PROPOSED ABLE MARINE ENERGY PARK

IPC REFERENCE: TR030001

STATEMENT OF COMMON GROUND

between

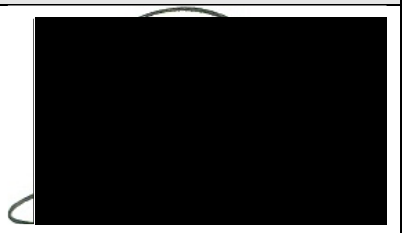
ABLE HUMBER PORTS LTD (the Applicant)

and

THE MARINE MANAGEMENT ORGANISATION, NATURAL ENGLAND and

THE ENVIRONMENT AGENCY

Final Version, dated 27 July 2012

ORGANISATION	NAME	SIGNATURE
ABLE HUMBER PORTS LIMITED	**R M CRAM**	 **Date:27-7-12**
NATURAL ENGLAND	**A HEARLE**	 **Date:27-7-12**
THE ENVIRONMENT AGENCY	**A HEWITSON**	 **Date:27-7-12**
THE MARINE MANAGEMENT ORGANISATION	**A GERRING**	**AG** **Date:27-7-12**
This report details the level of agreement between the Organisations above with respect to the environmental impact assessment undertaken by the Applicant for the Able Marine Energy Park.		

CONTENTS

SECTION 1 : INTRODUCTION AND SCOPE

1. Document Structure

1.1 This SoCG comprises two sections:

Section 1 : Introduction and Scope

Section 2 : Joint Statement of Common Ground

2. General

2.1 On 12 January 2012 the Infrastructure Planning Commission ('IPC') accepted an application ('the application') that was submitted by Able Humber Ports Limited ('THE APPLICANT') for a development Consent Order ('DCO') to construct and operate a harbour capable of handling over 5 million tonnes of material per year together with associated works.

2.2 The application incorporates three geographically distinct areas.

2.2.1 A harbour and associated industrial development on the south bank of the Humber within the administrative area of North Lincolnshire ('AMEP').

2.2.2 An intertidal compensatory habitat site on the north bank of the Humber within the administrative area of East Riding of Yorkshire ('the compensation site').

2.2.3 A wet grassland site, Old Little Humber Farm, also within the administrative area of the East Riding of Yorkshire ('OLHF').

2.3 This document is the statement of common ground ('SoCG') between THE APPLICANT and three public bodies of the Department for Environment, Food and Rural Affairs ('the three Agencies'), viz.

- Natural England (NE)
- The Marine Management Organisation (MMO).
- The Environment Agency (EA)

2.3 In this SoCG, the Applicant has provided for each environmental issue, a summary of their environmental impact assessment as recorded in the application documentation and subsequent reports. Natural England, the Marine Management Organisation and the Environment Agency then comment to indicate whether they agree or disagree with the Applicant's assessment, with appropriate reasons where necessary.

2.4 In a joint letter dated 6 July 2011, the three Agencies advised the Applicant that they had,

'agreed the following broad remit areas in order to clarify the matters upon which we will submit our formal comments:

Environment Agency

Air Quality (issues connected with EA permitting regime only);

Flood Risk;

Flood Defence;

Aquifer Issues;

Migratory Fish;

Geomorphology (shared jointly due to Flood Risk issues);

Historic Landfill Issues (NE supporting);

Managed Realignment – Delivered jointly – EA, expertise on design and engineering;

WFD – Cross cutting issue – Some involvement will be required from local authorities;

Dredging Issues (to be delivered jointly)

Natural England

Protected Species e.g. water vole;

Impacts upon Humber Estuary Designated Sites;

Geomorphology (to be joint due to links with ecological issues relating to sedimentation and lamprey)

Managed Realignment (delivered jointly; NE expertise on ecological functioning)

Thermal plume issues re. saline lagoons;

Sedimentation re. saline lagoons

Dredging Issues (to be delivered jointly)

Landscape and Access

Marine Management Organisation

All potential impacts on marine environment (direct and indirect), including those listed above;

Marine navigation;

Protected species;

Marine plans and marine policy statement;

Intended use of development;

Assessment of project as a whole, including land based elements;

Harbour order provisions;

Deemed marine licence and associated conditions;

Post-consent monitoring and enforcement of deemed marine licence.

2.5 The Infrastructure Planning (Examination Procedure) Rules 2010, defines a statement of common ground (SoCG) as, '*a written statement prepared jointly by the Applicant and any interested party, which contains agreed factual information about the application*'.

2.6 Section 87 of the Planning Act 2008 provides that when making any decision about how an application is to be examined, the Examining Authority must have regard to any guidance issued by the Secretary of State on how applications for development consent for nationally significant infrastructure projects ('NSIPs') are to be examined. In 2010, the Department for Communities and Local Government issued, *'Planning*

Act 2008: Guidance for the examination of applications for development consent for nationally significant infrastructure projects'. That guidance provides the following advice on the contents of an SoCG:

'63. The statement of common ground is a written statement prepared jointly by the Applicant and the main objectors, setting out the agreed factual information about the application. A statement of common ground is useful to ensure that the evidence at the examination focuses on the material differences between the main parties. Effective use of such statements is expected to lead to a more efficient examination process.

64. The statement should contain basic information on which the parties have agreed, such as the precise nature of the proposed infrastructure, a description of the site and its planning history. In addition to basic information about the application, agreement can often be reached on technical matters and topics that rely on basic statistical data. For example, traffic evidence can be simplified and the issues refined by agreeing matters such as traffic flows, design standards, and the basis for forecasting the level of traffic the application would generate. The topics on which agreement might be reached in any particular instance will depend on the matters at issue and the circumstances of the case.

65. As well as identifying matters which are not in real dispute, it may also be useful for the statement to identify areas where agreement is not possible. The statement should include references to show where those matters are dealt with in the written representations or other documentary evidence. Agreement should also be sought before the examination commences about the requirements that any order granted should contain.

66. How such agreement is reached will vary depending on the nature and complexity of the application and the matters at issue. Where there are only two or three major parties involved and the issues are fairly straightforward, the Examining authority might simply encourage the parties at the preliminary meeting to get together with a view to producing a statement of common ground containing agreed facts. For major applications a more formal arrangement may be necessary, particularly where several parties are expected to bring evidence of a technical nature to the examination.

67. However, the duty of Examining authority is not simply to accept the statement of common ground or to react to the evidence presented. The role of the Examining authority is to ensure that all aspects of any given matter are explored thoroughly, especially with regard to the matters fundamental to the decision, rather than seemingly accepting the statement of common ground without question.

68. Consequently, the Examining authority should probe the evidence thoroughly if their judgment or professional expertise indicates that either.

- *all of the evidence necessary for a soundly reasoned decision has not been put before them or,*
- *that a material part of the evidence they do have has not been adequately tested'*

3. Pre-Application Consultation

3.1 Before submitting the application to the IPC, Able UK Ltd (ABLE, acting on behalf of THE APPLICANT) held a number of consultation meetings with all three Agencies; these are detailed in Table 1A and 1B below.

3.2 Following acceptance of the application, ABLE has held further meetings with the three Agencies and these are detailed in Table 1C below.

Table 1A: Meetings Held with the Three Agencies Before the s42 consultation

Date	Present	Matters discussed
2010-06-09	NE, NLC	Consultation for AHPF - Phase 3
2010-07-14	NLC, HA	AMEP Transport Consultation
2010-07-27	EA, Anglian Water	Elsham Waste Water Treatment Effluent Diversion
2010-09-20	EA	General AMEP Consultation
2010-09-21	NE	Ecology Consultation Meeting 1
2010-10-19	NE, NLC, HINCA	Ecology Consultation Meeting 2
2010-11-03	EA	General AMEP Consultation
2010-11-16	NE, RSPB, HINCA	Ecology Consultation Meeting 3
2010-12-08	MMO	General AMEP Consultation
2010-12-09	EA, NE	General AMEP Consultation
2010-12-16	NE, RSPB, HINCA	Ecology Consultation Meeting 4

Table 1B: Meetings Held with the Three Agencies Following the s42 consultation

Date	Present	Matters discussed	Changes made
2011-02-01	NE, NLC, RSPB, HINCA	Ecology Consultation Meeting 5	Mitigation and compensation site designs developed further.
2011-02-28	NE, NLC, RSPB, HINCA	Ecology Consultation Meeting 6	Scope and format of Habitats Regulations Assessment agreed.
2011-03-09	HM, EA, NE, MMO, CEFAS,	Dredge Workshop	Substantial changes to dredging strategy and application documentation agreed.
2011-03-17	NE, NLC, RSPB, HINCA	Ecology Consultation Meeting 7	Mitigation proposals refined.
2011-04-08	NE, RSPB, HINCA	Ecology Consultation Group 8	None
2011-04-20	MMO, EA, CEFAS	General AMEP Consultation	Dredge proposals refined, and quay design subjected to amendments and further modelling.
2011-05-03	NE, RSPB, HINCA	Ecology Consultation Meeting 9	Mitigation proposals developed. Additional wet grassland proposed for compensation site.
2011-05-23	NE, NLC, RSPB, HINCA	Ecology Consultation Meeting 10	Principle of how mitigation would be refined agreed.
2011-06-17	NE, NLC, RSPB, HINCA	Ecology Consultation Meeting 11	None
2011-07-11	EA	General AMEP Consultation	Quay design reconfigured.
2011-07-18	EA, NE, MMO, NLC, RSPB, HINCA	Multi-Agency AMEP Consultation	Major underlying principles of compensation scheme agreed. Mitigation buffering explored. Assessment of effects on migratory fish included in EIA. Proposed pumping-station relocated.
2011-08-09	NE, RSPB, HINCA	Ecology Consultation Meeting 12	Broad quanta and habitat types of compensation agreed, subject to further more detailed discussions.
2011-08-23	NE	Ecology Consultation Meeting 13	More detailed discussion of compensation options.

Table 1C: Meetings Held with the Three Agencies Post Submission of the Application

Date	Present	Matters discussed	Changes made
2012-01-16	NE, EA & MMO (Tri-agency)	Project update and discussion of outstanding matters and timeline.	None
2012-03-01	NE, EA & MMO (Tri-agency)	Project update and discussion of outstanding matters and timeline.	None
2012-03-15	NE, EA & MMO (Tri-agency)	Review of revised Deemed Marine Licence (DML) SoCG	Format of SoCG agreed.
2012-04-19	NE, EA & MMO (Tri-agency)	Relevant Representations SoCG	
2012-05-02	NE, EA, MMO & ERM	SoCG Discuss outstanding ecological issues	Reduction of noise restrictions around Mitigation Area A. Enhancement works to NKHP to be included within EMP Lighting mitigation within DCO
2012-05-16	NE, EA, MMO, HR Wallingford & ERM	SoCG Hydrodynamics	
2012-05-30	NE, EA, MMO & ERM	SoCG Ecology	
2012-07-04	NE, EA, MMO, ERM & B&V	Responses to RR & ExA Questions Cherry Cobb Sands	

4. Brief Description of the Site

4.1 The AMEP Site

4.1.1 The AMEP site, excluding the area of ecological mitigation, covers approximately 265 ha, of which approximately 120 ha is covered by existing consent for port related storage, 100 ha is existing arable land that will be developed for industrial use and 45 ha is reclaimed land from the estuary to provide a new quay. A further c.48 ha of existing arable land ('Area A') will be converted to optimally managed wet grassland to mitigate for the effects of the development on ecological receptors including birds that use the adjacent Humber Estuary SPA.

4.2 The Compensation Site

4.2.1 The Compensation Site is located on the north bank of the Humber Estuary, within the East Riding of Yorkshire, opposite the AMEP site and some 4 km to the south-west of Keyingham. A new flood defence wall will be constructed landward of the existing flood defence to create a new intertidal area encompassing 100 ha.

4.3 **Old Little Humber Farm**

4.3.1 The site is existing agricultural land and will be developed as optimally managed wet grassland to provide roosting and feeding habitat for SPA bird species.

5. Brief Description of the Project

5.1 AMEP comprises a harbour development with associated land development, to serve the renewable energy sector. The harbour will comprise a quay of 1 279 m frontage, of which 1 200 m will be solid quay and 79 m will be a specialist berth. The harbour will be formed by the reclamation of intertidal and subtidal land within the Humber Estuary.

5.2 Associated development will include:

- dredging and land reclamation;
- the provision of onshore facilities for the manufacture, assembly and storage of wind turbines and related items;
- junction works to local roads and trunk roads;
- surface water disposal arrangements.

5.3 Ancillary matters will include:

- the diversion of two footpaths that run along the shore of the Humber, one on the south bank and one on the north bank;
- the conversion of a railway into a private siding;
- the interference with rights of navigation;
- the creation of a harbour authority;
- a deemed licence under section 66 of the Marine and Coastal Access Act 2009;
- the modification of public and local legislation; and
- the compulsory acquisition of land and rights in land and powers of temporary occupation of land to allow Able to carry out and operate the above development.

5.4 The project also includes a habitat creation site on the north bank of the estuary which is designed to compensate for those effects of the project that cannot be mitigated.

6. Planning History of the AMEP Site

6.1 The terrestrial areas of the application site includes land that has the benefit of extant planning consents for port related storage and land that has temporary consent as a lay-down area during the construction of a biomass fuelled power station, refer to Table 2.

7. Planning History of The Compensation Site and Old Little Humber Farm

7.1 There is one extant planning consent within the Old Little Humber Farm but none in the Compensation Site. Details of this and other nearby planning applications approved in the last 15 years are described in Table 3.

8. Summary with reference to Environmental Statement

8.1 The project comprises Schedule 1 development in accordance with Regulation 2(1) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (as amended) ('the EIA Regulations'). Accordingly, the application to the IPC in respect of AMEP included an Environmental Statement (ES) and the ES referred to in this SoCG is the document accepted by the IPC on 12 January 2012.

8.2 In accordance with Schedule 4 of the EIA Regulations, the ES provides:

'(a) description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long- term, permanent and temporary, positive and negative effects of the development, resulting from:

(a) the existence of the development;
(b) the use of natural resources;
(c) the emission of pollutants, the creation of nuisances and the elimination of waste,

and the description by the Applicant of the forecasting methods used to assess the effects on the environment.'

8.3 The likely significant effects of the project were initially identified by the applicant in a Scoping Report which was accepted by the IPC on 13 September 2010. The IPC subsequently issued their Scoping Opinion on 27 October 2010 following consultation with prescribed consultees. It is agreed, nevertheless, that the Scoping Opinion does not limit the effects of the project that are to be considered and that all likely significant environmental effects need to be assessed.

Table 2 Extant Planning Consents within or near the AMEP Site
(Projects in *Italics* are outside of the AMEP application boundary)

Planning Ref.	Location	Details	Status
PA/2010/1263	Land Off, Rosper Road, North Killingholme, DN40 3JP	Planning permission to construct a test foundation (12 x 12 m) and a tower (5 m diameter) with a total height of 67 m (approximately).	Granted 06/12/2010
PA/2008/1375	Area E, AHPF, Rosper Road, North Killingholme, DN40 3JP	Planning permission to vary Condition 3 on application PA/2006/0039 dated 01/08/2007 (relating to low level shrubbery and hedging) to replace the words 'Within ten months of the permission…' to 'Prior to the commencement of operation…'	Granted 22/12/2008
PA/2008/0571	Area D1 & D2, AHPF, Rosper Road, North Killingholme, DN40 3JP	Remove Condition 1 of planning permission 2004/1528 to make permanent the existing temporary consented use of vehicle storage and distribution, erect a single storey cabin, workshop and office building, raise ground levels to 3.1-4.0 m OD and surface with tarmac, install 3 m high electrified fencing with bird deflectors and erect 4 No. 30 m high lighting masts on land off Rosper Road.	Granted 22/12/2008
PA/2008/1428	Area D, AHPF, Rosper Road, North Killingholme, DN40 3JP	Remove Condition 1 (no access to and egress from Haven Road) and Condition 2 (the use shall be discontinued before 31/12/2008) on planning permission PA/2004/1601.	Granted 19/12/2008
PA/2008/1401	Area B Able Humber Port Facilities, Rosper Road, North Killingholme, DN40 3JP	Planning permission to remove condition 1 on PA/2004/1528 (use to be discontinued on or before 31 December 2008) and condition 9 on PA/2002/1828 (site to have a permeable surface at all times) in connection with use of land for vehicle distribution and storage.	Granted 18/12/2008
PA/2007/0101	Area C, AHPF, Rosper Road, North Killingholme, DN40 3JP	Planning permission to tarmac the 22.11 ha site for port-related external storage, to include the construction of 2 workshop buildings, a modular office building, a modular security building, construction of a wash pad wash bay and associated staff and visitor car parking and install a 3 m high security fencing, lighting towers and a sewage treatment plant.	Granted 16/01/2008
PA/2005/0562	Area D, AHPF, Rosper Road, North Killingholme, DN40 3JP	Planning permission to construct a port related storage facility including erection of various buildings, construction of car parking, erection of lighting towers and 2.4 m high electrified security fencing.	Granted 14/11/2006
DECC 01.08.10.04/439C	*West of the MOD Tank Farm*	*Construction and operation of a biomass fuelled generating station at South Killingholme, near Immingham*	*Granted 10/08/2011*

Table 3: Extant Planning Consents within and near the Compensation Site (Source: ERYC Public Access for planning applications website)
(Projects in *Italics* are outside of the application boundary)

Planning Ref.	Location	Details	Status
08/01993/STPLFE	Humber Gateway onshore installation	Cross country cable from Easington to Saltend	Granted
96/61327/PLF	*8 Cherry Cobb Sands Burstwick East Riding of Yorkshire HU12 9JU*	*Erection of an attached domestic garage.*	*Granted*
98/00205/PLF	*New House Farm Cherry Cobb Sands Road Burstwick East Riding of Yorkshire HU12 9JX*	*Erection of a general purpose agricultural storage building.*	*Granted*
04/02377/PLF	*Little Humber Farm Thorngumbald Road Paull East Riding of Yorkshire HU12 8AY*	*Erection of a replacement dwelling (renewal of planning permission 98/02287/PLF)*	*Granted*
05/02858/PLF	*Thorn Marsh Cottage Bellcroft Lane Thorngumbald East Riding Of Yorkshire HU12 9JR*	*Erection of a single and two storey extension*	*Granted*
11/02438/OHL	*OHL Replacement North West Of Little Humber Farm Newlands Lane Paull East Riding Of Yorkshire*	*Erection of 2no. additional poles for overhead line*	*No objections*

8.4 The ES submitted with the application reports on the EIA of a specific scheme, and records the Applicant's assessment of the likely significant environmental effects of that scheme.

8.5 Chapters 1-3 of the ES provide a brief introduction to the Project, the EIA process and the overall planning framework relating to the application. Since the completion of the ES, national planning policy has changed significantly with the publication of the National Planning Policy Framework. This publication, inter alia, revoked all Planning Policy Statements and Planning Policy Guidance documents.

8.6 Chapters 4 and 28, 5 and 29, and, 6 and 30 of the ES provide, respectively: a detailed description of the project; an explanation of why the project is needed and a review of the alternative sites considered by the Applicant.

8.7 Chapters 7-24 of the ES report on the significant environmental effects of the proposed development on the south bank of the River Humber, while chapters 31-43 report on the

significant effects of the proposed development on the north bank of the river. Each chapter of the ES addresses a specific environmental issue and provides:

- A review of the specific planning policy context relating that the topic;
- A record of the existing baseline conditions;
- Identification of the receptors that are likely to be affected by the proposed development;
- An assessment of the impact of the development alone on the receptors taking into account baseline conditions;
- An assessment of the impact of the development cumulatively with the impacts of other projects that are not yet implemented but for which planning permission has been granted, or other projects for which an application for consent has been submitted.

8.8 Proposed mitigation measures where the impact of the development when added to the baseline is sufficient to have an effect on a receptor that is significant.

8.9 *'Baseline'* means the assessment of the current situation at each location. *'Impact'* means the impact of the construction and operation of AMEP and the compensation site. *'Receptor'* is any component of the environment (population, flora, fauna, water, air, soil, geology, geomorphology, heritage and landscape), whether specifically protected by statute or not. *'Mitigation'* means the measures that are proposed in the ES to reduce the impacts to a lower level than would otherwise occur.

8.10 Additional reports were submitted by the Applicant on 29 June 2012, in response to relevant representations and to the first set of Examiner's questions; these reports are listed in Appendix A. Comments in this SoCG relate to the ES and these supplementary reports. A separate SoCG is in preparation that will address the Habitat Regulations Assessment (HRA).

8.11 For each chapter of the ES, the three Agencies have identified the issues relevant to their statutory duties in Table 4 below. For chapters marked 'no interest', then that particular agency has no relevant statutory duty for any of the issues addressed in that chapter. The Agencies have chosen not to comment on certain chapters they consider address issues outside of their specific remit.

8.12 The structure of the SoCG that follows, then considers each relevant chapter of the ES in turn.

9. Note on Site Designations

9.1 The Humber Estuary is protected by the following designations:

- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Site Special Scientific Interest (SSSI)
- Ramsar

9.2 Within this Statement of Common Ground, Ramsar interest features are treated equally to SAC and SPA interest features. This is because the features of the Ramsar site are

virtually identical to the SAC and SPA features. The only difference is that the Ramsar site qualifies for supporting breeding natterjack toads; however as this site is some considerable distance from the development, natterjack toads will not be affected. Therefore, in those places where the interest features of the SAC and/ or SPA are referred to, it should be understood that the Ramsar features are also being considered.

.

Table 4: Environmental Issues Relevant to each DEFRA Agency

	Relevant Environmental Issues		
ES Chapter	**MMO**	**EA**	**NE**
Volume 1 AMEP			
4: Project Description	*Activities licensable under s66 of the Marine and Coastal Access Act 2009 (MCAA)* *Immediate Habitat Loss within the Humber Estuary*	*Activities requiring a Flood Defence Consent* *Activities requiring an Environmental Permit* *Immediate Habitat Loss within the Humber Estuary* *Description and sequence of works for the new flood defence on the north bank*	*Activities affecting wildlife that require a licence* *Immediate Habitat Loss within the Humber Estuary* *Diversion of the public footpath on the north bank*
7: Geology, Hydrogeology, Ground Conditions	*Capital dredging of the AMEP development.* *Disposal of capital dredge materials and Compliance with Waste Framework Directive* *Maintenance dredging of the AMEP development and disposal* *Compliance with the OSPAR Convention, including agreement of sampling for and analysis of contaminants.*	*Ground contamination within the AMEP site* *Capital dredging of the AMEP development* *Disposal of capital dredge materials and Compliance with Waste Framework Directive* *Maintenance dredging of the AMEP development and disposal* *Protection of inland freshwaters, coastal waters, relevant territorial waters and groundwater*	*Maintenance dredging of the AMEP development and disposal*

	Relevant Environmental Issues		
ES Chapter	**MMO**	**EA**	**NE**
8: Hydrodynamic and Sedimentary Regime	*Modelling, including methods used and input parameters* *Change in Estuary Processes and indirect effects on:* *1. Flood defence infrastructure* *2. Sediment plume dispersion* *3. Maintenance dredging within the estuary.* *Medium and long term habitat change* *Disposal at HU082* *Monitoring*		
9: Water and Sediment Quality	*Change in thermal plume for CW outfalls* *Impact of dredging and dredge disposal* *Compliance with Water Framework Directive (WFD)*	*Foul Drainage* *Impact of dredging and dredge disposal* *Compliance with Water Framework Directive (WFD)*	*Change in thermal plume for CW outfalls* *Impact of dredging and dredge disposal*
10: Aquatic Ecology	*Marine Invertebrates* *Marine mammals (inc. Grey Seal)* *Migratory Salmonid fish* *River and Sea Lamprey* *Direct and Indirect impacts on Intertidal and Sub-tidal habitats* *Rockfill within the berthing pocket* *OSPAR Habitats and Species*	*Marine Invertebrates* *Migratory Salmonid fish* *River and Sea Lamprey* *Direct and Indirect impacts on Intertidal and Sub-tidal habitats* *Rockfill within the berthing pocket*	*Marine Invertebrates* *Marine mammals (inc. Grey Seal)* *Migratory Salmonid fish* *River and Sea Lamprey* *Direct and Indirect impacts on Intertidal and Sub-tidal habitats* *Rockfill within the berthing pocket* *OSPAR Habitats and Species*

	Relevant Environmental Issues		
ES Chapter	**MMO**	**EA**	**NE**
11: Terrestrial Ecology and Birds	*Direct loss of terrestrial feeding and roosting areas for marine birds* *Direct loss of intertidal feeding areas for marine birds,* *indirect loss of intertidal feeding areas for marine birds due to disturbance.* *Loss of intertidal feeding areas for SPA birds due to construction and operational disturbance*	*No interest*	*Great crested newts,* *Bats,* *Water vole* *Badgers,* *Little Ringed Plover,* *Breeding birds,* *Direct loss of terrestrial feeding and roosting areas for SPA birds* *Loss of intertidal feeding areas for SPA birds due to construction and operational disturbance* *Loss of Station Road Fields LWS* *NKHP SSSI - Disturbance* *Direct loss of intertidal feeding areas for SPA birds;*
12: Commercial Fisheries	*Commercial fishing operations.*	*Recreational fishing.*	*No interest*
13: Drainage and Flood Risk	*Surface water drainage and pollution prevention*	*Surface water drainage and pollution prevention* *Flood Risk to the site and to third parties.* *Maintenance of flood defences* *Pollution prevention*	*Surface water drainage and pollution prevention*
14: Commercial and Recreational Navigation	*Shipping hazards* *Navigational risk assessment & methodology*	*No interest*	*No interest*
16: Noise and Vibration	*No interest*	*No interest*	*Noise assessment methodology*
17: Air Quality	*No interest*	*No interest*	*Impact on ecological receptors*

	Relevant Environmental Issues		
ES Chapter	**MMO**	**EA**	**NE**
19: Light	*No interest*	*No interest*	***Impact on ecology***
20: Landscape and Visual	*No interest*	*No interest*	*Mitigation for impacts on Flora and Fauna*
23: Waste	*No interest*	*Compliance with waste management legislation*	*No interest*
Volume 2 The Compensation Site and Old Little Humber Farm			
28: Description of the Development (Included in a combined chapter with Chapter 4)	*Activities licensable under s66 of the Marine and Coastal Access Act 2009*	*Description and sequence of works for the new flood defence*	*Diversion of the public footpath* *Detailed design of CCS And Old Little Humber Farm*
29: Need for the Development	*Requirement for compensation*	*Requirement for compensation*	*Requirement for compensation*
30: Choice of Site	*No interest*	*Middle estuary location*	*Middle estuary location*
31: Geology and Ground Conditions	*Impact on the marine area due to ground contamination within the development site following breach of seawall,*	*Protection of inland freshwaters, coastal waters, relevant territorial waters and groundwater* *Ground contamination within the development site/remediation .*	*No interest*
32: Hydrodynamic and Sedimentary Regime	*Modelling, including methods used, input parameters and model calibration*	*Impact on estuary wide processes* *Stone creek*	*Impact on estuary wide processes* *Stone Creek*
33: Water and Sedimentary Quality	*Compliance with Water Framework Directive*	*Compliance with Water Framework Directive*	*Compliance with Water Framework Directive*
34: Aquatic Ecology	*Loss of Saltmarsh* *Impact upon Marine Invertebrates*	*Loss of Saltmarsh* *Impact upon Marine Invertebrates* *Protection of fish*	*Loss of Saltmarsh* *Impact upon Marine Invertebrates*

	Relevant Environmental Issues		
ES Chapter	**MMO**	**EA**	**NE**
35: Terrestrial Ecology	*No interest*	*No interest*	*Badgers use of the compensation site; Loss of avenue of trees* *Managed realignment site - loss of terrestrial habitat* *Construction disturbance to birds within the designated site* *Loss of SSSI soke dyke*
36: Drainage and Flood Risk	*No interest*	*Existing Surface water drainage and outfalls* *Design Criteria for the new flood defence crest level* *Development Impact upon Third Parties.* *Maintenance of flood defences*	*No interest*
39: Air Quality	*No interest*	*No interest*	*Impacts of construction dust on designated site*
43: Waste	*No interest*	*Compliance with waste management legislation*	*No interest*
44: In-Combination Impacts	*Ensuring all aspects of development do not have an unacceptable in-combination impact on the marine area.*	*Ensuring all aspects of development do not have an unacceptable in-combination impact on receptors*	*Ensuring all aspects of development do not have an unacceptable in-combination impact on the ecological receptors*

SECTION 2 : JOINT STATEMENT OF COMMON GROUND

10. INTRODUCTION

10.1 This Section of the SoCG reviews those chapters of the ES that are relevant to one or more of the three Agencies.

10.2 For each relevant chapter of the ES, the three public bodies have identified the issues they consider significant to them. For each chapter a screening assessment is presented in tabular form that identifies the significant issues:

- where all three record a '✔', then the assessment recorded in the ES is agreed and the issue is dealt with summarily in this Statement; the Applicant's assessment is briefly explained by reference to relevant sections of the ES and the relevant Agencies confirm their agreement.
- Where the screening table records a '✔*' for any Agency then this Statement provides explanatory text and clarification of the matters set out in the Applicant's ES and any supplementary environmental information; the relevant Agencies then confirm their agreement.
- For any entries in the screening table that record an 'X', the text in the ES is not yet agreed and nor have any subsequent discussions been able to reach agreement at this time, though agreement on the issue may be reached in the future.

10.3 For any entries marked 'O', then the issue is outside that particular Agency's remit.

10.4 Issues that are identified in ***bold type*** in the screening table at the beginning of each section also need to be considered in the Habitat Regulations Assessment for the project.

11. CHAPTERS 4 AND 28 DESCRIPTION OF THE DEVELOPMENT

11.1 General

11.1.1 Chapters 4 and 28 provide a description of the works proposed on the South Humber Bank and on the North Bank respectively. They are to be read in conjunction with the drawings submitted with the application.

11.2 Screening Assessment

Table 11.1 : Screening of Chapter 4 and 28 Issues

ISSUE	MMO	EA	NE
Direct habitat Loss within the Humber Estuary SPA/SAC	✔ *	✔ *	✔ *
Activities requiring a Licence under MCAA	X	O	O
Activities requiring a Flood Defence Consent	O	✔ *	O
Activities requiring an Environmental Permit	O	✔ *	O
Activities affecting wildlife that require a Licence	O	O	✔ *
Description and sequence of works for the new flood defence – north bank	O	✔ *	O
Diversion of the public footpath on the north bank	O	✔	✔

11.3 Direct Habitat Loss within the Humber Estuary SPA/SAC

Summary of the Applicant's Assessment

11.3.1 Direct physical loss of estuarine habitat will occur within the Humber Estuary as a result of the reclamation works. Functional loss of habitat may also arise due to disturbance during the construction and operation of the development.

11.3.2 Indirect changes to habitat will additionally arise as a consequence of-

- A local change in the sedimentary regime to the north and south of AMEP as changes to estuary processes result in new patterns of accretion and erosion.
- Process changes throughout the estuary that give rise to long term geomorphological adjustment and changes in the ratio of sub-tidal to intertidal habitat. The specific process changes are addressed in the section of this SoCG relating to Chapter 8 of the ES.

11.3.3 The losses and changes affect four habitat types of community interest, none of which is a priority habitat:

- 1130 Estuaries
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1310 *Salicornia* and other annuals colonising mud and sand.
- 1330 Atlantic salt meadows (*Glauco-Puccinellietaliamaritimae*)

11.3.4 Where losses or changes are assessed to have an adverse effect on the integrity of the Humber Estuary SPA/SAC then compensation should be provided in the following ratios, subject to the relevant derogation tests being satisfied:

- For habitat type 1140, initially in the ratio of 2:1 (habitat creation: habitat loss), due to uncertainty with regard to the effectiveness of the scheme. The habitat must be sustainable in the ratio of at least 1:1. Sustainability being evidenced by model predictions at 10 years after the habitat creation scheme is completed.

- For habitat types 1130, 1310 and 1330, in the ratio of 1:1 due to the certainty that this type of habitat will be created within the compensation scheme.

11.3.5 The immediate habitat losses due to reclamation and disturbance are set out in EX11.23 that is included in the volume of supplementary environmental information. The physical and functional loss of estuary cannot be mitigated.

Comments by the three Agencies

11.3.6 The MMO agrees with this summary. Additional comments on the estimates of habitat loss are provided in Section 30.

11.3.7 The EA agrees that there will be a loss of habitat as a result of the AMEP project and compensation is required.

11.3.8 NE agrees there will be direct habitat loss within the designated site boundary due to the footprint of the quay. There will also be indirect habitat loss caused by disturbance during construction and operation of the new port facility. This habitat loss will affect the features listed above and compensation is required. Natural England agrees that (in this case) the ratios stated in paragraph 11.3.4 are sufficient to maintain the coherence of the Natura 2000 network. The compensation will need to be monitored and this will be agreed through an EMMP, along with any triggers for remedial works.

11.4 **Activities requiring a Marine Licence**

Summary of the Applicant's Assessment

11.4.1 The works described in Table 11.2 will require a marine licence:

Table 11.2: Activities requiring a Marine Licence

WORKS	DESCRIPTIONS
Construction of the Quay (Work Number 1 in Schedule 1 of the draft DCO)	The licence holder is permitted to construct a quay and carry out associated land reclamation within the quay limits and according to the following specification:—
• Piling	• no more than 650 tubular and 1300 sheet steel perimeter piles may be driven into the bed of the estuary to form the external face of the quay, where such piles are to be installed from named vessels moored in the estuary; • two return walls may be constructed between the ends of the quay and the existing flood defence wall, comprising no more than 25,000 steel piles driven into the bed of the estuary from named vessels and also earthwork revetments with no more than 100,000 tonnes of rock armour protection, such revetments and rock armour to be constructed using land-based plant; • no more than 500 flap anchor piles may be fixed to the landward face of the perimeter piles and seated in a trench on the bed of the estuary, to be installed from named vessels moored in the estuary; • no more than 100 steel anchor piles may be driven into the bed of the estuary and fixed to perimeter piles, to be installed from named vessels moored in the estuary.
• Reclamation with marine dredges aggregates	• The area of estuary approximately 50 metres landward of the quay perimeter piles may be reclaimed by depositing marine dredged sands and gravels from named vessels using rainbowing techniques; • the remaining area of estuary enclosed by the quay perimeter piles and the two return walls may be reclaimed using marine dredged sands and gravels by constructing two granular dams that extend from the existing flood defence wall to the area reclaimed so that the dams divide the remaining reclaim area into three approximately equal cells, whereupon named vessels shall pump fluidised granular material into each cell in sequence, allowing estuarine water that is retained within each cell to overflow the dams as the fluidised material is deposited and settles within the cell, such activity to continue until all cells attain their design levels.
• Installation of fenders	• Steel plates may be attached to the perimeter piles by welding and bolting, whereupon a fender may be attached to each steel plate by bolts, all such works being undertaken from a man basket suspended from a crane located on land.
Backfilling the Berthing Pocket with gravel and rock.	Following or during the dredging of the berthing pocket, the licence holder is permitted to deposit up to 300,000 tonnes of gravel and rock from named vessels into the berthing pocket so that its depth does not exceed -11 metres chart datum.

WORKS	DESCRIPTIONS
Installation of temporary dolphins.	The licence holder is permitted to construct and remove up to seven temporary dolphins within the berthing pocket, such that each dolphin comprises three tubular steel piles driven into the bed of the estuary from named plant moored in the estuary, whereupon the piles shall be braced with interconnecting steelwork. Monitoring equipment fixed to buoys shall be deployed at locations in the estuary during the piling works in accordance with the marine Ecological Management and Monitoring Plan.
Removal of temporary dolphins.	Each temporary dolphin must be removed as soon as practicable once the activities for which they have been constructed have been completed.
Capital dredge of turning area, approach channel, berthing pocket, south bank channel and reclamation area.	The licence holder is permitted to carry out capital dredging at the following locations: (a) the quay site to a depth of -6.5 metres Chart Datum; (b) the berthing pocket to a depth of -14.5 metres Chart Datum; (c) the approach channel to a depth of -9 metres Chart Datum; (d) the turning area to a depth of -9 metres Chart Datum; (e) the pumping station channel to a depth of 0.5 metres Chart Datum; and (f) the Cherry Cobb Sands channel to a depth of 5.7 metres Chart Datum.
Maintenance dredge of turning area, approach channel, berthing pocket and south bank channel.	The licence holder is permitted to carry out maintenance dredging at the following locations: (a) the quay site; (b) the berthing pocket to a depth of -11 metres Chart Datum; (c) the approach channel to a depth of -9 metres Chart Datum; (d) the turning area to a depth of -9 metres Chart Datum; (e) the pumping station channel to a depth of -3 metres Chart Datum; and (f) the Cherry Cobb Sands channel to a depth of -5.7 metres Chart Datum. The dredging listed above may only be carried out for the purpose of: (a) maintaining the authorised development; (b) maintaining access to the authorised development; and (c) removing siltation caused by the authorised development.
Plough dredging around E.ON and Centrica intake and outfalls.	The licence holder is permitted to carry out maintenance dredging at the following locations: (a) the E.ON outfall to keep it free of siltation; **(b)** the Centrica outfall to keep it free of siltation.

WORKS	DESCRIPTIONS
Disposal of capital dredged material.	The materials must be dredged in the approximate quantities and deposited at the locations according to Table 12.2 Deposit Locations: • **HU080:** area bounded by co-ordinates (53°36.95'N, 00°03.47'W), (53°36.55'N, 00°00.42'E), (53°36.30'N, 00°00.62'W) and (53°36.47'N, 00°02.32'W); • **HU082:** area bounded by co-ordinates (53°37.47'N, 00°02.27'W), (53°37.25'N, 00°00.80'W), (53°36.97'N, 00°00.81'W) and (53°37.12'N, 00°02.29'W).
Disposal of maintenance dredge material.	The materials must be dredged in the approximate quantities and deposited at the locations according to Table 12.2 Deposit Locations: • **HU080:** area bounded by co-ordinates (53°36.95'N, 00°03.47'W), (53°36.55'N, 00°00.42'E), (53°36.30'N, 00°00.62'W) and (53°36.47'N, 00°02.32'W); • **HU082:** area bounded by co-ordinates (53°37.47'N, 00°02.27'W), (53°37.25'N, 00°00.80'W), (53°36.97'N, 00°00.81'W) and (53°37.12'N, 00°02.29'W);
Works at the Pumping Station that fall within tidal waters.	The licence holder is permitted to construct a pumping station at the pumping station site according to the following specification:— (a) a temporary steel cofferdam for the installation of up to six drainage pipes may be installed through the existing flood defence and extend onto the foreshore, whereupon the flood defence wall shall be reinstated to its original seaward profile using inert soil materials and concrete; (b) a stone mattress may be placed within the drainage channel created for the outfall over a distance of 20 metres seawards of the outfall pipes; and (c) a pumping station may be constructed with outfall pipes terminating at the stone mattress. Works outside the cofferdam shall be undertaken using land based plant operating from a berm formed within the south-eastern return wall of the quay.
Removal of existing flood defence and creation of a drainage channel across the existing intertidal area at Cherry Cobb Sands and disposal of spoil.	The licence holder is permitted to remove a 250 metre section of the existing north bank flood wall to create the Cherry Cobb Sands channel under the following conditions: (a) a new flood defence shall have been constructed landward of the existing flood defence; (b) a channel shall have been excavated from the site of the breach to the foreshore at the level of the breach; (c) all material is to be removed using land-based plant.

Comments by the Three Agencies

11.4.2 The MMO considers that the activities licensable under the 2009 Act are close to being agreed. However, outstanding issues include:

- Coordinates for the location of all of the works activities need to be provided and agreed.

- Confirmation of the maximum quantity of capital dredged material to be disposed of to sea or to be incorporated into the works must be provided so that the DML properly reflects the proposals.

- Clarification on how the backfilling of the berthing pocket will be undertaken is required, in particular, the phase "following or during".

- Additional information on the dredge and disposal elements of the project are required, including, final locations volumes and methods.

- The MMO will not agree to "approximations" of dredged material, only maximum.

- Clarification is sought as to what the Applicant intends to do with regards to the EON and Centrica outfalls. The MMO understands that either the outfalls will be re-located or they will require dredging; the deemed marine licence must accurately reflect the works to take place.

11.4.3 The MMO has commented in relevant representations, written representations and at the issue specific hearing on the DCO, that there are outstanding questions with regards to whether an adequate assessment of the works has been undertaken through the EIA process. These comments are not repeated here but remain relevant. Agreement on the licensable activities and drafting of the deemed marine licence will not be possible if the activities licensed thereunder have not been properly assessed. Further comments are provided in the relevant chapters of this SoCG where appropriate.

11.4.4 Although the EA does not have a remit to agree or otherwise with the activities listed as needing a Marine Licence, some of these activities overlap with the EA consenting regime. The EA will not devolve consenting powers to the MMO for the works listed above, such as the outstanding detailed design for the pumping station and the Cherry Cobb Sands flood defence works, as these also fall within our remit as detailed under section 11.5 below. There are issues still to be agreed in respect of piling, drainage and flood defence works, and further details are provided in the relevant chapters of this SoCG.

11.5 **Activities requiring a Flood Defence Consent**

Summary of the Applicant's Assessment

11.5.1 Works affecting existing flood defences, works within the Byelaw distance and works associated with the construction of new flood defences at North Killingholme will require an application for consent to be submitted to the Environment Agency in accordance with the requirements of s210 of the Water Resources Act 1991 and Anglian Region Land Drainage and Sea Defence Byelaws. Works affecting existing flood defences and works associated with the construction of new flood defences at Cherry Cobb Sands will require an application for consent to be submitted to the Environment Agency in accordance with the requirements of the Yorkshire Land Drainge Byelaws 1980.

11.5.2 Accordingly all works affecting the existing flood defences on the north and south bank of the estuary and the creation of a new flood defence by the construction of the quay and the creation of a new flood defence behind the habitat creation site at Cherry Cobb Sands will require separate Environment Agency consents.

Comments by the Three Agencies

11.5.3 The EA agrees that satisfactory legal agreements and protective provisions, which protect our interests in respect of the flood defences and ensure that flood risk is not increased as a result of the AMEP works is required. These have not yet been agreed and it is essential that they are in place prior to the grant of permission.

11.6 Activities requiring an Environmental Permit

Summary of the Applicant's Assessment

11.6.1 The following works included in the application will require existing environmental permit(s) to be varied, or new permits to be secured, in accordance with the Environmental Permitting (England and Wales) Regulations 2010:

- Diversion of Anglian Water Services Brine and Sludge outfalls
- Relocation of E.ON and Centrica outfalls.
- Operation of the outfall for the new surface water pumping station.
- Operation of any package treatment works.

Comments by the Three Agencies

11.6.2 The EA agrees that the above works will require either a variation to an existing permit or an application for a new permit under the Environmental Permitting (England and Wales) Regulations 2010. To date the EA has not received formal applications for Permit Variations, or new Permits, for any of the activities described above. Permits will be calculated to achieve Water Framework Directive Good Status target and to ensure no deterioration in water quality.

11.7 Activities affecting wildlife that require a Licence

Summary of the Applicant's Assessment

11.7.1 The following European Protected Species (EPS) occur on the site and where the development has been shown to affect these species, then a mitigation licence will be required :

- Great crested newts – the development will result in the loss of ponds and terrestrial habitat utilised by great crested newts on the south bank and will require the translocation of great crested newts to a new site.

- Bats – Bat surveys have shown that there is a low likelihood of bats roosting on the development site, however, the possibility of bats roosting in trees to be felled during site clearance works cannot be excluded. Bat surveys will be carried out prior to felling works and thus there may be need for a licence at the time of these works.

11.7.2 Two species are present on or around the development site that are protected by national legislation. They will be affected by the works and a licence will be required from Natural England for the activities specified:

- Water Voles - translocation of water voles on the south bank.

- Badgers - closure of badger setts on the north bank.

Comments by the Three Agencies

11.7.3 Natural England agrees with the results of the surveys for protected species and that the development proposals may require mitigation licences to enable specified activities for each of the EPS and the nationally protected species identified above.

11.8 Description and sequence of works for the new flood defence on the north bank

Summary of the Applicant's Assessment

11.8.1 The construction of the new flood defence wall on the north bank is described in Chapter 28 of the ES. The potential for certain areas of the bank to be subject to particularly high hydrodynamic forces is discussed in paragraphs 28.2.5 *et seq*. To minimise the risk of the erosion occurring along the face of the new embankment, vegetation along the seaward face will be allowed to mature before the breach is made.

Mitigation

11.8.2 Details of the construction sequence will be included in the Code of Construction Practice to be submitted to the Local Planning Authority prior to the commencement of works and secured in accordance with a requirement within Schedule 11 of the DCO.

Comments by the Three Agencies

11.8.3 The EA requires a satisfactory legal agreement and protective provisions, which protect our interests in respect of the flood defences and ensure that flood risk is not increased as a result of the Cherry Cobb Sands works. These have not yet been agreed and it is essential that they are in place prior to the granting of the DCO.

11.9 Diversion of the public footpath on the north bank

Summary of the Applicant's Assessment

Baseline

11.9.1 A public footpath currently runs along the top of the flood defence wall adjacent to the Cherry Cobb Sands Compensation Site, refer to application drawing AME-02016-A. As this wall is to be breached over a length of 250m an alternative route for the footpath is needed.

Receptors

11.9.2 The footpath users and the landowners over which the diverted footpath will run are the principal receptors. The third significant receptor is any fauna that might be disturbed along the route of the diverted footpath.

Proposed Diversion and Alternatives

11.9.3 The main issue is whether the realigned footpath on the north bank of the Humber should run along the top of the new flood defence that will surround the compensation site, or should run along its landward toe. Consultees proposed conflicting solutions. In simple terms the proposal advocated by East Riding of Yorkshire Council (ERYC) and the Ramblers, to locate the footpath along the crest of the new flood defence will benefit recreational walkers using the footpath, who will benefit from a view of the estuary. The alternative proposal, advocated by Natural England and the RSPB, to locate the footpath along the landward toe of the new flood defence is considered to be more beneficial to the wildlife using the compensation site as it is less likely to be disturbed. ERYC has also proposed a compromise of having both footpaths, and allowing the use of one or the other at different times of year, this would be indicated by signposts directing walkers to the toe of the flood defence during sensitive periods.

11.9.4 The Humber Estuary Management Scheme commissioned a report from Footprint Ecology to examine, '*the current impacts of recreation on the Humber Estuary, in relation to disturbance to birds'*, ('*Desk Based Study on Recreational Disturbance to Birds on the Humber Estuary'*, Footprint Ecology, 2010). Whilst the estuary wide effects of disturbance are too complex to model quantitatively the report does identify, (Map Annex, Map 37 reproduced in Figure 11.1 below), that this area of Cherry Cobb Sands is frequently used by dog walkers; many ornithologists believe that this activity causes a high level of disturbance to waterbirds.

11.9.5 Providing a footpath to the rear of the flood defence effectively screens the wildlife from potential disturbance and avoids having to increase the size of the compensation site to buffer against disturbance activity. By contrast, the mitigation site on the south bank is provided with a 150 m buffer zone that results in the core area of 16.7 hectares being located within a c.48 ha plot. The Footprint Ecology report includes amongst its recommendations, '*measures to limit impacts of disturbance at realignment sites such as Paull through screening, **routing of paths around the base of the embankment** on the inland side etc.*', (emphasis added).

11.9.6 The Applicant proposes to divert the existing footpath to locate the footpath along the landward toe of the new flood defence as shown on application drawing AME-02016-A.

Mitigation

11.9.7 To mitigate for the loss of estuary wide views, the application includes proposals for bird hides along the top of the realigned defences to enable views of the new site.

Comments by the Three Agencies

11.9.8 As stated in our Written Representation, Natural England agrees that the public footpath should be located at the landward toe of the new floodbank to minimise disturbance to SPA waterbirds utilising the compensation site. If the footpath is located on top of the floodbank, walkers will be silhouetted against the skyline and there will be a risk that the compensation site will not meet its objectives. Natural England does not believe that using signs to direct people to the landward toe of the floodbank during sensitive times of the year would be effective in reducing disturbance.

11.9.9 The EA has no particular views on the location of the proposed footpath. Any works within Byelaw distance require EA consent and relevant issues will need to be included in either a legal agreement or through protective provisions.

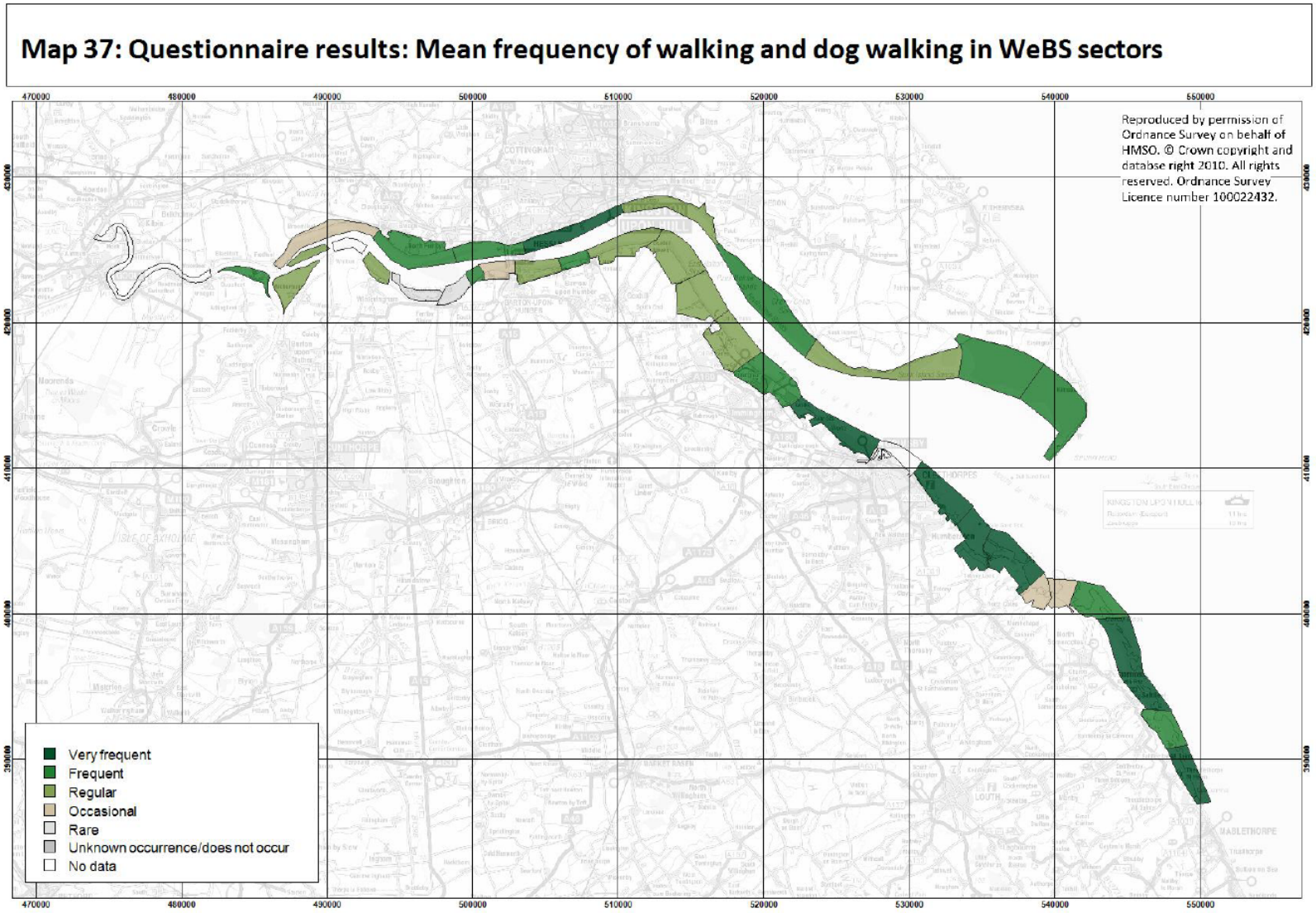


Figure 11.1 : Abstract from '*Desk Based Study on Recreational Disturbance to Birds on the Humber Estuary*', Footprint Ecology, 2010

12. CHAPTER 7 GEOLOGY, HYDROGEOLOGY AND GROUND CONDITIONS (INCLUDING ANNEXES 7.1 TO 7.6)

12.1 General

12.1.1 Chapter 7 of the ES reviews the geotechnical site investigations that have been undertaken within AMEP and its surroundings; summarises the baseline conditions and assesses the impact of the development on soils within and underlying the AMEP site, and on soils at the dredge disposal grounds. It also considers the hydrogeological impacts of the Project. Impacts of dredging operations in relation to the hydrodynamic and sedimentary regime, water and sediment quality and aquatic ecology are addressed in the sections of this SoCG which relate to Chapters 8, 9 and 10 of the ES respectively.

12.2 Screening Assessment

Table 12.1 : Screening of Chapter 7 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Ground contamination within the AMEP site		O			✔			O	
Capital dredging of the AMEP development		X			X			O	
Disposal of capital dredge materials and Compliance with Waste Framework Directive		X			X			O	
Maintenance dredging of the AMEP development and disposal		X			X			O	
Compliance with the OSPAR Convention, including agreement of sampling for and analysis of contaminants.		X		O	O	O	O	O	O
Protection of inland freshwaters, coastal waters, relevant territorial waters and groundwater	O	O	O	✔	✔	✔	O	O	O

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

12.3 Ground Contamination within the AMEP Site

Summary of the Applicant's Assessment

Baseline

12.3.1 The risk of contaminated land being present on the AMEP site and the possible pollution linkages between any possible contamination and a sensitive receptor are assessed in Annex 7.1 of the ES. With the exception of the railway corridor, contaminated land is not likely to be present and no specific mitigation is required.

Comments by the Three Agencies

12.3.2 The EA agrees that the risk assessment undertaken to date has not identified significant sources of contamination and the risk of encountering further contamination is considered to be low. No further assessment is considered necessary at this time. Should unsuspected contamination be encountered, development works should cease and we should be notified in accordance with the DCO requirement we have requested in paragraph 4.12 of our Written Representations.

12.4 Capital Dredging of the AMEP Development

Summary of the Applicant's Assessment

Baseline

12.4.1 The tonnages to be dredged are detailed in Table 12.2 below.

12.4.2 A ground investigation of the reclamation area and approach channel was undertaken in 2010 and is included in Annex 7.3 of the ES. An Interpretative Report has been prepared by BuroHappold, Consulting Engineers, and is included in Annex 7.4 of the ES. Baseline bathymetry is based on a range of data detailed in Annex 8.1 of the ES, Section 2.2.

12.4.3 The material to be dredged is a mix of alluvium, sand, gravel and clay deposits. Dredging of soft material will be undertaken by trailing suction hopper dredgers, whilst harder material will be excavated using backhoe dredgers. The 2010 ground investigation is sufficient to provide a reasonable understanding of the material to be dredged and, in the absence of any other beneficial use, to be disposed of within the estuary.

Table 12.2 Capital Dredge Quantities and Deposit Locations

Location	Material	Maximum tonnage per year	Deposit location	Total licensed tonnage over a 3 year period
Quay site	Gravel	50,000	HU080	725,000
	Sand	110,000		
	Silt	390,000		
	Clay	175,000	HU082	
The berthing pocket	Sand	50,000	HU080	1,675,000
	Silt	150,000		
	Clay	535,000	HU082	
	Clay	1 100 000	The terrestrial area landward of the existing Killingholme Marshes flood defence wall.	
The approach channel	Gravel	300,000	HU080	1,650,000
	Sand	600,000		
	Silt	500,000		
	Clay	250,000	HU082	
The turning area	Gravel	35,000	HU080	250,000
	Sand	95,000		
	Silt	80,000		
	Clay	40,000	HU082	
The pumping station channel	Sand	500	HU080	2,500
	Silt	2,000		
The Cherry Cobb Sands channel	Sand	2,000	The intertidal area landward of the Cherry Cobb Sands channel	10,000
	Silt	8,000		

Assessment Methodology

12.4.4 An estimate of the volumes to be dredged has been undertaken using baseline bathymetry from 2009, and an appropriate software package. The types of material to be dredged are estimated from the soil descriptions contained in the vibrocore logs included in Annex 7.3

of the ES and summarised on drawing AME-09157-B included in Annex 7.6 of the ES. Capital dredge arisings will be a combination of both erodible silts, sands, very soft clays and gravels, and inerodible firm to stiff clays. The actual volume of each type of material dredged may vary from that estimated as the estimate is necessarily based on a discrete number of sampling points.

12.4.5 The Dredging Strategy will be updated before commencement of the works and submitted to the MMO for approval.

Suitability of the Strategy

12.4.6 Subject to the inclusion of details relating to the initial dredge of the new surface water drainage channel, capital dredging for the AMEP site is suitably addressed within the Dredging Strategy document. Final proposals for capital dredging will be set out in a Dredging Strategy to be secured through Schedule 8 of the Development Consent Order.

Comments by the Three Agencies

12.4.7 Refer to comments under Section 12.5.

12.5 Disposal of Capital Dredge Material and Compliance with the Waste Framework Directive

12.5.1 Erodible deposits are to be disposed of at HU080 and the inerodible deposits that are unsuitable for, or cannot be economically used as, fill material on land, are to be disposed of at HU082; both are licensed deposit grounds within the Humber Estuary.

12.5.2 The capacity of the capital dredge disposal site HU082 has been calculated using an industry standard package, SMS, developed and distributed by Aquaveo LLC and is reported in EX8.7.

12.5.3 In line with the Waste Framework Directive, and in particular the waste hierarchy, disposal to sea should be the last resort. Accordingly, where it is reasonably practicable to do so, material that can be used as bulk fill within the AMEP site will be deposited on land, Following a detailed site investigation it is expected that approximately 60 per cent of the dredge arisings from the berthing pocket can be used as fill material on the terrestrial areas of the AMEP development. The total amount of inerodible deposits to be disposed of to sea is therefore 1 M wet tonnes of clay (c. 450 000 m^3).

12.5.4 The final proposals for disposal of capital dredge material from the AMEP site will be set out in a Dredging Strategy to be secured through Schedule 8 of the Development Consent Order.

Comments by the Three Agencies

12.5.5 The MMO is not yet satisfied that an adequate assessment of capital dredging and disposal of capital dredged material has been undertaken. Outstanding issues include:

- Calculation of disposal site capacity. The MMO is not yet satisfied that an adequate assessment of disposal site capacity has been undertaken and has requested further information from the Applicant on this matter. This must include how the Applicant has undertaken an incombination assessment with other licences and applications that are either permitted to or seek to dispose of to these sites. A worst case scenario must be considered. Without this clarification, the MMO is not in a position to agree to the disposal of capital dredged material as detailed in Table 12.2.

- The MMO is not in a position to agree to the bed level to be maintained until calculations for disposal site capacity have been provided.

- Gravel is not permitted to be disposed of to HU080.

- Confirmation of the maximum quantity of capital dredged material to be disposed of to sea or to be incorporated into the works must be provided so that the DML properly reflects the proposals.

- With regard to paragraph 12.5.3, the information provided by the Applicant in the ES was not adequate to assess contamination of dredged materials at Cherry Cobb Sands. Further comments are provided in Chapter 31.

- Correct coordinates for each site have not yet been provided for the pumping station channel. As such, the MMO has not had the opportunity to determine whether an adequate assessment of contamination has been made for this site.

12.5.6 The Applicant will need to submit reports twice yearly in order to comply with the Ospar Convention. This will be made a condition of the deemed marine licence at Schedule 8.

- A number of additional conditions will be required for the deemed marine licence which are yet to be agreed with the Applicant.

- Methodologies also need to be supplied.

12.5.7 The EA is not in a position to agree with the Applicant's assessment, as additional supplementary information (EX8.6 and EX8.7) has been received and we have not yet had time to review this. The EA has previously raised queries regarding the capacity of the disposal site at HU082 to take all the material to be located at this site, and the different variable quantities of material to be created and disposed of via this project. At the current time this issue is not agreed, however it may be resolved following our review of the further supplementary information and we will make further written representations on this issue in due course.

12.5.8 The EA has commented in relevant representations, written representations and at the issue specific hearing on the DCO, that there are outstanding questions with regards to whether an adequate assessment of the project has been undertaken through the EIA process. These comments are not repeated here but remain relevant.

12.5.9 EA does not agree with the disposal capacity of HU080 and HU082. We are still awaiting evidence showing the method of calculation of disposal capacity and until we receive this we will not be able to confirm our agreement or otherwise.

12.5.10 Natural England has no specific comments on capital dredging; any impacts resulting from these works are described in the relevant chapters as described in paragraph 12.1.1.

12.6 Maintenance Dredging of the AMEP Development and Disposal

Assessment Methodology

12.6.1 An assessment of the volume of annual maintenance dredging at AMEP has been undertaken by HR Wallingford, and is recorded in supplementary report EX8.6 'Assessment of Maintenance Dredging Requirements'. The annual maintenance dredge requirement for the project is calculated to be within the range 49 000 to 429 000 dry tonnes (density of material = 0.5 dry tonnes/m^3). The assessment is based on both computer modelling and a review of dredging records for nearby berths. The HR Wallingford report is sufficient to provide a reasonable understanding of the quantum of material to be dredged annually and to be disposed of within the estuary.

12.6.2 The tonnages to be dredged to maintain access to the AMEP quay are detailed in Table 12.3 below.

E.ON and Centrica Outfalls

12.6.3 Subject to monitoring of the intertidal and sub-tidal areas to the north of AMEP, and subject to agreements with the E.ON and Centrica regarding the diversion of their outfalls, it may be necessary to plough dredge the estuary bed to remove sediment in the vicinity of existing cooling water intakes and outfalls. Subject to the Project being consented, the Dredging Strategy needs to be updated and approved by the MMO before commencement of the works.

Disposal

12.6.4 Maintenance dredge material will be erodible and will be disposed of at HU080, which is a licensed deposit ground within the Humber Estuary. The final proposals for disposal of maintenance dredge material from the AMEP site will be set out in a Dredging Strategy to be secured through Schedule 8 of the Development Consent Order.

Table 12.3 Maintenance Dredge Quantities and Deposit Locations

Location	Material	Maximum tonnage per year	Deposit location	Total licensed tonnage over a period of 3 years
The berthing pocket	Sand	150,000	HU080	3,225,000
	Silt	925,000		
The approach channel	Sand	10,000	HU080	150,000
	Silt	40,000		
The turning area	Sand	10,000	HU080	150,000
	Silt	40,000		
The E.ON outfall	Sand	500	HU080	7,500
	Silt	2,000		
The Centrica outfall	Sand	500	HU080	7,500
	Silt	2,000		
The pumping station channel	Sand	50	HU080	300
	Silt	50		

Comments by the three Agencies

12.6.5 The EA agrees with the need to monitor the intertidal and subtidal areas to the north of AMEP in relation to the E.ON and Centrica outfalls in relation to sedimentation. Additional information on the calculation of disposal of the dredged material has been provided in EX8.6. The EA has not had sufficient time to review this document and provides no comments here on the values provided in Table 12.3 with regards to disposal of maintenance dredged material. Previous comments made in Relevant and Written Representations remain relevant.

12.6.6 Additional information on the calculation of disposal of dredged material has been provided in EX8.6 The MMO has not had sufficient time to review these documents and provides no comments here on the values provided in Table 12.3 with regards to disposal of maintenance dredged material. Previous comments made in relevant and written representations remain relevant.

12.6.7 With regards to compliance with the Ospar Convention, the sampling reported in the ES and referred to above relates to capital dredged material. Additional sampling and contamination analysis is likely to be required for maintenance dredged activities and will be made a condition of the deemed marine licence.

12.6.8 Coordinates for some of the dredged locations are yet to be agreed. These need to be agreed in order for the MMO to be capable of undertaking a thorough assessment of the dredge and disposal activities.

12.6.9 The MMO requests that the applicant clarify whether the EON and Centrica outfalls will be re-located or managed through dredging.

12.6.10 The applicant will need to submit reports twice yearly in order to comply with the Ospar Convention. This will be made a condition of the deemed marine licence at Schedule 8.

12.6.11 Additional conditions for the deemed marine licence will be required and are yet to be agreed.

12.6.12 Methodologies also need to be supplied.

12.6.13 Natural England has no specific comments on capital dredging; any impacts resulting from these works are described in the relevant chapters as described in paragraph 12.1.1.

12.7 **Compliance with OSPAR Convention**

Summary of the Applicant's Assessment

Baseline

12.7.1 Two disposal grounds within the estuary are proposed for the disposal of dredged materials: HU080 for erodible deposits and HU082 for inerodible deposits.

12.7.2 The Centre for Environment, Fisheries and Aquaculture Science (Cefas) who manage the disposal sites for OSPAR compliance, has advised that HU082 should not be filled above -5m chart datum (mCD). Accordingly, deposited material is to be placed to ensure that the estuary bed is not raised above -5mCD.

12.7.3 Cefas have carried out testing to determine the levels of contaminants within the material to be dredged, the results of this testing have been included within Annex 7.6 (at Appendix C) of the ES. The significance criteria produced by Cefas comprise two Action Levels, as shown in Table 7.2 of the ES. Any contaminant below Action Level 1 threshold is classified as not a risk and any over the Action Level 2 threshold is considered a risk. Any contaminant that falls between the two thresholds is considered a potential risk. Professional judgement is required to determine whether any further actions are required. All of the material to be excavated by dredging is suitable for disposal within the estuary.

12.7.4

12.7.5

Impact – The Project Alone

12.7.6 Disposal of the dredge arisings will be compliant with the OSPAR Convention.

Comments by the three Agencies

12.7.7 With regards to compliance with the Ospar Convention, the sampling reported in the ES and referred to above relates to capital dredged material. Additional sampling and contamination analysis is likely to be required for maintenance dredged activities and will be made a condition of the deemed marine licence.

12.7.8 Coordinates for some of the dredged locations are yet to be agreed. These need to be agreed in order for the MMO to be capable of undertaking a thorough assessment of the dredge and disposal activities.

12.7.9 The applicant will need to submit reports twice yearly in order to comply with the Ospar Convention. This will be made a condition of the deemed marine licence at Schedule 8.

12.7.10 Additional conditions for the deemed marine licence will be required and are yet to be agreed.

12.8 Protection of inland Freshwaters, Coastal Waters, Relevant Territorial Waters and Groundwater

Summary of the Applicant's Assessment

Assessment Methodology

12.8.1 A hydrogeological, piling and dredging risk assessment was carried out on the recommendations of the Environment Agency and is reported in Annex 7.5 of the ES. The risk assessment provides sufficient information to inform decision-making and concludes that the Project is unlikely to have a significant impact on the chalk aquifer underlying the site.

Direct Impact – The Project Alone

12.8.2 Whilst the installation of piles through the sediments into the underlying chalk has the potential to create a new pathway for contaminants it is not considered to be a significant risk that needs further assessment.

Comments by the three Agencies

12.8.3 The EA agrees that the assessment undertaken to date has not identified significant sources of risk. The EA agrees that the risk to the underlying chalk aquifer is low, based upon the information that has been presented to us.

13. Chapter 8 Hydrodynamic and Sedimentary Regime (including Annexes 8.1 to 8.4)

13.1 General

13.1.1 Chapter 8 of the ES examines the likely significant effects of AMEP on the hydrodynamic and sedimentary regime of the Humber Estuary. The development of AMEP will cause an alteration of the local estuary shoreline and bathymetry, which may lead to changes to existing estuarine processes both in close proximity to AMEP and potentially remotely. This chapter evaluates the potential effects of AMEP in terms of physical processes (for example changes to hydrodynamics, sediment transport, waves, current velocities, bed shear stresses and geomorphology) and the consequential impacts on the estuary itself. Impacts on other receptors (such as aquatic ecology) are addressed within separate sections of this SoCG.

13.2 Screening Assessment

Table 13.1 : Screening of Chapter 8 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Modelling, including methods used and input parameters		X			X			X	
Change in Estuary Processes and indirect effects on: *1. Flood Defence Infrastructure* ***2. Sediment plume dispersion*** ***3. Maintenance dredging within the estuary.*** ***4. Medium and long term habitat change***		X			X			X	
Disposal at HU082		X			X			X	
Monitoring		✔			✔			✔	

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

13.3 Modelling, Including Methods used and Input Parameters

Summary of the Applicant's Assessment

13.3.1 A number of computer models were developed, validated and/or calibrated in order to assess the impact of the reclamation works and the managed realignment site on the Humber Estuary. JBA Consulting developed: a hydrodynamic flow model; a wave model; a sediment transport model and a sediment plume model. HR Wallingford developed a 3D

flow model and a cohesive sediment transport model. Estuary wide impacts are reported using the JBA modelling whilst local impacts are reported for both models. The validation of the JBA models is explained in Appendix C of Annex 8.1 of the ES whilst the validation and calibration of the HR Wallingford models is explained in report EX8.5, included in the volume of supplementary environmental information. Whilst estuarine modelling is informative of likely significant effects, the actual effects may differ spatially, temporally or in scale. Nevertheless, the modelling of estuarine processes that has been undertaken, including those reports submitted with the volume of supplementary environmental information have been appropriately validated and calibrated and are therefore sufficient to inform decision making.

13.3.2 Computer modelling is reported in Annexes 8.1, 8.3 and 8.4 of the ES and in supplementary reports EX8.7, EX8.8 and EX8.10.

13.3.3 Modelling developed by Black and Veatch to assess the local impact of the managed realignment site on the foreshore at Cherry Cobb Sands and Stone Creek and its access channel, are considered in the section of this SoCG that addresses Chapter 32 of the ES.

Comments by the three Agencies

13.3.4 The MMO agrees that the modelling undertaken, including the methods used and input parameters are appropriate to assess the Project. However, the MMO will expect the applicant to comment on the significance that any design changes to the compensation site design may have on the assessment undertaken. Further comments on this are made in Section 24 of this SoCG.

13.3.5 The EA is not in a position to agree with the The Applicant's Assessment as we have not yet been able to fully review the additional Explanatory Notes recently submitted. A legal agreement will be required between the EA and the Applicant to ensure that the uncertainties in the modelling and future impacts on flood risk management are captured in a suitable monitoring programme. The agreement will include triggers for the Applicant to remedy any areas of concern to the agreed standards. This legal agreement is not currently in place and it is essential that it is signed by all relevant parties and must be in place prior to the DCO being granted. As we have not been able to fully review all the supplementary information provided by the Applicant, we are not in a position to define the extent of impact area for monitoring or the limits of deviation.

13.3.6 Natural England has not had sufficient time to review EX8.7, EX8.8 and EX8.10 and so is not in a position to provide further comments at this stage.

13.4 **Change in Estuary Processes**

Summary of the Applicant's Assessment

Baseline

13.4.1 Baseline processes and the changes to the existing baseline due to the development are derived from computer modelling. Changes in estuary processes are not relevant *per se*,

but the change may have significant indirect effects. The potentially significant impacts relevant to the three Agencies are:

- Impacts on flood defence infrastructure
- Dispersion of the sediment plume from the disposal site
- Change to maintenance dredging requirements throughout the estuary
- Medium and long term change in estuarine habitat

Impacts – The Project Alone

13.4.2 The direct impact of the development on the overtopping of existing coastal defences is addressed in the section of this SoCG relating to Chapter 13 (Flood Risk and Drainage).

13.4.3 The dispersion of the sediment plume is explained in paragraphs 8.6.10 et seq. of the ES. The suspended sediment concentrations (SSCs) in the water body will increase as a consequence of the disposal of erodible deposits, but will not be affected significantly by the disposal of inerodible deposits. The sediment plume will be similar for both capital and maintenance dredging works. The increase will give rise to some slight additional deposition onto the bed of the estuary but this will be spread over a very large area and there will be no significant impacts on estuary processes. Impacts on other receptors are addressed in the section of this SoCG relating to Chapter 10 (Aquatic Ecology).

13.4.4 The impact of the development on maintenance dredging has been assessed in Annex 8.3 of the ES. It is predicted that there will be an increase in maintenance dredging within the estuary as a whole because of the development, principally because of the need to maintain the berths at AMEP. Report EX8.6 provides a more detailed assessment of the potential variability in the maintenance dredge requirement for AMEP. The deposit site HU080 will be suitable for maintenance dredge arisings, which will, following disposal, disperse widely within the estuary. HU080 is an existing licensed disposal site that has received significant quantities of material in the past and on that basis, it will have sufficient capacity to receive the maximum quantity estimated in any single year. Disposal at this site is not likely to have any significant effect on estuary processes.

13.4.5 The medium (0-30 yrs) and long term (0-100 yrs) impacts of the development on habitat are set out in EX11.24 which is included in the volume of supplementary information. Over decadal timescales habitat local to the quay is expected to change as a consequence of changes to flow velocities and bed shear stresses which will result in a new sedimentary regime being established in the upstream and downstream lee of the reclamation area. The principal medium term impact will be new areas of accretion that will cause existing intertidal areas to increase in level and existing sub-tidal habitat to become intertidal. As the intertidal areas accrete they will be inundated on fewer occasions, which will promote the growth of saltmarsh over large areas. However this process has already started to the south of AMEP because of the influence of the HIT development and evidence suggests that this will continue, to some extent, whether or not AMEP is consented.

13.4.6 Over long timescales (0-100 years) it is possible that the development will result in a change to the intertidal areas within the estuary as a whole, as a result of millimetric

changes to the high and low water levels as well as very small changes to sedimentation patterns within the estuary affecting natural geomorphological adjustment. Given that significant changes to estuary processes are localised, the magnitude of long term geomorphological change is considered to be very low and is reviewed in Annex 8.2 of the ES.

Comments by the three Agencies

13.4.7 The MMO has some outstanding questions with regards to maintenance dredging. See comments in Section 12 of the SoCG for further detail.

13.4.8 A legal agreement will be required between the EA and THE APPLICANT to ensure that the uncertainties in the modelling and future impacts on flood risk management and estuary processes are captured in a suitable and reactive monitoring programme. The agreement will include triggers for the Applicant to remedy any areas of concern to the agreed standards and at their expense. This legal agreement is not currently in place and it is essential that it is signed by all relevant parties and must be in place prior to the DCO being granted.

13.4.9 The EA does not agree with the Applicant's assessment in respect of medium and long-term impacts. The EA previously raised a number of queries with the Applicant in respect of ES Annex 8.2 regarding how this chapter addressed the estuary wide issues. This Annex has not been updated in light of the revised wave assessment and the assessment of the impact to dredge disposal. At the current time this issue is not agreed, however it may be resolved following our review of the further supplementary information and we will make further written representations on this issue in due course.

13.4.10 Natural England has not had sufficient time to review EX11.24 and so is not in a position to provide further comments at this stage.

13.5 **Disposal at HU082**

Summary of the Applicant's Assessment

Baseline

13.5.1 Site HU082 is a licensed deposit site within the Estuary for the disposal of inerodible deposits. Report EX8.7 assesses the impact of disposing of all of the inerodible material from the capital dredging works for AMEP in the event that there is no other beneficial use for the material. EX8.7 also considers the impact of disposing of approximately half of the inerodible material from the capital dredging works for AMEP with the other half being disposed of to land at the AMEP quay.

13.5.2 Following a detailed site investigation it is expected that approximately 60 per cent of the dredge arisings from the berthing pocket can be used as fill material on the terrestrial areas of the AMEP development. The total amount of inerodible deposits to be disposed of to sea is therefore 1 M wet tonnes of clay (450 000 m^3).

Impacts – The Project Alone

13.5.3 The change in bed bathymetry caused by the disposal of c.450 000 m^3 of inerodible material at HU082 will cause local changes to estuary processes. However, the impacts identified are minor with some risk of a minor adverse effect on maintenance dredging of Sunk Channel.

Mitigation

13.5.4 The change in bed bathymetry will be mitigated by the beneficial use of the inerodible deposits including disposal of suitable material to land for use as fill.

Comments by the three Agencies

13.5.5 The MMO has some outstanding questions with regards to capital dredging. See comments in Section 12 of the SOCG for further detail.

13.5.6 The EA has not had time to adequately review the supplementary information provided by THE APPLICANT in response to the Examiner's questions and Relevant Representations. At the current time this issue is not agreed, however it may be resolved following our review of the further supplementary information and we will make further written representations on this issue in due course.

13.5.7 Natural England has not had sufficient time to review EX8.7 and so is not in a position to provide further comments at this stage.

13.6 **Monitoring**

13.6.1 It is agreed that, given the uncertainty relating to computer modelling of estuary processes, monitoring of those areas of the estuary that are likely to be significantly affected by the Project (as understood from the pre-construction modelling),should be undertaken. Accordingly, the Applicant will monitor an area to be agreed with the three Agencies for period of 10 years to verify that the impacts to the estuary that do occur as a consequence of the change in estuary processes are no more adverse than predicted. Proposal will be set out in the appropriate Ecological Management and Monitoring plan for the marine environment.

Comments by the three Agencies

13.6.2 The MMO agrees that monitoring is required but the period and specification of that monitoring have yet to be discussed and agreed with the applicant.

13.6.3 A legal agreement will be required between the EA and the Applicant to ensure that the uncertainties in the modelling and future impacts on flood risk management and estuary processes are captured in a suitable and reactive monitoring programme. The agreement will include triggers for the Applicant to remedy any areas of concern to the agreed standards and at their expense. This legal agreement is not currently in place and it is

essential that it is signed by all relevant parties and must be in place prior to the DCO being granted.

13.6.4 Natural England agrees that monitoring is required and this will be agreed through an EMMP, along with any triggers for remedial works.

14. Chapter 9 Water and Sediment Quality (including Annexes 9.1 to 9.6)

14.1 General

14.1.1 Chapter 9 of the ES addresses the issue of water quality and details the approach to assessing the potential impacts of AMEP on water quality. It also describes the sedimentary baseline environment within the AMEP site boundary, the impact assessment criteria and methodology relating to the potential impacts associated with disturbance of sediments of this nature, and an assessment of the significance of these impacts to the wider environment. Sediment contamination is addressed in Chapters 12 and 27.

14.2 Screening Assessment

Table 14.1: Screening of Chapter 9 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Foul Drainage	O			✔	✔	X	O		
Change in thermal plume for CW outfalls	X			X			X		
Impact of dredging and dredge disposal on suspended sediment concentration (SSC)	✔			✔			✔		
Compliance with Water Framework Directive	X			X			O		

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

14.3 Foul Drainage

Summary of the Applicant's Assessment

14.3.1 Foul water from the development site will be discharged to the public sewer. If any circumstances are encountered where it is not practical to do this, full justification will be included in the foul drainage strategy, which is a requirement of the DCO.

Comments by the three Agencies

14.3.2 The EA agrees that all the development site should discharge to the public sewer and only where it can be demonstrated that it is impractical to do this should other methods of foul drainage be considered. The EA agrees that there is a need for a detailed foul drainage strategy and has suggested alternative wording, to that currently contained in Schedule 11,

paragraph 11, to secure this. Please refer to paragraph 4.31 of the EA's Written Representations for details of this.

14.4 **Change in Thermal Plume at CW Outfalls**

Summary of the Applicant's Assessment

Baseline

14.4.1 Two gas powered electricity generating stations are located close to the development site and both have cooling water infrastructure that is routed through the AMEP site and which abstract and outfall to the north of the proposed quay. Both have intake and outfall pipes that are in-line with the outfall inshore of the intake. They are separated from each other by a distance of approximately 250 m along the length of the estuary, E.ON infrastructure is closest to the quay.

Impact on Thermal Dispersion with Outfalls retained in their current Position – The Project Alone

14.4.2 The thermal dispersion modelling of the cooling water outlets for both Centrica and E.ON operated power stations has been assessed by HR Wallingford and included within Annexes 9.2 and 9.3 respectively of the ES. The report modelled the thermal dispersion of the outfalls in their existing condition and following the construction of the reclamation. The reclamation modelled in these studies was an iteration of the final quay design; the northern revetment being closer to the E.ON outfall than now proposed and the berthing face was 80 m further offshore. The dispersion of the thermal plume will be less constrained in the final design case than in the modelled case and accordingly the thermal plume will disperse more rapidly than reported in Annexes 9.2 and 9.3. Accordingly, Annexes 9.2 and 9.3 provide a conservative assessment of the change to the existing thermal plume and the modified plume will have no significant impact on flora or fauna.

Impact on Thermal Dispersion with Outfalls Re-located to the new Quay – The Project Alone

14.4.3 A further report, reference EX9.7, is included in the volume of supplementary environmental information. EX9.7 reports on the thermal dispersion if the outfalls are diverted from their current position to outfalls within the proposed quay. This modelling shows that the temperature changes within the water column are no more adverse than at present. On this basis, the thermal plume from the proposed diverted outfall will not give rise to a significant effect on any flora or fauna.

Comments by the three Agencies

14.4.4 The MMO is still considering the additional information contained in the supplementary report EX9.7 and is not in a position to provide comments at this stage. Previous comments made in the MMOs relevant and written representations remain valid. Comments made in Sections 11 and 12 of this SoCG regarding the EON and Centrica outfalls are also relevant here.

14.4.5 The EA has not yet had the opportunity to review the additional explanatory information recently submitted by the Applicant and is not in a position to agree or disagree with the assessment on this issue.

14.4.6 Natural England is still considering the additional information contained in the supplementary report and is not in a position to provide comments at this stage. We had previously agreed that the impact of the thermal plume would not be significant if the outfalls were relocated separately; however we understand that it is now proposed to co-locate the outfalls.

14.5 Impact of Dredging and Dredge Disposal (SSC)

Summary of the Applicant's Assessment

General

14.5.1 The dredging and disposal strategy is addressed in Section 12 of this report.

Baseline

14.5.2 Dredging and dredge disposal will cause suspended sediment concentrations (SSCs) with the estuary to be elevated above their natural baseline. The Humber Estuary already supports extensive port operations and accordingly, maintenance dredging is already undertaken extensively within the estuary as recorded in the *'Humber Maintenance Dredging Baseline Document*', (ABP-HES, 2008). That document reports SSCs within the estuary to be in the range 20-3200 mg/l with values of up to 20 000mg/l being recorded. The highest suspended sediment concentrations are in the vicinity of Trent Falls, upstream from the development.

Impacts – The Project Alone

14.5.3 The most significant impact on SSCs arises from the disposal of erodible deposits at HU080 arising from both capital and maintenance dredging. The impacts are detailed in paragraphs 9.8.10 *et seq*. of the ES.

Mitigation

14.5.4 To mitigate the impacts of the project on SSCs, good working practices need to be adhered to. These should be set out in a Dredging Strategy to be secured under Schedule 8 of the DCO.

Comments by the three Agencies

14.5.5 The MMO is satisfied with the Applicants assessment of the impact of suspended solid concentrations and is content for good working practices to be set out in the Dredging Strategy to be secured through the deemed marine licence at Schedule 8 of the DCO.

14.5.6 The EA agrees with the assessment undertaken in respect of the impact on suspended sediment/solids concentrations. The EA agrees that the good working practices should be set out in the dredging strategy and secured through Schedule 8 (DML) of the

DCO. The EA also refers to its Written Representation (Page 20, DML Condition 9) for details of the need to secure a cessation of piling for the protection of migratory fish should disposal of dredge material result in sediment plumes and particular environmental conditions within the Estuary.

14.5.7 Natural England has no specific comments on suspended sediment concentrations as any consequential impacts are dealt with in Chapter 15 of this report, aquatic ecology.

14.6 Compliance with Water Framework Directive

Summary of the Applicant's Assessment

14.6.1 A supplementary report, reference EX 8.12, Water Framework Directive Assessment has been produced for the Project as a whole and supersedes all previous assessments. The overall conclusion of the WFD assessment is that AMEP will not have a non-temporary effect on the status of the various water bodies. This conclusion is subject to:

- an appropriate assessment;
- contaminated material being removed from the Cherry Cobb Sands site before any breach is made to the existing flood defence;
- Suitable mitigation measures being implemented during the construction of the Compensation Site.

Mitigation

14.6.2 To mitigate the impacts of the Project on water and sediment quality good working practices being must be adhered to. These should be set out in a Code of Construction Practice to be secured under Schedule 11 of the DCO.

Comments by the three Agencies

14.6.3 Compliance with the WFD is an integral requirement for licensing under the MCAA. The deemed marine licence at Schedule 8 of the DCO may be the appropriate mechanism for any mitigation required to be secured. The MMO has not had sufficient time to review the additional material provided in EX8.12 and as such are not in a position to comment at this stage.

14.6.4 The EA does not agree that the current WFD assessment (EX8.12) is adequate and we will be making further representation in respect of this in due course.

15. Chapter 10 Aquatic Ecology (including Annexes 10.1 to 10.3)

15.1 General

15.1.1 Chapter 10 of the ES reviews the aquatic flora and fauna within the marine area affected by the development on the south bank. The existing baseline is reviewed using information that is in the public domain and using project specific surveys that have been undertaken for AMEP. The receptors that are potentially affected by the works, identified through the EIA process are: grey seal which are a feature of the SAC; harbour porpoise; fish including lamprey which are a feature of the SAC; marine invertebrates; OSPAR species present in the estuary; intertidal habitats; sub-tidal habitats and North Killingholme Haven SSSI.

15.2 Screening Assessment

Table 15.1 : Screening of Chapter 10 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Marine Invertebrates	✔*	✔*	✔*	✔*	✔*	✔*	✔*	✔*	X
*Marine mammals (inc. **Grey Seal**)*	✔	✔	✔*	O	O	O	✔	✔	✔*
Migratory Salmonid fish	✔*	X		✔*	X		✔*	X	
Fish - General	✔*	X		✔*	X		✔*	X	
River and Sea Lamprey	✔*	X		✔*	X		✔*	X	
Direct and Indirect impacts on Intertidal and Sub-tidal habitats	X	X	X	X	X	X	X	X	X
Rockfill within the berthing pocket	X	X	X	X	X	X	✔*	✔*	✔*
OSPAR species	✔*	✔*	✔*	O	O	O	✔*	✔*	✔*

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

15.3 Marine Invertebrates

Summary of the Applicant's Assessment

Baseline

15.3.1 Paragraphs 10.5.24 *et seq* of the ES provide an overview of marine invertebrate communities within the estuary generally. This is supplemented by survey work undertaken by The Institute of Estuarine & Coastal Studies (IECS) who took sediment samples from the sub-tidal and intertidal environment in the vicinity of the AMEP during the spring/summer of 2010.

15.3.2 The main intertidal area at AMEP is formed primarily of soft sediment (mud), but with occasional cobble and boulders present on the surface. The sub-tidal habitat in this area is primarily within the main southern channel of the estuary, this channel also forms part of the main navigation route in this area of the estuary. As such, the sub-tidal habitat in this

area of the estuary is both subject to relatively high-energy influences and also to maintenance dredging, both of which will have considerable influence on the sediment characteristics and associated infauna of the area.

15.3.3 Based on the sediment and invertebrate sample data available for the intertidal and subtidal areas in the vicinity of the proposed development, the area does not support any particularly rare or conservation priority biotopes.

15.3.4 The intertidal zone supports an assemblage characteristic of the middle to outer estuary and given the species, some of these provide a prey source for both fish and bird species. However, the data does not indicate that these invertebrate species are present in elevated abundance levels (for the zone), and as such, in combination with the resource extent, are considered simply characteristic of the intertidal foraging resource present in the middle to outer estuary on the Humber south bank.

15.3.5 The sub-tidal assemblage is largely considered to be impoverished in this area, based on the available data, this impoverishment presumably reflecting both the physical rigors of the location, (with most sample stations present within the main estuarine channel), and/or also as a result of maintenance dredging activity. As such, it is not considered that the biotopes present within the study area of particular conservation importance, particularly given the impoverished nature of the associated infauna.

15.3.6 The review of the estuary wide assemblage within the ES and the biotope mapping reported in Report EX11.14, *'Biotopes of the Intertidal and Subtidal Sediments around the AMEP site, in the Humber Estuary',* (IECS 2012), provides a reasonable baseline for the purposes of EIA.

Receptors

15.3.7 The principal receptors are the marine invertebrates themselves and the bird assemblage and fish species that feed on them.

Direct Impacts – The Project Alone

15.3.8 Both the reclamation works and the dredging works will have a direct impact on benthic habitat; the impact will be local in scale but no loss of benthic species diversity or benthic species of conservation concern is likely.

15.3.9 A significant negative impact to habitats and benthic communities will result from the construction of AMEP as an area of sub-tidal and intertidal habitat will be physically lost and this loss cannot be mitigated.

15.3.10 The dredge plumes created by both the dredging and the disposal operations associated with the works, and the consequential settlement of these plumes onto the estuary bed, will affect benthic communities and habitat. However, these plumes are temporary and spatially limited and are already a feature of the estuary due to the existing level of maintenance dredge activity. An assessment of the impacts of the dredge plume on aquatic ecology has been undertaken and is reported in EX 10.4, included in the volume of supplementary environmental information. These impacts are not significant and there will be no loss of benthic species diversity or benthic species of conservation concern as a result of the Project.

Indirect Impacts – The Project Alone

15.3.11 Marine invertebrates provide a food resource for nursery fish. Whilst the impact of this loss of feeding resources is not quantifiable, a precautionary approach should be adopted and, on this basis, the impact is considered to be significant adverse as detailed in paragraph 10.6.64 of the ES and as further explained in EX10.4.

15.3.12 Marine invertebrates also provide a food resource for the SPA bird assemblage and the impact on these features of the SPA are considered in Chapter 11.

Mitigation

15.3.13 The physical loss of estuarine habitat caused by the reclamation works cannot be mitigated and this loss will result in a reduction in marine invertebrates within the estuary.

15.3.14 Dredging and dredge disposal works should accord with good practice and appropriate mitigation will be included in the Dredging Strategy to be approved by the MMO as a condition of the Deemed Marine licence.

Compensation

15.3.15 The development of the Compensation Site at Cherry Cobb Sands will compensate for the adverse direct of the Project on marine invertebrates and the consequential indirect effects on fish and avifauna by providing new benthic habitat.

15.3.16 The management of the Compensation Site will be detailed in an Ecological Management and Monitoring Plan that will be a requirement within Schedule 11 of the DCO.

Comments by the three Agencies

15.3.17 The MMO agrees that an adequate assessment of marine invertebrates has been undertaken. Further comments on the suitability of the compensation site are provided in Section 24 and are not repeated here. It is likely that the Ecological Management and Monitoring Plan will also need to be secured through the deemed marine licence at Schedule 8 of the DCO.

15.3.18 The EA agrees that an adequate assessment of the marine invertebrates has been undertaken for the AMEP site in all regards, with the exception of the berthing pocket. The EA's concern with regard to this is expressed in paragraph 15.9.6.

15.3.19 Natural England agrees that the survey methodology and analysis is sufficient and fit for purpose. We also agree that report EX11.14 provides an adequate biotope map that illustrates the location and distribution of the dominant biotopes in the area.

15.3.20 Natural England does not agree with the conclusions on dredging. It is stated that impacts will be localised and no loss of benthic species diversity or benthic species of conservation concern is likely. However, EX10.4 refers to dredging and states “Loss of the current benthic community as a result of habitat loss will be a permanent effect. It was assessed in the ES, along with the footprint effects of the quay as being significant and is also assessed as significant in its own right” and “Other than the loss of subtidal habitat and

benthic communities to the dredging footprint for the berth and turning area, none of the above impacts are assessed as significant". The report concludes with a section on mitigation; however the measures proposed appear to constitute good working practice rather than being mitigation.

15.4 **Marine Mammals (inc. Grey Seal)**

Baseline

15.4.1 The following species are present in the Estuary:

- Harbour Porpoise
- Grey seal

15.4.2 Donna Nook is the second largest grey seal colony in England and whilst this site is 30 km to the east, it is expected that seals utilise the estuary for feeding and there are anecdotal reports of seals being seen as far upstream as Blacktoft.

Direct Impacts– The Project Alone

15.4.3 There is no likelihood of a fatality to marine mammals as a consequence of the works.

15.4.4 High levels of noise generated during impact piling could affect marine mammals that are present in the Estuary and is likely to reduce their use of the estuary during the construction works. However, as the estuary is not a significant foraging ground for these species, there should be no adverse effect on the population of either as a consequence of the works. However, impacts on individuals using the estuary during the piling works cannot be excluded.

Mitigation

15.4.5 Impact piling will incorporate 'soft start' procedures. A 180 second soft start procedure will be included in the piling method statement and a marine mammal observer will be present to check for the presence of marine mammal species within 100m of the percussive piling works. These procedures will be included in the Deemed Marine License and in the Code of Construction Practice that will be a requirement within Schedule 11 the DCO.

Comments by the three Agencies

15.4.6 The MMO agrees that an adequate assessment of marine mammals has been undertaken. All mitigation will need to be secured through the deemed marine licence at Schedule 8 of the DCO, the details of which are still to be agreed. It should be noted that whilst the MMO agree that the soft-start procedure detailed in paragraph 15.4.5 would be adequate to mitigate for the impacts of piling on grey seals, it may not be adequate to mitigate for the impact of piling on other receptors, including birds and fish.

15.4.7 Natural England agrees that it is not possible to rule out impacts on grey seals during construction works and therefore mitigation is required during marine piling works. We

agree that the proposals set out in paragraph 15.4.5 are sufficient to avoid an adverse effect on the integrity of the designated site.

15.5 Migratory Salmonid Fish

Summary of the Applicant's Assessment

Baseline

15.5.1 The Humber Estuary and its tributaries, the Ouse and the Trent, are not currently principal salmon rivers in the UK, and do not support established or important salmonid fisheries.

15.5.2 The number of salmon migrating through the Humber Estuary each year is unknown. Salmon numbers are mainly limited through access to spawning grounds due to historical weirs and other obstructions constructed to enable industrial development in the past. Historical water quality issues on industrialised rivers may have also been a factor, but the Humber is significantly improving in this respect.

15.5.3 The status of the Humber Estuary and its tributaries with regard to salmon populations is described by the EA as 'Recovering'; a salmon restocking programme is carried out in the Trent.

Impacts –The Project Alone

15.5.4 Fish can be injured by underwater noise and their behaviour affected by it. The current scientific evidence indicates that :

- Some fish (but not all) will move from areas where underwater noise is elevated to quieter areas.
- Impact piling will generate elevated levels of noise relative to the existing background noise environment within the estuary.
- The consequences or likelihood of the impact of noise on migrating fish is not known.

15.5.5 In the absence of scientific certainty, it is appropriate to adopt a precautionary but proportionate approach to mitigation.

Mitigation

15.5.6 Mitigation that avoids a disproportionate financial risk to the Applicant is still to be agreed.

Comments by the three Agencies

15.5.7 No agreement has yet been reached with the applicant with regards to impacts or mitigation for the impact of piling on migratory salmonids. Previous comments made in the MMOs relevant and written representations remain valid but are not repeated here. Any mitigation would need to be secured through the deemed marine licence at Schedule 8 of the DCO.

15.5.8 The EA does not agree that the Humber does not support an established or important salmonid fishery. On the basis of the number of salmon juveniles caught on one tributary, the EA believes that the salmon stock in the Humber is larger than some established salmon rivers.

15.5.9 The EA consider that fish cannot always determine which direction the noise is coming from, as some noise may also come from the estuary bed.

15.5.10 The EA agrees that the Applicant has carried out the necessary impact assessment in respect of migratory fish. The EA does not agree with the Applicant's interpretation of this assessment or its views on the impact of the noise on migratory fish. The details of the EA's views on this are contained in paragraphs 4.48 to 4.73 and Appendix D of its Written Representations. The EA and the MMO are not only concerned with the impact of piling noise on migratory salmonid fish, but also all other fish species that may be present in the Humber Estuary.

15.5.11 Mitigation measures are still to be agreed with the applicant. If agreement on mitigation measures is reached, there may still be a residual risk to migratory salmonid fish, which requires a package of compensation to make the proposal acceptable.

15.5.12 Natural England does not have a remit covering migratory salmonid fish, however we advise that the mitigation as set out in the joint response sent by the Environment Agency on 19 June 2012 will also ensure that lamprey, which are interest features of the designated site, are not adversely affected by the marine piling works.

15.6 **Fish – General**

15.6.1 It is agreed in principle that any mitigation measures that are agreed for Atlantic Salmon may also be sufficient to mitigate for any impacts on other fish species, for example juvenile herring, sole and plaice. However this will need to be confirmed once the mitigation for salmon is agreed.

15.7 **River and Sea Lamprey**

Summary of the Applicant's Assessment

Baseline

15.7.1 Existing scientific knowledge on both Sea and River Lamprey is very limited and that the Annex 10.2 of the ES provides a comprehensive review and interpretation of currently available data.

Impacts – The Project Alone

15.7.2 There is a paucity of scientific information to inform the impact assessment and may be summarised as follows:

- There is a weight of scientific opinion that some fish species will avoid areas where underwater noise is elevated.

- Impact piling will generate elevated levels of noise relative to the existing background noise environment within the estuary.

- There is no scientific certainty that lamprey can hear or that they cannot and therefore whether or not they would avoids swimming in proximity to marine piling works.

- There is no scientific evidence to support either the assertion that underwater noise can have an adverse effect on lamprey populations or the alternative assertion that it does not.

- The consequences or likelihood of the impact of noise on Lamprey is not known.

Mitigation

15.7.3 Lamprey hearing, if they hear anything at all, is commonly understood to be less sensitive than most fish. Accordingly whatever mitigation is agreed with the three Agencies for the protection of salmonids will be sufficient to protect River and Sea Lamprey.

Comments by the three Agencies

15.7.4 The MMO agrees in principal that any mitigation agreed for Atlantic salmon may also be sufficient to mitigate for any impacts on lamprey, however, this will need to be assessed once the mitigation for salmon is agreed.

15.7.5 The Environment Agency does not agree with the Applicant's interpretation of their assessment or its assertions that underwater noise cannot have an adverse effect on lamprey. Lamprey do not need to hear the noise to be damaged by it. If they cannot hear and are in close proximity to the elevated noise source they are less likely to swim away from it and more likely to suffer tissue damage by being closely exposed to the noise.

15.7.6 Natural England advises that the mitigation as set out in the joint response sent by the Environment Agency on 19 June 2012 is necessary to avoid an adverse effect on the site integrity of the designated site. This issue is therefore not agreed.

15.8 Direct and Indirect Impacts on Intertidal and Sub-tidal Habitats

Summary of the Applicant's Assessment

Baseline

15.8.1 The reclamation includes an area of intertidal mudflat habitat and subtidal habitat, the former being an Annex 1 habitat itself and the latter being a feature of the estuary habitat. The habitat supports an invertebrate assemblage which in turn provides a food resource for SPA features and fish. The intertidal area also provides roosting habitat for SPA features.

Direct Impacts – The Project Alone

15.8.2 The direct impact of the Project will result in the physical loss of 45 hectares of intertidal and subtidal habitat and the permanent disturbance of a further 11.6 hectares of intertidal habitat. This is described in Explanatory Note EX11.23.

Indirect Impacts – The Project Alone

15.8.3 The impact of the Project will vary over time in that estuarine habitat will change local to the development over decadal timescales, and could potentially cause habitat change over up to 100 years estuary wide due to geomorphological impacts. Consideration has been given to the likely medium term and long term development of the estuary without AMEP, in order to obtain a true understanding of the impact on the estuary if AMEP is constructed. The likely medium and long term impacts on estuarine habitat are described and quantified in the Explanatory Note EX11.24 and further clarified in the response to the EA's Relevant Representation.

Mitigation

15.8.4 The physical loss of habitat arising from the project cannot be mitigated.

15.8.5 The functional loss of an area of intertidal habitat that will be permanently disturbed by the development cannot be mitigated.

Compensation

15.8.6 The development of the Compensation Site will fully compensate for the adverse effects of the Project on the habitat features of the estuary and its existing functional value over the long term.

15.8.7 The management of the Compensation Site will be detailed in an Ecological Management and Monitoring Plan which will be a requirement of the Deemed Marine License and a requirement within Schedule 11 of the DCO.

Comments by the three Agencies

15.8.8 The MMO has not had sufficient time to review EX11.23 and EX11.24 and so are not in a position to provide further comments at this stage. Previous comments made in the MMOs relevant and written representations remain relevant. The MMO will expect the Applicant to comment on the significance that any changes may have on the assessment undertaken. Further comments on this are made in Section 24 of this SOCG.

15.8.9 The EA has not had sufficient time to review the supplementary information EX11.23 and EX11.24. The EA agrees with the applicant's assessment of immediate direct impacts on intertidal and sub-tidal habitats, with the exception of the berthing pocket. The EA does not agree with the applicant's assessment of the immediate direct impacts of the berthing pocket, or the indirect and long-term impacts on intertidal and sub-tidal habitats. The EA has not yet received evidence to demonstrate that the Compensation Site will be able to compensate for the adverse effects of the project. The EA is awaiting further information on this matter, and further comments will be made in the HRA SoCG and future representations, when a full review of the supplementary information has been undertaken

15.8.10 Natural England agrees that the development will lead to direct and indirect impacts on the Humber Estuary, however we have not had sufficient time to review EX11.23 and EX11.24 and so are not in a position to provide further comments at this stage. We also agree that provided the tests of no alternatives and imperative reasons of over-riding public interest are passed, compensation is required. We are yet to receive Black and Veatch's second interim design report on the modelling work undertaken for Cherry Cobb Sands and so we are not able to agree that the proposed site is adequate to maintain the coherence of the Natura 2000 network.

15.9 **Rockfill within the Berthing Pocket**

Summary of the Applicant's Assessment

Baseline

15.9.1 The existing habitat within the footprint of the berthing pocket has been subject to bathymetric, geotechnical and invertebrate surveys and the surface sediment has been subject to chemical analysis. These surveys are reported in Annexes 9.1, 7.2, 10.1 and 7.6 respectively.

15.9.2 To enable repetitive use of jack up legs within the berthing pocket, all deposits overlying the chalk bedrock will be removed with any over dredge below -11mCD backfilled with rock and marine dredged aggregates. Details are provided in supplementary report EX10.6

Impacts – The Project Alone

15.9.3 The works will result in a change of habitat to the estuary bed over c. 7.7 hectares. This impact on sub-tidal habitat has been assessed in the ES, in paragraphs 10.6.13 to 10.6.15. Further explanation is provided in supplementary report EX10.6.

15.9.4 The impact is not considered to be significant and no mitigation is proposed.

Comments by the three Agencies

15.9.5 The MMO has not had sufficient time to review EX10.6 and so are not in a position to provide further comments at this stage. Previous comments made in the MMOs relevant and written representations remain relevant.

15.9.6 The EA does not agree with the Applicant's assessment at the current time. However it may be resolved following our review of the further supplementary information recently received and we will make further written representations on this issue in due course.

15.9.7 Natural England has read the supplementary report EX10.6. This explains that whilst there will be a change in the sediment type and associated biotope and species distribution, the physiotype that will be affected covers over 5,700ha of the estuary. We therefore agree that the impact resulting from the berthing pocket (c. 7.7 hectares) will not be significant.

15.10 **OSPAR Habitats and Species**

Summary of the Applicant's Assessment

15.10.1 Aquatic OSPAR species and habitats that are potentially affected by the works are listed in Table 15.2.

15.10.2 Marine invertebrates have been considered in the assessment and no OSPAR species were identified in the surveys undertaken.

15.10.3 Marine mammals have been considered in the assessment and the mitigation proposed (soft start procedures) will avoid a significant effect on harbour porpoise.

15.10.4 Marine habitats have been considered in the assessment and the loss of intertidal habitat cannot be mitigated and compensation will be required.

Comments by the three Agencies

15.10.5 The MMO is satisfied that the applicant has considered Ospar habitats and species. Further comments are made above with regards to marine mammals and are not repeated here. Further comments on the compensation site are repeated in Section 24 of this SoCG but are not repeated here.

15.10.6 Natural England agrees that there will be no additional impacts on OSPAR habitats and species that have not already been identified.

Table.15.2 OSPAR Screening – Aquatic Habitats and Species

OSPAR Species/Habitat	Possibly present	Considered within EIA
Invertebrates		
Arcticaislandica (Ocean quahog)	✓	✓ (as part of benthic invertebrates)
Megabalanusazoricus(Azorean barnacle)	×	×
Nucella lapillus (Dog whelk)	✓	✓ (as part of benthic invertebrates)
Ostreaedulis (Flat oyster)	✓	✓ (as part of benthic invertebrates)
Patella ulyssiponesisaspera (Azorean limpet)	×	×
Fish		
**Acipensersturio* (Sturgeon)	×	×
**Alosaalosa* (Allis shad)	✓	✓
**Anguilla anguilla* (European eel)	✓	✓
**Centroscymnuscoelolepis* (Portuguese dogfish)	✓	✓ (as part of fish fauna)
**Centrophorusgranulosus* (Gulper shark)	×	×
**Centrophorussquamosus* (Leafscale gulper shark)	×	×
**Cetorhinusmaximus* (Basking shark)	×	×
Coregonuslavaretusoxyrinchus (Linnæus, 1758) (Houting)	×	×
**Dipturusbatis* (synonym: Raja batis) (Common skate)	×	×
**Raja montagui* (synonym: Dipturusmontagui) (Spotted ray)	✓	✓ (as part of fish fauna)
**Gadusmorhua*– populations in the OSPAR regions II and III (Cod)	✓	✓ (as part of fish fauna)
Hippocampus guttulatus (synonym: Hippocampus ramulosus) (Long-snouted seahorse)	✓	✓ (as part of fish fauna)
Hippocampus hippocampus (Short-snouted seahorse)	✓	✓ (as part of fish fauna)

OSPAR Species/Habitat	Possibly present	Considered within EIA
**Hoplostethusatlanticus* (Orange roughy)	×	×
**Lamnanasus* (Porbeagle)	×	×
Petromyzonmarinus (Sea lamprey)	✓	✓
**Raja clavata* (Thornback skate/ray)	✓	✓ (as part of fish fauna)
**Rostroraja alba* (White skate)	×	×
**Salmosalar* (Salmon)	✓	✓
**Squalusacanthias* (Northeast Atlantic spurdog)	✓	✓ (as part of fish fauna)
**Squatinasquatina* (Angel shark)	×	×
**Thunnusthynnus* (Bluefin tuna)	×	×
Mammals		
Balaenamysticetus (Bowhead whale)	×	×
Balaenopteramusculus(Blue whale)	×	×
Eubalaenaglacialis (Northern right whale)	×	×
Phocoenaphocoena (Harbour porpoise)	✓	✓
Habitats		
Carbonate mounds	×	×
Coral Gardens	×	×
*Cymodocea*meadows	×	×
Deep-sea sponge aggregations	×	×
Intertidal *Mytilusedulis*beds on mixed and sandy sediments	✓	✓
Intertidal mudflats	✓	✓
Littoral chalk communities	×	×
*Lopheliapertusa*reefs	×	×
Maerlbeds	×	×
*Modiolusmodiolus*beds	×	×

OSPAR Species/Habitat	Possibly present	Considered within EIA
Oceanic ridges with hydrothermal vents/fields	×	×
Ostreaedulis beds	×	?
Sabellariaspinulosa reefs	×	×
Seamounts	×	×
Sea-pen and burrowing megafauna communities	×	×
Zostera beds	✓	✓

16. Chapter 11 Terrestrial Ecology & Birds (including Annexes 11.1 to 11.13)

16.1 General

16.1.1 Chapter 11 of the ES reviews the terrestrial flora and fauna affected by the development on the south bank. The existing baseline is reviewed using information that is in the public domain and using project specific surveys that have been undertaken for AMEP. The receptors that are potentially affected by the works were identified through the EIA process to be: Great crested newts; bats; water vole; badgers; breeding birds; SPA assemblage over the tidal cycle; Station Road Fields LWS and OSPAR species.

16.2 Screening Assessment

Table 16.1 : Screening of Chapter 11 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Great Crested Newts	O	O	O	O	O	O	✔	✔	
Bats	O	O	O	O	O	O	✔	✔	
Water vole	O	O	O	O	O	O	✔	✔	
Badgers	O	O	O	O	O	O	✔	✔	
Breeding birds	O	O	O	O	O	O	✔ *	✔ *	X
Direct loss of terrestrial feeding and roosting areas for SPA birds	✔	✔		✔	✔		✔	✔	
Loss of intertidal feeding and roosting areas for SPA birds	✔	✔	X	✔	✔	X	✔	✔	X
Disturbance to SPA birds caused by piling noise	✔	✔	X	O	O	O	✔	✔	X
Loss of Station Road LWS	O	O	O	O	O	O	O	✔	
NKHP SSSI - Disturbance	O	O	O	O	O	O	✔	✔	X
OSPAR species	✔	✔	✔	O	O	O	O	O	O

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

16.3 Great Crested Newts

Summary of the Applicant's Assessment

Baseline

16.3.1 GCNs are a European Protected Species and may not be disturbed unless certain derogation tests, set out in Articles 16 of the Habitats Directive (92/43/EEC), are satisfied.

16.3.2 Site surveys for GCNs were first undertaken in 2006 and are reported by Just Ecology in, '*Able Humber Ports Facility, Killingholme Great Crested Newt Survey*', (2006), refer to report EX11.28. A single pond on the AMEP site, adjacent to Station Road, was found to host GCNs.

16.3.3 Further GCN surveys of ponds were undertaken in and around the AMEP site by Applied Ecology in May 2010 and are reported in Annex 11.2 of the ES. GCNs were found to be present in two ponds adjacent to Station Road.

16.3.4 In May 2012, further surveys of ponds within of the AMEP site were undertaken but none of the ponds surveyed was found to contain GCNs. Details of these surveys have been submitted to Natural England to support a draft application for a GCN licence.

16.3.5 In summary, the survey effort has been sufficient to characterise the use of the site and its surroundings by GCN; that two ponds within the AMEP site have been recorded to support GCNs and that they are not recorded to be present in any other ponds in the vicinity.

Impacts – The Project Alone

16.3.6 The development of AMEP will result in the loss of most of the GCN terrestrial habitat which, without mitigation, would lead to the loss of the GCN population.

Mitigation

16.3.7 AMEP cannot be constructed as proposed whilst leaving the GCNs terrestrial habitat undeveloped. Accordingly, it is not possible to mitigate for the impacts of AMEP and the impact must therefore be compensated.

Compensation

16.3.8 The Applicant has applied for an EPS mitigation licence which will permit the relocation of the GCNs to a suitable alternative site nearby, identified as Area B on the Landscape Masterplan submitted with the application. Area B provides a suitable relocation site as detailed in ERM report, *'Able Marine Energy Park (AMEP) – Location of Replacement Ponds for Great Crested Newts'*, (November 2011); refer to report EX11.30.

Comments by the three Agencies

16.3.9 Natural England has agreed the Purpose and No Satisfactory Alternative tests for the Great Crested Newt Protected Species mitigation draft application submitted by the Applicant, however further information is required before the Favourable Conservation Status test can be agreed. This information was communicated to the Applicant by Natural England's European Protected Species Licensing Team in an email on 24 July 2012.

16.4 **Bats**

Summary of the Applicant's Assessment

Baseline

16.4.1 All bat species in England are European Protected Species and may not be disturbed unless certain derogation tests, set out in Articles 16 of the Habitats Directive (92/43/EEC), are satisfied.

16.4.2 Site surveys for bats were first undertaken in 2006 and are reported by Just Ecology in, '*Able Humber Ports Facility, Bat Survey'*, (2006). This survey found only limited levels of activity, with no obvious signs of roosting, and concluded the AMEP site was of low value to bats.

16.4.3 Further bat surveys were undertaken in and around the AMEP site by Applied Ecology in July and August 2010 and are reported in Annex 11.3 of the ES. The 2010 survey found only one possible indication of roosting, a common pipistrelle still foraging near the Old Copse at 05:08 on the morning of the 25 August. The conclusions of the report were that there was a low likelihood of roosting, and that there was generally low dispersal of bats within the site

16.4.4 A daytime ground based inspection of all suitable trees on the AMEP site, including those in the copse noted in the 2010 survey, was undertaken by licensed bat workers on the 4 and 18 April 2011. It was followed by intensive dusk and dawn emergence surveys on the night of the 10 May and morning of the 11 May respectively, both in good weather conditions. These surveys are reported in Annex 11.8 of the ES.

16.4.5 The survey effort is explained in Report EX11.19 submitted with the supplementary environmental information and has been sufficient to characterise the use of the site and its surroundings by bats. Bat activity on the site is low with no roosts recorded at the time the surveys were undertaken.

Impacts – The Project Alone

16.4.6 The development is not likely to affect a significant bat roost.

16.4.7 The site is of low foraging value and that the loss habitat is not likely to have any significant effect on the feeding potential of the area for bats.

Mitigation

16.4.8 Landscaping will be included in the development that provides foraging habitat for bats. Approval of landscaping is to be secured through a provision in Schedule 11 of the DCO.

16.4.9 The possibility of bats roosting in trees that are to be felled during site clearance works cannot be excluded. Accordingly, bat surveys will be undertaken prior to any felling works and this measure shall be included in both the Code of Construction Practice and the Ecological Management and Monitoring Plan to be approved by the Local Planning Authority prior to the start of any stage of the works.

Comments by the three Agencies

16.4.10 Natural England agrees with the conclusions of the bat surveys which have shown that there is a low likelihood of bats roosting on the development site. However, as the possibility of bats roosting in trees to be felled during site clearance works cannot be excluded it is important that surveys are carried out prior to felling works and that if roosting bats are recorded then a bat mitigation licence will need to be applied for and issued in order to allow the works to proceed.

16.4.11 Natural England agrees with the landscaping proposals within the landscape masterplan which will enhance foraging opportunities for bats.

16.5 **Water Vole**

Summary of the Applicant's Assessment

Baseline

16.5.1 Water vole is a nationally protected species.

16.5.2 Site surveys for the presence of water voles were first undertaken in 2006 and are reported by Just Ecology in, '*Able Humber Ports Facility, Killingholme Water Vole Survey'*, (2006), refer to report EX11.29. Water voles were found to be present within the main IDB ditch running northwest-southeast through the site.

16.5.3 Further water vole surveys of ditches were undertaken in and around the AMEP site by Applied Ecology in July 2010 and are reported in Annex 11.8 of the ES. Water voles were still found to be present in the main IDB ditch but were also recorded to be present in the drain flowing in an easterly direction towards the existing outfall onto the foreshore, as detailed in Figure 11.12 of the ES.

16.5.4 In summary, the survey effort has been sufficient to characterise the use of the site and its surroundings by water vole and they are widely distributed within the development site. However the majority are present in ditches that have already been created in accordance with existing development consents and will not be disturbed by the development of AMEP.

Impacts – The Project Alone

16.5.5 Existing drainage ditches on the site cater for greenfield run-off only and are inadequate to accommodate the flows that would be generated from the largely impermeable area proposed for AMEP. The drainage system needs to be re-developed and this will result in a loss of existing habitat for water vole and the creation of new habitat that will be suitable for water voles once vegetation is established.

Mitigation

16.5.6 The new ditches that are to be created to receive the surface water run-off from AMEP need to be constructed and vegetated before the existing water vole habitat on the site is

destroyed. Water voles shall either be translocated or displaced into the new habitat in accordance with a plan approved by the local planning authority. These measures shall be included in both the Code of Construction Practice and the Ecological Management and Monitoring Plan both to be secured by provisions within Schedule 11 of the DCO.

Comments by the three Agencies

16.5.7 Natural England broadly agrees with the overall conclusions of the water vole survey and with the assessment of impacts.

16.5.8 Natural England broadly agrees with the proposed mitigation as described in the landscape masterplan. However, in order to confirm the statement that '*through enhancement measures, there will be a net increase in suitable water vole habitat of approximately 450m*' there is need for clarification of what these enhancement measures will involve, and evidence that the existing ditch network has considerable lengths of habitat unsuitable for water vole.

16.5.9 In the event that water voles will need to be translocated to newly created ditches then a protected species licence will need to be applied for and obtained.

16.6 **Badgers**

Summary of the Applicant's Assessment

Baseline

16.6.1.1 Badgers are protected under the Protection of Badgers Act 1992. Badgers are widespread across the UK and the principal aim of the legislation is to protect badgers from persecution.

16.6.1.2 A site walkover survey for badgers was undertaken in October 2010 and is reported by The Badger Consultancy in Annex 11.13 of the ES.

16.6.1.3 It is agreed that: the survey effort has been sufficient to characterise the use of the site and its surroundings by badgers and that they do not have any setts on the development site. Badgers are however likely to be foraging for food on the development site at present.

Direct Impacts –The Project Alone

16.6.2 The reduction in foraging area may reduce the number of badgers that can be sustained in the local area. However, as badgers are neither rare nor endangered, this would have no impact on the conservation status of badgers in the local, district or regional context.

Mitigation

16.6.3 The badger clan that forages on the development site has its main sett outside of the site. It is agreed that the Management Plan for Burkinshaws Covert produced by HINCA will be of benefit to the badger clan affected by AMEP and will help to mitigate the impacts of the development and that no further mitigation is required.

Comments by the three Agencies

16.6.4 Natural England agrees with the conclusion of the badger survey for the AMEP site, and with the assessment of impacts, and accepts that the proposed habitat improvements suggested in the 'Burkinshaw's Covert Conservation Management Plan Consultation Draft 2010' prepared by Humber INCA will provide sufficient foraging habitat to mitigate for any losses from the development site.

16.7 **Breeding Birds**

Summary of the Applicant's Assessment

Baseline

16.7.1 Breeding birds have statutory protection, and so cannot be disturbed during the breeding season that generally extends from early March until the end of August.

16.7.2 A breeding bird survey of the development site and the wider area was undertaken by Just Ecology in 2006 and is reported in Annex 11.5 of the ES. The institute of Estuarine and Coastal Studies undertook a breeding bird survey along two transects of the site between April and July 2010 and this is reported in Annex 11.4 of the ES. A further survey of the development site and a surrounding 500m buffer was undertaken by Ecology Consulting in 2011 and is reported in Annex 11.10 of the ES.

16.7.3 The survey effort has been sufficient to characterise the use of the site and its surroundings by breeding birds and the farmland and hedgerow habitats within the site hold a breeding bird community typical of the region, including a range of UK BAP priority species.

Impacts – The Project Alone

16.7.4 An assessment of the impact of the development on breeding birds is detailed in Ecology Consulting's report, *'Able Marine Energy park, Killingholme : Assessment update for Breeding Birds'*, (May 2012), Report EX11.16 which is included in the volume of supplementary environmental information. The impact on species using the existing habitat is assessed to be either negligible or minor.

Mitigation

16.7.5 Mitigation for breeding birds is detailed in paragraphs 11.7.30*et seq* of the ES. That mitigation, together with the mitigation detailed on Ecology/Landscape Detail Sheet no. 4B, included in supplementary report EX20.3 is proposed to be incorporated into the Ecological Management and Monitoring Plan for the development which is to be secured by a provision within Schedule 11 the DCO.

Comments by the three Agencies

16.7.6 The total number of bird territories affected by the development has not been agreed. The current industrial land use is deemed to be equivalent to the future use of the site and therefore it has been concluded that bird populations are not expected to decline, and bird

populations within arable and grassland areas are not expected to be lost. However, there appear to be clear differences in the existing industrial land use, which includes areas of gravel, bare ground, arable and tall ruderals as well as ditches, hedgerows and smaller areas of abandoned arable / set-aside, and the proposed future use as a port facility, which does not show any open undeveloped areas in the latest Additional Landscape Masterplan EX20.3.

16.7.7 These impacts could be offset through the provision of suitable onsite habitat creation and enhancement. We have reviewed the Additional Landscape Masterplan EX20.3, however we do not agree that this adequately achieves this.

16.8 Direct Loss of Terrestrial Feeding and Roosting Areas for SPA Birds

Summary of the Applicant's Assessment

Baseline

16.8.1 The SPA assemblage use fields within the terrestrial areas of the development site for roosting and feeding.

16.8.2 Surveys of the terrestrial fields were obtained from HINCA for the periods January 2007 – March 2008 and from August 2010 – March 2011. Data for curlew are summarised in Figures 11.8 and 11.9 of the ES. There is only limited use of the fields by other species that form part of the SPA assemblage.

16.8.3 It is agreed that the survey effort has been sufficient to characterise the use of the terrestrial areas of the site by the SPA assemblage; the most frequent and most significant user of the site is the curlew, which is regularly present in numbers that exceed 1% of the curlew population on the SPA and Ramsar.

Impacts – The Project Alone

16.8.4 The fields are an important roosting/feeding area for Curlew. Displacing birds from the site would result in them needing to use other fields, which are likely to be less optimal to some extent, and this could have an adverse impact on the Curlew population of the SPA.

Mitigation

16.8.5 To avoid the possibility of birds being displaced onto less optimal habitat an area of optimally managed wet grassland with a core area of 16.7 ha will be created within the development site and will be managed in accordance with the requirements of the EMMP; this is identified as Area A on the application drawings. The provision of Area A will be sufficient to exclude the possibility of an adverse effect on the SPA assemblage resulting from the loss of existing terrestrial roosting/feeding habitat.

Comments by the three Agencies

16.8.6 The conservation of protected species and the application of the Habitats and Birds Directives are integral requirements for licensing under the MCAA. The deemed marine licence at Schedule 8 of the DCO may be the appropriate mechanism for some of the

mitigation for the impacts on breeding birds to be secured. The MMO is in ongoing discussions with Natural England and the Applicant with regards to this but agreement is yet to be reached.

16.8.7 The EA agrees that there will be a loss of habitat as a result of the AMEP project and mitigation is required.

Natural England agrees that Area A is sufficient to avoid an adverse effect on the site integrity of the SPA, when it is considered alongside the commitment to comply with the management and monitoring measures that will be agreed in the EMMP.

16.9 Loss of Intertidal Feeding and Roosting Areas for SPA Birds

Summary of the Applicant's Assessment

Baseline

16.9.1 The intertidal area of the development site comprises mudflat that is used as a feeding resource by the SPA assemblage when the habitat is exposed between high tides. A range of bird species feed and roost on this resource.

16.9.2 High tide and low tide counts of both the Killingholme Marshes foreshore and Halton Marshes foreshore were undertaken by the Just Ecology in 2006/7 and are reported in Annex 11.6 of the ES. Through the tide bird counts of Killingholme Marshes foreshore were more recently undertaken by The Institute of Estuarine and Coastal Studies between April 2010 and April 2011; these survey results are included in Annex 11.9 of the ES.

16.9.3 The site specific surveys data supplemented the estuary wide low tide counts undertaken by English Nature in 1998/9 and 2003/4, which are reported in their Research Reports.

16.9.4 The existing suite of data, combined with the site specific survey effort has been sufficient to characterise the use of the intertidal areas of the site by the SPA assemblage.

Impacts – The Project Alone

16.9.5 The reclamation works that are necessary for the construction of AMEP will result in the loss of a significant food resource for the SPA bird assemblage. Displacing birds from the intertidal areas would result in them needing to use other parts of the SPA, which are likely to be less optimal to some extent. Accordingly, displacement could have an adverse impact upon the SPA assemblage and specifically upon Black tailed godwits.

Indirect Impacts – The Project Alone

16.9.6 The operation of AMEP has the potential to generate noise and create visual disturbance that could result in mudflat close to the quay losing its full functionality; it is not certain that birds will continue to use the disturbed area for feeding or roosting. A precautionary approach to assessing the area affected by disturbance is to assume (based on the IECS report '*Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*'

(2008)) that mudflat within 275 m of any operational activity will not be used by any assemblage species.

16.9.7 Disturbing birds so that they are displaced from an intertidal area that they use for feeding would result in them needing to use other parts of the SPA, which are likely to be less optimal to some extent as they might already be utilised by other SPA birds. Accordingly, disturbance could also have an adverse impact on the SPA assemblage and specifically on Black tailed godwits.

Mitigation

16.9.8 The loss of intertidal mudflat by direct loss and by disturbance cannot be mitigated for within the designated site and will require compensation subject to the relevant derogation tests. This will be addressed in the SoCG that addresses the shadow HRA Report.

16.9.9 Before the works commence, a benthic survey of the intertidal mudflats will be undertaken to fully characterise the value of the habitat at the time immediately prior to its loss.

Comments by the three Agencies

16.9.10 The conservation of protected species and the application of the Habitats and Birds Directives are integral requirements for licensing under the MCAA. The deemed marine licence at Schedule 8 of the DCO may be the appropriate mechanism for some of the mitigation for the impacts on SPA birds to be secured. The MMO is in ongoing discussions with Natural England and the Applicant with regards to this but agreement is yet to be reached.

16.9.11 The EA agrees that there will be a loss of habitat as a result of the AMEP project and compensation is required.

16.9.12 Natural England agrees that sufficient survey work and data has been assessed to determine that the loss of intertidal habitat would have an adverse effect on the SPA. We also agree that this loss cannot be mitigated and compensation is required if the tests of no alternative and imperative reasons of over-riding public interest are passed.

16.9.13 Natural England are yet to receive Black and Veatch's second interim design report on the modelling work undertaken for Cherry Cobb Sands and so we are not able to agree that the proposed site is adequate to maintain the coherence of the Natura 2000 network.

16.9.14 Natural England are still to review the detailed design for wet grassland at Old Little Humber Farm and so cannot agree that the proposed site will provide an appropriate feeding/roosting resource for Black tailed godwits.

16.9.15 The compensation will need to be monitored and this will be agreed through an EMMP, along with any triggers for remedial works.

16.10 **Disturbance to SPA birds caused by Percussive Piling Noise**

Summary of the Applicant's Assessment

Baseline

16.10.1 The baseline bird surveys are described in Sections 16.9.1 *et seq* above.

16.10.2 Baseline noise surveys in and around the AMEP site were undertaken in December 2010 and January 2011 and are reported in Annex 16.3 of the ES. The existing noise levels on the Killingholme Marshes foreshore and the hinterland are significantly influenced by marine and port related noise including vessel engines, vehicles using loading/unloading ramps, rail engines and to a lesser extent distant traffic. This results in numerous peak noise effects that are significantly higher than average levels. The bird assemblage using this part of the SPA and the adjacent fields is habituated to this environment.

16.10.3 The baseline is discussed in detail in Annex F of the sHRA report submitted with the application.

Impacts – The Project Alone

16.10.4 The impact of piling on the SPA assemblage is described in Annex F of the sHRA. Piling noise will generate maximum levels of noise that that can be mitigated so that it is no greater than the maximum levels currently experienced by the SPA assemblage utilising the area.

Mitigation

16.10.5 Noise shrouds will be used around the pile to limit noise generated by percussive piling. Where it is reasonably practicable to do so the noise shroud will extend to the water level.

16.10.6 Before commencing percussive piling, a piling method statement will be submitted to the MMO for agreement and this process will be detailed in the Deemed Marine Licence.

16.10.7 During severe winter weather when the air temperature is sub-zero for an extended period and foraging areas are affected by frozen ground, piling operations will be suspended to reduce disturbance to the intertidal feeding areas. Criteria for this suspension of activity are to be agreed with NE and will be detailed in the Deemed Marine Licence and in the Code of Construction Practice to be secured under Schedule 11 of the DCO.

Comments by the three Agencies

16.10.8 The conservation of protected species and the application of the Habitats and Birds Directives are integral requirements for licensing under the MCAA. The deemed marine licence at Schedule 8 of the DCO may be the appropriate mechanism for some of the mitigation for the impacts on SPA birds to be secured. The MMO is in ongoing discussions with Natural England and the Applicant with regards to this but agreement is yet to be reached.

16.10.9 Natural England agrees that it is possible to mitigate disturbance to SPA birds through a piling method statement. We have provided details of what should be included in this

document, to ensure that an adverse effect on site integrity is avoided, in our joint letter dated 19 June 2012.

16.11 **Loss of Station Road Fields LWS**

Summary of the Applicant's Assessment

Baseline

16.11.1 Station Road Fields is an area of approximately 1.7 ha of neutral grassland located to the north of Station Road as shown on Figure 11.2 of the ES.

Impacts – The Project Alone

16.11.2 The development will result in the loss of this habitat.

Mitigation

16.11.3 3.6 ha of the same the habitat will be re-created within the buffer areas of Mitigation Area A and its maintenance will be addressed within the Ecological Management and Monitoring Plan to be secured under a provision within Schedule 11 of the DCO.

Comments by the three Agencies

16.11.4 Natural England agrees that the loss of Station Road LWS can be mitigated by the provision of neutral grassland habitat within Area A.

16.12 **North Killingholme Haven Pits (NKHP) SSSI – Disturbance**

Summary of the Applicant's Assessment

The Baseline

16.12.1 The land proximal to NKHP has undergone considerable change since 1999 with 6 new Ro-Ro berths being constructed at Humber Sea Terminal and the farmland around the southern and western fringes of the SSSI being developed to provide areas for port related storage; to date this has comprised vehicle storage. The development of the Ro-Ro has greatly influenced the noise environment with frequent 'spikes' associated with port activity. The storage areas around the SSSI site are visually screened by a 2m high planted earth bund. The baseline environment is further discussed in Annex 35.6 of the ES, which also records that the development appears to have had no adverse effect on the use of the SSSI as a high tide roost for the SPA assemblage, particularly black tailed godwit.

Impacts – The Project Alone

16.12.2 During construction, noise generated by piling activities as well as visual intrusion has the potential to cause disturbance to roosting birds and that impact is assessed in Annex F of the sHRA. The impact of noise generated during operation is assessed within the ES but is

further explained in Report EX11.22. Given the existing noise environment, which is uneven and includes frequent industrial noise events that are impulsive in character, the level of disturbance during both construction and operation will not have a significant change the potential for disturbance to feeding and roosting birds within the SSSI.

Mitigation

16.12.3 Existing planning consents for port related storage around the SSSI include restrictions on noise reaching the boundary of the SSSI. These restrictions will be retained and can be secured by an appropriate requirement within Schedule 11 of the DCO.

Comments by the three Agencies

16.12.4 Natural England has not had sufficient time to review EX11.22 and so is not in a position to provide further comments at this stage.

16.13 **OSPAR Species**

Summary of the Applicant's Assessment

16.13.1 OSPAR bird species that are potentially affected by the works are listed in Table 16.2.

16.13.2 All bird species have been considered in the assessment and relevant survey data is included in Annex 11.9 of the ES. Of the OSPAR species, only the Lesser black-backed gull was recorded to be present on the intertidal mudflat. It was not a frequent visitor to the site and, apart from a single peak count of 12, was only present as an occasional single individual. Accordingly, the project will not have a significant effect on OSPAR birds.

Comments by the three Agencies

16.13.3 The MMO is satisfied that the applicant has considered Ospar habitats and species.

16.13.4 Natural England agrees that there will not be any additional significant effects on OSPAR birds.

Table.16.2 OSPAR Screening – Bird Species

OSPAR Species/Habitat	Possibly present	Considered within EIA
Birds		
Larusfuscusfuscus(Lesser black-backed gull)	✓	✓
Pagophila eburnean (Ivory gull)	×	×
Polysticta stelleri (Steller's eider)	×	×
Puffinus assimilis baroli (auct incert) (Little shearwater)	×	×
Rissatridactyla (Black-legged kittiwake)	✓	✓
Sterna dougallii (Roseate tern)	✓	✓
Uriaaalge – Iberian population (synonyms: *Uriaaalgealbionis, Uriaaalgeibericus*) (Iberian guillemot)	×	×
Urialomvia (Thick-billed murre)	×	×

17. Chapter 12 Commercial Fisheries (including Annexes 12.1)

17.1 General

17.1.1 This chapter of the ES considers the potential impacts of the proposed development on commercial fisheries and recreational angling within the Humber Estuary and the wider north-eastern inshore fishery area.

17.2 Screening Assessment

Table 17.1 : Screening of Chapter 12 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Recreational Fishing	O	O	O	✔	✔	✔	O	O	O
Commercial fishing operations.	✔	✔	✔	O	O	O	O	O	O

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

17.3 Recreational Fishing

17.3.1 It is agreed that the Project is unlikely to have a significant effect upon recreational fishing.

17.4 Commercial Fishing Operations

Summary of the Applicant's Assessment

The Baseline

17.4.1 Section 12.5 of the ES provides an overview of the existing extent of commercial and recreational fishing in the Humber Estuary. The specific area of the estuary to be reclaimed has been surveyed and the survey results are included in Annex 12.1 of the ES. Section 12.5 of the ES records that baseline fishing effort is characterised by a steady decline and is currently low compared to historic levels. The survey results reported in Annex 12.1 are sufficient to characterise the value of the reclamation area to commercial fishes.

Impacts – The Project Alone

17.4.2 The potential effects of the project during the construction and operational phases of the Project are dealt with in Table 12.1 of the ES.

17.4.3 The direct impact of the Project will be a low to negligible effect on commercial fishing, principally because commercial fisheries in the area are limited.

17.4.4 Piling noise, habitat loss and disturbance during construction works have the potential to impact on fish stocks. The significance of those impacts and potential mitigation measures

are assessed in Chapter 10 of the ES, Aquatic Ecology, and addressed under that Section of this SoCG.

Mitigation

17.4.5 Notice to Mariners will inform commercial fisheries of any works in the area and thereby mitigate, as far as reasonably practicable, any impact of the development on their activities. The Harbour Master will decide what information should be included in such Notices and will decide upon their timing.

Comments by the three Agencies

17.4.6 The MMO agrees that the Applicant has undertaken an adequate assessment of the impact of the project on commercial fisheries. The MMO further agrees that a Notice to Mariners will be required and should be secured on the deemed marine licence at Schedule 8 of the DCO.

17.4.7 The EA agrees that the Applicant has correctly identified our role in terms of recreational fishing and that the impacts on this issue are discussed under Chapter 10 of the ES on Aquatic Ecology.

18. Chapter 13 Drainage & Flood Risk (including Annex 13.1)

18.1 General

18.1.1 This chapter of the ES reports on the impact of the AMEP development upon drainage and flood risk and determines whether, and if so how, the proposed development will affect the hydrology, surface water drainage and flooding of the site and its surrounds.

18.2 Screening Assessment

Table 18.1: Screening of Chapter 13 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Surface water drainage and pollution prevention	✔	✔	✔*	✔	✔	✔*	✔	✔	✔*
Overtopping of new Flood Defences	O	O	O	✔	✔	X	O	O	O
Overtopping of existing Flood Defences	O	O	O	✔	✔	X	O	O	O
Maintenance of Flood Defences	O	O	O	✔	✔	✔*	O	O	O

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

18.3 Surface water Drainage and Pollution Prevention

Summary of the Applicant's Assessment

The Baseline

18.3.1 The AMEP development lies within the jurisdiction of the North East Lindsey Internal Drainage Board. The existing greenfield land is currently drained by surface water ditches that flow to a single outfall pipe that discharges onto the Killingholme Marshes foreshore. The existing outfall lies within the footprint of the reclamation area and will need to be diverted.

Receptors

18.3.2 All habitat, fauna and property within the Killingholme Marshes drainage catchment are a potential receptor.

Impacts – The Project Alone

18.3.3 The development of AMEP will result in a significant increase in impermeable surface within the Killingholme Marshes catchment and will require a new surface water ditch

system to be constructed to receive the additional run-off and will also require the relocation of the existing outfall.

18.3.4 Surface water run-off could be contaminated with oils due to the presence of a significant quantity of employee car parking and due to the operation of plant and machinery.

18.3.5 The impacts of the construction of the pumping station are explained in Report EX11.26 which is included in the volume of supplementary environmental information.

Mitigation

18.3.6 The risk of flooding is ever-present and can only be mitigated to the extent that is reasonably practicable. It is always possible that a more extreme event will occur than has been adopted for design purposes. The surface water drainage strategy for AMEP is explained in the flood risk assessment included in Annex 13.1 of the ES. The design of the new drainage system will be sufficient to receive run-off from a 1:100 year rainfall event with 30% increase in peak rainfall intensity to account for the effects of climate change. The proposed strategy is appropriate to reasonably mitigate for the risk of flooding from surface water run-off within the Killingholme Mashes catchment.

18.3.7 The potential for hydrocarbon pollution of controlled water will be mitigated by the use of oil interceptors in accordance with the EA publication, '*Use and design of oil separators in surface water drainage systems: PPG 3'*. Details of all pollution prevention measure to be adopted when the project is operational will be detailed in a terrestrial Ecological Management and Monitoring Plan (EMMP).

18.3.8 The potential for other pollution incidents to occur will be mitigated by the adoption of good site practice which takes full cognisance of all the EA's relevant Pollution Prevention Guidelines and adherence to these Guidelines will be required under the Deemed Marine Licence and included in the Code of Construction Practice to be secured by a provision in Schedule 11 of the DCO.

<u>Comments by the three Agencies</u>

18.3.9 The MMO agrees that pollution prevention mitigation should be secured through the deemed marine licence at Schedule 8 to the DCO. This will include, but may not be limited to, the mitigation mentioned above

18.3.10 The EA agrees that sufficient evidence has been provided in the ES to demonstrate the outline of a surface water scheme that is deliverable. The EA agrees that a requirement is needed in Schedule 11 of the DCO, which ensures that an appropriately detailed scheme is submitted prior to the commencement of development. The EA does not agree with the current wording shown in the DCO at Schedule 11 Paragraph 11 and has requested alternative wording detailed in paragraph 4.85 of its Written Representations.

18.3.11 Also, if the North East Lindsey Drainage Board does not adopt the new pumping station, then the Applicant will need to enter into a legal obligation to design, operate and maintain it to a standard agreed by the EA, including our consent for the outfall through our flood defences.

18.3.12 The EA agrees with the need for a Code of Construction Practice detailing the environmental protection measure that will be employed during construction of the project and an EMMP for site operation.

18.3.13 Natural England agrees that pollution prevention mitigation should be secured to avoid significant impacts to the natural environment; this should include, but may not be limited to, the mitigation mentioned above.

18.4 Overtopping of New Flood Defences

Summary of the Applicant's Assessment

Baseline

18.4.1 The existing sea flood defences comprise earth bunds with a concrete revetment on the seaward face, capped by a wave return wall. They were constructed during the 1950s.

18.4.2 Still water levels within the estuary are rising due to the effects of climate change and, in accordance with current practice new flood defences must be designed to accommodate a 1:200 year flood event with an adaptive approach to climate change.

18.4.3 The Flood Risk Assessment has used the climate change requirements set out in Planning Policy Statement 25, Development and Flood Risk (PPS25) although this was withdrawn with the publication of the National Planning Policy Framework (NPPF). However, the NPPF and the associated Technical Guidance Document retain key elements of PPS25, including, in particular, the same recommended contingency allowances for net sea level rise (see Table 4 of the NPPF Technical Guidance Document).

18.4.4 The National Policy Statement for Ports makes the UKCP09 climate change projections the relevant documents for the AMEP scheme, and these incorporate less onerous climate change projections as detailed in Table 18.2 below.

Table 18.2 Climate Change

Document	Sea Level Rise mm/yr up to 2025	Sea Level Rise mm/yr 2026 to 2050	Sea Level Rise mm/yr 2051 to 2080	Sea Level Rise mm/yr 2081 to 2115
PPS25 (comparable to the 90% high emission scenario from UKCP09)	4.0	8.5	12.0	15.0
UKCP09 (95% medium emission scenario)	4	7	11	15

18.4.5 Accordingly, the climate change adaptation used for AMEP exceeds the requirements of the NPSP.

Assessment Methodology

18.4.6 The assessment of overtopping of the proposed defences is described in paragraphs 4.28 *et seq* of Annex 8.1 of the ES. The assessment is based on the methods set out in the EurOtop manual and is based upon a Joint Probability Analysis of still water levels and wave heights for the site provided by the EA (ABPmer 2007). Overtopping has been assessed for a 1:200 year event with appropriate allowances for climate change.

Impacts – The Project Alone

18.4.7 The magnitude of overtopping is reported in paragraphs 5.67 *et seq* of Annex 8.1 of the ES. The overtopping rates are within acceptable limits stated in the EurOtop manual, subject to the height of the quay being increased by 200 mm if climate change predictions are realised within the next 100 years.

Mitigation

18.4.8 Whilst mitigation is built into the design by ensuring that the risk of overtopping is as low as reasonably practicable, more extreme weather conditions would lead to higher rates of overtopping and could cause flooding on the site. To mitigate for this, it is agreed that a Flood Warning and Evacuation Plan should be developed and made a requirement within Schedule 11 of the DCO. The FRA also identifies other mitigation such as minimum finished floors levels and levels for safe refuge areas, which will be implemented

Comments by the three Agencies

18.4.9 The EA agrees with the applicant's assessment on climate change impacts. The defences and quay will require monitoring and any improvements and long-term management will need to be secured in a legal agreement between THE APPLICANT and the EA. The EA agrees with the mitigation measures proposed within the Flood Risk Assessment to deal with the residual risk of tidal flooding. The EA has suggested additional requirements to secure this mitigation in paragraphs 4.80, 4.90, 4.91 and 4.95 of its Written Representations. A legal agreement is required to secure the long-term monitoring and maintenance of the quay.

18.4.10 The EA has not imposed a limit to allowable overtopping on the outer extent of the quay and this is matter for the decision maker.

18.5 **Overtopping of existing Flood Defences**

Summary of the Applicant's Assessment

Baseline

18.5.1 The existing flood defences that protect Killingholme Marshes from inundation are located in Flood Area 23 as defined in the Humber Flood Risk Management Strategy (HFRMS) (EA, 2008). The EA plan to improve these defences in the future as they protect existing development including the Port of Immingham, Humber Sea Terminal and the MoD Tank Farm adjacent to AMEP. The HFRMS was published in 2008 outlining flood risk

management of the estuary for 100 years. This was following the approval by Defra in 2007 of the Strategy including the first 25 years of work. When published, the Strategy indicated that works would be necessary in this location in approximately 25 years' time. The Defra approval requires a re-submission of the Strategy to them by 2020, and as such no firm plans beyond the initial 25 years can be confirmed at the present time.

Impact

18.5.2 The reclamation works has the potential to cause waves to be reflected from the revetments onto the existing flood defences and thereby increase the risk of overtopping. Overtopping of the existing defences must not be adversely affected by the development and where wave heights are significantly increased, overtopping has been checked allowing for climate change up until 2033, when the HFRMS will be reviewed. An assessment of overtopping is presented in Report EX8.7 included in the volume of supplementary environmental information. Overtopping is not currently shown to increase to the south of the development but may increase significantly to the north if intertidal levels remain at existing levels. If as anticipated, the intertidal areas accrete, overtopping will reduce. Conversely if erosion occurs around the outfall to the pumping station then overtopping to the southern section has the potential to increase risk to the area currently benefiting from these defences.

Mitigation

18.5.3 The north and south lengths of tidal defence on the south bank have an allowable overtopping rate of 2l/s/m considering their design life until 2033, by which time the works required in this location should have been identified and submitted to Defra for approval. As these north and south lengths revert to the use of EA powers in 2033 the approach and method of rock armour placement to limit overtopping will need to be agreed with the EA. In order to mitigate for the risk that overtopping of existing flood defences will exceed 2l/s/m, the defences to the north of the reclamation will be improved by the addition of rock armour revetment.

Comments by the three Agencies

18.5.4 The EA has not yet had the opportunity to fully review the additional JBA modelling report (EX8.7) recently submitted by the Applicant and is not yet in a position to agree or disagree with the assessment on this issue. Any mitigation measures that may be identified in respect of this issue will need to be secured within a Legal Agreement between the EA and the Applicant.

18.6 **Maintenance of Existing Flood Defences**

Summary of the Applicant's Assessment

Baseline

18.6.1 The proposed AMEP quay will cover the existing flood defences over the extent of the quay proposal. In order to protect the hinterland from flooding from the prescribed 0.5% tidal flood, the standard of protection provided by the quay will need to be maintained by

the Applicant in perpetuity. The maintenance of the quay will be included within a Section 30 Agreement (Anglian Water Authority Act 1977) between the Applicant and the Environment Agency.

Comments by the three Agencies

18.6.2 The EA agrees that the defence works, monitoring, reactive maintenance etc. will need to be included in a Section 30 agreement with THE APPLICANT. An alternative access route will also need to be secured in the legal agreement to ensure our routine and emergency access provision to the north and south tidal defence remains available at all times.

19. Chapter 14 Commercial and Recreational Navigation (including Annexes 14.1 to 14.3)

19.1 General

19.1.1 Chapter 14 of the ES considers the potential impacts of the proposed development on commercial and recreational navigation within the Humber Estuary during both the construction of the works and once the facility is operational. In particular, it considers the specific hazards that will arise from the additional marine activity and assesses the consequential risk to users of the river.

19.2 Screening Assessment

Table 19.1: Screening of Chapter 14 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Shipping hazards Navigational risk assessment and methodology.	✔	✔	✔	O	O	O	O	O	O

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

19.3 Shipping Hazards Navigational Risk Assessment and Methodology.

Baseline

19.3.1 Section 14.6 of the ES provides an overview of river traffic currently entering and leaving the Humber Estuary. Estimates of existing commercial river traffic are based upon published Department for Transport statistics whilst traffic routing has been established from a representative four day period of automated vessel traffic data obtained from the Harbour Masters office. Section 14.6 of the ES provides a robust baseline of existing river usage that, between 2005 and 2009 was characterised by declining numbers of vessel.

Impacts

19.3.2 Once the facility is operational the number of vessel movements generated by the development each year is estimated to be 524 (262 vessel arrivals and 262 departures) as detailed in Table 14.12 of the ES. During construction the number of vessel movements is estimated to be significantly greater, peaking at around 700 movements per month as detailed in paragraph 14.6.27 of the ES.

19.3.3 A simulation study was undertaken at South Tyneside Marine College in October 2010 to model the berthing and unberthing of ships onto AMEP and also onto the Ro-Ro berths at Humber Sea Terminal (HST). This study used a superseded quay layout and unmodified river flows. A supplementary report, reference EX 14.4, Navigation Simulation Study (March 2012) records berthing and unberthing onto AMEP and HST using the final quay

configuration and with river flows modified by the final quay layout. The simulation studies provide sufficient information to inform decision-making.

19.3.4 The hazards and consequential risks associated with the increase in river traffic have been appropriately considered by suitably qualified and experienced persons and are reported in a navigational risk assessment included in Annex 14.2 of the ES.

Mitigation

19.3.5 Navigational risk will be reduced to a level that is as low as reasonably practicable within the context of a commercial port operation by the development of appropriate procedures, including:

- During construction of the quay, the principal contractor will have responsibility for managing construction vessel movements and liaising with Humber Vessel Traffic Services and will exhibit lights and lay down such buoys as are necessary to prevent danger to navigation.

- Before the quay becomes operational, a marine safety management system will be developed, implemented and maintained in accordance with the Port Marine Safety Code.

- Navigation lights will be installed on the extents of the quay and these will be agreed with the Harbour Master.

Comments by the three Agencies

19.3.6 The MMO considers that the Applicant has undertaken an adequate assessment of the impacts of the project on navigation. The MMO requests that the produce an updated navigational risk assessment prior to the works commencing to be secured through the deemed marine licence at Schedule 8 of the DCO. The MMO is aware that other users of the estuary have made comments with regards to navigational safety. The MMO requests that the applicant ensures that all comments are addressed and, should additional mitigation be required, that the Applicant ensures any additional mitigation or conditions which may be best regulated through the deemed marine licence are discussed with the MMO.

20. Chapter 16 Noise & Vibration (including Annexes 16.1 to 16.8)

20.1 General

20.1.1 This chapter of the ES considers the impacts of noise and vibration arising from the construction and operation of AMEP upon nearby noise sensitive receptors. It presents an assessment of the significance of those impacts on human receptors, and sets out a proposed mitigation strategy. It sets out the scale of the impacts on ecological receptors; the significance of these is then assessed in Chapters. 10 and 11 of the ES.

20.2 Screening Assessment

Table 20.1 : Screening of Chapter 16 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Noise assessment methodology	O	O	O	O	O	O	✔	✔	✔

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

20.3 Noise Assessment Methodology

Summary of the Applicant's Assessment

Baseline

20.3.1 The existing noise baseline was surveyed in December 2010 and January 2011 and is reported in Annex 16.3. The existing noise environment is characterised by frequent impulsive noise (clatters and bangs) from nearby industry that give rise to short lived, loud, noise peaks.

Receptors

20.3.2 Annex 16.5 of the ES explains the identification of those ecological receptors that are likely to be significantly affected by any change to the noise environment. Noise sensitive ecological receptors are further identified in Figures 16.1 and 16.2 of the ES.

Assessment Methodology

20.3.3 The noise assessment methodology is explained in Section 16.3 of the ES. Modelling of the propagation of noise was determined using proprietary software for both the construction and operation of the facility as described in paragraph 16.5.27 *et seq* of the ES. The assessment of baseline noise and the modelled prediction of noise from AMEP, provides a reasonable basis for calculating the change to the existing acoustic environment at ecological receptors.

Comments by the three Agencies

20.3.4 Natural England agrees that sensitive ecological receptors have been correctly identified. Mitigation is required for a number of designated site species and this is set out in the Chapters 15 and 16 of this report.

21. Chapter 17 Air Quality (including Annex 17.1)

21.1 General

21.1.1 This chapter of the ES sets out the methodology, background information and assessment of impacts to air quality arising from AMEP. AMEP is composed of several elements with the potential to impact on air quality, and as such the approach adopted allowed consideration of impacts from the development as a whole, and also cumulative impacts. The chapter provides an assessment of the significance of those impacts on human receptors, and sets out a proposed mitigation strategy. It sets out the scale of the impacts on ecological receptors; the significance of these is then assessed in Chapters 10 and 11 of the ES.

21.2 Screening Assessment

Table 21.1: Screening of Chapter 17 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Impact on Ecological Receptors	O	O	O	O	O	O	✔	✔	✔

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

21.3 Impact on Ecological Receptors

Summary of the Applicant's Assessment

Baseline

21.3.1 Section 17.5 of the ES sets out in detail the baseline air quality conditions for the site and surroundings in terms of a range of potentially polluting parameters (NO_2, NOx, SO_2PM_{10}, $PM_{2.5}$, Benzene). It details how the zonation of impacts to air quality from geographically limited sources (shipping, road traffic and dust) is used to arrive at baseline figures for the site. The baseline data presented in this section of the ES provides a reasonable understanding of the baseline air quality conditions for the site and its surroundings. A pre-existing air quality exceedance of the NO_x standard for the protection of vegetation is evident at present.

Receptors

21.3.2 Sensitive human and ecological receptors are identified in section 17.3 of the ES. The sensitive receptors identified primarily for the assessment of dust impacts are set out in Table 17.6 of the ES. No air quality standard exists for dust deposition but other pollutants are assessed against the relevant national air quality standards.

Impacts

21.3.3 The impacts of AMEP in terms of dust are as set out in Tables 17.7 and 17.8 and in paragraph 17.6.11 of the ES; these include some potentially significant impacts which trigger the requirement for dust mitigation measures to minimise dust emissions, as stated in paragraph 17.6.10.

21.3.4 The impacts of AMEP in terms of other pollutant parameters are not significant, as set out in Section 17.6 of the ES. This includes slight localised elevations in the levels of NO_x which are not significant in the context of the pre-existing exceedance for this parameter.

Mitigation

21.3.5 Dust mitigation measures set out in Section 17.7 of the ES are proportionate, appropriate and sufficient for the mitigation of the potential dust impacts to the designated sites identified in Tables 17.7 and 17.8 and paragraph 17.6.11 of the ES. A Dust Mitigation Plan will be included in the Code of Construction Practice that will be a requirement within Schedule 11 of the DCO.

Comments by the three Agencies

21.3.6 Natural England agrees that the proposed mitigation is sufficient to avoid dust impacts on the Humber Estuary designated sites.

22. Chapter 19 Light

22.1 General

22.1.1 This chapter assesses the impact that the lighting of the proposed AMEP development (including security lighting, operational lighting, car park lighting, fixed lighting on buildings/structures and road/junction lighting) will have on human and ecological receptors. The impacts of AMEP's lighting are assessed in the context of the existing lighting environment surrounding the site, and are considered in terms of sky glow, light presence, glare and intrusion. Lighting both during construction and operation is considered.

22.2 Screening Assessment

Table 22.1 : Screening of Chapter 19 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Impact on Ecology	O	O	O	O	O	O	✔	✔	✔

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

22.3 Impact on Ecology

Summary of the Applicant's Assessment

Baseline

22.3.1 The baseline lighting environment of the site and its surroundings is characterised by the light spill from existing lighting onsite and has been quantitatively assessed by field measurements that are recorded in Table 19.3 of the ES and summarised in paragraph 19.5.13 *et seq*. The site exists in a broader environment of significant industrial lighting, in particular from the Lindsey Oil Refinery.

Receptors

22.3.2 Sensitive receptors, for the purposes of EIA, are identified in Section 19.3 of the ES and summarised in Table 19.1.These include: residential occupiers, drivers and also the SPA assemblage that currently use the site and the foreshore for feeding.

22.3.3 The ecological areas that could be adversely impacted by light pollution are: North Killingholme Haven Pits; Mitigation Area A and the intertidal feeding areas.

Impacts – The Project Alone

22.3.4 Construction lighting as detailed in section 19.6 of the ES (namely mobile task lighting less than 10m high)is potentially significant along the Killingholme Marshes foreshore, within the North Killingholme Haven Pits and on terrestrial fields used by foraging birds.

22.3.5 A mix of lighting, including high mast lighting columns up to 50 m high, will provide operational lighting on the site. The operational lighting levels that have been assessed for the site's proposed lighting design are detailed on drawing LS11816-14-1R included in Chapter 19 of the ES and are further shown on two plans included in report EX19.1 submitted with the supplementary environmental information. The impacts of operational lighting on ecological receptors, are as set out in Table 19.4 of the ES and as detailed in Section 19.6. The impacts are found to be minor in scale at all ecological receptors. The level of disturbance at North Killingholme Haven Pits due to lighting will not change, as the baseline lighting conditions within the Pits will remain unaltered by the proposed development.

22.3.6 It is further agreed that in the areas where light spill is shown to be significant, only minor ecological interest would remain after construction, because of other disturbance factors addressed elsewhere in this document. In particular it has been assumed, on a precautionary basis, that visual disturbance to the south of the development will result in 11.6 ha of mudflat losing functionality once the development is operational. As this impact cannot be mitigated, compensation for this area of mudflat is being provided and light disturbance to these areas can be discounted.

Mitigation – The Project Alone

22.3.7 Adverse impacts from light pollution can be mitigated as far as is reasonably practicable by careful deployment of the lighting apparatus to direct light away from sensitive receptors and to limit spill outside of the light's intended direction. Suitable requirements will be set out in a code of Construction Practice to be secured through a requirement with Schedule 11 of the DCO.

22.3.8 The design of operational lighting will be submitted for approval to the local planning authority; they should be required to consult with Natural England in accordance with a proposed modification to the existing draft requirement for the approval of lighting scheme set out in Schedule 11 of the DCO.

22.3.9 Further mitigation measures are set out in Section 19.7 of the ES.

Comments by the three Agencies

22.3.10 Natural England has not had sufficient time to review EX19.1 and so is not in a position to provide further comments at this stage.

23. Chapter 20 Landscape & Visual (including Annexes 20.1 to 20.2)

23.1 **General**

23.1.1 Chapter 20 of the ES considers the potential impacts of the proposed development on landscape, character and resources including the effects on the aesthetic values of the landscape; and the visual amenity including effects upon potential viewers and viewing groups.

23.2 **Screening Assessment**

Table 23.1: Screening of Chapter 20 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Mitigation for impacts on Flora and Fauna	O	O	O	O	O	O	✔*		

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

23.3 ***Mitigation for impacts on Flora and Fauna***

Baseline

23.3.1 The existing character of the development site is recorded in Section 20.5 of the ES. It is a currently a mix of existing industrial hardstanding and farmland habitat, the latter of which supports a variety of habitats and species including breeding birds. Ditches and ponds within the site support great crested newt and water vole respectively.

Impacts – The Project Alone

23.3.2 The landscape will be irreversibly changed by the development with all of the existing farmland habitat being converted to industrial use. This will result in a loss of existing habitat that, if not mitigated, would result in the loss of the species from the site.

Mitigation – The Project Alone

23.3.3 An Indicative Landscaping Masterplan for the site is included in the application; refer to drawing AME-02007-A. Detailed landscaping plans illustrating the mitigation that will be provided for important species that would be adversely affected by the proposals are included in supplementary report EX20.3.

23.3.4 Full proposals for landscaping will be submitted to the Local Planning Authority for approval as provided for in Schedule 11 of the draft DCO.

Comments by the three Agencies

23.3.5 Natural England has no issues regarding the landscape impact. Issues regarding protected species and breeding birds are dealt with in Chapter 16, terrestrial ecology.

24. Chapter 28 Description of the Compensation Site

24.1 **General**

24.1.1 Chapter 28 of the ES describes the works that are proposed at both Cherry Cobb Sands and at Old Little Humber Farm. Detailed design for both sites is being undertaken and it is possible that environmental effects are identified during the detailed design process that were not foreseeable at the time that the EIA was undertaken.

Comments by the three Agencies

24.1.2 The comments made in this SOCG on Volume 2 of the ES must be considered in the knowledge that the compensation site is currently subject to ongoing design. The three Agencies will expect the Applicant to comment on the significance that any changes to the design of the compensation site may have on the assessment undertaken in the ES and supplementary reports once a final design for the compensation site is agreed.

25. Chapter 29 Need for the Development

25.1 **General**

25.1.1 This Chapter of the ES explains that the need for the development is to compensate for the impacts of the development of AMEP on the Humber Estuary SPA/SAC.

25.2 **Screening Assessment**

Table 25.1: Screening of Chapter 29 Issues

ISSUE	MMO	EA	NE
Requirement for Compensation	✔ *	✔ *	✔ *

25.3 **Requirement for Compensation**

Summary of the Applicant's Assessment

25.3.1 The development of AMEP will give rise to a physical loss of estuary habitat that cannot be mitigated and that, on the basis of previous planning decisions, will be judged to have an adverse effect on the integrity of the Humber Estuary SPA/SAC. Consequently new estuarine habitat needs to be created to compensate for this loss.

25.3.2 In addition to a direct physical loss of part of the estuary, an area of intertidal habitat to the south of the quay is likely to be permanently disturbed by the construction and operation of the development. Details of this area are provided in supplementary report EX11.23. This are of habitat will also be compensated for by the creation of new intertidal habitat outside of the site.

25.3.3 It is noted that compensation may only be considered if the decision-maker is satisfied that the project is needed, that there is no feasible alternative and that the project is justified by imperative reasons of overriding public interest.

25.3.4 The quantum of compensation habitat to be provided is addressed in Section 13.4 of this report.

Comments by the three Agencies

25.3.5 The MMO agrees that any losses of designated habitat as a result of the proposed development will need to be adequately compensated for should the first three HRA tests of 'Need', 'No alternatives' and 'IROPI' be proven.

25.3.6 Natural England agrees that it is not possible to rule out an adverse effect due to the loss of designated site habitat and therefore compensation is required, subject to passing the tests set out in paragraph 25.3.3.

25.3.7 The EA agrees that any losses of the designated site as a result of the proposed development will require compensation, subject to passing the tests set out in paragraph 25.3.3 above.

26. Chapter 30 Choice of Site (including Annexes 30.1 to 30.2)

26.1 **General**

26.1.1 This chapter of the ES sets out the process undertaken to identify a suitable location for the intertidal compensation site.

26.2 **Screening Assessment**

Table 26.1 : Screening of Chapter 30 Issues

ISSUE	MMO	EA	NE
Middle estuary location	O	✔	✔

26.3 **Middle Estuary Location**

Summary of the Applicant's Assessment

26.3.1 The compensation site should be located within the Middle Estuary as defined in the EA's '*Coastal Habitat Management Plan'* (2005) as this provides for the compensation to be within the same ecological section of the estuary as the adverse effects. Given that the significant functional impact that the reclamation works is the loss of a feeding resource for Black tailed godwits, and that their principal high tide roost is the nearby North Killingholme Haven Pits, a location proximal to the loss is also of primary importance. Extensive consideration of alternative sites within the Middle Estuary has been undertaken and the chosen site is suitably located.

Comments by the three Agencies

26.3.2 Natural England agrees that the middle estuary location is the most suitable location for the compensation site.

26.3.3 The EA agrees with the need to provide habitat with the same ecological function and this is more easily achieved if compensated for within the same section of the Estuary.

27. Chapter 31 Geology & Ground Conditions (including Annexes 31.1 to 31.4)

27.1 General

27.1.1 This chapter of the ES reviews the geology, hydrogeology and ground conditions and their potential impact due to the proposed works on the Compensation Sites.

27.2 Screening Assessment

Table 26.1: Screening of Chapter 31 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Ground contamination within the development site/remediation	X			✔ *			O		
Protection of inland freshwaters, coastal waters, relevant territorial waters and groundwater	O			✔ *			O		

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

27.3 Ground contamination within the development site

Summary of the Applicant's Assessment

Baseline

27.3.1 The site at Cherry Cobb Sands is Grade 2 agricultural farmland and is relatively flat. There is no evidence of recent industrial activity. Outside of the site boundary an historical landfill is known to be present. The site at Old Little Humber Farm consists of Grade 2 agricultural farmland with no evidence of industrial activity. There are no records of historic or active landfill sites on or near to the site.

27.3.2 A desk study and initial site investigation of Cherry Cobb Sands was carried out in February 2011 and are included within the Annexes 31.1 and 31.2 respectively of the ES.

27.3.3 A further detailed site investigation of Cherry Cobb Sands was carried out in April 2012 and a draft factual report is included in the volume of supplementary environmental information; refer to Report EX31.5 which omitted the chemical test results. This later investigation has proved the presence of contaminated material within the Compensation Site is very likely to be limited to a single location.

Impact

27.3.4 Without removal and management of contaminated material there is a risk of pollution to surface waters.

Mitigation

27.3.5 All material within the Compensation Site that have levels of contaminants in excess of thresholds for surface waters will be made suitable for use to mitigate the potential risk of contamination. A suitable scheme, based on an updated risk assessment, shall be submitted to the Local Planning Authority and to the MMO for their approval in accordance with a requirement included within Schedule 11 of the DCO and the Deemed Marine Licence respectively.

Comments by the three Agencies

27.3.6 The MMO requested that sampling and analysis was undertaken across the compensation site to ensure that, once the breach was made, there was no significant risk of pollution of the marine environment.

27.3.7 Whilst the Applicant has undertaken some sampling and analysis, a number of outstanding issues remain:

- Some of the methodologies used are not comparable to those the MMO use and so direct comparisons cannot be made;
- The elevated DDT levels are a cause for concern. The MMO require further information on what the material at this location will be used for. Further sampling and analysis may be required to clarify the extent of this contamination.
- Analysis for Dieldrin are required and have not been provided;
- We are not yet satisfied that adequate sampling (e.g. at depth) has been undertaken.

27.3.8 The MMO will require these issues to be resolved prior to any breach of the compensation site. Since the compensation site is currently subject to ongoing design, the MMO will assess further contamination analysis requirements once the design has been finalised and advise the Applicant of additional sampling and analysis requirements. This information could be supplied in a remediation strategy, which would need to be a requirement of the deemed marine licence at Schedule 8 of the DCO. At present, the MMO would not agree to the site being breached.

27.3.9 The EA agrees that a further risk assessment is required, which details options appraisals and a remediation strategy. This will need to be approved before development commences. Please refer to paragraphs 4.115-6 for the EA's requested requirements in respect of this.

27.4 **Protection of inland freshwaters, coastal waters, relevant territorial waters and groundwater**

General

27.4.1 The mitigation proposed in paragraph 27.3.5 above will also provide for the protection water bodies from contamination from either sediment or leachates.

Comments by the three Agencies

27.4.2 The EA agrees that a further risk assessment is required, which details options appraisals and a remediation strategy. This will need to be approved before development commences. Please refer to paragraphs 4.115-6 for the EA's requested requirements in respect of this.

28. Chapter 32 Hydrodynamic & Sedimentary Regime (including Annexes 32.1 to 32.6)

28.1 General

28.1.1 This chapter of the ES addresses the issue associated with the hydrodynamics and sedimentary regime and details the assessment of potential changes on these aspects which are specific to the Compensation Site.

28.2 Screening Assessment

Table 28.1: Screening of Chapter 32 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Stone Creek	O			✔ *			O		
Modelling, including methods used, input parameters and model calibration	✔ *			✔ *			X		
Impact on estuary wide processes	X			X			X		

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

28.3 Stone Creek

Baseline

28.3.1 Stone Creek is currently maintained by dredging in order to ensure the free discharge of surface water from:

- Cherry Cobb Sands Drain (responsibility of Crown Estates)
- Keyingham Drain (designated 'main river' and within the jurisdiction of the EA)
- Ottringham Drain; (jurisdiction of the Ottringham Internal Drainage Board) and
- Sunk Island Drain (responsibility of Crown Estates)

Impacts – The Project Alone

28.3.2 If the Compensation Site indirectly increased the amount of sands and silts within the Creek, this could result in a change in frequency of maintenance dredging

Mitigation

28.3.3 The risk of increased siltation preventing the free outfall of surface water into Stone Creek will be mitigated by implementing a monitoring plan to provide early warning of siltation events. The monitoring plan will be prepared in consultation with the Environment Agency and local IDBs and should monitoring demonstrate that siltation increases and is attributable to the Applicant's actions, then the Applicant will contribute proportionately to

remedial action. The plan will be implemented in accordance with the requirement of the Development Consent Order.

Comments by the three Agencies

28.3.4 The EA agrees that a monitoring and action plan for siltation at Stone Creek is required and this should be secured through the DCO (please see paragraph 4.130 of the EA's Written Representations for suggested wording for this requirement).

28.4 Modelling, including methods used, input parameters and model calibration

Summary of the Applicant's Assessment

28.4.1 The same models for the Humber Estuary, which were used to predict the sedimentation and flow modelling for the main AMEP site were used to set up and calibrate a detailed model of the north bank of the River Humber. Section 13 of this report addresses the development of the original models. The hydrodynamic model for the north bank is detailed in Annex 32.2 of the ES. Further modelling of the compensation has been undertaken since submission of the ES to inform detailed design and the proposed works and this is described in supplementary report EX28.1. Whilst estuarine modelling is informative of likely significant effects, the actual effects may differ spatially, temporally or in scale. Nevertheless, the modelling of estuarine processes that has been undertaken, have been appropriately validated and calibrated and are therefore sufficient to inform decision-making.

Comments by the three Agencies

28.4.2 The MMO agrees that the modelling undertaken, including the methods used and input parameters are appropriate to assess the Project. However, the MMO will expect the Applicant to comment on the significance that any changes to the compensation site design may have on the assessment undertaken. Further comments on this are made in Section 24 of this SOCG.

28.4.3 The EA agrees that the modelling methodologies used in the Applicant's assessment are appropriate. The EA expects the applicant to revisit this assessment when the final design of the compensation site is known.

28.4.4 Natural England agrees that the modelling work carried out was sufficient to assess the predicted impacts of the current proposal. However, this may need to be updated if the changes to the compensation site design invalidate any of the original model outcomes.

28.5 **Impacts on Estuary wide processes**

General

28.5.1 The compensation site has been modelled within a whole estuary model in the studies undertaken by JBA which are reported in Chapter 8 of the ES and further expanded upon in supplementary report EX8.7. This part of the EIA is addressed in Section 13 of this report.

Comments by the three Agencies

28.5.2 Natural England has not had sufficient time to review EX8.7 and EX28.1 and so is not in a position to provide further comments at this stage.

28.5.3 The EA does not agree with the Applicant's assessment at the current time. However it may be resolved following our review of the further supplementary information (EX8.1. EX8.7 and EX28.1) recently received and we will make further written representations on this issue in due course.

28.5.4 The EA does not agree with the Applicants assessment of the quantum of compensation required or, at this time, the viability of the long term functioning of the compensation proposed. The Applicant has agreed to undertake more work in respect of demonstrating that the proposed compensation will function appropriately and we will provide further comments on this additional work when it is made available.

29. Chapter 33 Water & Sediment Quality

29.1 General

29.1.1 This chapter of the ES addresses the issue associated with water and sediment quality and details the assessment of potential changes on these aspects which are specific to the Compensation Site.

29.2 Screening Assessment

Table 29.1: Screening of Chapter 33 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Water Framework Directive compliance		X			X			O	

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

29.3 Water Framework Directive Compliance

Summary of the Applicant's Assessment

29.3.1 A Water Framework Directive assessment has been undertaken for the Project as a whole and is addressed within the section of this SoCG relating to Chapter 9 of the ES.

Comments by the three Agencies

29.3.2 The three Agencies comments in respect of this issue are recorded at Chapter 9 of this report.

30. Chapter 34 Aquatic Ecology (including Annex 34.1)

30.1 **General**

30.1.1 This chapter of the ES assesses the impacts to aquatic ecology from the construction and operation of the compensation Site. The Compensation Site will become part of the estuarine environment following the breaching of the existing sea wall, and a new channel will form across the existing intertidal habitat caused by the flows in and out of the managed realignment site.

30.2 **Screening Assessment**

Table 30.1: Screening of Chapter 34 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Loss of Saltmarsh		✔			✔			✔	
Impact upon Marine Invertebrates		✔		✔	✔	✔ *		✔	

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

30.3 **Loss of Saltmarsh**

Summary of the Applicant's Assessment

Baseline

30.3.1 A survey of the existing saltmarsh features on the Cherry Cobb Sands foreshore was carried out in November 2010 and is reported within Annex 34.1 of the ES. The survey indicates that the saltmarsh extends across the foreshore between 60m and 300m for mid saltmarsh and 5m to 330m for upper saltmarsh (all distances measured from the toe of the existing flood defence). The lower saltmarsh extends up to 800m from the mid saltmarsh.

Direct Impacts – The Project Alone

30.3.2 In order for water to enter the Cherry Cobb Sands site from the estuary, a breach in the tidal defences will be created and a channel created across the existing saltmarsh to allow tidal water to enter and leave the site. Approximately 2 ha of saltmarsh will be destroyed when the channel is created but, over time, it will be replaced by functional mudflat.

Mitigation

30.3.3 The physical loss of the saltmarsh cannot be mitigated within the designated site without affecting other estuary features.

Compensation

30.3.4 The loss of saltmarsh will be compensated for by the creation of an additional 2 hectares of saltmarsh within the Cherry Cobb Sands managed realignment site.

Comments by the three Agencies

30.3.5 The MMO agrees that an adequate assessment of the baseline has been made. The loss of saltmarsh due to the construction of the compensation site will need to be re-assessed once the final design for the compensation site is agreed.

30.3.6 The EA agrees with the Applicant's assessment of the baseline assessment and the impacts on saltmarsh by the creation of the compensation site and of the compensation for this loss to be delivered within the compensation site itself.

30.3.7 Natural England agrees that the loss of 2ha of saltmarsh habitat cannot be mitigated and therefore subject to the development passing the tests of no alternatives and imperative reasons of over-riding public interest, compensation is required.

30.4 **Marine Invertebrates**

Summary of the Applicant's Assessment

Baseline

30.4.1 The value of the existing invertebrate assemblage has been assessed by reference to *'An Assessment of Temporal Variation of Benthic Invertebrate Communities in the Humber Estuary'* J.H. (Institute of Estuarine & Coastal Studies (IECS) (2006))This report has been included as supplementary information EX 34.2.

30.4.2 The 2006 report undertaken by IECS records that, following an assessment of data stretching over 24 years, the intertidal communities of the North Bank of the Humber appear to be typical estuarine communities largely structured according to salinity, shore height and sediment type / mobility. The sites exhibited some temporal variation in species abundance and diversity with no major changes in community structure, most likely to be due to natural variability. Since the foreshore at Cherry Cobb Sands is known to be stable, with no significant changes in salinity, shore height and sediment type, it is reasonable to expect that there has been no significant change beyond natural variation in benthic community type over the past six years. The report can be verified by reference to a more recent report, 'Biological Survey of the Intertidal Sediments of the Humber Estuary',(ABPmer), which was prepared on behalf of Natural England in 2011.

Direct Impacts – The Project Alone

30.4.3 The creation of a new intertidal channel will result in change in the intertidal habitat from saltmarsh to mudflat. There will be a temporary loss of the invertebrate assemblage immediately following the works to construct the channel, however, the habitat can be expected to recover and a new assemblage will develop within the new channel.

Comments by the three Agencies

30.4.4 The MMO agrees that an adequate assessment of the baseline has been made. The impacts may need to be updated once a final design of the compensation site has been agreed.

30.4.5 The EA agrees with the Applicant's assessment of the impact of the drainage channel at the Cherry Cobb Sands site on marine invertebrates. The EA is currently reviewing the supplementary information (EX8.12), project wide Water Framework Directive Assessment. The EA's comments on marine invertebrate in relation to this are covered in its response to the Water Framework Directive under ES Chapter 9 (see para 14.6.4 above).

30.4.6 Natural England agrees that the creation of the channel into the managed realignment site will result in a temporary loss of the invertebrate assemblage. We agree that this area can be expected to recover and will not result in a significant impact on the designated site.

31. Chapter 35 Terrestrial Ecology (including Annexes 35.1 to 35.9)

31.1 General

31.1.1 This chapter of the ES reviews the potential impacts on terrestrial flora and fauna that may result specifically due to the construction and operation of the Compensation Site.

31.2 Screening Assessment

Table 31.1: Screening of Chapter 35 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Badgers use of the compensation site		O			O			✔ *	
Managed realignment site - loss of terrestrial habitat		O			O			✔ *	
Construction disturbance to birds within the designated site		O			O			✔ *	
Loss of SSSI soke dyke		O			O			✔ *	

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

31.3 Badger use of the Compensation Site

Summary of the Applicant's Assessment

Baseline

31.3.1 The existing use of the site has been informed by two surveys, *viz.*

- Badger Bait Marking Survey undertaken in March 2011 and reported in Annex 35.8 of the ES.
- Badger Bait Marking Survey undertaken in April 2012 and reported in EX 35.13 included with the supplementary environmental information.

31.3.2 The two surveys provide sufficient information to reasonably understand the use and value of the compensation site and the surrounding area, to badgers.

Direct Impacts – The Project Alone

31.3.3 The proposed flooding of the site will impact on two badger groups. However, there will be negligible effect upon the badger population or their resting places.

31.3.4 The Supplementary Report EX 35.13 confirmed that within the Compensation Site, there is poor potential for foraging, although seasonal foraging opportunities will be offered along the grassy field margins, ditch banks, hedgerows and areas of scrub on the sea defences. The foraging opportunities will be reduced through the creation of the Compensation Site.

Mitigation

31.3.5 To mitigate for loss of foraging habitat new hedges or small scrub islands will be planted. Detailed proposals will be set out in an Ecological Management and Monitoring Plan which will be secured under a provision of Schedule 11 of the DCO.

Comments by the three Agencies

31.3.6 Natural England agrees that the loss of foraging habitat can be mitigated by creating new habitat alongside Cherry Cobb Sands; the details of this can be set out in the EMMP. We understand that the Applicant is in the process of considering a licence application.

31.4 **Managed Realignment Site – Loss of terrestrial habitat for SPA Assemblage**

Summary of the Applicant's Assessment

Baseline

31.4.1 The existing use of the site as a high tide roost for the SPA assemblage has been established from a series of bird surveys undertaken between August 2010 and March 2011; these surveys are recorded in Annex 35.4 of the ES. The primary use of the terrestrial habitat by the SPA assemblage is for roosting.

Direct Impacts – The Project Alone

31.4.2 The effect of the loss of roosting habitat that is currently provided by the Compensation Site has been assessed and is reported in Annex G of the sHRA. A supplementary report EX 35.12 – CCS Disturbance, provides further details of the surrounding habitat and existing levels of disturbance. As the principal value of the site is for roosting, and given the widespread availability of similar habitat in the locality (and the likely permanence of that habitat), there will be no significant impact upon the SPA assemblage.

Comments by the three Agencies

31.4.3 A large number of SPA birds, principally curlews, utilise the arable fields immediately behind the existing location of the seawall for roosting. Natural England agrees that there will be no significant impact on the SPA; however, this is not because these arable fields are unimportant but because we understand there will be no difference between the existing situation (where SPA birds are utilising arable land adjacent to the estuary's intertidal habitat), and the proposed situation (where SPA birds will still be able to utilise arable land adjacent to the managed realignment site intertidal habitat). Although the precise location will change, the proximity of an open area adjacent to the intertidal will be maintained, as large open arable fields continue to extend inland beyond the current roosting area.

31.5 **Construction disturbance to birds within the designated site**

Summary of the Applicant's Assessment

Baseline

31.5.1 Existing agricultural activities, including the operation of plant, will give rise to occasional disturbance to birds using the intertidal area at present. Significant visual disturbance will also arise from the use of the public footpath that is routed along the top of the existing flood defence

Direct Impacts– The Project Alone

31.5.2 During construction of the new flood defences, earthmoving and other activity will generate noise and activity that have the potential to cause disturbance to the SPA assemblage using the Cherry Cobb Sands foreshore. The existing flood defence wall will act as a visual and acoustic screen for SPA features using the intertidal areas. These impacts will be offset to some extent by the early diversion of the public footpath from the top of the flood defence wall. The impacts are fully explained in Supplementary Report EX11.18 contained within the volume of supplementary environmental information.

Mitigation

31.5.3 Construction plant will operate behind the existing flood defences, limiting visual disturbance. The diversion of the footpath at an early stage will remove a significant source of existing visual disturbance.

Comments by the three Agencies

31.5.4 Natural England has read EX11.18 and agrees that undertaking the construction works between April and October will ensure that there are no significant impacts on SPA waterbirds utilising the adjacent intertidal areas.

31.6 **Loss of SSSI Soke Dyke**

Summary of the Applicant's Assessment

Baseline

31.6.1 There is a soke dyke behind the existing flood defences. The feature is described in the Phase 1 Habitat Survey of the site included in Annex 35.1 of the ES. It is described as being 2 m wide with an accumulation of silt which had been cleared in places. Aquatic vegetation was sparse with occasional patches of common reed *Phragmitesaustralis* and sea club-rush*Bolboschoenusmaritimus.*

Direct Impact – The Project Alone

31.6.2 The soke dyke will be inundated by tidal waters when the site is breached resulting a total loss of the features it currently supports.

Mitigation

31.6.3 A new soke dyke will be created behind the new flood defence which will mitigate for the loss of the existing dyke.

Comments by the three Agencies

31.6.4 As the soke dyke is a feature of the Humber Estuary SSSI Natural England agrees that mitigation is required. The proposed new soke dyke behind the new flood defence is sufficient to achieve this.

32. Chapter 36 Drainage & Flood Risk (including Annexes 36.1)

32.1 General

32.1.1 This chapter of the ES reviews the potential impacts upon the Compensation Site and its environs on surface water drainage and flood risk.

32.2 Screening Assessment

Table 32.1: Screening of Chapter 36 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Existing Surface water drainage and outfalls		O			✔	✔ *		O	
Design criteria for the new flood defence crest level		O			✔ *			O	
Development Impact upon Third Parties		O			✔			O	
Maintenance of flood defences		O			✔ *			O	

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

32.3 Existing Surface Water Drainage and Outfalls

Summary of the Applicant's Assessment

Baseline

32.3.1 The surface water drainage for the area around the Compensation Site is managed by three Internal Drainage Boards: Thorngumbald Internal Drainage Board; Keyingham Level Drainage Board and Ottringham Drainage Board. Stone Creek is currently maintained by dredging in order to ensure the free discharge of surface water from:

- Cherry Cobb Sands Drain (responsibility of Crown Estates)
- Keyingham Drain (designated 'main river' and within the jurisdiction of the EA)
- Ottringham Drain; (jurisdiction of the Ottringham Internal Drainage Board) and
- Sunk Island Drain (responsibility of Crown Estates).

32.3.2 Stone Creek is subject to siltation and, if the siltation is not managed by dredging, the outfalls can be blocked with the consequential risk of flooding on Sunk Island.

Impact – The Project Alone

32.3.3 The existing surface water drainage and outfalls will not be directly affected by the works to the Compensation Site. There will be a reduced catchment to the Cherry Cobb Sands Drain and as result a modest reduction in run-off will ensue.

32.3.4 The Compensation Site will result in increased flows within Cherry Cobb Sands Creek as the floodwaters recede and the site begins to drain. Initially, there may be high levels of sediment carried off the site. There is a risk that some of the increase in ebb tide suspended sediment concentration that flows through Cherry Cobb Sands Creek finds its way into Stone Creek on the flood tide and leads to increased siltation within Stone Creek. However, the siltation pattern within Stone Creek is likely to return to its baseline pattern of seasonal and annual changes once the new dimensions of Cherry Cobb Sands Creek have stabilised.

Mitigation

32.3.5 Siltation levels in Stone Creek will be monitored and compared to historic levels of siltation. This monitoring will be secured by a requirement in Schedule 9, paragraph 4 of the DCO. Where siltation is demonstrably outside of its natural variability and that is due to the operation of the Compensation Site, the Applicant will make a reasonable contribution towards any increased dredging costs.

Comments by the three Agencies

32.3.6 The EA agrees that a monitoring and action plan for siltation at Stone Creek is required and this should be secured through the DCO (please see paragraph 4.130 of the EA's Written Representations for suggested wording for this requirement).

32.3.7 Relocation of the Soke Dyke represents changing the state of the waterbody. The EA agrees to this subject to suitable mitigation measures (as referred to in paragraph 14.6.1, 3rd bullet point above) being implemented.

32.4 Design criteria for the new flood defence crest level

32.4.1 The Standard of Protection for the proposed flood defences is 1 in 200 years after taking into account 100 years of sea level rise. The assessment of the crest height for the new flood defence wall is explained in Supplementary Report EX36.2 – North Bank Flood Defence Crest Height.

Comments by the three Agencies

32.4.2 The EA agrees with the proposed Standard of Protection. Other issues, such as the geotechnical suitability of site-won material for use in the flood embankment and a legal agreement to establish ongoing inspection, maintenance, repair and improvement responsibilities are not yet agreed.

32.5 **Impact on Third Party flooding from a Breach**

Summary of the Applicant's Assessment

Baseline

32.5.1 The Humber Flood Risk Management Strategy (EA, 2008) states that the current standard of protection provided by the flood defences from Stone Creek to Paull Holme Strays is '*about 12.5%* (sic) *(1 in 80) or better'*. The Environment Agency's '*South Holderness Study Tidal Flood Study*' (Arup, 2011) records that the existing defences provide a standard of protection that is greater than 1 in 200 that will reduce over time to between 1:10 and 1:25 by 2110.

Indirect Impacts

32.5.2 The standard of protection provided by the new defences will be 1:200 in 100 years allowing for 100 years of climate change. Although the new flood embankment will be sited closer to existing properties, its condition will be considerably improved from that of the existing defence. The risk to property of flooding from a breach is, therefore, assessed to be no worse than existing and full details of this are contained in the Supplementary Report EX36.3 – Residual Flood Risk to Property on the North Bank.

Comments by the three Agencies

32.5.3 The EA agrees that the 'trade-off' between the improved defence standard, against its new location will result in the risk to existing properties being no worse than currently exists. This is subject to a legal agreement being completed between the Applicant and the EA to ensure the design, monitoring and continued maintenance of the new defence is secured.

32.6 **Maintenance of the flood Defences at Cherry Cobb Sands**

32.6.1 Maintenance of existing flood defences and of new flood defences at Cherry Cobb Sands will be covered in a Section 41 Agreement (Yorkshire Water Authority Act) between the Applicant and the Environment Agency.

Comments by the three Agencies

32.6.2 The EA agrees that a legal agreement under Section 41 of the Yorkshire Water Authority Act is required and this will need to be completed before the granting of the DCO full details are yet to be agreed.

33. Chapter 39 Air Quality

33.1 **General**

33.1.1 This chapter of the ES reviews the potential impacts on air quality around the environs of the site arising from construction of the Compensation Site.

33.2 **Screening Assessment**

Table 33.1: Screening of Chapter 39 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Impacts of construction dust on the designated site	O			O			✔		

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

33.3 **Impacts of construction dust on the designated site**

Summary of the Applicant's Assessment

Baseline

33.3.1 There are no designated AQMAs within the East Riding of Yorkshire and it is expected that the objectives of the National Air Quality Strategy will be met within the Council's area. Within the site at present dust may occasionally be caused by agricultural activity but this will be temporary and relatively minor.

Receptors

33.3.2 It is agreed that receptors are nearby residential properties and the users of the public right of way that passes along the existing flood defence next to the construction site. In addition, the SAC habitats and SPA features of the Humber Estuary are sensitive receptors that might, respectively, be smothered or disturbed.

Direct Impacts – The Project Alone

33.3.3 The direct impact upon air quality will occur during earthworks operations when conditions are dry and breezy. Impacts may be exacerbated during lime or cement handling as part of the soil stabilisation works.

Mitigation

33.3.4 A detailed Dust Management Plan will be needed to mitigate the impacts of construction dust, in particular earthworks and lime or cement stabilisation, to mitigate against the impact of dust on the Compensation Site. The Dust Management Plan is to be included

within the Code of Construction Practice, which is secured under Schedule 11 of the Development Consent Order.

Comments by the three Agencies

33.3.5 Natural England agrees that the proposed mitigation is sufficient to avoid dust impacts on the Humber Estuary designated sites.

34. Chapter 43 Waste

34.1 General

34.1.1 This chapter of the ES reviews the potential impacts caused by waste from the construction and operation of the Compensation Site.

34.2 Screening Assessment

Table 34.1: Screening of Chapter 43 Issues

ISSUE	MMO			EA			NE		
	B	R	I	B	R	I	B	R	I
Compliance with waste management legislation	O			✔			O		

Key
B = Baseline described in the ES
R = Receptors identified in the ES
I = Magnitude of impacts assessed to occur before and after mitigation

34.3 Compliance with waste management legislation

Summary of the Applicant's Assessment

Baseline

34.3.1 The existing site is used for agriculture and as a consequence the level of waste produced is small.

Direct Impacts – The Project Alone

34.3.2 Waste will be generated during construction and will include, waste oils from plant and machinery and general site office waste. This will give rise to an increased amount of vehicles using public roads to transport waste and the increase on resources at waste disposal facilities. The direct impact upon the site and the surroundings from waste due to construction and operation of the Compensation Site is assessed to be low.

Mitigation

34.3.3 A detailed Site Waste Management Plan will be developed by the principal contractor prior to the commencement of construction activities to mitigate against the impact of waste caused by construction activities on the Compensation Site. This is a statutory requirement under the Site Waste Management Plans Regulations 2008.

Comments by the three Agencies

34.3.5 The EA agrees that the Applicant has identified the relevant waste management legislation and need to prepare a detailed Site Waste Management Plan.

35. Chapter 44 In-Combination Impacts

35.1 **General**

35.1.1 An assessment of the impacts of the Project cumulatively with other plans and projects that are within the planning system, either consented but not fully implemented or for which a consent has been applied but a decision is pending, is presented in each chapter of the ES. An in-combination assessment of individual impacts that might combine to produce a greater effect on a receptor than the impacts considered individually is also presented in Chapter 44. In order to explain these assessments more comprehensively, a separate report has been prepared; Report EX44.1. This report was submitted with the volume of supplementary environmental information in support of the Applicant's comments on the relevant representations and responses to the Examiner's first set of questions.

Comments by the three Agencies

35.1.2 The MMO has not had sufficient time to review EX44.1. Some comments on incombination assessment are included in Section 12 with regards to dredge and disposal but are not repeated here.

35.1.3 The EA in not able to agree to the Applicant's assessment of in-combination impacts as this has only recently been provided in the supplementary information submitted in response to Relevant Representations and we have not yet been able to undertake a full review of this.

35.1.4 Natural England has not had sufficient time to review EX44.1 and so is not in a position to provide further comments at this stage.

Appendix A

The following list details all supplementary information submitted to the Planning Inspectorate on 29 June 2012, as part of the Applicant's comments on the Relevant Representations and also responses to the first set of Examiners Questions.

Ref.	Report Title	Author
FILE 17		
	Compensation Agreement for Immingham Outer Harbour and Hull Quay 2005	©Natural England
EX3.1	Able Humber Port: Northern Area Planning Committee Report February 2012	North Lincolnshire Council
EX7.7	Materials Management Plan (Commentary and Form)	Shadbolt Environmental
EX8.5	Validation of 3D Flow & Sediment Models used for Assessment of Impacts of AMEP on Fine Sediment Transport	HR Wallingford
EX8.6	Able Marine Energy Park Assessment of Maintenance Dredging Requirements. Technical Note DDR4808-04	HR Wallingford
EX8.7	AMEP Supplementary Report – Modelling of Final Quay Design (Supplement to Annex 8.1 of the ES)	JBA Consulting
EX8.8	Able Marine Energy Park Update to Longer Term Morphology Predictions in the Region of the Centrica and E.ON intakes and outfalls. Technical Note DHR4808-01	HR Wallingford
EX8.9	Able Marine Energy Park Assessment of Changes to Morphology (particularly intertidal) between the Humber International Terminal (HIT) and Humber Sea Terminal (HST). Technical Note DDR4808-03	HR Wallingford
EX8.10	Able Marine Energy Park 3D Mud Modelling. Morphological Assessment of Changes South-east of Development. Technical Note DDR4808-02	HR Wallingford
EX8.11	Able MEP Habitat Compensation Scheme. Water Framework Directive Assessment. Technical Note DHM6835-01 R1	HR Wallingford
EX8.12	Able Marine Energy Park and Habitat Compensation Scheme Water Framework Directive Assessment. Technical Note DHM6835-02	HR Wallingford
EX8.13	Record of Appropriate Assessment (Under Regulation 61 the Conservation of Habitats and Species Regulations 2010 (The "Habitat Regulations") (SI NO. 2010/490). Immingham Oil Terminal Approach Channel Dredge, Humber Estuary.	MMO

Ref.	Report Title	Author
EX9.7	Able Marine Energy Park Assessment of the Effects of Relocations of the E.ON and Centrica outfalls on Thermal Recirculation (EX 6803 R1)	HR Wallingford
EX10.4	Impact of Dredging and Dredged Material Disposal on 1) Subtidal and Intertidal Features and 2) Aquatic Ecology	ERM
EX10.5	Supporting Information on Harbour Porpoises in the Humber Estuary	ERM
EX10.6	Impact of Berthing Pocket Construction	Able UK Ltd
EX10.7	Effects of Soft Start	ERM
EX11.14	Biotopes of the Intertidal and Subtidal Sediments around the AMEP site in the Humber Estuary	IECS
EX11.16	Able Marine Energy Park Assessment Update for Breeding Birds	Dr. S Percival
EX11.17	AMEP Vascular Plant Surveys	ERM
EX11.18	Sensitive Time Periods for Birds at AMEP Compensation Site	ERM
EX11.19	AMEP Bat Surveys: Supplementary Note	ERM
EX11.20	Draft Great Crested Newts Licence Application – Acknowledgement of Receipt & Natural England Correspondence	Able UK Ltd
EX11.22	Impact of the SPMTs and the Cranes on the Operational Buffer, and Operational Noise Effects on Birds at North Killingholme Haven Pits	ERM
EX11.23	Immediate Habitat Losses within the Designated Site	Able UK Ltd
EX11.24	Medium and Long Term Quantum of Habitat Loss	Able UK Ltd
FILE 18		
EX11.26	Impact of the Pumping Station	ERM
EX11.27	Phase 2 Survey	Just Ecology
EX11.28	Great Crested Newt Survey	Just Ecology
EX11.29	Water Vole Survey	Just Ecology
EX11.30	Able Marine Energy Park (AMEP) – Location of Replacement Ponds for Great Crested Newts	ERM
EX11.31	M456 Invertebrate Survey	A. Godfrey
EX13.2	Addendum to Flood Risk Assessment	JBA Consulting

Ref.	Report Title	Author
EX14.4	Navigation Simulation Study, March 2012	Able UK Ltd & South Tyneside College
EX15.3	A160 Killingholme Humber Port Access, Stage 1 Road Safety Audit	AECOM
EX15.4	A160 Killingholme Humber Port Access, Stage 1 Road Safety Audit Designer's Response	AECOM
EX15.5	Able Marine Energy Park Stage 1 Road Safety Audit	JMP
EX19.1	Lighting Lux Plans	Able UK Ltd
EX20.3	Additional Landscape Masterplan	ERM
EX28.1	Cherry Cobb Sands Compensation Site Interim Report on Detailed Modelling	Black & Veatch
EX28.2	Old Little Humber Farm: Wet Grassland Creation, Management and Monitoring Plan	Thomson Ecology
EX31.5	Cherry Cobb Sands Phase 2 Site Investigation (Draft)	Delta Simons Environmental
EX34.2	An Assessment of Temporal Variation of Benthic Invertebrate Communities in the Humber Estuary	IECS
EX35.12	Farmland Disturbance at Cherry Cobb Sands	Able UK Ltd
EX35.13	Potentially Excepted Information: Land at Cherry Cobb Sands, Badger Survey	The Badger Consultancy
EX36.2	North Bank Flood Defence Crest Height	Black & Veatch
EX36.3	Change in Flood Risk to Properties on the North Bank	Able UK Ltd
EX44.1	Cumulative and In-combination Effects	ERM & Able UK Ltd