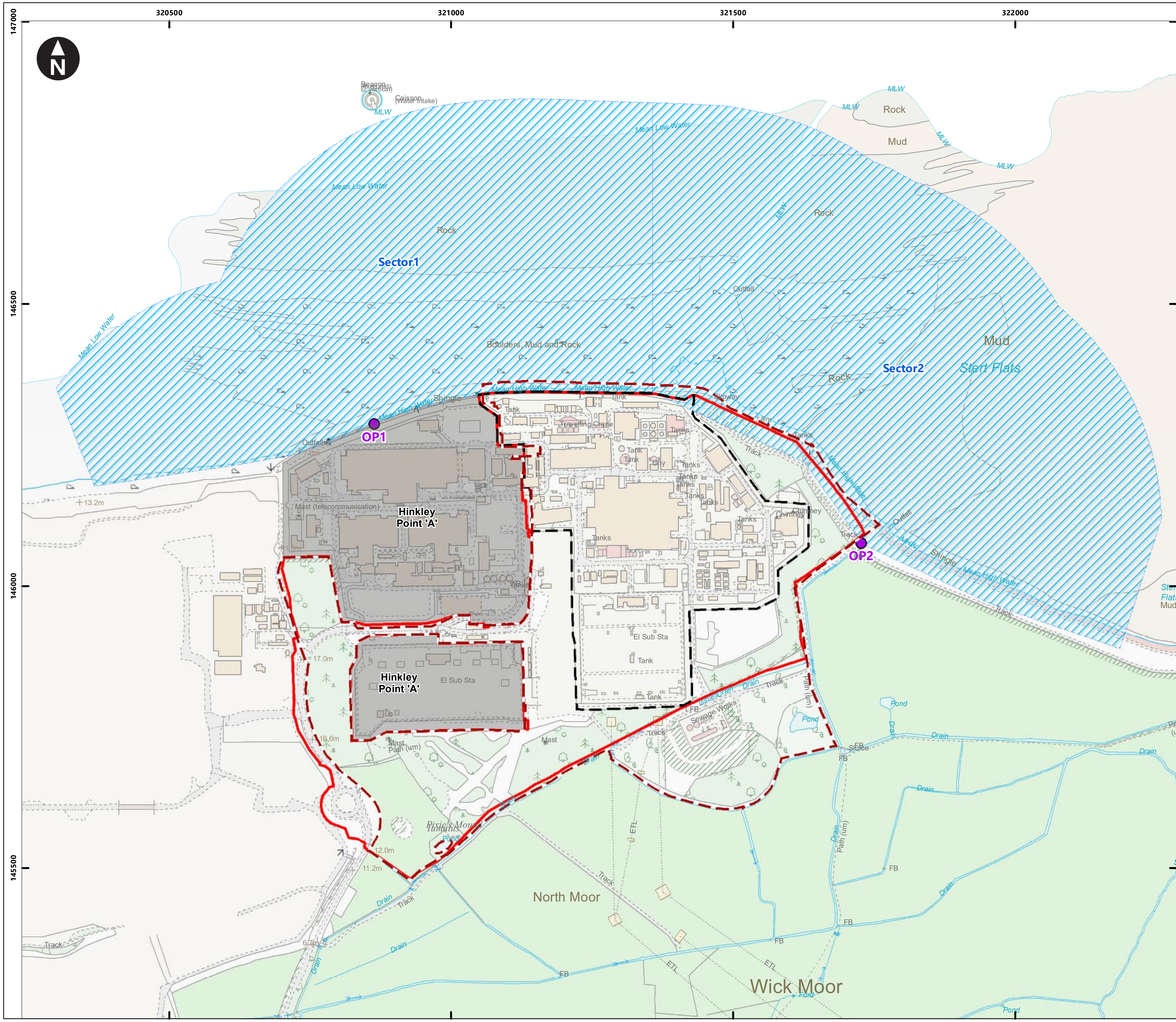

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- Breeding bird survey area
- Inter-tidal survey sector
- Observation point

0 50 100 150 200 250 300 350 m

Scale at A3: 1:6,500

Hinkley Point B Decommissioning EIA
Baseline Report: Breeding and Non-breeding Birds

Figure 2.1
Study Area

October 2020

wood.

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300000
310000
320000
330000
340000
160000
150000
140000
130000

Severn Estuary Ramsar
Severn Estuary SPA
Bridgwater Bay SSSI
Bridgwater Bay NNR
Bridgwater Bay SSSI
The Quantocks SSSI
Somerset Levels & Moors Ramsar
Somerset Levels & Moors SPA

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- 20km search area
- 10km search area
- Special Protection Area (SPA)
- RAMSAR site
- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)

0 2,000 4,000 6,000 8,000 m

Scale at A3: 1:160,000

Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds

Figure 3.1
Statutory biodiversity sites

May 2020

wood.

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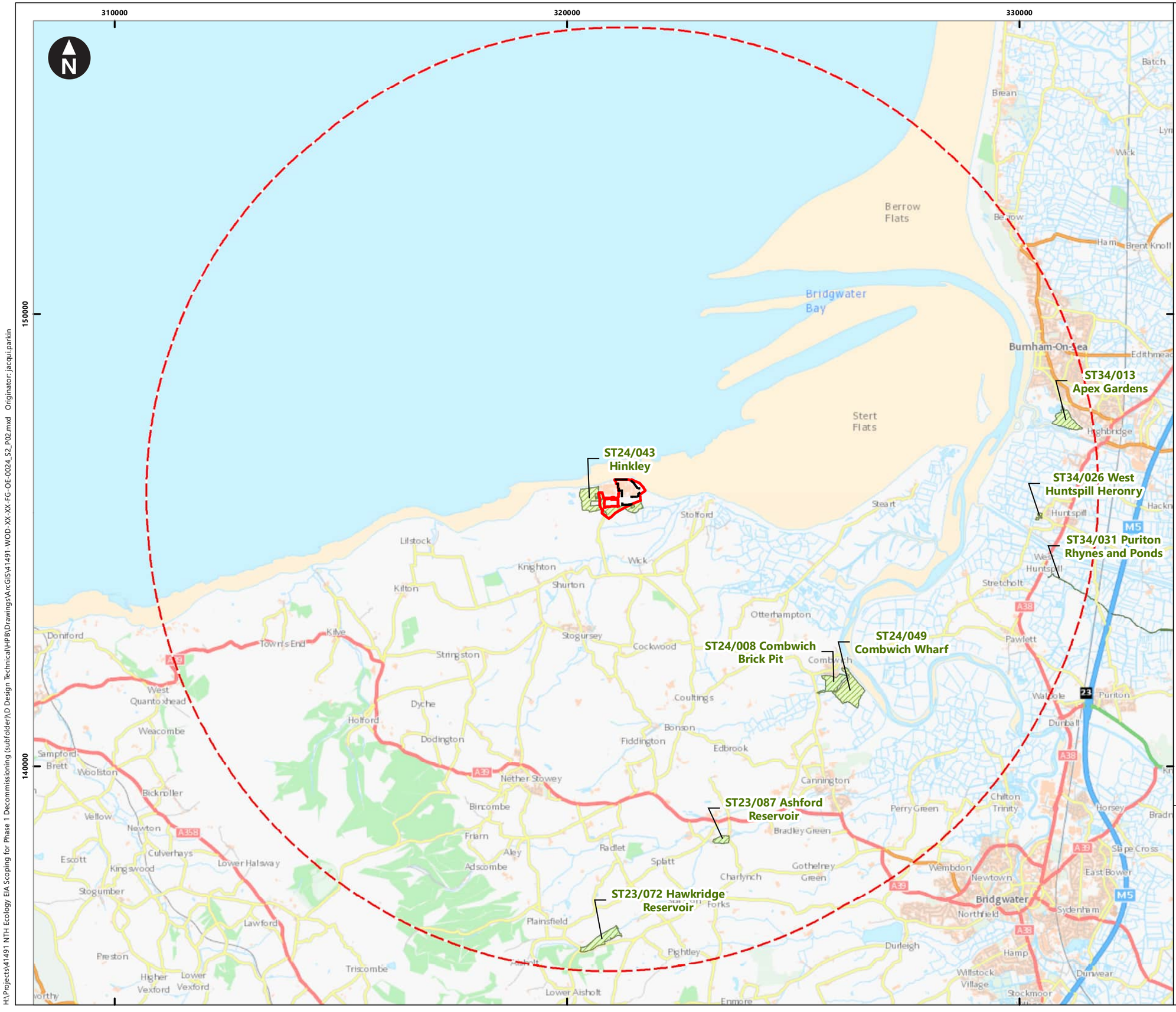

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- 10km search area
- Non-statutory biodiversity sites of ornithological interest

Note: The mapped extent of Hinkley Local Wildlife Site does not take into account the loss of part of this area to the west of the Nuclear Site Licence boundary, which is within the footprint of the Hinkley Point C development..

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds

Figure 3.2
Non-statutory biodiversity sites

August 2020

wood.

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Key

Hinkley Point B Nuclear Site Licence boundary

Double security fence

Hinkley Local Wildlife Site (LWS)

Note: The mapped extent of Hinkley Local Wildlife Site does not take into account the loss of part of this area to the west of the Nuclear Site Licence boundary, which is within the footprint of the Hinkley Point C development.

0 50 100 150 200 250 300 m

Scale at A3: 1:5,000

Hinkley Point B Decommissioning EIA
Baseline Report: Breeding and Non-breeding Birds

Figure 3.3
Hinkley Local Wildlife Site

August 2020

wood.

Key

▭ Hinkley Point B Nuclear Site Licence boundary

▭ Double security fence

▭ Breeding bird survey area

Bird species

B.	Blackbird
BC	Blackcap
BT	Blue tit
C.	Carrion crow
CW	Cettis warbler
CH	Chaffinch
CC	Chiffchaff
D.	Dunnock
GW	Garden warbler
GO	Goldfinch
GS	Great spotted woodpecker
GT	Great tit
JD	Jackdaw
LI	Linnet
LG	Little grebe
LT	Long tailed tit
MG	Magpie
MA	Mallard
MH	Moorhen
OC	Oystercatcher
R.	Robin
RO	Rook
RW	Reed warbler
RC	Rock pipit
S.	Skylark
ST	Song thrush
SH	Sparrowhawk
WH	Whitethroat
WP	Woodpigeon
WR	Wren

RO = Rook colony and not a single territory

0 50 100 150 200 m

Scale at A3: 1:4,000

Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds

Figure 3.4
Breeding bird territories

October 2020

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320500 321000 321500 322000

146500 146000 145500

N

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- Inter-tidal survey sector
- Observation point
- CU Curlew

Note: Bird locations (September 2019 to March 2020 combined) - often multiple birds at a single location

0 50 100 150 200 250 300 350 m

Scale at A3: 1:6,500

Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds

Figure 3.5
Non-breeding bird surveys: Curlew

October 2020

wood.

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320500 321000 321500 322000

146500 146000 145500

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- Inter-tidal survey sector
- Observation point
- MA Mallard

Note: Bird locations (September 2019 to March 2020 combined) - often multiple birds at a single location

0 50 100 150 200 250 300 350 m

Scale at A3: 1:6,500

Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds

Figure 3.6
Non-breeding bird surveys: Mallard

October 2020

wood.

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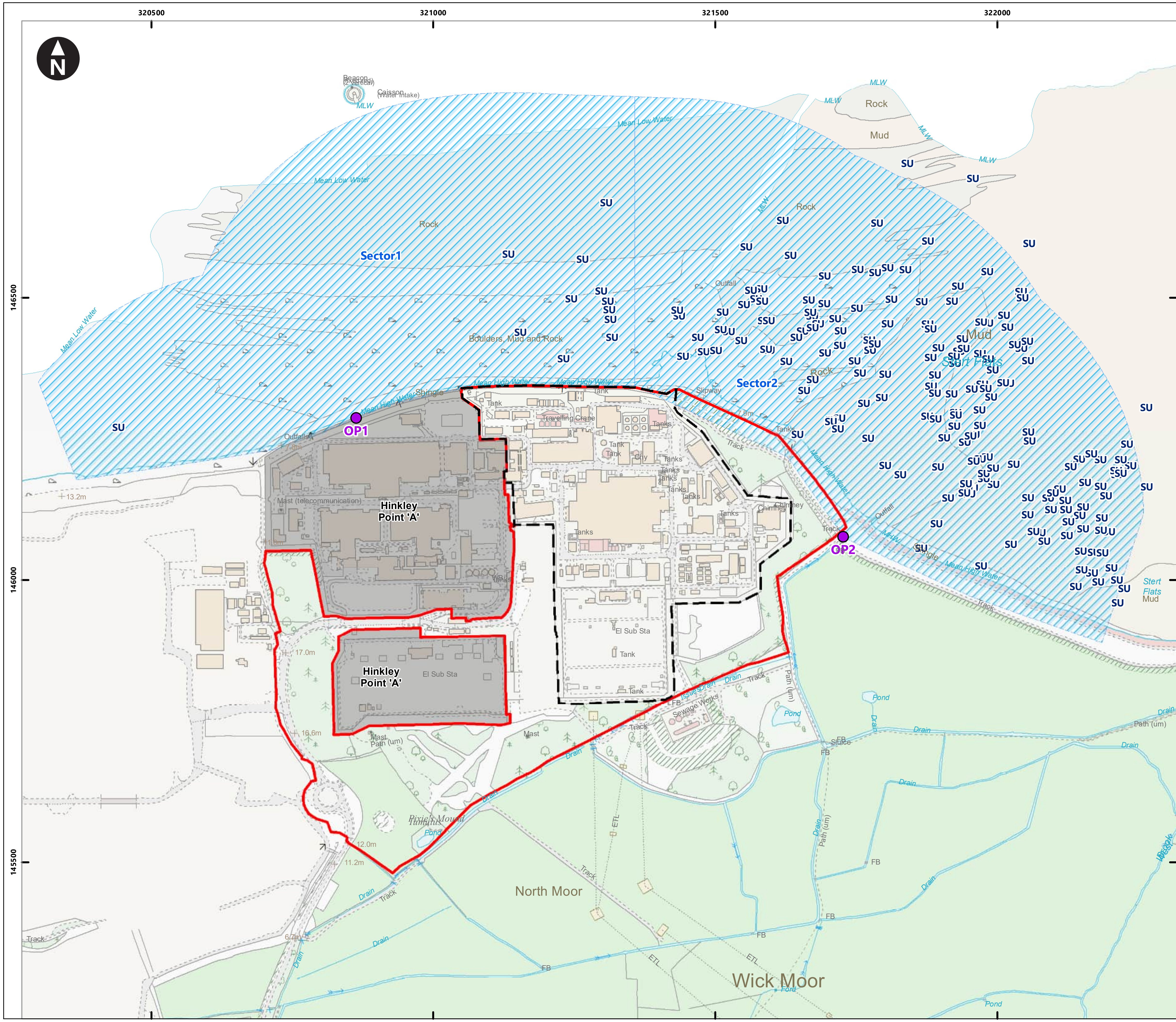


Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- Inter-tidal survey sector
- Observation point
- SU Shelduck

Note: Bird locations (September 2019 to March 2020 combined) - often multiple birds at a single location

0 50 100 150 200 250 300 350 m

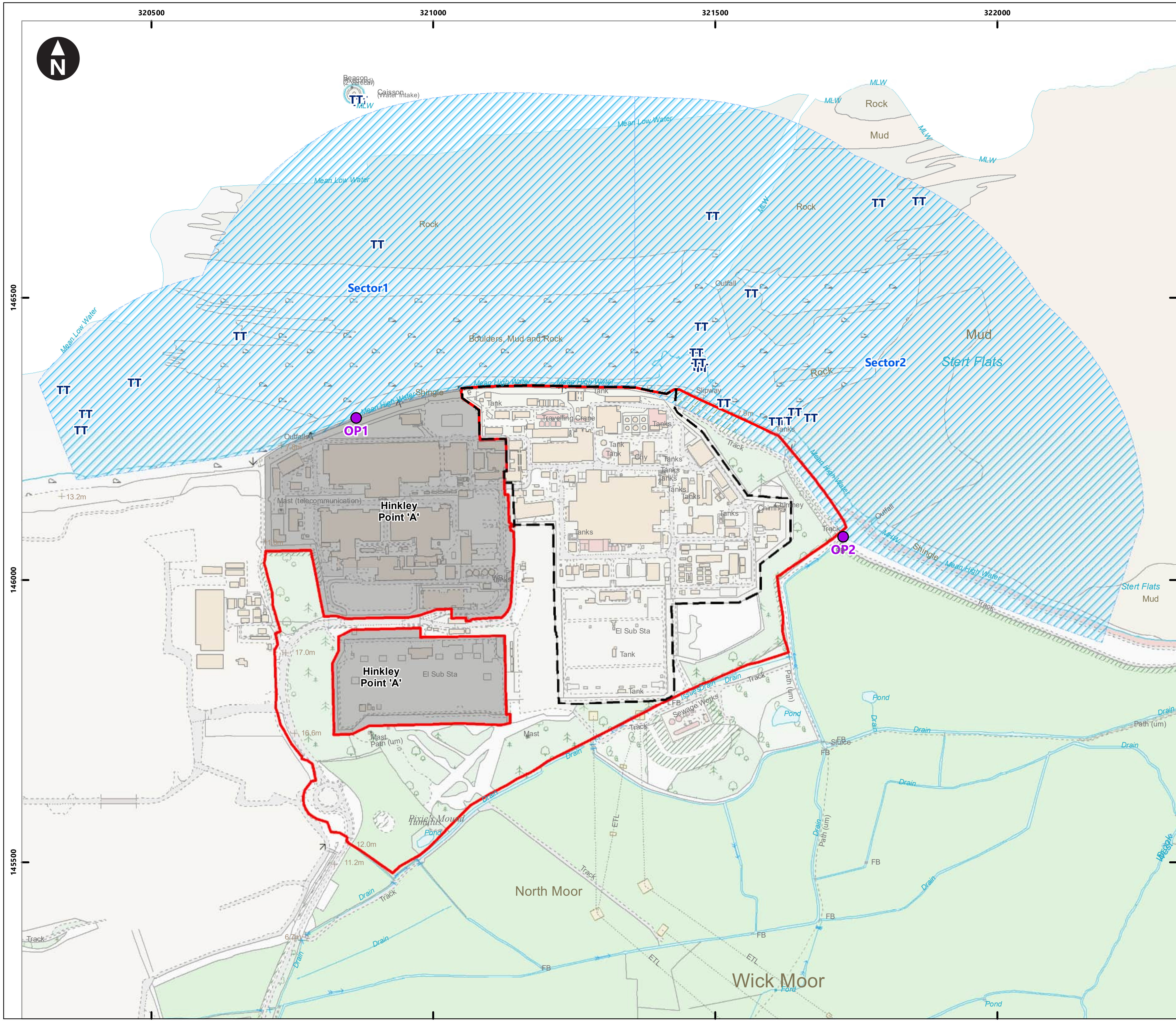
Scale at A3: 1:6,500

Hinkley Point B Decommissioning EIA
Baseline Report: Breeding and Non-breeding Birds

Figure 3.7
Non-breeding bird surveys: Shelduck

October 2020

wood.



Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- Inter-tidal survey sector
- Observation point
- TT Turnstone

Note: Bird locations (September 2019 to March 2020 combined) - often multiple birds at a single location

0 50 100 150 200 250 300 350 m

Scale at A3: 1:6,500

Hinkley Point B Decommissioning EIA
Baseline Report: Breeding and Non-breeding Birds

Figure 3.8
Non-breeding bird surveys: Turnstone

October 2020

wood.

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320500 321000 321500 322000

146500 146000 145500

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- Inter-tidal survey sector
- Observation point
- WN Wigeon

Note: Bird locations (September 2019 to March 2020 combined) - often multiple birds at a single location

0 50 100 150 200 250 300 350 m

Scale at A3: 1:6,500

Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds

Figure 3.9
Non-breeding bird surveys: Wigeon

October 2020

wood.

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320500 321000 321500 322000

146500 146000 145500

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- Inter-tidal survey sector
- Observation point
- BG — Brent goose

Note: Bird locations (September 2019 to March 2020 combined) - often multiple birds at a single location

0 50 100 150 200 250 300 350 m

Scale at A3: 1:6,500

Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds

Figure 3.10
Non-breeding bird surveys: Brent Goose

October 2020

wood.

Appendix B Species names and BTO codes

BTO species code	Common name	Scientific name
BC	Blackcap	*Sylvia atricapilla*
BF	Bullfinch	*Pyrrhula pyrrhula*
BG	Brent goose	*Branta bernicla*
BH	Black-headed gull	*Chroicocephalus ridibundus*
BJ	Black tern	*Chlidonias niger*
BS	Bewick's swan	*Cygnus columbianus*
BT	Blue tit	*Cyanistes caeruleus*
BW	Black-tailed godwit	*Limosa limosa*
BX	Black redstart	*Phoenicurus ochruros*
BZ	Buzzard	*Buteo buteo*
B.	Blackbird	*Turdus merula*
CA	Cormorant	*Phalacrocorax carbo*
CC	Chiffchaff	*Phylloscopus collybita*
CH	Chaffinch	*Fringilla coelebs*
CN	Common tern	*Sterna hirundo*
CO	Coot	*Fulica atra*
CS	Common sandpiper	*Actitis hypoleucos*
CT	Coal tit	*Periparus ater*
CU	Curlew	*Numenius arquata*
CW	Cetti's warbler	*Cettia cetti*
C.	Carrion crow	*Corvus corone*
DN	Dunlin	*Calidris alpina*
D.	Dunnock	*Prunella modularis*
ET	Little egret	*Egretta garzetta*
FP	Feral pigeon	*Columba livia*
GA	Gadwall	*Mareca strepera*
GX	Gannet	*Morus bassanus*
GB	Great black-backed gull	*Larus marinus*

BTO species code	Common name	Scientific name
GC	Goldcrest	*Regulus regulus*
GO	Goldfinch	*Carduelis carduelis*
GP	Golden plover	*Pluvialis apricaria*
GR	Greenfinch	*Chloris chloris*
GS	Great spotted woodpecker	*Dendrocopos major*
GT	Great tit	*Parus major*
GW	Garden warbler	*Sylvia borin*
G.	Green woodpecker	*Picus viridis*
GV	Grey plover	*Pluvialis squatarola*
HG	Herring gull	*Larus argentatus*
HS	House sparrow	*Passer domesticus*
H.	Grey heron	*Ardea cinerea*
JD	Jackdaw	*Coloeus monedula*
KN	Knot	*Calidris canutus*
LB	Lesser black-backed gull	*Larus fuscus*
LG	Little grebe	*Tachybaptus ruficollis*
LI	Linnet	*Linaria cannabina*
LT	Long-tailed tit	*Aegithalos caudatus*
LW	Lesser whitethroat	*Sylvia curruca*
L.	Lapwing	*Vanellus*
MG	Magpie	*Pica*
MX	Manx shearwater	*Puffinus puffinus*
MA	Mallard	*Anas platyrhynchos*
MH	Moorhen	*Gallinula chloropus*
MP	Meadow pipit	*Anthus pratensis*
MT	Marsh tit	*Poecile palustris*
MU	Mediterranean gull	*Ichthyaetus melancephalus*
MS	Mute swan	*Cygnus olor*
N.	Nightingale	*Luscinia megarhynchos*
OC	Oystercatcher	*Haematopus ostralegus*

BTO species code	Common name	Scientific name
PE	Peregrine	*Falco peregrinus*
PH	Pheasant	*Phasianus colchicus*
PS	Purple sandpiper	*Calidris maritima*
PT	Pintail	*Anas acuta*
PW	Pied wagtail	*Motacilla alba*
RB	Reed bunting	*Emberiza schoeniclus*
RC	Rock pipit	*Anthus petrosus*
RK	Redshank	*Tringa totanus*
RN	Raven	*Corvus corax*
RO	Rook	*Corvus frugilegus*
RP	Ringed plover	*Charadrius hiaticula*
RW	Reed warbler	*Acrocephalus scirpaceus*
R.	Robin	*Erithacus rubecula*
SD	Stock dove	*Columba oenas*
SG	Starling	*Sturnus vulgaris*
SH	Sparrowhawk	*Accipiter nisus*
SI	Swift	*Apus apus*
SK	Siskin	*Spinus spinus*
SL	Swallow	*Hirundo rustica*
SN	Snipe	*Gallinago gallinago*
ST	Song thrush	*Turdus philomelos*
SU	Shelduck	*Tadorna tadorna*
SW	Sedge warbler	*Acrocephalus schoenobaenus*
S.	Skylark	*Alauda arvensis*
TC	Treecreeper	*Certhia familiaris*
TT	Turnstone	*Arenaria interpres*
T.	Teal	*Anas crecca*
WG	White-fronted goose	*Anser albifrons*
WH	Whitethroat	*Sylvia communis*
WM	Whimbrel	*Numenius phaeopus*

BTO species code	Common name	Scientific name
WN	Wigeon	*Mareca penelope*
WP	Woodpigeon	*Columba palumbus*
WR	Wren	*Troglodytes troglodytes*
WW	Willow warbler	*Phylloscopus trochilus*
YW	Yellow wagtail	*Motacilla flava*
Y.	Yellowhammer	*Emberiza citrinella*

Appendix C Relevant legislation and policy

Directive 2009/147/EC (The Wild Birds Directive), 2009

Certain species receive protection at a European level due to appearing on Annex I of the Directive 2009/147/EC of The European Parliament and of The Council of 30 November 2009 on the conservation of wild birds (codified version).

Certain endangered, rare, or vulnerable bird species, which warrant special protection, are included on Annex I of the Directive 2009/147/EC of The European Parliament and of The Council of 30 November 2009 on the conservation of wild birds (codified version); also referred to as the *Wild Birds Directive*.

The *Wild Birds Directive* recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species (listed in Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for these species. Together with Special Areas of Conservation (SACs) designated under *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('Habitats Directive')*, SPAs form a network of pan-European protected areas known as Natura 2000.

Ramsar Sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention. Sites proposed for selection are advised by the UK statutory nature conservation agencies, or the relevant administration in the case of Overseas Territories and Crown Dependencies, co-ordinated through JNCC. In selecting sites, the relevant authorities are guided by the Criteria set out in the Convention. The Criteria pertaining specifically to birds are as follows:

- Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds; and
- Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

In the UK, the first Ramsar sites were designated in 1976 since which, many more have been designated. The initial emphasis was on selecting sites of importance to waterbirds within the UK, and consequently many Ramsar sites are also Special Protection Areas (SPAs) classified under the Birds Directive. However, greater attention is now being directed towards non-bird features which are increasingly being taken into account, both in the selection of new sites and when reviewing existing sites.

Wildlife and Countryside Act 1981 (as amended)

With certain exceptions[15], all wild birds, their nests and eggs are protected by section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, *inter alia*, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or

[15] Some species, such as game birds, are exempt in certain circumstances.

- Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 of the Act subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

Natural Environment and Rural Communities Act 2006

Section 40 of the *Natural Environment and Rural Communities (NERC) Act 2006* places duties on public bodies to have regard to the conservation of biodiversity in the exercise of their normal functions. In particular, Section 41 of the NERC Act requires the Secretary of State to publish a list of species which are of Principal Importance for biodiversity conservation. This list is largely derived from the 'Priority Species' listed under the former UK Biodiversity Action Plan (BAP), which continue to be regarded as Priority Species under the subsequent country-level biodiversity strategies. The Section 41 list replaces the list published by Defra in 2002 under Section 74 of the *Countryside and Rights of Way (CRoW) Act 2000*.

Birds of Conservation Concern: Red List birds

Red and Amber list bird are those listed as being of high or medium conservation concern (respectively) in Birds of Conservation Concern (BoCC) 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man (Eaton *et al*., 2015). Red list species are those that are Globally Threatened according to IUCN criteria; and/or those whose population or range has declined rapidly in recent years; and/or those that have declined historically and not shown a substantial recent recovery.

Appendix D Survey parameters

Table D.1 Breeding bird survey (Schedule 1 species/peregrine)

Survey visit No.	Date	Start - finish	Weather conditions
1	26/04/2019	06:10 – 09:25	Precipitation (none); Wind (Beaufort 1, South); Cloud (6/8 Oktas); Visibility (very good > 3 km); Temperature (12 °C)
2	10/05/2019	05:00 – 12:15	Precipitation (none); Wind (Beaufort 0-1, Variable); Cloud (6-8/8 Oktas); Visibility (very good > 3 km); Temperature (3-14 °C)
3	24/05/2019	05:10 – 09:00	Precipitation (light rain); Wind (Beaufort 2, West); Cloud (2/8 Oktas); Visibility (very good > 3 km); Temperature (10 °C)
4	04/06/2019	05:00 - 12:15	Precipitation (occasional light rain); Wind (Beaufort 1, SW); Cloud (7-8/8 Oktas); Visibility (very good > 3 km); Temperature (10-16 °C)

Table D.2 Breeding bird survey (all species)

Survey visit No.	Date	Start - finish	Weather conditions
1	26/04/2019	06:10 – 09:25	Precipitation (none); Wind (Beaufort 1, South); Cloud (6/8 Oktas); Visibility (very good > 3 km); Temperature (12° C)
2	09/05/2019	05:10 – 09:00	Precipitation (occasional light rain); Wind (Beaufort 1-2, SW); Cloud (8/8 Oktas); Visibility (Good > 1-2 km); Temperature (10-12 °C)
3	24/05/2019	05:10 – 09:00	Precipitation (light rain); Wind (Beaufort 2, West); Cloud (2/8 Oktas); Visibility (very good > 3 km); Temperature (10 °C)
4	04/06/2019	05:00 - 12:15	Precipitation (occasional light rain); Wind (Beaufort 1, SW); Cloud (7-8/8 Oktas); Visibility (very good > 3 km); Temperature (10-16° C)
5	27/06/2019	06:45 – 08:45	Precipitation (none); Wind (Beaufort 3, East; Cloud (1/8 Oktas); Visibility (very good > 3 km); Temperature (16° C)
6	12/07/2019	06:00 – 08:15	Precipitation (none); Wind (Beaufort 3, North-west); Cloud (3/8 Oktas); Visibility (very good > 3 km); Temperature (18° C)

Table D.3 Non-breeding bird survey

Survey No.	Date	Start	End	Weather conditions
1	06/09/2019	09:25	15:25	19°C, 8/8 Oktas cloud, visibility > 3km, westerly Beaufort 3, precipitation: none
2	20/09/2019	07:42	13:42	18°C, 0/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 2, Precipitation: none
3	04/10/2019	08:10	14:10	15°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 4, precipitation: none
4	21/10/2019	08:48	14:48	10°C, 7/8 Oktas cloud, visibility > 3km, northerly Beaufort 3, precipitation: none
5	01/11/2019	08:08	14:08	14°C, 4/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 2, precipitation: none
6	22/11/2019	08:49	14:49	6°C, 8/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 2, precipitation: light showers
7	02/12/2019	09:59	15:59	1°C, 1/8 Oktas cloud, visibility > 3km, north Beaufort 1, precipitation: none
8	20/12/2019	10:02	16:02	8°C, 7/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 1, precipitation: none
9	07/01/2020	10:07	16:07	10°C, 8/8 Oktas cloud, visibility > 3km, visibility > 3km, south-westerly Beaufort 2, precipitation: none
10	21/01/2020	09:57	15:57	2°C, 1/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 1, precipitation: none
11	04/02/2020	08:49	14:49	7°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 6, precipitation: none
12	21/02/2020	09:51	15:51	7°C, 8/8 Oktas cloud, visibility > 3km, westerly Beaufort 2, precipitation: none
13	10/03/2020	07:12	13:12	11°C, 8/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 2, precipitation: none
14	19/03/2020	09:19	15:19	7°C, 8/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 3, precipitation: light drizzle

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8G

Baseline Report: Great Crested Newt

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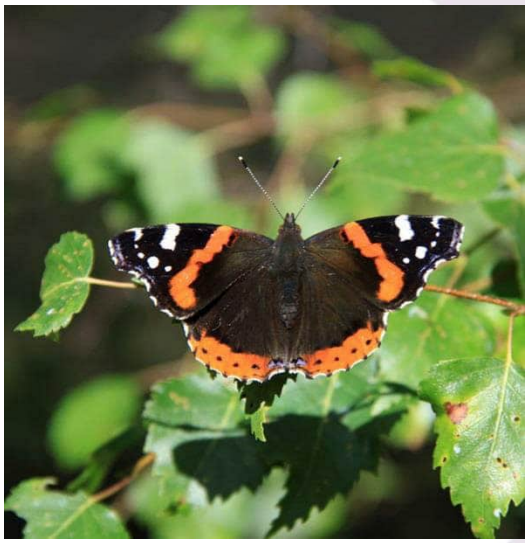
Hinkley Point B Decommissioning EIA

Baseline Report: Great Crested Newt



Wood Environment & Infrastructure Solutions UK Limited – December 2019

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Doc Ref. 41491-WOD-XX-XX-RP-OE-0006_S4_P01

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Document revisions

No.	Details	Date
1	Draft	September 2019
2	Final	December 2019

Contents

1. Introduction

1.1 Purpose of this report

EDF Energy proposes to start preparation for waste processing facilities (Operational and Decommissioning Waste) and waste stores (ILW Store) at Hinkley Point B (HPB) to support decommissioning activities following the End of Generation (EoG), which is currently scheduled to be in 2023. Prior to the construction of these facilities, planning permission from the Local Planning Authority (LPA) under The Town and Country Planning Act 1990 (TCPA) will be required. Other permissions and consents for the overall decommissioning project will be required separately under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning (EIAD)) Regulations, 1999, as amended, and EURATOM Article 37 (or an equivalent).

The current strategy is for an EIA to be undertaken and a single Environmental Statement (ES) to be prepared to assess the environmental impacts of the proposed decommissioning project under both the TCPA and EIAD Regulations. Other consents for specific activities will also be required and can draw on the EIAs.

This report sets out information about the great crested newt (*Triturus cristatus*) survey that was undertaken to inform the EIA of the HPB Decommissioning Project. This survey has been completed to collect information on the baseline status of great crested newt (GCN) populations at the HPB station ('the site' or 'the station'), against which the predicted effects of the HPB Decommissioning Project on this species will be assessed. This report includes a brief description of the proposed HPB Decommissioning Project before setting out information about the GCN survey methods, results and conclusions.

1.2 Scheme description

Decommissioning at HPB is expected to commence in 2023. The site location is shown on **Figure 1.1, Appendix A**. Once the necessary consent is in place, the decommissioning process would commence with the process of defueling and initial decommissioning, with spent fuel transferred to the Sellafield nuclear licensed site. Over approximately a 15-year period there would be a process of safe storage and management of intermediate and low-level waste, with intermediate level waste stored temporarily on-site, in sealed and shielded containers within designed stores that have similar characteristics to industrial units, and low-level waste being transferred to appropriate treatment or disposal facilities. In parallel with these tasks, redundant buildings will be de-planted and demolished.

This initial decommissioning phase will include construction of waste processing facilities and a secure, weathertight, Safestore structure- a clad, steel-framed structure based around the Reactor Building- will be constructed, to enclose the Advanced Gas-cooled Reactors, allowing the process of radioactive decay to reduce dose to significantly lower levels. The second phase of decommissioning – Care & Maintenance - will involve ongoing site/station care and maintenance over a period of approximately 70 years. The third phase will involve reactor building decommissioning and final site clearance, involving site-wide demolition of the remaining buildings and remediation to an extent conforming to the applicable regulations at the time, followed by back-filling. Aside from the defueling and management of waste storage and decay processes, the site will operate similar to a conventional construction/demolition site.

1.3 Site context

The HPB station ('the site' or 'the station') is approximately 12 km to the north west of Bridgwater, in Bridgwater Bay at the mouth of the River Severn and on the southern flank of the Bristol Channel. The centre of the station is at approximate National Grid Reference (NGR) ST 212 459 and the area that is subject to the Nuclear Site Licence (NSL) extends to approximately 47ha. The majority of the station is built structures and

hard standing (mainly access and car parks). Bridgwater Bay is to the north. To the south, west and east of the site there is a fringe of woodland and scrub, with areas of open grassland. Hinkley Point A borders the HPB NSL boundary to the west and further west beyond this is the Hinkley Point C development. The wider landscape to the south and east is agricultural.

2. Methods

2.1 Study area

The site includes the land inside the HPB double security fence and the additional land that is covered by the HPB Nuclear Site Licence (NSL). The majority of the non-operational land within the site is designated as Hinkley Local Wildlife Site (LWS), which is managed for biodiversity by EDF Energy and Somerset Wildlife Trust (SWT). The GCN study area includes the site and a 500m perimeter area. Within this area there are three ponds, one within the HPB site and two within a 500m perimeter surrounding this area. The study area reflects the distance of 500m, beyond which GCN seldom disperse from ponds where they breed (English Nature 2001[1]). GCN that breed in ponds that are outside the HPB station, but within a 500m perimeter could feasibly disperse into the site. The study area and pond locations are detailed on **Figure 2.1, Appendix A**.

2.2 Desk study

A desk-based study was undertaken to collate and review existing information on ecological features that are known to occur, or have previously been recorded, on land within and surrounding the Study Area defined in Section 2.1. These features include sites designated for nature conservation; habitats of importance for nature conservation; and legally protected and/or otherwise important species. The desk study is detailed in a separate report (*Hinkley Point B Decommissioning EIA – Baseline Report: Desk Study [Terrestrial Ecology*]).

Data collected from Somerset Environmental Records Centre (SERC) includes details of species recorded within approximately 3 km of the Site. The Hinkley Point B Land Management Annual Reviews[2] (LMAR) and Hinkley Point B Integrated Land Management Plan[3] (ILMP) also include details of species recorded within the Study Area. Locations that are subject to granted European Protected Species (great crested newt) Licence applications, situated within 2km of the Site, were also sought using the MAGIC website. The results of great crested newt surveys that were undertaken to inform the EIA of Hinkley Point C (EDF Energy 2011[4]) were also reviewed.

A review of 1:10,000 scale Ordnance Survey maps; the Multi Agency Geographic Information for the countryside (MAGIC) website (https://magic.defra.gov.uk/home.htm)[5] and aerial images (Google Earth Pro) identified waterbody locations, situated within the study area referred to in Section 2.1, that could potentially support GCN.

[1] English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough
[2] EDF Energy Nuclear Generation Ltd (2014 to 2018). Hinkley Point B Land Management Annual Review
[3] EDF Energy Nuclear Generation Ltd (2017) Hinkley Integrated Land Management Plan.
[4] EDF Energy (2011), Hinkley Point C Development Consent Order: Environmental Statement Volume 2 - Hinkley Point C Development Site (Appendices).
[5] The MAGIC website provides geographic information about the natural environment from across government. The information covers rural, urban, coastal and marine environments across Great Britain. It is presented in an interactive map and provides links to other sources of data in order to make best use of a wide range of information available on other websites. Natural England manages the service under the direction of a Steering Group who represent the MAGIC partnership organisations.

2.3 Field survey

Survey objectives

The great crested newt is a legally protected species (**Appendix B**) and is also a Species of Principal Importance for the Conservation of Biological Diversity in England, having been identified as such by the Secretary of State in accordance with Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act 2006). The potential effects of development on GCN are therefore a material consideration in determining planning applications.

The purpose of the GCN survey was to determine the presence/absence of this species at ponds within the study area and, if present, to estimate the size of any GCN population(s) recorded. These surveys derive the baseline status of GCN against which the predicted effects of the HPB Decommissioning project on this species will be assessed. These survey data will also inform plans to mitigate any effects of the HPB Decommissioning project on GCN.

Data collection locations

A review of 1:10,000 scale Ordnance Survey maps; the Multi Agency Geographic Information for the countryside (MAGIC) website (https://magic.defra.gov.uk/home.htm)[6] and aerial images (Google Earth Pro) identified waterbody locations, situated within the study area referred to in Section 2.1, that could potentially support GCN. All waterbody locations within the study area defined in Section 2.1 were subject to an initial appraisal ('screening') of their suitability for GCN (**Figure 2.1, Appendix A**). The purpose of this was to determine the requirement for, and scope of, any follow-up survey work at each waterbody.

Data collection methods

Overview

All GCN surveys and data collection was led by ecologists who hold Natural England GCN Licences (Class 1), assisted by other surveyors where necessary (i.e. for Health and Safety reasons when working in/near water).

The initial screening of each waterbody was undertaken on 2nd May 2019. This involved a brief visual appraisal of each waterbody to assess its suitability to support GCN. The scope of the GCN survey work at each waterbody location was determined as follows:

- Waterbody locations that appeared to be unsuitable for GCN were discounted from further survey work, including waterbodies that had become infilled, large waterbodies used for angling (GCN tend to inhabit waterbodies that lack fish populations/assemblages) and those containing little or flowing water;
- Ponds that appeared to be suitable for GCN were subject to a more detailed habitat suitability assessment, involving calculation of the GCN Habitat Suitability Index (HSI) associated with each one; and
- Ponds that were calculated to have a GCN HSI within the 'Below Average' category or above were subject to GCN presence/absence surveys.

[6] The MAGIC website provides geographic information about the natural environment from across government. The information covers rural, urban, coastal and marine environments across Great Britain. It is presented in an interactive map and provides links to other sources of data in order to make best use of a wide range of information available on other websites. Natural England manages the service under the direction of a Steering Group who represent the MAGIC partnership organisations.

- Ponds where GCN were recorded during the presence/absence surveys were subject to a GCN population size-class assessment.

Habitat Suitability Assessment

The ponds within the Study Area that appeared suitable for GCN were subject to a more detailed assessment of their suitability for this species. This was undertaken in accordance with good practice (ARG UK 2010[7]), which involved deriving the GCN Habitat Suitability Index (HSI) associated with each pond.

Data were gathered, from field observations and maps, on ten attributes of each pond that influence its suitability for GCN. This information was converted to a Suitability Index (SI) of between 0.01 and 1 for each of the ten pond attributes: Geographic Location (SI1), Pond Area (SI2), Permanence (SI3), Water Quality (SI4), Shade (SI5), Waterfowl (SI6), Fish (SI7), Pond Count (SI8), Terrestrial Habitat (SI9) and Macrophytes (SI10).

The product of the ten SI values recorded at each pond was used to calculate the overall pond HSI. The suitability of each pond for GCN was then categorised based on its HSI[8] as the following: Excellent (>0.8), Good (0.7 - 0.79), Average (0.6 - 0.69), Below Average (0.5 - 0.59) or Poor (<0.5).

The field observations and data collection to inform the HSI calculations were undertaken at ponds within the study area on the 2nd May 2019.

Presence/absence surveys

There is minimal chance of GCN presence at ponds with a very low HSI score (<0.5, indicating Poor pond suitability)[9]. Therefore, only ponds with an HSI of 'Below Average' or above were subject to GCN presence/absence surveys[10].

The ponds identified as having a 'Below Average' HSI score or above were subjected to the Environmental DNA (eDNA) survey protocol which is accepted as good practice in determining GCN presence/absence. These eDNA surveys involved collection and subsequent laboratory analysis of water samples from ponds to detect the presence of GCN DNA in accordance with the standard protocol (Biggs et al 2014[11]). At each pond, the method involved the collection of 20 water samples, combining them and then taking six sub-samples for laboratory analysis. This process is repeated for larger ponds (approximately greater than 1ha in size) to increase the likelihood that all parts of the pond are represented in the water samples. Each pond sample was collected, preserved and processed using sterile laboratory equipment and was subject to specialist laboratory analysis by NatureMetrics in Surrey.

The ponds within the study area were surveyed employing the eDNA method on 2nd May 2019. This method was employed because it requires a single visit to each pond, allowing a large number of ponds to be surveyed over a short period of time. This survey method was also employed on the basis that any follow-up GCN population size-class assessment would follow in May and June 2019.

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[7] Amphibian and Reptile Groups of the UK [ARG UK] (2010). Advice Note 5: Great Crested Newt Habitat Suitability Index, May 2010. ARG UK

[8] Pond HSI is the geometric mean of the ten SI values; or the tenth root of the product of the ten SI values.

[9] Natural England. (2015). Template for Method Statement to support application for licence under Regulation 53(2)e of The Conservation of Habitats and Species Regulations 2010 (as amended) in respect of great crested newts *Triturus cristatus*. Form WML-A14-2 (Version December 2015).

[10] The surveys are referred to as presence/absence surveys, which is standard/accepted terminology, however where surveys of a waterbody do not record GCN it is only possible to conclude that this species is 'likely' to be absent from that waterbody.

[11] Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F. (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

2.4 Constraints

There were limited constraints on the GCN surveys. At Pond 2 ('Otter Pond'), dense vegetation prevented access to the full perimeter of the pond. However, an estimated 70% or more of the pond margin was accessible and this restriction is not likely to have influenced the survey results and conclusions.

3. Results

3.1 Desk study

SERC do not hold any records of GCN within 3km of the site within the past 10 years. There are no statutory designated sites of relevance to great crested newts, or previously granted European Protected Species (great crested newt) Licence Applications, within 2km of the Site.

The surveys of the site undertaken in 2009 to inform the EIA of Hinkley Point C did not record GCN, only smooth newt (*Lissotriton vulgaris*) and palmate newt (*Lissotriton helveticus*) were recorded.

The review of Ordnance Survey maps (1:10,000) and aerial images identified three ponds and a network of field drains within the study area (**Figure 2.1, Appendix A**) and informed the targeting of the survey work.

3.2 Field survey

Habitat suitability assessment

All three ponds identified during the desk study were subject to a detailed GCN habitat suitability assessment. The results are detailed in **Appendix C** and summarised in **Table 3.1**.

Table 3.1 GCN habitat suitability assessment

Pond (Figure 2.1)	Habitat Suitability for GCN (HSI category)
Pond 1 ('Pixie's Pond')	Good
Pond 2 ('Otter Pond')	Good
Pond 3	Below Average

The field drains within the study area are likely to be unsuitable for GCN due to the presence of flowing water and ongoing management, including evidence of periodic dredging.

Presence/ absence survey

All three ponds were subject to GCN presence/absence surveys, employing eDNA sampling and analysis. The laboratory report received from NatureMetrics is included in **Appendix D**. All three ponds tested negative for GCN eDNA. GCN are therefore likely to be absent from the three ponds.

4. Summary and Conclusions

4.1 Current baseline

There are no statutory designated sites of relevance to great crested newts, or previously granted Natural England European Protected Species (great crested newt) Licence Applications, within 2km of the Site. There are three ponds within the study area (**Figure 2.1, Appendix A**). Two of these (Ponds 1 and 2) are categorised as being within the 'Good' HSI category, whilst Pond 3 is categorised as 'Below Average' habitat for GCN. All three ponds tested negative for GCN eDNA and are unlikely to support this species.

Appendix A
Figures

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320000 321000 322000

147000 146000 145000

N

Hinkley Point 'A'

Hinkley Point 'A'

Power Station

Power Station

Power Station

Power Station

Doggetts

Lower House Farm

Head Weir House

Wick Moor Barn

Wick Farm

Wick House

Zine Farm

Sunshine Lodge

Green Shutters

Trigher Farm

Little Dowdens Farm

Drain

Key

Hinkley Point B Nuclear Site Licence boundary

Double security fence

0 100 200 300 400 500 600 m

Scale at A3: 1:10,000

Hinkley Point B Decommissioning EIA
Baseline Report: Great Crested Newt

Figure 1.1
Site location plan

December 2019

wood.

H:\Projects\41491 NTH Ecology EIA Scoping for Phase 1 Decommissioning (subfolder)\D Design Technical\HPB\Drawings\ArcGIS\41491-WOD-XX-XX-FG-OE-0002_S2_P01.mxd Originator: jacqui.parkin

321000

322000

146000

145000

N

Hinkley Point 'A'

Hinkley Point 'A'

Power Station

Pond 1 - Pixie's Pond

Pond 2 - Otter Pond

Pond 3

Drain

8m

13m

11m

24m

17m

7m

Key

Hinkley Point B Nuclear Site Licence boundary

Double security fence

500m great crested newt survey buffer

Pond location

0 100 200 300 400 m

Scale at A3: 1:7,500

Hinkley Point B Decommissioning EIA
Baseline Report: Great Crested Newt

Figure 2.1
Pond locations

December 2019

wood.

Appendix B
Relevant Legislation (Summary)

Great crested newt is listed in Schedule 5 of *The Wildlife and Countryside Act 1981* (as amended). The Act transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (commonly referred to as the 'Bern Convention'). Great crested newt is listed on Schedule 5 of the Act in respect of Section 9, which makes it an offence, *inter alia*, to:

- Intentionally or recklessly kill, injure, or take (handle) a great crested newt;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a great crested newt uses for shelter or protection; or
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place that it uses for shelter or protection.

Great crested newt receives further protection under Regulation 43 of *The Conservation of Habitats and Species Regulations 2017*, which make provision for the purpose of implementing European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992. Great crested newt is listed on Annex IV of the Directive, which means that member states are required to put in place a system of strict protection as outlined in Article 12, and this is done through inclusion on Schedule 2 of the Regulations, which makes it an offence, *inter alia*, to:

- Deliberately capture, injure or kill any great crested newt;
- Deliberately disturb a great crested newt, in particular any disturbance which is likely
  - (a) to impair their ability

    (i) to survive, to breed or reproduce, or to rear or nurture their young, or

    (ii) to hibernate or migrate
  - (b) to affect significantly the local distribution or abundance of great crested newt; or
- Damage or destroy a breeding site or resting place of a great crested newt.

Appendix C
GCN habitat suitability assessment and presence/absence (eDNA) results

Pond number:	1 ('Pixie's Pond')	2 ('Otter Pond')	3
National Grid Reference	ST 20984 45539	ST 21618 45760	ST 21775 45796
SI1 Location	0.5 (Zone B)	0.5 (Zone B)	0.5 (Zone B)
SI2 Pond area	0.85 (440m^2)	0.95 (1,040m^2)	0.45 (230m^2)
SI3 Drying	0.9 (never dries)	0.9 (never dries)	0.5 (sometimes dries)
SI4 Water quality	1 (good)	0.67 (moderate)	0.33 (poor)
SI5 Shade	1 (10%)	1 (30%)	1 (5%)
SI6 Fowl	0.67 (minor)	0.67 (minor)	0.67 (minor)
SI7 Fish	0.67 (possible)	0.67 (possible)	1 (absent)
SI8 Surrounding ponds	0.75 (5 ponds within 1km)	0.65 (3 ponds within 1km)	0.65 (3 ponds within 1km)
SI9 Terrestrial habitat	1 (good)	1 (good)	0.33 (poor)
SI10 Macrophytes	0.7 (40%)	0.9 (60%)	0.6 (30%)
HSI score	0.79	0.77	0.56
GCN suitability	**Good**	**Good**	**Below average**

Photograph			
eDNA sampled?	Yes	Yes	Yes
eDNA sample result	Negative	Negative	Negative

Appendix D
eDNA Laboratory Results

Report: 19135-WOO-SA-1 Order number: WOO-19005-SA

Great Crested Newt eDNA Results

Company:	Wood Environment & Infrastructure Solutions UK Ltd
Contact:	Sarah Allman
Project code|Task code:	34965-95 Hinckley B
Date of Report:	13 May 2019
Number of samples:	3

Thank you for sending your samples for analysis by NatureMetrics. Your samples have been processed in accordance with the protocol set out in Appendix 5 of Biggs et al. (2014).

DNA was precipitated via centrifugation at 14,000 x g and then extracted using Qiagen Blood and Tissue extraction kits.

qPCR amplification was carried out in 12 replicates per sample, using the primers and probe described by Biggs et al. (2014), in the presence of both positive and negative controls.

Results indicate GCN absence in 'P1 Pixie Pond', 'Pond 2 - Otter Pond', and 'Pond 3'. All controls performed as expected and so the results are conclusive.

Results are based on the samples as supplied by the client to the laboratory. Incorrect sampling methodology may affect the results. Note that a negative result does not preclude the presence of Great Crested Newts at a level below the limits of detection.

Sample	Pond ID	Arrived	Inhibition	Degradation	Score	GCN status
327	'P1 Pixie Pond'	03-May	No	No	0	Negative
328	'Pond 2 - Otter Pond'	03-May	No	No	0	Negative
326	'Pond 3'	03-May	No	No	0	Negative

End of report

Report issued by: Dr. Cuong Tang

Contact: ct@naturemetrics.co.uk | 01491 829042

Understanding your results

Positive: GCN DNA has been detected in this sample, meaning that at least one of the 12 replicates has amplified. Remember that this is not a quantitative test, so you should not interpret a high eDNA score (e.g. 12/12) as necessarily indicating a larger population of GCN than a low eDNA score (e.g. 1/12).

Negative: No GCN DNA has been detected in this sample, and the internal and external controls worked as expected. This tells us that if there had been GCN DNA in the sample, we would have detected it, so we can be confident in its absence from the sample provided. Samples marked as 'Negative after dilution' are those where inhibition was detected (when the marker added in the lab fails to amplify) but overcome by diluting the DNA. Inhibition can be caused by certain chemicals or organic compounds that may be present in the water sample.

Inconclusive: No GCN DNA was detected in the sample, but the internal controls failed to amplify as expected. This means that any GCN DNA in the sample might also have failed to amplify properly, so we cannot have confidence in this negative result. Inconclusive results can be caused by degradation of the DNA (when the DNA marker contained in the ethanol in the kits fails to amplify) or by inhibition of the reaction (when the marker added in the lab fails to amplify) caused by certain chemicals or organic compounds that may be present in the water sample.

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8H

Baseline Report: Reptiles

PUBLIC

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EDF Energy

Hinkley Point B Decommissioning EIA

Baseline Report: Reptiles

Wood Environment & Infrastructure Solutions UK Limited – December 2019

wood.

Report for

[redacted]

Main contributors

[redacted]

Issued by

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Doc Ref. 41491-WOD-XX-XX-RP-OE-0009_S4_P01

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This document has been produced by Wood Environment & Infrastructure Solutions UK Limited in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and OHSAS 18001 by LRQA.

Document revisions

No.	Details	Date
1	Draft	October 2019
2	Final	December 2019

Contents

1. Introduction

1.1 Purpose of this report

EDF Energy proposes to start preparation for waste processing facilities (Operational and Decommissioning Waste) and waste stores (ILW Store) at Hinkley Point B (HPB) to support decommissioning activities following the End of Generation (EoG), which is currently scheduled to be in 2023. Prior to the construction of these facilities, planning permission from the Local Planning Authority (LPA) under The Town and Country Planning Act 1990 (TCPA) will be required. Other permissions and consents for the overall decommissioning project will be required separately under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning (EIAD)) Regulations, 1999, as amended, and EURATOM Article 37 (or an equivalent).

The current strategy is for an EIA to be undertaken and a single Environmental Statement (ES) to be prepared to assess the environmental impacts of the proposed decommissioning project under both the TCPA and EIAD Regulations. Other consents for specific activities will also be required and can draw on the EIAs.

This report sets out information about the reptile survey that was undertaken to inform the EIA of the HPB Decommissioning Project. It includes a brief description of the proposed HPB Decommissioning Project before setting out information about the reptile survey methods, results and conclusions.

1.2 Scheme description

Decommissioning at HPB is expected to commence in 2023. The site location is shown on **Figure 1.1, Appendix A**. Once the necessary consent is in place, the decommissioning process ('the Project') would commence with the process of defueling and initial decommissioning, with spent fuel transferred to the Sellafield nuclear licensed site. Over approximately a 15-year period there would be a process of safe storage and management of intermediate and low-level waste, with intermediate level waste stored temporarily on-site, in sealed and shielded containers within designed stores that have similar characteristics to industrial units, and low-level waste being transferred to appropriate treatment or disposal facilities. In parallel with these tasks, redundant buildings will be de-planted and demolished.

This initial decommissioning phase will include construction of waste processing facilities and a secure, weathertight, Safestore structure - a clad, steel-framed structure based around the Reactor Building - will be constructed, to enclose the Advanced Gas-cooled Reactors, allowing the process of radioactive decay to reduce dose to significantly lower levels. The second phase of decommissioning – Care & Maintenance - will involve ongoing site/station care and maintenance over a period of approximately 70 years. The third phase will involve reactor building decommissioning and final site clearance, involving site-wide demolition of the remaining buildings and remediation to an extent conforming to the applicable regulations at the time, followed by back-filling. Aside from the defueling and management of waste storage and decay processes, the site will operate similar to a conventional construction/demolition site.

1.3 Site context

The HPB station ('the site' or 'the station') is approximately 12 km to the north west of Bridgwater, in Bridgwater Bay at the mouth of the River Severn and on the southern flank of the Bristol Channel. The centre of the station is at approximate National Grid Reference (NGR) ST 212 459 and the area that is subject to the Nuclear Site Licence (NSL) extends to approximately 47ha.

The majority of the station is built structures and hard standing (mainly access and car parks). Bridgwater Bay is to the north. To the south, west and east of the site there is a fringe of woodland and scrub, with areas

of open grassland. Hinkley Point A borders the HPB NSL boundary to the west and further west beyond this is the Hinkley Point C development. The wider landscape to the south and east is agricultural.

2. Methods

2.1 Study area

The Site includes the land inside the HPB double security fence and the land that is covered by the HPB Nuclear Site Licence (NSL). The majority of the non-operational land within the Site is designated as Hinkley Local Wildlife Site (LWS), which is managed for biodiversity by EDF Energy and Somerset Wildlife Trust (SWT). The reptile Study Area focuses on suitable reptile habitats within the Site and a 100m perimeter (buffer) area as indicated on **Figure 2.1, Appendix A**.

2.2 Desk study

A desk-based study was undertaken to collate and review existing information on ecological features that are known to occur, or have previously been recorded, on land within and surrounding the Study Area defined in Section 2.1. These features include sites designated for nature conservation; habitats of importance for nature conservation; and legally protected and/or otherwise important species (including reptiles). The desk study is detailed in a separate report (*Hinkley Point B Decommissioning – Baseline Report: Desk Study [Terrestrial Ecology*]).

Data collected from the Somerset Environmental Records Centre (SERC), includes details of species recorded within approximately 3 km of the Site. The HPB Land Management Annual Reviews[1] (LMAR) and Integrated Land Management Plan[2] (ILMP) also include details of species (including reptiles) recorded within the Study Area.

2.3 Reptile survey

Survey objectives

All four widespread species of reptile[3] that are native to Britain are legally protected: adder (*Vipera berus*), common lizard (*Zootoca vivipara*), grass snake (*Natrix natrix*) and slow worm (*Anguis fragilis*). They are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence to intentionally or recklessly kill or injure any of these species. All four species are also Species of Principal Importance for the Conservation of Biological Diversity in England, having been identified as such by the Secretary of State in accordance with Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act 2006). The potential effects of development on reptiles are therefore of material consideration in determining planning applications.

The purpose of the reptile survey was to determine the status of these species within the Study Area. These surveys derive the baseline status of reptile populations against which the predicted effects of the HPB Decommissioning project on these species will be assessed. Where necessary, the survey data will also inform plans to mitigate any effects of the HPB Decommissioning project on reptiles.

[1] EDF Energy Nuclear Generation Ltd (2014 to 2018). Hinkley Point B Land Management Annual Review
[2] EDF Energy Nuclear Generation Ltd (2018) Hinkley Point B Integrated Land Management Plan.
[3] The other two native species of British reptile (sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*)) are afforded a higher level of legal protection under the *Conservation of Habitats and Species Regulations 2017* and the *Wildlife and Countryside Act 1981* (as amended). However, the distribution of these species is restricted to only a small number of sites.

Data collection locations

A review of 1:10,000 scale Ordnance survey (OS) maps[4], aerial imagery (Google Earth Pro) and the Phase 1 Habitat survey, which is reported separately (*HPB Decommissioning EIA – Baseline Report: Phase 1 Habitat Survey*), informed the targeting of survey effort. The survey targeted the habitats that are suitable for reptiles within the Study Area defined in Section 2.1, including semi-improved grassland, tall ruderal vegetation, standing water and scrub, including variable mosaics of these habitat types. Within these areas the surveys targeted, but were not restricted to, habitats that appeared to be suitable for reptile foraging, hibernation/refuge and basking (Froglife, 1999[5]). The Study Area, including the data collection locations (artificial survey refugia), is marked on **Figure 2.1, Appendix A**.

Data collection methods

The reptile surveys were undertaken in accordance with good practice (Griffiths and Inns 1998[6]; Froglife 1999) between June and September 2019. Reptile activity is dependent on weather conditions and the surveys were conducted as far as practicable under optimum survey conditions (Froglife 1999) - intermittent sunshine with little or no wind, particularly after a spell of cooler or wetter weather, with air temperatures between 9-18°C. Details of the survey dates and weather conditions during the surveys are included in Section 3.

A total of 117 artificial reptile refugia, in this case squares (approximately 0.5 m x 1 m) of roofing felt and metal ('tins'), were deployed throughout suitable reptile habitats within the Study Area defined in **Section 2.1**. The reptile refugia were deployed at a minimum density of 10 per hectare of suitable habitat in accordance with good practice (Froglife, 1999). In places refugia densities exceeded this minimum, primarily within areas of highly variable habitat and/or habitats that are particularly suitable for reptiles. Refugia were deployed to sample the most suitable reptile habitats and also adjacent sub-optimal/marginal habitats, rather than being distributed evenly throughout the survey areas.

The refugia were left undisturbed for a minimum period of one week. During this bedding in period the vegetation beneath the refugia began to senesce, creating warm, humid conditions often favoured by reptiles. Following the bedding-in period ecologists checked beneath (and on top of/near) the refugia on 20 separate occasions (survey visits), during suitable weather conditions as indicated above and recorded presence/absence and numbers/species of reptiles. The surveyors also walked slowly/cautiously through areas of suitable reptile habitats and recorded the locations of any basking or foraging reptiles that were observed. Any existing potential reptile refugia, in particular log-piles, wood debris and rubble were also searched for reptiles.

[4] www.ordnancesurvey.co.uk

5 Froglife. (1999). *Reptile survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.

6 Griffiths, R. and Inns, H. (1998). Surveying. In: Gent, A. H. and Gibson, S. D. eds. *Herpetofauna workers' manual.* Joint Nature Conservation Committee, Peterborough, pp1-13.

3. Results

3.1 Desk study

The desk study is detailed in a separate report (*HPB Decommissioning EIA – Baseline Report: Desk Study [Terrestrial Ecology]*). SERC do not hold any records of reptiles within 3km of the Site. However, the HPB ILMP and LMAR previously reported a 'good population' of slow worm and a 'low population' of grass snake, within the Study Area in 2010. There are also unconfirmed records of common lizard within this area. These reptile records were amongst scrub/grassland mosaic and along hedges and ponds.

3.2 Reptile survey

The survey results are included in **Appendix B** and summarised on **Figure 3.1**, **Appendix A**. Two reptile species were recorded: slow worm and grass snake. Other species recorded during the survey include: pygmy shrew (*Sorex minutus*), common shrew (*Sorex araneus*), voles and common toad (*Bufo bufo*).

The slow worm records are focused on tall ruderal vegetation to the southwest of the double security fence, within the NSL boundary. A single juvenile grass snake was recorded in semi-improved grassland ~95m southeast of the NSL area, adjacent to a sewage treatment works compound. A juvenile grass snake skin was recorded under artificial refugia amongst tall ruderal vegetation at the southeast corner of the Site.

Two approaches to categorising relative reptile population sizes (Herpetofauna Groups of Britain and Ireland [HGBI] 1998 [7]; and Froglife 1999) are summarised in **Table 3.1**. Based on the application of these approaches to the survey results (**Table 3.2)**, the Study Area supports low population of slow worm and a low population of grass snake.

Table 3.1 Reptile population size categories

Reptile population size categories

	HGBI 1998			Froglife 1999*		
	LOW	MEDIUM	HIGH	LOW	MEDIUM	HIGH
Grass snake	< 2/ha	2-4/ha	>4/ha	<5	5-10	>10
Slow worm	< 50/ha	>50/ha	>100/ha	<5	5-20	>20

* Maximum number of adults observed and/or recorded under refugia (deployed at a density of up to 10/ha) by one person in one day.

Table 3.2 Reptile population size estimates

Species	Maximum adult count	Population size category
Grass snake	1*	Low
Slow worm	3	Low

*Population estimates are based on the count of 'adult' reptiles, however, as only one juvenile grass snake was recorded it has been included to avoid overlooking the presence of a small population of this species.

[7] Herpetofauna Groups of Britain and Ireland (HGBI) (1998). *Evaluating local mitigation/translocation programmes: Maintaining best practice and lawful standards.* HGBI advisory note for Amphibian and Reptile Groups (ARGs).

4. Summary and conclusions

4.1 Current baseline

The survey recorded a peak count of three slow worms and one juvenile grass snake. The Study Area therefore supports a low population of slow worm and a low population of grass snake. The survey results indicate a concentration of slow worms to the south west of the double security fence, inside the NSL boundary, in an area of tall ruderal vegetation and scattered scrub. The grass snake was recorded approximately 95m southeast of the Site/NSL boundary, adjacent to a sewage works compound.

Appendix A
Figures

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320000
321000
322000
146000
145000

N

Hinkley Point 'A'
Hinkley Point 'A'

West Brook
Stolford
North Moor
Wick Moor
Wick Moor Drove
East Brook
Ridgeway Lane
Crossway
Green Shutters
Doggetts
Head Weir House
Wick
Sunshine Lodge
Zine Farm
Wick Pound House

Key

Hinkley Point B Nuclear Site Licence boundary

Double security fence

0 100 200 300 400 500 m
Scale at A3: 1:10,000

Hinkley Point B Decommissioning EIA
Baseline Report: Reptiles

Figure 1.1
Site location plan

December 2019

wood.

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321000

321500

146000

145500

Boulders, Mud and Rock

Rock

Shingle

Mean High Water

Slipway

Tank

Travelling Crane

Tanks

Outfalls

7.8m

7.9m

Track

Hankley Brake

Chimney

Outfall

MHW

Mast (telecommunication)

Hinkley Point 'A'

11.0m

WB

El Sub Sta

17.0m

Branland Copse

16.6m

Mast

Path (um)

FB

Issues

Drain

Sewage Works

Pond

Sluice

Pixie's Mound
Tumulus

12.0m

11.2m

ETL

North Moor

Key

Hinkley Point B Nuclear Site Licence boundary

Double security fence

100 m buffer

Artificial refugia

0 50 100 150 200 m

Scale at A3: 1:4,000

Hinkley Point B Decommissioning EIA
Baseline Report: Reptiles

Figure 2.1
Reptile study area

December 2019

wood.

H:\Projects\41491 NTH Ecology EIA Scoping for Phase 1 Decommissioning (subfolder)\D Design Technical\HPB\Drawings\ArcGIS\41491-WOD-XX-XX-FG-OE-0033_S2_P01.mxd Originator: jacqui.parkin

321000

321500

146000

145500

N

Boulders, Mud and Rock

Rock

Shingle

Mean High Water

Mean High Water

Mean High Water

Mean High Water

Slipway

Tank

Travelling Crane

Tanks

Tank

Tank

Chy

Tanks

Tanks

Tanks

Tanks

Tanks

Tanks

Chimney

Chimney

Hankley Brake

Track

7.9m

Outfalls

7.8m

Outfall

MHW

FB

Mast (telecommunication)

Hinkley Point 'A'

11.0m

WB

Tanks

El Sub Sta

Tank

17.0m

El Sub Sta

Hinkley Point 'A'

Branland Copse

Issues

Drain

Drain

Track

Path (um)

Pond

Pond

Drain

Sewage Works

16.6m

Mast

Path (um)

Mast

FB

Sluice

FB

Drain

Pixie's Mound

Tumulus

Pond

12.0m

11.2m

ETL

Drain

Path (um)

Track

North Moor

Drain

Track

FB

FB

Key

Hinkley Point B Nuclear Site Licence boundary

Double security fence

100 m buffer

Grass Snake

Slow Worm

0 50 100 150 200 m

Scale at A3: 1:4,000

Hinkley Point B Decommissioning EIA
Baseline Report: Reptiles

Figure 3.1
Reptile survey results

December 2019

wood.

Appendix B Reptile survey details

Reptile survey results

Date	Refugia ID	Slow worm (male)	Slow worm (female)	Slow worm (sub adult)	Grass snake
25/06/2019	1	1			
	4	1			
	5		1		
27/06/2019	21		1		
01/07/2019	1		1		
	4	1			
03/07/2019	-				
05/07/2019	5	1			
08/07/2019	-				
10/07/2019	3		1		
12/07/2019	-				
17/07/2019	3		1		
06/08/2019	24		1		
09/08/2019	-				
15/08/2019	5		1		
	21		1		
	34				1
21/08/2019	5	1			
	21			1	
23/08/2019	4		1		
02/09/2019	-				
04/09/2019	-				
11/09/2019	21		1		
13/09/2019	23		1		
17/09/2019	-				

Date	Refugia ID	Slow worm (male)	Slow worm (female)	Slow worm (sub adult)	Grass snake
19/09/2019	69T				1 (shed skin)

Reptile survey dates and weather conditions

Survey Date	Time		Temperature (°C)		Wind Speed*	Cloud Cover (%)
	Start	End	Start	End		
25/06/2019	14:00	15:30	19	19	calm	100
27/06/2019	08:00	09:15	16	16	light	5
01/07/2019	08:15	09:30	16	16	moderate	90
03/07/2019	08:00	09:30	18	20	calm	0
05/07/2019	09:30	10:30	19	19	calm	40
08/07/2019	14:10	15:40	23	23	light	5
10/07/2019	08:05	09:20	16	19	calm	60
12/07/2019	08:00	09:15	17	19	calm	20
17/07/2019	08:15	12:00	18	21	calm	80
06/08/2019	08:30	10:30	16	19	moderate	20
09/08/2019	07:20	09:45	18	19	calm	70
15/08/2019	08:30	10:00	17.4	20.1	light	80
21/08/2019	08:20	11:00	12	15	calm	10
23/08/2019	08:20	11:00	13	17	calm	10
02/09/2019	08:45	10:30	13	17	calm	80
04/09/2019	08:30	10:13	16	18	moderate	30
11/09/2019	08:30	10:00	16	19	light	95
13/09/2019	08:45	10:00	14	16	moderate	30
17/09/2019	08:35	10:15	15	16	calm	0
19/09/2019	08:25	10:25	12	15	calm	5

* **Calm** - <3mph = Smoke goes straight up or drifts slightly. Wind not detectable on face; **Light** - 4-12mph = Leaves rustle and move; ripples on lakes. Breeze can be felt on face; **Moderate** - 13-24mph = Wind rises dust and loose paper; small branches and small trees sway; small waves on lakes.

8I

Baseline Report: Invertebrates

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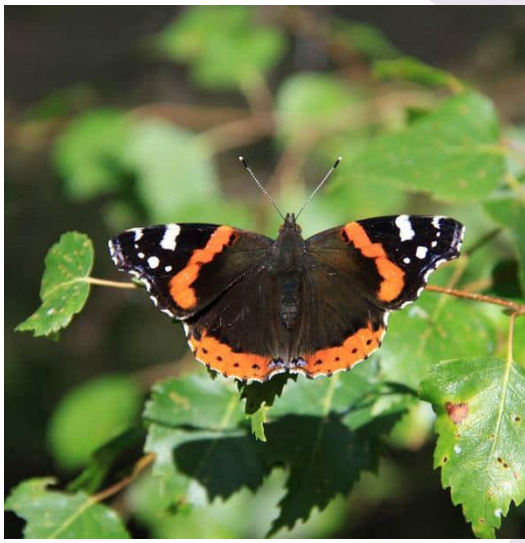
EDF Energy

Hinkley Point B Decommissioning EIA

Baseline Report: Invertebrates



Wood Environment & Infrastructure Solutions UK Limited March 2020

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Document revisions

No.	Details	Date
1	Draft	October 2019
2	Final	December 2019
3	Final	March 2020

Contents

1 Introduction

1.1 Purpose of this report

EDF Energy proposes to start preparation for waste processing facilities (Operational and Decommissioning Waste) and waste stores (ILW Store) at Hinkley Point B (HPB) to support decommissioning activities following the End of Generation (EoG), which is currently scheduled to be in 2023. Prior to the construction of these facilities, planning permission from the Local Planning Authority (LPA) under The Town and Country Planning Act 1990 (TCPA) will be required. Other permissions and consents for the overall decommissioning project will be required separately under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning (EIAD)) Regulations, 1999, as amended, and EURATOM Article 37 (or an equivalent),

The current strategy is for an EIA to be undertaken and a single Environmental Statement (ES) to be prepared to assess the environmental impacts of the proposed decommissioning project under both the TCPA and EIAD Regulations. Other consents for specific activities will also be required and can draw on the EIAs.

This report sets out information about the invertebrate survey that was undertaken to inform the EIA of the HPB Decommissioning Project. It includes a brief description of the proposed HPB Decommissioning Project before setting out information about the invertebrate survey methods, results and conclusions.

1.2 Scheme description

Decommissioning at HPB is expected to commence in 2023. The site location is shown on **Figure 1.1, Appendix A**. Once the necessary consent is in place, the decommissioning process ('the Project') would commence with the process of defueling and initial decommissioning, with spent fuel transferred to the Sellafield nuclear licensed site. Over approximately a 15-year period there would be a process of safe storage and management of intermediate and low-level waste, with intermediate level waste stored temporarily on-site, in sealed and shielded containers within designed stores that have similar characteristics to industrial units, and low-level waste being transferred to appropriate treatment or disposal facilities. In parallel with these tasks, redundant buildings will be de-planted and demolished.

This initial decommissioning phase will include construction of waste processing facilities and a secure, weathertight, Safestore structure - a clad, steel-framed structure based around the Reactor Building - will be constructed, to enclose the Advanced Gas-cooled Reactors, allowing the process of radioactive decay to reduce dose to significantly lower levels. The second phase of decommissioning – Care & Maintenance - will involve ongoing site/station care and maintenance over a period of approximately 70 years. The third phase will involve reactor building decommissioning and final site clearance, involving site-wide demolition of the remaining buildings and remediation to an extent conforming to the applicable regulations at the time, followed by back-filling. Aside from the defueling and management of waste storage and decay processes, the site will operate similar to a conventional construction/demolition site.

1.3 Site context

The HPB station ('the site' or 'the station') is approximately 12 km to the north west of Bridgwater, in Bridgwater Bay at the mouth of the River Severn and on the southern flank of the Bristol Channel. The centre of the station is at approximate National Grid Reference (NGR) ST 212 459 and the area that is subject to the Nuclear Site Licence (NSL) extends to approximately 47ha.

The majority of the station is built structures and hard standing (mainly access and car parks). Bridgwater Bay is to the north. To the south, west and east of the site there is a fringe of woodland and scrub, with areas

of open grassland. Hinkley Point A borders the HPB NSL boundary to the west and further west beyond this is the Hinkley Point C development. The wider landscape to the south and east is agricultural.

2 Methods

2.1 Study area

The site includes the land inside the HPB double security fence and the land that is covered by the HPB Nuclear Site Licence (NSL). The majority of the non-operational land within the Site is designated as Hinkley Local Wildlife Site (LWS), which is managed for biodiversity by EDF Energy and Somerset Wildlife Trust (SWT). The invertebrate Study Area includes the habitats within the Site, focusing mainly on, but not restricted to, the land within a 50m perimeter area around the HPB double security fence. The Study Area is indicated on **Figure 2.1, Appendix A**.

2.2 Desk study

A desk-based study was undertaken to collate and review existing information on ecological features that are known to occur, or have previously been recorded, on land within and surrounding the Study Area defined in Section 2.1. These features include sites designated for nature conservation; habitats of importance for nature conservation; and legally protected and/or otherwise important species (including invertebrates). The desk study is detailed in a separate report (*Hinkley Point B Decommissioning – Baseline Report: Desk Study [Terrestrial Ecology*]).

Data collected from the Somerset Environmental Records Centre (SERC), includes details of species (including invertebrates) recorded within approximately 3 km of the Site. The HPB Land Management Annual Reviews[1] (LMAR) and Integrated Land Management Plan[2] (ILMP) also include details of species (including invertebrates) recorded within the Study Area.

2.3 Field survey

Survey objectives

The purpose of the invertebrate survey was to collect information on the status of the invertebrate populations/assemblages associated with the Study Area referred to in **Section 2.1**. This includes identifying the presence of any species that are:

- Legally protected invertebrate species, which are those listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) or Schedule 2 of the Conservation of Habitats and Species Regulations, 2017;
- Invertebrate species that are Species of Principal Importance for the Conservation of Biological Diversity in England, having been identified as such by the Secretary of State in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (S41 species). This list was drawn up as part of the UK Post 2010 Biodiversity Framework, which succeeded the UK Biodiversity Action Plan (BAP). However, the UK BAP list of Priority species remains an important reference source and has been used in drawing up the S41 list (in England); and
- Terrestrial invertebrate species that have been identified as having other rarity status: 'Red Data Book', 'Nationally Scarce' (previously 'Notable') and 'Local' status have been developed and are used by Natural England (NE), the Joint Nature Conservation Committee (JNCC) and other nature

[1] EDF Energy Nuclear Generation Ltd (2014 to 2018). Hinkley Point B Land Management Annual Review
[2] EDF Energy Nuclear Generation Ltd (2018) Hinkley Point B Integrated Land Management Plan.

conservation organisations. Since 1995, International Union for Conservation of Nature (IUCN) categories have been adopted by JNCC as the new standard for Red Lists in Britain. JNCC aims to work towards assessing the status of all native species against standard criteria based on the internationally accepted guidelines developed by the IUCN (IUCN, 2001[3], 2003[4]). The way statuses are assigned is described in **Appendix B**.

The potential effects of development on invertebrates are a material consideration in determining planning applications. The invertebrate survey derives the baseline status of this group/assemblage within the Study Area, against which the predicted effects of the HPB Decommissioning Project will be assessed. Where necessary, the survey data will also inform plans to mitigate any effects of the HPB Decommissioning Project on invertebrates.

Data collection locations

A review of 1:10,000 scale Ordnance survey (OS) maps[5], aerial imagery (Google Earth Pro) and the Phase 1 Habitat survey, which is reported separately (*HPB Decommissioning EIA – Baseline Report: Phase 1 Habitat Survey*), informed the targeting of survey effort. The survey targeted the habitats that are suitable for invertebrates within the Study Area defined in Section 2.1, focusing primarily on, but not limited to, semi-natural habitats within a 50m perimeter/buffer around the HPB double security fence, including woodland, scrub, semi-improved grassland, tall ruderal vegetation and ponds, including mosaics of these habitat types. The Study Area and the habitats within it are marked on **Figure 2.1, Appendix A**.

The habitats within the Study Area are separated into habitat compartments as part of the annual management and monitoring of the HPB estate. Each habitat compartment is assigned a code (letter and number), with the letter generally denoting the most prevalent habitat type within the compartment e.g. woodland (W), scrub (S), grassland (G) and pond (P). The compartment numbers are included on **Figure 2.1**.

Data collection methods

Terrestrial Habitats

Terrestrial invertebrate surveys were undertaken using a 40cm diameter sweep net mounted on a metre-long angling pole. The net was passed through and near low vegetation, overhanging tree branches, woody scrub and over partly bare ground. Invertebrates caught with the sweep net were selectively removed with a pooter (or aspirator) and stored/preserved for laboratory sorting and identification. This sweep netting was combined with manual searches, for example, under stones, fallen wood/wood debris and on flowers. Conspicuous species such as butterflies, day-flying moths, adult dragonflies and other prominent species were identified in the field.

Ponds

Pond netting was undertaken at two ponds (P1 and P2, **Figure 2.1**). P1 is to the south of the eastern edge of the NSL boundary, east of a sewage treatment works. P2 is to the south of an electricity substation, within the NSL area. The pond net had a steel frame, with a standard 1 millimetre mesh, mounted on a wooden pole. The invertebrate samples were collected over three minutes of netting at each pond and each sample was sieved to remove coarse substrate/debris, washed, placed in a sample pot and preserved for laboratory processing. This processing involved further gentle sieving to remove mud and other fine debris and sorting

[3] International Union for Conservation of Nature (IUCN). (2001). IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission. IUCN, Gland and Cambridge.
[4] International Union for Conservation of Nature (IUCN). (2003). Guidelines for the Application of IUCN Red List Criteria at Regional Levels: Version 3.0. IUCN Species Survival Commission. IUCN, Gland and Cambridge.
[5] www.ordnancesurvey.co.uk

of the entire sample, which was spread throughout petri-dishes and examined under a binocular stereoscopic microscope.

Survey dates and weather conditions

The survey dates and weather conditions are summarised in **Table 2.1**.

Table 2.1 Weather conditions during the invertebrate surveys

Date	Weather conditions
15th August 2019	100% cloud at start of survey. Drizzle initially, clearing quickly and hot and sunny with 90% clear sky by mid-morning. Increasing offshore (SW) wind.
16th August 2019	100% cloud at the start of the survey. Initial drizzle turned to more persistent rain. 16-18℃. Rain stopped (Sampling Pond 1), followed by further light rain (sampling G6).
4th September 2019	Sunny, warm and dry with 40% cloud cover at the start of the survey. Strong breeze noted (compartment W6).
9th September 2019	Vegetation and ground wet at start of survey. 100% cloud cover (sampling at W5). Sun appearing mid-morning (Sampling at S2). Clouded over and drizzle (sampling at G5), which soon stopped.
20th September 2019	Sunny, mild and dry. Sunny and warm (sampling at S2).

Species identification

Target groups for terrestrial invertebrates have been identified, which are considered to be habitat indicators. These include Orthoptera (grasshoppers and allies), Odonata (damselflies and dragonflies), shieldbugs and grassbugs, selected Coleoptera (beetles), butterflies, day-flying moths, selected Diptera and selected aculeate Hymenoptera (ants, bees and wasps). These have generally been identified to species.

The standard macroinvertebrate groups were recorded and identified to species, except where represented by immature, damaged specimens, species-pairs or unidentifiable females. The smaller invertebrate groups such as Oligochaeta (freshwater segmented worms), Ostracoda (mussel shrimps), Cladocera (water fleas) and insect larvae such as limonid (smaller craneflies) and chironomids (non-biting midges) have been identified to the most appropriate level.

Constraints

The grassland was difficult to sample (sweep-net) due to the spiny leaves of teasel (*Dipsacus fullonum*), which is abundant within the study area and tore the net, and agrimony (*Agrimonia eupatoria*) seeds, which stuck to the net. Pond 1 was difficult to access/sample due to waterlogged margins, steep banks/drop-off and fringing reedbeds. Use of different sampling methods such as pitfall trapping, moth trapping and/or the use of Malaise traps would result in more species being recorded for all taxonomic groups and from all the habitats within the Study Area. Similarly sampling more frequently or earlier in the season would add to the species list. However, based on the available information on the HPB Decommissioning Project to date, the survey effort is likely to be sufficient to inform the EIA.

Weather conditions were variable throughout the surveys (**Table 2.1**), in some cases becoming sub-optimal, however the surveyor adapted the survey methods during intermittent periods of rain, for example pond netting, recording leaf mines and plant galls and searching under reptile mats during wetter conditions.

3 Results

3.1 Desk study

The desk study is detailed in a separate report (*HPB Decommissioning EIA – Baseline Report: Desk Study [Terrestrial Ecology]*). SERC hold records of a number of invertebrate species that are noteworthy, in terms of being comparatively rare/uncommon, within 3km of the Site, within the past 10 years[6]. These are summarised in **Table 3.1**.

Table 3.1 Invertebrate records (within the last 10 years)

Species	Most recent record	Proximity to the site	Status*
A beetle *(Agabus (Gaurodytes) conspersus)*	27/09/2010	~243m southeast of Site	S41, LBAP
Brown Argus (*Aricia agestis*)	28/09/2016	Within the Site boundary	S41, LBAP
Ear Moth (*Amphipoea oculea*)	31/12/2012	~512m southwest of Site	S41, LBAP
Migrant Hawker (*Aeshna mixta*)	30/09/2013	~21m west of Site	S41, LBAP
Ornate Brigadier (*Odontomyia ornata*)	27/09/2010	~692m southeast of Site	RDB, LBAP
Small Heath (*Coenonympha pamphilus*)	08/09/2014	Within the Site boundary	S41, LBAP
Common fan-foot (*Pechipogo strigilata*)	30/07/2014	~512m southwest of Site	S41, LBAP
Wall (*Lasiommata megera*)	27/09/2010	Species is within Site boundary	S41, LBAP
White ermine (*Spilosoma lubricipeda*)	27/09/2010	~512m southwest of Site	S41, LBAP

*__S41__ – Species of Principal Importance for Biodiversity Conservation in England; **LBAP** – Somerset Biodiversity Action Plan Species

The HPB ILMP and LMAR also report invertebrate records within the HPB estate, including the results of annual butterfly monitoring, which has recorded a diverse assemblage of butterflies (24 species), including species of Principal Importance (S41 species), including grayling (*Hipparchia semele*), wall and small heath. Other invertebrate species recorded include hairy dragonfly (*Brachytron pratense)* which is a Red List species (Least Concern) and a number of Notable species – a diving beetle (*Agabus uliginosus*), a reed beetle (*Donacia clavipes)*, scarce fungus-beetle (*Platyrhinus resinosus)* and the fly – *Anagnota bicolour*. The ILMP/LMAR reports low invertebrate diversity in ditches within the HPB estate.

[6] The invertebrate records included in this report and the separate desk report are limited to records within the past 10 years. This is to exclude older records that could risk misrepresenting the baseline status of invertebrates at/surrounding the Site.

3.2 Field survey

Terrestrial Invertebrates

The survey recorded 304 terrestrial invertebrate species. The results are included in **Appendix C. (Table C1)** Although no Species of Principal Importance (S41 species) where recorded, the results include one Red Data Book species, one pNationally Scarce species, two Notable species and one Least Concern species. All five of these species are flies (Diptera):

- A snail-killing fly *(Dichetophora finlandica*) - Red Data Book 3;
- *Homoneura notata* - pNationally Scarce;
- A small cranefly *(Gonomyia conoviensis)* – Notable;
- A picture-winged fly *(Acanthiophilus helianthin)* – Notable; and
- *A soldier fly (Chorisops nagatomii)* - Least Concern;

Aquatic (Pond) Invertebrates

The survey recorded a total of 47 aquatic invertebrate taxa. The results are included in **Appendix C (Table C2).** No species of particularly notable nature conservation value were recorded, although the water beetle *Berosus affinis* was previously categorised as 'Nationally Scarce B' and more recently downgraded to 'Local' (Foster 2010[7]) status.

Invertebrate habitats

Grassland

Grasslands within the Study Area appear to support a diverse flora, with species such as ploughman's spikenard (*Inula conyzae*), yellow-wort (*Blackstonia perfoliata*), ladies bedstraw (*Galium verum*) and wild parsnip (*Pastinaca sativa*) often associated with good invertebrate diversity. Ruderal species encroaching on the grassland include teasel, agrimony, knapweed (*Centaurea nigra*), thistles (Cirsium sp.) and dogwood (*Cornus sanguinea*).

Although the coastal invertebrate species recorded during the survey are generally common, the areas of coastal grassland and associated/adjacent shingle beach and strandline are notable invertebrate habitats.

The picture-winged fly *Acanthiophilus helianthi* was only recorded from the grassland. The pNationally Scarce species *Homoneura notata* was also recorded from the grassland, as well as woodland. The presence of jet black ant (*Lasius fuliginosus*) is noteworthy, a distinctive species that tends to have a local distribution and has a complicated life cycle, being a secondary parasite of other ant species. Notably, brown argus (*Aricia agestis*), a small, inconspicuous and easily overlooked species that often has a local distribution, is common throughout the grassland.

Scrub

The scrub within the Study Area supports a range of woody species, such as wild privet (*Ligustrum vulgare*), dogwood (*Cornus sanguinea*), wayfaring tree (*Viburnum lantana*) and alder buckthorn (*Frangula alnus*), along

[7] Foster, G.N. (2010) *A review of the scarce and threatened Coleoptera of Great Britain. Part 3 Water beetles of Great Britain*. Species Status No. 1. JNCC.

with more frequent species. The diversity of scrub species would be expected to support a diverse invertebrate assemblage.

The RDB3 snail-killing fly *Dichetophora finlandica* was only recorded from scrub. The presence of galls created by the larvae of the midge species *Craneiobia corni,* which are spherical galls 2-3cm diameter on the leaves of plants is noteworthy, as this is not a frequently encountered species.

Woodland

The woodland supports a range of woody species, including occasional Spindle (*Euonymus europaeus*) and alder buckthorn, similar to the species within areas of scrub and provides a range of foodplants, nectar sources and shelter that are suitable for a wide range of invertebrate species. Notably wild madder (*Rubia peregrina*) within the woodland exhibits leafmines, which could not be identified/attributed to a corresponding invertebrate species. Management of the woodland is apparent.

Some areas of woodland (W4 and W5, **Figure 2.1**) support mature coppiced trees with cavities, which are potential habitat for saproxylic invertebrates. The woodland (W7) on the north east side of HPB is less diverse, which may indicate disturbance, the influence of salt spray from the Severn Estuary or other factors.

The Notable cranefly *Gonomyia conoviensis* and Least Concern soldierfly *Chorisops nagatomii* were only recorded from the woodland, whilst the pNationally Scarce *Homoneura notata* was recorded from the woodland and grassland. Other species recorded, that tend to have a local distribution, include the lapidary snail *Helicigona lapicida* and the holly blue (*Celastrina argiolus*).

Ponds

Pond 1 (P1, **Figure 2.1**) has shaded banks, predominantly deep water and >50% green algae cover, which could limit its aquatic invertebrate diversity.

Pond 2 (P2, **Figure 2.1**) has gradually sloping margins, shallow water and less shade, it also appears to be unpolluted, not nutrient enriched and supports various aquatic and emergent plants. This pond is therefore more notable in its capacity to support a diverse aquatic invertebrate assemblage.

4 Summary and conclusions

4.1 Current baseline

The survey recorded 304 terrestrial invertebrate species, including one Red Data Book species, one pNationally Scarce species, two Notable species and one Least Concern species:

- The snail-killing fly *Dichetophora finlandica* is a Red Data Book (RDB3) species recorded throughout England, with the majority of records from the fens and heaths of East Anglia and the East Midlands. This species occurs in fens, the damper parts of the breckland heaths and it has also been recorded from sand dunes. Shaded areas at the edges of woods or the edges of streams are favoured habitats. The larvae are likely to feed as parasitoids on aquatic snails. There are 64 records of this species on the National Biodiversity Network (NBN) Atlas[8], including records from South Wales and Dorset which are the closest to HPB;
- *Homoneura notata* (pNationally Scarce) is known from several southern counties in England, spreading into South Wales. The species has been recorded from a range of habitats including coastal scrub, fen, mid-dune grassland and a site at the edge of the East Anglian Brecklands. The early life stages are unknown, with larvae of this family believed to develop in decaying vegetable matter, including fallen leaves;
- The small cranefly *Gonomyia conoviensis* has 'Notable' status and has been widely recorded throughout England, Wales and Scotland. Many records are coastal although it can occur well inland, usually in upland areas. This species is associated with seepages, especially on vertical rock faces such as on coastal cliffs, and more rarely beside streams in upland areas. The larvae probably develop in seepages and in streamside sediment;
- The picture-winged fly *Acanthiophilus helianthin* has 'Notable' status (Falk et al 2005[9]) and has been recorded from scattered localities in England as far north as an unconfirmed record from Teesside. There are 101 records on the National Biodiversity Network Atlas, with four records in the South Yorkshire/Derbyshire area[10]. The larvae have been reared from the flower heads of common knapweed (*Centaurea nigra*) in Britain, although abroad they are known from some 50 species of composite plants. The adults have been recorded from July to September; and
- The soldier fly *Chorisops nagatomii* ('Least Concern') was added to the British list in 1979 when it was separated from *Chorisops tibialis*. It is known from widespread localities in southern England and Wales, with records as far north as Cumbria. It appears to prefer the peat soils of fens in some areas. A puparium was found in Britain in flood refuse on the muddy bank of a chalk stream flowing through water meadows.

The survey also recorded a total of 47 aquatic invertebrate taxa in two ponds. Although no species of particularly notable nature conservation value were recorded, the water beetle *Berosus affinis* was previously categorised as 'Nationally Scarce B' and remains at 'Local' (Foster 2010[11]) status.

[8] https://nbn.org.uk/
[9] Falk, S.J. and Crossley, R. (2005). *A review of the scarce and threatened flies of Great Britain. Part 3 Empidoidea*. Species Status No. 3. Joint Nature Conservation Committee.
[10] https://species.nbnatlas.org/species/NBNSYS0000012930.
[11] Foster, G.N. (2010) *A review of the scarce and threatened Coleoptera of Great Britain. Part 3 Water beetles of Great Britain*. Species Status No. 1. JNCC.

The mosaic of habitats within the Study Area, including grassland, coastal habitats, scrub and woodland, are diverse and support a diverse invertebrate assemblage that is consistent with the designation of this area as a Local Wildlife Site.

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Appendix A
Figures

H:\Projects\41491 NTH Ecology EIA Scoping for Phase 1 Decommissioning (subfolder)\D Design Technical\HPB\Drawings\ArcGIS\41491-WOD-XX-XX-FG-OE-0056_S2_P01.mxd Originator: jacqui.parkin

320000
321000
322000
146000
145000

Hinkley Point 'A'
Hinkley Point 'A'
North Moor
Wick Moor
West Brook
Stolford
Wick Moor Drove
Ridgeway Lane
East Brook
Crossway
Green Shutters
Doggetts
Head Weir House
Wick
Sunshine Lodge
Zine Farm
Wick Pound House

Key

Hinkley Point B Nuclear Site Licence boundary

Double security fence

0 100 200 300 400 500 m
Scale at A3: 1:10,000

Hinkley Point B Decommissioning EIA
Baseline Report: Invertebrates

Figure 1.1
Site location plan

December 2019

wood.

H:\Projects\41491 NTH Ecology EIA Scoping for Phase 1 Decommissioning (subfolder)\D Design Technical\HPB\Drawings\ArcGIS\41491-WOD-XX-XX-FG-OE-0008_S2_P01.mxd   Originator: jacqui.parkin

Key

- Hinkley Point B Nuclear Site Licence boundary
- Double security fence
- G4 Habitat compartment
- 50m buffer
- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Scrub- dense/continous
- SI SI Neutral grassland - semi-improved
- SI SI SI Poor semi-improved grassland
- Tall ruderal
- Ephemeral/scrub/ruderal mosaic
- Swamp
- Standing water
- A A A Amenity grassland
- Introduced shrub
- Buildings
- Bare ground
- Hardstanding
- Running water
- Intact hedge native species-rich
- Fence
- Sea wall
- Scrub - scattered
- Parkland and scattered trees- broad-leaved
- Short ephemeral

0 50 100 150 200 m

Scale at A3: 1:4,000

Hinkley Point B Decommissioning EIA
Baseline Report: Invertebrates

Figure 2.1
Study area

December 2019

wood.

Appendix B IUCN Red List Categories (1994) and the revised status system

The categories are summarised in the dendrogram (Insert 1). They have the advantage that the criteria are more rigorous than for the original system and are measures of threat rather than simply of localisation. This system was adopted in 1995 by the Joint Nature Conservation Committee as the new standard for Red Lists in Britain. The criteria can be applied both globally and nationally. Some criteria are inappropriate to most insects, being based on estimates of decline or on predictions that assume regular, detailed census. Those that are appropriate are listed below. New draft guidelines intended for use as national and regional levels (Gärdenfors et al. 1999) have not yet been accepted by JNCC and are not taken into account here.

Extinct in the Wild (Ex)

A taxon is considered extinct if there is good reason to believe that the species has become extinct in the wild in Britain. No precise threshold date is specified whereas the past definition was based on lack of records in the 20th Century.

Critically Endangered (CR)

A taxon is critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the following criteria [C-D omitted]:

A. Population reduction in the form of either of the following:

1. An observed, estimated, inferred or suspected reduction of at least 80% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
   (a) direct observation
   (b) an index of abundance appropriate for the taxon
   (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
   (d) actual or potential levels of exploitation
   (e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.
2. A reduction of at least 80%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

B. Extent of occurrence estimated to be less than 100 km^2 or area of occupancy estimated to be less than 10 km^2, and estimates indicating any two of the following:

1. Severely fragmented or known to exist at only a single location.
2. Continuing decline, observed, inferred or projected, in any of the following:
   (a) extent of occurrence
   (b) area of occupancy
   (c) area, extent and/or quality of habitat
   (d) number of locations or subpopulations
   (e) number of mature individuals.
3. Extreme fluctuations in any of the following
   (a) extent of occurrence
   (b) area of occupancy
   (c) number of locations or subpopulations
   (d) number of mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or 3 generations, whichever is the longer.

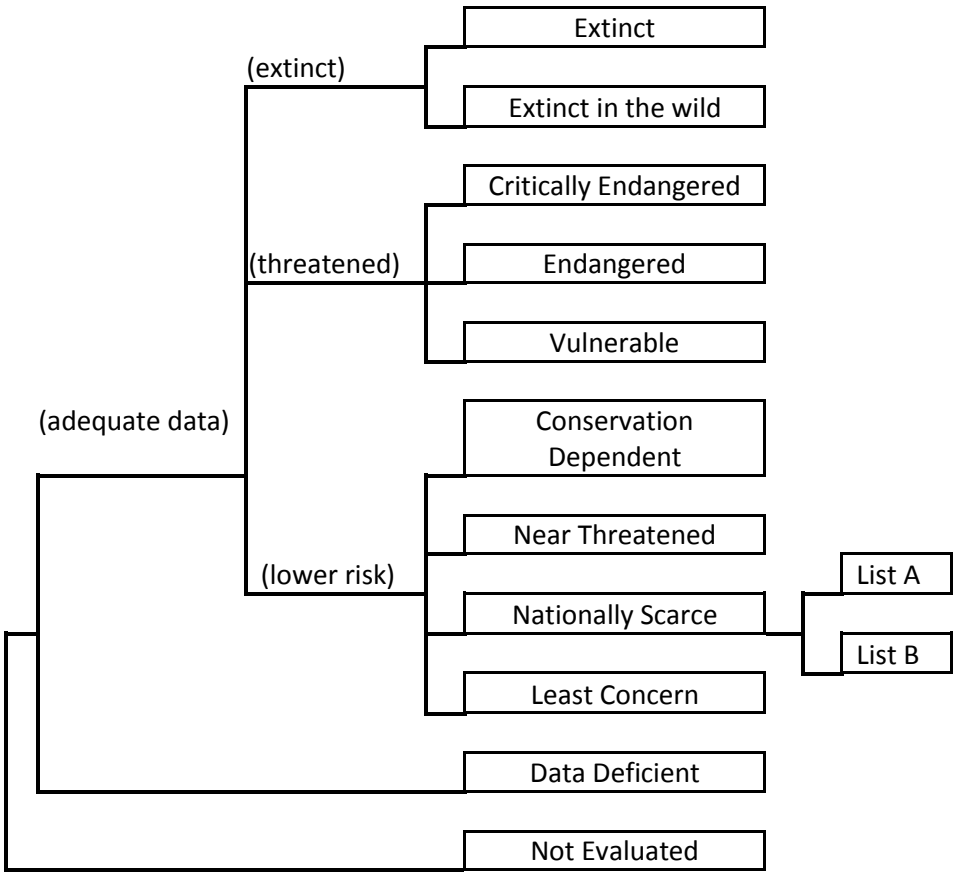
Endangered (EN)

A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the following criteria [C-D omitted]:

A. Population reduction in the form of either of the following:

1. An observed, estimated, inferred or suspected reduction of at least 50% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
   (a) direct observation
   (b) an index of abundance appropriate for the taxon
   (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
   (d) actual or potential levels of exploitation
   (e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.
2. A reduction of at least 50%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

Insert 1: Decision tree for IUCN categories.



B. Extent of occurrence estimated to be less than 5000 km^2 or area of occupancy estimated to be less than 500 km^2, and estimates indicating any two of the following:

1. Severely fragmented or known to exist at no more than five locations.
2. Continuing decline, observed, inferred or projected, in any of the following:
   (a) extent of occurrence

(b) area of occupancy
(c) area, extent and/or quality of habitat
(d) number of locations or subpopulations
(e) number of mature individuals.

3. Extreme fluctuations in any of the following
(a) extent of occurrence
(b) area of occupancy
(c) number of locations or subpopulations
(d) number of mature individuals.

E. Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or 5 generations, whichever is the longer.

Vulnerable (VU)
A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a very high risk of extinction in the wild in the medium-term future, as defined by any of the following criteria [C and D1 omitted]:

A. Population reduction in the form of either of the following:
1. An observed, estimated, inferred or suspected reduction of at least 20% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following:
(a) direct observation
(b) an index of abundance appropriate for the taxon
(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat
(d) actual or potential levels of exploitation
(e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.
2. A reduction of at least 20%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

B. Extent of occurrence estimated to be less than 20,000 km^2 or area of occupancy estimated to be less than 2000 km^2, and estimates indicating any two of the following:
1. Severely fragmented or known to exist at no more than five locations.
2. Continuing decline, observed, inferred or projected, in any of the following:
(a) extent of occurrence
(b) area of occupancy
(c) area, extent and/or quality of habitat
(d) number of locations or subpopulations
(e) number of mature individuals.
3. Extreme fluctuations in any of the following
(a) extent of occurrence
(b) area of occupancy
(c) number of locations or subpopulations
(d) number of mature individuals.

D. Population very small or restricted in the form of either of the following [only 2 relevant]:
2. Population is characterised by an acute distribution in its area of occupancy (typically less than 100 km^2) or in the number of locations (typically less than 5). Such a taxon would thus be prone to the effects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming Critically Endangered or even Extinct in a very short period.

E. Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

Lower Risk (LR)
A taxon is Lower Risk where it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the LR category can be separated into four subcategories.

1. **Conservation Dependent (LRcd).** Taxa, which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.
2. **Near Threatened (LRnt).** Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable - in Britain, defined as occurring in 15 or fewer hectads but not CR, EN or VU. The absolute count of hectads is, in this review, considered subordinate to evidence of decline on an extent not qualifying the species for CR, EN or VU.
3. **Nationally Scarce (LRns).** Taxa which do not qualify for Conservation Dependent or Near Threatened - in Britain defined as species occurring in 16 to 100 hectads but not CR, EN or VU. Nationally Scarce species are usually divided into lists A (**LRnsA** 16-30 hectads) and B (**LRnsB** 31-100 hectads) as in the previous system. This subcategory associates a level of threat with rarity status, whereas the previous National Scarcity listings were based solely on rarity. Those species, the populations of which occasionally occupy more than 30 or 100 hectads as LRnsA and LRnsB respectively, can still be listed if it is thought that their baseline populations frequently fall below these thresholds, or if the habitats occupied are considered under threat.
4. **Least Concern (LRlc).** Taxa, which do not qualify for Conservation Dependent, Near Threatened or National Scarce subcategories - in Britain, this covers all species found on evaluation not to fit into any of the other categories.

Data Deficient (DD)
A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution is lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and threatened status. If the range of a taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

Not Evaluated (NE)
A taxon is Not Evaluated when it has not yet been assessed against the criteria.

Appendix C Invertebrate survey results

Table C1 Terrestrial Invertebrates

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Arianta arbustorum	W7; W6; W5; G5; W4
Tandonia sp	G5
Candidula intersecta	S2; G5
Cepaea hortensis	W5; W6; G4
Cepaea nemoralis	W4
Cernuella virgata	G1; G5
Deroceras reticulatum	G6; S2
Euconulus fulvus	W4 & W5
Helicigona lapicida	W4 & W5
Helix aspersa	W5; S2; G10&G11
Monacha cantiana	W4; S2; G4; W5
Armadillidium vulgare	G6; G5
Oniscus asellus	S2
Philoscia muscorum	G4
Porcellio scaber	S2
Araneus diadematus	W6; W4
Erigone dentipalpis	W4 & W5
Tetragnatha extensa	Scrub; Grassland

[12] The habitats within the Study Area are separated into habitat compartments as part of the annual management and monitoring of the HPB estate. Each habitat compartment is assigned a code (letter and number), with the letter generally denoting the most prevalent habitat type within the compartment e.g woodland (W), scrub (S), grassland (G) and pond (P). The compartment numbers are included on **Figure 2.1**. The invertebrates recorded during the surveys are assigned to the compartment in which they were recorded, or to two ('&') compartments (or a habitat type more generally) in cases where a single invertebrate sample was collected/combined across compartment boundaries. The maximum count (>1) of a species, recorded in a single survey sample is included in brackets.

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Xysticus erraticus	W6 & W7
Dicranopalpus caudatus	W6 & W7
Dicranopalpus ramosus	Scrub; Woodland; G4 (2)
Leiobunum blackwalli	W4 & W5; W6 & W7
Paroligolophus agrestis	Woodland; S2; W6 & W7 (2)
Phalangium opilio	W4 & W5; Grassland; S2
Aceria campestricola	W4 (>20); W5 (>5)
Eriophyes goniothorax typicus	S2
Eriophyes macrochelus	W4 (>10) & W5 (>10)
Forficula auricularia	S2 (2); W6; G6 & G9
Cloeon dipterum	NA
Chorthippus brunneus	Scrub; G9; Grasslands (2); S2; G6 & G9
Chorthippus parallelus	Grasslands
Chrysoperla carnea agg.	Woodland
Myrmeleotettix maculatus	G1
Tettigonia viridissima	G9
Leptophyes punctatissima	G4 & Pond
Micromus variegatus	W4 & W5
Panorpa germanica	W4 & W5
Aeshna sp	S2; G4 & Pond
Calopteryx splendens	G4 & Pond
Enallagma cyathigerum	Grassland
Sympetrum striolatum	G4 & Pond; G1; Grassland; W5; S2; G4; G6 & G9
Glyphotaelius pellucidus	G4

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Limnephilus affinis	W4 & W5
Limnephilus auricula	W4 & W5; W6 & W7
Limnephilus marmoratus	G4
Aphrophora alni	Scrub; Grasslands
Issus coleoptratus	W4 & W5; W6 & W7 (2)
Neophilaenus campestris	Grasslands
Philaenus spumarius	W4 & W5; Grasslands; Woodland; G4; W6 & W7; G6 & G9 (4)
Adelphocoris lineolatus	G6 & G9
Anthocoris nemoralis	G4
Anthocoris nemorum	W4 & W5
Deraeocoris lutescens	W4 & W5; Grassland
Dolycoris baccarum	G4 & Pond
Heterotoma merioptera	Scrub
Himacerus apterus	Scrub
Nabis rugosus	G4
Palomena prasina	S2; Grassland; G6 & G9
Pentatoma rufipes	S2
Stenodema calcaratum	Grassland; G4
Tingis ampliata	Grassland
Zicrona caerulea	Scrub
Pieris brassicae	S2; G1; W5
Pieris napi/rapae	G4 & Pond; G9; S2
Pieris rapae	G9
Vanessa atalanta	S2
Vanessa cardui	G5; S2; G10 & G11

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Maniola jurtina	W4; S2; G4 & Pond; G5; W6; G1; G4; G6 & G9
Pararge aegeria	W5; S2; G4
Pyronia tithonus	S2; G4 & Pond
Aricia agestis	S2; G5; G1 (>5); G6 & G9
Celastrina argiolus	W5
Polyommatus icarus	S2; G4 & Pond; G1 (>5); G9
Aplocera plagiata	S2; G5
Caloptila syringella	W6; W6 & W7; G5
Coptotriche marginea	S2; G4
Endothenia gentianaeana	S2
Parectopa ononidis	G5
Phyllonoryctor coryli	W5 (>5); W6 & W7 (>5); W4 (>5)
Pyrausta aurata	S2
Stigmella anomalella	G4; G10 & G11; W5
Stigmella aurella	W5; W7; W6&W7; W4; S2
Stigmella floslactella	W5; W4
Stigmella fragariella	S2
Stigmella plagicolella	W6&W7
Stigmella ulmivora	W5
Xanthorhoe montanata	Scrub
Carabus violaceus	G5
Paederus littoralis	G5 (2)
Adalia bipunctata	G4
Coccinella septpunctata	G5; G1; Grassland; W5; S2
Harmonia axyridis	Grassland

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Halyzia sedecimguttata	W6 & W7
Psyllobora vigintiduopunctata	Scrub; Woodland; S2
Oedemera lurida	Scrub; Grassland
Salpingus planirostris	Woodland
Pogonocherus hispidus	Woodland
Crepidodera transversa	Grassland
Oulema melanopa	Scrub; W6&W7
Nanophyes marmoratus	G4
Tipula paludosa	W4&W5; S2; W6&W7
Austrolimnophila ochracea	Woodland; W6&W7 (7)
Brachylimnophila adjuncta	Woodland; G4 (2)
Limonia chorea	Grassland; Woodland (3); G4 (9); W6&W7
Limonia decemmaculata	W6&W7 (2)
Gonomyia conoviensis	W6&W7
Limonia nubeculosa	W6&W7
Molophilus griseus	G4
Phylidorea ferruginea	G4
Rhipidia maculata	Woodland (2)
Symplecta stictica	W4 & W5 (3); Woodland (5)
Craneiobia corni	S2 (>10)
Iteomyia major	G4 & Pond (>5); S2
Culiseta annulata	Woodland (8); S2; W6&W7 (16)
Culex torrentium	Woodland (5); G4 (9); W6&W7 (18)
Dilophus febrilis	Woodland

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Rhegmoclema collini	G6&G9
Schwenkfeldina carbonaria	W4 & W5; Grassland
Sylvicola cinctus	W4 & W5 (5); Woodland (2); W6&W7
Sylvicola punctatus	Woodland (4); S2; G4
Trichocera annulata	W6&W7 (2)
Chorisops nagatomii	W4 & W5 (3); Woodland (5); S2; G4; W6&W7
Sargus bipunctatus	Woodland; W4&W5; S2
Sargus flavipes	Woodland
Crossopalpus nigritellus	Scrub
Platypalpus minuta s.l.	W4 & W5 (5); Grassland (2)
Platypalpus pallidiventris	Scrub; Grassland; G4 (6)
Ocydromia glabricula	W6&W7
Oropezella sphenoptera	Woodland (4); W6&W7
Argyra argyria	G4 (2)
Campsicnemus curvipes	S2
Chrysotus gramineus	Scrub (2); Grassland
Dolichopus griseipennis	W4&W5 (7); Scrub; Woodland; G4; W5&W7 (3)
Dolichopus plumipes	W4&W5
Medetera truncorum	S2
Micromorphus albipes	Scrub
Orthoceratium lacustre	W4 & W5; Woodland
Scellus notatus	W4 & W5 (3)
Sympycnus desoutteri	W4; W4&W5
Syntormon pallipes	W4&W5; G4 (5); W6&W7

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Xanthochlorus galbanus	W4 & W5
Lonchoptera furcata	Scrub; Grassland (2); W4&W5; S2; G4 (10); W6&W7 (2)
Lonchoptera lutea	W4 & W5 (3); Scrub; Woodland; G4 (10); G6&G9
Protoclythia modesta	W6&W7
Cephalops sp	G4
Baccha elongata	W4 & W5; Scrub; Woodland; W6&W7
Cheilosia latifrons	Scrub (2)
Cheilosia proxima	Scrub; Grassland
Chrysogaster cemiteriorum	Grassland
Episyrphus balteatus	W4 & W5 (5); Woodland; S2; W6&W7
Eristalis arbustorum	Scrub; Grassland; S2; G4; G6&G9 (2)
Eristalis tenax	W6&W7; S2; W5
Eupeodes lapponicus	Scrub
Helophilus hybridus	Grassland
Helophilus pendulus	Grassland (2); S2
Melanostoma mellinum	Scrub; Grassland; G4; G6&G9 (2)
Melanostoma scalare	Scrub; Woodland (2); W4&W5 (4); W6&W7; G6&G9
Meliscaeva auricollis	Grassland
Platycheirus albimanus	Scrub; W4&W5; G6&G9
Platycheirus angustatus	Grassland
Platycheirus clypeatus	G4; W6&W9
Platycheirus scutatus	W4 & W5; Scrub; Woodland; G4 (2)
Rhingia campestris	Grassland
Sphaerophoria interrupta	Grassland

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Sphaerophoria scripta	Grassland; S2
Sphaerophoria taeniata	Grassland
Syritta pipiens	Woodland; G4 (2)
Syrphus ribesii	Grassland; W6&W7
Thecophora atra	G6&G9
Acanthiophilus helianthi	Grassland
Tephritis cometa	Grassland
Tephritis formosa	Grassland
Terellia serratulae	Grassland
Urophora cardui	S2
Xyphosia miliaria	Scrub
Palloptera ustulata	Grassland (3); Woodland
Psila rosae	Woodland (15); G4; W6&W7 (4)
Calliopum aeneum	Scrub; G4; G6&G9
Calliopum simillimum	W4 & W5 (2); Grassland; Woodland (17); G4; W6&W7
Homoneura notata	Grassland; W4&W5 (2)
Meiosimyza rorida	W4 & W5 (7); Scrub (2); Woodland; W6&W7 (3)
Minettia fasciata	W4 & W5; Scrub (2); Grassland (6); S2 (2)
Minettia inusta	W4 & W5
Minettia tabidiventris	Grassland
Peplomyza litura	W4 & W5 (2); Woodland (4); W6&W7
Sapromyza sordida	W4 & W5 (3); Grassland (2); Woodland (11); S2; G4 (5); W6&W7 (2)
Tricholauxania praeusta	Woodland (5)
Coremacera marginata	G6&G9
Dichetophora finlandica	S2

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Euthycera fumigata	W4 & W5; W6&W7 (3)
Pherbellia cinerella	Scrub (2); Grassland; G6&G9
Pherbellia scutellaris	W6&W7
Sepedon sphegea	G4
Geomyza nartshukae	W4 & W5
Opomyza florum	W4 & W5 (2); Grassland; G4; W6&W7
Opomyza germinationis	W4 & W5 (2); Grassland; Woodland
Sepsis cynipsea	Scrub (2); Grassland; G4
Sepsis duplicata	Scrub
Sepsis flavimana	Grassland
Sepsis punctum	Scrub
Sepsis thoracica	Grassland
Nemopoda nitidula	W4 & W5; Woodland
Themira annulipes	W4 & W5
Camarota curvipennis	G1; Grassland
Chlorops hypostigma	W4 & W5 (5); Grassland
Elachiptera cornuta	Woodland; G4
Elachiptera pubescens	G4
Thaumatomyia notata	Scrub; Grassland
Tricimba lineella	W6&W7
Calcomyza humeralis	S2
Cerodontha denticornis	Grassland; S2
Chromatomyia cf syngenesiae	G4
Liriomyza eupatorii	W6

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Liriomyza strigata	G10&G11
Phytomyza agromyzina	W5 (>5); S2 (>10); W6 & W7 (>5)
Phytomyza cirsii	S2
Phytomyza conyzae	S2
Phytomyza horticola	G10&G11
Phytomyza ilicis	W4 & W5; W5
Phytomyza lappae	W4; S2; G4 & Pond; G6; W6; W6&W7; G5; Pond 1
Phytomyza pastinacae/sphondyli	G1; G4; W6&W7
Phytomyza ranunculi	G4; S2
Clusiodes albimana	Scrub; G4
Clusiodes verticalis	W6&W7
Suillia affinis	W6&W7
Suillia variegata	Woodland; W6&W7 (3)
Tephrochlamys rufiventris	W6&W7 (2)
Asteia amoena	G4; W6&W7
Leiomyza dudai	W4 & W5 (3)
Coelopa frigida	Grassland (7); Woodland
Parapiophila flavipes	Grassland
Diastata fuscula	Woodland; W6&W7 (3)
Acletoxenus formosus	W4&W5
Drosophila suzukii	S2; W6&W7 (7)
Scaptomyza pallida	W4&W5 (4); Scrub; Grassland (2); G4
Hydrellia griseola	G6&G9
Parydra littoralis	Scrub; Grassland (6); G4

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Philygria vittipennis	Grassland
Scatella paludum	W4&W5
Scathophaga litorea	G4
Scathophaga stercoraria	W4; S2; W6&W7
Sarcophaga dissimilis	Scrub; Grassland
Sarcophaga nigriventris	Scrub
Sarcophaga nigriventris	G6&G9 (2)
Sarcophaga variegata	Grassland
Sarcophaga incisilobata	Grassland
Calliphora vicina	Grassland
Lucilia richardsi	Grassland
Melinda viridicyanea	S2; W6&W7
Pollenia angustigena	W4 & W5 (2); Grassland (2); S2 (3); G4
Rhinophora lepida	Scrub; Grassland
Fannia pallitidia	W4 & W5; Scrub; Woodland (10)
Anthomyia liturata	Grassland (2)
Anthomyia procellaris	W4 & W5 (2); Scrub
Botanophila brunneilina	Grassland
Delia platura	W4 & W5; Grassland
Fucellia tergina	Grassland
Hylemya vagans	Woodland (2); W4&W5; G4; G6&G9
Paregle cinerella	Scrub; Grassland (2)
Pegomya bicolor	G4
Pegoplata aestiva	Scrub; Grassland (2); W4&W5; S2
Pegoplata infirma	Scrub; W4&W5; S2

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Azelia cilipes	Woodland; G4
Coenosia infantula	W4 & W5 (6); Woodland; G4 (5); W6&W7 (2); G6&G9 (2)
Eudasyphora cyanella	W4 & W5
Graphomya maculata	Grassland
Helina evector	G4
Helina impuncta	Woodland (2); W4&W5; G6&G9
Morellia hortorum	Grassland
Morellia simplex1	NA
Musca autumnalis	Scrub (6); Grassland (3); S2 (2)
Mydaea humeralis	W6&W7
Myospila meditabunda	W4 & W5; Scrub
Neomyia cornicina	Scrub
Neomyia viridescens	Grassland
Phaonia angelicae	W4 & W5
Phaonia pallida	W4 & W5 (5); Scrub (2); Woodland (3); S2; W6&W7 (3)
Phaonia rufiventris	W4 & W5
Phaonia subventa	W4&W5 (6); W6&W7
Phaonia tuguriorum	Grassland; Woodland (4); W4&W5 (2); S2 (2); G4; W6&W7
Polietes meridionalis	Woodland; W4&W5; S2 (2); G4; W6&W7
Spilogona denigrata	W4&W5; S2; G4
Eriothrix rufomaculatus	Scrub (6); Grassland (3)
Phasia pusilla	Scrub
Siphona geniculata	W4&W5; S2; G4 (13); G6&G9 (2)
Siphona urbana	Scrub (2)
Diplazon laetatorius	W4 & W5; Grassland

Species	Locations ('Habitat Compartments' and/or habitat type, Figure 2.1) of survey samples that contained these species[12]
Neuroterus quercusbaccarum	G5 (>5)
Pontania proxima	W6; S2
Bethylidae	Scrub
Lasius fuliginosus	Grassland (9)
Lasius niger	W4 & W5; Grassland; Woodland; S2; G5; G10&G11
Myrmica rubra	W6&W7
Myrmica ruginodis	S2
Ectemnius continuus	Grassland
Ectemnius lituratus	W4 & W5
Psen dahlbomii	G4
Rhopalum clavipes	W4 & W5; Woodland; G4
Pemphredon sp	Grassland
Spilomena enslini	W4 & W5
Trypoxylon attenuatum	Grassland
Hylaeus annularis	Grassland
Megachile ligniseca	W4 & W5; S2
Bombus lapidarius	Scrub

Table C2 Aquatic Invertebrates

Species	Pond 1	Pond 2
Polycelis nigra		1
Bithynia tentaculata		9
Hippeutis complanatus		2
Lymnaea stagnalis		54
Musculium lacustre		4

Species	Pond 1	Pond 2
Pisidium sp		6
Planorbis carinatus		2
Planorbis		10
Radix balthica		2
Sphaerium corneum		4
Asellus aquaticus		17
Asellus meridianus	10	
Copepoda	1	
Crangonyx pseudogracilis	10	7
Hydrachnellae		10
Cloeon dipterum		24
Aeshnidae (nymphs)		6
Coenagrionidae (larvae)		21
Gerris sp (nymphs)		7
Hesperocorixa castanea		1
Ilyocoris cimicoides		10
Notonecta glauca		2
Plea leachi		14
Haliplus flavicollis		8
Haliplus lineatocollis		2
Haliplus sp (larvae)		4
Noterus clavicornis		10
Hydroporus angustatus	2	
Hydroporus incognitus		1
Hydroporus palustris	1	

Species	Pond 1	Pond 2
Hygrotus inaequalis	11	3
Ilybius ater	1	
Anacaena limbata	5	2
Berosus affinis		1
Cymbiodyta marginella	5	
Enochrus coarctatus	2	
Helophorus minutus group		2
Dryops sp (female)		1
Scirtidae (larvae)	8	
Tanysphyrus lemnae		5
Limoniidae (larvae)	1	
Ptychoptera sp (larvae)	1	
Ceratopogonidae (larvae)	1	2
Chironomidae (larvae)	1	2
Coquillettidia richiardii	1	2
Sciomyzidae (larvae)		1
Elachiptera cornuta		1

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Baseline Verification Report (2022)

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EDF Nuclear Generation Limited (ENGL)

Decommissioning of Hinkley Point B Nuclear Power Station

Verification of Terrestrial Biodiversity Baseline

WSP Environment & Infrastructure Solutions UK Limited – February 2023

Report for

[redacted]

Main contributors

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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This document has been produced by WSP Environment & Infrastructure Solutions UK Limited in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

Document revisions

No.	Details	Date
01	Draft	December 2022
02	Final	February 2023

Contents

1.

Introduction

1. Introduction

1.1 Overview

1.1.1 EDF Energy Nuclear Generation Limited (the 'Applicant') is applying for consent from the Office for Nuclear Regulation (ONR) to decommission the Hinkley Point B Nuclear Power Station ('HPB'). The decommissioning works (the 'Works') will include the dismantling and deconstruction of buildings and structures in areas within and outside of the Nuclear Site License ('NSL') boundary that are part of the power station. An Indicative Dismantling Works Area ('Works Area') has been identified to delineate these areas. The land inside the NSL boundary is referred to as the 'Site'. The Site and Works Area boundaries are shown on **Figure 1.1**.

1.1.2 To inform the Ecological Impact Assessment (EcIA) of the Works, a suite of ecological surveys was carried out by Wood Environment & Infrastructure Solutions UK Ltd ('Wood') in 2019 and 2020 (the 'Baseline Surveys'). This included habitat surveys and surveys of a range of taxa, including otter, water vole, great crested newt, reptiles, badger, birds, invertebrates and bats. These surveys are summarised in **Section 1.4** and detailed in separate baseline reports:

- Wood (2019a). Hinkley Point B Decommissioning EIA - Baseline Report: Phase 1 Habitat Survey;
- Wood (2019b). Hinkley Point B Decommissioning EIA - Baseline Report: Otter and water vole;
- Wood (2019c). Hinkley Point B Decommissioning EIA - Baseline Report: Great crested newt;
- Wood (2019d). Hinkley Point B Decommissioning EIA - Baseline Report: Reptiles;
- Wood (2020a). Hinkley Point B Decommissioning EIA - Baseline Report: Badger;
- Wood (2020b). Hinkley Point B Decommissioning EIA - Baseline Report: Breeding; Non-breeding Birds;
- Wood 2020c). Hinkley Point B Decommissioning EIA - Baseline Report: Invertebrates; and
- Wood (2021). Hinkley Point B Decommissioning EIA - Baseline Report: Bats.

1.1.3 These surveys and survey reports, combined with a desk-based study of other biodiversity information collected from the Site and surrounding area (Wood 2023[1]), establish the terrestrial biodiversity baseline against which the predicted effects of the Works on ecological features are to be assessed.

1.1.4 A period of over two years has elapsed since the completion of the Baseline Surveys and the area delineated as the Works Area has been refined to include the sewage works, southern access road and marine infrastructure associated with HPB. Therefore, a further habitat survey, covering the Site and Works Area, was completed in August 2022 by WSP Environment & Infrastructure Solutions UK Limited ('WSP').

1.1.5 The purpose of the 2022 survey, also referred to as a 'Baseline Verification Survey', was to determine whether the biodiversity baseline, derived by the previous survey work and

[1] WSP (2023). Hinkley Point B Decommissioning EIA - Baseline Report: Desk Study (Terrestrial Biodiversity).

desk-based study, remains valid to inform the EcIA, recognising that any substantive changes in the extent, distribution or character of habitat types within the Works Area could trigger a requirement for survey updates and/or additional survey work.

1.2 Survey Objectives

1.2.1 The survey objectives are summarised below:

- Map the different habitat types within the Site and Works Area, plus a 50 m perimeter around the Works Area (collectively referred to as the 'Survey Area'), employing the standard Phase 1 Habitat Survey method[2], including checking and updating the previous Phase 1 Habitat Survey (Wood 2019a).
- The Phase 1 Habitat Survey method is to be 'extended'[3] to include recording any apparent evidence of the presence of legally protected species and/or other species of notable biodiversity conservation importance.
- Complete a brief visual assessment of built structures within the Survey Area, checking, verifying and updating the previous conclusions regarding the suitability of built structures for roosting bats (Wood 2021).
- Identify any changes in the extent, distribution or character of habitats within the Survey Area that trigger a requirement for additional survey work or updates to previous surveys.
- Outline the scope of any additional survey work that is required to update the biodiversity baseline prior to completion of the EcIA.

1.3 The Site and Survey Area

1.3.1 HPB is located on the coastline at Bridgwater Bay, approximately 12 km north-west of Bridgwater. The Site is approximately centred at Ordnance Survey (OS) National Grid Reference (NGR) ST 2135 4606. The majority of the Works Area is built structures and hard standing (mainly access routes and car parks). To the south, west and east is a fringe of woodland and scrub, with some areas of open grassland. The landscape to the south and east is agricultural, with the Hinkley Point C (HPC) development dominating land to the west, and to the north lies Bridgwater Bay.

1.3.2 The area surveyed in 2022 includes the Works Area plus a 50 m perimeter, as shown on **Figure 1.1**. To allow direct comparison with 2019 surveys all land within the Site, plus contiguous areas of similar habitat, were also surveyed.

1.4 Biodiversity Baseline

1.4.1 This report is intended to be read in conjunction with the baseline reports listed above and summarised briefly in **Table 1.1**.

[2] Joint Nature Conservation Committee (2010). Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. JNCC; Peterborough, UK.
[3] Institute of Environmental Assessment. (1995). Guidelines for Baseline Ecological Assessment. E & FN Spon; London, UK:.

Table 1.1 Summary of biodiversity baseline reports

Report	Summary of biodiversity baseline
Hinkley Point B Decommissioning EIA Baseline Report: Phase 1 Habitat Survey (Wood 2019a)	The land within the HPB double security fence predominantly comprises buildings and hardstanding with small areas of amenity grassland, ephemeral/short perennial vegetation and tall ruderal vegetation. The habitats within the security fence are of limited biodiversity conservation value. Habitats outside the double security fence, within the Site, include areas of semi-natural broadleaved woodland, hedgerows, ponds and swamp/reedbed, which are potentially Habitats of Principal Importance for Biodiversity Conservation[4]. These habitats occur in mosaic with other habitats, including broadleaved and mixed plantation, semi-improved neutral grassland, scrub, tall ruderal vegetation and ephemeral/short perennial vegetation, and collectively form Hinkley Local Wildlife Site (LWS).
Hinkley Point B Decommissioning EIA Baseline Report: Otter and Water Vole (Wood 2019b)	No evidence of otter activity was recorded within the Site or a 250 m perimeter area. The majority of waterbodies within this Study Area are of negligible/low suitability for otters. There were 12 records of otter within 3 km of the Site between 2015 and 2017 and it is likely that this species commutes through and/or forages within the Study Area in low numbers intermittently. No evidence of water vole activity was recorded within the Study Area. The majority of waterbodies within this area are of low/negligible suitability for water vole, with banks lacking diverse macrophytes favoured by foraging water voles, plus widely fluctuating water levels in ditches. The last record of water vole within the Study Area was in 2006 and it is likely that this species no longer occurs within this area.
Hinkley Point B Decommissioning EIA Baseline Report: Great Crested Newt (Wood 2019c)	Three ponds were identified within the Study Area (the Site plus a 500 m perimeter area). Two of these were categorised as being 'Good' habitat for great crested newt and the other was categorised as 'Below Average' habitat for this species. All three ponds tested negative for great crested newt eDNA and this species is unlikely to occur within the Study Area.
Hinkley Point B Decommissioning EIA Baseline Report: Reptiles (Wood 2019d)	The survey recorded a low population of slow worm and grass snake within the Study Area (the Site and a 100 m perimeter area). The survey recorded a concentration of slow worms to the south-west of the HPB double security fence, inside the Site, associated with areas of tall ruderal vegetation and scattered scrub. A grass snake was recorded approximately 95m south-east of the Site, adjacent to the sewage works.
Hinkley Point B Decommissioning EIA Baseline Report: Badger (Wood 2020a)	The habitats within the Study Area (the Site plus 250 m perimeter area) are suitable for badgers (foraging, commuting and sett building), including dense continuous scrub, broadleaved semi-natural woodland, semi-improved grassland, poor semi-improved grassland, improved grassland (pasture) and tall ruderal vegetation. A mosaic of these habitats, forming Hinkley LWS, extends around the double security fence, inside the Site. Badger

[4] Defra (2022) Habitats and Species of Principal Importance in England (online). Available at: https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england (Accessed December 2022).

Report	Summary of biodiversity baseline
	activity within the Study Area is detailed in the confidential baseline report.
Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds (Wood 2020b)	The breeding bird surveys recorded low numbers of common and widespread species that are typical of Somerset. Eight species recorded breeding (or potentially breeding) are of notable importance for biodiversity conservation i.e. listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) [5]; qualifying species of the Severn Estuary Special Protection Area and/or Ramsar site[6]; included on the Birds of Conservation Concern (BoCC) Red List[7]; and/or Species of Principal Importance for Biodiversity Conservation. These species reflect the habitat types (scrub, trees, hedgerows and buildings) within the Site and perimeter areas and include: Cetti's warbler (*Cettia cetti*); herring gull (*Larus argentatus*), lesser black-backed gull (*Larus fuscus*); peregrine (*Falco peregrinus*), dunnock (*Prunella modularis*), linnet (*Linaria cannabina*), skylark (*Alauda arvensis*) and song thrush (*Turdus philomelos*). Annual monitoring to inform the HPB Land Management Annual Reviews (LMARs) also recorded marsh tit (*Poecile palustris*), a BoCC red list species and Species of Principal Importance for Biodiversity Conservation. The non-breeding bird assemblage comprises low numbers of common and widespread species that are typical of the county (Somerset) and coastal habitats (beach, shale, rock bed and open estuary) adjacent to the Site, for example eight species recorded on more than 60% of survey visits include: curlew (*Numenius arquata*), mallard (*Anas platyrhynchos*), shelduck (*Tadorna tadorna*), turnstone (*Arenaria interpres*), wigeon (*Mareca penelope*); brent goose (*Branta bernicla*), oystercatcher (*Haematopus ostralegus*) and pintail (*Anas acuta*). The occurrence of other species was generally infrequent, for example dunlin (*Calidris alpina*), knot (*Calidris canutus*), lapwing (*Vanellus vanellus*), redshank (*Tringa totanus*), ringed plover (*Charadrius hiaticula*) and teal (*Anas crecca*).
Hinkley Point B Decommissioning EIA Baseline Report: Invertebrates (Wood 2020c)	The mosaic of habitats within the Site and perimeter areas, including grassland, coastal habitats, ponds, scrub and woodland support a diverse invertebrate assemblage. The survey recorded 304 terrestrial invertebrate species and 47 aquatic invertebrate taxa. Annual butterfly monitoring to inform the LMARs recorded a diverse assemblage of up to 26 butterfly species, including records of Species of Principal Importance for the Conservation of Biodiversity e.g., wall (*Lasiommata megera*) and small heath (*Coenonympha pamphilus*), plus a record of grayling (*Hipparchia semele*) in 2006.
Hinkley Point B Decommissioning EIA Baseline Report: Bats (2021)	The land within the double security fence is of low suitability for bats, predominantly comprising hard standing and lacking semi-

[5] UK Government (1981) Wildlife and Countryside Act 1981 (as amended) (online). Available at: http://www.legislation.gov.uk/ukpga/1981/69 (Accessed December 2022).
[6] JNCC (2022) Special Protection Areas - List of Sites (online). Available at: https://jncc.gov.uk/our-work/list-of-spas/ (Accessed December 2022).
[7] JNCC (2021) Birds of Conservation Concern 5 (online). Available at: https://jncc.gov.uk/news/bocc5/#:~:text=Amongst%20the%20new%20additions%20to,the%20UK%20in%20recent%20decades (Accessed December 2022).

Report	Summary of biodiversity baseline
	natural habitats that are favoured by foraging/commuting bats. The majority of the built structures are of negligible or low suitability for roosting bats, being of modern construction, lacking obvious potential roost features, with poor connectivity to surrounding semi-natural habitats and prone to disturbance from noise and artificial lighting, as well as being used by gulls. This is reflected in low levels of bat activity inside the double security fence. The semi-natural habitats extending around the perimeter of the double security fence, are more suitable for foraging and commuting bats, incorporating semi-improved grassland, tall ruderal vegetation, standing water (ponds/ditches), woodland and scrub, as well as mosaics of these habitat types. Wooded areas include suitable bat roost habitat, including trees and approximately 60 bat boxes. Bat activity attributable to at least 11 species were recorded: Natterer's (*Myotis nattereri*), Daubenton's (*Myotis daubentonii*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Nathusius' pipistrelle (*Pipistrellus nathusii*); brown long-eared (*Plecotus auritus*), noctule (*Nyctalus noctule*); Leisler's bat (*Nyctalus leisleri*); barbastelle (*Barbastella barbastellus*); greater horseshoe (*Rhinolophus ferrumequinum*); and lesser horseshoe (*Rhinolophus hipposideros*). Species previously recorded roosting around the perimeter of the double security fence in bat boxes include common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Natterer's bat, noctule and Leisler's bat. A tree within approximately 50 m of the double security fence was confirmed as a roost (species unconfirmed) potentially used by individual bats or small groups of males occasionally, which is typical of common and soprano pipistrelle. Seven pregnant soprano pipistrelles captured within a 2.5-hour period in May 2019 in woodland, close to the HPB double security fence, signify a maternity roost is likely to nearby (within 3 km).

2.

Methods

2. Methods

2.1 Extended Phase 1 Habitat Survey

2.1.1 A Phase 1 Habitat survey of the Site was undertaken by WSP on 17 and 18 August 2022. The Survey Area also included the limited new/additional parts of the Works Area that were not surveyed in 2019, including a 50 m perimeter around these areas (see paragraph 1.3.2).

2.1.2 The Phase 1 Habitat Survey was completed in accordance with good practice, which involved identifying and mapping distinct habitat types within the Survey Area, applying standard habitat definitions and descriptions[2]. Target Notes were used to record the location and description (e.g. species composition and structure) of habitats of potentially notable importance for biodiversity conservation. The locations of Target Notes were recorded using a handheld GPS device.

2.1.3 The Phase 1 Habitat Survey method was 'extended'[3] to include recording of other notable ecological features, including any apparent evidence of the presence of legally protected species and/or other taxa that are of importance for biodiversity conservation, such as those mentioned in **Table 1.1**.

2.1.4 The survey results were compared with the results the previous Phase 1 Habitat Survey (Wood 2019a) to identify any substantive changes in extent, distribution or character of habitats within the Site and Works Area that trigger a requirement for additional survey work, or updates to previous surveys, prior to completing the EcIA.

2.2 Preliminary Roost Assessment

2.2.1 An assessment of the suitability of built structures for roosting bats was completed by a licensed bat ecologist (Katie Watkins[8]) on 17 August 2022, focusing on buildings within the Site and Works Area. This Preliminary Roost Assessment (PRA) updated the previous PRA (Wood 2021), which was completed in 2019 by licensed bat ecologists Tim Bradford[9] and Fiona Cargill[10]. Both PRAs were undertaken during suitable weather conditions (warm and dry) and the survey method was in accordance with current good practice guidance[11].

2.2.2 The built structures were systematically inspected during daylight (10:00am – 3:00pm), and any features suitable for bats were noted, such as weatherboarding, hanging tiles, soffit boxes, gaps in brickwork, cracks, crevices, slipped or broken tiles and gaps around ridge tiles and lead flashing. Roof coverings were viewed from the ground using close-focussing binoculars. Any potential bat roost access points were identified and inspected for signs of bat activity such as:

- Bat droppings on the ground or stuck to external walls;
- Suitable roost entry and exit points around eaves, soffits, flashing, under tiles or gaps in mortar;
- Live bats, bat corpses or skeletons; and

[8] Bat license number 2022-10445-CL18-BAT (Level 2).
[9] Bat licence number 2015-12885-CLS-CLS (Level 2).
[10] Bat licence number 2018-33646-CLS-CLS (Level 2).
[11] Collins (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London, UK.

- Oily marks (from fur) or localised clean spots around possible access points and roost areas.

2.2.3 In accordance with good practice the buildings are categorised according to their suitability for roosting bats (see **Table 2.1**[11]). Buildings that are potentially suitable hibernation roosts were also identified.

Table 2.1 Guidelines on assessing suitability of buildings for roosting bats

Suitability	Description
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[12] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation[13]).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[12] and surrounding habitat.

2.3 Limitations

2.3.1 One of the three ponds (Pond 3[14]) that were surveyed previously for great crested newt (Wood 2019c) was inaccessible in 2022 due to presence of cattle in the surrounding field. This pond is to the east of the Site and was previously concluded to be '*below average'* habitat for great crested newt and tested negative for great crested newt environmental DNA (eDNA). It is therefore likely that this pond does not support great crested newt, especially as disturbance by cattle is likely to continue to be a constraint on the colonisation of the pond by this species.

[12] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
[13] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015 in Collins 2016). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.
[14] Located at NGR ST 21776 45795, outside of the Site.

3.

Results

3. Results

3.1 Extended Phase 1 Habitat Survey

3.1.1 The results of the extended Phase 1 Habitat Survey are show on **Figure 3.1**. The land within the Works Area is predominantly buildings and hardstanding, with small areas of amenity grassland, ephemeral/short perennial vegetation and tall ruderal vegetation of limited biodiversity conservation value.

3.1.2 Habitats outside the Works Area and within the Site include areas of semi-natural broadleaved woodland, hedgerows, ponds and swamp/reedbed, which are potentially Habitats of Principal Importance for Biodiversity Conservation. These habitats occur in mosaic with other habitats, including broadleaved and mixed plantation, semi-improved neutral grassland, scrub, tall ruderal vegetation and ephemeral/short perennial vegetation.

3.1.3 The distribution, extent and character of habitats within the Site and Works Area is similar to that recorded by the previous Phase 1 Habitat Survey (Wood 2019a), the results of which are duplicated as **Figure 3.2**. Only a small number of limited changes to the habitats within these areas were apparent and are briefly summarised in paragraphs 3.1.4 to 3.1.6.

3.1.4 Approximately 0.16 ha of dense scrub has been cleared and this area now comprises a mix of common tall ruderal and ephemeral plant species (**Target Note 1**, **Figure 3.1**), including dogwood (*Cornus sanguinea*), bristly oxtongue (*Helminthotheca echioides*), fleabane (*Pulicaria dysenterica*), hairy willowherb (*Epilobium hirsutum*), roundleaf cancerwort (*Kickxia spuria*), curled dock (*Rumex crispus*) and hedge bedstraw (*Galium mollugo*).

3.1.5 An area that was not surveyed previously (**Target Note 2**, **Figure 3.1**) is predominantly improved grassland flanked by two ditches. This area is grazed by cattle and includes common species that are typical of agricultural grassland that is enriched with nutrients, such as Yorkshire fog (*Holcus lanatus*), perennial ryegrass (*Lolium perenne*), white clover (*Trifolium repens*) and dandelion (*Taraxacum sp.).* The ditches support negligible aquatic vegetation, potentially due to dredging and foraging/disturbance by cattle, with a cow observed in the eastern ditch and appearing to have disturbed the bed of the ditch, increasing the turbidity of the water.

3.1.6 Himalayan Balsam (*Impatiens glandulifera*) was recorded adjacent to a ditch at the eastern perimeter of the Site. This invasive non-native species is legally controlled and included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to plant this species or otherwise to cause it to grow in the wild. The species is subject to management by the Applicant.

3.2 Preliminary Roost Assessment

3.2.1 A total of 36 out of 101 buildings are categorised as suitable (moderate or low suitability) for roosting bats, as summarised in **Table 3.1**. The locations of buildings that are potentially suitable for roosting bats are shown on **Figure 3.3**. Further details of these buildings and associated features that are potentially suitable for roosting bats are included in the PRA results (see **Appendix A**).

Table 3.1 Preliminary Roost Assessment (categorisation of roost suitability)

Potential hibernacula	Moderate	Low
501*, 619	524, 525, 597	504, 507, 510, 512, 515, 519, 520, 526, 527, 530, 531, 532, 533, 535, 538, 539, 540, 543, 549, 554, 555, 563, 565, 566, 569, 571, 588, 600, 619, 621, 520A, 561A, 612E.

* *Building has negligible suitability for roosting bats during their active season (April to October).*

3.2.2 A summary of the previous (2019) PRA results is included in **Appendix B.** A number of limited changes in the suitability of buildings for roosting bats between the 2019 and 2022 were recorded and these are summarised in **Table 3.2**.

3.2.3 The suitability of five of the buildings has increased from 'negligible' to 'low' suitability and one building has been removed. A new building (Building 597), close to the eastern limit of the Works Area, has 'moderate' suitability for roosting bats. A sample of droppings taken from this building has been sent for laboratory analysis to determine presence/absence of bat DNA. The recorded changes to the other three buildings have not altered their suitability for roosting bats.

Table 3.2 Changes to the suitability of buildings for roosting bats (2019 to 2022)

Building Ref.	Changes	Suitability (2019)	Suitability (2022)
505 A / B	Building has been dismantled and removed from the Site.	Negligible	Not Applicable
505 C	Building has been dismantled and moved to a new location – no new features found.	Negligible	Negligible
505 D	New building in the place of 505 A / B – no new features.	N/A	Negligible
507	New feature found in western side wall – upgraded to Low. No evidence of bats found during PRA.	Negligible	Low
519	Two new features found in soffit on the south-west corner and the north-east corner. No evidence of bats found during PRA. Rodent dropping and a pigeon nest visible from inside the soffit on the south-west corner.	Negligible	Low
527	Change in use of building – building is no longer used. Bat roost suitability remains the same no new features have been found.	Low	Low
543	New features found on the south-east side of the building – upgraded to Low.	Negligible	Low
569	New feature found on the south side of the building – upgraded to Low.	Negligible	Low
571	New feature found on the south side of the building – upgraded to Low.	Negligible	Low
597 (new building)	New building wooden construction many roosting features for both bat and birds. Visible droppings inside the single room from birds across internal eastern wall and possibly bats. Sample collected.	N/A	Moderate

4.

Conclusions

4. Conclusions

4.1.1 The land within the Works Area is predominantly buildings and hardstanding, with small areas of amenity grassland, ephemeral/short perennial vegetation and tall ruderal vegetation of limited biodiversity conservation value. Habitats outside the Works Area and within the Site include areas of semi-natural broadleaved woodland, hedgerows, ponds and swamp/reedbed, which are potentially Habitats of Principal Importance for biodiversity conservation. These habitats occur in mosaic with other habitats, including broadleaved and mixed plantation, semi-improved neutral grassland, scrub, tall ruderal vegetation and ephemeral/short perennial vegetation.

4.1.2 The distribution, extent and character of habitats within the Site and Works Area is similar to that recorded by the previous Phase 1 Habitat Survey (Wood 2019a) and only a small number of limited changes to the habitats within these areas are apparent, including the clearance of a small area of scrub, a small additional area of improved (grazed) grassland and a record of Himalayan balsam at the eastern edge of the Site. Himalayan balsam has previously been recorded at the Site by biodiversity monitoring to inform the LMARs.

4.1.3 A total of 36 out of 101 buildings within the Site are categorised as suitable (moderate or low suitability) for roosting bats. A number of limited changes in the suitability of buildings for roosting bats between 2019 and 2022 were recorded. The suitability of five of the buildings increased from ‘negligible’ to ‘low’ suitability and a new building (Building 597), close to the eastern limit of the Works Area, has ‘moderate’ suitability for roosting bats. These limited, minor changes to the overall suitability of roost habitat within the Site and Works Area are likely to have had no substantive influence on the overall baseline status of bats.

4.1.4 Overall, therefore it is likely that there have been no substantive changes in the baseline status of populations of otter, water vole, badger, bats, birds, great crested newt, reptiles or invertebrates since the baseline surveys were completed in 2019, notwithstanding minor/background interannual fluctuations in species populations/assemblages. The baseline reports are therefore concluded to remain valid, however a sample of droppings taken from Building 597 will be subject to laboratory analysis and in the event that presence of bat DNA is confirmed, bat surveys (roost characterisation) of this building are likely to be required.

Figures

Appendix A
Preliminary Roost Assessment (2022)

Table A.1. Preliminary Roost Assessment Results (2022)

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
501	1 storey (tunnel entrance) 30-50 years	Concrete	Plastic	None	None	Potentially suitable hibernacula
502	1 storey; 30-50yrs	Breeze block	Concrete	None	None	Negligible
503	1 storey; 5-10 yrs	Metal	Inflatable plastic	None	None	Negligible
504	1 storey	Metal with concrete cladding	Metal	Gaps at 2m	None	Low
505 A&B – building has been removed						
505 C	1 storey	Metal	Metal	None	None	Negligible
505 D	Stores 1 storey	Metal	Metal	None	None	Negligible
506	30-50yrs	Breeze block	Moulded plastic	None	None	Negligible
507	1 storey; 30-50yrs	Breeze block	Metal	Gap in the render allowing access to internal cavity ~30x50cm	None	Low

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
				and ~15cm off the ground		
508	1 storey; 30-50yrs	Breeze block	Metal	None	None	Negligible
510	1 storey; 30-50 years	Metal	Metal	None	None	Low
511	1 storey; 30-50 years	Breeze block	Metal	None	None	Negligible
512	1 storey; 30-50yrs	Breeze block	Moulded plastic	Gaps under facia boards, all around building at 2m	None	Low
514	1 storey; 30-50yrs	Breeze block	Concrete	None	None	Negligible
515	1 storey; 30-50 years	Concrete metal clad	Metal	Hole on east side, -1.5m high. Gaps in facia board at 2m.	None	Low
516	2 storeys; 30-50 years	Breeze block	Metal	Gaps in mortar north side at 2m	None	Negligible
517	Metal Tanks	Metal	Metal	None	None	Negligible
518	1 storey; 30-50 years	Breeze block	Metal	None	None	Negligible
519	1 storey; 10-20 years	Plastic	Metal	Two holes in the soffit on the south-west and north-east corners.	None	Low
520	1 storey; 30-50 years	Breeze block	Plastic and metal	Behind facia board on all aspects 3m height	None	Low
520A	1 storey; 30-50 years	Breeze block	Plastic and metal	Behind facia board on all aspects 2m height	None	Low

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
521	1 storey; 30-50 years	Breeze block	Corrugated metal	None	None	Negligible
522	2 storeys; 30-50 years	Concrete- metal clad	Metal	None	None	Negligible
522B/C	1 storey; 30-50 years	Metal	Metal	None	None	Negligible
524/525	3 storeys; 30-50 years	Breeze block, metal and glass	Metal/moulded plastic	Gaps in expansion joints (where mastic has fallen) 2-10m, all aspects	None	Moderate
526/527	2-5 storeys; 30-50 years	Concrete	Moulded plastic	Gaps and holes in walls, various heights and all aspects	None	Low
528	2 storeys; 10 years	Breeze block	Metal	None	None	Negligible
529	2 storeys; 20-30 years	Plastic and metal	Plastic and metal	None	None	Negligible
530	4 storeys; 30-50 years	Concrete	Flat, moulded plastic	Gaps under flashing on east & southern aspects	None	Low
531	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
532	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
533	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
534	1 storey; 10-20 years	Plastic	Plastic moulded	None	None	Negligible
535	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
536	Metal structure	Metal	None	None	None	Negligible
537	Metal structure	Metal	None	None	None	Negligible

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
538	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
539	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
540	3 storeys; 10-20 years	Brick	Metal roofs	Gaps between soffits and walls on west side at 10m. Air vents on all aspects 2-7m	None	Low
541/542	6-8 storeys; c. 50 years	Concrete, metal and glass	Metal/moulded plastic	None	None	Negligible
543	6-8 storeys; c.50 years	Concrete, metal and glass	Metal/moulded plastic	Cavities in the mortar at various heights, all aspects	None	Low
544	1 storey; 30-50 years	Concrete	Metal	None	None	Negligible
545/546	2 storeys; 30-50 years	Breeze block	Moulded plastic	None	None	Negligible
547	1 storey; 30-50 years	Concrete	Metal	None	None	Negligible
548	1 storey; 10 20 years	Breeze block	Moulded plastic	None	None	Negligible
549	2 storeys; 10-20 years	Plastic	Plastic	Slight gaps in facia at 3m height	None	Low
553	1 storey; 20-40 years	Breeze block	None	None	None	Negligible
554/555	1 storey; 30-50 years	Breeze block	Metal	Cavities in the mortar at various heights, all aspects	None	Low

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
556	2 storeys; 5 Years (rebuilt)	Breeze block and metal cladding	Metal	None	None	Negligible
561	2 storeys; 30-50 years	Breeze block	Moulded metal	None.	None	Negligible
561A	1 storey; 30-50 years	Breeze block	Felt	Behind facia board at 2m on south-east aspect.	None	Low
563	1 storey; 30-50 years	Breeze block	Metal	None.	None	Low
565	2 storeys; 30-50 years	Breeze block	Metal	Gaps under flashing and in walls on all aspects.	None	Low
566	2 storeys; 30-50 years	Breeze block	Moulded plastic	Gap in eastern wall at 3m.	None	Low
569	2 storeys; 20-40 years	Breeze block	Moulded plastic	Hole on south-east side wall at 1.5m height, Hole on the south side wall at 1m height.	None	Low
570	2 storeys; 20-40 years	Breeze block	Moulded plastic	None.	None	Negligible
571	1-2 storey(s); 5-10 years	Plastic and metal	Moulded plastic	Hole on the south side wall at 1.25m in height.	None	Negligible
572	1 storey; 30-50 years	Breeze block	Metal	None.	None	Negligible
574	1-2 storey(s); 5-10 years	Plastic and metal	Moulded plastic	None.	None	Negligible
575	2 storeys; 10-20 years	Metal	Metal	None.	None	Negligible
576	1 storey 5-10 years	Metal	Metal	None.	None	Negligible

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
580	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
581	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
585	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
586	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
587	1 storey; 20-40 years	Brick	Moulded plastic	None.	None	Negligible
588	1 storey; 20-40 years	Breeze block	Metal	Gap in joint between wall and roof.	None	Low
589	1 storey; 20-40 years	Breeze block	Moulded plastic	None.	None	Negligible
590	2 storeys; 10-20 years	Plastic	Plastic	None.	None	Negligible
590A	1 storey; 5 years	Plastic	Plastic	None.	None	Negligible
593	1 storey; 1-3 years	Wood	Wood	Gaps in the roof constructure, evidence of bird use.	None	Moderate
594	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
595	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
597	1 story; new build	Timber	Timber	Interior void and porch open to the roof. Potential roost features (beams and crevices)	Possible bat droppings sent for lab (DNA) analysis	Moderate

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
600	1 storey; 10-20 years	Breeze block	Metal	Behind facia board at 2m on north-eastern aspect.	None	Low
602	1 storey; 10-20 years	Concrete	Metal	None.	None	Negligible
611	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
612 A-D	1 storey; 5-10 years	Plastic and metal	Plastic	None.	None	Negligible
612 E	1 storey; 5-10 years	Brick	Metal	Gaps in mortar.	None	Low
613A/B	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
619	1 storey with a cellar; 30-50 years	Brick	Plastic and metal	Behind facia board, and in crack, 1-3m on eastern and northern aspects.	None	Low/ Suitable hibernacula
621	2 storeys; 10-20 years	Plastic	Plastic	Slight gaps in facia at 3m height.	None	Low
623	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
624	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
625	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
627	2 storeys; <5 years	Metal	Metal	None.	None	Negligible
628	1 storey; <10 years	Plastic and metal	Plastic	None.	None	Negligible
631	1 storey; 30-50 years	Concrete	Part missing, corrugated metal	None.	None	Negligible

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
631A/B	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
632	1 storey; 30-50 years	Plastic	Plastic	None.	None	Negligible
633	1 storey; 30-50yrs	Plastic	Moulded plastic	None.	None	Negligible
634	1 storey; < 5 years	Metal	Metal	None.	None	Negligible

Appendix B
Preliminary Roost Assessment (2019)

Table B.1 Preliminary Roost Assessment (2019): Summary of Roost Suitability

Potentially suitable hibernacula	Moderate	Low – dusk emergence survey[2]	Low – dawn walked transect[2]
501[1], 619	524, 525	510, 515, 520, 520A, 526, 627, 530, 540, 561A, 563, 565, 600, 619.	504, 512, 531, 532, 533, 535, 538, 539, 549, 554, 555, 566, 569, 588, 612E, 621

[1] Building has negligible suitability for roosting bats during their active season (April to October).

[2] Buildings with low suitability for roosting bats are separated according to the scope of the follow-up survey work.

8K

Bat Survey – Building 597

PUBLIC

Hinkley Point B Decommissioning EIA: Appendix 8K Bat Survey – Building 597

DATE:	28 July 2023	**CONFIDENTIALITY:**	Confidential
SUBJECT:	Bat Survey		
PROJECT:	Hinkley Point B Decommissioning	**AUTHOR:**	Katie Watkins
CHECKED:	Gary Lindsay	**APPROVED:**	Glenn Richards

INTRODUCTION

Decommissioning Hinkley Point B

EDF Energy Nuclear Generation Limited is applying for consent from the Office for Nuclear Regulation (ONR) to decommission Hinkley Point B Nuclear Power Station ('HPB'). The decommissioning works (the 'Proposed Works') will include the dismantling and deconstruction of buildings and structures in areas within and outside of the Nuclear Site License ('NSL') boundary. An Indicative Dismantling Works Area ('Works Area') has been identified to delineate these areas.

The land within the NSL boundary (also referred to as 'The Site') and Works Area are on the coast of Bridgwater Bay at the mouth of the River Severn and on the southern flank of the Bristol Channel. The majority of the Works Area comprises built structures and hard standing (mainly access and car parks). To the south and east of the Works Area there is a fringe of woodland and scrub, with areas of open grassland. Hinkley Point A (HPA) borders the Works Area to the west and further west beyond a small area of woodland is the Hinkley Point C (HPC) development. The wider landscape to the south and east is agricultural. Bridgwater Bay is to the north.

Baseline Surveys

To inform the Ecological Impact Assessment (EcIA) of the Proposed Works, a suite of ecological surveys was carried out in 2019 and 2020 ('*Baseline Surveys*'). This included habitat surveys and surveys of a range of taxa, including otter, water vole, great crested newt, reptiles, badger, birds, invertebrates and bats. These surveys, combined with a desk-based study of other biodiversity information collected from the Site and surrounding area, establish the terrestrial biodiversity baseline against which the predicted effects of the Proposed Works on ecological features are to be assessed.

Baseline Verification

In 2022 the habitat survey was updated, with a period of over two years having elapsed since completion of the Baseline Surveys. The purpose of the 2022 survey, also referred to as '*Baseline Verification*', was to determine whether the biodiversity baseline, derived by the previous survey work and desk-based study, remains valid to inform the EcIA, recognising that any substantive changes in the extent, distribution or character of habitat types within the Works Area could trigger a requirement for survey updates and/or additional survey work.

Purpose of this report

Baseline Verification included a brief visual assessment of built structures within the Works Area, checking, verifying and updating the previous conclusions regarding the suitability of these structures for roosting bats. Although baseline verification concluded that there are likely to have

been no substantive changes in the baseline status of species populations (including bats) at HPB since the Baseline Surveys were completed, a new building (Building 597), close to the eastern limit of the Works Area, was recorded as having '*moderate*' suitability for roosting bats.

This report details the bat surveys of Building 597 and should be read in conjunction with the relevant Baseline Survey[1] and Baseline Verification[2] reports, which include all other relevant information and accompanying maps/figures. A brief summary of relevant legislation relating to bats is included in **Appendix A.**

METHODS

Survey design

The survey design and overall approach is consistent with The Bat Conservation Trust (BCT) Good Practice Guidelines[3], which was the prevailing good practice guidance on bat surveys in the UK at the time of survey. The Bat Worker's Manual[4] and relevant British Standard[5] have also informed the survey design, methodology and programme.

Bat roost inspection

An assessment of the suitability of built structures for roosting bats was completed as part of Baseline Verification. It was completed by a licensed ecologist[6] on 17 August 2022, focusing on buildings within the Site and Works Area. This Preliminary Roost Assessment (PRA) updated the previous PRA completed in 2019[1] by licensed bat ecologists[7,8].

The built structures were systematically inspected during daylight (10:00am – 3:00pm), and any features suitable for bats were noted, such as weatherboarding, hanging tiles, soffit boxes, gaps in brickwork, cracks, crevices, slipped or broken tiles and gaps around ridge tiles and lead flashing. Roof coverings were observed from the ground using close-focussing binoculars. The presence of Potential Roost Features (PRFs) was also recorded, such as roof voids, soffit boxes with access gaps, spaces between boarding and gaps under bargeboards and weatherboarding. The following was also taken into account when assessing the suitability of built structures for roosting bats:

- expected levels of artificial lighting around potential roost entrances;
- expected levels of disturbance to any potential roosts; and
- quality of habitat for roosting bats at the structure, and the potential for bat foraging and/or commuting routes in the surrounding area.

A Rigid SeeSnake narrow-bore endoscope was used for inspection of narrow crevices, as required. Samples of potential bat droppings found during the inspection were collected and submitted to SureScreen Scientifics for DNA analysis, with a view to identifying any bat species that use the buildings.

Taking into account all of the factors listed above, the built structures were categorised according to their suitability for roosting bats:

[1] Wood (2021) Hinkley Point B Decommissioning EIA – Baseline Report: Bats
[2] WSP (2022) 852351-WSPE-XX-XX-RP-OE-00001_S3_P01.02 Verification of Terrestrial Biodiversity Baseline
[3] Bat Conservation Trust (2016) *Bat Surveys – Good Practice Guidelines*. Third edition
[4] Joint Nature Conservation Committee (2004) *Bat Workers Manual.* Third Edition
[5] British Standards Institute (2013) BS8596:2015 *Surveying for Bats in Trees and Woodland*
[6] Katie Watkins: 2022-10445-CL18-BAT
[7] Tim Bradford: 2015-12885-CLS-CLS.
[8] Fiona Cargill: 2018-33646-CLS-CLS

- Confirmed roosts – where it was possible to determine the structure supports a PRF that is used or has been used by bats.
- High suitability – a structure with one or more PRFs that are obviously suitable for use by large numbers of bats on a regular basis and potentially for longer periods of time due to their size, shelter, protection, condition and surrounding habitat.
- Moderate suitability – a structure with one or more PRFs that could be used by bats due to their size, shelter, protection, condition and surrounding habitat, but that are unlikely to support a roost type of high conservation status.
- Low suitability – a structure with one or more PRFs that could be used by individual bats opportunistically. These PRFs do not provide sufficient space, shelter, protection, condition and/or surrounding habitat to be used on a regular basis or by large numbers of bats.
- Negligible suitability – structures with negligible features likely to be used by roosting bats.

Emergence survey

The PRA completed as part of Baseline Verification identified a new building (Building 597) that had not been included in the scope of the Baseline Surveys. This building was therefore subject to follow-up surveys to determine presence/absence of roosting bats. Three dusk emergence surveys of the new building were carried out between May and June 2023.

Two ecologists[9] visited the buildings at dusk to monitor any bat emergence from PRFs or potential roost access/egress points. Surveyors were positioned around the built structure to monitor all PRFs and bat activity was recorded using a combination of visual observation and aural full spectrum bat detectors (Elekon Batlogger M).

Three Canon XA20 and Canon XA30 video cameras with infrared capabilities, accompanied by separate powerful infrared light sources, were used by the surveyors. Video recordings were subsequently reviewed in real time by an ecologist to check for any bat emergence that may have been recorded. Dusk emergence surveys began at least 15 minutes before sunset and ended 120 minutes after sunset, encompassing the typical emergence periods for UK bat species.

Relevant environmental parameters such as rain, wind, cloud cover, temperature and relative humidity were recorded during each survey (**Appendix B**). The surveys were carried out in suitable weather conditions, with little or no rain, no excessive wind and temperatures above 10°C. In these weather conditions, bats are unlikely to be deterred from flying.

Data analysis

All data was analysed using BatExplorer software, with reference to Russ (2012)[10] to aid species identification. Where records cannot be identified to species-level, due to overlapping call parameters, records are typically assigned to the relevant genus/species group:

- Myotis sp. (Bat species in the genus Myotis).
- Nyctalus sp. (noctule or Leisler's bat).
- NSL (noctule, Leisler's or serotine).
- Common pipistrelle or soprano pipistrelle.

[9] Katie Watkins, Huw Bramhall, Samuel Caswell and Mollie Kirk.
[10] Russ, J. (2012) British Bat Calls: A Guide to Species Identification (Bat Biology and Conservation). Pelagic publishing.

- Common pipistrelle or Nathuisis' pipistrelle.
- Long-eared bat (brown or grey long-eared bat).
- Bat sp. (calls that could not be assigned to a species group).

Recordings of bats in the genus Myotis are often grouped together, as these species in particular have widely overlapping call parameters. Similarly, it is very difficult to distinguish between the two British species of long-eared bats through flight observations and sound recordings alone, therefore recordings of these species are also often grouped as long-eared bats.

RESULTS

Bat roost inspection

The results of the bat roost inspection are summarised in **Table 3-1**. Bat and bird droppings were recorded inside the building, however no bats were apparent during the survey.

Table 3-1 Bat roost inspection

Built structure	Description	Internal inspection*	Potential roost features	Bat roost suitability
Building 597	Wooden construction. Single storey with flat roof. Wooden gutter board and fascia. Gap around the underside of the gutter board. No loft space.	Bat and bird droppings recorded in the building. Old and new droppings, including small droppings potentially attributable to pipistrelle species.	Gap extending around the underside of the gutter board could allow access into a roost. Internally, wooden joins provide crevice features. No hibernation potential.	Moderate

DNA Analysis

Dropping samples collected from the building interior were subject to laboratory DNA analysis by SureScreen Scientifics. The results were inconclusive.

Emergence surveys

The results of the dusk emergence surveys are summarised in **Table 3-2** and the relevant survey parameters are summarised in **Appendix B**. No bats were recorded emerging from or re-entering the building. Bat activity levels recorded incidentally around the building during the surveys was relatively low (less than ten passes per survey) and attributable to noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*).

Table 3-2 Bat emergence survey

Date	Survey	Start /finish time	Sunset time	Results
04/05/2023	Dusk	20:10 – 22:10	20:40	No emergence / re-entry.
22/05/2023	Dusk	20:37 - 22:37	21:07	No emergence / re-entry.
12/06/2023	Dusk	20:59 – 22:59	21:29	No emergence / re-entry.

SUMMARY

Building 597 is of *moderate* suitability for roosting bats, however the dusk emergence surveys concluded that the building is not currently used by roosting bats. Low numbers of passes by foraging/commuting bats recorded by the surveys were attributable to noctule, common pipistrelle and soprano pipistrelle.

The absence of a roost and low levels of bat activity more generally is likely to be attributable to a combination of factors, such as high levels of artificial lighting, presence of gulls and the generally poor bat foraging habitat surrounding the built structure, with better quality roosting and foraging habitat associated with nearby woodland.

Appendix A
Relevant Legislation

All British bat species are listed in Schedule 5 of *The Wildlife and Countryside Act 1981 (as amended)*. The Act transposes into UK law the Convention on the Conservation of European Wildlife and Natural Habitats (commonly referred to as the 'Bern Convention'). All British bat species are listed on Schedule 5 of the Act in respect of Section 9, which makes it an offence, inter alia, to:

- Intentionally or recklessly kill, injure, or take (handle) a bat.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place that a bat uses for shelter or protection.
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.

British bat species receive further protection under Regulation 43 of The Conservation of Habitats and Species Regulations 2017 (as amended), which make provision for the purpose of implementing European Union Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992. All British bat species are listed on Annex IV of the Directive, which means that member states are required to put in place a system of strict protection as outlined in Article 12, and this is done through inclusion on Schedule 2 of the Regulations, which makes it an offence, inter alia, to:

- Deliberately capture, injure or kill any bat;
- Deliberately disturb a bat, in particular any disturbance which is likely:
  - to impair their ability
    - to survive, to breed or reproduce, or to rear or nurture their young, or
    - to hibernate or migrate
  - To affect significantly the local distribution or abundance of the bat species; or
- Damage or destroy a breeding site or resting place of a bat.

Five British bat species are listed on Annex II of the Habitats Directive:

- Greater horseshoe bat;
- Lesser horseshoe bat;
- Bechstein's bat;
- Barbastelle; and
- Greater mouse-eared bat.

As Annex II species under the Habitats Regulations, the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Where bats occur outside SACs the level of legal protection that these species receive is the same as for other bat species.

Appendix B Survey Parameters

Table B-1 Survey parameters

Date	Sunset	Survey Time	Temperature (°C)	Relative Humidity (%)	Rain	Cloud Cover (%)	Wind
04/05/2023	20:40	20:10 – 22:10	14 – 12	80 - 84	None	100	Calm
22/05/2023	21:07	20:37 - 22:37	17 - 13	72 - 77	None	80	Calm
12/06/2023	21:29	20:59 – 22:59	20 - 16	79 - 88	None	35	Calm

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8L

Biodiversity Net Gain Report

PUBLIC

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EDF Energy Nuclear Generation Limited

HINKLEY POINT B NUCLEAR POWER STATION DECOMMISSIONING WORKS

Biodiversity Net Gain: Baseline

852351-WSPE-XX-XX-TN-OE-00003_S2_P01
JUNE 2023

PUBLIC

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TABLES

APPENDICES

EXECUTIVE SUMMARY

EDF Energy Nuclear Generation Limited (EDF) is applying for consent from the Office for Nuclear Regulation (ONR) to decommission Hinkley Point B Nuclear Power Station ('HPB'), situated on the coastline of Bridgewater Bay in Somerset.

The decommissioning works (the 'Proposed Works') will include dismantling and deconstruction of built structures within and outside of the Nuclear Site License ('NSL') boundary. An Indicative Dismantling Works Area ('Works Area') has been defined to delineate these areas.

EDF is exploring opportunities for the Proposed Works to deliver an overall increase in biodiversity, referred to as Biodiversity Net Gain (BNG). The Study Area encompasses the Works Area, other land within the NSL boundary and areas of adjacent non-operational land that are owned by EDF.

A habitat survey of the Study Area was completed in August 2022, applying the UK Habitats classification system (UKHab), alongside a Habitat Condition Assessment (HCA). Defra's Biodiversity Metric 4.0 (biodiversity auditing and accounting tool) has been populated with the habitat and HCA data to calculate the baseline number of Biodiversity Units within the Works Area and separately within the wider Study Area.

The Works Area is predominantly hard standing and built structures, however the Proposed Works are likely to result in limited unavoidable habitat losses. A generally precautionary approach to the calculation of baseline Biodiversity Units is therefore adopted to avoid underestimating any associated loss of biodiversity.

The Study Area comprises a baseline total of 249.41 habitat units, 1.62 hedgerow units and 2.58 watercourse units. The Works Area comprises a baseline total of 3.38 habitat units and 0.046 watercourse units.

Once consent for decommissioning has been obtained, the metrics are to be updated to reflect predicted habitat losses, with a view to calculating a proportionate level of compensatory habitat creation and/or enhancement to deliver an overall increase in the number of Biodiversity Units (biodiversity net gain).

The accompanying biodiversity metrics/tools and supporting habitat and HCA data are in electronic format (Excel files) as detailed in **Appendix C.**

1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1. EDF Energy Nuclear Generation Limited (EDF) is applying for consent from the Office for Nuclear Regulation (ONR) to decommission Hinkley Point B Nuclear Power Station ('HPB'). HPB is situated on the coastline of Bridgewater Bay in Somerset, at approximate central Ordnance Survey (OS) grid reference ST 21372 46044. The decommissioning works (the 'Proposed Works') will include dismantling and deconstruction of built structures within and outside of the Nuclear Site License ('NSL') boundary. An Indicative Dismantling Works Area ('the Works Area') has been defined to delineate these areas.

1.1.2. The majority of the Works Area is built structures and hard standing, with smaller areas of grassland. To the south, west and east there is a fringe of woodland and scrub, with areas of open grassland. Hinkley Point A (HPA) also borders the Works Area to the west and to the north lies Bridgwater Bay. The wider landscape to the south and east is agricultural, with the Hinkley Point C (HPC) development dominating the land further to the west.

1.1.3. EDF is exploring opportunities for the Proposed Works to deliver an overall increase in biodiversity, referred to as Biodiversity Net Gain (BNG). The Study Area encompasses the land covered by the NSL (also referred to as 'The Site'), the Works Area and areas of adjacent non-operational land that are owned by EDF. These areas are shown in **Figure 1** (**Appendix A**).

1.2 BIODIVERSITY BASELINE

1.2.1. To inform the Ecological Impact Assessment (EcIA), as part of the Environmental Impact Assessment (EIA), of the Proposed Works, a suite of ecological surveys was carried out at HPB, between 2019 and 2020, including habitat surveys and surveys of a range of taxa. These are referred to as the 'Baseline Surveys'. The Baseline Surveys are detailed in separate 'Baseline Reports'[1,2,3,4,5,6,7,8] The surveys and survey reports, combined with a desk-based study[9] of other biodiversity information collected from the Site and surrounding area, establish the terrestrial biodiversity baseline against which the predicted effects of the Proposed Works on ecological features are to be assessed.

1.2.2. A period of over three years has elapsed since the completion of the Baseline Surveys and the Works Area has been refined, mainly to include marine infrastructure associated with HPB. The

[1] Wood (2019). Hinkley Point B Decommissioning EIA - Baseline Report: Phase 1 Habitat Survey.
[2] Wood (2019). Hinkley Point B Decommissioning EIA - Baseline Report: Otter and water vole.
[3] Wood (2019). Hinkley Point B Decommissioning EIA - Baseline Report: Great crested newt.
[4] Wood (2019). Hinkley Point B Decommissioning EIA - Baseline Report: Reptiles.
[5] Wood (2020). Hinkley Point B Decommissioning EIA - Baseline Report: Badger.
[6] Wood (2020). Hinkley Point B Decommissioning EIA - Baseline Report: Breeding; Non-breeding Birds.
[7] Wood 2020). Hinkley Point B Decommissioning EIA – Baseline Report: Invertebrates.
[8] Wood (2021). Hinkley Point B Decommissioning EIA - Baseline Report: Bats.
[9] WSP (2023). Hinkley Point B Decommissioning EIA - Baseline Report: Desk Study (Terrestrial Biodiversity).

habitat survey completed in 2019 was therefore updated in 2022. The purpose of the survey update, referred to as a 'Baseline *Verification*'[10] , was to determine whether the terrestrial biodiversity baseline, derived by the previous survey work and desk-based study, remains valid to inform the assessment.

1.2.3. Baseline Verification concluded that there have been no substantive changes in the baseline status of terrestrial habitats within the Site and Works Area and that it is likely that there have been no substantive changes in the baseline status of species populations since the Baseline Surveys were completed in 2019 and 2020. The characterisation of the biodiversity baseline, reported in the Baseline Reports, therefore remains valid.

1.3 BIODIVERSITY NET GAIN

1.3.1. BNG is an approach to development that aims to leave the natural environment in a measurably better state than beforehand. The approach is aligned with the mitigation hierarchy[11], which prioritises firstly avoiding, secondly mitigating and thirdly compensating biodiversity losses. Only as a last resort, residual losses are compensated for using offsite habitat enhancement or creation.

1.3.2. Defra's *Biodiversity Metric 4.0 Calculation - Auditing and accounting for biodiversity tool* ('the Metric')[12,13] is used to quantify the biodiversity baseline, using habitats and Biodiversity Units (BU) as a proxy for biodiversity. When habitat losses and gains resulting from development activity are known, the BNG calculation is updated and the associated biodiversity/BU losses and/or gains are measurable. This allows additional habitat creation and enhancements to be defined, with a view to achieving a specific BNG target.

1.3.3. BNG calculations focus on changes in habitats and the associated changes in number of Biodiversity Units. The calculations do not factor-in other elements of the EcIA process, for example the assessment of the effects of development activity on protected species and species of notable biodiversity conservation importance and/or effects on designated biodiversity conservation sites.

1.4 THIS REPORT

1.4.1. WSP was commissioned by EDF to apply the Metric to complete the initial BNG baseline calculation to inform the decommissioning of HPB. This report and supporting datasets establish the estimated total baseline number of Area Habitat Biodiversity Units (AHBU), Hedgerow Biodiversity Units (HBU) and Watercourse Biodiversity Units (WBU) within the Works Area and separately within the wider Study Area (**Figure 1).** The latter encompasses the Works Area, the land within the NSL boundary and adjacent areas of non-operational land owned by EDF. This report and supporting datasets are to be used to calculate the overall predicted loss of BU and subsequently BNG once consent for decommissioning has been granted.

[10] WSP (2023). Decommissioning of Hinkley Point B Nuclear Power Station: Verification of Terrestrial Biodiversity Baseline
[11] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester
[12] Natural England (2023). Archive Site for the Biodiversity Metric 2.0, 3.0, 3.1, 4.0 and the beta test version of the Small Sites Metric. Online at: https://nepubprod.appspot.com/publication/5850908674228224
[13] Biodiversity Metric 4.0 has recently been replaced by the 'Statutory Metric'. It is however appropriate to continue to use Metric 4.0, which was the current version at the time of the data analysis and biodiversity unit calculations.

1.4.2. This report has been prepared with reference to current good practice guidance published by the Chartered Institute for Ecology and Environmental Management[14,15]; the UKHab Classification User Manual[16]; and guidance contained in the British Standard - Code of Practice for Biodiversity and Development BS42020:2013[17].

[14] CIEEM (2017). *Guidelines for Ecological Report Writing*. CIEEM, Winchester.
[15] CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal*. Second Edition. CIEEM, Winchester.
[16] Butcher, B., Carey, P., Edmonds, R., Norton, L., and Treweek, J. (2020). *The UK Habitat Classification User Manu*al Version 1.1 at http://www.ukhab.org/
[17] BSI (2013). *Biodiversity code of practice for planning and development*: BS42020. BSI. London

2 METHODS

2.1 UK HABITATS CLASSIFICATION

2.1.1. The baseline habitat survey[1] and baseline verification[10] completed to inform the EcIA employed the standard Phase 1 habitat survey method[18]. The more recent UK Habitat Classification system (UKHab) is however integral to the BNG metric. The BNG baseline calculation has therefore been informed by further habitat survey work within the Study Area, applying the more recent UKHab classification, in August 2022.

2.1.2. The UKHab survey of the Study Area (**Figure 1**) was carried out by a WSP ecologist who is competent[19] in surveying similar habitats. The habitats were described and mapped following the Professional Version 1.1 of UKHab[20]:

- UKHab User Manual[21];
- UKHab Field Key[22]; and
- UKHab Habitat Descriptions Version 1.1[23].

2.1.3. The UKHab system classifies habitats according to their vegetation types and structure, following a principal hierarchy of 'Primary Habitats'. Primary Habitats include ecosystems (level 1); broad habitat types (level 2 and 3); defined habitats, including Priority Habitats (level 4); and further defined habitats, including Annex I Habitats[24] (level 5). Each Primary Habitat has a unique alpha numeric UKHab code, which differs from codes assigned by other habitat survey methods, such as Phase 1 habitat survey and National Vegetation Classification (NVC).

2.1.4. Secondary codes are assigned to provide supplementary information from the following categories:

- Mosaic habitats;
- Habitat complexities;
- Origin of habitat;
- Management;
- Land use;
- Environmental qualifiers;
- Hydrological regime; and
- Green infrastructure.

[18] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey - a technique for environmental audit*. Peterborough, UK.
[19] CIEEM (2021). Competency Framework. Available at: https://cieem.net/wp-content/uploads/2022/01/Competency-Framework-2022-Web.pdf
[20] Version 2 has subsequently been published, however version 1.1 was valid at the time of the survey.
[21] Butcher, B., Carey, P., Edmonds, R., Norton, L., and Treweek, J. (2020). The UK Habitat Classification User Manual Version 1.1 at http://www.ukhab.org/
[22] Butcher, B., Carey, P., Edmonds, R., Norton, L., and Treweek, J. (2020). The UK Habitat Classification – Field Key V1.1 at http://www.ukhab.org/
[23] Butcher, B., Carey, P., Edmonds, R., Norton, L., and Treweek, J. (2020). The UK Habitat Classification – Habitat Definitions V1.1 at http://www.ukhab.org/
[24] Habitats listed in Annex I of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [online]. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043&from=EN.

2.1.5. A Primary Habitat code was assigned to each polygon, line or point feature on base mapping of the Study Area, with secondary codes applied where appropriate. Plant species nomenclature follows the *New Flora of the British Isles*[25] .

2.1.6. Concurrently with the UKHab survey, a Habitat Condition Assessment (HCA) was carried out, following the methodology detailed as part of Biodiversity Metric 3.1[26]. Results of the HCA have been converted to Biodiversity Metric 4.0 in accordance with Natural England guidance 4.0[27]

2.1.7. Habitat classifications, descriptions, secondary codes and HCAs were recorded in the field wherever possible using a mobile mapping computer/tablet and were subsequently digitised using ArcMap GIS software Version 10.8.1. The UKHab survey maps the different habitat types onto base mapping, which comprises a series of polygons/land parcels. The minimum mappable area is taken as 25 m^2, negating the requirement to attempt to map very small areas of habitat.

2.2 BIODIVERSITY NET GAIN: BASELINE

2.2.1. This assessment of the BNG baseline is informed by the following good practice guidance:

- CIEEM, IEMA & CIRIA (2016) Biodiversity Net Gain: Good Practice Principles for Development[28].
- Natural England (2022) *Biodiversity Metric 3.1 – Auditing and accounting for biodiversity calculation tool*, employing the data collection methodology set out in the Metric 3.1 User Guide and Technical Supplement[26].
- Natural England (2023) for conversion to Biodiversity Metric 4.0 following the methodology set out in the Metric 4.0 User Guide and Technical Supplement[29].
- British Standard 8683 Process for designing and implementing Biodiversity Net Gain – Specification (2021)[30].
- CIEEM (2021) Biodiversity Net Gain Reporting and Audit Templates (CIEEM BNG Report and Audit-template)[31].

2.2.2. The translation of UK Habitats types into BNG habitat categories for the purpose of populating the Metric is summarised in **Table C-1** (**Appendix C),** focusing on those habitats types recorded within the Study Area that do not have directly comparable habitats within the Metric.

2.2.3. Biodiversity Units are calculated by the Metric based on the size of each habitat parcel and its *quality*. The metric scores *quality* based on habitat *distinctiveness*, *condition* and *strategic significance*. The latter adds biodiversity unit value to habitats that are in optimal locations and/or

[25] Stace C. A. (2019). New Flora of the British Isles. Fourth Edition. C&M Floristics, Suffolk
[26] Stephen Panks, Nick White, Amanda Newsome, Mungo Nash, Jack Potter, Matt Heydon, Edward Mayhew, Maria Alvarez, Trudy Russel, Clare Cashon, Finn Goddard, Sarah J. Scott, Max Heaver, Sarah H. Scott, Jo Treweek, Bill Butcher, Dave Stone (2022). Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England. Online at: https://publications.naturalengland.org.uk/publication/5850908674228224
[27] Natural England (2023) Summary of Changes The Biodiversity Metric Version 3.1 to 4.0 available https://publications.naturalengland.org.uk/publication/6049804846366720 accessed 06/06/2023
[28] CIEEM (2023) Biodiversity Net Gain Good practise principles for development available https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf
[29] Natural England (2023) The Biodiversity Metric 4.0 available at https://nepubprod.appspot.com/publication/6049804846366720
[30] https://knowledge.bsigroup.com/products/process-for-designing-and-implementing-biodiversity-net-gain-specification/standard
[31] https://cieem.net/resource/biodiversity-net-gain-report-and-audit-templates/

habitat types that meet local biodiversity conservation objectives. The approach to categorising strategic significance that has been adopted is summarised in **Table 2-1**.

Table 2-1 – Assigning strategic significance

Strategic significance	Criteria
Within an area formally identified in a local strategy, plan or policy. ['High' strategic significance]	Located within a statutory designated site or non-statutory designated site or identified within a relevant local strategy, plan or policy; and • The Habitat types are specified in relation to the identified area, *or* • Where specific details of habitats relevant to the identified area are not specified, all habitats within the formally identified area.
Location ecologically desirable but not in a local strategy, plan or policy. ['Medium' strategic significance]	Based on professional judgement, the location is deemed ecologically desirable for a particular habitat type, taking account of proximity to areas formally identified in site designations and local strategies, plans and policies and ecological connectivity e.g. habitats forming part of a strategic corridor.
Area not in a local strategy, plan or policy. ['Low' strategic significance]	Habitat does not fall into either of the above categories.

2.3 LIMITATIONS

2.3.1. Habitat Condition Assessments were completed using Biodiversity Metric 3.1 which was superseded by Biodiversity Metric 4.0 in March 2023. The survey results have therefore been converted to Biodiversity Metric 4.0 in accordance with Natural England guidance 4.0[27] and this is therefore not a constraint on the BNG assessment.

2.3.2. The Works Area encompasses marine outfall infrastructure, which crosses intertidal and marine habitats. The outfall is a built structure which is tunnelled underneath the intertidal zone and will be largely undisturbed by the Proposed Works. This report therefore relates to only terrestrial habitats within the Study Area (**Figure 1**).

2.3.3. Ten habitat parcels ('Grassland – Modified grassland') on operational land within the NSL boundary were not surveyed in 2022. The combined area of the parcels is 0.855 ha. The parcels are assumed to be in 'Moderate' condition and are identified in the supporting condition assessment data (**Appendix C**). This assumption is based on previous Phase 1 Habitat survey data and aerial imagery. This is also on the basis that similar habitats in operational sites tend to be short mown Modified grassland that is likely to fail 'Grassland Low' condition assessment criteria A and B, whilst passing criteria C, D, E, F and G and achieving a total score of 5 points and a condition assessment of 'Moderate.'

3 RESULTS

3.1 UK HABITATS CLASSIFICATION

STUDY AREA

3.1.1. Habitat areas and linear habitats recorded within the Study Area are mapped on **Figure 2** (**Appendix A**). A list of the plant species recorded by the surveys is included in **Table B-1** (**Appendix B)**. A total of 16 UK Habitat types were identified within the Study Area. These habitats are summarised in **Table 3-1**, including primary habitat codes, secondary codes recorded within the primary habitat, total area (hectares) and priority status. Linear habitats are summarised similarly in **Table 3-2**. Summary habitat descriptions are included in a separate section below.

3.1.2. Priority status is assigned to habitats that are potentially within a habitat category that is a Habitat of Principal Importance for Biodiversity Conservation in England[32] (HPI), plus priority habitats listed within the Somerset Local Biodiversity Action Plan (LBAP)[33]. In assigning priority status, a precautionary approach was adopted[34].

3.1.3. The metric tools (BNG calculations) and supporting HCA data are included in electronic format in the accompanying Excel spreadsheets. The list of electronic data that accompanies this report is included in **Table C-2** (**Appendix C**).

Table 3-1 – UK Habitat areas (Study Area)

UKHab Primary Code	UKHab Secondary Codes	Total Area (Ha)	Priority Status
f2e Reedbeds	-	0.116	HPI: Reedbeds LBAP: Lowland Raised Bogs, Fens and Reedbeds
g3 Neutral grassland	17 Ruderal/ ephemeral 73 Bare ground	4.072	HPI: Lowland meadows LBAP: Calcareous and neutral grassland
g3c Other neutral grassland	10 Scattered scrub	2.971	HPI: Lowland meadows LBAP: Calcareous and neutral grassland
g3c5 Arrhenatherum neutral grassland	-	0.850	HPI: Lowland meadows LBAP: Calcareous and neutral grassland

[32] https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england
[33] Somerset Local Biodiversity Action Plan (2010) https://legacy.southsomerset.gov.uk/media/333016/biodiversity_action_plan_2008.pdf, Accessed 05/06/2023 https://somersetdrainageboards.gov.uk/conservation_11_1271066518.pdf
[34] LBAP habitats are broad habitat categories and do not always correspond with UKHab level 3 categories. Therefore, all UKHab categories which could fit within the LBAP priority habitat definitions are assigned priority status on a precautionary basis. The categorisation of habitats as HPI is similarly precautionary.

UKHab Primary Code	UKHab Secondary Codes	Total Area (Ha)	Priority Status
g4 Modified Grassland	73 Bare ground	4.121	-
h3h Mixed scrub	11 Scattered trees	4.104	-
h3f Hawthorn scrub	11 Scattered trees	2.979	-
r1 Standing open water and canals	19 Ponds	0.038	HPI: Ponds LBAP: Ditches and ponds
r1b Mesotrophic lakes	19 Ponds	0.109	UKBAP: Mesotrophic lakes LBAP: Ditches and ponds
u1 Built-up areas and gardens	89 Car park 91 Development site 96 Industrial building	1.010	-
u1b Developed land; sealed surface	111 Road	22.792	-
u1c Artificial unvegetated, unsealed surface	-	0.892	-
w1f Lowland mixed deciduous woodland	37 Semi-natural woodland	2.853	HPI: Lowland mixed deciduous woodland LBAP: Woodland
w1g Other woodland; broadleaved	36 Plantation 48 Non-native	2.365	LBAP: Woodland
Grand Total	**N/A**	**49.272**	**N/A**

Table 3-2 - Linear UK Habitats (Study Area)

UKHab Primary Code	UKHab Secondary Codes	Total Length (km)	Priority Status
h2b Other hedgerow	16 Tall herb 17 Ruderal/ ephemeral	0.241	HPI: Hedgerows LBAP: Hedgerows
r1 Standing open water and canals (ditches)	39 Man-made 48 Non-native	0.560	LBAP: Water & Wetlands
Grand Total	**N/A**	**0.801**	**N/A**

WORKS AREA

3.1.4. UK Habitats within the Works Area are a subset of the habitats mapped within the wider Study Area (**Figure 2**) and are summarised separately in **Table 3-3** and **Table 3-4** below.

3.1.5. The HCA data that have informed the BNG calculations (Works Area) are included in the accompanying Excel spreadsheet. The list of electronic data that accompanies this report is included in **Table C-2** (**Appendix C**).

Table 3-3 – UK Habitat Areas (Works Area)

UKHab Primary Code	UKHab Secondary Codes	Total Area (Ha)	Priority Status
g3 Neutral grassland	-	0.003	UKBAP: Lowland meadows LBAP: Calcareous and neutral grassland
g3c Other neutral grassland	-	0.124	UKBAP: Lowland meadows LBAP: Calcareous and neutral grassland
g4 Modified Grassland	-	0.653	-
u1 Built-up areas and gardens	89 Car park 91 Development site 96 Industrial building	0.256	-
u1b Developed land; sealed surface	111 Road	22.399	-
u1c Artificial unvegetated, unsealed surface	-	0.010	-
w1g Other woodland; broadleaved	36 Plantation 48 Non-native	0.019	LBAP: Woodland
Grand Total	**N/A**	**23.464**	**N/A**

Table 3-4 – Linear UK Habitats (Works Area)

UKHab Primary Code	UKHab Secondary Codes	Total Length (km)	Priority Status
r1 Standing open water and canals (ditches)	39 Man-made 48 Non-native	0.050	LBAP: Water & Wetlands
Grand Total	**N/A**	**0.050**	**N/A**

HABITAT DESCRIPTIONS (SUMMARY)

f2e Reedbeds

3.1.6. One habitat parcel in the southwest corner of the Study Area. The reedbed contained a dense monoculture of common reed (*Phragmites australis)* and was inundated at time of survey. The area is likely to remain wet throughout the year.

g3 Neutral Grassland

3.1.7. There are eight parcels of neutral grassland throughout the Study Area and appear generally unmanaged. One parcel in the northeast of the Study Area is damaged by vehicle access, being bisected by a grass track. One parcel towards the centre of the Study Area is very dry with bare ground indicating damage by rabbit grazing. One parcel in the southeast corner bounds a pond and is

relatively species-poor. The remaining parcels include areas of bare ground, areas comprising a mixture of grasses and herbs and areas of ruderal vegetation.

3.1.8. Species recorded include red fescue (*Festuca rubra)*, meadow fescue (*Festuca pratensis)*, sheep's fescue (*Festuca ovina)*, sweet vernal grass (*Anthoxanthum odoratum)*, crested dogs-tail (*Cynosurus cristatus)*, Yorkshire fog (*Holcus lanatus)*, cock's-foot (*Dactylis glomerata)*, barren brome (*Anisantha* sterilis), glaucous sedge (*Carex flacca)*, fleabane *Erigeron sp*., cow parsley (*Anthriscus sylvestris)*, ribwort plantain (*Plantago lanceolata)*, salad burnet (*Sanguisorba minor)*, common knapweed (*Centaurea nigra)*, teasel (*Dipsacus sp)*., hemp agrimony (*Eupatorium cannabinum)*, bramble (*Rubus fruticosus)*, dogwood (*Cornus sanguinea)*., dog rose (*Rosa canina)*, elder (Sambucus nigra), gorse (*Ulex sp*.), birds-foot trefoil (*Lotus corniculatus)*, oxeye daisy (*Leucanthemum vulgare)*, red bartsia (*Odontites vernus)*, St John's wort (*Hypericum perforatum)*, yellowwort (*Blackstonia perfoliate)*, lady's bedstraw (*Galium verum)*, hedge bedstraw (*Galium mollugo)*, hairy willowherb (*Epilobium hirsutum)*, yarrow (*Achillea millefolium)*, sweet violet (*Viola odorata)*, creeping cinquefoil (*Potentilla reptans)*, common ragwort (*Jacobaea vulgaris)*, bristly ox tongue (*Helminthotheca echioides)*, roundleaf cancerwort (*Kickxia spuria)*, ground ivy (*Glechoma hederacea)*, scarlet pimpernel (*Anagallis arvensis)* and curled-leaved dock (*Rumex crispus)*.

g3c Other Neutral Grassland

3.1.9. Ten parcels of other neutral grassland, mostly concentrated in the southwest corner of the Study Area. Similar in species composition to the g3 neutral grassland, however creeping cinquefoil (*Potentilla reptans)* dominates eight of the parcels which were very dry and heavily grazed by rabbits. Additional species to those recorded within g3 also include creeping bent (*Agrostis capillaris)*, dog violet (*Viola riviniana)*, marsh willowherb (*Epilobium palustre)*, common centaury (*Centaurium erythraea)*, self-heal (*Prunella vulgaris)*, greater plantain (*Plantago majo*r), black medic (*Medicago lupulina)*, burnet saxifrage (*Pimpinella saxifraga)*, creeping thistle (*Cirsium arvense)* and common toadflax (*Linaria vulgaris)*.

g3c5 Arrhenatherum neutral grassland

3.1.10. One parcel of this habitat is in the southeast corner of the Study Area. It consists of species similar to g3 and g3c with additional and dominant false oat-grass (*Arrhenatherum elatius)*, hairy sedge (*Carex hirta)* and common reed.

g4 Modified Grassland

3.1.11. Seventeen parcels of modified grassland spread throughout the Study Area, including small, intensively managed parcels within the Works Area and larger unmanaged swards within the NSL boundary. Species composition is influenced by heavy rabbit grazing in multiple parcels. Species recorded include perennial rye-grass (*Lolium perenne)*, Yorkshire fog, cock's-foot, false oat-grass, greater plantain, creeping thistle, teasel and bird's-foot trefoil.

h3h Mixed Scrub

3.1.12. Seven parcels of mixed scrub throughout the Study Area, with most concentrated to the south, adjacent to grassland parcels. Species recorded include ash (*Fraxinus excelsior)*, grey willow (*Salix cinerea)*, crack willow (*Salix fragilis)*, pedunculate oak (*Quercus robur)*, field maple (*Acer campestre)*, sycamore (*Acer pseudoplatanus)*, silver birch (*Betula pendula)*, privet (*Ligustrum sp*.), hazel *(Corylus avellana)*, hawthorn (*Crataegus sp)*., dog rose, bramble, dogwood, blackthorn (*Prunus spinosa)*, elder.

Ground flora includes ivy (*Hedera sp.)*, stinking iris (*Iris foetidissima)*, creeping thistle and barren brome.

h3f Hawthorn Scrub

3.1.13. Six parcels of hawthorn scrub in the southwest part of the Study Area, with a species composition closely matching h3h above but with dominant hawthorn.

r1 Standing Open Water and Canals/ r1b Mesotrophic lakes (ponds)

3.1.14. Two areas of standing water in the southwest (standing open water/pond) and southeast corner (mesotrophic lake) of the Study Area. The southwest pond is surrounded by grassland and the southeast lake is surrounded by scrub. Species recorded include common reed, yellow flag iris (*Iris pseudacorus)*, jointed rush (*Juncus articulates)*, mint (*Mentha sp*.), purple loosestrife (*Lythrum salicaria)*.

u1 Built Up Areas and Gardens/ u1b Developed land; sealed surface/ u1c Artificial unvegetated, unsealed surface

3.1.15. Industrial buildings associated with the nuclear power station, other sealed and unsealed surfaces, access tracks and built linear features are present throughout the perimeter of the Study Area.

w1f Lowland Mixed Deciduous Woodland

3.1.16. Two areas of this habitat type are located adjacent to one another in the western section of the Study Area. The woodland has a wide species mix with canopy trees of a similar age. The understory is complex and there is evidence of woodland regeneration through new seedlings and saplings. Species include a predominantly ash, pedunculate oak, hornbeam (*Carpinus betulus)*, field maple and sycamore canopy layer, with a shrub layer of hazel, elm (*Ulmus sp*.), privet, hawthorn, holly (*Ilex aquifolium)* and understory of ivy, common nettle (*Urtica dioica)*, stinking iris, lords and ladies (*Arum maculatum)* and creeping thistle.

w1g Other Woodland; broadleaved

3.1.17. Other woodland broadleaved bounds the south and southeast of the Works Area. The three parcels are of similar age, with most trees less than 10cm in diameter at breast height (DBH). The woodland tree layer mainly comprises ash, grey willow and oak, with two of the three woodland parcels interspersed with scrub, including dog rose, bramble, dog wood, blackthorn and elder. The ground layer is minimal and the invasive Himalayan balsam (*Impatiens glandulifera)* occurs in one woodland parcel.

h2b Other hedgerows

3.1.18. Three hedgerows were recorded in the Study Area; two in the northeast and one in the southwest. All three hedgerow were predominantly bramble with occasional other woody species including guelder rose (*Viburnum opulus)*, hawthorn, dog rose, elder and young grey willow and sycamore trees, with a scattered ruderal underlayer.

r1 Standing open water and canals (ditches)

3.1.19. There are three drainage ditches in the Study Area, all towards the eastern boundary and all held water at the time of survey. The ditches are vegetated both in the channel and on the banks with species including common reed, hairy willowherb, great hairy willowherb (*Epilobium hirsutum)*, comfrey (*Symphytum sp)*., hedge bindweed (*Calystegia sepium)*, Himalayan balsam, meadowsweet

(*Filipendula ulmaria)*, blackthorn, teasel, fleabane, tufted vetch (*Vicia cracca)* and meadow vetchling (*Lathyrus pratensis)*.

3.2 BIODIVERSITY NET GAIN: BASELINE

BNG BASELINE CALCULATIONS

3.2.1. The BNG calculations are included in the accompanying Excel spreadsheets, which are detailed along with the other electronic data that accompanies this report in **Appendix C**. There are two spreadsheets that contain the BNG calculations, one detailing the calculations relating to the Study Area [**HPB Study Area Biodiversity Metric 4.0 Calculation Tool**] and the other relating to the Works Area [**HPB Works Area Biodiversity Metric 4.0 Calculation Tool**]. HCA data is included in a separate excel spreadsheet [**HPB Condition Assessment data**]. The metric spreadsheets are populated with habitat areas/lengths and HCA data to derive the BNG calculations.

3.2.2. As set out above, the UKHab classifications are mapped to the corresponding habitat categories within the BNG metric. The separate tabs within the Metric detail the habitat baseline, where applicable including tabs A-1 (On-site Habitat Baseline), B-1 (On-site Hedge Baseline) and C-1 (On-site Watercourse Baseline). Habitats that have priority status are assigned a 'high' strategic significance due to their importance on a national and/or local scale. In the absence of detailed Somerset ecological network maps, habitats of medium or higher distinctiveness are assigned a 'medium' strategic significance; and habitats of low or very low distinctiveness are assigned a 'low' strategic significance.

BNG BASELINE: STUDY AREA

3.2.3. **Table 3-5** is an extract from the Metric [**HPB Study Area Biodiversity Metric 4.0 Calculation Tool**] and shows the headline results, with the Study Area baseline comprising: 249.41 area habitat units, 1.62 hedgerow units and 2.58 watercourse units.

Table 3-5 – Study Area Baseline (biodiversity units)

On-site baseline	*Habitat units*	249.41	
	Hedgerow units	1.62	
	Watercourse units	2.58	
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	249.41	
	Hedgerow units	1.62	
	Watercourse units	2.58	
On-site net change (units & percentage)	*Habitat units*	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

BNG BASELINE: WORKS AREA

3.2.4. **Table 3-6** is an extract from the Metric [**HPB Works Area Biodiversity Metric 4.0 Calculation Tool**] and shows the headline results, with the Works Area baseline comprising: 3.38 habitat units and 0.46 watercourse units.

Table 3-6 – Works Area Baseline (biodiversity units)

On-site baseline	*Habitat units*	3.38	
	Hedgerow units	0.00	
	Watercourse units	0.46	
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	3.38	
	Hedgerow units	0.00	
	Watercourse units	0.46	
On-site net change (units & percentage)	*Habitat units*	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%

4 SUMMARY

4.1 UK HABITATS SURVEY

4.1.1. A habitat survey of the Works Area and wider Study Area was completed, employing the UK Habitats (UKHab) classification system (UKHab survey). The extent of different UKHab types/categories within the Study Area and Works Area is mapped on **Figure 2** and summarised below (**Table 4-1** and

4.1.2.

4.1.3. **Table** 4-2).

4.1.4. A Habitat Condition Assessment (HCA) has also been completed, adopting a precautionary approach, and the HCA data that inform the BNG calculations are included in the accompanying Excel spreadsheet [**HPB Condition Assessment data**]. The full list of electronic data that accompanies this report is detailed in **Table C-2** (**Appendix C**).

Table 4-1 – UK Habitat areas within the Study Area and Works Area

UKHab Primary Code	Proportion of Study Area	Proportion of Works Area
f2e Reedbeds	0.2% (0.116 ha)	
g3 Neutral grassland	8.3% (4.072 ha)	0.01% (0.003 ha)
g3c Other neutral grassland	6.0% (2.971 ha)	0.53% (0.124 ha)
g3c5 Arrhenatherum neutral grassland	1.7% (0.850 ha)	
g4 Modified Grassland	8.4% (4.121 ha)	2.78% (0.653 ha)
h3h Mixed scrub	8.3% (4.104 ha)	
h3f Hawthorn scrub	6.0% (2.979 ha)	
r1 Standing open water and canals	0.1% (0.038 ha)	
r1b Mesotrophic lakes	0.2% (0.109 ha)	
u1 Built-up areas and gardens	2.0% (1.010 ha)	1.09% (0.256 ha)
u1b Developed land; sealed surface	46.3% (22.792 ha)	95.46% (22.399 ha)
u1c Artificial unvegetated, unsealed surface	1.8% (0.892 ha)	0.04% (0.010 ha)
w1f Lowland mixed deciduous woodland	5.8% (2.853 ha)	
w1g Other woodland; broadleaved	4.8% (2.365 ha)	0.08% (0.019 ha)
Grand Total	**100% (49.272 ha)**	**100% (23.464 ha)**

Table 4-2 – Linear UK Habitats within the Study Area and Works Area

UKHab Primary Code	Proportion of Study Area	Proportion of Works Area
h2b Other hedgerow	30.1% (0.241 km)	
r1 Standing open water and canals (ditches)	69.9% (0.560 km)	100% (0.050 km)
Grand Total	**100% (0.801 km)**	**100% (0.050 km)**

4.2 BIODIVERSITY NET GAIN: BASELINE

4.2.1. Biodiversity Metric 4.0 has been populated with the habitats and habitat condition data to calculate the number of Biodiversity Units within the Study Area [**HPB Study Area Biodiversity Metric 4.0 Calculation Tool**] and separately within the Works Area [**HPB Works Area Biodiversity Metric 4.0 Calculation Tool**]. The two accompanying metric spreadsheets are detailed in **Table C-2** (**Appendix C**).

4.2.2. The Study Area comprises a baseline total of 249.41 area habitat units, 1.62 hedgerow units and 2.58 watercourse units. The Works Area comprises a baseline total of 3.38 habitat units and 0.46 watercourse units.

4.3 NEXT STEPS

4.3.1. Once consent for decommissioning has been obtained, the metrics are to be updated to reflect predicted habitat losses, with a view to calculating a proportionate level of compensatory habitat creation and/or enhancement to deliver an overall increase in the number of Biodiversity Units (biodiversity net gain).

Appendix A

FIGURES

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321000

146000

N

Key

Study Area

Indicative Dismantling Works Area ("Works Area")

Nuclear Site Licence Boundary ("NSL")

0 100 200 300 m

Scale at A3: 1:5,000

Decommissioning of Hinkley Point B Nuclear Power Station
UKHab and BNG Report

Figure 1
Site, Works Area and NSL Boundaries

June 2023

Figure 1

321000

146000

N

37
37
89
91
96
17
73
36
48
17
111
19
11
11
73
10
19
48

Key

Study Area

Habitat

- f2e Reedbed
- g3 Neutral grassland
- g3c Other neutral grassland
- g3c5 Arrhenatherum neutral grassland
- g4 Modified grassland
- h3h Mixed scrub
- h3f Hawthorn scrub
- r1 Standing open water and canals
- r1b Mesotrophic lakes
- u1 Built-up areas and gardens
- u1b Developed land; sealed surface
- u1c Artificial unvegetated, unsealed surface
- w1f Lowland mixed deciduous woodland
- w1g Other woodland; broadleaved
- h2b Other hedgerow
- r1e Canal or ditch

10 - 96 Secondary codes

0 100 200 m

Scale at A3: 1:4,250

Decommissioning of Hinkley Point B Nuclear Power Station
UKHab and BNG Report

Figure 2
UKHab Map

June 2023

Figure 2

Appendix B

SPECIES LIST

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Table B-1 – Species List

Common name	Scientific name
Ash	*Fraxinus excelsior*
Barren brome	*Anisantha sterilis*
Black medic	*Medicago lupulina*
Blackthorn	*Prunus spinosa*
Bird's foot trefoil	*Lotus corniculatus*
Bramble	*Rubus fruticosus*
Bristly ox tongue	*Helminthotheca echioides*
Burnet saxifrage	*Pimpinella saxifraga*
Cock's foot	*Dactylis glomerata*
Comfrey	*Symphytum sp.*
Common centaury	*Centaurium erythraea*
Common knapweed	*Centaurea nigra*
Common ragwort	*Jacobaea vulgaris*
Common reed	*Phragmites australis*
Creeping bent	*Agrostis capillaris*
Creeping cinquefoil	*Potentilla reptans*
Creeping thistle	*Cirsium arvense*
Crack willow	*Salix fragilis*
Crested dog's-tail	*Cynosurus cristatus*
Curled dock	*Rumex crispus*
Dog rose	*Rosa canina*
Dog violet	*Viola riviniana*
Dogwood	*Cornus sanguinea*
Elder	*Sambucus nigra*
False oat grass	*Arrhenatherum elatius*
Field maple	*Acer campestre*
Fleabane	*Erigeron sp.*
Glaucous sedge	*Carex flacca*
Great hairy willowherb	*Epilobium hirsutum*
Greater plantain	*Plantago major*
Ground ivy	*Glechoma hederacea*
Guelder rose	*Viburnum opulus*
Hairy sedge	*Carex hirta*
Hairy willowherb	*Epilobium hirsutum*
Hawthorn	*Crataegus sp.*
Hazel	*Corylus avellana*
Hemp agrimony	*Eupatorium cannabinum*
Himalayan balsam	*Impatiens glandulifera*
Hornbeam	*Carpinus betulus*
Ivy	*Hedera sp.*
Jointed rush	*Juncus articulatus*
Lady's bedstraw	*Galium verum*
Lords and ladies	*Arum maculatum*
Marsh willowherb	*Epilobium palustre*
Meadowsweet	*Filipendula ulmaria*
Meadow fescue	*Festuca pratensis*
Meadow vetchling	*Lathyrus pratensis*
Mint	*Mentha sp.*
Oak	*Quercus sp.*
Oxeye daisy	*Leucanthemum vulgare*
Pedunculate oak	*Quercus robur*

Common name	Scientific name
Perennial rye grass	*Lolium perenne*
Privet	*Ligustrum sp.*
Purple loosestrife	*Lythrum salicaria*
Red bartsia	*Odontites vernus*
Red fescue	*Festuca rubra*
Ribwort plantain	*Plantago lanceolata*
Roundleaf cancerwort	*Kickxia spuria*
Salad burnet	*Sanguisorba minor*
Scarlet pimpernel	*Anagallis arvensis*
Self-heal	*Prunella vulgaris*
Sheep's fescue	*Festuca ovina*
Silver birch	*Betula pendula*
Sycamore	*Acer pseudoplatanus*
Sweet vernal	*Anthoxanthum odoratum*
Sweet violet	*Viola odorata*
Teasel	*Dipsacus sp.*
Tufted vetch	*Vicia cracca*
Yellow flag iris	*Iris pseudacorus*
Yellow wort	*Blackstonia perfoliata*

Appendix C

SUPPORTING DATA & METRICS

Table C-1 – Translation of UK habitats to BNG habitat categories

UKHab habitat	BNG Habitat type
g3c5 Arrhenatherum neutral grassland	Other neutral grassland
g3 Neutral grassland	Other neutral grassland
r1b Mesotrophic lakes	Ponds (priority habitat)
r1 Rivers and lakes	Ponds (non-priority habitat)
u1 Built-up areas and gardens	Developed land; sealed surface
h2b Other hedgerow	Native hedgerow

Table C-2 – Accompanying biodiversity data and metrics issued in electronic format

File name (Excel)	Details
HPB Study Area Biodiversity Metric 4.0 Calculation Tool	Calculation of Biodiversity Units (baseline) within the Study Area.
HPB Works Area Biodiversity Metric 4.0 Calculation Tool'	Calculation of Biodiversity Units (baseline) within the Works Area.
HPB Condition Assessment data	Habitat condition assessment data (including justification), covering area and linear habitats in the Study Area and Works Area

Table C-3 – UKHab metadata

Parameter	Metadata
Scope and purpose of the survey	UKHab survey to update habitat baseline and Biodiversity Net Gain (BNG) baseline
Area surveyed	Site (**Figure 1 and 2**)
Edition of UKHab Used	UKHab Professional V1.1.
The Level of UKHab Primary Hierarchy used	Level 5 as far as reasonably possible.
List of secondary code groups recorded	Mosaic habitats; origin of habitat; management; land use; and environmental qualifiers.
Additional data captured	Habitat Condition Assessment using Metric 3.1 condition assessment criteria. Conversion to Metric 4.0.
Map Projection	British National Grid in metres.

Unit	Three decimal places (hectare and kilometre)
Organisation undertaking the survey	WSP UK Ltd.

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Works Area: HINKLEY POINT B NUCLEAR POWER				
Headline Results	Return to	Errors flagged below - please investigate further ▲		
Scroll down for final results ⚠				
On-site baseline		*Habitat units*	3.38	
		Hedgerow units	0.00	
		Watercourse units	0.46	
On-site post-intervention (Including habitat retention, creation & enhancement)		*Habitat units*	3.38	
		Hedgerow units	0.00	
		Watercourse units	0.46	
On-site net change (units & percentage)		*Habitat units*	0.00	0.00%
		Hedgerow units	0.00	0.00%
		Watercourse units	0.00	0.00%
Off-site baseline		*Habitat units*	0.00	
		Hedgerow units	0.00	
		Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)		*Habitat units*	0.00	
		Hedgerow units	0.00	
		Watercourse units	0.00	
Off-site net change (units & percentage)		*Habitat units*	0.00	0.00%
		Hedgerow units	0.00	0.00%
		Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)		*Habitat units*	0.00	
		Hedgerow units	0.00	
		Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions		*Habitat units*	0.00	
		Hedgerow units	0.00	
		Watercourse units	0.00	

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.00%
	Hedgerow units	0.00%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	
You must specify if irreplaceable habitats are on-site at baseline ▲		

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	0.00%	3.38	3.38	0.00	Unit requirement met or surpassed ✓
Hedgerow units	0.00%	0.00	0.00	0.00	Unit requirement met or surpassed ✓
Watercourse units	0.00%	0.46	0.46	0.00	Unit requirement met or surpassed ✓

Works Area: HINKLEY POINT B NUCLEAR POWER STATION DECOMMISSIONING WORKS

Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (Including all on-site & off-site habitat retention / creation)	*Habitat units*	0.00
	Hedgerow units	0.00
	Watercourse units	0.00
Total project biodiversity % change (Including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	0.00%
	Hedgerow units	0.00%
	Watercourse units	0.00%

Combined habitat retention and enhancement

	Habitats	Hedgerows	Watercourses
Total on-site and off-site baseline area / length	23.46	0.00	0.05
Total on-site and off-site baseline units	3.38	0.00	0.46
Total on-site and off-site baseline area / length retained	23.46	0.00	0.05
Total on-site and off-site baseline units retained	3.38	0.00	0.46
Area / length proposed for enhancement	0.00	0.00	0.00
Baseline units proposed for enhancement	0.00	0.00	0.00
Total on-site and off-site baseline area / length lost	0.00	0.00	0.00
Total on-site and off-site baseline units lost	0.00	0.00	0.00

Area Habitats

Area habitats

On-site change by broad habitat type

Habitat group	Baseline		Post-development on-site		On-site change	
	On-site existing area	On-site existing value	On-site proposed area	On-site proposed value	On-site area change	On-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.78	3.21	0.78	3.21	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	22.67	0.00	22.67	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.02	0.17	0.02	0.17	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal hard structures	0.00	0.00	0.00	0.00	0.00	0.00
Watercourse footprint	0.00	0.00	0.00	0.00	0.00	0.00
Individual trees	0.00	0.00	0.00	0.00	0.00	0.00

Off-site change by broad habitat type

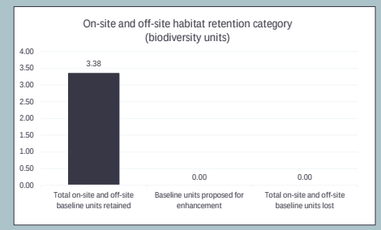
Habitat group	Baseline		Post-development off-site		Off-site change	
	Off-site existing area	Off-site existing value	Off-site proposed area	Off-site proposed value	Off-site area change	Off-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.00	0.00	0.00	0.00	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal hard structures	0.00	0.00	0.00	0.00	0.00	0.00
Watercourse footprint	0.00	0.00	0.00	0.00	0.00	0.00
Individual trees	0.00	0.00	0.00	0.00	0.00	0.00

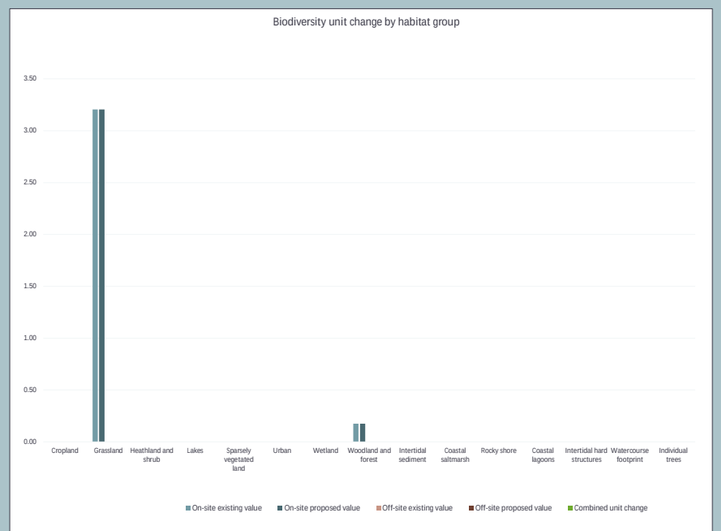
Combined on-site and off-site change by broad habitat type

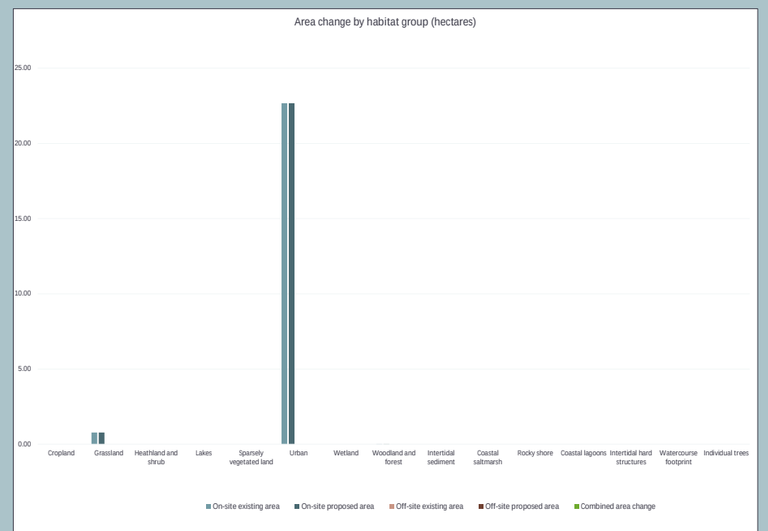
Habitat group	Baseline		On-site and off-site post-development		Combined change	
	Combined existing area	Combined existing value	Combined proposed area	Combined proposed value	Combined area change	Combined unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.78	3.21	0.78	3.21	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	22.67	0.00	22.67	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.02	0.17	0.02	0.17	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal hard structures	0.00	0.00	0.00	0.00	0.00	0.00
Watercourse footprint	0.00	0.00	0.00	0.00	0.00	0.00
Individual trees	0.00	0.00	0.00	0.00	0.00	0.00

Combined area lost by distinctiveness band

Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	
V.Low	0	







Hedgerows and Lines of Trees

Hedgerows and lines of trees

On-site change by hedgerow type

Hedgerow type	Baseline		Post-development on-site		On-site change	
	On-site existing length	On-site existing value	On-site proposed length	On-site proposed value	On-site length change	On-site unit change
Species-rich native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Ecologically valuable line of trees	0.00	0.00	0.00	0.00	0.00	0.00
Ecologically valuable line of trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Non-native and ornamental hedgerow	0.00	0.00	0.00	0.00	0.00	0.00

Off-site change by hedgerow type

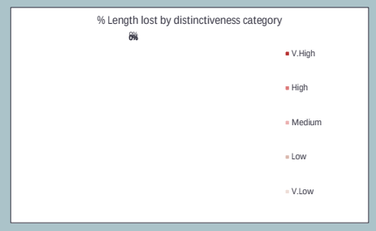
Hedgerow type	Off-site baseline		Post-development off-site		Off-site change	
	Off-site existing length	Off-site existing value	Off-site proposed length	Off-site proposed value	Off-site length change	Off-site unit change
Species-rich native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Ecologically valuable line of trees	0.00	0.00	0.00	0.00	0.00	0.00
Ecologically valuable line of trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Non-native and ornamental hedgerow	0.00	0.00	0.00	0.00	0.00	0.00

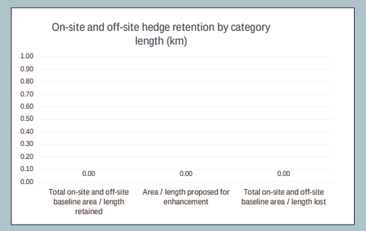
Combined on-site and off-site change by hedgerow type

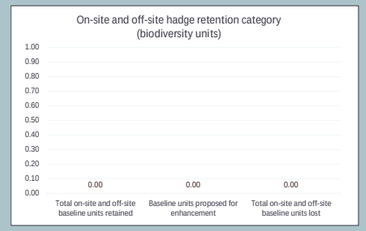
Hedgerow type	Baseline		Post-development		Change	
	Combined existing length	Combined existing value	Combined proposed length	Combined proposed value	Combined length change	Combined unit change
Species-rich native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow with trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Species-rich native hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Ecologically valuable line of trees	0.00	0.00	0.00	0.00	0.00	0.00
Ecologically valuable line of trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native hedgerow	0.00	0.00	0.00	0.00	0.00	0.00
Line of trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of trees - associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Non-native and ornamental hedgerow	0.00	0.00	0.00	0.00	0.00	0.00

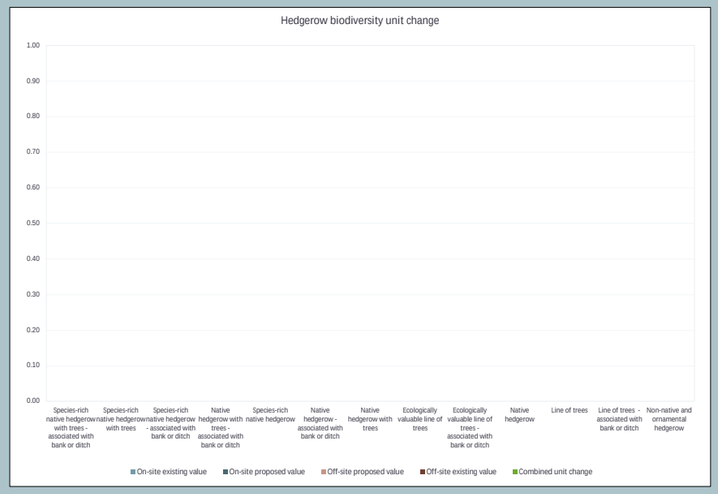
Combined length lost by distinctiveness band

Category	Length lost (km)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	
V.Low	0	









Watercourses

Watercourses

On-site change by watercourse type

Watercourse type	Baseline		Post-development on site		On-site Change	
	On-site existing length	On-site existing value	On-site proposed length	On-site proposed value	On-site length change	On-site unit change
Priority habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other rivers and streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.1	0.5	0.1	0.5	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

Off-site change by watercourse type

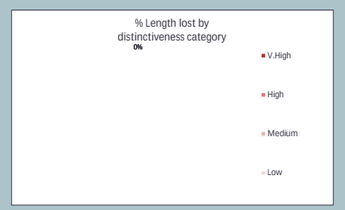
Watercourse type	Baseline		Post development off-site		Off-site Change	
	Off-site existing length	Off-site existing value	Off-site proposed length	Off-site proposed value	Off-site length change	Off-site unit change
Priority habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other rivers and streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.0	0.0	0.0	0.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

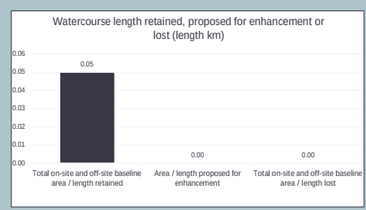
Combined on-site and off-site change by watercourse type

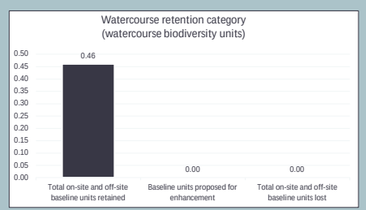
Watercourse type	Baseline		Post-development on-site		On-site change	
	Combined existing length	Combined existing value	Combined proposed length	Combined proposed value	Combined length change	Combined unit change
Priority habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other rivers and streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.1	0.5	0.1	0.5	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

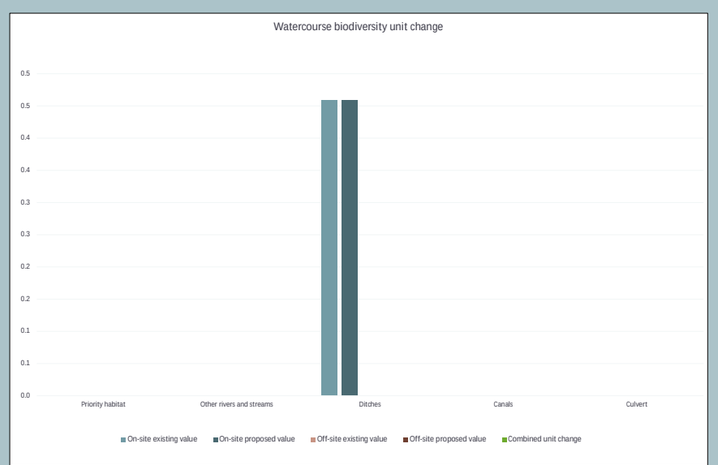
Combined length lost by distinctiveness band

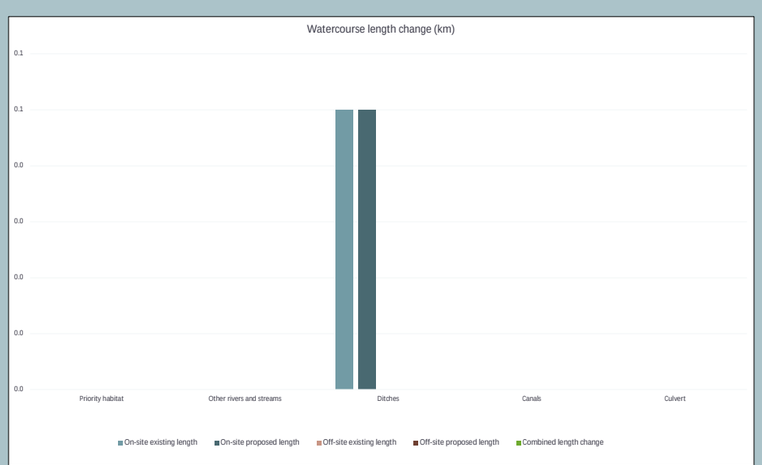
Category	Length lost (km)	Length lost (%)
V.High	0	
High	0	
Medium	0	
Low	0	











Project Name: Works Area: HINKLEY POINT B NUCLEAR POWER

A-1 On-Site Habitat Baseline

Condense / ShowColumns | Condense / ShowRows | Main Menu | Instructions

Area habitat summary	
Total Net Unit Change	0.00
Total Net % Change	0.00%
Trading Rules Satisfied	Yes ✓

	Existing area habitats			Distinctiveness		Condition		Strategic significance				Ecological baseline	Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comments		
Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier	Required Action to Meet Trading Rules	Total habitat units	Area retained	Area enhanced	Baseline units	Baseline units enhance	Area habitat lost	Units lost		User comments	Consenting body comments	GIS reference number
1	Grassland	Modified grassland	0.087	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.35	0.087		0.35	0.00	0.00	0.00				
2	Grassland	Modified grassland	0.028	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.11	0.028		0.11	0.00	0.00	0.00				
3	Grassland	Modified grassland	0.084	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.34	0.084		0.34	0.00	0.00	0.00				
4	Grassland	Modified grassland	0.127	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.51	0.127		0.51	0.00	0.00	0.00				
5	Grassland	Modified grassland	0.087	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.35	0.087		0.35	0.00	0.00	0.00				
6	Grassland	Modified grassland	0.028	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.11	0.028		0.11	0.00	0.00	0.00				
7	Grassland	Modified grassland	0.084	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.34	0.084		0.34	0.00	0.00	0.00				
8	Grassland	Modified grassland	0.127	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.51	0.127		0.51	0.00	0.00	0.00				
9	Grassland	Modified grassland	0.001	Low	2	Moderate	2	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.00	0.001		0.00	0.00	0.00	0.00				
10	Grassland	Other neutral grassland	0.001	Medium	4	Moderate	2	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.01	0.001		0.01	0.00	0.00	0.00				
11	Grassland	Other neutral grassland	0.001	Medium	4	Moderate	2	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.01	0.001		0.01	0.00	0.00	0.00				
12	Grassland	Other neutral grassland	0.001	Medium	4	Poor	1	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.00	0.001		0.00	0.00	0.00	0.00				
13	Grassland	Other neutral grassland	0.044	Medium	4	Poor	1	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.20	0.044		0.20	0.00	0.00	0.00				
14	Grassland	Other neutral grassland	0.018	Medium	4	Poor	1	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.08	0.018		0.08	0.00	0.00	0.00				
15	Grassland	Other neutral grassland	0.044	Medium	4	Poor	1	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.20	0.044		0.20	0.00	0.00	0.00				
16	Grassland	Other neutral grassland	0.018	Medium	4	Poor	1	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.08	0.018		0.08	0.00	0.00	0.00				
17	Urban	Artificial unvegetated, unsealed surface	0.01	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.01		0.00	0.00	0.00	0.00				
18	Urban	Developed land; sealed surface	0.092	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.092		0.00	0.00	0.00	0.00				
19	Urban	Developed land; sealed surface	0.025	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.025		0.00	0.00	0.00	0.00				
20	Urban	Developed land; sealed surface	0.094	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.094		0.00	0.00	0.00	0.00				
21	Urban	Developed land; sealed surface	0.015	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.015		0.00	0.00	0.00	0.00				
22	Urban	Developed land; sealed surface	0.03	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.03		0.00	0.00	0.00	0.00				
23	Urban	Developed land; sealed surface	21.994	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	21.994		0.00	0.00	0.00	0.00				
24	Urban	Developed land; sealed surface	0.405	V. Low	0	N/A - Other	0	As ea/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.405		0.00	0.00	0.00	0.00				
25	Woodland and forest	Other woodland; broadleaved	0.019	Medium	4	Moderate	2	Formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required ≥	0.17	0.019		0.17	0.00	0.00	0.00				
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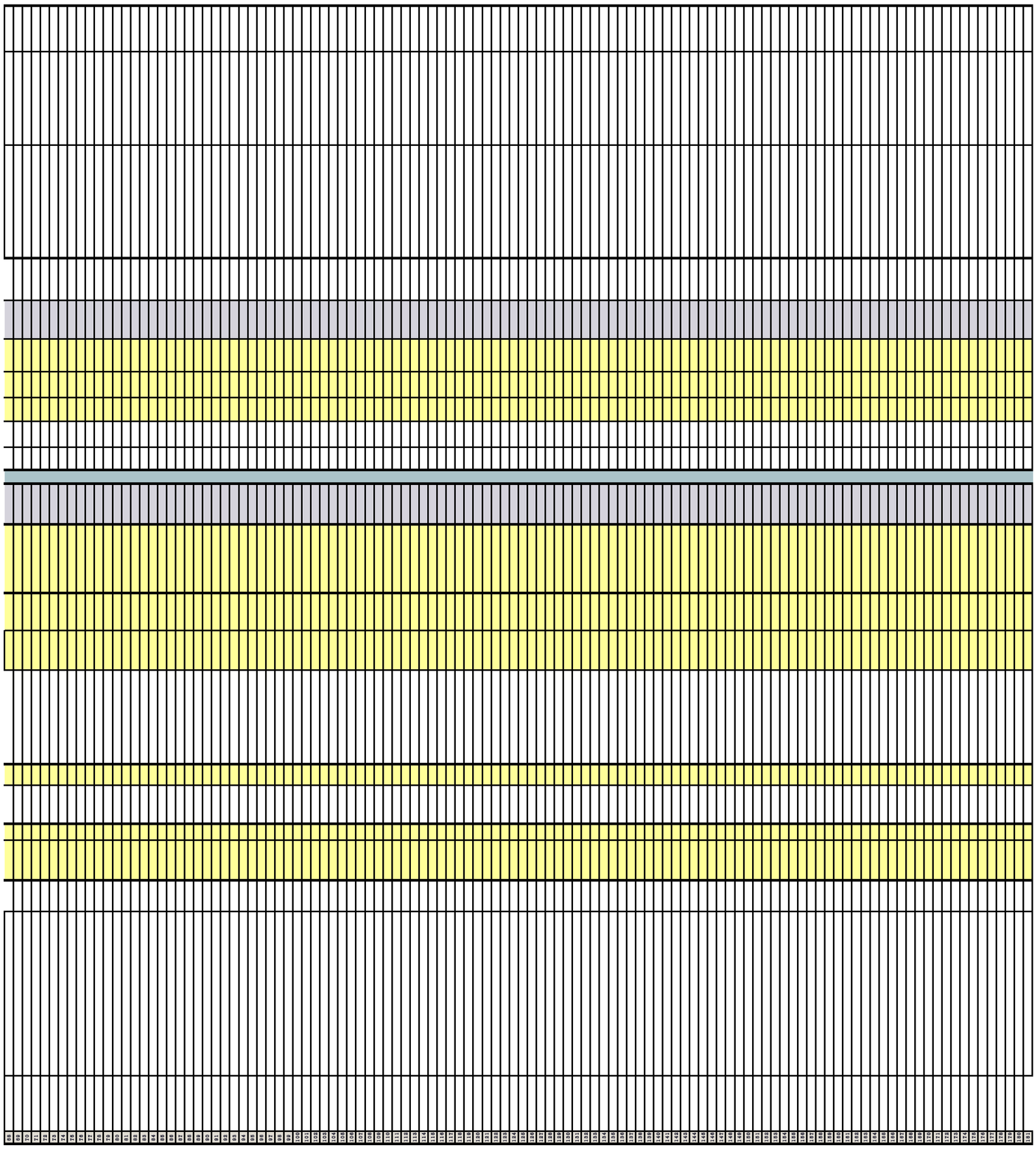

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		Total habitat area	23.46									3.38	23.46	0.00	3.38	0.00	0.00	0.00				
		Site Area (Excluding area of Individual trees and Green walls)	23.46																			
													Total area lost (excluding area of Individual trees and Green walls)				0.00					
		M² to hectares conversion tool:	Select a	Hectares	M²																	

Appendix D

BIODIVERSITY NET GAIN POLICY AND LEGISLATION

NATIONAL LEGISLATION

ENGLAND

ENVIRONMENT ACT 2021

Net gain is to be measured by the biodiversity metric published by the Secretary of State. This is the Natural England Biodiversity Metric 4.0 Calculation Tool. The Act requires that gains must be secured for a minimum of 30 years post completion of development.

Also, under Section 40 the NERC Act 2006, as amended by the Environment Act 2021, "*A public authority which has any functions exercisable in relation to England must from time to time consider what action the authority can properly take, consistently with the proper exercise of its functions, to further the general biodiversity objective*."…the biodiversity objective is, "…*the conservation and enhancement of biodiversity in England through the exercise of functions in relation to England.*" This is referred to as the Biodiversity Duty.

UK GOVERNMENT'S 25 YEAR ENVIRONMENT PLAN

The UK Government's 25 Year Environment Plan (DEFRA, 2018) states a desire to '*embed a 'net environmental gain' principle for development to deliver environmental improvements locally and nationally*' and plans to consult on making Biodiversity Net Gain a mandatory requirement.

On 14 March 2019, Her Majesty's Treasury confirmed that following consultation, the government will use the forthcoming Environment Bill to mandate BNG for development in England, ensuring that the delivery of much-needed infrastructure and housing is not at the expense of vital biodiversity.

BIODIVERSITY 2020: A STRATEGY FOR ENGLAND'S WILDLIFE AND ECOSYSTEM SERVICES

Biodiversity 2020: A strategy for England's wildlife and ecosystem services (DEFRA, 2011) is the national strategy for biodiversity. This sets out an ambition to halt the loss of biodiversity and see an increase in the area of priority habitats by 200,000 ha by 2020. Biodiversity 2020 sets in policy the objectives to improve our wildlife sites, make them bigger, develop more of them and join them up (summarised as 'Bigger, Better, More and Joined').

NATIONAL PLANNING POLICY FRAMEWORK

The revised National Planning Policy Framework (NPPF) (MHCLG, 2021) refers to conserving and enhancing the natural environment. This requires Local Authorities in England to take measures to:

- Conserve and enhance biodiversity.
- Protect the habitats of these species from further decline.
- Protect the species from the adverse effect of development.
- Refuse planning permission for development, if significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for.

NATIONAL POLICY STATEMENT FOR NATIONAL NETWORKS

The National Policy Statement for National Networks (NPSNN) (Department for Transport, 2014) paragraph 5.23 states that:

- "*The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.*"

Maintaining no net loss of biodiversity as a result of the Proposed Works is consistent with the policy aims of Paragraph 5.25 of the NPSNN, which states:

- "*As a general principle, and subject to the specific policies below, development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.*"

This sets out that any loss should be compensated for to achieve no net loss by replacing habitats, exploring the potential for enhancing them, and managing retained features.

NATURAL ENVIRONMENT AND RURAL COUNTRYSIDE ACT

The Natural Environment and Rural Countryside (NERC) Act (HMSO, 2006) requires public bodies, including local authorities, '*to have regard to the conservation of biodiversity in England when carrying out their normal functions'*.

Section 40 sets out that:

- Paragraph 1. *"Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity";* and that
- Paragraph 3. *"Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat."*

Section 41 sets out that:

- Paragraph 1*. "The Secretary of State must… publish a list of the living organisms and types of habitat … of principal importance for the purpose of conserving biodiversity"* based on consultation with Natural England*;* and that
- Paragraph 3a. Every planning authority must *"a) take such steps… to further the conservation of the living organisms and types of habitat included in any list published under this section, or (b) promote the taking by others of such steps."*

LOCAL POLICY

BATH AND NORTH EAST SOMERSET

Although national legislation on BNG is not due until November 2023, Bath and North Somerset Local Planning Authority committed to bringing forward this requirement for local planning applications, through the Local Plan Partial Update (LPPU).

Qualifying developments will have to demonstrate, and then deliver, measurable net gains for biodiversity which must be secured, managed, and monitored. Major planning applications will be expected to deliver a minimum of 10% biodiversity gains, with habitat management and monitoring secured for at least 30 years. The gains must be calculated using the main government metric.

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Baseline Verification Report (2024)

PUBLIC

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EDF Nuclear Generation Limited (ENGL)

Decommissioning of Hinkley Point B Nuclear Power Station

Verification of Terrestrial Biodiversity Baseline

December 2024

UK-70112953

Report for

[redacted]

Prepared by

[redacted]

Checked by

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Document revisions

No.	Details	Date
01	Draft	December 2024
02	Final	February 2025

Contents

Figure 3.5 Bat roost assessment

Appendix A Preliminary Roost Assessment (2022)
Appendix B Preliminary Roost Assessment (2019)

1.

Introduction

1. Introduction

1.1 Overview

1.1.1 EDF Energy Nuclear Generation Limited (the 'Applicant') is applying for consent from the Office for Nuclear Regulation (ONR) to decommission the Hinkley Point B Nuclear Power Station ('HPB'). The decommissioning works (the 'Works' or 'Proposed Works') will include the dismantling and deconstruction of buildings and structures in areas within and outside of the Nuclear Site License ('NSL') boundary that are part of the power station. An Indicative Dismantling Works Area ('Works Area') has been identified to delineate these areas. The land inside the NSL boundary is referred to as the 'Site'. The Site and Works Area boundaries are shown on **Figure 1.1**.

1.1.2 To inform the Ecological Impact Assessment (EcIA) of the Works, a suite of ecological surveys was carried out by Wood Environment & Infrastructure Solutions UK Ltd ('Wood') in 2019 and 2020 (the 'Baseline Surveys'). This included habitat surveys and surveys of a range of taxa, including otter (*Lutra lutra)*, water vole (*Arvicola amphibius*), great crested newt (*Triturus cristatus*), reptiles, badger (*Meles meles*), birds, invertebrates and bats. These surveys are summarised in **Section 1.4** and detailed in separate baseline reports:

- Wood (2019a). Hinkley Point B Decommissioning EIA - Baseline Report: Phase 1 Habitat Survey;
- Wood (2019b). Hinkley Point B Decommissioning EIA - Baseline Report: Otter and water vole;
- Wood (2019c). Hinkley Point B Decommissioning EIA - Baseline Report: Great crested newt;
- Wood (2019d). Hinkley Point B Decommissioning EIA - Baseline Report: Reptiles;
- Wood (2020a). Hinkley Point B Decommissioning EIA - Baseline Report: Badger;
- Wood (2020b). Hinkley Point B Decommissioning EIA - Baseline Report: Breeding; Non-breeding Birds;
- Wood 2020c). Hinkley Point B Decommissioning EIA - Baseline Report: Invertebrates; and
- Wood (2021). Hinkley Point B Decommissioning EIA - Baseline Report: Bats.

1.1.3 These surveys and survey reports, combined with the most recent desk-based study of other biodiversity information collected from the Site and surrounding area (WSP 2024[1]), establish the terrestrial biodiversity baseline against which the predicted effects of the Works on ecological features are to be assessed.

1.1.4 Further habitat surveys, covering the Site and Works Area, were completed in August 2022[2] by WSP UK Limited ('WSP'). The purpose of the 2022 surveys was to determine whether the biodiversity baseline, derived by the previous survey work and desk-based study, remained valid to inform the EcIA. This is referred to as '*Baseline Verification 2022*'.

[1] WSP (2024). Hinkley Point B Decommissioning EIA - Baseline Report: Desk Study (Terrestrial Biodiversity).
[2] WSP (2023) Decommissioning of Hinkley Point B Nuclear Power Station - Verification of Terrestrial Biodiversity Baseline [Baseline Verification 2022].

1.1.5 A period of over four years has elapsed since the completion of the Baseline Surveys (two years since Baseline Verification 2022) and the area delineated as the Works Area has since been reduced and refined to include the sewage works, southern access road and marine infrastructure associated with HPB and to exclude the electrical substation. Therefore, further surveys, covering the Site and Works Area, were completed in November 2024.

1.1.6 The purpose of the 2024 surveys was to determine whether the biodiversity baseline, derived by the previous survey work and desk-based study, remains valid to inform the EcIA, recognising that any substantive changes in the extent, distribution or character of habitat types within the Works Area could trigger a requirement for survey updates and/or additional survey work. This is referred to as '*Baseline Verification 2024*', which updates and replaces Baseline Verification 2022.

1.2 Survey Objectives

1.2.1 The survey objectives are summarised below:

- Map the different terrestrial habitat types within the Site and Works Area, plus a 250 m perimeter around the Works Area (collectively referred to as the 'Survey Area'), employing the standard Phase 1 Habitat Survey method[3], including checking and updating the previous Phase 1 Habitat Survey (Wood 2019a).
- The Phase 1 Habitat Survey method is to be 'extended'[4] to include an assessment of the suitability of the survey area for, and recording any apparent evidence of the presence of, legally protected species and/or other species of notable biodiversity conservation importance, also updating the baseline status of otter, water vole, badger and great crested newt.
- Complete a visual assessment of built structures and trees within the Works Area and a 30m perimeter, checking, verifying and updating the previous conclusions regarding the suitability of built structures and trees for roosting bats (Wood 2021).
- Identify any changes in the extent, distribution or character of habitats within the Survey Area that trigger a requirement for any other additional survey work or updates to previous surveys.
- Outline the scope of any additional survey work that is required to update the terrestrial biodiversity baseline prior to completion of the EcIA, also taking into account the recent desk study (WSP 2024), which summarises additional/recent biodiversity data collection at the Site and adjacent Hinkley Point C (HPC) development.

1.3 The Site and Survey Area

1.3.1 HPB is located on the coastline at Bridgwater Bay, approximately 12 km north-west of Bridgwater. The Site is approximately centred at Ordnance Survey (OS) National Grid Reference (NGR) ST 2135 4606. The majority of the Works Area comprises built structures and hard standing (mainly access routes and car parks). To the south, west and east is a fringe of woodland and scrub, with some areas of open grassland. The landscape to the south and east is agricultural, with the Hinkley Point C (HPC) development dominating land to the west, and to the north lies Bridgwater Bay.

[3] Joint Nature Conservation Committee (2010). Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. JNCC, Peterborough.
[4] Institute of Environmental Assessment. (1995). Guidelines for Baseline Ecological Assessment. London, UK: E & FN Spon.

1.3.2 The area surveyed in 2024 (the Survey Area) includes the Works Area plus a 250 m perimeter, as shown on **Figure 1.1**. To allow direct comparison with 2019 surveys, all terrestrial habitats within the Site, plus immediately contiguous areas of similar habitat, were surveyed.

1.4 Biodiversity Baseline

1.4.1 This report is intended to be read in conjunction with the baseline reports listed above and summarised briefly in **Table 1.1**.

Table 1.1 Summary of biodiversity baseline reports

Report	Summary of biodiversity baseline
Hinkley Point B Decommissioning EIA Baseline Report: Phase 1 Habitat Survey (Wood 2019a)	The land within the HPB double security fence[5] predominantly comprised buildings and hardstanding with small areas of amenity grassland, ephemeral / short perennial vegetation and tall ruderal vegetation. The habitats within the security fence were of limited biodiversity conservation importance. Habitats outside the double security fence included areas of semi-natural broadleaved woodland, hedgerows, ponds and swamp/reedbed, which were potentially Habitats of Principal Importance for Biodiversity Conservation[6]. These habitats occurred in mosaic with other habitats, including broadleaved and mixed plantation, semi-improved neutral grassland, scrub, tall ruderal vegetation and ephemeral / short perennial vegetation, and collectively formed Hinkley Local Wildlife Site (LWS).
Hinkley Point B Decommissioning EIA Baseline Report: Otter and Water Vole (Wood 2019b)	No evidence of otter activity was recorded within the Site or a 250m perimeter area. The majority of waterbodies within this Study Area were of negligible/low suitability for otters. There were 12 records of otter within 3 km of the Site between 2015 and 2017 and it is likely that this species commuted through and/or foraged within the Study Area in low numbers intermittently. No evidence of water vole activity was recorded within the Study Area. The majority of waterbodies within this area were of low/negligible suitability for water vole, with banks lacking diverse macrophytes favoured by foraging water voles, plus widely fluctuating water levels in ditches. The last record of water vole within the Study Area was in 2006 and it was deemed likely that this species no longer occurred within this area.
Hinkley Point B Decommissioning EIA Baseline Report: Great Crested Newt (Wood 2019c)	Three ponds were identified within the Study Area (the Site plus a 500 m perimeter area). Two of these were categorised as being 'Good' habitat for great crested newt and the other was categorised as 'Below Average' habitat for this species. All three ponds tested negative for great crested newt eDNA and this species was considered unlikely to occur within the Study Area.

[5] Baseline survey scope and extent was defined around the land within the HPB double security fence as indicated in the Baseline Reports. This incorporates the majority of the Works Area. The survey envelope was however extended around the Site and perimeter areas, allowing for subsequent iteration of the Works Area boundary, for example to include the sewage treatment works and southern access road.
[6] Defra (2022) Habitats and Species of Principal Importance in England (online). Available at: https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england (Accessed November 2024).

Report	Summary of biodiversity baseline
Hinkley Point B Decommissioning EIA Baseline Report: Reptiles (Wood 2019d)	The survey recorded a low population of slow worm and grass snake within the Study Area (the Site and a 100 m perimeter area). The survey recorded a concentration of slow worms to the south-west of the HPB double security fence, inside the Site. This was associated with areas of tall ruderal vegetation and scattered scrub. A grass snake was recorded approximately 95m south-east of the Site, adjacent to the sewage works.
Hinkley Point B Decommissioning EIA Baseline Report: Badger (Wood 2020a)	The habitats within the Study Area (the Site plus 250 m perimeter area) were suitable for badgers (foraging, commuting and sett building), including dense continuous scrub, broadleaved semi-natural woodland, semi-improved grassland, poor semi-improved grassland, improved grassland (pasture) and tall ruderal vegetation. A mosaic of these habitats, forming Hinkley LWS, extended around the double security fence, inside the Site. [redacted]
Hinkley Point B Decommissioning EIA Baseline Report: Breeding and Non-breeding Birds (Wood 2020b)	The breeding bird surveys recorded low numbers of common and widespread species that are typical of Somerset. Eight species recorded breeding (or potentially breeding) are of notable importance for biodiversity conservation i.e. listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) [7]; qualifying species of the Severn Estuary Special Protection Area and/or Ramsar site[8]; included on the Birds of Conservation Concern (BoCC) Red List[9]; and/or Species of Principal Importance for Biodiversity Conservation. These species reflect the habitat types (scrub, trees, hedgerows and buildings) within the Site and perimeter areas and included: Cetti's warbler (*Cettia cetti*); herring gull (*Larus argentatus*), lesser black-backed gull (*L. fuscus*); peregrine (*Falco peregrinus*), dunnock (*Prunella modularis*), linnet (*Linaria cannabina*), skylark (*Alauda arvensis*) and song thrush (*Turdus philomelos*). Annual monitoring to inform the HPB Land Management Annual Reviews (LMARs) also recorded marsh tit (*Poecile palustris*), a BoCC red list species and Species of Principal Importance for Biodiversity Conservation. The non-breeding bird assemblage comprised low numbers of common and widespread species that are typical of the county (Somerset) and coastal habitats (beach, shale, rock bed and open estuary) adjacent to the Site, for example species recorded on more than 60% of survey visits included: curlew (*Numenius arquata*), mallard (*Anas platyrhynchos*), shelduck (*Tadorna tadorna*), turnstone (*Arenaria interpres*), wigeon (*Mareca penelope*); brent goose (*Branta bernicla*), oystercatcher (*Haematopus ostralegus*) and pintail (*Anas acuta*). The occurrence of other species was generally infrequent, for example dunlin (*Calidris alpina*), knot (*Calidris canutus*), lapwing (*Vanellus vanellus*), redshank (*Tringa totanus*), ringed plover (*Charadrius hiaticula*) and teal (*Anas crecca*).

[7] UK Government (1981) Wildlife and Countryside Act 1981 (as amended) (online). Available at: http://www.legislation.gov.uk/ukpga/1981/69 (Accessed December 2024).

[8] JNCC (2022) Special Protection Areas - List of Sites (online). Available at: https://jncc.gov.uk/our-work/list-of-spas/ (Accessed December 2024).

[9] JNCC (2021) Birds of Conservation Concern 5 (online). Available at: https://jncc.gov.uk/news/bocc5/#:~:text=Amongst%20the%20new%20additions%20to,the%20UK%20in%20recent%20decades (Accessed December 2024).

Report	Summary of biodiversity baseline
Hinkley Point B Decommissioning EIA Baseline Report: Invertebrates (Wood 2020c)	The mosaic of habitats within the Site and perimeter areas, including grassland, coastal habitats, ponds, scrub and woodland supported a diverse invertebrate assemblage. The survey recorded 304 terrestrial invertebrate species and 47 aquatic invertebrate taxa. Annual butterfly monitoring to inform the LMARs recorded a diverse assemblage of up to 25 butterfly species in a single year, including records of Species of Principal Importance for the Conservation of Biodiversity e.g., wall (*Lasiommata megera*), small heath (*Coenonympha pamphilus*) and small blue (*Cupido minimus*).
Hinkley Point B Decommissioning EIA Baseline Report: Bats (2021)	The land within the double security fence was of low suitability for bats, predominantly comprising hard standing and lacking semi-natural habitats that are favoured by foraging/commuting bats. The majority of the built structures were of negligible or low suitability for roosting bats, being of modern construction, lacking obvious potential roost features, with poor connectivity to surrounding semi-natural habitats and prone to disturbance from noise and artificial lighting, as well as being used by gulls. This was reflected in low levels of bat activity inside the double security fence. The semi-natural habitats extending around the perimeter of the double security fence, were more suitable for foraging and commuting bats, incorporating semi-improved grassland, tall ruderal vegetation, standing water (ponds/ditches), woodland and scrub, as well as mosaics of these habitat types. Wooded areas included suitable bat roost habitat, including trees and approximately 60 bat boxes. Bat activity attributable to at least 11 species was recorded: Natterer's (*Myotis nattereri*), Daubenton's (*Myotis daubentonii*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*), Nathusius' pipistrelle (*P. nathusii*); brown long-eared (*Plecotus auritus*), noctule (*Nyctalus noctule*); Leisler's bat (*N. leisleri*); barbastelle (*Barbastella barbastellus*); greater horseshoe (*Rhinolophus ferrumequinum*); and lesser horseshoe (*R. hipposideros*). Species previously recorded roosting around the perimeter of the double security fence in bat boxes included common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Natterer's bat, noctule and Leisler's bat. A tree within approximately 50 m of the double security fence was confirmed as a roost (species unconfirmed), potentially used by individual bats or small groups of males occasionally, which is typical of common and soprano pipistrelle. Seven pregnant soprano pipistrelles were captured within a 2.5-hour period in May 2019 in woodland close to the HPB double security fence, signifying a maternity roost was likely to nearby (within 3 km).
Decommissioning of Hinkley Point B Nuclear Power Station: Verification of Terrestrial Biodiversity Baseline (2022)	The distribution, extent and character of habitats within the Site and Works Area was found to be similar to that recorded in 2019. Only a small number of limited changes were apparent, including the clearance of a small area of scrub, a small additional area of improved (grazed) grassland and a record of Himalayan balsam (*Impatiens glandulifera)* at the eastern edge of the Site.

Report	Summary of biodiversity baseline
	A number of limited changes in the suitability of buildings for roosting bats between 2019 and 2022 were recorded. The suitability of five of the buildings increased from 'negligible' to 'low' suitability and a new building (Building 597), close to the eastern limit of the Works Area, had 'moderate' suitability for roosting bats. These limited, minor changes were likely to have had no substantive influence on the overall baseline status of bats. Overall, therefore it was likely that there were no substantive changes in the baseline status of populations of otter, water vole, badger, bats, birds, great crested newt, reptiles or invertebrates since the baseline surveys were completed in 2019, notwithstanding minor/background interannual fluctuations in species populations/assemblages.

2.

Methods

2. Methods

2.1 Extended Phase 1 Habitat Survey

2.1.1 Baseline Verification 2024 was informed by a Phase 1 Habitat Survey and protected species surveys, undertaken by three experienced WSP ecologists on 14 November 2024. Two of the ecologists hold a Level 4 Field Identification Skills Certificate (FISC) from the Botanical Society of Britain and Ireland (BSBI). The Survey Area extended to 250m around the Works Area, extending beyond the extent of the baseline survey in 2019.

2.1.2 The Phase 1 Habitat Survey was undertaken in accordance with the methods detailed in *Hinkley Point B Decommissioning EIA Baseline Report: Phase 1 Habitat Survey* (Wood 2019a). The Phase 1 Habitat Survey method was 'extended' to include recording of notable ecological features, including any apparent evidence of the presence of legally protected species and/or other taxa that are of importance for biodiversity conservation.

2.1.3 The survey results were compared with the results the previous Phase 1 Habitat Survey (Wood 2019a) to identify any substantive changes in extent, distribution or character of habitats within the Site and Works Area that trigger a requirement for additional survey work, or updates to previous surveys, prior to completing the EcIA.

2.1.4 Otter and water vole presence / absence surveys and habitat suitability assessments were undertaken of the waterbodies within the Survey Area. This applied the previous survey methods and updated the survey results detailed in *Hinkley Point B Decommissioning EIA Baseline Report: Otter and Water Vole* (Wood 2019b).

2.1.5 Great crested newt Habitat Suitability Index (HSI) calculations and habitat suitability assessments were undertaken of the ponds within the Survey Area. This applied the habitat suitability assessment method and updated the results detailed in *Hinkley Point B Decommissioning EIA Baseline Report: Great Crested Newt* (Wood 2019c).

2.1.6 A badger survey was undertaken of the Works Area and a 50m perimeter/buffer. This applied the previous methods and updated the survey results detailed in *Hinkley Point B Decommissioning EIA Baseline Report: Badger* (Wood 2020a).

2.2 Bat Surveys

2.2.1 An assessment of the suitability of built structures for roosting bats, referred to as Preliminary Roost Assessment (PRA) was completed by a licensed bat ecologist (Bat license number 2022-10445-CL18-BAT (Level 2)) on 14 November 2024, focusing on buildings within the Site and Works Area.

2.2.2 An assessment of the suitability of trees for roosting bats, referred to as a Ground Level Tree Assessment (GLTA), was also undertaken, focusing on the trees within the Works Area and a 30m perimeter.

2.2.3 The PRA and GLTA were undertaken in accordance with current good practice guidance[10]. The buildings and trees were systematically inspected during daylight (10:00am – 3:00pm), with the aid of binoculars and a high-powered torch. Any Potential

[10] Collins (2024). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed). The Bat Conservation Trust, London.

Roost Features (PRFs) were recorded as well as evidence of roosting bats, such as live or dead bats, bat droppings, feeding remains or staining around potential roost entrances.

2.2.4 The survey categorised the suitability of the buildings and trees for roosting bats in accordance with current good practice guidelines (**Table 2.1** and **Table 2.2** respectively). Buildings that are potentially suitable hibernation roosts were also identified.

Table 2.1 Categorising suitability of built structures for roosting bats

Suitability	Description
None	No habitat features on the built structure likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).
Negligible	No obvious habitat features on the built structure likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[11] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation[12]).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions[11] and surrounding habitat.

Table 2.2 categorising suitability of trees for roosting bats

Suitability	Description
None	Either no PRFs in the tree or highly unlikely to be any
FAR	Further assessment required to establish if PRFs are present in the tree
PRF	A tree with at least one PRF present. Where possible PRFs are further categorised as PRF-I (suitable for individual or small numbers of bats) or PRF-M (suitable for multiple bats and may therefore by used by a maternity colony).

[11] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.
[12] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015 in Collins 2016). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

2.3 Limitations

2.3.1 The Phase 1 Habitat survey was completed outside the optimal habitat/botanical survey season, which is generally accepted as April to September inclusive. Outside the optimal season many plant species tend to be less visible/apparent, generally lacking flowers and being more challenging to identify. The ecologist who completed the Phase 1 Habitat Survey is however certified to FISC Level 4 by the BSBI and is experienced in identifying plant species outside of the flowering season. Habitat types are therefore likely to have been correctly assigned.

2.3.2 As described in Section 3, one of the ponds (Pond 3) within the Survey Area is surrounded by dense brambles and reeds, limiting pond access and visibility. Therefore in addition to the site visit the surveyors used aerial imagery and applied professional judgement in completing a precautionary assessment of habitat suitability criteria.

3.

Results

3. Results

3.1 Phase 1 Habitats

3.1.1 The results of the extended Phase 1 Habitat Survey are mapped in **Figure 3.1**. The land within the Works Area is predominantly buildings and hardstanding, with small areas of amenity grassland, ephemeral/short perennial vegetation and tall ruderal vegetation. There are also small areas of broadleaved plantation, scrub and swamp at the edges of, and marginally overlapping, the Works Area boundary. The small areas of habitat within the Works Area are of limited biodiversity conservation importance.

3.1.2 Habitats outside the Works Area and within the Survey Area include areas of semi-natural broadleaved woodland, hedgerows, ponds and swamp/reedbed, which are potentially Habitats of Principal Importance[13]. These habitats occur in mosaic with other habitats, including broadleaved and mixed plantation, semi-improved neutral grassland, scrub, tall ruderal vegetation and ephemeral / short perennial vegetation.

3.1.3 The distribution, extent and character of habitats within the Site and Works Area are similar to that recorded by the Phase 1 Habitat Survey in 2019 (Wood 2019a), the results of which are duplicated as **Figure 3.2** for comparison. Only a small number of limited changes to the habitats within these areas were apparent and are briefly summarised in **Table 3.1**. Photographs of these areas are included in **Appendix A.**

Table 3.1 Changes to habitats

Location	2019 Phase 1 Habitat	2024 Phase 1 Habitat	2024 Habitat description
South of electrical substation, outside of the Works Area	Dense scrub	Ephemeral / scrub / ruderal mosaic (**Photograph 1**)	Approximately 0.7 ha cleared since 2019 and colonised by ephemeral and ruderal vegetation and young shrubs. The western half of this area was also ephemeral / scrub / ruderal mosaic in 2022. Species recorded include wild teasel (*Dipsacus fullonum*), agrimony (*Agrimonia eupitoria*), dogwood (*Cornus sanguinea*), bristly oxtongue (*Helminthotheca echioides*), common fleabane (*Pulicaria dysenterica*), hairy willowherb (*Epilobium hirsutum*), round-leaved fluellen (*Kickxia spuria*), curled dock (*Rumex crispus*) and hedge bedstraw (*Galium album*).
North-east of the Site, outside of the Works Area	Tall ruderal	Poor semi-improved grassland (**Photograph 2**)	Approximately 0.53 ha cleared since 2019. The grassland was mown with a short sward at the time of survey. The sward was dominated by cock's-foot (*Dactylis glomerata*) and perennial rye-grass (*Lolium perenne*). Other species recorded include dove's-foot crane's-bill (*Geranium molle*), ribwort plantain (*Plantago lanceolata*), yarrow (*Achillea millefolium*), cow parsley (*Anthriscus sylvestris*), common dog-violet (*Viola riviniana*), common bird's-foot trefoil

[13] Habitats of Principal Importance for Biodiversity Conservation in England are identified by the Secretary of State pursuant to Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Location	2019 Phase 1 Habitat	2024 Phase 1 Habitat	2024 Habitat description
			(*Lotus corniculatus*), annual meadow-grass (*Poa annua)* and rarely, bramble (*Rubus fruticosus agg*) that had been cut.
In the south-east, outside of the Site, outside of the Works Area	Standing water	Plantation woodland (**Photograph 3**)	An area that was a small waterbody in 2019 has dried up and is now part of the surrounding plantation woodland habitat.
In the south and east, within the 250m perimeter	Not surveyed	Improved grassland (**Photograph 4**)	Fields grazed by cattle. The sward includes common species typical of agricultural grassland enriched with nutrients. The sward is dominated by perennial rye-grass and Yorkshire-fog (*Holcus lanatus*) and includes creeping buttercup (*Ranunculus repens*), common sorrel (*Rumex acetosa*), dove's-foot crane's-bill, hard rush (*Juncus inflexus*), curled dock, sweet vernal-grass (*Anthoxanthum odoratum*), common bent (*Agrostis capillaris*) and crested dog's-tail (*Cynosurus cristatus*).
South of the Site, outside of the Works Area, within the 250 perimeter.	Not surveyed	Marshy grassland	A strip within the pasture fields and vegetation dominated by rushes (*Juncus sp.)*
In the south and east, within the 250m perimeter	Not surveyed	Standing water	A network of water-filled ditches between pasture fields. The ditches support little aquatic/submerged vegetation, with emergent vegetation including common reed (*Phragmites australis*).

3.2 Otter and Water Vole

3.2.1 The results of the otter and water vole survey are marked on **Figure 3.3**. Photographs are included in **Appendix A**.

3.2.2 Water vole presence was confirmed throughout Ditches F, G, H and I, and the eastern half of Ditch D, including water vole burrows and footprints.

3.2.3 Otter footprints and anal secretions (anal jelly) were recorded within the central area of Ditch I. The ditches with water vole presence are also concluded to be of moderate suitability for otter. This reflects the suitability of the ditches as commuting corridors for otter, the presence of a foraging resource (water voles) and limited habitat suitable for den/holt creation, due to lack of dense vegetation and features such as tree roots and/or sheltered banks.

3.2.4 The other ditches (A, B, C, E and western half of D) remain largely unchanged since 2019, having low or negligible suitability for otter and/or water vole and with no evidence

of either species recorded. The foreshore remains unchanged since 2019, with the habitat being of moderate suitability for otter, with limited suitable otter resting sites and no signs of this species recorded.

3.3 Great Crested Newt

3.3.1 The three ponds within the Survey Area (**Figure 3.3**) were subject to great crested newt habitat suitability assessments. The HSI data are included in **Appendix B**. The results remain unchanged for Ponds 1 and 2, which continue to be categorised as 'Good' habitat for great crested newt. Pond 3 was also categorised as 'Good' habitat, an increase from 'Below Average' in 2019. As set out above, the Pond 3 habitat suitability assessment is precautionary, reflecting restricted pond access/visibility during the survey.

3.5 Bats

3.5.1 The suitability of trees within the survey area for roosting bats appears unchanged since the previous tree roost assessment (WSP 2021), with approximately 60 bat boxes having been erected throughout woodland within the Site, outside of the Works Area, in 2011. Two trees within a 50 m perimeter around the Works Area are categorised as High or Moderate suitability for roosting bats, with previous endoscope inspections of these trees recording absence of bat roosts (WSP 2021).

3.5.2 A total of 36 out of 101 buildings are categorised as suitable (moderate or low suitability) for roosting bats, as summarised in **Table 3.4**. The locations of buildings that are potentially suitable for roosting bats are shown on **Figure 3.5**. Further details of these buildings and associated features that were potentially suitable for roosting bats are

[redacted]

included in the PRA results (**Appendix D**). The other buildings are of negligible[15] suitability for roosting bats.

Table 3.4 Preliminary Roost Assessment (categorisation of roost suitability)

Potential hibernacula	Moderate	Low
501*, 619	524, 525, 597	504, 507, 516, 512, 515, 519, 520, 526, 527, 530, 531, 532, 533, 535, 538, 539, 540, 543, 549, 554, 555, 563, 565, 566, 569, 571, 588, 600, 619, 621, 520A, 561A, 612E.

* *Building has negligible suitability for roosting bats during their active season (April to October).*

3.5.3 A summary of the 2019 PRA results is included in **Appendix E** for comparison**.** A number of limited changes in the suitability of buildings for roosting bats between 2019 and 2024 were recorded and these are summarised in **Table 3.5**. These changes were also identified by the 2022 surveys and roost suitability appears largely unchanged since then.

3.5.4 The suitability of five of the buildings has increased from 'negligible' to 'low' suitability and one building has been removed. A new building (Building 597), close to the eastern limit of the Works Area, has 'moderate' suitability for roosting bats. Laboratory analysis of droppings in this building were inconclusive and subsequent emergence / re-entry surveys in 2023 recorded absence of roosting bats. The recorded changes to the other three buildings did not alter their suitability for roosting bats.

Table 3.5 Changes to the suitability of buildings for roosting bats (2019 to 2024)

Building Ref.	Changes	Suitability (2019)	Suitability (2024)
505 A / B	Building dismantled and removed from the Site.	Negligible	Not Applicable
505 C	Building dismantled and moved to a new location – no new features found.	Negligible	Negligible
505 D	New building in the place of 505 A / B – no new features.	N/A	Negligible
507	New feature in western side wall – upgraded to Low. No evidence of bats during PRA.	Negligible	Low
519	Two new features in soffit on the south-west corner and the north-east corner. No evidence of bats during PRA.	Negligible	Low
527	Change in use of building – building no longer used. Bat roost suitability remains the same - no new features.	Low	Low
543	New features on the south-east side of the building – upgraded to Low.	Negligible	Low
569	New feature on south side of the building – upgraded to Low.	Negligible	Low
571	New feature on south side of the building – upgraded to Low.	Negligible	Low

[15] The categorisation of structures as being of '*Negligible'* suitability for roosting bats also includes those that have no suitability, with this additional category ('*None*') having been introduced by the most recent edition of the bat survey guidelines (Collins 2023).

Building Ref.	Changes	Suitability (2019)	Suitability (2024)
597 (new building)	New building - wooden construction with many potential roost features for bats and birds. Visible droppings inside the single room, across internal eastern wall, from birds and possibly bats. Laboratory analysis of droppings was inconclusive and emergence / re-entry surveys recorded absence of roosting bats.	N/A	Moderate

4.

Conclusions

4. Conclusions

4.1.1 The land within the Works Area is predominantly buildings and hardstanding. Terrestrial habitats within the Works Area include small areas of amenity grassland, ephemeral/short perennial vegetation and tall ruderal vegetation of limited biodiversity conservation importance. There are also small areas of broadleaved plantation, scrub and swamp at the edges of, and only marginally overlapping, the Works Area boundary. Habitats outside the Works Area, within the Survey Area, include areas of semi-natural broadleaved woodland, hedgerows, ponds and swamp/reedbed, which are potentially Habitats of Principal Importance for biodiversity conservation. These habitats occur in mosaic with other habitats, including broadleaved and mixed plantation, semi-improved neutral grassland, scrub, tall ruderal vegetation, ditches and ephemeral/short perennial vegetation.

4.1.2 The distribution, extent and character of habitats within the Site and Works Area is similar to that recorded by the previous Phase 1 Habitat Survey (Wood 2019a) and only a small number of limited changes to habitats within these areas are apparent. This includes the clearance of an area of dense scrub that has since been colonised by ephemeral and ruderal vegetation; the clearance of an area of tall ruderal vegetation that is now mown, poor semi-improved grassland; and the loss (dried up) of a small area of standing water within plantation woodland. Parts of the Survey Area that were not surveyed in 2019, include areas of improved (grazed) grassland to the south and east of the Works Area and a strip of marshy grassland to the south.

4.1.3 Otter activity was recorded on a ditch to the east of the Works Area. Although the previous survey did not record otter activity this is consistent with the earlier conclusion that this species commutes through and/or forages within the Survey Area intermittently.

4.1.4 The baseline status of water vole has changed since the previous survey, with notable levels of water vole activity (burrows and footprints) recorded on the ditch network to the east and south.

4.1.5 The three ponds within 500m of the Site are within the '*Good*' great crested newt habitat suitability category, with the one furthest (>250m) from the Works Area being elevated from the previous categorisation of '*Below Average*' suitability, following a precautionary habitat suitability assessment in response to access restrictions. The baseline surveys however previously recorded absence of great crested newt from all three ponds within 500m of the Site and it is unlikely that this species has since colonised the ponds, with 500m being towards the upper distance that great crested newts typically disperse from breeding locations/ponds[16].

[redacted]

4.1.7 A total of 36 out of 101 buildings within the Site are categorised as suitable (moderate or low suitability) for roosting bats. A number of limited changes in the suitability of buildings for roosting bats between 2019 and 2024 were recorded. All of the changes were also apparent in 2022. The suitability of five of the buildings increased from 'negligible' to 'low' suitability and a new building (Building 597), close to the eastern limit of the Works Area,

[16] English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.

has 'moderate' suitability for roosting bats, with bat surveys in 2023 recording absence of bat roosts from the building. The limited, minor changes to the overall suitability of roost habitat within the Site and Works Area are likely to have had no substantive influence on the overall baseline status of bats, with HPB continuing to be an operational site, transitioning from power generation to defueling.

4.1.8 Subsequent to the baseline bird surveys in 2019/20, annual monitoring of breeding and non-breeding birds at the Site has continued to inform the HPB Land Management Annual Reviews (LMARs) and also as part of monitoring of the adjacent HPC development. This monitoring is summarised in the Desk Study (WSP 2024). Annual monitoring (to 2023) to inform the LMARs continues to record a similar assemblage of breeding birds at the Site, including small numbers of territories of Cetti's warbler, dunnock, linnet, song thrush and peregrine. The annual monitoring also recorded small numbers of territories of other species of conservation concern, including bullfinch (*Pyrrhula Pyrrhula*), greenfinch (*Carduelis chloris*), and reed bunting (*Emberiza schoeniclus*)[17].

4.1.9 Annual monitoring of non-breeding birds at the Site also continues to record a similar assemblage of non-breeding bird species, albeit with interannual fluctuations in numbers/assemblages. The monitoring to inform the LMARs has recorded notable numbers of teal associated with a pond (Pond 2, **Figure 3.3**) to the south of the eastern boundary of the Site, with a combined total of 298 recorded across six survey visits in winter 2022/23, with previous combined totals (six surveys) of 178 (2021/22) and 52 (2020/21).

4.1.10 Overall the habitats within the Survey Area remain largely unchanged since the baseline survey programme in 2019/2020. It is therefore likely that there have been no substantive changes in the baseline status of populations of otter, badger, bats, birds, great crested newt, reptiles or invertebrates since the baseline surveys were completed in 2019, notwithstanding limited/background interannual fluctuations in species populations/assemblages.

4.1.11 The reason for the change in the baseline status of water vole is unclear, for example water vole may have been undetected by previous surveys due to low levels of activity, obscured by bankside vegetation. Previously absent/low populations could be attributable to natural population fluctuations, which can reduce water vole density to very low levels[18], depending on the availability of foraging resource and breeding territories relative to population size. This can also be exacerbated by management/removal of bankside vegetation. Alternatively, the recent increase in recorded water vole activity may be linked to this species spreading along ditches in response to improving ditch habitats.

[17] Reed bunting and bullfinch are Species of Principal Importance for Biodiversity Conservation. Greenfinch Is on the Birds of Conservation Concern Red List.
[18] Scottish Natural Heritage (2005) Commissioned Report 99: The ecology and conservation of water voles in upland habitats

Figures

320500 321000 321500 322000

147000 146500 146000 145500

N

Key

- Nuclear Site Licence Boundary ("The Site")
- Indicative Dismantling Works Area ("Works Area")
- 250m buffer

0 100 200 300 m

Scale at A3: 1:6,500

Decommissioning of Hinkley Point B Nuclear Power Station
Verification of Biodiversity Baseline

Figure 1.1
The Site and Works Area

December 2024

321000

321500

146000

145500

SURVEY RESTRICTED TO TERRESTRIAL HABITATS

N

Key

- Nuclear Site Licence Boundary ("The Site")
- Indicative Dismantling Works Area ("Works Area")
- 250m buffer
- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Scrub- dense/continous
- Neutral grassland - semi-improved
- Improved grassland
- Marsh/marshy grassland
- Poor semi-improved grassland
- Tall ruderal
- Ephemeral/scrub/ruderal mosaic
- Swamp
- Standing water
- Amenity grassland
- Introduced shrub
- Buildings
- Bare ground
- Hardstanding
- Ditch
- Intact hedge native species-rich
- Fence
- Sea wall

0 100 200 m

Scale at A3: 1:4,000

Decommissioning of Hinkley Point B Nuclear Power Station
Verification of Biodiversity Baseline

Figure 3.1
Phase 1 Habitat Map (2024)

December 2024

321000

321500

146000

145500

N

Key

- Indicative Dismantling Works Area ("Works Area")
- Nuclear Site Licence Boundary ("The Site")
- Double security fence boundary 50m buffer
- Phase 1 habitat survey area
- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Scrub- dense/continous
- Neutral grassland - semi-improved
- Improved grassland
- Poor semi-improved grassland
- Tall ruderal
- Ephemeral/scrub/ruderal mosaic
- Swamp
- Standing water
- Amenity grassland
- Introduced shrub
- Buildings
- Bare ground
- Hardstanding
- Running water
- Intact hedge native species-rich
- Fence
- Sea wall
- Scrub - scattered
- Parkland and scattered trees-broad-leaved
- Short ephemeral
- Target note

0 100 200 m

Scale at A3: 1:4,000

Decommissioning of Hinkley Point B Nuclear Power Station
Verification of Biodiversity Baseline

Figure 3.2
Phase 1 Habitat survey map (2019)

December 2024

320500
321000
321500
322000
146500
146000
145500
N
K
J
D
D
F
G
H
E
C
B
A
Pond 1 - Pixie's Pond
Pond 2 - Otter Pond
Pond 3
WICK MOOR DROVE

Key

- Nuclear Site Licence Boundary ("The Site")
- Indicative Dismantling Works Area ("Works Area")
- 250m buffer
- Waterbodies with no water vole signs identified
- Waterbodies with water vole signs identified
- Otter field sign

0 100 200 300 m

Scale at A3: 1:5,000

Decommissioning of Hinkley Point B Nuclear Power Station
Verification of Biodiversity Baseline

Figure 3.3
Otter and water vole activity

December 2024

70112953_WSPE-FG_OE-00004_P01

\\uk.wspgroup.com\central data\Projects\70112xxx\70112953 - HNB and HPB Decommissioning Project\03 WIP\Drawings\GISMXD\70112953_WSPE-FG_OE-00004_P01.mxd Originator: UKJXP782

321000 321100 321200 321300 321400 321500 321600

146400 146300 146200 146100 146000 145900

501 507 504 515 516 512 519 520A 520 524 525 526 526 526 527 619 530 531 533 535 532 538 539 533 540 543 549 621 600 597 554 555 561A 563 565 566 569 571 588 612E

Key

- Nuclear Site Licence Boundary ("The Site")
- Indicative Dismantling Works Area ("Works Area")
- 250m buffer

Bat Roost Suitability

- Hibernacula
- Moderate
- Low

Note
Other buildings within the survey area have negligible roost suitability.

0 50 100 m

Scale at A3: 1:2,250

Decommissioning of Hinkley Point B Nuclear Power Station
Verification of Biodiversity Baseline

Figure 3.5
Bat roost assessment

February 2025

Appendix A
Photographs

Photograph 1: Ephemeral / scrub / ruderal mosaic (previously dense scrub).

Photograph 2: Poor semi-improved grassland (previously tall ruderal).

Photograph 3: Plantation woodland that was previously standing water

Photograph 4: Improved grassland within the 250m perimeter area

Photograph 5: Ditch H within the 250m perimeter

Photograph 6: Water vole burrow (Ditch I).

Photograph 7: Otter footprints (Ditch I).

Photograph 8: Pond 1.

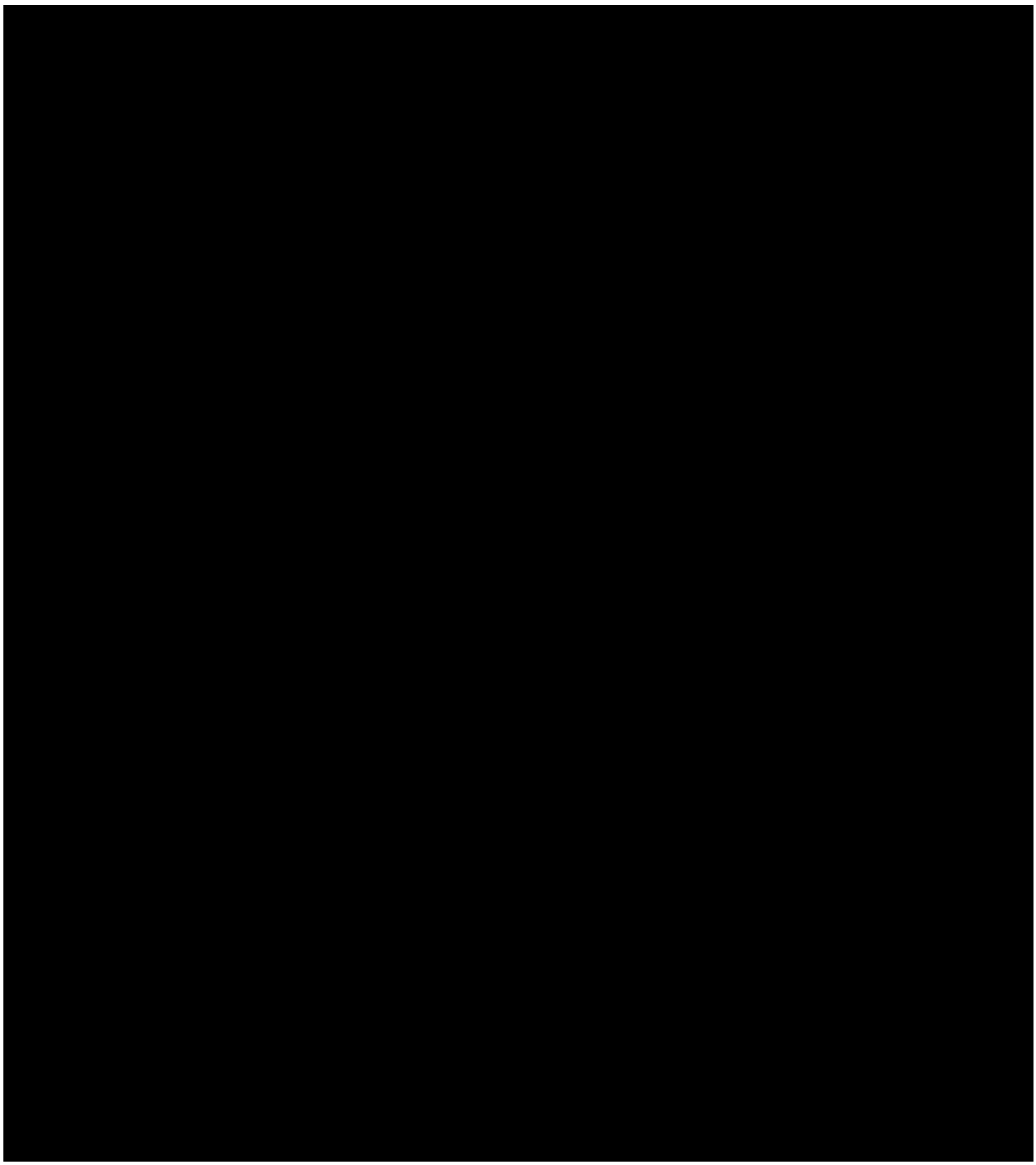
[redacted]

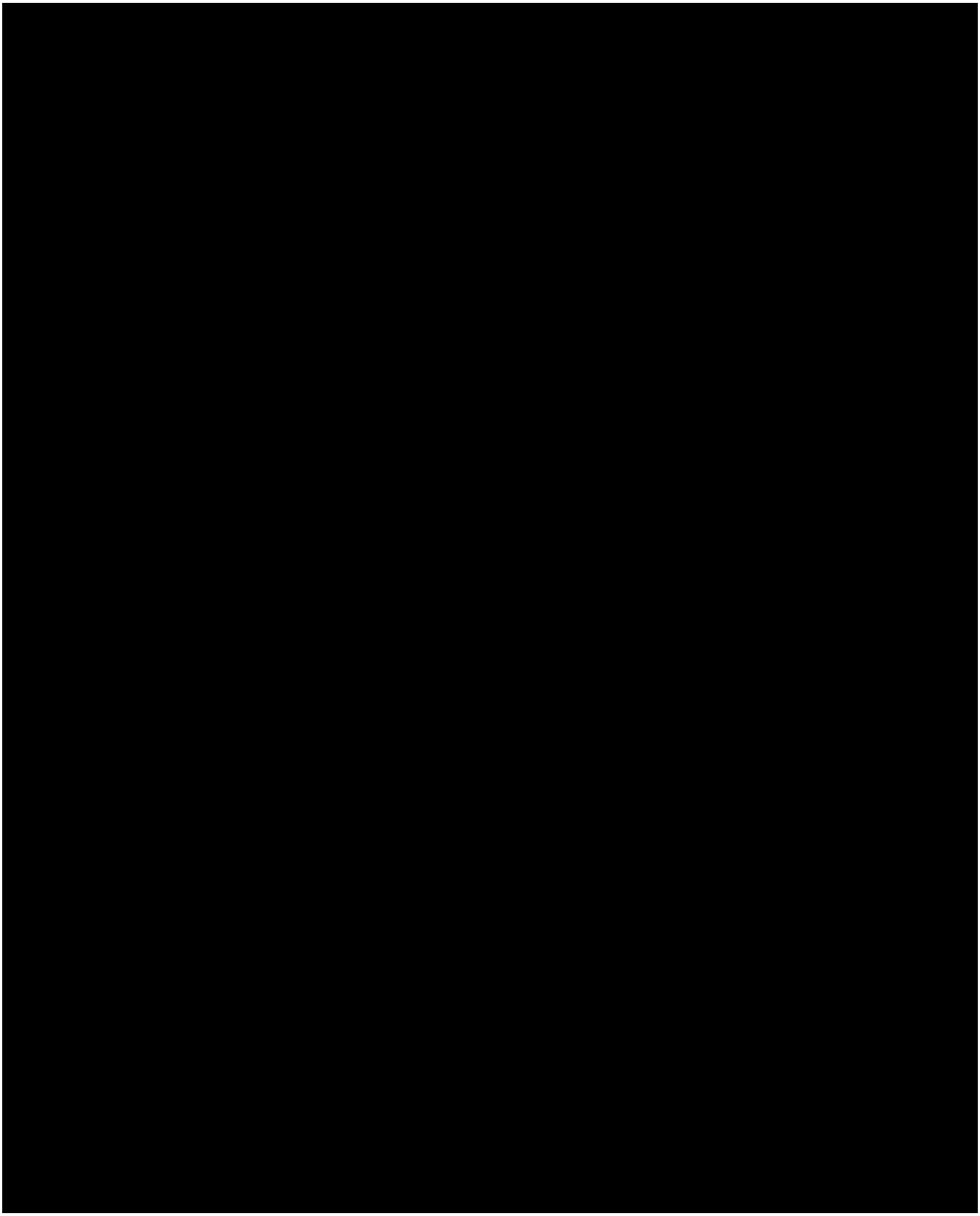
Appendix B
Great Crested Newt HSI Assessment

Table B.1. Great crested newt: habitat suitability assessment

Suitability Indices	**Pond 1**	**Pond 2**	**Pond 3**
Geographic Location	Zone A	Zone A	Zone A
Pond Area (m^2)	255	1000	110
Permanence	Rarely dries	Never dries	Sometimes dries
Water Quality	Good	Good	Good
Shade (%)	30	10	0
Waterfowl	Minor	Minor	Minor
Fish	Possible	Possible	Absent
Pond Count within 1 km	3	3	3
Habitat	Good	Moderate	Moderate
Macrophyte Cover (%)	20	10	70
Habitat Suitability Index (habitat suitability category)	**0.71 (Good)**	**0.71 (Good)**	**0.70 (Good)**

Appendix C
Badger Survey
[CONFIDENTIAL]





Appendix D
Preliminary Roost Assessment (2024)

Table D.1. Preliminary Roost Assessment Results (2022)

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
501	1 storey (tunnel entrance) 30-50 years	Concrete	Plastic	None	None	Potentially suitable hibernacula
502	1 storey; 30-50yrs	Breeze block	Concrete	None	None	Negligible
503	1 storey; 5-10 yrs	Metal	Inflatable plastic	None	None	Negligible
504	1 storey	Metal with concrete cladding	Metal	Gaps at 2m	None	Low
505 A&B – building has been removed						
505 C	1 storey	Metal	Metal	None	None	Negligible
505 D	Stores 1 storey	Metal	Metal	None	None	Negligible
506	30-50yrs	Breeze block	Moulded plastic	None	None	Negligible
507	1 storey; 30-50yrs	Breeze block	Metal	Gap in the render allowing access to internal cavity ~30x50cm	None	Low

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
				and ~15cm off the ground		
508	1 storey; 30-50yrs	Breeze block	Metal	None	None	Negligible
510	1 storey; 30-50 years	Metal	Metal	None	None	Negligible
511	1 storey; 30-50 years	Breeze block	Metal	None	None	Negligible
512	1 storey; 30-50yrs	Breeze block	Moulded plastic	Gaps under facia boards, all around building at 2m	None	Low
514	1 storey; 30-50yrs	Breeze block	Concrete	None	None	Negligible
515	1 storey; 30-50 years	Concrete metal clad	Metal	Hole on east side, -1.5m high. Gaps in facia board at 2m.	None	Low
516	2 storeys; 30-50 years	Breeze block	Metal	Gaps in mortar north side at 2m	None	Low
517	Metal Tanks	Metal	Metal	None	None	Negligible
518	1 storey; 30-50 years	Breeze block	Metal	None	None	Negligible
519	1 storey; 10-20 years	Plastic	Metal	Two holes in the soffit on the south-west and north-east corners.	None	Low
520	1 storey; 30-50 years	Breeze block	Plastic and metal	Behind facia board on all aspects 3m height	None	Low
520A	1 storey; 30-50 years	Breeze block	Plastic and metal	Behind facia board on all aspects 2m height	None	Low

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
521	1 storey; 30-50 years	Breeze block	Corrugated metal	None	None	Negligible
522	2 storeys; 30-50 years	Concrete- metal clad	Metal	None	None	Negligible
522B/C	1 storey; 30-50 years	Metal	Metal	None	None	Negligible
524/525	3 storeys; 30-50 years	Breeze block, metal and glass	Metal/moulded plastic	Gaps in expansion joints (where mastic has fallen) 2-10m, all aspects	None	Moderate
526/527	2-5 storeys; 30-50 years	Concrete	Moulded plastic	Gaps and holes in walls, various heights and all aspects	None	Low
528	2 storeys; 10 years	Breeze block	Metal	None	None	Negligible
529	2 storeys; 20-30 years	Plastic and metal	Plastic and metal	None	None	Negligible
530	4 storeys; 30-50 years	Concrete	Flat, moulded plastic	Gaps under flashing on east & southern aspects	None	Low
531	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
532	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
533	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
534	1 storey; 10-20 years	Plastic	Plastic moulded	None	None	Negligible
535	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
536	Metal structure	Metal	None	None	None	Negligible
537	Metal structure	Metal	None	None	None	Negligible

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
538	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
539	1 storey; 30-50 years	Breeze blocks	Plastic moulded	Gaps in walls	None	Low
540	3 storeys; 10-20 years	Brick	Metal roofs	Gaps between soffits and walls on west side at 10m. Air vents on all aspects 2-7m	None	Low
541/542	6-8 storeys; c. 50 years	Concrete, metal and glass	Metal/moulded plastic	None	None	Negligible
543	6-8 storeys; c.50 years	Concrete, metal and glass	Metal/moulded plastic	Cavities in the mortar at various heights, all aspects	None	Low
544	1 storey; 30-50 years	Concrete	Metal	None	None	Negligible
545/546	2 storeys; 30-50 years	Breeze block	Moulded plastic	None	None	Negligible
547	1 storey; 30-50 years	Concrete	Metal	None	None	Negligible
548	1 storey; 10 20 years	Breeze block	Moulded plastic	None	None	Negligible
549	2 storeys; 10-20 years	Plastic	Plastic	Slight gaps in facia at 3m height	None	Low
553	1 storey; 20-40 years	Breeze block	None	None	None	Negligible
554/555	1 storey; 30-50 years	Breeze block	Metal	Cavities in the mortar at various heights, all aspects	None	Low

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
556	2 storeys; 5 Years (rebuilt)	Breeze block and metal cladding	Metal	None	None	Negligible
561	2 storeys; 30-50 years	Breeze block	Moulded metal	None.	None	Negligible
561A	1 storey; 30-50 years	Breeze block	Felt	Behind facia board at 2m on south-east aspect.	None	Low
563	1 storey; 30-50 years	Breeze block	Metal	None.	None	Low
565	2 storeys; 30-50 years	Breeze block	Metal	Gaps under flashing and in walls on all aspects.	None	Low
566	2 storeys; 30-50 years	Breeze block	Moulded plastic	Gap in eastern wall at 3m.	None	Low
569	2 storeys; 20-40 years	Breeze block	Moulded plastic	Hole on south-east side wall at 1.5m height, Hole on the south side wall at 1m height.	None	Low
570	2 storeys; 20-40 years	Breeze block	Moulded plastic	None.	None	Negligible
571	1-2 storey(s); 5-10 years	Plastic and metal	Moulded plastic	Hole on the south side wall at 1.25m in height.	None	Low
572	1 storey; 30-50 years	Breeze block	Metal	None.	None	Negligible
574	1-2 storey(s); 5-10 years	Plastic and metal	Moulded plastic	None.	None	Negligible
575	2 storeys; 10-20 years	Metal	Metal	None.	None	Negligible
576	1 storey 5-10 years	Metal	Metal	None.	None	Negligible

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
580	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
581	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
585	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
586	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
587	1 storey; 20-40 years	Brick	Moulded plastic	None.	None	Negligible
588	1 storey; 20-40 years	Breeze block	Metal	Gap in joint between wall and roof.	None	Low
589	1 storey; 20-40 years	Breeze block	Moulded plastic	None.	None	Negligible
590	2 storeys; 10-20 years	Plastic	Plastic	None.	None	Negligible
590A	1 storey; 5 years	Plastic	Plastic	None.	None	Negligible
593	1 storey; 1-3 years	Metal	Metal	Gaps in the roof constructure, evidence of bird use.	None	Negligible
594	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
595	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
597	1 story; new build	Timber	Timber	Interior void and porch open to the roof. Potential roost features (beams and crevices)	Lab analysis of possible bat droppings was inconclusive. Emergence / re-entry	Moderate

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
					surveys observed no roosting bats.	
600	1 storey; 10-20 years	Breeze block	Metal	Behind facia board at 2m on north-eastern aspect.	None	Low
602	1 storey; 10-20 years	Concrete	Metal	None.	None	Negligible
611	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
612 A-D	1 storey; 5-10 years	Plastic and metal	Plastic	None.	None	Negligible
612 E	1 storey; 5-10 years	Brick	Metal	Gaps in mortar.	None	Low
613A/B	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
619	1 storey with a cellar; 30-50 years	Brick	Plastic and metal	Behind facia board, and in crack, 1-3m on eastern and northern aspects.	None	Low/ Suitable hibernacula
621	2 storeys; 10-20 years	Plastic	Plastic	Slight gaps in facia at 3m height.	None	Low
623	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
624	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
625	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
627	2 storeys; <5 years	Metal	Metal	None.	None	Negligible
628	1 storey; <10 years	Plastic and metal	Plastic	None.	None	Negligible

Building ref.	No. storeys & est. age	Wall construction	Roof construction	Potential bat access/ roost locations – height & aspect	Evidence of bat activity?	Suitability for roosting bats
631	1 storey; 30-50 years	Concrete	Part missing, corrugated metal	None.	None	Negligible
631A/B	1 storey; 5-10 years	Metal	Metal	None.	None	Negligible
632	1 storey; 30-50 years	Plastic	Plastic	None.	None	Negligible
633	1 storey; 30-50yrs	Plastic	Moulded plastic	None.	None	Negligible
634	1 storey; < 5 years	Metal	Metal	None.	None	Negligible

Appendix E
Preliminary Roost Assessment (2019)

Table E.1 Preliminary Roost Assessment (2019): Summary of Roost Suitability

Potentially suitable hibernacula	Moderate	Low – dusk emergence survey[2]	Low – dawn walked transect[2]
501[1], 619	524, 525	516, 515, 520, 520A, 526, 627, 530, 540, 561A, 563, 565, 600, 619.	504, 512, 531, 532, 533, 535, 538, 539, 549, 554, 555, 566, 569, 588, 612E, 621

[1] Building has negligible suitability for roosting bats during their active season (April to October).

[2] Buildings with low suitability for roosting bats are separated according to the scope of the follow-up survey work.