Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Environmental Statement Chapter 8: Biodiversity

Application Document Reference: 5.2.8
PINS Project Reference: WW010003
APFP Regulation No. 5(2)a

Revision No. 08
April 2024

Document Control

Document title	Chapter 8: Biodiversity
Version No.	~~07~~08
Date Approved	29.09.23
Date 1st Issued	30.01.23

Version History

Version	Date	Author	Description of change
01	30.01.23	-	DCO Submission
02	24.04.23	-	Updated to reflect Section 51 Advice
03	29.09.23	-	Updated in Response to Procedural Decision 1 Table 4-1 header, cross referencing correction section 4.2 for Bat Technical Appendix, cross referencing to outfall management and monitoring plan, text correction section 4.3 para 4.3.116, 4.3.118.
04	06.12.23	-	Updates In relation to Examination Questions (ExQ1)
05	22.01.23	-	ISH Actions for Deadline 4, align to Chapter 2 changes, clarify mitigation wording
06	19.02.24	-	Update DL5 in relation to EXQ2 1.9
07	02.04.24	-	ISH Actions for Deadline 6, amendment to hedgerow impact text, amendment to align with Chapter 22 additions, correction of reference to decommissioning plan, and addition of references to lighting design strategy in section 2.9
08	12.04.24	-	Updates to BNG numbers to align with revised BNG Report submitted at Deadline 7, formatting corrections section 5

Contents

Tables

Summary

Introduction

The Biodiversity Chapter of the Environmental Statement has considered the effects of the Proposed Development on Biodiversity. The Proposed Development comprises the relocation of the Cambridge Waste Water Treatment Plant (WWTP) from its existing site on land adjoining the north eastern side of the city of Cambridge, to a new location, together with the connecting infrastructure. The Proposed Development also comprises the permanent access and landscape masterplan, final effluent (FE) pipeline and outfall, the waste water transfer tunnel and the Waterbeach pipelines.

This Chapter outlines the baseline biodiversity surveys, identifies ecological receptors and provides an assessment of the impacts of the Proposed Development on ecological receptors.

A series of baseline surveys and studies for designated sites, habitats, breeding birds, great crested newt, bats, water vole, otter, terrestrial invertebrates, reptiles, badger, aquatic macrophytes, invertebrates, hedgerows and botany were carried out, as well as an assessment to assess the potential for Biodiversity Net Gain.

There are several sites designated for reasons of nature conservation in the wider study area. These include Stow-cum-Quy Fen Site of Special Scientific Interest (SSSI), the River Cam County Wildlife Site (CWS) and Allicky Farm Pond CWS. Potential impacts due to the Proposed Development on biodiversity features within these designations are discussed in this Chapter.

Summary relevant mitigation

Design measures (primary mitigation)

These mitigation measures correspond to measures inherent to the design of the Proposed Development and would serve to mitigate effects on biodiversity associated with construction and operation. These are as follows:

- Construction:
  - minimising loss of/disturbance to habitats;
  - avoiding or minimising changes to water quality;
  - prevention of direct harm to/or disturbance to protected species e.g. trenchless design;
  - prevention of light spill from temporary construction areas; and
  - measures to control risk of spreading invasive non-native species.
- Operation:
  - avoiding impacts to hydrologically linked sites and habitats;

- avoiding and minimising changes to water quality;
- creation of new ditch network to minimise impact to water vole;
- creation of new reed bed to replace those habitats which will be lost;
- inclusion of riverbank protection design;
- no net loss of habitat through creation of landscape masterplan (including ditches, trees and grassland);
- minimising lighting of dark areas; and
- avoiding or minimising changes to air quality that could affect vegetation/qualifying features of designated sites.

Management plans (secondary mitigation)

There are six main plans in development that will provide secondary mitigation for construction works and operational works. These are the Construction Environmental Management Plan (CEMP), Code of Construction Practice (CoCP), Landscape, Ecological and Recreational Management Plan (LERMP), Construction Traffic Management Plan (CTMP), Outline Soil Management Plan (OSMP), Decommissioning Plan.

During the construction phase, the LERMP (Appendix 8.14, Application Document Reference 5.4.8.14), OSMP (Appendix 6.3, App Doc Ref 5.4.6.3) and CTMP (Appendix 19.7, App Doc Ref: 5.4.19.7) and the CoCP (Appendix 2.1 and Appendix 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2) and associated management plans specify the range of measures to avoid and minimise impacts that may occur in construction.

The Outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) would apply respectively to the decommissioning phase and operational phase of the Proposed Development and outlines the measures to avoid and minimise impacts that may occur in these phases.

Measures secured through legal requirement or those that are best practice (tertiary mitigation)

For Biodiversity, tertiary mitigation would be secured through the best practice measures set out within the CoCP Part A and B (Appendix 2.1 and Appendix 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2), through requirements secured by environmental permits (flood risk activities, water discharge and groundwater activities, industrial emissions), and through appropriate species specific (badger, water vole and bat) Natural England licences. These would be required to be in place prior to undertaking construction works. Draft method statements (to be part of the licence application) have been produced (App Doc Ref 5.4.8.20 - 5.4.8.22), which outline species specific mitigation measures, such as presence of a licenced ecologist; pre-commencement checks and tool-box talks provided to contractors. For bats, lighting impact reduction measures are included within the licence, in addition to environmental permits from the Environment Agency with respect to waste water discharges and permitted effluent loads (including iron and chlorine levels).

Assessment approach

Design envelope approach

The assessment parameters are based on the design of the proposed WWTP and access, waste water transfer tunnel route and outfall location, Waterbeach pipeline route and connections within the existing Cambridge WWTP as described in Chapter 2: Project Description (App Doc Ref 5.2.2). The assessment considers a realistic maximum design envelope based on the maximum scale of the elements. As a result, there are no effects of greater significance than those already assessed.

The maximum design envelope parameters assume that all the construction activities for the proposed WWTP, waste water transfer tunnel, treated effluent pipeline and Waterbeach pipelines are concurrent. This tests the busiest activities at each to determine the reasonable worst case traffic movements to and from the Proposed Development.

Accounting for primary, secondary and tertiary measures in the assessment

In construction, the assessment of biodiversity effects takes into account primary and tertiary mitigation by directly assessing the mitigated effects that may emerge. Any remaining effect, which would not be mitigated by primary and tertiary measures, would be mitigated by secondary mitigation measures implemented through approved plans.

The assessment has taken into account the above considerations by first assessing the magnitude of impact and significance of effect on a type of effect (for example, severance) taking account of the primary and tertiary measures. The assessment then considers secondary measures and how these further would mitigate effects.

Summary construction effects

The baseline surveys carried out have informed an assessment of likely impacts. During construction, these may be both permanent and temporary. In almost all cases, these impacts would be mitigated by avoidance or best practice mitigation measures, resulting in no significant effects. Exceptions where significant effects are considered likely or where non—standard mitigation measures are required are as follows:

- Works within land required for the proposed WWTP and landscape masterplan
  - Removal of habitats in relation to temporary and permanent use of the land (such as for laydown areas, open cut trenching, HDD drilling, construction compounds, proposed WWTP and associated access) resulting in habitat loss, fragmentation and severance of wildlife corridors.
  - The construction of the proposed footpaths within the landscaped area will sever hedgerows used by bats and temporarily disturb one common pipistrelle day roost. Additionally, the construction of the proposed WWTP will increase lighting levels in the local area.

  - Construction works will destroy an annex badger sett and a disused outlier sett as well as temporarily disturbing two currently disused sett entrances belonging to a territory in the area and two outlier setts (confidential location withheld).

- Works related to construction of the treated effluent and storm pipelines and outfall
  - Impact to and removal of ditch aquatic habitats (priority habitats) during construction of the final effluent pipeline.
  - Impact to and removal (temporary as reinstated post works) of hedgerows during construction of the final effluent pipeline.
  - Impact to and removal of river aquatic habitats during construction of the proposed outfall.
  - Construction of the proposed outfall and associated protection structures are anticipated to result in direct and indirect impacts upon water vole populations within this area. There will also be a temporary disturbance impact upon an adjacent ditch within this area which will be re-instated upon completion.
- Construction of the Waterbeach pipelines
  - The construction of the Waterbeach transfer pipeline will result in temporary disturbance to bats at three known day roosts.
  - Construction works will destroy a disused outlier badger sett and will temporarily disturb two currently disused sett entrances belonging to a territory in the area and two outlier setts (confidential location withheld).

Summary of operation effects

During operation of the Proposed Development impacts were also identified. Many of these were assessed to give rise to effects which were not significant. Those that were assessed as significant, or are otherwise notable, are summarised below:

- Operation of the proposed WWTP including the area required for the landscape masterplan
  - Operational lighting will spill onto retained vegetated habitats until landscaping vegetation establishes . Lighting is also likely to act as a barrier to bat species commuting and foraging within the proposed WWTP and may negatively impact upon invertebrate populations.
  - Operation of the proposed WWTP has the potential to affect the River Cam CWS and aquatic species through changes to surface water quality via intermittent storm flow discharges, water temperature changes, final effluent quality improvement, and water level changes.
  - The proposed WWTP will include combustion of natural gas and biogas within two boilers, one CHP and one flare (emergency use only). These

emit pollutants to air, primarily nitrogen oxides (NOx) which can affect air quality near to the proposed WWTP, resulting in potential habitat changes. The maximum combined thermal input is less than 10 Megawatts and therefore overall, emissions will be small. The CHP and boilers will meet stringent emission requirements and be designed in such a way that effects on air quality are minimised.

  - The inspection, maintenance and groundwater protection measures should also reduce the potential impact on Black Ditch due to the possibility of contamination of the sub-surface drainage network in the proposed WWTP. However, a low risk of infiltration of contaminants to the drainage network, which could then transfer rapidly to the pond and drain linked to Black Ditch, would remain. Monitoring for leaks and management plans will be in place to mitigate for this.
  - Noise levels from the operation of the proposed WWTP may impact upon bats and badgers using the local landscape, leading to these species possibly avoiding areas that are frequently used now. Embedded design to minimise noise produced will be incorporated into operational machinery.
  - Planting of new habitats around the proposed WWTP including woodland, hedgerows and seasonal ponds will provide additional foraging, commuting and resting resources for bats, other small mammals, birds, invertebrates and reptiles. This planting will also result in an overall greater connectivity across the local landscape, supporting the Cambridge Nature Recovery Network.

- Operation of the treated effluent and storm pipelines and outfall
  - Intermittent scour of the River Cam riverbed and banks causing sediment mobilisation could occur close to the outfall as a result of final effluent and intermittent storm discharges.
  - Decreased stormwater discharge to the River Cam from the proposed WWTP, as compared to the existing Cambridge WWTP, will improve water quality in periods when these stormwater discharges currently occur.
  - Water vole is likely to benefit during the operation of the proposed WWTP due to the improvements in water quality and associated habitats at the outfall location and downstream. New ditch habitat created will support a robust and resilient population within the local context.
- Operation of the Waterbeach pipeline
  - In operation the land required for the construction of the Waterbeach pipeline will be reinstated to its existing landform and use. With the exception of air valves there are no permanent features that remain in operation.

Summary of decommissioning effects

Decommissioning activities are scheduled to occur at the end of the construction phase and will take place in Year 3 of construction (currently assumed to be between June 2027 to December 2027). Decommissioning of the existing Cambridge WWTP involves the diversion of rising mains and gravity sewers and cessation of flow at the existing outfall. It is assumed that rigorous groundwater protection measures, which are standard practice to prevent contamination, will be implemented during the diversion works. As a result, potential impacts on water resources resulting from decommissioning activities should not give rise to any effects which are significant.

1 Introduction

1.1 Purpose of this chapter

1.1.1 This chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) completed in relation to the potential impacts of the Proposed Development on Biodiversity.

1.1.2 The ES has been prepared as part of the application to the Planning Inspectorate (PINS) for development consent. This chapter considers the potential biodiversity impacts (incorporating species and habitats) of the Proposed Development during its construction (including commissioning), operation and maintenance, and decommissioning phases.

1.1.3 Other documents of relevance to biodiversity are found in the following locations:

- a Habitats Regulations Assessment (HRA) Report (Appendix 8.16, App Doc Ref 5.4.8.16) which provides information for the appropriate assessment stage, has been completed in relation to the Proposed Development.
- the assessment of impacts from emissions to air are discussed in Chapter 7: Air Quality. The assessment of impacts to water resources are discussed in Chapter 20: Water resources. The assessment of noise and vibration impacts are discussed in Chapter 17: Noise and vibration. The assessment of impacts upon landscape are discussed in Chapter 15: Landscape and Visual Amenity.

1.1.4 This chapter summarises information from supporting studies, ecological technical reports and publicly available data which are included within Appendix 8.4 (App Doc Ref 5.4.8.4) Breeding Bird Report, Appendix 8.11 (App Doc Ref 5.4.8.11) Great Crested Newt Report, Appendix 8.7 (App Doc Ref 5.4.8.7) Bat Report, Appendix 8.3 (App Doc Ref 5.4.8.3) Water Vole Report, Appendix 8.9 (App Doc Ref 5.4.8.9) Otter Report, Appendix 8.6 (App Doc Ref 5.4.8.6) Terrestrial Invertebrate Report, Appendix 8.5 (App Doc Ref 5.4.8.5) Reptile Report, Appendix 8.8 (App Doc Ref 5.4.8.8) Confidential Badger Report, Appendix 8.13 (App Doc Ref 5.4.8.13) Biodiversity Net Gain Report, Appendix 8.1 (App Doc Ref 5.4.8.1) Aquatic Report and Appendix 8.2 (App Doc Ref 5.4.8.2) Hedgerows Report and Appendix 8.10 (App Doc Ref 5.4.8.10) National Vegetation Classification. In addition, a lighting study is found within the Lighting Assessment Report Appendix 15.3 (App Doc Ref 5.4.15.3).

1.2 Competency statement

1.2.1 Summaries of the qualifications and experience of the Chapter authors are set out in Table 1-1.

Table 1-1: Competent experts

Author	Qualification / Professional Membership	Years of experience	Project experience summary
[redacted]	BA Environmental Management, University of South Africa. Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM).	10	Experience within ecological consultancies specialising in protected species surveys and assessment in the United Kingdom. Responsibilities include producing protected species reports, undertaking ecological impact assessments, writing environmental impact assessment chapters, co-ordinating survey teams on large infrastructure projects and designing associated mitigation works.
[redacted]	PhD Behavioural Ecology (Avian), University of Cardiff. BSc (Hons) Zoology, University of Liverpool. Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Fellow of Linnean Society.	18	Experience of working collaboratively across a wide range of projects within residential, power generation, water and heritage sectors. Actively engaged in promoting good practice within ecology and provision of advice on protected species and habitats; mitigation and compensation measures; and carrying out ecological site supervision.
[redacted]	MSc (Environmental) Water Management, Cranfield University. BSc (Hons) Environmental Science, University of Portsmouth.	14	Extensive experience in training, mentoring and auditing of aquatic ecological assessments, particularly macrophytes. Experienced in survey design and delivery, sample analysis, data interpretation and analysis.

1.3 Planning policy context

National Planning Statement (NPS) requirements

1.3.1 Planning policy on waste water Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to biodiversity resources, is contained in the National Policy Statement (NPS) for Waste Water (Department for Environment, Food & Rural Affairs, 2012).

1.3.2 Table 1-2 sets out how the scope proposed in this chapter complies with the NPS for Waste Water.

Table 1-2 Scope and NPS compliance

NPS Requirement	Compliance of ES scope with NPS requirements
Paragraph 3.3.1: The project shall consider the potential for any significant effect on a European site (or on any site to which the same protection is applied as a matter of policy), either alone or in combination with other plans or projects. Advice of Natural England should be sought and a screening should be completed to understand the need for Appropriate Assessment.	The HRA Report, Appendix 8.16, is included as a supporting document within the application and rereferred to within this chapter (Appendix 8.16, App Doc Ref 5.4.8.16). The HRA Report and approach to assessments to inform an Appropriate Assessment have been developed in consultation with the statutory nature conservation body, Natural England.
Paragraph 4.5.3 and 4.5.14: The ES shall identify any effects on internationally, nationally and locally designated sites of ecological importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The application should indicate how the proposals have integrated opportunities to conserve and enhance biodiversity. This will also include embedded features within the design.	The assessment of impacts on Biodiversity follows CIEEM guidance. Section 2.9 (Mitigation measures adopted as part of the Proposed Development) sets out mitigation measures developed to conserve and enhance biodiversity. This includes reference to: a Landscape, Ecological and Recreational Management Plan (LERMP) (Appendix 8.14, App Doc Ref 5.4.8.14) and landscape design masterplan. These have been derived to mitigate adverse effects and have considered local conservation objectives such as those of the Wicken Fen Vision; • design measure as part of the outfall to minimise loss of riparian habitat; • a landscape impact assessment within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14 which includes specific measures in relation to controls on lighting; and the Code of Construction Practice (CoCP) (Appendix 2.1, App Doc Ref 5.4.2.1) including, but not limited to, section 7.2 (Ecology and Nature Conservation) in Part A. The Defra metric 3.0 is used to demonstrate Biodiversity Net Gain (BNG) achieved through the landscape masterplan which includes habitat creation and habitat enhancement proposals. The application of the metric is reported in the BNG Report (Appendix 8.13, App Doc Ref 5.4.8.13).

National Planning Policy

1.3.3 National planning policy of relevance to biodiversity and pertinent to the Proposed Development is listed below:

- National Planning Policy Framework (NPPF) (Ministry of Housing, 2021) with particular reference to:

1.3.4 Section 15, Paragraphs 174 to 178, which state that the planning system should contribute to and enhance the natural and local environment by, amongst other things, protecting and enhancing sites of biodiversity value as well as minimising impacts on and providing net gains in biodiversity. The NPPF highlights that pursuing

sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, as well as promoting the importance of looking at a landscape scale to establish resilient ecological networks and improve environmental conditions. A core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution.

- Joint Nature Conservation Committee's UK Post-2010 Biodiversity Framework (Joint Nature Conservation Committee, 2012) and revised associated Implementation Plan 2018-2020 (Joint Nature Conservation Committee, 2018):

1.3.5 Aims to address the underlying causes of biodiversity loss and improve and enhance biodiversity and ecosystem services. The UK Biodiversity Action Plan (BAP) priority habitats and species background information are still widely used at county level. There are plans to replace the framework and that the new Biodiversity Framework will set out shared priorities and areas for collaboration across the UK, primarily as a collective response to the post-2020 global framework of goals and targets, expected to be agreed at the Convention on Biological Diversity Fifteenth Conference of the Parties (United Nations (UN) Biodiversity Conference known as COP15). It had been envisaged that publication of a new UK Framework would follow COP15, originally scheduled for October 2020, and therefore lead on directly from the existing implementation plan. As COP15 was delayed to 2021 in light of the coronavirus (COVID-19) pandemic, the Government is considering a further revised plan until the new global framework is announced (Department for Environment, Food and Rural Affairs, 2020).

Local planning policy

1.3.6 Local planning policy of relevance to the Proposed Development includes:

- South Cambridgeshire District Council Local Plan 2018 (South Cambridgeshire District Council, 2018) with particular reference to:
  - Policy NH/4 (p115): new development must aim to maintain, enhance, restore or add to biodiversity. Opportunities should be taken to achieve positive gain through the form and design of development. Measures may include creating, enhancing and managing wildlife habitats and networks, and natural landscape. The built environment should be viewed as an opportunity to fully integrate biodiversity within new development through innovation. Priority for habitat creation should be given to sites which assist in the achievement of targets in the BAPs and aid delivery of the Cambridgeshire Green Infrastructure Strategy; and
  - Policy NH/5 (p117) Sites of Biodiversity or Geological Importance: proposed development likely to have an adverse effect on land within or adjoining a Site of Biodiversity or Geological Importance, as shown on the Policies Map (either individually or in combination with other

developments), will not normally be permitted. Exceptions will only be made where the benefits of the development clearly outweigh any adverse impact.

- The Cambridge City Local Plan 2018 (Cambridge City Council, 2018) with particular reference to:
  - Policy 69 (p201) Protection of sites of biodiversity and geodiversity importance: development will be permitted if it will not have an adverse impact on, or lead to the loss of, part or all of a site identified on the Policies Map. Regard must be had to the international, national or local status and designation of the site and the nature and quality of the site's intrinsic features, including its rarity;
  - Policy 70 (p203) Protection of priority species and habitats: development will be permitted which protects priority species and habitats and enhances habitats and populations of priority species. Proposals that harm or disturb populations and habitats should minimise ecological harm and secure mitigation and or compensatory measures resulting in either no net loss or a net gain; and
  - Policy 71 (p205) Trees: development proposals should preserve, protect and enhance existing trees and hedges that have amenity value, provide replacement planting, and sufficient space for trees and other vegetation to mature.
- Waterbeach Neighbourhood Plan 2020 – 2031 (Waterbeach Parish Council, 2022) identifies important sites for biodiversity, such as floodplain grazing marsh sites within the Waterbeach pipeline, and these sites are to be protected and enhanced by management plans. Any development proposals must contribute to the biodiversity of these sites rather than detract from.
- Cambridgeshire and Peterborough Minerals and Waste Local Plan 2021 (Peterborough City Council and Cambridgeshire County Council, 2021) with particular reference to Policy 20: Biodiversity and Geodiversity. This states through development management processes, management agreements and other positive initiatives the Councils will:
  - aid the management, protection, enhancement and creation of priority habitats;
  - promote the creation of an effective, resilient, functioning ecological network throughout the plan area;
  - safeguard the value of previously developed land where it is of significant importance of biodiversity and/or geodiversity; and
  - work with developer and Natural England to identify a strategic approach to great crested newt (GCN) (*Triturus cristatus*) mitigation, where this is required.

- Cambridgeshire and Peterborough have several habitats and species which are covered by Local Biodiversity Action Plans (LBAP) (Cambridgeshire and Peterborough Biodiversity Group, 2021). The Cambridgeshire and Peterborough LBAPs set out a list of over 200 UK priority habitats and species that are in decline in Cambridgeshire and Peterborough and require conservation efforts to halt this decline. The presence of priority species and habitats are to be determined for a planning application, and where applicable practical conservation efforts are to be implemented as part of mitigation and biodiversity enhancement to grant planning permission. Many local BAP have now been incorporated into S41 (see 1.4.5 below).
- Greater Cambridgeshire Shared Planning – Biodiversity Supplementary Planning Document (Greater Cambridge Planning, 2022). This Supplementary Planning Document (SPD) provides additional details on how local policies will be implemented while also building on relevant legislation, national policy, and central government advice. It supersedes the Biodiversity SPD created in 2009.
- Internal drainage boards (IDB) also have their own LBAPs. Both the Waterbeach Level IDB (Waterbeach Level Internal Drainage Board, 2019) and Swaffham IDB (Swaffham Biodiversity Action Plan, 2009) have prepared BAPs in accordance with their commitment in the Implementation Plan of the DEFRA Internal Drainage Board Review for IDBs to produce their own Biodiversity Action Plans by April 2010. It also demonstrates the Board's commitment to fulfilling its duty as a public body under the Natural Environmental and Rural Communities (NERC) Act 2006 (UK Government, 2006) to conserve biodiversity. There are aspects of the IDB LBAPs, which are applicable to the Proposed Development.
- South Cambridgeshire District Council are preparing an Area Action Plan (AAP). The North East Cambridge (NEC) AAP which has been submitted and is to be considered by Cambridge City and South Cambridgeshire District Councillors through their respective committee processes. The draft NEC AAP has been published which refers to Policy 5: Biodiversity and Net Gain. This policy sets out how new developments are to achieve a minimum of 10% BNG and measurably improve the biodiversity network across the wider area (Greater Cambridge Shared Planning, 2021).

Green infrastructure and conservation initiatives

1.3.7 Cambridge City Council's Nature Conservation Strategy (Cambridge City Council, 2006) aims to guide nature conservation activities to enhance the biodiversity and nature conservation value of the City of Cambridge through the planning process. The main aim of the conservation strategy is 'to ensure the City has a strong green structure with an accessible network of green spaces rich in biodiversity'. The local plan provides a detailed vision for the next 20 years of biodiversity based on achieving a 'net gain' in biodiversity and building an ecological network.

1.3.8 The Cambridge Nature Network Report (Baker, M.P., Bullock, M.P., Wilson, L.A., 2021) has been developed by Cambridge Past, Present and Future and The Wildlife Trust for Bedfordshire, Cambridgeshire, and Northamptonshire (BCN) and includes habitats (parks, reserves, farms) within 10km of Cambridge city, identifying opportunities for locations for creating new habitats as well as making a commitment to doubling the amount of nature rich habitats by 2050.

1.3.9 The Proposed Development falls within an area of the National Trust's Wicken Fen Vision (National Trust, 2018). The 100-year vision aims to restore habitats and create a landscape-scale space for people and wildlife between Cambridge and the Wicken Fen Nature Reserve. The vision is a strategic element of green infrastructure in the adopted development plans for both South Cambridgeshire District Council (adopted 2018) and East Cambridgeshire District Council (adopted 2015).

1.3.10 The Proposed Development also falls within part of the proposed Cambridgeshire Strategic Green Infrastructure Network (Strategic Network Area 6: Cambridge and Surrounding Areas). The strategy is used to design green infrastructure across Cambridgeshire County (Cambridge City Council, 2011) by implementing these four objectives:

- reverse the decline in biodiversity;
- mitigate and adapt to climate change;
- promote sustainable growth and economic development; and
- support healthy living and wellbeing.

1.4 Legislation

1.4.1 The principal legislation in relation to the assessment of the effects of the Proposed Development on Biodiversity is presented below.

National legislation

1.4.2 The Conservation of Habitats and Species Regulations 2017 (as amended) (UK Government, 2017) provides for the protection of a National Site Network of Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and European protected species.

1.4.3 The Environment Act 2021 UK Government, 2021) the requirements of which will be part of secondary legislation anticipated in 2023 with instrument now in place to allow for water vole licences to be issued for Imperative Reasons of Overriding Public Interest, IROPI) with particular reference to:

- Schedule 15 of the UK Environment Act 2021 indicates that all new infrastructure development should include BNG as a planning condition including under the Planning Act 2008; and

- to deliver BNG measures for development, the net gain requirements are calculated through a metric-based system referred to as the "Defra metric" and the system calculates these requirements, based upon habitat area, distinctiveness, condition, and difficulty of delivering habitat creation/restoration measures. The BNG metric calculation permits local planning authorities to have clear and objective biodiversity information as part of the BNG plan and achieve BNG as required under the NERC Act (2006), NPPF and the Environment Act 2021.

1.4.4 The Wildlife and Countryside Act 1981 (as amended) ('the 1981 Act') (UK Government, 1981) is the main piece of UK legislation on nature conservation. Contained within it are lists of species of flora and fauna subject to statutory protection, with the Act detailing the level of protection attributed to each, which in some instances extends to the habitats or structures they use or in which they are found. The 1981 Act is also the primary piece of legislation relating to the designation and protection of Sites of Special Scientific Interest (SSSI).

1.4.5 The NERC Act (2006) places the duty on every local authority to conserve biodiversity. Section 40 refers to the restoration and enhancement of populations and habitats, whilst Section 41 (S41) lists species and habitats of principal importance for the conservation of biodiversity in England. These S41 species lists comprise those species listed in local BAP in which it now supersedes.

1.4.6 The Protection of Badgers Act 1992 affords a high level of protection to badgers and their setts. The legislation was introduced primarily for reasons of animal welfare as opposed to any concern over the conservation status of what is one of the UK's more common larger mammals.

1.4.7 The Countryside and Rights of Way Act 2000 (CRoW Act) (UK Government, 2000) (Countryside and Rights of Way Act 2000) strengthens the provisions of the 1981 Act in several key areas including offences to disturbing Schedule 1 birds where the intention of committing this act is extended to recklessly in addition to intentionally.

1.4.8 The Hedgerows Regulations 1997 UK Government, 1997) states that the removal of any hedgerows, or sections of hedgerows will require a Hedgerow Removal Licence from the local planning authority. The Hedgerows Regulations 1997 criteria, as listed above, assess whether a hedgerow is 'Important'. If the hedgerow is not Important, the local authority cannot refuse permission to remove the hedgerow. If the hedgerow is important, the local authority will decide if the circumstances justify the removal of an Important hedgerow. Unless satisfied that removal is justified, the local authority must refuse permission and issue a hedgerow retention licence.

1.4.9 The Eels (England and Wales) Regulations 2009 (UK Government, 2010), outlines measures to support the recovery of the European eel population following significant population declines.

1.5 Consultation

Scoping

1.5.1 Table 1-3 provides a summary of key points during scoping.

Table 1-3: Key points raised in scoping

ID	Consultee	Points raised	Response
3.3.2	PINS	The Applicant proposes to scope out the assessment of effects of air emissions on Local Nature Reserves and County Wildlife Sites to the south of the A14 and Cambridge where there is no pathway for effect. This is because these sites have been identified as being located within urban areas and are isolated from the Proposed Development. The Inspectorate considers that this is a reasonable approach although this conclusion should be verified in the modelling of emissions from the energy plant at the Proposed Development (subject to the preferred technology type).	The air emissions study is provided within Chapter 7: Air Quality (App Doc Ref 5.2.7). This is referred to in the assessment of air emissions on designated sites within this chapter.
3.3.3	PINS	The Applicant proposes to scope out the effects of emissions from the energy plant at the Proposed Development on SSSIs, as the energy plant will be below 20MW in size and thus unlikely to lead to significant effects. As highlighted in ID 3.2.5, in the absence of clarity regarding the final energy plant specification, the Inspectorate does not agree that this matter may be scoped out from further assessment.	The air emissions study is provided within Chapter 7: Air Quality. This is referred to in the assessment of air emissions on designated sites within this chapter.
3.3.4	PINS	The Applicant also proposes to scope out the below designated wildlife sites from further consideration in the ES. The Scoping Report states that this is due to there being no hydrological or ecological connectivity with the Proposed Development: Bramblefields Local Nature Reserve (LNR); • Newmarket Heath SSSI; • Coldham's Common LNR; • Barnwell II LNR; • Barnwell LNR; • Logan's Meadow LNR;	See Section 4.1 (Construction phase) of this document for further clarification.

ID	Consultee	Points raised	Response
		• Lime Kiln Close (and West Pit) LNR; • East Pit LNR; • Sheep's Green and Coe Fen LNR; • The Beechwoods LNR; • Paradise LNR; • Nine Wells LNR; • Byron's Pool LNR; • Worts Meadow LNR; • Anglesey Abbey CWS; • Cambridge Road Willow Pollards CWS; • Swaffham's Poor's Fen CWS; • Bottisham Park CWS; Landbeach Pits Willow Wood CWS; • Beach Ditch and Engine Drain CWS; • Twenty Pence Pit CWS; • Cow Bridge Pollard Willows CWS; and • River Great Ouse CWS. However, with reference to the Inspectorate's comments in ID 3.2.5 of the Scoping Opinion and given the apparent discrepancy with the water resources assessment study area (ID 3.16.21), the Inspectorate considers that there is insufficient evidence presented in the Scoping Report to scope out these sites.	
3.3.5	PINS	The Scoping Report indicates that aquatic habitat and species surveys are to be focused on the location for a new treated effluent outfall to the River Cam, plus a buffer of 100m for fish, aquatic invertebrates and aquatic macrophytes. The ES should also consider whether there is potential for effects to arise from the project ceasing discharges from the two current outfall locations on aquatic habitats and species.	The ceasing of use of the existing Cambridge WWTP outfall which is approximately 120m upstream of the proposed outfall, is not expected to have any measurable ecological impact owing to the short distances. Ceasing the use of Bannold Drain outfall would be subject to assessment as part of a separate planning application

ID	Consultee	Points raised	Response
			and considered within Chapter 22:Cumulative Effects (App Doc Ref 5.2.22).
3.3.6	PINS	The Inspectorate notes that Table 8-6 of the Scoping Report contains references to Fulbourn Fen SSSI and Great Wilbraham Common SSSI as within the study area but these sites are not then scoped in or out of the assessment in Table 8-8 or 8-9 of the Scoping Report. There is also no evidence to show why other sites in Table 8-6 are scoped in (e.g. effects during construction but not operation). In the absence of evidence in the Scoping Report to explain why pathways for significant effects are unlikely to occur, the Inspectorate considers that all sites in Table 8-6 should be scoped into the assessment where significant construction or operational effects could occur.	Great Wilbraham Common and Fulbourn Fen SSSIs are included in the baseline in Table 3-2~~Table 3-2~~ . These sites are not taken forward into the detailed assessment and the rationale for this is provided in paragraph 3.1.9.
N/A	Greater Cambridge Shared Planning	As part of the Green Belt and bordering the Fens, the selected site provides a unique opportunity to enhance nature, conservation and biodiversity, the local landscape and heritage. We welcome the measures proposed to mitigate the impacts of the development and would expect to see the site making a strong contribution to BNG and the local landscape (including access to the countryside).	These aspirations are addressed within the LERMP (Appendix 8.14, Appendix 8.14, App Doc Ref 5.4.8.14) and demonstrated through the BNG Assessment Report (Appendix 8.14, App Doc Ref 5.4.8.13).
N/A	Greater Cambridge Shared Planning	In paragraph 8.8.9, the fifth bullet point should be slightly modified to read, “the management of acoustic, vibration and light disturbance.”	This is noted and address in section 4 of this chapter.
N/A	Greater Cambridge Shared Planning	Any report on badgers should be submitted as a separate confidential appendix clearly marked as containing sensitive information. We recommend that in Section 8.5.6, the Local planning policy relevant to the Proposed Development should also consider the Greater Cambridge Shared Planning draft Biodiversity Supplementary Planning Document (July 2021).	The baseline report for Badger (Appendix 8.8, App Doc Ref 5.4.8.8) is confidential as it contains sensitive information and will be provided confidentially to selected stakeholders.
N/A	Greater Cambridge Shared Planning	We recommend that the EIA should thoroughly explore all reasonable options to enhance the development for Protected and Priority species in order to aspire to a higher BNG. Including the off-site mitigation elements into the EIA boundary could also positively impact the assessment. In addition, a full BNG report should be submitted.	BNG of a higher than standard percentage has been achieved through maximising opportunity for biodiversity within the area of land required for the landscape masterplan. The application includes a BNG Assessment Report (Appendix 8.13, App Doc Ref: 5.4.8.13).

ID	Consultee	Points raised	Response
N/A	Greater Cambridge Shared Planning	We would recommend that a Lighting Impact Assessment is 'scoped in' to cover sensitive species as part of the EIA. This should cover light spill from both construction and operation across the three zones. In addition, the type and design of lighting should be considered to minimise the impact on sensitive species.	The application includes a lighting impact assessment (Appendix 15.3, App Doc Ref: 5.4.15.3) which considers both construction and operation.
N/A	Greater Cambridge Shared Planning	Paragraph 8.8.26 identifies potential impacts in the form of hydrological impacts to the River Cam, contamination of Black Ditch (with potential contamination of the ground water in the chalk aquifer at the proposed WWTP) and for potential surface water and groundwater impacts at Allicky Farm CWS. While the proposed mitigation measures are appropriate from a Biodiversity perspective, we recommend that these impacts are fully considered as part of the "Water Resources" aspect.	Chapter 20: Water resources assesses water quality impacts including to the named receptors mentioned. App Doc Ref 5.2.20. Chapter 20: Water resources includes an assessment of risk to groundwater using predictive modelling.
N/A	Greater Cambridge Shared Planning	Overall, this type of development has the potential to result in significant ecological impacts and we agree that Biodiversity is scoped in for further assessment in the EIA. We also agree with Section 22.1.6 Table 22-1 which describes the species and sites which are proposed to be scoped out. We recommend that the impact of lighting for sensitive species is 'scoped in' across all zones, and for a consideration of BNG both on-site and off-site.	The application includes a lighting impact assessment (Appendix 15.3, App Doc Ref: 5.4.15.3) which considers both construction and operation.
N/A	Greater Cambridge Shared Planning	In addition to the EIA report, it will be necessary to also provide sufficient information on non-significant impacts on Protected and Priority species and habitats at submission either in a non-EIA chapter or separate documentation. This is necessary in order for the LPA to have certainty of all likely impacts, not just significant ones, from the development and can issue a lawful decision with any mitigation and compensation measures needed to make the development acceptable, secured by condition.	The purpose of the ES is to report on likely significant effects. For the designated sites of Great Wilbraham Common and Fulbourn Fen SSSIs these are included in the baseline in Table 3-2~~Table 32~~ . These sites are not taken forward into the detailed assessment and the rationale for this is provided in paragraph 3.1.9 of Section 2.8 (Impacts scoped out of the assessment) provides rationale for species excluded from the assessment. In this case the decision maker is the Secretary of State.
N/A	Greater Cambridge Shared Planning	We would also encourage the Applicant to consider the temporal 'realistic worst case-scenarios'. For example, for biodiversity, the wording in Table 5-2 might read 'Peak year in which maximum impacts to protected species and habitats occur' and 'Extent of protected habitat on which maximum impacts occur'.	The assessment approach adopts a worst-case scenario and details are provided in Table 2-8~~Table 28~~ (Maximum design envelope for biodiversity assessment).

ID	Consultee	Points raised	Response
N/A	Greater Cambridge Shared Planning	The County Council welcomes the scoping in of Biodiversity (chapter 8) within the EIA for the Proposed Development and supports the proposed scoping in of ecological receptors identified at Table 8-10. This reflects pre-submission EIA scoping consultations undertaken with the County Council (set out in paragraph 8.10.1).	No action needed.
N/A	Greater Cambridge Shared Planning	Local planning policy relevant to the Proposed Development should also consider the Greater Cambridgeshire draft Biodiversity Supplementary Planning Document.	This has been considered and is noted in Section 1.3.
N/A	Greater Cambridge Shared Planning	The reference to habitats and species covered by Local Biodiversity Action Plans is welcomed. Reference should also be made to Cambridgeshire and Peterborough Additional Species of Interest, which can be found at www.cpbiodiversity.org.uk (library section) or further information from www.cperc.org.uk.	This website is no longer functioning however the assessment has considered identified species of interest.
N/A	Greater Cambridge Shared Planning	The commitment for the Proposed Development to provide a BNG of 10% is welcomed. However, a value of 20% is likely to be needed in order to meet the Natural Cambridgeshire target of doubling the amount of land managed for nature (paragraph 5.5.26, Greater Cambridgeshire draft Biodiversity Supplement Planning Document – consultation 2021) and therefore, challenge the Applicant to meet this target.	BNG of a higher than standard percentage has been achieved for area and linear based habitats (hedgerow) through maximising opportunity for biodiversity within the area of land required for the landscape masterplan. The river units gain is more challenging through on-site measures and the Applicant has committed to achieving a minimum of 10%. The means of achieving the gain in river units are yet to be decided and are expected to be through a combination of on and offsite measures. The application includes a BNG Assessment Report (Appendix 8.13, App Doc Ref: 5.4.8.13).
N/A	Greater Cambridge Shared Planning	The Proposed Development has the potential to adversely effect the ecological functionality of the Milton Road Hedgerow City Wildlife Site, if works are undertaken within its Root Protection Area. Early discussions should be undertaken with the Local Authority ecologists for Cambridge City Council / Cambridgeshire County Council and the Wildlife Trust to agree any proposed mitigation scheme.	This site is included in the assessment and noted in Table 3-3~~Table 3-3~~ and assessed in Section 4.2 (existing Cambridge WWTP). Section 7.3 (Ecology and Nature Conservation) within the CoCP (App Doc Ref: 5.4.2.1) includes measures in relation to safeguarding features of ecological value and protection to trees.

ID	Consultee	Points raised	Response
N/A	Greater Cambridge Shared Planning	It is noted that within the Scoping Report that further biodiversity surveys are to be undertaken and the Local Planning Authority would welcome this information being shared when appropriate.	The baseline documents included as appendices to this chapter report on all surveys completed (Appendix 8.4 (App Doc Ref 5.4.8.4) Breeding Bird Report, Appendix 8.11 (App Doc Ref 5.4.8.11) Great Crested Newt Report, Appendix 8.7 (App Doc Ref 5.4.8.7) Bat Report, Appendix 8.3 (App Doc Ref 5.4.8.3) Water Vole Report, Appendix 8.9 (App Doc Ref 5.4.8.9) Otter Report, Appendix 8.6 (App Doc Ref 5.4.8.6) Terrestrial Invertebrate Report, Appendix 8.5 (App Doc Ref 5.4.8.5) Reptile Report, Appendix 8.8 (App Doc Ref 5.4.8.8) Confidential Badger Report, Appendix 8.13 (App Doc Ref 5.4.8.13) Biodiversity Net Gain Report, Appendix 8.1 (App Doc Ref 5.4.8.1) Aquatic Report and Appendix 8.2 (App Doc Ref 5.4.8.2) Hedgerows and Appendix 8.10 (App Doc Ref 5.4.8.10) National Vegetation Classification).
N/A	Greater Cambridge Shared Planning	We note and support reference within Table 8-8 Potential construction impacts by zone the potential impacts on the River Cam CWS are impacts to water quality and potential for habitat loss due to the construction of the treated effluent discharge outfall structure. This would need to consider and assess the loss of riparian and in-channel habitats on the River Cam from the proposed new outfall.	River Cam CWS is included in the assessment and noted in Table 3-3~~Table 33~~ and assessed in section 4.2 (existing Cambridge WWTP). The impact of changes to riparian habitat is also part of the BNG assessment (Appendix 8.13, App Doc Ref: 5.4.8.13).
N/A	Greater Cambridge Shared Planning	A Water Framework Directive (WFD) assessment will be required, as noted earlier in section 5.3.1 and in Chapter 21. We note this will include impacts on the River Cam and other relevant WFD classified bodies including Bottisham Lode, Quy Water and the Cam and Ely Ouse Chalk groundwater body and determine mitigation measures. The latest river basin management plan data for these waterbodies are available from our Catchment Data Explorer at https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3009. Although most river basin management plan data is externally available via this link, data on WFD action measures can be requested via our Customer and Engagement team at enquiries eastanglia@environment-agency.gov.uk.	A WFD report is provided within the Application (Appendix 20.3 App Doc Ref: 5.4.20.3). The Environment Agency have been consulted on the scope of this report and additional data has been requested form the Environment Agency and incorporated into this report.
N/A	Greater Cambridge	With regard to section 8.8.6 on timings of works, this should also include resident/non-migratory fish species i.e. coarse fish spawn during the	The spawning season is recognised and included as a restriction to works during this period is contained within

ID	Consultee	Points raised	Response
	Shared Planning	spring and the angling close season for coarse fish is 15 h March – 15th June, inclusive.	the Code of Construction Practice (CoCP) Part B (Appendix 2.1, App Doc Ref 5.4.2.2).
N/A	Greater Cambridge Shared Planning	The construction phase mitigation outlined in section 8.8.7 should consider compensation for riparian and in-channel habitat on river Cam that will be lost at the new outfall structure location.	River Cam CWS is included in the assessment and noted in Table 3-3~~Table 33~~ and assessed in section 4.2 (existing Cambridge WWTP). The impact of changes to riparian habitat is also part of the BNG assessment (Appendix 8.13, App Doc Ref: 5.4.8.13). There are limitations to in river improvements as these are in conflict with other river users. The design of the river bank protection is such that the riparian vegetation would be re-established.
N/A	Greater Cambridge Shared Planning	It is noted that invasive non-native species (INNS) have been recorded during site surveys. A site biosecurity plan is likely to be required, with reference to section 8.8.9.	Section 7.3 (Ecology and Nature Conservation) within the CoCP (Appendix 2.1, App Doc Ref: 5.4.2.1) includes the requirement to implement biosecurity measures.
N/A	Greater Cambridge Shared Planning	With regard to section 8.8.10 we recommend the need for a water vole displacement licence is identified at an early stage and timed and planned for appropriately.	The Applicant has prepared a draft licence application and will conclude the conditions of the licence with Natural England.
N/A	Greater Cambridge Shared Planning	Within section 8.8.31 it is noted that the Landscape and Ecology Management Plans will include the management and monitoring of created habitats. Will this also include management and monitoring of translocated habitats to monitor condition and success of translocation?	The LERMP (Appendix 8.14, App Doc Ref: 5.4.8.14) details measures in relation to the monitoring and management of the landscape masterplan area. For areas outside the LERMP, measures set out with Section 7.2 of the CoCP Part A, Ecology Nature Conservation include a requirement for monitoring of planting for 5 years after construction. For planting completed within the construction period this monitoring will commence and continue into operation. Success criteria of such planting will include establishment and growth of required and/or planted species. Monitoring would be recommended to include success criteria for functionality of the mitigation

ID	Consultee	Points raised	Response
			(including retained soil moisture in wetter habitats) and growth of vegetation. During the construction phase, badgers, water voles and bats will be subject to a separate Natural England species licence for damaging and disturbance activities. These are expected to include specific monitoring conditions to be completed as during the course of works.
N/A	Fen Ditton Parish Council	Clause 8.6.34 asserts that "potential for protected or notable species …is based upon best available evidence". FDPC is pleased to see that AW have referenced in the Scoping Report, the personal Hymenoptera records of the County Recorder. We request the Planning Inspectorate to support our stressing that "grey" data sources like these must be given at least equal weight as data from field surveys and data from the desk study. FDPC suggests the Applicant interviews farmers and lands owners for any information they have about fauna such as badger setts, otter and deer to inform the field surveys.	Field survey have been completed by competent ecologists where relevant their recording has taken into account local knowledge and ad hoc information from acquired from local people. Information on local features has also been obtained through the Technical Working Group for Biodiversity,
N/A	Fen Ditton Parish Council	An additional source of "grey" data, i.e. possibly not yet available in the normal databases, is in environmental studies for the Marleigh Development. In particular, a very recent survey of bats showed a wide variety of bats in a transect extending along the abandoned railway line south of the A14 and round to Fen Ditton Church.	This assessment includes a bat survey baseline (Appendix 8.7, App Doc Ref 5.4.8.7) including results from bat surveys from within this area along the disused railway line. Publicly available information from submitted applications for development has been sought and reviewed as part of the Cumulative Effects Assessment (Chapter 22).
N/A	Fen Ditton Parish Council	FDPC considers the EIA and subsequent design, construction and operation and supporting CEMP should provide for protection of Rare and Vulnerable species, including invertebrates such as Hymenoptera (see 8.2 above), at locations where they are known to occur. Clauses 8.8.2 and 8.8.26 and subsequent text could be interpreted to suggest that AW consider merely creating and preserving habitats where they are likely to occur is an adequate alternative. The Planning Inspectorate are requested to confirm to AW that overall BNG based on habitat	The LERMP (Appendix 8.14, App Doc Ref: 5.4.8.14) has been developed to account for the findings of the baseline surveys completed in relation to the Proposed Development. The location and types of habitats and features within the LERMP has expressly sought to maximise features of interest and promote the expansion of habitat suitable for invertebrates. The Defra Metric 3.0 has been applied to the Proposed Development and the process is reported in the BNG

ID	Consultee	Points raised	Response
		creation should not be at the expense of the existing Rare and Vulnerable species and the locations at which they have been found.	Assessment Report (Appendix 8.13, App Doc Ref: 5.4.8.13). This method takes into account the distinctiveness and condition of existing features within the Order Limits for which the assessment is completed.
N/A	Fen Ditton Parish Council	Clause 8.9.5 Table 8-11 describes the ecological receptors to be scoped out. FDPC requests the Planning Inspectorate to direct that Anglesey Abbey is scoped in due to the potential hydrological or ecological pathway provided by Quy Water.	The connectivity between Anglesey Abbey CWS and the Wicken Fen Vision Area from the site have been considered in relation to the bat flight and usage information obtained during the 2022 season. These areas themselves have not been surveyed, however it is recognised that the proposed works areas are within flight range for the bat species found at these sites. The Proposed Development is approximately 1km from Quy water at its closest location, hydrological connectivity is discussed in Chapter 20: Water resources. The study area considered for the water resources assessment extends east as far as Quy Water. Anglesey Abbey CWS is located on the eastern bank of Quy Water and is just outside the study area. Within Chapter 20: Water resources Section 3.1 (Current baseline) indicates that the most southerly part of the landscape masterplan area may drain towards Quy Water. However, within Chapter 20: Water resources Section 4.1 (Construction phase) and Section 4.2 (Operation phase), no significant surface water or groundwater impacts have been identified for Quy Water as a result of the Proposed Development, and therefore Anglesey Abbey CWS remains scoped out. Quy Water and Bottisham Lode are included as a Water Framework Directive WFD water body within the WFD Assessment (Appendix 20.3, App Doc Ref: 5.4.20.3).
N/A	Fen Ditton Parish Council	The Scoping does not reference BNG (BNG) whereas the Environment Bill has now received Royal Assent and therefore there should be a 10% BNG from development.	BNG of a percentage in excess of 20% has been achieved for area and linear based habitats (hedgerow) through maximising opportunity for biodiversity within the area of land required for the landscape masterplan. The river units gain is more challenging through on-site measures

ID	Consultee	Points raised	Response
			and the Applicant has committed to achieving a minimum of 10%. The means of achieving the gain in river units are yet to be decided and are expected to be through a combination of on and offsite measures. The application includes a BNG Assessment Report (Appendix 8.13, App Doc Ref: 5.4.8.13).
N/A	MOD	Within this zone, the principal concern of the MOD is that the creation of new habitats may attract and support populations of large and or flocking birds close to an aerodrome. In light of the development falling within the above Statutory Safeguarding Zones, precise detail will be required at Pre-Planning, Full Planning/Reserve Matters stages relating to the exact location co-ordinates in easting and northing format, the elevations of any infrastructure and specific detail regarding any landscaping scheme in order to carry out the required assessment.	The Applicant has included an outline Wildlife Hazard Management Plan within the application (Appendix 8.18, App Doc Ref: 5.4.8.18) The landscaping proposals are included within the LERMP (Appendix 8.14, App Doc Ref:5.4.8.14)
N/A	Natural England	Natural England advises that the potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement should be included within this assessment in accordance with appropriate guidance on such matters. Guidelines for Ecological Impact Assessment (EcIA) have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) and are available on their website. The proposed assessment methodology set out in Section 8.11 of the EIA Scoping appears to meet these requirements. We welcome that reference will be made to Natural England standing advice.	The assessment has considered relevant features of nature conservation interest and impacts to these are reported in Section 4. The assessment has followed the CIEEM guidance (CIEEM, 2018)
N/A	Natural England	We welcome the Applicant's commitment to undertake HRA in accordance with the above advice as set out within sections 8.9.10 – 8.9.13 of the EIA Scoping report.	The application includes an HRA Report (Appendix 8.16, App Doc Ref: 5.4.8.16).
N/A	Natural England	No air quality impacts are anticipated during operation. Combustion has been scoped out of the assessment since the plant is <20MW energy input; however, Natural England welcomes that this will be assessed through the HRA and EIA. Our advice is that assessment should also demonstrate that there will be no adverse impact associated with anaerobic digestion.	The application includes an HRA Report (Appendix 8.16, App Doc Ref 5.4.8.16) which addresses the issue of air quality effects on designated sites.

ID	Consultee	Points raised	Response
N/A	Natural England	New or enhanced public access opportunities may have the potential for recreational pressure impacts to sites such as Stow-cum-Quy Fen SSSI (and a number of locally designated wildlife sites). Natural England has recently noted evidence of the damaging effects of visitor pressure on sensitive habitats within the SSSI. Wet ground conditions significantly exacerbate visitor impacts to SSSI habitats. As with many other publicly accessible sites, visitor numbers to this attractive Fen site have increased notably through the Covid pandemic. Bespoke visitor surveys could help to identify the likely increase in visitors, and potential impacts to the SSSI, associated with any access enhancements through the Proposed Development; however, these will require significant survey effort, by specialist consultants, to provide robust and representative data to inform an assessment of impacts and identification of appropriate mitigation. Alternatively, there is an opportunity here to create a new area/s of multifunctional accessible green space, as part of the Applicant's proposals to enhance public access. Section 8.8.29 of the EIA Scoping report indicates that potential adverse impacts should be avoided through measures such as diverting pressure elsewhere (signage and interpretation), creating alternative accessible greenspace, and or buffering and enhancing the resilience of these designated sites. Natural England's advice is that appropriately designed and managed 'alternative natural greenspace 'could provide a new destination for visitors which could help to intercept and divert additional pressure away from more sensitive sites. The incorporation of high quality habitat creation would provide range of ecosystem services and will benefit people and wildlife; this could help to buffer and enhance the resilience of the SSSI and achieve the Applicant's aspiration to contribute towards delivery of the Cambridge Nature Network and the National Trust's Wicken Fen Vision. Natural England will be pleased to engage with the Applicant on the development of a suitable mitigation and enhancement scheme.	Recreational user counts have been completed and are included in the application (Appendix 19.4, App Doc Ref 5.4.19.4). The LERMP and associated landscape masterplan serve multiple purposes including the provision of an accessible open space with enhanced biodiversity value. The LERMP formalises access to the land intended to re-establish the access currently enjoyed by people I the local community. There is no additional parking provided as part of the landscape masterplan. The Applicant intends to monitor use of the landscaped area and use the acquired data to adaptively manage the area. It intends to continue to work in partnership with parties that have a local interest in biodiversity including user pressure on ecological features on interest.
N/A	Natural England	No air quality impacts are anticipated during operation. Combustion has been scoped out of the assessment since the plant is <20MW energy input; however, Natural England welcomes that this will be assessed	The potential impact of changes to air quality is considered within the HRA report. The application

ID	Consultee	Points raised	Response
		through the HRA and EIA. Our advice is that assessment should also demonstrate that there will be no adverse impact associated with anaerobic digestion.	includes an HRA Report (Appendix 8.16, App Doc Ref: 5.4.8.16).
N/A	Natural England	Natural England is satisfied with those ecological features scoped out of the assessment, detailed in Section 8.9.5 and Table 8-11 of the Report. This includes Newmarket Heath SSSI on the basis of no hydrological or ecological pathways for impact. We note that Great Wilbraham Common and Fulbourn Fen SSSIs are identified within Table 8-6 as being within the study area although they are not considered further in the report. We trust that further consideration will be given to potential impacts to these sites within the ES.	Great Wilbraham Common and Fulbourn Fen SSSIs are included in the baseline in Table 3-2~~Table 3-2~~ . These sites are not taken forward into the detailed assessment and the rationale for this is provided in paragraph 3.1.9.
N/A	Natural England	The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats). Natural England does not hold comprehensive information regarding the locations of species protected by law but advises on the procedures and legislation relevant to such species. Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment.	Section 4 of this chapter assesses the construction and operation and maintenance phase of the Proposed Development. The data sources referred to are detailed within section 2.4 Temporal scope of assessment Construction For the assessment, these effects will be taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2 Project Description. The assumed assessment years for construction are from Year 1 to Year 4 (currently assumed to be 2024 until 2028). Operation and maintenance For the assessment, these are the effects that start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and

ID	Consultee	Points raised	Response
			maintenance, including the permanent change in land use. The assessment of operational effects in general considers the will be the first full 12 months of operation (excluding any commissioning period for the proposed WWTP as this is part of the Construction Phase). The assessment of operational effects in relation to established vegetation e.g. woodland vegetation considers year 15 of operation, currently assumed as 2042-43 although it is recognised that trees would likely be more biodiverse with age, and screening effects. In relation to the consideration of in relation to water quality and impacts to the River Cam, year 7 of operation (phase 2 of permit), currently assumed as 2036 (assumes operating at peak capacity as a worst case) is considered. Duration of effects Timescales associated with these effects, regardless of phase are as follows: short-term – endures for up to a period of 12 months; medium-term – endures for between 1 and 5 years; long-term – endures for between 5 and 15 years; and permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. should ancient woodland be permanently removed during construction). Baseline study~~Temporal scope of assessment~~ ~~Construction~~ ~~For the assessment, these effects will be taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2 Project Description.~~

ID	Consultee	Points raised	Response
			~~The assumed assessment years for construction are from Year 1 to Year 4 (currently assumed to be 2024 until 2028).~~ ~~Operation and maintenance~~ ~~For the assessment, these are the effects that start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use.~~ ~~The assessment of operational effects in general considers the will be the first full 12 months of operation (excluding any commissioning period for the proposed WWTP as this is part of the Construction Phase). The assessment of operational effects in relation to established vegetation e.g. woodland vegetation considers year 15 of operation, currently assumed as 2042-43 although it is recognised that trees would likely be more biodiverse with age, and screening effects.~~ ~~In relation to the consideration of in relation to water quality and impacts to the River Cam, year 7 of operation (phase 2 of permit), currently assumed as 2036 (assumes operating at peak capacity as a worst case) is considered.~~ ~~Duration of effects~~ ~~Timescales associated with these effects, regardless of phase are as follows:~~ ~~short-term – endures for up to a period of 12 months;~~ ~~medium-term – endures for between 1 and 5 years;~~ ~~long-term – endures for between 5 and 15 years; and~~

ID	Consultee	Points raised	Response
			~~permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. should ancient woodland be permanently removed during construction).~~ ~~Baseline study~~: The assessment has considered relevant features of nature conservation interest and impacts to these are reported in Section 4. The assessment has followed the CIEEM guidance (CIEEM, 2018)
N/A	Natural England	Natural England has adopted standing advice for protected species which includes links to guidance on survey and mitigation. Where a species mitigation licence is required we recommend that full draft applications are submitted for Natural England's review at the pre-application stage. This will enable any licensing issues to be discussed and resolved early on so that Natural England is able to issue the Applicant with a 'Letter of No Impediment 'for submission at the application stage. Further information is available in the Planning Inspectorate's Advice Note 11, Annex C.	Draft licences or 'ghost licences' badger, bat and water vole are included within the Application (Appendix 8.21 (App Doc Ref: 5.4.8.21) Appendix 8.20 (App Doc Ref 5.4.8.20) and Appendix 8.22 (App Doc Ref 5.4.8.22) respectively.
N/A	Natural England	Government Circular 06/2005 states that Biodiversity Action Plan (BAP) species and habitats, 'are capable of being a material consideration...in the making of planning decisions'. Natural England therefore advises that survey, impact assessment and mitigation proposals for Habitats and Species of Principal Importance should be included in the ES. Consideration should also be given to those species and habitats included in the relevant Local BAP. Natural England advises that a habitat survey (equivalent to Phase 2) is carried out on the site to identify any important habitats present. In addition, ornithological, botanical and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present. The Environmental Statement should include details of: any historical data for the site affected by the proposal (e.g. from previous surveys); additional surveys carried out as part of this proposal;	The approach to surveys as agreed through the Biodiversity Technical Working Group is provided in the Technical Note (App Doc Ref 6.1). The baseline documents included as appendices to this chapter report on all surveys completed: • Breeding Bird Report (Appendix 8.4 App Doc Ref 5.4.8.4); • Great Crested Newt Report (Appendix 8.11, App Doc Ref 5.4.8.11); • Bat Report (Appendix 8.7, App Doc Ref 5.4.8.7); • Water Vole Report (Appendix 8.3 App Doc Ref 5.4.8.3); • Otter Report (Appendix 8.9, App Doc Ref 5.4.8.9);

ID	Consultee	Points raised	Response
		• the habitats and species present; • the status of these habitats and species (e.g. whether priority species or habitat); • the direct and indirect effects of the development upon those habitats and species; and full details of any mitigation or compensation that might be required.	• Terrestrial Invertebrate Report (Appendix 8.6, App Doc Ref 5.4.8.6); • Reptile Report (Appendix 8.5, App Doc Ref 5.4.8.5); • Confidential Badger Report (Appendix 8.8, 5.4.8.8); • Biodiversity Net Gain Report (Appendix 8.13, App Doc Ref 5.4.8.13): • Aquatic Report (Appendix 8.1, App Doc Ref 5.4.8.1); • Hedgerows (Appendix 8.2, App Doc Ref 5.4.8.2); and • National Vegetation Classification) (Appendix 8.10, App Doc Ref 5.4.8.10). The data sources referred to are detailed within section 2.4 Temporal scope of assessment Construction For the assessment, these effects will be taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2 Project Description. The assumed assessment years for construction are from Year 1 to Year 4 (currently assumed to be 2024 until 2028). Operation and maintenance For the assessment, these are the effects that start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use. The assessment of operational effects in general considers the will be the first full 12 months of operation

ID	Consultee	Points raised	Response
			(excluding any commissioning period for the proposed WWTP as this is part of the Construction Phase). The assessment of operational effects in relation to established vegetation e.g. woodland vegetation considers year 15 of operation, currently assumed as 2042-43 although it is recognised that trees would likely be more biodiverse with age, and screening effects. In relation to the consideration of in relation to water quality and impacts to the River Cam, year 7 of operation (phase 2 of permit), currently assumed as 2036 (assumes operating at peak capacity as a worst case) is considered. Duration of effects Timescales associated with these effects, regardless of phase are as follows: short-term – endures for up to a period of 12 months; medium-term – endures for between 1 and 5 years; long-term – endures for between 5 and 15 years; and permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. should ancient woodland be permanently removed during construction). Baseline study. The assessment has considered relevant features of nature conservation interest and impacts to these are reported in Section 4. The assessment has followed the CIEEM guidance (CIEEM, 2018). Section 05.2 sets out the mitigation that will be implemented as part of the Proposed Development.
N/A	Natural England	Natural England does not hold local information on local sites, local landscape character and local or national biodiversity priority habitats and species. We recommend that you seek further information from the appropriate bodies (which may include the local records centre, the local	The data sources referred to are detailed within section 2.4 Temporal scope of assessment Construction

ID	Consultee	Points raised	Response
		wildlife trust, local geo-conservation group or other recording society and a local landscape characterisation document).	For the assessment, these effects will be taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2 Project Description. The assumed assessment years for construction are from Year 1 to Year 4 (currently assumed to be 2024 until 2028). Operation and maintenance For the assessment, these are the effects that start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use. The assessment of operational effects in general considers the will be the first full 12 months of operation (excluding any commissioning period for the proposed WWTP as this is part of the Construction Phase). The assessment of operational effects in relation to established vegetation e.g. woodland vegetation considers year 15 of operation, currently assumed as 2042-43 although it is recognised that trees would likely be more biodiverse with age, and screening effects. In relation to the consideration of in relation to water quality and impacts to the River Cam, year 7 of operation (phase 2 of permit), currently assumed as 2036 (assumes operating at peak capacity as a worst case) is considered. Duration of effects Timescales associated with these effects, regardless of phase are as follows: short-term – endures for up to a period of 12 months;

ID	Consultee	Points raised	Response
			medium-term – endures for between 1 and 5 years; long-term – endures for between 5 and 15 years; and permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. should ancient woodland be permanently removed during construction). Baseline study~~Temporal scope of assessment~~ ~~Construction~~ ~~For the assessment, these effects will be taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2 Project Description.~~ ~~The assumed assessment years for construction are from Year 1 to Year 4 (currently assumed to be 2024 until 2028).~~ ~~Operation and maintenance~~ ~~For the assessment, these are the effects that start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use.~~ ~~The assessment of operational effects in general considers the will be the first full 12 months of operation (excluding any commissioning period for the proposed WWTP as this is part of the Construction Phase). The assessment of operational effects in relation to established vegetation e.g. woodland vegetation considers year 15 of operation, currently assumed as 2042-43 although it is recognised that trees would likely be more biodiverse with age, and screening effects.~~

ID	Consultee	Points raised	Response
			~~In relation to the consideration of in relation to water quality and impacts to the River Cam, year 7 of operation (phase 2 of permit), currently assumed as 2036 (assumes operating at peak capacity as a worst case) is considered.~~ ~~Duration of effects~~ ~~Timescales associated with these effects, regardless of phase are as follows:~~ ~~short-term – endures for up to a period of 12 months;~~ ~~medium-term – endures for between 1 and 5 years;~~ ~~long-term – endures for between 5 and 15 years; and~~ ~~permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. should ancient woodland be permanently removed during construction).~~ ~~Baseline study~~. The assessment has considered relevant features of nature conservation interest and impacts to these are reported in Section 4. The assessment has followed the CIEEM guidance (CIEEM, 2018). Section 0 2.9 sets out the mitigation that will be implemented as part of the Proposed Development.

Technical Working Groups

1.5.2 Table 1-4 provides a summary of key points raised during engagement with Technical Working Groups.

Table 1-4 Key points raised during engagement with Technical Working Groups

Date	Consultee	Points raised	How and where addressed
March 2021	Natural England, Cambridgeshire County Council, The National Trust, The Wildlife Trust	Terrestrial invertebrate scoping assessment discussed and stakeholders confirmed that white-clawed crayfish are absent from the survey area. Update on the 2021 ecology surveys.	White-clawed crayfish scoped out of further assessment within this Biodiversity Chapter due to confirmed absence within study area. The Baseline Survey Technical Note (Appendix 8.12, App Doc Ref 5.4.8.12), which sets out the proposed approach with regards to

Date	Consultee	Points raised	How and where addressed
			the ecology surveys that were completed in 2021 to provide the baseline information to support the ES was provided to the Technical Working Group.
May 2021	Cambridge Airport Operators	Habitat creation and attracting certain bird species/assemblages at risk of bird strike.	Information regarding increase in bird assemblages is addressed in Section 4 (Assessment of Effects) of this chapter. This information has been used to draw up a wildlife hazard management plan which assesses the potential for adverse impact during construction works. An outline Wildlife Hazard Management Plan is provided in Appendix 8.18 (App Doc Ref 5.4.8.18).
June 2021	Natural England, Cambridgeshire County Council, The National Trust, The Wildlife Trust, The Environment Agency, Greater Cambridgeshire Shared Planning	Request for arable weeds to be covered within survey work. Need to consider how Rights of Way could impact wildlife and habitats.	An arable weeds survey has been undertaken alongside a National Vegetation Survey (NVC) (Appendix 8.10, App Doc Ref) 5.4.8.10). The impacts of the newly created pathways and a bridleway are considered in Section 4 (Assessment of Effects) of this chapter.
August 2021	Natural England, Cambridgeshire County Council, The National Trust, Greater Cambridgeshire Shared Planning	Brief on proposed approach to EIA Scoping Report, receptors scoped in and out, assessment methodologies. Natural England raised concern within Phase Two Consultation around recreational pressure and impacts on Stow-cum-Quy Fen SSSI. Mitigation considerations discussed within the Technical Working Group.	Increased visitor footfall and recreational pressure within Stow-cum-Quy Fen SSSI could result in an increase in effects such as vegetation trampling, soil compaction and littering resulting in impacts on the grassland and aquatic features the SSSI is designated for. These impacts are addressed within Section 4 (Assessment of Effects,) with detail on measures to reduce recreational pressure included within the LERMP.
November 2021	Technical Working Group consultees	Comments regarding EIA Scoping Report. Update on PEI structure and mitigation options.	Mitigation options were discussed and addressed within the outline CoCP document Part A included at PEI/Phase Three Consultation. These have now been updated and are included within the CoCP Part A and B (Appendix 2.1 and 2.1, App Doc Ref 5.4.2.1 and 5.4.2.2).

Date	Consultee	Points raised	How and where addressed
February 2022	Natural England, National Trust, Cambridgeshire County Council, The Wildlife Trust, Environment Agency, Greater Cambridgeshire Shared Planning	BNG Update. Phase Three consultation proposals and PEIR.	BNG calculations are outlined in detail in the BNG Report (Appendix 8.13, App Doc Ref 5.4.8.13). Positive impacts through landscape and ecology design promoted and addressed within this chapter and supported by the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14)

Statutory s42 consultation

1.5.3 Table 1-5 provides a summary of key points raised during statutory s42 consultation.

Table 1-5 Key points raised during statutory s42 consultation

Date	Consultee	Points raised	How and where addressed
27/04/2022	National Trust	Generally supportive of the proposals for enhanced access through paths and green space, linear routes. Recognise enhancement of public access aligns with the Wicken Fen Vision. The proposed new bridleway access is very welcome. Requested that the cycle route has better connection with Anglesey Abbey. The trust welcomes the opportunity to explore this outside of this project. View that the 3.5km route could encourage antisocial behaviour and that barrier should be considered in this regard.	These points are considered within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) which provides detail on the recreational access, and use of planting and fencing as barriers to access to mitigate unwanted human access to sensitive areas.
27/04/2022	National Trust	Opportunities should be sought to contribute to the Nature Recovery Network and green infrastructure.	Measures proposed for landscaping within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) support the Nature Recovery Network with new and enhanced vegetated areas supporting local species in their movements in the local area.
27/04/2022	National Trust	The potential future pressure on Stow-cum-Quy Fen SSSI should be assessed.	Section 4 (Assessment of Effects) of this chapter assesses potential impacts to Stow-cum-Quy Fen SSSI.
27/04/2022	Natural England	The HRA should be updated to consider the effects of the Proposed Development on the Ouse Washes SAC, SPA, Ramsar site	The HRA Report (Appendix 8.16, App Doc Ref 5.4.8.16) includes an assessment of the Ouse Washes SAC, SPA and Ramsar site.

Date	Consultee	Points raised	How and where addressed
		through any changes in flows and sediment load in the River Great Ouse system associated with the final effluent discharges.	
27/04/2022	Natural England	Noted that the initial modelling of fluvial flows indicated that increased final treated effluent discharges due to population growth will have a negligible impact on the flows and water levels of the River Cam. This should be confirmed through the updated fluvial models, factoring in the effects of cessation of the final effluent discharge from the Waterbeach WRC.	The updated fluvial model report is provided in Appendix 20.5 (App Doc Ref 5.4.20.5) The flows from Waterbeach WRC would be passed to the proposed WWTP for treatment and are factored into the estimated treated effluent flow volumes considered in the model.
27/04/2022	Natural England	The need for further assessment to consider: Air quality effects for Devil's Dyke SAC associated with emissions to air from vehicles, construction plant and on-site combustion. Hydrological effects through changes in water quantity or quality for Wicken Fen Ramsar site/ Fenland SAC, and The Wash and North Norfolk Coast SAC, The Wash SPA and The Wash Ramsar site. The HRA screening should be updated to include an assessment of likely significant effect for the Ouse Washes SAC, SPA and Ramsar site. The HRA screening stage should then be concluded, and further assessment progressed through the Appropriate Assessment.	The HRA Report (Appendix 8.16, App Doc Ref 5.4.8.16) includes assessment of these matters.
27/04/2022	Natural England	The Ouse Washes SPA, SAC, Ramsar site and SSSI should be included within the HRA. Eversden and Wimpole Woods SAC should also be included. The HRA conclusions for these and other habitat sites should be presented in the Biodiversity ES chapter.	The HRA Report (Appendix 8.16, App Doc Ref 5.4.8.16) includes assessment of these sites.
27/04/2022	Natural England	Landscaping plans support the view that enhancements could increase visitor footfall and recreational pressures within Stow-cum-Quy Fen SSSI and to Low Fen Drove CWS. The proposed mitigation measures set out in the LERMP underplay the severity of current visitor pressure at Stow-cum-Quy Fen SSSI and the likely combined effects of future development on this site and the wider area.	The LERMP intends to formalise how people are already using the land required for the proposed WWTP and is not designed to encourage intensification of use. Existing use within the study area is supported by recreational user counts (reported in 'Recreational User Counts Appendix 19.4, App Doc Ref 5.4.19.4). These data are considered when assessing potential user effects.

Date	Consultee	Points raised	How and where addressed
			Cumulative effects are reported in Chapter 22: Cumulative Effects.
27/04/2022	Natural England	The Proposed Development should take a collaborative approach, in partnership with relevant developers and other stakeholders, to fully explore opportunities for delivery of strategic landscape scale enhancements that will contribute towards the Nature Recovery Network and the Strategic Green Infrastructure Initiatives of the emerging Greater Cambridge Local Plan. Together with the National Trust we have identified potential opportunities between the development site, SSSIs, CWSs, Anglesey Abbey and the Wicken Vision Area for these developments to deliver greater benefits for wildlife, people and climate change, including mitigating the adverse effects of recreational pressure on more sensitive sites.	Measures proposed for landscaping within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) support the Nature Recovery Network with new and enhanced vegetated areas supporting local species in their movements in the local area.
27/04/2022	Natural England	Regard that the Proposed Development presents a major opportunity to create a new area/s of multifunctional accessible green space, as part of the Applicant's proposals to enhance public access. Advised that this should be an appropriately designed and managed 'alternative natural greenspace' that could provide a new destination for visitors which could help to intercept and divert additional pressure away from more sensitive sites.	These points are considered within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) which provides further information on the recreational access.
27/04/2022	Natural England	A commitment by Anglian Water to contribute towards a strategic approach could support the findings of the ES. Alternatively, bespoke visitor surveys should be undertaken to inform the assessment of recreational pressure impacts through the ES. These will need to assess the likely increase in visitors, and potential effects on the SSSI, associated with the Proposed Development, in combination with adjacent development. Surveys will need to be undertaken by specialist consultants to ensure a robust and rigorous assessment of visitor impacts and mitigation requirements underpinned by comprehensive and representative data.	The LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) is intended to formalise the use of the area of land required for the proposed WWTP and therefore maintain the recreational use level in the local area. User counts have been completed to understand the types of activities and visitor numbers using the local area. These are reported in Chapter 11: Community.

Date	Consultee	Points raised	How and where addressed
27/04/2022	Natural England	Advised that potential impacts on the ecology of Anglesey Abbey CWS and the Wicken Fen Vision Area should also be assessed through the ES. These sites species including bats. The Proposed Development has the potential to impact on these features particularly through recreational pressure, and potentially hydrology, air quality and lighting.	The connectivity between Anglesey Abbey CWS and the Wicken Fen Vision Area from the site have been considered in relation to the bat flight and usage information obtained during the 2022 season. These areas themselves have not been surveyed, however it is recognised that the proposed works areas are within flight range for the bat species found at these sites.
27/04/2022	Natural England	Natural England is generally satisfied with the preliminary findings of the air quality assessment subject to detailed modelling and assessment confirming the initial findings through the ES and detailed mitigation measures being agreed and secured through DCO requirements. The detailed air quality assessment will need to inform the updated HRA and the ES with regard to impacts on Devil's Dyke SAC.	The HRA Report (Appendix 8.16, App Doc Ref 5.4.8.16) includes assessment of these matters.
27/04/2022	Natural England	The ES should provide a rationale for scoping out potential effects on designated sites within the zone of influence of the Proposed Development, such as air quality impacts to Wilbraham Fen and Stow-cum-Quy Fen SSSI.	Section 2.8 (Impacts scoped out of assessment) of this chapter provides a rationale for sites scoped out of the assessment. Changes to water quality downstream of the outfall (such as temperature changes and dissolved oxygen) are assessed in Chapter 20: Water Resources. Key outputs from Chapter 20: Water Resources have then been used to inform the ecological assessment (paragraph 4.1.13).
27/04/2022	Cambridgeshire County Council	Consideration should be given to how the Proposed Development will impact water quality (river flows, deposition etc.) of the River Cam County Wildlife Sites and the 'knock on' impact on wildlife site downstream, including the Ouse Washes SSSI/Ramsar/SAC/SPA. For European sites, this will need to be adequately addressed in the Habitats Regulations Assessment.	SAC, SPA and Ramsar sites are assessed in the HRA Report (Appendix 8.16, App Doc Ref 5.4.8.16). SSSI locations are not European sites and not required to be covered by the Habitats Regulations Assessment. Impacts to statutory designations are assessed in paragraph 4.1.3 of this chapter. Changes to water quality downstream of the outfall (such as temperature changes and dissolved oxygen) are assessed in Chapter 20: Water Resources. Key outputs

Date	Consultee	Points raised	How and where addressed
			from Chapter: 20 Water Resources have then been used to inform the ecological assessment (paragraph 4.1.3).
27/04/2022	Cambridgeshire County Council	Impacts to the floodplain grazing marsh must be avoided, or if this is not possible mitigated. We welcome the proposed usage of directional drilling. However, Horizontal Directional Drilling (HDD) is not confirmed for this area within the Working Areas During Construction (page 13, PEI: Introduction). Details of how temporary loss of floodplain grazing marsh will be restored, should be included within the landscape masterplan etc.	Floodplain grazing marsh would not be impacted on the basis that the selected construction methods (trenchless techniques) in this location avoid this habitat.
27/04/2022	Cambridgeshire County Council	Bat survey work provided within the PEI: Bat Survey Data report doesn't cover the entire scheme. Advised that a comprehensive assessment of the entire route has been undertaken to determine the impact on bats. Details of the proposed lighting scheme for both the construction and operational phase should be submitted as part of the DCO application. It should be designed to minimise impact to bats – wherever possible, lighting should be avoided. The lighting scheme should follow the Institution of Lighting Professional/Bat Conservation Trust's Bats and artificial lighting guidance note ((Institution of Lighting Professionals, 2023). The Council would welcome further stakeholder engagement on this topic, prior to DCO submission.	The ecological surveys continued into the 2022 season to provide full coverage of the northern elements of the Proposed Development. Chapter 2: Project Description describes the lighting approach to be used within the Proposed Development. The CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) sets out measures to minimise lighting impacts during construction.
27/04/2022	Cambridgeshire County Council	The route of the pipelines should be designed to minimise impact to water voles by avoiding damage to their burrows. Water vole mitigation habitat should be installed and established prior to proposed displacement.	Impacts to water vole will be managed through a Conservation/Class licence with all mitigation to be agreed with Natural England. Mitigation measures include use of HDD to minimise direct impacts on the River Cam and compensation ditch creation. The CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) sets out measures to minimise impacts on protected species and habitats during the construction phase.

Date	Consultee	Points raised	How and where addressed
27/04/2022	Cambridgeshire County Council	Badger information is not publicly accessible - we asked that we receive a copy of the badger data.	Confidential copies of the badger survey results will be provided upon request.
27/04/2022	Cambridgeshire County Council	GCN eDNA "results returned back negative indications for the presence of GCN", however this does not accurately reflect the PEI: eDNA GCN report which says the eDNA was not conclusive at waterbodies PD008 and WB114**.** These two waterbodies should be re-surveyed. In addition, the PEI: eDNA GCN report identifies a number of ditches were not surveyed due to safety reasons, but it may be possible to survey these ditches if planned at an appropriate time (e.g. earlier in the season or if livestock were removed). Therefore, update surveys for these ditches should be undertaken.	An updated eDNA survey of the inconclusive waterbody PD008 was undertaken in 2022, in addition to WB158 and WB159. WB114 was not holding water at the time of the survey and so could not be sampled. WB158 and WB159 returned a negative result. PD008 results returned as inconclusive again due to the presence of white precipitate.
27/04/2022	Cambridgeshire County Council	The high number of common lizards recorded along the Waterbeach pipeline is surprising (but reflective of findings at Waterbeach barracks). All efforts must be undertaken to protect this population and avoid any habitat loss or severance and therefore, welcome proposals for directional drilling under this area. However, HDD is not confirmed for this area within the Working Areas During Construction - Water beach Pipeline Route (page 12, PEI: Introduction).	Impacts to reptiles are assessed in Section 4 (Assessment of Effects) of this chapter. To prevent impacts to reptile populations a separate reptile mitigation strategy would be prepared and agreed with the CCC ecologist prior to construction. The broad measures to be adopted are included within the COCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1).
27/04/2022	Cambridgeshire County Council	Opportunities in design and management should be taken to improve terrestrial invertebrates, arable plants, fish passage and spawning grounds, macroinvertebrates and macrophytes. The Construction Environmental Management Plan (CEMP) must ensure it includes bio-security measures to avoid spread of invasive species.	The CoCP Part A and B (Appendix 2.1 and 2.2 and App Doc Ref 5.4.2.1 and App Doc Ref 5.4.2.2) sets out measures in relation to the control of invasive non-native species.
27/04/2022	Cambridgeshire County Council	Impact to aquatic species (e.g. fish, macroinvertebrates etc) associated with changes to water quality during construction of new outfall / bank stabilisation works.	The CoCP Part A and B (Appendix 2.1 and 2.2 and App Doc Ref 5.4.2.1 and App Doc Ref 5.4.2.2) sets out measures in relation to the control of outfall works. These works will also be subject to a separate environmental permit from the Environment Agency and a separate permit from the Conservancy. The works will be

Date	Consultee	Points raised	How and where addressed
			carried out in accordance with measures agreed within these permits.

Statutory s47 local community consultation

1.5.4 The Consultation Report (App Doc Ref 6.1) describes the consultation process that CWWTPR has followed, and the Consultation Report Appendices (Appendix 6.1.1 – 6.1.34, App Doc Refs 6.1.1 – App Doc Ref 6.1.34) details the responses to all comments made during this consultation. Matters raised in relevance to biodiversity include:

- consideration of nesting skylarks in the assessment;
- reference to BNG and the percentage gain the project is achieving (20%) and request for information on how this will be achieved this;
- provisions for long term maintenance of the wetland, grazing marsh, native hedgerow infilling and meadow grassland;
- spread of invasive species including aquatic species;
- potential for increased footfall beyond the landscape area and effects to Stow cum Quy SSSI;
- construction impacts on mammal species using the area (including deer) and disruption to their habitats ; and
- mitigation in respect of Low Fen Drove Way Grasslands and Hedges CWS.

1.5.5 These matters are addressed within this chapter.

2 Assessment Approach

2.1 Guidance

2.1.1 The following guidance has been followed within this chapter:

- British Standards (BS) 42020:2013 Biodiversity. Code of practice for planning and development (British Standards Institute, 2013);
- Guidelines for Environmental Impact Assessment (EIA): Appendix A (IEMA, 2016);
- Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland 2018 (CIEEM, 2018);
- Biodiversity Net Gain: Good Practice Principles for Development. A Practical Guide (CIEEM, IEMA, CIRIA, 2019); and
- Standard Advice for Protected Species from Natural England (Natural England and DEFRA, 2022).

2.1.2 Species-specific guidance is referred to in the relevant sections of this document.

2.2 Assessment methodology

2.2.1 The general approach to assessment is described in Chapter 5: EIA Methodology.

2.2.2 Following the preliminary assessment of the likely significant effects of the Proposed Development, any further mitigation measures (secondary mitigation) are identified and described. These mitigation measures would further reduce an adverse effect or enhance a beneficial one. The assessment of likely significant effects is then carried out taking into account the identified secondary mitigation measures to identify the 'residual' environmental effects.

2.2.3 The scope of this assessment has been established through the formal EIA scoping process with the planning inspectorate. A request for an EIA scoping opinion was made in 2021 see 'Scoping Report' Appendix 4.2 (App Doc Ref 5.4.4.2) of the ES. The points raised at scoping and how they are addressed are provided in Section 1.5.

2.2.4 The assessment carried out has been completed using the CIEEM guidance (CIEEM, 2018) and within a framework consistent across all Chapters within this Environmental Statement in order for effective understanding across and between disciplines.

2.2.5 This section provides specific details of the biodiversity methodology applied to the assessment of the Proposed Development.

Impact assessment criteria

2.2.6 The significance of an effect is determined based on the magnitude of an impact and the sensitivity of the receptor affected by the impact of that magnitude. This section describes the criteria applied in this chapter to characterise the magnitude of potential impacts and sensitivity of receptors. The terms used to define magnitude and sensitivity are based on CIEEM guidance (CIEEM, 2018). The assessment criteria used to assess the potential effects on Biodiversity arising from the Proposed Development differs from the generic EIA methodology and are described below.

2.2.7 Each ecological receptor is considered in terms of the following characteristics:

- Whether or not the impact is positive or negative upon the status of the species or habitat.
- The spatial extent of the effect and impact.
- The magnitude (e.g. size, amount, intensity or volume) of the impact.
- The duration of the effect and impact, in ecologically relevant timescales.
- The timing and/or frequency of the effect or impact.
- Whether or not the impact is reversible.

2.2.8 The terminology used to define the magnitude, sensitivity and significance are discussed in line with the terms used in the other Chapters, for consistency and ease of reading. These terms have been assigned as outlined below in Table 2-1~~Table 2-1~~, Table 2-2 and Table 2-3, with criteria based on CIEEM (2018) guidance.

Magnitude of impact

2.2.9 The criteria for defining magnitude for the assessment of impacts to biodiversity are defined within in Table 2-1~~Table 2-1~~.

Table 2-1: Impact magnitude criteria

Magnitude of impact	Criteria	Examples
Negligible	No change to the integrity of the receptor	No impact on habitats, species, or protected sites through activity undertaken, with effective barriers in place to prevent such impacts occurring.
Minor	Adverse: noticeable change in attributes, quality or vulnerability.	Temporary damage to a locally designated site which is able to recover soon after cessation of damaging activity, with no loss of overall integrity of the site. Partial damage to a habitat, which allows continued functionality of the rest of the habitat. Short-term behavioural changes in more tolerant species (i.e. species able to show behavioural plasticity) patterns of activity, which are able to revert to behaviours demonstrated prior to activity.

Magnitude of impact	Criteria	Examples
	Beneficial: very minor improvement to attribute quality.	Improvements over a long time period to habitat quality through management processes. Installation of sensitive measures such as lighting, which improves upon existing levels.
Moderate	Adverse: measurable changes in attributes, quality or vulnerability such as loss or decrease.	Temporary damage to a site of national importance, which is able to recover within a short time (i.e. within 5 years) after cessation of activity. Decline in species abundance and diversity from baseline levels. Permanent loss or damage to a locally designated site.
	Beneficial: minor or moderate improvement to attribute quality.	Increase in species diversity or habitat quality through a change in management, or new planting. Introduction of enhancement measures for more common species use.
Major	Adverse: loss of resource and/or integrity of the resource; severe damage to key characteristics or features. Permanent change.	Permanent loss of priority or protected species through loss of habitat, habitat fragmentation or disturbance. Permanent loss or damage to priority or protected habitats, or the integrity of these. Permanent loss of habitats or resources within a site of national importance.
	Beneficial: large scale improvement or addition of resource or features; extensive restoration or enhancement.	Significant and widespread habitat restoration and enhancement providing new connectivity for a range of species, and with sensitive planting schedules of native species. Multiple habitats created or restored with management in place to promote long-term (over 25 years) success. Consideration of long-term resilience within planting scheme, to promote long-term success. Measurable improvements in diversity and habitat quality in the short, medium and long term.

2.2.10 For designated sites, impacts have been considered major when the Proposed Development affects the integrity of the site in terms of the coherence of its ecological structure and function or the impact on the site is likely to be major in terms of its ecological objectives.

2.2.11 For habitats, impacts have been considered major when the Proposed Development results in a change in extent, structure and function, that reduces its ability to sustain the habitat, complex of habitats and/or the population levels of species of interest within a given geographical area.

2.2.12 For species, impacts are considered moderate and above when the Proposed Development affects the conservation status, abundance, and distribution of the species within a given geographical area.

Sensitivity of receptor

2.2.13 The criteria for defining receptor sensitivity for the assessment of impacts to biodiversity are defined within in Table 2-2. Any receptor feature with less than district level importance or less than local level conservation importance is considered to have negligible sensitivity in this context.

Table 2-2 Sensitivity of receptors

Sensitivity	Criteria
Low	A feature of importance at district (Local Authority or local) level: • A feature (e.g., habitat or population) that is of nature conservation importance in a local context only, with insufficient value to merit a formal nature conservation designation.
Medium	A feature (e.g., habitat or population) which is to be considered as being of nature conservation importance from a county to regional level: • Habitats or species that form the cited interest for a non-statutory site (e.g., LNR, Local Wildlife Site (LWS) etc.). Presence of LBAP habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected.
High	A feature (e.g., habitat or population) which is to be considered as being of nature conservation importance at a national level: • Habitats or species that form part of the citied interest within a nationally designated site (e.g., SSSI, National Nature Reserve (NNR) etc.): • A feature (e.g., habitat or population) which is to be considered as being of the highest quality examples in a national context. Presence of UKBAP habitats or species, where the action plan states that all areas of representative habitat or individuals of the species should be protected.
Very high	A feature (e.g., habitat or population) which is to be considered as being of nature conservation importance at an international level: • Habitats or species that form part of the citied interest within an internationally designated site (e.g., Ramsar, SPA etc.). • A feature (e.g., habitat or population) which is to be considered as being of the highest quality examples in an international context.

Significance of effect

2.2.14 CIEEM's guidelines describe a significant effect for the purpose of EcIA, as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

2.2.15 A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or

ecosystems and the conservation status of habitats and species (including extent, abundance and distribution), and can be a positive or negative ecological effect.

2.2.16 Once the geographic importance of ecological features (associated with sensitivity) has been defined and the likely impacts and their magnitude identified, the significance of these effects have been determined. For consistency with other chapters in terminology, significant impacts have been determined as being either beneficial (positive) or adverse (negative). Effects are considered unlikely to be significant where features of low importance or sensitivity are subject to minor or short-term impacts. However, where there are several minor impacts that are not significant alone, the assessor may have determined that, cumulatively, these may result in an overall significant impact.

2.2.17 The significance of the effect upon identified biodiversity receptors is determined by assigning an impact magnitude and sensitivity to the receptor. Table 2-3 sets out the significance matrix used to determine significant effects. Where a range of significance is presented, for example where there is a variable potential receptor response dependent on seasonality, the final assessment for each effect is based upon a conservative approach (worst case). This is based on professional judgement.

2.2.18 For the purpose of this assessment, any effects with a significance level of slight or less have been considered to be not significant.

Table 2-3: Significance of effects

Magnitude of impact	Sensitivity/Value of Receptor: Low	Medium	High	Very High
Negligible	Neutral Not significant	Neutral Not significant	Slight Not significant	Slight Not significant
Minor	Neutral Not significant	Slight Not significant	Slight Not Significant or Moderate Significant	Moderate Sgnificant
Moderate	Slight Not significant	Moderate Significant	Moderate Significant	Major Significant
Major	Slight Not significant	Moderate Significant	Major Significant	Major Significant

2.3 Study area

2.3.1 The study area is defined by the Ecological Zone of Influence (EZoI), which is the area in which ecological features (including habitats and species) may be affected by biophysical changes as a result of the Proposed Development (CIEEM, 2018). The EZoI is likely to extend beyond the Scheme Order Limits, for example where there are ecological or hydrological links beyond the Scheme Order Limits. The EZoI will

vary for different ecological features depending on their sensitivity to an environmental change.

2.3.2 The study area is based on the Scheme Order Limits, App Doc Ref: 4.1. The buffer zone is defined for each resource or receptor as follows and is shown in Table 2-4 below.

Table 2-4: Study area

Ecological resource or receptor	Study area
International statutory designated sites	International statutory designated sites such as Ramsar sites, SAC and SPA within 10km of the Scheme Order Limits or where hydrologically linked. The study area where bats are a qualifying feature within 30km of the Scheme Order Limits.
National statutory designated sites	Within 10km of the Scheme Order Limits or where hydrologically linked.
Non-statutory designated sites	Within 5km of the Scheme Order Limits or where hydrologically linked.
Habitats – ancient woodlands	Within 200m of the Scheme Order Limits.
Habitats – principal importance	Habitats of principal importance under S41 of the NERC Act (2006) within 100m of the Scheme Order Limits.
Habitats – ponds, ditches, lakes and River Cam	Within 100m of the Scheme Order Limits, or where downstream hydrological connectivity.
Habitats – River Habitat Survey (RHS) of the River Cam	500m survey reach centred on the proposed treated effluent discharge outfall to the River Cam.
Priority and protected species – desk study (local records centre data)	5km buffer around Scheme Order Limits.
Bats (Chiroptera) species – Preliminary bat roost assessments of structures/buildings and trees, dusk emergence and dawn re-entry surveys of potential roost features (PRF)	The surveys have been undertaken within the Scheme Order Limits plus 100m buffer.
Bats – activity transects	The transects have covered the proposed WWTP, the existing Cambridge WWTP and adjacent to the River Cam, including the treated effluent discharge outfall to the River Cam.
Bats – static detectors	Static bat detectors were deployed at four locations within the Scheme Order Limits.
Otter (*Lutra lutra)*	100m either side of the proposed treated effluent discharge outfall to the River Cam and along all other watercourses, ditches and ponds within the Scheme Order Limits plus an additional buffer of 50m.
GCN	Suitable ponds and ditches within 250m of the Scheme Order Limits.
Schedule 1 birds	Within 300m of the Scheme Order Limits.
Water vole (*Arvicola amphibius)*	100m either side of the proposed treated effluent discharge outfall to the River Cam and along all other watercourses, ditches and ponds within the Scheme Order Limits plus an additional buffer zone of 50m.
Reptiles	Five locations within the Scheme Order Limits.
Terrestrial invertebrates	Five locations within the Scheme Order Limits.

Ecological resource or receptor	Study area
Fish	100m buffer of the proposed treated effluent discharge outfall structure on the River Cam.
Aquatic macroinvertebrates	100m buffer of the proposed treated effluent discharge outfall to the River Cam and on ditches within 100m of the Scheme Order Limits.
Aquatic macrophytes	100m buffer of the proposed treated effluent discharge outfall to the River Cam and on ditches within 100m of the Scheme Order Limits.
Badger (*Meles meles*)	Within the Scheme Order Limits with an additional buffer zone of 100m.
National Vegetation Classification (NVC)	All priority habitats (deciduous woodland and coastal and floodplain grazing marsh), and the Low Fen Drove Grasslands and Hedges CWS within the proposed WWTP.
Hedgerows	All species-rich hedgerows within the Scheme Order Limits.

2.4 Temporal scope of assessment

Construction

2.4.1 For the assessment, these effects will be taken to be those for which the source begins and ends during the construction and commissioning stages prior to the proposed WWTP becoming fully operational as set out in Chapter 2 Project Description.

2.4.2 The assumed assessment years for construction are from Year 1 to Year 4 (currently assumed to be 2024 until 2028).

Operation and maintenance

2.4.3 For the assessment, these are the effects that start once the proposed WWTP is commissioned and fully operational and includes the effects of the physical presence of the infrastructure, its operation, use and maintenance, including the permanent change in land use.

2.4.1 The assessment of operational effects in general considers the will be the first full 12 months of operation (excluding any commissioning period for the proposed WWTP as this is part of the Construction Phase). The assessment of operational effects in relation to established vegetation e.g. woodland vegetation considers year 15 of operation, currently assumed as 2042-43 although it is recognised that trees would likely be more biodiverse with age, and screening effects.

2.4.2 In relation to the consideration of in relation to water quality and impacts to the River Cam, year 7 of operation (phase 2 of permit), currently assumed as 2036 (assumes operating at peak capacity as a worst case) is considered.

Duration of effects

2.4.3 Timescales associated with these effects, regardless of phase are as follows:

- short-term – endures for up to a period of 12 months;
- medium-term – endures for between 1 and 5 years;
- long-term – endures for between 5 and 15 years; and
- permanent effects – endures for more than 15 years and / or effects which cannot be reversed (e.g. should ancient woodland be permanently removed during construction).

2.5 Baseline study

Desktop study

2.5.1 Information on the resources and receptors identified above features has been accessed from a number of sources.

2.5.2 Baseline information within the biodiversity study area relating to the ecological resources and receptors identified in Table 2-4 was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 2-5.

Table 2-5: Desktop information sources

Item or feature	Year	Source
Biological records	2019, 2021	Cambridgeshire and Peterborough Environmental Records Centre (CPERC)
Statutory and non-statutory designations	2021	Multi Agency Geographic Information for the Countryside (MAGIC)
SSSI impact risk zones	2021	Multi Agency Geographic Information for the Countryside (MAGIC)
Citations and designation information for SACs, SPAs, Ramsar sites	2021	Joint Nature Conservation Committee JNCC
SSSI citation and designation information	2021	Natural England
Priority Habitat Inventory	2020	Natural England
Aerial photography at a scale of 1:25,000	2020	ESRI
Cambridgeshire and Peterborough Priority Species and Habitat Action Plans	2022 2007	Cambridgeshire and Peterborough Biodiversity Group JNCC
Local Priority Species List and Cambridgeshire and Peterborough Additional Species of Interest (CPASI)	2022	Cambridgeshire and Peterborough Biodiversity Group
Ordnance Survey (OS) mapping (at scales of 1:50,000 and 1:25,000)	2021	Ordnance Survey Licence Number 100022432
Bird populations and breeding bird information	2020	Bird Atlas 2007-11 and Bird Track

Item or feature	Year	Source
Cambridgeshire Rare Plant Register	2021	Botanical Society of Britain and Ireland

2.5.3 Results from a biological records search undertaken to obtain records of protected or notable species were from within a 5km radius of a central point (grid reference: TL 49740 61214) in land required for the construction of the proposed WWTP.

2.5.4 A data report from the British Trust of Ornithology (BTO) to summarise bird occurrence and breeding information from Bird Atlas 2007-11 and Bird Track in the 10km and 2km squares in which the Scheme Order Limits are located. The BTO data is provided in the Breeding Birds Report (Appendix 8.4, App Doc Ref 5.4.8.4).

Surveys

2.5.5 All surveys undertaken to inform the EIA were carried out within three years of this assessment being undertaken and to CIEEM survey validity guidance (CIEEM, 2019) .

2.5.6 An Extended Phase 1 Habitat Survey was undertaken between July and September 2020 to establish the broad ecological baseline for the Proposed Development and surrounding areas, which may be affected by the works (defined as the survey area).

2.5.7 Based on the findings of the Extended Phase 1 Habitat Survey, habitat and protected species surveys have been undertaken throughout 2021-2022 to determine the ecological baseline. A summary of ecological surveys completed for the land required for the proposed WWTP and landscape masterplan area, waste water transfer tunnel and the treated effluent discharge outfall to the River Cam are listed in Table 2-6. The relevant buffers for each survey type were applied as outlined in Table 2-4.

Table 2-6: Ecological survey summary

Ecological survey	Ecological surveys completed
Extended Phase 1 Habitat Survey	July–September 2020.
Extended Phase 1 Habitat Survey – gap filling	The Extended Phase 1 Habitat Survey completed in 2020 did not include the area of the underground transfer pipelines from the existing Cambridge WWTP to the Proposed Development, south of the A14 and east of the existing Cambridge WWTP, as this was originally thought to be entirely beneath the ground in a tunnel. The updated design now includes the proposal for shafts within land south of the A14, therefore, this area was surveyed in April 2021.
Hedgerows Regulations Survey	Completed August 2021.
National vegetation classification (NVC)	Surveys of woodland, grassland and Low Fen Drove Way Grassland and Hedges CWS completed in July 2021. Floodplain grazing marsh completed August 2021.
River habitat survey (RHS) and Modular River Survey (MoRPh)	Completed June 2021.
Arboricultural survey	Completed December 2021 – January 2022.

Ecological survey	Ecological surveys completed
Bats – preliminary roost assessment (PRA)	Preliminary bat roost assessment visits completed April 2021.
Bats – climbed inspection of trees	Climbed tree inspections completed May 2021.
Bats – activity transect	Completed May, July, September 2021.
Bats – static surveys	Completed May, July, September 2021.
Bats – dusk emergence and dawn re-entry surveys	Completed May-September 2021.
Otter	Two of four visits were completed in April/May and August 2021, the third visit was completed in November/December 2021 and the final, fourth survey in April 2022.
GCN scoping and habitat suitability index (HSI) assessment, presence/absence surveys	Scoping surveys completed in April 2021. Presence/absence surveys completed April 2021.
GCN environmental DNA (eDNA) surveys	eDNA surveys completed in May 2021.
Breeding bird surveys targeting turtle dove (*Strepopelia turtur)*, grasshopper warbler (*Locustella naevia)*, barn owl (*Tyto alba)*, kingfisher (*Alcedo atthis)* and Cetti's warbler (*Cettia cettia).*	Scoping surveys completed April 2021. Surveys completed on Schedule 1 and Rare Breeding Bird Panel (RBBP) species between May and August 2021.
Water vole	Completed in April/May 2021 and August 2021.
Reptiles	Surveys have been completed at the following locations within the proposed WWTP: Low Fen Drove Grasslands and Hedges CWS and suitable habitat off Low Fen Drove Way. Surveys completed within the treated effluent transfer pipelines include locations within the existing Cambridge WWTP and adjacent to the treated effluent discharge outfall to the River Cam and associated fields. The surveys were completed in the months April to September 2021, excluding July and August due to high temperatures.
Terrestrial invertebrates	Surveys undertaken from May to September 2021 excluding August.
Badger	Initial walkover surveys completed in April 2021. Badger Survey completed May 2021. Bait marking surveys completed October 2021.
Fish	One fish eDNA survey completed in July 2021 and the second survey completed in October 2021. Fish (seine-netting) surveys on the River Cam completed October 2021.
Aquatic macroinvertebrates	Ditch macroinvertebrate surveys completed April 2021. River Cam macroinvertebrate samples taken in April and September 2021.
Aquatic macrophytes	Ditch macrophyte surveys completed June 2021. River Cam macrophyte survey completed September 2021.

2.5.8 An Extended Phase 1 Habitat Survey to include the Waterbeach Water Recycling Centre (WRC) and area of land required for the construction of the Waterbeach transfer pipeline was undertaken in July 2021. Table 2-7~~Table 2-7~~ provides the ecological survey summary for the area of land required for the Waterbeach transfer pipeline. The relevant buffers for each survey type were applied as outlined in Table 2-4.

Table 2-7: Ecological survey summary - Waterbeach WRC transfers pipeline to existing Cambridge waste water treatment plant

Ecological survey	Ecological survey status 2021	Ecological surveys 2022
Extended Phase 1 Habitat Survey	Completed in July–September 2020. Update survey completed in July 2021 in areas of land as required.	Not applicable.
Hedgerows Regulations Survey	Completed in September 2021.	Not applicable.
National vegetation classification (NVC)	Completed in September 2021.	Not applicable.
Arboricultural survey	Completed in November 2021.	Not applicable.
Bats preliminary roost assessment (PRA)	Bat PRA completed in August/September 2021	Not applicable.
Bats – climbed inspection of trees	Climbed tree inspections completed in November 2021.	Not applicable.
Bats – activity transect	Not applicable.	Undertaken during April to August 2022.
Bats – static surveys	Not applicable.	Undertaken during April to August 2022.
Bats – dusk emergence and dawn re-entry surveys	Not applicable.	Bat emergence and re-entry surveys undertaken May to August 2022.
Otter	Commenced in September 2021 and undertaken quarterly.	Completed August 2022.
GCN scoping and habitat suitability index (HSI) assessment	Scoping/HSI surveys completed in April 2021.	Completed June 2022.
GCN environmental DNA surveys	eDNA surveys completed in June 2021.	An additional three waterbodies were surveyed in April 2022.
GCN presence/absence surveys	None required as eDNA returns were negative (with 1 inconclusive).	None required due to negative eDNA results returned, and one inconclusive.
Breeding bird surveys targeting Schedule 1 and other high sensitivity, highly protected species such as RBBP	Scoping surveys completed in November 2021.	Schedule 1 and RBBP species surveys conducted April–July 2022.
Water vole	First visit completed in September 2021.	Completed in August 2022.
Reptiles	Survey completed in September/October 2021.	Not applicable.

Ecological survey	Ecological survey status 2021	Ecological surveys 2022
Badger	Badger surveys completed in November 2021 and March 2022. Camera trap surveys completed in March 2022.	Completed in March 2022.
Aquatic macroinvertebrates	Completed in September/October 2021.	Not applicable.
Aquatic macrophytes	Completed in September 2021.	Not applicable.
Pond Predictive System for Multimetrics (PYSM) surveys	Completed September 2021.	Not applicable.

2.6 Assumptions and limitations

2.6.1 Field surveys were confined to locations where land access permission had been granted. Where access was not available, surveys were undertaken from Public Right of Way (PRoW) (with access agreed with landowners) and information from aerial imagery, Master Map (Ordnance Survey (OS) high detail base mapping to determine Phase 1 habitat) and Natural England's open-source data set for Priority Habitat Inventory (Natural England, 2020) was used to supplement the surveys.

2.6.2 The survey covered the order limits and various buffers depending on the feature of interest / species. The survey has been developed through adherence to guidance as well as agreement through the TWG. The area within the order limits has been comprehensively surveyed. It is noted that the Extended Phase 1 Habitat Survey did not include the land/track within the Scheme Order Limits, which runs east from Low Fen Drove Way to Station Road within the existing Low Fen Drove Way CWS. This area was originally outside the Scheme Order Limits during the above survey and is proposed to be subject to a usage rights change. As documented in Cambridge Nature Network Final Report (2021), the designated features of the CWS have not been managed in recent years, resulting in the hedges along the droveway becoming mostly lines of trees. The condition of the grasslands along the railway line have not been assessed since 2011 but were declining at this time. The report notes that the value of this CWS relies upon an increased use of nature friendly farming practices in the adjacent fields to buffer the habitat and appropriate management of the hedgerow system.

2.6.3 The October and November 2020 Phase 1 habitat surveys were completed outside the recommended season for Phase 1 habitat surveys, which is April to September (in accordance with the JNCC Handbook for Phase 1 Habitat Survey (Joint Nature Conservation Committee, 2016). However, most of the survey coverage was completed during the optimal season (July-September) and sub-optimal surveys were completed when vegetation was still visible to undertake an assessment of habitat types and a suitable species list was recorded. The scope of surveys was agreed by the Biodiversity Technical Working Group (TWG).

2.6.4 Protected species surveys have seasonality constraints due to the variation in activity and plant flowering times throughout the year. It should be noted that the absence of certain protected or rare species does not preclude their presence in a specific location. There is always the risk of protected or rare species being over-looked, either owing to the timing of the survey or the scarcity of the species within the study area.

2.6.5 Any updates of surveys needed to finalise details of mitigation proposals for protected species will be carried out prior to the commencement of construction.

2.6.6 The limitations listed above are not thought to have affected the robustness of this ecological assessment given the survey effort made and precautionary approach taken to the assessment.

2.7 Maximum design envelope parameters for assessment

2.7.1 The design parameters and assumptions presented are in line with the 'maximum design envelope' approach (base scheme design) as described in introductory chapters of the ES (2 and 5). For each element of this chapter the maximum design envelope parameters detailed within Table 2-8 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group.

2.7.2 The assessment parameters are based on the design of the proposed WWTP and associated access and treated effluent transfer pipelines as described in Chapter 2: Project Description. The assessment considers a realistic maximum design envelope based on the maximum scale of the elements and as a result no effects of greater significance than those assessed are likely.

Table 2-8: Maximum design envelope for biodiversity assessment

Potential impact	Maximum design scenario	Justification
Construction		
Permanent loss of habitats within the area of land required for the landscape masterplan: • hedgerows; • ditches; • small extents of priority habitats; • large area of arable (cereal) habitat; • agricultural field margins; and • grassland. Permanent loss of habitat from within the area of land required for the proposed WWTP and the permanent access road affecting the following species / species groups: • invertebrates; • reptiles; • breeding birds; • badgers; and • bats.	Area of land required permanently for construction: • landscape masterplan is up to 73.2ha; • proposed WWTP totalling 20.6ha; and • new access road to the proposed WWTP is 0.5ha. The area comprising these will be under construction for up to 46 months.	Areas of land required permanently for construction of the proposed WWTP, access road and treated effluent discharge outfall to the River Cam represent the maximum extent of possible permanent habitat loss.
Permanent loss of habitats from construction of the outfall for: • ditches; and river bank i.e. reedbed Permanent loss of habitat from construction of the treated effluent discharge outfall to the River Cam for: • water vole	There will be temporary structures at the river bank and extending into the river by up to 85m. The area of land and extent of river temporarily required for the construction of the treated effluent discharge outfall to the River Cam up to 20ha. The height of the cofferdam will be above the waterline set at a height agreed with the Environment Agency. Construction of the outfall will take up to 4 months including the use of a temporary cofferdam. Extent of	Impacts from pilling and construction for the treated effluent discharge outfall to the River Cam represent maximum amount of habitat loss. Represents the maximum duration of construction activity and duration of impact source.

Potential impact	Maximum design scenario	Justification
	riverbank protection works and outfall would be up to 70m (worst case). Construction will not take place in the fish spawning period (February to June). The outfall structure will be constructed on the eastern bank of the River Cam and will be approximately 12m long x 7m wide x 5m deep, with river bank protection either side so that the total length of affected bank will be up to 55mm. The river bank protection will be in the form of rip rap bed protection, below water level and sheet piling. The width of the trench required for the construction of the treated effluent and storm pipeline will be up to 25m Works to the river bank would be in accordance with a mitigation licence for water vole and environmental permit (flood risk activities).	
Potential temporary loss of habitats during installation of permanent and temporary shafts required for the transfer tunnel, and temporary use of land for compounds/laydown areas: • hedgerows; and • agricultural field margins.	Up to 87ha of land are temporarily required for the construction of the transfer tunnel and Waterbeach pipeline section south of the A14 this includes extents for temporary compounds. Construction compounds, machinery, cranes, and hoarding would be located at Shaft 4 for up to 18 months (activity during 3 months during shaft construction and then the site would only be used for removal of equipment over the course of up to 5 days). Construction compounds, machinery, cranes, and hoarding would be located at Shaft 5 for up to 18 months.	Represents the maximum extent of land required in construction of the transfer tunnel including shafts and the maximum duration of construction activity associated with the construction of the transfer tunnel and shafts.
Potential temporary loss of habitats during pipeline installation (for Waterbeach pipelines) by open cut methods:	Worst case is that the entire route is installed by open cut with the exception of	Represents the maximum extent of land required in construction and the maximum duration of construction activity.

Potential impact	Maximum design scenario	Justification
• hedgerows; • priority habitats; and • agricultural field margins.	the crossings of the River Cam, railway, A14, Horningsea Road; a section avoiding habitats (section between chainage 950m and 470m) adjacent to Burgess Drove; • a section of the pipeline that crosses an important hedgerow; and the area of land to the west of the River Cam (southern section of the pipeline). The Installation would take up to 12 months. A compound area will be needed at the northern extent of the pipeline close to Waterbeach WRC and in use for up to 12 months either in year 1 or year 3 of construction. There will be transient compounds along the Waterbeach pipeline at 1km spacing between the Main Construction Compound and the Primary Compound these will be in use for up to 12 months. Sections of the pipeline route crossing through existing hedgeline or through watercourses will require a working width of up to 6m.	
Potential temporary loss of habitats during pipeline installation (for the treated and storm effluent pipelines) by open cut methods: • hedgerows; • trees; • ditches; • marginal river habitat; and • agricultural field margins.	The entire extent of the treated effluent and storm pipelines are installed through open cut methods. Construction compounds, machinery, fencing, hoardings, hard surfacing, materials stockpiles, cranes and earthworks will be present within the land required for the treated and storm effluent pipelines for up to 12 months between year 1 and year 4 of construction. Construction compound, fencing and equipment at the outfall / final effluent compound for up to 12 months. Sections of route crossing through the existing hedgeline or through watercourses will require a working width of	Represents the maximum extent of land required in construction and the maximum duration of construction activity.

Potential impact	Maximum design scenario	Justification
	up to 14m with the exception of the outfall and ditch parallel to the river Cam. The ditch parallel to the river Cam would be reinstated to its pre-construction profile.	
Potential for emissions to air from construction activities to adversely affect designated sites and habitats.	There will be construction vehicle movements from year 1 to year 4 of construction. Peak construction vehicle movements in year 3 (currently assumed to be 2026) are associated with the transport of materials to and from the construction works areas on the public road network. In addition, there will be light goods vehicle deliveries and construction worker arrivals and departures during this period. Refer to Chapter 19: Traffic and transport, Table 2.5 for maximum design scenario for vehicle movements. Construction dust impacts and construction traffic air pollutants are as specified in Section 4.2 Chapter 7: Air Quality.	The maximum design envelope scenario for air pollutant emissions have been listed within that assessment.
Surface water runoff from construction works impact designated sites and habitats, and water voles.	Construction works drainage and impacts to water courses through changes in water quality as specified in Chapter 20: Water resources.	The maximum design envelope relating to water quality changes arising from operation have been listed within Chapter 20: Water Resources.
Temporary noise during construction impacts on species such as: • badger; • bats; • fish; • breeding birds; and • reptiles.	Construction works such as pilling and drilling (shaft and pipeline) may use impact driven or vibratory techniques. Piling for outfall construction may take up to 3 weeks, during which piling would be intermittent. Piling for construction of the proposed WWTP would be between year 2 and 3 of construction, during which piling would be intermittent. Durations and activity noise levels for construction works that include piling are detailed in Chapter 17: Noise and Vibration and Appendix 17.3.	Impacts pilling and drilling represents the maximum design envelope scenario from noise on species during construction.

Potential impact	Maximum design scenario	Justification
Temporary changes to the landscape surrounding the proposed WWTP to increase or change in avian assemblages impacting nearby airport operations.	Maximum extent of cleared land/exposed soils during construction expected to be associated with he treated effluent pipeline, the shaft locations and the area of land required for the proposed WWTP and landscaping area. The total area is up to 230ha at the peak. Temporary shallow lagoon surface of up to 5000m^2.	Represents extent of temporary features that could act to alter assemblages in construction.
Temporary increase in ambient light levels during construction of the proposed WWTP, pipeline installation (for Waterbeach pipeline) and construction of the treated effluent discharge outfall to the River Cam impacting habitats and species such as: • bats; and • invertebrates.	Lighting on construction compounds and task lighting along the pipeline routes and at the treated effluent discharge outfall of up to 300 lux. Up to 12 months at the construction compound near the outfall. Up to 12 months at the construction compound for Waterbeach. Up to 18 months at the compound at Shaft 5. Intermittently at Shaft 4 with up to 3 months during shaft construction, then up to 5 days for each event to recover the tunnelling equipment. Up to 36 months at the land required for construction of the proposed WWTP and completion of the landscaping proposals. Navigational warning lights will be within the river for up to 4 months for the construction of the outfall.	Represents extent of construction lighting which could require lighting temporarily.
Operation		
Potential for emissions to air from operation of the Sludge Treatment Centre within the proposed WWTP adversely impacting designated sites and habitats.	Maximum plant operation air emissions as specified in 'Operation of energy plant' Section 4.3 Chapter 7: Air Quality.	The maximum design envelope scenario for air pollutant emissions from operation have been listed within Chapter 7: Air Quality.
Surface water runoff from the proposed WWTP results in secondary impact to downstream designated sites and habitats including Black Ditch and Allicky Farm Pond CWS.	Maximum design envelope for drainage (surface water) and impacts to water quality in the River Cam as specified in the Chapter 20: Water Resources.	The maximum design envelope relating to water quality changes arising from operation have been listed within Chapter 20: Water Resources.

Potential impact	Maximum design scenario	Justification
Increase in effluent volumes discharging into River Cam and secondary impacts to downstream receptors including designated sites.	Operational works drainage and impacts to water courses through scour and water quality changes as specified in Chapter 20: Water Resources.	The maximum design envelope scenario for scour and water quality changes during operation have been listed within Chapter 20: Water Resources.
Intermittent increase in ambient light levels from the proposed WWTP impacting upon species such as: • bats; and • invertebrates.	Maximum lighting requirements set out within Chapter 2: Project Description (paragraphs 1.9.26 to 1.9.32) and the Lighting Design Strategy (App Doc Ref 5.4.2.5). Operational lighting as described in Chapter 2: Project Description covering: • no lighting along to proposed access road; • car park external to gateway building within the proposed WWTP; area of proposed WWTP internal to the earth bank ; and • Street lighting along section of Horningsea Road between junction of access road to Low Fen Drove Way. Lighting on Horningsea Road will be to National Highways Standards. There will be an extension of permanent lighting along Horningsea Rd by approximately 130m from the proposed ghost island to join the existing lighting close to the existing junction with the A14 off slip. There will be up to 5m height down lighting columns in operation in the proposed WWTP level which will not be visible over the earth bank height. Task lighting columns associated with the inlet works, the intermediate pump station, aeration lanes, final settlement tanks, tertiary treatment, digesters, dewatering, heating pasteurisation hydrolysis and the sludge storage will be at heights above the earth bank, but will be controlled by manual on/off switches with an auto-reset facility so that lights are not	Represents the extent of new or different lighting in operation. Represents the maximum durations and likely patterns of lighting during operation and maintenance.

Potential impact	Maximum design scenario	Justification
	left on by accident. Task lighting will be used only when required. Automatic navigation lights will be required at 24m height above ground level on the boiler exhaust stack, and four red lights at 20m height above ground level on digestor. The car parks external to the earth bank and within the earth bank will be lit by 5m lighting columns during operation only. The gateway building will not be externally illuminated at night as a feature, with 5m high lighting columns controlled by Passive Infra Red (PIR) sensors to minimise lighting to operational need only. It is assumed there will be light spill from the interior of the gateway building, which will be reduced but not removed by the installation of blinds/screening.	
Potential increase of visitor numbers to the local area including to Stow-cum-Quy Fen SSSI from increased footfall resulting in the following: • vegetation trampling; • soil compaction; • dog-fouling; • littering; and • fires.	Provision of recreational features within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) are footpath / cycle route / bridleway.	Represents the extent and location of connections for recreational users
Potential for changes to the landscape surrounding the proposed WWTP to increase or change avian assemblages, impacting nearby airport operations.	Extent of landscape masterplan of up to 68ha excluding access roads. LEMRP (Appendix 8.14, App Doc Ref 5.4.8.14) would be implemented with a 30-year commitment to maintain habitats to provide 20 % BNG.	Represents maximum extent of landscape masterplan and minimum duration that the landscaped area would be retained for. Represents the minimum duration that there would be a likely change to habitats and corresponding change in avian assemblages due to new areas of grass and woodland habitat.
Decommissioning		

Potential impact	Maximum design scenario	Justification
Temporary risk of surface water runoff to waterbodies and secondary impacts to fish, aquatic invertebrates and macrophytes.	Cleaning of 14 tanks during decommissioning over a period of 6 months.	Represents maximum extent and duration of decommissioning activity (tank draining and cleaning) to surrender existing environmental permit.

2.8 Impacts scoped out of the assessment

2.8.1 On the basis of the baseline ecological information and the project description, Table 2-9 outlines the impacts that have been scoped out of assessment, along with the justification for scoping them out.

Table 2-9: Impacts scoped out of the biodiversity assessment

Potential impact	Justification
Impacts on white-clawed crayfish	White-clawed crayfish surveys have been scoped out following the Technical Working Group meeting in March 2021. Stakeholders confirmed that white-clawed crayfish are absent from the survey area based on local knowledge. Furthermore, the biological records did not return any records of the species within 5km of the Proposed Development.
Impacts on wintering birds	Data from the BTO report describes the baseline for wintering birds within the EZoI. The data showed wintering birds were not a factor of concern and they are therefore scoped out.
Impacts on hazel dormouse	The Cambridgeshire and Peterborough Priority Species list states that hazel dormouse is only known to be present in two reintroduced populations in Cambridgeshire: Brampton Wood NNR and Bedford Purlieus NNR, which are located approximately 30km and 56km north-west of the Proposed Development respectively. Whilst some suitable woodland and hedgerow habitats exist for this species within and adjacent to the Proposed Development, the limited distribution of this species in Cambridgeshire means that this species is not considered likely to be present within the Scheme Order Limits and is therefore scoped out of further assessment.
Impacts on Eurasian beaver (*Castor fiber*)	Eurasian beaver have recently (1 October 2022) become a European protected species in England under the Conservation of Habitats and Species Regulations 2017 (as amended). In order to explore the possible impacts on all species that may arise as a result of the Proposed Development, this species has now been considered. Whilst beaver is known to use a variety of watercourses, the heavily modified channel of the River Cam, lack of any records or signs of presence as recorded throughout the surveys undertaken suggest that beaver are absent from the River Cam and its catchment and are therefore scoped out of further assessment.
Impacts on non-statutory sites (PRV, CWS and CiWS) south of the A14	There are no anticipated impact pathways from the Proposed Development to these sites due to their distance and isolation from the Proposed Development and their location within existing built-up areas of Cambridge. The lack of impact pathways means that all CWS and CiWS south of the A14, except for Milton Road Hedgerows CiWS (which is adjacent to the existing Cambridge WWTP) and the PRV, will not be considered further and are considered as scoped out.

2.9 Mitigation measures adopted as part of the Proposed Development

Mitigation measure types

2.9.1 This section refers to the mitigation types, as defined in Chapter 5: EIA Methodology, and how they apply to the assessment of biodiversity.

2.9.2 In developing the Proposed Development through an iterative process including consultation and engagement with consultees, and through the Environmental Impact Assessment, (EIA) the Applicant has sought to identify and incorporate suitable measures and mitigation for potentially significant adverse effects, as well as maximising beneficial effects where possible.

2.9.3 Some measures are 'embedded' in the design of the Proposed Development for which consent is sought by virtue of the scope of the authorised development as set out in Schedule 1 to the DCO and the accompanying Works Plans. These are considered primary mitigation. For example, adjustment of Order Limits to avoid sensitive features, amending the sizing and location of temporary access routes and compounds.

2.9.4 Secondary measures may be detailed activities for example the preparation and delivery of a monitoring plan for specific matters (biodiversity) or the preparation and delivery of specific environmental management plans, and the preparation and implementation is secured through the CoCP. These secondary measures are differentiated from good practice measures.

2.9.5 Tertiary measures are actions that would occur with or without any EIA assessment as they are imposed as a result of legislative requirements (e.g., Protected Species Licensing) and/or standard sectoral practices (e.g., a precautionary two-stage approach to vegetation clearance of suitable terrestrial habitat supporting reptiles).

2.9.6 The Consents and Other Permits Register (App Doc Ref 7.1) sets out required permits and consents related to the Proposed Development. These provide a mechanism for securing some of the mitigation measures considered in the assessment.

2.9.7 Where beneficial effects are voluntarily introduced without the requirement to mitigate an effect, these are termed 'enhancement measures'.

2.9.8 The remainder of this section sets out the embedded (primary and tertiary measures) and additional measures (secondary) relevant to the assessment of biodiversity.

Primary (embedded) and tertiary measures

2.9.9 Primary and tertiary mitigation form part of the Proposed Development and therefore, the preliminary assessment of effects takes account of these measures.

2.9.10 Table 2-10 sets out the embedded and tertiary mitigation measures that will be adopted during the construction, operation, maintenance and decommissioning of the Proposed Development.

2.9.11 Of these, the measures delivered by Natural England protected species mitigation licences and the landscape masterplan are discussed in more detail below.

Measures secured by protected species mitigation licences

2.9.12 These licences may only be relied upon where mitigation works include creation or enhancement of alternative compensatory habitat, and appropriate mitigation measures to ensure that the favourable conservation status of the species for which the licence is issued, is not impacted.

2.9.13 The measures secured by the licences are tertiary (measures that would be required to fulfil legal obligations regardless of the EIA process).

2.9.14 Measures specified in the licences would be overseen or implemented by experienced and licenced ecologists who hold the relevant species licences.

2.9.15 Based on the Project Description and Baseline information within section 3 of this document as informed by a comprehensive survey (reported in Appendix 8.4, (App Doc Ref 5.4.8.4) Breeding Bird Report; Appendix 8.11 (App Doc Ref 5.4.8.11) Great Crested Newt Report; Appendix 8.7 (App Doc Ref 5.4.8.7) Bat Report; Appendix 8.3, (App Doc Ref 5.4.8.3) Water Vole Report; Appendix 8.9 (App Doc Ref 5.4.8.9) Otter Report; Appendix 8.6 (App Doc Ref 5.4.8.6) Terrestrial Invertebrate Report; Appendix 8.5 (App Doc Ref 5.4.8.5) Reptile Report; Appendix 8.8 (App Doc Ref 5.4.8.8) Confidential Badger Report; Appendix 8.1 (App Doc Ref 5.4.8.1) Aquatic Report and Appendix 8.2 (App Doc Ref 5.4.8.2) Hedgerows Report and Appendix 8.10 (App Doc Ref 5.4.8.10) National Vegetation Classification) the following species licences are identified as being required owing to direct and indirect impacts affecting:

- Water voles and their habitat
- Badgers and known setts
- Bats and their roosts.

2.9.16 The licences will secure appropriate habitat creation, site-specific method statements for contractors to work under and monitoring for adaptive management of the created habitat or mitigation features.

Water vole

2.9.17 Works to construct the treated effluent discharge outfall at the River Cam, and construction of the Waterbeach pipelines will be under a Natural England mitigation licence in respect of water vole habitat at the River Cam, in the parallel ditch (refer to Works No 32 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150])) and the ditch network along the route of the Waterbeach transfer pipeline.

2.9.18 The mitigation licence will permit intentional damage or destruction of water vole burrows, and/or disturbance to water voles occupying burrows, by use of the mitigation method known as 'displacement', prior to carrying out lawful development works. For the purposes of the licence, 'displacement' means cutting vegetation back to bare earth, followed, where appropriate, by a destructive search of the burrows. The cutting of vegetation to bare earth must take place and be completed between 15 February to 15 April. Water draw-down/removal may be used in parallel with vegetation cutting, where appropriate.

Bats

2.9.19 Works to construct the Waterbeach transfer pipeline and implement the landscape masterplan at the proposed WWTP will result in the disturbance of five pipistrelle species day roosts within trees. The Natural England mitigation licence will legally permit disturbance to the roosts only, with all roosts to be retained, and with timing of works at the roost location avoiding the hibernation (coldest winter) period.

Badger

2.9.20 Works to construct the proposed WWTP will result in the loss of an annex badger sett. The Natural England licence will be in place to legally permit the destruction of the annex sett and disturbance to badgers.

Design measures within the landscape masterplan

2.9.21 The geographical focus of the landscape masterplan contained within Figure 3.1 of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) is on the immediate area around the proposed WWTP.

2.9.22 The landscape masterplan covers up to 63ha of land to the east of Horningsea Road and bordered by Low Fen Drove Way. It does not extend to areas of land required for the Waterbeach transfer pipeline north of Low Fen Drove Way or south of the A14, areas of land required for the transfer tunnel, areas of land required for the construction of the treated effluent pipeline and outfall east of Horningsea Road or any of the works areas within the footprint of the existing Cambridge WWTP. Commitments in relation to reinstating the land required for construction not covered by the LERMP are set out in the Code of Construction Practice Parts A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2).

2.9.23 The LERMP delivers multiple purposes and is integral to the delivery of landscape integration measures and visual screening, ecological habitat creation and provision of pathways and leisure cycling routes for recreation.

2.9.24 In the case of primary mitigation for biodiversity the landscape masterplan provides:

- replacement hedgerow extents;

- replacement of terrestrial habitats – these are not direct replacement of arable land and margins but newly created habitats to replace lost habitats with more varied and diverse (and preferable habitats to arable land); and
- niche habitat types for target species and species assemblages that could be affected during construction, specifically:
  - features for reptiles such as log piles and hibernaculum;
  - features for birds such as turtle dove for example by leaving areas of bare soil along field margins and by designing and providing scrub areas close to suitable areas for foraging, and seasonal ponds;
  - features for foraging and commuting bats such as woodland habitat creation;
  - inclusion of bat boxes to support roosting bats;
  - inclusion of nest boxes to support birds; and
  - features for invertebrates such as bee banks, seasonal ponds, brash piles and woodland habitat creation.

2.9.25 There are features of the landscape masterplan that over time are intended to provide a biodiversity net gain. Confidence in achieving net gain is supported by the implementation of the LERMP over a 30-year period as referred to in the BNG Report (Appendix 8.13, App Doc Ref 5.4.8.13). New habitats and/or additional extents of lost habitats are regarded as providing enhancement features, these are:

- mosaic of grasslands including linking of grassland areas to the existing Low Fen Drove Way Grasslands and Hedges CWS;
- seasonal ponds formed from scrapes or swales and positioned in the glade/open areas of the woodland;
- species rich hedgerows; and
- new woodland with features such as open edges, glades and rides.

Table 2-10: Primary and tertiary mitigation measures relating to biodiversity adopted as part of the Proposed Development

Mitigation measures		Type	Applied to	Justification
Construction				
Minimising loss of / disturbance to habitats	Creation of new water vole habitat in advance of works to construct the outfall and treated effluent pipeline.	Tertiary	Ditch and Works No 39 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150])	To mitigate temporary loss of water vole habitat
	Creation of additional lengths of ditch to replace lengths of ditch lost through the construction of the proposed WWTP.	Primary	Ditch and Works No 39 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150])	To mitigate the loss of ditches within the footprint of the proposed WWTP
	Measures to prevent increased risk of elevated suspended solids reaching the River Cam and downstream locations from construction of the outfall: use of cofferdam to construct the outfall and riverbed protection in the dry and minimise release of particles into the River Cam; and • dewatering to include use of sediment removal measures and discharge rate controls (to be by agreement with the Environment Agency or compliant with the Regulatory Position Statement (RPS)).	Primary Tertiary	River works within and at the bank of the River Cam to construct the outfall	To avoid adverse impacts to habitats associated with the River Cam and those hydrologically connected to this watercourse.
	Measures to prevent increased risk of elevated suspended solids reaching the River Cam and downstream locations from water discharge and dewatering activities will accord with requirements regulatory position statement (RPS) or associated environmental permit: for excavations any groundwater or surface water intercepted will be pumped out and passed through an appropriate form of treatment (such as a silt removal) before being discharged to an approved location.	Tertiary	All areas requiring excavation and dewatering to surface water	To avoid adverse impacts to habitats associated with the River Cam and those hydrologically connected to this watercourse.

Mitigation measures		Type	Applied to	Justification
	• The discharge rate will be controlled through the design of the outfall to prevent scour of the receiving environment.	Primary	The outfall structure	To prevent scour within the river
	Works areas for launch and recovery of equipment for trenchless construction are set back from the River Cam by a minimum of 25m.	Primary	Areas where trenchless construction methods used for river crossings	To provide a buffer between the works areas and the river
Avoiding and minimising changes to water quality	Measures to avoid disturbance to the River Cam that could result in releases of fine particles: Use of HDD for crossing of the River Cam, larger drainage ditches.	Primary	Areas where trenchless construction methods used for river crossings	To avoid adverse impacts to the water quality of the River Cam and those hydrologically connected to this watercourse.
	• Tunnelling methods will be used for the construction of the transfer tunnel.	Primary	Transfer tunnel crossing of River Cam	To avoid constraints including the river, rail and road. To complete works so as not to cause pollution of controlled waters
	Measures to prevent increased risk of elevated suspended solids reaching the River Cam and downstream locations from water discharge and dewatering activities will accord with requirements of regulatory position statement (RPS) or associated environmental permit: • Dewatering effluent to be treated to remove particulates and discharge at a controlled rate to prevent scour of the receiving environment • Best practice measures applied during construction to minimise the risk of runoff reaching ditches and watercourses.	Tertiary	Any dewatering operations dewatering to the River Cam or hydrologically connected surface water features	To avoid adverse impacts to the water quality of the River Cam and those hydrologically connected to this watercourse. To complete works so as not to cause pollution of controlled waters
	• Best practice measures in relation to the storage and handling of potentially contaminating materials including fuels and oils	Tertiary	All works areas	To avoid adverse impacts to the water quality of the River Cam and those hydrologically connected to this watercourse.

Mitigation measures		Type	Applied to	Justification
				To complete works so as not to cause pollution of controlled waters
	• Use of cofferdam for temporary river works design to create dry working area within the River Cam.	Primary	River Cam	Use of suitable methods to minimise impacts as
Invasive non-native species	Measures to control risk of spreading invasive non-native species to habitats and watercourses will be agreed with the Environment Agency: • cleaning of equipment (including personnel footwear) and construction plant to be cleaned of accumulated mud/debris to prevent transfer of plant material	Tertiary	All works areas	To comply with Schedule 9 of the 1981 Act or Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019.
	pre-works checks to identify any invasive species within working areas	Tertiary		
Prevention of direct harm to or disturbance to protected species and habitats	Use of trenchless construction methods around sensitive ecological receptors along the Waterbeach pipeline to avoid: land to the east of the River Cam/west of the existing Cambridge WWTP; • railway; and • A14.	Primary	Waterbeach pipeline	To avoid direct adverse impacts to: • floodplain grazing marsh; • important hedge; and • protected species
	section of land indicated on (App Doc Ref 4.14.12 and 4.14.11) whereby trenchless methods seek to avoid disturbance to badger, reptiles and an important hedge.			
	<u>Bats:</u> Works are completed in accordance with licence which is expected to include the following measures: • avoiding key sensitive periods (this extends to hibernation only as no maternity roosts found); • Heras fencing will surround the known tree roosts to prevent approach by construction machinery and protect the tree from damage; all roosts will be retained during and post works, with no impedance to access; • bat boxes are proposed; and	Tertiary	Proposed WWTP Waterbeach pipeline	To lawfully impact on these species (bats, badger, water vole) and ensure sufficient mitigation is in place.

Mitigation measures		Type	Applied to	Justification
	• sensitive lighting regimes within the operating WWTP will ensure no unnecessary light spill into the surrounding area			
	<u>Water vole:</u> Works are completed in accordance with licence which is expected to include the following measures: creation of 84 metres of new ditch in relation to disturbance and direct loss of water vole habitat associated with the construction of the proposed outfall to the River Cam; • pre works checks of ditches prior to construction; • works impactful to water vole timed between February and April; and • clearance of vegetation is completed by hand in a two-stage process before vegetation clearance.		Area of land required for the proposed outfall	
	<u>Badger:</u> Works are completed in accordance with licence which is expected to include the following measures: • pre-construction works checks of a minimum of 3 months prior to construction; • works to setts timed between 1 July and 30 November; • construction areas demarcated and fenced; • toolbox talks delivered to all personnel; • use of machinery within 10 metres of setts will be restricted to hand-held machine tools or small machinery; and • construction lighting will be minimised and directed away from setts.		Area of land required for the proposed WWTP and landscape masterplan Area of land required for the Waterbeach pipeline north of Low Fen Drove Way	
Prevention of light spill from temporary	Temporary task lighting used in construction would be limited to 8 metres high and mounted on columns/structures.	Primary	All works areas	Minimises lighting and effects of light spill/sky glow to sensitive ecological receptors.

Mitigation measures		Type	Applied to	Justification
construction areas				
Operation				
Avoiding impacts to hydrologically linked designated sites and habitats	Measures to protect hydrologically linked habitats: • risk of long-term impact to groundwater levels or flow would be eliminated by robust design and construction of all subsurface structures: – the sealing of shafts to prevent minor inflows of groundwater or wastewater outflow; and – the use of deep shaft construction techniques that involve segmental shaft lining, contiguous bored shafts, or similar techniques, to minimise groundwater impacts.	Primary	Subsurface pipes, shafts and tunnels	To avoid direct adverse impacts to groundwater sources and hydrologically connected habitats.
	Measures to protect hydrologically linked habitats: • sustainable drainage features included for the access road design.	Primary	Permanent access road to proposed WWTP	
	Measures to protect hydrologically linked habitats: • surface water runoff from uncontaminated hard surfaces will be managed through a surface water drainage system including the use of temporary drainage into the landscaped area. Standard measures for sustainable drainage systems (SuDS) will be included in the design of the proposed WWTP where appropriate and feasible.	Primary	Proposed WWTP	To collected and treat potentially contaminated run-off and avoid impacts to controlled waters
	Measures to protect hydrologically linked habitats: • the inclusion of segregated drainage within the proposed WWTP to capture and treat any contaminated surface water. Surface water runoff from uncontaminated hard surfaces will be managed through a surface water drainage system. Climate change allowances for peak rainfall intensity have been factored into surface water drainage design	Primary	Proposed WWTP	To collected and treat potentially contaminated run-off and avoid impacts to controlled waters To ensure the proposed WWTP continues to operate effectively over its lifetime

Mitigation measures		Type	Applied to	Justification
	The use of impermeable material for the pipe for the Waterbeach pipeline.	Primary	Waterbeach pipeline	To prevent leaks of seepage and meet industry standards
Avoiding and minimising changes to water quality	Measures to prevent deterioration in water quality of the River Cam hydrologically connected sites: • design of plant to operate in compliance with consent conditions relating to final treated effluent quality (for biochemical oxygen demand (BOD), ammoniacal nitrogen, total phosphorus and total suspended solids, iron and chlorine).	Primary	Proposed WWTP	Control of emissions to the River Cam to operate in compliance with environmental permit limits designed to avoid adverse impacts to the water quality of the River Cam and those hydrologically connected to this watercourse by operating to deliver 'no deterioration' of the receiving water body over the lifetime of operation.
	Measures to prevent deterioration in water quality of the River Cam hydrologically connected sites • inclusion of storm storage within the proposed WWTP that meets the requirements set by the Environment Agency.	Primary	Proposed WWTP and transfer tunnel	
	Measures to prevent deterioration in water quality of the River Cam hydrologically connected sites: • storage embedded in the design by virtue of the waste water transfer tunnel.	Primary		
	Measures to prevent deterioration in water quality of the River Cam hydrologically connected sites: • design can incorporate change of permit conditions including change of technology and or increase in treatment capacity to accommodate phase 2 of operation to remain compliant with consent condition	Primary	Proposed WWTP	
No net loss of habitat through creation – ditches	Creation of 84m of new ditch in relation to disturbance and direct loss of water vole habitat associated with the construction of the treated effluent discharge outfall to the River Cam. • Monitoring and maintenance of ditch to reach target condition.	Primary Tertiary	Area of land adjacent to River Cam (Works No 39 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150]))	To provide replacement habitat in advance of works to the ditch and river bank Required as part of the conditions of the mitigation licence.

Mitigation measures		Type	Applied to	Justification
Reducing the loss of riparian habitat	Riverbank protection design incorporates features that maintain hydrological connectivity to the river bank to encourage regrowth of marginal vegetation.	Primary	Outfall and river bank protection works	To avoid adverse impacts to riparian habitat.
Reducing loss of ditch habitat	Design and location the outfall chamber to allow reinstatement of the drainage ditch so that the ditch profile remains unaffected.	Primary	Drainage ditch adjacent to the outfall	To avoid adverse impacts to ditches which act as valuable habitats for ecological receptors (e.g. water voles).
No net loss of habitat through creation -reed bed habitat replacement	Relocation of reed bed in relation to disturbance and direct loss of reed bed associated with the construction of the treated effluent discharge outfall to the River Cam.	Primary	River Cam downstream of the proposed final effluent pipeline (Works No 32 and 39 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150]))	Required as part of the Proposed Developments BNG commitments and to ensure there is no net loss of priority habitats as a result of the construction of the treated effluent discharge outfall to the River Cam.
No net loss of habitat through creation-landscape masterplan (inclusion of ditches, trees and grassland)	• Inclusion of a range of new ecological habitats within the landscape masterplan (mosaic of grassland types, woodland, hedgerows, and tree planting). Woodland habitat creation will include woodland features such as edges, rides and glades, creating open areas of woodland divided into different pockets of woodland. Woodland species mix will include species characteristic of a National Vegetation Classification (NVC) community W8 ash (*Fraxinus excelsior*) – field maple (*Acer campestre*) – dog's-mercury (*Mercurialis perennis*) woodland. Due to ash dieback, ash will not be included in the mix and it is proposed that the percentage of oak (*Quercus sp.*) and field maple (*Acer campestre*) is increased at the expense of rowan (*Sorbus aucuparia)* and wild cherry (*Prunus avium*), which are less common in native woodlands in Cambridgeshire. Species-rich hedgerows will be planted with a minimum of five woody species in the planting mix, characteristic of NVC community W216 hawthorn (*Crataegus monogyna*) – ivy (*Hedera helix*) scrub.	Primary	Land required for the landscape masterplan. Land required for the construction of the earth bank.	These will provide ecological benefits for insects, birds and mammals including bats. Replacement of habitat affected by permanently acquired land Habitat creation will also aim to benefit Cambridgeshire and Peterborough LBAP species amongst others such as turtle dove (*Streptopelia turtur*), barbastelle bat (*Barbastella barbastellus*), white-letter hairstreak butterfly (*Satyrium w-album*) and common lizard (*Zootoca vivipara*).

Mitigation measures		Type	Applied to	Justification
	Retaining important hedgerow in land required for the landscape masterplan.			
	Existing hedgerows and trees within the landscape masterplan are incorporated into the landscape proposals, outside of the earth bank. Hedgerows that cannot be retained will be considered for their suitability for translocation to thicken retained hedgerows.	Primary	Area of land required for the landscape masterplan	To retain and enhance hedgerows and associated trees wherever possible.
	• Provision of a landscaped buffer within the landscape masterplan of approximately 200m between the Proposed Development and Low Fen Drove Way Grasslands and Hedges CWS.	Primary	Area of land required for the landscape masterplan	To avoid excessive damage to habitats within this designated site. To minimise the footprint in areas of land with identified biodiversity value.
Avoid or minimise changes to air quality that could affect vegetation / qualifying features of designated sites	• Design and operation of CHP to achieve Emission Limit Values.	Primary	Existing WWTP	Requirement to comply with relevant BAT guidance due to the need for an IED permit.
Minimising lighting of dark areas	• No lighting along the access road. • 5m light columns with motion sensitive lighting within the car park at the gatehouse. • Mitigation as described in Lighting Assessment (App Doc Ref: 5.4.15.3).	Primary	Proposed WWTP and associated access road.	Minimises lighting and effects of light spill/sky glow to sensitive ecological receptors.
Decommissioning of the existing Cambridge WWTP				
Avoiding / minimising changes to water quality	• Application of best practice measures to control leaks and spills of materials. • Removal of residues for treatment and disposal offsite • Compliance with relevant permit conditions as applied to the existing Cambridge WWTP including a duty to carry out the	Tertiary	Proposed WWTP	To avoid adverse impacts to the water quality of the River Cam and those hydrologically connected to this watercourse.

Mitigation measures		Type	Applied to	Justification
	works in accordance with permit limits/conditions and to monitor performance.			Requirement to comply with required permit conditions as set by the Environment Agency.

Secondary mitigation

2.9.26 Secondary measures will be applied to provide further controls to avoid or reduce impacts. Those applied during construction, decommissioning, operation and maintenance for biodiversity are indicated below.

Construction

Code of Construction Practice

2.9.27 During the construction phase, the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) and associated management plans specify the range of measures to avoid and minimise impacts that may occur in construction. Post grant of the DCO and prior to commencement of construction of specific construction activities the contractor will prepare the Construction Environment Management Plan (CEMP) and associated sub-plans as specified in the CoCP Part A. These detailed plans will be approved by the relevant local authority. The CEMP and associated management plans will remain 'live' documents and periodically modified throughout the duration of construction.

2.9.28 Section 5 of the CoCP Part A includes measures to minimise impacts from lighting. The CoCP Part A requires that construction lighting will be designed to ensure that any artificial light emitted from the working areas does not prejudice health or create a nuisance as required by the Environmental Protection Act 1990 and in accordance with Guidance Note 01/21 The Reduction of Obtrusive Light Guidance (Institution of Lighting Professionals, 2021) and Guidance Note 08/23 Bats and Artificial Lighting in the UK (Institution of Lighting Professionals, 2023). The CoCP Part A requires that a temporary Lighting Strategy is developed as part of the CEMP(s) and that this will be designed in accordance with the guidance as outlined above.

2.9.29 Section 5.7 of the CoCP Part A, Pollution Incident Control Plan, requires the preparation of a plan that details procedures to deal with any pollution incident that may occur, including response procedures (including appropriate equipment, materials and resources), timescales and notification procedures that would be implemented to minimise the effects. It will complement and be consistent with the Emergency Preparedness Plan(s).

2.9.30 Section 7.2 (Ecology and Nature Conservation) of the CoCP Part A, contains a series of control measures relating to the safeguarding of habitats and wildlife. Sub section 7.2.55 (Invasive Species), requires pre-construction surveys to check for the presence of invasive species and in the event, any are identified that controls are put in place. Biosecurity measures (7.2.56) are also a requirement of construction method statements.

2.9.31 Section 7.5 (Water Resources and Flood Risk) of the CoCP Part A, contains a series of control measures relating to the protection of surface water, groundwater and aquifers. In addition, Section 7.5 contains a series of control measures to ensure that the risk of uncontrolled discharges from construction is reduced (including sediment management) and detailing an Emergency Response Plan in the event of a pollution incident. This plan must be prepared for all works. It also includes measures in relation to the control of dewatering activities and works affecting watercourse including the requirement to obtain permits.

2.9.32 Section 7.7 (Noise and Vibration) of the CoCP Part A, contains a series of noise and vibration control measures.

2.9.33 The measures outlined under sections 7.4 (Land Quality), 7.5 (Water Resources and Flood Risk) and 7.8 (Air Quality) in respect of control of run off, the storage of materials and the management of dust will be implemented to avoid the pollution of designated sites and the local water environment during construction.

2.9.34 One of the associated management plans would be an Outfall Management Plan related to measures applied to avoid or minimise impacts associated with the construction of the outfall including works to the ditch parallel to the River Cam. An outline is provided within Appendix 8.24 (App Doc Ref 5.4.8.24). This plan will be a live document and updated to integrate requirements specified by related permits and consents including:

- Environmental permit (flood risk activities)
- Environmental permit (Discharges to surface water)
- Land drainage consent (for works to the ordinary watercourse)
- Mitigation licence (water vole)

Landscape Ecology and Recreational Management Plan

2.9.35 The LERMP is included within the Application (Appendix 8.14, App Doc Ref 5.4.8.14). The purpose of the LERMP is to set out how landscape, recreational features and ecological habitat and enhancements (vegetation and habitats) would be protected and managed following construction for a period of 30 years. Post grant of the DCO and prior to commencement of landscaping works an updated plan will be prepared and agreed with the local authority. Measures specified within this document will apply to planting undertaken during the construction phase.

Soil Management Plan

2.9.36 An outline SMP (Appendix 6.3, App Doc Ref 5.4.6.3) has been prepared in a manner specific to the site in accordance with the guidance in the CCoP (Defra 2009). The CCoP (Defra 2009) provides general measures that are required to be in place to ensure that

soil is appropriately managed during construction and suitable for its final use. Topsoil will be handled and stored in accordance with BS 3882:2015 – Specification for topsoil.

2.9.37 The outline SMP (Appendix 6.3, App Doc Ref 5.4.6.3) provides the basis for detailed SMP which will be prepared by the Principal Contractor prior to construction. A detailed SMP will include the measures as applicable to the particular soil types of the particular area/construction activities that should be adhered to during and after the construction phase. The detailed SMP will be approved by the relevant local authority prior to the start of the works.

2.9.38 The Applicant will require the Principal Contractor(s) to undertake and report monitoring as is necessary to assure and demonstrate compliance with all commitments.

Lighting Design Strategy

2.9.39 The management of lighting through the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure and deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill).

Decommissioning

2.9.40 Decommissioning of the existing Cambridge WWTP would be subject to a Decommissioning Plan which is to be agreed with the Environment Agency. An outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) describes measure applied to this activity including controls to prevent the release of contaminated water. Post grant of the DCO and prior to commencement of decommissioning a detailed plan will be prepared and agreed with the Environment Agency.

2.9.41 Para 5.1.14 of the outline DMP requires that decommissioning will be undertaken in accordance with the Code of Construction Practice Parts A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2) to manage risks to the environment'.

Operation

Landscape Ecology and Recreational Management Plan

2.9.42 New habitats and ecological features will be created to minimise likely significant effects arising as a result of the construction of the proposed WWTP. The LERMP (Appendix 8.14, App Doc Ref 5.4.8.14), identifies the immediate and long-term commitments to manage the planting, protection and enhancement of biodiversity and recreational areas around the proposed WWTP. Monitoring will be undertaken and will inform the

ongoing management as appropriate, as well as to provide a measure of success in terms of species usage of specific features.

2.9.43 Further measures delivered during operation will be implemented through the long-term application of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders.

Outfall Management and Monitoring Plan (Operation)

2.9.44 During operation the Outfall Management and Monitoring Plan (OMMP) (Operation) will be prepared implemented to:

- monitor and manage habitats created and relied upon to deliver river units;
- monitoring habitats created / reinstated along the river margin as mitigation to fulfil the 30 year post construction commitment set out in the BNG report, App Doc Ref 5.4.8.13;
- monitor and respond to environmental changes resulting in operation i.e. scour as a result of the outfall operation; and
- monitor created water vole habitat and integrate the requirements of the mitigation licence that relate to post habitat creation.

2.9.45 An outline Outfall Management and Monitoring Plan (OMMP) is provided in Appendix 8.24 (App Doc Ref 5.4.8.24).

Lighting Design Strategy

2.9.46 The management of lighting through the detailed lighting design to accord with the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5). This requires, amongst other things, that lighting accords with The Institute of Lighting Professionals Advice Note- Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/23 - Bats and Artificial Lighting.

3 Baseline Environment

3.1 Current baseline

3.1.1 Statutory and non-statutory designated sites within the overall Scheme Order Limits are indicated below. These are shown in Figure 8.1 (Book of Figures –Biodiversity, App Doc Ref 5.3.8) Statutory Designated Sites and Figure 8.2 (Book of Figures – Biodiversity App Doc Ref 5.3.8) Non-statutory Designated Sites which shows proximity to the different zones within the study area.

3.1.2 Hydrological links have been assessed using the Hydrogeological Impact Assessment (Appendix 20.9, App Doc Ref 5.4.20.9). Ecological links are assessed using OS and aerial imagery mapping to see if there is habitat connectivity between the Scheme Order Limits and designated sites.

Statutory Designated Sites

3.1.3 One internationally designated Ramsar site and two designated SACs were identified in the study area:

- Wicken Fen Ramsar;
- Fenland SAC; and
- Devil's Dyke SAC.

3.1.4 Wicken Fen Ramsar shares the same boundary with Fenland SAC and is also designated as a SSSI and NNR. Details of these sites, including name, designation, distance from zone and reason for designation are shown in Table 3-1.

Table 3-1: Statutory designated sites

Site name	Designation	Distance and direction from Scheme Order Limits	Reasons for designation
Wicken Fen	Ramsar site	8.5km north-east of the Scheme Order Limits.	Supports one of the most outstanding remnants of the East Anglian peat fens. The area is one of the few which has not been drained. Traditional management has created a mosaic of habitats from open water to sedge and litter fields. Also designated as the site supports one species of British Red Data Book (RDB) plant, fen violet (*Viola persicifolia)*, which survives at only two other sites in Britain. It also contains eight nationally scarce plants and 121 British RDB invertebrates.

Site name	Designation	Distance and direction from Scheme Order Limits	Reasons for designation
Fenland	SAC	8.5km north-east of the Scheme Order Limits.	Designated primarily for presence of *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) and calcareous fens with (*Cladium mariscus)* and species of the (*Caricion davallianae)* habitats, with spined loach (*Cobitis taenia)* and GCN also present as qualifying features.
Devil's Dyke	SAC	9km east of the Scheme Order Limits.	Designated for the presence of semi-natural dry grasslands and scrubland on calcareous substrates. The site consists of a mosaic of CG3 upright brome (*Bromus erectus)* and CG5 *Bromus erectus* – tor-grass (*Brachypodium pinnatum)* calcareous grasslands. Devil's Dyke is classified as priority habitat "orchid rich sites". It is the only known UK semi-natural dry grassland site for lizard orchid (*Himantoglossum hircinum)*.

3.1.5 There are no SPA where the qualifying features are birds within 10km of the study area. Wicken Fen Ramsar is known to have wildfowl interest. However, this is not a reason for its classification as a Ramsar site. There is one SAC, Eversden and Wimpole Woods designated for barbastelle within 30km of the Scheme Order Limits (approximately 15km to the south-west at its closest point).

3.1.6 Nineteen nationally designated statutory sites are present within the 10km study area. These include 19 SSSIs, one of which is also classified as a NNR (Wicken). Of these, four are designated for their geological features. Fifteen sites, are designated for biodiversity features, with these shown in Table 3-2.

3.1.7 A total of 13 LNRs are found within the 10km study area, with these also shown in Table 3.2.

3.1.8 The proposed treated effluent discharge outfall to the River Cam is located in the River Cam CWS. The effects on the River Cam in the vicinity of the final effluent pipeline are considered in Section 4.2.10.

3.1.9 Fulbourn Fen SSSI (5.3km south-east from the proposed WWTP) and Great Wilbraham Common SSSI (4.5km to the south-east of the proposed WWTP) were originally incorporated into the study area due to the Scheme Order Limits being much larger in 2021 than the current reduced Scheme Order Limits. These sites are situated upstream from the proposed WWTP and therefore there are no impacts on biodiversity resources of these designated sites from water impacts such as effluent or pollution spill.

3.1.10 Mitigation measures set out within the CEMP and CoCP documents will ensure no adverse impacts through air quality changes during construction and operation occur to these designated sites. Wilbraham Fens SSSI is also upstream of the proposed WWTP and as such, there would be no impact on biodiversity resources at the SSSI during operation from impacts to water sources from effluent or pollution spill.

Table 3-2: Nationally designated sites

	Site name	Designation	Distance and direction from Scheme Order Limits	Reasons for designation
SSSI				
1	Stow-cum-Quy Fen	SSSI	845m north west	Contains floristically rich calcareous loam pasture, in addition to hedgerows and scrub which add to the variety of habitats.
2	Wilbraham Fens	SSSI	1.3km south east	The site is a large area of fen and neutral grassland with associated scrub and open water communities. Similar fens are now rare in Britain and now occur only in a few scattered inland localities, mainly in East Anglia. A large part of the site consists of common reed (*Phragmites australis)* which occurs as dense stands. Other fen species such as purple loosestrife (*Lythrum salicaria*) and meadow rue (*Thalictrum flavum)* occur within these areas. The grassland communities include rough wet pastures dominated by tufted hair-grass (*Deschampsia cespitosa)* together with areas of species with sward characterised by plants such as quaking grass (*Briza media)* and red fescue (*Festuca rubra)*, together with herbs such as harebell (*Campanula rotundifolia)* and field scabious (*Knautia arvensis)*.
3	Great Wilbraham Common	SSSI	4.5km south east	The site supports neutral grassland communities of calcareous loam grassland type, which is now rare in Britain. One of the largest remaining species-rich grasslands in Cambridgeshire.
4	Cherry Hinton Pit	SSSI	4.5km south	This area is primarily notified for the populations of four nationally uncommon plant species which occur on the site. In addition, areas of herb-rich chalk grassland are present and these represent a habitat type which has almost disappeared from the eastern counties of England. Of the four uncommon plants present, three are listed in the British Red Data Book. These are great pignut (*Bunium bulbocastanum*), moon carrot and grape hyacinth (*Muscari neglectum*). The other rare plant recorded is perennial flax. Many specimens of these plants grow along the road verges as well as within the quarry areas.
5	Fulbourn Fen	SSSI	5.3km south east	The site has species-rich neutral grassland on calcareous loam and peat, with remnants of fen woodland; these habitats are rare in lowland England.
6	Roman Road	SSSI	5.7km south	The Roman Road supports species-rich calcareous grassland communities of a type which was once widespread on the chalk areas of lowland England and

	Site name	Designation	Distance and direction from Scheme Order Limits	Reasons for designation
				which is now scarce due to changes away from the traditional sheep grazing economy of these areas to arable. Thick hedgerows and small copses along this 'green lane' enhance the value of the grassland for invertebrates.
7	Gog Magog Golf Course	SSSI	5.7km south	This site supports grassland communities of the calcareous chalk grassland type. Of additional note is the occurrence of the nationally rare moon carrot (*Seseli libanotis*) and the locally rare perennial flax (*Linum anglicum*). Such sites also hold a good invertebrate fauna.
8	Fleam Dyke	SSSI	6.3km south east	The Fleam Dyke holds chalk scrub and species-rich chalk grassland communities which are of a very limited distribution in south, central and eastern England and especially rare in Cambridgeshire.
9	Cam Washes	SSSI	6.6km north	A series of low-lying pastures which are subject to seasonal flooding. This seasonal flooding, coupled with a range of grassland structure from damp short grassland to wet tussocky fields, with associated pools, ditches and river margins, together with relative freedom from disturbance makes this an important site for numbers and diversity of wintering and breeding wildfowl and waders.
10	Madingley Wood	SSSI	7.1km south-west	Madingley Wood is an example of the ash-maple woodland type characteristic of the chalky Boulder Clay of eastern England. The ground flora is typically of dog's mercury (*Mercurialis perennis*)-bluebell (*Hyacinthoides non-scripta*) type. The woodland has also been noted for its moss flora. The site is of particular educational and research value in view of its long association with the University of Cambridge.
11	Upware North Pit	SSSI	7.2km north	The freshwater habitats hold one of the only two native British localities for the water germander (*Teucrium scordium)* which is listed in the British Red Data Book (Perring & Farrell, 1983).
12	Newmarket Heath	SSSI	7.5km east	Adjacent to Devil's Dyke SSSI/SAC, this is a large expanse of unimproved chalk grassland, a habitat which is scarce in Britain. High diversity of flowering plants present.

	Site name	Designation	Distance and direction from Scheme Order Limits	Reasons for designation
13	Wicken Fen	SSSI	8.5km north east	Remnant of the East Anglian peat fens, unique within the context of Cambridgeshire. Supports fen communities of carr and sedge, as well as rough pastureland, reedbed and pools, which attract wildfowl.
14	Devil's Dyke	SSSI	8.9km east	Devil's Dyke is designated for an extensive area of species-rich chalk grassland and chalk scrub, grading to woodland. The wood, scrub and grassland are valuable for insects which are now uncommon in Cambridgeshire.
15	Dernford Fen	SSSI	10.0km south	This site represents a relic of a much larger area of rough fen and carr. These habitat types are now rare in the county and in eastern England as a whole. The vegetation ranges from dry grassland and scrub to relic fen, reedbed and alder carr. Areas of open pools within the site together with ditches and the chalk stream along the boundary further enhance the diversity of this site. The variety of vegetation types and open water within the site provides valuable habitat for fauna, in particular for amphibians and reptiles. The area is also noted for its breeding warblers.
LNR				
1	Bramblefields	LNR	1.7km south west	Important area for wildlife in a primarily residential area. Features include song thrush, grassland, scrub and a pond.
2	Coldham's Common	LNR	2.1km south west	Area of unimproved grassland. Known for yellow meadow ants (*Lasius flavus)*, indicating that the site has never been ploughed. Also known to support pyramidal orchid (*Anacamptis pyramidalis)*.
3	Barnwell II	LNR	2.1km south west	Supports a wildlife corridor along Coldham Brook. The brook is managed to encourage water voles. Birds such as kingfishers and nightingales (*Luscinia megarhynchos*) are also known to be present.
4	Barnwell	LNR	2.2km south west	Supports habitats including grassland, scrub and a pond. Known to have bee orchids (*Ophrys apifera)*, as well as frogs (*Rana temporaria)*, common toad (*bufo bufo*) and grass snakes (*Natrix helvetica)*.

	Site name	Designation	Distance and direction from Scheme Order Limits	Reasons for designation
5	Logan's Meadow	LNR	3.1km south west	LNR is known for its presence of otter, butterflies, bats and freshwater mussels in the River Cam.
6	Worts Meadow	LNR	3.4km north west	Urban fringe site with hedgerows supporting breeding birds. Ponds with GCN are also present within this LNR.
7	Limekiln Close (and West Pit)	LNR	3.8km south	Previously quarries, now supporting chalk grassland habitats. The rare moon carrot (*Seseli libanotis)* is found in the West Pit.
8	East Pit	LNR	3.9km south	One of three quarries previously providing chalk and lime. The area now supports rare plants and insects, as well as breeding birds.
9	Sheep's Green and Coe Fen	LNR	5.2km south west	Improved and semi-improved grassland, with some shrubs and hedgerows.
10	The Beechwood	LNR	5km south	A small beech wood on a chalk ridge. Wildlife includes white helleborine (*Cephalanthera damasonium)* with orchid and fungi species. In some good beech-mast crop years, flocks of bramblings.
11	Paradise	LNR	5.6km south west	Wet woodland and marsh area, with mature riverside willows. Notable species include butterbur (*Petasites hybridus)* and the rare musk beetle (*Aromia moschata)*.
12	Nine Wells	LNR	6.5km south west	Important site with chalk springs, managed to encourage rare freshwater invertebrates that were once present.
13	Byron's Pool	LNR	7.5km south west	Woodland site next to the River Cam, with a small number of ponds managed for amphibians.

Non-Statutory Designated Sites

3.1.11 There are 55 non-statutory designated sites within 5km of the Scheme Order Limits. This includes 21 CWS, 33 City Wildlife Sites (CiWS) and one Protected Road Verge (PRV). CWS and CiWS south of the A14 road network are not included in Table 3-3~~Table 3-3~~ as there are no anticipated impact pathways from the Proposed Development due to their distance and isolation from the Proposed Development and their location within existing built-up areas of Cambridge. The lack of impact pathways means that all CWS and CiWS south of the A14, except for Milton Road Hedgerows CiWS (which is adjacent to the existing Cambridge WWTP) and the PRV, will not be considered further and are considered as scoped out. The remaining 14 non-statutory sites are shown in Table 3-3~~Table 3-3~~.

Table 3-3 Non-statutory designated sites

	Site name	Designation	Distance and direction from Scheme Order Limits (at closest point)	Reasons for designation
1	Low Fen Drove Way Grasslands and Hedges	CWS	Within land required for the landscape masterplan	Supports more than 0.05ha of the NVC *CG3 Bromus erectus* grassland community.
2	Allicky Farm Pond	CWS	525m north-east	A type 10A (Cambridgeshire & Peterborough County Wildlife Sites Panel, 2014) water body with at least 15 submerged, floating and emergent plant species.
3	River Cam	CWS	Within land required for the outfall management and monitoring plan	A major river (together with adjacent semi-natural habitat) that has not been significantly modified by canalisation and/or poor water quality. In addition, there are areas with concentrations of mature pollard willows (*Salix spp*.).
4	Milton Road Hedgerows	CWS	Adjacent to existing Cambridge WWTP	Site qualifies for its potential ecological value as a CWS but misses criteria for hedgerows. Likely to meet these criteria in the future.
5	Clayhithe Pollard Willows	CWS	0.3km west	Supports more than 20 mature pollard willows.
6	Landbeach Pits Willow Wood	CWS	2.7km north-west	Has an invertebrate index of greater than 500.
7	Bottisham Park	CWS	3km east	Site supports populations of plant species which are rare in the county including fly orchid (*Ophrys insectifera)* and small orchid *(Dipsacus pilosus)* and contains five or more veteran trees in association with other semi-natural habitat.
8	Anglesey Abbey	CWS	1.1km east	Contains grassland that supports frequent numbers of at least three strong neutral and six strong calcareous indicator species. In addition, this is a Grade C site in the JNCC Invertebrate Site Register (Natural England, 2016).
9	Cambridge Road Willow Pollards	CWS	1.4km north-west	Consists of more than five mature pollard willows in association with semi-natural habitat.

	Site name	Designation	Distance and direction from Scheme Order Limits (at closest point)	Reasons for designation
10	Twenty Pence Pit	CWS	2.5km north-west	Contains well developed vegetation mosaics which represent hydroseral zonation.
11	Beach Ditch and Engine Drain	CWS	2.7km north-west	Supports more than five submerged, floating and emergent plant species per 20m stretch; and more than 10 species per 20m if wet bank flora is included.
12	Cow Bridge Pollard Willows	CWS	4.4km north-east	Supports at least five mature pollard willows in association with another semi-natural feature.
13	River Great Ouse	CWS	4.7km north-west	A major river not grossly modified by canalisation or poor water quality; supports >0.5ha *NVC S6 swamp*; >0.5ha *S4 swamp*; >0.05ha *MG13 grassland*; a NS vascular plant yellow floating heart (*Nymphoides peltata)*; breeding populations of a NR dragonfly (*Libellula fulva)*.
14	Swaffham Poor's Fen	CWS	4.1km north-east	Site contains more than 0.5ha of W6 Alder (*Alnus glutinosa)* – Stinging Nettle (*Urtica dioica)* woodland.

Habitats and Flora

Ancient woodland and veteran trees

3.1.12 There are no records of ancient woodland within 200m of the Scheme Order Limits. No potential ancient woodland was identified during the Extended Phase 1 Habitat Survey.

3.1.13 Two veteran pedunculate oak (Quercus robur) trees were identified within the land temporarily required for the construction of the northern section of the Waterbeach pipeline to Low Fen Drove Way east of Horningsea Road. These are identified within Figure 8.3 Veteran Oak Trees (Book of Figures- Biodiversity, App Doc Ref 5.3.8)

Habitats

3.1.14 Habitats recorded during the Extended Phase 1 Habitat Survey of the Proposed Development in 2020 were dominated by arable land amounting to 262ha. Other habitats comprised 0.7ha of broadleaved semi-natural woodland, 4.4ha poor semi-improved grassland, 7.5ha semi-improved neutral grassland, 4.1ha improved grassland, 13.3ha amenity grassland, 9.6km of dry ditch, as well as small areas of scattered scrub, ephemeral short perennial vegetation, hardstanding, and buildings.

3.1.15 Within the area of land required for the proposed WWTP and landscape masterplan there is 195.6ha of arable land, 0.5ha of broadleaved semi-natural woodland, 2.4ha poor semi-improved grassland, 2.7ha improved grassland, 1.3ha semi-improved neutral grassland, 2ha of amenity grassland, 10.5ha hardstanding and 1.4ha dense scrub. These habitats are shown on Figure 8.4 Phase 1 habitat map (Book of Figures – Biodiversity, App Doc Ref 5.3.8).

3.1.16 Four ponds were found within the aquatic ZoI for the land temporarily required for the construction of the northern section of the Waterbeach transfer pipeline to Low Fen Drove Way.

3.1.17 The land temporarily required for the construction of the waste water transfer tunnel encompasses the First Public Drain within the existing Cambridge WWTP. The waste water transfer tunnel from the existing Cambridge WWTP to the proposed WWTP, crosses under the River Cam. The Waterbeach transfer pipeline crosses under the River Cam in two locations; to the east of Waterbeach Sailing Club and to the east of the existing Cambridge WWTP.

3.1.18 The aquatic ZoI of the Proposed Development supports a network of artificial drainage ditches. A total of 36 of the ditch survey sites within this area were recorded as being dry at the time of survey. A total of 24 ditch survey sites were wet at the time of the Extended Phase 1 Habitat Survey in 2020.

Priority Habitats

3.1.19 The following priority habitats were found within 100m of the Scheme Order Limits of the Proposed Development:

- deciduous woodland;
- species-rich hedgerows;
- the River Cam, which is a river priority habitat;
- ponds which may qualify as a pond priority habitat; and
- coastal and floodplain grazing marsh is present along the River Cam within 100m of the Scheme Order Limits.

3.1.20 NVC surveys were undertaken in May and July 2021. The surveys included woodland and grassland within the area of land required for the proposed WWTP, landscape masterplan, the final effluent pipeline and treated effluent discharge outfall to the River Cam.

3.1.21 The results of the NVC woodland survey returned no notable species (priority species, red-listed, county rare plant register) present or ancient woodland indicator species. Areas of woodland included plantation woodland and does not correspond to a NVC community. One area of semi-natural woodland on the land required for the Waterbeach transfer pipeline was provisionally assessed as best fitting the NVC woodland community W8e.

3.1.22 The results of the NVC grassland survey suggest that some Breckland type sandy grassland is present within the boundary of the existing Cambridge WWTP (there is a known history of Breckland sand having been brought into the area), but there were no associated notable plant species. Marsh dock (*Rumex palustris*) on the Register of Plants of Conservation Concern in Cambridgeshire (RPCC) (Shanklin, 2019) was frequently found around the disused balancing pools in the existing Cambridge WWTP. Strawberry clover (*Trifolium fragiferum*) was present on the tow path on the eastern side of the River Cam north of the A14 bridge near the location of the proposed treated effluent discharge outfall to the River Cam. Field scabious was scattered throughout the Low Fen Drove Way Grasslands and Hedges CWS and occasionally elsewhere within land required for the proposed WWTP. Floodplain grazing marsh is located east and west of the River Cam within the area of land temporarily required for the Waterbeach transfer pipeline. Semi-improved neutral grassland was recorded along the Low Fen Drove Way Grassland and Hedges CWS. The unimproved calcareous grassland that the CWS is partially designated for was not recorded during the surveys.

3.1.23 Hedgerows Regulations assessment surveys have been undertaken on 41 hedgerows that either fully or partially fall within the Scheme Order Limits to determine if they are classified as important under the Hedgerows Regulations 1997. Eighteen hedgerows (Figure 8.16 Book of Figures – Biodiversity, App Doc Ref 5.3.8) are classified as important under the Hedgerows Regulations 1997. One hedgerow is

located to the east of the land required for the landscape masterplan, and seven to the west. One is located north of Horningsea, one at Clayhithe, and the remaining eight north of the River Cam. Of all the important hedgerows, three will have up to 6m removed to facilitate open trenching, which will be reinstated post-works.

3.1.24 All other important hedgerows will be avoided and, therefore, not directly impacted; with three important hedgerows avoided by using trenchless techniques, where the footprint of the Waterbeach transfer pipeline intersects them.

3.1.25 One River Habitat Survey (RHS) was undertaken on the River Cam in June 2021 which was centered on the proposed treated effluent discharge outfall to the River Cam. This survey indicated that this reach of the River Cam has 'High' habitat diversity in comparison to reference rivers, though is 'Severely modified', leading to overall an assessment of 'Poor' River Habitat Quality (RHQ). A River Condition Assessment (RCA) based on the Modular River Survey (MoRPh) technique was also undertaken at the same location. The RCA classified this section of the River Cam as 'Fairly Poor'. Bank face reinforcement and bank top managed ground cover were considered to be key impacts to river physical habitat quality. Invasive non-native invasive species within the channel also impacted the RCA with Nuttall's waterweed (*Elodea nuttallii*) recorded as present.

Waterbodies

3.1.26 The desk study identified 69 ditches and four ponds within the Scheme Order Limits. The majority of these are drainage ditches located between field margins. The River Cam flows south to north within the Proposed Development along its western boundary. Several large waterbodies and lakes are also present at Milton Country Park and Cambridge Research Park respectively. Several smaller ponds are also present in the study area.

3.1.27 There are three ditches identified within the land required for the proposed WWTP and landscape masterplan. Of these, two were recorded as dry and the third, to the east is wetter in particular where it connects to a ditch running west – east to the north of the land required for the proposed WWTP.

3.1.28 In addition, there is a ditch adjacent to the River Cam to the north of the A14 road bridge that would be crossed by the final effluent pipeline.

3.1.29 Within the Waterbeach transfer pipeline DCO boundary, there are a total of 20 ditches identified.

Notable Plant Species

3.1.30 Dwarf spurge (*Euphorbia exigua*), a plant listed on the Cambridgeshire Rare Plant Register (Shanklin, 2019) and round-leaved fluellen (*Kickxia spuria*) were recorded during walkover surveys of the land required for the proposed WWTP and landscape masterplan in 2020. Round-leaved fluellen is of least concern on the Red Data List (Stroh, et al., 2014). Both species are associated with arable field margins.

3.1.31 During the 2021 arable weed survey, several notable plants were found scattered throughout the arable field margins of the land required for the proposed WWTP and landscape masterplan and these were:

- dwarf spurge (classified as Vulnerable in Great Britain (GB VU) and Vulnerable in England (Eng VU) on the Red Data List (Stroh, et al., 2014), RPCC);
- catnip (*Nepeta cataria)* (GB VU, Eng VU, RPCC);
- hound's-tongue (*Cynoglossum officinale)* (Near Threatened (NT) in GB and Eng, RPCC); and
- four individual plants of the prickly poppy (*Roemeria argemone)* (Endangered (EN) Eng, GB VU, RPCC) on disturbed ground to the north of the proposed WWTP near Low Fen Drove Way.

3.1.32 As noted above, marsh dock (RPCC) was frequently found around the disused balancing pools in the existing Cambridge WWTP. Strawberry clover (GB VU, Eng VU, RPCC) was present on the tow path on the eastern side of the River Cam north of the A14 bridge and field scabious (Eng NT, RPCC) was scattered throughout the Low Fen Drove Way Grasslands and Hedges CWS and occasional elsewhere within the land required for the proposed WWTP.

Protected and Notable Species

3.1.33 The potential for protected or notable species to be present within the Scheme Order Limits is discussed below. This is based upon best available evidence obtained through the desk study, the 2020 Extended Phase 1 Habitat Survey and surveys completed in 2021.

3.1.34 The biological records search returned records of protected and notable species including priority species of birds, at least ten species of bat (some records were returned at genus level only), otter, water vole, three species of reptile, GCN, brown trout (Salmo trutta) and eight species of butterfly.

Bats

3.1.35 All bat species are protected under the Conservation of Habitat and Species Regulations 2017 (as amended) and the 1981 Act. In addition, barbastelle (*Barbastella barbastellus*), brown long-eared bat (*Plecotus auritus*), noctule (*Nyctalus noctula*) and soprano pipistrelle (*Pipistrellus pygmaeus*) are all priority species. Barbastelle, brown long-eared bat, noctule and soprano pipistrelle are all listed as S41 species.

3.1.36 Records of bats within 5km of the Scheme Order Limits include; brown long-eared bat, common pipistrelle (Pipistrellus pipistrellus), Daubenton's bat (*Myotis daubentonii*), barbastelle (recorded 2.4km east of the land required for the proposed WWTP at woodlands near to Anglesey Abbey), Natterer's bat (*Myotis natteri*), pipistrelle species, *Nyctalus* species, serotine (*Eptesicus serotinus*), whiskered bat (*Myotis mystacinus*), Brandt's bat (*Myotis brandtii*) and soprano pipistrelle. Milton

Country Park, approximately 290m north of the existing Cambridge WWTP, is known to support foraging bats including noctule and Nathusius' pipistrelle (*Pipistrellus nathusii*). A record for parti-coloured bat (*Vespertilio murinus*) was also returned within 2.2km of the land required for the proposed WWTP at Cambridge Airport.

3.1.37 The biological records search also returned records of European Protected Species (EPS) mitigation licences for bat species within 5km of the Scheme Order Limits. The closest was located approximately 200m west of the treated effluent discharge outfall to the River Cam relating to common pipistrelle and soprano pipistrelle.

3.1.38 Woodland and isolated trees in the study area provide potential roosting habitat for bats. The hedgerows, woodland and waterbodies provide suitable commuting and foraging habitat for bats.

3.1.39 Surveys for bats including preliminary bat roost assessments of structures and trees, dusk emergence and dawn re-entry surveys of potential roost features (PRF), bat activity transect and automated static surveys have been undertaken within the Scheme Order Limits plus a 100m buffer.

3.1.40 Three bat activity surveys have been conducted along three transects that incorporated the existing Cambridge WWTP, land required for the proposed WWTP landscape masterplan, the final effluent pipeline and treated effluent discharge outfall to the River Cam.

3.1.41 Four automated static detectors were deployed; two static within land required for the proposed WWTP and landscape masterplan, one static adjacent to the River Cam close to land required for the final effluent pipeline and one static within the existing Cambridge WWTP. Three (in total) surveys were completed in May, July and August 2021. Bat sound analysis to determine bat species and activity has been completed.

3.1.42 Surveys completed in 2021 identified two bat roosts one in each of two different trees. These roosts have been categorised as pipistrelle (*Pipistrellus spp*.) day roosts and are marked within the Bat Technical Appendix (Appendix 8.7, App Doc Ref: 5.4.8.7). Any other trees, buildings, or other structures surveyed for bats during the surveys were deemed to be unsuitable for roosting bats.

3.1.43 The static detector and bat activity transect surveys recorded an assemblage of bats comprising common pipistrelle, soprano pipistrelle, barbastelle bat, brown long-eared bat, noctule, serotine, Daubenton's bat and Myotis species. The Bat Technical Appendix (Appendix 8.7, App Doc Ref 5.4.8.7) outlines the location of the bat roosts, likely foraging and commuting habitat, species of interest, and the bat activity transect and static detector locations.

3.1.44 Within land required for the construction of the Waterbeach transfer pipeline and within the survey buffer area, 16 trees were assessed as having high or moderate suitability to support roosting bats during the preliminary bat roost assessment surveys and subjected to emergence and re-entry surveys. Five trees were confirmed as having day roosts present. Of these, two trees were confirmed as bat roosts

during the initial inspections. The remaining three were confirmed by emergence and re-entry surveys. None of these five roosts will be lost to the Proposed Development.

3.1.45 Further bat surveys (static, transect and emergence/re-entry surveys) were completed between April-July 2022, for the Waterbeach transfer pipeline survey area and show that there are at least eight species using these habitats. The Waterbeach transfer pipeline was subject to three walked activity transects. Each transect received three survey visits. The following species of bat were noted during the transect surveys: common pipistrelle, Nathusius' pipistrelle and soprano pipistrelle, brown long eared bat, noctule, *Myotis* species, serotine, *Nyctalus* species and barbastelle. The hedgerows and tree lines in particular are used for foraging and commuting.

3.1.46 The approximate locations of the barbastelles along the disused railway are: TL 49757 60431 (a single recording) and TL 50210 60768 (a cluster or several recordings). Barbastelles were also recorded at TL 48397 61249 and TL 48651 61499 these two locations were comprised of single recordings, likely from commuting individuals. These recordings were taken during activity transects conducted in 2021.

3.1.47 Additional surveys in 2022 located a barbastelle bat using the habitat at TL 49490 62646 (at Horningsea).

3.1.48 The results of these surveys have been used to determine the requirement for an EPS mitigation licence, and to provide information on bat use of the survey area including functional connectivity between and to Wicken Fen and Anglesey Abbey.

Otter

3.1.49 Otter is afforded protection under the Conservation Habitats and Species Regulations 2017 (as amended) and the 1981 Act. Otter is listed as a priority species and a S41 species for Cambridgeshire and Peterborough.

3.1.50 The River Cam is known to support or have previously supported otter in certain locations, for example Logan's Meadow LNR and records of otter exist for other sections of the River Cam. Otter can have wide-reaching territories and are known to use smaller watercourses including drains and ditches. Therefore, otter may utilise the drainage ditches throughout the study area for foraging or dispersal.

3.1.51 Evidence of otter was found during surveys in 2021 and 2022 along the watercourses and ditches and the River Cam within the survey area. These included old and fresh spraints and feeding remains indicating that otter are using the River Cam and associated ditches but in limited numbers. Locations suitable for use by resting otter were noted, though no active holts were found. Suitable terrestrial habitat is limited for otter holts around the proposed treated effluent discharge outfall to the River Cam. The Otter Baseline Report (Appendix 8.9, App Doc Ref: 5.4.8.9) outlines areas where otter evidence has been found.

Badger

3.1.52 Badgers and their setts are protected by the Protection of Badgers Act 1992 (UK Government, 1992).

3.1.53 Badger is a highly mobile species and can dig new setts quickly. The woodland, hedgerows and arable land within the Proposed Development provides suitable habitat for sett construction and foraging badgers.

3.1.54 Badger surveys for setts and latrines were conducted in 2020, 2021 and 2022 with territorial bait-marking surveys completed in October 2021. Camera video surveys also took place in 2021 and 2022. Survey information along with associated figures can be found within the confidential Badger Baseline Report (Appendix 8.8, App Doc Ref 5.4.8.8). It should be noted that detailed survey information is not publicly available due to sensitivities surrounding the persecution of badgers.

Great crested newt (GCN)

3.1.55 Great crested newt are fully protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and under the 1981 Act (as amended). GCN are a priority species which require standing water to breed and terrestrial habitats such as grassland, scrub or woodland throughout their life cycle including during hibernation.

3.1.56 A network of 198 ditches and 10 ponds within the 250m EZoI have potential to support GCN. There was also suitable terrestrial habitat for GCN including rough grassland, hedgerows and scrub with refugia to support hibernating GCN.

3.1.57 The biological records search did not return records of any GCN EPS mitigation licences within 5km of the Proposed Development.

3.1.58 A Natural England Class Survey Licence Return record of GCN was recorded approximately [redacted]. A Natural England Class Survey Licence Return record of GCN was recorded approximately [redacted]. In addition, [redacted]) has ponds with GCN presence, contributing to the classification of this site as an LNR.

3.1.59 A network of 198 ditches and 10 ponds within the 250m EZoI were initially assessed as having potential to support GCN. There was also suitable terrestrial habitat for great crested newt including rough grassland, hedgerows and scrub with refugia to support hibernating GCN.

3.1.60 All ponds within 250m of the Proposed Development and associated infrastructure, and ditches within 250m of a pond have been surveyed for GCN. The surveys incorporated Habitat Suitability Index surveys and presence/likely absence surveys (including environmental DNA (eDNA) surveys). Population size class assessment survey visits were not required following the outcome of the HSI or eDNA.

3.1.61 eDNA surveys were conducted between mid-April and mid-May 2021 with water samples taken from 18 waterbodies across the Proposed Development excluding the Waterbeach transfer pipeline route. Of the 18 waterbodies sampled, 17 were returned as negative for the presence of GCN eDNA and results from one waterbody were returned as indeterminate due to contamination from sediment within the sample taken. This single inconclusive sample has been assessed as likely to be negative for GCN eDNA due to the surrounding waterbodies having negative eDNA returns in combination with a landscape habitat quality assessment for this species.

3.1.62 Traditional surveys (bottle trapping, torching and egg searching) were carried out at three waterbodies in early April 2021 prior to the eDNA surveys. However, these surveys were cancelled or scoped out of further survey due to a number of factors such water levels dropping within the waterbodies which prevented bottle trapping, eDNA results returned as negative, night-time temperatures dropping below 5°C on planned survey visits and the eventual drying up of these waterbodies by late April 2021.

3.1.63 eDNA surveys were conducted within the land required for the Waterbeach transfer pipeline and survey buffer in June 2021. A total of 17 ponds were sampled with 16 returned back as negative for GCN eDNA and one waterbody, a pond, returned as indeterminate.

3.1.64 An additional two waterbodies within the Waterbeach transfer pipeline route were surveyed using eDNA in 2022, along with a resurvey of the indeterminate waterbody referenced above. The newly surveyed waterbodies were returned as negative, with the indeterminate waterbody again returning the same result. This is possibly due to the pond being a water attenuation pond for farm irrigation.

3.1.65 Given the lack of any evidence of GCN presence within the Proposed Development or its ZoI, this species is scoped out of any further assessment.

Birds

3.1.66 All wild birds, their nests and eggs are protected under the 1981 Act. It is an offence to kill or injure wild birds, or to take, damage or destroy the nest of any wild bird while it is in use or being built. In addition, species listed on Schedule 1 of the Act are afforded additional protection from disturbance whilst breeding. A total of 49 bird species are listed as priority species and of these, 26 species occur within Cambridgeshire and are LBAP species.

3.1.67 The EZoI for birds includes suitable habitat for nesting and foraging birds, such as the River Cam with adjacent floodplain grazing marsh, other waterbodies including standing water, extensive arable farmland with fields separated by hedgerows, small copses of woodland, scrub and scattered trees.

3.1.68 BTO data outlined in the Breeding Bird Report (Appendix 8.4, App Doc Ref 5.4.8.4), identified that numerous protected or priority bird species are notable for breeding abundance or range within 10km of the Proposed Development. Of these species,

there is suitable breeding habitat within the EZoI for 15 species, as described below. The arable fields with interspersing hedgerows provide suitable breeding habitat for grey partridge (*Perdix perdix*), corn bunting (*Emberiza calandra*) and barn owl. The woodland, scrub and scattered trees are suitable for breeding hobby (*Falco subbuteo*), grasshopper warbler, mistle thrush (*Turdus viscivorus*), nightingale (*Luscinia megarhynchos*), turtle dove and long-eared owl (*Asio otus*).

3.1.69 The River Cam and standing waterbodies are suitable breeding habitat for grey wagtail (*Motacilla cinerea*), kingfisher, garganey (*Spatula querquedula*), avocet (*Recurvirostra avosetta*), Cetti's warbler, and reed bunting (*Emberiza schoeniclus*). The habitats within the EZoI are particularly suitable to support the following breeding Schedule 1 species considering their distribution in the local area: barn owl, kingfisher and Cetti's warbler. Of the 15 potential and notable breeders described above, breeding turtle dove and grasshopper warbler are likely to be particularly important in the EZoI given the breeding abundance, range in the county, uncommon status of the grasshopper warbler in the county shown in the Cambridge Bird Atlas (Bacon, Cooper, & Venables, 2013) and turtle dove being listed on the Rare Breeding Bird Panel (Eaton, Mark; Holling, Mark and Rare Breeding Birds Panel, 2020). In addition, long-eared owl is listed as less scarce on the Rare Breeding Bird Panel and is a confirmed breeder within 10km of the Proposed Development, although the EZoI is outside the current known breeding distribution of this species.

3.1.70 BTO data outlined in the Breeding Bird Report (Appendix 8.4, App Doc Ref: 5.4.8.4) identified that numerous protected, priority or rare bird species are notable for winter abundance and range within 10km of the Proposed Development. Of these, the EZoI provides suitable wintering habitat for 14 species as described below. The arable fields with interspersing hedgerows are suitable to support wintering reed bunting, corn bunting, skylark, great grey shrike (*Lanius excubitor*), Caspian gull (*Larus cachinnans*) and snow bunting (*Plectrophenax nivalis*). The woodland and scrub are suitable to support wintering long-eared owl, stock dove (*Columba oenas*) and firecrest (*Regulus ignicapilla*). The River Cam, waterbodies and adjacent floodplain are suitable to support wintering kingfisher, Cetti's warbler, gadwall, snipe and taiga/tundra bean goose (*Anser fabalis/serrirostris*).

3.1.71 Of the 14 notable wintering species which could occur within the EZoI, the particularly important wintering species are likely comprise snipe and, to a lesser extent, gadwall. The area near to the River Cam in the EZoI is shown by the Cambridge Bird Atlas to be one of the key areas for winter snipe abundance in Cambridgeshire. The EZoI is close to the southern extents of the main Gadwall distribution in Cambridgeshire. However, the EZoI is not likely to be particularly notable for the other wintering species described above owing to either the widespread abundance or distribution of a species, the EZoI not forming a core wintering area owing to being recorded sporadically in Cambridgeshire (e.g., for great grey shrike and snow bunting), or the availability of similar wintering habitats throughout the wider landscape outside the EZoI. In addition, the BTO data did not identify that the area within 10km of the Proposed Development was notable for winter abundance or range of golden plover or lapwing; the EZoI appears to be

outside the key areas for winter abundance and distribution for lapwing and golden plover shown in the Cambridge Bird Atlas.

3.1.72 The likely baseline conditions for wintering birds within the EZoI have been identified as detailed above and, therefore, no additional wintering bird surveys were required to inform the impact assessment.

3.1.73 The breeding locations and potential breeding presence of key species is not confirmed within the EZoI. Therefore, breeding bird surveys have been undertaken which target turtle dove, grasshopper warbler, barn owl, kingfisher and Cetti's warbler in suitable river, hedgerow, scrub, woodland, and building habitats within the area of land required for the proposed WWTP and landscape masterplan, the existing Cambridge WWTP and the area of land required for the construction of the Waterbeach transfer pipeline or transfer tunnel. These included a survey using the Barn Owl Survey Methodology and Techniques for use in Ecological Assessment (Shawyer, 2011) and also undertaking a kingfisher habitat suitability assessment. The Breeding Bird Report (Appendix 8.4, App Doc Ref 5.4.8.4) contains the detailed survey results.

3.1.74 The breeding bird surveys within the study area and a 300m buffer from the Scheme Order Limits, recorded low breeding activity, likely due to the proximity to an extensive network of roads and located adjacent to a predominantly urbanised area. However, Schedule 1/RBBP bird species had the following breeding evidence recorded and include:

- barn owl found in a nest box;
- a record of breeding hobby to the north of the proposed WWTP and outside the Scheme Order Limits;
- little ringed plover calling from suitable habitat outside the Scheme Order Limits with suitable habitat for this species identified within the Scheme Order Limits;
- kingfisher seen coming in and out of nesting burrow;
- Cetti's warbler singing males seen and heard in suitable habitat;
- marsh harrier (*Circus aeruginosus*) pair seen displaying above suitable habitat outside of the Scheme Order Limits in land adjacent to Wilbraham Fen SSSI. Two juveniles were seen in the same area later in the year; and
- red kite seen flying over suitable woodland in which large nests were identified.

3.1.75 No turtle dove or long-eared owl have been recorded.

3.1.76 Priority species farmland birds, such as corn bunting, skylark, yellowhammer, yellow wagtail were recorded as present throughout the area of land within the Scheme Order Limits.

3.1.77 Breeding bird surveys for the proposed WWTP were undertaken over six visits spanning April to August 2021 inclusive. Bird scoping surveys for the Waterbeach pipeline were undertaken between November and December 2021 inclusive, followed by six breeding bird survey visits between March and July 2022 inclusive.

Water voles

3.1.78 Water vole is protected under the 1981 Act (as amended). Water vole is a priority species and is also listed as a LBAP species.

3.1.79 Water vole surveys have been undertaken 100m either side of where the Proposed Development impacts the River Cam and along all other watercourses within the Scheme Order Limits plus a 50m buffer. Surveys involved two visits during the optimal survey window between mid-April and September 2021 inclusive.

3.1.80 Surveys targeting water vole have returned numerous field signs over the study area. These include:

- existing Cambridge WWTP: latrines, footprints and burrows have been recorded in a drain to the east of the existing Cambridge WWTP as well as in a ditch to the south of the existing Cambridge WWTP adjacent to Cowley Road;
- final effluent pipeline and treated effluent discharge outfall to the River Cam: latrines, footprints and burrows and a sighting of a water vole were recorded on the banks of the River Cam and in an adjacent ditch near the treated effluent discharge outfall to the River Cam;
- scattered field signs such as feeding remains were recorded in a ditch 560m to the south-east of the proposed WWTP near Black Ditch watercourse; and
- Bannold Drain (to the east of the existing Waterbeach WRC): two latrines have been recorded along Bannold Drain. Signs including latrines, burrows and footprints have been recorded throughout the main drains in Waterbeach. The most signs were identified along waterbodies WB141, WB318 and WB234.

3.1.81 Water vole scoping surveys of the Waterbeach transfer pipeline zone were undertaken in September 2021. Fifty-three waterbodies were searched for signs of water vole during the first visit. During the scoping surveys it was deemed unsafe to undertake standard surveying techniques for water vole on the ditches along the area of land required for the construction of the Waterbeach transfer pipeline due to the steep gradient of the banks. Instead, raft surveys were conducted over six visits within suitable water bodies along the Waterbeach transfer pipeline route in 2022.

3.1.82 During the scoping surveys, 26 waterbodies were scoped out of further survey. Of the 26 waterbodies, 24 were dry on both the first and second visit, one was scoped out due to the presence of livestock and one was scoped out due to no longer being within the 100m buffer after a change in design.

3.1.83 The raft surveys returned numerous field signs seen on the rafts. These included latrines, runs leading to the rafts, burrow in the bank near rafts and five sighting of water vole.

Reptiles

3.1.84 All UK reptile species are protected under the 1981 Act. Common lizard (*Zootoca vivipara*), grass snake and slow worm (*Anguis fragilis*), are priority species that have been recorded within 5km of the Proposed Development. There is suitable habitat to support these more common species of reptile within areas of grassland, scrub and woodland edge within and adjacent to the Proposed Development.

3.1.85 Surveys for reptiles have covered all suitable habitat within the Scheme Order Limits plus any contiguous habitat within 250m. Reptile surveys focused on species known to be present, or likely to be present within the local landscape, with the assumption that smooth snake and sand lizard would not be present given the lack of suitable habitats and records.

3.1.86 Reptile refugia were placed at 14 locations across the Proposed Development. These survey locations included:

- one location within the existing Cambridge WWTP within land temporarily required for the construction of Shafts 1,2 and 3;
- two locations adjacent to the River Cam in areas of land temporarily required for the construction of the final effluent pipeline/temporary construction compound and the temporary construction compound and land temporarily required for the construction of the southern section of the Waterbeach transfer pipeline;
- two locations near the proposed WWTP, including along the Low Fen Drove Way Grasslands and Hedges CWS and within a field adjacent to Low Fen Drove Way in Land required for the landscape masterplan;
- six locations within land required temporarily for the construction of the northern section of the Waterbeach transfer pipeline to Low Fen Drove Way;
- one location within land required for early planting along Horningsea Road and Low Fen Drove Way as part of the landscape masterplan;
- one location adjacent to land temporarily required for a works compound near the existing Waterbeach WRC; and
- one location within land temporarily required for the construction of the southern section of the Waterbeach transfer pipeline.

3.1.87 The refugia were checked seven times during optimal survey conditions, the following species were recorded:

- four grass snakes were recorded on four separate survey visits, including adjacent to the River Cam within land required for the waste water transfer

tunnel and Waterbeach pipeline and final effluent pipeline and within the proposed WWTP, including along the Low Fen Drove Way Grasslands and Hedges CWS and within a field adjacent to Low Fen Drove Way;

- five common lizards, with four recorded along the Low Fen Drove Way Grasslands and Hedges CWS (two of which were recorded in one survey visit in May 2021) and one adjacent to the River Cam within the land required for the waste water transfer tunnel, Waterbeach transfer pipeline and final effluent pipeline recorded in July 2021; and
- 60 common lizards were recorded adjacent to land required for the construction of the Waterbeach transfer pipeline with a maximum of 39 during a single visit. This grassland field will not be used for construction activities or compounds.

3.1.88 Given the low numbers recorded adjacent to the proposed WWTP and final effluent pipeline route, it is considered likely that the habitats surveyed do not support significant populations of grass snake and common lizard. These species are likely to be dispersing through the habitats surveyed.

3.1.89 However, with regards to Waterbeach, high numbers of common lizard were also recorded in an area adjacent to the land to be used temporarily for a works compound. This survey location had a total count of 45 common lizard with a maximum count of 21 during one survey visit. This location also had one grass snake present.

Terrestrial invertebrates

3.1.90 There is suitable habitat within the Proposed Development to support invertebrate species, with some of these categorised as priority species, protected under the 1981 Act or Near-Threatened or above according to International Union for Conservation (IUCN) criteria (International Union for Conservation of Nature, 2022).

3.1.91 The terrestrial invertebrate scoping survey report (Mott MacDonald, 2020) identified areas within the Proposed Development which may be important for terrestrial invertebrates and recommended further surveys in these locations. Further surveys have been undertaken in 2021 within the following areas:

- Land required for the landscape masterplan and habitats along Low Fen Drove Way:
  - Low Fen Drove Grasslands and Hedges CWS (potentially significant for dead wood (saproxylic) assemblages and also for their provision of nectaring sources for aculeate Hymenoptera, with species known to be rare and vulnerable, as noted via stakeholder consultation). The grassland margins of these droves and trackways also have potential to support significant invertebrate assemblages. Some of the sandy arable field edges in the vicinity of the Low Fen Drove Way were surveyed for nesting aculeate species; and
  - a poor semi-improved pasture grassland surrounded by hedgerow at Honey Hill (potentially significant for dead wood (saproxylic) assemblages and also for their

provision of nectaring sources for aculeate Hymenoptera, with species known to be rare and vulnerable, as noted via stakeholder consultation).

- the existing Cambridge WWTP:
  - a grassland field, which is part of the existing Cambridge WWTP, comprises an area of short rabbit-grazed turf and pools of wetland interest, which may be important to invertebrates.

3.1.92 Each of the sites received four survey visits between May and September 2021. Survey methodologies included pitfall trapping, vane trapping, beating, sweeping and blossom sampling as appropriate to the specific site. The following terrestrial and aquatic invertebrate groups have been sampled and identified:

- Coleoptera (all, including aquatics to species);
- Hemiptera (all Heteroptera, including aquatics to species and all Auchenorrhyncha to species);
- Odonata (all to species);
- Orthoptera (all to species);
- Dermaptera (all to species);
- Mecoptera (all to species);
- Plecoptera (all adults to species);
- Trichoptera (all adults to species);
- Lepidoptera (all adult macro-lepidoptera and some micros to species as found directly by beating and sweeping and observation – no light-trapping);
- Mollusca (all molluscs, aquatic and terrestrial, to species);
- Diptera (larger Brachycera – soldierflies, horseflies, snipe flies, robberflies etc to species, hoverflies to species, tephritids to species, sciomyzids to species);
- Hymenoptera (all sawflies to species, all aculeates to species, all others not surveyed)
- Araneae (all to species); and
- Isopoda (all to species).

3.1.93 Surveys conducted within the areas above recorded 666 species. Pitfall traps were deployed within the short-mown areas in the east of the existing Cambridge WWTP. The invertebrate samples taken from this area are typical of Breckland invertebrate assemblages.

3.1.94 Honey Hill and the Lower Fen Drove Way Grassland and Hedges CWS, returned samples of nationally scarce bee and beetle species with species detailed within the dedicated Terrestrial Invertebrates Baseline Report (Appendix 8.6, App Doc Ref 5.4.8.6).

Fish

3.1.95 The following priority fish species have been recorded within 5km of the Scheme Order Limits: Spined loach (*Cobitis taenia*) and European bullhead (*Cottus gobio*) which are listed as species under Annex II of the EU Habitats Directive, European eel (*Anguilla anguilla*) which is protected by The Eels (England and Wales) Regulations 2009, spined loach and brown trout are listed as species of principal importance for the conservation of biodiversity in England under Section 41 of the NERC Act (2006).

3.1.96 Fish surveys were undertaken in September 2021 within 100m of the proposed treated effluent discharge outfall to the River Cam and all suitable ditches within 100m of the Scheme Order Limits. Surveys completed using micro-seine netting and electric-fishing methods as appropriate for the waterbody. The following species of fish were caught: nine-spined stickleback (*Pungitius pungitius*), bullhead, gudgeon (*Gobio gobio*), roach (*Rutilus rutilus*), bitterling (*Rhodeus sericeus*), sunbleak (*Leucaspius delineatus*), spined loach, and three-spined stickleback (*Gasterostreus aculeatus*). Fish of conservation value include bullhead and spined loach.

3.1.97 eDNA sampling undertaken in July and September 2021 detected a number of additional fish species, most notably European eel. The River Cam may support other species of conservation importance such as river lamprey (*Lampetra fluviatilis*), though they have not been recorded. Although recorded within 5km, the River Cam adjacent to the Scheme Order Limits is considered unlikely to support a brown trout population due to the unsuitable nature of the river in this location. The species has not been detected in surveys within the Scheme Order Limits.

3.1.98 The Schedule 9 invasive fish species bitterling was recorded in a ditch adjacent to the River Cam during the macroinvertebrate surveys in April 2021. The unnamed ditch is north-east of the field where the proposed treated effluent discharge outfall to the River Cam will be located. A potential sunbleak record, as captured during the River Cam surveys, are also a non-native fish species.

3.1.99 No surveys for eDNA fish samples were completed for the area of land required for the Waterbeach pipeline, as the Waterbeach transfer pipeline will pass underneath the River Cam.

Aquatic macrophytes

3.1.100 Some aquatic macrophytes are priority species, protected by the 1981 Act (as amended), or are near threatened or above according to IUCN criteria.

3.1.101 Surveys within four ditches immediately to the east and south of the land required for the proposed WWTP and landscape masterplan were undertaken in June 2021. Ditch macrophyte communities with the EzoI were found to be consistently of low quality. However, one species of local conservation importance, hairlike pondweed (*Potamogeton trichoides*) was recorded within a field ditch within the EZoI.

3.1.102 Macrophyte surveys were conducted on the River Cam in September 2021 at two locations, one upstream of the current and proposed treated effluent discharge outfall to the River Cam and one downstream. The surveys indicated that the macrophyte community is dominated by species tolerant of sedimentation and elevated nutrient concentrations. Both upstream and downstream sites generated an indicative WFD status of 'Moderate', indicating a moderate change from natural conditions because of human activity. No species of conservation importance were recorded in these surveys.

3.1.103 Within the Scheme Order Limits, invasive aquatic plant species were recorded within the ditch network and the River Cam, including Nuttall's waterweed and least duckweed (*Lemna minuta*), which can potentially have a negative impact on native flora.

Aquatic macroinvertebrates

3.1.104 Some aquatic macroinvertebrates are priority species, protected by the 1981 Act, or are near-threatened or above according to IUCN criteria (International Union for Conservation of Nature, 2022). It is possible that both the drainage network and the River Cam contain habitats that are suitable to support macroinvertebrate species of conservation importance, including priority species. As such the broad macroinvertebrate community composition of the drainage network within the Proposed Development and a minimum of 100m buffer zone and the River Cam adjacent to the Proposed Development and downstream of the proposed treated effluent discharge outfall to the River Cam was surveyed.

3.1.105 In April and September 2021 macroinvertebrate samples were collected upstream and downstream of the both the current and proposed treated effluent discharge outfall to the River Cam, and within seven suitable ditches within 100m of the Scheme Order Limits around the proposed treated effluent discharge outfall to the River Cam, and existing Cambridge WWTP.

3.1.106 No protected or notable species were found in macroinvertebrate samples collected from the River Cam. However, samples collected from upstream and downstream of the existing outfall contained families with some degree of pollution sensitivity, and which may be susceptible to declining water quality. The upstream and downstream sites generated an indicative Water Framework Directive (WFD) status of 'High' and 'Good' respectively. The difference may indicate an impact from the existing outfall discharge.

3.1.107 The River Cam macroinvertebrate sampling also returned the following non-native crustacean species:

- northern river/Florida crangonyx (*Crangonyx pseudogracilis/floridanus* agg.); and
- demon shrimp (*Dikerogammarus haemobaphes*).

3.1.108 No species identified in the April 2021 survey within the seven ditches were of high conservation importance. One of the ditches had the invasive shrimp species Florida crangonyx present. Several invertebrate species of local importance according to the survey guidance (Buglife, 2013) were record within multiple ditches including a diving beetle (*Agabus dudymus*), a valve snail and burrowing mayfly species. Within a regional context each of these species are relatively common and therefore are not of specific conservation concern locally.

Invasive species

3.1.109 The presence of invasive species listed on Schedule 9 of the 1981 Act (as amended) and Schedule 2 of the 2019 Order were recorded during the Extended Phase 1 Habitat Survey. Mats of floating pennywort (*Hydrocotyle ranunculoides*) were recorded in the River Cam and a Rhododendron species was recorded adjacent to Cowley Road west of the existing Cambridge WWTP. Specific invasive plant species have not been undertaken as these were recorded during the Extended Phase 1 Habitat Survey, but invasive aquatic species have been recorded throughout the macrophyte, macroinvertebrate and river habitat surveys. Terrestrial invasive species were recorded during the NVC and hedgerow surveys.

3.1.110 The invasive fish bitterling was recorded within a ditch adjacent to the River Cam during the macroinvertebrate surveys in April 2021. The unnamed ditch is north-east of the field where the proposed treated effluent discharge outfall to the River Cam will be located. The invasive fish species sunbleak was also found during surveys on the River Cam in the vicinity of the existing and proposed treated effluent discharge outfall to the River Cam.

3.1.111 The invasive crustacean Northern River/Florida crangonyx (*Crangonyx pseudogracilis/floridanus agg*.) and demon shrimp (*Dikerogammarus haemobaphes*) were recorded within the River Cam and surrounding ditches.

3.1.112 The invasive aquatic plant species Nuttall's waterweed, least duckweed and the stonewort were recorded within the River Cam and surrounding ditches. Indian balsam or Himalayan balsam (*Impatiens glandulifera*) was found on the river bank of the River Cam opposite to the proposed outfall.

3.1.113 There is evidence (public sightings and noted during ecology surveys) that the invasive deer species muntjac (*Muntiacus reevesi*) is present within the wider area around the land required for the proposed WWTP and final effluent pipeline route and using these areas for traversing and foraging purposes.

Other species

3.1.114 There may be habitat loss impacts to other priority species, including European hedgehog (*Erinaceus europaeus*), brown hare (*Lepus europaeus*) and common toad. Species-specific surveys are not considered necessary for these, but their potential presence (based on the suitability of habitats present) are a material consideration.

3.1.115 European hedgehog is listed as a S41 species. Records of hedgehog were returned by the desk study, but these were outside the Scheme Order Limits of the Proposed Development. The woodland, scrub and hedgerows within the Proposed Development may provide habitat suitable for hedgehog. Specific surveys for hedgehog have not been undertaken, but any hedgehogs identified during other surveys were recorded.

3.1.116 Brown hare is listed as a S41 species, with 26 records returned by the desk study (described in section2.5). All records were outside of the Scheme Order Limits of the Proposed Development. Brown hare use a variety of habitats including arable field, woodland edges, scrub and grassland. Specific surveys for hare were not undertaken, with this species considered as present within the local landscape.

3.1.117 Common toad is listed as a priority species and is also listed as a S41 species. Records of common toad were returned by the desk study, but these were outside the Scheme Order Limits of the Proposed Development. The waterbodies, ditch networks, scrub and woodland habitat may provide suitable habitat for common toads within the Proposed Development. Specific surveys for common toad have not been undertaken but incidental counts of common toad were undertaken during the GCN surveys.

3.1.118 There is evidence (public sightings and during ecology surveys) that roe deer (Capreolus capreolus) is present within the wider area around the land required for the proposed WWTP, landscape masterplan and final effluent pipeline route. Roe deer are using these areas for traversing and foraging purposes. No deer surveys have been undertaken or are required.

3.2 Future baseline

3.2.1 For the aspect of biodiversity, the following future developments for the area may lead to an increase in visitor footfall and recreational pressure within Stow-cum-Quy Fen SSSI which could result in an increase in vegetation trampling and soil compaction, dog-fouling, littering, fires and conflicts with livestock grazing management of the site, resulting in impacts on the grassland and aquatic features the site is designated for:

- S/2075/18/OL: Up to 4500 dwellings, business, retail, community, education and leisure uses, Waterbeach New Town East;
- S/0791/18/FL: Relocated railway station comprising platforms, pedestrian bridges, access route, cycle routes, Waterbeach New Town; and
- S/0559/17/OL: Up to 6500 dwellings, business, retail, community, leisure, education and sports use, Waterbeach New Town.

3.2.2 The future development associated with the ECAAP (for example, S/2682/13/OL: Up to 1300 dwellings, school, food store, community and open spaces, Marleigh), was not considered to have recreational pressure impacts upon Stow-cum-Quy Fen SSSI (Natural England, 2018).

3.2.3 An assessment of potential cumulative recreational impacts on Stow cum Quy SSSI is provided within Section 4.3, Chapter 22 (App Doc Ref 5.2.22) taking into account possible future developments as sources of recreational users. This assessment concludes that with the additional recreational users that may arise from the future developments, there will be a moderate adverse magnitude of impact, upon a high sensitivity receptor, resulting in a moderate adverse effect (which is significant). With secondary mitigation measures in place (to include adequate signage, user surveys, lack of visitor parking, planning policy measures such as Strategic Access Management and Monitoring (SAMM) plans, and the Combined Recreation Group (CRG)), the residual effect would reduce to neutral, and would not be significant.

3.2.4 In addition, an increase in future developments may lead to increase in light and noise pollution from buildings and increased traffic movements which may impact upon sensitive ecological receptors such as bats. This has been considered within Chapter 22 (App Doc Ref 5.2.22).

Impacts of climate change on future baseline

3.2.5 Climate change is likely to mean changes in future weather patterns, with warmer temperatures, sea level rise, seasonal rainfall changes and more extreme events. This will most likely have an effect on ecological networks and habitats across the Proposed Development.

3.2.6 Climate effects in the region in general may include a change in the spatial range and variety of species, with a potential for a greater prevalence of species from southern England and also invasive aquatic and terrestrial species. Some species currently present in the region may become extinct locally. Climate effects may include longer growing seasons, an earlier spring, and fewer species hibernating or migrating overseas for the winter. Drought conditions may occur more frequently leading to water stress, vegetation dieback and potentially changing flowering, seed generation and leaf drop seasons. The availability of food and habitats within an ecosystem may change or become scarce, which may have a disproportionate effect on seasonally dependent species such as migratory bird or pollinators. There is potential for pathogens and diseases that would typically be suppressed by cold winters to become more resilient or pervasive.

Reduced summer rainfall: water quality

3.2.7 Reduced water quality due to climate change could occur due to lower future summer rainfall within the catchment leading to either lower summer river levels within the River Cam, which would affect the dilution of treated effluent discharged to the river, and/or the reduction in effluent flows resulting in a more concentrated discharge. The climate change impact of low flow conditions is applicable to both the existing and proposed WWTP.

3.2.8 Reduced water quality could affect biodiversity within the River Cam, river users, and downstream water quality. It would additionally lead to failure to comply with water quality requirements within environmental permitting during low flows.

Reduced summer rainfall and increased drought conditions: biodiversity mitigation habitats

3.2.9 Seasonal ponds: the seasonal ponds proposed within the landscape masterplan (Figure 3.1 in the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14)) have been designed to naturally dry up in the summer. However, it may be that projected future hotter, drier summers may affect the aquatic species that can tolerate longer or more intense periods of drought. Embedded mitigation includes a diversity of aquatic planting for the ponds which will be resilient to a range of climatic conditions.

3.2.10 Calcareous grassland: hotter, drier summers may create vegetation dieback however these effects should be limited as calcareous botanical species favour well drained, drier soils.

3.2.11 Bee banks and other bee and wasp habitats: bee habitats may be affected by drier summer soils. However, this may be both a positive and negative effect for different species. Drier bee banks may better support mining bees but the limited availability of wet mud may impact on other nesting bees.

3.2.12 Water vole ditch network: changes in water levels to wetter winters and drier summers may affect the habitat within the water vole ditch network being created. Management of water levels for optimal water vole habitat will be required by the landowner to provide long-term habitat resources for water vole.

4 Assessment of Effects

4.1 Introduction

4.1.1 This section presents the assessment of effects and sets out a preliminary assessment that takes into account primary and tertiary mitigation in determining effects and then considers secondary mitigation and the assessment of residual effects.

4.1.2 The potential environmental impacts to biodiversity from the construction of the Proposed Development are indicated in Table 2-8 within the maximum design scenario. These are the assumptions (maximum parameters) for the purposes of the biodiversity assessment against which each impact has been assessed.

4.1.3 Impacts upon internationally designated sites found within the study area are assessed within the HRA Report (Appendix 8.16, App Doc Ref 5.4.8.16). Some of the designated sites are not considered in this assessment (see Table 1-2) due to the lack of impact pathways during construction, operation and maintenance. Wicken Fen, Fenland SAC, Cam Washes SSSI, and Upware North Pit SSSI are all a substantial distance downstream of the proposed treated effluent discharge outfall to the River Cam and should not be affected by construction. All designated sites (statutory or non-statutory), other than those assessed within 4.2, were not considered to be impacted by air quality impacts (Chapter 7: Air Quality, App Doc Ref: 5.2.7).

4.1.4 Table 4-1 and 4-2 provide an explanation of the assessment approach with respect of the statutory and non-statutory sites identified in Table 3-2 and Table 3-3.

Table 4-1: Explanation of assessment in respect of statutory designated sites and construction and operational impacts.

Site name	Distance and direction from Scheme Order Limits	Construction and operation
Stow-cum-Quy Fen SSSI	845m north-west	Considered within the assessment
Wilbraham Fens SSSI	1.3km south-east	These sites are upstream of the proposed WWTP, with no anticipated hydrological linkages. No impacts are anticipated as a result of air quality changes (Chapter 7: Air Quality, App Doc Ref 5.2.7). The sites are sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated features, via direct or indirect means.
Great Wilbraham Common SSSI	4.5km south-east	

Site name	Distance and direction from Scheme Order Limits	Construction and operation
Cherry Hinton Pit SSSI	4.5km south	
Fulbourn Fen SSSI	5.3km south-east	
Roman Road SSSI	5.7km south	
Gog Magog Golf Course SSSI	5.7km south	
Fleam Dyke SSSI	6.3km south-east	
Cam Washes SSSI	6.6km north	The Cam Washes SSSI, whilst being hydrologically linked to the proposed WWTP via the River Cam, are sufficiently far enough downstream for any effects (assessed as being not significant within the CWS) to be further diluted. As such, there are no anticipated impacts upon the designated features of the Cam Washes SSSI.
Madingley Wood SSSI	7.1km south-west	This site is upstream of the proposed WWTP, with no anticipated hydrological linkages. No impacts are anticipated as a result of air quality changes (Chapter 7: Air Quality, App Doc 5.2.7). The site is sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated features, via direct or indirect means.
Upware North Pit SSSI	7.2km north	Upware North Pit SSSI, whilst being hydrologically linked to the proposed WWTP via the River Cam, is sufficiently far enough downstream for any effects (assessed as being not significant within the CWS) to be further diluted. As such, there are no anticipated impacts upon the designated features of the Upware North Pit SSSI.
Newmarket Heath SSSI	7.5km east	Newmarket Heath SSSI, whilst being potentially hydrologically linked to the proposed WWTP via the River Cam and Reach Lode, is sufficiently far enough downstream for any effects (assessed as being not significant within the River Cam CWS) to be further diluted. As such, there are no anticipated impacts upon the designated features of Newmarket Heath SSSI.
Wicken Fen SSSI	8.5km north-east	Wicken Fen SSSI, whilst being hydrologically linked to the proposed WWTP via the River Cam and Burwell Lode, are sufficiently far enough downstream for any effects (assessed as being not significant within the River Cam CWS) to be further diluted. As such, there are no anticipated impacts upon the designated features of Wicken Fen SSSI.
Devil's Dyke SSSI	8.9km east	Devil's Dyke SSSI, whilst being potentially hydrologically linked to the proposed WWTP via the River Cam and Reach Lode, is sufficiently far enough downstream for any effects (assessed as being not significant within the River Cam CWS) to be further diluted. As such, there are no anticipated impacts upon the designated features of Devil's Dyke SSSI.
Dernford Fen SSSI	10.0km south	This site is upstream of the proposed WWTP, with no anticipated hydrological linkages. No impacts are anticipated

Site name	Distance and direction from Scheme Order Limits	Construction and operation
		as a result of air quality changes (Chapter 7: Air Quality, App Doc Ref 5.2.7). The site is sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated features, via direct or indirect means.
Eversden and Wimpole Woods SAC	15km west	Considered within the assessment.
Bramblefields LNR	1.7km south-west	These sites are sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means.
Coldham's Common LNR	2.1km south-west	
Barnwell II LNR	2.1km south-west	
Barnwell LNR	2.2km south-west	
Logan's Meadow LNR	3.1km south-west	
Worts Meadow LNR	3.4km north-west	
Limekiln Close (and West Pit) LNR	3.8km south	
East Pit LNR	3.9km south	
Sheep's Green and Coe Fen LNR	5.2km south-west	
The Beechwood LNR	5km south	
Paradise LNR	5.6km south-west	
Nine Wells LNR	6.5km south-west	
Byron's Pool LNR	7.5km south-west	

Table 4-2: Explanation of assessment in respect of non-statutory designated sites and construction and operational impacts.

Site name	Distance and direction from Scheme Order Limits	Construction	Operation
Low Fen Drove Way Grasslands and Hedges CWS	Within land required for the landscape masterplan	Considered within the assessment	

Site name	Distance and direction from Scheme Order Limits	Construction	Operation
Allicky Farm Pond CWS	525m north-east	No direct impacts or impact pathways identified, upon designated feature	Considered within the assessment
River Cam CWS	1.6km south-west	Considered within the assessment	
Milton Road Hedgerows CWS	1.8km west	Considered within the assessment	No direct impacts or impact pathways identified, upon designated feature
Clayhithe Pollard Willows CWS	2.5km north	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means.	
Landbeach Pits Willow Wood CWS	2.7km north-west	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means.	
Bottisham Park CWS	3km east	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means.	
Anglesey Abbey CWS	3.1km north	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means.	
Cambridge Road Willow Pollards CWS	3.1km north	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means.	
Twenty Pence Pit CWS	3.1km north	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means.	
Beach Ditch and Engine Drain CWS	4.4km north-west	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means or indirect means.	
Cow Bridge Pollard Willows CWS	4.4km north-east	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means or indirect means.	

Site name	Distance and direction from Scheme Order Limits	Construction	Operation
River Great Ouse CWS	4.7km north-west	The River Cam flows into the River Great Ouse, approximately 15.5km north of the A14. The assessment within section 4.2 provides information on the River Cam CWS with the impacts on this CWS being not significant, temporary and within a small area, not extending to the confluence with the River Great Ouse. As such there are no anticipated impacts upon the designated features of the River Great Ouse CWS.	
Swaffham Prior Fen CWS	5.3km north-east	Sufficiently separated from the Proposed Development, so that there will not be any impacts upon the designated feature, via direct or indirect means or indirect means.	

4.2 Construction phase

Proposed WWTP

4.2.1 This section sets out the assessment of effects in relation to the construction of the proposed WWTP including the landscaping proposals, final effluent pipeline, treated effluent discharge outfall to the River Cam, waste water transfer tunnel and a new access connection connecting with the B1047 Horningsea Road.

Temporary water quality/pollution impacts on Stow-cum-Quy Fen SSSI

Magnitude of impact

4.2.2 There is the potential for accidental leakages or spills of materials that could contaminate surface water features. Discharge of silt-laden water from dewatering of pits and excavations, or in run-off from construction areas such as the earth bank, may affect surface water quality and result in secondary effects to aquatic ecology. Silt can result in smothering of aquatic macrophytes resulting in damage or death, it can affect respiratory processes in aquatic species resulting in sub-lethal and lethal impacts. It may also result in nutrient levels elevating which could cause negative impacts on the survival of aquatic species.

4.2.3 Whilst there is no active hydrological connection between Black Ditch and Quy Water (one was likely to have existed historically), there is an active hydrological connection between Black Ditch and Stow-cum-Quy Fen SSSI.

4.2.4 Best practice measures will be applied during construction such as measures to minimise the risk of runoff reaching ditches and watercourses which may increase silt load, management of dewatering activities in accordance with Environment

Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour, measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits, and measures to restrict refueling activities. Details of surface water run-off control measures are provided in section 7.2 (Nature conservation and ecology), 7.4 (Land quality), and section 7 .5 (Water resource and flood risk) within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) .Therefore, the risk of surface water runoff during construction having any significant effect on this designated site is considered to be low.

4.2.5 The impact upon the SSSI is predicted to be of local spatial extent, short term duration, and intermittent. Given the control measures that would be in place via the CoCP Part A and Part B, the magnitude is considered to be negligible.

Sensitivity of receptor

4.2.6 Stow-cum-Quy Fen SSSI is considered to be of national importance. The site is also noted of being additionally of importance due to its location within an otherwise intensively cultivated area where semi-natural habitats are rare. It contains floristically rich calcareous loam pasture and hedgerows and scrub which add to the variety of habitats and species. The sensitivity of the receptor is therefore considered to be high.

Significance of effect

4.2.7 The impact from the construction of the proposed WWTP (including the landscaping proposals and the new access connection connecting with the B1047 Horningsea Road) on Stow-cum-Quy Fen SSSI is assessed as negligible. Combined with a high sensitivity receptor and negligible impact, it would result in a **slight adverse effect**, which is **not significant.**

Secondary mitigation or enhancement

4.2.8 There are no secondary measures proposed in relation to temporary impacts on Stow-cum-Quy Fen SSSI and the effect remains as slight adverse and is not significant.

Residual effect

4.2.9 The residual effect remains as slight adverse and is **not significant.**

Temporary impacts to non-statutory designated site: River Cam County Wildlife Site

Magnitude of impact

4.2.10 Construction of the outfall would impact the River Cam CWS through:

- direct disturbance to the bed and bank during the construction of the outfall and river bank protection;

- release of potentially contaminated and or silt-laden water from dewatering of the temporary construction works (cofferdam);
- release of potentially contaminated and or silt-laden water run-off from works at the riverbank;
- scour of the riverbed from dewatering to the river;
- temporary increase in noise and lighting from the outfall construction works (including piling to install the cofferdam and the riverbank protection works) and proximity to the temporary compound; and
- temporary change to the river width for up to 12m due to the presence of the cofferdam resulting in short term changes to the river flow including localised scouring.

4.2.11 During construction activities, there will be river habitat loss due to the construction of the treated effluent discharge outfall structure. This area of construction along the river bank has the potential for the designated site to be impacted by temporary discharge into the river if discharge quality and or rate is not properly controlled. The design has been developed to avoid or minimise loss of river habitat within the River Cam, specifically, designing outfall and chamber to allow reinstatement of ditch parallel to River Cam to same profile, designing the outfall (orientation and sizing) to minimise land required overall and to limit the extent of the structure within the river, minimising extent of river bank protection works, and including a river bank protection design that includes embedded 'Green' engineering features within river bank protection works that seeks to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation.

4.2.12 Best practice measures will be applied during construction such as measures to minimise the risk of runoff reaching ditches and watercourses which may increase silt load, and management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour. Surface water run-off control measures are provided in section 7.2 (Nature conservation and ecology), 7.4 (Land quality), and section 7 .5 (Water resource and flood risk) within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1).

4.2.13 The proposed outfall to the River Cam will be built within a temporary sheet pile cofferdam used to maintain dry conditions during construction. Any water from the excavation would be treated to remove sediment before discharging back into the river at a controlled rate. The resulting magnitude of impact on river water quality would be negligible. Specific measure relation to the outfall is within section 3.3. COCP Part B (App Doc Ref 5.4.2.2).

4.2.14 A Flood Risk Activities Permit (FRAP) is required for the proposed development given the installation of the outfall is located within the definition of undertaking work "on, or within 8 metres of, a main river". The purpose of the permit is to set any conditions and to undertake assessments to ensure the activity does not increase flood risk, impact on drainage or harm the environment. This will include conditions

in relation to the way the works are completed and will also serve as a means of approving the final design of the outfall structure and associated riverbank protection works.

4.2.15 Measures in relation to the outfall will be implemented through the requirement within the CoCP Part B to prepare an outfall management and monitoring plan (OMMP)in line with the outline OMMP (App Doc Ref 5.4.8.23). This will include control measures and monitoring requirements in relation to the outfall construction. This plan is to include all measures agreed with the Environment Agency in relation to the permits and consents relating to the outfall construction and any associated dewatering activities.

4.2.16 The works in the river bed would be expected to have a short term, reversible, temporary impact on the sediment content of the river water over a reach of the river downstream of the outfall. It is not possible to predict how far this impact would extend downstream. As the velocity of the river water is slow in normal flow conditions the disturbed sediment would be expected to settle out progressively over a relatively short distance in close proximity to the area of disturbance, upstream of the weir at Baits Bite Lock and over a period of a few days.

4.2.17 The resulting temporary impact on the River Cam CWS is related to river water quality as well as physical changes to the river. The short-term temporary change to river water quality and the temporary presence of the construction works, results in a temporary minor adverse effect and is reversible.

Sensitivity of receptor

4.2.18 As a biodiversity receptor of county importance, the River Cam CWS is considered to be of medium sensitivity.

Significance of effect

4.2.19 The impact of temporary dewatering of the outfall construction area on water quality in the River Cam CWS is negligible in terms of magnitude. Combined with medium sensitivity for the river, there would be a neutral effect, which is **not significant**.

4.2.20 The impact of work in the river bed during the outfall construction on water quality in the River Cam CWS is minor in terms of magnitude. Combined with medium sensitivity for the river, there would be a temporary, reversible, slight adverse effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.21 No secondary mitigation for short term significant adverse effects is proposed as these are anticipated to be temporary, reverting to a neutral effect overall once works are completed. No long-term significant adverse effects as a result of construction have been predicted and no further mitigation is required.

Residual effect

4.2.22 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect will remain as a reversible, temporary slight adverse effect (for the impact on the river bed) which is not significant. The residual effect due to dewatering will remain as a neutral effect which is **not significant.**

Temporary impacts to non-statutory designated site: Low Fen Drove Way Grassland and Hedges County Wildlife Site

Magnitude of impact

4.2.23 A section of Low Fen Drove Way Grasslands and Hedges CWS is within the order limits. The CWS is designated due to it supporting more than 0.05ha of the NVC CG3 Upright Brome (*Bromus erectus*) grassland community. One section of the CWS is within the area of land required for the construction of the proposed WWTP and landscape masterplan, and one section is within the area of land required for the proposed bridleway. In total this is approximately 1.6ha of the CWS.

4.2.24 Construction activities (earthworks and vehicle emissions) in proximity to the Low Fen Drove Way Grasslands and Hedges CWS, could result in the following impacts upon its designated feature:

- an increase in air pollution, causing damage to habitat as a result of dust and nitrogen deposition; and
- result in direct physical damage to the CWS leading to habitat loss and habitat fragmentation.

4.2.25 There may also be a temporary increase in noise and lighting at the CWS, causing disturbance to associated faunal assemblages, not part of the reason for designation itself. These impacts are considered within the assessments for bats and terrestrial invertebrates.

4.2.26 Measures to avoid and minimise impacts to the CWS are:

- the application of best practice dust control measures as required by Section 7.8. of the CoCP Part A (Appendix 2.1, App Doc Ref: 5.4.2.1);
- restriction of access to this area and provision of a construction phase buffer for 10 meters as specified in the CoCP Part B Section 3.3 (Appendix 2.2, App Doc Ref: 5.4.2.2);
- design of the landscape masterplan so that there will be no removal of vegetation from the CWS; and
- routing of works in relation to the proposed pathway through existing pathways that cross the CWS.

4.2.27 Best practice mitigation measures as set out in the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) provide sufficient mitigation for the CWS.

4.2.28 Any short term, temporary increase in air pollution (dust) from construction traffic and or earthworks are not considered likely to affect the growth of habitats based on the application of mitigation measures.

4.2.29 Taking into account the above measures the impact on the CWS is therefore predicted to be negligible.

Sensitivity of receptor

4.2.30 Low Fen Drove Way CWS is considered to be of local importance as a locally designated site (due to it supporting more than 0.05ha of NVC CG3 *(Bromus erectus grassland)* community). It is not considered particularly high quality in terms of overall species diversity. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

4.2.31 The impact from the construction of the proposed WWTP including the landscaping proposals is assessed as neutral, which is **not significant**, due to a combination of a medium sensitivity receptor and negligible magnitude of impact.

Secondary mitigation or enhancement

4.2.32 There are no secondary measures required in relation to temporary impacts on Low Fen Drove Way Grassland Hedges County Wildlife Site and the effect remains as neutral and is **not significant**.

Residual effect

4.2.33 The residual effect remains as neutral and is **not significant.**

Habitats

Impact to terrestrial habitats during construction

Magnitude of impact

4.2.34 The construction of the proposed WWTP (including access road, treated effluent pipeline and transfer tunnel) will require the temporary and permanent use of land:

- The construction of the proposed WWTP and the permanent access road will require the permanent removal of 22ha of land;
- The permanent use of land for the planting and earthworks entirely within the extent of land required for the landscape masterplan equates to up to 72ha of land;
- The land required for the construction of the treated effluent pipeline and outfall comprises a temporary removal of up to 12ha of land for the construction corridor which would be reinstated; and

- The construction of the transfer tunnel which requires the temporary use of up to 15ha for associated construction accesses, compound areas and construction tracks which would be reinstated.

4.2.35 The areas of land permanently used would result in the loss of up to 91.90 ha of arable land and the loss of up to 2.63 km of hedgerow. The construction of the outfall would result in the loss of up to 0.01 ha of Priority Habitat reedbed vegetation.

4.2.36 Removal of terrestrial habitats in relation to temporary and permanent use of the land will result in habitat loss, and potential fragmentation and severance of wildlife corridors.

4.2.37 Habitats within the area of land required for the proposed WWTP to be removed will be mitigated for by new planting of higher ecological value, in line with the landscape masterplan within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14).

4.2.38 Land temporarily required for construction would be reinstated including the replacement of hedgerows. This is a best practice measure and specified in Section 7.2 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1).

4.2.39 In addition to direct permanent and temporary loss of habitats the construction activities have the potential to result in the spread of invasive non-native species (INNS). The proliferation of INNS can also lead to the loss of habitats as native species are displaced.

4.2.40 The potential spread of INNS would be mitigated through the application of best practice measures (include the implementation of exclusion zones around invasive plant species and biosecurity measures) to abide by legislation (under the 1981 Act it is an offence to plant or otherwise cause to grow in the wild any plant listed under Schedule 9 and under Schedule 2 of the Invasive Alien Species (Enforcement and Permitting Order 2019)) which are outlined in section 7.2 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) and section 3.1 of the CoCP Part B (Appendix 2.2, App Doc Ref 5.4.2.2).

4.2.41 Severance (including temporary severance during construction) of existing wildlife corridors (such as field margins and hedgerows) such as those that are present within the land required for the proposed WWTP, could have significant impacts on species in the area, for example by removing habitat which provides commuting corridors for bats and that which is used by reptiles.

4.2.42 Trees would be subject to the implementation of tree/hedgerow protection measures which are outlined within Section 3 and 4 within the Arboricultural Report (Appendix 8.17, App Doc Ref 5.4.8.17).

4.2.43 Land temporarily disturbed would be subject to best practice soil safeguarding measures set out in Sections 5.3-5.6 of the Outline Soil Management Plan (Appendix 6.3 App Doc Ref 5.4.6.3) which would support effective re-establishment of habitats.

4.2.44 Considering the implementation of mitigation measures and advanced landscape planting, the construction impacts to habitats are considered to be moderate adverse.

Sensitivity of receptor

4.2.45 The habitats within the land required for construction of the proposed WWTP are varied. They include those that are less important (i.e. of negligible or local level importance such as managed arable fields and hardstanding, and grasslands and ditches), there are some more important habitats (considered of county importance) including the following priority habitats, present:

- coastal and floodplain grazing marsh;
- species-rich hedgerows; and
- river.

4.2.46 Some habitats also support species of botanical conservation importance, such as arable field margins. As such these are considered as having a county level importance.

4.2.47 Overall, the habitats present have of up to county level importance, and so are considered to have medium sensitivity.

Significance of effect

4.2.48 The impact from the temporary use of land (where habitats are to be reinstated like-for-like) for the construction of the transfer tunnel and treated effluent pipeline on habitats is assessed as a reversible and temporary, moderate adverse effect which is **significant.**

4.2.49 The impact of the permanent use of land for the construction of the proposed WWTP, access road and landscape masterplan will result in a permanent moderate adverse effect likely to occur where habitats are to be lost or replaced with a different type or range (as required through BNG). This is due to a combination of a medium sensitivity receptor and moderate impact. This would be until the replacement plantings and landscaping measures are fully established, which would take several years for trees and woodland.

4.2.50 Once the landscaping is established, however, this effect is considered to be a permanent, moderate beneficial effect which is **significant.**

Secondary mitigation or enhancement

4.2.51 Translocation and replanting of plants of botanical interest (for example, strawberry clover present near the tow path on the east bank of the River Cam close to the outfall) as identified by the Ecological Clerk of Works (ECoW) prior to works being undertaken would be completed to further benefit retention of features of value. These measures are set out within Section 3.1 of the CoCP Part B (App Doc Ref 5.4.2.2) and within the CoCP Pat A section 7.2 (paragraphs 7.2.71 – 7.2.74).

4.2.52 The CoCP Part A, Section 7.2 (Ecology and Nature Conservation), includes a number of measures covering safeguarding of trees and hedgerows and reinstatement, including:

- a requirement that where feasible working widths for pipeline construction will be reduced and that existing gaps in hedgerows will be used or areas where the hedgerow is weaker;
- a requirement that tree protection measures will accord with BS5837 Trees in relation to construction (2012) and National Utilities Group (NJUG) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (2007), with these including root protection areas and ground protection to avoid damage to roots;
- tree/hedgerow works required to facilitate the relevant phase of the Proposed Development will be carried out prior to the commencement of on-site operations associated with that phase. Clearance will be sufficient to enable construction works to be implemented without damaging retained trees;
- early delivery of planting is proposed in the areas demarcated within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14);
- species mixes used for reinstatement will match or increase the diversity of species of the existing trees and hedgerows; and
- a requirement for any planting as part of the Proposed Development that dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season, with stock of the same species and size as that originally planted, unless otherwise agreed with the Local Planning Authority. Ash, where removed, will not be used as a replacement species, with a native species of British origin, fulfilling a similar biodiversity support role, used instead.

4.2.53 Other habitats will be reinstated on a site-specific basis, informed by detailed pre-construction surveys and will be set out within the CEMP (to be prepared by the contractor). Section 7.2 of the CoCP Part A requires the reinstatement of habitats in the first available planting season following construction. Species mixes will match the existing habitat. Reinstated habitats will be monitored for five years from completion of the construction phase. Any which fails to establish or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority and as agreed with the landowner.

4.2.54 No additional mitigation or enhancement measures are proposed.

Residual effect

4.2.55 With the secondary mitigation and enhancement measures proposed implemented, the residual effect is predicted to continue to be a **moderate beneficial** effect which is **significant**.

Impact to aquatic habitats during construction

Magnitude of impact

4.2.56 During construction temporary use of land will result in disturbance to ditches and the River Cam. This would result in:

- short term temporary loss to a small area of the River Cam during construction of the treated effluent discharge outfall to the River Cam;
- temporary loss of a section of ditch during the construction of the treated effluent pipeline and outfall to the River Cam;
- short term severance of habitat along affected linear habitats (river and ditch);
- removal of priority habitats including marginal vegetation within the ditch and the River Cam which includes areas of common reed (*Phragmites australis*); and
- removal of 1.4 km of ditch (including currently dry ditches) within the area of land required for the proposed WWTP.

4.2.57 Furthermore, the River Cam is known to contain invasive species such as floating pennywort in the vicinity of the proposed treated effluent discharge outfall to the River Cam. Himalayan balsam was also found on the opposite bank to the proposed treated effluent discharge outfall to the River Cam but outside the Scheme Order Limits. In areas where it is known that invasive species are present, there is the risk of construction activities spreading these elsewhere within the Proposed Development, or to the wider locality. This will be mitigated through best practice measures (e.g. implementation of exclusion zones and biosecurity measures) to abide by relevant legislation (Under the 1981 Act it is an offence to plant or otherwise cause to grow in the wild any plant listed under Schedule 9 and under Schedule 2 of the Invasive Alien Species (Enforcement and Permitting Order 2019)). Best practice measures as defined above are included within section 7.2 of the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1).

4.2.58 Ditch creation is proposed within Works No 39 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150]) ('Ecological Mitigation Area') to extend the extent of ditch created for water vole habitat mitigation and provide additional replacement ditch habitat of 345m. The additional ditch network creation is in line with BNG requirements and the water vole mitigation licence, and provide new optimal habitat outside of the LERMP area.

4.2.59 The section of the River Cam temporarily used in construction would be reinstated once the cofferdam is removed, there would be a small area of river bed permanently altered by up to 190m^2 of river bed protection.

4.2.60 The ditch section affected by the construction of the treated effluent pipeline and outfall will be reinstated. The design allows for the same bank profile and margin, and it is expected that the ditch would remain unaltered in the long term.

4.2.61 The construction of the outfall will require removal of river habitat at the outfall location directly affecting river habitat and species in that location. The construction of riverbank protection either side of the outfall will require removal of river habitat directly affecting habitat at the margin of the river and species in that location. The riverbank protection and outfall design are described in section 3.8.5 of Chapter 2:Project Description. The design embeds features that intend to minimise the overall extent of loss and to replace up to 100 m^2 of reedbed. The design includes a feature to maintain a wetted edge along the river bank to promoted regrowth of vegetation along the bank. There will be an overall loss of 50m^2 of reed and despite the embedded measures there would still be a change of up to 70m from natural riverbank to modified river bank which is permanent.

4.2.62 Measures within section 7.2 of the CoCP Part A in respect Riparian and Aquatic Habitats would be implemented specifically:

- leaving bank and any aquatic vegetation in place for as long as practicable
- removing the channel bed material prior to the excavation of the trench, storing the material separately and replacing it once construction works are complete to promote rapid colonisation of the area by aquatic invertebrates and aquatic plants
- maintaining the flow downstream of the crossing point
- restoration of original bank profile on completion of the pipeline crossings
- completing works between August and October and or during low flow

4.2.63 Measures related to the construction of the outfall will be set out within the OMMP and secured through the flood risk activities permit. Works in the area of the outfall but not included within the permit would be secured through the OMMP which is a requirement within the DCO.

4.2.64 Severance (including temporary severance during construction) of the existing riparian wildlife corridors providing connectivity and foraging areas (along the River Cam, the ditch parallel to the River Cam and lengths of ditch within the area of land required for the landscape masterplan) could have moderate significant adverse impacts on species in these areas until the time at which the vegetation has recolonised or grown sufficiently to support aquatic species once more. As such this is likely to be a temporary effect with recovery in the medium term.

4.2.65 The magnitude of adverse construction impacts to aquatic habitats (ditches), taking into account the implementation of mitigation measures are considered to be:

- moderate in relation to the ditches within the areas of land required for the proposed WWTP and landscape masterplan;
- minor in relation to the section of ditch (parallel to the River Cam) temporarily required for the construction of the treated effluent pipeline;
- major in relation to the areas of the River Cam (bed and banks) required for the treated effluent pipeline and outfall.

4.2.66 Additional ditch network creation in line with BNG requirements and the water vole mitigation licence, with these holding water, would provide new optimal habitat outside of the LERMP area, within Works No 39 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150]), with this being of 345m in length.

Sensitivity of receptor

4.2.67 Aquatic ditch habitats are considered to be of local importance with aquatic river habitats considered to be county importance.

4.2.68 Aquatic habitats overall are considered to be of up to county importance and of medium sensitivity.

Significance of effect

4.2.69 The impact from the construction of the proposed WWTP and landscape masterplan on aquatic habitats (ditches) is assessed as a permanent slight adverse effect which is **not significant** due to a combination of a medium sensitivity receptor and minor impact, with the habitat lost being compensated for.

4.2.70 The impact from the construction of the final effluent pipeline and treated effluent discharge outfall on aquatic habitats within the ditch parallel to the River Cam is assessed as slight adverse and is **not significant** due to a combination of a medium sensitivity receptor and minor impact.

4.2.71 The impact from the construction of the treated effluent discharge outfall on aquatic habitats of the River Cam is assessed as permanent moderate adverse and is **significant** due to a combination of a medium sensitivity receptor and major impact.

Secondary mitigation or enhancement

4.2.72 Reinstatement of habitats or new plantings through the landscape masterplan to provide restoration of habitats outside of the landscape masterplan area would provide secondary mitigation, such as localised translocation of reedbed habitat to suitable areas within Works No 32 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150]) within the River Cam (as directed by the EcoW), creation of new reedbed habitat within new ditch habitat created within Works No 39 (as outlined in Section 2 of the BNG Assessment Report (App Doc Ref 5.4.8.13)) and translocation of any rare aquatic species identified during pre-commencement checks to nearby

suitable locations as directed by the EcoW. This will result in the habitat functionality of the River Cam and ditches being retained whilst modified. These measures will be secured through the OMMP.

4.2.73 The minimisation of impacts to ditch habitats will also be managed through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2), specifically:

- requirement within the CoCP Part B Section 3.1 for the translocation of reedbed and any species of botanical interest affected by the works to construct the outfall and the river bank protection. Any relocation activities to be included in outfall management and monitoring plan.
- requirement within the CoCP Part A Section 7.2 for the reinstatement of ditches temporarily disturbed during construction.
- requirements within CoCP Part B Section 3.1 in relation to the ditch parallel to the river Cam to re-established banks by planting native locally sourced vegetation. requirements within CoCP Part B Section 3.3 in relation to the retained ditch with hedgerow running to the eastern side of the proposed WWTP:
  - crossings of the retained ditch within the area of land required for the landscape masterplan to be minimised to two crossings each up to 6m width.
  - the final crossing locations of the retained ditch within the area of land required for the landscape masterplan will target existing gaps in the hedge.
  - the crossing of the ditch (incorporating a temporary culvert not exceeding an 8m length of the ditch) will be in accordance with a permit from the Swaffham Internal Drainage Board.

Residual effect

4.2.74 No additional measures are possible in relation to the ditches permanently lost from construction of the proposed WWTP and landscape masterplan, though once newly created ditch habitats are established, the effect is neutral and is **not significant**.

4.2.75 Following implementation of the secondary mitigation measures, the residual effect for the ditch parallel to the River Cam remains a temporary slight adverse effect and is **not significant**.

4.2.76 Following implementation of the secondary mitigation measures described above, the residual effect for the aquatic habitats of the River Cam is considered to be a slight adverse effect and is **not significant**, which will become neutral over time once habitats become established.

Species

Temporary and permanent loss of water vole habitat

Magnitude of impact

4.2.77 Construction of the final effluent pipeline and treated effluent discharge outfall to the River Cam would result in the permanent loss of up to 70m habitat along the River Cam. Temporary disturbance (up to 4 months) of 25m of ditch habitat and then reinstatement of ditch habitat will occur. The proposed construction works to these areas will cause likely disturbance via additional human presence and operational machinery, to any water voles present within the habitats present. Both areas of habitat have been confirmed to support water voles. It is predicted that the impact will affect the receptor directly.

4.2.78 Mitigation in the form of a network of up to 345m of wet ditch feature (in line with BNG net gain measures and including 84m of new water-holding and vegetated ditches for water vole compensation), within 150m of the affected area, for water vole to use will be provided. Measures will meet legislative requirements approved by Natural England and secured by the water vole mitigation licence. A draft licence application is included within the application (Appendix 8.21, App Doc Ref 5.4.8.21). The location of the land required for mitigation works are indicated in Works No 39 (as shown on Works Plan Sheet 3 (App Doc Ref. 4.3) [AS-150]).

4.2.79 To further minimise the effect of the edge protection works mitigation will be embedded into the design in the form of 'green engineering'/features that provide greater biodiversity benefit (see paragraph 4.2.61).

4.2.80 Additional ditch creation provided in line with BNG recommendations (Appendix 8.13, App Doc Ref 5.4.8.13) will provide enhancement for water vole.

4.2.81 Following implementation of the embedded measures including works under a licence to meet legislative requirements and under supervision of an EcoW, the construction impacts on water voles would be considered temporary with available connected habitat for them to relocate to in the short-term and with a new ditch network habitat created. The magnitude is therefore considered to be minor beneficial.

Sensitivity of receptor

4.2.82 Water vole is considered to be of county importance and are a S41 species. Water vole is known to be declining on a national level due to habitat loss and predation. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

4.2.83 The significance of effect would be slight beneficial and **not significant**.

Secondary mitigation or enhancement

4.2.84 There are no secondary measures required for the temporary and permanent loss of water vole habitat and the effect remains as slight beneficial and is not significant.

Residual effect

4.2.85 The residual effect remains as slight beneficial and is **not significant.**

Direct and indirect impacts on otter

Magnitude of impact

4.2.86 Otter is known to use the River Cam and surrounding habitats, and although no evidence of holts or resting places have been found to date, evidence of otter having been present has been observed. It is therefore considered that otter is present on occasion throughout the River Cam and associated habitats, using the area to forage and disperse.

4.2.87 Works involving artificial illumination (light spill) of the River Cam and associated ditches, could cause disturbance to otter using these features to forage or move along, if present. Similarly, should works occur at night within an otter's auditory range (considered as above existing noise levels), otter could be disturbed from their normal activity.

4.2.88 Temporary lighting in construction may be needed at the construction compound adjacent to the outfall, location indicated within the General Arrangement Plans, App Doc Ref 4.2.2. Lighting would be localised and of a short-term duration. There would be work during the hours of darkness during the winter months that could cause noise but the local noise environment is dominated by the A14. It is unlikely that there would be work at night-time (between 18:00 and 07:00) at this location.

4.2.89 Where night time working is required at river crossings where non-open cut techniques are used, the HDD pits will be positioned as far away from watercourses as is practical. Lighting of the working area will, as far as is safe and practical, be positioned to avoid the watercourse and bank side habitat being lit to provide a safe transit route for otter. Directional lighting or a screen to provide a visual barrier between the works and the river will be placed along the riverward side of the working area where possible. Where this is not possible, lighting will be erected so that the spill does not cover the full width of the watercourse, and there is a navigable section remaining unlit above existing light levels. In addition, site compounds and storage or waste storage facilities will be located away from otter habitat.

4.2.90 As no evidence of breeding otter or resting otter was found, it is considered that the overall scale of impact of these temporary works and potential disturbance on the local otter population is minor adverse.

Sensitivity of receptor

4.2.91 Otter is considered to be expanding in range in England with increases observed during the five survey periods of the Otter Survey of England, from 0% of survey sites on the River Cam during the 1977-79 period to 60% of survey sites during the 2009-10 period (Crawford, 2011).

4.2.92 This suggests that the population is growing, though no recent population data is available.

4.2.93 Otter is a S41 species and as such are of county importance (no designations are present for this species within the Scheme Order Limits, and no resting places have been found). The species sensitivity is assessed as medium.

Significance of effect

4.2.94 The significance of effect would be slight adverse and **not significant.**

Secondary mitigation or enhancement

4.2.95 There are no secondary measures required in relation to the disturbance of otter during construction. However, management of lighting through the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1, App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO). This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill (thereby providing a night time safe transit route for otter).

Residual effect

4.2.96 The residual effect remains as slight adverse and is **not significant**.

Disturbance to, and loss of, bat habitats

Magnitude of impact

4.2.97 At least ten species of bat are known to be present within 5km of the Scheme Order Limits, with at least nine species recorded as part of the baseline data collection as reported in the Bat Technical Appendix (Appendix 8.7, App Doc Ref 5.4.8.7) .

4.2.98 Two day roosts for individual pipistrelles were found within two trees associated with the proposed WWTP survey area. These roosts are shown in Figure 8.4.2, within ES Book of Figures Biodiversity (App Doc Ref 5.3.8), and as outlined in the Bat Technical Appendix (Appendix 8.7, App Doc Ref 5.4.8.7). Both trees and their roosts will be retained, though the tree roost within the proposed WWTP landscaping area (for an individual soprano pipistrelle) may be disturbed temporarily during construction of the proposed WWTP and footpaths as well as the landscaping works through construction noise and vibration and increased human presence and lighting in the area.

4.2.99 The tree roost found 185m to the south-west of shaft 2, for two common pipistrelle will not be disturbed.

4.2.100 A Natural England protected species mitigation licence will be in place to legally allow for the disturbance of the roost within the land required for the proposed WWTP and landscape masterplan, with mitigation measures including supervised working under an agreed method statement by a licensed bat ecologist (Draft Bat Licence, Appendix 8.20, App Doc Ref: 5.4.8.20). The following measures will also be put in place:

- provision of a tool-box talk by the licensed bat ecologist;
- timing the works at roost locations to be outside of the hibernation period (where hibernation suitability has been discerned); and
- installation of suitable bat boxes for use by crevice dwelling species on appropriate retained trees prior to disturbing works commencing, to facilitate continued opportunities for bats to roost.

4.2.101 Surveys will be updated in order to inform the Natural England protected species mitigation licence application, in the survey season prior to the licence being made, following the most up to date survey guidance available. This will also inform any refined mitigation or compensation measures required.

4.2.102 Habitats associated with key flight and foraging areas for bats are linear vegetated corridors (such as those provided by woodlands, hedgerows and treelines) and watercourses and ditches (such as the River Cam and nearby ditch network). Bat species are known to utilise the area of land required for the construction of the proposed WWTP, landscaping masterplan and land temporarily required for the construction of the waste water transfer tunnel and final effluent pipeline for foraging and commuting purposes, with at least eight species of bat recorded (including barbastelle).

4.2.103 Barbastelle bats have been recorded commuting along the disused railway, a feature of the Low Fen Drove Way Grasslands and Hedges CWS and calls were recorded to the west of Biggin Abbey Cottages. There will continue to be vegetated corridors (tree lines and hedgerows) facilitating bat (including barbastelle) movements across the local landscape. This includes the tree lines and hedgerows linking Biggin Lane with the River Cam (these will not be lost), and similarly the existing vegetation (including that within Low Fen Drove Way Grasslands and Hedge CWS) will continue to provide a potential crossing point over the unlit A14.

4.2.104 During the construction of the proposed WWTP and the landscape masterplan there will be a requirement to provide up to two access points through the hedgerow and ditch to the east of the proposed WWTP. Best practice measures (e.g. BS5837 Trees in relation to construction (2012) and National Utilities Group (NJUG) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (2007) will be applied during the construction of the proposed WWTP and outlined within the CoCP Part A (Appendix 2.1, App Doc Ref: 5.4.2.1) to

avoid the areas within this hedgerow where high value trees have been identified (see Arboricultural Impact Assessment, Appendix 8.17, App Doc Ref: 5.4.8.17). The least dense areas of the hedgerow will be selected for the crossing locations. As a worst case up to 12m (2 x 6m sections) of the hedge would be temporarily lost during construction and subsequently reinstated. In construction prior to completion of the landscape masterplan planting, the temporary loss will impact upon the functional connectivity of the vegetated landscape to the surrounding areas and may result in habitat fragmentation occurring. Transplanting of hedgerows removed to narrow the access for the permanent paths and new landscaping proposals will provide further habitats including trees, hedges and grasslands but these will take many years to reach maturity (in particular trees).

4.2.105 There are anticipated to be night time construction activities related to the following:

- construction and use of shaft 5 required for the construction of the waste water transfer tunnel including vehicle movements to and from shaft 5;
- construction and use of shaft 4 although use will be limited to short durations when equipment from tunnelling is recovered (over the course of up to 5 days) including vehicle movements; and
- construction of time crucial elements of the proposed WWTP such as continuous concrete pours, vehicle movements to and from the proposed WWTP and movements related to earthworks and landscaping works.

4.2.106 In the darker winter months, there would also be lighting visible in late afternoons from compounds and construction activities, though bat species are less likely to be active during these months.

4.2.107 Lighting and construction activities may cause variable levels of disturbances to commuting and foraging bats depending on the lighting and noise levels produced.

4.2.108 As part of best practice measures and to meet legislative requirements construction lighting will be designed to ensure that any artificial light emitted from the working areas does not prejudice health or create a nuisance as required by the Environmental Protection Act 1990 and in accordance with Guidance Note 01/21 The Reduction of Obtrusive Light Guidance (Institution of Lighting Professionals, 2021) and Guidance Note 08/23 Bats and Artificial Lighting (Institution of Lighting Professionals, 2023).

4.2.109 The impact on bat roosts through disturbance is considered to be moderate adverse due to the close proximity of path creation and landscaping works directly adjacent to the roost.

4.2.110 The ability for bats to functionally use the area of land required for the construction of the proposed WWTP and landscape masterplan for commuting and foraging will be impacted by lighting, severance of connected vegetated habitats,

and loss of vegetated foraging areas. This construction-related impact is considered to be temporary, minor adverse.

Sensitivity of receptor

4.2.111 Bats may individually be impacted as a result of noise, vibration, light, direct disturbance or roost destruction.

4.2.112 The pipistrelle species present are S41 species, with their roosts being protected by the 1981 Act and the Habitat and Species Regulations 2017 (as amended). The species roosting are not defined as Annex II species (under the Habitat and Species Regulations 2017 (as amended)) and so the importance of this receptor is therefore considered at a county level importance.

4.2.113 Barbastelle bats utilising the habitats within the Scheme Order Limits to forage and commute within are Annex II species, though no roosts have been found for this species within the land required for the proposed WWTP. This species is considered at a national level importance.

4.2.114 The roosts for pipistrelle species considered likely to be disturbed by the proposals are categorised as having a medium sensitivity, though the presence of foraging and commuting barbastelle increases the overall sensitivity for bats to high.

Significance of effect

4.2.115 It is predicted that there will be a temporary moderate adverse effect upon bat roosts and commuting and foraging bat species, which is **significant.**

Secondary mitigation or enhancement

4.2.116 The CoCP Part A requires that a temporary Lighting Strategy is developed and included within the CEMP. This will be designed in accordance with Guidance Note 01/21 The Reduction of Obtrusive Light Guidance (Institution of Lighting Professionals, 2021) and Guidance Note 08/23 Bats and Artificial Lighting in the UK (Institution of Lighting Professionals, 2023).

4.2.117 Enhancement features will be required to provide additional roosting provision on newly planted trees once mature, or within Low Fen Drove Way CWS (appropriate bat boxes examples are described within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14). Early planting of larger specimen trees and hedgerow plants will support linkages to facilitate retained commuting and foraging corridors. Additional “thickening” of retained hedgerows is also proposed to promote habitat connectivity for bats.

4.2.118 Management of construction impacts to terrestrial habitats that may affect bat population will also be through further measures as described within the section 7.2 of the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1). These will be set out in the CEMP related to the specific works activity and are to include the following requirements:

- any planting as part of the Proposed Development which dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority, and
- consideration of additional "thickening" of retained hedgerow to promote habitat connectivity for bats, in particular making use of existing hedgerow removed during construction. Any works to hedgerow would be under the supervision of a suitably experienced ecologist.

Residual effect

4.2.119 The long-term residual effect is anticipated to be a moderate beneficial effect which would be significant, due to increased habitat and roost feature creation. However, in the short-term until planting establishes, the residual effect on bats will be slight adverse which is **not significant.**

Loss of badger sett and habitat

Magnitude of impact

4.2.120 Hardstanding required for the construction of the proposed WWTP will see the destruction of an annex sett and result in the loss and fragmentation of lower value habitat. No badger setts were observed in the land required for the treated effluent or the land required for the transfer tunnel.

4.2.121 In addition, the landscape planting (proposed native hedgerow, proposed woodland, proposed calcareous planting) and the construction of the proposed new footpaths around the proposed WWTP has the potential to disturb one subsidiary and three outlier setts.

4.2.122 No artificial setts are required to be built as no main setts are being destroyed. A Natural England protected species mitigation licence will be in place to legally allow for the disturbance of badger and loss of the annex sett, with mitigation measures including supervised working under an agreed method statement by a licenced ecologist (Draft Badger Licence Application, Appendix 8.21, App Doc Ref 5.4.8.21). As there is the potential for badgers to be using the working area for foraging activities, then the following general measures secured by the species licence will be put in place (these measures will also be relevant/appropriate for other protected species such as otter):

- excavations will be closed overnight, 45° ramps constructed or planks of wood used to provide a means of escape;
- any chemicals will be stored in containers overnight and any spillages cleaned up immediately;
- operatives will be informed of badgers using the construction areas through the induction and t~~T~~oolbox t~~T~~alks;

- if appropriate and practical vehicles may be prevented from access certain areas which will be marked by fencing and signage;
- pipes over 120mm diameter will be capped off during storage;
- material or equipment which poses a risk of injury will be securely covered or fenced off, such as sharp objects or cement; and
- in order to avoid attracting badgers to the works compound areas any food waste will be disposed of in appropriate bins or removed at the end of each day.

4.2.123 Construction working areas will be demarcated and fenced (Heras fencing or similar appropriate fence) in a suitable way so as to control working areas in sensitive locations but also with the added benefit of keeping badgers away from construction areas.

4.2.124 Creation of additional planting proposals around the Low Fen Drove Grasslands and Hedges CWS will provide a net gain in badger foraging habitats and connectivity to the wider landscape.

4.2.125 Due to the permanent irreversible loss of the annex sett, impacts on badger during the construction period are assessed as being of major adverse impact magnitude.

Sensitivity of receptor

4.2.126 Badger is not considered to be of conservation concern in the local area, with protection in place to prevent impacts on their welfare, for example through sett loss and injury, or preventing access to foraging resources.

4.2.127 Badger is considered to be of local importance and therefore of low sensitivity.

Significance of effect

4.2.128 Overall, it is predicted that the major impact on the low sensitivity receptor would result in a slight adverse effect, which is **not significant.**

Secondary mitigation or enhancement

4.2.129 There are no secondary measures required in relation to the loss of the badger sett and habitat and the effect remains as slight adverse and is **not significant.** However, a strategy for temporary lighting within the CEMP(s) (secured through requirements in the DCO) will provide requirements for the use of wildlife sensitive lighting in order to minimise lighting disturbances to badgers.

Residual effect

4.2.130 The residual effect remains as slight adverse and is **not significant**.

Loss, change and fragmentation of terrestrial invertebrate habitats

Magnitude of impact

4.2.131 The area of land required for the construction of the proposed WWTP including the permanent access road and landscape masterplan, treated effluent tunnel and transfer tunnel is not considered to be of habitat of significant invertebrate interest.

4.2.132 Areas surveyed for invertebrate assemblages such as parts of the Low Fen Drove Way Grasslands and Hedges CWS and Honey Hill are not within the order limits (Figure A.1 within Terrestrial Invertebrates Baseline Report (Book of Figures – Biodiversity, App Doc Ref 5.3.8). The Low Fen Drove Way Grasslands and Hedges CWS is however considered of value to invertebrates and part of the extent of the CWS is within the Scheme Order Limits.

4.2.133 Within the area of land required for the proposed WWTP there will be some instances where construction activities are continuous and require the use of night time lighting. These activities may be associated with construction of shafts (in particular shaft 4, 5 and the terminal pumping station shaft), construction of the proposed WWTP including any critical concrete pours. There may also be lighting in darker winter months from construction activities including from the main compound, the outfall compound and the shaft 5 works area. It is predicted that the short-term intermittent lighting impacts will affect the receptor directly. The magnitude of this pathway is considered to be minor adverse.

4.2.134 The landscape masterplan includes immediate beneficial provision of bare earth patches within a topographically variable area, offering a range of micro-climes to support a range of invertebrates, such as mining bees. This in combination with retention of more valued invertebrate habitats (ditch with hedgerow feature) and the Low Fen Drove Way Grasslands and Hedgerow CWS habitats means that the magnitude of this pathway is considered to be moderate beneficial.

Sensitivity of receptor

4.2.135 Whilst some nationally scarce bee and beetle species were found associated with Honey Hill and Lower Fen Drove Way Grassland and Hedges CWS, the habitats present within the area of land required for the proposed WWTP, treated effluent pipeline and access road are unlikely to support an invertebrate assemblage of regional interest, and so is considered at county importance.

4.2.136 The sensitivity of the receptor is therefore, considered to be medium.

Significance of effect

4.2.137 It is predicted that the minor adverse impact (lighting pathway) on the medium sensitivity receptor would result in a slight adverse effect which is **not significant.**

4.2.138 It is predicted that the moderate beneficial impact (habitat pathway) on the medium sensitivity receptor would result in a moderate beneficial effect which is **significant.**

Secondary mitigation or enhancement

4.2.139 The CoCP Part A Section 5.9 (Lighting) requires temporary lighting to be designed to accord with The Institute of Lighting Professionals Advice Note-Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/18 – Bats and Artificial Lighting In The UK – Bats And The Built Environment Series (2018). The CoCP also requires a temporary lighting strategy to be incorporated into the CEMP(s) prepared by the principal contractor. This will include details of lighting location and hours of use.

4.2.140 Implementation of the LERMP to manage the landscape plantings and measures provided within it (including provision of seasonal ponds, a mosaic of grassland, scrub and wooded habitats and habitat piles) over a 30-year period will support invertebrate populations in the medium-long term.

Residual effect

4.2.141 The residual effect is moderate beneficial and **significant.**

Direct and indirect impacts upon aquatic species-fish

Magnitude of impact

4.2.142 The Aquatic Baseline Report (Appendix 8.1, App Doc Ref 5.4.8.1) outlines fish species identified within the River Cam. Fish of conservation value include bullhead and spined loach. Brown trout have been found within 5km of the EzoI and the European eel which is of conservation value was recorded as present via eDNA sampling within the River Cam.

4.2.143 The construction of the treated effluent outfall and associated river bank protection will require:

- works to construct river bank protection structures that may affect up to 50m of the river bank and will require removal of marginal vegetation and bank disturbance;
- works to construct the outfall using a cofferdam requiring removal of a section of river bed and replacement of the substrate with erosion protection. This will require dewatering of the cofferdam resulting in downstream water quality changes and could impact any fish trapped behind the cofferdam; and
- works to construct and to remove the temporary river works including cofferdam and associated navigation safety lighting. These will result in short term noise impacts in the river during the installation and removal of the

cofferdam and the short-term introduction of lighting for safety reasons whilst the cofferdam is in place.

4.2.144 The works to this section of the east bank of the River Cam will affect a very small proportion of the total habitat area, and it is expected that there would be no noticeable or measurable change to fish species which utilise it.

4.2.145 Fish spawning may be locally disturbed if construction takes places during the spawning periods for the species present (February to June).

4.2.146 In order to prevent disturbance to any potential fish spawning or nursery sites in the vicinity, the best time to carry out the works would be between mid-July and October (in agreement with the Conservators) and only in low flows (this measure assumes sediment control measures are in place). This would avoid the typical spawning periods for the fish species present as well as the upstream migration period for European eel. River works are planned for July – October and so it is anticipated there will be no disturbance during this period.

4.2.147 In order to limit the magnitude of impact on water quality, best practice measures (outlined below) will be applied and contained within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) and the CEMP. Undertaking these measures will ensure that the risk of uncontrolled discharges from construction activities is reduced (including sediment management and prevention during the installation of the cofferdam and works on the right bank). These measures will also be included within an Emergency Response Plan in the event of a pollution incident. All works should, as standard, be carried out in accordance with the CIRIA C741 Environmental good practice on site guide to ensure no pollution to the watercourse and populations of qualifying species downstream. Best practice guidance for the avoidance of significant effects due to noise and light will also be followed as documented within the CoCP Part A, section 5.9 (Lighting) and Section 7.7 (Noise and vibration).

4.2.148 Following completion of the outfall there would be a testing and commissioning phase for the proposed WWTP. This will include a short period of up to 6 months when both the existing and proposed outfalls are operating. This may result in short term intermittent reduction in water quality within the reach to Baits Bite Lock. Testing and commissioning would be subject to an environmental permit setting limits in relation to effluent releases.

4.2.149 The magnitude of the impact to fish from the construction and testing of the outfall is considered to be temporary, reversible and minor adverse.

Sensitivity of receptor

4.2.150 Several protected fish species, or those that are listed as S41 species could be present within the section of the river where the works will take place including bullhead, spined loach and European eel.

4.2.151 These are considered important at a county level, and as such, the sensitivity of the fish community is medium.

Significance of effect

4.2.152 The significance of the overall effect following mitigation is expected to be slight adverse, which is **not significant.**

Secondary mitigation or enhancement

4.2.153 Areas of marginal vegetation (reed) will be moved to nearby downstream location (as directed by the EcoW) to replicate available habitat that would otherwise be lost due to the construction of the treated effluent discharge outfall. This will be included in the OMMP.

4.2.154 The CoCP Part B (Section 3) (App Doc Ref 5.4.2.2) requires that the method statement for the outfall construction will incorporate a fish rescue strategy. The timing and approach will be agreed with the Environment Agency as part of the permitting processes. Fish rescue will be carried out by a suitably experienced ecologist. Fish rescue will be carried out prior to dewatering of the cofferdam.

4.2.155 Testing and commissioning of the proposed WWTP would include measures to control impacts to the river and are expected to include monitoring. These measures will will be agreed with the Environment Agency as part of the permitting process. A Commissioning Plan will be prepared to align with the outline Commissioning Plan (App Doc Ref 5.42.4) and include measures such as use of treated effluent for testing and re-use of test effluents in the testing process well as measures related to the permit.

4.2.156 Following this additional secondary measure required in relation to direct and indirect impacts upon fish, the effect is therefore expected to be neutral and not significant.

Residual effect

4.2.157 The residual effect is neutral and is **not significant.**

Direct and indirect impacts on aquatic species-macroinvertebrates

Magnitude of impact

4.2.158 The construction of the treated effluent outfall along a section of the east bank of the River Cam will result in direct loss of habitat used by aquatic macroinvertebrates including direct mortality of invertebrates within the area of the riverbed removed for the construction of the outfall and erosion protection.

4.2.159 The temporary construction works which include a cofferdam and dry working area would also result in some mortality of macroinvertebrates within the footprint of the temporary river works.

4.2.160 Habitats used by aquatic macroinvertebrates may also be affected by temporary changes to water quality including an increase in particulate matter from construction activities including dewatering of the cofferdam.

4.2.161 The area directly and indirectly affected will be a highly localised and with works expected to impact over a short period of time only with a rapid recovery of the community post-works. Therefore, the magnitude of this impact is expected to be minor adverse, representing at worst a loss in abundance in a highly localised area.

4.2.162 These works would be subject to an Environmental Permit (flood risk activities) with associated controls secured by the permit. As a minimum these measures will include the best practice measures within the CoCP Part A and B intended to:

- manage dewatering activities and prevent impacts to water quality;
- control and minimise lighting close to and within the river; and
- control and minimise short term noise impacts to the river.

4.2.163 The construction of the treated effluent pipeline and outfall also requires crossing the ditch parallel to the River Cam. Temporary disturbance (up to 6 months) of up to 25m of this ditch will occur. The ditch will also be reinstated to the same profile prior to the construction works.

4.2.164 Taking into account mitigation measures, including those secured by environmental permits, these works could cause localised mortality and loss of habitat for aquatic macroinvertebrates. This would represent a reversible minor adverse impact to ditch macroinvertebrate communities.

Sensitivity of receptor

4.2.165 No macroinvertebrate species of conservation importance were found within ditches or the River Cam within the EzoI, with a corresponding negligible importance assigned to this receptor.

4.2.166 Therefore the sensitivity of the receptor is considered to be at most low.

Significance of effect

4.2.167 The significance of the effect on ditch macroinvertebrates and on river macroinvertebrates will be neutral and **not significant**.

Secondary mitigation or enhancement

4.2.168 There are no secondary measures required in relation to the direct and indirect impacts on ditch and river macroinvertebrates and the effect remains as neutral and is **not significant.**

Residual effect

4.2.169 The residual effect remains as neutral and is **not significant.**

Direct removal and indirect impacts to aquatic species-macrophytes

4.2.170 For the purposes of this assessment macrophytes are considered separately within ditch and river environments.

Magnitude of impact

Ditch macrophytes

4.2.171 Ditch macrophyte communities within the EzoI were found to be consistently of low quality. One species of local conservation importance, hairlike pondweed, was found within 100m buffer of the Scheme Order Limits. It was present within an area of the ditch network which may be affected by water vole mitigation.

4.2.172 Temporary disturbance of ditch habitat from construction related activities could cause loss of habitat for aquatic macrophytes.

4.2.173 The impact magnitude to ditch macrophytes is expected to be minor adverse due to localised, temporary effects.

River macrophytes

4.2.174 The macrophyte communities identified in the River Cam are moderately diverse though no species of conservation importance were identified.

4.2.175 During construction of the treated effluent discharge outfall to the River Cam and riverbank protection works on the River Cam there will be a requirement to remove marginal vegetation. In this location there is a section of semi-natural bank with aquatic macrophytes recorded at the river margin.

4.2.176 A cofferdam of up to 55m length will be required to construct the treated effluent discharge outfall to the River Cam in dry safe conditions. The construction of the outfall will include the construction of scour protection and in this location all macrophytes within the footprint affecting the River Cam would be lost.

4.2.177 In order to limit the magnitude of impact to aquatic macrophytes within area of the river Cam affected by proposed works, the works would be subject to an Environmental Permit (flood risk activities) with associated controls secured by the permit. As a minimum these measures will include the best practice measures within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) intended to manage dewatering activities and prevent impacts to water quality. These include measures to minimise the risk of runoff reaching controlled waters (ditches and watercourses) to prevent pollution incidences; and the management of dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit – whichever applies to the activity. Including treating

dewatering effluent prior to discharge and control of dewatering discharges to prevent scour.

4.2.178 These measures will ensure that the risk of uncontrolled discharges from construction activities is reduced (including sediment management and prevention during the installation of the coffer dam and works on the right bank). These measures will also be included within an Emergency Response Plan in the event of a pollution incident. All works should, as standard, be carried out in accordance with the CIRIA C741 Environmental good practice on site guide to ensure no pollution to the water courses and populations of qualifying species occurs.

4.2.179 The dimensions of the treated effluent discharge outfall to the River Cam and associated river bank protection works have been minimised through detailed modelling and subsequent design has sought to integrate features that encourage vegetation at the margins to reestablish.

4.2.180 To avoid adverse impacts to the water quality of the River Cam the use of HDD for crossing of the River Cam will be implemented and construction activities undertaken in accordance with relevant permits and consents.

4.2.181 The impact magnitude to river macrophytes is expected to be moderate adverse due to a permanent, though highly localised loss of species abundance in the vicinity of the proposed treated effluent discharge outfall to the River Cam.

Sensitivity of receptor

4.2.182 The sensitivity of ditch macrophytes is expected to be low due to the presence of hairlike pondweed, which is considered of local importance.

4.2.183 The sensitivity of river macrophytes is expected to be at most low as no species of conservation importance (negligible importance) have been identified.

Significance of effect

4.2.184 The effect on ditch macrophytes is expected to be temporary, neutral, and not significant.

4.2.185 High mortality of river macrophytes is expected at the footprint of the cofferdam and dry area. There will be a permanent loss of the macrophyte habitat along the riverbank where the proposed treated effluent discharge outfall to the River Cam will be constructed. Water quality deterioration during construction could impact on macrophyte communities within the River Cam in the absence of mitigation.

4.2.186 The effect on river macrophytes is expected to be permanent slight adverse and **not significant**.

Secondary mitigation or enhancement

4.2.187 There are no secondary measures required in relation to the direct and indirect impacts on ditch macrophytes and the effect remains as slight adverse and is **not significant.**

4.2.188 An Outfall Habitat Management Plan will provide detail on the translocation of reeds and other suitable macrophytes downstream, along with their management.

Residual effect

4.2.189 The residual effect on ditch macrophytes remains as neutral and is **not significant**.

4.2.190 The residual effect on river macrophytes and habitats is slight beneficial and **not significant**.

Direct and indirect impacts on reptiles due to construction works

Magnitude of impact

4.2.191 Some reptile habitats will be affected by the construction of the treated effluent pipeline. In the area of land required for the treated effluent pipeline low numbers of reptiles were recorded this is due to the habitat being unfavourable (managed arable fields). It is therefore likely that the habitats do not support significant populations of grass snake and common lizard, and that these species are likely to be dispersing through the habitats surveyed.

4.2.192 The reptile species present are protected from killing or injury by the 1981 Act, and so the following measures which will be outlined in a Reptile Mitigation Strategy will be necessary to prevent any offences being committed under this legislation:

- an agreed method statement of works, as part of the Reptile Mitigation Strategy, will be agreed by the local authority ecologist once the Proposed Development is consented;
- the EcoW will provide a tool-box talk to contractors in line with the method statement of works;
- the EcoW will be present once construction begins and will be available to check areas of habitats prior to removal. It may be required that vegetation is removed in a phased two-stage approach, with this outlined within the agreed Reptile Mitigation Strategy;
- the EcoW will relocate any reptiles found within the working area to safe areas of suitable and connected-to-existing habitat in a safe manner;
- Herpetofaunal fencing may be required to be installed and maintained during works in areas of higher density reptile populations or as directed by the

agreed Reptile Mitigation Strategy. Fencing will be required in areas where reptiles are to be translocated, and must be in place prior to translocation commencing; and

- A coordinated approach will be made to remove the risk of reptiles being handled multiple times through activities relating to multiple developments.

4.2.193 Measures relating to mitigation of impacts to reptiles are outlined within section 7.2 of the COCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) including complete clearance activities in accordance with approved methods, translocation of reptiles potentially affected by the works and reinstatement of land temporarily used for construction. Measures for specific phases to be included within a Reptile Mitigation Strategy as part of the approved detailed CEMP.

4.2.194 These measures and relocation of animals in the local area will ensure that discrete populations will not be lost, and the risk of disease transfer is minimised.

4.2.195 Design measures within the landscape masterplan include provision of a mosaic of habitats (bare areas, grassland, scrub, seasonal ponds) along with reptile hibernacula within the land required for the landscape masterplan contained with the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) to provide suitable habitat for reptiles.

4.2.196 It is predicted that construction works may affect reptiles temporarily through habitat disruption and removal and it is considered that the magnitude is negligible.

Sensitivity of receptor

4.2.197 Two reptile species of local conservation importance (protected from killing or injury through the 1981 Act) are present within the construction zone for the final effluent pipeline and proposed treated effluent discharge outfall to the River Cam. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

4.2.198 Overall, it is anticipated that impacts to reptiles would result in a neutral effect which is not significant.

Secondary mitigation or enhancement

4.2.199 There are no secondary measures required in relation to impacts on reptiles during construction and the effect remains as neutral and is **not significant.**

Residual effect

4.2.200 The residual effect remains as neutral and is **not significant**.

Construction works affecting breeding bird use of the area

Magnitude of impact

4.2.201 During construction land required for the proposed WWTP, access road and landscape masterplan will be disturbed during the entire construction period. This area is mostly arable. Surveys indicate that there are limited species of conservation concern present and breeding within this area, though Schedule 1 species present within the ZoI of disturbing works, include hobby.

4.2.202 Land temporarily required for the construction of the waste water transfer tunnel and final effluent pipeline is also mostly arable, though surveys indicate that Schedule 1 bird species include barn owl and kingfisher are breeding or are likely to be breeding within this area, though no loss of confirmed breeding locations is proposed.

4.2.203 Temporary noise and vibration impact from the movement of construction traffic, the operation of static and mobile equipment and ground works (excavation and piling (including the installation of the cofferdam) could result in noise related impacts to birds. Changes in noise levels could affect normal feeding, foraging and breeding behaviours of birds, such as through temporary displacement as they move away from the noise source.

4.2.204 There will also be a temporary loss of foraging and nesting habitat for birds through vegetation clearance for laydown areas, construction compounds, pipeline corridors, haul roads and temporary accesses during construction. In the area of land required for the construction of the waste water transfer tunnel there would be activity for up to 24 months and for the final effluent pipeline there would be activity for up to 12 months, however in land required for the proposed WWTP and landscaping areas there would be some areas permanently lost owing to the permanent development and some areas temporary disturbance reinstated with an improved habitat for breeding birds through the landscape masterplan.

4.2.205 Table 2-8 identifies the potential sources of temporary change in ambient light levels and temporary lighting sources in construction which may cause displacement of diurnal and nocturnal species of birds.

4.2.206 The COCP Part A Section 5.9 (Appendix 2.1, App Doc Ref: 5.4.2.1) includes best practice measures to minimise impacts from lighting through design. The COCP Part A Section 7.7 (Appendix 2.1, App Doc Ref: 5.4.2.1) includes best practice measures to minimise impacts from noise. Further details are listed within paragraph 4.2.108.

4.2.207 The location of the proposed WWTP and landscaping area is within the safeguarding zone of Cambridge Airport. Temporary changes to bird assemblages within the airport safeguarding area could occur as a result of a large area of bare ground and the presence of a temporary lagoon during construction. The principal risks associated with the creation of areas of open soil are:

- provision of new feeding opportunities, as birds may also gather to forage on invertebrates such as earthworms exposed by the removal of soils, and on recently seeded landscaped areas;
- gull species are attracted to bare loose soil which would be exposed during ground works and excavation. This is similar to when fields are ploughed however the area would be exposed for longer. No known gull breeding habitat currently exists within the area of land required for the proposed WWTP;
- creation of areas of open terrain suitable for daytime loafing; and
- creation of areas of temporary standing water (such as through temporary lagoons) which would be suitable for bathing, and as temporary wetland habitat.

4.2.208 Temporary changes to bird assemblages within the airport safeguarding area could also result due to the presence of food waste. If not properly disposed of by site staff, this can attract a range of scavenging birds, including corvids, starlings and gulls. Sudden disturbance to birds in construction areas, which can be either accidental (such as from a sudden loud noise or from vehicle movements) or deliberate (such as through any practices to disperse flocks not associated with wildlife hazard), can cause simultaneous movements of large numbers of birds which can lead to an increased risk of bird strike.

4.2.209 Section 5.15 of the CoCP Part A (Appendix 2.1, App Doc Ref: 5.4.2.1) specifies the requirement for continued engagement with airport operators and the requirement of a Wildlife Hazard Management Plan (Appendix 8.18, App Doc Ref: 5.4.8.18) in relation to Cambridge Airport.

4.2.210 Best practice measures for nesting bird species should they be identified include:

- pre-commencement survey for bird species will be undertaken with mitigation and compensation as required, and following the advice of an ornithologist (as outlined in the CoCP Part A, Section 7.2.8, and 7.2.16-7.2.21);
- suitable habitat for breeding birds, including hedgerows and open grassland areas, will be cleared between September and mid-February, or as otherwise required and directed by the ornithologist (as outlined in the CoCP Part A 7.2.16 and 7.2.17); and
- if any active nests are discovered these will be retained along with a suitable buffer around them (to be advised by the Environmental Manager with advice from specialist advisors as appropriate i.e., from an experienced ornithologist in relation to any Schedule 1 bird (as identified under the 1981 Act) nests, along with any requirements for mitigation.

4.2.211 In the case of the land required for the proposed WWTP, access road and landscape masterplan the permanent design features replace habitat that will be

suitable for use by breeding birds. This new habitat includes specific features to benefit birds:

- areas of bare soil will be created along field margins in the east of the proposed WWTP around the proposed areas of calcareous loam meadow grassland with the management of these areas involving annual cultivation in spring;
- seed mixes will be sown which will provide food for turtle doves, and other bird species throughout the breeding season;
- areas of mature scrub and hedgerow will be maintained by managing on a three-year (minimum) rotation;
- inclusion of new seasonal ponds connected to arable land via scrub and woodland to support species such as turtle dove; and
- installation of a range of appropriate bird boxes on retained trees and once established, on new plantings.

4.2.212 The impact of construction within land required for the final effluent pipeline and waste water transfer tunnel on birds is predicted to be of local spatial extent, short term (temporary) duration, and reversible. It is predicted that the impacts will affect bird species directly in the short term, with reinstatement following completion of the works returning the same habitat for breeding birds in this location. The magnitude is therefore considered to be minor adverse.

4.2.213 The impact of construction on birds within the land required for the proposed WWTP, access road and landscape masterplan is predicted to be of local spatial extent, long term (permanent) duration, continuous and irreversible. It is predicted that the impacts will affect bird species directly. The magnitude is therefore considered to be minor beneficial.

Sensitivity of receptor

4.2.214 The lack of any significant breeding bird assemblages or species of high conservation concern nesting within the Scheme Order Limits means that the receptor is considered to be of local importance, and low sensitivity.

Significance of effect

4.2.215 Overall, it is predicted that the minor beneficial impact on a low sensitivity receptor would result in a neutral effect, which is **not significant.**

Secondary mitigation or enhancement

4.2.216 The LERMP (Appendix 8.14, App Doc Ref: 5.4.8.14) includes management measures which will provide new opportunities for some species of breeding birds, within habitats as they establish.

4.2.217 No further secondary mitigation or enhancement is proposed or required.

Residual effect

4.2.218 The residual effect will be slight beneficial and **not significant** for areas covered by the LERMP.

4.2.219 The residual effect remains as neutral and **not significant** for areas not included within the LERMP.

Waterbeach transfer pipeline

4.2.220 This section sets out the assessment of effects in relation to the Waterbeach transfer pipeline which consists of a transfer section running from the north near Waterbeach to Low Fen Drove Way, a section crossing the area of land required for the construction of the proposed WWTP, a section south of the A14 which connects to the area of land where the existing Cambridge WWTP is located.

Temporary water quality/pollution impacts on Stow-cum-Quy Fen SSSI

Magnitude of impact

4.2.221 There is the potential for accidental leakages or spills of materials that could contaminate surface water features. Discharge of silt-laden water from dewatering of pits and excavations, may affect surface water quality and result in secondary effects to aquatic ecology. Silt can result in smothering of aquatic macrophytes resulting in damage or death, it can affect respiratory processes in aquatic species resulting in sub-lethal and lethal impacts. It may also result in nutrient levels elevating which could cause negative impacts on the survival of aquatic species.

4.2.222 Whilst there is no active hydrological connection between Black Ditch and Quy Water (one was likely to have existed historically), there is an active hydrological connection between Black Ditch and Stow-cum-Quy Fen SSSI.

4.2.223 Best practice measures will be applied during construction such as measures to minimise the risk of runoff reaching ditches and watercourses which may increase silt load, management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour, measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits, and measures to restrict refueling activities. Details of surface water run-off control measures are provided in section 7.2 (Nature conservation and ecology), 7.4 (Land quality), and section 7 .5 (Water resource and flood risk) within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) and 5.4.2.2). Therefore, the risk of surface water runoff during construction having any significant effect on this designated site is considered to be low.

4.2.224 The impact upon the SSSI is predicted to be of local spatial extent, short term duration, and intermittent. Given the control measures that would be in place via the CoCP Part A and Part B, the magnitude is considered to be negligible.

Sensitivity of receptor

4.2.225 Stow-cum-Quy Fen SSSI is considered to be of national importance. The site is also noted of being additionally of importance due to its location within an otherwise intensively cultivated area where semi-natural habitats are rare. It contains floristically rich calcareous loam pasture and hedgerows and scrub which add to the variety of habitats and species. The sensitivity of the receptor is therefore considered to be high.

Significance of effect

4.2.226 The impact from the construction of the Waterbeach transfer pipeline on Stow-cum-Quy Fen SSSI is assessed as negligible. Combined with a high sensitivity receptor and negligible impact, it would result in a **slight adverse effect**, which is **not significant.**

Secondary mitigation or enhancement

4.2.227 There are no secondary measures proposed in relation to temporary impacts on Stow-cum-Quy Fen SSSI and the effect remains as slight adverse and is not significant.

Residual effect

4.2.228 The residual effect remains as slight adverse and is **not significant.**

Temporary air quality impacts to Statutory Designated Site: Stow-cum-Quy Fen SSSI

Magnitude of impact

4.2.229 During construction activities, there is the potential for gaseous and particulate emissions to affect habitats within Stow-cum-Quy Fen SSSI primarily through dust generation from construction traffic. Best practice measures in relation to construction will be applied and contained within the CoCP Part A and Part B (Appendix 2.1 and 2.2, App Doc Ref: 5.4.2.1 and 5.4.2.2) to control pollutants in order to minimise the potential for and likely impacts of airborne pollutants on sensitive habitats.

4.2.230 The impact is predicted to be of local spatial extent, short term duration, and intermittent. Given the control measures proposed, and that the nearest part of the construction work for the Waterbeach pipeline is located approximately 1.2km to the west of the SSSI, the magnitude is considered to be negligible.

Sensitivity of receptor

4.2.231 Stow-cum-Quy Fen SSSI is considered to be of national value. It contains floristically rich calcareous loam pasture and hedgerows and scrub which add to the variety of habitats and species. The sensitivity of the receptor is therefore considered to be high.

Significance of effect

4.2.232 Combined with a high sensitivity receptor and negligible impact, the construction works for the Waterbeach pipeline would result in a temporary reversible slight adverse effect, which is **not significant.**

Secondary mitigation or enhancement

4.2.233 No additional secondary mitigation is required.

Residual effect

4.2.234 The residual remains slight adverse and is **not significant.**

Water quality impacts on the non-statutory designated site: River Cam CWS

Magnitude of impact

4.2.235 During construction there will be a requirement for the Waterbeach transfer pipeline to cross the River Cam in two locations. This will be by trenchless techniques and require temporary launch and recovery sites either side of the river. The closest pits for the launch and recovery of equipment would be located approximately 60m from the River Cam.

4.2.236 In addition, there will be short term construction activities within 50 m of the River Cam and adjoining ditches as the Waterbeach transfer pipeline is installed in the north to Horningsea. This section is within the floodplain of the River Cam and also includes laydown areas and one temporary compound.

4.2.237 Spillages of potentially contaminating materials used in construction, including at compounds and active construction sections, may give rise to contamination of surface water features including the River Cam CWS. Discharge of silt-laden water, through excavations, silt screens or from run-off from construction areas, may result in affecting surface water quality. This in turn may enter the River Cam CWS impacting upon species (flora and fauna) using the watercourse and its associated habitats.

4.2.238 To mitigate impacts, construction and pipelaying works have been designed to minimise direct impacts to the River Cam by employing trenchless techniques to drill under the river.

4.2.239 Rigorous protection measures, which are standard practice to prevent contamination such as a water quality management, are to be implemented throughout all construction. Section 5 (Site Set Up and General Arrangements) of the CoCP (Appendix 2.1, App Doc Ref: 5.4.2.1) governs housekeeping at all compounds. The measures within the CoCP Part A would be integrated into the CEMP and in the event of any accidental spills or leakages, or detection of significant contamination in groundwater, an immediate investigation and clean-up programme would be implemented.

4.2.240 The works to cross the river would be subject to an Environmental Permit (flood risk activities) with associated controls secured by the permit. As a minimum these measures will include the best practice measures within the CoCP Part A (Appendix 2.1, App Doc Ref: 5.4.2.1) intended to control dewatering activities and prevent impacts to water quality. This includes provision of a Construction Water Quality Management Plan to protect surface and ground water during construction, which will detail the following:

- identification of areas at risk of water pollution from surface water run-off;
- mitigation measures and treatment methodologies (silt management) and where they will be applied;
- establish the requirement for and position of water stops, if required, to prevent the pipe trenches becoming an adventitious pathway for water;
- identification of requirements for de-watering to be agreed and permitted by the Environment Agency;
- identification of any land drains that may be disrupted during the construction phase; and
- measures to avoid and minimise potential impacts upon the Proposed Development from flooding and to ensure flood risk is not increased elsewhere.

4.2.241 In addition, there would also be controls imposed through a separate environmental permit for works to main river and it is likely the methods agreed on prevention of the release of substances to aquatic environments.

4.2.242 The resulting temporary impact on river water quality through pollution events is therefore assessed as negligible.

Sensitivity of receptor

4.2.243 The river Cam CWS is designated as a CWS due to it being "a major river (together with adjacent semi-natural habitat) that has not been grossly modified by canalisation and/or poor water quality. Additionally, it has areas with concentrations of mature pollard willows." The river Cam at the outfall location has a modified channel with sheet piling along the bank, and no mature pollard willows are present.

4.2.244 As a biodiversity receptor of county importance, the River Cam CWS is considered to be of medium sensitivity.

Significance of effect

4.2.245 The impact of construction of the Waterbeach transfer pipeline on water quality in the River Cam CWS is negligible in terms of magnitude. Combined with medium sensitivity for the river, there would be a neutral effect with measures in place. These effects are **not significant.**

Secondary mitigation or enhancement

4.2.246 Application of measures to manage drilling fluid break out as defined within section 7.4 of the CoCP Part A (App Doc Ref 5.4.2.1) will provide additional mitigation. These include bunding watercourse banks with sandbags or bales and geotextile membrane to stop the drill fluid from reaching a watercourse in the event of a breakout on the banks, and break out detection monitoring and stop work measures.

4.2.247 No additional secondary mitigation or enhancement is required.

Residual effect

4.2.248 The residual remains neutral and is **not significant.**

Habitats

Removal and fragmentation of terrestrial habitats

Magnitude of impact

4.2.249 The construction of the Waterbeach transfer pipeline will require the removal of small areas of habitats in relation to temporary use of the land (such as for laydown areas, open cut trenching, trenchless techniques, construction compounds, and access routes) resulting in habitat loss, fragmentation and severance of wildlife corridors. This could result in the partial loss of habitats including arable, broadleaved woodland, improved grassland, neutral grassland - semi-improved, poor semi-improved grassland, ditches, species poor and species rich hedgerows.

4.2.250 There will be no losses of either of the two veteran trees identified in proximity to the proposed Waterbeach transfer pipeline, with impacts to these trees avoided by micro-siting of the pipeline trench away from any impactful area. This is in addition to the tree protection measures outlined within the Arboricultural Impact Assessment (Appendix 8.17, App Doc Ref: 5.4.8.17) and the CoCP Part A (section 7.2) (Appendix 2.1 App Doc Ref: 5.4.2.1) and Section 3.4 of the CoCP Part B (Appendix 2.2, App Doc Ref: 5.4.2.2).

4.2.251 Severance (including temporary severance during construction) of existing wildlife corridors (such as field margins, hedgerows) or habitat (woodland, ditches and grassland) could have impacts on species in the area. The Waterbeach pipeline will be installed by trenchless technique where it bisects the footprint of three important hedges (Hedge 34, Hedge 45 and Hedge 52, within the Figure 8.16 Book of Figures – Biodiversity, App Doc Ref 5.3.8), and therefore, will avoid any impacts to these important hedgerows. Two parallel important hedgerows (Hedge 50 and 51) in the northern part of the pipeline route and one within the south (Hedge 61) will have up to 6m removed to facilitate open trenching. No other important hedgerows will be removed or impacted.

4.2.252 All hedgerows removed during construction will be reinstated.

4.2.253 Best practice measures in relation to construction activities will be applied to mitigate impacts to habitats and contained within CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref: 5.4.2.1 and 5.4.2.2). Measures to be applied include:

- shallow ditches will be temporarily dammed and over pumped to maintain water flow whilst excavation works lay the pipe are undertaken. These will be reinstated promptly once the pipe has been laid;
- larger ditches will be crossed using trenchless crossing techniques; and
- if feasible, suitable habitat for breeding birds, including hedgerows, will be cleared between October and mid-February (outside of the breeding bird season). The Code of Construction Practice Part A (App Doc Ref 5.4.2.1) paragraphs 7.2.17 to 7.2.21 provide mitigation measures where it is not feasible for clearance to occur outside of the breeding season. Tree/hedgerow protection details will be included on the Tree Protection Plan within the Arboricultural Impact Assessment (Appendix 8.17, App Doc Ref: 5.4.8.17). The type of protection proposed will depend upon the nature of the activity being undertaken but will accord with BS 5837:2012 Trees in relation to design, demolition and construction.

4.2.254 Considering the implementation of mitigation measures, the construction impacts on habitat loss is considered to be minor adverse.

Sensitivity of receptor

4.2.255 The habitats along the land required for the construction for the Waterbeach transfer pipeline are varied. They include those that are less important (i.e. of negligible or local level importance such as managed arable fields and hardstanding, and grasslands and ditches), there are some more important habitats (considered of county importance) including the following priority habitats, present:

- broadleaved woodland and two veteran trees;
- coastal and floodplain grazing marsh;
- species-rich hedgerows; and
- river.

4.2.256 Some habitats also support species of botanical conservation importance, such as arable field margins. As such these are considered as having a county level importance.

4.2.257 Overall, the habitats present have of up to county level importance, and so are considered to have medium sensitivity.

Significance of effect

4.2.258 The impact from the construction works of the Waterbeach pipeline on habitats is assessed as slight adverse and **not significant.**

Secondary mitigation or enhancement

4.2.259 Once sections of pipeline have been installed the land will be reinstated to its previous use. In areas where pipeline pass through hedgerows (see Works No 3, 6-9) these will be reinstated. Working widths in these locations will be kept to a minimum of up to 6m in order to reduce disturbance to hedgerows.

4.2.260 No additional secondary mitigation or enhancement is required.

Residual effect

4.2.261 The residual effect is neutral and is **not significant.**

Species

Direct and indirect impacts to water vole during construction

Magnitude of impact

4.2.262 The construction of the Waterbeach transfer pipeline will require temporary short-term disturbance of up to seven ditches. Narrow sections of ditch will be over pumped to allow construction in the dry before reinstatement of the ditch.

4.2.263 Surveys indicate that the ditch network within the section of the Waterbeach transfer pipeline between Waterbeach and Low Fen Drove Way contain water vole.

4.2.264 The CoCP Part A Section 7.2 (Nature Conservation and Ecology) (Appendix 2.1, App Doc Ref 5.4.2.1) specifies that where required, a protected species mitigation licence will be obtained before the commencement of works.

4.2.265 Works to ditches identified as water vole habitat should be completed within the period between 15 February to 15 April (or as otherwise agreed with Natural England) and under a Natural England mitigation licence with an agreed method statement (Draft Licence included App Doc Ref 5.4.8.22).

4.2.266 Prior to the commencement of works to ditches there should be a suitably qualified ecologist present to provide a toolbox talk to contractors, to undertake a pre-commencement check of suitable habitats and to supervise vegetation clearance. A record of all actions completed and mitigation measures implemented will be reported back to Natural England in accordance with the licence conditions.

4.2.267 The magnitude of impact is assessed as minor adverse, due to the temporary nature, and continued functionality of nearby connected habitats for this species.

Sensitivity of receptor

4.2.268 Water vole is considered to be of county importance and are a S41 species. Water vole is known to be declining on a national level due to habitat loss and predation. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

4.2.269 The construction impacts are temporary with habitat reinstated post-works, with no overall loss of habitat. The significance is therefore considered to be temporary slight adverse and not significant.

Secondary mitigation or enhancement

4.2.270 There are no secondary measures relevant to the temporary loss of water vole habitat and the effect remains as neutral and is not significant.

Residual effect

4.2.271 The residual effect remains as slight adverse and is **not significant**.

Direct and indirect impacts to otter during construction

Magnitude of impact

4.2.272 The construction of the Waterbeach transfer pipeline will require temporary short-term disturbance of up to seven ditches. Narrow sections of ditch will be over pumped to allow construction in the dry before reinstatement of the ditch.

4.2.273 Surveys indicate that the ditch network within the section of the Waterbeach transfer pipeline between Waterbeach and Low Fen Drove Way are used by otter for foraging and commuting, although no holts or resting places have been found.

4.2.274 Otter moving through the landscape may be impacted through entrapment or via injury caused by accessing construction sites. Preventing otter access to deep trenching and materials through fencing and hoarding measures (documented within CoCP Part A) will prevent any injury or entrapment to this species. If this is not possible, inclusion of a means of escape (such as a shallow set plank or an incline at the end of the excavation) will allow otter to leave safely.

4.2.275 As such the magnitude of impact is assessed to be minor adverse upon commuting and foraging otter. No impacts are anticipated upon resting otter.

Sensitivity of receptor

4.2.276 Otter is considered to be expanding in range in England with increases observed during the five survey periods of the Otter Survey of England, from 0% of survey sites on the River Cam during the 1977-79 period to 60% of survey sites during the 2009-10 period (Crawford, 2011).

4.2.277 This suggests that the population is growing, though no recent population level data is available.

4.2.278 Otter is a S41 species and as such are of county importance (no designations are present for this species within the Scheme Order Limits, and no resting places have been found). The species sensitivity is assessed as medium.

Significance of effect

4.2.279 The construction impacts are short term, temporary and drainage ditches disturbed by crossings would be reinstated. The magnitude is therefore considered to be slight adverse and not significant.

Secondary mitigation or enhancement

4.2.280 Management of lighting through the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1, App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO) will provide a night time safe transit route for otter.

4.2.281 There are no other secondary measures relevant to disturbance of otter during construction and the effect remains as slight adverse and is **not significant.**

Residual effect

4.2.282 The residual effect remains as slight adverse and is **not significant.**

Direct and indirect impacts to bats

Magnitude of impact

4.2.283 At least ten species of bat are known to be present within 5km of the Scheme Order Limits with at least nine species recorded during the bat surveys (Baseline Bat Report, Appendix 8.7, App Doc Ref 5.4.8.7).

4.2.284 Within land required for the construction of the Waterbeach pipeline and within the survey buffer area, 16 trees were assessed as having high or moderate suitability to support roosting bats during the preliminary bat roost assessment surveys and subjected to emergence and re-entry surveys. Five trees were confirmed as having day roosts present. These roosts are shown in Figure A.1, Book of Figures - Biodiversity (App Doc Ref 5.3.8). Of these, two roosts were confirmed through evidence noted during the initial inspections (bat droppings), though one of these was a bat box, located sufficiently distanced to the Scheme Order Limits for there to be no anticipated impacts upon it.

4.2.285 The remaining three roosts were confirmed by emergence and re-entry surveys to be roosts for individual bats. One roost was for soprano pipistrelle; one for common pipistrelle; and one for unspecified pipistrelle species. Whilst the species inhabiting the unspecified pipistrelle roost is not ascertained, of the three

species of pipistrelle, only Nathusius' pipistrelle is considered Near Threatened, with common and soprano pipistrelle considered of Least Concern (Mathews & Harrower, 2020). This, in combination with the survey results, means that it is therefore less likely that a Nathusius' pipistrelle roost is present.

4.2.286 None of these five roosts will be lost to the Proposed Development.

4.2.287 A Natural England protected species mitigation licence will be in place to legally allow for the disturbance of the four roosts, with mitigation measures including supervised working under an agreed method statement (Environmental Statement – Volume 4 – Appendix 8.20 – Bat Natural England Ghost Licence Method Statement (5.4.8.20)) by a licensed bat ecologist. The following measures will also be put in place:

- provision of a tool-box talk by the licenced bat ecologist
- timing the works at roost locations to be outside of the hibernation period (where hibernation suitability has been discerned); and
- installation of suitable bat boxes for use by crevice dwelling species on appropriate retained trees prior to disturbing works commencing, to facilitate continued opportunities for bats to roost.

4.2.288 Habitats associated with key flight and foraging areas for bats are linear vegetated corridors (such as those provided by woodlands, hedgerows and treelines) and watercourses and ditches (such as the River Cam and nearby ditch network). Bat species are known to utilise the area of land required for the construction of the Waterbeach pipeline, with at least eight species of bat recorded (including barbastelle).

4.2.289 Habitats associated with key flight and foraging areas for bats are linear vegetated corridors (such as those provided by woodlands, hedgerows and treelines) and watercourses and ditches (such as the ditch network within the northern extent of the Waterbeach transfer pipeline corridor). Bat species are known to utilise areas of land temporarily required for the construction of the Waterbeach transfer pipeline for foraging and commuting purposes, with at least nine species of bat recorded (including a single barbastelle recorded at Horningsea).

4.2.290 Works which will disturb bat day roosts will be undertaken under a Natural England protected species mitigation licence, with an agreed method statement in place. These works will include trench digging and incorporating disturbances through noise and vibration from machinery with lighting and human presence also considered as a disturbance. Use of acoustic reduction measures and preventing light spill onto the roost may reduce the disturbance also.

4.2.291 Habitat losses are to be temporary with all hedgerow sections removed to be reinstated using translocated hedges (as required by section 7.2 of the CoCP Part A (App Doc Ref 5.4.4.1)).

4.2.292 Lighting present is also likely to cause an impact to flight lines, with illuminated habitat features perceived as barriers to baseline bat movements. The CoCP Part A Section 5.9 (Lighting) requires temporary lighting to be designed to accord with The Institute of Lighting Professionals Advice Note- Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/18 – Bats and Artificial Lighting In The UK – Bats And The Built Environment Series (2018). The CoCP also requires a temporary lighting strategy to be incorporated into the CEMP(s) prepared by the principal contractor. This will include details of lighting location and hours of use.

4.2.293 The magnitude of impact upon bats is considered to be temporarily moderate adverse for lighting related impacts to flight lines, loss of habitat, and direct disturbance to roosts.

Sensitivity of receptor

4.2.294 Bats may individually be impacted as a result of noise, vibration, light, direct disturbance or roost destruction.

4.2.295 The pipistrelle species present are S41 species, with their roosts being protected by the 1981 Act and the Habitat and Species Regulations 2017 (as amended). The species roosting are not defined as Annex II species (under the Habitat and Species Regulations 2017 (as amended)) and so the importance of this receptor is therefore considered at a county level importance.

4.2.296 Barbastelle bats utilising the habitats within the Scheme Order Limits to forage and commute within are Annex II species, though no roosts have been found for this species within the land required for the proposed WWTP. This species is considered at a national level importance.

4.2.297 The roosts for pipistrelle species considered likely to be disturbed by the proposals are categorised as having a medium sensitivity, though the presence of foraging and commuting barbastelle increases the overall sensitivity for bats to high.

Significance of effect

4.2.298 It is predicted that there will be a temporary moderate adverse effect upon bat roosts, which is **significant.**

4.2.299 Lighting and habitat loss impacts are predicted to have a moderate adverse effect which is **significant.**

Secondary mitigation or enhancement

4.2.300 Management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO),

which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill).

Residual effect

4.2.301 On completion of construction, there will be a residual slight adverse effect which is **not significant.**

Direct and indirect impacts to badger (Confidential)

Magnitude of impact

4.2.302 Confidential sensitive information is not presented within this section. A Natural England licence to lawfully undertake construction works in close proximity to any sett areas within the Waterbeach pipeline will be required.

4.2.303 No artificial setts are required to be built as no main setts are being destroyed. A Natural England protected species mitigation licence will be in place to legally allow for the disturbance badger, with mitigation measures including supervised working under an agreed method statement (App Doc Ref 5.4.8.21) by a licensed ecologist. As there is the potential for badgers to be using the working area for foraging activities, then the following general measures referred to within the species licence will be put in place (these measures will also be relevant/appropriate for other protected species such as otter):

- excavations will be closed overnight, or ramps/planks of wood used to provide a means of escape;
- any chemicals will be stored in containers overnight and any spillages cleaned up immediately;
- operatives will be informed of badgers using the construction areas through the induction and toolbox talks;
- if appropriate and practical vehicles may be prevented from access certain areas which will be marked by fencing and signage;
- pipes over 120mm diameter will be capped off during storage;
- material or equipment which poses a risk of injury will be securely covered or fenced off, such as sharp objects or cement; and
- in order to avoid attracting badgers to the works compound areas any food waste will be disposed of in appropriate bins or removed at the end of each day.

4.2.304 Construction working areas will be demarcated and fenced (Heras fencing in a suitable way so as to control working areas in sensitive locations but also with the added benefit of keeping badgers away from construction areas.

4.2.305 The impact is predicted to be of local spatial extent, short term (temporary) duration, intermittent and reversible. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be minor adverse.

Sensitivity of receptor

4.2.306 Badger is not considered to be of conservation concern in the local area, with protection in place to prevent impacts on their welfare, for example through sett loss and injury, or preventing access to foraging resources.

4.2.307 Badger is considered to be of local importance and therefore of low sensitivity.

Significance of effect

4.2.308 Overall, it is predicted that the minor impact on the low sensitivity receptor would result in a neutral effect, which is **not significant.**

Secondary mitigation or enhancement

4.2.309 Management of lighting through the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1, App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO) will minimize lighting disturbances for badger.

4.2.310 No further secondary mitigation or enhancement is required.

Residual effect

4.2.311 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains neutral and **not significant.**

Temporary loss of reptile habitat and direct and indirect impacts to reptiles during construction

Magnitude of impact

4.2.312 High numbers of common lizard were recorded in two main locations along the Waterbeach transfer pipeline route (Long Drove – a maximum count of 39 during one survey visit) and adjacent to the area of land to be used temporarily for a works compound (Burgess Drove- a maximum count of 21 common lizard during one survey visit and a maximum count of one grass snake).These locations are illustrated in the Survey Results -Sheet 3 within the Reptile Baseline Report (Appendix 8.5, App Doc Ref: 5.4.8.5).

4.2.313 Some reptile habitats will be affected by the construction of the Waterbeach pipeline. These areas are adjacent to Burgess Drove and near the existing Waterbeach WRC. Any works requiring vegetation removal, soil scraping or digging, or compaction may result in the killing or injury to reptiles and affect population

robustness. There will be trenchless techniques used to avoid the aforementioned population of common lizard and grass snake at Burgess Drove, as shown within Sheet 12 of the Design Plans Waterbeach Pipeline Long Sections (00001-100006-CAMEST-ZZZ-LAY-Z-9712; App Doc Ref: 4.14). Works will not impact upon the Long Drove population.

4.2.314 Suitable well-connected habitats for reptiles outside the working areas required for compounds and trench digging/HDD pits will be continually available for reptiles to use throughout the localised works.

4.2.315 The reptile species present are protected from killing or injury by the 1981 Act, and so the following best practice measures will be necessary to prevent any offences being committed under this legislation:

- an agreed method statement of works, as part of the Reptile Mitigation Strategy, will be agreed by the local authority ecologist, once the Proposed Development is consented;
- the ECoW will provide a tool-box talk to contractors in line with the Reptile Mitigation Strategy;
- the ECoW will be present once construction begins and will be available to check areas of habitats prior to removal. It may be required that vegetation is removed in a phased two-stage approach, with this outlined within the agreed Reptile Mitigation Strategy;
- the ECoW will relocate any reptiles found within the working area to safe areas of suitable and connected-to-existing habitat in a safe manner; and
- herpetofaunal fencing may be required to be installed and maintained during works in areas of higher density reptile populations or as directed by the agreed Reptile Mitigation Strategy. Fencing will be required in areas where reptiles are to be translocated, and must be in place prior to translocation commencing; and
- A coordinated approach will be made to remove the risk of reptiles being handled multiple times through activities relating to multiple developments.

4.2.316 Measures relating to mitigation of impacts to reptiles are outlined within section 7.2 (Nature Conservation and Ecology) of the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1). These measures and relocation of animals in the local area will ensure that discrete populations will not be lost, and the risk of disease transfer is minimised.

4.2.317 The habitat removal is temporary, and so will be available for reptile use on completion of works, and alongside use of HDD drilling in many locations, will prevent any long-term fragmentation effects.

4.2.318 Therefore, it is predicted that the impact may affect the feature temporarily through habitat removal and it is considered that the magnitude is moderate adverse.

Sensitivity of receptor

4.2.319 Two reptile species of local conservation importance (protected from killing or injury through the 1981 Act) are present within the Waterbeach transfer pipeline route. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

4.2.320 Overall, it is predicted that a moderate impact which is temporary on the low sensitivity receptor in the local context, would result in a temporary slight adverse effect which is **not significant.**

Secondary mitigation or enhancement

4.2.321 A Reptile Mitigation Strategy will be agreed by the LPA ecologist post consent, with specific measures in place to provide species and site-specific mitigation (following the broad principles outlined in 4.2.231) and enhancement.

4.2.322 No additional secondary mitigation or enhancement features are required.

Residual effect

4.2.323 The residual remains slight adverse and is **not significant**.

Direct and indirect impacts to breeding birds

Magnitude of impact

4.2.324 During construction land required for Waterbeach pipeline will be disturbed during the entire construction period. This area is mostly categorised as arable habitat. Surveys indicate that there are mostly common species of bird present and breeding within this area though Schedule 1 species present within the ZoI of disturbing works, include hobby.

4.2.325 Land temporarily required for the construction of the Waterbeach pipeline is also mostly arable, though surveys indicate that Schedule 1 bird species include barn owl and kingfisher are breeding or are likely to be breeding within this area.

4.2.326 Temporary noise and vibration impact from the movement of construction traffic, the operation of static and mobile equipment and ground works (excavation) could result in short term noise related impacts to birds. Changes in noise levels could affect normal feeding, foraging and breeding behaviours of birds, such as through temporary displacement as they move away from the noise source.

4.2.327 There will also be a temporary loss of small areas of foraging and nesting habitat for birds through vegetation clearance for laydown areas, the construction compound, pipeline corridor, haul roads and temporary accesses during

construction. In the area of land required for the construction of the drilling pits there would be activity for up to 2 weeks and for the compound there would be activity for up to 12 months. In the land required for the Waterbeach pipeline there would be some areas of habitat temporarily lost and before being reinstated.

4.2.328 Table 2-8 identifies the potential sources of temporary change in ambient light levels and temporary lighting sources in construction which may cause displacement of diurnal and nocturnal species of birds.

4.2.329 The CoCP Part A Section 5.9 (Site Lighting) and Section 7.2 (Ecology and Nature Conservation) (Appendix 2.1, App Doc Ref 5.4.2.1) includes measures to minimise impacts from lighting. Section 7.7 (Noise and Vibration) includes measures to minimise impacts from noise. Further details in relation to lighting are listed within paragraph 4.2.108.

4.2.330 The location of the Waterbeach pipeline is within the safeguarding zone of the airport. Temporary changes to bird assemblages within the airport safeguarding area could occur as a result of increases in bare ground during construction.

4.2.331 Section 5.15 of the COCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) specifies the requirement for continued engagement with airport operators and the requirement of a Wildlife Hazard Management Plan in relation to Cambridge Airport.

4.2.332 Best practice measures in relation to avoiding and minimising impacts to breeding birds include:

- timing the clearance of suitable habitat for breeding birds, including hedgerows and open grassland areas, between September and mid-February; and
- retention of any identified active nests along with a suitable buffer around them (to be advised by the Environmental Manager with advice from specialist advisors as appropriate i.e., from an experienced ornithologist in relation to any Schedule 1 bird species (as identified under the Wildlife and Countryside Act), along with any requirements for mitigation.

4.2.333 Measure to avoid impacts that would affect breeding birds during construction are listed within Section 7.2 (Nesting birds) of the COCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1).

4.2.334 The impact of construction within land required for the Waterbeach transfer pipeline on birds is predicted to be of local spatial extent, short term (temporary) duration, and reversible. It is predicted that impacts would affect bird species directly in the short term, with reinstatement following completion of the works returning the same habitat for breeding birds in this location. The magnitude is therefore considered to be minor adverse.

Sensitivity of receptor

4.2.335 The local surrounding area provides an immediate refuge for bird species to be displaced into, should disturbances be too great (some species and individuals are more tolerant than others), or for refuge prior to individual habituation.

4.2.336 The lack of any significant breeding bird assemblages or species of high conservation concern nesting within the Scheme Order Limits means that the receptor is considered to be of local importance and low sensitivity.

Significance of effect

4.2.337 Overall, it is predicted that the minor impact on the low sensitivity receptor would result in a short term, reversible, slight adverse effect, which is **not significant**.

Secondary mitigation or enhancement

4.2.338 Management of construction activities impacting air quality, ecology, and or resulting in increase in artificial lighting will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2). These will support breeding birds by minimizing emissions and reducing noise and light disturbances.

4.2.339 No other significant adverse effects have been predicted and no secondary mitigation is required.

Residual effect

4.2.340 The residual remains slight adverse and is **not significant**.

Existing Cambridge WWTP

4.2.341 This section sets out the assessment of effects in relation to construction activities within the existing Cambridge WWTP.

Removal of habitats - Milton Road Hedgerows City Wildlife Site (CiWS)

Magnitude of impact

4.2.342 There will be some small area of habitat loss expected near to the Milton Road Hedgerows CiWS where there will be a need to remove a small section of hedgerow for access/construction works to the existing Cambridge WWTP. This extends to a section of ornamental planting only, with all other hedgerows being retained. No hedgerow within the Milton Road CiWS will be impacted, and so there will be negligible impact upon this site.

Sensitivity of receptor

4.2.343 This CiWS qualifies for its potential feature of local importance, as it just narrowly falls outside the criteria for inclusion due to its hedgerows, though it is likely to meet them in the future. As such the sensitivity is considered to be low.

Significance of effect

4.2.344 As there will be negligible impacts on the CiWS, the effect will be neutral, which is **not significant.**

Secondary mitigation or enhancement

4.2.345 No secondary mitigation is necessary, however replanting of native species to the species poor hedgerow will allow enhancement and also continued ecological functionality of the hedge in the longer term. This will support the integrity of the CiWS. This measure is included within section 3.5 of the CoCP Part B (App Doc Ref 5.4.2.2).

Residual effect

4.2.346 The residual remains neutral and is **not significant.**

Temporary disturbance of badger sett and associated habitat

Magnitude of impact

4.2.347 The impact of disturbance to the outlier badger sett is predicted to be of local spatial extent, short term (temporary) duration, intermittent and be reversible. It is predicted that the impact will not affect the receptor directly, and no licence is required. The magnitude is therefore considered to be negligible.

Sensitivity of receptor

4.2.348 Badger is not considered to be of conservation concern in the local area, with protection in place to prevent impacts on their welfare, for example through sett loss and injury, or preventing access to foraging resources.

4.2.349 Badger is considered to be of local importance and therefore of low sensitivity.

Significance of effect

4.2.350 Overall, it is predicted that the negligible impact on the low sensitivity receptor would result in a neutral effect, which is **not significant.**

Secondary mitigation or enhancement

4.2.351 No significant adverse effects have been predicted and no secondary mitigation is required.

Residual effect

4.2.352 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains neutral and not significant. The residual remains neutral and is **not significant.**

Monitoring

4.2.353 During the construction phase, an approved CEMP relevant to the phase to be constructed will be prepared to align to the CoCP Part A (App Doc Ref 5.4.2.1). This requires the development of a reptile mitigation strategy, as part of the CEMP, which will specify any monitoring in relation to reptiles and which will be agreed by the Local Planning Authority Ecologist.

4.2.354 For areas outside the LERMP, measures set out with Section 7.2, Ecology and Nature Conservation, of the CoCP Part A (App Doc Ref 5.4.2.1), include a requirement for monitoring of planting for 5 years after construction. For planting completed within the construction period this monitoring will commence and continue into operation. The monitoring specific to the area and reinstated habitats would be detailed within the relevant CEMP.

4.2.355 Success criteria of such planting will include establishment and growth of required and/or planted species. Any which fail to establish or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority and as agreed with the landowner (as outlined within Section 7.2, Ecology and Nature Conservation, of the CoCP Part A (App Doc Ref 5.4.2.1)).

4.2.356 During the construction phase, badgers, water voles and bats will be subject to separate Natural England species licences for damaging and disturbance activities. These are expected to include specific monitoring conditions to be completed as during the course of works.

4.2.357 Monitoring and management activities at the outfall will be set out within the approved OMMP for construction. The detailed OMMP will be prepared to align with the outline OMMP (App Doc Ref 5.4.8.24) and cover but not be limited to:

- monitoring of dewatering activities
- monitoring as required by the Environmental Permit (flood risk activities, discharge to surface water)
- monitoring of testing and commissioning as required by the environmental permit

4.2.358 Regulatory monitoring and reporting (storm events, treated effluent quality (including during testing and commissioning) and river monitoring) would be part of normal operations and responding to the requirements of the Environmental Permit and not covered within the construction OMMP.

4.3 Operation phase

Proposed WWTP

4.3.1 This section sets out the assessment of effects in relation to the proposed WWTP including the landscaping proposals, final effluent pipeline, treated effluent discharge outfall to the River Cam, waste water transfer tunnel and new access connection connecting with the B1047 Horningsea Road.

4.3.2 The potential environmental impacts on Biodiversity from the operation and maintenance of the Proposed Development indicated in Table 2-8 together with the maximum design scenario. These are the assumptions (maximum parameters) for the purposes of the biodiversity assessment against which each impact has been assessed.

4.3.3 A Habitats Regulations Assessment (HRA) has been completed as part of the EIA in relation to the Proposed Development. Operational impacts to European sites found within the study area as mentioned in Table 3.1 and 3.2 above, are assessed within the HRA Report (Appendix 8.16, App Doc Ref: 5.4.8.16).

Impacts from operational air emissions on Stow-cum-Quy Fen SSSI

Magnitude of impact

4.3.4 The assessment has considered the worst case of operating a Combined Heat and Power (CHP) component within the proposed WWTP. This would include combustion of natural gas and biogas within two boilers (one active, one standby), one CHP and one flare (emergency use only). The (CHP) and boiler plant emit pollutants to air, primarily oxides of nitrogen (NOx) which can affect air quality near to the proposed WWTP. The CHP and boilers would have a maximum combined thermal input of less than 10 Megawatt and therefore overall, emissions will be small. The CHP and boilers would be design to meet stringent emission limit values, set out within an environmental permit, and be designed in such a way that effects on air quality are minimised.

4.3.5 The operation of the proposed WWTP will result in the redistribution of operational vehicle movements from the existing Cambridge WWTP to roads leading to the proposed WWTP. The operational traffic flows associated with the operation and maintenance of the proposed WWTP are similar to those at the existing Cambridge WWTP. It should be noted that there are no commuter routes close to the SSSI.

4.3.6 The dispersion model results (Appendix 7.2, App Doc Ref 5.4.7.2) indicate that the resultant nitrogen deposition, sulphur oxides (SOx) deposition and acid deposition upon Stow-cum-Quy SSSI are predicted to be negligible.

4.3.7 Considering the above, air quality impacts on Stow-cum-Quy Fen SSSI during operation and maintenance of the proposed WWTP are assessed as being negligible.

Sensitivity of receptor

4.3.8 Stow-cum-Quy SSSI is considered to be of national value. It contains floristically rich calcareous loam pasture and hedgerows and scrub which add to the variety of habitats and species. Habitat features are considered to be sensitive to nitrogen and acidity, The sensitivity of the receptor is therefore considered to be high.

Significance of effect

4.3.9 Combined with a high sensitivity receptor and negligible magnitude, the impact from the proposed WWTP on Stow-cum-Quy Fen SSSI would result in a slight adverse effect, which is **not significant.**

Secondary mitigation or enhancement

4.3.10 No significant adverse effects have been predicted and no secondary mitigation is required.

Residual effect

4.3.11 The residual remains slight adverse and is **not significant.**

Visitor impact on Stow-cum-Quy Fen SSSI

Magnitude of impact

4.3.12 Once the proposed WWTP is operational, the completion of the landscape masterplan to the area of land surrounding the proposed WWTP would formalise access in this location. The proposed WWTP does not provide any additional accesses or parking (parking at the gateway building would be for pre-arranged visits to the Discovery Centre or for staff visiting the proposed WWTP). There are no access improvements at Clayhithe Road (layby). The status change to 'bridleway' to a section of the existing disused railway east of the proposed WWTP would permit legitimate use, however this does not provide a direct connection to the Stow-cum-Quy SSSI, and it will not offer access for vehicles. As the landscape masterplan provides a multi-functional purpose, of which one is to formalize existing recreational use, it unlikely that there will be an increased visitor pressure impact upon the SSSI attributed to the Proposed Development.

4.3.13 With the above taken into consideration, it is considered that the magnitude of impact from visitors increases to Stow-cum-Quy Fen SSSI is anticipated to be negligible.

Sensitivity of receptor

4.3.14 Stow-cum-Quy Fen SSSI is considered to be of national value. The condition of each of the qualifying features are assessed as being unfavourable-recovering, although it is noted by Natural England in 2021, that measures pertaining to bank raising (flood control), better grazing, scrub control and pond management, have been made to bring the SSSI closer to favourable condition. It contains floristically rich calcareous

loam pasture and hedgerows and scrub which add to the variety of habitats and species. The sensitivity of the receptor is therefore considered to be high.

Significance of effect

4.3.15 The impact from the operation of the proposed WWTP on Stow-cum-Quy Fen SSSI is assessed as slight adverse due to a combination of a high sensitivity receptor and negligible impact. This is **not significant.**

Secondary mitigation or enhancement

4.3.16 Chapter 11: Community (App Doc Ref: 5.2.11) reports on changes to recreation. Although increased visitor pressures are not anticipated, user counts within the landscape masterplan area and at selected locations in proximity to the Proposed Development would be repeated annually for operational years 1 -5 to detect changes in recreational user behaviour. The outcomes will be used to adaptively manage the landscape masterplan area.

4.3.17 The ES Appendix 8.14 Landscape, Ecological and Recreational Management Plan (App Doc Ref 5.4.8.14) aims to formalise how people are already using the land required for the proposed WWTP rather than encouraging intensification of use. As part of the measures outlined, the following are proposed:

- adequate signage to support appropriate use of the bridleways to limit any impact;
- preparation of a detailed management and maintenance plan (secured through Requirements 11 in the draft DCO (App Doc Ref 2.1), based on ES Appendix 8.14 Landscape, Ecological and Recreational Management Plan (App Doc Ref 5.4.8.14) which will be agreed with key stakeholders. In relation to users, Section 4 of the LERMP (App Doc Ref 5.4.8.14) includes the requirement to complete a user survey at least twice a year to understand how people are interacting with the recreational space and accessing the wider network of PRoW and permissive paths.

4.3.18 An Advisory Group will be established prior to the landscape works commencing in order to advise on the detailed management and maintenance plan. It should be expected that this group will merge into the Operational Management Group after completion of the landscape works. This group would discuss and manage matters such as recreational use of the landscape masterplan area including the user surveys to be completed to understand how people are interacting with the recreational space and accessing the wider network of PRoW..

Residual effects

4.3.19 The residual remains slight adverse and is **not significant**.

Operation of the outfall and impacts to the River Cam CWS – scour

4.3.20 Chapter 20: Water resources, provides detail on the hydrodynamic modelling and mechanisms of water mediated effects through scour (also see Appendix 20.6, App Doc Ref 5.4.20.6: Mike 3D velocity/mixing model and Appendix 20.7, App Doc Ref 5.4.20.7: Outfall CFD report).

Magnitude of Impact

4.3.21 Hydrodynamic modelling (refer to Chapter 20: Water (App Doc Ref 5.2.20, Mike 3 velocity/mixing model (Appendix 20.6 App Doc Ref 5.4.20.6) and Outfall CFD report (Appendix 20.7, App Doc Ref 5.4.20.7) has been carried out to inform detailed design to minimise scour effects during normal and storm conditions.

4.3.22 The modelled flows (CFD model report, Appendix 20.7, App Doc Ref 5.4.20.7) demonstrate that final effluent discharge presents a low erosion risk to riverbanks in normal flow conditions.

4.3.23 Scouring of the river banks and bed as a result of these flows, has the ability to mobilise particles into the water column, causing a reduced visibility, circulating of higher nutrient levels and potentially dislodging and disturbing *in-situ* flora and fauna through erosion.

4.3.24 This may therefore result in a temporary (associated with storm events) major adverse magnitude of impact on a precautionary basis (until storm modelling is available to confirm or refute this impact).

Sensitivity of receptor

4.3.25 As a biodiversity receptor of county importance, the River Cam CWS is considered to be of medium sensitivity.

Significance of effect

4.3.26 The impact on scour of discharged treated effluent on the River Cam is considered major adverse in terms of magnitude. The effect on the River Cam, a medium sensitivity receptor, is considered moderate adverse and **significant.**

Secondary mitigation or enhancement

4.3.27 Recommendations within Appendix 20.7 (App Doc Ref 5.4.20.7) Outfall CFD Report, include further scour mitigation design to be assessed by CFD modelling, to reduce potential riverbank impacts relating to maximum storm discharges during normal river flow conditions. Any potential riverbank impacts relating to storm discharges may be mitigated by further or detailed design, with impacts to be assessed by modelling to inform final outfall design.

4.3.28 There will be continued monitoring of the river and outfall area and any scour identified will be remedied as appropriate and as agreed with the Environment Agency.

Residual effects

4.3.29 Further CFD modelling of the impact of maximum storm discharges and normal river flow conditions on riverbank, will inform final outfall design. Following implementation of the further mitigation measures described above and in Appendix 20.7 (App Doc Ref 5.4.20.7) the mitigated impact of treated effluent discharge on the River Cam may therefore be considered minor adverse in terms of magnitude. The resultant effect on the River Cam, a medium sensitivity receptor, would therefore be considered slight adverse and **not significant**.

Operation of the outfall and impacts to water quality within the River Cam CWS – normal operation

Magnitude of impact

4.3.30 Chapter 20 – Water assesses the changes to water quality during normal (i.e. not storm flow) operation of the proposed WWTP.

4.3.31 The environmental permitting framework will ensure that the effluent load (including agents added to reduce nitrate and phosphate load) being discharged to the River Cam from the proposed WWTP would never exceed the effluent load under currently consented limits for the existing WWTP. There will also be a reduction in storm water discharges from the proposed WWTP. Therefore, there would be no additional water quality impacts on these sites once the proposed WWTP is operating and hence no further impacts on biodiversity.

4.3.32 There will be a beneficial (positive) impact on river water quality close to the location of the proposed treated effluent discharge outfall to the River Cam at the time the proposed WWTP comes into operation, when compared to current river water quality. This is due to the innovative and improved treatment process.

4.3.33 This increase in quality is likely to mean that the River Cam may support flora and fauna less tolerant of lower quality conditions, encouraging recruitment of potentially less common species to the location and supporting a more biodiverse watercourse.

4.3.34 Taking the above into account the magnitude of impacts on species with mitigation is considered to be minor beneficial.

Sensitivity of receptor

4.3.35 As a biodiversity receptor of county importance, the River Cam CWS is considered to be of medium sensitivity.

Significance of effect

4.3.36 The impact of the final effluent on water quality within the River Cam once the Proposed Development is operational, is minor beneficial in terms of magnitude. Combined with high sensitivity for the River Cam CWS, there would be a slight beneficial effect, which is not significant.

Secondary mitigation or enhancement

4.3.37 No significant adverse effects have been predicted and no secondary mitigation is required.

Residual effect

4.3.38 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains as slight beneficial and is **not significant.**

Operation of the outfall and impacts to the River Cam CWS – storm flows/flood risk

Magnitude of impact

4.3.39 Reduction in frequency of storm water discharges to the River Cam would have a beneficial (positive) impact on downstream water quality (see Chapter 20 – Water resources (App Doc Ref 5.2.20)).

4.3.40 Flooding as a result of such discharges would result in the erosion of bank-side habitats, though flooding events may also provide water input to drier ditches and ephemeral pools supportive of a range of species including amphibians, birds and invertebrates. The likelihood of such flooding is limited however, with modelling suggesting that only a 7mm increase in water level in the River Cam would occur.

4.3.41 As such, the magnitude of impact of fluvial flood risk due to final effluent and stormwater discharges from the proposed WWTP to the River Cam is considered negligible.

Sensitivity of receptor

4.3.42 As a biodiversity receptor of county importance, the River Cam CWS is considered to be of medium sensitivity.

Significance of effect

4.3.43 The impact of final effluent and stormwater discharge to fluvial flood risk is negligible in terms of magnitude. The effect on potential receptors, which are of medium sensitivity, is slight adverse and therefore assessed as not significant.

Secondary mitigation or enhancement

4.3.44 No significant adverse effects have been predicted and no secondary mitigation is required.

Residual effect

4.3.45 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains slight adverse and **not significant.**

Operational lighting impact to Low Fen Drove Way Grassland and Hedges County Wildlife Site

Magnitude of impact

4.3.46 Changes to ambient light levels as a result of external lighting associated with the operation of the proposed WWTP may result in light spill into retained habitats, though the Lighting Design Strategy (App Doc Ref 5.4.2.5) commits to ensure that lighting within the Proposed WWTP does not contribute to increasing the existing Low Fen Drove Way Grasslands and Hedgerows CWS's lighting levels ..

4.3.47 The Low Fen Drove Way Grasslands and Hedgerows CWS is designated due to it supporting more than 0.05ha of the NVC CG3 Upright Brome (*Bromus erectus*) grassland community. Receptors using the CWS as wildlife corridors such as bats and invertebrates (though not part of the reason for the site's designation) are reliant on dark corridors to commute and forage. The impacts are therefore considered within the assessments for bats and terrestrial invertebrates.

4.3.48 As there are no light-sensitive receptors as a reason for the designation, the magnitude of impact of lighting upon the CWS is considered to be negligible.

Sensitivity of receptor

4.3.49 Whilst Low Fen Drove Way CWS is considered to be of medium sensitivity in regard to its designated features, these features are not light-sensitive and do not form part of the cited interest.

4.3.50 As such, the sensitivity of the CWS receptor in this context is therefore considered to be low.

Significance of effect

4.3.51 Following the negligible magnitude impact and low sensitivity, the significance of effect of light spill from the operation of the proposed WWTP on Low Fen Drove Way Grassland and Hedges CWS is considered to be neutral (not significant) effect.

Secondary mitigation or enhancement

4.3.52 No significant adverse effects have been predicted and no other secondary mitigation is required.

Residual effect

4.3.53 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains as neutral and is **not significant.**

Surface water quality changes to Allicky Farm Pond County Wildlife Site

Magnitude of impact

4.3.54 There is potential, without mitigation, for surface water impacts at Allicky Farm Pond CWS during operation of the proposed WWTP. This is possibly due to leakages originating from the proposed WWTP which may discharge into the Black Ditch which Allicky Farm Pond CWS is likely to be hydrologically linked to.

4.3.55 The design of surface water drainage network includes segregated drainage system in areas of potential contamination with the proposed WWTP whereby water is collected and passed through the proposed WWTP for treatment. The access road will incorporate drainage that includes sustainable drainage features to collect runoff and trap contaminants.

4.3.56 Under the requirements of the environment permit for the proposed WWTP, impacts from leaks and spills in operation would be managed through the operational procedures within an environmental management system these would include materials storage controls, spill control measures, and emergency response procedures. Operational procedures will be developed further during the life of the Proposed Development from detailed design to the proposed assets going into full operation, in compliance with the relevant Environmental Permit for the Proposed Development.

4.3.57 Measures such as monitoring for leaks and management plans will be adopted to minimise the risk of runoff reaching watercourses leading to Black Ditch. Further details of surface water run-off control measures are provided in Chapter 20: Water resources, with detailed surface water drainage design compliant with the Drainage Strategy (Appendix 20.12, App Doc Ref 5.4.20.12) which includes the requirement for drainage to accord with requirements set out within the Environment Agency's Approach to Groundwater Protection (Feb 2018, Version 1.2).

4.3.58 Given the control measures proposed, the magnitude of impact is considered to be negligible.

Sensitivity of receptor

4.3.59 Allicky Farm Pond CWS is designated for being a type 10A water body with aquatic plant species (Cambridgeshire and Peterborough County Wildlife Sites Panel, 2014). The sensitivity is therefore considered medium.

Significance of effect

4.3.60 Combined with a medium sensitivity receptor and negligible impact, it would result in a slight adverse effect, which is not significant.

Secondary mitigation or enhancement

4.3.61 Detailed surface water drainage design will comply with the Drainage Strategy (Appendix 20.12, App Doc Ref 5.4.20.12). This includes the requirement for drainage

to accord with requirements set out within The Environment Agency's Approach to Groundwater Protection, Feb 2018 (Version 1.2).

4.3.62 No significant adverse effects have been predicted and no other secondary mitigation is required.

Residual effect

4.3.63 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains as slight adverse and is **not significant.**

Direct and indirect impacts to water vole habitat at the outfall

Magnitude of impact

4.3.64 The design has been developed to avoid or minimise loss of river habitat within the River Cam. Specifically:

- designing outfall and chamber to allow reinstatement of ditch parallel to River Cam to same profile;
- designing the outfall (orientation and sizing) to minimise land required overall and to limit the extent of the structure within the river;
- minimising extent of river bank protection works, and including a river bank protection design that includes embedded 'Green' engineering features within river bank protection works which seek to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation.

4.3.65 Collectively these measures also minimise operational impact to water vole.

4.3.66 Water vole is not thought to be impacted by the day-to-day operation of the outfall as part of the proposed WWTP. Water vole is likely to benefit from the operation phase due to the improvements in water quality at the outfall location and downstream. This may lead to increased marginal vegetation growth which will provide additional food sources for water voles.

4.3.67 In addition, new habitat creation specifically with regards to water vole (Works No 39) will ensure robustness of the population within the local context, with management and monitoring measures in place to ensure this habitat becomes established and successful as part of the BNG and Natural England licence requirements and commitments.

4.3.68 The magnitude of impact is therefore considered minor beneficial to water vole.

Sensitivity of receptor

4.3.69 Water vole is considered to be of county importance and are a S41 species. Water vole is known to be declining on a national level due to habitat loss and predation. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

4.3.70 Combined with a medium sensitivity receptor and minor beneficial impact, it would result in a minor beneficial effect, which is **not significant.**

Secondary mitigation or enhancement

4.3.71 Further measures delivered during operation will be implemented through the long term application of the OMMP, an outline is provided in Appendix 8.24 (App Doc Ref 5.4.8.24) which requires that the operator to prepare a detailed management and maintenance plan for created habitats relied upon to deliver river habitat net gain (secured through requirements in the DCO), this be agreed with key stakeholders.

4.3.72 No significant adverse effects have been predicted and no other secondary mitigation is required.

Residual effect

4.3.73 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect will remain as slight beneficial and is **not significant.**

Operational impacts to otter through operation of the outfall and proposed WWTP

Magnitude of impact

4.3.74 No adverse impacts to otter is predicted from the operation of the proposed WWTP due to the low numbers of otter passing through the area. No operational lighting is proposed at the outfall.

4.3.75 The design of the river bank protection is intended to allow growth of marginal habitat to provide safe commuting cover and resource for a range of species including otter.

4.3.76 Water quality at the proposed treated effluent discharge outfall to the River Cam would be of a higher standard than baseline conditions (existing permit limits applied at the existing Cambridge WWTP) based on the expected permit limits to be applied to the proposed WWTP. This improved water quality may potentially lead to an increase in invertebrate and fish numbers which may benefit foraging and commuting otter.

4.3.77 Therefore, the magnitude of impact on otter through operation is negligible.

Sensitivity of receptor

4.3.78 Otter is considered to be expanding in range in England with increases observed during the five survey periods of the Otter Survey of England, from 0% of survey sites on the River Cam during the 1977-79 period to 60% of survey sites during the 2009-10 period (Crawford, 2011).

4.3.79 This suggests that the population is growing, though no recent population data is available.

4.3.80 Otter is a S41 species and as such are of county importance (no designations are present for this species within the Scheme Order Limits, and no resting places have been found). The species sensitivity is assessed as medium.

Significance of effect

4.3.81 Water quality at the proposed treated effluent discharge outfall to the River Cam would be of a higher standard than baseline conditions (existing permit limits applied at the existing Cambridge WWTP) based on the expected permit limits to be applied to the proposed WWTP. This improved water quality may potentially lead to an increase in invertebrate and fish numbers which may benefit commuting otter.

4.3.82 Combined with a neutral sensitivity receptor and negligible impact, it would result in a neutral effect, which is **not significant.**

Secondary mitigation or enhancement

4.3.83 Replacement habitat that will be delivered due to ditch creation (associated with water vole and BNG habitat and river unit provisions), will also provide potential foraging habitat for otter should these prey items be present.

Residual effect

4.3.84 Following the implementation of the enhancement measures described above, the residual effect is anticipated to be slight beneficial which is not significant.

Operational impacts to bats from lighting, noise and habitat changes

Magnitude of impact

4.3.85 Operational lighting of the proposed WWTP will impact bats through lighting impacts. Species of bats found to be foraging adjacent (including along the Low Fen Drove Way Grasslands and Hedges CWS) to the proposed WWTP include brown long-eared and barbastelle. These species are light intolerant and may be affected by the proposed lighting.

4.3.86 An environmental lighting assessment is provided in Appendix 15.3 (App Doc Ref: 5.4.15.3). The assessment does not identify significant effects as a result of operational lighting upon ecological receptors. With respect to the CWS, the lighting proposed is located at over 200m away, with any lighting present mounted above the height of the earth bank (excepting the navigational lights on the boiler house stack, and the red steady lights on the digesters and lightning protection above the gas bag) only for task use and controlled by manual switch with an auto-off reset function to turn lighting off each morning. No routine maintenance tasks will be undertaken at night.

4.3.87 The Lighting Design Strategy (App Doc Ref 5.4.2.5) commits to ensure that lighting within the Proposed WWTP does not contribute to increasing the existing Low Fen Drove Way Grasslands and Hedgerows CWS's lighting levels.

4.3.88 Directional lighting involving use of a reduced colour temperature LED (compared with current Horningsea Road lighting provision of >2700K), and within the proposed WWTP, provision of <2700K will be implemented to minimise attractiveness to invertebrates.

4.3.89 The earth bank will limit the operational light spill, and once the planting has become established, it is unlikely that the CWS will receive any higher levels of light spill upon it than existing. It is possible that the new planting will provide additional screening from light present within the local area, for example from roads and so will potentially allow for a darker corridor to establish. There will continue to be the tree and hedgerow vegetation along the shared boundary of the CWS and the proposed WWTP, which will also provide continued vegetative screening.

4.3.90 Vegetation screening however, is not used in calculations of lighting impacts due to the variability of the screening that may be provided, for example, broad-leaved trees losing leaves in winter. In reality, when most light-sensitive species are active, leaf cover would provide screening from lighting. A precautionary approach to the assessment on lighting impacts is provided due to this, that lighting assessments do not allow for non-human visual systems, and that the detailed design and luminaire specification not available at this stage.

4.3.91 Noise levels from the operation of the plant may impact bats using the wider countryside leading to bats avoiding areas that are frequently used now. This may lead to avoidance of foraging areas and potential roosting areas. Embedded mitigation measures to minimise noise emissions will be incorporated into the operational design including specification of low noise generating plant and equipment, implementation of noise reduction measures (i.e. acoustic enclosures for plant including blowers) and attenuation from earthwork embankment and landscape masterplan (Table 2-13, Chapter 17 – Noise and Vibration).

4.3.92 The management of the new habitats including woodland, hedgerows and seasonal ponds will promote success of these features to support foraging and commuting bats. The woodland may provide additional roosting features to bats once trees reach maturity. These areas of planting are proposed adjacent to the proposed WWTP.

4.3.93 Continued management will allow for vegetated linkages, with any failures to be replaced (in line with management periods) to facilitate higher connectivity levels for bats across the local area. This will, for example, provide increased connectivity between Low Fen Drove Way Grasslands and Hedges CWS with the wider countryside, and will support dispersals and foraging resource availability for bats at Anglesey Abbey.

4.3.94 Overall, with additional planting the magnitude of impact on bats through the operation of the proposed WWTP is assessed as being a minor beneficial impact in the long term, once vegetation establishes.

4.3.95 An impact magnitude of minor adverse is assigned as a worst case (until vegetation establishes), with respect to lighting.

Sensitivity of receptor

4.3.96 Horningsea Road is currently illuminated through part of its length. Additional lighting is required along short lengths from the existing junction to Low Fen Drove Way. This section is vegetated and provides a resource for light-tolerant commuting bats species. Due to the current light levels present, the fauna utilising this already lit section of habitat are considered of low sensitivity. The sensitivity of the unlit section is however considered to be of high sensitivity as this may provide an available commuting route from and to the River Cam along the treelines running east-west along Biggin Lane for light-intolerant species.

4.3.97 Common species of bat (non-Annex II considered at county level importance) noted to be present in the local area such as common pipistrelle, are relatively light tolerant however barbastelle (Annex II considered at national level importance) have been recorded, with barbastelle considered light sensitive species. As such the sensitivity of bats within is assessed as high.

Significance of effect

4.3.98 Prior to vegetation establishing, it is predicted that the minor adverse impact on local bat populations with high sensitivity would result in a slight adverse effect which is **not significant**.

4.3.99 Overall, it is predicted that the minor beneficial impact on local bat populations with high sensitivity would result in a slight beneficial effect which is **not significant.**

Secondary mitigation or enhancement

4.3.100 Detailed lighting design will comply with the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5). This includes the requirement for lighting to accord with The Institute of Lighting Professionals Advice Note- Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute, and Guidance Note 08/23 - Bats and Artificial Lighting.

4.3.101 Further measures delivered during operation will be implemented through the long-term application of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders.

4.3.102 No other secondary mitigation is required.

Residual effect

4.3.103 The residual effect due to bats remains as slight beneficial which is **not significant.**

Operational impacts to badgers from lighting, noise and habitat changes

Magnitude of impact

4.3.104 Once operational the proposed WWTP could potentially impact on badger through an increase in noise and light levels in areas used by foraging badgers. Badger clans may be forced to move away from light and noise disturbance to alternative areas that are already occupied by different badger clans. This may lead to conflict between badgers which may result in injury or death. Badgers may be pushed unnecessarily towards the busy A14 road which is located to the south of the proposed WWTP.

4.3.105 Associated landscape planting to be delivered through the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) will provide enhanced foraging resources for badgers than presently available within the land required for the proposed WWTP. The absence of intensive farming within the land required for the proposed WWTP and the landscape masterplan will encourage a return of invertebrates which in turn will benefit badgers.

4.3.106 The magnitude of impact on badger is expected to be of local spatial extent and long-term duration which is continuous and irreversible. It is predicted that the impact will affect the receptors directly. The magnitude is considered minor.

Sensitivity of receptor

4.3.107 Badger is not considered to be of conservation concern in the local area, with protection in place to prevent impacts on their welfare, for example through sett loss and injury, or preventing access to foraging resources.

4.3.108 Badger is considered to be of local importance and therefore of low sensitivity.

Significance of effect

4.3.109 Overall, it is predicted that the minor impact on the low sensitivity receptor would result in a slight adverse effect, which is **not significant.**

Secondary mitigation or enhancement

4.3.110 Further measures delivered during operation will be implemented through the long-term application of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders.

4.3.111 No other secondary mitigation is required.

Residual effect

4.3.112 On the basis that no secondary mitigation or enhancement measures are proposed, the residual effect remains as slight adverse and is **not significant.**

Operational habitat change and lighting impacts to terrestrial invertebrates

Magnitude of impact

4.3.113 The majority of terrestrial habitat that is of value such as Low Fen Drove Way and Low Fen Drove Way Grasslands and Hedges CWS will remain unaffected by the Proposed Development. There could be an impact to terrestrial invertebrates from light spill into the surrounding habitats adjacent to the proposed WWTP. Operational lighting of the proposed WWTP may attract invertebrates from areas immediately adjacent to the proposed WWTP thereby depleting areas of invertebrates and potentially affecting other species that rely on insect prey. The lighting plan and habitat planting (acting as screening) will mitigate this light spill and once established, is likely to deter invertebrates from being attracted to operational lighting.

4.3.114 The approach to lighting the proposed WWTP is to be as minimal as possible without compromising safety. Lighting columns within the proposed WWTP are limited to 5 metres and would be used intermittently for specific activities. Lighting would be designed to direct light into the proposed WWTP and within the earth bank. The access road would be unlit and the carpark at the gate house would include PIR type low level lighting. Light from operational buildings would be visible in the darker winter months and the design incorporates screening to prevent light spill from the building.

4.3.115 Within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14), specified areas of bare soil will be created along field margins in the east of the proposed WWTP around the proposed areas of calcareous loam meadow grassland.

4.3.116 Elm is included within the proposed hedgerows, scrub and woodland planting specifications to support white-letter hairstreak butterfly.

4.3.117 Habitats will also be created to benefit invertebrates, including small seasonal ponds, formed from scrapes or swales. The seasonal ponds will be positioned in the glade/open areas of the woodland in the southern corners of the Proposed Development adjacent to the CWS.

4.3.118 This will have a benefit on invertebrate populations once the proposed landscaping habitats are established. This is expected to increase the diversity of invertebrates within the local area.

4.3.119 The installation of bee banks within proposed habitat creation areas along with a change from arable to grassland habitats, will have a positive impact to invertebrates.

4.3.120 Taking into account lighting mitigation and features within the landscape masterplan, the magnitude of impacts on terrestrial invertebrates once operational is considered to be minor beneficial, once vegetation is established.

4.3.121 Prior to establishing, the magnitude of impacts is considered to be minor adverse.

Sensitivity of receptor

4.3.122 Many species of terrestrial invertebrates are considered to be sensitive to lighting at night, however there is insufficient information on the conservation status of these species and assemblages. On a precautionary basis, a high sensitivity is assigned to this receptor.

Significance of effect

4.3.123 Overall, it is predicted that the minor impact on the high sensitivity receptor, prior to vegetation establishing, would result in a slight adverse effect which is not significant. Once vegetation has established this would provide more habitat and screening and the effect is considered to be slight **beneficial** and is **not significant.**

Secondary mitigation or enhancement

4.3.124 Further measures delivered during operation will be implemented through the long term application of the LERMP (Application Document Reference 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to invertebrate habitat this includes the specific requirement to:

- install approximately 41 discrete deadwood and brash piles across the areas outside the earth bank within woodland planting areas using locally sourced material (preferably as arises from the proposed vegetation removal works).
- monitor use of bee banks
- monitoring stability of brash piles
- monitoring of seasonal pond

Residual effect

4.3.125 Once vegetation establishes, and monitoring indicates that the enhancement measures are functional, the residual effect is considered to remain as slight beneficial and **not significant.**

Impacts to fish from operation of the outfall

Magnitude of impact

4.3.126 The Aquatic Baseline Report (Appendix 8.1, App Doc Ref 5.4.8.1) outlines fish species identified within the River Cam. Fish of conservation value include bullhead

and spined loach. Brown trout have been found within 5km of the EZoI and the European eel which is of conservation value was recorded as present via eDNA sampling within the River Cam.

4.3.127 The proposed treated effluent discharge outfall to the River Cam will result in the removal a proportion of marginal vegetation which could impact the amount of available habitat for fish species present in the River Cam. However, the extent of the loss of marginal vegetation is very low relative to the amount of available habitat in the river.

4.3.128 The design of the storm pipe includes a non-return valve which will, in combination with the near constant flow, prevent access to fish such as European eel.

4.3.129 There will be a beneficial (positive) impact on river water quality in the vicinity of the proposed treated effluent discharge outfall to the River Cam at the time the proposed WWTP comes into operation, when compared to current river water quality. This may have a larger spatial impact than the proposed treated effluent discharge outfall to the River Cam, and on balance would be considered beneficial to the River Cam ecology.

4.3.130 Overall, the magnitude of the impact on fish species is considered to be minor beneficial.

Sensitivity of receptor

4.3.131 Several protected fish species, or those that are listed as S41 species could be present within the section of the river where the works will take place including bullhead, spined loach and European eel.

4.3.132 These are considered important at a county level, and as such, the sensitivity of the fish community is medium.

Significance of effect

4.3.133 Due to the medium sensitivity of the receptor, the significance of effect is slight beneficial and is **not significant**.

Secondary mitigation or enhancement

4.3.134 Management of impacts during operation will be through implementation of an approved operation OMMP, to align with the outline OMMP provided in Appendix 8.24 (App Doc Ref 5.4.8.24),to include ongoing monitoring measures to identify erosion/scour of the river bank. This may trigger the need for remediation including the application of further physical interventions.

4.3.135 No other secondary mitigation is required.

Residual effect

4.3.136 The residual effect remains as slight beneficial and **not significant.**

Direct and indirect impact to macroinvertebrates due to operation of the outfall
Magnitude of impact

4.3.137 The water quality of the river reach in the vicinity of the proposed treated effluent discharge outfall to the River Cam is expected to improve whilst storm water discharge into the River Cam will decrease. There will be a beneficial (positive) impact on river water quality close to the location of the proposed treated effluent discharge outfall to the River Cam at the time the proposed WWTP comes into operation, when compared to current river water quality.

4.3.138 The design of the outfall is such that it will operate within the maximum volume limits which are to be similar to those from the existing outfall such that the potential for scour is minimised.

4.3.139 Improved water quality as a result of the proposed treated effluent discharge to the River Cam may have a larger spatial impact than its physical footprint, and on balance would be considered beneficial to river ecology. The magnitude of the impact on river macroinvertebrates would be minor beneficial.

Sensitivity of receptor

4.3.140 As no macroinvertebrate species of conservation importance were found in the River Cam or the ditch network, the sensitivity of ditch and river macroinvertebrates is considered to be low.

Significance of effect

4.3.141 The significance of the effect on river macroinvertebrates is neutral and is **not significant.**

Secondary mitigation or enhancement

4.3.142 Management of impacts during operation will be through implementation of an approved OMMP, based on the outline provided in Appendix 8.24 (App Doc Ref 5.4.8.24) to include ongoing monitoring measures to identify erosion/scour of the river bank. This may trigger the need for remediation including the application of further physical interventions which would be detailed in an updated operational OMMP.

4.3.143 No other secondary mitigation is required.

Residual effect

4.3.144 The residual effect due to water quality improvements remains as neutral and is **not significant**.

4.3.145 Direct and indirect impact to macrophytes due to operation of the outfall The macrophyte communities identified in the River Cam are moderately diverse though considered likely to be affected by elevated nutrient levels. No species of conservation importance have been identified.

Magnitude of impact

4.3.146 Improved water quality as a result of the proposed development may have a larger spatial impact than its physical footprint, and on balance would be considered beneficial to the ecology of the River Cam. The magnitude of the impact on river macrophytes would be minor beneficial.

Sensitivity of receptor

4.3.147 The sensitivity of aquatic macrophyte species is considered as low as no species of local importance has been identified.

Significance of effect

4.3.148 The significance of the effect on river macrophytes is neutral and is **not significant.**

Secondary mitigation or enhancement

4.3.149 Management of impacts during operation will be through implementation of an approved operational OMMP, to align with the outline provided in Appendix 8.24 (App Doc Ref 5.4.8.24), to include ongoing monitoring measures to identify erosion/scour of the river bank. This may trigger the need for remediation including the application of further physical interventions which would be detailed in an updated operational OMMP.

4.3.150 No other secondary mitigation is required.

Residual effect

4.3.151 The residual effect due to outfall operations on aquatic macrophytes remains as neutral and is **not significant.**

Operational impacts on common reptiles and their habitats

Magnitude of impact

4.3.152 Once fully operational the Proposed Development has the potential to contribute to reptile foraging and hibernating areas within the newly created habitat areas, with ongoing reptile sensitive management measures in place as outlined within the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14). These habitats will link with habitats used by reptiles within the Low Fen Drove Way Grasslands and Hedges CWS.

4.3.153 Inclusion of bare soil scrapes within the landscape masterplan, on south-facing slopes of earth banks suitable for reptiles to use to bask (insolate) alongside established habitats will support reptile species.

4.3.154 Management measures will follow reptile sensitive methodologies to minimise the risk of killing or injury of reptile species, as outlined in the LERMP and which will be documented in the reptile mitigation strategy for all impactful activities across the Proposed Development (including locations outside of the landscape masterplan).

4.3.155 The magnitude of impact on reptiles is anticipated to be minor beneficial.

Sensitivity of receptor

4.3.156 Two reptile species of local conservation importance (protected from killing or injury through the 1981 Act) are present. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

4.3.157 Overall, it is predicted that the minor beneficial impact magnitude on the low sensitivity receptor in the local context would result in a neutral effect which is **not significant.**

Secondary mitigation or enhancement

4.3.158 The long-term implementation of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) will:

- create a total of 8 hibernacula measuring approximately 2m x 4m with 1m height;
- install approximately 41 discrete deadwood and brash piles across the areas outside the earth bank within woodland planting areas using locally sourced material (preferably as arises from the proposed vegetation removal works);
- monitor hibernacula; and
- monitor the stability of brash piles.

Residual effect

4.3.159 The residual effect remains neutral and **not significant.**

Operational noise impacts on breeding birds

Magnitude of impact

4.3.160 Once operational, changes in noise levels could affect normal feeding, foraging and breeding behaviours of birds such as through temporary displacement as they move away from the noise source.

4.3.161 New opportunities for birds will be created and available during operation:

- the creation of grasslands and woodlands have the potential to attract small mammal populations which may increase use by raptors such as buzzard and

barn owl. No known nesting sites of buzzard and barn owl has been identified within the area of land required for the proposed WWTP and landscaping plans;

- solar panels could act as a ledge for nest building and can attract invertebrates that perceive the photo voltaic (PV) surface as a waterbody where they subsequently lay eggs providing a foraging resource for insectivorous birds
- flat or shallow-sloping roofs within the proposed WWTP could be used by birds including lesser black-backed and herring gulls and would present an unacceptable risk if colonies were to form; and
- uncovered wastewater tanks may attract birds in particular gulls and starlings.

4.3.162 This will result in there being potentially additional numbers and assemblages of bird species during operation to act as receptors to any noise produced. These are likely to be species more tolerant of noise, as they will have chosen to use the proposed CWWTP whilst in operation.

4.3.163 The management of planting (included here as usually involves potentially destructive and noisy machinery) will be completed at sensitive times to avoid impacts upon nesting birds.

4.3.164 The new hedges, woodland and scrub will over time become established and thickened, with these landscaping features providing a disturbance buffer to bird species using the proposed WWTP and surrounding environment.

4.3.165 Overall, with the additional vegetation planting providing a visual screening and noise attenuating properties of the earth bank, along with acoustic screening and equipment selection (as referenced within Chapter 17 – Noise and Vibration), the magnitude of impact on birds through the operation of the proposed WWTP is assessed as being moderate beneficial.

Sensitivity of receptor

4.3.166 The lack of any significant breeding bird assemblages or species of high conservation concern nesting within the Scheme Order Limits means that the receptor is considered to be of local importance, and low sensitivity.

Significance of effect

4.3.167 Overall, it is predicted that the moderate beneficial impact magnitude on the low sensitivity in the local context, would result in a slight beneficial effect which is **not significant.**

Secondary mitigation or enhancement

4.3.168 Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) which

requires that the operator to prepare a detailed management and maintenance plan (secured through a requirement in the DCO), based on the approved LERMP which will be agreed with key stakeholders. In relation to birds this includes the specific requirement to:

- provide and maintain seasonal ponds (intended to provide habitat needs for turtle dove) (sections 4 and 5 of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14))
- install bird boxes under direction of ecologist (sections 4 and 5 of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14))
- complete nest checks (section 5 of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14))

Residual effect

4.3.169 The residual effect remains as a slight beneficial effect which is **not significant.**

Creation and management of habitats as part of the landscape masterplan

4.3.170 The landscape design proposals create a range of new habitats and features, including grassland, woodland, tree belts, seasonal ponds, bee banks, reptile hibernacula, brash and deadwood piles and hedgerows. The Proposed Development, although featuring areas of tree planting, will include grassland glades to create a calcareous loam meadow community.

Magnitude of impact

4.3.171 Potential translocation of species-rich hedgerows into areas of advanced planting such as the earth bank, creating scrub patches or hedgerows. Species-rich grassland turf will be stripped and temporarily stored during works, followed by reinstatement in areas of temporary works. Root Protection Zones (RPZ) of existing and newly planted hedgerows and trees will be implemented during construction. The programme of habitat creation is anticipated to be completed in an appropriate sequence to avoid impacts to newly created habitats such as seasonal ponds being dug prior to tree planting in the locations around the ponds, to prevent tree damage. Grassland seed mixes will also be sown at appropriate times of year and in sequence to prevent damage from subsequent construction or landscaping works.

4.3.172 Newly planted individual trees and hedgerow species are vulnerable to damage by foraging herbivores such as deer species. Mitigation is proposed in the form of tree protection measures and fencing around sensitive areas to keep foraging deer from damaging newly planted trees and habitats. Any plantings damaged within the management and monitoring period of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) will be replaced.

4.3.173 The landscape masterplan within Section 3 of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) includes hedgerow replacement in excess of the lengths of

hedgerow removed during the construction of the proposed WWTP. The development of a multi-functional landscape masterplan includes mitigation for biodiversity impacts and includes the creation of new extents of hedgerow and new woodland and grassland habitats. The development of the landscape masterplan has involved detailed consideration to maximise benefit to existing habitats and create linkages to improve connectivity and includes mitigation as well as enhancement features such as bee banks and hibernacula. In addition, the LERMP will also help to deliver BNG (Appendix 8.13, App Doc Ref: 5.4.8.13).

4.3.174 The magnitude of impacts is therefore considered to be moderate beneficial.

Sensitivity of receptor

4.3.175 At a geographic scale, the habitats created would be at best, of a county level importance on establishing, with a medium sensitivity.

Significance of effect

4.3.176 It is anticipated that the proposals will have an overall **moderate beneficial** effect on local habitat connectivity and availability as resources for wildlife which is **significant.**

Secondary mitigation or enhancement

4.3.177 Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14, App Doc Ref: 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP (Appendix 8.14, App Doc Ref: 5.4.8.14) which will be agreed with key stakeholders. In relation to the overall success of the LERMP there is a specific requirement to review the objectives and maintenance and management regimes every five years for 30 years.

Residual effect

4.3.178 The residual effect due to long term habitat creation remains as **moderate beneficial** and is **significant.**

Waterbeach pipeline

4.3.179 This section sets out the assessment of effects in relation to the Waterbeach transfer pipeline which consists of a transfer section running from the north near Waterbeach to Low Fen Drove Way, a section crossing the area of land required for the construction of the proposed WWTP, a section south of the A14 which connects to the area of land where the existing Cambridge WWTP is located.

4.3.180 In operation the land required for the construction of the Waterbeach transfer pipeline will be reinstated to its existing landform and use. With the exception of air valves there are no permanent features that remain in operation.

Monitoring

4.3.181 During the operational phase, monitoring of new plantings and ecological features will be a requirement of the LERMP. This is also relevant to the section of the Waterbeach pipeline route that intersects with the extent of the landscape masterplan. This will inform any measures of success for habitats within the land required for the proposed WWTP and the landscape masterplan as well as enabling responses to repair or remediation required.

4.3.182 For areas outside the LERMP measures set out with section 7.2, Ecology and Nature Conservation, of the CoCP Part A, includes a requirement for monitoring of reinstated habitats for 5 years after construction. For planting completed within the construction period this monitoring will commence and continue into operation.

4.3.183 Additional monitoring will also be required in relation to protected species in line with the Natural England mitigation licences for bats, water vole and badger, with species specific requirements conditioned, and reporting required.

4.3.184 Monitoring and management activities will be set out within the operational OMMP developed in line with outline OMMP (App Doc Ref 5.4.8.24) and cover:

- monitoring for evidence of erosion as a result of operating the outfall in particular during storm events
- monitoring of created and reinstated habitats within works No 32 and the created ditch and reedbed within Work No 39 to ensure success
- any monitoring as required by permits and consents relevant to Works No 32 and 39.
- Regulatory monitoring and reporting (storm events, treated effluent quality and river monitoring) would be part of normal operations and responding to the requirements of the environmental permit and not covered in the operational OMMP.

4.4 Decommissioning the existing Cambridge WWTP

4.4.1 This section sets out the assessment of effects in relation to activities completed to surrender the environmental permit at the existing Cambridge WWTP. Demolition activities and intrusive works to decommission the existing Cambridge WWTP are considered within the cumulative assessment. Decommissioning of the existing Waterbeach WRC is considered within the cumulative assessment.

Impacts to water quality from draining and cleaning of existing tanks

Magnitude of impact

4.4.2 The draining and cleaning of the existing tanks has the potential to result in accidental leakages or spills of tank contents or cleaning materials and chemicals. These may then contaminate habitats, local surface water features, and any that

may be hydrologically linked. This may affect surface water quality and in turn affect aquatic ecology and subsequent food chains.

4.4.3 Depending on the time of year and weather, a lack of water flow or water presence may result in a reduction in flow of spills or leaks, providing a delay in spread or dilution.

4.4.4 Paragraph 5.1.14 of the Outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) requires that decommissioning will be undertaken in accordance with the Code of Construction Practice Parts A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) to manage risks to the environment'. As required by the CoCP Part A, Section 5.6, Emergency Procedures and Preparedness Plan, spills and contamination events would be planned for within a CEMP and the associated sub-plan. This will require best practice guidance to be followed to prevent spills and leakages before they are able to occur, and should they occur, a plan for their immediate remediation and reporting. As such the impact is predicted to be negligible.

Sensitivity of receptor

4.4.5 The sensitivity would be dependent on the waterbody or watercourse, or habitat and species affected by any spill or leak and will therefore vary from low to high sensitivity.

Significance of effect

4.4.6 The impact of draining and cleaning existing tanks as part of decommissioning works is of negligible impact, with a variable receptor sensitivity. As the decommissioning works are temporary in nature, there will be an overall resulting slight adverse effect which is **not significant.**

Secondary mitigation or enhancement

4.4.7 Management of decommissioning activities through application of measures within the outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) and the CoCP Part A, Section 4.4 (Construction Environment Management Plan) which requires that the contractors to prepare a Decommissioning Plan (secured through requirements in the DCO), and Section 7.5 (Water Resources and Flood Risk) (Appendix 2.1, App Doc Ref 5.4.2.1) which sets out measures to control activities related to decommissioning. These requirements will collectively secure deliver appropriate mitigation of the decommissioning activities.

Residual effect

4.4.8 The residual effect due to draining and cleaning of tanks remains as slight adverse and **not significant.**

Monitoring

4.4.9 For biodiversity no monitoring is required for decommissioning of the existing Cambridge WWTP.

4.5 Cumulative effects

4.5.1 Cumulative effects are those arising from impacts of the Proposed Development in combination with impacts of other proposed or consented development projects that are not yet built or operational. An assessment of cumulative effects for Biodiversity has been completed and is reported in Chapter 22: Cumulative Effects Assessment (App Doc Ref 5.2.22).

4.5.2 For biodiversity, all developments are required to comply with the National Planning Policy Framework (NPPF) Ministry of Housing, 2021), development plans and other legislation and guidance. As such, any future developments in combination could have negative effect on biodiversity resources.

4.5.3 Developments considered with respect to cumulative effects on biodiversity resources are:

- S/2075/18/OL: Up to 4500 dwellings, business, retail, community, education and leisure uses, Waterbeach New Town East;
- S/0791/18/FL: Relocated railway station comprising platforms, pedestrian bridges, access route, cycle routes, Waterbeach New Town;
- S/0559/17/OL: Up to 6500 dwellings, business, retail, community, leisure, education and sports use, Waterbeach New Town; and
- S/2682/13/OL: Up to 1300 dwellings, school, food store, community and open spaces, Marleigh.

4.5.4 There are no significant residual cumulative effects for Biodiversity.

4.6 Inter-related effects

4.6.1 Inter-relationships are the impacts and associated effects of different aspects of the construction, operation of the Proposed Development and the decommissioning of the existing Cambridge WWTP on the same receptor.

4.6.2 Inter-related effects have been identified within this Chapter for ecological receptors taking into account impacts on water quality, air quality, and impact of lighting and noise.

5 Conclusion and Summary

~~4.6.3~~5.1.1 This assessment of the effects, and their significance, of the Proposed Development as it applies to biodiversity has been thoroughly carried out based on the information currently available.

~~4.6.4~~5.1.2 The approach to assessment has applied best practice guidance and national/local policy.

~~4.6.5~~5.1.3 The effects of the Proposed Development on biodiversity during construction would vary from negligible/minor to moderate/major adverse prior to mitigation, which would be significant in the case of moderate and major adverse effects.

~~4.6.6~~5.1.4 Significant adverse effects to the following ecological receptors, as a result of proposed construction works have been identified for:

- removal of habitat in relation to temporary and permanent construction of the outfall, to facilitate laydown areas, for open cut trenching, HDD drilling, compounds and access, and the proposed WWTP;
- impacts to and removal of river aquatic habitats during construction; and
- disturbance to bat roosts within trees, and foraging and commuting bats.

~~4.6.7~~5.1.5 The construction of the Waterbeach transfer pipeline, waste water transfer tunnel and temporary access routes will result in temporary disturbance of species and temporary habitat losses. Considering mitigation measures required by the CoCP these are not considered likely to be significant.

~~4.6.8~~5.1.6 During construction there will be a requirement for further secondary mitigation measures to be implemented through the application of management plans as specified by the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2), these include Emergency Preparedness Plan, Pollution Incident Control Plan, Wildlife Hazard Plan, SMP, Decommissioning Plan, Commissioning Plan, Construction Water Quality Management Plan, CTMP, Construction Workers Travel Plan, Noise and Vibration Management Plan, Air Quality Management Plan; and Site Waste Management Plan .

~~4.6.9~~5.1.7 In addition to the requirements of the CoCP there will also be a requirement that all required permits and licences are in place prior to construction of which mitigation licences for bats, badger and water vole would be included as well as permits for works to watercourse.

~~4.6.10~~5.1.8 The following mitigation measures (as part the draft mitigation licence) are included which are intended to minimise significant effects to non-significant levels:

- habitat reinstatements (such as temporary hedgerow translocations and replacements, and replacing habitats disturbed in the short term though construction compounds or earth works), landscaping masterplan proposals

including provision of new species-rich grassland habitat, woodland and scrub, and seasonal ponds;

- habitat restoration and creation measures including reedbed translocation and creation within Works No 39 and planting to downstream areas of the River Cam;
- translocation of rare floral species to suitable locations to provide a continued opportunity for the species found;
- creation of a ditch network within Works No 39;
- compensation bat roost provision;
- early tree planting and hedgerow thickening within the landscape masterplan to facilitate bat commuting and foraging corridors; and
- timing river works to outside of the typical spawning or upstream migration periods for fish species present.

~~4.6.11~~5.1.9 The effects of the Proposed Development on biodiversity during operation would vary from negligible/minor to moderate/major adverse prior to mitigation, which would be significant in the case of moderate and major adverse effects. Operation impacts are significant for the following impact:

- scour impacts through discharged treated effluent, on the River Cam.

~~4.6.12~~5.1.10 This significant effect will be reduced to non-significant levels as a result of the following measures:

- final outfall design will incorporate additional CFD modelling results and recommended measures to mitigate any impacts, alongside continued monitoring of the river and outfall area. Any identified scour will be remedied as appropriate and as agreed with the Environment Agency.

~~4.6.13~~ Significant beneficial effects to the following ecological receptors, as a result of the Proposed Development, during operation, have been identified for habitats within the proposed WWTP through the landscape masterplan, which includes the creation of more diverse grassland, woodland, scrub and seasonal ponds along with additional ecological features such as bat and bird boxes and bee banks. This additional habitat provision will support the local Nature Recovery Network.

5.1.11 ~~E~~

~~4.6.14~~5.1.12 Environmental compliance during the operational phase will be monitored under the Environmental Permit alongside specific licence conditions associated with the Natural England species licences for water vole, bat and badger. The Environmental Permit also requires the operator to have a written Environmental Management System (EMS), which includes a set of plans and procedures describing measures to avoid, reduce and eliminate potential environmental impacts associated with the activities covered by the permit.

~~4.6.15~~5.1.13 A BNG Report and its associated Appendix C (Appendix 8.13, App Doc Ref 5.4.8.13) have been completed and indicate that the development as currently designed (including the ditch and reedbed habitats outlined in Appendix C of the BNG report, but excludes the high distinctiveness river units to be delivered off-site) achieves a net gain within the Scheme Order Limits through:

- area based habitats 42.27%
- linear (hedgerows) habitats 28.~~69~~13%
- linear habitats (water) 20.05%

~~4.6.16~~5.1.14 However, to avoid trading down, a minimum of 0.04 high distinctiveness river units will be required off-site.

~~4.6.17~~5.1.15 The BNG assessment will be updated as the detailed landscaping designs are produced prior to construction, in line with Requirement 25 of the draft DCO (App Ref Doc 2.1). Following the CIEEM/British Standard guidance, the habitat proposals within the LERMP and habitats outside of the LERMP that deliver net gain, will be monitored for a 30-year period to determine condition of the habitats and whether or not the target gain has been reached. This will include an initial period of detailed management and maintenance information for years 1-5 (including frequency and timing of measures); maintenance and management regimes will then be reviewed every five years.

~~4.6.18~~5.1.16 There are no potential significant impacts as a result of decommissioning the existing Cambridge WWTP for the purpose of surrendering the existing Environmental Permit.

~~4.6.19~~5.1.17 A summary of potential environmental effects, mitigation and monitoring is provided in Table 5-1~~Table 0-1~~. Table 5.2 sets out how mitigation would be secured.

~~4.7~~5.2 Mitigation summary

~~4.7.1~~5.2.1 The delivery of mitigation will be controlled through the DCO which:

- identifies parameters within which certain works activities will be located and constructed (e.g. maximum and minimum building dimensions (including below ground), or locational zones);
- sets requirements for construction, operation and maintenance of the Proposed Development to be undertaken in accordance with 'control plans / documents' (including those that are related to compliance with environmental permits); and
- sets requirements for the control of specific issues or works (e.g. time limits around the completion of the outfall construction).

~~4.7.2~~5.2.2 Table 5-2 summarises all mitigation in relation to biodiversity, how these measures are secured, the party responsible for the implementation of the measure, when the measure would be delivered and any mechanisms to deliver the measure.

Table 5-1 Summary of biodiversity effects

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
Construction							
Proposed WWTP							
Temporary water quality/pollution impacts on Stow-cum-Quy Fen SSSI	Management of construction activities as described within the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include the requirement to implement best practice measures including: • measures to minimise run-off and the risk of runoff reaching ditches and watercourses • management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour. • measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits • requirement for the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002. • requirement for refuelling of machinery to be undertaken within designated areas (unless expressly stated within the CEMPs) where spillage can be more easily contained	Negligible (short-term)	High	Slight adverse (not significant)	–	Slight adverse (not significant)	None
Temporary impacts to non-statutory designated site: River Cam County Wildlife Site- Dewatering during the construction of the outfall temporarily reduces water quality within the River Cam CWS	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include the requirement to implement best practice measures including: • measures to minimise run-off and the risk of runoff reaching ditches and watercourses • management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour.	Negligible (short term)	Medium	Neutral (not significant)	.	Neutral (not significant)	In line with Environmental Permit (Flood risk activities) for works affecting main river

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	CoCP Part B section 3.1. and requirements for site specific measures to be picked up in the OMMP including fish rescue, maintaining buffers along water bodies and pollution prevention to meet relevant permit and licence conditions. Temporary works design measure: • use of cofferdam to create dry working area within the River Cam						
Temporary impacts to non-statutory designated site: River Cam County Wildlife Site - Temporary works within the river bed during the construction of the treated effluent discharge outfall to the River Cam reduce water quality in the River Cam CWS	Management measures as for the management of dewatering impacts within the River Cam CWS Temporary works design measure: • Use of cofferdam to create dry working area within the River Cam	Minor adverse (short term)	Medium	Slight adverse (not significant)		Slight adverse (not significant)	In line with Environmental Permit (Flood risk activities) for works affecting main river
Temporary impacts to non-statutory designated site: Low Fen Drove Way Grassland and Hedges County Wildlife Site.	Management of construction activities will be through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts to ecological features, surface water, and impacts from the generation of noise. The best practice measures applied during construction in relation to these aspects are: • CoCP Part A, Section 7.2, Ecology and nature conservation, and Part B, section 3.3 which – require the prohibition of vegetation removal from the CWS – requires the routing of works access through existing pathways that cross the CWS – requires the provision of a buffer of a minimum of 10m between works areas and extent of CWS. • CoCP Part A, Section 7.5, Surface water and flood risk which includes a number of measures to be reflected within the construction Water Quality Management Plan (WQMP) appended to/as part of the CEMP, including requirements to:	Negligible (short term)	Medium	Neutral (not significant)	Management of construction activities impacting air quality, ecology, and or resulting in increase in artificial lighting will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2): • the management of lighting through the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1, App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure and deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill). • the management of impacts to ecology as set out within Section 7.2 of the CoCP Part A, Ecology and Nature Conservation, sets out a framework for the controls to be implemented during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in the CEMP(s) and other relevant sub-plans appended to/as part of the CEMP(s). This covers general	Neutral (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	– minimising the risk of runoff reaching controlled waters (ditches and watercourses) to prevent pollution incidents; and – management of dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit, whichever applies to the activity. Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour • CoCP Part A, Section 7.7, Noise and vibration which requires the application of best practicable measures (BPM) as defined by the Control of Pollution Act 1974 (CoPA) and the Environmental Protection Act 1990 (EPA) for the control of noise. These measures are to be reflected within the Noise and Vibration Management Plan (NVMP) appended to/as part of the CEMP. • CoCP Part A, Section 7.8, Air quality which provides a framework for the control of air quality during construction, identifying 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in an Air Quality Management Plan (AQMP) appended to/as part of the CEMP. The following general measures will be put in place to minimise emissions and avoid nuisance: – the engines of all vehicles and plant onsite will be turned off when not in use; – low emission vehicles and plant will be used as far as possible; and – movement of construction traffic around the working area will be minimised as far as possible.				measures including pre-works checks and tool-box talks and measures in relation to each of the following: – Nesting birds – Bats – Badger – Otter – Reptiles – Riparian and aquatic habitat – Other protected species – Invasive species – Biosecurity – Tree/hedgerow removal		
Impact to terrestrial habitats during construction	Habitats removed to be replaced by planting of habitats of higher ecological value in line with landscape masterplan within the LERMP (App Doc Ref 5.4.8.14). Management of construction activities will be through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP. The best practice	Moderate adverse (permanent and temporary impacts present)	Medium	Moderate adverse (until establishment of planted mitigation) (significant); moderate beneficial (after	Management of construction impacts to terrestrial habitats will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2). These will be set out in the CEMP related to the specific works activity: • Section 7.2 (Ecology and Nature Conservation) includes the requirement that:	Moderate beneficial (significant)	Monitoring of reinstated hedgerow for up to 5 years from initial planting

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	measures applied during construction in relation to minimising impacts to terrestrial habitats are: • the specification for the use of trenchless techniques used to avoid disturbance and damage to habitats wherever possible • the delineation of working areas prior to the commencement of construction and until works are complete to prevent damage to the surrounding habitats. the implementation of tree/hedgerow protection measures which are shown on the Tree Protection Plans within the Arboricultural Report (Appendix 8.17, App Doc Ref 5.4.8.17). the implementation of measures set out under section 7.4 of the CoCP Part A in respect of Soil Management and in the Outline Soil Management Plan (Appendix 6.3 App Doc Ref 5.4.6.3) which will support the rapid and effective re-establishment of habitats.			establishment) (significant)	– any planting as part of the Proposed Development which dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority. • Section 7.2 (Ecology and Nature Conservation) includes the requirement that: – in locations of retained hedgerow there shall be consideration of additional "thickening" to promote habitat connectivity for bats, in particular making use of existing hedgerow removed during construction. Any works to hedgerow would be under the supervision of a suitably experienced ecologist. – a requirement that where feasible working widths for pipeline construction will be reduced and that existing gaps in hedgerows will be used or areas where the hedgerow is weaker; – a requirement for reinstatement planting to be undertaken in the first available planting season following construction. Species mixes will match or increase the diversity of species of the existing trees and hedgerows; and – a requirement for any planting as part of the Proposed Development that dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season. • the CoCP Part B section 3 includes the requirement for the translocation of plants of botanical interest if and when identified by ECoW; and inclusion within the relevant CEMP safeguarding measures for trees and hedgerows.		
Impact to aquatic habitats during construction - Temporary and permanent removal of ditch habitat during construction due to the	Management of construction activities will be through measures as described within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP. The best practice measures applied during construction in relation to minimising impacts to riparian and aquatic habitats are:	Moderate adve rse (permanent and temporary impacts present) for ditch within the areas of land	Medium	Direct effect on ditch within the areas of land required for the proposed WWTP and landscape	Management of impacts to ditch habitats will also be managed through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2): • requirement within the CoCP Part B to prepare an outfall management and monitoring plan including control measures and monitoring	For loss of ditch habitats within the areas of land required for the proposed WWTP and	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
temporary open cut ditch crossings; and permanent loss due to the landscaping and structural proposals	• limiting any permanent crossing of ditches to a maximum width of 6m • the implementation of measures set out under section 7.2 of the CoCP Part A in respect Riparian and Aquatic Habitats specifically: – leaving bank and any aquatic vegetation in place for as long as practicable – removing the channel bed material prior to the excavation of the trench, storing the material separately and replacing it once construction works are complete to promote rapid colonisation of the area by aquatic invertebrates and aquatic plants – maintaining the flow downstream of the crossing point – restoration of original bank profile on completion of the pipeline crossings – completing works between August and October and or during low flow conditions to protect potential fish spawning or nursery sites	required for the proposed WWTP and landscape masterplan Minor adverse for ditch next to River Cam		masterplan : Slight adverse (not significant) For ditch next to River Cam: Slight adverse (not significant)	requirements in relation to the outfall construction requirement within the CoCP Part B for the translocation of reedbed and any species of botanical interest affected by the works to construct the outfall and the river bank protection. Any relocation activities to be included in outfall management and monitoring plan. • requirement within the CoCP Part A for the reinstatement of ditches temporarily disturbed during construction • requirements within CoCP Part B Section 3.1 in relation to the ditch parallel to the river Cam to re-established banks by planting native locally sourced vegetation • requirements within CoCP Part B Section 3.3 in relation to the retained ditch with hedgerow running to the eastern side of the proposed WWTP: – crossings to be minimised to 2 crossings each up to 6m width. – the final crossing locations will target existing gaps in the hedge. – the crossing of the ditch (incorporating a temporary culvert not exceeding an 8m length of the ditch) will be in accordance with a permit from the Swaffham Internal Drainage Board	landscape masterplan: Slight adverse (not significant), neutral over time once established For ditch next to River Cam: Slight adverse (not significant) neutral over time once established	
	Design measures to avoid or minimise loss of habitat are: • retaining existing ditch with hedgerow within the land required for the landscape masterplan contained with the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) • designing outfall and chamber to allow reinstatement of ditch parallel to River Cam to same profile • creation of 345m of new ditch habitat as described in Appendix C of the BNG Report (Appendix 8.13 App Doc Ref 5.4.8.13)				Management and monitoring of created and reinstated ditch habitat adjacent to River Cam through outfall management and monitoring plan to be updated for operation phase and delivered by the Applicant. This plan will cover management of created river habitat relied upon for the delivery of BNG.		Monitoring of created ditch habitat to deliver BNG as defined within the outfall management and monitoring plan
Impact to aquatic habitats during construction - Loss of river habitats due to the construction of the outfall and associated river bank protection	Design measures to avoid or minimise loss of river habitat within the River Cam are: • designing outfall and chamber to allow reinstatement of ditch parallel to River Cam to same profile • design of outfall (orientation and sizing) to minimise land required overall and to limit the extent of the structure within the river;	Major adverse (permanent and temporary impacts present)	Medium	Moderate adverse (significant)	Management of impacts to riparian habitat associated with the River Cam will also be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2): • requirement within the CoCP Part B to prepare an Outfall Management and Monitoring Plan including control measures and monitoring	Slight adverse (not significant)	

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
works (river bank and river bed)	• minimising extent of river bank protection works; and • design that includes embedded 'Green' engineering features within river bank protection works that seeks to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation. Implementation of final design for outfall and river protection works to include measures required by the Environment Agency secured by the Environmental Permit (flood risk activities).				requirements in relation to the outfall construction • requirement within the CoCP Part B for the translocation of reedbed and any species of botanical interest affected by the works to construct the outfall and the river bank protection. Any relocation activities to be included in Outfall Management and Monitoring Plan (OMMP).		Delivery of any monitoring as required by the Environmental Permit (flood risk activities) to demonstrate efficacy of control measures
Temporary and permanent loss of water vole habitat	Direct and indirect impacts related to works to ditches will be through water vole displacement measures in line with agreed Natural England licence conditions (Draft Licence included App Doc Ref 5.4.8.22). These measures also include the: provision of a tool-box talk by the licenced water vole ecologist • completion of pre-works checks for works within 5m of watercourse / works crossing ditches prior to the start of the works • application for licence amendments if deemed appropriate • habitat creation (ditches) • Timing of works between 15 February and 15 April or as otherwise agreed by licence condition • application for licence amendments if deemed appropriate and inclusion of additional measures within the application • Restricting temporary works to cross ditches to a 6m working width and habitat (ditch) reinstatement Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • minimising the risk of runoff reaching controlled waters (ditches and watercourses) to prevent pollution incidents; and	Minor beneficial	Medium	Slight beneficial (not significant)		Slight beneficial (not significant)	In line with agreed Natural England Mitigation Licence

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	• management of dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit - whichever applies to the activity. Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour Direct impacts to water vole minimised by the following design measures: • inclusion of embedded 'green' engineering features within river bank protection works that seeks to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation; and • minimising loss of habitat through design of ditch crossing so that ditch profile can be reinstated once outfall construction has been completed.						
Direct and indirect impacts on otter	As for water vole plus the measures below. Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • adopt sensitive construction methodologies to include securing of areas to prevent access by otter; • complete pre works checks for protected species by a suitably qualified ecologist; and • implement measures in relation to the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002.	Minor adverse (not significant)	Medium	Slight adverse (not significant)	Management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill (thereby providing a night time safe transit route for otter).	Slight adverse (not significant)	None
Disturbance to, and loss of, bat habitats - Direct and indirect impacts on bats (roosts) due to the combination of noise, use of temporary lighting, land clearance and presence of people	Direct and indirect impacts related to works to affecting bat roosts will be through application of the mitigation measures in line with agreed Natural England licence conditions (Draft Licence included Appendix 8.20 App Doc Ref 5.4.8.20) which requires the following: provision of a tool-box talk by the licenced bat ecologist; • completion of pre-works checks for works areas prior to the start of the works	Moderate adverse (short term)	High	Moderate adverse (significant)	Management of construction impacts to terrestrial habitats that may affect bat population will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2). These will be set out in the CEMP related to the specific works activity: • Any planting as part of the Proposed Development which dies or becomes seriously damaged or diseased within five years after	Moderate beneficial (significant)	In line with agreed Natural England Mitigation Licence

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
in close proximity to known utilised habitats	• timing the works at identified roost locations to be outside of the hibernation period (where hibernation suitability has been discerned); • installation of suitable bat boxes for use by crevice dwelling species on appropriate retained trees prior to disturbing works commencing, to facilitate continued opportunities for bats to roost. • use of wildlife sensitive lighting design as outlined in the Natural England licence; and • minimising severance of hedgerows and reinstatement of hedgerows to provide commuting habitat and foraging opportunities. Application of best practice measures (e.g. BS5837 Trees in relation to construction (2012) and National Utilities Group (NJUG) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (2007)) during the construction as outlined within the CoCP Part A section 7.2 to avoid areas within hedgerows where high value trees as identified within the Arboricultural Impact Assessment, (Appendix 8.17, App Doc Ref: 5.4.8.17).				completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority. In locations of retained hedgerow there shall be consideration of additional "thickening" to promote habitat connectivity for bats, in particular making use of existing hedgerow removed during construction. Any works to hedgerow would be under the supervision of a suitably experienced ecologist. Enhancement roost feature installation by mounting woodcrete type bat boxes suitable for a range of bat species to use, upon appropriate trees within the landscape masterplan; early planting of larger specimen trees and hedgerow plants within the landscape masterplan to provide vegetative features for commuting linkages and foraging resources as soon as possible; and thickening of hedgerows along the boundaries of the landscape masterplan area as appropriate, with native species plantings to enhance commuting linkages for bats to use.		In line with LERMP Table 5.1 requirements
Disturbance to, and loss of, bat habitats - Direct and indirect impacts on bats (lighting and habitat related) due to the combination of temporary construction noise, use of temporary lighting, land clearance and presence of people in close proximity	Direct and indirect impacts related to works to affecting bat habitat will be through application of the mitigation measures in line with agreed Natural England licence conditions (Draft Licence included Appendix 8.20, App Doc Ref 5.4.8.20) which requires the following: • the use of wildlife sensitive lighting design as outlined in the draft Licence (App Doc Ref 5.4.8.20 such as <2700K, directional only with no upward orientation or light spill); and • minimising severance of hedgerows and use of translocation of hedgerows to provide commuting habitat and foraging opportunities.	Minor adverse (short term)	Medium (non-Annex II species); High (foraging and commuting barbastelle)	Moderate adverse (significant)	Management of lighting through the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill). Enhancement roost feature installation by mounting woodcrete type bat boxes suitable for a range of bat species to use, upon appropriate trees within the landscape masterplan; early planting of larger specimen trees and hedgerow plants within the landscape masterplan to provide vegetative features for commuting linkages and foraging resources as soon as possible; and thickening of hedgerows along the boundaries of the landscape masterplan area as appropriate, with native species plantings to enhance commuting linkages for bats to use.	Slight adverse (not significant) until vegetation established when effect is moderate beneficial (significant)	In line with agreed Natural England Mitigation Licence In line with LERMP Table 5.1 requirements
Loss of badger sett and habitat	Direct and indirect impacts related to works to affecting badger will be through application of the mitigation measures in line with agreed Natural England licence conditions will be carried out (Draft Licence included App Doc Ref 5.4.8.21) which requires the following:	Major adverse	Low	Slight adverse (not significant)	Management of lighting through the Lighting Design Strategy (App Doc Ref 5.4.2.5)] and the CoCP Part A, Section 5.9 (Lighting) (App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through	Slight adverse (not significant)	In line with agreed Natural England Mitigation Licence

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	• excavations will be closed overnight, 45° ramps constructed or planks of wood used to provide a means of escape; • any chemicals will be stored in containers overnight and any spillages cleaned up immediately; • operatives will be informed of badgers using the construction areas through the induction and ~~t~~Toolbox ~~t~~Talks; • if appropriate and practical vehicles may be prevented from access certain areas which will be marked by fencing and signage; • pipes over 120mm diameter will be capped off during storage; • material or equipment which poses a risk of injury will be securely covered or fenced off, such as sharp objects or cement; and • in order to avoid attracting badgers to the works compound areas any food waste will be disposed of in appropriate bins or removed at the end of each day. In addition to licence requirement the management of construction activities as described within the CoCP Part A and B (App Doc Ref 5.4.2.1) in section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts including to ecological features. The CEMP will include requirements to apply best practice measures (including to locations not covered by the licence) during construction to prevent impacts to badger including: • completion of pre-works checks (including areas not covered by licence); • checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals • securing of areas to prevent access by badger				requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill).		
	Creation of additional planting proposals around the Low Fen Drove Grasslands and Hedges CWS will provide a net gain in badger foraging habitats and connectivity to the wider landscape.						
Loss, change and fragmentation of terrestrial invertebrate habitats	Design measures to minimise loss of terrestrial habitat that may support invertebrate populations includes retaining the existing ditch with hedgerow within the land required for the landscape masterplan and provision of bare earth patches within a topographically variable area, offering a range of micro-climes to support a range	Minor adverse (lighting impact pathway); moderate beneficial	Medium	Lighting impact: Slight adverse (not significant) Habitat impact: moderate	Same further measures as related to the impact of removal of habitats as a result of the temporary and permanent use of the land, plus the requirement to implement the LERMP in operation for a period of up to	Moderate beneficial (significant)	Monitoring of created habitats within the landscape masterplan to be In line with LERMP Table 5.1 requirements

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	of invertebrates, such as mining bees as part of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14). Same measures as related to the impact of removal of habitats as a result of the temporary and permanent use of the land	(habitat impact pathway)		beneficial (significant)	30 years to ensure effective delivery of BNG through the landscape masterplan.		
Direct and indirect impacts upon aquatic species-fish	Direct impacts minimised by the following design measures: • design of outfall (orientation and sizing) to minimise land required overall and to limit the extent of the structure within the river and along the banks • inclusion of embedded 'green' engineering features within river bank protection works that seeks to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation; • minimising loss of habitat through design of ditch crossing so that ditch profile can be reinstated once outfall construction has been completed. Management of construction activities will be through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts to ecological features, surface water, and impacts from the generation of noise. The best practice measures applied during construction in relation to fish are: • CoCP Part A, Section 7.2, Ecology and nature conservation, in respect Riparian and Aquatic Habitats specifically: – leaving bank and any aquatic vegetation in place for as long as practicable – removing the channel bed material prior to the excavation of the trench, storing the material separately and replacing it once construction works are complete to promote rapid colonisation of the area by aquatic invertebrates and aquatic plants – maintaining the flow downstream of the crossing point – completing works between August and October and/or during low flow conditions to protect potential fish spawning or nursery sites • CoCP Part A, Section 7.5, Surface water and flood risk which includes a number of measures	Minor adverse	Medium	Slight adverse (not significant)	Management of impacts from the outfall construction to aquatic habitats through implementation of further measures within the CoCP Part B Section 3 (App Doc Ref 5.4.2.2.) which includes the requirement for: the preparation by the construction contractors of an Outfall Management and Monitoring Plan (OMMP) to incorporate all control measures and monitoring requirements including a fish rescue plan in relation use of a temporary cofferdam Management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill). Management of commissioning activities through application of measures within the outline Commissioning Plan (Appendix 2.4 App Doc Ref 5.4.2.4) and the CoCP Part A, Section 4.4 (Construction Environment Management Plan), and Section 7.5 (Water Resources and Flood Risk) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors to prepare a Commissioning Plan (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of the wet commissioning activities.	Neutral (not significant)	Delivery of any monitoring as required by the Environmental Permit (flood risk activities) to demonstrate efficacy of control measures

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	to be reflected within the construction Water Quality Management Plan (WQMP) appended to/as part of the CEMP, including requirements to: – minimise the risk of runoff reaching controlled waters (ditches and watercourses) to prevent pollution incidences; and – manage dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit – whichever applies to the activity. Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour • CoCP Part A, Section 7.7, Noise and vibration which requires the application of best practicable measures (BPM) as defined by the Control of Pollution Act 1974 (CoPA) and the Environmental Protection Act 1990 (EPA) for the control of noise. These measures are to be reflected within the Noise and Vibration Management Plan (NVMP) appended to/as part of the CEMP.						
Direct and indirect impacts on aquatic species-macroinvertebrates (river)	As for measures to manage impacts to fish	Minor adverse	Low	Neutral (not significant)		Neutral (not significant)	None
Direct and indirect impacts on aquatic species-macroinvertebrates (ditch)	Direct impacts minimised by the following design measures: • design of outfall (orientation and sizing) to minimise land required overall and to limit the extent of the structure within the river and along the banks • inclusion of embedded 'green' engineering features within river bank protection works that seeks to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation; and • minimising loss of habitat through design of ditch crossing so that ditch profile can be reinstated once outfall construction has been completed.	Minor adverse	Low	Neutral (not significant)	As for measures to manage impacts to fish excluding commissioning related measures in the case of ditches.	Neutral (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	CoCP Part A, Section 7.5, Surface water and flood risk which includes a number of measures to be reflected within the construction Water Quality Management Plan (WQMP) appended to/as part of the CEMP, including requirements to: • minimise the risk of runoff reaching controlled waters (ditches and watercourses) to prevent pollution incidences; and • manage dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit – whichever applies to the activity. Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour						
Direct removal and indirect impacts to aquatic species-macrophytes	As for measures to manage impacts to fish	Moderate adverse	Low	Slight adverse (not significant)	As for the further measures to manage impacts to fish The OMMP will include specific measures on translocation and management of macrophyte species in the vicinity of the outfall.	Slight beneficial (not significant)	None
Direct and indirect impacts on reptiles due to construction works	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • complete pre works checks by suitably experienced ecologist • complete clearance activities in accordance with approved methods • to translocate reptiles potentially affected by the works • to reinstatement of land temporarily used for construction Management of construction activities as described within the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) in particular section 7.2 (Ecology and Nature Conservation) which requires the Principal Contractor(s) to produce a Reptile Mitigation Strategy before works commence on site. It is proposed that the impact upon reptiles be mitigated through a combination of: • the use of reptile fencing (around the proposed WWTP), • the practice of sensitive vegetation clearance and management including hard searches as appropriate • local translocation.	Negligible	Low	Neutral (not significant)		Neutral (not significant)	For areas within the landscape masterplan monitoring will be in line with LERMP Table 5.1 requirements For areas external to the landscape masterplan any post construction monitoring will be in line with the approved Reptile Mitigation Strategy

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	• The provision of reptile specific 'tool-box talk' to site staff prior to any work being carried out. the use of staged cuts in a directional manner, as guided by the ECoW or other suitably experienced ecologist identified by the ECoW. – Design measures to include a mosaic of suitable habitats (bare areas, grassland, scrub, seasonal ponds) along with reptile hibernacula within the land required for the landscape masterplan contained with the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) to provide suitable habitat for reptiles.						
Construction works affecting breeding bird use of the area - (final effluent pipeline and transfer tunnel)	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts to birds including best practice measures applied during construction to: • complete pre works check by suitably experienced ecologist; • avoid the nesting bird season as appropriate to any species found; and • complete clearance activities completed in accordance with approved methods	Minor adverse (short term)	Low	Minor adverse (not significant)	Same further measures as related to the impact of removal of habitats as a result of the temporary and permanent use of the land, plus the requirement to implement the LERMP in operation for a period of up to 30 years to ensure effective delivery of BNG through the landscape masterplan.	Slight beneficial (not significant) for areas within LERMP; neutral (not significant) for areas outside of LERMP	In line with LERMP Table 5.1 requirements
Construction works affecting breeding bird use of the area - (proposed WWTP access road and landscape masterplan area)	Design measures to include trees and woodland, scrub, grassland and seasonal ponds within the land required for the landscape masterplan contained with the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) to provide suitable habitat for a variety of bird species. Grassland seed mixes will incorporate grass and forb species to support a range of birds, including turtle doves. A range of bird nest boxes will be installed on suitable retained trees.	Minor beneficial (permanent)	Low	Minor beneficial (not significant)	Management of construction activities as described within the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce Birdstrike Hazard Management Plan before works commence on site. The plan will be appended to or incorporated into the CEMP(s). It will incorporate measures that • set out the required monitoring for changes to bird assemblages • measures to prevent increase risk of attracting species of birdstrike concern		In line with approved plan
Waterbeach pipeline							
Temporary water quality/pollution impacts on Stow-cum-Quy Fen SSSI	As for impacts to Stow-cum-Quy Fen SSSI related to the construction of the proposed WWTP	Negligible	High	Slight adverse (not significant)	As for impacts to Stow-cum-Quy Fen SSSI related to the construction of the proposed WWTP plus the implementation of measures to manage drilling fluid break out as defined within the CoCP Part A section 7.	Slight adverse (not significant)	None
Temporary air quality impacts to Statutory Designated Site: Stow-cum-Quy Fen SSSI	Best practice measures in relation to construction will be applied and contained within the CoCP Part A and Part B (Appendix 2.1 and 2.2 , App Doc Ref: 5.4.2.1 and 5.4.2.2) to control pollutants in order to minimise the potential	Negligible	High	Slight adverse (not significant)	-	Slight adverse (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	for and likely impacts of airborne pollutants on sensitive habitats:						
Water quality impacts on the non-statutory designated site: River Cam CWS	Management of construction activities as described within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include best practice measures requirements including: • minimising run-off and the risk of runoff reaching ditches and watercourses such as through the siting of launch and recovery pits associated with trenchless construction methods to be located a minimum of 8m from top of bank • management dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour. • measures applied for management of leaks and spillages • requirement for the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002. • requirement for refuelling of machinery to be undertaken within designated areas (unless expressly stated within the CEMPs which will be prepared) where spillage can be more easily contained	Negligible	Medium	Neutral (not significant)	As for impacts to Stow-cum-Quy Fen SSSI related to the construction of the proposed WWTP plus the implementation of measures to manage drilling fluid break out as defined within the CoCP Part A section 7.4	Neutral (not significant)	None
Removal and fragmentation of terrestrial habitats	As for the removal of terrestrial habitats associated with the construction of the proposed WWTP with the inclusion of a section of trenchless construction between (+475.0m to +972.0m (refer to Design Plans - Waterbeach pipeline long sections, App Doc Ref 4.14.11). The Code of Construction Practice Part A (App Doc Ref 5.4.2.1) paragraphs 7.2.17 to 7.2.21 provide mitigation measures where it is not feasible for clearance to occur outside of the bird breeding season.	Minor adverse (short term)	Medium	Slight adverse (not significant)	As for the removal of terrestrial habitats associated with the construction of the proposed WWTP	Neutral (not significant)	Monitoring of reinstated habitats will be in line with the approved CEMP covering the works

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
Direct and indirect impacts to water vole due to construction	Direct and indirect impacts related to works to ditches will be through water vole displacement measures in line with agreed Natural England licence conditions (Draft Licence included App Doc Ref 5.4.8.22). These measures also include the: provision of a tool-box talk by the licenced water vole ecologist • completion of pre-works checks for works within 5m of watercourse / works crossing ditches prior to the start of the works • application for licence amendments if deemed appropriate • habitat creation (ditches) • the inclusion of a section of trenchless construction between (+475.0m to +972.0m (refer to Design Plans - Waterbeach pipeline long sections, App Doc Ref 4.14.11) • Timing of works between 15 February and 15 April or as otherwise agreed by licence condition • Application for licence amendments if deemed appropriate and inclusion of additional measures within the application • restricting temporary works to cross ditches to a 6m working width and habitat (ditch) reinstatement Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • minimise the risk of runoff reaching ditches and watercourses; and • manage dewatering to meet requirements of Environment Agency RPS including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour	Minor adverse (short term)	Medium	Slight adverse (not significant)		Slight adverse (not significant)	In line with agreed Natural England Mitigation Licence
Direct and indirect impacts to otter due to construction	As for water vole plus additional measures below. Management of construction activities as described within the CoCP Part A (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological	Minor adverse (short term)	Medium	Slight adverse (not significant)	Management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate	Slight adverse (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	features including best practice measures applied during construction to: • adopt sensitive construction methodologies to include securing of areas to prevent access by otter; • pre works check by a suitably qualified ecologist; • best practice measures in relation to the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002; and • Provision of continued availability of otter access to suitable foraging and commuting habitats.				mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill (thereby providing a night time safe transit route for otter).		
Direct and indirect impacts to bats.	Direct and indirect impacts related to works to affecting bat habitat will be through application of the mitigation measures in line with agreed Natural England licence conditions (Draft Licence included Appendix 8.20 App Doc Ref 5.4.8.20) which requires the following: • Provision of a tool-box talk by the licenced bat ecologist; • provision of a tool-box talk by the licenced bat ecologist; • completion of standard pre-works checks for works areas prior to the start of the works • timing the works at identified roost locations to be outside of the hibernation period (where hibernation suitability has been discerned); • installation of suitable bat boxes for use by crevice dwelling species on appropriate retained trees prior to disturbing works commencing, to facilitate continued opportunities for bats to roost. • use of wildlife sensitive lighting design as outlined in the Natural England licence; and • minimising severance of hedgerows and reinstatement of hedgerows to provide commuting habitat and foraging opportunities.	Moderate adverse (short term)	Medium (non-Annex II species); High (foraging and commuting barbastelle)	Moderate adverse (significant)	Management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill	Slight adverse (not significant)	In line with agreed Natural England Mitigation Licence
Direct and indirect impacts to badger due	Direct and indirect impacts related to works to affecting badger will be through application of the mitigation measures in line with agreed Natural England licence conditions will be carried out (Draft Licence included App Doc Ref 5.4.8.21) which requires the following: Provision of a tool-box talk by the suitably experienced ecologist;	Minor adverse (short-term)	Low	Neutral (not significant)	Management of lighting through the Lighting Design Strategy (App Doc Ref 5.4.2.5)] and the CoCP Part A, Section 5.9 (Lighting) (App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during	Neutral (not significant)	In line with agreed Natural England Mitigation Licence

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	• Completion of pre-works checks; • Checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals • Securing of areas to prevent access by badger • trenchless techniques applied to avoid damage to sett for a short section of the pipeline (+475.0m to +972.0m) (refer to Figure 4.14.11); • Avoidance of loss of setts by refining works areas extents; • Pre works checks to verify that the baseline is unchanged; and • to prevent disturbance of a badger sett whilst occupied, a buffer zone of at least 30m will be adopted between the construction working area and the known extent of the active sett. In addition to licence requirement the management of construction activities as described within the CoCP Part A and B (App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts including to ecological features. The CEMP will include requirements to apply best practice measures during construction to prevent impacts to badger including: • completion of pre-works checks (including areas not covered by licence); • checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals • securing of areas to prevent access by badger				construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill).		
Temporary loss of reptile habitat and direct and indirect impacts to reptiles during construction	The reptile species present are protected from killing or injury by the 1981 Act, and so best practice measures will be necessary to prevent any offences being committed under this legislation will be implement through measures described within the CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • complete pre works checks for protected species by suitably experienced ecologist; • complete clearance activities in accordance with approved methods • translocate reptiles potentially affected by the works reinstate land temporarily used for construction	Moderate adverse	Low	Slight adverse (not significant)	Management of construction activities as described within the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) in particular section 7.2 (Ecology and Nature Conservation) which requires the Principal Contractor(s) to produce a Reptile Mitigation Strategy before works commence on site. It is proposed that the impact upon reptiles be mitigated through a combination of: herpetofaunal fencing (around the proposed WWTP), sensitive vegetation clearance and management including hard searches as appropriate, and • local translocation. • provision a reptile specific 'tool-box talk' to site staff prior to any work being carried out. • where vegetation management is required, this will involve staged cuts in a directional manner, as guided by the ECoW or other	Slight adverse (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	• an agreed method statement of works will be agreed by the local authority ecologist, once the Proposed Development is consented; • the ECoW will provide a tool-box talk to contractors in line with the Reptile Mitigation Strategy; • the ECoW will be present once construction begins and will be available to check areas of habitats prior to removal. It may be required that vegetation is removed in a phased two-stage approach, with this outlined within the agreed Reptile Mitigation Strategy; • the ECoW will relocate any reptiles found within the working area to safe areas of suitable and connected-to-existing habitat in a safe manner; and • herpetofaunal fencing may be required to be installed and maintained during works in areas of higher density reptile populations or as directed by the agreed Reptile Mitigation Strategy. Fencing will be required in areas where reptiles are to be translocated, and must be in place prior to translocation commencing; and • A coordinated approach will be made to remove the risk of reptiles being handled multiple times through activities relating to multiple developments.				suitably experienced ecologist identified by the ECoW. • should any reptiles be found during construction this will immediately be reported to the Environmental Manager who will arrange for them to be safely relocated to equivalent and appropriate habitat outside any impactful zone by a suitably experienced person.		
Direct and indirect impacts to breeding birds	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts to birds including best practice measures applied during construction to: • complete pre works checks for protected species by suitably experienced ecologist; • avoid the nesting bird season as appropriate to any species found; and • complete clearance activities completed in accordance with approved methods.	Minor adverse (short term)	Low	Slight adverse (not significant)	Management of construction activities impacting air quality, ecology, and or resulting in increase in artificial lighting will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2): • the management of air quality as set out within Section 6.9 of the CoCP Part A, Air quality, sets out a framework for the control of air quality during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in an Air Quality/Dust Management Plan (AQMP) appended to/as part of the CEMP. This includes the following general measures to be will put in place to minimise emissions and avoid nuisance: – the engines of all vehicles and plant onsite will be turned off when not in use; – low emission vehicles and plant will be used as far as possible; and	Slight adverse (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
					– movement of construction traffic around the working area will be minimised as far as possible • the management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill). • the management of impacts to ecology as set out within Section 7.2 of the CoCP Part A, Ecology and Nature Conservation, sets out a framework for the controls to be implemented during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in the CEMP and other relevant sub-plans appended to/as part of the CEMP. This covers general measures including pre works checks and tool-box talks and measures in relation to each of the following: – Nesting birds – Bats – Badger – Otter – Reptiles		
Existing Cambridge WWTP							
Removal of habitats - Milton Road Hedgerows City Wildlife Site (CiWS)	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts including best practice measures applied during construction to: • complete pre works checks for protected species by suitably experienced ecologist; • avoid the nesting bird season as appropriate to any species found; and	Negligible	Low	Neutral (not significant)	Management of impacts to hedgerow through further measures as described within the CoCP Part B (Appendix 2.2 App Doc Ref 5.4.2 2): Replanting the species-poor hedgerow section with native species will enhance the resilience and robustness of the hedgerow, and support the integrity of the CiWS.	Neutral (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	complete clearance activities completed in accordance with approved methods. • complete pre works checks to avoid habitats such as the existing species-rich hedgerow • maintaining a buffer between the works and the CiWS						
Temporary disturbance of badger sett and associated habitat	Management of impacts to badger as a result of construction activities are through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts including to ecological features. The CEMP will include requirements to apply best practice measures during construction to prevent impacts to badger including: • completion of pre-works checks across the existing Cambridge WWTP (due to badgers being considered a mobile species); • checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals • securing of areas to prevent access by badger	Negligible	Low	Neutral (not significant)	None	Neutral (not significant)	None
Operation							
Proposed WWTP							
Impacts from operational air emissions on Stow-cum-Quy Fen SSSI	The energy plant will have suitable exhaust stack height and operate in accordance with the relevant MCPD emission limit values for energy plant which will be specified within a site-specific Environmental Permit.	Negligible	High	Slight adverse (not significant)	None	Slight adverse (not significant)	Emissions monitoring in accordance with Environmental Permit requirements
Visitor impact on Stow-cum-Quy Fen SSSI	Management of visitor behaviours through design the landscape masterplan within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) to include: • the provision of pedestrian and leisure cycling pathways within the landscape masterplan to formalise existing access within a location away from the SSSI • exclusion of additional parking provision for users of Low Fen Drove Way or users accessing the landscape masterplan area to discourage additional visits to the local area by car users	Negligible	High	Slight adverse (not significant)	Further measures delivered during operation will be implemented through the long-term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to users this includes the requirement to complete user survey at least twice a year to understand how people are interacting with the recreational space and accessing the wider network of PRoW and permissive paths.	Slight adverse (not significant)	In line with LERMP Table 5.1 requirements
Operation of the outfall and impacts to the River Cam CWS – Scour	Direct and indirect impacts related to operation of the outfall will be minimised through the inclusion of scour protection within the design of the outfall.	Major adverse	Medium	Moderate adverse (significant)	Further measures delivered during operation will be implemented through the long term application outfall management and monitoring plan which requires that the operator to prepare a detailed management and	Slight adverse (not significant)	Continued annual monitoring post construction to inform the need for

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	In addition to design measures the Applicant will be required to implement controls on emissions through operational phase requirements in compliance with the relevant Environmental Permit (flood risk activities) for the outfall.				maintenance plan for the outfall (secured through requirements in the DCO), to include ongoing monitoring measures to identify erosion/scour of the river bank. This may trigger the need for remediation including the application of further physical interventions.		any remedial actions in relation to bank scour Emissions monitoring (treated effluent) in accordance with Environmental Permit requirements
Operation of the outfall and impacts to water quality within the River Cam CWS – normal operation	The management of effluent quality through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes In addition to design measures emissions to the River Cam will be controlled through operational procedures. Operational procedures will be developed further during the life of the Proposed Development from detailed design to the proposed assets going into full operation, in compliance with the relevant Environmental Permit for the Proposed Development.	Minor beneficial	Medium	Slight beneficial (not significant)		Slight beneficial (not significant)	Emissions monitoring (treated effluent) in accordance with Environmental Permit requirements
Operation of the outfall and impacts to the River Cam CWS – storm flows/flood risk	The management of effluent quality and storm spill impacts through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes • design of storm storage volumes and flow rates to meet regulatory requirements; • inclusion of capacity within the proposed development to adapt to future changes in relation to storm storage provision	Negligible	Medium	Slight adverse (not significant)	Further measures delivered during operation will be implemented through the long term application outfall management and monitoring plan which requires that the operator to prepare a detailed management and maintenance plan for the outfall (secured through requirements in the DCO), to include ongoing monitoring measures to identify erosion/scour of the river bank. This may trigger the need for remediation including the application of further physical interventions.	Slight adverse (not significant)	Continued annual monitoring post construction to inform the need for any remedial actions in relation to bank scour
Operational lighting impact to Low Fen Drove Way Grassland and Hedges County Wildlife Site – prior to vegetation establishing	Design measures to prevent or minimise artificial light impacts are: • wildlife sensitive lighting design incorporated into detailed design • exclusion of lighting provision on the access road	Negligible	Low	Neutral (not significant)	Detailed lighting design will comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5). This includes the requirement for lighting to accord with The Institute of Lighting Professionals Advice Note-Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this	Slight adverse (not significant)	None

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	• the use of directional lighting of <2700K and use of maximum height lighting columns of 5m within the proposed WWTP				document published by the Institute and Guidance Note 08/23 - Bats and Artificial Lighting		
Operational lighting impact to Low Fen Drove Way Grassland and Hedges County Wildlife Site – once vegetation established	Design measures to prevent or minimise artificial light are: • wildlife sensitive lighting design incorporated into detailed design • exclusion of lighting provision on the access road • the use of directional lighting of <2700K and use of maximum height lighting columns of 5m within the proposed WWTP • habitat creation within the landscape masterplan that serves a screening function once mature	Negligible	Low	Neutral (not significant)	Detailed lighting design will comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5). This includes the requirement for lighting to accord with The Institute of Lighting Professionals Advice Note-Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/23 - Bats and Artificial Lighting	Slight beneficial (not significant)	None
Surface water quality changes to Allicky Farm Pond County Wildlife Site	Design measures to avoid or minimise impacts to groundwater / to prevent surface water run-off from the proposed WWTP: • design of surface water drainage network to include segregated drainage system in areas of potential contamination with the proposed WWTP • design of access road drainage to incorporate sustainable drainage features	Negligible	Medium	Slight adverse (not significant)	Detailed surface water drainage design will comply with the Drainage Strategy (App Doc Ref 5.4.20.12). This includes the requirement for drainage to accord with requirements set out within The Environment Agency's Approach to Groundwater Protection, Feb 2018 (Version 1.2).	Slight adverse (not significant)	Emissions monitoring in accordance with Environmental Permit requirements The Environmental Permit will include conditions requiring management systems to cover pollution prevention and emergency responses.
	Management of impacts from leaks and spills in operation through the operational procedures in relation to materials storage controls, spill control measures, and emergency response procedures. Operational procedures will be developed further during the life of the Proposed Development from detailed design to the proposed assets going into full operation, in compliance with the relevant Environmental Permit for the Proposed Development.						
Direct and indirect impacts to water vole habitat at the outfall	Direct benefit to be realised through the continued management of the created ditch as required by application of the mitigation and monitoring measures in line with agreed Natural England licence conditions. Draft measures set out within Draft Licence (Appendix 8.22 App Doc Ref 5.4.8.22).	Minor beneficial	Medium	Slight beneficial (not significant)	Further measures delivered during operation will be implemented through the long term application outfall management and monitoring plan which requires that the operator to prepare a detailed management and maintenance plan for created habitats relied upon to deliver river habitat net gain (secured through requirements in the DCO), this be agreed with key stakeholders.	Slight beneficial (not significant)	In line with agreed Natural England Mitigation Licence In line with outfall management and monitoring plan
	The management of effluent quality discharge to the river Cam through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing						Emissions monitoring procedures in accordance with Environmental Permit requirements

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes Measures for continuous control of emissions to the River Cam through operational procedures. Operational procedures will be developed further during the life of the Proposed Development from detailed design to the proposed assets going into full operation, in compliance with the relevant Environmental Permit for the Proposed Development.						
Operational impacts to otter through operation of the outfall and proposed WWTP	As for water vole	Negligible	Medium	Neutral (not significant)	As for water vole	Slight beneficial (not significant)	None
Operational impacts to bats from lighting (prior to vegetation establishing)	Design measures to prevent or minimise artificial light are: • wildlife sensitive lighting design incorporated into detailed design • exclusion of lighting provision on the access road • the use of directional lighting of <2700K and use of maximum height lighting columns of 5m within the proposed WWTP	Minor adverse	High	Slight adverse (not significant)	Detailed lighting design will comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5). This includes the requirement for lighting to accord with The Institute of Lighting Professionals Advice Note-Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/23 - Bats and Artificial Lighting	Slight beneficial (not significant)	For areas within the LERMP - In line with LERMP Table 5.1 requirements
Operational impacts to bats from lighting and noise	Design measures to prevent or minimise artificial light are: • wildlife sensitive lighting design incorporated into detailed design • exclusion of lighting provision on the access road • the use of directional lighting of <2700K and use of maximum height lighting columns of 5m within the proposed WWTP • habitat creation within the landscape masterplan that serves a screening function once mature. Design measures to prevent or minimise noise are: • Use of acoustic enclosures for plant (including blowers) • Attenuation properties of the earthwork embankment and landscape masterplan	Minor beneficial	High	Slight beneficial (not significant)	Detailed lighting design will comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5). This includes the requirement for lighting to accord with The Institute of Lighting Professionals Advice Note-Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/23 - Bats and Artificial Lighting	Slight beneficial (not significant)	For areas within the LERMP - In line with LERMP Table 5.1 requirements
Operational impacts to bats from habitat changes	Design measures to support foraging and commuting behaviours through design of the landscape masterplan within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14)	Minor beneficial	High	Slight beneficial (not significant)	Further measures delivered during operation will be implemented through the long-term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed	Slight beneficial (not significant)	In line with LERMP Table 5.1 requirements

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
	to include the following to provide direct and indirect benefits to bats: • well-connected woodland and trees, both within the landscape masterplan area, and across the local landscape, allowing support for bats moving and foraging within and across these habitats, across the active seasons; provision and support of scrub growth to provide structural variation in plantings and resource availability, for a wide variety of bat species; and • seasonal ponds to provide drinking resource for bats as well as invertebrates for foraging opportunities.				management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. Enhancement roost feature installation by mounting woodcrete type bat boxes suitable for a range of bat species to use, upon appropriate trees within the landscape masterplan; early planting of larger specimen trees and hedgerow plants within the landscape masterplan to provide vegetative features for commuting linkages and foraging resources as soon as possible; and thickening of hedgerows along the boundaries of the landscape masterplan area as appropriate, with native species plantings to enhance commuting linkages for bats to use.		
Operational impacts to badgers from lighting, noise and habitat changes	Design measures within the landscape masterplan within the LERMP (App Doc Ref 5.4.8.14) include the following to provide direct and indirect benefits to badger: • Provision of a variety of habitats (woodland and tree stands, scrub and seasonal ponds) will help to support foraging and commuting badger Direct benefit to be realised through the mitigation and monitoring measures in line with agreed Natural England licence conditions. Draft measures set out within Draft Licence (App Doc Ref 5.4.8.22).	Minor adverse	Low	Slight adverse (not significant)	Further measures delivered during operation will be implemented through the long term application of the LERMP (App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders.	Slight adverse (not significant)	In line with LERMP Table 5.1 requirements In line with agreed Natural England Mitigation Licence
Operational habitat change and lighting impacts to terrestrial invertebrates	Design measures to avoid or minimise impacts to terrestrial invertebrates: • measures within the landscape masterplan within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) include including inclusion of elm, bare earth areas and seasonal ponds to provide direct and indirect benefits to terrestrial invertebrates; and • the use of wildlife sensitive lighting design incorporated into detailed design for the proposed WWTP.	Minor beneficial (once vegetation established with minor adverse prior to this)	High	Slight adverse (not significant) prior to establishment of vegetation; slight beneficial (not significant)	Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to invertebrate habitat this includes the specific requirement to: • install approximately 41 discrete deadwood and brash piles across the areas outside the earth bank within woodland planting areas using locally sourced material (preferably as arises from the proposed vegetation removal works). • monitor use of bee banks • monitoring stability of brash piles • monitoring of seasonal pond	Slight beneficial (not significant)	In line with LERMP Table 5.1 requirements

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
Impacts to fish from operation of the outfall	Design measures to prevent or minimise impacts to fish are: • inclusion of a non-return valve within the outfall chamber for storm flows to prevent ingress of fish to the chamber • design of the outfall to operating within the maximum volume limits which are to be similar to those from the existing outfall	Minor beneficial	Medium	Slight beneficial (not significant)	Management of impacts during operation will be through implementation of an outfall management and monitoring plan to include ongoing monitoring measures to identify erosion/scour of the river bank. This may trigger the need for remediation including the application of further physical interventions.	Slight beneficial (not significant)	In accordance with approved OMMP
	The management of effluent quality and storm spill impacts through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes • design of storm storage volumes and flow rates to meet regulatory requirements • inclusion of capacity within the proposed development to adapt to future changes in relation to storm storage provision						Emissions monitoring (treated effluent) in accordance with Environmental Permit requirements
Direct and indirect impact to macroinvertebrates due to operation of the outfall	Design measures to prevent or minimise scour and impacts to macroinvertebrate are: • design of the outfall to operate within the maximum volume limits which are to be similar to those from the existing outfall • design of the outfall to include energy dissipation features	Minor beneficial	Low	Neutral (not significant)	As for impacts to fish	Neutral (not significant)	In accordance with approved OMMP
	The management of effluent quality and storm spill impacts through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent (including nutrients) and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes • design of storm storage volumes and flow rates to meet regulatory requirements • inclusion of capacity within the proposed development to adapt to future changes in relation to storm storage provision						Emissions monitoring (treated effluent) in accordance with Environmental Permit requirements

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
Direct and indirect impact to macrophytes due to operation of the outfall	As for macroinvertebrates	Minor beneficial	Low	Neutral (not significant)	As for macroinvertebrates	Neutral (not significant)	As for macroinvertebrates
Operational impacts to common reptiles and their habitats	Direct benefit to reptiles to be realised through measures within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14): • implementation of sensitive vegetation management strategy that avoids direct injury or killing of reptiles • inclusion of bare soil scrapes within the landscape masterplan, on south-facing slopes of earth banks suitable for reptiles to use to bask (insolate), and • maintenance measures to ensure habitats are sustained	Minor beneficial	Low	Neutral (not significant)	Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to reptiles this includes the specific requirement to: • create a total of 8 hibernacula measuring approximately 2m x 4m with 1m height • install approximately 41 discrete deadwood and brash piles across the areas outside the earth bank within woodland planting areas using locally sourced material (preferably as arises from the proposed vegetation removal works). • monitor hibernacula • monitor the stability of brash piles	Neutral (not significant)	In line with LERMP Table 5.1 requirements
Operational noise impacts on breeding birds	Design measures to minimise operational noise impacts by design including consideration of location, layout and plant/equipment selections and acoustic screening from the earth bank and enclosures to reduce noise emissions. Noise at the proposed WWTP will be controlled under the terms of an Environmental Permit, which requires the adoption of best available techniques (BAT) to control noise at source. Control of intermittent noise impacts associated with implementation of the LERMP through avoidance of vegetation management within the landscape masterplan area during bird breeding season	Moderate beneficial	Low	Slight beneficial (not significant)	Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to birds this includes the specific requirement to: • provision and maintenance of seasonal ponds (intended to provide habitat needs for turtle dove) • installation of bird boxes under direction of ecologist • complete nest checks	Slight beneficial (not significant)	None
Creation and management of habitats as part of the landscape masterplan	Direct benefit to be realised through the habitat provisions and within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14): • inclusion of a new mosaic of habitats within in the landscape masterplan intended to link to existing habitat features of value (such as existing hedgerows and habitats as part of the CWS); • implementation of appropriate management measures to meet the BNG commitment which will enable replacement habitat if initial planting is not successful.	Moderate beneficial	Medium	Moderate beneficial (significant)	Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to the overall success of the LERMP there is a specific requirement to review the objectives and maintenance and management regimes every five years for 30 years.	Moderate beneficial (significant)	In line with LERMP Table 5.1 requirements

Description of impact	Design/mitigation measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Initial classification of effect	Additional/ secondary mitigation	Residual effect significance	Proposed monitoring
Decommissioning							
Impacts to water quality from draining and cleaning of existing tanks	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include the requirement to implement best practice measures including: • measures to minimise run-off and the risk of runoff reaching ditches and watercourses • management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour. • measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits • requirement for the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002. • requirement for refuelling of machinery to be undertaken within designated areas (unless expressly stated within the CEMPs) where spillage can be more easily contained	Negligible	Low - High	Slight adverse (not significant)	Management of decommissioning activities through application of measures within the outline Decommissioning Plan (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 4.4 (Construction Environment Management Plan) which requires that the contractors to prepare a Decommissioning Plan (secured through requirements in the DCO), and Section 7.5 (Water Resources and Flood Risk) (Appendix 2.1 App Doc Ref 5.4.2.1) which sets out measures to control activities related to decommissioning. These requirements will collectively secure deliver appropriate mitigation of the decommissioning activities.	Slight adverse (not significant)	In line with Decommissioning Plan approved by the relevant local authority

~~4.8~~5.3 Securing mitigation

~~4.8.1~~5.3.1 The delivery of mitigation will be controlled through the 'Development Consent Order (DCO) which:

- identifies parameters within which certain works activities will be located and constructed (e.g. maximum and minimum building dimensions (including below ground), or locational zones);
- sets requirements for construction, operation and maintenance of the Proposed Development to be undertaken in accordance with 'control plans / documents' (including those that are related to compliance with environmental permits); and
- sets requirements for the control of specific issues or works (e.g. time limits around the completion of the outfall construction).

~~4.8.2~~5.3.2 Table 5-2 summarises all mitigation in relation to Biodiversity, how these measures are secured, the party responsible for the implementation of the measure, when the measure would be delivered and any mechanisms to deliver the measure.

Table 5-2: Securing mitigation summary

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Construction							
Proposed WWTP							
Temporary water quality impacts on Stow-cum-Quy Fen SSSI during construction due to, run-off, water logging and contamination from leaks and spills. Dewatering during the construction of the outfall temporarily reduces water quality within the River Cam CWS	Slight adverse (not significant) Neutral (not significant)	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include the requirement to implement best practice measures including: • measures to minimise run-off and the risk of runoff reaching ditches and watercourses • management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour. • measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits • requirement for the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002. • requirement for refuelling of machinery to be undertaken within designated areas (unless expressly stated within the CEMPs) where spillage can be more easily contained	Tertiary	Sections 7.4, 7.5 and 7.9, 7.11, 7.12 CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a Construction Environmental Management Plan secured through a requirement of the draft DCO (App Doc Ref 2.1). Air Quality Management Plan (AQMP), and Water Quality Management Plan (WQMP), and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction	Approved CEMP required prior to the commencement of construction of the proposed WWTP to include appended plans including those governing water quality, emergency preparedness and response plans
		Management of construction activities impacting air quality will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2): • the management of air quality as set out within Section 6.9 of the CoCP Part A, Air quality, sets out a framework for the control of air quality during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in an Air Quality/Dust Management Plan (AQMP) appended to/as part of the CEMP. This includes the following general measures to be will put in place to minimise emissions and avoid nuisance:	Secondary		Contractor	Prior to start of construction	

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		– the engines of all vehicles and plant onsite will be turned off when not in use; – the use of low emission vehicles and plant as far as possible; and – the movement of construction traffic around the working area will be minimised as far as possible					
		Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include the requirement to implement best practice measures including: • measures to minimise run-off and the risk of runoff reaching ditches and watercourses management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour	Tertiary	Sections 7.4, 7.5 and 7.9, 7.11, 7.12 CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a Construction Environmental Management Plan secured through a requirement of the draft DCO (App Doc Ref 2.1). AQMP, and WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Construction of the outfall	Approved outfall management and monitoring plan required prior to the commencement of construction activities affecting the River Cam incorporating requirements within • Environmental Permit (Flood Risk Activities) • Environmental Permit (Discharge to surface water)
		Temporary works design measure: • use of cofferdam to create dry working area within the River Cam	Tertiary	Outfall Management and Monitoring Plan (OMMP), (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1) Flood Risk activities permit			Approved outfall management plan required prior to the commencement of construction activities affecting the River Cam incorporating requirements within • Environmental Permit (Flood Risk Activities) • Environmental Permit (Discharge to surface water)
Temporary works within the river bed during the construction of the treated effluent discharge outfall to the River Cam reduce water quality in the River Cam CWS	Moderate adverse (significant)	Same as Management measures as for the management of dewatering impacts within the River Cam CWS Use of cofferdam to create dry working area within the River Cam	Tertiary	Approval of the construction risk assessment and method statement associated with the detailed design and construction approach for the outfall as secured through applicable Environmental Permit (Flood Risk Activities).	Contractor	Prior to construction of the outfall	Preparation of a method statement to cover periodic monitoring activities to accord with the requirements of the Environmental Permit (Flood Risk Activities). Approval and implementation of a Outfall Management and Monitoring Plan
Construction within the land required for the proposed WWTP and landscape masterplan results in temporary	Neutral (not significant)	Management of construction activities will be through measures as described within the CoCP Part A and B Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal	Tertiary	Sections 7.4, 7.5 and 7.9, 7.11, 7.12 CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured	Contractor	Construction	Approved CEMP required prior to the commencement of construction of the proposed WWTP and landscape planting

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
impacts to the non-statutory designated site: Low Fen Drove Way Grassland and Hedges CWS due to a combination of noise, emissions to air, use of temporary lighting, land clearance and presence of people.		Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts to ecological features, surface water, and impacts from the generation of noise. The best practice measures applied during construction in relation to these aspects are:CoCP Part A, Section 7.2, Ecology and nature conservation, and Part B, section 3.3 which • require the prohibition of vegetation removal from the CWS • requires the routing of works access through existing pathways that cross the CWS • requires the provision of a buffer of a minimum of 10m between works areas and extent of CWS. • CoCP Part A, Section 7.5, Surface water and flood risk which includes a number of measures to be reflected within the construction Water Quality Management Plan (WQMP) appended to/as part of the CEMP, including requirements to: – minimising the risk of runoff reaching controlled waters (ditches and watercourses) to prevent pollution incidents; and – management of dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit – whichever applies to the activity. Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour • CoCP Part A, Section 7.7, Noise and vibration which requires the application of best practicable measures (BPM) as defined by the Control of Pollution Act 1974 (CoPA) and the Environmental Protection Act 1990 (EPA) for the control of noise. These measures are to be reflected within the Noise and Vibration Management Plan (NVMP) appended to/as part of the CEMP.		through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a Construction Environmental Management Plan (CEMP) secured through a requirement of the draft DCO (App Doc Ref 2.1). AQMP, and WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1) OMMP, (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1)			
		Management of construction activities impacting air quality, ecology, and or resulting in increase in artificial lighting will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2): • the management of air quality as set out within Section 6.9 of the CoCP Part A, Air quality, sets out a framework for the control of air quality during construction, identifying a number of	Secondary	Sections 7.4, 7.5 and 7.9, 7.11, 7.12 CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a	Contractor	Prior to construction	Approval and implementation of a detailed lighting design secured through a requirement of the draft DCO (App Doc Ref 2.1). Approved CEMP required prior to the commencement of construction of the proposed WWTP and landscape planting.

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in an Air Quality/Dust Management Plan (AQMP) appended to/as part of the CEMP. the following general measures will be put in place to minimise emissions and avoid nuisance: – the engines of all vehicles and plant onsite will be turned off when not in use; – low emission vehicles and plant will be used as far as possible; and – movement of construction traffic around the working area will be minimised as far as possible. • the management of lighting through the Lighting Design Strategy (Appendix 2.5, App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1, App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure and deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill). • the management of impacts to ecology as set out within Section 7.2 of the CoCP Part A, Ecology and Nature Conservation, sets out a framework for the controls to be implemented during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in the CEMP(s) and other relevant sub-plans appended to/as part of the CEMP(s). This covers general measures including pre-works checks and tool-box talks and measures in relation to each of the following: – Nesting birds – Bats – Badger – Otter – Reptiles – Riparian and aquatic habitat		requirement of the draft DCO (App Doc Ref 2.1). OMMP, (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1)			

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		– Other protected species – Invasive species – Biosecurity – Tree/hedgerow removal					
Removal of habitats in relation to temporary and permanent use of the land (such as for laydown areas, open cut trenching, HDD drilling, construction compounds, proposed WWTP and associated access) resulting in habitat loss, fragmentation and severance of wildlife corridors	Moderate beneficial (significant)	Habitats removed to be replaced by planting of habitats of higher ecological value in line with landscape masterplan within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14). Management of construction activities will be through measures as described within the CoCP Part A and B (Appendix 2.1 App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP. The best practice measures applied during construction in relation to minimising impacts to terrestrial habitats are: • the specification for the use of trenchless techniques used to avoid disturbance and damage to habitats wherever possible • the delineation of working areas prior to the commencement of construction and until works are complete to prevent damage to the surrounding habitats The implementation of tree/hedgerow protection measures which are shown on the Tree Protection Plans within the Arboricultural Report (Appendix 17 App Doc Ref 5.4.8.17). The implementation of measures set out under section 7.4 of the CoCP Part A in respect of Soil Management and in the Outline Soil Management Plan (Appendix 6.3 App Doc Ref 5.4.6.3) which will ensure the rapid and effective reestablishment of habitats especially hedgerows •	Primary Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1) Detailed Soil Management Plan, secured through a requirement of the draft DCO (App Doc Ref 2.1) OMMP, (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Construction	Approved CEMP and associated WQMP, SMP required prior to the commencement of construction of • the proposed WWTP and landscape planting the Waterbeach transfer pipeline the transfer tunnel • the treated effluent pipelines and outfall Preparation of a method statement to cover periodic monitoring activities to accord with the requirements of the Environmental Permit (Flood Risk Activities). Approval and implementation of an Outfall Management and Monitoring Plan Approval and implementation of a SMP prior to commencement of works
		Management of construction impacts to terrestrial habitats will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2). These will be set out in the CEMP related to the specific works activity: • any planting as part of the Proposed Development which dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority.	Secondary	Section 3 CoCP Part B (Appendix 2.2 App Doc Ref 5.4.2.2) secured through a requirement of the draft DCO (App Doc Ref 2.1) .	Contractor	Construction	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting the Waterbeach transfer pipeline the transfer tunnel • the treated effluent pipelines and outfall

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		in locations of retained hedgerow there shall be consideration of additional "thickening" to promote habitat connectivity for bats, in particular making use of existing hedgerow removed during construction. Any works to hedgerow would be under the supervision of a suitably experienced ecologist. Requirement within the CoCP Part B for the translocation of plants of botanical interest if and when identified by ECoW; and inclusion within the relevant CEMP safeguarding measures for trees and hedgerows.					
Temporary and permanent removal of ditch habitat during construction due to the temporary open cut ditch crossings; and permanent loss due to the landscaping and structural proposals	For wider ditch habitats: Slight adverse (not significant) neutral over time once established (significant) For ditch next to River Cam: Slight adverse (not significant)	Management of construction activities will be through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP. The best practice measures applied during construction in relation to minimising impacts to ditch habitats are: • limiting any permanent crossing of ditches to a maximum width of 6m • the implementation of measures set out under section 7.2 of the CoCP Part A in respect Riparian and Aquatic Habitats specifically: – leaving bank and any aquatic vegetation in place for as long as practicable – removing the channel bed material prior to the excavation of the trench, storing the material separately and replacing it once construction works are complete to promote rapid colonisation of the area by aquatic invertebrates and aquatic plants – maintaining the flow downstream of the crossing point – restoration of original bank profile on completion of the pipeline crossings – completing works between August and October and or during low flow conditions to protect potential fish spawning or nursery sites	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1) Detailed Soil Management Plan, secured through a requirement of the draft DCO (App Doc Ref 2.1) OMMP, (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction of works affecting watercourses Prior to start of outfall construction	Approved CEMP and associated WQMP, SMP required prior to the commencement of construction of • the proposed WWTP and landscape planting the Waterbeach transfer pipeline Approval and implementation of a Outfall Management and Monitoring Plan
		Design measures to avoid or minimise loss of habitat are: • retaining existing ditch with hedgerow within the land required for the landscape masterplan contained with the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14)	Primary/Secondary (management)	LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which is secured through a requirement in the draft DCO (App Doc Ref 2.1) Approval and implementation of a detailed management and monitoring plan secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Ditch retained throughout construction Managed in operation through the LERMP	

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		• designing outfall and chamber to allow reinstatement of ditch parallel to River Cam to same profile	Tertiary	Approval of the detailed design, construction risk assessment and method statement for the outfall as secured through applicable Environmental Permit (Flood Risk Activities). OMMP, (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to construction of the outfall	Preparation of a method statement to cover periodic monitoring activities to accord with the requirements of the Environmental Permit (Flood Risk Activities). Approval and implementation of a Outfall Management and Monitoring Plan
		• creation of 345m of new ditch habitat as described in Appendix C of the BNG Report (App Doc Ref 5.4.8.13)	Primary	Approval of the detailed design, construction risk assessment and method statement for the created habitat as secured through the Natural England Licence OMMP, (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to construction of mitigation habitat Construction of mitigation ditches must be 12 months prior to construction of the outfall	Approved ditch design and construction method and monitoring statement Approval and implementation of a Outfall Management and Monitoring Plan
		Management of impacts to ditch habitats will also be managed through further measures as described within the CoCP Part A and B (App Doc Ref 5.4.2.1 & 2): • requirement within the CoCP Part B to prepare an outfall management and monitoring plan including control measures and monitoring requirements in relation to the outfall construction • requirement within the CoCP Part B for the translocation of reedbed and any species of botanical interest affected by the works to construct the outfall and the river bank protection. Any relocation activities to be included in outfall management and monitoring plan. • requirement within the CoCP Part A for the reinstatement of ditches temporarily disturbed during construction • requirements within CoCP Part B Section 3.1 in relation to the ditch parallel to the river Cam to re-established banks by planting native locally sourced vegetation • requirements within CoCP Part B Section 3.3 in relation to the ditch with hedgerow running to the eastern side of the proposed WWTP:	Secondary	Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Approval of the detailed design, construction risk assessment and method statement for the created habitat as secured through the IDB permit	Contractor	Prior to commencement of works to IDB Watercourses	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting • the Waterbeach pipelines Preparation of a method statement to cover works to IDB waterbodies to accord with the requirements of IDB Permit

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		– crossings to be minimised to 2 crossings each up to 6m width. – the final crossing locations will target existing gaps in the hedge. – the crossing of the ditch (incorporating a temporary culvert not exceeding an 8m length of the ditch) will be in accordance with a permit from the Swaffham Internal Drainage Board					
Loss of river habitats due to the construction of the outfall and associated river bank protection works (river bank and river bed)	Slight adverse (not significant)	• Design of outfall (orientation and sizing) to minimise land required; • Minimising extent of river bank protection works; • Inclusion of embedded 'Green' engineering features within river bank protection works.	Primary/tertiary	Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) OMMP, (secured through Section 3 of the CoCP Part B) secured through a requirement of the draft DCO (App Doc Ref 2.1) Conditions set out within a Flood Risk activity permit. This permit is required for construction activities carried on, or within 8m of, a main river.	Contractor	Prior to construction of the outfall	Approved outfall management plan required prior to the commencement of construction activities affecting the River Cam incorporating requirements within • Environmental Permit (Flood Risk Activities) • Environmental Permit (Discharge to surface water)
Direct and indirect impacts on water vole due to construction of the outfall and chamber, and the combination of noise, emissions to air, use of temporary lighting, land clearance presence of people in close proximity to ditches and the river Cam	Slight beneficial (not significant)	Direct and indirect impacts related to works to ditches will be through water vole displacement measures in line with agreed Natural England licence conditions (Draft Licence included App Doc Ref 5.4.8.22). These measures also include the provision of a tool-box talk by the licenced water vole ecologist • completion of pre-works checks for works within 5m of watercourse / works crossing ditches prior to the start of the works • application for licence amendments if deemed appropriate • habitat creation (ditches) • Timing of works between 15 February and 15 April or as otherwise agreed by licence condition • application for licence amendments if deemed appropriate and inclusion of additional measures within the application • Restricting temporary works to cross ditches to a 6m working width Management of construction activities as described within the CoCP Part A and B (App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal	Tertiary	Natural England Mitigation Licence Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to construction of the outfall (Construction of mitigation ditches must be 12 months prior to construction of the outfall	Approval and implementation of a OMMP incorporating requirements within Mitigation licence (Water Vole) and Environmental Permit (flood risk activities) secured through a requirement of the draft DCO (App Doc Ref 2.1). Approved CEMP and associated sub-plans required prior to the commencement of construction of • the proposed WWTP and landscape planting the Waterbeach transfer pipeline • outfall

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • minimising the risk of runoff reaching controlled waters (ditches and watercourses) to prevent pollution incidents; and • management of dewatering to meet requirements of the Environment Agency regulatory position statement 261 (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit - whichever applies to the activity. Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour					
		Direct impacts to water vole minimised by the following design measures: • inclusion of embedded 'green' engineering features within river bank protection works that seeks to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation; and • minimising loss of habitat through design of ditch crossing so that ditch profile can be reinstated once outfall construction has been completed.	Primary	Natural England Mitigation Licence			
Direct and indirect impacts on otter due to the combination of noise, emissions to air, use of temporary lighting, land clearance presence of people in close proximity to ditches and the River Cam	Slight beneficial (not significant)	As for water vole; plus Management of construction activities as described within the CoCP Part A and B (App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • adopt sensitive construction methodologies to include securing of areas to prevent access by otter; and • complete pre works checks for protected species by a suitably qualified ecologist; • implement measures in relation to the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002.	Tertiary	Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a Construction Environmental Management Plan secured through a requirement of the draft DCO (App Doc Ref 2.1). Water Quality Management Plan, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to construction of the outfall Prior to commencement of works affecting watercourses	Approval and implementation of a OMMP incorporating requirements within Mitigation licence (Water Vole) and Environmental Permit (flood risk activities) Approved phasing plan Approved CEMP and associated sub-plans required prior to the commencement of construction of • the proposed WWTP and landscape planting • outfall

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		Management of lighting through the Lighting Design Strategy (App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill (thereby providing a night time safe transit route for otter).	Secondary	Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor		
Direct and indirect impacts on bats (roosts) due to the combination of noise, use of temporary lighting, land clearance and presence of people in close proximity to known utilised habitats	Moderate beneficial (significant)	Direct and indirect impacts related to works to affecting bat roosts will be through application of the mitigation measures in line with agreed Natural England licence conditions (Draft Licence included App Doc Ref 5.4.8.20) which requires the following: • provision of a tool-box talk by the licenced bat ecologist; • completion of pre-works checks for works areas prior to the start of the works • timing the works at identified roost locations to be outside of the hibernation period (where hibernation suitability has been discerned); • installation of suitable bat boxes for use by crevice dwelling species on appropriate retained trees prior to disturbing works commencing, to facilitate continued opportunities for bats to roost. • use of wildlife sensitive lighting design as outlined in the Natural England licence; and • minimising severance of hedgerows and reinstatement of hedgerows to provide commuting habitat and foraging opportunities.	Tertiary	Natural England Mitigation Licence Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Prior to construction of the outfall	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting • the Waterbeach pipeline • the transfer tunnel • the treated effluent pipelines and outfall
		Management of construction impacts to terrestrial habitats that may affect bat population will be through further measures as described within the CoCP Part A and B (App Doc Ref 5.4.2.1 & 2). These will be set out in the CEMP related to the specific works activity: • Any planting as part of the Proposed Development which dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority. • In locations of retained hedgerow there shall be consideration of additional "thickening" to promote habitat connectivity for bats, in	Secondary	Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Prior to construction of the outfall	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting the Waterbeach pipeline the transfer tunnel • the treated effluent pipelines and outfall

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		particular making use of existing hedgerow removed during construction. Any works to hedgerow would be under the supervision of a suitably experienced ecologist.					
Direct and indirect impacts on bats (lighting and habitat related) due to the combination of temporary construction noise, use of temporary lighting, land clearance and presence of people in close proximity	Slight adverse (not significant) until vegetation established when effect is moderate beneficial (significant)	Direct and indirect impacts related to works to affecting bat habitat will be through application of the mitigation measures in line with agreed Natural England licence conditions (Draft Licence included App Doc Ref 5.4.8.20) which requires the following: • the use of wildlife sensitive lighting design as outlined in the draft Licence (App Doc Ref 5.4.8.20 such as <2700K, directional only with no upward orientation or light spill); and • minimising severance of hedgerows and use of translocation of hedgerows to provide commuting habitat and foraging opportunities	Tertiary	Natural England Mitigation Licence Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Construction	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting the Waterbeach pipeline the transfer tunnel • the treated effluent pipelines and outfall
		Management of construction impacts to terrestrial habitats that may affect bat population will be through further measures as described within the CoCP Part A and B (App Doc Ref 5.4.2.1 & 2). These will be set out in the CEMP related to the specific works activity: • Any planting as part of the Proposed Development which dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority. • In locations of retained hedgerow there shall be consideration of additional "thickening" to promote habitat connectivity for bats, in particular making use of existing hedgerow removed during construction. Any works to hedgerow would be under the supervision of a suitably experienced ecologist	Secondary	Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Construction	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting • the transfer tunnel • the treated effluent pipelines and outfall

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		Enhancement roost feature installation by mounting woodcrete type bat boxes suitable for a range of bat species to use, upon appropriate trees within the landscape masterplan; early planting of larger specimen trees and hedgerow plants within the landscape masterplan to provide vegetative features for commuting linkages and foraging resources as soon as possible; and thickening of hedgerows along the boundaries of the landscape masterplan area as appropriate, with native species plantings to enhance commuting linkages for bats to use.	Secondary	Landscape, Ecological and Recreational Management Plan (App Doc Ref 5.4.8.14) which is secured through a requirement in the draft DCO (App Doc Ref 2.1) Approval and implementation of a detailed management and monitoring plan secured through a requirement of the draft DCO (App Doc Ref 2.1).	Applicant	From year 1 of operation	Approval and implementation of a detailed management and monitoring plan in line with Table 5.1 in the LERMP
Direct and indirect impacts on badgers due to direct interface with habitat (including closure of outlier sett) and the combination of noise, use of temporary lighting, land clearance, excavation and presence of people in close proximity to setts	Slight adverse (not significant)	Direct and indirect impacts related to works to affecting badger will be through application of the mitigation measures in line with agreed Natural England licence conditions will be carried out (Draft Licence included App Doc Ref 5.4.8.21) which requires the following: provision of a tool-box talk by the suitably experienced ecologist; • completion of pre-works checks; • checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals • securing of areas to prevent access by badger In addition to licence requirement the management of construction activities as described within the CoCP Part A and B (App Doc Ref 5.4.2.1) in section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts including to ecological features. The CEMP will include requirements to apply best practice measures (including to locations not covered by the licence) during construction to prevent impacts to badger including: • completion of pre-works checks (including areas not covered by licence); • checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals • securing of areas to prevent access by badger	Tertiary	Natural England Mitigation Licence Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Construction	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting • the transfer tunnel • the treated effluent pipelines and outfall
Direct and indirect impacts on terrestrial invertebrates due to direct interface with habitat and the combination of noise, use of temporary lighting, land clearance, excavation, and presence of people in proximity	Moderate beneficial (significant)	Design measures to minimise loss of terrestrial habitat that may support invertebrate populations includes retaining the existing ditch with hedgerow within the land required for the landscape masterplan contained with the LERMP (App Doc Ref 5.4.8.14). The landscape masterplan includes a topographical and habitat variability to support some invertebrate species (e.g. mining bees) within “bee bank” bare earth patches	Tertiary	Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Construction	Approved CEMP required prior to the commencement of construction of • the proposed WWTP and landscape planting • the existing Cambridge WWTP

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		Same further measures as related to the impact of removal of habitats as a result of the temporary and permanent use of the land, plus the requirement to implement the LERMP in operation for a period of up to 30 years to ensure effective delivery of BNG through the landscape masterplan.	Secondary	Landscape, Ecological and Recreational Management Plan (App Doc Ref 5.4.8.14) which is secured through a requirement in the draft DCO (App Doc Ref 2.1) Approval and implementation of a detailed management and monitoring plan secured through a requirement of the draft DCO (App Doc Ref 2.1).	Applicant	Prior to start of operation	Implementation of approved detailed management and monitoring plan in line with Table 5.1 of the LERMP
Direct and indirect impacts on fish due to the combination of noise, the use of temporary lighting and works directly within and adjacent to the river and the potential short-term change in water quality from dewatering, run-off and from testing and commissioning activities	Neutral (not significant)	Direct impacts minimised by the following design measures: • design of outfall (orientation and sizing) to minimise land required overall and to limit the extent of the structure within the river and along the banks • inclusion of embedded 'green' engineering features within river bank protection works that seeks to maintain hydrological connection to the river bank and encourage natural reinstatement of marginal vegetation; and • minimising loss of habitat through design of ditch crossing so that ditch profile can be reinstated once outfall construction has been completed.	Tertiary	Conditions set out within an Environmental Permit (flood risk activities permit) that may be required in relation to outfall design and construction. Sections 7.5 CoCP Part A, Water Resources and Flood Risk, Dewatering (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1). Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a OMMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Prior to construction of the outfall Prior to works affecting ditches	Approval of the construction risk assessment and method statement associated with the detailed design and construction approach for the outfall as secured through applicable Environmental Permit (flood risk activities). Approval and implementation of a OMMP incorporating requirements within and Environmental Permit (flood risk activities) including fish rescue and dewatering controls associated with Environmental Permit (Discharge to surface water) secured through a requirement of the draft DCO (App Doc Ref 2.1).
		Management of construction activities will be through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2)) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts to ecological features, surface water, and impacts from the		Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a		Prior to construction of the outfall Prior to works affecting ditches	Approved CEMP required prior to the commencement of construction

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		generation of noise. The best practice measures applied during construction in relation to fish are: • CoCP Part A, Section 7.2, Ecology and nature conservation, in respect Riparian and Aquatic Habitats specifically: – leaving bank and any aquatic vegetation in place for as long as practicable – removing the channel bed material prior to the excavation of the trench, storing the material separately and replacing it once construction works are complete to promote rapid colonisation of the area by aquatic invertebrates and aquatic plants – maintaining the flow downstream of the crossing point – completing works between August and October and/or during low flow conditions to protect potential fish spawning or nursery sites • CoCP Part A, Section 7.5, Surface water and flood risk which includes a number of measures to be reflected within the construction Water Quality Management Plan (WQMP) appended to/as part of the CEMP, including requirements to: – the application of measures to prevent run-off from construction such as the use of cut off drains, avoiding vegetation removal right up to the banks of watercourses, minimising the areas of land that are disturbed/cleared, avoiding stockpiling of material close to the banks of watercourses, use of silt fencing or coir rolls on gentle slopes installed at levelled contours to control runoff. – manage dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit – whichever applies to the activity Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour CoCP Part A, Section 7.7, Noise and vibration which requires the application of best practicable measures (BPM) as defined by the Control of Pollution Act 1974 (CoPA) and the Environmental Protection Act 1990 (EPA) for the control of noise. These measures are to be		requirement of the draft DCO (App Doc Ref 2.1). CoCP Part A sections 4.4 Construction Environment Management Plan, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1). Approval and implementation of a WQMP and NVMP secured through a requirement of the draft DCO (App Doc Ref 2.1).			

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		reflected within the Noise and Vibration Management Plan (NVMP) appended to/as part of the CEMP.					
		COCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill). Management of commissioning activities through application of measures within the outline Commissioning Plan (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 4.4 (Construction Environment Management Plan), and Section 7.5 (Water Resources and Flood Risk) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors to prepare a Commissioning Plan (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of the wet commissioning activities.	Secondary	Secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5). Secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the Commissioning Plan (App Doc Ref 5.4.2.4).	Contractor	Prior to commencement of construction	Approved CEMP and associated sub-plans Approved Commissioning Plan
Direct and indirect impacts on ditch macrophytes due to open cut works to cross ditches and the potential short-term change in water quality from dewatering, and run-off from nearby construction works	Slight adverse (not significant)	Direct impacts minimised by the following design measures: • minimising loss of habitat through design of ditch crossing so that ditch profile can be reinstated once outfall construction has been completed. CoCP Part A, Section 7.5, Surface water and flood risk which includes a number of best practice measures to be reflected within the construction Water Quality Management Plan (WQMP) appended to/as part of the CEMP, including requirements to: • the application of measures to prevent run-off from construction such as the use of cut off drains, avoiding vegetation removal right up to the banks of watercourses, minimising the areas of land that are disturbed/cleared, avoiding stockpiling of material close to the banks of watercourses, use of silt fencing or coir rolls on gentle slopes installed at levelled contours to control runoff. • manage dewatering to meet requirements of the Environment Agency regulatory position statement (RPS) 'Temporary dewatering from excavations to surface water' or Environmental Permit – whichever applies to the activity. Including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). CoCP Part A sections 4.4 Construction Environment Management Plan, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1). .	Contractor	Prior to commencement of construction	Approved CEMP and associated sub-plans Approved outfall management and monitoring plan required prior to the commencement of construction activities affecting the River Cam incorporating requirements within • Environmental Permit (flood risk activities) • Environmental Permit (Discharge to surface water)
Direct and indirect impacts on macroinvertebrates due to works	Slight beneficial	As for fish for the further measures to manage impacts to fish	Tertiary	As for 'direct and indirect impacts to fish'			

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
directly within the river and the potential short-term change in water quality from dewatering, run-off and from testing and commissioning activities	(not significant)	The OMMP will include specific measures on translocation and management of macrophyte species in the vicinity of the outfall.	Secondary				
Direct and indirect impacts on reptiles	Moderate beneficial (not significant)	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2)) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • complete pre works checks by suitably experienced ecologist • complete clearance activities in accordance with approved methods • to translocate reptiles potentially affected by the works • to reinstatement of land temporarily used for construction		Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Approval and implementation of a Reptile Management Strategy secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Prior to start of construction	Approved phasing plan Approved CEMP and associated sub-plans required prior to the commencement of construction of • the proposed WWTP and landscape planting • the transfer tunnel • the treated effluent pipelines and outfall
		Management of construction activities as described within the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) in particular section 7.2 (Ecology and Nature Conservation) which requires the Principal Contractor(s) to produce a Reptile Mitigation Strategy before works commence on site. It is proposed that the impact upon reptiles be mitigated through a combination of: • the use of reptile fencing (around the proposed WWTP), • the practice of sensitive vegetation clearance and management including hard searches as appropriate • local translocation. • the provision of reptile specific 'tool-box talk' to site staff prior to any work being carried out. • the use of staged cuts in a directional manner, as guided by the ECoW or other suitably experienced ecologist identified by the ECoW	Secondary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Section 3 CoCP Part B (Appendix 2.2 App Doc Ref 5.4.2.2) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Approval and implementation of a Reptile Management Strategy secured through a requirement of the draft DCO (App Doc Ref 2.1).			
		Design measures to include a mosaic of suitable habitats (bare areas, grassland, scrub, seasonal ponds) along with reptile hibernacula within the land required for the landscape masterplan contained with the LERMP (App Doc Ref 5.4.8.14) to provide suitable habitat for reptiles.	Secondary	LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which is secured through a requirement in the draft DCO (App Doc Ref 2.1) Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured	Applicant	Prior to start of landscape planting	Implementation of approved detailed management and monitoring plan in line with Table 5.1 of the LERMP

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
				through a requirement of the draft DCO (App Doc Ref 2.1)			
Direct and indirect impacts on breeding birds (final effluent pipeline and transfer tunnel)	Minor beneficial (not significant)	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out best practice measures for the prevention of impacts to birds including best practice measures applied during construction to: • complete pre works check by suitably experienced ecologist; • avoid the nesting bird season as appropriate to any species found; and • complete clearance activities completed in accordance with approved methods	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Construction	Approved CEMP required prior to the commencement of construction of: the transfer tunnel • the treated effluent pipelines and outfall
		Same further measures as related to the impact of removal of habitats as a result of the temporary and permanent use of the land, plus the requirement to implement the LERMP in operation for a period of up to 30 years to ensure effective delivery of BNG through the landscape masterplan.	Secondary	LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which is secured through a requirement in the draft DCO (App Doc Ref 2.1) Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to start of operation	Implementation of approved detailed management and monitoring plan in line with Table 5.1 of the LERMP
Direct and indirect impacts on breeding birds (proposed WWTP access road and landscape masterplan area)	Minor beneficial (not significant)	Design measures to include trees and woodland, scrub, grassland and seasonal ponds within the land required for the landscape masterplan contained with the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) to provide suitable habitat for a variety of bird species. Grassland seed mixes will incorporate grass and forb species to support a range of birds, including turtle doves. A range of bird nest boxes will be installed on suitable retained trees.	Primary	LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which is secured through a requirement in the draft DCO (App Doc Ref 2.1) Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of planting	Implementation of approved detailed management and monitoring plan in line with Table 5.1 of the LERMP
		Management of construction activities as described within the CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) in particular section 4.4 which requires the Principal Contractor(s) to produce Birdstrike Hazard Management Plan before works commence on site. The plan will be appended to or incorporated into the CEMP(s). It will incorporate measures that: • set out the required monitoring for changes to bird assemblages; and • measures to prevent increased risk of attracting species of birdstrike concern		Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Secured through a requirement in the draft DCO (App Doc Ref 2.1) to comply with the Outline	Contractor	Prior to start of construction	Approved CEMP required prior to the commencement of construction of the proposed WWTP and landscape planting Approved birdstrike hazard management plan for construction

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
				Wildlife Hazard Management Plan (App Doc Ref 5.4.8.18).			
Waterbeach pipeline							
Direct and indirect impacts on Stow-cum-Quy Fen SSSI during construction due to, run-off, water logging, contamination from leaks and spills and air emissions.	Slight adverse (not significant)	As for impacts to Stow-cum-Quy Fen SSSI related to the construction of the proposed WWTP plus the implementation of ~~of~~ measures to manage drilling fluid break out as defined within the CoCP Part A section 7.	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). CoCP Part A Sections 4.4 Construction Environment Management Plan, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Construction	Approved CEMP and associated sub plans required prior to the commencement of construction of the Waterbeach transfer pipeline
Direct and indirect impacts on water quality within the River Cam CWS during construction due to, run-off, water logging and contamination from leaks and spills.	Neutral (not significant)	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2)) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include best practice measures requirements including: • minimising run-off and the risk of runoff reaching ditches and watercourses such as through the siting of launch and recovery pits associated with trenchless construction methods to be located a minimum of 8m from top of bank • management dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour. • measures applied for management of leaks and spillages • requirement for the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002. • requirement for refuelling of machinery to be undertaken within designated areas (unless	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Sections 4.4 Construction Environment Management Plan, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1). WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction Approved CEMP and associated sub-plans required prior to the commencement of construction of the Waterbeach transfer pipeline	Approved phasing plan Approved CEMP and associated sub-plans required prior to the commencement of construction of the Waterbeach transfer pipeline

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		expressly stated within the CEMPs which will be prepared) where spillage can be more easily contained					
Removal of habitats during the temporary use of land for the construction of the Waterbeach pipeline	Neutral (not significant)	As for the removal of terrestrial habitats associated with the construction of the proposed WWTP with the inclusion of a section of trenchless construction between Ch+475.0m to +972.0m (refer to App Doc Ref 4.14.11).		Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Sections 4.4 Construction Environment Management Plan, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1). WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1) Detailed Soil Management Plan, secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction	Approved phasing plan Approved CEMP required prior to the commencement of construction of the Waterbeach pipeline
Direct and indirect impacts to water vole due to construction within and adjacent to ditches, and the combination of noise, emissions to air, use of temporary lighting, land clearance presence of people in close proximity to ditches and the River Cam	Slight adverse (not significant)	Direct and indirect impacts related to works to ditches will be through water vole displacement measures in line with agreed Natural England licence conditions (Draft Licence included Appendix 8.22 App Doc Ref 5.4.8.22). These measures also include the: provision of a tool-box talk by the licenced water vole ecologist • completion of pre-works checks for works within 5m of watercourse / works crossing ditches prior to the start of the works • application for licence amendments if deemed appropriate • habitat creation (ditches) • the inclusion of a section of trenchless construction between Ch+475.0m to +972.0m (refer to App Doc Ref 4.14.11))	Tertiary	Natural England Mitigation Licence Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Sections 4.4 CEMP, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (Application Document Reference 2.1).	Contractor	Prior to start of construction of works affecting watercourses	Approved phasing plan Approved CEMP required prior to the commencement of construction of the Waterbeach transfer pipeline The CEMP will incorporate the requirements of the Mitigation licence (Water Vole)

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		• Timing of works between 15 February and 15 April or as otherwise agreed by licence condition • Application for licence amendments if deemed appropriate and inclusion of additional measures within the application • Restricting temporary works to cross ditches to a 6m working width and habitat (ditch) reinstatement		WQMP, and (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1) Detailed Soil Management Plan, secured through a requirement of the draft DCO (App Doc Ref 2.1)			
		Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2)) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • minimise the risk of runoff reaching ditches and watercourses; and • manage dewatering to meet requirements of Environment Agency RPS including treating dewatering effluent prior to discharge and control of dewatering discharges to prevent scour	Tertiary				
		Management of impacts to air quality through implementation of the CoCP Part A Section 7.8. (Air Quality) which includes the following general measures to be put in place to minimise emissions and avoid nuisance: • the engines of all vehicles and plant onsite will be turned off when not in use; • low emission vehicles and plant will be used as far as possible; and • movement of construction traffic around the working area will be minimised as far as possible	Secondary	Air Quality Management Plan (secured through Section 4.4 of the CoCP Part A) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction	Approved phasing plan Approved AQMP required prior to the commencement of construction of the Waterbeach transfer pipeline
		Management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill).		Construction lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)		Prior to start of construction including compound set up	Approved CEMP required prior to the commencement of construction of the Waterbeach transfer pipeline Approved lighting design
Direct and indirect impacts to otter due to construction within and adjacent to ditches, and the combination of noise, emissions to air, use of temporary lighting,	Neutral (not significant)	As for water vole plus additional measures below. Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction including compound set up	Approved CEMP required prior to the commencement of construction of the Waterbeach transfer pipeline

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
land clearance presence of people in close proximity to ditches and the river Cam which could affect normal behaviour patterns resulting in diminished population		CEMP setting out measures for the prevention of impacts to ecological features including best practice measures applied during construction to: • adopt sensitive construction methodologies to include securing of areas to prevent access by otter; • pre works check by a suitably qualified ecologist; • best practice measures in relation to the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002; and • Provision of continued availability of otter access to suitable foraging and commuting habitats.		Approval and implementation of a Construction Environmental Management Plan secured through a requirement of the draft DCO (App Doc Ref 2.1). Sections 4.4 CEMP, Section 7.5 Water resources and flood risk (dewatering) and 5.7, Pollution Incident Control Plan, (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1). Construction lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)			The CEMP will incorporate the requirements of the Mitigation licence (Water Vole) Approved WQMP required prior to the commencement of construction of the Waterbeach transfer pipeline Approved lighting design
		Management of lighting through the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill (thereby providing a night time safe transit route for otter).	Secondary				
Direct and indirect impacts to bats due to the combination of temporary construction noise, use of temporary lighting, land clearance and presence of people in close proximity which could affect normal behaviour patterns resulting in reduced fitness and potential for population decline.	Neutral (not significant)	Direct and indirect impacts related to works to affecting bat habitat will be through application of the mitigation measures in line with agreed Natural England licence conditions (Appendix 8.20 Draft Licence included App Doc Ref 5.4.8.20) which requires the following: • Provision of a tool-box talk by the licenced bat ecologist; • provision of a tool-box talk by the licenced bat ecologist; • completion of standard pre-works checks for works areas prior to the start of the works • timing the works at identified roost locations to be outside of the hibernation period (where hibernation suitability has been discerned); • installation of suitable bat boxes for use by crevice dwelling species on appropriate retained trees prior to disturbing works commencing, to facilitate continued opportunities for bats to roost.	Tertiary	Natural England Mitigation Licence Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Prior to start of construction including compound set up	Approved phasing plan Approved CEMP required prior to the commencement of construction of the Waterbeach transfer pipeline The CEMP will incorporate the requirements of the Natural England bat licence.

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		• timing the works at identified roost locations to be outside of the hibernation period (where hibernation suitability has been discerned); • use of wildlife sensitive lighting design as outlined in the Natural England licence; and • minimising severance of hedgerows and reinstatement of hedgerows to provide commuting habitat and foraging opportunities					
Direct and indirect impacts to badger due to direct interface with habitat (including closure of outlier sett), temporary stopping up of setts and the combination of noise, use of temporary lighting, land clearance, excavation and presence of people in proximity which could affect normal behaviour patterns resulting in diminished population	Neutral (not significant)	Direct and indirect impacts related to works to affecting badger will be through application of the mitigation measures in line with agreed Natural England licence conditions will be carried out (Draft Licence included App Doc Ref 5.4.8.21) which requires the following: • Provision of a tool-box talk by the suitably experienced ecologist; • Completion of pre-works checks; • Checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals; • Securing of areas to prevent access by badger; • trenchless techniques applied to avoid damage to sett for a short section of the pipeline (+475.0m to +972.0m (refer to Figure 4.14.11); • Avoidance of loss of setts by refining works areas extents; • Pre works checks to verify that the baseline is unchanged; and • to prevent disturbance of a badger sett whilst occupied, a buffer zone of at least 30m will be adopted between the construction working area and the known extent of the active sett.	Tertiary	Natural England Mitigation Licence Section 7.2, CoCP Part A (App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor	Prior to start of construction	Approved phasing plan Approved CEMP required prior to the commencement of construction of the Waterbeach transfer pipeline The CEMP will incorporate the requirements of the Natural England badger licence.
Direct and indirect impacts to reptiles due to the combination of land clearance and excavations which could result in direct killing or harm to individuals and the potential for population decline	Slight adverse (not significant)	As for impacts to reptiles associated with construction of the proposed WWTP		As for impacts to reptiles associated with construction of the proposed WWTP	Contractor	Prior to start of construction	Approved phasing plan Approved CEMP required prior to the commencement of construction of the Waterbeach transfer pipeline
Direct and indirect impacts to breeding birds due to direct interface with habitat, clearance resulting in loss of roosts and foraging areas and the combination of noise, use of temporary lighting, land clearance, excavation, and presence of people in proximity	Slight adverse (not significant)	As for impacts to birds associated with construction of the proposed WWTP	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (Appendix 2.1 App Doc Ref 2.1). AQMP, and (secured through Section 4.4 of the CoCP Part A)	Contractor	Prior to start of construction	Approved phasing plan Approved CEMP required prior to the commencement of construction of the Waterbeach transfer pipeline
		Management of construction activities impacting air quality, ecology, and or resulting in increase in artificial lighting will be through further measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2)): • the management of air quality as set out within Section 6.9 of the CoCP Part A, Air quality, sets	Secondary				

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		out a framework for the control of air quality during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in an Air Quality/Dust Management Plan (AQMP) appended to/as part of the CEMP. This includes the following general measures to be will put in place to minimise emissions and avoid nuisance: • the management of lighting through the Lighting Design Strategy (Appendix 2.5 Appendix 2.5 App Doc Ref 5.4.2.5) and the CoCP Part A, Section 5.9 (Lighting) (Appendix 2.1 App Doc Ref 5.4.2.1) which requires that the contractors incorporate a strategy for temporary lighting into the CEMP(s) (secured through requirements in the DCO), which will collectively secure deliver appropriate mitigation of light during construction. This strategy includes requirements for the use of wildlife sensitive lighting (<2700K, directional only with no upward orientation or light spill). • the management of impacts to ecology as set out within Section 7.2 of the CoCP Part A, Ecology and Nature Conservation, sets out a framework for the controls to be implemented during construction, identifying a number of 'standard' mitigation measures which will be implemented whilst construction work takes place. These will be reflected in the CEMP and other relevant sub-plans appended to/as part of the CEMP. This covers general measures including pre works checks and tool-box talks and measures in relation to each of the following: – Nesting birds – Bats – Badger – Otter – Reptiles		secured through a requirement of the draft DCO (App Doc Ref 2.1) Construction lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)			
Existing Cambridge WWTP							

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Removal of habitats - Milton Road Hedgerows City Wildlife Site (CiWS)	Neutral (not significant)	Management of construction activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2)) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP which will include setting out measures for the prevention of impacts including best practice measures applied during construction to: • complete pre works checks for protected species by suitably experienced ecologist; • avoid the nesting bird season as appropriate to any species found; and • complete clearance activities completed in accordance with approved methods. • complete pre works checks to avoid habitats such as the existing species-rich hedgerow • maintaining a buffer between the works and the CiWS	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Construction lighting design to comply with to comply with the Lighting Design Strategy (App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction	Approved phasing plan Approved CEMP required prior to the commencement of construction works within the existing Cambridge WWTP with potential to impact CiWS
Temporary disturbance of badger sett and associated habitat due to the combination of noise, use of temporary lighting, land clearance, excavation and presence of people in proximity	Neutral (not significant)	Management of impacts to badger as a result of construction activities are through measures as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2)) in particular section 4.4 which requires the Principal Contractor(s) to produce a CEMP setting out measures for the prevention of impacts including to ecological features. The CEMP will include requirements to apply best practice measures during construction to prevent impacts to badger including: • completion of pre-works checks across the Existing Cambridge WWTP (due to badgers being considered a mobile species); • checking of works areas (pipe storage locations, excavations) for signs of badger / trapped animals • securing of areas to prevent access by badger	Tertiary	Section 7.2, CoCP Part A (Appendix 2.1 App Doc Ref 5.4.2.1) secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a CEMP secured through a requirement of the draft DCO (App Doc Ref 2.1). Construction lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of construction including compound set up	Approved CEMP required prior to the commencement of construction works within the existing Cambridge WWTP with potential to impact badger
Operation							
Proposed Cambridge WWTP							
Air quality impacts on Stow-cum-Quy Fen SSSI due to emissions to air from the operation of the energy plant	Slight adverse (not significant)	The energy plant will have suitable exhaust stack height and operate in accordance with the relevant MCPD emission limit values for energy plant which will be specified within a site-specific Environmental Permit.	Tertiary	The Environmental Permit will include medium combustion plant directive emission limits and conditions for monitoring and reporting. Schedule 2 (Design Parameters) of the draft DCO (App Doc Ref 2.1)	AW	Prior to commencement of operation	Operational management and final process management plans and procedures as approved by the Environmental Permit
Visitor impact on Stow-cum-Quy Fen SSSI due to the potential for an increase in visitors to the area	Slight adverse (not significant)	Management of visitor behaviours through design the landscape masterplan within the LERMP (App Doc Ref 5.4.8.14) to include: • the provision of pedestrian and leisure cycling pathways within the landscape masterplan to	Primary	LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	AW	Prior to start of planting	Approved LERMP and final planting and management plans and procedures

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		formalise existing access within a location away from the SSSI • exclusion of additional parking provision for users of Low Fen Drove Way or users accessing the landscape masterplan area to discourage additional visits to the local area by car users					
		Long-term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to users this includes the requirement to complete user survey at least twice a year to understand how people are interacting with the recreational space and accessing the wider network of PRoW and permissive paths.	Secondary	Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to commencement of operation	Approved detailed management and monitoring pan
CWS as a result of scour of the river bank from operation of the outfall	Slight adverse (not significant)	Direct and indirect impacts related to operation of the outfall will be minimised through the inclusion of scour protection within the design of the outfall.	Tertiary	Conditions set out within an Environmental Permit (Flood Risk Activities) that may be required in relation to outfall design and construction.	Applicant	Detailed outfall design, as approved by the Environmental Permit prior to construction	Design of outfall and scour protection measures as per final design specified as part of the environmental permit (flood risk activities).
						Annual operational monitoring	Approval and implementation of a OMMP secured through a requirement of the draft DCO (App Doc Ref 2.1).
		In addition to design measures the Applicant will be required to implement controls to emissions through operational phase requirements in compliance with the relevant Environmental Permits (flood risk activities and water discharge) for the construction of the outfall.		Preparation of a method statement to cover periodic monitoring activities to accord with the requirements of the Environmental Permit (Flood Risk Activities). Approval and implementation of an Outfall Management and Monitoring Plan secured through a requirement of the draft DCO (App Doc Ref 2.1). The Environmental Permit will include conditions requiring management systems to cover emergency responses and pollution prevention.		Annual monitoring and update to OMMP	Approval and implementation of a OMMP
						Prior to start of operation	Approval and implementation of a EMS secured through the Environmental Permit
Direct and indirect water quality impacts to River Cam CWS through normal operation of the outfall	Slight beneficial (not significant)	The management of effluent quality through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes		Environmental Permit Environmental Management System	Applicant	Detailed design, as approved by the Environmental Permit prior to construction	Detailed design of proposed WWTP, as approved by the Environmental Permit prior to construction Design of outfall and scour protection measures as per final design specified as part of the environmental permit (flood risk activities)

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		In addition to design measures emissions to the River Cam will be controlled through operational procedures. Operational procedures will be developed further during the life of the Proposed Development from detailed design to the proposed assets going into full operation, in compliance with the relevant Environmental Permit for the Proposed Development.		The Environmental Permit will include conditions requiring management systems to cover emergency responses and pollution prevention.	Applicant	Prior to start of operation	Approval and implementation of a EMS secured through the Environmental Permit
Operation of the outfall during short term infrequent storm flows direct impacts the River Cam as a result of scour of the bank and reduce water quality and indirect impacts to River Cam CWS as a result of scour releasing further particles into the water column	Slight adverse (not significant)	The management of effluent quality and storm spill impacts through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes • design of storm storage volumes and flow rates to meet regulatory requirements • inclusion of capacity within the proposed development to adapt to future changes in relation to storm storage provision	Tertiary	Environmental Permits Environmental Management System Approval and implementation of a OMMP secured through a requirement of the draft DCO (App Doc Ref 2.1).	Contractor Applicant Applicant	Detailed design, as approved by the Environmental Permit prior to construction n	Detailed design of proposed WWTP, as approved by the Environmental Permit prior to construction Design of outfall and scour protection measures as per final design specified as part of the environmental permit (flood risk activities) Approval and implementation of a OMMP
Light spill into retained habitats from operation of lighting within the proposed WWTP impacts Low Fen Drove Way Grasslands and Hedgerows CWS which will not benefit from the screening effect of established vegetation until year 15 of operation	Neutral (not significant)	Design measures to prevent or minimise artificial light impacts are: • wildlife sensitive lighting design incorporated into detailed design • exclusion of lighting provision on the access road • the use of directional lighting of <2700K and use of maximum height lighting columns of 5m within the proposed WWTP	Primary	LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Detailed lighting design approved prior to construction of proposed WWTP	Approved lighting design
		Detailed lighting design will comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5). This includes the requirement for lighting to accord with The Institute of Lighting Professionals Advice Note- Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/18 - Bats and Artificial Lighting.	Secondary	Detailed lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)	Applicant	Approved monitoring and management prior to operation	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
Light spill into retained habitats from operation of lighting within the proposed WWTP such as Low Fen Drove Way Grasslands and Hedgerows CWS – once vegetation established	Neutral (not significant)	Design measures to prevent or minimise artificial light are: • wildlife sensitive lighting design incorporated into detailed design • exclusion of lighting provision on the access road • the use of directional lighting of <2700K and use of maximum height lighting columns of 5m within the proposed WWTP • habitat creation within the landscape masterplan that serves a screening function once mature	Secondary	Detailed lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1) LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1) Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Detailed lighting design approved prior to construction of proposed WWTP Approved monitoring and management prior to operation	Approved lighting design Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
Potential surface water impacts at Allicky Farm Pond CWS due to spills and leaks within the proposed WWTP migrating beyond the site	Slight adverse (not significant)	Design measures to avoid or minimise impacts to groundwater / to prevent surface water run-off from the proposed WWTP: • design of surface water drainage network to include segregated drainage system in areas of potential contamination with the proposed WWTP • design of access road drainage to incorporate sustainable drainage features	Primary	Detailed surface water drainage design will comply with the Drainage Strategy (Appendix 20.12 App Doc Ref 5.4.20.12). This includes the requirement for drainage to accord with requirements set out within The Environment Agency's Approach to Groundwater Protection, Feb 2018 (Version 1.2) secured through a requirement of the draft DCO (App Doc Ref 2.1)	Contractor	Prior to construction of drainage system	Implementation of approved surface water drainage design in consultation with the Environment Agency and Lead Local Flood Authority
		Management of impacts from leaks and spills in operation through the operational procedures in relation to materials storage controls, spill control measures, and emergency response procedures. Operational procedures will be developed further during the life of the Proposed Development from detailed design to the proposed assets going into full operation, in compliance with the relevant Environmental Permit for the Proposed Development.	Tertiary	The Environmental Permit will include conditions requiring management systems to cover pollution prevention and emergency responses.	Applicant	Prior to start of operation	Approval and implementation of a EMS secured through the Environmental Permit
Direct and indirect beneficial impact to water vole due to the creation of new ditch habitat and improved treated effluent quality returned to the River Cam	Minor beneficial (not significant)	Direct benefit to be realised through the continued management of the created ditch as required by application of the mitigation and monitoring measures in line with agreed Natural England licence conditions. Draft measures set out within Draft Licence (Appendix 8.22 App Doc Ref 5.4.8.22).	Tertiary	Natural England Mitigation Licence	Applicant	Prior to construction of the mitigation habitat	Approved ditch design through Natural England Licence
		The management of effluent quality discharge to the river Cam through: design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam		WRC and STC will have suitable treatment technology and processes and operate in accordance with the relevant emission limit values for the plant which will be specified within a site-specific Environmental Permit.		Prior to construction of the outfall	Approval and implementation of a OMMP

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		• design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes					
		Measures for continuous control of emissions to the River Cam through operational procedures. Operational procedures will be developed further during the life of the Proposed Development from detailed design to the proposed assets going into full operation, in compliance with the relevant Environmental Permit for the Proposed Development.		The Environmental Permit will include conditions requiring management systems to cover emergency responses and pollution prevention.		Prior to start of operation	Preparation of an operational monitoring programme as part of the written EMS to cover periodic monitoring activities to accord with the requirements of the Environmental Permit.
Direct and indirect beneficial impact to otter due to the creation of new ditch habitat and improved treated effluent quality returned to the River Cam	Slight beneficial (not significant)	As for water vole					
Direct and indirect impacts to bats due to creation of new mixed habitats that will provide better foraging and commuting habitats	Slight beneficial (not significant)	Design measures to prevent or minimise artificial light are: • wildlife sensitive lighting design incorporated into detailed design • exclusion of lighting provision on the access road • the use of directional lighting of <2700K and use of maximum height lighting columns of 5m within the proposed WWTP • habitat creation within the landscape masterplan that serves a screening function once mature		Detailed lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)	Applicant	Detailed lighting design approved prior to construction of proposed WWTP Landscape planting completion prior to operation	Approved lighting design Approved LERMP
		Detailed lighting design will comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5). This includes the requirement for lighting to accord with The Institute of Lighting Professionals Advice Note- Guidance Note 1 for the Reduction of Obtrusive Light (GN01/21) (2021) or any later revisions of this document published by the Institute and Guidance Note 08/18 - Bats and Artificial Lighting		Detailed lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)	Applicant	Detailed lighting design approved prior to construction of proposed WWTP	Approved lighting design
Direct and indirect impacts to badger due to creation of new mixed habitats that will provide better foraging and commuting habitats.	Slight adverse (not significant)	Design measures within the landscape masterplan within the LERMP (App Doc Ref 5.4.8.14) include the following to provide direct and indirect benefits to badger: • Provision of a variety of habitats (woodland and tree stands, scrub and seasonal ponds) will help to support foraging and commuting badger		LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Landscape planting completion prior to operation	Approved LERMP
		Direct benefit to be realised through the mitigation and monitoring measures in line with agreed Natural England licence conditions. Draft measures set out within Draft Licence (App Doc Ref 5.4.8.22).		Requirement to implement requirements of the Mitigation licence		Licence in place prior to construction	Preparation of OMMP that integrates licence requirements
		Further measures delivered during operation will be implemented through the long term application of the LERMP (App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the		LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)		Prior to commencement of operation	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		DCO), based on the LERMP which will be agreed with key stakeholders.					
Direct and indirect impacts to terrestrial invertebrates due to creation of preferred habitat and creation of conditions that may provide new and or better foraging areas	Slight beneficial (not significant)	Design measures to avoid or minimise impacts to terrestrial invertebrates: • measures within the landscape masterplan within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) include including inclusion of elm, bare earth areas and seasonal ponds to provide direct and indirect benefits to terrestrial invertebrates; and • the use of wildlife sensitive lighting design incorporated into detailed design for the proposed WWTP.	Primary	LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1) Detailed lighting design to comply with to comply with the Lighting Design Strategy (Appendix 2.5 App Doc Ref 5.4.2.5) secured through a requirement in the draft DCO (App Doc Ref 2.1)).	Contractor	Landscape planting completion prior to operation	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
						Prior to construction of lighting	Implementation of approved lighting design
		Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to invertebrate habitat this includes the specific requirement to: • install approximately 41 discrete deadwood and brash piles across the areas outside the earth bank within woodland planting areas using locally sourced material (preferably as arises from the proposed vegetation removal works). • monitor use of bee banks • monitoring stability of brash piles • monitoring of seasonal pond	Secondary	Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to commencement of operation	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
Direct and indirect impact on fish from operational of the outfall due to scour from higher flow events and from operational improvements so that effluent quality is improved	Slight beneficial (not significant)	Design measures to prevent or minimise impacts to fish are: • inclusion of a non-return valve within the outfall chamber for storm flows to prevent ingress of fish to the chamber • design of the outfall to operating within the maximum volume limits which are to be similar to those from the existing outfall	Primary	Approval of the construction risk assessment and method statement associated with the detailed design and construction approach for the outfall as secured through applicable Environmental Permit (Flood Risk Activities).	Contractor	Prior to construction of the outfall	Design of outfall and scour protection measures as per final design specified as part of the environmental permit (flood risk activities)
						Prior to start of operation	Preparation of an operational monitoring programme as part of the written EMS to cover periodic monitoring activities to accord with the requirements of the Environmental Permit.

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		The management of effluent quality and storm spill impacts through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent and greater storm storage than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes • design of storm storage volumes and flow rates to meet regulatory requirements • inclusion of capacity within the proposed development to adapt to future changes in relation to storm storage provision	Primary/ Tertiary	Operational limits and monitoring obligations secured through Environmental Permit	Applicant	Prior to operation	Preparation of an operational monitoring programme as part of the written EMS to cover periodic monitoring activities to accord with the requirements of the Environmental Permit.
		Management of impacts during operation will be through implementation of an outfall management and monitoring plan to include ongoing monitoring measures to identify erosion/scour of the river bank. This may trigger the need for remediation including the application of further physical interventions.		Approval and implementation of a OMMP secured through a requirement of the draft DCO (App Doc Ref 2.1).			Approval and implementation of a updated Outfall Management and Monitoring Plan incorporating requirements within Environmental Permit (flood risk activities) and measures for ongoing outfall monitoring
Impact of the operational of the outfall on macroinvertebrates due to operation of the outfall which may result in local scour to the river bank and indirectly through water quality improvements	Neutral (not significant)	Design measures to prevent or minimise scour and impacts to macroinvertebrate are: • design of the outfall to operate within the maximum volume limits which are to be similar to those from the existing outfall; and • design of the outfall to include energy dissipation features .	Tertiary	Approval of the construction risk assessment and method statement associated with the detailed design and construction approach for the outfall as secured through applicable Environmental Permit (Flood Risk Activities).	Applicant	Prior to construction of the outfall Water vole ditch habitat creation 1 year (including full season) prior to outfall works Other ditches prior to operation Annual updates to management plan from year 1 of operation to account for monitoring findings	Design of outfall and scour protection measures as per final design specified as part of the environmental permit (flood risk activities)
		The management of effluent quality and storm spill impacts through: • design of the process technology and storage so that operation of the is within emission limits (stricter consented limits for treated effluent (including nutrients) and greater storm storage		Operational limits and monitoring obligations secured through Environmental Permit The Environmental Permit will include conditions requiring management systems to cover	Applicant	Prior to operation	Environmental permit secured / process technology approved

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		than the existing Cambridge WWTP) to achieve no deterioration within the River Cam • design of the proposed WWTP that allows for future process changes to accommodate future emission limit changes • design of storm storage volumes and flow rates to meet regulatory requirements; • inclusion of capacity within the Proposed Development to adapt to future changes in relation to storm storage provision		emergency responses and pollution prevention.			
Direct and indirect impact to macrophytes due to operation of the outfall which may result in local scour to the river bank and indirectly through water quality improvements	Neutral (not significant)	As for macroinvertebrates				Annual updates to management plan from year 1 of operation to account for monitoring findings	Approval and implementation of a updated Outfall Management and Monitoring Plan incorporating requirements within Environmental Permit (flood risk activities) and measures for ongoing outfall monitoring
Beneficial impacts to common reptiles and their habitats due to habitat creation within the landscape masterplan and its ongoing management through the LERMP	Neutral (not significant)	Direct benefit to reptiles to be realised through measures within the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14): • implementation of sensitive vegetation management strategy that avoids direct injury or killing of reptiles; • inclusion of bare soil scrapes within the landscape masterplan, on south-facing slopes of earth banks suitable for reptiles to use to bask (insolate), and • maintenance measures to ensure habitats are sustained	Primary	LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to commencement of operation with updated as specified within LERMP	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
		Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to reptiles this includes the specific requirement to: • create a total of 8 hibernacula measuring approximately 2m x 4m with 1m height • install approximately 41 discrete deadwood and brash piles across the areas outside the earth bank within woodland planting areas using locally sourced material (preferably as arises from the proposed vegetation removal works). • monitor hibernacula • monitor the stability of brash piles	Secondary	Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to commencement of operation with updated as specified within LERMP	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
Operational noise impacts on breeding birds due to operation of the mechanical-electrical	Slight beneficial	Design measures to minimise operational noise impacts by design including consideration of location, layout and plant/equipment selections and acoustic screening from	Tertiary	Operational limits and monitoring obligations secured through Environmental Permit	Applicant	Prior to start of construction	Approved design and environmental permit

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
elements (such as pumps and compressors) of the proposed WWTP and during activities to implement the LERMP	(not significant)	the earth bank and enclosures to reduce noise emissions. Noise at the proposed WWTP will be controlled under the terms of an Environmental Permit, which requires the adoption of best available techniques (BAT) to control noise at source.					
		The long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to birds this includes the specific requirement to: • provision and maintenance of seasonal ponds (intended to provide habitat needs for turtle dove) • installation of bird boxes under direction of ecologist • complete nest checks		Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to commencement of operation with updated as specified within LERMP	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
				LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to commencement of operation with updated as specified within LERMP	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
Creation and management of habitats as part of the landscape masterplan results in beneficial impacts associated with more varied and quality habitat when compared to existing baseline habitats.	Moderate beneficial (significant)	Direct benefit to be realised through the habitat provisions and within the LERMP (Appendix 8.14App Doc Ref 5.4.8.14): • inclusion of a new mosaic of habitats within in the landscape masterplan intended to link to existing habitat features of value (such as existing hedgerows and habitats as part of the CWS)	Primary	LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Landscape planting completion prior to operation	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
		Further measures delivered during operation will be implemented through the long term application of the LERMP (Appendix 8.14 App Doc Ref 5.4.8.14) which requires that the operator to prepare a detailed management and maintenance plan (secured through requirements in the DCO), based on the LERMP which will be agreed with key stakeholders. In relation to the overall success of the LERMP there is a specific requirement to review the objectives and maintenance and management regimes every five years for 30 years.	Secondary	Approval and implementation of a detailed management and monitoring plan secured to comply with LERMP secured through a requirement of the draft DCO (App Doc Ref 2.1)	Applicant	Prior to commencement of operation with updated as specified within LERMP	Approved detailed management and monitoring plan in line with requirements of the LERMP Table 5.1
Decommissioning							
Whilst decommissioning there is the potential for accidental leaks and spills during the draining and cleaning of existing tanks and or works to stop up the existing outfall which could result in short term temporary impact to surface water including the river Cam	Neutral (not significant)	Management of decommissioning activities as described within the CoCP Part A and B (Appendix 2.1 and 2.2 App Doc Ref 5.4.2.1 and 5.4.2.2) in particular section 4.4 which requires the Principal Contractor(s) to produce a Water Quality Management Plan(s), Pollution Incident Control Plan, and risk assessments before works commence on site. The plans will be appended to or incorporated into the CEMP(s). These plans will include the requirement to implement best practice measures including: • measures to minimise run-off and the risk of runoff reaching ditches and watercourses	Tertiary	Requirement to comply with the Decommissioning Management Plan (Appendix 2.3 App Doc Ref 5.4.2.3). Secured through a requirement in the draft DCO (App Doc Ref 2.1)	Contractor	Prior to start of decommissioning	Approved Phasing plan Approved Decommissioning Plan prior to start of works

Description of impact	Residual effect	Design/mitigation measures adopted as part of the project	Type	Secured within	Responsible party	Timing on the provision of the measure	Trigger for the discharge of any related requirement
		• management of dewatering activities in accordance with Environment Agency specifications including treating dewatering effluent prior to discharge and control of dewatering discharge rates to prevent scour. • measures applied for the management of leaks and spillages such as use of drip trays and provision of spill kits • requirement for the safe storage and handling of potentially contaminating materials including fuels and oils in accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001 and Dangerous Substances and Explosive Atmospheres Regulations 2002. • requirement for refuelling of machinery to be undertaken within designated areas (unless expressly stated within the CEMPs) where spillage can be more easily contained					
		Management of decommissioning activities through application of measures within the outline Decommissioning Plan (Appendix 2.5App Doc Ref 5.4.2.5) and the CoCP Part A, Section 4.4 (Construction Environment Management Plan) which requires that the contractors to prepare a Decommissioning Plan (secured through requirements in the DCO), and Section 7.5 (Water Resources and Flood Risk) (Appendix 2.1 App Doc Ref 5.4.2.1) which sets out measures to control activities related to decommissioning. These requirements will collectively secure deliver appropriate mitigation of the decommissioning activities.	Secondary				

References

Bacon, L., Cooper, A., & Venables, H. (2013). *Cambridgeshire Bird Atlas 2007-2011.* Cambridge Bird Club.

Baker, M.P., Bullock, M.P., Wilson, L.A. (2021). *The Cambridge Nature Network: A Nature Recovery Network for Cambridge and its Surrounds.* Wildlife Trust for Bedfordshire, Cambridgeshire & Northamptonshire and Cambridge Past.

British Standards Institute. (2013). *BS 42020:2013 Biodiversity. Code of practice for planning and development.* London: British Standards Institution.

British Standards Institution. (2012). *BS 5837:2012 - Trees in relation to design, demolition and construction - Recommendations.* BSI Standards Limited.

Buglife. (2013, May). *A manual for the survey and evaluation of the aquatic plant and invertebrate assemblages of grazing marsh ditch systems.* Retrieved from Buglife: [redacted]

Cambridge City Council. (2006, September). *Nature conservation strategy.* Retrieved from Cambridge City Council: https://www.cambridge.gov.uk/nature-conservation-strategy#:~:text=The%20strategy%20outlines%20plans%20to,high%2Dquality%20natural%20green%20spaces

Cambridge City Council. (2011, June). *Cambridgeshire green infrastructure strategy.* Retrieved from Cambridge City Council: https://www.cambridge.gov.uk/media/2557/green-infrastructure-strategy.pdf

Cambridge City Council. (2018, October). *Cambridge City Council.* Retrieved from Local Plan 2018.

Cambridgeshire & Peterborough County Wildlife Sites Panel. (2014, April). *Cambridgeshire and Peterborough County Wildlife Sites.* Retrieved from Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire: [redacted]

Cambridgeshire and Peterborough Biodiversity Group. (2021, March). *Priority Species and Habitats*. Retrieved from Cambridgeshire and Peterborough Biodiversity Group: [redacted]

Charles, P., & Edwards, P. (2015). *Environmental good practice on site guide (fourth edition).* CIRIA.

CIEEM. (2018, September). *Guidelines for Ecological Impact Assessment (EcIA).* Retrieved from [redacted]

CIEEM. (2019). *Advice Note on the Lifespan of Ecological Reports and Surveys.* Retrieved from Chartered Institute of Ecology and Environmental Management: [redacted]

CIEEM. (2021, February 10). *Guidance on Ecological Survey and Assessment in the UK During the Covid-19 Outbreak (Version 4) .* Retrieved from CIEEM: [redacted]

CIEEM, IEMA, CIRIA. (2019). *Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide.* Retrieved from CIEEM: [redacted]

Crawford, A. (2011). *Fifth Otter Survey of England 2009-2010 - Technical Report.* Environment Agency.

Department for Environment, Food & Rural Affairs. (2012, February 9). *Policy paper. National policy statement for waste water.* Retrieved from Gov.uk: https://www.gov.uk/government/publications/national-policy-statement-for-waste-water

Department for Environment, Food and Rural Affairs. (2020, June 16). *Biodiversity*. Retrieved from UK Parliament: [redacted]

Eaton, Mark; Holling, Mark and Rare Breeding Birds Panel. (2020, December). Rare breeding birds in the UK in 2018. *British Birds, 113*, 737-791.

European Commission. (1992, May 21). *The Habitats Directive.* Retrieved from European Commission: [redacted]

European Commission. (2018). *Best Available Techniques (BAT) Reference Document for Waste Treatment.* Retrieved from European Commission: [redacted]

Greater Cambridge Planning. (2022, February). *Biodiversity Supplementary Planning Document.* Retrieved from www.greatercambridgeplanning.org: [redacted]

Greater Cambridge Shared Planning. (2021, November). *Greater Cambridge - North East Cambridge Area Action Plan.* Retrieved from Greater Cambridge Shared Planning: [redacted]

IEMA. (2016). *Delivering Quality Development*. Retrieved from GUide to Environmental Impact Assessment: [redacted]

Institution of Lighting Professionals. (2018). *Bats and Artifical lighting in the UK - Bats and the Built Environment Series.* Rugby: Institution of Lighting Professionals.

Institution of Lighting Professionals. (2023). Guidance Note 08/23 *Bats and Artifical lighting- Bats and the Built Environment Series.* Rugby: Institution of Lighting Professionals.

Institution of Lighting Professionals. (2021). *Guidance Note 01/21 The Reduction of Obtrusive Light.* Rugby: Institution of Lighting Professionals.

International Union for Conservation of Nature. (2022). *International Union for Conservation Red List of Threatened Species*. Retrieved from International Union for Conservation Red List of Threatened Species: [redacted]

Joint Nature Conservation Committee. (2012, July 17). *UK Post-2010 Biodiversity Framework.* Retrieved from Joint Nature Conservation Committee: https://jncc.gov.uk/our-work/uk-post-2010-biodiversity-framework/

Joint Nature Conservation Committee. (2016, February). *Handbook for Phase1 habitat survey - A technique for environmental audit.* Retrieved from Joint Nature Conservation Committee: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf

Joint Nature Conservation Committee. (2018, June). *Joint Nature Conservation Committee.* Retrieved from UK Post-2010 Biodiversity Framework: Revised Implementation Plan (2018-2020): https://data.jncc.gov.uk/data/587024ff-864f-4d1d-a669-f38cb448abdc/UKBioFwk-RevisedImpPlan-Jun2018.pdf

Mathews, F., & Harrower, C. (2020). *IUCN – compliant Red List for Britain's Terrestrial Mammals.* Mammal Society.

Ministry of Housing, C. &. (2021, July 20). *Policy paper. National Planning Policy Framework.* Retrieved from Gov.uk: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

Mott MacDonald. (2020). *Scoping Survey (Invertebrates) - Relocation of Water Treatment Plant, Cambridge.*

National Trust. (2018). *Wicken Fen Vision.* Retrieved from National Trust: [redacted]

Natural England. (2016, May 24). *Invertebrate Site Register (England).* Retrieved from HM Government: https://data.gov.uk/dataset/4c43814b-6738-47cc-9b04-4c6acf99fd0c/invertebrate-site-register-england

Natural England. (2020, October 20). *Priority Habitat Inventory (Central) (England)*. Retrieved from Natural England Open Data Geoportal: [redacted]

Natural England and DEFRA. (2022, January). *Protected species and development: advice for local planning authorities*. Retrieved from HM Government: https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications

Palmer, M., Drake, M., & Stewart, N. (2013, May). *Surveys and Reports.* Retrieved from Buglife: [redacted]

Perring, F., & Farrell, L. (1983). *British Red Data Book: Vascular Plants Bk.1.* Royal Society of Wildlife Trusts.

Peterborough City Council and Cambridgeshire County Council. (2021, July). *Peterborough City Council Planning Policy Public Data.* Retrieved from Peterborough City Council.

Shanklin, J. (2019, March 12). *Cambridgeshire (v.c.29) Rare Plant Register.* Retrieved from The Botanical Society of Britain and Ireland: [redacted]

Shawyer, C. R. (2011). *Barn Owl Tyto alba Survey Methodology and Techniques .* Winchester: IEEM.

South Cambridgeshire District Council. (2018, September). *South Cambridgeshire District Council Local Plan 2018.* Retrieved from South Cambridgeshire District Council: https://www.scambs.gov.uk/planning/local-plan-and-neighbourhood-planning/the-adopted-development-plan/south-cambridgeshire-local-plan-2018/

Stroh, P. A., Leach, S. J., August, T. A., Walker, K. J., Pearman, D. A., Rumsey, F. J., . . . Taylor, I. (2014). *A Vascular Plant Red List for England.* Bristol: Botanical Society of Britain and Ireland. Retrieved from A Vascular Plant Red List for England.

Swaffham Biodiversity Action Plan. (2009, October). Retrieved from Ely Drainage Boards: [redacted]

UK Government. (1981, October 30). *Wildlife and Countryside Act 1981.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/ukpga/1981/69/introduction

UK Government. (1992, July 16). *Protection of Badgers Act 1992.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/ukpga/1992/51/introduction

UK Government. (1997, June 1). *Hedgerow Regulations 1997.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/uksi/1997/1160/regulation/1/made

UK Government. (2000, November 30). *Countryside and Rights of Way Act 2000.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/ukpga/2000/37/introduction

UK Government. (2006). *Natural Environment and Rural Communities Act 2006.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/ukpga/2006/16/contents

UK Government. (2010, January 15). *The Eels (England and Wales) Regulations 2009.* Retrieved from UK Government Legislation: https://www.legislation.gov.uk/uksi/2009/3344/part/1/made

UK Government. (2017, November 30). *The Conservation of Habitats and Species Regulations 2017.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/uksi/2017/1012/regulation/1/made

UK Government. (2017, May 16). *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.* Retrieved from Legislation: https://www.legislation.gov.uk/uksi/2017/571/introduction/made

UK Government. (2021, November 9). *Environment Act 2021.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted

Waterbeach Level Internal Drainage Board. (2019, October). *Ely Group of Internal Drainage Boards.* Retrieved from Ely Drainage Boards: [redacted]

Waterbeach Parish Council. (2022, January). *Waterbeach Neighbourhood Plan 2020 to 2031 Referendum Plan.* Retrieved from Waterbeach Neighbourhood Plan: [redacted]

Get in touch

You can contact us by:

Emailing at **info@cwwtpr.com**

Calling our Freephone information line on **0808 196 1661**

Writing to us at **Freepost: CWWTPR**

You can view all our DCO application documents and updates on the application on The Planning Inspectorate website:

https://infrastructure.planninginspectorate.gov.uk/projects/eastern/cambridge-waste-water-treatment-plant-relocation/