



# The Sizewell C Project

## 9.62 Written Submissions Responding to Actions Arising from ISH7: Biodiversity and Ecology Parts 1 and 2 (15-16 July 2021)

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# 1 ISSUE SPECIFIC HEARING 7: BIODIVERSITY AND ECOLOGY (PARTS 1 AND 2)

## 1.1 Introduction

1.1.1 This document contains the Applicant's written submissions responding to actions arising from Issue Specific Hearing 7 (ISH7) on Biodiversity and Ecology (Parts 1 and 2) held on 15 and 16 July 2021. The written submissions comprise the following:

- Section 1.2: SSSI temporary land take clarification.
- Section 1.3: Fen Meadow Plan.
- Section 1.4: Water Monitoring Plan.
- Section 1.5: Response to legal comments provided by Mr Streeten on behalf of Heveningham Hall in relation to the Marsh Harrier Implementation Plan.
- Section 1.6 Provision of additional information regarding marsh harrier use of the proposed wetland area.
- Section 1.7: Provision of additional information on the selection of the Marsh Harrier Compensatory Habitat at Westleton.
- Section 1.8: Written agreement to maintain access for the RSPB to the southern side of Minsmere Reserve.
- Section 1.9: Summary of findings of a review of cartographic evidence to determine whether Nuttery Belt (Two village bypass) and Little Nursery Wood (northern park and ride) could be considered ancient woodland despite not appearing in the ancient woodland inventory.
- Section 1.10: Summary of bird and bat activity near Farnham Hall Farmhouse and Farnham Hall complex.
- Section 1.11: Summary of ground investigation work near Farnham Hall and Foxburrow Wood.
- Section 1.12: Provides updated Figures 1, 2 and 3 that were submitted to the ExA at Deadline 4.
- Section 1.13: Review of surveys undertaken on behalf of Kelsale-cum-Carlton Parish Council.

- Section 1.14; Signposting exercise provided to allow navigation to the assessment of marine in-combination effects presented within the shadow Habitat Regulations Assessment (sHRA).
- Section 1.15: Biofouling.
- Section 1.16: Thin fish.
- Section 1.17: Sensitivity analysis addressing FRR efficiency.
- Section 1.18: Fish and EAVs clarification.
- Section 1.19: Clarification on smelt and glass eels.

1.1.2 This document corresponds to the Applicant's **Written Summaries of Oral Submissions made at ISH7** [[REP5-112](#)] submitted at Deadline 5.

## 1.2 SSSI Temporary Land Take Clarification

1.2.1 During ISH 7 and in response to a point made by Mr McFarland of Suffolk Wildlife Trust, Mr Lewis said that he would provide clarification on the Sizewell Marshes SSSI temporary land take figure of 3.02ha to demonstrate that, contrary to Mr McFarland's assertion, the majority of the 3.02ha would not be damaged beyond repair and would be capable of retaining or supporting SSSI habitats.

1.2.2 It is important to note that the temporary land take of the SSSI as defined in the ES is simply the difference between the permanent land take and the order limits. That area is required to varying degrees in order to construct the project. The intensity of use is likely to vary from 'high' and last for several months (e.g. the narrow corridor to create the new route of the Sizewell drain and to provide new connection with the Leiston drain, west of the new platform) to 'light' and last for a few weeks or less (e.g. overhead line works along the existing overhead line corridor). In much of the remainder of the area of the retained SSSI immediately to the west of the proposed SSSI Crossing surrounding the Leiston drain, further consideration of working methods indicates that temporary land take is unlikely to be necessary and this is described further below.

1.2.3 The 3.02ha of temporary land take of the Sizewell Marshes SSSI, as currently defined, is set out in Table 2.36 (extract presented below in **Table 1-1**) of the **Chapter 2** of the **ES Addendum** [[AS-181](#)] produced in January 2021. The relevant columns and rows for temporary land take are reproduced below:

**Table 1-1: Relevant Extracts of Table 2.36, Chapter 2 of the ES Addendum summarising the revised Sizewell Marshes SSSI land take calculations**

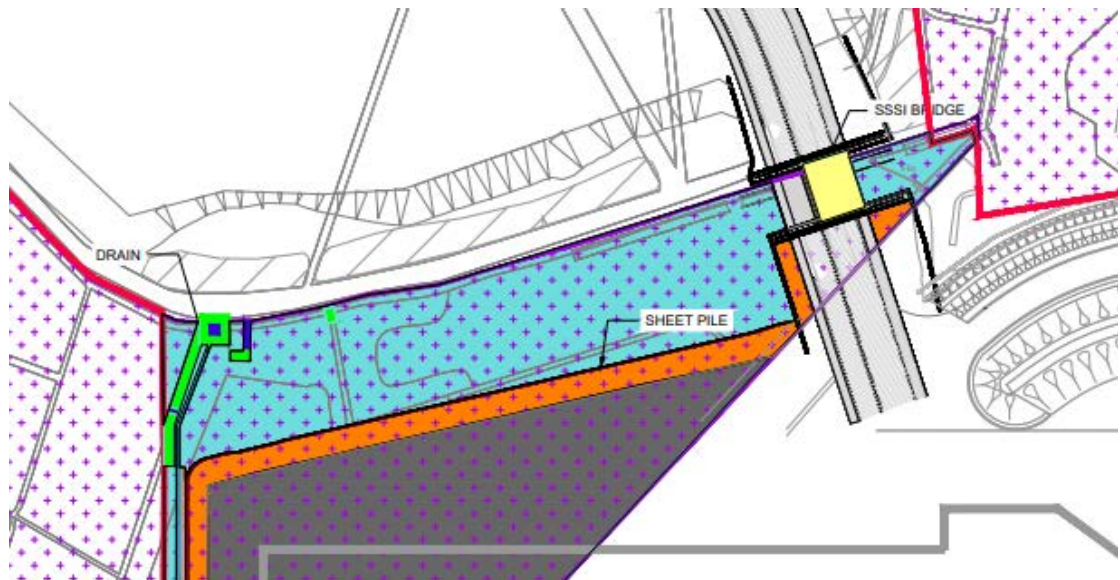
Development Item	Habitat Feature	Extent of temporary land take from habitat type (ha)
Sizewell Marshes SSSI Land Take <i>(to accommodate: -realignment of Sizewell Drain, -the restringing of pylons).</i>	Fen Meadow	0.61
	Wet woodland	2.23
	Dry reedbed	0.00
	Wet reedbed	0.00
	Tall ruderal	0.00
	Ditches	0.18
<b>Habitat Loss Totals</b>		<b>3.02</b>

- 1.2.4 The temporary landtake from the SSSI, as currently defined, covers three main areas, described further below, these being (i) the area under the National Grid overhead power lines, (ii) the narrow corridor for the new Sizewell Drain and (iii) the corridor around the retained Leiston Drain. The works in these areas are further described below.
- 1.2.5 The **ES** (in **Volume 2, Chapter 14 [AS-033]**) explained at paragraph 14.7.125 (in part) and 14.7.131, the techniques which would be used to protect the SSSI land underneath the area where National Grid overhead power lines need to be installed, which will serve the expanded National Grid substation located at Sizewell B. In summary the approach in this area is for the wet woodland to be coppiced to enable the cable to be laid out, prior to lifting and the fen meadow would be protected from damage using appropriate methods for spreading the weight of plant in wet ground, such as the use of ‘bog matting’. The operation is likely to be undertaken over a period of weeks and the SSSI interest would be retained. The works would be undertaken under a method statement agreed with Natural England.
- 1.2.6 Along the western edge of the new platform, the new alignment of the Sizewell Drain would be excavated and connected to the retained Leiston Drain. The majority of this excavation, other than at the very northern extent would be undertaken using excavators working from the east, east of the sheet pile wall installed to protect the SSSI and this will avoid compaction of soils with the SSSI. The works along this narrow linear corridor would be the most intensive of the works required in the areas of temporary landtake. Nevertheless the newly created channel would be profiled to create high quality habitats which would be expected to achieve SSSI quality within a ten year period. The works would be undertaken under a












method statement agreed with Natural England. Evidence to suggest that SSSI quality is achievable for the realigned Sizewell drain is provided by the establishment of similar ditches within the newly created wetlands at Aldhurst Farm, which are approaching, or may already have achieved, SSSI quality.

- 1.2.7 The remainder of what to date has been considered temporary landtake is an area of approximately 2.0ha, which sits within a corridor which lies along and to the south of the retained Leiston Drain and is shown in pale blue on **Plate 1** below with the legend beneath. Other than (i) the works to connect the new Sizewell Drain into the Leiston drain and (ii) to stop up a ditch from the northern side, both shown in green and dark blue on this plate, it has been determined that no works are required in this area and it is outside the sheet piles which define the outer edge of the platform and the SSSI Crossing. The limited working areas shown in green are excluded from the 2.0ha. To the east of the new SSSI Crossing a footpath diversion and footbridge will traverse the retained wet woodland corridor but this can be micro-sited to avoid habitat loss and the area of this narrow linear feature is excluded from the approximate areas provided here.

**Plate 1: Retained Leiston Drain Corridor, to be excluded from temporary landtake**



**LEGEND:**

	PROJECT BOUNDARY
	SHEET PILE
	SIZEWELL MARSHES SSSI
	DRAIN
	OVERBUILT BY PERMANENT WORKS FEATURES
	SCRUB ON BATTER
	5m WIDE TEMPORARY BOG MAT TRACK- DURATION 3 MONTHS
	CONSTRUCTION ACCESS NOT REQUIRED
	2m PERMANENT PEDESTRIAN SSSI MAINTENANCE ACCESS STRIP
	PERMANENT WATER CONTROL FEATURES AND SSSI MAINTENANCE ACCESS STRIP
	AREA OF TEMPORARY SHADING DURING CONSTRUCTION PERIOD - DURATION 10 YEARS

1.2.8 An update, including any relevant updates to the Landscape Retention Plans and Site Clearance Plans contained within the Main Development Site Landscape Plans [[REP5-016](#)], will be provided at Deadline 7 to demonstrate the retention of the vegetation in this area, which is primarily wet woodland and to further clarify the residual temporary landtake figures. The revised temporary landtake is likely to be in the order of 1.0-1.5ha and substantially so lower than the 3.02ha identified to date.

### 1.3 Fen Meadow Plan

1.3.1 During ISH 7, Mr Lewis stated that the **Fen Meadow Plan** would be submitted at Deadline 6. This has been provided as a standalone report (Doc Ref. 9.64).

### 1.4 Water Monitoring Plan

1.4.1 During ISH 7, Mr Lee stated that the **Water Monitoring Plan** would be submitted at Deadline 6. This will now be provided at Deadline 7.

1.4.2 **Appendix A** contains SZC Co.'s response to points raised by the ExA on water levels.

### 1.5 Response to legal comments provided by Mr Streeten on behalf of Heveningham Hall in relation to the Marsh Harrier Improvement Area

1.5.1 Mr Streetham, on behalf of Heveningham Hall provided the commentary on the Marsh Harrier Compensatory Measures within the Heveningham Hall Written Representation [[REP2-228](#)], as raised during ISH 7:



*“The Applicant has not yet provided sufficient information to evidence that the proposed compensatory measures for marsh harriers will in fact work, as required by Regulation 68 of the Habitats Regulations to ensure the overall coherence of Natura 2000 is protected.”*

1.5.2 A response to this is provided within **Appendix B**.

## 1.6 Provision of Additional Information Regarding Marsh Harrier Use of The Proposed Wetland Area

1.6.1 SZC Co. has prepared **Appendix B** (Section 1) to address the following points raised during ISH7, in relation to sufficiency of the compensatory habitat within the proposed wetland area:

- range of habitat types;
- predicted use of compensatory habitat by marsh harrier and the importance of proximity;
- prey resource for marsh harrier; and
- timing of compensatory habitat provision.

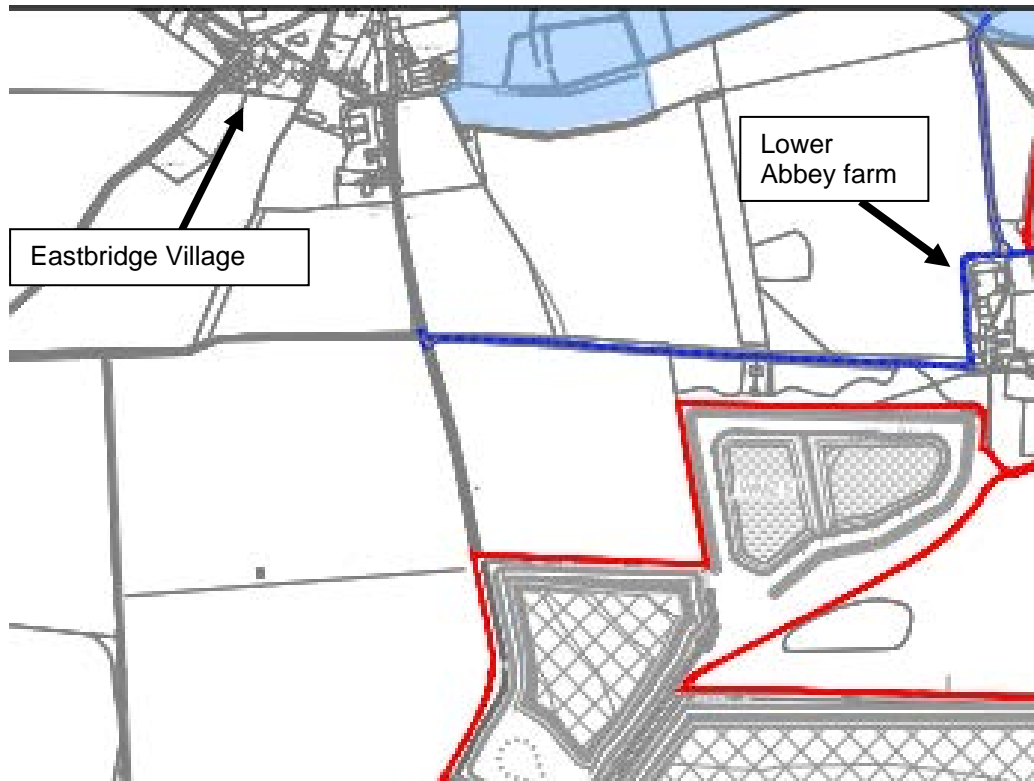
## 1.7 Additional Information on the Selection of the Westleton Marsh Harrier Habitat Creation Area

1.7.1 SZC Co. has prepared **Appendix B** (Section 4) to provide additional information on the role and selection of the Westleton Marsh Harrier Habitat Creation Area.

## 1.8 Written agreement to maintain access for the RSPB to the southern side of Minsmere Reserve

1.8.1 SZC Co confirms that the RSPB will be able to access the southern side of the RSPB Reserve, along the existing access route, via Lower Abbey farm and which is defined as the blue line and shown in **Plate 2** below.

**Plate 2: Retained access route to Minsmere RSPB (south)**



1.8.2 As shown on the plate above, the existing access runs east to Lower Abbey farm from the lane just south of Eastbridge and then runs north to access the southern edge of the Minsmere reserve. This access is entirely outwith the proposed order limits and so access will be unimpeded by the temporary construction area of Sizewell C which occurs to the south.

1.8.3 SZC Co will commit in writing, initially via the Statement of Common Ground and then by an exchange of letters, to not carrying out works which impede RSPB's existing access route to the southern edge of the Minsmere reserve via Lower Abbey Farm.

**1.9 Comments on any cartographic evidence for ancient woodland status of Nuttery Belt and Little Nursey Wood**

a) Introduction

1.9.1 SZC Co.'s response below responds to:

- points raised by Sarah Morgan on behalf of Farnham Environment Residents and Neighbours (FERN) within ISH 7 and as referenced in the FERN Comments on responses to ExA's Written Questions (ExQ1)

[[REP3-102](#)] and their Deadline 5 submission [[REP5-119](#)] in relation to Nuttery Belt; and

- points raised by Charles Streetham and Simon Taber on behalf of Heveningham Hall Estate raised during ISH7 and set out within the Heveningham Hall Estate Written Representation [[REP2-287](#)] in relation to Little Nursery Wood.

i. Identifying Ancient Woodland

1.9.2 Ancient Woodland is defined in the National Planning Policy Framework (Annex 2) as:

*“An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites”*

1.9.3 As identified in FERN response at Deadline 5 [[REP5-119](#)]:

*“Initially all woods greater than 2 ha shown on the Ordnance Survey 1:25 000 1st Series maps surveyed between 1880 and 1960 were considered. Evidence as to which of these were ancient was provided by presence on the earlier 19th century OS 1st Edition Maps (surveyed 1805 - 1873; scale 1:63 360). The general presumption was that woodland on 1800s maps was ancient...”*

1.9.4 However, the FERN response does not identify the continuation of this section which states *“unless there was other evidence that the wood originated between 1600AD and 1800. Supportive indications of ancient status included the wood's name, its situation in the landscape, and the nature of both the surrounding pattern of enclosure and the pattern of boundaries within the wood. Where available, field survey data such as the presence of indicator species, or other historical maps and documents were also used.”*

b) Nuttery Belt

1.9.5 SZC Co.'s Response to ExQ1 at A1.1.22 [[REP2-100](#)] sets out its position on ancient woodland at the two village bypass. Further information is also set out in SZC Co.'s Response to written representations FERN (Chapter 7) [[REP3-042](#)].

1.9.6 Nuttery Belt is an area of broadleaved woodland, consisting of predominately mature and semi-mature ash and oak, partially located within the site boundary of the two village bypass. The woodland would be directly impacted with woodland loss at the southern and northern tips of

**NOT PROTECTIVELY MARKED**

this belt. The areas of woodland loss indicated on the clearance plan [REP4-006] are 456m<sup>2</sup> at the northern end and 305m<sup>2</sup> at the southern end.

- 1.9.7 Nuttery Belt is not designated as ancient woodland by Natural England.
- 1.9.8 SZC Co. has reviewed Hodkinson’s map of Suffolk (dated 1783), and a historic map dated 1825. Neither of these maps show Nuttery Belt, and the earliest map that SZC Co. has identified which shows woodland in the location occupied by Nuttery Belt is the Ordnance Survey 1 Inch to the Mile map dated 1837, with the earliest detailed depiction being in the Tithe Map, dated 1838 (IR/30/33/155). Therefore SZC Co. considers that it cannot be demonstrated that the area of Nuttery Belt has been continuously wooded since 1600 AD and, therefore, could not be designated as Ancient Woodland on the basis of cartographic evidence.
- 1.9.9 The absence of Nuttery Belt from 18th-century mapping, particularly Hodkinson’s county map of 1783, cannot be taken as definitive evidence that it was not present at that time given the scale of this mapping and the drafting conventions employed. However, the Tithe Apportionment for Farnham (IR/29/33/155), dated 1830, describes this parcel as ‘plantation’ and does not record a specific plot name, which are less typical of established woodland with an ancient origin.
- 1.9.10 Whilst there are two listed ancient woodlands in close proximity to the two village bypass site (Pond Wood and Foxburrow Wood), Nuttery Belt is not designated as ancient woodland. Natural England recently added Pond Wood to the Ancient Woodland Inventory and the boundary of Foxburrow Wood was amended, however there was no change to the status of Nuttery Belt.
- c) [Little Nursery Wood](#)
- 1.9.11 Little Nursery Wood is an area of broadleaved woodland located adjacent to the west of the northern park and ride site at Darsham. A 20m buffer between the wood and any physical development has been included within the associated development design principles [REP2-041] and is shown on the latest plans for approval [AS-124].
- 1.9.12 Little Nursery Wood is not designated as ancient woodland by Natural England.
- 1.9.13 SZC Co. has reviewed available cartographic evidence dating back to 1783 including Hodkinson’s map of Suffolk (dated 1783), the map of the estates of the Honourable Lord Rous (by William Peak, dated 1803) Ordnance Survey mapping (of various dates), and the Tithe Apportionment for Darsham (IR 29/33/130), dated 1843. The earliest map that SZC Co. has identified which shows woodland in the location occupied by Little Nursery

Wood is the map of the estates of the Honourable Lord Rous, dated 1803. Little Nursery Wood is not shown on the earlier maps. In the 1803 map, the wood is portrayed as a single triangular plot [APP-369] and by 1843 (Tithe Map) an additional parcel immediately to the west is also shown as woodland. The extensions to the north and south, as it is recorded today, first appear in the Ordnance Survey map dated 1982 [APP-375]. Therefore, SZC Co. considers that it cannot be demonstrated that the area of Little Nursery Wood has been continuously wooded since 1600 AD and could not be designated as Ancient Woodland on the basis of cartographic evidence.

- 1.9.14 The absence of Little Nursery Wood from 18th-century mapping, particularly Hodskinson's county map of 1783, cannot be taken as definitive evidence that it was not present at that time given the scale of this mapping and the drafting conventions employed. However, other woodlands in the area that are designated as Ancient Woodland (such as Yoxford Wood, Willowmarsh Wood and Sillet's Wood) in close proximity to the site are all shown on Hodskinson's county map of 1783. In addition, the Tithe Apportionment for Darsham (IR 29/33/130), dated 1847, describes this parcel as 'plantation' and does not record a specific plot name, which are less typical of established woodland with an ancient origin.

c) **Conclusion**

- 1.9.15 SZC Co. considers that it cannot be demonstrated that the areas of Nuttery Belt and Little Nursery Wood have been continuously wooded since 1600 AD and could not be designated as Ancient Woodland on the basis of cartographic evidence.
- 1.9.16 It is not within SZC Co.'s jurisdiction to designate a woodland as ancient woodland. Natural England are responsible for designating and updating the ancient woodland inventory, based on documentary evidence and attributes and characteristics of the woodland.

1.10 **Summary of Bird and Bat Activity Near Farnham Hall Farm House and Farnham Hall Complex**

- 1.10.1 SZC Co. has, and continues, to undertake ecological surveys of the two village bypass site and provided a full summary of the results within **Appendix B of the Response to the ExA's Request for Further Information at Deadline 4 [REP4-006]**. As stated within our oral submission and previous written submissions, the purpose of the 2020 and 2021 surveys is to inform licencing rather than informing an updated assessment.
- 1.10.2 However, as stated within ISH 7, SZC Co. has prepared the following written submission to cover:

- surveys at the two village bypass site in relation to birds and bats;
- survey results, specifically at the Farnham Hall Farm House and Farnham Hall Complex in relation to birds and bats; and
- residual effects of the two village bypass on birds and bats.

a) **Surveys**

1.10.3 The surveys undertaken to date at the two village bypass in relation to birds and bats include:

- Breeding bird surveys (April to June 2019) [[APP-426](#)];
- Wintering bird surveys [[REP3-038](#)];
- Bat walked transects (2019) [[APP-426](#)];
- Bat static deployment surveys (2019) [[APP-426](#)];
- Bat tree assessments (2019) [[APP-426](#)]; and
- Bat tree assessments (2021) [[REP2-121](#)].

1.10.4 Surveys that are currently being undertaken at the two village bypass in relation to birds and bats include:

- Breeding bird surveys (results to be submitted at Deadline 7);
- Bat crossing point surveys (results to be submitted at Deadline 7);
- Habitat assessment of Pond Wood, Nuttery Belt and Foxburrow Wood for roosting bats, with particular focus on identifying trees in the periphery of the woodland (which are most likely to be impacted) and trees with suitability for supporting roosting barbastelle results to be submitted at Deadline 7); and
- Preliminary Bat Roost Assessment of buildings within the Farnham Hall/Manor complex and Farnham Hall Farmhouse complex, with follow-up presence/absence surveys of buildings likely to be indirectly impacted (results to be submitted at Deadline 7).

b) **Summary of Bird Activity**

1.10.5 A summary of breeding bird and wintering bird findings in the vicinity of Farnham Hall Farm House and Farnham Hall Complex was included within

paragraphs 2.7.12 to 2.7.15 of **Appendix B** of SZC Co.'s **Response to the ExA's Request for Further Information at Deadline 4** [[REP4-006](#)].

1.10.6 Further information will be provided in the breeding bird survey report to be submitted at Deadline 7.

c) **Summary of Bat Activity**

1.10.7 As with the bird activity, a summary of the results of bat surveys to date is summarised in Section 2.3 of **Appendix B** of SZC Co.'s **Response to the ExA's Request for Further Information at Deadline 4** [[REP4-006](#)]. However, additional clarity on the results of the bat activity surveys with specific reference to Farnham Hall Farm House and Farnham Hall Complex is provided below.

i. **Farnham Hall Farm House**

**Bat Activity**

1.10.8 The 2019 bat transect route covered the southern edge of Foxburrow Wood (and the northern boundary of Farnham Hall Farm House) and both sides of the hedgerow connecting Farnham Hall Farm House to the Farnham Hall Complex.

1.10.9 **Figure 7.10 of Volume 5, Appendix 7A** of the **ES** [[APP-427](#)], (included within the figures of this report), illustrate the results of the bat transect surveys conducted in 2019. These identified that common and soprano pipistrelle were noted to be utilising the area around Farnham Hall Farm House during the transect surveys undertaken between April and September 2019. *Myotis* spp was the only other bat species recorded in the area in July 2019 only. These bats were predominately associated with the boundary of Foxburrow Wood and the hedgerow connected to the south-eastern corner of the woodland.

**Bat Roosting**

1.10.10 Figure 7.13 of **Volume 5, Appendix 7A** of the **ES** [[APP-427](#)] superseded by Figure 2 Sheet 3 of the **Bat Roost Surveys in Trees - Associated Development Sites** report [[REP2-122](#)] illustrate the results of the bat tree assessments in 2020 and 2021. The tree surveys covered habitats connecting to Farnham Hall Farm House (e.g. hedgerows) which are due to be impacted, and identified a small number of trees with High/Moderate value to roosting bats. However, there is no tree loss proposed within the areas immediately surrounding Farnham Hall Farm House.

ii. Farnham Hall Complex

Bat Activity

1.10.11 The 2019 bat transect route included the track through the Farnham Hall Complex.

1.10.12 **Figure 7.10 of Volume 5, Appendix 7A** of the ES [[APP-427](#)], (included within the figures of this report), identified the following species to be utilising the area:

- Soprano pipistrelle were the most frequently recorded species, recorded in August, September and October 2019.
- *Nyctalus* spp was recorded in June only.
- *Myotis* spp were recorded in May, June and July.
- A 'big bat' species (*Nyctalus* sp. or serotine) was recorded in June only.
- Common pipistrelle were recorded in all survey months with the exception of August 2019.
- An unknown species was recorded in June 2019.

Bat Roosting

1.10.13 Figure 7.13 of **Volume 5, Appendix 7A** of the ES [[APP-427](#)] superseded by Figure 2 Sheet 3 of the **Bat Roost Surveys in Trees - Associated Development Sites** report [[REP2-122](#)] illustrate the results of the bat tree assessments in 2020 and 2021. These tree surveys covered habitats connecting to Farnham Hall Complex which are due to be impacted, and identified a small number of trees with High/Moderate value to roosting bats. There is no tree loss proposed within the areas immediately surrounding Farnham Hall Complex.

iv. Further information

1.10.14 Further information will be provided in the survey reports to be submitted at Deadline 7.

a) Summary of Residual Effects

1.10.15 The following residual effects on birds and bats are as identified within **Volume 5, Chapter 7** of the ES [[APP-425](#)]. **Chapter 5** of the **ES Addendum** [[AS-184](#)] did not identify any new or different effects on the



breeding bird or bat assemblage and effects remain as described within the ES.

i. Birds

1.10.16 The ES [APP-425] identified the following potential effects on birds:

- habitat loss and habitat fragmentation during construction;
- habitat fragmentation during operation and
- disturbance effects (comprising light, noise and visual) during construction and operation.

1.10.17 The residual effect on the breeding bird assemblage are summarised in Table 1.3.

**Table 1-2: Summary of Residual Effects on the Breeding Bird Assemblage at the Two Village Bypass**

Impact Pathway	Construction	Operation
Habitat loss and habitat fragmentation	Minor adverse (not significant)	N/A
Disturbance	Minor adverse (not significant)	Negligible (not significant)
Habitat fragmentation	N/A	Minor beneficial (not significant)

i. Bats

1.10.18 The ES [APP-425] identified the following potential effects on the breeding bird assemblage:

- habitat loss and habitat fragmentation (including connectivity) during construction and operation; and
- disturbance effects from noise during construction and operation;
- disturbance effects from light during construction and operation; and

- incidental mortality during operation.

1.10.19 The residual effects on the bat assemblage are summarised in **Table 1.4**.

**Table 1-3: Summary of Residual Effects on the Bat Assemblage at the Two Village Bypass**

Impact Pathway	Construction	Operation
Habitat loss and habitat fragmentation	Minor adverse (not significant)	Minor adverse (not significant)
Disturbance (noise)	Minor adverse (not significant)	Minor adverse (not significant)
Disturbance (light)	Minor adverse (not significant)	Minor adverse (not significant)
Incidental mortality	N/A	Minor adverse (not significant)

## 1.11 Ground investigation work near Farnham Hall and Foxburrow Wood

- 1.11.1 SZC Co. has undertaken ground investigation work on the Two village bypass site, including near Farnham Hall and Foxburrow Wood where the Two village bypass will be in cutting.
- 1.11.2 The ground investigation work has included drilling boreholes to the east of Farnham Hall and on the western edge of Foxburrow Wood, and the installation of piezometers to monitor water levels to see if groundwater will be encountered during excavation of the cutting.
- 1.11.3 The ground investigation work identified that the groundwater will be at significant depth below the cutting of the Two village bypass. Therefore, the groundwater will not be impacted by the relatively shallow depth of cutting proposed. In summary, there will be no ground water effects in the Farnham Hall area and at Foxburrow Wood.
- 1.11.4 SZC Co. has prepared a technical note to set out the above in more detail (**Appendix C**).

## 1.12 Updated Figures 1, 2 and 3 that were submitted at Deadline 4

1.12.1 In response to the Examining Authority's request for further information, dated 18 June 2021 [[PD-027](#)], SZC Co. submitted three figures at Deadline 4 [[REP4-006](#)]. Figure 1 shows the location of Veteran trees along the Two village bypass route. Figures 2 shows the relationship between the order limits and alignment of the Two village bypass in relation to Foxburrow Wood, Farnham Hall, Farnham Hall Farm House and Farnham Manor. Figure 3 shows the relationship between the order limits and alignment of the Two village bypass in relation to both Pond Wood and Nuttery Belt.

1.12.2 As requested by the Examining Authority at ISH7, the figures have been updated to show the order limits, the permanent land take boundary and the Work No. 11 boundary. These updated figures can be found at **Appendix D** and are labelled Figure 1.1, Figure 2.1, and Figure 3.1.

1.12.3 The difference in these three boundaries is as follows:

- The order limits (the red line site boundary) show the full extent of the development site, including all land required, both temporarily and permanently, for the construction and operation of the development.
- The permanent land take boundary (depicted by the solid blue lines on the figures at **Appendix C**) shows the land that is required permanently, following construction. This includes land required for the operation of the Two village bypass and its ongoing maintenance. The permanent land take boundary would be marked by fencing. Fence lines along the route of the proposed development would generally be positioned approximately 5m back from the top of any cutting or swales or toe of an embankment, to provide forward visibility in accordance with standard technical requirements and to provide space for maintenance.
- Work No. 11 is split into three parts, 11A, 11B and 11C as detailed in Schedule 1 (Authorised Development), Part 1 (Numbered Works) of the draft DCO (Doc Ref. 3.1(F)). Work No. 11A includes all land within the order limits (red line on the figures) in which various construction activities can take place. Work No. 11B (black dashed line on the figures) is a narrower corridor within which the Two village bypass, side roads and accesses, roundabouts and tie-ins with the existing road network can be constructed. Work No. 11C (thin blue dashed line) relates to the footbridge over the bypass between Foxburrow Wood and the Farnham Hall complex, including tie-ins with the PROW network.

1.12.4 SZC Co. submitted a Request for Further Proposed Changes at Deadline 5. The Two village bypass order limits are proposed to be amended as part of this change request. For completeness, Figures 1, 2 and 3 submitted at

Deadline 4 [[REP4-006](#)] have also been updated to reflect the change to the order limits. These updated figures can be found at **Appendix D** and are labelled Figure 1.2, Figure 2.2, and Figure 3.2.

### 1.13 Review of surveys undertaken on behalf of Kelsale-cum-Carlton Parish Council

1.13.1 During ISH 7 Ms Galloway identified that a number of survey reports for the Two village bypass had been undertaken on behalf of Kalsale-Cum-Carlton Parish Council and had been submitted to examination. It was identified that these surveys have not been submitted to the examination, however extracts of these surveys were provided within the Kelsale-Cum-Carlton Parish Council Written Representation [[REP2-351](#)]. In addition, at a meeting on the 27 July 2021 between the parties it was noted that an additional three documents had been submitted to examination by the Parish Council. SZC Co. has provided a response to the survey extracts in [[REP2-351](#)] and the documents submitted at Deadline 5 within **Appendix E** of this report.

### 1.14 Marine In-combination Effects considered within the sHRA

1.14.1 SZC Co. has provided a response to the points raised by the RSPB and SWT within paragraphs 1.1.96 and 1.1.97 of **Appendix P** of SZC Co.'s **Comments on Submissions from Earlier Deadlines (Deadlines 2-4)** [[REP5-120](#)]. No further responses is provided herein.

### 1.15 Biofouling

1.15.1 The control of fouling organisms at Sizewell C will be achieved via the use of chlorination using the same risk-based approach used by the existing operational fleet of nuclear powers stations owned by EDF Energy. The design intent of the chlorination strategy is that low-level concentrations are used such that settlement by fouling organisms is prevented in the first place as opposed to trying to eradicate foulds that have already established.

1.15.2 SZC Co. has prepared a report on chlorination options, which has previously been provided to the Environment Agency as part of the Water Discharge Activity Permit application. The report "*Evaluation of chlorination dosing options for Sizewell C*" has been submitted to the examination at Deadline 6 (Doc Ref. 9.72).

1.15.3 Use of chlorination on modern stations must weigh up the need for operational safety and efficiency against potential environmental impacts from chlorination. Environmental impacts fall into 2 main issues:

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- (1) the discharged effluent from chlorination (which is expressed in terms of Total Residual Oxidants (TROs) and chlorination by-products (such as bromoforms)) at the cooling water outfall; and
- (2) exposure of organisms to chlorination within the cooling water system itself.

1.15.4 As part of good design of the Fish Recovery and Return (FRR) system, chlorination at Sizewell C will not be applied where fish and other marine biota will transit – chlorination will not be applied until downstream of the fine filtration (drum/band) screens.

1.15.5 Downstream of the drum and band screens, which filter the bulk of the material in seawater abstracted for cooling water, there are a number of other dedicated filters in advance of the condenser tubes. These filter boxes remove any material, including any small shells or other loose fouling material, that could potentially block the condenser tubes.

1.15.6 The WDA permit will consent the discharge of TROs and chlorination by-products from the main cooling water outfall but not the FRR outfall – this is reflective of the dosing strategy described in the *Evaluation of chlorination dosing options for Sizewell C* (Doc. Ref. 9.72).

1.15.7 Water Discharge Activity permits undergo periodic review. Any variation to the permitted discharge would need to be accompanied by a risk assessment demonstrating its acceptability.

## 1.16 Thin fish

1.16.1 SZC Co. has evaluated the effects of cooling water abstraction on fish populations. Different life-history stages of fish may be exposed to either impingement on the fine mesh filtration screens or may be entrained in the cooling water passing through the condensers. Accordingly, total losses in the assessments undertaken by Cefas include both components which is termed entrapment.

1.16.2 Entrapment predictions are informed by data collected at the operational Sizewell B station. Impingement monitoring at Sizewell B consists of a total of 205 sample visits in the period February 2009 to March 2013, and April 2014 to October 2017. Entrainment predictions are derived from fish and invertebrate samples from the Sizewell B forebay, taken on 40 occasions between May 2010 and May 2011. Due to the extremely high natural mortality rates of the very early life-history stages of fish, impingement rather than entrainment represents the primary route of impact for most fish species at the population level at Sizewell.

- 1.16.3 Entrainment sampling enumerated eggs, larvae and juveniles for the species where these life-history stages are present at Sizewell. This sampling has been substantiated by comprehensive offshore plankton trawl surveys (2008-2012)<sup>1</sup>, which demonstrated that the entrainment data are representative of the wider Sizewell ichthyoplankton (the eggs and larval stages of fish) community (BEEMS Technical Report TR318 [APP-324]). These data sources provide robust evidence that entrainment sampling effectively samples ichthyoplankton and juveniles stages up to approximately 30mm in length.
- 1.16.4 The drum screens at Sizewell B are fitted with a 10mm fine mesh. Impingement of fish on the mesh depends on the morphometrics of the species and the fineness ratio. That is the ratio of length to width or body depth, whichever is greater of the two (Turnpenny, 1981<sup>2</sup>). Slender bodied species are more likely to pass through the fine filters at greater lengths than deep-bodied or wide species. Impingement sampling rarely detects individuals below 30mm and the size at which a species is efficiently sampled may be greater than this. Concerns have been raised regarding the sampling efficiency for fish that fall between the size range that are efficiently sampled by the entrainment pump sampler and the minimum size of organisms that are efficiently sampled via impingement.
- 1.16.5 In the case of sprat and gobies, it has been suggested that this ‘entrainment gap’ may result in “greatly underestimated” losses. Concerns have also been raised about the efficiency of sampling slender bodied species.
- 1.16.6 Juvenile sprat and gobies are small-bodied fishes that are highly abundant in the entrainment and impingement record at Sizewell. SZC Co. notes that a fraction of the length distribution of these species would be inefficiently sampled. However, the implications for inefficient sampling of this size spectrum are not predicted to have material effects on the population level effects assessment. This is because to determine the effects on entrainment from the proposed development on fish populations it is necessary to convert the predominantly juvenile stages into equivalent adults by applying an Equivalent Adult Value (EAV) factor. Juvenile stages are subject to very high levels of natural mortality and subsequently have low probabilities of surviving to contribute to the spawning population (see EAV Technical Note Section 1.18). To quantify the potential ‘entrainment gap’, SZC Co. will estimate the numbers of missing fish by back propagating the length distributions of fish from the impingement record (BEEMS Technical Report TR339 [AS-238]) and applying natural growth and mortality terms. Whilst there may be a sub-set of these species that

<sup>1</sup> Subsequent plankton surveys were completed within the Greater Sizewell Bay each month between 2014 and 2017 (BEEMS Technical Report TR454).

<sup>2</sup> Turnpenny, A.W.H. 1981. An Analysis of Mesh Sizes Required for Screening Fishes at Water Intakes. Estuaries. 4; 363-368.

are inefficiently sampled resulting in increases in absolute numbers entrapped, the low EAV of these fishes is anticipated to overall have minor implications for the population level effects assessment.

1.16.7 The following sections consider slender species for which concerns have been raised.

a) **Lamprey**

1.16.8 During the ISH7 part 2 and comments made in written representations by stakeholders noted that “both river and sea lamprey animals in excess of 200mm in length will penetrate the 10 mm screen mesh and so will be entrained” (REP2-481h). At Sizewell, river lamprey are detected via impingement monitoring whilst sea lamprey was found in the impingement samples just once and it was recorded as a large adult.

1.16.9 Based on morphometrical data collection records (held by Cefas) a 200mm total length (TL) sea lamprey would already be at a size where impingement is unlikely (mean body width 10.1mm), and such individuals would need to be orientated such that it could pass unimpeded through the mesh.

1.16.10 Body depth of river lamprey is similar to that of sea lamprey. In fish of greater than 120mm, the body depth is approximately 5.1% of total length (TL) giving a fineness ratio of 19.5 (Kucheryaviy *et al.*, 2017)<sup>3</sup>. Therefore, river lamprey of 200mm TL and larger would have a body depth sufficiently large that it would not be expected to be entrained through a 10mm mesh.

1.16.11 The majority of the river lamprey (86%) that are impinged at Sizewell are above 130mm TL, with 82% in excess of 200mm TL and 64% of 300mm and above (BEEMS Technical Report TR339 [AS-238] Appendix E). Low numbers below 130mm are to be expected in the marine waters off Sizewell as lampreys reproduce in freshwater, where their early stages (ammocoetes) develop. River lamprey metamorphose into adults at a total length of 90-120 mm. At around 130mm TL they migrate to the sea (Maitland, 2003; Froese, R. and Pauly, 2021)<sup>4</sup>. Smaller river lamprey have been sampled from the impingement drum screens in the size range 65mm - 95mm. These small fish may become impinged due to debris and other biota reducing the effective mesh size resulting in impingement of smaller individuals. It should be noted that the fineness ratio is a theoretical value to determine the minimum size of efficient impingement not an absolute

<sup>3</sup> Kucheryaviy, A.V., Tsimbalov, I.A., Nazarov, D. Y., Zvezdin, A.O., Pavlov, D.S. 2017. Biological characteristics of smolts of European river lamprey *Lampetra fluviatilis* from the Chernaya River Basin (Gulf of Finland, Baltic Sea). *Journal of Ichthyology*: **57**, 201–211.

<sup>4</sup> Maitland, P.S. 2003. Ecology of the River, Brook and Sea Lamprey. *Conserving Natura 2000 Rivers Ecology Series No. 5*. English Nature, Peterborough.

Froese, R. and D. Pauly. Editors. 2021. FishBase. World Wide Web electronic publication. [www.fishbase.org](http://www.fishbase.org), version (06/2021).

value. It is likely that these small individuals are river flush outs, washed into sea. Whilst most river lamprey impinged at Sizewell are above 130mm, the smaller size fish would be developmental stages, these would be riverine and are not adapted to seawater. Ammocoetes live in burrows in sheltered riverine sandy silt feeding on organic particles but stressors such as low oxygen content can cause emergence (Potter et al., 1970). These early developmental stages may be flushed into the marine environment where probabilities of survival are reduced.

- 1.16.12 Lampreys are semelparous, meaning they spawn once before dying. A precautionary EAV of 1 has been applied for all lamprey. This means the assessment undertaken by Cefas assumes all fish impinged, including juveniles below 130mm, would survive to contribute to the spawning population. Accordingly, effects on lamprey are not considered to be underestimated.

b) **European Eel**

- 1.16.13 The European eel has a complex life history being a long-lived semelparous (mature adults die after spawning) species that is genetically panmictic over its range. In summary, spawning of adult silver eel stages is believed to occur in the Sargasso Sea. The newly hatched larvae drift for two to three years with the ocean currents for more than 5000km to the continental shelf of Europe and North Africa before entering continental waters. There, they metamorphose into the post-larval transparent glass eels. At this stage, glass eels migrate across the continental shelf to the coast. After reaching the coast, glass eels enter estuaries following freshwater cues. Glass eels metamorphose into pigmented elvers which either remain and feed in coastal marine or estuarine waters or begin active upstream migration to freshwater. The growth stage, known as yellow eel, may take place in marine, brackish (transitional), or freshwaters. The yellow eel stage typically lasts two to 25 years prior to metamorphosis to the adult silver eel stage at which point they migrate back to their spawning grounds.

- 1.16.14 The proposed development at Sizewell C has the potential to entrain glass eels, whilst the later yellow eel stages have been observed in impingement records. Extensive survey effort has been allocated towards sampling glass eels; this includes:

- The collection of 205 impingement samples from 2009 to 2017. This method was anticipated to be ineffective for sampling glass eels due to the slender body form but was undertaken as part of a wider impingement monitoring programme. Only two individual glass eels were recorded; 1 in March 2013 and 1 in January 2017; with both of lengths of approximately 67.5mm.



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- No glass eels or elvers were detected in water drawn from the Sizewell B forebay during the 12-month Comprehensive Entrainment Monitoring Programme in 2010/2011.
- Targeted glass eel surveys were also undertaken in April and May 2015. These surveys only detected 1 glass eel in 105 valid tows using a methodology which successfully sampled many glass eels in the Bristol Channel.
- No glass eels have been recorded in the extensive multi-annual plankton surveys conducted at Sizewell consisting of 620 plankton trawls between 2008-2017.

1.16.15 Should glass eels be present in appreciable numbers these survey techniques would have recorded them. Furthermore, entrainment mimic unit (EMU) studies have demonstrated high survival rates of glass eel during entrainment passage (BEEMS Technical Report TR318 [APP-324]). SZC Co. therefore contends that whilst glass eels are present in the Sizewell coastal waters, their density is very low and the station presents a negligible risk to population sustainability. However, the Environment Agency is of the view that sufficient uncertainty exists in the monitoring programme to warrant further monitoring and, if required, mitigation. The Applicant is of the view that the costs and logistical challenges associated with performing further lengthy surveys at sea would be better allocated to installation of enhancement measures directly. The Applicant continues to discuss this with the Environment Agency with provision being secured as a Requirement in the Deed of Obligation (see Section 1.19 for further details).

c) **Sandeel**

1.16.16 Sandeels spend most of their time buried in the sediment, particularly during their autumn/winter hibernation and move into the water column for a proportion of daylight hours. Due to their morphology, juveniles <100mm TL could pass through the 10mm drum screen mesh.

1.16.17 The Applicants extensive sampling comprehensively demonstrates that while sandeels are present in the waters off Sizewell, they occur in low biomass (BEEMS Technical Report TR345 [APP-321]). Sandeel have been detected in impingement records, coastal demersal trawl surveys and entrainment samples. Impingement sampling (2009 to 2017) detected low numbers of lesser sandeel (*Ammodytes tobianus*) and greater sandeel (*Hyperoplus lanceolatus*). Between February 2009 to February 2013 lesser sandeel were present in 28% of impingement samples whilst greater sandeels were present in 50% of samples. However, in both cases they occurred in low numbers, numbers remained low for the remaining

impingement period from 2014-2017. Sandeel larvae represented <1% of the number of fish entrained (BEEMS Technical Report TR318 [APP-324]) which was corroborated by the single juvenile sandeel present in impingement samples.

1.16.18 Intensive coastal survey sampling effort also returned low yields of these species. Just 4 lesser sandeel, 5 greater sandeel and a single Corbin's sand eel (*H. immaculatus*) were captured in the nearshore surveys consisting of 253 seasonal 2m beam trawls between 2008-2012 (BEEMS Technical Report TR345 [APP-321]). Low density sandeel catches were also recorded in the April and May 2015 juvenile eel surveys (105 valid tows with 2 mm mesh MIK nets, BEEMS Technical Report TR356), and did not exceed 1% of near surface catch composition. These sampling gears sufficiently determine sandeel presence. The MIK net was deployed in the spring/summer and captured sandeels during the period when the species spend the most time in the water column. Beam trawl sampling was conducted in all four seasons and can capture sandeels whilst buried in sediments during autumn and winter and also, to an extent, from the water column during gear deployment and retrieval. The extensive coastal surveys sampling effort provides robust evidence for the relatively low sandeel abundance within the Greater Sizewell Bay, particularly as low numbers were yielded in all sampling gears deployed. In contrast to other regions of the North Sea, sandeels comprise a lower proportion of the diet of terns in this part of the southern North Sea, where foraging consists mostly of herring and sprat with sandeels contributing <8% of little tern chick diet (Green, 2017)<sup>5</sup>. See BEEMS Scientific Position Paper SPP103 [AS-238] for further discussion.

1.16.19 Sandeel are short-lived and spawn over sand and gravel substrates. Spawning and nursery grounds are found in areas with suitable substrate. Sandeels have a close association with substrates into which they burrow and hibernate for periods in winter buried in sand at depths of 20 to 50 cm. Sandeel make daily vertical shifts between inactive stages buried in the substrate ascending into the water column to feed during the day. The low abundances recorded using different gear types, despite the intense sampling effort, is therefore strong evidence that low densities are present in the GSB. Thus, few life stages of sandeels vulnerable to entrainment would be present and drawn into the cooling water system. SZC Co. therefore does not consider the assessment to significantly underestimate entrapment effects on sandeel.

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<sup>5</sup> Green E. 2017. Tern diet in the UK and Ireland: a review of key prey species and potential impacts of climate change. RSPB, 54 pp.

## 1.17 Sensitivity analysis addressing FRR and LVSE efficiency

1.17.1 SZC Co. has prepared a ‘sensitivity analysis’ of the fish assessments and the **Quantifying uncertainty in entrapment prediction for Sizewell C** report is submitted to Deadline 6 (Doc Ref. 9.67).

## 1.18 Fish and EAVs clarification

1.18.1 **Appendix F of SZC Co’s Comments on Submissions from Earlier Deadlines and Subsequent Written Submissions to ISH1-ISH6** (Doc Ref. 9.63) contains a technical note on EAV and stock size.

## 1.19 Clarification on smelt and glass eels

1.19.1 The Applicant and Environment Agency are involved in ongoing discussions around the potential to provide mitigation measures for Cucumber smelt (a migratory fish species of concern to the Environment Agency under the Water Framework Directive (WFD)) and glass eels (as part of the Eels Regulations assessment).

1.19.2 Using the Environment Agency assessment tool and monitoring data for fish in transitional (estuarine) waters – the Transitional Fish Classification Index (TFCI) tool – the Applicant has assessed the implications of reducing smelt numbers in data series to levels far in exceedance of the predicted effects from impingement at Sizewell C (BEEMS Scientific Position Paper SPP108 [[AS-238](#)]). Despite these hypothetical manipulations the fish status of the Alde-Ore waterbody demonstrated no deterioration in classification. However, the Environment Agency is of the view that sufficient uncertainty exists to warrant further monitoring and, if required, mitigation. The Applicant continues to discuss this with the Environment Agency with provision being secured as a Requirement and in the Deed of Obligation.

1.19.3 Similarly, the Applicant is of the view that the assessment of eel entrapment demonstrates no significant impact of the Sizewell C project on eels. However, the Environment Agency is of the view that sufficient uncertainty exists to warrant further monitoring and, if required, mitigation. The Applicant is of the view that the costs of performing a lengthy survey at sea would be better allocated to installation of enhancement measures directly. The Applicant continues to discuss this with the Environment Agency with provision being secured as a Requirement and in the Deed of Obligation.

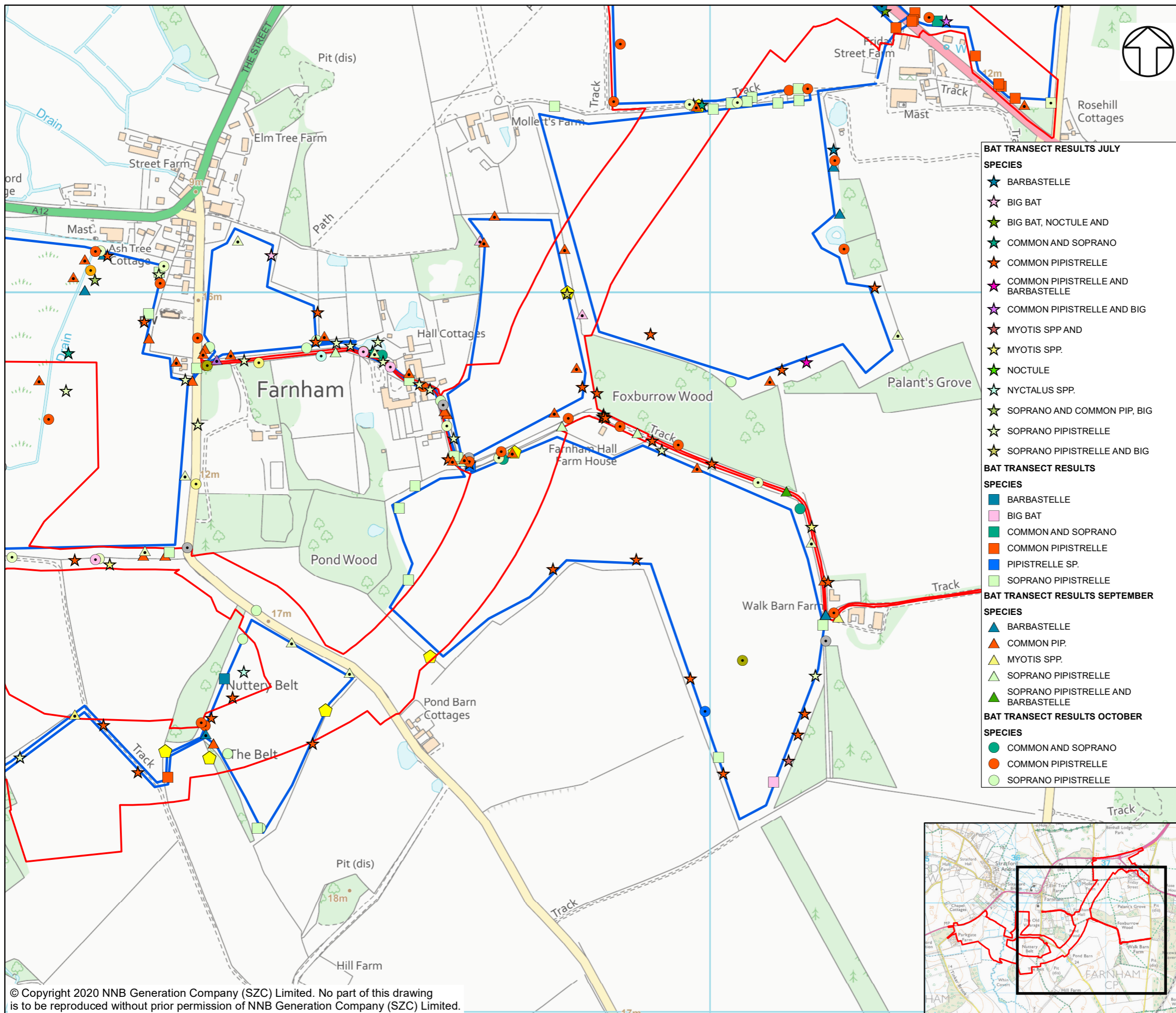
1.19.4 Any such provision of mitigation would likely be in local rivers, and the Alde-Ore specifically, and contribute to Environment Agency preferred schemes.

1.20 SSSI Crossing land take

- 1.20.1 During Issue Specific Hearing 5, Mr Richard Jones explained the relative SSSI land take between the proposed SSSI Crossing design and the discounted triple-span bridge alternative. A plan evidencing the difference between the designs is contained at **Appendix F**.



## Figures



**NOTES**

**KEY**

□ TWO VILLAGE BYPASS DEVELOPMENT SITE BOUNDARY

◆ BAT STATIC LOCATION

— BAT TRANSECT

— BAT TRANSECT RESULTS APRIL

**SPECIES**

□ SOPRANO PIPISTRELLE

— BAT TRANSECT RESULTS MAY

**SPECIES**

▲ BARBASTELLE

▲ BIG BAT

▲ COMMON PIPISTRELLE

▲ COMMON PIPISTRELLE AND BIG BAT

▲ MYOTIS SPP.

▲ SOPRANO PIPISTRELLE

— BAT TRANSECT RESULTS JUNE

**SPECIES**

● BARBASTELLE

● BIG BAT

● COMMON PIPISTRELLE

● MYOTIS SPP.

● NYCTALUS SPP.

● PIPISTRELLE SP.

● SEROTINE

● SOPRANO AND COMMON PIP, BIG BAT

● SOPRANO PIPISTRELLE

● UNKNOWN SPECIES

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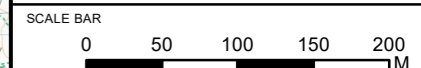


DOCUMENT:  
 SIZEWELL C  
 ENVIRONMENTAL STATEMENT  
 VOLUME 5  
 CHAPTER 7  
 TERRESTRIAL ECOLOGY AND ORNITHOLOGY

DRAWING TITLE:  
 BAT ACTIVITY SURVEY RESULTS FOR TWO  
 VILLAGE BYPASS  
 SHEET 2 OF 3

DRAWING NO:  
 FIGURE 7.10

DATE: JAN 2020 DRAWN: R.G. SCALE: 1:5,000 @A3





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## APPENDIX A: WATER MONITORING SUMMARY NOTE

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## 1 WATER LEVEL MONITORING

### 1.1 Overview

1.1.1 A series of points were raised in relation to water levels by the ExA during Issue Specific Hearing 7. These are summarised as follows:

**Question 1:** How are water levels practically maintained in the SSSI?

**Question 2:** How is water level monitoring secured - is this in the DCO, COCP or elsewhere?

**Question 3:** Who is supervising SZC Co.'s monitoring and under what arrangement?

**Question 4:** What are the tests and remedial measures if anything goes wrong?

**Question 5:** There is a proposed side agreement with the Environment Agency and others. Why is that not a requirement?

**Question 6:** What eel/fish passage will be implemented and agreed upon and how will it be secured?

1.1.2 This note is therefore intended to provide a response to these points.

## 2 QUESTION 1: HOW ARE WATER LEVELS PRACTICALLY MAINTAINED IN THE SSSI?

### 2.1 Sizewell Marshes SSSI Water Level Management Plan

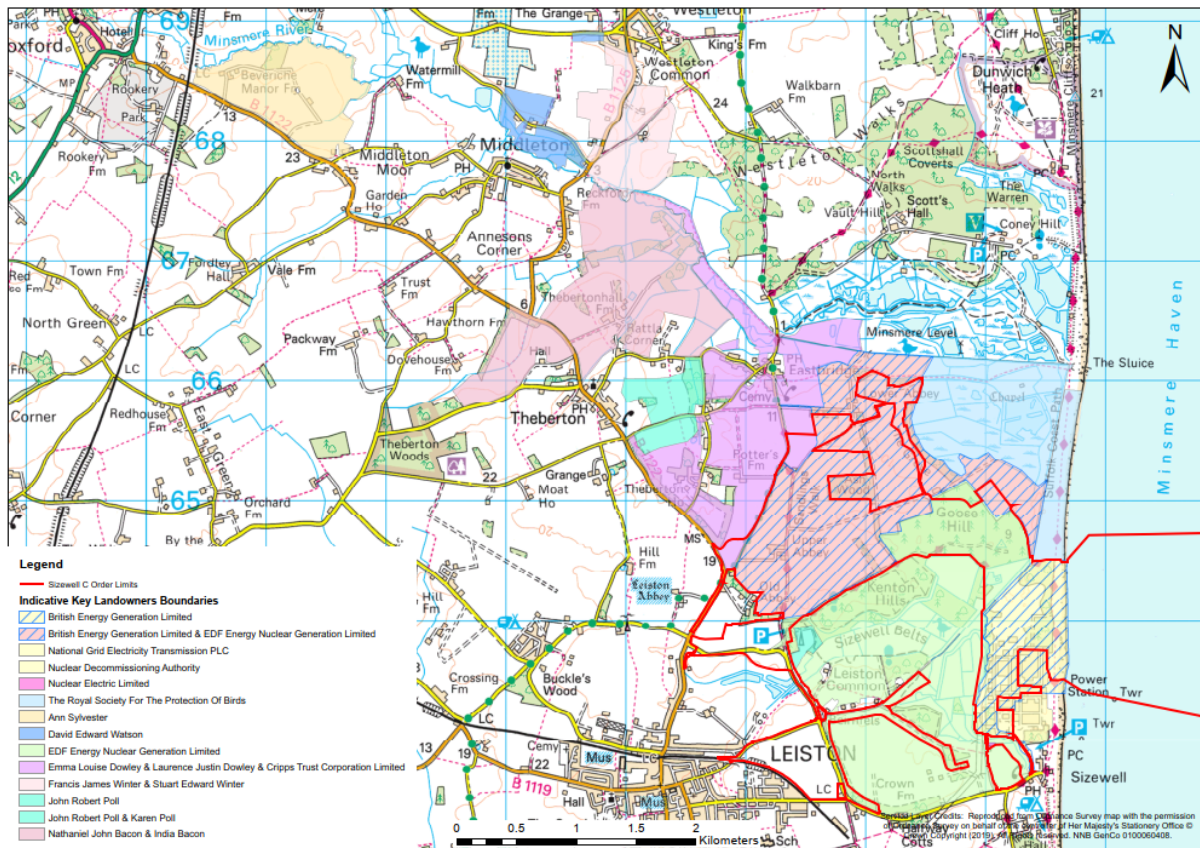
2.1.1 A Water Level Management Plan (WLMP) was prepared for Sizewell Marshes Site of Special Scientific Interest (SSSI) by the Environment Agency in 1998 (Ref. 1). This WLMP was prepared with reference to guidance prepared by the Ministry of Agriculture, Fisheries and Food (Ref. 2). The stated intention for the WLMP was that it “will be treated as a working document and will be reviewed on a regular basis and updated or revised if the objectives are unable to be met, or if circumstances change”.

2.1.2 Many of the original WLMPs have been updated since the publication of the original Sizewell Marshes WLMP in 1998. This work has prioritised sites that are in unfavourable condition, ensuring that government spending is focused on sites that require restoration. Sizewell Marshes is in favourable condition, meaning an update has not been prioritised and no update has been carried out since 1998.

#### a) Land ownership and conservation management

2.1.3 Sizewell Marshes SSSI is wholly owned by EDF Energy Nuclear Generation Limited (NGL) and the site is managed under contract by Environmental Land Management Services Providers, including Suffolk Wildlife Trust (SWT), which is responsible for water level control and oversight of conservation grazing, amongst other duties.

Plate 1: Indicative landownership boundaries



b) Water management structures and their operation

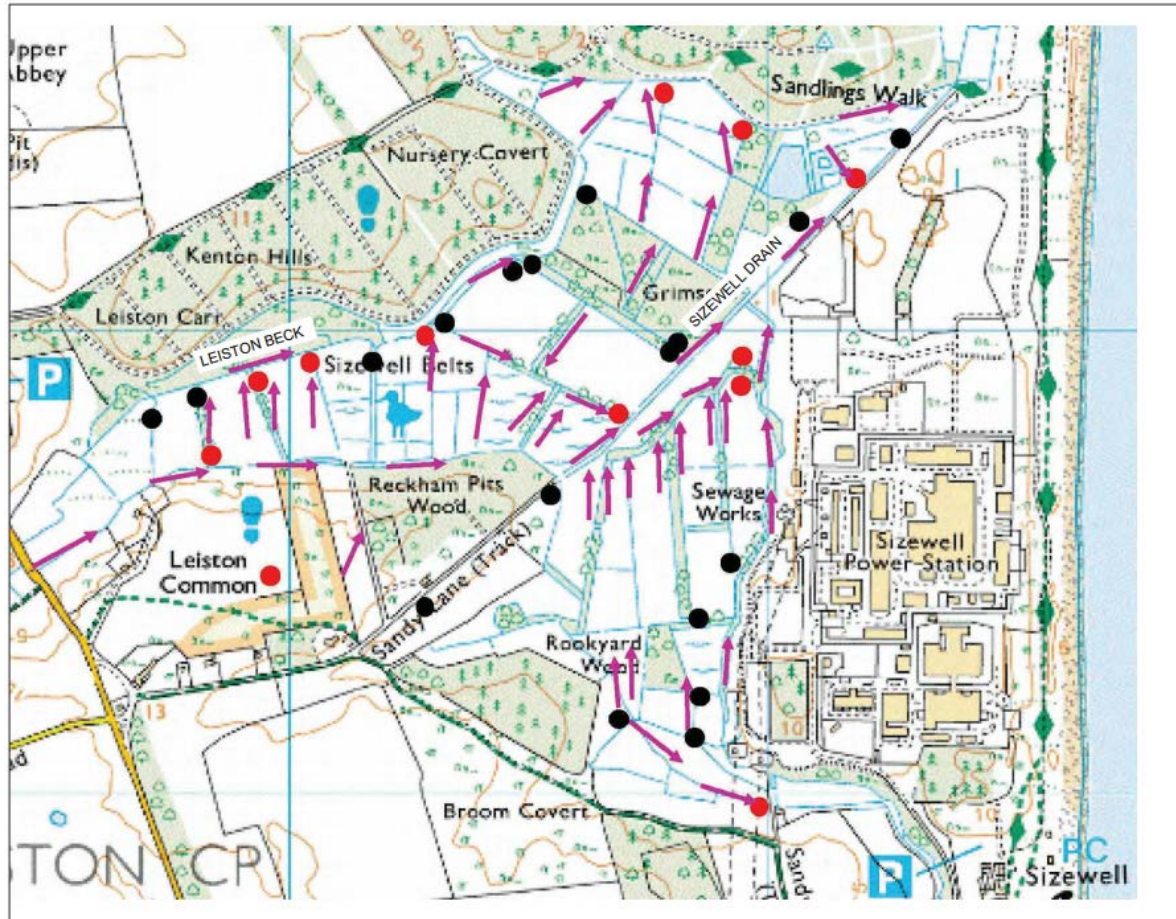
2.1.4 Water level control within the SSSI is exercised by means of small bunds, sluices and weirs distributed across the site which serve two principal aims:

- To minimise interaction between the SSSI and Leiston Drain, since the drain receives treated sewage effluent from Leiston sewage works; and
- To maintain water levels within the fen meadow habitat within the optimal range to maintain the habitat in favourable condition. There are two aspects to this – first to maintain optimal soil moisture conditions for the target vegetation, and secondly to ensure that water levels are kept sufficiently low in the spring/summer for conservation grazing.

2.1.5 The existing arrangement of water control structures has been recorded for the Sizewell C project. There are currently 18 blind bunds, 12 sluices and 2 weirs across the SSSI. Water levels are managed by SWT using these control structures to modify the movement of water through the SSSI.

2.1.6 Drawing 5129919/SZC/009 in APP-304 shows the layout of the control structures and the direction of flow in the drains, and is extracted as Plate 2 below.

**Plate 2: Extract from drawing 5129919/SZC/009 [APP-304] showing the layout of the control structures and the direction of flow in the drains within Sizewell Marshes SSSI**



Key:  
 → Flow direction  
 ● Sluices  
 ● Blind bunds/crossings

### 3 QUESTION 2: HOW IS WATER LEVEL MONITORING SECURED - IS THIS IN THE DCO, COCP OR ELSEWHERE?

3.1.1 The Environmental Statement is supported by extensive baseline monitoring. The scope of the monitoring was discussed and agreed with the Environment Agency, Natural England, East Suffolk Council, Suffolk County Council, East Suffolk Internal Drainage Board, and SWT. RSPB were also party to engagement on this monitoring plan.

3.1.2 Baseline monitoring commenced in 2013 and is ongoing, is the results of which are provided within **Volume 2, Chapter 19, Appendices 19B, 19B1 and 19E** of the **Environmental Statement** [APP-304 to APP-309].

3.1.3 Section 1.2 of the **Water Monitoring and Response Strategy** [AS-236] explains the current monitoring arrangements, including data collection and frequency. The **Water Monitoring and Response Strategy** [AS-236] confirms that this monitoring will be continued for the duration of construction works, unless otherwise agreed through any subsequent arrangements that may be approved in the Water Monitoring Plan that is submitted pursuant to Requirement 7 of the **draft DCO** (Doc Ref. 3.19(F)). The Water Monitoring Plan therefore secures the monitoring and response arrangements.

3.1.4 In summary, the monitoring currently includes:

- **Groundwater monitoring:** includes 86 No. borehole locations for monitoring groundwater within the Sizewell C site and surrounding area. Locations are shown on Figure 19.3 of the **Water Monitoring and Response Strategy** [AS-236] and re-provided as **Appendix A** to this note.
- **Surface water levels of the SSSI:** In order to provide further understanding of the flows and surface water levels within the SSSI, a programme of velocity and stage monitoring at seven locations is currently implemented.
- **Weather:** A weather station is currently in place at the site which monitors multiple parameters, including rainfall. The data from the weather station is downloaded as part of the monthly site visit and the batteries replaced every 6 months.

3.1.5 The **Water Monitoring and Response Strategy** [AS-236] explains the proposed water monitoring arrangements that will be undertaken to understand the effect of the proposed development on the site in

comparison to baseline conditions and to validate the effectiveness of the mitigation measures implemented.

- 3.1.6 Requirement 7 obliges SZC Co. to prepare a Water Monitoring Plan, which must be developed in accordance with the Water Monitoring and Response Strategy. The monitoring plan would be submitted to East Suffolk Council for approval prior to the commencement of works, thereby securing the monitoring and response arrangements. The Water Monitoring Plan will define the proposed monitoring arrangements, such as water level, flow and water quality. It will also set out how monitoring data will be reported to East Suffolk Council, the Environment Review Group and other relevant stakeholders.
- 3.1.7 The Water Monitoring Plan will reflect the existing baseline monitoring in terms of frequency, locations, and collection of the same data type, but rationalise the extent of monitoring in line with the findings of the assessment, as set out in **Volume 2, Chapter 19** of the **Environmental Statement** [[APP-297](#)]. The timing and frequency of reviews of the monitoring plan is expected to be on an annual basis but will be discussed and agreed with the Environment Review Group.

## 4 QUESTION 3: WHO IS SUPERVISING SZC CO.'S MONITORING AND UNDER WHAT ARRANGEMENT?

4.1.1 The assessment of potential changes to the water environment presented in **Volume 2, Chapter 19** of the **Environmental Statement** [APP-297] shows that the predicted changes are limited in extent, magnitude and duration such that no significant environmental impacts are likely to occur. However, it is recognised that reassurance monitoring is required to demonstrate that the predicted change is not exceeded as the project progresses.

4.1.2 Furthermore, as described in **Volume 2, Chapter 19** of the **Environmental Statement** [APP-297], SZC Co. has committed to installing a water control structure on the realigned Sizewell Drain immediately upstream of the confluence with the Leiston Drain, which will enable enhanced control through the management of water levels within the Sizewell Marshes. The control structures are a concept design introduced in Volume 2, Chapter 19, Appendix 19F of the Environmental Statement and included under Work No. 1A (t) *realignment of Sizewell Drain and associated works* [REP5-029] and secured through Requirement 7 of the **draft DCO** (Doc Ref. 3.1(F)).

4.1.3 The Environmental Statement considers the potential significant effects on groundwater by using a source-pathway-receptor model and proposes mitigation that seeks to avoid and reduce any significant effects.

4.1.4 The Environmental Statement defines the mitigation measures that are proposed, with the precise details set out within the Water Monitoring Plan, which must be prepared and approved to discharge Requirement 7. This would be developed in accordance with the Water Monitoring and Response Strategy and approved before relevant activities or works could commence. The Water Monitoring and Response Strategy states that the Water Monitoring Plan must be developed in line with the following principles:

- change from baseline conditions identified;
- plan to prepare for pre-determined action; and
- the implementation of mitigation.

4.1.5 The Water Monitoring Plan will define trigger levels based on the degree of change observed such as change in level or flow, and duration of the change. Each trigger level would set out the intervention that would be implemented if those thresholds are exceeded in order to avoid or mitigate predicted significant environmental effects on groundwater or the site or surrounding area. For example, this may require altering the management

arrangements for the proposed water control structures within the Sizewell Marshes SSSI to modify the movement of water through the wetland.

- 4.1.6 The trigger levels would be developed to reflect the sensitivity of the receptor to the potential impact identified. The Water Monitoring Plan would include a mitigation toolkit which would identify the type of mitigation that would be put in place if defined trigger levels were reached.
- 4.1.7 It is envisaged that the principal mitigation options would relate to the new control structure to be installed at the northern end of the realigned Sizewell drain and operational practice within the Sizewell Marshes SSSI. Consequently, this approach is consistent with the existing operational management regime within the system.
- 4.1.8 The entire process would be subject to continued oversight by East Suffolk Council and relevant stakeholders through monitoring and reporting to the Environment Review Group. This will include appropriate technical specialists, in conjunction with key stakeholders, who would provide advice on the trigger levels reached, the levels of intervention and the subsequent mitigation requirements.



## 5 QUESTION 4: WHAT ARE THE TESTS AND REMEDIAL MEASURES IF ANYTHING GOES WRONG?

- 5.1.1 There are two mechanisms that contribute to the slight change in water levels predicted. These predicted effects (seasonal, non-continuous and very small lowering of water levels in the first 3-4 years of construction) result from (i) the realignment and shortening of the Sizewell Drain (which increases the hydraulic gradient of the watercourse and therefore encourages a slightly higher rate of flow) and (ii) dewatering of groundwater from beneath the main construction area, within a low permeability cut-off wall.
- 5.1.2 The first mechanism relates to the shortening of the Sizewell Drain and increased efficiency of drainage through the watercourse as a result. The Water Monitoring Plan will define a proposed range of function of the water control structure, which will reflect seasonality, that is designed to enable water levels that most closely match baseline conditions. The water control structure will therefore operate within an agreed level range to offset the slight increase in hydraulic efficiency introduced along the Sizewell Drain.
- 5.1.3 The choice and design of control structure will be agreed with stakeholders, as part of detailed design and a Discharge Consent to be approved by East Suffolk IDB, which would be designed in line with options set out in **Appendix C to SZC Co. Comments On Responses From Earlier Deadlines** [[REP5-120](#)].
- 5.1.4 Therefore, in respect of the first mechanism, the potential for failure and related remedial action can be summarised as either a failure to take readings or a failure to act upon those readings. Since both the requirement to take readings and carry out the associated action (adjustment of the water control structure) forms part of the Water Monitoring Plan, these activities are secured within the DCO, as set out in section 4 above.
- 5.1.5 In respect of the second mechanism, which relates to the dewatering of groundwater under the main construction area within a low-permeability cut-off wall, failure fundamentally relates to higher permeability rates than expected. To this end, the commissioning of the cut-off wall is a key part of the construction process. The performance of the cut-off wall is tested throughout construction by using a series of industry standard tests that enable sections of the wall to be tested, commissioned and accepted. In the event of a failure, the section of cut-off wall would either be repaired or replaced, and then subject to further commissioning tests to prove performance.

- 5.1.6 Consequently, the performance of the cut-off wall is achieved and proved prior to the cut-off wall being deployed for the dewatering operation.

## 6 QUESTION 5: THERE IS A PROPOSED SIDE AGREEMENT WITH THE ENVIRONMENT AGENCY AND OTHERS. WHY IS THAT NOT A REQUIREMENT?

- 6.1.1 Over recent years, NGL and its Environmental Land Management Services Providers have found it increasingly difficult to manage water levels within Sizewell Marshes SSSI, because the capacity of the various control structures described in Section 2 has been overwhelmed by high water levels in Leiston Drain throughout the year. Water levels in this ‘Main River’ are the single most important factor in controlling water levels within the SSSI, especially those in the north-eastern (downstream) part of the site, closest to Leiston Drain.
- 6.1.2 This has been a persistent issue for a number of years. Approximately five years ago the Environment Agency carried out remedial dredging of the section 200m upstream of the location of the proposed SSSI crossing which provided some temporary relief. However, NGL and its Environmental Land Management Services Providers consider that siltation in the downstream section between the proposed SSSI crossing and Minsmere Sluice is causing water levels to back up within the Sizewell Marshes SSSI. This section of the ditch runs through the Minsmere to Walberswick Heaths and Marshes SSSI, which is under RSPB control. Subject to agreement with the landowner and all necessary licences and consents, NGL and SZC Co. will commission the East Suffolk Internal Drainage Board to dredge this section of ditch in the autumn of 2021 in order to reduce water levels within the SSSI. It is NGL’s and SWT’s expectation that they will then be able to resume water level control on-site.
- 6.1.3 Owing to the importance of Leiston drain in influencing water levels within Aldhurst Farm located at the upstream end of the catchment, Sizewell Marshes SSSI in the mid catchment and the Minsmere to Walberswick Heaths and Marshes SSSI located at the downstream end of the catchment, NGL and SZC Co. propose a side agreement is entered into between riparian landowners, East Suffolk Internal Drainage Board, the Environment Agency and Natural England to develop a partnering approach for enhanced ditch maintenance. It is felt this would benefit the conservation management of all three sites located within the catchment.
- 6.1.4 It is envisaged that such an agreement would commit the parties to adopt a ‘partnering approach’ in carrying out ditch clearance and related maintenance works on or in connection with Leiston Drain, having regard to the conservation objectives of Aldhurst Farm, Sizewell Marshes SSSI and the Minsmere to Walberswick Heaths and Marshes SSSI in tandem.

- 6.1.5 A draft memorandum of understanding is being discussed with the parties. SZC Co. does not intend for any such agreement to be a requirement under the draft DCO for the Sizewell C Project because it is proposed to help address an existing issue and does not relate to the proposed development.

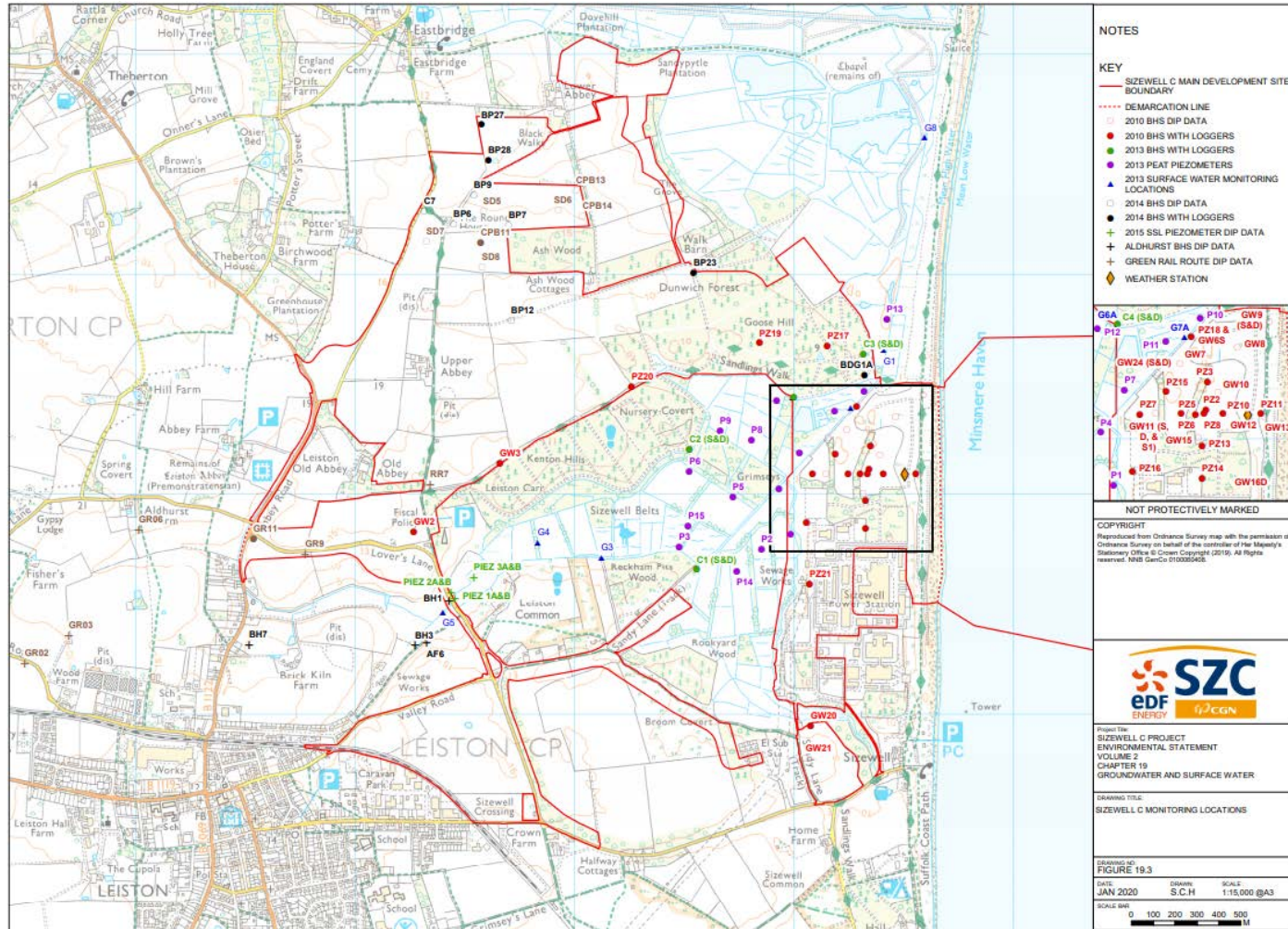
## 7 QUESTION 6: WHAT EEL/FISH PASSAGE WILL BE IMPLEMENTED AND AGREED UPON AND HOW WILL IT BE SECURED?

- 7.1.1 The Applicant recognises that the proposed water control features in the realigned Sizewell Drain could potentially present a barrier to the free movement of eels within the drainage network in the Sizewell Marshes SSSI. In order to mitigate this impact and ensure that eel and elver passage can be maintained, the Applicant has committed to ensure that suitable eel passage measures are incorporated into the design of the water control features as primary mitigation (see Paragraph 14.4.10 of Volume 2, Chapter 14 Terrestrial Ecology and Ornithology (Doc ref. 6.3) [APP-224]).
- 7.1.2 As set out in **ES, Volume 2, Chapter 22, Appendix 220 Eels Regulations Compliance Assessment** [APP-332], these measures will be designed in accordance with the Environment Agency’s 2011 best-practice guidance on eel passage (Environment Agency (2011) The Eel Manual: Elver and eel passes – A guide to the design and implementation of passage solutions at weirs, tidal gates and sluices. Report GEHO0211BTMV-E-E) and presented to the Environment Agency for approval prior to construction as part of the environmental permitting process.
- 7.1.3 High level design options for the water control structure are discussed in **Appendix C to SZC Co. Comments On Responses From Earlier Deadlines** [REP5-120]. These options have been subject to a high-level appraisal, which includes for the ability to incorporate eel passage.

## 8 REFERENCES

1. Environment Agency (1998). Water Level Management Plan for Sizewell Belts Site of Special Scientific Interest.
2. MAFF (1994). Water Level Management Plans: a procedural guide for operating authorities.

**APPENDIX A: FIGURE 19.3 FROM VOLUME 2, CHAPTER 19  
OF THE ENVIRONMENTAL STATEMENT SHOWING  
GROUNDWATER AND SURFACE WATER MONITORING  
LOCATIONS**







**NOT PROTECTIVELY MARKED**

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## APPENDIX B: SUFFICIENCY OF COMPENSATORY MEASURES FOR MARSH HARRIER

**NOT PROTECTIVELY MARKED**



## SUFFICIENCY OF COMPENSATORY HABITATS

### FOR MARSH HARRIERS

#### NOT PROTECTIVELY MARKED

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## 1 CONTEXT

### 1.1 Issues raised in ISH7

1.1.1 This submission responds to various matters raised at ISH7 in relation to the compensatory habitat for marsh harrier. In the ISH7 agenda, this land was referred to as the proposed compensatory measures at Upper Abbey Farm; for the avoidance of doubt, this land is referred to as '*permanent foraging area within the EDF Energy estate*' land in the written submissions made by SZC Co.

1.1.2 The following issues are covered in this written submission:

- Sufficiency of the compensatory habitat, comprising comments on:
  - Range of habitat types
  - Predicted use of compensatory habitat by marsh harrier and the importance of proximity
  - Prey resource for marsh harrier
  - Timing of compensatory habitat provision
- Monitoring proposals
- Land at Westleton, comprising:
  - Role of the land at Westleton
  - Selection of the land at Westleton
- How the compensatory habitat provision meets the tests of the Habitats Regulations

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## 2 SUFFICIENCY OF THE COMPENSATION HABITAT

### 2.1 Range of habitat types

2.1.1 The range of habitat types that have been and will be delivered within the compensatory habitat site are described (most recently) in the **Marsh Harrier Compensation Area Design Update to Include Wetland** [in **section 2.1** of REP2-119]. That report describes the inclusion of wetland habitat components within the compensatory habitat site which, as summarised in response to ExQ 1.48 ([REP2-100] and Appendix 7F of [REP2-110]; **paragraph 1.2.24**), represents a positive enhancement over the previously proposed dry habitats, given the high suitability of wetland habitats for foraging marsh harriers.

2.1.2 At ISH7, it was asserted (by Mr Streeten) that largely relying on terrestrial habitat (with only a small proportion of wetland habitat) for the compensatory habitat provision was a novel approach and did not meet the test of certainty (the point about certainty of delivery in the context of the Habitats Regulations is discussed in **section 5** of this submission). SZC Co. strongly disagrees with the suggestion that the provision of terrestrial habitat is novel and the implication that it would not represent appropriate foraging habitat. While marsh harrier is a species which is focused on wetland habitats in terms of key nesting and foraging habitat, the species does also forage extensively over other dry habitats. For example, during the Accompanied Site Inspections, a marsh harrier, presumably from the Minsmere breeding population, was watched foraging over an arable field on Mr Dowley's land.

2.1.3 In response to Mr Streeten's point, SZC Co. (Dr Grant) described the increase in the UK population in recent decades and the fact that a greater proportion of that population nest and forage within dry agricultural habitats as opposed to exclusively using wetland areas. Marsh harrier is known to be very adaptable in its use of foraging habitat.

2.1.4 Comments relating to the various habitats comprising the compensation site have been raised by other parties through the course of the Examination. There appears to be an overall acknowledgment that the inclusion of wetland habitat is beneficial; however, the RSPB and SWT commented (in their Written Representation) that wet woodland should not be considered as part of the compensation for marsh harrier.

2.1.5 Whilst it is acknowledged (in the **Marsh Harrier Compensation Area Design Update to Include Wetland** [REP2-119]) that mature trees should be avoided in the compensatory habitat design, the wet woodland will be in

the early stages of establishment, and is likely to contain as much reed as alder, during much of the construction period. During the early stages of the construction period (first 3 - 4 years) the trees will be around the same height as reed and therefore the wet woodland would function, in respect of marsh harrier foraging, in a similar way to reedbed. Once the trees grow taller, they will act in the same way as hedges and scrub foci to allow harriers to surprise prey species. As a result, the inclusion of a small area of wet woodland (0.7ha of a total of 48.7ha of the onsite provision) will not detract from the compensatory habitat provision during the 10 - 12 year construction period.

## 2.2 Predicted use of compensatory habitat by marsh harrier and the importance of proximity

2.2.1 The area of permanent compensatory foraging habitat within the EDF Energy estate is particularly suitable because it is immediately adjacent to the wetland habitat at the Minsmere South Levels where the marsh harrier currently forage. The habitat is relatively close to the main Minsmere nesting areas (<1 – 2km) and adjacent to those parts of the Minsmere South Levels most heavily used by foraging marsh harrier (as determined from the baseline surveys on marsh harrier flight activity – see Figures 6.3 – 6.5 in the **Shadow HRA Report** [[APP-145](#)]).

2.2.2 The critical point is that the compensatory habitat is substantially closer to the Minsmere nesting area than the foraging areas on Sizewell Marshes SSSI, which represent the vast bulk of the habitat from which foraging marsh harrier are predicted to be displaced during the construction period. The compensatory area is likely to be heavily used by foraging marsh harrier and to a greater extent (per unit area) than currently occurs on the SSSI. The extent to which the proposed measures can compensate for the ‘lost’ foraging resource on the Sizewell Marshes SSSI, due to its proximity to marsh harrier nesting areas at Minsmere is described in detail in the **Shadow HRA Report** [[APP-145](#)] (see paragraphs 8.8.247 – 8.8.260)).

2.2.3 Proximity to the nesting area has a strong effect on the extent to which marsh harrier use different areas of foraging habitat (**Plate 8.11** in the **Shadow HRA Report** [[APP-145](#)]). The Sizewell Marshes, which comprise the bulk of the ‘lost’ wetland foraging habitat, are at a distance of 2 – 4km from the Minsmere nesting area, whereas the compensatory habitat is only <1 – 2km from the Minsmere nesting area (**Table 8.12** in the **Shadow HRA Report** [[APP-145](#)]). Given that the management measures implemented for the compensatory habitats are predicted to provide highly suitable foraging conditions for marsh harrier, it can be expected that this smaller

area of habitat can provide a foraging resource to fully compensate for the more distant wetland foraging habitat that will (potentially) be 'lost'.

- 2.2.4 The key metric which is used in the sHRA to provide an index of foraging activity over different areas and habitats by marsh harriers is that of the flight path length, subsequently referred to as flight activity. The flight activity metric defines the intensity of flight activity by marsh harriers within a number of defined survey areas, which encompass both wetland and arable habitats<sup>1</sup>.
- 2.2.5 In order to achieve like for like compensation for the 'lost' wetland habitats, for which the vast bulk occur on the Sizewell Marshes, the level of flight activity that is estimated to be required on the compensatory habitat is greater than the average baseline values for the Sizewell Marshes. However, it is similar to (or less than) those values recorded on the north-central parts of the Minsmere South Levels which are immediately adjacent to the permanent foraging area within the EDF Energy estate (see **paragraphs 8.8.247 – 8.8.253** and **Figures 6.3 to 6.5** in the **Shadow HRA Report** [APP-145], [APP-146]). Thus, the during the 2014 – 2016 surveys average value of flight activity recorded on the Sizewell Marshes was 6.1 m/ha/hr, whilst values on the north-central parts of the Minsmere South Levels tended to range from 15 – 50 m/hr/ha (see paragraph 6.3.80, **Table 6.7** and **Figures 6.3 – 6.5** in the **Shadow HRA Report** [APP-145], [APP-146]). Based on the highly precautionary assumption of the complete exclusion of foraging marsh harriers from the Sizewell Marshes, the flight activity value estimated to be required on the permanent foraging area within the EDF Energy estate is 18 – 19m/ha/hr (see **paragraphs 8.8.247 – 8.8.253** and **Table 8.15** in the **Shadow HRA Report** [APP-145]). On this basis, given its location, the permanent foraging area within the EDF Energy estate can provide the foraging resource that is estimated to be required.
- 2.2.6 The concerns raised by RSPB and SWT in their Written Representations [REP2-506] over the estimation of the compensatory habitat requirement solely on the basis of the flight activity levels, as opposed to also accounting for the absolute area of habitat which is estimated to be 'lost', have been addressed at paragraphs 1.2.23 – 1.2.25 in **Appendix M** of **SZC Co. Comments on Submission from Earlier Deadlines (Deadlines 2 – 4)** [REP5-120]. Thus, whilst it is accepted that the flight activity metric used in the Shadow HRA does not give a perfect measure of the foraging resource

<sup>1</sup> This is measured within the monitored High Visibility Areas (HVAs) which encompass sampling areas in wetland (Minsmere South Levels and Sizewell Marshes) and arable habitats within the vicinity of the main development site and which is defined as the flight path length (in metres) per hectare per hour (see paragraphs 6.3.71 – 6.3.87 in the **Shadow HRA Report** [APP-145]).

for a particular habitat or area of land (because it does not distinguish foraging flights from commuting flights and does not account for differences in foraging success), it represents the best means available of accounting for differences in both broad habitat type (i.e. wetland vs arable) and distance from the Minsmere nesting area. Based upon both the actual flight activity data collected during the baseline surveys and the known foraging ecology of the species, these are factors which must be accounted for in estimating the foraging resource that is 'lost' due to the potential displacement, and subsequently the requirement for compensatory habitat. As such, the flight activity metric is considerably more suited to this purpose than is the total area of the (potentially) 'lost' habitat.

## 2.3 Prey resource

2.3.1 The **Marsh Harrier Compensation Area Design Update to Include Wetland** [REP2-119]) provides estimates of increases in abundance of the different marsh harrier prey groups expected to result from the different habitat managements that are being implemented. The objective in the provision of compensatory habitat is to maximise the number of marsh harrier prey items that the compensation area will support should marsh harriers be displaced from other areas of habitat within their usual breeding season foraging range, i.e. the Sizewell Marshes SSSI.

2.3.2 It was agreed with stakeholders (as detailed in [REP2-119]) that the habitat design should maximise both prey abundance and availability to the harriers, taking account of the way harriers hunt, and be practical to deliver and manage. Component elements for the compensatory habitats were selected for their ability to support high numbers of prey items that would be available to harriers.

2.3.3 Harriers prefer a diversely structured environment, with variation in vegetation height and features, such as ditches or banks which offer them the most chance for surprise as they fly over and suddenly appear at close quarters to prey hidden in them. For prey to be available to harriers the compensatory habitat needs to provide habitats that harriers can use in the same way (i.e. using the element of surprise to flush or pounce on prey (depending on the prey species involved)). This has influenced the design to include a series of habitat features, all of which were viewed during the Accompanied Site Inspections:

- a network of linear habitat features (e.g. banks, new hedge/scrub belts and retained hedges to allow harriers the element of surprise);

- provision of scrub foci that would allow harriers to approach otherwise open areas of grassland habitat unseen;
- blocks of wildbird seed planting/nectar-rich flower mix habitat located away from areas of woodland such that harriers can approach from any direction and flush or pounce on prey items;
- extensive areas of tussocky grassland that would be expected to support high numbers of small mammals. Harriers hunt extensively over the tussocky grassland present in the western South Level adjacent to the mitigation area. The tussocky grassland sward on the mitigation area would be expected to reach between 0.5m and 1m in height in the summer. This is similar to the height of grazing marsh sward. Linear strips will be mown in extensive areas of tussocky grassland to enhance prey availability.

2.3.4 An assessment of the relative change in harrier prey item abundance was presented in the **Marsh Harrier Compensation Area Design Update to Include Wetland** [REP2-119]. This was based on a metric that derived a simple ratio of potential numbers of prey items (small mammals (including rabbits) and birds separately) relative to the baseline condition.

2.3.5 The design objective was to maximise the numbers of prey items. To that end the actual numbers used in the calculations of the comparison are much less important than agreement that the dry habitat types included are appropriate (and the RSPB/SWT agree that the habitat types are appropriate (paragraph 3.430 in their Written Representation [REP2-506])).

2.3.6 Based on the assumptions made in the **Marsh Harrier Compensation Area Design Update to Include Wetland** [REP2-119], the proposed habitat designs will all result in a significant increase in the numbers of marsh harrier prey items present, with Option 2 maximising the number of mammals and providing the greatest increase in extent of habitat for breeding and foraging small birds.

## 2.4 Timing

2.4.1 At ISH7, there was discussion over the timing of provision of the compensatory habitat, with a focus on the wetland element. The RSPB expressed a concern that because the construction of the wetland elements will not occur until the first winter of the construction period, the wetland habitat will essentially not be functional during part of the first construction phase.



2.4.2 The reason for building the wetland component in the winter is to ensure that there are no noise impacts to breeding marsh harriers during the excavation of the wetland. The commitment to building the wetland in the first winter is to ensure the wetland is created as soon as possible following the granting of the DCO.

2.4.3 While it is correct that the proposed reedbeds would not be fully established in the subsequent summer, the wetland is expected to be a shallow open water body at this stage, with some limited marginal vegetation and will attract small numbers of waterfowl, waders as well as small passerines drinking on its margins. The waterbody will be in close proximity to tree belts (established and new plantings), and existing long grass areas providing ambush opportunities. The wetland would provide valuable marsh harrier foraging habitat during this period. By the second summer, the reedbeds can be expected to be well established.

2.4.4 It is important to recognise that, with the exception of the wetland, the compensation habitat has been initiated and would have been developing over a period of approximately 7 years prior to start of construction (with the value of this habitat to foraging marsh harrier summarised in this submission).

## 2.5 Competition from meso-predators and other birds of prey

2.5.1 At ISH 7 it was suggested by Mr Streeten that the value of the new compensatory foraging habitat to marsh harriers would be compromised by other predators such as foxes and other birds of prey which would also be attracted by the enhanced populations of small mammals and birds.

2.5.2 The first point to make in response, is that for this risk to be of concern, then it would have meant that the measures to deliver the prey required for marsh harrier would have been successful and so the prey species would also be available to the marsh harriers. Competition between different predatory species over prey resources is a near ubiquitous occurrence in the natural environment and it is not clear why marsh harriers would experience greater competition on the permanent foraging area within the EDF Energy estate than they would elsewhere within their foraging range. This is particularly the case, given that (as described above) the habitat management is designed to create vegetation and habitat structures which facilitate the hunting methods favoured by marsh harriers (which should provide a competitive advantage relative to other predator species attempting to exploit the same prey resources).

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2.5.3 Furthermore, the habitats which have been created would form part of the wider landscape and environment within which the Minsmere marsh harriers forage. As such, there are no boundaries which prevent movement of marsh harriers and other predators between the permanent foraging area within the EDF Energy estate and the other habitats within this wider landscape. Other potential competitor species, such as foxes, crows and buzzards, have relatively large foraging ranges which will not only encompass the permanent foraging area within the EDF Energy estate but also nearby areas of wetland within which marsh harriers already forage extensively. Such predator species will undoubtedly hunt in these wetland habitats and are known to exploit the types of prey which are abundant in these areas (i.e. breeding waterbirds and their eggs and chicks). Therefore, marsh harriers foraging within the wetland habitats in the Minsmere South Levels and Sizewell Marshes will already experience competition from such predators.

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## 3 MONITORING

3.1.1 At ISH7, Mr Streeten asserted that the fact that monitoring was proposed in the **Terrestrial Ecology Monitoring and Mitigation Plan** [REP1-016], very much suggests that the predicted value of the compensation habitat to foraging marsh harrier is subject to scientific uncertainty.

3.1.2 SZC Co. does not accept this argument; monitoring against the objectives of the compensatory habitat is a standard and rigorous approach to adopt as part of the process of delivering the compensatory habitat provision. It is not valid to suggest that because monitoring is proposed that the certainty of provision of the compensatory habitat is undermined.

3.1.3 The **Terrestrial Ecology Monitoring and Mitigation Plan** [REP5-088] (in **Table 1.2** and **Table 3.3**) sets out three strands of monitoring that are of relevance to marsh harrier, summarised as follows:

- Survey to determine the success of establishment of foraging habitats for marsh harriers, to include vegetation establishment and botanical monitoring.
- Survey to determine the success of establishment of prey species (small mammals and birds) for marsh harriers.
- Surveys of foraging activity levels of marsh harrier on both the existing wetland foraging habitats (Minsmere South Levels and Sizewell Marshes) and the permanent foraging area within the EDF Energy estate.

3.1.4 Further interventions are proposed in the **Terrestrial Ecology Monitoring and Mitigation Plan** [REP5-088] that could be deployed in response to the findings of the monitoring if necessary.

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## 4 CONTINGENCY PROVISION - LAND AT WESTLETON

### 4.1 Role of the land at Westleton

4.1.1 SZC Co. considers that the 48.7ha of permanent foraging habitat within the EDF Energy estate constitutes sufficient and appropriate compensatory measures.

4.1.2 In response to ExQ 1.48 ([REP2-100] and Appendix 7F of [REP2-110]), SZC Co. explains that the land at Westleton (Work No. 8 (Marsh Harrier Habitat, Westleton)) is only included within the draft DCO to cater for the possibility that the Secretary of State might conclude that further marsh harrier compensatory habitat is required in addition to the permanent foraging habitat within the EDF Energy estate. Provisions are also included in the Draft Deed of Obligation (REP1-007) to secure the delivery of the additional compensatory habitat at Westleton.

4.1.3 The Westleton site is about 3.5km from the Minsmere reedbed and, if required, the habitats at Westleton would only be required for the construction phase of Sizewell C. Once the temporary construction area is removed, there would be no impediment to the marsh harriers using the Sizewell Marshes SSSI again.

### 4.2 Selection of the proposed Westleton site

4.2.1 The view of Natural England and some other stakeholders, including the RSPB, is that the already implemented and planned compensatory habitats for marsh harriers at Upper Abbey Farm are insufficient to compensate for potential disturbance effects which (as a worst-case scenario) could create a 'barrier effect' and so prevent marsh harriers from foraging over the Sizewell Marshes SSSI during construction.

4.2.2 In order to provide a new area to supplement the provision at Upper Abbey Farm, it was considered necessary to identify a quantum of approximately 50ha (range 40-60ha) of land, to be used at the direction of the Secretary of State. At ISH7, SZC Co. committed to providing a note on the selection of the Westleton site and this is provided below.

4.2.3 The following features or attributes were considered in the search for new temporary compensatory habitat areas for marsh harriers:

- Site not designated for existing ecological value, on a statutory or non-statutory basis, or forming part of the RSPB Minsmere Reserve.

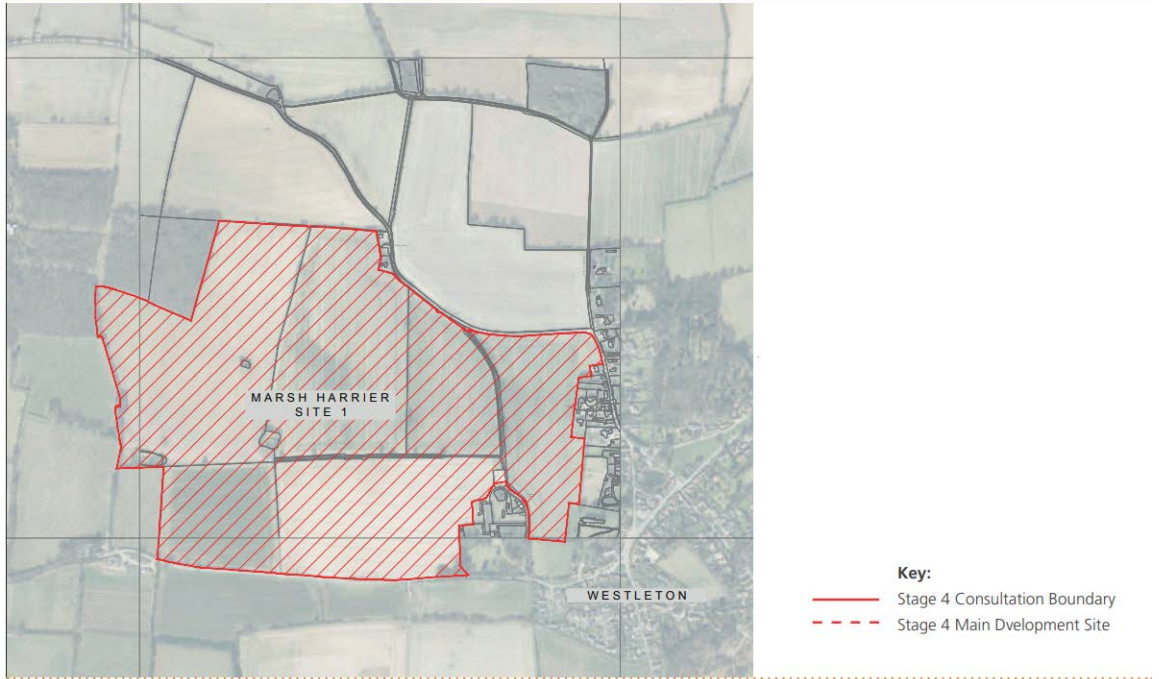
- Proximity to Minsmere reedbeds (within 4km).
- Preference for arable or (low ecological value) sown pasture areas, currently of relatively low value to marsh harriers, most suitable for conversion to high quality non wetland foraging habitat, without damaging any existing habitat value.
- Single contiguous site preferable to scattered multiple sites to enable effective and co-ordinated management.
- Preference to avoiding popular footpath and other rights of way, which might dissuade marsh harriers from using these areas.
- Existing hedges, ditches and varied topography preferable to provide connectivity and ambush opportunities for foraging harriers.

4.2.4 On the basis of these criteria three sites were included in Stage 4 consultation for the location of the additional land:

- Site 1 is 54.26ha and is located to the west of Westleton (Consultation Document Figure 5.22). The site includes predominantly arable land. The southern boundary is Yoxford Road and the eastern boundary is Darsham Road. The properties to the west of Darsham Road and Wash Lane are not included in the site.
- Site 2 is 46.21ha and is located to the south of Westleton (Consultation Document Figure 5.23). This site includes land either side of Reckford Road with residential properties along that road and in Westleton excluded. Black Slough Road is along the south-eastern boundary of the site.
- Site 3 is 61.52ha and is located to the south of Eastbridge, east of Theberton and to the north of the proposed accommodation campus (Consultation Document Figure 5.24). The site is comprised of four separate parcels of land that are predominantly arable land. There is land included both north and south of Onner's Lane, in between Potter's Street, Baker's Hill and Eastbridge Road and east of Eastbridge Road.

**Plate 1: Site 1 – West of Westleton**

**Figure 5.22: Marsh harrier compensation land - Site 1**



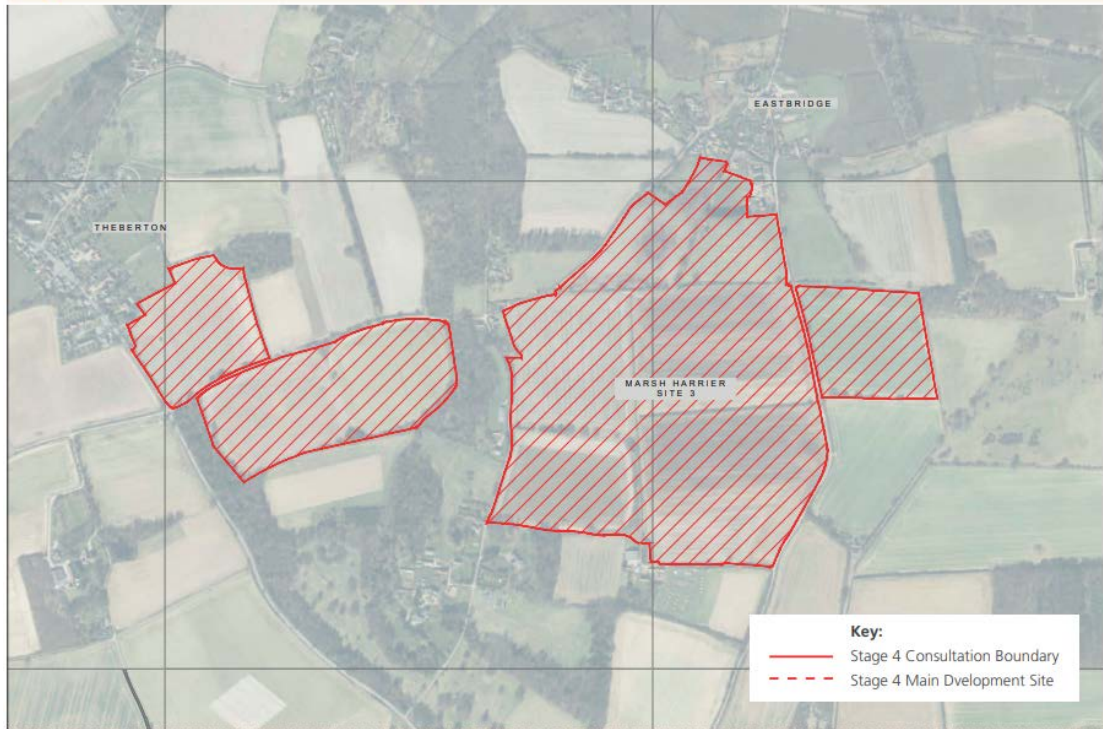
**Plate 2: Site 2 – South of Westleton**

**Figure 5.23: Marsh harrier compensation land - Site 2**



**Plate 3: Site 3 – South of Eastbridge. East of Theberton**

**Figure 5.24: Marsh harrier compensation land - Site 3**



4.2.5 These three sites were identified at this stage as suitable because of their location and because they comprised mainly existing arable land. The sites were all within 4km of the reedbeds within the RSPB’s Minsmere reserve so that nesting marsh harriers are likely to locate and use the compensatory habitats.

4.2.6 Following the consultation, it was decided to take Site 1 forward for the following reasons:

- The most contiguous site which would facilitate management of the habitats and also provide a contiguous area of habitat for the marsh harriers.
- Entirely arable, with no established pasture constraints whereas other options had significant areas of well-established pasture.
- Fewer public rights of way than alternatives, so less disturbance to marsh harriers while foraging.

4.2.7 As explained at Stage 4 consultation, any areas selected for marsh harrier would be subject to changes in land management. Measures implemented

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as outlined at consultation would vary from site to site and potentially from field to field and within each field and could include:

- Cessation of arable cultivation, other than for any annually cultivated 'game strips' under a land 'set-aside' type approach.
- A one-off sowing of a coarse grassland mix to produce rough grassland.
- Annual sowing of broad game strips to attract flocks of small birds and increase small mammal numbers.
- Some planting of additional hedgerows and areas of scrub.

4.2.8 The greater detail provided in the later Marsh Harrier Compensatory Habitat report [[REP3-053](#)] is summarised in section 4.3 below.

4.2.9 It was also noted that:

- Plough depths for any coarse grassland or game strip sowing would be no deeper than a standard ploughed cultivation for current arable use.
- Machinery used would be typical farm machinery.
- There is no intention to remove field drainage or irrigation infrastructure, notably where the land is to be returned to farming use at the end of SZC construction.
- There would be no use of fertilisers during the use of the marsh harrier land, unless required locally for 'game strips' and so some decline in soil fertility is likely.
- At the end of the construction of SZC, the land would be returned to arable use.

## 4.3 Habitats which would be provided at Westleton

4.3.1 The habitats to be provided at Westleton are described, and illustrated, in the Marsh Harrier Compensatory Habitat report [[REP3-053](#)], and are therefore summarised here, rather than repeated in detail.

4.3.2 The design principles for the compensatory habitat north of the main development, as agreed with stakeholders, are detailed in **Marsh Harrier Mitigation Area Feasibility Report** [[APP-259](#)]. Similar principles have been adopted for the Westleton land and comprise:



- Ratio of grassland: wildbird seed/nectar mix: game crop cover approximately 4:1:1;
- Mix of a minimum of 3 tussocky grassland to 1 short grassland;
- Existing hedges retained, and gapped up where necessary;
- Wildbird seed planting and nectar rich flower mix on a 50:50 ratio by area; and
- Inclusion of strips of game cover crops.

4.3.3 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.). The 'Birdfields' approach comprises alternating linear strips of sown set-aside (similar in nature to the wildbird nectar/see 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. The provided habitats will comprise:

- A 24m buffer of tussocky grassland around field margins to enhance the value of the existing hedges in supporting small mammals and birds.
- A 36m buffer strip of tussocky grassland around each (existing) pond, to enhance the value of the pond margins in supporting small mammals and birds.
- Linear strips of tussocky grassland, short grassland and wildbird seed/nectar mix across fields, 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.
- The linear strips of habitat and game cover crops will, in general, be 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.

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#### 4.4 Sufficiency of the habitats at Westleton

4.4.1 As outlined in section 2 above, SZC Co. consider that the permanent foraging area within the EDF Energy estate provides sufficient compensatory habitat for foraging marsh harrier (with this conclusion being based upon detailed consideration of the baseline survey data on marsh harrier flight activity, the known foraging ecology and habitat preferences of marsh harrier and the established responses of different prey types to the habitat managements being implemented within this area).

4.4.2 However, should the Secretary of State consider that there is insufficient certainty in relation to this conclusion then the option of the additional compensatory habitat at Westleton would provide the necessary insurance in this regard. In particular, inclusion of the Westleton site as part of the compensatory measures would mean that the total area of land within which targeted habitat management to enhance foraging conditions for marsh harriers is implemented within the putative foraging range of the Minsmere marsh harriers (i.e. 103ha) would be approximately equivalent to the area of wetland from which foraging marsh harriers are predicted (under highly precautionary assumptions) to be displaced by disturbance due to construction activities (i.e. c.100ha).

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## 5 TESTS OF THE HABITATS REGULATIONS

5.1.1 Compensatory measures are not defined in the Habitats Directive or the Habitats Regulations. The EC Guidance on Article 6 of the Habitats Directive states (at p.64):

*'In order to ensure the overall coherence of Natura 2000, the compensatory measures proposed for a project should therefore: a) address, in comparable proportions, the habitats and species negatively affected; and b) provide functions comparable to those which had justified the selection criteria for the original site, particularly regarding the adequate geographical distribution....'*

5.1.2 The Guidance goes on to address the objective and general content of compensatory measures. Notably, it includes recognition that compensation relating to birds may include improving the biological value of an area:

*'In terms of the Birds Directive, compensation might for example include work to improve the biological value of an area, which is or will be classified, so that the carrying capacity or the food potential are increased by a quantity corresponding to the loss on the site affected by the project. Accordingly, the re-creation of a habitat favourable to the bird species concerned is acceptable provided that the created site is available at the time when the affected site loses its natural value.*

...

*Compensatory measures appropriate or necessary to offset the adverse effects on a Natura 2000 site (i.e. in addition to what is already required under the Directives) may consist of:*

- *habitat improvement in existing sites: improving the remaining habitat on the site concerned or restoring the habitat on another Natura 2000 site, in proportion to the loss due to the plan or project;*
- *habitat re-creation: creating a habitat on a new or enlarged site, to be incorporated into Natura 2000; or*
- *as described above, and in association with other works, proposing a new site of sufficient quality under the Habitats or Birds Directive and establishing/implementing conservation measures for this new site.'* (p.65)

- 5.1.3 Therefore, it is clear that compensation measures must be evidence-based. As has been set out above, in this case it is inappropriate to simply state that the compensation area should be the same size as the foraging area which will potentially be lost.
- 5.1.4 At ISH7, Mr Streeten stated that the approach of providing terrestrial habitat as compensatory measures for marsh harrier was a novel approach and the proposed monitoring and, if necessary, potential intervention responses would not be effective in rectifying any problems identified with the compensatory habitat provision. For these reason, Mr Streeten stated that the test of ‘certainty’ was not met.
- 5.1.5 The core of Mr Steeten’s argument appeared to relate to the fact that the proposals consist largely of dry habitats, as opposed to wetland. While wetland habitats are optimal for foraging marsh harrier, this should not undermine the value of dry habitats, as evidenced in **section 2** of this submission and supported by the detailed analysis undertaken in the **Shadow HRA Report** [APP-145]. In addition, the proximity of the compensatory habitat to the marsh harrier nesting area at Minsmere is a crucial part of the assessment of the predicted use of the compensatory habitat by marsh harrier. While there may not be other comparable examples of creating compensatory habitat for marsh harriers, that is not, in its own right, a justification for suggesting that the compensatory habitat would not be effective.
- 5.1.6 There is a high level of confidence that the compensatory measures would be successful and be sufficient to compensate for the potential ‘loss’ of the marsh harrier foraging resource. The key reasons for this are as follows:
- The proximity of the compensation habitat area to both the Minsmere nesting area and those parts of the Minsmere South Levels which are most heavily used by foraging marsh harriers. Proximity to the nesting area is an important factor determining usage of foraging habitat by marsh harrier (i.e. areas closer to the nesting area are used to greater extent). This is well documented in the literature on the ecology of the species<sup>2</sup> and is also demonstrated in the flight activity survey data used to inform the assessment (e.g. see **Plate 8.11** in the **Shadow HRA Report** [APP-145]).
  - The compensatory habitat is adjacent to the north-west of the Minsmere South Levels which has the highest recorded levels of flight activity during the baseline surveys (**Figures 6.3 – 6.5** in the **Shadow HRA**

<sup>2</sup> Cardador et al. (2009) Short communication: Ranging behaviour of Marsh Harriers *Circus aeruginosus* in agricultural landscapes. *Ibis*, **151**, 766-770.

**Report [APP-146].** The levels of flight activity recorded in the north-west of the Minsmere South Levels are equivalent to (or above) those which are calculated as being required on the compensatory habitat to compensate the ‘lost’ wetland habitats from which foraging marsh harriers would be displaced (based on the precautionary predictions made in the Shadow HRA). Therefore, based on its location, the compensatory habitat has the potential to provide sufficient foraging resource to compensate for the resource which is predicted to be ‘lost’ as a result of the displacement of foraging birds from existing wetland foraging habitat.

- The predicted increase in both the abundance and availability of marsh harrier prey (reported in the **Marsh Harrier Compensation Area Design Update to Include Wetland [in section 2.1 of REP2-119]**).

5.1.7 SZC Co. argues that the test of certainty is met. There are various elements to the certainty test, which are encapsulated in criteria defined in NPS EN-6. The **Shadow HRA Report, Volume 4: Compensatory Measures [APP-152]** assesses compensatory habitat against each of these elements (reproduced in **Table 5.1**) and concludes that the compensatory measures would meet the requirements of EN-6.

5.1.8 The introduction of an area of contingency land at Westleton (if this is judged to be required by the Secretary of State), provides further resilience that the test of certainty would be met.

**Table 5.1: Analysis of the proposed compensatory measures in light of the requirements of EN-6**

The Compensation Requirement Must:	Conclusion
Be appropriate for the area and the loss caused by the Sizewell C Project	<p>The compensation habitat is considered appropriate in that it would replace locally foraging resource that is predicted to be lost to the marsh harrier population.</p> <p>The high degree of precaution in the conclusion of the <b>Shadow HRA</b> is important in this respect, namely:</p> <ul style="list-style-type: none"> <li>- the assumption that displacement as a result of noise and visual disturbance and the barrier effect to Sizewell Marshes would operate at 100%; and,</li> <li>- the predicted worst-case noise levels on which the assessment is based are likely to occur over a limited period only during both Phases 1 and 2.</li> </ul>
Be capable of protecting the overall coherence of the Natura 2000 network	The compensation habitat is intended to address an effect which is predicted to occur for part of the construction phase and does not result in a physical direct effect on habitats within the boundaries of the

SUFFICIENCY OF COMPENSATORY HABITATS

FOR MARSH HARRIERS

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The Compensation Requirement Must:	Conclusion
	SPA and Ramsar site. As a result of the compensatory measures, no negative effect on marsh harrier productivity is predicted and the coherence of the Natura 2000 network would be protected.
Be capable of implementation	The compensatory measures would have been developing over a period of approximately 7 years prior to start of construction and do not require the adoption of innovative or untested measures. This demonstrates that the measures are clearly capable of implementation.
Be capable of ensuring that the Natura 2000 site is not irreversibly affected by the Sizewell C Project before the compensation is in place	The compensatory measures have been initiated and would have been developing over a period of approximately 7 years prior to start of construction. It is expected that marsh harrier would forage over the compensation habitat prior to the start of the construction phase. With the proposed compensation measures in place, combined with the fact that no physical damage to habitats within the SPA and Ramsar site would occur, it can be concluded that the SPA and Ramsar site would not be irreversibly affected.
Be directed in measurable proportions to the habitats and species negatively affected	The analysis of the area of compensatory measures considered necessary concludes that the compensation area would attract a greater level of usage by foraging marsh harrier than an equivalent area at the same distance from the Minsmere reedbed as the Sizewell Marshes or the southern part of the Minsmere South Levels. Importantly, the proximity of the compensation land to the marsh harrier nesting area should enable it to deliver the necessary functionality.
Be related to the same biogeographical region (within the UK)	The proposed measures are in very close proximity to the SPA and Ramsar site and in the same biogeographical region in the UK.
Serve functions that are comparable to those that motivated the original area's submission for designation	The SPA and Ramsar site are (in part) classified for breeding marsh harrier, with land within the European site providing a supporting function (foraging habitat) to the breeding marsh harrier population. However, marsh harrier also forage over significant areas of land outside of the boundaries of the European site and it is (largely) this non-designated area that is predicted to be affected by noise and visual disturbance during the construction phase. The compensatory measures do, therefore, serve a function that is comparable to that which motivated the designation of the SPA and Ramsar site.
Be clearly defined, with implementation goals	The compensatory measures are clearly defined, with quantified targets for the various habitat types. The

The Compensation Requirement Must:	Conclusion
and managed so that the compensatory measures can achieve the goal of maintaining or improving the overall coherence of the Natura 2000 network	habitats can be managed over the long-term to ensure that they continue to achieve their objectives and maintain the overall coherence of the Natura 2000 network.

5.1.9 Further Defra guidance released in February 2021<sup>3</sup> describes the requirements of the three legal tests involved in seeking a derogation for a proposal that has failed the integrity test. ‘Test 3: Secure compensatory measures’ is relevant to the provision of compensatory measures and refers to points that should be considered in order to be confident that the proposed measures will fully compensate for the negative effects of the proposal.

5.1.10 The factors referred to in the February 2021 guidance are listed below:

- How technically feasible and effective the measures will be - based on scientific evidence and previous examples.
- How financially viable the measures are - the proposer must have enough funds to cover costs.
- How the compensation would be carried out, including how it’ll be managed and monitored over the time that’s needed, and how it’s been secured.
- Distance from the affected site - compensation closer to the site is generally preferred, unless measures further away will benefit the network of European sites as a whole.
- How long the compensatory measures will take to reach the required quality and amount of habitat.

5.1.11 SZC Co. evidenced how the above points are met in its response to HRA.1.6 of ExQ1.

5.1.12 Mr Streeten’s challenge regarding certainty is essentially related to the first point above. The compensation measures are ‘technically feasible’; they have been implemented (with the exception of the wetland and there is no reason to believe that the wetland component cannot be implemented

<sup>3</sup> Habitats regulations assessments: protecting a European site Guidance. Available at: <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>



## SUFFICIENCY OF COMPENSATORY HABITATS

### FOR MARSH HARRIERS

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successfully). The effectiveness of the measures is demonstrated through the analysis summarised in **section 2** of this submission and supported by the detailed analysis undertaken in the **Shadow HRA Report** [APP-145].



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## 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.



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## APPENDIX C: TWO VILLAGE BYPASS GROUNDWATER TECHNICAL NOTE

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## FIGURES

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Figure 3: Exploratory hole plan for cutting adjacent to Foxburrow Wood and Farnham Hall

Figure 4: Exploratory hole plan for cutting adjacent to Pond Wood

Figure 5: Exploratory hole plan for cutting adjacent to Nuttery Belt

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## 1 INTRODUCTION

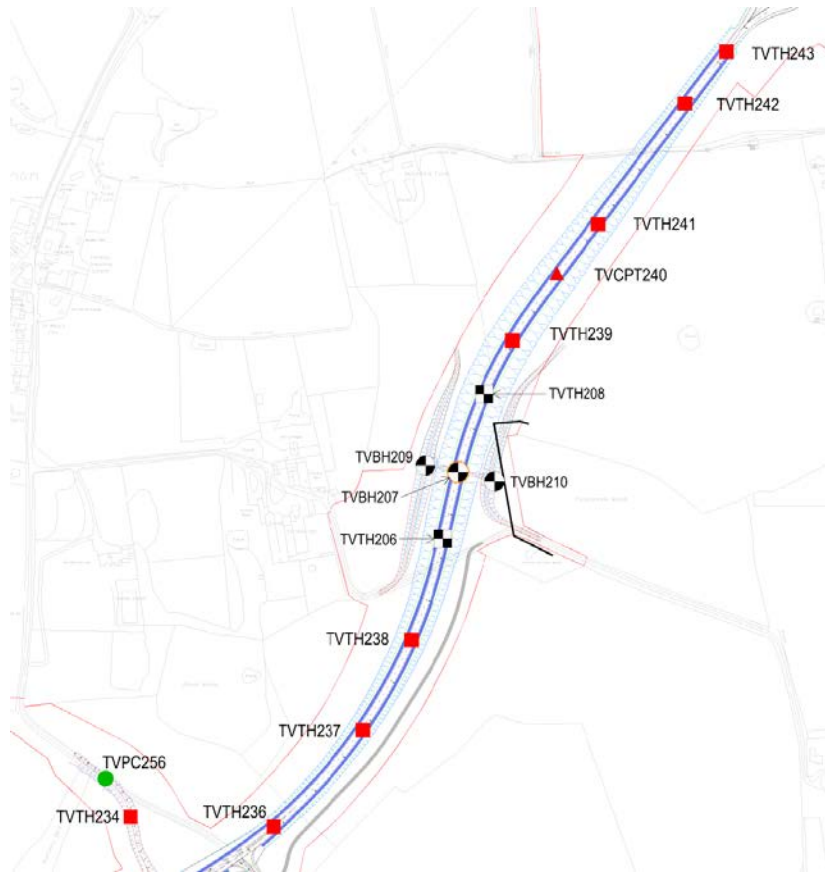
1.1.1 At Issue Specific Hearing 7 (ISH7) on Biodiversity and Ecology (Parts 1 and 2) held on 15 and 16 July 2021, SZC Co. was asked to provide a summary of ground investigation work near the areas of Farnham Hall and Foxburrow Wood.

1.1.2 This Technical Note responds to the request made at ISH7, providing a technical review of the data from the two village bypass ground investigation at the location of the cuttings proposed in the area, and making comment on the impact this may have on the existing groundwater regime.

1.1.3 This Technical Note covers the following specific locations:

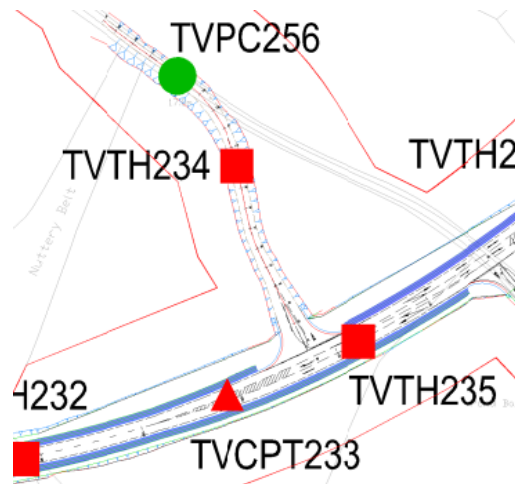
- Foxburrow Wood
- Pond Wood
- Farnham Hall
- Nuttery Belt

1.1.4 The main cutting is between scheme mainline chainages (Ch.) Ch1200 to Ch.2300 and attains a maximum depth of 5.4m at Ch.1800. This cutting is in the vicinity of Foxburrow and Pond Woods and Farnham Hall. Figure 1 shows the location of the main cutting.



**Figure 1: Location of the main two village bypass cutting**

1.1.5 There is a minor cutting between mainline chainage Ch.700 and Ch.1090 which attains a maximum depth of 2m at Ch.800. This cutting is adjacent to the south end of Nuttery Belt wood. Figure 2 shows the location of the minor cutting.

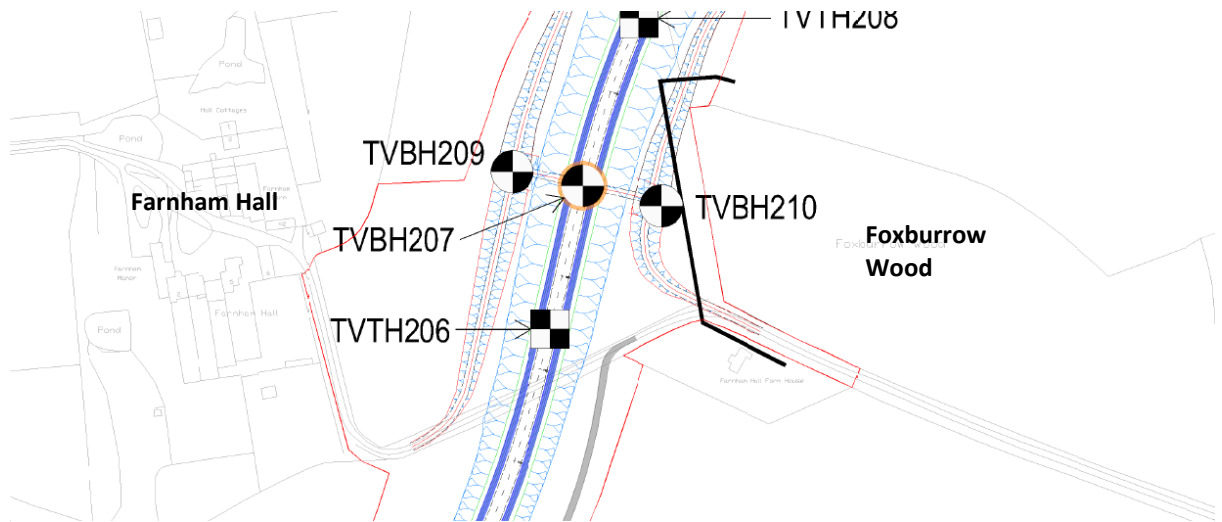


**Figure 2: Location of two village bypass minor cutting**

- 1.1.6 The side road on the north side of the staggered junction is in a cutting between side road Ch.0 and Ch.198. This has a depth of 1.7m at Ch.150. This cutting is at the north end of Nuttery Belt.
- 1.1.7 Within this technical note the scheme chainages are referenced at the nearest section of cutting to the feature under discussion. The depth given is the depth of cutting nearest to the feature.
- 1.1.8 A review of publicly available boreholes was carried out however the nearest such borehole (BGS borehole reference TM36SE131) was some 800m from the areas under consideration and therefore not considered relevant.

## 2 FOXBURROW WOOD

- 2.1.1 At Foxburrow Wood the cutting is located to the west of the Wood between Ch.1650 and Ch.1760. At its closest point the north edge of the wood is some 15m from the crest of the cutting. The cutting depth is 4.8m deep.
- 2.1.2 Figure 3 shows the location of the boreholes adjacent to this location.



**Figure 3: Exploratory hole plan for cutting adjacent to Foxburrow Wood and Farnham Hall**

2.1.3 The ground conditions at TVBH210 adjacent to the Wood were as follows:

- 0 to 0.4m topsoil
- 0.4m to 3.65m depth = stiff clay (Glacial Till)
- 3.65 to 15m depth = sand and gravelly sand.

2.1.4 Piezometers were installed in boreholes TVBH207 and TVBH210 to measure groundwater levels.

2.1.5 The piezometer in TVBH210 was installed at 3m depth (in the clay) and was dry when monitored on 10 occasions between July 2020 and January 2021.

2.1.6 The piezometer in TVBH 207 was installed at 25m (in the sands) and recorded a minimum depth to groundwater (i.e. the maximum groundwater level) of 17.6mbgl (July 2020) when monitored on 10 occasions between July 2020 and January 2021. The maximum depth to groundwater recorded was 17.9mbgl (August 2020).

2.1.7 There is a relatively small variation of 0.3m in measured groundwater level during the monitoring period July 2020 to January 2021.

2.1.8 It would be anticipated that the highest groundwater levels would be in late winter, and the level recorded in January 2021 was 17.78mbgl. This is some

12.98m below the base of the cutting at this location. It is therefore concluded that the cutting will not interact with the groundwater at this location.

### 3 FARNHAM HALL

3.1.1 The cutting to the east of Farnham Hall is the same cutting as discussed in the section on Foxburrow Wood. At this location the cutting is some 90m from Farnham Hall and varies from 3.5m depth at Ch.1575 to 4.8m depth at Ch.1700.

3.1.2 The exploratory holes relevant to this location are those shown on Figure 1.

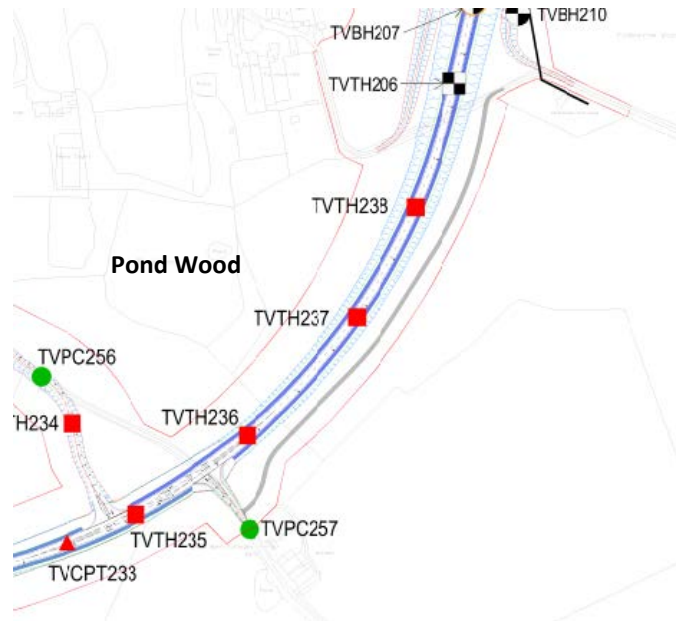
3.1.3 From the discussion of the ground and groundwater information in Section 2 on Foxburrow Wood, the same conclusion is drawn for Farnham Hall, which is, the cutting will not interact with the groundwater which is at a depth of 12.98m below the base of the cutting.

### 4 POND WOOD

4.1.1 At Pond Wood the depth of cutting on the mainline route closest (approx 70m) to the wood varies from 0.7m to 1.3m in depth between Ch.1250 and Ch.1350

4.1.2 Figure 4 shows the location of the boreholes adjacent to this location.





**Figure 4: Exploratory hole plan for cutting adjacent to Pond Wood**

- 4.1.3 The two trial pits TVTH236 and TVTH237 were both excavated to 3m depth.
- 4.1.4 TVTH236 encountered 0.3m topsoil then clayey Sand to 0.7m beneath which sandy Clay was present to the end of the trial pit at 3m.
- 4.1.5 TVTH237 encountered 0.3m topsoil then clayey Sand to 2.3m beneath which gravelly Sand was present to the end of the trial pit at 3m.
- 4.1.6 A groundwater seepage was recorded in TVTH 236 at 3.0m depth, some 2.3m below the road level at this location. No groundwater was encountered in TVTH237.
- 4.1.7 The south end of Pond Wood is some 80m from the cutting at the staggered junction which is 1.7m deep at this location. Trial pit TVTH234A at this location recorded clay to 3m depth with no groundwater.
- 4.1.8 A 9.82m deep cone penetration test (CPT) was located to the west of the staggered junction (TVCPT 233). This revealed the base of the clay was present at 4.1m below ground level. Dense sands were present below the clay. The geology at this location is comparable to that revealed at the location of Foxburrow Wood cutting.
- 4.1.9 Taking all the above into consideration, in particular the similarity of the deep strata in the two deeper exploratory holes at Foxburrow Wood and at

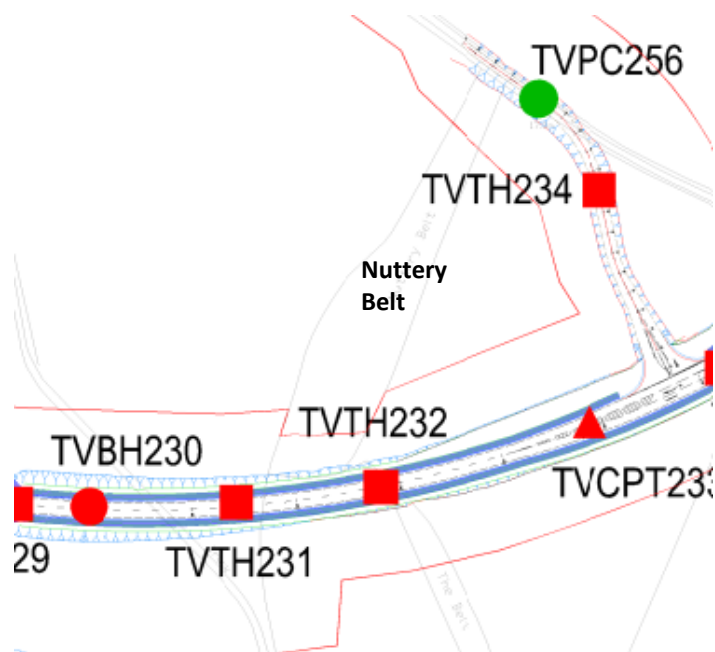
Pond Wood, it is considered that groundwater will be at significant depth below the cutting and will not be impacted by the relatively shallow depth of cutting proposed.

- 4.1.10 A 0.3m seasonal groundwater variation was recorded at Foxburrow Wood and it is considered that the seasonal groundwater variations will not be significantly different at Pond Wood and will remain well below the cutting level.

## 5 NUTTERY BELT WOOD

- 5.1.1 At the south end of Nuttery Belt the cutting is located between scheme mainline chainages Ch.880 to Ch. 925. It has a maximum depth of 1m.

- 5.1.2 Three exploratory holes were carried out, their locations are shown on Figure 5.



**Figure 5: Exploratory hole plan for cutting adjacent to Nuttery Belt**

- 5.1.3 The two trial pits, TVTH231 AND TVTH232, were excavated to 3m depth.
- 5.1.4 TVTH231 encountered topsoil to 0.3m, Clay from 0.3 to 0.6m then clayey Sand to the end of the trial pit at 3m depth. No groundwater was present.
- 5.1.5 TVTH232 encountered topsoil to 0.2m, gravelly Clay from 0.25 to 1.9m then Sand to the end of the trial pit at 3m depth. No groundwater was present.

- 
- 5.1.6 Borehole TVBH230 went to a depth of 10m with topsoil to 0.25m, gravelly Clay from 0.25m to 0.6m then Sand to the end of the borehole at 10m. No groundwater was present.
  - 5.1.7 Due to the shallow depth of this cutting at the south end of Nuttery Belt cutting, which is 1m or less, and the absence of any groundwater in these exploratory holes, it is concluded that the cutting will not interact with groundwater.
  - 5.1.8 At the north end of Nuttery Belt wood the ground and groundwater regime will be the same as discussed for the south end of Pond Wood in Sections 4.1.7 to 4.1.9 of this Technical note.
  - 5.1.9 It is therefore concluded that groundwater at the north end of Nuttery Belt wood will be at significant depth below the cutting and will not be impacted by the relatively shallow depth of cutting proposed.
  - 5.1.10 Due to the depth to groundwater at both the north and south ends of Nuttery Belt wood and the relatively low seasonal fluctuation (0.3m) demonstrated in similar strata throughout the monitoring period at Foxburrow Wood, it is considered that the cutting will not impact the groundwater at Nuttery Belt.



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## APPENDIX D: UPDATES TO FIGURES 1, 2 AND 3 SUBMITTED AT DEADLINE 4

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**NOTES:**

1. FOR DETAILS OF PERMANENT AND TEMPORARY POSSESSION WITHIN ORDER LIMITS REFER TO LAND PLANS.
2. THE LOCATIONS OF FEATURES SHOWN ARE INDICATIVE ONLY. EXACT LOCATIONS TO BE CONFIRMED ON SITE.
3. ADDITIONAL FEATURES MAY BE PRESENT ON SITE THAT HAVE NOT BEEN IDENTIFIED.
4. THIS DRAWING IS BASED ON AERIAL PHOTOGRAPHS AND SITE VISITS.
5. FOR HEDGEROW REFERENCES (H01-H32) PLEASE REFER TO SCHEDULE 21 OF DRAFT DCO (DOC REF 3.1)
6. WITHIN THE AREA SHOWN AS 'GENERAL SITE CLEARANCE' NOT EVERYTHING WOULD BE CLEARED. SITE CLEARANCE WOULD BE THE MINIMUM REQUIRED TO UNDERTAKE THE WORKS. GENERAL SITE CLEARANCE CONSISTS OF REMOVAL OF OVERGROWN VEGETATION IN VERGES, AND TOPSOIL REMOVAL AND DISPOSAL.

**KEY:**

- TWO VILLAGE BYPASS DEVELOPMENT SITE BOUNDARY
  - PERMANENT BOUNDARY
  - - - EXTENT OF WORK No. 11B
  - - - EXTENT OF WORK No. 11C
  - HIGHWAY BOUNDARY FENCE
  - RETAINED HEDGEROW
  - RETAINED IMPORTANT HEDGEROW (HEDGEROW REGULATIONS 1997)
  - ▨ RETAINED AND ENHANCED TREES AND SHRUBS
  - ▭ AREA OF GENERAL SITE CLEARANCE FOR CONSTRUCTION WORKS WITHIN THE SITE
  - ▨ VEGETATION TO BE REMOVED
  - ▨ IMPORTANT HEDGEROW (HEDGEROW REGULATIONS 1997) TO BE REMOVED
- WOODLAND TRUST ANCIENT TREE INVENTORY
- |   |  |  |
|---|--|--|
| <span style="color: green;">●</span> TO BE RETAINED | <span style="color: green;">⊗</span> TO BE REMOVED | <span style="color: green;">●</span> ANCIENT TREE      |
| <span style="color: green;">●</span>                | <span style="color: green;">⊗</span>               | <span style="color: green;">⊗</span> VETERAN TREE      |
| <span style="color: lightgreen;">●</span>           | <span style="color: lightgreen;">⊗</span>          | <span style="color: lightgreen;">⊗</span> NOTABLE TREE |

- 197460 - PEDUNCULATE OAK - VETERAN TREE TO BE REMOVED
- 197461 - PEDUNCULATE OAK - NOTABLE TREE TO BE REMOVED
- 197462 - PEDUNCULATE OAK - NOTABLE TREE
- 207176 - COMMON HORNBEAM - ANCIENT TREE
- 207278 - PEDUNCULATE OAK - ANCIENT TREE TO BE REMOVED
- 207279 - PEDUNCULATE OAK - VETERAN TREE TO BE REMOVED
- 210077 - COMMON ASH - VETERAN TREE
- 210078 - COMMON SYCAMORE - VETERAN TREE

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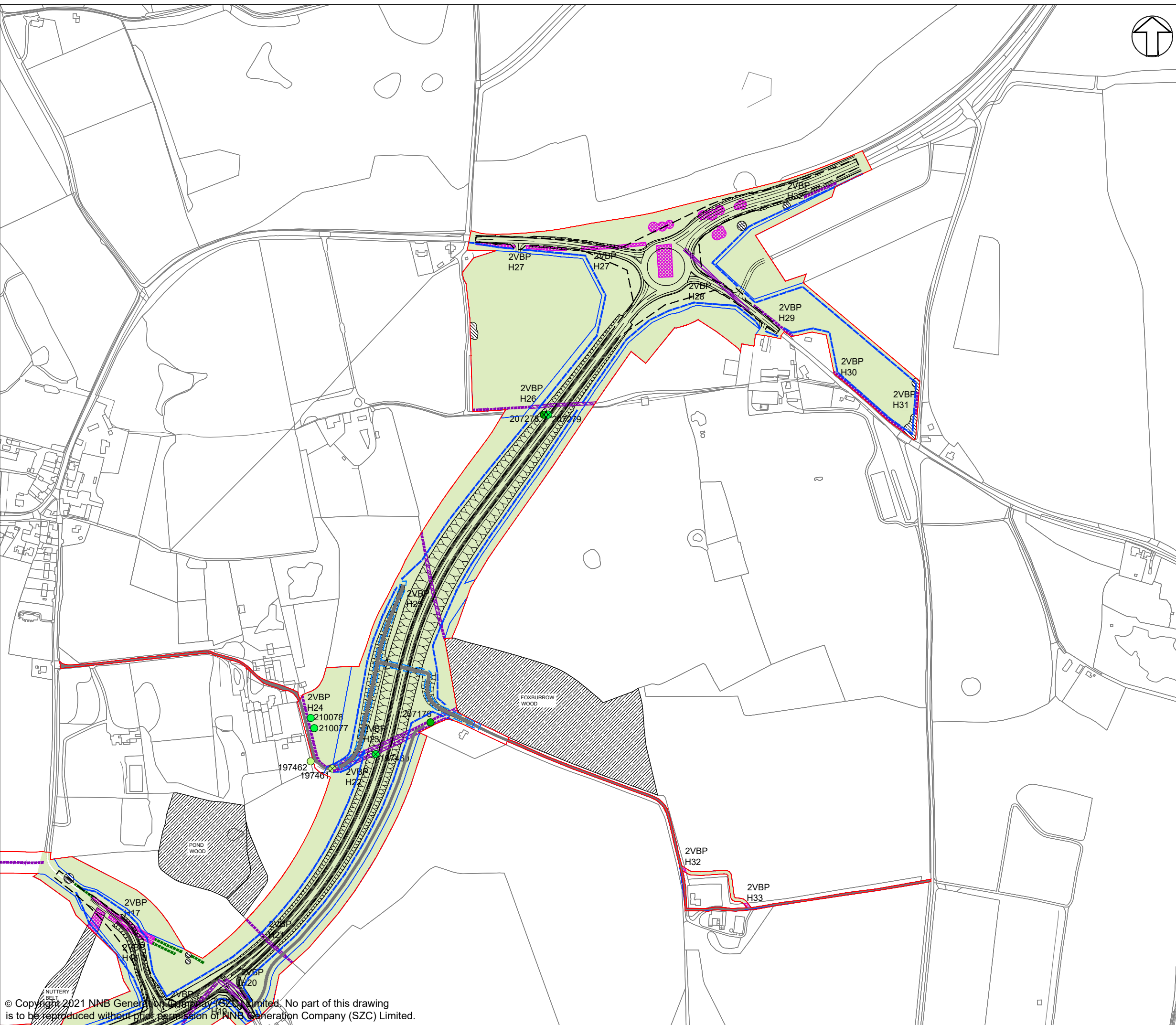
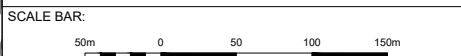
**DRAWING TITLE:**

TWO VILLAGE BYPASS  
SITE CLEARANCE PLAN  
SHEET 2 OF 2  
ANCIENT AND VETERAN TREES ADDED

**DRAWING NO:**

FIGURE 1.1

DATE: JULY 2021    DRAWN: J.B.    SCALE: 1:5000 @ A3    REVISION:





**NOTES:**

- FOR DETAILS OF PERMANENT AND TEMPORARY POSSESSION WITHIN ORDER LIMITS REFER TO LAND PLANS.
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**KEY:**

- TWO VILLAGE BYPASS DEVELOPMENT SITE BOUNDARY
  - PERMANENT BOUNDARY
  - - - EXTENT OF WORK No. 11B
  - - - EXTENT OF WORK No. 11C
  - HIGHWAY BOUNDARY FENCE
  - - - RETAINED HEDGEROW
  - - - RETAINED IMPORTANT HEDGEROW (HEDGEROW REGULATIONS 1997)
  - ▨ RETAINED AND ENHANCED TREES AND SHRUBS
  - AREA OF GENERAL SITE CLEARANCE FOR CONSTRUCTION WORKS WITHIN THE SITE
  - ▨ VEGETATION TO BE REMOVED
  - ▨ IMPORTANT HEDGEROW (HEDGEROW REGULATIONS 1997) TO BE REMOVED
- WOODLAND TRUST ANCIENT TREE INVENTORY
- |   |  |  |
|---|--|--|
| <span style="color: green;">●</span> TO BE RETAINED | <span style="color: green;">⊗</span> TO BE REMOVED | <span style="color: green;">●</span> ANCIENT TREE      |
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**DRAWING TITLE:**

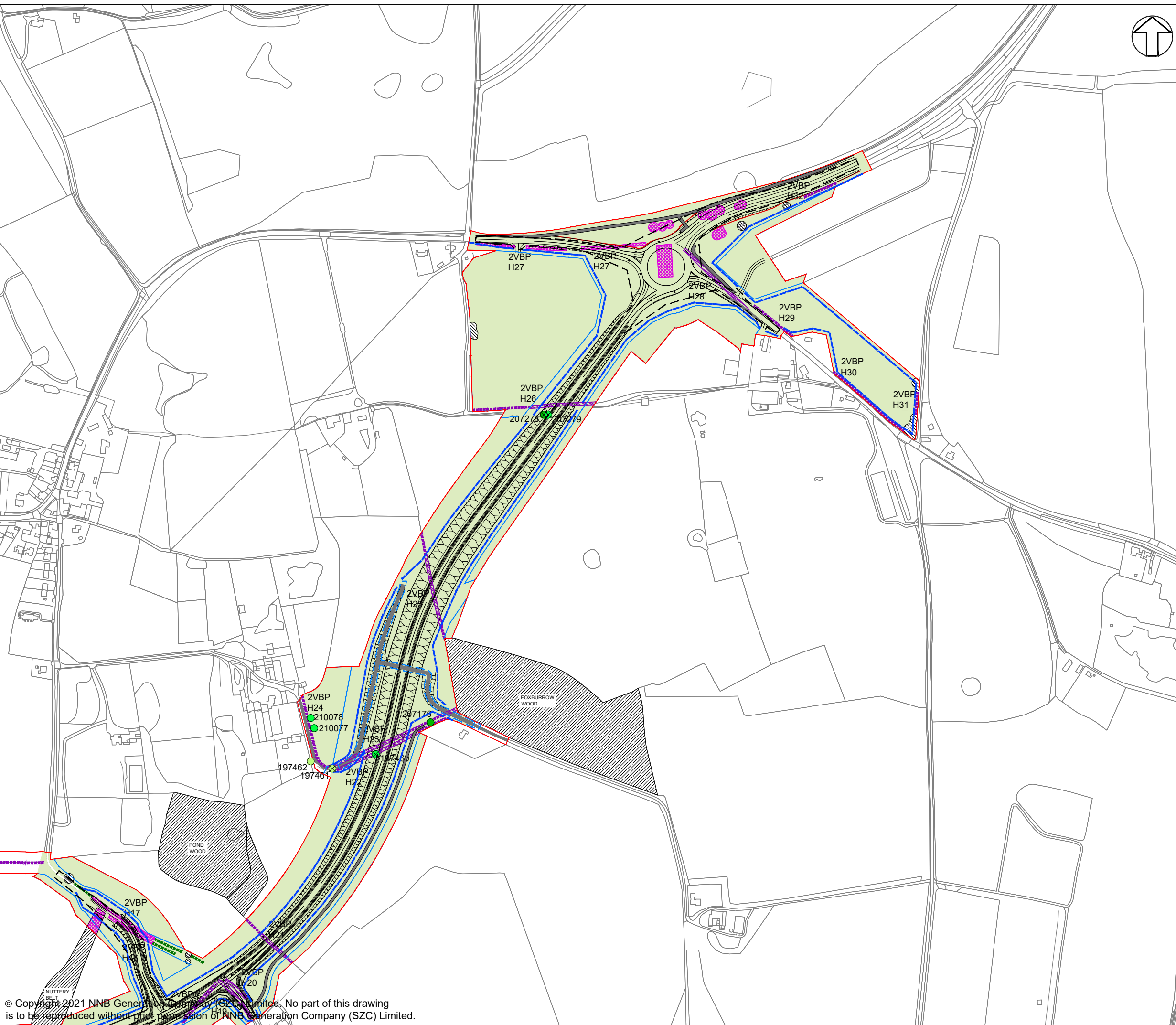
TWO VILLAGE BYPASS  
SITE CLEARANCE PLAN  
SHEET 2 OF 2  
ANCIENT AND VETERAN TREES ADDED

**DRAWING NO.:**

FIGURE 1.2

DATE: JULY 2021    DRAWN: J.B.    SCALE: 1:5000 @ A3    REVISION:

SCALE BAR:  
0 50 100 150m





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RESPONSE TO THE EXAMINING AUTHORITY'S REQUEST FOR FURTHER INFORMATION AT ISH7

**DRAWING TITLE:**

TWO VILLAGE BYPASS  
PROXIMITY OF SITE BOUNDARY TO WOODLAND  
AND RESIDENTIAL PROPERTIES  
SHEET 1 OF 2

**DRAWING NO.:**

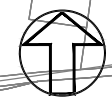
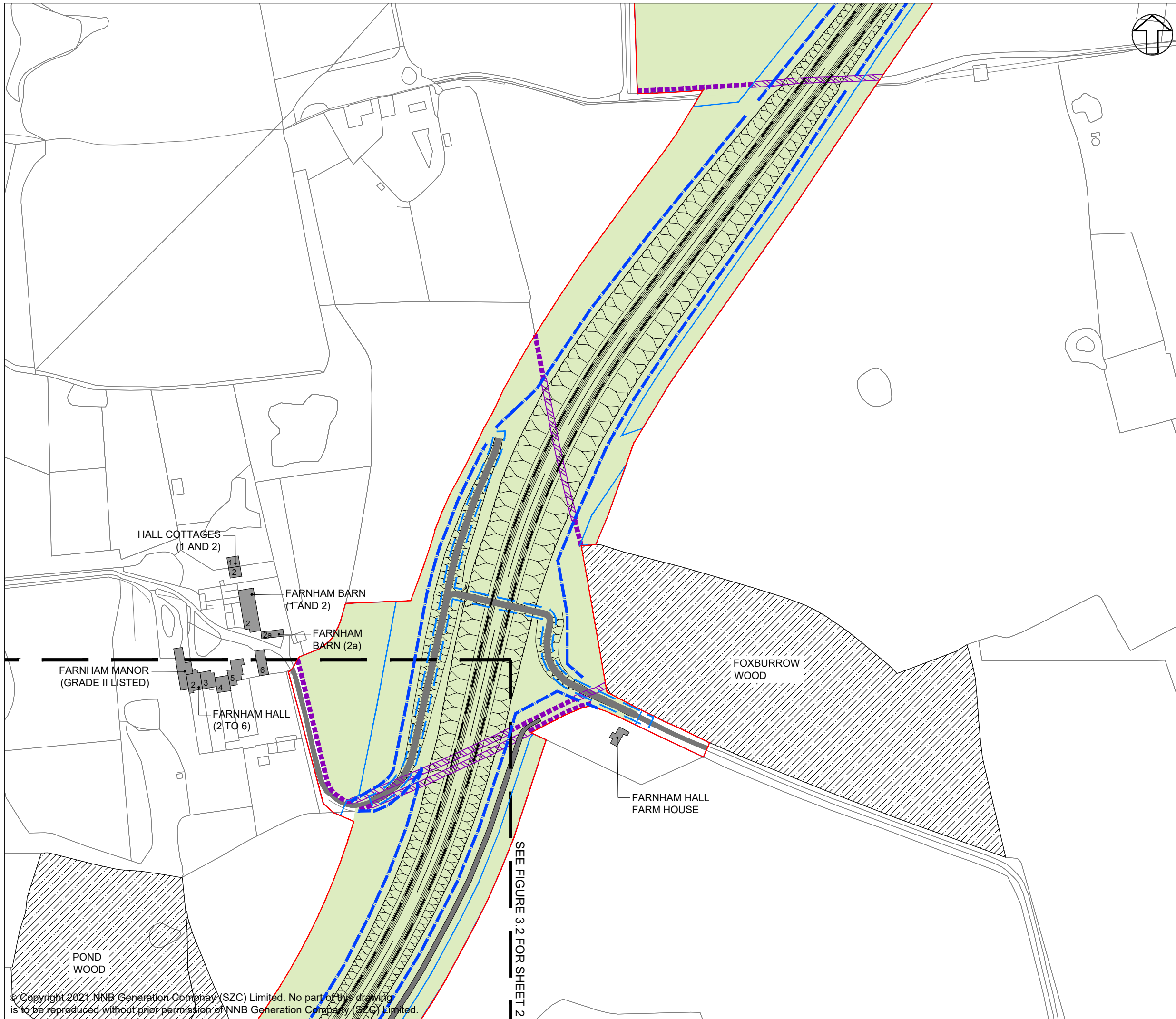
FIGURE 2.1

DATE: JULY 2021    DRAWN: J.B.    SCALE: 1:2500 @ A3    REVISION:

**SCALE BAR:**



SEE FIGURE 3.1 FOR SHEET 2



**NOTES:**

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**DRAWING TITLE:**

TWO VILLAGE BYPASS PROXIMITY OF SITE BOUNDARY TO WOODLAND AND RESIDENTIAL PROPERTIES SHEET 1 OF 2

**DRAWING NO.:**

FIGURE 2.2

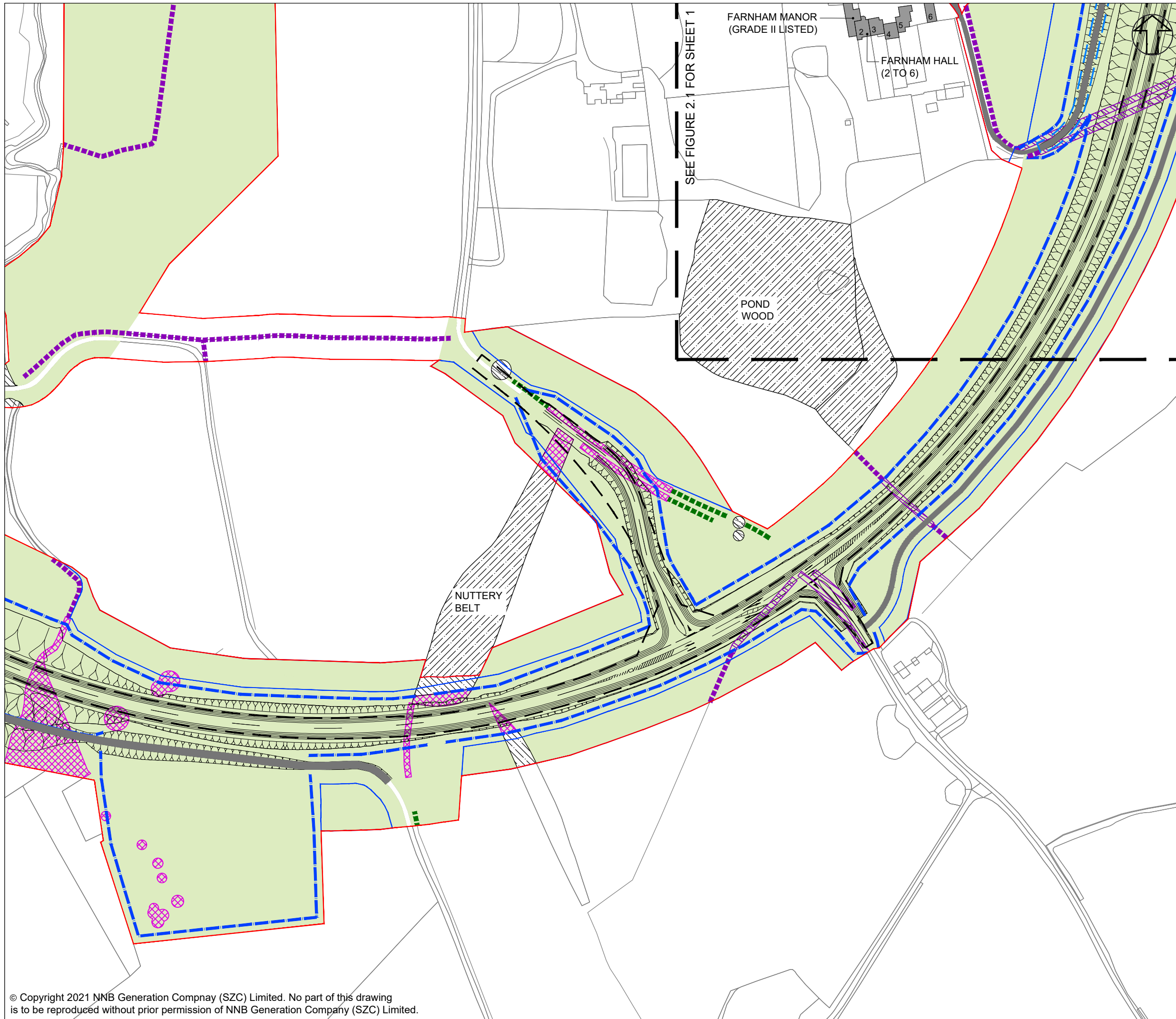
DATE: JULY 2021    DRAWN: J.B.    SCALE: 1:2500 @ A3    REVISION:

**SCALE BAR:**



SEE FIGURE 3.2 FOR SHEET 2





- NOTES:**
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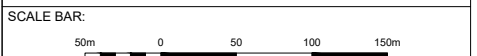


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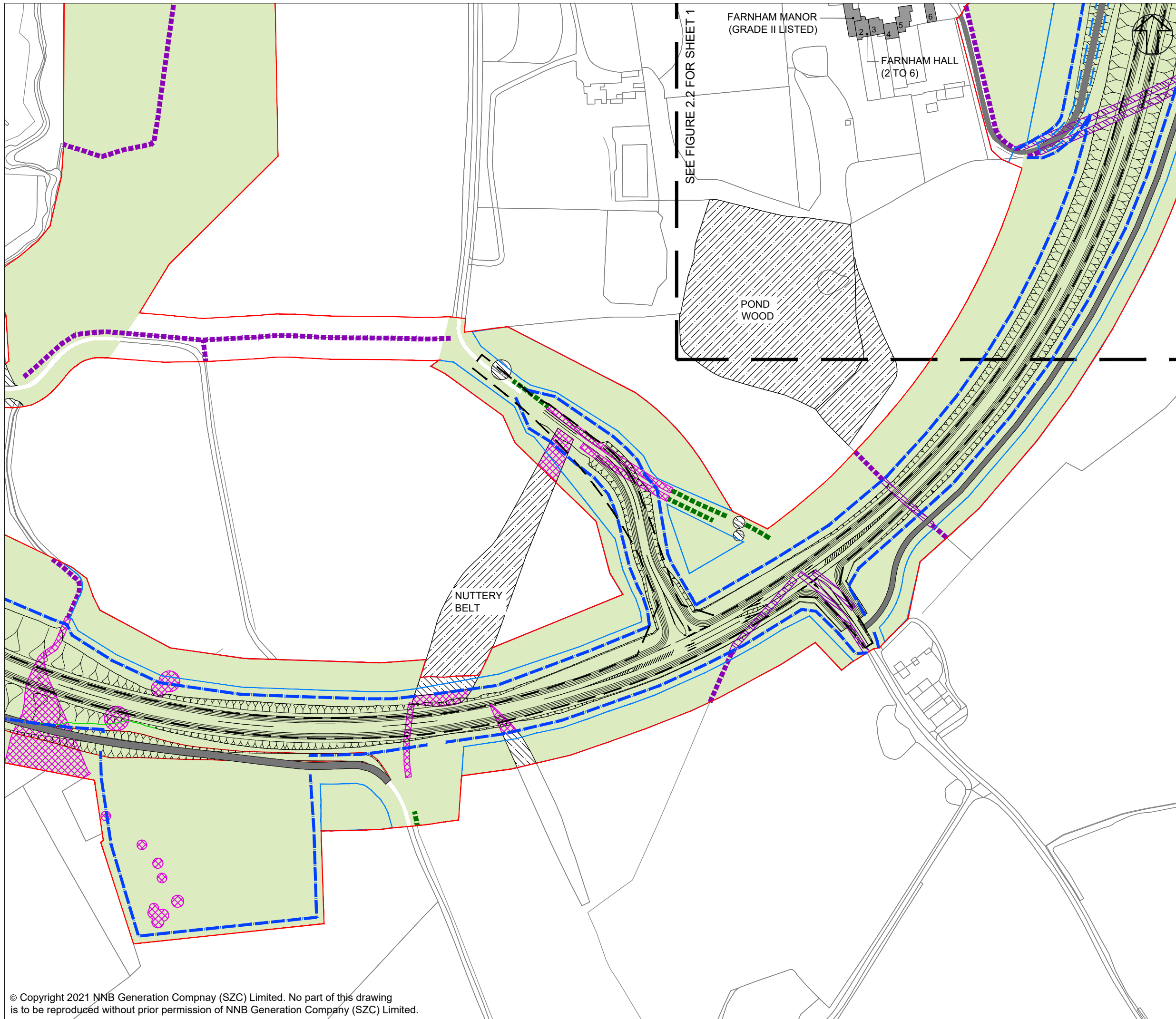
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 TWO VILLAGE BYPASS  
 PROXIMITY OF SITE BOUNDARY TO WOODLAND AND RESIDENTIAL PROPERTIES  
 SHEET 2 OF 2

**DRAWING NO:**  
 FIGURE 3.1

**DATE:** JULY 2021    **DRAWN:** J.B.    **SCALE:** 1:2500 @ A3    **REVISION:**



SEE FIGURE 2.1 FOR SHEET 1



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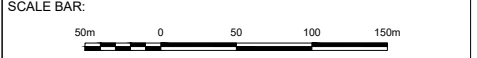


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 TWO VILLAGE BYPASS  
 PROXIMITY OF SITE BOUNDARY TO WOODLAND AND RESIDENTIAL PROPERTIES  
 SHEET 2 OF 2

**DRAWING NO:**  
 FIGURE 3.2

**DATE:** JULY 2021    **DRAWN:** J.B.    **SCALE:** 1:2500 @ A3    **REVISION:**



SEE FIGURE 2.2 FOR SHEET 1



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## APPENDIX E: RESPONSE TO KELSALE-CUM-CARLTON PARISH COUNCIL

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## PLATES

None Provided.

## FIGURES

None Provided

## ANNEXES

None Provided.

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# 1 RESPONSE TO KELSEALE-CUM-CARLTON PARISH COUNCIL

## 1.1 Introduction

1.1.1 The following response has been prepared following ISH 7 on the 15 July 2021 when Mr Lewis stated that SZC Co. would provide a review and respond to the surveys of the two village bypass site undertaken on behalf of Kelsale-cum-Carlton Parish Council. Having discussed the matter with the council, it can be confirmed that there are no additional stand alone survey reports and that the technical content is solely that provided in Section 6 of Kelsale-cum-Carlton Parish Council Written Representation [[REP2-351](#)].

1.1.2 In addition, it was agreed during a meeting with Kelsale-cum-Carlton Parish Council on the 27<sup>th</sup> July 2021 that SZC Co. would also provide a written response to additional relevant documents submitted to examination by Kelsale-cum-Carlton Parish Council at Deadline 5 [REP5-228 to REP5-234].

# 2 KELSEALE-CUM-CARLTON PARISH COUNCIL WRITTEN REPRESENTATION

2.1.1 Table 2.1 provides SZC Co.'s response to points raised with Section 6 of Kelsale-cum-Carlton Parish Council Written Representation [[REP2-351](#)].

**Table 2.1: SZC Co.’s response to points raised with Section 6 of Kelsale-cum-Carlton Parish Council Written Representation [REP2-351]**

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
6.1	<p>As the SLR proposal was only brought forward at Stage 3, the breadth, depth and temporal scope of surveying undertaken by the Applicant will invariably be more limited than might have been the case had the route been considered earlier on.</p>	<p>A full suite of the required ecological surveys has been undertaken to inform the Environmental assessment as informed by a Phase 1 habitats survey.</p> <p>Additional surveys have been undertaken in 2020 and 2021 following the DCO submission to further support the protected species licence process and finalise habitat mitigation proposals.</p>
6.2	<p>Consequently, the Parish Council understands why important details are missing from the inventory of KcC’s biodiversity and ecosystem assets. It is however aware that a number of Natura 2000 sites are present, notably to the eastern end of the proposed Link Road. We are aware that surveys are currently being undertaken by the Applicants Ecologists and no doubt a Habitat Regulations Assessment and where appropriate a full Appropriate Assessment will be provided in due course.</p> <p>We expect a full suite of surveys will be required for this project and this should include all potential compound sites as well as the length of the road. We anticipate this will include Phase I, botany, invertebrates, great crested newts</p>	<p>The shadow Habitats Regulation Assessment presented in [APP-145 to APP-152] and associated addenda considers the Sizewell link road. The shadow HRA considered the Sizewell link road and found that its construction and operation was not likely to have a significant effect on any European site.</p>

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Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
	<p>(and consideration of other amphibians) reptiles, breeding and wintering birds, bats, badgers, otter, water-vole and given a recent record in Saxmundham, dormouse. However, it will no doubt take some while to gain a full picture.</p>	<p>The following surveys have been undertaken of the Sizewell Link Road site:</p> <ul style="list-style-type: none"> <li>• extended Phase 1 habitat and protected species survey;</li> <li>• great crested newt (<i>Triturus cristatus</i>) Habitat Suitability Index (HSI1 ) and eDNA surveys of ponds;</li> <li>• ornithological surveys (breeding);</li> <li>• water vole (<i>Arvicola amphibius</i>) and otter (<i>Lutra lutra</i>) surveys;</li> <li>• bat activity, emergence/re-entry and static detector surveys; and</li> <li>• bat tree roost assessments.</li> </ul> <p>Full results of these surveys are provided in <b>Volume 6, Appendix 7A</b> of the <b>ES</b> <a href="#">[APP-462]</a>.</p> <p>In addition the following surveys were undertaken in 2020 as detailed in <a href="#">[AS-036]</a>:</p> <ul style="list-style-type: none"> <li>• Extended Phase 1 habitat and protected species survey</li> </ul>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		<ul style="list-style-type: none"> <li>• Great crested newt HSI (Habitat Suitability Index) survey</li> <li>• Bat tree assessment survey</li> </ul> <p>The following surveys have also been undertaken in 2020 and 2021:</p> <ul style="list-style-type: none"> <li>• Wintering birds <a href="#">[REP3-039]</a></li> <li>• Breeding Birds (results to be submitted at Deadline 7)</li> <li>• Bat Tree Roost <a href="#">[REP2-121]</a></li> <li>• Great Crested Newt (results to be submitted at Deadline 7)</li> <li>• Bat Crossing Point Surveys (results to be submitted at Deadline 7)</li> </ul>
6.3	Therefore, the Parish Council is taking this opportunity to begin to address this deficit as follows	No response provided.
6.4	Simpsons Fromus Valley Reserve: a significant nature reserve comprising over 27 acres of ancient woodland, ponds and meadows once part of a medieval deer park. It is one of the few semi natural stretches of the River Fromus in the Parish showing riffles and meanders absent elsewhere. It is located to the west of the A12 at Mile Hill, in close proximity to the proposed SLR roundabout. It is under the custodianship of a Charitable Trust chaired by the 5th Earl of Cranbrook.	<p>This reserve is located 500m south-west of the Two Village Bypass site.</p> <p>There is no direct land take from the site and as stated in <b>Table 7.11 of Volume 6, Chapter 7 of the ES</b> <a href="#">[APP-461]</a>, given the distance and the</p>
6.5	The Reserve is a legacy of Francis Simpson, MBE who for 60 years chronicled and grieved over – the price paid for progress by Suffolk's wildlife, especially its	implementation of the primary and tertiary mitigation measures, no direct



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Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
	wild flowers. He was Suffolk’s Botanical Recorder for more than 50 years and died in 2003. He was the author of the Flora of Suffolk published in 1982. He is probably most remembered for bringing to the attention of the public that “The survival of habitats must not be left to chance”.	or indirect impacts are anticipated on this non-statutory designated site.
6.6	Fromus Valley Reserve supports over 50 bird species including endangered species such as bullfinch, yellowhammer and skylark.	
6.7	The site also provides a wildlife haven attracting significant numbers of migrant birds in the winter, including fieldfares and redwings and acts as a refuge for resident bird species. It also supports a rich invertebrate fauna associated with grazing livestock.	
6.8	The Reserve is also notable for a number of books having been written by respected authors about the ecology and archaeology preserved in the Reserve.	
6.9	<p>Roadside Nature Reserves:</p> <p>a] Tiggins Lane (209): Area protected for boulder clay flora such as sulphur clover. (Please note, this road merges into Fordley Road which also has another Roadside Nature Reserve)</p> <p>b] near Coe Wood (187): Area protected for boulder clay flora such as sulphur clover</p> <p>c] Main Road, Kelsale: Area protected for the nationally rare and protected Sandy Stiltball Fungus (<i>Battarrea phalloides</i>)</p> <p>Note: Privately owned Tiggins Lane assets: Tiggins Meadow contains a diverse range of habitats including species-rich grassland on former arable, privately owned and managed primarily for nature conservation, directly adjoining</p>	<p>RNR 187 is located outside of the 2km study area. The locations of these can be viewed here:  <a href="https://www.suffolk.gov.uk/planning-waste-and-environment/suffolks-countryside-and-wildlife/landscape-and-wildlife/suffolks-roadside-nature-reserves-interactive-map/">https://www.suffolk.gov.uk/planning-waste-and-environment/suffolks-countryside-and-wildlife/landscape-and-wildlife/suffolks-roadside-nature-reserves-interactive-map/</a></p> <p>Whilst RNR Tiggins Lane (209) and Main Road, Kelsale (216) are located within the 2km study area for non-</p>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
	<p>Tiggins lane, and contiguous with Mabels Wood (privately owned) and managed as planted mixed deciduous woodland on former arable land as a family memorial and wildlife conservation area.</p>	<p>designated site (as defined in Table 7.4 of <b>Volume 6, Chapter 7</b> of the <b>ES [APP-461]</b>) there is no direct land take from the site and as stated in <b>Table 7.11 of Volume 6, Chapter 7</b> of the <b>ES [APP-461]</b>, given the distance (over 1km) and the implementation of the primary and tertiary mitigation measures, no direct or indirect impacts are anticipated on the non-statutory designated sites.</p>
6.10	<p>County Wildlife sites: In Suffolk there are approximately 900 County wildlife sites, 3 of which are in, or immediately adjacent to the Parish.</p> <p>a] Clay Hills known as the Kelsale Morio Meadow is a rare surviving traditionally managed unimproved meadow with the largest population of <i>Anacamptis morio</i> (green winged orchid) in Suffolk, together with its associated plant and invertebrate community.</p> <p>b] Lonely Wood: an Ancient Woodland designated for its typical woodland flora including Early Purple Orchid and Wood Anemone. Also important for saproxylic (decayed Wood) and other Invertebrates, Birds and Bats.</p> <p>c] Coe Wood: southern boundary (of Sibton) along KcC's northern boundary</p>	<p>Clay Hills and Lonely Wood are located outside of the 2km study area for non-designated site (as defined in Table 7.4 of <b>Volume 6, Chapter 7</b> of the <b>ES [APP-461]</b>).</p> <p>Coe Wood is located 2km north-west of the site.</p> <p>There is no direct land take from the site and as stated in <b>Table 7.11 of Volume 6, Chapter 7</b> of the <b>ES [APP-461]</b>, given the distance and the implementation of the primary and</p>

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Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		tertiary mitigation measures, no direct or indirect impacts are anticipated on the non-statutory designated sites.
6.11	Parish Biodiversity Group: The KcC Biodiversity Group has considerable expertise. The group study all areas of the Parish, logging their findings periodically with the Suffolk Biodiversity Information Service and updating their own Parish inventory, an example of which can be found on the Parish Council website at <a href="http://www.kelsalecarltonpc.org.uk">www.kelsalecarltonpc.org.uk</a> in the Environment section. The Group is gathering data on habitats and species within the parish with the aim of eventually producing a Parish Biodiversity Action Plan which can inform future biodiversity and development issues.	This point is noted and a response is provided below.
6.12	Activities have been curtailed during the pandemic, but their work up to that point has been recorded.	
6.13	A list of National and County Biodiversity Priority Species recorded in the Parish including any legally protected species is found below. In addition, the Group have added species that due to their scarcity in the Parish, are significant at a local level. Priority Species for Suffolk which have been recorded in KcC are listed below:	
6.13 [1]	A list of National and County Biodiversity Priority Species recorded in the Parish including any legally protected species is found below. In addition, the Group have added species that due to their scarcity in the Parish, are significant at a local level. Priority Species for Suffolk which have been recorded in KcC are listed below: 1] Mammals:	Extensive bat surveys have been undertaken of the Sizewell link road corridor including detailed bat roost surveys including ground based inspections in 2019 [APP-462] and 2020 [AS-036] and tree climbing surveys to inform the protected

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Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
	<p>1.1 Bats: Common Pipistrelle, Soprano Pipistrelle, Noctule, Brandt’s bat, Natterer’s Bat, and Brown-long-eared bat</p> <p>1.2 Brown Hares</p> <p>1.3 Harvest Mouse</p> <p>1.4 Hedgehog</p> <p>1.5 Water Vole</p> <p>1.6 Badger</p> <p>1.7 Otter</p> <p>In comparison Bats recorded at Minsmere include: Common Pipistrelle, Soprano Pipistrelle, Nathusius’ Pipistrelle, Noctual bat, Serotine bat, Natterer's bat, Daubenton's bat, Natter’s bat.</p>	<p>species licenses in 2021 [<a href="#">REP2-121</a>]. Bat activity and static detector surveys have been undertaken in 2019 [<a href="#">APP-462</a>] and in 2021 SZC Co are also undertaking surveys of bat crossing point surveys (results to be shared at Deadline 7) on the Sizewell link road to help inform the finalisation of woodland and hedgerow planting within the design of the road. The construction and operation of the Sizewell link road will not impact populations of these species within the KcC parish.</p> <p>A Phase 1 habitat survey of the Sizewell link road route did not identify a need to undertake detailed surveys of the other mammal species listed. The route is also most entirely arable fields, with hedgerows and small ditches. As explained orally at ISH 7 [<a href="#">REP5-112</a>], the Phase 1 survey did not define a requirement to survey for these groups in the EIA context.</p>

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		<p>No evidence of badger was recorded within the site in 2019 or 2020 although it is possible they utilise woodland and hedgerows and arable margins within the site for foraging [<a href="#">APP-462</a> and <a href="#">AS-036</a>].</p> <p>In respect of otters and water voles, the water courses are very small (varying from 80cm to 1.2m at bed level and during survey in 2019 on only two of six visited held water) and most have no marginal vegetation. The watercourses are not suitable for resident populations of either otters or water voles although the portal culverts provided under the Sizewell link road will facilitate the dispersal of these species from areas such as the Minsmere reserve from the north if individuals do disperse along these small watercourses.</p> <p>The construction and operation of the Sizewell link road will not impact</p>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		populations of these species within the KcC parish.
6.13[2]	<p>2] Birds:</p> <ul style="list-style-type: none"> <li>1.1 Barn Owl (breeding at two or more sites)</li> <li>1.2 Cuckoo</li> <li>1.3 Bullfinch (locations in scrub/dense hedgerows)</li> <li>1.4 Lapwing</li> <li>1.5 House Sparrow (breeding at two or more sites)</li> <li>1.6 Linnet</li> <li>1.7 Marsh Tit</li> <li>1.8 Mistle Thrush</li> <li>1.9 Nightingale</li> <li>1.10 Skylark</li> <li>1.11 Spotted Flycatcher</li> <li>1.12 Swift, Swallow</li> <li>1.13 Song Thrush</li> <li>1.14 Starling</li> <li>1.15 Red Kite</li> <li>1.16 Turtle Dove</li> <li>1.17 Buzzard</li> <li>1.18 Yellowhammer</li> </ul> <p>All species above are on the UK Red List - most vulnerable bird species of conservation concern apart from red kite, buzzard, swift and swallow which are not currently on the list</p>	<p>Both breeding [<a href="#">APP-462</a>] and wintering [<a href="#">REP3-039</a>] surveys have been undertaken of the Sizewell link road site, with additional breeding bird surveys being undertaken in 2021 (results to be submitted at deadline 7).</p> <p>During the 2019 breeding bird surveys [<a href="#">APP-462</a>] a small number of BoCC Red List species were observed during the breeding bird surveys, including skylark, song thrush, linnet, yellow wagtail, kestrel and yellowhammer. All are considered to be potentially breeding within the site, with skylark the most numerous with up to ten individuals recorded.</p> <p>During the 2020/2021 wintering bird surveys, 61 bird species were recorded. Of the species recorded, six</p>

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		<p>were listed as Schedule 1, 15 were included of the BoCC red list and 13 on the amber list. Additionally, 12 species were listed under S41 of the NERC Act and 31 species of no conservation concern were recorded. The species recorded included Bullfinch, Lapwing, House Sparrow, Linnet, Marsh Tit, Skylark, Song Thrush, Starling, Red Kite and Yellowhammer.</p> <p>The construction and operation of the Sizewell link road will not impact populations of these species within the KcC parish.</p>
6.13 [3]	3] Reptiles: Common Lizard, Slow worm, Grass Snake	<p>No targeted reptile surveys were conducted due to the limited extent of suitable habitat within the site. It was assumed that the hedgerow network on site could support a small population of common reptile species; however, there is better quality habitat within the wider area outside the Zone of Influence to support reptiles. An incidental reptile sighting was noted</p>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		<p>during a bird transect survey in 2019, an adult grass snake was observed basking at the base of a hedgerow, south of B1122 Yoxford Road within the site boundary.</p> <p>Within the site boundary, most of the land comprises arable fields with a small portion of semi-improved grassland to the south-east. The margins of the arable fields present within the site are regularly ploughed and therefore have limited potential to provide sheltering and foraging habitat for common reptile species. The arable fields themselves are also considered sub-optimal to support reptiles. The available habitat to support reptile species within the site is considered to be extremely limited and the site considered to be of little value to reptile species.</p> <p>The construction and operation of the Sizewell link road will not impact</p>



Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		populations of these species within the KcC parish.
6.13 [4]	4] Amphibians: Common Toad, Great Crested Newt, Smooth Newt,	<p>Great Crested Newt surveys were undertaken in 2019 [APP-462] and have been updated in 2021. The survey results of the 2021 survey will be submitted at Deadline 7 and have been used to inform the draft licence for the site.</p> <p>In 2019, eDNA surveys were undertaken of 27 ponds along the Sizewell link road route and great crested newts were confirmed within 13 ponds (4 within the order limits). There was no access to a total of 53 ponds which were targeted for survey (but see 2021 below).</p> <p>While great crested newts are distributed throughout the Zone of Influence, the majority of the site consists of arable fields which are of limited suitability to great crested newts. The field margins, hedgerows</p>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		<p>and blocks of woodland comprise suitable foraging habitat, with the woodland providing suitable hibernation sites, and hedgerows providing connectivity between ponds.</p> <p>Whilst the full findings of the 2021 surveys have not yet been submitted to examination, in summary: eDNA surveys were undertaken of 119 ponds along the route in 2021, 16 ponds had no access 8 ponds are within Sizewell link road site, please see <b>Sizewell Link Road Clearance Plans</b> [<a href="#">REP5-026</a>]. Of these:</p> <ul style="list-style-type: none"> <li>• 1 was dry but due for retention and enhancement (P165)</li> <li>• 1 was GCN negative (P046)</li> <li>• 6 were GCN positive, of these: <ul style="list-style-type: none"> <li>○ 2 are to be retained (P041 and P045)</li> <li>○ 4 are to be lost, of these <ul style="list-style-type: none"> <li>▪ 2 are to be lost permanently (P120 and P164)</li> </ul> </li> </ul> </li> </ul>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		<ul style="list-style-type: none"> <li>▪ 2 are to be reinstated (P119 and P036)</li> </ul> <p>The construction and operation of the Sizewell link road will not impact populations of these species within the KcC parish given the mitigation measures proposed to maintain the status of these population and the distance from populations present in KcC parish.</p>
6.13 [5]	<p>5] Invertebrates:</p> <p>1.1 Grayling butterfly</p> <p>1.2 White Admiral butterfly</p> <p>1.3 White-letter Hairstreak butterfly</p> <p>1.4 Horehound Longhorn Moth</p> <p>1.5 <i>Longitarsus quadriguttatus</i> Hound’s tongue leaf beetle Nationally Rare (1 site)</p> <p>1.6 <i>Oedemera femoralis</i> a thick-kneed flower beetle Nationally Scarce (3 sites)</p> <p>1.7 <i>Gorytes laticinctus</i> a solitary wasp (RDB3) species (the 8th Suffolk record)</p>	<p>No targeted invertebrate surveys were conducted of the Sizewell link road in 2019 as the habitats identified during the Phase 1 survey did not define any habitats likely to support valuable invertebrate assemblages.</p> <p><b>Volume 5, Appendix 7A</b> of the <b>ES [APP-462]</b> notes the majority of the site comprises arable fields. The broadleaved woodland blocks present within the site and species-rich hedgerows are of some value to</p>

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		<p>invertebrates; in particular common butterfly and moth species. Primary mitigation measures, such as elm planting for white-letter hairstreak have been considered and described in <b>section 7.5 of Chapter 7 of Volume 6</b> of the ES [<a href="#">APP-461</a>]. Invertebrates have therefore been scoped out of the detailed assessment.</p> <p>The construction and operation of the Sizewell link road will not impact populations of these species within the KcC parish.</p>
6.13 [6]	<p>6] Plants  <i>Achillea ptarmica</i> Sneezewort (1 site)  <i>Allium ursinum</i> Ramsons, Wild Garlic (3 sites)  <i>Anacamptis pyramidalis</i> Pyramidal orchid (3 sites)  <i>Anacamptis morio</i> Green winged orchid  <i>Cardamine pratensis</i> Lady's Smock, Cuckoo Flower, Milkmaids (4+ sites)  <i>Clinopodium vulgare</i> Wild Basil (2 sites)  <i>Cynoglossum officinale</i> Houndstongue (1 site)  <i>Dactylorhiza fuchsii</i> Common Spotted Orchid (3 sites)  <i>Dactylorhiza praetermissa</i> Southern Marsh Orchid (1 sites)</p>	<p>A summary of the plants and habitats recorded on the Phase 1 habitat survey in 2019 are provided in paragraphs 1.5.12 to 1.5.26 of <b>Volume 5, Appendix 7A</b> of the ES [<a href="#">APP-462</a>].</p> <p><b>Section 4 of the Sizewell Link Road 2020 Ecology Surveys</b> [<a href="#">AS-036</a>]</p>

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	<p><i>Daphne laureola</i> Spurge Laurel (3 sites)  <i>Fritillaria meleagris</i> Snakeshead Fritillary (1 site*)  <i>Galaeobdolon luteum</i> Yellow Archangel (1 site)  <i>Knautia arvensis</i> Field Scabious (3 sites)  <i>Lathyrus nissolia</i> Grass Vetchling (1 site)  <i>Lepidium heterophyllum</i> Smith's pepperwort (1 site)  <i>Lithospermum officinale</i> Common Gromwell (1 site)  <i>Odontites verna</i> Red Bartsia (5 sites)  <i>Ophioglossum vulgare</i> Adders Tongue Fern (1 site)  <i>Ophrys apifera</i> Bee Orchid (2 sites)  <i>Orchis mascula</i> Early Purple Orchid (2 Sites)  <i>Orobanche minor</i> Common Broomrape (1 site)  <i>Palanthera chlorantha</i> Greater Butterfly Orchid (1 site)  <i>Ranunculus auricomus</i> Goldilocks Buttercup (2 sites)  <i>Rhinanthus minor</i> Yellow Rattle (3 sites +1*)  <i>Scrophularia aquatica</i> Water Figwort (1 site)  <i>Trifolium fragiferum</i> Strawberry Clover (1 site)</p>	<p>provides an updated description of the habitats recorded on site.</p> <p>The construction and operation of the Sizewell link road will not impact populations of the species listed, within the KcC parish.</p>
6.13 [7]	<p>7] Fungus  Sandy Stiltball. (<i>Battarrea phalloides</i>)</p>	<p>No fungi species were recorded during either the 2019 or 2020 Phase 1 Habitat Surveys.</p> <p>The construction and operation of the Sizewell link road will not impact populations of these species within the KcC parish.</p>

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Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
6.14	In addition to public ‘space’, the Biodiversity Group also survey particular areas of private land in the Parish (by invitation or with the owner’s permission) and have surveyed 2 areas near the proposed SLR; Fir Tree Farm & Kelsale Lodge	Responses provided below.
6.15	Fir Tree Farm was surveyed in 2019, and extracts of the report are below	
6.15 [a]	<p>Description of area: Scrub is a poorly represented habitat within the Parish, and this area is one of the most extensive present. The area has potential to support a wide range of biodiversity and act as a reservoir of wildlife for the wider countryside. If managed sensitively it could develop an even richer flora and fauna over time. Ponds elsewhere on site and on adjacent land are an important addition to the habitat mosaic present.</p> <p>The scrub field is important for protected species such as great-crested newt (terrestrial phase) and also for foraging bats, birds, reptiles and invertebrates.</p>	Fir Tree Farm is located adjacent to the north of the Sizewell link road site and would not be directly affected by the construction or operation of the proposed Sizewell link road.
6.15 [b]	<p>Notable species: Great-crested newt (<i>Triturus cristatus</i>) is known to be present in ponds in the vicinity (see earlier ecological survey) and the scrub area will be very important for the terrestrial phase of the lifecycle of this protected species.</p> <p>In addition, the habitat appears to be eminently suitable for protected reptiles such as Common Lizard (<i>Zootoca vivipara</i>) and Slow-worm (<i>Anguis fragilis</i>) as well as Grass snake (<i>Natrix natrix</i>). Weather conditions were not suitable for these species to be observable, but their presence could easily be confirmed by survey, utilising tin or felt refugia.</p>	<p>As stated above, the habitats present at Fir Tree Farm would not be affected directly by the construction or operation of the proposed Sizewell link road.</p> <p>Mitigation measures relating to the control of noise and light pollution during the construction and operation of the Sizewell link road are detailed within the <b>Associated Development Design Principles [REP2-041]</b> and</p>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
	<p>The habitat mosaic would certainly be expected to support many species of insects such as butterflies, bees, beetles, grasshoppers etc. as well as other invertebrates.</p> <p>Evidence of the immature stages of a picture-winged fly <i>Myopites inulaedyssenteriae</i> were abundant on fleabane (<i>Pulicaria dyssenterica</i>). This nationally rare species is accorded Red Data Book 3 (RDB3) status. However, this may be revised in the light of further studies. Further survey under more favourable conditions would doubtless add substantially to both floral and faunal species lists.</p>	<p><b>Code of Construction Practice [REP5-078]</b>. An additional summary is included within <b>Section 7.5</b> of <b>Volume 6, Chapter 7</b> of the <b>ES [APP-461]</b>.</p> <p>No further response is considered necessary.</p>
6.15 [c]	<p>Connectivity: Individual habitats cannot thrive in isolation, and for example fields by the Fir Tree Farm are linked to the wider countryside and other semi-natural habitats by hedgerows of varying quality, with the A12 forming a considerable barrier to the west.</p> <p>Another busy, new road would further fragment this connectivity, as well as having an adverse effect on more mobile species such as Badger (a protected species), Brown Hare (a BAP species) as well as hedgehog and deer species, leading to an increase in road kill deaths and accidents, already all too familiar on the A12.</p> <p>Other impacts on wildlife of a new road and associated construction infrastructure are light and noise pollution, both during construction and from street lighting and passing traffic after construction. These will have a profound effect on the scrub and associated areas nearby.</p>	<p>Fragmentation has been assessed in the <b>Volume 6, Chapter 7</b> of the <b>ES</b>. Please refer to Tables 7.14 (construction) and 7.15 (operation) for a summary of the residual effects <b>[APP-461]</b>.</p> <p>Mitigation measures relating to the control of noise and light pollution during the construction and operation of the Sizewell link road are detailed within the <b>Associated Development Design Principles [REP2-041]</b> and <b>Code of Construction Practice [REP5-078]</b>. An additional summary is</p>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
	<p>Light pollution is known to adversely affect foraging in some bat species as well as interfering with bird reproductive cycles and migration patterns. Nocturnal invertebrates can also suffer negative impacts from intense illumination sources.</p> <p>Whilst wildlife can in some cases adapt to some background noise, more sensitive species are likely to be repelled or otherwise negatively affected and suffer disturbance from such pollution.</p> <p>The A12 is already a source of noise and light pollution and additional road construction will further compound such pollution</p>	<p>included within <b>Section 7.5 of Volume 6, Chapter 7</b> of the ES [<a href="#">APP-461</a>].</p> <p>Comments made above in relation to otter and water vole, in response to paragraph 6.13 [1], are also relevant here.</p> <p>The effects of fragmentation will not affect the identified species within the KcC parish.</p>
6.16	<p>The Dasgupta Review, was published in February 2021 and a quote from Inger Andersen, UN Under-Secretary-General and Executive Director of the UN Environment Programme is as follows:</p> <p>“The message from the Dasgupta Review on the Economics of Biodiversity is loud and clear: we must fix our relationship with the natural world or destroy human prosperity, well-being and our future. And it is with this knowledge in hand that in 2021 we must seek to join up the climate and nature agendas, and arrive at an ambitious, measurable and accountable post2020 global biodiversity framework. To secure nature is to invest in our own self-preservation.”</p>	This point is noted.
6.17	By proposing the SLR in our Parish, not far from the existing access road to Sizewell at Yoxford and ‘driving’ the traffic up the A12 further north than	SZC Co. acknowledges the presence of the hedgerows described however



Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
	<p>necessary, not only human residents will suffer severance. Please note in addition to wildlife rich verges that the Parish also has a rich source of mature hedgerows which weave around and interconnect the Parish providing significant biodiversity gain</p>	<p>these are considered to be part of the baseline rather than providing 'net gain'.</p> <p>As identified in the <b>Sizewell Link Road Proposed Landscape Masterplan And Finished Levels [REP2-056]</b> hedgerows will be retained where possible and additional hedgerow planting will be provided.</p>
6.18	<p>Britain's biodiversity is the worst amongst the G7, based on the Biodiversity Intactness Index [BII].</p>	<p>No response provided.</p>
6.19	<p>The information on some of the recorded biodiversity in KcC has been studied over many years by respected ecologists. (See Sources Section 16) You will note there are a number of protected species in the Parish, those listed in S41 of the Natural Environment and Rural Communities Act 2006 and those which have been given a conservation status. There are also many ponds which are a Priority Habitat, and a hydrological assessment must be undertaken to ensure runoff and changes in hydrology do not affect ponds for example at Fir Tree Farm.</p>	<p>The only protected species identified to be present within the Sizewell link road site are reptiles, bats and great crested newt. Draft Licences were submitted as part of the <b>Volume 5, Appendix 7A</b> of the <b>ES [APP-462]</b>. Updated draft licences are being prepared and will be submitted to Natural England at Deadline 7 with the aim of obtaining agreement in principle for the mitigation strategies through a Letter of No Impediment.</p>

Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		<p>Reptiles will be managed in accordance with Sizewell link road <b>Reptile Non-Licensable Method Statement</b> [<a href="#">APP-462</a>].</p> <p>SZC Co, are also seeking to utilise Natural England's <b>District Level Licence</b> for the scheme as an alternative 'landscape-scale' approach to GCN conservation; helping to create and restore a network of ponds across the district. As stated above habitats present at Fir Tree Farm would not be affected directly or in-directly by the construction or operation of the proposed Sizewell link road.</p>
6.20	<p>We understand that bat surveys have been in progress during April but must raise the point that throughout April, the Parish had no rain, but frosts virtually every night and this would not have been a suitable time for the start of a bat survey as they do not like cold nights, it has to be 8-10 degrees before they appear.</p>	<p>With regards to crossing point surveys, every effort was made to avoid periods of unsuitable weather (&lt;8 degrees or in rain or high winds). Due to the cold weather in some cases this was unavoidable and some of the April 2021 surveys were below</p>



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Paragraph reference	Kelsale-cum-Carlton Parish Council Comment	SZC Co. Response
		the 10 degrees. This has been recognised as a limitation of the surveys. Over the months of April, May, June and July in 2021 SZC Co. have ensured that each location has been surveyed at least twice (in most cases three times) in suitable temperatures and weather. The findings of the surveys will be submitted at Deadline 7.

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### 3 COMMENTS ON DOCUMENTS SUBMITTED TO EXAMINATION BY KELSEALE-CUM-CARLTON PARISH COUNCIL AT DEADLINE 5

#### 3.1 Overview

3.1.1 SZC Co. have reviewed Kelsale-cum-Carlton Parish Council’s Post Hearing Submission Including Written Submission of Oral Case ISH7 [REP5-235] and have provided a response to the four issues raised below:

- Response to [REP2-351](#);
- Biodiversity Net Gain;
- Presence of Otter; and
- Fragmentation of red deer.

#### 3.2 Response to REP2-351

##### a) Kelsale-cum-Carlton Parish Council’s Comment

3.2.2 *“Our Parish is of the opinion that insufficient surveys have been carried out over long enough periods of time and therefore feel it necessary to supply a survey of its own to supplement the Applicants understanding of the area.*

3.2.3 *The Parish Council awaits with interest the response from the Applicant to our detailed report [Rep2 – 351].”*

##### b) SZC Co. Response

###### Adequacy of surveys

3.2.4 A response to this point is provided in **Table 2.1** of this written submission and are not repeated here.

###### Kelsale-cum-Carton Parish Council Survey Reports

3.2.5 Survey reports identified in the comment above have not been provided in full to SZC Co. and we have therefore been unable to undertake a full and detailed review. From the extracts included with [REP2-351](#) it is clear that the surveys undertaken are not in the immediate vicinity or of the Sizewell link road site itself.

3.2.6 A response to the extract of the survey reports is included within **Table 2.1** of this written submission and are not repeated here.

### 3.3 Biodiversity Net Gain

#### a) Kelsale-cum-Carlton Parish Council's Comment

3.3.2 *"I think it very naïve to suppose that a net biodiversity gain could ever come out of such a destructive project. In any case how is this 'gain' to be measured?"*

3.3.3 *The convenient (to developers) myth that quality habitats can be created to replace existing ones, at least short term, just doesn't stack up. It is on a par with the old habitat translocations of the past where habitat was scooped up and put somewhere else because it was in the way of development - all unmitigated failures.*

3.3.4 *How can any compensatory habitat ever hope to compare, on a comparatively short term, with an existing habitat established over possibly hundreds/thousands of years?*

3.3.5 *The point about time taken to establish new habitats is valid, even if well created these won't produce any net biodiversity gain at least for the duration of the project and probably for many years after.*

3.3.6 *Some species are very specialised in their requirements and relatively immobile and have limited capacity to spread from their chosen habitats, whilst other less specialised, more mobile and can quickly occupy new areas. The latter tend to be generalists which are more widespread anyway.*

3.3.7 *How is biodiversity gain defined? would it be deemed to be a successful outcome if widespread species increase but at the expense of scarce ones.*

3.3.8 *Is bioabundance as desirable as biodiversity? I think not.*

3.3.9 *Lastly, the concept of reptile translocations as a means of mitigating for habitat destruction is a flawed one. Very few follow-up studies of reptile translocations have been carried out in the UK and those that have suggest that translocated reptiles eventually fail to establish successfully at the receptor site.*

3.3.10 *I doubt if the sites created within the wooded area are suitable habitat anyway - wouldn't there be reptiles there already and if so, how will they compete for resources with the incoming population?*

3.3.11 *The new 'habitat' will certainly require intensive annual maintenance to keep it open and in a suitable condition. "His colleague Mr Cuthbert wholly agreed with the above comments regarding biodiversity gain.*

3.3.12 *He went on to say, "...this is extremely unlikely in the short- term and new habitats will require decades of sustained management if the full range of species is to be restored, perhaps never, although some will return quite quickly as you say"*

b) SZC Co. Response

3.3.13 The Department for Environment Food and Rural Affairs (Defra) states that *"Development that adopts a biodiversity net gain approach seeks to make its impact on the environment positive, delivering improvements through habitat creation or enhancement after avoiding or mitigating harm as far as possible. Based on a standardised approach, biodiversity net gain delivers measurable improvements by comparing habitat losses and gains and steering mitigation and compensation accordingly.... A metric helps to measure biodiversity losses and gains in a more transparent and verifiable way and provides a common reference point for agreement"* (Ref. 1). The Regulatory Policy Committee also state that *"Biodiversity net gain is defined in the IA as an overall increase in habitat area and/or quality following a new development"* (Ref. 2)

3.3.14 As explained in [\[REP5-090\]](#) SZC Co. has undertaken an assessment of biodiversity net gain for the Sizewell link road site using Metric 2.0 which was developed by Defra in collaboration with Natural England (December 2019). Further information on the metric and its purpose is provided in the **Sizewell Link Road Biodiversity Net Gain Report** [\[REP5-090\]](#) and is not repeated here. In summary, the metric is based on a calculation of baseline units compared to post-development units and there is no opportunity to take account of other variables.

3.3.15 SZC Co has prepared the **Sizewell Link Road Landscape and Ecology Management Plan (LEMP)** [\[REP5-076\]](#) to provide clear objectives and principles for the establishment and long -term management of the landscape and ecological mitigation proposals identified for the soft estate within the Sizewell link road site. The aim of the **LEMP** is to ensure post-construction habitats are created correctly and managed for their successful establishment and integrated within the surrounding landscape.

3.3.16 Reptiles will be managed in accordance with Sizewell link road **Reptile Non-Licensable Method Statement** [\[APP-462\]](#). Additional information on monitoring in relation to reptiles during construction can be found within

Table 4.5 of Section 4.6 of the **Terrestrial Ecology Mitigation and Monitoring Plan (TEMMP)** [[REP5-088](#)].

### 3.4 Presence of Otter

#### a) Kelsale-cum-Carlton Parish Council's Comment

3.4.2 *"I have personally witnessed otters in East Green, Kelsale on more than one occasion. They seem to like emptying the many ponds and remnant moats of the Green, of their fish stock! They are listed as present by the Biodiversity Group, and this information was included in our REP2-351. Suffolk Wildlife Trust (SWT) also visited a pond in Curlew Green and confirmed the presence of otters in that part of the Parish.*

3.4.3 *By way of an update, in June 2021 one of our team found a dead adult Otter close to the cement works. It was badly flattened but relatively fresh, probably killed by traffic a day or two earlier.*

3.4.4 *This location lays just outside the parish boundary (in Theberton Parish), but it was obviously moving around the area, well away from a main watercourse.*

3.4.5 *I am advised by the finder (a member of the biodiversity team) this is not really unexpected as Otters (especially males) are more likely to wander in search of food of all kinds, a mate, or to explore potential breeding territories.*

3.4.6 *His understanding is that Otters are now well established in most of the main rivers and streams in Suffolk, perhaps even to population capacity, and may turn up almost anywhere. He expects the Otter Group of SWT could advise on this."*

#### b) SZC Co. Response

3.4.7 Please see response to paragraph 6.1 of [REP2-351](#) in **Table 2.1** of this written response.

### 3.5 Fragmentation of Red Deer

#### a) Kelsale-cum-Carlton Parish Council's Comment

3.5.2 *"Again, referred to in REP2-351, but our comments reinforced by Mr Langton. Deer from the coast travel through our Parish in the area in which the Link Road is proposed, across the A12 and on to other areas such as the Simpsons Fromus Reserve which was a medieval deer park with connections to Framlingham.*

- 
- 3.5.3 *We are concerned that a reasonable ‘base case’ has not been achieved, as had it been, there would surely have been provision in the SLR design for large mammal safeguards.”*
- b) SZC Co. Response
- 3.5.4 The width of the proposed Sizewell link road is very similar to that of the existing B1122 and therefore no additional measures to safeguard for large mammals are considered necessary.



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## 4 REFERENCES

1. Defra, 2018, Net gain: Consultation proposals, [Online] available on:  
[https://consult.defra.gov.uk/land-use/net-gain/supporting\\_documents/netgainconsultationdocument.pdf](https://consult.defra.gov.uk/land-use/net-gain/supporting_documents/netgainconsultationdocument.pdf)
2. Regulatory Policy Committee, 2019, Biodiversity net gain, [Online] available on:  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/858037/2019.06.06 - RPC-4277 2 -DEFRA-EA biodiversity net gain.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/858037/2019.06.06_-_RPC-4277_2_-_DEFRA-EA_biodiversity_net_gain.pdf)

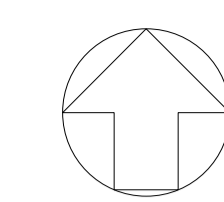


**NOT PROTECTIVELY MARKED**

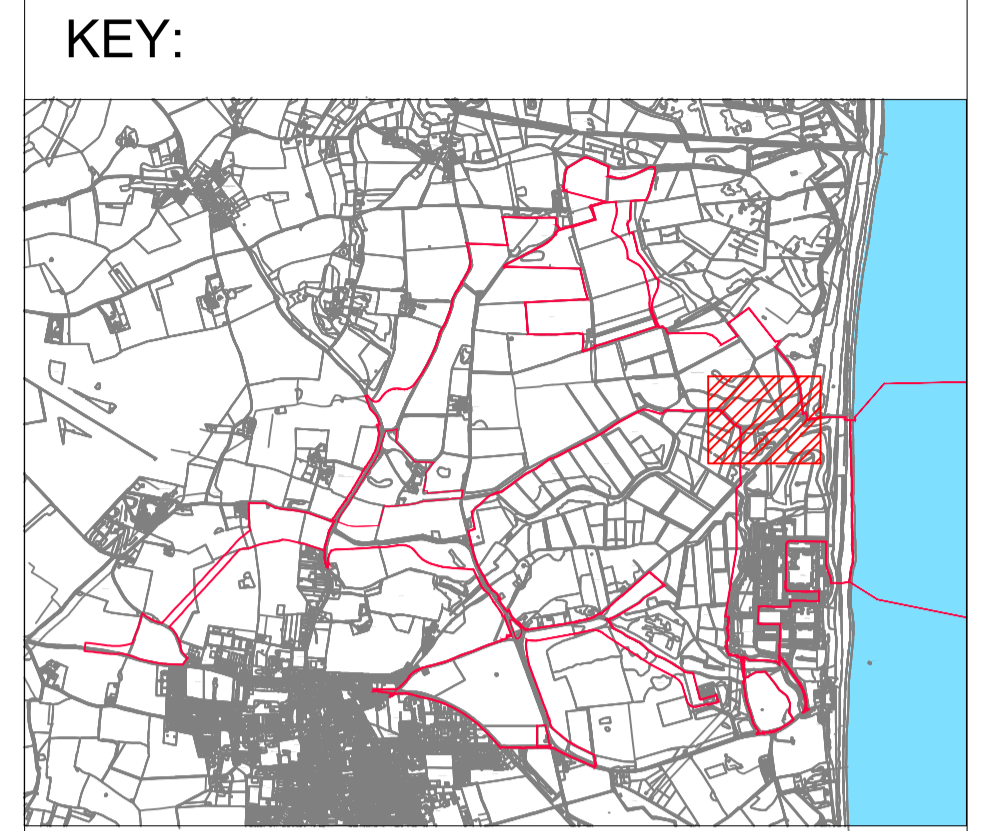
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## APPENDIX F: SSSI CROSSING LAND TAKE CALCULATION

**NOT PROTECTIVELY MARKED**



**NOTES:**  
 1. ALL LEVELS ARE IN METRES ORDNANCE DATUM ( mOD ) UNLESS NOTED OTHERWISE.  
 2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.



**LEGEND:**

- PROJECT BOUNDARY
- SIZEWELL MARSHES SSSI

01	JUNE 2021	NJ	RV	P2 - Published for Costing	SZC Co
REVISION	DATE	DRAWN/CHECKED	REASONS FOR REVISION / COMMENTS	APPROVED	

NOT PROTECTIVELY MARKED

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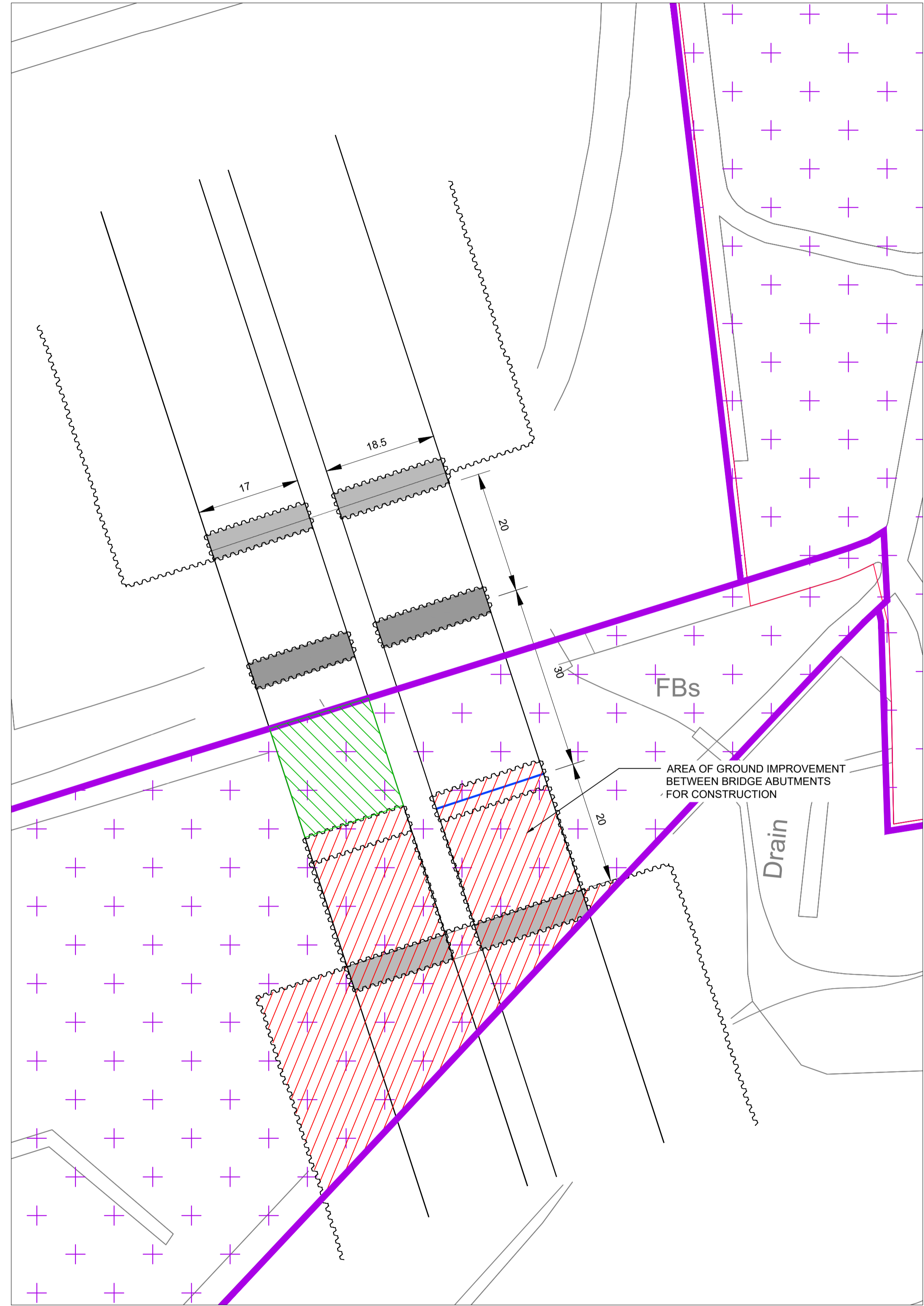
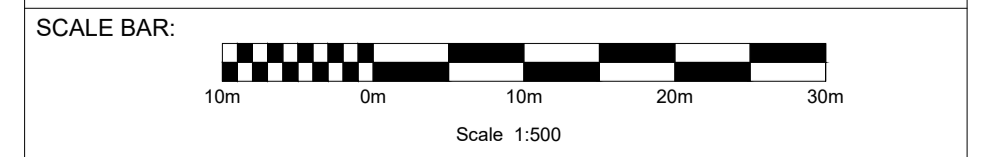
**PROJECT:**  
 SIZEWELL C

**DOCUMENT:**  
 APPLICATION DRAWING - NOT FOR APPROVAL REGULATION 5(2)(o)

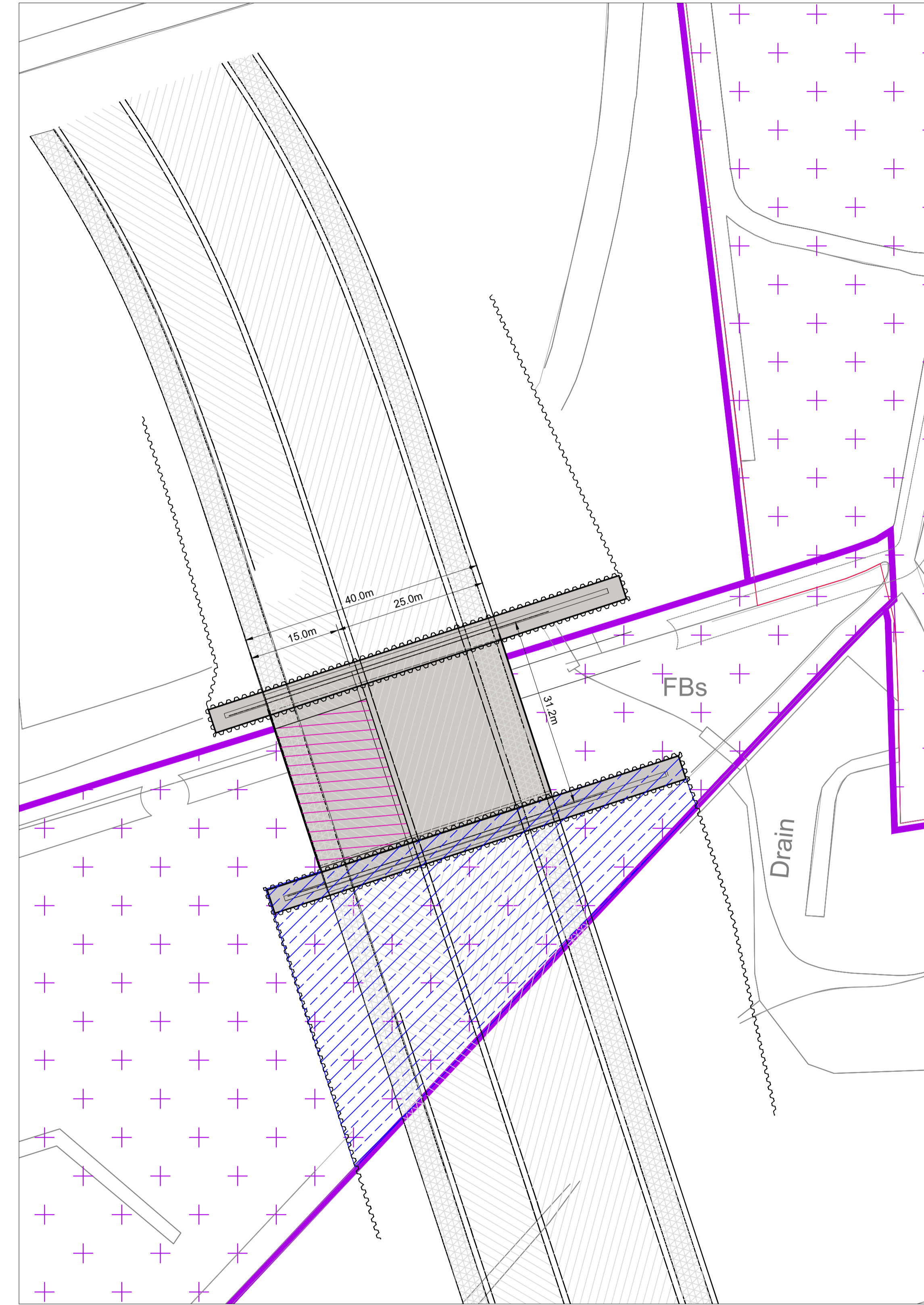
**DRAWING TITLE:**  
 SSSI CROSSING LAND TAKE

**DRAWING NO.:** SZC-SZ0100-XX-000-DRW-100271 **REVISION:** 01

**DATE:** JULY 2021 **DRAWN:** NJ **SCALE:** 1:500



**TRIPLE SPAN BRIDGE OPTION**  
 1:500



**PROPOSED DESIGN (JULY 2021)**  
 1:500

SSSI CROSSING DESIGN	SSSI LAND TAKE (m <sup>2</sup> )	SSSI AREA BENEATH PERMANENT BRIDGE (m <sup>2</sup> )
PROPOSED DESIGN (JULY 2021)	2051 (0.21 ha)	385 (0.038 ha)
TRIPLE SPAN BRIDGE OPTION	1880 (0.19 ha)	320 (0.032 ha)