Summary of the Written Submission
Of the
Royal Society for the Protection of Birds
and Suffolk Wildlife Trust

Submitted for Deadline 2
2 June 2021

Planning Act 2008 (as amended)

In the matter of:

Application by NNB Generation Company (SZC) Limited for an Order Granting Development Consent for

The Sizewell C Project

Planning Inspectorate Ref: EN010012
RSPB Registration Identification Ref: 20026628
Suffolk Wildlife Trust Registration Identification Ref: 20026359

Summary of Written Representations

Summary of our concerns

The proposals for the development of Sizewell C pose significant risks to Minsmere and Sizewell Marshes, and nature conservation more widely on the Suffolk Coast. Here we summarise the overall potential impacts.

The proposals incorporate part of Sizewell Marshes, meaning that over 6ha of this SSSI is proposed to be lost entirely and a further 3ha damaged. The loss of nearly 10% of a nationally protected site is of serious concern to us, especially as some of the habitats lost are very hard, if not impossible, to recreate.

The construction area would be directly adjacent to the Minsmere South Levels and to Sizewell Marshes, containing important areas of wet grassland and pools for breeding and wintering wildfowl and for foraging marsh harriers. For marsh harriers, this means that they will effectively lose significant parts of their regular hunting grounds, which could affect their ability to provide food for their chicks. Over a period of years, this could affect Minsmere's marsh harrier population numbers. Waders and wildfowl on the South Levels and Sizewell Marshes may also be displaced by construction disturbance, and this again could affect population levels in the medium term.

Bats, including the rare barbastelle, would also be disturbed and displaced by construction. Roosting and hibernation sites for barbastelle may also be significantly impacted and it is likely that many unrecorded roosting sites will be lost.

The wetland areas of Minsmere and Sizewell Marshes are also at risk from changes to their hydrology. We are concerned about any potential impacts on Minsmere Sluice – a key structure which controls the drainage of Minsmere and much of the surrounding area. During the construction of Sizewell C, the discharge of water to Leiston Drain, is expected to increase. The amount of water entering the Sluice from this source may mean that it is not possible to drain Minsmere quickly when spring flooding occurs, meaning that nests are flooded out and habitats take longer to recover.

The Sluice also allows some entry of seawater into Minsmere to help maintain some of the specialist brackish habitats. Sizewell C would discharge hydrazine, a toxic chemical from the cooling water system, during the later stages of construction and throughout its operation. At certain states of the tide it is possible that low levels of hydrazine would enter Minsmere via the Sluice.

The construction site for the power plant will need to be drained and a hydrological cut-off wall constructed to stop water draining back into the site. This cut-off wall will affect the way water moves through the ground all around the site. Two ditches which run through the proposed development site will also need to be combined and rerouted. These changes could mean that parts of Sizewell Marshes become wetter and some southern parts of the Minsmere South Levels become slightly drier leading to changes to habitats in these areas, and the species they support.

A small population of natterjack toads is also found between the South Levels and Sizewell Marshes. The field where their breeding pond is found is currently proposed to become a water management zone during the construction of Sizewell C leading to a significant loss of foraging habitat for the natterjacks.

We are also concerned that some of the new marine infrastructure, including intakes, outfalls, landing facilities and coastal defence structures could exacerbate coastal changes in the medium to

long term which could affect the future frontage of Minsmere. At present we are concerned that it is not clear what the impacts of this will be.

The construction of Sizewell C could affect fish through underwater noise and vibration, increasing suspended sediment though dredging and through discharges of chemicals such as hydrazine during the commissioning stages. During the operation of the power plant, large numbers of fish would be abstracted by the cooling water system. This impact could be significantly reduced by the use of an acoustic fish deterrent, but this is not currently proposed at Sizewell. The return of the cooling water to the sea will also lead to the formation of a thermal plume, which will also contain chemicals added to the cooling water system. The effects of these on birds and their fish prey is unclear, but of concern. The number of vessels required to bring in deliveries to the site is also a cause for concern. Red-throated divers are highly sensitive to disturbance, with vessel traffic known to cause them to move away from and avoid busy areas.

With parts of the footpath network in the Sizewell area being affected by the construction works, we are concerned that people are likely to use the neighbouring areas more heavily during the construction period, meaning that sensitive beach wildlife may be affected. In addition, the outer parts of Minsmere are more sensitive and usually much less heavily visited than the main visitor areas. We are concerned that, without careful management of the impacts of additional visitors, these heathlands could be damaged by trampling, dog waste and disturbance.

In summary, we do not believe it will be possible to develop Sizewell C as proposed without significant effects on Minsmere, Sizewell Marshes, Greater Sizewell Bay and the wider nature conservation value of the Suffolk Coast. The proposals have the potential to damage highly protected wildlife sites and to impact nationally and internationally important populations of rare species, which are valued in their own right, by those that live on and visit the Suffolk Coast and all who care about nature conservation across the UK and beyond.

SSSI Loss

Direct loss of part of Sizewell Marshes SSSI

The Application will result in the loss of 9.54ha of Sizewell Marshes SSSI (comprising 6.52ha permanent and 3.02ha 'temporary' loss). We are concerned about the principle and scale of the proposed loss of part of Sizewell Marshes SSSI and its justification against the policy tests set out in the Overarching National Policy Statement for Energy (EN-1).

Design of the SSSI crossing

In addition, we are unconvinced about the Applicant's justification for the choice of an embankment and culvert (a single span 'bridge') rather than a triple span bridge to cross Sizewell Marshes SSSI, despite the higher land take from the SSSI. We are concerned that the loss of SSSI via the embankment/culvert option will lead to a much larger loss than the triple span bridge option, and this has not been adequately nor clearly justified. We consider the Applicant should assess and compare the impact of all four options for the SSSI crossing and provide sufficient evidence for Natural England to advise the Examination on any effects on the special interest of the SSSI. Also, a detailed design for the SSSI crossing has not been submitted to the Examination.

Temporary land take from Sizewell Marshes SSSI

We dispute the term 'temporary' impact and we believe it is likely many of the activities that will take place will result in permanent damage to nationally important fen habitat. The designation of

some loss as 'temporary' has not been supported by a detailed habitat re-instatement plan for all habitats subject to 'temporary' loss.

Adequacy of the proposed habitat compensation

Whilst we welcome the Applicant's proposals to compensate for the losses of reedbeds and ditches, fen meadow and wet woodland by creating compensatory habitat, the quantity, quality and timing of functionality of all the proposed habitat compensation is inadequate to compensate for loss of all affected SSSI habitats. Compensation habitat should be in place and functional before habitat loss occurs. The construction programme should follow the appropriate compensation work and not the other way around. We request the Applicant defines the seasons when the habitat creation work would need to take place. The timing of the construction programme needs to accommodate this. We request the Applicant provides peer-reviewed evidence from similar schemes to demonstrate it is feasible to successfully create fen meadow habitat. We also request clarification of the next steps if it is found that it is not feasible to create this habitat. The Applicant should also provide modelling and a thorough assessment of the potential impacts of the proposed Benhall compensation site on the Abbey Farm compensation site.

Due to the many concerns about adequacy of compensation habitat, we strongly recommend that the need for contingency habitat is considered now and information submitted to the Examination, so that it can be taken account of by the Examining Authority.

Coastal Geomorphology

The coastal frontage forms part of the Minsmere to Walberswick SAC, SPA, Ramsar site and SSSI (the designated sites) and is particularly important for its vegetated shingle and coastal dune habitat. This stretch of the coast is a dynamic system and it can be difficult to interpret or predict natural geomorphological change. However, studies have proposed that the majority of the RSPB Minsmere frontage has a residual life of between 50 – 200 years. Therefore, but for the Application, there is no reason to believe additional defences will be needed in the short to medium term, nor that the designated sites and their features are at risk during this period also.

Summary of concerns relating to coastal processes

Various aspects of the proposed development have the potential to interfere with the coastal processes on the Minsmere frontage. These include:

- The Hard Coastal Defence Feature (HCDF)
- The Soft Coastal Defence Feature (SCDF)
- The permanent beach landing facility (BLF) and temporary BLF, introduced in the Change Application)
- Two Fish Return and Recovery Outfalls (FRR) and Combined Drainage Outfall (CDO)

Potential impacts to the Minsmere – Walberswick designated SAC, SPA, Ramsar and SSSI sites include:

- Accelerated erosion which could:
    - Lead to the loss of habitat supporting SAC and SSSI designated flora
    - Accelerate a breach of the shingle and dune barrier bank, allowing saline incursion and flooding into the brackish and freshwater areas of RSPB Minsmere (affecting the SPA and

Ramsar site species) and Sizewell Marshes SSSI and any breach of the barrier bank has the potential to impact on the visitor infrastructure on the RSPB Minsmere reserve
    - Affect access routes for the public, potentially increasing trampling and disturbance impacts on the SAC and SPA features due to alternative routes being sought
    - Affect nesting bird species e.g. little tern (SPA feature) and ringed plover through loss of habitat and/or increased disturbance

- Increased accretion
    - Leading to a change in coastal dynamics and coastal composition which could affect the SAC, Ramsar and SSSI designated flora
    - This could provide increased protection for the brackish and freshwater habitats and visitor infrastructure at RSPB Minsmere, but would require management that was sympathetic to the potential adverse impact

We note that mitigation methods for the SCDF would involve either moving existing beach sediment (bypassing or recycling) or introducing new material (recharge). However, we question the appropriateness of coastal defence structures and beach reprofiling/nourishment within important nature conservation sites. Sites with a dynamic balance between stability and instability allow for a variety of communities to develop, including those associated with both ephemeral and more stable structures.

Summary of concerns relating to the assessment of coastal processes

In the absence of detailed coastal defence designs we have been unable to be confident that the approaches to the coastal defences and the interaction with the neighbouring SAC habitat is robust and would conclude that the precautionary principle needs to be followed. This is further emphasised by the inherent uncertainty when predicting likely coastal geomorphological outcomes in this dynamic environment.

In addition, the RSPB does not agree that the assessments are sufficiently robust. The Applicant have agreed to undertake 'additional bespoke modelling' but it is our view that this should not be determined to be 'additional' or 'bespoke' as we believe that the work is necessary to provide a satisfactory environmental assessment given the risk of potential impacts to the Minsmere – Walberswick designated sites.

It is our view that the potential impacts arising from the Application, should be considered in combination with natural variation. We believe this is the appropriate precautionary approach and should be adopted.

We recognise that the Applicant is preparing updated models in respect of the revisions to the HCDF, SCDF and BLFs, and in the absence of these we do not believe there has been adequate assessment on the potential impacts on the Minsmere – Walberswick designated sites through both the ES and HRA processes, as a consequence of potential impacts being screened out.

Comments on implications of the changes to the application on coastal processes

The changes in the coastal and nearshore marine environment in our view increase the potential risk of impacts. This is a consequence of:

- Confirmed designs for the HCDF and SCDF still awaited
- Seaward movement of the proposed toe of the HCDF
- Earlier intervention required to manage the SCDF

- Increased length of the permanent BLF and design changes to enable operation
- Introduction of an additional temporary BLF
- Increase in vessel deliveries and therefore potential impact of vessels on coastal processes

Conclusions regarding impacts on coastal processes on protected sites and species

In conclusion, based on the above concerns and the evidence provided at this stage, we do not agree that adverse effects on integrity can be ruled out for the following sites and features for impacts from the project alone:

- Annual vegetation of drift lines (Minsmere to Walberswick Heaths & Marshes SAC);
- Perennial vegetation of stony banks (Minsmere to Walberswick Heaths & Marshes SAC);
- Little Tern (Minsmere-Walberswick SPA);
- Breeding waterbirds (Shoveler, Gadwall, Teal, Bittern, Marsh Harrier, Avocet, Bearded Tit) (Minsmere-Walberswick SPA)

Mitigation and monitoring

In the absence of a confirmed design approach and full assessment of all likely significant effects, it is difficult to evaluate whether the Coastal Processes Monitoring and Mitigation Plan (CPMMP) will be appropriate in scope. Concerns include but are not limited to the approach to embedded mitigation using the SCDF, how trigger points for intervention may be defined and considered, lack of mitigation strategy for the nearshore bars or for any adverse impact on the Minsmere frontage, lack of clarity regarding how the proposed mitigation for sea defence purposes will be aligned to avoiding adverse effects on the designated flora or the integrity of the neighbouring frontage to the north and the need for revision of the CPMMP to incorporate the Changes to the Application.

Marine Ecology

The potential marine impacts are briefly summarised below.

Indirect impacts on birds from fish mortality arising from the cooling water system

Our concerns around the intake of marine organisms via the cooling water system and the subsequent discharge of dead and moribund biota via the Fish Recovery and Return system relate to the potential effects on bird predator species arising from reduced prey availability and the effects of changes to water quality as a result of the discharged material. We consider that additional mitigation in the form of an Acoustic Fish Deterrent is required.

Direct and indirect impacts on birds from the thermal plume

Our concerns around the thermal plume (the warm water discharged from the cooling water system to the sea) during the operational period relate to the potential for indirect impacts on prey species important to bird populations and the potential for direct effects through displacement of birds loafing or foraging on the water surface.

Direct and indirect impacts on birds from the chemical plumes

We are concerned that the chemical plumes resulting from the discharge of total residual oxidants, bromoform and hydrazine have the potential to affect prey species of birds and may also have direct displacement or toxic effects on birds.

Direct and indirect impacts on birds from the sediment plumes

Our concerns relate to the potential for increased turbidity due to increased suspended sediment concentrations arising from dredging activities to lead to avoidance behaviour by fish, particularly the prey species of SPA bird features and to lead to direct impacts on birds through avoidance behaviour by them or reduced hunting success (due to potential effects of increased turbidity on the ability of birds to forage successfully).

Indirect impacts on birds from disturbance of prey species by underwater noise and vibration

Underwater noise and vibration could lead to reduced prey availability for birds if disturbance is significant enough to lead to mortality or displacement of their fish prey. Sources of noise and vibration include impact piling during the construction of the beach landing facilities (BLFs), dredging and drilling for construction of cooling water intakes and outfalls.

Direct disturbance of birds arising from vessel movements and other marine activity

As significant numbers of vessel movements expected, primarily during the construction period, our main concerns relate to direct disturbance of non-breeding red-throated divers. In addition, due to the presence of the two BLFs, and the length of the temporary BLF in particular, we are concerned about the potential for direct disturbance from noise, lighting and visual disturbance from both the BLFs.

Combined marine impacts

We are concerned that the combined effects of disturbance resulting from dredging, piling and vessel movements, the various discharges (including those of thermal discharges, bromoform, hydrazine and organic matter (dead fish and other organisms)) and increased suspended sediment concentrations and the resulting total displacement of marine birds (particularly red-throated diver of the Outer Thames Estuary SPA) have not been adequately considered.

Marine impacts in-combination with other projects

Potential exists for in-combination effects on red-throated divers of the Outer Thames Estuary SPA from the Sizewell C project and several offshore windfarms, particularly during the construction phase. We consider that the sum total of disturbance impacts affecting this SPA have not been properly assessed.

Conclusions regarding marine impacts

In conclusion, based on the above concerns, we do not agree that adverse effects on integrity can be excluded for the following sites and species for impacts from the project alone:

- Breeding little terns of the Minsmere-Walberswick SPA
- Non-breeding red-throated divers of the Outer Thames Estuary SPA
- Breeding Sandwich terns of the Alde-Ore Estuary SPA

In relation to this project in combination with other projects, we do not agree that adverse effects on integrity can be excluded for the following site and species:

- Non-breeding red-throated divers of the Outer Thames Estuary SPA

Hydrology

The surface water drainage of the Sizewell Marshes and Minsmere catchment is described, along with the relevance of hydrological management for key habitats and species. It is noted that the hydrological management of Minsmere RSPB Reserve is ultimately reliant on the Minsmere Sluice. The impacts of flooding/raised water levels on nesting and foraging birds are discussed, with potential impacts on productivity during the breeding season and foraging success year-round.

Concerns regarding potential impacts on water levels of the Minsmere to Walberswick designated sites

The Application has the potential to alter the surface water flow regime and lead to impacts on the Sizewell Marshes SSSI and Minsmere to Walberswick Heaths and Marshes SSSI, SAC, SPA and Ramsar site through, for example, changes to direct hydrological connections, water levels and water quality/chemistry. Any impediment on the drainage of the Scott's Hall Drain at Minsmere Sluice could impact on water levels in Minsmere's main reedbed, the Scrape and North Marsh. There are also concerns around the potential for hydrazine from the cooling water outfalls to enter Minsmere via the Sluice. All these potential effects could impact the breeding success of species such as avocet and bittern (SPA, Ramsar and SSSI species) by flooding nests or affecting feeding sites.

Proposed Primary Mitigation to manage potential impacts

The Applicant has included mitigation measures within the surface water management design (during the construction period), arguing that these along with the proposed Sizewell Drain realignment isolate the proposed development from the surrounding areas. However, we question how the Applicant proposes to reduce levels/flows in the Leiston Drain to avoid increasing flows into the Minsmere Sluice and affecting water level control at RSPB Minsmere. In extreme events this scenario increases the risk of flooding the nests or reducing feeding opportunities for SPA, Ramsar and SSSI species such as avocet and bittern. We understand that further information is to be provided to the Examination and will comment further on this once we have had time to review. We welcome recognition that there is a need for water level control structures to manage the Sizewell Marshes SSSI. However, the described approach will have the consequence of potentially reducing or increasing flows to the Leiston Main Drain and therefore potentially interfering with water level control on Minsmere South Levels and potentially at the Minsmere Sluice.

Approach to Monitoring and Mitigation

No mitigation plan is in place should the predicted change be exceeded in any circumstance beyond changes to water levels in the Sizewell Marshes SSSI and no mitigation strategy is proposed to address changes to water levels in the Minsmere – Walberswick SPA, Ramsar and SSSI designated site and wider monitoring in this catchment is not presented. There is a lack of clear framework throughout. It is proposed that the monitoring plan will inform a Water Level Management Plan prepared and owned by the IDB, but the monitoring strategy describes a framework of 'trigger' and 'action' levels which may be captured in an updated Water Level Management Plan. An adaptive trigger level approach to mitigation is proposed which would be implemented as a standalone control measure but could be used by the IDB to inform any update to the Water Level Management Plan for Sizewell Marshes SSSI, not allowing for a clear understanding of the intended approach.

Potential impacts of water levels on the Minsmere to Walberswich SPA, Ramsar site and SSSI

The assessment does not take into account the hydrological sensitivity of the SPA species utilising habitats north of the New Cut which could be affected by increased flows to the Minsmere Sluice.

We therefore believe the assessment of impacts on SPA bird species in hydrological models has not taken account of all potential impacts.

Hydrological Impacts and Risks to Sizewell Marshes SSSI

We are grateful to Friends of the Earth and their Experts (Dr Rob Low, Dr David Mould and Jon Graham) for considering these issues in detail in their written representations. We refer the Examining Authority to those representations for full consideration of the issues summarised here.

From the available evidence, Friends of the Earth's Experts have concluded that direct, upward groundwater flow and discharge, in response to the hydraulic gradient from the Crag to the Peat, is almost certainly a critical source of water to some of the stands of M22 fen vegetation. This is critical because it allows favourable hydrological supporting conditions to be maintained, in terms of water table elevation regime and water quality, to enable the favourable condition of the SSSI to be maintained. The Applicant's conceptual model is significantly flawed and therefore the prediction of impacts (including the design and use of the numerical model) has not been informed to the best possible degree.

Development and agreement of a detailed monitoring and mitigation plan should be addressed at the earliest stage in the planning process. The primary measure for mitigation of ecohydrological impacts from the development appears to be that, if drawdown of the water table in the Peat within Sizewell Marshes is larger than predicted, water levels in the SSSI drainage ditch network will be raised, such that water migrates from the ditches into the Peat layers to maintain in-field water table elevations. This measure is fundamentally inappropriate and would actually cause further damage to the M22 within the SSSI by replacing high quality groundwater with surface water of lower quality. This would negatively impact the highly sensitive plant community.

The Applicant's understanding of the environmental processes which support the nationally important M22 fen community and associated communities within Sizewell Marshes SSSI is flawed, because up-to-date ecohydrological knowledge and techniques have not been applied. This has led to ill-informed impact prediction, which has resulted in the likelihood, magnitude and significance of potential impacts being significantly underestimated. These problems have been compounded by the Applicant's proposal of a mitigation technique which would actually cause further damage to the SSSI, rather than mitigating any unexpectedly large impacts.

Noise and visual disturbance (birds)

Our main concerns in relation to noise and visual disturbance relate to the construction phase of the development and in particular to the main development site and impacts on bird features of the Minsmere-Walberswick SPA and Ramsar site (designated sites) and the Sizewell Marshes SSSI.

Impacts of noise and visual disturbance

Construction activity may result in disturbance and/or displacement of birds, through responses to visual or acoustic stimuli, and the level and type of sensitivity varies by bird species and by season. In brief, disturbance as a result of construction activity may affect birds by causing:

- reduced food intake rates
- increased energy expenditure
- decreased breeding productivity
- physiological changes

- habitat loss due to displacement (likely to also lead to the effects above)

Comments on the baseline data

The lack of longer-term distributional data for breeding waterbirds on the Minsmere South Levels (following a standard repeated visit methodology and usually for a minimum of two years) represents a significant limitation to the Applicant's impact assessment.

Comments on the assessment methods for potential noise and visual effects on birds during construction

Concerns include but are not limited to the assessment scenarios for the noise modelling – including the definitions of day and night-time lacking ecological relevance, the lack of clarity regarding overlapping construction phases and uncertainty regarding impacts in Phase 5 and other limitations to the noise modelling approach.

Noise and visual disturbance evidence base

Concerns include but are not limited to the sensitivity thresholds for chronic and impulsive noise, assumptions regarding temporary displacement and the reduced area assumed to be subject to visual impacts.

Summary of extent of noise and visual disturbance impacts on birds during construction

Concerns include the potential for significant impacts on breeding birds of the Minsmere South Levels and Sizewell Marshes throughout the construction period and on wintering birds in the early and late phases of construction. Parts of these areas will also experience additional visual disturbance.

Impacts on breeding birds of the Minsmere-Walberswick SPA and Ramsar site (excluding marsh harrier)

The displacement of 11% of the wider SPA population of breeding gadwall and 7% of the population of breeding shoveler mean we do not agree that adverse effects on integrity can be ruled out based on noise and visual impacts on the Minsmere-Walberswick SPA. In addition, the potential for the proposed development to affect the ability of conservation measures to restore the breeding teal population (if causes are understood and suitable solutions can be proposed) should be considered.

Impacts on non-breeding birds of the Minsmere-Walberswick SPA

The level of displacement predicted, and our concerns around the assessments mean we do not agree that adverse effects on integrity can be ruled out based on noise and visual impacts on non-breeding gadwall or shoveler of the Minsmere-Walberswick SPA and that impacts on or white-fronted goose require further assessment.

Impacts on breeding birds of the Sandlings SPA

The assessment fails to consider the potential for combined effects of recreational pressure and visual disturbance during construction on nightjar and woodlark in the north-western part of the Sandlings SPA and we therefore consider the assessment requires updating.

Impacts on the Minsmere-Walberswick Heaths and Marshes SSSI and Sizewell Marshes SSSI

No assessment has been made of the feature species likely to be affected or their sensitivity to impacts and the conclusion of no effects on overall bird populations does not give adequate recognition to the importance or integrity of the SSSI itself.

Monitoring

A robust programme of monitoring should be proposed for the construction period to include both monitoring of noise levels for the purpose of verification of noise modelling predictions and monitoring of the distribution of key bird species to detect impacts.

In-combination impacts

Impacts on the Sandlings SPA from the Application in-combination with the onshore cable route construction of the Scottish Power Renewables (SPR) offshore wind schemes and the Sizewell B relocated facilities works have not been fully considered.

Conclusions regarding noise and visual impacts on birds

In conclusion, based on the above concerns and the information available at present, we do not agree that adverse effects on integrity can be ruled out for the following sites and species for impacts from the project alone:

- Breeding gadwall and shoveler and non-breeding gadwall, shoveler and white-fronted goose of the Minsmere-Walberswick SPA and Ramsar site

We agree with the conclusion that adverse effects on integrity cannot be ruled out for breeding marsh harrier of the Minsmere-Walberswick SPA and Ramsar site (discussed further below).

We also consider that significant impacts from the Application's alone are likely on the following sites:

- Minsmere-Walberswick Heaths and Marshes SSSI
- Sizewell Marshes SSSI

In relation to this project in combination with other projects, we do not agree that adverse effects on integrity can be ruled out for the following site and species:

- Breeding woodlark and nightjar of the Sandlings SPA

Noise and visual disturbance to marsh harriers of the Minsmere-Walberswick SPA and Ramsar site

The Applicant concludes that noise and visual disturbance is likely to result in significant displacement of breeding marsh harrier from their functionally linked foraging areas on the Minsmere South Levels and Sizewell Marshes. This loss of foraging habitat is proposed to be compensated through the provision of habitats managed to provide an uplift in marsh harrier prey abundance and availability.

Marsh harrier sensitivity to noise and visual disturbance

Concerns include but are not limited to the threshold for noise disturbance and assumptions around marsh harrier sensitivity to visual disturbance from human activity.

Assessment of baseline conditions – current noise levels and habitat usage by marsh harriers

Concerns include but are not limited to the assessment scenarios for the noise modelling.

Conclusions regarding noise and visual impacts on marsh harriers of the Minsmere-Walberswick SPA and Ramsar site

Concerns include but are not limited to the assumption that assessment based on worst case scenario noise levels is highly precautionary, the need for the acoustic fence to be constructed at the beginning of Phase 1 of the construction period and the reduced area assumed to be subject to visual impacts. We support the conclusions regarding displacement of foraging harriers from Sizewell Marshes and therefore agree with the conclusion that adverse effects on integrity on the Minsmere-Walberswick SPA and Ramsar site cannot be excluded.

Calculation of the compensatory requirement

Concerns include but are not limited to the lack of compensation for loss of arable habitats and the residual loss of foraging resource.

Ecological considerations for design of the compensatory marsh harrier foraging habitat

We discuss the design of the proposed compensatory habitats and assess the adequacy of the compensation in comparison to the predicted impacts. In general, we agree with the dry habitat components proposed, although we still have concerns around the overall loss of valuable wetland foraging habitats for marsh harrier. However, we disagree with statements regarding the level of uplift in small mammal abundance that can be expected from the habitat compensation area, with the Applicant stating that this is expected to be between 6.6 and 10.7 relative to baseline conditions whilst we consider that the uplift in abundance is likely to be around half of this level.

Additional constraints on the functionality of the compensatory habitats

We raise concerns about constraints affecting the functionality of the marsh harrier compensation area, particularly during the first few years of construction including noise disturbance, woodland planting and lack of functionality of wet habitats in the early phases of construction. As a result of these constraints, we estimate that only around half of the marsh harrier compensation area will be functional during the early stages of construction.

Conclusions regarding compensatory habitats proposed for loss of marsh harrier foraging resource

We compare the compensation measures proposed to the requirements of EN-6 (National Policy Statement for Nuclear Power Generation) and conclude that we do not agree that the compensation package is acceptable and meets these requirements.

Recreational pressure

The potential recreational impacts are briefly summarised below.

Sources of impacts

Our main concerns in relation to increased recreational pressure on protected sites and species concern both the construction and operation phases of the development and the potential impacts on the Minsmere-Walberswick SPA, SAC and Ramsar site (designated sites) and Sandlings SPA in particular. During the construction phase of the development it is expected that recreational users who may previously have used the Sizewell area and its surroundings may be displaced directly by

construction activity and associated footpath closures and diversions or indirectly by the perception of loss of tranquillity.

In addition, the new accommodation campus for workers during the construction phase brings around 2,400 new residents close to the Minsmere-Walberswick designated sites and the Sandlings SPA, part of a total of 7,900 new residents in the wider area during the construction phase. While the effects of the accommodation campus are expected only to last during the construction phase, given the length of that construction period the effects of recreational displacement of existing users could extend into the operational phase as a result of the formation of new habits and preferences.

Impacts of increased recreational pressure

Recreational activity may result in disturbance and/or displacement of birds, with the level and type of sensitivity varying by bird species and by season. Ground nesting birds on heaths and beaches are particularly vulnerable to disturbance by people and dogs through potential damage through trampling or predation of nests. Sensitive habitats, such as heathland and vegetated shingle, are also vulnerable to impacts including trampling, nutrient enrichment by dog faeces and fire.

The reports by Footprint Ecology (commissioned by National Trust and RSPB) provided in the Annexes to our Written Representations describe the potential impacts and problems with the assessments in full.

Conclusions regarding impacts of recreational pressure on protected sites and species

In conclusion, based on the above concerns and the evidence provided at this stage, we do not agree that adverse effects on integrity can be ruled out for the following sites and features for impacts from the project alone or in combination with other projects:

- Perennial vegetation of stony banks and European dry heaths of the Minsmere-Walberswick Heaths & Marshes SAC
- Breeding and wintering waterbirds, breeding nightjar and little tern and wintering hen harrier of the Minsmere-Walberswick SPA (and Ramsar site, where relevant)
- Breeding nightjar and woodlark of the Sandlings SPA

Mitigation and monitoring

We understand that the Applicant intends to submit mitigation and monitoring plans for the relevant protected sites at a forthcoming deadline. We look forward to the opportunity to update our position on the impacts of recreational pressure on protected sites and species following submission and review of these plans.

Bats

Hinkley C

There is repeat reference of Hinkley C as an analogous example. Hinkley C does not have a comparable bat population from which to base conclusions on potential impacts or effectiveness of mitigation.

Data Adequacy and Analysis

There is a lack of bat data within the area of Sizewell Marshes SSSI that will be lost to the development and from Goose Hill, also with static detectors being removed from the footprint of the development. There is also limited temporal coverage and quantitative data, such as thermal imaging, across the dataset. These limit the baseline data and make the true impact impossible to determine. The data analysis is unlikely to pick up population changes in rarer species such as barbastelle and having concluded significant impact on barbastelle due to habitat fragmentation, there appears to be no attempt to explain what that will actually mean to the population.

Overall, the generic approach i.e. to look at the community broadly as opposed to the key species is of considerable concern. The likely consequence of this is that there is limited understanding of how Natterer's bat and barbastelle populations will respond to the construction.

Noise

We consider that a more precautionary approach to assessment should have been adopted. Acceptable levels of noise in relation to features (such as roosts and commuting routes), have not been defined. The likely effectiveness of key mitigation approaches such as the hording or bunding at Ash Wood remains unclear and the practicalities of how monitoring will establish its effectiveness are not explored. Noise impacts should be properly assessed, with a focus on frequency that is ecologically relevant to bats, rather than the use of human noise modelling. There are also concerns over spatial coverage of monitoring with limited coverage in many key areas including, but not restricted to; Ash Wood, the southern end of Bridleway 19, Fiscal Policy, along Kenton Hills and areas bordering the SSSI.

Lighting

The combination of the acknowledged lack of certainty in the assessment and the indication that it may not be practically possible to implement further mitigation adaptively means we consider the assessment should be more precautionary. There is a lack of clarity over lighting of the Sizewell Marshes and light spill from the bridge to cross the SSSI. There are also concerns over the spatial coverage of light level in the baseline survey.

Evaluation of the value of Goose Hill

We are concerned over the conclusion that there is 'minimal roosting resource for bats' within Goose Hill when the data show the total loss of 111 trees of moderate and high roost potential. We believe this conclusion may have led to a significant underestimation of the effect the loss of Goose Hill will have, especially on barbastelle. The foraging and commuting value of Goose Hill also has not been properly mitigated.

Mitigation

We are concerned that there are no detailed mitigation proposals or a structured monitoring plan in place. It is difficult for stakeholders to be asked to comment on these very detailed assessments without the details of the mitigation that allow the conclusions in the ES to be reached.

There appears to be a limited number of bat boxes. Given the low level of effort put into searching for roosts, especially within the SSSI, it seems highly likely that the number of bat boxes needed to sustain barbastelle, has been significantly underestimated.

We have concerns over the functionality of the new bat house at Lower Abbey Farm as a result of it being cut off from commuting routes due to light and noise.

In-combination (Synergistic) Effects

Little has been done to understand the combined impacts of light, noise and fragmentation together. There is also an underestimation of the importance of the landscape affected by the footprint of the Sizewell Link Road but additionally how this area may increase in importance during the development as bats are displaced from the main development site.

Natterjack toads

The natterjack section is informed by the report; Amphibian and Reptile Conservation (2020). Sizewell C Project: comments on natterjack toad mitigation proposals. Report to Suffolk Wildlife Trust. ARC report. ARC, Bournemouth. The report is attached to our Written Representations as an appendix.

The main findings of that Report are:

- The framing of impacts as "temporary" when they would in fact last for three natterjack toad generations is a notable misinterpretation of the potential impact on the viability of the population;
- There is insufficient reassurance that habitat creation and management proposals would generate and maintain a resilient population of natterjack toads; and
- The proposals do not adequately take into account the ecology and local conservation status of the population.

Biodiversity Net Gain

Whilst we welcome the Applicant including Biodiversity Net Gain (BNG) within their proposals, we do not agree the Application can achieve net gain due to direct adverse impact on Sizewell Marshes SSSI from loss of a significant proportion of the SSSI, nor the amount claimed by the Applicant.

We are grateful to the Applicant for the discussions held and agree that the Application should take account of the requirements the new net gain system will include once established. The Application should be demonstrating a high biodiversity metric score that does not rely on protected species mitigation and compensation measures to get over the 10% uplift requirement.

The biodiversity metric 2.0 used for the assessment is a consultation draft that contains software bugs and grey areas. The Applicant is currently taking full advantage of all grey areas to increase the metric score. The choices made have in each case increased the claimed BNG.

Our main concerns include:

- use of measures that are for protected sites and species mitigation and compensation
- the baseline policy is directly at odds with the biodiversity gain system to be introduced by the Environment Bill
- the time for habitats to reach target condition (temporal risk) does not take account of the construction phase
- the replacement of higher biodiversity habitats with those of lower biodiversity (trading down)

- lack of evidence to support the likelihood of delivering the predicted on-site habitat conditions on post-construction soils
- lack of evidence to support the likelihood of delivering the predicted off-site habitat conditions post development
- the % net change in the metric score is calculated versus the on-site baseline but it should be calculated versus the total on-site plus off-site baseline
- the biodiversity value of existing habitats has not been adequately considered and taken account of
- heavy use of 'fairly good' category

We consider the key finding from the Applicant's BNG proposals to be at best only just over the 10% boundary by a narrow margin, and that if any one of several marginal decisions were reversed it would fall below it. Therefore, it is our view that the Application is not making the ecological contribution claimed nor that is proportional to the size of it - at best it is providing no more than the minimum standard expected of any housing development.

Landscape Strategy

We are concerned the Application will have a significant visual impact on visitor experience and the views available at RSPB Minsmere and the landscape strategy lacks measures to minimise and mitigate for this potential impact. We are concerned the landscape strategy lacks sufficient details of baseline information, ecological objectives for habitats, species and ecological connectivity, habitat creation and management, robust monitoring and further interventions to be implemented if required and legal means of securing this throughout the lifetime of the development. We consider the Application should be focusing on landscape scale net gains and providing a functional ecological mosaic/ecotone and improving the actual ecological functionality of the surrounding area.

Legislation and Associated Policy and Guidance

The relevant environmental legislation is briefly outlined, with its applicability to our concerns around protected sites and species, as well as wider environmental requirements, highlighted. In addition the relevant environmental assessment requirements as set out in the Infrastructure Planning (EIA) and Conservation of Habitats and Species Regulations are considered as well as the relevant of the SSSI provisions in the Wildlife and Countryside Act and general duties.

As we set out in detail particular attention is required due to:

- the tightly drawn boundaries of SPAs and SACs (and Ramsar sites) in the UK and the subsequent high ecological value of all land and sea within them
- the need to consider functionally linked land
- the need for the precautionary principle to be applied where uncertainty exists,
- the need for all relevant environmental information to be included
- the need to fully consider the SPA and SAC Conservation Objectives
- the need to consider the worst case scenario and
- the need to consider all aspects of the Application and associated development together along with the potential cumulative effects arising from the Application and potential in-combination effects from other plans and projects.

when undertaking assessments.

The Development Consent Order - Initial Concerns

Our concerns with the draft DCO and Deemed Marine Licence are outlined. With regard to Schedule 2 of the draft DCO our concerns include, but are not limited to, the lack of certainty that all relevant mitigation and monitoring plans have been provided, the lack of clarity about where and how the descriptions of mitigation in the ES volumes and relevant chapters is reconciled with the mitigation secured in the DCO and the s.106 agreement and the lack of a general requirement that the authorised development be carried out in accordance with the documents to be certified by the Secretary of State under Schedule 22. With regard the Deemed Marine Licence we query the definition and provision of the Marine Environmental Management Plan referred to in Schedule 20.

The s.106 Agreement

Our concerns include, but are not limited, to the apparent lack of the Implementation Plan referred to in Schedule 9 and concerns about responsibility for determining the course of action in the event of any delay which may have implications for the effectiveness of mitigation measures. We also have queries in relation to the membership of the review and working groups described in Schedule 11 and consultation on the outputs of monitoring carried out on the various monitoring plans and reviewed by the working group(s).

Legal Conclusions

We will continue to work with the Applicant on these concerns and provide comments on further information submitted to the Examination. We will update the Examining Authority of our position in light of any new information presented. However, currently, we have serious concerns about the adequately of information available and strongly recommend that without further information and details being provided including clarity on the required legal, financial and ecological securing of requirements, measures, plans and schemes, placing confidence in them is premature.

Land Issues

The RSPB owns land immediately adjoining the development site. Whilst there is no specific dispute on the legal boundary, we are unclear how any new boundary will appear physically and as such how that will impact on our boundary. We are concerned about the impact on the management of our holding, whether that be through disturbance from noise, light, dust or air pollution. There is no provision for monitoring within our site for matters such as recreational displacement, coastal processes, hydrological monitoring or other ecological data currently to enable the Applicant to review assessments done and to check whether the proposed development has further, unpredicted, impacts.

The RSPB is grateful to the Applicant for its proposals for a Resilience Fund for the RSPB (and others). As we understand it, the purpose of this fund is to off-set perceived impacts and risks caused by the proposed development. We would seek to ensure that the Resilience Fund is available for the full period of the construction programme. We would also seek to understand more about how precisely the Resilience Fund would practically operate. However, we believe there is little evidence in the Application documents as to how any consequential loss will be addressed.

Due to its location, the proposed development will have a significant visual impact on visitor experience and the views available. We do not agree with the Applicant's position that impacts on the landscape and visual effects are only localised across the AONB

The RSPB is also grateful for provisions being made towards the Second Leiston Abbey Farm Site Enhancement Scheme and as landowner and due to its statutory duty to maintain the Scheduled Ancient Monument we would welcome discussions on how the Scheme will operate and what enhancement measures may be possible within it.

Love Minsmere Campaign

The Love Minsmere campaign aims to see both RSPB Minsmere nature reserve, the protected and designated sites including Sizewell Marshes SSSI, and the surrounding wildlife that calls the Suffolk coast home, protected against potentially harmful impacts from the Application. To date the Love Minsmere campaign has comprised of three different actions:

- Stage 3 Public Consultation - over the course of the consultation, 20,419 supporters submitted consultation responses to the Applicant on the importance of RSPB Minsmere and why it must be protected.
- The Love Minsmere Festival - on 15 September 2019, during the Application's fourth and final consultation, the RSPB held their first ever Love Minsmere Festival. Over 1000 people gathered on Whin Hill and together they collectively declared their love for Minsmere.
- Pre-examination e-action - supporters who shared our concerns (based on our Relevant Representations) signed the RSPB and Suffolk Wildlife Trust's e-action. In just 12 weeks, 104,836 people took our e-action, showing the breadth and strength of concern regarding the Application and potential impacts on nature.