Appendix M
Essex and South Suffolk Shoreline Management Plan (SMP) 2

Habitats Regulations Assessment Report

Essex and South Suffolk Shoreline Management Plan Client Steering Group (CSG)

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Final report

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CONTENTS

1 INTRODUCTION

1.1 Habitats Regulations Assessment

The requirement for a Habitats Regulations Assessment (HRA) arises under the provisions of the EC Habitats Directive (92/43/EEC) and its implementation in the UK under *The Conservation of Habitats and Species Regulations 2010 (as amended)* (the 'Habitats Regulations'). Under Regulation 21 an 'Appropriate Assessment' is required for a plan or project which, either alone or in combination with other plans or projects, is likely to have a significant effect on a European site[1] and is not directly connected with or necessary for the management of the site.

UK Government policy (ODPM Circular 06/05) requires that 'Ramsar sites', designated under the Ramsar Convention (*The Convention on Wetlands of International Importance especially as Waterfowl Habitat*), are subject to the same provisions. All sites in the process of being designated (candidate or possible sites) are also considered in the same way as fully designated sites. The term 'international site' is used throughout this report to refer to all such sites (Special Area of Conservation (SAC), Special Protection Area (SPA), and Ramsar, and those in the process of being designated (e.g. pSPA, cSAC, Sites of Community Importance (SCI)).

HRA, and specifically the detailed Appropriate Assessment stage, supports a decision by a 'Competent Authority' as to whether a proposed plan or project would have an adverse effect on the "integrity" of an international site; ODPM (2005) takes this to mean "*the coherence of the site's ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*".

The decision is based upon the implications of a plan on the conservation objectives of the site. These objectives set out the physical, chemical and biological thresholds, and limits of activity and disturbance, which must be met to maintain integrity. For European Marine Sites they are set out in documents, required by Regulation 35 of the Habitats Regulations, which are the responsibility of Natural England. An adverse effect on integrity (AEOI) is likely to be one that results in a deterioration of conservation status with regard to the qualifying feature(s) for which it was designated.

The assessment of effects on international sites applies a reverse burden of proof - if any doubt exists as to the effect of policy (taking into account any necessary mitigation measures), then 'no adverse effect on integrity' (NAEOI) cannot be concluded. In this situation alternative solutions must be sought. Where feasible alternatives do not exist then the plan or project can only proceed on the basis of imperative reasons of over-riding public interest (IROPI). This must be agreed by the Secretary of State and compensatory measures to offset damage/loss and to maintain the overall coherence of the Natura 2000 network (and Ramsar sites) must be secured and ecologically-functional in advance of the damage. The HRA process is illustrated in **Section 2**.

[1] Special Areas of Conservation (SAC, or candidate Special Area of Conservation (cSAC)), designated under the Habitats Directive (*Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora*) and Special Protection Areas (SPA) designated under the Birds Directive (*Council Directive 79/409/EEC on the conservation of wild birds*) form part of the EU-wide Natura 2000 network. These definitions encompass European sites below the high tide mark (whether SPA or SAC) which, following the Marine and Coastal Access Act 2009, are referred to as European Marine Sites.

1.1.1 SMP aims and objectives

A SMP is a large-scale assessment of the risks associated with coastal processes and aims to reduce the risks to the social, economic, natural and historic environment. It represents the intent of management, shared between the plan partners, based on a broad assessment of viability but no guarantees relating to funding. It aims to manage risk by using a range of methods which reflect both national and local priorities (Defra, 2006):

- To reduce the threat of flooding and erosion to people and their property; and
- To benefit the environment, society and the economy as far as possible, in line with the Government's sustainable development principles.

SMP2 objectives must be in line with the Government's strategy for managing risks from floods and coastal erosion and should (Defra, 2006):

- Set out the risks from flooding and erosion to people and the developed, historic and natural environment within the SMP2 area;
- Identify opportunities to maintain and improve the environment by managing the risks from floods and coastal erosion;
- Identify the preferred policies for managing risks from floods and erosion over the next century;
- Identify the consequences of putting the preferred policies into practice;
- Set out procedures for monitoring how effective these policies are;
- Inform others so that future land use, planning and development of the shoreline takes account of the risks and the preferred policies;
- Discourage inappropriate development in areas where the flood and erosion risks are high; and
- Meet international and national nature conservation legislation and aim to achieve United Kingdom Biodiversity Action Plan (UKBAP) objectives.

Management approaches considered for shoreline management in the second generation SMPs are attributed one of four 'labels', as presented in **Table 1.1**. The most appropriate option depends on the coastline in question and on technical, environmental, social and economic considerations.

Table 1.1 Options used in SMP2 development

SMP2 option	Description of option
Hold the line (HtL)	Hold the existing defence line by maintaining or changing the standard of protection. This policy will cover those situations where work or operations are carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on), to improve or maintain the standard of protection provided by the existing defence line. It also includes other policies that involve operations to the back of existing defences (such as building secondary floodwalls) where they form an essential part of maintaining the current coastal defence system.

SMP2 option	Description of option
Advance the line (AtL)	Advance the existing defence line by building new defences on the seaward side of the original defences. Using this policy should be limited to those policy units where significant land reclamation is considered.
Managed realignment (MR)	Managed realignment by allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).
No active intervention (NAI)	No active intervention, where there is no investment in coastal defences or operations.

Within the development of a SMP2, an epoch (time period) based approach is adopted. The three epochs considered are from the present day, medium term and long term and these correspond broadly to time periods of 2005–2025, 2025–2055 and 2055– 2105.

1.1.2 Implications of SMP2 policy on the natural environment

Each of the SMP2 policies presented in **Table 1.1** has the potential to impact the natural environment in one or more ways, as shown in **Table 1.2**.

Table 1.2 Potential generic implications of each SMP2 option

SMP2 option	Positive impacts	Negative impacts
Hold the line (HtL)	• Protection of habitat landward of defences; and • Provides stability to areas of coastline, within a wider management context.	• Coastal squeeze (loss of habitat); and • Interruption of coastal processes.
Advance the line (AtL)	• Protection of habitat landward of defences.	• Reduction in extent of coastal habitat; • Change in functionality of habitat; • Increased coastal squeeze; • Interruption of coastal processes; • Effect on marine habitat; and • May increase rate of coastal erosion either side of the advanced line.
Managed realignment (MR)	• Coastal habitats allowed to move landwards under rising sea levels; • Habitat created for juvenile fish and other aquatic organisms (benefits to environment and fishing communities); • Promotes natural coastal processes; • Contributes towards a more natural management of the coast; and • Creation of high tide roosts and feeding areas.	• Reduction in extent of habitat landwards of defences; and • Change in nature of habitat landward of defence.
No active intervention (NAI)	• Coastal habitats allowed to move landwards under rising sea levels; • Promotes natural coastal processes; and • Contributes towards a more natural management of the coast.	• Increased risk of inundation to landward habitats under rising sea levels.

1.2 Guidance for the assessment of SMP2s

HRA (and in particular the Appropriate Assessment stage) is a mechanism to establish the actual scale and implications of impacts and to provide a determination on whether a course of action is acceptable in terms of its impacts on international sites.

The Department for Communities and Local Government (DCLG) guidance "*Planning for the Protection of European Sites: Appropriate Assessment*" (DCLG, 2006) assists determination of the need for HRA and the provision of an assessment if one is required. Natural England has also produced "*The Assessment of Regional Spatial Strategies under the Provisions of the Habitats Regulations – Draft Guidance*" (English Nature, 2006) which relates to the assessment of Regional Spatial Strategies (RSS) and Sub-Regional Strategies. More specific guidance on assessing SMP2s includes "*Appropriate Assessment of Flood Risk Management Plans Under the Habitats Regulations*" (Environment Agency, 2007).

In 2006, Royal Haskoning provided Defra with a guidance note relating to Appropriate Assessment provision for SMP2s, following the completion of an assessment for the River Tyne to Flamborough Head SMP2. This guidance was a fundamental consideration in establishing the scope of this assessment of the Essex and South Suffolk SMP2. The approach and methodology adopted here is also structured in regard to the developing suite of guidance which includes:

- Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats Directive (EC, 2000);
- Environment Agency work instructions and guidance on SMPs, Catchment Flood Management Plans (CFMPs) and Appropriate Assessment;
- Natural England's Habitats Regulations Guidance Note series; and
- Assessing Projects under the Habitats Directive – A Guide for Competent Authorities (Tyldesley & Hoskin, 2008).

1.3 The need for HRA of the SMP2

The Habitats Regulations require detailed consideration of any plan or project which, either alone or in combination with other plans or policies, is considered to have a **likely or potential significant effect** (either positive or negative) on an international site.

Due to the integrated nature of the SMP2 process, the Essex and South Suffolk SMP2 has been developed with a view to the intentions of the Habitats Directive. However the requirement to have regard to effects on designated habitat is only one of a number of drivers which shape the policy of the SMP2. Other factors include the vulnerability of the defences themselves and impacts on agriculture, tourism and the local economy, and the potential exists for a preferred policy to emerge which may have an adverse effect on the integrity of an international site.

1.4 Identification of Competent Authority for the SMP2

One of the first steps in addressing SMPs under the Habitats Regulations is identification of the Competent Authority. Royal Haskoning has undertaken the technical analysis which forms the basis of the assessment, but the ultimate responsibility for sign off, and ensuring compliance, falls to the Competent Authority.

Acknowledging the number of Local Authorities on the project steering group, and following discussion early in the HRA process, the Environment Agency has assumed the role of (lead) Competent Authority.

2 METHODOLOGY

2.1 Policy development areas

SMP2 policy has been developed with a consideration of the environmental, social and economic features on the coast and of the coastal processes and systems which shape the coast. Management Units (MU) have been defined to offer the most appropriate spatial breakdown of the coast, where processes can be managed (as appropriate) at a scale which is driven by wider management objectives. They have been derived from the Policy Units[2] defined in the Baseline Scenarios report (Royal Haskoning, 2009) and contain a number of Policy Development Zones (PDZs). Whilst these constituent PDZs are the level at which individual management mechanisms are applied, they deliver the overall management intent of SMP2 policy and it is at MU level that the SMP2 'makes sense'. MUs within the Essex and South Suffolk SMP2 are shown on **Figure 4.1**.

2.2 Assessment methodology

As described above, the methodology for this exercise has been developed in accordance with the guidance of Defra, DCLG and Natural England. The general process of a HRA is shown in **Figure 2.1**. Initially an assessment is undertaken of whether there is the potential for the policies to have a Likely Significant Effect (LSE), either alone or in-combination, upon the relevant international sites.

If an LSE is determined the next stage of assessment, the 'Appropriate Assessment', involves a more detailed review of the policies and assessing their potential impacts on the integrity of the international sites against conservation objectives, condition information, and any further details concerning the likely impact.

If it can not be concluded at this stage that the policies will not have an adverse impact then mitigation or avoidance measures must be developed and specified which can be used to prevent any declines in the condition of the site or sites in question.

Any policies for which mitigation or preventative measures cannot be established should be reconsidered and alternatives proposed. If the policy lacks a viable alternative it is necessary to consider whether the policy is required. Guidance issued by the Department of Central and Local Government (DCLG) in 2006 states:

"*After mitigation measures have been exhausted on an emerging option and it is shown to still have a potentially negative effect on the integrity of a European site, and in absence of any other alternative solution, as a rule the option should be dropped. In the exceptional circumstance and as an exception to that rule, if the pursuit of the option is justified by 'imperative reasons of overriding public importance (IROPI)' consideration can be given to proceeding in the absence of alternative solutions. In these cases compensatory measures must be put in place to offset negative impacts*".

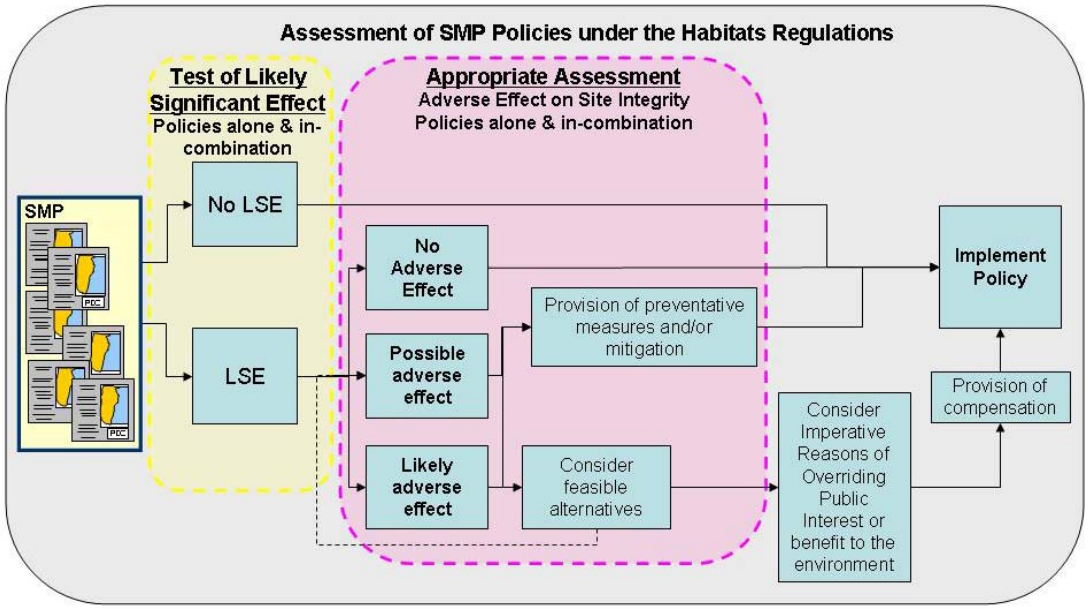
In circumstances where IROPI prevails, the Secretary of State has to be shown that there were no possible mitigation measures or alternative solutions that would negate the adverse effects on the international site(s), as well as that:

[2] Defined as an area of coastline, or an estuary, which is geomorphologically discrete from other units (i.e. any geomorphological process occurring within that unit does not impact or occur across other policy units)

- the plan is being undertaken for reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; and /or
- the plan is being undertaken for imperative reasons of overriding public interest.

Consultation is required with the appropriate Government department throughout this process to ensure the overall integrity of the international site network is not detrimentally impacted. Natural England has been involved throughout the development of the SMP, including advising the HRA.

Figure 2.1 Habitats Regulations Assessment Methodology



2.3 Assessment of impacts spatially across the SMP2 area

The HRA is undertaken at the MU level, in common with the approach taken for the Strategic Environmental Assessment (SEA). Within each MU, policy has been considered at PDZ level to provide an effective understanding of the potential contribution of each management policy individually to impacts on the identified internationally designated habitats and species. These are then collated to build an overview of the impacts of SMP2 policy on habitats and species within each MU.

This approach is complicated by the fact that MU boundaries and the boundaries of designated sites do not always align. Designated sites can cover an area in more than one MU and, conversely, MUs may contain habitat designated in more than one site (i.e. more than one SPA). The conclusions drawn in this HRA acknowledge this and identify these potential interactions:

- where impacts, however slight, in one MU contribute to AEOI in a designated area contained more substantially in another MU;
- where there is no impact on a site within a particular MU but there is AEOI as a result of policy in an adjoining MU; and

- where impacts in one MU are offset (mitigated) by policies in an adjoining MU but within the same designated area.

This information is then translated into an overall impact on identified designated sites; it is at this level that the final conclusions are then reported in **Section 9**.

Linked with this, a wider consideration and assessment of the sites within the SMP area has been discussed and agreed with Natural England, taking into account the interrelated nature of a number of them. This relationship is demonstrated by the fact that the habitats underpinning the SPAs between the Colne Estuary and Dengie Peninsula are all part of the Essex Estuaries SAC, and also that the individual SPAs are actually considered as part of the same 'macro' SPA (the Mid-Essex Coast 'phased' SPA[3]). As such, losses and gains in intertidal habitat within this aggregation of SPAs are considered to be 'tradable', with any 'transfers' being considered mitigation within the phased site.

2.4 Assessment of impacts over different SMP2 epochs

Applying the Habitats Regulations at the policy level is further complicated by the different timescales (or epochs), over which the policies apply (broadly, 20 years, 50 years and 100 years). Assessing the impact over three epochs is extremely difficult because the dynamic relationship between the estuaries and the open coast is poorly understood. There is a wide range of possible future scenarios and uncertainty, concerning sediment regimes and future rates of sea level rise and other factors, remains high.

On one hand the Habitats Regulations require a demonstration that there is NAEOI but, on the other, the timeline of the plan and the uncertainties of this system hamper any such conclusions. Despite the uncertainties, where it cannot be concluded that there will not be an adverse effect on integrity, compensation to offset such effects is likely to be required. Where there are short-term adverse impacts but site integrity is maintained in the longer term, AEOI must still be concluded if the short-term adverse impact is not mitigated in advance.

2.5 Assessment of the SMP2 policies

The detailed assessment of SMP2 policies is provided in tables at **Annex II**, and summarised in **Section 7**. These tables are based on conservation objectives/favourable condition tables for the Sites of Special Scientific Interest (SSSIs) which underpin the international sites, the attributes of such features, identified management targets and known sensitivities or issues. The findings are therefore in respect of the objectives, rather than drawing direct conclusions about impacts on site integrity. These overarching conclusions are drawn in **Section 7** and, as stated in the regulations, are made "*in view of that site's conservation objectives*" (Regulations 21, 61 and elsewhere).

Although Ramsar features and sites do not have favourable condition tables, conservation objectives associated with the SSSIs, including those outlined in the

[3] The phased site approach has been adopted for a small number of very large SPA sites which are ecologically a single entity, but where their sheer size has made the classification process too complex. These sites have been sub-divided into a number of separate phases that have been classified separately. Within this HRA they are assessed separately, but losses and gains are considered tradable within the larger aggregation.

Regulation 35 package for the Essex Estuaries European Marine Site, are generally sufficient to protect Ramsar features. Nonetheless, where Ramsar features need consideration over and above those of European features, high level generic conservation objectives have been applied.

For some MUs where an adverse effect cannot be discounted, mitigation measures (which may avoid or reduce impacts) have been provided (and integrated within policies or within the SMP2 Action Plan). Specific actions include differing mechanisms for managed realignment (comparing MR1 and MR2 policies), specific instructions or caveats associated with policy implementation (eg in PDZ D2), and the highlighting of issues to be addressed prior to the 'SMP3' review. These measures are taken to ensure that adverse effects are avoided before or as policies are implemented, reducing impacts on site integrity.

Each PDZ has been evaluated at a high level against features and targets in regard to the potential impacts of policy, and any preventative measures or mitigation that may need to be undertaken. The full assessment then records overall impacts on site integrity at MU level, accounting for possible interactions with other plans and policies identified as relevant to that level of assessment, and reports which designated sites are affected. This level of assessment is 'appropriate' to the SMP2 policy and recognises that further assessment will be provided as the management intent is implemented through more detailed plans and schemes in the future.

2.6 'In combination' assessment of the plan as a whole

The final 'in combination' assessment and conclusions build on the assessments at MU level and consider the combined impacts of SMP2 policies 'at the plan level' again in the light of possible effects of other plans and approved projects yet to be implemented. The specific focus of this stage relates to the consideration of those other plans and projects identified in **Section 8**.

3 FINAL SMP2 POLICY

The final policies for the Essex and South Suffolk SMP2 are presented in **Tables 3.1** to **3.10** (for MUs see **Figure 4.1**). Within the tables, the following abbreviations are used:

- HtL – Hold the Line;
- AtL – Advance the Line;
- MR1 – Managed Realignment – Allow local and limited intervention;
- MR2 – Managed Realignment - Breach of frontline defence after building landward defence; and
- NAI – No Active Intervention.

Where a policy has been changed following consultation on the draft SMP2, this is indicated by a bold boundary to the table cell and bold text.

Table 3.1 Management Unit A (Stour and Orwell)

Policy Development Zone		Policy Plan[4]			
		Now – 2025	2025 – 2055	2055 – 2105	Explanation
A1	Felixstowe Port	AtL+	HtL+	HtL+	The currently ongoing expansion constitutes Advance the Line. The new line will then be held throughout all epochs to continue protection of Felixstowe Port. The standard of protection will be maintained or upgraded.
A2	Trimley Marsh	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to Felixstowe Port.
A3a	Loom Pit Lake	HtL	MR2	NAI	The current line will be held in epoch 1. In epoch 2, managed realignment by breach of the existing defence. No defence needed after that. The currently undefended section will remain undefended.
A3b	Levington Creek	HtL	HtL	HtL	The current line will be held throughout all epochs.
A4a	Northern Orwell east	MR1	MR1	MR1	Local intervention to limit erosion risk to features is acceptable if the impact on natural estuary evolution is minimised.
A4b	Northern Orwell west	NAI	NAI	NAI	No erosion expected, therefore no defences needed.
A5	Ipswich	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. Ipswich will remain protected. The standard of protection will be maintained or upgraded.
A6	The Strand	MR1	MR1	MR1	Integrated plan for adaptation to be determined through partnership approach; may include local defences.
A7a	Southern Orwell west	NAI	NAI	NAI	No erosion expected, therefore no defences needed.
A7b	Southern Orwell east	MR1	MR1	MR1	Integrated plan for adaptation to be determined through partnership approach. This may include local defences.

[4] A plus sign (+) after the policy indicates that a preliminary cost benefit analysis has indicated that the current level of protection can be maintained or even increased into the future, even accounting for sea level rise. However, absence of such a sign does not necessarily indicate that it cannot. This is explained further in the main SMP2 document (in both Section 4.3 and Appendix H to that document).

Policy Development Zone		Policy Plan[4]			
		Now – 2025	2025 – 2055	2055 – 2105	Explanation
A8a	Shotley Marshes west	MR2	HtL	HtL	Managed realignment by breach of the existing defence while continuing flood defence to Shotley Marshes to the south. The new line will be held throughout epoch 2 and 3.
A8b	Shotley Marshes east	HtL	MR2	HtL	The current line will be held in epoch 1. In epoch 2, managed realignment by breach of the existing defence while continuing flood defence to the Marina and all dwellings and roads. The new line will be held in epoch 3.
A8c	Shotley Gate	MR1	MR1	MR1	Integrated plan for adaptation to be determined through partnership approach; may include local defences.
A9a,d,f	Northern Stour – flood defence	HtL	HtL	HtL	The current line will be held throughout all epochs.
A9b	Northern Stour – not erosional	NAI	NAI	NAI	No erosion expected, therefore no defences needed.
A9c,e	Northern Stour – erosional	MR1	MR1	MR1	Local intervention to limit erosion risk to features is acceptable if the impact on natural estuary development is minimised.
A10a,c,e	Southern Stour – flood defence	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection at Manningtree will be maintained or upgraded.
A10b,g	Southern Stour – not erosional	NAI	NAI	NAI	No erosion expected, therefore no defences needed.
A10d,f	Southern Stour – erosional	MR1	MR1	MR1	Local intervention to limit erosion risk to features is acceptable if the impact on natural estuary development is minimised.
A11a	Harwich Harbour	AtL	HtL	HtL	The consented port expansion at Bathside Bay constitutes Advance the Line. Subject to plans progressing, the new line will then be held throughout all epochs to continue protection of Harwich Port.
A11b	Harwich town	HtL	HtL	HtL	The current line will be held throughout all epochs.

Table 3.2 Management Unit B (Hamford Water)

Policy Development Zone		Policy Plan			
		Now - 2025	2025 - 2055	2055 - 2105	Explanation
B1	South Dovercourt	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
B2	Little Oakley	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, communities, roads and infrastructure south of Dovercourt and to the sewage works. It is possible that the realignment would occur in epoch 1 as part of the Bathside Bay project.
B3	Oakley Creek to Kirby-le-Soken	HtL	HtL	HtL	The current line will be held throughout all epochs.
B3a	Horsey Island	HtL	HtL	MR2	The current line will be held throughout the two epochs. Managed realignment by breach of the existing defence while continuing flood defence to the south west half of the island to take place in epoch 3.
B4a	Kirby-le-Soken to Coles Creek	MR2	HtL	HtL	Managed realignment by breach of the existing defence while continuing flood defence to Kirby-le-Soken.
B4b	Coles Creek to the Martello Tower	HtL	HtL	HtL	The current line will be held throughout all epochs.
B5	Walton Channel	HtL+	HtL+	MR2+	The current line will be held throughout the two epochs. Managed realignment by breach of the existing defence while continuing flood defence to all dwellings, the sewage works and the caravan park. The standard of protection will be maintained or upgraded.
B6a	Naze Cliffs north	NAI	NAI	NAI	The shoreline will be allowed to develop naturally.
B6b	Naze Cliffs south	MR1	MR1	MR1	The erosion process will be slowed down and managed.

Table 3.3 Management Unit C (Tendring Peninsula)

Policy Development Zone		Policy Plan			
		Now - 2025	**2025 - 2055**	**2055 - 2105**	**Explanation**
C1	(Walton-on-the-Naze and Frinton-on-Sea	HtL	HtL	HtL	The current line will be held throughout all epochs.
C2	Holland Haven	HtL+	HtL+	**MR2+/HtL+**	**The current line will be held in epoch 1 and epoch 2. In epoch 3 there is a dual policy but in either case flood defence to the dwellings, roads and sewerage treatment works will be continued. The standard of protection will be maintained or upgraded.**
C3	Clacton-on-Sea	HtL	HtL	HtL	The current line will be held throughout all epochs.
C4	Seawick, Jaywick and St. Osyth Marsh	HtL	HtL	**MR2/HtL**	**The current line will be held in epoch 1 and 2. In epoch 3 there is a dual policy of either Managed realignment or Hold the line, depending on further work as part of the Local Development Framework.**

Table 3.4 Management Unit D (Colne Estuary)

Policy Development Zone		Policy Plan			
		Now – 2025	**2025 - 2055**	**2055 – 2105**	**Explanation**
D1a	Stone Point	HtL	HtL	HtL	The existing line, currently undefended, will be held throughout all epochs.
D1b	Point Clear to St Osyth Creek	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and caravan park. The currently undefended section will remain undefended.
D2	Along the southern bank of Flag Creek	HtL	**HtL**	**MR2**	**The current line will be held in epoch 1 and 2. In epoch 3, Managed realignment by breach of the existing defence while continuing flood defence to the dwellings and road. Due to the environmental, landscape and historic importance of the area, future SMPs should review the feasibility and the implementation of the realignment policy for this PDZ.**
D3	Flag Creek to northern bank to Brightlingsea	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings and road.
D4	Brightlingsea	HtL	HtL	HtL	The current line will be held throughout all epochs.
D5	Westmarsh Point to where the frontage meets the B1029	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, the road and the freshwater habitats.
D6a	South of Wivenhoe	HtL	HtL	HtL	The, currently undefended, line will be held throughout all epochs.
D6b	B1029 to Wivenhoe	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence, while continuing flood defence to the railway line.
D7	Colne Barrier	HtL	HtL	HtL	The, currently undefended, line will be held throughout all epochs.
D8a	Inner Colne west bank	HtL	MR2	NAI	The current line will be held in epoch 1. Managed realignment by breach of the existing defence. No defence needed after that, although this should be reviewed in further SMP reviews.
D8b	Fingringhoe and Langenhoe	HtL	HtL	HtL	The current line will be held throughout all epochs. The currently undefended sections will remain undefended.
D8c	Langenhoehall Marsh	HtL	HtL	HtL	The current line will be held throughout all epochs.

Table 3.5 Management Unit E (Mersea Island)

Policy Development Zone		Policy Plan			
		Now - 2025	**2025 - 2055**	**2055 - 2105**	**Explanation**
E1	Landward Frontage	HtL	HtL	HtL	The current line will be held throughout all epochs.
E2	Seaward frontage between North Barn and West Mersea	HtL	MR2	HtL	The current (undefended) line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works.
E3	West Mersea	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The currently undefended sections will remain undefended. The standard of protection will be maintained or upgraded.
E4a	North Mersea (Strood Channel)	HtL+	MR2+	HtL+	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings and roads. The standard of protection will be maintained or upgraded.
E4b	Pyefleet Inner Channel	HtL	HtL	HtL	The current line will be held throughout all epochs.

Table 3.6 Management Unit F (Blackwater Estuary)

Policy Development Zone		Policy Plan			
		Now – 2025	2025 - 2055	2055 – 2105	Explanation
F1	Strood to Salcott-cum Virley	HtL	HtL	HtL	The current line will be held throughout all epochs.
F2	Salcott Creek	HtL	HtL	HtL	The current line will be held throughout all epochs.
F3	South bank of the Salcott Channel to Tollesbury Fleet	HtL	HtL	MR2	The current line will be held in epoch 1 and 2. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works. This policy should be reviewed in future SMPs.
F4	Tollesbury	HtL	HtL	HtL	The current line will be held throughout all epochs.
F5	Tollesbury Wick Marshes to Goldhanger	HtL	HtL	MR2	The current line will be held in epoch 1 and 2. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works. This policy should be reviewed in future SMPs.
F6	Goldhanger to Heybridge	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
F7	Heybridge Basin	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
F8	Maldon Inner estuary	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
F9a	South Maldon	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
F9b	Northey Island	HtL	HtL	HtL	The current line will be held throughout all epochs.
F10	Maylandsea	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
F11a	Mayland Creek west	HtL	HtL	HtL	The current line will be held throughout all epochs.

Policy Development Zone		Policy Plan			
		Now – 2025	2025 - 2055	2055 – 2105	Explanation
F11b	Mayland Creek	NAI	NAI	NAI	No erosion expected, therefore no defences needed.
F11c	Mayland Creek east	HtL	HtL	HtL	The current line will be held throughout all epochs.
F12	Steeple	HtL	HtL	MR2	The current line will be held in epoch 1 and 2. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works.
F13	St. Lawrence	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
F14	St. Lawrence to Bradwell-on-Sea	**HtL+**	**MR2+**	HtL+	**The current line will be held in epoch 1. In epoch 2, Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and Leisure Park. The standard of protection of any new / remaining defence will be maintained or upgraded.**
F15	Bradwell Creek	HtL	HtL	HtL	The current line will be held throughout all epochs. The currently undefended section will remain undefended.

Table 3.7 Management Unit G (Dengie Peninsula)

Policy Development Zone		Policy Plan			
		Now - 2025	2025 - 2055	2055 - 2105	Explanation
G1	Bradwell-on-Sea	HtL	HtL	HtL	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment.
G2	Bradwell Marshes	HtL	HtL	HtL	The current line will be held throughout all epochs.
G3	Dengie Marshes	HtL	HtL	HtL	The current line will be held throughout all epochs. The defence is partly under pressure but there are overriding constraints for realignment.

Table 3.8 Management Unit H (Crouch and Roach)

Policy Development Zone		Policy Plan			
		Now – 2025	2025 - 2055	2055 - 2105	Explanation
H1	Burnham on Crouch	HtL	HtL	HtL	The current line will be held throughout all epochs.
H2a	From Burnham on Crouch to Bridgemarsh	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to all dwellings and the railway line. The currently undefended section at The Cliff will remain undefended.
H2b	Bridgemarsh to North Fambridge	HtL	HtL	MR2	The current line will be held in epoch 1 and 2. Managed realignment by breach of the existing defence while continuing flood defence to all dwellings and the railway line. Note that the alignment of the new defence is under discussion.
H3	North Fambridge and South Woodham Ferrers	HtL	HtL	HtL	The current line will be held throughout all epochs.
H4	South Woodham Ferrers, Battlesbridge and Hullbridge	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
H5	Eastwards of Brandy Hole	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded. The currently undefended sections will remain undefended.
H6	Landward of Brandy Hole Reach	HtL	HtL	HtL	The current line will be held throughout all epochs.
H7	South Fambridge	HtL	HtL	HtL	The current line will be held throughout all epochs.
H8a	South bank of Longpole, Shortpole and Raypitts Reaches (Canewdon West)	HtL	HtL	HtL	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment.

Policy Development Zone		Policy Plan			
		Now – 2025	2025 - 2055	2055 - 2105	Explanation
H8b	Canewdon	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to dwellings.
H9	Paglesham Creek	NAI	NAI	NAI	No erosion expected, therefore no defences needed.
H10	Wallasea	MR2	HtL	HtL	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, tourist facilities and roads.
H11a	Paglesham Churchend	HtL	MR2	HtL	The current line will be held in epoch 1. Managed realignment by breach of the existing defence while continuing flood defence to the dwellings and infrastructure.
H11b	Paglesham Eastend	HtL	**MR2**	**HtL**	**The current line will be held in epoch 1. In epoch 2, realigned defences will be required to protect the community of Paglesham Eastend ahead of any managed realignment (by breach of the existing defence while continuing flood defence to the dwellings and infrastructure).**
H12	Stambridge	HtL	HtL	HtL	The current line will be held throughout all epochs.
H13	Rochford	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
H14	Barling Marsh	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment. The standard of protection will be maintained or upgraded.
H15	Little Wakering	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.
H16	Great Wakering	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded.

Table 3.9 Management Unit I (Foulness)

Policy Development Zone		Policy Plan			
		Now - 2025	2025 - 2055	2055 - 2105	Explanation
I1a	Foulness	HtL	HtL	HtL	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment.
I1b	Potton	HtL	HtL	HtL	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment.
I1c	Rushley	HtL	HtL	MR2	The current line will be held in epoch 1 and 2. Managed realignment by breach of the existing defence, followed by No Active Intervention.

Table 3.10 Management Unit J (Southend-on-Sea)

Policy Development Zone		Policy Plan			
		Now - 2025	2025 - 2055	2055 - 2105	Explanation
J	Southend on Sea	HtL+	HtL+	HtL+	The current line will be held throughout all epochs. The standard of protection will be maintained.

4 SITES CONSIDERED WITHIN THE APPROPRIATE ASSESSMENT

4.1 Designated sites potentially affected by SMP2

The Essex and south Suffolk coast contains a combination of open coastal areas and estuaries. The open coast is largely undeveloped and in agricultural or military use. Land adjacent to the estuaries is primarily agricultural (generally arable land, interspersed with coastal grazing marsh). The high conservation value of the SMP2 area is reflected in the fact that a significant proportion of it, particularly to the south, is designated under the Habitats and Birds Directives and the Ramsar Convention (see **Figure 4.1**).

All sites which have been identified as potentially being affected by SMP2 policies are listed below. Conceivably policies may affect international sites outside the SMP2 area; as such these must also be fully assessed. The Outer Thames Estuary SPA was initially considered but scoped out of further assessment, through discussion and by agreement with Natural England. No other potentially affected sites were identified.

Annex I provides detailed information regarding the interest features of the sites considered in this assessment, drawing on both individual site citations and the 2001 SPA review.

Sites designated under the Birds Directive:

- Stour and Orwell Estuaries;
- Hamford Water;
- Colne Estuary[5];
- Blackwater Estuary[5];
- Dengie[5];
- Crouch and Roach Estuaries[5];
- Foulness[5]; and
- Benfleet and Southend Marshes.

Sites designated under the Habitats Directive:

- Essex Estuaries.

Sites designated under the Ramsar Convention:

- Stour and Orwell Estuaries;
- Hamford Water;
- Colne Estuary[5];
- Blackwater Estuary[5];
- Dengie[5];
- Crouch and Roach Estuaries[5];
- Foulness[5]; and
- Benfleet and Southend Marshes[5].

[5] These sites form part of the 'phased' Mid-Essex Coast SPA/Ramsar site; the intertidal elements of their area is also designated under the Essex Estuaries SAC.

Figure 4.1 Management Units and international sites considered within the SMP2 HRA

5 SITE CONSERVATION OBJECTIVES AND CONDITION

5.1 Conservation objectives

Conservation objectives are Natural England's statutory advice to operators and to competent authorities, and are used as the baseline against which to evaluate possible damaging operations. They outline the detailed habitat and environmental conditions necessary to maintain or restore favourable condition of site features and site integrity. Conservation objectives thus serve as the basis for evaluation under the Habitats Regulations. Conservation objectives are currently being reviewed by Natural England, but those used in this assessment are the most up-to-date available. Although the review is likely to make the objectives more quantitative it is not expected to compromise this current assessment as their fundamental principles are unlikely to change. The objectives are incorporated in the assessment tables in **Annex II**.

As above (**Section 2.5**), given the close correlation between Ramsar and European (SAC and SPA) features, the conservation objectives within the Regulation 35 package are generally sufficient to protect Ramsar features. Nonetheless, where Ramsar features need consideration over and above those of European features, the high level generic conservation objectives (as below) have been applied to Ramsar features.

For qualifying species (SAC, SPA and Ramsar), the conservation objectives can be generalised as follows:

- To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

- To ensure for the qualifying species that the following are maintained in the long term:

    - Populations of the species as a viable component of the site;
    - Distribution of the species within site;
    - Distribution and extent of habitats supporting the species;
    - Structure, function and supporting processes of habitats supporting the species; and
    - No significant disturbance of the species.

For qualifying habitats (SAC and Ramsar) objectives can be generalised as:

- To ensure for the qualifying habitats the following are maintained in the long term:

    - Extent of habitat on the site;
    - Distribution of habitat within site;
    - Structure and function of habitat;
    - Processes supporting the habitat;
    - Distribution of typical species of the habitat;
    - Viability of typical species as components of the habitat; and
    - No significant disturbance of typical species of habitat.

5.2 Current condition assessment

International sites are 'underpinned' by the national SSSI designation. Site condition monitoring is undertaken by Natural England at the SSSI level, according to the Joint Nature Conservation Committee (JNCC) common standards protocols. The relevance of SSSI condition status to those of international sites depends upon the degree to which their features correspond.

On the Essex and south Suffolk coast this correspondence is close, meaning that condition assessments and, more importantly, reasons for unfavourable status can be considered reliable indicators of feature condition, and of impacts on site integrity with respect to the features of international sites. As such the condition assessment is an analogue by which the impact of past (SMP1), and future (SMP2), policy on international sites can be judged.

SSSIs are typically divided into a series of units, for the purposes of management and monitoring. Natural England's site information system (ENSIS) contains information on the 'remedies' required to enable SSSIs to meet favourable condition by 2010. ENSIS also identifies any units where the Environment Agency, through its flood risk management role, is responsible for delivering favourable condition.

6 PROJECTING FUTURE CHANGE, QUANTIFYING COMPENSATORY HABITAT NEEDS AND ADDRESSING DATA UNCERTAINTY

This assessment represents the final iteration in an ongoing assessment of the potential impacts of the SMP on designated habitats. The finalisation of the HRA process has been strongly informed by recently completed work surveying changes in saltmarsh extent along the Essex coast covering the decade from the late 1990s (IECS 2011). Additional data covering the Stour and Orwell estuaries are also presented in a recent Environment Agency study (Environment Agency, 2011). Both datasets present information which is significantly different from that contained in previous studies (summarised by Cooper *et al*. 2000). It is important that this HRA employs the most up-to-date datasets, but all information relating to changes in saltmarsh/intertidal extent in the SMP study area should be treated with caution. This is especially the case as there have been such significant changes in the conclusions of reports over the last decade. There are additional caveats related to using any datasets to project changes over the SMP time period; these are outlined below.

6.1 Recent past changes in saltmarsh extent within the SMP study area

Until recently it had been understood that the saltmarsh habitat contained within the coastal SSSIs in Essex and south Suffolk (which underpin the SPA, Ramsar and SACs within the SMP2 study area), has been eroding quite rapidly. In previous iterations of the HRA, and during the substantive development of the SMP2, a rate of around 45ha/yr loss has been assumed across the SMP study area. This is the figure reported by Cooper et al. (2000) for the period 1988-1998, based on detailed study.

The recent IECS data covers only the sites in Essex, and therefore does not include recent changes in the Stour and Orwell estuaries; data for these sites are derived from the recent Environment Agency work (2011). Both studies contribute to a much more complex picture than previously assumed. Site-level rates of loss are significantly less than previously described and, at the SSSI level (i.e. considering net change across all units within a SSSI), a number of sites have seen increased saltmarsh extent.

All parties involved in the development and assessment of the HRA (Natural England, Environment Agency and Royal Haskoning) have agreed that the use of this data, as it is the most recent and robust available, is the most appropriate approach. Consequently they have been used in calculating revised rates of change within this HRA and the subsequent Statement of Case (SoC) for IROPI as shown in **Table 6.1.** For the whole of the SMP2 area's designated sites the net change in saltmarsh extent during the decade from the late 1990s equates to an annual gain of 0.23ha (<0.0001% of the saltmarsh within the SMP2 area). Given the quality of the data available this could reasonably be interpreted as no change, but with an equal probability of there having been either losses or gains.

Table 6.1 Recent changes in saltmarsh extent in the SMP area

SSSI	Annual derived rate of change (ha/yr)
Stour and Orwell	+1.34[a]
Hamford Water	+0.30 [b]
Colne Estuary	-0.62 [b]
Blackwater Estuary	-0.13 [b]
Dengie Peninsula	-1.42 [b]
Crouch and Roach	+0.52 [b]
Foulness	-0.85 [b]
Benfleet and Southend Marshes	+1.09 [b]
Total	*+0.23*
Total considered within this SMP2/HRA (excludes Benfleet and Southend Marshes[6])	**-0.9**

Data from Environment Agency (2011, Table 4.2)[a] and IECS (2011; Table 10)[b]

6.2 Forecasting future changes – data and assumptions

In order to consider the impact of the SMP policies on the internationally-designated features within the SMP area it is necessary to consider what the likely rate of change might be over the SMP timespan (2005-2105).

When considering any projections it is of note that the IECS data do not distinguish natural changes in saltmarsh area from those resulting from direct human interventions – such as managed realignments and sediment recharge. Although many realignments are outside the SSSI boundaries, and are therefore not considered in the IECS study, a case in point is the first phase of the Orplands realignment in the Blackwater estuary (Unit 88 of the SSSI). This realignment was implemented in 1995 and therefore, through the period covered by the IECS report, was performing as designed and led to the creation of around 11ha of saltmarsh.

Such semi-natural changes could lead to an overestimation of rates of saltmarsh gain (or underestimates of loss rates). This point is acknowledged by the SMP project team. The forecasts have been subject to sensitivity testing and, although there are variations in rates of change, the HRA conclusions presented below remain robust (the overall loss within the Blackwater sites increases but remains <2% of the site area). The impact of sediment recharge is less easily considered but we assume that given the scale at which such activities occur the impacts do not affect the conclusions of the HRA at this stage.

Therefore, in the interests of transparency the figures reported by IECS and the Environment Agency have been used in all calculations without further manipulation. In order to assess future changes we have taken the data presented above and have assumed that the same rates can be projected linearly for the whole of Epoch 1 (i.e. to 2025). We consider that this is a reasonable assumption. However, sea level rise is expected to occur at an increasing rate through Epochs 2 and 3, and will interact with a range of other factors which influence intertidal extent. We have therefore concluded that it would be unwise to assume that the rate of saltmarsh change would continue at the same rate after 2025.

[6] Although partly within the area covered by this SMP2, the Thames Estuary 2100 project has taken responsibility for the changes in the Benfleet and Southend Marshes SSSI; the change for which this SMP2 has responsibility is therefore -0.86ha/yr (rounded to -0.9ha) across the whole SMP2 area.

Making the assumption that saltmarsh change will continue linearly throughout the SMP2 period would mean that we would predict notable gains in saltmarsh extent in some estuaries despite projected increases in sea level. We consider that such an assumption is unsound and have not calculated the rate of loss for Epochs 2 and 3. Instead we have assumed that there could be an un-quantified loss of saltmarsh in all areas in both epochs. Monitoring will be essential to confirm the required timing and extent of actions to compensate for such losses, and this requirement has been incorporated into the SMP Action Plan.

In all cases, future changes assessed at the site level are assumed to be in saltmarsh extent. Where losses are indicated, these are assumed to represent a loss of saltmarsh but no loss in the lower intertidal habitats (mudflat). Only once it has been calculated that all saltmarsh is lost (based on reductions compared with the total saltmarsh area described on the citation sheets) do we consider that mudflat habitat will be lost, at the same linear rate. Where saltmarsh gains are indicated there is assumed to be an equal gain of mudflat at the seaward edge, again resulting in an unchanged net mudflat area. Again, whilst simplistic, no robust data is available to inform any more complex considerations and these broad assumptions are considered to be appropriate at the strategic SMP2 scale.

All of these factors and more underline the complexity of the Essex and Suffolk estuarine systems, and in particular the ways in which they respond to different pressures over time. Given the current high levels of uncertainty, even in the light of the renewed data, this further supports the requirement for early and ongoing monitoring of saltmarsh and wider intertidal habitat change within the SMP study area – extending the recent IECS or Environment Agency studies as part of the robust suite of monitoring and mitigation within the SMP action plan.

6.3 Calculating net changes accounting for SMP2 realignments

As well as changes in habitat extent resulting from projected natural changes, the impacts on designated areas must also consider the impact of managed realignments proposed by SMP2 policy. The available information which relates to the managed realignments proposed by SMP policy varies somewhat. Epoch 1 realignments are now being planned and considered in some detail. As such, through the development of the SMP2, the area expected to become saltmarsh as a result of epoch 1 realignments in the Stour and Orwell estuaries, Hamford Water and Blackwater estuary has altered. The figures employed in our calculations (A8a *Hill House Farm* – 45ha; B4a *Devereaux Farm* - 35ha (Phase 1 (15ha) of which has been delivered); and H10 *Wallasea Island Phase 1* – 155ha) represent the best available information at the time of writing.

Many of the Epoch 2 and 3 realignments make assumptions as to the area which might be realigned and which could become intertidal (the current assumption is that they will be designed so as to lead to saltmarsh formation, although they could equally be engineered to provide a wider range of habitats). Realignment sites can in some cases be adopted as mitigation for the same habitats lost elsewhere within the same designated site (or within the phased Mid-Essex Coast sites as described in **Section 2.3**), or may be available as compensation to offset losses in other areas where a case for IROPI has been agreed.

This does mean that figures describing future habitat change in this HRA, which was completed some months after the main SMP documentation through a desire to make best use of the emerging data, do not tally exactly with those presented in the SMP documents. The figures in this HRA supersede those in the main document for epoch 1; figures have not been calculated for epochs 2 and 3, as above, due to the uncertainties associated with extrapolation. This approach has been discussed and agreed with Natural England and also with Defra.

6.4 Historic losses

A cause of significant deliberation throughout the SMP HRA process has been whether, and how, the parties involved should address the issue of 'historic losses'. These are the changes in intertidal extent within the designated areas considered by the SMP, but which occurred between the adoption of the Habitats Directive (1992) and the SMP base year (2005). The conclusion has been that compensating these losses should be accounted for within the SMP2.

These changes were previously, based on the Cooper et al. (2000) report, assumed to be losses at a rate of ~45ha/yr. However the more recent IECS and Environment Agency data cast doubt upon such pessimistic rates. As above the best available data come from different sources. The approach which has been agreed by the SMP HRA project team is that the only robust way to calculate the historic losses is to take the rate from Cooper *et al*. (2000) to cover the period 1992-1997 (a loss of 45ha/yr (see Collins 2011)), and the IECS (2011) and Environment Agency (2011) data to cover the period 1998-2005 (a loss of 0.9ha/yr). Whilst the best approach at this stage, this clearly results in an awkward situation where in 1998 the overall loss rate drops significantly. Whilst seemingly unsound, more complex manipulation of the data would again serve little scientific purpose since the decadal nature of the datasets means it would be impossible to determine the accuracy of any more detailed attempts to hindcast changes in the system.

Total pre-SMP2 losses (1992-2005) are therefore calculated at 231ha. Managed realignments which pre-date the SMP (i.e. earlier than 2005) have provided 119ha of new habitat (as detailed in Collins 2011), leading to a shortfall of 112ha.

Realignments which are currently being developed, and are expected to be delivered in epoch 1, can be employed to offset these remaining historic losses. It has been agreed with Natural England that 77ha of H10 Wallasea Island and all of the 35ha at B4a Devereux Farm (Phase 1 (15ha) of which has already been delivered, Phase 2 (20ha) is currently on hold) will be set against these historic losses. From the epoch 1 realignments, this leaves 45ha at A8a Hill House Farm and 78ha of H10 to be used to offset losses incurred as a result of SMP2 policy.

All the elements above have been factored into the considerations made when assessing the impact of SMP2 policy within this HRA. The detailed assessment is set out in **Annex II**, and is summarised in **Section 7**.

7 THE 'ALONE' ASSESSMENT OF SMP2 POLICY

7.1 The need for HRA for the SMP2

As explained in **Sections 1** and **2**, although the SMP2 has been developed with a view to the intentions of the Habitats Directive, effects on designated habitats were only one of a number of drivers shaping policy. The Habitats Regulations require detailed consideration of any plan or project which, either alone or in combination with other plans or policies, is considered to have a **likely or potential significant effect** on an international site. The first stage of the HRA provided an initial appraisal with a view to establishing where policy would demonstrably not have a significant effect on international sites.

7.1.1 The test of Likely Significant Effect

The determination of whether the Essex and South Suffolk SMP2 would have a likely significant effect (LSE) is a coarse filter approach considering likely effects on the features of international sites and their conservation objectives. Such impacts relate to either positive or negative effects and to the plan as a whole rather than individual policies. This can be addressed through a series of structured questions:

Q. Does the Essex and south Suffolk coast and coastal hinterland contain any sites designated under the Ramsar convention or Habitats or Birds Directives (International sites)?

The Essex and south Suffolk coast contains a wide variety of coastal, freshwater and estuarine sites (as outlined in **Section 3** of this report, and illustrated on **Figure 3.1**).

Q. What are the sensitivities of the international sites?

The sites are sensitive to changes in their morphology as a result of coastal processes and sea level fluctuations. For example:

Coastal grazing marsh and other fresh or brackish wetland habitat is found in numerous locations on the Essex and south Suffolk coast located to the rear of existing natural or man made defences. Shifts in coastal form may lead to inundation of these sites and the loss of features due to increased salinisation or wave action.

Intertidal habitat such as saltmarsh and mudflat, on the open coast and in the estuaries, is dependent on geomorphological processes. It is also often constrained by settlement and many such sites have been 'managed' in the past to maintain their physical structure. Changes to coastal defence or coastal processes, as well as sea level rise, have the potential to alter the function and form of such habitat through coastal squeeze and other processes.

Q. Does the SMP2 have the potential to affect (either positively or negatively) the integrity of International sites?

The SMP2 has four policy options, which have the potential to lead to changes in the movement of sediment along the coast, levels of inundation and management regimes. Collectively, the SMP2 has the potential to alter the structure and function of the Essex and south Suffolk coast, with previously freshwater sites becoming saline through policies of managed realignment or the removal of management. Additionally, the SMP2 may continue to hold the line along extensive areas of coast which has the potential to lead to coastal squeeze in response to sea level rise.

Q. Is the SMP2 likely to have a significant effect on features of the International sites on the Essex and South Suffolk Coast?

Since the plan area is almost entirely covered by international designations, and the plan may influence coastal morphology, features of all of the international sites may be affected and it cannot be ruled out that there will be a likely significant effect. This effect may be positive or negative.

Since an LSE cannot be ruled out an appropriate assessment is provided which seeks to establish if the SMP2, either alone or in combination with other plans or projects, has the potential to have an adverse effect on the integrity of international sites. This assessment is described further below.

7.2 Detailed assessment

The assessment provided here is for policy across all epochs of the plan. As detailed in **Section 6,** elements of the plan will be subject to high levels of uncertainty based on coastal processes, response to management and the effects of projected relative sea level rise. The effects of policy within epoch 1 are likely to be more certain than in epochs 2 and 3, but the current intent of government is to review the SMPs on a regular basis. Within this context, this assessment has been provided on the basis of epoch 1 policy being implemented during the period leading up to the review of the SMP2, and there being a higher degree of uncertainty as to impacts of later policies.

Central to dealing with uncertainty within the assessment of, particularly longer-term, policy options, the SMP2 (linked with this assessment) provides a series of measures to ensure that the actual future effects of the plan are identified. Any potential or actual adverse effects can then be understood and minimised and a management response provided (through subsequent SMPs). Methods of understanding coastal evolution and behaviour, especially under projected rises in relative sea level include:

- A firm commitment to ongoing survey, monitoring and research;
- A re-run of modelling along the coast to understand the hydrodynamic and geomorphological processes and potential solutions to management issues;
- A re-evaluation of future policy options based on increased understanding gained by the above steps; and
- An explicit commitment to ensuring that future provisional policy options (in subsequent SMPs) are subject to the full HRA process with explicit identification of mitigation (if available) and compensation.

It is recognised that monitoring by itself is not a method of mitigating an adverse effect. These measures are provided as part of an overall package to ensure that in the future the current uncertainty is reduced and understanding increased, informing and enabling responsible and sustainable future coastal management.

The assessment below (summarising the tables in **Annex II**) recognises the uncertainty relating to provisional policy options in later epochs of the plan.

7.3 Conclusions of the 'alone' assessment

As almost the entire SMP2 area contains or abuts international sites, policy in all MUs has the potential to affect their features. The consideration of these effects has been central to policy production in the SMP2 process but, as there have been conflicting requirements (e.g. meeting socio-economic and environmental objectives) it has not been possible for policy to be determined solely by the requirements of the Habitats Regulations.

Although the tables in **Annex II** include commentary at the PDZ level, the HRA has focussed on combined impacts of the SMP2 at MU and on effects at designated site level. The conclusions also take account of the fact that MU and designated site boundaries do not always align (see **Section 2.3**). Losses and gains between MUs, but within the same designated site, have been considered in the assessment tables, and the decisions relating to site integrity. Determinations for each MU are summarised below.

7.3.1 Management Unit A – Stour and Orwell

Recent data (Environment Agency 2011) suggests saltmarsh accretion for Epoch 1 in these estuaries. Potential loss of saltmarsh in Epochs 2 and 3 is mitigated by managed realignments within the SPA/Ramsar site boundaries. However, as a result of the loss of coastal grazing marsh habitat through proposed managed realignments, including in epoch 1, an adverse effect on dark-bellied Brent geese and other species reliant on coastal grazing marsh (features of the Stour and Orwell Estuaries SPA and Ramsar sites) is expected. **NAEOI cannot be concluded for the Stour and Orwell Estuaries SPA and Ramsar sites in all epochs.**

7.3.2 Management Unit B – Hamford Water

Managed realignment in Epoch 1 provides compensation for historic saltmarsh loss. Realignment in Epochs 2 and 3 will lead to the loss of coastal grazing marsh within the SPA and agricultural land in adjacent areas which could adversely affect dark-bellied Brent geese and roosting waders that are SPA and Ramsar features. **Therefore NAEOI cannot be concluded for the Hamford Water SPA and Ramsar sites in epochs 2 and 3.**

7.3.3 Management Unit C – Tendring Peninsula

The loss of saltmarsh habitat within the Colne Estuary, through coastal squeeze from HtL policies, is minor but could contribute to an adverse effect on habitat features of the Ramsar site. Features of the Colne Estuary SPA are expected to be resilient to change of this scale but **NAEOI cannot be concluded for the Colne Estuary Ramsar**

site in epoch 1. Potential losses in epochs 2 and 3 are mitigated by managed realignments in the Colne Estuary Ramsar site. Saltmarsh here is also designated within the Essex Estuaries SAC; whilst there are minor losses here the SAC covers several MUs and is therefore considered in more detail below.

7.3.4 Management Unit D – Colne Estuary

The loss of saltmarsh habitat through coastal squeeze from HtL policies could contribute to an adverse effect in epoch 1 on features of the Colne Estuary Ramsar sites, as well as potentially affecting the integrity of SAC features. Saltmarsh designated as part of the SAC is again considered in more detail below. Managed realignments will also lead to the loss of coastal grazing marsh, freshwater and terrestrial habitats which could also affect features of the Colne Estuary SPA and Ramsar sites. The SPA/Ramsar species likely to be affected are dark-bellied Brent geese, breeding pochard, roosting waterfowl and wintering hen harrier. **NAEOI cannot be concluded as a result of policies within this MU for the Colne Estuary SPA and Ramsar sites in all three epochs.**

7.3.5 Management Unit E – Mersea Island

This MU is split between two designated areas, the Colne Estuary and the Blackwater Estuary. NAEOI can not be ruled out on the Colne Estuary SPA or Ramsar sites, or the Blackwater Estuary SPA or Ramsar sites due to the loss of off-site freshwater and terrestrial habitats through MR2 policies. These habitats support designated species such as hen harrier, common pochard and dark-bellied Brent geese. The loss of saltmarsh due to coastal squeeze could also have adverse effects on a range of SPA and Ramsar features. SAC-designated saltmarsh is considered below. **NAEOI cannot be concluded for the Colne Estuary SPA and Ramsar and Blackwater Estuary SPA and Ramsar sites in all three epochs.**

7.3.6 Management Unit F – Blackwater Estuary

The loss of saltmarsh through coastal squeeze from HtL policies could contribute to an adverse effect on features of the Dengie SPA and Ramsar sites in all three epochs. Managed realignment policies in epoch 3 will also lead to the loss of large areas of coastal grazing marsh which will have an adverse effect on a number of cited species of the Blackwater Estuary SPA and Ramsar sites. SAC-designated saltmarsh is considered below. **NAEOI cannot be concluded for the Dengie and Blackwater Estuary SPA and Ramsar sites in all three epochs.**

7.3.7 Management Unit G – Dengie Peninsula

The loss of saltmarsh in all epochs through coastal squeeze from HtL policies is likely to lead to an adverse effect on features of the Dengie SPA/Ramsar site. Saltmarsh appears to be accreting within the Crouch and Roach Estuaries and therefore no adverse effects on the Crouch and Roach SPA/Ramsar site are anticipated in epoch 1. However, the effects on the saltmarsh designated plants of the Crouch and Roach Estuaries Ramsar site in epochs 2 and 3 are uncertain and therefore adverse effect on integrity has been concluded. SAC-designated saltmarsh is considered below as the SAC covers much of the study area. **NAEOI cannot be concluded for the Dengie Ramsar site in all three epochs and the Crouch and Roach Estuaries Ramsar site in Epochs 2 and 3.**

7.3.8 Management Unit H – Crouch and Roach

The loss of saltmarsh through coastal squeeze from HtL policies is likely to lead to an adverse effect on features of the Foulness Ramsar site in all epochs, and in the Crouch and Roach estuaries Ramsar site in epochs 2 and 3. Managed realignment is likely to lead to loss of offsite and designated terrestrial and freshwater habitats which could also lead to an adverse effect on the Crouch and Roach Estuaries SPA and Ramsar sites in epochs 2 and 3. This would particularly impact dark-bellied Brent geese. SAC-designated saltmarsh is considered below. **NAEOI cannot be concluded for the Crouch and Roach Estuaries SPA and Ramsar sites in epochs 2 and 3, and for the Foulness Ramsar site in all epochs.**

7.3.9 Management Unit I – Foulness

The loss of saltmarsh through coastal squeeze from HtL policies could contribute to an adverse effect on features of the Foulness SPA and Ramsar sites. Managed realignment is likely to lead to loss of adjacent arable habitats which could also contribute to an adverse effect on cited bird species of these sites. SAC-designated saltmarsh is considered below. **NAEOI cannot be concluded for the Foulness SPA and Ramsar sites in all epochs.**

7.3.10 Management Unit J – Southend-on-Sea

Saltmarsh habitat appears to be accreting in the Benfleet and Southend Marshes and lower Foulness. Although there are losses elsewhere, in terms of the policies in this MU, **NAEOI can be concluded for Foulness SPA and Ramsar sites, and Benfleet and Southend Marshes SPA and Ramsar sites.** The Essex Estuaries SAC is considered below.

7.4 Collective assessment of SMP2 policy

The assessment in **Annex II** provides for upstream and downstream effects – the effect of SMP2 policy on adjacent MUs were fully considered. As such, it remains to be considered whether SMP2 policy in one MU has an effect that is deemed acceptable on its own, but which would affect site integrity in-combination with the effect of another policy; and how a series of smaller-scale effects cumulatively contribute to an overall, effect on the integrity of sites.

7.4.1 Principal impacts associated with SMP2 policy

7.4.1.1 Loss of intertidal habitat

Intertidal habitat (saltmarsh and mudflat) is a key feature of the Essex Estuaries SAC which spans the majority of the SMP2 area. These habitats are also critical feeding and roosting habitats for the majority of SPA qualifying bird species and Ramsar listed birds. However, all loss of intertidal habitat is assumed to be saltmarsh and therefore impacts on feeding opportunities for birds would be limited. Loss of a small proportion of saltmarsh is unlikely to affect roosting birds but loss of larger areas could cause the favoured high tide roosting sites to change.

In some places intertidal habitat fronting defences is projected to be lost through coastal squeeze. Overall, the realignments contribute to mitigating the losses identified within the Essex Estuaries SAC (but see **Section 7.4.2**) and will help to offset some of the adverse effects on supporting habitats designated for the SPA and Ramsar sites.

7.4.1.2 Loss of habitats required for the maintenance of qualifying bird species

Large areas of the Essex and south Suffolk coast are designated as SPA/Ramsar for a wide range of bird species, many of which have varied habitat requirements (for feeding, roosting or breeding). The majority of the cited SPA and Ramsar bird species are largely dependent upon coastal habitats for feeding, roosting and breeding and their requirements have played a role in the development of SMP2 policies.

The maintenance of habitats behind sea defences such as coastal grazing marsh habitat is essential for some of these species. This habitat is normally within the SPA/Ramsar. Other freshwater or terrestrial habitats outside the boundaries of SPA and Ramsar sites may also be used by qualifying species. For example, dark-bellied Brent geese often feed in arable fields. Species partially dependent upon habitats behind sea defences include (with habitat requirements in parentheses):

- Hen harrier (lowland farmland, fenland and river valleys, especially around the coast), which is a feature of the Colne Estuary, Blackwater Estuary, Dengie, Foulness, and Crouch and Roach Estuaries SPA sites;
- Avocet (brackish wetlands), which is a feature of the Stour and Orwell Estuaries, and Foulness SPA sites; and
- Dark-bellied brent goose (grazing marsh as grazing and roosting habitat and agricultural land as grazing habitat), which is a feature of the Stour and Orwell Estuaries, Hamford Water, Colne Estuary, Blackwater Estuary, Dengie, Crouch and Roach Estuaries, and Foulness SPA sites.
- Waders and wildfowl e.g. redshank, black-tailed godwit and dunlin (coastal grazing marshes provide important high tide roost sites for these species that feed in adjacent intertidal areas) which are a feature of the Stour and Orwell Estuaries, Hamford Water, Colne Estuary, Blackwater Estuary and Foulness SPA sites.

Managed realignment policies within the Essex and South Suffolk SMP2 would result in the loss of coastal grazing marshes protected by defences. Within these units the key driver for managed realignment has been the requirement to address potential adverse effects through coastal squeeze of intertidal habitat. Sites where this situation exists are:

- Loss of designated coastal grazing marsh or other habitat supporting qualifying bird species: Stour and Orwell SPA and Ramsar sites; Hamford Water SPA and Ramsar sites; Colne Estuary SPA and Ramsar sites; Blackwater Estuary SPA and Ramsar sites; Crouch and Roach SPA and Ramsar sites; and Foulness SPA and Ramsar sites.
- Loss of off-site terrestrial / freshwater habitat: Hamford Water SPA and Ramsar sites; Colne Estuary SPA and Ramsar sites; Blackwater Estuary SPA and Ramsar sites; and Crouch and Roach SPA and Ramsar sites.

Within this assessment, the loss of grazing marsh (through managed realignment schemes to offset loss of intertidal habitat) has been considered to be an adverse

effect on the integrity of sites designated for these species, regardless of the habitat location (within or adjacent to the site), since such habitat is essential to maintain the ecological function of the site and viable species populations.

7.4.2 Quantification of habitat losses and mitigation/compensation requirements

In the application of the Habitats Regulations, created habitat can be considered mitigation for losses in a site if the new habitat is within the boundary of that site. However as this can mean that other designated habitat is lost, compensation – additional habitat which is currently undesignated – must be identified as close to the site as possible; ideally this will include habitat adjoining the existing site boundary such that re-defining a site boundary brings it within a larger designated area. In the case of either mitigation or compensation the 'new' habitat must be ecologically-functional before the losses they are designed to offset are allowed to occur.

Loss of saltmarsh is cited as a reason for failing to support Conservation Objectives for several Natura 2000 sites and Ramsar sites. However the wider consideration of the sites within the SMP area, agreed with Natural England, acknowledges the interrelated nature of the SPAs between the Colne Estuary and Foulness[7]. These are all designated as part of the same Essex Estuaries SAC, and the SPAs and Ramsar sites are considered part of the same 'macro' SPA/Ramsar site (the Mid-Essex Coast 'phased' site). As such, losses and gains in intertidal habitat are considered to be 'tradable' within the amalgamated sites; any habitat created within the wider site boundary is considered to be mitigation for losses occurring in any of the constituent sites.

A summary of these aggregated findings is included below. **Table 7.1** indicates the projected changes in intertidal extent in Epoch 1, the area of realignments proposed in Epoch 1, the amount of this which might be considered mitigation (i.e. is within the designated site boundary), the amount of currently non-designated habitat which will be created as part of the realignments, and the amount of the realignment allocated to historic losses.

This information is reported at the designated site level, and therefore MUs have been combined in the Colne (MUs C, D and E) and Blackwater Estuaries (MUs E and F; MU E is split between the two designated sites). MUs D to I are additionally shown combined in this table to illustrate impacts on the Essex Estuaries SAC, and Mid-Essex phased SPA. The findings are also summarised in bullet points below.

Earlier comments relating to the data available, and its use in projecting over the SMP timescale, are particularly pertinent in using and interpreting this table.

- **Stour and Orwell SPA/Ramsar.** 45ha of non-saltmarsh habitat requires compensation in epoch 1.
- **Hamford Water SPA/Ramsar.** 35ha of non-saltmarsh habitat requires compensation in epoch 1.
- **Essex Estuaries SAC.** 50ha of saltmarsh compensation is required in epoch 1, which could be provided adjacent to the site as a result of the realignment at H10 Wallasea.

[7] The Stour and Orwell estuaries and Hamford Water are outside the Mid-Essex Coast SPA/Ramsar site and continue to be considered separately.

- **Mid-Essex Coast SPA.** 50ha of saltmarsh compensation is required in epoch 1, which could be provided adjacent to the site as a result of the realignment at H10 Wallasea. A further area of non-saltmarsh habitat adjoining the site will also require compensation.

Table 7.1 Epoch 1 saltmarsh changes (all losses rounded up; gains, mitigation and compensation rounded down). Figures assume all realignments create saltmarsh[8]

Site	Factors affecting saltmarsh area	Epoch 1 change (ha)
Stour and Orwell Estuaries SPA/Ramsar	Natural change	26
	Realignments area (ha)	45
	Mitigation provided	45
	Compensatory habitat available	0
Hamford Water SPA/Ramsar	Natural change	6
	Realignments area (ha)	35
	Mitigation provided	0
	Allocated to historic losses	35
	Compensatory habitat available	0
Colne Estuary SPA/Ramsar	Natural change	-13
	Realignments area (ha)	0
	Mitigation provided	0
	Compensatory habitat available	0
Blackwater Estuary SPA/Ramsar	Natural change	-3
	Realignments area (ha)	0
	Mitigation provided	0
	Compensatory habitat available	0
Dengie SPA/Ramsar	Natural change	-29
	Realignments area (ha)	0
	Mitigation provided	0
	Compensatory habitat available	0
Crouch & Roach Estuaries SPA/Ramsar	Natural change	10
	Realignments area (ha)	155
	Mitigation provided	0
	Allocated to historic losses	77
	Compensatory habitat available	77
Foulness SPA/Ramsar	Natural change	-17
	Realignments area (ha)	0
	Mitigation provided	0
	Compensatory habitat available	0
Mid-Essex Coast SPA/Ramsar	Natural change	-50
	Realignments area (ha)	155
	Mitigation provided	0
	Allocated to historic losses	77
	Compensatory habitat available	77
Essex Estuaries SAC	Natural change	-50
	Realignments area (ha)	155
	Mitigation provided	0
	Allocated to historic losses	77
	Compensatory habitat available	77

The Statement of Case for IROPI will confirm those Natura 2000 and Ramsar sites where it is intended to mitigate for loss of intertidal habitats through SMP policies (i.e. managed realignment over designated coastal grazing marsh) within the sites (subject to approvals and consents being agreed for the proposed projects) and those sites

[8] As elsewhere, detail regarding the nature of the later realignments is not yet determined. Due to rounding, figures for the Crouch & Roach Estuaries SPA/Ramsar (with subsequent impacts on figures for the Mid-Essex Coast SPA/Ramsar and Essex Estuaries SAC) do not sum. Within this site the realignment is expected to be 155ha, with 77ha allocated to historic losses. The remaining 78ha (although the figures in the table sum to 77ha) will be available as compensation for losses in epoch 1, as described in the text.

where it is intended to provide compensation measures through SMP policies outside the site in question. Such an approach supports the proximity principle which should be applied in identifying compensatory habitat under the Habitats Directive.

The IROPI SoC will also need to consider the loss of coastal grazing marsh and terrestrial habitats (both designated and offsite supporting habitats) resulting from SMP2 realignments. Mitigation and/or compensation for these have not been identified within the plan. Whilst clear conclusions can be drawn with regard to impacts and changes in epoch 1, uncertainty remains as to impacts over longer timeframes both in terms of habitat loss and gain, and the exact nature of the proposed managed realignments.

7.5 Overall conclusions

7.5.1 Summary

As illustrated above, SMP2 policy in almost all MUs has the potential to affect international sites. It is not possible to conclude NAEOI due to impacts on the following sites due principally to policies proposed for the indicated MUs.

- Stour and Orwell Estuaries SPA and Ramsar site (MU A Stour and Orwell)
- Hamford Water SPA and Ramsar site (MU B Hamford Water)
- Colne Estuary SPA and Ramsar site (MUs C Tendring Peninsula, D Colne Estuary, E Mersea Island)
- Blackwater Estuary SPA and Ramsar site (MUs E Mersea Island, F Blackwater Estuary)
- Dengie SPA and Ramsar site (MU G Dengie)
- Crouch and Roach Estuaries SPA and Ramsar site (MU H Crouch and Roach)
- Foulness SPA and Ramsar site (MU I Foulness)
- Essex Estuaries SAC (MU C to I)

Adverse effects on integrity are also concluded for the phased Mid-Essex Coast sites (due to losses in freshwater and terrestrial habitats in the constituent SPAs – the epoch 1 loss of saltmarsh is not considered sufficient to adversely affect SPA or Ramsar features).

NAEIO can be concluded for the Benfleet and Southend Marshes SPA and Ramsar site, where saltmarsh accretion is currently expected despite the policies being to hold the line.

As explained above, the SoC will explain how the intertidal losses which will be experienced are largely dealt with (mitigated) through policies within the SMP as a whole. Habitat which could be presented as compensation is available through the plan period but compensation cannot be allocated unless IROPI area agreed to enable the plan's progression.

It will also explain how the adverse effects due to loss of coastal grazing marsh and terrestrial habitats will be dealt with through the Anglian Regional Habitat Creation Programme (RHCP).

7.5.2 Comparison with previous iterations of the SMP2 HRA

Earlier iterations of the HRA supporting the Essex and South Suffolk SMP2 assumed that, since all of the intertidal area was understood to be eroding quickly, any HtL frontage would result in the squeeze of saltmarsh against hard defences with a resultant adverse effect on the integrity of the wider sites. In this final document, informed by the IECS and Environment Agency (2011) studies, HtL is not assumed to result in AEOI where the system is recorded as accreting. Whilst this does mean that in a number of places NAEOI is expected as a result of intertidal loss due to squeeze, this still cannot be concluded for the sites overall since many of the realignment sites result in the loss of designated or offsite coastal grazing marsh or other agricultural land which support SPA-designated species. As above, this is due to the SMP2 responding to a range of different drivers, and to the fact that maintaining no adverse effect on the integrity of both intertidal and coastal grazing marsh and other agricultural land has not been possible.

8 THE IN-COMBINATION ASSESSMENT OF SMP2 POLICY

In-combination effects are considered in order to establish whether the effects of the SMP2, at the plan level, would have an adverse effect on the integrity of international sites policy in-combination with other plans and projects. In-combination effects relating to SMP2 policy are those where an effect of SMP2 policy, when combined with the effect of another plan or project, will result in adverse effect on the integrity of the site. SMP2 policy is not required to alleviate the effects of plans where the selected policy has no effect but an alternative policy could help to mitigate adverse effects of other plans. Although it is the intent to provide SMP2 policy which provides positive benefits the HRA addresses possible adverse effect, not opportunities for remediation.

A range of envisaged or ongoing plans or projects must be considered in combination with SMP2 policy and any plan or project which has yet to be implemented must be considered. The following plans have been identified as being of a type and scope which require consideration, being those which relate to the development of land in the coastal zone or which may affect the physical or biological conditions critical to meeting conservation objectives for the International sites.

8.1 Land use plans

Land use (spatial) plans are produced by local authorities, and they set out the broad framework for planning and development in the local authority area. The area of the Essex and South Suffolk SMP2 is covered by eight local authorities, each of which has a spatial plan (local plan or Local Development Framework core strategy), together with Essex and Suffolk County Councils. The local authorities are:

- Tendring District Council;
- Chelmsford Borough Council;
- Suffolk Coastal District Council;
- Ipswich Borough Council;
- Babergh District Council;
- Colchester Borough Council;
- Maldon District Council;
- Braintree District Council;
- Rochford District Council; and
- Southend-on-Sea Borough Council.

The main issue for land use plans in the context of SMP2s and their compatibility with the Habitats Regulations is where land is allocated for housing, employment or other uses, development of which may prejudice SMP2 policies. For example, housing allocations in areas currently prevented from flooding by flood defence structures or practices would make it more difficult to undertake managed retreat or no active intervention options. These may be preferred, or necessary, in response to coastal squeeze which may be adversely affecting International sites.

PPS 25 sets out government policy on development in relation to flood risk. Broadly speaking this seeks to avoid development in flood prone areas, or undertaking development which will enhance flood risk. PPS 25 requires local authorities to undertake Strategic Flood Risk Assessments (SFRA) to assist in developing spatial

plans, as part of the Local Development Framework system, such that they achieve these objectives.

Adherence to PPS 25 guidance will ensure that the likelihood of development occurring which will prejudice SMP2 policies, is minimised. It does not however completely preclude these possibilities, and individual local plans thus need to be examined to identify any constraints which may act in combination with SMP2 policies.

The effects of spatial plans on International sites (in Essex and South Suffolk) typically relate to direct disturbance of bird species or impacts on water quality or water resources. The effects of the SMP2 relate more to the loss of habitat (or supporting habitat for species). The in-combination effects of land use plans and the SMP2 are discussed in **Section 6.7**.

8.2 Catchment Flood Management Plans

Catchment Flood Management Plans (CFMPs) provide an overview of the flood risk across river catchments. They recommend methods for managing those risks now and over the next 50-100 years. CFMPs consider all types of inland flooding, from rivers, ground water, surface water and tidal flooding. CFMPs within the boundaries of the SMP2 are East Suffolk, North Essex and South Essex; the following sub areas and management policies lie within the SMP2 boundaries:

East Suffolk CFMP:

- Suffolk Coast and Heaths, Policy 2 - Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions; and
- Ipswich, Policy 5 - Areas of moderate to high flood risk where we can generally take further action to reduce flood risk.

North Essex CFMP:

- Blackwater and Chelmer, Upper Reaches and Coastal Stream, Policy 2 - Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions;
- Lower Blackwater, Upper and Mid Tributaries and Mid Colne and Stour, Policy 3 - Areas of low to moderate flood risk where we are generally managing existing flood risk effectively;
- Harwich and Clacton-on-Sea, Policy 3 - Areas of low to moderate flood risk where we are generally managing existing flood risk effectively; and
- Heybridge, Policy 5 - Areas of moderate to high flood risk where we can generally take further action to reduce flood risk.

South Essex CFMP:

- Rural Dengie Tidal and Northern Crouch Catchment, Policy 2 - Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions. Generally, Policy 2 involves reducing bank and channel maintenance in certain locations where flood risk is determined to be low and helps to improve the flow between the river and its floodplain and so improve wetland and aquatic habitats;
- Southend-on-Sea and Rayleigh, Policy 5 - Areas of moderate to high flood risk where we can generally take further action to reduce flood risk; and

- Thames Urban Tidal, Policy 4 - Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change.

Other policies which seek to improve flood management and defence are located within towns, where the impact of river and surface water flooding is greatest. The HRAs for the North Essex CFMP and the South Essex CFMP concluded that there would be no adverse effects alone or in combination with the Essex and South Suffolk SMP2. The HRA for the East Suffolk CFMP concluded that there could be an adverse effect on the Stour and Orwell SPA and Ramsar sites, through increasing flood risk. However, given the nature of this potential impact it is likely that the effects of the Essex and South Suffolk SMP, when they occur, will be greater and more permanent. Since, alongside this, both the SMP and CFMP seek to manage flood risk in an integrated way it is not considered likely that there will be significant in-combination effects.

8.3 River Basin Management Plans

River Basin Management Plans (RBMPs) are plans for protecting and improving the water environment. They contain the main issues for the water environment and the actions required to deal with them. It sets out what improvements are possible by 2015 and how the actions will make a difference to the local environment. The RBMP relevant to the SMP2 boundary is the Anglian RBMP.

In November 2009 a HRA was undertaken of the RBMP. The HRA assessed all of the sites mentioned in this report and a number of others. The report concluded that the RBMP is not likely to have any significant negative effects on any European sites, alone or in combination with other plans or projects (Environment Agency, 2009a). The RBMP addresses positive improvements to the water environment, and when implemented can be expected to reduce any current pressures on the designated sites, potentially increasing their resilience. As such there are not expected to be adverse in-combination effects, although the scale and nature of the impacts foreseen as a result of SMP2 policy are not likely to be significantly mitigated by the RBMP.

8.4 Maintenance dredging

Given the number of harbours and navigational channels for both recreational and commercial boating traffic along the Essex and south Suffolk coast, a significant amount of maintenance dredging takes place.

On examination of the effects of the SMP2, which are confined to loss of terrestrial and intertidal habitat through coastal squeeze or managed realignment, no examples could be found where there was a common effect between the SMP2 and the impacts of maintenance dredging.

8.5 Fisheries and aquaculture

In the past the Essex and south Suffolk coast was home to a thriving fishing industry. Whilst this has ceased in places like Harwich, it is still important in towns such as Southend-on-Sea. There is a viable and relatively stable shell fishing industry in the study area, particularly for cockle. The Kent and Essex Sea Fisheries Joint Committee (KESFJC) and the Eastern Sea Fisheries Joint Committee (ESFJC) are responsible for

consenting, managing and regulating fisheries activities around the Essex and South Suffolk Coast.

As with maintenance dredging, however, no examples could be identified where in-combination effects would occur between the SMP2 and fisheries or aquaculture.

8.6 Activities regulated and consented by the Environment Agency

The Environment Agency regulates and consents a range of activities which have the potential to affect site integrity. Relevant consents include those under the Environmental Permitting (EP) regime[9] for prescribed industrial activities and waste management permitting. Discharge consents and groundwater authorisations (and radioactive substances regulation) were also brought under EP in the 'second phase' of the system from April 2010[10]. The majority of new applications received by the Environment Agency for these permits are reviewed under Regulation 21 of the Habitats Regulations.

In order to ensure that such previously-consented activities are compatible with the Habitats Regulations, specifically to ensure that these can be determined as having no adverse effect on integrity, the Environment Agency has reviewed all consents during the Regulation 50 Review of Consents (RoC) Project (Regulation 50 under the 1994 Habitats Regulations (addressed by regulations 63 and 67 of the 2010 regulations))

No in-combination effects were established through the course of this assessment between processes considered through the RoC process and the Essex and South Suffolk SMP2.

8.7 In-combination assessment

The assessment of SMP2 policy in **Annex II** provides a clear account of the expected effects of SMP2 policy in each MU. As outlined above the only real effects of policy are changes in habitat extent or shifts in habitat morphology. Therefore the outstanding issue here is if the habitat shift or loss as a result of the SMP2 would have an in-combination effect with other plans and projects.

Of the other plans and projects identified above, only one - land use plans - is considered pertinent.

The main effects of land use plans are: loss of habitat if development is suggested by policy on areas covered by international designations, and disturbance from increased visitation due to increased population (a function of housing policy) or tourism initiatives. None of the land use plans which cover the Essex and south Suffolk coast provide for development on any International site and the remaining effect therefore is one of disturbance.

Disturbance relates to physical disturbance, through visitation, primarily to bird species. Species which feed or roost on or adjacent to the foreshore are particularly susceptible to disturbance and this can increase their vulnerability to impacts from other sources (eg degrading habitat). Consideration needs to be given to whether there will be an

[9] Environmental Permitting (England and Wales) Regulations 2007. SI 2007 No. 3538

[10] Environmental Permitting (England and Wales) Regulations 2010. SI 2010 No. 675

effect of disturbance, coupled with the effects of the SMP2. SMP2 policies seek to maintain the natural evolution of estuarine features, while providing for management if required to maintain a flood defence function. No instances where the direct effects of disturbance coupled with loss of habitat could be established at the time of this assessment, leading to a conclusion that there is no combined adverse effect.

The SMP2 therefore is not considered to have any significant in-combination effects with other plans, policies of programmes influencing the Essex and south Suffolk coast.

9 CONCLUSION

Following rigorous assessment of the Essex and South Suffolk SMP2 policies, both alone and in combination with other plans and policies, it cannot be concluded that there will be NAEOI of a number of International sites as a result of their implementation. It has not been possible to rule out the potential for adverse effects on the integrity of the following individual sites, through impacts to a range of designated features (habitats and species):

- Stour and Orwell Estuaries SPA;
- Stour and Orwell Estuaries Ramsar site;
- Hamford Water SPA;
- Hamford Water Ramsar site;
- Colne Estuary SPA;
- Colne Estuary Ramsar site;
- Blackwater Estuary SPA;
- Blackwater Estuary Ramsar site;
- Dengie SPA;
- Dengie Ramsar site;
- Crouch and Roach Estuaries SPA;
- Crouch and Roach Estuaries Ramsar site;
- Foulness SPA;
- Foulness Ramsar site;
- Essex Estuaries SAC; and
- Mid-Essex Coast SPA and Ramsar sites, constituting the designated sites between the Colne Estuary and Foulness inclusive.

Although the extent of the effects considered is dependent on the provision of certain limited management provisions, preferred SMP2 policy in almost all MUs will contribute to adverse effects on integrity.

The overall outcome of the assessment is that NAEOI cannot be concluded for the Essex and South Suffolk SMP2.

The SMP2 will therefore need to be accompanied by a SoC which provides a clear account of the imperative reasons of overriding public interest (why the plan should be pursued in its current form) and details of the mechanism for the delivery of compensatory habitat. The compensatory measures to offset the damage or loss caused by the SMP2, to maintain the overall coherence of the Natura 2000 network and functioning of the Ramsar sites, must be secured and ecologically functional in advance of the impact occurring. The delivery mechanism will be through the Anglian RHCP.

9.1 Outstanding requirements for compensation

Although adverse effects due to loss of saltmarsh habitat have been concluded for a number of management units, managed realignment policies within the SMP will result in no-net-loss over the plan area as a whole, as detailed in **Table 7.1** and described in the SoC. The outstanding compensation (land outside currently designated areas) likely to be required as a result of implementation of SMP2 policies as they currently stand is indicated in **Table 9.1**, by designated site and epoch. Actual areas should be

determined during the planning of the realignments, since detail about the sites and potential areas is not appropriate at this scale.

Table 9.1 Compensation requirements

Site	Compensation requirements		
	Epoch 1	Epoch 2	Epoch 3
Stour and Orwell	Freshwater/terrestrial habitats of equivalent functioning area to that lost through the realignments delivered		
Hamford Water	N/A	Freshwater/terrestrial habitats of equivalent functioning area to that lost through the realignments delivered.	
Essex Estuaries SAC	Saltmarsh habitat equivalent to that lost as a result of HtL policies in eroding areas		
Mid-Essex Coast Phased site	Saltmarsh habitat equivalent to that lost as a result of HtL policies.	Freshwater/terrestrial habitats of equivalent functioning area to that lost through the realignments delivered in MUs D, E and H.	

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ANNEX I INTEREST FEATURES OF INTERNATIONAL SITES

Table 1 SPAs considered in detail within the assessment

Special Protection Areas	Site Features (determined from both the site citation and the 2003 SPA review[11])
Stour & Orwell Estuaries SPA	**Article 4.1 Qualification (79/409/EEC)** During the breeding season the area regularly supports: o Avocet *Recurvirosta avosetta* (listed on citation only) Over winter the area regularly supports: o Hen harrier *Circus cyaneus* (listed on SPA review only) **Article 4.2 Qualification (79/409/EEC)** Over winter the area regularly supports: o Redshank *Tringa totanus (*listed on both); o Pintail *Anas acuta (*listed on both);*;* o Dark-bellied Brent goose *Branta bernicla bernicla (*listed on citation only);*;* o Dunlin *Calidris alpina alpina (*listed on both); o Black-tailed godwit *Limosa limosa islandica (*listed on both); o Grey plover *Pluvialis squatarola (*listed on both); o Knot *Calidris canuta (*listed on citation only); o Ringed plover *Charadrius hiaticula (*listed on SPA review only)*;* o Shelduck *Tadorna tadorna (*listed on SPA review only); and o Turnstone *Arenaria interpres (*listed on SPA review only). Assemblage qualification: A wetland of international importance
Hamford Water SPA	**Article 4.1 Qualification (79/409/EEC)** During the breeding season the area regularly supports: o Little tern *Sterna albifrons* (listed on both). Over winter the area regularly supports: o Avocet *Recurvirostra avosetta (*listed on SPA review only); o Golden plover *Pluvialis apricaria* (listed on SPA review only); and o Ruff *Philomachus pugnax* (listed on SPA review only). **Article 4.2 Qualification (79/409/EEC)** On passage supports: o Ringed plover *Charadrius hiaticula (*listed on SPA review only)*;* Over winter the area regularly supports: o Common teal *Anas crecca (*listed on both)*;* o Dark-bellied Brent goose *Branta bernicla bernicla (*listed on both); o Ringed plover *Charadrius hiaticula (*listed on both)*;* o Black-tailed godwit *Limosa limosa islandica (*listed on both)*;* o Grey plover *Pluvialis squatarola (*listed on both)*;* o Shelduck *Tadorna tadorna (*listed on citation only); and o Redshank *Tringa totanus (*listed on citation only). Assemblage qualification: A wetland of international importance
Colne Estuary SPA	**Article 4.1 Qualification (79/409/EEC)** During the breeding season the area regularly supports: o Little tern *Sterna albrifrons (*listed on both). Over winter the area regularly supports: o Hen harrier *Circus cyaneus* (listed on both); o Avocet *Recurvirostra avosetta (*listed on SPA review only); and o Golden plover *Pluvialis apricaria* (listed on SPA review only). **Article 4.2 Qualification (79/4/9/EEC)** During the breeding season the area regularly supports: o Common Pochard *Aythya farina (*listed on citation only)*; and*

[11] See comment in **Section 4.1**

Special Protection Areas	Site Features (determined from both the site citation and the 2003 SPA review[11])
	o Ringed plover *Charadrius hiaticula* (listed on citation only). Over winter the area regularly supports: o Dark-bellied Brent goose *Branta bernicla bernicla* (listed on both); and o Redshank *Tringa totanus* (listed on both). Assemblage qualification: A wetland of international importance
Blackwater Estuary SPA	**Article 4.1 Qualification (79/409/EEC)** During the breeding season the area regularly supports: o Little tern *Sterna albifrons* (listed on both). Over winter the area regularly supports: o Hen harrier *Circus cyaneus* (listed on both); o Avocet *Recurvirostra avosetta (*listed on SPA review only); o Golden plover *Pluvialis apricaria* (listed on SPA review only); and o Ruff *Philomachus pugnax* (listed on SPA review only). **Article 4.2 Qualification (79/409/EEC)** During the breeding season the area regularly supports: o Common Pochard *Aythya farina* (listed on citation only); and o Ringed plover *Charadrius hiaticula* (listed on citation only). On passage supports: o Ringed plover *Charadrius hiaticula (*listed on SPA review only). Over winter the area regularly supports: o Dunlin *Calidris alpina alpina* (listed on both); o Ringed plover *Charadrius hiaticula* (listed on both)*;* o Black-tailed godwit *Limosa limosa islandica* (listed on both)*;* o Grey plover *Pluvialis squatarola* (listed on both)*;* o Dark-bellied Brent goose *Branta bernicla bernicla* (listed on both); o Shelduck *Tadorna tadorna (*listed on SPA review only); and o Redshank *Tringa totanus (*listed on SPA review only). Assemblage qualification: A wetland of international importance
Dengie SPA	**Article 4.1 Qualification (79/409/EEC)** Over winter the area regularly supports: o Hen Harrier *Circus cyaneus* (listed on both)*;* and o Bar-tailed godwit *Limosa lapponica* (listed on SPA review only). **Article 4.2 Qualification (79/409/EEC)** Over winter the area regularly supports: o Dark-bellied Brent goose *Branta bernicla bernicla* (listed on citation only) *;* o Knot *Calidris canuta* (listed on both); and o Grey Plover *Pluvialis squatarola* (listed on both). Assemblage qualification: A wetland of international importance
Crouch and Roach Estuaries SPA	**Article 4.1 Qualification (79/409/EEC)** Over winter the area regularly supports: o Hen Harrier *Circus cyaneus* (listed on citation only). **Article 4.2 Qualification (79/409/EEC)** Over winter the area regularly supports o Dark-bellied Brent goose *Branta bernicla bernicla* (listed on both). Assemblage qualification: A wetland of international importance
Foulness SPA	**Article 4.1 Qualification (79/409/EEC)** During the breeding season the area regularly supports: o Avocet *Recurvirostra avosetta* (listed on both); o Little tern *Sterna albrifrons* (listed on both); o Common tern *Sterna hirundo* (listed on both); and o Sandwich tern *Sterna sandvicensis* (listed on both).

Special Protection Areas	Site Features (determined from both the site citation and the 2003 SPA review[11])
	Over winter the area regularly supports; o Hen Harrier *Circus cyaneus* (listed on both); o Golden plover *Pluvialis apricaria* (listed on SPA review only); o Bar-tailed godwit *Limosa lapponica* (listed on both); and o Avocet *Recurvirostra avosetta* (listed on both). **Article 4.2 Qualification (79/409/EEC)** During the breeding season the area regularly supports: o Ringed plover *Charadrius hiaticula* (listed on citation only). On passage supports: o Redshank *Tringa totanus* (listed on SPA review only). Over winter the area regularly supports: o Dark-bellied Brent goose *Branta bernicla bernicla* (listed on both); o Knot *Calidris canutus* (listed on both); o Oystercatcher *Haemotopus ostralegus* (listed on both); o Grey plover *Pluvialis squatarola* (listed on both); o Redshank *Tringa totanus (*listed on citation only). Assemblage qualification: A wetland of international importance
Benfleet & Southend Marshes SPA	**Article 4.2 Qualification (79/409/EEC)** On passage supports: o Ringed plover *Charadrius hiaticula (*listed on SPA review only). Over winter the area regularly supports o Dark-bellied Brent goose *Branta bernicla bernicla* (listed on both); o Dunlin *Calidris alpina alpina* (listed on citation only); o Knot *Calidris canutus* (listed on both) ; o Ringed plover *Charadrius hiaticula (*listed on citation only); and o Grey plover *Pluvialis squatarola* (listed on both). Assemblage qualification: A wetland of international importance

Table 2 SACs considered in detail within the assessment

Special Areas of Conservation	Site Features
Essex Estuaries SAC	**Annex I habitats that are a primary reason for selection of this site.** **Estuaries** This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. The site comprises the major estuaries of the Colne, Blackwater, Crouch and Roach rivers and is important as an extensive area of contiguous estuarine habitat. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians. The site also has large areas of saltmarsh and other important coastal habitats. **Mudflats and sandflats not covered by seawater at low tide** Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast. The open coast areas of Maplin Sands and Dengie Flats have very extensive

Special Areas of Conservation	Site Features
	mudflats and an unusually undisturbed nature. Maplin Sands is particularly important for its large, nationally-important beds of dwarf eelgrass *Zostera noltei* and associated animal communities. ***Salicornia* and other annuals colonising mud and sand** Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities. The area of pioneer marsh includes gradation into extensive cord-grass *Spartina* spp. swards. **Spartina swards** The most extensive remaining stand of the native small cord-grass *Spartina maritima* in the UK and possibly in Europe is found in the Essex Estuaries. The stand is located at Foulness Point and covers approximately 0.17ha. Other smaller stands are found elsewhere in the estuary complex, notably in the Colne estuary, where it forms a major component of the upper marsh areas. **Atlantic Salt Meadows *(Glauco-Puccinellietalia maritimae)*** Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line. It represents a community of south-east England also found to the south in mainland Europe. **Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*)** In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site.** **Sandbanks which are slightly covered by sea water all the time**

Table 3 Ramsar sites considered in detail within the assessment

Ramsar Sites	Site Features
Stour & Orwell Estuaries	**Ramsar criterion 2** The site supports seven nationally-scarce plant species and five British Red Data Book invertebrates. **Ramsar criterion 5** The site supports a notable assemblage of wintering wetland birds (63,017 waterfowl – 5 year peak mean). **Ramsar criterion 6** Qualifying species/populations (as defined at designation) *Species with peak counts in spring/autumn:* o Common redshank *Tringa totanus totanus*. *Species with peak counts in winter:* o Dark-bellied Brent goose *Branta bernicla bernicla;* o Northern pintail *Anas acuta;* o Grey plover *Pluvialis squatarola;*

Ramsar Sites	Site Features
	o Red knot *Calidris canutus islandica;* o Dunlin *Calidris alpin*a *alpina;* o Black-tailed godwit *Limosa limosa islandica;* and o Common redshank *Tringa totanus totanus*.
Hamford Water	**Ramsar criterion 6** Qualifying species / populations (as identified at designation): *Species with peak counts in spring/autumn:* o Ringed plover *Charadrius hiaticula;* and o Common redshank *Tringa totanus totanus.* *Species with peak counts in winter:* o Dark-bellied Brent goose *Branta bernicla bernicla;* and o Black-tailed godwit *Limosa limosa islandica.*
Colne Estuary	**Ramsar criterion 1** The site is important due to the extent and diversity of saltmarsh present. This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain. **Ramsar criterion 2** The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species. **Ramsar criterion 3** The site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Qualifying species/populations (as identified at designation) *Species with peak counts in winter:* o 32,041 waterfowl (5 year peak mean). **Ramsar Criterion 6** Qualifying species/populations (as identified at designation) *Species with peak counts in winter:* o Dark-bellied Brent goose *Branta bernicla bernicla*; and o Common redshank *Tringa totanus totanus.*
Blackwater Estuary	**Ramsar criterion 1** The site is important due to the extent and diversity of saltmarsh present. This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain. **Ramsar criterion 2** Well represented invertebrate fauna that includes at least 16 British Red Data Book species. **Ramsar criterion 3** The site supports full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of national importance: *Species with peak counts in winter:* o 105,061 waterfowl (5 year peak mean). **Ramsar criterion 6** Qualifying species/populations (as identified at designation) *Species with peak counts in winter:* o Dark-bellied Brent goose *Branta bernicla bernicla*; o Grey Plover *Pluvialus squatarola*; o Dunlin *Calidris alpina alpina* and o Black-tailed godwit *Limosa limosa islandica.*
Dengie	**Ramsar criterion 1**

Ramsar Sites	Site Features
	This site, and the four others in the Mid-Essex Coast complex, includes a total of 3,237ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total area in Britain. **Ramsar criterion 2** The site supports a number of rare plant and animal species including 11 nationally scarce plants and three British Red Data Book species. **Ramsar criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Qualifying species / populations (as identified at designation): *Species with peak counts in winter:* o 43,828 waterfowl (5yr peak mean). **Ramsar criterion 6** Qualifying species / populations (as identified at designation): *Species with peak counts in winter:* o Dark-bellied Brent goose *Branta bernicla bernicla*; o Grey plover *Pluvialis squatarola*; and o Red knot *Calidris canutus islandica.*
Crouch and Roach Estuaries	**Ramsar criterion 2** Supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant and animal including 13 nationally scarce plant species. **Ramsar criterion 5** Assemblages of national importance: *Species with peak counts in winter:* o 16970 waterfowl (5 year peak mean 1998/99-2002/2003). **Ramsar criterion 6** Qualifying species/populations (as identified at designation) *Species with peak counts in winter:* o Dark-bellied Brent goose *Branta bernicla bernicla*.
Foulness	**Ramsar criterion 1** This site, and the four others in the Mid-Essex Coast complex, includes a total of 3,237ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates. **Ramsar criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Qualifying species / populations (as identified at designation): *Species with peak counts in winter:* o 82,148 waterfowl (5yr peak mean). **Ramsar criterion 6** Qualifying species / populations (as identified at designation): *Species with peak counts in spring/autumn:* o Common redshank *Tringa totanus totanus.* *Species with peak counts in winter:* o Dark-bellied brent goose *Branta bernicla bernicla*; o Eurasian oystercatcher *Haematopus ostralegus ostralegus;* o Grey plover *Pluvialus squatarola*; o Bar-tailed godwit *Limosa lapponica lapponica;* and

Ramsar Sites	Site Features
	o Red knot *Calidris canutus islandica.*
Benfleet & Southend Marshes	**Ramsar criterion 5** Qualifying species / populations (as identified at designation): *Species with peak counts in winter:* o 32,867 waterfowl (5yr peak mean). **Ramsar criterion 6** Qualifying species / populations (as identified at designation): *Species with peak counts in spring/autumn:* o Dark-bellied Brent goose *Branta bernicla bernicla*. *Species with peak counts in winter:* o Grey plover *Pluvialis squatarola*; and o Red knot *Calidris canutus islandica.*

ANNEX II DETAILED 'APPROPRIATE' ASSESSMENT TABLES

Unit A: Stour and Orwell
A1 – A11

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
A1	Felixstowe Port	AtL+	HtL+	HtL+	N/A - no sites affected
A2	Trimley Marsh	HtL	MR2	HtL	Loss of freshwater habitat as the coastal habitats move inland in epoch 2, but realignment is restricted due to HtL in epochs 1 and 3. Loss of coastal grasslands and agricultural areas during realignment may have adverse effects on conservation objectives.
A3a	Loom Pit Lake	HtL	MR2	NAI	Loss of freshwater and terrestrial habitat as the coastal habitats move inland in epoch 2, but realignment is restricted due to HtL and NAI in epochs 1 and 3 respectively. Loss of coastal grasslands and agricultural areas during realignment may have impact conservation objectives.
A3b	Levington Creek	HtL	HtL	HtL	Coastal squeeze not expected at this site, therefore limited impacts currently expected.
A4a	Northern Orwell east	MR1	MR1	MR1	Loss of terrestrial areas as a result of MR1 policy. There could be benefits from increased area of intertidal habitat.
A4b	Northern Orwell west	NAI	NAI	NAI	Habitats left to natural processes.
A5	Ipswich	HtL+	HtL+	HtL+	The urban nature of this frontage and current accretion mean impacts are thought to be negligible.
A6	The Strand	MR1	MR1	MR1	MR1 policy will realign to the B1456 and as such, no impact on off-site habitats.
A7a	Southern Orwell west	NAI	NAI	NAI	Habitats left to natural processes.
A7b	Southern Orwell east	MR1	MR1	MR1	MR1 policy will result in loss of wooded areas, with potential for coastal habitats to move inland. There may be slight benefits from increased area of intertidal habitat. The MR1 designation relates to works possibly required through a partnership management approach. Change is considered to be limited.
A8a	Shotley Marshes west	MR2	HtL	HtL	Loss of freshwater habitat as the coastal habitats move inland in epoch 1, however, there would also be some creation of intertidal habitats. Loss of coastal grasslands and agricultural areas during realignment may impact conservation objectives.
A8b	Shotley Marshes east	HtL	MR2	HtL	Loss of grazing marsh habitat as the coastal habitats move inland in epoch 2.
A8c	Shotley Gate	MR1	MR1	MR1	MR1 designation only relates to works possibly required through a partnership management approach. Potential losses of terrestrial areas as well as gains in coastal habitat are considered to be negligible.
A9a,d,f	Northern Stour – flood defence	HtL	HtL	HtL	Coastal squeeze not expected at this site, therefore limited impacts currently expected.
A9b	Northern Stour – not erosional	NAI	NAI	NAI	NAI, therefore natural change
A9c,e	Northern Stour –erosional	MR1	MR1	MR1	MR1 designation only relates to works possibly required through a partnership management approach. Potential losses of terrestrial areas as well as gains in coastal habitat are considered to be negligible.

A10a,c,e	**Southern Stour – flood defence**	**HtL+**	**HtL+**	**HtL+**	Coastal squeeze not expected at this site, therefore limited impacts currently expected.
A10b,g	**Southern Stour – not erosional**	**NAI**	**NAI**	**NAI**	NAI, therefore natural change
A10d,f	**Southern Stour –erosional**	**MR1**	**MR1**	**MR1**	MR1 designation only relates to works possibly required through a partnership management approach. Potential losses of terrestrial areas as well as gains in coastal habitat are considered to be negligible.
A11a	**Harwich Harbour**	**AtL**	**HtL**	**HtL**	Loss of intertidal habitats. This has the potential to affect a number of coastal bird species visiting the site as there will be less intertidal area for feeding. The specifics of this assessment and identified compensation are provided within the Bathside Bay EIA and HRA (and the agreed IRPOI case).
A11b	**Harwich town**	**HtL**	**HtL**	**HtL**	Loss of intertidal habitats at Bathside Bay, addressed as A11a. Coastal squeeze not expected at this site, therefore limited impacts currently expected.

Designated sites

Site	Designation	Key features
Stour & Orwell Estuaries	**Ramsar**	**Ramsar criterion 2** Contains seven nationally scarce plants and five British Red Data Book invertebrates **Ramsar Criterion 5** The site supports assemblages of waterfowl of international importance. **Ramsar Criterion 6** The site supports species/populations occurring at levels of international importance.
Stour & Orwell Estuaries	**SPA**	**Annex I** birds and regularly occurring migratory birds: pintail *Anas acuta*, wigeon, gadwall *Anas strepera,* ruddy turnstone *Arenaria interpres,* dark-bellied Brent goose, goldeneye *Bucephala clangula*, dunlin *Calidris alpina alpine,* knot *Calidris canutus,* ringed plover, black-tailed godwit, curlew *Numenius arquata,* cormorant, grey plover, great crested grebe, avocet, shelduck, redshank and lapwing *Vanellus vanellus.* **Article 4.1 Qualification. During the breeding season the area regularly supports:** avocet **Over winter the area regularly supports:** hen harrier **Article 4.2 Qualification. Over winter the area regularly supports:** pintail dark-bellied Brent goose, red knot, dunlin, black-tailed godwit, grey plover, redshank, ringed plover, shelduck and turnstone. **An internationally important assemblage of birds** Over winter the area regularly supports 63,017 wildfowl.

Ramsar Site Feature	Stour and Orwell Estuaries						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Contains seven nationally scarce plants: stiff saltmarsh-grass *Puccinellia rupestris;* small cord-grass *Spartina maritima*; perennial glasswort *Sarcocornia perennis*; lax-flowered sea lavender *Limonium humile*; and the eelgrasses *Zostera angustifolia, Z. marina* and *Z. noltei*.	N/A	Maintain viable populations of nationally scarce plants	None	None	None	None	NAEOI
Contains five British Red Data Book invertebrates: the muscid fly *Phaonia fusca*; the horsefly *Haematopota grandis*; two spiders, *Arctosa fulvolineata* and *Baryphema duffeyi*; and the endangered swollen spire snail *Mercuria confusa*.	N/A	Maintain viable populations of Red Data Book invertebrate species	Loss of freshwater/ brackish habitat due to managed realignment	Loss of suitable habitat could result in loss of species from the site	None identified	Compensatory habitat is required for brackish habitats. A Statement of Case for IROPI is required for the SMP policies	AEOI
Assemblage of international importance	63017 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	Loss of freshwater/grazing marsh habitat due to managed realignment.	Loss of supporting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Redshank	2588 individuals, representing an average of 2% of the population (5-year peak mean 1995/96-1999/2000)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	2627 individuals, representing an average of 1.2% of the population (5-year peak mean 1995/96-1999/2000)	Maintain population at or above 50% of total	Loss of freshwater/grazing marsh habitat due to managed realignment.	Loss of supporting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Pintail	741 individuals, representing an average of 1.2% of the population (5-year peak mean 1995/96-1999/2000)	Maintain population at or above 50% of total	None	None	None	None	NAEOI

Grey plover	3261 individuals, representing an average of 1.3% of the population (5-year peak mean 1995/96-1999/2000)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	5970 individuals, representing an average of 1.3% of the population (5-year peak mean 1995/96-1999/2000)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dunlin	19114 individuals, representing an average of 1.4% of the population (5-year peak mean 1995/96-1999/2000)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Black-tailed godwit	2559 individuals, representing an average of 7.3% of the population (5-year peak mean 1995/96-1999/2000)	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in loss of species from the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Potential effect of policy on the site	Due to the loss of designated and undesignated freshwater habitat through MR2 in the A2, A3a, A8a and A8b frontages, an adverse effect on black-tailed godwit, dark-bellied Brent geese, the waterfowl assemblage and invertebrate species cannot be excluded at this stage. The MR1 policy for A4a, A8c, A9a,d,f, and A10d,f is almost an NAI policy, but some works may be required (hence the MR1 designation), this policy enables the natural development of the coast and is not thought likely to adversely affect designated species.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of freshwater habitat due to realignments. This results in a failure of conservation objectives and therefore AEOI is concluded.	None identified.	Compensatory habitat is required for freshwater/brackish/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies

SPA Site Feature	Stour and Orwell Estuaries						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Avocet	3.6% of the population in Great Britain 5-year peak mean 1996-2000	Maintain population at or above 50% of total	Loss of freshwater/grazing marsh habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Pintail	1.2% of the population 5-year peak mean 1995/96-1999/2000	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dunlin	1.4% of the population 5-year peak mean 1995/96-1999/2000	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Red knot	1.3% of the population 5-year peak mean 1995/96-1999/2000	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Black-tailed godwit	7.3% of the population 5-year peak mean 1995/96-1999/2000	Maintain population at or above 50% of total	Loss of freshwater/grazing marsh habitat due to managed realignment.	Loss of high tide roost site	None	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Dark-bellied Brent goose	1.2% of the population 5-year peak mean 1995/96-1999/2000	Maintain population at or above 50% of total	Loss of freshwater/grazing marsh habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Grey plover	1.3% of the population 5-year peak mean 1995/96-1999/2000	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Redshank	2.8% of the population 5-year peak mean 1995/96-1999/2000	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Hen harrier	10 individuals representing at least 1.3% of the wintering	Maintain population at or	Loss of grazing marsh habitat due to managed	Loss of grazing marsh foraging sites, despite	None	Compensatory habitat is required for grazing marsh habitat loss. A	AEOI

	population in Great Britain	above 50% of total	realignment.	additional saltmarsh		Statement of Case for IROPI is required for the SMP policies.	
Ringed plover	578 individuals representing at least 1.2% of the wintering Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Shelduck	3,672 individuals representing at least 1.2% of the wintering North-western Europe population (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Turnstone	836 individuals representing at least 1.2% of the wintering Western Palearctic - wintering population (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Assemblage of international importance	63017 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	Loss of freshwater/grazing marsh habitat due to managed realignment.	Loss of supporting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Potential effect of policy on the site	Due to the loss of freshwater/grazing marsh supporting habitat through MR2 in the A2, A3a, A8a and A8b frontages, an adverse effect on black-tailed godwit, hen harrier, the waterfowl assemblage and dark-bellied Brent geese cannot be excluded at this stage. The MR1 policy for A4a, A8c, A9a,d,f, and A10d,f is almost an NAI policy, but some works may be required (hence the MR1 designation), this policy enables the natural development of the coast which is not thought likely to adversely affect designated species.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation:**
Loss of freshwater/grazing marsh habitat due to realignments. This results in a loss of habitat supporting features and results in potential impacts on the conservation objectives.	None identified.	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies

Overall Summary		
Potential / likely effect of policy	Due to the loss of freshwater habitat through MR2 in the A2, A3a, A8a and A8b frontages, an adverse effect on black-tailed godwit, hen harrier and dark-bellied Brent geese and Ramsar invertebrate species is expected.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
Loss of freshwater/brackish/grazing marsh habitat due to realignments. This results in a failure of conservation objectives and therefore AEOI is concluded.	None identified	Compensatory habitat is required for freshwater/brackish/grazing marsh habitat loss. A Statement of Case for IROPI is required for the impact of SMP policies on the Stour and Orwell Estuaries SPA and Ramsar site.

Unit B: Hamford Water
B1 – B6b

Policy Unit	Name	Policy Plan – National SMP Policy			PDZ Considerations
		2025	2055	2105	
PDZ B1	**South Dovercourt**	**HtL+**	**HtL+**	**HtL+**	Freshwater and terrestrial habitats outside the SPA/Ramsar site behind the defences will be maintained. Accretion of saltmarsh is occurring across Hamford Water at rate of approximately 3ha/yr.
PDZ B2	**Little Oakley**	**HtL**	**MR2**	**HtL**	Loss of a range of freshwater and terrestrial habitats in epoch 2 as the coastal habitats move inland under MR2 policy.
PDZ B3	**Oakley Creek to Kirby-le-Soken**	**HtL**	**HtL**	**HtL**	Agricultural land behind the defences will be maintained. Accretion of saltmarsh is occurring across Hamford Water at rate of approximately 3ha/yr.
PDZ B3a	**Horsey Island**	**HtL**	**HtL**	**MR2**	Loss of coastal grazing marsh and water features in epoch 3 as Horsey island is realigned under MR2 with potential adverse effects on conservation objectives.
PDZ B4a	**Kirby-le-Soken to Coles Creek**	**MR2**	**HtL**	**HtL**	Loss of agricultural areas and coastal grazing marsh during MR2 in epoch 1 but no adverse effect has been concluded at project level (Devereaux Farm Project).
PDZ B4b	**Coles Creek to the Martello Tower**	**HtL**	**HtL**	**HtL**	Coastal grazing marsh behind the defences outside the SPA/Ramsar site will be maintained. Accretion of saltmarsh is occurring across Hamford Water at rate of approximately 3ha/yr.
PDZ B5	**Walton Channel**	**HtL+**	**HtL+**	**MR2+**	MR2 in epoch 3 will create additional intertidal habitat; however, this will potentially lead to the loss of off-site terrestrial habitat.
PDZ B6a	**Naze Cliffs north**	**NAI**	**NAI**	**NAI**	NAI, therefore natural change
PDZ B6b	**Naze Cliffs south**	**MR1**	**MR1**	**MR1**	MR1 policy is for limited intervention to maintain defences if required.

Designated sites

Site	Designation	Key features
Hamford Water	**Ramsar**	**Ramsar Criterion 6** The site supports species/populations occurring at levels of international importance.
Hamford Water	**SPA**	**Annex I** birds and regularly occurring migratory birds: teal, dark-bellied Brent goose, ringed plover, black-tailed godwit *Limosa limosa islandica,* grey plover *Pluvialis squatarola,* avocet *Recurvirostra avosetta,* little tern, shelduck *Tadorna tadorna* and redshank. **Article 4.1 Qualification. During the breeding season the area regularly supports:** little tern **Over winter the area regularly supports:** avocet, golden plover and ruff. **Article 4.2 Qualification. On passage the area regularly supports:** ringed plover **Over winter the area regularly supports:** common teal, dark-bellied Brent goose, ringed plover, black-tailed godwit, grey plover, shelduck and redshank.

Ramsar Site Feature	Hamford Water						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Ringed plover	1169 individuals, representing an average of 1.6% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Dark-bellied Brent goose	3629 individuals, representing an average of 1.6% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	Loss of freshwater/grazing marsh habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Redshank	2099 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	Loss freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Black-tailed godwit	377 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in loss of species from the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Potential effect of policy on the site	Due to the loss of Ramsar grazing marsh in B3a and off-site freshwater / terrestrial habitats through MR2 in the B2 and B5 frontages, an adverse effect particularly on black-tailed godwit, redshank and dark-bellied Brent geese cannot be excluded at this stage.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Adverse effect due to the loss of coastal grazing marsh within the Ramsar site, and potentially as a result of loss of agricultural land, on waders and dark-bellied Brent geese.	None identified	Compensatory habitat is required for freshwater and terrestrial habitat loss (including off-site agricultural land). A Statement of Case for IROPI is required for the SMP policies.

SPA Site Feature	Hamford Water						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Little tern	2.3% of the GB breeding population 4 year mean 1992-1995	Maintain population at or above 75% of total	None	None	None	None	NAEOI
Avocet	25% of the GB population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Teal	2.7% of the population in Great Britain 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Black-tailed godwit	1.7% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Ringed plover	1.1% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Dark-bellied Brent goose	2.3% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh and terrestrial habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Grey plover	7.5% of the population in Great Britain 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Shelduck	2.2% of the population in Great Britain 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI

Redshank	0.8% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Golden plover	4,118 individuals representing at least 1.6% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Ruff	53 individuals representing at least 7.6% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed realignment.	Loss of suitable roosting habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Potential effect of policy on the site	Due to the loss of SPA grazing marsh in B3a, and off-site freshwater / terrestrial habitats through MR2 in the B2 and B5 frontages, an adverse effect on high tide roosting waders (especially black-tailed godwit) and dark-bellied Brent geese is expected.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Adverse effect due to the loss of coastal grazing marsh within the SPA on waders and potentially due to loss of agricultural areas outside the site on dark-bellied Brent geese.	None identified.	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.

Overall Summary		
Potential / likely effect of policy	Due to the loss of freshwater / terrestrial habitats through MR2 in the B2, B3a, and B5 frontages, an adverse effect on roosting waders and dark-bellied Brent geese is expected.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
Adverse effect due to the loss of offsite freshwater / terrestrial habitats and SPA/Ramsar grazing marsh on waders and dark-bellied Brent geese.	None identified	Compensatory habitat is required for freshwater/grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.

Unit C: Tendring Peninsula
C1 –C4

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ C1	**Walton-on-the-Naze and Frinton-on-Sea**	**HtL**	**HtL**	**HtL**	N/A - no sites affected
PDZ C2	**Holland Haven**	**HtL+**	**HtL+**	**MR2+/HtL+**	N/A - no sites affected
PDZ C3	**Clacton-on-Sea**	**HtL**	**HtL**	**HtL**	N/A - no sites affected
PDZ C4	**Seawick, Jaywick and St. Osyth Marsh**	**HtL**	**HtL**	**MR2/HtL**	Loss of intertidal habitat due to coastal squeeze in epoch 1 and 2. Policy for epoch 3 is conditional. HtL would lead to continued loss of intertidal habitat, where as MR2 would create additional habitat but through the loss of off-site terrestrial habitat. It is assumed for this assessment that HtL is the worst case scenario.

Designated sites

Site	Designation	Key features
Colne Estuary	**Ramsar**	**Ramsar Criterion 1** The site forms an extensive extent and diversity of saltmarsh. **Ramsar Criterion 2** The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species. **Ramsar Criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar Criterion 5** The site supports assemblages of waterfowl of international importance.
Colne Estuary	**SPA**	**Annex I** birds and regularly occurring migratory birds: pochard, dark-bellied Brent goose *Branta bernicla bernicla,* ringed plover *Charadrius hiaticula,* hen harrier *Circus cyaneus,* little tern *Sterna albrifrons* and redshank *Tringa totanus.* **Article 4.1 Qualification. During the breeding season the area regularly supports:** little tern. **Over winter the area regularly supports:** hen harrier, avocet and golden plover **Article 4.2 Qualification. During the breeding season the area regularly supports:** pochard and ringed plover. **Over winter the area regularly supports:** dark-bellied Brent goose and redshank. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 38,600 wildfowl.

Essex Estuaries	**SAC**	**Annex I habitats present include:** estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time

Ramsar Site Feature	**Colne Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	No decrease in extent from the established baseline, subject to natural change.	Loss of saltmarsh habitat in all 3 epochs.	Decline in extent and range of saltmarsh	Realignment proposed within the Colne Estuary for the site mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in Section 7 of the HRA main report.	Potential AEOI
The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species		Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of supporting saltmarsh habitat and plant species	Decline in extent and range of saltmarsh affecting the composition of plant communities and invertebrate species	Realignment proposed within the Colne Estuary for the site mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in Section 7 of the HRA main report.	Potential AEOI
This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain.		Maintain range of saltmarsh communities	Loss of saltmarsh habitat.	A limited decline in extent and range of saltmarsh	Realignment proposed within the Colne Estuary for the site mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in Section 7 of the HRA main report.	Potential AEOI
The site supports assemblages of waterfowl of international importance	32041 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Dark-bellied Brent goose	3165 individuals, representing an average of 1.4% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Redshank	1624 individuals, representing an average of 1.3% of the GB population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Black-tailed godwit	402 individuals, representing an average of 1.1% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI

Potential effect of policy on the site	The key PDZ here is C4 which has the potential to lead to the loss of intertidal habitat through squeeze in all epochs due to HtL policy. It has been assumed that HtL is the worst case scenario (given the current 'dual' policy identified. Should the MR2 policy be undertaken in epoch 3 the loss of intertidal habitat through coastal squeeze would not occur but there would be loss of off-site freshwater habitat. The scale of loss is not considered likely to impact the waterfowl assemblage size or bird populations.

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in HtL frontages (through coastal squeeze) is minimal within this MU but represents a contribution to AEOI on the integrity of the wider site due to the effect on Ramsar criteria.	Realignment proposed within the Colne Estuary for the site mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.

SPA Site Feature	**Colne Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	38,600 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	None	None	None	None	NAEOI
Little tern	at least 1.6% of the GB breeding population 5 year mean, 1992-1996	Maintain population at or above 75% of total	None	None	None	None	NAEOI
Hen harrier	up to 2.5% of the GB population No count period specified.	Maintain population at or above 75% of total	None	None	None	None	NAEOI
Pochard	up to 6% of the population in Great Britain 5 year mean, 1987-1991	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Ringed plover	up to 1.6% of the population in Great Britain 5 year mean, 1987-1991	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	1.6% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Redshank	1.2% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Avocet	75 individuals representing at least 5.9% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Golden Plover	2,530 individuals representing at least 1.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	There will be a minor loss of intertidal habitat in epoch 1 within the Colne Estuary but the scale of loss is not considered significant enough to result in a failure of conservation objectives for the SPA. The scale of loss is not considered likely to impact the waterfowl assemblage size.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI as the minor loss of intertidal habitat will not impact the conservation objectives associated with the SPA bird species.	N/A.	N/A

SAC Site Feature	Essex Estuaries						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time	N/A	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.	No decrease in extent from the established baseline, subject to natural change.	Limited loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Spartina swards *(Spartinion maritimae)*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the established baseline, subject to	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site	Losses contribute to change across several MUs, as considered in Section 7 of the HRA	AEOI

		natural change.			boundaries)	main report.	
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	Limited loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Potential effect of policy on the site	The key PDZ here is C4 which has the potential to contribute to the loss of intertidal habitat through squeeze in epoch 1 due to HtL policy. In epoch 2 these losses and on-going intertidal erosion are mitigated by realignments elsewhere in the Colne Estuary. The potential MR2 policy in epoch 3 is not considered likely to have an adverse effect on the SAC, and may serve to mitigate further effects of squeeze. Overall, there is no net loss of intertidal habitat due to mitigation and accretion in other MUs.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Potential AEOI as due to loss of saltmarsh habitat in epoch 1 – albeit minimal in this MU this contributes to losses within the wider site.	Limited mitigation within the site available since most realignment areas are largely outside the current site boundary.	Losses contribute to change across the wider site considered in Section 7 of the HRA main report.

Overall Summary		
Potential / likely effect of policy	PDZ C4 has the potential to contribute to the loss of intertidal habitat through squeeze in epoch 1 due to HtL policy. In epoch 2 these losses and on-going intertidal erosion are mitigated by realignments elsewhere in the Colne Estuary. Therefore NAEOI can not be concluded for the Ramsar and SAC.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in HtL frontages (through coastal squeeze) represents a potential AEOI on the integrity of the site due to the effect on Ramsar and SAC criteria.	Realignment proposed within the Colne Estuary for the Ramsar/SPA mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar/SPA and the Essex Estuaries SAC which are considered in Section 7 of the HRA main report.

Unit D: Colne Estuary
D1 –D8c

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ D1A	Stone Point	HtL	HtL	HtL	Although accretion is currently thought to be occurring adjacent to the Point Clear frontage, there is uncertainty regarding this in later epochs. As such, HtL policy will result in squeeze of intertidal habitats throughout the lifetime of the plan.
PDZ D1b	Point Clear to St Osyth Creek	HtL	MR2	HtL	MR2 in epoch 2 will encroach on freshwater / terrestrial habitats (golf course and fishing ponds). This section of the frontage is thought to be eroding and as such, intertidal habitat is likely to be lost in epochs 1 and 3.
PDZ D2	Along the southern bank of Flag Creek	HtL	HtL	MR2	Erosion is thought to be occurring in PDZ D2 and as such, squeeze will impact coastal habitats in epochs 1 and 2. MR2 in epoch 3 will lead to the loss of grazing marsh habitats within the SPA / Ramsar site.
PDZ D3	Flag Creek to northern bank to Brightlingsea	HtL	MR2	HtL	Coastal squeeze will occur in epochs 1 and 3. MR2 in epoch 2 will lead to the loss of off-site freshwater / terrestrial habitats.
PDZ D4	Brightlingsea	HtL	HtL	HtL	Loss of intertidal habitats due to coastal squeeze in all epochs. Freshwater habitats behind the defences will be maintained.
PDZ D5	Westmarsh Point to where the frontage meets the B1029	HtL	MR2	HtL	The D5 frontage is currently eroding and therefore loss of intertidal habitats will occur in epochs 1 and 3. MR2 in epoch 2 will encroach on freshwater and terrestrial habitats.
PDZ D6a	South of Wivenhoe	HtL	HtL	HtL	Loss of intertidal habitats due to coastal squeeze in all epochs. Coastal grazing marsh behind the defences will be maintained.
PDZ D6b	B1029 to Wivenhoe	HtL	MR2	HtL	The frontage is currently eroding and therefore loss of intertidal habitats will occur in epochs 1 and 3. MR2 in epoch 2 will encroach on coastal grazing marsh.
PDZ D7	Colne Barrier	HtL	HtL	HtL	N/A - no sites affected
PDZ D8a	Inner Colne west bank	HtL	MR2	NAI	The frontage is currently eroding and therefore loss of intertidal habitats will occur in epochs 1 and 3. MR2 in epoch 2 will encroach on agricultural land,
PDZ D8b	Fingringhoe and Langenhoe	HtL	HtL	HtL	Loss of intertidal habitats due to coastal squeeze in all epochs. Coastal grazing marsh behind the defences will be maintained.
PDZ D8c	Langenhoehall Marsh	HtL	HtL	HtL	Loss of intertidal habitats due to coastal squeeze in all epochs. Coastal grazing marsh behind the defences will be maintained.

Designated sites		
Site	Designation	Key features
Colne Estuary	**Ramsar**	**Ramsar Criterion 1** The site forms an extensive extent and diversity of saltmarsh. **Ramsar Criterion 2** The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species. **Ramsar Criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar Criterion 5** The site supports assemblages of waterfowl of international importance.
Colne Estuary	**SPA**	**Annex I** birds and regularly occurring migratory birds: pochard, dark-bellied Brent goose *Branta bernicla bernicla,* ringed plover *Charadrius hiaticula,* hen harrier *Circus cyaneus,* little tern *Sterna albrifrons* and redshank *Tringa totanus.* **Article 4.1 Qualification. During the breeding season the area regularly supports:** little tern. **Over winter the area regularly supports:** hen harrier, avocet and golden plover **Article 4.2 Qualification. During the breeding season the area regularly supports:** pochard and ringed plover. **Over winter the area regularly supports:** dark-bellied Brent goose and redshank. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 38,600 wildfowl.
Essex Estuaries	**SAC**	**Annex I habitats present include:** sandbanks which are slightly covered by seawater all the time, estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time

Ramsar Site Feature	**Colne Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of	No decrease in extent from the established baseline, subject to natural change.	Limited loss of saltmarsh habitat in epoch 1.	Decline in extent and range of saltmarsh	Realignment proposed within the Colne Estuary for the site mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar	Potential AEOI

	the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.					considered in Section 7 of the HRA main report.	
The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species.	Loss of coastal grazing marsh habitat due to managed realignment.	Decline in populations of certain species	Realignment proposed within the Colne Estuary for the site mitigates for the loss of saltmarsh species in Epochs 2 and 3, but not for loss of species reliant on grazing marsh	Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in Section 7 of the HRA main report.	AEOI
This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities.	Limited loss of saltmarsh habitat in epoch 1.	None likely	None	None	NAEOI
The site supports assemblages of waterfowl of international importance	32041 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	Limited loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	Potential AEOI
Dark-bellied Brent goose	3165 individuals, representing an average of 1.4% of the population	Maintain population at or above 50% of total	Limited short term loss of intertidal feeding habitat but loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	Potential AEOI
Redshank	1624 individuals, representing an average of 1.3% of the GB population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Black-tailed godwit	402 individuals, representing an average of 1.1% of the population	Maintain population at or above 50% of total	Loss of coastal grazing marsh habitat due to managed	None	None	Losses contribute to change across the wider Mid-Essex Coast	AEOI

			realignment.			Ramsar site considered in Section 7 of the HRA main report	
Potential effect of policy on the site	Due to the loss of coastal grazing marsh and other habitat (both designated and undesignated) through MR2 in Epoch 2 in D1b, D3, D5, D6b and D8a, an adverse effect on rare plants and invertebrates, black-tailed godwit and dark-bellied Brent geese is expected. Loss of intertidal habitat through coastal squeeze in epoch 1 is likely to have a short term adverse effect on dark-bellied Brent geese but over the whole plan period there will be a net gain in saltmarsh habitat due to the realignment.						
Implications for the integrity of the site:		**Mitigation:**				**Compensation**	
NAEOI cannot be concluded due to the loss of coastal grazing marsh. In addition, loss of intertidal habitat in HtL frontages (through coastal squeeze) represents a potential short term effect on the integrity of the site due to the impact on Ramsar species and habitat, although over the plan period there will be a net gain in saltmarsh.		Realignment proposed within the Colne Estuary for the site mitigates the loss of saltmarsh in Epochs 2 and 3.				Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in Section 7 of the HRA main report.	

SPA Site Feature	**Colne Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	38,600 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	Limited short term loss of intertidal feeding habitat but loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	Potential AEOI
Little tern	at least 1.6% of the GB breeding population 5 year mean, 1992-1996	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Hen harrier	Up to 2.5% of the GB population No count period specified.	Maintain population at or above 50% of total	Limited short term loss of intertidal feeding habitat but loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	Potential AEOI

Pochard	up to 6% of the population in Great Britain 5 year mean, 1987-1991	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed realignment.	Loss of suitable habitat could have an unquantifiable effect on bird populations.	None	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	AEOI
Ringed plover	up to 1.6% of the population in Great Britain 5 year mean, 1987-1991	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	1.6% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Limited short term loss of intertidal feeding habitat but loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	Potential AEOI
Redshank	1.2% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Avocet	75 individuals representing at least 5.9% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	Due to the loss of freshwater/grazing marsh habitat (both off-site and within the site) through MR2 in Epoch 2 in D1b, D3, D5, D6b and D8a, an adverse effect on dark-bellied Brent geese, hen harrier and pochard is expected. Although over the whole plan period there may be a net gain in saltmarsh habitat due to the realignment which will result in the loss of freshwater habitat, loss of intertidal habitat through coastal squeeze in epoch 1 is likely to have a short term, unquantifiable adverse effect on dark-bellied Brent geese and hen harrier.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to the loss of coastal grazing marsh. In addition, loss of intertidal habitat in HtL frontages (through coastal squeeze) represents a potential short term unquantifiable effect on the integrity of the site due to the impact on SPA species, although over the plan period there may be a net gain in saltmarsh.	Realignment proposed within the Colne Estuary for the site mitigates the loss of saltmarsh in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.

SAC Site Feature	Essex Estuaries						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time	N/A	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.	No decrease in extent from the established baseline, subject to natural change.	Limited loss of habitat.	Decline in extent and range of habitat	Limited (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	Potential AEOI
Spartina swards *(Spartinion*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the	Loss of habitat.	Decline in extent and	Limited (realignments are	Losses contribute to change across several	Potential AEOI

maritimae)		established baseline, subject to natural change.		range of habitat	largely outside the current site boundaries)	MUs, as considered in Section 7 of the HRA main report.	
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Limited decline in extent and range of habitat	Limited (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	Potential AEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	Limited (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	Potential AEOI
Potential effect of policy on the site	During epoch 1 there will be some loss of designated intertidal habitat within this MU. However, through compensation across the whole SAC (including over the plan period) there should be an overall net gain.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
AEOI due to loss of intertidal habitat during epoch 1.	Limited mitigation within the site available since most realignment areas are outside the current site boundary	Managed realignments proposed in areas adjacent to the SAC (across a number of MUs) provide compensation

Overall Summary		
Potential / likely effect of policy	Loss of intertidal habitat through coastal squeeze in epoch 1 is likely to have a short term adverse effect on bird species and other designated features. Due to the loss of coastal grazing marsh and other terrestrial /freshwater habitat (both off-site and within the site) through MR2, an adverse effect on Ramsar listed invertebrates and plants, hen harrier and dark-bellied Brent geese are also expected.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded for the SPA, SAC and Ramsar sites due to the loss of intertidal habitat in HtL frontages (through coastal squeeze) and the loss of freshwater / terrestrial habitat.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, for the SPA and Ramsar site, but is mainly outside the SAC boundary. There may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast Ramsar/SPA and Essex Estuaries SAC considered in Section 7 of the HRA main report.

Unit E: Mersea Island
E1 – E4b

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ E1	**Landward frontage**	**HtL**	**HtL**	**HtL**	Erosion is currently occurring in E1 and therefore a HtL policy throughout all epochs will result in coastal squeeze.
PDZ E2	**Seaward frontage between North Barn and West Mersea**	**HtL**	**MR2**	**HtL**	The E2 frontage is currently eroding and therefore loss of intertidal habitats will occur in epochs 1 and 3. MR2 in epoch 2 will encroach on off-site terrestrial habitat
PDZ E3	**West Mersea**	**HtL+**	**HtL+**	**HtL+**	Erosion is currently occurring in E1 and therefore a HtL policy throughout all epochs will result in coastal squeeze, leading to loss of intertidal habitat.
PDZ E4a	**North Mersea (Strood Channel)**	**HtL+**	**MR2+**	**HtL+**	MR2 in epoch 2 will encroach on a range of terrestrial habitats.
PDZ E4b	**Pyefleet Inner Channel**	**HtL**	**HtL**	**HtL**	The HtL policy may result in coastal squeeze, leading to loss of intertidal habitat and a reduction in the feeding area for a number of key species.

Designated sites

Site	Designation	Key features
Colne Estuary	**Ramsar**	**Ramsar Criterion 1** The site forms an extensive extent and diversity of saltmarsh. **Ramsar Criterion 2** The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species. **Ramsar Criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar Criterion 5** The site supports assemblages of waterfowl of international importance.
Colne Estuary	**SPA**	**Annex I** birds and regularly occurring migratory birds: pochard, dark-bellied Brent goose *Branta bernicla bernicla,* ringed plover *Charadrius hiaticula,* hen harrier *Circus cyaneus,* little tern *Sterna albrifrons* and redshank *Tringa totanus.* **Article 4.1 Qualification. During the breeding season the area regularly supports:** little tern. **Over winter the area regularly supports:** hen harrier, avocet and golden plover

		Article 4.2 Qualification. During the breeding season the area regularly supports: pochard and ringed plover. **Over winter the area regularly supports:** dark-bellied Brent goose and redshank. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 38,600 wildfowl.
Essex Estuaries	**SAC**	**Annex I habitats present include:** estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time
Blackwater Estuary	**Ramsar**	**Ramsar criterion 1** Qualifies by virtue of the extent and diversity of saltmarsh habitat present. This site, and the four others in the Mid-Essex Coast complex, includes a total of 3,237 ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** The invertebrate fauna is well represented and includes at least 16 British Red Data Book species. **Ramsar criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 105061 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Blackwater Estuary	**SPA**	**Article 4.1 Qualification. During the breeding season the area regularly supports:** little tern. **Over winter the area regularly supports:** avocet, golden plover, hen harrier and ruff. **Article 4.2 Qualification. On passage the area regularly supports:** ringed plover. **Over winter the area regularly supports:** black-tailed godwit, dark-bellied Brent goose, dunlin, grey plover, redshank, ringed plover and shelduck. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 109,815 wildfowl.

Ramsar Site Feature	**Colne Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex,	No decrease in extent from the established baseline, subject to	Loss of saltmarsh habitat.	Decline in extent and range of	Realignment proposed within the Colne Estuary for the site	Losses contribute to change across the wider Mid-Essex	Potential AEOI

	includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	natural change.		saltmarsh	mitigates the loss in Epochs 2 and 3.	Coast Ramsar site considered in Section 7 of the HRA main report.	
The site supports 12 species of nationally scarce plants and at least 38 British Red Data Book invertebrate species	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of saltmarsh habitat.	Decline of invertebrate species due to loss of suitable habitat. Loss of scare plant species as saltmarsh declines.	Realignment proposed within the Colne Estuary for the site mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	Potential AEOI
This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	Limited loss of saltmarsh habitat in epoch 1.	None likely	None	None	NAEOI
The site supports assemblages of waterfowl of international importance	32041 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	Potential AEOI
Dark-bellied Brent goose	3165 individuals, representing an average of 1.4% of the population	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	Potential AEOI
Redshank	1624 individuals, representing an average of 1.3% of the GB population	Maintain population at or above 50% of total	None	None	None	None	NAEOI

Black-tailed godwit	402 individuals, representing an average of 1.1% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	PDZ E2 and E4a are considered to have a potential adverse effect due to the loss of freshwater terrestrial habitat through MR2 affecting black-tailed godwit and dark-bellied Brent geese which use this area for roosting and feeding. The loss of intertidal habitat throughout the wider estuary will occur in epoch 1 through the HtL policy. This could impact the rare plant and invertebrate species for which the site is designated.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to the loss of freshwater / terrestrial habitat on Ramsar-cited bird species. Additionally, loss of intertidal habitat in HtL frontages represents an adverse effect on the integrity of the site due to the effect on Ramsar species.	Realignment proposed within the Colne Estuary for the site mitigates the loss of saltmarsh in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in Section 7 of the HRA main report.

SPA Site Feature	**Colne Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	38,600 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	Potential AEOI
Little tern	at least 1.6% of the GB breeding population 5 year mean, 1992-1996	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Hen harrier	Up to 2.5% of the GB population No count period specified.	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	Potential AEOI

Pochard	up to 6% of the population in Great Britain 5 year mean, 1987-1991	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed realignment.	Loss of suitable habitat could have an unquantifiable effect on bird populations.	None	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	AEOI
Ringed plover	up to 1.6% of the population in Great Britain 5 year mean, 1987-1991	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	1.6% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Realignment proposed within the Colne Estuary for the site mitigates the saltmarsh loss in Epochs 2 and 3, but there may still be an impact resulting from loss of grazing marsh habitat.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	Potential AEOI
Redshank	1.2% of the population 5 year peak mean 1991/92-1995/96	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Avocet	75 individuals representing at least 5.9% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	PDZ E1, E2 and E4b are adjacent to this site and are considered to have an adverse effect due to the loss of freshwater habitat through MR2 in the E2 & E4a frontages. The effect of this loss of terrestrial habitat is considered to have an adverse effect on hen harrier, and dark-bellied Brent geese. The loss of intertidal habitat through coastal squeeze in epoch 1 is likely to have an adverse effect on listed species in frontages E1, E2 and E4b.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to the loss of freshwater / terrestrial habitat on SPA-cited bird species (both hen harrier and dark-bellied Brent geese). Additionally, loss of intertidal habitat in HtL frontages (through coastal squeeze) represents an adverse effect on the integrity of the site due to the effect on SPA species	Realignment proposed within the Colne Estuary for the site mitigates the loss of saltmarsh in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.

SAC Site Feature	Essex Estuaries						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time		No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.	No decrease in extent from the established baseline, subject to natural change.	Limited loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	Potential AEOI
Spartina swards *(Spartinion*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the	Limited loss of	Decline in extent and	None (realignments are	Losses contribute to change across several	Potential AEOI

maritimae)		established baseline, subject to natural change.	habitat.	range of habitat	largely outside the current site boundaries)	MUs, as considered in Section 7 of the HRA main report.	
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	Limited loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Potential effect of policy on the site	During epoch 1 there will be some loss of designated intertidal habitat within this MU. However, through mitigation and compensation across the whole SAC and over the plan period there could be an overall net gain.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
AEOI due to loss of intertidal habitat during epoch 1.	None (realignments are largely outside the current site boundaries)	Managed realignments proposed in areas adjacent to the SAC (across a number of MUs) provide compensation

Ramsar Site Feature	Blackwater Estuary						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	No decrease in extent from the established baseline, subject to natural change.	Limited loss of saltmarsh habitat.	Decline in extent and range of saltmarsh	Realignment proposed within the Blackwater Estuary for the site mitigates the loss of saltmarsh in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	AEOI
The invertebrate fauna is well represented and includes at least 16 British Red Data Book species.	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of saltmarsh habitat although calculated is considered to be within the margin of error.	None	None	None	NAEOI
This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	Loss of saltmarsh habitat although calculated is considered to be within the margin of error.	None	None	None	NAEOI
The site supports assemblages of waterfowl of international importance	105061 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	Loss of freshwater habitat due to managed realignment.	Loss of suitable feeding/ roosting habitat could have an unquantifiable effect on bird populations.	None	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	AEOI
Redshank	4169 individuals, representing an average of 1.6% of the population	Maintain population at or above 50% of total	Loss of saltmarsh habitat although calculated is minimal and considered to be within the margin of error.	None	None	None	NAEOI
Grey plover	4215 individuals, representing an average of 1.7% of the population	Maintain population at or above 50% of total	Loss of saltmarsh habitat although calculated is minimal and considered to be within the margin of error.	None	None	None	NAEOI

Dunlin	27655 individuals, representing an average of 2% of the population	Maintain population at or above 50% of total	Loss of saltmarsh habitat although calculated is minimal and considered to be within the margin of error.	None	None	None	NAEOI
Black-tailed godwit	2174 individuals, representing an average of 6.2% of the population	Maintain population at or above 50% of total	Loss of saltmarsh habitat although calculated is minimal and considered to be within the margin of error.	None	None	None	NAEOI
Shelduck	3141 individuals, representing an average of 1% of the population	Maintain population at or above 50% of total	Loss of saltmarsh habitat although calculated is minimal and considered to be within the margin of error.	None	None	None	NAEOI
Golden plover	16083 individuals, representing an average of 1.7% of the population	Maintain population at or above 50% of total	Loss of saltmarsh habitat although calculated is minimal and considered to be within the margin of error.	None	None	None	NAEOI
Dark-bellied Brent goose	8689 individuals, representing an average of 4% of the population	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	AEOI
Potential effect of policy on the site	PDZ E4a is considered to have an adverse effect due to the loss of freshwater habitat through MR policy which supports dark-bellied Brent geese. Also the loss of saltmarsh habitat will impact the other Ramsar species and features. Loss of saltmarsh is considered to be minimal (within the errors associated with the calculation) and no adverse effect is expected.						
Implications for the integrity of the site:		**Mitigation:**			**Compensation**		
NAEOI cannot be concluded due to the loss of off-site freshwater / terrestrial habitat on dark-bellied Brent geese and the impact on other Ramsar features		Realignment proposed within the Blackwater Estuary for the site mitigates the coastal squeeze loss in Epochs 2 and 3.			Compensation is required for the loss of coastal grazing marsh and associated features.		

SPA Site Feature	**Blackwater Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	109,815 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	Loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable	None	Losses contribute to change across the wider Mid-Essex Coast SPA considered	AEOI

				effect on bird populations.		in Section 7 of the HRA main report.	
Little tern	36 pairs representing at least 1.5% of the breeding population in Great Britain	Maintain population at or above 75% of total	None	None	None	None	NAEOI
Golden plover	7,247 individuals representing up to 2.9% of the wintering population in Great Britain	Maintain population at or above 50% of total	Across the wider site there is only projected to be extremely marginal loss of intertidal habitat.	None	None	None	NAEOI
Hen harrier	4 individuals representing up to 0.5% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	AEOI
Ruff	51 individuals representing up to 7.3% of the wintering population in Great Britain	Maintain population at or above 50% of total	Across the wider site there is only projected to be extremely marginal loss of intertidal habitat.	None	None	None	NAEOI
Avocet	76 individuals representing at least 6.0% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Ringed plover	955 individuals representing up to 1.9% of the Europe/Northern Africa - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	15,392 individuals representing up to 5.1% of the wintering Western Siberia/Western Europe population	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the HRA main report.	AEOI
Dunlin	33,267 individuals representing up to 2.4% of the wintering Northern Siberia/Europe/Western Africa population	Maintain population at or above 50% of total	Across the wider site there is only projected to be extremely marginal loss of saltmarsh but no loss of mudflat.	None	None	None	NAEOI

Grey plover	5,090 individuals representing up to 3.4% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	Across the wider site there is only projected to be extremely marginal loss of saltmarsh but no loss of mudflat.	None	None	None	NAEOI
Black-tailed godwit	1,280 individuals representing up to 1.8% of the wintering Iceland - breeding population	Maintain population at or above 50% of total	Across the wider site there is only projected to be extremely marginal loss of saltmarsh but no loss of mudflat	None	None	None	NAEOI
Shelduck	4,594 individuals representing up to 1.5% of the wintering North-western Europe population	Maintain population at or above 50% of total	Across the wider site there is only projected to be extremely marginal loss of saltmarsh but no loss of mudflat.	None	None	None	NAEOI
Redshank	4,015 individuals representing up to 2.7% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	Across the wider site there is only projected to be extremely marginal loss of saltmarsh but no loss of mudflat.	None	None	None	NAEOI
Potential effect of policy on the site	PDZ E4a is considered to have an adverse effect due to the loss of freshwater habitat, which supports a range of SPA features, through MR policy. Across the wider site there is only projected to be extremely slight loss of saltmarsh which is not considered to have significant effect on SPA features.						
Implications for the integrity of the site:	**Mitigation:**	**Compensation**					
NAEOI cannot be concluded due to the loss of freshwater / terrestrial habitat on SPA-cited bird species.	None	Compensation is required for loss of coastal grazing marsh and associated SPA features					

Overall Summary		
Potential / likely effect of policy	This MU is split between two designated areas, the Colne Estuary and the Blackwater Estuary. NAEOI can not be ruled out on the Colne Estuary or Blackwater Estuary SPA or Ramsar sites due to the loss of freshwater and terrestrial habitats through MR2 and the loss of intertidal due to coastal squeeze with adverse effects on a range of SPA and Ramsar features, as well as the Essex Estuaries SAC.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to the loss of off-site freshwater / terrestrial habitat on hen harrier and dark-bellied Brent geese and impacts on Ramsar features.	Realignment proposed within the Colne and Blackwater estuaries mitigates the intertidal habitat loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar/SPA and Essex Estuaries SAC considered in Section 7 of the HRA main report.

Unit F: Blackwater Estuary
F1 – F15

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ F1	Strood to Salcott-cum Virley	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze.
PDZ F2	Salcott Creek	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze.
PDZ F3	South bank of the Salcott Channel to Tollesbury Fleet	HtL	HtL	MR2	Potential loss of intertidal habitat over epochs 1 and 2 as a result of HtL policy. MR in epoch 3 will create additional intertidal habitat, which will result in the loss of a large area of coastal grazing marsh within the SPA/Ramsar site.
PDZ F4	Tollesbury	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F5	Tollesbury Wick Marshes to Goldhanger	HtL	HtL	MR2	Potential loss of intertidal habitat over epochs 1 and 2 as a result of HtL policy. MR in epoch 3 will create additional intertidal habitat, but at detriment to a large area of coastal grazing marsh within the SPA/Ramsar site. Arable land also affected.
PDZ F6	Goldhanger to Heybridge	HtL+	HtL+	HtL+	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F7	Heybridge Basin	HtL+	HtL+	HtL+	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F8	Maldon Inner estuary	HtL+	HtL+	HtL+	Limited potential for coastal squeeze due to predominantly urban and developed nature.
PDZ F9a	South Maldon	HtL+	HtL+	HtL+	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F9b	Northey Island	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F10	Maylandsea	HtL+	HtL+	HtL+	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F11a	Mayland Creek west	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F11b	Mayland Creek	NAI	NAI	NAI	NAI, therefore NAEOI.
PDZ F11c	Mayland Creek east	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F12	Steeple	HtL	HtL	MR2	Potential loss of intertidal habitat over epochs 1 and 2 as a result of HtL policy. MR in epoch 3 will create additional intertidal habitat.

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ F13	St. Lawrence	HtL+	HtL+	HtL+	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ F14	St. Lawrence to Bradwell-on-Sea	HtL+	MR2+	HtL+	Loss of coastal grasslands and agricultural habitat under epoch 2 MR2, although this will reduce effects of coastal squeeze on intertidal habitats.
PDZ F15	Bradwell Creek	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.

Designated sites

Site	Designation	Key features
Essex Estuaries	**SAC**	**Annex I habitats present include:** sandbanks which are slightly covered by seawater all the time, estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time
Blackwater Estuary	**Ramsar**	**Ramsar criterion 1** Qualifies by virtue of the extent and diversity of saltmarsh habitat present. This site, and the four others in the Mid-Essex Coast complex, includes a total of 3,237 ha that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** The invertebrate fauna is well represented and includes at least 16 British Red Data Book species. **Ramsar criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 105061 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Blackwater Estuary	**SPA**	**Article 4.1 Qualification. During the breeding season the area regularly supports:** little tern. **Over winter the area regularly supports:** avocet, golden plover, hen harrier and ruff. **Article 4.2 Qualification. On passage the area regularly supports:** ringed plover. **Over winter the area regularly supports:** black-tailed godwit, dark-bellied Brent goose, dunlin, grey plover, redshank, ringed plover and shelduck. **Article 4.2 Qualification. An internationally important assemblage of birds**

		Over winter the area regularly supports 109,815 wildfowl.
Dengie	**Ramsar**	**Ramsar criterion 1** Qualifies by virtue of the extent and diversity of saltmarsh habitat present. Dengie, and the four other sites in the Mid-Essex Coast Ramsar site complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** Dengie supports a number of rare plant and animal species. The Dengie has 11 species of nationally scarce plants. The invertebrate fauna includes the following Red Data Book species: a weevil *Baris scolopacea*, a horsefly *Atylotus latistriatus* and a jumping spider *Euophrys browningi*. **Ramsar criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 43828 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Dengie	**SPA**	**Article 4.1 Qualification. Over winter the area regularly supports:** bar-tailed godwit and hen harrier. **Article 4.2 Qualification. Over winter the area regularly supports:** grey plover and knot. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 31,452 wildfowl.

SAC Site Feature	**Essex Estuaries**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time	N/A	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI

	Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.						
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Spartina swards *(Spartinion maritimae)*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI

Potential effect of policy on the site	The key issue relates to the loss of intertidal habitat through coastal squeeze. With the exception of PDZ F11a, all PDZs provide for an element of HtL though the plan period, which has the potential to lead to loss of designated intertidal habitat within the Blackwater estuary.	
Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Short term loss of intertidal habitat with overall gain of habitat through the SMP period. AEOI due to failure of conservation objectives.	None (realignments are largely outside the current site boundaries)	Managed realignments proposed in areas adjacent to the SAC (across a number of MUs) provide compensation

Ramsar Site Feature	**Blackwater Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	No decrease in extent from the established baseline, subject to natural change.	None	None	Realignment proposed mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	AEOI
The invertebrate fauna is well represented and includes at least 16 British Red Data Book species.	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of saltmarsh habitat; loss of freshwater / terrestrial habitats	Decline in extent and range of suitable habitats	Realignment proposed mitigates the loss in Epochs 2 and 3 but there may still be an impact resulting from loss of freshwater habitats.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	AEOI
This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	Loss of saltmarsh habitat.	Decline in extent and range of saltmarsh	Realignment proposed mitigates the loss in Epochs 2 and 3.	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	NAEOI
The site supports assemblages of waterfowl of international importance	105061 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Losses contribute to change across the wider Mid-Essex Coast Ramsar site considered in Section 7 of the HRA main report.	AEOI
Redshank	4169 individuals, representing an average	Maintain population at or above 50% of total	Loss of roosting	Loss of suitable habitat could result	None identified	Compensatory habitat is required for freshwater	AEOI

	of 1.6% of the population		habitat	in reduction in numbers using the site		habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	
Grey plover	4215 individuals, representing an average of 1.7% of the population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Dunlin	27655 individuals, representing an average of 2% of the population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Black-tailed godwit	2174 individuals, representing an average of 6.2% of the population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Shelduck	3141 individuals, representing an average of 1% of the population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Golden plover	16083 individuals, representing an average of 1.7% of the population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Dark-bellied Brent goose	8689 individuals, representing an average of 4% of the population	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed	Loss of suitable feeding habitat could result in reduction in	None identified.	Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in	AEOI

			realignment.	numbers using the site		Section 7 of the HRA main report.	
Potential effect of policy on the site	PDZ F14 provides for MR2 in epoch 2, while PDZ F3, F5, and F12 all provide for MR2 in epoch 3. These realignments would offset the marginal loss of intertidal within the estuary through coastal squeeze. However, MR2 will lead to the loss of freshwater / terrestrial (including large areas of coastal grazing marsh) habitats which are important for dark-bellied Brent geese and other species. The NAI policy in F11a is not considered likely to have any adverse effect on Ramsar species, although it will mitigate some of the intertidal loss.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Adverse effect on Ramsar species due to loss of intertidal habitat and loss of coastal grazing marsh which will have an adverse effect on a wide range of features.	Mitigation for saltmarsh loss in Epochs 2 and 3 is provided through managed realignment projects within the site.	Compensatory habitat is required for loss of intertidal habitats in epoch 1 and freshwater habitats in epochs 2 and 3. A Statement of Case for IROPI is required.

SPA Site Feature	**Blackwater Estuary**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	109,815 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Little tern	36 pairs representing at least 1.5% of the breeding population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Golden plover	7,247 individuals representing up to 2.9% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies	AEOI
Hen harrier	4 individuals representing up to 0.5% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of feeding habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies	AEOI
Ruff	51 individuals representing up to 7.3% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies	AEOI
Avocet	76 individuals	Maintain population at or	Loss of	Loss of suitable	None identified	Compensatory habitat is	AEOI

	representing at least 6.0% of the wintering population in Great Britain	above 50% of total	roosting habitat	habitat could result in reduction in numbers using the site		required for grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies	
Ringed plover	955 individuals representing up to 1.9% of the Europe/Northern Africa - wintering population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies	AEOI
Dark-bellied Brent goose	15,392 individuals representing up to 5.1% of the wintering Western Siberia/Western Europe population	Maintain population at or above 50% of total	Loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat may have a detrimental effect on bird populations.	None identified	Compensatory habitat is required for freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Dunlin	33,267 individuals representing up to 2.4% of the wintering Northern Siberia/Europe/Western Africa population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Grey plover	5,090 individuals representing up to 3.4% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Black-tailed godwit	1,280 individuals representing up to 1.8% of the wintering Iceland - breeding population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Shelduck	4,594 individuals representing up to 1.5% of the wintering North-western Europe population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required for the SMP policies	AEOI
Redshank	4,015 individuals representing up to 2.7% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	Loss of roosting habitat	Loss of suitable habitat could result in reduction in numbers using the site	None identified	Compensatory habitat is required for freshwater habitat loss (wintering high tide roost). A Statement of Case for IROPI is required	AEOI

						for the SMP policies	
Potential effect of policy on the site	PDZ F14 provides for MR2 in epoch 2, while PDZ F3, F5, and F12 all provide for MR2 in epoch 3. These realignments would offset the marginal loss of intertidal within the estuary through coastal squeeze in epoch 1. MR2 will also lead to the loss of coastal grazing marsh which is important feeding or roosting habitat for a wide range of qualifying features. The NAI policy in F11a is not considered likely to have any adverse effect on SPA species, although it will mitigate some of the intertidal loss.						
Implications for the integrity of the site:		**Mitigation:**				**Compensation**	
NAEOI cannot be concluded due to loss of freshwater and terrestrial habitats (including coastal grazing marsh) which affects the SPA-cited bird species.		None identified.				Compensatory habitat is required for grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	

Ramsar Site Feature	**Dengie**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	No decrease in extent from the established baseline, subject to natural change.	Loss of saltmarsh habitat.	Decline in extent and range of saltmarsh	Mitigation for intertidal habitat is through the managed realignment proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
The Dengie supports 11 species of nationally scarce plants.	N/A	Maintain viable populations of scarce plants	Loss of saltmarsh habitat.	Loss of scare plant species as saltmarsh declines.	Mitigation for intertidal habitat is through the managed realignment proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
The invertebrate fauna includes the following Red Data Book species: a weevil *Baris scolopacea*, a horsefly *Atylotus latistriatus* and a jumping spider *Euophrys browningi.*	N/A	Maintain viable populations of Red Data Book invertebrate species	Loss of saltmarsh habitat.	Decline of invertebrate species due to loss of suitable habitat	Mitigation for intertidal habitat is through the managed realignment proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	Loss of saltmarsh habitat.	Decline in extent and range of saltmarsh communities	Mitigation for intertidal habitat is through the managed realignment proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI

The site supports assemblages of waterfowl of international importance	43823 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Grey plover	4582 individuals, representing an average of 1.8% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	14528 individuals, representing an average of 3.2% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	2000 individuals, representing an average of 2% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	The key issue relates to the loss of intertidal habitat through coastal squeeze. Loss of intertidal is expected in PDZ F15. Although the amount of loss expected is extremely small given the expanse of intertidal elsewhere on this site (outside the MU), this contributes to wider losses in intertidal habitat across the Dengie site.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of saltmarsh habitat in HtL frontage (through coastal squeeze) could represent an adverse effect on the integrity of the site.	Mitigation for intertidal habitat loss is through the managed realignment proposed for the Mid-Essex Coast Ramsar site (Section 7 of the HRA main report).	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.

SPA Site Feature	Dengie						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	31,452 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	None	None	None	None	NAEOI
Bar-tailed godwit	1,156 individuals representing at least 2.2% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Hen harrier	5 individuals representing up to 0.7% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Mitigation for intertidal habitat is through the managed realignment proposed for the wider Mid-Essex Coast SPA site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast SPA site as a whole.	AEOI
Grey plover	2,411 individuals representing up to 1.6% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	8,393 individuals representing up to 2.4% of the wintering Iceland - breeding population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	Loss of a very small area of saltmarsh may cause adverse effect through reduced feeding for Hen Harrier. Loss of intertidal is expected in PDZ F15. Although the amount of loss expected is extremely small given the expanse of intertidal elsewhere on this site, this contributes to wider losses in intertidal habitat across the Dengie site (outside this MU).						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in HtL frontages (through coastal squeeze) could represent some adverse effect on the integrity of the site due to effects on SPA species	Mitigation for intertidal habitat loss is through the managed realignment proposed for the Mid-Essex Coast SPA site (Section 7 of the HRA main report).	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast SPA site as a whole.

Overall Summary		
Potential / likely effect of policy	PDZ F14 provides for MR2 in epoch 2, while PDZ F3, F5, and F12 all provide for MR2 in epoch 3. These realignments would offset the marginal loss of intertidal within the estuary through coastal squeeze. MR2 will lead to the loss of important areas of grazing marsh which are important for a range of plants and invertebrates as well as providing feeding and roosting habitat for a range of wetland birds. Loss of intertidal is expected in PDZ F15. Although the amount of loss expected is extremely small given the expanse of intertidal elsewhere on this site, this could still represent an adverse effect on the integrity of this site.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in the Dengie in HtL frontages (through coastal squeeze) could represent an adverse effect on the integrity of the site due to effects on SPA features, as well as contributing to impacts on the wider SAC. Loss of coastal grazing marsh could impact Blackwater Estuary SPA and Ramsar species.	Mitigation for intertidal habitat is through the managed realignment proposed for within the estuary.	Compensatory habitat is required for coastal grazing marsh habitat loss. A Statement of Case for IROPI is required for the SMP policies. This compensatory habitat is considered for the wider Mid-Essex Coast Ramsar/SPA and Essex Estuaries SAC as detailed within Section 7 of the main HRA report.

Unit G: Dengie Peninsula
G1 –G3

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ G1	**Bradwell-on-Sea**	**HtL**	**HtL**	**HtL**	Loss of intertidal habitat due to coastal squeeze.
PDZ G2	**Bradwell Marshes**	**HtL**	**HtL**	**HtL**	Loss of intertidal habitat due to coastal squeeze.
PDZ G3	**Dengie Marshes**	**HtL**	**HtL**	**HtL**	Loss of intertidal habitat due to coastal squeeze.

Designated sites

Site	Designation	Key features
Essex Estuaries	**SAC**	**Annex I habitats present include:** sandbanks which are slightly covered by seawater all the time, estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time
Dengie	**Ramsar**	**Ramsar criterion 1** Qualifies by virtue of the extent and diversity of saltmarsh habitat present. Dengie, and the four other sites in the Mid-Essex Coast Ramsar site complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** Dengie supports a number of rare plant and animal species. The Dengie has 11 species of nationally scarce plants. The invertebrate fauna includes the following Red Data Book species: a weevil *Baris scolopacea*, a horsefly *Atylotus latistriatus* and a jumping spider *Euophrys browningi*. **Ramsar criterion 3** This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 43828 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Dengie	**SPA**	**Article 4.1 Qualification. Over winter the area regularly supports:** bar-tailed godwit and hen harrier. **Article 4.2 Qualification. Over winter the area regularly supports:** grey plover and knot. **Article 4.2 Qualification. An internationally important assemblage of birds**

		Over winter the area regularly supports 31,452 wildfowl.
Crouch and Roach	**Ramsar**	**Ramsar criterion 2** Supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant and animal including 13 nationally scarce plant species and several important invertebrate species. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 16970 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Crouch and Roach	**SPA**	**Article 4.1 Qualification. Over winter the area regularly supports:** hen harrier. **Article 4.2 Qualification. Over winter the area regularly supports:** dark-bellied Brent goose.

SAC Site Feature	**Essex Estuaries**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time	N/A	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities,	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI

	from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.						
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	Limited (realignments outside this MU are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Spartina swards *(Spartinion maritimae)*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	Limited (realignments outside this MU are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	Limited (realignments outside this MU are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	Limited (realignments outside this MU are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Potential effect of policy on the site	Local losses within this MU, although at the scale of the SAC there is no loss of intertidal habitat with an overall net gain over the plan period.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
AEOI due to local losses but at the Essex Estuaries site level there is only minor loss in epoch 1 (AEOI) and then could be gains in the following epochs (NAEOI).	Limited (realignments outside this MU are largely outside the current site boundaries)	Managed realignments proposed in areas adjacent to the SAC (across a number of MUs) provide compensation

Ramsar Site Feature	Dengie						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	No decrease in extent from the established baseline, subject to natural change.	Loss of saltmarsh habitat.	Decline in designated habitats	Mitigation for intertidal habitat is through the managed realignments proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
The Dengie supports 11 species of nationally scarce plants.	N/A	Maintain viable populations of scarce plants	Loss of saltmarsh habitat.	Loss of scare plant species as saltmarsh declines.	Mitigation for intertidal habitat is through the managed realignments proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
The invertebrate fauna includes the following Red Data Book species: a weevil *Baris scolopacea*, a horsefly *Atylotus latistriatus* and a jumping spider *Euophrys browningi.*	N/A	Maintain viable populations of Red Data Book invertebrate species	Loss of saltmarsh habitat.	Decline of invertebrate species due to loss of suitable habitat.	Mitigation for intertidal habitat is through the managed realignments proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
This site supports a full and representative sequence of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	Loss of saltmarsh habitat.	Decline of plant species due to loss of suitable habitat.	Mitigation for intertidal habitat is through the managed realignments proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
The site supports assemblages of waterfowl of international importance	43823 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Grey plover	4582 individuals, representing an average of 1.8% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	14528 individuals, representing an average of 3.2% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI

Dark-bellied Brent goose	2000 individuals, representing an average of 2% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	The key issue relates to the loss of intertidal habitat through coastal squeeze across all PDZ for all epochs. Therefore AEOI cannot be ruled out for certain Ramsar cited species.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in HtL frontages (through coastal squeeze) represents an adverse effect on the integrity of the site due to the effect on Ramsar species.	None provided within the existing site – realignments within the wider Mid-Essex Coast Ramsar site contribute to mitigating these losses.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.

SPA Site Feature	**Dengie**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	31,452waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	None	None	None	None	NAEOI
Bar-tailed godwit	1,156 individuals representing at least 2.2% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Hen harrier	5 individuals representing up to 0.7% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Mitigation for intertidal habitat is through the managed realignments proposed for the wider Mid-Essex Coast SPA site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast SPA site as a whole.	AEOI
Grey plover	2,411 individuals representing up to 1.6% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	8,393 individuals representing up to 2.4% of the wintering Iceland - breeding population	Maintain population at or above 50% of total	None	None	None	None	NAEOI

Potential effect of policy on the site	The loss of saltmarsh habitat, which is not a primary feeding habitat for the SPA features, is unlikely to have a significant impact for most species. However, for hen harrier it is considered that loss of one of its two main feeding habitats could have a potentially significant effect.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Potential AEOI due to impact on feeding habitat for hen harrier.	None provided within the existing site – realignments within the wider Mid-Essex Coast SPA site contribute to mitigating these losses.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast SPA site as a whole.

Ramsar Site Feature	**Crouch and Roach**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant and animal including 13 nationally scarce plant species and several important invertebrate species.	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of saltmarsh habitat in epochs 2 and 3	Decline of plant species due to loss of suitable habitat.	Mitigation for intertidal habitat is through the managed realignments proposed for the wider Mid-Essex Coast Ramsar site.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.	AEOI
The site supports assemblages of waterfowl of international importance	16970 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Dark-bellied Brent goose	2103 individuals, representing an average of 2.1% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	A small section of the Crouch and Roach falls within MU G. Saltmarsh appears to be accreting within the Crouch and Roach Estuaries and therefore no adverse effects on these SPA or Ramsar sites are anticipated in epoch 1. However, the effects on the Crouch and Roach Estuaries Ramsar site in epochs 2 and 3 are uncertain and therefore adverse effect on integrity has been concluded.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in HtL frontages (through coastal squeeze) represents an adverse effect on the integrity of the site due to the effect on Ramsar designated plant species.	None provided within the existing site – realignments within the wider Mid-Essex Coast Ramsar site contribute to mitigating these losses.	Compensatory habitat would normally be required for this adverse effect but there is a net gain across the Mid-Essex Coast Ramsar site as a whole.

SPA Site Feature	Crouch and Roach						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Dark-bellied Brent goose	3,074 individuals representing at least 1% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Hen harrier	Up to 2.5% of the GB population 5 year mean, 1987-1991	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	A small section of the Crouch and Roach falls within MU G. Due to the small area of the estuary within MU G an adverse effect on the integrity of SPA species is not anticipated as a result of MUG policies despite the uncertainty over saltmarsh loss in epochs 2 and 3.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI due to small area of the estuary within MU G.. Wider issues within Crouch and Roach are considered within MU H.	N/A	N/A

Overall Summary		
Potential / likely effect of policy	The key issue relates to the loss of intertidal habitat through coastal squeeze in the Dengie across all PDZ for all epochs. This causes adverse effect on certain Ramsar and SPA cited species. A small section of the Crouch and Roach falls within MU G. which appears to be accreting. Saltmarsh appears to be accreting within the Crouch and Roach Estuaries and therefore no adverse effects on these SPA or Ramsar sites are anticipated in epoch 1. However, the effects on the Crouch and Roach Estuaries Ramsar site in epochs 2 and 3 are uncertain and therefore adverse effect on integrity has been concluded.	
Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in HtL frontages (through coastal squeeze) represents an adverse effect on the integrity of the Dengie Ramsar site and SPA, and on the Crouch and Roach Ramsar site.	Some provided within the Essex Estuaries SAC and Mid-Essex Ramsar/SPA, but insufficient.	Additional habitat is required as compensation, but this is considered at the wider Mid-Essex Coast Ramsar/SPA and Essex Estuaries SAC level. A Statement of Case for IROPI is required.

Unit H: Crouch and Roach
H1 –H16

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ H1	Burnham on Crouch	HtL	HtL	HtL	Possible loss of intertidal habitat due to coastal squeeze. Freshwater habitat is maintained but intertidal will be lost.
PDZ H2a	From Burnham on Crouch to Bridgemarsh	HtL	MR2	HtL	MR in epoch 2 will create additional intertidal habitat, but will mean loss of freshwater / terrestrial habitat. Section appears to be accreting.
PDZ H2b	Bridge Marsh to North Fambridge	HtL	HtL	MR2	MR in epoch 3 will create additional intertidal habitat, but will mean loss of coastal grazing marsh. Section appears to be accreting.
PDZ H3	North Fambridge and South Woodham Ferrers	HtL	HtL	HtL	Section appears to be accreting.
PDZ H4	South Woodham Ferrers, Battlesbridge and Hullbridge	HtL+	HtL+	HtL+	Section appears to be accreting.
PDZ H5	Eastwards of Brandy Hole	HtL+	HtL+	HtL+	Section appears to be accreting.
PDZ H6	Landward of Brandy Hole Reach	HtL	HtL	HtL	Section appears to be accreting.
PDZ H7	South Fambridge	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Intensive agricultural land is maintained but intertidal will be.
PDZ H8a	South bank of Longpole, Shortpole and Raypitts Reaches (Canewdon West)	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Intensive agricultural land is maintained but intertidal will be lost.
PDZ H8b	Canewdon	HtL	MR2	HtL	Loss of intertidal habitat during epoch 1 and 3 due to coastal squeeze. MR in epoch 2 will create additional intertidal habitat, but will mean loss of freshwater / terrestrial habitat.
PDZ H9	Paglesham Creek	NAI	NAI	NAI	Habitats left to natural processes.
PDZ H10	Wallasea	MR2	HtL	HtL	The Wallasea MR2 in epoch 1 will create large amounts of intertidal habitat and mitigate losses for the estuary, but will also mean loss of off-site intensive agricultural land. Squeeze will occur in epochs 2 and 3 against realigned defences.
PDZ H11a	Paglesham Churchend	HtL	MR2	HtL	Loss of intertidal habitat during epoch 1 and 3 due to coastal squeeze. MR in epoch 2 will create additional intertidal habitat, but will mean loss of intensive agricultural land.
PDZ H11b	Paglesham Eastend	HtL	MR2	HtL	Section appears to be accreting.
PDZ H12	Stambridge	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze. Intensive agricultural land is maintained but intertidal will be lost.
PDZ H13	Rochford	HtL+	HtL+	HtL+	Loss of intertidal habitat due to coastal squeeze. Industrial land and agricultural land is maintained but intertidal will be lost.

PDZ H14	**Barling Marsh**	**HtL+**	**HtL+**	**HtL+**	Loss of intertidal habitat due to coastal squeeze.
PDZ H15	**Little Wakering**	**HtL+**	**HtL+**	**HtL+**	Section appears to be accreting.
PDZ H16	**Great Wakering**	**HtL+**	**HtL+**	**HtL+**	Loss of intertidal habitat due to coastal squeeze.

Designated sites

Site	Designation	Key features
Essex Estuaries	**SAC**	**Annex I habitats present include:** sandbanks which are slightly covered by seawater all the time, estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time
Crouch and Roach	**Ramsar**	**Ramsar criterion 2** Supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant and animal including 13 nationally scarce plant species and several important invertebrate species. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 16970 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Crouch and Roach	**SPA**	**Article 4.1 Qualification. Over winter the area regularly supports:** hen harrier. **Article 4.2 Qualification. Over winter the area regularly supports:** dark-bellied Brent goose.
Foulness	**Ramsar**	**Ramsar criterion 1** This site qualifies by virtue of the extent and diversity of saltmarsh habitat present. This and four other sites in the Mid-Essex Coast Ramsar site complex, include a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates. **Ramsar criterion 3** The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 82148 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Foulness	**SPA**	**Article 4.1 Qualification. During the breeding season the area regularly supports:** avocet, common tern, little tern and sandwich tern. **Over winter the area regularly supports:** avocet, bar-tailed godwit, golden plover and hen harrier.

		Article 4.2 Qualification. During the breeding season the area regularly supports: ringed plover **On passage the area regularly supports:** redshank **Over winter the area regularly supports:** dark-bellied Brent goose, grey plover, knot and oystercatcher. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 107,468 wildfowl.

SAC Site Feature	**Essex Estuaries**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time		No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI

	are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.						
Spartina swards *(Spartinion maritimae)*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Potential effect of policy on the site	Saltmarsh in Crouch and Roach is slightly accreting. There is no overall loss of saltmarsh within this MU or at the site level.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
AEOI within the wider site, but NAEOI as a result of policies in this MU.	None (realignments are largely outside the current site boundaries)	Managed realignments proposed adjacent to the SAC (across a number of MUs) provide compensation for impacts across the site.

Ramsar Site Feature	**Crouch and Roach**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant and animal including 13 nationally scarce plant species and several important	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of coastal grazing marsh due to managed realignment. Loss of saltmarsh in epochs 2 and 3.	Loss of scare plant species and rare invertebrates as grazing marsh declines. Loss of saltmarsh plants.	None identified for coastal grazing marsh. Mitigation for intertidal habitat is through the managed realignments proposed for the Mid-Essex Coast Ramsar site.	Compensatory habitat is required for loss of grazing habitats and intertidal habitat. A Statement of Case for IROPI is required for the SMP policies.	AEOI

invertebrate species.							
The site supports assemblages of waterfowl of international importance	16970 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Dark-bellied Brent goose	2103 individuals, representing an average of 2.1% of the population	Maintain population at or above 50% of total	Loss of coastal grazing marsh and agricultural feeding areas due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for loss of grazing habitats. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Potential effect of policy on the site	MR in H2a (E2), H2b (E3), H8b (E2), H10 (E1), H11a (E2), H11b (E2) will lead to loss of terrestrial/coastal grazing marsh habitat (either within or adjacent to the site). MR will lead to the loss of agricultural land, which although not designated within the Ramsar, is important secondary habitat. Therefore AEOI. Saltmarsh appears to be accreting within the Crouch and Roach Estuaries and therefore no adverse effects on the Ramsar sites is anticipated in epoch 1. However, the effects on the Crouch and Roach Estuaries Ramsar site in epochs 2 and 3 are uncertain and therefore adverse effect on integrity has been concluded.						
Implications for the integrity of the site:		**Mitigation:**			**Compensation**		
NAEOI cannot be concluded due to the loss of offsite and onsite terrestrial and freshwater habitat, and uncertainty over the loss of intertidal habitat in epochs 2 and 3.		Partly addressed at the Mid-Essex Coast Ramsar level.			Compensatory habitat is required for intertidal, freshwater and terrestrial habitat loss. A Statement of Case for IROPI is required for the SMP policies.		

SPA Site Feature	**Crouch and Roach**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Dark-bellied Brent goose	3,074 individuals representing at least 1% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of grazing marsh due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Hen harrier	Up to 2.5% of the GB population 5 year mean, 1987-1991	Maintain population at or above 50% of total	Loss of grazing marsh due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Potential effect of policy on the site	MR in H2a (E2), H2b (E3), H8b (E2), H10 (E1), H11a (E2), H11b (E2) will lead to loss of coastal grazing marsh (either within or adjacent to the site). MR will lead to the loss of agricultural land, which although not designated within the SPA, is important secondary habitat. Therefore AEOI.						
Implications for the integrity of the site:		**Mitigation:**			**Compensation**		

NAEOI cannot be concluded due to the loss of offsite and onsite coastal grazing marsh and agricultural land.	None identified	Compensatory habitat is required for freshwater and terrestrial habitat loss. A Statement of Case for IROPI is required for the SMP policies.

Ramsar Site Feature	**Foulness**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	No decrease in extent from the established baseline, subject to natural change.	Loss of saltmarsh habitat.	Decline in designated habitats	Mitigation for intertidal habitat is through the managed realignment proposed for the Mid-Essex Coast Ramsar site.	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates.	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of saltmarsh habitat.	Loss of scare plant species as saltmarsh declines.	Mitigation for intertidal habitat is through the managed realignment proposed for the Mid-Essex Coast Ramsar site.	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	Loss of saltmarsh habitat.	Decline in extent and range of saltmarsh	Mitigation for intertidal habitat is through the managed realignment proposed for the Mid-Essex Coast Ramsar site.	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
The site supports assemblages of waterfowl of international importance	82148 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Redshank	2586 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	4343 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI

Knot	22439 individuals, representing an average of 4.9% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Oystercatcher	14674 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Bar-tailed godwit	4095 individuals, representing an average of 3.4% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	6475 individuals, representing an average of 3% of the population (5 year peak mean 1998/9- 2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	Loss of intertidal is expected in H16 through coastal squeeze. As no MR2 is planned (within this unit) within the Foulness Ramsar, there will be no adverse effects on freshwater / terrestrial habitats.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
Loss of intertidal habitat in HtL frontages (through coastal squeeze) will affect certain Ramsar habitats and species and represents an adverse effect on the integrity of the site.	Partly addressed at the Mid-Essex Coast Ramsar level.	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.

SPA Site Feature	**Foulness**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	107,468 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	None	None	None	None	NAEOI
Hen harrier	6 individuals representing at least 0.8% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of saltmarsh due to coastal squeeze	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	None identified	Compensatory habitat is required for saltmarsh habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Avocet	46 pairs representing at least 7.8% of the breeding population in Great Britain	Maintain population at or above 50% of	None	None	None	None	NAEOI

		total					
Common tern	220 pairs representing at least 1.8% of the breeding population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Little tern	24 pairs representing at least 1.0% of the breeding population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Sandwich tern	320 pairs representing at least 2.3% of the breeding population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Bar-tailed godwit	7,639 individuals representing at least 14.4% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Golden plover	3,359 individuals representing at least 1.3% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Redshank	2,144 individuals representing at least 1.2% of the Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	4,209 individuals representing at least 2.8% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Oystercatcher	11,756 individuals representing at least 1.3% of the wintering Europe & Northern/Western Africa population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	40,429 individuals representing at least 11.6% of the wintering North-eastern Canada/Greenland/Iceland/North-western Europe population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	13,075 individuals representing at least 4.4% of the wintering Western Siberia/Western Europe population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	The SMP2 will result in the loss of saltmarsh habitat which has the potential to impact conservation objectives with regards to hen harrier.						

Implications for the integrity of the site:	Mitigation:	Compensation
AEOI due to impact on saltmarsh habitat which is used a hen harrier as feeding habitat.	Partly addressed at the Mid-Essex Coast SPA level.	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.

Overall Summary		
Potential / likely effect of policy	Loss of intertidal is expected in H15 & H16 through coastal squeeze. MR in H2a (E2), H2b (E3), H8b (E2), H10 (E1), H11a (E2), H11b (E2) will lead to loss of freshwater / terrestrial (either within or adjacent to the site). MR will lead to the loss of coastal grazing marsh and designated and off-site agricultural land	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to the loss of offsite and designated terrestrial and freshwater habitat and also the loss of intertidal habitat through coastal squeeze.	Addressed at the Mid-Essex Coast Ramsar/SPA level.	Losses contribute to change across the wider Mid-Essex Coast Ramsar/SPA and Essex Estuaries SAC considered in Section 7 of the HRA main report. A Statement of Case for IROPI is required.

Unit I: Foulness
I1a – I1c

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ I1a	Foulness	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze.
PDZ I1b	Potton	HtL	HtL	HtL	Loss of intertidal habitat due to coastal squeeze.
PDZ I1c	Rushley	HtL	HtL	MR2	Loss of intertidal habitat in epochs 1 and 2 due to coastal squeeze. MR in epoch 3 will increase intertidal habitat area but will also result in the loss of agricultural land.

Designated sites

Site	Designation	Key features
Essex Estuaries	**SAC**	**Annex I habitats present include:** sandbanks which are slightly covered by seawater all the time, estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time
Foulness	**Ramsar**	**Ramsar criterion 1** This site qualifies by virtue of the extent and diversity of saltmarsh habitat present. This and four other sites in the Mid-Essex Coast Ramsar site complex, include a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates. **Ramsar criterion 3** The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 82148 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Foulness	**SPA**	**Article 4.1 Qualification. During the breeding season the area regularly supports:** avocet, common tern, little tern and sandwich tern. **Over winter the area regularly supports:** avocet, bar-tailed godwit, golden plover and hen harrier. **Article 4.2 Qualification. During the breeding season the area regularly supports:** ringed plover

		On passage the area regularly supports: redshank **Over winter the area regularly supports:** dark-bellied Brent goose, grey plover, knot and oystercatcher. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 107,468 wildfowl.

SAC Site Feature	**Essex Estuaries**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time		No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI

	communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.						
Spartina swards *(Spartinion maritimae)*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	Loss of habitat.	Decline in extent and range of habitat	None (realignments are largely outside the current site boundaries)	Losses contribute to change across several MUs, as considered in Section 7 of the HRA main report.	AEOI
Potential effect of policy on the site	Although there is loss of saltmarsh within this MU. This is addressed at the site level in Section 7 of the main HRA report.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
AEOI due to loss in intertidal habitat.	None (realignments are largely outside the current site boundaries)	Managed realignments proposed in areas adjacent to the SAC (across a number of MUs) could provide compensation through the plan period. A Statement of Case for IROPI is required.

Ramsar Site Feature	**Foulness**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in	No decrease in extent from the established baseline, subject to natural change.	Loss of saltmarsh habitat.	Decline in extent and range of saltmarsh	Mitigation for intertidal habitat is through the managed realignment proposed for the	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI

	Essex and 7% of the total saltmarsh in Britain.				Mid-Essex Coast Ramsar site.		
The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates.	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	Loss of saltmarsh habitat.	Decline of invertebrate species due to loss of suitable habitat. Loss of scare plant species as saltmarsh declines.	Mitigation for intertidal habitat is through the managed realignment proposed for the Mid-Essex Coast Ramsar site.	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	Loss of saltmarsh habitat.	Decline in extent and range of saltmarsh	Mitigation for intertidal habitat is through the managed realignment proposed for the Mid-Essex Coast Ramsar site.	Compensatory habitat is required for intertidal habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
The site supports assemblages of waterfowl of international importance	82148 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Mitigation for intertidal habitat is through the managed realignment proposed for the Mid-Essex Coast Ramsar site.	Compensatory habitat is required for intertidal and freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Redshank	2586 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	4343 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	22439 individuals, representing an average of 4.9% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Oystercatcher	14674 individuals, representing an average of 1.4% of the population (5	Maintain population at or above 50% of total	None	None	None	None	NAEOI

	year peak mean 1998/9-2002/3)						
Bar-tailed godwit	4095 individuals, representing an average of 3.4% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	6475 individuals, representing an average of 3% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze and loss of terrestrial habitats due to managed realignment.	Loss of suitable feeding habitat could have an adverse effect on bird populations.	Mitigation for intertidal habitat is through the managed realignment proposed for the site.	Compensatory habitat is required for intertidal and freshwater habitat loss. A Statement of Case for IROPI is required for the SMP policies.	AEOI
Potential effect of policy on the site	Due to the loss of terrestrial habitat (in epoch 3) through MR2 in PDZI1c, an adverse effect is expected. Loss of intertidal habitat through coastal squeeze is also likely to constitute an adverse effect on Ramsar cited habitats and some species.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to loss of adjacent arable fields in epoch 3 and the associated effect on Ramsar-cited bird species. Additionally, loss of intertidal habitat in HtL frontages (through coastal squeeze) will affect Ramsar species and represents an adverse effect on the integrity of the site.	Addressed at the Mid-Essex Coast Ramsar level.	Losses contribute to change across the wider Mid-Essex Coast Ramsar considered in Section 7 of the main HRA report.

SPA Site Feature	**Foulness**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	107,468 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed realignment.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Addressed at the Mid-Essex Coast SPA level.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the main HRA report.	AEOI
Hen harrier	6 individuals representing at least 0.8% of the wintering population in Great Britain	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze.	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Addressed at the Mid-Essex Coast SPA level.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the main HRA report.	AEOI
Avocet	46 pairs representing at least 7.8% of the breeding population in Great Britain	Maintain population at or	None	None	None	None	NAEOI

		above 50% of total					
Common tern	220 pairs representing at least 1.8% of the breeding population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Little tern	24 pairs representing at least 1.0% of the breeding population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Sandwich tern	320 pairs representing at least 2.3% of the breeding population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Bar-tailed godwit	7,639 individuals representing at least 14.4% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Golden plover	3,359 individuals representing at least 1.3% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Redshank	2,144 individuals representing at least 1.2% of the Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	4,209 individuals representing at least 2.8% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Oystercatcher	11,756 individuals representing at least 1.3% of the wintering Europe & Northern/Western Africa population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	40,429 individuals representing at least 11.6% of the wintering North-eastern Canada/Greenland/Iceland/North-western Europe population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	13,075 individuals representing at least 4.4% of the wintering Western Siberia/Western Europe population	Maintain population at or above 50% of total	Loss of intertidal feeding habitat due to coastal squeeze and loss of freshwater habitat due to managed	Loss of suitable feeding habitat could have an unquantifiable effect on bird populations.	Addressed at the Mid-Essex Coast SPA level.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the main HRA report.	AEOI

			realignment.				
Potential effect of policy on the site	Due to the loss of freshwater habitat (in epoch 3) through MR2 in PDZI1c, an adverse effect is expected. Loss of intertidal habitat through coastal squeeze is also likely to constitute an adverse effect on SPA-cited features.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to loss of adjacent arable fields in epoch 3 and the associated effect on SPA-cited bird species. Additionally loss of intertidal habitat in HtL frontages (through coastal squeeze) will affect SPA species and represents an adverse effect on the integrity of the site.	Addressed at the Mid-Essex Coast SPA level.	Losses contribute to change across the wider Mid-Essex Coast SPA considered in Section 7 of the main HRA report.

Overall Summary		
Potential / likely effect of policy	Due to the loss of adjacent arable fields (in epoch 3) through MR2 in PDZI1c, an adverse effect is expected, while loss of intertidal habitat through coastal squeeze is also likely to constitute an adverse effect on SPA-cited species.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
NAEOI cannot be concluded due to loss of adjacent arable fields in epoch 3 and the associated effect on SPA-cited bird species. Additionally loss of intertidal habitat in HtL frontages (through coastal squeeze) will affect SPA species, Ramsar species and habitats and SAC features, and represents an adverse effect on the integrity of the sites.	Addressed at the Mid-Essex Ramsar/SPA Coast level.	Losses contribute to change across the wider Mid-Essex Coast Ramsar/SPA and Essex Estuaries SAC considered in Section 7 of the main HRA report.

Unit J: Southend-on-Sea

Policy Unit	Name	Policy Plan			PDZ Considerations
		National SMP Policy			
		2025	2055	2105	
PDZ J1	**Southend on Sea**	**HtL+**	**HtL+**	**HtL+**	No loss of intertidal area as this frontage is accreting.

Designated sites

Site	Designation	Key features
Essex Estuaries	**SAC**	**Annex I habitats present include:** sandbanks which are slightly covered by seawater all the time, estuaries, mudflats and sandflats not covered by seawater at low tide, and perennial vegetation of stony banks. **Annex I habitats present as a qualifying feature but not a primary reason for selection of this site:** Sandbanks which are slightly covered by sea water all the time
Foulness	**Ramsar**	**Ramsar criterion 1** This site qualifies by virtue of the extent and diversity of saltmarsh habitat present. This and four other sites in the Mid-Essex Coast Ramsar site complex, include a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total area of saltmarsh in Britain. **Ramsar criterion 2** The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates. **Ramsar criterion 3** The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain. **Ramsar criterion 5** Assemblages of international importance: Species with peak counts in winter: 82148 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Foulness	**SPA**	**Article 4.1 Qualification. During the breeding season the area regularly supports:** avocet, common tern, little tern and sandwich tern. **Over winter the area regularly supports:** avocet, bar-tailed godwit, golden plover and hen harrier. **Article 4.2 Qualification. During the breeding season the area regularly supports:** ringed plover **On passage the area regularly supports:** redshank **Over winter the area regularly supports:** dark-bellied Brent goose, grey plover, knot and oystercatcher. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 107,468 wildfowl.
Benfleet and	**Ramsar**	**Ramsar criterion 5**

Southend Marshes		Assemblages of international importance: Species with peak counts in winter: 32867 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6** Species/populations occurring at levels of international importance.
Benfleet and Southend Marshes	**SPA**	**Article 4.2 Qualification. On passage the area regularly supports:** ringed plover **Over winter the area regularly supports:** dark-bellied Brent goose, grey plover, knot and oystercatcher. **Article 4.2 Qualification. An internationally important assemblage of birds** Over winter the area regularly supports 34,789 wildfowl.

SAC Site Feature	**Essex Estuaries**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
Sandbanks which are slightly covered by sea water all the time		No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Estuaries	This is a large estuarine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and sandbanks. Essex Estuaries contains a very wide range of characteristic marine and estuarine sediment communities and some diverse and unusual marine communities in the lower reaches, including rich sponge communities on mixed, tide-swept substrates. Sublittoral areas have a very rich invertebrate fauna, including the reef-building worm *Sabellaria spinulosa*, the brittlestar *Ophiothrix fragilis*, crustaceans and ascidians.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mudflats and sandflats not covered by seawater at low tide	Essex Estuaries represents the range of variation of this habitat type found in south-east England and includes the extensive intertidal mudflats and sandflats of the Colne, Blackwater, Roach and Crouch estuaries, Dengie Flats and Maplin Sands. The area includes a wide range of sediment flat communities, from estuarine muds, sands and muddy sands to fully saline, sandy mudflats with extensive growths of eelgrass *Zostera* spp. on the open coast.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Salicornia and other annuals colonising mud and sand	Glasswort *Salicornia* spp. saltmarsh in the Essex estuaries on the east coast of England forms an integral part of the transition from the extensive and varied intertidal mud and sandflats through to upper saltmeadows. Although the saltmarshes in this area are generally eroding, secondary pioneer communities appear as a precursor to erosion on the seaward edge of degraded mid-marsh communities.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI

Spartina swards *(Spartinion maritimae)*	Small stands are found in the Colne estuary, where it forms a major component of the upper marsh areas.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Atlantic salt meadows *(Glauco-Puccinellietalia maritimae)*	Although the saltmarshes in this area are generally eroding, extensive salt meadows remain and Essex Estuaries represents Atlantic salt meadows in south-east England, with floristic features typical of this part of the UK. Golden samphire *Inula crithmoides* is a characteristic species of these marshes, occurring both on the lower marsh and on the drift-line.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Mediterranean and thermo-Atlantic halophilous scrubs *(Sarcocornetea fruticosi)*	In this complex of estuarine marshes on the east coast of England the occurrence of Mediterranean and thermo-Atlantic halophilous scrubs is currently artificially restricted by sea-walls. It now occurs principally as a strandline community or at the foot of sea-walls. Recent managed retreat schemes offer the prospect of future expansion of the habitat type. The local variant of this vegetation, which features sea-lavenders *Limonium* spp. and sea-heath *Frankenia laevis*, occurs at one location, Colne Point.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
Potential effect of policy on the site	Site within this MU is accreting; losses within the wider SAC are addressed in the tables above.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI due to overall net gain in intertidal habitat in this MU.	Losses within the wider SAC are addressed in the tables above	

Ramsar Site Feature	**Foulness**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site forms an extensive extent and diversity of saltmarsh	This site, and the four other sites in the Mid-Essex Coast complex, includes a total of 3,237 ha, that represent 70% of the saltmarsh habitat in Essex and 7% of the total saltmarsh in Britain.	No decrease in extent from the established baseline, subject to natural change.	None	None	None	None	NAEOI
The site supports a number of nationally-rare and nationally-scarce plant species, and British Red Data Book invertebrates.	N/A	Maintain viable populations of scarce plants and Red Data Book invertebrate species	None	None	None	None	NAEOI
The site contains extensive saltmarsh habitat, with areas supporting full and representative sequences of saltmarsh plant communities covering the range of variation in Britain.	N/A	Maintain range of saltmarsh communities	None	None	None	None	NAEOI

The site supports assemblages of waterfowl of international importance	82148 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Redshank	2586 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	4343 individuals, representing an average of 1.7% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	22439 individuals, representing an average of 4.9% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Oystercatcher	14674 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Bar-tailed godwit	4095 individuals, representing an average of 3.4% of the population (5 year peak mean 1998/9-2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	6475 individuals, representing an average of 3% of the population (5 year peak mean 1998/9- 2002/3)	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	Site within this MU is accreting; losses within the wider area are addressed in the tables above.						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI due to projected overall net gain in intertidal habitat in this MU.	Losses within the wider Ramsar site are addressed in the tables above	

SPA Site Feature	**Foulness**						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	107,468 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	None	None	None	None	NAEOI
Hen harrier	6 individuals representing at least 0.8% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Avocet	46 pairs representing at least 7.8% of the breeding	Maintain population	None	None	None	None	NAEOI

	population in Great Britain	at or above 75% of total					
Common tern	220 pairs representing at least 1.8% of the breeding population in Great Britain	Maintain population at or above 75% of total	None	None	None	None	NAEOI
Little tern	24 pairs representing at least 1.0% of the breeding population in Great Britain	Maintain population at or above 75% of total	None	None	None	None	NAEOI
Sandwich tern	320 pairs representing at least 2.3% of the breeding population in Great Britain	Maintain population at or above 75% of total	None	None	None	None	NAEOI
Bar-tailed godwit	7,639 individuals representing at least 14.4% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Golden plover	3,359 individuals representing at least 1.3% of the wintering population in Great Britain	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Redshank	2,144 individuals representing at least 1.2% of the Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	4,209 individuals representing at least 2.8% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Oystercatcher	11,756 individuals representing at least 1.3% of the wintering Europe & Northern/Western Africa population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	40,429 individuals representing at least 11.6% of the wintering North-eastern Canada/Greenland/Iceland/North-western Europe population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	13,075 individuals representing at least 4.4% of the wintering Western Siberia/Western Europe population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	Site within this MU is accreting; losses within the wider area are addressed in the tables above						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI due to projected overall net gain in intertidal habitat in this MU.	Losses within the wider SPA are addressed in the tables above	

Ramsar Site Feature	Benfleet and Southend Marshes						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	32867 waterfowl (5 year peak mean 1998/99-2002/2003)	Maintain assemblage size	None	None	None	None	NAEOI
Dunlin	17591 individuals, representing an average of 1.3% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	1710 individuals, representing an average of 3.2% of the GB population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Knot	6307 individuals, representing an average of 1.4% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	4532 individuals, representing an average of 2.1% of the population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	Site within this MU is accreting; losses within the wider area are addressed in the tables above						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI due to projected overall net gain in intertidal habitat in this MU.	N/A	N/A

SPA Site Feature	Benfleet and Southend Marshes						
Sub Feature(s)	**Sensitivity**	**Conservation Target**	**Potential effect of policy**	**Implications for integrity (without action)**	**Mitigation**	**Compensation**	**Impact on integrity**
The site supports assemblages of waterfowl of international importance	34789 waterfowl (5 year peak mean 01/04/1998)	Maintain assemblage size	None	None	None	None	NAEOI
Dunlin	800 individuals representing at least 1.6% of the Europe/Northern Africa - wintering population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Grey plover	3,789 individuals representing at least 2.5% of the wintering Eastern Atlantic - wintering population	Maintain population at or above 50% of	None	None	None	None	NAEOI

		total					
Knot	8,850 individuals representing at least 2.5% of the wintering North-eastern Canada/Greenland/Iceland/North-western Europe population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Dark-bellied Brent goose	3,819 individuals representing at least 1.3% of the wintering Western Siberia/Western Europe population	Maintain population at or above 50% of total	None	None	None	None	NAEOI
Potential effect of policy on the site	Site within this MU is accreting; losses within the wider area are addressed in the tables above						

Implications for the integrity of the site:	**Mitigation:**	**Compensation**
NAEOI due to projected overall net gain in intertidal habitat in this MU.	N/A	N/A

Overall Summary		
Potential / likely effect of policy	Intertidal habitat appears to be accreting in the Benfleet and Southend Marshes and Foulness Estuary and therefore NAEOI on Ramsar features are expected. Losses within the Essex Estuaries SAC are addressed in the tables above.	
Implications for the integrity of the sites:	**Mitigation:**	**Compensation**
NAEOI due to projected overall net gain in intertidal habitat in this MU.	Losses within the wider Mid-Essex Coast Ramsar/SPA and Essex Estuaries SAC are addressed in the tables above.	

Statement on the Role of the Anglian Regional Habitat Creation Programme in the compliance of the SMP2 with the Habitats Regulations

Environment Agency

For information

Part A

Regional Habitat Creation Programme manager to complete this section

Name of the SMP	Essex and South Suffolk
Sites of international importance within the SMP	• Essex Estuaries SAC • Stour and Orwell Estuaries SPA/Ramsar site • Hamford Water SPA/Ramsar site • Colne Estuary SPA/Ramsar site • Blackwater Estuary SPA/Ramsar site • Dengie SPA/Ramsar site • Crouch and Roach Estuaries SPA/Ramsar site • Benfleet and Southend Marshes SPA/Ramsar site • Foulness SPA and Ramsar site
Conclusion of the Habitats Regulation Assessment	The assessment concluded that the SMP2 policies may have an adverse effect on the integrity of the following international sites: • Essex Estuaries SAC • Stour and Orwell Estuaries SPA/Ramsar site • Hamford Water SPA/Ramsar site • Colne Estuary SPA/Ramsar site[1] • Blackwater Estuary SPA/Ramsar site[1] • Dengie SPA/Ramsar site[1] • Crouch and Roach Estuaries SPA/Ramsar site[1] • Foulness SPA and Ramsar site[1]
How the compensatory habitat will be delivered (as described by the Statement of Case)	The Statement of Case for IROPI confirms that the compensation habitat requirements arising from the SMP2 will be delivered by the Environment Agency's Anglian Region Habitat Creation Programme (ARHCP).
RHCP programme manager	Paul Miller

[1] The Colne Estuary, Blackwater Estuary, Dengie, Crouch and Roach Estuary and Foulness SPA/Ramsar sites are all part of the wider Mid-Essex Coast SPA/Ramsar site

Part B

The Role of the RHCP in delivering the compensatory habitat

What is an RHCP

A Regional Habitat Creation Programme (RHCP) provides a strategic approach to identifying and addressing potential losses of internationally protected habitats, thus helping to ensure that our flood risk management activities are compliant with the Habitats and Birds Directives.

A Regional Habitat Creation Programme has three distinct phases or elements:

1. PHASE A - Habitat Account Assessment - involves the identification of future losses to European Sites due to flood risk management activities and where habitat has to be created to compensate for those losses. It also involves the identification of losses of BAP habitat as well as gains that offset these losses and contribute to the target of creating 200ha of new BAP habitat a year.
2. PHASE B - Finding and Securing Habitat Site - involves the identification and investigation of suitable sites on which compensatory habitat can be created. It also involves identifying schemes where there may be opportunities for BAP habitat creation.
3. PHASE C - Creating the Habitat - involves gaining control over those sites and the creation and long-term management of appropriate habitat.

The programme has a cyclical nature. In each phase a series of actions need to be completed, and each phase needs to be revisited at regular intervals.

How the RHCP works

The ARHCP is managed and run by the National Capital Programme Management Service (ncpms) on behalf of the Regional Flood and Coastal Risk Manager.

To ensure high-level buy in, it also has a Steering Group. Its members are Natural England, the RSPB, the county wildlife trusts, National Trust and the Wildfowl and Wetlands Trust.

The ARHCP maintains a database to record and update information on all the relevant strategies and projects within the flood risk management long-term plan and revenue works. The database is updated annually to ensure all needs are captured. This allows reprioritisation to take account of changes in Shoreline Management Plans (SMPs) and strategies or particular events (for example, the impact of storms).

A major element of the ARHCP project is identifying potential areas for creating new habitats. To help with this task, a GIS search tool has been developed to help identify suitable land. Suitable areas are visited by area staff that make contact with landowners and undertake initial site assessments.

To help in finding suitable areas, partnerships have been developed with landowners and conservation NGOs who are actively involved in developing habitat creation projects.

The ARHCP has an approved land acquisition strategy, which confirms the approach to purchasing land or otherwise acquiring the rights to habitat creation. Among other things, this seeks to ensure the most cost effective approach is taken to meeting requirements.

Land purchase is often necessary to meet compensation and replacement requirements in compliance with the Habitats Regulations, but the project works closely with Natural England and their Countryside Stewardship programme to fulfil BAP commitments.

The ARHCP budget forms part of the Agency's capital programme. Funds are bid for against the national Flood and Coastal Risk Management projects. Creation of some BAP habitat is funded through the Flood Defence Grant In Aid revenue budget.

The current level of funding for the ARHCP generally allows for one new area to be secured each year and for habitat development work to continue on all the sites in the programme. This is considered to be sufficient to develop the habitats required for this SMP.

Part C
Review of the habitat losses predicted in the SMP and the compensation requirements arising

SAC	**Essex Estuaries**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost/gained during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	Colne Estuary	Saltmarsh	-12	Unknown. Area of losses will be monitored through the SMP Action Plan	Unknown. Area of losses will be monitored through the SMP Action Plan
	Blackwater Estuary	Saltmarsh	-3	Unknown. Area of losses will be monitored through the SMP Action Plan	Unknown. Area of losses will be monitored through the SMP Action Plan
	Dengie Peninsula	Saltmarsh	-28	Unknown. Area of losses will be monitored through the SMP Action Plan	Unknown. Area of losses will be monitored through the SMP Action Plan.
	Crouch and Roach Estuary	Saltmarsh	+10	Unknown but potential loss. Area will be monitored through the SMP Action Plan.	Unknown but potential loss. Area will be monitored through the SMP Action Plan.
	Foulness Peninsula	Saltmarsh	-17	Unknown. Area of losses will be monitored through the SMP Action Plan.	Unknown. Area of losses will be monitored through the SMP Action Plan.
	Totals	**Saltmarsh**	**-50**	**Unknown**	**Unknown**
SPA/Ramsar site	**Stour and Orwell**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost/gained during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	A8a Shotley Marshes west	Coastal grazing marsh and associated wetland habitats	-50	0	0
	A2 Trimley Marsh, A3a Loom Pit Lake, A8b Shotley Marshes east	Coastal grazing marsh and associated wetland habitats		-145	0

	Intertidal areas in front of defences	Saltmarsh	+27	Unknown, but potential loss mitigated by 145 ha managed realignment	Unknown but potential loss. Area will be monitored through the SMP Action Plan
	Totals	**Coastal Grazing Marsh**	**-50**	**-145**	**0**
		Saltmarsh	**+27**	**0**	**Unknown**
SPA/Ramsar site	**Hamford Water**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost/gained during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	B3a Horsey Island	Coastal grazing marsh and associated wetland habitat	0	0	Up to -45
	Intertidal areas in front of defences	Saltmarsh	+6	Unknown but potential loss. Area will be monitored through the SMP Action Plan	Unknown but potential loss mitigated by 45 ha managed realignment.
	Totals	**Coastal Grazing Marsh**	**0**	**0**	**Up to -45**
		Saltmarsh	**+6**	**Unknown**	**0**
SPA/Ramsar site	**Colne Estuary**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	D5 Westmarsh Point to B1029	Coastal grazing marsh and associated wetland habitat	0	Up to about 50 ha (area to be determined in scheme design)	
	D2 Flag Creek south	Coastal grazing marsh and associated wetland habitat			Up to about 50 ha (area to be determined in scheme design)
	Intertidal areas in front of defences	Saltmarsh	-12	Unknown but potential loss mitigated by 50 ha managed realignment	Unknown but potential loss mitigated by 50 ha managed realignment.
	Totals	**Coastal Grazing Marsh**	**0**	**ca -50**	**ca -50**
		Saltmarsh	**-12**	**0**	**0**
SPA/Ramsar site	**Blackwater Estuary**				

Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	F3 Old Hall Marshes, F5 Tollesbury Wick Marshes and F12 Steeple	Coastal grazing marsh and associated wetland habitat	0	0	Up to about 400 ha (area to be determined at scheme design stage)
	Intertidal areas in front of defences	Saltmarsh	-3	Unknown. Area of losses will be monitored through the SMP Action Plan	Unknown but potential loss mitigated by 400 ha managed realignment.
	Totals	**Coastal Grazing Marsh**	**0**	**0**	**ca 400 ha**
		Saltmarsh	**-3**	**Unknown**	**0**
SPA/Ramsar site	**Dengie**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	Intertidal areas in front of defences	Saltmarsh	-28	Unknown. Area of losses will be monitored through the SMP Action Plan	Unknown. Area of losses will be monitored through the SMP Action Plan
	Totals	**Saltmarsh**	**-28**	**Unknown**	**Unknown**
SPA/Ramsar site	**Crouch and Roach**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	H2a Bridge Marsh and, H8B Canewdon	Coastal grazing marsh and associated wetland habitat	0	Up to about 60 ha (area to be determined at scheme design stage)	0
	H2b North Fambridge	Coastal grazing marsh and associated wetland habitat	0	0	Up to about 150 ha (area to be determined at scheme design stage)
	Intertidal areas in front of defences	Saltmarsh	+10	Unknown but potential loss mitigated by 60 ha managed realignment.	Unknown but potential loss mitigated by 150 ha managed realignment.

	Totals	**Coastal Grazing Marsh**	**0**	**Up to 60 ha**	**Up to 150 ha**
		Saltmarsh	**+10**	**0**	**0**
SPA/Ramsar site	**Foulness**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	I1c	Coastal grazing marsh and associated wetland habitat	0	0	Up to about 50 ha (area to be determined at scheme design stage)
	Intertidal areas in front of defences	Saltmarsh	-17	Unknown. Area of losses will be monitored through the SMP Action Plan	Unknown, but loss will be mitigated by 50 ha of managed realignment.
	Totals	**Coastal Grazing Marsh**	**0**	**0**	**Up to 50 ha**
		Saltmarsh	**-17**	**Unknown**	**0**
SPA/Ramsar site	**Mid-Essex Coast (wider site incorporating Colne Estuary, Blackwater Estuary, Dengie, Crouch and Roach Estuary and Foulness SPA/Ramsar sites)**				
Predicted Losses	*Location*	*Habitat type*	*Area of habitats likely to be lost during Epoch 1 (first 15 years) in hectares*	*Area of habitats likely to be lost during Epoch 2 (50 years time) in hectares*	*Additional area of habitats lost by the end of Epoch 3 (100 years time) in hectares*
	All managed realignment sites in the wider SPA/ Ramsar site	Coastal grazing marsh and associated wetland habitats	0	About 110 ha	About 650 ha
	Intertidal areas in front of defences	saltmarsh	-50	0	0
	Totals	**Coastal grazing marsh**	**0**	**110**	**650**
		Intertidal flats and saltmarsh	**-50**	**0**	**0**

Compensation ratios to be used	**(must be agreed with Natural England/CCW)** A 1:1 ratio is agreed for replacing intertidal habitats lost due to coastal squeeze. This ratio will therefore be used for compensating for loss of saltmarsh habitats. With regard to grazing marsh and associated wetland habitats a ratio of 1:1 has been adopted. A 1:1 ratio is considered acceptable where compensation habitats are provided in advance of losses, and where it can be shown that the habitat is functional in respect of the required features. Monitoring of progress in achieving the objectives for the required species will be undertaken and the actions will be reviewed to seek to ensure the outcomes are achieved. Where monitoring demonstrates that this is not possible, additional habitat creation will be undertaken by the ARHCP to provide a higher ratio of compensation habitats. That ratio will be considered on a case by case basis and agreed with Natural England via the RHCP. The ratio may need to be greater where habitats cannot be provided in advance of losses occurring, or where the new habitat is at some distance from the area where habitats are lost. The requirement is to replace the ecological function, rather than to replicate the original areas of habitat, and it may even be possible, in some circumstances, to provide the required function in a smaller area. Compensation habitats will therefore be discussed with Natural England, having regard to the above issues and the potential need for a multiplier to ensure that functionality across the network is maintained.

Total Compensation habitat requirement arising from the SMP

Habitat Type	*Epoch 1 (first 20 years)*	*Additional requirement by end of Epoch 3 (100 years time)*
Coastal grazing marsh	50	950
Saltmarsh	50	Unknown

Part D

Work undertaken to identify sites for compensatory losses

Sites being developed by the RHCP to provide compensatory habitat for the SMP

Location	*Species the site is compensating for*	*Habitat Type*	*Area to be Created in hectares*	*Current Progress*
H10 Wallasea Island Wildcoast project Phase 1, Crouch and Roach Estuary	Birds feeding and roosting in the intertidal zone	Intertidal mudflat and saltmarsh	78 (plus 77 ha for historic losses)	Planning and consents approved, work on habitat creation commenced
B4a Devereux Farm, Hamford Water	Birds feeding and roosting in the intertidal zone	Intertidal mudflat and saltmarsh and high tide roost	35 of intertidal and 15 ha of roosting habitat to offset historic losses	Phase 1 (15 ha) completed
A8a Hillhouse Farm, Orwell Estuary	Birds feeding and roosting in the intertidal zone	Intertidal mudflat and saltmarsh	45	Options consultation in progress
Totals	**underway**		**170**	
	other possible projects		**189**	

Other points on progress	**Intertidal habitat** Wallasea Island Wildcoast Project This is an RSPB project with Crossrail and the Environment Agency as project partners. The Environment Agency has purchased the compensation habitat for Phase 1, and is negotiating to purchase Phase 2. Phase 1 is reliant on tunnel waste from the Crossrail project to raise the land to create saltmarsh. Waste is currently expected to begin arriving on the site during 2011, and will continue to arrive for several years. Phase 2 will commence once Phase 1 has been completed. Both phases are expected to be completed during Epoch 1. Phase 1 of this project will provide all necessary compensation for loss of saltmarsh in epoch 1 of this SMP2. Devereux Farm Phase 1 was completed in August 2010, when the first breach was made in the sea wall. This created 15 ha of intertidal habitat, with another 15 ha of high tide roosting habitat for waders. These habitats offset loss of saltmarsh in Hamford Water since 1994. Hillhouse Farm The landowner is keen to create intertidal habitat through breaching the existing defence. Our initial view is that the managed realignment is likely to have significant effects on bird populations and other Ramsar features through loss of the existing grazing marsh habitat. Hence this project can only proceed if a site for the provision of compensation measures can be secured. This site will provide compensatory intertidal habitats in advance of losses in the Stour and Orwell Estuary in epoch 2. Managed realignment projects in epochs 2 and 3 The three projects described above are all of the managed realignment projects identified in the SMP2. There are managed realignment policies for a further 16 frontages in epoch 2 and 9 frontages in epoch 3. These are not active RHCP projects at the present time, but will be developed at a later stage as and when appropriate to deliver the required mitigation and compensation habitats. **Coastal Grazing Marsh** The Hillhouse Farm managed realignment project will require measures to compensate for loss of coastal grazing marsh and associated SPA and Ramsar features. The Anglian Region Habitat Creation Programme has commenced a search for suitable sites for creating compensation for coastal grazing marsh habitats, and is investigating possible compensation measures for brent geese. Proposed realignments in epoch 2 at A2 Trimley Marsh, A3a Loom Pit Lake, A8b Shotley Marsh east, H2a North Fambridge, and H8b Canewdon all affect coastal grazing marsh within the SPA/Ramsar site and will give rise to similar compensation requirements. Since the compensation for these sites must be in place and functional before the managed realignments can be undertaken in epoch 2, the ongoing search for suitable sites includes these requirements.

Part E
The risks to the RHCP in delivering the requirements in the required timescale

Available powers and funds to secure the necessary compensation	Flood and Coastal Risk Management Grant in Aid Agri-environment scheme The ARHCP has an approved land acquisition strategy, which confirms the approach to purchasing land or otherwise acquiring the rights to habitat creation. Among other things, this seeks to ensure the most cost effective approach is taken to meeting requirements. The ARHCP budget forms part of the Agency's capital programme. Funds are bid for against the national Flood and Coastal Risk Management projects. Creation of some BAP habitat is funded through the Flood Defence Grant In Aid revenue budget. The current level of funding for the ARHCP generally allows for one new area to be secured each year and for habitat development work to continue on all the sites in the programme. This is considered to be sufficient to develop the habitats required for this SMP.				
Risks/mitigation of overall delivery	*Importance (state whether the risk is high medium or low importance)*	*Risk Description (Describe what the potential risk is and how it could impact deliver of the RHCP compensatory habitat)*	*Counter measure (Describe what action will be taken to stop this risk becoming an issue)*	*Owner (who is in charge of ensuring this risk does not become an issue)*	*Comments (Add any comments relating to the progress of mitigating this risk)*
	Medium	Insufficient resources available to the ARHCP	Ensure national and regional funding is sufficient to meet the need	Paul Miller	Sufficient funding to date but potential for future shortfalls due to spending cuts
	Low	Monitoring of future habitat losses is insufficient to fully inform ARHCP	Ensure monitoring programme is fully implemented	Jim Hutchison	
	Low	Failure of RHCP to take account of results of monitoring and future review of SMP polices	Annual review of ARHCP to fully incorporate outputs of monitoring and review	Paul Miller	Annual review process is in place
	High	Failure to secure enough sites to compensate for loss of coastal grazing marsh and associated wetland habitats	Devote appropriate resource to locating, securing and developing sufficient sites	Paul Miller	Search for suitable sites for epochs 1 and 2 underway

Site level risks and mitigation	*Site*	*Likelihood of site delivery within required timescale*	*Importance (state whether the risk is high medium or low importance)*	*Risk Description (Describe what the potential risk is and how it could impact deliver of the RHCP compensatory habitat)*	*Counter measure (Describe what action will be taken to stop this risk becoming an issue)*	*Owner (who is in charge of ensuring this risk does not become an issue)*
	Wallasea Island Wild Coast Phase 1	High	Low	Crossrail project fails to deliver infill, thus preventing the realignment from taking place	Legal agreements in place. Crossrail Project has Government approval and funding.	RSPB
	Devereux Farm	High	Low	Failure of completed site to develop as required	Saltmarsh is beginning to colonise the site	Paul Miller
	Hillhouse Farm	Low	High	Secure site for managed realignment project	Ensure funding is made available	Paul Miller
			Medium	Obtain planning and consents	Appropriate effort in project development and consultation	Paul Miller
			High	Failure to create compensation habitats to maintain populations of bird species affected by the loss of existing SPA/ramsar grazing marsh habitat	Identify and secure location for creation of sufficient grazing marsh compensation habitat through the ARHCP	Paul Miller

Part F
Procedures in place to review the RHCP and monitor losses

In view of the uncertainties about future climate change and processes affecting shoreline evolution, and also because Government policy changes over time, SMPs are reviewed approximately every 10 years. Hence it is envisaged that there will be two reviews of the Essex and South Suffolk SMP prior to the end of Epoch 1.

Compensation needs will be reviewed to take account of the changes to the SMP in future. The long term habitat requirements (i.e. beyond Epoch 1) are sufficiently uncertain at this stage that assessment of risks in achieving them has necessarily to be at a high level. However, a more detailed assessment of risks is possible for Epoch 1.

The RHCP will report back to Defra annually (by the end of the financial year) on the progress of the RHCP in delivering the habitat creation requirements of the SMP. This annual report will confirm:

1. how much compensation habitat was required,
2. how much we expected to create in that year,
3. how much was actually created,
4. whether there is a short-fall/exceedance
5. how we plan to deal with any shortfall (if required).

Part G
Statement of agreed understanding/conclusions

The SMP2 identifies potential for loss of intertidal habitats in all epochs due to coastal squeeze, causing adverse effect on Natura 2000 and Ramsar features. Based on historic rates of loss, it is estimated that 50 ha of saltmarsh will be lost from the Essex Estuaries SAC during epoch 1. Projects currently in progress within the ARHCP will provide 78 ha of intertidal habitat to compensate for this loss.

The realignment at Hillhouse Farm on the Orwell Estuary will also result in adverse effect on SPA/Ramsar bird populations due to loss of 50 ha of coastal grazing marsh during Epoch 1. This project will not be taken forward until adequate compensation measures are in place to maintain populations of the qualifying species that would be affected.

Compensation needs for epochs 2 and 3 (beyond 2025) are not yet known. Coastal squeeze impacts will be reassessed in the light of observed habitat loss and sea level rise. Loss of coastal grazing marsh and associated wetland habitats will be identified and assessed at scheme design stage when managed realignments are implemented. However, a search for suitable potential sites for coastal grazing marsh habitat creation is underway. It is Government policy to review SMPs every ten years. The ARHCP undertakes an annual review of habitat creation requirements. The outcome of monitoring, future SMP reviews and other relevant documents such as estuary and coastal flood risk management strategies will be taken into account in these annual reviews. Any changes to the estimated timing and quantity of habitat losses will be incorporated into the ARHCP programme annually.

For Shoreline Management Plans (SMP), it is not necessary for all of the anticipated compensatory habitats to be in place at the time that this SMP is approved. However, it is essential that the ARHCP provides the required compensation habitat before any damage is likely to occur, through implementation of the SMP, otherwise schemes and projects will be unable to proceed and the SMP cannot be implemented.

Part F
Sign-off

RHCP Manager	
SMP Review Group	
Regional Director	16/1/12