



East Suffolk Council response to the Changes consultation

December 2020

Glossary of acronyms

AIL	Abnormal Indivisible Load
AOD	Above Ordnance Datum
AQMA	Stratford St Andrew Air Quality Management Area
BLF	Beach Landing Facility
DCO	Development Consent Order
ESC	East Suffolk Council
HCDF	Hard Coastal Defence Feature
HGVs	Heavy Goods Vehicles
LOAEL	Lowest observed adverse effect level
MMP	Monitoring and Mitigation Plan
PINS	the Planning Inspectorate
SCDF	Soft Coastal Defence Feature
SEP	Self Elevating Platform
SOAEL	Significant observed adverse effect level
SSSI	Site of Special Scientific Interest
WHO	World Health Organisation
WMZ	Water Management Zone

Response of East Suffolk Council

1. East Suffolk Council (ESC) cautiously welcomes the changes consultation in giving us an opportunity to provide feedback on potential proposals prior to formal submission to the Planning Inspectorate (PINS) in January 2021.
2. We are cautious as there remains many not yet answered questions in relation to the original Development Consent Order (DCO) submission, therefore, to make changes at this late date leads to concerns that we will not have adequate time to properly assess changes when submitted in 2021. Our relevant representation previously submitted remains valid at this stage. We hope to be in a position to formally comment on change proposals once submitted to PINS.
3. A number of the changes under consideration seem to be aimed at reducing the number of Heavy Goods Vehicles (HGVs) on the road in relation to the construction of Sizewell C. This is commendable and ESC supports the benefits to potential congestion, air quality and noise emanating from less HGVs arising from the development. However, the alternative is a new long temporary beach landing facility and an additional three trains resulting in 5 additional rail movements overnight in addition to the four paths proposed in the DCO currently. ESC has concerns with the impacts of the additional temporary beach landing facility on coastal processes – it would appear that option 4 would have the lesser impact but this cannot be fully assessed without detailed environmental information.
4. ESC has existing concerns with the four rail paths proposed in the DCO to run overnight and the impact this may have on the health and wellbeing of residents living close to the currently silent overnight rail line through disturbed sleep for the construction period of 9 – 12 years. Increasing this number significantly raises our concerns. We have not yet been convinced that a Noise Mitigation Strategy will effectively mitigate for the noise disruption of so many rail movements over-night. Further detail on this is given below.
5. ESC wants to ensure that if Sizewell C is consented that we have the right mitigation in place at the right time for our residents, businesses and coastline. We have not seen the detailed environmental information we need to determine if SZC Co.'s proposals are sufficient. We are concerned that when changes are submitted to PINS that we will not have sufficient time to properly analyse and assess the detailed environmental information required to subsequently advise the Examining Authority.
6. This document begins with a few generalised topic-based paragraphs before following the subject order of the changes publication.

Environmental Protection

7. The comments in this response are preliminary and subject to change due to ongoing discussion with SZC Co. and ongoing technical assessment by ESC and the consultants we have engaged to provide technical advice in respect of Noise and Vibration across the DCO submission.

Air Quality

8. The change document highlights the potential to reduce typical day HGV movements from 650 to 500, a reduction of 150 HGV movements per day (75 HGVs). During the busiest day scenario, this would increase to a reduction of 300 HGV movements a day (150 HGVs). This would provide an air quality benefit in the peak construction periods.
9. With regards to impacts in the Stratford St Andrew Air Quality Management Area (AQMA), background concentrations are projected to decrease sufficiently for Sizewell C's impact upon local air quality to be insignificant in the 2028 and 2034 peak construction scenarios. The Two Villages bypass will be constructed by this stage, effectively eliminating the risk of air quality impacts in the AQMA resulting from SZC Co. traffic. The main scenario of concern for local air quality is therefore the early years 2023 scenario, as there is a risk that background concentrations will not decrease sufficiently for Sizewell C's contribution to be insignificant within the Stratford St Andrew AQMA by this time. However, within paragraph number 3.2.25 of the Freight Management Strategy, it is mentioned that the marine and rail infrastructure will not be in place early enough to affect the early year 2023 HGV numbers. Consequently, the freight management strategy does not alter the Council's position detailed within the relevant representation regarding the risk of impacts in the AQMA due to HGV movements. If we combine these with the effects of ScottishPower Renewable's construction vehicles there is a potential cumulative effect that needs to be addressed.

Coastal

10. Our assessment of the proposals is highly limited because further information is required on many matters to adequately describe the works and their potential impacts and to clearly show how the changed works and their impacts differ from the information presented in the DCO.
11. The detail below must therefore be regarded as a preliminary view conditional upon the supply of additional material by SZC Co. and our review of it.

12. In addition, a robust and SZC Co. fully-funded Monitoring and Mitigation Plan (MMP) is a critical requirement in the delivery of satisfactory outcomes. We recommend that this document be placed in the public domain, via PINS or another route, now.
13. The feedback given below on elements of the works should be read in parallel with feedback given in response to the DCO. We recognise that the new works information may either alter or make redundant previous feedback however we are keen to ensure that the previous feedback is not overlooked or regarded as superseded.
14. Furthermore, we wish to indicate our disappointment that we are still awaiting responses to questions and points of clarification from the DCO response and that the new change proposals have not clarified or answered those concerns - in fact, there are now more areas we need to establish answers to making it increasingly unlikely that ESC, along with the communities we represent, will be able to reach common ground on these matters in the timescales provided.

Highways

15. Although ESC has supported aspirations for a sustainable transport solution, it must be a deliverable sustainable solution that does not have significant adverse impacts. To date, SZC Co. have proposed an integrated transport solution with a combination of rail, sea, and road. National Policy Statement EN-1 (Energy) is very keen on sustainable development and states that the consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development. EN-1 refers to water-borne or rail transport being preferred over road transport, where cost-effective. It then goes on to reference specific controls that can be utilised to manage substantial HGV traffic. Initial sea proposals for an 800m long jetty were previously dismissed by SZC Co., We welcome the potential opportunities to increase the ability of the permanent beach landing facility to receive up to 100 abnormal indivisible loads (AILs) per campaign. We cautiously welcome the potential for an additional temporary beach landing facility to bring in aggregates, however, see detail below for our full response to the temporary beach landing facility.
16. The increase in rail is concerning to ESC given we have existing concerns with the night-time rail proposed in the DCO that have not yet been allayed, increasing rail freight over-night potentially increases these concerns significantly. ESC wants an appropriately balanced assessment of less HGVs vs increased sea and over-night rail to be undertaken. On the preliminary environmental information provided we are currently unable to undertake that full balanced assessment. We need more information to properly balance adverse impacts arising from increased rail, and potentially sea, with the potential decrease in noise, vibration and improved air

quality associated with the reduction in HGVs, as well as other potential comparative impacts of reducing HGV movements such as reductions in collisions, driver delay, vulnerable road user amenity, fear and intimidation and other local impacts. This additional information should also include details of the delivery timescales of all the proposed mitigation and details of any contingency if there are delays in the programme. ESC would welcome the early commitment of SZC Co. to upgrade the rail line working with Network Rail if it is determined that improvements are required.

17. The proposal identifies that the potential is being investigated for a fifth train; however, there is uncertainty over this train's timings and potential impacts, including on the passenger service. As a principle, ESC would seek to minimise any disruption to the passenger service as far as possible; however further information is needed to understand the impacts and we would recommend engagement with Greater Anglia on understanding the potential impacts, including those on passengers.

Freight Management Strategy – Rail

18. Environmental Protection: It is important to note that there are currently significant concerns with the DCO as submitted in terms of the freight management strategy particularly in respect of night rail freight, there are concerns that the noise and vibration assessments may be underestimating impact and the conclusions reached thus far are prone to a significant amount of uncertainty. One of our key concerns is that the majority (all bar one) of the rail movements will occur between 23.00 and 07.00, this period is regarded by many important guidance documents as night-time and is subject to a higher level of sensitivity in terms of noise impact.
19. The significance criteria adopted by SZC Co. may not be protective enough to residents along the track and the actions triggered by breach of those criteria is not considered to do enough to protect residents in fundamental areas such as sleep disturbance. Mitigation and control that is appropriate to the situation and adequate to prevent breach of [still to be agreed] internal sleep disturbance sound levels, where that breach cannot be avoided, must underpin any proposal for night rail freight movements, be it as a result of those already proposed in the DCO application or as a result of these changes.
20. The change proposal seeks to reduce the number of HGV movements and puts significant emphasis on the importance of rail and marine solutions to take the burden of freight management. Whilst in broad terms the aspiration to remove HGVs from the highway is supported by ESC, it must be considered and balanced in terms of impacts and this aspiration cannot come at the cost of disproportionately shifting impacts elsewhere. Given that the DCO proposals require further consideration in terms of mitigation and control

for noise and vibration from night rail movements, these changes require even more emphasis and effort to be made in this regard by SZC Co. as ESC will be unable to accept the proposals until residents are adequately protected from noise and vibration impacts in line with current legislation, guidance, and best practice. ESC's expectation is that the same extensive investment as proposed in relation to road infrastructure is considered applicable to the support of rail freight, particularly in terms of noise and vibration mitigation and control.

21. Various mitigation is mentioned including use of a Class 66 locomotive, but ESC needs to clearly understand what the noise impacts of this type of engine are? What other options of locomotive exist, and will the lowest impact class of locomotive be used? Additional concerns relate to proposals for 6 movements a day (5 overnight, 1 daytime) six days a week which would impact on Saturday, night-time, and weekends – when residents are most likely to be in their properties which means they will receive little respite from a noise source that previously was not present in any significant way prior to this proposal. As well as project embedded mitigation, there needs to be consideration of property eligible for mitigation because of impacts arising from noise / vibration. This scheme needs to be appropriately detailed, agreed with ESC, and available for all affected properties – this is likely to involve flexibility within any agreed scheme.
22. SZC Co. proposes sound insulation above SOAEL (Significant Observed Adverse Effect Level), this is currently unacceptable, significance criteria are external levels and mitigation for residential properties should be driven by internal sleep disturbance criteria. A LOAEL (Lowest Observable Adverse Effect Level), of 60dB has been adopted to produce an internal level of 45dB which accords with the World Health Organisation (WHO) sleep disturbance criteria for LAmx in the WHO Guidelines for Community Health and should be the minimum level of protection for residents. Noise levels above LOAEL will breach the sleep disturbance criteria internally and could therefore lead to adverse effects in terms of sleep disturbance between LOAEL and SOAEL and so mitigation should be provided within this range to achieve a recognised sleep disturbance sound level internally. This is critical for the success of a night rail freight operation on a line that prior to these trains running has had very little night movement and certainly nothing of this magnitude, regularity or type. The currently proposed Noise Mitigation Scheme needs refinement to allay ESC's concerns.
23. Highways: There are several questions with regards to the potential for freight trains to take HGVs from the road, calculations provided in the change's documentation do not seem to equate to overall assessment of reduction of HGVs. This is requested to be fully examined so we can be confident in the number of HGVs potentially taken from the road if rail use is maximised.

24. At paragraph 3.2.8 it is indicated that the potential exists for the Land East of Eastlands Industrial Estate to continue to be used as a railhead should four trains per day be achieved. Further information is sought on why it would need to be used, and whether this relates to the capacity of the main site to manage additional rail movements.
25. Ecology: The potential for the increase in the number of night-time trains is noted, however the assessment provided does not consider the potential for impacts on nocturnal wildlife, particularly in relation to foraging and commuting bats and owls. This must be assessed as part of the proposed changes to ensure that an increase in night-time train movements does not result in increased ecological impacts.
26. Air Quality: The reduction in HGV movements would be achieved by increasing transport via rail and shipping vessels. The risk from rail impacts has been demonstrated as insignificant using very conservative estimates. As a result, the risk of air quality impacts from additional locomotives in transit and idling is not considered likely to be significant, as demonstrated within the DCO application. We welcome that SZC Co. have highlighted that air quality impacts from additional rail movements will be assessed.

Freight Management Strategy – Road

27. Environmental Protection: The consultation is quoted as saying the benefit of a reduction in HGV movements of up to 150 HGVs is a 1.5dB decrease in the impact of this project on road traffic noise. It should be noted that it is generally accepted that 3dB is the level at which the average person can perceive an audible change. ESC disagrees with SZC Co's assertion that there will be a benefit to road traffic noise as ESC considers there will be an unperceivable negligible impact. It is important to note this is a reduction on the impact the project makes to road traffic noise not a reduction on the current road traffic noise level. This is important in the balance of impact assessment that is required.

Enhancing the permanent beach landing facility (BLF)

28. Coastal: We understand the proposals will increase the number of abnormal indivisible loads (AILs) able to be received in the construction phase from 50 per annum to 100 per annum which will in turn reduce HGV deliveries.
29. In discussions during this consultation period the opportunity for the berthing platform (or grillage) design to exclude piles and favour concrete over wood is being explored. ESC would prefer a berthing platform that does not include piles.

30. Impacts from dredging of the outer sand bar for navigation access and sediment movement blocking by the berthing platform are new / increased risks that require further investigation and modelling to confirm and quantify.
31. The use of a backhoe dredger, in preference to a plough, is of concern to ESC as it has potential to lead to a loss of material from the nearshore system.
32. SZC Co's assessment of the potential environmental impacts of the changes appears reasonable based on the limited information available.
33. The changes have potential to cause additional negative impacts that are temporary and potentially manageable via the MMP process, but this needs to be demonstrated by SZC Co. in respect of detailed further studies and modelling.
34. We welcome further detailed investigation and impact assessment of this design with the caveat that our final view may alter when the detailed design and impact assessment information is presented.
35. However, our cautious support in this area is dependent upon agreement with SZC Co. (and Marine Technical Forum partners) of a MMP that includes appropriate coverage of these risks.
36. Public rights of way / amenity and recreation: The enhanced BLF will have many more deliveries (100 per campaign) and the consultation is silent as to how these will be managed to minimise impact on access. Our expectation is that access to the beach will be maintained during construction and operation of the BLF and beach closures kept to the absolute minimum.
37. Highways: It is assumed that the enhanced BLF is responding to demand for AILs (up to 100 a campaign), confirmation is required that the demand will be there?
38. Ecology: As recognised in the consultation document further assessment of marine ecology impacts and impacts on terrestrial designated sites (caused by changes in coastal processes) are required in relation to the enhanced permanent BLF. In the absence of this information, it is not possible to conclude whether there would be increased adverse impacts or whether the proposed changes are acceptable.
39. Air quality: additional vessel movements resulting from an extended permanent BLF should be assessed in isolation and in combination with other Sizewell C emission sources. It is mentioned within paragraph number 3.3.2 that the existing permanent beach landing could receive 30 large beach landings per year, and in paragraph 3.3.13

that this could increase to 100 with enhancements. SZC Co. has committed to assessing the additional vessel movements' impact upon local air quality further. We consider that this should comprise a screening and/or quantitative assessment of impacts due to the additional vessel movements. The screening out or assessment should include consideration of vessels associated with beach landing facility changes in isolation and in-combination with other activities.

A new, temporary beach landing facility options

40. Coastal: ESC, at this stage cannot comment on the appropriate or inappropriateness of a new temporary beach landing facility.
41. We understand the proposals offer increasing volumes of potential bulk fill import capacity that will reduce HGV deliveries by road.
42. ESC would prefer to minimise the use of additional permanent embedded piles, to maximise the use of fully removable equipment and avoid the need for dredging of the outer bar.
43. The potential use of Self Elevating Platforms (SEPs) and a berthing platform (grillage) that does not include piles is preferred.
44. Impacts from dredging of the outer sand bar for navigation access and sediment movement blocking by the berthing platform are new / increased risks that require further investigation and modelling to confirm and quantify.
45. The use of a backhoe dredger, in preference to a plough, is of concern to us as it has potential to lead to a loss of material from the nearshore system.
46. SZC Co's assessment of the potential environmental impacts of the changes appears reasonable on the limited information provided.
47. Our view is that the changes have potential to cause additional negative impacts that are temporary and potentially manageable via the MMP process.
48. In discussions we note SZC Co. concerns that SEPs may not deliver the stability required for use of a conveyor and would result in a shorter campaign. We understand that SZC Co. are considering an alternative option 4 that is piled over its full length and longer, that would provide more secure, increased capacity for sea deliveries. If that is the case, we would need to see full details of the proposed works and the associated environmental impact assessment to provide a comment.

49. We do not object to further detailed investigation and impact assessment of these options with a caveat that our final view may alter when the detailed design and impact assessment information is presented.
50. Our non-objection is also dependent upon agreement with SZC Co. (and Marine Technical Forum partners) of a MMP that includes appropriate coverage of these risks.
51. Landscape: There is no doubt that any additional BLF will have an adverse effect on the coastal character of the beach area and near shore coastal waters in the immediate locality of Sizewell Beach. However, in relation to the overall impact of the construction phase, it is not considered that it is likely to be of significance beyond the visual envelope of the beach area. However, we still need to be advised on the issue of lighting should either BLF be used in less than full daylight, navigation lighting requirements, and the scale of the vessels involved.
52. Public rights of way / amenity and recreation: ESC welcomes keeping access available during the construction and operation of the temporary BLF. Further assessment is needed to assess the impact of the temporary BLF on the amenity and experience of users of coastal access.
53. Ecology: It is agreed that the conclusion that the proposed temporary BLF will have little terrestrial ecological impact, as construction of the Hard Coastal Defence Feature (HCDF) will already have removed the part of the Suffolk Shingle Beaches County Wildlife Site which sits in front of the platform. From a marine ecology and designated sites perspective, as with the enhanced permanent BLF the consultation document recognises that further assessment of these impacts is required and in the absence of this information it is not possible to determine which option is the least ecologically damaging. It is also likely that a seasonal restriction on piling activities will be required to protect nesting little terns.
54. Air quality: Additional vessel movements resulting from a second temporary BLF should be assessed in isolation and in combination with other Sizewell C emission sources. The vessels are being used to transport aggregates, with a planned conveyor belt between the beach and stockpile locations. We request that the conveyor belts are covered to reduce dust and particulate impacts. The temporary beach landing facilities currently at option appraisal have a range of aggregate capacity, from 200,000 to 1.4 million tonnes as detailed within Table 3.6. As set out in Table 3.7, SZC Co. has committed to assessing the additional vessel movements' impact upon local air quality further. We consider that this should comprise a screening and/or quantitative assessment of impacts due to the additional vessel movements. The

screening out or assessment should include consideration of vessels associated with beach landing facility changes in isolation and in-combination with other activities.

55. Environmental Protection: Environmental impacts in terms of noise, vibration, light, and dust will need to be considered and the mitigation of those impacts addressed for whichever option is chosen.
56. Highways: Table 3.4 indicates that Options 1 and 2 for the temporary BLF would equate to a reduction of 25 HGVs and Options 3 and 4 would result in reduction of 50 HGVs. However, these figures do not directly compare with the tonnes of material set out at Table 3.6, which indicate Options 1 and 2 could deliver as much as 40 HGVs daily and Option 3 and 4 would be considerably more than this. This may be because the applicant has averaged the campaign total over a 12-month period but clarification on this is requested. In relation to this, would the HGV profile on the roads increase outside of the BLF campaign period? Should HGV movements increase outside the BLF operational periods (May to October), how would these be conditioned and regulated? Being weather dependent this could be changeable in different years and difficult to predict and therefore control?
57. Public rights of way / access and recreation: the use of a conveyor and hopper system the length of the temporary BLF would be introducing a significant amount of additional infrastructure to the beach at Sizewell for on and offshore users of the beach. It is likely that the physical and visual disruptions and noise associated with the construction and operation of two BLF's will further degrade the amenity value of the beach and make it a less desirable place to visit. This will increase recreational displacement to other areas that will need to be assessed and compensated for.

New bridleway link between Aldhurst Farm and Kenton Hills

58. Public rights of way / access and recreation: ESC welcome this proposal and requests that the crossing point be located where it provides as safe and direct a link as possible, between the two locations. We support the option of this route being available during the construction period and would accept this being limited to pedestrians until the remainder of public bridleway 19 from Lover's Lane to the Eastbridge Road is re-opened.
59. This links to the removal of the replacement Sizewell B outage car park from Pillbox Field, walkers, cyclists, and horse riders must cross Sizewell Gap to access the public bridleway. Removal of the outage car park removes a source of traffic on this crossing place which is welcomed.

60. Highways: ESC welcomes further information on when it is envisaged the link would be delivered (for pedestrians and then for horses) and the proposed form of the bridleway crossing of Lover's Lane. Consideration should be given to whether in the operational phase, following removal of the lagoon to the south of Lover's Lane and the secondary access ghost island, the crossing point cannot be located closer to the south end of bridleway 19 to match the desire line of users. It is currently envisaged that the changes to the alignment of Lover's Lane in this area should be able to provide the necessary visibility for a safe crossing point.

Sizewell B Relocated Facilities changes

61. Landscape: The removal of the temporary carpark from Pillbox Field to the Sizewell A site is greatly welcomed. The Option 2 scenario of still using Pillbox Field for outage carparking is noted but would not be the preferred option in terms of anticipated adverse landscape impact.

62. Ecology: Ecologically Option 1 is preferable as it removes the car park from Pill Box Field. Option 2 is ecologically no better than the existing approved scheme.

63. Reduction in building heights is welcomed.

64. The 10 for 1 planting proposals for Pillbox Field are welcomed and details concerning the problems of establishing trees on these light sandy soils, and the issue of deer management have recently been agreed in respect of the 2019 Town and Country Planning Act consent.

65. Archaeology: Pillbox field has a defined area of archaeology requiring mitigation. We have provided comments in relation to the latest planning application for this area, but now plans have changed to remove disturbance away from the area of archaeology. A management plan outlining how remains are to be preserved in situ both prior to, during and after construction and including during proposed landscaping works on this field, is required. Should plans revert to locating the car park over the area of known archaeology, excavation will be required. Coronation Wood has now had an earthwork survey but still requires trenched evaluation, followed by mitigation as appropriate.

66. Air Quality: Within Table 4.1 SZC Co. has specified that no further assessment of Sizewell B facilities relocation is required for air quality due to these changes. It is agreed that an updated air quality assessment is not required.

67. Highways: The change of use of Pillbox Field from the outage car park to a landscaped area would be acceptable in transport terms provided:

- SZC Co. confirms that there will be no intensification in the use of the site entrance to Sizewell B compared to the current usage during Sizewell B outages;
- A safe crossing point is provided for users of bridleway 19 on Sizewell Gap to mitigate the increase in use during construction of Sizewell C and the Sizewell B relocation; and
- SZC Co. quantifies the use of the existing access to Pillbox Field from Sizewell Gap for landscaping works, so that any risks to highway users can be assessed.

Construction Parameters

68. Landscape: The new stockpile is noted, it is unlikely to offer significant additional impact, and even then, temporary. A more detailed comment can be provided once further information emerges, especially in respect of sequencing with other proposed stockpiles.

69. Ecology: No comment at this stage.

Other main site changes

Sea defence

Hard Coastal Defence Feature (HCDF) structure.

70. Coastal: Raising the defence height: We accept that the crest height must be set at a level that provides appropriate flood protection and resilience to the station. We are however surprised at the amount of change (from 10.2m Above Ordnance Datum (AOD) SCDF to 14m AOD) which we note is due to new climate change information.

71. Seaward movement of the defence: We understand that the crest height increases and the relocation of Marine Shafts to outside the cut-off walls has led / contributed to a *significant* seaward movement of the initial HCDF profile of ~8m (tbc) compared to the DCO condition.

72. The adaptive profile appears to move the rock slope much further seaward.

73. ESC is disappointed no information is included on under what environmental conditions the adaptive profile would be built. We expect to see more detail of the profile design at this stage of development to make an informed decision.

74. We are surprised at the lack of detailed information on the nature and extent of changes in HCDF profile when compared with DCO proposals including how the more seaward position will affect planned mitigation actions, notably Soft Coastal Design Feature (SCDF) design and management and the post-SCDF phase of beach management.
75. This absence of data prevents SZC Co. from undertaking a meaningful assessment of linked environmental impacts which is reflected in the lack of information on coastal change impacts included in the consultation. It is therefore not possible for stakeholders to make an informed assessment and provide comment.
76. We believe that the apparent significant seaward movement of the defence will lead to an earlier, (and over the site lifetime) much greater negative impact on natural shoreline change.
77. We had raised concerns in our DCO feedback at the potential impact of the defence position, as described at that time, relative to the shoreline. This information significantly increases our concerns not least because the change evidence to date does not indicate the extent and timing of the interception by the HCDF on the active shoreline, including both the SCDF and the natural beach.
78. We therefore conclude that the indicative HCDF designs presented are not acceptable and that further work is required by SZC Co. to produce more developed HCDF design information that can increase the crest height without an associated significant seaward movement.
79. As part of this process, we request that options are prepared and presented for review by consultees that:
1. avoids a significant seaward movement as part of the transition to an adaptive profile.
 2. ensures that the initial toe detail / level is appropriate in the context of the site life and potential shoreline retreat / beach level drop.
 3. includes the use of engineered structures e.g., wave return walls, in both initial and adaptive profiles whilst managing the proposed landscaping measures by which the infilling the rock armour with a soil for planting, would impair the hydraulic properties of the structure.
80. We also request that, if the relocation of Marine Shafts to outside the cut-off walls has moved the HCDF seaward, SZC Co. provides an explanation on how the temporary

construction-related benefits of this action have been compared with and justified against the long-term negative impacts of a more seaward HCDF.

81. Our view is that the proposal must be assessed as an integrated package therefore we must object to the proposed 'indicative' designs of the HCDF because of the apparent significant seaward movement of the HCDF and the uncertain impacts on coastal processes caused by it.
82. We require SZC Co. to prepare a developed HCDF proposal that addresses the concerns described above together with further detailed investigation and impact assessments.
83. We also require SZC Co. to demonstrate that the MMP includes appropriate coverage of any changes to forecast impacts and mitigation measures.
84. Landscape: ESC has no significant concerns from a landscape perspective subject to a well-considered surface restoration programme in line with what has been discussed previously.
85. Public rights of way / access and recreation: the figures provide no obvious reference points that would enable comparison with the design shown in the DCO. The single figure does not show the defence in context along the whole frontage where some areas are narrower and more vulnerable to erosion such as at the north end near to the proposed BLF.
86. Table 4.6, we disagree with the conclusion in Table 4.6 Preliminary Environmental Information that no further assessment is required with respect to amenity and recreation.
87. The new proposals will move the sea defence (at least – best estimate) 8m further seaward than that presented in the DCO. There are assumptions made in the DCO about the expected viable life of the sacrificial soft defence based on its position and form, and it is expected that the soft sacrificial defence will become non-viable between 2050-2080. However, there is not enough evidence or information provided in this consultation to be able to assess the impact of the new proposals on the public footpath (E-363/021/0). The concern is that the risk of erosion of the soft defence and hence the exposure of the public footpath could be sooner than the assumptions predicted in the original draft DCO.

88. Unless evidence can be provided, it appears that these proposals will make the public footpath more vulnerable to early loss than is currently anticipated with the design proposed in the draft DCO. ESC supports SCC as the responsible authority for public rights of way, in its objection to re-locating the permanent public footpath where it will be expected to erode, creating a management and legal liability for SCC.

89. Ecology: Will the changes proposed to the HCDF mean that the soft material covering it are lost/need recharging earlier in the life of the station? If so, this would mean that the long-term impacts (and potentially eventual loss) on this part of the Suffolk Shingle Beaches County Wildlife Site would be accelerated, potentially resulting in a worse long-term impact than that assessed in the Environment Statement.

Simplification of construction of temporary sea defence

90. Coastal: ESC does not object to the principle of a sheet pile construction phase defence.

91. We require more information on its plan location and profile relative to the proposed permanent HCDF, the permanent and temporary BLFs, the HCDF assumed at DCO stage and other features, inc. Mean High Water Springs, to give context.

92. We note that at the southern extent of the Sizewell C frontage the temporary defence line makes a 90 degree return landward. Is this a proposed change to the DCO condition that featured a tapered transition between the Sizewell C HCDF and the Sizewell B defence? If so, please provide a justification for the change and an assessment of the new impacts.

Temporary drainage pipe

93. Coastal: ESC does not have any significant concerns with the construction of a Storm Water Outfall from a coastal processes' perspective.

94. Whilst the designated Coastal Path is above the planned outfall position people will walk on the beach below it.

95. We recommend consideration be given to adding signs warning beach users of potential sudden and large flows. In addition, the pipe should be secured to avoid dogs / people getting inside.

96. Drainage: Please clarify if Water Management Zones (WMZ) 7, 8 and 9 are still discharging to WMZ 1 or 2 prior to combined drainage outfall? Or if this proposal will replace that? Our concern is that if the other WMZs are not utilised the temporary

outfall will be used in every storm event, not just the extreme storm events (greater than 1 in 30) that it is proposed to be designed for.

97. We need to see the calculations behind the design of this outfall to understand how it fits with surface water drainage proposals for the whole of the Main Development Site, to date we are unsighted on the evidence.
98. Our concerns relate not to the water going out to sea but whether it is not going into watercourses that are linked with sensitive habitats.
99. Landscape: the proposal adds to the 'industrialisation' of the beach area, which is far from ideal, but not considered to be additionally significantly adverse in the light of other associated beach activity.
100. Ecology: Whilst the outfall pipe will cross the Suffolk Shingle Beaches County Wildlife Site, this site will already have been removed to build the HCDF so there will be no additional terrestrial ecological impact.
101. Highways: It is noted that there is likely to be disruption to users of the Coastal Path during construction, maintenance (e.g., if blocked by shingle) and removal of the proposed temporary outfall pipe.
102. Public rights of way / access and recreation: Paragraph 4.7.3 indicates that it is proposed that the pipe would not obstruct the coastal path and it needs to be ensured that this is the case.

Temporary water storage area

103. Drainage: ESC, along with SCC, has consistently asked that the option to retain this area after construction for use as a water storage area for irrigation of agricultural land should be explored. We have yet to receive a response to this request.
104. It is unclear from the DCO changes consultation how this change of location would affect the feasibility for legacy benefit.
105. It appears that WMZ 5 is being reduced in size to account for the new location of this temporary water storage area. The consequences of this in terms of the potential impact to WMZ 5 are unknown given we have yet to see any justification for

the sizing of any WMZ's and therefore, we cannot be confident that it was sufficient in size prior to it being reduced.

106. Ultimately, both the water resource storage area and WMZ 5 have been reduced in capacity. However, we should not overlook the fact that this is to facilitate a reduction in flood risk to offsite land and property. What is the consequence of reducing the size of the two basins? There needs to be an assessment and balancing of all impacts before we can properly comment.
107. Landscape: The shift of the water storage area away from the northern edge (Minsmere boundary) is welcomed, as is its replacement with a flood mitigation area, subject to final profiling details. This remains a very sensitive area in landscape terms and over-engineered land profiling will need to be avoided, and the final details given careful consideration.
108. In general principle, the revised water storage area is preferred to the previous version, although that view is subject to details of final profiling. There was some debate previously as to whether it would be a temporary facility or left in place as a legacy benefit to local farming activity. That will need confirmation.
109. Archaeology: Archaeological evaluation complete- extensive and sensitive archaeological remains defined. Mitigation areas are still to be confirmed but will be required prior to site preparation works and any landscaping/planting.
110. Ecology: this change is tentatively welcomed as it creates the opportunity for the delivery of better ecological mitigation measures (albeit with greater initial engineering works required). However, there needs to be confirmation that the creation of the wetland area is not going to have any adverse impact on either the adjacent Minsmere South Levels (part of the Minsmere-Walberswick Heaths and Marshes Site of Special Scientific Interest (SSSI)) or the adjacent woodland (The Grove). Particularly any potential hydrological impacts on the Minsmere South Levels need to be assessed (this is not picked up in Table 4.3).
111. Also, more details on the design and construction methodology for the proposed wetland area will be required, although some of the detail (particularly in relation to the construction methodology could be picked up via requirement).

SSSI Crossing

112. Landscape: From a landscape perspective ESC has always recognised the benefits of the causeway option because we consider it offers landscape benefits in the planting that it carries with it. However, we know that it is the least favoured option among our many ecology colleagues, and this has outweighed the landscape preference in the past. The newly proposed 30metre bridge with embankments seems to offer solutions to both landscape and ecology, and whilst it allows less planting than previously offered, we fully understand that it may well carry notable useful ecological gains and therefore we have no objections to what is now proposed.
113. Archaeology: We do not have any comments regarding the change in design to the SSSI crossing, however, archaeological assessment and mitigation will need to be factored in as this area has a potential for buried surface archaeological deposits, including wet-zone activity, waterlogged remains, as well as palaeo-environmental remains, but has yet to be subject to archaeological investigation. For surface archaeology, trial trenched evaluation and palaeo-environmental assessment required (post consent), subject to an agreed Written Scheme for Investigation and followed by mitigation as appropriate. For deeper deposits, assessment required in line with the peat strategy. Further mitigation to be decided pending results of evaluation. Historic Environment is not included in table 4.4 but should be considered as per comments above.
114. Ecology: ecologically this change will result in a better crossing structure than that currently proposed in the DCO, particularly in terms of connectivity for bats, water vole and otter, and the slight reduction in SSSI land take (although there will still be temporary land take/damage to the parts of the SSSI which will not be permanently lost). However, we consider that the change option proposed remains ecologically worse than a 'full bridge' option, particularly in relation to permanent SSSI area loss. As the DCO Environmental Statement assesses an option that is ecologically worse than the change option the terrestrial ecology and ornithology assessment rationale set out in Table 4.4 is accepted.
115. Design: it is understood that the overall height of the crossing is currently proposed at 7.3m AOD with a potential need to increase the height to 10.2m AOD at some point in the future if the risk of flooding requires this modification. Is there scope for increasing the height of the crossing at this stage? This would facilitate the passage along the watercourse for an even greater range of species than under the current change option, particularly a greater range of invertebrate species. Increasing the height now would also avoid the need for future disturbance to vegetation and landscaping on the embankment and the damage this could cause to biodiversity utilising the area. Replacement landscaping and vegetation would then have to take time to re-grow. We recognise there may be difficulties in altering the design at this

stage, but it could be beneficial. However, we would need to see a full landscape and visual impact assessment and ecological appraisal for an increased height option to ensure that this was the case.

Landscape Retention and Removal

116. Landscape: ESC has no significant concerns with the minor additional tree removal proposed.
117. Ecology: Location 1 and 2 – no comment from an ecological perspective. Location 3: this tree belt is already isolated from Nursery Covert by proposed tree/vegetation removal works and therefore it is not considered that the small amount of additional removal proposed will worsen this impact. Isolation of habitats should be addressed in post-construction mitigation and management.

Extension of order limits – Sizewell Link Road

118. Drainage: This is justified to provide a sustainable drainage strategy.
119. Landscape: No specific comment subject to more detailed assessments.
120. Archaeology: Any extension to order limits should be scoped in for archaeological assessment. Some archaeological evaluation has been completed along the Link Road, however, further evaluation is still required, to be followed by mitigation as appropriate.
121. Ecology: It is unclear whether the additional woodland loss now proposed will have an additional adverse impact on roosting, foraging, or commuting bats. This must be assessed but is not picked up in Table 5.2. It is disappointing that changes to the scheme are resulting in more habitat loss rather than less.
122. It is also noted that the proposed changes introduce several new drainage basins, these should be designed to maximise their long-term ecological potential.
123. Highways: In transport terms, ESC has no objections to the proposed highway changes set out at paragraph 5.3.9 subject to agreement of the detailed design.
124. In highway design terms, ESC has no objection to the changes to the highway drainage proposals, as set out at paragraph 5.3.11, although the following comments have been made:
- The number of highway drainage lagoons should be as few as necessary;

- The impact on the routing and amenity of Public Rights of Way must be fully assessed and relevant schedules amended, as necessary;
- If it is likely to contain standing water the need for protective fencing should be required to be assessed during detailed design;
- Access to lagoons needs to be provided to allow for future maintenance; and
- Pumping should only be used as a last resort and early discussions need to be held with SCC as Highway Authority if this road is to be put forward for adoption as part of the public highway.

Extension of order limits – Two Village Bypass

125. Landscape: No specific comment subject to more detailed assessments.
126. Archaeology: Any extension to order limits should be scoped in for archaeological assessments. Some archaeological evaluation has been completed along the Two Village Bypass, however, further evaluation is still required, to be followed by mitigation as appropriate.
127. Public rights of way and access and recreation: 5.4.22 for clarification, it was not requested that the existing public right of way route was formalised to match the route currently being walked by the public but had highlighted to SZC Co. that their order limits shown on the Rights of Way Plan sheet 18 of 27 did not cover the definitive alignment. This is in the context that at the request of SCC (as public rights of way authority), the applicant proposes to upgrade the full extent of the public footpath 3 and 11 (E-243/003 and E-243/011) to public bridleway from Farnham to Botany Farm Drive (minor road). This would be consistent with the provision of the bridge for non-motorised users proposed as the diverted route for public footpath 3.
128. ESC supports the proposals as shown in Option 1, contingent on the upgrade to public bridleway of public footpath 3 and 11 in their entirety.
129. ESC supports the proposals shown in Option 2a, contingent on the upgrade to public bridleway of public footpath 3 and 11 in their entirety.
130. ESC supports the proposals shown in Option 2b, contingent on the upgrade to public bridleway of public footpath 3 and 11 in their entirety, but only with the amendment shown below (or similar). This includes retaining the east end of option 2a, because the north end of existing public footpath E-243/012/0 is fatally obstructed by a farm building. Additional work would be required on the field headland in option 2b, to create a hardened bridleway surface to the same width and condition as exists on FP11.

131. Highways: The principle of the highway changes set out at paragraph 5.4.20 to allow for visibility at junctions is considered to be acceptable.



132. Ecology: It is disappointing that the proposed changes introduce further habitat loss, with removal of part of Nuttery Belt (which is a UK Priority habitat). The rationale for this loss is not clear in the consultation document, although it is noted that it may be avoided following more detailed design work. Table 5.3 identifies that further survey work is required (particularly for roosting bats) if part of the woodland is to be lost, this is essential, although preferably the design should be such that the loss is avoided (in accordance with the mitigation hierarchy). Paragraph 5.4.28 concludes that the loss of part of Nuttery Belt is not significant enough to alter the conclusions presented in the environmental statement, however in the absence of the identified, required, survey work it is not possible to support this conclusion at this time.

133. It is also noted that mitigation for the loss of flood plain grazing marsh (a UK Priority habitat) in the form of habitat quality improvements is proposed, although no details are provided as this will come as part of the outline Landscape and Ecology Management Plan for the scheme. In the absence of details on what improvements are proposed it is not possible to be confident that they will be adequate to mitigate the habitat loss that is identified in the Environmental Statement and therefore it is not possible to make any further comment on this at this stage.

Extension of order limits – Yoxford

134. Archaeology: No concern with regards to changes to order limits. Archaeological evaluation completed. Mitigation areas still to be agreed. Mitigation required prior to site preparation works, and construction of bunds and landscaping.
135. Highways: For Figure 5.14, we would request that SZC Co. confirm whether revised order limits are those that will be taken forward to detailed design, as the revised carriageway alignment is close to the eastern boundary of the order limits.

Changes to Southern Park and Ride

136. Landscape: Additional bunding is welcomed, and careful consideration of the management of the space around key retained trees and hedgerows will be required.
137. Archaeology: No concern with regards changes to order limits. Archaeological evaluation completed and mitigation areas defined. Mitigation required prior to site preparation works, and construction of bunds and landscaping/planting.

Changes to Northern Park and Ride

138. Archaeology: No concern with regards changes to order limits. Archaeological evaluation completed aside from trenching of the infiltration basin which added to the red line boundary at the northern end of the site at stage 4. Mitigation areas defined for the rest of the site. Mitigation required prior to site preparation works, and construction of bunds and landscaping/planting.

Changes to Main Development Site

139. Highways: Paragraph 2.3.3 includes a list of items included as the main development site; the proposed highway works on Lover's Lane and Abbey Hill as well as the Green Rail Route are not included in this list but are included in red line identified on Figure 2.1. It is assumed that these works fall under the final bullet point, but confirmation on this is welcomed. Detailed confirmation is also sought on what powers will be used for the delivery of level crossing works associated with the Green Rail Route.

Pakenham Fen Meadow habitat creation area

140. ESC welcomes SZC Co. proposals to create an additional Fen Meadow habitat creation area as it gives a greater chance of successful habitat creation being achieved.

However, it is outside of the district of East Suffolk so we will not provide any detailed commentary as that is the responsibility of West Suffolk and Suffolk County Councils. We note that this does remove any amenity value away from the affected area in East Suffolk.

Appendix: Technical input to the changes proposals: Coastal Processes

Pg. no.	Ref	Relevant text / illustration	<i>Observations and Concerns</i>	<i>Request for clarification, confirmation, or further information</i>	
		BLF options			
39	3.3.5	<p>Permanent BLF as proposed in the present DCO:</p> <p>3.3.5. The seabed in front of the permanent BLF, where the barges land, would need to be surveyed and potentially re-profiled between each delivery. This is to ensure the next barge can land safely on a reasonably smooth surface.</p>	<p>Presumably this commitment would carry through to the changes. Same survey will also help to identify before/after record of changes</p>	<p>Request for Confirmation: Please confirm that the seabed will be surveyed and re-profiled before each delivery in the case of a new BLF.</p>	
40	3.3.1 1	<p>Proposed Enhancement of the BLF:</p> <p>3.3.11. A potential change is to add submerged beams that span parallel to the beach on piled foundations, thereby creating a solid base on top of the seabed. A total of approximately 50 timber piles are likely to be needed, or fewer if steel is used. The addition, known as grillage, would cover an area of approximately 100m x 30m and would still allow the natural movement of sediment as far as reasonably practicable. The grillage would be removed at the end of the construction of Sizewell C.</p>	<p>The structure, understood to stand 1m proud of the beach, is sizeable, and one would expect it to present some impedance to sediment otherwise moving alongshore. It needs to be demonstrated that such a structure, whether in use or not, will not have an adverse impact on the local shore or interfere with longshore sediment transport.</p>	<p>Request for more information: Please provide evidence that the grillage(s) will not have a negative impact on the local shore or impede longshore sediment transport.</p>	

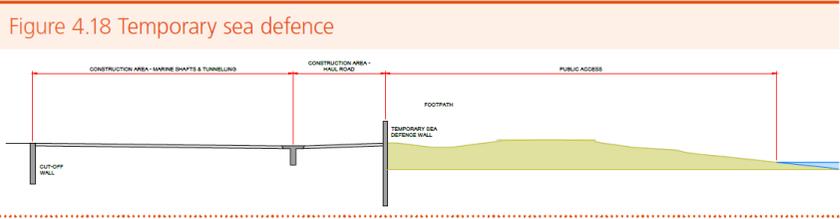
				(please see also comments re p. 157 section 1.2.7).	
40	3.3.1 7	<p>3.3.17. SZC Co. is consulting on four variants to the temporary BLF design. They are most easily distinguished by: their length; whether the barge would ground on the seabed; and the rate at which they could import material. Only Option 1 and the enhanced permanent BLF would 'land' on the beach. Potential options, subject to more detailed work and this consultation, are:</p>	Saying "land" on the beach, should this not make reference to the grillage as described elsewhere?	Request for Clarification: Please clarify whether the enhanced permanent BLF would land on the beach or upon a grillage (on the beach).	
42	3.3.2 2	<p>Option 2: Temporary BLF, short pier - low capacity</p> <p>3.3.22. Option 2, as illustrated in Figure 3.4, is essentially the same design as the enhanced permanent BLF and Option 1, but with a pier that is approximately 30m longer at around 150m. The additional length means that the seabed at the end of the pier is around -3mOD, compared with around -2mOD for Option 1. This increased depth allows barges to unload without becoming grounded and makes them less sensitive to tide conditions. The seaward end of the pier may terminate in a T-shape to allow barges to ground parallel to the beach, increasing the rate at which they can be unloaded.</p>	Would the insensitivity to tidal conditions (not grounding) possibly render the facility more sensitive to wave conditions (no breakwater)?	Request for Clarification: As noted in column to left.	

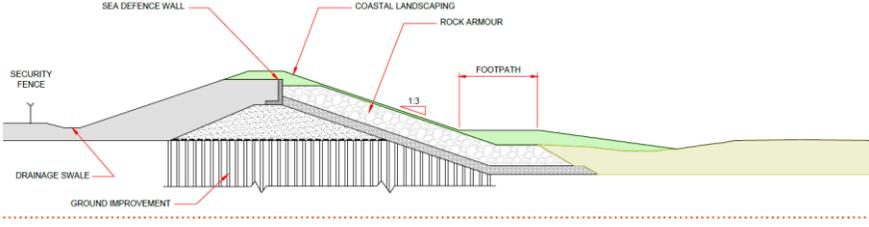
42	3.3.2 2	<p>Option 2: Temporary BLF, short pier - low capacity</p> <p>3.3.22. Option 2, as illustrated in Figure 3.4, is essentially the same design as the enhanced permanent BLF and Option 1, but with a pier that is approximately 30m longer at around 150m. The additional length means that the seabed at the end of the pier is around -3mOD, compared with around -2mOD for Option 1. This increased depth allows barges to unload without becoming grounded and makes them less sensitive to tide conditions. The seaward end of the pier may terminate in a T-shape to allow barges to ground parallel to the beach, increasing the rate at which they can be unloaded.</p>	<p>There appears to be a contradiction in the last sentence which is saying that the T-shaped pier-end enables barges to ground parallel to the beach, but at -3mODN bed level, the barges are said to float.</p>	<p>Request for Clarification: There would not appear to be any grounding with -3mODN bed level – please check rationale.</p>	
44	3.3.2 5	<p>Operation</p> <p>3.3.35. The navigation routes may require a turning circle for the barges where they adjoin the temporary BLF, with associated dredging on parts of the seabed within that footprint that rise above -3mOD. It is assumed at this stage that the same type of flat-top barges would be used</p>	<p>We are concerned about the unstated quantity of dredging to form the turning circles as any lowering of the seabed may result in higher wave conditions at the shore</p>	<p>Request for Further Information: Further quantification is sought on the depth, area and quantum of dredging require for the turning circle(s).</p>	
51		<p>Coastal Geomorphology and Hydrodynamics [With reference to the ES Volume 2 Chapter 20 (Doc Ref. 6.3)]</p>	<p>Destabilisation of the sand bar could have an adverse impact on the coastal processes at the shore.</p>	<p>Request for Further Information: Please advise on impacts of dredging at the shore and in</p>	

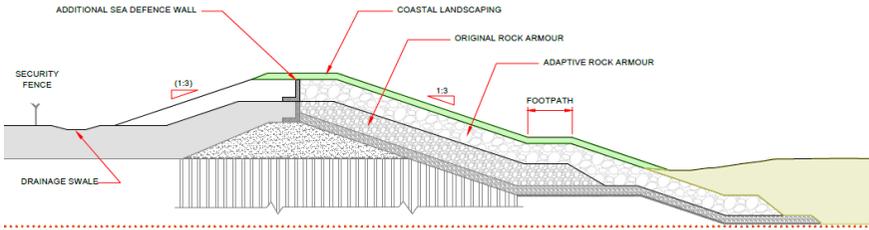
		<p>Enhanced permanent BLF</p> <p>Dredging volumes and maximum dredge depth will increase due to the grounding pocket being located further offshore and into the outer longshore bar as a result of the longer BLF deck and the barge turning circle.</p> <p>Impact extents would be significantly larger and impact magnitudes may be higher in the seaward end of the grounding pocket, potentially affecting bar stability.</p>		<p>regards to mobility of sediment along the beach.</p>	
52		<p>Temporary BLF, Options 1, 2 and 3</p> <p>Generally, for Options 1, 2 and 3, the impact extents would be significantly larger on the bars, and potentially on the beach, due to the wider dredging requirement on the outer bar. Impact magnitudes may be higher due to the seaward end of the grounding pocket, potentially affecting bar stability.</p>	<p>Ditto re permanent BLF</p>	<p>Ditto re permanent BLF</p>	

	<p>In addition, the higher barge occupancy could result in larger more persistent scour pits (when in-use). This would affect bar integrity and potentially drawdown of subaerial beach if scour pits form close to the beach. There is therefore the potential for moderate effects due to the wide zone of bar dredging, the effect of the grounding pocket on the outer bar, and persistent scour from more frequent barge groundings on the inner bars and the beach for both Options 1 and 2.</p> <p>For Option 3, although the barges would individually have a lesser impact because they do not ground, this would be countered by the large number of barges docking per year with potentially one barge present all of the time which is likely to lead to a moderate effect on the outer bar, which due to its less dynamic nature would take longer to recover.</p>	<p>Ditto re Options 1 and 2</p>	<p>Ditto re Options 1 and 2</p>	
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<p>72</p>	<p>Figure 4-5</p>	<p>Figure 4.5 Temporary Beach Landing Facility Options 1-4 and Marine shafts and tunnelling</p>	<p>This figure emphasizes the significance in the potentially affected limits under the new temporary BLF considerations.</p>	<p>Request for Further Information: As noted elsewhere, more information is sought regarding the impact (cumulative with the permanent BLF) of dredging on the coastal processes.</p>	
<p>97</p>		<p>4.8. Change to the sea defence to make the scheme more efficient and resilient to climate change</p>			
<p>97</p>	<p>4.8.4</p>	<p>built up using rock armour, with no piling proposed. This would form the eastern part of the permanent HCDF. Site-won fill material would be placed over the rock armour and planted to soften views from the coastal path.</p>	<p>Note that the placement and, presumably, replenishment of soil over the rocks will inevitably lead to the voids in the rock matrix becoming blocked. This could worsen with time as more soil is washed into the lower voids in</p>	<p>Request for Confirmation: alongside cosmetic improvements to the structure, please advise how the potentially negative impacts of</p>	

			<p>the rock structure. The hydraulic performance of rock revetments depends on the voids being open to aid the attenuation of energy within them. Filling them up would only diminish the eventually needed hydraulic properties, potentially aggravating overtopping wave absorption and stability of outer layer rocks, whilst increasing unwanted wave reflection.</p>	<p>introducing soil to the rock revetment are taken into account and designed for.</p>	
98	4.8.7	<p>Figure 4.18 Temporary sea defence</p> 	<p>The figure does not provide any dimensions, levels, or positional reference. Without quantitative detail the figure is of limited usefulness.</p> <p>A query also on the impact of the vertical wall when exposed to waves. The wall is expected to be exposed to wave action, in fact the design provides for a heightening of the wall to cater for future conditions.</p>	<p>Request for Further Information: Please provide a version of this drawing complete with levels and dimensions. Please advise the impacts of such a wall on the beach to seawards, and how this would be managed.</p>	

		<p>4.8.7. An alternative sheet-pile sea defence is proposed for the construction phase of the project, as illustrated in Figure 4.18. This alternative design has similar performance features to the construction phase HCDF within the Application, but significantly increases the amount of space within the construction site for marine shafts and tunnelling and simplifies the construction process, as explained in more detail in this section. The temporary sea defence would have a maximum height of approximately +7.3m AOD for the majority of its length and would then raise further (to approximately 10.5 AOD) to meet the SZB sea defence.</p>	<p>Being a vertical wall it would be reflective to waves. Subject to it being high enough, it has potential to be an effective barrier to sea incursion. However, this means that wave energy that would otherwise be expended at the shore will be maintained on the seaward side of the wall where it would likely cause localized erosion and suspension of sediments, leading potentially to accelerated sediment loss.</p>		
<p>98</p>	<p>Fig. 4.19</p>	<p>Figure 4.19 Permanent sea defence, operational phase</p> 	<p>The figure does not provide any dimensions, levels, or positional reference. Without quantitative detail the figure is of limited usefulness.</p>	<p>Request for Further Information: and similar drawings complete with dimensions, levels, and positional references, e.g. in relation to MHWS line, and the SCDF.</p>	

<p>98</p>	<p>4.8.1 0</p>	<p>4.8.10. The design of the buried toe of the sea defence has been further progressed in response to stakeholder feedback and will now be set at approximately 0mAOD at the outset of the operational phase.</p>	<p>Without further detail on the Figure it is supposed that the 0mAOD refers to the underside of the toe. It is usual for the toe to extend below the deepest level that natural erosion can reach. Even allowing for future adaption of the defense structure, this interim level would appear to be rather shallow.</p>	<p>Confirmation required: has the security of the toe against beach losses and scour been fully investigated and designed for? What is the designed-for lowest beach level that's taken into account?</p>	
<p>99</p>	<p>Fig. 4.20</p>	<p>Figure 4.20 Permanent sea defence, adaptive design</p> 	<p>The figure does not provide any dimensions, levels, or positional reference. Without quantitative detail the figure is of limited usefulness.</p> <p>This figure more clearly identifies the coastal landscaping. There must be suitable geotextile or suitable membrane the isolate the landscaping soil from the voided rock mound.</p>	<p>Request for Further Information: please reissue this and similar drawings complete with dimensions, levels, and positional references, e.g. in relation to MHWS line, and the SCDF.</p>	

				<p>Please provide details of how the landscaping material is to be isolated from the voided rocks.</p> <p>Also please advise as per the comment on p97 4.8.4.</p>	
100	Table 4.6	<p>Coastal Geomorphology and Hydrodynamics</p> <p>There would be no change to the present-day baseline environment for coastal geomorphology and hydrodynamics (because the coastal defence is set back from the coast).</p>	<p>The installation is expected to be in place beyond the present day, i.e. for up to 190 years (?), during which time the HCDF will interact directly with the coastal processes. As a result, the HCDF has potential to have negative impacts on the coastal processes. The change to the length of the structure seawards means that any such negative impacts will happen sooner.</p>	<p>Clarification required: the Table 4.6 statement is unclear and needs to be expanded to reference the future evolution of the shore with respect to the changed length of the structure.</p>	

100	Table 4.6	<p>The HCDF is still considered a terrestrial feature during the construction phase and will not affect coastal processes. The 5m bund would need to be managed carefully due to the seaward extension of the toe of the coastal defence.</p>	<p>The last point above appears to be recognized in this extract from the Table. This paragraph refers to the “5m bund” – this feature does not appear on the sketch or if it does it is not labelled as such (the SCDF?).</p>	<p>Clarification required: please reissue the sketches, complete with dimensions etc. and showing every feature referred to in the narrative.</p> <p>Please also define what “managed carefully” means. Though unintentional, the statement could imply that prior to the change the feature (5m bund) did not need to be managed carefully (clearly not the intent!).</p>	
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100	Table 4.6	<p>A further seaward HCDF would be a more effective sediment trap, accumulating shingle on its north side. Over time the local shoreline would reach an equilibrium and the longshore transport corridor would be largely restored.</p>	<p>This explanation misses two points:</p> <ul style="list-style-type: none"> • The gain in sediment on one side of an extended HCDF would result in a shortfall (erosion) on the south side together with an interruption of sediment transport towards Thorpeness leading to erosion there. • In time, storm induced erosion to the north of the installation could increase the long term propensity for bay formation and a sink for unlost sediment, further reducing the sediment available to migrate south towards Thorpeness. 	<p>Request for further information:</p> <p>The explanation in the Proposed Changes document does not present a plausible argument for allowing the HCDF to become exposed to the action of the sea sooner rather than later. The brief explanations needs to be followed up by a more technically robust case for the suggested shoreline behaviour.</p>	
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100	Table 4.6	The design of the sacrificial soft coastal defence will be re-assessed to maximise its longevity before renourishment is needed (the intended mitigation mechanism).	This will be welcomed. The re-assessed SCDF need to be made available.	Request for further information: Please provide details of the new SCDF together with the rationale for its improved design to cater for the changed HCDF	
APPENDIX 2					
157	1.2.7	1.2.7 The grillage that would be used for the enhance design and Option 1 would cover an area of approximately 100 m x 30 m. The grillage is likely to stand proud of the bed by up to a metre, and therefore would initially slow sand transport until sufficient sediment had accumulated along its sides. This would not amount to a blockage to transport because sand generally travels in suspension (especially during storms) and so would easily move over it. However, the grillage could locally affect the elevation of both longshore bars and combine with, or counter, dredging effects. Minor changes are expected close to both BLFs due to the grillage and the grounding pocket.	Further to sediment accumulating along the side(s) of the grillage, might the combined width of the grillage and trapped sand not create a calming of waves in the lee, thus potentially encouraging localized accretion of sand on the shore side.	Request for further Information: Please provide details of modelling outcomes and assessment of the impact of the grillage on the shore.	
158	1.2.8		We welcome the acknowledgement of	Request for Further Information:	

		<p>1.2.8 Option 2 would be similar to Option 1, but the T-head option for Option 2 may require more dense piling which could affect the stability of the outer longshore bar, with potential knock-on effects for the shoreline. Further modelling and assessment work would be required to understand the level of impact. There is no grillage associated with Option 2 and therefore no associated effect.</p>	<p>disturbance to the outer longshore bar, and the pledge to undertake further modelling and assessment work.</p>	<p>Please provide reporting on the modelling and assessment work. To include an assessment of the issue and its resolution.</p>	
15 8	1.2.1 1 – 1.2.1 7	<p>Dredging</p> <p>1.2.16 Using these conservative assumptions, the alongshore extent of the change in bed shear stress would be expected to extend up to 2 km. Modelling of this design may show a lesser extent in terms of area affected. Similar to the other options, the magnitude of change is likely to be very small (no more than 4%) compared to the typical baseline values on the inner bar, as described in the ES.</p> <p>1.2.17 A cumulative effect is expected if the original or enhanced permanent BLF and a temporary BLF option are in use simultaneously, as the navigational dredging areas would intersect. Cumulative effects will be assessed through numerical modelling. As a result, a minor impact on the inshore waves and subsequent small changes on the beach may occur.</p>	<p>Notwithstanding the assurances as to the modest impact of dredging (e.g. reference to 4%) it remains that at 2km the estimated (pre-modelling) alongshore change is massive in extent. It is noted that further modelling is planned.</p>	<p>Request for Further Information: Given the massive extent of potential impact we welcome the undertaking of further modelling work. Please provide the reporting outcomes, including the identification of impacts on the shore, together with proposed mitigations.</p>	

				<p>Further to the above, it is noted that plough dredging does not result in any net loss of sediment from the local system, the sea bed being scraped to obtain the desired form area and depth. The scraped material has to be deposited somewhere (somewhere close to its excavation?). Depending on the height, form and position of its deposition the sand will tend to be more or less susceptible to erosion/</p>	
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				<p>suspension / resettlement. Please provide further evidence to demonstrate that there will be no net loss of sediment out of the local system, or if so, a measure of the loss together with advice on its mitigation.</p>	
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