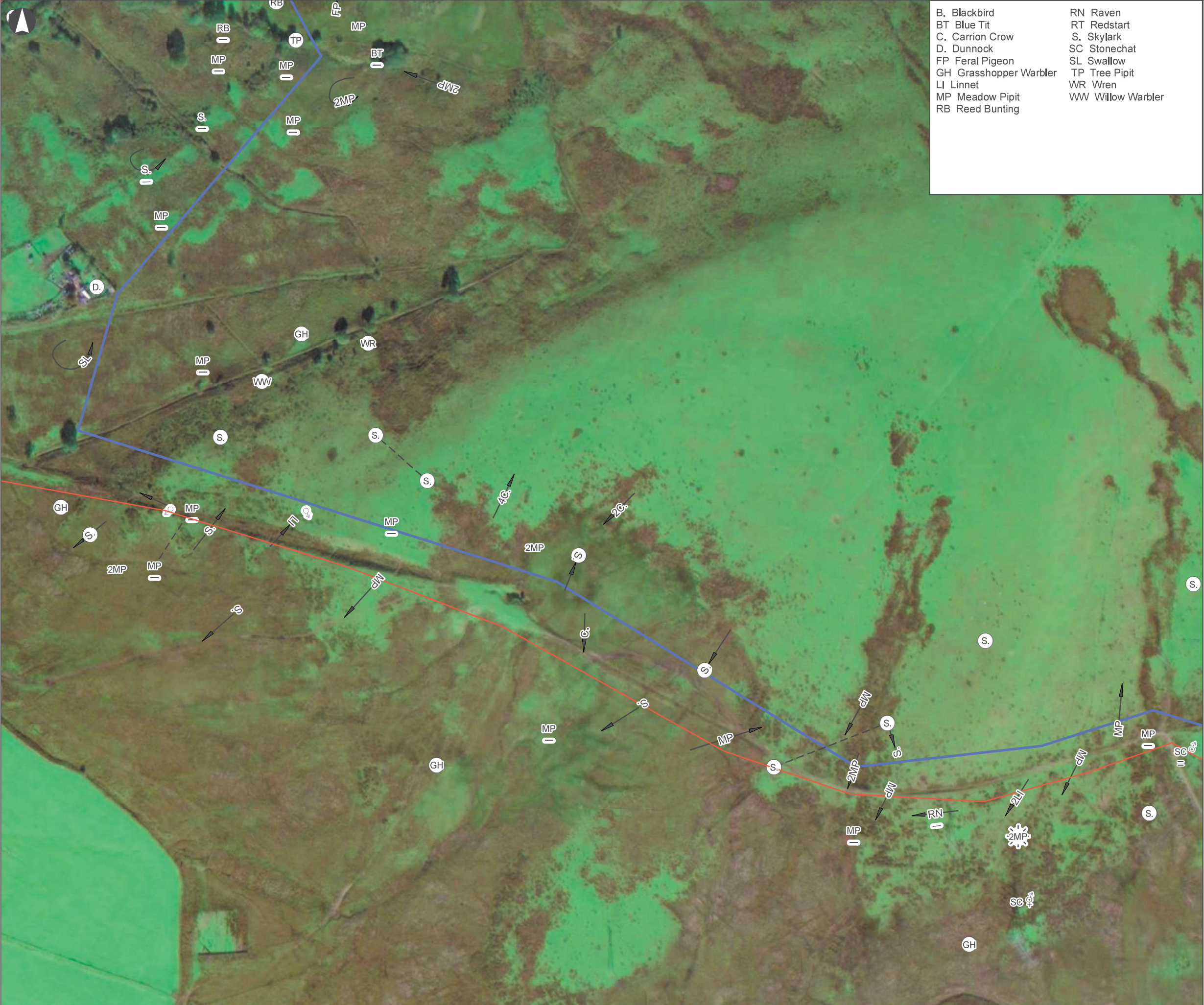




- B. Blackbird

BT Blue Tit

C. Carrion Crow

D. Dunnock

FP Feral Pigeon

GH Grasshopper Warbler

LI Linnet

MP Meadow Pipit

RB Reed Bunting
- RN Raven

RT Redstart

S. Skylark

SC Stonechat

SL Swallow

TP Tree Pipit

WR Wren

WW Willow Warbler

Legend

Site Boundary

Transect 5

Alarm, Male

Call

Fight

Pair

Sight record

Song

Away

Away, Male

- - R. Different Simultaneous

Flight

Flight, Call

Flight, Song

Land

Land, Male

Land, Song

0 45 90 180

Metres

F1

2020-01-30

AM

PC

PC

Rev

Date

By

Chkd

Appd

Coordinate System: British National Grid

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

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Bristol
BS1 6JZ

Client

Celtic Energy Ltd.

Project Title

Nant Helen Complementary
Restoration Earthworks

Drawing Title

BBS Transect 5 - South
April

Scale at A3

1:3,500

Role

Suitability

For Issue

Arup Job No

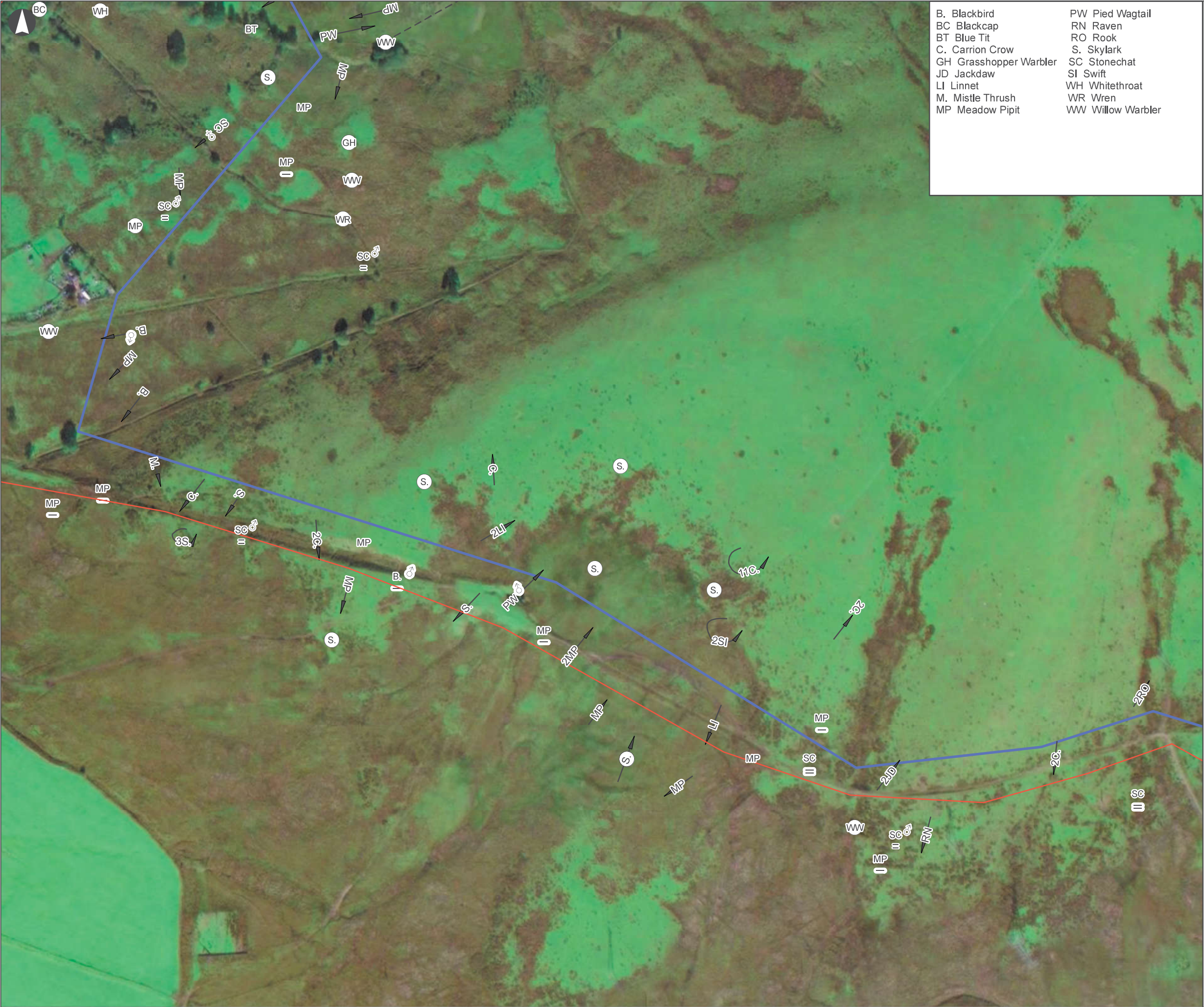
271968-05

Rev

F1

Name

058



- B. Blackbird

BC Blackcap

BT Blue Tit

C. Carrion Crow

GH Grasshopper Warbler

JD Jackdaw

LI Linnet

M. Mistle Thrush

MP Meadow Pipit
- PW Pied Wagtail

RN Raven

RO Rook

S. Skylark

SC Stonechat

SI Swift

WH Whitethroat

WR Wren

WW Willow Warbler

Legend

Site Boundary

Transect 5

Alarm

Alarm, Male

Call

Call, Male

Sight record

Song

Away

Away, Female

Away, Male

-R-Different Simultaneous

Flight

Flight, Song

Land

Metres

0

45

90

180

F1	2020-01-30	AM	PC	PC
Rev	Date	By	Chkd	Appd

Coordinate System: British National Grid
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

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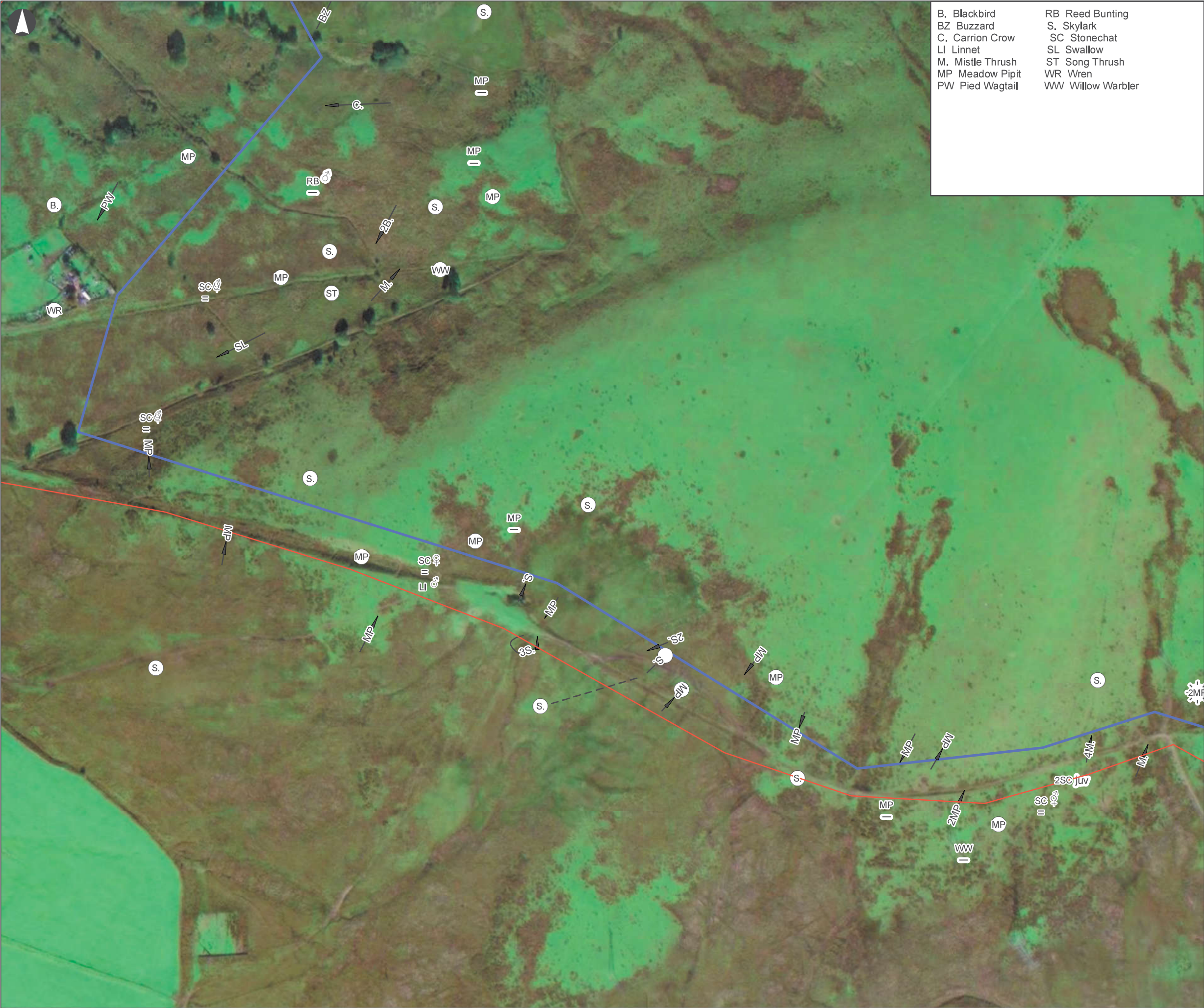
Client
Celtic Energy Ltd.

Project Title
Nant Helen Complementary
Restoration Earthworks

Drawing Title
BBS Transect 5 - South
May

Scale at A3
1:3,500
Role

Suitability	
For Issue	
Arup Job No	Rev
271968-05	F1
Name	
059	



- B. Blackbird

BZ. Buzzard

C. Carrion Crow

LI. Linnet

M. Mistle Thrush

MP. Meadow Pipit

PW. Pied Wagtail
- RB. Reed Bunting

S. Skylark

SC. Stonechat

SL. Swallow

ST. Song Thrush

WR. Wren

WW. Willow Warbler

Legend

Site Boundary

Transect 5

♀ Alarm, Female

♀ Alarm, Pair

Call

♂ Call, Male

Fight

juv Juvenile

♂ Male

Song

R. Away

R. - R. Different Simultaneous

R. Flight

R. Land

Land, Song

Metres

0	45	90	180	
F1	2020-01-30	AM	PC	PC
Rev	Date	By	Chkd	Appd

Coordinate System: British National Grid
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

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Client

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Project Title

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Restoration Earthworks

Drawing Title

BBS Transect 5 - South
June

Scale at A3

1:3,500

Role

Suitability

For Issue

Arup Job No

271968-05

Rev

F1

Name

060

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Appendix 7H

Wintering Birds Survey Report

Celtic Energy

**Nant Helen Complementary
Restoration Works**

**Wintering Bird Survey Report
2018/19**

Issue | 15 November 2019

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 271968-05

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Document verification

ARUP

Job title		Nant Helen Complementary Restoration Works		Job number 271968-05	
Document title		Wintering Bird Survey Report 2018/19		File reference	
Document ref					
Revision	Date	Filename	Nant Helen_Wintering Bird Report_Draft_v1		
Draft 1	1 Oct 2019	Description	First draft		
			Prepared by	Checked by	Approved by
		Name	Martyn Owen	Richard Moores	
		Signature			
Draft 2	8 Oct 2019	Filename	Nant Helen_Wintering Bird Report_Draft_v2		
		Description	Second draft		
			Prepared by	Checked by	Approved by
		Name	Martyn Owen	Richard Moores	
		Signature			
Issue	15 Nov 2019	Filename	Nant Helen_Wintering Bird Report_ISSUE.docx		
		Description	Issue, updated to include new site boundary		
			Prepared by	Checked by	Approved by
		Name	Martyn Owen	Richard Moores	Paul Clack
		Signature			
Issue Document verification with document					☒

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1.2 Objective	1
2 Project Description and Context	2
3 Site Description	4
4 Study Area	5
5 Methodology	6
5.1 Surveyors	6
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7 Conclusions	12

Figure 1	Study Area
Figure 2	Survey Details
Figure 3.1	Survey Results – 13 December 2018
Figure 3.2	Survey Results – 7 January 2019
Figure 3.3	Survey Results – 13 February 2019
Figure 3.4	Survey Results – 4 March 2019

1 Introduction

1.1 Background

Ove Arup & Partners Ltd (Arup) was commissioned by Celtic Energy to undertake a range of consultancy services in relation to Nant Helen Complementary Restoration Earthworks, hereafter referred to as ‘the Project’.

As part of that commission, a range of ecological surveys have been undertaken to identify the baseline ecological conditions of the Project area, to inform the assessment of impacts as part of the Environmental Impact Assessment (EIA) process.

This document describes the wintering bird surveys undertaken for the Project.

1.2 Objective

The objective of the surveys covered by this report was to provide data on the assemblage, numbers and distribution of wintering birds within the study area.

Nomenclature within this report follows the British (English) vernacular name within the British Ornithologists’ Union (BOU) British list¹.

¹ BOU (2015). *The British List; The official list of bird species recorded in Britain* [online] available at: <https://www.bou.org.uk/british-list/category-a-b-c-species/>.

2 Project Description and Context

The planning application for this project includes:

- Earthworks to include cutting and embankment; and
- Drainage works associated with the revised landform.

The proposed site is currently being mined by Celtic Energy, who will cease extraction operations in 2021, at which point Celtic Energy will be required to restore the land in accordance with regulatory requirements and agreements with Powys County Council (PCC) and Neath Port Talbot County Borough Council (NPTCBC). This includes Section 106 planning obligations and planning conditions that need to be discharged.

Celtic Energy has submitted a revised restoration strategy for approval (under Section 73 application under the Town and Country Planning Act 1990) which would change the existing approved restoration scheme (for planning application ref 18/1070/REM). The purpose of the variation is to allow for a 'flexible and adaptable landform for a variety of uses on restoration including agriculture, nature conservation, leisure, tourism and some industrial uses'.

Following discussions with PCC and NPTCBC both authorities have expressed a desire along with Celtic Energy to look at regeneration projects for the area that will create long term, sustainable jobs. Whilst not within the Brecon Beacons National Park (BBNP), due to its proximity the area has been identified as having the potential for a variety of uses. It is the intention of this project to complement the revised restoration proposal submitted by Celtic Energy in October 2019.

The revised restoration proposal looks to provide a flexible landform that can be used or adapted for a diverse set of future uses. This could range from the traditional agriculture, woodland and nature conservation uses, to amenity, leisure and tourism uses (including the potential for tourist accommodation to add to the existing offering within the BBNP) that would be designed to help take visitor pressure off the BBNP.

Other uses of the site could also include industrial after uses such as the Welsh Government's (WG) proposal to develop a rail testing and storage facility, known as the Global Centre of Rail Excellence (GCRE) at this site together with the adjacent Onllwyn Washery. It is anticipated that a planning application for the GCRE will be submitted early next year subject to confirmation of its feasibility.

The justifications for designing the proposed earthworks in this way are that they would not only make an ideal bridleway / footpath for walking, cycling and horse riding, but should planning permission be awarded for the GCRE, then the required profile for this would already have been created, thereby avoiding the need for further extensive earthmoving should GCRE gain planning permission.

If desired, the earthworks programme required to create the profile for the GCRE could be accelerated. By accelerating this part of the programme then the financial and environmental impacts of the GCRE project could be reduced by:

- utilising existing, onsite resources;
- reducing heavy plant vehicle movements into, and out of the site, thereby reducing any impact on the local road network;
- avoiding double handling of materials and therefore reduction in additional cost;
- aligning the earthworks programme with other restoration earthworks, therefore reducing the time period of construction activity on site;
- taking advantage of the opportunity for the GCRE earlier and contributing to the positive viability and deliverability;
- increasing the viability of future tourist developments such as hotels which would be supported by the GCRE temporary workforce both during and after construction; and

more sustainable use of existing resources (including natural, human and mechanical) to allow for the full restoration of the site to be delivered without further disturbance in the event of future development.

3 Site Description

The Project site is within the Dulais Valley located within Powys and Neath Port Talbot, with the Brecon Beacons National Park Authority boundary immediately to the north. Nearby settlements include Onllwyn, Seven Sisters, Ystradgynlais, Caehopkin, Abercrave or Coelbren.

The site is predominantly brownfield land that has been heavily worked by open cast mining. Much of the site has been revegetated.

4 Study Area

The study area encompasses the majority of land within the Nant Helen open cast operational site, which at the time of commencing the ecological surveys was considered to be the likely boundary of the project site.

5 Methodology

Prior to the completion of the first survey, a transect route was identified (Figure 2). This transect route was determined with the intention of providing coverage of key areas within the study area which may support important species/numbers of wintering birds based on habitat type/extent. Four transects were then completed between 13 December 2018 and 4 March 2019 (Table 1).

The survey route included a walked transect through farmland and a driven transect, with two viewpoints from which 15-minute duration point counts were completed. The route of the walked and driven transect and the viewpoints are shown on Figure 2.

During each survey the surveyor recorded all observations on field maps using standard British Trust for Ornithology (BTO) coding. Observations of birds outside the study area were also logged.

The direction of surveys was alternated between visits to ensure all parts of the survey area received adequate coverage during different periods of the day.

5.1 Surveyors

Surveys were completed by Martyn Owen MCIEEM.

Martyn is an experienced consultant ornithologist and was Shropshire County Bird Recorder from 2012-2017, former editor of the Shropshire Ornithological Society's Annual Bird Report and remains on the Shropshire Ornithological Society Rarity Committee.

Martyn has completed bird survey work at many sites in Wales (and elsewhere) employing the full range of ornithological survey techniques and data analysis in relation to many projects over the previous 15 years. Martyn holds numerous Natural Resources Wales (NRW) Schedule 1 survey licences.

5.2 Survey Details

Detail in relation to survey dates and weather are provided within Table 1.

Table 1: Survey details.

Survey Visit	Date	Time	Weather				
			Wind Speed (Beaufort)	Wind Direction	Cloud Cover (Oktas)	Temp (°C)	Precip.
1	13/12/2018	08:30-14:30	3-4	SE	6-8	5-7	Nil
2	07/01/2019	08:10-12:55	2-3	SW	8	8-10	Nil
3	13/02/2019	08:00-13:55	1-2	SW	7-8	7-8	Nil
4	04/03/2019	08:00-12:55	3-4	SW	8	0-2	Occasional rain

5.3 Limitations

The wintering bird survey covered a four-month period between December 2018 and March 2019. Whilst the late autumn period (October/November) was not included timing of Arup's commission, this is not considered a significant limitation; the results achieved in the survey are considered adequate to describe the wintering bird assemblage that typically uses the study area.

The findings presented in this study represent those at the time of survey and reporting, and data collected from available sources. Ecological surveys are limited by factors which affect the presence of flora and fauna, factors such as the time of year and natural behaviour of the animals. Nevertheless, these surveys were conducted at the optimal survey periods and using methodologies which are in accordance with published guidelines.

6 Results

Table 2 provides a summary of all species observed across the survey period. Within this table the peak count for each species is emboldened. The locations of all observations are provided within Figures 3.1-3.4.

Across the survey period, 34 species were recorded. Of these species, three are included on the Birds of Conservation Concern Wales (BoCCW)³² Red list, 12 are included on the BoCCW3 Amber list with seven being included in response to Section 7 (S7) of the Environment (Wales) Act 2016, being of principal importance for the purpose of maintaining and enhancing biodiversity in Wales.

² Johnstone I., Bladwell S. (2016). *Birds of Conservation Concern in Wales 3: the population status of birds in Wales*. Birds in Wales, vol.14 No.1

Table 2: Results summary

Species	BTO Code	Conservation Status	Total Count within Study Area (Figure 3.1-3.4)				Comments
			Survey 1	Survey 2	Survey 3	Survey 4	
Greylag Goose <i>Anser anser</i>	GJ	-	0	8	0	0	The sole record related to a flock in flight in the northeast of the Study Area.
Greater Canada Goose <i>Branta canadensis</i>	CG	-	0	0	0	6	During the final survey, three groups of two birds (presumed pairs) were present within the Study Area.
Mallard <i>Anas platyrhynchos</i>	MA	BoCCW3 Amber	6	5	1	8	Recorded on ponds within the Study Area.
Grey Heron <i>Ardea cinerea</i>	H.	BoCCW3 Amber	1	0	1	1	All records related to a bird fishing on a pond in the northeast of the Study Area.
Red Kite <i>Milvus milvus</i>	KT	BoCCW3 Amber	2	0	1	1	Foraging birds over farmland within the Study Area.
Buzzard <i>Buteo buteo</i>	BZ	-	2	0	1	2	Foraging within the Study Area.
Snipe <i>Gallinago gallinago</i>	SN	BoCCW3 Amber	1	0	0	0	A single record of a bird flushed from a wet area in the west of the Study Area.
Woodpigeon <i>Columba palumbus</i>	WP	-	0	0	4	0	
Kestrel <i>Falco tinnunculus</i>	K.	BoCCW3 Red S7	1	0	0	0	A single record of a female foraging in the centre of the Study Area.
Magpie <i>Pica pica</i>	MG	-	1	8	2	2	
Jackdaw <i>Corvus monedula</i>	JD	-	8	37	54	19	Flocks of birds present within farmland and associated with buildings in the east of the Study Area.
Rook <i>Corvus frugilegus</i>	RO	-	14	0	32	0	
Carrion Crow <i>Corvus corone</i>	C.	-	19	15	29	5	
Raven <i>Corvus corax</i>	RN	-	1	1	4	1	A nest present on a pylon in the centre of the Study Area, with birds predominantly noted in this area.
Blue Tit <i>Cyanistes caeruleus</i>	BT	-	0	3	5	1	
Great Tit <i>Parus major</i>	GT	-	0	1	0	1	

Species	BTO Code	Conservation Status	Total Count within Study Area (Figure 3.1-3.4)				Comments
			Survey 1	Survey 2	Survey 3	Survey 4	
Skylark <i>Alauda arvensis</i>	S.	BoCCW3 Amber S7	0	0	12	22	Breeding birds returned to the Study Area from Survey 2, predominantly in the west.
Wren <i>Troglodytes troglodytes</i>	WR	-	2	2	3	4	
Starling <i>Sturnus vulgaris</i>	SG	BoCCW3 Red S7	42	4	7	21	Foraging flocks noted in farmland in the east of the site.
Blackbird <i>Turdus merula</i>	B.	-	1	6	4	2	
Fieldfare <i>Turdus pilaris</i>	FF	BoCCW3 Amber	0	3	0	16	Maximum flock (12) noted foraging in farmland/scrub in the centre of the Study Area, with scattered records elsewhere.
Song Thrush <i>Turdus philomelos</i>	ST	BoCCW3 Amber S7	0	0	7	4	Scattered records predominantly in the east of the Study Area from survey 3.
Redwing <i>Turdus iliacus</i>	RE	BoCCW3 Amber	0	4	0	0	Solely records in flight during survey 2.
Mistle Thrush <i>Turdus viscivorus</i>	M.	BoCCW3 Amber	1	1	0	0	Singletons noted in the centre of the Study Area (survey 1) and southeast (survey 2).
Robin <i>Erithacus rubecula</i>	R.	-	0	1	0	0	
Stonechat <i>Saxicola rubicola</i>	SC	-	0	2	1	2	Associated with marshy grassland in the centre of the site.
Dunnock <i>Prunella modularis</i>	D.	S7	0	0	2	1	Records in the centre of the Study Area during surveys 3 and 4.
House Sparrow <i>Passer domesticus</i>	HS	BoCCW3 Amber S7	0	15	0	11	Birds present around residential areas to the southeast of the Study Area.
Pied Wagtail <i>Motacilla alba</i>	PW	-	1	0	2	2	
Meadow Pipit <i>Anthus pratensis</i>	MP	BoCCW3 Amber	9	7	1	5	Scattered records, predominantly in the west of the Study Area associated with pastoral farmland.
Chaffinch <i>Fringilla coelebs</i>	CH	-	0	0	2	2	
Linnet <i>Linaria cannabina</i>	Li	BoCCW3 Red S7	4	0	2	0	A flock of four in the centre of the Study Area (survey 1) and two in the same area during survey 3.

Species	BTO Code	Conservation Status	Total Count within Study Area (Figure 3.1-3.4)				Comments
			Survey 1	Survey 2	Survey 3	Survey 4	
Goldfinch <i>Carduelis carduelis</i>	GO	-	0	2	0	0	
Reed Bunting <i>Emberiza schoeniclus</i>	RB	BoCCW3 Amber S7	5	4	1	5	Records during each survey, with records associated with wet pasture in the centre of the Study Area.

7 Conclusions

A wintering bird survey to inform the proposed complementary restoration works at Nant Helen was completed during winter 2018/19. This survey included a walked transect through farmland and a driven transect, with two viewpoints (Figure 2) from which 15-minute point counts were completed. During each survey all species observed or heard were recorded.

Overall, the assemblage of birds recorded is typical of habitats in upland areas of this part of Wales. No particularly rare species or large aggregations of species of conservation concern were recorded. Of the total of 34 species was recorded, three are included on the Birds BoCCW3 Red list, 12 are included on the BoCCW3 Amber list with seven being included on S7 of the Environment (Wales) Act 2016.

A full ecological impact assessment will be included within the Environmental Statement for the project and this will include an assessment of the significance of impacts from the project on protected and/or notable wintering bird species. This will also detail any mitigation or compensation measures required to ensure there is no significant effect on wintering bird species within the site.

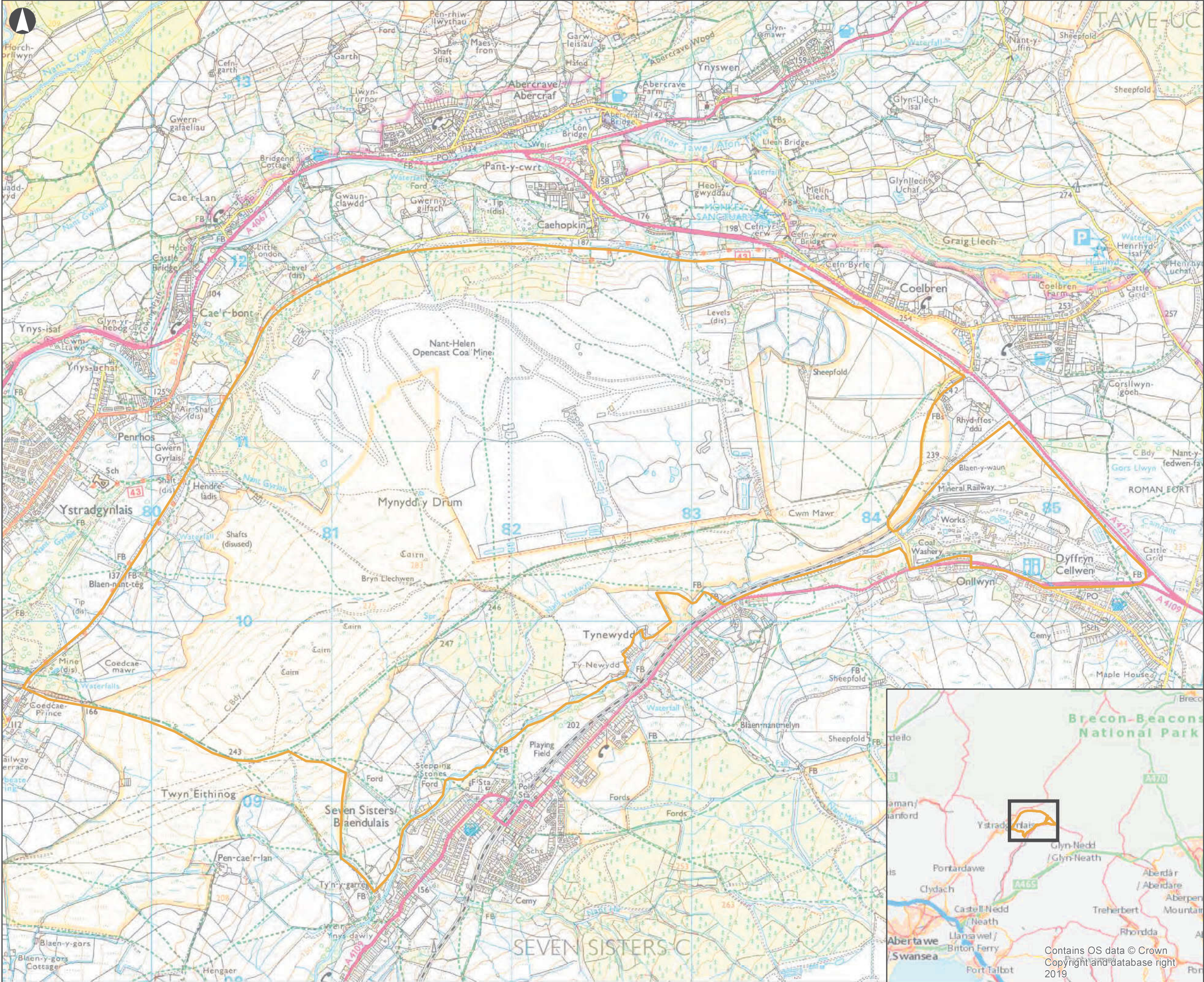
This report is the result of the survey work undertaken between April and September 2019. This report refers, within the limitations stated, to the condition or proposed works of the site at the time of the surveys. Changes in legislation, guidance, best practice, etc. may necessitate a re-assessment/survey. No warranty is given as to the possibility of future changes in the condition of the site.

The results of these surveys are considered valid for a minimum of 18 months to a maximum of 3 years. If more than 18 months elapses before any planning application is submitted, the requirement for repeat surveys should be reviewed³.

³ Chartered Institute of Ecology and Environmental Management (2019). *Advice Note on the Lifespan of Ecological Reports and Surveys*.

Figures

Figure 1	Study Area
Figure 2	Survey Details
Figure 3.1	Survey Results – 13 December 2018
Figure 3.2	Survey Results – 7 January 2019
Figure 3.3	Survey Results – 13 February 2019
Figure 3.4	Survey Results – 4 March 2019

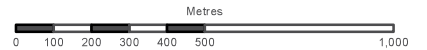


Legend

 Survey Area

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Earthworks
Wintering Bird Survey Report**

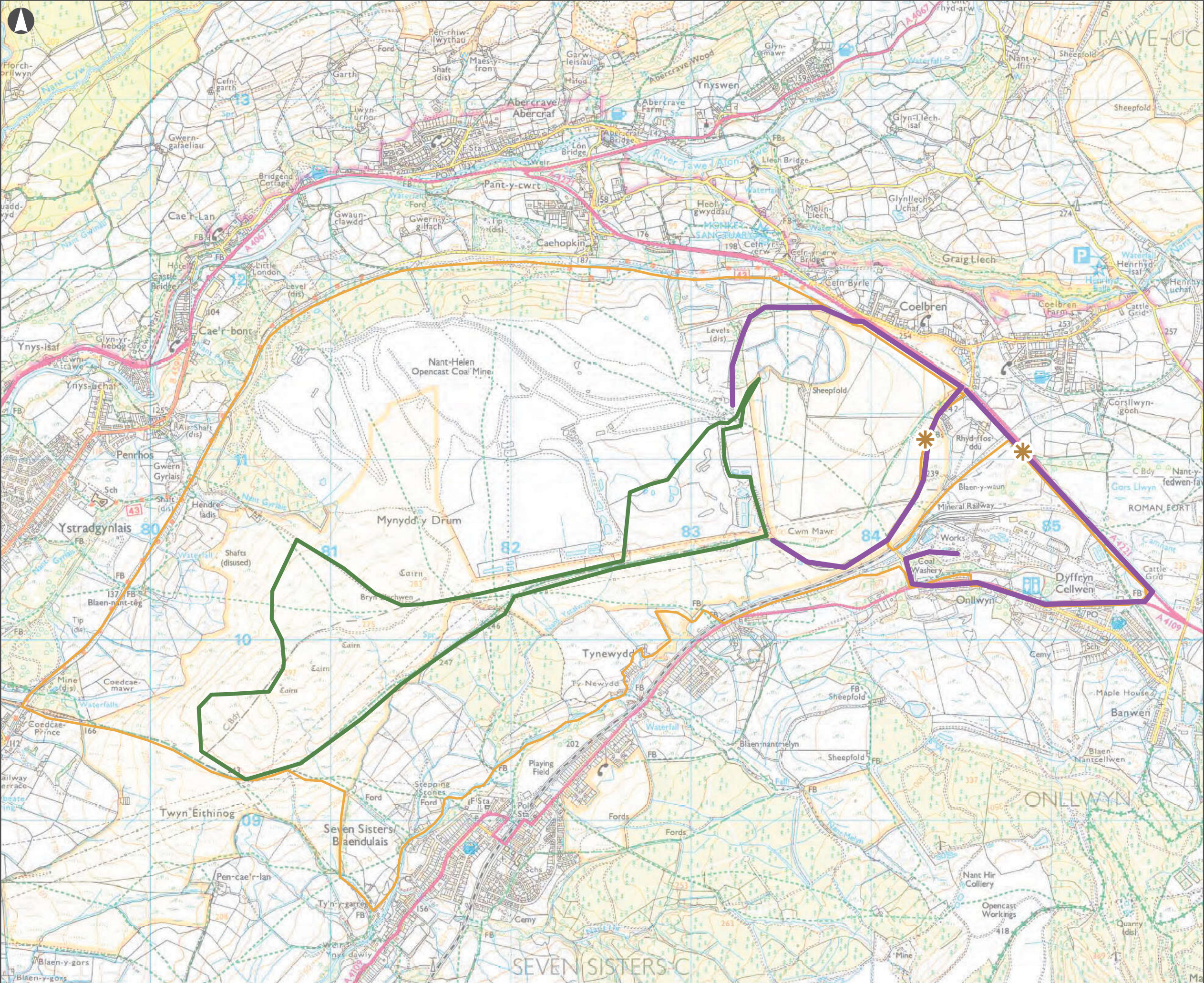
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Drawing No 001	Issue F1
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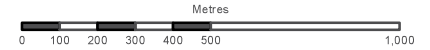
Legend

Survey Route

- Driven Transect
- Walked Transect
- Viewpoints
- Survey Area

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Figure 2
Survey Details

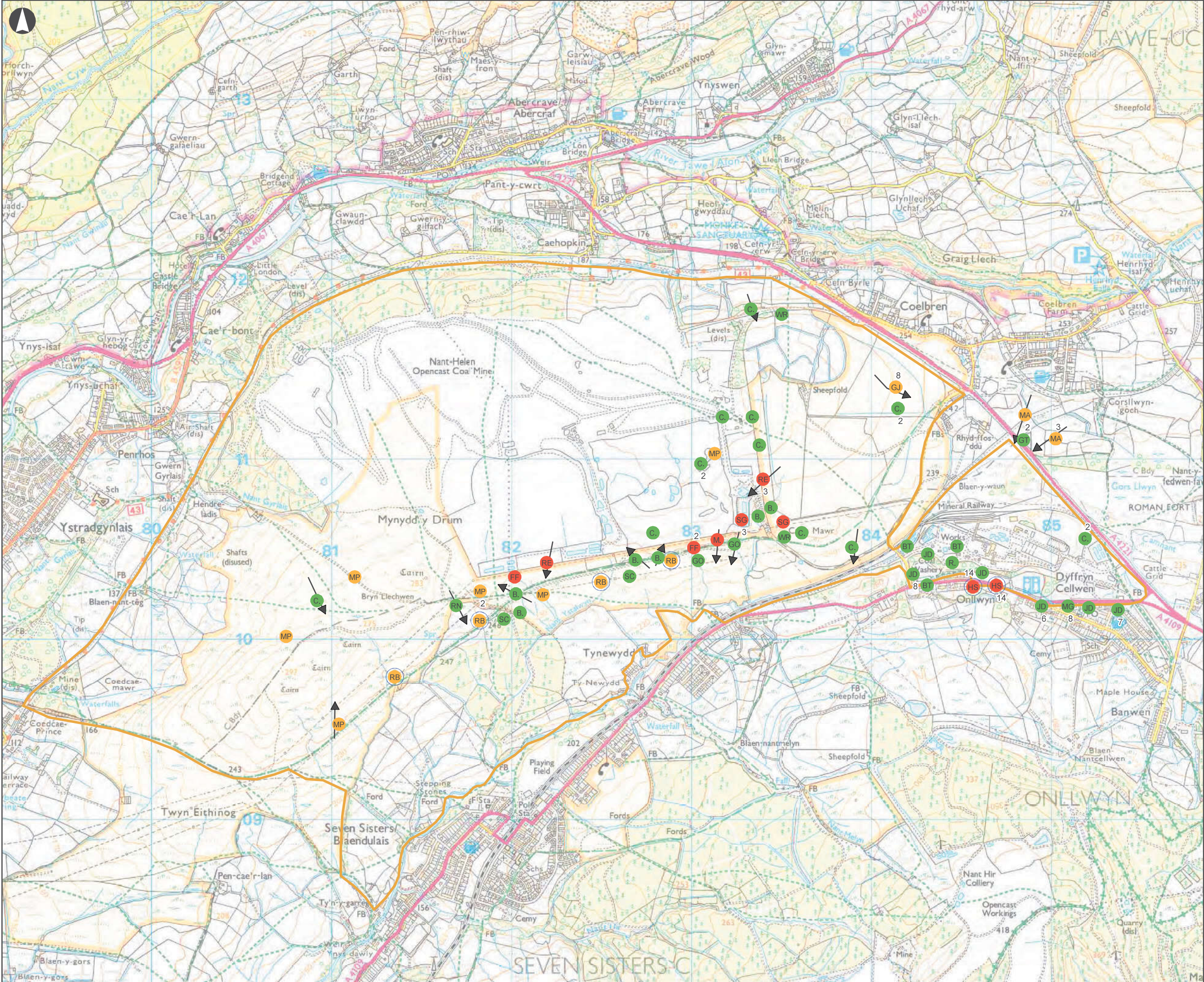
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271968-05	For Issue
Drawing No	Issue
002	F1



Job No 271968-05	Drawing Status For Issue
Drawing No 003.1	Issue F1



Legend

Wintering Bird Observations

Welsh Conservation Status

Red List

Amber List

Green List

Environment (Wales) Act 2016; Section 7 Species

Flight Lines

Survey Area

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F1	06/01/20	JG	AC	PC
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Issue	Date	By	Chkd	Appd
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Metres

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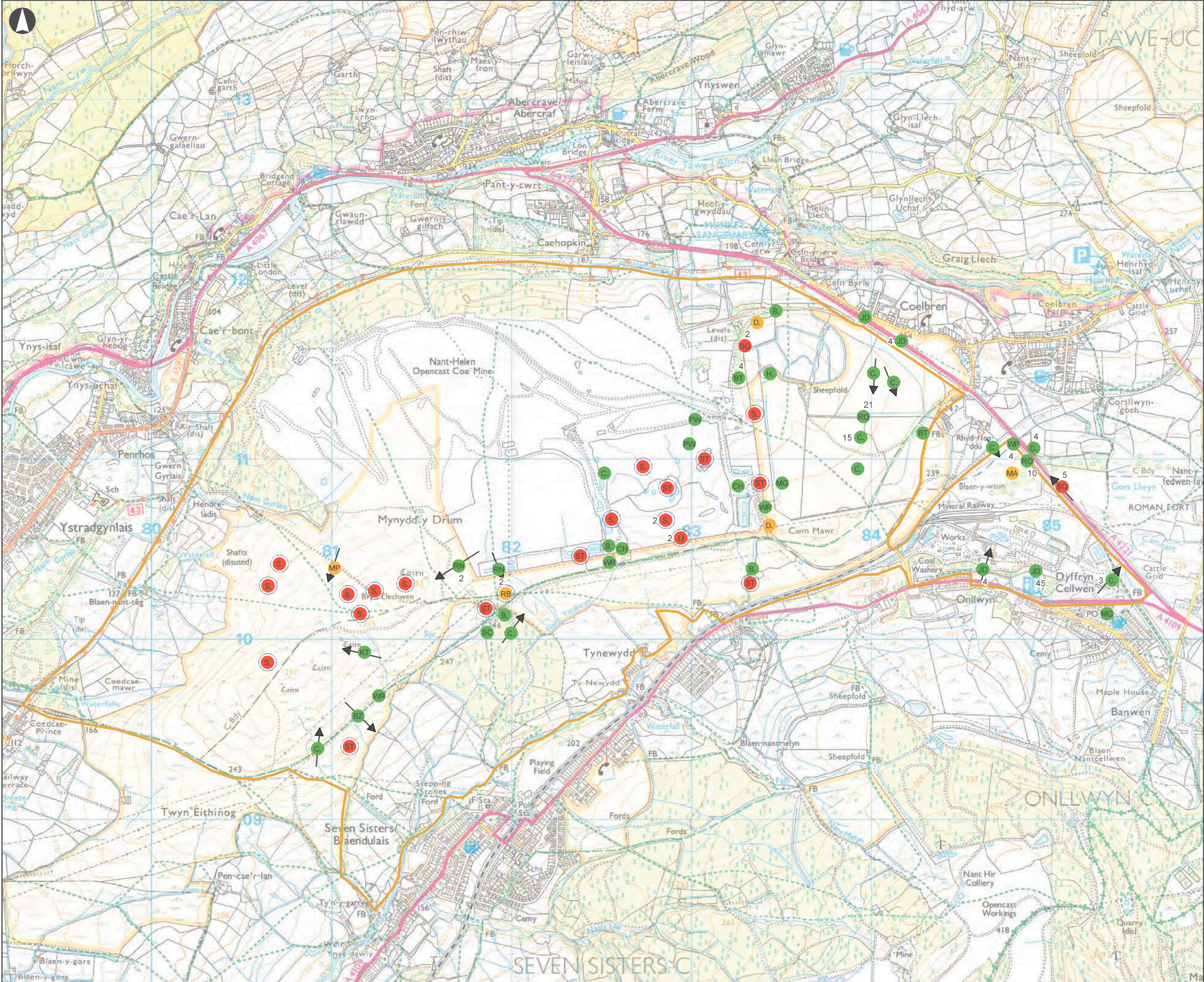
Nant Helen Complementary Restoration Earthworks
Wintering Bird Survey Report

Figure 3.2
Survey Results - 07/01/2019

Scale at A3

1:20,000

Job No	Drawing Status
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Drawing No	Issue
003.2	F1



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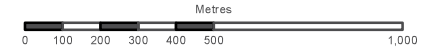
Wintering Bird Observations

Welsh Conservation

- Red List
- Amber List
- Green List
- Environment (Wales) Act 2016; Section 7 Species
- Flight Lines
- Survey Area

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F1	06/01/20	JG	AC	PC
Issue	Date	By	Chkd	Appd



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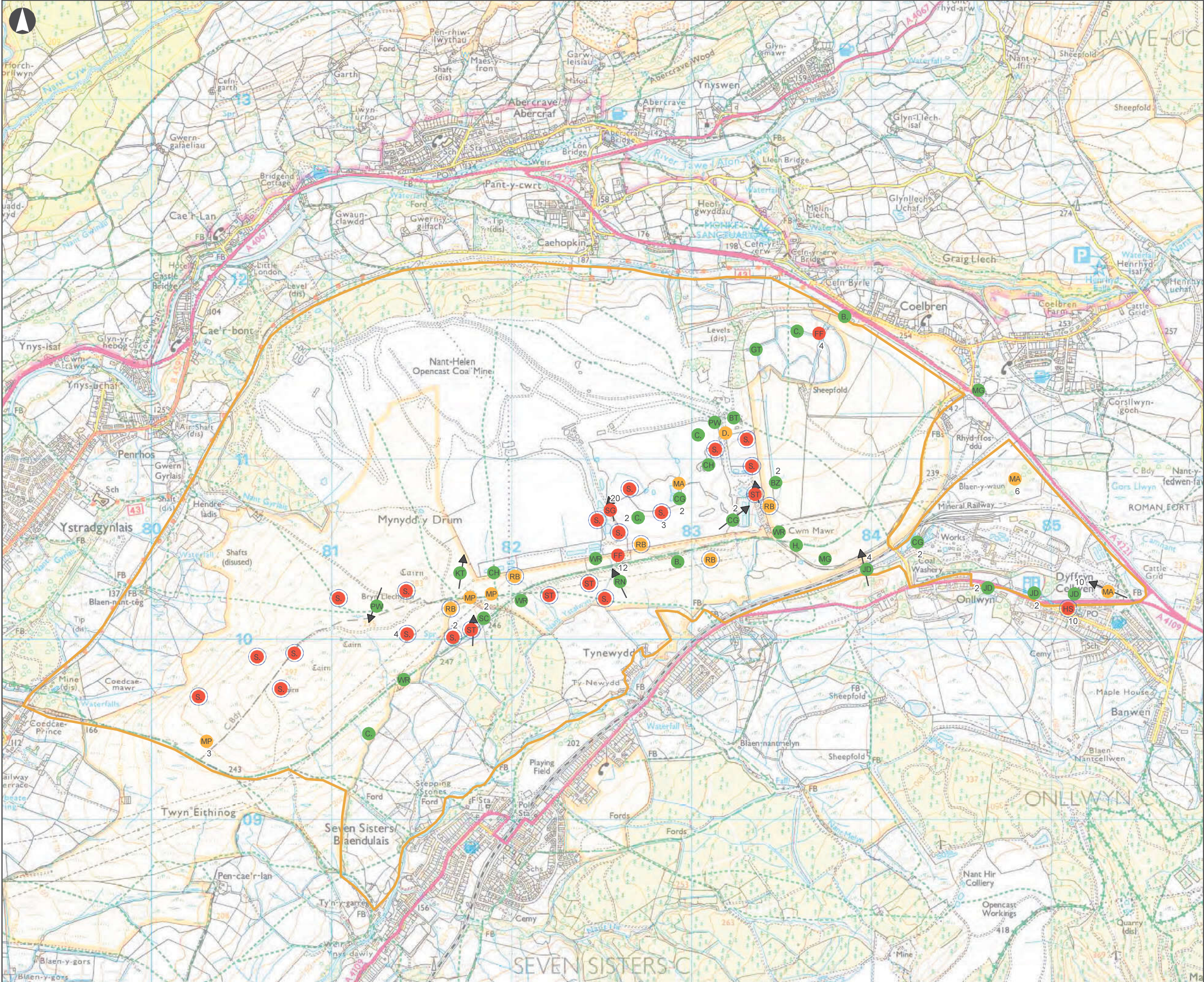
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Wintering Bird Survey Report**

**Figure 3.3
Survey Results - 13/02/2019**

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Job No 271968-05	Drawing Status For Issue
Drawing No 003.3	Issue F1



Legend

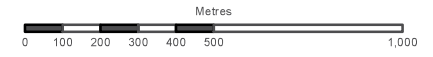
Wintering Bird Observations

Welsh Conservation Status

- Red List
- Amber List
- Green List
- Environment (Wales) Act 2016; Section 7 Species
- Flight Lines
- Survey Area

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Wintering Bird Survey Report**

**Figure 3.4
Survey Results - 04/03/2019**

Scale at A3

1:20,000

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Drawing No	Issue
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Appendix 7I

Riparian Mammal Report

Celtic Energy

**Nant Helen Complementary
Restoration Works**

Riparian Mammal Survey Report

Issue | 15 November 2019

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 271968-05

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Document verification

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1 Introduction

1.1 Background

Ove Arup & Partners Ltd (Arup) was commissioned by Celtic Energy to undertake a range of consultancy services in relation to Nant Helen Complementary Restoration Earthworks, hereafter referred to as ‘the Project’.

As part of that commission, a range of ecological surveys have been undertaken to identify the baseline ecological conditions of the Project area, to inform the assessment of impacts as part of the Environmental Impact Assessment (EIA) process.

This document describes the riparian mammal surveys undertaken for the Project.

1.2 Objectives

The objectives of the riparian mammal surveys were to ascertain the following:

- The suitability of watercourses and waterbodies within the Project area for otter (*Lutra lutra*) and water vole (*Arvicola amphibius*); and
- The presence and distribution, or likely absence, of otter and water vole within the Project area.

2 Project Description and Context

The planning application for this project includes:

- Earthworks to include cutting and embankment; and
- Drainage works associated with the revised landform.

The proposed site is currently being mined by Celtic Energy, who will cease extraction operations in 2021, at which point Celtic Energy will be required to restore the land in accordance with regulatory requirements and agreements with Powys County Council (PCC) and Neath Port Talbot County Borough Council (NPTCBC). This includes Section 106 planning obligations and planning conditions that need to be discharged.

Celtic Energy has submitted a revised restoration strategy for approval (under Section 73 application under the Town and Country Planning Act 1990) which would change the existing approved restoration scheme (for planning application ref 18/1070/REM). The purpose of the variation is to allow for a 'flexible and adaptable landform for a variety of uses on restoration including agriculture, nature conservation, leisure, tourism and some industrial uses'.

Following discussions with PCC and NPTCBC both authorities have expressed a desire along with Celtic Energy to look at regeneration projects for the area that will create long term, sustainable jobs. Whilst not within the Brecon Beacons National Park (BBNP), due to its proximity the area has been identified as having the potential for a variety of uses. It is the intention of this project to complement the revised restoration proposal submitted by Celtic Energy in October 2019.

The revised restoration proposal looks to provide a flexible landform that can be used or adapted for a diverse set of future uses. This could range from the traditional agriculture, woodland and nature conservation uses, to amenity, leisure and tourism uses (including the potential for tourist accommodation to add to the existing offering within the BBNP) that would be designed to help take visitor pressure off the BBNP.

Other uses of the site could also include industrial after uses such as the Welsh Government's (WG) proposal to develop a rail testing and storage facility, known as the Global Centre of Rail Excellence (GCRE) at this site together with the adjacent Onllwyn Washery. It is anticipated that a planning application for the GCRE will be submitted early next year subject to confirmation of its feasibility.

The justifications for designing the proposed earthworks in this way are that they would not only make an ideal bridleway / footpath for walking, cycling and horse riding, but should planning permission be awarded for the GCRE, then the required profile for this would already have been created, thereby avoiding the need for further extensive earthmoving should GCRE gain planning permission.

If desired, the earthworks programme required to create the profile for the GCRE could be accelerated. By accelerating this part of the programme then the financial and environmental impacts of the GCRE project could be reduced by:

- utilising existing, onsite resources;
- reducing heavy plant vehicle movements into, and out of the site, thereby reducing any impact on the local road network;
- avoiding double handling of materials and therefore reduction in additional cost;
- aligning the earthworks programme with other restoration earthworks, therefore reducing the time period of construction activity on site;
- taking advantage of the opportunity for the GCRE earlier and contributing to the positive viability and deliverability;
- increasing the viability of future tourist developments such as hotels which would be supported by the GCRE temporary workforce both during and after construction; and
- more sustainable use of existing resources (including natural, human and mechanical) to allow for the full restoration of the site to be delivered without further disturbance in the event of future development.

3 Site Description

The Project site is within the Dulais Valley located within Powys and Neath Port Talbot, with the Brecon Beacons National Park Authority boundary immediately to the north. Nearby settlements include Onllwyn, Seven Sisters, Ystradgynlais, Caehopkin, Abercrave or Coelbren.

The site is predominantly brownfield land that has been heavily worked by open cast mining. Much of the site has been revegetated.

4 Study Area

The study area (Figure 1) encompasses the majority of land within the Nant Helen open cast operational site, which at the time of commencing the ecological surveys was considered to be the likely boundary of the project site.

5 Legislation

5.1 Otter

Otters *Lutra lutra* are protected within the UK as a European Protected Species (EPS) under The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations). The Habitats Regulations transposes the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) into UK Law.

It is an offence, under Regulation 43 of the Habitats Regulations, to:

- Deliberately capture, injure or kill any wild animal of a EPS;
- Deliberately disturb wild animals of such a species;
- Deliberately take or destroys the eggs of such a species;
- Damage or destroy a breeding site or resting place of such an animal.

Disturbance in the context of the offences above is disturbance which is likely to impair the ability of the animals to survive, to breed or reproduce, to nurture their young, to hibernate, to migrate; or to affect significantly the local distribution of the species.

The otter is also identified as a species that is a priority for nature conservation (Priority Species) within the 'UK Post-2010 Biodiversity Framework' Biodiversity Action Plan (UKBAP).

The Environment (Wales) Act 2016 includes a duty on all public authorities to have regard to the conservation of biodiversity in the exercise of their functions. This duty applies to government bodies, local authorities and statutory undertakers. The Act also requires lists to be published of Habitats and Species considered to be of Principal Importance for the Conservation of Biological Diversity. These are referred as Section 7 habitats and species after the sections of the Act which require the publication of lists in each devolved area. Otters are listed as a Section 7 Species.

Natural Resources Wales (NRW) issues licences that can permit works that disturb/damage places of rest for otter for development purposes, though these are subject to strict conditions.

5.2 Water Vole

Water voles *Arvicola amphibius* are fully protected under both Schedule 5 and Section 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA).

It is an offence, under the WCA, to:

- Intentionally capture, kill or injure water voles;

- Damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
- Disturb them in a place of shelter or protection (on purpose or by not taking enough care);
- Possess, sell, control or transport live or dead water voles or parts of them (not water voles bred in captivity).

The water vole is also a species of ‘Principal Importance for the Conservation of Biological Diversity’ in Wales in response to Section 7 of the Environment (Wales) Act 2016 and is also identified as a species that is a priority for nature conservation (Priority Species) within the ‘UK Post-2010 Biodiversity Framework’ Biodiversity Action Plan (UKBAP).

NRW cannot issue licences for the specific purpose of development. However, in some circumstances a licence may be issued in relation to a development proposal if the licensed action is going to provide a conservation benefit for water voles.

The reader should refer to the original legislation for the definitive interpretation.

6 Habitat Requirements

6.1.1 Otter

Otter favour still (lakes, lochs, ditches and gravel pits) and flowing (rivers and streams) freshwater systems and are capable of long overland journeys between watersheds. Radio-tracked otters were found to spend over half of their time within, or alongside woodland¹.

6.1.2 Water Vole

Water voles are usually found within 2m of water's edge. Prime sites occur most frequently along densely vegetated banks of ditches, rivers, streams and marshes, generally where the current is slow, but water is present throughout the year¹. Steep banks for burrowing, the presence of a berm (ledge at water level), nest building opportunities in vegetation above water level, the year-round availability of food sources and a lack of disturbance (through poaching, grazing and/or recent management) are also positive habitat features².

¹ Harris, S & Yalden, D. (2008). *Mammals of the British Isles: Handbook*, 4th edition.

² Harris, J., Markwell, H., Raybould, B. (2009). *A Method for Assessing Water Vole Habitat Suitability*. In Practice, bulletin of the Institute of Ecology and Environmental Management.

7 Methodology

7.1 Desk Study

An ecological data search was carried out to identify otter and water vole records within 5 km of the site's centre point. Such data was obtained from the Biodiversity Information Service for Powys & Brecon Beacons National Park (BIS). Data was obtained on 21 November 2018 and is also presented within the Extended Phase 1 Habitat Survey Report in relation to the Project³.

In addition, existing data for the site is available in the form of a riparian mammal survey undertaken in 2010, to inform the 2011 Environmental Statement for a western extension to the Nant Helen (Extension) Surface Coal Mine⁴.

7.2 Field Surveys

The otter/water vole field survey involved surveying all waterbodies (25 ponds and nine streams/ditches) present within the study area that had been identified during the Extended Phase 1 Habitat Survey or Ordnance Survey data (Figure 2). Three otter/water vole surveys (spring, summer and autumn) were completed of each of these waterbodies between May and September 2019 (inclusive) (Table 1). Due to the cross-over in habitat requirements and survey methodology both species were surveyed for at the same time.

The water vole survey was completed in accordance with the standard survey guidelines^{5,6}. The survey comprised walking the ditch banks to search for signs of water vole presence, including but not limited to burrows, latrines, footprints, feeding remains and sightings of animals.

The otter survey was conducted in line with relevant survey guidance⁷. This involved accessing the watercourse and walking in-channel (where possible), to search for evidence of otter presence such as resting places, spraints, food remains, prints, slides and holts. Terminology used to describe the resting areas for otters used the standard terminology, such as either a holt (usually a hole in the ground covered by vegetation or under the roots of a bankside tree) or couches (an uncovered laying up or nest-like structure). Natal dens refer to a hidden, secure place where the female rears her young.

³ Arup (2019). Nant Helen Complementary Restoration Earthworks. *Extended Phase 1 Habitat Survey Report*.

⁴ Celtic Energy (2011). *Environmental Statement*.

⁵ Strachan R, Moorhouse T and M Gelling (2011). *Water vole conservation handbook, Third edition*, Wild Cru.

⁶ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. The Mammal Society.

⁷ Chanin, P. (2003). *Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10*. English Nature. Peterborough

When encountered field signs were recorded on maps, with the location logged using a Global Positioning System (GPS) unit, and photographs taken when required.

Camera traps (Minox DTC 650) were installed at four locations within the survey area (Table 2, Figure 2) to provide additional data on usage of identified features, or where a complete survey of waterbodies/courses was difficult (due to dense vegetation). The images obtained were checked for otter and water vole.

Surveying was avoided for at least three days after any heavy rain, in order to ensure that field signs were not washed away and that the water level was not too high to obscure any field signs of the two species.

7.2.1 Surveyors

All surveys were undertaken by two surveyors, at least one of them being an experienced ecologist competent in undertaking surveys for these species and identifying their field signs.

Surveys were led by Martyn Owen MCIEEM who has over 20 years' experience in the completion of riparian mammal surveys. Support was provided by Stuart Thomas MCIEEM and Steven Forrester.

Table 1: Riparian mammal survey dates and weather conditions.

Survey Visit	Date	Surveyors	Temp. (°C)	Wind Speed (Beaufort) / Direction	Cloud cover (oktets)	Precipitation
1	24/05/19	Martyn Owen MCIEEM Stephen Forrester	14-16	1-2W	3-8	Infrequent light showers
	12/06/19	Martyn Owen MCIEEM Stuart Thomas MCIEEM	11-14	1-2 SE	4-8	Nil
2	22/07/19	Martyn Owen MCIEEM Stephen Forrester	19-20	1 S	8	Nil
	23/07/19		22-24	2 S	4	Nil
	24/07/19		17-19	3 S	4	Nil
3	18/09/19	Martyn Owen MCIEEM Stephen Forrester	20	1 SE	0-1	Nil
	19/09/19		18	1 SE	0	Nil
	23/09/19		15	2 S	7-8	Occasional light showers
	24/09/19		13-16	2-3 S	7-8	Occasional light showers

Table 2. Camera trap deployment details.

Reference	Location (Figure 2)	Date Deployed	Date Collected
1	P27	12/06/2019	24/09/2019
2	S4	22/07/2019	24/09/2019
3	S2	22/07/2019	24/09/2019
4	S1	22/07/2019	24/09/2019

7.3 Limitations

Full access to waterbodies P27, S2 and S1 was not possible due to the density of marginal/bankside vegetation. These waterbodies were surveyed so far as practicably possible, and camera traps were deployed to supplement the field survey data. It is considered that these complementary methods assist to provide a robust data set in relation to these waterbodies.

The findings presented in this study represent those at the time of survey and reporting, and data collected from available sources. Ecological surveys are limited by factors which affect the presence of flora and fauna, factors such as the time of year and natural behaviour of the animals. Nevertheless, these surveys were conducted at the optimal survey periods and using methodologies which are in accordance with published guidelines.

8 Results

8.1 Desk Study

8.1.1 Previous Survey Data

Three watercourses (Nant Penrhos, Nant Gyrlais and an unnamed watercourse) were surveyed in July and September 2010⁴ for their suitability to support otters and for any signs of otter presence, including spraints, feeding remains and holts. No signs of otter were identified in proximity to any of watercourses that were surveyed.

These watercourses were also surveyed for signs of water voles. The watercourses were found to be generally unsuitable due to being dry for extended periods. No signs of water vole were identified in proximity to any of watercourses that were surveyed.

8.1.2 Biological Records

The biological records search yielded 27 records of otter within 5km of the site, the closest of which was 1.8km distant.

There were no recent (i.e. within the last 20 years) records of water vole within the search area.

8.2 Field Survey

8.2.1 Otter

All watercourses within the study area were surveyed; signs of otter presence were identified at a number of locations along watercourse S4. Details of these signs are provided within Table 3 with the locations shown on Figure 2.

No potential holts or natal dens were identified.

Table 3: Otter survey results.

Reference	Survey Period	Location	Details
A	Spring	S4	Spraint
B	Summer	S4	Spraint
C	Summer	S4	2 x spraints

In addition to the above, five spraints and a potential couch were identified incidentally to the southwest of the study area (Photograph 1, Figure 2, Camera Trap Location 2). A camera trap was deployed at this location (Figure 2, Camera Trap Location 2), although it did not capture any images of otter. Furthermore, there were no images of otter captured on any of the other deployed camera traps.

Photograph 1. Location of possible couche marginally outwith the survey area



8.2.2 Water Vole

Streams in the north of the site (S7, P44, P57) were manmade with stone/brick substrate, a steep gradient and consequent fast flow with little marginal vegetation (due to substrate). A network of ditches (S60) were found to be dry throughout the survey period with the exception of small, isolated areas of standing water in depressions. In the south of the site, S4 exhibited a rapid flowrate with stone substrate while S5 was steep in gradient, rendering these watercourses unsuitable for water vole (see Section 1.4.2).

The majority of ponds within the survey area were considered unsuitable, predominantly due to the poorly developed marginal vegetation and water quality/disturbance as a consequence of current site operations.

Streams S1 and S2 were considered to be potentially suitable for water voles (see Section 1.4.2), along with ponds P23, P25, P26, P27, P48, P55 and U. However, comprehensive surveys failed to find any evidence of water vole presence.

There were no images of water vole captured on any of the deployed camera traps.

9 Conclusions

The comprehensive suite of surveys recorded otter presence on the river in the south of the study area (S4), including a possible couch marginally outside the study area. No active breeding sites were found, and survey results indicated that the potential presence of otter within the site with any regularity is unlikely.

Water vole is considered likely absent from the study area due to the absence of records during the site survey and desk study, combined within the limited availability/extent of potentially suitable habitat.

A full ecological impact assessment will be included within the Environmental Statement for the project and this will include an assessment of the significance of impacts from the project on otter/water vole. This will also detail any mitigation or compensation measures required to ensure there is no significant effect on otter/water vole within the site.

This report is the result of the survey work undertaken between May and September 2019. This report refers, within the limitations stated, to the condition or proposed works of the site at the time of the surveys. Changes in legislation, guidance, best practice, etc. may necessitate a re-assessment/survey. No warranty is given as to the possibility of future changes in the condition of the site.

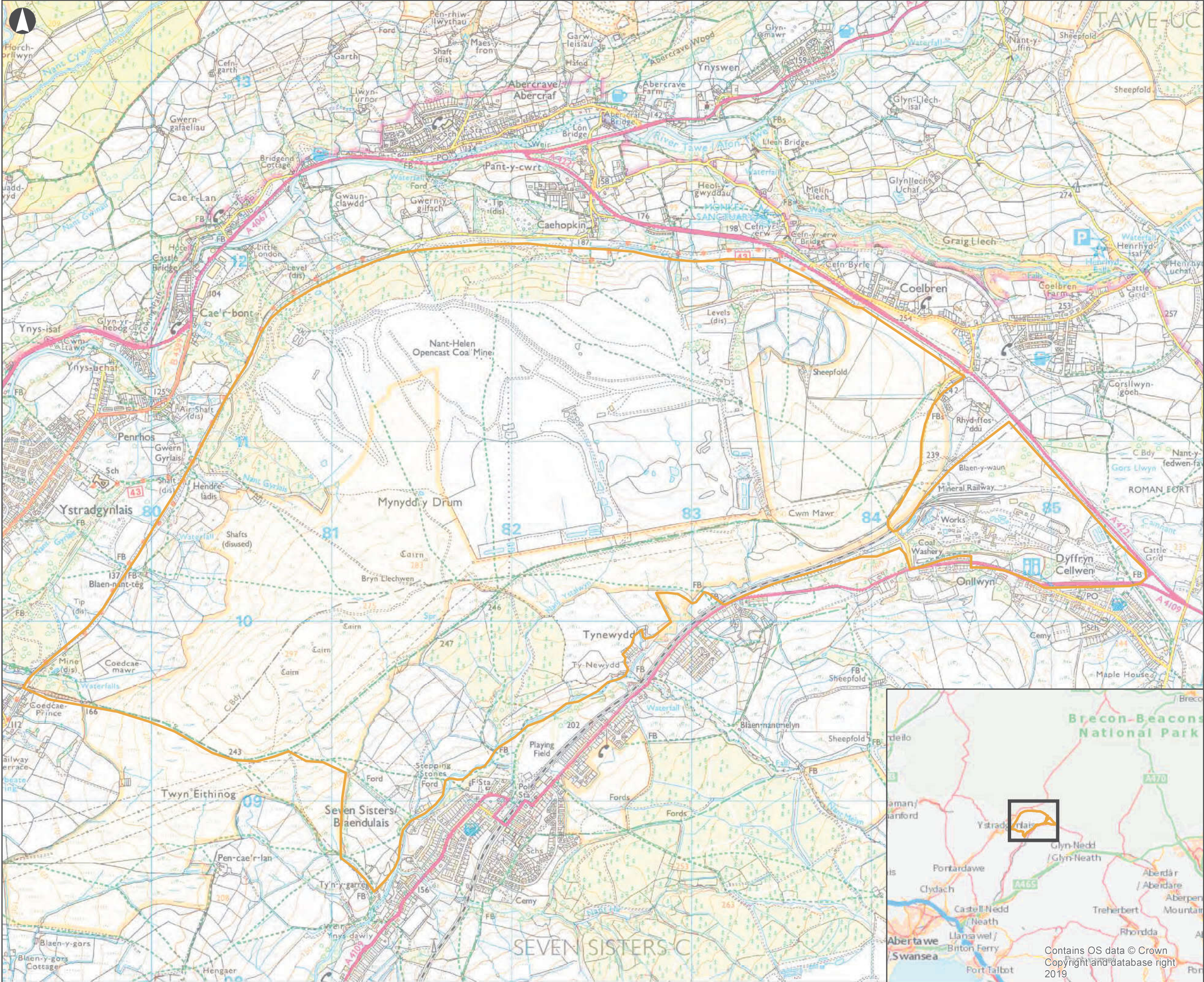
The results of these surveys are considered valid for a minimum of 18 months to a maximum of 3 years. If more than 18 months elapses before any planning application is submitted, the requirement for repeat surveys should be reviewed⁸.

⁸ Chartered Institute of Ecology and Environmental Management (2019). *Advice Note on the Lifespan of Ecological Reports and Surveys*.

Figures

Figure 1 Site Location

Figure 2 Surveyed Waterbodies and Survey Results

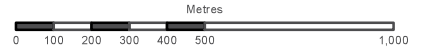


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 Survey Area

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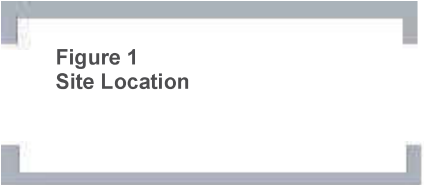


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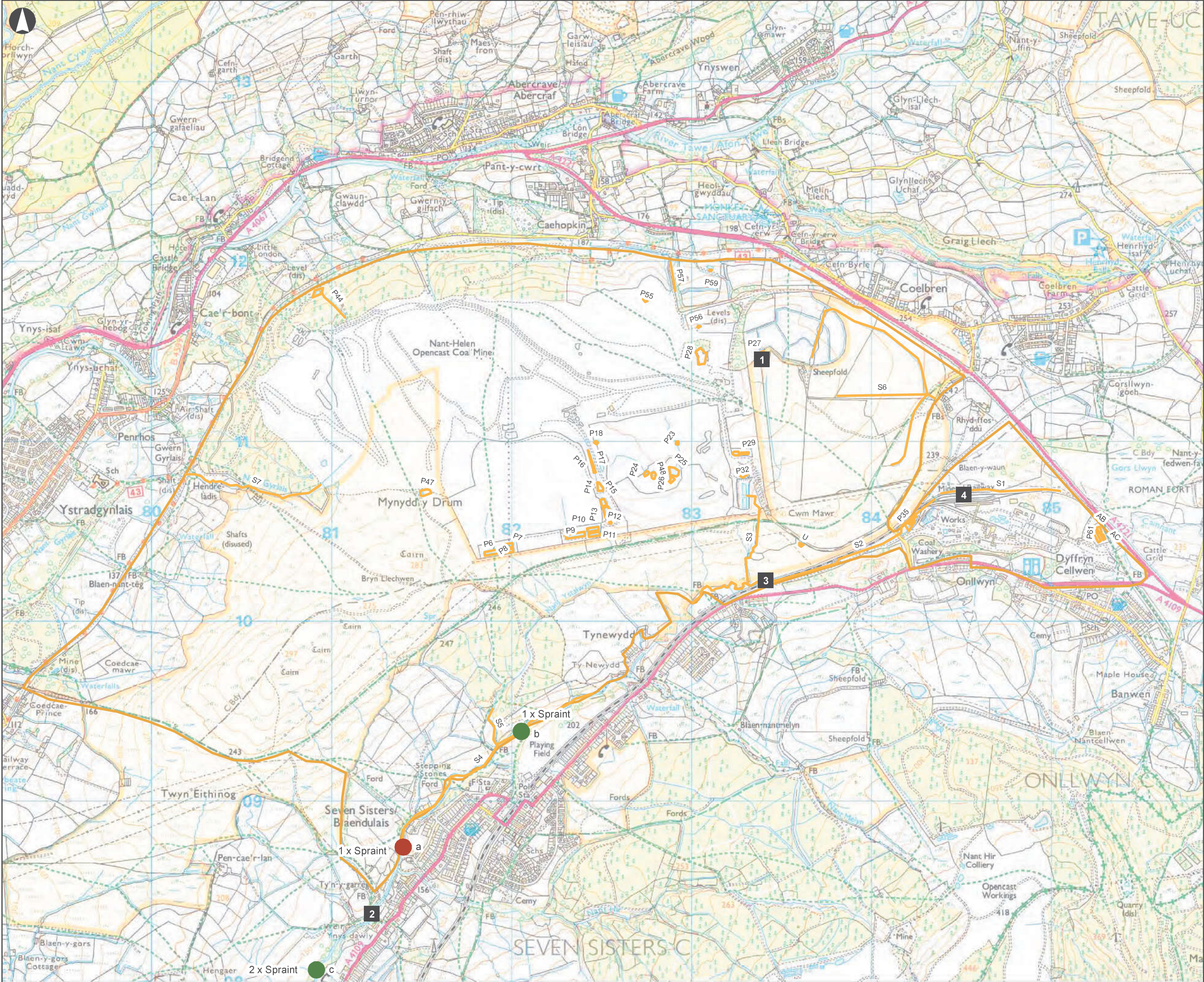
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Job Title
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Earthworks
Riparian Mammal Survey Report**



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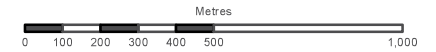
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Otter Field Sign Observations

- Spring Survey Visit
- Summer Survey Visit
- Camera Trap Locations
- Riparian Mammals Waterbodies Surveyed
- Survey Area

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Figure 2
Surveyed Waterbodies and
Survey Results

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Appendix 7J

Bat Roost Survey Report

Celtic Energy
**Nant Helen Complementary
Restoration Earthworks**
Bat Roost Survey Report

Issue | 4 May 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 271968-05

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		Name	Martyn Owen	Claire Pooley	Paul Clack		
		Signature					

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1 Introduction

1.1 Background

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As part of that commission, a range of ecological surveys have been undertaken to identify the baseline ecological conditions of the Project area, to inform the assessment of impacts as part of the Environmental Impact Assessment (EIA) process.

This document describes the bat roost surveys undertaken for the Project.

1.2 Objectives

The objectives of the surveys were to ascertain the following:

- The presence/likely absence of roosting bats within buildings/structures within the study area; and
- The presence/likely absence of roosting bats within trees in the study area.

2 Project Description and Context

The planning application for this project includes:

- Earthworks to include cutting and embankment; and
- Drainage works associated with the revised landform.

The proposed site is currently being mined by Celtic Energy, who will cease extraction operations in 2021, at which point Celtic Energy will be required to restore the land in accordance with regulatory requirements and agreements with Powys County Council (PCC) and Neath Port Talbot County Borough Council (NPTCBC). This includes Section 106 planning obligations and planning conditions that need to be discharged.

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- reducing heavy plant vehicle movements into, and out of the site, thereby reducing any impact on the local road network;
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more sustainable use of existing resources (including natural, human and mechanical) to allow for the full restoration of the site to be delivered without further disturbance in the event of future development.

3 Site Description

The Project site is within the Dulais Valley located within Powys and Neath Port Talbot, with the Brecon Beacons National Park Authority boundary immediately to the north. Nearby settlements include Onllwyn, Seven Sisters, Ystradgynlais, Caehopkin, Abercrave or Coelbren.

The site is predominantly brownfield land that has been heavily worked by open cast mining. Much of the site has been revegetated.

4 Study Area

The study area (Figure 1) encompasses the majority of land within the Nant Helen open cast operational site, which at the time of commencing the ecological surveys was considered to be the likely boundary of the project site.

5 Legislation

All British bat species are fully protected at national and European levels, through their inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)¹ and in Schedule 2 of the Conservation of Habitat and Species Regulations 2017 (as amended)². Under this legislation, it is an offence to deliberately kill, injure or take a bat as well as intentionally or recklessly damage, destroy or obstruct access to any structure or resting place used for shelter or protection by a bat or disturb an animal while it is occupying a structure or place which it uses for that purpose. It is also an offence to possess or advertise/sell/exchange a bat of a species found in the wild in the EU (dead or alive) or any part of a bat

Four species of bat, Greater Horseshoe Bat *Rhinolophus ferrumequinum*, Lesser Horseshoe Bat *R. hipposideros*, Bechstein's Bat *Myotis bechsteinii* and Western Barbastelle *Barbastella barbastellus*, are included on Annex II of the Habitats Directive³, which requires the designation of Special Areas of Conservation to ensure the maintenance of favourable conservation status (and these are therefore generally considered as perhaps the most important UK species).

Eight bat species are included within Section 7 of the Environment (Wales) Act 2016, these being the list of living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. These species are Barbastelle, Bechstein's Bat, Noctule *Nyctalus noctula*, Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *P. pygmaeus*, Brown Long-eared Bat *Plecotus auritus*, Greater Horseshoe Bat and Lesser Horseshoe Bat.

¹ The Wildlife and Countryside Act 1981 (as amended).

² The Conservation of Habitats and Species Regulations 2017.

³ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

6 Methodology

6.1 Desk Study

The desk study element involved two methodologies: a review of existing ecological reports in relation to the site and an ecological data search with the Local Biodiversity Records Centre.

Existing ecological data, obtained in 2011 to inform the Environmental Statement⁴, was reviewed which included previous desk study results, habitat and species surveys.

Protected and notable⁵ species (including bats), Schedule 9 invasive non-native species and non-statutory site data within 5 km of the site were obtained from the Biodiversity Information Service for Powys & Brecon Beacons National Park (BIS)⁶ on 21 November 2018.

In addition, online searches were carried out using the Multi Agency Geographic Information for the Countryside (MAGIC)⁷, Natural Resources Wales website⁸ and the Joint Nature Conservation Committee (JNCC) website⁹ to identify any statutory designated sites up to 5 km from the site, and any designated European sites within 10 km; for which bats are a qualifying feature.

The full desk study results are provided in the Extended Phase 1 Habitat Report for the Project¹⁰.

6.2 Field Surveys

All surveys were completed in line with Bat Conservation Trust (BCT) guidance¹¹, detail in relation to which is provided below.

The majority of surveys were led by Richard Moores (RM) MCIEEM (Natural England (NE) bat licence no. 2015-12259-CLS-CLS, NRW licence no.: 78258:OTH:CSAB:2018) with assistance from his accredited agent Martyn Owen

⁴ Environmental Statement (2011), Celtic Energy.

⁵ Notable species and habitats considered in this report include species and habitats of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales, under section 7 of the Environment (Wales) Act 2016, in addition to any species considered to be of significance for nature conservation such species listed in red data books, the Royal Society for the Protection of Birds (RSPB)

⁶ <https://www.bis.org.uk/home>.

⁷ <http://magic.defra.gov.uk/>

⁸ <https://naturalresources.wales/conservation-biodiversity-and-wildlife/find-protected-areas-of-land-and-seas/designated-sites-search/?lang=en>

⁹ <http://jncc.defra.gov.uk>

¹⁰ Arup (2019) Nant Helen Complementary Restoration Earthworks Extended Phase 1 Habitat Survey Report.

¹¹ Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

(MO) MCIEEM (NE bat licence no. 2015-1974-CLS-CLS), Stuart Thomas (ST) MCIEEM (NRW bat licence number: 78183:OTH:CSAB:2018, NE bat licence no. 2016-26245-CLS-CLS) and Steven Forrester (SF), all of whom are experienced bat surveyors.

One of the structures (an old railway tunnel) was surveyed by Pete Wells (PW) CEnv, MCIEEM (NRW licence no. S086930/1) and Claire Pooley (CP) CEcol, MCIEEM (Natural England (NE) licence no. 2015-19288-CLS-CLS and NRW licence no. S087582/1, both of whom are experienced bat surveyors.

6.2.1 Buildings/Structures

6.2.1.1 Preliminary Roost Assessment

The potential suitability of the buildings/structures (which were given a numeric reference, the locations of which are shown on Figure 2) for roosting bats within the study area was assessed and allocated to one of the categories detailed within Table 1. These inspections were completed by experienced ecologists (Table 2).

A systematic search of the interior and exterior of all buildings/structures within the study area was completed to identify potential or actual bat access points and roosting sites, and to locate any evidence of bats such as live or dead specimens, bat droppings, urine splashes, fur-oil staining and/or squeaking noises.

The external inspection also included the examination of the ground, particularly beneath any potential bat access points, for example any windowsills, window panes, walls, behind any peeling paintwork or lifted rendering, hanging tiles, weatherboarding, eaves, soffit boxes, fascias, lead flashing, gaps under felt, and under tiles/slates where present and accessible.

It should be noted that occasionally bats leave no visible sign of their presence in a building's interior or on its exterior, particularly when there are hidden cracks, crevices and/or voids.

Table 1 Guidelines for assessing the potential suitability of roosting habitats for bats.

Suitability	Description of Roosting Habitats
Negligible (0)	Negligible habitat features on site likely to be used by roosting bats.
Low (1)	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 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).
Moderate (2)	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 (3)	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 and surrounding habitat.

Table 2 Preliminary roost assessment survey details.

Date	Surveyors	Temp (°C)	Cloud Cover	Wind (Beaufort)	Precipitation
12/06/2019	MO, ST	10-16	5/8-8/8	1 SE	Nil
22/07/2019	MO, SF	16-18	8/8	1 S	Occasional light rain
23/07/2019	MO, SF	18-23	3/8-5/8	1-2 S	Nil
24/07/2019	MO, SF	17-22	5/8-3/8	2-3SW	Nil
26/9/2019	PW, CP	21	8/8	2-3SW	Light rain

6.2.1.2 Nocturnal Surveys

Following the preliminary roost assessment (PRA) inspections, nocturnal bat activity surveys (i.e. emergence or re-entry surveys) of all buildings within the study area assessed to be of at least 'Low' suitability (Table 1) for roosting bats was completed (Figure 2). At least one survey of all buildings/structures of low potential was completed with at least two surveys of buildings/structures of moderate potential, with further surveys to be completed depending upon the results of these initial surveys. No buildings/structures of high potential were identified during the PRA.

Surveyors were equipped with electronic bat detectors (EM3, EM Touch Pro 2, Anabat SD2, Batlogger M or Peersonic) and any sound files were analysed with appropriate bat analysis software (Kaleidoscope) once the surveys were completed, if required.

The nocturnal bat surveys were undertaken in weather conditions considered appropriate for surveys of this kind (Table 3).

One of the structures (an old railway tunnel, Building 36) was not subject to an emergence or re-entry survey, since roosting by small numbers of pipistrelle bats

had been confirmed during transect surveys¹², and during an inspection of this structure in September, when a Natterer's bat was found roosting. Furthermore, this structure was known not to be affected by the Project.

¹² Arup (2020) Nant Helen Bat Activity Survey Report.

Table 3 Nocturnal survey details.

Building Ref	Survey Number	Date	Dusk/Dawn	Sunset/sunrise	Survey Start	Survey End	Surveyors	Temp (°C)	Cloud Cover (/8)	Wind (Beaufort)	Precipitation
4	1	22/07/19	dusk	21.19	21.04	23.19	MO, SF	16-18	5-6	1SW	Nil
13	1	23/07/19	dusk	21.24	21.09	23.24	MO, ST, SF	20-22	7-8	1SE	21.09 - nil. 22.56 - Light rain
19	1	24/07/19	dawn	05.24	03.30	05.39	MO, ST, SF	20-22	5-7	2SW	Nil
14	1	07/08/19	dusk	20.54	20.39	22.54	MO, ST, SF	15	2-4	1SW	Nil
6a	1	08/08/19	dawn	05.46	03.50	06.01	MO & RM	13	4-6	0-1SW	Nil
16	1	08/08/19	dawn	05.46	03.50	06.01	ST & SF	13	4-6	0-1SW	Nil
12	1	12/08/19	dawn	05.50	03.47	06.02	MO, RM, SF	10	6-7	1W	Nil
24	1	12/08/19	dusk	20.45	20.30	22.45	ST, RM, MO, SF	13-14	3-6	0-1E	Nil
15	1	13/08/19	dawn	05.56	03.56	06.11	RM, MO	11-12	4-5	1W	Nil
35	1	15/08/19	dawn	06.00	04.00	06.15	ST, MO, SF	14-15	8	1-2W	Nil
13	2	19/09/19	dawn	06.56	05.00	07.10	MO, SF, RM	10-11	1	1E	Nil
19	2	20/09/19	dawn	06:57	05.00	07.10	MO, SF, RM	12	0-1	1E	Nil
24	2	18/09/19	dawn	06.55	05.01	07.11	ST, RM, MO, SF	10-12	2	!E	Nil
35	2	20/09/19	dusk	19.20	19.05	21.15	ST, MO, SF	11-12	2-4	1E	Nil

6.2.2 Trees

6.2.2.1 Ground Level Inspection

To evaluate the potential suitability of trees in areas to be impacted (directly or indirectly) within the study area (Figure 2) for roosting bats a Preliminary Ground Level Inspection (PGLI) survey was completed in accordance with relevant guidelines¹³. This required the detailed inspection of the exterior of a tree from ground level to look for features that bats could use for roosting, in addition to any bat evidence. Details of this survey are provided within Table 4.

Table 4 Ground level inspection survey details.

Date	Surveyors	Temp (°C)	Cloud Cover	Wind (Beaufort)/ Direction	Precipitation
13/08/19	MO, SF	17-19	0/8-3/8	1-2W	Nil
14/08/19	MO, SF	14-16	8/8	1SSE	Rain

6.2.2.2 Aerial Inspection

During the PGLI a number of trees were identified which Potential Roost Features (PRFs) that could support roosting bats. Consequently, these trees were climbed by Martyn Owen MCIEEM and Richard Moores MCIEEM (both qualified in tree climbing and aerial rescue) to inspect these features in detail using a torch, endoscope and dental mirrors. Details of this survey are provided within Table 5.

Table 5 Aerial inspection survey details.

Date	Surveyors	Temp (°C)	Cloud Cover	Wind (Beaufort)/ Direction	Precipitation
17/09/19	MO, RM	19-21	0/8	1S	Nil
18/09/19	MO, RM	18-21	1-2	1S	Nil

¹³ Bat Tree Habitat Key (2018). *Bat Roosts in Trees – A Guide to Identification for Tree-care and Ecology Professionals*. Exeter: Pelagic Publishing.

6.3 Limitations

Full access to all roof voids within buildings to assess presence/likely absence of PRFs was not possible in a number of buildings due to health and safety and/or access restrictions. Full inspection of building exteriors was possible and when full internal assessment was not possible and the presence of PRFs was considered possible, nocturnal surveys were completed. This is not therefore considered to represent a significant limitation.

The findings presented in this study represent those at the time of survey and reporting, and data collected from available sources. Ecological surveys are limited by factors which affect the presence of flora and fauna, factors such as the time of year and natural behaviour of the animals. Nevertheless, these surveys were conducted at the optimal survey periods and using methodologies which are in accordance with published guidelines.

7 Results

7.1 Desk Study

7.1.1 Existing Survey Data

A full summary of the existing survey data collated from the surveys undertaken to inform the Environmental Statement for the site in 2011 is provided within the Extended Phase 1 Habitat Report¹⁰. A summary of bat roost survey data results is as follows;

All trees and buildings within and adjacent to the site were assessed for their suitability to support roosting bats in June 2010, in-line with good practice guidelines of the time¹⁴. Trees that were assessed from the ground as being suitable for bats were subject to aerial inspections. Only one tree was identified from aerial surveys as being suitable for roosting bats and a single pipistrelle was found in a small cavity.

Twenty bat boxes were installed on site in 2014 and 2015 as mitigation for previous expansion of the Nant Helen mine¹⁵. These were inspected for signs of use by bats in 2015 and 2016, using a torch. In 2015, two boxes were found to be occupied by a pipistrelle bat. In 2016, 3 boxes were found to be occupied by a pipistrelle bat. *Pipistrellus sp.* were confirmed to be roosting in the following boxes;

Table 6. Positive inspection results of bat boxes 2015-2016 by Sylvan Ecology.

Bat Box No.	GPS	Tree No.
7	SN 80427 10771	3
8	SN 80427 10771	3
11	SN 80403 10775	5
19	SN 80288 10812	8

¹⁴ Bat Conservation Trust (2007). Bat Surveys – Good Practice Guidelines. Bat Conservation Trust, London.

¹⁵ Sylvan Ecology (2016) Bat Box inspection Report 2016, Nant Helen Surface Mine.

7.1.2 New Data Search

7.1.2.1 Protected and Notable Species

The data provided by BIS in November 2018 detailed records of bat species identified within 5 km of the site, as summarised below. The distance given is that to the closest point on the site boundary.

Table 7 Bat species recorded within 5 km of the site

Species/Group	Scientific Name	Status	Number of Records	Approximate distance of closest record (m)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	EPS, WCA, Sec 7	10	300
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	EPS, WCA, Sec 7	27	400
Unidentified bat	<i>Chiroptera</i>	EPS, WCA, Sec 7	10	400
Daubenton's bat	<i>Myotis daubentonii</i>	EPS, WCA, Sec 7	7	400
Noctule bat	<i>Nyctalus noctula</i>	EPS, WCA, sec 7	11	400
Pipistrelle species	<i>Pipistrellus</i> spp.	EPS, WCA, sec 7	14	600
Brown long-eared bat	<i>Plecotus auritus</i>	EPS, WCA, Sec 7	7	1000
Myotis bat	<i>Myotis</i> spp.	EPS, WCA, sec 7	2	1700
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	EPS, WCA, sec 7	2	2000
Natterer's bat	<i>Myotis nattereri</i>	EPS, WCA, Sec 7	2	2000
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	EPS, WCA, sec 7	1	2000

7.1.2.3 Statutory and Non-Statutory Designated Sites

Fourteen statutorily designated sites were identified within 5 km of the site. They comprised one Special Area of Conservation (SAC), one National Park and 12 Sites of Special Scientific Interest (SSSI), one of which is also designated as a National Nature Reserve (NNR). No sites designated for bats were identified within 10 km of the site however. The identified sites are detailed within the Extended Phase 1 Habitat Report¹⁰.

7.2 Field Surveys

7.2.1 Building/Structures

The results of the PRA and nocturnal surveys are presented within Table 8 below, with building/structure locations shown on Figure 2. A bat roost was confirmed within a stone tunnel (No. 36), at the western end of the study area. No other evidence or roosts were found within any buildings/structures in the study area.

Table 8 Building survey results.

Building Reference (Figure 2)	Preliminary Roost Assessment Results	Bat Roost Potential Assessment	Number of Nocturnal Surveys Completed	Roost/s identified?
1	Offices. Constructed of prefabricated panels with flat (felted) roof. Plastic fascias with narrow gap between fascia and wall. Small wooden porch on north side, with gaps in wooden fabric (through water damage).	0	0	No
2	Offices. Constructed of prefabricated panels with flat (felted) roof. Wooden fascias with numerous areas of damage/lifting. Detailed inspection of all potential access/roost sites checked with endoscope/mirrors. No evidence of bats. All damage to fascia boards due to water ingress, and all potential roost features noted to be wet and unsuitable for bats.	0	0	No
3	Offices. Constructed of prefabricated panels with flat (felted) roof. Plastic fascias with narrow gap between fascia and wall.	0	0	No
4	Boiler House. Brick, two-storey with flat (felted) roof. Wooden fascias with soffit box and grills (on underside) on north and south side, damaged in places. Numerous areas of missing mortar in brickwork. Non-fresh bat dropping on ground (slab) on south side (likely from flying bat). Not possible to inspect roof area due to height. Red brick outer skim with breeze block interior, possibly cavity between. Warm within building due to boilers.	1	1	No
5	Constructed of prefabricated panels with flat (felted) roof. Plastic fascias with narrow gap between fascia and wall. Areas of damaged fascias on corners providing access to cavity. Detailed inspection of all potential access/roost sites checked with endoscope/mirrors.; no evidence of bats. All damage to fascia boards due to water ingress, and all potential roost features noted to be wet/unsuitable for bats.	0	0	No

Building Reference (Figure 2)	Preliminary Roost Assessment Results	Bat Roost Potential Assessment	Number of Nocturnal Surveys Completed	Roost/s identified?
6	Sheet metal shed with corrugated sheet metal roof. Much external lighting.	0	0	No
6a	Rail weighbridge. Brick built with flat (felted) roof and plastic fascias (lifting in places). Detailed/full endoscope survey of external areas. No signs of bats and no limitations. However, numerous potential PRFs considered to be of low value.	1	1	No
7	Pumphouse. Brick built with flat (felted) roof with wooden soffit boxes. Much noise from pumps. Much damage to wooden soffits. Detailed/full endoscope survey of external areas. No signs of bats and no limitations. Wet fascias and roof. Roof constructed of wood, overlain with felt, due to leaking this was then covered in metal sheeting.	0	0	No
8	Corrugated iron shed.	0	0	No
9	Metal two-storey shed. Internally illuminated through plastic roof panels within metal roof.	0	0	No
10	Metal two-storey shed. Internally illuminated through plastic roof panels within metal roof.	0	0	No
11	Pumphouse. Breeze block rendered walls, corrugated iron roof with wooden fascias, missing in places. Detailed/full endoscope survey of external areas. No signs of bats and no limitations. PRFs all wet/unsuitable for bats.	0	0	No
12	Offices. Brick built, single storey with pitched metal roof. Hanging ceiling within building. Wooden fascias, missing in places. Metal overhanging gable walls. Endoscope and internal inspection completed. Roof steel framed with insulation panels under and sheet metal roof. Roof void very dusty with coal dust. No bat evidence encountered and roosting opportunities limited.	1	1	No

Building Reference (Figure 2)	Preliminary Roost Assessment Results	Bat Roost Potential Assessment	Number of Nocturnal Surveys Completed	Roost/s identified?
13	Office/reception. Pebble-dashed/rendered walls. Slate roof with clay ridge tiles (some missing/damaged). Plastic soffit boxes. Gaps under lead flashing and tiles. Hanging ceiling below original ceiling, with no access to void.	2	2	No
14	Visitor Centre. Rendered walls, pitched slate roof of recent construction. Plastic soffit boxes. Some lifting tiles. Constructed five years ago. Very narrow, low roof void running length of building. Roof lined with breathable membrane in excellent condition. No bat evidence within roof.	1	1	No
15	Brick walls with corrugated iron roof. Subject to much disturbance next to weighbridge. Much missing mortar. Fully inspected internally and externally. No evidence of bats, building generally wet inside/dilapidated although numerous PRFs considered to be of limited value to bats present.	1	1	No
16	Chemical Store. Brick walls with sheet metal roof. No access to interior (chemicals). Roof void present, although no access hatch.	1	1	No
17	Laboratory. Metal and brick walls of pitched roof section, roof void above hanging ceiling. Flat roof extensions rendered with felt roof. Roof void and exterior fully inspected. Much ventilation apparatus/noise in roof, which was constructed of metal, generally unlined though areas of insulation board present. No bat evidence in roof and no PRFs.	0	0	No
18	Substation. Red brick walls with cement (felted) roof. Wooden fascias in very poor condition, no PRFs.	0	0	No
19	Two sections. 1. Large slate pitched roof with red brick walls and wooden fascias. 2. Small sheet metal roof with red brick walls and wooden soffits. Slates slipped and numerous gaps in ridge/flashing. No roof void in slated section, lined inside with wood on pitched roof. Hanging ceiling below corrugated metal section, no access. No bat evidence but PRFs present.	2	2	No

Building Reference (Figure 2)	Preliminary Roost Assessment Results	Bat Roost Potential Assessment	Number of Nocturnal Surveys Completed	Roost/s identified?
20	Workshop. Red brick with sheet metal cladding. Metal and plastic roof. Full internal inspection. No bat evidence and no PRFs.	0	0	No
21	Metal coal processing shed. No PRFs.	0	0	No
22	Metal coal processing shed. No PRFs.	0	0	No
23	Metal coal processing shed. No PRFs.	0	0	No
24	Stone wall with numerous gaps, though some gaps appeared full of sediment, others appeared deeper. Some large deep (c.1.5m) holes, where beams were previously present, or for drainage. Inspected with endoscope, although full inspection impossible due to depth. No bat evidence although many PRFs.	2	2	No
25	Metal coal processing shed. No PRFs.	0	0	No
26	Brick and metal sheds. Metal roof. No PRFs	0	0	No
27	Metal coal processing shed. No PRFs.	0	0	No
28	Metal coal processing shed. No PRFs.	0	0	No
29	Metal coal processing shed. No PRFs.	0	0	No
30	Metal coal processing shed. No PRFs.	0	0	No
31	Metal coal processing shed. No PRFs.	0	0	No
32	Metal shed. No PRFs.	0	0	No
33	Brick substation with flat roof. No PRFs.	0	0	No
34	Metal open-sided weighbridge shed. Adjoining metal shed. No PRFs.	0	0	No

Building Reference (Figure 2)	Preliminary Roost Assessment Results	Bat Roost Potential Assessment	Number of Nocturnal Surveys Completed	Roost/s identified?
35	Two-storey red brick walls with pitched roof of concrete roof/ridge tiles, though some gaps. Plastic and wood soffit boxes with numerous gaps. Cement pointing at verge missing in places. Roof void c. 1m high and many wooden roof supports making full inspection impossible. Areas in vicinity of two roof access hatches inspected in detail and no bat evidence although much coal dust making the identification of droppings (if present) difficult. Roof lined with plastic, beneath tiles, and bitumen beneath plastic. Numerous access points to roof void.	2	2	No
36	Old railway tunnel, approximately 20m long and open at both ends. numerous crevices between stones suitable for small numbers of roosting bats. A natterer bat was found in one crevice at the northern end of the tunnel.	2	0	Yes

7.2.2 Trees

The results of the ground level inspection and tree climbing assessment surveys are presented within Table 9 below, with tree locations shown on Figure 3. No bat roosts were identified within any tree within the study area.

Table 9 Tree survey results.

Tree Reference (Figure 3)	Tree Species	Diameter at Breast Height (m)	Feature Description	Height Above Ground (m)	Side of Tree	Feature Orientation	Distance from Trunk (m)	PGLI Bat Roost Potential Assessment (BRP)	Comment(s)	Tree Climb Results	Updated BRP
2.01	Sycamore	0.4	Lifting bark	0.2-4.0	All	All	0.0	1	Dead tree	Full assessment, no signs	1
2.02	Sycamore	0.4	Lifting bark	0.2-0.3	All	All	0.0	1	Dead tree	Full assessment, no signs	0
3.01	Oak	1.0	Knothole	5.0	SW	W	0.5	1		Full assessment, no signs	1
			Knothole	5.0	S	S	2.5	1		Full assessment, no signs	1
3.02	Oak	0.75	Woodpecker hole x3	6.0	N	N	0.0	2	Sections of trunk appear hollow, which may be accessible via holes.	Two holes do not extend. One hole extends, although no signs	2
3.03	Dead Field Maple (?)	0.30	Lifting bark	1.0-4.0	All	All	0.0	1		Full assessment, no potential	0
3.04	Oak	1.30	Rot Holes	2.0	E	S	0.0	1		Full assessment, no potential	0

Tree Reference (Figure 3)	Tree Species	Diameter at Breast Height (m)	Feature Description	Height Above Ground (m)	Side of Tree	Feature Orientation	Distance from Trunk (m)	PGLI Bat Roost Potential Assessment (BRP)	Comment(s)	Tree Climb Results	Updated BRP
			Knot Hole	8.0	W	N	1.0	1		Full assessment, no potential	0
			Knothole	4.0	E	S	1.0	1		Full assessment, no signs	1
3.05	Oak	1.0	Rot Hole	4.0	N	N	0.0	1		Full assessment, no potential	0
3.06	Oak	1.0	Knot Hole	3.0	E	E	0.0	1		Full assessment, no signs	1
3.07	Oak	1.3	Rotting central trunk with numerous features	2.0-4.0	All	All	0.0	1		Full assessment, no signs	1
3.08	Oak	1.0	Knot Hole	5.0	W	W	1.0	2		Full assessment, no potential	0
			Rot Hole	4.0	W	W	1.0	1		Full assessment, no potential	0
			Knot Hole	2.0	N	E	1.0	1		Full assessment, no potential	0

Tree Reference (Figure 3)	Tree Species	Diameter at Breast Height (m)	Feature Description	Height Above Ground (m)	Side of Tree	Feature Orientation	Distance from Trunk (m)	PGLI Bat Roost Potential Assessment (BRP)	Comment(s)	Tree Climb Results	Updated BRP
3.09	Oak	1.30	Thick-stemmed ivy	0.0-5.0	NW	All	0.0	1		Considerable amount of Ivy. Inspected; no signs	1
3.10	Oak	1.30	Knot Hole	3.5	W	W	0.0	2		Full assessment, no potential	0
3.11	Oak	1.5	Thick-stemmed ivy	1.0-10.0	All	All	0.0	1		Full assessment, no signs	1
3.12	Oak	0.5	Rot Hole	1.0	W	SW	0.0	1		Full assessment, no signs	1
3.13	Oak	1.2	Woodpecker Hole	2.0	W	NW	0.0	1		Full assessment, no signs	1
			Woodpecker Hole	3.0	W	W	0.0	1		Full assessment, no potential	0
			Woodpecker Hole	2.5	W	W	0.0	1		Full assessment, no potential	0
3.14	Oak	1.0	Knot Hole	1.3	S	S	0.0	1		Full assessment, no potential	0

Tree Reference (Figure 3)	Tree Species	Diameter at Breast Height (m)	Feature Description	Height Above Ground (m)	Side of Tree	Feature Orientation	Distance from Trunk (m)	PGLI Bat Roost Potential Assessment (BRP)	Comment(s)	Tree Climb Results	Updated BRP
			Knot Hole	1.5	S	S	0.25	1		Full assessment, no potential	0
3.15	Oak	0.75	Rot Hole	2.5	S	SE	0.2	1		Full assessment, no potential	0
			Rot Hole	3.0	S	S	2.0	1		Full assessment, no potential	0
			Dead Branch/Cracks/Lifting Bark	3.0	N	NE	0.5	1		Full assessment, no potential	0
			Large split on broken branch	3.0	N	NE	0.5-1.0	1		Full assessment, no potential	0
			Calloused split	3.0	S	NE	0.0	1		Full assessment, no signs	1
3.16	Oak	0.75	Rot Hole	3.0	E	N	0.3	1		Full assessment, no potential	0
3.17	Oak	0.5	Knot Hole	3.0	N	N	0.5	1		Full assessment, no potential	0

Tree Reference (Figure 3)	Tree Species	Diameter at Breast Height (m)	Feature Description	Height Above Ground (m)	Side of Tree	Feature Orientation	Distance from Trunk (m)	PGLI Bat Roost Potential Assessment (BRP)	Comment(s)	Tree Climb Results	Updated BRP
3.18	Oak	1.25	Knot Hole	3.0	S	SE	3.0	1		Full assessment, no potential	0
3.19	Oak	1.0	Knot Hole	2.5	S	S	0.0	2	Dying tree	Full assessment, no potential	0
3.20	Oak	0.75	Broken Brank/Cracks	5.0	NW	N & S	2.5	1		Full assessment, no potential	0