Report

Report for – Folkstone & Hythe District Council
Otterpool Park
Scoping Opinion Report (2020)
Final

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Report for: **Folkstone & Hythe District Council**

Contents

Appendices

1.0 Introduction

1.1 Context

1.1.1 Temple has been commissioned by Folkstone & Hythe District Council (FHDC) to review a Scoping Report for the Otterpool Park development and issue a Scoping Opinion.

1.1.2 An outline planning application has already been made for this scheme in 2019 (Y19/0257/FH) ('the 2019 Application'), which was accompanied by an Environmental Statement (ES) ('the 2019 ES). Temple reviewed the 2019 ES in April 2019. Since this, there have been revisions to the scheme for which a revised ES will be submitted. A Scoping Report was submitted in June 2020 to request a Scoping Opinion for the revised ES; this '2020 Scoping Report' is reviewed in this document.

1.1.3 A previous Scoping Opinion Request was made to FHDC in 2018, which was also reviewed by Temple. These reports will be referred to as the '2018 Scoping Report' and '2018 Scoping Opinion' where necessary to distinguish from the topic of this document.

1.1.4 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as 'the EIA Regulations') require that for certain planning applications, an Environmental Impact Assessment (EIA) is undertaken and an ES produced. EIA is a procedure which serves to provide information about the likely effects of proposed projects on the environment, so as to inform the process of decision making as to whether the development should be allowed to proceed, and if so, on what terms (Carroll and Turpin, 2009).

1.1.5 Schedule 1 of the EIA Regulations lists developments that always require EIA, and Schedule 2 lists developments that may require EIA if it is considered that they could give rise to significant environmental effects by virtue of factors such as its nature, size or location. This scheme falls under Schedule 2 as an 'urban development project' with a Site area over 1 hectare and with greater than 150 residential units proposed.

1.1.6 Where a proposed development is determined to be an 'EIA development' the Applicant can ask the relevant planning authority for advice on the scope of the EIA (an EIA Scoping Opinion).

1.2 EIA Scoping Opinion

1.2.1 The EIA Scoping Opinion outlines FHDC's opinion of the proposed scope of the EIA (based on the information provided to date) and identifies any suggested amendments or concerns.

1.2.2 This Scoping Opinion has been drawn up with reference to the following:

- consultation with internal and external consultees;
- relevant site history; and
- the 2020 Scoping Report prepared by Arcadis.

1.2.3 The issue of this Scoping Opinion does not prevent the planning authority from requesting 'further information' at a later stage under Regulation 25 of the EIA Regulations.

1.2.4 No indication of the likely success of an application for planning permission for the proposed development is implied in the expression of this Scoping Opinion.

2.0 The Proposed Development and Site Context

2.1 Site and Surrounding Area

2.1.1 The site of the Proposed Development is located on 586 hectares of land directly southwest of Junction 11 of the M20 motorway, and south of the Channel Tunnel Rail Link (CTRL) in the administrative area of FHDC. The site is centred around National Grid Reference TR112 365 in the general area of Otterpool Manor buildings. Much of the site is greenfield in nature and is predominantly occupied by agricultural uses and associated farm holdings as well as some residential and light commercial uses. A range of historical land uses associated with both rural and commercial activities have been present on the site. The North Kent Downs AONB is located almost adjacent to the southern and eastern boundaries of the site, and also further to the north.

2.1.2 The total site area has increased from the 2019 planning application by 6 hectares. The site boundary now includes Westenhanger Castle and its grounds. It represents the majority of the area covered by the Framework Masterplan.

2.2 The Proposed Development

2.2.1 The planning application for the Proposed Development will be submitted in outline, seeking permission for a new garden settlement of up to 8,500 dwellings and other uses including commercial, retail, education, healthy, community and leisure facilities, parking, landscaping and public open space.

2.2.2 The number of residential units remains unchanged from the 2019 Application, however the floor space for non-residential use classes has increased slightly.

2.2.3 The proposed character areas to be created across the site have been retained. These have been described in the 2020 Scoping Report and differ in terms of housing density and land uses. Open space is to comprise 40% of the site land area.

2.2.4 Enabling infrastructure for the development will include three road bridges across the River Stour, highway improvements to junction 11 of the M20, access to the A20 and to Westenhanger Station. It is possible but 'highly unlikely' that the Proposed Development may include an energy centre. All works associated with the scheme should be assessed in the ES, even if they are to be secured by a separate planning application. All enabling infrastructure should be clearly described in the ES, and the environmental impacts of that infrastructure should be considered.

3.0 Consultation

3.1.1 The EIA Regulations require that FHDC consult consultation bodies prior to issuing Scoping Opinion. Responses have been received from the following external organisations:

- Natural England;
- Highways England;
- Environment Agency;
- Historic England;
- Kent County Council (Highways);
- Kent County Council (PROW);
- Kent County Council Lead Local Flood Authority;
- Dover District Council; and
- Kent County Council Ecology Unit.

3.1.2 Where relevant to the scope of the ES, the responses received are discussed within the main text of this report under each relevant topic section. A complete set of responses for consideration by the Applicant is appended to this report in **Appendix A**.

4.0 Approach to EIA and Methodology

4.1 Compliance with Regulations

4.1.1 The ES will need to meet the requirements of the EIA Regulations, specifically Schedule 4.

4.1.2 Section 13 of the EIA Regulations also set out requirements for EIA Scoping Reports. These requirements are as follows:

- a plan sufficient to identify the land, which has been included in Appendix A of the EIA Scoping Report;
- a brief description of the nature and purpose of the development and its possible effects on the environment, which has been included in Section 3 and Sections 5 to 17 of the Scoping Report; and
- such other information or representations the person making the request may wish to provide or make, which has been included as appropriate.

4.1.3 The 2020 Scoping Report contains sufficient information to meet Section 13 of the EIA Regulations.

4.2 EIA Methodology

4.2.1 Baseline data used for the previous 2019 Application should be 'in date' and updated, if required.

4.2.2 As this is an outline application, there will be flexibility in the parameters presented. The Scoping Report commits to assessing the worst case scenario in line with 'Rochdale Envelope' principles. The parameters for assessment of the outline scheme elements should be clearly set out and should consider flexibility in size, massing, unit mix, tenure mix, provision of community facilities such as healthcare and education, and flexibility in commercial/retail use classes.

4.2.3 FHDC underscores its previous advice that flexibility regarding phasing (and otherwise) is acceptable for EIA purposes provided the following is the case:

- the ES is clearly based on that level of flexibility so that chapter authors have reflected it in their reports; and
- a form of condition is developed and imposed on the permission which provides a clear mechanism for phases to come forward.

4.2.4 The Applicant should make clear what assumptions are being made as to phasing. These should include any "fixes" which are relevant to phasing and which are included in the proposal e.g. in the parameter plans, the design and access principles (in the Spatial Principles document), or in the mitigation measures being recommended.

4.2.5 The 2020 Scoping Report notes that there is a relatively long construction timeframe (25 years) and phasing is not known. A reasonable worst case scenario approach should be taken to construction phasing, taking into account early phase occupation as well as the order in which retail and community infrastructure is delivered, which will have implications

particularly for noise, air quality, traffic, socioeconomics, health, and landscape and visual impact. We recommend a section or broader commentary explaining how reasonable worst case assessments have been derived and whether any sensitivity testing has been applied to allow for flexibility within any future uses. Specific comments relating to phasing are provided in the topic sections below.

4.2.6 Any highway, junction or footpath improvements, and any enabling other infrastructure beyond the main development site need to be assessed and the existing red line boundary extended if the improvements are for approval as part of the same consent.

4.2.7 A draft Code of Construction Practice (CoCP) should be submitted with the ES for approval to evidence delivery of construction mitigation measures. A more detailed CoCP or Construction Environmental Management Plan (CEMP) will likely be required at the start of each phase of work.

4.2.8 It should be clearly stated in the ES whether the energy centre will provide for the whole development. The ES should contain sufficient details of the type of energy generating facility being proposed and an assessment of environmental effects. If a temporary solution is required because of phasing, this also needs to be assessed.

4.3 Consideration of Alternatives

4.3.1 The 2020 Scoping Report notes that main alternative designs will be discussed; however, the 2017 EIA Regulations require a description of 'reasonable alternatives' including a comparison of the environmental effects.

4.3.2 The do-nothing scenario should also be presented.

4.4 Mitigation and Monitoring

4.4.1 Mitigation measures for the operational stage will relate to further commitments that will be assessed and delivered at the more detailed design stages.

4.4.2 It is accepted that further detail will be provided at later design stages. However, sufficient detail must be provided on operational mitigation to fully justify any reported residual effects. It should be made clear where this would need to be secured by condition.

4.4.3 It is stated that mitigation measures for the construction phase effects would be included in a CoCP. This may not be appropriate for some mitigation measures, for example where the responsibility for mitigation measures may fall with someone else other than the principal contractor. If mitigation measures need to be secured by pre-commencement conditions, this should be made clear.

4.4.4 Residual effects from enhancement measures will be presented in the ES as beneficial effects. Enhancement measures should be treated in the ES the same as mitigation measures: pre-enhancement and residual effects should both be reported so that the contribution of the enhancement measure can be understood. The assessment of residual effects after an enhancement measure should follow the standard methodology for that topic area; it is likely but not necessarily guaranteed that an enhancement measure would result in a beneficial effect.

4.5 Cumulative Impact Assessment

4.5.1 Interactive effects will be considered in the ES. It is noted that interactive effects will also be presented in the socio-economic chapter where they are considered to cause a nuisance during construction. These should nonetheless be presented alongside all other interactive effects for ease of navigation.

4.5.2 It is noted that an extant planning permission for a materials recycling facility and anaerobic digestion plant at Otterpool Quarry is situated within the red line boundary and that the Applicant proposes to justify the loss of this facility rather than accommodate a development buffer around it. If this approach is revised prior to planning submission, and the facility is expected to be developed, the cumulative impact of this facility and the Proposed Development should be assessed.

4.5.3 Appendix B of the 2020 Scoping Report provides a comprehensive list of potential cumulative schemes within 10 km. From this 'longlist', individual topic chapters have identified the cumulative schemes most likely to cause likely significant effects for that topic. This is considered an acceptable approach. Comments on the selection and treatment of cumulative schemes in individual topic chapters is provided in the individual topic sections in Section 5 of this report.

4.5.4 The ES will need to provide clear justification for the inclusion or exclusion of cumulative schemes identified within the 10 km radius.

4.5.5 Two different cumulative scenarios are presented within the 2020 Scoping Report:

- the Proposed Development and the rest of the Framework Masterplan (a further 1,500 homes); and
- the Proposed Development, Framework Masterplan and cumulative schemes beyond the masterplan boundary.

4.5.6 While it is accepted that the cumulative assessment of the Proposed Development and wider Framework Masterplan may be useful in understanding the effect of the Masterplan as a whole, any summaries of cumulative effects should place primary importance on the cumulative effect of the Proposed Development, Framework Masterplan, and all relevant committed or reasonably foreseeable schemes.

4.5.7 The cumulative assessment should also include reasonably foreseeable schemes which are not yet consented. This may include schemes which are submitted, and those part of "*adopted and emerging development plans.*"

4.5.8 The Applicant will need to monitor the status of all proposals before submitting the ES to confirm whether they should form part of the cumulative assessment and reflect the most up to date proposals.

4.6 Limitations and Assumptions

4.6.1 The ES will need to clearly set out details of any difficulties encountered in compiling the ES and those assumptions upon which the assessments have been based. This will be particularly important given the outline nature of the planning application.

4.6.2 Assumptions around land use should be clearly defined for the assessment, including the location of the industrial energy centre.

4.7 ES Format and Presentation

4.7.1 It is noted that the revised ES will consist of:

- Volume 1 – Main Text;
- Volume 2 – Figures to support Volume 1 Main Text;
- Volume 3 – Appendices to support Volume 1 Main Text; and
- Non-Technical Summary, illustrated and in plain English.

4.7.2 It would aid understanding if some of the figures were presented throughout the main text. If they are to be presented in a separate volume, care should be taken to ensure referencing is correct and figures are easy to find. This is particularly important if Volume 2, as a digital document, needs to be split for the purposes of submission. All figures must be clearly legible on the digital version of the ES.

4.7.3 The NTS should summarise all the information presented in paragraphs 1-8 of Schedule 4 of the EIA Regulations. It should therefore provide all the pre-mitigation effects, required mitigation and enhancement measures, and residual effects for each chapter, including cumulative effects.

4.7.4 It is noted that the Sustainability Strategy, Energy Strategy, Equalities Impact Assessment, Design and Access Statement, Spatial Principles Document, Green Infrastructure Strategy, Heritage Strategy and Planning Statement will be submitted separately to the ES but contain information relevant to the environmental effects of the ES. Relevant information from these documents should be included in the ES where it is necessary to understand the effects of the Proposed Development; it should be possible to fully understand the nature of the development and its effects without reference to planning documents outside the ES.

4.7.5 The proposed format and presentation of the ES is considered to be acceptable.

5.0 Topics Proposed to be Scoped into the EIA

5.1 Major Accidents and Disasters

5.1.1 The Scoping Report identifies the key hazards to be included for consideration in the ES. These are: floods, adverse weather, and transport accidents/industrial action and associated congestion (including temporary closure of the Channel Tunnel), which will all be addressed within the relevant topic chapters of the ES.

5.1.2 Risks from terrorist attack and pandemic are acceptably scoped out. The risk of increased exposure to Covid-19 during construction would be managed using emerging Government guidance and standard practice.

5.1.3 As such, it is agreed that a standalone chapter on major accidents and disasters is not required, and the topic is adequately considered in the revised ES as proposed.

5.2 Agriculture and Soils

5.2.1 This chapter will assess the soil types and Agricultural Land Classification (ALC) grades of the land to be affected by the Proposed Development, the types of farm enterprises to be affected, and the risk of spreading crop/soil/animal diseases and noxious weeds.

5.2.2 The general approach, the methodology proposed and the assessment of the significance of effects in relation to agriculture and soils is considered acceptable, and the assessment should be undertaken on that basis.

5.2.3 It is noted that a detailed assessment of ALCs will be provided with information on the land areas for each grade affected. An assessment of Higher Level Stewardship Scheme land will be made, and this has been included in the sensitivity criteria for land.

5.2.4 It is noted that consultation will be undertaken with Natural England to identify surveys required, such as soil surveys.

5.2.5 Mitigation measures, such as those for affected farm businesses and farm operations should be clearly defined for both construction and operation phases.

5.2.6 The 2019 ES has identified schemes that would involve the development of agricultural land, which will be used in the cumulative assessment for agriculture and soils. This is an acceptable approach.

5.3 Air Quality

5.3.1 The air quality assessment would include an assessment of the effects of construction dust, traffic and plant, and operational traffic and energy centre (if included in scheme). The operational traffic assessment would include both human and ecological receptors. A damage cost assessment will also be undertaken.

5.3.2 The general approach, the methodology proposed and the assessment of the significance of effects in relation to air quality is considered acceptable, and the assessment should be undertaken on that basis.

5.3.3 A sensitivity test will be undertaken to understand effects on the AQMAs located in Canterbury. The locations assessed within these AQMAs should be fully justified.

5.3.4 There are existing waste and employment sites in the vicinity. In accordance with the Agent of Change Principle, a full review of land uses in the vicinity of the Proposed Development will be undertaken, with mitigation measures identified where necessary. This should inform a site suitability assessment and pre-mitigation and residual effects should be reported in the ES. This should include potential sources of odour.

5.3.5 The assessment of construction dust risk will be based on a worst-case construction scenario. This should consider the potential for effects on on-site receptors such as early residents of the development.

5.3.6 A quantitative assessment of odour has been scoped out of this assessment. The Applicant proposes that the Household Waste Recycling Centre and Waste Transfer Station requested by Kent County Council (KCC) would be located off-site. If this is located on-site, an odour assessment would be necessary. An odour assessment may also be necessary for any other odorous land uses that might be proposed on Site, or if the Proposed Development would provide new residential receptors near to odour generating activities.

5.3.7 It is noted that the extant planning permission for a materials recycling facility and anaerobic digestion plant at Otterpool Quarry is situated within the red line boundary and that the Applicant proposes to justify the loss of this facility rather than need to accommodate a buffer around it. If this approach is revised prior to planning submission, and the facility is expected to be developed, the site suitability assessment and odour assessment would need to consider this facility.

5.3.8 The air quality cumulative assessment scope states that it will incorporate all of the cumulative scheme listed in Appendix B of the 2020 Scoping Report. This is considered unlikely to be practicable. The cumulative assessment of the air quality effects of traffic will incorporate the same cumulative schemes as the traffic assessment – this is acceptable. The cumulative dust risk assessment should consider schemes in close proximity to the Site that would be under construction at the same time as the Proposed Development.

5.4 Biodiversity

5.4.1 The Biodiversity chapter will include an Ecological Impact Assessment (EcIA) in accordance with Chartered Institute of Ecology and Environmental Management (CIEEM) guidance, an assessment of the effect on ecosystem services provided by the Site, and a Biodiversity Net Gain assessment. A Green Infrastructure Strategy will be provided in support of this chapter. A Habitats Regulation Assessment (HRA) will also be undertaken to support the application; the relevant findings will be presented in this chapter. The ES, HRA and Green Infrastructure Strategy will be revised based on comments from FHDC, Natural England and the Environment Agency.

5.4.2 The general approach and the methodology proposed for the assessment of biodiversity is considered acceptable, subject to the below points.

5.4.3 Any assessment of the effects on the Thanet Coast and Sandwich Bay RAMSAR site and SPA should consider the impact on the entirety of these sites.

5.4.4 It is noted that a binary significance is proposed, as per the CIEEM guidance. It would be helpful for significance to be additionally categorised to align with other topics.

5.4.5 The 2020 Scoping Report states that the ecological baseline has largely been informed by surveys in 2016, 2017 and 2018. The Phase 1 habitat survey was undertaken in 2016, which informed the identification of further surveys between 2016 and 2019. An update to the Phase 1 habitat survey will be provided including an extended Phase 1 walkover. Updated surveys are proposed for highly mobile species (otters, water vole). For a number of other ecological receptors, the updated Phase 1 habitat survey will be used to determine whether an updated survey is needed (habitats of principal importance, trees, hedgerows, badger, bats, great crested newt, reptiles).

5.4.6 A wintering birds survey was last conducted in November 2019 and is therefore considered to provide an up-to-date baseline. An updated breeding birds survey has been carried out (April 2020).

5.4.7 The updated Phase 1 habitat survey identified no significant change in the status of habitats for dormouse on the site and it is agreed no further survey needs to be carried out. Where initial assessments were based on desk studies (fish, toad, hedgehog, harvest mice) this will be updated with new Kent and Medway Biological Record Centre (KMBRC) data – this is considered acceptable.

5.4.8 It is noted that some surveys may be limited in their coverage due to safety measures associated with Covid-19. This is likely to be acceptable but should be clearly explained as a limitation in the ES Chapter.

5.4.9 Surveys over three years old at the time of submission must be updated. It is likely that surveys over 18 months old may need to be updated, particularly for mobile species, in line with CIEEM guidance.[1]

5.4.10 Surveys will need to be further updated as reserved matters applications are submitted. This should be secured by planning condition. Updates to surveys are particularly important if there are any subsequent changes in land use.

5.4.11 The Applicant provides an acceptable justification for the scoping out of white clawed crayfish.

5.4.12 The biodiversity cumulative assessment presents two shortlists of cumulative schemes from the long list presented in Appendix B of the 2020 Scoping Report. The ‘EIA’ cumulative short list contains developments expected due to size, proximity and hydrological connectivity to affect ecological receptors within the zone of influence. These schemes are agreed. The ‘HRA’ short list would provide a longer list to assess the cumulative effects on internationally designated sites (such as from recreational pressure). This assessment should be presented within the cumulative assessment in the ES.

[1] Advice Note on the Lifespan of Ecological Reports and Surveys (CIEEM, 2019)

5.5 Climate Change

5.5.1 It is noted that Climate Change chapter will assess the GHG emissions associated with the construction and operation of the Proposed Development, the vulnerability and resilience of the Proposed Development to climate change impacts, and the combined effect of the Proposed Development and climate change impacts on the environment. This scope is considered acceptable.

5.5.2 The climate assessment will take into account information provided by Kent County Council regarding local area objectives, and GHG emission data for the Kent and wider South East England. The assessment should consider emissions from the existing baseline (i.e. all activities and traffic within the site boundary), to provide a notional point against which to base the magnitude of change. This should inform conclusions regarding significance of GHG emissions, in line with IEMA guidance; it is currently stated that the Proposed Development's emissions will be assessed against the national UK budget only, but the assessment should apply the magnitude of GHG emissions changes to more local budgets and objectives. No methodology for evaluating that significance is given, but it would be helpful to categorise the level of impact.

5.5.3 The significance of climate change effects on the development and on the environment in combination with the Proposed Development are based on a combination of likelihood and severity of consequence, which is considered acceptable.

5.5.4 The proposed scope of the construction phase GHG emissions include embodied GHGs in construction materials, construction activities, water consumption, waste and transport. Give the location of the Site and the scale of the workforce, it should also include the commutes of construction workers and/or any temporary accommodation required. The proposed scope of the operation phase GHG emissions include energy use, operational transport movements, and waste movement. It should also include maintenance activities for the Proposed Development.

5.5.5 GHG emissions from the decommissioning of the scheme have been scoped out due to the long lifespan of the Scheme, stated in this section to be 60 years (although this is given elsewhere in the Scoping Report as 100 years). This is agreed – although the assessment should include consideration of the potential for modular and reusable/reconfigurable buildings, meanwhile uses, and the adoption of circular economy principles which can reduce embodied carbon emissions notably.

5.5.6 The assessment of climate change resilience and adaptation will use the UK Climate Projections 2018 to identify potential impacts on the Proposed Development. This should consider human and ecological receptors as well as the effect on the building fabric. The forecast dates used should be appropriate for the lifespan of the Proposed Development. Paragraph 8.5.5 should include the consideration of more climatic extremes on the site's landscaping and ecology. The assessment will be based on the IEMA (2020) Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation, which is the most up to date guidance.

5.5.7 As mentioned above, no methodology for the baseline for the GHG emissions assessment is given. The ES should make it clear whether there are any GHG emissions associated with current uses of the site.

5.5.8 An assessment of the cumulative effect of local schemes on the global climate is not proposed in the 2020 Scoping Report. This is acceptable, however it would be useful to assess the cumulative effects of developments within Folkestone and Hythe, including the Proposed Development, against emissions estimates for the Folkestone and Hythe District Council area.

5.5.9 It is stated that no additional cumulative assessment for the climate adaptation and in-combination assessment is required, as this topic will rely on cumulative assessments from other chapters. This approach is considered acceptable.

5.6 Cultural Heritage

5.6.1 This chapter will assess the effect of the Proposed Development on buried archaeological assets, historic buildings (including both their setting and any direct effects to on-site assets) and historic landscapes.

5.6.2 The scope of this chapter has been revised to reflect the inclusion of Westenhanger Castle within the red line boundary. Sufficient information should be provided to ensure confidence in the conclusions of the ES relating to direct and indirect impacts on Westenhanger Castle. The potential option of a hybrid application, with plans for the castle provided in greater detail, has been suggested by Historic England. If plans for the castle are provided in outline, a reasonable worst case scenario should be provided in the assessment. F&HDC has taken further advice on the level of detail required at this outline stage and its advice will be contained within a separate Heritage Advice Note.

5.6.3 Construction of this scheme will take place over a relatively long time period. The assessment should clearly indicate and take into account the timescales for the delivery of any heritage benefit and avoidance of significant effects upon its setting.

5.6.4 The general approach, the methodology proposed and the assessment of the significance of effects in relation to cultural heritage is considered acceptable, subject to the comments below.

5.6.5 The archaeological assessment will be informed by an updated desk based assessment and further trial trenching and geoarchaeological evaluation to be undertaken in 2020. The Applicant should note Historic England comments on recommended locations for further archaeological investigation, and the high potential for the discovery of further sites.

5.6.6 The assessment should also consider the likelihood of alterations to drainage and ground water patterns that might lead to in situ decomposition or destruction of below ground archaeological remains and deposits, and can also lead to subsidence of buildings and monuments.

5.6.7 The built heritage assessment will include designated and non-designated heritage assets. The list of heritage assets should be agreed with FHDC and Historic England and consultation should be summarised in the ES.

5.6.8 The assessment of undesignated and newly-discovered heritage assets for designation should take place prior to the heritage assessment in the ES, to ensure that the sensitivity of the heritage asset, and therefore the significance of the effect, is correctly determined.

5.6.9 The assessment of effects on the setting of Westenhanger Castle should be informed by viewpoints suggested by Historic England (see Appendix A) and the current viewpoints

need to be reviewed and agreed in the context of the change to the red line. In particular we refer to the need to consider dynamic views and experiences as you move around the site with locations selected being representative not definitive. The ES will consider the wider effects of an adverse change to the setting of Westenhanger Castle, such as reduced visitor numbers and income for the castle, and consider the site Heritage Strategy and castle Feasibility Study in the assessment. As per the FHDC's previous response to the OPA it is also recommended that the applicant obtain or collect LiDAR data for the visual envelope around Westenhanger Castle, and use this to generate a ZTV from ground level and the upper levels of the castle. The ZTV could be compared to relevant viewpoints from and to the castle, with reference to the way in which the castle was built, developed and used, to produce wirelines and photomontages from significant viewpoints from and to the castle in order to demonstrate the overall effect of the development as proposed in the masterplan. This will be particularly important for new development north of and alongside the A20 Ashford Road.

5.6.10 Robust justification should be provided for the scoping out of the Romano-British Building South of Burch's Rough Scheduled Monument.

5.6.11 No additional schemes other than the Framework Masterplan have been included for consideration for the Cultural Heritage chapter. An acceptable justification for the scoping out of three nearby schemes is provided, however no justification is presented for the exclusion of the schemes at Lympne Industrial Estate (Y09/0145/SH and Y06/0552/SH). Due to their proximity, these schemes should be included in the ES or their exclusion justified.

5.7 Geology, Hydrogeology and Land Quality

5.7.1 This chapter will assess potential effects due to contamination of land and groundwater (using a conceptual site model), the effect on Otterpool Quarry Geological SSSI, and risks of groundwater flooding.

5.7.2 Mineral resources will be assessed in the Waste and Resources chapter. Surface water quality is assessed in the Surface Water Environment chapter.

5.7.3 The general approach, the methodology proposed and the assessment of the significance of effects in relation to geology, hydrogeology and land quality is considered acceptable and the assessment should be undertaken on that basis, subject to the below comments.

5.7.4 Cumulative contamination effects have been scoped out on the basis that cumulative schemes are expected to be built in accordance with legislative controls and built-in mitigation – this needs to be evidenced, otherwise this should be assessed in the ES. The potential for cumulative effects should be assessed, particularly with regard to elements of the Framework Masterplan that are not included within the Proposed Development, due to their proximity.

5.7.5 There is insufficient evidence of mitigation in the 2020 Scoping Report to scope out effects in presented in Section 10.5.4 of the Scoping Report. If sufficient evidence can be provided in the ES, the assessment of these effects is not required.

5.7.6 Potential effects to the health of construction workers during the construction phase should also be considered.

5.8 Human Health

5.8.1 This assessment would use the HUDU Rapid HIA Tool, and also draw on other ES topics which consider determinants of health.

5.8.2 The general approach, the methodology proposed and the assessment of the significance of effects in relation to human health is considered acceptable. However, given the scale of the development, the assessment should include a more detailed consideration of the baseline communities living nearby, down to a Lower Super Output Area (LSOA) level. Any receptor groups that may be particularly sensitive to change (such as those in schools and care homes) should be identified and where these could be disproportionately affected, further mitigation should be identified.

5.8.3 The consideration of significant effects on population and human health should include a statement on the way in which any change can be expected to manifest itself e.g. a change in respiratory health, or in mental wellbeing.

5.8.4 Assumptions and limitations are not identified in the 2020 Scoping Report and should be clearly outlined in the ES.

5.8.5 It should be clear how conclusions in the HIA have been reached, for example statements of ‘good design’ should be supported by signposted evidence. How the development has adopted healthy design principles should be clearly referenced.

5.8.6 Evidence of appropriate levels of community consultation and discussions with appropriate Directors of Public Health should be provided. The concerns and suggestions of local people (particularly vulnerable people) should be demonstrably sought and the ES should show how these views were taken into account in the design.

5.8.7 Although the rapid HIA process on which the health chapter will rely does not include a cumulative assessment methodology, it is important to remember that this is a human health chapter of an ES, rather than a HIA and therefore should include aspects such as defining receptor sensitivity, impact magnitude, mitigation and cumulative effects.

5.8.8 As this proposal is for a new standalone settlement, the demographic patterns are likely to be different to other large scale developments and FHDC would wish to see sufficient population distribution analysis within the ES chapter to reflect the particular population patterns of new settlements over time, insofar as they relate to health determinants.

5.9 Landscape and Visual Impact Assessment

5.9.1 The Landscape and Visual Impact Assessment will assess the effect of the Proposed Development on landscape character, tranquillity and views, including effects on the Area of Outstanding Natural Beauty (AONB). A number of comments from the AONB, FHDC, Ashford Borough Council (ABC)_ and the results of previous reviews have been addressed in the scoping report.

5.9.2 The general approach, the methodology proposed and the assessment of the significance of effects in relation to landscape and visual impact assessment is considered acceptable and the assessment should be undertaken on that basis, subject to the comments below.

5.9.3 The assessment will be in line with Guidelines for Landscape and Visual Impact Assessment - Third Edition (GLVIA3) and Landscape Institute guidance including Visual Representation of Development Proposals (LI, 2019).

5.9.4 The representative viewpoints should be revised in light of the inclusion of Westenhanger Castle within the Site boundary. These viewpoints should be confirmed with FHDC.

5.9.5 The first column of Table 12.4 should be titled 'visual effect' rather than 'landscape effect'.

5.9.6 Section 12.3.10 notes that major effects are considered significant and that professional judgement will be used to determine whether moderate effects are considered significant. However, it is usual that moderate effects are also considered significant.

5.9.7 Viewpoint locations will be revisited as part of the establishment of baseline conditions. Photography used to support the Landscape and Visual Impact Assessment (LVIA) should be sufficiently recent.

5.9.8 The assessment should consider the visual impact of any enabling infrastructure for the Proposed Development, including any above-ground water or sewer mains, as well as highways access works, if visible.

5.9.9 The proposed hierarchy of mitigation measures is considered acceptable, although few examples of mitigation measures are provided.

5.9.10 The cumulative assessment would include any developments of sufficient scale and massing to have a potential for cumulative effects. Proximity and overlapping of Zones of Theoretical Visibility are other key determinants in whether a development should be considered a cumulative scheme.

5.10 Noise and Vibration

5.10.1 This chapter will assess noise from construction vehicles and plant, vibration from construction activities, noise from operational vehicles and commercial plant, and site suitability for sensitive receptors considering noise and vibration.

5.10.2 The general approach and the methodology proposed is considered acceptable, and the assessment should be undertaken on that basis, subject to the comments below.

5.10.3 The assessment will need to consider phasing, including part-occupation which will introduce new receptors onto the application site.

5.10.4 Where construction plant information is unavailable, an assessment based on a reasonable worst case scenario should be provided, with the assumptions on which this assessment is made fully explained.

5.10.5 The methodology has been updated in line with the Design Manual for Roads and Bridges (DMRB) LA111 published in November 2019.

5.10.6 The cumulative assessment of the air quality effects of traffic will incorporate the same cumulative schemes as the traffic assessment – this is considered acceptable.

5.10.7 Cumulative construction noise has been scoped out on the basis that sufficient information is unlikely. This is not justified and at least a qualitative assessment would be expected to be provided based on reasonable assumptions.

5.10.8 It is noted that the extant planning permission for a materials recycling facility and anaerobic digestion plant at Otterpool Quarry is situated within the red line boundary and that the Applicant proposes to justify the loss of this facility, rather than accommodate a buffer around it. If this approach is revised prior to planning submission, and the facility is expected to be developed, the site suitability assessment would need to consider this facility.

5.11 Socio-Economic Effects and Community

5.11.1 This chapter will address the significant effects of the Proposed Development on population and housing, economy and employment, community services and infrastructure, open space and recreation, and residential amenity. A summary of recreational impacts on the AONB from the Habitats Regulation Assessment will be presented in this chapter, although it is noted that the impacts would have a different focus. Housing needs specifically for older people will be assessed.

5.11.2 The general approach, the methodology proposed and assessment of the significance of effects is considered acceptable, and the assessment should be undertaken on that basis, subject to the comments below.

5.11.3 The construction phase assessment will consider land-take; direct, indirect and induced employment; access to leisure and recreation, particularly through public rights of way (PRoW) severance; and nuisance from the construction activities. The assessment of nuisance from construction activities will look at the interactive effects of noise, air quality and transport.

5.11.4 The ES should explain the extent to which the construction workforce is expected to derive from the local area. If are large proportion of the construction workforce is to be recruited from outside the local area, the ES should assess the effect of the increased demand for temporary accommodation, including effects on tourism.

5.11.5 The 2020 Scoping Report acknowledges that due to the long duration of the construction period and the likely necessity for a phased approach, the construction assessment will reflect construction phases. However, it does not acknowledge the effects of part-occupation of the Proposed Development. An interim assessment may be necessary, particularly if any education or community facilities are to be delivered in the latter phases of construction of the Site, substantially after the provision of housing. Presentation of any embedded mitigation should make it as clear as possible when this mitigation is expected to be delivered, and whether there would be temporary adverse effects until that point. Where phasing is unknown a reasonable worst-case scenario should be presented, noting that this is subject to being updated at the reserved matters stage.

5.11.6 The operational phase assessment will address population change, housing supply, direct and indirect employment effects, education, healthcare, community facilities and open space, and crime and anti-social behaviour. The assessment should also consider effects on pre-school childcare and play space.

5.11.7 The ES will need to be clear on scope and methodology for each resource and receptor A qualitative approach to crime and anti-social behaviour and to construction phase severance will be taken; this is considered acceptable. All other assessments should be quantitative wherever possible. The approach to determining the sensitivity of each

receptor (including vulnerability to change) should be made clear, and it should be clear how this has contributed (alongside magnitude of impact) to significance criteria.

5.11.8 The ES should demonstrate how the socio-economic assessment has considered a reasonable worst case scenario, considering the outline nature of the scheme. The number of units, unit mix and tenure, and the flexible mix of non-commercial floorspace may all vary from the maximum parameters given for the scheme, with ramifications for housing provision, employment, and predicted population and child yields.

5.11.9 Employment and economic assessments should follow the Additionality Guide, 4th Edition, (Homes and Communities Agency, 2014).

5.11.10 Section 14.3.16 of the 2020 Scoping Report makes no mention of cumulative housing effects, however these should be considered in the ES. The selection criteria and proposed schemes for inclusion in cumulative assessments for socio-economics are considered acceptable.

5.12 Surface Water Resources and Flood Risk

5.12.1 This ES chapter will assess water quality and supply, flood risk and hydromorphology. It would be supported by an updated Flood Risk Assessment (FRA), Drainage Strategy and Water Cycle Study. The updated FRA will include a Sequential Test and hydraulic modelling of the East Stour and tributaries. Particular attention will be paid to the risk of flooding in Ashford Borough Council downstream of the Site.

5.12.2 The general approach, the methodology proposed, and the assessment of the significance of effects is considered acceptable, and the assessment should be undertaken on that basis, subject to the comments below.

5.12.3 It has not yet been decided whether there will be a new on-site Waste Water Treatment Works (WwTW) or whether the existing Sellindge and West Hythe WwTW will be upgraded. The effect of extra effluent discharge to the East Stour and on the marine environment should be assessed according to the worst case scenario, if this decision hasn't been made by planning submission.

5.12.4 New development in the Stour Valley catchment has the potential to impact the highly sensitive Stodmarsh designated sites. A nutrient neutrality assessment should be undertaken in line with Natural England guidance, appended to this report in **Appendix B**.

5.12.5 The likely effectiveness of mitigation measures should be made clear, by reporting pre-mitigation and residual effects where appropriate. The means by which mitigation measures are to be secured should also be clear in the ES and these will need to be legally secured to secure measures in perpetuity, such as through the transfer of on-site wastewater treatment and wetland assets to a long-term stewardship vehicle.

5.12.6 The selection criteria and proposed schemes for inclusion in cumulative assessments for water resources are considered acceptable.

5.13 Transport

5.13.1 This chapter will provide an assessment of transport impact types according to IEMA guidance, including: severance, driver delay, pedestrian delay, pedestrian amenity, fear

and intimidation, accidents and safety and hazardous loads. It would also assess the potential impact of Operation Stack on access to the Site.

5.13.2 The general approach, the methodology proposed and the assessment of the significance of effects is considered acceptable, and the assessment should be undertaken on that basis, subject to the comments below.

5.13.3 It is noted that the scope of the Transport Assessment, on which this ES chapter will partly rely, is still being discussed with Highways England and with KCC. Elements still to be discussed include mitigation strategies, the scope of assessment of rail trips, and the input of housing forecasts into modelled traffic. The 2020 Scoping Report confirms that the ES will adopt the agreed position.

5.13.4 There is minimal information on public transport assessment methodology, only that changes in public transport facilities and use will be assessed. It is recommended that the assessment of effects on public transport should include the local bus network and not just be focussed on the effects on rail passengers travelling to and from Westenhanger station. Public transport assessment should consider existing capacity and whether this is sufficient for the Proposed Development. There should be a cumulative impact assessment on public transport where data on the predicted impacts of committed schemes on public transport is available.

5.13.5 A forecast for the scheme during construction is not proposed, only the baseline, year of completion, and year of completion with cumulative developments. Later in the scoping report, it is stated that construction traffic effects will not be assessed in isolation, however construction vehicle flows will be assessed alongside operational traffic flows where construction is happening alongside early occupation of the scheme. This is likely to be an appropriate approach, however the years of assessment of construction effects should be fully justified in terms of how they represent the reasonable worst case scenario. This should address not just maximum total traffic numbers but also the proportion of generated traffic comprising HGVs, and the capacity of the roads for additional traffic.

5.13.6 The primary measure for forecasting traffic growth, as agreed with KCC and Highways England, will be TEMPro growth projections. HGV traffic growth on the M20 will be calculated using national freight traffic growth data. However, specific developments for which traffic data are available, to be agreed with FHDC and KCC, will be included in the assessment separately.

5.13.7 Equestrian users have not been included in the list of key receptors; assessment of the effects on equestrian users, particularly of local bridleways, should be considered.

5.13.8 Effects associated with temporary and permanent changes to the Public Rights of Way (PRoWs) network should be scoped in.

5.13.9 The ES should be clear as to what mitigation has been assumed as embedded and what is in addition and will need to be secured by planning conditions e.g. construction logistics plans.

5.14 Waste and Resources Management

5.14.1 The Waste and Resources Management chapter will assess the effects of construction waste, and the effects of operational waste.

5.14.2 A Mineral Assessment has been prepared which notes that a large impact is anticipated, although the economic viability of extraction at the Site is limited. This was presented with the submission of the 2018 Scoping Report. KCC's Post Consultation Planning Report stated that '*the submitted Mineral Assessment evidence justifies this conclusion and an exemption from the presumption to safeguard the economic minerals present on the site is acceptable.'* As such, further assessment of the impacts on mineral safeguarded areas has been scoped out. This is agreed, however the findings of the Mineral Assessment should be summarised in the Waste and Resources Management chapter to demonstrate no significant effects would occur and the report should be appended to the ES.

5.14.3 The site for the materials recycling facility and anaerobic digestion plant at Otterpool Quarry (granted planning permission by KCC under reference SH/08/124) lies within the site of the proposed development. The Applicant has advised as part of the revised planning submission they will justify the loss of the facility. The County Council previously recommended that Policy SS8 of the Core Strategy Review should make specific reference to the need for a planning application to be submitted with an Infrastructure Assessment (IA). This advice was given to ensure the retention of the safeguarded facility, to assess the acceptability of the proposed development in this part of the strategic allocation, and to provide an assessment against the exemptions to the presumption to safeguard the facility (as set out in adopted Policy DM 8: Safeguarding Minerals Management of the Kent Minerals and Waste Local Plan 2013-30). The ES should also summarise the findings of this assessment. This is to demonstrate that the Proposed Development would not have an adverse effect on waste management capacity due to the loss of this facility.

5.14.4 The methodology for this chapter has primarily been informed by DMRB LA110 Material assets and waste (2019). The chapter should also be informed by the IEMA Guide to Materials and Waste in Environmental Impact Assessment (IEMA, 2020).

5.14.5 Cross reference should be made to parts of the Climate Change assessment relevant to energy use and efficiency, and other supporting documents where available, to show how resource use and waste will be reduced.

5.14.6 A cumulative assessment is scoped out for materials and waste on the ground that meaningful data would not be available. This is not agreed – schemes requiring EIA will have provided some information about materials and wastes and a cumulative effects assessment using professional judgement should be possible. This assessment for each cumulative scheme considered provide information about the availability, quality and certainty of materials and waste data, the development's likely start date and construction duration.

6.0 Topics Proposed to be Scoped Out of the EIA

6.1 Daylight, Sunlight and Overshadowing and Wind Microclimate

6.1.1 Both of the above topics as acceptably scoped out of the ES as the height of the proposed buildings will not exceed 18 m above ground, and therefore no likely significant effects are anticipated.

7.0 Conclusions

7.1.1 The Scoping Report lists the following topics for inclusion in the ES as standalone chapters:

- Agriculture and Soils;
- Air Quality;
- Biodiversity;
- Climate Change;
- Cultural Heritage;
- Geology, Hydrogeology and Land Quality;
- Human Health;
- Landscape and Visual Impact Assessment;
- Noise and Vibration;
- Socio-economics and Community;
- Surface Water Resources and Flood Risk;
- Transport; and
- Waste and Resources Management.

7.1.2 A standalone chapter on Major Accidents and Disasters is not required as relevant issues will be addressed in the appropriate chapters of the ES.

7.1.3 Daylight, Sunlight and Overshadowing and Wind Microclimate have been scoped out of the ES as the height of the proposed buildings will not lead to significant effects.

7.1.4 The scope of the ES is considered acceptable, subject to comments noted above.

7.1.5 As the application will be made in outline, the ES should pay particular attention to ensuring that the reasonable worst case scenario is considered for all topic chapters in line with 'Rochdale Envelope' principles. The comparatively long duration of the construction period requires careful assessment of interim scenarios where both construction and occupation are occurring on Site, with sufficient information provided about construction phasing to support the basis of assessment.

Appendix A – Full Consultation Responses

Historic England

LONDON AND SOUTH EAST OFFICE

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03 July 2020

Dear Mr Farrar

Y19/0257/FH - REQUEST FOR EIA SCOPING OPINION - OTTERPOOL PARK

Thank you for seeking the further comments of Historic England on the updated EIA Scoping Report by Arcadis dated June 2020, which replaces the earlier report dated April 2018.

We understand this is chiefly made necessary by the acquisition of Westenhanger Castle by Folkestone & Hythe District Council, and amendment of the red line planning application boundary to now include it. We welcome this approach, along with the opportunity of further engagement. We provide the following advice, with more detailed comments on the scoping report chapters in Appendix 1.

Historic England Advice

1. Impact

The report highlights that development of the Otterpool site has the potential to affect both designated and undesignated heritage assets and their settings, both within the boundary of the proposed development area and in the area around the site.

The proposal area has demonstrable historical, communal and archaeological interest, and contains heritage assets of national importance. The proposal is a very large scheme with potential for widespread and high-level impacts on this heritage resource.

In line with the advice in the National Planning Policy Framework (NPPF), we would expect the forthcoming Environmental Statement to contain a thorough assessment of the likely effects which the proposed development of this area might have upon those elements which contribute to the significance of heritage assets.

The most highly graded heritage assets affected by the proposal are Westenhanger Castle (scheduled monument), barns (additionally Grade I listed) and Westenhangar Manor (Grade I listed). They form a cohesive group and there would be both physical and setting impacts from development of the castle and its former landscape.

It is therefore essential that sufficient assessment of significance is undertaken, and that this information is used to guide the ES and range of other documents that will

support the application. It will be necessary to undertake this assessment to inform the Tier 2 design work, and enable determination of Tier 1.

Assessment may include further desk based research (for example in relation to the castle landscape and deer park), and archaeological investigations (for example in the area occupied by the later racing stables and features to the north of the castle). Without this additional work there will not be a sufficiently detailed level of baseline assessment, and it will be difficult to make appropriate decisions that either avoid or minimise harm.

Equally, we see the inclusion of the castle in the development boundary as an opportunity to secure its future sustainability and optimum viable use. Understanding its significance, will however, form the baseline for what type of use may be appropriate or acceptable for this nationally important heritage site.

We are confident that the full range of designated heritage assets that may be affected by the scheme have been included in the assessment. We note however, that there is high potential for discovery of further archaeological sites and a range of undesignated heritage assets (including buildings) in the proposal area that could qualify for national designation.

We recommend that assessment for designation should take place at as earlier a stage as possible. This is required in order to help identify constraints and opportunities within the proposal area, and so your local authority can determine the Tier I application with a full understanding of the significance of heritage assets affected by the proposal. It should not be left to post-determination stage, in particular as some assets might be at risk of physical impact or demolition.

We are able to undertake designation screening, listing enhancement, and fast track listing through our Enhanced Advisory Services, and would be pleased to discuss this further with the applicant. See; https://historicengland.org.uk/services-skills/our-planning-services/enhanced-advisory-services/

We would expect the Environmental Statement to consider the potential impacts on non-designated features of historic, architectural, archaeological or artistic interest. This is because these can also be of national importance and make an important contribution to the character and local distinctiveness of an area and its sense of place.

Impacts on heritage assets might originate from both construction and operation of the proposed scheme. The assessment should also therefore take account of the potential impacts which associated development activities (such as construction, noise and dust, servicing, maintenance, and associated traffic) might have upon perceptions, understanding, and appreciation of heritage assets.

The assessment should also consider the likelihood of alterations to drainage and ground water patterns that might lead to in situ decomposition or destruction of below ground archaeological remains and deposits, and can also lead to subsidence of buildings and monuments. It should also consider the need for ongoing management and maintenance of heritage assets during operation of the scheme.

2. Overall approach

With such a large project, an integrated approach to assessment will be important; which demonstrates an understanding of how all the individual elements of the historic environment come together, and which fully analyses how the development proposals may impact upon the special significance of the area, and the assets within it.

We think it essential therefore that an integrated *landscape approach* to assessment of heritage assets (both designated and undesignated) is undertaken and translated into the report and any other supporting documentation.

In order to achieve this, we strongly support the concept of an overarching Historic Environment Framework, and think this will be vital to the success of the scheme as a sustainable development. A major issue is that the development Master Plan for Tier 1 was produced ahead of the initial HEF, and does not therefore adequately respond to historic environment matters. The proposed Character areas for example, do not reflect the historic characteristics of the areas which they are located within, and this is most striking for the areas that relate to the castle and its historic landscape.

The HEF will be an evolving document but there is already a significant amount of new information which will need to be incorporated within it. This process needs to happen rapidly in order for the HEF to be able to significantly steer how the Tier 1 parameter plans and Tier 2 Master Plans for the site develop.

It is not clear if the work by Purcell is in addition to an update of the 2018 Statement of Significance and CMP for the castle. The latter docs need to be updated and agreed in the light of significant new understanding that assessment post 2018 has now confirmed. This is especially true for the GPR results within the scheduled area that for the first time give an indication about buried archaeology, and for the enhanced understanding of the historic landscapes that made up the setting of the castle.

We recommend close collaboration of cultural heritage and landscape/visual impact assessment, in order to adequately address issues in relation to setting of designated heritage assets. Techniques such as photomontages, computer generated views analysis imagery, and verified views with wireframes are a useful part of understanding visual impacts. Analysis of the views from within the site boundaries, out of, and across the key site areas in relation to designated heritage sites will be important. We have not yet had the opportunity to agree key viewpoints and would like to do so.

Setting may also form a part of the wider conceptual significance of a heritage asset and how it is experienced, and the report must therefore additionally reflect these more nuanced aspects of setting in order to fully take account of impact.

Further guidance on setting can be found at our website: (https://historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/). Version 4 of this document is currently under review.

3. Phasing

We note the scoping report confirms the Council's preference for a three tiered approach to development at Otterpool with Tier 1 comprising an outline application (currently a live application), Tier 2 providing the definition of and a framework for each of the development zones, and Tier 3 reserved matters.

Works to secure the castle's long-term future is a heritage benefit the Council can include for in the weighing exercise of harm and benefit required by Paragraph 196 of the NPPF, and we always highlighted the need to deliver the benefit up front and in the earlier phases of the delivery of Otterpool Park.

4. Securing benefits

We think heritage benefit must be secured within the consent granted by Tier 1 and we think this could be in the form of a commitment within the S.106 to achieve this objective within an agreed timeframe. We would look for those heritage benefits to be delivered early in the wider delivery of a new settlement at Otterpool.

If detailed plans have been agreed for Westenhanger by the date the Council determine Tier 1, it may be possible to include for these detailed plans within a hybrid application, though we accept this option may be less desirable. We would like to discuss this further with the Council and applicant as the application proceeds but felt it helpful to highlight this concern as part of our scoping response.

There will be a requirement through planning policy to avoid and minimise harm to heritage assets and there will be a presumption in favour of conserving designated assets. By following planning policy and guidance we would also additionally expect the project to be creative in how it might offer opportunities for their enhancement, and how the project might deliver public (heritage) benefit.

Next steps

The scheme has the potential to cause harm to both designated and undesignated heritage assets of national importance. There is also an opportunity to provide enhancement and secure heritage benefits as part of the scheme.

Sufficiently identifying the significance of assets at an early stage, and using this to evolve the HEF and Master Plan (and subsequent documents), will therefore be critical to providing a strong basis for design decisions. This is particularly relevant in light of the NPPF (para. 189) requiring an applicant to describe the significance of any assets affected, and (paras.184 and 193) to conserve heritage assets in a manner appropriate to their significance.

We think there must be a particular focus on using landscape approaches to analysis and expect to see the development Master Plans actively respond to historic environment concerns. This is because it is an objective of sustainable development to protect and enhance the historic environment as outlined in the NPPF (paras. 8 and 200).

Where there is harm to the significance of heritage assets we note the requirement of the NPPF to avoid or minimise any conflict between the heritage assets conservation and any aspect of the proposal (para. 190) and to have clear and convincing justification for any harm (para. 194).

Given the importance of the heritage assets within the area, we encourage you to seek improvements to the supporting documentation, and the overall approach taken.

We look forward to advising further on these proposals, and contributing to joined-up discussion with your local authority and applicants project team. We would particularly appreciate an opportunity to engage soon on the Tier 2 proposals.

We would be pleased to provide any clarification of our comments and advice if this is helpful.

[redacted]

Rebecca Lambert
Inspector of Ancient Monuments
[redacted]

Appendix 1: Specific comments on the EIA Scoping report chapters

Chapter 2 - The site and surrounding area

1. Section 2.1.5: Westenhanger Castle is both a grade I listed building and scheduled monument; this should be clarified here.

Chapter 3 – The proposed development

2. Section 3.2.2: We note the quantum of overall development has increased slightly from the previous proposal. It will be necessary to assess whether there is any additional heritage impact from this.

3. Section 3.2.4 outlines that 'Character areas' are anticipated to be created across the site (named Town Centre, Westenhanger, Riverside, Otterpool Slopes, Woodland, Hillside, and Valley & Woodland Edges); these are illustrated in figure 3.

   It is not clear to us how these Character areas relate to the known (and emerging) heritage significance of the development site, and the Historic Environment Framework that is in preparation. At present they appear to be concepts imposed on a landscape with significant historic importance. The HEF and any new assessment/fieldwork results should be used as the springboard from which to make design decisions. This will be essential to ensure the character areas respond to heritage sensitivities and are translated meaningfully into the relevant Master Plans for the castle and park.

4. Section 3.2.7 notes that Westenhanger Castle is *adjacent to and north* of the site; this needs updating as the castle is now within the development boundary.

5. Section 3.2.17-18 describes building heights across the scheme, including for development of up to 5 storeys within the town centre. We are concerned that could mean higher scale development close to the castle. This will need a careful and considered design response.

   We also note that Westenhanger character area is identified as a medium density area with max four storeys building height. We are concerned that taller development is proposed in such a sensitive heritage location in relation to the castle and within its associated historic landscape. This will need addressing through the evolving Master Plans and HEF.

Chapter 4 – EIA methodology

6. Section 4.2.5 describes how the consent will be structured from the outline application onwards and we note the need to secure heritage benefits in all stages of the application. We provide more detailed comment on this in sections 3 (phasing) and 4 (securing benefits).

7. Table 4.2 (p.19) addresses the effects on archaeological resources during operation, stating effects would not be significant and are therefore scoped out. We think that operational effects should be scoped in. Operational effects could stem from where the sites are located, and how the relevant areas are used and managed; for example wear and tear of earthworks from footfall or scrub growth, and buried deposits with vulnerability to change in ground water patterns (where monitoring may be required).

   Table 4.2 also addresses Landscape and visual impact. We note there will be a clear crossover with heritage here; hence the need to agree key viewpoints for assessing heritage impacts. This should be recognised in the table and actioned through discussion with Historic England (we have advised on, but not yet agreed viewpoints; see also comments in Section 2, overall approach). The works have the potential to cause detrimental changes to flood risk, water quality and resources. We highlight that there could be impacts on the archaeological resource and buildings from water changes, so this should be considered here and any subsequent assessment and design strategy.

   Receptors for noise and vibration impacts also include heritage assets; this should be included and appropriate strategies would be needed for implementing and managing this. See also comments in Section 1, Impact.

8. Section 4.13: The original Environmental Statement had an appendix which discussed impacts in NPPF terms, but the revised structure doesn't make it clear if this would also be in the updated ES. We think this should be included in order to address the alternate methodologies of EIA and requirements of the NPPF; in particular the ability to account for the contribution of setting in assessing harm and impact. This can be under-represented through an EIA format as level of harm is not the same as magnitude of impact.

   The proposed structure of the ES is rigid and separates out different topics. We flag again here that heritage crosses a number of different categories and it will be necessary to identify heritage matters in all relevant chapters.

Chapter 5 - Agriculture and soils/Chapter 10 - Hydrology and geology

9. Sections 5 agriculture and soils and 10 hydrology/geology: We flag the necessity and opportunity for archaeological investigation alongside any soil or construction investigations, for example window sampling, geological test pitting or boreholes. There should therefore be a cross reference to archaeological matters in these sections.

Chapter 9 – Cultural heritage

10. From table 9.2.2 we need to see the results from evaluations and other forms of assessment (carried out/in progress) used to revise and enhance understanding of heritage significance. This information must then be reflected in potential changes to the Framework Master Plan. Appropriate avoidance and mitigation of harm will need to include design changes as mitigation measures, not just proposals for the recording of heritage assets that will be lost or significantly changed.

When the present phase of evaluation is complete there needs to be a thorough review of the significance of what has been revealed and how this might affect the emerging design.

11. Section 9.3.2: add in Historic England guidance on writing heritage statements https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/

    Also add National Planning Policy Guidance. This provides useful definitions (e.g. optimum viable use) https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment

12. Section 9.3.14 - matrix for effect of change; we note that in appendix 3A of the ICOMOS guidance, an asset can generally only be assessed as very high heritage significance if it is of acknowledged international significance. High significance under the same definition would capture a grade I building, SM, grade II building and CA (if it contains an important building) as high significance.

13. Section 9.4.3: It is very likely that that there will be a range of other as yet unidentified buried former buildings, structures and deposits within the boundary of the scheduled monument. This potential should be recognised here but will need to be tested through archaeological research and investigation.

    No mention is made of the complex area of earthworks to the north of the castle that fall within the scheduled area? This area may include evidence relating to a mill and water courses. These should be acknowledged here and we think that specialist analysis of these features will be required in order to fully understand their significance.

    We note that the manor house is also grade I listed.

14. Section 9.4.6: The causeway also survives as earthwork remains not just map evidence, and should be recorded by survey, with buried evidence tested with archaeological evaluation.

15. Figure 9.1: Historic maps depict the deer park also running east of Stone Street but its boundary here is presently uncertain. We suggest figure 9.1 acknowledge the possibility of the park extending east of Stone Street.

16. Section 9.4.20 describes an assessment of non-designated buildings but there is no detail provided. The list of these should be defined in the scoping report. This is particularly important as some may qualify for national heritage listing (designation).

17. Sections 9.4.21-23 and 9.4.27-31: It is very confusing to have two separate sections in the report dealing with archaeology. We are not clear what the

difference between archaeological *remains* and *resources* is? These need combining to make an accurate timeline and to provide a more holistic baseline.

There is reference in sections 9.4.22/23/27 to new data from archaeological investigation that has expanded knowledge and understanding; however no detail is given here on what this data/knowledge is or actually means in relation to the development site and FMP.

We have seen initial reports for some of the archaeological investigations and the implications are likely to be significant and could influence the design of the scheme. It is essential therefore that new data is reviewed and detailed clearly in the report; at present we find these sections distinctly lacking in detail.

18. Section 9.4.24 Port Lympne RPG is grade II* not II but we agree that scoping it out of the report is acceptable on the basis that it is some distance from the site.

19. Section 9.4.25-26: we agree that listed buildings' in Sellinge, which lies on the north side of the M20 (with the exception of LB 17), are probably sufficiently cut off from the development by the motorway and railway so as to not visually interact with the site. The possibility of increased traffic from the Otterpool development (during both construction and operation) could however, have an adverse impact on these assets, which all lie on or close to the old A20. This matter would therefore need further review before it can be clearly scoped out.

20. Section 9.4.32: We agree the generality of the further baseline data to be obtained, but note that more investigation may be required of specific heritage assets, should the current trial trenching not be sufficient to confirm their significance. In particular we reference the possible water management features to the north of the castle, and the need for topographic survey here and advice from an expert for such remains. See also point 13 comment.

21. Under section 9.5.1 (possible significant effects during construction), the inclusion of the castle now means that effects will go beyond changes in its setting and will include change to the designated heritage assets themselves, both above and below ground. Such change is necessary to help secure a sustainable future for the castle and its setting, and appropriate effects should be considered. The existing text reflects the old situation not the new ownership, and this change needs to be scoped in.

    Increased traffic can also causing noise and visual disruption. There is a possibility for construction effects to have a short-term impact on economic viability of Westenhanger; if these have an adverse impact on its use as a wedding venue/other uses implemented in phase 1 as described in the draft plan for the castle. The effects of vibration, and changes in ground water levels and water movement can also be significant, and monitoring may be required during construction; these aspects should be scoped in (see also point 7 comment and Section 1, impacts).

    In relation to historic structures that would be removed, we would expect these to be identified here.

22. Section 9.5 (possible significant effects during operation): under 9.5.4 it is effects for the castle itself that need to be scoped in and not just for its setting. We would expect the proposals to deliver a sustainable future for the castle and to complete its conservation.

    For archaeological assets that are either scheduled or otherwise agreed to be of national importance, the operational phase needs to demonstrate how these will be managed to conserve their significance. This will require consideration of their future settings. The villa and barrows are referenced but after the current phase of trial trenching there may be additional archaeological assets requiring preserv in situ and thus requiring management (see also comments in point 7).

23. Section 9.6.2 refers to sensitive siting as a mitigation measure. We do not think this is a strong enough commitment to avoidance of harm to designated heritage assets or those of equal significance. Mitigation measures should include reducing developable areas around Westenhangar Castle to sustain the rural setting which makes an important contribution to its significance. Further mitigation may then follow through density, scale, landscaping, interface of green spaces and built areas, retention of key historic features, landscaping for Westenhangar Park etc.

24. Section 9.6.3: This should not read *designated assets should be retained wherever possible*, but there should be a presumption in favour of retaining and conserving designated assets, or where this is not possible efforts should be made to minimise harm, as required by the NPPF.

    Where total loss of significance is proposed, we would expect this to have clear and convincing justification and for any proposal to be accompanied by a clear mitigation strategy, agreed with the Council's archaeological advisor and where appropriate Historic England. In cases of total loss of significance, we would expect a detailed level of recording to accompany an application.

    In relation to the loss of non-designated heritage assets, these should also have appropriate consideration and mitigation. The ability to record the past should not however be a factor in deciding whether such loss should be permitted.

    There are clear opportunities for enhancing and better revealing the significance of heritage assets on this site, which is a requirement of the NPPF in addition to avoiding, justifying, minimising and mitigating harm. We would expect the opportunities for this to be identified more clearly. See also comments in Section 4, securing benefits.

25. Section 9.8.8-9: There are likely to be other heritage assets that require this approach; the report will need updating to include new discoveries.

26. Section 9.6.10 states: *"The provision will serve to prevent determination of significant harm to the castle. Similarly, the implementation of measures to safeguard historic buildings and their settings within the development and addressing the historic landscape character and farmstead analysis within the Framework Master Plan will have been secured by the time the development is operational and will not require mitigation."*

    This statement is not clear; what is meant by provision and prevent determination of significant harm to the castle?

Chapter 12 – Landscape and visual impact

27. Section 12.2.3: further consultation on representative viewpoints for LVIA should also include consultation with Historic England. We provided outline recommendations for this in February but we still need to agree the baseline locations from which design options will be assessed. See also comments in Section 2, overall approach.

    Figure 12.1 demonstrates the viewpoints for the LVIA. If the LVIA is used to illustrate the impacts on Westenhangar Castle then the viewpoints shown in figure 12.1 are not nearly comprehensive enough. We would additionally need verified views with wireframes showing max/min heights for new buildings, and shading to help understand the presence of built form in individual views.

Chapter 15 - Surface Water Resources and Flood Risk

28. Because heritage assets can suffer impacts from flooding and water change, there should be a cross referencing within this chapter. See also comments for Section 1, Impact.

[redacted]

Sent: 30 June 2020 16:19

To: [redacted]
Cc: [redacted]
Subject: Otterpool Park Development, Sellindge Y19/0257/FH

Hi James,

I've just been reviewing the submitted scoping report and I think the only comment I have to make is to highlight is the ecology information within the scoping report is not completely up to date.

I've attached information I've received direct from the ecologist which confirms that updated breeding bird and an updated phase 1 survey was carried out in 2020.

I had a meeting with the ecologist about this site in June and I agreed with the survey approach detailed within the attached document – we are satisfied that there is no requirement for additional surveys to be carried out at this stage in the process.

There is a need to highlight that this is due to the fact that the management of the site has not changed in the last 2-3 years and there is a need to ensure that this continues. If the management of the site changes the ecological interest of the site may change and it is likely that there will be a need for updated ecological surveys and the results may change what mitigation is required.

Any questions please ask.

Kind Regards,

Helen

Helen Forster MCIEEM |Senior Biodiversity Officer | **Kent County Council**
Natural Environment and Coast Team, Environment Planning and Enforcement, Invicta House, County Hall, Maidstone, Kent, ME14 1XX
03000413374| [redacted] www.kent.gov.uk

MEMO

ARCADIS Design & Consultancy for natural and built assets

SUBJECT
Summary of Otterpool Scoping for 2020, Covid 19 modifications

DATE
09/06/2020

DEPARTMENT
Ecology (Environmental Planning)

COPIES TO
Rebecca Kearney, Julia Wallace, Martina Girvan

TO
Helen Forster

OUR REF

PROJECT NUMBER
10029956

FROM
Brandon Murray

Dear Helen,

I hope that you are well. I am writing to update you on the progress of the surveys to inform the 2020 modified submission of the Otterpool proposals. Due to the constantly evolving approach within the project, and the huge impact that the COVID 19 situation has had this year, our approach has changed slightly from that initially discussed on 24 October 2019 for the call to discuss the approach to maintaining the validity on the survey data for the Otterpool Park modified submission, which is due in 2020.

The approach to planning of the project has been clarified into a tiered application, with the submission proposed for this year to be at a high level, based upon a set of broad parameter plans, referred to as the Tier 1 submission. The data required to underpin this approach, considering the suite of surveys that will need to underpin the more detailed submissions at Tier 2 and 3 has been scoped to be proportionate to this level of submission.

In addition, the outbreak of the COVID 19 virus has also impacted what has been safe and practical to achieve with the surveys this year. We have endeavoured to collect the information that is intrinsic to ensuring the submission is founded on robust survey data, whilst acknowledging that the surveys needed to eb proportionate in light of the additional risks to staff and members of the public. As a result we have made the following changes to the scopes:

- For the update surveys, access was not requested to parcels of land where members of the public were likely to be at increased risk of coming into contact with Arcadis employees.
- Access to private homes and businesses (excluding farms) was not requested, both to reduce exposure risk and to avoid potential for negative reactions to interactions with Arcadis staff.
- Where it was felt that the revised three-tiered approach allowed for a reduced presence on site, without impacting upon the needs of the submission, this approach was adopted to reduce risk associated with surveyor travel.

For clarity, the approach that is proposed initially to inform the assessment is presented below in Table 1.This scope was initially sent to KCC on 29 November 2020. Where actions have been conducted or are modified in relation to the issues above, this is communicated within column 4.

Table 1: Age of data used in the 2019 submission and proposed approach to updates for the 2020 resubmission

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
Designated sites	Information on the presence designated sites obtained from Magic Mapping in 2018.	New data to be obtained from Magic Mapping prior to submission	N/A no change in this approach
Ancient Woodlands	Information on the presence of woodlands listed on the AWI obtained from Magic Mapping.	New data to be obtained from Magic Mapping prior to submission	N/A no change in this approach
Kent BAP 'Mid Kent Greensand & Gault' biodiversity opportunity area	Information on BOAs obtained from Kent Nature Partnership.	Check for changes to be conducted prior to submission.	N/A no change in this approach
Protected Habitats and Species Data	Desk study data from KMBRC.	Additional information will be added where relevant and this includes each receptor mentioned below.	Changes in relation to receptors specified below.
Habitats	Initially visited October 2016, surveys conducted throughout 2016, 2017 and 2018. Detailed habitat surveys undertaken	Phase 1 Walkover to assess any significant changes from the 2018 baseline. Where changes are identified, further surveys in 2020 may be necessary, this will be agreed with the LPA but are not considered necessary at this stage.	Habitat validation logged during the wintering bird survey conducted in 2019. No significant changes to the habitats on site were noted. This approach was also repeated during the 2020 breeding bird survey. Minor changes relating to the usage of

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
	June 2018.		certain agricultural areas, and a reversion of areas around the racecourse from improved grassland to cereal crop were identified. No significant impact upon breeding birds was identified. An updated Phase 1 habitat survey was conducted across the site (excluding areas where access was not obtained as outlined above) and was completed in April and May 2020). The updated phase 1 plan is presented as Appendix 1 to this letter.
Habitats of Principal Importance	Initially visited October 2016, with update survey visits throughout 2017 and 2018. Detailed habitat surveys undertaken June 2018.	Phase 1 Walkover to assess any significant changes from the 2018 baseline. Where changes are identified, further surveys in 2020 may be necessary, this will be agreed with the LPA but are not considered necessary at this stage.	An updated Phase 1 habitat survey was conducted across the site (excluding areas where access was not obtained as outlined above) and was completed in April and May 2020). The updated Phase 1 habitat map is presented as Appendix 1 to this letter.
Arboricultural features	Arboricultural Scoping Survey was completed in accessible areas in Winter 2016 and	Phase 1 Walkover in 2020 to assess any significant changes from the 2018 baseline. Where changes are identified, further dedicated surveys would be proposed if necessary, this would be agreed with	An updated Phase 1 habitat survey was conducted across the site (excluding areas where access was not obtained as outlined above) and was completed in April and May 2020).

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
	Spring 2017. Hedgerow Assessment was completed in February and June 2018.	the LPA but are not considered necessary at this stage.	No significant changes to the arboricultural status of the sire was identified. More detailed arboricultural assessments will be undertaken as a component of Tiers 2 and 3 of the planning permission. The updated Phase 1 habitat map is presented as Appendix 1 to this letter.
Badger	Badger survey was undertaken in Spring 2017, with updates throughout 2017 and 2018. Desk study data was obtained in 2018.	Key setts to be revisited to identify any changes. Where changes are identified, further surveys in 2020 may be necessary, this will be agreed with the LPA but are not considered necessary at this stage.	A badger survey across the site (excluding areas where access was not obtained as outlined above) was completed in April and May 2020). Minor changes in the usage of the site by badgers were identified. An updated technical Appendix will be provided to support the resubmission and will inform the EIA.
Bats	Bat surveys completed: Static and transect surveys – 2017 Bat building assessments – 2017 Emergence – re-entry surveys 2017 –	Status of key foraging and commuting features to be assessed during the Phase 1 walkover. Where changes are identified, further surveys in 2020 may be necessary, this will be agreed with the LPA but are not considered necessary at this stage.	An updated Phase 1 walkover, across the site (excluding areas where access was not obtained as outlined above) was completed in April and May 2020). The status of the site, insofar as it provides roosting commuting and feeding resources for bats, is largely as was recorded in the previous surveys. No significant changes were

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
	2018 Desk study data was obtained in 2018.		observed. No need to update static detector or transect survey data is considered necessary for the 2020 submission. Where accessible, building potential for roosting bats was assessed externally. A small subset of the buildings, predominantly around the racecourse area were recorded to have further deteriorated since the previous surveys. It is not considered necessary to update emergence surveys prior to the Tier 1 submission, however this information should be utilised to inform the subsequent survey requirements for the Tier 2 and 3 submissions.
Great Crested Newt (GCN)	Additional ponds outside the OPA were scoped in for eDNA assessment in Spring 2018. Population surveys completed in Spring 2017. eDNA surveys conducted in Spring 2018 on off-site ponds. Desk study	Accessible off and on-site ponds will be reassessed to identify any significant changes in habitat suitability. Where changes are identified, further surveys in 2020 may be necessary, this will be agreed with the LPA but are not considered necessary at this stage.	In April and May 2020, accessible ponds ((excluding areas where access was not obtained as outlined above) were assessed using HSI techniques. Where these ponds had changed (and was not poor), eDNA surveys were conducted, unless presence of GCN had previously been confirmed. No significant changes to the distribution of GCN across the site was identified, with one new pond within

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
	data was obtained in 2018.		the castle moat (which had been dry in previous years) being found to contain GCN eDNA. In addition, one pond which previously did not support GCN was found in 2020 to have GCN eDNA presence (also within the castle area and adjacent to a pond that had previously had GCN presence). As such, no further survey is deemed necessary to inform the resubmission. Further surveys will be required at Tier 2 and 3, and these will be defined in the Tier 1 resubmission.
Birds (wintering and breeding)	**Wintering bird surveys** November to February 2016 / 2017. Desk study data was obtained in 2018. **Breeding Bird Surveys** March to June 2017. Desk study data was obtained in 2018.	One wintering bird survey to be conducted across the site in November 2019. The data obtained during this survey will be assessed against the 2016 data, and any significant changes will be identified. The surveys will be conducted by the same staff which conducted the 2016 surveys, to allow a qualitative assessment of any onsite changes to also be made. Should any significant changes be identified, further surveys in 2020 may be necessary, this will be agreed with the LPA. Initially, one breeding bird survey to be conducted across the site in Spring 2020. The data obtained during this survey will be assessed against the 2017 data, and any significant changes will be identified. The surveys will be conducted by the same surveyors which conducted the 2017 surveys, to allow a qualitative assessment of any onsite changes to also be made. Should any significant changes be identified, further	The wintering bird survey was conducted in November 2019, and was provided to KCC for review on 22 January 2020. The habitat assessment conducted in 2019 identified no significant changes likely to greatly impact upon the populations of birds supported by the site (when compared to the 2016 and 2018 assessments). This was supported by the results of the surveys, which did not identify any additional notable species (one extra species, raven was identified, which is not considered notable). None of the peak counts of any of the other species

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
		surveys in 2020 may be necessary, this will be agreed with the LPA.	recorded was greater that the peak recorded in 2016/17. A breeding bird survey was conducted in April 2020. The results of this survey have been analysed. The habitat assessment conducted in 2020 identified no significant changes likely to greatly impact upon the populations of birds supported by the site (when compared to the 2017 assessments). This was supported by the results of the surveys, which did not identify any significant changes in the bird assemblage of the site. There were two notable newly recorded species in 2020, cuckoo and nightingale. However, for both species this was single individuals, with the nightingale being recorded off-site to the south of Harringe Brooks Wood. Considering the species and numbers of birds recorded, the lack of change in the broad habitats on site and the similarity to the initial survey data, it was considered that there was strong evidence that the conclusions from the previous report and the subsequent valuation of species and groups

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
			continued to be robust. As such, no further survey is deemed necessary tom inform the resubmission. Further surveys will be required at Tier 2 and 3, and these will be defined in the Tier 1 resubmission.
Reptiles ('common' species)	Population survey visits were conducted between April and September 2017. Desk study data was obtained in 2018.	Phase 1 Walkover to assess any significant changes from the 2018 baseline. Where changes are identified, further surveys in 2020 may be necessary, this will be agreed with the LPA but are not considered necessary at this stage.	Within the 2020 surveys, no significant changes to the distribution of reptile habitats across the site were identified. Some small areas within the racecourse were identified as offering a marginally increased area of reptile habitat, and the inferred reptile habitat areas in the ES will be modified to accommodate this change. No further surveys to inform the ES submission are deemed necessary.
Water vole	Surveys completed in Spring 2017, and Autumn 2017 and Spring 2018. Desk study data was obtained in 2018.	A single water vole survey proposed in spring 2020 to update the survey information for the 2020 submission (as the populations of this species can change in relatively short timescales).	Water vole surveys were updated across the site in April and May 2020. Some changes in water vole population were identified, with populations observed to have decreased across the site. The cause of this is unknown, as there was no notable habitat change since the last suite of surveys. However, overall, this

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
			is unlikely to change the status of water vole utilised within the assessment within the modified ES. No further survey is deemed necessary.
Otter	A total of 6 surveys were conducted in 2017 – 2018. Desk study data was obtained in 2018.	A single otter survey is proposed in spring 2020 to update the survey data for the 2020 resubmission, as this species is highly mobile.	An updated Otter survey on site and at key accessible crossing points 2 km upstream and downstream was conducted in April and May 2020. No evidence of Otter was observed. No further survey is deemed necessary.
Dormouse	Dormouse tubes on-site were installed in April 2017 checked until October 2017. Surveys within Kiln Wood and Harringe Brooks Woods (both off-site) were conducted in 2018. Desk study data was obtained in 2018.	No further dedicated surveys are considered necessary.	The updated Phase 1 habitat survey identified no significant change in the status of habitats for dormouse on the site. No further dedicated surveys are considered necessary.
Invertebrates (terrestrial)	A walkover of the site was conducted on	Phase 1 walkover to assess any significant changes from the	The updated Phase 1 habitat survey identified no significant change in the

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
	the 8 of August 2018. Desk study data was obtained in 2018.	2018 baseline. No further dedicated surveys are considered necessary, unless the design of the development is extensively changed.	status of habitats for invertebrates on the site. No further dedicated surveys are considered necessary.
Fish	Data from EA obtained in January 2017.	No dedicated surveys are considered necessary.	N/A No further dedicated surveys are considered necessary.
Common Toad	Desk study data from KMBRC, March 2018 and recorded during GCN survey conducted in 2017.	No dedicated surveys are considered necessary.	N/A No further dedicated surveys are considered necessary.
Hedgehog	Desk study data from KMBRC, March 2018	No dedicated surveys are considered necessary.	N/A No further dedicated surveys are considered necessary.
Harvest Mouse	Desk study data from KMBRC, March 2018	No dedicated surveys are considered necessary.	N/A No further dedicated surveys are considered necessary.
Invasive Plants	Data on the distribution of these species was collected during other surveys, including the Phase 1 mapping surveys, in 2016, 2017 and 2018.	Phase 1 Walkover to will assess any significant changes in the status of invasive plants on the site.	The updated phase 1 habitat survey identified one additional stand of Giant Rhubarb *Gunnera* adjacent to the site. No further dedicated surveys are considered necessary.

Receptor	Age of existing survey data	Proposed Approach to updating for the 2020 submission	Actions completed and approach in light of level of detail at Tier 1 submission and COVID 19 restrictions.
Non-native Invasive Animals (listed on schedule 9 of the WCA)	Desk study data obtained from KMBRC, March 2018 Incidental records from surveys conducted 2016 - 2018.	No dedicated surveys are considered necessary.	N/A No further dedicated surveys are considered necessary.

I hope that this summary and our subsequent proposals are acceptable, please con you confirm via email that you are in agreement with the record and survey outline?

Kind regards,

[redacted]

Brandon Murray
Principal Ecological Consultant
[redacted]
M. +44 (0)7809 230662

Arcadis Consulting (UK) Ltd | Arcadis House, 34 York Way, London | N1 9AB | UK
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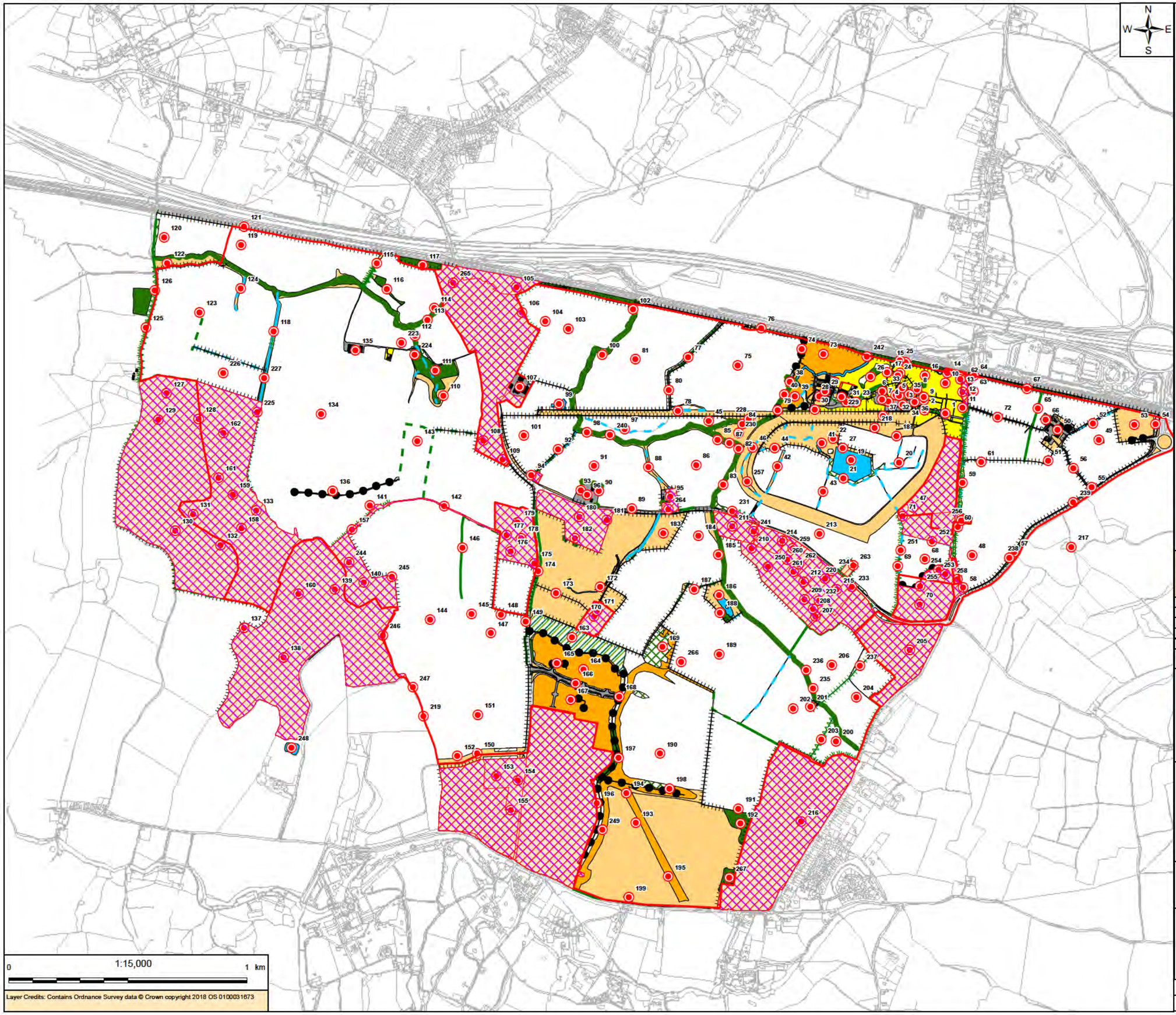

Layer Credits: Contains Ordnance Survey data © Crown copyright 2018 OS 0100031673

Legend

- Outline Planning Application Boundary
- Area not fully surveyed
- No Access Area (2020)
- Target notes
- Habitat_points_26_06_18
- Earth Bank
- Species poor hedgerow with trees (conifer)
- Native species-rich intact hedge
- Species poor intact hedge
- Species poor defunct hedge
- Native species-rich hedge with trees
- Species poor hedge with trees
- Fence
- Ditch
- Running water
- Wall
- Broad-leaved semi-natural woodland
- Broad-leaved parkland scattered trees
- Mixed plantation woodland
- Plantation woodland
- Dense/continuous scrub
- Ephemeral / short-perennial
- Introduced shrub
- Tall ruderal
- A — Amenity grassland
- A — Arable
- SI — Semi-improved neutral grassland
- SI — Species poor semi-improved grassland
- Improved grassland
- Bare ground
- Building
- Hardstanding
- Standing water
- Riparian corridor *

* 'Riparian corridor' within the site consists of a 1 - 3m wide stream / river largely surrounded on both banks by trees and scrub.

REV	Date	Description	Drawn	Check	Approv
01	28/05/2020	FOR INFORMATION	NG	BM	MG

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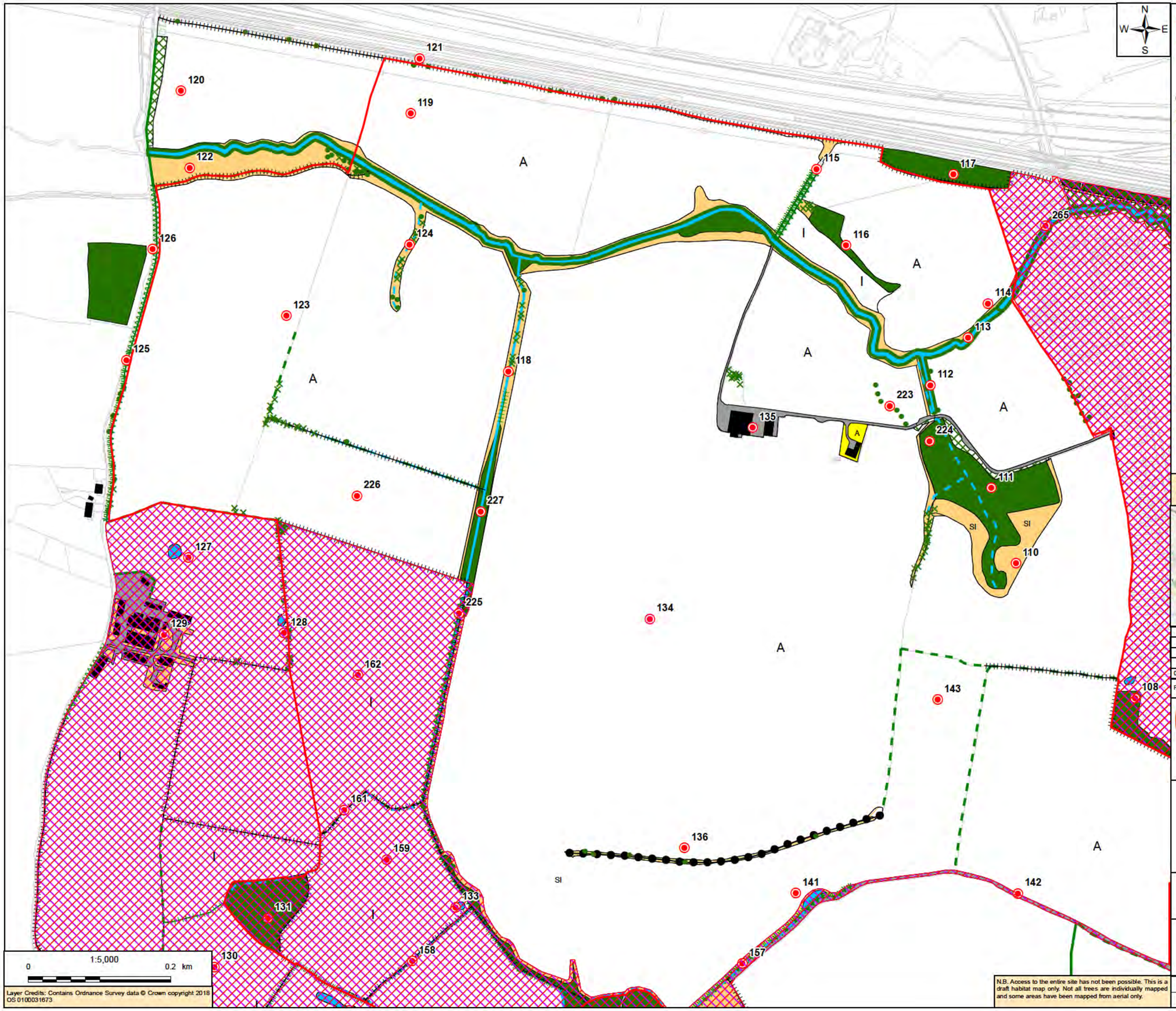
Arcadis House
34 York Way
London
N1 9AB

Folkestone & Hythe District Council

OTTERPOOL PARK

Phase 1 Survey Overview

scale	original size	datum	grid
1: 16,500	A3	Sx	BNG



Legend

- Outline Planning Application Boundary
- Area not fully surveyed
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- Target notes
- Scattered scrub
- Scattered trees
- Earth Bank
- Hedge with Trees Species-poor (conifer)
- Intact Hedge Native Species-rich
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- Defunct Hedge Species-poor
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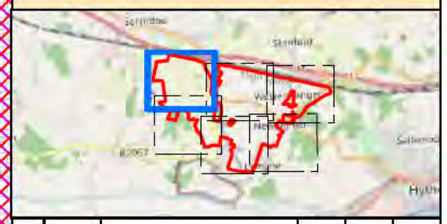

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Phase 1 Habitat Survey
Page 1 of 6

N.B. Access to the entire site has not been possible. This is a draft habitat map only. Not all trees are individually mapped and some areas have been mapped from aerial only.

scale	original size	datum	grid
1: 5,000	A3	Sx	OSGB

N
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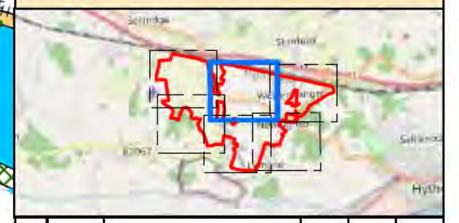

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Phase 1 Habitat Survey
Page 2 of 6

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N.B. Access to the entire site has not been possible. This is a draft habitat map only. Not all trees are individually mapped and some areas have been mapped from aerial only.

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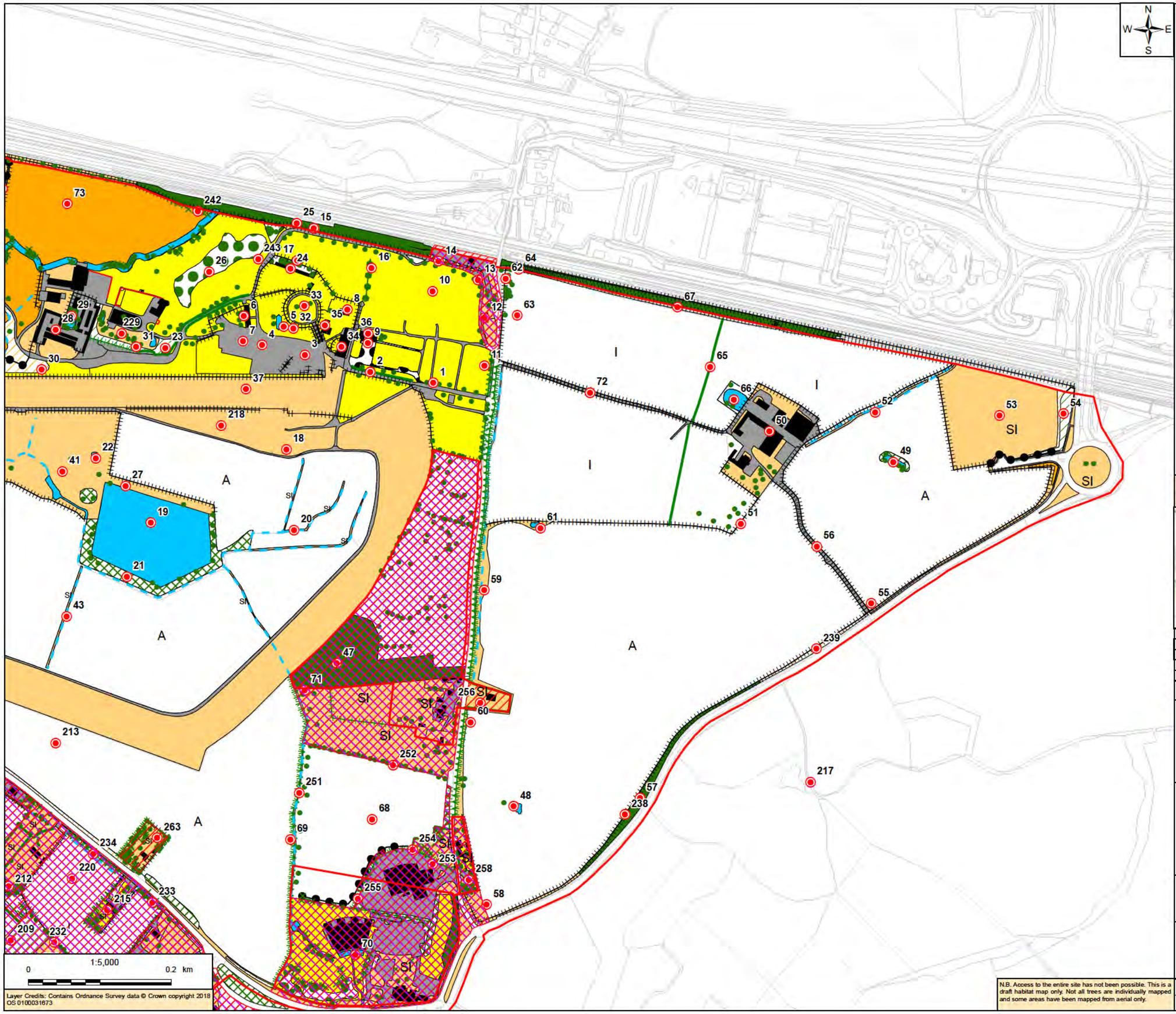

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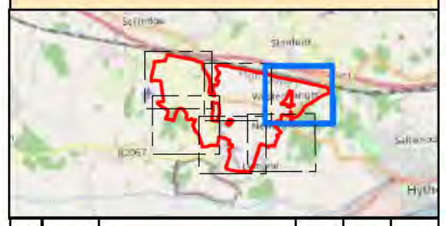

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OTTERPOOL PARK

Phase 1 Habitat Survey
Page 3 of 6

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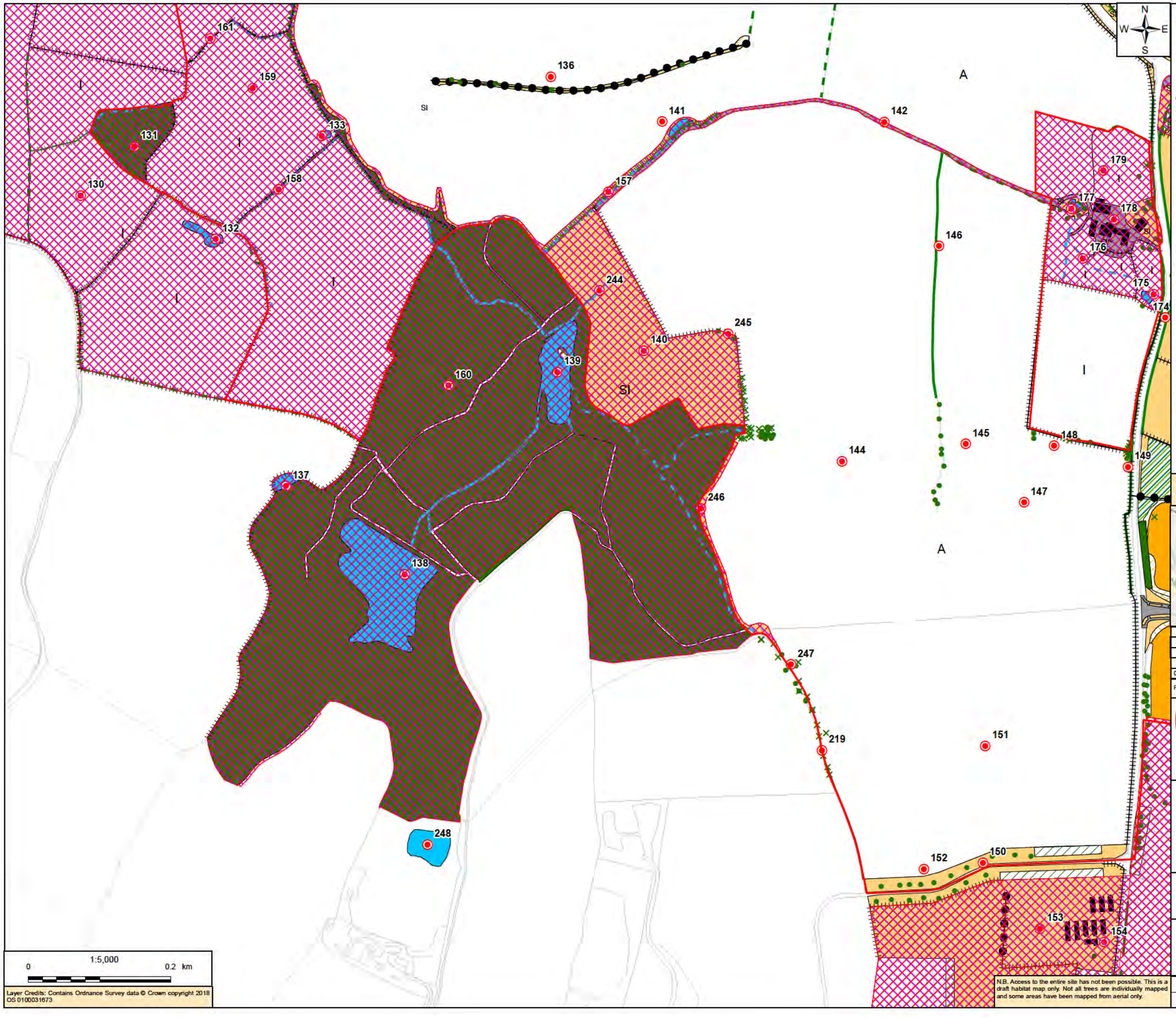

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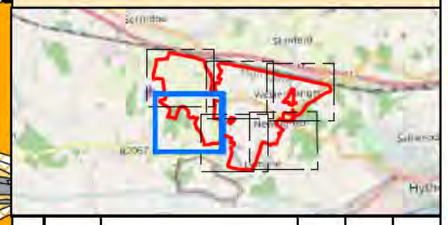
- Broad-leaved parkland scattered trees
- Mixed plantation woodland
- Plantation woodland
- Dense/continuous scrub
- Ephemeral / short-perennial
- Introduced shrub
- Tall ruderal
- A — Amenity grassland
- A — Arable
- SI — Semi-improved neutral grassland
- SI — Species poor semi-improved grassland
- I — Improved grassland
- Bare ground
- Building
- Hardstanding
- Standing water
- Riparian corridor *

* 'Riparian corridor' within the site consists of a 1 - 3m wide stream / river largely surrounded on both banks by trees and scrub.



REV	Date	Description	Drawn	Check	Approv
01	28/05/2020	FOR INFORMATION	NG	BM	MG

ARCADIS Design & Consultancy for natural and built assets
Arcadis House
34 York Way
London
N1 9AB

Folkestone & Hythe District Council

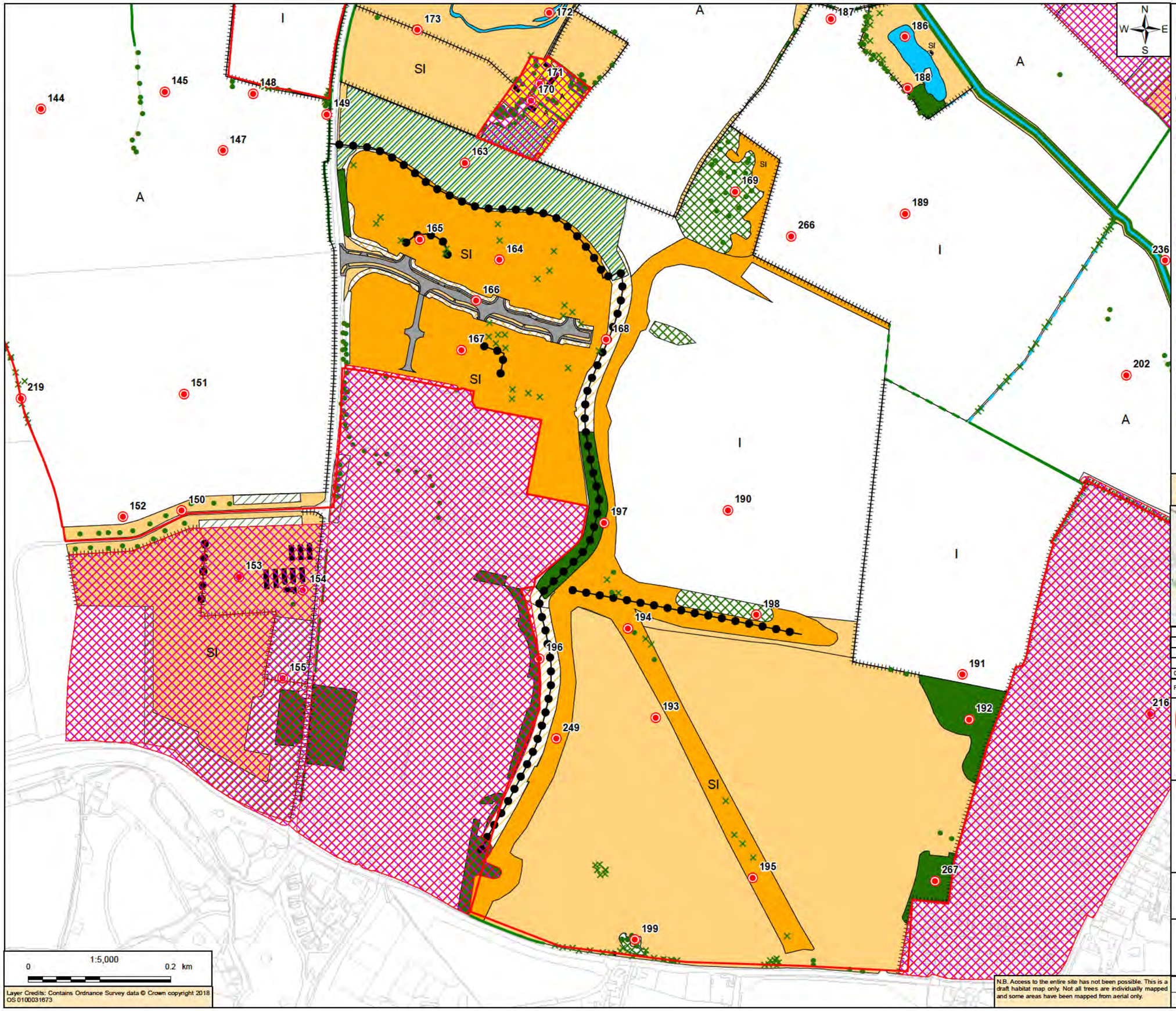
OTTERPOOL PARK

Phase 1 Habitat Survey
Page 4 of 6

scale	original size	datum	grid
1: 5,000	A3	Sx	OSGB

N.B. Access to the entire site has not been possible. This is a draft habitat map only. Not all trees are individually mapped and some areas have been mapped from aerial only.

0 1:5,000 0.2 km



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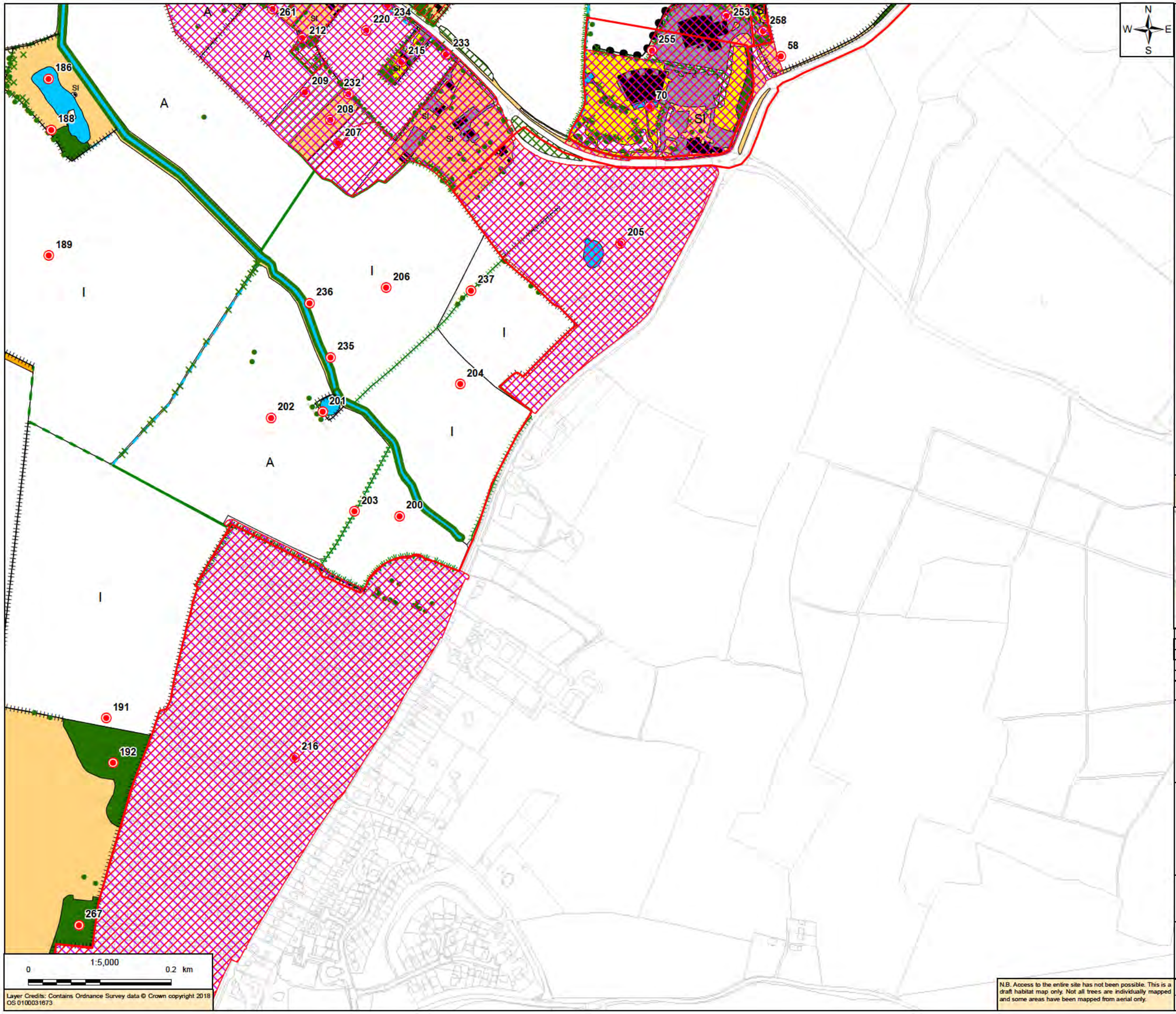
OTTERPOOL PARK

Phase 1 Habitat Survey
Page 5 of 6

scale	original size	datum	grid
1: 5,000	A3	Sx	OSGB



Legend

- Outline Planning Application Boundary
- Area not fully surveyed
- No Access Area (2020)
- Target notes
- Scattered scrub
- Scattered trees
- Earth Bank
- Hedge with Trees Species-poor (conifer)
- Intact Hedge Native Species-rich
- Intact Hedge Species-poor
- Defunct Hedge Species-poor
- Hedge with Trees Native Species rich
- Hedge with Trees Species-poor
- Fence
- Ditch
- Running water
- Wall
- Broad-leaved semi-natural woodland
- Broad-leaved parkland scattered trees
- Mixed plantation woodland
- Plantation woodland
- Dense/continuous scrub
- Ephemeral / short-perennial
- Introduced shrub
- Tall ruderal
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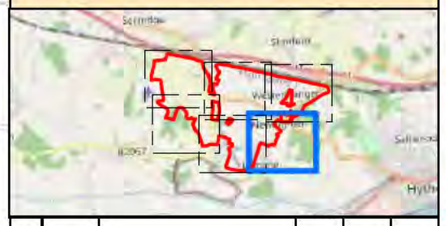

REV	Date	Description	Drawn	Check	Approv
01	28/05/2020	FOR INFORMATION	NG	BM	MG

ARCADIS Design & Consultancy for natural and built assets
Arcadis House
34 York Way
London
N1 9AB

Folkestone & Hythe District Council

OTTERPOOL PARK

Phase 1 Habitat Survey
Page 6 of 6

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scale	original size	datum	grid
1: 5,000	A3	Sx	OSGB

Highways and Transportation
Ashford Highway Depot
4 Javelin Way
Ashford
TN24 8AD
Tel: 03000 418181
Date: 12 June 2020

Folkestone and Hythe District Council
Civic Centre
Castle Hill Avenue
Folkestone
CT20 2QY

Application - Y19/0257/FH

Location - Otterpool Park Development, Ashford Road, Sellindge, Kent

Proposal - Outline application, with all matters reserved, for a comprehensive residential led mixed use development comprising: Up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages; demolition of identified existing buildings; a range of community uses including primary and secondary schools, health centres and nursery facilities; retail and related uses; leisure facilities; business and commercial uses; open space and public realm; new planting and landscaping, and ecological enhancement works; sustainable urban drainage systems; utility and energy facilities and infrastructure; waste and waste water infrastructure and management facilities; vehicular bridge links; undercroft, surface and multi-storey car parking; creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network; lighting; engineering works, infrastructure and associated facilities; together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses.

Thank you for the consultation on the updated EIA Scoping Report as dated 11th June on the Folkestone and Hythe District Council planning web-site. Detailed discussions between KCC Highways and Transportation and Arcadis are continuing regarding the updated Transport Environmental Chapter in the EIA, Transport Assessment and Travel Plan that will be produced in due course before being formally submitted by Arcadis to Folkestone and Hythe District Council as part of the amended planning application.

Yours faithfully

Matt Hogben
Principal Transport & Development Planner

By Email:

Folkestone and Hythe District Council
Civic Centre
Castle Hill Avenue
Folkestone CT20 2QY

PROW & Access Service
Public Protection
Invicta House
County Hall
Maidstone
Kent, ME14 1XX
Tel: (03000) 413330
Web site: www.kent.gov.uk

Email: [redacted]
Ask for: Kate Beswick
Date: 3rd July 2020

Otterpool Park - EIA Scoping Opinion June 2020

Thank you for the consultation on the above EIA Scoping Opinion. Public Bridleways HE271, HE271A, HE317 and Public Footpaths HE221A, HE274, HE275, HE277 HE281, HE302, HE303, HE314, HE315, HE316 and HE371 would all be directly affected by proposed development.

Overall KCC PROW inclusion and consideration is appropriately mentioned in **Chapter 16 Transport**. We welcome the present and future ongoing discussions with the developer to maximise the opportunities for Active Travel and mitigate the significant Environmental Impact on the valuable PROW asset both within the development and on the surrounding area.

Further comments:

2.1 – 2.2 Site Location / Surrounding Area

We would request specific mention of the PROW network in these paragraphs as it provides an important facet of the area, within and adjacent to the development site.

12 Landscape and Visual Impact

KCC PROW request inclusion in the Consultee table here due to the significant Visual Impact on PROW users of all mobilities within and outside of the development and at all stages of construction and operation.

12.3 Methodology / Relevant Policy and Guidance

12.3.2 KCC Rights of Way Improvement Plan should be included

12.4.5 Visual Receptors – welcome inclusion of PROW users

12.6 Potential Mitigation Measures – there should be an inclusion of the proposed schemes for PROW network pre, during and post construction.

Summary

- As the developer is aware, there is significant visual impact of the proposed development on users of the PROW network, including the North Downs Way and the Saxon Shore Way Long Distance Path, within and adjacent to the development site. The EIA would appear to include mitigation procedures in order to address this.

- The developer is also aware of the impact on air quality, noise and increased use of all mobilities.

- The PROW network is a major element of an EIA Assessment and we welcome continued partnership with the developer to achieve the aims for sustainable and Active Travel connectivity both on and off site.

This response is made on behalf of Kent County Council Public Rights of Way and Access Service. The views expressed should be considered only as the response of the County Council in respect of public rights of way and countryside access matters relating to the application.

Yours Sincerely

Kate Beswick
Countryside Access Improvement Plan Officer
PROW & Access Service

Local Plans, Heritage and Infrastructure
Dover District Council
White Cliffs Business Park
Dover
Kent [redacted]
[redacted]
Website: **www.dover.gov.uk**

Direct line: **07926076110**
Our Ref
Date: 2nd July 2020

Mr James Farrar
Development Management
Folkestone and Hythe District Council
Civic Centre,
Castle Hill Avenue,
Folkestone,
CT20 2QY
(By Email only)

Dear Mr Farrar,

RE: Y19/0257/FH Planning application for the Otterpool Park – EIA Scoping Report

Thank you for consulting Dover District Council on the scoping report that has been submitted in relation to the planning application for Otterpool Park. We have considered the cross-boundary issues and have the following comments which build upon the issues identified in our previous response.

Water supply and quality

Cross-boundary water supply and quality issues should be addressed in the ES as our District is located within the same water catchment area as the proposed development.

Impact upon European Protected Sites

It is acknowledged that the scope of the EIA includes consideration of all European designated sites within 30km of the site. The Thanet Coast and Sandwich Bay Ramsar site and SPA, and the Sandwich Bay SAC fall partly within 30km of the site and partly outside. It is considered that the impact upon the entirety of those designated sites should be scoped into the ES, and not just those parts which fall within 30km of the development site.

Education

It is acknowledged that the ES scoping identifies the need to consider the provision of education facilities, based upon the forecast requirements of the Local Education Authority. Consideration should be given to whether these impacts have the potential to be cross boundary and we would appreciate further clarification on this point, as set out in our previous consultation response.

Dover District Council welcomes continuing to work with Folkestone and Hythe District Council on cross-boundary planning matters under our statutory Duty to Co-Operate.

Yours sincerely

Ashley Taylor
Planning Policy and Projects Manager
Local Plans, Infrastructure and Heritage

Parry, James

From: [redacted]
Sent: 06 July 2020 18:23
To: Planning; Planning SE
Subject: FAO Case Officer James Farrar: Highways England response (our ref 84249 #10469) re Planning Application - Y19/0257/FH Proposed Otterpool New Settlement: Environmental Statement Consultation

For attention of:	James Farrar
Site:	Otterpool Park Development Ashford Road Sellindge Kent
Proposal:	Outline application, with all matters reserved, for a comprehensive residential led mixed use development comprising: Up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages; demolition of identified existing buildings; a range of community uses including primary and secondary schools, health centres and nursery facilities; retail and related uses; leisure facilities; business and commercial uses; open space and public realm; new planting and landscaping, and ecological enhancement works; sustainable urban drainage systems; utility and energy facilities and infrastructure; waste and waste water infrastructure and management facilities; vehicular bridge links; undercroft, surface and multi-storey car parking; creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network; lighting; engineering works, infrastructure and associated facilities; together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses.
Your Reference:	Y19/0257/FH
Highways England's Reference:	84249 #10469

Dear Mr Farrar

Thank you for your email of 16 June 2020, regarding the above application, seeking a response no later than 3 July 2020. Please note that because we had to query what we were being consulted about (that was confirmed by email dated 17 June) the date for response became 6 July.

Highways England has been appointed by the Secretary of State for Transport as strategic highway company under the provisions of the Infrastructure Act 2015 and is the highway authority, traffic authority and street authority for the strategic road network (SRN). The SRN is a critical national asset and as such Highways England works to ensure that it operates and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

Highways England will be concerned with proposals that have the potential to impact on the safe and efficient operation of the SRN, in this case the M20 in the vicinity of Folkestone and Sellindge .

We note the following:

1. Under legislation the statutory consultees regarding EIA/ES are the Environment Agency, Natural England and in this particular case the county council, adjoining local planning authorities and Kent Downs Area of outstanding Natural Beauty.
2. Therefore while not a statutory consultee you have kindly sought the views of Highways England
3. Given these different responsibilities we look to the statutory consultees to consider all environmental impacts and implications that might flow from any development at the Otterpool site, including those related to the environmental impacts of transport proposals, schemes and mitigation.
4. Consequently, we are obliged to assume that the Transport Assessment and EIA/ES will be mutually compatible.
5. Therefore our comments are confined to an assessment of the potential impacts on the SRN during either construction or occupation of the site in the longer term (to the end of the built out period and thereafter) by virtue of
   a) traffic generated
   b) the site's location in the vicinity of the M20
   c) any mitigation that might be agreed on the SRN that itself may have environmental implications that must be fully mitigated by the development

Using Main ES Para numbering and with our comments in red, our response is as follows:

Transport

1) Para *16.2.95* The following assumptions and limitations are relevant to the assessment: *It has been assumed that construction HGV trips would occur outside of highway network hours, and that service and delivery trips made within peak hours can be minimised. These would be achieved through site-specific and/or site-wide Construction Management Plans and Delivery and Servicing Plans;*
   Highways England will require that it should be consulted with regards any proposed site-specific and/or site-wide Construction Management Plans and Delivery and Servicing Plans, prior to their adoption. They should contain full details of their proposals, monitoring and management, including references to penalties or actions to be taken in the event of non-compliance

2) *Table 16-15 shows in highlight those links where a 10% or more increase in traffic is forecast in the 'with development' scenario compared to the 'without development' scenario in 2044. This is based on the IEMA thresholds (Rule 2), which suggest that a detailed assessment should be undertaken on especially sensitive areas, where traffic flows increase by 10% or more*.

Link	18 Hour Flow	
	Without Development	With Development
Stone Street	3,184	5,101
B2067 Aldington Road west of Otterpool Lane	2,818	2,929
Lympne Hill	4,177	7,402
B2068 Stone Street	7,181	7,637
M20 east of J11	125,984	149,678

Para 6.5.9: "Due to the high volume of traffic and the lack of sensitive receptors, it is not considered that the M20 East of Junction 11 would be sensitive from an environment perspective. As such, the effects of the proposed development would be negligible, and no further detailed assessments have been undertaken."

The impacts from the development have not been assessed on the SRN ie. Driver delay; Accidents and safety; Hazardous loads; and Dust and Dirt. These matters will need to be addressed via the Transport Assessment and reflected in the ES

Noise

Residential Land Parcels Para 13.3.9 "The following mitigation measures would require to be considered though the detailed design of any residential areas of the site, especially those to the north within influencing distances of the M20 and HS1 routes, and to the south around the Lympne Business Park:
• appropriate façade mitigation measures (glazing and ventilation provision) to ensure that internal noise climates are acceptable.
• Layout considerations to ensure that noise is also controlled by layout design to avoid locating external sensitive areas in positions exposed to significant noise sources.
• Provision for acoustic screening where necessary either through optimum placement and design of intervening buildings (layout options) or specific acoustic fencing/bunding where necessary.

We note that mitigation measures for M20 for noise are proposed. Any measures must be fully funded by the development and cannot be located on HE land.

Para 13.4.30 "With reference to Table 13-36 the DMRB assessment has found that many of the road links range between Negligible Adverse and Minor Adverse…There are generally Negligible Effects from increased traffic on the A20, Ashford Road, Stone Street and the M20 motorway."
We note this finding but reiterate that in the event future site occupiers perceive there to be an issue, any resolution must be funded by the development and not be located on HE land.

Air Quality

3) Para 6.5.32 Residual effects from operation 2029 *" There are two receptors (OTT040 and OTT178) which would experience a slight adverse impact in local air quality. OTT040 is located approximately 30m south of the M20 in Cheriton, which lies ~6km east of the application site. The concentration at OTT040 increases by 0.6 µg/m3 to a total of 32.0 µg/m3 in the with proposed development 2029 scenario. This is attributable to an increase in AADT of approximately 2050 vehicles per day across the carriageways of the nearby M20."*

4) Para 6.5.50 Residual effects from operation 2046 *"The highest with proposed development concentration at any of the existing receptors is at OTT178 which is located at Hatch Lodge immediately north of the A20 between Ashford and the application site. The concentration at OTT178 increases by 2.0 µg/m3 to a total of 22.4 µg/m3 in the with proposed development 2046 scenario. This is attributable to an increase in AADT of approximately 5300 vehicles per day on the A20 and 5100 vehicles per day on the carriageways of the M20 which is located 70m to the south-west. The residual impact at OTT178 is categorised as negligible in terms of the IAQM descriptors"*

5) Para 6.5.62 *"It should be noted that the Defra PCM link with the highest concentration in the Agglomeration Zone is part of the M27 near Southampton (approximately 150km to the west of the proposed development) and is projected to have a concentration of 41 µg/m3 in 2022 but becomes compliant in 2023 when the concentration reduces to 38.8 µg/m3. This link will not be impacted on by the proposed development.*
Analysis of the Defra PCM links that reside within the operational phase local air quality study area indicates that during 2022, the PCM link with the highest concentration is observed on the M20 (census ID 37955) and is expected to be 27.8 µg/m3.

Therefore, an increase of 12.2 µg/m3 would be required at the modelled receptor nearest to this road to make this link exceed the Limit Value of 40 µg/m3.
The largest increase NO2 concentration at any existing receptor modelled in 2022 is 1.0 ug/m3. Therefore it can be concluded that in 2022;
• the proposed development will not result in a compliant zone becoming non-compliant and therefore does not delay compliance as the maximum proposed development-related increase of 1 µg/m3 would not cause the highest PCM link in the air quality study area to exceed the annual mean Limit Value in 2022;
• Therefore in accordance with IAN 175/13 it is concluded than in 2022, the proposed development represent a low risk to the UK's reported ability to comply with the directive."
We note that it appears that the concentrations will be just under current Directive limits. Any future change to either the forecast or actual concentrations and/or to the Directive or concentration thresholds for action that lead to a situation where mitigation associated with the impact of the development will need to be fully funded and delivered by the development and not on HE land.

6) Para 6.4.21 *"These are mainly measures that serve to reduce the number of vehicle trips generated or that encourage the use of low emission vehicles. • Minimising reliance upon motor vehicle use; • Promoting alternative transport options; • Inclusion of integrated cycle paths into surrounding environments;* Inclusion of pedestrian walkways into surrounding environments; • Inclusion of electric charging points; • Implementation of a Travel Plan; and • Integration of public transport provisions."
We note that mitigation measures are proposed to reduce trip numbers. Highways England will require that it should be consulted with regards any proposed site-specific and/or site-wide Travel Plans

Surface Water Resources and Flood Risk

7) Para 15.5.6 "*Construction activities would result in the creation of additional impermeable surface areas within the Site as subsequent development phases progress. Increased rates and volumes of surface water runoff would be generated from these areas of the Development, with the potential for increased surface water flood risk on Site and in downstream areas. However, management of Site drainage using the range of SuDS techniques described in Section 15.4 would result in a negligible magnitude of impact on the conveyance properties of watercourses and the overall baseline land drainage regime. This would result in an overall* ***neutra****l significance of effect*."
Given the separation of the site from the M20 by the railway line within a cutting, it would seem unlikely that the drainage and flood prevention measures for the development would impact on HE assets. However, we will require being consulted on the detailed hydrological studies and proposals to confirm this.

We trust that these comments assist, but if the council or applicant have any queries, please contact us at planningse@highwaysengland.co.uk .

Regards

Kevin Bown BSc(Hons) MPhil CMS MRTPI Spatial (Town) Planning Manager
Spatial Planning Team, South East Region Operations Directorate
Highways England | Bridge House | 1 Walnut Tree Close | Guildford | GU1 4LZ
Tel: 0300 470 1046 (all calls to this number will also patch through to my mobile)
Web: http://www.highways.co.uk

Please note that for the foreseeable future we are all working from home. All meetings will be via telephone, Skype or similar. We will continue to seek to work to our statutory and other deadlines. In case of IT or other issues, as a precaution, please copy all emails to PlanningSE@highwaysengland.co.uk . Thank you.

We are mindful that everyone is different and everyone's circumstances may be different. We are sharing the following NHS principles

- **People are not 'working from home', they are 'at their home during a crisis trying to work'**
- **People's physical, mental and emotional health are far more important than anything else at present**
- **If people are currently less productive they should not try to compensate by working longer hours**
- **People should be gentle on themselves and others, not judging based on how they/ others are coping**
- **Individual and team success is not to be based on 'normal times' expectations**

Safe roads, reliable journeys, informed travellers
Highways England:operating, maintaining and improving the strategic road network in England.

From: Planning Department [mailto:planning@folkestone-hythe.gov.uk]
Sent: 16 June 2020 11:41
To: Planning SE <planningse@highwaysengland.co.uk>
Subject: #10469 Planning Application - Y19/0257/FH

Dear Colleague

Ref: Y19/0257/FH

Proposal: Outline application, with all matters reserved, for a comprehensive residential led mixed use development comprising: Up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages; demolition of identified existing buildings; a range of community uses including primary and secondary schools, health centres and nursery facilities; retail and related uses; leisure facilities; business and commercial uses; open space and public realm; new planting and landscaping, and ecological enhancement works; sustainable urban drainage systems; utility and energy facilities and infrastructure; waste and waste water infrastructure and management facilities; vehicular bridge links; undercroft, surface and multi-storey car parking; creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network; lighting; engineering works, infrastructure and associated facilities; together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses. PLEASE USE THIS LINK TO VIEW ALL PLANNING APPLICATION DOCUMENTS https://www.folkestone-hythe.gov.uk/otterpoolpark/planningapplication ALL APPLICATION RESPONSES WILL CONTINUE TO BE REGISTERED VIA THIS SITE.

Location:

Otterpool Park Development Ashford Road Sellindge Kent

The Council has recently received the Scoping Report for the above application and would welcome your comments and observations before 03/07/2020

To view details of the application, please use the following link to access the Council's public register
Public Register Link

Planning Validation Team

Development Management

Folkestone & Hythe District Council

Civic Centre, Castle Hill Avenue

Folkestone,

Email: planning@folkestone-hythe.gov.uk

Website: www.folkestone-hythe.gov.uk

James Farrar
Folkestone and Hythe District Council
Civic Centre
Castle Hill Avenue
Folkestone
CT20 2QY

Flood and Water Management
Invicta House
Maidstone
Kent
ME14 1XX
Website: www.kent.gov.uk [redacted]
[redacted]
Tel: 03000 41 41 41
Our Ref: FHDC/2019/072617
Date: 7 July 2020

Application No: Y19/0257/FH

Location: Land bounded by the M20 and channel tunnel railway link (CTRL) to the north; the A20/Stone Street and Sandling Park to the east; Harringe Lane to the west and Aldington Road to the south (Otterpool Park)

Proposal: Outline application with all matters reserved for a comprehensive residential led mixed use development comprising etc.

Thank you for your consultation on the above referenced planning application.

The Environmental Impact Assessment Scoping Report identifies potential impacts to the water environment and indicates the opportunities for sustainable drainage measures.

It is proposed to complete a Drainage Strategy, Flood Risk Assessment and Water Cycle Study to assess impacts to the water environment and recommend appropriate mitigation.

The applicant has undertaken consultation with Kent County Council as Lead Local Flood Authority and we have had opportunities to provide input on the content of these documents.

We are satisfied that matters in relation to surface water drainage will be addressed and have no further comments.

This response has been provided using the best knowledge and information submitted as part of the planning application at the time of responding and is reliant on the accuracy of that information.

Yours faithfully,

Bronwyn Buntine
Sustainable Drainage Team Leader
Flood and Water Management

creating a better place for
people and wildlife

Environment Agency

Folkestone Hythe District Council
Development Control
Civic Centre Castle Hill Avenue
Folkestone
Kent
CT20 2QY

Our Ref: KT/2019/125452/02-L02
Your Ref: Y19/0257/FH

Date: 08 July 2020

Dear Sir/Madam

Scoping report - Outline application, with all matters reserved, for a comprehensive residential led mixed use development comprising:

• up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages;
• demolition of identified existing buildings;
• a range of community uses including primary and secondary schools, health centres and nursery facilities;
• retail and related uses;
• leisure facilities;
• business and commercial uses;
• open space and public realm;
• new planting and landscaping, and ecological enhancement works;
• sustainable urban drainage systems;
• utility and energy facilities and infrastructure;
• waste and waste water infrastructure and management facilities;
• vehicular bridge links; undercroft, surface and multi-storey car parking;
• creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network;
• lighting;
• engineering works, infrastructure and associated facilities;
• together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses

Land bounded by; the M20 and Channel Tunnel Railway Link (Ctrl) to the north; the A20/Stone Street and Sandling, Park to the east; Harringe Lane to the west, and; Aldington Road to the south (Otterpool Park)

Thank you for consulting us on the above. We have the following comments to make.

Groundwater and Contaminated Land

We welcome the inclusion of more groundwater related issues mentioned in the new scoping report for both baseline data (section 10.4) and description of possible significant effects (section 10.5).

Foul water infrastructure is a key issue and needs to be explored more fully in the EIA with regards to capacity of existing/proposed facilities and potential discharges to ground or surface waters, both of which may have strict limitations. It is noted from the scoping report that this point has been noted for surface waters (Table 15-1) in response to the previous consultation (2019). This should also be covered in relation to groundwater.

Flood Risk
We have been discussing the requirements of the Environmental Staement (ES) with the applicant and their consultants from a flood risk management perspective. We are therefore satisfied with the scope of the ES, and would welcome the opportunity to continue to influence this scheme and review any documentation prior to final submission.

Surface Water Quality
Aspects of surface water quality are contained in Chapter 15 on Surface Water Resources and Flood Risk. To help ensure that the important issue of water quality is adequately assessed, please ensure there is section dedicated to water quality in Chapter 15 of the updated ES.

The effects on water quality of both (1) Surface Water Runoff and (2) Effluent Discharge should be assessed. Impacts of Otterpool Park development on water quality should include the Stour catchment, including the Stodmarsh conservation area. As no preferred option for wastewater treatment has been identified, impacts of all potential wastewater options on the quality of receiving waters should be fully assessed. This includes impacts on all rivers, lakes, transitional and coastal waters, and groundwater.

Cumulative impacts on water quality of this development and other planned developments in the area should be assessed.

The effect of climate change on surface water quality should be included in the updated ES/Water Cycle Study.

Marine Environment and Water Quality
We have looked at the Scoping report, in terms of its potential impacts on the marine environment and water quality.

As previously advised above the state that full impact assessment of potential wastewater options, including discharge to marine waters, will be required:

Riverine Environment
The Scoping report does not look at the riverine environment or attempt to assess any impacts from the housing upon this including STW discharges and runoff. Ashford when it was being developed had a significant amount of work determining whether the increase in housing would affect the Stour, this is not present for this proposal and needs to be addressed. Stodmarsh SAC and Stour estuary could all be affected by the additional loading of nutrients so need to be assessed as part of this application as previously identified above.

Land and Water
Pollution to the River East Stour and two other unnamed watercourses from silt/mud/runoff during the construction phase is highly likely. It is a criminal offence to pollute controlled waters. Hence the contractors must take all possible measures to prevent any pollution to these watercourses. The following web-link provides further guidance to businesses pollution prevent: https://www.gov.uk/guidance/pollution-prevention-for-businesses.

Land based litter, such as loose plastic/paper/cardboard/construction material can get blown into watercourses, particularly during windy conditions. Erecting a barrier, such as a fence along the watercourse near the construction site can prevent this. (This may need a Flood Risk Assessment Permit (FRAP)). Working on or within 8 metres of a watercourse requires (FRAP). We hope the Partnership and Strategic Overview Team (PSO) is also being consulted on this development.

Excavation works may encounter groundwater or rainwater seep into footings/excavations which may then require dewatering. Dewatering activities need a permit from us if the conditions in our Regulatory Position Statement (RPS) cannot be met. A Permit can be issued to a single developer/contractor if they will be responsible for the whole project. Alternatively, a permit may need to be issued to each individual contractor based on site. Permits can take 13 weeks to

Cont/d..

issue so please plan ahead and liaise with us for a pre-application discussion in advance. Website link below will provide further information on this RPS: https://www.gov.uk/government/publications/temporary-dewatering-from-excavations-to-surface-water/temporary-dewatering-from-excavations-to-surface-water;

Regular monitoring downstream of River East Stour for silts/sediments/suspended solids may be required during the construction phase.

Interceptors at car parks/service stations/hospitals/business units may need to be installed. Please refer to our Pollution Prevention Guidance for Businesses. For further information, please visit: https://www.gov.uk/guidance/pollution-prevention-for-businesses.

Penstock valves on the outlet side of a lagoon/pond/swale may need to be installed to prevent pollutants entering the watercourses in the event of a serious pollution incident e.g. fire runoff or chemical/oil spillage. I would hope these measures will be undertaken as proposed in the planning documents under the SuDS.

Any environmental pollution incidents should be reported to us via our incident hotline 0800 807060.

Water Efficiency

We have no comments other than to note that a site specific Water Cycle Study is proposed, referred to in section 15.6.4 and 10.3.9, and this will be of interest. Our earlier comments regarding water efficiency standards have been taken on board on p145.

Fisheries, Biodiversity and Geomorphology

Table 7.1 page 49

The authors have omitted a key word in their response to the Environment Agency's comments.

Within the ES, the positive impact of the removal of native plants will be included within the assessment, and the requirement for the removal of these species, according to a management strategy will be specified within the ES documentation.

We trust that the positive impact of the removal of NON-native plants will be included within the assessment as we have a preference for NATIVE plants (of local provenance) to be used in all planting schemes at the site.

Table 7.2 page 54

It appears that another key has been omitted at some point in the consultation process.

It was stated that the EA have no comments in relation to invasive species, water vole, external lighting and otter.

The comment should read that the EA have no FURTHER comments in relation to etc.

Other Comments

Section 7.3.8

We support use of the Defra Biodiversity Net Gain Metric, as proposed, but would have appreciated details of the percentage Net Gain that it is proposed will be delivered by this development. On principle, we object to a low percentage being delivered and trust that the final figure will significantly exceed guideline levels.

Proposed Surveys

Table 7.5 reports that 2 otter signs were recorded during 6 surveys but only one additional survey will be carried out because the species is "mobile".

This is insufficient. More than one survey is required for otter at this site because the species is rare!

Cont/d..

Section 7.4.7
The Report states that a “trap for signal crayfish was found within the site during the water vole surveys conducted within the site”. If the trap was tagged, then it is of no further interest to us but if it was untagged, then, in future, we would be grateful to be informed via the Environment Agency’s Incident Hotline (0800 80 70 60).

Section 7.6.1 and 7.6.2
We support the proposal to construct and maintain wildlife tunnels in the site and, in particular, at the road bridges across the East Stour to improve the site’s permeability for wildlife.

Planting and use of wildlife fencing at a range of locations to reduce the chances of faunal mortality e.g. at the bridge crossings is also to be implemented. This comment is consistent with our responses to other consultations on the bridge designs.

Yours faithfully

Ms Jennifer Wilson
Planning Specialist

Direct dial 0208 474 6711
Direct e-mail [redacted]

Date: 16 July 2020
Our ref: 319638
Your ref: Y19/0257/FH

James Farrar
Folkestone & Hythe District Council

BY EMAIL ONLY

Customer Services
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T 0300 060 3900

Dear James Farrar

Environmental Impact Assessment Scoping consultation (Regulation 15 (4) of the EIA Regulations 2017): Outline application, with all matters reserved, for a comprehensive residential led mixed use development comprising: Up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages; demolition of identified existing buildings; a range of community uses including primary and secondary schools, health centres and nursery facilities; retail and related uses; leisure facilities; business and commercial uses; open space and public realm; new planting and landscaping, and ecological enhancement works; sustainable urban drainage systems; utility and energy facilities and infrastructure; waste and waste water infrastructure and management facilities; vehicular bridge links; undercroft, surface and multi-storey car parking; creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network; lighting; engineering works, infrastructure and associated facilities; together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses.

Location: Otterpool Park Development Ashford Road Sellindge Kent

Thank you for seeking our advice on the scope of the Environmental Statement (ES) in your consultation dated 12 June 2020 which we received on the same date.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

Case law[1] and guidance[2] has stressed the need for a full set of environmental information to be available for consideration prior to a decision being taken on whether or not to grant planning permission. Annex A to this letter provides Natural England's advice on the scope of the Environmental Impact Assessment (EIA) for this development.

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

[1] Harrison, J in *R. v. Cornwall County Council ex parte Hardy* (2001)
[2] *Note on Environmental Impact Assessment Directive for Local Planning* Authorities Office of the Deputy Prime Minister (April 2004) available from http://webarchive.nationalarchives.gov.uk/+/http://www.communities.gov.uk/planningandbuilding/planning/sustainabilityenvironmental/environmentalimpactassessment/noteenvironmental/

Previous advice

Natural England provided extensive advice on the previous submission in 2019, in our letters referenced 277270, dated 03 June 2019 (part one) and 28 June 2019 (part two). In these we provided detailed advice on:

- Protected landscape – the Kent Downs Area of Outstanding Natural Beauty (AONB)
- Habitats Regulations Assessment (HRA)
- Sites of Special Scientific Interest (SSSIs)
- Soils and land quality
- Green/ blue infrastructure (GI)
- Biodiversity and biodiversity net gain

We strongly advise our previous comments are fully considered in the resubmission. We are very happy to provide further advice through our Discretionary Advice Service (DAS).

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us. For any queries relating to the specific advice in this letter, or for any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely,

Julia Coneybeer
Sustainable Development, Sussex and Kent team

Annex A – Advice related to EIA Scoping Requirements

1. General Principles

Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2017, sets out the necessary information to assess impacts on the natural environment to be included in an ES, specifically:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment.
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information.
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

2. Biodiversity and Geology

2.1 Ecological Aspects of an Environmental Statement

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.

EcIA is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.

The National Planning Policy Framework sets out guidance in S.174-177 on how to take account of biodiversity interests in planning decisions and the framework that local authorities should provide to assist developers.

2.2 Internationally and Nationally Designated Sites

The ES should thoroughly assess the potential for the proposal to affect designated sites. European sites (e.g. designated Special Areas of Conservation and Special Protection Areas) fall

within the scope of the Conservation of Habitats and Species Regulations 2017 (as amended). In addition paragraph 176 of the National Planning Policy Framework requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed Ramsar sites, and any site identified as being necessary to compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites.
Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) an appropriate assessment needs to be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site.

Should a Likely Significant Effect on a European/Internationally designated site be identified or be uncertain, the competent authority (in this case the Local Planning Authority) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.

Sites of Special Scientific Interest (SSSIs) and sites of European or international importance (Special Areas of Conservation, Special Protection Areas and Ramsar sites)
The development site is in proximity of the following designated nature conservation sites:

- Folkestone to Etchinghill Escarpment Special Area of Conservation (SAC)
- Folkestone to Etchinghill Escarpment Site of Special Scientific Interest (SSSI)
- Lympne Escarpment Site of Special Scientific Interest (SSSI)

Further information on the SSSIs and their special interest features can be found at www.magic.gov . The Environmental Statement should include a full assessment of the direct and indirect effects of the development on the features of special interest within these sites and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.

European site conservation objectives are available on our internet site http://publications.naturalengland.org.uk/category/6490068894089216

2.3 Regionally and Locally Important Sites
The EIA will need to consider any impacts upon local wildlife and geological sites. Local Sites are identified by the local wildlife trust, geoconservation group or a local forum established for the purposes of identifying and selecting local sites. They are of county importance for wildlife or geodiversity. The Environmental Statement should therefore include an assessment of the likely impacts on the wildlife and geodiversity interests of such sites. The assessment should include proposals for mitigation of any impacts and if appropriate, compensation measures. Contact the local wildlife trust, geoconservation group or local sites body in this area for further information.

2.4 Protected Species - Species protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2017 (as amended)
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.

The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*. The area likely to be affected by the proposal should be thoroughly

surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES.

In order to provide this information there may be a requirement for a survey at a particular time of year. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and where necessary, licensed, consultants. Natural England has adopted standing advice for protected species which includes links to guidance on survey and mitigation.

2.5 Habitats and Species of Principal Importance
The ES should thoroughly assess the impact of the proposals on habitats and/or species listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, published under the requirements of S41 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity. Further information on this duty is available here https://www.gov.uk/guidance/biodiversity-duty-public-authority-duty-to-have-regard-to-conserving-biodiversity.

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, in order 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 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;
- Full details of any mitigation or compensation that might be required.

The development should seek if possible to avoid adverse impact on sensitive areas for wildlife within the site, and if possible provide opportunities for overall wildlife gain.

The record centre for the relevant Local Authorities should be able to provide the relevant information on the location and type of priority habitat for the area under consideration.

Biodiversity net gain
Planning Practice Guidance describes net gain as an *'approach to development that leaves the natural environment in a measurably better state than it was beforehand'* and applies to both biodiversity net gain and wider environmental net gains. For biodiversity net gain, the fully tested Biodiversity Metric 2.0[3] can be used to measure gains and losses to biodiversity resulting from development. We advise this metric should be used to establish biodiversity net gain for the proposals.

Biodiversity net gain should be compliant with the mitigation hierarchy, as outlined in paragraph 175 of the NPPF, where options to avoid adverse impacts on biodiversity from occurring are considered first. Net gain should not be applied to irreplaceable habitats and should also make clear that any mitigation and/ or compensation requirements for European sites or SSSIs should be dealt with **separately** from biodiversity net gain provision.

[3] http://publications.naturalengland.org.uk/publication/5850908674228224

2.6 Contacts for Local Records
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 wildlife trust, local geoconservation group or other recording society and a local landscape characterisation document).

3. Designated Landscapes and Landscape Character

Nationally Designated Landscapes
The development site is within the setting of the Kent Downs Area of Outstanding Natural Beauty (AONB). Consideration should be given to the direct and indirect effects upon this designated landscape and in particular the effect upon its purpose for designation within the environmental impact assessment, as well as the content of the AONB management plan.

Please refer to Natural England's previous advice on potential impacts on the AONB in response to the previous submission, in our letter dated 03 June 2019, ref 277270.

Landscape and visual impacts
Natural England would wish to see details of local landscape character areas mapped at a scale appropriate to the development site as well as any relevant management plans or strategies pertaining to the area. The EIA should include assessments of visual effects on the surrounding area and landscape together with any physical effects of the development, such as changes in topography.

The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.

Natural England supports the publication *Guidelines for Landscape and Visual Impact Assessment*, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for landscape and visual impact assessment.

In order to foster high quality development that respects, maintains, or enhances, local landscape character and distinctiveness, Natural England encourages all new development to consider the character and distinctiveness of the area, with the siting and design of the proposed development reflecting local design characteristics and, wherever possible, using local materials. The Environmental Impact Assessment process should detail the measures to be taken to ensure the building design will be of a high standard, as well as detail of layout alternatives together with justification of the selected option in terms of landscape impact and benefit.

The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.

The assessment should refer to the relevant National Character Areas which can be found on our website. Links for Landscape Character Assessment at a local level are also available on the same page.

Heritage Landscapes
You should consider whether there is land in the area affected by the development which qualifies for conditional exemption from capital taxes on the grounds of outstanding scenic, scientific or historic interest. An up-to-date list may be obtained at www.hmrc.gov.uk/heritage/lbsearch.htm.

4. Access and Recreation
Natural England encourages any proposal to incorporate measures to help encourage people to access the countryside for quiet enjoyment. Measures such as reinstating existing footpaths together with the creation of new footpaths and bridleways are to be encouraged. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green infrastructure. Relevant aspects of local authority green infrastructure strategies should be incorporated where appropriate.

Rights of Way, Access land, Coastal access and National Trails
The EIA should consider potential impacts on access land, public open land, rights of way and coastal access routes in the vicinity of the development. Consideration should also be given to the potential impacts on the nearby North Downs Way National Trail. The National Trails website www.nationaltrail.co.uk provides information including contact details for the National Trail Officer. Appropriate mitigation measures should be incorporated for any adverse impacts. We also recommend reference to the relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

5. Soil and Agricultural Land Quality
Impacts from the development should be considered in light of the Government's policy for the protection of the best and most versatile (BMV) agricultural land as set out in paragraph 170 of the NPPF. We also recommend that soils should be considered in the context of the sustainable use of land and the ecosystem services they provide as a natural resource, as also highlighted in paragraph 170 of the NPPF.

Soil and Agricultural Land Quality
Soil is a finite resource that fulfils many important functions and services (ecosystem services) for society, for example as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably.

The applicant should consider the following issues as part of the Environmental Statement:

1. The degree to which soils are going to be disturbed/harmed as part of this development and whether 'best and most versatile' agricultural land is involved.

   This may require a detailed survey if one is not already available. For further information on the availability of existing agricultural land classification (ALC) information see www.magic.gov.uk. Natural England Technical Information Note 049 - *Agricultural Land Classification: protecting the best and most versatile agricultural land* also contains useful background information.

2. If required, an agricultural land classification and soil survey of the land should be undertaken. This should normally be at a detailed level, eg one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, ie 1.2 metres.

3. The Environmental Statement should provide details of how any adverse impacts on soils can be minimised. Further guidance is contained in the *Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites*.

6. Air Quality

Air quality in the UK has improved over recent decades but air pollution remains a significant issue; for example over 97% of sensitive habitat area in England is predicted to exceed the critical loads for ecosystem protection from atmospheric nitrogen deposition (England Biodiversity Strategy, Defra 2011). A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The assessment should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.

7. Climate Change Adaptation

The England Biodiversity Strategy published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural environment 'by establishing coherent ecological networks that are more resilient to current and future pressures' (NPPF Para 174), which should be demonstrated through the ES.

8. Cumulative and in-combination effects

A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

The ES should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment, (subject to available information):

a. existing completed projects;
b. approved but uncompleted projects;
c. ongoing activities;
d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

9. Ancient Woodland – addition to the S41 NERC Act paragraph

The S41 list includes six priority woodland habitats, which will often be ancient woodland, with all ancient semi-natural woodland in the South East falling into one or more of the six types.

Information about ancient woodland can be found in Natural England's standing advice http://www.naturalengland.org.uk/Images/standing-advice-ancient-woodland_tcm6-32633.pdf.

Ancient woodland is an irreplaceable resource of great importance for its wildlife, its history and the contribution it makes to our diverse landscapes. Local authorities have a vital role in ensuring its conservation, in particular through the planning system. The ES should have regard to the requirements under the NPPF (para 175) which states:

When determining planning applications, local planning authorities should apply the following

principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts);

…

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

Appendix B – Natural England guidance on Nutrient Neutrality

Date: 10 July 2020

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

BY EMAIL ONLY

To Senior Planning Officer

Advice for development proposals with the potential to increase nutrient impacts to nationally and internationally important wildlife sites within the Stour Valley catchment[1].

Introduction

As you may be aware there are impacts on nationally and internationally important wildlife sites in the Stour Valley, arising from excessive nutrients from waste water discharges. These sites comprise:

- Stodmarsh Special Area of Conservation (SAC)
- Stodmarsh Special Protection Area (SPA)
- Stodmarsh Ramsar site
- Stodmarsh Site of Special Scientific Interest (SSSI)
- Stodmarsh National Nature Reserve (NNR)

Stodmarsh is important principally for wetland habitats and the rare and special wildlife they support. As an NNR, Stodmarsh is also special for people and their access to nature. These wetlands rely on a high quality of water and stable water levels; in particular the lake habitats. Some of the lakes are currently impacted by an excess of both Nitrogen (N) and Phosphorus (P) and are not achieving the required standard to support their favourable condition. This is because both Nitrogen and Phosphorous can have a range of negative impacts, including promoting algae growth, which can lead to reduced light and oxygen available for aquatic plants and animals and affect those birds that feed on them. Increased nutrients can also promote changes in structure which make it unsuitable for wetland species, including the main SAC feature.

Natural England's role and advice

Natural England is the government's adviser for the natural environment in England. As part of our role as a statutory consultee we provide advice to planning authorities to support them in achieving their duties to protect and enhance wildlife, public access and protected landscapes.

[1] The area captured by this advice is described in figure 1 and appendix 1 of the attached advice.

In this role Natural England draws your attention to the case law[2] with regards to determination of plans or projects that add to an existing impact on European sites' conservation objectives and recommends that your authority takes its own advice on this matter. Natural England's advice is that a likely significant effect on the Stodmarsh designated sites from development that increases these nutrients cannot be ruled out, on objective evidence, at this stage. In the absence of evidence to the contrary, our advice is that all new housing development proposals, will need to consider, via an appropriate assessment, the impact of adding to the existing water quality target failures in the Stodmarsh European sites.

Updated Methodology and webinar

To help competent authorities take proper account of these issues and aid cooperation by local planning authorities and others to develop strategic solutions, Natural England issued a document of our advice on nutrient neutrality for new development in the Stour Catchment in relation to Stodmarsh designated sites in December 2019.

Attached is an updated version of our advice on nutrient neutrality for the Stour Catchment. This document explains the environmental context, the concept of nutrient neutrality, and how it can be used to assess if development requires mitigation for additional nutrients. The document also makes suggestions for mitigation options, and how to calculate if mitigation is sufficient if land use change is being proposed to offset development-derived nutrients.

To help planning authorities and key stakeholders understand the new methodology Natural England is holding a one-off webinar on 23 July 2020 from 11:30 – 13:00. If you are interested in participating please email PlanConsAreaTeamSussexandKent@defra.gov.uk with relevant contact details of the participant and the webinar details will be sent to you as appropriate.

Natural England are not able to engage with individual applications that come forward beyond our existing statutory duties, and we will therefore not be providing bespoke detailed advice on individual application's mitigation proposals. Where appropriate, for large scale developments, we may offer to engage on a cost recovery basis through our Discretionary Advice Service.

Should you have any other questions concerning this advice or our upcoming webinar please contact consultations@naturalengland.org.uk marked for the attention of Area Team 14.

Yours faithfully,

Patrick McKernan

Manager
Sussex and Kent team

[2] E.g. ***Cooperatie Mobilisation for the Environment UA and College van gedeputeerde staten van Noord-Brabant*** (Case C-293/17 and C294/17) and People over wind (Case C323/17)

Advice on Nutrient Neutrality for New Development in the Stour Catchment in Relation to Stodmarsh Designated Sites - For Local Planning Authorities

July 2020

Nesting Bittern

SECTION 1 INTRODUCTION

1.1 The water environment within the Stour catchment is one of the most important for water dependant wildlife in the United Kingdom. The Stodmarsh water environment is internationally important for its wildlife and is protected under the Water Environment Regulations[1] and the Conservation of Habitats and Species Regulations[2] as well as national protection for many parts of the floodplain catchment[3].There are high levels of nitrogen and phosphorous input to this water environment with sound evidence that these nutrients are causing eutrophication at part of these designated sites. These nutrient inputs are currently thought to be caused mostly by wastewater from existing housing and agricultural sources, though recycling of nutrients within the lake habitats cannot be ruled out. The resulting nutrient enrichment is impacting on the Stodmarsh designated site's protected habitats and species. The area covered by this advice is described in Appendix 1.

1.2 There is uncertainty as to whether new growth will further deteriorate the designated sites. This uncertainty is one reason that the wastewater treatment works discharging into the River Stour and surrounds are subject to an investigation of their impacts and connection with Stodmarsh designated sites under the Environment Agency Water Industry National Environment Programme (WINEP) that will report in 2022. This WINEP investigation has been initiated to investigate links between the Stour and the Stodmarsh lakes systems, then propose appropriate, possible and cost effective solutions to any identified impacts. Until this work is complete, the uncertainty of new growth's impacts on designated sites remains, therefore there is potential for future housing developments across the Stodmarsh catchment to exacerbate the existing impacts thereby creating a risk to their potential future conservation status.

1.3 One way to address this uncertainty and subsequent risk, until any solutions are implemented to remove the current adverse effects on Stodmarsh, is for new development to achieve nutrient neutrality. Assessing and mitigating nutrients is a means of ensuring that development does not add to existing nutrient burdens and this provides certainty that the whole of the scheme is deliverable in line with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') and in light of relevant case law.

1.4 This report sets out a practical methodology for calculating how nutrient neutrality can be achieved. This methodology is based on best available scientific knowledge, and will be subject to revision as further evidence is obtained. It is Natural England's advice to local planning authorities (LPAs) to take a precautionary approach in line with existing legislation and case-law when addressing uncertainty and calculating nutrient budgets.

[1] The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017
[2] Conservation of Habitats and Species Regulations (England and Wales) Regulations 2017 (as amended)
[3] Including Wildlife and Countryside Act 1981 as amended, Countryside and Rights of Way Act 2000, Natural Environment and Rural Communities Act 2006

1.5 This report includes a brief summary of the planning and environmental context for this nutrient neutral approach, the detailed methodology and advice on mitigation. Further information and guidance is included in the Appendices.

SECTION 2 PLANNING CONTEXT

2.1 Since June 2019 Natural England has been advising that housing, mixed use and tourist development including all EIA development is likely to contribute to a significant effect, in combination, on the Stodmarsh designated sites in terms of water quality. We recommend a nutrient budget is calculated for such development with an attempt to achieve nutrient neutrality as part of an appropriate assessment. Early consideration of the issues ensures that any potential risks are addressed at the outset and provides the applicant with confidence that the development is deliverable subject to other material considerations being addressed.

2.2 During 2017/18 a review of the condition of the Stodmarsh lake units against the newly agreed lake water quality targets was undertaken (see Appendix 3). The best available up-to-date evidence has identified that some of the designated site units are in unfavourable condition due to existing levels of nutrients (both phosphorous and nitrogen) and are therefore at risk from additional nutrient inputs. There is no, or limited, water quality data for some of the units that are currently thought to be at favourable condition and this lack of monitoring will be addressed in the WINEP investigation.

2.3 It is Natural England's view that a likely significant effect on the internationally designated Stodmarsh sites (Special Protection Area, Special Area of Conservation and Ramsar site) cannot be ruled out due to the increases in wastewater from new developments coming forward in the Stodmarsh catchment.

2.4 The uncertainty about the impact of new development on designated sites needs to be recognised for all development proposals that are subject to new planning permissions and have inevitable wastewater implications. These implications, and all other matters capable of having a significant effect on designated sites in the Stodmarsh catchment, must be addressed in the ways required by Regulation 63 of the Habitats Regulations.

2.5 LPAs and applicants will be aware of CJEU decisions[4] regarding the assessment of elements of a proposal aimed toward mitigating adverse effects on designated sites and the need for certainty that mitigating measures will achieve their aims. The achievement of nutrient neutrality, if scientifically and practically effective and achievable, is a means of ensuring that development does not add to existing nutrient burdens.

[4] For example Cooperatie Mobilisation for the Environment UA and College van gedeputeerde staten van Noord-Brabant (Case C-293/17 and C294/17) People Over Wind and Peter Sweetman v Coillte Teoranta.(Case C-323/17).

2.6 Natural England is working with water companies, LPAs, stakeholders and the Environment Agency to try to ensure the Habitats Regulations are met. Further information on the planning context and joint working of competent authorities is provided in Appendix 2.

SECTION 3 ENVIRONMENTAL CONTEXT

Designated sites interest features

3.1 Stodmarsh is a Special Protection Area (SPA), a Ramsar site, a Special Area of Conservation (SAC), a Site of Special Scientific Interest (SSSI) and some parts are a National Nature Reserve (NNR). The site is of national and international importance for a range of water-dependant habitats including lakes and the wildlife that relies upon these habitats. The designations and features are described in Appendix 3 table A3.1 along with links to key documents of interest.

Designated sites water quality target review

3.2 The water quality targets for the Stodmarsh SPA/ SAC/ SSSI lakes were agreed with the Environment Agency in 2017 (and 2019 for Hersden Lake). These targets are based on national water quality standards for freshwater habitats and are in the published supplementary advice to the conservation objectives for the designated sites underpinning habitat. These targets include standards for nitrogen and phosphorous, as an excess of both nutrients can impact lake habitats which underpin the designated sites national and international interest features. The details of how these standards were assessed and site condition are provided in Appendix 3.

3.3 Detailed assessments of other features are available on Defra's Magic Map and condition assessments are not solely based on water quality standards. Table 1 sets out the agreed lake nitrogen and phosphorous standards and whether these standards are met, failed or if this is unknown due to lack of data (based on an amalgam of the Environment Agency and Natural England data for the WINEP investigation). Appendix 1 includes a map of SSSI unit condition. The information from the WINEP investigation will be used to inform a review of these lakes condition assessments with regards to the water quality attributes, including but not limited to nitrogen and phosphorous standards.

Table 1 Summary of water quality targets and compliance with targets if known

Targets were agreed with Environment Agency in 2017 and 2019 for Hersden Lake.

Lake name	SSSI UNIT	WFD ID	Compliance P/F/U (Pass / fail/ Unknown) No colour = no data		Natural England database (CSMI) 2018 update / threat nature
			TP Target ug/L	TN Target mg/L	
Reserve Lake/Stodmarsh Nature Reserve Pool	UNIT 10	GB30743087	F 49	F 1.5	Unfavourable Water Quality (WQ)
Collards Lake/Great Puckstone Lake	UNIT 7	GB30743097	F 49	F 1.5	Unfavourable WFD EA Assessment for 2016 MODERATE - unit fails nationally agreed WQ targets
Westbere Lake/s	UNIT 1	GB30743127	U 49	P 1.5	Unfavourable recovering Other reasons
The Fordwich Lakes/Fordwich Lake East	UNIT 2	GB30743156	U 49	U 1.5	Favourable WQ
The Fordwich Lakes/Fordwich Lakes	UNIT 2	GB30743164	U 49	P 1.5	Favourable WQ
Hersden (tidal) Lake	UNIT 5	n/a (tidal so part of the main transitional and coastal water body)	U 100	P 2.0	Favourable WQ

Other Water Quality targets:

"Chlorophyll a" for all lakes should be at Water Framework Directive (WFD) high ecological status. All other pollutants and measurements are set at WFD Good Ecological Status. The Hersden Lake has mainly bird interest features only. There is nationally agreed guidance on water quality standards for 'wintering bird lakes' (i.e. lakes which are not notified as a lake habitat in their own right or for macrophytes/ invertebrates in their own right, or to support sensitive nesting birds). This guidance says that in lakes mainly used by birds feeding on benthic invertebrates or fish severe eutrophication should be avoided.

SECTION 4 NUTRIENT NEUTRALITY APPROACH FOR NEW DEVELOPMENT

Introduction

4.1 Achieving nutrient neutrality is one way to address the existing uncertainty surrounding the impact of new development on designated sites. This practical methodology provides advice on how to calculate nutrient budgets and options for mitigation, should this be necessary.

4.2 There is evidence that inputs of both phosphorous and nitrogen influence eutrophication of the water environment. There are different forms of nutrients and concentrations vary according to exactly what is measured. These differences should be recognised when calculating nutrient budgets. The nutrient standards for the designated sites are for total nitrogen and total phosphorous as that is what is available for growth. Further information on the different forms of nutrient is provided in Appendix 3.

Approach to calculating nutrient budgets

4.3 For those developments that wish to pursue neutrality, Natural England advises that a nutrient budget is calculated for new developments that have the potential to result in increases of nitrogen or phosphorous entering the international sites. A nutrient budget calculated according to this methodology and demonstrating nutrient neutrality is, in our view, able to provide sufficient and reasonable certainty that the development does not adversely affect the integrity, by means of impacts from nutrients, on the relevant internationally designated sites. This approach must be tested through the 'appropriate assessment' stage of the Habitats Regulations Assessment (HRA). Further information on the HRA process is available here.

4.4 The nutrient neutrality calculation includes key inputs and assumptions that are based on the best available scientific evidence and research. It has been developed as a pragmatic tool. However, for each input there is a degree of uncertainty. For example, there is uncertainty associated with predicting occupancy levels and water use for each household in perpetuity. Also, identifying current land/ farm types and the associated nutrient inputs is based on best available evidence, research and professional judgement and is again subject to a degree of uncertainty.

4.5 It is our advice to local planning authorities to take a precautionary approach in line with existing legislation and case law when addressing uncertainty and calculating nutrient budgets. This should be achieved by ensuring nutrient budget calculations apply precautionary rates to variables and adding a precautionary buffer to the total nitrogen (TN) and total phosphorous (TP) calculated for developments. A precautionary approach to the calculations and solutions helps the local planning authority and applicants demonstrate the certainty needed for their assessments.

4.6 By applying the nutrient neutrality methodology, with the precautionary buffer, to new development, the competent authority may be satisfied that, while margins of error

will inevitably vary for each development, this approach will ensure that new development in combination will avoid significant increases of nutrient load to enter the internationally designated sites.

Location of development

4.7 The nutrient neutrality approach only applies to developments where the treated effluent discharges into or can impact (via tidal or storm overtopping) Stodmarsh designated sites or any water body (surface or groundwater) that subsequently discharges into such a site. The catchment area is shown on Figure 1 and described in more detail in Appendix 1. Table A1.2 in Appendix 1 lists the Wastewater Treatment Works (WwTW) which discharge into the areas shown in Figure 1. If development is within the areas shown in Figure 1 and discharges into a works listed in Appendix A1.2 all the stages of the methodology A apply. If a development is outside the Figure 1 boundary but the discharges into a WwTW that is listed in Table A1.2 then only Stage 1 and addition of the precautionary buffer from Stage 4 of the methodology A apply.

4.8 This approach may be refined if greater understanding of the eutrophication issue is gained thorough new research or updated modelling.

Type of development

4.9 This methodology is for all types of development that would result in a net increase in population served by a wastewater system, including new homes, student accommodation, tourism attractions and tourist accommodation. This development will have inevitable wastewater implications.

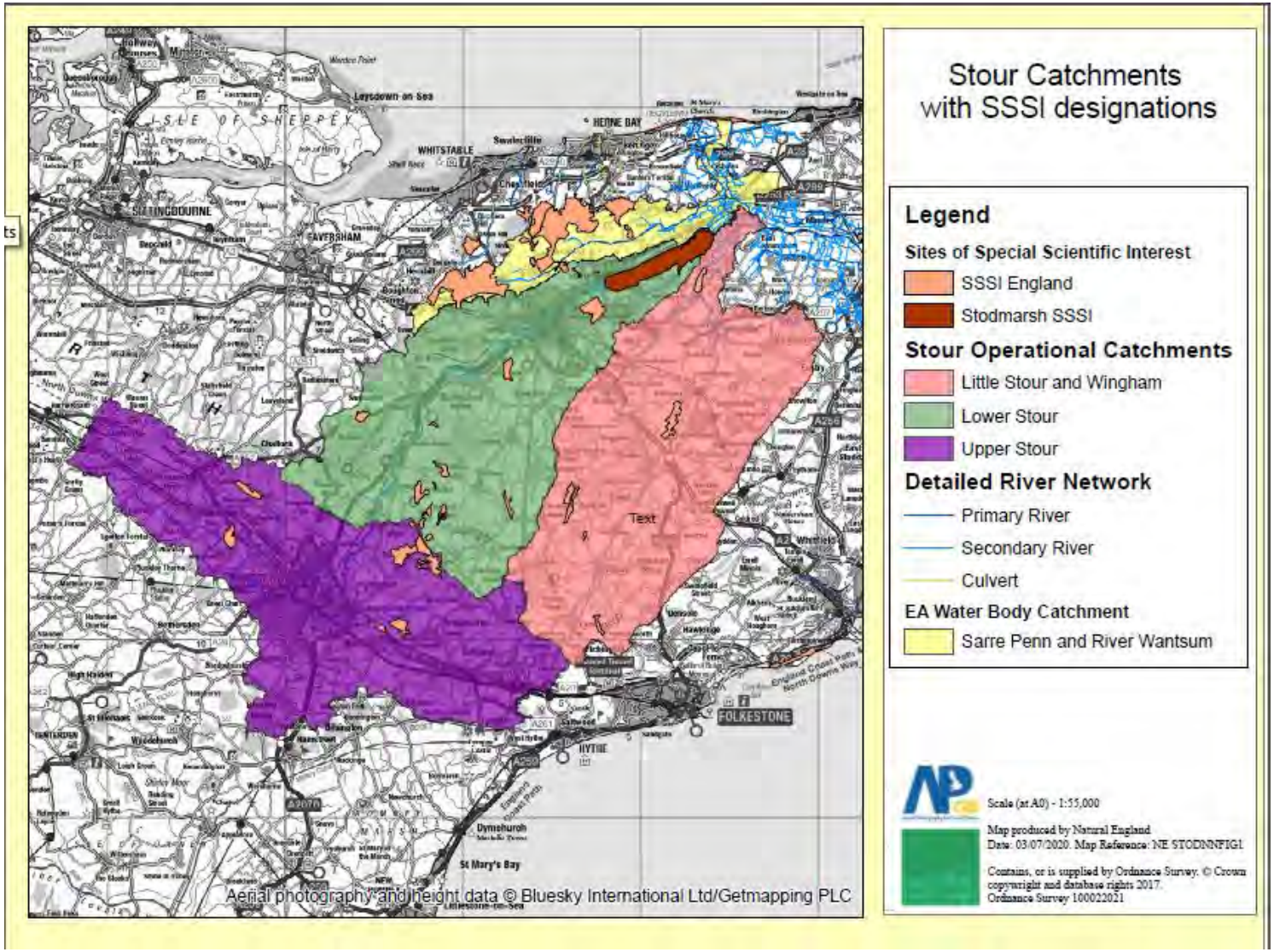
4.10 Other commercial development, not involving overnight accommodation will generally not be included unless it has other (non sewerage) water quality implications. It is assumed that anyone living in the catchment also works and uses facilities in the catchment, and therefore wastewater generated by that person can be calculated using the population increase from new homes and other accommodation. This removes the potential for double counting of human wastewater arising from different planning uses.

4.11 Tourism attractions and tourism accommodation are exceptions as these land uses attract people into the catchment and generate additional wastewater and consequential nutrient loading on the Stodmarsh designated sites. This includes self-service and serviced tourist accommodation such as hotels, guest houses, bed and breakfasts and self-catering holiday chalets and static caravan sites. Other applications will be considered on their individual merits, for example conference facilities that generate overnight stays.

4.12 There may be cases where planning applications for new commercial or industrial development such as waste management facilities, road schemes or changes in agricultural practices could result in the release of additional nitrogen and/ or phosphorus into the system. In these situations, a case-by-case approach will be adopted. Early discussions with Natural England via our chargeable Discretionary Advice Service (DAS) are recommended.

Figure 1 Surface water Stodmarsh Catchment to which this advice applies

Note developments outside of these boundaries may drain to WwTW inside these boundaries. See also table A1.1 and A1.2 and notes in appendix 1 for more detail.



SECTION 5 METHODOLOGY

5.1 A decision tree for application of the methodology is given in Figure 2. The initial stage is to determine whether the development will drain to the mains network or to a non-mains facility e.g. an on-site package treatment plant.

5.2 The methodology for development that drains to the mains network is in **Section A**. Please go to **Section B** if the new development is not on the mains network.

Section A

Stage1 Calculate Total Nitrogen (TN) and Total Phosphorous (TP) in kilograms per annum derived from the development that would exit the Wastewater Treatment Works (WwTW) after treatment

Stage 1 Step 1 Calculate additional population

5.3 New housing and overnight accommodation can increase the population as well as the housing stock within the catchment. This can increase the nutrient in discharges. To determine the additional population that could arise from the proposed development, it is necessary that sufficiently evidenced occupancy rates are used. Natural England recommends that as a starting point local planning authorities should consider using an occupancy rate of 2.4, as calculated by the Office for National Statistics (ONS) figure, as this can be consistently applied across local authority areas in the Stour catchment.

5.4 However, competent authorities may choose to adopt bespoke calculations tailored to the area of a scheme, rather than using national population or occupancy assumptions, where they are satisfied that there is sufficient evidence to support this approach. Conclusions that inform the use of a bespoke calculation need to be capable of removing all reasonable scientific doubt as to the effect of the proposed development on the international sites concerned, based on complete, precise and definitive findings. The competent authority needs to explain clearly why the approach taken is considered to be appropriate. Calculations for occupancy rates will need to be consistent with others used in relation to the scheme (e.g. for calculating open space requirements), unless there is clear justification for them to differ.

Stage 1 Step 2 Confirm water use

5.5 Determine the water use/ efficiency standard for the proposed development to be defined in the planning application and, where relevant, the Environmental Statement. The nitrogen and phosphorous load is calculated from the scale of water use and thus the highest water efficiency standards under the building regulations will minimise the increase in nutrients from the development where this goes to a treatment works with a relevant permit limit.

5.6 It is recommended that each local planning authority impose a planning condition on all planning permissions for one or more net additional new dwellings requiring construction to the optional requirement[5] under G2 of the Building Regulations 2010.

5.7 A model condition is set out below:

"*The dwellings shall not be occupied until the Building Regulations Optional requirement of a maximum water use of 110 litres per person per day has been complied with."*

5.8 The water use figure is a proxy for the amount of wastewater that is generated by a household. New residential development may be able to achieve tighter water use figures, with or without grey water recycling systems, and this approach is supported from a water resource perspective (for example in support of Southern Water's Target 100 litres per person per day). However, the key measurement is the amount of wastewater generated by the development that flows to the wastewater treatment works.

5.9 If tighter water use restrictions are used in the nutrient calculation – with or without grey water recycling systems – these restrictions must reflect the wastewater expected to be generated for the lifetime of the development. There is a risk that when kitchen and bathroom fittings are changed by occupants over the years, less water-efficient models could be installed. It is Natural England's view that it would be difficult to evidence and secure delivery of tighter restrictions at this time, to provide certainty for the lifetime of the development. However, if sound evidence can be provided, this will be considered on a case-by-case basis.

5.10 It is Natural England's view that while new developments should ideally be required to meet the 100 litres per person a day standard, the risk of standards slipping over time and the uncertainty inherent in the relationship between water use and sewage volume should be addressed by the use in the calculation of 110 litres per person per day figure.

Stage 1 Step 3 Confirm WwTW and permit level

5.11 Identify the wastewater treatment works (WwTW) that the development will use and identify whether the WwTW has a TN or/ and TP Permit.

5.12 For most planning applications the WwTW provider is not confirmed until after the planning permission is granted. The nutrient calculation should be based on the permit levels of the most likely WwTW. In any cases where the WwTW changes a reassessment of the nutrient calculation will be required to ensure the development is nutrient neutral.

[5] The optional requirement referred to in G2 requires installation and fittings and fixed appliances for the consumption of water at 110 litres per person per day.

WwTW with TN and TP permit

5.13 Identify the permit concentration limit for total nitrogen (TN) and total phosphorous (TP) at the WwTW. If the WwTW will have a tightened permit concentration limit for total nitrogen / total phosphorous under the company's water industry Asset Management Plan for confirmed delivery by 2024 then use this tightened value. If a new WwTW is proposed, obtain a determination from the Environment Agency on the permit limit for Total Nitrogen / Total Phosphorous that would apply to the works and when they are likely to be built. Further information on permit limits of some existing WwTW is provided in Appendix 1.

5.14 Where there is a permit limit for total nitrogen/ total phosphorous, the load calculation will use a worst case scenario that the WwTW operates at 90% of its permitted limit. A water company has the option of operating the works as close to the consent limit as practicable without breaching the consent limit. Natural England and the Environment Agency have agreed in the Solent to take 90% of the consent value as the closest the water company can reasonably operate works without breaching the consent limit and Natural England accepts this can be extended into other Southern Water WwTW outside the Solent including those in the Stour and its tributaries.

WwTWs without a TN/TP permit

5.15 For developments that discharge to WwTWs with no phosphorous and / or nitrogen permit level, best available evidence must be used for the calculation. The wastewater provider should be contacted for details of the nitrogen and phosphorous effluent levels monitored at the specific WwTW. However Southern Water have confirmed that they do not routinely monitor N or P in effluent discharge where there is no permit in the Stour catchment. Where monitored data is not available robust evidence may be available to derive a value for nitrogen and/ or phosphorous in the wastewater stream based on the type of wastewater treatment at the works.

5.16 For example, in the Southern Water WwTW in the Solent an average of 27 mg/l for Nitrogen is used and Southern Water have confirmed this may be used in the Stour catchment. This average figure may change if new evidence becomes available. Southern Water have advised they would assume an approximate upper figure of 8mg/l TP for works without a P permit in the Stour catchment for planning purposes though further evidence to support this figure is awaited and it may be subject to change. Evidence supporting any different chosen value for TP or TN must be included with any application. It is not possible to apply the 90% correction in these cases as these WwTWs are not regulated by a total nitrogen or/ and total phosphorous consent limit.

Relationship between TN/TP and water use

Works with a TN and TP permit limit without headroom

5.17 For WwTWs with a TN or/ and TP consents that operation at the permit concentration or close to it i.e. 90% of the permit values, there is a direct relationship between TN/TP and water use. For example, for WwTWs with a permit of 9mg/l TN and 2mg/l TP, it can be calculated that for each litre of water that passes through the works, 8.1mg of nitrogen and 1.8mg phosphorous (90% of permit values) could be released

into the water environment. If a household uses 150 litres, this equates to 1215mg/TN and 270mg of TP; if water use is reduced to 100 litres this equates to release of 810 mg of the TN and 180mg of TP. As there is this clear relationship it is therefore possible to calculate the effect of applying water efficiency measures to existing development and therefore this can be considered as potential mitigation in these circumstances.

Works with a TN and TP consent limit with permit headroom

5.18 Some wastewater treatment works operate considerably below 90% of their existing permit limits for TN/TP i.e. there is permit headroom. Where there is permit headroom reducing water consumption of existing developments to offset the proposed development does not necessarily reduce nutrient loading from the works to designated sites as there is the ability to increase the concentration of the discharge within permitted concentration. It is likely that where the influent concentration to a WwTWs increases, then there could be an increase in the concentration of the WwTW effluent. For this reason applying water efficiency measures to existing properties that discharge to works with permit headroom has uncertain or potentially no mitigating / offsetting benefit for new development. For new development the calculation should use the same approach as for works with a TN and TP permit and use 90% of the permit value along with the water usage, as this will represent the maximum loading, and therefore already allows for the increase in the effluent concentration up to the permit limit that might occur.

Works without a TN or/and TP limit

5.19 For WwTWs without a TN/TP consent level the relationship between water use and TN/TP in the effluent is more complex, but applying the same methodology for nutrient neutrality using the actual discharge concentration (without the 90% correction) for new development is considered appropriate provided the development is not considered likely to increase the influent concentration to the works above current average. Any error due to marginal increases in TN or TP concentration with increases in population served by a particular WwTW will be covered by the precautionary 20% buffer provided the influent concentration is not considered likely to increase.

5.20 Please note that due to the likely increase in influent concentration caused by water efficiency measures at existing properties, the use of measures designed to reduce water consumption as a means of offsetting mitigation of TN/TP are not appropriate due to uncertainty in what reductions, if any, they may provide in areas served by WwTWs without an N or/and P permit.

5.22 For developments with high water efficiency measures that are large in relation to the population serviced by existing works or for other reasons are likely to increase the influent concentration in areas served by works without a TN or TP limit a bespoke calculation is required. The advice of the likely sewerage provider should be sought as to whether the influent concentration is likely to increase from the proposed development in areas supplied by works without a TN/TP limit.

Stage 1 Step 4 Calculate Total Nitrogen (TN) and Total Phosphorous (TP) in Kg per annum that would exit the WwTW after treatment derived from the proposed development

5.23 The total nitrogen/total phosphorous load is calculated by multiplying the water use of the proposed development by the appropriate concentration of total nitrogen/ total phosphorous after treatment at the WwTW.

5.24 In the nutrient neutral methodology for Solent sites a discount is made for amount of N that would be present in the groundwater and river water if they were in a more natural condition and an amount considered at this stage to be likely to meet the restoration objectives for the Solent international sites. In part this is due to the absence of a numeric targets for nutrients for the Solent and in part it is due to likelihood that a proportion of the nitrogen in a groundwater catchment would eventually reach the sea.

5.25 The acceptable load of nitrogen and phosphorous levels in the Stour catchment are taken into account in the numeric nutrient standards for the lakes. The WINEP investigation will calculate values of N and P in the Stour that are acceptable in the determination of the existing treatment works effects on Stodmarsh designated sites. For these reasons Natural England do not consider it is appropriate to discount groundwater background values from the Stodmarsh nutrient neutral calculations.

Worked example of a nutrient budget calculation for discharge to a WwTW using methodology

5.26 The following worked example calculates the total nitrogen and phosphorus loads of a development of 1000 dwellings based on a WwTW with a consent limit for Total Phosphorous of 2mg/l but without a consent limit for total Nitrogen. In this theoretical example the company agreed the development proposal was small in proportion to the works population equivalence and was not likely to increase the influent as was small and the base average discharge is 27mg/l.

5.27 Where residential developments also include other overnight accommodation such as tourist accommodation and attractions, the associated water use from these additional land uses will need to be included in the calculation. These rates should be based on empirical evidence from similar developments or published literature and will be assessed on a case by case basis.

Table 2 – Calculating wastewater Total Nitrogen/ Phosphorous load from proposed development

STAGE 1 - WORKED EXAMPLE TO CALCULATE TOTAL NITROGEN (TN) and (TP) LOAD FROM DEVELOPMENT WASTEWATER				
Step	**Measurement**	**Value**	**Unit**	**Explanation**
Development proposal	Development types that would increase the population served by a wastewater system	1000	Residential dwellings	
Step 1	Additional population	2400	Persons	Uses an average household size of 2.4 x 1000 dwgs (greenfield site)
Step 2	Wastewater volume generated by development	264,000	litres/day	2400 persons x 110 litres[6]
Step 3	Receiving WwTW Average TN discharge confirmed with company as unlikely to change as result of development Receiving WwTW permit limit for TP assume discharge to be at 90%	27 1.8	mg/l TN mg/l TP	27mg/l TN confirmed average 90% of the consent limit is 1.8 mg/l TP
Step 4	TN discharged after WwTW treatment TP discharged after WwTW treated	7,128,000 475,200	mg TN/day mg TP/day	Step 2 x step 3 = 27mg/l TN x 264,000 = 1.8 mg/l TP x 264000
	Convert mg/TN to kg/TN per day Convert mg/TP to Kg/ P per day	7.128 0.4752	kg TN/day kg TP/day	Divide by 1,000,000
	Convert kg/TN per day to kg/TN per year Convert to kg/TP/SRP per day to kg/TP per year	2,601.72 173.4	kg TN/yr kg TN/yr	Multiply by 365 days
Wastewater Total nutrient load	**Total Nitrogen** **Total Phosphorous**		**2,602 kg TN/yr** **173 kg TP/yr**	

[6] Where relevant, deduct wastewater volume of population displaced by the proposed development

Stage 2 Adjust Nitrogen/ Phosphorous load to offset existing nitrogen from current land use

5.28 This next stage is to calculate the existing nutrient losses from the current land use within the redline boundary of the scheme. The nitrogen/ phosphorous loss from the current land use will be removed and replaced by that from the proposed development land use. The net change in land use will need to be subtracted from or added to the wastewater total nitrogen/ total phosphorous load.

5.29 Nitrogen–nitrate/ phosphorous loss from agricultural land has been modelled using a Farmscoper model run for the Stour Management Catchment for Stodmarsh. This model has been used to estimate the loss of nutrients from different farm types in relevant catchments and these are provided in table 3. Further details on farm classification used in the Farmscoper model are included in Appendix 4.

5.30 If the proposed development area covers agricultural land that clearly falls within a particular farm type used by the Farmscoper model then the modelled average nitrate-nitrogen and phosphorous loss from this farm type should be used.

Table 3
Farm types and average nitrogen-nitrate and phosphorous loss

AVERAGE NUTRIENT LOSS PER FARM TYPE IN STOUR MANAGEMENT CATCHMENT AREA (kg/ha)		
	Nitrate- Nitrogen (kg/ha)	Phosphorous (kg/ha)
Cereals	27.3	0.36
Dairy	58.3	0.49
General Cropping	27.9	0.28
Horticulture	18.5	0.18
Pig	60.3	0.34
Lowland Grazing	12.2	0.24
Mixed	31.5	0.27
Poultry	60.3	0.34
Average for catchment area	**23.5**	**0.28**

5.31 If the proposed development area covers several or indeterminate farm types then the average nitrate-nitrogen and phosphorous loss across all farmland may be more appropriate to use. The average figure is also included in table 3.

5.32 The figures in table 3 are taken from a Farmscoper V4 run for the Stour management catchment in September 2019 and are based on leachate kg/ha N and P for each of the individual farm types with prior mitigation measures taken up at national levels. These may be updated from time to time as land use and agricultural practice to control nutrient losses change.

5.33 For maize farms, it is recommended that the general cropping nitrogen leaching rate is used in the calculation. For sites that are in use as allotments, it is recommended that the most appropriate farm type for allotments is the average rate of the catchment land use. For sites that are currently in use as horse paddocks, it is recommended that the lowland grazing figure should be used in the calculation. If evidence can be provided to support an alternative figures, then this information will be reviewed by the local planning authority and Natural England.

5.34 It is important that farm type classification is appropriately precautionary. It is recommended that evidence is provided of the farm type for the last 10 years and professional judgement is used as to what the land would revert to in the absence of a planning application. In many cases, the local planning authority, as competent authority, will have appropriate knowledge of existing land uses to help inform this process.

5.35 There may be areas of a greenfield development site that are not currently in agricultural use and have not been used as such for the last 10 years. In these cases, there is no agricultural input into the land. If these sites are in private ownership and they are not subject to unmanaged recreational use (such as dog walking), these areas should be given a baseline nutrient leaching value of 5 kg N/ha/yr and 0.14kg P/ha/yr for nitrogen and phosphorous respectively. These figures cover nitrogen and phosphorous loading from atmospheric deposition, pet waste and nitrogen fixing legumes.

5.36 Where development sites include existing wildlife areas, woodlands, hedgerows, ponds and lakes, that are to be retained, these areas should be excluded from the calculation as there will be no change in the nitrogen and phosphorous input onto this land, or included with the same nitrogen leaching rate in stage 2 and 3. This approach assumes that if they are adopted as green infrastructure or a wildlife area in the new development appropriate management can be secured with any planning permission (see next section) to restrict nitrogen and phosphorous loading.

5.37 A similar approach can also be taken for the redevelopment of urban land as the nitrogen and phosphorous leaching rates would be 14.3 kg N/ha/yr and 0.83 kg P/ha/yr in stage 2 and 14.3 kg N/ha/yr and 0.83 kg P/ha/yr in stage 3. If there is no change in site area, these areas can be excluded from the calculation.

5.38 For sites where existing land use is not confirmed, it is Natural England's advice to local planning authorities and applicants to take a precautionary approach in line with existing legislation and case law. It is important that only land that currently drains into, or is upstream of the designated sites is used for offsetting. If the development land is within a different catchment to the waste water treatment works (WwTW) that are receiving the waste and contributing to the existing failures then this land cannot be used to mitigate the development. Where land straddles catchments a pro-rata calculation should be made. A worked example to calculate the nitrogen and phosphorous load from existing land use is set out in table 4.

Table 4 Calculating nitrogen/ phosphorous load from current land use

STAGE 2 - WORKED EXAMPLE TO CALCULATE NITROGEN AND PHOSPHOROUS LOAD FROM CURRENT LAND USE				
Step	**Measurement**	**Value**	**Unit**	**Explanation**
1	Total area of existing agricultural land	40	Hectares	This is the area of agricultural land that will be lost due to development
2	Identify farm type and confirm nutrient loss from table 2. (example based on cereals)	27.3 0.36	kg N/ha/yr kg P/ha/yr	The developable area is mainly laid to cereals. Reference Appendix 2 and Table 2
3	Multiply area by nitrate/ phosphorous loss	1,092 14.4	kg N/yr kg P/yr	40 ha x 27.3kg N/yr 40 ha x 0.36 kg P/yr
Nitrogen load - current land use	Nitrogen 1,092 kg N/yr Phosphorous 14.4 kg P/yr			

Stage 3 Adjust nitrogen/ phosphorous load to account for land uses with the proposed development

5.40 This stage is to add in the nitrogen and phosphorous loads that will result from new development that is not received by a WwTW i.e. the nutrients that arise from the new land use. This includes the nitrogen and phosphorous load from the new urban development and from the new open space including any Suitable Alternative Natural Greenspace (SANG), Nature Reserves or Bird Refuge Areas as identified within the redline boundary of the scheme.

5.41 The calculation only includes the areas of the site where there will be a change in land use, for example from agricultural land to new urban development or agricultural land to SANG/ open space. Where there is no proposed change to land use, this land should be excluded from the nutrient budget as there will be no change to the nutrient load from this area. Where land does not drain to the designated site catchment it should be excluded from the calculation.

Urban development

5.42 The nitrogen/ phosphorous load from the new urban development results from sewer overflows and from drainage that picks up nutrient sources on the urban land. Urban development includes the built form, gardens, road verges and small areas of open space within the urban fabric. These nutrient sources include atmospheric deposition, pet waste, fertilisation of lawns and gardens and inputs to surface water sewers. The

nitrogen leaching from urban land has been estimated to equate to 14.3 kg/ha/yr[7]. The phosphorous leaching from urban land has been estimated to equate to 0.83 kg/ha/ yr[8]. These figures are proxy figures from best available data however if locally robust catchment specific data is available this can and should be used. Appendix 5 sets out some of the scientific research and literature in relation to these figures.

Open Space and Green Infrastructure

5.43 Nutrient loss draining from new designated open space or SANG should also be included. The nitrogen leaching from this land has been estimated to equate to 5 kg/ha/yr for Solent sites and this is used as a proxy for the Stour valley. The phosphorous leaching from SANG land has been estimated to equate to 0.14 kg/ha/yr. Appendix 6 sets out the scientific research and literature in relation to these figures. These figures can also be used where new nature reserves or bird refuge areas are created and for new woodland planting areas.

5.44 The competent authority will need to be assured that this open space will be managed as such and there will be no additional inputs of nutrients or fertilisers onto this land for the duration of the development. Appropriate planning conditions or other legal measures may be necessary to ensure it will not revert back to agricultural use, or change to alternative uses that affect nutrient inputs in the long term. It is therefore recommended that the 5 kg/ha/yr for Nitrogen and 0.43 kg/ha/yr for phosphorous rate applies to areas of designated open space on-site of around 0.5 hectares and above. These sites will also need long term management to ensure the provision of dog bins and that these are regularly emptied.

5.45 Small areas of open space within the urban fabric, such as road verges, gardens, children's play areas and other small amenity areas, should not be included within this category. The urban development figure is appropriate for these land uses as they are already taken account in the figures chosen.

Community food growing provision

5.46 For any areas of the site that are proposed for community food growing provision, such as allotments, it is recommended that the average farm type rate is used (see table 3).

5.47 A worked example is shown in the table below. This is based on a developable area of 30 hectares covering land in a mix of farm types with the removal of 10 hectares of agricultural land to create SANG.

[7] Supplementary Planning Document – Achieving Nitrogen Neutrality in Poole Harbour

[8] From relevant Water framework directive export coefficient for urban and suburban land 2006 Final Report: Updating the estimate of the sources of phosphorus in UK waters

Table 5 – Adjust Nitrogen and Phosphorous Load to account for future land uses

STAGE 3 - WORKED EXAMPLE TO CALCULATE NITROGEN/PHOSPHOROUS LOAD FROM FUTURE LAND USES				
Step	**Measurement**	**Value**	**Unit**	**Explanation**
1	New urban area	30	Hectares	Area of development that will change from agricultural land to urban land use
2	Nitrogen/ Phosphorous Load from future urban area	429 24.9	kg N/yr kg P/yr	30 ha x 14.3 kg N/yr 30 ha x 0.83 kg P/yr
3	New SANG / open space	10	Hectares	Area of development that will change from agricultural land to SANG / open space
4	Nitrogen/ Phosphorous load from SANG/ open space	50 14	kg N/yr kg P/yr	10 ha x 5.0 kg N/yr 10 ha x 0.14 kg P/yr
5	Combine Nitrogen load from future land uses Combine Phosphorous load from future land uses	479 38.9	Kg N/yr Kg P/yr	429 kg N/yr + 50 kg N/yr 24.9 Kg P/yr +14 Kg P/yr
Nutrients from Proposed future land uses	Nitrogen 479 kg TN/yr Phosphorous 38.9 kg TP/yr			

Stage 4 Calculate the net change in the Total Nitrogen and Total Phosphorous load that would result from the development

5.48 The last stage is to calculate the net change in the total nitrogen and total phosphorous load to the Stodmarsh catchment with the proposed development. This is derived by calculating the difference between the total nitrogen/ phosphorous load calculated for the proposed development (wastewater, urban area, open space etc.) and that for the existing land uses.

5.49 It is necessary to recognise that all the figures used in the calculation are based on scientific research, evidence and modelled catchments. These figures are the best

available evidence but it is important that a precautionary buffer is used that recognises the uncertainty with these figures and in our view ensures the approach, with reasonable certainty, that there will be no adverse effect on site integrity. Natural England therefore recommends that a 20% precautionary buffer is built into the calculation.

5.50 There may be instances where it is the view of the competent authority that an alternative precautionary buffer should be used based on a site-specific basis where sufficient evidence allows the legal tests to be met. Table 6 sets out a worked example of stage 4.

Table 6 Nitrogen/ Phosphorous Load Budget

STAGE 4 - WORKED EXAMPLE TO CALCUATE THE NET CHANGE IN NITROGEN AND PHOSPHOROUS LOAD FROM THE DEVELOPMENT				
Step	**Measurement**	**Value**	**Unit**	**Explanation**
1	Identify Nitrogen load from wastewater (stage 1) Phosphorous load from wastewater (stage 1)	**2602** **173**	kg N/yr kg P/yr	See Table 1
2	Calculate the net change in Nitrogen and Phosphorous from land use change - subtract existing land uses Nitrogen/Phosphorous load (stage 2) from future land uses Nitrogen/Phosphorous load (stage 3)	-613 24.5	kg N/yr kg P/yr	479 - 1,092 kgN/yr 38.9 - 14.4 KgP/yr
3	**Determine Nitrogen/ Phosphorous Budget** – Step 1 plus step 2 of this table (the latter figure may be positive ie the change in land use will generate more nitrogen, or negative ie the change in land use will generate less Nitrogen/ Phosphorous)	1,989 197.5	kg N/yr kg P/yr	2602 kg N/yr (step 1) + (-613)(step 2) 173 kg P/yr (step 1) + 24.5 (step 2)
4	Nitrogen/ Phosphorous Budget without buffer	1,989 197.5	kg N /yr kg P/yr	
5	Divide Nitrogen/ Phosphorous Budget without buffer by 5 **(Do not apply buffer if step 4 is a negative figure)**	397.8 39.5	kg N /yr kg P/yr	1,989 kg N/yr divide by 5 197.5 divide by 5
6	Identify Nitrogen/ Phosphorous Buffer with 20% buffer	2,386.8 237	kg N /yr kg P/yr	Add step 5 to step 6 of this table
Nutrient Budget with 20% buffer	2,386.8 kg N /yr 237 kg P/yr			

Section B

Methodology for calculating TN and TP budgets for package treatment plants (PTPs)

5.51 The Environment Agency has a presumption against private sewage treatment works in sewered areas and will always seek connection to the mains sewer where possible and practicable. A principle concern relates to the failure rates of package treatment plants (PTPs) and the lack of review and periodic upgrades via regulatory systems that apply to mains. There will be site specific factors (e.g. in proximity to watercourses, soil saturation levels, etc.) that would need to be considered when evaluating this risk.

5.52 Further advice from the Environmental Agency on the use of PTP may be found at - https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits. Additional guidance may also be available via local planning authorities.

5.53 Where development proposals include use of PTPs, or similar, it is recommended that the TN and TP level is calculated on a per person basis. On average each person produces sewage containing 0.0035 tonnes of nitrogen per year (3.5 kilograms)[9] and the 0.99 kg of P[10]. The TN prior to treatment = number of additional population x 3.5 Kg = Kg TN/yr . The TP prior to treatment = number of additional population x 0.99Kg = Kg TP/yr.

5.54 The percentage reduction of TN and TP that may be applied as result of treatment will depend on the efficiency of the treatment processes employed and must be assessed on a case-by-case basis. The evidence supporting the efficiency of PTPs should include the test result documents from the lab (in English) and/ or measured effluent concentrations from real world applications, not just the covering certificate. Information will also need to be provided on the long term monitoring and management of these installations and this will need to be secured.

5.55 Bespoke calculations of the TN/TP load may be possible for larger PTPs in instances where sufficient evidence of the performance of the system in removing nitrogen and phosphorous is provided. In addition to the above, the evidence will need to include, as a minimum, a full year of operation and supporting information to ensure that the concentration of total nitrogen and phosphorous within the effluent can be reliably predicted. In these cases, early consultation with Natural England, through our charged advice service, and the competent authority is recommended.

5.56 Table 7 sets out a worked example for Stage 1. Stages 2, 3 and 4 of the above methodology can then be applied.

[9] Nitrogen reduction in Poole Harbour Supplementary Planning Document. If data more suitable to the Stour is available these figures can be used

[10] Taken from upper range values quoted in for human excreta (1.7g/dy) plus detergents (1.0g/dy) x 365 days in Natural England 2015 The impact of phosphorus inputs from small discharges on designated freshwater sites (NECR170)

Table 7 Alternative Stage 1 methodology for package treatment plants (PTPs)

STAGE 1 - WORKED EXAMPLE TO CALCULATE TOTAL NITROGEN (TN) AND TOTAL PHOSPHOROUS (TP) LOAD FROM DEVELOPMENT WASTEWATER WITH AN ON-SITE PTP (prior to treatment)				
Step	**Measurement**	**Value**	**Unit**	**Explanation**
Development proposal	Development types that would increase the population served by a wastewater system	100	Residential dwellings	
Step 1	Additional population	240	Persons	Based on average household size of 2.4
Step 2	TN prior to treatment Based on 3.5 Kg TN per person per year TP prior to treatment Based on 0.99 Kg TP per person per year	840 237.6	Kg TN /yr Kg TP/ yr	240 (step 1) x 3.5 Kg TN per person per yr 0.99 Kg TP per person per yr
Step 3	Receiving PTP TN reduction efficiency Receiving PTP TP reduction efficient	70 80	% %	Efficiency of PTP used must be evidenced this is just illustrative example.
Step 4	TN discharged after PTP treatment TP discharge after PTP treatment	252 47.52	Kg TN /yr Kg TP/yr	30% of 840 20 % of 237.6
Step 5	Apply 20% precautionary buffer	302.4 57.02		120% of step 4 1.2x252 1.2 x 47.52
PTP Total Nutrient Load	**Nitrogen 232.7 Kg TN / Yr** **Phosphorous 57.02 Kg TP/Yr**			

SECTION 6 MITIGATION

Introduction

6.1 If there is a nitrogen and/ or phosphorous surplus (a positive figure), then mitigation is required to achieve nutrient neutrality. If the calculation identifies a deficit (a negative figure), no additional mitigation is required. In the worked example described in the methodology, the nitrogen budget with 20% buffer is 2,386 Kg TN/yr and the phosphorous budget is 237 Kg TP/yr. Neutrality would therefore require appropriate mitigation measures that would remove a minimum of 2,386 Kg/TN/yr and 237 Kg TP/yr.

6.2 Mitigation can be through direct measures, e.g. interceptor wetlands that prevent nutrient from entering the site or 'indirect' by taking land out of nitrogen/ phosphorous intensive uses, e.g. crops or intensive livestock systems that result in an excess of nitrogen or phosphorous lost to the water environment. This indirect mitigation can be referred to as offsetting.

6.3 The purpose of the mitigation measures is to avoid impacts on the designated sites rather than compensating for the impacts once they have occurred. Avoiding impacts is achieved by neutralising the additional nutrient burden that will arise from the proposed development, achieving a net zero change at the designated sites in a timely manner.

6.4 To ensure it is effective mitigation, any scheme for neutralising nitrogen and/ or phosphorous must be certain at the time of appropriate assessment as part of the HRA, so that no reasonable scientific doubt remains as to the effects of the development on the international sites. This will need consideration of the delivery of mitigation, its enforceability and the need for securing the adopted measures for the duration of the development's effects, generally 80-125 years.

6.5 Schemes that are being delivered by other sectors (for example water industry and agricultural sector) for the purpose of meeting the necessary conservation measures designed for the international sites and to take appropriate steps to avoid the deterioration of the international sites should not also be used as mitigation for plans and projects, as this would compromise the original purpose and would be unlikely to meet the legal tests of the Habitats Regulations.

6.6 Further information has been included in this section on recommended mitigation measures. Each mitigation scheme will be assessed on its own merits and on a case by case basis, based on the submitted evidence. We recommend applicants to discuss options with local planning authorities and Natural England through our charged advice service, at the earliest opportunity. However, it is ultimately the decision of the local planning authorities, as competent authorities, to determine the suitability of the proposed mitigation scheme in line with the legal tests in the Habitats Regulations.

Types of mitigation

Conversion of agricultural land for community and wildlife benefits

6.7 Permanent land use change by converting agricultural land with higher nitrogen/ phosphorous loading to alternative uses with lower nitrogen/ phosphorous loading, such as for local communities, wildlife, and under schemes for flood management or to deliver the UK Government's Net Zero greenhouse gas emissions target by 2050[i], is one way of neutralising nutrient burdens from development. It is important to retain the best and most versatile agricultural land in food production, particularly food crop production. However, there are a number of reasons to support conversion of agricultural land where the land is less economic to farm. There may also be a wide range of incidental benefits for the local community and wildlife from this change, as well as delivery of wider planning policy objectives and climate emergency pledges.

On-site options

6.8 One option is to increase the size of the SANGs and Open Space provision for the development on agricultural land that reduces the nitrogen/ phosphorous loss from this source. This can be secured as designated open space or by other legal mechanisms.

Off-site options

6.9 Another option is to acquire, or support others in acquiring, agricultural land elsewhere within the Stour river catchment area. By changing the land use in perpetuity (e.g. to woodland, heathland, saltmarsh, wetland or conservation grassland), this reduces the nutrient loss from this source.

6.10 Mitigation land should be appropriately secured to ensure that at the time of the appropriate assessment it is certain that the benefits will be delivered in the long term. Natural England advises that this can be achieved through an appropriate change of ownership to a local planning authority or non-government organisation. However, it is recognised that there may be other legal mechanisms available to the competent authority to ensure deliverability and enforceability of a mitigation proposal. These can be considered on a case-by-case basis.

6.11 Such land use change should deliver multiple public benefits that can incidentally meet other government targets. There are wildlife and biodiversity benefits by enhancing ecological corridors and key sites identified in the Local Nature Partnership network or form part of the nature recovery network. This land can buffer existing nature reserves and ancient woodland. It can also create priority habitats such as heathland, saltmarsh, wetland or conservation grassland.

6.12 Small scale developments are encouraged to consider opportunities for providing local small scale mitigation measures that deliver multiple benefits. Possible options include the creation of local wetlands, local nature reserves, community orchards (without nutrient inputs), or copse. Another example is to turn a strip (in excess of 10m width) of agricultural land immediately adjacent to a public footpath into a

greenway. This could be demarcated by hedges or woodland planting for both public and wildlife benefits.

Woodland planting

6.13 Woodland planting on agricultural land is a means of securing permanent land use change without necessitating land purchase. It can be evidenced easily by aerial photography and site visits. The minimum level of woodland planting required to be considered land use change is 20% canopy cover at maturity. In very broad terms, this equates to 100 trees per hectare, although this is dependent on the type of trees planted and there are also options that this can be achieved by natural regeneration, especially if adjacent to existing native woodland. In the Stour Valley this should be achieved by use of native broadleaf species of local provenance, to secure wider biodiversity gains and reduce risk of non-native species and disease spread to the existing internationally protected woodland in the valley. A nitrogen leaching rate from semi-natural native woodland planting is likely to equate to 5kg/ha/yr and phosphorous of 0.02 kg/ha/yr.

6.14 In a relatively short time, the woodland planting would require a felling licence and woodland removal would also be covered by the EIA Regulations where woodland is planted as mitigation for internationally designated sites. There are therefore a number of layers of security for the competent authorities to ensure this mitigation is being delivered effectively. Planted woodland does require management for the first decade in terms of plug fencing and maintenance until the canopy has reached above browsing height, thereafter management is relatively minimal though some thinning is preferable to enable mature trees to develop.

6.15 Woodland planting would secure carbon capture, biodiversity and recreational benefits. The established woodlands could also be used for wood fuel production or coppice timber production.

Wetlands

6.16 Wetlands receiving nutrient-rich water can remove a proportion of this nitrogen/ phosphorous through natural processes. Wetlands can be designed as part of a sustainable urban drainage (SUDs) system, taking urban runoff/ stormwater; discharges from WwTWs can be routed through wetlands; or the flow, or part of the flow, of existing streams or rivers can be diverted through wetlands though alteration of natural drainage channels should be discouraged.

6.17 Wetlands deliver incidental wildlife and biodiversity benefits, with possible drainage and flood defence benefits (by reducing risk of harm from natural hazards). Further possible benefits arise from increased infiltration into groundwater and these systems can help make communities more climate change resilient. If the wetlands can be accessible, through the provision of boardwalks, then there will also be benefits for wellbeing. It is essential that wetlands and SUDs are maintained to provide ongoing nutrient removal. Provisions for resourcing the ongoing maintenance of SUDs will need to be secured with any planning permission. Further information on the

potential for nitrogen and phosphorous mitigation using wetlands is included in Appendix 5.

Wastewater Treatment Work Upgrades

6.18 Mitigation options at WwTWs theoretically include the agreement with the wastewater treatment provider that they will maintain an increase in nitrogen or phosphorous removal at the WwTW. Upgrades to WwTW that are managed by the water sector are undertaken through a specific water industry regulatory process. Securing upgrades to WwTW can only be achieved via this regulatory process.

6.19 There may also be opportunities to progress a wetland at a WwTWs, at the final stage of the process, once the permit consents have been met. It is possible to discharge the WwTWs outfall through wetlands, prior to release into the wider environment. Further details of this option is included in Appendix 7.

Size of mitigation land

6.20 The mitigation land must be sufficient to ensure the legal tests in the Habitats Regulations can be met. For some types of mitigation, for example wetlands, there can be minimum sizes for nutrient removal processes to be effective (see Appendix 7).

6.21 Larger schemes create more opportunities for other sources of funding. Land that is taken out of agriculture for nutrient mitigation could also qualify for additional funding for future management to meet other legislative and policy requirements. For example, with additional management and infrastructure, this land may qualify as SANG to relieve recreational pressure on international designated sites. Furthermore larger schemes have the potential to deliver wider community and biodiversity benefits and these options should be encouraged where possible.

6.22 Smaller schemes will also be acceptable where the legal tests in the Habitats Regulations are met so there is certainty around these measures, for example, their deliverability, enforceability and long term use.

Location of mitigation

6.23 The location of the mitigation site will also influence the effectiveness of the measure. The appropriate location for mitigation land firstly depends on the catchment of the development and location of the WwTWs outfall. Consideration then needs to be given to site specific factors such as geology, hydrology and topography.

Identifying the catchment for mitigation land

6.24 The fluvial catchment for the Stodmarsh internationally designated sites is shown on Figure 1.

6.25 A key objective is to ensure mitigation land is situated in the most effective location. If interception of WwTW stream is required, then mitigation should be situated as close to the works as possible. The mitigation should be in the same sub-catchment as the discharge location.

Drain to ground

6.26 For developments that drain to ground via a package treatment plant (PTP), septic tank or mains WwTWs, it is appropriate for mitigation land to be within the same catchment as the outfall location of the PTP or WwTW.

Temporal principles

6.27 Within chalk geology where the nitrogen or phosphorous discharge is to ground and remote from watercourses there is likely to be a considerable delay or it may be significantly attenuated. In such circumstances mitigation measures that take effect quickly may not need to be implemented immediately. We advise that these issues are examined on a case by case basis in consultation with the relevant local planning authority or authorities and Natural England.

6.28 Sites that are downstream of the WwTWs and upstream of the designated sites are ideally located to reduce the nutrient load reaching the designated sites. It is our preference that mitigation sites are prioritised within the lower fluvial catchment and close to but upstream of the Stodmarsh site. Sites that are located on tertiary geology or clay are preferred or sites that are located on the break of slope onto chalk bedrock. These sites reduce the time lag between the nutrient benefits of changes to land use within the catchment and the benefits to the designated sites.

6.29 For sites located on the upper fluvial catchment of the Stour on the chalk bedrock, without any water course in close proximity, there may be a time lag for consideration. It is our advice that the depth of the chalk groundwater is considered. For sites where the groundwater is more than 5m below ground level, then this land is unlikely to be appropriate for mitigation for short term development. Although it may be appropriate for development that is phased over more than 5 years, provided the mitigation land is delivered straightaway.

6.30 There may be sites where there is evidence of a short time lag between nutrient reduction at the mitigation site and the designated sites, or where the mitigation site is located on a geology or in an area that will result in additional benefits for nutrient removal, over and above the change in land use at the site itself. These options will be considered on a case-by-case basis.

Strategic Solutions

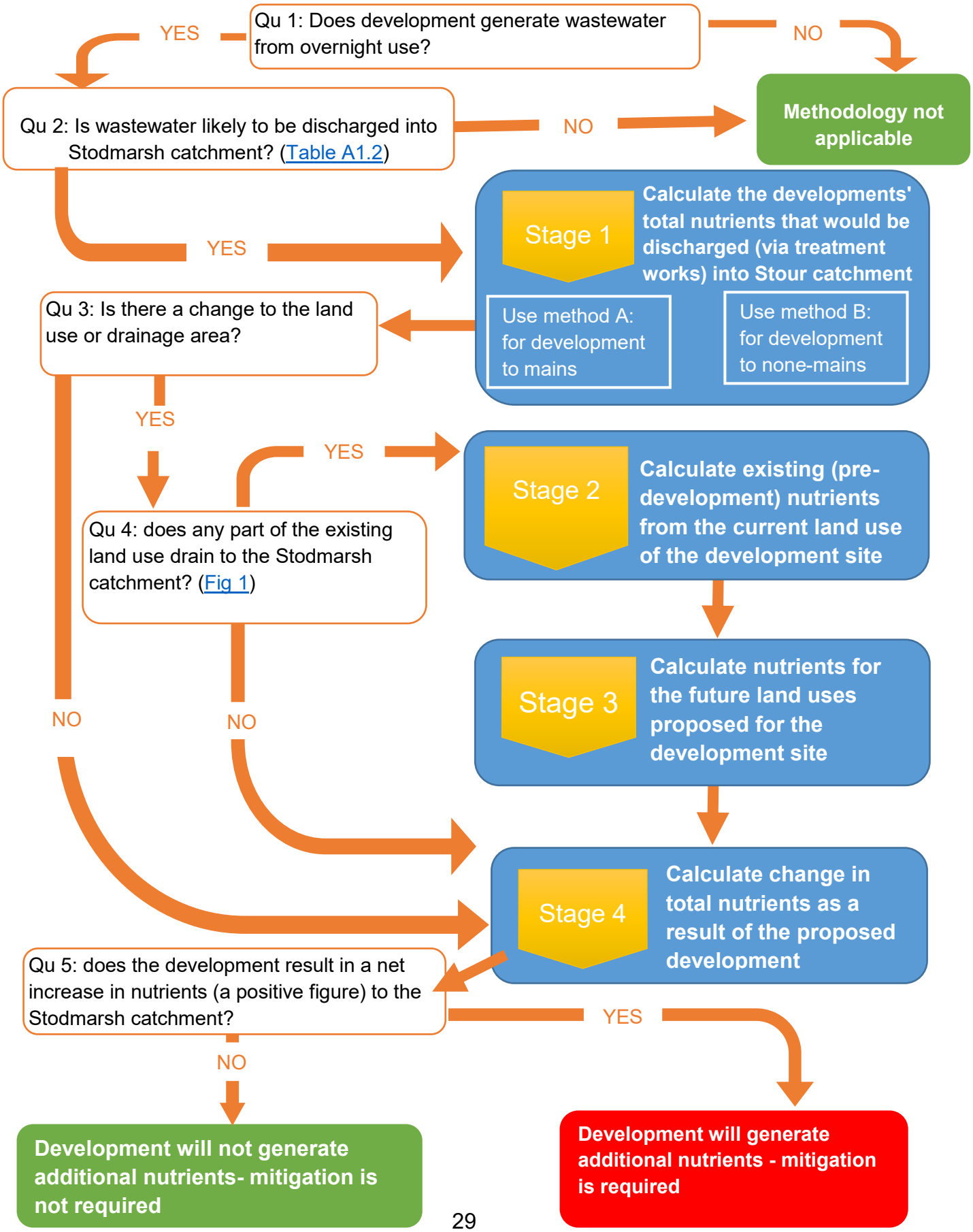
6.31 It is appreciated that achieving nutrient neutrality may be difficult for smaller developments, developments on brownfield land, or developments that are well-progressed in the planning system. Natural England is working closely with local planning authorities to progress Borough/ District/ City wide and more strategic

options that achieve nutrient neutrality and enable this scale of development to come forward.

6.32 Further information will be available on the local authority websites in due course. Natural England can provide further advice on the methodology and mitigation options through our chargeable services (DAS).

Figure 2

Nutrient Assessment methodology – Decision Tree



Notes for Decision Tree

Question 1 – This includes housing development and tourist development. This is covered in type of development section

Question 2 –The wastewater treatment works to which this advice applies are listed in Table A1.2 and the land drainage area to which this advice applies is shown in Figure 1. See Appendix 1 for further details on location.

Question 3 – If the development is converting an existing urban use that does not generate overnight stays (such as office accommodation or employment land) to other urban use then this is not considered a change of land use for offsetting purposes. If urban land is being converted to a park or greenspace this should be included in the land use calculation. Further information on this is contained the stage 2 and 3 calculation of the methodology

Question 4 - if the land use does not drain to the catchment its existing nutrients are not contributing to the failures or risk of failures of the designated sites water quality standards and cannot be used to offset the nutrients from wastewater. If the existing site drains into two catchments only the area that currently (before proposed development) drains into the Stodmarsh catchment (within the lower stour) can be used for offsetting.

Question 5 - This is covered in stage 4 of the methodology.

Appendix 1

Spatial Extent Covered by this Advice

A1.1 The Environment Agency's Water Industry National Environment Programme (WINEP) investigation scope has agreed the water company assets that are to be part of the investigation into impacts on Stodmarsh designated sites (June 2020).

A1.2 At this time Natural England cannot rule out on objective evidence a likely significant effect on Stodmarsh European sites of development land drainage or effluent from works that discharge upstream in the Stour and downstream (for the tidal lake and during overtopping). Figure 1 in the main document shows the main rivers in the Stodmarsh area. Stodmarsh sits in the Environment Agency Stour management catchment, Figure A1.1 shows the environmental designations in the Stour Catchment. Links to Environment Agency maps and details of the operational management catchments within the Stour management catchment are listed in the table A1.1 below.

A1.3 Natural England recommend that an appropriate assessment of water quality impacts on the designated sites is undertaken for developments that are within, or discharge to, WwTW that are within those catchments mapped in Figure 1 and/ or listed in table A1.1 and table A1.2. Developments where the effluent and drainage goes to works in the operational catchments listed as excluded are not considered to have a hydrological connection to Stodmarsh designated sites. The WwTW listed are those existing Southern Water continuous discharge assets that are in the WINEP investigation, however if discharge from new development goes to an asset in the catchment but not owned by Southern Water, or a new asset is proposed then that should also be assessed.

Table A1.1 Stour Operational Catchment Links

Stour Operational Catchments INCLUDED in the Stodmarsh Advice	**Stour Operational Catchments EXCLUDED from the Stodmarsh Advice**
Stour Lower	Dour
Stour Upper	North and South Streams
Little Stour and Wingham	Oyster Coast Brooks (Part see Figure 1)
Kent East Coast TRaC (Part only see Figure 1 and list of WwTW)	Kent East Coast TRaC (Part only see Figure 1 and list of WwTW)
Oyster Coast Brooks (Part see Figure 1 and list of WwTW	Stour Marshes (Part only see Figure 1 and list of WwTW)
Stour Marshes (Part only see Figure 1 and list of WwTW))	

Table A 1.2 Waste Water Treatment Works covered by this Guidance			
Southern Water Waste Water Treatment Works Continuous Discharges considered as part of WINEP investigation * (waterbody/ catchment into which it discharges in brackets)	**TP Limit current (planned permit by 2024 in brackets)**	**TN Limit current**	**Population Equivalent (2020)**
Ashford (Bybrook)WwTW (Stour -Ashford Wye)	0.5mg/l OSM**	None	115,149
Canterbury WwTW (Stour A2 to West Stourmouth)	2mg/l	None	72,498
Charing Wwtw (Upper Great Stour)	1mg/l (OSM only) (0.5 mg/l by 2024)	None	2,057
Chartham Wwtw (Stour Wye –A2)	None	None	6,966
Chilham (Stour Wye- A2)	None	None	946
Dambridge (Wingham)	2mg/l (0.25 mg/l by 2024)	None	21,347
Lenham Wwtw (Upper Great Stour)	1mg/l (OSM only) (0.5 mg/l by 2024)	None	3,206
May St (Herne Bay) WwTW (Oyster coast brooks)	2 mg/l (0.3 mg/l by 2024)	None	43,025
Newnham valley WwTW (Little Stour)	None (1mg/l by 2024)	None	7,372
Sellindge WwTW (East Stour)	1mg/l OSM annual mean (0.5 mg/l by 2024)	None	5,443
Westbere WwTW (Stour A2 to West Stourmouth)	None	None	6,503
Wye (Stour –Ashford Wye)	None	None	2,135
Good intent cottages WwTW **Nats Lane Brook WwTW** **Westwell WwTW**	None None None	None None None	15 308 216

*Natural England have chosen to exclude Minster WwTW from this advice as it is likely that this works will be excluded from the WINEP investigation. ** This works has an UWWTD annual mean figure of 1mg/l but the OSM figure is sufficiently certain to be used for planning purposes

Figure A1.1 Designations in the Stodmarsh River Catchment

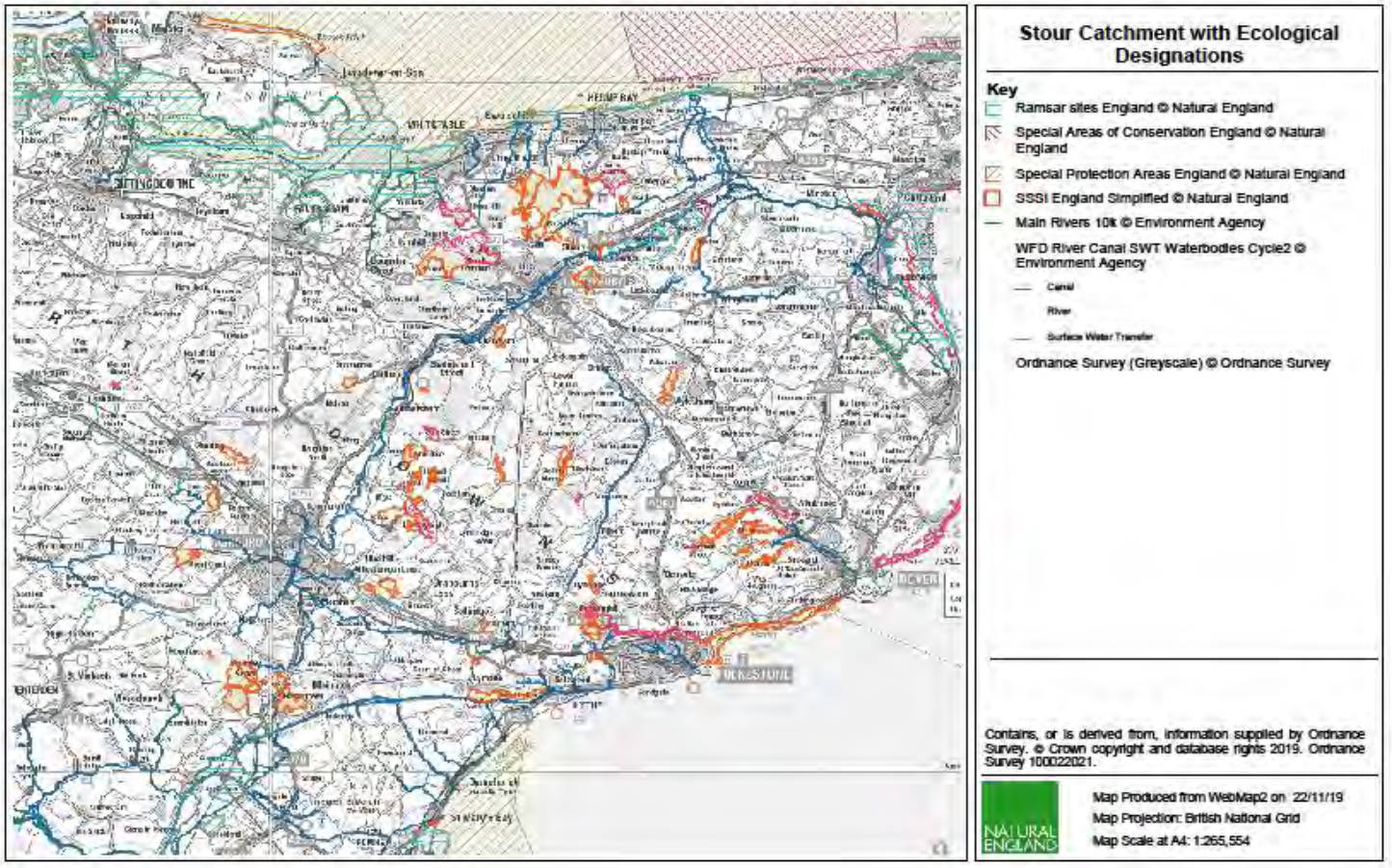
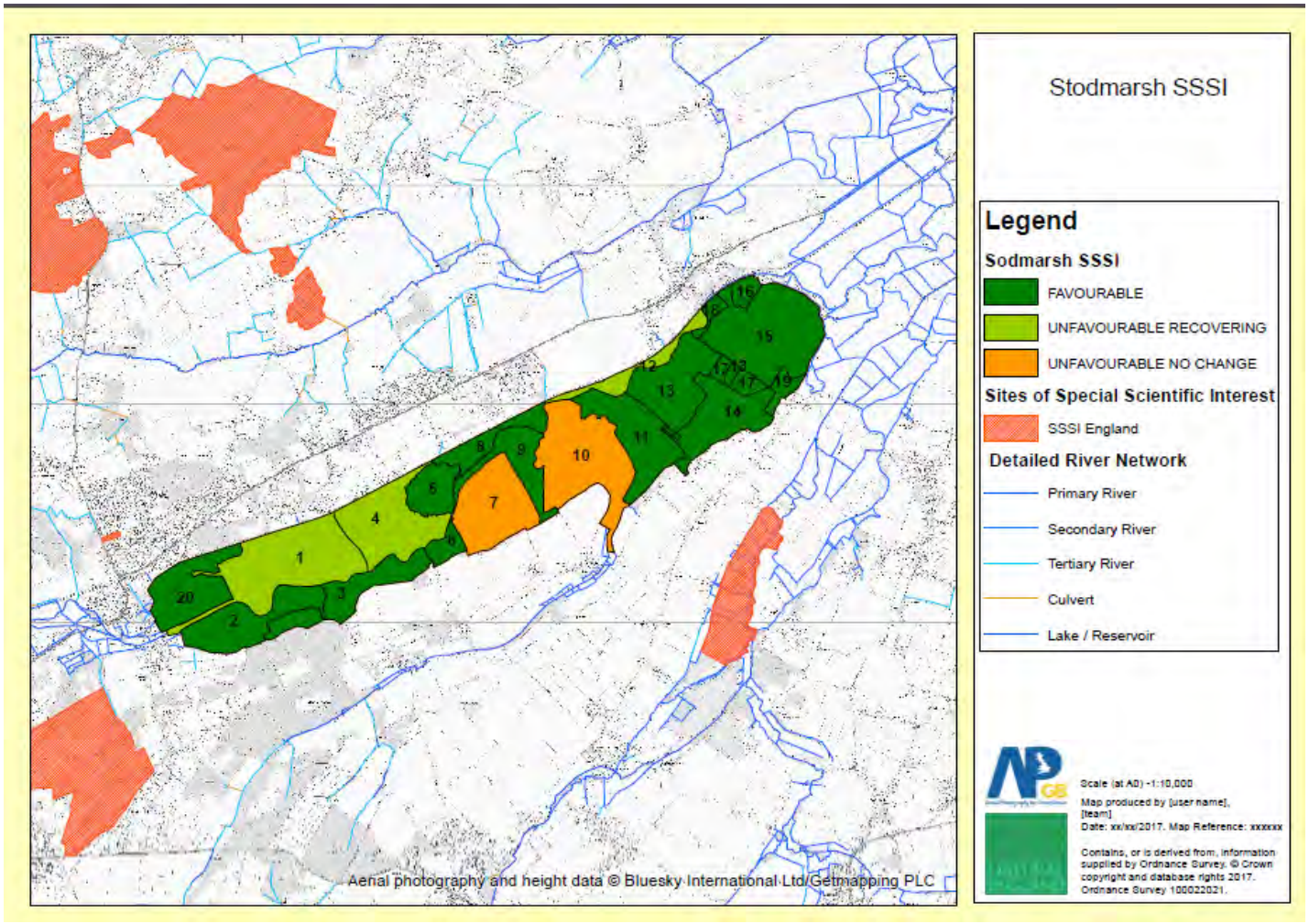


Figure A1.2 Stodmarsh unit condition



Appendix 2

PLANNING CONTEXT

Natural England's Position

A2.1 It is Natural England's view that there is a likely significant effect on several internationally designated sites in the Stour Valley (Special Protection Area, Special Area of Conservation and Ramsar site) due to the increase in wastewater from the new developments coming forward.

A2.2 The uncertainty about the impact of new development on designated sites needs to be recognised for all development proposals that are subject to new planning permissions and have inevitable wastewater implications. These implications, and all other matters capable of having a significant effect on designated sites in the Stour Valley, must be addressed in line with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended).

A2.3 Where there is a likelihood of significant effects (excluding any measures intended to avoid or reduce harmful effects on the European site), or significant effects cannot be ruled out, a competent authority should fully assess (by way of an "appropriate assessment") the implications of the proposal in view of the conservation objectives for the European site(s) in question. Appropriate assessments cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned. The Local Planning Authority, as competent authority, may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the international sites.

A2.4 Natural England advises that the impacts of wastewater on designated sites from new development, in the interim until the WINEP investigation reports and any identified solutions are implemented, are examined within appropriate assessments and that the existing nutrient and conservation status of the receiving waters be taken into account.

A2.5 LPAs and applicants will be aware of recent CJEU decisions regarding the assessment of elements of a proposal aimed toward mitigating adverse effects on designated sites and the need for certainty that mitigating measures will achieve their aims. The achievement of nutrient neutrality, if scientifically and practically effective, is a means of ensuring that development does not add to existing nutrient burdens.

A2.6 LPAs have duties to conserve and enhance Sites of Special Scientific Interest (SSSIs) consistent with the proper exercise of their functions and to exercise those functions in a way that prevents deterioration of habitats and birds and has regard to the achievement of favourable conservation status for international sites. The LPAs should give consideration if application of neutrality would hinder the ability to restore the sites conservation objectives.

Joint working

A2.7 Natural England is working with water companies, local planning authorities, stakeholders and the Environment Agency to try to ensure the Habitats Regulations are met.

A2.8 Natural England will be working closely with local planning authorities to progress options that achieve nutrient neutrality. It is appreciated that this may be difficult for smaller developments, developments on brownfield land or developments that are well-progressed in the planning system.

A2.9 Natural England will be advising affected local planning authorities to set up authority-wide or strategic approaches that developments can contribute to thereby ensuring that this uncertainty is addressed in so far as is reasonably practicable by all applications and will be working closely with affected local planning authorities to help address this issue.

A2.10 All queries in relation to the application of this methodology to specific applications or development of strategic solutions will be treated as pre-application advice and therefore subject to chargeable services.

Appendix 3

Environmental Context

Designated sites interest features

A3.1 Stodmarsh is a Special Protection Area (SPA), a Ramsar site, a Special Area of Conservation (SAC), a Site of Special Scientific Interest (SSSI) and some parts are a National Nature Reserve (NNR). The site is of national and international importance for a range of water-dependant habitats including lakes and the wildlife that relies these habitats. The designations and features are described in table A3.1 (below) along with links to key documents of interest.

Designated sites water quality target review

A3.2 The water quality targets for the Stodmarsh SPA/ SAC/ SSSI lakes were agreed with the Environment Agency 2017 (and 2019 for Hersden Lake). These targets are based on national water quality standards for freshwater habitats and are in the published supplementary advice to the conservation objectives for the designated sites underpinning habitat. These targets include standards for nitrogen and phosphorous as an excess of both nutrients can impact lake habitats which underpin the designated sites national and international interest features. Once the standards were agreed, Natural England assessed the available data for water quality in the Stodmarsh lakes using the Environment Agency catchment data explorer and any available data against the newly agreed standards and if no data was available to Natural England the existing condition remained based on previous site data. Where the site condition was correctly identified in terms of water quality (e.g. unit 10) the existing condition remained. Subsequently as part of the WINEP programme the Environment Agency assessed their data against the lake standards and incorporated this into the measures specification form (scope) for the WINEP investigation.

A3.3 Detailed assessments of other features are available on Defra's Magic Map and condition assessments are not solely based on water quality standards. Table 1 in the main document sets out the agreed lake nitrogen and phosphorous standards and whether these standards are met or failed or if this is unknown due to lack of data (based on an amalgam of the Environment Agency and Natural England data for the WINEP investigation). Appendix 1 includes a map of SSSI unit condition. A brief summary of the condition classes follows. The information from the WINEP investigation will be used to inform a review of these lakes condition assessments with regards to the water quality attributes, including but not limited to nitrogen and phosphorous standards.

Favourable – high risk

A3.4 Some Stodmarsh lakes are in favourable condition as they are meeting the nutrient targets or, where data is not available to complete the assessment, the officer judgement has historically viewed them as having no significant signs of water quality impacts at last visit (though this may be significantly out-of-date). These units are all considered to be at risk of elevated nutrients due to lack of information on their nutrient status. Lakes in this category include Fordwich East and main Fordwich lake

(unit 2) and Hersden lake (Unit 5). The tidal lake (Hersden lake) is only notified for bird features that are feeding on the benthic muds and therefore has less stringent water quality targets than the other lakes. Risks are described as “threats” on the Natural England designated sites database (CSMI).

Unfavourable recovering

A3.5 The Westbere lake (unit 1), passed the total phosphorous standard (based on Environment Agency Assessment of WFD status) but it is considered unfavourable for other reasons and is considered recovering on the basis of management measures to address the other impacts. It has a threat recorded due to the absence of adequate water quality data for lake assessments.

Unfavourable no change

A3.6 The main NNR lake and Collards lake are failing both the total phosphorous and total nitrogen standards based on Environment Agency assessment of WFD status. Since the sources of elevated nutrients have not been removed the lakes are not considered to be recovering. The condition assessment of the NNR lake (unit 10) already identified the water quality issues and was therefore not changed in 2018. Unit 10 condition assessment states “Study of Aufwuchs (prompted by algae bloom and fish kill events) indicates high nutrient levels in main NNR lake. (Total Phosphorus (TP) at 1 mg/l = 1000 ug/l …the target for SSSI lakes is [49]ug/l. More research is required to understand hydrological regime and water quality of input sources (Great Stour and Lampen Stream)”.

Joint working - Catchment work

A3.7 The high levels of nitrogen and phosphorus input to the water environment in the Stour catchment generally is currently caused by wastewater from existing housing and agricultural sources, though some local and within site process can occur in lake habitats and there are suspected mine waste contamination in some areas of the Stour. There are a number of mechanisms already in place to reduce the amount of nutrient inputs within our river and lake catchments and coastal waterbodies. Within the river Stour catchment; both Defra and partnership funded Catchment Sensitive Farming (CSF) programmes work with agriculture to reduce diffuse agricultural sources of pollution such as fertiliser and slurry run-off. One of the aims of this work is to deliver environmental benefits from reducing diffuse water pollution. To achieve these goals the CSF partnership delivers practical solutions and targeted support which should enable farmers and land managers to take voluntary action to reduce diffuse water pollution from agriculture to protect water bodies and the environment. The Stour has been a priority catchment under CSF since phase 1 (2006).

A3.8 Although catchment wide advice has been provided, often through newsletters and events, 1:1 advice and grant support; engagement has always been geographically focused based upon where the risks and issues are most apparent or where multiple issues overlap, and in order to make the most of available resources. Geographic targeting has been primarily focused around surface waterbodies although CSF have always tried to make provision for some sector specific targeting, for example dairies or large horticultural enterprises where direct point pollution or significant surface water flow may occur. The catchment contains numerous spring fed streams which

flow over permeable chalk, sandstones and clays. Most of the farm land along the Stour has a brick earth element that can contribute to often rapid run-off of surface waters to the water courses. Current concerns in general waterbodies in the Stour catchment are nitrates and pesticide levels, as well as heightened sediment loads in streams in winter. Agricultural phosphorous is not considered to require separate consideration in the Stour catchment, and many measures primarily aimed at addressing agricultural nitrogen will also help reduce agricultural diffuse phosphorous.

A3.9 In addition, the wastewater treatment works (WwTW) that enter into the catchment of Stodmarsh are the subject of an investigation under Water Industry National Environment Programme (WINEP) which will determine the extent of the connection of WwTW and sewerage assets to the Stodmarsh lakes and to what extent the existing WwTW discharges and other company assets are contributing to the existing water quality failures and risk of failures. The investigation will take account of the need to reconnect some of the lakes more closely to the main river Stour in future to ensure sufficient water for the designated sites in the face of climate change and in light of recent experience of NNR staff of insufficient water for the conservation management of the site in hot dry summer of 2018. The primary objective of the WINEP investigation to assess what improvements are required (if any) to the water company assets needed to enable the achievement of the agreed lake standards.

Type of nutrient inputs to designated sites

A3.10 There is evidence that inputs of both phosphorus and nitrogen influence eutrophication of the water environment. The principal nutrient that tends to drive eutrophication in the marine environment is nitrogen, the principal nutrient that drives eutrophication in flowing freshwaters is phosphorous. In still freshwaters and many estuaries both phosphorous and nitrogen can result in eutrophication (called co-limitation). In reality the picture is more complicated than this. For Stodmarsh lakes the principal nutrients are: phosphorous and nitrogen based on the water quality standards in Common Standards Monitoring Guidance for the appropriate designated sites features and the Supplementary Advice to the Conservation Objectives (SACOs) for the SPA and SAC which also cover the Ramsar site.

A3.11 The best available evidence is for focus in the Stodmarsh/ Stour catchment to be on both nitrogen and phosphorus. However, this approach may be refined if greater understanding of the eutrophication issue is gained thorough new research or updated modelling or the WINEP investigation.

A3.12 The nutrient budget in this report calculates levels of nutrient from development however both phosphorous (P) and nitrogen (N) come in different forms and it is important to understand which is relevant to the designated site features in this methodology.

Phosphorous

A3.13 The forms of phosphorous need to be recognized when calculating nutrient budgets. The key measure for still and very slow flowing waters such as lakes or ditches is total phosphorous (TP) (plus in most cases total nitrogen) because this is available

for algae and plant growth. For rivers the designated sites standards are for Soluble Reactive Phosphorous (SRP) as both an annual and a growing season mean. The relationship between SRP and TP is not straight forward and can vary between, and even within catchments (e.g. River Avon catchment). Modern WwTW permits usually have values for total phosphorous and the Environment Agency guidance on technically achievable limit (TAL) is for total phosphorous. Total phosphorous (TP), has been chosen for the current methodology as it is applicable to the lake habitats at Stodmarsh. Farmscoper reports provide amount of farm total phosphorous and this is the default setting. Though there is some uncertainty from these different forms of phosphorous, this is taken into account at the end of the methodology by the addition of a correction factor.

Nitrogen

A3.14 The different forms of nitrogen need to be recognized when calculating nutrient budgets. The key measurement is total nitrogen (TN), i.e. both organic and inorganic forms of nitrogen, because this is what is available for plant growth. TN is the sum of the inorganic forms - nitrate-nitrogen (NO3-N), nitrite-nitrogen (NO2-N), ammonia, and organically bonded nitrogen.

A3.15 Total nitrogen is measured by WwTW where there is a permit with a TN limit consent. However, for WwTWs without permits, measurements could be inorganic nitrogen (nitrate + nitrite + ammoniacal N) or TN or a mix. Most river/coastal quality monitoring by the Environment Agency only records the inorganic N forms. Farmscoper reports measure nitrate-nitrogen not TN. Nitrate is normally the largest component of TN but quantities of organic N can be significant. For example in the Test catchment dissolved organic nitrogen has been found to comprise 7% of the potential biologically available nitrogen in the river and 13% of that in the estuary (Purdie, 2005[11]). Thus, the land use change element of this methodology will underestimate TN leaching. We therefore advise that this uncertainty is recognised and the recommended precautionary buffer approach is adopted.

[11] Purdie, D., Shaw, P., Gooday, A. and Homewood, J. (2005) Dissolved Organic Nitrogen in the River Test and Estuary, University of Southampton

Table A3.1 Designate Sites Interest Features

Designation	Links to Conservation Advice or equivalent	Interest features and links to citation or equivalent
Stodmarsh Site of Special Scientific Interest (SSSI)	Favourable condition tables	The interest features of the SSSI are described in full in the citation and are summarised below: • Wetland habitats including Swamp, fen and reedbed communities. • Standing waters- lake and ditch habitats • Desmoulin's whorl snail • Assemblage of Breeding Birds • Aggregations of rare Breeding Birds: • Aggregations of non-breeding birds • Assemblage of vascular plants • Assemblage of invertebrates (W211 open water on disturbed sediments and W314 permanent wet mire and rich fen communities)
Stodmarsh Special Protection Area	Conservation Objectives Supplementary Advice	The interest features of the SPA are described in full in the citation but are summarised below: • Great bittern (Non- Breeding) • Gadwall (Breeding and Non-Breeding) • Northern Shoveler (Non-Breeding) • Hen Harrier (Non-Breeding) • Waterbird Assemblage • Breeding Bird Assemblage
Stodmarsh Ramsar Site	The SACOs for the SPA and SAC and the FCTS for the underpinning SSSI for the SPA and SAC are considered to cover these features	The interest features of the Ramsar site are described in full in the Ramsar Information Sheet and are summarised below: Ramsar Criterion 2: • Assemblage or British Red Data book invertebrate species, • Assemblage of rare and scarce plans species • A diverse assemblage of rare wetland birds
Stodmarsh Special Area of Conservation (SAC)	Conservation Objectives Supplementary Advice	The interest features of the SAC are described in full in the citation and are summarised below: • Desmoulin's whorl snail

Source Apportionment

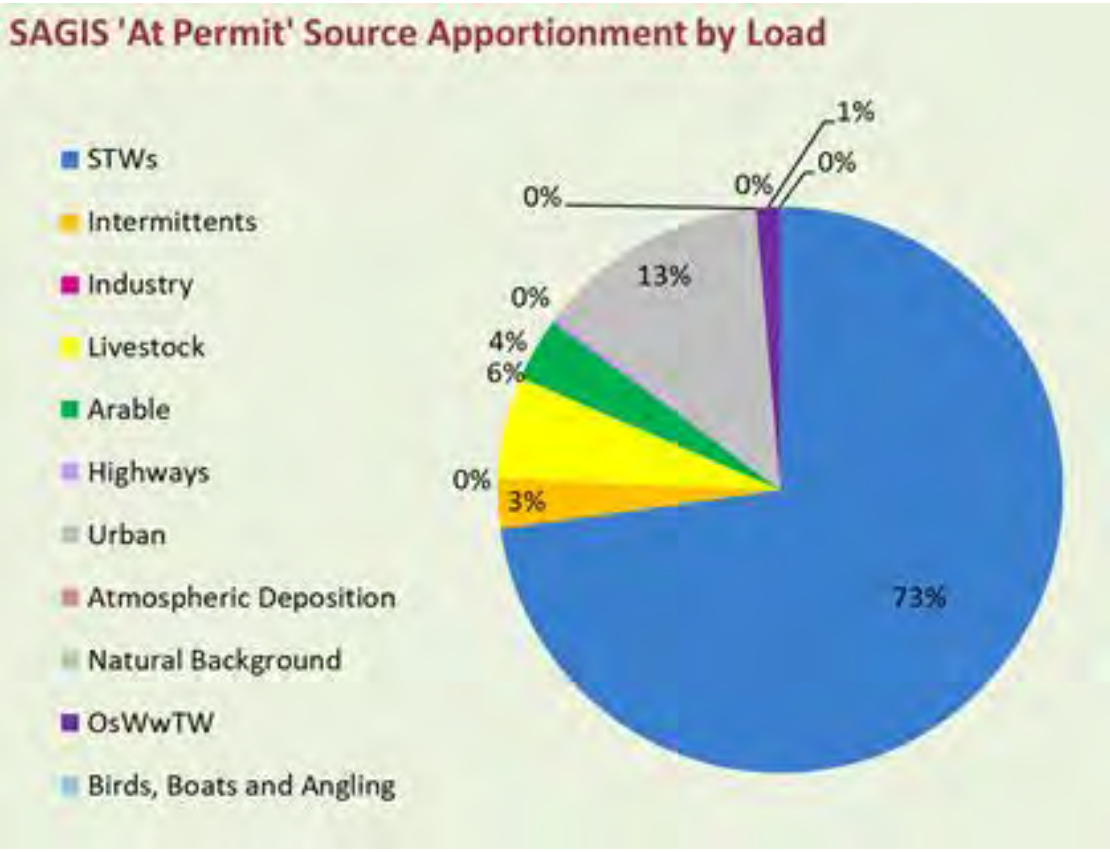
A3.16 The relative proportion of nutrients from difference sources is referred to as source apportionment. The standard industry models used by Environment Agency and water sector are SIMCAT and SAGIS. Figure A3.1 below, shows the phosphorous source apportionment provided by the Environment Agency from their PR19 planning work, estimating the permitted source apportionment by load at the bottom of the freshwater Stour downstream of the Canterbury WwTW at the closest sampling reference point to the Stodmarsh designated sites.

A3.17 The dataset was produced from a SAGIS model calibrated by the Environment Agency using SAGIS vs6a, Simcat data file Calibration SERBD v6 @permit model (Cal_Diff6_pit.dat 03417). The agricultural sources are from the ADAS PSYCHIC model based on the 2010 farm census. The WwTW flows and quality were based on observed data from 2010 to 2012.

A3.18 The majority of the phosphorous load at permit is from WwTWs and urban diffuse pollution in the catchment is larger than the total combined phosphorous loading from farming sources.

Figure A3.1 Permitted Source Apportionment in Stour nearest sluice into Stodmarsh

Though the SAGIS model has been calibrated it has not yet been validated. As such the values provided should be treated as estimates of the source apportionment at any given point. Permitted source apportionment is as if the WwTWs were operating at full permit capacity



Appendix 4 – Farm Types

A4.1 The following definition of farm types comes from the UK farm business survey guide to the farm business survey which underpins the Farmscoper model. The UK system is based on weighting the contributions of each enterprise in terms of their associated outputs. The weights used (known as 'Standard Outputs' or SOs) are calculated per hectare of crops and per head of livestock and used to calculate the total standard output associated with each part of the Farm Business.

Cereals

A4.2 Holdings on which cereals, combinable crops and set-aside account for more than two thirds of the total SO and (pre-2007) where set-aside alone did not account for more than two thirds of the total SO. (Holdings where set-aside accounted for more than two thirds of total SO were classified as specialist set aside and were included in "other" below.)

General cropping

A4.3 Holdings on which arable crops (including field scale vegetables) account for more than two thirds of the total SO, excluding holdings classified as *cereals;* holdings on which a mixture of arable and horticultural crops account for more than two thirds of their total SO excluding holdings classified as *horticulture* and holdings on which arable crops account for more than one third of their total SO and no other grouping accounts for more than one third.

Horticulture

A4.4 Holdings on which fruit (including vineyards), hardy nursery stock, glasshouse flowers and vegetables, market garden scale vegetables, outdoor bulbs and flowers, and mushrooms account for more than two thirds of their total SO.

Specialist Pigs

A4.5 Holdings on which pigs account for more than two thirds of their total SO.

Specialist Poultry

A4.6 Holdings on which Poultry account for more than two thirds of their total SO.

Dairy

A4.7 Holdings on which dairy cows account for more than two thirds of their total SO.

Lowland Grazing Livestock

A4.8 Holdings on which cattle, sheep and other grazing livestock account for more than two thirds of their total SO except holdings classified as *dairy.* A holding is classified as lowland if less than 50 per cent of its total area is in the Less Favoured Area (LFA).

Mixed

A4.9 Holdings for which none of the above categories accounts for more than 2/3 of total SO. This category includes mixed pigs and poultry farms as well as farms with a mixture of crops and livestock (where neither accounts for more than 2/3 of SOs).

Appendix 5 – Leaching of nitrogen/ phosphorous from urban areas

Urban leaching of Nitrogen

A5.1 The average total nitrogen leaching rate from an urban area used in this report is taken from the work done for the Solent Nutrient Neutral methodology which is explained below with comparison to and inclusion of local Stodmarsh/ Stour catchment data where available. Evidence that was sufficiently robust to justify significant deviation from this figure has not been identified. If locally specific values for urban land use nitrogen export have been calculated based on sound local evidence then these can replace the value given below.

A5.2 The original Solent value (14.3kg/ha/yr) comes from values for hydrologically effective rainfall (478mm - precipitation minus losses from evapo-transpiration) and the nitrogen concentration of leachate (3mg/l) given in Bryan *et al* (2013) the latter figure derived from an AMEC report. The value for nitrogen concentration is similar to one quoted in House *et al* (1993) who give a mean event concentration of 3.2mg/l for total nitrogen (with this value derived from other sources) with a range of 0.4-20mg/l. Thus although it is not specified by Bryan *et al* (2013), it is probably reasonable to take the 3mg/l to be total nitrogen especially since the organic component of N from urban areas is likely to be relatively small.

A5.3 Mitchell (2001) gives the following event mean concentrations in mg/l total N from urban areas; Urban Open 1.68; Ind/Comm 1.52; Residential 2.85; Main roads 2.37. It is recognised that the datasets that produced these figures are not large (n = 14 in this case), a good deal of uncertainty remains and that further sampling is needed to validate models of pollutant effects from urban runoff (Leverett *et al* 2013).

A5.4 Typical nutrient concentrations in urban storm water runoff in the U.S. are 2.0 mg/l for total N (TN) (Schueler 2003). Population densities seem to be less in the most studied urban catchments (eg Groffman *et al* 2004 in Baltimore, Hobbie *et al* 2017 in Minnesota) than those in the UK but this does not necessarily lead to an increase in the rate of nitrogen leaching from the catchment as the factors affecting this value are complex. Thus although there will clearly be variation between different urban areas, there is insufficient knowledge to be able to predict N leaching from the different characteristics of these areas. And for practical purposes an overall N leaching figure is needed; nothing found in the literature indicates that another value would be more representative than 3mg/l.

A5.5 An N leaching figure can also be derived by using the relationship between mean stream and river flow rate and catchment area. The ratio for the gauging station on the River Meon at Mislingford is 0.014m^3/sec/km^2 and, with a TN concentration of 3mg/l, this equates to a TN leaching rate of 13.2mg/l, similar to the value obtained when hydrologically effective rainfall is used.

A5.6 Comparison can also be made with direct measurements of TN urban outputs from studies in the USA (Hobbie *et al* 2017, Groffman 2004). The values in the Hobbie paper for urban catchments in Minnesota varied from 12.5-27.2 kg/ha/yr with a mean of 17.3 kg/ha/yr. The outputs measured by Groffman (2004) were smaller (between 5.5 and 8.6kg/ha/yr) but these were less urbanised catchments, several including areas of old growth forest where nitrogen

retention was very high. Thus these values are broadly of the same order as the 14.3 kg/ha/yr leaching figure initially calculated.

A5.7 Nitrogen inputs in these studies come predominantly from three sources - atmospheric deposition, pet waste and lawn fertilisation. N deposition was slightly lower in both Baltimore and Minnesota than values from APIS in the around the Solent (23.8kg/ha/yr for hedgerows or woodland, 14.7kg/ha/yr for grassland) and those in the Stodmarsh area (23.52/ha/yr hedgerows and 13.44 kg/ha/yr neutral grassland). No UK studies have been found to compare with the US ones for N inputs in urban areas from pet waste or from lawn fertilisation. Should evidence of a more appropriate value be provided or derived Natural England will update this figure.

Urban leaching of Phosphorous

A5.8 No Stodmarsh/ Stour management catchment specific information was found for urban land and Farmscoper does not cover urban land. Therefore the urban/suburban export coefficient was taken from White and Hammond 2006 (0.83kg/ha/yr.) This is the coefficient used for calculating the relative source apportionment in the first river basin cycle to UK river Basin Districts (RBD). Stodmarsh sits in the South East RBD and this was shown to have the highest relative contribution of phosphorous from households (both effluent and urban diffuse) compared to other sectors, with agriculture only contributing 21.8% of the South East RBD phosphorous load during the first river basin cycle (White and Hammond 2006). Though this export coefficient is from an older study, more recent studies have used values of a similar range for example Bryan (2015) uses 0.7kg of P per hectare for urban areas in the River Avon Nutrient Management Plan modelling though this figure was based on studies mainly in Scotland.

A5.9 Duan *et al* (2012) found small urban catchments exported values of between 0.245 to 0.837 kg/ha/yr compared with much lower values from forested and very low density residential catchments (0.028 to 0.031 kg/ha/yr). The large range in Duan *et al* was explained by the relative density of roads and built structures in the existing catchments. The importance of housing and roads density but also proportion of impermeable surface in urban land was also reflected in a study by HR Wallingford commissioned by Natural England that looked at impacts of urban run-off of designated wetlands using a range of models (Natural England 2018). For new developments using the approach taken in this study the urban land is separated from SANGS and parks so the use of the higher end of these urban coefficients is relevant due to the relative density, though density in the Duan *et al* study were lower than the average UK value even in their higher density urban catchments.

A5.10 Phosphorus is made available in solution through a combination of physicochemical (adsorption/desorption and precipitation/dissolution) and biological/biochemical (mineralization/immobilization) processes. Geology is important in influencing the movement of nutrients through groundwater as it influences the minerals, pH (acidity/alkalinity) and the oxygen content of the waterbody. For example in chalk aquifers, a large proportion of the soluble reactive phosphorus (SRP) is removed from groundwater (as well as most other forms of P from agricultural sources) following a chemical reaction that results in the precipitation of phosphorus in the form calcium phosphate and adsorption (adhesion) to the rock matrix requiring regular soil testing (e.g. Mclaughlin *et al* 2011). Similar processes occur with phosphorus reacting with other minerals such as magnesium and iron. These reactions

can be reversed with phosphorus moving back in to solution where the mineral content of groundwater and pH change in urban development. However recent evidence from China suggests the original soil type is still critical in urban phosphorous leaching (e.g. Wei *et al.,* 2019) provided sufficient permeable surface remains.

A5.11 Phosphorous is thought to be highly conserved in natural catchments (e.g. Verry and Timmons 1982, May *et al* 1996) but urban catchments have less phosphorous retention with the rate of retention being linked to the permeability of the urban environment and soil type (e.g. Duan *et al* 2012, Natural England 2018).

A5.12 Atmospheric deposition including from vehicles, leaching roads, fertilising gardens and parks including pet urine and waste have all been shown to be a significant source of P in urban catchments (e.g. Hobbie e*t al* 2017). Bryan, 2015 quotes several studies which examined levels of P in urban runoff in terms of Event Mean Concentrations (EMCs) as part of a wider project to develop a screening tool for Scotland and Northern Ireland to identify and characterise diffuse pollution pressures. The use of pulsed concentrations is relevant to urban land as the areas of impermeable surfaces tend to result in higher concentrations during rainfall events. Ockenden *et al* (2017) looks at the efficacy of different models including those that use export coefficients on predicting run-off of TP. This study found that temporal resolution of the underpinning rainfall data used in models was critical because "storm" events are so central to phosphorous transport. Few if any urban catchments have this level temporal resolution of data and therefore these models cannot be derived with any accuracy for the Stour catchment at this time.

Conclusion on urban P

A5.13 Based on the information above there is insufficient evidence to move away from 0.83 kg/ha for urban P leaching. Even though soils in the Stour valley are likely to show a high degree of P retention much export from urban land is from the impermeable surfaces and during high flow events therefore urban run-off has very little attenuation by soils so export coefficients towards the upper end of those observed are justified. Should evidence of a more appropriate value be provided or derived Natural England will update this figure.

Built Design to reduce phosphorous export from urban land

A5.14 Most studies have noted that the export of N and P from urban systems differ. Most P appears to export through high flows via surface drainage. Planning applications to reduce phosphorous should be designed to:

- Maximise permeable surfaces
- Implement Sustainable urban drainage schemes extensively based on larger wetlands (not ponds or detention basins) (see Appendix 5)
- Minimise composting of garden waste direct to catchment surfaces (though composting in structures should be encouraged)
- Maximise pet waste collection though this does nothing to address pet urine

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Appendix 6 - Estimating the leaching of total nitrogen (TN) and Phosphorous (TP) from natural greenspace (SANG)

A6.1 The value used in this methodology is based on work from the Solent Nutrient Neutral methodology and is set out below, APIS values for the Stodmarsh area have been used for the N deposition value which is the only change from the Solent methodology. However if locally specific data on SANGS is available and evidenced this figure can be replaced by a locally derived figure, provided it is sufficiently well evidenced.

A6.2 A number of assumptions must be made about the management of the SANG to allow an estimate of TN/TP leaching to be made. These are as follows:

- The vegetation of the SANG would be predominantly permanent grassland but with an element of tree and scrub cover (this will of course vary for different SANGS but a 20% average figure is used here). The degree of tree and scrub cover will not greatly affect the result as both permanent grassland and woodland/scrub exhibit a high degree of N and P retention. It matters most because of the differences in the rate of atmospheric N and to a much lesser extent P deposition between the two habitats.
- The grassland would be permanent (ploughing will release large amounts of N/P) and is not fertilised either with artificial fertiliser or manures. It may be ungrazed or grazed very lightly (<0.1LU/ha/yr) with no supplementary feeding (even without supplementary feeding, grazing can increase N and to a much lesser extent P leaching because N retention is lower when N is delivered in the form of cattle urine and dung [Wachendorf *et al* 2005]).
- The grassland may be cut with the cutting regime dependent on other factors. Cuttings may be left or removed from site as the case may be but should not be gathered and composted in heaps on site. Any gorse within the scrub should be controlled so it is no more than rare across the mitigation area since a significant amount of nitrogen fixation occurs within gorse stands.

Nitrogen leaching

A6.3 A generic leaching value for N concentration from AMEC Poole Harbour study for 'rough grazing', quoted in Bryan *et al* (2013), is 2mg/l. Using this concentration together with a value of 478mm for the hydrologically effective rainfall (HER) gives a leaching value for N of 9.6 kg/ha/yr. A similar value (8.8kg/ha/yr) is obtained if the relationship between mean stream flow and catchment area (0.014 cumecs/km^2 which is the ratio for the gauging station on the nearby River Meon at Mislingford) is used instead, keeping the same N concentration of 2mg/l. It is not clear whether these AMEC Poole Harbour concentrations are for total nitrogen or for inorganic nitrogen.

A6.4 The particular grassland management regime for which the 2mg/l N concentration applied is not known. However, even though studies of N leaching from natural unfertilised grasslands are rare in the literature (most are of agricultural grasslands with fertiliser inputs of some sort) it seems likely that this value is higher than might be expected from a natural grassland with no fertiliser inputs such as a SANG. Thus for example TN leachate concentrations were

between 0.44 and 0.67 mg/l in an extensively managed montane grassland (that still had one slurry application per year) and the equivalent mean TN loss was 1.0, 2.6 and 3.1 kg/ha/yr for three different areas (Fu *et al* 2017).

A6.5 Adjusting for a SANG with 20% woodland/scrub, using the AMEC woodland generic leaching value of 0.5mg/l (Bryan *et al* 2013) for the woodland/scrub component, results in an N output of 8.1 kg/ha/yr.

A6.6 The 0.5mg/l value is also much higher than the very low nitrate concentrations in streams from purely forested catchments (Groffman 2004) and from those reported by for a large sample of forested streams by Mulholland *et al* 2008 where the mean nitrate-N concentrations were <0.1mg/l. All but a few of the samples from an unfertilised suburban lawn had nitrate-N concentrations below the detectable limit of 0.2mg/l (Gold et al 1990). The same was true for a forest plot and the average nitrate-N losses from both home lawn and the forest plots averaged 1.35 kg/ha/yr over 2 years. These studies of both grassland and woodland nutrient cycling suggest that the N output of 9.6kg/ha/yr from Amec quoted in Bryan is too high when applied to a SANG.

A6.7 Despite there being no direct N fertiliser inputs on a SANG, N inputs will still occur from three main sources. These are atmospheric deposition, pet waste and N fixation from legumes and estimating the contribution of each of these sources, together with the proportion of N retained, is an alternative method of working out the N contribution from a SANG.

N deposition

A6.8 The following are typical values taken from APIS for TN deposition in the Stodmarsh Area Grid reference TR214613 from Stodmarsh citation used (Solent area in brackets for comparison).

- Improved grassland 13.44 (14.7) kgN/ha/yr; Arable horticultural 13.44 (14.7) kgN/ha/yr; Neutral grassland 13.44 (14.7) kgN/ha/yr
- Hedgerows 23.52 (23.8) Kg N/ha/year; Broadleaved, Mixed and Yew Woodland 23.52 (23.8) Kg N/ha/year
- Using the value for hedgerows and woodland for the 20% scrub component of the hypothetical SANG and the neutral grassland value for the rest results in a deposition rate of 10.75 + 4.70 = 15.45 (11.76 + 4.76 = 16.5) kg/ha/yr.

N and Pet waste

A6.9 SANGs are specifically designed to attract increased levels of public access particularly dog walkers so the potential inputs of N from dog waste are likely to be significant. Hobbie *et al* (2017) give a figures for TN inputs from this source for entire urban areas and these vary between 3.56 and 21.2kg/ha/yr for 7 urban catchments with a median of 6.9kg/ha/yr. A figure of 17kg/ha/yr can be gleaned from Baker 2001 which was worked out using information on pet numbers, nutritional needs, pet weights etc; 76% of this was from dogs.

A6.10 The heavy use of SANGS by dogs suggests that N inputs would most likely be higher than these figures averaged over the whole urban area. Nevertheless, inputs to the SANG from this waste means that it is not deposited elsewhere in the urban area where N may anyway end up in the same receiving water.

A6.11 TN retention in grasslands will also be higher than the average over other parts of the urban area but the characteristics of the inputs from dogs is likely to lower the amount of TN retained because the concentrated patchy nature of the input will reduce the proportion of TN retained compared with more evenly spread inputs, as mentioned above.

A6.12 Picking up dog faeces will obviously reduce the input from but not remove inputs from urine. Dog urine has a high N content.

A6.13 In these circumstances there is clearly uncertainty about the level of input from this source the highest figure from Hobbie *et al* 2017 (21.2kg/ha/yr) has been used but adjusted downwards because not all of this will be from dogs resulting in an overall value of 16.1 kg/ha/yr.

A6.14 This has also been done on the basis that funding, together with a binding commitment, is provided for in perpetuity collection of dog waste and enforcement of pick up rather than relying on direct LA resources which could stop at any time.

TN fixation

A6.15 Hobbie *et al* (2017) give a value for this of 17.5kg/ha/yr from direct investigation of unfertilised urban parks and this is the value used. Fixation would only be in the grassland part of the SANG which reduces the figure to 14 kg/ha/yr.

TN retention

A6.16 A number of studies have shown high TN retention in urban areas (eg 80% Hobbie et al 2017) thought to be mainly attributable to TN retention in urban grasslands and lawns which may be in turn related to high carbon within organic matter in the soils. The release of large quantities of N when permanent grassland is ploughed illustrates the capacity of these grassland for N storage (eg Howden *et al* 2011).

A6.17 Direct measurements of total N outputs from urban grasslands in the Groffman *et al* (2009) studies in Baltimore also show high N retention in urban grassland but there are difficulties in applying these results directly to SANGs partly because the plots were either quite heavily fertilised or may have had unmeasured N inputs from neighbouring land. Nitrate-N losses from an unfertilised home lawn averaged 1.35 kg/ha/yr over 2 years (Gold *et al* 1990). Generally the complex processes and uncertainties about how the management of these grasslands might affect the degree of TN retention and TN output makes estimation of the proportion retained difficult. Nevertheless a value of 90% given in Groffman *et al* (2009), and supported by a number of references given there, would seem reasonable considering also that overwatering and over fertilising, neither of which would happen on a SANG, seem to be factors that lead to more leaching.

A6.18 *Woodland and scrub*. N retention measured in forest plots in Baltimore was very high (95%) Groffman (2004). N percolation losses measured by Gold *et al* 1990 in forest plots were low and similar to those in unfertilised lawn. However, it is probably not valid to equate a scrub/woodland part of a SANG with the forest plots measured in the Groffman studies in Baltimore for these were old growth well established forests. Nevertheless there is still likely to be high N retention in these areas even if not as much as 95%.

A6.19 Given all of the above, a 90% TN retention rate over the SANG as a whole has been used in the calculation below

Inputs

A6.20 Solent specific APIS value in brackets

- N Deposition (APIS) = 15.45 (16.5) kg/ha/yr
- Pet waste 16.1 kg/ha/yr
- N fixation 14 kg/ha/yr
- Total = 45.55 (46.6)kg/yr
- Watershed retention of TN 90%

- Total TN output = 4.55 (4.66) kgN/ha/yr

Conclusion for Nitrogen

A6.21 The question of estimating TN outputs from a SANG has been approached from different angles. These investigations all indicate that the value used previously – 13 kg/ha/yr is too high. Instead a TN output of 5.0 kg/ha/yr is considered to be close to the true value but still sufficiently precautionary.

Phosphorous

A6.22 Export coefficients for phosphorous for different land cover classes were assessed and compiled by White and Hammond (2006) for the first River Basin Cycle source apportionment. They note the extremely low coefficient from natural land use such as woodland and unfertilised grassland; both habitats are given an export coefficient of 0.02 kg/ha/yr based on the rough grazing value of Jonnes 1996. Similar low phosphorous from natural habitats have been recorded from many other studies including more recent studies in the USA (e.g. Hobbie *et al* 2017, Duan *et al* 2012).

A6.23 These export coefficients take account of atmospheric deposition but are for natural habitats unlike SANGS which, although ecologically functioning as natural habitats, are designed to be used for informal recreation including dog walking. It is therefore reasonable to assume that pet waste and urine *into* SANGs will be equivalent to urban areas. Hobbie *et al* 2017 found that household nutrient inputs from pet (dog) waste contributed up to 76% of total P inputs in American catchments due to high pet ownership in urban environments - values of inputs for Phosphorous in Hobbie *et al* for dog waste were from 2.7 kg/ha/yr to 0.46 kg/ha/ yr with a mean of 1.21 kg/ha/yr. However P *output* from SANGS is likely to be significantly less as phosphorous is highly conserved in the natural land uses and the high contribution of pet

waste to export coefficients of urban systems is partly due to the relative lack of permeability of the surfaces onto which the pet urine and waste are frequently deposited. In addition (as explained in Appendix 3) phosphorous is highly conserved on the types of soils found in the Stour valley. Using the mean rate of dog waste from Hobbie *et al* 2017 to be precautionary but assuming a high retention in any SANGS in the Stour valley of 90% gives a value as follows:

A6.24 Mean TP loading from pet waste to urban sites - 1.21 Kg/ha/year

- Mean Catchment retention TP = 90%
- = TP 0.12 kg/ha/Yr

- +0.02 Kg/ha/year - natural land export coefficient from Johnes 1996

= 0.14 kg TP/ha/yr

Conclusion for phosphorous

A6.25 Based on best available evidence SANGS value for Stour catchment of 0.14 kg TP/ha/yr has been estimated.

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Appendix 7– Potential for Nutrient (N&P) mitigation using wetlands

A7.1 Where N and or P budget calculations indicate that N and/ or P outputs from proposed developments are greater than pre development conditions, the use of new constructed wetlands to retain some of the N and P output is one mitigation option.

A7.2 There are a number of possibilities for different types of constructed wetland. Wetlands can be designed as part of a sustainable urban drainage (SUDs) system, taking urban runoff stormwater; discharges from Wastewater Treatment Works (WwTWs) can be routed through wetlands; or the flow, or part of the flow, of existing streams or rivers can be diverted through wetlands provided this does not adversely alter the ecological status of the river and does not increase flood risk. Environment Agency advice should always be sought in design of any wetland creation scheme.

A7.3 Wetlands receiving nutrient-rich water can remove a proportion of this nutrient through processes sedimentation, sorbing nutrients to the sediment, plant growth and process such as denitrification some of which were reviewed in Fisher and Acreman (2004) and numerous studies. A recent systematic review of the effectiveness of wetlands for N and P removal (Land *et al* 2016) used data from 203 wetlands worldwide of which the majority were free water surface (FWS) wetlands (similar in appearance and function to natural marshes with areas of open water, floating vegetation and emergent plants). The median removal rate for wetlands that were included in this review was 93g/m^2/yr TN and 1.2 g/m^{-2}/yr TP (or just under a tonne/ha/year TN and 12 kg/ha/yr TP). The proportion of N removed is termed the efficiency and the median efficiency of wetlands TN removal included in the Land review was 37%. Median remail efficiency for TP in the same review was 46 % with a 95 % confidence interval of 37–55 %.

A7.4 Many factors influence the rate of nutrient removal in a wetland the most important for being hydraulic loading (HLR - a function of the inlet flow rate and the wetland size), inlet N or P concentration and temperature and for TP the Area of the wetland. Together inlet N or P concentration and flow rate partially determine the amount of N or P that flows through the wetland which ultimately limits the amount of N or P saving that can be achieved.

A7.5 The rate of removal can also be expressed in terms of the amount of N or P removed per unit wetland area. This removal rate will typically increase as the inlet N or P concentration increases, at least within the normal range of inlet N or P concentrations. Thus wetlands that treat the N or P rich discharges, for example from WwTWs, or water in rivers where the N or P concentrations are high, will remove more N or P per unit area than say, wetlands treating water in a stream where water quality is very good and the N or P concentration is low. Thus if space is at a premium, and the goal is to remove as much N or P as possible, it makes sense to site wetlands where N or P concentrations are high in other words as close to WwTW as possible.

A7.6 For wetlands to work well, specialist design input based on sound environmental information will be necessary. There will be a need for consultation with relevant statutory bodies. These processes are likely to be easier where wetlands are an integral part of a larger development. Wetlands do offer additional benefits above offsetting but will also require

ongoing monitoring, maintenance and adjustments beyond any particular developments completion. Consideration of the long term security of facilities and their adoption at an early stage is advisable.

A7.7 There are a number of publications which advise about constructed wetlands. For example, Kadlec and Wallace (2009) is a comprehensive source of information covering all stages related to the implementation of different types of constructed wetland. The many papers relating the results from detailed monitoring over many years of the performance of two constructed wetlands in Ohio, USA are also instructive (eg Mitsch *et al* 2005, 2006, 2014).

Stormwater/ flood wetlands

A7.8 These are what is termed event-driven precipitation wetlands with intermittent flows. There will normally be baseflow and stormwater / flood water components to the inputs.

A7.9 For such wetlands Kadlec and Wallace state that:-
'*A typical configuration consists of a sedimentation basin as a forebay followed by some combination of marshes and deeper pools'*

A7.10 However, ponds are usually less effective at removing N and P (Newman *et al* 2015) than shallow free water surface constructed wetlands (FWS wetlands) so the emphasis here should be on the latter although a small initial sedimentation basin is desirable since this is likely to reduce the maintenance requirement for sediment removal in the FWS wetland. One advantage of this type of wetland is that it can be designed as an integral part of SUDs for the development and therefore is subject to fewer constraints.

A7.11 Some wetlands with intermittent flows are prone to drying out and may need provisions for a supplemental water source. In some circumstances, this may be possible through positioning the wetland bottom so that there is some connection to groundwater. However many varieties of wetland vegetation can withstand drying out although there may be a small reduction in water quality improvement (Kadlec and Wallace 2009). Nevertheless base and stormwater flows to each wetland should be worked out to ensure that it is viable and will not add to the water resource issues of the relevant catchment. Initial flush of Phosphorous from soils on former intensively agricultural land was noted in the Land study and this may reduce the short and potentially even long term efficacy of such restored wetlands. Release of phosphorus associated with iron complexes under anaerobic conditions can also contribute to low or negative removal rates, as suggested by Healy and Cawley 2002 as an explanation for the observed low TP removal rates.

A7.12 Wetlands need to be appropriately sized taking into account the HLR and N or P loading rates. To give a general idea of the areas involved, a wetland 1ha in area would serve a development area of about 50 ha for Nitrogen but given the increased importance of area a larger area would be required for TP reduction from the same development. The Land *et al* review noted the inconsistency of TP reduction was particularly acute at wetlands below 2 hectares in size with wetlands below this size more likely to be net exporters of TP especially if they were created on former intensively farmed agricultural land.

A7.13 Calculating the potential N or P retention in such wetlands involves first determining the proportion of the hydraulic load that will pass through the wetland because a percentage of the water carrying N and P will go directly into groundwater, bypassing storm drains and SUDs and the constructed wetlands. This percentage will depend on such factors as the proportion of hard surface within the development and the geology. Then, assuming the inlet TN concentration is 3mg/l, a proportionate reduction of 37% can be used to work out the amount of N retained and using 37% is also reasonable for P due to the larger variation of P retention shown in the Land study and this is the bottom end (and therefore precautionary) of the 95% confidence interval for TP retention.

A7.14 Provision is needed to control tree and scrub invasion, for wetlands with emergent vegetation medium height such as Typha and reed had higher rates of denitrification than those dominated by trees and woody shrubs (Alldred and Baines 2016). Phosphorus uptake and amount partitioned to roots and shoots differs between different wetlands species but as a general rule tall rapidly growing emergent species are the most likely to retain P in vegetation with *Juncus effusus* having the highest percentage of retained P in the leaf litter of 5 tall emergent species in a comparative study (Kao *et al* 2003).

A7.15 Other critical aspects of design are the water control structures - inflow and outflow arrangements with water level control – and the need or otherwise for a liner. This last issue is related to soil permeability. A variety of emergent wetland plants, not only reed, can be effective within wetlands. Wetlands with a number of different plant species, rather than monocultures, are desirable both for biodiversity reasons and because they are more resilient against changes in environmental conditions; different species will have different tolerances. Guidance concerning planting can be found in Kadlec and Wallace (2009); allowance should be made in planting ratios and densities for different rates of expansion of different species. Another approach is to use material containing wetland plant seeds from a nearby wetland with a species composition similar to the one preferred. However, unless the donor site is carefully monitored, this would obviously increase the risk of importing unwanted alien plants.

A7.16 Sedimentation will eventually compromise some aspects of the wetland's function and rejuvenation measures will be necessary (Kadlec and Wallace 2009). The same authors indicate a sediment accretion rate in the order of 1 or 2cm/yr and give examples of rejuvenation after 15 and 18 years but other wetlands have not needed any significant restoration in similar timespans. Various different options for the management of sediment accumulation are given by Qualls and Heyvaert (2017). There of course needs to be provisions to ensure that appropriate maintenance and restoration measures, guided by monitoring, are periodically carried out.

A7.17 Other sources of information about stormwater wetlands include Wong *et a*l (1999, available on line). The papers about a stormwater wetland in the Lake Tahoe Basin in California are also useful (Heyvaert et al 2006, Qualls and Heyvaert 2017).

Constructed wetlands taking discharges from WwTW

A7.18 Many of the considerations discussed above for stormwater wetlands apply equally here. There will obviously be constraints on the location and size of such a wetland because of

land availability in the area of the WwTW. The flow from the WwTW together with the N and P concentration in the discharge are needed to determine the approximate size of a wetland. We would recommend a wetland area that gives an N loading of about 500 g/m^2/yr or lower. Since many of the discharges from WwTW have a high N and very high P concentration the potential for N and P retention in such wetlands is also high. The concentration of N and P in the outflow will be variable but the purpose of such wetlands is to retain N and P overall rather than to provide a specific constant standard of water quality in the outflow.

Wetlands associated with streams and rivers

A7.19 Diverting part of the flow of a stream or river through a wetland, with the outflow returning to the watercourse, provides another opportunity for N and P saving. For obvious reasons such wetlands would mostly need to be located on the river floodplain. The inlet flow rate can be controlled so it is appropriate for the size of the wetland created and so that the ecology of the watercourse is not compromised in the section affected.

A7.20 There can be other concerns in relation to the potential effects on the stream or river. An abstraction licence will almost certainly be required and this may have implications for the ecological status – any such proposals should always be discussed in detail with the Environment Agency.

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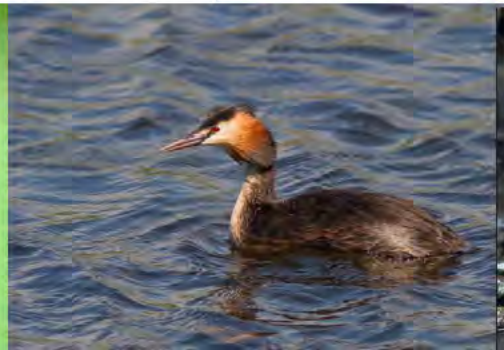
Nutrient Neutrality for Stodmarsh

Dr Louise Bardsley
&
Julia Coneybeer

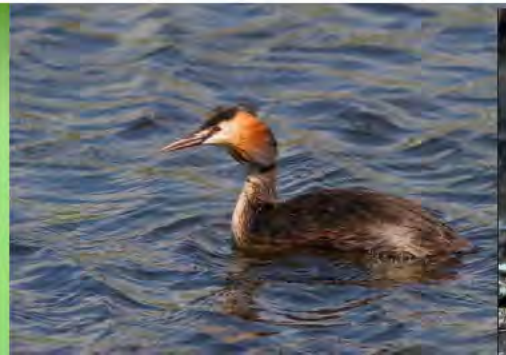
Presentation outline

- Stodmarsh Designated sites features
- Condition of designated sites features in relation to water quality
- Dutch nitrogen case
- Nutrient Neutrality – approach
- Nutrient Neutrality – updates
- Otterpool

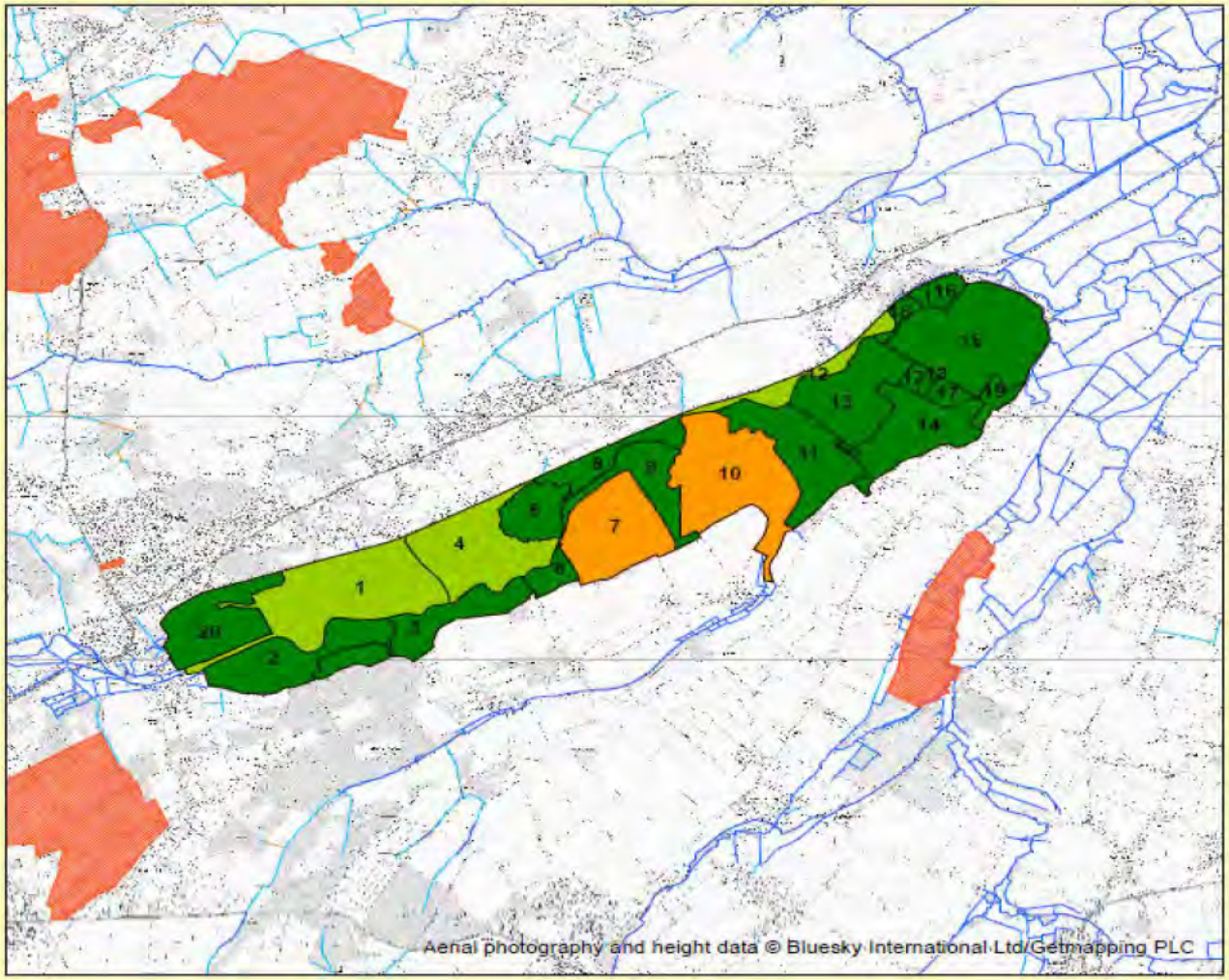


Designated Sites Features

- Riparian wetlands including lakes, reedbeds in Stour Valley
- Special Protection Area (SPA) -wintering and nesting birds and supporting lake and wetland habitats
- Ramsar site - birds + invertebrates, aquatic plants wetland and lake habitats
- Special Area of Conservation (SAC) - for riparian lake and wetlands supporting Desmoulins's whorl snail
- Site of Special Scientific Interest (SSSI) for all of above plus more
- National Nature Reserve (NNR) – public access + all above



Stodmarsh Condition



Stodmarsh SSSI

Legend

Sodmarsh SSSI

- FAVOURABLE
- UNFAVOURABLE RECOVERING
- UNFAVOURABLE NO CHANGE

Sites of Special Scientific Interest

- SSSI England

Detailed River Network

- Primary River
- Secondary River
- Tertiary River
- Culvert
- Lake / Reservoir

Scale (at A0) -1:10,000

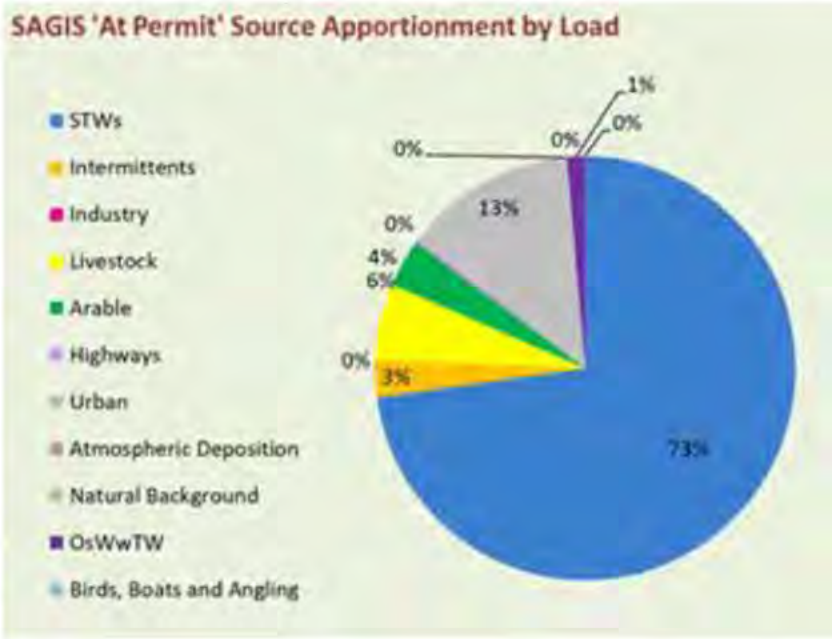
Map produced by [user name], [team]

Date: xx/xx/2017. Map Reference: xxxxxx

Lake name	SSSI UNIT	WFD ID	Compliance P/F/U (Pass / fail/ Unknown) No colour = no data		Natural England database (CSMI) 2018 update / threat nature
			TP Target ug/L	TN Target mg/L	
Reserve Lake/Stodmarsh Nature Reserve Pool	UNIT 10	GB30743087	F 49	F 1.5	Unfavourable Water Quality (WQ)
Collards Lake/Great Puckstone Lake	UNIT 7	GB30743097	F 49	F 1.5	Unfavourable WFD EA Assessment for 2016 MODERATE - unit fails nationally agreed WQ targets
Westbere Lake/s	UNIT 1	GB30743127	U 49	P 1.5	Unfavourable recovering Other reasons
The Fordwich Lakes/Fordwich Lake East	UNIT 2	GB30743156	U 49	U 1.5	Favourable WQ
The Fordwich Lakes/Fordwich Lakes	UNIT 2	GB30743164	U 49	P 1.5	Favourable WQ
Hersden (tidal) Lake	UNIT 5	n/a (tidal so part of the main transitional and coastal water body)	U 100	P 2.0	Favourable WQ

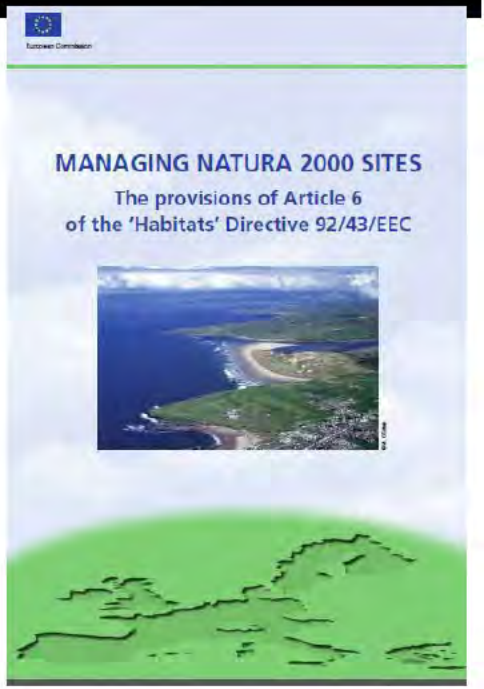
Further information on water quality

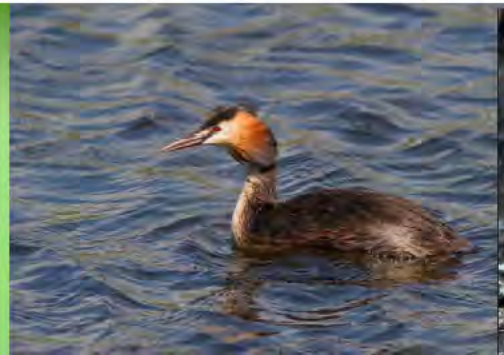
- Investigation into impacts of existing WwTW
- Phosphorous in the river is dominated by wastewater – 73%.
- Some discrepancy between scale of development modelled by company and that planned.
- At Sellindge only minor discrepancy
  - PE 5066, Modelled 654 Allocated 1121
- BUT Otterpool not included.
- Southern water have agreed to undertake a more detailed review of proposed development



Dutch Nitrogen case

- Dutch Nitrogen Case – ECJ judgement air quality
  - Follows on back of other judgements
  - Tightens flexibility in giving permissions when site is not meeting its conservation objectives
- Three big issues raised in these cases
  - *Authorising further exceedances when sites are in unfavourable conservation status*
  - *Certainty of measures relied on in an appropriate assessment*
  - *Whether certain measures are better described as avoidance/mitigation or compensation.*





Dutch Nitrogen case – Court concluded

Where not at favourable conservation status the possibility of authorising additional activities {…}site seems “necessarily limited”.

The AA may not take account of benefits of measures that are not certain at times of assessment




Dutch Nitrogen case – NE Advice

- A plan or project will be relevant and therefore will have the potential to affect the water quality of the designated site and therefore a HRA should be undertaken looking at water quality where:

- It creates a source of water pollution

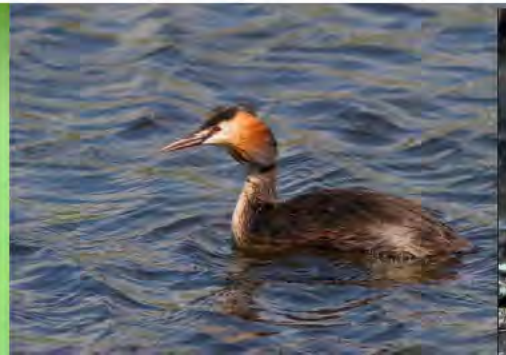
AND

- There is hydrological connectivity with the designated site

AND

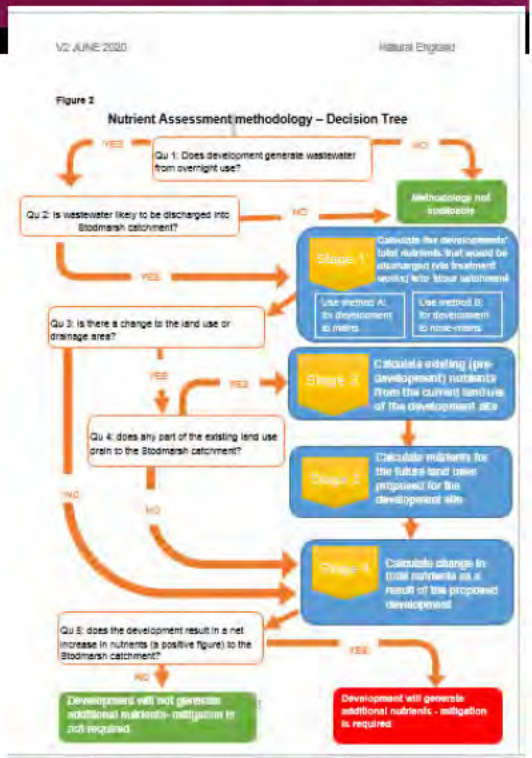
- The designated sites interest features are sensitive to the water quality pollutant/impact from the plan/project,

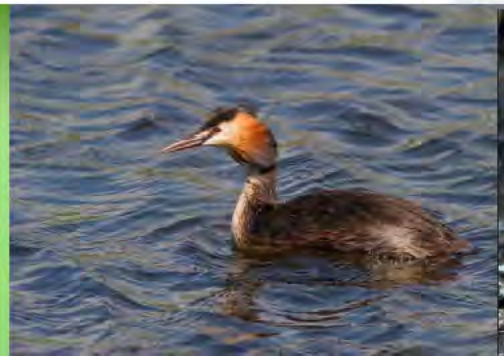





Nutrient Neutrality – what is it

- Nutrient neutrality is a pragmatic methodology
- Providing certainty required at appropriate assessment stage for competent authorities
- Stepwise methodology enables simple calculation of:
- Amount of nutrients from proposed development
  - (land use and effluent)
- Amount of nutrients from existing land use
- The difference between the two
- Which determines if mitigation is required .
- Can be used to calculate potential of mitigation proposals for offsetting nutrients.





Nutrient Neutrality – what is it

- Nutrient neutrality is a pragmatic methodology
-
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- proposals for offsetting nutrients.

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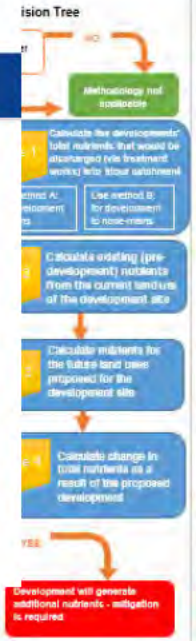
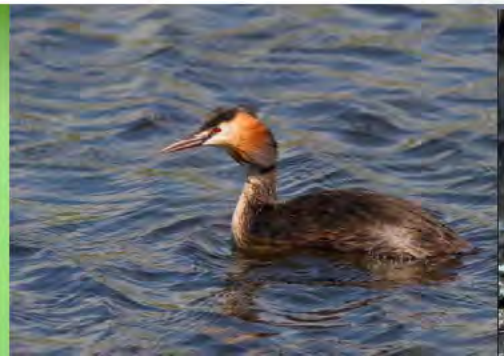
Up to 12,000 homes set for the Solent as nitrates deadlock starts to crumble

HOUSE-BUILDING that has been stalled by environmental concerns could soon restart as a scheme that will offset damage to wildlife begins – thanks to the purchase of a small farm.

By Ben Fishwick

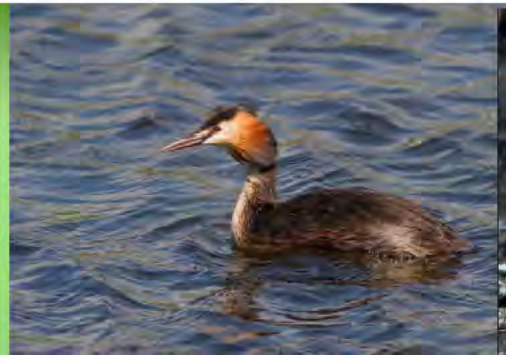




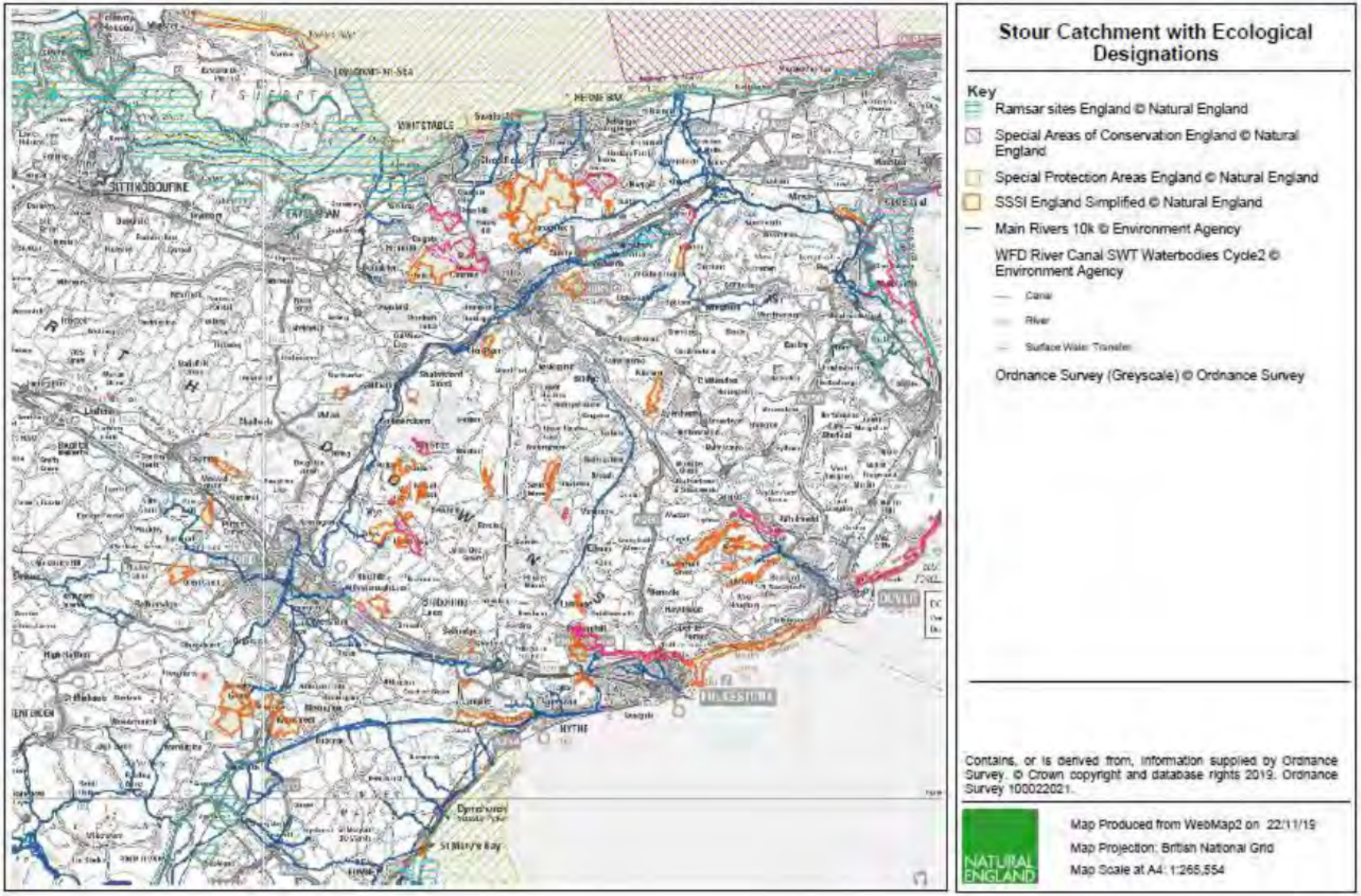
Nutrient Neutrality - Stodmarsh

- Nutrient Neutral methodology – issued to relevant LPAs in December 2019.
- Applies to all upstream and small areas of downstream catchment.
- Provides values for Nitrogen and Phosphorous as both are failed in the Stodmarsh designated sites.
- Offsetting potential for phosphorous is more limited than for nitrogen
- First solutions are being proposed by developers in Canterbury for some of their developments.






Nutrient Neutrality - Stodmarsh

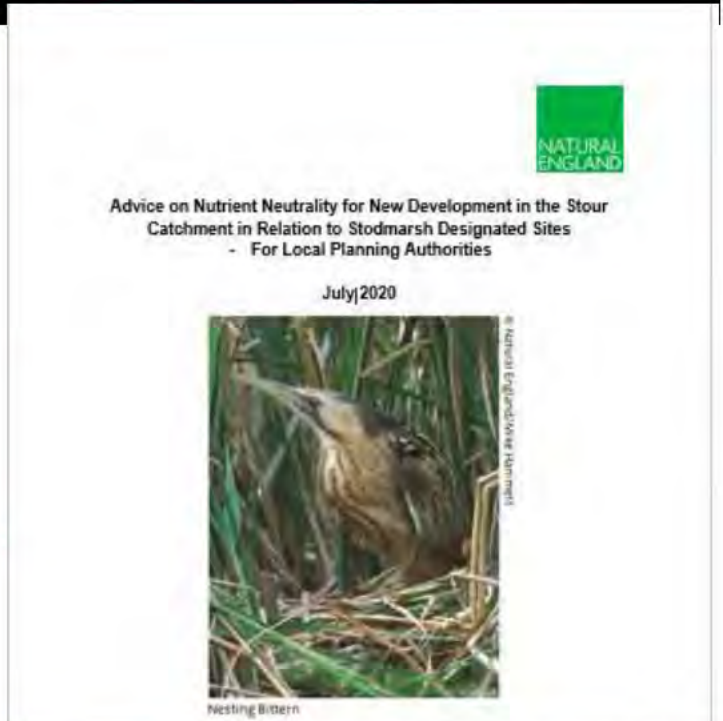


Other outcomes

NATURAL ENGLAND

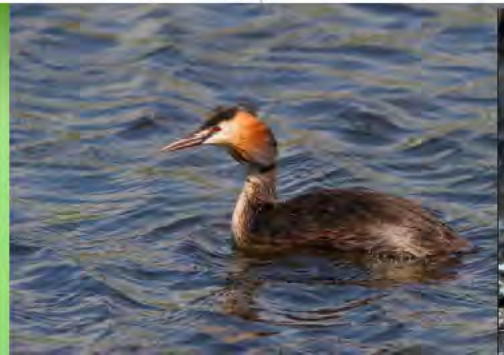
Nutrient Neutrality – What next - 2020 update

- Updates drafted in line with Solent
- Changes to wording, structure
- Improved clarification of the location to which advice applies
- Improved information on WwTW from WINEP investigation
- Methodology for Package Treatment Plants
- Clarification of when water efficiency measures can be mitigating


Advice on Nutrient Neutrality for New Development in the Stour Catchment in Relation to Stodmarsh Designated Sites - For Local Planning Authorities

July|2020

Nesting Bittern



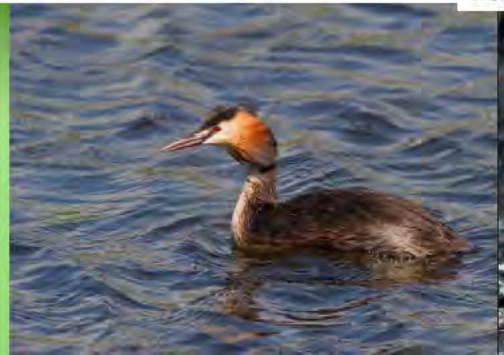
Core Strategy Review and Otterpool

- NE letter to F&HDC 21 May 2020

- **Core Strategy Review – Examination**
  - HRA – identify all allocations in catchment
  - Calculate nutrient budgets, nitrogen and phosphorous
  - Present range of measures to achieve nutrient neutrality
- **Otterpool Park application**
  - Water Cycle Study and HRA
  - Calculate nutrient budget
  - Present mitigation measures with certainty

Nesting Bittern






Working out the solutions - collaboration

- Various measures to consider such as
  - Treatment works upgrades
  - New on-site treatment works
  - Nature-based solutions – interceptor wetlands and offsetting

- **Partnership working** will be essential with other LPAs and key stakeholders

Otterpool Park
Stodmarsh Designated Sites and Nutrient Neutrality

Folkestone & Hythe District Council

Agenda

1. Welcome, introductions and housekeeping
2. Context & purpose of the meeting
3. Summary of the key issues & recent advice (Natural England 15mins)
    - Questions and clarifications
5. Show and tell (5mins each)
    - Local Plan (F&HDC LPA)
    - OPA (Arcadis)
    - Wider catchment work (KCC)
    - Experience elsewhere and best practice (EA/ Albion / Southern Water)
7. Next steps
    - Statements of Common Ground / Policy Modifications
    - Workstreams (HRA, wider catchment work, AA)
    - Timescales and Scope
8. Coordination and future liaison
9. AOB

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Objectives for the meeting

- To agree next steps in relation to Local Plan examination and response to Inspectors questions
- To show and tell up-to-date advice and share evidence
- To share best practice
- To agree future liaison and co-ordination of workstreams

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Core Strategy Review

- F&HDC reviewing the existing Core Strategy (adopted 2013)
- The draft has reached examination stage
- Matters, Issues and Questions were received by the LPA and responses are due by 3rd July.
- A draft Statement of Common Ground is being prepared between F&HDC and Natural England which will reflect new requirements for Nutrient Neutrality
- F&HDC need to respond to the Inspectors with an agreed scope and timetable for further work
- LUC acting for F&HDC on HRA

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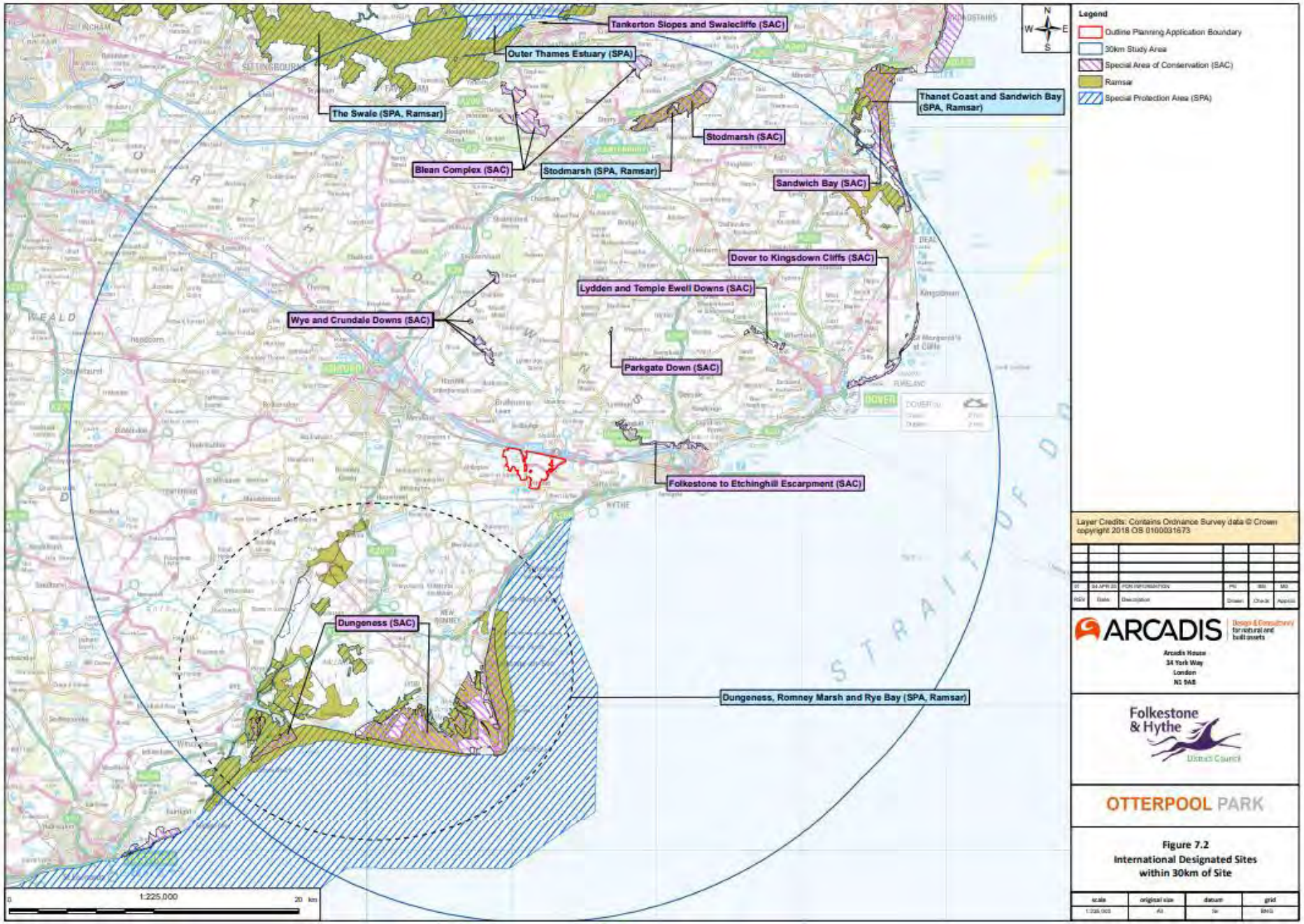

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34 York Way
London
N1 9AB

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OTTERPOOL PARK

Figure 7.2
International Designated Sites within 30km of Site

scale	original size	datum	grid
1:225,000	A3	te	BNG

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Workstreams

Habitats Regulations Assessment

Timescales – through examination

OPA – Appropriate Assessment

Timescales – amendments to OPA

Catchment-wide Work

Timescales -

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