Habitats Regulations Assessment of the Medway Local Plan

Regulation 18: Setting the Direction for Medway 2040

Preliminary HRA Report

September 2023

LEPUS CONSULTING
LANDSCAPE, ECOLOGY, PLANNING & URBAN SUSTAINABILITY

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Contents

Figures

Tables

Abbreviations

AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
ALS	Abstraction Licensing Strategy
CIEEM	Chartered Institute of Ecology and Environmental Management
DLUHC	Department for Levelling Up, Housing and Communities
DTA	David Tyldesley and Associates
EA	Environment Agency
GI	Green Infrastructure
HRA	Habitats Regulations Assessment
IAQM	Institute of Air Quality Management
IRZ	Impact Risk Zone
JNCC	Joint Nature Conservation Committee
LPA	Local Planning Authority
LSE	Likely Significant Effect
MLP	Medway Local Plan
NE	Natural England
NPPF	National Planning Policy Framework
pSAC	Possible / proposed Special Area of Conservation
pSPA	Potential Special Protection Area
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SAMMS	Strategic Access Management and Monitoring Strategy
SIP	Site Improvement Plan

SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WFD	Water Framework Directive
WRMP	Water Resources Management Plan
WRZ	Water Resource Zone
ZoI	Zone of Influence

1 Introduction

1.1 Medway Local Plan

1.1.1 Medway Council is preparing a new Local Plan to set the framework for the area's growth up to 2040. The Local Plan will provide a framework for where and how new development can take place.

1.1.2 Lepus Consulting has prepared this report to inform the Habitats Regulations Assessment (HRA) of the Medway Local Plan (referred to hereafter as the 'MLP') on behalf of Medway Council (referred to hereafter as 'the Council'). The MLP will cover the urban conurbation which extends across the five historic towns of Medway (Strood, Rochester Chatham, Gillingham and Rainham) and the surrounding network of villages on the Hoo Peninsula and within the Medway Valley. This area is referred to hereafter as the 'Plan area' and is illustrated in Figure 1.1.

1.2 Purpose of this report

1.2.1 Lepus Consulting has prepared this Preliminary HRA on behalf of the Council to support the Regulation 18 Consultation: Setting the Direction for Medway 2040 version of the MLP.

1.2.2 HRA is required in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended)[1], known as the Habitats Regulations. When a plan is not directly connected with, or necessary for, the conservation management of a Habitats site, a competent authority is required to carry out an assessment under the Habitats Regulations, known as an HRA, to test if that plan could significantly harm the designated features of a Habitats site[2].

1.2.3 The most effective way to deliver the outputs of HRA is to ensure that it is incorporated into the plan-making process as early as possible. This allows for adverse impacts to be avoided in the first instance through strategic planning of options or, where this is not possible, effective mitigation. Mitigation measures can then be designed to avoid, cancel or reduce significant effects following the mitigation hierarchy. Such measures may take the form of guiding principles and policy requirements, drawing on existing best practice. Should mitigation not be possible, there may be a need to consider alternatives which may require some more complex changes to a plan.

1.2.4 The purpose of this report is to provide HRA guidance and advice to the Council at the early stages of the MLP preparation. This preliminary HRA aims to identify (or scope) those Habitats sites that will be considered in the HRA process through application of a 'source-pathway-receptor' model.

[1] The Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents [Date accessed: 24/08/23] as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573 [Date accessed: 24/08/23]

[2] Ministry of Housing, Communities and Local Government (July 2019) Planning Practice Guidance Note, Appropriate Assessment, Guidance on the use of Habitats Regulations Assessment

1.2.5 In addition, key constraints and opportunities at Habitats sites and likely impact pathways from the MLP are set out. This report outlines HRA methodologies that will be taken forward alongside development of the MLP and the key issues for consideration. It also provides a preliminary high-level screening of the issues considered through the MLP Regulation 18 Consultation and recommendations to inform future policies.

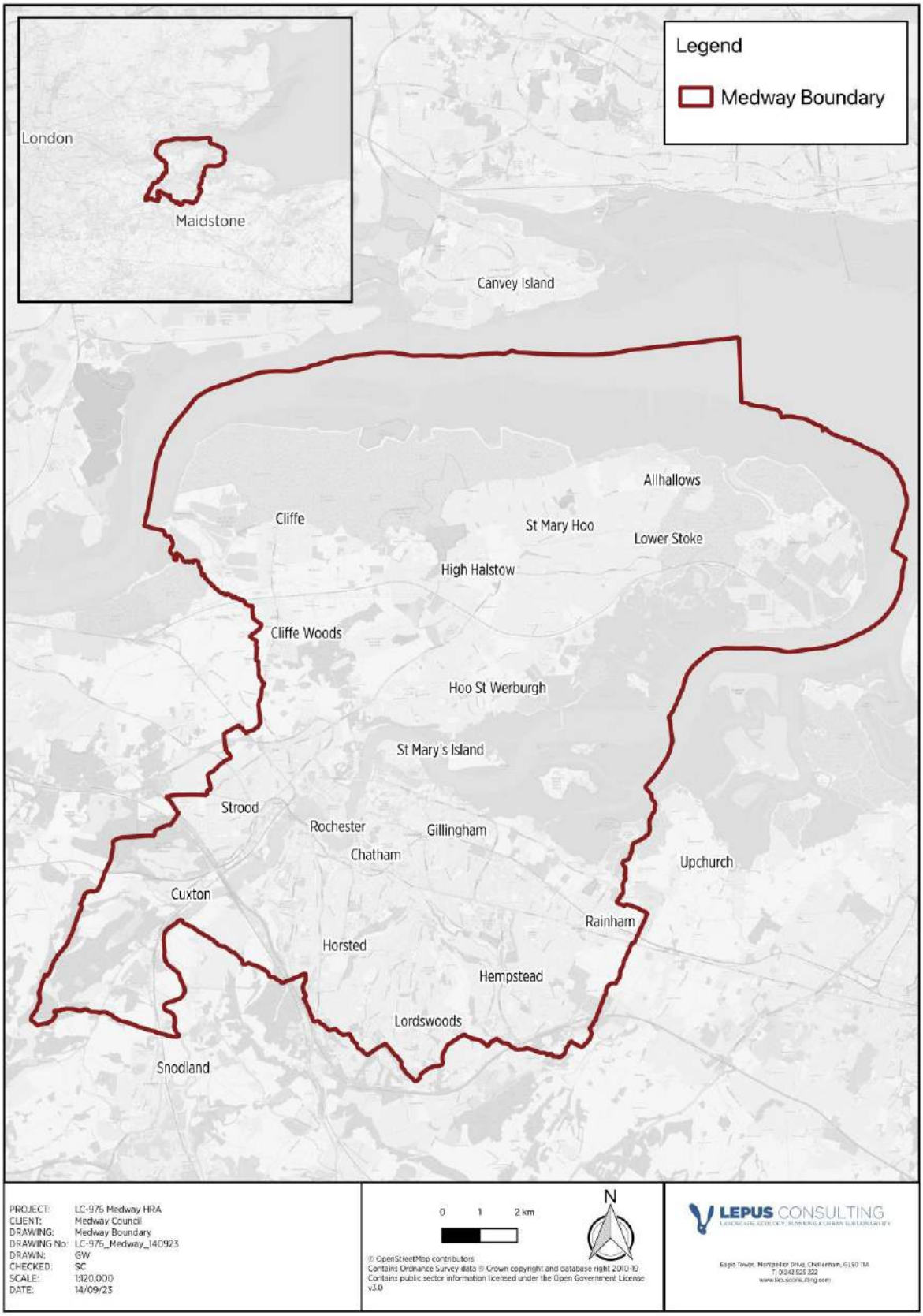

Figure 1.1: *Medway Council administrative area*

2 The Medway Local Plan

2.1 Regulation 18 consultation

2.1.1 The Council is currently preparing a new MLP which will set out the strategy for Medway's growth up to 2040. The aim of the Regulation 18 consultation is to obtain input from local people, businesses, community and interest groups and wider organisations as to the direction and content of the new MLP. The MLP will provide a framework to shape growth and meet needs in terms of homes and jobs.

2.1.2 The Regulation 18 consultation does not include detail on policies or sites, but instead looks at where changes will be required, aspects of Medway which require safeguarding and potential locations for new homes, workplaces and services. The Regulation 18 consultation follows withdrawal of Government funding from the Housing Infrastructure Fund (HIF) for strategic transport and environmental schemes. This has meant that the Council is now looking at alternatives for securing investment in transport and Green Infrastructure (GI) across Medway, as these remain strategic matters central to the new MLP.

3 The HRA process

3.1 Overview

3.1.1 The purpose of the HRA process is to evaluate the potential effects of a plan or project on the conservation objectives of sites designated under the Habitats[3] and Birds[4] Directives. These sites form a system of internationally important sites throughout Europe known collectively as the 'Natura 2000 Network'. In line with the Habitats Regulations, UK sites which were part of the Natura 2000 Network before leaving the EU, have become part of the National Site Network.

3.1.2 The Habitats Regulations[5] provide a definition of a European site at Regulation 8. These sites include Special Areas of Conservation (SAC), Sites of Community Importance, Special Protection Areas (SPA) and sites proposed to the European Commission in accordance with Article 4(1) of the Habitats Directive.

3.1.3 In addition, policy in England and Wales notes that the following sites should also be given the same level of protection as a European site[6]. European sites together with sites set out in national policy (listed below) are referred to in England and Wales as a Habitats site[7].

- A potential SPA (pSPA);
- A possible / proposed SAC (pSAC);
- Listed and proposed Ramsar Sites (wetland of international importance); and
- In England, sites identified or required as compensation measures for adverse effects on statutory Habitats sites, pSPA, pSAC and listed or proposed Ramsar sites.

[3] Official Journal of the European Communities (1992). Council Directive 92 /43 /EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

[4] Official Journal of the European Communities (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

[5] Conservation of Habitats and Species Regulations 2017 SI No. 2017/1012, TSO (The Stationery Office), London. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents [Date Accessed 24/08/23] as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573 [Date Accessed: 24/08/23]

[6] Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework. Para 181. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf [Date Accessed: 24/08/23]

[7] Habitats site: Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites. Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework. Para 181. Available in Annex 2 (Glossary) at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1182995/NPPF_Sept_23.pdf[Date Accessed: 24/08/23]

3.1.4 Where a land use plan is likely to have a significant effect on a Habitats Site (either alone or in-combination) and is not directly connected with or necessary to the management of the Habitats site, Regulation 105 of the Habitats Regulations notes that the plan-making authority for that plan must, before the plan is given effect, make an Appropriate Assessment of the implications for the site in view of that site's conservation objectives. These tests are referred to collectively as a Habitats Regulations Assessment (HRA).

3.1.5 There is no set methodology or specification for carrying out and recording the outcomes of the assessment process. The Habitats Regulations Assessment Handbook, produced by David Tyldesley Associates (referred to hereafter as the 'DTA Handbook'), provides an industry recognised good practice approach to HRA. The DTA Handbook, and in particular 'Practical Guidance for the Assessment of Plans under the Regulations'[8], which forms part F, has therefore been used to prepare this report, alongside reference to Government Guidance on Appropriate Assessment[9].

3.1.6 A step-by-step guide to the methodology adopted in this assessment, as outlined in the DTA Handbook, is illustrated in Figure 3.1.

[8] Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook (September) (2013) edition UK: DTA Publications Limited. Available at: https://www.dtapublications.co.uk/

[9] Government Guidance on Appropriate Assessment. July 2019. Guidance on the use of Habitats Regulations Assessment. Available at: https://www.gov.uk/guidance/appropriate-assessment

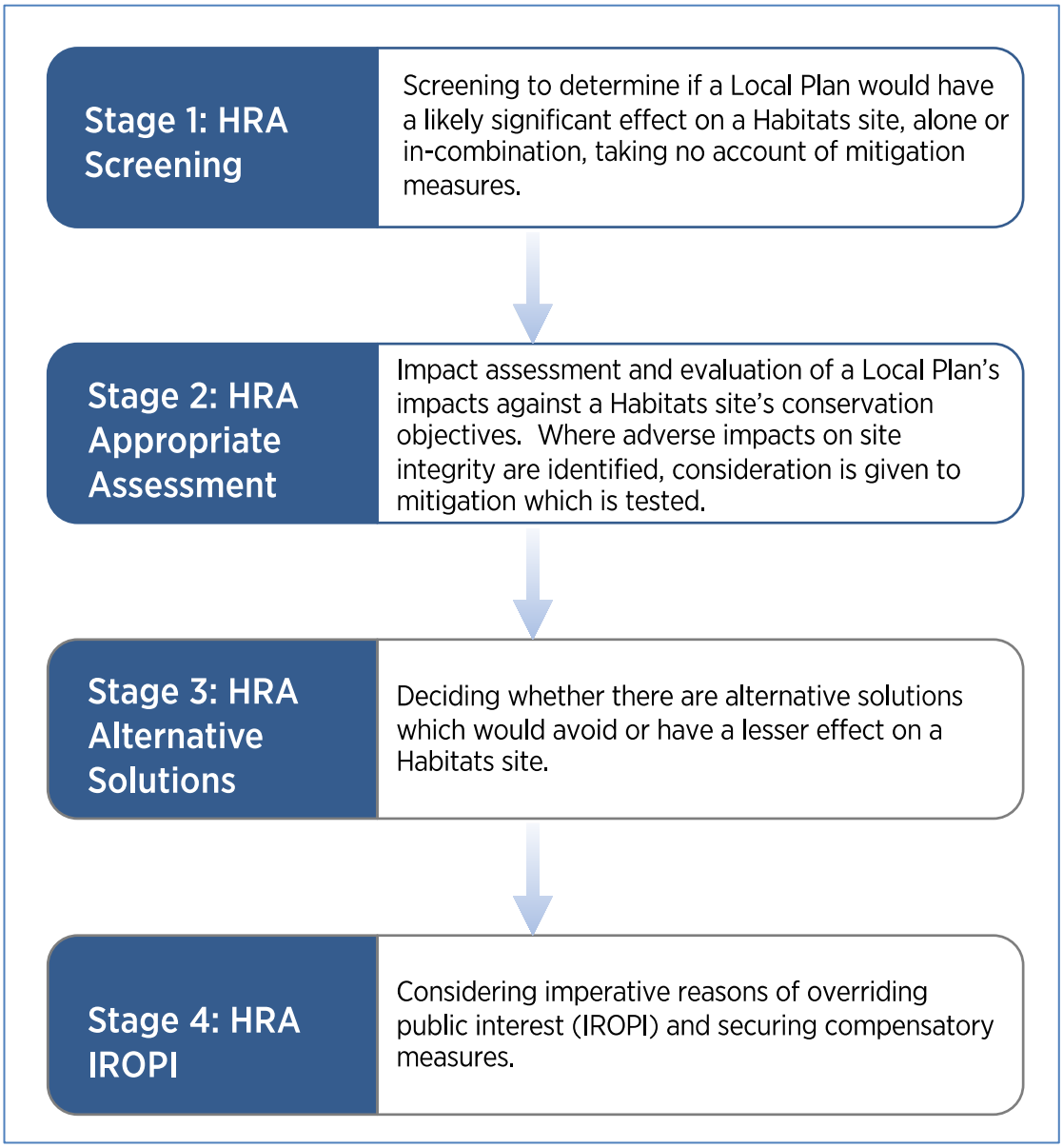

Figure 3.1: *Stages in the Habitats Regulations Assessment process*[10]

[10] Based on the process outlined in Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook (October) (2018) edition UK: DTA Publications Limited. Available at: https://www.dtapublications.co.uk/ [Date accessed: 29/08/23]

3.2 Previous HRA work

3.2.1 Previous iterations of the MLP have been subject to HRA. The Medway Submission Draft Core Strategy (2006 – 2028) was submitted for examination in January 2012 with the Regulation 19 (equivalent) version published in August 2011. An HRA (Appropriate Assessment) of the Core Strategy was produced in December 2011[11].

3.2.2 As part of the previous local plan review process, a Regulation 18 Issues and Options consultation[12] was undertaken in January and February 2016 and a consultation stage of the Development Options between January and May 2017[13]. HRA screening[14] was undertaken alongside this body of work.

3.2.3 Following this initial work, Medway Council prepared a Development Strategy in 2018 which focused on four options to meet the area's growth needs alongside draft policies to deliver the vision set for Medway in 2035[15]. This was subject to an HRA which assessed the effects of the Development Strategy on European sites[16].

3.2.4 Natural England (NE) was consulted at each stage of the HRA process. Table 3.1 below provides a summary of the screening outcome of this HRA work.

Table 3.1: Summary of previous HRA screening exercises over MLP's development[17][18]

Designated site	Public access and disturbance	Air pollution	Hydrological changes	Habitat fragmentation and loss
Medway Estuary and Marshes SPA and Ramsar	Likely Significant Effect (LSE)	LSE	LSE	LSE
Thames Estuary and Marshes SPA and Ramsar	LSE	LSE	LSE	LSE

[11] Enfusion (2011). Medway Council Core Strategy Habitats Regulations Assessment Appropriate Assessment Report December 2011.

[12] Medway Council (2016). Medway Council Local Plan Issues and Options 2012 – 2035. Consultation Document – January / February 2016.

[13] Medway Council (2017). Medway Council Local Plan 2012 – 2035. Development Options Regulation 18 Consultation Report - January 2017.

[14] Medway Council (2017). Medway Council Local Plan – Development Options Habitats Regulations Assessment Screening Report.

[15] Medway Council (2018). Medway Council Local Plan. Development Strategy Regulation 18 Consultation Report.

[16] Arup (2018). Medway Local Plan Development Strategy Interim Consideration of the Implications of Development Strategy Scenarios on European Sites.

[17] Previous HRA work from Medway Council 2017. Development Options HRA Screening Report

[18] Previous HRA work from Arup. 2018. Medway Local Plan Development Strategy Interim Consideration of the Implications of Development Strategy Scenarios on European Sites.

Designated site	Public access and disturbance	Air pollution	Hydrological changes	Habitat fragmentation and loss
The Swale SPA and Ramsar	LSE	No LSE	No LSE	LSE
North Downs Woodland SAC	No LSE	LSE	No LSE	No LSE
Peter's Pit SAC	No LSE	LSE	No LSE	No LSE
Queensdown Warren SAC	No LSE	No LSE	No LSE	No LSE

3.2.5 In their letter of 22 June 2018 Natural England indicated their general agreement with the conclusions of the screening exercise undertaken in 2018 in terms of the following sites:

- Medway Estuary and Marshes SPA and Ramsar
- Thames Estuary and Marshes SPA and Ramsar
- North Downs Woodland SAC
- Queensdown SAC

3.2.6 However, they indicated that in terms of air quality impacts as a result of MLP, the Swale SPA and Ramsar should be given further consideration in the HRA process. They also noted that Peter's Pit SAC should be screened out in terms of air quality impacts; citing that inland waterbodies are generally phosphorous limited, rather than nitrogen limited, and as such Peter's Pit SAC is not considered to be sensitive to changes in nitrogen levels.

4 Methodology

4.1 Introduction

4.1.1 As noted in **Section 1.2**, the application of HRA to land-use plans is a requirement of the Habitats Regulations. HRA applies to plans and projects, including all Local Development Documents in England and Wales.

4.1.2 This report has been informed by the following guidance:

- Planning Practice Guidance: Appropriate Assessment[19]
- The Habitat Regulations Assessment Handbook – DTA, 2013 (in particular Part F: '*Practical Guidance for the Assessment of Plans under the Regulations*')

4.2 HRA methodology

4.2.1 HRA is a rigorous precautionary process centred around the conservation objectives of a Habitats site's qualifying interests. It is intended to ensure that designated Habitats sites are protected from impacts that could adversely affect their integrity. A step-by-step guide to this methodology is outlined in the DTA Handbook and has been reproduced in **Figure 3.1**.

4.2.2 This chapter outlines the methodology that will be followed in the HRA of the MLP as the plan develops.

4.3 Stage 1: Screening for likely significant effects

4.3.1 The first stage in the HRA process comprises the screening stage. The purpose of the screening process is to firstly determine whether a plan is either (1) exempt (because it is directly connected with or necessary to the management of a Habitats site), (2) whether it can be excluded (because it is not a plan), or (3) eliminated (because there would be no conceivable effects), from the HRA process. If none of these conditions apply, it is next necessary to identify whether there are any aspects of the plan which may lead to likely significant effects at a Habitats site, either alone or in combination with other plans or projects.

4.3.2 Screening considers the potential 'significance' of adverse effects. Where elements of a plan will not result in a likely significant effect (LSE) on a Habitats site these are screened out and are not considered in further detail in the process.

4.3.3 Pre-screening the components of a plan at an early stage of the plan-making process helps to minimise or avoid LSEs upon any Habitats site and as such improve the plan. The pre-screening process uses a number of evaluation codes to summarise whether or not a plan component is likely to have LSEs alone or in-combination (see **Table 4.1**) and to inform the formal screening decision.

[19] Ministry of Housing, Communities and Local Government (July 2019) Planning Practice Guidance Note, Appropriate Assessment, Guidance on the use of Habitats Regulations Assessment

Table 4.1: *Assessment and reasoning categories from Part F of the DTA Handbook*

Pre-screening assessment and reasoning categories from Chapter F of The Habitats Regulations Assessment Handbook (DTA Publications, 2013):		Screen in/ Screen Out
A.	General statements of policy / general aspirations	Screen Out
B.	Policies listing general criteria for testing the acceptability / sustainability of proposals.	Screen Out
C.	Proposal referred to but not proposed by the plan.	Screen Out
D.	General plan-wide environmental protection / designated site safeguarding / threshold policies.	Screen Out
E.	Policies or proposals that steer change in such a way as to protect European sites from adverse effects.	Screen Out
F.	Policies or proposals that cannot lead to development or other change.	Screen Out
G.	Policies or proposals that could not have any conceivable or adverse effect on a site.	Screen Out
H.	Policies or proposals the (actual or theoretical) effects of which cannot undermine the conservation objectives (either alone or in combination with other aspects of this or other plans or projects).	Screen Out
I.	Policies or proposals with a likely significant effect on a site alone.	Screen In
J.	Policies or proposals unlikely to have a significant effect alone.	Screen Out
K.	Policies or proposals unlikely to have a significant effect either alone or in combination.	Screen Out
L.	Policies or proposals which might be likely to have a significant effect in combination.	Screen In
M.	Bespoke area, site or case-specific policies or proposals intended to avoid or reduce harmful effects on a European site.	Screen In

4.4 What is a Likely Significant Effect?

4.4.1 The DTA Handbook guidance provides the following interpretation of LSEs:

4.4.2 "*In this context, 'likely' means risk or possibility of effects occurring that cannot be ruled out on the basis of objective information. 'Significant' effects are those that would undermine the conservation objectives for the qualifying features potentially affected, either alone or in combination with other plans or projects … even a possibility of a significant effect occurring is sufficient to trigger an 'appropriate assessment'*"[20].

[20] Tyldesley, D. (2013) The Habitats Regulations Assessment Handbook – Chapter F. DTA Publications

4.5 In-combination effects

4.5.1 Should screening conclude there are no LSEs from the MLP alone, it would next be necessary to consider whether the effects of the MLP in-combination with other plans and projects would combine to result in an LSE on any Habitats site. It may be that the MLP alone will not have a LSE but could have a residual effect that may contribute to in-combination LSEs on a Habitats site.

4.5.2 The DTA Handbook[21] notes that "*where an aspect of a plan could have some effect on the qualifying feature(s) of a European site, but that aspect of the plan alone are unlikely to be significant, the effects of that aspect of the plan will need to be checked in combination firstly, with other effects of the same plan, and then with the effects of other plans and projects*".

4.5.3 As such an in-combination assessment will be undertaken as part of the HRA process at the screening stage (where no LSE are considered possible alone, but in-combination effects are likely). It will also be undertaken at the Appropriate Assessment stage where, following Appropriate Assessment and mitigation, an insignificant adverse effect is still likely which has the potential to act in-combination with other plans and projects.

4.5.4 Plans and projects which are considered to be of most relevance to the in-combination assessment of the MLP include those that have similar impact pathways. These include those plans and projects that have the potential to increase development in the HRA study area. In addition, other plans and projects with the potential to increase traffic across the study area which may act in-combination with the MLP, such as transport, waste and mineral plans and projects, will also be taken into consideration. Plans which allocate water resources or are likely to influence water quality in the study area will also considered. Finally, neighbouring authority local plans which may increase development related pressures at Habitats sites will be included.

4.5.5 It is recognised that the status of other plans and projects will change over the timescale of the MLP plan-making process. As such, and for the purposes of this stage of the HRA process, the following Local Planning Authority (LPA) local development plans have been identified for consideration in future stages of the HRA process through an in-combination assessment. Alongside these local development plans, consideration will also be given to topic specific plans and projects including the local minerals and waste plans, transport plan and relevant river basin and Water Resource Management plans.

- Maidstone Borough Council
- Gravesham Borough Council
- Swale Borough Council
- Tonbridge and Malling Borough Council
- Dartford Borough Council
- Thurrock Council
- Castle Point Borough Council
- Southend-on-Sea Borough Council

[21] Tyldesley, D., and Chapman, C., (2013) The Habitats Regulations Assessment Handbook. December 2019 edition UK: DTA Publications Ltd, https://www.dtapublications.co.uk/

- Medway Local Transport Plan 2011 – 2026
- Kent Local Transport Plan 4, 2016
- Kent Minerals and Waste Local Plan
- Thames Estuary Plan 2100
- South East Water Water Resources Management Plan
- Southern Water Water Resource Management Plan
- Medway Estuary and Swale Shoreline Management Plan
- Isle of Grain to South Foreland Shoreline Management Plan Review
- South East Inshore Marine Plan
- Medway Estuary and Swale Strategy
- Thames Estuary Strategy
- Medway Abstraction Licensing Strategy
- Lower Thames Crossing

4.5.6 The approach that will be taken to the consideration of in-combination effects will be compliant with the Wealden Judgement[22] which requires an in-combination approach that considers the development of neighbouring and nearby authorities when assessing likely significant effects.

4.6 Consideration of mitigation measures

4.6.1 The European Court Judgement on the interpretation of the Habitats Directive in the case of People Over Wind and Sweetman vs Coillte Teoranta (Case C-323/17[23]) determined that mitigation measures are only permitted to be considered as part of an Appropriate Assessment.

4.6.2 It is therefore necessary to further define mitigation measures. The DTA Handbook notes that there are two types of measures as follows[24]:

- "*Measures intended to avoid or reduce harmful effects on a European site; or*
- *Features or characteristics of a plan which are essential in defining the nature, scale, location, timing, frequency or duration of the plan's proposals, or they may be inseparable aspects of the plan, without which an assessment of the plan could not properly be made, in the screening decision, even though these features or characteristics may incidentally have the effect of avoiding or reducing some or all of the potentially adverse effects of a plan".*

[22] Wealden District Council & Lewes District Council before Mr Justice Jay. Available at: http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html[Date accessed: 29/08/23]

[23] InfoCuria (2018) Case C-323/17. Available at: https://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN [Date accessed: 24/01/23]

[24] Tyldesley, D., and Chapman, C., (2013) The Habitats Regulations Assessment Handbook. November 2018 edition UK: DTA Publications Ltd, https://www.dtapublications.co.uk/ [Date accessed: 29/08/23]

4.6.3 The HRA screening process undertaken for the MLP will not take account of incorporated mitigation or avoidance measures that are intended to avoid or reduce harmful effects on a Habitats site when assessing the LSE of the MLP on Habitats sites. These are measures, which if removed (i.e. should they no longer be required for the benefit of a Habitats site), would still allow the lawful and practical implementation of a plan.

4.7 Stage 2: Appropriate Assessment and Integrity Test

4.7.1 Stage 2 of the HRA process comprises the Appropriate Assessment and Integrity Test. The purpose of the Appropriate Assessment (as defined by the DTA Handbook) is to "*undertake an objective, scientific assessment of the implications for the European site qualifying features potentially affected by the plan in light of their consideration objectives and other information for assessment*"[25].

4.7.2 As part of this process decision makers should take account of the potential consequences of no action, the uncertainties inherent in scientific evaluation and should consult interested parties on the possible ways of managing the risk, for instance, through the adoption of mitigation measures. Mitigation measures should aim to avoid, minimise or reduce significant effects on Habitats sites. Mitigation measures may take the form of policies within the Local Plan or mitigation proposed through other plans or regulatory mechanisms. All mitigation measures must be deliverable and be able to mitigate adverse effects for which they are targeted.

4.7.3 The Appropriate Assessment will present information in respect of all aspects of the MLP and ways in which it could, either alone or in-combination with other plans and projects, affect a Habitats site.

4.7.4 The plan-making body (as the Competent Authority) must then ascertain, based on the findings of the Appropriate Assessment, whether the MLP will adversely affect the integrity of a Habitats site either alone or in-combination with other plans and projects. This is referred to as the Integrity Test.

4.8 Dealing with uncertainty

4.8.1 Uncertainty is an inherent characteristic of HRA, and decisions can be made only on currently available and relevant information. This concept is reinforced through the 7th of September 2004 'Waddenzee' ruling[26]:

[25] Tyldesley, D. (2013) The Habitats Regulations Assessment Handbook. DTA Publications.

[26] EC Case C-127/02 Reference for a Preliminary Ruling 'Waddenzee' 7th September 2004 Advocate General's Opinion (para 107)

4.8.2 "*However, the necessary certainty cannot be construed as meaning absolute certainty since that is almost impossible to attain. Instead, it is clear from the second sentence of Article 6(3) of the habitats directive that the competent authorities must take a decision having assessed all the relevant information which is set out in particular in the appropriate assessment. The conclusion of this assessment is, of necessity, subjective in nature. Therefore, the competent authorities can, from their point of view, be certain that there will be no adverse effects even though, from an objective point of view, there is no absolute certainty*".

4.9 The Precautionary Principle

4.9.1 The HRA process is characterised by the precautionary principle. This is described by the European Commission as being:

4.9.2 "*If a preliminary scientific evaluation shows that there are reasonable grounds for concern that a particular activity might lead to damaging effects on the environment, or on human, animal or plant health, which would be inconsistent with protection normally afforded to these within the European Community, the Precautionary Principle is triggered*".

5 Impact Pathways

5.1 Identification of an HRA study area

5.1.1 Each Habitats site has its own intrinsic qualities, besides the habitats or species for which it has been designated, that enables the site to support the ecosystems that it does. An important aspect of this is that the ecological integrity of each site can be vulnerable to change from natural and human induced activities in the surrounding environment (known as pressures and threats). For example, sites can be affected by land use plans in a number of different ways, including the direct land take of new development, the type of use the land will be put to (for example, an extractive or noise-emitting use), the pollution / threat a development generates (air pollution or increased recreational pressure), and the resources used (during construction and operation for instance).

5.1.2 An intrinsic quality of any Habitats site is its functionality at the landscape ecology scale. This refers to how the site interacts with its immediate surroundings, as well as the wider area. This is particularly the case where there is potential for developments resulting from the plan to generate water or air-borne pollutants, use water resources or otherwise affect water levels. Adverse effects may also occur via impacts to mobile species occurring outside a designated site, but which are qualifying features of a site. For example, there may be effects on protected birds that use land outside the designated site for foraging, feeding, roosting or other activities.

5.1.3 There is no guidance that defines the study area for inclusion in HRA. Planning Practice Guidance for Appropriate Assessment (listed above) indicates that:

5.1.4 "The scope and content of an appropriate assessment will depend on the nature, location, duration and scale of the proposed plan or project and the interest features of the relevant site. 'Appropriate' is not a technical term. It indicates that an assessment needs to be proportionate and sufficient to support the task of the competent authority in determining whether the plan or project will adversely affect the integrity of the site".

5.2 Scoping impact pathways

5.2.1 To determine Habitats sites which may be affected by the MLP it is firstly important to understand potential impact pathways from the MLP. It is important to understand potential links or causal connections between the effects of the MLP and Habitats sites.

5.2.2 This section scopes potential impact pathways by applying a 'source-pathway-effect' model to determine which Habitats sites will form the focus of the HRA. It is important to note that different impact pathways (for instance air quality, water and recreational pressure) may have a different geographical coverage. These differences are reflected in the following scoping exercise.

5.3 Threats and pressures

5.3.1 Threats and pressures to which Habitats sites are vulnerable have been identified through reference to data held by the JNCC and Natural England on Natura 2000 Data Forms, Ramsar Information Sheets and Site Improvement Plans (SIPs). This information provides current and predicted issues at each Habitats site and is summarised in Appendix A.

5.3.2 Supplementary advice notices prepared by Natural England provide more recent information on threats and pressures upon Habitats sites than SIPs and have therefore also been reviewed. A number of threats and pressures are unlikely to be exacerbated by the MLP. Threats and pressures which could be affected by the MLP at each Habitats site are provided at Appendix A.

5.3.3 Based on a review of HRA work undertaken to support previous phases of the local plan review, neighbouring LPA HRAs and local knowledge, the following potential impact pathways are considered to be within the scope of influence of the MLP. This includes consideration of potential impacts upon both designated sites and areas of functionally linked habitat outside the designation boundary.

- Air pollution: Land use planning has the potential to increase atmospheric emissions of pollutants to the air. These can result in adverse effects at Habitats sites such as eutrophication (nitrogen), acidification (nitrogen and sulphur) and direct toxicity (ozone, ammonia and nitrogen oxides)[27].
- Water resources and water levels: Urban development can change run off rates from urbanised areas to Habitats sites or watercourses which run through them. An increase in housing provision can also influence supply and demand for water within the region which may impact water levels.
- Water quality: Surface water run-off from urban areas has the potential to reduce the quality of water entering a catchment. Water quality may also be reduced through point source effluent discharges from new development at Wastewater Treatment Works and other controlled discharge sources.
- Recreational pressure: Increased development has the potential to increase recreational pressure upon Habitats sites which are accessible to the public.
- Urbanisation: Urban development has the potential to result in disturbing activities (such as noise, lighting and visual disturbance). Disturbance effects may impact upon Habitats sites themselves and also their qualifying features when outside a designated site boundary.
- Habitat loss, fragmentation and degradation: Increased development has the potential to have direct and indirect impacts upon designated sites and habitat / species outside a designated site boundary which is functionally linked to the designation itself.

[27] APIS (2016) Ecosystem Services and air pollution impacts. Available at: https://www.apis.ac.uk/ecosystem-services-and-air-pollution-impacts [Date Accessed: 21/06/23]

- Coastal squeeze: Given the location of the plan area and the coastal nature of adjacent Habitats sites, increased development has the potential to result in a loss of these natural habitats when considered alongside sea level rise.

5.4 Air quality

5.4.1 Air pollution can affect a Habitats site if it has an adverse effect on its features of qualifying interest. The main mechanisms through which air pollution can have an adverse effect is through eutrophication (nitrogen), acidification (nitrogen and sulphur) and direct toxicity (ozone, ammonia and nitrogen oxides). Deposition of air pollutants can alter the soil and plant composition and species which depend upon these.

5.4.2 As highlighted through the review of threats and pressures at Habitats sites, (**Appendix A**) air pollution, and in particular atmospheric nitrogen deposition, has been identified as a threat or pressure for qualifying features of a number of Habitats sites within the relevant Natural England SIPs and Supplementary Conservation Advice Notes.

5.4.3 Excess atmospheric nitrogen deposition within an ecosystem or habitat can disrupt the delicate balance of ecological processes interacting with one another. As the availability of nitrogen increases in the local environment, some plants that are characteristic of that ecosystem may become competitively excluded in favour of more nitrophilic plants. It also upsets the ammonium and nitrate balance of the ecosystem, which disrupts the growth, structure and resilience of some plant species.

5.4.4 Excess nitrogen deposition often leads to the acidification of soils and a reduction in the soils' buffering capacity (the ability of soil to resist pH changes). It can also render the ecosystem more susceptible to adverse effects of secondary stresses, such as frost or drought, and disturbance events, such as foraging by herbivores.

5.4.5 As an attempt to manage the negative consequences of atmospheric nitrogen deposition, 'critical loads' and 'critical levels' have been established for ecosystems in Europe. Each Habitats site is host to a variety of habitats and species, the features of which are often designated a critical load for nitrogen deposition.

5.4.6 The critical loads of pollutants are defined as a "…*quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge*"[28]. Critical levels are defined as "*concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge*"[29].

[28] UNECE (date unavailable) ICP Modeling and Mapping Critical loads and levels approach. Available at: https://www.umweltbundesamt.de/en/Coordination_Centre_for_Effects [Date accessed: 29/08/23]

[29] UNECE (date unavailable) ICP Modeling and Mapping Critical loads and levels approach. Available at: https://www.umweltbundesamt.de/en/Coordination_Centre_for_Effects[Date accessed: 29/08/23]

5.4.7 Natural England has prepared a standard methodology for the assessment of traffic related air quality impacts under the Habitats Regulations which is relevant to the HRA of plans which may result in a change in traffic flows[30]. In addition, the Institute of Air Quality Management (IAQM)[31] and the Chartered Institute of Ecology and Environmental Management (CIEEM)[32] have also prepared advice on the assessment of air quality impacts at designated sites. This guidance sets thresholds for screening of likely significant (air quality) effects at the HRA screening stage (Stage 1 of the HRA process) and methodologies for further Appropriate Assessment (Stage 2 of the HRA process) of air quality impacts where relevant.

5.4.8 At this preliminary stage in the plan-making process traffic modelling data was not available to allow the application of screening thresholds. However, Natural England's guidance (in the form of a series of questions) has been applied to determine potential air quality impact pathways to Habitats sites:

- Does the MLP give rise to emission which are likely to reach a Habitats site?
- Are the qualifying features of sites within 200m of a road sensitive to air pollution?
- Could the sensitive qualifying features of the site be exposed to emissions?

5.4.9 The MLP will trigger development in the form of housing, employment and retail development. The exact scale, location and nature of this development is however not known at this stage in the plan making process. Diffuse air quality impacts have been shown to typically affect Habitats sites within 10km of a plan boundary[33]. Campman and Kite (2021) note that '*this zone is based on professional judgment recognising that the effects of growth from development beyond 10km will have been accounted for in the Nitrogen Futures modelling work business as usual scenario*'[34]. A number of Habitats sites are located within 10km of the MLP area as listed in Table 5.1.

[30] Natural England (2018) Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations (NEA001). Available at: https://publications.naturalengland.org.uk/publication/4720542048845824 [Date accessed: 29/08/23]

[31] Holman et al (2020). A guide to the assessment of air quality impacts on designated nature conservation sites – version 1.1, Institute of Air Quality Management, London.

[32] CIEEM (2021) Advice on Ecological Assessment of Air Quality Impacts. Chartered Institute of Ecology and Environmental Management. Winchester, UK.

[33] Chapman, C and Kite, B. 2021. Main Report. Guidance on Decision-making Thresholds for Air Pollution. JNCC Report No. 696. Available at: https://hub.jncc.gov.uk/assets/6cce4f2e-e481-4ec2-b369-2b4026c88447 [Date Accessed: 06/09/23]

[34] JNCC. Nitrogen Future. https://jncc.gov.uk/our-work/nitrogen-futures/ [Date Accessed: 06/09/23]

5.4.10 It is widely accepted that air quality impacts are greatest within 200m of a road source, decreasing with distance[35,36,37]. Baseline mapping data has been used to determine the proximity of Habitats sites, and their qualifying features, to roads which may result in an exceedance of Natural England's screening thresholds (A and B roads) within an approximate 10km buffer from the MLP administrative area. The UK Air Pollution Information System (APIS) provides information on all Habitats sites and the sensitivity of their qualifying features (habitats and / or species) to air pollution. This data has been interrogated, alongside a desk-based review of site-based data (**Appendix A**), to determine whether there may be impact pathways from the MLP to any Habitats site through a change in atmospheric emissions (**Table 5.1**).

Table 5.1: *Atmospheric pollution impact pathways to Habitats sites within 10km of the MLP administrative area*

Habitats site vulnerable to changes in air quality (as identified in Natural England's SIP or Supplementary Advice or Ramsar Information Sheet)	Strategic road links (A and B roads) located within 200m of Habitats site	Habitats site screened in for further consideration in HRA in terms of air quality
Medway Estuary and Marshes SPA and Ramsar	A249, B2004 and A228.	Yes
Thames Estuary and Marshes SPA and Ramsar	B2001, A228, B2000	Yes
The Swale SPA and Ramsar	A249, B2045, A299 and B2205	Yes
North Downs Woodlands SAC	A229 (Bluebell Hill) and A249 (Detling Hill)	Yes
Peter's Pit SAC	None	No
Queensdown Warren SAC	None	No

5.4.11 Habitats sites which have been scoped into the HRA process (see **Table 5.1**) will be assessed further through HRA screening (Stage 1 of the HRA process) as the MLP develops. This will look at traffic data, where available, to allow a comparison of flows from the MLP alone, and in-combination with other plans and projects, at the Habitats sites listed in **Table 5.1** against Natural England's AADT thresholds. It will also draw on APIS air pollution data for individual Habitats sites where relevant.

[35] The Highways Agency, Transport Scotland, Welsh Assembly Government, The Department for Regional Development Northern Ireland (2007) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1: Air Quality.

[36] Natural England (2016) The ecological effects of air pollution from road transport: an updated review. Natural England Commissioned Report NECR 199.

[37] Bignal, K., Ashmore, M. & Power, S. (2004) The ecological effects of diffuse air pollution from road transport. English Nature Research Report No. 580, Peterborough.

5.5 Water quality and water quantity

5.5.1 Urban development can reduce catchment permeability and the presence of drainage networks may be expected to remove runoff from urbanised catchments. This may result in changes in run off rates from urbanised areas to Habitats sites or watercourses which connect to them. Water mains leakage and sewer infiltration may also affect the water balance. In addition, supply to meet water demand associated with new development also has the potential to affect water balances at hydrologically sensitive Habitats sites.

5.5.2 Urbanisation also has the potential to reduce the quality of water entering a catchment during the construction of a development through processes such as sedimentation and the accidental spillage of chemicals and materials. Water quality may also be reduced through effluent discharges. This change in water quality can increase nutrient inputs into a catchment which can lead to algal blooms, reduce dissolved oxygen and increased turbidity. This can affect the overall condition of the receiving waterbody and may have adverse effects at hydrologically sensitive Habitats sites and their qualifying features.

5.5.3 The Water Framework Directive (WFD) provides an indication of the health of the water environment and whether a water body is at good status or potentially good. This is determined through an assessment of a range of elements relating to the biology and chemical quality of surface waters and the quantitative and chemical quality of groundwater. To achieve good ecological status or potential, good chemical status or good groundwater status every element assessed must be at good status or better. If one element is below its threshold for good status, then the status for the whole water body is classed below good. Surface water bodies can be classed as high, good, moderate, poor or bad status.

5.5.4 The WFD sets out areas which require special protection. These include areas designated for "*the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection including relevant Natura 2000 sites designated under Directive 92/43/EEC (the Habitats Directive) and Directive 79/409/EEC (the Birds Directive)*"[38].

5.5.5 Decisions relating to water abstraction for supply and disposal of water are controlled through a number of licencing mechanisms and a high-level water planning framework which is subject to HRA. This ensures the protection of the water environment and compliance with the Water Framework Directive (WFD).

[38] Official Journal of the European Communities (2000) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. Available at: https://eur-lex.europa.eu/resource.html?uri=cellar:5c835afb-2ec6-4577-bdf8-756d3d694eeb.0004.02/DOC_1&format=PDF [Date accessed: 29/08/23]

5.5.6 The Plan area lies within the Thames Basin District area and within the Medway Management Catchment[39]. The lower reaches of the River Medway run through the Plan area, entering to the south of Halling before reaching the Estuary at Rochester. The Medway catchment contains a large amount of urban development including the towns of Chatham and Rochester, and areas around the upper Estuary have a legacy of heavy manufacturing industry. The Thames forms Medway's northern boundary. The estuaries of the Medway and Thames form the plan area's northern and eastern boundaries. The Medway Estuary forms a single tidal system with the Swale and feeds into the outer Thames Estuary between the Isle of Grain and Sheerness. The Thames Estuary is contiguous with the Medway and The Swale Estuaries.

5.5.7 The Thames River Basin Management Plan (RMBP)[40] provides a framework for protecting and enhancing the benefits provided by the water environment. To achieve this, and because water and land resources are closely linked, it also informs decisions on land-use planning. It provides strategic level policy guidance in relation to baseline classification of water bodies, statutory objectives for protected areas and water bodies and a summary of measures to achieve statutory protection.

5.5.8 The Thames RBMP sets out a number of water management issues affecting rivers within this river basin as follows:

- Physical modification – including that for flood defence, drainage and navigation;
- Pollution from waste water – including wastewater and sewage discharges;
- Pollution from towns cities and transport – rainwater draining from the urban environment;
- Changes in the natural flow and levels of water - reduced flow and water levels in rivers and groundwater caused by human activity (such as abstraction) or less rainfall;
- Negative effects of non-native and invasive species; and
- Pollution from rural areas – agricultural run-off of soils, sediments, pesticides and fertilisers.

[39] Environment Agency (2019) Catchment Data Explorer. Available at: https://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/9 [Date Accessed: 26/08/23]

[40] Environment Agency (2015) Thames River Basin Management Plan. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718342/Thames_RBD_Part_1_river_basin_management_plan.pdf [Date Accessed: 26/08/23]

5.5.9 The RBMP for Thames River Basin District was supported by an HRA which was carried out by the Environment Agency (EA), in consultation with Natural England[41]. It determined that, at the strategic plan level, the range of potential mitigation options available allow a conclusion that the RBMP is not likely to have any significant effects on any Habitats sites, alone or in combination with other plans or projects. It notes that HRA requirements will continue to apply for lower tier plan and project level assessments.

5.5.10 The EA prepares an Abstraction Licensing Strategy (ALS) through its Catchment Abstraction Management Strategy (CAMS) process for each sub-catchment within a river basin. The CAMS process aims to assess the amount of water available for further abstraction licensing, taking into account the environment needs and implement the RBMPs and water abstraction plan[42] into licencing policy. The CAMS process is published in a series of ALSs for each river basin.

5.5.11 The MLP area is located within the 'Medway' CAMS, the 'North Kent and Swale' CAMS, and the 'Thames Corridor' CAMS[43,44,45]. The majority of the MLP area falls within the Medway CAMS, with smaller areas to the north located within the Thames CAMS and a small proportion in the south east located within the North Kent and Swale CAMS. The Thames Estuary and Marshes, the Medway Estuary and Marshes and The Swale SPAs and Ramsar designations are located within these CAMS areas locally and are hydrologically sensitive to changes in water levels.

5.5.12 The Medway CAMS contains the greatest urban development in the Kent area outside south east London. The principal towns of this area include Gravesend, Maidstone, Tonbridge, Royal Tunbridge Wells, Chatham and Rochester in Kent, as well as East Grinstead in West Sussex and Crowborough in East Sussex. The Thames CAMS covers approximately 2700 km2. It encompasses both the non-tidal Thames plus any immediate tributaries from its source to Teddington, and the non-tidal Thames from Teddington to the Thames Estuary at Shoeburyness. The North Kent and Swale CAMS is predominantly rural with agricultural land, comprising of arable, grassland and intensive horticulture of orchards, and hops. The principal towns of this area are Sittingbourne, Faversham, and Sheerness, as well as coastal towns of Whitstable and Herne Bay.

[41] Environment Agency (2015) River basin management plan for the Thames River Basin District Habitats Regulations Assessment Updated December 2015. Available at: https://www.gov.uk/government/publications/thames-river-basin-district-habitat-regulation-assessment-hra-report [Date Accessed: 29/08/23]

[42] DEFRA. July 2021. Policy Paper: Water Abstraction Plan. Available at: https://www.gov.uk/government/publications/water-abstraction-plan-2017/water-abstraction-plan [Date Accessed: 06/09/23]

[43] Environment Agency (2013). Medway Abstraction Licensing Strategy. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/289875/LIT_1995_61b7f5.pdf [Date accessed: 29/08/23]

[44] Environment Agency (2013). North Kent and Swale Abstraction Licensing Strategy. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/289868/LIT_1815_765a21.pdf [Date accessed: 29/08/23]

[45] Environment Agency (2013). Thames Abstraction Licensing Strategy. Available at: https://www.gov.uk/government/publications/thames-catchment-abstraction-licensing-strategy [Date accessed: 29/08/23]

5.5.13 The main water service provider for Medway is Southern Water. It is a statutory requirement that every five years water companies produce and publish a Water Resources Management Plan (WRMP). The WRMP demonstrates long term plans to accommodate the impacts of population growth, drought, environmental obligations and climate change uncertainty in order to balance supply and demand.

5.5.14 The Southern Water WRMP is set to replace the WRMP19[46] and cover the period from 2020-2075. The WRMP estimates future water demands and plans how these levels will be achieved. WRMPs forecasts a deficit that is likely to develop between supply and demand for water over time unless action is taken. The WRMP outlines a number of priorities that need to be taken to ensure continued sustainable sources of water supply including:

- Efficient use of water and minimal wastage across society;
- New water sources that provide resilient and sustainable supplies;
- A network that can move water around the region; and
- Catchment and nature-based solutions that improve the environment we rely upon.

5.5.15 The ALS are important in terms of the WRMP for determining current and future pressures on water resources and how the supply and demand will be managed by the relevant water companies. In addition, the Southern Water Drought Plan (2019)[47] sets out the activities Southern Water will implement to manage the impacts of drought, based on current circumstances and existing infrastructure.

5.5.16 Baseline data for Habitats sites and information in relation to hydrological connectivity has been reviewed to determine whether there may be impact pathways from the MLP to any Habitats site through a change in water quality or water resources (**Table 5.2**).

Table 5.2: *Water resource and water quality impact pathways to Habitats sites*

Habitats site	Is the Habitats site sensitive to a change in water quality and /or water level impacts and is it hydrologically connected to the plan area?	Habitats site scoped in for further consideration?
Medway Estuary and Marshes SPA and Ramsar	Located downstream of the Plan area and hydrologically connected. Therefore, water quality and quantity pathways of impact will be considered further in the test of likely significance (Stage 1 of the HRA process).	Yes
Thames Estuary and Marshes SPA and Ramsar	Located downstream of the Plan area and hydrologically connected. Therefore, water quality and quantity pathways of impact will be considered further in the test of likely significance (Stage 1 of the HRA process).	Yes

[46] Southern Water (2019). Water Resource Management Plan. Available at: https://www.southernwater.co.uk/media/3656/5025_wrmp_-v11.pdf [Date accessed: 29/08/23]

[47] Southern Water Drought Plan (2019) Available at: https://www.southernwater.co.uk/media/2589/final-drought-plan-technical-summary.pdf Date accessed [29/08/23]

Habitats site	Is the Habitats site sensitive to a change in water quality and /or water level impacts and is it hydrologically connected to the plan area?	Habitats site scoped in for further consideration?
The Swale SPA and Ramsar	Located downstream of the Plan area and hydrologically connected. Therefore, water quality and quantity pathways of impact will be considered further in the test of likely significance (Stage 1 of the HRA process).	Yes
North Downs Woodlands SAC	It is considered that, given the location of this designation upstream of the Plan area and the fact that due to its substrate and elevated position within the landscape, it is unlikely that there will be any water quality or quantity pathways of impact.	No
Peter's Pit SAC	The citation for Peter's Pit SAC notes that it is an old chalk quarry with adjoining soil-stripped fields on the North Downs, with scattered ponds situated amongst grassland, scrub and woodland. The citation notes that the ponds have widely fluctuating water levels and support large breeding populations of great crested newt *(Triturus cristatus).* The site has an undulating terrain in which many rain-fed ponds, of various sizes, have developed. Given the rain fed nature of these ponds and the sites location upstream of the Plan area, it is unlikely that there will be any water quality or quantity pathways of impact.	No
Queensdown Warren SAC	Queensdown Warren SAC is designated for the semi-natural dry grassland and scrubland habitats that it supports. The SIP for this designation does not list hydrology as a threat[48]. Given its location in relation to the Plan area, it is unlikely there will be any water quality pathways of impact.	No

5.5.17 At the next stage of the Plan making process, all components of the MLP will be screened for potential water quality and quantity LSEs on the above Habitats sites, drawing on other elements of the evidence base.

5.6 Public access and disturbance

5.6.1 Increased recreational pressure at Habitats sites can result in damage to habitats through erosion and compaction, troubling of grazing stock, causing changes in behaviour to animals such as birds at nesting and feeding sites, spreading invasive species, dog fouling, tree climbing etc. Typically, disturbance of habitat and species is the unintentional consequence of people's presence which can impact distribution of habitat types and breeding success and survival. Increased development has the potential to increase recreational pressures upon Habitats sites which are accessible to the public.

[48] Natural England (2015) Queensdown Warren SAC Site Improvement Plan. Available at: https://publications.naturalengland.org.uk/publication/4943746697265152 [Date Accessed: 29/08/23]

5.6.2 A common approach taken across the UK to address recreational impacts at Habitats sites is to establish a Zone of Influence (ZOI) based on detailed visitor survey data. The ZOI is the area within which there are likely to be significant effects arising from recreational activities undertaken by additional residents due to growth. This is often calculated by taking the distance at which 75% of interviewees surveyed have travelled to reach a particular site (based on a review of visitor survey data).

5.6.3 The broad principle of buffer zones is one component of the HRA screening process for recreational pressures. This process also takes into consideration other factors such as recreational management at sites, proximity to settlements and existing recreational resources. Where available, buffer distances have been applied to determine potential pathways of recreational and urbanisation effects from the MLP.

5.6.4 A large body of research has been undertaken into the effect of recreational disturbance upon birds[49,50]. This has shown that disturbance can result in complex behavioural effects, such as a change in feeding behaviour, reduced breeding success[51] (due to nest abandonment and increased predation) and wasted energy expenditure due to birds taking flight[52]. The research notes that response differs between species depending on visual and audible disturbances and other external factors[53] such as food resource availability.

[49] Mitchell J.R., Moser M.E. & Kirby J.S. 1988. Declines in the midwinter counts of waders roosting on the Dee estuary. Bird Study 35:191-198.

[50] Smit C.J. and Visser J.M. 1993. Effects of disturbance on shorebirds: a summary of existing knowledge from the Dutch Wadden Sea and Delta area. Wader Study Group Bulletin 68: 53-58. Available at: https://www.researchgate.net/publication/285916515_Effects_of_disturbance_on_shorebirds_A_summary_of_existing_knowledge_from_the_Dutch_Wadden_Sea_and_Delta_area [Date Accessed: 06/09/23]

[51] Liley, D and Sutherland, W., 2007. Predicting the population consequences of human disturbance for Ringed Plovers Charadrius hiaticula: a game theory approach. Ibis 149(1): 82- 94. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1474-919X.2007.00664.x [Date Accessed: 06/09/23]

[52] Riddington, R., Hassall, M., Lane, S.J., Turner, P.A. and Walters, R., 1996. The impact of disturbance on the behaviour and energy budgets of Brent Geese Branta b. bernicla. Bird Study 43(3): 269-279 https://www.ingentaconnect.com/content/tandf/bird/1996/00000043/00000003/433269 [Date Accessed: 08/09/23]

[53] Cayford, J. T. 1993. Wader disturbance: a theoretical overview. Wader Study Group Bull. 68:3-5. Available at: https://sora.unm.edu/sites/default/files/journals/iws/n005/p00003-p00005.pdf [Date Accessed: 08/09/23]

5.6.5 The birds which use the Thames Estuary and Marshes SPA and Ramsar, the Medway Estuary SPA and Ramsar, the Swale SPA and Ramsar designations are vulnerable to recreational impacts. Work has been undertaken to document the effects of bird disturbance[54] and visitor surveys have been undertaken to determine visitor use of the shoreline and collate visitor origin data[55,56]. In 2014, based on this work, the North Kent Strategic Access Management and Monitoring Strategy (SAMMS) was developed[57]. This sets out a strategy to resolve disturbance issues to wintering birds on the North Kent Marshes. Bird Wise is the brand name of the North Kent SAMMS Board, a partnership of local authorities, developers and environmental organisations working together to mitigate disturbance to birds that winter in north Kent[58]. It identifies a 6km ZOI from the North Kent designated sites within which recreational impacts are likely.

5.6.6 The North Downs Woodlands SAC is split over two locations, the first of which contains part of the Halling to Trottiscliffe Escarpment SSSI, and the second which contains part of the Wouldham to Detling Escarpment SSSI. A small proportion of the SAC near Upper Halling falls within Medway's boundary. The Site Improvement Plan for the North Downs Woodland SAC notes that off-road vehicles as well as all-terrain bikes are having an impact on parts of the woodland. It states that vehicle damage is associated with vehicles coming off the Public Rights of Way (PRoW) network into the woodland[59]. There has been no visitor survey work undertaken across the North Downs Woodlands SAC to determine a recreational zone of influence. Boxley Warren Local Nature Reserve (LNR) forms part of the Wouldham to Detling Escarpment SSSI component of the SAC (outside the Plan area). A survey was undertaken at the LNR[60] in 2012 which found that 75% of visitors to the site travelled up to 7km to visit the LNR. The outputs of this survey have been used as a precautionary guide to inform this preliminary scoping assessment.

5.6.7 Public access and disturbance effects have not been identified as a threat at either St Peter's Pit SAC or Queensdown Warren SAC.

[54] Liley, D. & Fearnley, H. (2011). Bird Disturbance Study, North Kent 2010/11. Footprint Ecology. Available at: https://northkent.birdwise.org.uk/research-and-strategy-reports/#researchReports [Date Accessed: 07/09/23]

[55] Fearnley, H. & Liley, D. (2011). North Kent Visitor Survey Results. Footprint Ecology. Available at: https://northkent.birdwise.org.uk/wp-content/uploads/2018/02/North-Kent-visitor-survey-results-2011.pdf [Date Accessed: 07/09/23]

[56] Liley, D., Lake, S. & Fearnley, H. (2012). Phase I – Bird Disturbance Report. Footprint Ecology/GGKM/NE Available at: https://northkent.birdwise.org.uk/research-and-strategy-reports/#researchReports [Date Accessed: 07/09/23]

[57] Liley, D. & Underhill-Day, J. (2013). Thames, Medway and Swale Estuaries – Strategic Access Management and Monitoring Strategy. Unpublished report by Footprint Ecology. Available at: https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjy1aHlipuBAxVaUEEAHahLCCgQFnoECBkQAQ&url=https%3A%2F%2Fwww.medway.gov.uk%2Fdownload%2Fdownloads%2Fid%2F1834%2Fstrategic_access_management_and_monitoring_strategy.pdf&usg=AOvVaw2NjzMpd-zyi7aBLYR67L96&opi=89978449 [Date Accessed: 07/09/23]

[58] Birdwise. About birdwise. Available at: https://northkent.birdwise.org.uk/about/ [Date Accessed: 08/09/23]

[59] Natural England. 2015. Site Improvement Plan North Downs Woodland. Available at: http://publications.naturalengland.org.uk/publication/6363401429188608 [Date Accessed: 07/09/23]

[60] Part of the Wouldham to Detling Escarpment SSSI section of the North Downs Woodlands SAC.

5.6.8 The output of the scoping review is summarised in **Table 5.3** below.

Table 5.3: *Review of recreational disturbance impact pathways to Habitats sites*

Habitats site name	Sensitive to public access and disturbance effects?	Public access and disturbance impact pathways	Habitats site scoped in for further consideration?
Medway Estuary and Marshes SPA and Ramsar	Yes	This designation is considered to be vulnerable to impacts associated with the MLP in terms of increased recreational pressure from growth. The site provides a vast and linked expanse of critically important habitat to the SPA network around the British coastline[61]. Given the location of the MLP area within 6km of the north Kent coastal European designated sites, recreational disturbance pathways of impact will be looked at further in the test of likely significance (Stage 1 of the HRA process).	Yes
Thames Estuary and Marshes SPA and Ramsar	Yes	This designation is considered to be vulnerable to impacts associated with the MLP in terms of increased recreational pressure from growth. The site provides a vast and linked expanse of critically important habitat to the SPA network around the British coastline[62]. Given the location of the MLP area within 6km of the north Kent coastal European designated sites, recreational disturbance pathways of impact will be looked at further in the test of likely significance (Stage 1 of the HRA process).	Yes
The Swale SPA and Ramsar	Yes	This designation is located more than 6km from the MLP area.	No
North Downs Woodlands SAC	Yes	Given the North Downs Woodland is located within the Plan area (and within the 7km distance visitors were shown to travel) and it is sensitive to recreational impacts it will be looked at further in the test of likely significance (Stage 1 of the HRA process)	Yes
Peter's Pit SAC	No	Given the location of the SAC is outside the Plan area, and taking into consideration the features for which it is designated, it is considered unlikely that there will be recreational pathways of impact. Recreational impacts at the SAC will not be considered further in this HRA.	No

[61] Liley, D. & Fearnley, H. (2011). Bird Disturbance Study, North Kent 2010/11. Footprint Ecology. Available at: https://northkent.birdwise.org.uk/research-and-strategy-reports/#researchReports [Date Accessed: 29/08/23]

[62] Liley, D. & Fearnley, H. (2011). Bird Disturbance Study, North Kent 2010/11. Footprint Ecology. Available at: https://northkent.birdwise.org.uk/research-and-strategy-reports/#researchReports [Date Accessed: 29/08/23]

Habitats site name	Sensitive to public access and disturbance effects?	Public access and disturbance impact pathways	Habitats site scoped in for further consideration?
Queensdown Warren SAC	No	Given the location of the SAC is outside the Plan area, and taking into consideration the features for which it is designated, it is considered unlikely that there will be recreational pathways of impact. Recreational impacts at the SAC will not be considered further in this HRA.	No

5.7 Urbanisation impacts

5.7.1 Urbanisation effects relate to issues where development is located close to a Habitats site boundary. Urbanisation effects can result from all types of development set out in the MLP (residential, retail and employment). It may include increased noise, light and visual pollution, dumping of waste, predation from domestic pets, vandalism, spread of invasive plant species encroachments from properties and the other issues of urbanisation where the impacts can be directly attributed to development and its proximity to designated sites. Urbanisation effects may impact upon both designated and functionally linked habitat.

5.7.2 As with recreational impacts, mitigation strategies are often implemented through the establishment of buffer zones. One example of this is the Thames Basin Heaths Special Protection Area Delivery Framework[63] which makes recommendations for accommodating development while also protecting the SPA's qualifying features. This includes the recommendation of implementing a series of zones within which varying constraints would be placed upon development. The zone extending 400m from the SPA boundary concerns urbanisation (particularly predation of the chicks of ground-nesting birds by domestic cats). The Delivery Framework concludes that the adverse effects of any net increase in residential development located within 400m of the SPA boundary could not be mitigated since this was the range within which cats could be expected to roam as a matter of routine and there was no realistic way of restricting their movements. As such, no new housing is to be located within this zone.

5.7.3 Research undertaken as part of the INTERREG IVB-Project "Tidal River Development" TIDE project has resulted in the development of the TIDE toolkit[64]. This aims to support managers in understanding the complexities of estuarine systems. It includes a 'Waterbird Disturbance Tool Kit' which provides a process whereby the level of potential disturbance (noise and visual disturbance) to waterbirds from a range of construction activities on or adjacent to wetland systems can be assessed.

[63] Thames Basin Heaths Joint Strategic Partnership Board (2009). Thames Basin Heaths SPA Delivery Framework. https://www.bracknell-forest.gov.uk/planning-and-building-control/planning/planning-policy/supplementary-planning-documents/thames-basin-heaths-special-protection-area-supplementary-planning-document [Date Accessed: 30/08/23].

[64] Cutts N, Hemingway K and Spencer J (2013) The Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects. Produced by the Institute of Estuarine and Coastal Studies (IECS). Version 3.2. Available at: https://www.tide-toolbox.eu/tidetools/waterbird_disturbance_mitigation_toolkit/ [Date Accessed: 07/09/23]

5.7.4 It is widely acknowledged that noise levels decrease from source. In terms of noise impacts, the toolkit indicates that plant generating 100dB(A) at source will likely result in an acceptable level of noise for birds (of below 70dB(A)) at a distance of 20m from the noise source. A maximum noise level of 120dB(A) at source would reduce to an acceptable level of noise for birds (of below 70dB(A)) at just over 300m from source[65].

5.7.5 In terms of visual disturbance, the toolkit indicates that flight response may be initiated between 100 – 150m from source, and up to 300m for more sensitive species such as Curlew.

5.7.6 This research suggests that a buffer distance of approximately 400m within which urbanisation effects may be experienced is appropriate in terms of this assessment. Urbanisation effects may take place at designated and functionally linked habitat, both of which will be considered in the test of likely significance (Stage 1 of the HRA process). The output of the scoping review is summarised in **Table 5.4** below.

Table 5.4: *Review of urbanisation impact pathways to Habitats sites*

Habitats site name	Located within 400m of MLP area	Habitats site scoped in for further consideration?
Medway Estuary and Marshes SPA and Ramsar	Yes	Yes
Thames Estuary and Marshes SPA and Ramsar	Yes	Yes
The Swale SPA and Ramsar	No	No
North Downs Woodlands SAC	Yes	Yes
Peter's Pit SAC	No	No
Queensdown Warren SAC	No	No

5.8 Habitat loss, degradation and fragmentation

5.8.1 The estuarine and coastal Habitats sites in North Kent are under threat from urban pressures in terms of increased housing and industrial expansion. Development proposed in the MLP has the potential to lead to the direct loss and / or degradation of Habitats sites and habitat which supports qualifying features of the Habitats sites, known as functionally linked habitat[66], across and adjacent to the Plan area.

[65] The Waterbird Disturbance Mitigation Toolkit. TIDE tools - tide-toolbox.eu. Available at: https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/8f/bd/8fbdd7e9-ea6f-4474-869f-ec1e68a9c809/11367.pdf [Date Accessed: 07/09/23]

[66] "The term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a European site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the European site in question because it provides an important role in maintaining or restoring the population of qualifying species at favourable conservation status". Source: Natural England. 2016. Commissioned Report. NECR207. Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions.

5.8.2 The tests set out under Regulation 105 of the Habitats Regulations need to be applied in respect of plans which may significantly affect functionally linked habitat that plays an important role in contributing to the favourable conservation status of the relevant species for which a Habitats site is designated.

5.8.3 This is especially important for the Medway and Thames Estuary and Marshes and The Swale SPAs and Ramsar sites, which as noted above, are designated for their diversity of bird species. Certain species of birds, which include qualifying species, are mobile and use a variety of habitats outside of the designated SPA and Ramsar boundaries, for instance as foraging or high tide roost habitat. These habitats may be functionally linked where they play an important role in maintaining or restoring the population of a qualifying bird species at favourable conservation status.

5.8.4 In addition to direct loss or degradation of habitat (designated or functionally linked), development has the potential to result in the fragmentation of habitats through the loss of connecting corridors which would hinder the movement of qualifying species.

5.8.5 All Habitats sites are underpinned by a SSSI designation. Natural England defines zones around each SSSI which may be at risk from specific types of development, known as Impact Risk Zones (IRZs). The North Kent Functional Land SSSI IRZ provides a valuable reference for identifying areas that may provide supporting habitat for the designated sites and extends into the MLP area.

5.8.6 Given the mobile nature of the qualifying features for coastal sites, it is considered that habitat loss, degradation and fragmentation is a potential pathway of impact and will be considered further in the test of likely significance (Stage 1 of the HRA process). The output of the scoping review is summarised in **Table 5.5** below.

Table 5.5: *Review of habitat loss, degradation and fragmentation impact pathways to Habitats sites*

Habitats site name	Vulnerable to habitat loss, degradation and fragmentation?	Discussion	Habitats site scoped in for further consideration?
Medway Estuary and Marshes SPA and Ramsar	Yes	Given the mobile nature of the qualifying features, it is considered that habitat loss, degradation and fragmentation is a potential pathway of impact and will be considered further in the test of likely significance (Stage 1 of the HRA process).	Yes
Thames Estuary and Marshes SPA and Ramsar	Yes	Given the mobile nature of the qualifying features, it is considered that habitat loss, degradation and fragmentation is a potential pathway of impact and will be considered further in the test of likely significance (Stage 1 of the HRA process).	Yes
The Swale SPA and Ramsar	Yes	Given the mobile nature of the qualifying features, it is considered that habitat loss, degradation and fragmentation is a potential pathway of impact and will be considered further in the test of likely significance (Stage 1 of the HRA process).	Yes

Habitats site name	Vulnerable to habitat loss, degradation and fragmentation?	Discussion	Habitats site scoped in for further consideration?
North Downs Woodlands SAC	Yes	Given the location of the SAC within the Plan area, it is considered that habitat loss, degradation and fragmentation is a potential pathway of impact and will be considered further in the test of likely significance (Stage 1 of the HRA process).	Yes
Peter's Pit SAC	No	Given the nature of the qualifying features and location of the SAC from the Plan area, habitat loss, degradation and fragmentation pathways of impact are not considered further in the HRA process.	No
Queensdown Warren SAC	No	Given the nature of the qualifying features and location of the SAC from the Plan area, habitat loss, degradation and fragmentation pathways of impact are not considered further in the HRA process.	No

5.9 Coastal Squeeze

5.9.1 As sea levels rise, the low-lying North Kent marshes are subject to 'coastal squeeze'. This is the process by which coastal defences prevent intertidal habitats from migrating landwards and are therefore subsumed by rising sea levels[67]. The coastal Habitat site designations are vulnerable to habitat loss through this process as rising sea levels squeeze it close to existing defences. The Environment Agency has adopted the Medway Estuary and Swale Flood and Coastal Erosion Risk Management Strategy (MEASS)[68] which sets out the approach to manage flood risk and coastal erosion risk over the next 100 years. The Strategy sets out a plan for how designated habitats can be retained by realigning defences, or creating compensatory areas in other locations. It aims to enable policies, which promote a combination of Hold the Line and Managed Realignment options, as set out in the Medway Estuary and Swale Shoreline Management Plan[69] and Isle of Grain to South Foreland Shoreline Management Plan[70]

[67] Arup (2018) Medway Local Plan Development Strategy. Interim Consideration of the Implications of Development Strategy Scenarios on European sites.

[68] Environment Agency (2018). Medway Estuary and Swale Flood and Coastal Erosion Risk Management Strategy (MEASS). Available at: https://ea.sharefile.com/share/view/s53042b8483441048/foaa518c-77f9-4111-8a59-23a6f61add9c [Date Accessed: 07/09/23]

[69] Halcrow Group Ltd (2010). Medway Estuary and Swale Shoreline Management Plan. Available at: https://drive.google.com/file/d/1xk3_aVjVaxiO0I2XrkjzZrlkilSdZajg/view [Date Accessed: 07/09/23]

[70] Halcrow Group Limited (2010). Isle of Grain to South Foreland Shoreline Management Plan Review 2010 https://drive.google.com/file/d/1aiOg_tFl9U-VOSbk2-u4MbRpxOObx_gb/view [Date Accessed: 07/09/23]

5.9.2 The MEASS was supported by an HRA[71] which showed that the strategy would have adverse effects on intertidal habitats, due to coastal squeeze, which will be compensated for by the provision of replacement saltmarsh by the creation of managed realignment sites. It showed that there would also be an adverse impact on freshwater habitats due to managed realignment and no active intervention, which would be compensated for by compensatory freshwater habitat. This would be at Great Bells Farm on the Isle of Sheppey for the first 10 years, and at Abbots Court in epoch 1[72], with other sites identified in later epoch's[73]. Concluding that not implementing the strategy comes with potential impacts; therefore, the strategy is in the public interest. The output of the scoping review is summarised in **Table 5.6** below.

Table 5.6: *Review of coastal squeeze impact pathways to Habitats sites*

Habitats site name	Habitat designation located within coastal area	Habitats site scoped in for further consideration?
Medway Estuary and Marshes SPA and Ramsar	Yes	Yes
Thames Estuary and Marshes SPA and Ramsar	Yes	Yes
The Swale SPA and Ramsar	Yes	No as located outside MLP area
North Downs Woodlands SAC	No	No
Peter's Pit SAC	No	No
Queensdown Warren SAC	No	No

5.10 Habitats sites and threats and pressures

5.10.1 Figure 5.1 illustrates the location of Habitats which will be scoped into the HRA process for further consideration in the screening assessment at future stages of the plan's development. These will form the basis of the following HRA screening assessment.

[71] Environment Agency (2018). Medway Estuary and Swale Flood and Coastal Erosion Risk Management Strategy. Report – Technical Appendix K: Habitats Regulations Assessment. Available at: https://ea.sharefile.com/share/view/s53042b8483441048/foaa518c-77f9-4111-8a59-23a6f61add9c [Date Accessed: 07/09/23]

[72] The Strategy refers to 3 epochs: from the (then) present day, medium-term and long-term (corresponding broadly to time periods of 0 to 20 years, 20 to 50 years, and 50 to 100 years respectively).

[73] Creation of compensatory habitat will be taken forward by the Kent and South London Habitat Creation Programme.

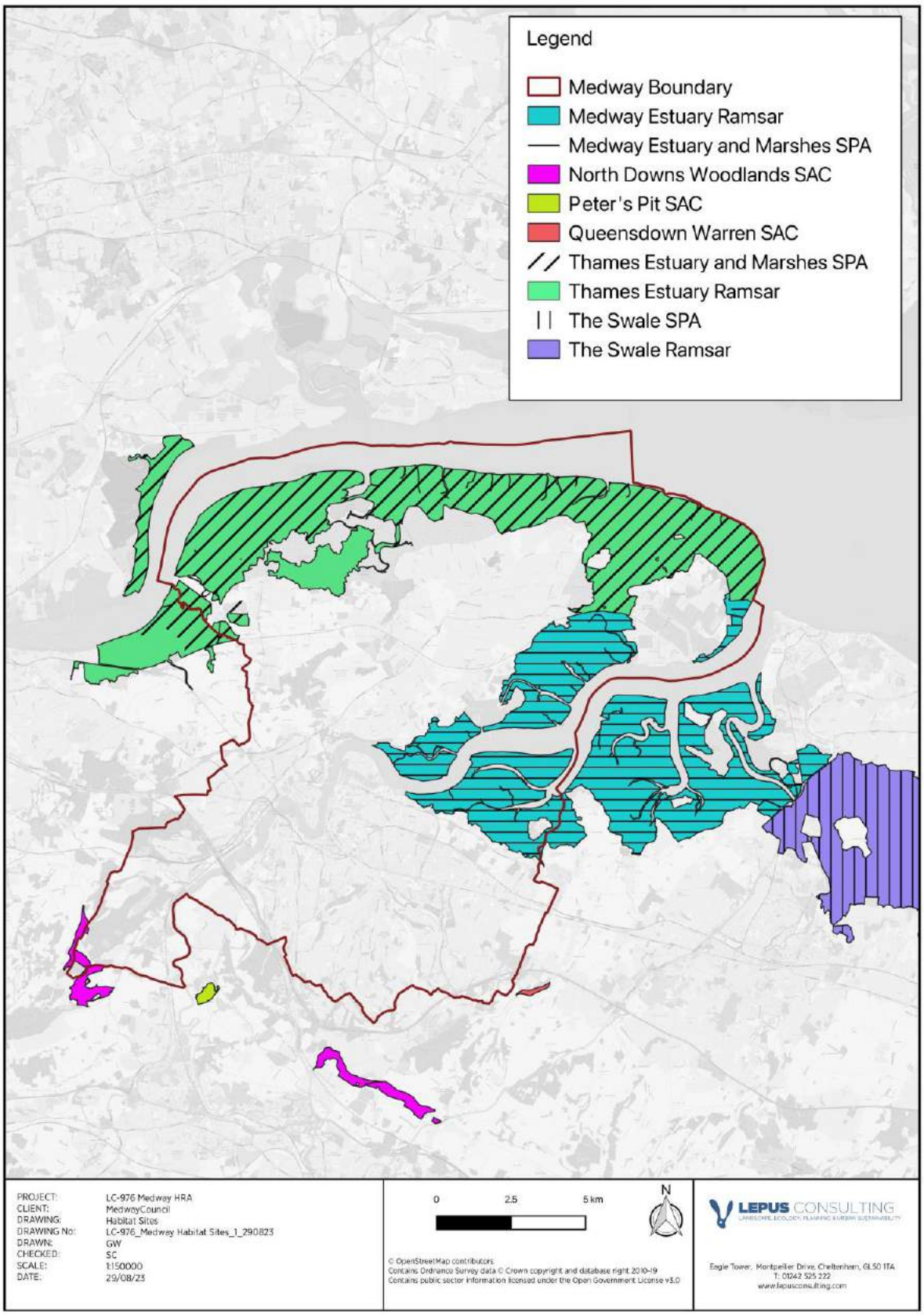

Figure 5.1: *Location of the Habitat site designations in relation to the MLP area*

5.11 Issues and Options Preliminary Screening

5.11.1 Following the identification of Habitats sites for inclusion in the HRA and potential impact pathways from the MLP, the next stage in the HRA process is Screening (**Figure 3.1**).

5.11.2 The MLP is not directly connected with or necessary to the management of any Habitats site. Neither can it be excluded or eliminated from the HRA process. Therefore, it is necessary to identify whether there are any aspects of the MLP which may lead to LSEs at a Habitats site, either alone or in combination with other plans or projects – Screening.

5.11.3 LSEs comprise an effect which may undermine the conservation objectives for the qualifying features of a Habitats site, either alone or in-combination. Identification of LSEs will trigger the requirement for an Appropriate Assessment – Stage 2 of the HRA process. Appropriate Assessment allows effects to be assessed in more detail and mitigation measures applied.

5.11.4 Screening for LSEs is normally undertaken at the preferred options stage when policies and allocations are known, and again at Regulation 19 to ensure any changes are captured. Screening at Preferred Options will comprise a detailed analysis of all components of the MLP against Screening criteria set out in **Table 4.1**.

5.11.5 The Regulation 18 Consultation – Setting the Direction for Medway 2040 - document does not contain any policies or details on allocations, instead it identifies specific issues upon which consultation is sought.

5.11.6 **Appendix B** provides a preliminary review of the vision, development strategy and themes addressed through the Issues and Options consultation, to highlight key issues for consideration in future stages of the HRA and plan making processes.

5.12 Summary

5.12.1 **Table 5.7** provides a summary of impact pathways which will be considered at each Habitats site in the HRA.

Table 5.7: *Summary of impact pathways at each Habitats site from the MLP*

Habitats site	Air Pollution	Water Quality / Water Resources	Recreational Effects	Urbanisation	Habitat Loss, degradation and Fragmentation	Coastal Squeeze
Medway Estuary and Marshes SPA	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
Medway Estuary and Marshes Ramsar	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
Thames Estuary and Marshes SPA	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
Thames Estuary and Marshes Ramsar	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in	Scoped in
The Swale SPA	Scoped in	Scoped in	Scoped out	Scoped out	Scoped in	Scoped out
The Swale Ramsar	Scoped in	Scoped in	Scoped out	Scoped out	Scoped in	Scoped out
North Downs Woodlands SAC	Scoped in	Scoped out	Scoped in	Scoped in	Scoped in	Scoped out
Peter's Pit SAC	Scoped out	Scoped out	Scoped out	Scoped out	Scoped out	Scoped out
Queensdown Warren SAC	Scoped out	Scoped out	Scoped out	Scoped out	Scoped out	Scoped out

6 Conclusions

6.1 Summary

6.1.1 The purpose of this Preliminary HRA Report is to ensure the HRA forms an integral element of the plan-making process, and that best practice is followed. Recommendations made following the preliminary screening of issues and options are set out at **Appendix B**. These should inform the selection of allocations and development of MLP policies as the plan evolves.

6.1.2 In conclusion the following Habitats sites and impact pathways will form the focus of the HRA for the MLP going forward:

- Medway Estuary and Marshes SPA and Ramsar (air pollution, water quality and quantity, habitat loss, degradation and fragmentation, recreational effects, urbanisation effects and coastal squeeze);
- Thames Estuary and Marshes SPA and Ramsar (air pollution, water quality and quantity, habitat loss, degradation and fragmentation, recreational effects, urbanisation effects and coastal squeeze);
- The Swale SPA and Ramsar (air pollution, water quality and quantity and habitat loss, degradation and fragmentation); and
- North Downs Woodlands SAC (air quality, recreational effects and urbanisation effects and habitat loss, degradation and fragmentation).

6.1.3 Following this Regulation 18 consultation, the next stage of the plan making process will be the Regulation 19 Publication version of the plan. This will be supported by the HRA process which will comprise Phase 1 (screening) and Phase 2 (Appropriate Assessment) as shown in **Figure 3.1**. As set out in the Habitats Regulations the Council will 'have regard' to Natural England's representations under the provisions of Regulations 105(2).

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Appendix A: Habitats site Conservation Objectives and Threats and Pressures

Medway Estuary and Marshes SPA

Conservation objectives[1]:

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

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

Qualifying Features:

- A046a *Branta bernicla bernicla*; Dark-bellied brent goose (Non-breeding)
- A048 *Tadorna tadorna*; Common shelduck (Non-breeding)
- A054 *Anas acuta*; Northern pintail (Non-breeding)
- A132 *Recurvirostra avosetta*; Pied avocet (Breeding)
- A132 *Recurvirostra avosetta*; Pied avocet (Non-breeding)
- A137 *Charadrius hiaticula*; Ringed plover (Non-breeding)
- A141 *Pluvialis squatarola*; Grey plover (Non-breeding)
- A143 *Calidris canutus*; Red knot (Non-breeding)
- A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
- A162 *Tringa totanus*; Common redshank (Non-breeding)
- A195 *Sterna albifrons*; Little tern (Breeding)
- Waterbird assemblage
- Breeding bird assemblage

Threats and Pressures at European site which may be affected by Medway Local Plan[2]:

- Coastal squeeze
- Public access and disturbance

[1] Natural England 2019 Medway Estuary & Marshes SPA Conservation Objectives Available at: http://publications.naturalengland.org.uk/publication/6672791487119360 [Date accessed 29/08/2023]

[2] Natural England 2014 Site Improvement Plan Greater Thames Complex Available at: http://publications.naturalengland.org.uk/publication/6270737467834368 [Date accessed 29/08/2023]

- Vehicles: illicit
- Air Pollution: risk of atmospheric nitrogen deposition

Medway Estuary and Marshes Ramsar

Conservation objectives:

Ramsar sites do not have the Conservation Objectives in the same way as SPAs and SACs. Information regarding the designation of Ramsar sites is contained in JNCC Ramsar Information Sheets. Ramsar Criteria are the criteria for identifying Wetlands of International Importance. The relevant criteria and ways in which this site meets the criteria are presented in the table below.

Table C. 1: JNCC Ramsar Information Sheet Data – Medway Estuary and Marshes[3]

Ramsar criterion 2:

The site supports a number of species of rare plants and animals. The site holds several nationally scarce plants, including sea barley *Hordeum marinum,* curved hard-grass *Parapholis incurva*, annual beard-grass *Polypogon monspeliensis,* Borrer's saltmarsh-grass *Puccinellia fasciculata,* slender hare`s-ear *Bupleurum tenuissimum*, sea clover *Trifolium squamosum*, saltmarsh goose-foot *Chenopodium chenopodioides,* golden samphire *Inula crithmoides*, perennial glasswort *Sarcocornia perennis* and one-flowered glasswort *Salicornia pusilla*. A total of at least twelve British Red Data.

Book species of wetland invertebrates have been recorded on the site. These include a ground beetle *Polistichus connexus,* a fly *Cephalops perspicuus*, a dancefly *Poecilobothrus ducalis*, a fly *Anagnota collini,* a weevil *Baris scolopacea*, a water beetle *Berosus spinosus*, a beetle *Malachius vulneratus*, a rove beetle *Philonthus punctus,* the ground lackey moth *Malacosoma castrensis*, a horsefly *Atylotus latistriatuus,* a fly *Campsicnemus magius,* a solider beetle, *Cantharis fusca,* and a cranefly *Limonia danica*. A significant number of non-wetland British Red Data Book species also occur.

Ramsar criterion 5

Assemblages of international importance: Species with peak counts in winter:

47637 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn:

- Grey plover , *Pluvialis squatarola,* E Atlantic/W Africa -wintering. 3103 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9-2002/3)
- Common redshank , *Tringa totanus tetanus.* 3709 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

- Dark-bellied brent goose, B*ranta bernicla bernicla.* 2575 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3).
- Common shelduck , *Tadorna tadorna*, NW Europe. 2627 individuals, representing an average of 3.3% of the GB population (5 year peak mean 1998/9-2002/3).
- Northern pintail , *Anas acuta,* NW Europe. 1118 individuals, representing an average of 1.8% of the population (5 year peak mean 1998/9-2002/3).
- Ringed plover , *Charadrius hiaticula,* Europe/Northwest Africa. 540 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9- 2002/3)

- Red knot , *Calidris canutus islandica,* W & Southern Africa. 3021 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9- 2002/3).

- Dunlin , *Calidris alpina alpina,* W Siberia/W Europe. 8263 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3).

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in spring/autumn:

- Black-tailed godwit, Limosa limosa islandica, Iceland/W Europe. 721 individuals, representing an average of 2% of the population (5 year peak mean 1998/9- 2002/3).

Threats and Pressures at European site which may be affected by Medway Local Plan[4]:

- Water diversion for irrigation/domestic/industrial use
- Eutrophication
- Recreational/tourism disturbance
- Transport Infrastructure Development

[3] JNCC 2008 Information Sheet on Medway Estuary and Marshes Ramsar Wetlands Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11040.pdf [Date accessed 14/09/2021]

[4] JNCC 2008 Information Sheet on Ramsar Wetlands Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11040.pdf [Date accessed 14/09/2021]

Thames Estuary and Marshes SPA

Conservation objectives[5]:

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

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

Qualifying Features:

- A082 *Circus cyaneus*; Hen harrier (Non-breeding)
- A132 *Recurvirostra avosetta*; Pied avocet (Non-breeding)
- A137 *Charadrius hiaticula*; Ringed plover (Non-breeding)
- A141 *Pluvialis squatarola*; Grey plover (Non-breeding)
- A143 *Calidris canutus*; Red knot (Non-breeding)
- A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
- A156 *Limosa limosa islandica*; Black-tailed godwit (Non-breeding)
- A162 *Tringa totanus*; Common redshank (Non-breeding)
- Waterbird assemblage

Threats and Pressures at European site which may be affected by Medway Local Plan[6]:

- Coastal squeeze
- Public Access/Disturbance
- Changes in species distributions
- Vehicles: illicit
- Air Pollution: risk of atmospheric nitrogen deposition

Thames Estuary and Marshes Ramsar

Conservation objectives:

Ramsar sites do not have the Conservation Objectives in the same way as SPAs and SACs. Information regarding the designation of Ramsar sites is contained in INCC Ramsar Information Sheets. Ramsar Criteria are the criteria for identifying Wetlands of International Importance. The relevant criteria and ways in which this site meets the criteria are presented in the table below.

[5] Natural England 2019 Thames Estuary & Marshes SPA Conservation Objectives Available at: http://publications.naturalengland.org.uk/publication/4698344811134976 [Date accessed 29/08/2023]

[6] Natural England. 2014 Site Improvement Plan: Greater Thames Complex Available at: http://publications.naturalengland.org.uk/publication/6270737467834368 [Date accessed: 29/08/2023]

Ramsar criterion 2

The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

45118 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 - species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn:

- Ringed plover , Charadrius hiaticula, Europe/Northwest Africa. 595 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9- 2002/3)
- Black-tailed godwit , Limosa limosa islandica, Iceland/W Europe. 1640 individuals, representing an average of 4.6% of the population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

- Grey plover , Pluvialis squatarola, E Atlantic/W Africa -wintering. 1643 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1998/9-2002/3)
- Red knot , *Calidris canutus islandica,* W & Southern Africa (wintering). 7279 individuals, representing an average of 1.6% of the population (5 year peak mean 1998/9-2002/3)
- Dunlin , *Calidris alpina alpina,* W Siberia/W Europe. 15171 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3)
- Common redshank *, Tringa totanus tetanus.* 1178 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9- 2002/3)

Threats and Pressures at European site which may be affected by Medway Local Plan[7]:

- Water diversion for irrigation/domestic/industrial use
- Eutrophication
- Recreational/tourism disturbance

[7] JNCC. 2008 Information Sheet on Ramsar Wetlands (RIS). Available at: https://jncc.gov.uk/jncc-assets/RIS/UK11040.pdf [Date Accessed 29/08/2023]

North Downs Woodlands SAC

Conservation objectives[8]:

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

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

Qualifying Features:

- H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco- Brometalia*); Dry grasslands and scrublands on chalk or limestone
- H9130. *Asperulo-Fagetum* beech forests; Beech forests on neutral to rich soils H91J0. *Taxus baccata* woods of the British Isles; Yew-dominated woodland*

*Priority natural habitats or species.

Some of the natural habitats and species for which UK SACs have been selected are considered to be particular priorities for conservation at a European scale and are subject to special provisions in the Habitats Regulations. These priority natural habitats and species are denoted by an asterisk (*) in Annex I and II of the Habitats Directive. The term 'priority' is also used in other contexts, for example with reference to particular habitats or species that are prioritised in UK Biodiversity Action Plans. It is important to note however that these are not necessarily the priority natural habitats or species within the meaning of the Habitats Regulations.

Threats and Pressures at European site which may be affected by Medway Local Plan[9]:

- Public access and disturbance
- Air Pollution: risk of atmospheric nitrogen deposition

8 Natural England 2018 North Downs Woodlands SAC Conservation Objectives Available at: http://publications.naturalengland.org.uk/publication/5717001544663040 [Date accessed 29/08/2023]

9 Natural England 2015 Site Improvement Plan: North Downs Woodlands Available at: http://publications.naturalengland.org.uk/publication/6363401429188608 [Date accessed 29/08/2023]

The Swale SPA

Conservation objectives[10]:

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

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

Qualifying Features:

- A046a *Branta bernicla bernicla*;
- Dark-bellied brent goose (Non-breeding)
- A149 *Calidris alpina alpina*; Dunlin (Non-breeding)
- Breeding bird assemblage
- Waterbird assemblage

Threats and Pressures at European site which may be affected by Medway Local Plan[11]:

- Coastal squeeze
- Public access and disturbance
- Vehicles: illicit
- Air Pollution: risk of atmospheric nitrogen deposition

10 Natural England 2019 The Swale SPA Conservation Objectives Available at: http://publications.naturalengland.org.uk/publication/5745862701481984 [Date accessed 29/08/2023]

11 Natural England 2014 Site Improvement Plan: Greater Thames Complex Available at: http://publications.naturalengland.org.uk/publication/6270737467834368 [Date accessed 29/08/2023]

The Swale Ramsar

Conservation objectives[12]:

Ramsar sites do not have the Conservation Objectives in the same way as SPAs and SACs. Information regarding the designation of Ramsar sites is contained in INCC Ramsar Information Sheets. Ramsar Criteria are the criteria for identifying Wetlands of International Importance. The relevant criteria and ways in which this site meets the criteria are presented in the table below.

Ramsar criterion 2

The site supports nationally scarce plants and at least seven British Red data book invertebrates

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:

77501 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 - species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

Common redshank , *Tringa totanus tetanus.* 1712 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

- Dark-bellied brent goose, *Branta bernicla bernicla.* 1633 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
- Grey plover , *Pluvialis squatarola,* E Atlantic/W Africa -wintering. 2098 individuals, representing an average of 3.9% of the GB population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in spring/autumn:

- Ringed plover , *Charadrius hiaticula,* Europe/Northwest Africa. 917 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9- 2002/3)

Species with peak counts in winter:

- Eurasian wigeon , *Anas penelope,* NW Europe. 15296 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3)
- Northern pintail , *Anas acuta,* NW Europe. 763 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9- 2002/3)
- Northern shoveler , *Anas clypeata,* NW & C Europe. 483 individuals, representing an average of 1.2% of the population (5 year peak mean 1998/9- 2002/3)

[12] Natural England 2019 The Swale SPA Conservation Objectives Available at: http://publications.naturalengland.org.uk/publication/5745862701481984 [Date accessed 23/08/2023]

- Black-tailed godwit , *Limosa limosa islandica,* Iceland/W Europe. 1504 individuals, representing an average of 4.2% of the population (5 year peak mean 1998/9-2002/3)

Threats and Pressures at European site which may be affected by Medway Local Plan:

None identified within The Swale Ramsar Information Sheet [13].

[13] Natural England 2005 Information Sheet on Ramsar Wetlands: The Swale Available at: https://rsis.ramsar.org/RISapp/files/RISrep/GB299RIS.pdf [Date accessed 23/08/2023]

Peters Pit SAC

Conservation objectives[14]:

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

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

Qualifying Features:

- S1166. *Triturus cristatus*; Great crested newt

Threats and Pressures at European site which may be affected by MLP[15]:

- Sensitive to changes in air quality – air pollutants

Queensdown Warren SAC

Conservation objectives[16]:

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

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

Qualifying Features:

- H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco- Brometalia)* (important orchid sites); Dry grasslands and scrublands on chalk or limestone (important orchid sites)*

*Priority natural habitats or species.

[14] Natural England 2018 Peter's Pit SAC Conservation Objectives Available at: http://publications.naturalengland.org.uk/publication/4817478370721792 [Date accessed 23/08/2023]

[15] Natural England 2015 Peter's Pit SAC Conservation Objectives Supplementary Advice Available at: http://publications.naturalengland.org.uk/publication/4817478370721792 [Date accessed 29/08/2023]

[16] Natural England 2018 Queendown Warren SAC Conservation Objectives Available at: http://publications.naturalengland.org.uk/publication/5977332179271680 [Date accessed 23/08/2023]

Some of the natural habitats and species for which UK SACs have been selected are considered to be particular priorities for conservation at a European scale and are subject to special provisions in the Habitats Regulations. These priority natural habitats and species are denoted by an asterisk (*) in Annex I and II of the Habitats Directive. The term 'priority' is also used in other contexts, for example with reference to particular habitats or species that are prioritised in UK Biodiversity Action Plans. It is important to note however that these are not necessarily the priority natural habitats or species within the meaning of the Habitats Regulations.

Threats and Pressures at European site which may be affected by Medway Local Plan[17]:

- Public Access and disturbance
- Air Pollution: risk of atmospheric nitrogen deposition
- Habitat fragmentation

17 Natural England 2015 Site Improvement Plan: Queendown Warren Available at: http://publications.naturalengland.org.uk/publication/4943746697265152 [Date accessed 29/08/2023]

Appendix B: Preliminary Screening of MLP Issues and Options

Vision for the MLP

Regulation 18 Section	Summary of plan element	Key HRA related issues for consideration in HRA and plan-making process
Vision for the MLP	The MLP vision is to establish Medway as a leading regional city, adapting to global challenges such as climate change through a sustainable approach that allows resilient development. Medway has contrasting places that include urbanised centres which are home to a diverse population, and rural areas characterised by mudflats and marshes. The MLP looks to utilise the diverse spaces, making use of natural assets such as The River Medway and focusing on the people of Medway to remain the focal point of the Plan.	The vision should provide a positive framework for nature conservation and will be drawn upon to inform the HRA process.

MLP Objectives

Regulation 18 Section	Summary of plan Element	Key HRA related issues for consideration in HRA and plan-making process
Prepared for a sustainable and green future	The MLP objective will address climate change issues to support a transition to 'zero-carbon', strengthen transport networks to provide sustainable travel choices, secure a robust green and blue infrastructure network and effectively manage natural resources.	This objective would promote the use of sustainable and active forms of transport and a transition to 'zero-carbon'. This would have a positive impact upon air quality with knock-on positive impacts upon Habitat sites (and areas of functionally linked land) which may be sensitive to air pollution. It also promotes green and blue infrastructure networks which strengthen connectivity between designated sites and provide alternative recreational destinations. This would result in positive impacts upon Habitats sites.
Supporting people to lead healthy lives and strengthening our communities	The MLP objective will ensure residents have access to energy efficient, affordable homes, reduce inequalities in health and strengthen the urban, neighbourhood and village centres by encouraging business start ups and improving local facilities.	The provision of new homes will increase development within the plan area which potential adverse effects upon Habitats site as discussed in Section 5 of the main report.
Securing jobs and developing skills for a competitive economy	The MLP objective will boost the local economy of Medway, improve the skills of the local work force, deliver the needed infrastructure to support economic growth and support tourism, including green tourism.	The provision of new employment will increase development within the plan area which potential adverse effects upon Habitats site as discussed in Section 5 of the main report.
Boost pride in Medway through quality and resilient development	The MLP objective will ensure that sustainable development is pursued, brownfield sites are utilised and development is green in construction and energy efficient. Additionally, development should respect the natural and historic environment, directing growth to suitable locations.	This objective would promote development of developed land and ensure sustainable development is pursued. A positive impact would be expected on Habitat sites (and areas of functionally linked land) as this would protect greenfield land that may serve as habitat corridors to designations and alternative recreational destinations. Waterfront development may however locate new residents and businesses close to the coastal Habitats sites which potential effects such as urbanisation impacts.

Developing a Spatial Strategy

Regulation 18 Section	Summary of plan element	Key HRA related issues for consideration in HRA and plan-making process
Urban Regeneration	This strategy would look to regenerate urban areas of Medway, utilising brownfield sites. The strategy could incorporate urban regeneration of waterfronts such as Chatham Docks and Medway City Estate.	Development at Chatham Docks and Medway City Estate would expect to negatively affect the Medway Estuary and Marshes SPA and Ramsar due to their close proximity. The development along the waterfront would have the potential to produce light, noise and other disturbances. However, making the best use of vacant urban brownfield land would ensure protection of existing blue and green networks with positive effects for Habitats site including provision of alternative recreational space buffering and linking of designated sites.
Suburban Expansion	This strategy looks to join existing urban areas to the south and east of Medway, using undeveloped land around the suburbs.	The undeveloped land located in the suburbs provides an important green divide in a highly urbanised area. The development at Rainham would be in close proximity to the Medway Estuary and Marshes SPA and Ramsar. Therefore it would have the potential to be affected by light, noise and other disturbances associated with development. Furthermore, an increase in the local population of the area would have a negative impact upon air quality due to greater congestion expected, with knock-on effects upon Habitat sites (and areas of functionally linked land) which may be sensitive to development pressures.
Rural Development	Development under this strategy would focus on rural areas, including the Hoo Peninsula to the north of the borough and the Medway Valley to the south west.	Development at these rural locations would be in close proximity to the Medway and Thames Estuary and Marshes SPA and Ramsar. It would therefore have potential effects such as urbanisation and recreational impacts in addition to introducing pressures on coastal habitats and areas of functionally linked land. In addition, development in these more rural areas may result in increased road congestion and worsening air quality.
Green Belt loss	Development under this strategy release on the release of Medway's greenbelt, largely to the south of the borough.	Open green space provides alternative recreational spaces to a Habitat site. It is important that sufficient recreational resources are provided for the level of growth expected to arise out of the MLP. Furthermore, the green belt proposed for release in the south of the borough coincides with the North Downs Woodlands SAC and has the potential to be effected noise, air quality and light disturbances.
Employment sites	The strategy would ensure employment floorspace meets the borough's needs and is aligned to the economic development strategy of Medway.	Development at several employment sites (specifically Grain and Kingsnorth on the Hoo Peninsula), would be in close proximity to the Medway and Thames Estuary and Marshes SPA and Ramsar habitat sites.

Regulation 18 Section	Summary of plan element	Key HRA related issues for consideration in HRA and plan-making process
		Therefore, the development at employment sites within close proximity to these habitat sites would have the potential to create disturbances associated with development such as light and noise. Furthermore, an increase in the local population of the area would have a negative impact upon air quality due to greater congestion expected, with knock-on effects upon Habitat sites (and areas of functionally linked land) which may be sensitive to development pressures.

Habitats Regulations Assessments

Sustainability Appraisals

Strategic Environmental Assessments

Landscape Character Assessments

Landscape and Visual Impact Assessments

Green Belt Reviews

Expert Witness

Ecological Impact Assessments

Habitat and Ecology Surveys

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