The Sizewell C Project

9.46 Written Summaries of Oral Submissions made at ISH6: Coastal Geomorphology (14 July 2021)

Revision: 1

Applicable Regulation: Regulation 5(2)(q)

PINS Reference Number: EN010012

July 2021

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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1 ISSUE SPECIFIC HEARING 6: COASTAL GEOMORPHOLOGY

1.1 Introduction

1.1.1 This document contains the Applicant's written summaries of the oral submissions made at Issue Specific Hearing 6 (ISH6) on Coastal Geomorphology held on 14 July 2021.

1.1.2 In attendance at ISH6 on behalf of the Applicant was:

- Hereward Phillpot QC of Francis Taylor Building (Counsel) (HPQC);
- Dr Tony Dolphin of Cefas (Principal Scientist (Coastal Geomorphology));
- Dr Stephen Roast of SZC Co. (Planning Manager (Marine));
- Andy Langley of Atkins (SZC Civil Site Establishment Engineering Lead); and
- Richard Jones of Quod (Planning Manager (Main Development Site)).

1.1.3 Where further information was requested by the Examining Authority at ISH6, this is contained separately in the **Applicant's Written Submissions Responding to Actions Arising from ISH6** (Doc Ref. 9.53).

1.2 Agenda Item 2: The assessment of the coastal impacts of the Proposed Development

a) Whether the potential coastal impacts of the Proposed Development can be satisfactorily assessed from the information submitted by the Applicant?

1.2.2 No comments were made by the Applicant.

b) If not, what additional information would be required?

1.2.1 Dr Dolphin reiterated that work is underway for the modelling of the SCDF through the decommissioning phase to 2140 and is due for submission at Deadline 7.

1.2.2 He also pointed out that, at this stage the assessment to 2099, results are looking very promising and no substantive threat has been shown by the

current modelling on the ability to maintain the soft coastal defence feature. Further that the results look quite promising for 2140, and indicated that SZC Co. would need to complete the modelling work before they are able to provide a definitive answer.

1.2.3 Dr Dolphin explained that such ongoing work will also consider the adapted HCDF design, even though that is not expected to be needed because it would be precipitated by the sea level rise scenario under RCP 8.5, which is not looking like a likely scenario.

c) Update on the additional details of the hard coastal sea defence feature (HCDF) design to be provided at Deadline 5

1.2.4 Mr Richard Jones summarised the coastal defence design refinements that will be submitted at Deadline 5 to minimise the seaward extent of the Permanent HCDF, which will remain within the existing Rochdale envelope parameters:

- Paring back the Permanent HCDF at the intersection with the Permanent BLF by 15m. The beach was previously at its narrowest point in this location. This is made possible by removing a turning and an area of hardstanding that was associated with the Permanent BLF on the Northern Mound.

- Paring back the main Permanent HCDF frontage along the beach by approximately 5m.

1.2.5 Reducing the extent of temporary sheet piled HCDF on the northern boundary with Minsmere and replacing it with early implementation of part of the permanent HCDF in this location.

1.2.6 These changes are shown in Revision 2 of the **Coastal Defence Feature Plans** (Doc Ref. 2.5(A)) submitted at Deadline 5. They are further explained in in the **Applicant's Written Submissions Responding to Actions Arising from ISH6** (Doc Ref. 9.53).

1.2.7 The Permanent HCDF is now typically only 3m further seaward than in the May 2020 design and brings the benefit of not needing adaptation during the lifetime of the power station (including decommissioning), unless climate change occurs beyond the "reasonably foreseeable" scenario. Further detail on that scenario is set out in Section 3.3(a) of the **Coastal Defences Design Report** [REP2-116].

1.2.8 In relation to a question by Mr Parker and the design rationale for the sea defence Mr Andrew Langley referenced the issued **Sizewell C Coastal Defences Design Report** issued at Deadline 2 at REP2-116. In particular

to the setting of the 0m AOD Toe level and design rationale Mr Langley highlighted the Table 3-1 and the Design Basis and reasonably foreseeable design case that has been adopted appropriate to the design in UKCP18. Mr Langley highlighted section 3.4.4 and table 3-3 and the numerical modelling that has been undertaken for a 1 in 10,000 storm and associated presence to the beach that sets the toe.

1.2.9 In relation to a question by Councillor Sanders and the design rationale for the ground improvement and design detail of the sea defence Mr Langley referenced the table 3-2 in REP2-116 and the system that comprises the Sea Defence. The Seismic classification of C2SC2 and the requirements of this on the solution was outlined, including the components of the system from rock armour, embankment slope, core and ground improvement. Mr Langley went on to describe the ground improvement dealing with the ground conditions compromising Rigid Inclusion or other deep ground stabilisation methods commensurate with the design requirements and standards stated previously in the submissions referenced above by Mr Jones. Mr Langley also stated that trials to justify and provide evidence of the techniques proposed were planned.

d) The assessment principles adopted by the Applicant

1.2.10 Dr Dolphin explained that SZC Co. has developed an extensive and appropriate evidence base against which the predicted impacts of structures and activities have been assessed for coastal geomorphology.

1.2.11 He further elaborated that some of the concerns raised such as that SZC Co. did not look beyond the period of the 1830s are not correct. Dr Dolphin clarified that the SZC Co. has looked at all the available information, including historical records, and are very aware of the historical erosion that happened at Dunwich, which precipitated significant amounts of accretion at Sizewell as a result of coastal realignment. Dr Dolphin then elaborated that Cefas on behalf of SZC Co. has looked at coastal change extensively from historical data, aerial photographs back to 1940, and the beach profile data collected by the current station operators and the Environment Agency (EA) through the Anglian Coastal Monitoring Programme, which provides 30 years of very detailed shoreline change data in this area.

1.2.12 Cefas has also looked into the offshore area, using multibeam bathymetric surveys and collected over 600 seabed samples used to characterise the sediments and support the computer modelling of sediment transport. There are also lots of long records locally by third parties and by the Applicant measuring the hydrodynamics.

1.2.13 Dr Dolphin highlighted that some of the difficult questions on this coastline are not amenable to the normal/traditional techniques that a developer might use so we have also developed novel approaches. One example, that he provided was the use and interpretation of data from a standard ships radar deployed at Sizewell A to track the position of the shoreline and the longshore bars, as well as to measure inshore wave conditions. These two latter aspects of the shoreline are quite difficult to measure (using traditional techniques) but SZC Co. now have good information on that (using radar).

1.2.14 Dr Dolphin explained that Cefas has developed, deployed and tracked over 2000 pebble tracers to try and get a good handle on the nature of the movement of the pebbles on the beach, which for the part of the beach that's above low tide is the dominant material. That has highlighted that there is a sediment cell, or a sub-cell, between Minsmere and Thorpeness.

1.2.15 He continued that Cefas also use a small drone to obtain continuous, topographic data across the frontage rather than using beach profiles, which have spatial gaps and make it more difficult to interpret the natural behaviour of the coast. He further explained that if the project does go ahead, profiles are likely to miss, or be late at detecting, changes and potential impacts.

1.2.16 Finally, on this note, Dr Dolphin emphasised that Cefas use a range of numerical models to understand the system and predict impacts. This includes very high-resolution models, with computational nodes just 20 centimetres apart in places, to simulate, in detail, the interaction between waves, currents and marine structures. As well as the sediment transport models that are described in the reports on the soft coastal defence feature, in TR545 and TR544 [REP3-048 and REP3-032].

1.2.17 Dr Dolphin concluded that overall, this represents a very comprehensive data set on which to base the understanding of impacts and impact assessments for coastal geomorphology.

1.2.18 He further clarified that with respect to the impact assessment, the details are to be found in **ES, Volume 1, Chapter 6, Methodology Appendix 6P** [APP-171], which followed standard procedures that are used in the marine environment which helps us align with marine ecology. All of the impacts and activities have been assessed against each of the geomorphic receptors.

1.2.19 Dr Dolphin explained that it was understood from the outset, that designs may change, as is common for large infrastructure projects. And if such changes go beyond the Rochdale envelope from the original assessment,

then reassessment would be required. He elaborated that this happened in this project which precipitated the **ES Addendum, Volume 1, Section 2.15** [AS-181] is where the coastal geomorphology assessment sits.

1.2.20 Dr Dolphin further explained that the evidence base used to underpin the assessments, has been developed and discussed with the coastal geomorphology subgroup of the Sizewell Marine Technical Forum (MTF) through several meetings and technical report reviews by specialists, which has been appreciated and helped to develop the work over a seven-year period. The MTF consists of the Marine Management Organisation (MMO), East Suffolk Council (ESC), the EA and Natural England (NE).

1.2.21 Dr Dolphin clarified that Mr Parker was referring to an earlier piece of work where SZC Co. was looking for the plausible and foreseeable future of shoreline change to indicate the likelihood that mitigation would be needed. Even on the plausible and foreseeable case, the work showed that the shoreline would be likely to recede and expose the HCDF (without mitigation) within the period of 2053 to 2087. Acknowledgment was made at this point that a form of mitigation was needed, and that the form of embedded mitigation is the SCDF, maintained through the life of the station.

1.2.22 From TR545 [REP3-048], Dr Dolphin highlighted that SZC Co. has modelled out to longer timescales and have used very severe events (including 1:107-year storm in terms of its energy content), and what that does to the coast. He elaborated that SZC Co. have looked at the conditions that are important for shaping the coast as well as toward more extreme aspects.

1.3 Agenda Item 3: The implications of the Proposed Development on the strategic for managing the coast as set out in the Shoreline Management Plan

1.3.1 In response to queries/submissions from the Interested Parties, HPQC clarified that the Applicant is not proposing to make a change to the SMP. Rather, the issue to be determined is whether or not the Project's proposals constitute a breach of MIN 13.1 policy to 'Hold the Line to 2105' and if so, its consequences. HPQC invited Dr Tony Dolphin to provide the Applicant's further submissions on this matter.

1.3.2 Dr Dolphin confirmed that no change to the SMP was required as the intent for the hard and soft defence feature is to maintain the shoreline where it presently is. There is no intention to reclaim land.

1.3.3 The SCDF has been designed with ability to maintain natural sediment drift and sediment movement across its frontage as needed by the SMP. He

further confirmed that SZC Co. has planned to undertake monitoring and mitigation, so if the SCDF is not achieving what it needs to achieve, methods are available to rectify the situation such as beach recharge, beach recycling or bypassing.

1.4 Agenda Item 4: Potential impacts on coastal processes and geomorphology including those arising from the proposed HCDF and the SCDF and the temporary and permanent BLFs and associated activities

a) The potential for consequential adverse and/or beneficial impacts on coastal processes arising from these features and activities

1.4.2 In response to a suggestion from an Interested Party that the design of the HCDF and SCDF should be subject to an independent review, HPQC noted that the examination has the benefit of the detailed review/assessment of the proposals and their impacts by ESC, the EA and the MMO. Each of these parties has a statutory responsibility in this area, and as a consequence is able to draw on its own internal expertise and experience when undertaking its independent review of the project's design and impacts. So far as the Applicant is aware, there is no reason to doubt the independence of those parties or to question the level of rigour with which they are undertaking their review of the Project's proposals. As such, the ExA (and others) are already well-provided for in terms of access to independent voices in relation to these matters. HPQC then invited Dr Tony Dolphin and Andrew Langley to speak to the other matters raised under agenda item 4(a) on behalf of the Applicant.

1.4.3 Dr Dolphin agreed that the matters of composition of the SCDF need further attention. Planning is underway for more modelling to look into that further and it is agreed that there is a balance to be had. Getting the particle size at a level where SZC Co. does not have to maintain the SCDF too often and having no impact on the longshore transport regime is the aim. Dr Dolphin reiterated that the matters of composition of the SCDF need further attention.

1.4.4 Dr Dolphin explained that the recent modelling does allow a more accurate assessment of future condition that might arise during decommissioning or beyond decommissioning – naturally eroded adjacent shorelines, which would mean that the SCDF maintained coast at Sizewell C could become a foreland.

1.4.5 He highlighted that even though it is releasing sediment, the SCDF may begin to disrupt longshore sediment transport. But that matter is already in hand, because SZC Co. has the right monitoring to detect whether there

has been a blockage. And Dr Dolphin reiterated that SZC Co. also have planned for three mitigation methods for beach maintenance, in order to correct that. In conclusion, Dr Dolphin stated that he did not consider that there is an issue. He further explained that a short section in the next version of the Coastal Processes Monitoring and Mitigation Plan has been added to more explicitly reflect this point.

1.4.6 Dr Tony Dolphin noted the expert geomorphological assessment (EGA) was an independent panel. And he highlighted that SZC Co. deliberately sought experts with the right kind of knowledge and a good knowledge of the local coastline, for doing the EGA. It is a little different to most cases because often EGAs are only undertaken by a single person. Furthermore, Dr Dolphin stated that it was the Applicant's view that an expert panel would be more appropriate.

1.4.7 The EGA's fundamental purpose was to establish whether mitigation was needed (to avoid HCDF exposure and the impacts it would entail). The EGA did show that the HCDF exposure could begin as early as 2053 without any mitigation. Without any secondary mitigation or maintenance, the position of the HCDF will be allowed to recede back.

1.4.8 Dr Dolphin clarified that it does not really matter how the shoreline evolves (or the slightly different conclusions they may arrive at), the SCDF mitigation (primary and secondary) is still clearly needed.

1.4.9 Further, he highlighted that the recent modelling does allow the Applicant to look more accurately into the future situation.

1.4.10 Finally, Dr Dolphin highlighted that the important thing to remember is which structures are present over the project timeline. There are a limited number of piles from the BLF. They are very transmissive to sediment and only have very small and local effects to sediment transport. So, it really does drift back purely to what will be the effects of the wider geomorphological context (i.e., sea level rise, sediment supply) on Sizewell C's maintenance obligations for the soft defence feature. No further assessment would help with understanding the impacts of the development on coastal geomorphology.

b) The vulnerability of the coastline to erosion with particular regard to the role played by the Sizewell-Dunwich banks and the Coraline Crag outcrop

1.4.11 Dr Dolphin explained that the banks are very complex and there is a complex geomorphic interplay between rising sea levels, the effect that it has on erosion of cliffs in the area, particularly as far north as Covehithe. As the work from Susan Brooks and Tom Spencer show, as time goes by

(and sea levels rise) the cliffs erode, a greater length of cliffs will become vulnerable (available for erosion). So, he considered that there is a general expectation that sediment supply will rise as a result of sea level rise. Sediment moves down the coast and the sediment transport pathways are such that the sandy component, a good percentage of it, arrives at the Sizewell-Dunwich Banks. Dr Dolphin also explained that because of the complex interplay, it is not really possible to predict very well, exactly what will happen to the bank in future. He also clarified that this bank is moderately deep, and it has some sections that are really quite deep, in particular, between Sizewell part and the Dunwich part of the bank.

1.4.12 Further Dr Dolphin explained that this means that there is a lot of variability in how the bank dissipates or removes wave energy. Dr Dolphin also requested whether Mr Parker could provide some information on the quotes he relied upon so that he could ascertain where in the timeline they occurred.

1.4.13 Dr Dolphin explained that once the modelling was underway (Mr Parker's comments may have been on pre-modelling reports), it was established that the bank's primary role, especially the shallower parts of it, are to effectively put a cap on those very large storm events, but less so for moderate and very, very regular energy arriving at the coast. He confirmed that it is true that if in the future, the bank does not keep pace with sea level rise, and does become deeper, the inshore wave energy will rise relative to the offshore wave energy.

1.4.14 Dr Dolphin highlighted that the UKCP18 climate change predictions show that the annual wave height and the annual maximum wave height, which effectively captures those largest storms, is predicted to decrease. This he emphasised was an important point.

1.4.15 Furthermore, Dr Dolphin indicated that whilst the Flood Risk Assessment is not part of this agenda topic, it did consider lowering and removal of the sand bank.

1.4.16 Finally, Dr Dolphin addressed the point raised about the resilience of the Coralline Crag. He explained that the topography of the Crag as it extends out from the north side of Thorpeness towards Sizewell Bank as a series of north, northeast trending ridges. Those ridges are present in all of the bathymetric data sets that we have heading back to the 1830s, indicating that they are fairly stable and resilient. Indeed, this is a rock. It is not the hardest rock in the world. It is not granite. He also posited that fishing activities, anchors, and so on may cause pieces to break off and indeed, natural erosion and weathering as well. Further Dr Dolphin concluded that as a morphological feature, there has been no change over the last 150

years. He did not expect that will change (naturally, over the life of the project).

c) The spatial scale of the coastal processes assessment and whether the geomorphic context should be regarded as extending beyond Sizewell Bay?

1.4.17 Regarding the spatial scale of the monitoring, HPQC noted that this would be a matter to be approved and adapted, if necessary under the **Coastal Processes Monitoring and Mitigation Plan** (CPMMP) (Doc Ref. 6.14(A)) pursuant to Requirement 7A of the DCO and Condition 17 of the Deemed Marine Licence (DML) respectively. HPQC invited Dr Tony Dolphin to address the comments on the spatial scale of the assessment itself and the further matters raised under these agenda items.

1.4.18 Dr Dolphin highlighted that the key point to focus on here is the impacts the development has; it does not remove any sediment from the system and has very minor impacts in terms of their magnitude and their spatial extent. The reason why we do not focus beyond the Greater Sizewell Bay is because the impacts are contained very well within it. He further highlighted that if the Applicant's modelling demonstrated there were impacts that went beyond the boundaries of the area set in the scoping report (i.e. the Greater Sizewell Bay), then this would necessitate a need to look at a wider area.

d) Whether other locations, such as Southwold, Thorpeness and Aldeburgh, should be included in the baseline monitoring and mitigation proposals

1.4.19 Dr Dolphin confirmed that the impacts of this development are ones that are minor in that they cause the movement of sediment on the coast to be deflected and altered in a very local sense. The monitoring and consideration of the extents is really about tracking the impacts, understanding if our predicted impacts are correct. Therefore, everything is within scope, having an adaptive monitoring plan that is able to respond if it proves that the modelling is incorrect. These effects on sediment transport begin at the development site. If they were persistent, they would radiate out from that point in general, in a southerly direction concordant with the net sediment transport, although there would be a small degree of potential impact going northward under individual (SSE) storms.

1.4.20 He highlighted that SZC Co. has conducted long term sediment transport modelling and storm sediment transport modelling, and reiterated that the tracer study that he previously mentioned shows that there is a sub-cell between Minsmere sluice and Thorpeness.

1.4.21 Dr Dolphin emphasised that the transmission of impacts was the important element, not the transmission of sediment. He then clarified that any effect on sand transport, to the south would be seen and well contained within the monitoring. Furthermore, he pointed out that since there is no sediment removed from the system, it restores itself over a relatively short distance scale.

1.4.22 Dr Dolphin highlighted that some of the literature does show that sand material goes around the Thorpeness headland, but by the time it has reached that location, there is no effect from Sizewell C's development. That is not the case for the pebbles, the coarser material on the beach. The work that Cefas has done there shows that because of the headland, and because the crag causes the shoreline of the Thorpeness headland to bend out, the transport rate decreases for the pebbles. Dr Dolphin did not rule out any transport around that headland, but considered this to be is very small.

1.4.23 Dr Dolphin explained that the effect of pebbles is even more local than for sand, because of its low mobility. He clarified that the reason that the Applicant disagrees with East Suffolk, about the monitoring of the area around the Thorpeness village is that Cefas have not seen any evidence with respect to the pebbles that would have an impact reaching anywhere near close to that location. He reiterated that the monitoring plan is designed to capture any movement, and, in both directions, it is a long way away from the concerned sites.

1.4.24 Dr Dolphin explained that if the predicted impacts proved to be incorrect, then the monitoring would spin up over a wider area. He emphasised that the whole region is monitored by the East Anglian Monitoring Programme. This provides a long and excellent (baseline) record that could be drawn upon if the predicted impacts were much, much larger than the Applicant has anticipated. SZC Co. has also applied very wide buffers around these impacts. Dr Dolphin explained that the Applicant is not expecting that they will go outside of those extents, but if they do, then the monitoring would be adjusted accordingly.

e) The potential impacts upon the Minsmere frontage, and the role of the Minsmere sluice

1.4.25 In response to a query from the ExA, HPQC confirmed that the "Minsmere Sluice Operation Evaluation Technical Note" would be provided at Deadline 6, and otherwise invited Dr Tony Dolphin to provide the Applicant's submissions on these agenda items.

1.4.26 Dr Dolphin explained that the modelling in TR545 [REP3-048] is for assessing the SCDF not for flood risk assessment. Dr Dolphin explained that Cefas had used the Beast from the East event as measured from outside of the sandbank, by the wave buoy and taken those conditions directly inshore (which effectively considers a no-bank situation).

1.4.27 Dr Dolphin confirmed that there is no planned EGA at present.

1.4.28 Dr Dolphin explained that the basis for identifying a potential beneficial impact on the very southern part of the Minsmere frontage is that the SCDF would be supplying shingle material to the coast that it would otherwise not receive. There would become a point where natural erosion would lead to a sediment trap for both natural sediments and sediments sourced from the SCDF. There is a good potential for pebble sized sediment to build up over a relatively small area and form larger super tidal deposits. Dr Dolphin concluded based upon his understanding, that the larger they are, the better the potential for that habitat to increase.

f) For the permanent BLF, during the construction phase, the impacts of any dredging, and the barge berthing platform

1.4.29 No comments made by the Applicant under this item.

g) Cumulative Impacts

1.4.30 Dr Dolphin explained that it is important to acknowledge that beach recharge is going to be the primary form of secondary mitigation. Where recycling occurs, great care will be taken to take sediment from an accumulating area of material and that it will replace the deficit area without affecting the natural longshore transport. It will be part of the monitoring plan to identify whether recycling is or is not appropriate.

1.4.31 Dr Dolphin's reply on emergent impacts was that impacts on geomorphology from Sizewell C's activities begin at the location of those activities and would be able to be traced in the direction of other sediment transport disruption, so they cannot appear somewhere else.

1.4.32 He indicated that climate change comments apply to the flood risk assessment.

1.4.33 Dr Dolphin offered no further comments on cumulative impacts in combination with other projects.

1.5 Agenda Item 5: The adequacy of the proposed climate change adaptation measures, and the resilience of the Proposed

Development to ongoing and potential future coastal change during the Project's operational life and any decommissioning period including:

a) The scope for the HCDF to undergo design adaptation to maintain nuclear safety against predicted sea level rises

1.5.2 Dr Dolphin advised that he is not aware of any evidence that will challenge the likely design life of Sizewell C.

b) The resilience of the Proposed Development, taking account of climate change, in response to shoreline evolution and change scenarios over the anticipated site life

1.5.3 HPQC noted the Applicant that the Applicant would respond to Professor Blowers' written representation in the **Applicant's Written Submissions Responding to Actions Arising from ISH6** (Doc Ref. 9.53).

1.5.4 HPQC invited Dr Tony Dolphin and Andrew Langley to provide the Applicant's submissions on the substance of this agenda item, but also noted in response that some of the points made by various Interested Parties appeared to go beyond this agenda item:

- Section 2.11 of NPS EN-6 makes clear that the arrangements for the disposal of nuclear waste resultant from new nuclear stations are not matters for the examination.
- Further, the question of the need for the Project and its urgency in view of the climate change challenges have both been established as a matter of Government policy (through the ENPSs), as addressed by the Applicant extensively in writing previously (see Applicant's Response to ExQ1 G.1.5 [REP2-100]), and is not a matter for the examination.
- In relation to matters of safety/security, NPS EN-6 makes clear that this too is not a matter for examination, and further referred to the Applicant's response to the ExA's first written questions where the Applicant built on the initial submissions in the Planning Statement in respect of this matter (see Applicant's Response to ExQ1 G.1.5 [REP2-100]) and NPS EN-1 paragraph 4.15.3.

1.5.5 Mr Langley was requested to outline a response to the adaptability of the sea defence and the query around how adaptation would be achieved in the Northern Mound area.

1.5.6 Mr Langley referenced REP2-116 Table 3-1 and the application of the Credible Maximum sea level rise case in the January 2021 ES addendum submission. The Reasonably Foreseeable parameters and analysis have been utilised to set the initial level of the Sea Defence as is common methodology and agreed by all parties. The adaptive case safeguards for the Credible Maximum SLR case (which, based on probability, may never be required) and provision is made for this in both spatial footprint and in the initial defence design so that it could be adapted. REP2-116 outlines this methodology and associated claims. REP2-116 outlines this methodology and associated claims.

1.5.7 Mr Langley confirmed following a query from Mr Collins that any adaption to the Northern Mound area would be achieved by adapting the sea defence height into the plot, away from the seaward face.

1.5.8 Dr Dolphin addressed the concerns about the potential (many decades away) for the Sizewell frontage to become a promontory and as a result, to potentially influence the transmission rates of sediment across the frontage. He confirmed that SZC Co. agrees that there is a potential for this to occur, which is why it is included in the modelling and reporting in both TR545 and TR544 (REP3-048 and REP3-032). He also indicated that he was looking forward to seeing (MTF) feedback on that.

1.5.9 Dr Dolphin highlighted that the **CPMMP** (Doc Ref. 6.14(A)) and the techniques used are spatially continuous and will be able to detect whether there is a blockage and therefore a loss of supply to the downdraft coastline. Dr Dolphin also highlighted that mitigation methods which are mentioned in the environmental statement, (**Volume 2 Chapter 20 of the ES** [APP-311] Section 7), can be used to compensate for any loss in supply.

1.5.10 He emphasised that it is the naturally receding coastline on either side which leads to this promontory and there will be additional erosion pressure (as shown by the modelling in REP3-048). Furthermore, Dr Dolphin emphasised that there will be a be a greater degree of natural supply from the soft defences which will be compensating for any disruption to longshore transport. It is not possible to foresee whether the soft defence feature will supply more or less sediment, but the monitoring programme will be able to see if that happens and provide an option to mitigate.

1.5.11 Dr Dolphin explained that in relation to the climate change potential to affect the tide, that he was aware of a paper on this for UK waters and offered to provide a written response as he couldn't recall exact numbers, but considered it to be a very small change of the order of a few centimetres (please refer to the **Applicant's Written Submissions Responding to Actions Arising from ISH6** (Doc Ref. 9.53).

1.5.12 Finally, to address a query regarding the independence of the Applicant's expert witness Dr Tony Dolphin, HPQC clarified that the manner in which he introduces himself as 'Dr Tony Dolphin, on behalf of the Applicant' is to reflect standard convention at examinations to ensure it is clear which party the speaker is appearing on behalf of (including for ease of reference when listening to the recordings), and does not in any way affect their independence.

1.6 Agenda item 6: Mitigation and controls including the Coastal Processes Monitoring and Mitigation Plan (CPMMP):

1.6.1 HPQC noted the Applicant, ESC and the MMO are involved in active discussions regarding outstanding drafting queries on the DCO/DML and have scheduled a meeting on 21 July 2021 to seek to resolve such matters. In addition, HPQC emphasised that the Applicant is, of course, open to suggestions regarding particular drafting changes and looks forward to receiving any ESC (or others) may wish to put forward.

a) Draft DCO Requirement 2, and the Code of Construction Practice (CoCP), Part B, Section 12

1.6.2 HPQC noted the governance/jurisdiction arrangements regarding approval of works in the intertidal area are subject to ongoing discussions between the Applicant, ESC and the MMO which will be continued at the upcoming meeting on 21 July but made the following specific submissions in the meantime:

- The Applicant understands ESC wishes to retain its role as the relevant local planning authority in respect of land seaward as far as mean low water (which would overlap with the MMO's jurisdiction (up to mean high water)). The Applicant's preference (reflected in the current drafting to the DCO (noting too Article 86)) is that only one authority act as the sole planning authority for the intertidal area in line with Principle 3 of the Coastal Concordat[1] because dual jurisdiction means duplicate securing mechanisms, to be discharged by different authorities, for the same development/activity. Principle 3 of the Concordat provides that "*where opportunities for dispensing or deferring regulatory responsibilities are legally possible and appropriate, they should be taken"*. It is considered that such an approach is legally possible in this instance and it is the Applicant's position that the MMO should act as the relevant planning authority

[1] A Coastal Concordat for England (revised 2019) : https://www.gov.uk/government/publications/a-coastal-concordat-for-england/a-coastal-concordat-for-england-revised-december-2019

for this area and for ESC to defer its responsibilities to the MMO with ESC as named consultees.

- ESC has indicated that they and the MMO are exploring the possibility of a Memorandum of Understanding (MoU) that would give the lead role to one or other parties in defined circumstances (whilst retaining the parties' statutory roles). HPQC noted the Applicant would welcome such arrangements to streamline approvals and manage the overlapping interests and looks forward to discussing this with ESC and the MMO.

b) Draft DCO Requirement 7A and the CPMMP

1.6.3 The **CPMMP** (Doc Ref. 6.14(A)) is secured via Requirement 7A (requiring approval of ESC) of the DCO and Condition 17 of the DML (requiring approval of the MMO). HPQC highlighted the latter expressly provides that on the date Requirement 7A is discharged, it (Condition 17) shall also be considered discharged. This has been structured to seek to avoid the same duplication of process discussed above in relation to approval of the marine infrastructure works themselves. Specific to the suggestion that the provisions should commit the Applicant to funding the mitigation – HPQC noted a change is unnecessary as the existing wording provides for the Applicant to implement the **CPMMP** as approved (Requirement 7A(2) and Condition 17(2)). This is an absolute obligation on the Applicant to carry out the actions required by the **CPMMP** and in order to discharge that obligation it will need to ensure that it has sufficient funds to do so. This would be necessary to ensure compliance with the DCO and so avoid the criminal sanction that would exist were it unable to meet its obligations.

c) Draft DCO Requirement 12B of the DCO

1.6.4 HPQC noted the Applicant was seeking to identify from ESC what they considered lacking from the current drafting to address their specific concerns. By way of example, in response to a query raised by ESC re the level of design information they would have access to under the current drafting, HPQC highlighted that the existing wording requires the details of the layout, scale and external appearance of the relevant works to be submitted for approval, which is a standard form of wording and enables the approving body to determine whether they have adequate information to make a decision, or whether they require additional information which they can then request. HPQC explained that the Applicant would continue discussions with ESC to seek to understand what they were looking to achieve and resolve their outstanding concerns on the drafting, but the alternative formulation put forward by ESC in previous submissions was not considered necessary or appropriate.

d) Draft DCO Article 86

1.6.5 HPQC noted this related to the overlapping jurisdiction between the MMO/ESC and the desire of the Applicant to avoid dual jurisdiction and the associated uncertainty/unnecessary additional regulation this could create (as discussed earlier in the Hearing and summarised above). HPQC noted that as the MMO was not in attendance, this would be something more appropriately discussed with them and ESC at the meeting.

e) Whether any additional requirements, including those relating to the Marine Technical Form (MTF), the MAP, the BLF and funding arrangements would be necessary to address adverse physical changes to the coast?

1.6.6 HPQC clarified that the MTF was established in 2015 (following on the success of the equivalent forum for Hinkley Point C) as a means to consult with marine statutory stakeholders on relevant elements of the project. It has terms of reference agreed by its members (SZC Co., MMO, EA, NE and ESC) and the intention is for the MTF to continue its role post-consent. Its continued existence is secured in the **Deed of Obligation** (Doc Ref. 8.17(E)) (Paragraph 10 of Schedule 11). HPQC submitted that it is the Applicant's view that it has been appropriately constituted and does not require any additional members.

1.6.7 HPQC clarified the purpose of the inclusion of the Maintenance Activity Plan (MAP) in Condition 34 of the DML in response to a query from ESC as to whether it was similarly required in the DCO and to be subject to their approval. HPQC noted it was included specifically to cover certain activities that would become licensable once the nuclear station becomes operational. Section 42 of the Marine and Coastal Access Act 2009 (MCAA) is written such that any area where the sea is able to flow under its own accord is considered a licensable area (see Section 42(4)(b)). This means that once the cooling water systems is flooded, the cooling water intake and outfall tunnels, the forebay and the cooling water pumphouse as far as the drum and band screen wells become licensable areas subject to the MCAA 2009. As a consequence, on the existing operational fleet of nuclear power stations, marine licences are in place for all maintenance works in such areas. HPQC explained the intention of the inclusion of the MAP in the DML was specifically to cover those maintenance activities that will become licensable once the cooling water system is flooded. HPQC clarified that these are activities that are fully within the remit of the MMO and there are no maintenance activities that would be covered in this plan that would relate to activities on land above MHWS which are not already covered by the **CPMMP** (Doc Ref. 6.14(A)) (to be approved by ESC). As such, the Applicant does not consider there to be a need for the same commitment

to be made within a separate Requirement to the DCO because the underlying rationale for its inclusion in the DML was simply absent. HPQC noted however, that this would be further discussed between the Applicant and ESC at the upcoming meeting.

1.6.8 Dr Dolphin confirmed that the predicted impacts are the basis for monitoring. Monitoring extents were determined using the impact extents and the sensitivity of whichever receptor elements are in range, and then using judgement to apply a large buffer zone for the monitoring extent.

1.6.9 He clarified that the baseline data that SZC Co. have been collecting is larger than what is proposed to be monitored, because it has not been agreed yet. He elaborated that were there a circumstance that impacts moved beyond or to the monitoring extent, the SZC Co.'s adaptive plan then expands. He further emphasised that if it gets to the edge of the baseline data, then other baseline data sets are available, mentioned earlier, which the Applicant have been using that cover the entire coastline, namely the East Anglian Monitoring Programme. Therefore, there is baseline data to cope with expansion much, much wider than SZC Co. would expect.

f) Whether it would be necessary and reasonable to make provision in the draft DCO for the removal of the HCDF at decommissioning

1.6.10 HPQC confirmed that the matter remained under discussion with ESC, but provided a general overview of the Applicant's position. As an initial point, HPQC confirmed the HCDF would remain on site, at a minimum, until all nuclear fuel had been removed at the end of the decommissioning phase and no longer served any operational purpose. Accordingly, this is looking to a point of approximately 120 years into the future (2140) and HPQC submitted that whilst the desire to establish a default position requiring removal is understood, it would be premature and inappropriate to make provision at this point mandating any particular course of action in the DCO (particularly in circumstances where the Applicant is not seeking development consent for such an operation under the DCO application). Instead, it was submitted that any decision as to whether to remove it or not is one for the decommissioning process which will be informed by the specific EIA process for decommissioning undertaken in the future, which will assess the likely environmental effects at the time. It would not be appropriate to pre-judge so far in advance what that assessment would conclude. The obligation to decommission and potentially clear the site comes from the nuclear site licence and decommissioning process (as discussed in **ES, Volume 2, Chapter 5, paragraph 5.2.4** [APP-189]), which includes an obligation to have a Funded Decommissioning Programme, approved by the Secretary of State (ibid., 5.3.1). HPQC confirmed that the

Applicant would continue discussions on this matter with ESC to seek to resolve any residual outstanding matters.