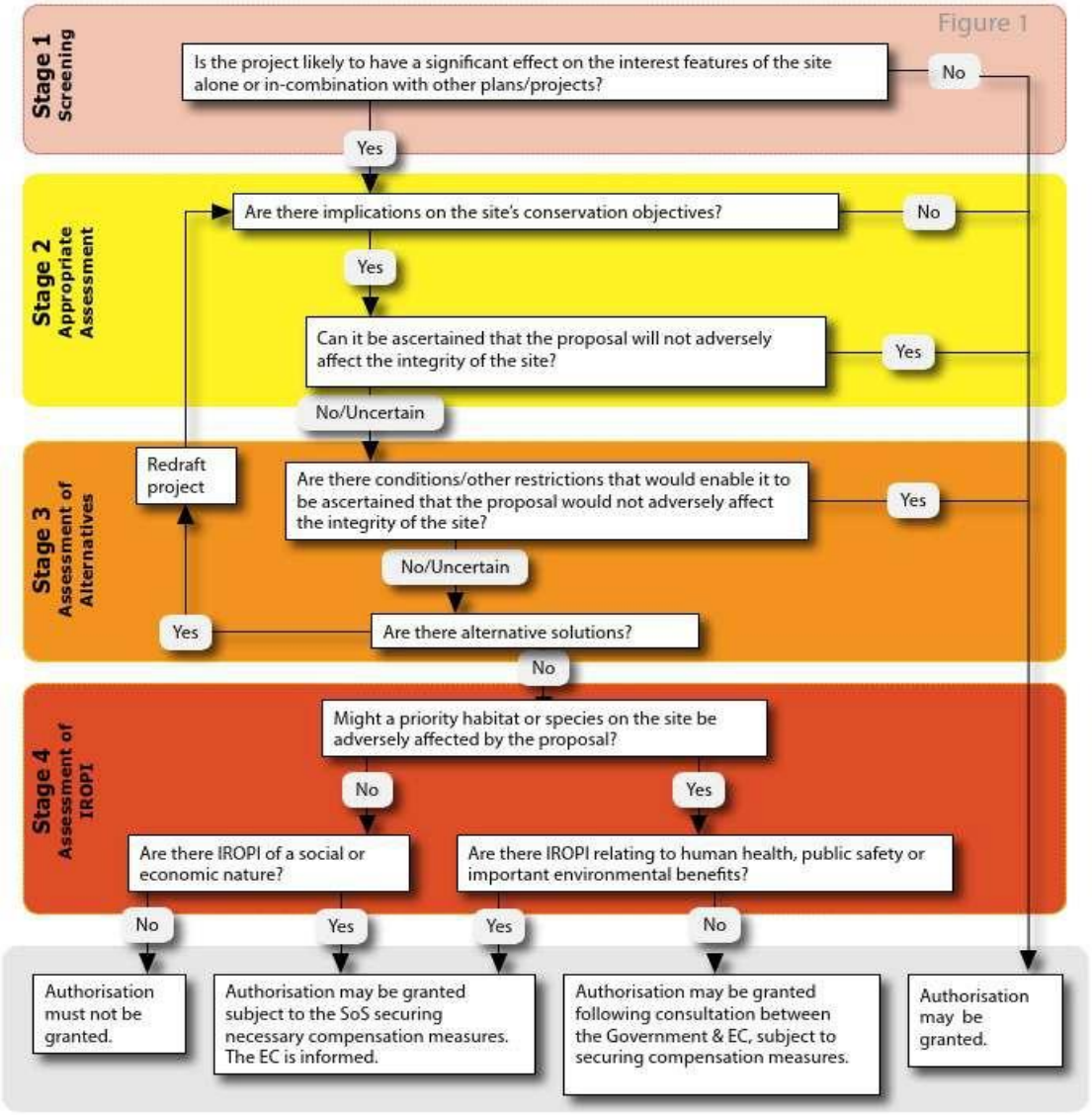

Figure 2. Four Stage approach to Habitats Regulations Assessments of Projects

HRA Stage 1 –Likely Significant Effects Test

2.2 The objective of the Likely Significant Effects (LSE) Test is to 'screen out' those aspects of a project and / or the European sites that can, without any detailed appraisal, be said to be unlikely to result in significant adverse effects upon European sites, usually because there is no mechanism for an adverse interaction (i.e. a pathway) with European sites. The remaining aspects are then taken forward to Appropriate Assessment. The assessment must consider the potential for effects 'in combination' with other plans and projects.

2.3 This report has been prepared having regard to all relevant case law relating to the 2017 Regulations, the Habitats Directive and Birds Directive. This includes the ruling by the Court of Justice of the European Union (CJEU) in the case of People Over Wind, Peter Sweetman v Coillte Teoranta (C-323/17) (CJEU, 2018).

2.4 That case held that; "*it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site"* (paragraph 40). This establishes

that 'mitigation measures' cannot be taken into account at the screening stage, but they can be taken into account in an Appropriate Assessment.

HRA Stage 2 – Appropriate Assessment

2.5 Where it is determined that a conclusion of 'no Likely Significant Effect' cannot be drawn, the HRA assessment proceeds to the next stage of HRA known as Appropriate Assessment. Case law has clarified that 'Appropriate Assessment' is not a technical term. In other words, there are no specific technical analyses, or level of detail, that are classified by law as belonging to Appropriate Assessment rather than the screening for LSE. The Appropriate Assessment constitutes whatever level of further assessment is required to determine whether an adverse effect on integrity would arise.

2.6 By virtue of the fact that it follows the screening process, there is an understanding that the analysis will be more detailed than that undertaken at the previous stage. One of the key considerations during Appropriate Assessment is whether there is available mitigation that would address the potential effect, allowing for a conclusion of no adverse effect on integrity. In practice, the Appropriate Assessment takes any element of the Proposed Development that could not be excluded as having Likely Significant Effects following HRA Stage 1 and assesses the potential for an effect in more detail, with a view to concluding whether there would be an adverse effect on site integrity. Adverse effects on site integrity include disruption of the coherent structure and function of the European site(s) and the ability of the site to achieve its conservation objectives.

2.7 In 2018 the Holohan ruling was handed down by the European Court of Justice (CJEU, 2018). Among other provisions paragraph 39 of the ruling states that *'As regards other habitat types or species, which are present on the site, but for which that site has not been listed, and with respect to habitat types and species located outside that site, … typical habitats or species must be included in the appropriate assessment, if they are necessary to the conservation of the habitat types and species listed for the protected area'* [emphasis added]. This ruling has been considered in relation to the Proposed Development and European sites that are linked to the proposal via an impact pathway. In this case no habitats that will be affected by the Proposed Development are functionally-linked to any European sites. Impacts on habitats within European sites that support SPA birds have been considered.

2.8 This HRA commences with a simple Test of Likely Significant Effects (also dubbed HRA Screening) which considers the qualifying interest features of the European sites, relevance being determined by the impact pathways likely to arise from the scheme and either professional judgment or available guidance on the distance such impacts are likely to affect European sites, i.e. a source-pathway-receptor approach.

2.9 In undertaking this analysis, regard was given to the UKWIR report 'Strategic Environmental Assessment and Habitats Regulations Assessment - Guidance for Water Resources Management Plans and Drought Plans; Report Ref. No. 12/WR/02/7'[3] and to the assessment method and impact pathways that were used in 2013 for the HRA of the previous Water Resource Management Plan. Table 7.1 of the UKWIR report provides examples of potential impact pathways and suggests distance-based criteria that may be applicable to some of those impact pathways. These are reproduced in

2.10 Table 2-1.

Table 2-1: Potential Impacts of Water Resource Management Plan Schemes, modified from UKWIR (2012)

Potential Impacts Including Description		AECOM Commentary on Distance Criteria, where Required
Physical loss		
- Destruction (including offsite effects, e.g. foraging habitat) - Smothering	Development of built infrastructure associated with scheme, e.g. pipelines, temporary weirs, access routes. ***Physical loss is only likely to be significant where the boundary of the scheme extends within the boundary of***	-

[3] Baker E, Fredenham E, Liney K, Pitts M and Rudd T. 2012. Strategic Environmental Assessment and Habitats Regulations Assessment - Guidance for Water Resources Management Plans and Drought Plans

Potential Impacts Including Description		AECOM Commentary on Distance Criteria, where Required
	the European site, or within an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated).	
Physical damage		
- Sedimentation / silting - Prevention of natural processes - Habitat degradation - Erosion - Trampling - Fragmentation - Severance/barrier effect - Edge effects	Development of built infrastructure associated with the scheme, e.g. reservoir embankments, water treatment plant, pipelines and pumping stations. Recreation e.g. cycling, walking, horse-riding, water-sports associated with scheme benefits, e.g. reservoirs. ***Physical damage is only likely to be significant where the boundary of the scheme extends within or is directly adjacent to the boundary of the European site, or within/adjacent to an offsite area of known foraging, roosting, breeding habitat that supports species for which a European site is designated.***	-
Non-physical disturbance		
- Noise - Visual presence - Human presence - Light pollution	Noise from vehicular traffic during construction of the scheme. ***Noise from construction traffic is only likely to be significant where the transport route to and from the scheme is within 3-5 km of the boundary of the European site*** Plant and personnel involved in construction and operation of schemes e.g. for maintenance, plus non-operational activities such as recreation associated with the scheme e.g. reservoirs. ***These effects (noise, visual/human presence) are only likely to be significant where the boundary of the scheme extends within or is directly adjacent to the boundary of the European site, or within/adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a European site is designated).*** Development of built infrastructure associated with scheme, which includes artificial lighting.	Based on AECOM's experience, 3-5 km is an extremely precautionary distance to use for traffic-related noise. A 25% increase in traffic flows is required to achieve a 1 decibel (dB (A)) increase in noise even at the roadside, while a 100% increase (i.e. a doubling) is required to achieve a 3 dB (A) increase at the roadside[4]. For most sensitive terrestrial wildlife (e.g. birds, which have similar hearing threshold to humans) a decibel change of 3 dB(A) is perceptible but is very unlikely to be disturbing. As such, noise from traffic only poses a risk of a likely significant effect if it will result in at least a doubling of vehicle flows on a road that lies very close to a European site. Even such a large change in flows would not result in a perceptible change in noise levels at a distance of 3-5 km. It is extremely unlikely that construction traffic associated with any Constrained Option would result in such a large increase in overall traffic flows on any road. For the purposes of this HRA therefore, noise related to construction activities such as piling is more relevant to a potential likely significant effect than

[4] Design Manual for Roads and Bridges. 2011. Volume 11 (Environmental assessment), Section 3 (Environmental Assessment Techniques), Part 7 (Noise and Vibration), Page A1/3. November 2011.

Potential Impacts Including Description		AECOM Commentary on Distance Criteria, where Required
	Effects from light pollution are only likely to be significant where the boundary of the scheme is within 500m of the boundary of the European site. From a review of Environment Agency internal guidance on HRA and various websites, the effects of vibration and noise and light are more likely to be significant if development is within 500 m of a European site.	noise from traffic on the road network. The noisiest construction activities (e.g. percussive driven piling) could reasonably be expected to generate noise levels of approximately 110 dB(A) at 1 m distance from source. Research indicates that noise levels in excess of 84 dB(A) cause a flight response in waterfowl, while levels below 55 dB (A) have no effect[5]. These thresholds therefore define the two extremes. Research by the same authors recommends that '*Ambient construction noise levels should be restricted to below 70dBA* [at the bird]*; birds will habituate to regular noise below this level*'[6]. Atmospheric noise attenuates by 6 dB(A) for every doubling of distance from source. Therefore, even when percussive driven piling is undertaken, noise levels will generally be below 70dB(A) at 100 m from source. Therefore, for atmospheric noise, this HRA considers that a screening distance of 500 m is adequately precautionary. Underwater noise attenuates over much longer distances than atmospheric noise and its potential for disturbance depends on the fish or mammal species in question. However, in general, disturbance is unlikely to occur unless particularly noisy construction activities (e.g. percussive piling) take place within the same waterbody as the sensitive receptor.
Water table/availability		
- Drying - Flooding / stormwater - Changes to surface water levels and flows - Changes in groundwater levels and flows - Changes to coastal water movement	Changes to water levels and flows due to water abstraction, storage and drainage interception associated with inland schemes. These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme	-

[5] Cutts, N. and Allan, J. 1999. Avifaunal Disturbance Assessment. Flood Defence Works: Saltend. Report to Environment Agency.
[6] Cutts, N., Phelps, A. and Burdon, D. 2009. Construction and waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA, Institute of Estuarine and Coastal Studies, University of Hull.

Potential Impacts Including Description		AECOM Commentary on Distance Criteria, where Required
	is up or down stream from the European site.	
Toxic contamination		
- Water pollution - Soil contamination - Air pollution	Air emissions associated with vehicular traffic during construction of schemes. This effect is only likely to be significant where the transport route to and from the scheme is within 200m of the boundary of the European site.	-
Non-toxic contamination		
- Nutrient enrichment (e.g. of soils and water) - Algal blooms - Changes in salinity - Changes in thermal regime - Changes in turbidity - Changes in sedimentation/silting - Air pollution (dust)	Changes to water salinity, nutrient levels, turbidity, thermal regime due to water abstraction, storage, or inter-catchment transfers. ***These effects are only likely to be significant where the boundary of the scheme extends within the same ground or surface water catchment as the European site. However, these effects are dependent on hydrological continuity between the scheme and the European site, and sometimes, whether the scheme is up or down stream from the European site. This level of information is not available until data such as groundwater modelling is collected to accompany planning applications.*** Emissions of dust during earthworks, construction of plant and tunnel/pipeline construction associated with schemes. This effect is only likely to be significant where the construction works for the scheme are within 500m of the boundary of the European site.	-

2.11 In addition to the impact pathways identified above, impacts on functionally-linked habitat are also relevant for the assessment of the two pipeline routes. Specifically, the barbastelle bat population a special feature of Eversden & Wimpole Woods SAC is known to travel extensively beyond the SAC boundary. Radio-tracking of barbastelle from other European sites designated for this species has shown that it can travel up to 12 km from its maternity roost sites to forage, although most foraging is closer to the roost[7]. At other sites the species can forage even further, up to 20 km.

2.12 The HRA builds on the assessment undertaken for gate one. Using this approach, it has been determined whether the risk of an Likely Significant Effect exists (beyond reasonable scientific doubt) and thus whether an appropriate assessment is required. If not, the assessment can stop at the HRA screening stage.

[7] Greenaway, F. (2004) Advice for the management of flightlines and foraging habitats of the barbastelle bat *Barbastellus barbastellus*. English Nature Research Report, Number 657.
Greenaway, F. (2008) Barbastelle bats in the Sussex West Weald 1997 – 2008. West Weald Partnership, Sussex Wildlife Trust.

2.13 As necessary, and possible, the informal HRA of the Environmental Statement for the scheme includes information to inform Appropriate Assessment. Appropriate Assessment is not a technical term, it means whatever assessment is required to draw a conclusion regarding adverse effects on the integrity of the European sites. In other words, it considers whether the ability of the European sites to achieve their conservation objectives will be impaired by the scheme either alone or in combination with other plans and projects. At gate two, it is entirely possible that there could be insufficient information on the scheme(s) to enable a meaningful Appropriate Assessment to be undertaken, in which case the report would make recommendations for any additional work that would be needed for gate three in order to undertake the Appropriate Assessment.

3. Screening/ Test of Likely Significant Effects

3.1 Based on the source-pathway-receptor approach, the following European sites are considered within this document:

Internationally Designated Site	Designation Features	Vulnerabilities That Could link to the Scheme
Nene Washes SAC/SPA/Ramsar site	SAC: spined loach SPA: Bewick's swan (non-breeding), Eurasian wigeon (non-breeding), gadwall (breeding and non-breeding), Eurasian teal (non-breeding), northern pintail (non-breeding), garganey (breeding), northern shoveler (non-breeding and breeding), black-tailed godwit (breeding) Ramsar: bird interest (see SPA), important assemblage of nationally rare breeding birds, raptors , nationally scarce plants, two vulnerable and two rare British Red Data Book invertebrate species	Hydrology and Water Quality
Ouse Washes SAC/SPA/Ramsar site	SAC: spined loach SPA: Bewick's swan (non-breeding) Whooper swan (non-breeding), Eurasian wigeon (non-breeding), gadwall (breeding) Eurasian teal (non-breeding), mallard (breeding), northern pintail (non-breeding), garganey (breeding), northern shoveler (non-breeding and breeding, hen harrier (non-breeding), ruff (breeding) black-tailed godwit (breeding), waterbird assemblage, and breeding bird assemblage Ramsar: bird interest (see SPA), extensive areas of seasonally-flooding washland, several nationally scarce plants, including small water pepper Polygonum minus, whorled water-milfoil *Myriophyllum verticillatum*, greater water parsnip *Sium latifolium*, river waterdropwort *Oenanthe fluviatilis*, fringed water-lily *Nymphoides peltata*, long-stalked pondweed *Potamogeton praelongus*, hair-like pondweed *Potamogeton trichoides*, grass-wrack pondweed *Potamogeton compressus*, tasteless water-pepper Polygonum mite and marsh dock *Rumex palustris*. Relict fenland fauna, including the British Red Data Book species large darter dragonfly *Libellula fulva* and the rifle beetle *Oulimnius major*, a diverse assemblage of nationally rare breeding waterfowl associated with seasonally-flooding wet grassland.	Hydrology and Water Quality and Loss of Functionally Linked Land
Portholme SAC	SAC: Lowland hay meadows	Hydrology and Water Quality
Woodwalton Fen Ramsar/Fenland SAC	SAC/ Ramsar: Purple moor-grass meadows, its calcium-rich fen dominated by great fen sedge (saw sedge) and its population of great crested newt	Loss of Functionally Linked Land
Eversden & Wimpole Woods SAC	SAC: Barbastelle bat (breeding)	Loss of Functionally Linked Land
Orton Pit SAC	SAC: Great crested newts, hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp; Calcium-rich nutrient-poor lakes, lochs and pools	Loss of Functionally Linked Land

3.2 Full details of the European designated sites including features, vulnerabilities and Conservation Objectives are provided in Appendix A.

3.3 Note that in this section all distances are measured from the edge a 2.5 km route zone that has been placed either side of the Western Route and Eastern Route to allow for routing changes as the routes get more refined during subsequent stages of scheme development. Further, as detailed in Chapter 1, all assessment is based on the Precautionary Principle (within the limits of reasonableness, it must be assumed that a scheme is likely to have an impact leading to a significant adverse effect upon an internationally designated site unless it can be clearly established otherwise).

Preferred Option

3.4 The preferred option that emerged from the initial appraisal stage at gate two was the SLR to WRZ5 option that emerged from gate one. The SLR to WRZ5 option interfaces with the SLR scheme at the existing Etton Service Reservoir A new break tank and pumping station at Etton Service Reservoir are designed to transfer the flow via a new pipeline to another new break tank and pumping station at an intermediate point along the route. From here, the water would be pumped via a new pipeline to a new conditioning plant and service reservoir in the Affinity Water resource zone WRZ5 at Sibleys Service Reservoir.

3.5 During the design process, the project team considered an additional route between SLR and WRZ5. This variant, known as the 'Western Route', takes the route via Grafham Water and offers additional operational flexibility to Anglian Water. The original SLR to WRZ5 route was named the 'Eastern Route' for clarity. Both routes are considered in this report as part of the same SLR to WRZ5 preferred option.

The Eastern Route: Scheme Description

3.6 Gate one work on the SLR to WRZ5 option identified that it would cross the Nene Washes SPA / SAC and that mitigation to overcome the impacts would be necessary. Further investigation during the gate two optioneering stage determined that the measures required (routing it through the existing road corridor north of Whittlesley) would be technically complex.

3.7 Instead, it was decided to avoid this impact altogether by routing the Eastern Route to the west of Peterborough, hence it runs from Etton Service Reservoir southwards towards Washingley and Folksworth. It then turns eastwards to join the original gate one SLR to WRZ5 route just north-west of Woodhurst. The pipeline route continues to a proposed intermediate pumping station located south-west of Duxord before continuing to the termination point at the existing Sibleys Service Reservoir.

The Eastern Route: Test of Likely Significant Effects

3.8 The Eastern Route would traverse the River Nene approximately 9 km upstream of the SAC/SPA/Ramsar site. West of Huntingdon, the Eastern Route will also traverse the River Great Ouse approximately 6 km upstream of Portholme SAC and approximately 22 km upstream of the Ouse Washes SAC/SPA/Ramsar site. **Given these hydrologically sensitive European sites lie downstream of the crossings of the River Nene and River Great Ouse hydrological and (particularly) water quality likely significant effects on Portholme SAC and the Ouse Washes SAC/SPA/Ramsar site cannot be ruled out.**

3.9 At its closest point, the Easter Route is located c. 2.5km from the Ouse Washes SPA/ Ramsar site, and 7.2km from the Nene Washes SPA/ Ramsar site. Based on the avian features of the designated sites (see Appendix A) and criteria provided within Natural England's guidance relating to avian impact risk zones[8] in relation to the type of development the scheme provides (Rural Non Residential >1ha), these designated sites would have an Impact Risk Zone of up to 10km based on the presence of Bewick's swan and Whooper swan. However, Map C within the adopted Peterborough Local Plan [9]identifies Goose and Swan Functional Land Impact Risk Zones for the Nene Washes SPA and Ramsar site. The Eastern Route does not pass within the identified Goose and Swan Functional Land Impact Risk Zone. **Loss of functionally linked land by the Eastern Route on the Nene Washes designated sites can be ruled out from resulting in a likely significant effect. However, similar evidence is not available for the Ouse Washes and as such this impact pathway remains for the Ouse Washes SPA and Ramsar site and this site cannot be ruled out from likely significant effects**. **Since the scheme lies beyond the relevant impact risk zone there will be no likely significant effect either alone or in combination with other projects and plans.**

3.10 In order to avoid traversing the Nene Washes SAC/SPA/Ramsar site the route corridor for the Eastern Route was amended during gate two and now lies c. 400m west of Orton Pit SAC at its closest. This is the closest point of the 2.5 km zone for the Eastern Route so actual pipeline could lie significantly further from the SAC in practice. Based on the Supplementary Advice on the Conservation Objectives for the SAC, Orton Pit is

[8] Natural England. Impact Risk Zones Guidance Summary. Sites of Special Scientific Interest Notified for Birds. Version 1.1. Updated 19/03/2019

[9] Available at: https://cccandpcc.sharepoint.com/sites/PCCPlanningPolicyPublicData/Shared Documents/Forms/AllItems.aspx?id=%2Fsites%2FPCCPlanningPolicyPublicData%2FShared Documents%2FPlanning Policy%2FAdopted Local Plan%2FPeterborough Local Plan%2F1%2EPeterborough Local Plan 24 July 2019%2Epdf&parent=%2Fsites%2FPCCPlanningPolicyPublicData%2FShared Documents%2FPlanning Policy%2FAdopted Local Plan%2FPeterborough Local Plan&p=true&ga=1 [accessed 16/08/2022].

predominantly rainwater fed. Moreover, the A1(M) and Fletton Parkway Industrial Estate both lie between the most likely pipeline route corridor and the SAC. For both these reasons no hydrological connection between the SAC and the pipeline route is expected and likely significant effects can be ruled out. Orton Pit is designated partly for its population of great crested newt. These do use land away from their breeding ponds during most of the year and it is widely accepted that the core terrestrial habitat for great crested newts lies within 500m of their breeding ponds. The route corridor for the Eastern Route lies within this distance from the SAC but is separated by unsuitable habitat including a business park and a motorway. As such the land it traverses will not constitute functionally-linked habitat for the SAC. Likely significant effects on this SAC can therefore be ruled out. Since the land in question is not functionally-linked habitat for the SAC no likely significant effect will arise either alone or in combination with other plans or projects. **It is, however, recommended as general good practice that the final route of the Eastern Route (if selected as the preferred option) should be located more than 500m from Orton Pit SAC.**

3.11 In the vicinity of Woodwalton, the 2.5 km zone for the Western Route encompasses Woodwalton Fen Ramsar site, which is also part of Fenland SAC. The SACO for Woodwalton Fen (Fenland SAC) notes that 'Woodwalton Fen is currently a designated flood storage reservoir, although it hasn't needed to perform this function since 1998. Inundation of sediment-rich floodwater is thought to be extremely damaging to the fen, so there is a long-term aim to secure alternative land that can be used for flood storage instead of Woodwalton Fen.' The Fenland SAC Site Improvement Plan states 'The winter flood water at Woodwalton Fen has high silt and nutrient loads which get deposited on the site and can lie on the fields for prolonged periods. Flooding also delays the start of the grazing and mowing season, which in turn promotes the vigorous growth of invasive species like soft rush and reed…'. However, the SACO also states that 'Nowadays the site is almost completely cut off from natural hydrology, perched above the surrounding arable land where the peat has oxidised and land levels have dropped. Summer water is obtained from a large irrigation/drainage channel via the network of drainage ditches that cross the site'. **This suggests that despite hydrological sensitivity of the habitats involved there is very limited potential for the works to result in a linking impact pathway and affect the habitats of the SAC via hydrology and no likely significant effects are expected. Since the scheme will not affect the hydrology of the site, there is no potential for an effect in combination with other plans and projects.**

3.12 Woodwalton Fen is also designated for its population of great crested newt, which can forage for up to 500m from its breeding ponds. **It is, therefore recommended as general good practice that the final route of the Eastern Route (if selected as the preferred option) should be located more than 500 m from Woodwalton Fen Ramsar/Fenland SAC.**

3.13 In the vicinity of Cambridge, the 2.5 km zone for the Western Route lies approximately 2 km from Eversden & Wimpole Woods SAC. Given that barbastelle bats have been known to forage up to 10 km and beyond from their maternity roosts there is the potential for the construction of the pipeline to affect functionally linked foraging and (particularly) hedgerow, watercourse and treeline commuting habitat for barbastelles associated with the SAC, potentially disrupting the ability of the SAC bats to access the wider countryside. **As a result, likely significant effects cannot be ruled out for Eversden & Wimpole Woods SAC.**

The Western Route: Scheme Description

3.14 The Western Route initially follows the same corridor as the Eastern Route, passing west of Peterborough, towards Washingley and Folksworth. From this point the route continues southwards towards Anglian Water's existing Grafham Water site, passing through approximately 1km to the east. From Grafham Water, the route continues south then south eastward to an intermediate pumping station near East Hatley and a break pressure tank near Langley Park Rally School before terminating to the southeast at the existing Sibleys Service Reservoir.

The Western Route: Test of Likely Significant Effects

3.15 The Western Route would traverse the River Nene approximately 9 km upstream of the SAC/SPA/Ramsar site. West of Huntingdon the Western Route will also traverse the River Great Ouse east of St Ives and approximately 2 km upstream of the Ouse Washes SAC/SPA/Ramsar site. A theoretical potential for pollution impacts (such as from accidental spillages) during construction exists depending on the construction method chosen. **Therefore, likely significant effects cannot be ruled out regarding hydrological and (particularly) water quality impacts on the Nene Washes SAC/SPA/Ramsar site and Ouse Washes SAC/SPA/Ramsar site.**

3.16 At its closest point, the Western Route is located more than 20km from the Ouse Washes SPA/ Ramsar site, and 7.2km from the Nene Washes SPA/ Ramsar site. Based on the avian features of the designated sites (see Appendix A) and criteria provided within Natural England's guidance relating to avian impact risk zones[10] in relation to the type of development the scheme provides (Rural Non Residential >1ha), these designated sites would have an Impact Risk Zone of up to 10km based on the presence of Bewick's swan and Whooper swan. However, Map C within the adopted Peterborough Local Plan [11]identifies Goose and Swan Functional Land Impact Risk Zones for the Nene Washes SPA and Ramsar site. The Western Route does not pass within the identified Goose and Swan Functional Land Impact Risk Zone. **Loss of functionally linked land by the Western Route on the Ouse and Nene Washes designated sites can be ruled out from resulting in a likely significant effect. Since the scheme lies beyond the relevant impact risk zone there will be no likely significant effect either alone or in combination with other projects and plans.**

3.17 The route corridor for the Western Route lies approximately 400 m west of Orton Pit SAC at its closest. This is the closest point of the 2.5 km buffer for the Western Route so the actual pipeline could lie significantly further from the SAC in practice. Based on the Supplementary Advice on the Conservation Objectives for the SAC, Orton Pit is predominantly rainwater fed. Moreover, the A1(M) and Fletton Parkway Industrial Estate both lie between the most likely pipeline route corridor and the SAC. For both these reasons no hydrological connection between the SAC and the pipeline route is expected and likely significant effects can be ruled out. Orton Pit is designated partly for its population of great crested newt. These do use land away from their breeding ponds during most of the year and it is widely accepted that the core terrestrial habitat for great crested newts lies within 500m of their breeding ponds. The route corridor for the Western Route lies within this distance from the SAC but is separated by unsuitable habitat including a business park and a motorway. As such the land it traverses will not constitute functionally-linked habitat for the SAC. Likely significant effects on this SAC can therefore be ruled out. Since the land in question is not functionally-linked habitat for the SAC no likely significant effect will arise either alone or in combination with other plans or projects. **It is, however, recommended as general good practice that the final route of the Western Route (if selected as the preferred option) should be located more than 500m from Orton Pit SAC.**

3.18 In the vicinity of Cambridge, the 2.5 km buffer for the Eastern Route passes approximately 2 km from the Eversden & Wimpole Woods SAC. Given that barbastelle bats have been known to forage well beyond this distance from their maternity roosts there is the potential for the construction of the pipeline to affect functionally linked foraging and (particularly) hedgerow, watercourse and treeline commuting habitat for barbastelles associated with the SAC, potentially disrupting the ability of the SAC bats to access the wider countryside. **As a result, likely significant effects cannot be ruled out for Eversden & Wimpole Woods SAC due to disruption of functionally-linked habitat beyond the SAC boundary.**

4. Appropriate Assessment

Hydrology: Portholme SAC and Nene Washes SPA/SAC/Ramsar site (the Eastern Route), Ouse Washes SAC/SPA/Ramsar site (Eastern and Western Routes)

4.1 The Test of Likely Significant Effects identified that the route corridors for both routes will traverse the River Great Ouse upstream of Portholme SAC, the Ouse Washes SAC/SPA/Ramsar site and the River Nene upstream of the Nene Washes SAC/SPA/Ramsar site.

4.2 The Site Improvement Plan for the Ouse Washes SPA/Ramsar site notes that 'Notified interests (including breeding birds, overwintering birds and supporting grassland communities) are being adversely affected by

[10] Natural England. Impact Risk Zones Guidance Summary. Sites of Special Scientific Interest Notified for Birds. Version 1.1. Updated 19/03/2019

[11] Available at: https://cccandpcc.sharepoint.com/sites/PCCPlanningPolicyPublicData/Shared Documents/Forms/AllItems.aspx?id=%2Fsites%2FPCCPlanningPolicyPublicData%2FShared Documents%2FPlanning Policy%2FAdopted Local Plan%2FPeterborough Local Plan%2F1%2EPeterborough Local Plan 24 July 2019%2Epdf&parent=%2Fsites%2FPCCPlanningPolicyPublicData%2FShared Documents%2FPlanning Policy%2FAdopted Local Plan%2FPeterborough Local Plan&p=true&ga=1 [accessed 16/08/2022].

increased flooding on the Ouse Washes. Flooding during spring / early summer severely damages the breeding bird interest by flooding nests, drowning young and affecting habitat. Deep flooding during winter also impacts overwintering birds such as wigeon and impacts on the wetland fauna, especially invertebrate populations. Wetland flora is also affected through prolonged submersion, favouring swamp communities over the designated grassland species. Prolonged summer flooding disrupts essential management of the washland, affecting the condition of the grassland for breeding birds in subsequent spring/summer season(s)'. The Site Improvement Plan for the Nene Washes SPA/Ramsar site also identifies vulnerabilities to fluctuations in water levels as follows: '*Flooding on the Nene Washes can lead to difficulties in managing the wet grassland habitats, and may result in low numbers of target bird species successfully breeding. It may also impact the numbers of wintering birds at the site.' 'Spined Loach requires good water quality of low nutrient status. The favourable conservation table target for the Nene Washes is 0.1 mg L-1 annual mean figures for phosphorus concentration. Higher phosphorus levels will lead to detrimental impacts to the ecology of the river as the type of macrophytes and habitat structure used by this species is changes*'. This clearly shows the connection between the river channels and the washlands that constitute the SPA/Ramsar designation. The Supplementary Advice on the Conservation Objectives for both Ouse Washes SAC and Nene Washes SAC, and for the Nene Washes SPA/Ramsar and Ouse Washes SPA/Ramsar make it very clear that these sites are also highly water quality sensitive.

4.3 Regarding Portholme SAC, the Site Improvement Plan states '*Portholme's MG4 grassland habitat community is very sensitive to prolonged flood events. Given the proximity to the River Ouse, periodic winter flooding is a naturally occurring event. However, there are concerns that the duration of flooding and phosphate/sediment levels in the flood water are having a detrimental effect upon the habitat. Works were implemented in 2010 to assist water movement from north-east corner of the SAC. However, this has been followed by a series of very wet winters where excessive flooding is thought to have been detrimental to the flora'. The SACO for the SAC states 'The flooding regime has been problematic for this site and in some years and on certain parts of the meadow it has led to a shift away from the H6510 plant community The main issue is caused in years when the site has experienced serve and prolonged flooding during the winter and the nutrient enrichment associated with these prolonged flood events. There is no control over the water levels at Portholme but a ditch has been reinstated to remove flood waters faster'.* This clearly illustrates the strong hydrological connection between the River Great Ouse and Portholme SAC. Inadvertent pollution of the Great Ouse upstream of the SAC could therefore result in adverse effects on the integrity of the SAC during flood events.

4.4 As such, both the western and eastern route could have hydrological and water quality effects on these European sites (Portholme SAC, the Ouse Washes SAC/SPA/Ramsar site and the Nene Washes SAC/SPA/Ramsar site) without suitable construction methods to avoid hydrological interference with the functioning of the river, and pollution prevention controls. In the UK, there is an obligation for construction schemes to consider water quality impacts, regardless of whether a European site is affected or not. Under the Environmental Damage (Prevention and Remediation) (England) Regulations 2015 and the Environmental Permitting (England and Wales) Regulations 2016, it is illegal to pollute watercourses. Therefore, development schemes must incorporate measures to avoid significant effects on the wider water environment.

4.5 To conform with these requirements regarding both fine sediment runoff and toxic spillages / leaks, a range of standard measures can be deployed during the construction period, which would normally be set out in Construction Environmental Management Plans (CEMPs). For example, measures to reduce fine sediment in surface runoff may include the usage of temporary lagoons, tanks and fabric silt fences / silt screens. Furthermore, a temporary drainage system maybe developed to adequately treat runoff before it enters surface waterbodies, involving features such as drain covers, earth bunds, geotextile silt screens and proprietary treatment.

4.6 Given the sizes and important nature of the River Nene and River Great Ouse, it is very likely that these watercourses would be traversed by horizontal directional drilling rather than open cut trenching. Such an approach would itself significantly minimise any risk of pollution events entering the rivers even if they did arise and would also (if situated at a suitable depth beneath the riverbed) avoid interfering with flows or hydrological functioning of the watercourse.

4.7 A definitive conclusion would be premature at gate two given that significant further work is to be undertaken. Where the route corridors cross the Rivers Great Ouse and Nene upstream of the European sites it is likely that measures can be devised during later stages of scheme design to avoid an adverse effect on integrity. Any measures taken would not preclude the appropriate

assessment from being undertaken, as mitigation cannot be relied upon at screening stage, but could be considered as part of the appropriate assessment itself (if required).

Functionally Linked Land: Ouse Washes SPA and Ramsar site (Eastern Route)

4.8 Based on the avian features of the designated sites (see Appendix A) and criteria provided within Natural England's guidance relating to avian impact risk zones[12] in relation to the type of development the scheme provides (Rural Non Residential >1ha), the Ouse Washes SPA and Ramsar site has (based on the designated features of Bewick's swan and Whooper swan) an Impact Risk Zone of up to 10km.

4.9 The availability of an abundant food supply is critically important for successful breeding, adult fitness and survival and the overall sustainability of the SPA and Ramsar swan populations. All inappropriate management and direct or indirect impacts which may affect the distribution, abundance and availability of food may adversely affect the population. Supporting feeding habitat may be provided by land outside the SPA/Ramsar boundary and be regularly used by designated swan populations. Bewick's and Whooper swans tend to feed on agricultural land near the Ouse Washes during the day and roost on the Washes at night; the location of which depends on the depth of floodwater and it will change through the season. As such the arable land outside of the SPA/Ramsar site boundary is an important source of food for the designated swan features. For Whooper swan and Bewick's swan it is important to maintain an open and unobstructed terrain in the vicinity of feeding and roosting areas, to maintain view lines in feeding and roosting areas, unrestricted views over 500m and effective field size greater than 5ha[13].

4.10 In the absence of habitat surveys of the Eastern Route to determine if any land parcels within 10km of the Ouse Washes site may potentially provide suitable habitat to support functionally linked land for the designated swan populations, it is not possible to conclude that no adverse effect on the integrity of the Ouse Washes SPA/ Ramsar site will arise.

4.11 To ensure no adverse effects on the integrity of the SPA and Ramsar site swan populations occur, the following will be required for the Eastern Route within 10km of the Ouse Washes SPA and Ramsar site:

- Surveys will be required to determine habitats and current land use of the route and surrounding land parcels to determine if it provides suitable habitat to potentially support a significant Whooper and/ or Bewick's swan population (a significant population is classified as a site that is regularly used by more than 1% of the population of qualifying bird species) of qualifying swan species.
- Where habitats are suitable, non-breeding bird surveys will be required to determine if the site and neighbouring land constitute a significant area of functionally linked land for swan populations. Surveys should be required to be undertaken during autumn, winter and spring. More than 1 year of surveys may be required (to be agreed in consultation with the local planning authority and Natural England).
- If habitat within or adjacent to the site is identified to support significant populations of designated bird features avoidance measures and mitigation will be required, such as the creation of replacement habitat nearby.

4.12 A definitive conclusion would be premature at gate two, given that significant further work is to be undertaken. Where the route corridors cross functionally linked land within 10 km of the Ouse Washes SPA and Ramsar site it is likely that measures can be devised to avoid an adverse effect on integrity. Any measures taken would not preclude the appropriate assessment from being undertaken, as mitigation cannot be relied upon at screening stage, but could be considered as part of the appropriate assessment itself (if required).

[12] Natural England. Impact Risk Zones Guidance Summary. Sites of Special Scientific Interest Notified for Birds. Version 1.1. Updated 19/03/2019
[13] Available at: http://publications.naturalengland.org.uk/file/6020266073522176 [accessed 17/08/2022]

Functionally Linked Land: Eversden & Wimpole Woods SAC (Eastern and Western Routes)

4.13 Based on evidence gathered from three studies of 69 bats, the Bat Conservation Trust's Survey Guidelines[14] have defined the general Core Sustenance Zone (CSZ) for Barbastelle bats as a species as being 6 km. A CSZ refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.

4.14 Eversden & Wimpole Woods SAC is internationally important for its breeding colony of barbastelle bat. The trees within Wimpole Woods are used as a summer maternity roost where the female bats gather to give birth and rear their young. Most of the roost sites are within tree crevices. The bats also use the site as a foraging area, and some of the woodland is also used as a flight path when bats forage outside the site.

4.15 Historical studies undertaken to inform South Cambridgeshire District Council's Local Development Framework: Biodiversity - Supplementary Planning Document (SPD) (February 2022)[15] identified that the barbastelle bat colony at the SAC does not restrict itself to the boundaries of the SAC but also forages in suitable habitat within the surrounding countryside. The studies established that mature trees within the SAC are used as roosts by the bats and provided information on the range and type of habitats used for foraging within an area around the site (referred to as the Core Area), which includes woodlands, mature treelines, well-developed hedgerows and watercourses.

4.16 Natural England's Impact Risk Zone (IRZ) for Eversden and Wimpole Woods SAC and the IRZ set for the SAC in the SPD are both currently set at 5 km from the SAC boundary, with the sustenance or wider conservation area set at 5 to 10 km.

4.17 The 2.5 km zones for both routes lies approximately 2 km from the SAC and well within the 5 km Impact Risk Zone for the SAC. As such, if the construction of either route resulted in the removal of hedgerows or treelines, or the temporary obstruction of the movement of bats along any small watercourses for anything other than the shortest duration (i.e., a few days at most in each case) during the active season (approximately March to September) it could result in a break in the ability of barbastelle bats to traverse the landscape. This could in turn result in SAC bats failing to gain sufficient sustenance to maintain the population or require them to make detours which would add to energetic expenditure and reduce the health or increase the foraging needs of the barbastelle population of the SAC.

4.18 In order to ensure no effect on barbastelle bats the following will therefore be required for both routes:

- bat surveys in line with Bat Conservation Trust Guidance must be undertaken of all hedgerows and treelines, ditches and other watercourses to be crossed by the scheme;
- any crossings of such features should be undertaken, as far as possible, by horizontal directional drilling or pipe jacking thus leaving the feature intact, and should be undertaken during daylight hours; and
- where it is not possible to retain a feature in situ the material from the feature (e.g. hedge and tree boles) should be retained and restored/replaced immediately after works. Any removal of such features should take place during October to February when bats are generally inactive.

4.19 It is also strongly recommended that the pipeline route is located a minimum of 1 km from the SAC boundary. The 2.5 km zone around the route currently includes the SAC.

4.20 A definitive conclusion would be premature at gate two, given that significant further work is to be undertaken. Where the route corridors cross linear habitat features within 5 km of Eversden & Wimpole Woods SAC it is likely that measures can be devised to avoid an adverse effect on integrity. Any measures taken would not preclude the appropriate assessment from being undertaken, as mitigation cannot be relied upon at screening stage, but could be considered as part of the appropriate assessment itself (if required).

[14] Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust (2016).
[15] https://www.greatercambridgeplanning.org/biodiversityspd

Other Plans and Projects

4.21 The Conservation of Habitats and Species Regulations (2017 as amended) require that projects and plans are not considered purely in isolation but 'in combination' with other projects and plans.

Nene Washes SAC/SPA/Ramsar site

4.22 Most relevant to the Nene Washes SAC/SPA/Ramsar are potential effects in combination with other plans or projects that would affect the hydrology or water quality of the site. Three plans in particular are of relevance: the Environment Agency's emerging Flood Risk Management Plan (FRMP) for the Anglian Region and Anglian Water's Water Resource Management Plan (WRMP) and Drought Plan.

4.23 With regard to Anglian Water's WRMP and Drought Plan, the 2019 WRMP was subject to its own Habitat Regulations Assessment as was the Drought Plan. Neither plan identified the potential for any effects on Nene Washes SPA/SAC/Ramsar site either alone or in combination with other plans or projects. The 2024 WRMP is currently being developed and it is therefore too early to discuss potential impacts.

4.24 The Anglian Water Drought Plan was published in April 2022 and is also accompanied by an HRA report. That report concluded that with a robust monitoring protocol and mitigation measures, three of the proposed drought permits would not result in an adverse effect on the integrity of European designated sites, either alone or in-combination with other drought options. These included the River Nene (Wansford Intake/ Rutland Water).

4.25 Therefore potential exists for both the western and eastern option for the A2A Transfer to operate in combination with the Anglian Water WRMP and Drought Plan. However, since adequate mitigation has been identified for these two plans, there will be no adverse effect on integrity of the Nene Washes from either A2A Transfer route option, provided the mitigation identified in the appropriate assessment of this report is implemented to avoid pollution or hydrological impacts.

4.26 With regard to the Environment Agency FRMP for the Anglian River Basin District, the HRA process for that FRMP is still ongoing and the document is not yet adopted. However, it is noted that there are several measures relating to the Nene Management Catchment that could have a positive effect on hydrology in the Nene Washes as follows:

- *'Review the required maintenance for all main river systems, working with partners, communities and landowners in the Nene catchment'*
- *'Support the River Nene Restoration Project to deliver the Nene Backwater Restoration project between Northampton and Peterborough in the Nene Catchment'*
- *'Support the delivery of projects with a focus on land management, river restoration and habitat biodiversity in the Nene flood plain, Pitsford, Lamport and Cottesbrooke'*
- *'Work with landowners, communities and professional partners to identify opportunities for natural flood management schemes in the Nene Catchment'*

4.27 As such, it seems likely the FRMP would have a positive effect on the Ouse Washes SAC/SPA/Ramsar site.

Ouse Washes SAC/SPA/Ramsar site

4.28 Most relevant to the Ouse Washes SAC/SPA/Ramsar are potential effects in combination with other plans or projects that would affect the hydrology or water quality of the site. Three plans in particular are of relevance: the Environment Agency's emerging Flood Risk Management Plan (FRMP) for the Anglian Region and Anglian Water's Water Resource Management Plan (WRMP) and Drought Plan.

4.29 With regard to Anglian Water's WRMP, the 2019 WRMP was subject to its own Habitat Regulations Assessment which identified that there was the potential for adverse effects on the integrity of the Ouse Washes SAC/SPA/Ramsar site. However, following appropriate assessment and consideration of in combination effects with Anglian Water's Drought Plan, it was concluded that the '*WRMP will interact with and support the emerging Anglian Water Drought Plan 2019. Potential in-combination effects on the Ouse Washes SPA/Ramsar site/SAC have been identified through the implementation of the Fenland reservoir option in the adaptive strategy of WRMP. It can be reasonably assumed that appropriate mitigation can be applied to these options (both WRMP and Drought Plan) to ensure no deterioration of water quality occurs,*

and ultimately these options will only be implemented at a project-level with mitigation in place to avoid such impacts on water quality. Therefore, no in-combination effects of WRMP with the Drought Plan are reasonably foreseeable at this stage'. The 2024 WRMP is currently being developed and it is therefore too early to discuss potential impacts.

4.30 The Anglian Water Drought Plan was published in April 2022 and is also accompanied by an HRA report. That report concluded that with a robust monitoring protocol and mitigation measures, three of the proposed drought permits would not result in an adverse effect on the integrity of European designated sites, either alone or in-combination with other drought options. These included the River Great Ouse (Offord Intake).

4.31 Therefore potential exists for both the western and eastern option for the A2A Transfer to operate in combination with the Anglian Water WRMP and Drought Plan. However, since adequate mitigation has been identified for these two plans, there will be no adverse effect on integrity of the Ouse Washes from either A2A Transfer route option, provided the mitigation identified in this appropriate assessment report is implemented to avoid pollution or hydrological impacts.

4.32 With regard to the Environment Agency FRMP for the Anglian River Basin District, the HRA process for that FRMP is still ongoing and the document is not yet adopted. However, it is noted that one of the measures in the Anglian FRMP states '*Have completed* embankment *raising on the Ouse Washes as part of the Section 10 works in the River Great Ouse Catchment'*. Embankment raising would have the potential to reduce flooding of the Ouse Washes and therefore rectify the existing deteriorating situation, rather than to exacerbate it. This is also true of the measure to '*Work in partnership with other organisations to continue to progress the Ouse Washes habitat creation project in the Great Ouse Fens to manage the impact of flooding on the Ouse Washes (Ramsar, Site of Special Scientific Interest, and Special Area of Conservation)'* which is specifically in regard to delivering habitat enhancements identified as being necessary in the Ouse Washes SPA/Ramsar Site Improvement Plan. As such, it seems likely the FRMP would have a positive effect on the Ouse Washes SAC/SPA/Ramsar site.

Portholme SAC

4.33 Most relevant to Portholme SAC are potential effects in combination with other plans or projects that would affect the hydrology or water quality of the site. Three plans in particular are of relevance: the Environment Agency's emerging Flood Risk Management Plan (FRMP) for the Anglian Region and Anglian Water's Water Resource Management Plan (WRMP) and Drought Plan.

4.34 With regard to Anglian Waters WRMP and Drought Plan, the 2019 WRMP was subject to its own Habitat Regulations Assessment as was the Drought Plan. Neither plan identified the potential for any effects on Portholme SAC either alone or in combination with other plans or projects. The 2024 WRMP is currently being developed and it is therefore too early to discuss potential impacts.

4.35 The Anglian Water Drought Plan was published in April 2022 and is also accompanied by an HRA report. That report concluded that with a robust monitoring protocol and mitigation measures, three of the proposed drought permits would not result in an adverse effect on the integrity of European designated sites, either alone or in-combination with other drought options. These included the River Great Ouse (Offord Intake).

4.36 Therefore potential exists for both the western and eastern option for the A2A Transfer to operate in combination with the Anglian Water WRMP and Drought Plan. However, since adequate mitigation has been identified for these two plans, there will be no adverse effect on integrity of Portholme SAC from either A2A Transfer route option, provided the mitigation identified in this report is implemented to avoid pollution or hydrological impacts.

4.37 With regard to the Environment Agency FRMP for the Anglian River Basin District, the HRA process for that FRMP is still ongoing and the document is not yet adopted. However, it is noted that there are no specific measures in the FRMP which would appear to result in negative effects on Portholme SAC and the following broad measures applicable to East Anglia as a whole could facilitate delivery of relevant improvements:

- *'Work with Natural England and Local Authorities to seek opportunities in East Anglia to align flood risk management projects with the development of nature recovery networks to contribute to the improvement and connectivity of the natural environment and where appropriate achieve biodiversity and environmental net gain across East Anglia in the Anglian River Basin District'.*

- *'Work with Natural England in East Anglia to develop long term strategies for adaptation, resilience, and connectivity of designated sites by fully integrating for plans for the water environment to support designated site objectives in the Anglian River Basin District'.*

4.38 As such, it seems likely the FRMP would have a positive effect on Portholme SAC.

Eversden & Wimpole Woods SAC

4.39 The SAC lies entirely within South Cambridgeshire, although the 10 km wider conservation area around the SAC (as identified in paragraph 4.11) also encompasses parts of Huntingdonshire and Central Bedfordshire. The adopted South Cambridgeshire, Huntingdonshire and Central Bedfordshire Local Plans set out the planning policies and land allocations to guide the future development of the three districts up to 2031 (for South Cambridgeshire), 2035 (for Central Bedfordshire) and 2036 (for Huntingdonshire). Therefore, a review of the Local Plans and their allocations provides the fullest overall picture of the most significant housing and employment development that will be delivered between 2021 and 2031-6 within 10 km of the SAC. While there will also be windfall development not covered by Local Plan allocations, such development is by definition very small in scale and therefore poses minimal risk of contributing to an in combination effect in terms of significant habitat loss. Moreover, it is impossible to predict where future windfall proposals may arise within 10 km of the SAC.

4.40 Within Central Bedfordshire there are no housing or employment allocations at the only settlement (Wrestlingworth) within 10 km of the SAC. There are also no housing or employment allocations in the small part of Huntingdonshire that lies within 10 km of the SAC. There are two major housing and employment developments within 10 km of the SAC. These are ID005: Cambourne S/2903/14/OL (allocation site SS/8 in the adopted South Cambridgeshire Local Plan) and ID011 Bourn Airfield S/3440/18/OL (allocation site SS/7 in the adopted South Cambridgeshire Local Plan).

4.41 The Cambourne development was consented in 2017 and will be a development of up to 2,350 residential units including affordable housing; retail, use classes A1-A5 (up to 1.04 ha); offices/light industry, use class B1 (up to 6.25 ha); community and leisure facilities, use class D1 and D2 (up to 0.92 ha); Two primary schools and one secondary school (up to 11 ha). This development is situated 6.8 km north of the SAC. The Environmental Statement for the application identifies that with regard to barbastelle habitats on the site are poor for both commuting and foraging bats and the loss of the largely arable land will have a negligible impacts. There is therefore no mechanism for in combination effects with the eastern or western route.

4.42 The Bourn Airfield development will be a new mixed-use village comprising residential development of approximately 3,500 dwellings; mixed uses comprising employment, retail, hotel, leisure and residential institutions. This development is situated 4.9 km north of the SAC. According to the application documents barbastelle bats were recorded across the site with activity focused in the vicinity of Bucket Hill Plantation, although there was no clear link identified between the barbastelles using the development site and those the SAC population. All habitat within which barbastelle bats have been recorded within the PDS would be retained and protected during the construction phase and operation Phases. Habitat creation, including creation of new waterbodies, grassland, woodland, tree lines and hedge planting will provide enhanced ecological connectivity of commuting routes for bats and enhanced foraging opportunities. Mitigation measures would be implemented to ensure the potential effects of lighting and other operation phase activities do not significantly affect barbastelle bats. A decision is awaited on the application but Natural England confirmed in their consultation response (February 2020) that no adverse effect on the integrity of the SAC would arise. Since the impacts of the proposed development are adequately addressed, there is no potential for an effect in combination with the eastern or western route.

4.43 The only other larger planning application that has been submitted for a greenfield site within 10 km of the SAC is South Cambridgeshire Local Plan allocation H1(h), Land at Bennell Farm, Comberton, which is a greenfield site 4 km from the SAC[16], allocated for 90 dwellings, a football pitch and community car parking. Residential development will be at a low density to take account of the character of this part of Comberton. This allocation was granted outline planning consent (S/2204/15/OL) in 2016. The specific bat surveys that were completed for the scheme did not record any barbastelle bats, indicating that the species does not forage on the site, or use the site as a dispersal route to foraging / roosting sites in the local area. There is therefore no mechanism for effects in combination with the eastern or western route.

[16] Housing allocations at Gamlingay and Melbourn lie just within 10 km of the SAC but both are within the urban area of the settlements and will therefore not affect habitat that might support barbastelle. There are no other greenfield allocations within 10km of the SAC.

4.44 The South Cambridgeshire Local Plan allocates one other major greenfield development site within 10 km of the SAC, which does not appear to be covered by a current planning consent: Trumpington West, 8 km to the east of the SAC on the outskirts of Cambridge. Cambridge City Council and South Cambridgeshire District Council are now working together to create the emerging Greater Cambridge Local Plan which will cover both areas. The First Proposals document carries forward the Cambourne extension as a proposed new settlement called Cambourne West (reference S/CB) and identifies a potential 1,950 new homes in the period 2020-2041. This extension will also lie within 10km of Eversden & Wimpole Woods SAC. Proposals for both developments are at an early stage so in combination assessment is not possible. However, even if barbastelles are recorded using the field boundaries around the site there is no basis to believe that this large site cannot be designed and delivered along similar lines to Bourn Airfield development in order to retain and enhance barbastelle foraging and commuting habitat. Based on the experience of the Bourn Airfield development this can be expected to be a requirement of both South Cambridgeshire Council and Natural England if any barbastelle are recorded on site during surveys.

4.45 With regard to windfall, and other future applications for unallocated sites, the 2021 South Cambridgeshire Biodiversity SPD sets out a system whereby habitat within the core area around the SAC will be preserved, thus ensuring no adverse effect on the integrity of the SAC will arise from development in that core area. The SPD states that '*All development proposals within this area, with the exception of householder applications, should aim to retain mature trees, woods and copses, and to provide new habitat linkages through new tree planting and the integration of existing hedgerow networks with new ones'* thus requiring not only preservation of habitat for barbastelle but enhancement.

4.46 The adopted Cambridgeshire and Peterborough Minerals and Waste Local Plan (2021) does not allocate any minerals or waste sites within 10 km of the SAC and therefore no in combination effect will arise with either the eastern or western route.

4.47 There are two significant infrastructure proposals within 10 km of the SAC are National Highways' A428 Scheme, and the East-West Rail scheme. The A428 scheme is undergoing DCO Examination but an appropriate assessment has been produced that concludes no adverse effects on the integrity of the SAC will occur alone or in combination with other plans and projects. It is understood Natural England concur with that conclusion. The East-West Rail scheme is at a sufficiently early stage that the alignment is still being considered. However, delivering mitigation to ensure continued bat activity around linear infrastructure projects is routine and it is reasonable to assume that the project will be required to deliver mitigation to ensure no significant disruption of bat activity or disturbance of bats given that all species of bat are legally protected and a material consideration in the planning process.

Conclusion

4.48 A definitive conclusion would be premature at gate two, given that significant further work is to be undertaken. However, where the route corridors cross linear habitat features within 5 km of Eversden & Wimpole Woods SAC it is likely that measures can be devised to avoid an adverse effect on integrity. Therefore, for all European sites it is likely that the mitigation measures identified in the assessment of the scheme alone, or mitigation measures to ensure no loss of functionally linked habitat for barbastelle bats at Eversden & Wimpole Woods SAC, would be sufficient (subject to further detail and design at later stage of SRO development) to ensure that no effect arose on any European sites 'in combination' with other projects and plans.

5. Conclusion

Water Quality Impacts on Portholme SAC, Ouse Washes and Nene Washes

5.1 To conform with legal requirements to avoid pollution of watercourses, regarding both fine sediment runoff and toxic spillages / leaks, a range of standard measures can be deployed during the construction period, which would normally be set out in Construction Environmental Management Plans (CEMPs). For example, measures to reduce fine sediment in surface runoff may include the usage of temporary lagoons, tanks and

fabric silt fences / silt screens. Furthermore, a temporary drainage system maybe developed to adequately treat runoff before it enters surface waterbodies, involving features such as drain covers, earth bunds, geotextile silt screens and proprietary treatment. Given the size and important nature of the River Nene and River Great Ouse, it is very likely that these watercourses would be traversed by horizontal directional drilling rather than open cut trenching. Such an approach would itself significantly minimise any risk of pollution events entering the rivers even if they did arise and would also protect river hydrology.

5.2 **A definitive conclusion would be premature at gate two given that significant further work is to be undertaken. However, where the route corridors cross the Rivers Great Ouse and Nene upstream of the European sites it is likely that measures can be devised to avoid an adverse effect on integrity and that a conclusion of no adverse effects on the integrity of European sites could be reached**.

Supporting Habitat Loss Effects on the Ouse Washes SPA and Ramsar site (Eastern Route)

5.3 In the absence of habitat surveys of the Eastern Route to determine if any land parcels within 10km of the Ouse Washes site may potentially provide suitable habitat to support functionally linked land for the designated swan populations, it is not possible to conclude that no adverse effect on the integrity of the Ouse Washes SPA/ Ramsar site will arise.

5.4 To ensure no adverse effects on the integrity of the SPA and Ramsar site swan populations occur, the following will be required for the Eastern Route within 10km of the Ouse Washes SPA and Ramsar site:

- Surveys will be required to determine habitats and current land use of the route and surrounding land parcels to determine if it provides suitable habitat to potentially support a significant Whooper and/ or Bewick's swan population (a significant population is classified as a site that is regularly used by more than 1% of the population of qualifying bird species) of qualifying swan species.
- Where habitats are suitable, non-breeding bird surveys will be required to determine if the site and neighbouring land constitute a significant area of functionally linked land for swan populations. Surveys should be required to be undertaken during autumn, winter and spring. More than 1 year of surveys may be required (to be agreed in consultation with the local planning authority and Natural England).
- If habitat within or adjacent to the site is identified to support significant populations of designated bird features avoidance measures and mitigation will be required, such as the creation of replacement habitat nearby.

5.5 A definitive conclusion would be premature at gate two, given that significant further work is to be undertaken. Where the route corridors cross functionally linked land within 10 km of the Ouse Washes SPA and Ramsar site it is likely that measures can be devised to avoid an adverse effect on integrity. Any measures taken would not preclude the appropriate assessment from being undertaken, as mitigation cannot be relied upon at screening stage, but could be considered as part of the appropriate assessment itself (if required).

Supporting Habitat Loss Effects on Eversden and Wimpole Woods SAC

5.6 In order to ensure no effect on barbastelle bats the following will be required for the two routes, the Eastern Route in particular:

- bat surveys in line with Bat Conservation Trust Guidance must be undertaken of all hedgerows and treelines ditches and other watercourses to be crossed by the scheme;
- any crossings of such features should be undertaken, as far as possible, by horizontal directional drilling or pipe jacking thus leaving the feature intact, and should be undertaken during daylight hours;

- Where it is not possible to retain a feature in situ the material from the feature (e.g. hedge and tree boles) should be retained and restored/replaced immediately after works. Any removal of such features should take place during October to February when bats are generally inactive.

5.7 It is also strongly recommended that if the Eastern Route is the preferred option, the pipeline route is located a minimum of 1 km from the SAC boundary (as the 2.5 km zone around the route currently includes the SAC).

5.8 **A definitive conclusion would be premature at gate two given that significant further work is to be undertaken. However, where the route corridors cross linear habitat features within 10 km of Eversden & Wimpole Woods SAC it is likely that measures can be devised to avoid an adverse effect on integrity**.

Appendix A European sites

A.1 Nene Washes SAC/SPA/Ramsar site

5.9 The SAC is designated for its population spined loach. The conservation objectives are:

5.10 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of the habitats of qualifying species*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site'.*

5.11 The Site Improvement Plan notes the following pressures and threats: hydrological changes, water pollution.

5.12 The SPA is designated for the following interest features:

- A037 Cygnus columbianus bewickii; Bewick's swan (Non-breeding)
- A050 Anas penelope; Eurasian wigeon (Non-breeding)
- A051 Anas strepera; Gadwall (Breeding)
- A051 Anas strepera; Gadwall (Non-breeding)
- A052 Anas crecca; Eurasian teal (Non-breeding)
- A054 Anas acuta; Northern pintail (Non-breeding)
- A055 Anas querquedula; Garganey (Breeding)
- A056 Anas clypeata; Northern shoveler (Non-breeding)
- A056 Anas clypeata; Northern shoveler (Breeding)
- A156a Limosa limosa limosa; Black-tailed godwit (Breeding)

5.13 The conservation objectives are:

5.14 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- *The extent and distribution of the habitats of the qualifying features*
- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The population of each of the qualifying features, and,*
- *The distribution of the qualifying features within the site'*

5.15 The Site Improvement Plan notes the following pressures and threats: hydrological changes, water pollution

5.16 The Nene Washes Ramsar site is designated for its bird interest, as with the SPA, and also because *'the site supports an important assemblage of nationally rare breeding birds. In addition, a wide range of raptors occur through the year. The site also supports several nationally scarce plants, and two vulnerable and two rare British Red Data Book invertebrate species have been recorded'.*

A.2 Ouse Washes SAC/SPA/Ramsar site

5.17 The SAC is designated for its population spined loach. The conservation objectives are:

5.18 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of the habitats of qualifying species*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site'.*

5.19 The Site Improvement Plan notes the following pressures and threats: hydrological changes, water pollution.

5.20 The SPA is designated for the following interest features:

- A037 Cygnus columbianus bewickii Bewick's swan (Non-breeding)
- A038 Cygnus cygnus; Whooper swan (Non-breeding)
- A050 Anas penelope; Eurasian wigeon (Non-breeding)
- A051 Anas strepera; Gadwall (Breeding)
- A052 Anas crecca; Eurasian teal (Non-breeding)
- A053 Anas platyrhynchos; Mallard (Breeding)
- A054 Anas acuta; Northern pintail (Non-breeding)
- A055 Anas querquedula; Garganey (Breeding)
- A056 Anas clypeata; Northern shoveler (Non-breeding)
- A056 Anas clypeata; Northern shoveler (Breeding)
- A082 Circus cyaneus; Hen harrier (Non-breeding)
- A151 Philomachus pugnax; Ruff (Breeding)
- A156a Limosa limosa limosa; Black-tailed godwit (Breeding)
- Waterbird assemblage
- Breeding bird assemblage

5.21 The conservation objectives are:

5.22 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- *The extent and distribution of the habitats of the qualifying features*
- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The population of each of the qualifying features, and,*
- *The distribution of the qualifying features within the site'*

5.23 The Site Improvement Plan notes the following pressures and threats: hydrological changes, water pollution

5.24 The Ouse Washes Ramsar site is designated for its bird interest, as with the SPA, and also because *'The site is one of the most extensive areas of seasonally-flooding washland of its type in Britain… The site supports several nationally scarce plants, including small water pepper Polygonum minus, whorled water-milfoil Myriophyllum verticillatum, greater water parsnip Sium latifolium, river waterdropwort Oenanthe*

fluviatilis, fringed water-lily Nymphoides peltata, long-stalked pondweed Potamogeton praelongus, hair-like pondweed Potamogeton trichoides, grass-wrack pondweed Potamogeton compressus, tasteless water-pepper Polygonum mite and marsh dock Rumex palustris. Invertebrate records indicate that the site holds relict fenland fauna, including the British Red Data Book species large darter dragonfly Libellula fulva and the rifle beetle Oulimnius major. The site also supports a diverse assemblage of nationally rare breeding waterfowl associated with seasonally-flooding wet grassland.

A.3 Portholme SAC

5.25 Portholme SAC is designated for its lowland hay meadows. The conservation objectives are:

5.26 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of qualifying natural habitats*
- *The structure and function (including typical species) of qualifying natural habitats, and*
- *The supporting processes on which qualifying natural habitats rely'*

5.27 The Site Improvement Plan notes the following pressures and threats: inappropriate water levels, water pollution.

A.4 Woodwalton Fen Ramsar/Fenland SAC

5.28 Woodwalton Fen is designated for its purple moor-grass meadows, its calcium-rich fen dominated by great fen sedge (saw sedge) and its population of great crested newt. The conservation objectives are:

5.29 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of qualifying natural habitats and habitats of qualifying species*
- *The structure and function (including typical species) of qualifying natural habitats*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site.*

5.30 The Site Improvement Plan notes the following pressures and threats: water pollution, hydrological changes, air pollution.

A.5 Eversden & Wimpole Woods SAC

5.31 Eversden & Wimpole Woods SAC is designated for its population of breeding barbastelle bat. The conservation objectives are:

5.32 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of the habitats of qualifying species*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which the habitats of qualifying species rely*
- *The populations of qualifying species, and,*

- *The distribution of qualifying species within the site'.*

5.33 The Site Improvement Plan notes the following pressures and threats: offsite habitat availability/management, forestry and woodland management, air pollution.

A.6 Orton Pit SAC

5.34 Orton pit SAC is designated for its population of great crested newts (*Triturus cristatus*)and hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp; Calcium-rich nutrient-poor lakes, lochs and pools. The conservation objectives are:

5.35 'Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of qualifying natural habitats and habitats of qualifying species*
- *The structure and function (including typical species) of qualifying natural habitats*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely*
- *The populations of qualifying species, and,*
- *The distribution of qualifying species within the site.'*

The Site Improvement Plan notes the following pressures and threats: predation, inappropriate scrub control, inappropriate weed control, direct impact of 3rd party (i.e. illegal activities including off-roading, vandalism, arson and disturbance from dogs jumping into ponds), and disease.

Revision: 2 Drawn: AM Checked: MB Approved: CB Date: 2022-11-11

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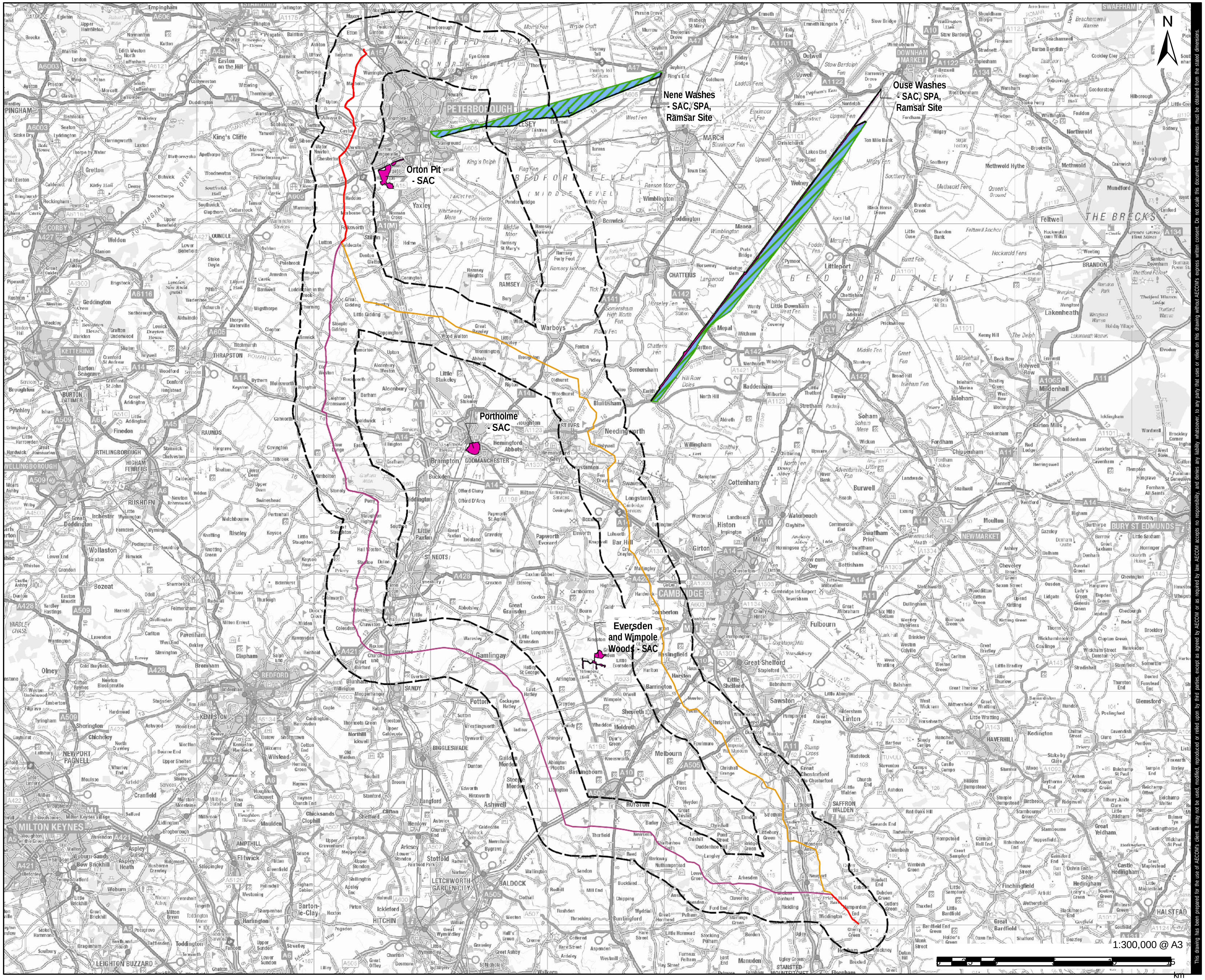

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LEGEND

Pipeline Route

- Route East and West
- Route East
- Route West
- Study Area - 2500m Route Buffer

European Site

- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar

NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60681402

FIGURE TITLE

European Sites Within the Zone of Influence of the Scheme

FIGURE NUMBER

Figure 1

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