

# The Planning Act 2008

Sizewell C (SZC)

Planning Inspectorate Reference: *EN010012* 

Deadline 5 – *23 July 2021* 

Written summary of oral case

ISH 6 Coastal Geomorphology, 14 July 2021

East Suffolk Council 20026200

# **Issue Specific Hearing 6 Coastal Geomorphology**

	Agenda Item	East Suffolk Council
1.	Welcome, introductions and arrangements for the Hearing – Examining	Speakers for East Suffolk Council (ESC)
	Authority (ExA)	Isabella Tafur of Counsel Paul Patterson, Senior Coastal Engineer, ESC
2.	The assessment of the coastal impacts of the Proposed Development:	In general ESC is satisfied with the impact assessment information submitted by the Applicant.  However, the assessment is an iterative process and there are a number of unresolved matters
(a)	Whether the potential coastal impacts of the Proposed Development can be satisfactorily assessed from the information submitted by the	of concern. ESC is anticipating further detail from the Applicant and will provide comments on that information in due course.  2(b) ESC considers that the following information is required and anticipates that further details will be provided by the Applicant in due course:
(b)	Applicant?  If not, what additional information would be required?	<ul> <li>evidence that the Hard Coastal Defence Feature (HCDF) is located as landward as possible;</li> <li>evidence that the HCDF foundation is resilient to coastal change over the life of the Project;</li> <li>evidence that the profile and makeup of the Soft Coastal Defence Feature (SCDF) will not</li> </ul>
(c)	Update on the additional details of the hard coastal sea defence feature (HCDF)	obstruct native sediment transport along the frontage; - evidence that maintenance of the SCDF is viable over the lifetime;

design to be provided at Deadline 5.

- (d) The assessment principles (an adopted rule or method for application in action) adopted by the Applicant.
- an assessment of the impact of an Adapted HCDF (that advances circa 17m seaward) will not impede sediment transport;
- further detail on the proposed profile of the HCDF and SCDF at most vulnerable locations;
- evidence that the May 2020 DCO / ES conclusions regarding HCDF impact and methods of mitigation [APP-311, APP-312] have not changed in light of the seaward advance of the HCDF since then (currently 8m over the central majority and further at the overlap with the Sizewell B defence, albeit ESC understands that this position may change with the submission of further detail from the Applicant); and
- clarification of the forecast date (2140) when the HCDF is no longer needed to protect the nuclear site.

#### 2(c)

We understand from discussion that the further information to be provided by the Applicant at the next deadline will include:

- Amended site plans to show a retreated HCDF line.
- An updated CPMMP [AS-237].

#### 2(d)

ESC is in agreement with the Environment Agency on this matter in that we accept the principles adopted by the Applicant and assessment undertaken to date. However, the assessment only currently covers part of the Project's lifetime and we understand that further assessment, to 2140 is to be provided by the Applicant at the next deadline, which ESC will comment on in due course. There are various matters which are the subject of ongoing discussions and ESC looks forward to receiving and commenting on this information at forthcoming deadlines.

- 3. The implications of the Proposed Development on the strategies for managing the coast as set out in the Shoreline Management Plan (SMP)?
- (a) The SMP policy boundary between MIN 12.2 and 13.1.
- (b) The MIN 13.1 policy to 'Hold the Line to 2105', and whether the more seaward position of the HCDF and the SCDF for Sizewell C relative to the Sizewell A and B sites would be in conflict with the SMP.

#### 3(a)

The SMP policy boundary between MIN 12.2 and MIN 13.1 shown in SMP7 page PDZ4:24 is not considered to be correctly drawn, in that it is not coincident with the Sizewell C northern site limit. The northern extent of the development is shown within the MIN 12.1 frontage that has a policy of Managed Realignment. The remainder of the site has a SMP policy of Hold the Line. SMP text is consistent with a policy change at the Sizewell C site northern boundary rather than as shown on the plan. ESC and the Applicant agree that this the discrepancy between text and plan is attributable to an inaccuracy in the plan.

#### 3(b)

ESC considers that the seaward extent of the proposed HCDF and SCDF results in a conflict with the SMP Hold the Line policy. The SMP Intent for Management and future management action plan for unit MIN 13.1 is based on an assumption that any new power station development would not breach the line of the existing coastal defence features for Sizewell A and B (see SMP PDZ4, pages 24 – 25 and Appendix C Annex 1 'With Adopted Policy' maps plan 10 that shows a retreating shoreline at the foot of the SZB defence feature). The proposed coastal defence features for Sizewell C extend further seaward than the existing coastal defence features of Sizewell B by approximately 40 - 50m, resulting in conflict with the Hold the Line policy.

ESC recognises that constraints exist which limit the area in which the platform can be accommodated, including the constraints imposed by the SSSI, which may make a breach of the Hold the Line policy inevitable if Sizewell C is to be constructed. However, given the policy in the SMP, the Applicant should minimise the seaward extent of the coastal defence features as far as possible and should seek to avoid any further seaward advance of the Adaptive HCDF which may be required to address a rise in sea levels associated with climate change.

- 4. Potential impacts on coastal processes and geomorphology including those arising from the proposed HCDF and the soft coastal sea defence (SCDF) and the temporary and permanent beach landing facilities (BLFs) and associated activities:
- (a) The potential for consequential adverse and/ or beneficial impacts on coastal processes arising from these features and activities.
- (b) The vulnerability of the coastline to erosion with particular regard to the role played by the Sizewell-Dunwich banks and the Coralline Crag outcrop.
- (c) The spatial scale of the coastal processes assessment and whether

#### Overview.

ESC's main concerns are that by building the proposed HCDF on this dynamic shoreline, the new structure will cause significant adverse effects to the existing beach frontage and longshore and cross-shore interaction.

The Applicant recognises that, without mitigation, there is a probability the HCDF will be exposed within its operational life and that exposure will interrupt coastal processes which ordinarily means the unobstructed movement of sediment, [REP2 116].

The Applicant proposes primary mitigation by a SCDF that will provide and sustain a sediment pathway to seaward of the HCDF over the Sizewell C frontage. The Applicant also recognises the need for secondary mitigation by SCDF replenishment in combination with other beach management measures to sustain sediment movement across the Sizewell C frontage. The Applicant's assessment of the potential impact of the other marine structures concludes that there is a low risk of a significant impact on coastal processes at the shoreline, subject to the delivery of the proposed mitigation measures.

ESC has pressed the Applicant to manage this risk by the following actions:

- 1) Ensure the works design positions the HCDF as landward as practicable.
- 2) Ensure that the assessment of potential impacts applies a precautionary approach by considering a broad range of baseline coastal change scenarios and by including extreme worst-case scenarios beyond recent coastal change trends.
- 3) Ensure that the proposed mitigation actions are developed and assessed in high detail at DCO stage to demonstrate they are capable of delivering the coastal process outcomes required, are viable over the station life until HCDF removal and that the investment required to sustain them is identified and underwritten by the Applicant.

the geomorphic context should be regarded as extending beyond Sizewell Bay?

- (d) Whether other locations, such as Southwold, Thorpeness and Aldeburgh, should be included in the baseline monitoring and mitigation proposals?
- (e) The potential impacts upon the Minsmere frontage, and the role of the Minsmere sluice.
- (f) For the permanent BLF, during the construction phase, the impacts of any dredging, and the barge berthing platform.
- (g) Cumulative impacts.

- 4) Create a robust Monitoring and Mitigation process fully funded by the Applicant to continue over the development life until HCDF removal.
- 5) Ensure that all maintenance, repair and adaptive works undertaken during the station life do not increase the risk of disruption to natural coastal processes.
- 6) Ensure that ESC has a strong approval and enforcement role in the project, working in partnership and collaboration with other stakeholders.
- 7) Agree that removal of the HCDF as part of the site decommissioning phase in order to restore a naturally functioning coast, is the default position for the station whole life investment plan unless amended by a future report at station decommissioning planning stage.

#### 4(a)

As discussed above, ESC has concerns over the seaward extent of the HCDF and is keen to see new details to be provided by the Applicant at the next deadline. ESC understands that the revised details will show a landward movement of parts of the HCDF which is welcomed.

ESC considers that the foundation for the HCDF is unusually high for such a feature. This gives rise to a concern that if it becomes exposed, this may require an early adaption for the feature that would not otherwise be required by sea-level rise alone.

ESC is concerned that the design of the SCDF now favours a more resilient non-native beach composition which may inhibit the transportation of sediment. ESC recognises that there are competing considerations in play, in that a more resilient composition for the SCDF is likely to require less maintenance and beach management but is concerned that the baseline sediment pathway may be impacted as a result of the non-native beach composition.

The profile of the Adaptive HCDF is also of concern. If it is required to raise the profile, it will move both the HCDF and the SCDF further seawards and further into the inter-tidal zone. We look forward to receiving more details on this and will comment on them in due course.

Secondary mitigation is not yet fully defined, and we understand that the CPMMP [AS-237] will be updated and provide further detail of this. All matters mentioned here are contained in our written submission.

ESC wishes to establish a default position that the HCDF should be removed at the decommissioning phase. The site funding plan should be based on the premise that this feature will be removed subject to future assessment confirming otherwise.

#### 4 (a) (i) The plan position of the HCDF

The current alignment of the HCDF is further seaward (by approximately 40-50m) than the Sizewell A and Sizewell B equivalent defences.

The seaward extent of the HCDF rock slope is shown in REP3-004 as having advanced over the central standard Sizewell C frontage by 8m compared to the May 2020 proposal. ESC has requested that the Applicant revisits its assessment of the HCDF plan location to demonstrate minimum seaward advancement and understands that further details to be provided at the next deadline will show a landward movement of parts of the HCDF.

## 4 (a) (ii) The risk of further seaward advance caused by coastal change.

The underside level of the proposed HCDF seaward foundation structure is at ~MSL. This is untypically high by conventional design standards for rock armour slopes on the Anglian coast. ESC is concerned that this high foundation level makes the structure vulnerable to undermining and may require premature / avoidable Adaptive works if coastal change over the site life renders the SCDF unviable.

This is relevant to coastal processes because the current design remedy for an inadequate HCDF foundation level is the Adaptive design that will overlay and extend the HCDF foundation by a further ~20m seaward.

In the Design Report <u>REP2-116</u> the Applicant has assessed the proposed foundation level to be resilient to future coastal change. The Applicant believes there is no risk of an Adaptive profile being triggered by coastal change because a SCDF will be maintained to seaward of it and the HCDF foundation is secure over its design life. This matter is under discussion with the Applicant.

# 4 (a) (iii) The SCDF is a more substantial and resilient structure than proposed in the May 2020 DCO.

The developing design is for a 'engineered' non-native beach feature with potentially 3 defined layers (cobble, buffer shingle and sacrificial shingle) increasing in size and resilience toward the HCDF face. ESC is concerned that the current SCDF design is departing from the original concept that it would be a maintained natural shoreline using reclaimed material, similar in nature to beaches to either side, that would be distributed along and across shore. (TR311 3.2.2 [APP-312])

Making the SCDF more erosion resistant could be expected have two principal effects: reducing the volume of sediment to feed the adjacent shoreline and reducing the rate of landward migration of the SCDF through erosion and/or overtopping of shingle.

TR545 <u>REP3-048</u> also illustrated an option for a Type B HCDF which would be the same as Type A, but for the inclusion of a "Cobble Layer" - a 5m width of fine cobbles at the toe. In effect this would present a further 5m seawards extension of the HCDF or more, should the cobble layer collapse under wave attack (possibly the intent as a contingent measure to limit bed scour).

ESC's preferred position is for the SCDF design to provide a sacrificial surface layer that is able to be mobilised by waves and tidal currents in a fashion that is comparable to adjacent beaches. This will probably require a higher level of management, and investment, by the Applicant than the most recent draft design. This is under discussion with the Applicant.

4 (a) (iv) The Applicant has identified **the HCDF may undergo design Adaption** during its life that will overlay and extend it seaward by 17m and create a new foundation underside level of 1.5m below ordnance datum. This will be triggered by monitoring of sea level rise trends and will result in a higher standard of flood protection for the site.

The Design Report suggests that the SCDF will be maintained to seaward of the Adaptive HCDF. ESC has asked for evidence from the Applicant that this is viable.

ESC has queried the `buildability' of an Adaptive profile many decades into the future when shoreline change may have made the HCDF intertidal part a marine structure, <u>REP3 032</u>, <u>REP2 116</u>.

ESC objective is to avoid construction of a modified HCDF that will extend ~17m further seaward and increase the potential for a major negative impact on coastal processes by breaking the shoreline sediment pathway, <u>APP-312</u>. This matter is under discussion with the Applicant.

4 (a) (v) The **Permanent and Temporary Beach Landing Facilities** are jetties that allow the seaborne delivery of abnormal indivisible loads (AIL) and bulk construction materials, respectively. ESC is now generally satisfied with the conclusion of the Applicant's assessment that the BLFs are not likely to cause a significant adverse impact on coastal processes, subject to the proposed mitigation as part of a managed SCDF.

4(a)(vi) ESC believes the **HCDF should be removed** when no longer required to protect nuclear site infrastructure. The HCDF will require substantial mitigation to avoid it causing significant interruption to coastal processes during the station life. The potential harmful impact, and mitigation effort, will increase over time. ESC considers that the default position should be that the HCDF will be removed, subject to assessment at the time of decommissioning.

ESC requires a commitment in the site management and funding plan to remove the HCDF at decommissioning stage <u>unless and until</u> future coastal geomorphology impact assessments reports conclude that its retention is not detrimental to coastal processes, <u>REP3-004</u>. This is under discussion with the Applicant.

#### 4(a)(vii) Potential beneficial impacts.

In a without-Sizewell C scenario the shoreline over the development frontage is expected to retreat landward. In a with-Sizewell C scenario it is predicted that the shoreline fronting the development and to north and south would erode at a lower rate and that this would have beneficial impacts, especially to the north. ESC agrees that this may be possible with a caveat. The SCDF is expected to comprise coarser sediment (shingle) that will be more resistant to erosion and transport than the native beach material. Whilst there will be some feed of sediment from the SCDF to the adjacent shores , these will not be so rich in coarse sediment and as a result could be expected to retreat more rapidly than the SCDF, creating a misalignment between the SDCF and the adjacent shorelines. The change in alignment has the potential to interrupt the natural longshore transport of sediment past the SCDF, REP3-004.

This concern has been discussed with the Applicant with a provisional conclusion that secondary mitigation would be deployed to realign the shoreline thus relieving the problem, <u>REP2-116</u>.

4(a)(viii) If the SCDF-supported sediment pathway across the site frontage is interrupted, then **secondary mitigation** is proposed by the Applicant as mitigation. This is not yet well defined as is subject to ongoing discussion with the Applicant. ESC understands that an updated CPMMP will be provided at the next deadline which provides further detail of the proposed secondary mitigation.

#### 4(b)

ESC's position is aligned with that of the Environment Agency. The Sizewell-Dunwich banks and Coralline Crag play a key role in coastal processes for this region. ESC is satisfied that the Applicant's investigation and identification of natural features that have potential to modify coastal processes is comprehensive and accurate. The Applicant's assessment of how the Sizewell-Dunwich banks and the Coralline Crag outcrop have and will continue to influence coastal processes is also accepted as comprehensive and accurate.

#### 4(c)

ESC is satisfied that the spatial scale of the coastal processes assessment carried out to date is reasonable. However, ESC considers that the Sizewell Bay area should include the Thorpeness beach frontage given sediment transmission link between the areas.

ESC regards protection of the crag from avoidable unnatural deterioration as a priority and will seek to include measures to secure its protection via the CPMMP[AS-237].

#### 4(d)

ESC considers that there is the potential for further change to occur over the Thorpeness frontage, and given the link in sediment transport, it is appropriate to include Thorpeness village frontage in the area of assessment. It is important to closely monitor any potential links to the development that may change over time. ESC has suggested an alternative arrangement may be for the Applicant to provide funding to ESC to monitor the Thorpeness frontage. This matter is subject to ongoing discussions with the Applicant.

## 4(e)

ESC is generally satisfied with the Applicant's assessment of potential impacts on the Minsmere frontage of the HCDF, as shown in report TR311 [APP-312] section 7, and of the BLFs, in TR543 [PDB-010].

ESC is content with the Applicant's assessment of how future changes in the condition of the Minsmere sluice outfall might affect the development site.

#### 4(f)

ESC is generally satisfied with the conclusion of the Applicant's assessment of potential impacts during the construction phase of any dredging associated with installation and operation of the permanent BLF and the installation and operation of the barge berthing platform stated in TR543 [PDB-010].

#### 4(g)

ESC had nothing to add to the Environment Agency's position with regards to the works undertaken by the Applicant to date being of good quality as far as they go but that further assessment is required to cover the forecast lifetime of the project. This additional information is expected from the Applicant at the next deadline and is required to enable a full assessment of coastal impacts over the lifetime of the Project to take place.

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

#### Introduction.

The Applicant has considered how climate change may affect the site in the design of the H&SCDF's and marine works and in the provisions of the draft monitoring and mitigation plan. The proposals are generally acceptable to ESC however some elements remain under discussion.

#### 5(a)

ESC's position is aligned with that of the Environment Agency in that our interest in the adaptive design relates to coastal processes rather than nuclear safety, which is the subject of a separate

# decommissioning period including:

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

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

regulatory regime. ESC considers that there is scope for the HCDF to undergo design adaptation but any seaward movement of the toe of the HCDF may give rise to an adverse impact on coastal processes, which needs to be assessed.

The Adaptive HCDF profile may be required if actual Sea Level Rise rates exceed current pessimistic predictions. It may also be required if the SCDF becomes unsustainable and the HCDF foundation becomes at risk of undermining. ESC has requested information from the Applicant to assess the implications of the Adaptive HCDF / SCDF on sediment transport pathways and thus to demonstrate that it is possible to sustain a SCDF to seaward of the Adaptive HCDF.

#### 5(b)

ESC has concerns that a change in shoreline over the life of the development has the potential to put at risk the foundation level of the HCDF feature based on current designs. ESC has further concerns about the potential for the HCDF with SCDF in front, both in the original design and adaptive design, may become a promontory with erosion of the surrounding shoreline moving behind it. This matter is subject to ongoing discussion with the Applicant.

6. Mitigation and controls including the Coastal **Processes Monitoring and** Mitigation Plan (CPMMP):

ESC's position on the need for and wording of Requirements is the subject of ongoing consultation with MMO prior to further negotiation with the Applicant.

# 6(a)

## Requirement 2. Project wide: Code of Construction Practice

The construction of the authorised development and the removal and reinstatement of the temporary works must be carried out in general accordance with the Code of Construction Practice, unless otherwise approved by East Suffolk Council.

- (b) Draft DCO Requirement 7A and the CPMMP.
- (c) Draft DCO Requirement 12B.
- (d) Draft DCO Article 86.
- (e) Whether any additional requirements, including those relating to the Marine Technical Forum (MTF), the MAP, the BLF and funding arrangements would be necessary to address adverse physical changes to the coast?
- (f) Whether it would be necessary and reasonable to make provision in the draft DCO for the removal of the HCDF at decommissioning?

ESC have raised concerns with the wording in Requirement 2 ("general accordance"). The Applicant has proposed to include a definition of "general accordance" in the DCO which is currently under consideration by ESC.

#### 6(b)

**Requirement 7A** obliges the Applicant to prepare, maintain and implement a **Coastal Processes Monitoring and Mitigation Plan (CPMMP**[AS-237]) until HCDF removal, or HCDF retention is justified, to sustain an effective sediment transport pathway across the Sizewell C frontage to allow natural coastal change to take place.

ESC's outstanding concern relates to the interaction between Requirement 7A and Condition 17 of the deemed marine licence, which requires the submission and approval of a CPMMP to the MMO. ESC has engaged with the MMO as to the best way to manage the overlapping jurisdiction in the intertidal area. A meeting has been arranged between ESC, MMO and the Applicant on 21 June 2021 to progress discussions on the overlapping jurisdiction.

An updated CPMMP, version 3, is expected from the Applicant at Deadline 5 that will be informed by output from studies submitted before / at D3 and by feedback from MTF members on version 2.

#### 6(c)

**Requirement 12B (in DCO v4)** provides for the submission and approval of certain design details for Marine Infrastructure to be submitted to and approved by ESC, in consultation with the MMO. ESC wishes to ensure that this requirement covers all aspects of the design of the Marine Infrastructure that have the potential to affect coastal processes; that the Applicant clearly identifies any design changes at detailed design stage compared to the applicant/examination stage, and that the overlapping jurisdiction of ESC and the MMO in the intertidal area is properly

managed. These are matters of ongoing discussion between ESC, the MMO and the Applicant and are due to be discussed at a meeting between those parties on 21 June 2021.

#### 6(d)

**Article 86** of the DCO provides for the MMO to be the "relevant planning authority" in the intertidal area. ESC understands from its discussions with the MMO that it does not wish to have any planning or enforcement obligations in the intertidal area beyond those covered by the deemed marine licence. As such, ESC should be the relevant planning authority in the intertidal area. Section 127 of the Planning Act defines the "relevant planning authority", which in this case would be ESC. ESC therefore considers that Article 86 should be omitted from the draft DCO. If it is to be retained, it should identify ESC as the relevant planning authority.

#### 6(e)

**6(e) (i) MTF**: ESC has agreed with the Applicant that the Marine Technical Forum can be secured through the Deed of Obligation rather than through a requirement in the DCO.

#### **Additional requirements**

ESC has proposed other Requirements listed below that do not appear in the draft DCO. They are the subject of ongoing discussion with the Applicant and the MMO.

#### 6 (e) (ii) Maintenance Activities Plan (MAP) NEW REQUIREMENT.

ESC wishes to secure that any maintenance activities to the Marine Infrastructure landward of Mean High Water Springs which have the potential to affect coastal processes are subject to suitable control. As such, it proposes an additional requirement, equivalent to Condition 34 of the Deemed Marine Licence, which requires the submission and approval of maintenance activities plans to ESC to ensure that they have appropriate control over maintenance activities that have the potential to affect coastal processes. ESC understands from discussions between

coastal experts that the principle of securing appropriate control over maintenance activities is accepted by the Applicant. The precise mechanism for securing this control is subject to ongoing discussion with the Applicant and the MMO.

**6 (e) (iii)** Text concerning the BLF is now included as part of Requirement 12B. As such, no additional Requirement is necessary.

**6 (e) (iv)** ESC's wishes to ensure that there is a clear requirement for the Applicant to **fully fund the CPMMP** [AS-237] **process, including all mitigation**, unless or until the HCDF is removed. Additional wording could be provided in Requirement 7A to make this clear.

#### 6(f)

#### **Decommissioning and Removal NEW REQUIREMENT.**

ESC considers that the default position should be for the HCDF to be removed when no longer required to protect a nuclear site. This is because of its concern that if the HCDF remains *in situ* after decommissioning, without the SCDF being actively managed, it could become an impediment to sediment transportation and thus adversely affect coastal processes.

ESC understands that the Applicant accepts that this should be the default position, subject to future assessments indicating that this is not necessary. The precise means of reflecting this default position is subject to ongoing discussion between ESC, the Applicant and the MMO.

#### ESC proposes the following text:

Sizewell C Co. shall remove the Hard Coastal Defence Feature, and any associated works that have potential to prevent the natural evolution of the shoreline, as part of the Sizewell C site decommissioning works unless amended by the anticipated Sizewell C Decommissioning Environmental Impact Assessment or otherwise agreed by ESC after consultation with members

of the MTF. The removal works shall be carried out in accordance with a proposal to be
submitted to ESC for approval.