



**Marine
Management
Organisation**

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Mr Richard Cram,
Able UK Limited
(By email only)

Our references: SAM/2020/00052
DCO/2013/00020

29 January 2021

Dear Mr Cram,

**SAMPLE PLAN ADVICE FOR SAM/2020/00052 ABLE MARINE ENERGY PARK –
UPDATED ADVICE**

Thank you for your request to the Marine Management Organisation (MMO) for a sample plan to inform the capital dredge and disposal at Able Marine Energy Park, Immingham by Able UK Limited. Please see our response below and any attachments, which has been compiled following consultation with our technical advisors The Centre for Environment, Fisheries and Aquaculture Science (Cefas).

Following a request to clarify the information provided in the sample plan regarding the capacity of the disposal sites and previous disposal amounts, the MMO have re-consulted Cefas. The MMO apologise that the previous disposal amounts provided were incorrect, the correct amounts previously disposed at the sites are stated below. However, the clarification in the volumes previously disposed at the sites, does not change our position. Any variation request to amend the volumes to be disposed at particular disposal sites would need to be supported with evidence and an assessment of the impact, further detail can be found in the updated Sample Plan in Appendix 1, Section 3 below.

The correct disposal figures in **dry tonnes** are:

	2012	2013	2014	2015	2016	2017	2018	2019
HU060	2,579,578	2,008,587	1,889,193	1,048,513	1,532,071	1,242,231	1,023,686	1,191,958
HU080	72,860	53,816	128,188	197,991	264,757	328,577	411,958	367,766

And **Wet tonnes**:

	2012	2013	2014	2015	2016	2017	2018	2019
HU060	5,062,353	3,942,977	3,707,788	3,643,200	4,712,591	3,911,715	3,300,837	3,875,389
HU080	121,657	105,584	250,616	687,948	919,935	1,141,686	1,431,403	1,277,853

Your feedback

We are committed to providing excellent customer service and continually improving our standards and we would be delighted to know what you thought of the service you have

received from us. Please help us by taking a few minutes to complete the following short survey [REDACTED].

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

Yours sincerely,

[REDACTED]

Abbey Coppin
Marine Licensing Case Manager

[REDACTED]
[REDACTED]

Enclosed: Appendix 1



Marine Management Organisation

1. Description of the project

- 1.1 Able UK have an approved dredging and disposal strategy that details the proposals for the dredging and disposal works required to provide safe vessel access to the AMEP quay. This was approved by the MMO in April 2011 as part of the AMEP Development Consent Order (DCO) application (No. 2935). The strategy was supported by sampling undertaken at 23 locations. The strategy was revised in 2017 with no dredging having taken place, and therefore a new regime of sampling was undertaken (SAM/2017/00027). Whilst sampling and analysis was undertaken in accordance with the MMO's advice, the project did not proceed, and no dredging has been undertaken to date. The MMO are now in the process of issuing an extension to the Deemed Marine Licence (DML) to align with the revised timescales under the DCO. This would allow capital dredging until 29th October 2023, and maintenance dredging until 29th October 2024. The present advice addresses the capital dredging only.
- 1.2 Originally the majority of the clay material dredged from the berthing pocket (maximum 1,100,000 tonnes per year) would have been used terrestrially to form a foundation base for the factories being built, but the factories will be under construction before the dredging takes place. As a result, the dredged clay material will either need to be deposited at the Killingholme Marshes scheme or sent out to sea to be disposed of at the (currently) designated site HU082. A variation to the Deemed Marine Licence (DML) will be required to alter the disposal locations stipulated in the current DML, the sampling advised in the sample plan below will support such an application.
- 1.3 The anticipated dredge volumes are presented in the below (taken from the applicant's revised dredge and disposal strategy):

Location	Material	Max tonnage per year permitted	Deposit location	Total Licensed Tonnage
Pumping Station Outfall	Sand	500	HU080	8,000
	Silt	7,500		
Quay Site (excluding Anchor Trench)	Gravel	50,000	HU080	550,000
	Sand	110,000		
	Silt	390,000		
Anchor Trench	Clay	175,000	HU082	175,000
Berthing Pocket	Gravel	5,000	HU080	1,835,000
	Sand	50,000		
	Silt	145,000		
	Clay	535,000 + 1,100,000	HU082 + terrestrial area landward of Killingholme Marshes flood defence wall	
Approach Channel	Gravel	150,000 + 150,000	HU080 + within quay limits	1,650,000
	Sand	600,000	HU080	
	Silt	500,000		
	Clay	250,000	HU082	
Turning Area	Gravel	35,000	HU080	250,000
	Sand	95,000		
	Silt	80,000		
	Clay	40,000		
CCS Channel	Sand	2,000	If dredged material is suitable, area within proposed managed realignment site	10,000
	Silt	8,000		
Total		4,478,000		4,478,000

2. Sampling required

- 2.1 In accordance with the recommendations of the OSPAR Guidelines for the Management of Dredged Material¹, samples should be taken to provide a good representation of the volume of material to be dredged. The distribution and depth of sampling should reflect the size and depth of the area to be dredged, the amount to be dredged and the expected variability in the horizontal and vertical distribution of contaminants. The MMO also uses the OSPAR guidelines to inform our advice on sampling requirements for other activities which are likely to lead to the mobilisation of sediments. Based on the information submitted (as described above), the following sampling and analysis is required.
- 2.2. It is proposed that the sampling undertaken in 2017 (under SAM/2017/00027) is repeated, at the same locations. It is proposed that samples would be taken at the surface, in order to allow a direct comparison with the previous surface samples analysed in 2017 and to characterise current surface material conditions. The sampling plan request states that “as no dredging has taken place, it is the case that the depth samples analysed in 2011 remain in undisturbed locations, and the *results of that analysis therefore remain relevant to the characterisation of the material to be dredged at depth.*”
- 2.3 The MMO agrees with the sampling regime proposed, which is line with the sampling recommended by Cefas in 2017 (Andrew Griffith, 24th May 2017, SAM/2017/00027), but note that additional sampling may be required if significantly elevated results are observed. The results of the 2011 sampling must also be submitted with any subsequent submission for approval by the MMO for permitting dredging.

2.4 The following information must be included with any samples (irrespective of the laboratory to be used for analysis):

- Clearly labelled samples;
- Completed sample position sheet, including the latitude and longitude (decimal degrees and the projection i.e. WGS84) of each location.
- Details of the method of sampling;
- A map/chart detailing the sample locations.

2.5 Your chosen laboratory service should provide specific sampling instructions, however the MMO would expect that in all circumstances surface samples should be taken from the upper layer of in-situ sediment using a non-metallic / stainless steel scoop. To maintain the integrity of the samples please ensure they should be FROZEN and remain in the freezer until they can be dispatched. Samples should be dispatched in a cool box.

2.6 Samples should be kept until the return has been discharged in case any further testing is required.

3. Analysis Required

3.1 Sampling was last undertaken in 2017 (under SAM/2017/00027), at which time 11 sample sites were surveyed at pre-defined locations as advised by Cefas. This included eight sample sites in the vicinity of the AMEP construction/dredging footprint off North Killingholme (Sites B, G, J, M, Q, R, T and W) and three intertidal samples in the vicinity of the breach location at Cherry Cobb Sands on the north bank of the Humber (sites CCS X, CCS Y and CCS Z).

3.2 Samples collected in 2017 were analysed for levels of trace metals, total hydrocarbons (THC) and polyaromatic hydrocarbons (PAHs) by Cefas, who are approved by the MMO to undertake these analyses in support of marine licence applications. The samples were also sent for particle size analysis (PSA) by Precision Marine Survey Ltd, who are not approved by the MMO, but are members of the NMBAQC scheme and participate in the PSA ring trial component. Any future PSA, to support a submission for the MMO's approval, should be undertaken by an MMO approved laboratory

3.3 The results of the trace metals analysis showed levels in excess of Cefas Action level 1 (AL1) for arsenic, chromium, nickel, lead, and zinc in the majority of samples, with one sample also showing an exceedance of AL1 for copper. However, none of the levels observed were approaching their respective AL2, and therefore would not preclude the material from disposal at sea. The hydrocarbon analyses showed elevated levels (above AL1) for the majority of determinands. In the case of THCs, some of the results were 10x their AL1. There is currently no AL2, and therefore decisions on the suitability of material for disposal at sea is determined on knowledge of the background levels in the surrounding area, and the Humber is known to generally have higher levels of hydrocarbons due to historic uses of the area. As far as the MMO is aware, no exclusion was applied to the material based on hydrocarbons at the time.

3.4 As far as the MMO is aware, levels of organochlorine pesticides (OCs) were not analysed in either the 2011 or 2017 sampling regimes. Given that the area at Killingholme was arable land, and results of some nearby dredge sediment analyses have shown elevated levels of OCs, it is recommended that these are included in the list of analytes for the present sampling regime.

3.5 The following analysis must be undertaken to support your dredging licence:

- Trace metals;
- Organotins;
- Total Hydrocarbons (THC);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Polychlorinated Biphenyls (PCBs);
- Organochlorine Pesticides (OCs); and
- Particle Size Analysis (PSA).

3.6 The previous Cefas advice stated that analysis for PCBs and organotins was not necessary at the time given the low levels observed in the 2011 sampling. However, given the time that has now passed since these analyses, it is considered prudent to undertake analysis for these determinands to ensure levels have not increased. The MMO have not recommended analysis for brominated flame retardants (PBDEs) as we are unaware of any significant sources of these in the surrounding area. If any sources, or issues relating to these are known, it is suggested that the information is presented to the MMO to review and re-consult Cefas accordingly.

3.7 Further details can be found in Appendix 1 (sample plan form).

3.8 Any laboratory carrying out the analysis/analyses must meet the qualifying criteria as set out in the MMO guidance:



3.9 To ensure consistency between laboratories it is expected that all analyses required will be undertaken from the same sample container. It is your responsibility to ensure that sufficient sample is collected, in a single container, for all the analysis required. Where Cefas are analysing the samples, appropriate containers will be provided.

Additional questions about disposal sites.

3.10 Is HU082 still suitable for the disposal of the clay dredged as part of the project?

HU082 has not previously received disposal volumes of this size, therefore it is recommended that further information is obtained on the capacity of the site and the fate of the proposed disposal material, including consultation with Cefas' coastal processes advisors before the submission of a Deemed Marine Licence (DML) variation application. It is recommended that an assessment is undertaken to determine the suitability of HU082 for the type and quantity of material that is proposed to be disposed. Cefas' coastal processes advisors have been consulted in providing the present advice and they have noted that clay is difficult to model, with critical erosion stress leading to chronic erosion, and is dependent on the way it is placed. For example, clay can exist as "bucket" shaped blocks if extracted with back-hoe and if this starts to move it can pick up gravel and become "armoured", therefore potentially extending its life.

3.11 Is HU082 suitable for the disposal of an additional 1,100,000 tonnes per annum of clay that would originally have been disposed to land?

See point 3.10 above.

3.12 Is HU080 still suitable for the disposal of gravel, sand and silt dredged as part of the project?

Updated Response: With regards to the suitability of HU080 for disposal, the calculated amount of material proposed to be disposed at HU080 is approximately 3,733,000 tonnes (presumed wet tonnes). The site has received a maximum of 1,431,403 wet tonnes since 2012. This is a significant increase over what has been disposed of to date. Therefore, an assessment should be undertaken, including in combination with other licenses valid for disposal at HU080, to determine the fate of the material based on the current proposed composition and volume at this site. The assessment should be based on a realistic worst-case scenario and may require modelling. Although, the reuse of the materials, especially gravels, is encouraged.

- 3.13 **Would HU060 be a suitable disposal site to use instead of HU082, for the clay dredged as part of the project? Previously advice was given that this site was too full, however, the situation may have changed since 2014 due to different project operating.**

Updated Response: With regards to the suitability of HU060 for disposal, the calculated amount of material proposed to be disposed is approximately 290,000 tonnes (presumed wet tonnes). It is recommended that a swath bathymetric survey of the disposal site is undertaken to confirm the status of the site. i.e. 1) that historic placements have not impacted the coastal process at the disposal site, 2) that fate of the material is as expected in the EIA and 3) sufficient volume remains to deposit material without impacting coastal processes. An assessment should be carried out which considers other valid licences, alongside the survey results to assess the capacity to receive the volume of clay material proposed. The MMO and our advisors cannot determine the capacity of the disposal site without understanding the current bathymetry of the site. Depending on the information, additional modelling depending on the bathymetry of the site, may also be required.

4. Laboratories

- 4.1 You have now obtained an approved sample plan from the MMO. Should you now require sample analysis for chemical, physical and biological determinands in support of a regulatory approval such as a marine licence, you have a choice between using a provider of your choice listed at the link below:

[REDACTED]

- 4.2 This list indicates the laboratories which have been validated to undertake sediment analysis, as well as the specific determinands which they are validated to analyse. The MMO will not accept results from laboratories which have not been validated.

- 4.3 Irrespective of which validated laboratory is used to undertake sediment analysis, results accompanying a marine licence application must be submitted to the MMO on the correct results template (approved templates are available via the link in 4.1 above).

- 4.4 If the analysis is to be undertaken by a laboratory other than those validated by the MMO, that laboratory must meet the qualifying criteria as set out in the MMO guidance and become a validated laboratory [REDACTED].

- 4.5 It is your responsibility to ensure that appropriate analysis is commissioned and supplied in support of a regulatory approval. However, if you have any queries about the process or would like clarity on this, please do not hesitate to contact the MMO by emailing:

marineconsents@marinemanagement.org.uk

5. Conclusion

- 5.1 This advice is based solely on the information provided in the sampling opinion request, and the sampling and analysis described will be adequate to inform discharge of the return, that mirrors the information in this sampling request, providing that no further issues come to light and a return is submitted in a suitable time-frame.
- 5.2 The MMO reserves the right to request further sampling/analysis should information in any submissions differ from that information submitted in this sampling request. Any future submission must clearly state this sampling opinion reference number.

**Appendix 1
Sample plan**

Sample	Station	Metals	Organotins	THC	PAHs	PCBs	PDBEs	OCs	PSA
1	Site B – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Site G – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3	Site J – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Site M – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5	Site Q – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
6	Site R – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7	Site T – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8	Site W – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9	Site CCSX – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10	Site CCSY – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11	Site CCSX – 0m	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
12		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:
Stations should be collected based on the applicant's provided sample map