



## **Supplementary Environmental Information**

*Immingham Oil Terminal Approach Channel Dredge  
Appropriate Assessment*

*Supplementary Report EX 8.13*

May 2010

Revision: 0

**RECORD OF APPROPRIATE ASSESSMENT (UNDER REGULATION 61 THE  
CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010 (THE  
“HABITATS REGULATIONS”) (SI NO. 2010/490).**

**IMMINGHAM OIL TERMINAL APPROACH CHANNEL DREDGE, HUMBER  
ESTUARY.**

## 1.0 INTRODUCTION

This is a record of the Habitats Regulations Assessment of the Immingham Oil Terminal Approach Dredge, undertaken by the Marine Management Organisation. This assessment is required by Regulation 61 of the, **The Conservation of Habitats and Species Regulations 2010 (the “Habitats Regulations”) (SI No. 2010/490).** In accordance with the EC Habitats Directive (Council Directive 92/43/EE) before the Marine Management Organisation, as the ‘competent authority’ under the Regulations can grant permission for the project. The assessment is also made in relation to sites listed under the 1971 Ramsar convention.

## 2.0 INFORMATION ABOUT THE PROJECT

Association of British Ports (ABP) have applied for a Licence to dispose of 3,905,000 m<sup>3</sup> (approximately 6,751,000 tonnes), of capital dredged soft clays and silts, sands and firm / stiff glacial clays from the Stallingborough Emergency Turning Area, Sunk Dredged and Hawke Channels, Chequer Shoal and the Eastern Approaches to the Humber River.

This dredge is required to allow vessels with up to a 16 m draught access to Immingham Oil Terminal (IOT), which is currently limited to vessels with a draught of 13.2 m.

It is estimated that 3,905,000 m<sup>3</sup> will need to be dredged, and a total area of 427 ha of seabed will be directly affected. Of this, 312 ha are located within the boundaries of the Humber Estuary Marine Site (EMS). This represents 1.9 % of the subtidal area of the EMS of which 0.5 % (Stallingborough Turning Circle 0.1 % and Hawke Channel 0.4 %) has not previously been dredged. The deposit area represents 3.4 % of the EMS subtidal area (section 9.3.3.4 of the Environmental Impact Statement (EIS)). The project is explained in more detail in section 3 of the EIS.

Based upon a design vessel draught of 16 m, channel deepening is required in the following areas:

- Edges of the proposed Stallingborough emergency turning area to the west of the Sunk Dredged Channel (SDC);
- The existing SDC;
- The Hawke Channel inside the mouth of the estuary;
- The Chequer Shoal Bar to the east of Spurn Head;
- An area to the east of Chequer Shoal, which is referred to as the Eastern Approaches.

At Chequer Shoal, the length of dredging across the bar has been derived to allow a 16 m draught vessel to abort its passage in an emergency by swinging inside of the bar and returning over the bar, maintaining the traffic separation system. A proposed new dredge at Stallingborough is to provide an emergency turning area for the estuary to allow larger vessels to abort an inward transit if the berth is occupied or an emergency situation occurs at the terminal.

Preliminary assessment suggests that all materials from within the estuary can be dredged with a trailer suction hopper dredger (TSHD). Some modification to the

draghead and jetting system may be required for the 120,000 m<sup>3</sup> firm glacial clay from predominantly the east end of SDC, towards the northern side. It is possible that this material may be too consolidated for the TSHD and, therefore, a cutter suction dredger (CSD), backhoe or bucket dredger might be required.

Outside the estuary, just over one million m<sup>3</sup> (*in situ*) of medium to densely consolidated fine to medium sand will be dredged by TSHD. The 255,000 m<sup>3</sup> stiff boulder clay, however, is likely to require a CSD, bucket or backhoe dredger to excavate.

A detailed Dredging and Disposal Strategy (Appendix D of the EIS) has been prepared which includes the estimated duration of dredging and disposal for each location. The overall duration for completion of all phases of dredging / disposal is estimated to be four to five months.

The EIS looked at three alternative options for providing access to the refinery (Section 2.4 of the EIS) and selected this option because it was deemed there were relatively few available alternatives that did not have discernibly greater environmental impacts. Section 3.5.2 of the EIS provides information on alternatives to disposal of dredged material at sea.

The following reference documents are available:

- Environmental Impact Statement (January 2009);
- Supplements to the Environmental Impact Statement (July and August 2009).

### **3.0 INFORMATION ABOUT THE EUROPEAN AND RAMSAR SITES**

The Humber Estuary is the largest macro-tidal coastal plain estuary on the North Sea, and is one of the finest examples of its type.

The estuary provides a major breeding, passage and wintering ground for internationally significant populations of rare or threatened waterfowl. It is recognised that the Humber Estuary is one of the six most important wetland sites in the UK and one of the top 10 in Europe, and plays an internationally important role in ensuring the successful migration of birds breeding in the arctic and sub-arctic to their wintering grounds in Africa and southern Europe. An estimated 175,000 birds visit the estuary every winter and, as such, the estuary qualifies as a wetland supporting at least 20,000 birds for the Special Protected Area (SPA), and hosts an assemblage of international importance for the Ramsar listing.

In addition to the recognition of the sizeable waterfowl assemblages, a number of specific species are noted as individual interest features for both the SPA and Ramsar site. The SPA lists four Annex 1 species as interest features during the breeding season: little tern, avocet, bittern and marsh harrier. Five Annex 1 over-wintering species are listed for the SPA classification and one on passage. The SPA is also classified and the Ramsar listed for supporting 1 % or more of the biogeographical populations of five over-wintering and four passage, regularly occurring, migratory species.

The Special Area of Conservation recognises the role of the Humber Estuary as a migration route for River Lamprey, *Lampetra fluviatilis*, and Sea Lamprey,

*Petromyzon marinus*, and also the importance of Donna Nook as a site of European importance for breeding grey seals *Halichoerus grypus*. An additional Ramsar site criterion is the natterjack toad, *Bufo calamita*, breeding site, which is located at sand dunes between Saltfleetby and Theddlethorpe,

The SAC and Ramsar site include a range of habitats of European importance. For the SAC, both the 'estuary' and 'mudflats and sandflats not covered by seawater at low tide' (intertidal mudflats and sandflats) are listed on Annex 1 of the Habitats Directive and are given as a primary reason for the selection of the Humber Estuary as an SAC. Further Annex 1 habitats present as qualifying features are sandbanks, coastal lagoons, *Salicornia* and other annuals colonising mud and sand (pioneer saltmarsh), Atlantic salt meadows (saltmarsh), embryonic shifting dunes, shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'), fixed dunes with herbaceous vegetation ('grey dunes') and dunes with *Hippophae rhamnoides*. Whilst the latter list is not included as a primary reason for site selection, the habitats are still features of European interest and therefore require full consideration in any Habitats Regulations Assessment. Coastal lagoons and grey dunes are priority interest features within the SAC.

The Ramsar habitat criterion for the Humber Estuary incorporates the above habitats, but more typically of Ramsar criteria, set out the habitat interest at a larger scale, describing the estuary as a representative example of a near natural estuary with a number of important component habitat types. When considering the habitat interest features for the Ramsar site for any Habitats Regulations Assessment, it will be important to carefully consider all habitats described in greater detail within the overall criterion of a near-natural estuary and the important contributions they make to the overall ecological functioning of the estuary.

The Humber Estuary SPA covers an area of 37,630.24 ha. Figure 35 of the EIS shows the boundary of the SPA in relation to the proposed project.

The Humber Estuary is a listed Ramsar site which covers an area of 37,987.80 ha. Figure 35 of the EIS shows the boundary of the Ramsar site in relation to the proposed project.

The Humber Estuary SAC covers an area of 36,657 ha. Figure 35 of the EIS shows the boundary of the SAC in relation to the proposed project.

Regulation 33 Package (April 2003) advice considers the relative exposure of interest features of the SPA, SAC and Ramsar site according to their position relative to the estuary, i.e.

- The Inner Humber (Trent Falls to Humber Bridge);
- The Middle Humber (Humber Bridge to Grimsby); and
- The Outer Humber (Grimsby to Spurn Point).

The Humber Maintenance Dredging Baseline Document (August 2008) is a document with key contextual information for the assessment of predictive cumulative and in-combination assessment of the dredge. As a consequence, most elements of the proposed project are not a cause for concern.

The following reference documents provide further details on the site, and have been used to inform the assessment:

- IOT Environmental Impact Statement
- The Humber Maintenance Dredging Baseline Document (August 2008)
- Conservation Objectives for the Humber Estuary
- Citations for the SAC, SPA and Ramsar site

#### **4.0 CHECKING FOR THE LIKELIHOOD OF A SIGNIFICANT EFFECT**

The Immingham Oil Terminal Approach Dredge is not directly connected with or necessary to the management of the Humber Estuary for nature conservation.

Given the scale and location of the project it is considered that the project may have an effect, directly and / or indirectly on the designated site.

There are four identified ways in which the Humber Estuary designated site could be affected by the Immingham Oil Terminal Approach Dredge.

The possible effects are:

1. Indirect effects on intertidal habitats through changes to hydrodynamics and sediment transport / deposition.
2. Direct impacts both in terms of the dredge areas and disposal areas on subtidal habitats.

#### **4.1 Assessment of Risks**

- *Indirect effects on intertidal habitats through changes to hydrodynamics and sediment transport / deposition.*

There will be marginal changes to hydrodynamics and additional suspended sediment concentration and sedimentation resulting from the dredging / disposal options, the effects are highly localised and no significant negative impacts are predicted to affect intertidal habitats (see sections 7.3.2-7.3.7 and 9.3.2 of the EIS). It is not likely to have a significant effect therefore, it is not considered further in this document and an appropriate assessment of this aspect is not required.

- *Direct impacts both in terms of the dredge areas and disposal areas on subtidal habitats (including both the estuary and subtidal sandbank features).*  
As a consequence of the localised and marginal nature of the hydrodynamic and sedimentary effects, the direct impacts of the Immingham Oil Terminal Approach Channel dredge are restricted to subtidal habitats. Benthic communities are principally of low diversity in naturally stressed areas such as those found in the highly dynamic conditions of the Humber lower estuary (see sections 9.2.4 of the EIS). Such communities tend to be more tolerant of anthropogenic induced stress associated with dredging and recovery could be within 12 months of dredging (see section 9.3.3 of the EIS). In addition, subtidal sandbanks exhibit considerable variation in extent, topography and sediment type between and within years. However, given the possible impacts from the scale and location of the dredging and disposal operation, the effects on the estuary and subtidal sandbank features could be significant.

In summary:

**The project will not be likely to have a significant effect on the SPA and Ramsar site because both direct and indirect effects are confined to subtidal features.**

**The project will be likely to have a significant effect on the SAC due to the direct and indirect effects on subtidal features. The interest features of the SAC that may be affected are:**

- 1. Sandbanks which are slightly covered by seawater all the time;**
- 2. Estuary.**

## **5.0 APPROPRIATE ASSESSMENT AND CONSIDERATION OF RESTRICTIONS AND CONDITIONS**

During consultation with Natural England on the IOT dredge application (dated 26<sup>th</sup> January 2009) and associated EIS, Natural England advised (letter dated 16<sup>th</sup> September 2009) that the proposed development is likely to result in a significant effect on the subtidal sandbanks interest feature of the Humber Estuary SAC, either alone or in combination with other plans and projects. It is both Natural England and the Marine Management Organisation's opinion that under Regulation 61, an appropriate assessment is required.

*Assessing the direct impacts both in terms of the dredge areas and disposal areas on subtidal habitats and the estuary to the Humber Estuary SAC:* The conservation objectives for 'estuary' and 'sandbanks which are slightly covered by seawater all the time' are presented in appendix 1.

As stated earlier, 312 ha of the works lie within the Humber Estuary SAC. The total area of the 'estuary' interest feature is 36657.15 ha (SAC boundary). The percentage of the SAC interest feature 'sandbanks that are slightly covered by seawater at all times' is not quantified in the EIS. However, if the sandbank is defined by the 5 m CD contour then none of the dredge area lies within the interest feature. At the 7 m CD contour then the worst case would occur at the southern side of the west end of the SDC. The maximum area of the bank dredged would be < 20 ha (~ 6 %).

During the capital dredge, the sand from Chequer Shoal and sand / silt from Hawke Channel will be deposited at Bull Sand Fort. The stiff clay will be deposited between SDC A and B and Bull Sand Fort. The firm clay will be deposited between Holme Channel Deep, Middle Shoal and SDC A and B. The stiff / firm clay will be produced from a backhoe or cutter suction dredger. Table 3.4 in the EIS summarises the dredge and disposal locations.

Subtidal muddy sands will be affected by the project, as will subtidal gravels and sands both by the physical modification associated with the dredging and the effects of smothering following deposition of dredged arisings as well as the small changes to the physical processes. The interest feature 'sandbanks that are slightly covered by seawater at all times' is only consistently resident in the area of Middle Shoal, Grimsby Middle and around Bull Sand Fort.

Subtidal sandbanks are not stable features and naturally vary by orders of metres in level on an annual basis and the extent at a particular contour varies considerably. The changes also have a cyclic pattern with a period of around 13 years. The changes attributable to the dredge and the disposal have been addressed in Section 9.3.3 of the EIS based on the physical changes affecting the sites summarised in Section 7.3 of the EIS.

Bull Sand Fort was Licensed as a disposal site before the SAC designation. The area around Bull Sand Fort is a highly dynamic sandbank that produces scour holes adjacent to the structure. Although this area is defined as a Licensed deposit ground, little material has been deposited at the location. Based on the 2009 annual chart and a 7 m CD contour, the scour holes cover an area of about 200 ha, representing ~5 % of the total sandbank feature. However this is a highly variable area.

The material from Hawke Channel will almost immediately disperse due to the dynamic nature at this site and will therefore not significantly change the character of the sandbank. However, the stiff clay comprised of consolidated lumps, to be deposited in the scour holes, will be resistant to erosion and will smother the sediment.

It is possible that stiff clay will smother the sandy substrate on Bull Sand Fort as it will take a year to erode, may reduce mobility of the sandbank and damage the characteristic invertebrate fauna. Bull Sand Fort is highly dynamic and is characterised by low numbers of invertebrate fauna, predominantly *Nephtys cirrosa* and *Gastrosaccus spinifer*. The benthic fauna are not considered as a conservation objective of this interest feature, however, they do help define the sub-features of the subtidal sandbanks.

It is not expected that the disposal strategy employed will affect the form or composition of the sandbank area that would be discernable from the natural variation on an annual timescale. Annual surveys show that the depth adjacent to the scour holes is highly variable. If the stiff clay deposits remain over time, then the intermittent exposure of the hard substrate could stop. Above this level of infill the disposal regime will not change the scour characteristics of the flow around the fort, and newly deposited sand will be eroded over a short period of time. Therefore, only short term changes affecting hard substrate habitats will exist, only at the deepest depths.

The impact of the disposals has also been modelled on the basis of the worst case disposal scenario. As the dredge disposal work involves a relocation of material within the framework of the strategy no significant impacts to the conservation targets are expected, for the sub-features of this interest feature. All changes modelled and direct depths of accumulation at the site are predicted to be within the magnitudes of the natural variation in the area.

## **5.1 In-Combination Effects**

The cumulative and in-combination effects were subject to quantitative examination using hydrodynamic modelling work. For this assessment, a set of model runs were undertaken to assess the effects of the Approach Channel scheme in-combination



with a group of other proposed and completed developments and to establish the potential degree of interaction of these schemes in-combination with the Approach Channel deepening. The results are reported in detail in Appendix G of the EIS and summarised in Supplementary Note 1 section 2.3.2. Model runs were also undertaken for the proposed development taking into account additional berths, the dredging and jetty construction associated with the proposed Humber Riverside Bulk Terminal (HRBT), Grimsby Ro-Ro, and Humber Gateway. This aimed to establish the potential degree of interaction or cumulative impacts of these schemes. Existing recent developments, such as the Humber International Terminal, Immingham Outer Harbour, the first two phases of the Humber Sea Terminal, Humber Riverside Container Terminal, Upper Burcom Pulse 100 Prototype and the managed realignments at Welwick, Paull Holme Strays, Chowderness and Alkborough were resident in the baseline model.

In-combination with other developments, additional effects on the hydrodynamics and sediment patterns are negligible downstream of Immingham, with localised impacts adjacent to the future proposed schemes upstream of Immingham. Most differences of any magnitude remain local to each additional development with little evidence of significant interaction between the schemes.

There are no changes to the level of high water compared to the baseline for all of the schemes in combination. At low water there are small localised changes as a result of the proposed HRBT jetty, due to the combined developments. The main in-combination effect is to increase the peak water levels up to 0.006 m in the vicinity of the HRBT jetty.

The in-combination scenario causes an increase in the fine-grained suspended sediment concentration, whilst just the Immingham Oil Terminal approach deepening is predicted to cause a decrease. For sand-sized sediment the in-combination effects caused little change in suspended sediment concentration downstream of Immingham, with increases and decreases in the suspended sediment concentration upstream of Immingham caused by the future proposed schemes. The rates of sedimentation of fine-grained and sand-sized sediment are focused around the individual future proposed schemes and little interaction appears to occur between the schemes in different parts of the estuary.

Overall, the scales of change are very small and sometimes negligible when the magnitudes of the physical processes are taken into account and how they vary day to day, over a spring / neap cycle, annually and in the longer term. See Appendix G, section 3 of the EIS for values.

## **6.0 CONSULTATION WITH NATURAL ENGLAND**

Consultation with Natural England has taken place throughout the Habitats Regulations Assessment. The final conclusion response from Natural England with regard to the appropriate assessment is included as Annex 2 of this assessment.

## **7.0 INTEGRITY TEST**

The SPA and Ramsar site will not be significantly affected by the IOT approach Channel dredge.

*The effect of dredge and disposal areas on the integrity of the Humber SAC:*

**In light of the data provided in the IOT approach channel dredge EIS, the Marine Management Organisation is convinced that there would be no adverse effect on the integrity of the Humber Estuary SAC. No reasonable scientific doubt remains as to the absence of such effects because of conditions, restrictions and mitigation measures that will be imposed on the Licence, as follows:**

- a) The Licence Holder must provide details of the coordinates for the extension to the Bull Sand Fort and Holme Channel Deep deposit sites and the dredge contractor and vessels to the Licensing Authority and Cefas for approval prior to any dredging activity;
- b) The Licence Holder must produce a detailed monitoring plan (including reporting) which must be supplied to and approved by the Licensing Authority and Cefas prior to any dredging activity;
- c) The Licence Holder can deposit only firm / stiff glacial clays within the Sunk Dredged Channel 'windows' (SDC A and SDC B);
- d) The Licence Holder, in consultation with Natural England and Cefas, must update the Humber Maintenance Dredging Document to take into account the Immingham Oil Terminal Approach dredge project and any other developments within the Humber estuary.
- e) The Licence Holder must ensure that all reasonable precautions are taken to prevent the disposal of man-made debris at sea. Such debris must be disposed of to land.
- f) The Licence Holder must ensure that all dredging and disposal is carried out in accordance with the Dredge and Disposal Strategy detailed in the IOT EIS (January 2009).

Appendix D of the EIS is the Dredge and Disposal Strategy with the aim of distributing the disposal materials around the estuary as follows:

- To help keep as much material as possible within the system;
- To ensure that there will be minimal change to the character of the seabed materials;
- To aid supply to the intertidal areas;
- To minimise depth changes in any location that would significantly change the local estuary dynamics or morphology; and,
- To minimise potential effects on the estuary conservation features and ecology.

To mitigate potential effects from the proposed capital dredge the Dredge and Disposal Strategy will be implemented.

Another mitigation measure is to deposit the stiff clay in the deepest parts of the scour holes with sandy material from Chequer Shoal deposited on top to act as a cap. The material will be deposited from bottom opening doors or valves of a trailer suction hopper dredger. The material from Chequer Shoal will be slightly coarser and marginally less mobile than existing sand in the sandbank but will still erode with time. The eroded sand will be replaced by sediment moving over the bank and then being re-eroded as occurs at present causing considerable change in scour depths from year to year.

Sandier material will also be deposited in shallower areas with similar characteristics to minimise any effect, thus maintaining the current bed characteristics as far as possible and allowing re-colonisation of similar benthos to present.

## **8.0 MONITORING**

The following validation monitoring will be conducted to check the validity of the appropriate assessment and refine the Dredge and Disposal Strategy as necessary:

- A bathymetric survey programme for the Bull Sand Fort deposit ground.
- Benthic sampling at seven locations at Bull Sand Fort deposit ground.

A baseline bathymetric survey prior to any deposit will be used to define the scour holes to ensure deposit of the stiff clay material occurs at the deepest areas. Interim surveys will be used to monitor the volume of material retained at the deposit site and any changes to bathymetry.

Benthic sampling will occur at seven locations at the Bull Sand Fort deposit site (including two control sites). Samples will be collected within two weeks of the start of the deposit and as soon as practical after completion of the deposits. Subsequent sampling will occur after one year to monitor recovery, and if needed after two years. In addition, results from monitoring will be used to inform the Maintenance Dredging Baseline Document in line with the Humber Dredging Protocol.

## 9.0 REFERENCES

Associated British Ports & Total Lindsey Oil Refinery (2009). Immingham Oil Terminal Approach Channel Deepening Environmental Statement Supplementary Note 1: Response to Marine & Fisheries Agency Consultation Issues.

Associated British Ports & Total Lindsey Oil Refinery (2009). Immingham Oil Terminal Approach Channel Deepening Environmental Statement Supplementary Note 2: Dredging and Disposal Strategy.

Associated British Ports & Total Lindsey Oil Refinery (2009). Immingham Oil Terminal Approach Channel Deepening Environmental Statement Supplementary Note 3: Monitoring Plan.

Associated British Ports & Total Lindsey Oil Refinery (2009). Immingham Oil Terminal Approach Channel Deepening Environmental Statement Supplementary Note 4: Volumetric Error Bands for Monitoring Survey at Proposed Deposit Grounds.

Associated British Ports & Total Lindsey Oil Refinery (2009). Immingham Oil Terminal Approach Dredging Environmental Statement.

EC Council Directive (1992). The Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC).

English Nature (2003). The Humber Estuary European Marine Site. English Nature's Regulation 33 Interim Advice, April 2003.

Ramsar Convention (1971). The Convention on Wetlands.

S.I. (2010). The Conservation of Habitats and Species Regulations (the "Habitats Regulations") (SI No. 2010/490).

<b>Conservation Objective for habitat extent</b>	To maintain the designated features in favourable condition, which is defined in part in relation to a balance of habitat extents (extent attribute). Favourable condition is defined at this site in terms of the following site-specific standards: No reduction in extent of estuary feature, except due to natural processes.
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Criteria feature	Attribute term in guidance	Site-specific Targets
Estuary	Extent	No reduction in extent of estuary feature, except due to natural processes. Total: 36657.15. (SAC boundary)
Estuary	Distribution/spatial pattern of habitats	Maintain the pattern of distribution of predominant habitats throughout the feature. <b>These habitats are:</b> Subtidal sediment communities; Sandbanks which are slightly covered by seawater all the time; Intertidal mudflats and sandflats; Atlantic salt meadows; Salicornia and other annuals colonising mud; Saline lagoons; Sand dunes; fixed, dune slacks, embryo; Open standing water.
Estuary	Morphological equilibrium	Maintain the characteristic physical form and flow of the estuary.  Baseline to be established. Potential data source: EA LiDAR data
Estuary	Sediment budget	No decrease in sediment budget from the established baseline. Baseline to be established using data from; Humber Estuary Coastal Habitat Management Plan, CHaMP, (2005) ABP Humber Estuary Services. Humber Maintenance Dredging Baseline Document (2008)
Estuary	Salinity	Salinity gradient throughout the estuary should not deviate significantly from an established baseline, subject to natural change and taking into account natural change in the area of transition from fully marine to freshwater environments. Baseline to be established.
Estuary	Water quality  Physio-chemical parameters (including temperature, dissolved oxygen, nutrients, pH)	Target values should default to appropriate national or international standards where appropriate. Physio-chemical parameters should not pose a risk to the ecology of the habitats and species of the SAC, SPA or Ramsar Site. Levels should comply with targets established under the EA Review of Consents and the Water Framework Directive.

<b>Conservation Objective for habitat extent</b>	To maintain the designated features in favourable condition, which is defined in part in relation to a balance of habitat extents (extent attribute). Favourable condition is defined at this site in terms of the following site-specific standards: No reduction in extent of estuary feature, except due to natural processes.
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<b>Criteria feature</b>	<b>Attribute term in guidance</b>	<b>Site-specific Targets</b>
Inshore sublittoral sediment  (Subtidal sandbanks)	Distribution of biotopes	Maintain the distribution of biotopes, allowing for natural succession/ known cyclical change. Currently no mapped baseline.
Inshore sublittoral sediment  (Subtidal sandbanks)	Sediment character: sediment type	No change in composition of sediment types across the feature, allowing for natural succession/ known cyclical change. Key documents for baseline information: ABPmer Ltd. 2008.Humber Subtidal Sandbanks (R.1489) ABP Humber Estuary Services. 2008. Humber Maintenance Dredging Baseline Document. Data on sediment character also available from EA's 1995 quinquennial survey and subsequent routine surveys (2000-2004).
Inshore sublittoral sediment  (Subtidal sandbanks)	Topography	No alteration in topography of the inshore sublittoral sediment, allowing for natural responses to hydrodynamic regime. Key document for baseline information; Black & Veatch. 2004 Humber Estuary Management Plan – Phase 2. Summary of geomorphology studies. ABP Humber Estuary Services. 2008. Humber Maintenance Dredging Baseline Document. Other data sources – EA/ABP Bathymetry data, Admiralty charts.
Inshore sublittoral sediment  (Subtidal sandbanks)	Extent of sub-feature or representative/ notable biotope(s)	No change in extent of the inshore sub-littoral sediment sub-feature identified for the site allowing for natural succession/ known cyclical change.

Date: 21 May 2009  
Our ref: HE SSSI O (ABP – IOTA)  
Your ref: 34340/090218DC8617

Dear Alex,

**Marine Works (EIA) Regulations 2007**

**FEPA 1985 Part II**

**Coast Protection Act: Section 34**

**Licensing of deposits at sea for the purposes of disposal: Immingham Oil Terminal Approach Channel Dredging**

**Humber Estuary SSSI, Special Protection Area (SPA), candidate Special Area of Conservation (cSAC) and Ramsar site**

Thank you for your letter dated 6 March 2009 which refers; I apologise for the delay with this response.

Natural England understands that this application concerns:

- The capital dredge of around 4,000,000m<sup>3</sup> of sediment from within and immediately adjacent to the Humber Estuary designated site, and
- The disposal of this sediment at various existing disposal grounds within the designated site.

The proposed development lies within the Humber Estuary SSSI, SPA, Ramsar site and cSAC. The location of the proposed development in relation to this site means that the provisions of the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats &c) Regulations 1994 (the 'Habitats Regulations') will apply. This site is recognised internationally and in a European context for the species and habitats it supports, in particular large numbers of waterfowl, lamprey, grey seals and the estuarine habitats such as intertidal mudflats, saltmarshes and subtidal sandbanks. Potential impacts of the development on estuarine structure and function, and on all of the features of the SSSI, SPA, Ramsar and cSAC must therefore be considered.

Natural England has considered the information provided in the application documents and the Immingham Oil Terminal Approach Channel Dredging Environmental Statement (February 2009). I have also been in correspondence with Brian Barnett (of the Environment Agency) and Tom Jeynes of ABP who have, at my request, provided some additional information.

In general terms:

- Natural England welcomes the efforts made by the applicant to mitigate against damaging effects within the design of the project in particular the reference to the 'Humber Maintenance Dredging Baseline Document' (August 2008), and considers the contents of this document to be key contextual information for the assessment of predicted cumulative and in-combination assessment of the proposed capital dredge. As a consequence, most elements of the proposed development are not a cause for concern.

- However, concern remains that the disposal of arisings in the outer estuary may result in damage to the subtidal sandbanks (a cSAC feature).

Having considered the potential impacts of the development, Natural England's formal advice under the Habitats Regulations is as follows:

- **The development is neither directly connected with, nor necessary to the management of the site.**
- **The proposed development is likely to result in a significant effect (on the subtidal sandbanks), either alone or in combination with other plans and projects on the Humber Estuary cSAC.**
- **Therefore, under Regulation 48(1), an appropriate assessment is required. This should focus on, but not necessarily be limited to, the following areas:**
  - It is proposed that lumps of stiff glacial clay as dredged by backhoe from the Eastern Approaches will be deposited in a 'scour hole' on the Bull Sand Fort deposit area – a predominantly sandy area.
  - In this instance, it is possible that the stiff clay will smother the sandy substrate and, as it will take a year to erode, may reduce mobility of the sandbank and damage the characteristic invertebrate fauna.
  - The mobility, sediment composition and fauna of subtidal sandbanks are key attributes of their 'condition' and are therefore vulnerable to the deposition of 'alien' substrates.
  - Natural England is keen to see that all dredged sediment is kept within the estuary to ensure that the overall sediment budget is maintained.
  - However, the Humber Estuary is a highly dynamic system, and all disposal locations and options for beneficial use should be assessed in the context of their contribution in maintaining and/or enhancing the dynamic structure and function of the estuary, and its ecological and geomorphological resilience.
  - These impacts will also need to be considered 'in combination' and as 'cumulative impacts' with other relevant plans and projects (for example other capital and maintenance dredging and disposal activities) - Natural England would expect an assessment of 'cumulative' and 'in combination' impacts to be made on the basis of a thorough assessment in the context of the Humber Maintenance Dredging Baseline Document, in line with the Humber Maintenance Dredging Protocol.

The ability of the developer to manage the plan and operate the dredging and disposal activities will be central to your determination. For example, the extent to which the exact location and sediment composition of the scour hole can be identified before disposal commences, to allow the refinement of their operations to concentrate disposal in the least fragile areas, will be important considerations in the determination of your appropriate assessment. Important elements in this will be their ability to minimise the volume and size of the stiff, blocky clay deposited and their ability to mix it with suitable amounts of sandy material. During deposition, the



ability of the operator to monitor the behaviour and, in particular, the erosion of the clay, so as to inform ongoing dredging/deposition strategies, will be valuable. In addition, an assessment of the robustness of the invertebrate communities and the speed in which they can recover, will also provide useful information.

The Countryside and Rights of Way Act 2000 is also relevant to this application, however Natural England cannot determine advice until the appropriate assessment has been completed. Section 28I Notice to undertake works within a SSSI should be submitted after this process has taken place.

Finally, and on a related point, this application relies heavily on the successful use of an accurate and up to date Humber Maintenance Dredging Document. This proposal, if successful, will considerably change the dredging and disposal regime on the estuary. As a consequence, it is vital that the baseline document is updated in the near future to take account of this and other developments in the estuary. Natural England therefore recommends that MFA require the Harbour Authority (ABP) to undertake this task in the near future in full consultation with Natural England.

I have copied this letter to ABP, RSPB and the Lincolnshire Wildlife Trust for their information.

Yours sincerely,

Bernard Fleming  
Senior Specialist, Coastal & Marine

[REDACTED]  
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Cc (by email only)  
ABP Tom Jeynes  
LWT Clare Sterling  
RSPB Harriet Dennison