# SZC Proposed Hard Coastal Defence Positioning and CPMMP

Following a discussion between Paul Patterson (Coastal Protection East - CPE), Bill Parker, Tom Daly (Green District Councillor) and myself (Paul Collins) at the ONR meeting at Riverside Centre, Stratford St. Andrew on Thursday 25th May, we agreed that we should meet up at Sizewell, on a date to be agreed, and walk the proposed Sizewell C Hard and Soft Coastal Defence Features (HCDF and SCDF) to understand its position according to the final submission to the Planning Inspectorate Examination of the SZC Development Consent Order (DCO).

We understand that a new version of the HCDF/SCDF plans are expected around July but assume that the most recent version that CPE have are those submitted to the examination at Deadline 5 as Revision 2. If a newer version has been submitted to CPE, it would be helpful if this can be made available before the meeting and walk take place.

In Theberton and Eastbridge Parish Council, Stop Sizewell C and Minsmere Levels Stakeholder Group's Issue Specific Hearing 11 Oral Contribution submission, section 8, on Coastal Processes update, examined the positioning of the Hard Coastal Defence Feature (HCDF) toe, relative to the existing SZA/B sacrificial dune and their salient features, the latter being presumed as having been created through the action of the SZA and SZB outfalls.

EDF had initially submitted no detailed plans for the HCDF/SCDF complex in its initial DCO submission to PINS and it was only through pressure applied by Interested Parties and the DCO Examiners on EDF that plans were submitted during the Examination. Two sets of preliminary plans were submitted during the examination at Deadline 3 (Revision 1) and Deadline 5 (Revision 2).

Page 4 of the above ISH 11 document shows a plan of the HCDF with 3 additions detailing the Eastings and Northings, along with degrees, minutes and seconds coordinate values for the permanent Beach Landing Facility (BLF), a second point roughly three quarters along the HCDF to the South where the HCDF inflects eastwards and lastly the most southeastern extremity of the HCDF where it turns westwards again towards the current SZB HCDF. A copy of the annotated plan is given at the end of this document.

The GPS coordinates were obtained by determining the Ordinance Survey National Grid Eastings and Northings from the revision 2 plans referenced above and converted on the British Geological Survey site at Coordinate converter | British Geological Survey (BGS).

I rechecked the Eastings and Northings and reconverted them recently and the results are essentially the same and are shown below (in the 26 May annotated plan) and given in the table below.

| HCDF Feature | ISH 11 Document | | Friday 26th May | |
|---|---|---|---|---|
| | Northing<br>Easting | Coordinates | Northing<br>Easting | Coordinates |
| Permanent BLF | 264450<br>647615 | 52º 13' 21.18"<br>1º 37' 26.29" | 264476<br>647606 | 52º 13' 22.03"<br>1º 37' 25.89" |
| HCDF Inflexion | 263900<br>647615 | 52º 13' 3.41"<br>1º 37' 24.84" | 263900<br>647612 | 52º 13' 3.42"<br>1º 37' 24.69" |
| South-eastern extremity | 263713<br>647638 | 52º 12' 57.34"<br>1º 37' 25.56" | 263709<br>647638 | 52º 12' 57.21"<br>1º 37' 25.55" |

Walking these coordinates from the BLF southward, the toe of the HCDF remains to the rear to the existing sacrificial dune, although by the time the HCDF inflexion point is reached the position of the toe is about one third the way up the rear of the sacrificial dune. From both measurements of Eastings and Northings from the EDF plan, the current sacrificial dune runs roughly parallel to the Ordinance Survey grid lines but not directly north/south.

From the coordinates it is clear the sacrificial dune runs slightly east to west along the proposed SZC frontage. Arial photos and observation from the viewing platform to the south of the inflexion point confirm this and it continues in this general direction until around the mid-point of the SZB site when it begins to curve back to the east towards the Ness at Thorpeness.

A set of pictures and iPhone compass screenshots below shows where these three points are relative to the existing sacrificial dune.

| | iPhone Compass | Pictures | |
|---|---|---|---|
| Permanent BLF |  |  |  |
| HCDF Inflexion |  |  |  |

| | iPhone Compass | Pictures | |
|---|---|---|---|
| SE Extreme (N) |  |  |  |
| SE Extreme (S) |  |  |  |

The SE Extreme (N) and (S) pictures show roughly where the SE extremity of the HCDF toe will be relative to the viewing platform using the northern and southern limits of the 52$^{o}$ 12’ 57” coordinate area (i.e., north of 52$^{o}$ 12’ 56” and south of 52$^{o}$ 12’ 58”).

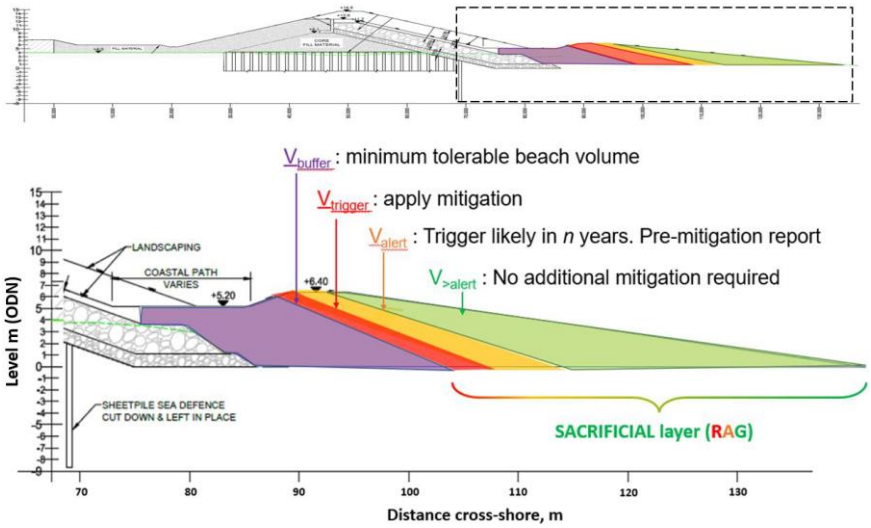
This position of the proposed HCDF toe is on the current SZB salient which has also been significantly eroded between the time when a picture was taken for the ISH 11 summary report referenced above and now. Both are shown below with 4-5 metres of shingle loss from the salient since 2021 along with erosion of the sacrificial dune all along the frontage from the Minsmere Sluice to the Sizewell salient.

| ISH 11 - 20 August 2021 | 14 April 2023 |
|---|---|
|  |  |

| ISH 11 - 20 August 2021 | 14 April 2023 |
| --- | --- |
|  |  |

The current sacrificial dune height along the proposed SZC frontage varies roughly between +2mOD and +4mOD. The proposed footpath/track along the HCDF/SCDF will be directly above the initial HCDF toe at a height of +5.2mOD with the SCDF rising on the seaward side to +6.4mOD and then declining east to 0OD over ~65m at a slope of between 1:8.6 as shown below in the latest submission by SZC for discharge of Requirement 12 / DML Condition 14 of the CPMMP.

Unfortunately, this diagram and documentation does not clearly state where along the frontage this cross section of the HCDF/SCDF represents and as the HCDF design and position of the toe is still not fixed, the representation is technically meaningless.




In the original DCO documentation, only two sections (B-B and C-C) of the coastal frontage of the HCDF/SCDF design are given in the Revision 2 plans (attached below).

These plans do not cover anything beyond the HCDF inflexion point or the south-eastern extremity of the HCDF given that the toe at this position is between 23m and 32m east of the toe positions at these two cross-sections based on these plans.

EDF have stated that the slope of the SCDF at the south-eastern extremity will have to be steeper and based on its toe position above, this will mean a slope of between 1:3.8 ((47-23)/6.4) and 1:1.8 ((43-32)/6.4), neither of which would be sustainable for a shingle/sand substrate.

This profile is modified by the old SZA salient and current SZB salient which, according to EDF, will be removed through natural erosion over a one- or two-year period once SZB operation ceases.

As a result, the HCDF toe at the SE extremity of the new proposed HCDF/SCDF complex on the current SZB salient will be very susceptible to continual and occasionally rapid erosion leading potentially to undermining of the HCDF toe at this position.

Based on the plans submitted to the DCO, it is very clear that the SCDF will protrude significantly into Sizewell Bay well beyond the existing natural embayment which follows the seaward profile of the existing sacrificial dune.

Whilst it might be possible to construct the HCDF and deposit the SCDF initially, its position will mean that erosion will start almost immediately and its presence on the coast will significantly impact local geomorphology and longshore transport mechanisms making the HCDF/SCDF very difficult, if not impossible, to maintain through the proposed mechanisms in the Coastal Processes Management and Mitigation Plan.

What's more given the precarious initial position of this complex on the coast and the impacts from sea level rise and climate change, the plan to extend the toe out a further 17m and to a depth of -1.5mOD as an Adaptive Sea Defence (shown at section B-B) seems even more unrealistic, especially when the proposed position of the south-eastern extremity is considered.

The issue with the SZC site has always been the constraints on all sides of the platform with SZB to the south, Sizewell Marsh SSSI to the west, RSPB Minsmere and Sizewell/Leiston Drains to the north and the North Sea to the east. In order to have sufficient area for the dual reactor installation the cut-off wall has had to be placed significantly seaward compared to SZB leaving insufficient space for a HCDF/SCDF that does not impact coastal processes.

The District Council has suggested to EDF that the whole nuclear platform should move west further into Sizewell Marsh but that has its own technical challenges even ignoring the fact that this is a Site of Special Scientific Interest, and EDF have ruled that out.

It is lamentable that the reliance on the Expert Group Assessment continues when their very constrained examination only runs to 2070 which would only be ~35 years into a proposed 60 year generating life (assuming the construction and commissioning can be completed by 2035 – risky considering the delays so far

exhibited by all EPR construction schedules worldwide). Also, the reliance on all decommissioning and fuel removal being complete buy 2140 is at odds with technical advice from ONR/NDA regarding spent fuel cooling and readiness for consignment to a Geological Disposal Facility, at a location yet to be decided and design yet to be proposed. Papers provided by Nick Scarr, and previously sent to EA and ONR, lay these issues out comprehensively (also provided with this summary paper – “Sizewell C and its EGA”).

The reliance on these unsubstantiated dates, non-conservative assessments plus no further substantiation having been provided in the Discharge of Requirements application means the application must be considered as inadequate at this stage and should be refused.

It should also be noted that the statement that this part of Sizewell Bay is relatively stable, and according to the last National Coastal Monitoring - Reports looking at trends from 2011 to 2021 , a very short period of time especially when regarding the length of time spent fuel will be on site and therefore should be regarded as inconclusive, show this area of coast as accreting but in reality over the past two to three years, the opposite is true with significant lowering of beach levels due to scouring of sand and shingle, with the Sizewell B salient seeing a significant level of erosion and as a result the existing sacrificial dune to the north of the SZB salient is now a vertical wall of sand and vegetation between four and six feet high with clear evidence of erosion and retreat, and this is even before the effects of sea level rise and climate change kick in.

Commented [BP1]: Add (a very short period of time esp when regarding the length of time spent fuel will be on site and therefore should be regarded as inconclusive)

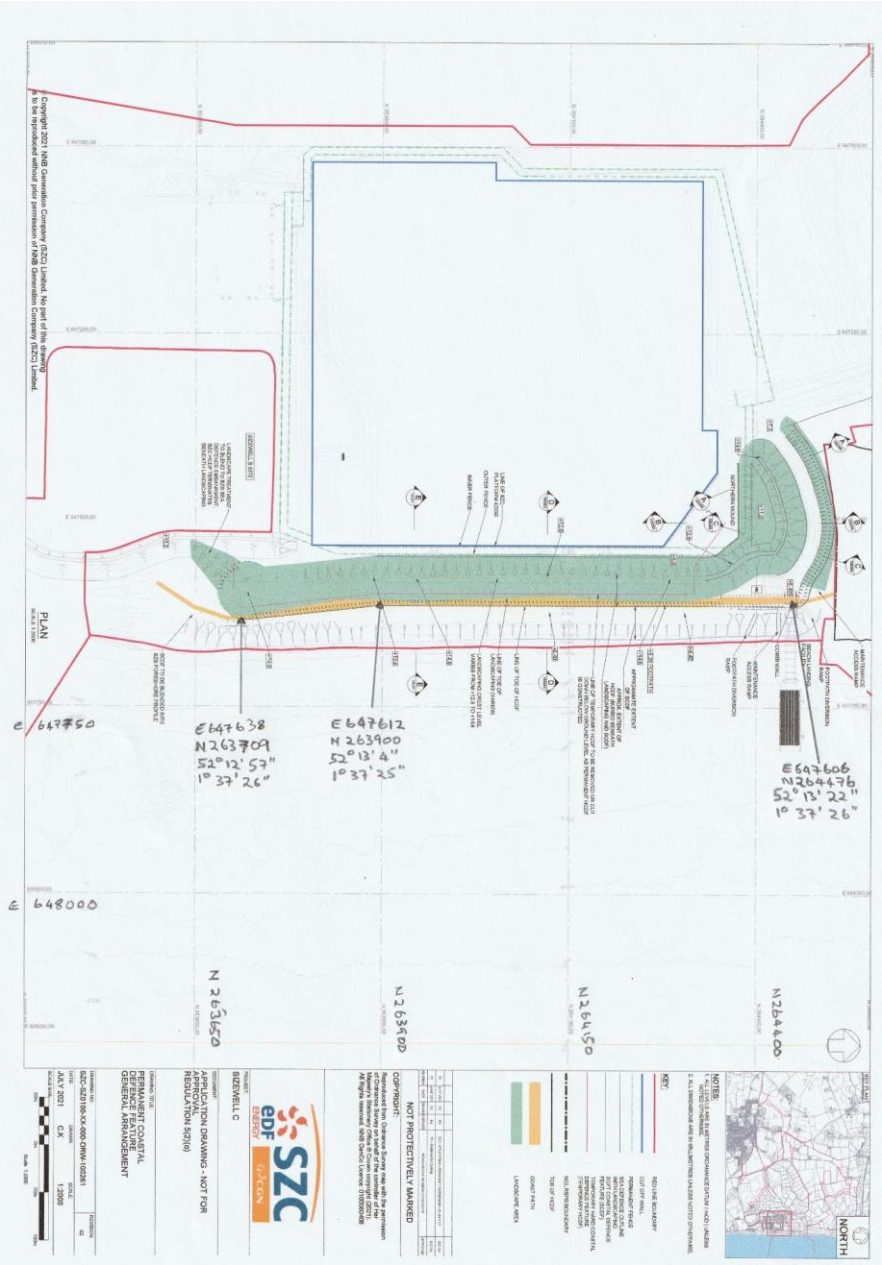
Commented [BP2]: And this is even before the effects of sea level rise and climate change kick in.

None of EDF’s plans submitted to the DCO examination reflect the current state of the beach profile in front of the proposed Sizewell C site and thus any CPMMP proposal reliant upon what are now outdated surveys, EGA assessments and modelling reliant upon those results will need to be reassessed alongside the actual design and proposed positioning of the HCDF/SCDF complex.

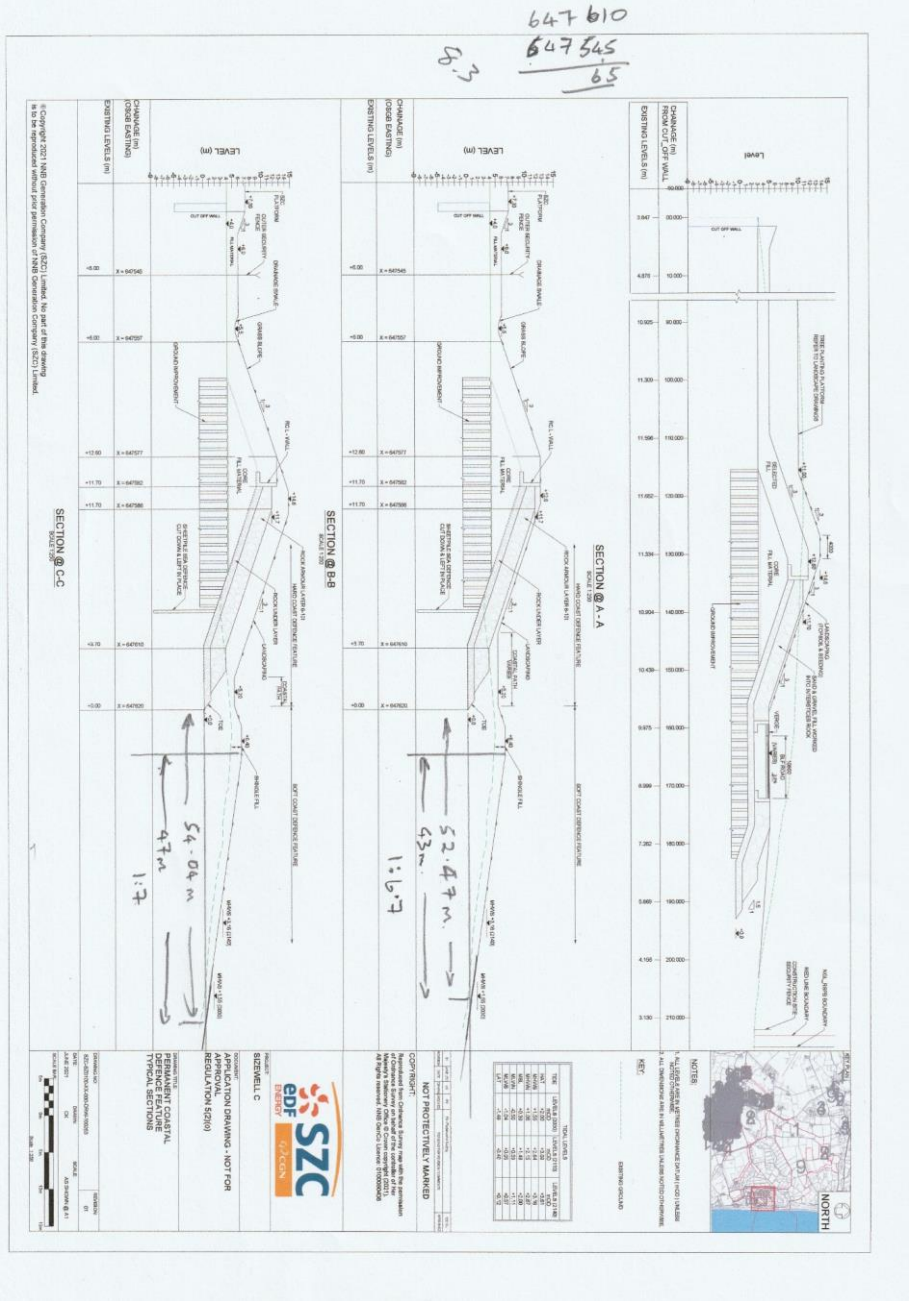
We look forward to reviewing the attached analysis and walking the SZC HCDF/SCDF design in the near future.

Paul Collins
Chair, Theberton and Eastbridge Action Group on Sizewell C
Co-Secretary, Minsmere Levels Stakeholders Group

## Annotated plan 26 May



## Revision 2 Cross-Section Plans



## ISH 11 Annotated HCDF Plan

Edge of the HCDF and position of future footpath