

Water Eaton

PR6a : Land East of Oxford Road

Environmental Statement Appendix 9.2:
Shadow Habitats Regulations Assessment

Bellway


STRATEGIC
LAND



*Christ Church
Oxford*

WE / HRA / P01



Water Eaton

**Appendix 9.2: Shadow
Habitat Regulations
Assessment**

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On behalf of:
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PLANS

Plan EDP 1: Statutory Designated Sites
(edp5650_d038a 07 December 2022 GYo/OHo)

Section 1

Introduction Purpose and Context

- 1.1 This Shadow Habitats Regulations Assessment (HRA) has been prepared by The Environmental Dimension Partnership Ltd (EDP) on behalf of Bellway Homes Ltd and Christ Church, Oxford (hereafter referred to as 'the Applicant'). This Shadow HRA considers the implications of the proposed residential development ('the Proposal') at Water Eaton, Oxford (hereafter referred to as 'the Application Site') on European Sites within the Zone of Influence (Zol) of the Proposal.

SITE CONTEXT AND PROPOSALS

- 1.2 The Application Site covers an area of approximately 45.8 hectares (ha) and is centred approximately at Ordnance Survey Grid Reference (OSGR) SP 506 111. The Application Site falls under the Cherwell District Council (CDC) local planning authority area and is located on the edge of the city of Oxford, adjacent to the Water Eaton Park & Ride. At present, the Application Site predominantly comprises arable farmland, with small areas of woodland and scrub and a small number of buildings along the Application Site's western boundary.
- 1.3 The Application Site, which is allocated as part of the Cherwell District Local Plan Partial Review (2011-2031 adopted September 2020) as policy PR6a. A mixed-use development of up to 800 residential units is proposed, and its associated infrastructure, a two-form entry primary school, a local centre, recreation space and biodiversity enhancement areas. This is hereafter referred to as "the Proposal".
- 1.4 Atkins produced an HRA "Habitat Regulations Assessment Stage 1 Screening Report and Stage 2 Appropriate Assessment" based on the draft of the Partial Review of the Cherwell District Plan in 2018 (hereafter referred to as 'the Local Plan HRA'). That assessment includes the Application Site as it was originally allocated in the draft under policy PR6a, for a total of 650 units. An addendum was produced in 2019 that updated the assessment in line with the adopted local plan review (hereafter referred to as 'the HRA addendum', this time assessing the PR6a allocation at 690 units.

PURPOSE OF THIS REPORT

- 1.5 This Shadow HRA aims to provide relevant technical information to enable competent authorities to discharge their functions under Regulations 7 and 63 (requirement to carry out Appropriate Assessment) of the Conservation of Habitats and Species (Amendment) (European Union (EU) Exit) Regulations 2019 and the Conservation of Habitats and Species Regulations 2017 in relation to the Proposal.
- 1.6 Regulation 63 (1) of the Conservation of Habitats and Species Regulations 2017 (as amended) states that: "*a competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and (b) is not directly connected with or*

necessary to the management of that site, must make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives."

- 1.7 Regulation 63 (2) further states that *"a person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable it to determine whether an appropriate assessment is required."*
- 1.8 Regulation 63 (3) states that *"the competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regards to any representations made by that body within such reasonable time as the authority specifies."*
- 1.9 Regulation 63 (5) goes on to state that *"in the light of the conclusions of the assessment, and subject to regulation 64, the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European Site or the European offshore marine site (as the case may be)."*
- 1.10 Regulation 63 (6) concludes that *"in considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given."*
- 1.11 This Shadow HRA describes the potential for Likely Significant Effects (LSE) on European sites to arise as a result of the Proposal at each stage of the HRA process. European sites are Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) designated under the Conservation of Habitats and Species 2019 (as amended). This report will also consider sites designated under the Ramsar Convention on Wetlands of International Importance (1971, Ramsar Sites) as per UK Government Policy (set out in Paragraph 181 of the National Planning Policy Framework, 2021). This policy also brings candidate SACs (cSACs) and potential SPAs (pSPAs) within the requirement for HRA. For ease of reference, all of these sites will hereafter be referred to as "European Sites".
- 1.12 It is noted that s6(3) of the EU (Withdrawal) Act 2018 (as amended) requires retained EU law (such as the Conservation of Habitats and Species Regulations 2017 (as amended)) to be interpreted in line with 'retained caselaw' which includes retained EU caselaw.

Section 2 Methodology

- 2.1 The HRA assessment process follows four sequential stages, with guidance having been published to aid competent authorities to fulfil their responsibilities (e.g. European Commission 2001; DCLG, 2006):
- Stage 1: Habitat Screening;
 - Stage 2: Appropriate Assessment;
 - Stage 3: Alternative Solutions; and
 - Stage 4: Interests of Overriding Public Interest.
- 2.2 In this case, owing to the nature of potential LSE and that mitigation is deemed to successfully negate any effects, it was not necessary to take the assessment of the Proposal to Stage 3 or 4.
- 2.3 Further details pertaining to the methodology and approach taken with regards to Stage 1 and Stage 2 are provided below, with details relating to European Sites considered within this Shadow HRA provided in **Section 3**.

STAGE 1: SCREENING

- 2.4 Each European Site will be considered in the context of the Proposal and screened for any LSE. This stage of the report presents the findings of the screening assessment undertaken to identify LSE of the Proposal on European Sites.
- 2.5 This stage considers the possibility for LSE to occur based on high-level analysis of risks, taking into account the spatial relationship between impact sources and designated sites (and functionally linked habitats and species), the magnitude of changes predicted with regard to atmospheric, coastal/estuarine and freshwater receptor pathways (with reference to the relevant specialist studies), and any physical or other relationships between the Application Site and each European Site. Stage 1 screening for LSE considers the project alone and in combination with other projects.
- 2.6 If it can be confidently predicted on the basis of objective information that no LSE are identified for all the European Sites considered, then HRA Stages 2 and 3 are not required and the report would take the form of a No Significant Effects Report.
- 2.7 The judgment of People over Wind and Sweetman (12 April 2018) ruled that mitigation measures intended to avoid or reduce the harmful effects of the plan or project on a European Site cannot be considered at the Stage 1 Screening Stage. Therefore, in this HRA report, such measures will only be taken into account as part of Stage 2: Appropriate Assessment. Only measures that constitute part of the project design and are not intended

to avoid or reduce effects on European Site features, are therefore considered at the Screening Stage.

- 2.8 Evidence gathering, including the collation of baseline data on pertinent qualifying features within the Proposal's ZoI, is an integral part of Stage 1 Screening. Desk-based investigations have been undertaken to provide robust baseline information appropriate to inform the HRA. The full results from this work are presented in **Appendix 9.1** (Ecological Baseline) and within Chapter 9 of the ES.

STAGE 2: APPROPRIATE ASSESSMENT

- 2.9 Those LSE screened in will then be subject to progression to Stage 2: Appropriate Assessment. Under the Habitats Regulations, the Competent Authority is required to carry out an Appropriate Assessment if there are deemed to be LSE on European Sites when considered alone or in combination with other projects, and where those LSE arise from a plan or project not directly connected with, or necessary to the management of, that site or sites.
- 2.10 If Stage 1 identifies LSE upon a European Site, an assessment of the effects of the project upon the European site's conservation objectives/interest features is carried out either from the project alone or in combination with other plans and projects, which cannot be discounted. Conservation objectives for European Sites are defined and published by Natural England (NE) and the assessment refers to the relevant objectives as necessary. The assessment will include sufficient information to enable an Appropriate Assessment to be undertaken by the competent authority and will detail mitigation designed to reduce or eliminate identified LSE upon those European Sites screened into the assessment.

Section 3 Relevant European Sites

SCOPE OF ASSESSMENT

- 3.1 The Zol for the Proposal is the area over which ecological features may be affected by biophysical changes as a result of the proposed works and associated activities. This may extend beyond the boundaries of the Proposal. The Zol has been set to determine effects on European Sites within 10km of the Application Site. For schemes of this size and nature, if a designated site sits within this radius and is linked by any impact pathway then it is considered possible an impact may occur.
- 3.2 Taking into account these impact mechanisms and the Zol that has been adopted for the assessment, the HRA has considered impacts on just one European Site, namely Oxford Meadows SAC located 1.5km south-west of the Application Site's boundary at its nearest point. The next nearest European Site, Cothill Fen, is just over 10km from the development.

QUALIFYING CRITERIA

Oxford Meadows Special Area of Conservation

- 3.3 Pertinent details of Oxford Meadows SAC, including qualifying criteria and conservation objectives, are summarised below:

Name:

- Oxford Meadows Special Area of Conservation.

SAC EU Code:

- UK0012845.

Size:

- 267.4ha.

Distance to Application Site:

- 1.5km.

Qualifying Interest Features:

- Annex I habitats that are a primary reason for selection of this site:
 - 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*).
- Annex II species that are a primary reason for selection of this site:
 - 1614 Creeping marshwort (*Apium repens*).

Conservation Objectives:

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

Component Sites of Special Scientific Interest:

3.4 The SAC is made up of four component Sites of Special Scientific Interest (SSSIs), namely:

- Cassington Meadows SSSI;
- Pixey and Yarnton Meads SSSI;
- Port Meadow with Wolvercote Common and Green SSSI; and
- Wolvercote Meadows SSSI.

Section 4

Stage 1: Screening of Likely Significant Effects

- 4.1 Due to the distance of the Application Site from any European Site with no interconnected ecological pathways (e.g. watercourses), it is not considered likely that any direct impacts will arise through either the construction or operational phases from the Application Site that will have an LSE on Oxford Meadows SAC.
- 4.2 The qualifying features of both the European Sites are non-vagile, i.e. they are designated for their habitat or plant interest. Given the distance, the Application Site therefore does not provide any level of 'functional ancillary role' to these designated sites.
- 4.3 Potential impacts that may arise from the Proposal have been identified as follows:
- Degradation to water quality or quantity through increased load of the sewage treatment systems, pollution events or water abstraction;
 - Degradation of habitats arising from increased recreational impacts (destruction of vegetation and increased fertilization from dog fouling); and
 - Degradation of habitats arising from increased traffic emissions resulting in changes in air quality (emissions).
- 4.4 In the following sections, each effect is considered in the absence of mitigation, as required in accordance with CJEU judgment C-323/17 in 2018 (People Over Wind and Sweetman). In each case, the impacts arising from the Proposal are assessed to determine whether or not they are likely to have a significant effect on the qualifying features of a European Site either alone or in combination with other developments.

WATER QUANTITY IMPACTS

- 4.5 In the absence of mitigation, any new homes proposed within close proximity to European Sites have the potential to lead to increased pressure upon water demand. Over-extraction of groundwater in the Thames catchment is likely to lead to reduced water levels within the SAC. Many of the species present within the SAC, including Annex II species Creeping Marshwort, are reliant on the existing hydrology.
- 4.6 Average water usage per person per day in the UK is 145 litres (based on a three-year rolling average, 2019-2021). Given the predicted increase in population of 1,920 as a result of the proposals (based on an average of 2.4 people per household, extraction from the aquifer is predicted to rise by approximately 278, litres per day.
- 4.7 The underlying geology in Oxford means that the aquifer responds rapidly to rainfall and changes in river flow. The average flow of the Thames in Oxford is 17.6m³/s, meaning that on an average day, 1,520,640,000 litres of water passes through the Thames adjacent to the SAC. Therefore, the predicted increase in extraction as a proportion of this total is

0.018%. This level of change is considered unlikely to result in an LSE due to decreases in water levels in the SAC.

- 4.8 NE have previously confirmed that Oxford Meadows SAC is sensitive to flooding, rather than typical water levels in the river that might be affected by water abstraction.
- 4.9 In the absence of mitigation, a development of this size has the potential to result in an increase in surface and groundwater flows entering the catchment, particularly during heavy rainfall or flood events. It is not possible to rule out LSE at this stage, and water quantity effects are therefore screened into the Appropriate Assessment.

WATER QUALITY IMPACTS

- 4.10 The new homes and employment areas proposed within Cherwell District, particularly on the edge of Oxford, have the potential to lead to decreased water quality from increases in effluent discharge into the River Cherwell and River Thames catchments, and through groundwater recharge.
- 4.11 In the absence of mitigation, the proposals are considered to have the potential to cause LSE as a result of groundwater or surface water pollution during construction and operation.
- 4.12 Wastewater within the district is dealt with by Thames Water Utilities. In their response to the pre-planning enquiries regarding sewerage requirements for the Proposals, Thames Water indicated that the Proposals could be accommodated within existing capacity provided the local network is reinforced. This work is due to take place following outline consent.
- 4.13 It is understood that NE, the Environment Agency and Thames Water have not expressed any concerns over the potential for deterioration of water quality in the River Thames (which flows past the Oxford Meadows SAC) due to additional wastewater discharge as a result of housing development in Oxfordshire. Moreover, there is a statutory process already in place via the Environment Agency discharge consenting regime that would prevent deterioration of water quality in the river from this source.
- 4.14 Furthermore, the Oxford Sewage Treatment Works (STW) outfall is located more than 4km downstream of the Oxford Meadows SAC. Provided wastewater is delivered to the STW and processed there, it is considered extremely unlikely that pollution events would occur to the river alongside the SAC as a result of untreated wastewater discharge.
- 4.15 However, in the absence of mitigation, LSE on the Oxford Meadows SAC due to pollution events via groundwater and surface water cannot be screened out. Therefore, water quality effects are taken forward to Appropriate Assessment.

AIR QUALITY IMPACTS FROM EMISSIONS

4.16 NE internal operation guidance¹ advises that traffic-related impacts on air quality need to be considered for designated sites located within 200m of relevant roads. The guidance states that "*With regard to potential risks from road traffic emissions, Natural England and Highways England are in agreement that protected sites falling within 200 metres of the edge of a road affected by a plan or project need to be considered further*". The guidance goes on to note that "*where (unusually) there is a credible risk that air quality impacts might extend beyond 200 metres from a road, Natural England may advise that additional sites should also be scoped into the HRA*". It is not considered that any traffic from a residential development of 800 residential units would be considered an unusual scenario and therefore have air quality impacts extending beyond 200m.

Oxford Meadows SAC

- 4.17 Emissions from operational traffic could potentially impact on the Oxford Meadows SAC with additional traffic along the A40 east and west bound between Witney and Oxford and along the A34.
- 4.18 One of the Qualifying Features for Oxford Meadows SAC (creeping marshwort) is located only in Port Meadow SSSI. This section of the SAC is located 430m away from the nearest main road (A34). Therefore, it is unlikely that any air quality degradation effects from this Proposal are likely within Port Meadow and therefore impacts on creeping marshwort are considered unlikely.
- 4.19 However, the A40 and A34 pass alongside the SAC and so emissions from traffic using these roads may potentially impact on the European Site and the Qualifying Feature of 'Lowland Hay Meadow' that is present across the SAC.
- 4.20 The Air Quality Chapter of the Environmental Statement (ES) (Chapter 6) assesses the Proposal in the context of sensitive receptors, including sites designated for ecological reasons. Results of that assessment can be found in Chapter 6 of the ES and related appendices, particularly appendices 6.3 and 6.4.
- 4.21 With regard to the assessment on ecological receptors, the IAQM guidance and the Environmental Agency (EA) guidance suggest that detailed modelling is undertaken to predict concentrations and the results at receptors compared with the EA screening criteria for insignificance.
- 4.22 This guidance also introduces the following terms:
- Process contribution (PC) - Predicted pollutant concentration or deposition rate as a result of emissions from the proposed development only; and

¹ Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). [<http://publications.naturalengland.org.uk/publication/4720542048845824>]

- Predicted environmental concentration (PEC) - Total predicted pollutant concentration as a result of emissions from the proposed development and existing baseline levels (PC plus baseline levels).
- 4.23 When considering impacts at the Oxford Meadows SAC and associated SSSIs and the emissions meet both of the following criteria, impacts can be considered insignificant and no further assessment is required, if:
- The short-term PC is less than 10% of the short-term environmental standard; and
 - The long-term PC is less than 1% of the long-term environmental standard.
- 4.24 Should the PC not exceed the screening criteria, the EA states that detailed dispersion modelling is not required to consider air quality impacts associated with the proposed development on ecological receptors.
- 4.25 Ecological receptors were modelled at 0m above ground level, and critical loads have been based on the sensitivity and relevant features of the receiving habitat. A review of the APIS website was undertaken in order to identify the worst-case habitat description and associated critical load for the designation considered within the model. This ensures a conservative approach has been considered.
- 4.26 The assessment finds that predicted concentrations of acid, NO_x and N₃ do not breach critical levels at any of the receptors modelled within the SAC. Results of the assessment can be found in **Tables EDP 4.1 – 4.4** below.

Table EDP 4.1: Predicted Annual Mean NO_x Concentrations

Receptor		Predicted Annual Mean NO _x Concentration (µg/m ³)		Proportion of Critical Level (%)	
		PC	PEC	PC	PEC
ER1	Oxford Meadows, Pixey Yarnton Meads	0.00	16.69	0.0	56
ER2	Oxford Meadows, Pixey Yarnton Meads	0.01	16.70	0.0	56
ER3	Oxford Meadows, Pixey Yarnton Meads	0.01	16.46	0.0	55

Table EDP 4.2: Predicted 24-Hour Mean NOx Concentrations

Receptor		Predicted 24-Hour Mean NOx Concentration (µg/m3)		Proportion of Critical Level (%)	
		PC	PEC	PC	PEC
ER1	Oxford Meadows, Pixey Yarnton Meads	0.02	33.40	0.0	N/A
ER2	Oxford Meadows, Pixey Yarnton Meads	0.06	33.43	0.1	N/A
ER3	Oxford Meadows, Pixey Yarnton Meads	0.06	32.96	0.1	N/A

Table EDP 4.3: Predicted Annual Mean NH3 Concentrations

Receptor		Predicted Annual Mean NH3 Concentration (µg/m3)		Proportion of Critical Level (%)	
		PC	PEC	PC	PEC
ER1	Oxford Meadows, Pixey Yarnton Meads	0.00	2.30	0.0	77
ER2	Oxford Meadows, Pixey Yarnton Meads	0.00	2.30	0.0	77
ER3	Oxford Meadows, Pixey Yarnton Meads	0.00	2.30	0.0	77

Table EDP 4.4: Predicted Annual Mean Acid Deposition Rates

Receptor	Predicted Annual Mean Acid Deposition Rate (keq/ha/yr)	Proportion of Critical Load (%)	Exceedance of CL Function (keq/ha/yr)
	N	PC	
ER1	0.000	0.1	None
ER2	0.001	0.1	None
ER3	0.001	0.1	None

4.27 Therefore, any effects of the Proposal from a degradation of air quality on the SAC can be screened out with a high degree of confidence.

In Combination

4.28 Although the project alone is not anticipated to have an effect on Oxford Meadows SAC or its Qualifying Feature (Lowland Hay Meadow), there is a requirement under Regulation 63(1)a to complete an assessment of whether a plan or project either alone or in combination with other plants of projects is likely to have a significant effect.

4.29 Due to the non-significant increase in traffic through the Proposal, an in-combination assessment needs to be considered.

4.30 Associated traffic generation from the appropriate and available applications were factored into the modelled traffic data to consider the combined effect of committed developments and the Proposed Development and have therefore been taken into account in the assessment outlined above.

4.31 The Local Plan has been assessed through the Local Plan HRA, which considers all known developments within the district and adjacent planning districts (including this site). The HRA of the Local Plan comes to a conclusion, which has been previously agreed by NE, that no significant effects are likely to occur from the proposals within their Local Plan (due to appropriate mitigation being set out within their Project). The HRA for the Local Plan states that *“it can be concluded that there is no prospect of a likely significant effect of the Cherwell Local Plan on any European sites through any impact pathways except potentially air quality on the Oxford Meadows SAC”*, it then subsequently sets out a series of policies to ensure the protection of the SAC from a deterioration of air quality, finally concluding by stating: *“It is concluded that providing recommendations made within this document are included in the Local Plan proposed Main Modifications, there will be no likely significant effect upon a European designated site.”* Therefore, an in-combination effect is also not considered likely from this Proposal with any other plan or project.

Recreational Impacts on Oxford Meadows SAC

4.32 A visitor survey was carried out on the SAC in 2011, the results of which conclude that most visitors to the SAC walk from within a 1.9km radius. The Application Site sits within this radius, and recreational impacts arising from the increase in population must, therefore, be considered.

- 4.33 The Local Plan HRA concludes that development covered by the Local Plan Partial Review is unlikely to result in LSE to the Oxford Meadows SAC as a result of recreational impacts. Development in Cherwell District on the northern edge of Oxford is separated from the SAC by the A40, and from the western units of the SAC also by the A34. This, combined with the lack of parking around the SAC is considered to be a deterrent to pedestrians accessing the SAC.
- 4.34 The only local parking is in a layby 140m along the A40 from the entrance to the SAC, the A40 is a busy main road making access to this layby difficult and unappealing. It is considered unlikely that significant numbers of visitors will drive to this layby. Once within the SAC there are only discrete footpaths which guide visitors around the outside of the meadows and to the Thames Path, thereby limiting any recreational impacts.
- 4.35 However, Port Meadow within Wolvercote, offers a safer, more accessible opportunity for recreational activities such as dog walkers. Port Meadow is a popular destination already within Oxford and has two car parks (on at either end). Oxford City Council has set out guidance for members of the public to adhere to whilst visiting this section of the SAC².
- 4.36 Policies set out in the Local Plan requiring extensive public open space, most notably ESD17, BSC10 and BSC11, and site-specific requirements in the wording of policy PR6a are considered inherent mitigation. These policies provide semi-natural and formal green space across just under half of the Application Site. This resource is considered likely to draw the vast majority of daily pedestrians arising from the Application Site.
- 4.37 It is therefore considered that any impacts through recreation are not considered to have an LSE, either alone or in-combination, on the Oxford Meadow SAC and are therefore screened out from further assessment for the Proposal.

² https://www.oxford.gov.uk/info/20003/parks_and_open_spaces/823/port_meadow

Section 5 Stage 2: Appropriate Assessment

- 5.1 The HRA Screening Assessment undertaken in **Section 4** concluded that LSEs from the project in-combination with all residential projects within the area as a result of water quantity and quality impacts cannot be ruled out as a potential impact pathway on the Oxford Meadows SAC.
- 5.2 Accordingly, an Appropriate Assessment of this potential effect for the Proposed Development alone and in combination with other plans or projects will be undertaken in this section.

WATER QUANTITY IMPACTS

Mitigation

- 5.3 The Proposal has been designed with due consideration for water conservation and drainage in general and in line with the Local Plan Policies - ESD 3: Sustainable Construction; ESD 6: Sustainable Flood Risk Management; ESD 7: Sustainable Drainage Systems (SuDS); ESD 8: Water Resources; and ESD 9: Protection of the Oxford Meadows SAC.

Appropriate Assessment

- 5.4 The high-quality design of the Proposal will ensure that no significant impacts occur on the volume of water abstraction that will impact any European Site. Policy ESD 3 ensures that developments are built to achieve water efficiency, allowing for a limit of 110 litres/person/day.
- 5.5 The design of SuDS features in line with the policies listed above, Planning Practice Guidance (PPG) and SuDS design guidance³ will ensure that surface and groundwater flows are unchanged, mimicking natural drainage as far as possible.
- 5.6 As noted in **Section 4**, any impacts through water abstraction and therefore a change in water quantity reaching the SACs are not considered to have an LSE, either alone or in-combination, on the Oxford Meadow SAC. LSE arising as a result of surface or groundwater flooding due to the proposals, with the above mitigation in mind, are also not considered likely and not anticipated to have an adverse effect upon the SAC through recreation either alone or in-combination.

³ CIRIA document C753 'The SuDS Manual'

WATER QUALITY IMPACTS

Mitigation

- 5.7 The Local Plan HRA screens out effects on groundwater based on the underlying, semi-permeable soils and through the application of Policy ESD 9, which specifically requires built-in control mechanisms to ensure groundwater flows will have no adverse effect on the integrity of the SAC.

Construction Phase Mitigation

- 5.8 A Construction Environmental Management Plan (CEMP) will be prepared prior to commencement of the construction works. This document will outline how the construction works will avoid, minimise and mitigate potential effects on the environment and surrounding area. The document will be reviewed and revised throughout the project where necessary.
- 5.9 The CEMP will typically cover construction issues arising from noise, construction vehicle movement and emissions, dust, surface water run-off, site waste and spillages.
- 5.10 The CEMP would include measures to manage the quality of surface water run-off during the construction stage. Exact measures implemented would depend on detailed layouts, drainage strategy, phasing and build programme, however these would typically include:
- Surface water should be managed appropriately in accordance with best practice guidelines during the construction period;
 - Construction of main road and drainage infrastructure in the early phases of development in order to intercept surface water run-off;
 - Any trapped gullies and linear drains protected by the use of a geotextile layer under the gratings to prevent silt and construction waste entering the drainage system. These would be regularly checked and replaced if they are silted-up or torn. Straw or similar would be placed in the gully pots to support the geotextiles and provide additional filtration. Gullies and drains should be inspected weekly, and after each adverse rainfall event, and cleared out as necessary;
 - Manholes upstream and downstream of attenuation features and upstream of receiving watercourse to be used as silt traps by incorporating a geotextile membrane (Terram 1000 or similar approved). These manholes should be regularly inspected and cleaned during the construction period; and
 - Prevention of silts and sediment generated during the construction period entering open sustainable drainage features (e.g. swales, basins) by the use of measures outlined above, provision of an alternative temporary drainage solution, or de-silting and remediation of the feature at the end of the construction period.

Operational Phase Mitigation

- 5.11 Pollution control measures will be incorporated in order to minimise the transmittal of any pollutants collected by run-off flowing over hard paved areas to the receiving watercourses.

- 5.12 The CIRIA SuDS Manual⁴ indicates the minimum treatment indices for contributing pollution hazards for different land use classifications. In order to deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index (for each contaminant type) that equals or exceeds the pollution hazard index. In order to provide an adequate level of treatment, an assessment using this method should be carried out for each land use parcel and their respective SuDS features. This will be undertaken at the appropriate stage of the design process, once detailed site proposals are available.
- 5.13 Nevertheless, an initial appraisal of the outline strategy can be undertaken at this stage. A detention basin on its own is sufficient to mitigate pollution risk from the majority of land uses (all roofs, individual driveways, residential car parks, low traffic roads and car parking with infrequent change). For commercial yard areas and car parking with frequent change, combining the detention basin with a swale, filter strip, filter drain, bioretention system or permeable pavement will provide sufficient mitigation from any pollution risk. Providing ponds/wetland rather than a basin will also provide sufficient mitigation on its own. As such, an adequate level of treatment for all land uses is capable of being provided.
- 5.14 In addition, treatment features such as catchpits for roof run-off, pervious paving for driveway areas, and proprietary treatment devices for road run-off will also be considered at detailed design stage in order to improve the quality of water entering downstream SuDS features.

Appropriate Assessment

Construction Phase Effects

- 5.15 The effective implementation of a CEMP would address the water quality risk posed to the SAC. Therefore, the magnitude of change is considered to be low, as there could still be some minor change to baseline conditions due to spillage or accidental pollution event even with the implementation of the identified mitigation measures.
- 5.16 Through inclusion of the identified mitigation measures, effects arising because of the proposals in the construction phase on surface and groundwater would no longer constitute an LSE, and are therefore not anticipated to have an adverse effect upon the SAC through recreation either alone or in combination.

Operational Phase Effects

- 5.17 The implementation of a surface water drainage strategy incorporating SuDS including pollution control measures will address risk of pollution to both surface water and groundwater receptors. Therefore, the magnitude of change is low, as there could still be some minor change to baseline conditions due to spillage or accidental pollution event even with the implementation of the identified mitigation measures.
- 5.18 Through inclusion of the identified mitigation measures, effects arising because of the proposals in the construction phase on surface and groundwater would no longer constitute

⁴ CIRIA document C753 'The SuDS Manual'

an LSE, and are therefore not anticipated to have an adverse effect upon the SAC through recreation either alone or in combination.

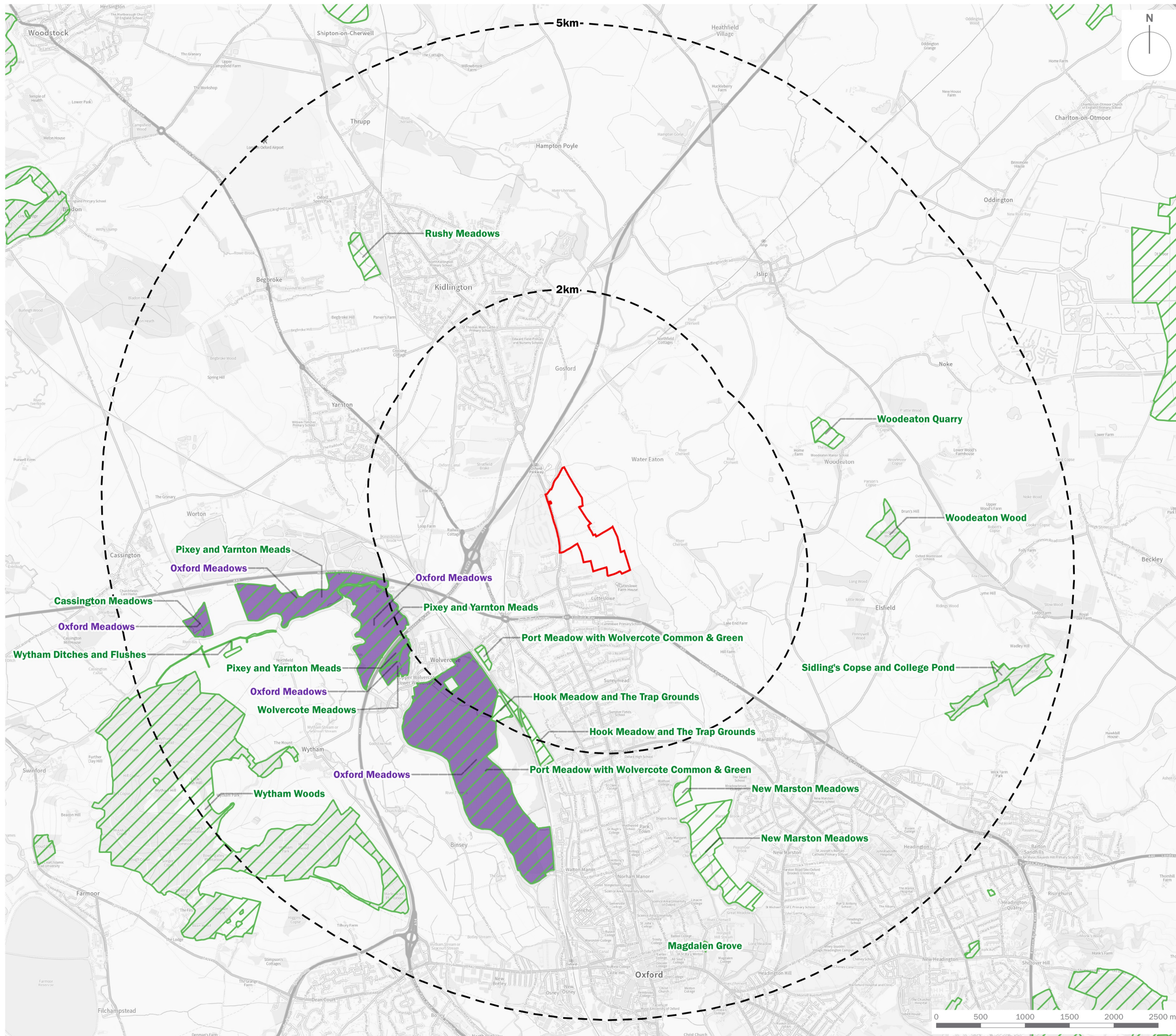
Section 6

Conclusions

- 6.1 There is just one European Site within the 10km Zol of the Application Site, the Oxford Meadow SAC.
- 6.2 Due to the distance between the Site and any European Site, LSEs were screened out from all direct impacts.
- 6.3 Indirect impacts that were considered in more detail included:
- Degradation to water quality or quantity through increased load of the sewage treatment systems or water abstraction;
 - Degradation of habitats arising from increased recreational impacts (destruction of vegetation and increased fertilization from dog fouling); and
 - Degradation of habitats arising from increased traffic emissions resulting in changes in air quality (emissions).
- 6.4 Effects arising as a result of air quality degradation and recreational impacts were screened out of the assessment at Stage 1 due to a combination of evidence presented in the Local Plan HRA and inherent mitigation as a result of the project design and local and national policy requirements.
- 6.5 Despite policy requirements, LSEs as a result of water quality and quantity effects could not be screened out. It was considered that Policy ESD 9: Protection of the Oxford Meadows SAC could not be considered inherent mitigation and therefore could not be taken into account at the screening stage. Water quality and quantity effects were therefore taken forward to Stage 2, Appropriate Assessment. Mitigation in the form of pollution control and a drainage strategy in line with Policy ESD 9 means that, following mitigation, no LSE are considered.
- 6.6 In-combination effects were also considered for the above identified pathways, however, the local plan and its accompanying HRA provides mitigation to ensure that any projects or proposals identified within it do not have an impact on the designated sites. Therefore, in-combination effects were also screened out for these impact pathways.
- 6.7 It is therefore concluded through this assessment, that the Proposal, as identified, will not have an adverse effect either alone or in combination with other Projects, upon the Oxford Meadow SAC, nor any other European Site.

Plans

Plan EDP 1: Statutory Designated Sites
(edp5650_d038a 07 December 2022 GYo/OHo)



- Site Boundary
- Range Rings (at 2km and 5km)
- Special Area of Conservation (SAC)
- Site of Special Scientific Interest (SSSI)

client
Bellway Homes Limited and Christ Church, Oxford

project title
Water Eaton

drawing title
Statutory Designated Sites

date	07 DECEMBER 2022	drawn by	Gyo
drawing number	edp5650_d038a	checked	OJo
scale	1:42,000 @ A3	QA	DJo



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