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Our reference: EIA/2016/00010

By email only

31 January 2017

Dear Ms Peirce,

THE MARINE WORKS (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2007, AS AMENDED: REGULATION 5

Proposal: Lydd Ranges Flood Risk Management Scheme

On 24 March 2016 the Marine Management Organisation (MMO) received an application from the Environment Agency to undertake the Lydd Ranges Flood Risk Management Scheme involving, but not limited to, the installation of a 1.8 km groyne field, consisting of 34 timber groynes and the recharge of the beach within the groynes area with imported shingle.

The Environment Agency requested that the MMO give consideration to screen by agreement for the aforementioned application request under Annex II, Article 10k, Coastal and Sea Defence Works of The Marine Works EIA Regulations 2007 (as amended) ("the Regulations").

It is the MMO's understanding that, pursuant to Regulation 5 of the Regulations, it is agreed between the MMO and the Environment Agency that the proposed works constitute EIA development.

If this is your understanding of the discussions undertaken on 26 January 2017, and this subsequently detailed agreement, then please confirm this by return correspondence no later than 7 February 2017.

Your feedback

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BN11 1LD

Case reference: EIA/2016/00010

31st January 2017

Dear Ms Peirce,

The Marine Works (Environmental Impact Assessment) Regulations 2007, as amended (""the Regulations"")
Request for a scoping opinion - Lydd Ranges Flood Risk Management Scheme

Thank you for your application dated 24 March 2016, requesting a scoping opinion from the Marine Management Organisation (MMO) in respect to the Lydd Ranges Flood Risk Management Scheme.

In accordance with the regulations listed above, before reaching our scoping opinion, we have consulted such bodies that we considered likely to have an interest in the project by reason of their environmental responsibilities.

Details of the scoping opinion can be found in the attached Report. The items set out in the Report are those that have been highlighted by consultees and which we would expect to be fully considered within the environmental statement. However, we would not see this as a definitive list and other subsequent work may prove necessary following further discussion.

If you have any queries or require clarification on any of the above, then please do not hesitate to contact me.

Yours sincerely,

Mr Joseph Pratt
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joseph.pratt@marinemanagement.org.uk

POSITIVE ABOUT DISABLED PEOPLE
INVESTORS IN PEOPLE

If you require any further information please do not hesitate to contact me using the details provided below.

Yours Sincerely,



Joseph Pratt
Marine Case Officer



Marine Management Organisation

Scoping Opinion

Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) ("the Regulations")

Title: Lydd Ranges Flood Risk Management Scheme

Applicant: Environment Agency

MMO Reference: EIA/2016/00010

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1. Proposal

Lydd Ranges Flood Risk Management Scheme

1.1 Project Background

The Lydd Ranges Flood Risk Management Scheme, proposed by The Environment Agency, is derived from the Folkestone to Cliff End Flood Risk Management Strategy, and forms part of a package of work remaining to implement the strategy. The preferred option is an adaptive hold the line approach, incorporating realignment to the green wall, and periodic review to determine the best option for the 50-100 year epoch.

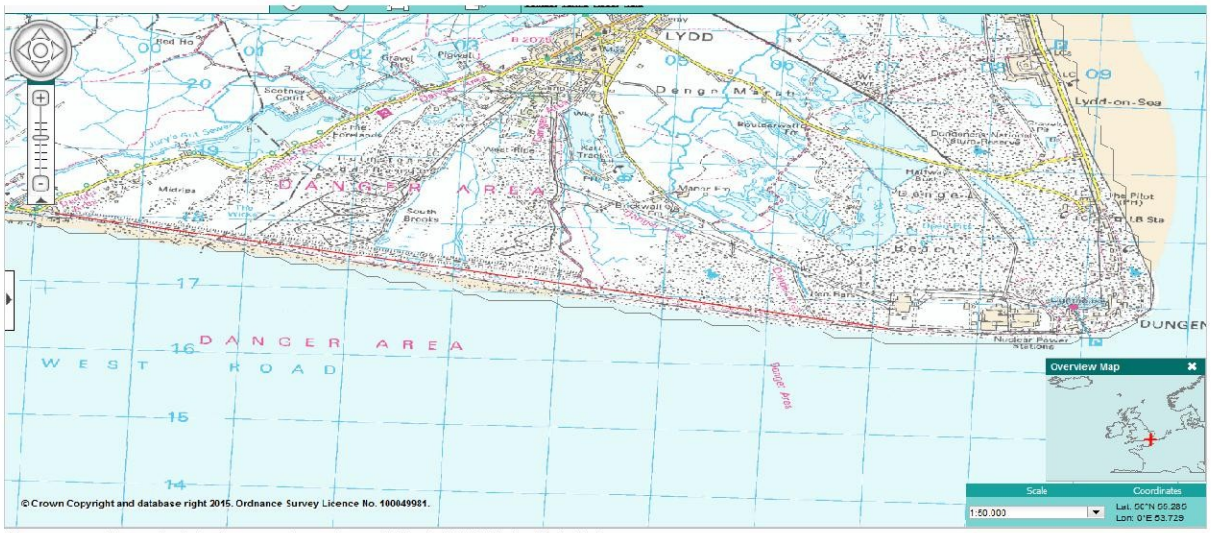
The 8km long frontage is divided into 5 sections:

1) Hold the Line for Jury's Gap to the Wicks (approx. 2.2km). High Tide Line is to be achieved through improvements to the existing Green Wall along the whole frontage, a new 1200m long groyne field eastwards from Jury's Gap and shingle recharge. The groyne field will require replacement in year 25 and periodic recharge every 5 to 10 years;
2) Green wall improvement works along the 1.0km Southbrooks section by year 5 and raised further in year 50;
3) Green wall improvement works from the Wicks to Southbrooks section approximately 1.2km in year 25;
4) Green Wall Realignment (approx. 3km). Works would be the same as for the South Brooks to Denge Marsh Section for PMR Option – i.e. this will require future improvement works as natural processes progressively erode the existing foreshore; and
5) Denge Marsh: this short 600m long frontage is from the Denge outfall to the Dungeness Power Station tsunami bund. This requires a retreated low wall to protect the National Grid transformer station and pylons from overtopping to a minimum 1:200 standard of protection. (potential to 1:1000).

2. Location

The Lydd Ranges Flood Risk Management Scheme has come out of the Folkestone to Cliff End Flood Risk Management is located Lydd Ranges, Dungeness, Kent, which is displayed in Figure 1 below.

Figure 1: Location of the proposed works



Source: Spatial Information Toolkit (SPIRIT) (2017)

3. Environmental Impact Assessment (EIA)

It is the understanding of the Marine Management Organisation (MMO) that, pursuant to Regulation 5 of the Regulations, it is agreed between the MMO and the Environment Agency that the proposed works constitute EIA development under Annex II, Article 10k, Coastal and Sea Defence Works of EU Directive 2011/92/EU COUNCIL (as amended).

The application required for the proposed works for a marine licence under Part 4 of the Marine and Coastal Access Act 2009 ("the Act") will be accompanied by an Environmental Statement ("ES").

4. Nature Conservation / Designated Sites

Dungeness, Romney Marsh and Rye SPA

The MMO agrees with areas put forward for further assessment in the ES. Further assessment should be carried out for the Dungeness SPA features under the following headings:

Disturbance (e.g. visual, noise, gulls)

Regular military live-firing does not include large machinery on the Green Wall or during construction of the groyne field on the sight line for wading, feeding bird species on the intertidal areas. Visually the scheme construction will be in contrast to military activities in this way and the activity on the foreshore and as such this should be considered in the resulting ES.

Changes in surface water flooding / Changes in velocity or flow regime

This requires more detail before it is scoped out at this stage. A better understanding of the percolation of saline and fresh water through the shingle and the reliance of the habitats and associated species on this process should be considered.

The piling within the Green Wall has the potential to alter the percolation through the shingle.

Dungeness SAC

The MMO agrees that there is no further assessment needed of the scheme in relation to impacts on Great Crested Newt and this feature is thus scoped out.

The MMO concurs with areas put forward for further assessment. Further assessment needs to be carried out for the Dungeness SAC features under the following headings:

Habitat loss and physical damage

As the Denge Marsh sewer and outfall structures approach the coastline shingle habitats over the pipline displays early Perennial Vegetation of Stony Banks (PVSB). The banks to the valley in which the pipeline sits display shingle vegetation. Protection of areas may be necessary from access routes and vehicles and works and temporary storage. MMO therefore disagrees that there are no impacts to the SAC communities in this area of the Lydd Ranges scheme and recommends this area of the scheme assessed further in the final ES.

Smothering is potentially damaging when the Green Wall rock revetment works and the groyne fields are being constructed and the Denge Marsh sewer works are underway, this should be included in the ES.

Temporary storage of shingle material or arisings needs to be carefully planned and located to minimise damage to the Dungeness Romney Marsh and Rye Bay Ramsar and the Dungeness SAC vegetated shingle habitats and consideration should be afforded in the ES.

Potential coastal squeeze within 25 year period

Impacts on the designated habitats from coastal squeeze up to year 25 are possible if higher than expected rates of erosion mean that the shingle ridge retreats back to the Green Wall within 25 years. This potential impact will require further assessment in the ES and measures to manage this potential impact will need to be transposed into the current scheme.

There is a need to future proof the scheme to ensure that management of the shoreline over the 25 years is carried out by shingle recharge and the proposed groyne field as described. The precise areas of loss for each qualifying habitat have not been fully determined at this stage and should be considered in the resulting ES.

A methodology needs to be agreed for identifying the losses, considering what will be accepted as natural change and what will be considered direct impacts or coastal squeeze arising from the scheme and how these will be assessed and addressed through mitigation and/or compensation.

Changes in physical processes (e.g. sediment transport) leading to habitat / community simplification

The restriction of shingle movement and slowing of active coastal processes will have impacts further along the coastline within the SAC. Assessment needs to be made of how the coastline within this scheme on Lydd Ranges will continue to fully function within the larger setting of the Dungeness SAC

Changes in surface water flooding / Changes in velocity or flow regime

The MMO is of the opinion that this requires more detail before it is scoped out at this stage. A better understanding of the percolation of saline and fresh water through the shingle and the reliance of the habitats and associated species on this process should be included in the ES.

The piling within the Green Wall has potential to alter the percolation through the shingle. This is a potential impact in terms of saline and freshwater exchange through the shingle.

There is a possibility that fresh water from within the site might not drain out in the same way, or the drainage may be altered in some way, and make the lagoons fresher. This should be considered in the resulting ES.

There is a possibility that saline water from within the site might not drain out in the same way, or the drainage may be altered in some way to cause percolating through the shingle into the saline lagoons at the Midrips, Wicks etc.

Nutrient enrichment

A source of enrichment could potentially be within the shingle recharge. Fines within the shingle recharge material can add enrichment and should be considered.

Siltation / Smothering

Smothering is potentially damaging during the Green Wall rock revetment works, the groyne fields and the Denge Marsh sewer works are underway. Temporary storage of shingle material or arisings needs to be carefully planned and located to minimise damage to SAC vegetated shingle habitats.

Dungeness Romney Marsh and Rye Bay Ramsar

MMO agrees with the areas put forward for further assessment. Further assessment needs to be carried out for the Dungeness Romney Marsh and Rye Bay Ramsar features under the following headings:

Habitat loss/Physical damage

Saline lagoons lie between the Green Wall and the shingle crest, particularly in the area of Southbrooks where works on the Green Wall are proposed. Further Assessment is needed to ensure that potential impacts to the saline lagoons are fully understood.

Siltation / Smothering

Smothering is potentially damaging during the Green Wall rock revetment works, when the groyne fields are being constructed and when the Denge Marsh sewer works are underway. Temporary storage of shingle material or arisings needs to be carefully planned and located to minimise damage to Ramsar vegetated shingle habitats.

Changes in surface water flooding / Changes in velocity or flow regime

This requires more detail before it is scoped out at this stage. Better understanding of the percolation of saline and fresh water through the shingle and the reliance of the habitats and associated species on this process is required.

The piling within the Green Wall has potential to alter the percolation through the shingle.

Nutrient enrichment

A source of enrichment could potentially be within the shingle recharge. Fines within the shingle recharge material can add enrichment and should be considered.

5. Coastal Processes

The MMO notes that the descriptions of the location and of the works are a strong point of the Preliminary Environmental Information Report (PEIR) but coastal processes assessments to date are the major evidence for EIA and so should be expressly acknowledged within the final ES.

How the present management regime affects coastal process should be presented in the ES, for example the unstable disequilibrium of the beach due to the continual recycling and re-profiling of beach shingle, and (where natural processes are allowed to continue) whether there is any expected material change due to the new regime.

The lifetime and fate of the timber structures under the prevailing marine conditions should be addressed in the ES, relative to the timescale of the scheme (25 years at least).

Beach recharge (increasing the volume of material), and all subsequent beach recharges required for maintenance, should be assessed in terms of the source characteristics of the recharge material: such as grain size, mineralogy and possible changes in the fate and pathway of beach material i.e. present rates of longshore and cross-shore transport and the potential impacts on the receiving environments if significant amounts of the material have the potential to escape from the scheme boundaries.

The source of the recharge material may be of relevance to some receptors i.e. at the extraction site or at the site of disposal of unrequired material and this must be considered in the ES.

Given that the scheme may be a temporary solution until the preferred option of a partial realignment and increasingly natural processes of shoreline change becomes possible, the potential for end of life impacts on coastal process must also be noted within the ES.

6 Fish Ecology and Fisheries

The MMO recommends, where possible, the installation of groynes and beach recharge works take place during winter months to avoid the Sole breeding season. However, is it acknowledged that proposed activities may be timed in accordance with the needs of other species of conservation importance which take precedence over marine fishes, these considerations should be presented in the ES.

Conservation species such as Allis shad and Twaite shad may also be present in the vicinity of the proposed works and this should be acknowledged in the ES. These species only require consideration of the potential effects of the development upon them, during their potential transition/migration through the waters adjacent to the project

The proposed works, through the installation of groynes and importation of shingle, have the potential to increase levels of suspended sediment and sediment

deposition that can have an adverse effect on fish resources and this should be noted in the ES.

Given that the proposed works are in an area where several fish species may have spawning and nursery grounds, the ES should assess the potential effects of suspended sediment and sediment disposition on fish.

7. Underwater Noise

Currently, the noise and vibration assessment in the proposed ES does not include an assessment of underwater noise.

The MMO notes that piling will be used to install the king piles for the timber groynes, although the piling method has not been confirmed.

Therefore the impacts to fish from underwater noise must be included in the final ES.

Noise resulting from the installation of sheet piles and placement of rock revetment on the Green Wall is not expected to impact on fish or fisheries resources, as the site is located above mean high water springs mark.

8. Commercial Fisheries

Commercial fishing activity in the area should be considered in the ES. Commercial fishing boats operate from the local ports of Eastbourne, Hastings, Rye, Folkestone, and Dungeness, and typically target the following species: sole, plaice, rays, cod, whiting and bass.

Consideration should also be given for the activities of fishing vessels that may operate around Lydd Ranges, particularly the inshore vessels using static fishing gear.

9. Shellfish

Shellfisheries exist for crabs, lobsters and whelks. Consideration should be given for the activities of fishing vessels that may operate around Lydd Ranges, particularly the inshore vessels using static fishing gear.

10. Archaeology

MMO concurs with the recommendations contained within the scoping report, however it is also recommend that the assessment be supported by walkover surveys, which could locate previously unknown earthworks and partially submerged remains.

The MMO advises that the assessment also highlights any areas across the development site that might benefit from site investigation works to inform the assessment of effect.

The MMO strongly recommends engagement with Historic England to discuss the design of the appropriate scope and methodology of any such fieldwork.

Effects on the historic landscape character, and the settings of designated and non-designated heritage assets both within and outside the site boundary should also be assessed and included in the ES.

The result of the desk-based assessment should be used to inform the scheme design. The scheme design should seek to reduce the harm to archaeological remains through careful placement of new installations, site compounds and other sub-surface intrusions, considered design of construction traffic routes and a sensitive development methodology.

The scheme design should also seek to reduce to a minimum any harm to archaeological and palaeoenvironmental remains, both known and potential.

11. Visual Impacts

In addition to any Landscape and Visual Impacts Assessment, MMO expects published guidance on the setting of heritage assets (Historic England Good Practice in Planning Note 3) to be followed.

Accurate visual representations of the levels of possible harm should be presented. MMO suggests use of photomontages with regard to the historic environment.

In addition, the scheme design should seek to conserve the historic character of the landscape, and the character and material integrity of the Green Wall as far as possible. For example, consideration should be given to any alternative construction methodologies and traffic routes which might reduce harm to the monument's material structure and character.

Conclusion

The topics highlighted in this scoping opinion should be assessed during the EIA process and the outcome of these assessments should be documented in the ES in support of the marine licence application and the planning application(s). This statement, however, should not necessarily be seen as a definitive list of all EIA requirements. Given the scale and programme of these planned works other work may prove necessary.

The MMO would welcome the opportunity to progress the EIA and HRA assessments under the principles of the coastal concordat. The MMO have the ability under the Marine Works (Environmental Impact Assessment) Regulations 2007 to defer to another appropriate authority in the process of undertaking an EIA assessment, which is the case for the Lydd Ranges Flood Risk Management Scheme. Furthermore, the HRA may be managed by one appointed administrative lead, where multiple regulators exist. There are many benefits of progressing the remainder of the project under the coastal concordat as it streamlines the regulatory progress and avoids duplication of work. Accordingly, the MMO wish for any further

contact or submitted applications to be timed for submission to all regulators simultaneously.

Joseph Pratt
Marine Case Officer



31/01/2017

Y16/0008/SCR
[redacted]
20.01.17

Carol Peirce
Environment Agency
Guildbourne House
Chatsworth Road
Worthing
BN11 1LD

Dear Carol Peirce

SCREENING OPINION UNDER THE TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2011.

EIA Screening Opinion under Regulation 5(1) of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011.

Proposed Development:
LYDD RANGES FLOOD RISK MANAGEMENT

Location: Lydd Ranges, Kent

DECISION: The Local Planning Authority is of the opinion that an Environmental Impact Assessment is required.

I refer to your letter dated 20th October 2016, requesting a screening opinion from the Local Planning Authority, with respect to the proposed flood risk management works at Lydd Ranges.

The submitted letter contains and is accompanied by the following information in accordance with the EIA regulations:

- A plan to identify the land – Lydd Location Plan.
- A screening and scoping opinion request letter with, a description of the site, the key elements of the proposed works, the site designations, and a summary of the submitted documents.
- Lydd Ranges Preliminary Environmental Information.
- Assessment and Reporting Request Reference.
- Lydd Ranges General Arrangement.

- Lydd Ranges Indicative Groyne Field Layout.
- Lydd Ranges Indicative Groyne Sections.
- Lydd Ranges South Brooks Layout Drawing.
- Lydd Ranges South Brooks Sections.
- Indicative Landscape Plan.
- WFD Screening Assessment

The development proposed as detailed above and set out in the submitted documents has been considered in accordance with Regulation 5(1) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011.

The site is dominated by the MoD military ranges at Lydd and Dungeness Power Station to the east. Public access to the site is limited to days when firing is not taking place at Lydd Ranges. The area surrounding the Lydd Ranges frontage is of high nature conservation value, with extensive nature conservation designations (listed below). Of particular interest are the habitats and birds these sites support, and other protected species.

Currently flood risk management within the scheme area is provided by the management of the shingle beach through regular reprofiling and movement of the beach material to maintain the shingle ridge, and periodic recycling of shingle material from the eastern extent of the Dungeness peninsula back to Broomhill Sands.

The background set out in the Preliminary Environmental Information, states that investigations have concluded that the strategy to be deployed will be to continue to 'Hold the Line', as partial realignment of the flood defences would have unacceptable consequences for the MoD in terms of the loss of the use of the firing ranges.

The preferred option for the Lydd Ranges frontage is to reduce the current level of flood risk by a combination of new coastal defence structures and improvement of an existing low embankment at Lydd Ranges know as the Green Wall.

The works comprise of:

- Installation of a 1.8km long groyne field comprising of 34 groynes.
- Recharge of the beach within the groyne field area with imported shingle.
- Improvements to 1km of the Green Wall at South Brooks by installing sheet piles through the existing wall.
- Periodic recharge of the beach at the groyne field.
- Relocation of the Denge Marsh outfall 50m inland to accommodate future erosion of the coastline.

It is the opinion of the Local Planning Authority that as the proposed development would be likely to have a significant effect on the site; the works would not therefore fall under permitted development.

If the development falls within the selection criteria for a 'schedule 2' development then it needs to be determined whether the proposal is situated within a 'sensitive area' and/or whether it is likely to have significant effects on the environment. It is the opinion of the Local Planning Authority that the proposed development falls within the description of Paragraph 10 Infrastructure Projects (m) – *Coastal work to combat erosion and maritime*

works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works; and as such the proposed development is classified as Schedule 2 development of the 2011 Regulations.

Sensitive areas include Site of Special Scientific Interest (SSSI), European Sites (Special Protection Areas (SPA), Special Areas of Conservation (SAC and Ramsar) and National Parks. If the proposed development is located in, partly in, or has any negative effect on these sites, then an assessment will be required. To consider if the development will have significant effect on the environment, we have considered the selection criteria under 'Schedule 3' (EIA Regulations 2011).

Schedule 3 (2) of the EIA Regulations 2011 requires consideration of the selection criteria for Schedule 2 EIA development and identification of 'environmental sensitivity' (referred to above).

The proposed works are located within, adjacent or nearby to the following sites:

- Dungeness SAC
- Dungeness, Romney Marsh and Rye Bay SPA
- Dungeness, Romney Marsh and Rye Bay pSPA Marine Extension
- Dungeness, Romney Marsh and Rye Bay Ramsar
- Dungeness, Romney Marsh and Rye Bay SSSI
- Dungeness, Romney Marsh and Rye Bay National Nature Reserve

Therefore, we advise that the site does fall into a 'sensitive area'.

Regulation 61 of the Conservation of Habitats and Species Regulations 2010 states:
A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which-

a) Is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and
b) Is not directly connected with or necessary to the management of that site, must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

As the development is not directly connected with the necessary management of the site, if significant impacts are identified then Shepway District Council will need to prepare an Appropriate Assessment to be carried out in parallel with the determination of the planning application. Shepway District Council will carry out the Habitat Regulation Assessment informed by the submitted details of the submitted planning application HRA documents. This information should be submitted with the Environmental Statement.

Consultations were sent to Natural England, Kent Wildlife Trust, KCC Ecology, Affinity Water, Southern Water, Romney Marsh Internal Drainage Board, Environment Agency, Environmental Health, Merebrook, Historic England, KCC Archaeology, MoD, National Grid, Dungeness Power Station, Crown Estates, RSPB, and MMO. Of those that responded, the following comments were provided:

- Natural England is concerned that the proposed development could have significant direct impacts upon the designated sites and that further assessment

should be required. Natural England requests that a detailed assessment of the potential impacts of this proposal upon these designated sites is submitted with any subsequent planning application. Information must be provided supporting the application sufficient for the authority to assess whether protected species are likely to be affected and, if they are, whether sufficient mitigation, avoidance or compensation measures will be put in place. Natural England recommends seeking further information from the appropriate bodies regarding potential environmental planning constraints and designations. Information on these potential assets should be included in the ecological assessment of the potential impacts of this proposal.

- KCC Ecology has provided comments summarised above.
- Southern Water has no objection to the screening opinion proposal. Southern Water's current sewerage records do not show any public sewers to be crossing the site. However, due to changes in legislation that came in to force on 1st October 2011 regarding the future ownership of sewers it is possible that a sewer now deemed to be public could be crossing the property.
- It is recommended that contact is maintained with the MoD, to agree a plan of works to ensure there is no conflict with military operational activity.
- Environment Agency no longer comments on Screening Opinions, and in this instance are the applicant.
- Merebrook concur with the submission conclusions that EIA is required and that the scope of the EIA will include assessment of potential land contamination as a result of the former military use of the land.

In the light of the above consultation responses, it is considered that the proposed development is likely to have significant effects on environmentally sensitive designated areas. The applicant therefore is required to complete an Environmental Impact Assessment.

Under Regulation 23 (1) of the 2011 Regulations, the screening opinion (this letter) has been placed on the Planning Register and will be available for a period of at least 2 years.

Yours sincerely



Y16/0006/SCO

[redacted]

Carol Peirce
Environment Agency
Guildbourne House
Chatsworth Road
Worthing
BN11 1LD

Dear Carol Peirce

SCOPING OPINION UNDER THE TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2011.

Proposed Development:
LYDD RANGES FLOOD RISK MANAGEMENT

Location: Lydd Ranges, Kent

I refer to your Screening and Scoping letter dated 20th October 2016, requesting a scoping opinion under the EIA regulations. This scoping opinion is based on the content of the letter and the accompanying details, and follows the recent Screening Opinion dated 20th January 2017.

The proposed development has been screened and is likely to have significant effects on environmentally sensitive designated areas. The applicant therefore is required to complete an Environmental Impact Assessment in support of a planning application.

The principle aim of the scoping process is to identify the aspects of the environment that are likely to be significantly impacted by the scheme, which will require further assessment to determine the impacts of its implementation.

The Proposal

The Screening and Scoping letter sets out a description of the site, the key elements of the proposed works, the site designations, and a summary of the submitted documents.

The site and proposed works are set out in the submitted documents and summarised in the screening opinion letter.

The potential ecological impacts include; direct loss/modification of habitats; disturbance/displacement of protected species; changes in water quality turbidity and sedimentation; introduction/spread of non-native species; potential coastal squeeze; and operational noise/vibration/air quality impacts.

The 'effects on traffic and transport during operation' should be scoped into the ES due to potential impact on breeding/wintering birds.

Other habitats/species are considered to be scoped out of ES (badgers, bats, Great Crested Newts, medicinal leech, lagoon snail, otter, reptiles and water vole); however, the ecological report should provide relevant survey effort and any necessary mitigation or precautionary mitigation measures.

All recommended surveys should be undertaken across all potentially suitable habitats, to inform the conclusions of the ES with regard to the potential ecological impacts of the proposed development. We recommend that an appropriate data search is undertaken through Kent and Medway Biological Record Centre. Full details of any impact on 'Habitats and Species of Principal Importance' published under s41 of the Natural Environment and Rural Communities Act 2006 must be included in the ES. Consideration must also be given to species identified in the Kent biodiversity action plan.

We expect that the ES will demonstrate accordance with the 'mitigation hierarchy' ensuring that where the potential for ecological impacts to occur is identified, the approach to development will first try to avoid the impacts, then minimize the impacts, and, as a last resort, to compensate for any remaining ecological impacts, to ensure that Shepway District Council has a full understanding of the potential ecological impacts as material considerations in the planning determination. Full details of all of the ecological survey work carried out must be included as technical appendices to the ES.

In addition to any necessary mitigation measures, we would expect the proposed development to provide ecological enhancement measures such that net gains for biodiversity are secured. We expect that the proposals will incorporate a stated intention to deliver net gains for biodiversity.

Consultation

Consultation is a key aspect of EIA. In response to the submission of the screening/scoping request, the Local Planning Authority has consulted the following statutory and non statutory consultees:-

- Natural England
- Kent Wildlife Trust
- KCC Ecology
- Affinity Water
- Southern Water
- Romney Marsh Internal Drainage Board
- Environment Agency
- Environmental Health
- Merebrook
- Historic England

- KCC Archaeology
- MoD
- National Grid
- Dungeness Power Station
- Crown Estates
- RSPB
- MMO

Potential Environmental Effects

Having reviewed the consultee comments, I would like to draw your attention to the following:

- Natural England will be offering detailed scoping advice in the near future informed by discussions with the EA.
- KCC Ecology has provided comments summarised above.
- Environment Agency suggests further information is provided regarding Fisheries, Biodiversity and Geomorphology. If sediment is not to be recharged east of the groyne field, it is important to know how much the sediment supply to the east of the groyne field will be reduced from current and how this impacts on the Dungeness spit; and, will the beach sediment supplied to the beach east of the groyne be different as a result of the new groyne field? A Water Framework Directive Assessment will need supplying in which the increased hardening and the reduced longshore transport is assessed on the WFD waterbody.
- Historic England confirms that the proposed development meets the criteria for requiring an Environmental Impact Assessment, as defined within the Town and Country Planning (Environmental Impact Assessment) Regulations 2011. Whilst no designated heritage assets lie within the possible application site, they nevertheless agree that it is correct for historic environment issues to be included in the scope of the Environmental Impact Assessment, because of the size of the proposed development and the potential degree of harm to important heritage assets.
  The proposed development site has the potential to contain archaeological remains of local importance. It also contains a known earthwork of local historic interest (the Green Wall) and itself forms part of a wider historic landscape which is important within the region. Impacts upon heritage assets outside the application site, as a result of changes to their settings, are expected to be minimal and restricted to the short term.
  A comprehensive understanding of the baseline conditions is necessary in order to design proposals that will minimise harm to the historic environment and maximise any opportunities for enhancement that may exist. Once that work has been carried out, we recommend the applicant reassess their proposals in order to identify ways in which careful design could improve the outcome for the historic environment.
  Historic England is a statutory consultee regarding heritage assets of the highest designations, including Scheduled Monuments, and Grade 1 and 2* Listed Buildings and Registered Parks and Gardens. Historic England may also comment therefore on other heritage assets and the historic environment in general, and in this case we propose to do so because of the size of the proposed development and the potential degree of harm to important heritage assets. However, they anticipate that

the primary source of advice to the applicant will be Kent County Council's heritage team.

Heritage significance

The proposed development lies along a stretch of dynamic coastline which has long been typified by its changing form and nature, and whose historic past has been characterised by the struggle to adapt to and control this change. Since at least the medieval era, the response to this coastal change has included the abandonment of land, ports and settlements and their protection or reclamation through the construction of drainage and defensive structures. Clear views out to sea from the area are historically important as such views have long been important in allowing early warning of attack.

The Green Wall is an earthwork within the development area that is of uncertain origin and function, but which is considered to be local historic importance for its potential archaeological value. The proposed development also crosses a landscape which was of great importance to national defence during the Second World War, and across which numerous non-designated WW2 military features exist that have considerable cumulative significance locally, both for their archaeological value, and their communal value in commemorating the struggles of the war.

Potential for archaeological remains of (submerged) wreck and aircrash sites is also high along this stretch of the coast. Otherwise, the potential for archaeological remains predating the post-medieval period is generally low, although this potential does increase behind the shingle ridges. There is also potential for palaeoenvironmental and geoarchaeological evidence which is likely to be of regional significance considering the current paucity of such evidence along this stretch of coastline.

Assessment of significance

The Preliminary Environmental Impact Report (PEIR) recommends that a full-desk based assessment be undertaken to enhance the heritage appraisal, with a particular focus on further research into the Green Wall to attempt to clarify its significance. The PEIR also identifies the need for the desk-based assessment including historic map regression and assessment of the potential for palaeoenvironmental and geoarchaeological remains. It also recommends consultation with the project team of the adjacent Broomhill Sands Scheme, and incorporation of relevant aspects of their assessment.

Historic England concurs with these recommendations, and would additionally recommend that the assessment be supported by walkover surveys, which could locate previously unknown earthworks and partially submerged remains. They advise that the assessment also highlights any areas across the development site that might benefit from site investigation works to inform the assessment of effect. They would be pleased to engage with the applicant concerning the design of the appropriate scope and methodology of any such fieldwork.

Impacts

Effects on the historic landscape character, and the settings of designated and non-designated heritage assets both within and outside the site boundary, should also be assessed. In addition to any Landscape and Visual Impacts Assessment, they would expect published guidance on the setting of heritage assets (Historic England Good Practice in Planning Note 3) to be followed. They would be pleased to provide further advice about the application of the guidance.

If necessary, accurate visual representations of the levels of possible harm should be presented. They suggest that the applicant should confirm their approach to use

of photomontages with regard to the historic environment.

Heritage input to scheme design

The results of the desk-based assessment should be used to inform the scheme design. The applicant should seek to reduce the harm to archaeological remains through careful placement of new installations, site compounds and other sub-surface intrusions, considered design of construction traffic routes and a sensitive development methodology.

The scheme design should seek to conserve the historic character of the landscape, and the character and material integrity of the Green Wall as far as possible. For example, consideration should be given to any alternative construction methodologies and traffic routes which might reduce harm to the monument's material structure and character. The scheme design should also seek to reduce to a minimum any harm to archaeological and palaeoenvironmental remains, both known and potential.

Recommendation

We recommend that an Environmental Impact Assessment be carried out for the development, and that it include historic environment issues. With regards to the assessment's scope, it is advised that the applicant follow recommendations within the PEIR, and additionally carry out walkover surveys and a consideration of areas which might benefit from site investigations. Effects on historic landscape character and views, and the settings of designated and undesignated heritage assets within and outside the site boundary, should also be properly assessed as discussed above. The results of the assessment should be used to reassess the proposals in order to identify ways in which careful design could improve the outcome for the historic environment.

If further consultation responses are received these will be forwarded to you separately.

Yours sincerely



Date: 25 January 2017
Our ref: 203203
Your ref: Y16/0006/SCO

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BY EMAIL ONLY

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Dear Paul Howson

Environmental Impact Assessment Scoping consultation (Regulation 15 (3) (i) of the EIA Regulations 2011): REQUEST FOR A SCOPING OPINION UNDER THE TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2011
Location: LYDD CAMP TOURNEY ROAD LYDD KENT

Thank you for seeking our advice on the scope of the Environmental Statement (ES) in your consultation dated 05 December 2016 which we received on the same day. **As promised please find within Annex A of our letter further information on the Scope of the EIA.**

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

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

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

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us. For any queries relating to the specific advice in this letter only please contact Nick Williams on 07920071483. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

We really value your feedback to help us improve the service we offer. We have attached a feedback form to this letter and welcome any comments you might have about our service.

Yours sincerely

Nick Williams
Sustainable Development | Sussex and Kent

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

Annex A – Advice related to EIA Scoping Requirements

To be read in conjunction with our initial advise letter sent 20th December 2016

As promised, in our letter dated 20th December 2016, please find attached Natural England's detailed comments on the documents that accompanied the consultation above. The consultation documents were –

- Folkestone to Cliff End Schemes Lydd Ranges Preliminary Environmental Information Report (PIER) Draft – October 2016

- Environment Agency Record of Assessment of Likely Significant Effect On A European Site (Stage 2) Lydd Ranges Appendix 11.

Regular discussions are being held with EA with a view to reaching agreement on a more sustainable approach as a way to demonstrate a commitment to change on the coast. MoD is also party to these discussions.

Our detailed comments highlight some key points

1) Dungeness is a very unique site, it is the UK's largest shingle structure, and despite disturbance it is still the most diverse and most extensive example of stable vegetated shingle in Europe. The stable vegetated shingle behind the green wall may be protected however, SAC habitat in front will be impacted. This will affect the integrity of the site by reducing the progression of habitat change and connection with the coastal geomorphology, due to the significant constraint on coastal processes. Given its importance within the Natura 2000 Network, particular attention should be given to any impacts that affects the coastal geomorphology (**more detail on this is required**) which underpins the SAC and the degree of change to current coastal process should be limited.

2) Look to reduce impacts on the designated sites by limiting hard engineering and instead working with soft engineering – using shingle that allows coastal processes to continue.

3) Future proofing of any scheme to enable a more adaptable approach through the lifetime of the scheme and into the future.

As stated in our previous letter Natural England is in extensive pre-application discussions with the Environment Agency regarding the specific details of this proposal and the Information required for a HRA.
The Environment Agency have identified in their Appendix 11 that it cannot be concluded that the proposed scheme will not have a significant effect either alone or in combination **therefore they suggest an Appropriate Assessment will be required and Natural England agrees with this assessment. As the competent authorities in this case it is for the MMO and LPA to confirm this and issue the requirement for further assessment.**

FOCES Lydd Ranges Scheme

Appendix 11 – Natural England's detailed draft comments

19th January 2017

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Summary

Impacts to SAC vegetated shingle

- Denge Marsh Sewer and Outfall works – these need further assessment. The shingle habitats nearer to the sea display vegetated shingle species.
- Coastal squeeze up to 25 years is felt to be possible – this needs careful assessment and mitigation to manage this potential impact.

Impacts to coastal processes and the dynamic nature of the coastline will be caused and restricted by the groyne field and end effects. This will have wider impacts than just the immediate Lydd Ranges coastline where the groyne field is constructed.

1. Dungeness SAC

Agree that there is no further assessment needed of the scheme in relation to impacts on Great crested newt. This feature of the SAC can be scoped out at this stage.

Agree with areas put forward for further assessment.

Further assessment needs to be carried out for the Dungeness SAC features under

1.1. Habitat loss / physical Damage

i) Denge Marsh Sewer and Outfall

As the Denge Marsh sewer structures approach the coastline shingle habitats over the pipeline displays early PVSB.

Also the banks to the valley in which the pipeline sits display shingle vegetation

Protection of areas may be necessary from access routes and vehicles and works and temporary storage.

NE would disagree that there are no impacts to the SAC communities in this area of the Lydd Ranges scheme and would like to see this area of the scheme go through further assessment.

Smothering is potentially damaging when the Green Wall rock revetment works and the groyne fields are being constructed and the Denge Marsh sewer works are underway.

Temporary storage of shingle material or arisings needs to be carefully planned and located to minimise damage to Ramsar vegetated shingle habitats.

ii) Potential coastal squeeze within 25 year period

Impacts on the designated habitats from coastal squeeze up to year 25 are possible, if higher than expected rates of erosion mean that the shingle ridge retreats back to the Green Wall within 25 years. This potential impact will require further assessment

And measures to manage this potential impact need to put in place as part of the current scheme.

There is a need to future proof the scheme to ensure that management of the shoreline over the 25 years is carried out by shingle recharge and the proposed groyne field as described.

1.2. The precise areas of loss for each qualifying habitat have not been fully determined at this stage

Need to agree a methodology for identifying the losses.

To consider what will be accepted as natural change and what will be considered direct impacts or coastal squeeze arising from the scheme and how these will be assessed and addressed through mitigation and/or compensation.

1.3. Changes in physical processes (e.g. sediment transport) leading to habitat / community simplification

The restriction of shingle movement and slowing of active coastal processes will have impacts further along the coastline within the SAC. Assessment needs to be made of how the coastline within this scheme on Lydd Ranges will continue to fully function within the larger setting of the Dungeness SAC

1.4. Changes in surface water flooding / Changes in velocity or flow regime

This requires more detail before it is scoped out at this stage.

Better understanding of the percolation of saline and fresh water through the shingle and the reliance of the habitats and associated species on this process.

The piling within the Green Wall has potential to alter the percolation through the shingle. This is a potential impact in terms of saline and freshwater exchange thrugh the shingle. There is a possibility that fresh water from within the site might not drain out in the same way or the drainage be altered in some way and make the lagoons more fresh. The same could potentially occur with saline water percolating through the shingle into the saline lagoons at the Midrips, Wicks etc.

1.5. Nutrient enrichment

A source of enrichment could potentially be within the shingle recharge. Fines within the shingle recharge material can add enrichment.

1.6. Siltation / Smothering

Smothering is potentially damaging during the Green Wall rock revetment works, the groyne fields and the Denge Marsh sewer works are underway.

Temporary storage of shingle material or arisings needs to be carefully planned and located to minimise damage to SAC vegetated shingle habitats.

2. Dungeness Romney Marsh and Rye Bay SPA

(The Dungeness to Pett Level SPA has been extended and re-named to become the Dungeness Romney Marsh and Rye Bay SPA)

Agree with areas put forward for further assessment.

2.1. Disturbance (e.g. visual, noise, gulls)

Regular military live-firing does not include large machinery on the Green Wall or during construction of the groyne field on the sight line for wading, feeding bird species on the intertidal areas. Visually the scheme construction will be in contrast to military activities in this way and the activity on the foreshore.

2.2. Changes in surface water flooding / Changes in velocity or flow regime

This requires more detail before it is scoped out at this stage.

Better understanding of the percolation of saline and fresh water through the shingle and the reliance of the habitats and associated species on this process.

The piling within the Green Wall has potential to alter the percolation through the shingle

3. Dungeness Romney Marsh and Rye Bay Ramsar

Agree with areas put forward for further assessment.

Further assessment needs to be carried out for the DRMRB Ramsar features under the follow:

3.1. Habitat loss/Physical damage

Saline lagoons lie between the Green Wall and the shingle crest, particularly in the area of Southbrooks where works on the Green Wall are proposed.

Re-profiling works are proposed along the coastline at Southbrooks in particular.

Further Assessment is needed to ensure that potential impacts to the saline lagoons are fully understood.

3.2. Siltation / Smothering

Smothering is potentially damaging during the Green Wall rock revetment works, the groyne fields are being constructed and the Denge Marsh sewer works are underway.

Temporary storage of shingle material or arisings needs to be carefully planned and located to minimise damage to Ramsar vegetated shingle habitats.

3.3. Changes in surface water flooding / Changes in velocity or flow regime

This requires more detail before it is scoped out at this stage.

Better understanding of the percolation of saline and fresh water through the shingle and the reliance of the habitats and associated species on this process.

The piling within the Green Wall has potential to alter the percolation through the shingle

3.4. Nutrient enrichment

A source of enrichment could potentially be within the shingle recharge. Fines within the shingle recharge material can add enrichment.

Technical note

Project:	Lydd Ranges Sea Defences	**To:**	Edward Nichols
Subject:	Record of formal engagement with Natural England	**From:**	Chris Sadler
Version	9.0	**cc**	Steve Barge
Date:	05 December 2018		

Introduction

The Environment Agency and its suppliers have been engaging on a regular basis since October 2014 with Natural England and other Statutory and Key Stakeholders concerning the proposed Lydd Ranges scheme. This is one of the schemes proposed by the approved Folkestone to Cliff End Flood and Erosion Strategy. While the Environment Agency has been considering advice received since then, this technical note summarises the formal advisory comments received from Natural England since May 2017 on the Habitat Regulations Assessment (HRA) Stage 2, Information to Inform Appropriate Assessment (IIAA). All the comments listed by VBA have been fully considered, discussed and agreed with the Environment Agency. These comments are listed by date received in chronological order.

31 May 2017 - Comments by Natural England provided to Environment Agency in response to draft HRA information presented at meeting 25 May 2017

An update meeting was held with Natural England on 25 May 2017 to discuss scheme progress. This meeting focussed on the progress of Stage 2 of the HRA and the draft conclusions. There was also discussion of a new alternative Hold the Line option requested by Natural England; the "Up-drift control point" option, along with other alternative options proposed by Natural England.

29 November 2017 - Natural England response to Environment Agency's draft shadow AA (Stage 2) conclusions presented in a summary table (prior to submission of full draft of IIAA Report)

At Natural England's request, a draft summary table setting out the initial conclusions of the shadow Appropriate Assessment (HRA Stage 2) was submitted for comment.

04 December 2017 - Natural England advice letter from J Seymour to J Foley (Environment Agency) - future commitments

Natural England wrote to the Environment Agency to provide a summary of their advice / position regarding the Lydd Ranges scheme to date, and set out their view on the requirement for future commitments in the management of the frontage. Advice on the nature of any compensation proposals was also provided.

29 January 2018 - Final Natural England response to Environment Agency's draft IIAA Report

A copy of the draft IIAA Report (HRA Stage 2) was sent to Natural England for their review and comment. The intention of this issue of the draft report was to ensure that the previous comments and discussions around the draft conclusions (presented in May and November 2017) had been captured and addressed in the full report. Formal advice on this draft of the IIAA Report was received via a letter from Natural England on 29 January 2018, followed by a more detailed Appendix on 7 February 2018.

10 July 2018 - Natural England advice letter from J Seymour to J Foley (Environment Agency) - compensation package

On the 26 June 2018 the Environment Agency sent a letter to Natural England setting out an outline of the proposed package of compensation measures to address the significant adverse effects of the Lydd Ranges scheme on the Dungeness SAC, and seeking advice from Natural England on the proposed package. This response from Natural England sets out their advice on

the sites proposed, further advice on the principles of compensation proposed, and recommendations for the investigation of further potential compensation sites.

24 September 2018 – Natural England IIAA advice letter and Annexes from J Dear & A Marlow to C Peirce (Environment Agency)
These comments are on the final draft Environmental Statement (ES) and IIAA issued to Statutory and Key Stakeholders on 03 August 2018. The intention of this issue was to receive comments prior to formal submission to Folkestone and Hythe District Council and Rother District Council for Planning Permission. Natural England responded by letter dated 24 September 2018 and deemed to present Natural England's definitive comments on the IIAA. All the comments received have been fully considered and the HRA and ES amended as appropriate.

On 5 October 2018, the Environment Agency issued a draft of the shadow Statement of Case to Natural England prior to formal submission to Folkestone and Hythe District Council and Rother District Council for assessment as Imperative Reasons of Overriding Public Interest. Comments on this draft were not specifically requested from Natural England.

29 October and 31 October 2018 - Additional comments on EA and IIAA received from J Dear & A Marlow to C Peirce (Environment Agency)
These were additional / supplementary comments received from Natural England on the final draft Environmental Statement (ES) and IIAA issued to Statutory and Key Stakeholders on 03 August 2018, and are additional to the formal advice letter and Annexes received on 24 September 2018.

Acronyms

AEP	Annual exceedance probability
AVDL	Annual vegetation of drift lines
BMP	Beach Management Plan
EA	Environment Agency
ES	Environmental Statement
FCERM	Flood and coastal erosion risk management
FoCES	Folkestone to Cliff End
HRA	Habitats Regulation Assessment
HTL	Hold the line
IIAA	Information to Inform the Appropriate Assessment
LPA	Local planning authority
MoD	Ministry of Defence
NE	Natural England
NPPF	National Planning Policy Framework
PVSB	Perennial vegetation of stony banks
Ramsar	Designated wetland site
SAC	Special Area of Conservation
SMP	Shoreline management plan
SPA	Special Protection Areas
SSSI	Site of special scientific interest

Technical note

Date and subject of advice provided by Natural England	Environment Agency response / action
31 May 2017 - Comments by Natural England provided to Environment Agency in response to draft HRA information presented at meeting 25 May 2017	
Background/factual information provided on: • SSSI geomorphological interest • Nature of Lydd frontage • AVDL communities - occurrence and conditions required	This information has been taken into account in the amended Information to Inform Appropriate Assessment (IIAA) Report (or shadow Appropriate Assessment) and compensation site searches where appropriate.
NE's views on the likely impacts of the scheme • Groyne field • Volume of shingle and transport around the peninsula • Source and grade of shingle • Reprofiling • Terminal groyne erosion • Hydrological impacts on lagoons from sheet piling • Future evolution of the frontage	The advice provided by NE on each of these specific issues was taken into account in drafting the IIAA Report subsequently presented to NE.
NE's views on why current mitigation proposed within the scheme (profiling of material within groyne bays, redevelopment of AVDL within groyne bays) was insufficient to allow a conclusion of 'no adverse effects' on the SAC (both AVDL and PVSB). NE indicated that the maintenance of natural processes is of more value at Dungeness than the artificial protection of shingle communities by fixing the shoreline through a Hold the Line policy.	The Shadow AA was revised to take account of this advice; the draft IIAA Report subsequently sent to NE for comment reflected the conclusion that there would be an adverse effect on the integrity of the SAC for the reasons outlined in NE's advice note.

Technical note

29 November 2017 - Natural England response to Environment Agency's draft shadow AA (stage 2) conclusions presented in a summary table (prior to submission of full draft of IIAA Report)	
The baseline year for the assessment should be 2007 (date of first implementation of the Denge BMP), not 2015, due to coastal squeeze that has occurred.	It has subsequently been agreed that any potential historical coastal squeeze losses will be addressed outside of the Lydd Ranges FCERM scheme and this issue is not considered further by Lydd Ranges scheme.
Bare shingle is also a component of the AVDL SAC features and cannot be discounted from the assessment simply because of a lack of vegetation.	This has been accounted for in the calculated area of impact cited within the IIAA Report.
Construction corridor impacts on shingle communities are viewed as permanent due to the change in the shingle structure on which these recovered communities will form.	This has been reflected in the impacts stated within the IIAA Report.
NE suggested a phased implementation of the scheme, with rock and groynes installed on an 'as required' basis as progressive erosion/retreat of the beach occurs.	This approach is not considered appropriate due to (a) extended disruption to MoD activities from repeated phases of construction, and (b) additional cost incurred due to multiple construction mobilisations. By delaying the construction of, for example, groynes their life would also be extended beyond 25 years.
NE recommended approaching the impacts on an 'area' basis that encompasses the whole of the active foreshore within the scheme area.	This approach has been adopted within the Shadow AA and reported in the IIAA Report.
Concerns reiterated about sediment volumes, movement and terminal groyne erosion.	Further detail has been provided on these elements as far as possible. At the current (outline design) stage, the option proposed includes ongoing top-up recharges of the beach to maintain the throughput of material at the current estimated rates (30,000m^3 p/a) with a commitment to manage erosion at the termination of the groyne field.
Decommissioning requirements should be minimised through the scheme design.	The engineering elements of the design have been optimised and reduced as far as possible. It is physically possible to remove all of the engineered structures at the end of the scheme life, which will be subject to future Strategy reviews.
MoD's commitment to adaptation measures and the re- positioning of existing infrastructure needs to be considered in the justification of the scheme and set out in the planning application.	The MoD cannot commit to completing future definitive works at this stage, and it is not considered appropriate to include such requirements within this planning application. However, the MoD has committed to participate in a Statutory and Key Stakeholder Flood Management Group, as proposed in the shadow Statement of Case to consider adaptive management approaches.

Technical note

29 November 2017 - Natural England response to Environment Agency's draft shadow AA (stage 2) conclusions presented in a summary table (prior to submission of full draft of IIAA Report)	
Advice document on SSSI impacts authored by NE geomorphologist provided.	This advice has been taken into account in the assessment of SSSI/geomorphological impacts in the Environmental Statement.

04 December 2017 - Natural England advice letter from J Seymour to J Foley (Environment Agency) - future commitments	
Evidence should be provided that alternatives are plausible in the future, and could be implemented after 25 years - otherwise mitigation/compensation may need to consider impacts up to 50 years.	It is possible to remove all of the proposed engineering elements of the scheme at the end of the 25 year period to allow the implementation of an alternative management approach for the frontage. The frontage will be subject to future FCERM strategy reviews to determine the longer term option and will take into account any outcomes from the proposed Statutory and Key Stakeholder Flood Management Group.
A commitment to action to develop an alternative scheme that will allow natural processes to be re-established is required. This needs to be made within the planning application.	As noted above, the MoD cannot commit to completing future definitive works at this stage, and it is not considered appropriate to include such requirements within the planning application. The MoD has committed to participate to a Statutory and Key Stakeholder Flood Management Group, as proposed in the Statement of Case to consider adaptive management approaches.
A phased approach to installation of the 25 year adaptive scheme could be considered to help minimise the impacts.	This approach is not considered appropriate due to (a) extended disruption to MoD activities from repeated phases of construction, and (b) additional cost incurred due to multiple construction mobilisations. By delaying the construction of, for example, groynes their life would also be extended beyond 25 years.
If like for like compensation cannot be identified, discussions with Defra should take place to determine if a policy decision could be made to provide alternative compensation.	Discussions have taken place between Defra, Natural England and the Environment Agency, the outcomes of which are presented in the Compensatory Measures section of the shadow Statement of Case.

29 January 2018 - Final Natural England response to Environment Agency draft IIAA Report	
A formal commitment to a future adaptation programme is still required.	As noted above, the MoD cannot commit to completing future definitive works at this stage, and it is not considered appropriate to include such requirements within the planning application. The MoD has committed to participate in a Statutory and Key Stakeholder Flood Management Group, as proposed in the shadow Statement of Case to consider adaptive management approaches.
Concerns about the end effects of the groyne field and potential for excessive erosion.	Further detail has been provided on these elements as far as possible. At the current stage, the option proposed includes ongoing top-up recharges of the beach to maintain the throughput of material at the current estimated rates (30,000m^3 p/a), with a commitment to manage erosion at the termination of the groyne field.
Comments on compensation for installation of rock revetment along a 1.4km length of the Green Wall.	This has been accounted for in the calculated area of impact cited within the IIAA Report.
The baseline year for the assessment should be 2007 (date of first implementation of the BMP), not 2015, due to coastal squeeze that has occurred.	It has subsequently been agreed that any historical coastal squeeze losses will be addressed outside of the Lydd Ranges FCERM scheme and this issue is not considered further by Lydd Ranges scheme.
Potential for impacts on the hydrology of the saline lagoons at South Brooks.	This concern is being addressed by the installation of hydrological monitoring in the lagoons (summer 2018). The data will be reviewed after an initial 6 month monitoring period (February 2019). Potential mitigation measures that could be employed in the event that an effect on the lagoons is identified are described in the IIAA Report.
Concerns about the proposed grade of shingle to be used in the recharge. Current shingle grade used for emergency works is not viewed as appropriate for use within the SAC.	The grade proposed has a reduced fine content below that which is normally used for local beach recharges. Fines will be limited to a maximum of 15% for all recharge material. It is also recognised that the top layer of recharged beach will be subject to the tidal washing effect. Future recharges are proposed to be preferentially placed updrift to allow more natural sorting of material as it passes alongshore through the SAC. Reducing the fine content further is limited by technical issues. However, the proposed grade is suitable because the proposed 15% fine content represents a 10% reduction on the fine content normally delivered for similar beach recharge schemes. It is also lower than grading envelopes employed for other dredged material recharges in Kent (e.g. Deal, where a maximum grading of 20% fines was used) with no current evidence of shingle binding issues such as 'cliffing'.
Insufficient detail on shingle volumes, levels in groyne bays, monitoring and actions.	Further detail has been provided on these elements as far as possible. At the current stage, the option proposed includes ongoing top-up recharges of the beach to maintain the throughput of material at the current estimated rates (30,000m^3 p/a), with a commitment to manage erosion at the termination of the groyne field. The groyne bays will initially be profiled to a minimum crest height of 5mAOD (where levels are currently lower than this) with a minimum beach crest width of 12m. Monitoring and trigger actions

29 January 2018 - Final Natural England response to Environment Agency draft IIAA Report	
	cannot be fully determined until the detailed design phase, as final details will be determined by the condition of the beach frontage at the time of detailed design. All actions will be set out in a Beach Management Plan. Natural England will be consulted on the BMP.
The new scheme should continue to promote reduced reprofiling on the frontage, in a similar manner to the current Denge BMP.	This is the intention of the proposed ongoing reprofiling works at South Brooks, and will be set out in the future BMP.
Natural England would suggest that the application for the 25 year scheme is submitted as a temporary planning application with a commitment to remove the rock revetment (rock will not erode as currently suggested within an acceptable time period). The temporary planning application would also incorporate a trigger to review the Coastal Strategy for future scheme development in full knowledge of the removal of the 25 year scheme.	The suggestion is noted, however the EA does not believe that the use of a temporary planning application with this type of condition would be appropriate. The frontage will be subject to future FCERM strategy reviews, which will need to re-evaluate flood and coastal risk management alongside the MoD's future occupancy requirements and outcomes from the Statutory and Key Stakeholder Flood Management Group. The MoD, as noted above, has committed to working towards future adaptation, although no commitment to future definitive works can be made at this stage or within this Lydd Ranges scheme planning application.
This application should not be used as a step-wise approach to HTL for the next 50 years. NE's understanding is that this 25 year scheme is to allow adaptations to be made so the coast can be managed more naturally in future to support the designation. If this is not the intention, then this should be clearly stated. However, if the shared aim is to restore the site to working with coastal processes the context of the application needs to be amended as this is not clear.	The frontage will be subject to future FCERM strategy reviews. The MoD has confirmed its' asset management plan for the site extends to 25 years. The future strategy reviews will need to re-evaluate flood and coastal risk management alongside the MoD's future occupancy requirements. The MoD, as noted above, has committed to working towards future adaptation, although no commitment to future definitive works can be made at this stage or within the Lydd Ranges scheme planning application.

10 July 2018 - Natural England advice letter from J Seymour to J Foley (Environment Agency) - compensation package	
EA to produce an audit trail to evidence how advice provided (29/01/18) on the Shadow AA has been dealt with.	This table provides a high level summary to the key issues raised in NE's advice.
The underlying geomorphology and surface geomorphology are a feature of both sites, Lydd and Hythe Ranges. At Lydd Ranges the ongoing physical processes are also part of the interest and underpin the biological interest of the SAC. This should be recognised within the compensation package offered.	Noted and ongoing in development of the compensation package. (Update response October 2018): This advice has been adopted by the inclusion in the compensation package of the total area of SAC habitat affected by the groyne field.

Technical note

10 July 2018 - Natural England advice letter from J Seymour to J Foley (Environment Agency) - compensation package	
The baseline for the proposed scheme will be the 2015 surveys.	Noted and agreed
Historic losses due to coastal squeeze associated with the BMP will be picked up, by EA, outside of the requirements of this current scheme.	Noted and agreed
Table 1 Areas of potential PVSB compensatory habitat at Hythe Ranges (12th June 2018) should include detail of the current habitat quality, an understanding of the areas that immediately offer up suitable PVSB habitat, areas that will require site management to restore habitats and the likely quality, level of success that could be expected, ecological connectivity and suggested time frame.	Noted, in progress (Update response October 2018): This information is provided in the scheme Compensation Measures Report.
Regarding PVSB - the delivery of a 1.5 ratio should be considered as the absolute minimum unless the evidence of the quality of the 6.75ha chosen readily meets the standards set out in Annex B. With the evidence supporting a high level of confidence in quality of this habitat to meet SAC standards.	Noted and agreed. (Update response October 2018): The final compensation package proposed exceeds the minimum ratio of 1:1.5.
Regarding PVSB - we would recommend a 10 year monitoring plan as some areas of the proposed compensation areas are currently degraded and the length of time this habitat type takes to develop. This could be reviewed at the 5 year point if the proposed areas have met SAC quality at this time. NE offers specialist input during the monitoring period, the cost of NE time in assessing the delivery would need to be agreed and built into any conditions EA agreed with the Competent Authority.	Noted and agreed. (Update response October 2018): This recommendation has been adopted and is included in the Compensation Measures Report.
It is important to ensure that all options to deliver AVDL compensation have been exhausted, as like for like habitat would ensure the coherence of the network.	Noted and agreed. (Update response October 2018): The AVDL investigations that have been undertaken over the development of the compensation package are documented in the Compensation Measures Report. All sites identified by previous studies, and all additional sites proposed by Natural England have been investigated and assessed for their suitability.

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Whilst it is appropriate to consider the length of coastline for the AVDL impact the width of this zone is also important to be able to maintain the AVDL habitat into the future and therefore any compensation site needs to reflect this. In line with the rational for PVSB a ratio would need to be delivered to ensure confidence in delivering the quality needed, a similar approach should be adopted [for AVDL] as advised for the PVSB.	Noted (Update response October 2018): This advice has been considered in the development of the proposed compensation package.
Regarding AVDL - advice provided on the likely suitability of sites at Browndown SSSI and Gilkicker.	Noted (Update response October 2018): This advice has been considered in the development of the proposed compensation package.
One of the key elements of the recent meeting with DEFRA was to clarify the requirement of like for like compensation and where this requirement cannot be met for the AVDL habitat whether the use of PVSB habitat at Hythe Ranges could be used to compensate for AVDL. We welcome DEFRA's steer on this, and the approach that EA have suggested that the use of PVSB to compensate AVDL is seen as a backup option, we would support this approach, that the use of non-like for like occurs after AVDL options have been fully considered.	Noted and agreed.
Regarding AVDL - continue exploring opportunities that exist across all areas of potential PVSB compensation at Hythe to deliver the best confidence in compensation.	Noted (Update response October 2018): These investigations have been completed and are summarised in the Compensation Measures Report.
Regarding AVDL - we recommend that a compensation monitoring review group could be established to oversee the delivery of the compensation package and associated mitigation measures. This group could also provide a recommendation on when the compensation measures have been successfully achieved.	Noted and agreed.

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Annex I	
The compensation package, or any agreed extension to it, has the potential to provide net biodiversity gain. There is a need to identify how compensation well above a ratio of 1 for 1 contributes to net gain, rather than simply being necessary compensation. This will help determine what portion of additional habitat can be considered net gain	Net gain is not yet a requirement, and its definition and application within the revised NPPF is still to be subject to further consultation. **No further action required**
A formal Section 106 commitment is required for the Adaptation Programme towards a post-25 year form of management based on natural process (with e.g. MoD adaptive management and inland secondary wall). This is to allow the scheme to be regarded as 'temporary'. E.g. Section 106 or legal agreement.	The Environment Agency has previously advised Natural England that it is not able to commit via a Section 106 agreement to a defined adaptation programme. The MoD have confirmed they would be able to consider changes to the range infrastructure to facilitate adaptation in 25 years' time. **The Environment Agency's intention is to set up a Memorandum of Understanding between all parties invited to the Stakeholder Flood Management Group. This will incorporate adaptation objectives as appropriate.**
A monitoring schedule to assess scheme performance, with triggers to indicate poor functioning and re-filling requirement (e.g. total volume of shingle used-up early, or reduced standard of defence (as part of a BMP)	The beach has been designed for a 0.5% AEP (1:200) storm event plus buffer. The trigger levels to maintain this would be set primarily through completion of the detailed design process which would define shingle volumes and beach performance criteria. At this stage it is expected that maintenance within the groyne field would predominately be post-storm defence rather than regular annual profiling works. More detail has been added to the IIAA text on the BMP and associated monitoring, triggers and responses to triggers, and the process that will go into developing this. New text clarifies that the current through-put of shingle will be maintained. **The Environment Agency will accept agreement on the BMP (developed as described in the IIAA) as a condition to Planning.**
Amendment of the FoCES Strategy to reflect agreement of temporary Hold-the-Line.	This would need to be initiated through the Shoreline Management Plan (SMP) 3 review programme currently being undertaken by the Environment Agency. **No further action required**
Discuss with LPA whether identifying the area as a Coastal Change Management Area would help the above.	Coastal Change Management Areas are defined in NPPF. Such a designation at this site would need to be through the Local Plan process. There are currently no open

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	consultations on the Local Plan, and the Core Strategy review was concluded in March 2018. **No further action required**
The Broomhill Sands to Lydd transition (Post Broomhill Sandsscheme construction in 2015) is not formally considered in detail.	The Broomhill Sands scheme was permitted through its own HRA process. The transition between the 2 schemes will be covered through the siting of the most westerly groyne and the recharge. The Lydd IIAA baseline date is 2015, therefore any transition impacts from 2015 have been accounted for. **No further action required**
Easternmost groynes tapering needs to be detailed in the IIAA	Further references to the tapering design of the final three groynes and the purpose of this have been added to the IIAA Report. **No further action required**
Reduction in drift rate from 36,000m^3 to 24,000m^3	The IIAA Report has been clarified to confirm the maintenance recharge has been included to accommodate drift rate changes. **No further action required**
AVDL impact needs to be clearly stated as a linear impact to a length of coastline (not area).	This has been clarified in the IIAA Report, shadow Statement of Case and Compensation Strategy. **No further action required**
Approach to calculating the down-drift (terminal groyne) scour should be shared	The Coastal Modelling Report has been included as an appendix to the Environmental Statement. **No further action required**
Habitat fragmentation impacts on 1.27ha need clarification	Habitat fragmentation is no longer applicable to the HRA and been removed from the document. **No further action required**
HRA/ES needs to describe how salinity loggers information will be used, e.g. for design and/or monitoring for remedial action.	Data from the salinity loggers placed in Southbrooks since July 2018 will be used to determine the existing hydrological relationship between the fresh watercourses, groundwater and tidal and saline influences at Southbrooks. **The data analysis will be used to determine whether the design will affect the hydrological connection and if so what design modifications may be needed which would either be holes drilled in to the base of the piles, or not driving a number of piles to full depth at any identified critical points.**
Salinity loggers Wicks & Midrips	The Green Wall at the Wicks and Midrips is already impermeable and the proposed improvements will not change this situation nor the hydraulic connection under the Green Wall. There is therefore no need to monitor the

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	lagoons or change the design. The details and evidence for this have previously been presented to Natural England in the hydrogeological assessment technical note, and for further clarity are illustrated in a schematic of a LiDAR section across the lagoon fringe, Green Wall and beach at the Midrips in Appendix A to this record. **No further action required**
Shingle size gradient has too many fines and this will negate any reestablishment mitigation measures. Placing the shingle up-drift at Broomhill Sands would allow fines to be washed out before the shingle moves into the SAC.	The IIAA and ES have been updated to include the possibility of updrift placement of material at Broomhill Sands to improve sorting of material as it moves through the SAC. The uncertainty over the quality of any future re-establishment of vegetation in the groyne bays has been addressed through the inclusion of the whole area within the calculated area of impact for the proposed compensation package. **No further action required**
Timing and phasing of initial recharge not described	The initial recharge would take place during spring and summer (April to September inclusive) and take account of mitigations required for nesting birds. **No further action required**
Detail of how design beach performance has been modelled should be shared.	The Coastal Modelling Report has been included as an appendix to the Environmental Statement. **No further action required**
The Beach Management Plan (BMP) needs to form part of the mitigation package, with reduced reprofiling at South Brooks and no re-profiling from Galloways eastwards. Details of this are required.	The BMP would cover the entire frontage from Jury's Gap to Denge Marsh Outfall. Continuance of current BMP actions at South Brooks is already stated in Section 8.2.1 of the IIAA Report. The Galloways area falls outside of the scope of the Lydd project and is an EA operational matter. Currently occasional reprofiling of this section is required, but only as and when needed in response to storm events lowering the shingle ridge. This work has historically been undertaken in agreement with NE under the current BMP and would need to continue. **No further action required**
Assessment of area of intertidal habitat loss is needed, with effect on SPA and Ramsar overwintering birds.	This has been assessed and included in the IIAA Report. **No further action required**
Scheme decommissioning /removal needs to be described and impact-assessed	The Environment Agency are not able to include any such details as this depends upon the condition of the scheme works should the scheme be decommissioned at any time and the design of any subsequent scheme. **No further action required**
Needs to consider in-combination effects	This has been included in the IIAA Report. **No further action required**

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Objectives in IIAA need to be consistent with ES	This is now consistent. **No further action required**
Access routes during construction, operation and decommissioning need more detail.	The red-line boundary map and Final Landscape Masterplans show the access routes and what construction vehicles will be using them. Operational access requirements will be the same as they are at present. Decommissioning activities are not considered for the reasons given above.
Shingle storage methodology to avoid impacts and preserve seed bank needs detail.	This has been reviewed in consultation with shingle vegetation specialist Brian Banks, and in line with his advice, it has been removed as a mitigation measure. The rationale for this has been presented to Natural England by email. **No further action required**
Fencing and silt fencing requires monitoring and contingency measures.	These are now clarified in the IIAA Report and EAP. **No further action required**
Ramsar features not included in the HRA: Sand, shingle and pebble shores Type E and Invertebrate assemblages of wetlands.	These are now clarified in the IIAA Report. **No further action required**
SPA breeding birds	The mitigations have now been clarified in the IIAA Report. **No further action required**
More detail on marsh mallow plant mitigation required	These are now clarified in the IIAA Report. **No further action required**
Methodology detail needed on control of non-native invasive species, siltation & turbidity of watercourses and management of shingle recharge	For control of invasive and non-native species – the standard guidance produced by the GB Non-Native Species Secretariat on use of clean and dry vehicles will be applied. For siltation and turbidity of water courses and management of shingle recharge detailed construction methodologies will be prepared by the appointed contractor after planning and made available to Statutory Stakeholders. **The Environment Agency would accept this as a condition to Planning.**
Annex II	
Natural England's response states that the Green Wall is a 'Victorian flood defence'.	The Environment Agency has commissioned a full desk based assessment by a military heritage specialist of the history of Lydd Ranges. This has not been able to locate any evidence confirming the original purpose of the 'Green Wall' save that (based on historical map regression) it was constructed between 1871 and 1909, and most likely after 1886. **No further action required**

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Shingle Grading should have 5% fines	Please refer to the responses above. **No further action required**
The scheme should not adversely affect accretion on the Dungeness east facing shoreline	The Environment Agency's statement on this is set out in the IIAA Report and Chapter 11 of the Environmental Statement. There are many influences on the east facing accretion. This pattern is already showing signs of changing in response to these influences before the scheme has been constructed. **No further action required**
The geomorphological accretion / erosion null point currently near the power station. There is concern that the scheme could promote eastward movement of the null point.	The null point is subject to varied coastal process influences and the intention of the periodic recharge is to maintain the drift material throughput. The eastward movement of the Null point is also limited by the presence of the power station which though due to stop generating in the next 20 years; will take 100 years to decommission. Its presence and the protection needed is likely to have the most significant influence on coastal processes and the east facing accretion of drift material. **No further action required**
Coastal Catch Up - once this scheme is removed it would take time for the coastline to achieve equilibrium thereby extending the effects of the scheme.	It is agreed that this would occur should the scheme be removed / superseded. Any potential impacts associated with coastal catch up would need to be assessed during future FoCES Strategy reviews, or during the development of any new option for the frontage. **No further action required at this stage**
Hydrological impacts on lagoons and monitoring	Please refer to the responses above and Appendix A. **No further action required**
NPPF 175 and compensation for SSSI	The NPPF states that compensation is to be provided specifically for 'biodiversity', therefore the Environment Agency do not believe NPPF 175 is applicable to geomorphology. The Biodiversity impacts are being appropriately compensated through the HRA process. **No further action required**
The methodology regarding 'Foreland Landscape 1' (Kirby & Plater, 2014) to be carried out in full for the Environment Agency 'Lydd Ranges Site'; and The methodology regarding 'Foreland Landscape 1 and 2' (Kirby & Plater, 2014) to be carried out in full for the 'Hythe Ranges Site'.	The Environmental Statement (Chapter 11) confirms that a geo-archaeological investigation is planned for Lydd Ranges as a mitigation measure for damage to the surface and buried geology during construction. It should be noted that both the area at Lydd Ranges affected by construction works for the groyne field and revetment, and the proposed compensatory habitat area at Hythe Ranges lie outside of the recommended "critical" areas identified by Kirby and Plater for comprehensive sampling of the foreland deposits. The application of the full methodology recommended by Kirby and Plater (2014) at both of these locations may therefore not be considered proportionate to the scale and location of impact.

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	Our proposed approach is for a specific, detailed proposal to be developed for the Lydd Ranges scheme, with input from the following specialist advisors / consultees: • Heritage specialists; • Geoarchaeological specialist; • Relevant academics (such as Prof. Andy Plater); • Natural England; • Environment Agency's Archaeologist; • Historic England; • East Sussex County Archaeologist; • Kent County Council Heritage Conservation Team. This collaborative approach to mitigation would mirror that used for the Broomhill Sands scheme and other development proposals on the Dungeness peninsula. **The Environment Agency do not intend to adopt the full Kirby and Plater survey method outright, but will develop an appropriate survey scope and method at detailed design.**
Beach Profiling at South Brooks is unnecessary, a better option would be to recharge behind the beach to widen the crest.	The design principle at South Brooks is for the storm ridge to bear the brunt of the wave attack and the improved Green Wall to withstand the residual wave and overflowing water. The South Brooks beach ridge breached in Jan 18 with a 1:10 event and subsequent flooding of the ranges demonstrates that post event profiling at South Brooks is required. The placement of additional material behind the beach to widen the crest would smother SAC, SPA, Ramsar and SSSI features (including surface geomorphology) causing increased damage to the designations, notably the saline lagoons which have been highlighted as being of particular conservation importance to the site. **No further action required**
This Annex II identifies the Sediment budget monitoring requirement to be subject to a planning condition	The monitoring requirement would be set out in the BMP as referenced above. **The Environment Agency would accept this as being a condition to planning**
Salinity monitoring at Wick & Midrips	Please refer to the lagoon monitoring response above and Appendix A. **No further action required**
Section 106 agreement concerning demolition of the scheme should the scheme not perform or not be affordable	The Environment Agency is not able to accept any such agreement as it would not be workable or enforceable. **No further action required**
Natural England state that SSSI geomorphological compensation is not possible due to the unique nature of Dungeness.	Please refer to the related NPPF 175 response above. **No further action required**

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There are some inconsistent statements in the Environmental Statement (ES) and some of the detail provided in the ES is missing in the Information to Inform the Appropriate Assessment Report (IIAA July 2018). i.e. Initial recharge with the high fine levels, but a commitment to ensuring a lower fine level for maintenance recharge and placing shingle outside of the site to be washed through. In the Geomorphology chapter it states that the sediment flow will be retained as 30,000m^3 whereas the AA stated the flow will be reduced by a third – this needs to be clarified and consistent throughout the documents.	These statements have been clarified / made consistent in ES and IIAA Report. To confirm: An initial over charge of the groyne bays will be made during construction, which is 90,000m^3 of the initial 261,000m^3 volume, and is intended to provide sufficient material for longshore drift for 3 years – at the accepted rate of 30,000m^3 per annum. In scheme operation, this is followed by an assumed allowance of 30,000m^3 per year for the subsequent periodic maintenance recharges to supply longshore drift in the operation phase of the scheme (subject to monitoring of the beach via the BMP). This maintenance recharge material will be preferentially placed at Broomhill Sands, to allow removal of fines as it passes into the SAC. The reference to the drift rate being reduced by a third relates to the calculated effects of the groyne field in retaining sediment and reducing the potential for longshore transport along this section of the frontage. This is being mitigated by the periodic maintenance recharges described above, which will continue to supply material to the system Please note that no commitment has been made in any of the documents to using material with a lower level of fines in maintenance recharges than for the initial construction works. **No further action required.**
Further consideration is needed with regard to the existing shingle that will need to be removed to allow access for the rock revetment work to be carried out. Some of the existing shingle, particularly to the east will be low in fines as it has been subject to coastal processes. There is potential to use this existing shingle to fill the groyne bays to the east as this will help to reduce the impact of using marine sourced shingle containing a higher fine material content. The majority of the marine dredged shingle could then be used to fill the groyne bays in the west. These western groyne bays will be more open to wave action and	This approach would need to be considered further at the next stage, when the detailed construction methodology is developed and planned. Unless the groyne bay construction and revetment work can be phased simultaneously, use of this material would require identification and use of a temporary storage area on the beach until the bays were filled with shingle. The volume of material to be excavated from the 11m wide revetment corridor within the area of older shingle deposits to the east is also likely to be very small in comparison to the overall beach recharge (in the order of 15,000m^3, compared to 261,000m^3 needed in total for the scheme construction). It is therefore unlikely that this could provide more than a surface dressing to a few of the groyne bays, which may limit the value of the exercise in comparison to

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potential redistribution of shingle as they lie in the more erosive area on the Lydd Ranges coast.	the potential impacts of having to store the material locally on the beach. At this stage this measure has not been incorporated to the planning documentation, but could be reconsidered at the next stage. **To be reconsidered at the next stage.**
Any protected species issues please refer to our standing advice, there appears to be a number of potential protected species issues that may require licences please ensure you comply with the required legislation. If you need any specific advice on protected species we can refer you to one of our wildlife licence officers.	Noted – a detailed mitigation strategy for all relevant protected species will be developed post-planning and used to support the necessary licence applications. **No further action required.**
A need to carry out Marsh Mallow moth larvae surveys by a licensed surveyor prior to works starting to understand whether there is presence of Marsh Mallow moth on the particular stands of the Marsh Mallow plant on and near to the Green Wall. Avoidance measures to be considered and if required mitigation measures discussed under licence. Add to Environmental Action Plan under Biodiversity Flora and Fauna	This has been added to the EAP. **No further action required.**
More detail to be provided with regard to vegetation clearance to prevent birds nesting near the works in the summer. We need to understand what vegetation would be cleared and whether this is necessary as all work should be carried out on the seaward side.	The actions relating to nesting birds have now been clarified in the ES chapter and IIAA Report. **No further action required**
Beach access areas are referred to and described as 'existing disturbed areas'. Clarification is needed as to the location and for which particular work locations. Is this only for the groyne field works in the western part of the Lydd Ranges frontage. Please note on the Southbrooks section if there is a need for beach access this will potentially damage sensitive areas of vegetated shingle and saline lagoon habitat. The detail around this is stated much more clearly in the Action Plan (ES Vol 2 page 13 B1.2). This text needs to be transferred into Table 7.2 and Table 13.1 and the IIAA Report.	Beach access is required between Jury's Gap – Wicks for the groyne field construction. The proposed access points are shown on the Final Landscape Masterplans that accompany the ES. No beach access is required for construction at South Brooks. All construction access will be via the Green Wall or existing nearby access tracks through the Ranges. Proposed access routes for South Brooks are also shown on the Final Landscape Masterplans that accompany the ES. Beach access will be required at the Denge Marsh Sewer Outfall to carry out the demolition and removal of the exposed outfall pipe and support piles on the beach. Access will be via Dengemarsh Road and across unvegetated beach areas only. Access routes will be identified following update vegetation surveys prior to

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	construction, be the shortest / most direct possible, and clearly demarcated during construction. This information is now in Table 7.2 and Table 13.1 and the IIAA Report. **No further action required.**
Saline lagoon monitoring is required throughout operation phase to understand changes over time and potential impact of groyne field and BMP.	The hydrogeological concept model previously provided to Natural England has shown that the primary driver of salinity in the lagoons at the Wicks and Midrips is infiltration through the beach (refer to Appendix A schematic). The presence of the groyne field (and management of the gravel beach within the groyne bays) will not alter this infiltration potential, and will not alter the hydrology of the lagoons. There is therefore no need to monitor the lagoons. **No further action required.**

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The scheme will result in significant damage to the geomorphological interest features of the SSSI. It would put the SSSI into unfavourable status for a minimum of 25 years. Direct and indirect damaging impacts to the interest features would be likely to be longer than this. If there was a removal of all hard assets and cessation of damaging beach management it would be approximately 10 years (on top of the 25 year design life of the scheme) before the SSSI would be likely to be functioning naturally and considered to be in favourable condition. Due to the interconnectedness of the site, there would be impacts to the whole of the foreland, the features of interest and therefore its other designations (including Natura 2000).	This comment was noted from previous geomorphological advice received from Natural England in November 2017, and was reflected in the assessment of the scheme in Chapter 11. **No further action required.**
Confusion remains around the amount of sediment, when, where, how, why it is being used. What is it for? How likely stormy winters over this period will be addressed? What will happen if more sediment is required than that proposed? Whether the 261,000m^3 is enough for the 25 year design of the scheme? What will	The 261,000m^3 of shingle is the <u>initial</u> volume required to recharge the beach, fill the groyne bays and supply the annual coastal transport rate along the frontage for the first 3-5 years. It is not the total amount required for the 25 year scheme life; an additional allowance of 30,000m^3 per annum has been allowed for over the life of the scheme. A sum for this has been included within the scheme economics. This is an averaged sum based on ongoing

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happen if the material runs out? Whether another source of funding and material will be made available when this runs out? It would be appreciated if these questions were resolved to help provide clearer understanding of the approach proposed and management of the coastline during operation. It reads that 30,000m^3 x 25 years = 750,000m^3 will be made available to deal with the loss of material alongshore. If this is the case, questions remain about the feasibility, and source of this material.	monitoring of the coast, and accounts for winter storm activity. The operators of one currently licenced dredge site close to the Lydd scheme have confirmed confidence in the supply of material required over the scheme life. Risks around material supply from this licensed site are therefore mainly concerned with any possible (but as yet unknown) changes to the terms of the existing licence. If this risk were to occur, then appropriate material from another licenced site would be used. This risk event, and that of additional material being required over 25 years, has been included in the risk calculations in the economic assessment of the scheme. With regard to the risk of more material being required than anticipated, this would be within the remit of the BMP and the defined trigger levels for action. **No further action required.**
There are contradictory statements within the ES and Information to Inform the Appropriate Assessment report (IIAA) July 2018, the ES explains that the 30,000m3 flow of material will be maintained, however the IIAA explains how this flow will reduce by 3rd (20,000m^3). It would be useful to have clarity on this point. Linked to this, it is mentioned that end groyne affects will be alleviated by recharge, however this is said to be a 'secondary measure' – it would be useful to know what 'secondary measure' means and detail on its implication i.e. is this post storms, is there to be an agreed trigger, is this material part of the 261,000m3.	These statements have been clarified / made consistent in ES and IIAA Report. To confirm: The reference to the drift rate being reduced by a third relates to the calculated effects of the groyne field in retaining sediment and reducing the potential for longshore transport along this section of the frontage. This is being mitigated by the proposed periodic maintenance recharges described above, which will continue to supply material to the system, with an allowance for the full volume of the accepted drift rate (30,000m^3 per year) being made if necessary. The proposed maintenance recharges will reduce the risk of uncontrolled scour at the termination of the groyne field; however it is accepted that some risk remains. Therefore it is also proposed to monitor the development of any down drift scour (via the BMP), and if necessary, place further additional material directly into this area to control it. Triggers will be agreed and defined within the BMP; action may also need to be taken following severe storm events. As these are operation / maintenance actions, this material is in addition to the 261,000m^3 – as 261,000m^3 is the total volume to be placed at the construction stage. **No further action required.**
The issue of sediment size envelope is discussed within the ES and AA, whilst it is appreciated that a natural sorting of material will occur through active coastal	These potential risks are noted, and it is for this reason that ES Chapter 11 identifies a residual adverse impact on the SSSI. It should be noted that presently at Jury's Gap, finer material from the lower beach is pushed up to form an amalgam with recharged shingle and partially

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processes as wave driven material moves alongshore. Due to the amount of fines mixed with the gravel sized material it is likely a cohesive matrix will develop within the groyne fields. This will see the cliffing of material (as is experienced at Jurys Gap) rather than the classic gravel beach profile that is hoped to establish. This will cause issues, regarding profiling, permeability, run-up, as well as the desired 'controlled' over topping and overwashing.	compacted in order to provide safe access and an off-loading area in this location. This cohesive mix has recently resulted in extensive cliffing adjacent to the Green Wall at this location. The cliffing currently experienced at Jury's Gap is a consequence of the material's minimum hydraulic conductivity, associated with a fine content of between 30-40% (ref. Defra / EA report 'Influence of permeability on the performance of shingle and mixed beaches', FD1923_7404_FRP). The mixing noted above will not be required as part of the scheme and the currently witnessed issue of cliffing will not occur in the proposed recharge material which has a maximum fine content of 15%. In order to achieve the proposed shingle grading the construction contract will specify a particle size distribution (PSD) for the material along with sampling and tests to be undertaken, including: • evidence in advance of proposed source material from a Crown Estates' licenced dredging area; • sampling of placed and profiled material on beach as part of the contract acceptance procedure. On-site testing will be undertaken for early indications of PSD compliance, whilst testing at an independent off-site UKAS accredited laboratory will be undertaken for formal handover of parts of the beach. **No further action required.**
From reading the ES it is not clear how the Green Wall (GW) is considered. Throughout the document it varies as to how the GW is described (in terms of FCERM). It is important for future consideration of this coast that we are all clear on the role and expectation of the GW, beyond the 25 years of this proposed scheme. Clarity on this point would be appreciated.	It is clearly stated in the ES that the original purpose of the Green Wall construction is unclear, and that currently, it is not a formal flood defence, and is not treated or maintained as such. Once the works are completed the Green Wall will remain a third party asset owned by the MOD. Clarity on the role and expectation of the Green Wall beyond 25 years cannot be given at this stage and will be subject to future FCERM strategy reviews. These will need to re-evaluate flood and coastal risk management alongside the MoD's future occupancy requirements. The MoD, as noted above, has committed to working towards future adaptation, although no commitment to future definitive works can be made at this stage or within the Lydd Ranges scheme planning application. **No further action required.**

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Definition of a breach is unclear, there is a geomorphological barrier breach and failure of the line of flood defence, however, these are two completely different phenomenon. It would be useful if this was distilled and clarified.	The definition of breach used in the ES was provided in Section 1.2 of the ES. This definition has been added again to Chapter 11 and the glossary to provide further clarity. **No further action required.**
On the above point - The storm event in January 2018 is referred to throughout the document as a breach. NE's view is that this event was a significant overwashing event where a section or sections of beach crest where lowered at Southbrooks. The line of 'flood defence' may have been 'breached', however a breach in terms of the barrier (relating to geomorphological processes) did not occur. This requires attention throughout the document. Furthermore breaching is also referred to in relation to the Green Wall, this is obviously different to breaching of the shingle barrier. It would be useful to define what breach means in both cases. Perhaps 'failure' could be used to describe whether the feature (barrier and GW) no longer provides the FCERM function required.	This has been addressed by the action above. Although the term 'breach' can be used in a variety of ways it would be confusing to introduce varying definitions to describe the same events in different places within the document, and therefore use of the term 'failure' has not been adopted as suggested. **No further action required.**
The word 'potential' is used throughout, describing where there will be clear damage to the SSSI interest. 'Potential' leaves one to believe that it is only a possibility that there will be impact, when in fact in most cases there will be a clear, unavoidable and lasting damage. Wording could be changed to reflect the certainty of damage to these features.	References to 'potential' effects have been removed in the chapter where appropriate to do so. Some effects are only 'potential' and not certain, and these have not been amended. **No further action required.**
Modelling has not been made available or summarised within the ES, it will potentially be difficult to appreciate / justify conclusions drawn within the ES without some of this level of detail.	The final modelling report has been included as an appendix to the ES. **No further action required.**
It is still unclear how decommissioning of the scheme will work; '*the Environmental Statement has not specifically considered decommissioning effects, and there is no specific requirement within the EIA Regulations to do so*'. It is difficult for	The Environment Agency are not able to include any such details as this depends upon the condition of the scheme works should the scheme be decommissioned at any point in the future, and the design of any subsequent scheme. **No further action required.**

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Natural England to frame our advice for the 25 year scheme without assurances that decommissioning will occur after year 25.	

Technical note

Appendix A: Midrips Lagoon Schematic

This schematic of the Midrips Lagoon shows the height and profile of the lagoon, Green Wall and beach, the proposed design levels of the pile line and rock revetment, and the adjacent MHWS and MLWS levels. These levels show that the lagoon levels bed lie below MLWS, the proposed pile line and rock revetment, and inputs of saline water to the lagoons are via percolation through the shingle beach and underneath the Green Wall. This illustrates the conclusion previously set out in the Hydrogeological Assessment Technical Note (Atkins, May 2017).

