HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Wylfa Newydd Project

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HORIZON NUCLEAR POWER

Wylfa Newydd Project

Consultancy Report: Dalar Hir

Extended Phase 1 Habitat Survey Report - Dalar Hir Buffer Area

August 2014

Barney Scott

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Executive Summary

Jacobs UK Limited (Jacobs) carried out an Extended Phase 1 Habitat survey of the proposed development site at Dalar Hir, Anglesey ("the site") between 4th and 7th August 2014.

The site is located to the east of Junction 4 of the A55 in Anglesey, North Wales, at National Grid Reference SH 32989 78381. The site covers an area of approximately 24 ha, and largely comprises improved and semi-improved grassland and cultivated fields divided by hedgerows, with broadleaved plantation woodland on the northern, eastern and southern boundaries.

The survey covered all land within a 500 m radius of the boundary of the site. This is referred to as the "survey area" hereafter in this report. The survey area covered approximately 250 ha.

The survey was undertaken using standard methodology as set out by the Joint Nature Conservation Committee (JNCC) in their *Handbook for Phase 1 habitat survey* (JNCC, 2010). Habitats were mapped and Target Notes (TNs) were made of any features of particular ecological interest. The survey also recorded all suitable habitats present with the potential to support protected or other notable species. The survey results were supplemented by a desk-based data review.

The survey area was largely made up of improved and semi-improved grassland, arable land, hedgerows and some ponds and ditches. No rare or protected habitats were recorded.

Some habitats recorded in the survey area had the potential to support a number of protected species including bats, otter, water vole, badger, birds, reptiles and great crested newt.

Invasive plant species in the form of montbretia and Japanese knotweed were recorded within the survey area.

While potential ecological features were identified, the requirement for further species-specific surveys would be determined by the scope and scale of any future proposed development of the site or encroachment into the survey area.

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Contents

1 Introduction

1.1 Background

Jacobs was commissioned to undertake an Extended Phase 1 Habitat survey of a buffer area extending 500 m from the boundary of Dalar Hir, Anglesey, hereafter referred to as "the site". The surveyed area is referred to in this report as the "survey area" (Figure 1).

This work provided baseline data to support a potential future Environmental Impact Assessment (EIA) and planning application for the site, if required.

1.2 Aims and Objectives

The aims of the survey were to identify any potential ecological constraints to development of the site or survey area, as per the provisions of relevant legislation or planning policy.

The objectives of the survey were to undertake an Extended Phase 1 Habitat survey of the survey area and identify the requirement for any further ecological surveys.

1.3 Site Description

The site is located to the east of Junction 4 of the A55 in Anglesey, North Wales, at National Grid Reference SH 32989 78381. The site covers an area of approximately 24 ha and largely comprises improved and semi-improved grassland and cultivated fields divided by hedgerows, with broadleaved plantation woodland on the northern, eastern and southern boundaries (Figure 1).

The Phase 1 Habitat survey area covered the area within 500 m of the boundary of the site (approximately 250 ha), including all fields, hedgerows, roads and buildings.

1.4 Previous Surveys

Jacobs completed an Extended Phase 1 Habitat survey and great crested newt (*Triturus cristatus*) (GCN) Habitat Suitability Index (HSI) Assessment within the boundary of the site in September 2013 (Jacobs, 2013) (Application Reference Number: 6.6.17). Included in this report was a review of all background data available on the site and from within 2 km of its boundary. These data are not repeated in this report.

Jacobs have also previously completed surveys of the site for GCN and water vole (*Arvicola amphibius*) (Jacobs 2014a and 2014b). These included the survey area covered in this report. These surveys confirmed the presence of both GCN and water vole. These data are not repeated in this report.

Jacobs also completed a survey of the site for badger in March 2014 (Jacobs, 2014c). This survey recorded one confirmed active outlier sett comprising a single hole located in a hedge on the northern boundary of the site in the western half. There were a further two possible outlier setts comprising single holes where it could not be confirmed that they were being used by badger.

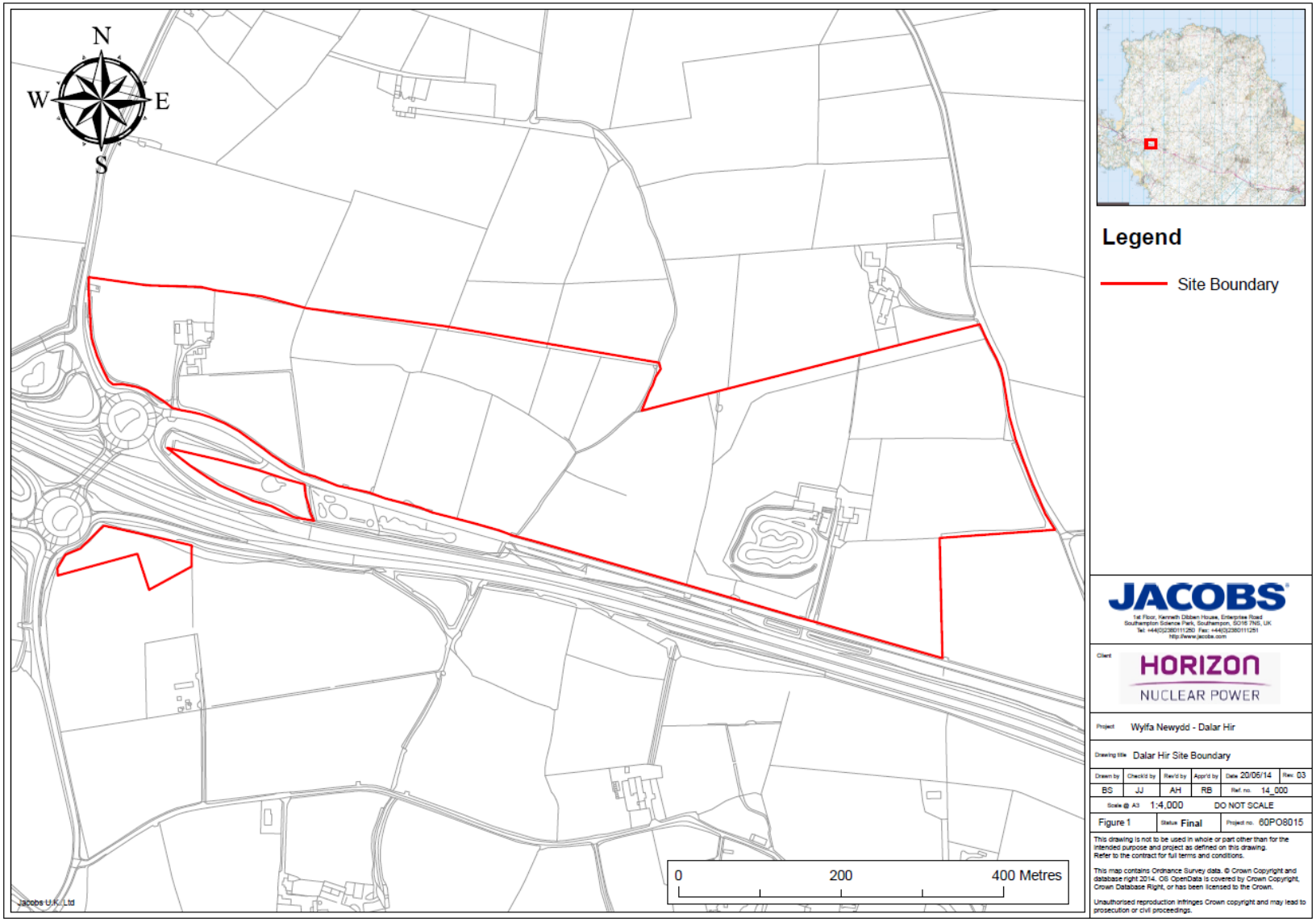

Figure 1: Dalar Hir site

2 Methodology

2.1 Extended Phase 1 Habitat Survey

Jacobs' ecologists Barney Scott and Phil Budd completed the survey between 4th and 7th August 2014. All habitats within the 500 m buffer zone were assessed and mapped according to the survey methods outlined in the *Handbook for Phase 1 habitat survey* (JNCC, 2010).

Target notes (TNs) were made to record key habitat features and provide greater detail on features of ecological interest. Photos were also taken to illustrate the broad habitats types and/or other features of interest. Signs indicating evidence of, or potential for, the presence of protected species and other species of conservation concern were also recorded.

2.2 Survey Limitations

Not all of the land could be fully accessed at the time of survey. However, in these cases, surveyors were able to determine general habitat types from public highways using binoculars, supplemented with the review of aerial photographs. Though this may have inhibited the recording of finer detail in some areas (e.g. small or localised habitat features), the survey effort applied is considered to be sufficient for this type of survey. Features with potential to support protected species (e.g. trees with bat roost potential) may also have been overlooked due to access restrictions, although this has been accounted for in the recommendations section of this report.

The natural environment is dynamic and subject to change over time with the inward and outward movement of species. The behaviour of wildlife can also be seasonal and unpredictable; a single survey visit can therefore only be representative of the conditions at the time of survey and cannot give a full account of ecological features that may only be present at other times of the year.

Extended Phase 1 Habitat surveys are not typically sufficient to confirm the presence or likely absence of legally protected species. The absence of a species should not be inferred from the results of this survey unless otherwise clearly stated in the report. Further surveys are recommended if habitats suitable to support protected or notable species are recorded, as necessary.

3 Results

3.1 Habitats Recorded

All habitats within the survey area were mapped (Figure 2) and supplemented by TNs (Appendix B) and plates (Appendix C). Each habitat type is summarised below.

3.1.1 Broadleaved Semi-natural Woodland

This habitat was limited to two small areas within the survey area. The first was located in the west of the survey area and was made up of elder (*Sambucus nigra*), goat willow (*Salix caprea*), hawthorn (*Crataegus monogyna*) and sycamore (*Acer pseudoplatanus*) (TN 1 and Plate 1).

The second was located in the north of the survey area and was predominantly made up of alder (*Alnus glutinosa*) and English oak (*Quercus robur*) (TN 2 and Plate 2).

3.1.2 Mixed Plantation Woodland

There was an area of mixed plantation woodland in the northwest of the survey area, made up of black pine (*Pinus nigra*) and sycamore (TN 3 and Plate 3).

3.1.3 Broadleaved Plantation Woodland

There was an area of planted grey willow (*Salix cinerea*) at the edge of improved grassland in the south west of the survey area (TN 4).

3.1.4 Row of Trees

There were a number of areas of planted trees, predominantly located within gardens and around residential areas.

There was a row of planted trees adjacent to the Gwyddfor Care Home drive and lawn made up of ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*) and sycamore (TN 5 and Plate 4).

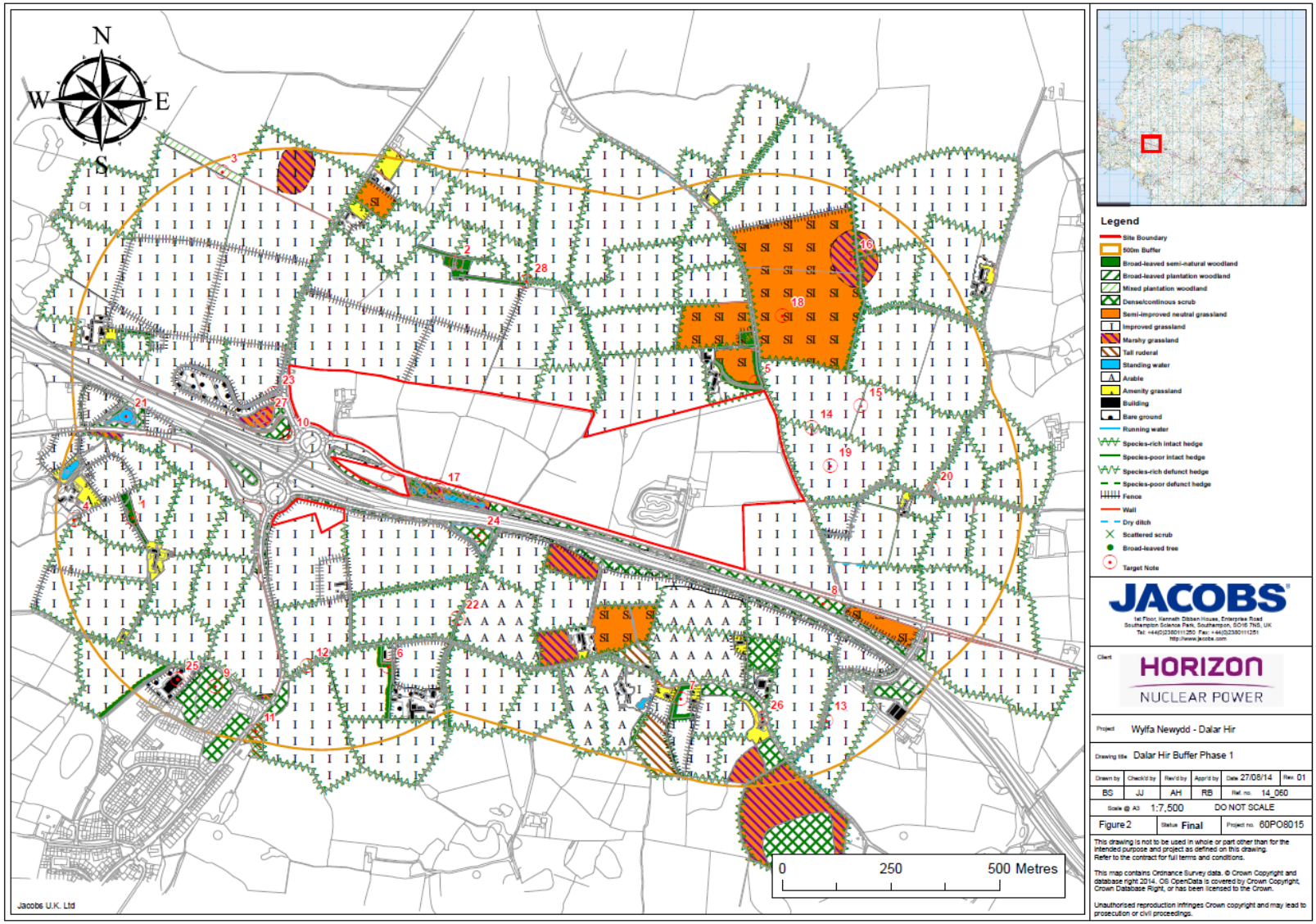

Figure 2: Phase 1 Habitat survey map

In the south of the survey area was a row of planted Leyland cypress (*Cupressus* × *leylandii*) trees TN 6 (Plate 5) surrounding a private dwelling. In the south of the survey area there was a collection of planted trees surrounding an area of improved grassland next to a residential property, made up of ash, Leyland cypress and sycamore, (TN 7 and Plate 6).

3.1.5 Dense/Continuous Scrub

There were a number of areas of dense scrub spread across the survey area, with the largest encompassing the central reservation of the A55, which was made up of alder, bramble (*Rubus fruticosus agg*.), English oak, goat willow, hawthorn, hazel (*Corylus avellana*), hedge bindweed (*Calystegia sepium*), silver birch (*Betula pendula*) and rowan (*Sorbus aucuparia*) (TN 8, Plate 7).

In the south of the survey area was an overgrown recreation area, with alder, blackthorn (*Prunus spinosa*), bramble, gorse (*Ulex europaeus*), greater willowherb (*Epilobium hirsutum*), hawthorn and rosebay willowherb (*Chamerion angustifolium*) (TN 9 and Plate 8).

3.1.6 Scattered Scrub

There were a number of areas of scattered bramble and gorse scrub located across the survey area, with the largest area located adjacent to the ponds to the south of Dalar Hir (TN 17 and Plate 14).

3.1.7 Tall Ruderal

In the north west of the survey area adjacent to the roundabout there was an area of tall ruderal vegetation leading into dense scrub, made up of cock's-foot (*Dactylis glomerata*), hairy sedge (*Carex hirta*), hogweed (*Heracleum sphondylium*), knapweed (*Centaurea nigra*) and marsh bird's-foot trefoil (*Lotus pedunculatus*) (TN 10 and Plate 9).

In the south of the survey area, there were two areas of tall ruderal vegetation on an area of disused waste ground, made up of creeping thistle (*Cirsium arvense*), field horsetail (*Equisetum arvense*), hedge mustard (*Sisymbrium officinale*), ragwort (*Jacobaea vulgaris*), rosebay willowherb, scarlet pimpernel (*Anagallis arvensis*) and Yorkshire fog (*Holcus lanatus*) (TN 11 and Plate 10).

3.1.8 Species-rich Intact Hedge

These formed the most common field boundary within the survey area and common species included bramble, blackthorn, elder, hawthorn, goat willow and gorse. At ground level, species present were bracken (*Pteridium aquilinum*), common polypody (*Polypodium vulgare*), knapweed, ragwort, nettle (*Urtica dioica*), red campion (*Silene dioica*) and wood sage (*Teucrium scorodonia*) (TN 12 and Plate 11).

3.1.9 Species-rich Defunct Hedge

Species-rich defunct hedges were present across the whole survey area, though less frequently than intact species-rich hedges, and contained similar species to those in species-rich intact hedgerows (TN 13).

3.1.10 Species-poor Intact Hedge

There was a small amount of this habitat feature present in the survey area, made up of hawthorn and blackthorn (TN 14 and Plate 12).

3.1.11 Species-poor Defunct Hedge

There were a low number of species-poor defunct hedges in the survey area, predominantly made up of bramble with some hawthorn and blackthorn (TN 15). This was the least common type of boundary recorded.

3.1.12 Marshy Grassland

There were a number of areas of marshy grassland spread across the survey area. This was predominantly made up of perennial ryegrass (*Lolium perenne*) with soft rush (*Juncus effusus*) (TN 16 and Plate 13).

A large marshy area was located in the centre of the survey area. This was made up of cock's-foot, common reed (*Phragmites australis*), creeping thistle (*Cirsium arvense*), great willowherb, meadowsweet (*Filipendula ulmaria*), marsh thistle (*Cirsium palustre*) and soft rush, surrounded by dense bramble, hawthorn and gorse scrub.

3.1.13 Semi-improved Neutral Grassland

This habitat was limited to a few fields predominantly in the north of the survey area. These were made up of creeping buttercup (*Ranunculus repens*), bird's-foot trefoil (*Lotus corniculatus*), meadow buttercup (*Ranunculus acris*), perennial ryegrass, white clover (*Trifolium repens*) and Yorkshire fog with some cock's-foot, crested dog's-tail (*Cynosurus cristatus*), meadowsweet, knapweed, selfheal (*Prunella vulgaris*), sneezewort (*Achillea ptarmica*) and sorrel (*Rumex acetosa*) (TN18).

3.1.14 Improved Grassland

This was the largest and most common habitat type recorded across the survey area with much of the grassland present being grazed by cattle, horses, sheep and rabbits. This habitat was predominantly made up of perennial ryegrass with some creeping buttercup, meadow buttercup and white clover (TN19).

3.1.15 Amenity Grassland

This habitat type was present in gardens and recreation areas, and was largely made up of perennial ryegrass with some white clover.

3.1.16 Standing Water

There were a number of ponds within the survey area boundary. In the north east was also a dry ditch running into a small pond with bur-reed (*Sparganium erectum*), sharp-flowered rush (*Juncus acutiflorus*) and soft rush (TN 20).

In the west of the survey area was a large pond with great reedmace (*Typha latifolia*) surrounded by dense scrub including bramble, hawthorn, hemlock water dropwort (*Oenanthe crocata*) and willow (TN 21).

Within the centre of the survey area was an area of marshy grassland with six ponds, surrounded by scattered scrub, with marsh thistle, meadowsweet, great reedmace, sharp-flowered rush and soft rush (TN 17 and Plate 14). There was also a large pond located within woodland in the north of the survey area (TN 2).

3.1.17 Running Water

A long stretch of wet ditch ran across the survey area from south to north which contained bur-reed and hemlock water dropwort surrounded by willow trees (TN 22).

3.1.18 Dry Ditch

There were a number of dry ditches across the survey area, which frequently contained soft rush with bramble, fool's-water-cress (*Apium nodiflorum*), great willowherb (*Epilobium hirsutum*), marsh bird's-foot trefoil, meadowsweet and water mint (*Mentha aquatica*) in some areas (TN 23).

3.1.19 Hardstanding

There were roads, drives and pavements across the survey area.

3.2 Protected Species Potential Recorded

A summary of wildlife legislation relevant to the species discussed below can be found in Appendix D.

3.2.1 Bats

The survey area contained widespread areas of suitable foraging and commuting habitat for bats including hedgerows, wet ditches, ponds, and some woodland areas.

Two old farm buildings were identified with features which could support roosting bats, including cracks, loose tiles and crevices (TN 26, Plate 22, and TN 2, Plate 2). There was also a large derelict building in the south west of the survey area, although, from a brief external inspection, this appeared to be flat-roofed and well-sealed. A thorough inspection for specific features with potential for roosting bats could not be made at the time of survey and only the general potential to support roosting bats was recorded.

No trees were recorded which had features with the potential to support roosting bats.

3.2.2 Otter

There was some habitat suitable for otter in the survey area including wet ditches. However, no signs of this species were recorded during the survey.

3.2.3 Water Vole

All ditches and ponds in the survey area provided suitable habitat for water vole, although no evidence of usage of the survey area by the species was recorded.

3.2.4 Badger

There was potential habitat for badger to be present in the survey area, including grassland and pasture suitable for foraging, and woodland and dense scrub suitable for sett building. However, no signs of this species were recorded during the survey.

As noted in Section 2.2 not all areas were accessible and so there remains the potential for badger setts to be present in the survey area.

3.2.5 Birds

No bird nests or nesting behaviour was recorded within the trees in the survey area. However, all of the trees, shrubs and buildings in the survey area offered nesting opportunities for birds and some areas could provide foraging for wintering birds. A number of bird species were heard or observed during the survey, including goldfinch (*Carduelis carduelis*), linnet (*Carduelis cannabina*), raven (*Corvus corax*) and whitethroat (*Sylvia communis*).

The potential for buildings in the survey area to support nesting barn owls (*Tyto alba*) was not assessed (see Section 4).

3.2.6 Reptiles

There was very limited habitat suitable for reptiles in the survey area, although low numbers of reptiles could be supported by habitats around the edges of dense scrub and long grassland. These habitats were present across the survey area, but were most frequently recorded in the south.

3.2.7 Great Crested Newt

The survey area contained a number of ponds which could provide habitat for breeding GCN, as well as suitable terrestrial habitat for foraging and resting, including hedgerows and scattered and dense scrub (TN 2, TN 17, TN 20 and TN 21).

3.2.8 Plant Species

No protected or notable plant species of conservation concern were recorded in the survey area.

Japanese knotweed (*Fallopia japonica*) (TN 2) and montbretia (*Crocosmia x crocosmiiflora*) (TN 10, TN 11, TN 13) were recorded in the survey area. These species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA), and it is therefore an offence to cause the spread of these species in the wild (HMSO[3]).

3.3 Summary of Results

The survey area comprised mostly improved and semi-improved grassland, hedgerows and some arable land. Some habitats recorded could support a number of protected species, including bats, otter, water vole, badger, birds (including barn owl), reptiles and GCN. Japanese knotweed and montbretia were recorded within the survey area.

4 Recommendations

4.1 Habitats

The survey area predominantly consists of common and widespread habitats, and is largely made up of improved and semi-improved grassland and some arable land. Additional surveys of these habitat types would not be required. However, the survey area also supported hedgerows, which if affected by the proposed development, would need to be assessed to determine if they qualify under the ecological criteria for importance under the Hedgerows Regulations 1997.

In an impact assessment context it should also be recognised that hedgerows would also be listed in accordance with the requirements of Section 42 of the Natural Environment and Rural Communities Act (2006).

4.2 Invasive Plant Species

The survey area supports stands of Japanese knotweed and montbretia which are both listed on Schedule 9 of the WCA making it illegal to plant or otherwise cause these species to grow in the wild (HMSO[3]). Potential impacts relating to biosecurity as an effect pathway should therefore be included in any impact assessment produced for development of the site.

4.3 Protected Species

4.3.1 Bats

A number of buildings in the survey area have potential to support roosting bats. Should these buildings be impacted by any future development of the site, further detailed assessment for bat roost potential will be required, and subsequently to this, more in-depth bat surveys may be necessary to confirm the presence or likely absence of these animals.

The survey area has the potential to support commuting and foraging bats. The extent to which any local population may be affected by development of the site would be dependent on the habitats and/or habitat connectivity that would be affected. Therefore, at this stage it is not considered appropriate to consider whether bat activity surveys (to determine usage of the site by bats for foraging and commuting) would be required. The design of future surveys would be informed by the initial design of any potential development proposals for the site.

All future surveys should be undertaken in accordance with current best practice guidelines.

4.3.2 Otter

This species is not considered to be regularly present in the survey area as there is no habitat suitable for holt building. However, otter may be present infrequently, and are likely to use the systems of ditches and streams as commuting pathways across the survey area. The retention and enhancement of these habitat features is therefore of importance in any future development of the site.

4.3.3 Water vole

Jacobs had previously identified the habitat in the survey area with the potential to support water vole as part of the environmental assessment of Dalar Hir. The results of these surveys are presented in the Jacobs Water Vole Survey Report (Jacobs, 2014a), which confirmed the presence of water vole in the survey area.

Water vole should therefore be considered in any future impact assessment for development of the survey area. While no further surveys are recommended at this time, further surveys would be required should habitats with the potential to support water vole be impacted by development of the site. All future surveys should be undertaken in accordance with current best practice guidelines.

4.3.4 Badger

Suitable sett building and foraging habitat was recorded across the survey area, including areas of dense scrub, hedgerows and pasture. Badger presence was recorded during the badger survey completed in March 2014 (Jacobs, 2014c). The results of that survey should be considered when designing any future development for the site.

Additionally, any proposed development impact on habitats with the potential to support badger setts should be subject to further detailed survey to inform any impact assessment. All future surveys should be undertaken in accordance with current best practice guidelines.

4.3.5 Birds

Virtually all habitats in the survey area had the potential to support foraging and roosting birds during the breeding and over-wintering seasons. However, further surveys are not recommended at this time as the scale and design of any proposed development is not known. Should significant proportions of habitats for birds be lost or modified within the survey area then further surveys may be recommended to inform any impact assessment.

Further surveys to assess the potential for barn owl to be using buildings in the survey area for roosting or nesting should be completed if any would be affected by a proposed development.

All future surveys should be undertaken in accordance with current best practice guidelines.

4.3.6 Reptiles

The survey area has habitats with the potential to support reptiles. Surveys would be required to determine if reptiles are present to inform any impacts on reptiles that development of the site would have. These results would then be used to inform appropriate avoidance, mitigation and compensation if necessary. All future surveys should be undertaken in accordance with current best practice guidelines.

4.3.7 Great Crested Newt

Jacobs have confirmed the presence of GCN in the survey area (Jacobs, 2014b) and no further surveys for the species are recommended at this time. It is considered that additional surveys would only be required should the extent of the proposed development include any areas outside of the boundary of the site shown in Figure 1, or if a period of three years or more elapses since the date of the original survey.

4.4 Summary of Recommendations

Although the presence of, or potential for, important ecological features have been identified, the requirement for further species-specific surveys would be determined by the scope and scale of any future development of the site.

5 Conclusions

The Extended Phase 1 Habitat survey of the land surrounding Dalar Hir has shown that there are a number of potential ecological constraints present.

The majority of habitats recorded within the survey area were of limited ecological value, and the survey area was largely made up of improved and semi-improved pasture with some arable land. However, there were hedgerows present with the potential to be important in the context of the Hedgerows Regulations 1997, and because they are listed in accordance with the requirements of the Section 42 of the Natural Environmental and Rural Communities Act 2006.

The survey area contains habitat with the potential to support protected species including bats, water vole, badger, birds, reptiles and GCN.

Japanese knotweed and montbretia are present in the survey area. It is illegal to cause these species to grow in the wild, therefore if these species are to be removed, controls will need to be in place to dispose of the species without causing an offence.

While potential ecological features have been identified, the requirement for further species-specific surveys would be determined by the scope and scale of any future development of the site.

6 References

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Appendix A Detailed Phase 1 Habitat Figures

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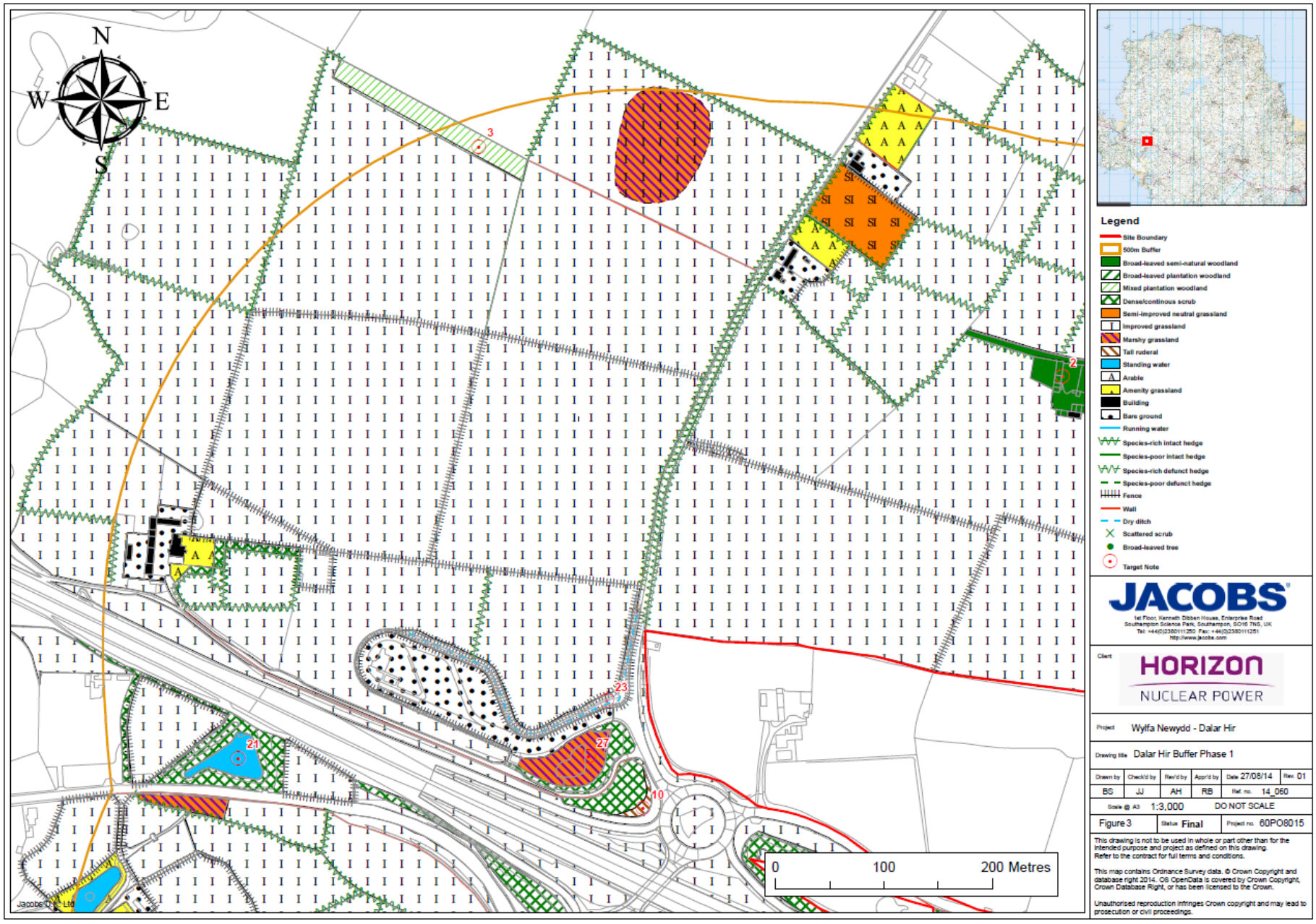
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Legend
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Dense/continous scrub
Semi-improved neutral grassland
Improved grassland
Marshy grassland
Tall ruderal
Standing water
Arable
Amenity grassland
Building
Bare ground
Running water
Species-rich intact hedge
Species-poor intact hedge
Species-rich defunct hedge
Species-poor defunct hedge
Fence
Wall
Dry ditch
Scattered scrub
Broad-leaved tree
Target Note
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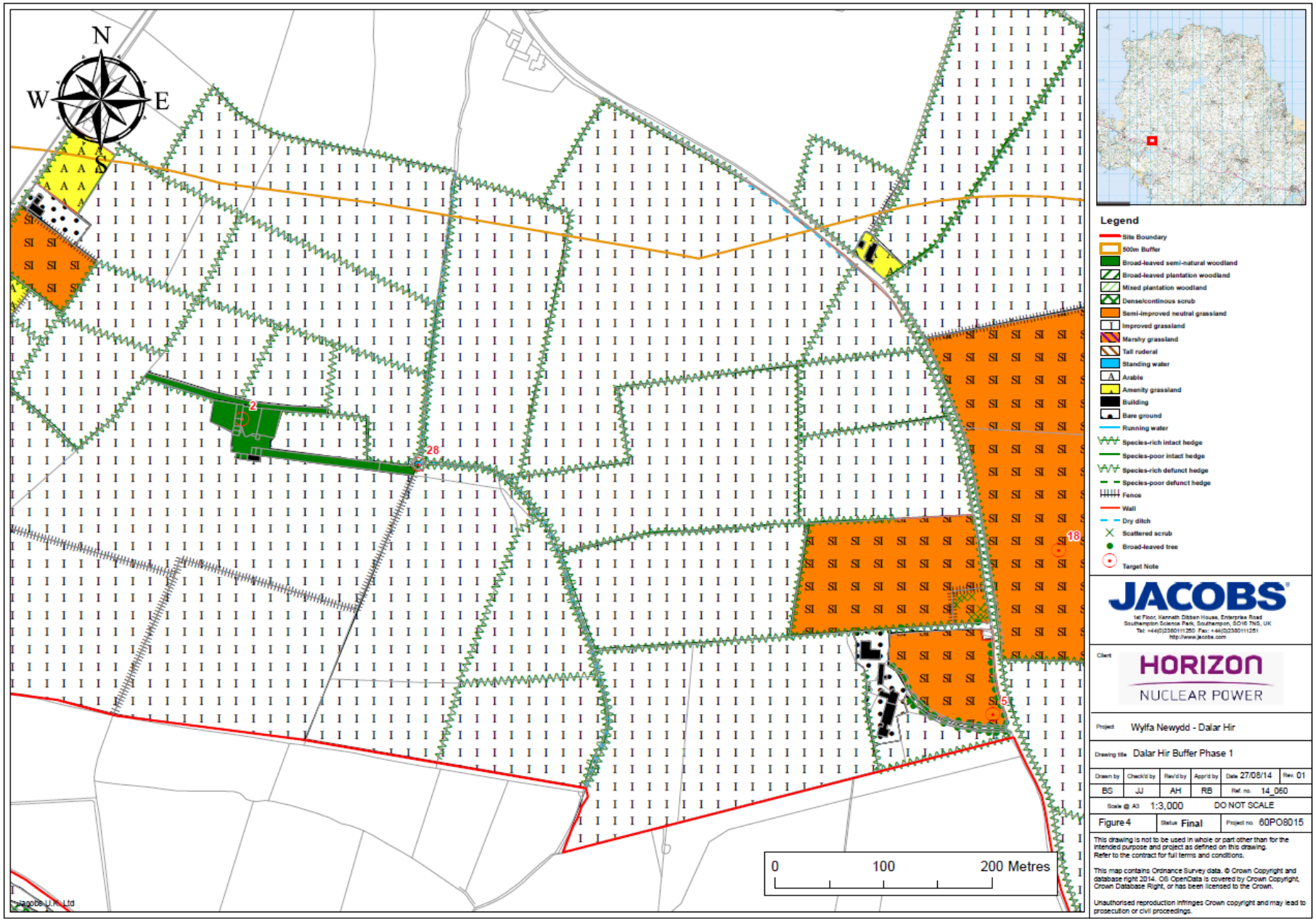
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HORIZON
NUCLEAR POWER
Project Wylfa Newydd - Dalar Hir
Drawing title Dalar Hir Buffer Phase 1
Drawn by BS
Check'd by JJ
Rev'd by AH
Appr'd by RB
Date 27/08/14
Rev. 01
Ref. no. 14_060
Scale @ A3 1:3,000
DO NOT SCALE
Figure 4
Status Final
Project no. 60PO8015
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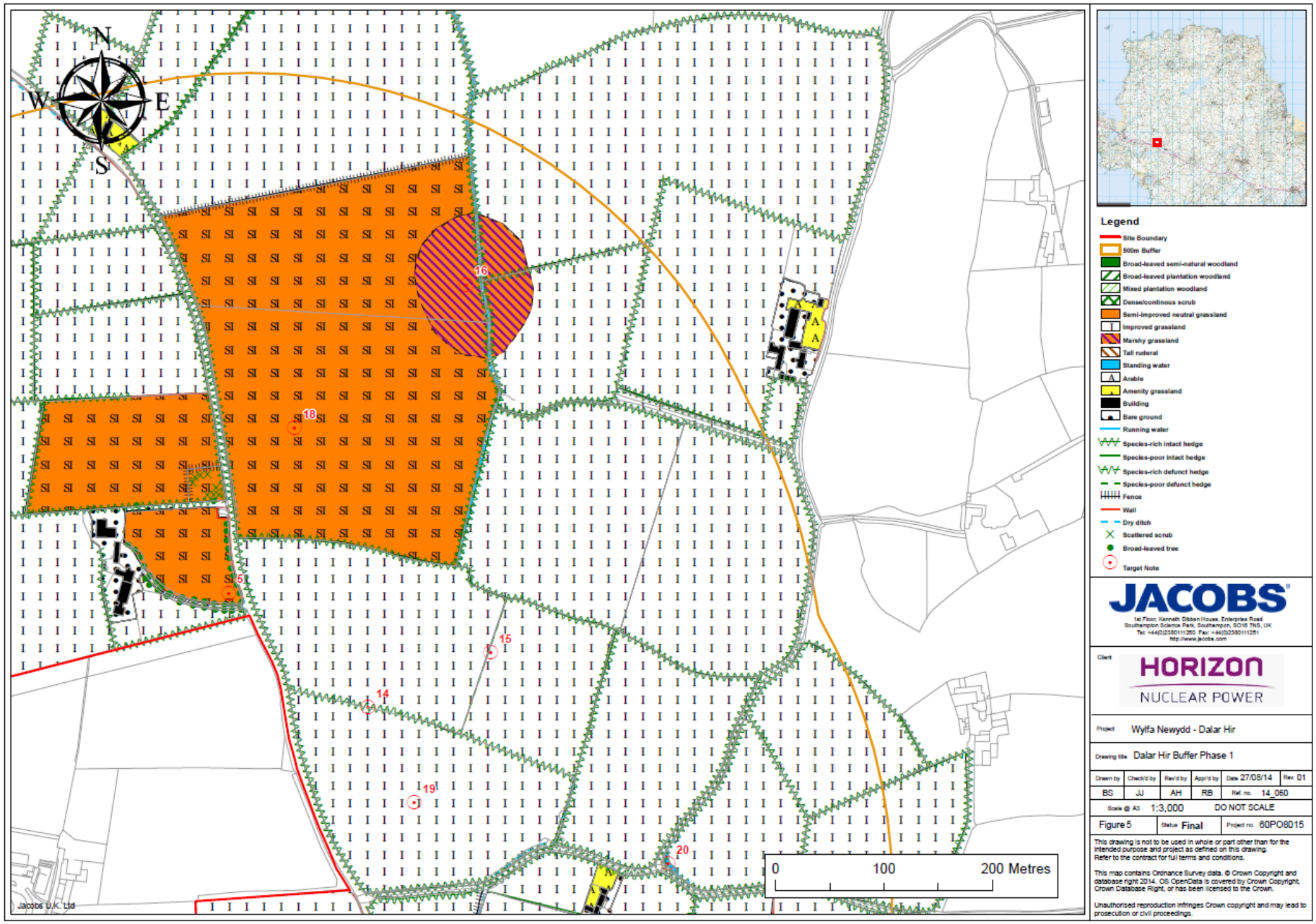
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Legend
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Broad-leaved semi-natural woodland
Broad-leaved plantation woodland
Mixed plantation woodland
Dense/continous scrub
Semi-improved neutral grassland
Improved grassland
Marshy grassland
Tall ruderal
Standing water
Arable
Amenity grassland
Building
Bare ground
Running water
Species-rich intact hedge
Species-poor intact hedge
Species-rich defunct hedge
Species-poor defunct hedge
Fence
Wall
Dry ditch
Scattered scrub
Broad-leaved tree
Target Note
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DO NOT SCALE
Figure 5
Status Final
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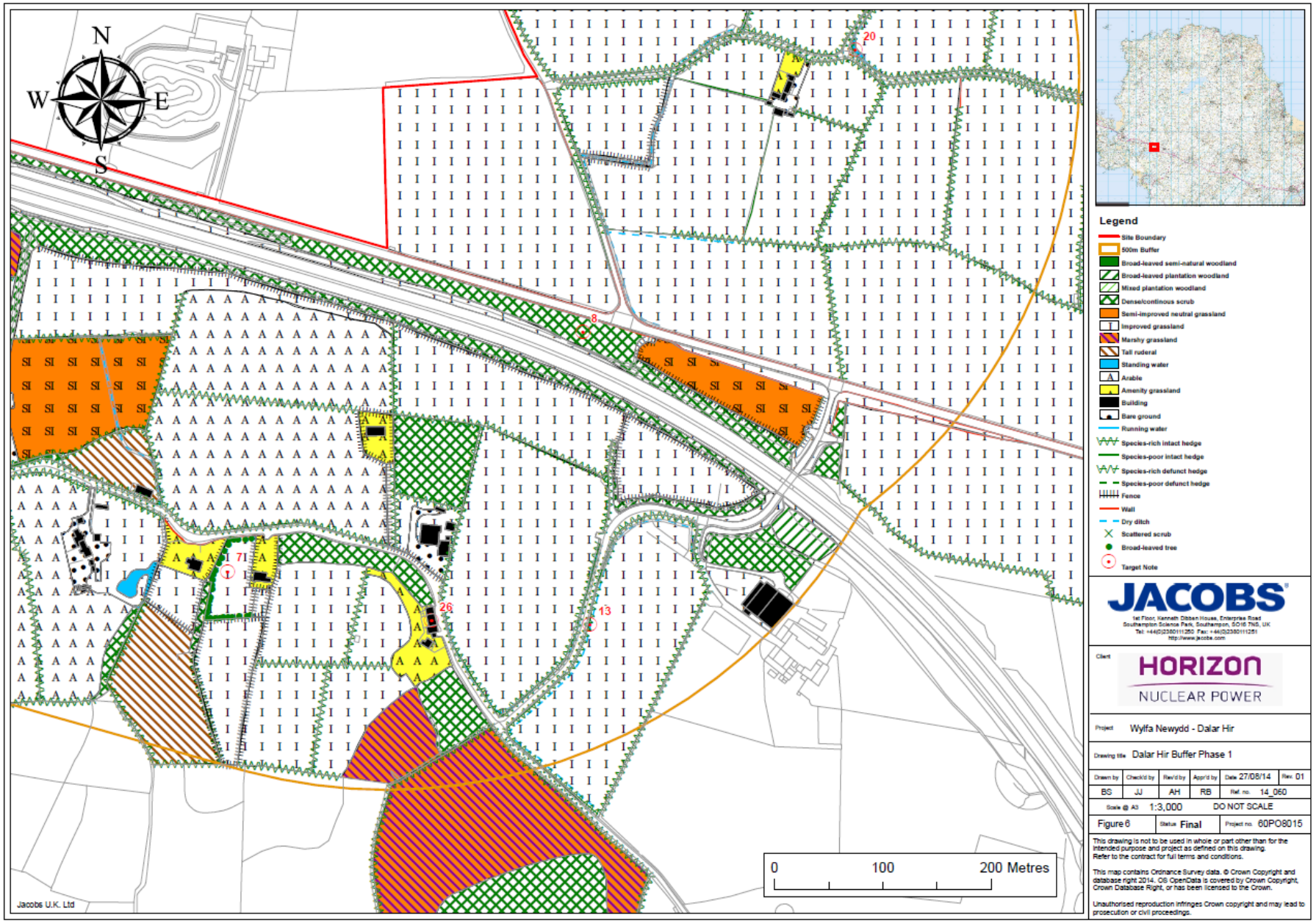
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Dense/continous scrub
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Species-rich intact hedge
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Fence
Wall
Dry ditch
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Broad-leaved tree
Target Note
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Check'd by JJ
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Date 27/08/14
Rev. 01
Ref. no. 14_060
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DO NOT SCALE
Figure 6
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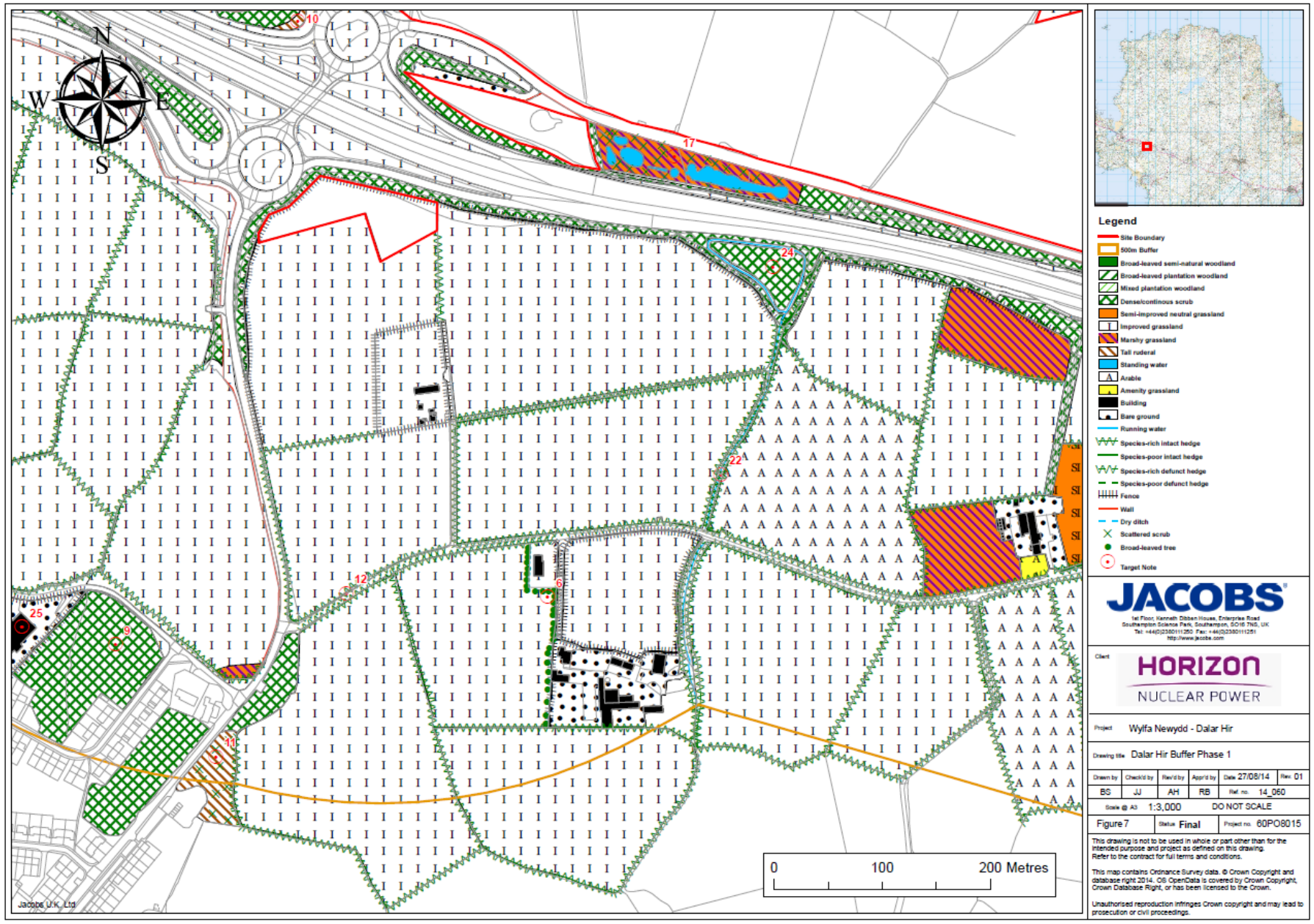
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Mixed plantation woodland
Dense/continous scrub
Semi-improved neutral grassland
Improved grassland
Marshy grassland
Tall ruderal
Standing water
Arable
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Bare ground
Running water
Species-rich intact hedge
Species-poor intact hedge
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Species-poor defunct hedge
Fence
Wall
Dry ditch
Scattered scrub
Broad-leaved tree
Target Note
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Checkd by
Rev'd by
Appr'd by
Date 27/08/14
Rev. 01
BS
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Ref. no. 14_060
Scale @ A3 1:3,000
DO NOT SCALE
Figure 7
Status Final
Project no. 60PO8015
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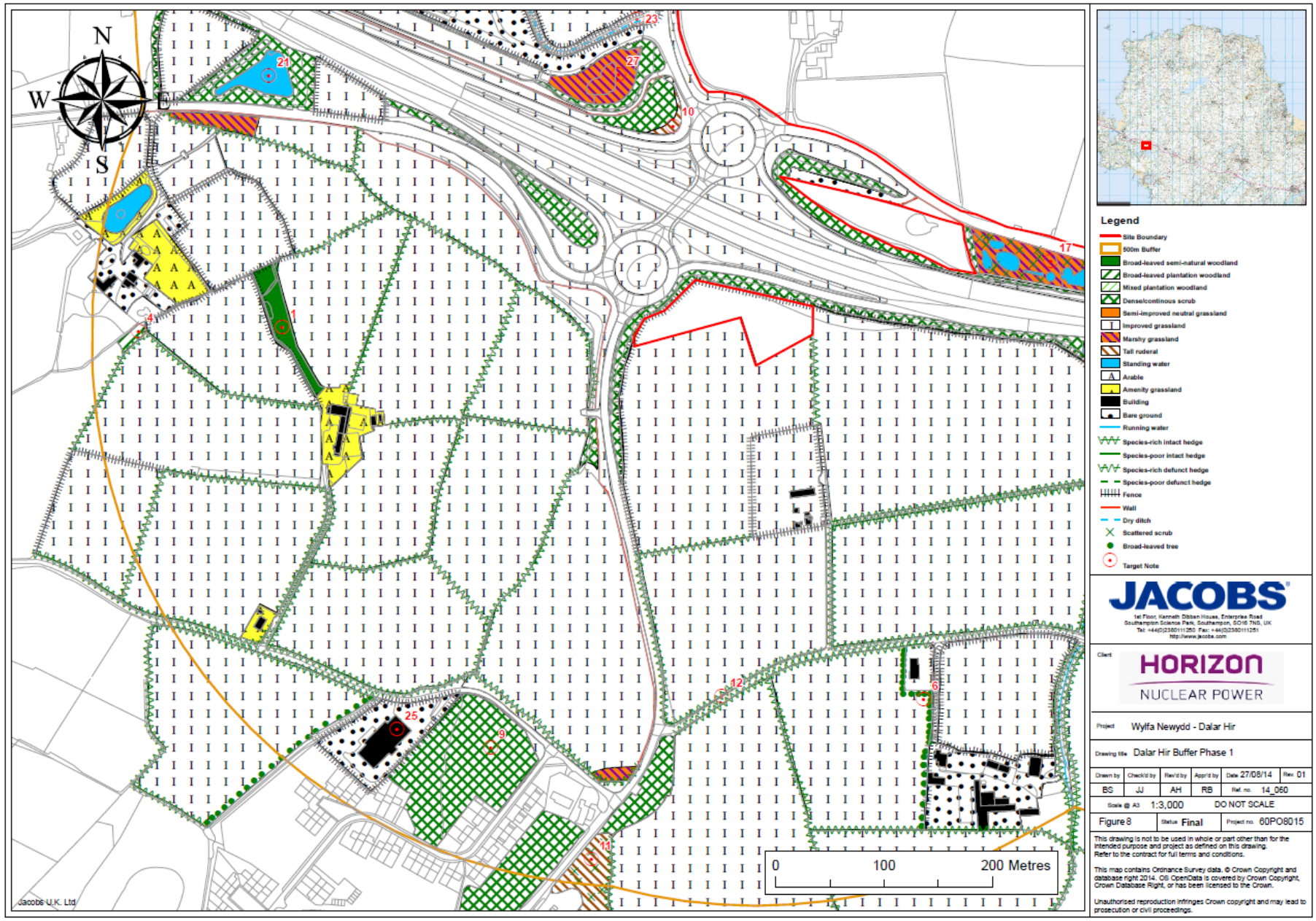
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Site Boundary
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Dense/continous scrub
Semi-improved neutral grassland
Improved grassland
Marshy grassland
Tall ruderal
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Dry ditch
Scattered scrub
Broad-leaved tree
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Ref. no.
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Scale @ A3
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DO NOT SCALE
Figure 8
Status
Final
Project no.
60PO8015
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Appendix B Target Notes

Target Note (TN)	Description
1	This was an area of semi natural broadleaved woodland made up of elder (*Sambucus nigra*), hawthorn (*Crataegus monogyna*), goat willow (*Salix caprea*), and sycamore (*Acer pseudoplatanus*).
2	This was an area of woodland with made up of alder (*Alnus glutinosa*) and English oak (*Quercus robur*), and contained a large pond suitable for breeding great crested newt (GCN). This woodland also contained a stand of Japanese knotweed (*Fallopia japonica*).
3	This was an area of mixed plantation woodland made up of black pine (*Pinus nigra*) and sycamore.
4	This is an area of planted grey willow (*Salix caprea*) at the edge of improved grassland.
5	This was an area of land in front of the Gwyddfor Care Home, made up of an uncut semi-improved field containing cock's-foot (*Dactylis glomerata*), hogweed (*Heracleum sphondylium*), great willowherb (*Epilobium hirsutum*), ragwort (*Jacobaea vulgaris*), knapweed (*Centaurea nigra*), sorrel (*Rumex acetosa*), and Yorkshire fog (*Holcus lanatus*). This was surrounded by planted ash (*Fraxinus excelsior*), beech (*Fagus sylvatica*) and sycamore
6	This was a row of planted Leyland cypress (*Cupressus × leylandii*) trees surrounding a private dwelling in the south of the survey area.
7	This was a collection of planted trees surrounding an area of amenity grassland, made up of ash, Leyland cypress and sycamore,
8	This was an area of dense continuous scrub within the central reservation of the A55. This was made up of alder, bramble (*Rubus fruticosus agg.*), English oak, goat willow, hawthorn, hazel (*Corylus avellana*), hedge bindweed (*Calystegia sepium*), rowan (*Sorbus aucuparia*) and silver birch (*Betula pendula*).
9	This was an area of dense continues scrub which looked to be an overgrown recreation area, with bramble, elder, gorse (*Ulex europaeus*), hawthorn and rosebay willowherb (*Chamerion angustifolium*).
10	This was an area of tall ruderal vegetation leading into dense scrub, made up of cock's-foot, hairy sedge (*Carex hirta*), hogweed, knapweed, marsh bird's-foot trefoil (*Lotus pedunculatus*) and montbretia (*Crocosmia x crocosmiiflora*).
11	An area of tall ruderal vegetation on waste ground with scattered scrub containing creeping thistle (*Cirsium arvense*), field horsetail (*Equisetum arvense*), hedge mustard (*Sisymbrium officinale*), montbretia, rosebay willowherb, scarlet pimpernel (*Anagallis arvensis*), ragwort and Yorkshire fog.
12	A species-rich hedge containing blackthorn (*Prunus spinosa*), bramble, elder, goat willow, gorse and hawthorn. At ground level, species present were bracken (*Pteridium aquilinum*), common polypody (*Polypodium vulgare*), knapweed, ragwort, nettle (*Urtica dioica*), red campion (*Silene dioica*) and wood sage (*Teucrium scorodonia*).

Target Note (TN)	Description
13	This was a stand of montbretia in a species rich hedge.
14	This was a species-rich defunct hedge with bramble, hawthorn, goat willow and gorse.
15	A species-poor defunct hedge predominantly made up of bramble.
16	This was an area of marshy grassland with perennial ryegrass (*Lolium perenne*), meadow buttercup (*Ranunculus acris*) and soft rush (*Juncus effusus*).
17	This was an area of marshy grassland with ponds, surrounded by scattered scrub, with suitable habitat for GCN and water vole. Species present were great reedmace (*Typha latifolia*), marsh thistle (*Cirsium palustre*), meadowsweet (*Filipendula ulmaria*), sharp-flowered rush (*Juncus acutiflorus*) and soft rush, with scrub made up of bramble, gorse and willow.
18	A semi-improved field made up of bird's-foot trefoil (*Lotus corniculatus*), creeping buttercup, meadow buttercup, perennial ryegrass, selfheal (*Prunella vulgaris*), white clover (*Trifolium repens*) and Yorkshire fog.
19	This was an area of improved grassland made up of perennial ryegrass with some creeping buttercup (*Ranunculus repens*), meadow buttercup and white clover.
20	This was a dry ditch running into a small pond with bur-reed (*Sparganium erectum*), sharp-flowered rush and soft rush. Potential habitat for GCN and water vole was present.
21	This was a large pond with great reed mace surrounded by dense scrub including bramble, hawthorn, hemlock water dropwort (*Oenanthe crocata*) and willow with suitable habitat for GCN and water vole.
22	This was a long stretch of wet ditch with burr-reed and hemlock water dropwort surrounded by willow trees.
23	A dry ditch surrounded by dense scrub including bramble, fool's-water-cress (*Apium nodiflorum*), greater willowherb, marsh bird's-foot trefoil, meadowsweet, soft rush and water mint (*Mentha aquatica*). Potential habitat for water vole was present.
24	This was a wet congregation of ditches with dense goat willow and hawthorn scrub, with potential habitat for water vole.
25	This was a large flat roofed derelict building. No features suitable for roosting bats were observed during a brief external inspection, though this was limited by a lack of access to areas immediately surrounding the building.
26	An old barn building with features with potential for use by roosting bats.
27	This was an area of marshy grassland containing cock's-foot, common reed (*Phragmites australis*), creeping thistle, great willowherb, meadowsweet and soft rush, surrounded by dense bramble, gorse and hawthorn scrub.
28	A dry pond with suitable habitat for GCN and water vole when inundated.

Appendix C Photographs

Plate 1: Broadleaved semi-natural woodland (TN 1)

Plate 2: Broadleaved semi-natural woodland with old farm building (TN 2)

Plate 3: Mixed plantation woodland (TN 3)

Plate 4: Uncut semi-improved field with planted trees surrounding Gwyddfor care home (TN 5)

Plate 5: Planted Leyland cypress trees (TN 6)

Plate 6: Planted trees surrounding improved grassland (TN 7)

Plate 7: Dense scrub alongside the A55 (TN 8)

Plate 8: Dense scrub on recreation area (TN 9)

Plate 9: Tall ruderal vegetation leading to dense scrub (TN 10)

Plate 10: Tall ruderal vegetation on waste ground (TN 11)

Plate 11: Species-rich intact hedge (TN 12)

Plate 12: Species-poor defunct hedge (TN 14)

Plate 13: Marshy grassland (TN 16)

Plate 14: Marshy grassland with scattered scrub (TN 17)

Plate 15: Semi-improved neutral grassland (TN 18)

Plate 16: Improved grassland (TN 19)

Plate 17: Dry ditch leading to small pond (TN 20)

Plate 18: Large pond and dense scrub (TN 21)

Plate 19: Dry ditch (TN 23)

Plate 20: Dense goat willow and hawthorn scrub (TN 24)

Plate 21: Derelict building (TN 25)

Plate 22: Farm building with potential for roosting bats (TN 26)

Plate 23: Marshy grassland (TN 27)

Appendix D Protected Species Legislation

Bats

All species of bat and their breeding sites or resting places (roosts) are protected under the Wildlife and Countryside Act 1981 (as amended) (WCA) and The Conservation of Habitats and Species Regulations 2010 (as amended).

In summary, the legislation most relevant to this report makes it an offence (amongst others) to:

- deliberately capture, injure, kill or disturb any bat species, or to damage or destroy a breeding site or resting place of such an animal;
- intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any structure or place which a bat uses for shelter or protection.

Otter

The otter is fully protected under Schedule 5 of the WCA and The Conservation of Habitats and Species Regulations 2010 (as amended):

In summary, the legislation most relevant to this report makes it an offence (amongst others) to:

- deliberately capture, injure, kill or disturb an otter, or to damage or destroy a breeding site or resting place of such an animal;
- intentionally or recklessly disturb an otter while it is occupying a structure or place which it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any structure or place which an otter uses for shelter or protection.

Water Vole

Water voles are protected under Schedule 5 of the WCA of which Section 9 makes it illegal to:

- intentionally kill, injure or take a water vole;
- intentionally or recklessly damage or destroy any structure or place which a water vole uses for shelter or protection;
- intentionally or recklessly disturb a water vole while it is occupying a structure or place which it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any structure or place which a water vole uses for shelter or protection.

Badger

The Protection of Badgers Act 1992 brings together all the legislation that is specific to badger, with the exception of their inclusion on Schedule 6 of the WCA.

The Protection of Badgers Act 1992 makes it an offence (amongst others) to wilfully kill, injure or take a badger, or attempt to do so (Section 1); cruelly ill-treat a badger or dig for a badger (Section 2); or intentionally or recklessly interfere with a sett by damaging or destroying it, obstructing access to any entrance or disturbing a badger when it is occupying a sett (Section 3).

Birds

All birds, their nests and eggs are protected under the WCA. In summary, most relevant parts of the legislation to this report, makes it an offence (amongst others) to:

- intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of a wild bird while that nest is in use or being built (or at any time for birds listed on Schedule 1 of the WCA);
- intentionally or recklessly disturb any bird listed on Schedule 1 of the WCA while it is building a nest or is in, on, or near a nest containing eggs or young;
- intentionally or recklessly disturb the dependent young of any bird listed on Schedule 1 of the WCA; and
- intentionally take or destroy an egg of any wild bird.

Reptiles

All reptiles receive protection under the WCA Schedule 5 Section 9(1) making it illegal to intentionally kill or injure these species.

Great Crested Newt

The great crested newt is fully protected under Schedule 5 of the WCA and Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended).

In summary, the legislation most relevant parts of the legislation to this report, makes it an offence (amongst others) to:

- deliberately capture, injure, kill or disturb a GCN, or to damage or destroy a breeding site or resting place of such an animal;
- intentionally or recklessly disturb a GCN while it is occupying a structure or place which it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any structure or place which a GCN uses for shelter or protection.