Welsh Government

M4 Corridor around Newport

Environmental Statement Volume 3: Appendix 10.29

Barn Owl Survey Report 2015

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Figure 1 Barn Owl Survey Results

Summary

S.1 RPS undertook a barn owl survey of land along the route of the proposed M4 Corridor around Newport (M4CaN) between Castleton and Magor to inform the ecological baseline for the environmental impact assessment (EIA) of the Scheme. The EIA is reported in the M4CaN Environmental Statement (ES) of which this document is an appendix to the chapter on Ecology and Nature Conservation.

S.2 A Phase 1 habitat survey previously undertaken by Arup on behalf of Welsh Government in 2014 (Appendix 10.2 of the ES) indicated that a survey for barn owl was likely to be required.

S.3 The barn owl survey was carried out over the period July - August 2015, which falls within the optimum period for this type of survey.

S.4 Barn owl is known to utilise the survey area and results from the 2014 and 2015 surveys suggest that a barn owl nest is located in a poplar tree at target note 720 near Greenmoor Farm.

S.5 A barn owl mitigation strategy will therefore be required. A pre –construction survey is recommended and an NRW licence to disturb barn owls is likely to be required prior to construction.

1 Introduction

1.1.1 RPS has undertaken a reptile survey on land along the route of the proposed M4 Corridor around Newport (M4CaN) between Castleton and Magor to inform the ecological baseline for environmental impact assessment (EIA) of the Scheme. The survey included land generally within 100 metres of the proposed alignment and took in account the methodology set out in Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting (Shawyer, 2011). The EIA is reported in the M4CaN Environmental Statement (ES) of which this document is an appendix to the chapter on Ecology and Nature Conservation.

1.1.2 A Phase 1 habitat survey previously undertaken by Arup on behalf of Welsh Government in 2014 (Appendix 10.2 of the M4CaN ES). This report indicated that a survey for barn owl was likely to be required. Arup also undertook a Breeding Bird Survey in 2014 (ES Appendix 10.13). This stated that barn owl has been recorded on the Gwent Levels and this species should be adequately considered during the project level EIA.

1.1.3 A review of that work was undertaken independently by Hyder (see Annex A of Appendix 9.1 in the ES Scoping Report (ES Appendix 5.1)) and RPS (see ES Chapter 10). The conclusions of that review and the requirements for additional surveys in 2015 were set out in the Scope of Ecology Surveys Report (see Appendix 9.1 of the ES Scoping Report). This was discussed with Natural Resources Wales and they were further consulted on the scope of the proposed surveys through the consultation on the ES Scoping Report.

1.1.4 This document reports the findings of the barn owl survey. This report outlines the previous work carried out and the reasons for this additional survey (Section 2), describes the methods used in the survey (Section 3) and the findings of the survey (Section 4). A discussion of the survey findings is provided in Section 5.

2 Previous Surveys

2.1 Introduction

2.1.1 A specific barn owl survey was not carried out by Arup in 2014. Potential habitats for barn owl were considered within the Extended Phase 1 Habitat Survey (Appendix 10.2 of the ES)

2.1.2 The report advised that further surveys are likely to be required for barn owl subject to consultation with Natural Resources Wales (NRW).

2.1.3 The breeding bird survey reported in ES Appendix 10.13 did not include specific searches for species that are typically crepuscular or nocturnal, notably owls. As barn owl had been recorded on the Gwent Levels, it was recommended that this species should be adequately considered during the project level EIA.

2.2 2014 Survey Method

2.2.1 Habitat within the survey area was suitable for a range of breeding birds and it was considered that the study area supports a significant assemblage of breeding birds.

2.2.2 Incidental records of several bird species were made during the Phase 1 habitat survey, including barn owl. Barn owl evidence was discovered at several locations and included pellets as well as barn owls flying over hedgerows and flushed out of trees. These locations are discussed below and shown on Figure 1.

- Target Note 314: Barn owl pellet.
- Target Note 362: Barn owl feather found near mature oak tree.
- Target Note 389: Barn owl feather.
- Target Note 409: Barn owl potential in tree.
- Target Note 410: Barn owl box in oak tree.
- Target Note 436: Barn owl pellet and feather.
- Target Note 720: Two barn owls flushed from mature poplar tree.
- Target Note 720: Barn owls flying over hedgerow.
- Target Notes 723, 724 and 725: Barn owls flushed from willow along hedgerow. (It is considered likely that these sightings were the same barn owls as Target Note 720).

2.3 Desk Study

2.3.1 Historic data was provided by the South East Wales Biodiversity Records Centre (SEWBReC). This included a search of all barn owl records from the study area and a 1 km buffer.

2.3.2 Thirty eight records of sightings and mortalities were provided along the existing M4 and A48(M) at Redwick, Newport, Magor, Newport Wetlands, Nash,

Uskmouth, St Bride's, Wentlooge Levels, Lower Machen, Hendre Lake and Marshfield.

2.4 Requirements for Further Survey

2.4.1 The breeding bird report states that the survey did not include specific searches for species that are typically crepuscular or nocturnal, notably owls. Barn owl has been recorded on the Gwent Levels and this species should be adequately considered during the project level EIA.

2.4.2 At the Hyder/NRW meeting on 30th January 2015 it was explained that the breeding bird survey work carried out to date had entailed surveying a 'representative sample' of locations that were considered likely to be most suitable. In addition to further general breeding bird surveys, it was agreed that species specific targeted surveys may also be required for key species (i.e. red list, s42, Schedule 1, etc.) that may be present and which would not be adequately surveyed through the general breeding bird surveys including, for example, barn owl.

2.4.3 Having considered the report of the breeding bird survey in the context of the above recommendations, RPS proposed a targeted survey of trees and buildings for evidence of barn owl within 100 m of the footprint of the new section of motorway in 2015.

3 2015 Survey Methods

3.1 Introduction

3.1.1 The barn owl survey was carried out over the period July - August 2015, which falls within the optimum period for this type of survey.

3.1.2 The survey area was based upon an approximate 100 m buffer either side of the new section of motorway alignment.

3.2 Methodology

3.2.1 The survey method took into account methodology described in Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting (Sawyer, 2011).

3.2.2 Areas were assessed for their potential for barn owl and any potential features were identified and investigated further.

3.2.3 Detailed inspections of the mature trees with the potential for roosting bats located within the field survey area during the Arup Phase 1 habitat survey (Appendix 10.2 of the ES) were also assessed for their potential value to barn owls.

3.2.4 The inspections were undertaken by experienced surveyors who inspected the trees in order to assess their potential value to nesting barn owls and locate signs that could indicate the presence of breeding barn owls as described below.

3.2.5 In addition, any incidental sightings of barn owls during other daytime or night time surveys were recorded.

Barn Owl Signs

Nests

3.2.6 Barn owls do not construct a nest but instead nest on level or concave surfaces in which the females will lay between 4 and 7 matt white eggs approximately 42 mm x 31 mm in size. It is possible to determine whether or not a nest is occupied or recently vacated by an ammonia type smell that is typical of barn owl nests. Old nests will often contain a layer of pellets.

Pellets

3.2.7 Barn owl pellets are often found in nests. They are formed within the stomach of a barn owl and are then regurgitated. They are oval and rounded in shape and vary in size from 30 – 70 mm long. When fresh, the pellets are moist and black, but once dried the pellets become hard and lighten in colour to grey. They comprise a tight mass of small mammal hairs and bones. Pellets produced by little owls (*Athene noctua*) or tawny owls (*Strix aluco*) will often have visible insect remains, which are not found in barn owl pellets. The speed of drying and decay varies depending on environmental conditions.

Droppings

3.2.8 Barn owl droppings are white when dry (sometimes with a little black) and chalky. When fresh they are very wet. Droppings vary in size depending on the nature of the surface on which they land, i.e. on hard surfaces the droppings tend to spread out more.

Feathers

3.2.9 Barn owls moult between March and October. Moulting largely takes place during the nesting season.

3.3 Limitations

3.3.1 The tree located at Target Note 720 could not be climbed and fully assessed as it was covered by dense ivy; therefore it was considered to be a likely barn owl nest.

4 Results

4.1 Introduction

4.1.1 A description of the evidence, potential barn owl features and any incidental sightings are discussed below. The results are divided into two sections, 2014 and 2015.

4.2 2014 Results

4.2.1 These results are taken from Appendix 10.2 of the ES. Reference numbers provided below relate to Target Note references shown on Figure 1 of this report. These Target Notes show the indicative location for each barn owl observation.

Whitecross Farm

4.2.2 A barn owl pellet (314) was found within arable farmland and feathers were found in two locations within this area (362, 389) near a mature oak tree and within an area of improved grassland with ditches/reens.

Pye Corner and Tatton Farm

4.2.3 Barn owl sightings were noted in an old ivy-covered tree (408) and a barn owl box was present in an ash tree (410). A mature tree with the potential for barn owl was identified (434) and pellets and feathers were found (436).

Gwent Levels

4.2.4 Two barn owls were flushed out of a poplar tree with ivy cover (720). A barn owl flew out to roost within a southern hedge (723, 724 and 725). It was considered that that these sightings were the same barn owls as Target Note 720.

4.3 2015 Results

Tree Assessment

4.3.1 A further survey of the tree located at Target Note 720 (Figure 1) was carried out on the 17th November 2015, when the leaves were off the tree, in order to assess the features present for barn owl potential and determine whether it would be possible to carry out an aerial survey.

4.3.2 The tree was densely covered with thick ivy. However, from what could be seen of the trunk it was considered likely that much of the trunk was hollow. There was a southerly facing large hole within the tree trunk, approximately 2 m above ground level, which was suitable for barn owl. Whilst at the tree, a barn owl was observed leaving the tree from an exit point on the eastern side of the trunk. The exit point was located higher above ground level than the visible south-facing hole; however, it was completely covered by ivy and not visible. Therefore, the tree is considered to be a barn owl roost and, taking into account the timing of the 2014 observations (i.e. barn owls were flushed from the tree in August 2014), a probable barn owl nesting site.

4.3.3 Other mature trees within the survey area had features of potential value to nesting barn owls, such as sizable cavities. However, no evidence of barn owl nesting was found in any other trees surveyed during the day and during dusk and dawn bat surveys (Appendix 10.23).

4.3.4 It was considered that a suitable area for barn owls would be the area around Berryhill Farm, due to the edge habitats and rough grassland areas that would provide good food sources.

Incidental Sightings

Pye Corner and Tatton Farm

4.3.5 A barn owl was recorded during one of the dusk bat emergence survey visits at both Pye Corner Farm and Tatton Farm. On both occasions the owl was flying southwards.

4.3.6 No barn owl sightings were recorded during the 2015 breeding bird survey.

5 Discussion

5.1 Introduction

5.1.1 This section discusses the main findings of the barn owl survey, making reference to the 2014 surveys carried out by Arup. It sets out the key considerations for the Scheme and the requirements for further survey.

5.2 Survey findings

5.2.1 Barn owl is known to be present within the survey area and results from the 2014 and 2015 surveys suggest a barn owl nest is located in a poplar tree at target note 720 near Greenmoor Farm.

5.3 Key considerations

5.3.1 A barn owl mitigation strategy will be required as a probable barn owl nest (Target Note 720, Figure 1) has been identified within 100 m of the new section of motorway footprint. A pre –construction survey is recommended and an NRW licence to disturb barn owls is likely to be required prior to construction.

5.4 Further Surveys

5.4.1 Some mature trees within the new section of motorway footprint and the immediate surrounding area contain features of potential value to nesting barn owls. No signs of nesting barn owls have been recorded other than in tree reference 720, Figure 1. The presence of barn owl in the area and the changing nature of tree habitat, mature trees located within the new section of motorway footprint and a surrounding buffer zone of approximately 50 – 100 m in width (depending on the nature of works proposed for the area) should be further investigated prior to construction in order to determine whether or not nesting barn owls are using the trees and to inform any mitigation strategy required.

5.4.2 The tree located at Target Note reference 720 (Figure 1) is located within the footprint of the new section of motorway and, therefore, pre-construction surveys are required in order to confirm that this tree is being used by nesting barn owls.

References

Shawyer, C. R. (2011). Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

Figures

Study area shown reflects the scheme design at the time of the survey

Llywodraeth Cymru
Welsh Government

Appendix 10.29 - Barn Owl Survey

Barn Owl Survey Results

Figure: 1a	Revision: -
Date: March 2016	Status: AT ISSUE
Drawn: CR	Checked: LW

Scale: A3 @ 1:15,000
0 250 500m

N

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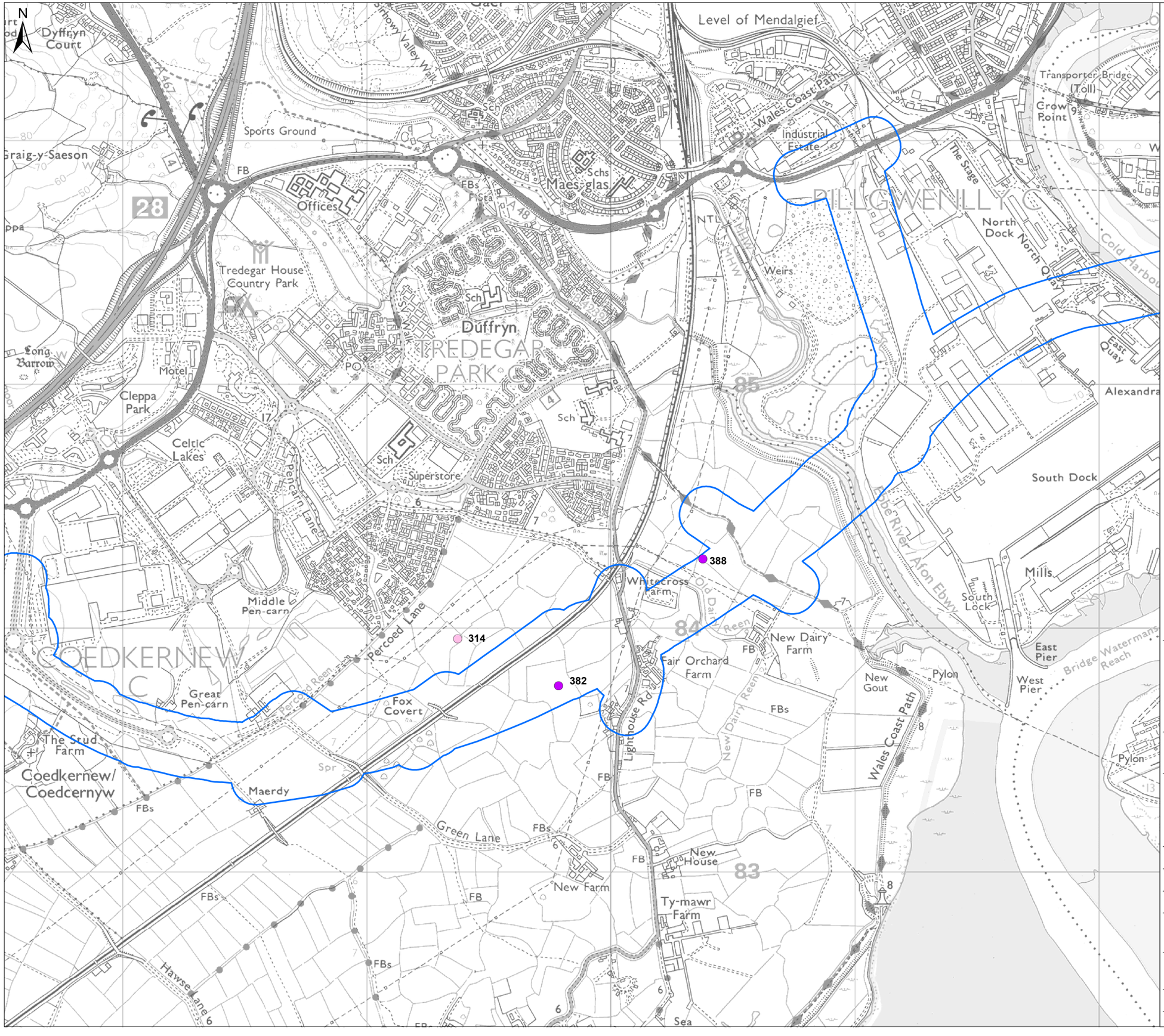

Legend

- 100m Study area
- Barn owl pellets
- Barn owl feather
- Tree of potential value to barn owls
- Barn owl nest box
- Potential barn owl nest
- Barn owl
- 720 Target Note reference

Study area shown reflects the scheme design at the time of the survey

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Appendix 10.29 - Barn Owl Survey

Barn Owl Survey Results

Figure: 1b	Revision: -
Date: March 2016	Status: AT ISSUE
Drawn: CR	Checked: LW

Scale: A3 @ 1:15,000
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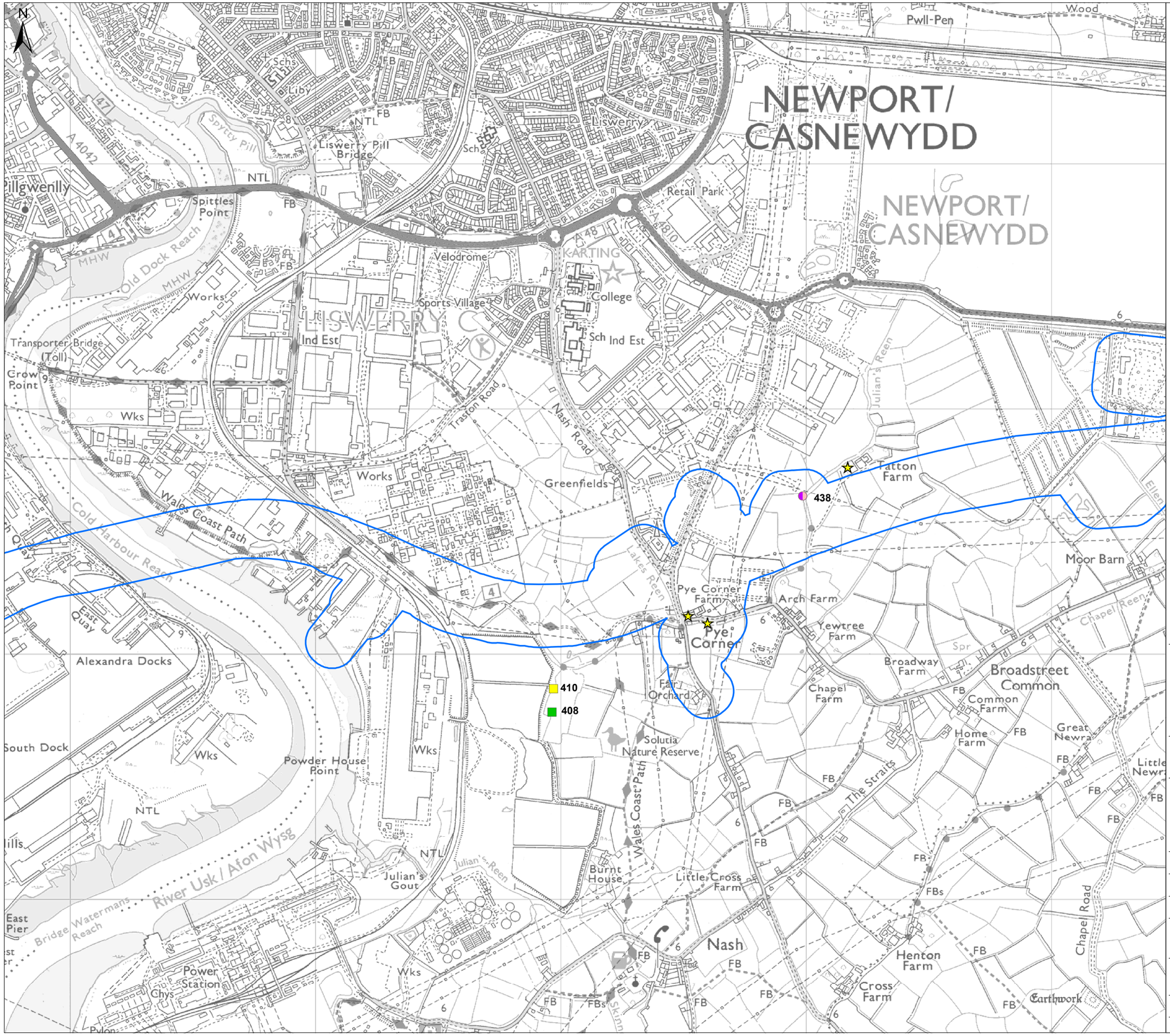
dwg ref: 8235-0052-09



Legend

- 100m Study area
- Barn owl pellets
- Barn owl feather
- Tree of potential value to barn owls
- Barn owl nest box
- Potential barn owl nest
- Barn owl
- 720 Target Note reference

Study area shown reflects the scheme design at the time of the survey

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Appendix 10.29 - Barn Owl Survey

Barn Owl Survey Results

Figure: 1c	Revision: -
Date: March 2016	Status: AT ISSUE
Drawn: CR	Checked: LW

Scale: A3 @ 1:15,000
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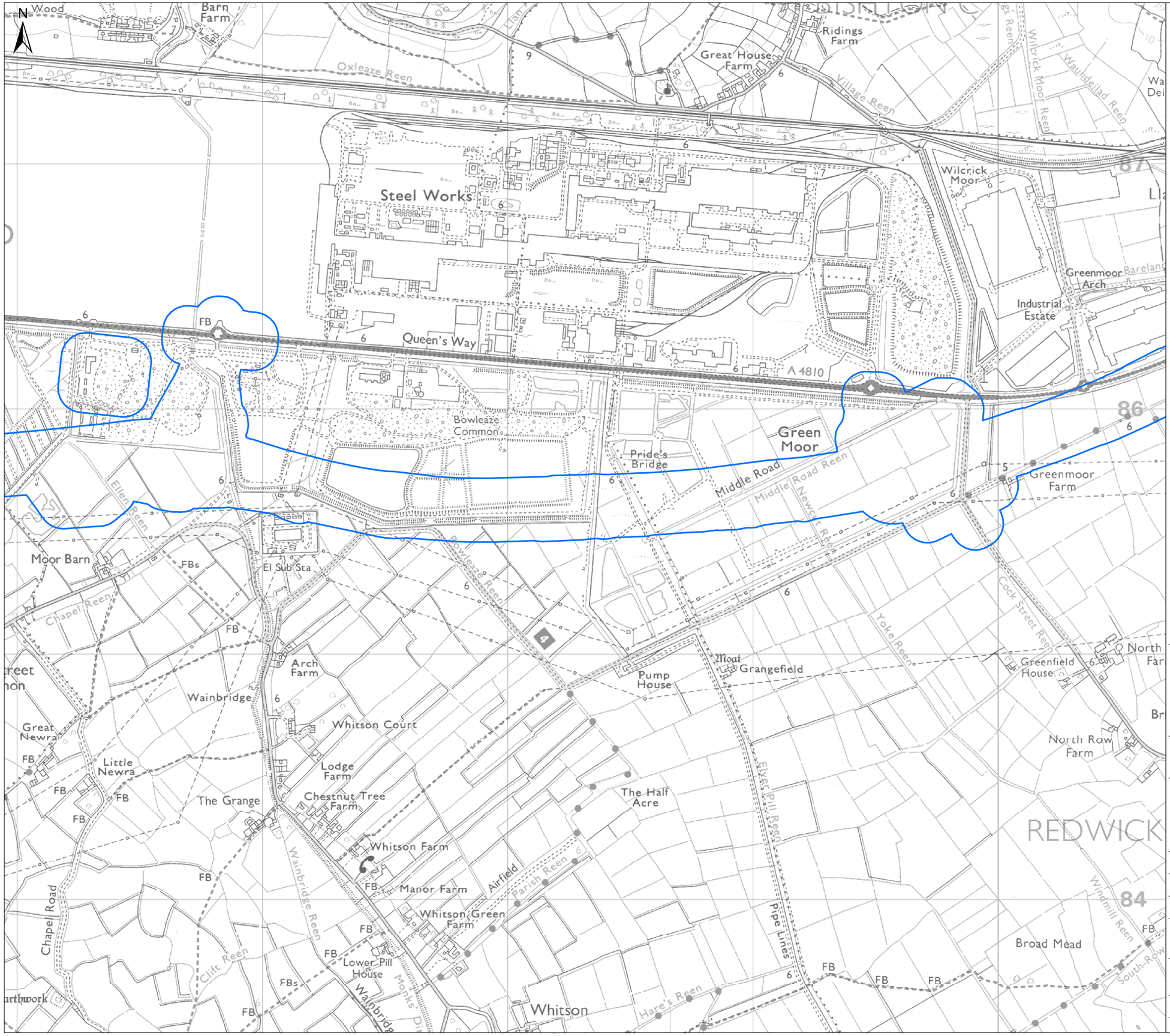

Legend

- 100m Study area
- Barn owl pellets
- Barn owl feather
- Tree of potential value to barn owls
- Barn owl nest box
- Potential barn owl nest
- Barn owl
- **720** Target Note reference

Study area shown reflects the scheme design at the time of the survey

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Appendix 10.29 - Barn Owl Survey

Barn Owl Survey Results

Figure: 1d	Revision: -
Date: March 2016	Status: AT ISSUE
Drawn: CR	Checked: LW

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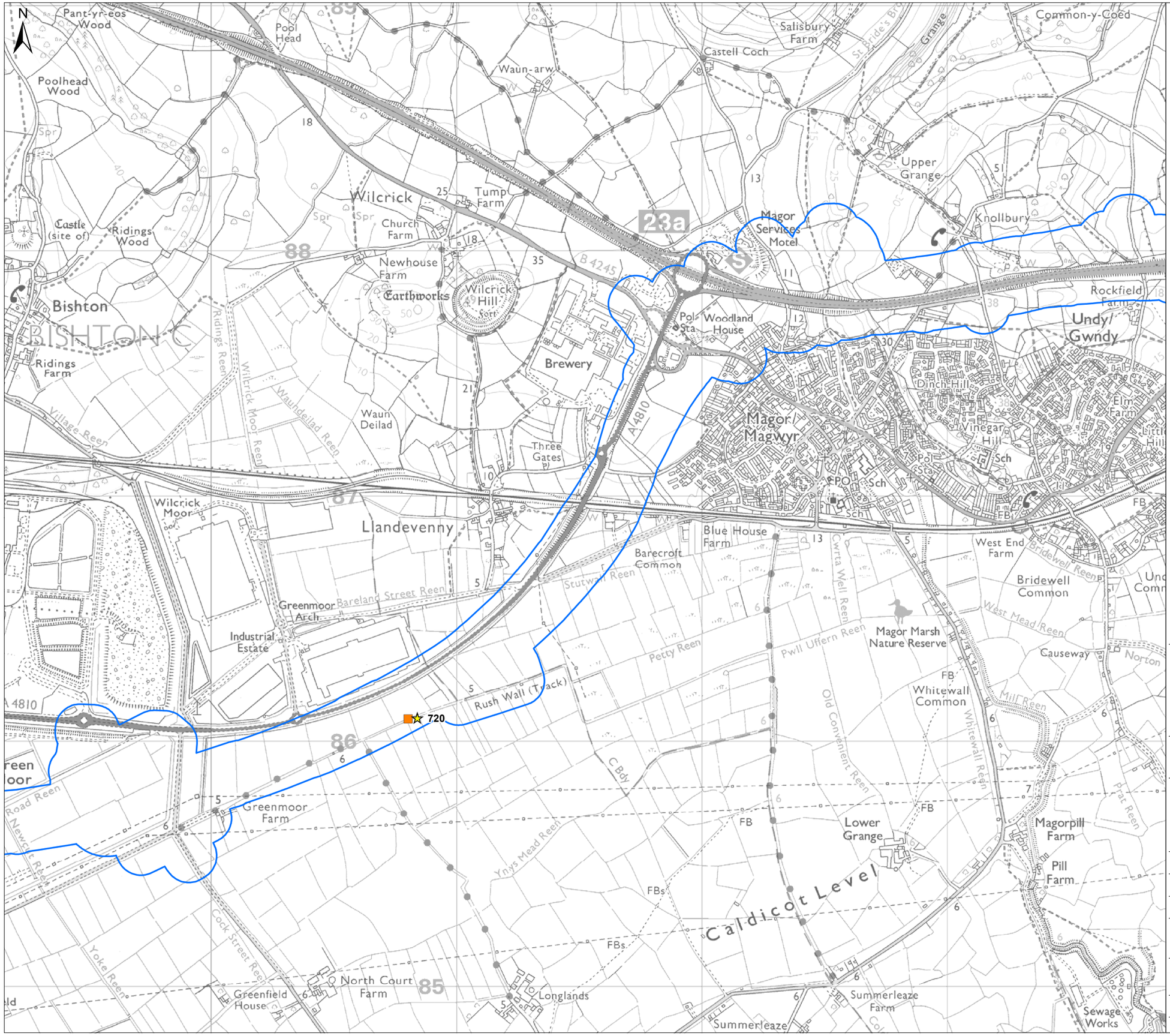

Legend

- 100m Study area
- Barn owl pellets
- Barn owl feather
- Tree of potential value to barn owls
- Barn owl nest box
- Potential barn owl nest
- Barn owl
- **720** Target Note reference

Study area shown reflects the scheme design at the time of the survey

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Appendix 10.29 - Barn Owl Survey

Barn Owl Survey Results

Figure: 1e	Revision: -
Date: March 2016	Status: AT ISSUE
Drawn: CR	Checked: LW

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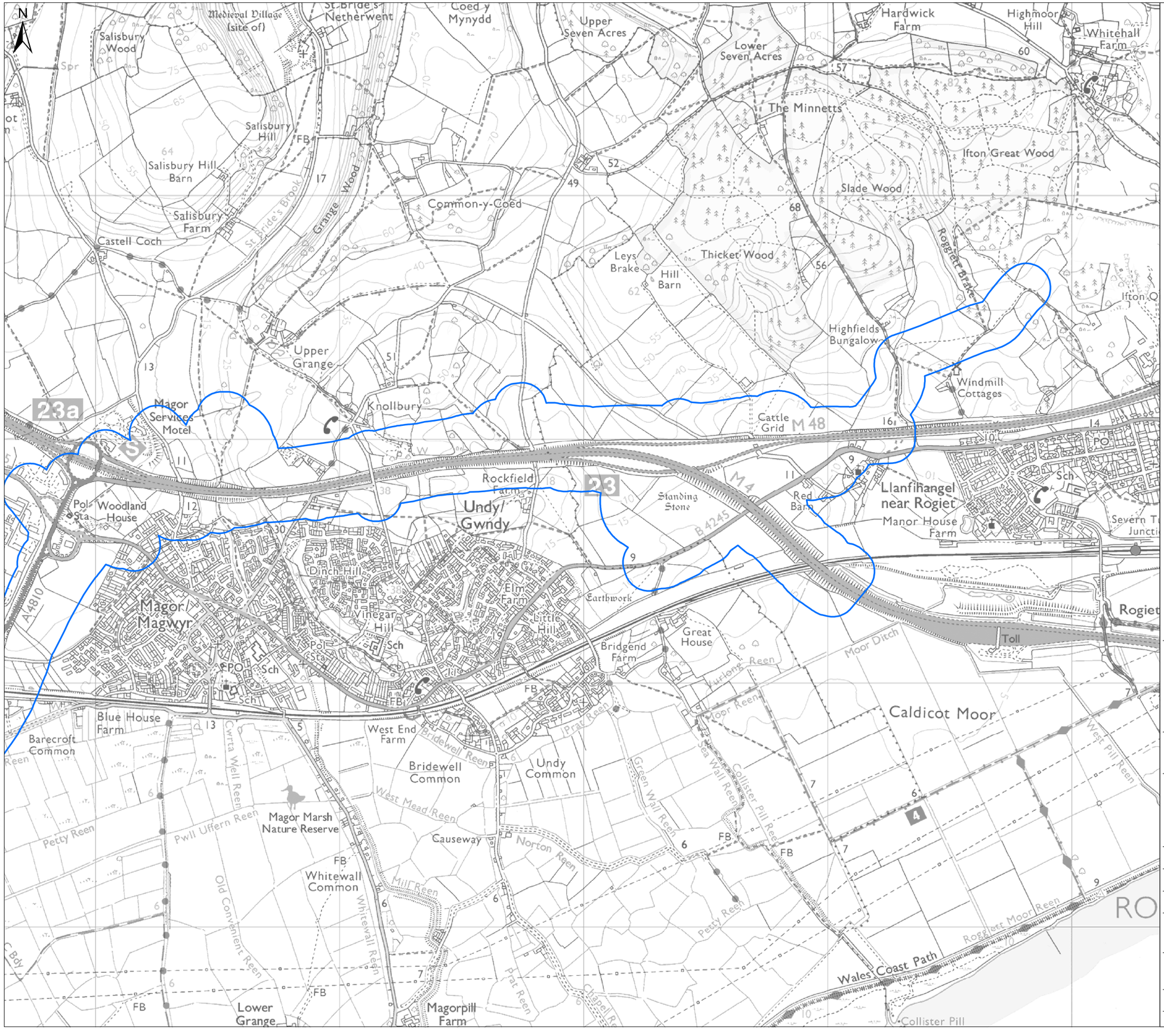

Legend

- 100m Study area
- Barn owl pellets
- Barn owl feather
- Tree of potential value to barn owls
- Barn owl nest box
- Potential barn owl nest
- Barn owl
- **720** Target Note reference

Study area shown reflects the scheme design at the time of the survey

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Appendix 10.29 - Barn Owl Survey

Barn Owl Survey Results

Figure: 1f	Revision: -
Date: March 2016	Status: AT ISSUE
Drawn: CR	Checked: LW

Scale: A3 @ 1:15,000
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dwg ref: 8235-0052-09