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**M4 Corridor around Newport**

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Survey 2014

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**M4 Corridor Around Newport**

**Breeding Bird Survey Report 2014**

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**ARUP**

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# 1 Introduction

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Ove Arup & Partners Ltd has been commissioned by Welsh Government to undertake baseline ecological surveys to inform proposals for the M4 Corridor around Newport. This report provides information to inform the development of the scheme, including a Design Manual for Road and Bridges (DMRB) Stage 3 environmental assessment (HA, 1993) and consideration under The Highways (Environmental Impact Assessment) Regulations 2007.

This report presents results obtained from a programme of breeding bird transect surveys completed between April and June 2014 across various habitats within the potential route corridor.

Where appropriate, recommendations are made for further surveys and design considerations to inform the development of the scheme.

## 1.1 Background to the Project

The M4 in South Wales forms part of the Trans-European Transport Network (TEN-T), which provides connections throughout Europe by road, rail, sea and air. The M4 plays a key strategic role in connecting South Wales with the rest of Europe, providing links to Ireland via the ports in South West Wales and England and mainland Europe to the east. It is a key east-west route being the main gateway into South Wales and also one of the most heavily used roads in Wales.

Providing a facility for transporting goods, linking people to jobs and employment sites as well as serving the Welsh tourism industry, the M4 is critical to the Welsh economy. Cardiff, Newport and Swansea have ambitious regeneration strategies and Monmouthshire County Council is developing areas around Junction 23A of the M4. Rhondda Cynon Taff has important gateways onto the motorway at Junctions 32 and 34. Bridgend is served by M4 Junctions 35 and 36. Neath Port Talbot straddles the motorway and gets important access from Junctions 38 to 43. Congestion on the M4 causing unreliable journey times and reduced service levels will therefore hinder economic development in South Wales.

The M4 between Junctions 28 and 24 was originally designed as the 'Newport Bypass' with further design amendments in the 1960s to include the first motorway tunnels to be built in the UK.

The M4 Motorway between Magor and Castleton does not meet modern motorway design standards. This section of the M4 has many lane drops and lane gains, resulting in some two-lane sections, an intermittent hard shoulder and frequent junctions.

It is often congested, especially during weekday peak periods resulting in slow and unreliable journey times and stop-start conditions with incidents frequently causing delays.

This is why problems with congestion and unreliable journey times have been a fact of life on the M4 around Newport for many years. The motorway and surrounding highway network does not cope with sudden changes in demand or operation, for example as a result of accidents or extreme weather events. These issues are worse at times of peak travel (rush hour) and have worsened as the number of users on the network has increased.

Since 1991, much assessment and consultation has been undertaken to develop a preferred solution to the problems on the motorway around Newport. A detailed history is documented in the M4 Corridor around Newport WelTAG (WG, 2008) Stage 1 (Strategy Level) Appraisal Report (Ove Arup & Partners Ltd, 2013). This included the adoption of a revised TR111 route<sup>1</sup> in April 2006, which remains protected for planning purposes. The alignment of this proposed new section of motorway has been developed following extensive consultation, investigation and analysis. The aim was to minimise the impact on the environment, whilst fully meeting motorway design and safety standards. The main element of the M4 corridor around Newport largely follows this TR111 alignment.

The survey design is informed by the Route Options defined in the Stage 2 DRMB Environmental Report (Ove Arup & Partners Ltd, 2014).

## **1.2 Survey Objectives**

The survey was conducted with two objectives:

1. To gain an understanding of the breeding bird assemblage present using a transect survey methodology within representative habitats within the study area, assessing the species present and relative abundance within different habitat types;
2. To highlight any key species or habitats of particular value that may influence the design of the project.

## **1.3 Study Area**

The study area for the purpose of this survey was based on a 500m buffer around the physical extents of the previous scheme studied in 2007/8 including the route alignment, potential junctions and water treatment areas. The Preferred Route announced in July 2014 is located within this corridor as shown on Figure 1.

## **1.4 Relevant Legislation**

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs.

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<sup>1</sup> Once a preferred route is announced, Welsh Government serves a statutory notice (TR111) on the local planning authorities requiring the line to be protected from development. This is enacted under Article 19 of The Town & Country Planning (Development Management Procedure) (Wales) Order 2012.

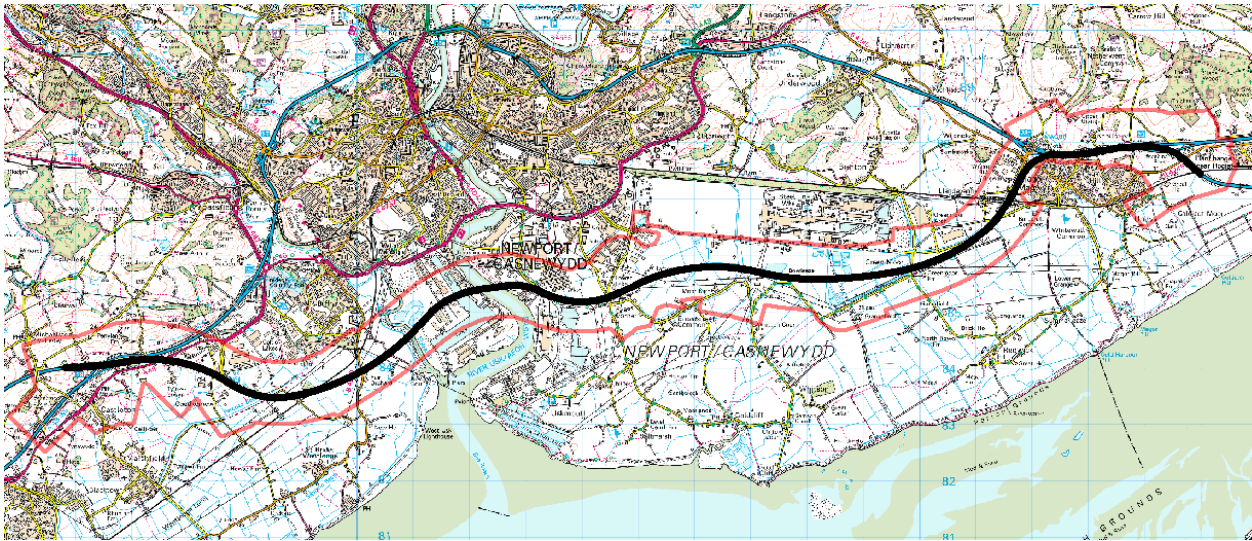


Figure 1 The 2014 Preferred Route within the Study area shown in red.

In addition, bird species listed under Schedule 1 of the Act receive extra protection. The Act states that ‘it is an offence to intentionally or recklessly disturb any wild bird listed in Schedule 1 while it is nest building, or at (or near) a nest containing eggs or young, or disturb the dependent young of such a bird’.

Some bird species are listed as features of European designated sites, notably Special Protection Areas (SPAs) and Ramsar sites. European Sites are afforded protection in relation to development through the provisions of the Conservation of Habitats and Species Regulations 2010 (as amended). As a result, appropriate consideration needs to be made of the potential effects on the populations of birds which are features of SPAs or Ramsar Sites caused by development plans or projects.

The Natural Environment and Rural Communities (NERC) Act 2006 came into force on 1st Oct 2006. Section 42 (S42) of the Act requires the Secretary of State for Wales to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in Wales. The list has been drawn up in consultation with the Countryside Council for Wales (now National Resource for Wales), as required by the Act. The S42 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Act, to have regard to the conservation of biodiversity in Wales, when carrying out their normal functions.

## 2 Methodology

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### 2.1 Desk Study

A search was conducted in MAGIC<sup>2</sup> for SPAs and Ramsar sites, which are international designated site for their bird interest, and SSSI also designated for their bird interest. The search included the study area and a 1km buffer.

The issues of the M4 Corridor around Newport has been studied on a number of occasions including detailed surveys for the Environmental Impact Assessment (EIA) of new motorways to the south of Newport in the form of the M4 Relief Road (1997-1998) and the New M4 Project (2006-2008). The results of the more recent breeding bird surveys undertaken in 2006 – 2007 were reviewed to aid comparisons with the data from this report.

A search of records held by the South East Wales Biological Records Centre was requested on November 4<sup>th</sup> 2013. This has been reported in the Phase 1 Habitat Survey Report which formed part of the DMRB Stage 2 Environmental Report (Ove Arup & Partners Ltd, 2014) and will be further analysed in the Extended Phase 1 Survey Report to be produced later this year.

### 2.2 Survey Methods

#### 2.2.1 General Methods

The survey methods were derived from current best practice as described in Bird Census Techniques (Bibby, Burgess, Hill, & Mustoe, 2000) and Bird Monitoring Methods (Gilbert, Gibbons, & Evans, 1998), and conform to the recommendations of the Royal Society for Protection of Birds (RSPB), British Trust for Ornithology (BTO) and the Joint Nature Conservation Committee (JNCC). Surveys consisted of walking pre-defined transect routes in all accessible habitat types, as described within the Breeding Bird Survey methodology contained within the above references. This approach to the surveys was agreed with Natural Resources Wales during a meeting in December 2013 and via correspondence in February and March 2014.

All breeding bird surveys were carried out by teams of two surveyors, with at least one experienced in undertaking ornithological survey work. The transect routes were walked at a slow pace, pausing briefly at intervals to listen for song and to scan for birds flying overhead or taking flight from the surrounding area.

All birds seen and heard were mapped in accordance with the British Trust for Ornithology (BTO) standard activity recording codes. This included birds in flight, with the exception of large gulls that are abundant across the area. No large gulls were recorded breeding or exhibiting breeding behaviours along the transect routes, though aggregations of large gulls on the ground were recorded when seen.

Survey results were captured using tablet devices in order to improve data collection efficiency, and include details of weather data, species present, numbers of individuals and their behaviour.

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<sup>2</sup> Multi-Agency Geographic Information for the Countryside (MAGIC). The MAGIC website provides authoritative geographic information about the natural environment from across government (accessed 03 March 2014).

Each transect was surveyed on three occasions between April and June 2014, each at least two weeks apart. The transect routes were walked in the morning, between dawn and 10am, when levels of avian activity (particularly singing) are likely to be at their highest. On one of the three visits the routes were walked in the opposite direction to the previous visit, to balance any temporal variation in behaviour levels.

Birds were considered to be breeding where they were recorded if any of the following applied:

- Birds were heard singing and habitat suitable for that species to breed within was present at that location;
- Birds exhibited territorial behaviour e.g. displaying or prolonged agitation;
- Birds were seen carrying food, nest material or the faecal sacs of young; or
- Nests, eggs and/or young were found to be present.

Where breeding signs were recorded, it is assumed that a 'breeding pair' was present and this term is used from this point forward within this report.

### 2.2.2 Transect Selection

A total of eight breeding bird transects were designed to be representative of the predominant habitats suitable for breeding bird assemblages, and aimed to be evenly distributed along the corridor of land that forms the study area. The habitats surveyed included floodplain grazing marsh, farmland, wooded field boundaries, tracks and roads, river and estuary edges, reed beds, wet scrub, lagoons, reens, and woodland. Each transect, apart from Transect 5 and 6, was 3.6-4.9km in total length.

Transect 5 and 6 were two shorter transects, 2km and 3km in length each, located within the reedbeds and associated scrub and lagoons at Tata Steel Llanwern site and, due to their length and proximity to each other, these transects were surveyed on the same morning on three occasions. The starting point of the transect was alternated to balance any temporal variation in behaviour levels.

The eight transects totalled 29.95km in length, and as such based on recording approximately 100m either side of the transect line, a total of approximately 6km<sup>2</sup> was surveyed for breeding birds within the study area. An overview of the transect locations is shown on **Plan 1**.

### 2.2.3 Transect Descriptions

The following sections briefly describe the lengths and main habitat types of each of the eight transects used within the breeding bird survey.

#### 2.2.3.1 Transect 1

Transect 1 is located to the north and west of Castleton and is 4.8km in length. Habitats are dominated by farmland fields on either side of the A48(M) highway, with large areas of scrub and mature trees, notably associated with large residential properties. A small lake is present close to the southern part of this transect, on land associated with St Mellons Golf Club.



### **2.2.3.2 Transect 2**

Transect 2 is located around Coedkernew and is 3.9km in length. Habitats in the northern part of the transect include dry grazing pasture and a golf course (Parc Golf Club). The southern part of the transect is located within the Gwent Levels with habitats dominated by floodplain grazing marsh, hedgerows and many large reens including Percoed Reen. The transect also includes an extensive belt of plantation woodland.

### **2.2.3.3 Transect 3**

Transect 3 is on the western banks of the River Ebbw and is 4.8km in length. This transect is dominated by floodplain grazing marsh and associated reens and includes the estuary edge habitat. Mature trees and scrub are also present along the B4239 highway that forms the north-western part of this transect.

### **2.2.3.4 Transect 4**

Transect 4 is located to the south of Pye Corner and is 4.25km in length. Habitats are dominated by farmland fields, mostly used as grazing pasture, with associated hedgerows. A number of small areas of plantation woodland and reens are also present. Part of this transect is outside the main study area boundary as defined in Section 1.3 (to the south). The transect was selected to represent a large area of typical Gent levels habitat east of the River Usk; it was not possible to extend the transect to the north (i.e. remain within the study area) due to industrial development north of Pye Corner.

### **2.2.3.5 Transect 5**

Transect 5 is within land south of the Llanwern Steelworks and is 2km in length. This transect is dominated by established reedbed with little open water, areas of dense scrub and lines of mature trees.

### **2.2.3.6 Transect 6**

Transect 6 is also within land south of the Llanwern Steelworks and is 3km in length. This transect is dominated by established reedbed, large areas of open water (former settling lagoons), swamp, areas of dense scrub and wet woodland.

### **2.2.3.7 Transect 7**

Transect 7 is located to the south west of Magor and is 3.6km in length. Habitats are dominated by farmland fields on either side of the A4810 highway, with mature hedgerows and scrub, notably associated with large residential properties. The southern part of the transect is dominated by floodplain grazing marsh and associated large reens including Stutwall Reen.

### **2.2.3.8 Transect 8**

Transect 8 is located within woodland north of Rogiet and is 3.6km in length. This transect includes parts of Slade Woods, Ifton Great Wood and Rogiet Brake. The southern part of the

transect includes dry farmland fields around Highfields Bungalow and Windmill Cottages. It should be noted that the majority of this transect is just outside the main study area boundary as defined in Section 1.3. The transect was selected as part of the woodland complex falls within the defined study area and devising a transect that included a significant amount of woodland habitat was considered appropriate to accurately describe baseline conditions in this area.

## 2.3 Reporting Methods

The data gathered during field survey work has been displayed on plans, combining that obtained from each survey visit in order to reveal patterns of breeding bird activity for each transect. These results are then discussed within the Baseline Environment section of this report. Results are discussed in the following order:

- An initial overview of all results gathered across the eight transects, presenting total species recorded and those considered likely to have bred within the study area;
- Results are then discussed via conservation status , namely:
  - Individual breeding features of the SPA/Ramsar site;
  - Breeding birds listed on Schedule 1 of the Wildlife and Countryside Act 1981;
  - Breeding bird features of Sites of Special Scientific Interest (SSSIs);
  - Other species which are Red or Amber listed<sup>3</sup> within Birds of Conservation Concern (BOCC) (Eaton *et al*, 2009) but not included in the above groups; and
  - A summary of S42 Priority Species.
- Results are then discussed via transect.

## 2.4 Limitations and Assumptions

Given that surveys were undertaken on three occasions, once per month, a precautionary approach has been taken when assuming likely breeding of species. When any bird was recorded showing signs of breeding as defined above, it was assumed to represent a likely breeding attempt. This may have led to over-estimation of likely breeding numbers if any such birds were on migration, but this precautionary approach is considered appropriate given the spacing of the survey effort. It should be stressed that none of the transects were located within well-known key

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<sup>3</sup> The three BOCC Lists are described as follows:

- Red List: species that are globally threatened, whose population or range has declined rapidly in recent years, and those whose populations have declined historically and not exhibited any signs of recovery. Species that have experienced a population decline of >50%;
- Amber List: species with an unfavourable conservation status in Europe, whose populations have declined moderately in recent years, including species that show a historical decline but whose populations have shown a substantial increase, species that are rare, with localised populations and those species of international importance with UK populations and species that have experienced a population decline or breeding range decline of 25% to 49%.
- Green list: All regularly occurring species that do not qualify under any of the red or amber criteria are green listed. The green list also includes those species listed as recovering from historical decline in the last review that have continued to recover and do not qualify under any of the other criteria.



migration areas and therefore most/all birds recorded were considered likely to be breeding locally.

The breeding bird surveys were carried out at appropriate times of the year and weather conditions on all visits were considered suitable. The dates of the surveys and weather conditions are shown in **Appendix A**.

It should be stressed though that 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 species, such as weather conditions, migration patterns and behaviour.

Nevertheless, these surveys were conducted at the optimal survey periods and using methodologies which were discussed and agreed with National Resource for Wales (NRW). Every effort has been made to ensure that the findings of the study present as accurate an interpretation as possible of the status of breeding birds within the study area.

## 3 Baseline Environment

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### 3.1 Desk Study

#### 3.1.1 Designated Sites

The study area is close to the Severn Estuary European Marine Site (EMS) which includes the Special Area of Conservation (SAC), SPA and Ramsar site designations.

The proposed crossings are approximately 600m from the Severn Estuary EMS. The Usk is designated separately as a SAC for non-avian fauna, as such is not described below.

There are also several SSSIs within the study area and within a 1km buffer. However, only three of these specify bird interest within the citation; these are also detailed below.

##### 3.1.1.1 Severn Estuary SPA and Ramsar Site

The Severn Estuary is a large estuary with extensive intertidal mud-flats and sand-flats, rocky platforms and islands. The site is of importance during the spring and autumn migration periods for waders moving up the west coast of Britain, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders. These bird features are listed under the SPA and Ramsar designations.

It is noted that since the SPA was designated in 1995 there have been changes in both the numbers of birds using the estuary and in the thresholds for designation. These changes were highlighted by the SPA review published by JNCC in (Stroud, et al., 2001) and may be the subject of formal changes to the SPA designation in the future; however at the time of this report the legally protected species are those on the original 1995 citation. For the purposes of this report, the features of the SPA are taken to be those on the 1995 citation and any additional species identified in the SPA 2001 review (highlighted as such below).

Relevant SPA features, including migratory and breeding birds but excluding wintering birds, taken from the JNCC website and Regulation 33 Package (CCW, 2009) are listed below:

- Migratory (passage) population of ringed plover (*Charadrius hiaticula*) - 655 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6) (the SPA 2001 review advises the addition of this species to the citation);

The Severn Estuary Ramsar Site birds' features taken from the Regulation 33 Package (CCW, 2009) and the revised Criteria (2005) currently used on JNCC website, are as follows:

**Species/populations identified subsequent to designation for possible future consideration under criterion 6.**

**Species with peak counts in spring/autumn:**

- Ringed plover (*Charadrius hiaticula*) - 740 passage individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3).

**Species regularly supported during the breeding season:**

- Lesser black-backed gull (*Larus fuscus graellsii*) – 4167 apparently occupied nests, representing an average of 2.8% of the breeding population (Seabird 2000 Census).
- Herring gull (*Larus argentatus argenteus*), 1540 apparently occupied nests, representing an average of 1.1% of the GB population (Seabird 2000 Census).

#### **Species with peak counts in spring/autumn:**

Spring/autumn passage assemblage population waterfowl (other than above) listed as noteworthy species are: little egret (*Egretta garzetta*), ruff (*Philomachus pugnax*), whimbrel (*Numenius phaeopus*), curlew (*Numenius arquata*) and greenshank (*Tringa nebularia*).

### **3.1.1.2 Newport Wetlands SSSI**

During the summer, the wet grasslands, saline lagoons and reedbeds on the site support an exceptional variety of breeding birds, including nationally (UK) important breeding populations of avocet (*Recurvirostra avosetta*), redshank (*Tringa totanus*), lapwing (*Vanellus vanellus*), water rail (*Rallus aquaticus*), Cetti's warbler (*Cettia cetti*) and bearded tit (*Panurus biarmicus*). In addition, breeding populations of ringed plover and little ringed plover (*Charadrius dubius*) are also present.

This SSSI lies approximately 1km to the south of the study area.

### **3.1.1.3 River Usk SSSI (Lower Usk)**

The River Usk (Lower Usk) SSSI supports a wide range of bird species throughout the year in its riverine and estuarine habitats. Species include kingfisher (*Alcedo atthis*), grey wagtail (*Motacilla cinerea*) and dipper (*Cinclus cinclus*) occur with increasing frequency above the tidal limit at Newbridge.

## **3.1.2 Previous Studies**

The issues of the M4 Corridor around Newport has been studied on a number of occasions including detailed surveys for the Environmental Impact Assessment (EIA) of new motorways to the south of Newport in the form of the M4 Relief Road (1997-1998) and the New M4 Project (2006-2008). The results of the more recent breeding bird surveys undertaken in 2007 – 2008 have been review and compared to the current findings within the conclusions of this report.

Arup conducted previous breeding bird surveys for the former 'New M4' scheme during 2006 and 2007. During these surveys the proposed route was surveyed four times (twice in both 2006 and 2007) using an adapted point count methodology at 18 points along the line of the route considered at the time. Additional survey effort was also employed along the River Usk and Gwent Levels Wetland Reserve.

From the field survey results, a total of 42 species of birds were considered to definitely breed within the proposed route corridor. These included one Schedule 1 species (Cetti's warbler); three additional Schedule 1 species (marsh warbler (*Acrocephalus palustris*), hobby (*Falco subbutteo*) and little ringed plover) were recorded as possible breeders.

Three definite and five probable species were recorded breeding that were on the Red list of BOCC at the time (Birds of Conservation Concern 2002-2007 (Gregory, et al., 2002)). Similarly, eight confirmed and seven probable species were recorded breeding that were on the Amber list.

Nine definite and seven probable species were recorded breeding that were UK Biodiversity Action Plan<sup>4</sup> species.

## 3.2 Field Surveys

### 3.2.1 Summary of Results

Full survey results are shown on **Plans 2-55**. The results table in **Appendix B** collates all results, showing the maximum numbers of birds recorded and the maximum number of likely breeding pairs on any one visit by transect.

A total of 75 species were recorded during the whole breeding bird survey. One additional subspecies (white wagtail (*Motacilla alba alba*)) was also recorded. Of these, 52 species were considered likely to be breeding within the study area based on their behaviour. A total of 888 breeding pairs were recorded across the eight transects.

Two of the species recorded were features of the Severn Estuary Ramsar site as defined above; four of the species recorded were features of the SSSIs and three species were Schedule 1 birds.

Ten of the species recorded are on the Red List of BOCC and a further 24 species are on the Amber List. The remaining 41 species are all on the Green List, apart from Canada goose (*Branta canadensis*) which was not assessed within the BOCC.

Breeding species totals varied across the transects from a minimum of 19 to a maximum of 32 species; likewise total breeding pairs varied from a minimum of 90 to maximum of 165 between transects.

Results are now discussed in detail by conservation status and by transect.

### 3.2.2 Results by Conservation Status

#### 3.2.2.1 SPA/Ramsar Features

The only birds in this category recorded during the surveys are species identified during the SPA review for possible future consideration with regards to the Severn Estuary Ramsar Site ('candidate breeding species') were herring and lesser black-backed gulls.

As mentioned above, flyover gulls were not systematically recorded during transect surveys as these birds were not breeding within 100m of the transect route. No evidence of breeding was recorded on any of the transect surveys. One aggregation of feeding gulls was noted on Transect 1 on 27<sup>th</sup> May, when 14 herring gulls and 34 lesser black-backed gulls were seen feeding in a pasture field.

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<sup>4</sup> The UK level Biodiversity Action Plan no longer exists, having been replaced by the UK Post-2010 Biodiversity Framework which focuses on the four individual countries of the United Kingdom and Northern Ireland. Priority species and habitats for Wales are now listed under Section 42 of the NERC Act.

It is also relevant to consider spring/autumn passage assemblage population waterfowl listed as noteworthy species as described above. Of these species only little egret was recorded. Little egrets were recorded on four transects (3, 6, 7 and 8 (twice)), with single birds observed on five occasions. Many of these birds were either foraging in reens of channels or were observed in flight. No evidence of breeding was recorded.

No ringed plover or little ringed plover were recorded during the surveys; likewise, none of the other noteworthy spring/autumn passage species (ruff, curlew, whimbrel, greenshank) were observed.

### 3.2.2.2 SSSI Features

Four species were recorded that are specifically named on SSSI citations as described above. All relate to those from the Newport Wetlands SSSI. There were no records of the riverine bird species named of the citation for the River Usk SSSI (Lower Usk), namely kingfisher, grey wagtail or dipper.

A single breeding pair of lapwing was recorded on Transect 3 on 10<sup>th</sup> April with a nest found on 22<sup>nd</sup> May; additional observations included single birds on Transect 2 on 14<sup>th</sup> June and Transect 6 on 16<sup>th</sup> May. Birds were associated with open grazing fields.

The only redshank record came from Transect 3, where a single calling bird was noted along a reen south of the Ebbw on 22<sup>nd</sup> May.

Water rail records were restricted to the initial survey visit to Transect 5 on 11<sup>th</sup> April within the steelworks. Here, two birds were heard calling from dense reedbed habitat. There were no subsequent records. Given the secretive nature of this species, and the suitability of habitat, it is possible that water rail bred in this area, although no singing or other definitive evidence of breeding was recorded.

Cetti's warbler were recorded from six transects and breeding was considered likely to occur on each of these transects. Between two and four singing males were recorded in scrub on Transects 2, 3, 4 and 7. Most of these birds were heard in song during April (nine registrations across the transects) and May (eight registrations) with just four registrations in June. Far higher numbers were recorded in reedbed, scrub and swamp habitat south of the Llanwern steelworks. A maximum count of 20 singing males was made on both 11<sup>th</sup> April and 16<sup>th</sup> May from Transect 5 and 24 singing males on 11<sup>th</sup> April from Transect 6. A total of 54 singing males were recorded across all transects. For clarity, it assumed all singing males represent a breeding pair.

Cetti's warbler are an extremely skulking species and were most frequently recorded only by their vocalisation. Males patrol their territory boundaries at about half-hourly intervals, and can move quite long distances, so the risk of double counting is raised within the species specific guidance within Bird Monitoring Methods (Gilbert, Gibbons, & Evans, 1998). Linear territories (e.g. along river banks) can be up to 450m (Bibby, 1982). Where possible, birds were recorded when in song simultaneously to help determine likely maximum numbers. It remains likely that the high counts of singing males on Transects 5 and 6 included some double counting due to the behaviour of this species, but it is evident that large numbers of Cetti's warbler are present within these habitats.

### 3.2.2.3 Schedule 1 Breeding Species

Three birds were recorded that are included on Schedule 1 of the Wildlife and Countryside Act 1981. These include peregrine (*Falco peregrinus*), crossbill (*Loxia curvirostra*) and Cetti's warbler.

The only observation of peregrine was of a single bird in flight over the River Ebbw on 19<sup>th</sup> April. There were no subsequent records and no evidence of breeding within the study area.

The first records of crossbill came from the first survey visit to Transect 8 on 15<sup>th</sup> April. A total of four birds were seen, including a flock of three birds and a single adult female were seen in mixed woodland within Slade Wood. This species typically breeds very early in the year. It is therefore possible that crossbill bred in the area in 2014. The only other record was of a single bird seen in flight on Transect 4 on 22<sup>nd</sup> May.

Cetti's warbler was frequently recorded during the survey as described above.

### 3.2.2.4 Birds of Conservation Concern

A total of ten bird species were recorded that are placed on the Red List of BOCC. These are discussed individually below:

- Cuckoo (*Cuculus canorus*): A total of three singing male cuckoo were recorded; all birds were associated with the reed beds south of Llanwern steelworks (Transects 5 and 6) where it is assumed this species parasitizes reed warbler (*Acrocephalus scirpaceus*).
- Grasshopper warbler (*Locustella naevia*): A single singing male was recorded in swamp habitat south of Llanwern steelworks on Transect 6 on 14<sup>th</sup> June.
- Herring gull: This species is described in Section 3.2.2.1. No evidence of breeding was recorded.
- House sparrow (*Passer domesticus*): Small numbers of house sparrows were recorded around farm buildings and residential properties across the study area from transects 1, 2, 3, 4, 7 and 8. Ten singing males were recorded, but this is likely to have been an underestimate due to this species colonial breeding strategy and lack of access to private buildings.
- Lapwing: This species is described in Section 3.2.2.2.
- Linnet (*Carduelis cannabina*): Breeding linnets were recorded in small numbers on four transects (2, 3, 4 and 7), with a maximum of three pairs on Transect 4. Other records included a small post breeding flock of 15 linnets in pasture fields at the southern part of Transect 8 on 22<sup>nd</sup> May. This species was typically associated with hedgerows and field margins.
- Lesser redpoll (*Acanthis cabaret*): There was only a single record of lesser redpoll from the study area. This was a single singing male from Transect 8 on 15<sup>th</sup> April.
- Skylark (*Alauda arvensis*): Records of skylark were scarce during the survey, with evidence of breeding only recorded from two transects (1 and 3) where single singing males were recorded over farmland fields.

- Starling (*Sternus vulgaris*): Starling was frequently observed during the survey, but evidence of breeding was restricted to three transects, with a maximum of two pairs on Transect 1. Other breeding pairs were found on transects 3 and 7. Flocks of starlings were also seen towards the end of the survey where adults and recently fledged juveniles were recorded feeding within fields; the maximum count was of 200 birds on Transect 3 on 22<sup>nd</sup> May.
- Song thrush (*Turdus philomelos*): Recorded commonly across the study area with breeding evidence from all transects. A total of 32 breeding pairs were recorded, with a maximum of nine recorded on Transect 8 on 15<sup>th</sup> April. Song thrush records were mostly from woodland, scrub and hedgerow habitats.

A total of 24 bird species were recorded that are placed on the Amber List of BOCC. Of these, 13 species were recorded breeding in the study area. These are summarised in Table 1 below along with key habitats associated with these birds:

**Table 1 Amber listed BOCC recorded breeding within the study area**

Vernacular Name	Species	Total Number of Breeding Pairs	Key Habitats	Transect Numbers
Bulfinch	<i>Pyrrhula pyrrhula</i>	1	Woodland (Slade/Ifton Great Wood complex)	8
Dunnock	<i>Prunella modularis</i>	41	Hedgerows, woodland and scrub across the survey area.	All
Green woodpecker	<i>Picus viridis</i>	2	Woodland , hedgerows and pasture fields.	6,7
Greylag goose	<i>Anser anser</i>	1	Open water habitat near Llanwern steelworks <sup>5</sup>	6
Little grebe	<i>Tachybaptus ruficollis</i>	1	Open water habitat near Castleton.	1
Mistle thrush	<i>Turdus viscivorus</i>	7	Hedgerows, woodland and scrub across the survey area.	1,3,6,7,8
Mallard	<i>Anas platyrhynchos</i>	8	Open water habitats and reens across the study area.	1,2,3,4,6,7
Reed bunting	<i>Emberiza schoeniclus</i>	6	Reed bed habitat south of Llanwern steelworks and along reens on the Gwent levels.	4,5,6
Stock dove	<i>Columba oenas</i>	2	Established woodland and hedgerows.	4,8

<sup>5</sup> Greylag geese recorded were fully winged but likely to be of introduced/feral origin.

Vernacular Name	Species	Total Number of Breeding Pairs	Key Habitats	Transect Numbers
Swallow	<i>Hirundo rustica</i>	4	Buildings close to grazing marsh	5,7
Shelduck	<i>Tadorna tadorna</i>	2	Estuarine habitats and grazing marsh near the River Ebbw.	6,8
Whitethroat	<i>Sylvia communis</i>	40	Hedgerows and scrub.	All
Willow warbler	<i>Phylloscopus trochilus</i>	22	Hedgerows and woodland across the survey area.	3,4,5,6,7,8

Additional Amber listed species recorded without showing clear signs of breeding included:

- Single common sandpiper (*Actitis hypoleucos*), redshank and two oystercatcher (*Haematopus ostralegus*), were noted close to the River Ebbw on Transect 3;
- Gadwall (*Anas strepera*), teal (*Anas crecca*) and tufted duck (*Aythya fuligula*) on open water habitats south of Llanwern steelworks;
- Little egret and lesser-black backed gulls as discussed within Section 3.2.2.1;
- House martin (*Delichon urbicum*) and sand martin (*Riparia riparia*) observed foraging over grazing marsh and other habitats;
- A single kestrel (*Falco tinnunculus*) was recorded in flight on two transects, but no nests or other evidence of breeding was recorded.

### 3.2.2.5 Section 42 Priority Species

The S42 list as described above contains a total of 51 bird species. Of these a total of 12 were recorded during the current survey. Species included on the S42 list are also BOCC and have been described in detail in previous sections.

To summarise, ten of the S42 species were found breeding, the most numerous species being dunnock (41 pairs) and song thrush (32 pairs); ten pairs of house sparrow were recorded along with six pairs each of linnet and reed bunting; four pairs of starling and two pairs of skylark were recorded along with single pairs of lapwing, lesser redpoll and lapwing. Herring gull and kestrel were also recorded but not confirmed as breeding in the study area.



### 3.2.3 Results by Transect

#### 3.2.3.1 Transect 1

A total of 100 pairs of 24 different species were recorded breeding on Transect 1. In keeping with predominantly agricultural nature of this transect with fields surrounded by mature hedgerows and scrub, the most frequent species were wren (*Troglodytes troglodytes*) with 28 pairs recorded, 12 pairs of robin (*Erithacus rubecula*) and nine pairs of blackcap (*Sylvia atricapilla*). The open water habitat at St Melons Golf Course supported single breeding pairs of coot (*Fulica atra*), little grebe and mallard. In addition, non-breeding mallard and teal were noted on this water body. No schedule 1 or SSSI species were recorded on this transect.

#### 3.2.3.2 Transect 2

A total of 90 pairs of 27 different species were recorded breeding on Transect 2. The most frequently recorded breeding species included wren (26 pairs), blackcap (11 pairs) and robin (nine pairs). In the southern part of this transect which included parts of the Gwent Levels, warblers associated with the grazing marsh and reed habitat were recorded including four pairs of reed warbler, two pairs of Cetti's warbler, two pairs of sedge warbler (*Acrocephalus schoenobaenus*) and a single pair of lesser whitethroat (*Sylvia curruca*).

#### 3.2.3.3 Transect 3

A total of 92 pairs of 32 different species were recorded breeding on Transect 3. The most frequently recorded breeding species included wren (15 pairs), chiffchaff (*Phylloscopus collybita*) (six pairs) and robin (five pairs). Notable species on this transect included the single breeding pair of lapwing described above, two pairs of Cetti's warbler and a single pair of skylark.

#### 3.2.3.4 Transect 4

A total of 124 pairs of 27 different species were recorded breeding on Transect 4. The most frequently recorded breeding species included wren (27 pairs), blackbird (*Turdus merula*) (16 pairs) and song thrush (eight pairs). Two pairs of Cetti's warbler were recorded on this transect, along with a single pair of siskin (*Carduelis spinus*).

#### 3.2.3.5 Transect 5

A total of 91 pairs of 19 different species were recorded breeding on Transect 5. This transect was dominated by reedbed and scrub habitat, and the most frequently recorded breeding species included reed warbler (26 pairs), Cetti's warbler (20 pairs) and wren (14 pairs). A single singing male cuckoo was recorded on this transect along with three pairs of reed bunting.

#### 3.2.3.6 Transect 6

A total of 165 pairs of 31 different species were recorded breeding on Transect 6, the highest totals from any single transect. This transect was dominated by reedbed, swamp and scrub habitat, and the most frequently recorded breeding species included wren (25 pairs), Cetti's

warbler (24 pairs) and reed warbler (22 pairs). Two singing male cuckoos were recorded on this transect along with a single singing male grasshopper warbler. Wildfowl regularly seen on pools within this area included shelduck, gadwall and mallard.

### 3.2.3.7 Transect 7

A total of 120 pairs of 29 different species were recorded breeding on Transect 7. The most frequently recorded breeding species included wren (16 pairs), whitethroat (*Sylvia communis*) (12 pairs) and blackbird (nine pairs). Four pairs of Cetti's warbler were recorded on this transect, along with two pairs of jay (*Garrulus glandarius*) and six pairs of sedge warbler. These were the highest counts of breeding pairs for the latter two species on any transect.

### 3.2.3.8 Transect 8

A total of 111 pairs of 27 different species were recorded breeding on Transect 8. The most frequently recorded breeding species included wren (18 pairs), blackcap (15 pairs) and chiffchaff (10 pairs). This woodland transect produced records of crossbill as described above, along with single pair of lesser redpoll, eight pairs of goldcrest (*Regulus regulus*), three pairs of great spotted woodpecker (*Dendrocopos major*) and a single pair of bulfinch.

## 4 Conclusions

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A total of 75 species were recorded during the breeding bird surveys between April and June 2014. Of these, 52 species were considered likely to be breeding within the study area based on their behaviour.

Two of the species are associated with the Severn Estuary Ramsar site (herring gull and lesser-black backed gull), though neither of these species were recorded breeding. Only one species was recorded that is considered a noteworthy spring/passage species associated with the Ramsar site (little egret) and again no breeding pairs were found.

Four species were recorded that are specifically named on SSSI citations, including lapwing, redshank, water rail and Cetti's warbler. In addition three Schedule 1 species were recorded: peregrine, crossbill and Cetti's warbler.

Ten bird species were recorded that are on the Red list of BOCC; of these, nine were recorded breeding. 24 Amber list species were recorded of which 13 were recorded breeding. Twelve species were recorded that are S42 priority species, of which ten bred within the study area.

Overall the assemblage of breeding birds recorded is typical of the habitats surveyed within the study area. Most transects supported a range of familiar bird species associated with hedgerows, farmland, scrub and urban areas. None of the transects supported notably high densities of farmland indicator species, such as skylark or linnet.

The study area included parts of the Gwent Levels, but fields are relatively enclosed and grazing marsh habitats are relatively dry. Very low levels of wader activity were recorded, with just a single pair of lapwing recorded breeding. Likewise few breeding waterfowl were recorded.

Transect 8 within woodland at the extreme western end of the study area generated records of a somewhat different breeding bird assemblage, as would be expected with the different habitat type present. Notably, this included a small party of crossbills in April that may have bred in the area.

Transects 5 and 6 to the south of Llanwern steelworks supported a rather different assemblage of breeding birds in comparison with other transects, due to the dominance of reedbed, swamp and open water habitats. Of particular note are the high counts of Cetti's warbler, but other birds of conservation concern in this area included water rail, cuckoo, grasshopper warbler and reed bunting.

The Llanwern area is known to be stronghold in Gwent for Cetti's warbler. The 2012 county bird report (Gwent Ornithological Society, 2012) states that 20 singing birds were recorded in March (though it assumed that this total was recorded from public rights of way) with another 30 at the Newport Wetlands Reserve. The species is described as an uncommon breeding resident but is has shown recent range expansion. In common with the results presented here, all singing birds reported are considered indicative of breeding pairs within the county bird report.

## 4.1 Recommendations

Individual breeding bird species and the breeding bird assemblages associated with different habitats within the study area should be evaluated as part of the project level Ecological Impact Assessment. It should be noted that this breeding bird survey did not include specific searches for species that are typically crepuscular or nocturnal, notably owls. Barn owl *Tyto alba* have been recorded on the Gwent Levels and this species should be adequately considered during the project level Ecological Impact Assessment.

In particular, reedbed, swamp, scrub and open water habitats south of the Llanwern steelworks have been shown to support large numbers of Cetti's warblers and other birds of conservation concern.

At this stage, no details are available of the extent of works in this area but it is recommended that during the design process habitat retention, protection and if necessary replacement and enhancement measures are implemented along the route.

Due to their legal protection, mitigation for breeding birds should be designed into the project, including any necessary measures to avoid disturbance of Schedule 1 species, notably Cetti's warbler.

Finally, the project level Habitats Regulation Assessment should consider impacts to breeding birds associated with the Severn Estuary Ramsar site.

## References

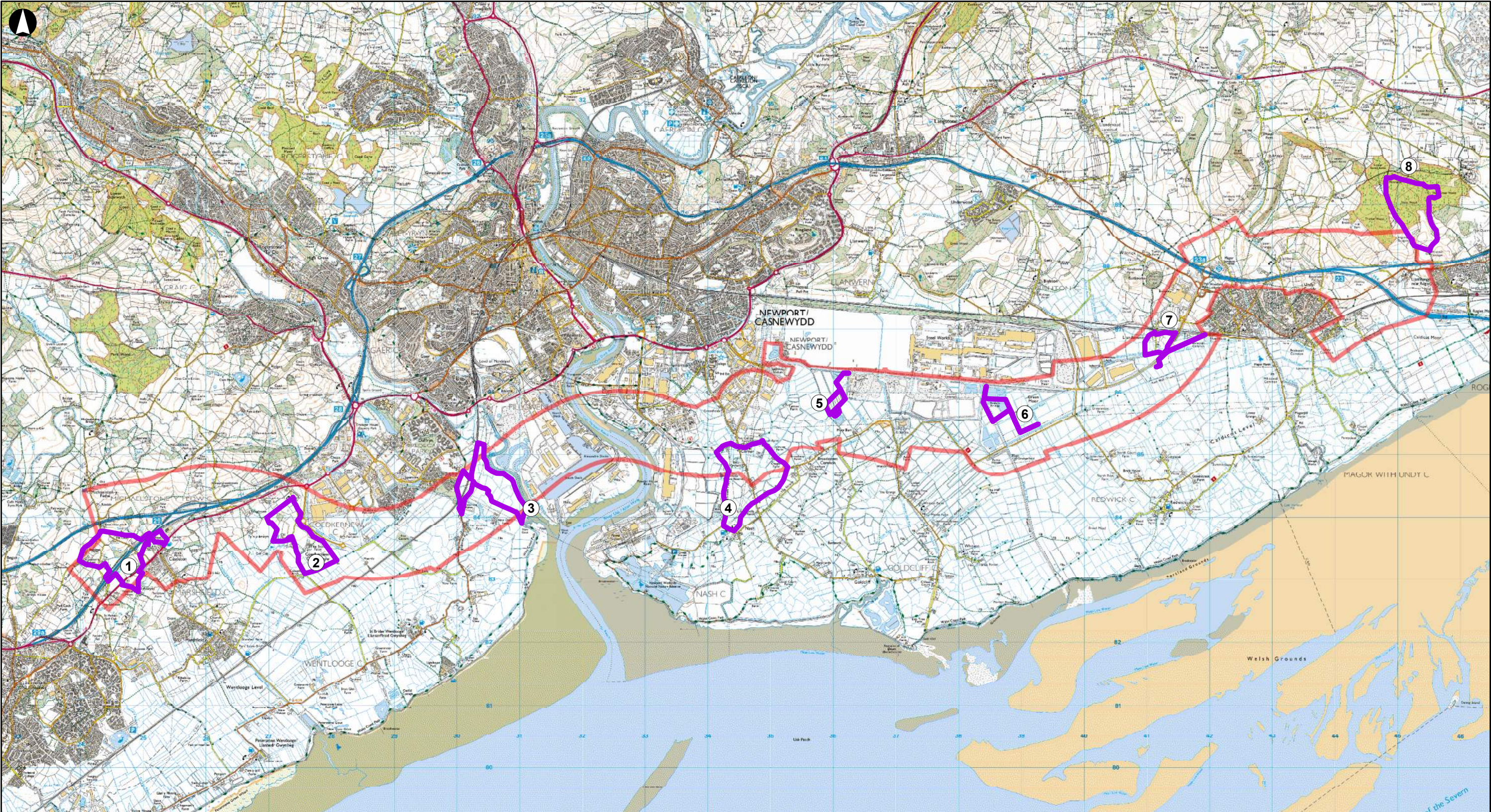
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# Drawings

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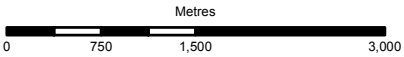
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Transect 4 - 4.2539km  
Transect 5 - 2.0305km  
Transect 6 - 3.0491km  
Transect 7 - 3.5875km  
Transect 8 - 3.5609km

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Coridor yr M4 o amgylch Casnewydd**

**Plan 1 - BBS 2014 Transect  
Overview**

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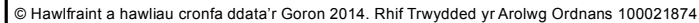
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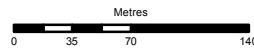
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Job Title

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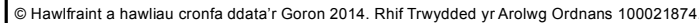
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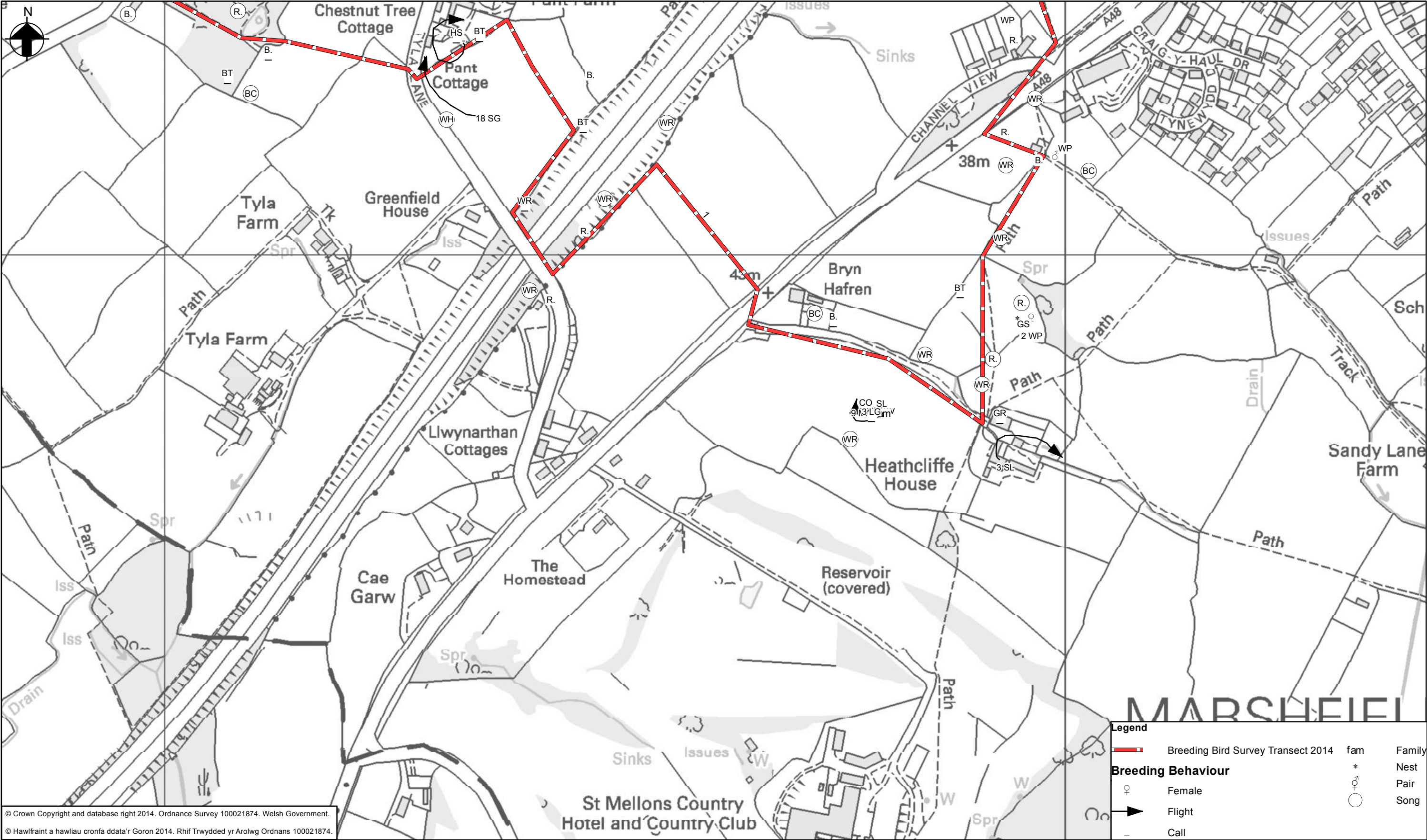
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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BT - Blue Tit
  - CO - Coot
  - GR - Greenfinch
  - GS - Great Spotted Woodpecker
  - HS - House Sparrow
  - JD - Jackdaw
  - LG - Little Grebe
  - MA - Mallard
  - MH - Moorhen
  - R. - Robin
  - SG - Starling
  - SL - Swallow
  - WH - Whitethroat
  - WP - Woodpigeon
  - WR - Wren

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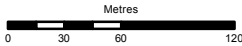
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Job Title

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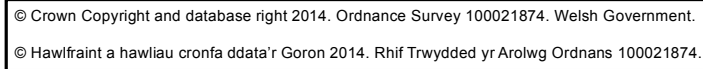
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**Plan 4:  
Transect 1 May Results - South**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0006</b>	<b>F1</b>





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Issue	Date	By	Chkd	Appd

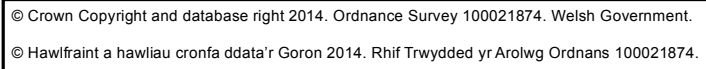


**Client**

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Species:	Woodpecker	SD - Stock Dove
B. - Blackbird	HS - House Sparrow	SG - Starling
BC - Blackcap	J. - Jay	ST - Song Thrush
BT - Blue Tit	JD - Jackdaw	T. - Teal
C. - Carrion Crow	LG - Little Grebe	WR - Wren
CC - Chiffchaff	M. - Mistle Thrush	
CO - Coot	MA - Mallard	
D. - Dunnock	MG - Magpie	
GO - Goldfinch	MH - Moorhen	
GS - Great Spotted	R. - Robin	

F1	2014-10-01	FG	PW	PW
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Issue	Date	By	Chkd	Appd



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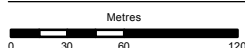
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Job Title

## M4 Corridor Around Newport

## Coridor yr M4 o amgylch Casnewydd



Scale at A3  
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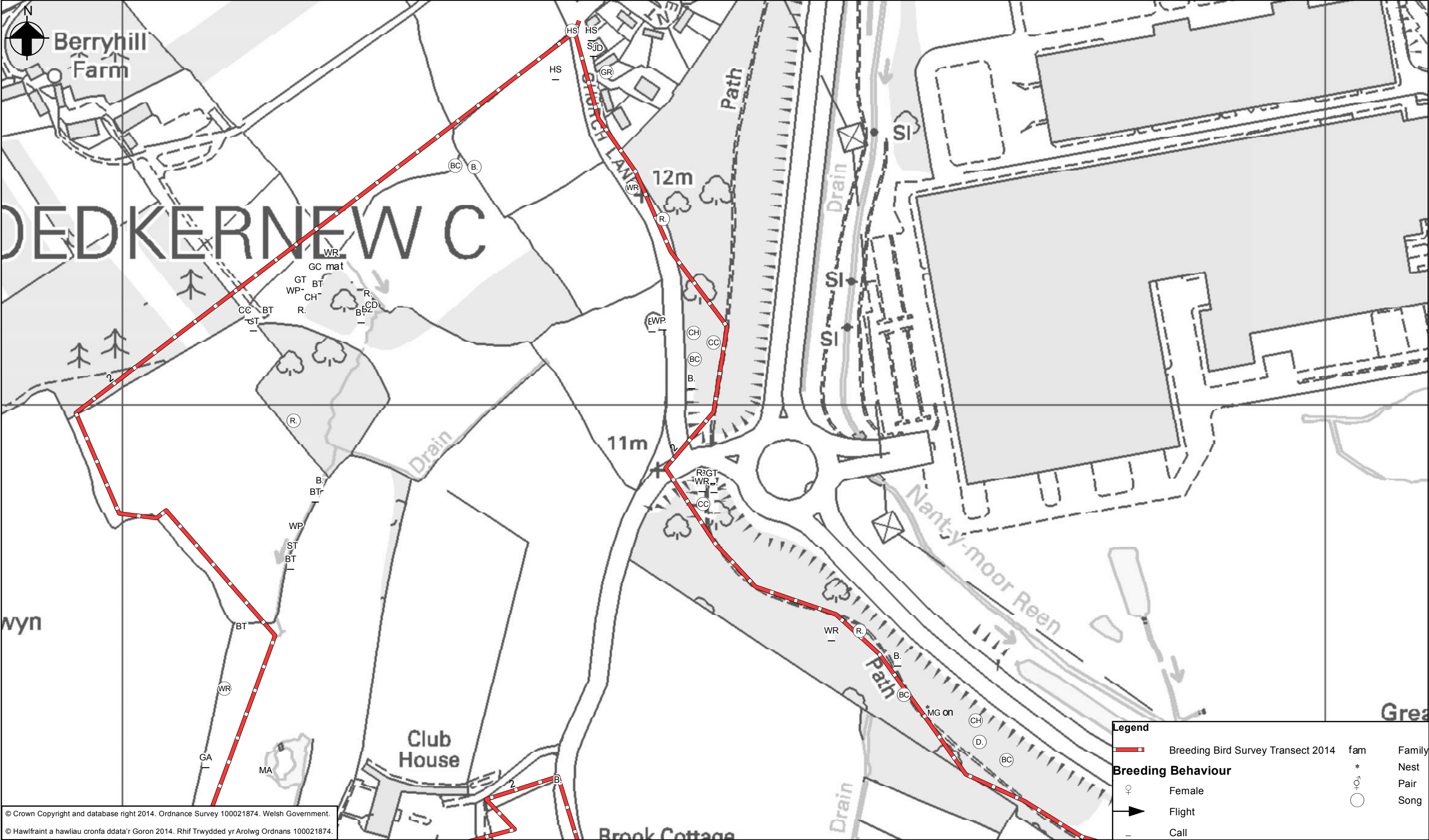
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**Plan 6:**  
**Transect 1 June Results - South**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0008</b>	Issue <b>F1</b>






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Speies:	GC - Goldcrest	ST - Song Thrush
B. - Blackbird	GR - Greenfinch	WP - Woodpigeon
BC - Blackcap	GT - Great Tit	WR - Wren
BT - Blue Tit	HS - House Sparrow	
BZ - Buzzard	J. - Jay	
CC - Chiffchaff	JD - Jackdaw	
CD - Collared Dove	MA - Mallard	
CH - Chaffinch	MG - Magpie	
D. - Dunnock	R. - Robin	
GA - Gadwall	SG - Starling	

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Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**

Metres

Scale at A3

**1:3,000**

**ARUP**

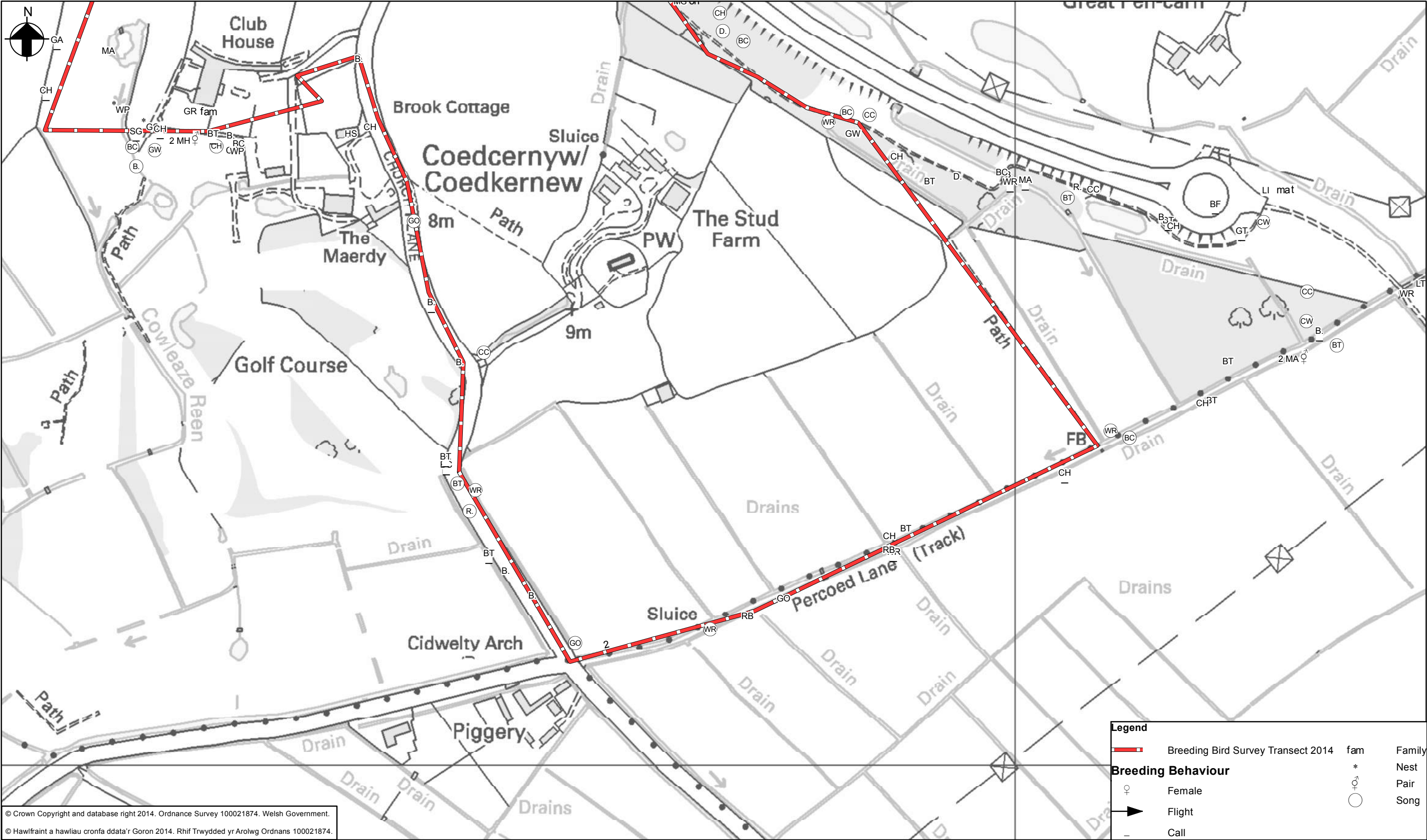
4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

**Plan 7:  
Transect 2 April Results - North**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0009</b>	<b>F1</b>






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- Species:
- |                      |                               |                   |
|----------------------|-------------------------------|-------------------|
| B. - Blackbird       | GO - Goldfinch                | MH - Moorhen      |
| BC - Blackcap        | GR - Greenfinch               | R. - Robin        |
| BF - Bullfinch       | GS - Great Spotted Woodpecker | RB - Reed Bunting |
| BT - Blue Tit        | GT - Great Tit                | SG - Starling     |
| CC - Chiffchaff      | GW - Garden Warbler           | WP - Woodpigeon   |
| CH - Chaffinch       | HS - House Sparrow            | WR - Wren         |
| CW - Cetti's Warbler | LI - Linnet                   |                   |
| D. - Dunnock         | LT - Long-tailed Tit          |                   |
| GA - Gadwall         | MA - Mallard                  |                   |

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

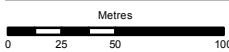
Transport  
Department for Economy, Science and Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,500**

**ARUP**

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Drawing Title

**Plan 8:  
Transect 2 April Results - South**

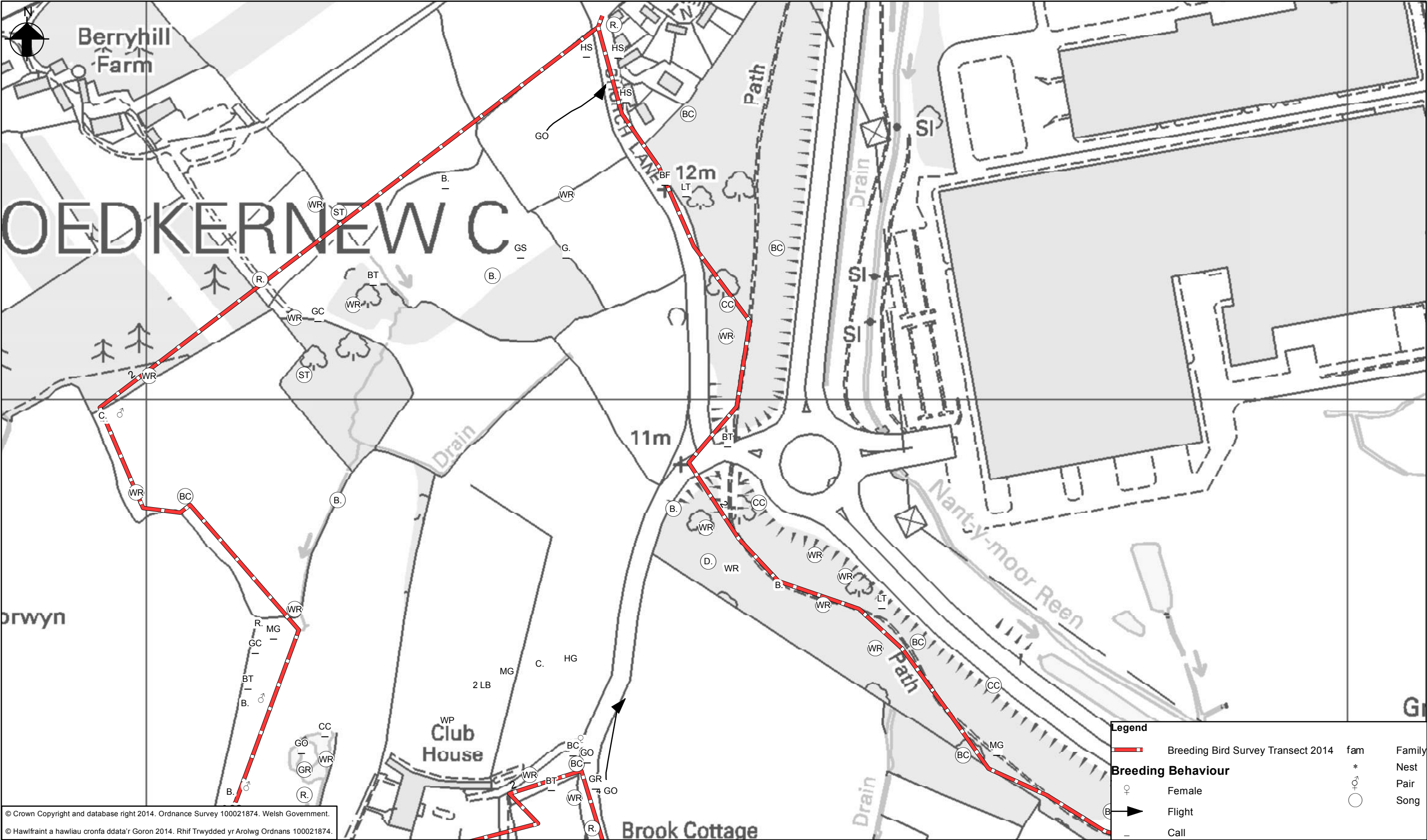
Job No  
**117300-01**

Drawing Status  
**For Issue**

Drawing No  
**M4-OA-01-00-DR-Z-BB-0010**

Issue  
**F1**






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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BF - Bullfinch
  - BT - Blue Tit
  - C. - Carrion Crow
  - CC - Chiffchaff
  - D. - Dunnock
  - G. - Grey Heron
  - GC - Goldcrest
  - GO - Goldfinch
  - GR - Greenfinch
  - GS - Great Spotted Woodpecker
  - HG - Herring Gull
  - HS - House Sparrow
  - LB - Lesser Black-backed Gull
  - LT - Long-tailed Tit
  - MG - Magpie
  - R. - Robin
  - ST - Song Thrush
  - WP - Woodpigeon
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

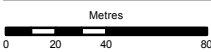
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,000**

**ARUP**

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**Legend**

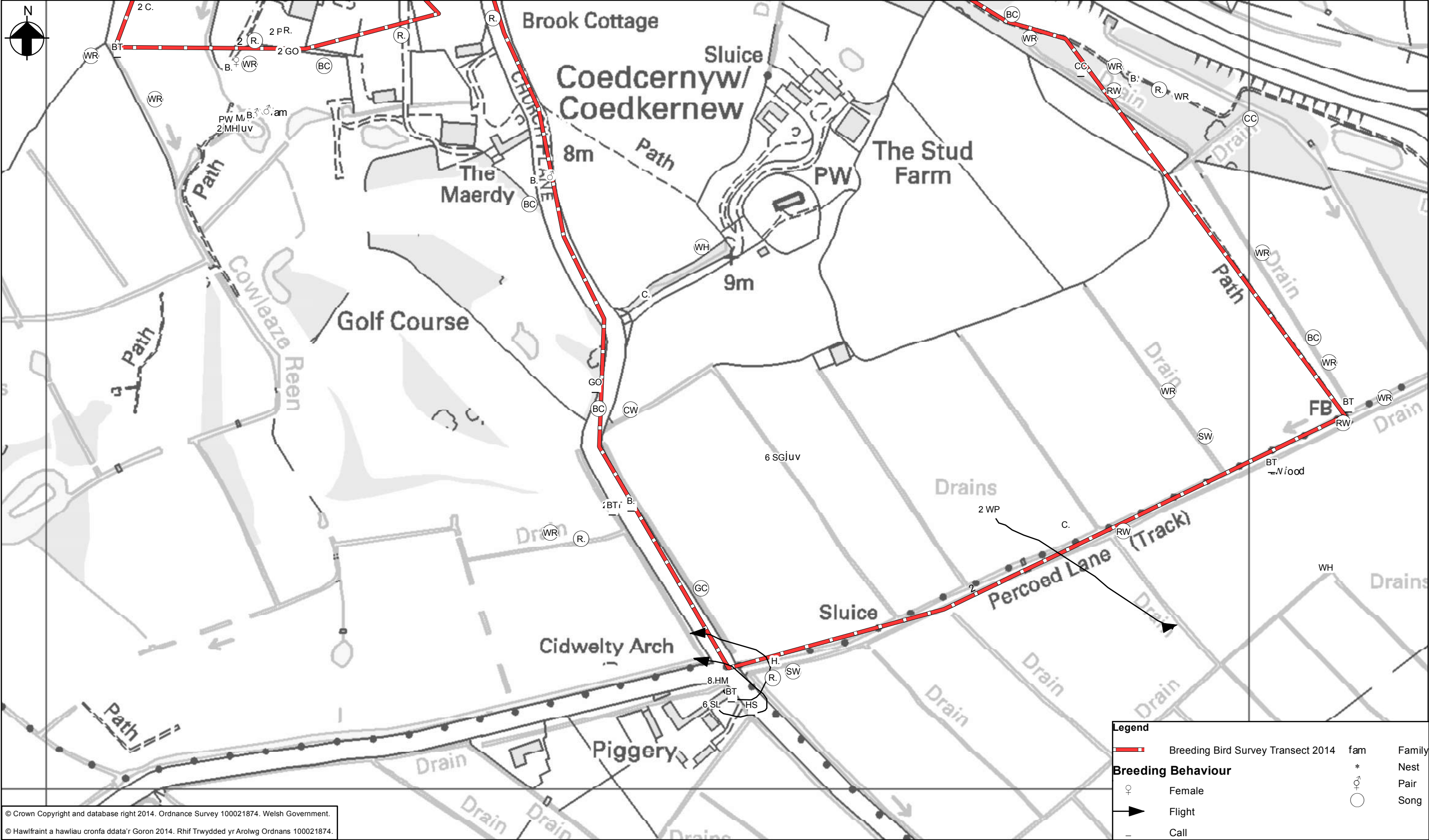
- Breeding Bird Survey Transect 2014
- Breeding Behaviour
- Female
- Flight
- Call
- fam
- Nest
- Pair
- Song

Drawing Title

**Plan 9:  
Transect 2 May Results - North**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0011</b>	Issue <b>F1</b>






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- Species:
- |                      |                         |                    |
|----------------------|-------------------------|--------------------|
| B. - Blackbird       | GT - Great Tit          | RW - Reed Warbler  |
| BC - Blackcap        | H. - Grey Heron         | SL - Swallow       |
| BT - Blue Tit        | HM - House Martin       | SW - Sedge Warbler |
| C. - Carrion Crow    | HS - House Sparrow      | WH - Whitethroat   |
| CC - Chiffchaff      | LW - Lesser Whitethroat | WP - Woodpigeon    |
| CG - Canada Goose    | MA - Mallard            | WR - Wren          |
| CW - Cetti's Warbler | MH - Moorhen            |                    |
| GC - Goldcrest       | PW - Pied Wagtail       |                    |
| GO - Goldfinch       | R. - Robin              |                    |

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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Welsh Government

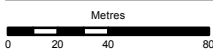
Transport  
Department for Economy, Science and Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,000**

**ARUP**

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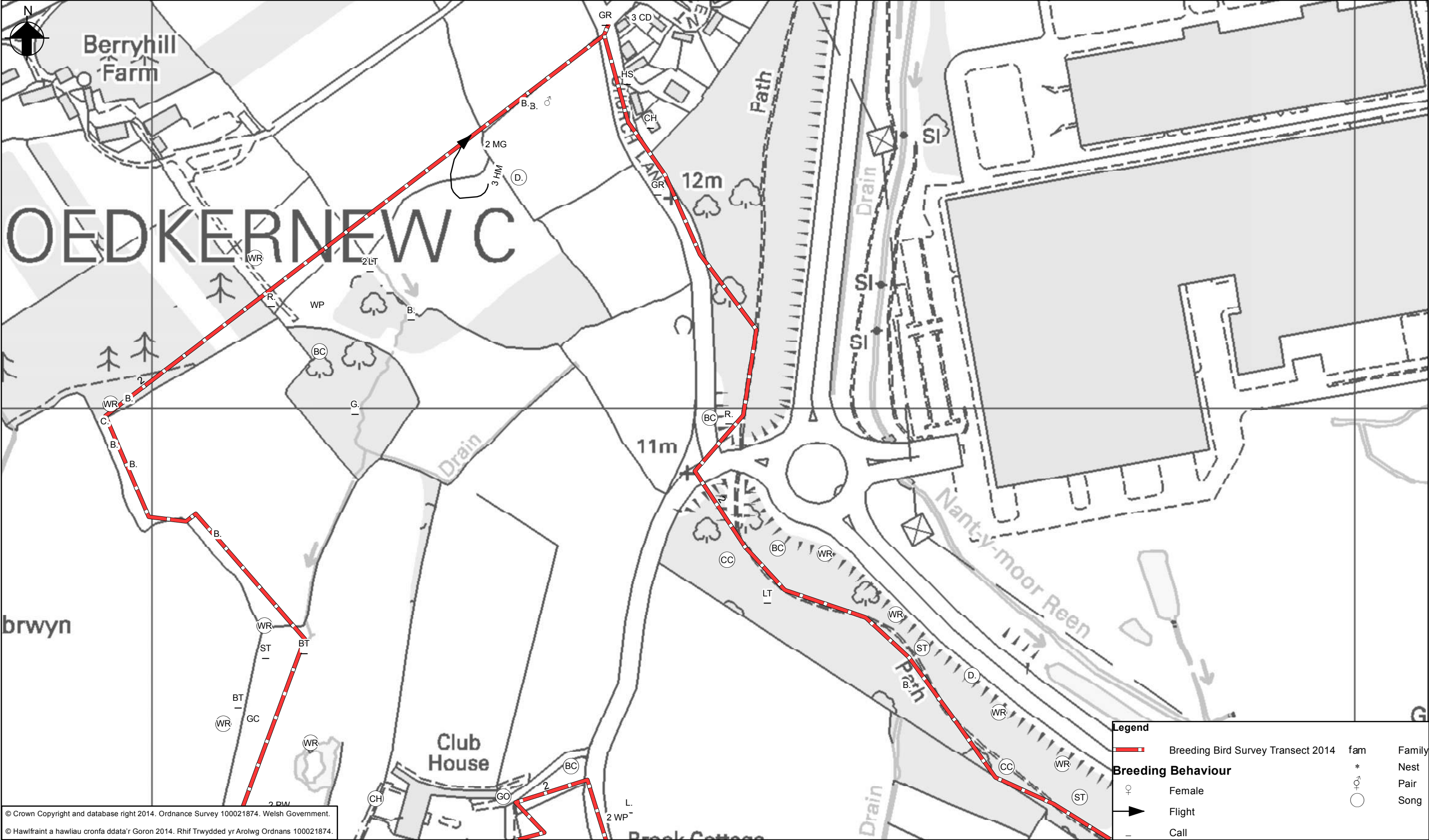
Drawing Title

**Plan 10:  
Transect 2 May Results - South**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>

Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0012</b>	<b>F1</b>





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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BT - Blue Tit
  - C. - Carrion Crow
  - CC - Chiffchaff
  - CD - Collared Dove
  - CH - Chaffinch
  - D. - Dunnock
  - G. - Grey Heron
  - GC - Goldcrest
  - GO - Goldfinch
  - GR - Greenfinch
  - HM - House Martin
  - HS - House Sparrow
  - L. - Lapwing
  - LT - Long-tailed Tit
  - MG - Magpie
  - R. - Robin
  - ST - Song Thrush
  - WP - Wood Pigeon
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

Llywodraeth Cymru  
Welsh Government

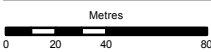
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3

**1:3,000**

**ARUP**

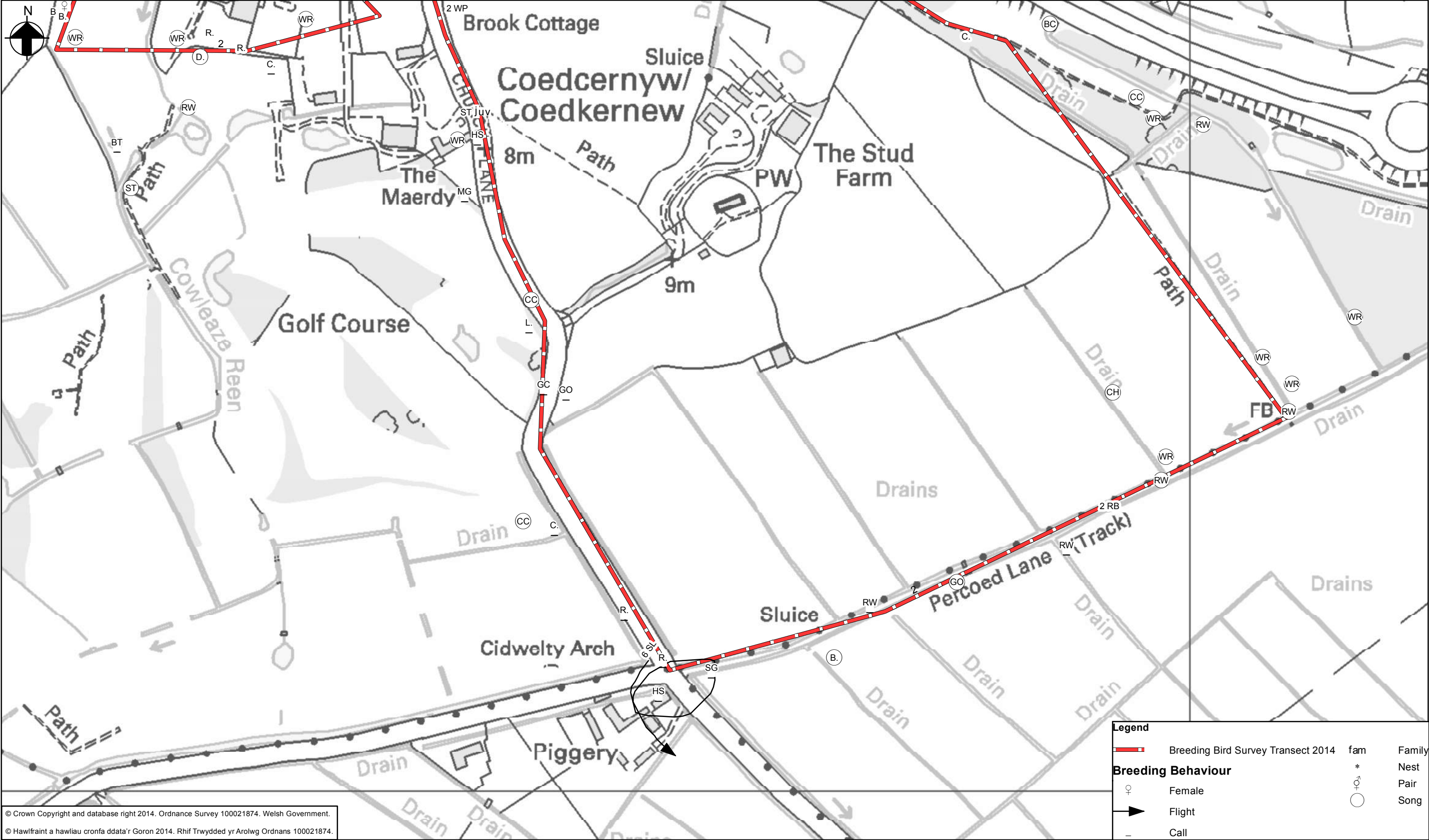
4 Pierhead Street, Capital Waterside  
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Drawing Title

**Plan 11:  
Transect 2 June Results - North**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0013</b>	<b>F1</b>






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- Species:
- |                   |                    |           |
|-------------------|--------------------|-----------|
| B. - Blackbird    | HS - House Sparrow | WR - Wren |
| BC - Blackcap     | L. - Lapwing       |           |
| BT - Blue Tit     | MG - Magpie        |           |
| C. - Carrion Crow | R. - Robin         |           |
| CC - Chiffchaff   | RB - Reed Bunting  |           |
| CH - Chaffinch    | RW - Reed Warbler  |           |
| D. - Dunnock      | SG - Starling      |           |
| GC - Goldcrest    | SL - Swallow       |           |
| GO - Goldfinch    | ST - Song Thrush   |           |
|                   | WP - Wood Pigeon   |           |

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd



Llywodraeth Cymru  
Welsh Government

Client

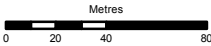
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,000**

**ARUP**

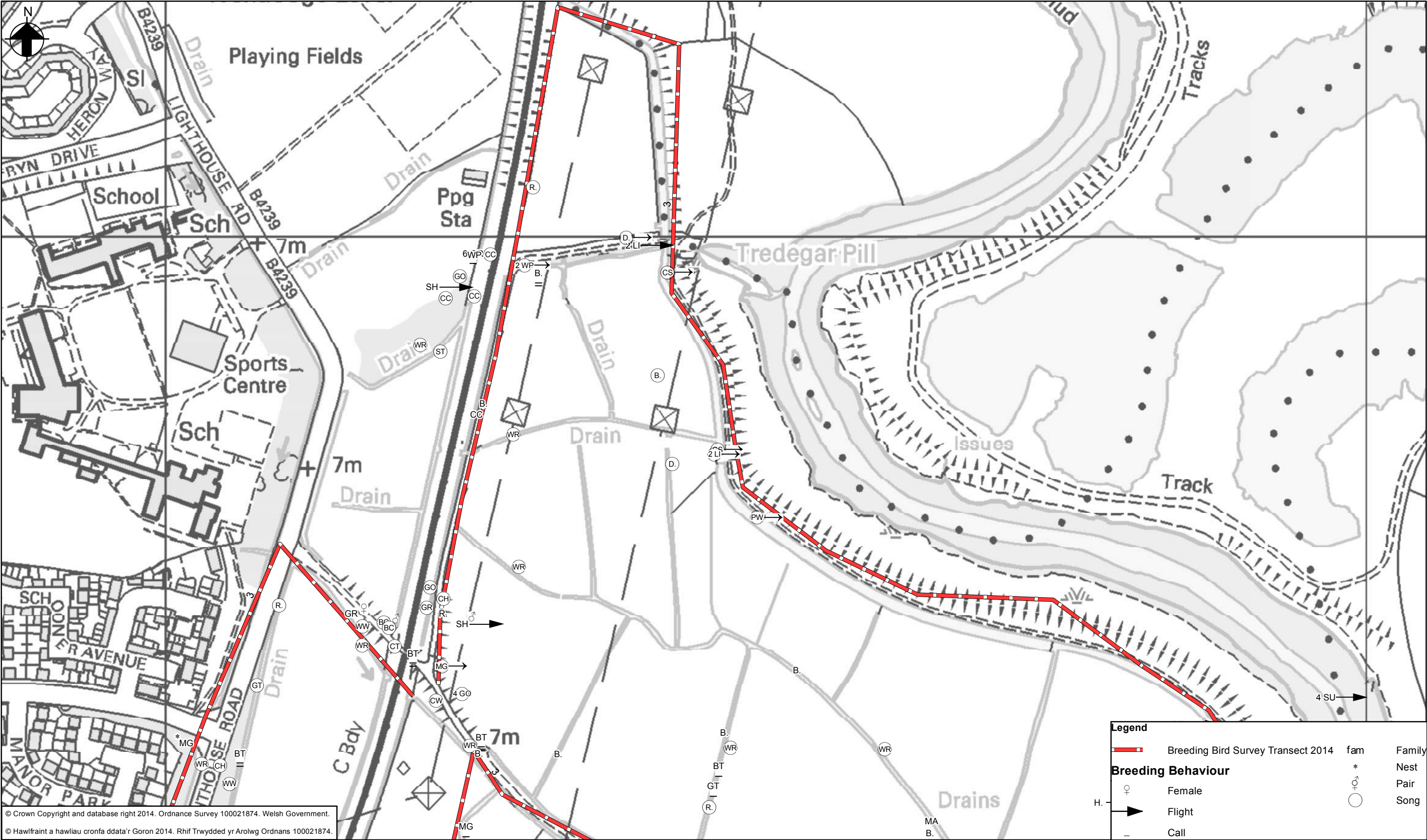
4 Pierhead Street, Capital Waterside  
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Drawing Title

**Plan 12:  
Transect 2 June Results - South**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0014</b>	<b>F1</b>






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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BT - Blue Tit
  - CC - Chiffchaff
  - CH - Chaffinch
  - CS - Common Sandpiper
  - CT - Coal Tit
  - D. - Dunnock
  - GO - Goldfinch
  - GR - Greenfinch
  - GT - Great Tit
  - LI - Linnet
  - MA - Mallard
  - MG - Magpie
  - PW - Pied Wagtail
  - R. - Robin
  - SH - Sparrowhawk
  - ST - Song Thrush
  - SU - Shelduck
  - WP - Woodpigeon
  - WR - Wren
  - WW - Willow Warbler

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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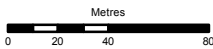
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,000**

**ARUP**

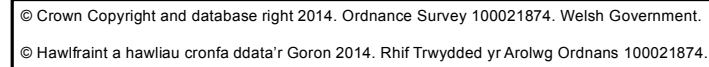
4 Pierhead Street, Capital Waterside  
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T +44(0)29 20473727 F +44(0)29 20472277  
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Drawing Title

**Plan 13:  
Transect 3 April Results - North**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0015</b>	Issue <b>F1</b>





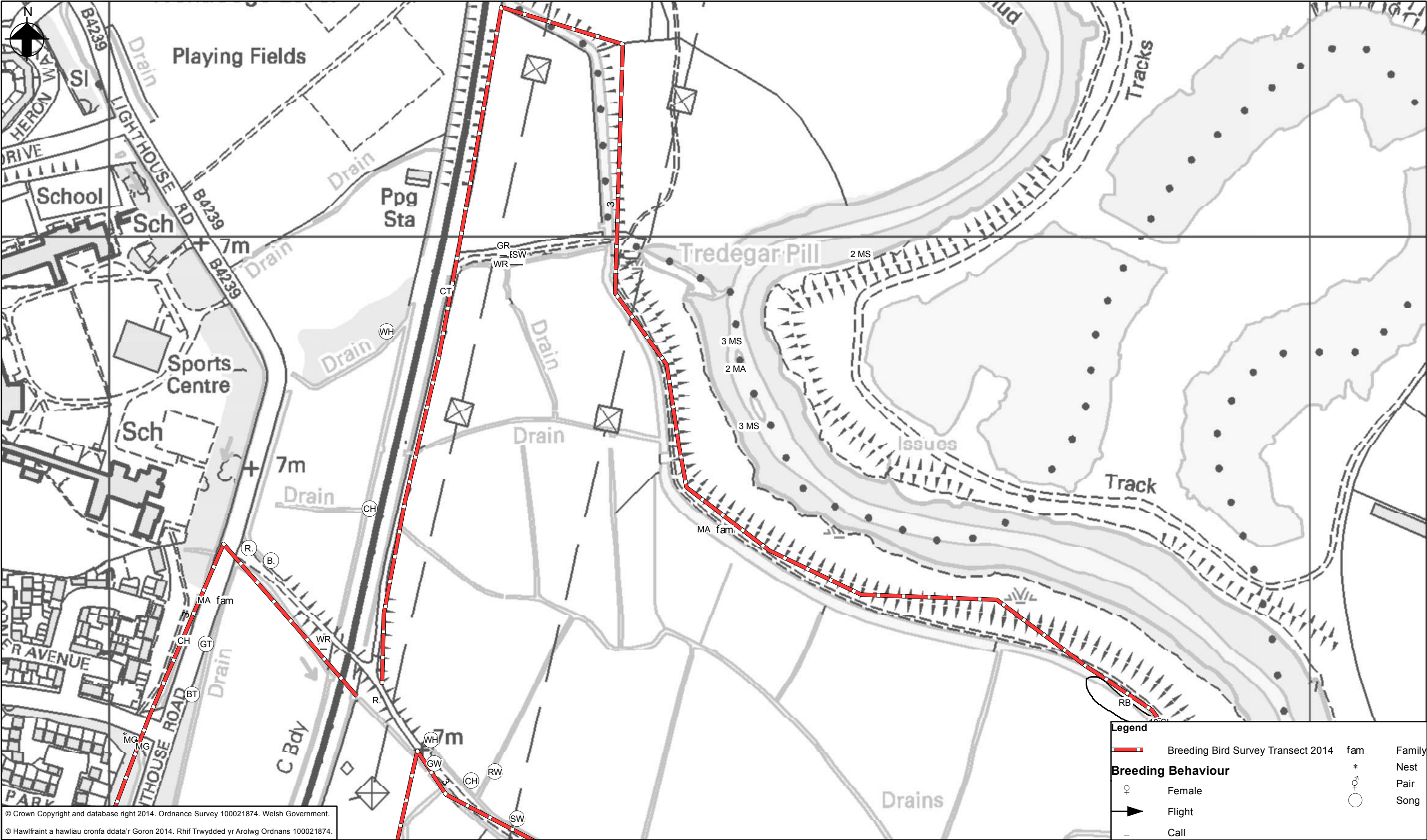
F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

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Welsh Government

Scale at A3  
**1:3,000**

Issue	F1
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- Species:
- |                     |                    |           |
|---------------------|--------------------|-----------|
| B. - Blackbird      | MG - Maggie        | WR - Wren |
| BT - Blue Tit       | MS - Mute Swan     |           |
| CH - Chaffinch      | R. - Robin         |           |
| CT - Coal Tit       | RB - Reed Bunting  |           |
| GR - Greenfinch     | RW - Reed Warbler  |           |
| GT - Great Tit      | S. - Skylark       |           |
| GW - Garden Warbler | SL - Swallow       |           |
| MA - Mallard        | SM - Sand Martin   |           |
|                     | SW - Sedge Warbler |           |
|                     | WH - Whitethroat   |           |

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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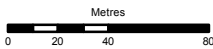
Transport  
Department for Economy, Science and Transport  
Welsh Government  
Cathays Park  
Cardiff  
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Adran Economi, Gwyddoniaeth a Thrafnidiaeth  
Llywodraeth Cymru  
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Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,000**

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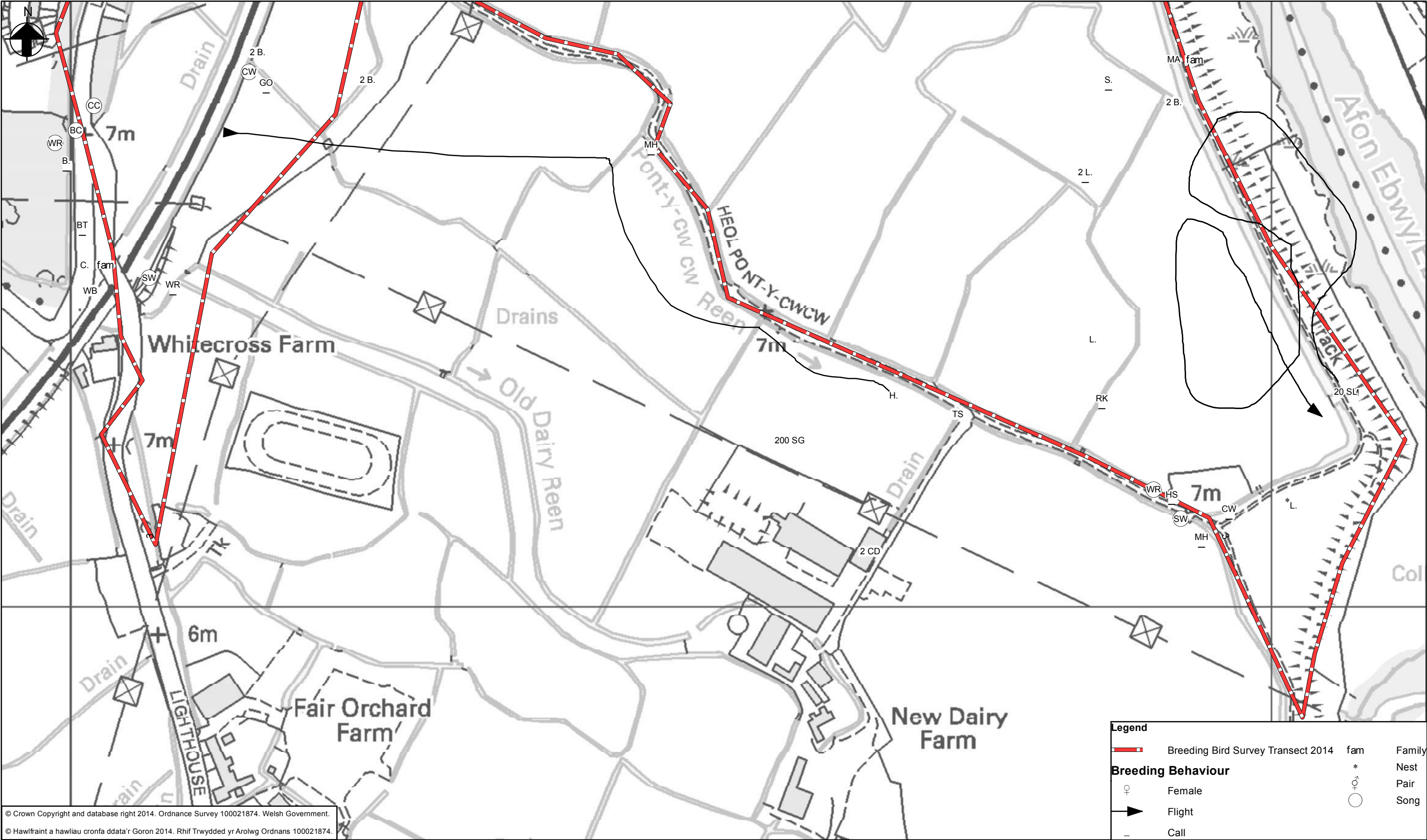
Drawing Title

**Plan 15:  
Transect 3 May Results - North**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>

Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0017</b>	<b>F1</b>






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Species:	HS - House Sparrow	TS - Tree Sparrow
B. - Blackbird	L. - Lapwing	WB - White Wagtail
BC - Blackcap	MA - Mallard	WR - Wren
BT - Blue Tit	MH - Moorhen	
C. - Carrion Crow	RK - Redshank	
CC - Chiffchaff	S. - Skylark	
CD - Collared Dove	SG - Starling	
CW - Cetti's Warbler	SL - Swallow	
GO - Goldfinch	SM - Sand Martin	
H. - Grey Heron	SW - Sedge Warbler	

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
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Welsh Government  
Cathays Park  
Cardiff  
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Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd

Metres



Scale at A3

1:3,000

ARUP

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Drawing Title

Plan 16:  
Transect 3 May Results - South

Job No

117300-01

Drawing Status

For Issue

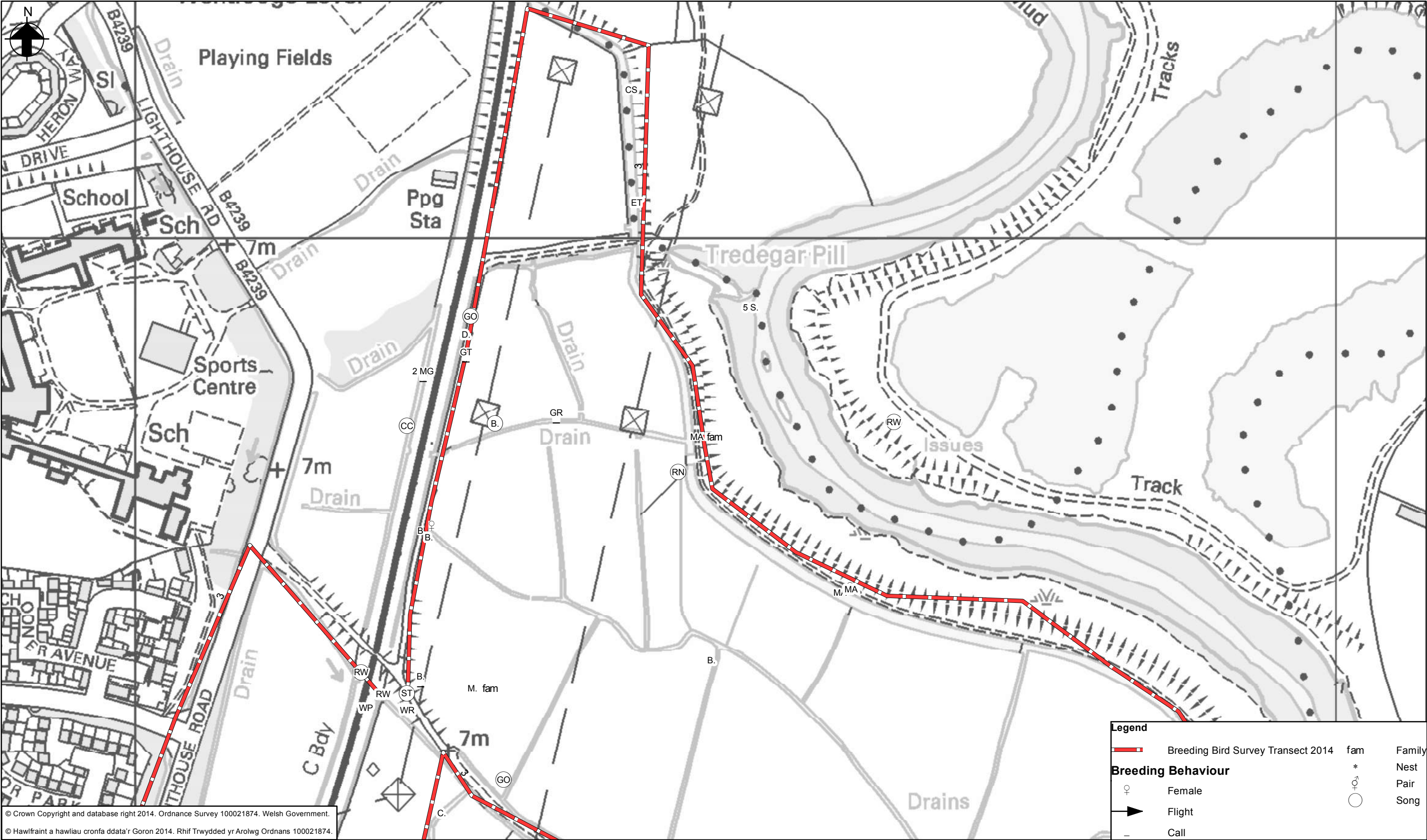
Drawing No

M4-OA-01-00-DR-Z-BB-0018

Issue

F1






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- Species:
- B. - Blackbird
  - C. - Carrion Crow
  - CC - Chiffchaff
  - CS - Common Sandpiper
  - D. - Dunnock
  - ET - Little Egret
  - GO - Goldfinch
  - GR - Greenfinch
- GT - Great Tit
- M. - Mistle Thrush
  - MA - Mallard
  - MG - Magpie
  - RN - Raven
  - RW - Reed Warbler
  - S. - Skylark
  - ST - Song Thrush
  - WP - Woodpigeon
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

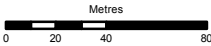
Transport  
Department for Economy, Science and Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,000**

**ARUP**

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Drawing Title

**Plan 17:  
Transect 3 June Results - North**

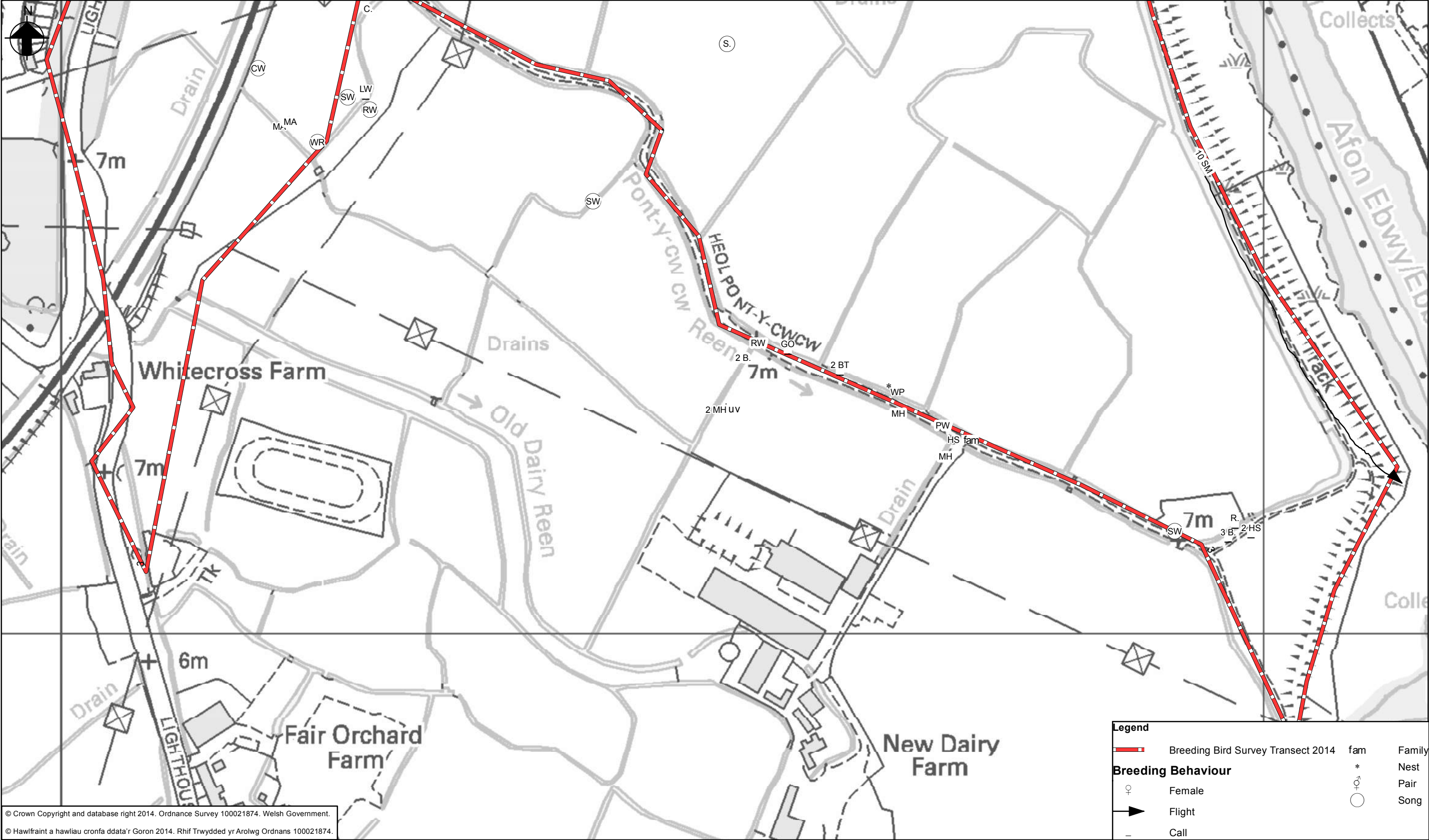
Job No  
**117300-01**

Drawing Status  
**For Issue**

Drawing No  
**M4-OA-01-00-DR-Z-BB-0019**

Issue  
**F1**






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- Species:
- B.- Blackbird
  - BT - Blue Tit
  - C. - Carrion Crow
  - CW - Cetti's Warbler
  - GO - Goldfinch
  - HS - House Sparrow
  - LW - Lesser Whitethroat
  - MA - Mallard
  - MH - Moorhen
  - PW - Pied Wagtail
  - R. - Robin
  - RW - Reed Warbler
  - S. - Skylark
  - SM - Sand Martin
  - SW - Sedge Warbler
  - WP - Woodpigeon
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

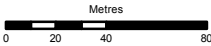


Llywodraeth Cymru  
Welsh Government

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,000**

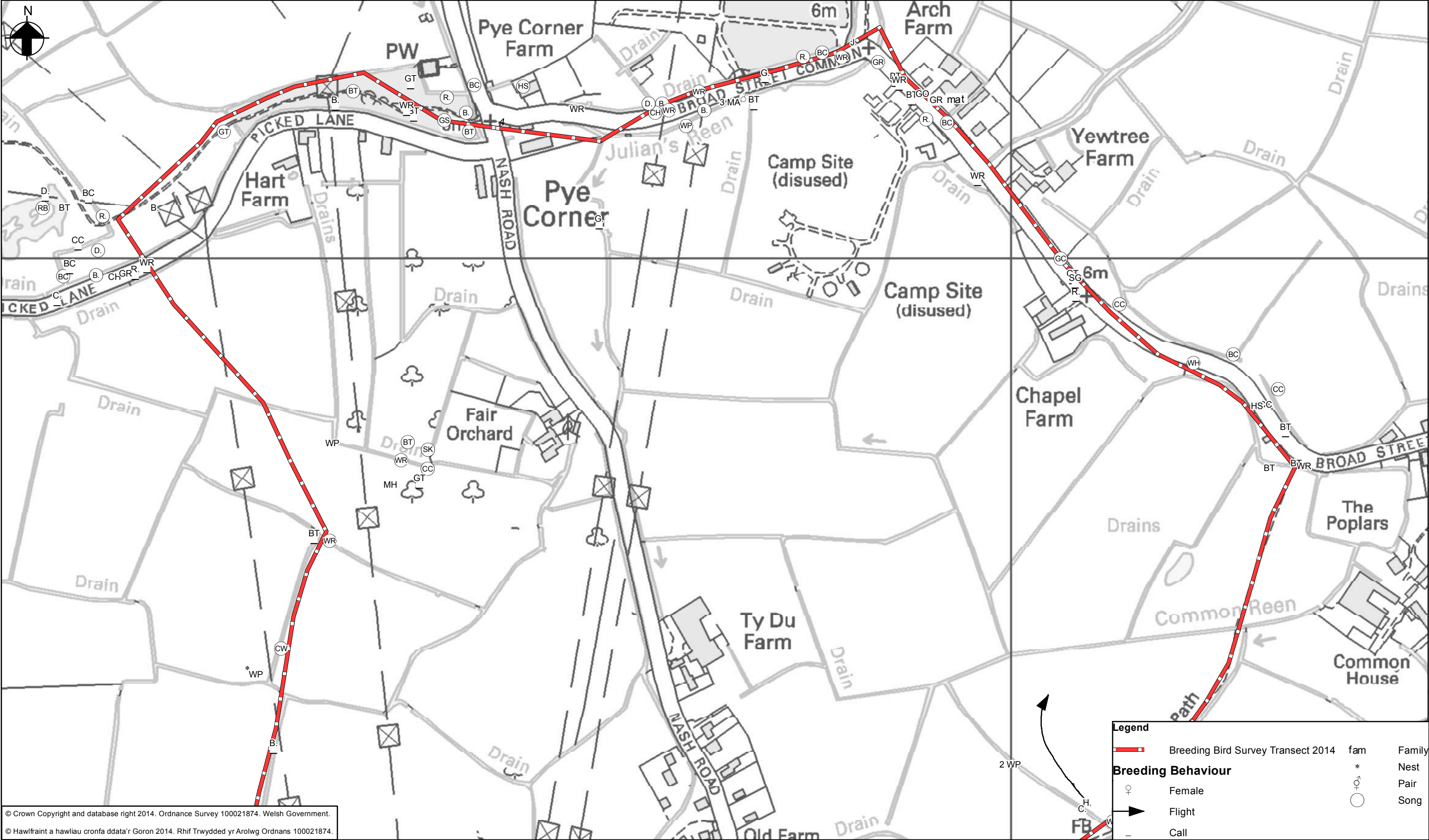
**ARUP**

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Cardiff, CF10 4QP  
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www.arup.com

Drawing Title  
**Plan 18:  
Transect 3 June Results - South**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0020</b>	Issue <b>F1</b>






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- Species:

B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
C. - Carrion Crow  
CC - Chiffchaff  
CH - Chaffinch  
CW - Cetti's Warbler  
D. - Dunnock  
G. - Green
- Woodpecker  
GC - Goldcrest  
GO - Goldfinch  
GR - Greenfinch  
GS - Great Spotted Woodpecker  
GT - Great Tit  
H. - Grey Heron  
HS - House Sparrow  
J. - Jay
- MA - Mallard  
MH - Moorhen  
R. - Robin  
RB - Reed Bunting  
SG - Starling  
SK - Siskin  
WH - Whitethroat  
WP - Woodpigeon  
WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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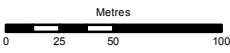
Transport  
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Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
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Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd



Scale at A3  
1:3,500

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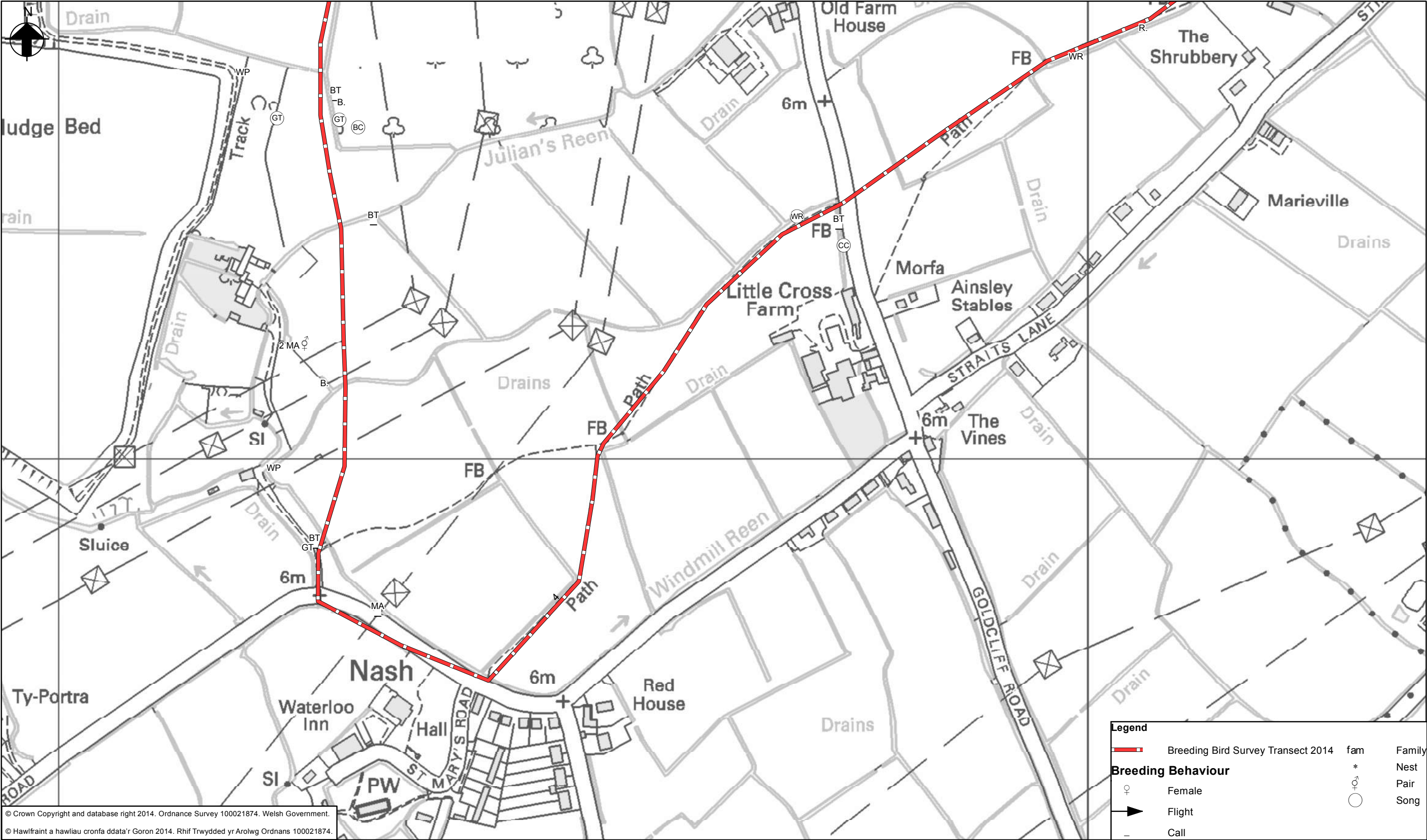
Drawing Title

Plan 19:  
Transect 4 April Results - North

Job No	Drawing Status
117300-01	For Issue

Drawing No	Issue
M4-OA-01-00-DR-Z-BB-0021	F1





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Species:

- B. - Blackbird
- BT - Blue Tit
- BC - Blackcap
- CC - Carrion Crow
- GT - Great Tit
- MA - Mallard
- R. - Robin
- WP - Woodpigeon
- WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

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Job Title

**M4 Corridor Around Newport**

Coridor yr M4 o amgylch Casnewydd

Metres

0 25 50 100

Scale at A3

**1:3,500**

Drawing Title

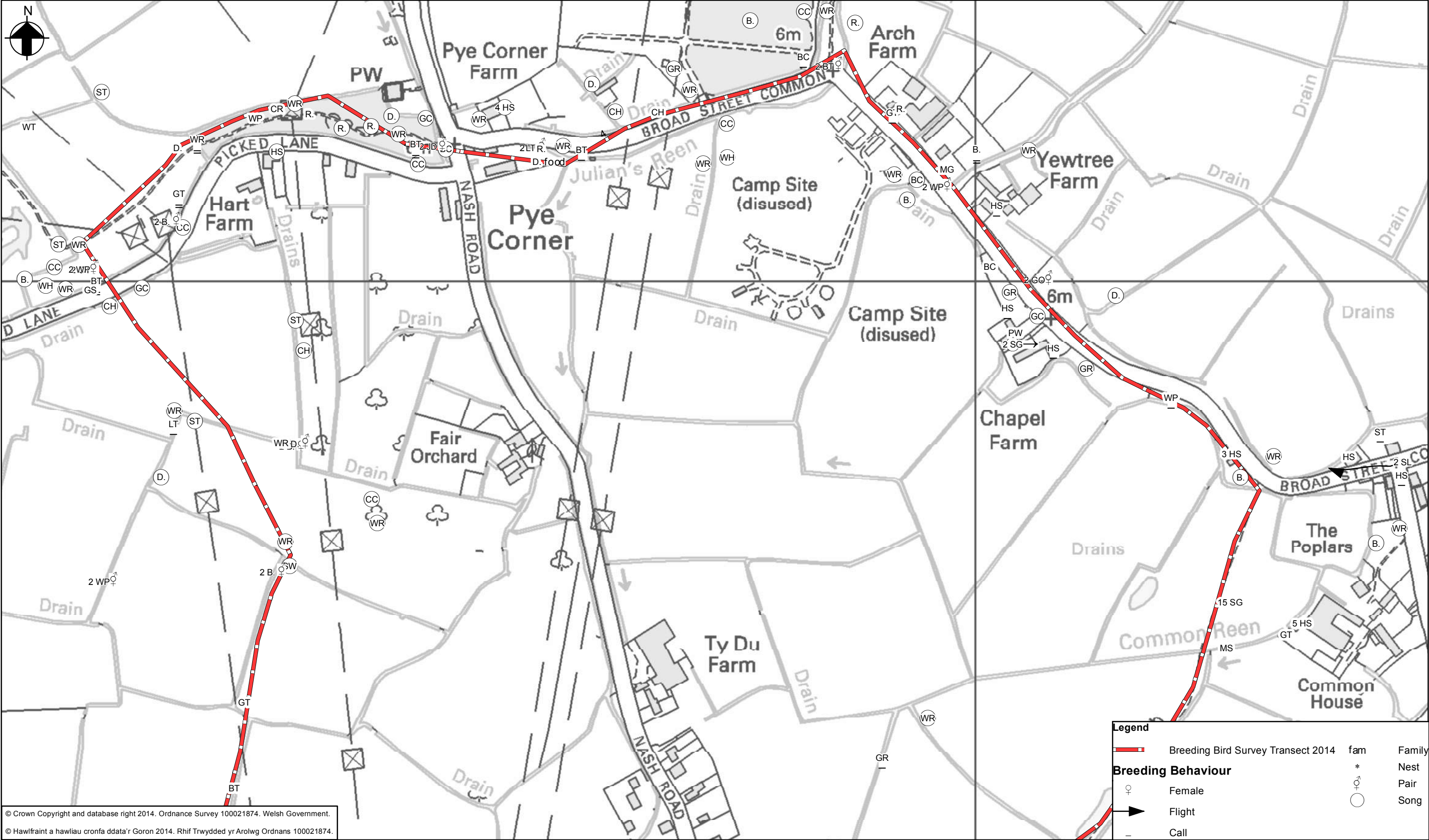
**Plan 20:**  
**Transect 4 April Results - South**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0022</b>	<b>F1</b>

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- Species:
- B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
CC - Chiffchaff  
CH - Chaffinch  
CR - Common Crossbill  
D. - Dunnock  
GC - Goldcrest

GO - Goldfinch  
GR - Greenfinch  
GS - Great Spotted Woodpecker  
GT - Great Tit  
HS - House Sparrow  
JD - Jackdaw  
LT - Long-tailed Tit  
MG - Magpie  
MS - Mute Swan

PW - Pied Wagtail  
R. - Robin  
SG - Starling  
SL - Swallow  
ST - Song Thrush  
SW - Sedge Warbler  
WH - Whitethroat  
WP - Woodpigeon  
WR - Wren  
WT - Willow Tit

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

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Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd

Scale at A3

1:3,500

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Drawing Title

Plan 21:  
Transect 4 May Results - North

Job No

117300-01

Drawing Status

For Issue

Drawing No

M4-OA-01-00-DR-Z-BB-0023

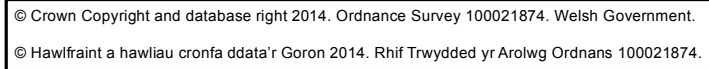
Issue

F1

I:\global\Europe\Cardiff\Jobs\117000\117300-014 Internal Project Data\4-80 GIS\4-84 Map Documents\ENV\_Environment\Ecology\Breeding bird Report figures\_v2.mxd

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F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd



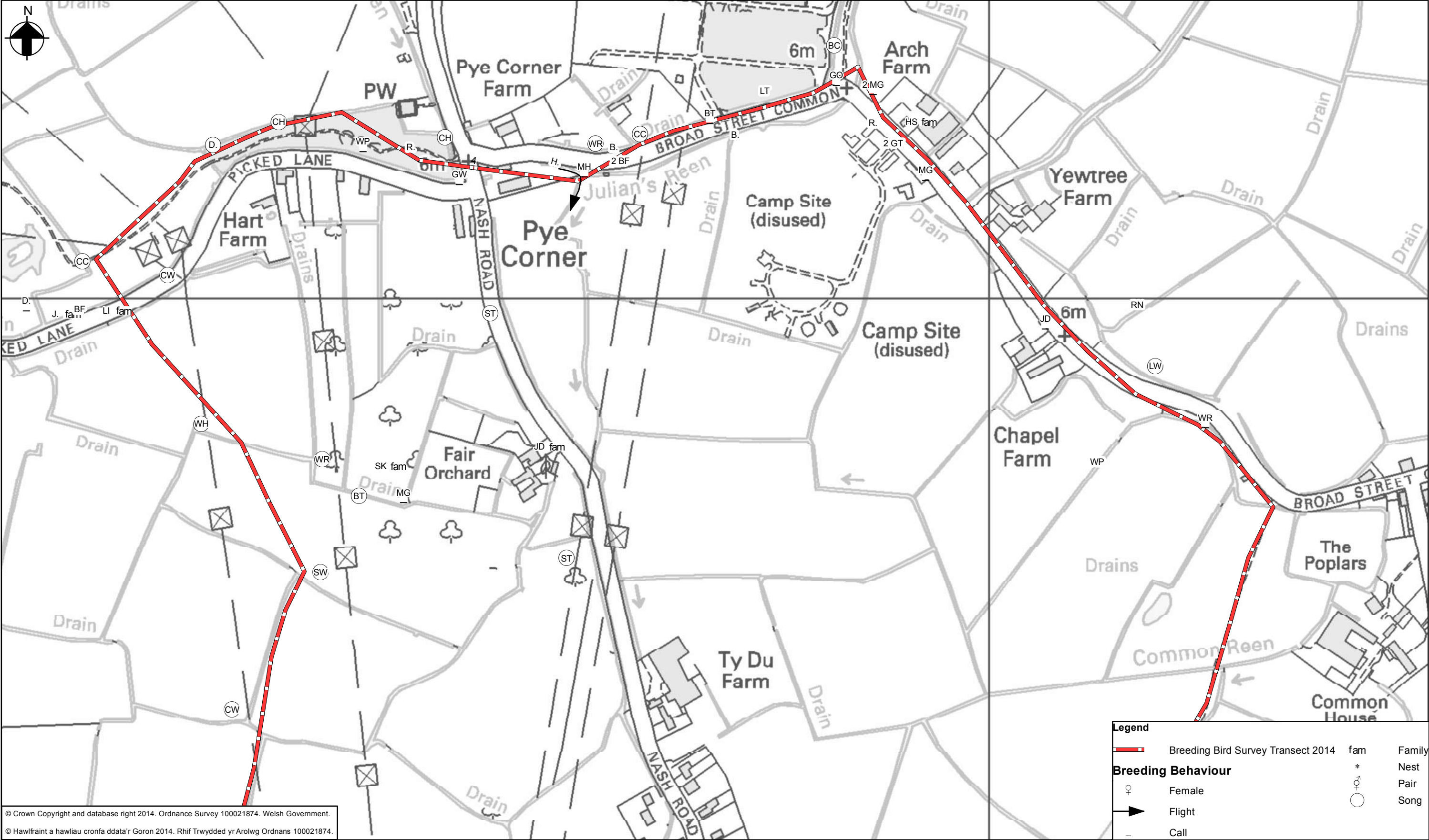
**Client**

A scale bar labeled "Metres" with markings at 0, 25, 50, and 100.

Drawing Title

Issue






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- Species:

  - B. - Blackbird
  - BC - Blackcap
  - BF - Bullfinch
  - BT - Blue Tit
  - CC - Chiffchaff
  - CH - Chaffinch
  - CW - Cetti's Warbler
  - D. - Dunnock
  - GO - Goldfinch
- GT - Great Tit
  - GW - Garden Warbler
  - H. - Grey Heron
  - HS - House Sparrow
  - J. - Jay
  - JD - Jackdaw
  - LI - Linnet
  - LT - Long-tailed Tit
  - LW - Lesser Whitethroat
- MG - Magpie
  - MH - Moorhen
  - R. - Robin
  - RN - Raven
  - SK - Siskin
  - ST - Song Thrush
  - SW - Sedge Warbler
  - WH - Whitethroat
  - WP - Woodpigeon
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

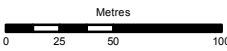


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Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:3,500**

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Drawing Title  
**Plan 23:  
Transect 4 June Results - North**

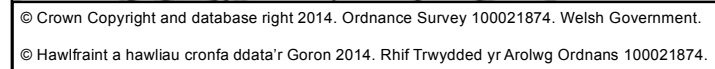
Job No  
**117300-01**

Drawing Status  
**For Issue**

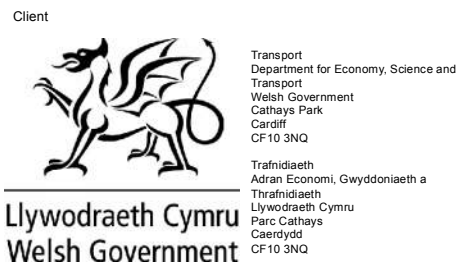
Drawing No  
**M4-OA-01-00-DR-Z-BB-0025**

Issue  
**F1**





F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

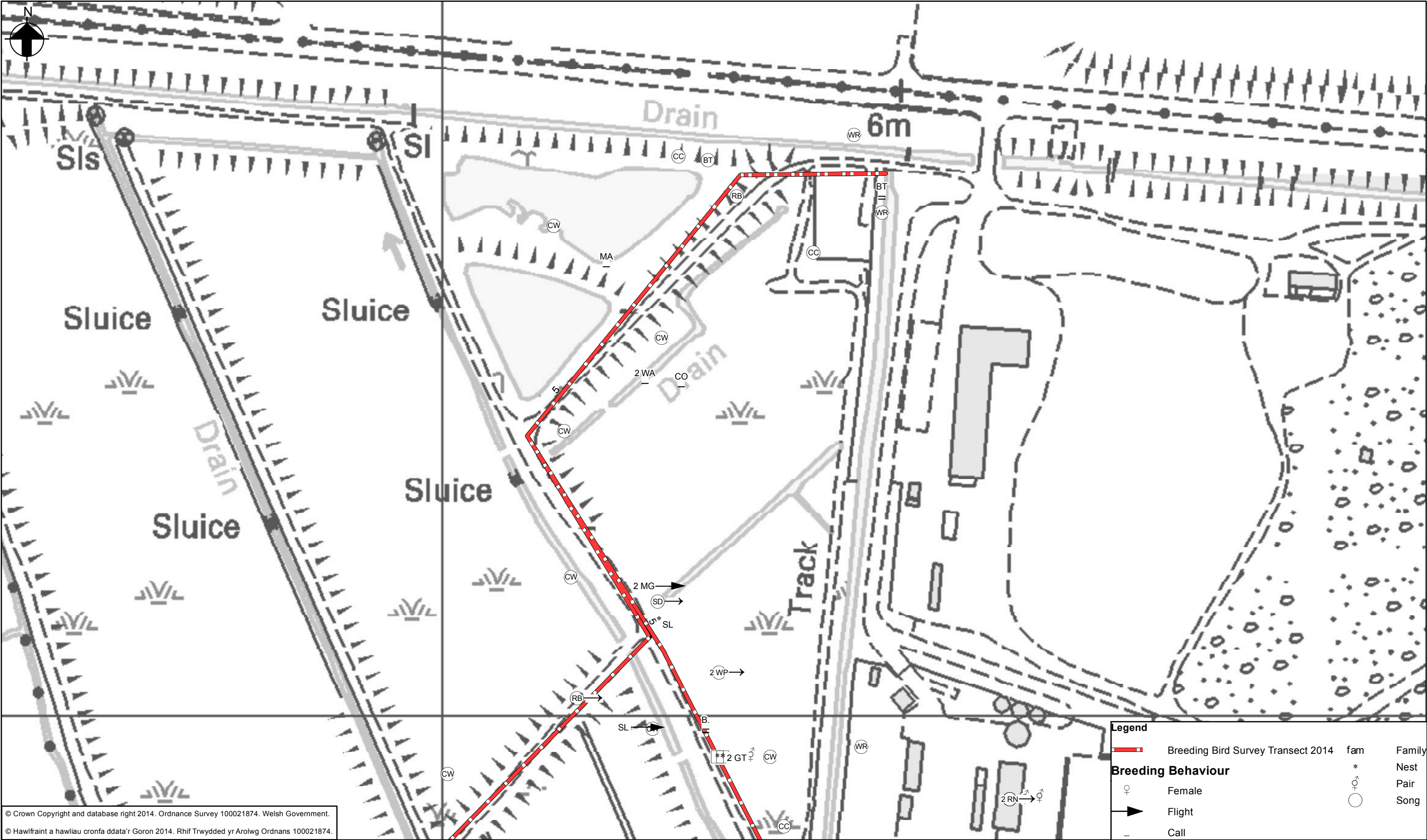


Scale at A3  
**1:3.500**

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Drawing No <b>M4-OA-01-00-DR-Z-BB-0026</b>	Issue <b>F1</b>






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Species:  
B. - Blackbird  
BT - Blue Tit  
CC - Chiffchaff  
CO - Coot  
CW - Cetti's Warbler  
GT - Great Tit  
MA - Mallard  
MG - Magpie  
RB - Reed Bunting

RN - Raven  
SD - Stock Dove  
SL - Starling  
WA - Water Rail  
WP - Woodpigeon  
WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

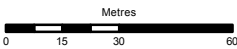


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Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,000**

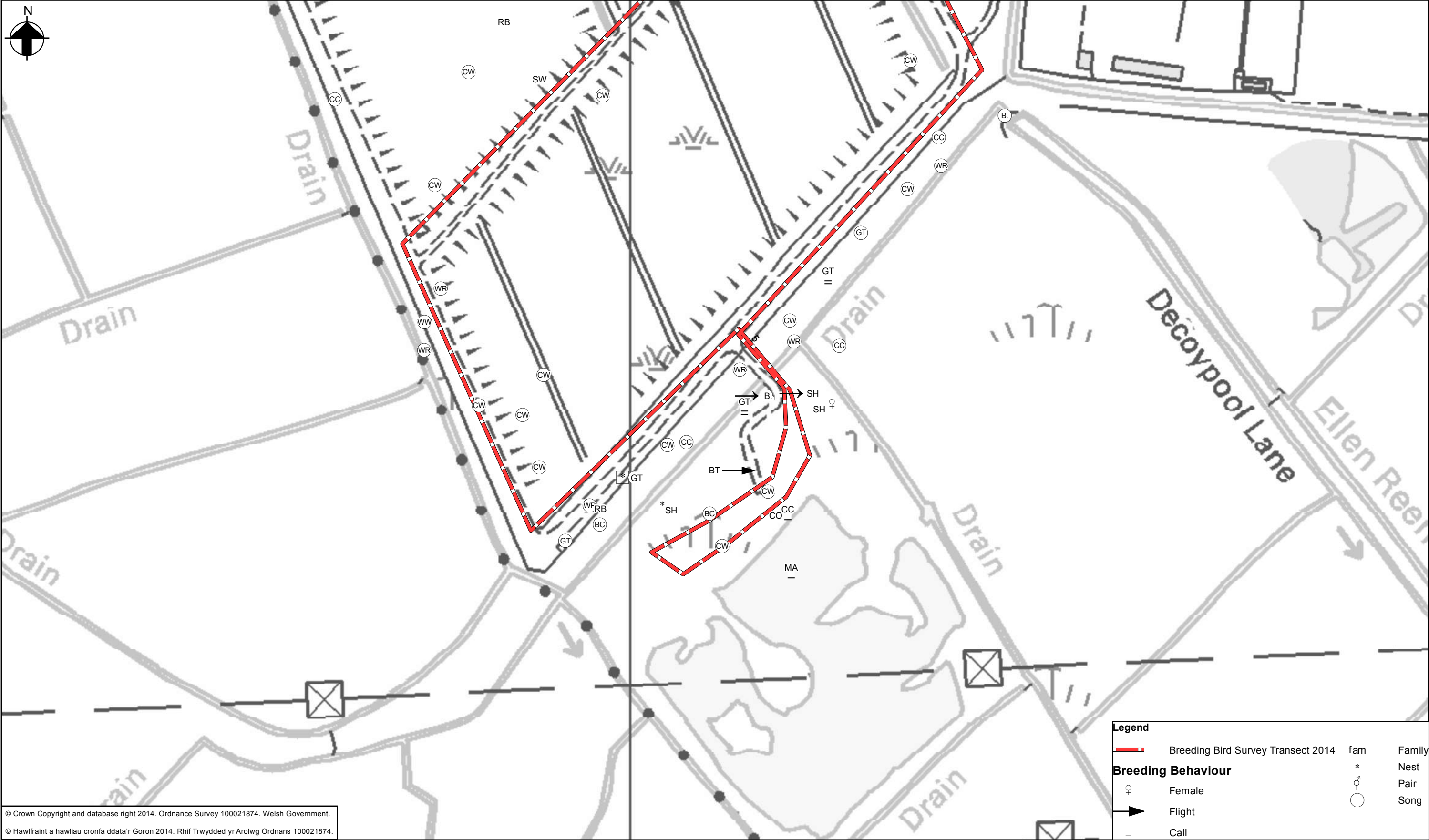
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Drawing Title  
**Plan 25:  
Transect 5 April Results - North**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0027</b>	Issue <b>F1</b>






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Species:  
B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
CC - Chiffchaff  
CO - Coot  
CW - Cetti's Warbler  
GT - Great Tit  
MA - Mallard  
RB - Reed Bunting

SH - Sparrowhawk  
SW - Sedge Warbler  
WR - Wren  
WW - Willow Warbler

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

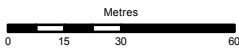


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Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,000**

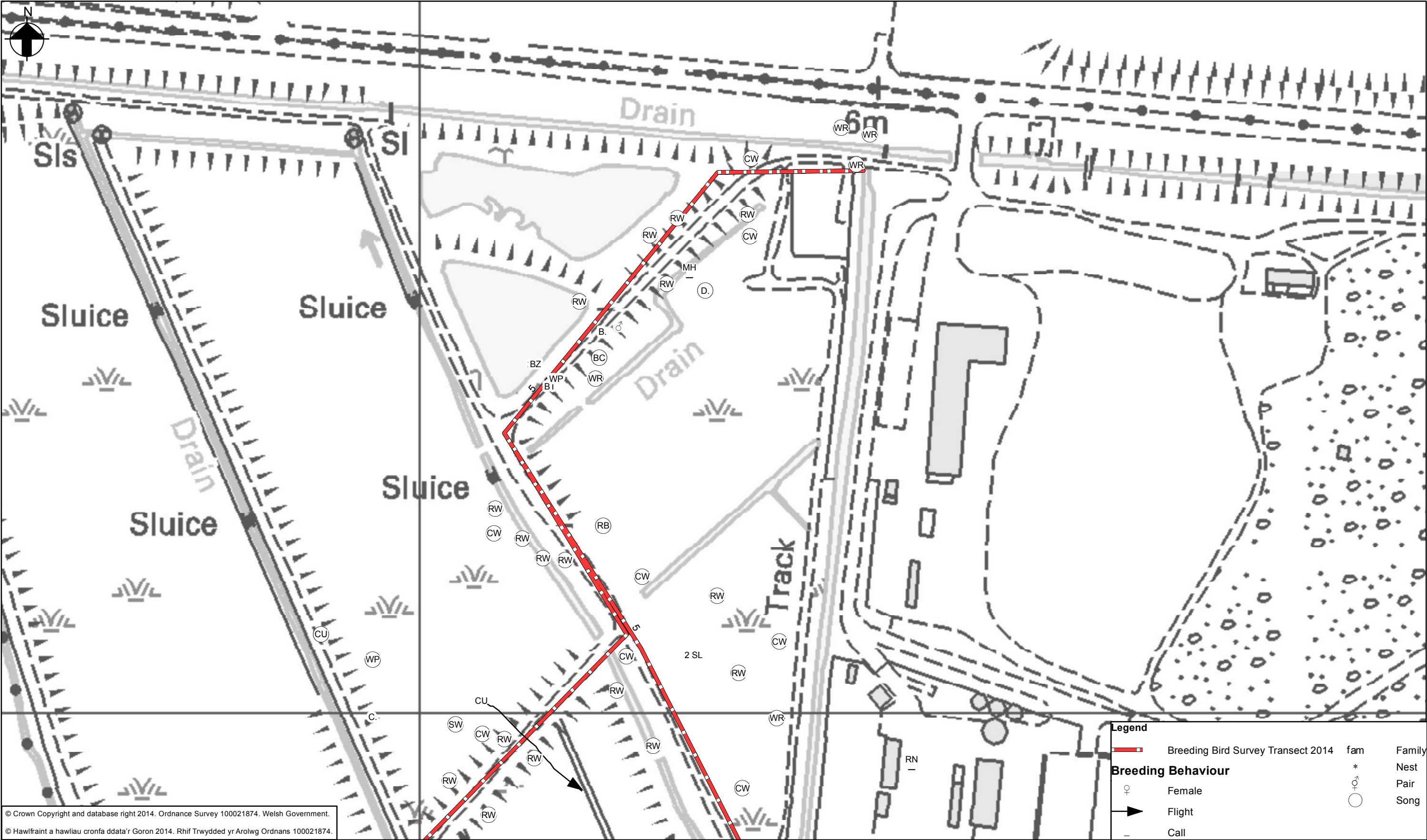
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Drawing Title  
**Plan 26:**  
**Transect 5 April Results - South**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0028</b>	Issue <b>F1</b>





Species:

B. - Blackbird

BC - Blackcap

BT - Blue Tit

BZ - Buzzard

C. - Carrion Crow

CU - Curlew

CW - Cetti's Warbler

D. - Dunnock

MH - Moorhen

RB - Reed Bunting

RN - Raven

RW - Reed Warbler

SL - Swallow


SW - Sedge Warbler

WP - Woodpigeon

WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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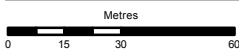
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Parc Cathays  
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Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3

**1:2,000**

**ARUP**

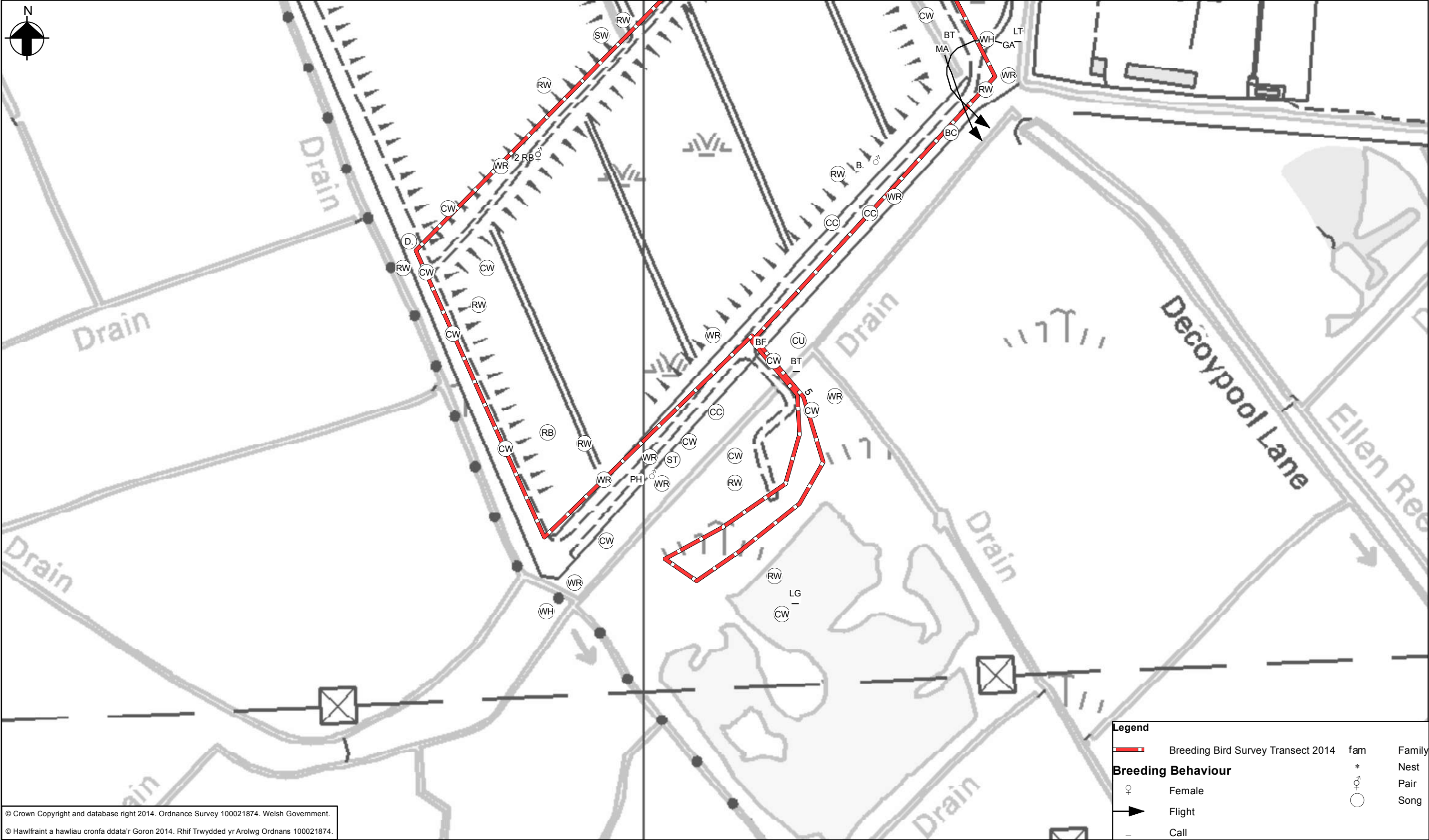
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Drawing Title

**Plan 27:  
Transect 5 May Results - North**

Job No	Drawing Status	Issue
<b>117300-01</b>	<b>For Issue</b>	<b>F1</b>
Drawing No		Issue
<b>M4-OA-01-00-DR-Z-BB-0029</b>		<b>F1</b>






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Species:

B. - Blackbird  
BC - Blackcap  
BF - Bullfinch  
BT - Blue Tit  
CC - Chiffchaff  
CU - Curlew  
CW - Cetti's Warbler  
D. - Dunnock  
GA - Gadwall

LG - Little Grebe  
LT - Long-tailed Tit  
MA - Mallard  
PH - Pheasant  
RB - Reed Bunting  
RW - Reed Warbler  
ST - Song Thrush  
SW - Sedge Warbler  
WH - Whitethroat  
WR - Wren

Client



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Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
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Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**

Metres

Scale at A3

**1:2,000**

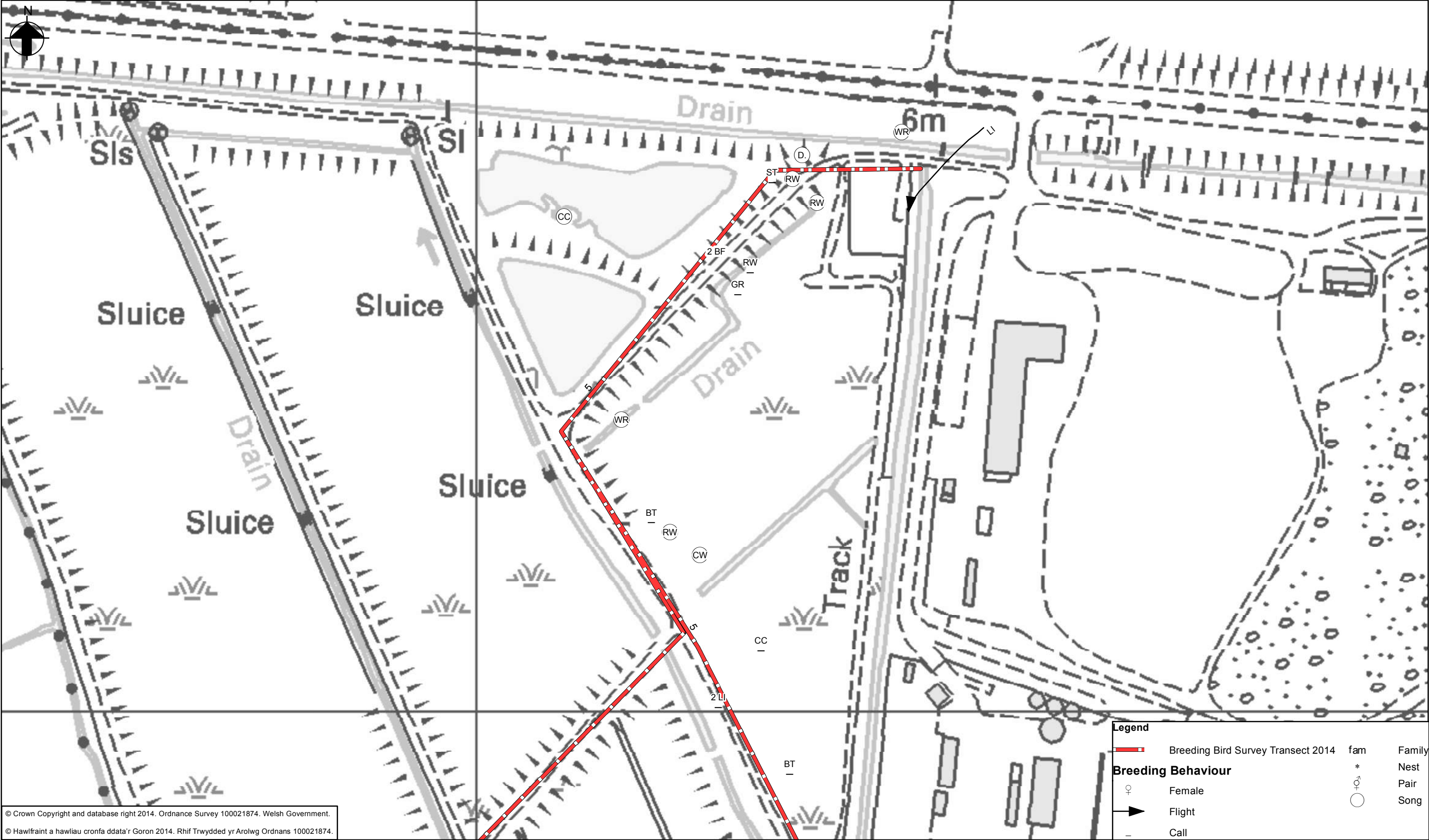
**ARUP**

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Drawing Title

**Plan 28:  
Transect 5 May Results - South**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0030</b>	<b>F1</b>




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Species: WR - Wren  
BF - Bullfinch  
BT - Blue Tit  
CC - Chiffchaff  
CW - Cetti's Warbler  
D. - Dunnock  
GR - Greenfinch  
LI - Linnet  
RW - Reed Warbler  
ST - SongThrush

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

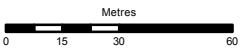


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Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,000**

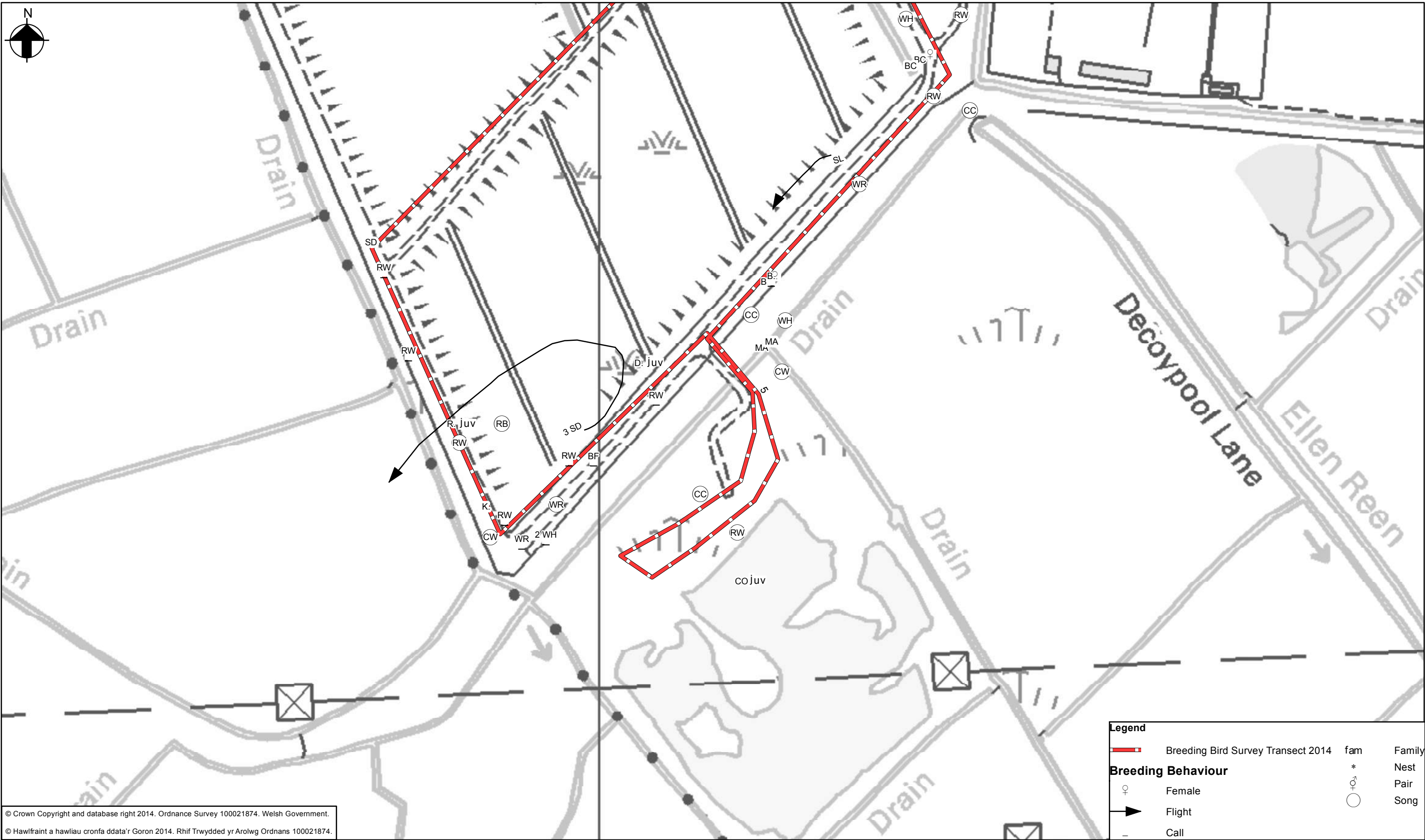
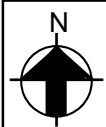
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Drawing Title  
**Plan 29:  
Transect 5 June Results - North**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0031</b>	Issue <b>F1</b>






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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BF - Bullfinch
  - CC - Chiffchaff
  - CO - Coot
  - CW - Cetti's Warbler
  - D. - Dunnock
  - K. - Kestrel
  - MA - Mallard
  - R. - Robin
  - RB - Reed Bunting
  - RW - Reed Warbler
  - SD - Stock Dove
  - SL - Swallow
  - WH - Whitethroat
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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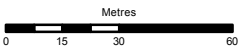
Transport  
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Welsh Government  
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Parc Cathays  
Caerdydd  
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Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3

**1:2,000**

**ARUP**

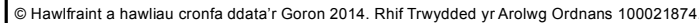
4 Pierhead Street, Capital Waterside  
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Drawing Title

**Plan 30:  
Transect 5 June Results - South**

Job No	Drawing Status	Issue
<b>117300-01</b>	<b>For Issue</b>	<b>F1</b>
Drawing No		
<b>M4-OA-01-00-DR-Z-BB-0032</b>		





RW - Reed Warbler  
SH - Sparrowhawk  
ST - Song Thrush  
SU - Shelduck  
SW - Sedge Warbler  
TU - Tufted Duck  
WP - Woodpigeon  
WR - Wren  
WW - Willow Warbler

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

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Trafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Scale at A3  
**1:2,500**

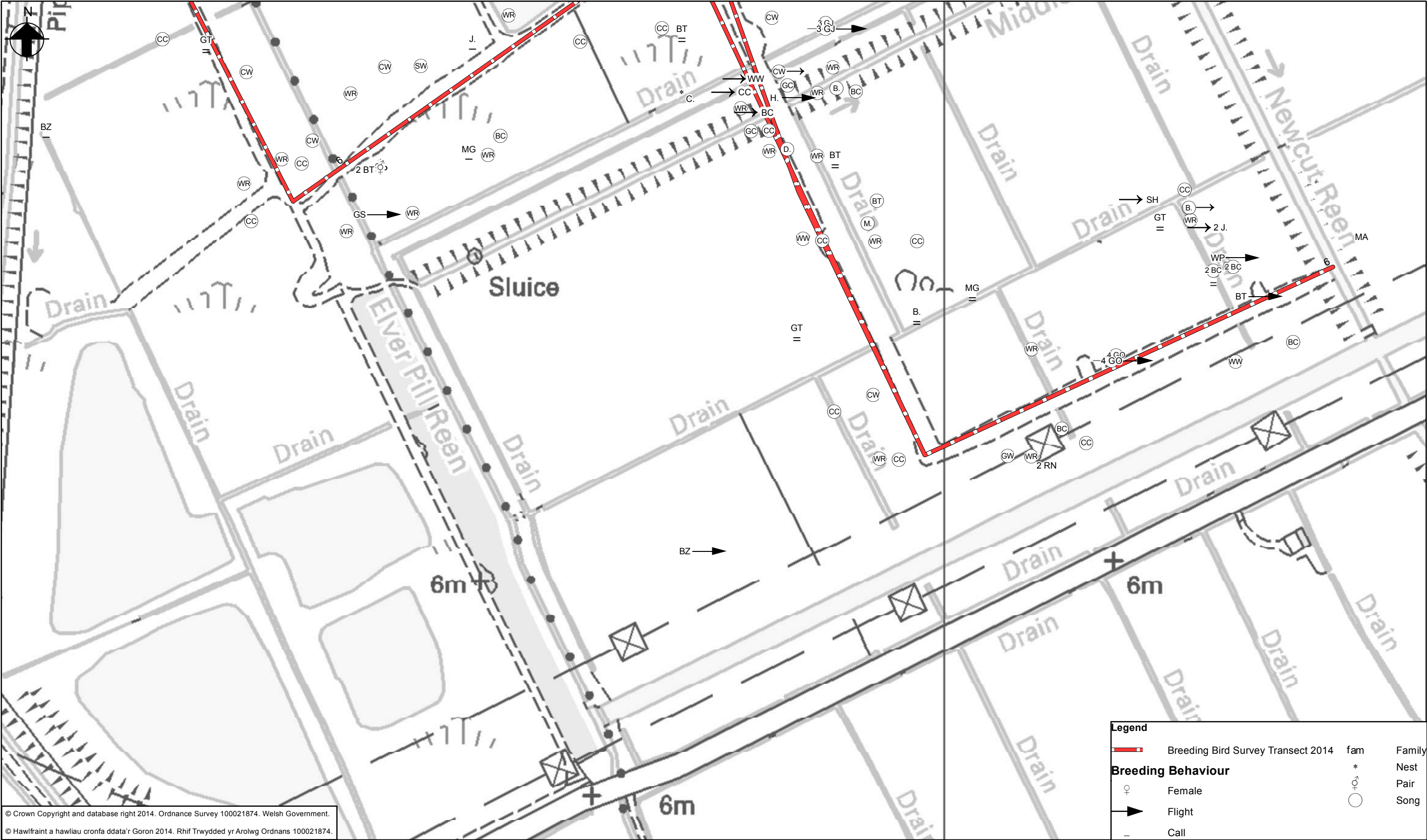
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**Plan 31:**  
**Transect 6 April Results - North**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0033</b>	Issue No <b>F1</b>






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Species:	GJ - Greylag Goose	MG - Magpie
B. - Blackbird	GO - Goldfinch	RN - Raven
BC - Blackcap	GS - Great Spotted Woodpecker	SH - Sparrowhawk
BT - Blue Tit	GT - Great Tit	SW - Sedge Warbler
BZ - Buzzard	GW - Garden Warbler	WP - Woodpigeon
C. - Carrion Crow	H. - Grey Heron	WR - Wren
CC - Chiffchaff	J. - Jay	WW - Willow Warbler
CW - Cetti's Warbler	M. - Mistle Thrush	
D. - Dunnock	MA - Mallard	
GC - Goldcrest		

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

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Adran Economi, Gwyddoniaeth a Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**

Metres

Scale at A3

**1:2,500**

**ARUP**

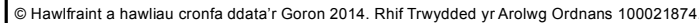
4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

**Plan 32:  
Transect 6 April Results - South**


Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0034</b>	<b>F1</b>





RB - Reed Bunting  
RW - Reed Warbler  
SL - Swallow  
SU - Shelduck  
SW - Sedge Warbler  
TU - Tufted Duck  
WH - Whitethroat  
WP - Woodpigeon  
WR - Wren

Client



Llywodraeth Cymru  
Welsh Government

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

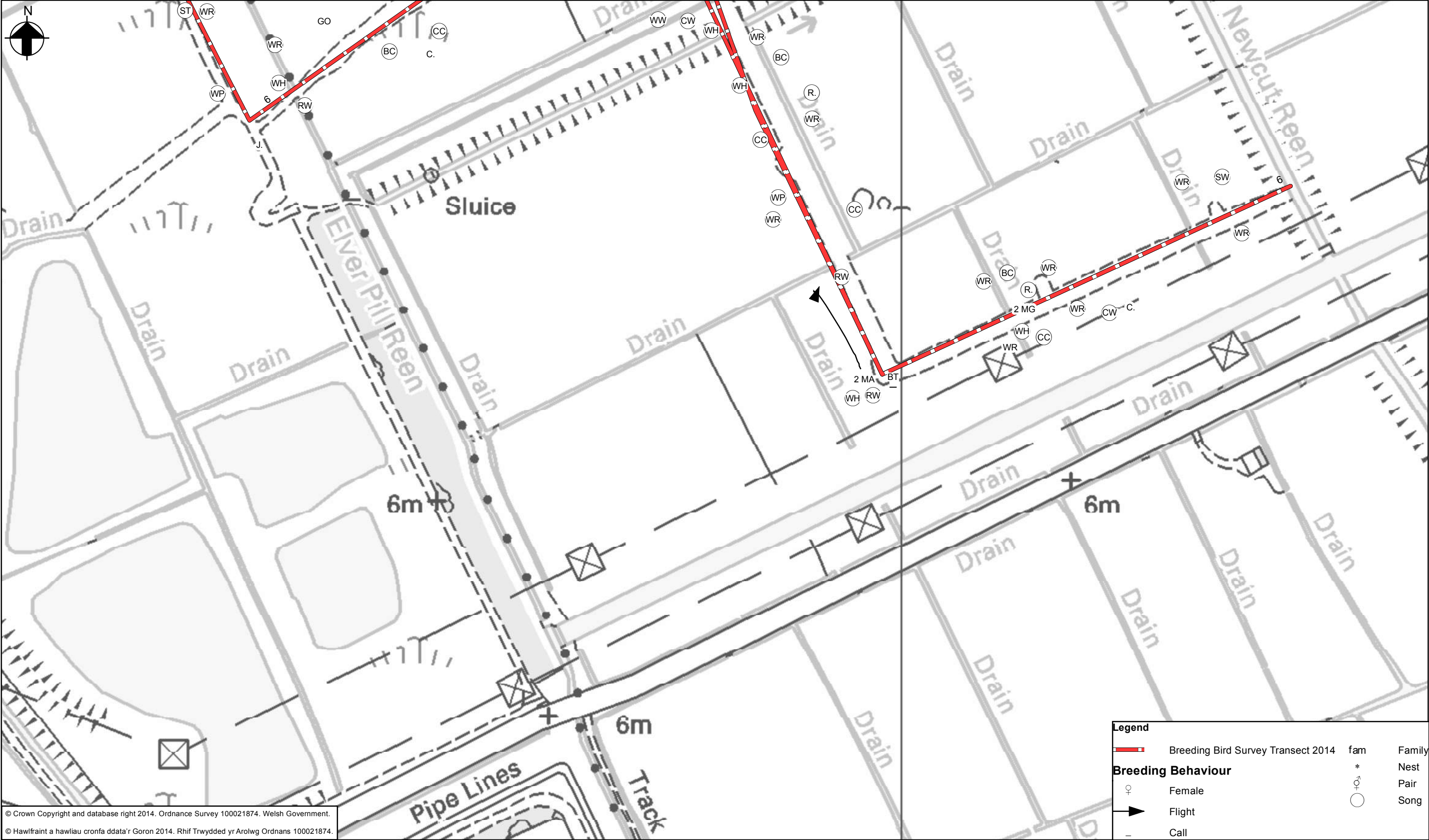
Tranfudiath  
Adran Economi, Gwyddoniaeth a  
Thrafiadaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

ARUP

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
[www.arup.com](http://www.arup.com)

Drawing Title		
<b>Plan 33:</b> <b>Transect 6 May Results - North</b>		
Job No	Drawing Status	
<b>117300-01</b>	<b>For Issue</b>	
Drawing No		Issue
<b>M4-OA-01-00-DR-Z-BB-0035</b>		<b>F1</b>






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Species:	R. - Robin
BC - Blackcap	RW - Reed Warbler
BT - Blue Tit	ST - Song Thrush
C. - Carrion Crow	SW - Sedge Warbler
CC - Chiffchaff	WH - Whitethroat
CW - Cetti's Warbler	WP - Woodpigeon
GO - Goldfinch	WR - Wren
J. - Jay	WW - Willow Warbler
MA - Mallard	
MG - Magpie	

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

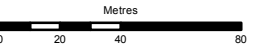
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Metres

Scale at A3

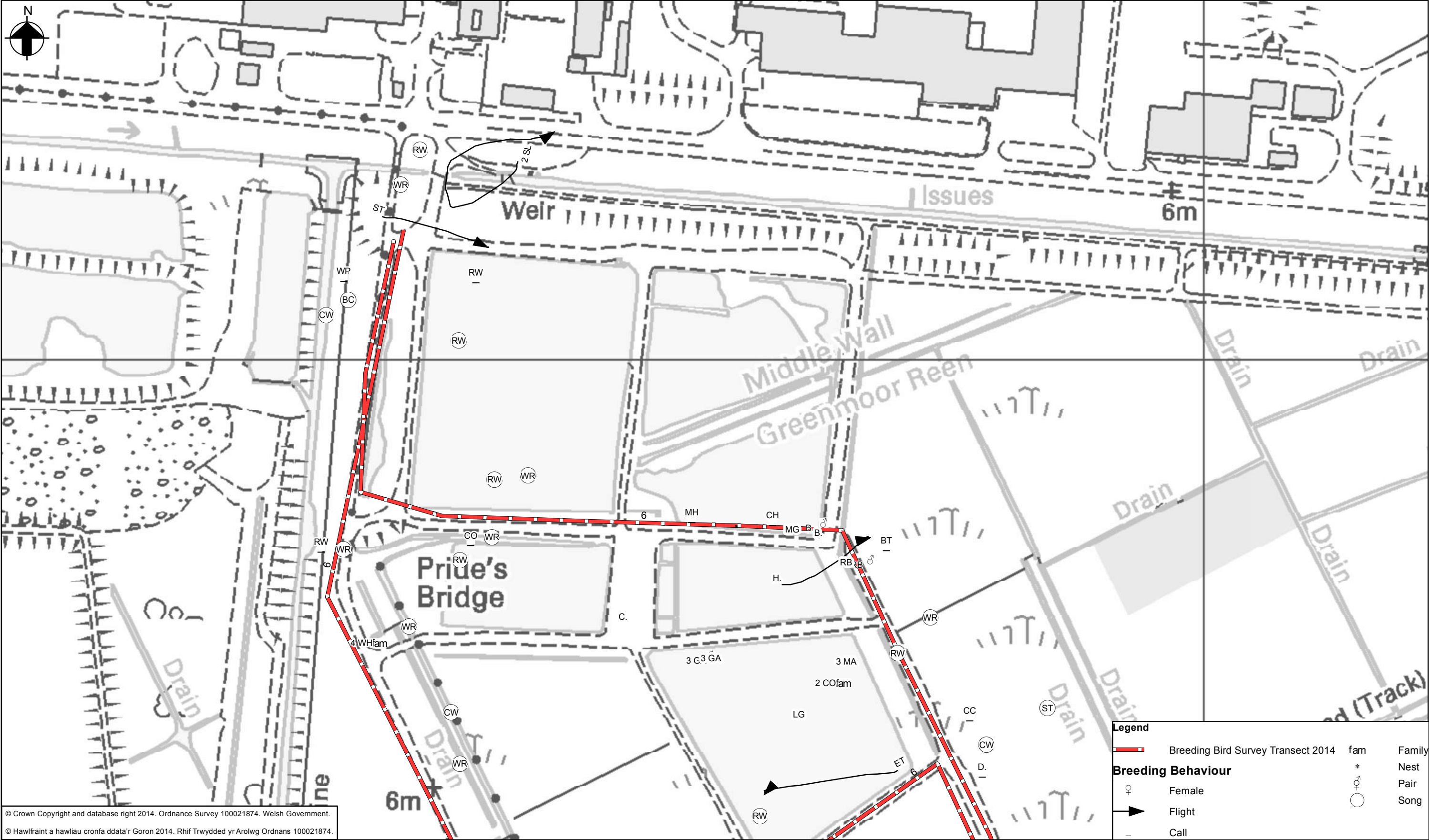
**1:2,500**



4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title		
<b>Plan 34: Transect 6 May Results - South</b>		
Job No	Drawing Status	
<b>117300-01</b>	<b>For Issue</b>	
Drawing No	Issue	
<b>M4-OA-01-00-DR-Z-BB-0036</b>	<b>F1</b>	






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- Species:

B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
C. - Carrion Crow  
CC - Chiffchaff  
CH - Chaffinch  
CO - Coot  
CW - Cetti's Warbler  
D. - Dunnock
- ET - Little Egret  
GA - Gadwall  
H. - Grey Heron  
LG - Little Grebe  
MA - Mallard  
MG - Magpie  
MH - Moorhen  
RB - Reed Bunting  
RW - Reed Warbler  
SL - Swallow
- ST - Song Thrush  
WH - Whitethroat  
WP - Woodpigeon  
WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

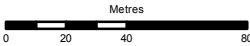


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Welsh Government

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,500**

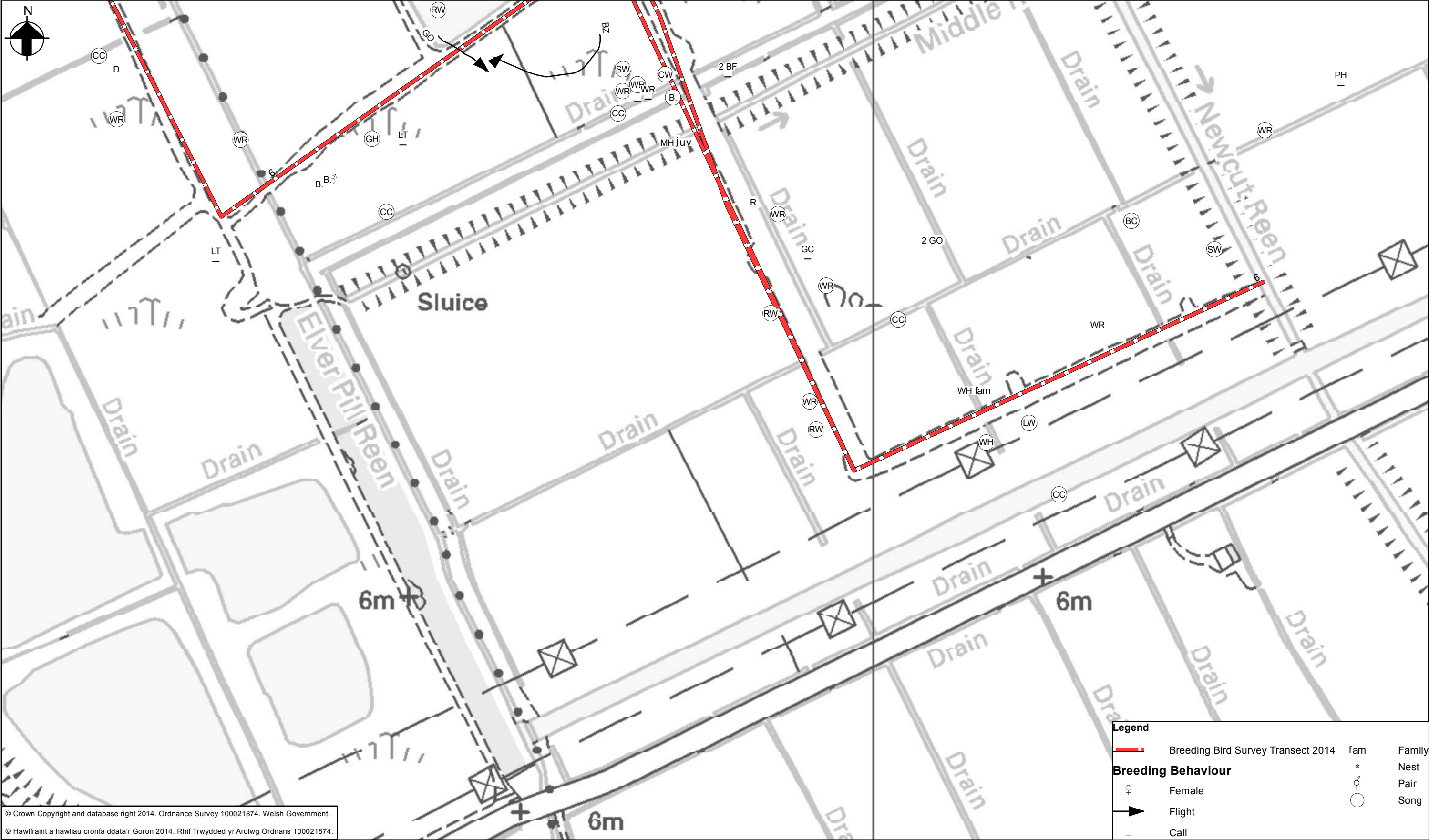
**ARUP**

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title  
**Plan 35:  
Transect 6 June Results - North**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0037</b>	Issue <b>F1</b>






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Species:	Warbler	WH - Whitethroat
B. - Blackbird	GO - Goldfinch	WR - Wren
BC - Blackcap	LT - Long-tailed Tit	
BF - Bullfinch	LW - Lesser	
BZ - Buzzard	Whitethroat	
CC - Chiffchaff	MH - Moorhen	
CW - Cetti's Warbler	PH - Pheasant	
D. - Dunnock	R. - Robin	
GC - Goldcrest	RW - Reed Warbler	
GH - Grasshopper	SW - Sedge Warbler	

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

M4 Corridor Around Newport  
Coridor yr M4 o amgylch Casnewydd

Metres

0 20 40 80

Scale at A3

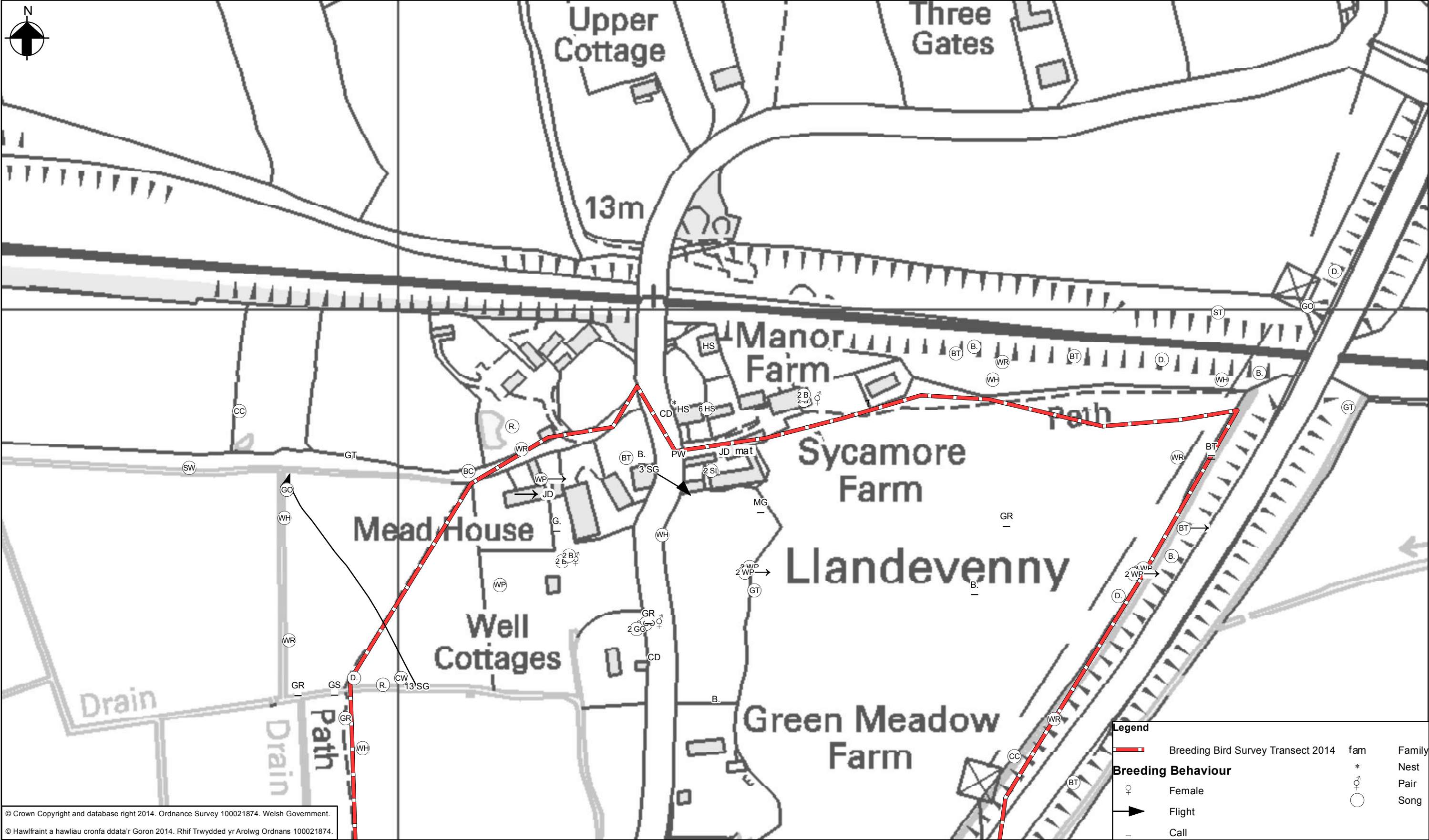
1:2,500

ARUP

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
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Drawing Title		
Plan 36: Transect 6 June Results - South		
Job No	Drawing Status	
117300-01	For Issue	
Drawing No	Issue	
M4-OA-01-00-DR-Z-BB-0038	F1	






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- Species:

  - B. - Blackbird
  - BC - Blackcap
  - BT - Blue Tit
  - CC - Chiffchaff
  - CD - Collared Dove
  - CW - Cetti's Warbler
  - D. - Dunnock
  - G. - Green Woodpecker
- GO - Goldfinch
  - GR - Greenfinch
  - GS - Great Spotted Woodpecker
  - GT - Great Tit
  - HS - House Sparrow
  - JD - Jackdaw
  - MG - Magpie
  - PW - Pied Wagtail
  - R. - Robin
- SG - Starling
  - SL - Swallow
  - ST - Song Thrush
  - SW - Sedge Warbler
  - WH - Whitethroat
  - WP - Woodpigeon
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

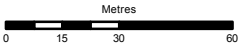
Transport  
Department for Economy, Science and Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,000**

**ARUP**

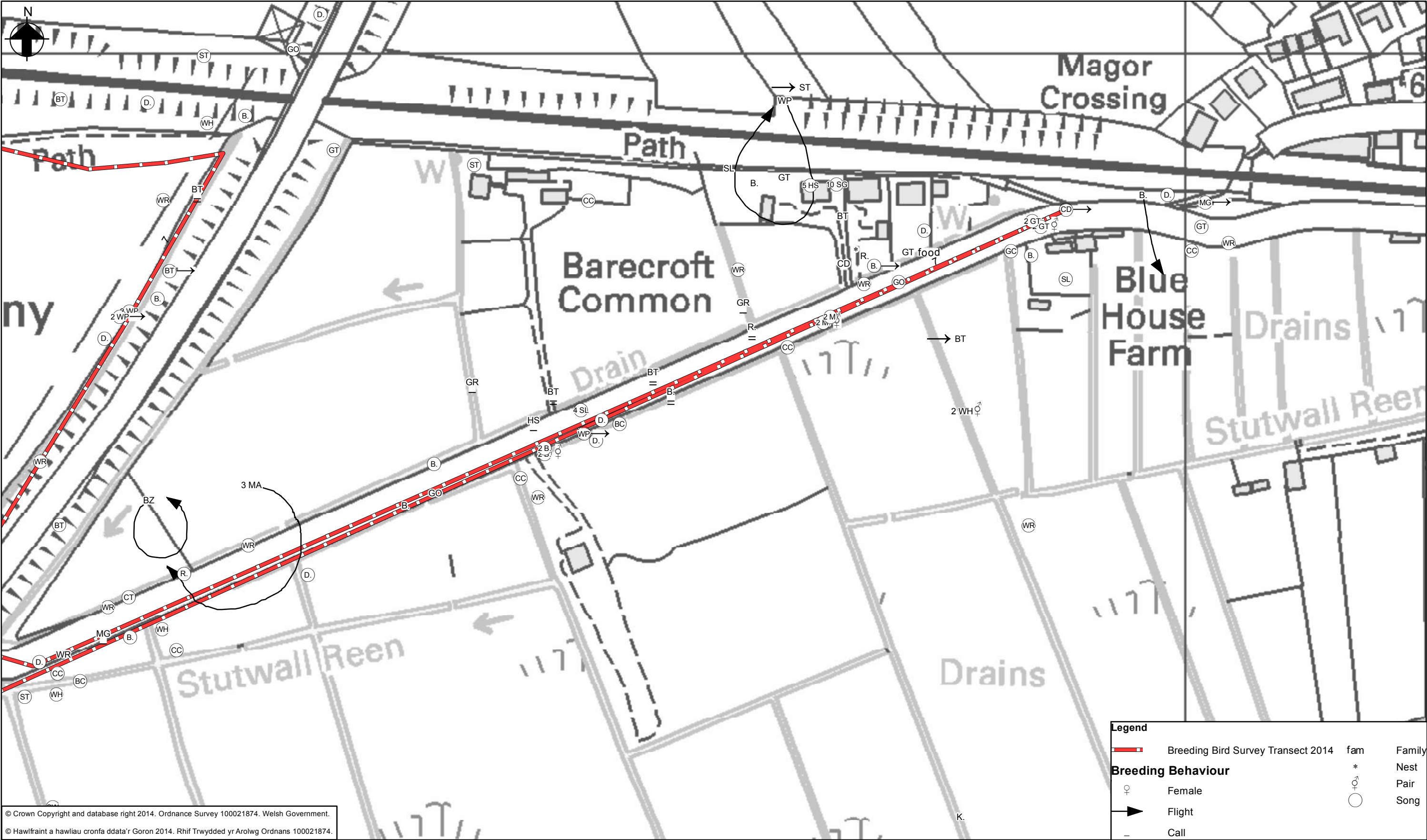
4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

**Plan 37:  
Transect 7 April Results - Northwest**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0039</b>	<b>F1</b>






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- Species:

  - B. - Blackbird
  - BC - Blackcap
  - BT - Blue Tit
  - BZ - Buzzard
  - CC - Chiffchaff
  - CD - Collared Dove
  - CT - Coal Tit
  - D. - Dunnock
  - GO - Goldfinch
- GR - Greenfinch
  - GT - Great Tit
  - HS - House Sparrow
  - K. - Kestrel
  - M. Mistle Thrush
  - MA - Mallard
  - MG - Magpie
  - R. - Robin
  - SG - Starling
  - SL - Swallow
- ST - Song Thrush
  - WH - Whitethroat
  - WP - Woodpigeon
  - WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

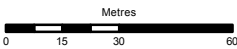


Llywodraeth Cymru  
Welsh Government

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,000**

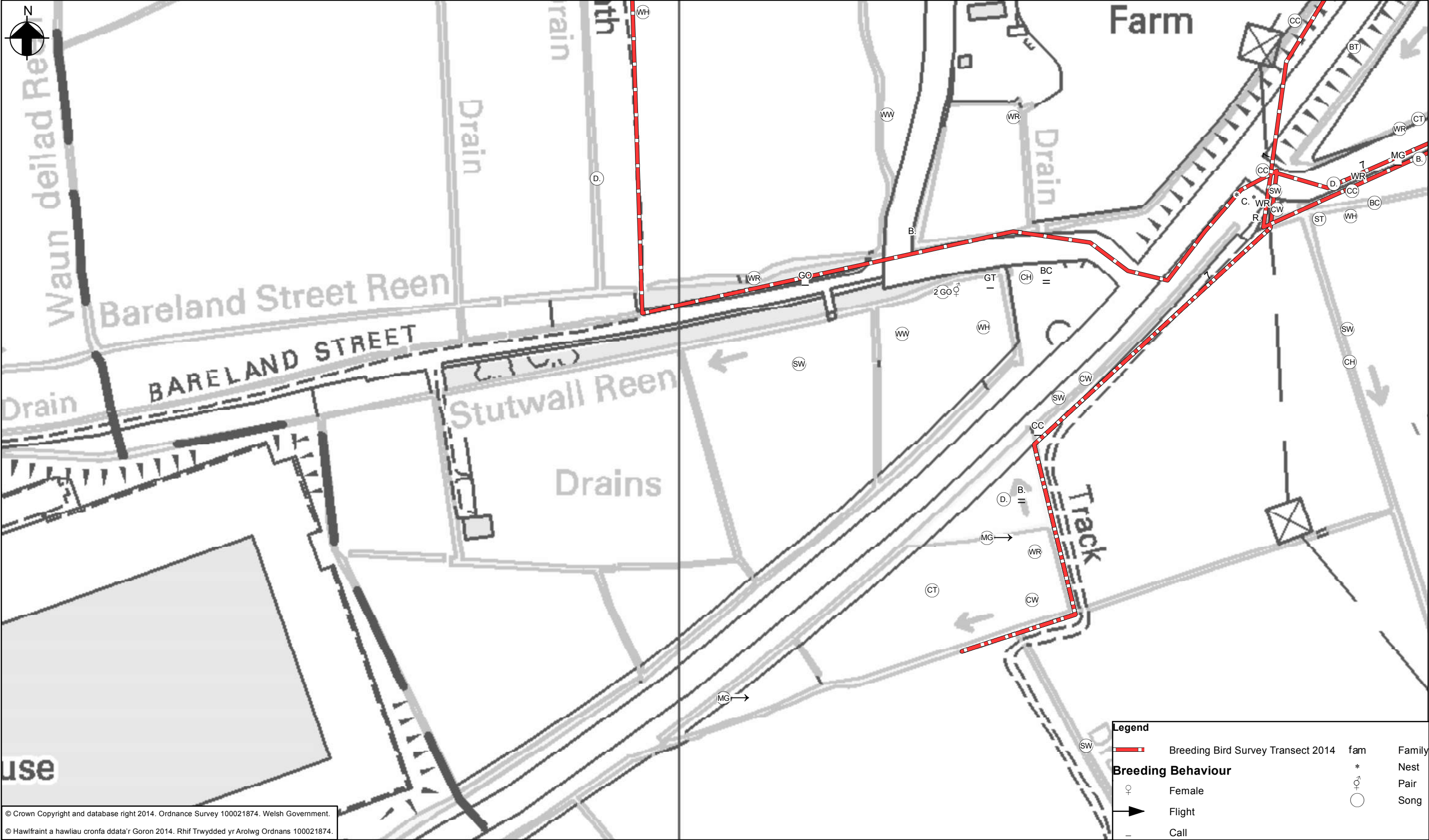
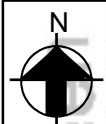
**ARUP**

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title  
**Plan 38:**  
**Transect 7 April Results - Northeast**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0040</b>	Issue <b>F1</b>






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- Species:
- |                      |                     |
|----------------------|---------------------|
| B. - Blackbird       | GO - Goldfinch      |
| BC - Blackcap        | GT - Great Tit      |
| BT - Blue Tit        | MG - Magpie         |
| C. - Carrion Crow    | R. - Robin          |
| CC - Chiffchaff      | ST - Song Thrush    |
| CH - Chaffinch       | SW - Sedge Warbler  |
| CT - Coal Tit        | WH - Whitethroat    |
| CW - Cetti's Warbler | WR - Wren           |
| D. - Dunnock         | WW - Willow Warbler |

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

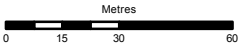
Client



Llywodraeth Cymru  
Welsh Government

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,000**

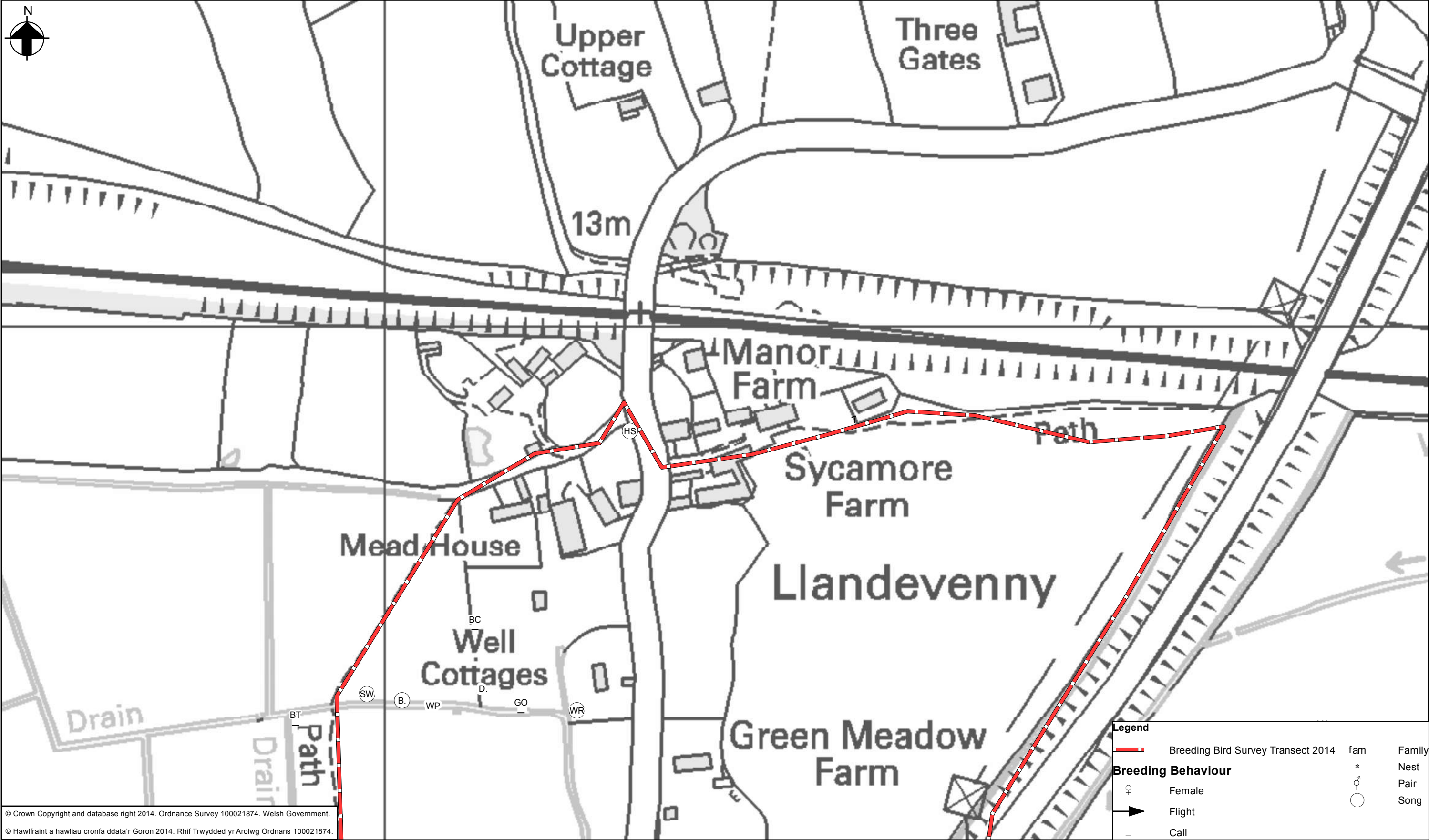
**ARUP**

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title  
**Plan 39:  
Transect 7 April Results - South**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
----------------------------	------------------------------------


Drawing No <b>M4-OA-01-00-DR-Z-BB-0041</b>	Issue <b>F1</b>
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Species: WR - Wren  
B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
D. - Dunnock  
GO - Goldfinch  
HS - House Sparrow  
MA - Mallard  
SW - Sedge Warbler  
WP - Woodpigeon

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd



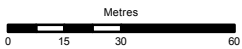
Llywodraeth Cymru  
Welsh Government

Client

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,000**

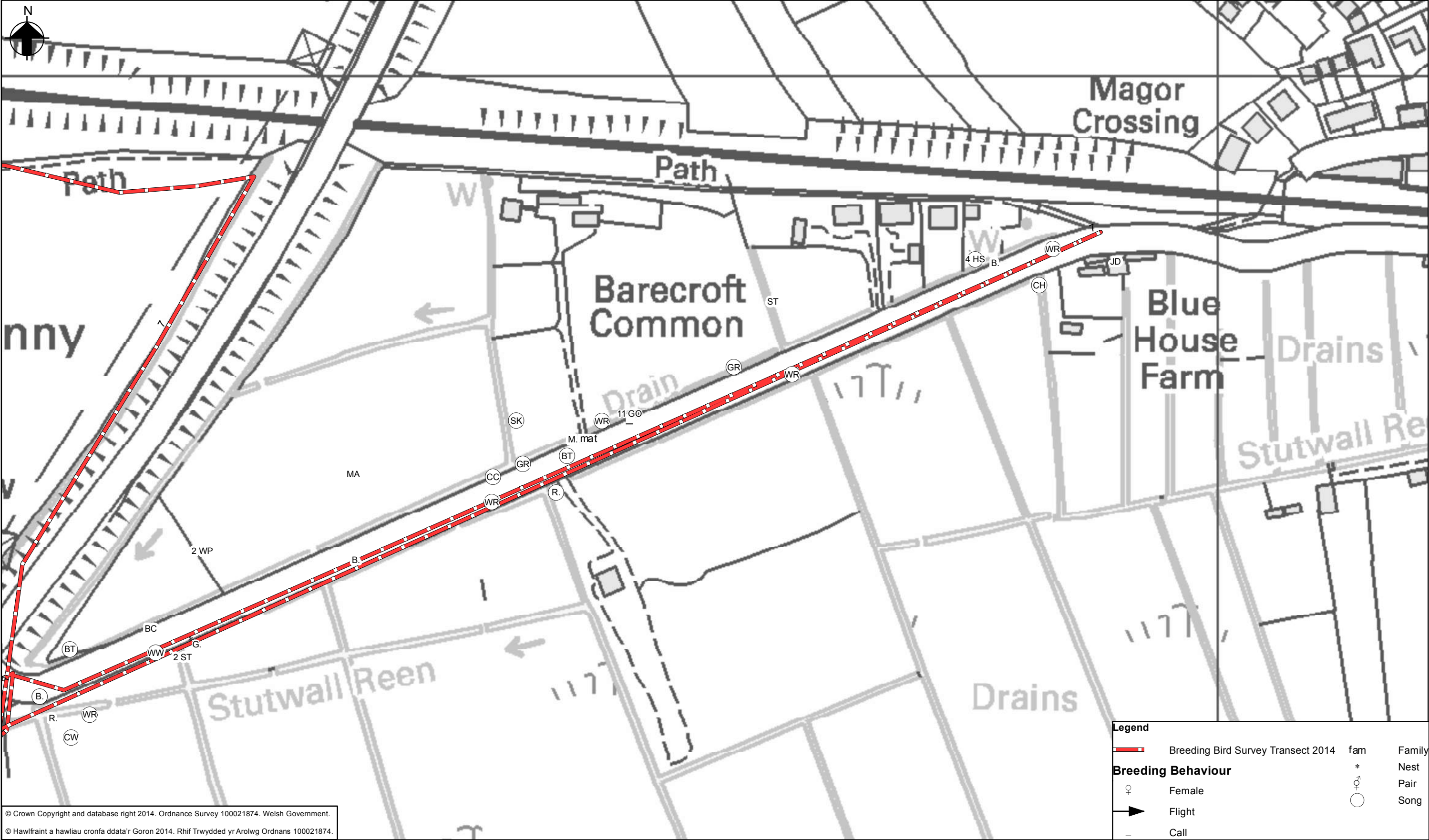
**ARUP**

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title  
**Plan 40:  
Transect 7 May Results - Northwest**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0042</b>	Issue <b>F1</b>





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- Species:

B. - Blackbird

BC - Blackcap

BT - Blue Tit

CC - Chiffchaff

CH - Chaffinch

CW - Cetti's Warbler

G. - Green Woodpecker

GO - Goldfinch
- GR - Greenfinch

HS - House Sparrow

JD - Jackdaw

M. - Mistle Thrush

MA - Mallard

R. - Robin

SK - Siskin


ST - Song Thrush

WP - Woodpigeon

WR - Wren
- WW - Willow Warbler

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd

Metres

0 15 30 60

Scale at A3

1:2,000

ARUP

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

Plan 41:  
Transect 7 May Results - Northeast

Job No

117300-01

Drawing Status

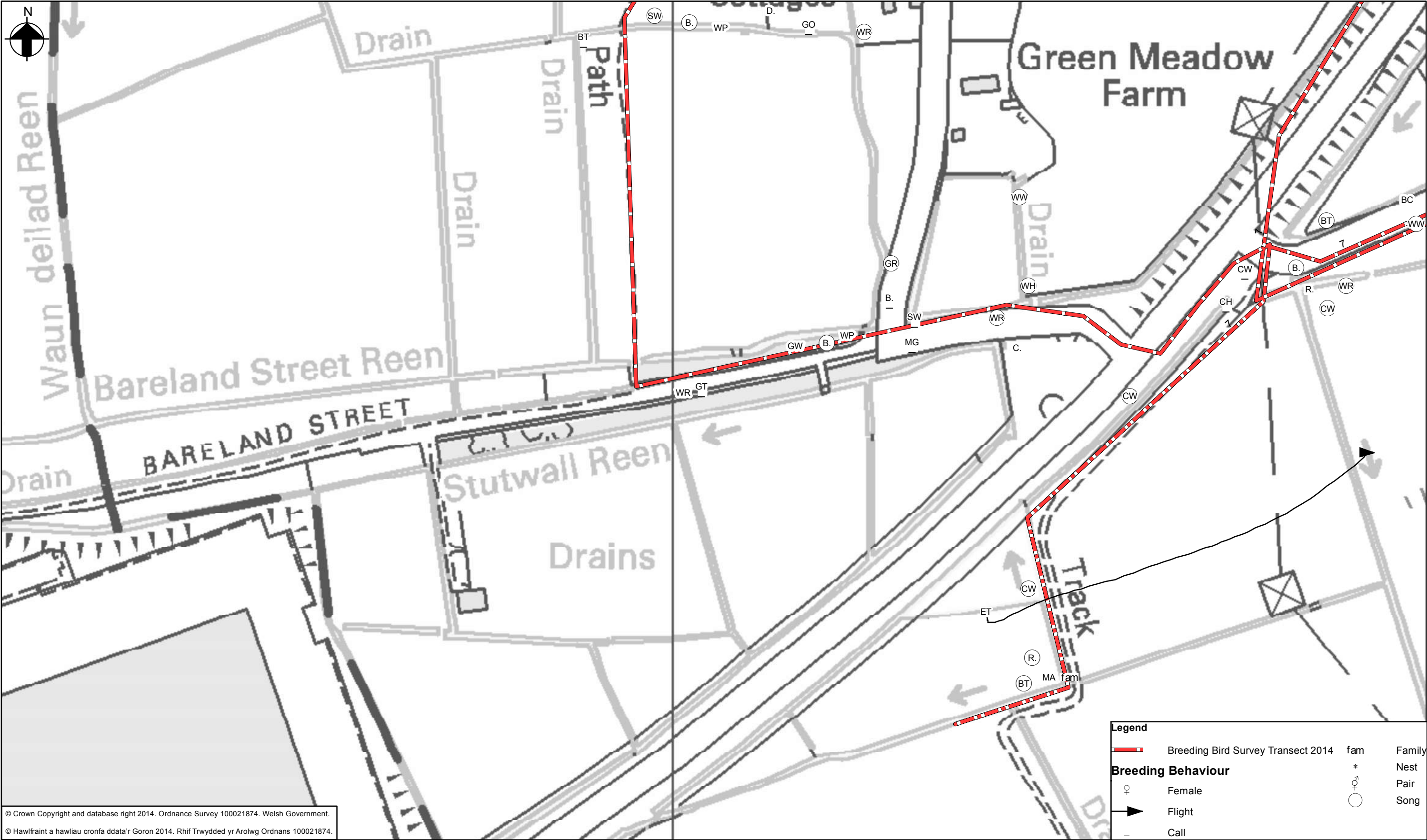
For Issue

Drawing No

M4-OA-01-00-DR-Z-BB-0043

Issue

F1



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- Species:
- B. - Blackbird

BC - Blackcap

BT - Blue Tit

C. - Carrion Crow

CH - Chaffinch

CW - Cetti's Warbler

D. - Dunnock

ET - Little Egret

GO - Goldfinch

GR - Greenfinch

GT - Great Tit

GW - Garden Warbler

MA - Mallard

MG - Magpie

R. - Robin

SW - Sedge Warbler

WH - Whitethroat


WP - Woodpigeon

WR - Wren

WW - Willow Warbler

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Llywodraeth Cymru  
Welsh Government

Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd

Scale at A3

1:2,000

ARUP

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

Plan 42:  
Transect 7 May Results - South

Job No

117300-01

Drawing Status

For Issue

Drawing No

M4-OA-01-00-DR-Z-BB-0044

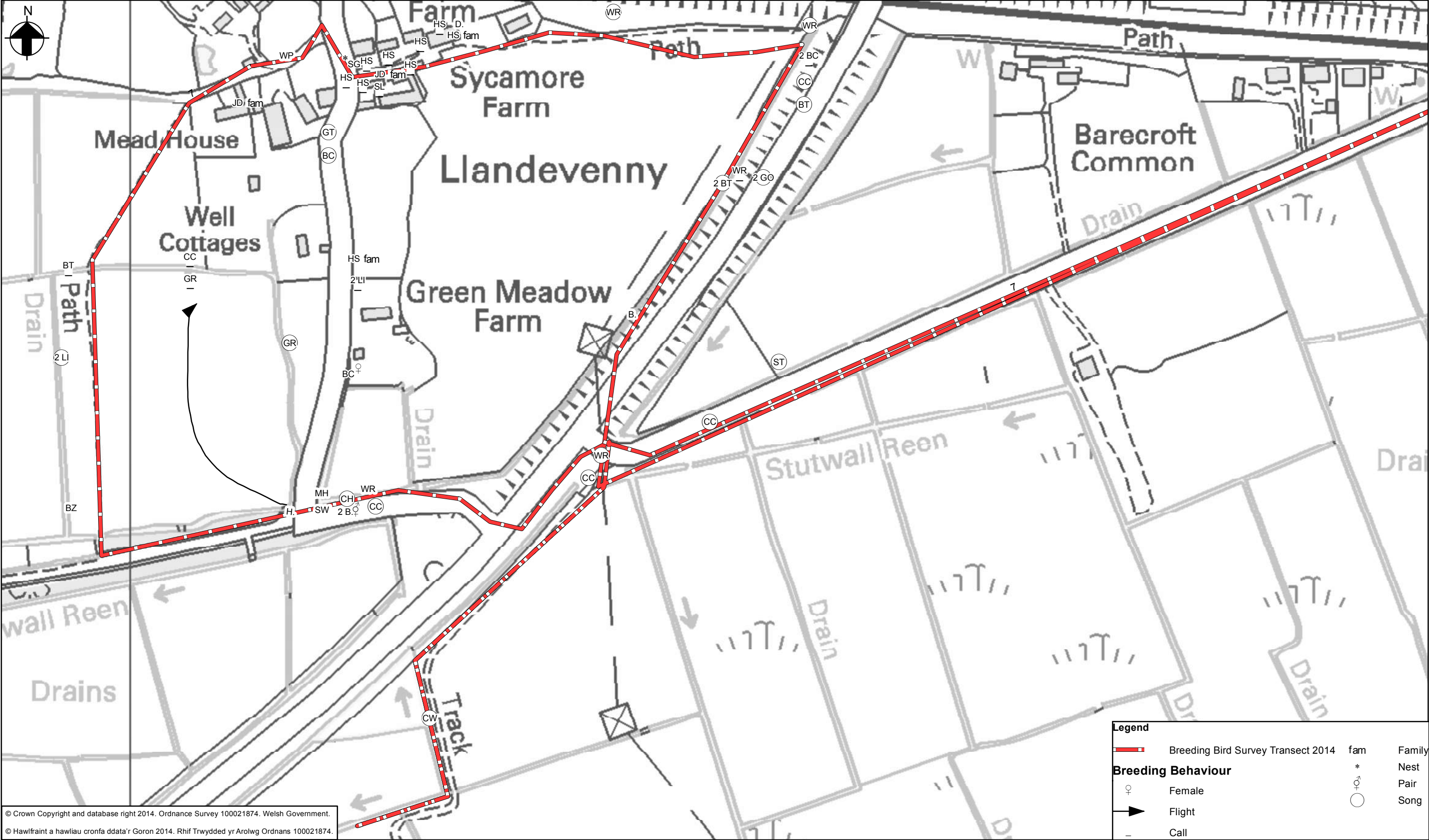
Issue

F1

I:\global\europa\Cardiff\Jobs\117000\117300-01\4 Internal Project Data\4-80 GIS\4-84 Map Documents\ENV\_Environment\Ecology\Breeding bird Report figures\_v2.mxd

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- Species:
- B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
BZ - Buzzard  
CC - Chiffchaff  
CH - Chaffinch  
CW - Cetti's Warbler  
D. - Dunnock  
GO - Goldfinch

GR - Greenfinch  
GT - Great Tit  
H. - Grey Heron  
HS - House Sparrow  
JD - Jackdaw  
LI - Linnet  
MH - Moorhen  
SG - Starling  
SL - Swallow  
ST - Song Thrush

SW - Sedge Warbler  
WP - Woodpigeon  
WR - Wren

F1	2014-10-01	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

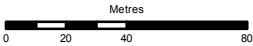
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd



Scale at A3

1:2,500

ARUP

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

Plan 43:  
Transect 7 June Results

Job No

117300-01

Drawing Status

For Issue

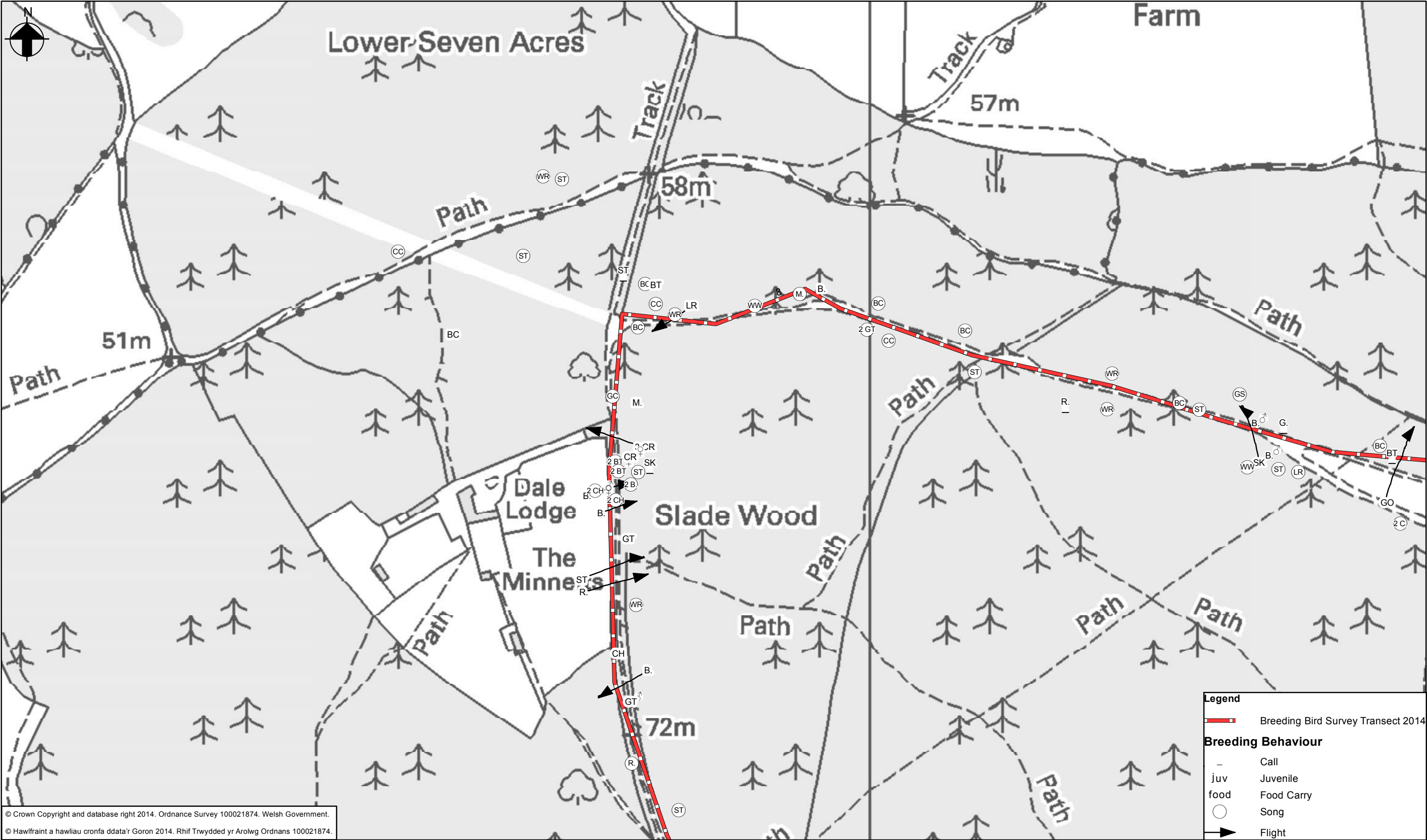
Drawing No

M4-OA-01-00-DR-Z-BB-0045

Issue

F1





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- Species:

B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
C. - Carrion Crow  
CC - Chiffchaff  
CH - Chaffinch  
CR - Common Crossbill  
G. - Green
- Woodpecker  
GC - Goldcrest  
GO - Goldfinch  
GT - Great Tit  
LR - Lesser Redpoll  
M. - Mistle Thrush  
R. - Robin  
SK - Siskin  
ST - Song Thrush  
WR - Wren

WW - Willow Warbler

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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Welsh Government

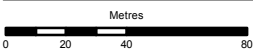
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd



Scale at A3

1:2,500

ARUP

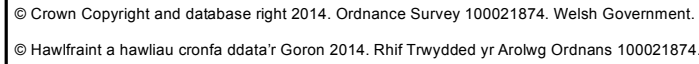
4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

Plan 44:  
Transect 8 April Results - Northwest

Job No	Drawing Status
117300-01	For Issue
Drawing No	Issue
M4-OA-01-00-DR-Z-BB-0046	F1





F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

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Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

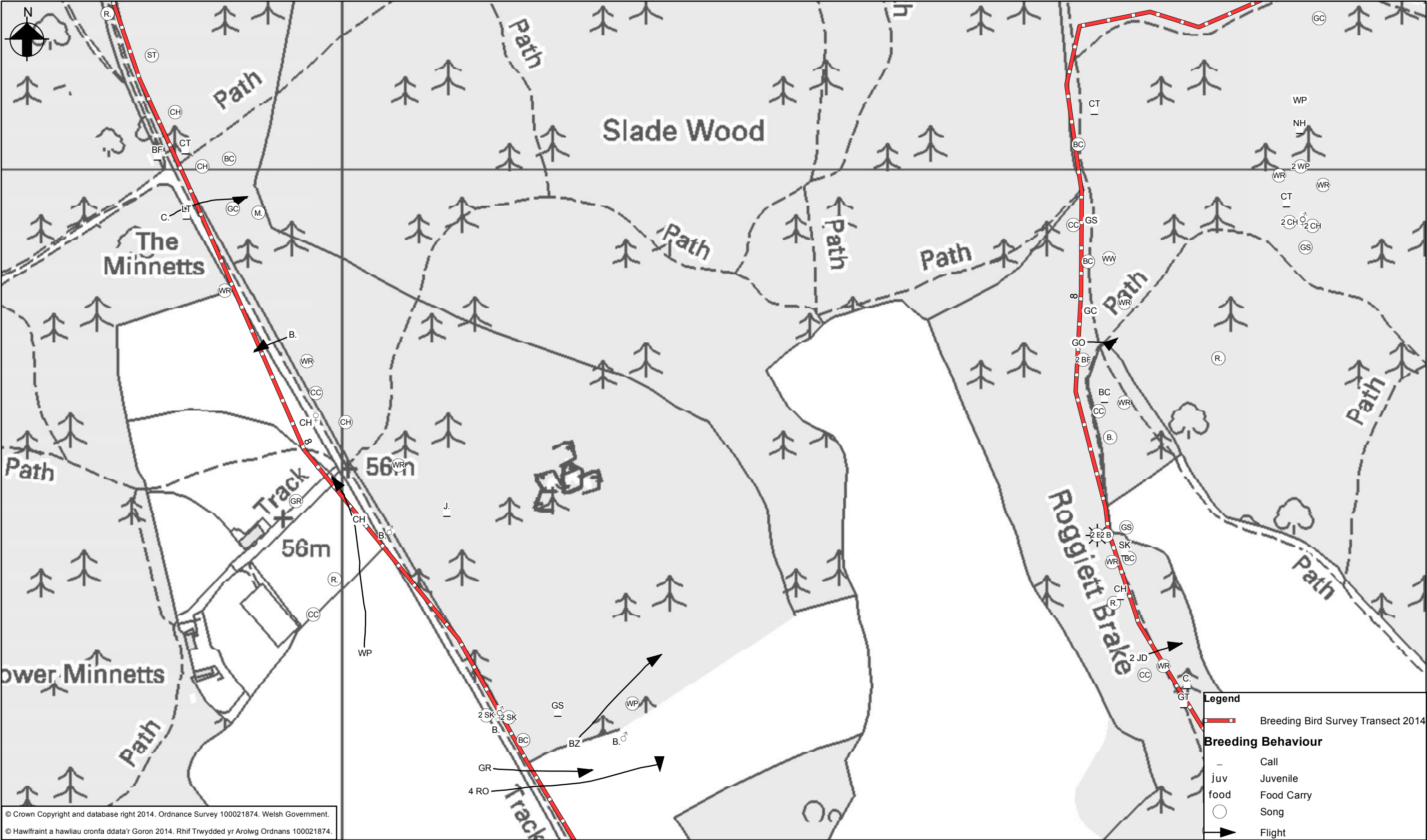
A scale bar labeled "Metres" with markings at 0, 20, 40, and 80.

Scale at A3  
**1:2,500**

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
[www.arup.com](http://www.arup.com)

Drawing No  
**M4-OA-01-00-DR-Z-BB-0047**

ue




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- Species:

  - B. - Blackbird
  - BC - Blackcap
  - BF - Bullfinch
  - BZ - Buzzard
  - C. - Carrion Crow
  - CC - Chiffchaff
  - CH - Chaffinch
  - CT - Coal Tit
  - GC - Goldcrest
- GO - Goldfinch
  - GR - Greenfinch
  - GS - Great Spotted Woodpecker
  - GT - Great Tit
  - J. - Jay
  - JD - Jackdaw
  - LT - Long-tailed Tit
  - M. - Mistle Thrush
  - NH - Nuthatch
- R. - Robin
  - RO - Rook
  - SK - Siskin
  - ST - Song Thrush
  - WP - Woodpigeon
  - WR - Wren
  - WW - Willow Warbler

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

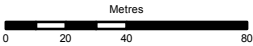


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Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,500**

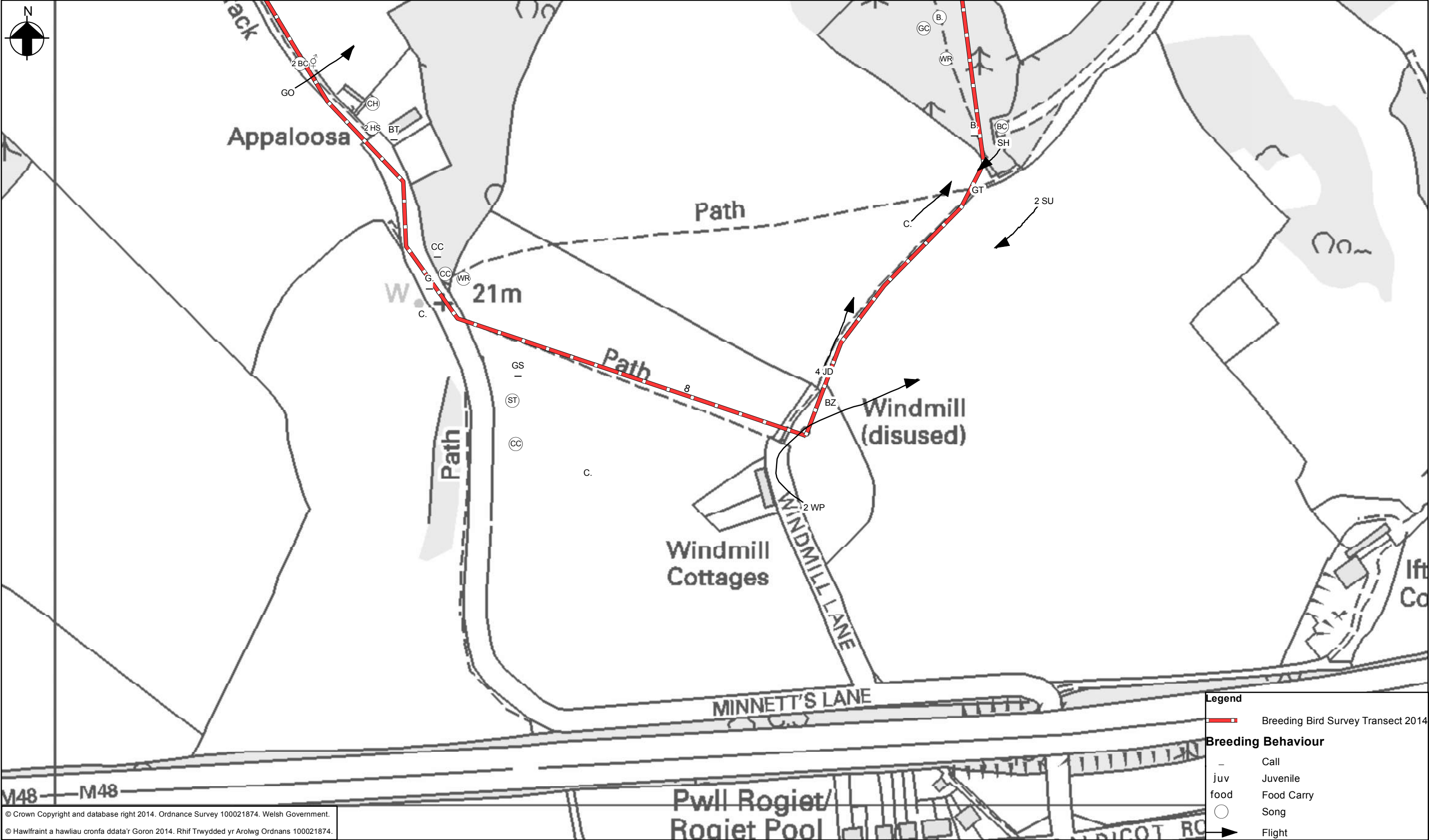
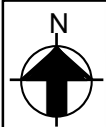
**ARUP**

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T +44(0)29 20473727 F +44(0)29 20472277  
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Drawing Title  
**Plan 46:  
Transect 8 April Results - Mid**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0048</b>	Issue <b>F1</b>






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- Species:  
B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
BZ - Buzzard  
C. - Carrion Crow  
CC - Chiffchaff  
CH - Chaffinch  
G. - Green  
Woodpecker
- GC - Goldcrest  
GO - Goldfinch  
GS - Great Spotted  
Woodpecker  
GT - Great Tit  
HS - House Sparrow  
JD - Jackdaw  
SH - Sparrowhawk  
ST - Song Thrush  
SU - Shelduck
- WP - Woodpigeon  
WR - Wren

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

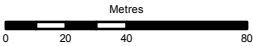


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Welsh Government  
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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



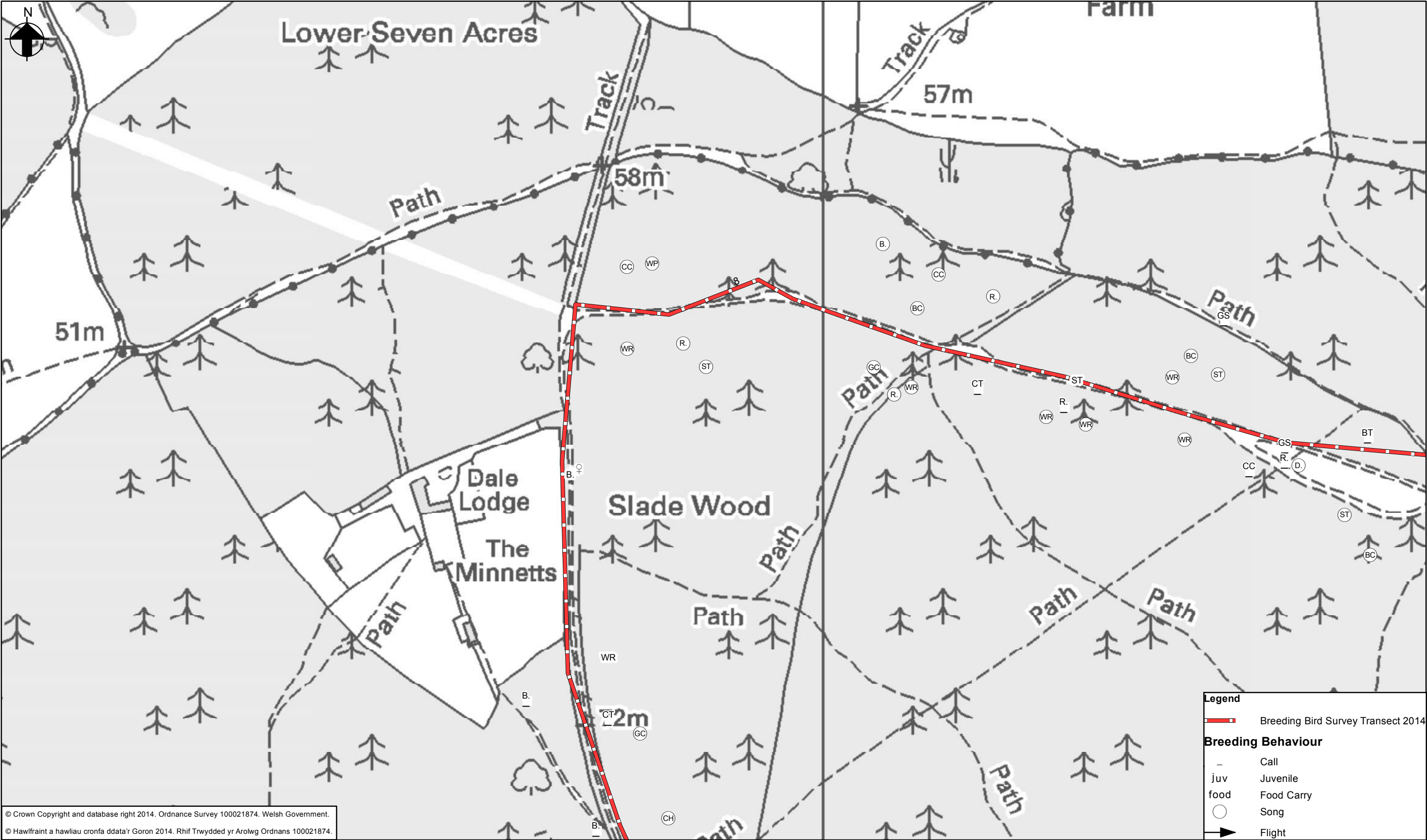
Scale at A3  
**1:2,500**

**ARUP**

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
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Drawing Title  
**Plan 47:  
Transect 8 April Results - South**


Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0049</b>	Issue <b>F1</b>



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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BT - Blue Tit
  - CC - Chiffchaff
  - CH - Chaffinch
  - CT - Coal Tit
  - D. - Dunnock
  - GC - Goldcrest
  - GS - Great Spotted
  - Woodpecker
  - R. - Robin
  - ST - Song Thrush
  - WP - Woodpigeon
  - WR - Wren

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd



Llywodraeth Cymru  
Welsh Government

Client

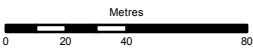
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,500**

**ARUP**

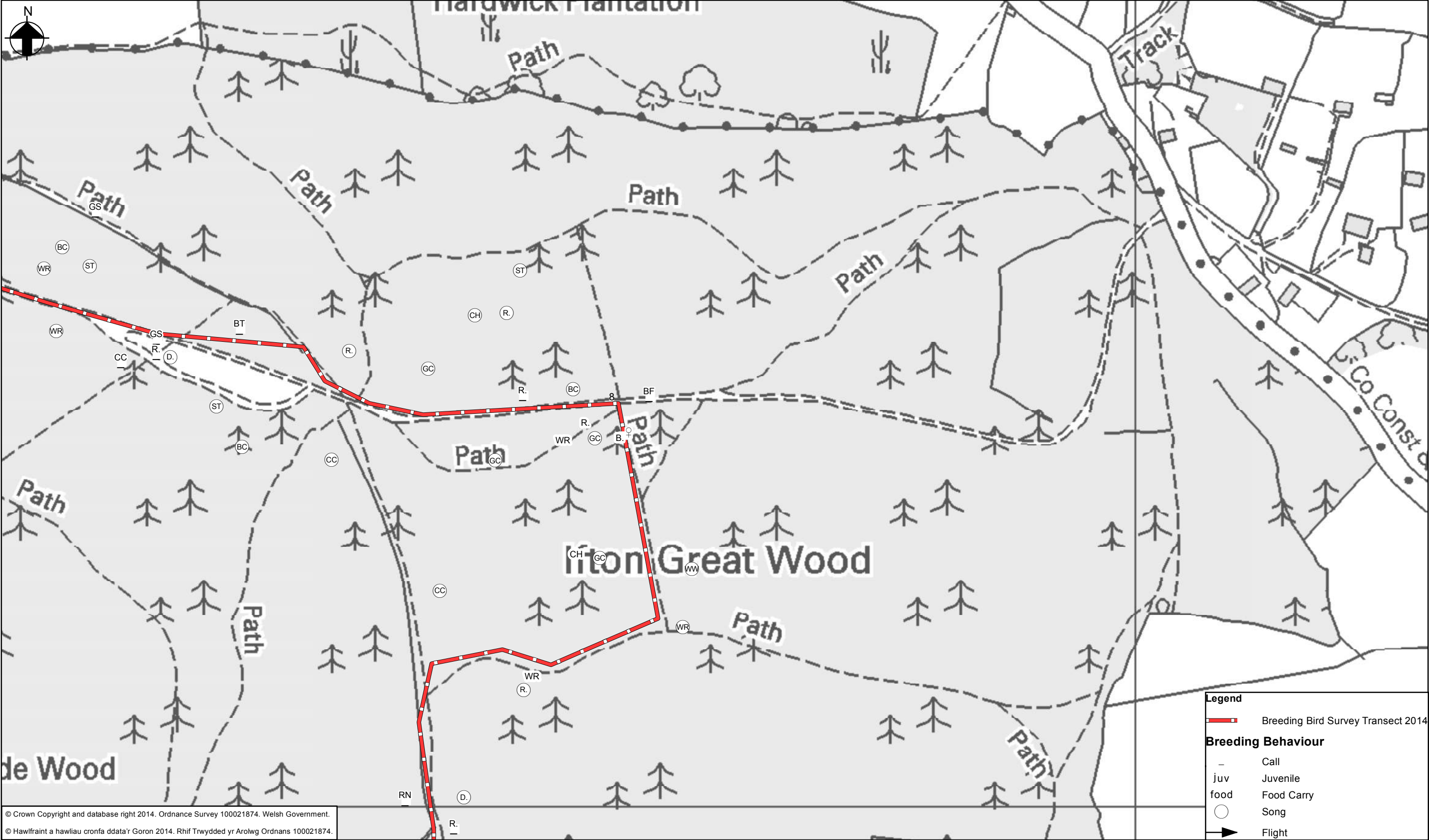
4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

**Plan 48:  
Transect 8 May Results - Northwest**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0050</b>	Issue <b>F1</b>






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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BF - Bullfinch
  - CC - Chiffchaff
  - CH - Chaffinch
  - D. - Dunnock
  - GC - Goldcrest
  - GS - Great Spotted Woodpecker
  - R. - Robin
  - RN - Raven
  - ST - Song Thrush
  - WR - Wren
  - WW - Willow Warbler

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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Welsh Government

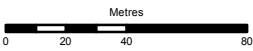
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3

**1:2,500**

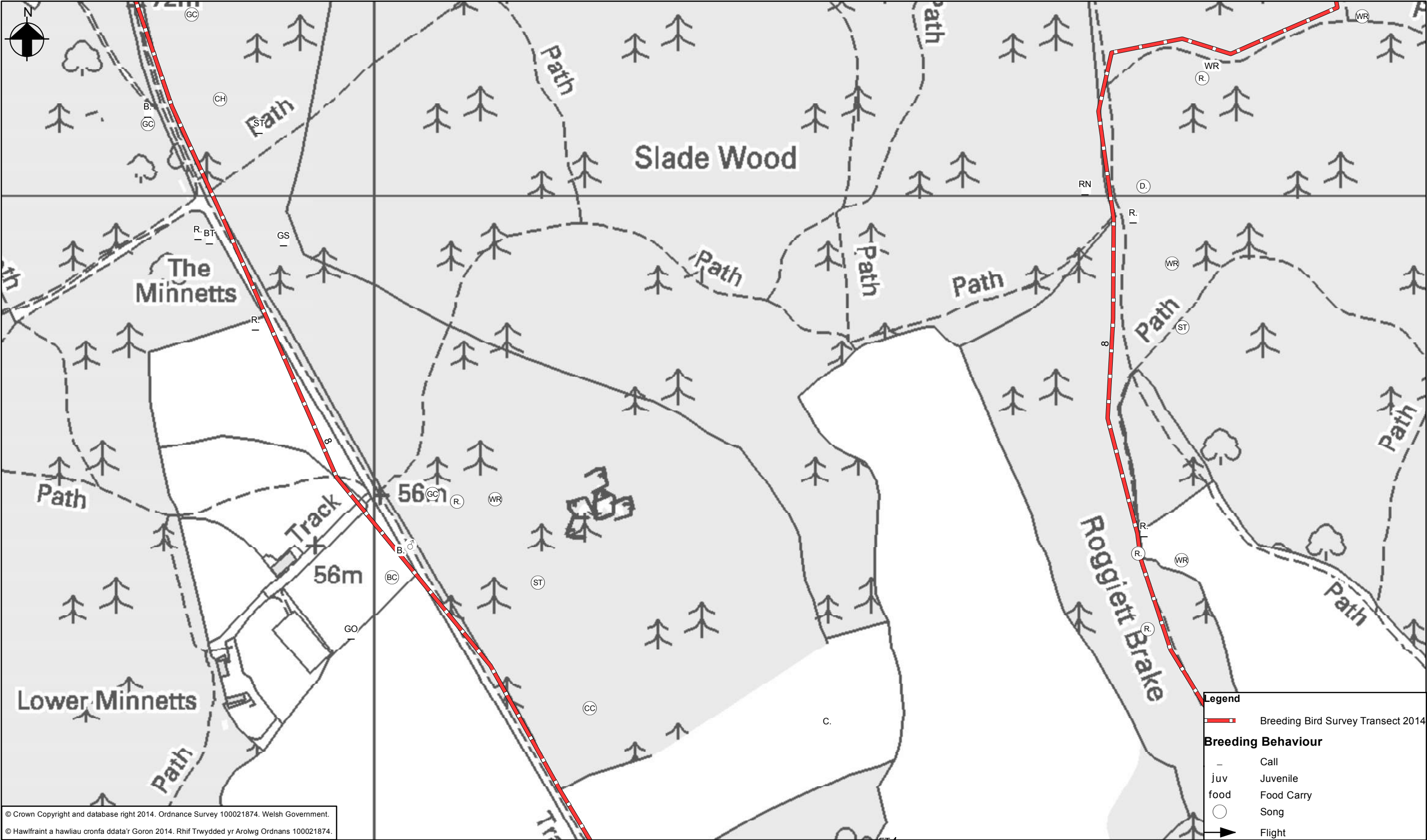
**ARUP**

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Drawing Title

**Plan 49:  
Transect 8 May Results - Northeast**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>
Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0051</b>	<b>F1</b>



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Species:  
B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
C. - Carrion Crow  
CC - Chiffchaff  
CH - Chaffinch  
D. - Dunnock  
GC - Goldcrest  
GO - Goldfinch

GS - Great Spotted Woodpecker  
R. - Robin  
RN - Raven  
ST - Song Thrush  
WR - Wren

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

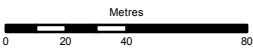


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Welsh Government  
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Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



Scale at A3  
**1:2,500**

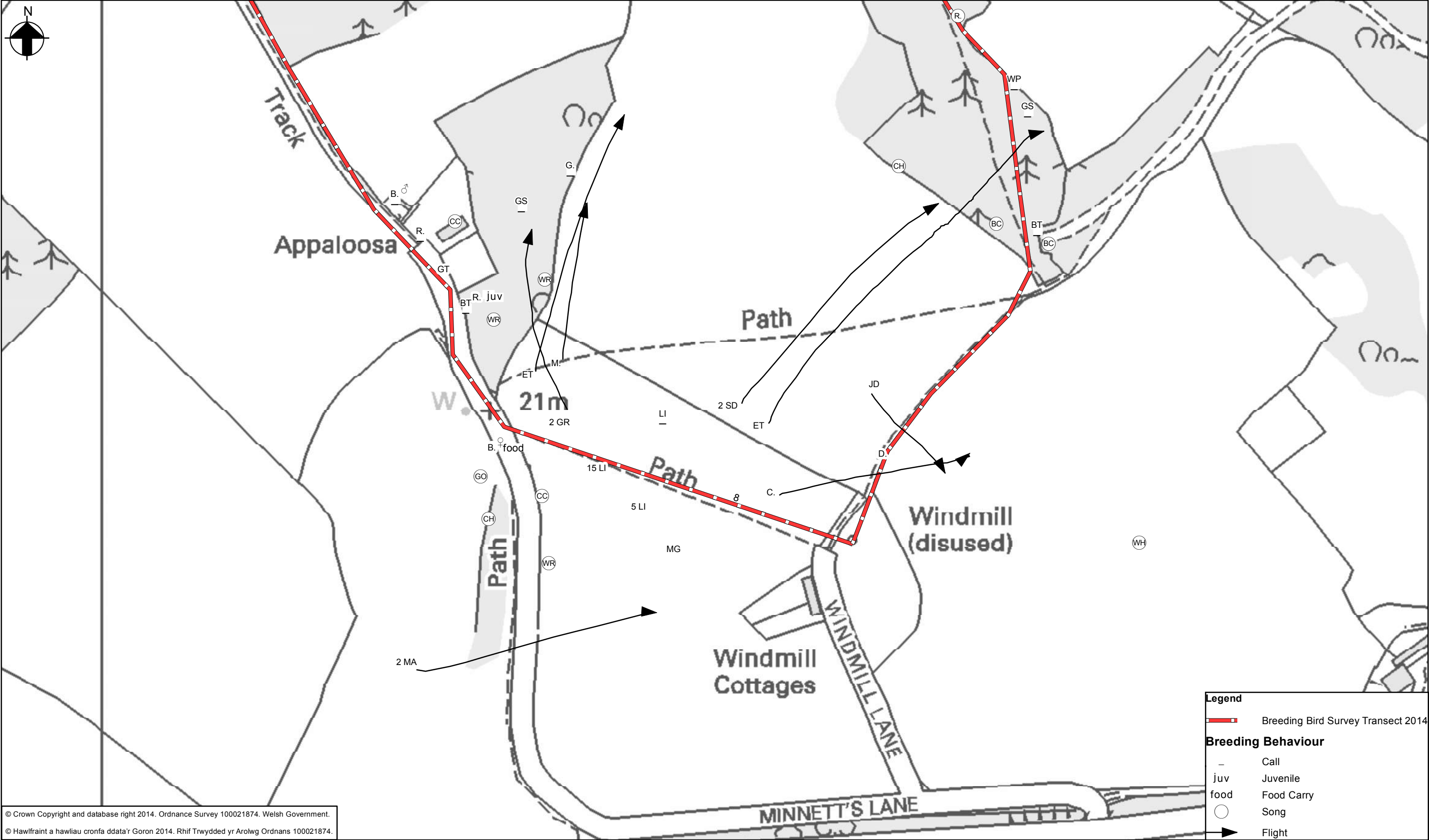
**ARUP**

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
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Drawing Title  
**Plan 50:  
Transect 8 May Results - Mid**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0052</b>	Issue <b>F1</b>






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Species:	GO - Goldfinch	WH - Whitethroat
B. - Blackbird	GR - Geenfinch	WP - Woodpigeon
BC - Blackcap	GS - Great Spotted Woodpecker	WR - Wren
BT - Blue Tit	GT - Great Tit	
CC - Chiffchaff	JD - Jackdaw	
CH - Chaffinch	D. - Dunnock	
D. - Dunnock	M. - Mistle Thrush	
ET - Little Egret	MA - Mallard	
G. - Green	R. - Robin	
Woodpecker	SD - Stock Dove	

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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Welsh Government

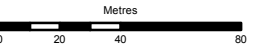
Transport  
Department for Economy, Science and Transport  
Welsh Government  
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Cardiff  
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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**


**Coridor yr M4 o amgylch Casnewydd**



0 20 40 80 Metres

Scale at A3

**1:2,500**



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Legend

 Breeding Bird Survey Transect 2014

**Breeding Behaviour**

— Call

juv Juvenile

food Food Carry

○ Song

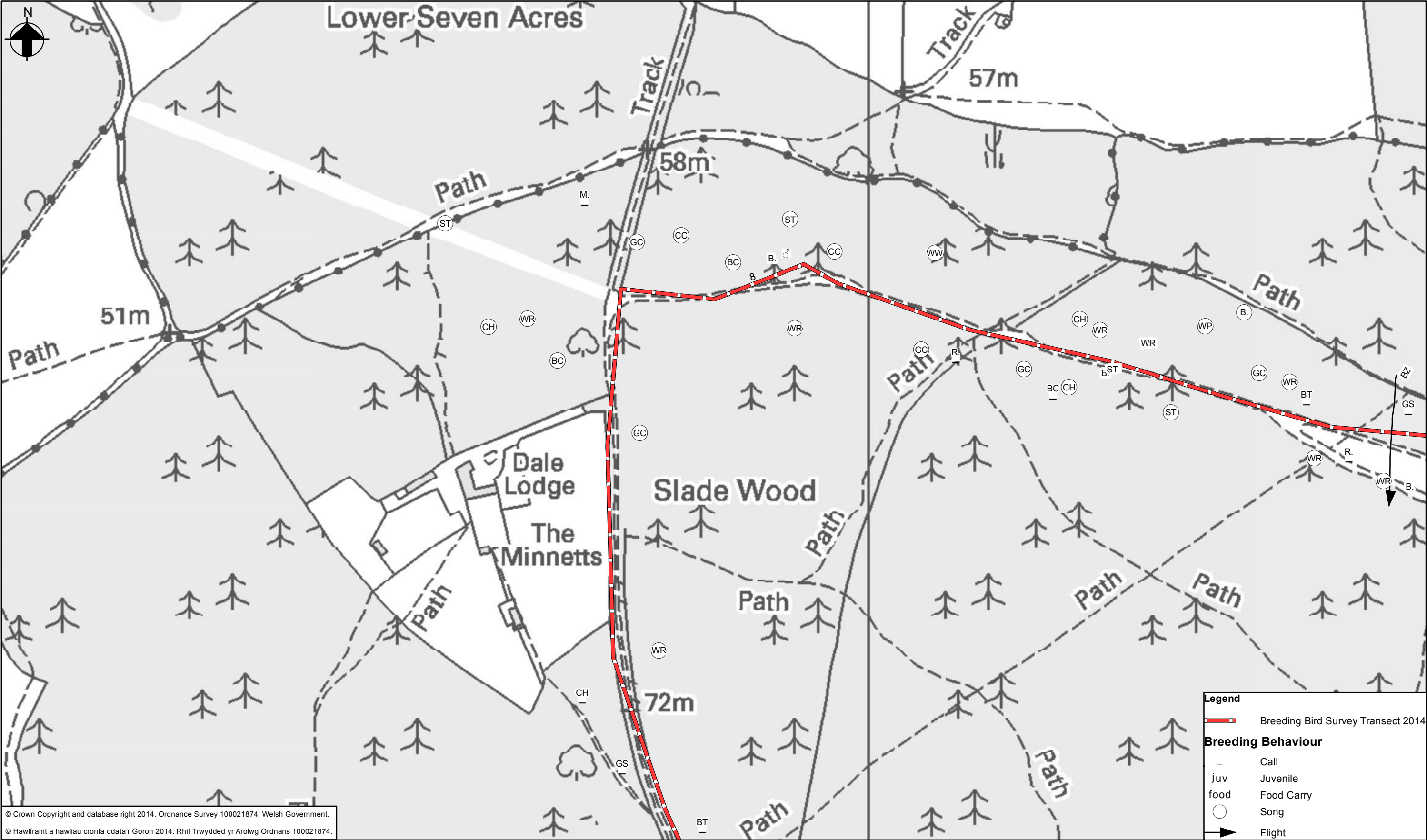
➔ Flight

Drawing Title

**Plan 51:  
Transect 8 May Results - South**

Job No	Drawing Status
<b>117300-01</b>	<b>For Issue</b>

Drawing No	Issue
<b>M4-OA-01-00-DR-Z-BB-0053</b>	<b>F1</b>




Species:

B. - Blackbird  
BC - Blackcap  
BT - Blue Tit  
BZ - Buzzard  
CC - Chiffchaff  
CH - Chaffinch  
GC - Goldcrest  
GS - Great Spotted Woodpecker

M. - Mistle Thrush  
R. - Robin  
ST - Song Thrush  
WP - Woodpigeon  
WR - Wren  
WW - Willow Warbler

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Trafnidiaeth  
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Welsh Government

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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

M4 Corridor Around Newport  
  
Coridor yr M4 o amgylch Casnewydd

Metres

0 20 40 80

Scale at A3  
**1:2,500**

ARUP

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

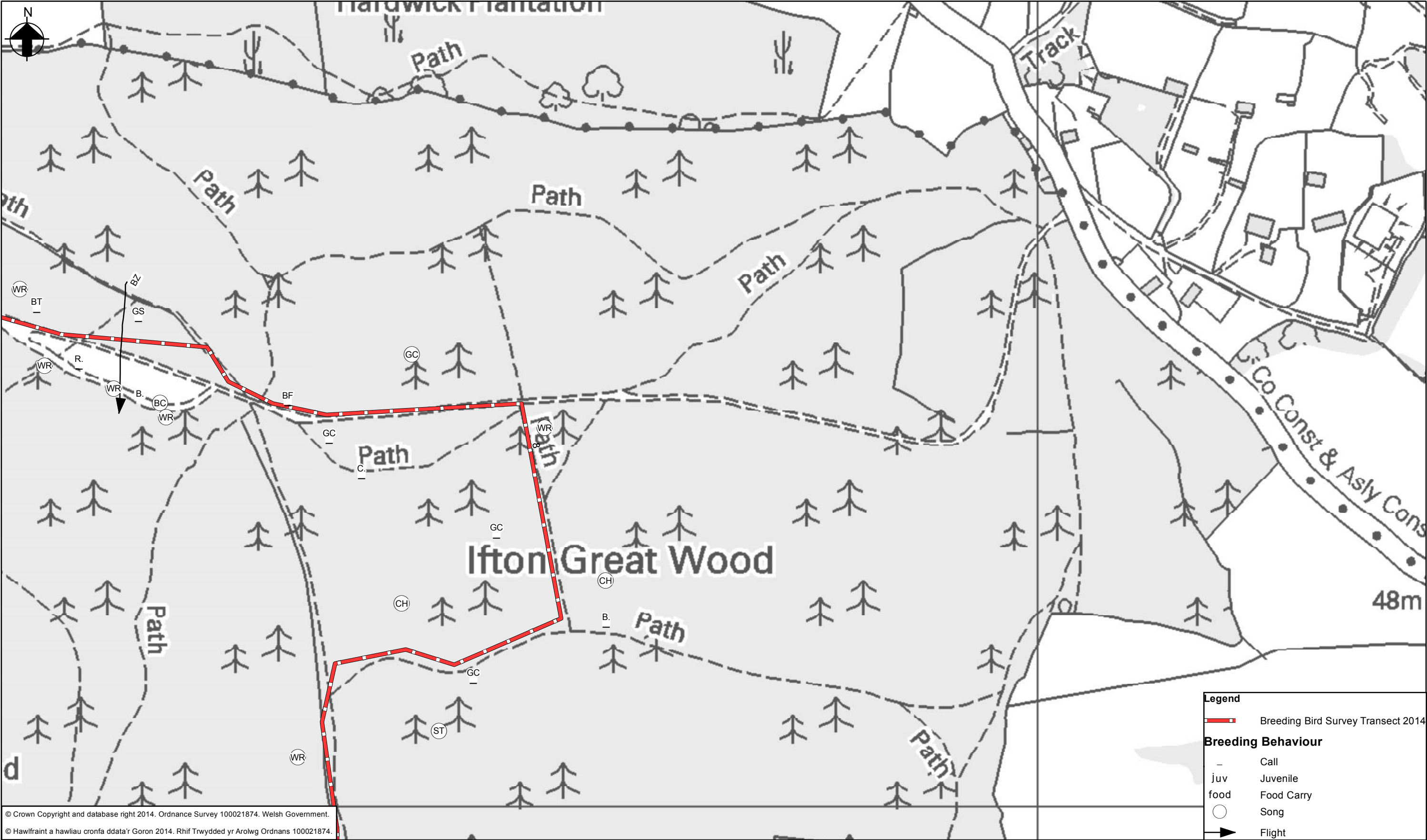
Plan 52:  
Transect 8 June Results - Northwest

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0054</b>	Issue <b>F1</b>

\\global\europa\Cardiff\Jobs\117000\117300-01\4 Internal Project Data\4-80 GIS\4-84 Map Documents\ENV\_Environment\Ecology\Breeding bird Report figures\_v3.mxd

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Species:  
B. - Blackbird  
BC - Blackcap  
BF - Bullfinch  
BT - Blue Tit  
BZ - Buzzard  
C. - Carrion Crow  
CH - Chaffinch  
GC - Goldcrest  
R. - Robin  
ST - Song Thrush  
WR - Wren

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client

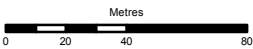


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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title  
**M4 Corridor Around Newport**  
**Coridor yr M4 o amgylch Casnewydd**



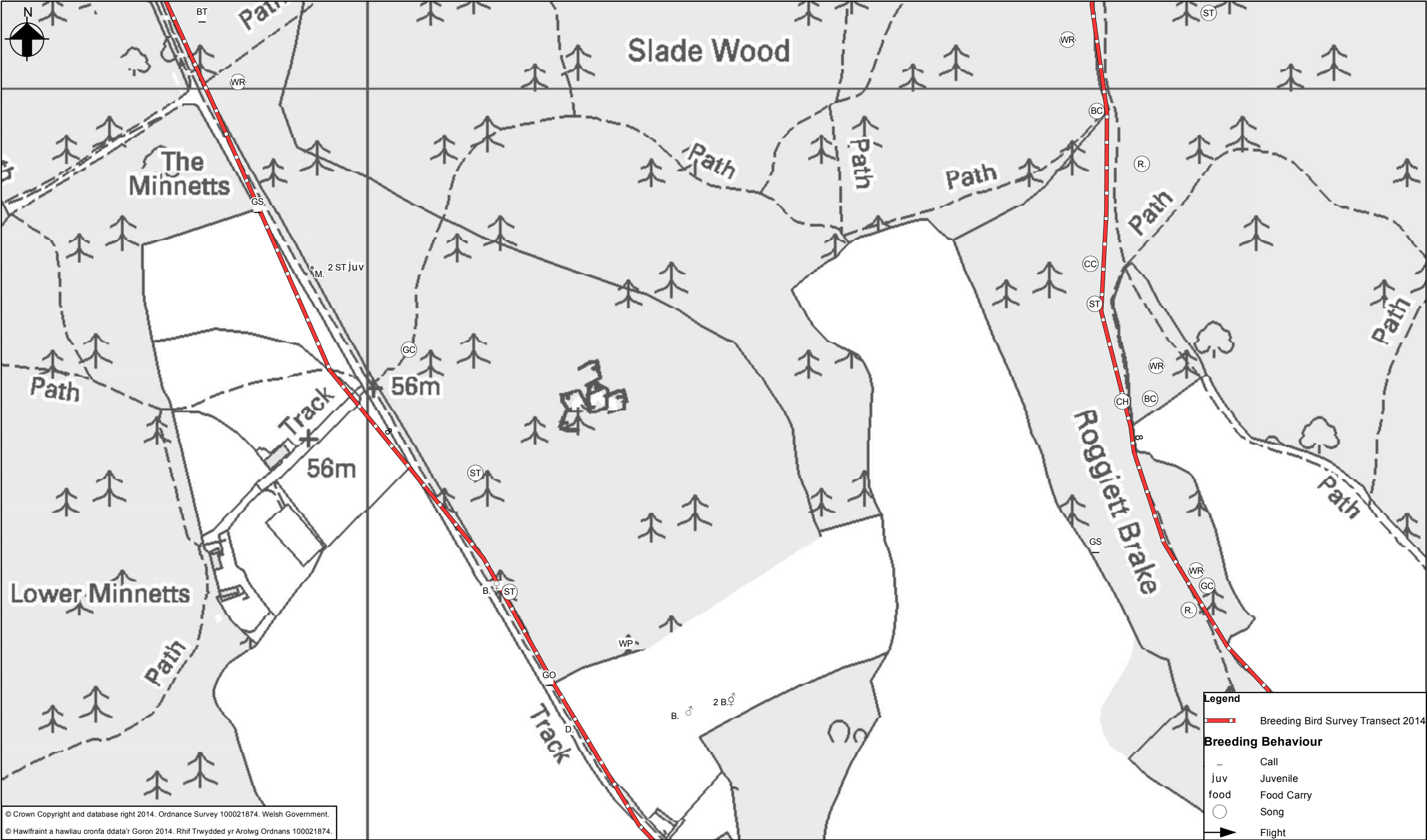
Scale at A3  
**1:2,500**

**ARUP**

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Drawing Title  
**Plan 53:  
Transect 8 June Results - Northeast**

Job No <b>117300-01</b>	Drawing Status <b>For Issue</b>
Drawing No <b>M4-OA-01-00-DR-Z-BB-0055</b>	Issue <b>F1</b>



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- Species:
- B. - Blackbird
  - BC - Blackcap
  - BT - Blue Tit
  - CC - Chiffchaff
  - CH - Chaffinch
  - D. - Dunnock
  - GC - Goldcrest
  - GO - Goldfinch
  - GS - Great Spotted
  - Woodpecker
  - M. - Mistle Thrush
  - R. - Robin
  - ST - Song Thrush
  - WP - Woodpigeon
  - WR - Wren

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



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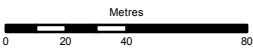
Transport  
Department for Economy, Science and  
Transport  
Welsh Government  
Cathays Park  
Cardiff  
CF10 3NQ

Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

**M4 Corridor Around Newport**

**Coridor yr M4 o amgylch Casnewydd**



Scale at A3

**1:2,500**

**ARUP**

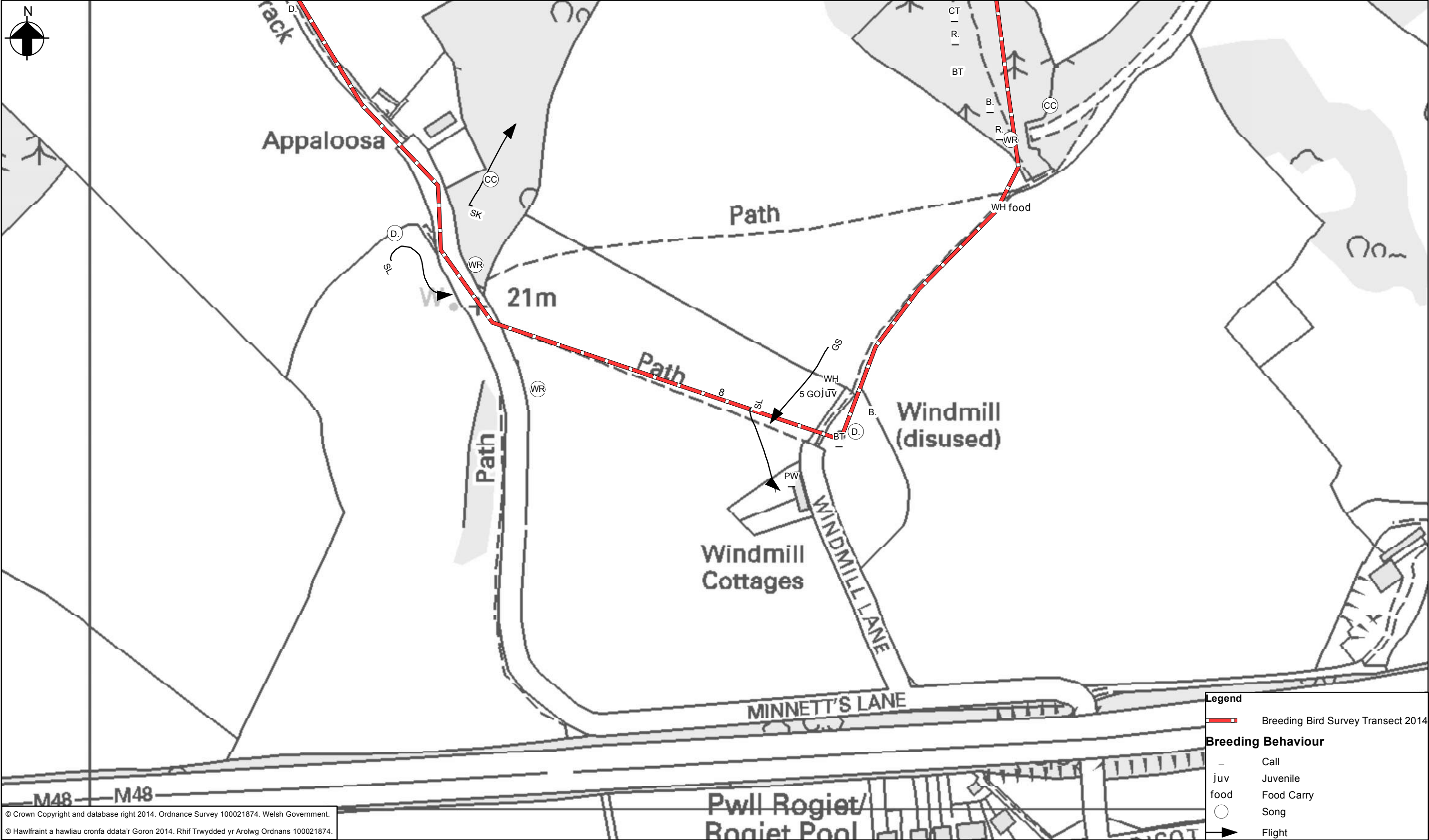
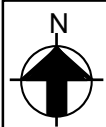
4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

**Plan 54:  
Transect 8 June Results - Mid**

Job No	Drawing Status	Issue
<b>117300-01</b>	<b>For Issue</b>	<b>F1</b>
Drawing No	Issue	
<b>M4-OA-01-00-DR-Z-BB-0056</b>	<b>F1</b>	






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Species:  
B. - Blackbird  
BT - Blue Tit  
CC - Chiffchaff  
CT - Coal Tit  
D. - Dunnock  
GO - Goldfinch  
GS - Great Spotted Woodpecker  
SK - Siskin

SL - Swallow  
PW - Pied Wagtail  
R. - Robin  
WH - Whitethroat  
WR - Wren

F1	2014-09-30	FG	PW	PW
For Issue				
Issue	Date	By	Chkd	Appd

Client



Llywodraeth Cymru  
Welsh Government

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Welsh Government  
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Cardiff  
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Trafnidiaeth  
Adran Economi, Gwyddoniaeth a  
Thrafnidiaeth  
Llywodraeth Cymru  
Parc Cathays  
Caerdydd  
CF10 3NQ

Job Title

M4 Corridor Around Newport

Coridor yr M4 o amgylch Casnewydd

Metres

0 20 40 80

Scale at A3

1:2,500

ARUP

4 Pierhead Street, Capital Waterside  
Cardiff, CF10 4QP  
T +44(0)29 20473727 F +44(0)29 20472277  
www.arup.com

Drawing Title

Plan 55:  
Transect 8 June Results - South

Job No

117300-01

Drawing Status

For Issue

Drawing No

M4-OA-01-00-DR-Z-BB-0057

Issue

F1

## Appendix A

### Weather Data



Date	Visit	Transect Number	Temperature (°C)	Wind Speed (Beaufort)	Wind Direction	Cloud Cover (%)	Conditions
2014-04-09	1	4	12	2	S	30	Sunny
2014-04-10	1	3	5	1	W	10	Dry
2014-04-11	1	2	10	2	SW	30	Sunny
2014-04-11	1	5	10	2	SW	30	Sunny
2014-04-11	1	6	13	1	NE	10	Sunny
2014-04-15	1	8	5	1	NW	0	Dry
2014-04-16	1	1	6	1	W	50	Dry
2014-04-24	1	7	8	1	SE	95	Dry
2014-05-16	2	5	8	1	SW	10	Sunny
2014-05-16	2	6	8	1	SW	10	Sunny
2014-05-22	2	3	12	2	SW	70	Light drizzle
2014-05-22	2	4	17	1	W	70	Sunny
2014-05-23	2	7	11	2	SW	80	Dry
2014-05-23	2	8	11	2	NE	100	Dry
2014-05-27	2	1	11	1	E	100	Light drizzle
2014-05-28	2	2	10	1	SE	100	Light drizzle
2014-06-12	3	8	15	1	S	0	Sunny
2014-06-23	3	4	20	1	S	10	Sunny
2014-06-24	3	1	15	2	SE	10	Sunny
2014-06-24	3	2	15	2	SE	10	Sunny
2014-06-30	3	3	13	2	NE	70	Dry
2014-06-30	3	5	13	2	NE	70	Dry
2014-06-30	3	6	13	2	NE	70	Dry
2014-06-30	3	7	13	2	NE	70	Dry

## Appendix B1

BBS Max Likely Breeding All  
Months



[illegible]

Species Code	Species Name		T1	T2	T3	T4	T5	T6	T7	T8	Grand Total	Status†
	Vernacular Name	Scientific Name										
L.	Lapwing	<i>Vanellus vanellus</i>	0	0	1	0	0	0	0	0	1	SSSI, Red, S42
LB	Lesser Black-backed Gull	<i>Larus fuscus</i>	0	0	0	0	0	0	0	0	0	Ramsar Breeding, Amber
LG	Little Grebe	<i>Tachybaptus ruficollis</i>	1	0	0	0	0	0	0	0	1	Amber
LI	Linnet	<i>Carduelis cannabina</i>	0	1	3	1	0	0	1	0	6	Red, S42
LR	Lesser Redpoll	<i>Carduelis cabaret</i>	0	0	0	0	0	0	0	1	1	Red, S42
LT	Long-tailed Tit	<i>Aegithalos caudatus</i>	0	0	0	1	0	0	0	0	1	Green
LW	Lesser Whitethroat	<i>Sylvia curruca</i>	0	1	0	1	0	1	0	0	3	Green
M.	Mistle Thrush	<i>Turdus viscivorus</i>	1	0	1	0	0	2	1	2	7	Amber
MA	Mallard	<i>Anas platyrhynchos</i>	1	1	3	1	0	1	1	0	8	Amber
MG	Magpie	<i>Pica pica</i>	0	1	2	0	0	1	0	0	4	Green
MH	Moorhen	<i>Gallinula chloropus</i>	0	1	1	0	0	0	0	0	2	Green
MS	Mute Swan	<i>Cygnus olor</i>	0	0	0	0	0	0	0	0	0	Green
NH	Nuthatch	<i>Sitta europaea</i>	0	0	0	0	0	0	0	0	0	Green
OC	Oystercatcher	<i>Haematopus ostralegus</i>	0	0	0	0	0	0	0	0	0	Amber
PE	Peregrine	<i>Falco peregrinus</i>	0	0	0	0	0	0	0	0	0	Schedule 1, Green
PH	Pheasant	<i>Phasianus colchicus</i>	0	0	0	0	0	0	0	0	0	Green
PW	Pied Wagtail	<i>Motacilla alba</i>	0	0	0	0	0	0	0	0	0	Green
R.	Robin	<i>Erithacus rubecula</i>	12	9	5	5	0	2	4	10	47	Green
RB	Reed Bunting	<i>Emberiza schoeniclus</i>	0	0	0	1	3	2	0	0	6	Amber, S42
RK	Redshank	<i>Tringa totanus</i>	0	0	0	0	0	0	0	0	0	SSSI, Amber
RN	Raven	<i>Corvus corax</i>	0	0	1	0	1	0	0	0	2	Green
RO	Rook	<i>Corvus frugilegus</i>	0	0	0	0	0	0	0	0	0	Green
RW	Reed Warbler	<i>Acrocephalus scirpaceus</i>	0	4	3	0	26	22	0	0	55	Green
S.	Skylark	<i>Alauda arvensis</i>	1	0	1	0	0	0	0	0	2	Red, S42
SD	Stock Dove	<i>Columba oenas</i>	0	0	0	1	0	0	0	1	2	Amber
SG	Starling	<i>Sturnus vulgaris</i>	2	0	1	0	0	0	1	0	4	Red, S42
SH	Sparrowhawk	<i>Accipiter nisus</i>	0	0	0	0	1	0	0	0	1	Green
SK	Siskin	<i>Carduelis spinus</i>	0	0	0	1	0	0	1	1	3	Green
SL	Swallow	<i>Hirundo rustica</i>	0	0	0	0	1	0	3	0	4	Amber
SM	Sand Martin	<i>Riparia riparia</i>	0	0	0	0	0	0	0	0	0	Amber
ST	Song Thrush	<i>Turdus philomelos</i>	6	3	1	8	1	1	3	9	32	Red, S42
SU	Shelduck	<i>Tadorna tadorna</i>	0	0	0	0	0	1	0	1	2	Amber
SW	Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	0	2	3	3	2	4	6	0	20	Green
T.	Teal	<i>Anas crecca</i>	0	0	0	0	0	0	0	0	0	Amber
TU	Tufted Duck	<i>Aythya fuligula</i>	0	0	0	0	0	0	0	0	0	Amber
WA	Water Rail	<i>Rallus aquaticus</i>	0	0	0	0	0	0	0	0	0	SSSI, Green
WB	White Wagtail	<i>Motacilla alba alba</i>	0	0	0	0	0	0	0	0	0	Not Assessed
WH	Whitethroat	<i>Sylvia communis</i>	5	1	2	5	2	15	9	1	40	Amber



Species Code	Species Name		T1	T2	T3	T4	T5	T6	T7	T8	Grand Total	Status†
	Vernacular Name	Scientific Name										
WP	Woodpigeon	<i>Columba palumbus</i>	1	1	2	4	1	4	4	2	19	Green
WR	Wren	<i>Troglodytes troglodytes</i>	28	26	15	27	14	25	16	18	169	Green
WW	Willow Warbler	<i>Phylloscopus trochilus</i>	0	0	9	2	1	3	2	5	22	Amber

†Status: Red, Amber, Green, Not Assessed = Status of each species on the Birds of Conservation Concern; Ramsar Breeding = Species listed as qualifying feature or potential qualifying feature of the Severn Estuary Ramsar Site; SSSI = species mentioned on local SSSI citations; Schedule 1 = species listed of Schedule 1 of the Wildlife and Countryside Act; S42 = Priority Species on Section 42 of the Natural Environment and Rural Communities Act.

## Appendix B2

### BBS Summary Table All Months



Species Code	Species Name		Transect 1		Transect 2		Transect 3		Transect 4		Transect 5		Transect 6		Transect 7		Transect 8		TOTAL		Status†
	Vernacular Name	Scientific Name	Max Count	Max Likely breeding	Max Count	Max Likely breeding	Max Count	Max Likely breeding	Max Count	Max Likely breeding	Max Count	Max Likely breeding	Max Count	Max Likely breeding	Max Count	Max Likely breeding	Max Count	Max Likely breeding	Total Overall Max Count	Total Overall Max Likely Breeding	
B.	Blackbird	<i>Turdus merula</i>	2	2	1	3	3	4	2	16	1	1	2	3	2	9	2	5	15	43	Green
BC	Blackcap	<i>Sylvia atricapilla</i>	1	9	1	11	1	2	1	6	1	2	2	8	2	3	2	15	11	56	Green
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>	2	0	1	0	0	0	2	0	2	0	2	0	0	0	2	1	11	1	Amber, S42
BT	Blue Tit	<i>Cyanistes caeruleus</i>	2	0	1	3	2	1	2	3	1	1	2	3	2	4	2	2	14	17	Green
BZ	Buzzard	<i>Buteo buteo</i>	1	0	1	0	1	0	0	0	1	0	1	0	1	0	1	0	7	0	Green
C.	Carrion Crow	<i>Corvus corone</i>	4	1	2	0	4	1	1	0	2	0	1	1	1	1	2	1	17	5	Green
CA	Cormorant	<i>Phalacrocorax carbo</i>	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	Green
CC	Chiffchaff	<i>Phylloscopus collybita</i>	1	4	1	5	1	6	1	8	1	7	1	21	1	9	1	10	8	70	Green
CD	Collared Dove	<i>Streptopelia decaocto</i>	2	1	3	0	2	1	0	0	0	0	0	0	1	0	0	0	8	2	Green
CG	Canada Goose	<i>Branta canadensis</i>	0	0	5	1	0	0	0	0	0	0	2	1	0	0	0	0	7	2	Not Assessed
CH	Chaffinch	<i>Fringilla coelebs</i>	2	4	1	3	2	4	1	3	0	0	1	1	1	3	2	6	10	24	Green
CK	Cuckoo	<i>Cuculus canorus</i>	0	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	2	3	Red
CO	Coot	<i>Fulica atra</i>	4	1	0	0	0	0	0	0	1	0	2	1	0	0	0	0	7	2	Green
CR	Common Crossbill	<i>Loxia curvirostra</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	4	0	Schedule 1
CS	Common Sandpiper	<i>Actitis hypoleucos</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	Amber
CT	Coal Tit	<i>Periparus ater</i>	0	0	0	0	1	1	0	0	0	0	0	0	1	3	2	2	4	6	Green
CW	Cetti's Warbler	<i>Cettia cetti</i>	0	0	1	2	1	2	1	2	1	20	1	24	1	4	0	0	6	54	Schedule 1, SSSI, Green
D.	Duncock	<i>Prunella modularis</i>	2	9	1	3	2	3	2	7	1	2	1	3	1	12	1	2	11	41	Amber, S42
ET	Little Egret	<i>Egretta garzetta</i>	0	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	4	0	Amber
G.	Green Woodpecker	<i>Picus viridis</i>	0	0	1	0	0	0	1	0	0	0	1	1	1	1	1	0	5	2	Amber

GA	Gadwall	<i>Anas strepera</i>	0	0	1	0	0	0	0	0	1	0	12	0	0	0	0	0	14	0	Amber
GC	Goldcrest	<i>Regulus regulus</i>	1	1	1	1	0	0	1	3	0	0	1	2	1	1	1	8	6	16	Green
GH	Grasshopper Warbler	<i>Locustella naevia</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	Red
GJ	Greylag Goose	<i>Anser anser</i>	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1	Amber
GO	Goldfinch	<i>Carduelis carduelis</i>	4	3	4	2	4	4	2	1	0	0	4	1	11	5	5	1	34	17	Green
GR	Greenfinch	<i>Carduelis chloris</i>	3	4	1	2	6	3	1	5	1	0	1	1	1	3	2	1	16	19	Green
GS	Great Spotted Woodpecker	<i>Dendrocopos major</i>	1	1	1	1	0	0	1	1	0	0	1	0	1	0	1	3	6	6	Green
GT	Great Tit	<i>Parus major</i>	2	1	2	0	1	3	2	3	2	4	1	0	2	5	2	1	14	17	Green
GW	Garden Warbler	<i>Sylvia borin</i>	0	0	1	1	1	1	1	0	0	0	1	1	1	0	0	0	5	3	Green
H.	Grey Heron	<i>Ardea cinerea</i>	0	0	1	0	1	0	1	0	0	0	1	0	1	0	0	0	5	0	Green
HG	Herring Gull	<i>Larus argentatus</i>	14	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	Ramsar Breeding, Red, S42
HM	House Martin	<i>Delichon urbica</i>	0	0	8	0	0	0	11	0	0	0	0	0	0	0	0	0	19	0	Amber
HS	House Sparrow	<i>Passer domesticus</i>	1	0	1	1	2	2	5	3	0	0	0	0	6	3	2	1	17	10	Red, S42
J.	Jay	<i>Garrulus glandarius</i>	1	0	1	0	0	0	1	1	0	0	3	0	0	0	2	1	8	2	Green
JD	Jackdaw	<i>Corvus monedula</i>	11	1	1	0	0	0	4	1	0	0	0	0	1	2	4	0	21	4	Green
K.	Kestrel	<i>Falco tinnunculus</i>	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	Amber, S42
L.	Lapwing	<i>Vanellus vanellus</i>	0	0	1	0	2	1	0	0	0	0	1	0	0	0	0	0	4	1	SSSI, Red, S42
LB	Lesser Black-backed Gull	<i>Larus fuscus</i>	34	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	Ramsar Breeding, Amber
LG	Little Grebe	<i>Tachybaptus ruficollis</i>	4	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	6	1	Amber
LI	Linnet	<i>Carduelis cannabina</i>	1	0	1	1	2	3	1	1	2	0	0	0	2	1	15	0	24	6	Red, S42
LR	Lesser Redpoll	<i>Carduelis cabaret</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	Red, S42
LT	Long-tailed Tit	<i>Aegithalos caudatus</i>	1	0	2	0	0	0	2	1	1	0	1	0	0	0	1	0	8	1	Green



LW	Lesser Whitethroat	<i>Sylvia curruca</i>	0	0	1	1	1	0	1	1	0	0	1	1	0	0	0	0	4	3	Green
M.	Mistle Thrush	<i>Turdus viscivorus</i>	1	1	0	0	1	1	0	0	0	0	1	2	2	1	1	2	6	7	Amber
MA	Mallard	<i>Anas platyrhynchos</i>	11	1	2	1	2	3	3	1	1	0	5	1	3	1	2	0	29	8	Amber
MG	Magpie	<i>Pica pica</i>	3	0	2	1	2	2	2	0	2	0	2	1	1	0	1	0	15	4	Green
MH	Moorhen	<i>Gallinula chloropus</i>	3	0	2	1	2	1	1	0	1	0	1	0	1	0	0	0	11	2	Green
MS	Mute Swan	<i>Cygnus olor</i>	0	0	5	0	3	0	1	0	0	0	0	0	0	0	0	9	0	Green	
NH	Nuthatch	<i>Sitta europaea</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	Green
OC	Oystercatcher	<i>Haematopus ostralegus</i>	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	Amber	
PE	Peregrine	<i>Falco peregrinus</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	Schedule 1, Green	
PH	Pheasant	<i>Phasianus colchicus</i>	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	0	Green	
PW	Pied Wagtail	<i>Motacilla alba</i>	0	0	2	0	1	0	1	0	0	0	0	0	1	0	1	0	6	0	Green
R.	Robin	<i>Erithacus rubecula</i>	1	12	1	9	1	5	1	5	1	0	1	2	1	4	1	10	8	47	Green
RB	Reed Bunting	<i>Emberiza schoeniclus</i>	0	0	2	0	1	0	1	1	2	3	2	2	0	0	0	0	8	6	Amber, S42
RK	Redshank	<i>Tringa totanus</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	SSSI, Amber	
RN	Raven	<i>Corvus corax</i>	0	0	0	0	1	1	1	0	2	1	2	0	0	0	1	0	7	2	Green
RO	Rook	<i>Corvus frugilegus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	Green
RW	Reed Warbler	<i>Acrocephalus scirpaceus</i>	0	0	1	4	1	3	0	0	1	26	1	22	0	0	0	0	4	55	Green
S.	Skylark	<i>Alauda arvensis</i>	1	1	0	0	5	1	0	0	0	0	0	0	0	0	0	6	2	Red, S42	
SD	Stock Dove	<i>Columba oenas</i>	2	0	0	0	0	0	2	1	3	0	0	0	0	0	2	1	9	2	Amber
SG	Starling	<i>Sturnus vulgaris</i>	22	2	6	0	200	1	15	0	0	0	0	0	13	1	0	0	256	4	Red, S42
SH	Sparrowhawk	<i>Accipiter nisus</i>	0	0	0	0	1	0	0	0	1	1	1	0	0	0	1	0	4	1	Green
SK	Siskin	<i>Carduelis spinus</i>	0	0	0	0	0	0	1	1	0	0	0	0	1	1	2	1	4	3	Green
SL	Swallow	<i>Hirundo rustica</i>	3	0	6	0	20	0	4	0	2	1	3	0	4	3	1	0	43	4	Amber
SM	Sand Martin	<i>Riparia riparia</i>	0	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	30	0	Amber
ST	Song Thrush	<i>Turdus philomelos</i>	1	6	1	3	1	1	1	8	1	1	1	1	2	3	2	9	10	32	Red, S42

SU	Shelduck	<i>Tadorna tadorna</i>	0	0	0	0	4	0	6	0	0	0	8	1	0	0	2	1	20	2	Amber
SW	Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	0	0	1	2	1	3	1	3	1	2	1	4	1	6	0	0	6	20	Green
T.	Teal	<i>Anas crecca</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	Amber
TU	Tufted Duck	<i>Aythya fuligula</i>	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	13	0	Amber
WA	Water Rail	<i>Rallus aquaticus</i>	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	SSSI, Green
WB	White Wagtail	<i>Motacilla alba alba</i>	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	Not Assessed
WH	Whitethroat	<i>Sylvia communis</i>	1	5	1	1	1	2	1	5	2	2	4	15	2	9	1	1	13	40	Amber
WP	Woodpigeon	<i>Columba palumbus</i>	3	1	2	1	2	2	2	4	2	1	1	4	2	4	2	2	16	19	Green
WR	Wren	<i>Troglodytes troglodytes</i>	1	28	1	26	1	15	2	27	1	14	1	25	1	16	1	18	9	169	Green
WW	Willow Warbler	<i>Phylloscopus trochilus</i>	0	0	0	0	1	9	1	2	1	1	1	3	1	2	1	5	6	22	Amber
<b>TOTAL</b>																				<b>888</b>	

†Status: Red, Amber, Green, Not Assessed = Status of each species on the Birds of Conservation Concern; Ramsar Breeding = Species listed as qualifying feature or potential qualifying feature of the Severn Estuary Ramsar Site; SSSI = species mentioned on local SSSI citations; Schedule 1 = species listed of Schedule 1 of the Wildlife and Countryside Act; S42 = Priority Species on Section 42 of the Natural Environment and Rural Communities Act.