



The Sizewell C Project

9.35/ Westleton Marsh Harrier Compensatory
10.30 Habitat - Clean Version

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1 INTRODUCTION

1.1 Context

1.1.1 Marsh harrier (*Circus aeruginosus*) is an interest feature of the Minsmere - Walberswick Special Protection Area (SPA) during the breeding season. 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 Level and also the Estate, including Sizewell Marshes Site of Special Scientific Interest (SSSI). The commitments relating to the management of the Estate for marsh harriers are set out in the **Estate Wide Management Plan** (Doc Ref. 10.15) 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 has been assessed in the **shadow Habitats Regulations Assessment** for the proposed development [[APP-145](#) to [APP-149](#), [AS-173](#) to [AS-178](#) , [REP2-032](#), [REP4-004](#) and [REP7-279](#)]. In recognition of the precautionary need to compensate for disturbance-related temporary displacement during construction of the power station, SZC Co. has proposed habitat creation and targeted land management activities on 47 hectares of arable farmland north of the main development, to enhance habitat so that it supports abundant prey species for marsh harriers.

1.1.4 The objective 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.

1.1.5 The habitats for the 47 hectare area are detailed in the **On-site Marsh Harrier Compensatory Habitat Strategy** (Doc Ref. 10.21). The habitats comprise a combination of:

- Wetland, including both reedbed and open water, and wet woodland;
- Tussocky grassland managed to provide a mosaic of tall vegetation and short vegetation, providing flexibility in delivering diverse habitat structure through management;
- Existing and re-inforced hedges (replanted where gappy); retained, including 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;

- Hedge/scrub belts (comprising gorse, broom and bramble) which, in the medium term, would significantly increase the availability of breeding birds within the prey mix available to marsh harriers;
- Woodland screen planting between Sandpytle 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;
- Earth banks provided alongside scrub belts, off-set, or as features in their own right, to provide instantaneous landscape features, similar to beetle banks only taller, to support the habitats of, and provide cover for, small mammals and rabbits. Would be sown with tussocky grass mix;
- Wildbird seed and nectar rich flower mix planting. Mixes to include some tall species, such as sunflower and maize, to give height and enable harriers to ambush prey; and
- Scrub foci - small patches of gorse/broom around wood/brush piles.

1.1.6 SZC Co. has concluded that the 47ha on-site provision within the Estate is sufficient to compensate for the impacts to foraging marsh harriers, as detailed in the **Note on Marsh Harrier Habitat** [[AS-408](#)]. This compensation is secured by Requirement 14C.

1.2 Westleton Site

1.2.1 An area of land located immediately to the west of Westleton, and covering approximately 54 hectares, was identified within the proposed order limits for the provision of further compensatory marsh harrier habitat, if the Secretary of State believes this is required (**Figure 1.1**) (the 'site'). The land would be secured by agreement or acquired compulsorily through powers within the order. Discussions are ongoing with the landowners and their agents.

1.2.2 The site currently comprises predominantly arable fields separated by hedge and tree lines. Additionally four ponds are present.

1.2.3 The Westleton site is situated 1km west of Minsmere-Walberswick Heaths and Marshes SSSI but is currently and is of relatively low value for marsh harrier foraging, managed conventionally for arable crops. There is therefore significant scope to improve its value for marsh harriers.

- 1.2.4 This strategy details the proposed approach to marsh harrier habitat provision on this additional land, should the Secretary of State consider that additional compensatory habitat is required.
- 1.2.5 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 the Marsh Harrier Habitat Report (doc ref []) and, if the SoS considers that additional compensatory habitat is required, this report.
- 1.2.6 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.
- 1.2.7 Subject to the above consideration from the SoS, this report would become a Level 1 document. The marsh harrier implementation plan constitutes a Level 2 document.
- 1.2.8 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.
- 1.2.9 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].
- 1.2.10 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.

2 APPROACH

2.1.1 The additional compensatory habitat will only be created should the Secretary of State consider that additional compensatory habitat is required. SZC Co's position on this is set out in the **Note on Marsh Harrier Habitat** [AS-408]. As such, it is likely to be required at relatively short notice and therefore needs to comprise habitats which can be established quickly, maximise bird and small mammal numbers, and be planted and managed such that they maximise prey availability for marsh harriers.

2.1.2 The habitats proposed for the original marsh harrier compensatory habitat area on the Estate were discussed and agreed with stakeholders at a series of workshops and are set out in the **On-Site Marsh Harrier Compensatory Habitat Strategy** (Doc Ref. 10.21) (secured pursuant to Requirement 14C) and are summarised in Section 1 above. However, in the event that the Secretary of State considers additional compensatory habitat is necessary, the habitats proposed for Westleton will comprise a sub-selection of those listed in para. 1.1.5 of this strategy, focussing on the ones that will establish quickly but also support high numbers of small mammal and small birds. These will comprise:

- Tussocky grassland managed to provide a mosaic of tall vegetation and short vegetation;
- Existing hedges (replanted where gappy); retained; and
- Wildbird seed and nectar rich flower mix planting.

2.2 Design Principles

2.2.1 The Westleton site is currently managed conventionally for arable crops, and is of relatively low value for marsh harrier foraging. There is therefore significant scope to improve its value for marsh harriers.

2.2.2 The design principles for the compensatory habitat north of the main development, as agreed with stakeholders, are detailed in **On-site Marsh Harrier Compensatory Habitat Strategy** (Doc Ref. 10.21). Similar principles would be adopted for the Westleton land if included in the final DCO and are summarised in **Table 2.1** below. Additionally, to increase the opportunities for harriers to surprise prey, strips of taller game cover crop will be included, instead of the hedge/scrub belts and earth bank arrangement included in the on-site compensatory habitat design.

Table 2.1: Design principles and proposed extents

Habitat component	Design principle	Extent proposed
Overarching Principle	Ratio of grassland: wildbird seed/nectar mix: game crop cover	Approximately 4:1:1
Habitat level		
Tussocky grassland - managed to provide a mosaic of tall vegetation and short vegetation.	Mix of a minimum of 3 tussocky to 1 short grassland	Approximately 27 : 9ha
Existing hedges	Retained	2,435m present Gapped up where needed.
Wildbird seed planting and nectar rich flower mix. Mix to comprise some tall species such as sunflower to give height.	50:50 by area mix of wildbird seed planting and nectar rich flower mix to enable appropriate rotation.	Approximately 4.5 ha of each
Game cover crops	12m wide to form linear features to reflect the types of habitat marsh harriers hunt over.	Approximately 9ha Created with alternating strips of canary grass (<i>Phalaris aquatica</i>) and thousand head kale.

2.2.3 The layout proposed broadly reflects the block pattern adopted for the on-site compensatory habitat as set out in the **On-site Marsh Harrier Compensatory Habitat Strategy** (Doc Ref. 10.21). However, it also takes into account the principles of the ‘Birdfields’ approach described by Schlaich et al. (2015, Ref. 1.). The ‘Birdfields’ approach comprises alternating linear strips of sown set-aside (similar in nature to the wildbird nectar/seed mix as they were sown with a mixture of cereals, grasses and herbs) and alfalfa, which is harvested three times per year, and the main function of the strips is to enhance prey availability when harvested.

2.2.4 The linear strip approach has been incorporated into the design for the Westleton site and it is suggested that prey availability could be increased in the tussocky grassland areas by periodically mowing strips within it, thus increasing potential for harriers to catch prey items.

2.2.5 The design principles include the key need for the habitat to function as intended during the marsh harrier breeding season. This has been accounted for in the selection of the species included and planting times.

2.3 Design specifics

2.3.1 The proposed habitat layout is illustrated in **Figure 2.1**.

2.3.2 A 24m buffer of tussocky grassland has been proposed around the field margins to enhance the value of the existing hedges in supporting small mammals and birds.

2.3.3 A 36m buffer strip of tussocky grassland has also been included around each pond, to enhance the value of the existing hedges in supporting small mammals and birds.

2.3.4 Linear strips of tussocky grassland, short grassland and wildbird seed/nectar mix are proposed, separated by strips of game cover crop, alternating between canary grass and thousand head kale. Both the game crop cover species provide additional height, but are also attractive to small birds and small mammals, and will be functional during the harrier breeding season.

2.3.5 The linear strips of habitat and game cover crops have, in general, been oriented primarily north-south because it is considered likely, given its location relative to the Minsmere-Walberswick SPA, that marsh harriers would approach the area predominantly from the east, south east or north-east. The flight paths would therefore take them across the strips rather than along them, which would increase the potential for surprising prey items.

2.4 Creation of the habitats

2.4.1 Creation of the habitats is a straightforward planting process. Any areas of compaction will be removed prior to establishment.

2.4.2 The seed mixes for the tussocky grassland and wildbird nectar/seed mix used for the on-site compensatory habitat are presented in **Appendix A** and these will be adopted on the Westleton site also (if considered necessary by the SoS as outlined above).

2.4.3 Planting of the tussocky grass mix will be at a relatively high density of 60kg/ha to ensure a dense growth quickly. To increase the speed of sward development a one-off application of fertiliser will be used which will give the sward a boost of growth but which is not expected to adversely affect the sward diversity.

- 2.4.4 Canary grass will be planted at a rate of around 6kg/ha, and like the tussocky grass, is perennial and should therefore not need to be replanted for the duration of the scheme, although this would be kept under review and replanted if required.
- 2.4.5 Thousand head kale (planted at a rate of around 2kg/ha), and wildbird nectar/seed mix (planted at a rate of around 50kg/ha) will be replanted annually or biannually, depending upon its condition.
- 2.4.6 Habitats strips have been sized for the width of a standard seed drill, which is assumed to be 6m, and so widths are multiples of 6m.
- 2.4.7 Hedges will be gapped up with the same species already present.
- 2.4.8 No irrigation of the planted habitats is proposed.
- 2.4.9 In the event that this area of compensatory habitat is required, planting of the scheme components would occur in the autumn of year 1.

2.5 Management of habitats

- 2.5.1 The habitats will require on-going management to ensure they provide the appropriate functionality for the period that mitigation is required. Therefore the status of the habitats will be monitored by SZC Co seasonally to ensure appropriate management is undertaken.
- 2.5.2 The management measures required are set out below and will be detailed in the marsh harrier implementation plan submitted to East Suffolk Council for approval pursuant to Requirement 14C, if Westleton is considered necessary by the Secretary of State.
- a) Grassland
- 2.5.3 Areas of short grassland will be created by annual, or twice annual, mowing of the tussocky grassland.
- 2.5.4 Regular cutting in the first 12-24 months will be needed to control annual weeds and encourage grasses to tiller. After this period the tussocky grassland will only be cut to control woody growth (no more than once every two years), and to create/maintain the areas of short grassland.
- 2.5.5 Herbicides to spot treat or weed-wipe will only be used for the control of injurious weeds (i.e. creeping and spear thistles, curled and broad-leaved docks or common ragwort) or invasive non-native species (e.g. Himalayan balsam).

a) Wildbird seed and nectar flower mixes

- 2.5.6 The wildbird seed mix is expected to last 1-2 years, whilst the nectar rich mix may last up to 3 years. The blocks/strips of wild bird seed cover will be rotated with nectar flower mixtures.
- 2.5.7 50% of the area of nectar rich mix will be cut in June to encourage new growth and extend the flowing period for this mix.
- 2.5.8 Herbicides to spot treat or weed-wipe will only be used for the control of injurious weeds (i.e. creeping and spear thistles, curled and broad-leaved docks or common ragwort) or invasive non-native species (e.g. Himalayan balsam).
- 2.5.9 Insecticides (and only environmentally sympathetic ones) will only be applied during establishment where there is a strong risk of failure due to a severe pest attack.

b) Game-cover crops

- 2.5.10 Canary grass will need to be topped if it becomes lodged or too tall, with arisings removed.
- 2.5.11 Insecticides (and only environmentally sympathetic ones) will only be applied during establishment where there is a strong risk of failure due to a severe pest attack.

2.6 Monitoring

- 2.6.1 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** (Doc Ref. 10.28).

3 SUMMARY

- 3.1.1 An area of land located immediately to the west of Westleton, and covering approximately 54 hectares, has been identified for the provision of further compensatory marsh harrier habitat, if the Secretary of State determines that this is required (and secured by Requirement 14C of the dDCO). The site is situated 1km to the west of Minsmere-Walberswick Heaths and Marshes SSSI but is currently and is of relatively low value for marsh harrier foraging, managed conventionally for arable crops. There is therefore significant scope to improve its value for marsh harriers.
- 3.1.2 The additional compensatory habitat will only be created if required. As such, it is likely to be required at relatively short notice and therefore the proposals have focussed on habitats included in the compensatory habitat design north of the main development which can be established quickly, maximise bird and small mammal numbers, and be planted and managed such that they maximise prey availability for marsh harriers:
- Tussocky grassland managed to provide a mosaic of tall vegetation and short vegetation;
 - Existing hedges (replanted where gappy); retained; and
 - Wildbird seed and nectar rich flower mix planting.
- 3.1.3 Additionally, to increase the opportunities for harriers to surprise prey, strips of taller game cover crop will be included instead of the hedge/scrub belts and earth bank arrangement included in compensatory habitat design north of the main development.
- 3.1.4 The layout proposed broadly reflects the block pattern adopted for the compensatory habitat north of the main development, but also takes into account the principles of the ‘Birdfields’ approach described by Schlaich et al. (2015, Ref. 1.). Therefore the linear strip approach has been incorporated into the design for the Westleton site and it is suggested that prey availability could be increased in the tussocky grassland areas by periodically mowing strips within it, thus increasing potential for harriers to catch prey items.
- 3.1.5 The design principles include the key need for the habitat to function as intended during the marsh harrier breeding season. This has been accounted for in the selection of the species included and planting times.
- 3.1.6 The approach to creating the habitats has been described and appropriate management measures summarised. The habitats will require on-going management to ensure they provide the appropriate functionality for the

period that mitigation is required. Therefore the status of the habitats will be monitored by SZC Co. seasonally to ensure appropriate management is undertaken.

REFERENCES


1. Schlaich, A.E., Klaassen, R.H.G., Bouten, W., Both, C. and Koks, B.J. (2015). Testing a novel agri-environment scheme based on the ecology of the target species, Montagu's Harrier *Circus pygargus*. *IBIS*, 157 (4): 713-721.

FIGURES



NOTES:

KEY:

 Mitigation area boundary

REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION / COMMENTS	APPROVED
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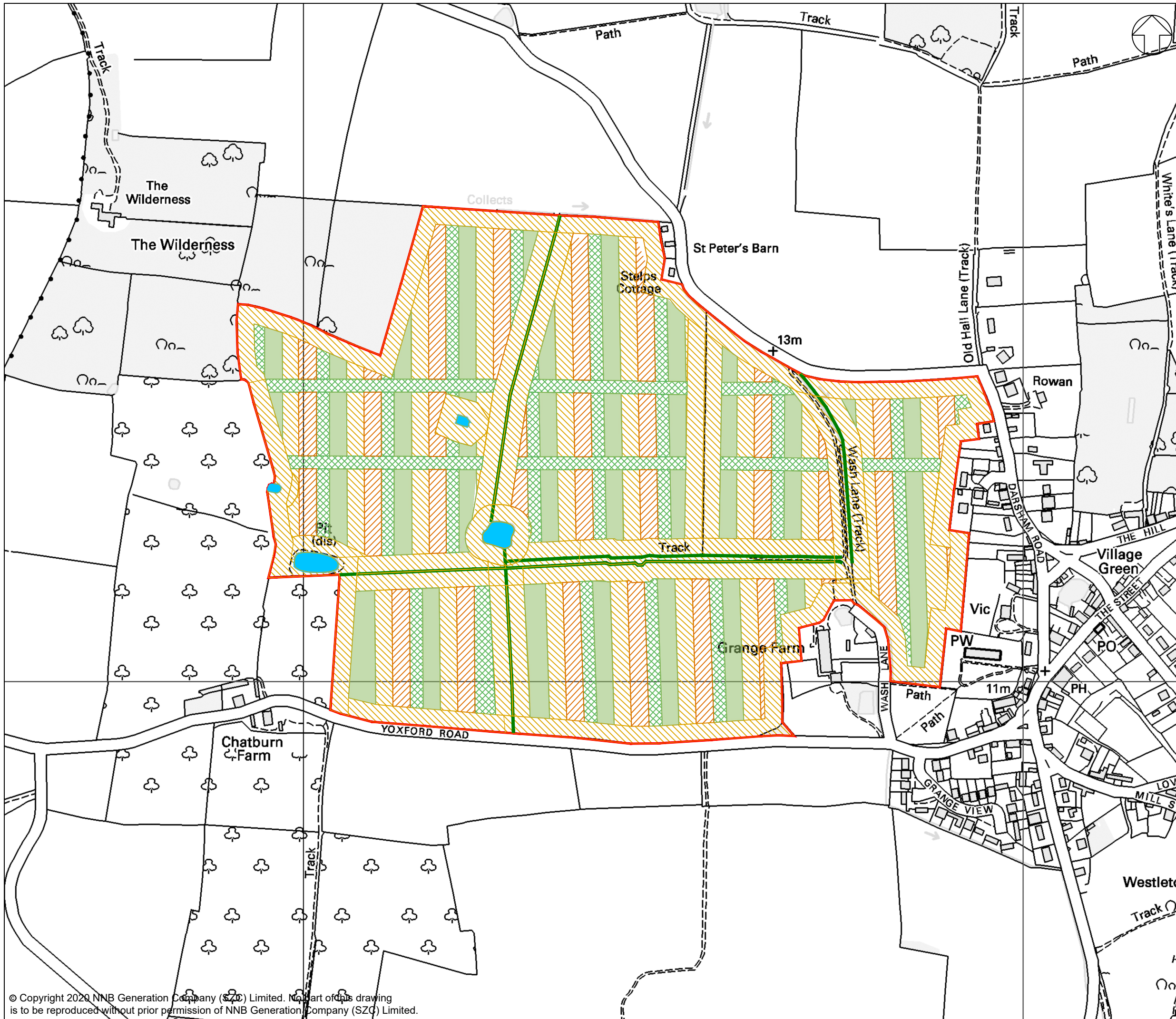
PROJECT:
 SIZEWELL C

DOCUMENT:
 MARSH HARRIER COMPENSATORY HABITAT AT WESTLETON

DRAWING TITLE:
 FIGURE 1.1
 WESTLETON MARSH HARRIER COMPENSATORY HABITAT LOCATION



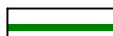




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NOTES:

KEY:

-  Mitigation area boundary
-  Wildbird nectar and seed mix
-  Existing hedge
-  Tall tussocky grassland
-  Short grassland
-  Game cover crop
-  Water

REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION / COMMENTS	APPROVED
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DOCUMENT:
 MARSH HARRIER COMPENSATORY HABITAT AT WESTLETON

DRAWING TITLE:
 FIGURE 2.1 WESTLETON MARSH HARRIER COMPENSATORY HABITAT LAYOUT

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SCALE: 1:5,000	



APPENDIX A: TUSSOCKY GRASSLAND AND WILDBIRRD NECTAR/SEED MIXES

A.1. Tussocky grassland

- Candela Tufted Hairgrass (*Deschampia cespitosa*)
- Debussy 1 (*Festuca arundinacea*)
- Dolina Timothy (*Phleum pretense*)
- Laura (*Festuca pratensis*)
- Maxima 1 (*Festuca rubra*)
- Median Tall Oatgrass (*Arrhenatherum elatius*)
- Sparta Cocksfoot (*Dactylis glomerata*)
- Yorkshire Fog (*Holcus lanatus*)

A.2. Wildbird seed mix

- Triticale
- Barley
- Linseed
- Kale
- Fodder radish
- Stubble turnip
- Phacelia
- Camelina
- Teasel
- Chicory
- Sweet fennel
- Vetch

A.3. Wildbird nectar mix

A.3.1. The nectar flower mixture is grass based but with:

- Bird's-foot trefoil
- Sainfoin
- Oxeye Daisy
- Yarrow
- Wild Carrot
- Red Campion
- Lady's Bedstraw
- Salad Burnet
- Self Heal
- Musk Mallow
- Global Trifolium
- Common vetch