Response to the MMO from Historic England(July 2016

Marine Aggregate Extraction from the Goodwin Sands

Documents:(Goodwin Sands Aggregate Dredging, Environmental Statement, Volume II - EIA Outcome by Royal Haskoning DHV for Dover Harbour Board (Reference: I&BPB2107R001D01, 16 May 2016).

Appendix 14.1, Archaeological Desk Based Assessment, by Royal Haskoning DHV.

Appendix 14.2, Wessex Archaeology – Goodwin Sands Archaeological Review of Geophysical Data, produced by Wessex Archaeology (Ref: 111510.01, April 2016).

Summary of our advice

We must advise you that we are not satisfied by the information presented in this Marine Licence application, as referenced above, and we must recommend that you do not grant consent for this development as presently submitted.

However, to address our objection to the present application we request that you direct the Applicant to complete additional work, as we specify herein, through an Addendum to the submitted Environmental Statement. The Addendum is to address the following:

- omission identified within the archaeological Desk-Based Assessment (as referenced above); and (
- bathymetric modelling of the proposed marine aggregate dredging area to determine areas of sediment accretion and erosion in reference to features or other anomalies identified of either known or possible archaeological or historic interest. (Furthermore, we must add that we were not given an opportunity to

review the documents used in support of this application at a draft stage, prior to application. Therefore to address the considerable elements of risk we have identified in the submitted application we require the applicant to prepare an Addendum to the Environmental Statement (ES) for our review and comment. This Addendum will help us adequately determine the risk to the known and unknown historic environment, and thereby enable us to advise you about any appropriate conditions for any consent you may be prepared to issue. (The Proposed Project (We understand from the information presented to us in this application that the location of the proposed marine mineral dredging covers approximately 3.9km^2 and is situated within the South Goodwin Sands, 7 km east of Deal, and 12 km North East from Dover Harbour, to the west of South Calliper Sands sand bank, south (but marginally including) the Kellet Gut channel, and a large proportion of the Trinity Bay area of seabed. (The Proposed Goodwin Sands Aggregate Dredging Scheme is part of the overall Dover Western Docks Revival (DWDR) development. The 2.5 million m^3 (3,750,000 tonnes) of material proposed for extraction (using trailing suction hopper dredgers) will be sourced and transported for land reclamation and berth construction. We understand that a staged extraction programme is proposed from: September 2017 to December 2017; May 2018 to August 2018; and April 2019 to July 2019. (

General comments on the submitted application

The standard of the Environmental Statement (ES) and the impact assessment is in line with marine mineral practice.

However, we have substantial comments to make as to the level of information currently presented regarding:

- the potential impact to the unknown historic environment;
- the degree of confidence attributed to the results of a predictive model of hydrodynamic and sediment changes; and
- general ambiguities as to the specification, intervals and coverage of marine geophysical survey data for monitoring impacts post consent. It's arguable that the Goodwin Sands is one of the most diverse, complex, unique and archaeologically fascinating areas of the North Western Europe for known and potential underwater cultural heritage. Whilst the ES and supporting appendices try to capture and acknowledge this, we consider that the overall detail is limited and that particular attention should focus on investigation methodologies to support determination of the potential likelihood of encountering underwater cultural heritage through this proposed development. The Goodwin Sands have both regional and international significance as a northern gateway to the Continent (Cant 2013: 20) and therefore we would expect an EIA prepared for this proposed project to question what is it that we understand about the potential for maritime and aviation remains in the defined study area, and what degree of uncertainty still remains. Furthermore, it is our opinion that the broader potential for *in situ* heritage assets should be investigated through detailed documentary research and include within an Addendum. Such research will further inform what mitigation measures are required with greater consideration of the heritage assets that

may be encountered through this proposed project.
(We are particularly concerned that the mitigation measure demonstrated in the ES may not successfully protect the destruction of unknown heritage assets before impacts occur. (Therefore, should a heritage asset exist within the deposits targeted for dredging, which comprises fragile disarticulated organic material, it's likely that it would not be able to sustain a direct impact and would be damaged at the very least and more potentially destroyed. This destructive result could even occur without any record of the impact having been made. (Consequently, there is a need to realise a more informed judgment on what potential exists, which would establish a stronger balance with the mitigation measures currently proposed, and inform any additional measures where necessary. (Furthermore, we feel that the ES does not state clearly enough, within section 14.6.2, the intention and objectives for geophysical monitoring programmes, their level of coverage, the periodic frequency, and what they are intending to observe, measure and understand. (It is our view, that the methodical approach used in the ES has tried to predict changes caused by the proposed dredging (from a worst case scenario perspective), but there remains a degree of uncertainty as to what those changes might be, and the indirect effects they might have on in situ and hitherto unknown heritage assets. For instance the ES cannot place a definitive judgement on changes to hydrodynamics and sediment (

processes, although examples are presented in sections 6.5.7 'Bed load sediment transport' and 6.6.6 'Post-dredge morphological evolution' that detail the prospective likelihood of model predictions to be accurate.

Given the risks involved there appears no prescriptive measure in place to test such predictions from a precautionary perspective. Without due consideration for changes beyond those predicted, the ES assumes that designated heritage assets including the Admiral Gardner and Stirling Castle will not be effected. This is also indicated with the omission of the historic environment from the list of receptors made in section 6.1 'Introduction' and Figure 6.17 'Residual sediment transport vectors and rates' (Wallingford 2015d) which is referenced in the Archaeological Desk-Based Assessment (DBA), but no mention is made or annotated in the figure to illustrate known heritage assets, which we consider to be at odds with the level of detail included within section 5 'Nature Conservation Designations' and associated zones of Influence.

Therefore, given the concerns raised above we would like to see a clear programme for nonintrusive monitoring (multibeam bathymetry and Side Scan Sonar) to be taken forward from the ES, to capture the required level of embedded mitigation for direct impacts and in- direct effects on the South Goodwin Sands' known and potential historic environment. This is also necessary given that the original area surveyed in the summer of 2015 did not include full coverage, inclusive of a proposed dredging area buffer.

Changes required for the Archaeological DBA and ES to be included within the Addendum

1. Final paragraph on page 23 - we would like to see an explanation provided in the Addendum as to h information was gained from the report, Wessex Archaeology (2010b). East of England Designated Wrecks, Marine Geophysical Survey and Interpretation (Unpublished Report Reference: 71770.02) which is not publically accessible on the Archaeological Data Service website.

2. Fourth paragraph on page 24 – includes the statement: "The potential for preservation within the study area is highest where the sand is deepest." Given the dynamic nature of the Goodwin Sands, it is our opinion that this statement needs to be considered and amended within the Addendum, with reference made to Gregory D., 2006. Mapping Navigational Hazards as Areas of Maritime Archaeological Potential: The effects of sediment type on the preservation of archaeological materials.

3. First paragraph of section 7.3.1 'Direct Impacts to Heritage Assets' – we note the following: "Direct impacts to heritage assets, either present on the seafloor or buried within seabed deposits, may result in damage to, or total destruction of, archaeological material or the relationships between that material and the wider environment (stratigraphic context or setting). These relationships can often be crucial to developing a full understanding of an asset." Given the definition of a heritage asset (MPS 2011 & NPPF 2012), the phrase "can often be" should be revised within the Addendum to "are"; given that physical context is fundamental and central to the study of archaeological sites.

4. Second paragraph Section 7.4.3 'On Board Archaeological Monitoring' – with regard to a "strategy for on board monitoring", the Addendum must include a workflow diagram as part of any proposed strategic approach to support the investigation of the seabed origin of discovered finds deemed to be associated to a potential in situ assemblage, in a timely and effective way.

5. Section2.5‘DredgingMethodology’withintheES– wenotethat“Thedredgingis planned to be undertaken by one or two dredgers, each with a hopper capacity of approximately 5,000m^3, although the actual capacity will depend on the dredging contractor appointed and it is possible that larger dredgers up to a maximum capacity of 8,500m^3 could be used.” Concerning these proposals, detail must be provided to us in the Addendum regarding the duration of a single extraction process (to fill the dredgers cargo hold) for all of the proposed dredger specifications included within the ES. This information is of fundamental importance because of the implications of any direct impacts to unknown heritage assets. It is therefore essential that the format of the mitigation measures necessary for any dredger design are proscribed, and accounted for within an Addendum to the submitted ES.

6. The area proposed for licence aggregate dredging has been refined to roughly one third of that originally identified at the Scoping stage (Royal HaskoningDHV, 2015). Whilst we note that the area of seabed is considerably smaller in seabed extent, the Addendum must assess the implications this may have for active avoidance of yet unknown heritage assets that may become apparent if directly encountered during dredging or identified during the monitoring geophysical surveys proposed or through the extraction process.

7. Section2.11‘ConsiderationofAlternatives’withintheES– Clarificationmustbe provided within the Addendum as to whether any other previously licenced dredging area’s, such as those listed in the North Goodwin Sands (ES section 1.1.3) were not considered as viable resource

alternatives.

Summary and Conclusions

Given the current very high level of potential determined in the ES (on page 22 of the DBA) and the assessed level of direct impacts to potential *in situ* maritime and aviation heritage assets (page 33 of the DBA) we consider that the current mitigation measures proposed are inconsistent, and based on reactionary procedures. We hereby identify the following matters to be addressed as part of any Marine Licence application.

An Addendum to the ES Due to the limited information as to the nature of the potential for encountering unknown heritage assets, as identified above, we feel that further work is required and provided within an Addendum. This includes documentary research to quantify and spatially identify bathymetric changes within Trinity Bay and the southern extent of Kellet Gut over the last 100 years (through the study of Hydrographic Charts for example), as a means to provide a greater level of confidence about the potential for heritage assets to be encountered through the proposed dredging programme.

For instance, this study included in the Addendum may well illustrate historic and recent sediment trends for accretion and erosion which may in turn demonstrate why the range in potential still exists, and in the extreme, demonstrate that a greater sedimentary depth would allow for aggregate extraction that will not impact buried remains of historical nature. Conversely should there be a lower seabed identified than over the last 50-100 years there could be greater confidence in the geophysics data and any subsequent geophysics survey. This is inferred by the belief that if the sediment has eroded (generally) in recent years, or even

remained consistent, it can in some respects diminish the potential for 20th century wreck and debris, i.e. military aircraft wreck sites.

5. The Addendum will also comprise additional documentary archival research to supplement the archaeological DBA, which should include, not be limited to, a study on the formation and changes in sedimentary dynamics of Kellet Gut, and its apparent, but unconfirmed disappearance during a decade of the late 19th century in reference to documentary evidence that details the extent to which Trinity Bay was used as a haven and anchorage. We must stress that it is only through submission of this Addendum that a more prescriptive determination of potential will be possible than is currently asserted in the ES (specifically within section 6.2.2 'Potential'). Such additional work is essential to support evaluation of the physical evidence and how it correlates with what has been documented.

We therefore request that we are provided with the Addendum, as described herein, for our review and comment as a means for us to adequately evaluate potential risk to the historic environment and thereby identify the measures that could be detailed as conditions for any Marine Licence should the Applicant chose to reapply.

Yours sincerely,

Sources:

Garrett, S., 2013. England's Shipwreck Heritage From Logboats to U-boats. English Heritage, Swindon.

Department for Communities and Local Government, 2012. National Planning Policy Framework.

Gregory, D., 2006. Mapping Navigational Hazards as Areas of Maritime Archaeological Potential: The effects of sediment type

on the preservation of archaeological materials.

HM Government, 2011. UK Marine Policy Statement. HM Government, Northern Ireland Executive, Scottish Government and Welsh Assembly Government. March, 2011.

Royal HaskoningDHV, 2015. Goodwin Sands Aggregate Dredging EIA Scoping Report (July 2015, Final Report, Project number PB2107).

Wessex Archaeology, 2010b. East of England Designated Wrecks, Marine Geophysical Survey and Interpretation (Unpublished Report Reference: 71770.02)