# The Sizewell C Project

## 9.16 On-site Marsh Harrier Compensatory Habitat Strategy - Tracked Changes Version

| | |
|---|---|
| Revision: | 2.0 |
| Applicable Regulation: | Regulation 5(2)(q) |
| PINS Reference Number: | EN010012 |

September 2021

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

SizewellC
Doing the power of good for Britain
EDF CGN

# ~~Contents~~

## FIGURES



# ~~Introduction~~

## APPENDICES

# 1 INTRODUCTION

## 1.1 Background

1.1.1 Marsh harrier (*Circus aeruginosus*) is an interest feature of the Minsmere - Walberswick Special Protection Area (SPA) during the breeding season. This species is also included as part of the important assemblage of rare breeding birds on the Minsmere – Walberswick Ramsar site. The harriers breed exclusively in reedbed habitat located to the north of the New Cut but they are known to forage widely for food over the Minsmere South Levels and also the ~~EDF Energy estate~~Estate, including Sizewell Marshes Site of Special Scientific Interest (SSSI). The commitments relating to the management of the Estate are set out in the **Estate Wide Management Plan** (Doc Ref. 9.88(A)) secured by Requirement 5C.

1.1.2 Activities associated with the construction of Sizewell C are not predicted to affect the breeding sites north of the New Cut but have the potential to result in the temporary displacement of marsh harriers from the foraging areas to the south of the New Cut.

1.1.3 The extent to which disturbance-related temporary displacement will occur ~~is the subject of~~ has been assessed in the Habitats Regulations Assessment for the proposed development [APP-145 to APP-149, AS-173 to AS-178 , REP2-032, REP4-004 and REP7-279]. SZC Co. ~~However, EDF Energy~~ has recognised that there will be a need to compensate for this during construction of the power station~~, a period that could extend to 10 years~~.

1.1.4 The proposed approach to the compensation is to undertake habitat creation and targeted land management activities on arable farmland, to enhance habitat so that it supports abundant prey species for marsh harriers. As measures will be required for a limited duration (10-12 years) they do not need to be permanent.

## 1.2 Study ~~objective~~Objectives

1.2.1 A 47ha area at the northern end of the ~~Sizewell~~ estate has been identified as available for development as compensatory habitat. The area encompasses the fields extending from the east of Ash Wood to the north as far as and including Sandypytle, Dovehill, Lower Abbey Farm Marsh and the field to the west of this (see **Appendix 14C5** of the **ES**, **Volume 2**, **Chapter 14** ~~submitted as part of the Sizewell C Project DCO Application~~ [APP-259]).

~~The key objective for the study was:~~

1.2.2 ~~To~~ The key objective for this study was to develop a proposal that will maximise the number of marsh harrier prey items that the compensation area will support should marsh harriers be displaced from other areas of habitat in the usual foraging range, with a focus on the breeding season.

## 1.3 Previous Project Stages

1.3.1 Three previous design stages have been undertaken, as summarised below.

### a) Design Brief and Specification

1.3.2 A Design Brief and Specification, presented in Hyder, 2015[1] [APP-259]~~1~~, set out an initial vision for the enhanced foraging habitat and detailed the tasks considered necessary to complete a feasibility study of the proposals. The study proposed a scheme comprising 'four distinct core elements, provided as an integrated package of marsh harrier mitigation[2], as follows:

- Creation of shallow scrapes supporting open water and aquatic and emergent vegetation to provide suitable nesting habitat for water birds such as moorhen and mallard, whilst also providing habitat structure that persists during the winter months.
- Creation of lowland heath, scrub and acid grassland, to enhance populations of farmland birds and small mammals and provide habitat structure that persists into the winter months.
- Creation of rough tussocky arable grass margins to increase the population of voles and other small mammals, and the sowing of game cover and seed crops to boost populations of farmland birds.
- Creation of larger areas of tussock-forming grassland supporting plant species typical of coastal floodplain in Suffolk.

[1] Hyder (2015) [APP-259]. Marsh Harrier Foraging Habitat Creation. Design Brief and Specification. Report for NNB Genco Sizewell C.

~~[1] Hyder (2015). Marsh Harrier Foraging Habitat Creation. Design Brief and Specification. Report for NNB Genco Sizewell C.~~

[2] References to 'mitigation' in text quoted from earlier reports are retained. However, the habitat improvement measures are now referred to as compensatory measures in light of the conclusions of the Shadow Habitats Regulations Assessment (APP-145 to APP-149, AS-173 to AS-178 , REP2-032, REP4-004 and REP7-279.

1.3.3 In addition to the core elements above, it is also proposed to alter the management of Lower Abbey Marsh to allow existing wetland vegetation and rough grassland to increase in extent. Whilst this will only be a modest contribution, it will increase the area of wetland habitat available for foraging harriers.' The report was accompanied by two Figures that identified the area proposed for creation of marsh harrier foraging habitat in relation to the Sizewell C Main Development Site and also an indicative scheme drawing of the core elements together.

### b) Initial Design Stage (2015)

1.3.4 Wood Environment and Infrastructure Solutions UK Ltd ('Wood', then Amec Foster Wheeler Environment and Infrastructure UK Ltd) was commissioned by SZC Co. to develop the initial Hyder design, completing the following tasks:

- Review of marsh harrier ecology, and in particular the habitat and feeding requirements of marsh harrier, focussed on the summer period;
- Review available baseline ecological, hydrological, topographical and agricultural management data for the proposed compensation area; and
- Review and develop the initial vision to provide detailed habitat and management proposals.

1.3.5 The Wood (2015)[3] study concluded that:

> *"Based on a review of the available data on the ground levels, the underlying geology and ground and surface water regimes in and around the mitigation area, it is concluded that it would not be feasible to create wetland across the majority of the mitigation area[4]. Therefore the options for the mitigation area need to focus on alternative non-wetland foraging habitats that published*

[3]Amec Foster Wheeler Environment and Infrastructure UK Ltd (2015). Sizewell C Marsh Harrier Mitigation Area Feasibility Report, Report to EDF Energy.

[4] This analysis was informed by an intention that the compensation habitat be temporary for the construction period, and thus avoid the need for significant engineering/construction activities.

*data has demonstrated are also extensively used for foraging by marsh harriers.*

*Recognising the opportunistic nature of marsh harriers, which is likely to mean that the harrier diets' reported may in part reflect the relative abundance of prey items in the foraging areas. Therefore options considered have ranged from maximising small mammal abundance across the mitigation area, to maximising the breeding small farmland bird population at the other end of the scale.*

*The approach to maximising breeding farmland birds has proposed adopting a number of measures proven through the ELS and HLS schemes to benefit both breeding and wintering birds in arable landscapes whilst providing habitat structure that does not prevent marsh harrier foraging activity. It is important to note that the measures would be implemented solely for the purpose of maximising breeding bird (and small mammal) numbers. There would be no requirement for a financial return from the crops.*

*The approach to maximising small mammal numbers would focus on provision of a combination of tussocky grassland and short acid grassland with hedge and scrub foci for the benefit voles and rabbits.*

*Although it is concluded that the approach to maximising small mammals is likely to provide more prey items than the approach to maximising breeding farmland birds, the latter may more reliably provide increased prey abundance and there are some potentially significant disadvantages with the mammal focussed approach that makes its likelihood of success less certain. Therefore it has been proposed that an approach that combines measures that would maximise small mammal abundance whilst also maximising breeding bird numbers as well would be preferred.*

*The optimised scheme primarily comprises provision of tussocky and acid grassland, with the acid grassland and*

*the associated scrub foci distribution designed to provide stepping-stone habitat to facilitate more rapid colonisation by rabbits from outside the mitigation area. Areas of wild bird seed cover and nectar rich flower mixes are also provided and distributed widely to provide food sources for birds, mammals and invertebrates across the site.*

*It is considered that the proposed approach will lead to significant elevated marsh harrier prey items (small mammals and breeding birds) being present in the area when the habitats are established and that this will draw marsh harriers to forage over the mitigation area. The use of measures that benefit both mammals and birds allows a degree of flexibility in the event that small mammal or breeding bird numbers do not increase to the extent expected or that monitoring indicates that one type of prey is favoured by harriers over the other sufficiently to consider alteration to the scheme."*

1.3.6 Designs maximising the potential for breeding bird presence and for maximising small mammal presence, were illustrated in 2015 report, with an optimised scheme also presented, as Figure 5.1 of the 2015 report.

1.3.7 These designs were presented and discussed at a Habitats Regulations Assessment workshop, held on 24 November 2015 with Natural England, RSPB and Suffolk Wildlife Trust, on the potential for marsh harrier disturbance arising from construction of Sizewell C.

### c) Design Update (2018/2019)

1.3.8 Feedback on the 2015 designs broadly accepted that it was not possible to establish extensive wetland on the chosen site. In light of this, an approach combining the provision of habitat favouring both small mammals (including rabbits) and birds was favoured but it was concluded that the designs could be enhanced. Based on workshop feedback the following specific principles were taken into account in the design update 2018/2019:

- Creating habitats to maximise marsh harrier prey (small mammals including rabbits and breeding birds) abundance and availability (as opposed to just maximising abundance);

- Taking account of the way marsh harriers hunt, typically ambush hunters surprising their prey; and
- Ensuring the design was practical to deliver and manage.

1.3.9 Guided by the principles above, and stakeholder comments, a review of small mammal and bird densities supported by different habitats and habitat features was undertaken. This informed the production of a series of six designs (and variations) and development of simple metrics to quantify the benefit of each of the designs to marsh harrier to inform selection of the preferred design option.

1.3.10 Following review of the characteristics of the habitats, and approach to hunting, used by marsh harrier and the results of the metrics assessing the relative benefit of the habitats provided and abundance and availability of prey items, Options 2 and 3 were predicted to lead to the greatest increases in the numbers of small mammals, rabbits and birds present, whilst delivering significant opportunities for harriers to ambush prey by breaking up the sight lines through the provision of scrub belts, earth banks and scrub foci. Taking into account the predominant orientation of the scrub belts and banks, Options 2a and 2b are preferred. The Wood (2019)[5] report, which includes these designs, was submitted as part of the Sizewell C Project DCO Application and is presented in ~~APP-259~~[APP-259].

### d) Post DCO Application Submission Design Update (2020)

1.3.11 As the preferred options, design Options 2a/2b commenced implementation on site early in 2020. However, during the Sizewell C scheme design evolution immediately prior to DCO submission it was necessary to amend the proposals for parts of the marsh harrier compensation area. The specific amendments proposed pre-submission were:

- Inclusion of a water resource storage area (a temporary feature, required for the duration of the construction period to assist water management within the development), before reverting to the post-construction landscaping proposals;
- Reinforcement of the existing hedgerow boundary on the north eastern site margin to provide habitat connectivity in respect of bats

[5] Wood (2019). Sizewell C Marsh Harrier Mitigation Area Feasibility Report, Report to EDF Energy. [APP-259]

commuting routes and also screening of the water storage area from Minsmere South Levels. Additional screen planting on the northern edge of the site adjacent to Sandypytle plantation.

- Creation of a 1.9ha area of wetland on the eastern margin, comprising reedbed grading into wet woodland towards the south.

1.3.12 Post-submission work however ~~has~~ identified that the water resource storage area ~~can now~~ could be located elsewhere, outwith the marsh harrier compensation area. The water resource storage area will therefore be replaced with approximately 4,000m$^3$ of additional, permanent, fluvial flood mitigation, which is being designed, additionally, to create a further 2.49ha of wetland habitats in this area. The wetland habitats would be open water channels and wet reedbeds to provide high quality foraging habitats for marsh harriers.

1.3.13 All other areas of the marsh harrier compensation land the design proposed to be adopted remain as Options 2a/2b, as indicated in Wood (2019) submitted as part of the Sizewell C Project DCO Application at APP-259.

1.3.14 The previous design features were intended to be temporary for the construction period, before conversion to post-construction uses. Whilst the majority of the area will be converted post-construction, the amended design retains the wetland elements, and also the hedgerow reinforcement.

## 1.4 ~~This~~ Status and Structure of this Report

~~Wood has been asked to produce an updated design report to include the amendments identified above.~~

1.4.1 Requirement 14C of the draft DCO (dDCO) prevents commencement of Work No.1A until a marsh harrier implementation plan for the establishment of marsh harrier compensation has been submitted to and approved by East Suffolk Council in consultation with Natural England. The marsh harrier implementation plan must be in general accordance with this Report and, if the SoS considers that additional compensatory habitat is required, the Westleton Marsh Harrier Compensatory Habitat Report (Doc Ref 9.35(A)).

1.4.2 Level 1 control documents will either be certified under the DCO at grant or annexed to the Deed of Obligation (DoO). All are secured and legally

enforceable. Some Level 1 documents are compliance documents and must be complied with when certain activities are carried out. Other Level 1 documents are strategies or draft plans which set the boundaries for a subsequent Level 2 document which is required to be approved by a body or governance group. The obligations in the DCO and DoO set out the status of each Level 1 document.

1.4.3 This report is a Level 1 document. The marsh harrier implementation plan constitutes a Level 2 document.

1.4.4 Where further documents or details require approval, this report states which body or governance group is responsible for the approval and/or must be consulted. Any approvals by East Suffolk Council, Suffolk County Council or the MMO will be carried out in accordance with the procedure in Schedule 23 of the dDCO. The DoO establishes the governance groups and sets out how these governance groups will run and, where appropriate, how decisions (including approvals) should be made. Any updates to these further documents or details must be approved by the same body or governance group and through the same consultation and procedure as the original document or details.

1.4.5 Where separate Level 1 or Level 2 control documents include measures that are relevant to the measures within this document, those measures have not been duplicated in this document, but cross-references have been included for context. Where separate legislation, consents, permits and licences are described in this document they are set out in the Schedule of Other Consents, Licences and Agreements (Doc Ref. 5.11) [REP3-011].

1.4.6 For the purposes of this document the term 'SZC Co.' refers to NNB Nuclear Generation (SZC) Limited (or any other undertaker as defined by the dDCO), its appointed representatives and the appointed construction contractors.

1.4.7 The structure of this report is as follows:

- Section 2 of the report presents the design of the new proposed habitat elements;
- Section 3 summarises, and updates, the design components from Options 2a/2b previously detailed by Wood (2019);
- Section 4 presents the study conclusion.

## ~~Design of New Elements Proposed~~

1.4.8 This report presents the design proposals for the On-site marsh harrier habitat compensation strategy. It is important to note that all matters pertaining to monitoring of marsh harriers, their prey and the establishment of the habitats defined in this strategy are defined and secured in the **Terrestrial Ecology Monitoring and Mitigation Plan**.

# 2 DESIGN OF NEW ELEMENTS PROPOSED

2.1.1 This section describes the design amendments:

- Wetland areas;
- Reinforced hedgerow boundary; and
- Additional woodland screen planting on the northern edge of Dovehill.

2.1.2 The distribution of the habitats is illustrated in Appendix A.

2.1.3 The design parameters/principles set out below must be incorporated into the marsh harrier implementation plan pursuant to Requirement 14C of the dDCO.

## 2.2 Wetland Areas

2.2.1 A total of 4.39ha of permanent wetland will be included. This will comprise a mix of wet reedbed (2.85ha) and open water (0.75ha) extending from the northern field southwards along the eastern site margin to an area of wet woodland (0.79ha). At its maximum the wetland area extends to approximately 200m wide at the northern end and 50m wide along the eastern margin. Excavation in the reedbed areas is proposed to a minimum level of -1.00m above Ordnance Datum (AOD), whilst in the wet woodland the minimum level is 0.00m AOD.

## 2.3 Reedbed and open water design

2.3.1 The design of the reedbed and open water follows ~~similar~~ the design principles ~~adopted for Aldhurst Farm, as summarised~~ detailed below~~.~~ :

- The habitat will comprise predominantly wet reedbed incorporating between 20-30% open-water in a groundwater fed basin.
- Based on the review of hydrological data presented in Amec Foster Wheeler (2015), excavation to -1.00m AOD should ensure a minimum of 1.5m depth of water, in the open water areas during summer groundwater lows, thus ensuring a sustainably wet reedbed area. Excavation of areas that will support reed growth to 0.00m AOD will ensure a minimum depth of around 50cm of water across the area.

- The groundwater fed basin will have a water control structure, if required~~,~~ to prevent uncontrolled/unplanned discharge and to allow management of water levels. This will be primarily to allow water out of the basin under high water level conditions. There is not expected to be any inflow from the adjacent drainage network except under extreme flood conditions.

- The basin is off-set from the existing ditch network, separated from it by hedge reinforcement referred to below.

- The open water areas (pools) will have a typical slope angle of 1:5 to encourage the growth of reed down the edge (and to provide suitable conditions for marginal vascular plants) and a typical base width of 3 to 5m.

- The channels connecting the pools will be sinuous to provide additional habitat niches for marsh harrier prey to shelter in, and also increase potential for marsh harriers to surprise prey items during hunting.

- The substrate for the reed will be subsoil present on site. This is expected to be sandy soils as detailed in Amec Foster Wheeler (2015).

- Reed for planting within the basin will be sourced from commercially available nursery stock. The plants will be hand-planted (assumed planting over 2.85ha, excluding the open water areas) at a rate of 4 / $m^2$ to facilitate rapid coverage.

## 2.4 Wet woodland

2.4.1 The wet woodland area ~~will be an extension of the~~, the need for which is described in the Wet Woodland Strategy (Doc. Ref. 9.8(A)), will be a small 0.7ha adjacent to the new reedbed, with design principles as summarised below.

- The wet woodland area has been designed without the deep pools and connecting channels present in the reedbed area, and will be excavated to 0.00m AOD at its deepest. Excavation to 0.00m AOD will ensure a minimum depth of around 50cm of water in the deepest

areas, with the water depth reducing towards the south as the elevation of the bed of the basin increases.

- Water levels will be controlled via the same mechanism as for the reedbed. The substrate type will also be the same as the reedbed.
- The planting mix ~~would~~ will comprise predominantly alder (*Alnus glutinosa*), crack willow (*Salix fragilis*), downy birch (*Betula pubescens*), grey willow (*Salix cinerea*) and goat willow (*Salix caprea*). The understorey is expected to populate from the adjacent woodland.
- Planting ~~would~~ will be in an irregular pattern, for a more naturalistic appearance, at around a 3-5m spacing.

## 2.5 Reinforced hedge

2.5.1 Reinforcement of the hedge on the north-eastern compensation site boundary with trees will create a visual screen to reduce visual impacts to waterfowl on the Minsmere South Levels to the east. Whilst this was included in the submitted ~~landscape plan~~ **Landscape Masterplan (operational)** [AS-191] to screen construction of the, previously proposed but no longer required in this location, water resource storage area during the winter months, this will instead screen works to create the reed and wet woodland areas. A mix of rapidly growing broad-leaved deciduous and evergreen species ~~are proposed~~will be planted.

## 2.6 Woodland Screen planting

2.6.1 Woodland screen planting between Sandypytle and a block of existing woodland to the west will provide both habitat connectivity between the existing woodland blocks and screening to the public right of way that lies immediately to the north of the site boundary. A mix of rapidly growing broad-leaved deciduous and evergreen species ~~are proposed~~will be planted.

# ~~Option 2a/2b Design Components~~

# 3 DESIGN COMPONENTS

3.1.1 This section describes the implications of the design amendments (as described in section 2) for the previously preferred design, which seek to further optimise the area for foraging marsh harriers.

## 3.2 Scheme Components

3.2.1 The scheme components, and their specific design considerations, as presented in the Wood (2019) report, are presented below.

- Hedge/scrub belts: the orientation and distance between these ~~would~~ will be optimised to provide habitat but retain an open aspect to the compensation area. Due to the time taken to mature these ~~would~~ will be supplemented by earth banks (see below).

- Earth banks: ~~would~~ will be provided immediately alongside scrub belts, as features in their own right or off-set from scrub belts by 7-10m and will provide instantaneous landscape features/cover for colonisation by rabbits and small mammals and, where off-set, provide an additional linear corridor providing cover for animals and birds and also increased chance of surprise by harriers. Where alongside north-south oriented scrub belts, these will be located to the east and off-set to minimise shade effects. Where alongside east-west oriented belts, they ~~would~~ will be located on the north side. Some of the earth banks will be constructed around logs that will allow a greater height to be achieved immediately. The balance of log-supported versus free standing banks will depend on the amount of wood available.

- Short grassland: Areas of short grassland ~~would~~ will be included, managed for rabbits. The patch size takes account of recorded home range size of 1-3ha, with core habitat areas of up to 0.5ha. Whilst these data derive from Spain (Lombardi et al., 20076), it is reported elsewhere (Pennsylvania Wildlife No.97) that 'Rabbits generally do not feed more than 100m from protective woody cover'. Therefore

[6] Lombardi, L., Fernandez, N. and Moreno, S. (2007). Habitat use and spatial behaviour in the European rabbit in three Mediterranean environments. Basic and Applied Ecology: 8, 453-463.
[7] Pennsylvania Wildlife No.9 (undated). Managing habitat for eastern cottontails.

where short grassland is included it ~~would~~ will not exceed 200m across without provision of scrub (scrub foci), although areas will generally be smaller than this.

- ELS wildbird and nectar rich seed blocks: There are currently 5.16ha of ELS wildbird and nectar rich seed blocks in the compensation area. To comply with the ELS agreement the same extent must be retained as a minimum however the blocks do not need to be retained in the same locations. Some of the blocks currently present are not ideally placed in respect of the design of the marsh harrier compensation area and ~~would~~ will be moved. Additionally, the current extent ~~would~~ will be supplemented by the addition of new blocks. New blocks ~~would~~ will be approximately 0.4ha in area, which is the minimum size required to qualify for ELS, and ~~would~~ will provide additional areas of cover for birds/mammals and features for harriers to hunt around.

- ELS wildbird and nectar rich seed blocks ~~would~~ will almost exclusively be placed in the tussocky grassland to provide food and cover to the birds and small mammals (mice and voles) present in this habitat type, as opposed to the short grassland for rabbits.

- Scrub foci would comprise wood/brash in loosely placed piles of approximately 10m length, 3m width and 1.5-2m height, supplemented with gorse/broom planting to achieve the desired extent. In short grassland areas. Scrub foci ~~would~~ will not be established in the pony paddock as this field is let to the tenant of Lower Abbey Farm ~~and is likely to remain so until the tenancy ends~~.

3.2.2 The extents of the components listed above included in ~~Option 2a and 2b in~~ the chosen 2019 design are provided in Table 3.1 below.

**Table 3.1: Components of ~~Option 2a / 2b~~ Chosen design**

| | Short grassland (ha) | Tussocky grassland (ha) | Wildbird seed mix /nectar rich mix (ha) | Existing hedgerows (m) | New hedge /scrub belts (m) | Extent of bank (m)* | No. of hedge intersections | Scrub foci (no./area(ha)) |
|---|---|---|---|---|---|---|---|---|
| Option 2a | 8 | 25 | 8 | 1650 | 2540 | 1310 | 18 | 21/0.063 |
| Option 2b | 8 | 24 | 8 | 1650 | 2540 | 2130 | 18 | 21/0.063 |

* Bank on south side of footpath 250m. Also, banks assumed to be adjacent to scrub belts unless stated otherwise in the description.

3.2.3 ~~Options 2a/2b are~~ The chosen design has only ~~being~~ been amended to accommodate the new wetland habitats. The remainder of the ~~Option 2a/2b~~ design is being implemented as designed as these option variations comprised combinations of habitat areas that would lead to the greatest increases in the numbers of small mammals, rabbits and birds present, whilst delivering significant opportunities for harriers to ambush prey by breaking up the sight lines through the provision of scrub belts, earth banks and scrub foci. Instead, the additional elements are simply replacing elements previously present in/proposed for the same areas. Amended numbers and extents of features, including the wetland areas now included, are presented in Table 3.2 below and are illustrated on Figure 3.1.

**Table 3.2: Components of ~~Option 2a / 2b~~ chosen design (revised to include wetland habitat)**

| | SG (ha) | TG (ha) | WSM / NRM (ha) | EH (m) | NH / SB (m) | Bank (m)* | NHI | SF (no./ area(ha)) | Reed / Open Water (ha) | Wet woodland (ha) | Wood/ Hedge screen (ha) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Option 2a | 5.61 | 23.1 | 6.3 | 1450 | 2400 | 1310 | 16 | 21/0.063 | 3.6 | 0.79 | 1.2 |
| Option 2b | 5.61 | 22.5 | 6.3 | 1450 | 2400 | 2130 | 16 | 21/0.063 | 3.6 | 0.79 | 1.2 |

Note: Habitat areas and lengths are approximate

SG = Short grassland, TG = Tussocky grassland, WSM / NRM = Wildbird seed mix /nectar rich mix, EH = Existing hedgerows, NH ~~/~~ /SB = New hedge /scrub belts, NHI = No. of hedge intersections, SF = Scrub foci.

* Bank on south side of footpath 250m. Also, banks assumed to be adjacent to scrub belts unless stated otherwise in the description.

3.2.4 The design parameters/principles set out below must be incorporated into the marsh harrier implementation plan pursuant to Requirement 14C of the dDCO. The final design will be defined in the Marsh Harrier implementation Plan.

## 3.3 Habitat Provision for Prey Items

~~2.1.1~~3.3.1 Wood (2019) [APP-259] presented a simple single metric that scored the extent of different habitat types and number of habitat features provided, to determine which of the options provided the greatest extent of suitable habitats for harriers to hunt over – maximising the potential for prey capture. Options 2a / 2b ranked top overall, with 2b the highest based on the provision of more linear habitat, thus providing the greatest opportunities for harriers hunting over the area.

3.3.2 The metric has not been updated to account for the design amendments because:

- Options 2a/2b scored the highest against the options previously assessed, and would still be expected to score highest when implemented over the majority of the compensation area when, as is the case, the wetland area is in a fixed location regardless of the option implemented over the rest of the area.
- Although there is good evidence that marsh harrier is expanding into areas of agricultural habitat, which is the premise on which the marsh harrier compensation area design was based, marsh harriers breed in wetland areas and reed habitat provides a favoured foraging habitat, with studies (e.g. Underhill-Day, 1985) indicating that a significant (although not predominant) proportion of harrier prey comprised waterbirds. Addition of the wetland (reedbed and open water) habitat, are therefore considered to be beneficial inclusions to the design. Both will attract small wetland birds and mammals from the nearby ditch network of the Minsmere South Levels and would have a similar effect on the metric in respect of each option tested, such that the overall option ranking would remain the same, with Option 2a/2b highest.
- It is recognised that mature wet woodland would not be considered a favoured foraging habitat for marsh harrier. However, the wet woodland area present during the Sizewell C construction phase will be in the early stages of development, such that it would represent an extension to the reed and open water areas typically favoured by marsh harriers for foraging. As a result no change to the metric is required.
- The reinforced hedgerow has no effect on the metric.

# ~~Summary and Conclusion~~

# 4 SUMMARY AND CONCLUSION

4.1.1 Marsh harrier is an interest feature of the Minsmere - Walberswick SPA during the breeding season (and forms part of the important assemblage of the Minsmere – Walberswick Ramsar site). The harriers breed exclusively in reedbed habitat located to the north of the New Cut but they are known to forage widely for food over the Minsmere South Levels and also the ~~EDF Energy estate~~Estate, including Sizewell Marshes SSSI.

4.1.2 Activities associated with the construction of Sizewell C are not predicted to affect the breeding sites north of the New Cut but disturbance, particularly associated with construction noise, has the potential to result in the temporary displacement of marsh harriers from the foraging areas to the south of the New Cut.

4.1.3 The extent to which this displacement will occur ~~is the subject of~~ has been assessed in the Habitats Regulations Assessment for the proposed development~~. However~~ [APP-145 to APP-149, AS-173 to AS-178 , REP2-032, REP4-004 and REP7-279]. SZC Co. has recognised that there will be a need to compensate for this during construction of the power station~~; a period that could extend to 10-12 years~~.

4.1.4 The proposed approach to the compensation is to undertake habitat creation and targeted land management activities on 47ha of arable farmland, to enhance habitat so that it supports abundant prey species for marsh harriers. The details must be set out in the marsh harrier implementation plan submitted to East Suffolk Council for approval pursuant to Requirement 14C.

4.1.5 The previous study stage assessed the value of a range of habitat options for foraging marsh harrier, determining that design Options 2a/2b detailed in Wood (2019, [APP-259]) were favoured~~, and commenced implementation on site early in 2020~~. However, during the Sizewell C scheme design evolution it was necessary to amend the proposals for parts of the marsh harrier compensation area. The amendments now included comprise:

- Creation of 4.39ha of permanent wetland. This will comprise a mix of wet reedbed (2.85ha) and open water (0.75ha) to provide high quality foraging habitats for marsh harriers. The reedbed and open water

habitats ~~would~~ will extend from the northern field southwards along the eastern site margin to an area of wet woodland (0.79ha).

- Reinforcement of the existing hedgerow boundary on the north eastern site margin, with trees, to provide habitat connectivity in respect of bats commuting routes and also screening of the reedbed area during initial construction, from Minsmere South Levels.

~~The previous design features were intended to be temporary for the construction period, before conversion to post-construction uses. Whilst the majority of the area will revert post-development, the amended design retains the wetland elements, and also the hedgerow reinforcement.~~

4.1.6 Although the habitats being created under this strategy are designed for a temporary function, to provide foraging habitats during construction, they will be retained as part of the estate of the operational power station and managed in accordance with the **Estate-Wide Management Plan**.

4.1.7 The composition of ~~Options 2a/2b are~~ the chosen design is not being amended to account for the additional elements, as these option variations comprised combinations of habitat areas that would lead to the greatest increases in the numbers of small mammals, rabbits and birds present, whilst delivering significant opportunities for harriers to ambush prey by breaking up the sight lines through the provision of scrub belts, earth banks and scrub foci. Instead, the additional elements are simply replacing elements previously present in/proposed for the same areas.

4.1.8 To determine which of the options provided the greatest extent of suitable habitats for harriers to hunt over – maximising the potential for prey capture, Wood (2019) presented a simple single metric that scored the extent of different habitat types and number of habitat features provided. Options 2a / 2b ranked top overall, with 2b the highest based on the provision of more linear habitat, thus providing the greatest opportunities for harriers hunting over the area. Following review of the metric and the benefits of the proposed amendments, it was concluded that the metric does not need update.

4.1.9 ~~Overall~~ This report presents the design proposals for the on-site marsh harrier habitat compensation strategy and overall it is concluded that the revised habitat proposals, which now include transforming 10% of the compensation area to wetland, represent a positive enhancement of the previously proposed design.

# ~~Appendix A~~
# ~~Proposed Wetland and Screen Planting Habitats~~

FIGURES

# APPENDIX A: PROPOSED WETLAND AND SCREEN PLANTING HABITATS