



Historic England

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Our ref: DHB/GS/Agg
Your ref: MLA/2016/00227
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(Advice issued via MCMS)

27th September 2017

Dear David

Goodwin Sands Aggregate Dredging Project

Thank you for consulting Historic England via the MMO's Marine Case Management System on 30th August 2017.

Historic England is the Government's statutory adviser on all matters relating to the historic environment in England. We are a non-departmental public body established under the National Heritage Act 1983 and sponsored by the Department for Culture, Media and Sport (DCMS). We champion and protect England's historic places, providing expert advice to local planning authorities, developers, owners and communities to help ensure our historic environment is properly understood, enjoyed and cared for. We also provide our advice in recognition of the identified English marine plan areas (inshore and offshore) as provided through the Marine and Coastal Access Act 2009.

Our advice

We recommend that you do not issue a Marine Licence for this proposed project as there are important matters regarding risk to the known and unknown historic environment that are not adequately addressed in the present application.



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Comment on the submitted application

Since dredging last occurred in 1998 on the Goodwin Sands, the legislation and policy that regulates and directs both the aggregate dredging industry and care for the marine historic environment has changed substantially. Also over this period our understanding of the cultural heritage associated with the marine environment has continued to develop through archaeological surveys, scientific and socio-economic research and other data collecting exercises. For example, our programme of Historic Seascapes Characterisation has produced a spatial data resource which enables perceptions of character to be generated for identified locations. We appreciate that perception of character will be stimulated by national and local interest, memory and association with historic events which will engender pride and a sense of place among many different groups and individuals.

Whilst specific heritage assets (as defined by the UK Marine Policy Statement) are not immediately identifiable within the proposed dredging area, the shipwreck of the *Admiral Gardener* (1809) is the nearest designated heritage asset (approximately 400 metres from the proposed dredge area boundary), and forms part of the wider distinctive group of heritage assets the Goodwin Sands is known to contain. Collectively these assets represent a cross section of the archaeological potential and character that exists in English waters. Therefore the MMO, as the marine plan authority, should take into account the particular nature of the interest in these assets, the likelihood of future discovery and the value they hold for this and future generations. This understanding should be applied to avoid or minimise conflict between conservation of that significance and any proposals for sand extraction.

The Goodwin Sands and dynamic sedimentary conditions

From our review of the evidence presented within this application a clear assessment of risk has not been sufficiently demonstrated. We therefore recommend that the MMO obtain from the Applicant an evaluation that addresses the operational objectives of the project, the evident risks involved in dredging within the highly dynamic South Goodwin Sands and the corresponding burial and exposure of potential archaeology. In our experience of marine sand and aggregate extraction casework this proposed dredging area is especially notable for the substantial change that has occurred within the period of environmental evaluation for this proposed project.

Specific comments on Goodwin Sands Aggregate Dredging Scheme Marine Licence Application Response to MMO Clarification Requests, December 2016 (Prepared for Dover Harbour Board; Reference: I&BPB1552R001F0.1; Revision: 0.1/Final Date: 10 August 2017)

Chapter 2 (Project Update), in paragraph 4 the report states that: “In light of the interpretation provided by Wessex Archaeology, DHB has significantly refined the proposed dredge footprint to avoid most of the 305 anomalies and therefore minimise the



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risk of potential disturbance as far as possible...”However, it is our understanding that it is the intention of Dover Harbour Board (DHB) to avoid all 305 anomalies with a 25m Precautionary Exclusion Zone, as stated in Chapter 6 (Heritage), paragraph 7.

Chapter 2, Table 2-1 provides an indication of refined dredge footprint “with 50m PEZ removed”. We require further explanation regarding this table as the information presented lacks clarity. Table 2.2 details the reduced volume of sand now thought to be required from within a smaller and adjusted licence area, with the sand extraction to be conducted within two distinct time periods:

- Mid-November 2017 to Mid-April 2018 to remove 800,000m³; and
- June 2019 to September 2019 to remove 1,200,000m³.

We understand that, in total, the proposed programme of two phases of dredging will require 500,000m³ less sand than that identified in the original Environmental Statement (ES) and associated Marine Licence application. We note that because a lower volume of sand is now required “...any impacts arising from the dredging activities can be considered to be the same or lower than those assessed in the Goodwin Sands (ES)”. However, we do not accept this interpretation of lesser impact based on reduced volume for the primary reason that the Goodwin Sands are a highly dynamic sedimentary system and substantial natural change can be anticipated and difficult to predict. Therefore the risk still exists that the proposed dredge programme could encounter presently unknown archaeological materials.

To support this point we direct your attention to seabed sediment changes that could occur over the duration of any MMO licence, should one be issued. This is demonstrated by the multi-beam bathymetry and side scan sonar survey conducted in 2015 and the geophysical survey conducted in 2017 which illustrates considerable bathymetric change across the proposed dredging area. It is therefore a concern that, even in consideration of observed bathymetric changes in the sandbank system, information is not provided to us to identify any such zones that could support the volume of sand extraction required and also demonstrate avoidance of identified anomalies.

Chapter 3 (Consideration of Alternatives), we note the explanation provided as to why sand cannot be obtained from a selection of other licensed dredging areas. However, we do not accept that this presents a complete argument in favour of a location within the Goodwin Sands. We appreciate that the other aggregate areas (as listed in Table 3-3) have all secured Marine Licence consent or have conducted the necessary environmental assessment exercises necessary to make an application. However, it is apparent to us that an extant aggregate concession, such as Area 517 (South Falls) could have been evaluated as a possible alternative. In any such consideration of alternatives we encourage specific reference to marine policy and factors such as historic character and any sense of uniqueness as might be affected by a proposed licensable activity.



In reference to character, as addressed within the original ES, the Historic Seascape Character (HSC) of the study area is presented in Appendix 14.1 and in summary highlighted that the study area comprised the following elements (alphabetical order):

- Aggregate extraction
- Aircraft crash sites
- Commercial fisheries
- Commercial shipping
- Historic wreck sites
- Recreational activity (e.g. scuba diving, recreational fishing, sailing and boat tours)
- Submerged prehistoric landscape features
- Subsea cables

The historic character of the Goodwin Sands is diverse with perceptions that associate this location with physical factors (e.g. a major shipping hazard associated with numerous historic accounts of losses) and socio-economic activities such as fishing and aggregate dredging. However, the ES assessment concludes that because historic dredging activity has occurred within the Goodwin Sands that there will be no change to this character by the proposed project.

Regarding the additional work undertaken by the Applicant for alternative dredge locations (as detailed in the above referenced report), it is a relevant matter that when considering the Historic Seascape Character of Goodwin Sands thought should also be given to other perceptions of character, such its association with numerous accounts of shipwrecks, but also aircraft losses. However, the determination of sensitivity to change presented to us has only considered one aspect of identifiable character. It is our advice that consideration of Historic Seascape Character is a directly relevant part of the decision-making process as a primary means to identify social value from multiple perspectives. We must therefore conclude that perception of character is only partly associated with discontinuous dredging activity and that equal attention should be given to its association with other identifiable factors. In this regarding the UK Marine Policy Statement (paragraph 2.3.2.2) draws attention to sensitivities of sites of particular significance, those both designated and of particular social and economic significance.

Table 3.3 (summary of 15 aggregate extraction sites within 200km) contains information regarding aggregate extraction from Area 501 (Thames Estuary) which we understand has an annual extraction limit of 6,000,000 tonnes. Furthermore, we understand that the seabed sediments in Area 501 are predominately modern marine sands comprising the Bligh Bank (Environmental Statement prepared by Environmental Resources Management on behalf of Westminster Gravels Limited. Document Ref: 0150718, dated November 2014.). Bligh Sand is extensive fine sand indicative of slowly mobile sediment over much of the present sea floor of the North Sea¹. Section 3.4 (Consideration of Alternatives – Summary), paragraph 4 details that aggregate suitable for the present stage of Dover Harbour project is now being sourced from Area 501, but that long term supply for the

¹ see Brenchley, P. J (2006) in *The Geology of England and Wales*; Geological Society; 2nd edition



project “...is not considered a viable option”. However, its present use would seem to demonstrate a degree of operational effectiveness and we recommend more attention is given to securing options for suitable aggregates in the vicinity of Area 501. Incidentally, it seems that Area 501 is not marked in Figure 3.1.

Chapter 6 (Heritage) mentions (on page 31/56) deliver to Historic England of a draft archaeological (technical) report in July 2017. In particular, it mentions that the assessment demonstrated the presence of no anomalies of anthropogenic origin of archaeological interest. However, to avoid confusion we suggest that our understanding from this draft report is that no anomalies of certain archaeological interest were interpreted by Wessex Archaeology from the 2017 geophysical survey data.

On page 40/56 it states that “Overall the figures illustrate movement of approximately 10 million m³ of material over the past 18 months – 2 years”. We therefore question how this proposed extraction location can demonstrate that it represents a suitable location for effective project monitoring. We suggest that due to the dynamic nature of the sandbank complex it is likely that an attempt to establish a monitoring baseline will prove problematic to measure any changes associated with sand extraction. It should be also clarified what is meant by “movement”, whether this sand has remained in the proposed dredging area or represents identifiable loss of sediment beyond the current limits of defined Marine Licence application area.

It also states in this chapter that “The high mobility of surficial bedforms within the proposed dredge area thus reduces the potential for material to be preserved intact within the top 1.95m representing the maximum target dredge depth, with dredging anticipated to less than 1m depth across the proposed area in practice.” We must question this statement, for example, what is meant by “in practice”? The previous exercise to employ historic UK Admiralty charts proved inadequate (and is still detailed within the draft archaeological Written Scheme of Investigation which accompanies this consultation exercise). In contrast the 2017 survey (as requested by Historic England) showed locations of gain and loss (in comparison with 2015 bathymetric data) and that the proposed dredge area is now amended to avoid a western section, of limited sediment depth, that contains a considerable number of anomalies of possible archaeological interest. Therefore over the duration of any consent, should one be obtained, the 1.95m depth maximum should be spatially flexible so as to avoid areas of continually lowering seabed. We add that the geomorphology complexity of this proposed location for dredging operations is unlike any other marine aggregate licence area we have dealt with in recent years.

In reference to the following statement made on page 40/56: “...there is greater preservation potential beneath these target depths, as shown by the exposure of a far greater number of anomalies along the western edge where sand cover is currently minimal.” We must question that if the bank naturally diminishes over this time, as well as a permitted 1m of dredging what is the likelihood of encountering presently unknown archaeological materials, especially if clustered with apparent associations, as has been demonstrated in number to those observed to the west of the survey area? Given these



concerns, we find it difficult to accept the assertion that the proposed approach, will dredge sand "...evenly across the dredge footprint with an average depth of approximately 1m (not exceeding -1.95m dredge depth)" as one of sufficient low risk of encountering anomalies of possible archaeological interest over the duration of the proposed licence term.

Written Scheme of Investigation

We cannot offer further advice at this stage regarding the suitability of mitigation measures in consideration that the draft *Goodwin Sands Aggregate Dredging: Archaeological Written Scheme of Investigation*² supplied with this application has not been updated to include the results of the 2017 geophysical survey (conducted in reference to *Goodwin Sands, Magnetometer Survey Specifications*, prepared for Dover Harbour Board, prepared by Wessex Archaeology (Report Ref: 111511.01, December 2016).

To enable us to provide you with advice regarding appropriate mitigation measures, should you be minded to grant consent for this proposed project, it is essential that we are supplied with an updated WSI in reference to the 2017 survey. This additional information will support revision of mitigation and monitoring measures in consideration of the archaeological and geomorphological interpretation of those data as well as relevant marine aggregate dredging guidance, other professionally produced interpretations of those data and other relevant research³. For example, how particular locations might be selected for dredging that are most suitable based on assessment of risk and reliable (i.e. testable) projections of sediment accretion and loss.

Conclusions

It is our advice based on the archaeological analysis and interpretation of the geophysical survey conducted in 2017, the quantitative analysis of those data in comparison with the 2015 survey and our previous advice that we offer the following conclusions:

1) The sedimentary dynamic conditions of the Goodwin Sands are unique in comparison with other active marine minerals licensed dredging areas and that proportionately the risk to encountering previously unknown features of archaeological interest is readily apparent.

² Dover Harbour Board, Reference: I&B/PB2107/304514/R001/D01, dated 7th October 2016

³ Dix, J.K., Lambkin, D.O., Thomas, M.D. and Cazenave, P.W. (2005) *Modelling Exclusion Zones for Marine Aggregate Dredging*. English Heritage ALSF project No. 3365. School of Ocean and Earth Science: University of Southampton; and

Dix, J. K., Cazenave, P. W., Lambkin, D. O., Rangelcroft, T., Pater, C. and Oxley, I. (2008) "Sedimentation-Erosion Modelling as a tool for Underwater Cultural Heritage Management", In: Manders, M., Oosting, R. and Brouwers, W. (eds.), *MACHU Final Report 3*. European Union Culture 2000 Programme, Amersfoort, ISBN 978-90-76046-58-7, p48-53.



2) The test of alternative dredging locations appears seems to have given limited attention to the full range of perception of Historic Seascape Character especially with how the Goodwin Sands can also be readily associated with a legacy of wreck both of vessel and aircraft. In this regard referral to the UK Marine Policy Statement (High Level Principles for Decision Making) would appear to be particularly appropriate.

3) The apparent dynamic nature of the Goodwin Sands will make establishing baseline conditions for the purposes of monitoring very problematic including changes that will occur between now and any decision that might be taken whether to grant consent. It is also questionable whether the proposals within this application are sustainable for the preservation and avoidance of known and potential features of the historic environment.

4) In reference to the number of geophysical anomalies identified in the Wessex Archaeology report (*Goodwin Sands – Archaeological Review of Geophysical Data 2017*. Report ref: 111511.02, dated July 2017) and the anomalies identified within the Clinton Marine Survey report (referenced therein), or any other interpretation of those data produced to accepted professional standards, we require a revised archaeological WSI to demonstrate viable mitigation options. In addition to an updated WSI we require a commitment to implement an agreed Archaeological Reporting Protocol.

5) A dredge management programme is to be produced using baseline data derived from observation of the dynamic conditions inherent in the Goodwin Sands, as the primary mechanism to direct activities (should consent be obtained). This approach is necessary to demonstrate that dredging to a depth of 1.95m maximum will not occur on a seabed that is now 2m lower than shown by the July 2017 bathymetry. Similarly, dredging to 1.95m on an accreting seabed should be spatially identifiable. Therefore, any such programme should include figures (plus GIS compatible spatial data files) to show the amended dredging area boundary, the proposed dredging zones within that boundary, the geophysical anomalies and associated exclusion zones. Figures and spatial data are also required to enable comparison of sedimentary gain and loss locations (vis. 2015 and 2017 bathymetry) as well as a sequence of high-resolution figures containing the above listed information set against the background of the 2017 bathymetry alone.

We therefore consider it necessary that this proposed project should now take all necessary steps to balance the commercial and operational needs of the project with the evident risks involved with dredging in such a dynamic sedimentary environment as the South Goodwin Sands.

Yours sincerely,



Christopher Pater
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