

Ornithology Report

**Bord na Móna Winter Bird Survey 2016/17
Derryaroge, Derryadd and Lough Bannow Bogs**



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1 EXECUTIVE SUMMARY

- Malachy Walsh and Partners was commissioned by Bord na Móna to conduct winter bird surveys within a parcel of Bord na Móna lands during 2016/17. The area in question comprises three individual bog sites, located in County Longford, namely **Derryaroge, Derryadd and Lough Bannow Bogs**. The site is predominantly in continuous peat production although substantial areas are in various stages of reverting back to semi-natural vegetation cover, where commercial peat harvesting has ceased.
- Field methods employed comprised mainly a combination of vantage point watches and walked transects. Vantage point watches were carried out over a six month period (October to March inclusive); at twelve separate locations within and in proximity to the site boundary. Three rounds of transects were conducted to encompass the early, mid- and late winter bird season. Each round comprised a total of twenty-one individual transect routes. In addition, wetland bird surveys were carried out at several permanent and ephemeral wetlands within the surrounding area as were general hinterland surveys and raptor searches.
- Five Annex I species, under the European Union Birds Directive (2009/147/EEC), were recorded, namely **hen harrier, peregrine, merlin, golden plover** and **whooper swan**. Both golden plover and whooper swan were found to regularly use the site, while merlin, hen harrier and peregrine only occurred infrequently within the site, passing through and/or hunting.
- A total of four red-listed species, considered to be of high conservation concern in Ireland, were recorded within the site. These included **black-headed gull, golden plover, lapwing and meadow pipit**. In addition, **curlews** are believed to be breeding in high bog adjacent to the site's south-eastern boundary. A total of twenty amber-listed species, considered to be of lesser conservation concern, were recorded within the site.

2 INTRODUCTION

2.1 PROJECT BACKGROUND

Bord na Móna are currently considering the viability of developing cutaway peatland for wind energy development. As part of baseline environmental studies, they commissioned a suite of bird surveys across a range of bog sites, to investigate current and likely usage of the various sites by avian species.

As part of this, Malachy Walsh and Partners was commissioned to conduct winter bird surveys in 2016/17 in Bord na Móna lands in County Longford. The study area in question comprises three individual bog sites, namely **Derryaroge**, **Derryadd** and **Lough Bannow Bogs**. These sites have already been encompassed by a broader suite of bird surveys carried out by Malachy Walsh and Partners on behalf of Bord na Móna in the winter of 2014/15, summer of 2015 and winter of 2015/16.

This report presents the findings of the bird surveys carried out by Malachy Walsh and Partners during the most recent survey season (winter 2016/17). The survey has been informed by desk-top studies, previous surveys carried out on-site and consultation with relevant bodies. The bird data gathered during the 2016/17 winter season will contribute to existing baseline data for the area. Relevant mapping, including site location map, ortho-photo and habitat maps were provided by Bord na Móna at the commencement of the project.

2.2 GENERAL SITE OVERVIEW

The winter 2016/17 surveys were conducted within **Derryaroge**, **Derryadd** and **Lough Bannow Bogs**, located in County Longford in the Irish Midlands. Site boundaries for each of the three sites are provided in Appendix I. There follows a general overview of the overall site and its environs. Site-specific descriptions of the individual bogs encompassed by the survey are provided in Section 4.1, below.

The study area is located in south-west County Longford, approximately 8.5km south-west of Longford town. Overall, the site is largely bounded by the River Shannon and Lough Ree to the west and the Royal Canal to the east. The N63 National Road linking the towns of Roscommon and Longford runs largely west to east through the study area. **Derryaroge Bog** is located north of the road while **Derryadd** and **Lough Bannow Bogs** are situated to the south.

The dominant habitat type throughout the overall site is cutover bog which occurs extensively throughout the survey area. Most areas of the site are in continuous peat production; therefore overall the site offers little in the way of habitat diversity. Discrete sections of woodland (both broadleaf and conifer) occur within the site, particularly at the edge of cutaway areas. Many areas of cut-over envelop linear strips of willow and other species occurring along drainage ditches. The margins of cutaway areas often comprise some remnant raised bog vegetation, dominated by ling heather (*Calluna vulgaris*). The dominant land-use extending away from the site is agricultural farmland with some small isolated pockets of coniferous forestry also occurring.

3 METHODOLOGY

3.1 DESK-STUDY

Prior to the commencement of any survey-work, a detailed desktop study was carried out. This provided the opportunity to investigate previous bird records for the relevant bog sites, and surrounding areas, and gain an understanding of past bird usage of these areas. The desktop study largely focussed on the winter bird surveys carried out on-site to date, as outlined in the previous section, but were by no means limited to such, with regard being given to a variety of both published and unpublished information sources, including reports, books, journals and on-line databases.

The desktop study involved a review of a number of publications, unpublished reports and on-line resources, including but not limited to, the following:

- Bord na Móna Ornithology Report for Lot 1 (Mountdillon, Derryaroge, Derryadd and Derraghan) Winter 2015/16 and Winter 2014/15
- Irish Wetland Bird Survey: Waterbird Status and Distribution 2001/02 – 2008/09 (Boland and Crowe, 2012)
- Whooper and Bewick's Swans in Ireland: results of the International Swan Census, January 2010 (Boland, et al., 2010)
- International Census of Greenland White-fronted Goose 2007/08 (Fox, Francis & Walsh 2008)
- Ireland's Wetlands and their Waterbirds: Status and Distribution (Crowe, 2005)
- Greenland White-fronted Geese in Ireland and Britain, 1982/83 – 1993/94 (Fox, et al, 1994)
- Irish Bird Reports and the journal *Irish Birds*, published by BirdWatch Ireland
- Birds in Central Ireland – Mid Shannon Bird Report - reports were available for the following periods: 1992-1995, 1996-1999, 2000-2003, 2004-2007 and 2008-2012 (S. Heery)
- Documented bird records available on the NPWS online map database (www.npws.ie)
- Documented bird records available from the National Biodiversity Data Centre website (www.biodiversityireland.ie)
- General ornithological information on surveys, species etc (www.birdwatchireland.ie)

Additionally, bird counts were obtained from Birdwatch Ireland with regards to I-WeBS counts on Lough Ree and other wetlands in the vicinity of the subject site.

3.2 FIELD SURVEYS

The survey methodology was designed so as to allow the winter bird community, both within the sites and in the surrounding areas, to be determined.

The main objectives of the field survey were to:

- Identify and record all birds present within the study area, with particular emphasis on target species;
- Record all target species flight activity/behaviour;
- Assess status of target species, in particular usage of site or its environs;
- Determine presence of any migratory birds potentially in the study area or surrounding areas at commencement or conclusion of the survey period;

- Assess suitability of habitats present for key species not recorded but which could potentially occur.

In line with the tender documentation, the winter bird surveys focussed in particular on wintering waders and wildfowl (notably geese and swans), potential winter hen harrier roosts, other raptors, Annex I species and other birds of conservation concern. In addition to target species/groups, all other birds observed within the site throughout the duration of the surveys were recorded.

The main focus of the bird surveys were specific **target species** or species groups, including:

- Waders (including golden plover, lapwing, curlew etc);
- Wildfowl/waterbirds (including barnacle goose, Greenland white-fronted goose, whooper swan);
- Hen harrier, merlin, and other birds of prey;
- Other Annex I species listed on the EU Birds Directive;
- Other species of conservation concern.

The field surveys comprised two main elements; vantage point watches and walked transects, both of which were carried out within or in proximity to the site boundary. Additional surveys carried out within the surrounding area comprised wetland bird surveys (I-WeBS) and hinterland surveys.

3.2.1 Vantage Point Surveys

Vantage point (VP) surveys were carried out by competent experts over a six month period in 2016/17 (October to March inclusive). The overall aim of these surveys was to identify areas of target species activity, in particular flight activity, within the study area and its environs. Vantage points were located on elevated areas, or other areas, which provided clear views over the study area. Vantage point locations were chosen in order to achieve maximum visibility over as much of the site as possible within a 2km range (see Appendix I for vantage point view-sheds).

The main objectives were:

- To record site-usage by target species potentially occurring within and around the survey area
- To observe flight patterns/behaviour and flight heights of target species in order to inform Collision Risk Model Assessment
- Use gathered data to supplement the desktop study in identifying areas within or adjacent to the site which may be of particular importance to target species

Surveys were carried out in accordance with bird survey guidelines produced by Scottish Natural Heritage in May 2014 (*Recommended bird survey methods to inform impact assessment of onshore wind farms*), which are the approved methodologies in Ireland at this time. These guidelines make reference to and recommend other various methodologies including those proposed by Bibby *et al.*, (2000) and Gilbert *et al.*, (1998), to which reference was made. Survey methods also had regard to methodologies proposed by NPWS guidelines (Anon, 2003), Percival (2003) and Madders (2002).

During the vantage point surveys, the flight patterns/behaviour and flight heights of target species occurring within the site or its environs were recorded. Once observed initially, any species of interest seen in the area was observed until it was lost from view. Flight paths were then mapped on

OSI 1:25 000 mapping such that all flight activity within the site and broader landscape was encompassed. During these observations the following information was recorded:

- The time that the bird was detected and the flight duration;
- Sex and age of the bird(s) (adult/juvenile), where possible to determine;
- Activity/behaviour such as hunting, flying, soaring, display etc.
- Estimation of flight height (categories 0-10m, 10-50m, 50-100m, 100-200m and >200m);
- Habitat(s) where the bird was observed, where possible to determine;
- Weather conditions at time of sighting including degree of visibility;
- Any other additional information pertaining to the sighting.

Twelve vantage points were selected to ensure adequate coverage of the study area. All, except one, were located within or on the site boundary. The location of each vantage point is shown on a map of the study area, included in Appendix I. During the winter survey period, October to March inclusive, each vantage point was watched for a total of six hours per month, giving a total of 432 vantage point hours over the course of the survey season.

Vantage point surveys were undertaken on the following dates:

- October 24th – 28th
- November 2nd – 4th, 8th, 9th, 15th – 18th, 24th, 25th
- December 5th – 7th and 12th – 14th
- January 10th – 12th, 23rd, 24th
- February 1st 2nd 8th - 10th
- March 2nd, 3rd, 22nd, 23rd, 24th and 28th

3.2.2 Transect Surveys

A transect survey is a walkthrough of a specific area with surveyors following a defined route. Although non-breeding, the transect survey was carried out with regard to Countryside Bird Survey (CBS) methodology (BWI, 2012). All bird species seen or heard, typically within 200-300m of the transect route, were recorded, although the topography of the peatland habitats often allowed for detection of birds at greater distances. As the individual bogs encompass relatively large areas, multiple transect routes were employed within each of the three sites to ensure that site-specific variation in topography, habitats and species was allowed for. Additionally, some transect routes were located outside but in close proximity to the site boundaries. Transects typically followed linear features within the landscape, such as existing or former railway line embankments, as these features provided an elevated view over the surrounding area while avoiding the need for surveyors to traverse open bog. To prevent double-counting of birds transects were not carried out at the same time as VP surveys, although in some cases were carried out on the same day.

Transect surveys were carried out over three separate site visits during the winter season; early season (November), mid-season (January) and late-season (March). During each round of transects, a total of twenty-one individual transect routes were walked throughout the site, giving a combined total of sixty-three transects completed over the winter 2016/17 survey period. A map showing all individually numbered transect routes (No's 1-21) is provided in Appendix I.

3.2.3 Wetland Bird Surveys (I-WeBS)/Hinterland Surveys

Wetland bird surveys were carried out at a number of permanent and temporary water bodies within the surrounding area. Wetlands of all types, including lakes, rivers, turloughs and flooded fields, identified within approximately 5km of the site boundary, were monitored for wintering waterbirds. These surveys, which were carried out at monthly intervals and with regard to I-WeBS (Irish Wetland Bird Survey) methods, allowed for the capture of data regarding the wintering waterbird community in the greater area such that site usage and movements by such species throughout the winter season could be monitored¹. A total of seven wetland sites were regularly monitored during the winter 2016/17 season². Of these, three are monitored as part of the national I-WeBS survey scheme, which is a joint venture between BirdWatch Ireland (BWI) and the National Parks and Wildlife Service (NPWS), as denoted by an asterisk.

1. Mountdillon Ponds

This site comprises a relatively large area of flooded cutover and revegetating bog located north of Lanesborough and west of Cloondara. The wetland is accessed by a rail line which heads south through Derrycashel and Drinagh.

2. Cloonkeel

This area of flooded bog is situated north-east of Lanesborough and south-west of Cloondara, close to the River Shannon. The site is accessed via a local road on which VP1 is located.

3. Ballyleague

This site, which is situated just west of Lanesborough, comprises a section of Lough Rees northern shoreline. The site is readily accessible via the N63 National Road heading west out of Lanesborough.

4. Bannow Lough

Bannow Lough is an ephemeral wetland located on the eastern outskirts of Lanesborough, just south of the N63 National Road. No counts were obtained for this site as the area did not fill with water in the last winter season.

5. Turreen Turlough*

This site is situated south of Lanesborough and west of the R392 Regional Road. The area is accessed via local roads. Only one count was obtained for this site in late March as the turlough failed to fill before this time.

6. Fortwilliam Turlough*

Fortwilliam Turlough (also known as Commons South) is located in the same general area as Turreen Turlough, approximately 2km east of Lough Ree. Counts were obtained for this site through the winter season.

¹ <http://www.birdwatchireland.ie/OurWork/ResearchSurveys/IrishWetlandBirdSurvey/tabid/111/Default.aspx> [Accessed 06/04/2017]

² <https://bwi.maps.arcgis.com/apps/View/index.html?appid=1043ba01fcb74c78bc75e306eda48d3a>

I-WeBS Site Codes – Turreen Turlough (OF301), Fortwilliam Turlough (OF302), Cordora Turlough (OF303)

7. Cordara Turlough*

This site is also located in the same area being situated approximately 1km east of Fortwilliam Turlough. Again, counts were obtained throughout the survey period.

The most recent BirdWatch Ireland I-WeBS counts for these three sub-sites monitored as part of the I-WeBS scheme are provided in the following table. In relation to these sub-site counts, “Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme that is funded by the National Parks and Wildlife Service of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs and that is co-ordinated by BirdWatch Ireland”.

Table 1. I-WeBS sub-site counts for the 2009/10 monitoring period (BirdWatch Ireland)

Site Name	I-WeBS Site Code	Species	2009/10 Count
Turreen Turlough	0F301	Mute Swan	-
		Whooper Swan	4
		Wigeon	16
		Teal	77
		Mallard	7
		Shoveler	-
		Pochard	4
		Tufted Duck	8
		Goldeneye	4
		Coot	1
		Whimbrel	-
		Black-headed Gull	-
		Common Gull	1
Site Name	I-WeBS Site Code	Species	2009/10 Count
Fortwilliam Turlough	0F302	Mute Swan	4
		Whooper Swan	-
		Wigeon	45
		Teal	37
		Mallard	4
		Tufted Duck	112
		Little Grebe	-
		Great Crested Grebe	-
		Little Egret	6
		Grey Heron	1
		Moorhen	2
		Coot	6
		Golden Plover	-
		Lapwing	43
		Snipe	6
		Curlew	94
Black-headed Gull	14		
Site Name	I-WeBS Site Code	Species	2009/10 Count
Cordara Turlough	0F303	Mute Swan	14
		Whooper Swan	-
		Wigeon	-
		Teal	7
		Shoveler	8
		Tufted Duck	38
		Grey Heron	2
		Moorhen	1

Site Name	I-WeBS Site Code	Species	2009/10 Count
		Coot	4
		Golden Plover	-
		Lapwing	4
		Snipe	2
		Curlew	-
		Black-headed Gull	15

In addition, hinterland bird surveys were also regularly carried out. These comprised surveys of the surrounding hinterland, in particular areas identified as being of importance to wintering bird populations, such as agricultural fields in Bunacloy, Drinagh, Carrow More/Aghavadden, Killashee/Aghakeeran and the Royal Canal etc, used as feeding/roosting grounds by several species. Some of these areas, such as improved fields at Bunacloy, are considered traditional feeding locations for species such as whooper swan. It is likely that birds disperse from these locations to surrounding areas, including potentially to within the site.

A map showing the hinterland survey area, and locations of note, along with the locations of the wetland sites monitored during the most recent winter season is provided in Appendix I. Counts for each site are also provided in Appendix VIII. Given the ephemeral nature of many of the wetlands, counts were only obtained for certain wetland sites e.g. Turren Turlough on fewer days relative to others based on whether water, and therefore, birds were present.

3.2.4 Surveyors

The following personnel were involved in the winter 2016/17 bird surveys:

- John Murphy (Senior Ornithologist/Ecologist);
- Austin Cooney (Ornithologist)
- Hazel Dalton (B.Sc., Ecologist)
- Muiread Kelly (B.Sc., M.Sc., Ecologist)
- Ciarán McKenna (B.Sc., Ecologist)

3.3 CONSULTATION

Consultation was carried out with a local Conservation Ranger for the National Parks and Wildlife Service (Sue Moles – Conservation Ranger for the Moyne district of Longford). This comprised several telephone calls in relation to the survey scope and methodology, and to arrange a site meeting.

A site visit to the general survey area was carried out by the senior ornithologist for Malachy Walsh and Partners and the local Conservation Ranger on the 13th January 2017. During this meeting, survey methodology was discussed and general survey objectives were outlined. Some of the road-side vantage point locations were visited. A selection of the main areas which had been identified as being of importance for target species, such as whooper swan, in the surrounding hinterland were also visited.

Following conclusion of the winter surveys at the end of March, a final telephone call was had with the local ranger in order to close out the consultation.

4 EXISTING ENVIRONMENT

4.1 INDIVIDUAL SITE/VANTAGE POINT DESCRIPTIONS

Derryarogue Bog

Derryarogue Bog is found in county Longford, northeast of the town of Lanesborough, with the N63 National Road located to the south. The site is situated to the east of the River Shannon which is located approximately 400m from the northern and western boundaries, at its closest point. For the most part the site is bordered by farmland although a Coillte forest occurs at the northwest boundary of the site. There are significant areas of bare peat within the site boundary. Vantage points VP1, VP2, VP3, VP4, VP5 and VP12 cover Derryarogue Bog which has an approximate area of 840 hectares.

Vantage Point 1 (VP1)

VP1 is located on a local road outside the site and close to the River Shannon, approximately 1.6km north of Derryarogue Bog and approximately 5.7km north-east of Lanesborough town. The VP, which is accessed via the village of Cloondara, looks west and south over the river and its floodplain encompassing marginal and improved farmland.

Vantage Point 2 (VP2)

VP2 is located on a railway bridge spanning the River Shannon approximately 2.6km north of Lanesborough town. The VP looks mainly west, east and north taking in marginal agricultural land on the northern bank as well as an area of relatively intact bog to the north-east of the bridge. Areas of reedbed occur along the rivers northern shore while woodland occurs to the south. The VP is accessed via a local road, access track and rail line heading north from the N63 National Road.

Vantage Point 3 (VP3)

VP3 is situated on the southern boundary of Derryarogue Bog, approximately 1.7km east of Lanesborough. The VP looks predominantly northwards and eastwards over the south-central section of the site comprising mainly cutover bog bordered by farmland. VP3 is accessed from the N63 National Road via a local road.

Vantage Point 4 (VP4)

VP4 is located in the north-western corner of the site on a rail line. The VP looks mainly to the north and south taking in predominantly cutover bog, although an area of marginal farmland located to the south-east is also covered. The VP is accessed by the same local road as is used to access VP2.

Vantage Point 5 (VP5)

VP5 is situated approximately 3.6km to the east of Lanesborough on the southern boundary of Derryarogue Bog. The VP looks northwards encompassing a large degree of the southern and central sections of the site which comprises mainly revegetated bog. A small area of relatively intact bog is located outside but immediately adjacent to the sites south-eastern corner.

Vantage Point 12 (VP12)

VP12 is located within the sites north-eastern corner. The VP looks mainly north-west, west and south over a large proportion of the site comprising mainly revegetated areas and cutover bog. VP12 is accessed via a local road heading north from the N63 National Road at the village of Killashee.

Derryadd/Lough Bannow Bogs

These sites, also located in county Longford, are situated to the southeast of Lanesborough town. The area is located to the south of the N63 National Road and to the north of a local road connecting the R392 Regional Road with the village of Keenagh. The site consists of large areas of bare peat and a mixture of scrub and conifer woodland. Vantage points VP6, VP7 and VP8 are located in Derryadd Bog. There are two sections (totalling approximately 41 hectares), towards the centre of this site that are not part of Bord na Móna lands. Vantage points VP9, VP10 and VP11 are situated in Lough Bannow Bog. There are two sections (totalling approximately 50 hectares), towards the west and northern parts of this bog, that are also not part of Bord na Móna lands including the ISPCA centre which is located on third party lands to the south-west of Lough Bannow Bog.

Vantage Point 6 (VP6)

VP6 is located approximately 3.6km to the east of Lanesborough town on the northern boundary of Derryadd Bog and is accessed via the N63. The VP looks southwards over the site which comprises predominantly cutover peat. While the western side of the site is largely un-vegetated, the eastern side comprises revegetating bog with relatively large areas of scrub. An area of intact bog is located in the north-eastern corner of the site.

Vantage Point 7 (VP7)

VP7 is situated approximately 5.6km south-east of Lanesborough within the eastern section of Derryadd Bog. The VP is located on an access track within the site taking in views to the north and south. While the site south of the VP is largely cutover peat, the northern section comprises areas of re-vegetation. The VP is accessed via a local road from either the N63 National Road or the R398 Regional Road. This section of the site is bordered by a mixture of farmland and woodland.

Vantage Point 8 (VP8)

VP8 is located adjacent to the R398 Regional Road providing views both north into Derryadd Bog and to a lesser extent south into Lough Bannow Bog. The VP is located approximately 6.5km south-east of Lanesborough. The south-western corner of Derryadd Bog, over which the VP mainly looks, comprises predominantly cutover bog which is bounded by farmland and an extensive area of scrub/immature woodland to the east and the R392 Regional Road to the west.

Vantage Point 9 (VP9)

VP9 is also located adjacent to the R398 Regional Road, approximately 7.6km south-east of Lanesborough. The VP is situated on an access track and looks southwards over Lough Bannow Bog. This section of the site comprises mainly cutover bog which is bounded by farmland to the east. A large area of well-established scrub and immature woodland occurs along the western side of the access track.

Vantage Point 10 (VP10)

VP10 is situated approximately 10.2km south-east of Lanesborough town. The VP, which is sited on a local road at the southern boundary of Lough Bannow Bog, looks mainly northwards over the site, while also taking in the view southwards towards the Corlea Trackway visitor centre. Much of the site is cutover peat with some scrub and other areas of re-vegetation. The VP is accessed via the R392 Regional Road.

Vantage Point 11 (VP11)

VP11 is also situated on the southern edge of Lough Bannow Bog, approximately 8.7km south-east of Lanesborough. The VP is located at the end of an access track which runs northwards from the R392 Regional Road along conifer forestry. The VP looks mainly north, north-east and east over the central section of the site encompassing areas of cutover and scrub fringed by farmland and woodland.

4.2 DESIGNATED SITES

4.2.1 European Designated Sites

4.2.1.1 Special Areas of Conservation

The European Union Habitats Directive (Directive 92/43/EEC) requires Member States to designate areas for the protection of certain habitats and species, considered to be of Community importance and as listed in Annex I and Annex II of the Directive. These areas are known as Special Areas of Conservation (SACs) and are afforded strict legal protection. The Habitats Directive established the Natura 2000 network which is a network of nature conservation areas extending throughout Europe. There are five SACs within 10km of the site boundary, as outlined in Table 1 below.

4.2.1.2 Special Protection Areas

The European Union Directive on the Conservation of Wild Birds, known as the Birds Directive (Directive 2009/147/EC) requires Member States to designate legally-protected areas for the conservation of endangered or migratory species of birds, as listed on Annex I of the Directive. These areas are called Special Protection Areas (SPAs) and since 1994 all SPAs also form part of the Natura 2000 network of protected sites. Both the EU Birds and Habitats Directives are implemented in Irish law under the European Communities (Birds and Natural Habitats) Regulations 2011. There are two SPA's within 10km of the site boundary, as outlined in Table 1, below.

4.2.2 Nationally Designated Sites

Under Irish legislation, sites considered to be of national importance in terms of nature conservation are designated as Natural Heritage Areas (NHAs) under the Wildlife Act (1976) and the Wildlife Amendment Act (2000). There are currently many additional sites throughout the country which are proposed as Natural Heritage Areas (pNHAs). However a consultative process with affected landowners is currently ongoing and until this is completed these pNHA sites are not subject to legal protection. There are four NHAs and eleven pNHAs situated within 10 km of the site boundary. Five of the pNHA sites overlap with SACs, as well as one SPA, as outlined in Table 1 below.

Table 2. Designated sites within approximately 10km of the site boundary

Site Name (Site Code)	Features of Interest ^{3, 4}	Proximity to the site boundary at the closest point
Lough Ree SAC and pNHA (000440)	Habitats <ul style="list-style-type: none"> Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] Semi-natural dry grasslands and scrubland 	Approx. 0.5km to the south-west

³ SAC and NHA features of interest are taken from www.npws.ie/protected-sites (Accessed 29/11/2016)

⁴ pNHA features of interest are taken from https://www.npws.ie/sites/default/files/general/pNHA_Site_Synopsis_Portfolio.pdf (Accessed 29/11/2016)

Site Name (Site Code)	Features of Interest ^{3, 4}	Proximity to the site boundary at the closest point
	facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) [6210] <ul style="list-style-type: none"> • Degraded raised bogs still capable of natural regeneration [7120] • Alkaline fens [7230] • Limestone pavements [8240] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • Bog woodland [91D0] Species <ul style="list-style-type: none"> • Otter (<i>Lutra lutra</i>) [1355] 	
Lough Forbes Complex SAC and pNHA (001818)	<ul style="list-style-type: none"> • Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150] • Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) [91E0] 	Approx. 4.4km to the north-east
Fortwilliam Turlough SAC and pNHA (000448)	<ul style="list-style-type: none"> • Turloughs [3180] 	Approx. 4.6km to the west
Corbo Bog SAC (002349) and pNHA (000602)	<ul style="list-style-type: none"> • Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] 	Approx. 5.6km to the west
Brown Bog SAC (002346) and pNHA (000442)	<ul style="list-style-type: none"> • Active raised bogs [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depressions on peat substrates of the Rhynchosporion [7150] 	Approx. 5.9km to the north-east
Lough Ree SPA (004064)	<ul style="list-style-type: none"> • Little Grebe (<i>Tachybaptus ruficollis</i>) [A004] • Whooper Swan (<i>Cygnus cygnus</i>) [w][A038] • Wigeon (<i>Anas penelope</i>) [w][A050] • Teal (<i>Anas crecca</i>) [w][A052] • Mallard (<i>Anas platyrhynchos</i>) [w][A053] • Shoveler (<i>Anas clypeata</i>) [w][A056] • Tufted Duck (<i>Aythya fuligula</i>) [w/r][A061] • Common Scoter (<i>Melanitta nigra</i>) [r][A065] • Goldeneye (<i>Bucephala clangula</i>) [w][A067] • Coot (<i>Fulica atra</i>) [w][A125] • Golden Plover (<i>Pluvialis apricaria</i>) [w][A140] • Lapwing (<i>Vanellus vanellus</i>) [w][A142] • Common Tern (<i>Sterna hirundo</i>) [r][A193] • Wetland and Waterbirds [A999] 	Partially overlaps with Lough Ree SAC and pNHA. Approx. 0.5km to the south-west

Site Name (Site Code)	Features of Interest ^{3, 4}	Proximity to the site boundary at the closest point
Ballykenny-Fisherstown Bog SPA (004101)	<ul style="list-style-type: none"> Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] 	Approx. 4.4km to the north-east
Forthill Bog NHA (001448)	<ul style="list-style-type: none"> Peatlands [4] 	Approx. 3.7km to the south
Mount Jessop Bog NHA (001450)	<ul style="list-style-type: none"> Peatlands [4] 	Approx. 3.9km to the north-east
Lisnarrigh Bog NHA (002072)	<ul style="list-style-type: none"> Peatlands [4] 	Approx. 5.7km to the south-west
Derrycanan Bog NHA (000605)	<ul style="list-style-type: none"> Peatlands [4] 	Approx. 9.2km to the west
Lough Bawn pNHA (001819)	<ul style="list-style-type: none"> Fen and freshwater marsh Intact raised bog 	Partially overlaps with south-eastern corner of the site (in the townland of Mosstown)
Royal Canal pNHA (002103)	<ul style="list-style-type: none"> Tall herb, calcareous grassland, reed fringe habitats Calcicole and calcifuges species Otter Rare plant species - Opposite-leaved Pondweed (<i>Groenlandia densa</i>), <i>Tolypella intricata</i> 	Immediately adjacent to the site's eastern boundary (in the townland of Ards)
Lough Bannow pNHA (000449)	<ul style="list-style-type: none"> Large reedbed, marsh and wet grassland habitats One of the largest terrestrial wetlands in the area 	Approx. 0.09km to the south
Derry Lough pNHA (001444)	<ul style="list-style-type: none"> Wet grassland, fen, fen woodland and open water habitats Unusually high density of the uncommon wetland plant Water Dock (<i>Rumex hydrolapathum</i>) 	Approx. 2.7km to the south
Cordara Turlough pNHA (001821)	<ul style="list-style-type: none"> Rare habitat type outside its main region of distribution Supports large numbers of wildfowl when wet 	Approx. 2.8km to the south-west
Derrymore Bog pNHA (000447)	<ul style="list-style-type: none"> Relatively intact lowland raised bog Pool and hummock complex with notable bog mosses (<i>Sphagnum</i> spp.) 	Approx. 6.7km to the north-east

4.2.3 Internationally Designated Sites

4.2.3.1 Ramsar Sites

The Convention on Wetlands, also known as the Ramsar Convention, is an intergovernmental treaty which aims to conserve and protect wetlands and their resources around the world⁵. The desk-top review concluded that there are no Ramsar sites within a 10km radius of the site boundary.

⁵ <http://www.ramsar.org/> [Accessed 29/11/2016]

4.2.3.2 Important Bird and Biodiversity Areas (IBAs)

The Important Bird and Biodiversity Areas (IBAs) Programme, overseen by Birdlife International, aims to identify, conserve and protect those areas throughout the world considered to be of the greatest significance to bird populations⁶. There are two IBA's within 10km of the site boundary⁷. These are Lough Ree IBA (IE128), located to the west of the site and which encompasses approximately 10,788 hectares and Lough Kilglass and Forbes, and Ballykenny Fisherstown Bog IBA (IE125), located north-east of Lanesborough and comprising 1,352 hectares.

5 RESULTS

5.1 VANTAGE POINT SURVEYS

A total of 56 species were recorded during vantage point surveys carried out during the winter 2016/17 season. Table 2 below provides details of all species recorded during vantage point watches throughout the survey period. Species names are colour-coded, in line with the standard system, which indicates conservation status in Ireland, as determined in the most recent assessment of all regularly occurring birds in the country (Calhoun and Cummins, 2013). Species highlighted in red represent species that are 'red-listed' (considered to be of high conservation concern); species highlighted in orange represent species that are 'amber-listed' (considered to be of lesser conservation concern but still with an unfavourable conservation status). Remaining species, which are 'green-listed', are considered to have a favourable conservation status. Additionally, many species are considered to be of unfavourable conservation status in a European context. These species, along with others, are listed on Annex I of the EU Birds Directive (Directive 2009/147/EC). Annex I species are denoted with an asterisk (*) and highlighted in bold in the results table below.

The results for each target species recorded throughout the winter bird survey are given individually in the following sub-sections (Section 5.1.1 to Section 5.1.7). Brief summaries of some of the observations for each species are provided. Details of all observations for each target species, including individual flight data (behaviour and duration) can be found in Appendix III.

Tabulated summaries of the total time spent in the various height categories by each target species, as observed throughout the winter survey period, are also provided. Total time spent in each height category is expressed as an overall percentage of the total survey time i.e. the total number of survey hours over the season. Mapped flight paths for each target species can be found in Appendix IV.

⁶<http://www.birdlife.org/worldwide/programmes/important-bird-and-biodiversity-areas-ibas> [Accessed 29/11/2016]

⁷<http://mida.ucc.ie/pages/atlas> [Accessed 29/11/2016]

Table 3. Monthly total and peak counts for each species recorded during vantage point surveys

Common Name	October		November		December		January		February		March		Mean Total Count	Mean Peak Count
	Total	Peak	Total	Peak	Total	Peak	Total	Peak	Total	Peak	Total	Peak		
Blackbird	66	14	100	12	90	12	76	14	63	6	81	7	79	10
Blackcap	1	1	0	0	0	0	1	1	0	0	0	0	0	0
Black-headed Gull	7	7	2	1	7	7	0	0	132	73	317	115	77	33
Blue Tit	25	4	22	5	12	3	24	10	12	6	19	5	19	5
Bullfinch	16	3	4	4	5	3	2	2	0	0	1	1	4	2
Buzzard	3	1	6	2	7	2	4	1	2	1	7	2	4	1
Chaffinch	66	20	142	50	243	150	102	25	47	6	67	10	111	43
Chiffchaff	3	1	0	0	0	0	0	0	0	0	1	1	0	0
Coal Tit	18	5	21	11	10	6	14	4	11	6	19	6	15	6
Collared Dove	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Coot	0	0	0	0	1	1	0	0	0	0	6	4	1	0
Cormorant	0	0	1	1	0	0	4	3	7	4	17	10	4	3
Crossbill	6	2	3	2	1	1	1	1	1	1	0	0	2	1
Curlew	0	0	0	0	0	0	0	0	0	0	3	2	0	0
Duncock	17	7	26	5	15	3	9	3	10	2	14	3	15	3
Fieldfare	473	120	139	40	75	20	157	46	70	21	113	60	171	51
Goldcrest	44	10	26	4	11	4	12	4	23	7	26	6	23	5
Golden Plover*	74	31	114	69	47	45	852	400	194	86	137	56	236	114
Goldfinch	43	20	31	12	12	6	4	3	1	1	22	12	18	9
Great Tit	9	3	2	2	6	3	8	8	9	4	31	5	10	4
Great-crested Grebe	1	1	3	1	0	0	0	0	2	2	6	4	2	1
Greenfinch	4	4	3	3	1	1	0	0	0	0	0	0	1	1
Grey Heron	2	1	4	1	13	4	1	1	4	2	4	2	4	1
Hen Harrier*	1	1	0	0	0	0	0	0	0	0	1	1	0	0
Hooded Crow	115	34	61	8	67	12	49	9	201	118	92	10	97	31

Common Name	October		November		December		January		February		March		Mean Total Count	Mean Peak Count
	Total	Peak	Total	Peak	Total	Peak	Total	Peak	Total	Peak	Total	Peak		
House Martin	0	0	0	0	0	0	16	16	0	0	0	0	2	2
House Sparrow	0	0	1	1	0	0	71	24	19	12	0	0	15	6
Jackdaw	304	70	301	85	469	200	315	80	90	29	172	35	275	83
Jack Snipe	0	0	0	0	0	0	0	0	0	0	1	1	0	0
Jay	0	0	2	2	0	0	0	0	0	0	0	0	0	0
Kestrel	6	1	5	1	4	1	6	2	8	2	5	2	5	1
Lapwing	248	120	344	200	254	250	128	80	71	70	8	8	175	121
Lesser Black-backed Gull	5	5	0	0	0	0	0	0	30	30	681	199	119	39
Linnet	1	1	2	2	18	8	2	2	0	0	16	8	6	3
Little Egret	0	0	0	0	1	1	0	0	0	0	1	1	0	0
Little Grebe	3	2	3	3	0	0	0	0	2	2	5	3	2	1
Long Tailed Tit	51	16	26	11	18	6	7	5	12	6	8	4	20	8
Magpie	21	6	15	4	10	3	15	7	23	14	16	4	16	6
Mallard	36	11	129	80	10	4	28	17	18	6	100	53	53	28
Merlin*	1	1	1	1	0	0	0	0	2	1	0	0	0	0
Meadow Pipit	79	17	58	8	28	4	21	6	4	2	60	8	41	7
Mistle Thrush	18	2	9	3	20	6	44	11	20	5	15	7	21	5
Moorhen	2	2	3	3	0	0	0	0	0	0	4	2	1	1
Mute Swan	14	5	7	5	8	5	18	7	6	4	34	18	14	7
Peregrine Falcon*	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Pheasant	2	1	6	2	13	3	4	2	2	1	13	2	6	1
Pied Wagtail	45	18	37	21	9	6	16	6	10	2	9	2	21	9
Raven	11	2	15	3	37	12	8	2	17	3	9	2	16	4
Red-legged Partridge	0	0	0	0	2	1	0	0	0	0	0	0	0	0
Redpoll	32	12	48	10	45	22	14	5	8	4	14	10	26	10
Redwing	178	60	140	60	88	46	43	18	25	12	47	34	86	38
Reed Bunting	23	5	41	10	17	3	15	4	4	3	17	6	19	5
Robin	67	6	92	15	55	6	94	24	50	8	90	10	74	11
Rook	206	30	454	304	380	160	182	110	160	112	120	30	250	124
Siskin	0	0	0	0	0	0	5	3	10	6	0	0	2	1
Skylark	0	0	0	0	0	0	0	0	0	0	8	4	1	0

Common Name	October		November		December		January		February		March		Mean Total Count	Mean Peak Count
	Total	Peak	Total	Peak	Total	Peak	Total	Peak	Total	Peak	Total	Peak		
Snipe	7	2	13	11	4	1	4	2	4	2	2	1	5	1
Song Thrush	6	2	5	2	9	2	18	7	24	4	10	2	12	3
Sparrowhawk	2	1	3	1	1	1	2	1	4	2	1	1	2	1
Starling	1,522	1,000	1,261	800	383	90	2,739	1,000	130	40	167	110	1,033	506
Stonechat	4	2	2	2	2	2	2	2	2	2	10	2	3	2
Teal	0	0	2	2	0	0	0	0	16	8	8	6	4	2
Treecreeper	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Water Rail	12	7	10	4	10	4	0	0	0	0	0	0	5	2
Whooper Swan*	13	9	2	2	6	9	0	0	38	29	32	27	15	12
Wigeon	0	0	0	0	0	0	11	7	19	10	12	6	7	3
Woodpigeon	84	12	97	23	227	80	32	10	89	21	75	9	100	25
Wren	53	5	50	4	49	6	41	8	36	3	39	5	44	5
Total No. Species	53		52		48		46		49		56			

Note: Annex 1 species are denoted with an asterisk (*) and highlighted in bold

5.1.1 Raptor Observations

Six raptor species were observed during the 2016/17 winter season, namely, buzzard, hen harrier, kestrel, merlin, peregrine, and sparrowhawk.

5.1.1.1 Buzzard (*Buteo buteo*)

Buzzard is a medium-sized bird of prey which is found predominantly in the east and north of the country, having expanded south-wards from the north of the country. The majority of the Irish population are resident although numbers are boosted by birds from Britain during the winter season. Buzzards can be found in a wide variety of habitats including moorland, farmland, scrub and wetland. They require large, open expanses of land in which to hunt and will take a wide variety of prey including small mammals, birds, amphibians and invertebrates, although carrion may also be taken⁸. Buzzards require adequate tree-cover for nesting and roosting, although they can also nest on cliffs and territories are dependent on the availability of suitable nest-sites rather than prey availability. Breeding commences in April when 2-4 eggs are laid. Buzzard is green-listed in Ireland and the European population is considered to be secure⁹.

There were occasional buzzard sightings in the vicinity of Derryaroge Bog during the first month's surveys. One juvenile bird was observed flying to the south of VP1, heading south-east, on the 24th October. A buzzard was observed briefly from VP5, flying over farmland (25-30m height). This bird skirted the edge of the bog heading south-west. A buzzard was observed sitting in a tree, south-east of VP12 on the 3rd November.

An immature bird was observed soaring due south of VP1 on the 9th November (4-50m height). On the 16th November, a buzzard was observed hovering over cutover at the eastern edge of the site during VP6. The bird then flew east into a wooded area. Two birds emerged from behind the trees shortly afterwards, before veering southwards out over the bog, fighting in mid-air. A buzzard was observed soaring over scrub north-east of VP5 on the 17th November (50-60m height). An adult bird was observed soaring over conifer forestry to the south-west of VP11 on the 17th November. On the 24th November, a buzzard was observed perched in a tree to the south of VP12. A buzzard was observed flying over scrub to the south-east of VP6 on the 6th December. One was observed perched on a fence post south of VP1 on the 12th December. This individual moved between different fence posts in the same area. On the following day, presumably the same bird was observed perching in the same area. This individual was joined by another buzzard, after which they both flew off to the south. Also on the 13th December, a buzzard flew west over VP12 at approximately 80m height. A buzzard observed soaring and circled over farmland at 90-100m, to the north-east of VP1 in January. Buzzard observed soaring over farmland, forestry and cutover to the east of VP7 on the 10th January (50-80m height). Buzzard observed circling over mature conifer to south-west of VP11 on the same day. Adult bird observed over conifer south-west of VP5.

Buzzard observed hunting over pasture, outside the site boundary, to the east of VP8 on the 9th February. Buzzard observed outside site boundary, north-east of VP12 on the same day. Individual observed soaring outside the site boundary, to south-west of VP10 on 22nd March (approx. 200m height). Buzzard observed soaring over conifer to north-west of VP11 in Lough Bannow (>200m

⁸ <https://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-a-z/b/buzzard/index.aspx> [Accessed 13/12/2016]

⁹ <http://birdwatchireland.ie/IrelandsBirds/Raptors/Buzzard/tabid/396/Default.aspx> [Accessed 12/12/2016]

height). Pair observed soaring and circling over conifer woodland and scrub to the north-west of VP4 towards end of month (<200m height). Individual bird recorded being mobbed by corvids to the north-east of VP5, eventually slowly drifting west across the Derryaroge site, flying low (5-20m height). Two buzzards observed circling east of VP12 and outside site boundary.

Table 4. Total flight time spent by buzzard in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	92	0.006
10-50	208	0.013
50-100	441	0.028
100-200	60	0.004
>200	316	0.020
Total	1,117	0.071

5.1.1.2 Hen Harrier (*Circus cyaneus*)

Hen harriers prey on a variety of small birds and mammals. The species breeds in the uplands with favoured breeding habitat comprising young forestry plantation, although they will also nest in moorland heather. In winter, hen harriers are more widespread and can be found in lowland areas. Due to a decline in the breeding population hen harrier is amber-listed in Ireland. Additionally, they are listed on Annex I of the EU Birds Directive due to historic declines in the European population¹⁰.

In total there were two separate sightings of hen harrier throughout the six month winter survey period. During October, a male flew very low (1-4m height) over scrub and cutover to the north-east of VP5. This bird hunted over scrub and revegetated bog, generally heading westwards, before veering eastwards and going out of sight. A female hen harrier was observed flying in a southerly direction along the western bank of the Shannon during VP1 on 24th March.

Table 5. Total flight time spent by hen harrier in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	160	0.010
10-50	5	0.000
50-100	0	0.000
100-200	0	0.000
>200	0	0.000
Total	165	0.010

5.1.1.3 Kestrel (*Falco tinnunculus*)

Kestrel is a small bird of prey which may be found in a wide variety of open habitats including farmland, moorland, wetland and coastal areas (BWI, 2011a). They may also frequent more built-up areas, often seen hunting along roadside verges. They typically hunt over open ground and have a characteristic hunting style, being capable of hovering in mid-air for short periods while they scan

¹⁰ <http://birdwatchireland.ie/IrelandsBirds/Raptors/HenHarrier/tabid/394/Default.aspx> [Accessed 14/01/17]

the ground below for signs of prey. They typically hunt small mammals although invertebrates and small birds may also be taken. Kestrel has a widespread breeding distribution in Ireland, typically nesting in trees or cliffs. Kestrel is amber-listed in Ireland due to a continuing, moderate decline in the European population¹¹.

There were frequent sightings of kestrel during October surveys, all from within the northern region of the site. An immature female hunted over scrub, cutover and revegetating bog, to the north of VP3, between 2-12m height. An adult male was observed hunting over cutover bog and treeline to the north-west of VP3 later the same day. This bird flew between 2-10m height. An adult male was observed on several occasions hunting in the vicinity of VP5 on the 26th October. A kestrel was observed hunting over scrub and woodland, north-west of VP5, on the 27th October. Also on the same day, a female was observed hunting for twenty minutes along a tree-line, 8-18m height, to the south-west of VP4. A kestrel hunted over marginal farmland, cutover bog and scrub around VP4 on the 3rd November (5-35m height).

An immature male was observed hunting along a hedgerow immediately south of VP1 on the 9th November. An adult female hunted over scrub south-east of VP8 on the 15th November. An adult bird was observed hunting over scrub to the north-east of VP5 on the 16th November. An adult bird flew over VP10 on the 17th November. This individual flew from the south-east over a flooded area of bog heading north-wards, low to the ground. It landed on a peat mound north of the road where it remained for the duration of the VP. An adult female was observed on the 24th November hunting over bog to the north and north-west of VP12. The bird remained in this area hunting for over an hour between 2-8m height.

An adult male was observed hunting over scrub to the east of VP4 on the 6th December. An adult male was also observed from VP5 on this date hunting adjacent to a stand of conifer immediately west of the VP. This bird flew southwards towards conifer on the opposite side of the road, close to VP6. An adult female was observed hunting over a mixture of cutover and revegetating bog to the west of VP8 on the following day. This bird hunted for over an hour consistently flying and hovering between 5-20m height. On the 13th December, an adult female was observed hunting over the bog at VP12. This bird was seen on two occasions during the VP travelling eastwards at a height of 80-90m, as it hunted. Kestrel observed hunting over farmland outside the site boundary to the south-west of VP8 (55-80m height) in January. Adult male observed hunting over scrub (c.100m height) on western side of road at VP9. This bird flew eastwards at consistent height over cutover towards farmland on sites eastern boundary. A kestrel observed briefly hunting on edge of conifer forestry south-west of VP11. This bird hunted between 40-60m height. Male and female kestrels observed hunting over scrub to the south-west and south-east of VP12.

Kestrel was observed infrequently at VP4, VP5, VP6, VP7 and VP12 during the February surveys. An adult female was observed flying northwards (hunting) over VP4 on the 1st February (approx. 20m height). A female was recorded perched on a peat mound to the south-west of VP12 on 8th February. An adult male was observed hunting from VP7 over northern half of site on the 9th February. This bird moved eastwards hunting over revegetating bog and scrub at 20-35m height. An adult female was seen from VP8 on same day. This bird flew east (2m) to the north of the VP hunting over the

¹¹ <http://birdwatchireland.ie/IrelandsBirds/Raptors/Kestrel/tabid/397/Default.aspx> [Accessed 10/12/2016]

site. A kestrel was observed hunting outside the site boundary north-east of VP12 on 9th February. A male bird was observed perched in conifer adjacent to VP5 on the following day. This bird flew off west along rail track (15-20m). A female was observed hunting over the site (scrub/revegetating bog), north of VP5 during same watch (20-30m). An adult male was observed from VP6 on the same day. This bird was observed on two separate occasions hunting over scrub/revegetating and intact bog in north-east corner of site (15-45m). A male was observed hunting over revegetating bog and scrub south of VP10 and Lough Bannow Bog in March. This individual hunted low to the ground, 1-2m, slowly drifting west (outside site boundary). A kestrel was observed flying low over bog in north-east corner of Derryadd Bog during VP7. A male and female were observed hunting at VP1 on evening of 22nd March.

Table 6. Total time spent by kestrel in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	4,377	0.281
10-50	6,307	0.406
50-100	615	0.039
100-200	300	0.019
>200	0	0.000
Total	11,599	7.474

5.1.1.4 Merlin (*Falco columbarius*)

Merlin is a small, fast-moving bird of prey which is resident and a scarce breeder in Ireland. The main breeding populations are found in the northwest and west of the country although smaller populations are scattered throughout central Ireland (BWI, 2011). The species typically nests on the ground in upland habitats such as moorland and blanket bog, although it has taken to nesting on the edge of forestry plantations adjacent to moorland in certain areas. Eggs are typically laid between May and early June¹². Merlin requires large, open areas in which to hunt, often perching at height in order to spot prey. Small birds, such as meadow pipit and skylark, are the main prey although small mammals may also be taken. The species has a much wider distribution during the winter months, moving from uplands to coastal areas, where concentrations of birds provide ample opportunity for hunting. Due to a small breeding population, merlin is amber-listed in Ireland and is also listed as an Annex I species¹³.

There was a single sighting of merlin during the October surveys. On the 26th October, an adult bird was observed flying north-eastwards over cutover and scrub, east of VP6. This bird reappeared some time later, flying southwards towards a large area of scrub/immature woodland, to the south-east of the VP, where it flushed and hunted small birds before going from view. On the 9th November, a juvenile male was observed flying low along the road at VP1, before heading across farmland. After landing briefly on a fence post it flew southwards adjacent to the river, hunting between 1-3m off the ground. There were two observations of merlin in February, both at VP12. An adult male was

¹² <http://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-a-z/m/merlin/nesting.aspx> [Accessed 10/12/2016]

¹³ <http://birdwatchireland.ie/IrelandsBirds/Raptors/Merlin/tabid/398/Default.aspx> [Accessed 12/12/2016]

briefly seen flying east over bog (2m height), just north of VP12 on the 8th February. An adult male was again seen just north of the same VP on the following day (flying west at 1m height).

Table 7. Total time spent by merlin in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	190	0.012
10-50	67	0.004
50-100	0	0.000
100-200	0	0.000
>200	0	0.000
Total	257	0.017

5.1.1.5 Peregrine (*Falco peregrinus*)

Peregrine is both a coastal and upland species, utilising both habitat types for hunting and breeding. The species has a widespread distribution in Ireland. Breeding sites are mainly located on cliffs, either in coastal or inland mountainous areas (Moore, et al., 1992). Quarries and tall buildings may also be utilised for nesting (BWI, 2011a). During the breeding season, peregrines will hunt in the vicinity of the nest-site. However, during the winter months, peregrines will often move to areas with high concentrations of prey, such as coastal estuaries which offer congregations of wintering water-birds. Historically, peregrine populations have undergone major declines on a global scale due largely to unintentional poisoning from widespread pesticide use and to a lesser extent deliberate persecution. However, due to increases in the peregrine population the species is no longer considered to be of unfavourable conservation concern. Peregrine is classed as 'Least Concern' on the European Red List for birds, is listed as an Annex I species and is green-listed in Ireland (Colhoun & Cummins, 2013).

There was only a single sighting of peregrine, recorded in the month of December. This record comprised an adult male observed briefly on the 7th December during VP8. This individual came into view from the north-east, travelling along a grassy ridge being harassed by a hooded crow. It flew off through scrub, revegetating bog and cutover, heading south-west between 10-15m height.

Table 8. Total time spent by peregrine in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	0	0.000
10-50	60	0.004
50-100	0	0.000
100-200	0	0.000
>200	0	0.000
Total	60	0.004

5.1.1.6 Sparrowhawk (*Accipiter nisus*)

Sparrowhawk is a small bird of prey resident throughout Ireland all year round. They often rely on the element of surprise when hunting, typically utilising hedgerows or other forms of cover to catch

prey unawares. Their main prey comprises small birds which are typically taken mid-flight. Their capacity for agile flight allows them to hunt in relatively close areas such as dense woodland. They are also known to frequent urban areas such as parks and residential gardens where sufficient cover exists to allow hunting. They have a widespread breeding distribution in Ireland although areas with woodland are favoured as they nest in trees. Eggs are laid in May in well-concealed nests built close to the trunks of trees¹⁴. In the latest assessment of the conservation status of Ireland's birds sparrowhawk has been downgraded to the amber-list due to short-term declines in abundance (Colhoun & Cummins, 2013).

There were two sightings of sparrowhawk in October. An immature female flew north-westwards, south of VP3, on the 26th October. Also on this date, a sparrowhawk was observed from VP6, flying westwards along a railway line low to the ground. An immature male was observed on the 8th November, flying low along the road at VP1. This bird landed on a gate after which it flew off low westwards towards the River Shannon. An adult female was observed on the 15th November, flying south-east over cutover bog towards an area of scrub, during VP8. An adult male was observed on the 18th November flying south over cutover/revegetating bog to the west of VP11 (10-12m height). This bird landed briefly on a tree at the edge of clearfell forestry before flying south-east.

An adult male was observed from VP1 flying west over farmland and the River Shannon on the 12th December. A female was observed perched in a tree in an area of scrub located north of the road at VP8 in January. Another female was observed flying over bog and into scrub north of VP3 on the 11th January. An adult male was observed from VP9 on the 9th February. Two individuals (male and female) were observed from VP5 on the 10th February. Both birds flew northwards, from south-west of the VP, out over the site (c.50-60m), before veering east and south back towards the road. A male was observed from VP6 on same day. During March a male emerged from conifer to the north of the rail line bounding the northern edge of Derryadd Bog during VP6. This bird flew east along the track for approx. 100m at 2m height before veering into scrub.

Table 9. Total time spent by sparrowhawk in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	129	0.008
10-50	119	0.008
50-100	10	0.000
100-200	0	0.000
>200	0	0.000
Total	258	0.017

5.1.2 Wildfowl Observations

5.1.2.1 Whooper swan (*Cygnus Cygnus*)

Whooper swan is a migratory species which over-winters in wetlands throughout much of the country. Birds typically arrive to Ireland in late autumn and leave by mid-April, although a few may remain throughout the summer months. They forage diurnally grazing primarily on agricultural

¹⁴ <http://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-a-z/s/sparrowhawk/nesting.aspx> [Accessed 10/12/2016]

grasses and grains although aquatic plants in inter-tidal areas are also utilised. Whooper swan is amber-listed in Ireland as Ireland hosts more than 20% of the European wintering population.

There were three observations of whooper swan during October surveys, all on the River Shannon, at the far north of the site. One record comprised a sighting of four birds swimming downstream, south of VP2 on the 3rd November. Later on that day, nine birds were observed flying upriver, between 10-100m height. Seven birds flew back downriver later that evening, at approximately 35m height. Two adults were observed on the 18th November far to the north of VP3. The birds generally travelled southwards, passing by the VP at a consistent height of 30m. On the 12th December, a total of nine birds were observed flying south-east from VP1, having left the River Shannon near to Cloonkeel. These birds flew low (<10m height) over farmland before going out of sight. A flock of six whooper swans were observed on the 13th December to the south of VP12. These birds flew west at approximately 50m height before veering northwards and going out of view.

During February, whooper swans were recorded occasionally at VP1 and infrequently at VP4 and VP10. Eight birds were observed to the north-east of VP4, flying east outside the site boundary, on the 2nd February. A single bird landed on flooded bog, south of the local road and outside the site boundary, during VP10 on the same day. This individual remained on the water for some time, after which it was flushed by a dog-walker walking through the site. The bird flew off north-west at 10-25m height. Approximately twenty-nine birds were observed flying from the river south of VP1 in a south-easterly direction over pasture, at approx. 10m height on 10th February. Twenty whooper swans were observed flying north-east during VP7 in March. Two individuals were recorded on the river at VP1 towards the end of the month, with one also observed in the same general area on the following day.

Table 10. Time spent by whooper swan in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	56	0.004
10-50	199	0.013
50-100	10	0.000
100-200	0	0.000
>200	0	0.000
Total	265	0.017

5.1.2.2 Mute Swan (*Cygnus olor*)

Mute swan is widespread throughout Ireland. The population is resident all year round with birds found in a wide variety of wetland habitats including rivers, estuaries and lakes, including those in urban areas. Mute swans are resident on the River Shannon all year round. They feed mainly on aquatic plants, and aquatic invertebrates, although they may occasionally be seen grazing on grass away from waterbodies. Birds may hold territories throughout the year, or may instead move to other areas to form winter flocks¹⁵. Breeding commences in April when nests are built close to the water's edge (BWI, 2011a). The young will either stay with the parent birds until around late autumn

¹⁵ <http://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-a-z/m/muteswan/index.aspx> [Accessed 10/12/2016]

when the adults will drive them away or may stay with parents and accompany them to over-wintering grounds elsewhere¹¹. Mute swan is amber-listed in Ireland due to the importance of both the national breeding and over-wintering populations in an international context (Colhoun & Cummins, 2013).

There were occasional sightings of mute swan from Derryaroge Bog and its environs during October. Three adult birds were observed swimming upriver on the River Shannon, to the west of VP1, on the 25th October. Two birds were observed from VP3, flying westwards in the distance along the River Shannon, at approximately 80-100m height. Two birds were also observed approximately 2.5km to the north of VP5. These birds flew at c.50m height before dropping down behind an area of woodland. A short time later, two more mute swans were observed flying along the eastern edge of the site, generally heading northwards towards the same area as the previous two birds. Five birds were observed downstream of VP2 on the River Shannon on the 3rd November.

Five birds were observed feeding on the River Shannon, west and north-west of VP1, on the 9th November. An immature bird was observed upriver of VP2, on the southern bank of the Shannon, on the 24th November. Five mute swans, comprising two adults and three juveniles, were observed north-west of VP1, on the River Shannon on the 12th December. Two birds were seen in the same area on the following day. In January, seven mute swans were observed on the River Shannon during VP1. Two birds took off southwards along the river at <5m height. On the following day, two mute swans were observed commuting south-west along the Shannon. These birds flew at 20-25m height. Mute swans were recorded occasionally on the Shannon close to VP1 throughout the February surveys. Four birds were recorded on the river north-west of VP1 on the 10th February. Fourteen mute swans recorded on the river at VP1 on the 22nd March (eighteen were observed in the same location on the following day, also during VP1).

Table 11. Total time spent by mute swan in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	18	0.001
10-50	166	0.011
50-100	50	0.003
100-200	0	0.000
>200	0	0.000
Total	234	0.015

5.1.2.3 Eurasian Wigeon (*Anas penelope*)

Wigeon is a highly-migratory species which arrives to Ireland in late summer/early autumn (August/September) to winter in coastal areas, estuaries and further inland in wetlands and grassland close to water. They are mainly herbivorous feeding on algae's and other plants in inter-tidal and shallow water areas, although they may forage in nearby grassland and agricultural areas. Wigeon is red-listed in Ireland due to declines in the non-breeding (wintering) population (Colhoun & Cummins, 2013). There follows a brief summary of all observations of wigeon recorded during the survey period.

Four wigeon were observed in reedbed fringing the River Shannon during VP1 in January. Seven birds were again recorded in reedbed, and on the River Shannon's banks, during VP2 on the 24th January. Wigeon were recorded in the vicinity of VP1, VP2 and VP10 in February. Two birds were observed on the Shannon west of VP2 on the 1st February. Five birds were observed on flooded bog south of the road during VP10 on the 2nd February. This group was disturbed by a dog-walker walking around the temporary wetland. The flock circled over the pond for a short time (20-25m height) before landing on the water again. Approximately ten birds were observed on the river west of VP1 on the 10th February. Six wigeon were recorded on the river on two different occasions during VP1 towards the end of March (22nd and 24th March).

Table 12. Time spent by wigeon in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	3	0.000
10-50	50	0.003
50-100	0	0.000
100-200	0	0.000
>200	0	0.000
Total	53	0.003

5.1.2.4 Eurasian Teal (*Anas crecca*)

Teal is both a resident and migratory species in Ireland with the population supplemented during the winter by birds from Iceland and Russia (BWI, 2011b). The breeding population is thought to be largely resident and widely dispersed throughout the country. They can be found in estuaries, marshes and other wetland habitats also occurring near the coast during the winter months¹⁶. Teal typically breed near freshwater water-bodies in inland areas, although upland streams may also be used where vegetation cover is sufficiently dense (BWI, 2011b). Teal are omnivorous, feeding on plant matter, seeds and invertebrates, and prefer to forage in areas of shallow water. Teal is amber-listed in Ireland due to moderate, long-term declines in the breeding population (Colhoun & Cummins, 2013).

Observations of teal during the winter surveys comprised two birds observed feeding on the River Shannon, upstream of VP2, on the 3rd November. Teal were recorded occasionally in February, again on the Shannon close to VP1. Eight birds were recorded during VP1 on both the 2nd and 10th February. Six teal were recorded on the river from VP1 on 24th March. Two birds were again observed on the river from VP2 on the 28th March.

5.1.2.5 Mallard (*Anas platyrhynchos*)

Mallard is a common and widespread resident species in Ireland, with numbers boosted by wintering birds. They can be found in all wetland habitats, nesting where adequate vegetation cover is present and are green-listed in Ireland. There follows a brief summary of some of the observations of this species during the winter 2015/16 surveys.

¹⁶ <http://birdwatchireland.ie/Default.aspx?tabid=161> [Accessed 12/12/2016]

There were frequent sightings of mallard from throughout the site during October. Six mallard flew south-west to north-east, to the north of VP8 on the 2nd November (c.15m height). Ten birds were observed feeding on the River Shannon, upstream of VP2, on the 3rd November. A flock of six mallard were observed flying southwards over woodland, to the north-west of VP4 (15-30m height).

A flock of eighty mallard was disturbed from flooded bog to the south-east of VP1 on the 9th November. The flock broke up into smaller groups, all of which flew at 8-25m height, south-westwards towards the River Shannon. One bird was recorded downriver of VP2 on the 24th November, while two birds were also recorded in the same area on the following day. Seventeen mallard were observed on a flooded area of bog south-east of VP10 on the 17th November. Twenty-eight mallard were observed in the same area on the following day. These birds were flushed by a dog-walker and flew south-west, returning to the water after a short time. A pair were flushed from reedbed immediately north-east of VP2 on the 6th December. Another two mallard were observed on the water further upriver. A pair was observed from VP4 on the same date. It is likely that this is the same pair flushed from VP1 to the north. Four mallard spent the duration of the watch at VP1 on the Shannon on the 12th December.

Seventeen mallard were observed feeding on and commuting along the Shannon during VP1 towards the end of January. Two birds were recorded flying upriver on the Shannon at VP2. Nine birds were observed swimming upriver and amongst reedbed on the Shannon at VP1. Mallard were recorded occasionally on the Shannon close to VP1 and VP2 during February's surveys. Additionally, mallard were recorded from VP10 and VP12. Two birds were observed upriver of VP2 on both the 1st and 8th February. Two birds were recorded on the river west of VP1 on the 2nd February, with four seen again approximately one week later. Six birds were flushed by a dog-walker from flooded bog south of the road at VP10 on the 2nd February. This group flew off north-east at 15-20m height. Two birds were recorded on a small stream close to VP12 on the 8th February.

A male was observed on the same temporary pond to south of road (south of Lough Bannow Bog) during VP10 on 22nd March. This bird circled over degraded intact bog to east of the ponds before heading west (outside site). Another male was recorded flying between bog drains in this same area east of the ponds. Later that day, three drakes were recorded on the same pond occasionally circling around the area (outside site). A pair emerged from scrub to the west of the pond, circling over scrub before returning to same area. This occurred several times, with birds often disturbed by gulls in the area. A total of seven mallard were observed at VP2 towards the end of March, including a pair feeding on the river. All birds were observed eventually flying off over woodland, heading south towards Derryaroge Bog, flying at up to 100m height. A single individual was recorded flying across rail track at VP4 and landing in a drain in Derryaroge Bog. A pair of mallard was observed flying from south-west of VP5 into the southern section of Derryaroge Bog where they landed in a bog drain. During an evening watch at VP6 (Derryadd Bog), a total of three mallard were recorded within the site. This included a male landing in a bog drain and a pair which emerged from another drain in the north-western corner of the site and flew north towards Derryaroge Bog (2-30M height).

Table 13. Time spent by mallard in each category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	324	0.021
10-50	624	0.040
50-100	40	0.003
100-200	0	0.000
>200	0	0.000
Total	988	0.064

5.1.3 Wader Observations

5.1.3.1 Golden Plover (*Pluvialis apricaria*)

Golden plover is a small species of wader found predominantly over-wintering in Ireland, although some numbers breed here. Although summer visitors arrive from Iceland, the main bulk of the Irish population occurs between October and February, with winter numbers boosted by birds arriving from mainland Western Europe. In Ireland, the breeding population is found mainly in upland areas in the north-west of the country¹⁷. Golden plover are ground-nesting, breeding on heath, bog and acidic grassland. The wintering distribution is much more widespread, being found in both coastal and inland areas. During winter months they tend to forage mainly on agricultural land, often associated with wetlands, although they may also be found in coastal areas utilising tidal areas for both feeding and roosting (BWI, 2011b). They feed on soil and surface invertebrates as well as plant matter. Golden plover is red-listed in Ireland due to declines in both the breeding and non-breeding populations and is also listed as an Annex I species (Colhoun & Cummins, 2013). There follows a brief summary of the observations of golden plover from the latest non-breeding survey period.

There were occasional sightings of golden plover throughout the site during October. A flock of thirty birds were observed flying east to west, just north of VP3, at approximately 80-100m height, before turning southwards. A flock of thirty-one birds were observed roosting and feeding on open peat bog to the north of VP3, on the 27th October. Also on this date, two birds flew westwards, just south of VP6, at a height of c.20m. Three birds were observed flying low over the bog (2-5m height) to the south-east of VP9. This group eventually settled on cutover peat where they remained as the light faded. Seven birds were observed flying in a south-westerly direction over VP2, at 100-130m height, on the 3rd November.

One bird was observed on the 17th November during VP3. This individual sat on the bog, north-west of the VP location, where it remained for the duration of the watch. On the 17th November, approximately seventy golden plover were observed to the north of VP5. The flock flew east to west towards Lanesborough, between 70-90m height. Also on this date, a flock of forty-four birds were observed roosting on cutover bog to the north of VP7. Two birds were observed roosting on open peat bog to the north-west of VP3 on the 6th December. On the following day, a flock of forty-five golden plover flew through the site to the south-east of VP8, heading in a south-westerly direction. These birds flew at approximately 300m height.

¹⁷ www.birdwatchireland.ie [Accessed 12/12/2016]

120 golden plover were observed roosting on revegetated cutover to the north of the road at VP7 on the 10th January. The flock remained in-situ for the duration of the watch. The following day three birds roosted in the same area of bog. On the 12th January thirty-eight golden plover were observed roosting on cutover bog immediately east of VP9 where they remained for the duration of the watch. Approximately 150 golden plover fed in a recently-cut field to the south-west of VP1 on the 23rd January. This flock was joined by smaller groups arriving from both the west and east throughout the watch, with smaller groups moving to reedbed along the riverbanks. The entire flock, along with lapwing, flew off to the south-east at c.100m height, having been disturbed by an unidentified bird of prey. Separate flocks of golden plover (approx. 400 birds in total) were observed moving between grazing fields and reedbed at this VP later in the day.

Twenty-one golden plover were observed roosting on the bog at VP4 on the following day. This flock was located just south of the rail line on revegetating bog. Approx. thirty birds were observed in the same revegetating area later in day. Golden plover were recorded infrequently at VP1, VP3 and VP4 during the month of February. Approximately eighty-five birds were observed travelling westwards over VP3 on the 2nd February (approx. 30-40m height). Thirty birds were briefly observed flying west over the site south of VP4 on the same day. A flock of eight were recorded grazing in stubble fields just south of VP1 on the 10th February. Thirty-eight birds were recorded sitting on the bog to the south-east of VP9 on 2nd March (thirty-three birds in same location on following day). A flock of ten golden plover were recorded circling over workers sheds in Lough Bannow Bog, due east of VP11 (110-150m height). This group headed north before veering north-west. Approximately fifty golden plover were recorded roosting on maerl in the north-east corner of Derryadd Bog towards the end of the month, during VP7.

Table 14. Total time spent by golden plover in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	93	0.006
10-50	137	0.009
50-100	322	0.021
100-200	410	0.026
>200	60	0.004
Total	1,022	0.066

5.1.3.2 Lapwing (*Vanellus vanellus*)

Lapwing is a resident species in Ireland with numbers boosted by both summer and winter visitors. The peak population occurs between September and April. During the breeding season (typically April-July) birds may nest in grassland, such as machair or farmland, including fallow fields, unimproved pasture and meadow, and spring-sown arable fields¹⁸. Lapwing may also nest in wetland areas or cutover raised bog but prefer relatively bare ground where vegetation is short (BWI, 2011). During the winter months lapwing can be found in a wider variety of habitats including wetlands, mudflats, pasture and marginal ground¹⁹. They feed on soil and surface invertebrates and are also

¹⁸ <http://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-a-z/l/lapwing/index.aspx> [Accessed 12/12/2016]

¹⁹ <http://www.birdwatchireland.ie/Default.aspx?tabid=319> [Accessed 12/12/2016]

opportunistic feeders, taking advantage of recently disturbed habitats such as those associated with agricultural activity and flooding. Lapwing is red-listed in Ireland due to declines in both the breeding and non-breeding populations, with the breeding population scattered across the country (Colhoun & Cummins, 2013).

There were frequent observations of lapwing in October, particularly within the north and to a lesser extent the south-west regions of the site. A flock of 120 birds was observed feeding in freshly-cut fields, to the south of VP1, for the duration of the survey on the 24th October. Approximately 80 birds were observed feeding here again on the following day. Ten birds were observed due north of VP5 on the 27th October. These birds flew at c.50m height before dropping down abruptly beyond woodland. A flock of forty birds flew eastwards, to the north of VP8 on the 27th October, at 20-30m height, before veering south-east and out of view. A lone bird landed on a rocky shoreline of the River Shannon, immediately downstream of VP2, on the 3rd November. After a brief period, this bird flew north-eastwards over marginal farmland at 15-35m height. Also on this date, a flock of c.60 birds was observed feeding in a field due east of VP12. These birds alighted briefly (18-20m height) before dropping back down into the same area.

A flock of ninety birds was observed feeding in a field due south of VP1 on the 8th November. Approximately 200 birds spent much of the VP watch on the following day feeding in fields south of VP1 on the banks of the River Shannon. The flock was occasionally disturbed, most likely by a bird of prey. One lapwing roosted on the edge of flooded bog south-east of VP10 on the 17th November. Three birds fed on marginal farmland due west of VP2 on the 24th November. Also on this date, a flock of fifty birds flew from fields in the Bunacloy area, where they had been feeding, at a height of 60m, heading north-west towards the River Shannon. A flock comprising approximately 250 birds was observed circling between 50-90m height south-east of VP1 on the 12th December. These birds were outside the site boundary. On the following day four lapwings were observed circling over a field to the south-west of the VP, in which they landed for a short period. On the 13th December, over 200 lapwing were observed outside the site boundary, to the north-east of VP12, travelling northwards along a treeline.

Approximately twenty lapwings fed in a freshly-cut field to the south-west of VP1, along with the golden plover, on the 23rd January. This group was joined by another twenty during the VP, arriving in from the south-east. Flock size increased to approximately eighty birds feeding in same area later in the day. Eight lapwings were observed on the northern shore of the Shannon at VP2 on the following day. Lapwing were recorded on two occasions close to VP1 in February, feeding in stubble fields and pasture on the banks of the river. A flock of seventy birds flew south-east in front of VP1 on the 2nd February (approx. 80m height). One bird was observed in a field to the south of VP1 on the 10th February. Eight lapwings were observed feeding in rough pasture to the south of VP1 on the 24th March.

Table 15. Total time spent by lapwing in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	71	0.005
10-50	367	0.024
50-100	287	0.018
100-200	0	0.000
>200	0	0.000
Total	725	0.047

5.1.3.3 Curlew (*Numenius arquata*)

In Ireland curlew occur predominantly as winter visitors to both inland and coastal wetlands around the country. Some small breeding populations occur on bogs and floodplains, mainly in the north, west and central regions of the country, although numbers have declined significantly²⁰. Breeding curlew is now thought to be rare in Ireland (BWI, 2011). Breeding typically occurs between April and July²¹. Nests are built in tussocky vegetation on the ground in rough pasture, heath and bog (BWI, 2011). They feed on a range of invertebrates with the feeding group often dispersed over a large area, particularly when foraging in estuaries. Curlews tend to roost communally, typically in nearby salt-marsh. The species is red-listed in Ireland due to long-term declines in both the breeding and non-breeding populations, as well as a large decline in the breeding range (Calhoun and Cummins, 2013).

There were only two separate observations of curlew over the course of the six months winter surveys, both of which occurred in March. One bird was observed on the eastern bank of the River Shannon to the north of VP1 on 22nd March. Additionally, two birds were observed feeding along the rivers banks during VP1 on 24th March. There were no observations of birds in flight.

5.1.3.4 Snipe (*Gallinago gallinago*)

Snipe is a resident species with a widespread distribution throughout the country. The breeding population is supplemented by over-wintering birds arriving from Iceland, western and north-western Europe (BWI, 2011). Although a relatively common wader its presence is not always immediately obvious as its plumage affords camouflage in the wetland and moorland habitats in which it's found²². It is a ground-nesting species favouring tussocks in damp areas, in a variety of habitats found in peatland and grassland areas (BWI, 2011). Its effective camouflage and characteristic call during the breeding season, known as 'drumming', means that it is often seen rather than heard²³. Its diet comprises mainly plant material and invertebrates. Snipe is amber-listed in Ireland due to moderate declines in the European breeding population in recent times (Colhoun & Cummins, 2013). There follows a brief summary of these and other observations for this species over the winter survey period.

There were frequent records of snipe from throughout the site during October. Two birds were heard calling at dusk from cutover bog to the north-west of VP3. One bird was also heard calling

²⁰ <http://app.bto.org/mapstore/StoreServlet?id=203> [Accessed 02/12/2016]

²¹ <http://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-a-z/c/curlew/index.aspx> [Accessed 01/12/2016]

²² <http://www.birdwatchireland.ie/Default.aspx?tabid=328> [Accessed 10/12/2016]

²³ <http://www.rspb.org.uk/birds-and-wildlife/bird-and-wildlife-guides/bird-a-z/s/snipe/index.aspx> [Accessed 10/12/2016]

from just north of VP5 as dusk set in on the 26th October. Two snipe were flushed from close to the roadway at VP10. These birds flew south-wards at approximately 5m height. A snipe was heard calling just south of VP12 on the 3rd November. No visual observation was made. On the following day a snipe was flushed from close to VP12. This bird flew north-westwards over the site at 3-4m height. A snipe was flushed from scrub adjacent to the access track at VP9 on the 15th November. The bird flew north before veering east over the road and cutover bog heading towards a revegetated area (12-15m height). One bird was flushed from scrub and rough ground on the southern side of the local road at VP10. The bird flew south, at 1-5m height, along a ridge towards another area of scrub. Eleven snipe were flushed from scrub located south of VP10 on the 18th November. These birds flew at <10m height into similar habitat.

On the 6th December, a snipe was observed flying south-eastwards from VP5 at <10m height. A snipe was also heard calling to the north of VP8 on the following day. A bird was heard calling to the west of VP12 on the 12th December. A snipe was flushed from intact bog to the east of the site at VP5 on the 11th January. This bird flew northwards, at <1m height, briefly gaining height to c.18m before dropping down into dense heather cover. Two birds were flushed from marginal bog adjacent to cutover to the south-east of VP12. Birds flew low (<3m) for short distance. A snipe was flushed from scrub to the east of VP12 on the 23rd January. A bird was heard calling to the south-east of VP4 on the 2nd February. Two birds briefly flew from an area of high bog in the south-east corner of the site at VP5 on the 10th February (<1m height). A snipe was observed from VP9 on the 9th February. This bird flew from scrub located adjacent to the access road south of the VP (<5m height). A bird was observed briefly in March flying up out of relatively intact bog bounding the south-eastern corner of Derryaroge Bog. This individual flew up 2-3m height then dropped back down out of sight.

Table 16. Total time spent by snipe in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	101	0.006
10-50	19	0.001
50-100	0	0.000
100-200	0	0.000
>200	0	0.000
Total	120	0.008

5.1.4 Waterbirds

5.1.4.1 Cormorant (*Phalacrocorax carbo*)

Cormorants are typically resident in Ireland all-year round, although a proportion of wintering individuals may also occur. They breed mainly on off-shore islands and rocky coast-lines although there are some inland breeding populations. Cormorants feed on fish, foraging mainly in shallow waters. The species is amber-listed in Ireland due to a localised breeding population (Colhoun & Cummins, 2013). There follows a brief summary of these observations.

A cormorant was observed feeding on the River Shannon, to the north of VP1, on the 8th November. There were several sightings of cormorants commuting along the River Shannon during January. Cormorant was recorded occasionally during February's surveys, always in the vicinity of VP1 and

VP2. One bird was observed commuting upriver at VP2 on the 1st February (approx. 30m height). Six birds were observed commuting west along the Shannon at VP2 on the 8th February. These birds were observed individually over a short time, flying at approx. 80m height above the water. Following this, three birds were observed travelling east along the river and over VP2 (80-100m height). Two birds were recorded commuting southwards along the river at VP1 on the 10th February (approx. 10m height).

Two birds flew overhead during VP2 towards the end of March. These birds flew south-west to north-east at approximately 40m height. An individual was recorded commuting west to east across the southern part of Derryaroge Bog during VP5 (approx. 35-40m height). This represented the only record of cormorant from within the site. Six birds were recorded during VP2 towards the end of the month flying in an easterly direction along the Shannon. One bird was also recorded flying south along Shannon at VP1.

Table 17. Total time spent by cormorant in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	28	0.002
10-50	120	0.008
50-100	88	0.006
100-200	22	0.001
>200	0	0.000
Total	258	0.017

5.1.4.2 Coot (*Fulica atra*)

Coot is a small species of waterbird which can be found at a wide variety of wetland sites across much of Ireland throughout the year. Resident numbers are supplemented by winter visitors arriving from Britain and continental Europe. Coot is an omnivorous species feeding mainly on plant matter, although insects and fish may also be taken. They breed on large, shallow waterbodies with sufficient submerged and emergent vegetation with which they build their nests. The winter distribution is more widespread, with breeding absent from many parts of the east, south and west²⁴. Coot is amber-listed in Ireland due to declines in the breeding range and non-breeding population as well as a localised wintering distribution (Colhoun & Cummins, 2013).

Coot was only recorded in December and March over the course of the winter surveys. All records were recorded on the River Shannon during VP1. There were no records of coot from within the site boundary and no flight paths were recorded. Records for this species comprised a coot heard calling from the banks of the River Shannon near to VP1 in mid-December. Also, two individuals recorded feeding on the river on 22nd March and another four observed on the river on 24th March, all during VP1.

²⁴ <http://www.birdwatchireland.ie/IrelandsBirds/GamebirdsCrakesRails/Coot/tabid/313/Default.aspx> [Accessed 04/05/2017]

5.1.4.3 *Great-crested Grebe (Podiceps cristatus)*

Great-crested grebe is a resident species in Ireland, although winter numbers may increase due to birds on passage migration from mainland Europe. They breed on large, shallow eutrophic lakes as well as canals and slow-moving rivers, building their well-concealed nests amongst fringing emergent vegetation. They are resident on the River Shannon all year round. Birds typically move to breeding sites from mid-February. The winter distribution of this species is relatively more widespread with some birds moving to coastal areas. The diet comprises mainly fish although aquatic invertebrates may also be taken²⁵. Great-crested grebe is amber-listed in Ireland due to a decline in the wintering population as well as a localised winter distribution (Colhoun & Cummins, 2013).

Individuals were observed feeding on the River Shannon, north of VP1 on both the 25th October and the 8th and 9th November. One bird was recorded downriver of VP2 on the 24th November. Two birds were observed on the river to the north-west of VP1 on the 10th February. Two birds recorded feeding on the Shannon on both the 22nd March, with four birds in same area on the 24th March (recorded from VP1).

5.1.4.4 *Little Grebe (Tachybaptus ruficollis)*

Little grebe is a resident species found in a wide variety of lowland aquatic habitats throughout the country including lakes, ponds, marshes and canals (BWI, 2011b). Little grebe has a widespread breeding distribution in Ireland, building nests on floating vegetation or reedbeds at the water's edge, where cover is sufficiently dense (BWI, 2011b). During the winter months, their distribution may become more widespread with birds moving short distances to temporary wetland areas as well as those coastlines and estuaries which are less exposed²⁶. The wintering population may be boosted by some birds arriving to the country (BWI, 2011b). It is the smallest of the grebe species and feeds on aquatic invertebrates, insect larvae and small fish. Little grebe is amber-listed in Ireland due to a reduction in the breeding range (Colhoun & Cummins, 2013).

There were two sightings of little grebe during October. One bird was observed on standing water, along with moorhen, due south of VP10 on the 28th October. Two birds were observed feeding upstream of VP2, on the River Shannon, with mallard and teal, on the 3rd November. Three birds were observed feeding on the River Shannon, west and north-west of VP1, on the 9th November. Two birds were observed on flooded bog during VP10 on the 2nd February. Three birds were recorded foraging on these same ephemeral ponds during VP10 in March. These birds remained in-situ for the duration of the VP. Two birds were recorded in the same area later in the day (22nd March).

5.1.4.5 *Grey Heron (Ardea cinerea)*

Grey heron is widely distributed throughout Ireland all-year round. It is a wetland species which can be found in rivers, streams, estuary, marsh and coastline. They take a wide variety of prey including fish, small mammals, amphibians, reptiles and invertebrates. Grey herons nest in large trees where

²⁵ <http://www.birdwatchireland.ie/IrelandsBirds/DiversGrebes/GreatCrestedGrebe/tabid/141/Default.aspx> [Accessed 04/05/2017]

²⁶ <http://www.birdwatchireland.ie/Default.aspx?tabid=140> [Accessed 09/12/2016]

they form breeding colonies²⁷. The species is green-listed in Ireland (Colhoun & Cummins, 2013). There follows a brief summary of some of these observations.

A juvenile bird was observed upstream of VP2 on the 3rd November. This bird moved between damp fields on the northern riverbank and fringing reed bed. An adult flew eastwards, immediately north of VP5, on the 16th November. The bird flew over scrub and cutover before dropping into a drain in the bog. A juvenile was also observed on this date, flying south-west of VP6. It landed in standing water amongst piles of peat before flying out over the bog and landing beside a drain (12-20m height). An adult bird flew from north-west of VP10 on the 18th November, landing in conifer to the east of the VP. A heron was observed on the 24th November, to the east of the site, flying north-westwards at approximately 30m height.

Three birds flew from grassland to the north-east of VP2 on the 6th December. One bird landed on the riverbank while the other two flew to separate areas of woodland. A heron flew south-west over the bog at VP4 on the 6th December (10-50m height). Three birds were observed commuting along the River Shannon from VP1 in mid-December, while a fourth bird hunted along the river's edge. One bird was observed commuting northwards along the River Shannon on the 23rd January. Grey herons were observed frequently in the vicinity of VP1 during February's surveys. An adult bird was observed flying across the river to the west of VP1 on the 2nd February (approx. 3m height). An individual was observed commuting up and downriver at the same location on the 10th February, at less than 10m height. Grey heron was regularly recorded at VP1, and to a lesser extent VP3, in March.

Table 18. Total time spent by grey heron in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	114	0.007
10-50	371	0.024
50-100	0	0.000
100-200	0	0.000
>200	0	0.000
Total	485	0.031

5.1.5 Gulls

5.1.5.1 Black-headed Gull (*Chroicocephalus ridibundus*)

Black-headed gull is resident in Ireland throughout the year with winter numbers boosted by wintering individuals arriving from mainland Europe. The species over-winters and breeds in both coastal and inland locations, nesting in colonies in sand dunes, coastal islands, moorland polls, bogs and on freshwater lake islands, including on Lough Ree. They take a wide variety of food items including fish, worms, molluscs, insects and plant material and are opportunistic feeders, taking advantage of any available food-source including domestic/fishing waste. Black-headed gull is red-

²⁷ <http://www.birdwatchireland.ie/IrelandsBirds/GreyHeron/tabid/148/Default.aspx> [Accessed 09/12/2016]

listed due to a long term decline in its breeding population and distribution (Colhoun & Cummins, 2013).

The first record of this species occurred on the 24th October when seven birds were observed from VP1 flying along the Shannon. One bird was observed flying northwards along the River Shannon on the 9th November (20-30m height). Seven birds were observed commuting northwards along the River Shannon on the 12th December (c.10m height).

Black-headed gulls were recorded infrequently at VP1 and VP2 in February. Approximately seventy birds were observed commuting south-wards along the river at VP2 on the 8th February (40-50m height). Approximately sixty birds were observed commuting northwards along the Shannon on the 10th February (at <5m height). Approximately 115 birds were observed in total on the 23rd March during VP5 (three separate flocks). All birds were recorded travelling west to east across Derryaroge, generally following the main road, which bounds the sites southern boundary (15-30m height). Approximately ninety birds were recorded, in two separate flocks, travelling east to west later that evening, skirting the north-eastern corner of Derryadd Bog (40-60m height). Over 100 birds were recorded flying east to west at VP2 towards the end of the month.

Table 19. Total time spent by black-headed gull in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	131	0.008
10-50	193	0.012
50-100	30	0.002
100-200	0	0.000
>200	0	0.000
Total	354	0.023

5.1.5.2 Lesser Black-backed Gull (*Larus fuscus*)

Lesser black-backed gull is a large and widespread gull species found along the coast mainly during the summer months (typically March to September). The majority of breeding occurs colonially along the coast and on off-shore islands, often with other gull species, with nests on cliffs and dune-systems, although inland and urban sites may also be used. They are opportunistic feeders with a varied diet, taking a wide variety of prey as well as scavenging on waste²⁸. Some of the Icelandic breeding population passing through the country on migration to North Africa in late summer/autumn remain in southern counties of Ireland through the winter, while the majority push further south. Lesser black-backed gull is amber-listed in Ireland due to declines in the breeding population (Colhoun & Cummins, 2013). There follows a summary of these observations.

Five birds flew from east of VP2, generally heading westwards over the River Shannon and adjacent woodland, on the 3rd November (10-50m height). Approximately thirty birds flew from south-west of VP5 on the 10th February. These birds headed east, over marginal and improved farmland adjacent to site, generally following the route of the main road (c. 70-120m height).

²⁸ <http://birdwatchireland.ie/IrelandsBirds/GullsTerns/tabid/187/Default.aspx> [accessed 02/12/2016]

A total of twenty-five birds were observed during VP10 on 22nd March comprising groups passing overhead as well as on ponds and loafing around the general wetland area. Some groups eventually flew into Lough Bannow, drifting north-west. Eight individuals were recorded in the same area later that day. Birds were again recorded on ponds and circling around general area, with some travelling west (outside site boundary). A total of twenty birds were observed in Lough Bannow Bog, north-east of VP11. These birds travelled north-west along the edge of the site in two separate flocks (70-100m height). Two birds circled over the river due east of VP2 towards the end of the month. These birds circled at approximately 40-100m height, before gradually drifting south over woodland towards Derryaroge Bog. Approximately 120 birds, in total, were recorded travelling west to east across Derryaroge Bog, mixed in with flocks of black-headed gulls, roughly following main road (20-50m height), although some groups flew directly across the southern end of the site. Later that same day, approximately 100 birds were recorded flying east to west across the southern edge of Derryaroge Bog during VP5.

The same pattern was observed in Derryadd Bog. Approximately 200 birds were recorded on the same morning during VP6 flying in the same direction. Some groups skirted the bogs northern edge while some flew east directly over the site. That evening, approximately fifty-five birds were recorded travelling westwards, skirting the north of the site and generally following the route of the road (45-60m height). Approximately fifty birds were recorded flying east to west at VP2. Thirteen birds were observed flying east to west at VP3 on the 23rd March. One individual was recorded flying up and down the river at VP1 towards the end of the month.

Table 20. Total time spent by lesser black-backed gull in each height category, and as percentage of total survey time

Height Category (m)	Total Time (secs)	Percentage (%)
0-10	308	0.020
10-50	660	0.042
50-100	722	0.046
100-200	402	0.026
>200	81	0.005
Total	2,173	0.140

5.1.6 Other Red-Listed Species of Conservation Concern

5.1.6.1 Meadow Pipit (*Anthus pratensis*)

Meadow pipit was at one time a common species in Ireland. Its preferred breeding habitat is rough pasture, scrub and upland areas. It occurs throughout Ireland all year round with numbers boosted during the winter with birds from the European mainland. During the winter it tends to move away from upland breeding areas down into the lowlands. It feeds mainly on invertebrates although will also take seeds²⁹. Meadow pipit has been recently downgraded from green to red-listed due to short-term declines in the breeding population (Colhoun & Cummins, 2013). This species was

²⁹ <http://www.birdwatchireland.ie/IrelandsBirds/PipitsWagtails/MeadowPipit/tabid/1036/Default.aspx> [Accessed 09/12/2016]

commonly recorded, being observed throughout the site and the survey period, as expected given the abundance of suitable habitat throughout the general area. Meadow pipit was recorded in every month with numbers highest in October and March. These counts represent birds lingering in the area following the breeding season and prior to moving away from breeding areas for the winter and consequently numbers being boosted by birds returning to the area to breed.

5.1.7 Other Amber-listed Species of Conservation Concern

In terms of other species of conservation interest, a wide variety of amber-listed species were recorded over the winter season. The species assemblage overall was considered representative of the habitats which are contained within and adjacent to the site boundary.

Several amber-listed species were recorded on a regular basis throughout the winter surveys. Species which were recorded every month included **gold crest, mistle thrush, robin, starling and stonechat**. Many of these species, common to the general area, were recorded throughout the site. Other frequently recorded species included **linnet**.

Greenfinch was relatively scarce with small numbers recorded in three of the survey months (October, November and December). **House sparrow** was also only recorded intermittently over the course of the winter surveys (November, January and February). **House martin** was only recorded in the month of January when a flock of sixteen was observed. Similarly, **skylark** was only recorded in March, again coinciding with the commencement of the breeding season.

5.2 TRANSECT SURVEYS

The following table outlines total and peak counts for each species recorded during each round of transects carried out on-site. Colour-coding of species in relation to conservation status follows that which is outlined in Section 5.2 above. Additional details of all target species observations during transect surveys are provided in Appendix VI and VII.

Table 21. Total and peak transect counts for all species recorded

Common Name	Nov 2016		Jan 2017		Mar 2017	
	Total	Peak	Total	Peak	Total	Peak
Blackbird	91	20	44	5	46	6
Black-headed gull	0	0	2	2	0	0
Blue tit	19	3	14	5	13	3
Bullfinch	10	6	0	0	0	0
Buzzard	0	0	0	0	1	1
Chaffinch	61	17	31	14	38	6
Chiffchaff	0	0	0	0	1	1
Coal tit	18	4	7	2	8	4
Cormorant	0	0	0	0	2	2
Dunnock	25	4	12	1	5	2
Fieldfare	61	21	0	0	102	62
Goldcrest	13	5	3	1	2	1
Golden plover*	0	0	0	0	38	38

Common Name	Nov 2016		Jan 2017		Mar 2017	
	Total	Peak	Total	Peak	Total	Peak
Goldfinch	5	5	64	60	5	1
Great tit	10	3	3	3	3	1
Greenfinch	0	0	0	0	1	1
Hooded crow	72	32	22	4	17	4
House sparrow	0	0	12	12	6	6
Jackdaw	90	39	56	22	51	18
Kestrel	0	0	1	1	0	0
Lesser black-backed gull	0	0	0	0	9	7
Linnet	0	0	0	0	5	4
Long tailed tit	4	2	6	3	6	2
Magpie	11	2	5	1	3	2
Mallard	0	0	2	2	2	2
Meadow pipit	40	8	5	2	51	6
Mistle thrush	8	2	4	2	9	2
Mute swan	0	0	0	0	2	2
Pheasant	2	2	1	1	6	2
Pied wagtail	7	2	3	2	7	2
Raven	5	3	0	0	6	2
Redpoll	15	6	0	0	2	2
Redwing	142	50	18	18	66	47
Reed bunting	34	5	23	6	15	2
Robin	61	8	30	4	67	6
Rook	57	14	27	10	32	14
Skylark	0	0	0	0	1	1
Snipe	2	1	4	4	0	0
Song thrush	2	1	1	1	3	1
Starling	225	110	22	22	77	40
Stonechat	8	2	3	2	11	3
Woodpigeon	29	10	16	6	26	5
Wren	42	5	27	2	28	3
Total No. Species	30		30		39	

Note: Annex 1 species are denoted with an asterisk (*) and highlighted in bold

5.3 WETLAND BIRD SURVEYS (I-WEBS)/HINTERLAND SURVEYS

There follows a summary of all species recorded during the wetland bird/hinterland surveys carried out within the surrounding landscape (approximate 5km radius) over the course of the winter bird surveys. Individual counts for each sub-site monitored over this survey period are provided in tabular format in Appendix VIII.

Red-listed	Black-headed Gull
	Curlew
	Dunlin
	Golden Plover
	Lapwing
	Shoveler
	Wigeon
	Tufted Duck
	Goldeneye
	Redshank
	Pintail
	Amber-listed
Greylag Goose	
Coot	
Little Grebe	
Mute Swan	
Oystercatcher	
Cormorant	
Teal	
Snipe	
Common Gull	
Black-tailed Godwit	
Green-listed	Canada Goose
	Grey Heron
	Mallard
	Moorhen
	Little Egret

5.4 INCIDENTAL RECORDS

The following refers to an incidental on-site record. For completeness, and as this species was not recorded during either vantage point or transect surveys carried out on-site, it has been decided to include it in a separate sub-section. This incidental record refers to a species recorded during a general site walkover at Derryaroge Bog. A jack snipe (*Limnocryptes minimus*) was flushed from relatively intact bog which bounds the south-eastern corner of the site on 23rd March (incidental observation). This bird flew a short distance and dropped back into dense cover as is typical of the species. Jack snipe are a winter visitor to Ireland following departure from breeding populations located in northern Europe, Russia and Siberia. They may occur either as over-wintering individuals or on passage migration to other wintering grounds. Birds typically arrive in September and stay until March³⁰. While smaller in size with a relatively shorter bill, like common snipe, they are elusive, staying well hidden in dense cover until they are disturbed. This species is amber-listed in Ireland due to an unfavourable conservation status in Europe (Colhoun & Cummins, 2013).

³⁰ <http://www.birdwatchireland.ie/IrelandsBirds/Waders/JackSnipe/tabid/327/Default.aspx> [Accessed 04/05/2017]

6 DISCUSSION

6.1 RAPTORS

Six raptor species were observed during the 2016/17 winter season, namely, buzzard, hen harrier, kestrel, merlin, peregrine, and sparrowhawk.

In total twenty-nine separate observations of **buzzard** were made during the winter season. These sightings pertained to birds observed both within the site boundary and in surrounding areas. Buzzard was recorded predominantly in the vicinity of Derryaroge Bog, often seen on multiple occasions during a single watch period. Overall, the majority of buzzard observations were recorded at VP5, VP1 and VP12. Buzzards were observed throughout each month of the winter surveys with peak counts per vantage point watch recorded in the months of November, December and March (two birds). In terms of habitats utilised overall, buzzard was recorded most frequently in wooded/forested areas with regular observations over improved and marginal farmland, as well as scrub and cutover bog. In particular, areas of willow scrub and other vegetation fringing bare peat provides ideal foraging habitat for buzzard, providing shelter for the passerine and small mammal species on which it preys. A pair of buzzard was observed during a hinterland survey on the 23rd March holding territory within approximately 1km of the site boundary. This pair were observed south of Lough Bannow Bog, south-east of VP10 and are believed to be the same pair which have bred in the same general location in previous seasons.

As found during the previous winter survey, **hen harrier** activity was minimal with only two sightings over the whole winter season. Only one of these occurred within the site boundary comprising a male in October, recorded hunting within the site at VP5. The only other sighting was of a female, recorded in March outside the site on the River Shannon during VP1. During the latest winter surveys, therefore, hen harrier activity was only recorded in the northern half of the site, as found during the previous year. No winter roost sites for hen harrier were identified over the course of the survey period. Continuing usage of the area is most likely a factor of the abundance of suitable foraging habitat occurring in the general vicinity.

Overall **kestrel** was the most frequently observed species of raptor with a total of thirty-four separate observations recorded throughout the winter survey period. Kestrels were recorded in each survey month and were often observed numerous times during an individual VP watch. It is likely that at least some of these sightings related to the same individuals. Overall, kestrels were recorded throughout the site, being recorded at nearly every VP location, most frequently at VP5, VP4 and VP8. This suggests a healthy population within the study area and adjoining lands. Kestrels were recorded in a wide variety of habitats, as is typical of this species, including cutover and revegetating bog, scrub, farmland and woodland/forestry. As an incidental point of note, a pair of kestrels was observed copulating on the 22nd March during VP1 indicating potential breeding in the general area as this species is largely resident within its breeding territory.

In total, there were four separate records of **merlin** recorded in three of the survey months (October, November and February), indicating a decrease in winter sightings relative to the previous year. Merlin was only recorded from VP1, VP6 and VP12. All records were of birds in cutover, scrub, woodland and agricultural land.

Peregrine was recorded on a single occasion during the winter surveys when an adult male passed through the southern half of Derryadd Bog (VP8) on the 7th December. This bird briefly flew through the area, heading off south-west through scrub, revegetating bog and cutover. This individual most likely visits the site occasionally to hunt.

Sparrowhawk was recorded in every month with a peak monthly count recorded in February. There were thirteen separate observations of sparrowhawk throughout the winter survey period which largely corresponds to the number of records found in the previous year. However, unlike the winter 2015/16 period, the majority of records were from Derryadd Bog (VP6, VP8) and Derryaroge Bog (VP1, VP3, VP5), although sparrowhawk was recorded infrequently in Lough Bannow Bog also (VP9, VP11). Habitats utilised predominantly comprised scrub, cutover/revegetating bog and improved/marginal farmland.

Summary

The majority of raptor sightings occurred within the wide variety of habitats which fringe areas of open, cutover peat. Such habitats include but are not limited to areas of scrub, re-vegetating peat, intact bog, farmland, hedgerow/treeline, woodland and coniferous forestry.

In terms of potential development at the site it is recommended that any future works should avoid, in so much as is reasonably possible, removal of such vegetated areas as these areas provide important foraging and resting habitats for a wide variety of raptor species, as well as the bird and mammal species on which they prey. Such areas also act as important wildlife corridors within an already highly-modified landscape and have will provide a buffering effect from any future potential development within cutover areas.

6.2 WILDFOWL/WADERS/WATERBIRDS/GULLS

The results of the winter 2016/17 surveys have shown that, as in previous years, the study area has a bird assemblage typical of the habitats present. Wildfowl, wader, waterbird and gull species observed during the latest survey season included whooper swan, mute swan, wigeon, teal, golden plover, lapwing, curlew, snipe, cormorant, coot, great-crested grebe, little grebe, grey heron, black-headed gull and lesser black-backed gull. The Shannon River is a flyway for a variety of wildfowl and wader species with many observed traversing the site. Such movements were frequently observed from VP1, VP2, VP3, VP4, VP5 and VP6 which is to be expected given their proximity to the River Shannon.

Lough Ree SPA is situated approximately 0.5km to the south-west of the site. Lough Ree is of high ornithological importance for both wintering and breeding birds. It supports nationally important populations of seven wintering waterfowl species, as well as other important species including whooper swan and Greenland white-fronted goose (both of which are listed on Annex I of E.U. Birds Directive). The following information has been obtained from the site synopsis:

Lough Ree is one of the most important Midland sites for wintering waterfowl, with nationally important populations of wigeon (1,475), teal (912), pintail (35), tufted duck (661), goldeneye (137), golden plover (2,035) and lapwing (3,870) occurring (all figures are average peaks for the five seasons 1995/96-1999/00). Regionally important numbers of whooper swan (89) and Greenland white-fronted goose (92) feed in the vicinity of the lake, as do golden plover, lapwing and, to some

extent, wigeon and teal. Other species which occur over the winter months include cormorant (64), mallard (675), coot (250), shoveler (40), curlew (167) and great crested grebe (23), as well as the little grebe (34) and mute swan (93) which are resident species. The site supports a nationally important population of common tern (90 pairs in 1990). It is a traditional breeding site for black-headed gull and whilst a full survey has not been carried out in recent years, substantial numbers of nesting birds were present on at least one island in 2003. Lesser black-backed gull and common gull have bred in the past and the latter species may still breed at the site. Lough Ree is also an important site for breeding duck and grebes, with nationally important populations of tufted duck (265 individuals in late May 1995) and great crested grebe (89 individuals in late May 1995). Of particular note is that Lough Ree is one of the two main sites in the country for breeding common scoter, a Red Data Book species. The most recent full census of the site for the species, carried out in 1999 recorded a population of c.32 pairs³¹.

The above species were identified during the desk study and were included as target species for the winter 2016/17 survey period. Of the aforementioned species common tern and common scoter were the only ones not observed either within the site or in the surrounding hinterland during the most recent winter survey period.

Whooper swan was recorded in every month during the six months winter surveys except January. Peak numbers were recorded in mid-February (twenty-nine birds). While this species was recorded throughout the overall site, as found during the previous winter season, the majority of records pertained to sightings in the general vicinity north of Derryaroge Bog, particularly along the River Shannon, where whooper swans were regularly recorded commuting. This species is highly mobile with movement dependent upon the degree of flooding in suitable foraging habitats. Whooper swan was most frequently recorded from VP1 (located overlooking the River Shannon outside the site boundary), and next most frequently recorded at VP2, located further downriver on the Shannon. The flood plains and grassland areas adjacent to the river provide optimal foraging/roosting habitat for this species during the winter months which is reflected in the greater number of observations in this area relative to the rest of the site. Whooper swans were recorded infrequently within the site boundary (single sighting in Derryaroge Bog and two sightings in Derryadd Bog).

Mute swan was recorded in every survey month with peak numbers of birds recorded in March. As previously found, the vast majority of records occurred in the environs of Derryaroge Bog, in particular to the north of Derryaroge Bog and along its north-western fringes (VP1 and VP2, located on or in very close proximity to the River Shannon). The only other vantage point locations, where this species was recorded, comprised VP3 and VP5 at the southern end of Derryaroge Bog. As well as the River Shannon, mute swans were also recorded flying over forestry, improved and marginal grazing, cutover and scrub.

Wigeon was recorded in three months only (January, February and March), with peak numbers recorded in February. Furthermore, wigeon was only recorded at the extreme northern and southern boundaries of the overall site. The majority of records pertained to VP1 and VP2 where birds were recorded on the River Shannon. The only other location from which this species was

³¹ <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004064.pdf> [Accessed 04/05/2017]

recorded was VP10, where birds were observed on flooded bog located south of the local road, and outside the site boundary, in February.

Teal were recorded in the months of November, February and March with peak numbers recorded in February. All observations were of birds on the River Shannon, either outside the site boundary at VP1 or just on the site boundary at VP2. There were no records of teal from within the site boundary, nor were there any records of birds in flight.

Golden plover was recorded in each month over the six months winter surveys with peak numbers recorded in January and the lowest numbers recorded in December. Golden plover were largely recorded throughout the site, being recorded at every vantage point location except VP10 on the extreme southern site boundary and VP12 and the far north-eastern corner. Golden plover were also regularly observed in the vicinity of the River Shannon. Indeed, the highest overall number of observations for this species pertained to VP1, located outside the site boundary, where birds were regularly observed feeding on and flying over marginal farmland adjacent to the river. The peak count of 400 birds was recorded in this area. Within the site boundary, birds were most often observed sitting on the bog roosting, being most regularly recorded at VP9. As with the previous winter's findings, it is considered that golden plover predominantly utilise the site for roosting, rather than foraging, and instead use surrounding farmland as feeding grounds.

Lapwing was recorded in every month during the winter surveys representing an increase in the number of sightings relative to the previous winter season when the species was only recorded in two of the survey months. Overall, numbers peaked in November after which numbers decreased steadily. The vast majority of sightings pertained to birds observed from VP1, feeding in improved and marginal farmland, often with golden plover, adjacent to the Shannon and outside the site boundary. All observations of lapwing occurred in the northern half of the overall site (VP2, VP5 and VP12), apart from one record at VP8 at the end of October.

Neither **curlew** nor **coot** was recorded within the site boundary, being recorded only on or in the immediate vicinity of the River Shannon. However, curlews are believed to be nesting in high bog located east of VP10, outside but in proximity to the site boundary.

Snipe were recorded in every month of the total survey period with the highest numbers recorded in November. Snipe were recorded throughout the overall site. In particular, the number of observations was greatest at VP5, VP10 and VP12. The vast majority of observations were of birds which had been flushed or otherwise disturbed from a variety of habitats including gorse/willow scrub and intact/marginal bog. As well as visual records, individuals were also heard calling from several locations throughout the site.

Cormorant was recorded in every survey month except for October and December with the highest numbers recorded in March. The vast majority of sightings were of birds commuting along the River Shannon, all recorded from VP1 and VP2. The only other location where this species was recorded was from VP5 in the central region of the overall site where an individual was recorded passing through.

Great-crested grebe was recorded in every month except December and January, with the highest numbers recorded in March. As with curlew and coot, there were no records of this species from within the site boundary, nor were any flight paths recorded. All observations were of birds on the River Shannon, recorded from VP1 and VP2.

Like great-crested grebe, **little grebe** was recorded in every month except December and January with numbers recorded peaking in March. All records were of birds outside the site boundary. No flight paths were recorded. The majority of records were recorded from VP10, with birds observed on flooded bog to the south of the road and Lough Bannow Bog.

Grey heron was recorded in every survey month with the number of observations peaking in December. The vast majority of observations were from outside the site boundary, in the vicinity of the River Shannon (VP1 and VP2), although grey heron was recorded elsewhere from within the site, namely at VP3, VP4, VP5, VP6 and VP10.

As with the winter 2015/16 survey period, two species of gull were recorded during the 2016/17 surveys. **Black-headed gull** was recorded in every month except January with numbers peaking in March. The species was recorded from both within and outside the site boundary, namely in the central region of the overall site (VP5 and VP6), and in the vicinity of the River Shannon (VP1 and VP2). Movements of birds over and back through the central region of the site, recorded in March, are believed to represent birds moving between feeding grounds in surrounding farmland and Lough Ree where they are likely returning to roost.

Lesser black-backed gull was only recorded in the months of October, February and March. The vast majority of records pertained to birds passing over, mainly in the vicinity of VP2, VP5, VP6, VP7 and VP11, although birds were infrequently recorded on water from both VP1 and VP10. Lesser blacked-gull was therefore recorded throughout the overall site. The concentration of records in spring and early autumn corresponds with the movement of birds either to breeding colonies in the north of the country/Iceland, although it is possible that small numbers may breed on Lough Ree, or passing through on their return journey southwards, en route to wintering grounds in North Africa and the Mediterranean. Like black-headed gull, it is likely that these birds also utilise Lough Ree for roosting following feeding forays to surrounding farmland.

The following table lists all wildfowl, wader, waterbird and gull species of conservation concern observed during the winter 2016/17 vantage point surveys with mean peak counts given relative to numbers occurring within Lough Ree and/or estimated national wintering populations.

In relation to the winter counts within Lough Ree, *“Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme that is funded by the National Parks and Wildlife Service of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs and that is co-ordinated by BirdWatch Ireland”*.

Table 22. Wildfowl, wader, waterbird and gull species observed during winter 2016/17 surveys

Species	Overall peak count during winter 2016/17 surveys	Winter count within Lough Ree ³²	All-Ireland non-breeding population estimate ³³	Breeding population estimate ³³	Comments in relation to winter 2016/17 survey results
Whooper swan*	29	99	15,158	n/a	The highest record for this species comprised a total of twenty-nine birds observed flying from the River Shannon over pasture, south of VP1, in mid-February. The overall peak count represents approx. 0.2% of the Irish non-breeding population and approx. 29% of the 2010/11 Lough Ree winter population. Lough Ree is a nationally important site for this species (Boland and Crowe, 2012).
Mute swan	18	70	11,440	Breeding population unknown	The highest record for this species comprised a total of eighteen birds, recorded on the River Shannon, outside the site boundary, from VP1 on the 23 rd March. The overall peak count represents approx. 0.2% of the Irish non-breeding population and approx. 26% of the 2010/11 Lough Ree winter population. Lough Ree is an internationally important site for this species (Boland and Crowe, 2012).
Wigeon	10	749	82,370	n/a	The highest record for this species comprised ten birds observed on the River Shannon, outside the site boundary, and west of VP1 in mid-February. The overall peak count represents approx. 0.01% of the Irish non-breeding population and approx. 1.3% of the 2010/11 Lough Ree winter population.
Teal	8	231	45,010	Breeding population unknown	The highest record for this species comprised eight birds recorded on the River Shannon, outside the site boundary, during VP1 on two dates in February. The overall peak count represents approx. 0.02% of the Irish non-breeding population and approx. 3.5% of the 2010/11 Lough Ree winter population. Lough Ree is no longer considered to be of significant

³² All Lough Ree winter counts comprise BirdWatch Ireland I-WeBS counts for the 2010/11 season. The most recent BirdWatch Ireland I-WeBS winter count (2016/17) for whooper swan within Lough Ree was eleven.

³³ Population estimates sourced from BirdWatch Ireland's Action Plan for Lowland Farm Birds and Lake, Fen and Turlough Birds (2011-2020)

Species	Overall peak count during winter 2016/17 surveys	Winter count within Lough Ree ³²	All-Ireland non-breeding population estimate ³³	Breeding population estimate ³³	Comments in relation to winter 2016/17 survey results
					importance for this species (Boland and Crowe, 2012).
Golden plover*	400	205	166,700	n/a	The highest record for this species comprised a total of approximately 400 birds observed moving intermittently between marginal farmland and reedbed fringing the River Shannon at VP1 on the 23 rd January. The overall peak count represents approx. 0.24% of the Irish non-breeding population. Lough Ree is a nationally important site for this species (Boland and Crowe, 2012).
Lapwing	250	1,443	207,700	c.2,000 breeding pairs (RoI)	The highest record for this species comprised a flock of approximately 250 birds observed circling outside the site boundary south-east of VP1 in mid-December. The overall peak count represents approx. 0.12% of the Irish non-breeding population and approx. 17% of the 2010/11 Lough Ree winter population.
Curlew	2	89	54,650	c.100-200 breeding pairs (RoI)	The highest record for this species comprised two birds observed feeding along the banks of the River Shannon, outside the site boundary, during VP1 at the end of March. The overall peak count represents approx. 0.004% of the Irish non-breeding population and approx. 2.2% of the 2010/11 Lough Ree winter population.
Snipe	11	3	Unknown	c.5,000 breeding pairs (RoI)	The highest record for this species comprised a total of eleven birds flushed from scrub located south of VP10 in mid-November.
Cormorant	10	29	13,710	c.4,548 breeding pairs (RoI)	The highest record for this species comprised a total of ten birds observed commuting up and downstream, outside the site boundary on the River Shannon, at the end of March. The overall peak count represents approx. 0.07% of the Irish non-breeding population and approx. 34.5% of the 2010/11 Lough Ree winter population.

Species	Overall peak count during winter 2016/17 surveys	Winter count within Lough Ree ³²	All-Ireland non-breeding population estimate ³³	Breeding population estimate ³³	Comments in relation to winter 2016/17 survey results
Coot	4	524	33,160	Breeding population unknown	The highest record for this species comprised four birds observed on the River Shannon, outside the site boundary, during VP1 at the end of March. The overall peak count represents approx. 0.01% of the Irish non-breeding population and approx. 0.8% of the 2010/11 Lough Ree winter population.
Great-crested grebe	4	16	5,385	Breeding population unknown	The highest record for this species comprised four birds recorded feeding on the River Shannon, outside the site boundary, during VP1 at the end of March. The overall peak count represents approx. 0.07% of the Irish non-breeding population and approx. 25% of the 2010/11 Lough Ree winter population.
Little Grebe	3	19	2,345	Breeding population unknown	The highest record for this species comprised totals of three birds observed feeding on the River Shannon, west and north-west of VP1, in November, as well as foraging on flooded bog, south of the site, in March. The overall peak count represents approx. 0.13% of the Irish non-breeding population and approx. 16% of the 2010/11 Lough Ree winter population.
Black-headed gull	115	122	Unknown	c.2,066 breeding pairs (RoI)	The highest record for this species comprised a total of 115 birds observed travelling west to east across Derryaroge Bog, generally following the main road which bounds the sites southern boundary, at the end of March. The overall peak count represents approx. 94% of the 2010/11 Lough Ree winter population.
Lesser black-backed gull	199	3	Unknown	c.2,876 breeding pairs (RoI)	The highest record for this species comprised approximately 200 birds which passed overhead during VP6 at the end of March.

Note: Annex 1 species are denoted with an asterisk (*) and highlighted in bold

Summary

During the winter 2016/17 season, whooper swan were found to only occasionally move through the site with the majority of observations in the vicinity of the River Shannon. Whooper swans were regularly observed utilising nearby areas of farmland for both feeding and roosting, in particular improved farmland at Bunacloy where the largest numbers overall during the survey period were recorded (see Appendix VIII). The winter 2016/17 findings are in contrast to the previous winter season (2015/16) when whooper swan movements in and out of the site were more frequently recorded, in particular in a relatively wetter area in the northern half of Derryaroge Bog (see Appendix 5 Lot 1 Ornithology Report Winter 2015/16 - Doc. No: 16380-6003-B). It is believed that the amount of rainfall experienced in the two most recent winter seasons was a contributing factor to the apparent change in usage of the site by this species, given that the most recent winter season (2016/17) was, overall, much drier than the previous one. It is believed that this factor contributed to whooper swans utilising other areas outside of the site boundary during the winter 2016/17 period, most likely because ground conditions were more favourable.

As found during previous surveys, the winter 2016/17 results indicate that golden plover are regular visitors to the site over the winter months regularly occurring on and transiting through the area. Golden plover were recorded both roosting on the bog in Derryaroge Bog and flying overhead towards the Shannon. Areas of bog north of the local road in Derryadd Bog (VP7) and in the far north of Lough Bannow Bog (VP9) were also used. Golden plover were frequently recorded near the River Shannon, in particular from VP1.

From the results it is evident that several species appear to show a preference for areas to the north and north-west of Derryaroge Bog, as is the case for whooper swan, mute swan, cormorant, lapwing and black-headed gull, which were predominantly recorded in proximity of the River Shannon. Other species, such as golden plover, snipe and lesser black-backed gull were recorded throughout the overall area. Several species, namely curlew, wigeon, teal, coot, great-crested grebe and little grebe, were only recorded from outside the site boundary, either on the River Shannon to the north and north-west of the site or flooded bog to the south.

In summary, as was found during the winter 2015/16 survey period, the principal area of use for wildfowl and waders is to the north of the overall site with the main patterns of movement observed relating to birds commuting between the River Shannon and Lough Ree to the south. The River Shannon is an important area in terms of foraging grounds and acting as a commuting corridor for a wide variety of species. Based on these results, it is recommended that any future development avoids the northern and western sections of Derryaroge Bog, and instead areas to the east and further south should be considered, taking regularly recorded flight paths for all target species into account.

7 CONCLUSION

Overall the bird species recorded during the winter 2016/17 survey period are largely in keeping with the species recorded during surveys carried out on-site in previous years. The following table lists all species observed during the most recent winter survey period along with their conservation status and general comments as to their occurrence on-site.

Table 23. Summary of all species recorded during winter 2016/17 surveys

Common Name	Comments
Blackbird	Resident
Blackcap	Summer visitor
Black-headed gull	Resident on Lough Ree. Occasionally passes through site
Black-tailed godwit	Recorded off-site at Fortwilliam Turlough
Blue tit	Resident
Bullfinch	Resident
Buzzard	Resident
Canada goose	Recorded off-site at Fortwilliam Turlough and Cordora Turlough
Chaffinch	Resident
Chiffchaff	Rare winter visitor
Coal tit	Resident
Collared dove	Resident
Common gull	Recorded off-site at Fortwilliam Turlough and Ballyleague
Coot	Resident
Cormorant	Resident on Lough Ree. Frequently congregates along the Shannon
Crossbill	Resident
Curlew	Scarce winter visitor during survey period
Dunlin	Recorded off-site at Fortwilliam Turlough and Ballyleague
Dunnock	Resident
Fieldfare	Winter visitor
Goldcrest	Resident
Goldeneye	Recorded off-site at Ballyleague and River Shannon
Golden plover*	Winter visitor
Goldfinch	Resident
Great tit	Resident
Great-crested grebe	Recorded off-site on River Shannon
Greenfinch	Resident
Grey heron	Resident
Greylag goose	Recorded off-site at Bunacloy fields
Hen harrier*	Scarce visitor
Hooded crow	Resident
House martin	Summer visitor
House sparrow	Resident
Jackdaw	Resident
Jack snipe	Scarce winter visitor
Jay	Scarce resident
Kestrel	Resident
Lapwing	Winter visitor
Lesser black-backed gull	Winter visitor
Linnet	Resident
Little egret	Scarce visitor
Little grebe	Recorded off-site on River Shannon, Mountdillon Ponds and flooded bog to south

Common Name	Comments
Long tailed tit	Resident
Magpie	Resident
Mallard	Resident
Merlin*	Scarce passage migrant
Meadow pipit	Resident. More frequent in autumn and late winter.
Mistle thrush	Resident
Moorhen	Scarce visitor
Mute swan	Occasional visitor
Oystercatcher	Recorded off-site at Ballyleague. Rare mid-land species.
Peregrine falcon*	Scarce winter visitor
Pheasant	Resident
Pied wagtail	Resident
Pintail	Recorded off-site at Fortwilliam Turlough and Cordora Turlough
Raven	Resident
Red-legged partridge	Scarce visitor
Redpoll	Resident
Redshank	Recorded off-site at Fortwilliam Turlough, Cordora Turlough and Ballyleague
Redwing	Winter visitor
Reed bunting	Resident
Robin	Resident
Rook	Resident
Shoveler	Recorded off-site at Fortwilliam Turlough, Cordora Turlough and Turreen Turlough
Siskin	Resident and winter visitor
Skylark	Scarce resident. More frequent in autumn and late winter, as breeding birds leave and return.
Snipe	Resident and winter visitor
Song thrush	Resident
Sparrowhawk	Resident
Starling	Resident
Stonechat	Resident
Teal	Recorded off-site on River Shannon, Mountdillon Ponds, Cloonkeel, Ballyleague
Treecreeper	Scarce resident
Tufted duck	Recorded off-site at Fortwilliam Turlough, Cordora Turlough, Turreen Turlough, Ballyleague and on River Shannon
Water rail	Scarce resident
Whooper swan*	Winter visitor
Wigeon	Recorded off-site at Cloonkeel, Ballyleague, Cordora Turlough, Fortwilliam Turlough, Turreen Turlough, on the River Shannon and on flooded bog to south
Woodpigeon	Resident
Wren	Resident

Note: Annex 1 species are denoted with an asterisk (*) and highlighted in bold

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Appendix I

Figures



Project Title:
Derryadd Winter Bird Survey

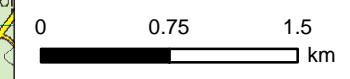
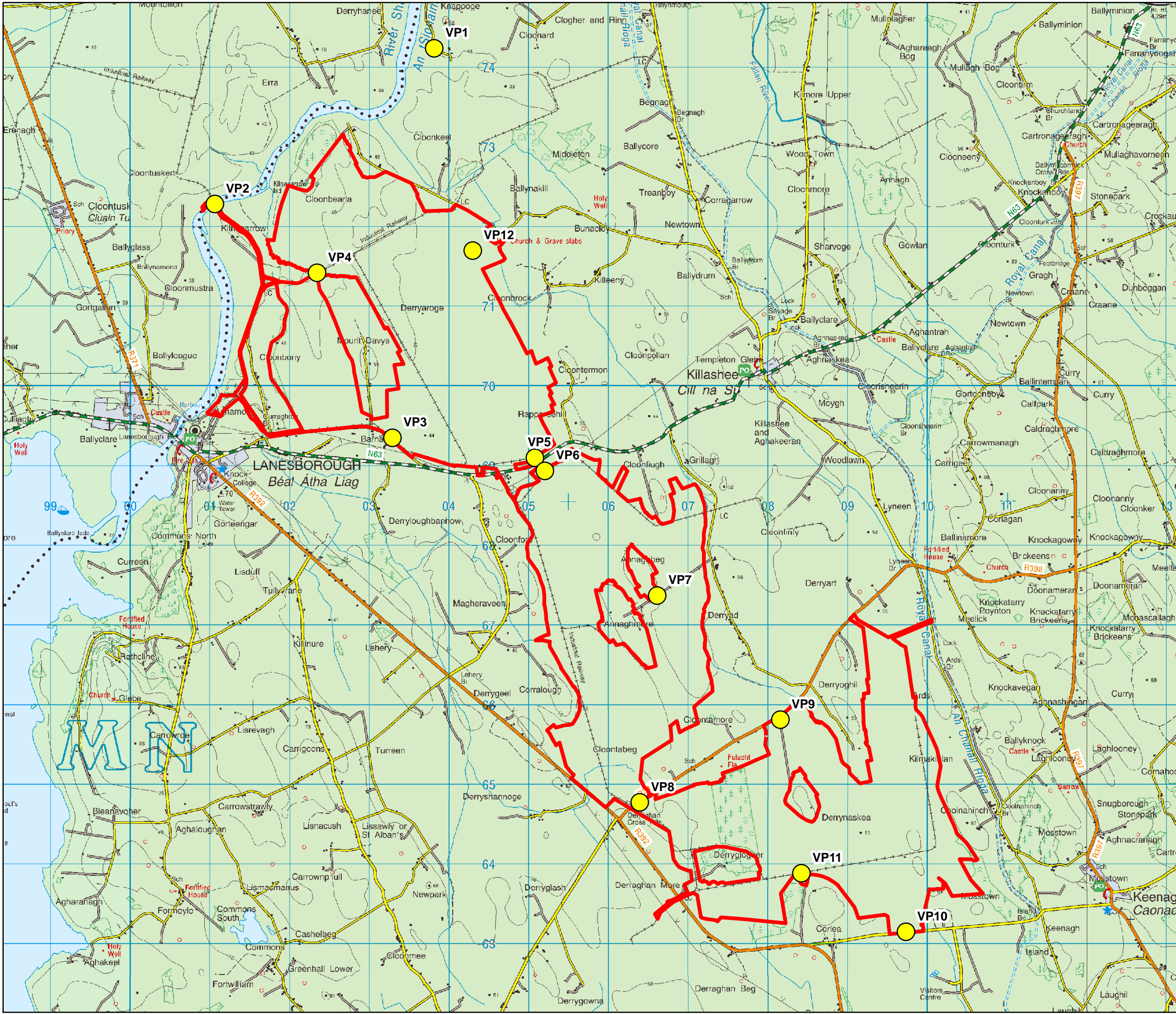
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Drawn by: JK
Checked by: HD
Drawing Date: 09/11/2016
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary



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Project Title:
Derryadd Winter Bird Survey

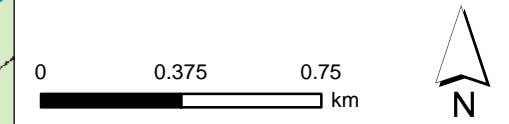
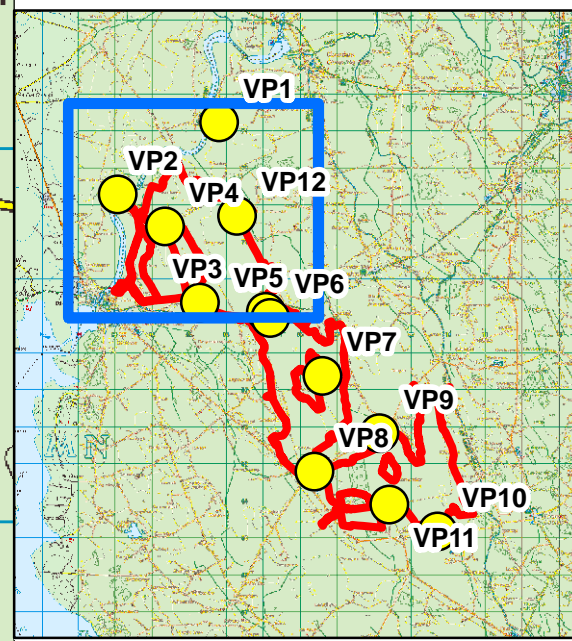
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Legend

-  Vantage Points
-  Field of View
-  Site Boundary



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Project Title:
Derryadd Winter Bird Survey

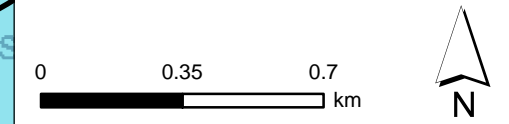
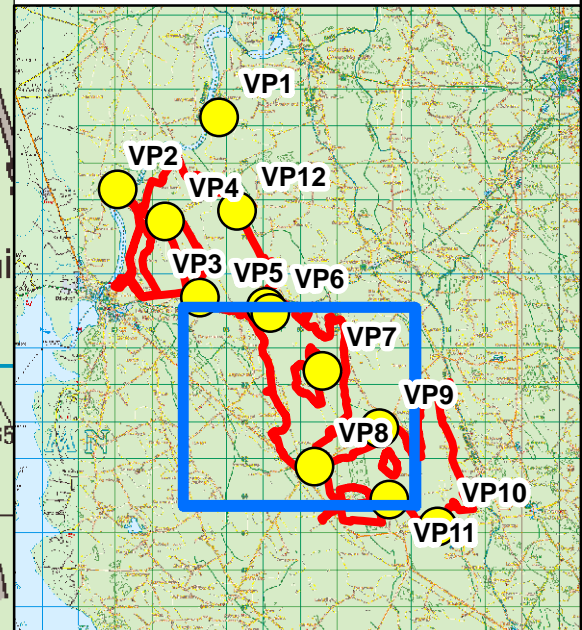
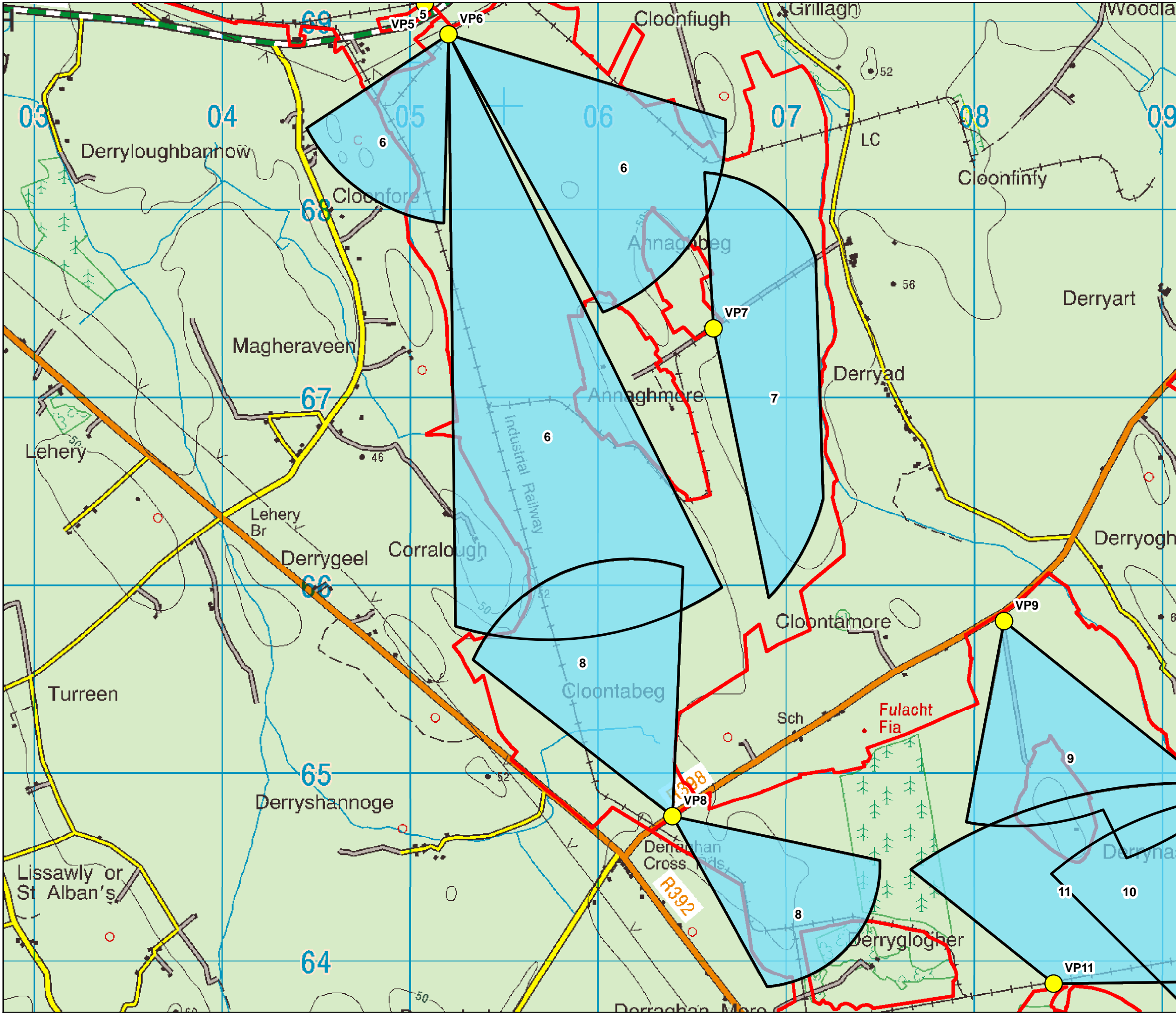
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Drawn by: JK
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Drawing Date: 09/11/2016
Drawing Size: A3

Legend

-  Vantage Points
-  Field of View
-  Site Boundary



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Project Title:
Derryadd Winter Bird Survey

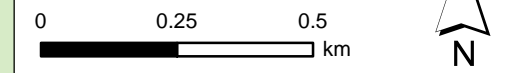
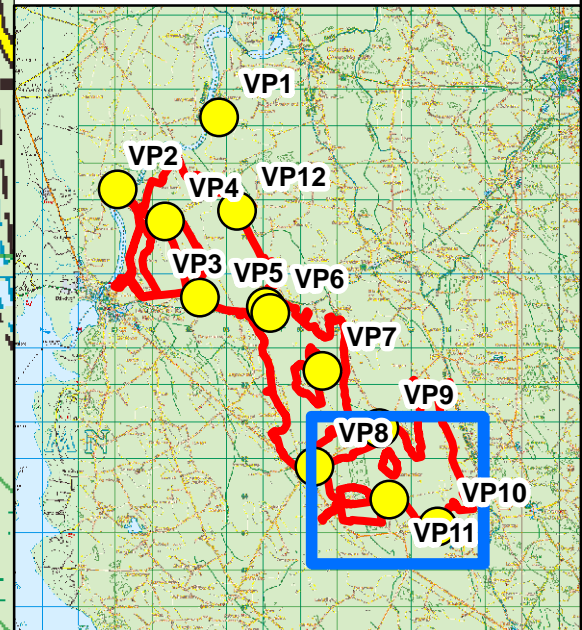
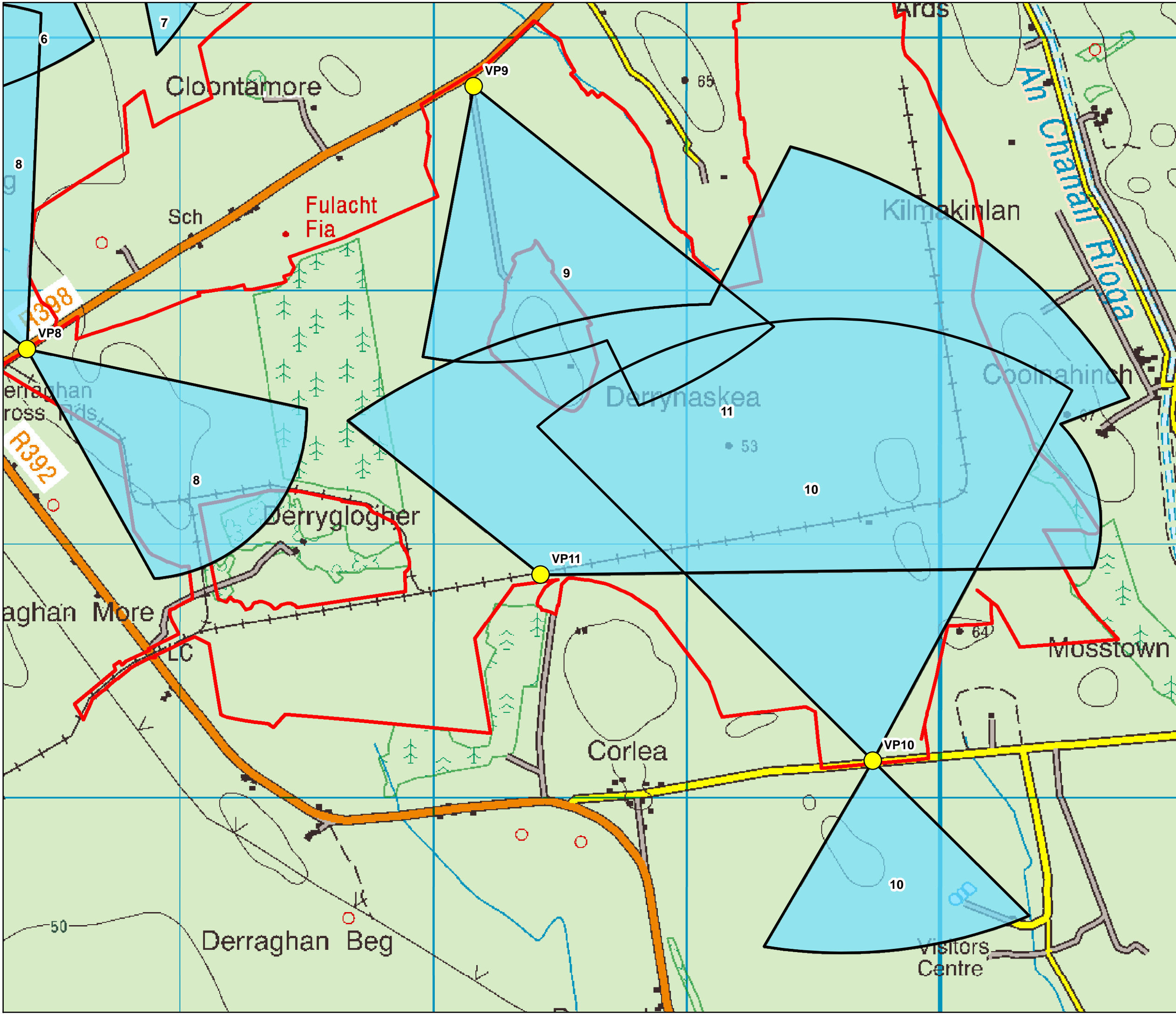
Drawing Title:
Vantage Point Field of View - Sheet 3

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 09/11/2016
Drawing Size: A3

Legend

-  Vantage Points
-  Field of View
-  Site Boundary



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Project Title:
Derryadd Winter Bird Survey

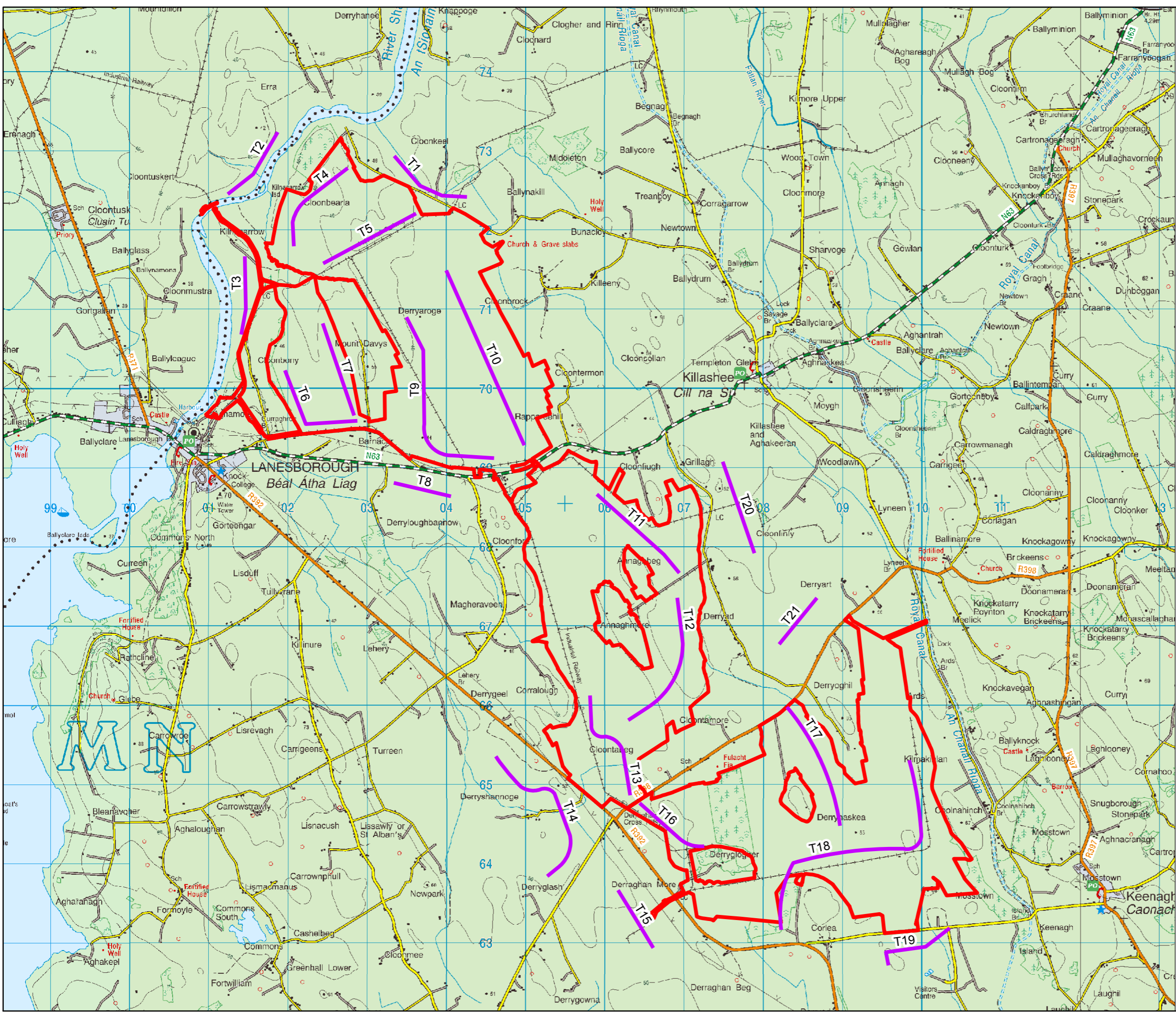
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Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 24/07/2017
Drawing Size: A3

Legend

- Transects
- Site Boundary



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Derryadd Winter Bird Survey

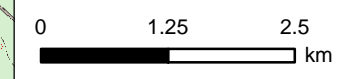
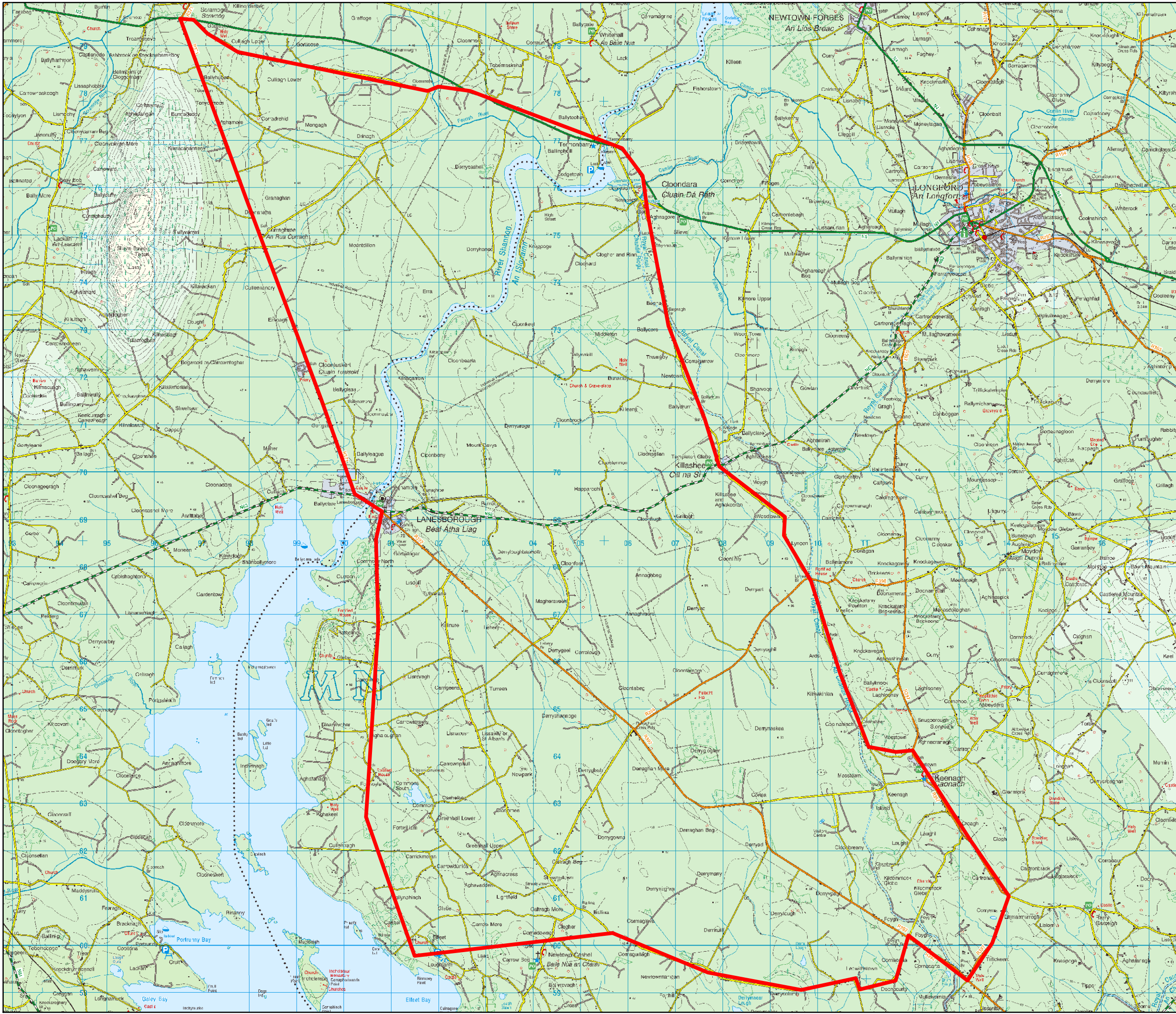
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Hinterland Survey Area

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 02/02/2017
Drawing Size: A3

Legend

 Hinterland Survey Area



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Project Title:
Derryadd Winter Bird Survey

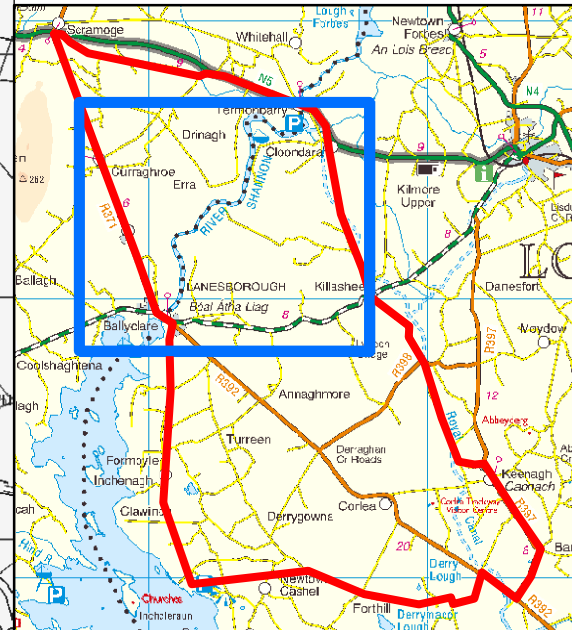
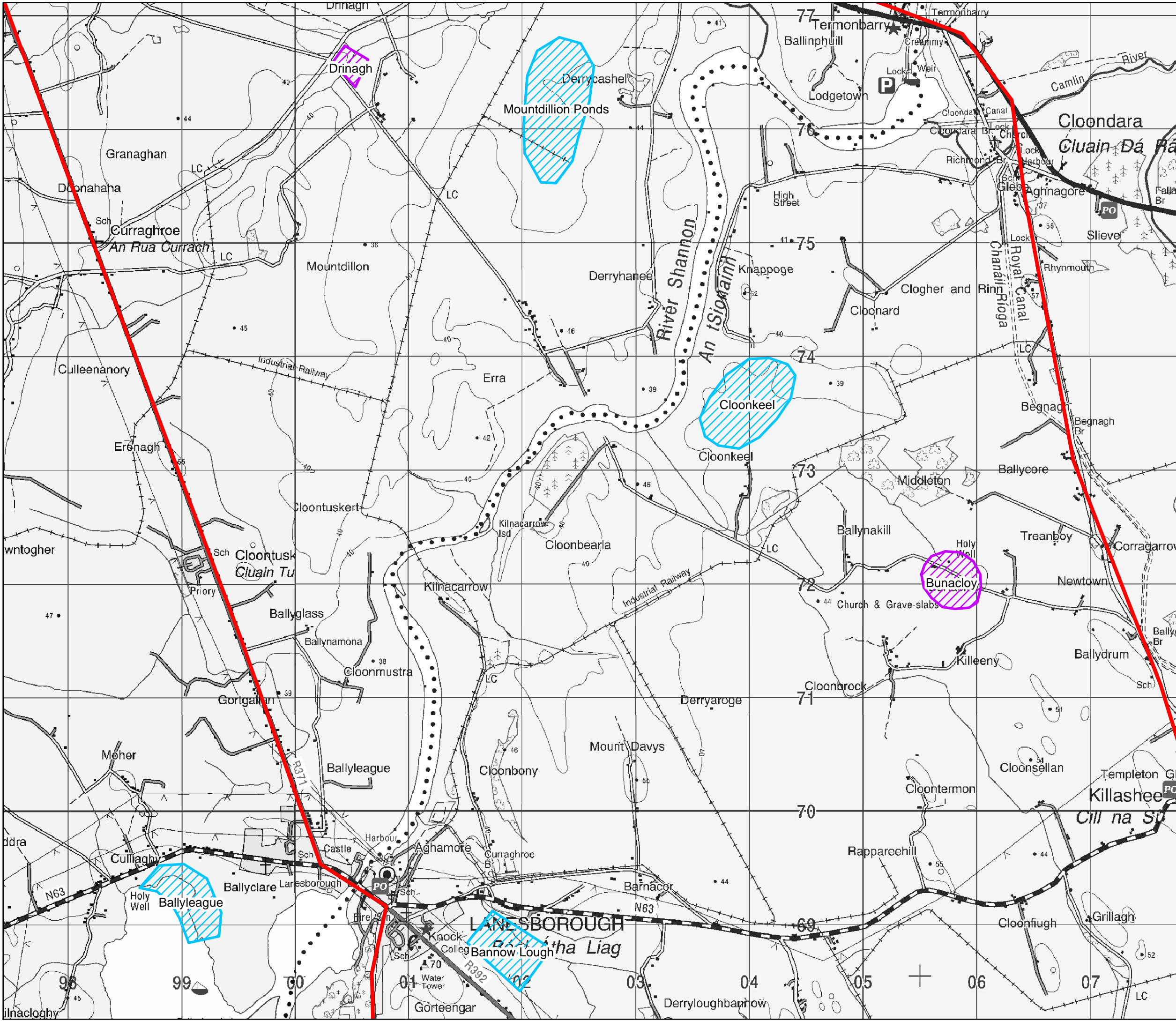
Drawing Title:
Wetland Bird and Hinterland Surveys -
Sheet 1

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Hinterland Locations Of Note
-  Wetland Bird Survey Sites
-  Hinterland Survey Area



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Project Title:
Derryadd Winter Bird Survey

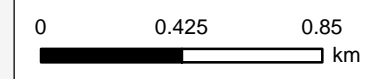
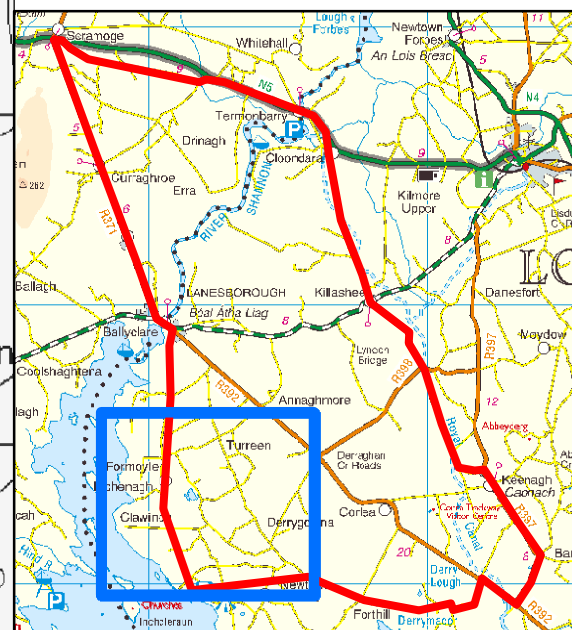
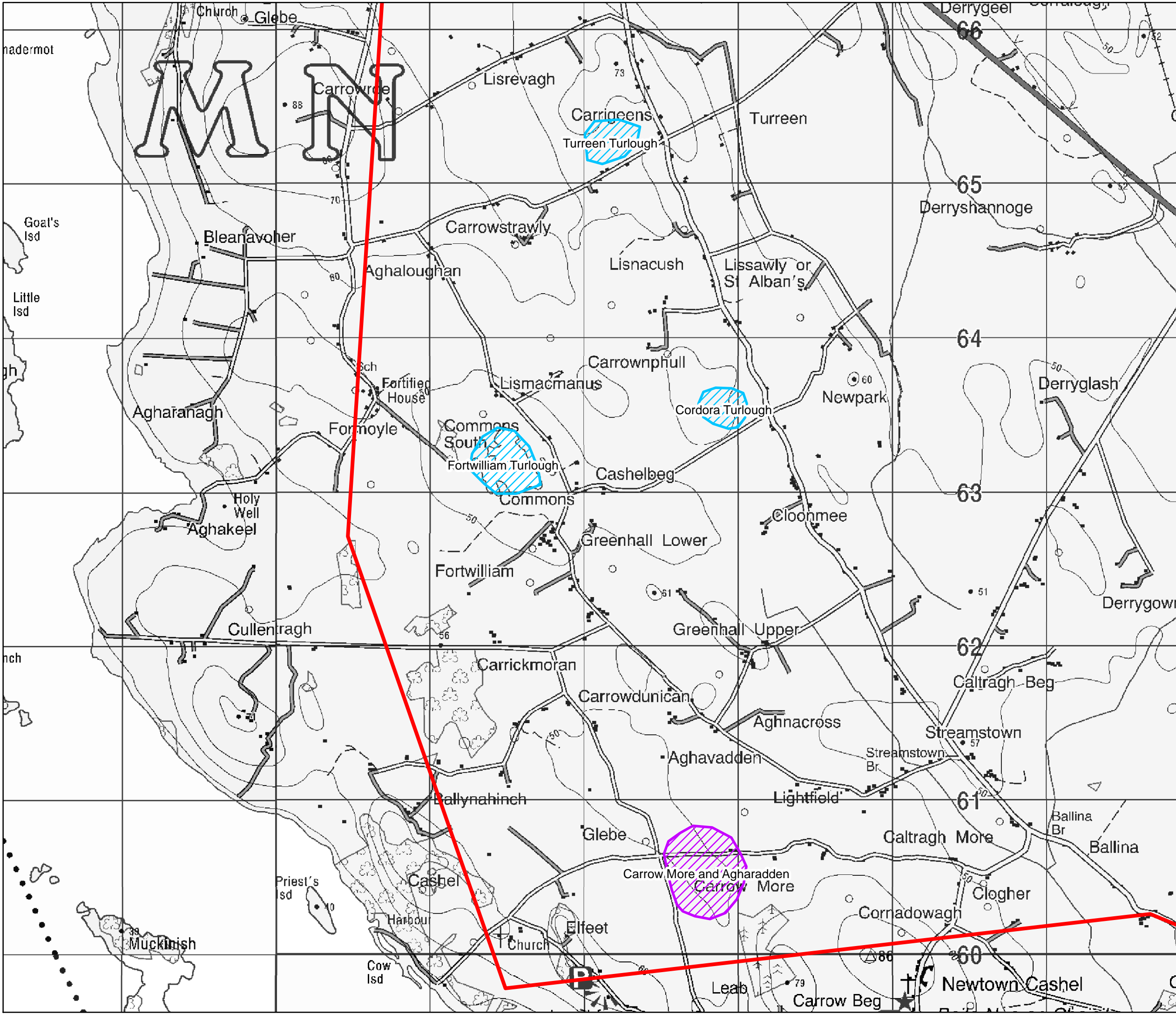
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Wetland Bird and Hinterland Surveys -
Sheet 2

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Hinterland Locations Of Note
-  Wetland Bird Survey Sites
-  Hinterland Survey Area



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Appendix II

Vantage Point Survey Watch Summary Table

Date	Observer	VP	Start Time	Finish Time	Length of VP watch (hrs)	Weather	Visibility
24/10/2016	JNM	1	16.00	19.00	3	Fine, dry sunny day, wind slack N, veered W-SW, temp 12 C	Good
25/10/2016	JNM	1	8.00	11.00	3	Heavy fog all morning, lifted at 10.45, calm and still, temp 0-4 C	Poor
26/10/2016	CMC	5	16.00	19.00	3	Cloud 8/8, slack wind SW, temp 13 C	Good
26/10/2016	HD	6	16.30	19.30	3	Cloud 7/8, some brighter spells, wind calm, temp 12-14 C	Good
26/10/2016	JNM	3	16.30	19.30	3	Wet and damp morning, drizzle, dark and overcast, wind F2-3 SW, temp 10-13 C	Moderate
27/10/2016	CMC	6	7.30	10.30	3	Cloud 8/8, wind F2-3 SW, temp 12 C	Good
27/10/2016	HD	5	7.30	10.30	3	Mainly calm, cloud 8/8, some light drizzle, wind F0-1 SW, occ. gusting F2-3, temp 14 C	Good - Moderate
27/10/2016	JNM	3	7.30	10.30	3	Dry, low cloud, mist from 10.00, wind F2-3 W-SW, temp 13 C	Moderate
27/10/2016	CMC	8	12.00	15.00	3	Cloud 8/8, wind F3 SW, temp 13 C	Good - Moderate
27/10/2016	HD	7	12.00	15.00	3	Cloud 8/8, mild, light drizzle from 14.00, wind F2, occ. F3 SW, temp 13-14 C	Good - Moderate
27/10/2016	JNM	4	12.00	15.00	3	Dry and dull, low cloud cover, wind F2-3 S-SW, temp 13 C	Moderate
27/10/2016	HD	9	16.00	19.00	3	Cloud 8/8, dull, light drizzle, wind F1, occ. gusting F2-3 SW, temp 14 C	Good - Moderate
27/10/2016	CMC	10	16.00	19.00	3	Cloud 8/8, raining, wind F3-4 SW, temp 11 C	Moderate
27/10/2016	JNM	11	16.00	19.00	3	Dry afternoon and evening, wind F2-3 S-SW, temp 13 C	Moderate
28/10/2016	JNM	9	9.00	12.00	3	Mild, damp morning, dried up by mid-morning, wind slack S-SW, temp 13-14 C	Moderate
28/10/2016	HD	10	9.00	12.00	3	Cloud 8/8, misty, rain from 11, wind calm, temp 14-15 C	Good - Poor
02/11/2016	HD	8	15.00	18.00	3	Cloud 8/8, very dull, light drizzle, wind F0, occ. F1 NW, temp 10-11 C	Moderate
02/11/2016	JNM	7	14.30	17.30	3	Dry, cold sunny day, dull evening, wind slack NW, temp 10-11 C	Good
03/11/2016	JNM	2	7.00	10.00	3	Damp, wet dull morning, wind F3-4 SW, temp 7-9 C	Poor
03/11/2016	HD	4	7.00	10.00	3	Cloud 8/8, some light rain, wind F0-2 SW, temp 7-9 C	Moderate
03/11/2016	HD	2	14.30	17.30	3	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate
03/11/2016	JNM	12	14.30	17.30	3	Damp with some misty showers, dry and bright towards evening, wind F3-4 W-NW, temp 7-9 C	Moderate
04/11/2016	HD	11	9.00	12.00	3	Cloud 2/8, sunny, wind F1, occ. gusting F2-3 W-SW, temp 6-9 C	Excellent
04/11/2016	JNM	12	9.00	12.00	3	Nice, dry cold morning with prolonged sunny spells, wind F1-2 W-NW, temp 7 C	Good
08/11/2016	JNM	1	14.30	17.30	3	Very wet morning with mist and heavy rain showers, low cloud cover, wind slack S-SW, temp 8-9 C	Poor
09/11/2016	JNM	1	7.00	10.00	3	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate
15/11/2016	MK	8	14.30	17.30	3	Cloud 1/8, dry, wind F1 NW, temp 11 C	Good
15/11/2016	HD	9	14.30	17.30	3	Cloud 4/8, mild and calm, sunny spells, wind F0-1 SW, temp 12-13 C	Good
16/11/2016	MK	9	7.00	10.00	3	Cloud 4/8, showers early on, dry later, wind F1-2 SW, temp 8 C	Good
16/11/2016	HD	8	7.00	10.00	3	Cloud 5/8, light breeze, cold and dull, occasional light rain, wind F1-2, occ. F3 SW, temp 8 C	Good
16/11/2016	MK	5	14.30	17.30	3	Cloud 6/8, dry, wind F1-2 SW, temp 8 C	Good
16/11/2016	HD	6	14.30	17.30	3	Cloud 3/8, mainly calm, sunny, wind F0-1 SW, temp 8-11 C	Good
16/11/2016	JNM	7	14.30	17.30	3	Dry day with sunny spells, wind F2-3 W-SW, temp 8-10 C	Good

17/11/2016	JNM	7	7.30	10.30	3	Very cold wet morning, sleet and snow showers, sunshine at 11.00, wind F2 - 4/5 W, temp 0-4 C	Moderate
17/11/2016	HD	5	7.00	10.00	3	Cloud 7/8, snow and light rain followed by clear and bright conditions, wind F0-1 SW, temp 1-3 C	Good-Moderate
17/11/2016	MK	6	7.00	10.00	3	Cloudy, rain, sleet, snow, wind F2-4 SW, temp 1-4 C	Good
17/11/2016	JNM	3	14.30	17.30	3	Very cold and wet with sleet and snow showers, dry in afternoon, wind F2 - 4/5 W, temp 0-4 C	Moderate
17/11/2016	HD	10	14.30	17.30	3	Cloud 8/8, rain, cold, wind F1, occ. F2 SW, temp 4 C	Moderate
17/11/2016	MK	11	14.30	17.30	3	Cloud 8/8, rain, cold, wind F2-4 SW, temp 4 C	Good
18/11/2016	JNM	3	9.00	12.00	3	Cold and wintry morning, heavy frost and ice, sleet, some sun, wind F1-2 W, temp 0-4 C	Moderate
18/11/2016	HD	11	9.00	12.00	3	Sun with rain, sleet and snow from 10.30 onwards, wind F1-2 SW, temp 2 C	Excellent - Moderate
18/11/2016	MK	10	9.00	12.00	3	Cloud 7/8, sunny spells, mostly dry with some thunder showers, wind F2-4 SW, temp 1-2 C	Good
24/11/2016	JNM	4	8.00	11.00	3	Extremely cold, ice and freezing fog in early morning, sunshine and dry later on, wind slack F1-2 NE, temp -4-1 C	Good
24/11/2016	JNM	2	11.15	14.15	3	Cold and dry, strong low sunshine, wind slack F1-2 NE, temp 5-7 C	Good
24/11/2015	JNM	12	14.30	17.30	3	Dry sunny day with heavy frost and cold conditions, wind slack F1-2 NE, temp 2-6 C	Good
25/11/2016	JNM	12	8.00	11.00	3	Very heavy freezing fog, extremely cold, still and calm conditions, temp -4-2 C	Poor
25/11/2016	JNM	2	11.15	14.15	3	Heavy fog and mist, freezing fog and ice over previous night, fog cleared at 14.00, wind slack E, temp -4-2 C	Poor
25/11/2016	JNM	4	14.30	17.30	3	Dense fog cleared, some sun, dry, wind calm, temp 1 C	Poor
05/12/2016	MK	2	14.00	17.00	3	Cloud 8/8, wind F1 SE, temp 8 C	Good
05/12/2016	HD	4	14.00	17.00	3	Cloud 8/8, foggy, mainly calm and still, wind occ. F1 SE, temp 6 C	Moderate
06/12/2016	HD	2	7.30	10.30	3	Cloud 8/8, misty and dull, mainly calm, rain from 9.15, wind occ. F1-2 SW, temp 8-10 C	Moderate
06/12/2016	MK	4	7.30	10.30	3	Cloud 8/8, misty and showers, rain from 09.40, wind F2-4 N, temp 8 C	Good
06/12/2016	JNM	3	10.30	13.30	3	Damp wet morning, light showers, cloud 8/8, wind slack S, temp 9-12 C	Fair
06/12/2016	HD	5	11.00	14.00	3	Cloud 8/8, dull, light rain, wind F1-2 SW, temp 10-11 C	Moderate
06/12/2016	MK	6	11.00	14.00	3	Cloud 8/8, rain, wind F2-5 SE, temp 8 C	Good
06/12/2016	JNM	8	14.00	17.00	3	Dull and damp, light showers, wind F1-2 S-SW, temp 9-12 C	Fair
06/12/2016	MK	5	14.15	17.15	3	Misty, windy, overcast, wind F2-5 SE, temp 8 C	Good
06/12/2016	HD	6	14.15	17.15	3	Cloud 8/8, dull, rain from 15.30, wind F3 S, temp 10 C	Moderate
07/12/2016	MK	9	7.30	10.30	3	Cloud 8/8, slight drizzle early on, windy F4-5 SE, temp 14 C	Good
07/12/2016	JNM	8	7.30	10.30	3	Dark, dull, damp morning, some light showers, wind F2-3 S-SW, temp 10-15 C	Moderate
07/12/2016	HD	7	7.30	10.30	3	Cloud 8/8, very overcast and dull, very blustery, light rain from 9.30, wind F2, occ. F3-4 S-SW, temp 14 C	Good
07/12/2016	HD	9	14.00	17.00	3	Cloud 8/8, drizzle, wind F0-2 SW, temp 14 C	Good
07/12/2016	JNM	3	14.00	17.00	3	Dull afternoon with some dry spells, light showers, wind F3-4 S-SW, temp 10-15 C	Moderate
07/12/2016	MK	7	14.15	17.15	3	Cloud 8/8, rain early on, wind F3-4 SE, temp 15 C	Good
12/12/2016	AC	1	8.05	11.05	3	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good
12/12/2016	AC	12	13.45	16.45	3	Cloud 8/8, light rain and mist from 14.14, wind F0-1 SE, temp 9 C	Moderate - Poor
13/12/2016	AC	12	8.05	11.05	3	Cloud 8/8 clearing slightly to 7/8 from 10.50, light rain, sunshine from 09.25 - 10.50, wind F1-4 SE, temp 10 C	Good

13/12/2016	JNM	10	10.30	13.30	3	Dry dull morning, some sunny spells later on, wind F2-4 S-SW, temp 8-11 C	Good
13/12/2016	JNM	11	13.30	16.30	3	Dry dull day with some sunny spells, wind F2-4 S-SW, temp 9-11 C	Good
13/12/2016	AC	1	13.50	16.50	3	Cloud 8/8, heavy rain from 15.50, wind F1-3 SE, temp 10 C	Good - Poor
14/12/2016	JNM	11	8.00	11.00	3	Calm, dull, dark morning, cloud 8/8, light showers, still and calm, temp 9-10 C	Moderate
14/12/2016	JNM	10	11.15	14.15	3	Dry dull morning, low cloud cover, occ. light shower, still and calm, temp 9-10 C	Good
10/01/2017	HD	11	10.30	13.30	3	Cloud 7/8 clearing to 5/8, some sun, dull and breezy, wind F3-4 W, temp 10-12 C	Good
10/01/2017	MK	10	10.30	13.30	3	Cloud 7/8 clearing to 5/8, dry and breezy, wind F2-4 W-SW, temp 9 C	Good
10/01/2017	JNM	7	10.30	13.30	3	Damp, wet overcast morning with misty spells of rain, wind F3-5 NW, temp 10 C	Good - Moderate
10/01/2017	JNM	6	14.00	17.00	3	Overcast and damp, some drizzle then dry later, wind F1-5 NW, temp 10 C	Good
10/01/2017	HD	10	14.00	17.00	3	Sunny and breezy with slight haze, mainly calm, wind F2-3 W with gusts, wind increased at dusk, temp 11-12 C	Good
10/01/2017	MK	11	14.00	17.00	3	Cloud 4-5/8, dry sunny and calm, wind F1-3 W, slight gusts in evening, temp 9-12 C	Good
11/01/2017	JNM	6	8.00	11.00	3	Dry cold morning with sunny spells, wind F4-5 NW, temp 6-7 C	Good
11/01/2017	MK	5	8.00	11.00	3	Cloud 8/8 clearing to 5/8, cold and dry with sunny spells, wind F2-4 NW, temp 7 C	Good
11/01/2017	HD	3	8.00	11.00	3	Dull, cold morning, hazy, light breeze, cloud 3-4/8, wind F1-2, occ F3-4 west, temp 6-7 C	Moderate
11/01/2017	MK	3	14.00	17.00	3	Cloud 6/8, dry cold and blustery, drizzle and showers at times, wind F2-5 NW-W, temp 7 C	Good
11/01/2017	HD	5	14.00	17.00	3	Cloud 6/8, dull and fresh, light showers, some sunny spells, mainly light breeze, wind F1-2 W increasing to F3-4, temp 7 C	Moderate
11/01/2017	JNM	7	14.00	17.00	3	Dry with nice sunny spells, wind F4-5 NW, temp 10 C	Good
12/01/2017	MK	8	8.00	11.00	3	Cloud 8/8 clearing to 6/8, dry and calm, cold, wind F1 NW-W, temp 2 C	Good
12/01/2017	HD	9	8.00	11.00	3	Cloud 8/8 clearing to 5/8, dull, mainly calm, wind occ. F1 increasing to F2-3 SW from 09.00, temp 1-3 C	Moderate
12/01/2017	HD	8	12.30	15.30	3	Cloud 4/8, sunny cold and windy, brief snow shower at 14.00 then clear, wind F1-3 W-NW, temp 3 C	Excellent - Poor (during snow)
12/01/2017	MK	9	12.30	15.30	3	Cloud 5/8, snow at 14.00 which cleared quickly, cold, wind F2-3 NW, temp 3 C	Good
23/01/2017	HD	1	11.30	14.30	3	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good
23/01/2017	MK	12	11.30	14.30	3	Cloud 5/8, sunny spells with light breeze, wind F1-3 S, temp 7 C	Good
23/01/2017	MK	1	15.00	18.00	3	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good
23/01/2017	HD	12	15.00	18.00	3	Cloud 6/8, dull and breezy, slight fog, breeze calming later, wind F2-3 S, later F0-1, temp 5-9 C	Moderate
24/01/2017	MK	2	7.30	10.30	3	Light drizzle early on but mostly dry, cloud 8/8, wind F2-4 S-SW, temp 6 c	Good
24/01/2017	HD	4	7.30	10.30	3	Cloud 8/8, dull damp day, some drizzle at start then dry, wind F1-2 S, temp 11-12 C	Moderate
24/01/2017	HD	2	12.00	15.00	3	Mild, dull and overcast, cloud 8/8, wind F1-3 SW, temp 11-13 C	Moderate
24/01/2017	MK	4	12.00	15.00	3	Cloud 8/8, mild and overcast with slight drizzle, wind F2-4 SE, temp 11 C	Good

01/02/2017	AC	2	10.30	13.30	3	Cloud 3/8 increasing to 8/8, sunny, rain from 13.00, wind F2-4 SE, changing to SW from 12.00, temp 8-9 C	Good
01/02/2017	AC	4	14.30	17.35	3	Cloud 8/8, rain showers, wind F2-4 SW gusting, temp 9 C	Moderate - Poor
01/02/2017	MK	10	14.30	17.30	3	Heavy rain with strong gusts, wind F3-5 SE, temp 8 C	Moderate - Poor
01/02/2017	HD	11	14.30	17.30	3	Cloud 8/8, dull and grey, occ. drizzle, wind calming from 15.30, some rain, wind F1-3, occ. gusting F4 SE, temp 8-9 C	Moderate - Poor
02/02/2017	HD	10	7.30	10.30	3	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate
02/02/2017	MK	11	7.30	10.30	3	Heavy downpours and gusts, cleared from 09.50, wind F1-4 SW, temp 11 C	Good - Poor
02/02/2017	AC	4	7.45	10.45	3	Cloud 8/8, heavy rain showers, wind F2-4 SE, gusting F5, temp 11 C	Moderate - Good
02/02/2017	HD	3	12.00	15.00	3	Cloud 5/8 increasing to 8/8, dull and breezy, drizzle from 13.30, wind F1-2 S-SE, temp 11 C	Moderate
02/02/2017	MK	5	12.00	15.00	3	Cloud 8/8, light showers, wind F2-4 SW gusting, temp 11 C	Good
02/02/2017	AC	1	12.45	15.45	3	Cloud 8/8, rain showers, wind F2-4 S, temp 11 C	Moderate - Good
08/02/2017	AC	12	10.20	13.20	3	No cloud, hazy sunshine, wind F0-2 S-SE, temp 2-4 C	Good
08/02/2017	AC	2	15.00	18.00	3	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good
09/02/2017	AC	12	7.30	10.30	3	Cloud 8/8 clearing to 7/8 at 09.45, intermittent sunshine, wind F2-4 SE, temp 3-5 C	Good
09/02/2017	HD	9	12.00	15.00	3	Cloud 5/8, very cold and windy, some sunny spells, wind F2-4 SE, temp 6-7 C	Moderate
09/02/2017	MK	7	12.00	15.00	3	Cloud 5/8, hazy and blustery, wind F2-4 SE, temp 4 C	Good
09/02/2017	AC	8	15.00	18.00	3	Cloud 7/8, wind F2-4 SE, temp 2-5 C	Good
09/02/2017	HD	7	15.15	18.15	3	Cloud 8/8, dull, light intermittent breeze, hazy, wind F1-2, occ. F3 SE, temp 7 C	Moderate
09/02/2017	MK	9	15.15	18.15	3	Cloud 8/8, cold and mostly dry with some drizzle, wind F2-4 SE, temp 3 C	Good
10/02/2017	AC	1	7.20	10.20	3	Cloud 8/8, wind F0-1 E, temp 2 C	Good
10/02/2017	HD	5	7.30	10.30	3	Cloud 8/8, calm, dull, slight haze, temp 2-3 C	Good
10/02/2017	MK	6	7.30	10.30	3	Cloud 8/8, dry cold and calm, wind slack, temp 2 C	Good
10/02/2017	MK	3	12.00	15.00	3	Overcast, cold, slack wind F0-1 SE, temp 3 C	Good
10/02/2017	HD	6	12.00	15.00	3	Cloud 8/8, dull day, slight haze, mainly calm, wind F0-1 NE, temp 4 C	Moderate
10/02/2017	AC	8	12.30	15.30	3	Cloud 8/8, wind F0-1 E, temp 2-3 C	Moderate - Good
02/03/2017	JNM	9	7.00	10.00	3	Dry morning, wind F2 SW-W, temp 4-7 C	Good
02/03/2017	JNM	8	16.00	19.00	3	Wet and moderate wind, temp 6-7 C	Good
03/03/2017	JNM	8	7.00	10.00	3	Wet, heavy rain at times, wind F2-3 N, temp 4-6 C	Moderate
03/03/2017	JNM	9	10.15	13.15	3	Wet, heavy rain at times, wind F2-3 N, temp 4-6 C	Moderate
22/03/2017	HD	10	13.00	16.00	3	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good
22/03/2017	MK	10	16.30	19.30	3	Cloud 8/8, mist and drizzle, cold, wind strong F2-4 NE, temp 6 C	Good
22/03/2017	MK	11	13.30	16.30	3	Cloud 6/8, blustery with strong gusts at times, some sunny hazy spells, wind F3-4 NE, temp 8-9 C	Good
22/03/2017	HD	11	16.30	19.30	3	Cloud 8/8, dull and breezy, drizzle, wind F1-4 N, temp 6-8 C	Moderate
22/03/2017	JNM	3	10.30	13.30	3	Dry with sunny spells, wind cold F2-3 N-NW, temp 7 C	Good
22/03/2017	JNM	1	16.30	19.30	3	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good
23/03/2017	JNM	3	6.00	9.00	3	Dry morning, overcast, cold easterly wind F1-2/3 E, temp 5 C	Good
23/03/2017	JNM	4	16.30	17.30	3	Dry morning, overcast, cold wind F1-2/3 changing from E to N, temp 5 C	Good

23/03/2017	HD	5	6.00	9.00	3	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good
23/03/2017	MK	5	16.30	19.30	3	Cloud 7/8 clearing to 5/8, hazy sunshine, wind F1-3 NE, temp 6-8 C	Good
23/03/2017	MK	6	6.00	9.00	3	Overcast, cold and calm, wind F1-2 NE, temp 4 C	Good
23/03/2017	HD	6	16.30	19.30	3	Cloud 5/8 clearing to 2/8, sunny, mild and bright evening, wind mainly calm F0-1 NE, temp 11-13 C	Good
23/03/2017	AC	7	9.00	12.00	3	Cloud 8/8, wind F1-3 NE, temp 6 C	Good
23/03/2017	AC	12	16.20	19.20	3	Cloud 7/8 clearing to 1/8 from 19.00, hazy sunshine, wind F1-2 NE, calm from 19.00, temp 6-8 C	Good
24/03/2017	AC	7	5.50	8.50	3	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good
24/03/2016	MK	4	10.30	13.30	3	Cloud 4/8, bright sunny day, wind F1-2 NE, temp 11 C	Good
24/03/2017	HD	2	10.00	13.00	3	Cloud 2/8, bright, sunny and warm, wind F0 mainly, occ. F1 NE, temp 11-14 C	Excellent
24/03/2017	AC	12	12.05	15.05	3	Cloud 2.8, sunshine, wind F1-3 NE, temp 10-13 C	Good
24/03/2017	JNM	1	10.00	13.00	3	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good
28/03/2017	AC	2	17.30	20.30	3	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good

Appendix III

Vantage Point Survey Results Summary Table

Black-headed Gull																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	1	Unknown	Adult	7	River	8.31	Flying	10	-	56	-	-	-	
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	2	Unknown	Adult	59	River	8.10	Flying	2-5	-	60	-	-	-	
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	3a	Unknown	Unknown	40	Road/ improved grazing	8.01	Flying	15-20	-	-	30	-	-	
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	3a	Unknown	Unknown	40	Road/ improved grazing	8.07	Flying	20-25	-	-	35	-	-	
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	3b	Unknown	Unknown	35	Road/ improved grazing	8.35	Flying	30	-	-	30	-	-	
23/03/2017	6	Cloud 5/8 clearing to 2/8, sunny, mild and bright evening, wind mainly calm F0-1 NE, temp 11-13 C	Good	4	Unknown	Adult	90	Woodland/ rough grazing/ scrub	18.04	Circling/ flying	40-60	-	-	70	10	-	
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	5	Unknown	Adult	25	River	18.59	Flying	15	-	-	6	-	-	
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good		Unknown	Adult	72	River/ woodland	19.25	Flying	10-50	-	15	10	20	-	-
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good		Unknown	Adult	15	River	20.05	Flying	20	-	-	12	-	-	-
												0	131	193	30	0	0

Buzzard																
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category				
												Non-flight	0-10m	10-50m	50-100m	100-200m
24/10/2016	1	Fine, dry sunny day, wind slack N, veered W-SW, temp 12 C	Good	1	Unknown	Juvenile	1	Improved farmland/ rough grazing	16.30	Flying/ hunting	2-3	-	60	-	-	-
26/10/2016	5	Cloud 8/8, slack wind SW, temp 13 C	Good	2	Unknown	Unknown	1	Cutover/ scrub	18.15	Perched	n/a	1800	-	-	-	-
27/10/2016	5	Mainly calm, cloud 8/8, some light drizzle, wind F0-1 SW, occ. gusting F2-3, temp	Good - Moderate	3	Unknown	Unknown	1	Improved grazing/ scrub	9.49	Flying	25-30	-	-	21	-	-

Buzzard																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
		14 C															
09/11/2016	1	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate	4	Unknown	Immature	1	Improved grassland	8.33	Soaring	4-50	-	15	45	-	-	-
16/11/2016	6	Cloud 3/8, mainly calm, sunny, wind F0-1 SW, temp 8-11 C	Good	5a	Unknown	Adult	1	Cutover/ tree line	16.46	Hunting/ flying	18	-	-	43	-	-	-
16/11/2016	6	Cloud 3/8, mainly calm, sunny, wind F0-1 SW, temp 8-11 C	Good	5b			2	Cutover/ tree line	16.51	Flying/ fighting	20-60	-	-	62	10	-	-
17/11/2016	5	Cloud 7/8, snow and light rain followed by clear and bright conditions, wind F0-1 SW, temp 1-3 C	Good-Moderate	6	Unknown	Unknown	1	Scrub	9.02	Soaring/ circling	50-60	-	-	-	6	-	-
17/11/2016	11	Cloud 8/8, rain, cold, wind F2-4 SW, temp 4 C	Good	7	Unknown	Adult	1	Thicket	17.00	Flying	50-100	-	-	-	120	-	-
06/12/2016	6	Cloud 8/8, rain, wind F2-5 SE, temp 8 C	Good	8	Unknown	Unknown	1	Scrub	13.06	Flying	0-10	-	5	-	-	-	-
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	9	Unknown	Adult	1	Pasture	9.24	Perched	n/a	60	-	-	-	-	-
13/12/2016	1	Cloud 8/8, heavy rain from 15.50, wind F1-3 SE, temp 10 C	Good - Poor	10	Unknown	Adult	2	Pasture	14.26	Perched	n/a	720	-	-	-	-	-
13/12/2016	12	Cloud 8/8 clearing slightly to 7/8 from 10.50, light rain, sunshine from 09.25 - 10.50, wind F1-4 SE, temp 10 C	Good	11	Unknown	Adult	1	Cutover/ woodland	10.15	Hunting	80	-	-	-	40	-	-
11/01/2017	5	Cloud 8/8 clearing to 5/8, cold and dry with sunny spells, wind F2-4 NW, temp 7 C	Good	12	Unknown	Adult	1	Conifer forestry	10.12	Circling	50-100	-	-	-	10	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	13	Unknown	Adult	1	Improved grazing	13.55	Soaring/ circling	90-100	-	-	-	45	-	-
10/01/2017	7	Damp, wet overcast morning with misty spells of rain, wind F3-5 NW, temp 10 C	Good - Moderate	14	Unknown	Adult	1	Forestry/ improved grazing/ cutover	12.04	Soaring	50-80	-	-	-	120	-	-
10/01/2017	11	Cloud 4-5/8, dry sunny and calm, wind F1-3 W, slight gusts in evening, temp 9-12 C	Good	15	Unknown	Adult	1	Forestry	15.38	Circling	50-100	-	-	-	30	-	-

Buzzard																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
09/02/2017	8	Cloud 7/8, wind F2-4 SE, temp 2-5 C	Good	n/a	Unknown	Unknown	1	Pasture	14.58	Hunting outside site	-	-	-	-	-	-	
09/02/2017	12	Cloud 8/8 clearing to 7/8 at 09.45, intermittent sunshine, wind F2-4 SE, temp 3-5 C	Good	16	Unknown	Unknown	1	Pasture	8.29	Hunting outside site	-	-	-	-	-	-	
22/03/2017	11	Cloud 6/8, blustery with strong gusts at times, some sunny hazy spells, wind F3-4 NE, temp 8-9 C	Good	17	Unknown	Adult	1	Conifer forestry	15.33	Soaring	200-300	-	-	-	-	180	
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	18	Unknown	Unknown	1	Improved grazing	15.00	Soaring/ circling	200	-	-	-	-	26	
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	19	Unknown	Unknown	1	Woodland/ revegetating bog/ cutover	6.48	Mobbed/ flying/ soaring	5-20	-	12	37	-	-	
24/03/2017	4	Cloud 4/8, bright sunny day, wind F1-2 NE, temp 11 C	Good	20	Unknown	Unknown	2	Conifer forestry/ scrub	11.00	Soaring/circling outside site	230	-	-	-	-	60	
24/03/2017	12	Cloud 2.8, sunshine, wind F1-3 NE, temp 10-13 C	Good	21a	Unknown	Adult	1	Scrub/ cutover	12.55	Hunting	70-200	-	-	-	60	60	20
24/03/2017	12	Cloud 2.8, sunshine, wind F1-3 NE, temp 10-13 C	Good	21b	Unknown	Adult	1	Scrub	12.57	Hunting	200	-	-	-	-	-	30
												2,580	92	208	441	60	316

Coot																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	1	Unknown	Adult	2	River	16.30	On water	n/a	10800	-	-	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	2	Unknown	Adult	4	River	10.00	On water	n/a	10800	-	-	-	-	-
												21,600	0	0	0	0	0

Cormorant																
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category				
												Non-flight	0-10m	10-50m	50-100m	100-200m
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	1	Unknown	Unknown	1	River	13.15	Flying	1	-	13	-	-	-
24/01/2017	2	Light drizzle early on but mostly dry, cloud 8/8, wind F2-4 S-SW, temp 6 C	Good	2	Unknown	Adult	3	River	8.35	Flying	20-40	-	-	30	-	-
01/02/2017	2	Cloud 8/8, wind F0-1 E, temp 2 C	Good	3	Unknown	Adult	1	River	11.19	Flying	30	-	-	12	-	-
08/02/2017	2	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good	4a	Unknown	Adult	1	River	15.02	Flying	80	-	-	-	20	-
08/02/2017	2	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good		Unknown	Adult	1	River	15.22	Flying	80	-	-	-	15	-
08/02/2017	2	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good		Unknown	Adult	1	River	15.33	Flying	80	-	-	-	17	-
08/02/2017	2	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good		Unknown	Adult	2	River	16.05	Flying	80	-	-	-	20	-
08/02/2017	2	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good	4b	Unknown	Adult	1	River	15.38	Flying	100	-	-	-	-	22
08/02/2017	2	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good		Unknown	Adult	2	River	16.36	Flying	80	-	-	-	16	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	5	Unknown	Adult	2	River	8.59	Flying	10	-	15	-	-	-
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	6	Unknown	Adult	3	River	16.30	On water	n/a	10800	-	-	-	-
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	7	Unknown	Adult	1	Cutover/revegetating bog/ scrub	7.15	Flying	35-40	-	-	35	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	n/a	Unknown	Adult	1	River	10.00	On ground	n/a	10800	-	-	-	-
24/03/2017	2	Cloud 2/8, bright, sunny and warm, wind F0 mainly, occ. F1 NE, temp 11-14 C	Excellent	8	Unknown	Unknown	2	Rough grazing/ woodland/ river	11.07	Flying	40	-	-	8	-	-
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	9a	Unknown	Adult	2	River	18.02	Flying	15	-	-	10	-	-
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good		Unknown	Adult	2	River	18.42	Flying	15	-	-	10	-	-
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good		Unknown	Adult	5	River	19.01	Flying	10	-	-	8	-	-

28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	9b	Unknown	Adult	1	River	19.20	Flying	12	-	-	7	-	-	-
												21,600	28	120	88	22	0

Curlew																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	1	Unknown	Adult	1	River bank	16.30	On ground	n/a	10800	-	-	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	2	Unknown	Adult	2	River bank	10.00	On ground	n/a	10800	-	-	-	-	-
												21,600	0	0	0	0	0

Hen Harrier																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
27/10/2016	5	Mainly calm, cloud 8/8, some light drizzle, wind F0-1 SW, occ. gusting F2-3, temp 14 C	Good - Moderate	1	Male	Adult	1	Revegetating bog/ cutover/ scrub	10.07	Flying/ hunting	1-19	-	40	5	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	2	Female	Adult	1	River bank/ reedbed/scrub	13.00	Flying/ hunting	2-3	-	120	-	-	-	-
												0	160	5	0	0	0

Golden Plover																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
26/10/2016	3	Wet and damp morning, drizzle, dark and overcast, wind F2-3 SW, temp 10-13 C	Moderate	1	Unknown	Unknown	30	Cutover bog/ rough grazing	17.35	Flying	80-100	-	-	-	60	-	-
27/10/2016	6	Cloud 8/8, wind F2-3 SW, temp 12 C	Good	2	Unknown	Unknown	2	Cutover bog/ scrub	9.17	Flying	20	-	-	10	-	-	-
27/10/2016	9	Cloud 8/8, dull, light drizzle, wind F1, occ. gusting F2-3 SW, temp 14 C	Good - Moderate	3a	Unknown	Unknown	3	Cutover	18.02	Flying	3-4	-	61	-	-	-	-
27/10/2016	9	Cloud 8/8, dull, light drizzle, wind F1, occ. gusting F2-3 SW, temp 14 C	Good - Moderate	3b	Unknown	Unknown	3	Cutover	18.03	On ground	n/a	3480	-	-	-	-	-

Golden Plover																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
03/11/2016	2	Damp, wet dull morning, wind F3-4 SW, temp 7-9 C	Poor	4	Unknown	Unknown	7	Improved grazing/ cutover/ river	10.00	Flying	100-130	-	-	-	-	40	-
17/11/2016	5	Cloud 7/8, snow and light rain followed by clear and bright conditions, wind F0-1 SW, temp 1-3 C	Good-Moderate	5	Unknown	Unknown	69	Cutover/ revegetating bog	10.00	Flying	70-90	-	-	-	90	-	-
07/12/2016	8	Dark, dull, damp morning, some light showers, wind F2-3 S-SW, temp 10-15 C	Moderate	6	Unknown	Adult	45	Cutover	10.25	Flying	300	-	-	-	-	-	60
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	7a	Male and female	Unknown	35	Improved grazing/ rough grazing	12.44	Flying	20	-	5	10	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	n/a	Male and female	Unknown	145	Freshly cut field	11.30	Feeding	n/a	8100	-	-	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	7b	Male and female	Unknown	20	River/ improved grazing/ rough grazing	13.14	Flying	15-20	-	-	12	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	7c	Male and female	Unknown	200	Improved grazing/ rough grazing/ river	13.44	Flying/ circling	100	-	-	-	107	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	7d	Male and female	Unknown	90	Riverbank/ reedbed	13.46	Flying/ feeding	0-40	2640	5	15	5	-	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good	n/a	Unknown	Unknown	320	Improved grazing/ rough grazing/ river/ reedbed	15.00	Feeding	n/a	6300	-	-	-	-	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good	8a	Unknown	Unknown	100	Improved grazing/ rough grazing/ river/ reedbed	15.00	Flying	100-120	-	-	-	-	60	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good	8b	Unknown	Unknown	300	Improved grazing/ rough grazing/ river/ reedbed	16.45	Flying	100-200	-	-	-	-	60	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good	8c	Unknown	Unknown	100	Improved grazing/ rough grazing	16.47	Flying	100-200	-	-	-	-	60	-
24/01/2017	4	Cloud 8/8, dull damp day, some drizzle at start then dry, wind F1-2 S, temp 11-12 C	Moderate	9	Unknown	Unknown	21	Revegetating bog	7.30	On ground	n/a	10800	-	-	-	-	-

Golden Plover																
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category				
												Non-flight	0-10m	10-50m	50-100m	100-200m
24/01/2017	4	Cloud 8/8, dull damp day, some drizzle at start then dry, wind F1-2 S, temp 11-12 C	Moderate		Unknown	Unknown	6	Revegetating bog	10.08	Flying	0-3	-	4	-	-	-
24/01/2017	4	Cloud 8/8, mild and overcast with slight drizzle, wind F2-4 SE, temp 11 C	Good	10	Unknown	Unknown	30	Revegetating bog	12.00	On ground	n/a	300	-	-	-	-
24/01/2017	4	Cloud 8/8, mild and overcast with slight drizzle, wind F2-4 SE, temp 11 C	Good		Unknown	Unknown	30	Revegetating bog/ cutover/scrub	12.05	Flying	0-50	-	10	20	-	-
10/01/2017	7	Damp, wet overcast morning with misty spells of rain, wind F3-5 NW, temp 10 C	Good - Moderate	11	Unknown	Unknown	120	Revegetated cutover	10.30	On ground	n/a	10800	-	-	-	-
11/01/2017	7	Dry with nice sunny spells, wind F4-5 NW, temp 10 C	Good	12	Unknown	Adult	3	Cutover/ revegetating bog	14.00	On ground	n/a	10800	-	-	-	-
12/01/2017	9	Cloud 8/8 clearing to 5/8, dull, mainly calm, wind occ. F1 increasing to F2-3 SW from 09.00, temp 1-3 C	Moderate	13	Unknown	Adult	38	Cutover	8.00	On ground	n/a	10800	-	-	-	-
12/01/2017	9	Cloud 5/8, snow at 14.00 which cleared quickly, cold, wind F2-3 NW, temp 3 C	Good	14	Unknown	Unknown	40	Cutover	12.30	On ground	n/a	1800	-	-	-	-
12/01/2017	9	Cloud 5/8, snow at 14.00 which cleared quickly, cold, wind F2-3 NW, temp 3 C	Good		Unknown	Unknown		Cutover/ scrub	13.00	Flying	10-50	-	-	10	-	-
02/02/2017	3	Cloud 5/8 increasing to 8/8, dull and breezy, drizzle from 13.30, wind F1-2 S-SE, temp 11 C	Moderate	15	Unknown	Unknown	80	Cutover/ improved grazing	13.11	Flying	30-40	-	-	32	-	-
02/02/2017	3	Cloud 5/8 increasing to 8/8, dull and breezy, drizzle from 13.30, wind F1-2 S-SE, temp 11 C	Moderate		Unknown	Unknown	6	Cutover/ improved grazing	13.13	Flying	30-40	-	-	24	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	16	Unknown	Unknown	8	Rough grazing	7.50	On ground	n/a	3000	-	-	-	-
02/02/2017	4	Cloud 8/8, heavy rain showers, wind F2-4 SE, gusting F5, temp 11 C	Moderate - Good	17	Unknown	Adult	30	Improved grazing	9.16	Flying	15	-	-	4	-	-
02/02/2017	5	Cloud 8/8, light showers, wind F2-4 SW gusting, temp 11 C	Good	18	Unknown	Unknown	40	Cutover	12.50	Flying/ circling	50	-	-	-	40	-
02/02/2017	5	Cloud 8/8, light showers, wind F2-4 SW gusting, temp 11 C	Good		Unknown	Unknown	30	Cutover	13.00	Flying/ circling	50	-	-	-	20	-
02/03/2017	9	Dry morning, wind F2 SW-W, temp 4-7 C	Good	19	Unknown	Unknown	38	Cutover	7.00	On ground	n/a	10800	-	-	-	-

Golden Plover																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
03/03/2017	9	Wet, heavy rain at times, wind F2-3 N, temp 4-6 C	Moderate	20	Unknown	Unknown	33	Cutover	10.15	On ground	n/a	10800	-	-	-	-	-
22/03/2017	11	Cloud 8/8, dull and breezy, drizzle, wind F1-4 N, temp 6-8 C	Moderate	21	Unknown	Unknown	10	Cutover/ revegetating bog/ scrub	17.27	Flying/ circling	110-150	-	-	-	-	190	-
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	22	Unknown	Adult	56	Cutover	7.14	On ground	n/a	4860	-	-	-	-	-
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good		Unknown	Adult	56	Cutover/ revegetating bog/ scrub	8.35	Flying	10	-	8	-	-	-	-
												95,280	93	137	322	410	60

Great-crested grebe																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
25/10/2016	1	Heavy fog all morning, lifted at 10.45, calm and still, temp 0-4 C	Poor	1	Unknown	Unknown	1	River	-	On water	n/a	-	-	-	-	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	2	Unknown	Unknown	2	River	7.20	On water	n/a	10800	-	-	-	-	-
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	3	Unknown	Unknown	2	River	16.30	On water	n/a	10800	-	-	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	4	Unknown	Unknown	4	River	10.00	On water	n/a	10800	-	-	-	-	-
												32,400	0	0	0	0	0

Grey Heron																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate	1	Unknown	Juvenile	1	River/ reedbed/ rough grazing	15.45	Flying	1-11	-	3	10	-	-	-
16/11/2016	5	Cloud 6/8, dry, wind F1-2 SW, temp 8 C	Good	2	Unknown	Adult	1	Cutover/ scrub	15.35	Flying	10-50	-	-	30	-	-	-
16/11/2016	6	Cloud 3/8, mainly calm, sunny, wind F0-1 SW, temp 8-11 C	Good	3a	Unknown	Juvenile	1	Standing water/ peat mounds	15.38	Flying	15	-	-	11	-	-	-

Grey Heron																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
16/11/2016	6	Cloud 3/8, mainly calm, sunny, wind F0-1 SW, temp 8-11 C	Good	3b	Unknown	Juvenile		Standing water/ cutover	16.01	Flying	12-20	-	-	60	-	-	-
18/11/2016	10	Cloud 7/8, sunny spells, mostly dry with some thunder showers, wind F2-4 SW, temp 1-2 C	Good	4	Unknown	Adult	1	Scrub	11.19	Flying	10-50	-	-	25	-	-	-
18/11/2016	10	Cloud 7/8, sunny spells, mostly dry with some thunder showers, wind F2-4 SW, temp 1-2 C	Good		Unknown	Adult	1	Scrub	11.19	Perched	n/a	5	-	-	-	-	-
05/12/2016	2	Cloud 8/8, wind F1 SE, temp 8 C	Good	5a	Unknown	Adult	3	River/ woodland	15.30	Flying	0-10	-	8	-	-	-	-
05/12/2016	2	Cloud 8/8, wind F1 SE, temp 8 C	Good	5b	Unknown	Adult	3	River/ woodland	15.30	Flying	10-50	-	-	20	-	-	-
05/12/2016	2	Cloud 8/8, wind F1 SE, temp 8 C	Good	5c	Unknown	Adult	3	River/ woodland	15.30	On ground	n/a	600	-	-	-	-	-
06/12/2016	4	Cloud 8/8, misty and showers, rain from 09.40, wind F2-4 N, temp 8 C	Good	6a	Unknown	Adult	1	Cutover/ scrub	8.30	Flying	10-50	-	-	15	-	-	-
06/12/2016	4	Cloud 8/8, misty and showers, rain from 09.40, wind F2-4 N, temp 8 C	Good	6b	Unknown	Adult	1	Cutover	8.30	Flying	10-50	-	-	20	-	-	-
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	7a	Unknown	Adult	1	River/ pasture	8.22	Hunting	n/a	3600	-	-	-	-	-
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	7b	Unknown	Adult	2	Pasture	10.58	Flying	30	-	-	30	-	-	-
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	7c	Unknown	Adult	1	River	11.00	Flying	3	-	20	-	-	-	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good	8	Unknown	Adult	1	River	17.00	Flying	10	-	-	120	-	-	-
01/02/2017	10	Heavy rain with strong gusts, wind F3-5 SE, temp 8 C	Moderate - Poor	9	Unknown	Adult	1	Cutover/ scrub/ flooded bog/ forestry	15.00	Flying	30	-	-	30	-	-	-
02/02/2017	1	Cloud 8/8, rain showers, wind F2-4 S, temp 11 C	Moderate - Good	10	Unknown	Adult	1	River/ rough grazing	13.11	Flying	3	-	5	-	-	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	11a	Unknown	Adult	1	River	9.52	Flying	7	-	12	-	-	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	11b	Unknown	Adult	1	River	9.55	Flying	2	-	6	-	-	-	-
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	12	Unknown	Adult	2	River bank	16.30	On ground	n/a	10800	-	-	-	-	-
23/03/2017	3	Dry morning, overcast, cold easterly wind F1-2/3 E, temp 5 C	Good	13	Unknown	Adult	1	Cutover/ scrub	7.45	Flying	5	-	60	-	-	-	-

Grey Heron																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	14	Unknown	Adult	1	River bank	10.00	On ground	n/a	10800	-	-	-	-	-
												25,805	114	371	0	0	0

Kestrel																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
26/10/2016	5	Cloud 8/8, slack wind SW, temp 13 C	Good	1a	Male	Adult	1	Cutover	17.34	Flying/ hunting	30	-	-	60	-	-	-
26/10/2016	5	Cloud 8/8, slack wind SW, temp 13 C	Good	1b	Male	Adult	1	Cutover/ scrub	17.45	Flying	20	-	-	10	-	-	-
26/10/2016	5	Cloud 8/8, slack wind SW, temp 13 C	Good	1c	Male	Adult	1	Cutover/ scrub	18.29	Flying/ hunting/ circling	-	-	-	90	-	-	-
26/10/2016	3	Wet and damp morning, drizzle, dark and overcast, wind F2-3 SW, temp 10-13 C	Moderate	2	Male	Adult	1	Scrub/ cutover bog/ thicket	18.10	Hunting/ flying	2-10	-	600	-	-	-	-
27/10/2016	3	Dry, low cloud, mist from 10.00, wind F2-3 W-SW, temp 13 C	Moderate	3	Female	Immature	1	Cutover/ revegetating bog/ scrub	8.28	Hunting/ flying/ soaring	10-12	-	-	300	-	-	-
27/10/2016	4	Dry and dull, low cloud cover, wind F2-3 S-SW, temp 13 C	Moderate	4	Female	Adult	1	Scrub/ cutover/ revegetating bog/ rough grazing	13.00	Flying/ soaring/ circling	10-18	-	-	1200	-	-	-
27/10/2016	5	Mainly calm, cloud 8/8, some light drizzle, wind F0-1 SW, occ. gusting F2-3, temp 14 C	Good - Moderate	5	Unknown	Unknown	1	Scrub/ woodland	8.21	Hunting	20	-	-	16	-	-	-
03/11/2016	4	Cloud 8/8, some light rain, wind F0-2 SW, temp 7-9 C	Moderate	6a	Unknown	Adult	1	Rough grazing	8.50	Flying/ hunting	5-18	-	2	11	-	-	-
03/11/2016	4	Cloud 8/8, some light rain, wind F0-2 SW, temp 7-9 C	Moderate	6b	Unknown	Adult	1	Rough and improved grazing	9.02	Hunting	8-20	-	3	19	-	-	-
03/11/2016	4	Cloud 8/8, some light rain, wind F0-2 SW, temp 7-9 C	Moderate	6c	Unknown	Adult	1	Rough grazing/ scrub/ cutover	9.22	Flying/ hunting	8-25	-	30	180	-	-	-
03/11/2016	4	Cloud 8/8, some light rain, wind F0-2 SW, temp 7-9 C	Moderate		Unknown	Adult	1	Scrub		Perched	n/a	50	-	-	-	-	-
09/11/2016	1	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate	7	Male	Immature	1	Improved grassland/ rough grazing	7.52	Hunting/ flying	0-10	-	40	-	-	-	-
15/11/2016	8	Cloud 1/8, dry, wind F1 NW, temp 11 C	Good	8	Female	Adult	1	Scrub	16.29	Hunting	100-200	-	-	-	-	300	-

Kestrel																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
16/11/2016	5	Cloud 6/8, dry, wind F1-2 SW, temp 8 C	Good	9	Unknown	Adult	1	Scrub	16.44	Hunting	50-100	-	-	-	60	-	-
17/11/2016	10	Cloud 8/8, rain, cold, wind F1, occ. F2 SW, temp 4 C	Moderate	10	Unknown	Adult	1	Cutover/ standing water	16.01	Flying	4-12	-	4	45	-	-	-
17/11/2016	10	Cloud 8/8, rain, cold, wind F1, occ. F2 SW, temp 4 C	Moderate		Unknown	Adult	1	Cutover/ standing water	16.02	Perched	n/a	180	-	-	-	-	-
24/11/2016	12	Dry sunny day with heavy frost and cold conditions, wind slack F1-2 NE, temp 2-6 C	Good	11	Female	Adult	1	Cutover/ scrub	15.00	Hunting	2-8	-	3600	-	-	-	-
06/12/2016	5	Cloud 8/8, dull, light rain, wind F1-2 SW, temp 10-11 C	Moderate	12	Male	Adult	1	Forest/ scrub/ marginal ground	13.45	Flying/ hunting	8-30	-	3	21	-	-	-
06/12/2016	4	Cloud 8/8, misty and showers, rain from 09.40, wind F2-4 N, temp 8 C	Good	13	Male	Adult	1	Scrub	8.15	Hunting	50-100	-	-	-	120	-	-
06/12/2016	4	Cloud 8/8, misty and showers, rain from 09.40, wind F2-4 N, temp 8 C	Good		Male	Adult	1	Thicket	8.17	Perched	n/a	600	-	-	-	-	-
07/12/2016	8	Dark, dull, damp morning, some light showers, wind F2-3 S-SW, temp 10-15 C	Moderate	14	Female	Adult	1	Intact bog/ cutover/ revegetating bog/ scrub	8.45	Hunting/ flying	5-18	-	-	3600	-	-	-
13/12/2016	12	Cloud 8/8 clearing slightly to 7/8 from 10.50, light rain, sunshine from 09.25 - 10.50, wind F1-4 SE, temp 10 C	Good	15a	Female	Adult	1	Cutover	8.37	Hunting	90	-	-	-	120	-	-
13/12/2016	12	Cloud 8/8 clearing slightly to 7/8 from 10.50, light rain, sunshine from 09.25 - 10.50, wind F1-4 SE, temp 10 C	Good	15b	Female	Adult	1	Cutover	9.31	Hunting	80	-	-	-	160	-	-
12/01/2017	8	Cloud 4/8, sunny cold and windy, brief snow shower at 14.00 then clear, wind F1-3 W-NW, temp 3 C	Excellent - Poor (during snow)	16	Male	Adult	1	Improved grazing	13.11	Hunting	55-80	-	-	-	35	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	17	Male	Adult	1	Improved grassland/ rough grazing	12.59	Flying	1-15	-	9	9	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good		Male	Adult	1	Rough grazing	13.00	Perched	n/a	60	-	-	-	-	-
10/01/2017	11	Cloud 7/8 clearing to 5/8, some sun, dull and breezy, wind F3-4 W, temp 10-12 C	Good	18	Unknown	Unknown	1	Conifer forestry/ scrub/ clearfell forest	13.11	Hunting	40-60	-	-	43	10	-	-

Kestrel																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
12/01/2017	9	Cloud 8/8 clearing to 5/8, dull, mainly calm, wind occ. F1 increasing to F2-3 SW from 09.00, temp 1-3 C	Moderate	19	Male	Adult	1	Cutover/ scrub/ improved grazing	9.31	Hunting/ flying	100	-	-	-	50	-	-
23/01/2017	12	Cloud 5/8, sunny spells with light breeze, wind F1-3 S, temp 7 C	Good	20a	Female	Adult	1	Scrub	12.30	Hunting	0-100	-	30	30	60	-	-
23/01/2017	12	Cloud 5/8, sunny spells with light breeze, wind F1-3 S, temp 7 C	Good	20b	Male	Adult	1	Scrub	14.15	Hunting	10-50	-	-	60	-	-	-
01/02/2017	4	Cloud 8/8, rain showers, wind F2-4 SW gusting, temp 9 C	Moderate - Poor	21	Female	Adult	1	Cutover	17.21	Hunting	20	-	-	6	-	-	-
09/02/2017	7	Cloud 8/8, dull, light intermittent breeze, hazy, wind F1-2, occ. F3 SE, temp 7 C	Moderate	22	Male	Adult	1	Revegetating bog/ scrub	17.18	Hunting/ flying	20-35	-	-	350	-	-	-
10/02/2017	5	Cloud 8/8, calm, dull, slight haze, temp 2-3 C	Good	23a	Male	Adult	1	Conifer forestry	8.58	Perched	n/a	2	-	-	-	-	-
10/02/2017	5	Cloud 8/8, calm, dull, slight haze, temp 2-3 C	Good		Male	Adult	1	Rail line/ conifer	8.58	Flying/ hunting	15.20	-	-	15	-	-	-
10/02/2017	5	Cloud 8/8, calm, dull, slight haze, temp 2-3 C	Good	23b	Female	Adult	1	Scrub/ revegetating bog/ cutover/ improved grazing	9.58	Hunting	20-30	-	-	29	-	-	-
10/02/2017	6	Cloud 8/8, dry cold and calm, wind slack, temp 2 C	Good	24a	Male	Adult	1	Scrub/ revegetating bog/ intact bog/ improved grazing	13.43	Hunting/ flying	15-30	-	-	43	-	-	-
10/02/2017	6	Cloud 8/8, dry cold and calm, wind slack, temp 2 C	Good	24b	Male	Adult	1	Scrub/ revegetating bog/ intact bog	14.12	Hunting/ flying	25-45	-	-	110	-	-	-
10/02/2017	6	Cloud 8/8, dry cold and calm, wind slack, temp 2 C	Good		Male	Adult	1	Conifer	14.14	Perched	n/a	180	-	-	-	-	-
09/02/2017	8	Cloud 7/8, wind F2-4 SE, temp 2-5 C	Good	25	Female	Adult	1	Cutover	17.45	Hunting	2	-	8	-	-	-	-
09/02/2017	12	Cloud 8/8 clearing to 7/8 at 09.45, intermittent sunshine, wind F2-4 SE, temp 3-5 C	Good	26	Unknown	Unknown	1	Improved grazing	8.00	Hunting outside site	-	-	-	-	-	-	-
08/02/2016	12	No cloud, hazy sunshine, wind F0-2 S-SE, temp 2-4 C	Good	27	Female	Adult	1	Peat mound	10.20	Perched	n/a	4440	-	-	-	-	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	28	Male	Adult	1	Revegetating bog/ scrub	13.50	Hunting/ flying	5-14	-	40	60	-	-	-

Kestrel																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	29	Male and female	Adult	2	Spruce tree	18.35	Copulating	n/a	120	-	-	-	-	-
23/03/2017	7	Cloud 8/8, wind F1-3 NE, temp 6 C	Good	30	Female	Adult	1	Cutover	11.26	Hunting	4	-	8	-	-	-	-
23/03/2017	12	Cloud 7/8 clearing to 1/8 from 19.00, hazy sunshine, wind F1-2 NE, calm from 19.00, temp 6-8 C	Good	31	Female	Adult	1	Scrub	17.18	Perched	n/a	2640	-	-	-	-	-
												8,272	4,377	6,307	615	300	0

Lapwing																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
24/10/2016	1	Fine, dry sunny day, wind slack N, veered W-SW, temp 12 C	Good	1	Unknown	Unknown	120	Agricultural land	-	Feeding	n/a	10800	-	-	-	-	-
25/10/2016	1	Heavy fog all morning, lifted at 10.45, calm and still, temp 0-4 C	Poor		Unknown	Unknown	80	Agricultural land	-	Feeding	n/a	10800	-	-	-	-	-
27/10/2016	5	Mainly calm, cloud 8/8, some light drizzle, wind F0-1 SW, occ. gusting F2-3, temp 14 C	Good - Moderate	2	Unknown	Unknown	10	Woodland/unknown	8.50	Flying	50	-	-	15	-	-	-
27/10/2016	8	Cloud 8/8, wind F3 SW, temp 13 C	Good - Moderate	3	Unknown	Unknown	37	Cutover/ scrub	14.14	Flying	20-30	-	-	60	-	-	-
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate	4	Unknown	Adult	1	River	15.10	Flying	5-12	-	4	3	-	-	-
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate		Unknown	Adult	1	River bank	15.10	On ground	n/a	120	-	-	-	-	-
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate		Unknown	Adult	1	River	15.12	Flying	15-35	-	2	29	-	-	-
09/11/2016	1	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate	5	Unknown	Unknown	200	Improved grazing	7.50	Flying	3-10	-	60	-	-	-	-
09/11/2016	1	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate		Unknown	Unknown	200	Improved grazing	7.51	Flying	10-50	-	-	60	-	-	-

Lapwing																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
24/11/2016	12	Dry sunny day with heavy frost and cold conditions, wind slack F1-2 NE, temp 2-6 C	Good	6	Unknown	Unknown	50	Cutover/ improved grazing/ scrub	16.15	Flying	60	-	-	-	120	-	-
13/12/2016	1	Cloud 8/8, heavy rain from 15.50, wind F1-3 SE, temp 10 C	Good - Poor	7	Unknown	Adult	4	Improved grassland	14.24	On ground	n/a	6	-	-	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	8a	Unknown	Unknown	20	Freshly-cut field	11.30	Feeding	n/a	8100	-	-	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good		Unknown	Unknown	20	Improved grazing/ rough grazing	13.24	Flying	15	-	5	10	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	8b	Unknown	Unknown	40	River/ improved grazing/ rough grazing	13.44	Flying	100	-	-	-	107	-	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good	9	Unknown	Unknown	80	Improved grazing/ rough grazing	15.00	Feeding	n/a	3600	-	-	-	-	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good		Unknown	Unknown	40	River/ improved grazing/ rough grazing	15.15	Flying	10-50	-	-	180	-	-	-
24/01/2017	2	Light drizzle early on but mostly dry, cloud 8/8, wind F2-4 S-SW, temp 6 C	Good	10	Male and female	Adult	8	Riverbank/ rough grazing	7.30	On ground	n/a	2700	-	-	-	-	-
24/01/2017	2	Light drizzle early on but mostly dry, cloud 8/8, wind F2-4 S-SW, temp 6 C	Good		Male and female	Adult	8	River	8.15	Flying	10-50	-	-	10	-	-	-
02/02/2017	1	Cloud 8/8, rain showers, wind F2-4 S, temp 11 C	Moderate - Good	11	Unknown	Adult	70	Improved grazing	13.58	Flying	80	-	-	-	60	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	12	Unknown	Adult	1	Rough grazing	7.20	On ground	n/a	10800	-	-	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	13	Unknown	Adult	8	Rough grazing	10.00	On ground	n/a	10800	-	-	-	-	-
												57,726	71	367	287	0	0

Lesser Black-backed Gull																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate	1	Unknown	Unknown	5	Conifer/river/woodland	16.23	Flying	40	-	-	21	-	-	
10/02/2017	5	Cloud 8/8, calm, dull, slight haze, temp 2-3 C	Good	2	Unknown	Adult	30	Improved grazing/cutover	9.32	Flying	70-120	-	-	-	15	25	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	3a	Unknown	Adult	1	Temporary pond/cutover/intact bog/scrub	13.38	Flying	10-14	-	-	22	-	-	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	3b	Unknown	Adult	17	Improved grazing/cutover/scrub/revegetating bog	14.56	Flying	40-140	-	-	15	45	65	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	3c	Unknown	Adult	1	Cutover/revegetating bog/improved grazing	15.08	Flying	50-90	-	-	-	35	-	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	3d	Unknown	Adult	2	Temporary pond/intact bog/scrub	15.35	Flying	10-20	-	-	60	-	-	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	3e	Unknown	Adult	3	Revegetating bog/scrub/cutover	15.50	Flying	7-25	-	8	32	-	-	-
22/03/2017	11	Cloud 6/8, blustery with strong gusts at times, some sunny hazy spells, wind F3-4 NE, temp 8-9 C	Good	4	Unknown	Unknown	11	Conifer forestry	15.33	Flying/ circling	150	-	-	-	-	270	-
22/03/2017	11	Cloud 8/8, dull and breezy, drizzle, wind F1-4 N, temp 6-8 C	Moderate	5a	Unknown	Unknown	11	Revegetating bog/improved grazing	17.11	Flying	70-100	-	-	-	120	-	-
22/03/2017	11	Cloud 8/8, dull and breezy, drizzle, wind F1-4 N, temp 6-8 C	Moderate	5b	Unknown	Unknown	8	Revegetating bog/improved grazing	17.45	Flying	70-80	-	-	-	25	-	-
22/03/2017	10	Cloud 8/8, mist and drizzle, cold, wind strong F2-4 NE, temp 6 C	Good	6a	Unknown	Adult	3	Temporary pond	16.30	On water	n/a	10800	-	-	-	-	-
22/03/2017	10	Cloud 8/8, mist and drizzle, cold, wind strong F2-4 NE, temp 6 C	Good	6b	Unknown	Adult	2	Temporary pond/ scrub	17.05	Flying	10-20	-	-	180	-	-	-

Lesser Black-backed Gull																
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category				
												Non-flight	0-10m	10-50m	50-100m	100-200m
22/03/2017	10	Cloud 8/8, mist and drizzle, cold, wind strong F2-4 NE, temp 6 C	Good	6c	Unknown	Adult	3	Temporary pond/ scrub/ revegetating bog	17.15	Flying/ circling	5-10	-	300	-	-	-
23/03/2017	6	Overcast, cold and calm, wind F1-2 NE, temp 4 C	Good	7a	Unknown	Adult	148	Forestry/ cutover/ rough grazing/ road	6.30	Flying	80-100	-	-	-	60	-
23/03/2017	6	Overcast, cold and calm, wind F1-2 NE, temp 4 C	Good	7b	Unknown	Adult	30	Cutover/ revegetating bog/ scrub	7.00	Flying	80-100	-	-	-	60	-
23/03/2017	6	Overcast, cold and calm, wind F1-2 NE, temp 4 C	Good	7c	Unknown	Adult	21	Cutover/ revegetating bog/ scrub	7.20	Flying	80-100	-	-	-	60	-
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	8a	Unknown	Unknown	70	Cutover/ revegetating bog/ improved farmland	6.25	Flying	20-50	-	-	150	-	-
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	8b	Unknown	Unknown	49	Improved grazing/ road/ cutover	6.50	Flying	20-50	-	-	100	-	-
23/03/2017	6	Cloud 5/8 clearing to 2/8, sunny, mild and bright evening, wind mainly calm F0-1 NE, temp 11-13 C	Good	9	Unknown	Adult	9	Rough grazing/ road	17.15	Flying	50-60	-	-	-	40	-
23/03/2017	6	Cloud 5/8 clearing to 2/8, sunny, mild and bright evening, wind mainly calm F0-1 NE, temp 11-13 C	Good		Unknown	Adult	45	Rough grazing/ road	17.40	Flying	45-65	-	-	-	35	-
23/03/2017	5	Cloud 7/8 clearing to 5/8, hazy sunshine, wind F1-3 NE, temp 6-8 C	Good	10a	Unknown	Adult	47	Scrub/ forestry/ cutover	17.00	Flying	80-100	-	-	-	60	-
23/03/2017	5	Cloud 7/8 clearing to 5/8, hazy sunshine, wind F1-3 NE, temp 6-8 C	Good	10b	Unknown	Adult	49	Scrub/ forestry/ cutover	18.30	Flying	80-100	-	-	-	60	-
23/03/2017	3	Dry morning, overcast, cold easterly wind F1-2/3 E, temp 5 C	Good	11	Unknown	Adult	13	Cutover/ revegetating bog	8.07	Flying	10-50	-	-	60	-	-
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	12a	Unknown	Adult	42	Cutover	6.20	Flying	>200	-	-	-	-	37
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	12b	Unknown	Adult	21	Cutover	6.35	Flying	>200	-	-	-	-	12
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	12c	Unknown	Adult	4	Cutover/ pasture	6.40	Flying	>200	-	-	-	-	16

Lesser Black-backed Gull																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	12d	Unknown	Adult	10	Cutover/pasture	7.06	Flying	>200	-	-	-	-	16	
24/03/2017	2	Cloud 2/8, bright, sunny and warm, wind F0 mainly, occ. F1 NE, temp 11-14 C	Excellent	13	Unknown	Unknown	2	River/woodland	11.38	Flying	40-100	-	-	20	70	-	
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	14	Unknown	Adult	1	River	10.00	On water	n/a	10800	-	-	-	-	
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	15a	Unknown	Adult	32	River	19.07	Flying	50-60	-	-	-	37	-	
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	15b	Unknown	Adult	25	Woodland	19.48	Flying	150	-	-	-	-	42	
												21,600	308	660	722	402	81

Little Grebe																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate	1	Unknown	Unknown	2	River	-	Feeding	n/a	10800	-	-	-	-	
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate	2	Unknown	Unknown	2	Temporary pond	-	On water	n/a	10800	-	-	-	-	
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good		Unknown	Unknown	3	Temporary pond	13.00	On water	n/a	10800	-	-	-	-	
22/03/2017	10	Cloud 8/8, mist and drizzle, cold, wind strong F2-4 NE, temp 6 C	Good		Unknown	Unknown	2	Temporary pond	16.30	On water	n/a	10800	-	-	-	-	
												43,200	0	0	0	0	0

Mallard																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
02/11/2016	8	Cloud 8/8, very dull, light drizzle, wind F0, occ. F1 NW, temp 10-11 C	Moderate	1	Unknown	Unknown	6	Cutover	17.53	Flying	15	-	-	11	-	-	-
03/11/2016	4	Cloud 8/8, some light rain, wind F0-2 SW, temp 7-9 C	Moderate	2	Pair	Adult	2	Scrub/ woodland/ river	8.38	Flying	15-30	-	-	8	-	-	-
09/11/2016	1	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate	3	Unknown	Unknown	80	Flooded bog/ farmland/ river	9.55	Flying	10-25	-	-	300	-	-	-
18/11/2016	10	Cloud 7/8, sunny spells, mostly dry with some thunder showers, wind F2-4 SW, temp 1-2 C	Good	4	Unknown	Adult	28	Standing water	9.00	On water	n/a	7200	-	-	-	-	-
18/11/2016	10	Cloud 7/8, sunny spells, mostly dry with some thunder showers, wind F2-4 SW, temp 1-2 C	Good		Unknown	Adult		Standing water/ scrub	11.01	Flying	0-10	-	11	-	-	-	-
06/12/2016	4	Cloud 8/8, misty and showers, rain from 09.40, wind F2-4 N, temp 8 C	Good	5	Pair	Adult	2	Cutover	10.15	Flying	10-50	-	-	20	-	-	-
06/12/2016	2	Cloud 8/8, misty and dull, mainly calm, rain from 9.15, wind occ. F1-2 SW, temp 8-10 C	Moderate	6	Pair	Adult	2	Reedbed/ river/ intact bog/ scrub	8.12	Flying	0-50	-	15	17	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	7a	Male and female	Adult	7	Improved farmland/ rough grazing	12.41	Flying	25-35	-	-	31	-	-	-
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	7b	Male and female	Adult	10	River/ reedbed/ rough grazing	13.46	Flying	20-40	-	-	24	-	-	-
23/01/2017	1	Dry and breezy, cloud 6-7/8, wind F2-4 S-SW, temp 7 C	Good	8	Male and female	Adult	9	River/ reedbed	17.36	On river	n/a	180	-	-	-	-	-
24/01/2017	2	Light drizzle early on but mostly dry, cloud 8/8, wind F2-4 S-SW, temp 6 c	Good	9	Male	Adult	2	River	8.00	Flying	10-20	-	-	30	-	-	-
01/02/2017	2	Cloud 3/8 increasing to 8/8, sunny, rain from 13.00, wind F2-4 SE, changing to SW from 12.00, temp 8-9 C	Good	10	Unknown	Unknown	2	River	10.30	On river	n/a	10800	-	-	-	-	-
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate	11	Male and female	Adult	6	Temporary pond	7.30	On water	n/a	9240	-	-	-	-	-
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate		Male and female	Adult		Temporary pond/ cutover/ improved grazing	10.03	Flying	0-20	-	4	16	-	-	-

Mallard																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
02/02/2017	1	Cloud 8/8, rain showers, wind F2-4 S, temp 11 C	Moderate - Good	12	Unknown	Unknown	2	River	12.45	On river	n/a	10800	-	-	-	-	-
08/02/2017	2	Cloud 3/8, hazy sunshine, wind F1-3 S, temp 3-5 C	Good	13	Unknown	Adult	2	River	15.00	On river	n/a	10800	-	-	-	-	-
08/02/2016	12	No cloud, hazy sunshine, wind F0-2 S-SE, temp 2-4 C	Good	14	Unknown	Adult	2	Stream	-	On water	n/a	-	-	-	-	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	15	Unknown	Unknown	4	River	7.20	On river	n/a	10800	-	-	-	-	-
22/03/2017	10	Cloud 8/8, mist and drizzle, cold, wind strong F2-4 NE, temp 6 C	Good	16a	Male	Adult	3	Temporary pond	16.30	On water/ flying	3-5	-	120	-	-	-	-
22/03/2017	10	Cloud 8/8, mist and drizzle, cold, wind strong F2-4 NE, temp 6 C	Good	16b	Male and female	Adult	2	Scrub	17.45	On ground/ flying	3	120	120	-	-	-	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	17a	Male	Adult	1	Temporary pond/ intact bog/ cutover	14.29	On water/ flying	2-9	-	5	10	-	-	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	17b	Male	Adult	1	Temporary pond/ cutover revegetating bog/ scrub	15.33	On water/ flying	15-20	-	-	37	-	-	-
22/03/2017	10	Cloud 5/8, some sun, hazy, wind F2-4 N, occ. calm, temp 7-9 C	Good	17c	Male	Adult	1	Intact bog	15.38	Flying	3-12	-	5	30	-	-	-
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	18	Male and female	Adult	22	River	16.30	On water	n/a	10800	-	-	-	-	-
23/03/2017	12	Cloud 7/8 clearing to 1/8 from 19.00, hazy sunshine, wind F1-2 NE, calm from 19.00, temp 6-8 C	Good	19	Male	Adult	1	Cutover	17.48	Flying	0-10	-	14	-	-	-	-
23/03/2017	6	Cloud 5/8 clearing to 2/8, sunny, mild and bright evening, wind mainly calm F0-1 NE, temp 11-13 C	Good	20a	Male	Adult	1	Revegetating bog/ cutover	17.35	Flying	2-11	-	2	7	-	-	-
23/03/2017	6	Cloud 5/8 clearing to 2/8, sunny, mild and bright evening, wind mainly calm F0-1 NE, temp 11-13 C	Good	20b	Male and female	Adult	2	Cutover bog/ scrub/ woodland	18.35	Flying	5-30	-	4	25	-	-	-
23/03/2017	5	Cloud 7/8 clearing to 5/8, hazy sunshine, wind F1-3 NE, temp 6-8 C	Good	21	Male and female	Adult	2	Cutover/ forestry	18.37	Flying	1-3	-	20	10	-	-	-
24/03/2017	2	Cloud 2/8, bright, sunny and warm, wind F0-1 NE, temp 11-14 C	Excellent	22a	Male and female	Adult	2	River	10.00	On water	n/a	5400	-	-	-	-	-

Mallard																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
24/03/2017	2	Cloud 2/8, bright, sunny and warm, wind F0-1 NE, temp 11-14 C	Excellent	22b	Male and female	Adult	4	Woodland/river	10.30	Flying	50-100	-	-	-	40	-	-
24/03/2017	2	Cloud 2/8, bright, sunny and warm, wind F0-1 NE, temp 11-14 C	Excellent	22c	Male	Adult	1	River	11.27	On water	n/a	180	-	-	-	-	-
24/03/2017	2	Cloud 2/8, bright, sunny and warm, wind F0-1 NE, temp 11-14 C	Excellent		Male and female	Adult	3	Rough grazing/river/ woodland	11.30	Flying	5-25	-	4	38	-	-	-
24/03/2017	4	Cloud 4/8, bright sunny day, wind F1-2 NE, temp 11 C	Good	23	Male	Adult	1	Cutover/ scrub	11.10	Flying	20	-	-	10	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	24	Male and female	Adult	53	River	10.00	On water	n/a	10800	-	-	-	-	-
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	25	Unknown	Unknown	4	River	17.30	On water	n/a	10800	-	-	-	-	-
												97,920	324	624	40	0	0

Merlin																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
26/10/2016	6	Cloud 7/8, some brighter spells, wind calm, temp 12-14 C	Good	1a	Unknown	Unknown	1	Cutover/ scrub	17.35	Hunting/ flying	14-25	-	-	22	-	-	-
26/10/2016	6	Cloud 7/8, some brighter spells, wind calm, temp 12-14 C	Good	1b	Unknown	Unknown		Cutover/ scrub/ woodland	17.48	Hunting/ flying	20-25	-	-	45	-	-	-
09/11/2016	1	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate	2	Male	Immature	1	Improved and rough grazing	9.07	Hunting/ flying	1-3	-	180	-	-	-	-
09/11/2016	1	Dry dull morning, sunshine from 8.00, dry, wind light F1-2 N, changing to F2-3 W-NW, temp 5-9 C	Moderate		Male	Immature					Perched	n/a	180	-	-	-	-
09/02/2017	12	Cloud 8/8 clearing to 7/8 at 09.45, intermittent sunshine, wind F2-4 SE, temp 3-5 C	Good	3	Male	Adult	1	Cutover	9.29	Hunting	1	-	7	-	-	-	-
08/02/2016	12	No cloud, hazy sunshine, wind F0-2 S-SE, temp 2-4 C	Good	4	Male	Adult	1	Cutover	12.10	Hunting	2	-	3	-	-	-	-
												180	190	67	0	0	0

Mute Swan																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
25/10/2016	1	Heavy fog all morning, lifted at 10.45, calm and still, temp 0-4 C	Poor	1	Unknown	Adult	3	River	-	On water	n/a	-	-	-	-	-	
27/10/2016	3	Dry, low cloud, mist from 10.00, wind F2-3 W-SW, temp 13 C	Moderate	2	Unknown	Unknown	2	Forestry/ improved grazing	7.45	Flying	80-100	-	-	-	50	-	
27/10/2016	5	Mainly calm, cloud 8/8, some light drizzle, wind F0-1 SW, occ. gusting F2-3, temp 14 C	Good - Moderate	3a	Unknown	Adult	2	Cutover/ scrub	9.28	Flying	50	-	-	106	-	-	
27/10/2016	5	Mainly calm, cloud 8/8, some light drizzle, wind F0-1 SW, occ. gusting F2-3, temp 14 C	Good - Moderate	3b	Unknown	Adult	2	Improved grazing/ scrub	9.41	Flying	55	-	-	45	-	-	
03/11/2016	2	Damp, wet dull morning, wind F3-4 SW, temp 7-9 C	Poor	4	Unknown	Unknown	5	River	-	On water	n/a	-	-	-	-	-	
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	5	Unknown	Adult	2	River	13.31	Flying	1-3	-	18	-	-	-	
24/01/2017	2	Mild, dull and overcast, cloud 8/8, wind F1-3 SW, temp 11-13 C	Moderate	6	Unknown	Adult	2	River/ rough grazing	13.05	Flying	20-25	-	-	15	-	-	
02/02/2017	1	Cloud 8/8, rain showers, wind F2-4 S, temp 11 C	Moderate - Good	7	Unknown	Adult	2	River	12.45	On water	n/a	10800	-	-	-	-	
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	8	Unknown	Adult	4	River	7.20	On water	n/a	10800	-	-	-	-	
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	9	Unknown	Adult	14	River	16.30	On water	n/a	10800	-	-	-	-	
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good		Unknown	Adult	18	River	10.00	On water	n/a	10800	-	-	-	-	
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	10	Unknown	Adult	2	River	17.30	On water	n/a	10800	-	-	-	-	
												54,000	18	166	50	0	0

Peregrine																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
07/12/2016	8	Dark, dull, damp morning, some light showers, wind F2-3 S-SW, temp 10-15 C	Moderate	1	Male	Adult	1	Scrub/ revegetating bog/ cutover	10.05	Flying	10-13	-	-	60	-	-	
												0	0	60	0	0	0

Snipe																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
26/10/2016	3	Wet and damp morning, drizzle, dark and overcast, wind F2-3 SW, temp 10-13 C	Moderate	1	Unknown	Unknown	2	Cutover bog	-	Heard calling	n/a	-	-	-	-	-	
27/10/2016	10	Cloud 8/8, raining, wind F3-4 SW, temp 11 C	Moderate	2	Unknown	Unknown	2	Cutover/ scrub	17.05	Flying	5	-	5	-	-	-	
04/11/2016	12	Nice, dry cold morning with prolonged sunny spells, wind F1-2 W-NW, temp 7 C	Good	3	Unknown	Unknown	1	Cutover	9.45	Flying	3-4	-	20	-	-	-	
15/11/2016	9	Cloud 4/8, mild and calm, sunny spells, wind F0-1 SW, temp 12-13 C	Good	4	Unknown	Unknown	1	Scrub/ road/ revegetating bog	17.11	Flying	12-15	-	-	8	-	-	
17/11/2016	10	Cloud 8/8, rain, cold, wind F1, occ. F2 SW, temp 4 C	Moderate	5	Unknown	Adult	1	Scrub/ marginal bog	15.15	Flying	1-5	-	7	-	-	-	
18/11/2016	10	Cloud 7/8, sunny spells, mostly dry with some thunder showers, wind F2-4 SW, temp 1-2 C	Good	6	Unknown	Unknown	11	Cutover/ scrub	10.16	Flying	0-10	-	6	-	-	-	
06/12/2016	5	Misty, windy, overcast, wind F2-5 SE, temp 8 C	Good	7	Unknown	Unknown	1	Cutover/ revegetating bog	16.49	Flying	0-10	-	5	-	-	-	
11/01/2017	5	Cloud 6/8, dull and fresh, light showers, some sunny spells, mainly light breeze, wind F1-2 W increasing to F3-4, temp 7 C	Moderate	8	Unknown	Unknown	1	Intact bog	14.24	Flying	1-18	-	10	11	-	-	
23/01/2017	12	Cloud 5/8, sunny spells with light breeze, wind F1-3 S, temp 7 C	Good	9	Female	Adult	1	Scrub	12.00	Flying	1-3	-	20	-	-	-	
23/01/2017	12	Cloud 6/8, dull and breezy, slight fog, breeze calming later, wind F2-3 S, later F0-1, temp 5-9 C	Moderate	10	Unknown	Unknown	1	Marginal bog	16.41	Flying	0-3	-	7	-	-	-	
23/01/2017	12	Cloud 6/8, dull and breezy, slight fog, breeze calming later, wind F2-3 S, later F0-1, temp 5-9 C	Moderate		Unknown	Unknown	1	Marginal bog	16.57	Flying	0-3	-	6	-	-	-	
02/02/2017	4	Cloud 8/8, heavy rain showers, wind F2-4 SE, gusting F5, temp 11 C	Moderate - Good	n/a	Unknown	Adult	1	Unknown	-	Calling south-east of Vp	n/a	-	-	-	-	-	
09/02/2017	9	Cloud 5/8, very cold and windy, some sunny spells, wind F2-4 SE, temp 6-7 C	Moderate	11	Unknown	Adult	1	Scrub	14.24	Flying	4	-	5	-	-	-	
10/02/2017	5	Cloud 8/8, calm, dull, slight haze, temp 2-3 C	Good	12	Unknown	Adult	2	Intact bog	9.22	Flying	1	-	8	-	-	-	
23/03/2017	5	Cloud 8/8, dull, cold and breezy, wind F1-3 N, temp 4 C	Good	13	Unknown	Unknown	1	Intact bog	7.50	Flying	2-3	-	2	-	-	-	

Snipe																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	n/a	Male	Unknown	1	Unknown	-	Calling east of VP	n/a	-	-	-	-	-	
												0	101	19	0	0	0

Sparrowhawk																
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category				
												Non-flight	0-10m	10-50m	50-100m	100-200m
26/10/2016	3	Wet and damp morning, drizzle, dark and overcast, wind F2-3 SW, temp 10-13 C	Moderate	1	Female	Immature	1	Scrub/ cutover bog	17.20	Flying	1-3	-	30	-	-	-
26/10/2016	6	Cloud 7/8, some brighter spells, wind calm, temp 12-14 C	Good	2	Unknown	Unknown	1	Railway line/ woodland	18.22	Hunting/ flying	2	-	4	-	-	-
08/11/2016	1	Very wet morning with mist and heavy rain showers, low cloud cover, wind slack S-SW, temp 8-9 C	Poor	3	Male	Immature	1	Road/ improved grazing	16.10	Flying	<1	-	40	-	-	-
08/11/2016	1	Very wet morning with mist and heavy rain showers, low cloud cover, wind slack S-SW, temp 8-9 C	Poor		Male	Immature	1	Road/ improved grazing	16.11	Perched	n/a	10	-	-	-	-
15/11/2016	8	Cloud 1/8, dry, wind F1 NW, temp 11 C	Good	4	Female	Adult	1	Cutover/ scrub	15.44	Flying	0-10	-	10	-	-	-
18/11/2016	11	Sun with rain, sleet and snow from 10.30 onwards, wind F1-2 SW, temp 2 C	Excellent - Moderate	5	Male	Adult	1	Cutover/ revegetating bog	10.10	Flying	10-12	-	-	10	-	-
18/11/2016	11	Sun with rain, sleet and snow from 10.30 onwards, wind F1-2 SW, temp 2 C	Excellent - Moderate		Male	Adult	1	Cutover/ revegetating bog	10.10	Perched	n/a	10	-	-	-	-
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	6	Male	Adult	1	Pasture/ river	8.35	Flying	20	-	-	9	-	-
11/01/2017	3	Cloud 6/8, dry cold and blustery, drizzle and showers at times, wind F2-5 NW-W, temp 7 C	Good	7	Female	Adult	1	Cutover/ scrub	15.18	Flying	10-20	-	-	25	-	-
12/01/2017	8	Cloud 8/8 clearing to 6/8, dry and calm, cold, wind F1 NW-W, temp 2 C	Good	8	Female	Adult	1	Scrub	10.20	Perched	n/a	10	-	-	-	-
12/01/2017	8	Cloud 8/8 clearing to 6/8, dry and calm, cold, wind F1 NW-W, temp 2 C	Good		Female	Adult	1	Scrub/ cutover bog	10.20	Flying	10	-	3	-	-	-

Sparrowhawk																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
09/02/2017	9	Cloud 8/8, cold and mostly dry with some drizzle, wind F2-4 SE, temp 3 C	Good	9	Male	Adult	1	Scrub	17.48	Flying	30	-	-	10	-	-	-
10/02/2017	5	Cloud 8/8, calm, dull, slight haze, temp 2-3 C	Good	10	Male and female	Adult	2	Revegetating bog/ cutover bog/ improved grazing	8.32	Flying	40-60	-	-	65	10	-	-
10/02/2017	6	Cloud 8/8, dry cold and calm, wind slack, temp 2 C	Good	11	Male	Adult	1	Cutover	9.09	Flying	10	-	5	-	-	-	-
10/02/2017	6	Cloud 8/8, dry cold and calm, wind slack, temp 2 C	Good		Male	Adult	1	Concrete culvert	9.09	Perched	n/a	-	25	-	-	-	-
10/02/2017	6	Cloud 8/8, dry cold and calm, wind slack, temp 2 C	Good		Male	Adult	1	Scrub	9.10	Flying	10	-	2	-	-	-	-
23/03/2017	6	Overcast, cold and calm, wind F1-2 NE, temp 4 C	Good	12	Male	Adult	1	Rail line/ scrub	7.55	Flying/ hunting	2	-	10	-	-	-	-
												30	129	119	10	0	0

Teal																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
03/11/2016	2	Damp, wet dull morning, wind F3-4 SW, temp 7-9 C	Poor	1	Unknown	Unknown	2	River	-	On water	n/a	10800	-	-	-	-	-
02/02/2017	1	Cloud 8/8, rain showers, wind F2-4 S, temp 11 C	Moderate - Good	2	Unknown	Unknown	8	River	12.45	On water	n/a	10800	-	-	-	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	3	Unknown	Unknown	8	River	7.20	On water	n/a	10800	-	-	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good		Unknown	Unknown	6	River	10.00	On water	n/a	10800	-	-	-	-	-
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S, temp 10-12 C	Moderate - Good	4	Unknown	Unknown	2	River	17.30	On water	n/a	10800	-	-	-	-	-
												54,000	0	0	0	0	0

Whooper Swan																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
03/11/2016	2	Damp, wet dull morning, wind F3-4 SW, temp 7-9 C	Poor	1	Unknown	Unknown	4	River	-	On water	n/a	-	-	-	-	-	
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate	2a	Unknown	Unknown	9	River/ improved grazing/ scrub	15.59	Flying	-	-	-	25	10	-	
03/11/2016	2	Some sun, rain showers, cloud 8/8, clearing to 5/8, wind F0-1 SW, temp 9-13 C	Moderate	2b	Unknown	Unknown	7	River	17.18	Flying	-	-	-	20	-	-	
18/11/2016	3	Cold and wintry morning, heavy frost and ice, sleet, some sun, wind F1-2 W, temp 0-4 C	Moderate	3	Unknown	Adult	2	Cutover/ flooded bog/ revegetating bog	10.10	Flying	30	-	-	60	-	-	
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	4a	Unknown	Adult	4	River/ pasture	9.17	Flying	6	-	8	-	-	-	
12/12/2016	1	Cloud 8/8, wind F0-1 SE, temp 7-8 C	Good	4b	Unknown	Adult	5	River/ pasture	9.55	Flying	6	-	6	-	-	-	
02/02/2017	4	Cloud 8/8, heavy rain showers, wind F2-4 SE, gusting F5, temp 11 C	Moderate - Good	5	Unknown	Adult	8	Improved grazing	9.02	Flying	-	-	-	-	-	-	
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate	6a	Unknown	Adult	1	Intact bog/ temporary pond	8.32	Flying	10-18	-	3	5	-	-	
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate		Unknown	Adult	1	Temporary pond	8.32	On water	n/a	5400	-	-	-	-	-
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate	6b	Unknown	Adult	1	Temporary pond/ cutover/ scrub/ woodland	10.06	Flying	10-25	-	4	23	-	-	
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	7	Unknown	Adult	10	River/ pasture	7.59	Flying	8-10	-	10	-	-	-	
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good		Unknown	Adult	9	River/ pasture	8.17	Flying	8-10	-	10	-	-	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good		Unknown	Adult	10	River/ pasture	8.21	Flying	8-10	-	15	-	-	-	-
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good	8	Unknown	Adult	2	River	16.30	On water	n/a	10800	-	-	-	-	
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	9a	Unknown	Adult	24	Cutover	7.24	Flying	50	-	-	26	-	-	
24/03/2017	7	Cloud 1/8, sunshine, wind F1-2 N, temp 2-4 C	Good	9b	Unknown	Adult	3	Cutover/ pasture	7.54	Flying	50	-	-	20	-	-	
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good	10	Unknown	Adult	1	River	10.00	On water	n/a	10800	-	-	-	-	
28/03/2017	2	Cloud 8/8, 6/8 from 19.20, intermittent sunshine and rain showers, wind F1-2 S,	Moderate - Good	11	Unknown	Adult	2	River/ woodland	18.02	Flying	40	-	-	20	-	-	

Whooper Swan																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
		temp 10-12 C															
												27,000	56	199	10	0	0

Wigeon																	
Date	VP	Weather	Visibility	Map Ref	Sex	Age	No. of Birds	Habitat	Time of Flight/Obs.	Activity	Flight Height (m)	Time (secs) in Height Category					
												Non-flight	0-10m	10-50m	50-100m	100-200m	>200m
23/01/2017	1	Cloud 3/8, sunny hazy day, light breeze, cloud 3/8, wind F1-3 S, temp 8-10 C	Good	1	Unknown	Unknown	4	River	11.30	On water	n/a	120	-	-	-	-	-
24/01/2017	2	Light drizzle early on but mostly dry, cloud 8/8, wind F2-4 S-SW, temp 6 c	Good	2	Male and female	Adult	7	River/ riverbank	7.30	On water/ Feeding	n/a	1200	-	-	-	-	-
01/02/2017	2	Cloud 3/8 increasing to 8/8, sunny, rain from 13.00	Good	3	Unknown	Unknown	4	River	10.30	On water	n/a	10800	-	-	-	-	-
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate	4	Male and female	Adult	5	Temporary pond	7.30	On water	n/a	9240	-	-	-	-	-
02/02/2017	10	Cloud 8/8, very wet and blustery, wind F3-4 SE, temp 11 C	Poor - Moderate		Male and female	Adult	5	Temporary pond/ cutover	10.04	Flying/ circling	20-25	-	3	50	-	-	-
10/02/2017	1	Cloud 8/8, wind F0-1 E, temp 2 C	Good	5	Unknown	Unknown	10	River	7.20	On water	n/a	10800	-	-	-	-	-
22/03/2017	1	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C	Good		Unknown	Unknown	6	River	16.30	On water	n/a	10800	-	-	-	-	-
24/03/2017	1	Cold, dry sunny day, wind F3 N-NE, temp 14 C	Good		Unknown	Adult	6	River	10.00	On water	n/a	10800	-	-	-	-	-
												53,760	3	50	0	0	0

Appendix IV

Vantage Point Survey Flight Paths

Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Black-Headed Gull Survey Data - Sheet 1

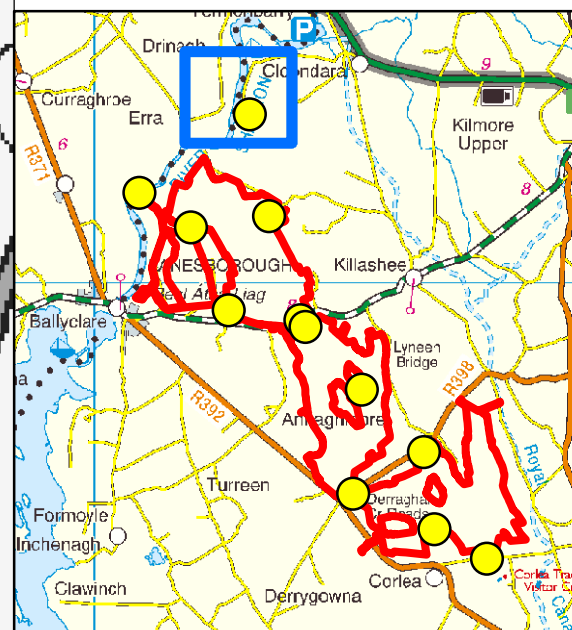
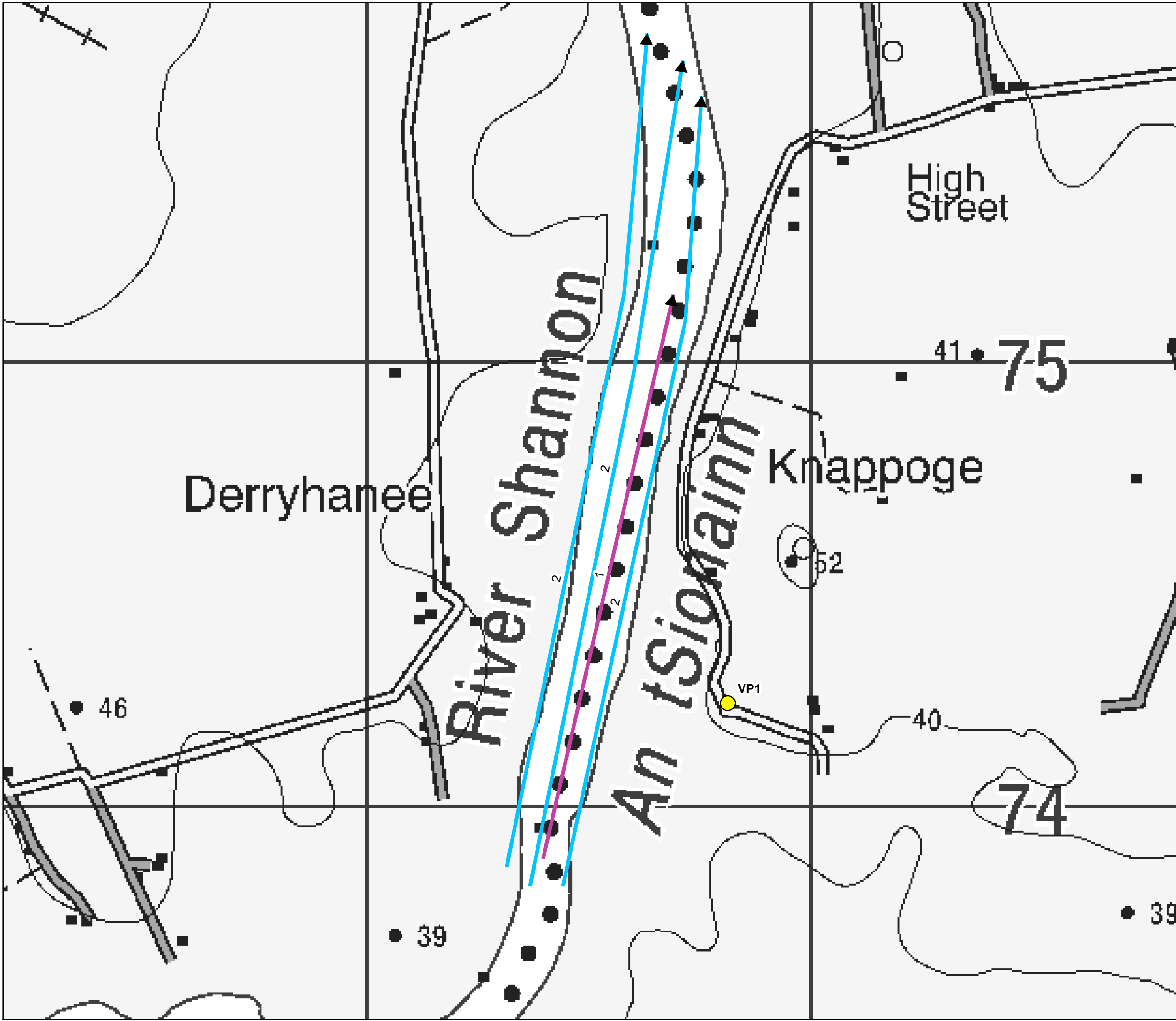
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Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 1.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Black-Headed Gull Survey Data - Sheet 2

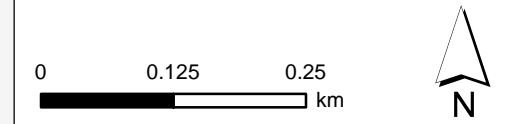
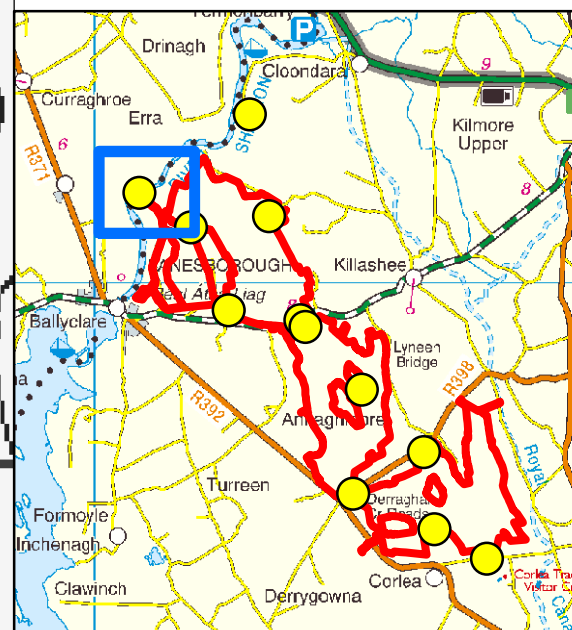
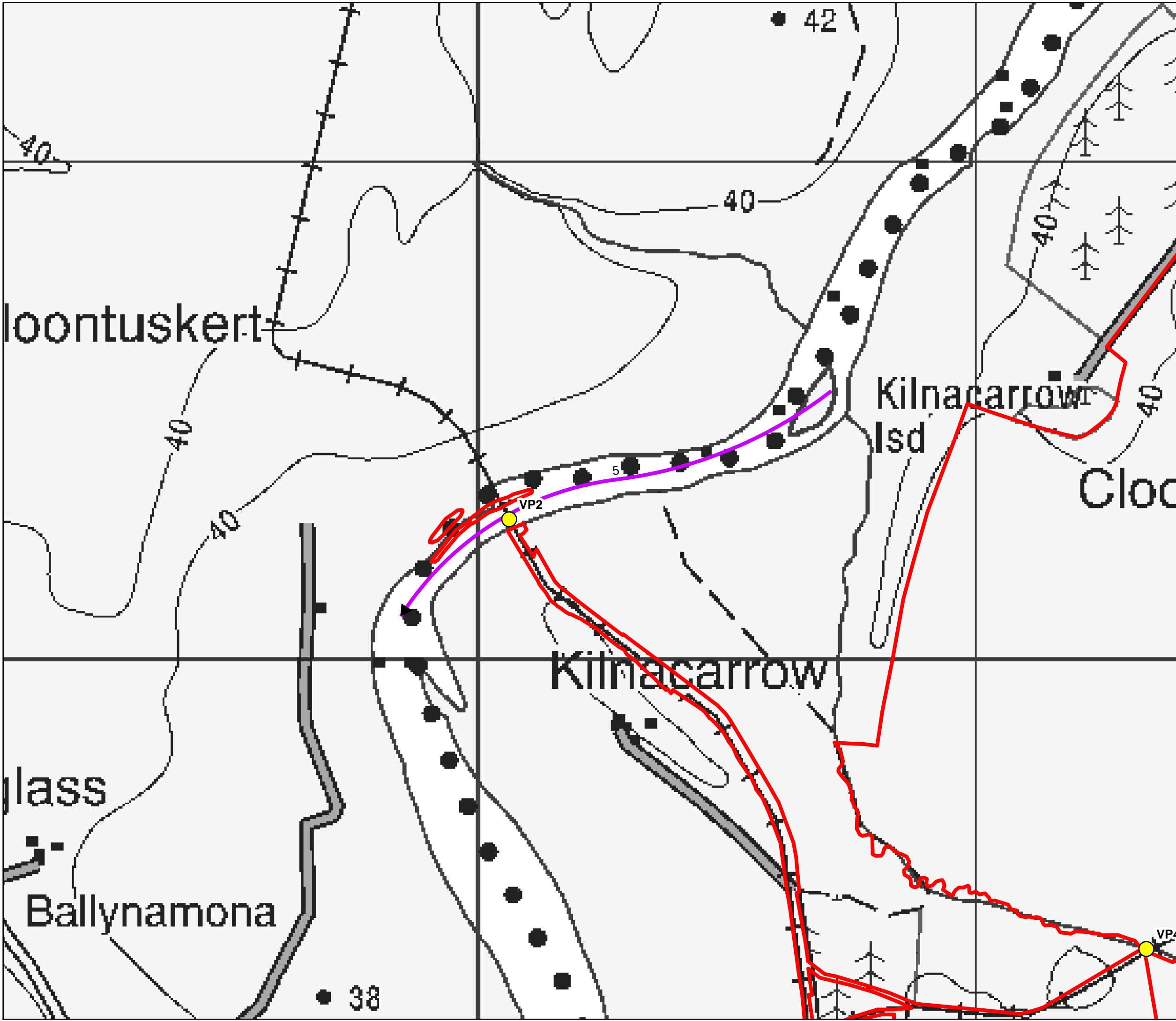
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 1.2



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VP2

VP4

Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Black-Headed Gull Survey Data - Sheet 3

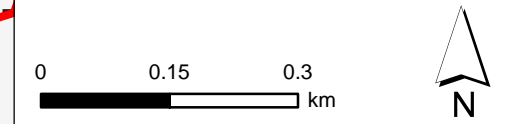
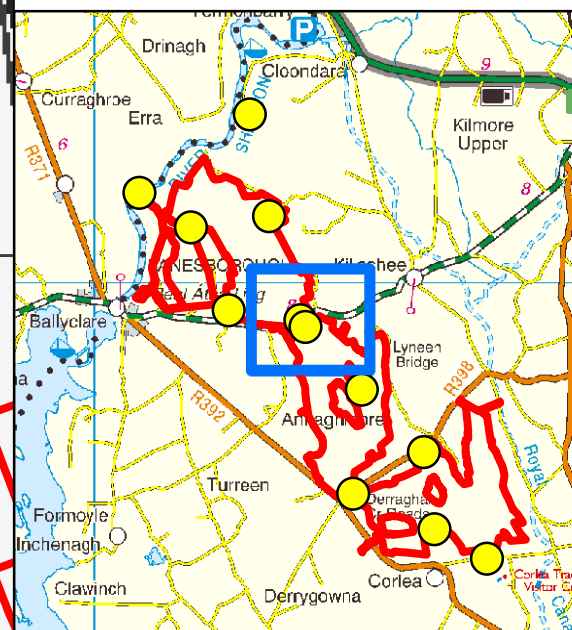
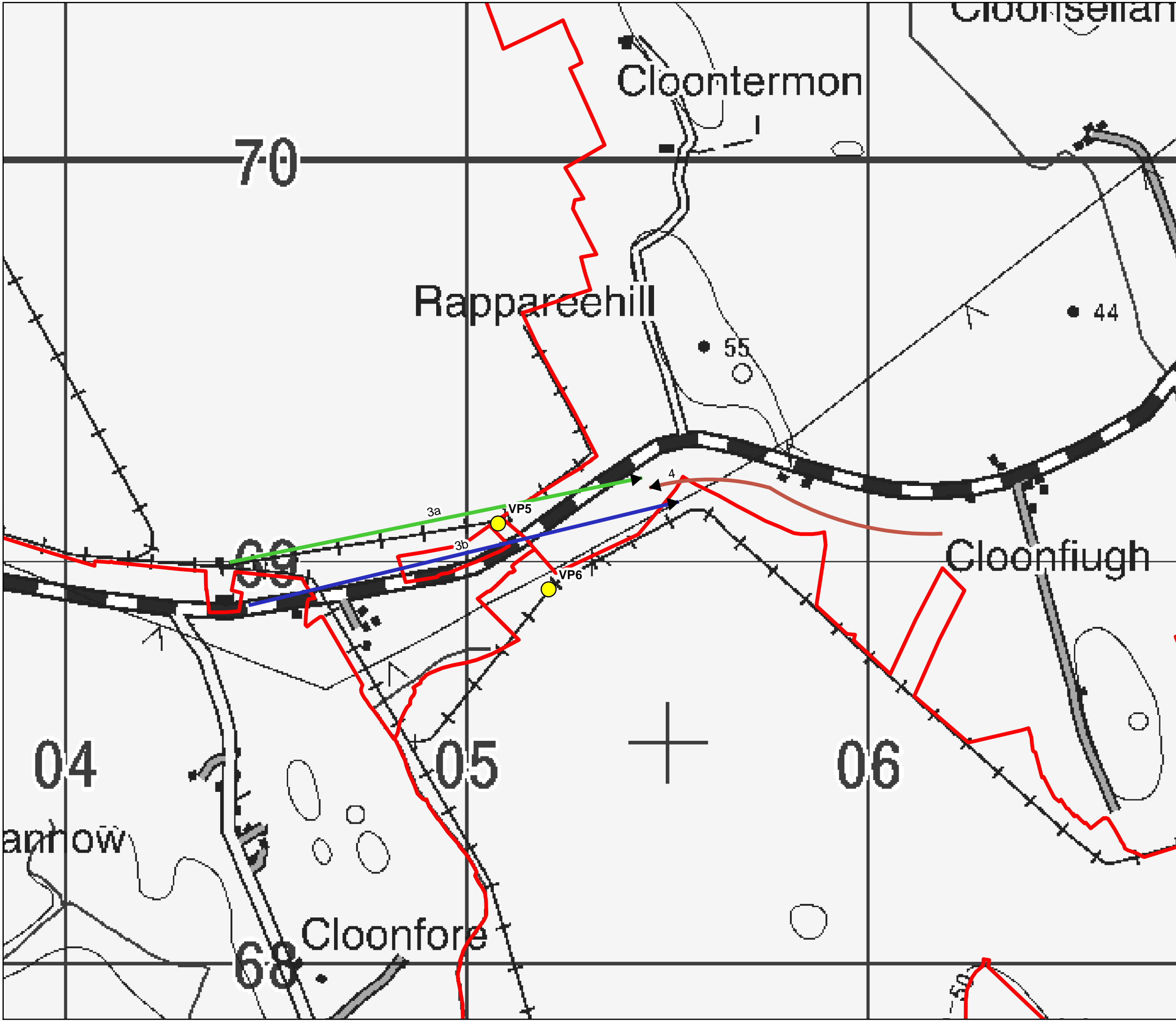
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Drawn by: JK
Checked by: HD
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Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 1.3



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Buzzard Survey Data - Sheet 1

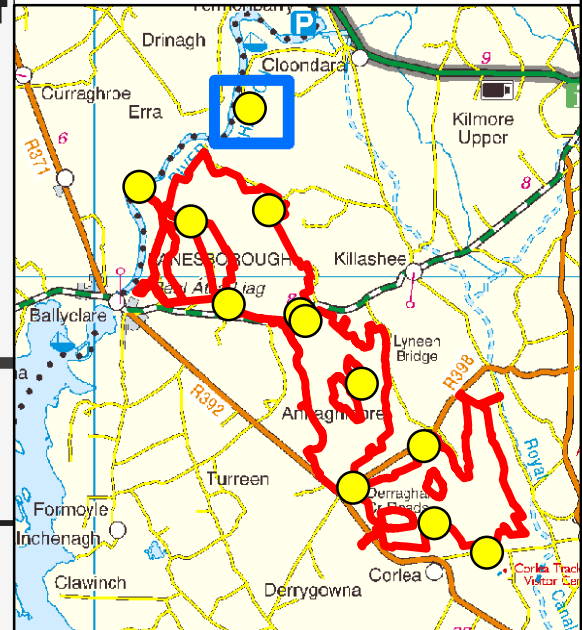
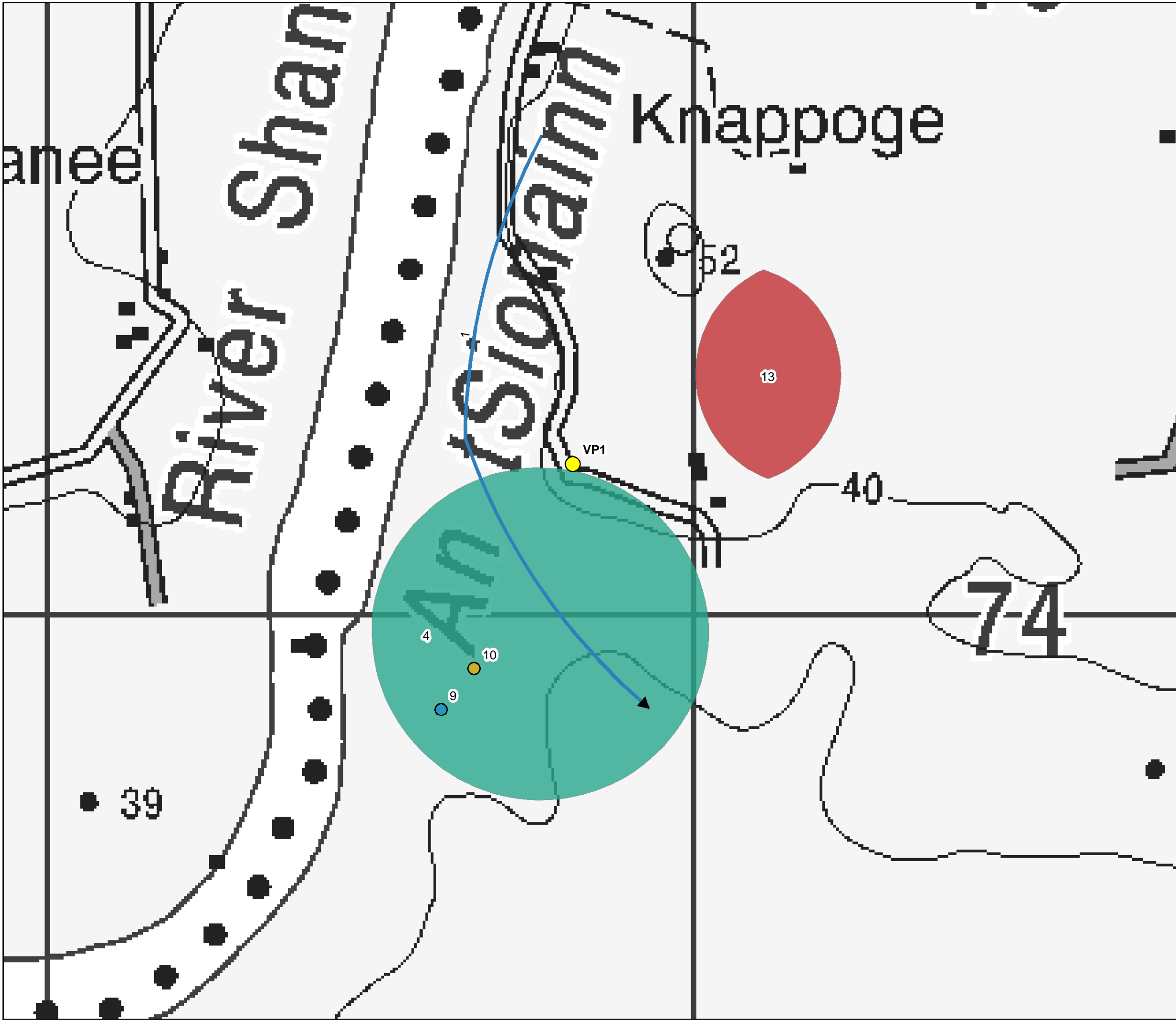
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Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 2.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Buzzard Survey Data - Sheet 2

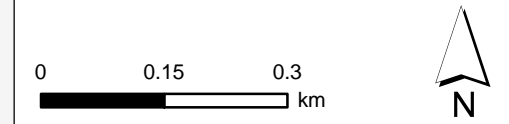
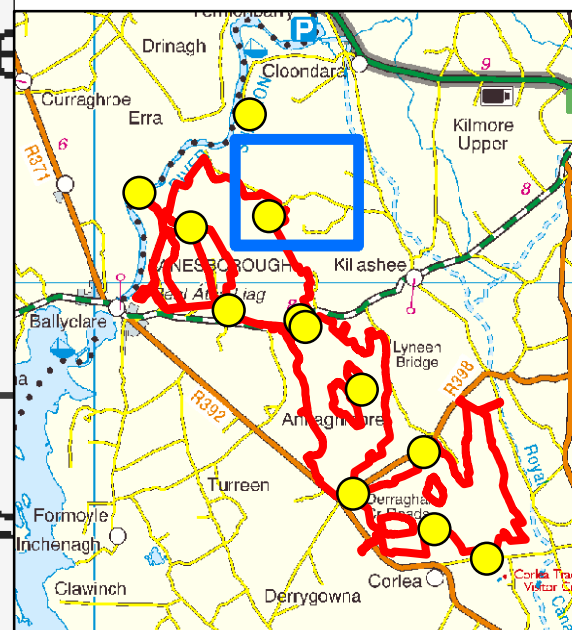
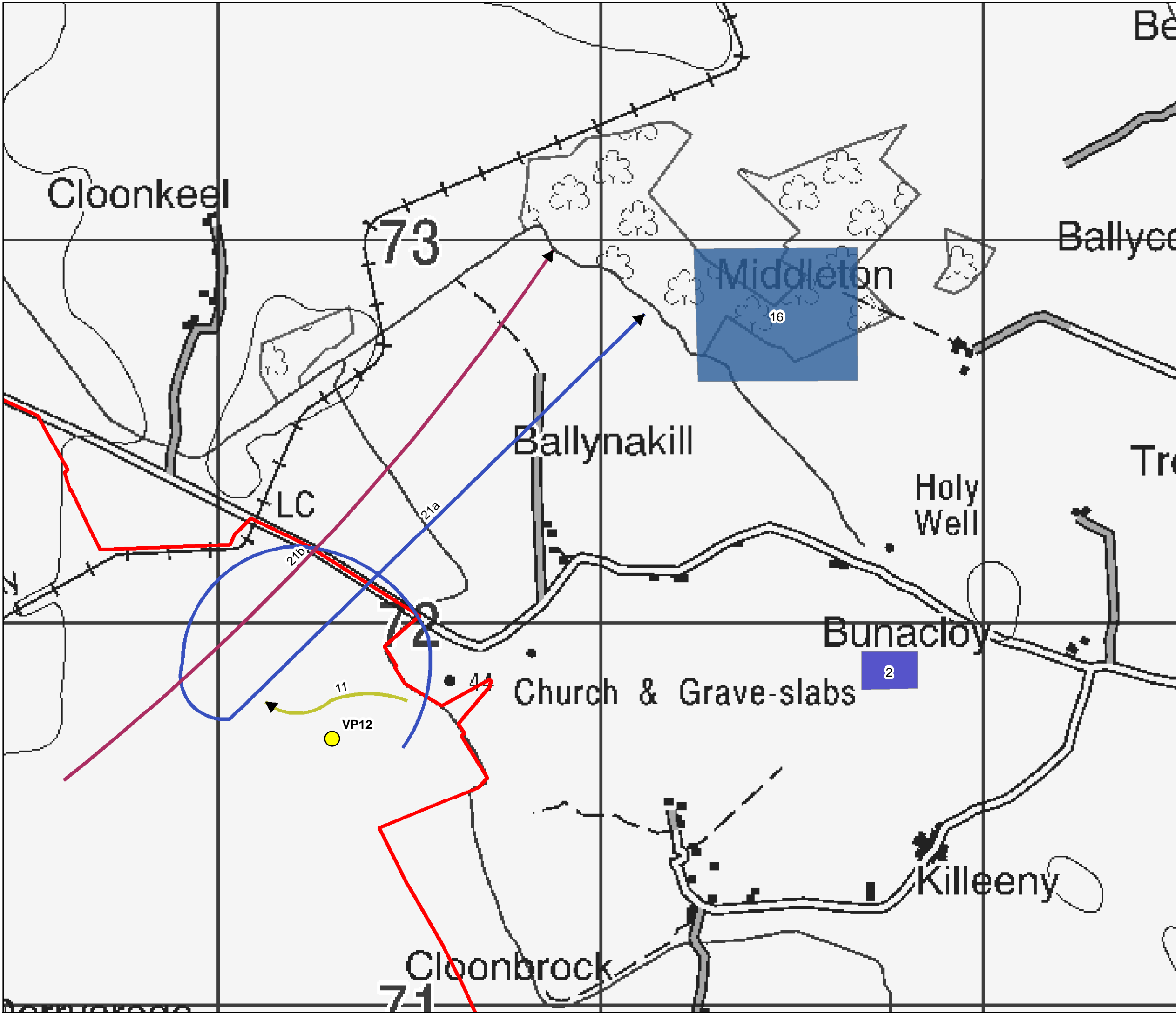
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Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- Site Boundary

Map Ref - 2.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Buzzard Survey Data - Sheet 3

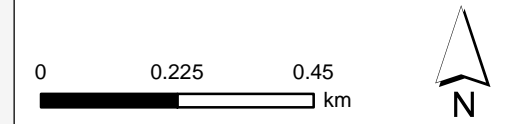
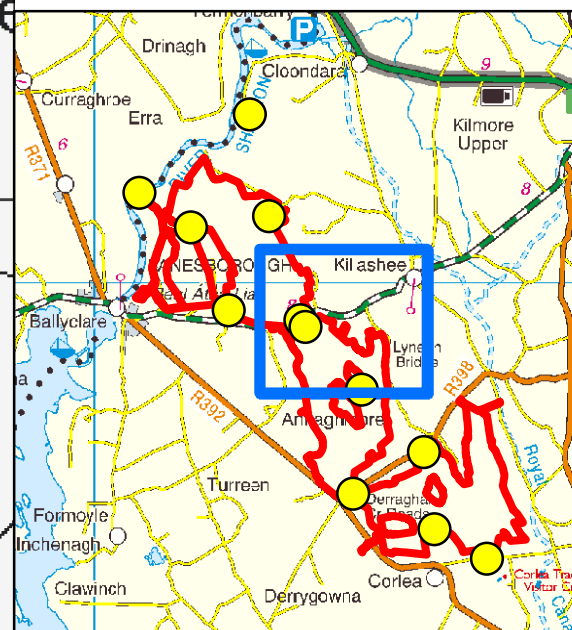
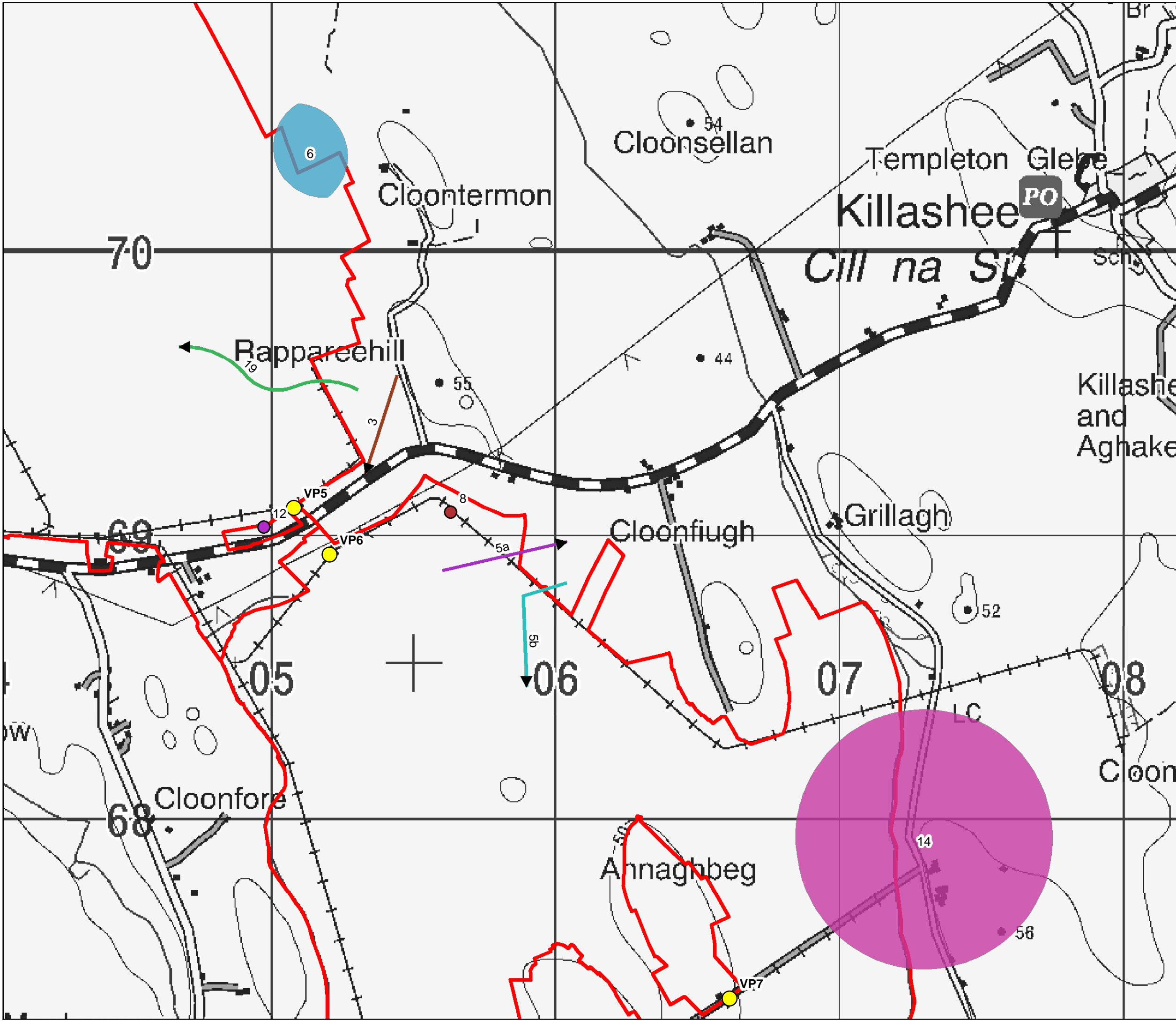
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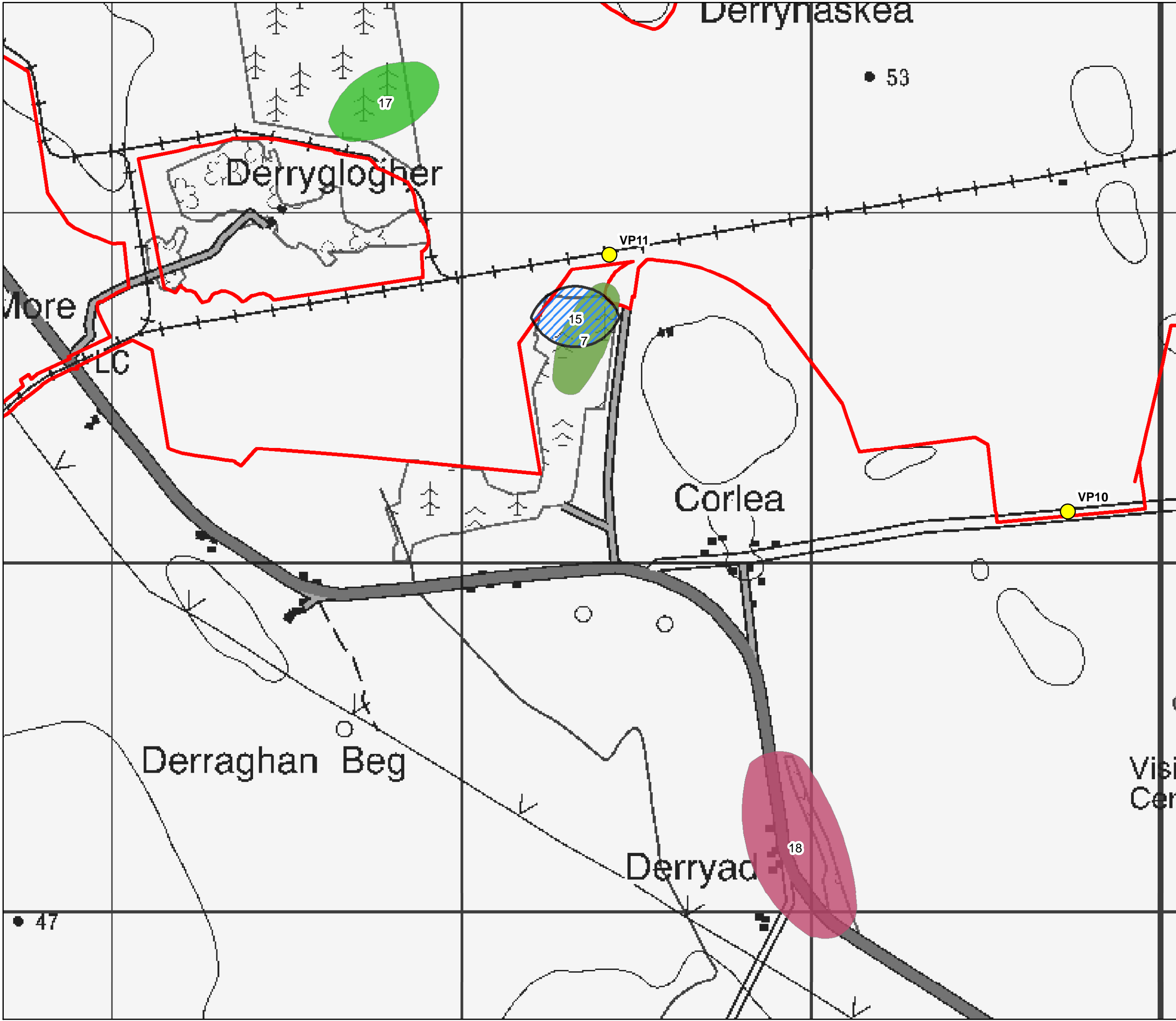
Legend

- Vantage Points
- Site Boundary

Map Ref - 2.3



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Buzzard Survey Data - Sheet 4

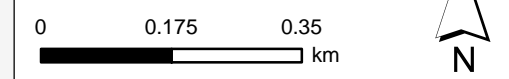
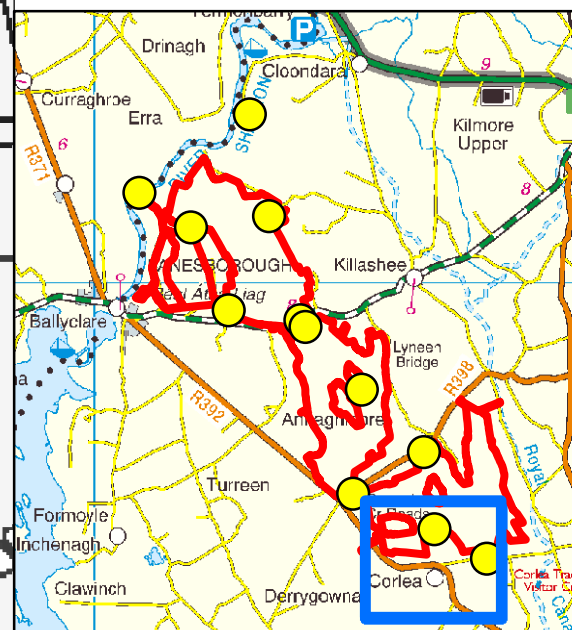
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Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- Site Boundary

Map Ref - 2.4



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VP11

VP10



Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Coot Survey Data

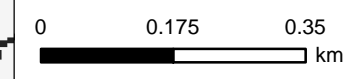
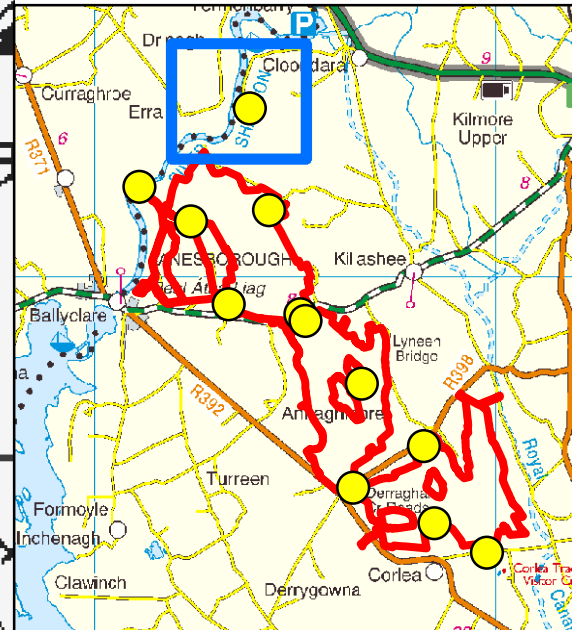
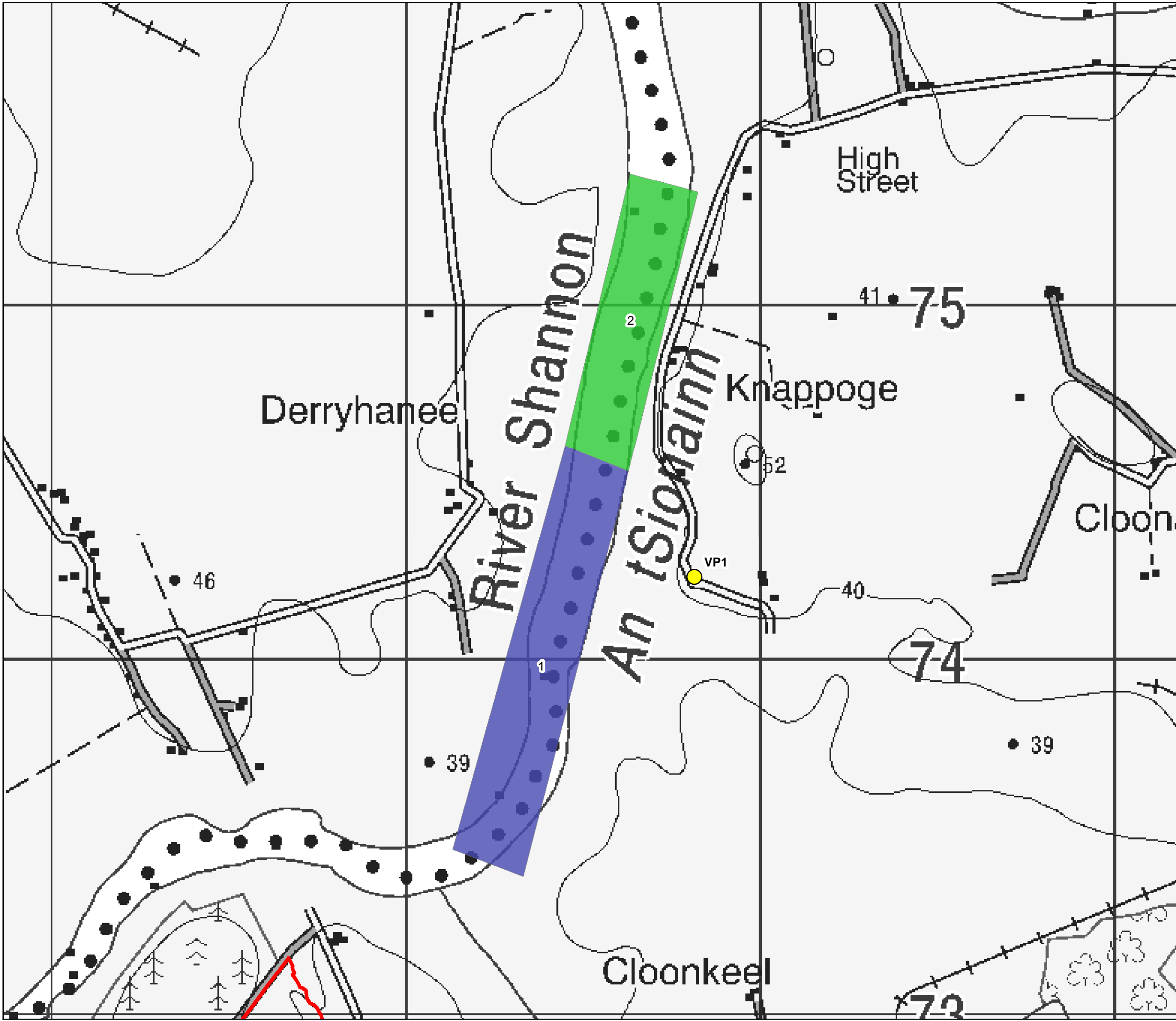
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Legend

-  Vantage Points
-  Site Boundary

Map Ref - 3.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Cormorant Survey Data - Sheet 1

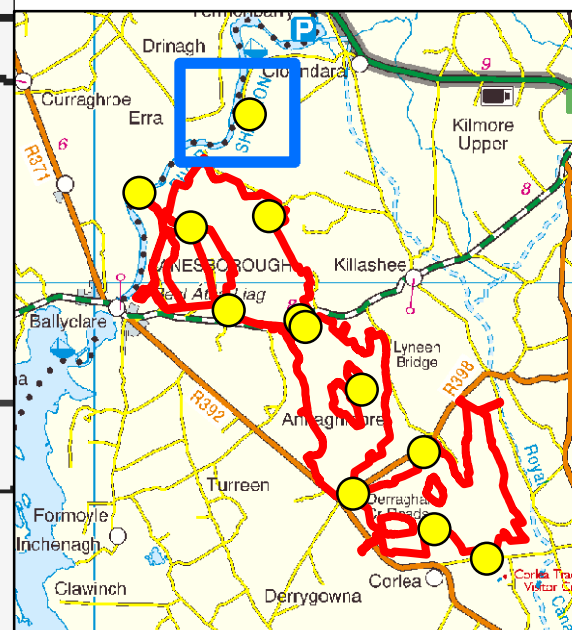
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 4.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Cormorant Survey Data - Sheet 2

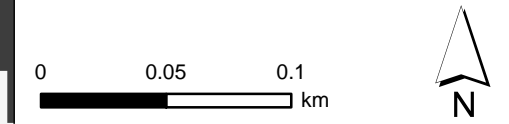
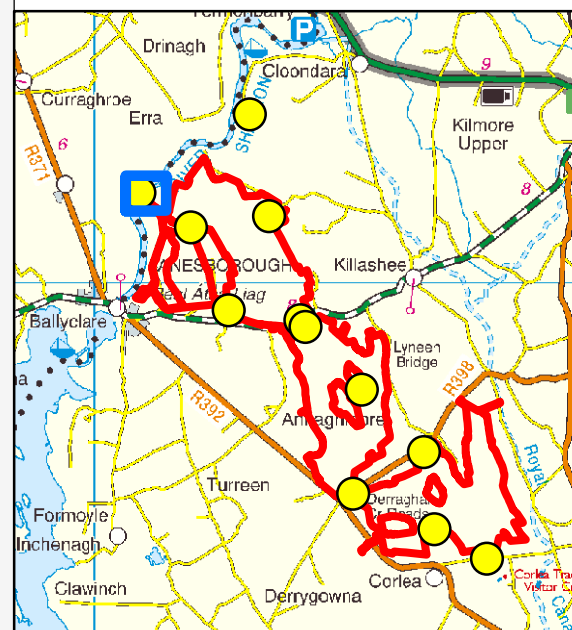
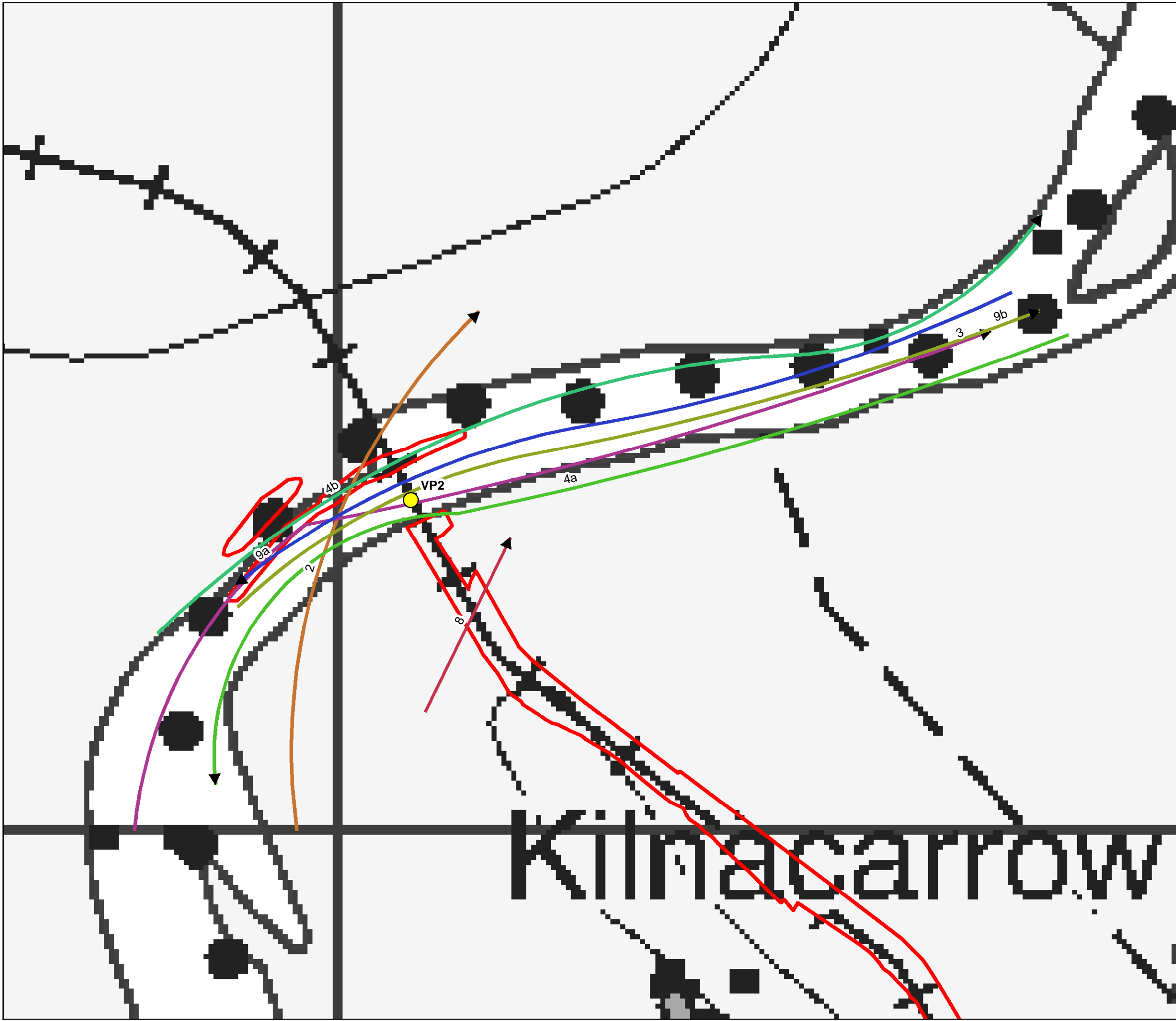
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 4.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Cormorant Survey Data - Sheet 3

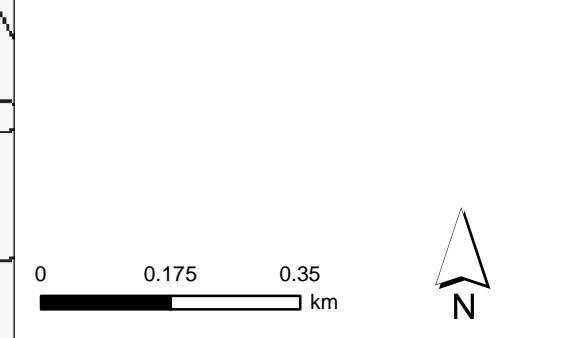
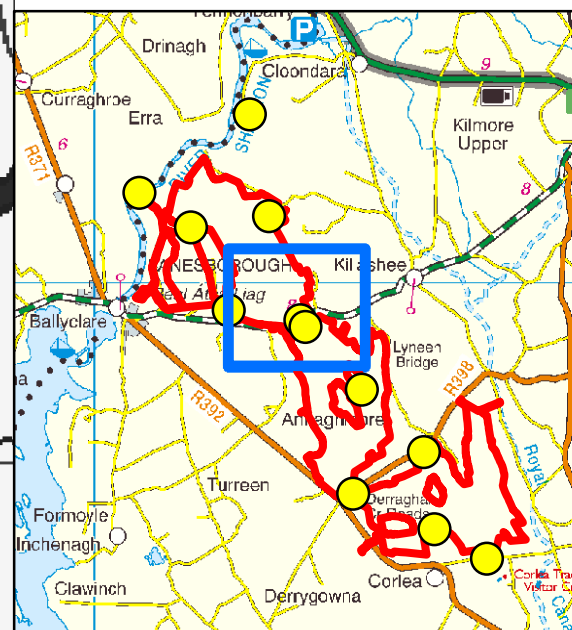
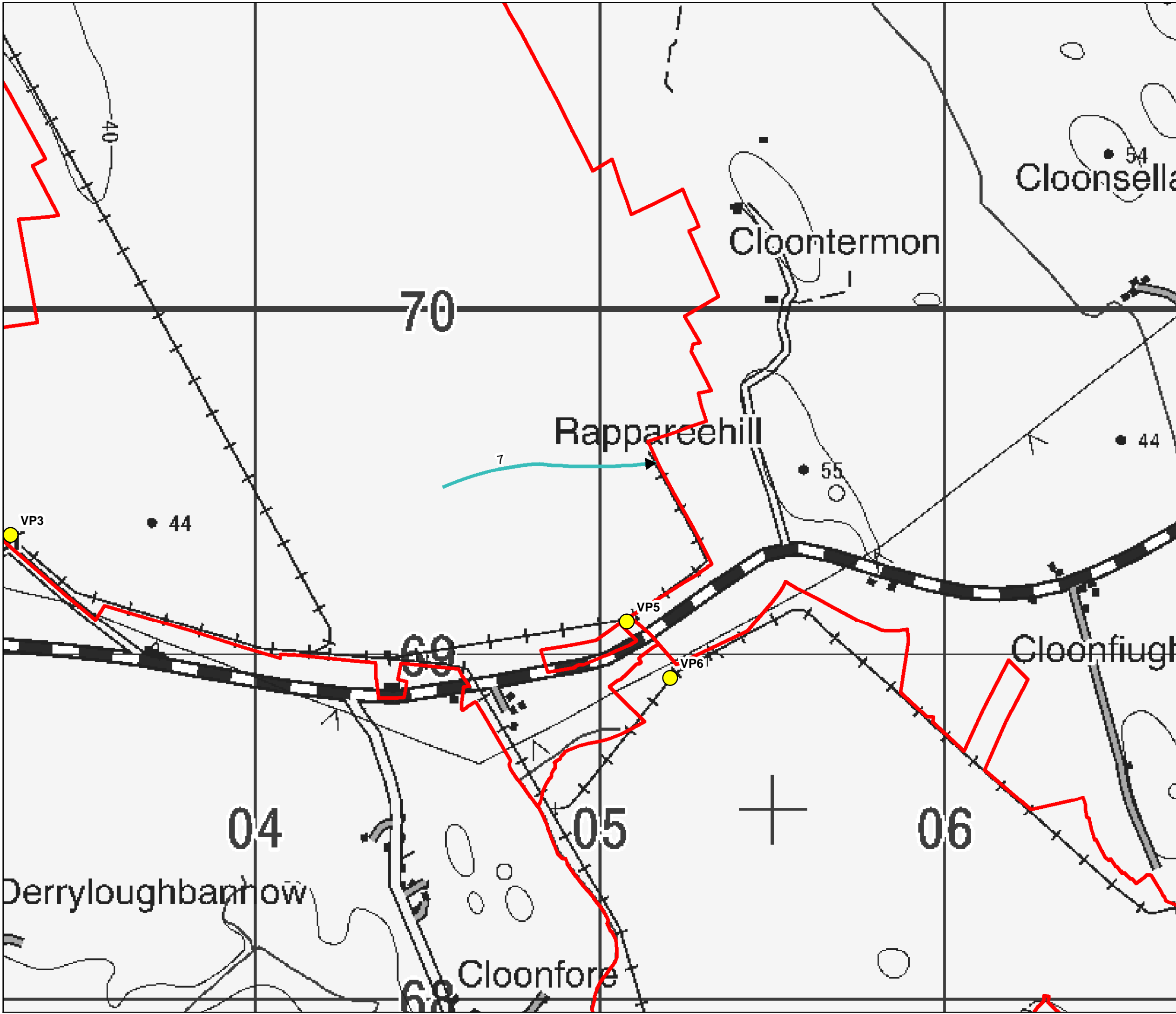
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 4.3



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Derryhamee

River Shan

AN tSionainn

Knappoge



Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Curlew Survey Data

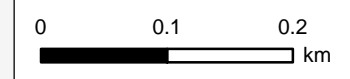
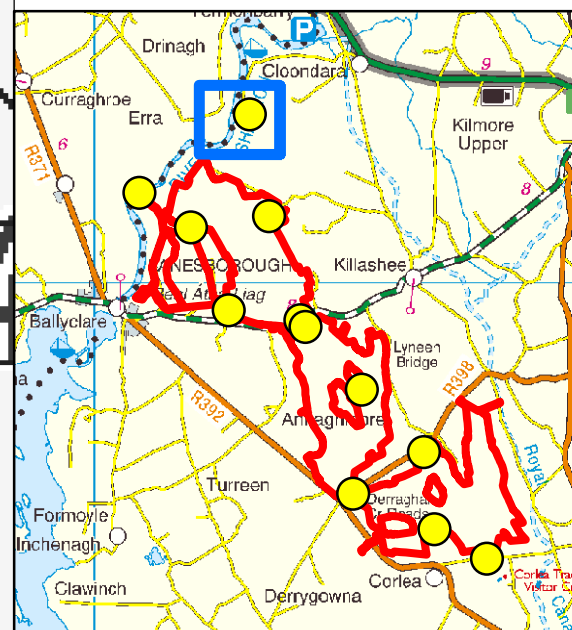
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

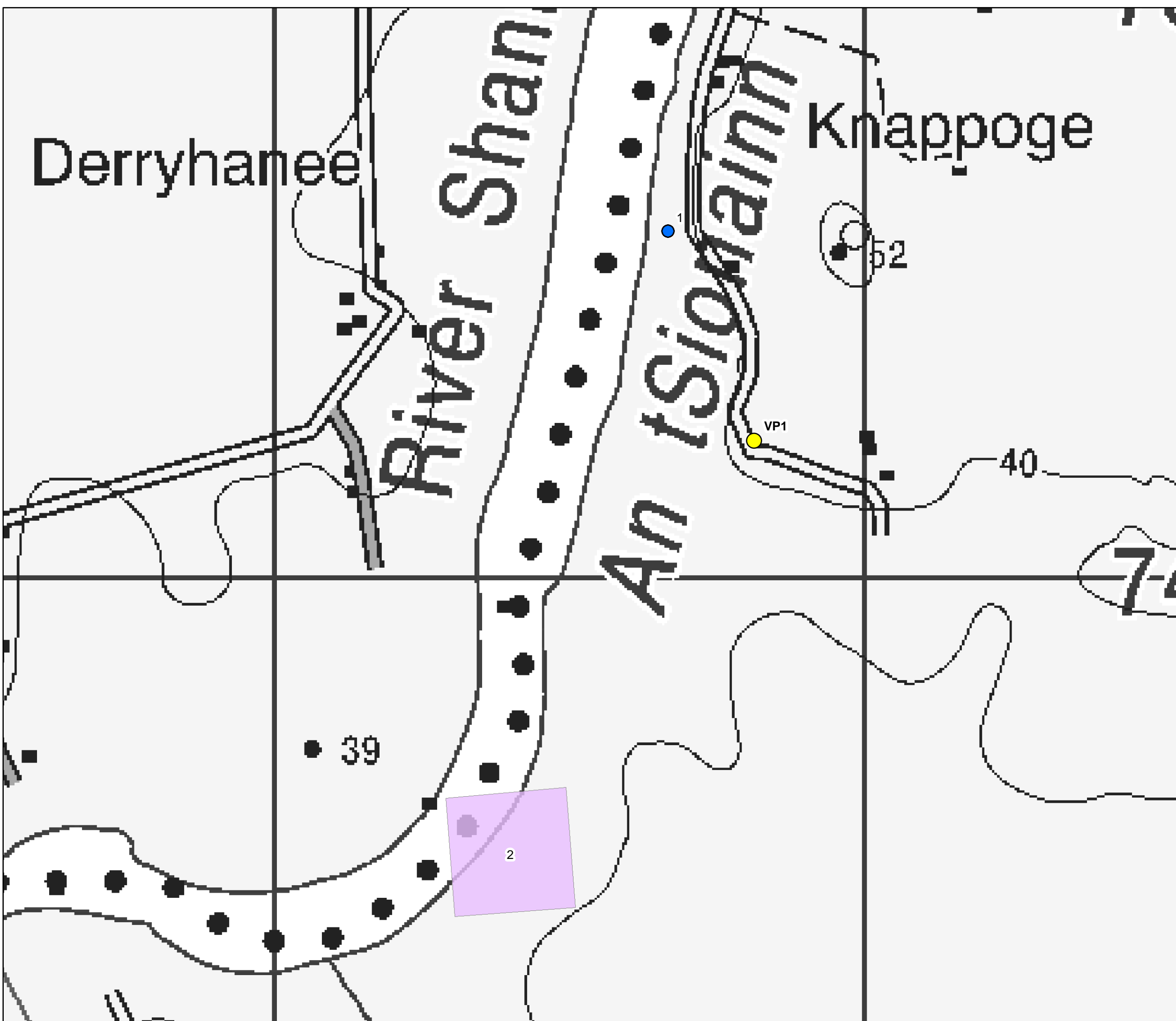
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 5.1



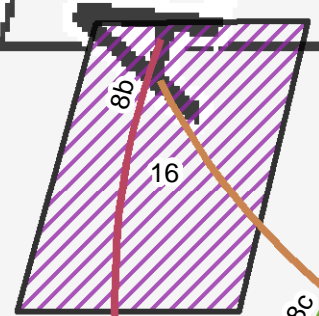
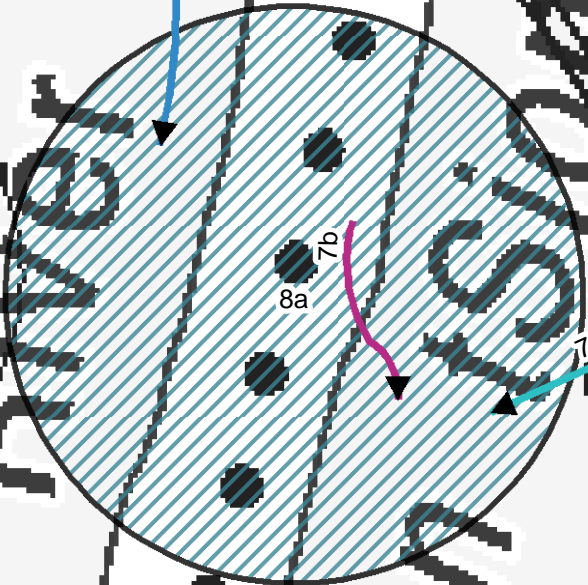
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Derryhamee

River Shann
River Slonainn

Knappoge





Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Golden Plover - Sheet 1

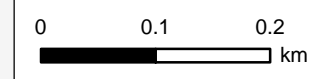
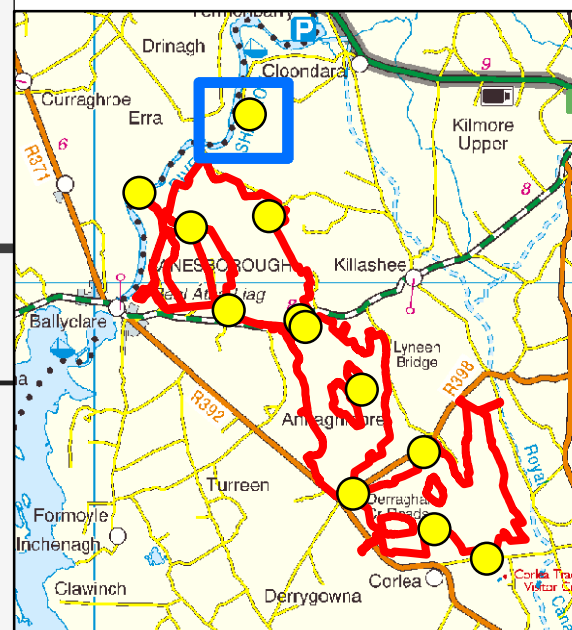
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 6.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Golden Plover - Sheet 2

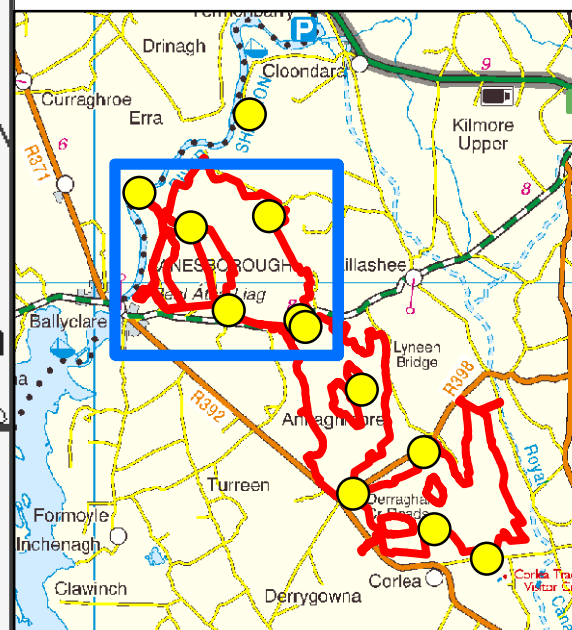
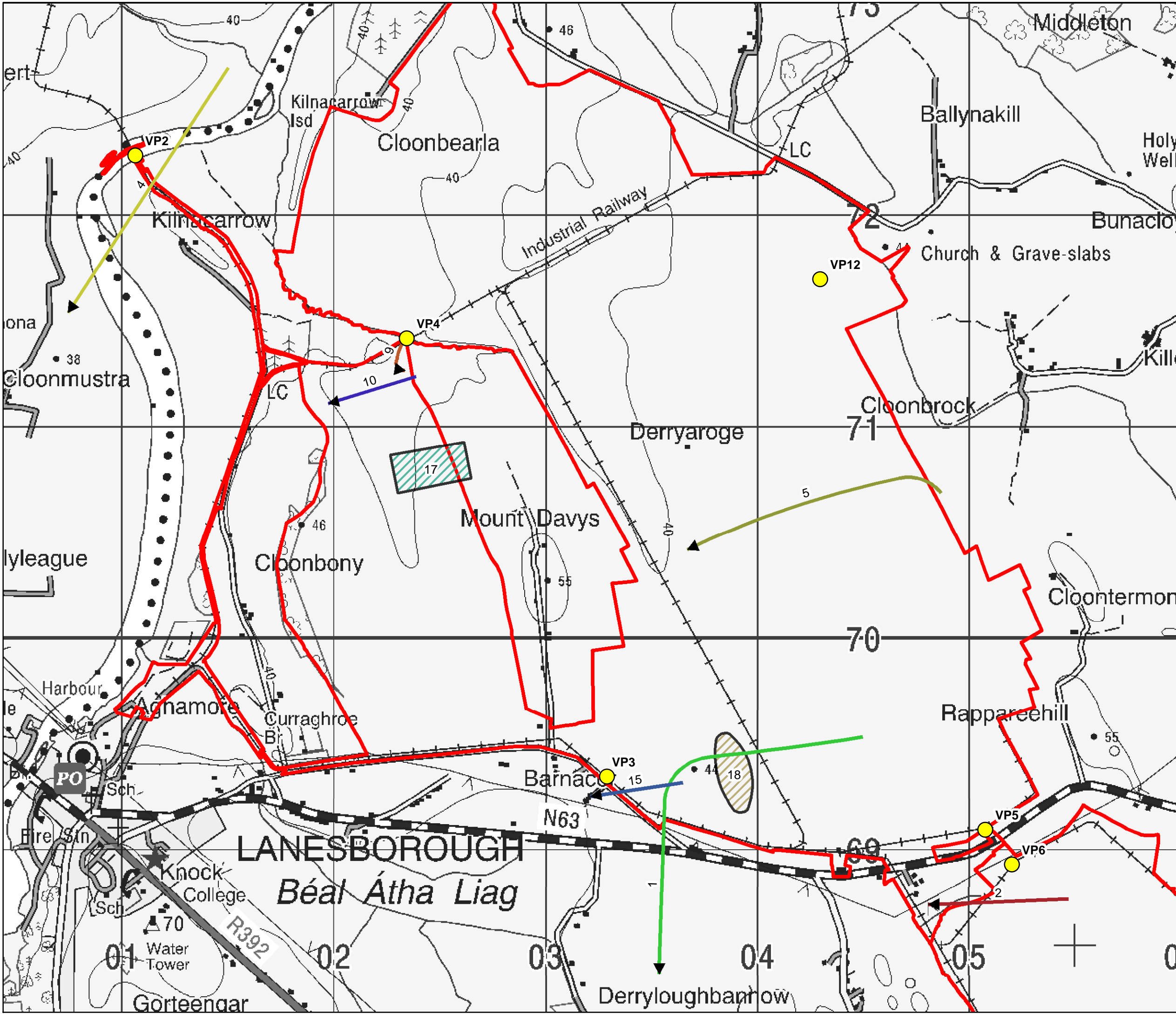
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 6.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Golden Plover - Sheet 3

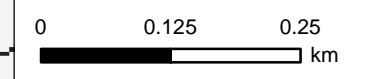
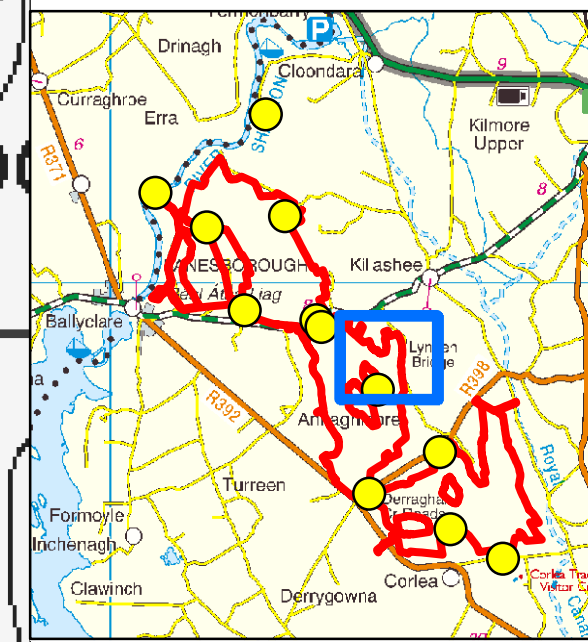
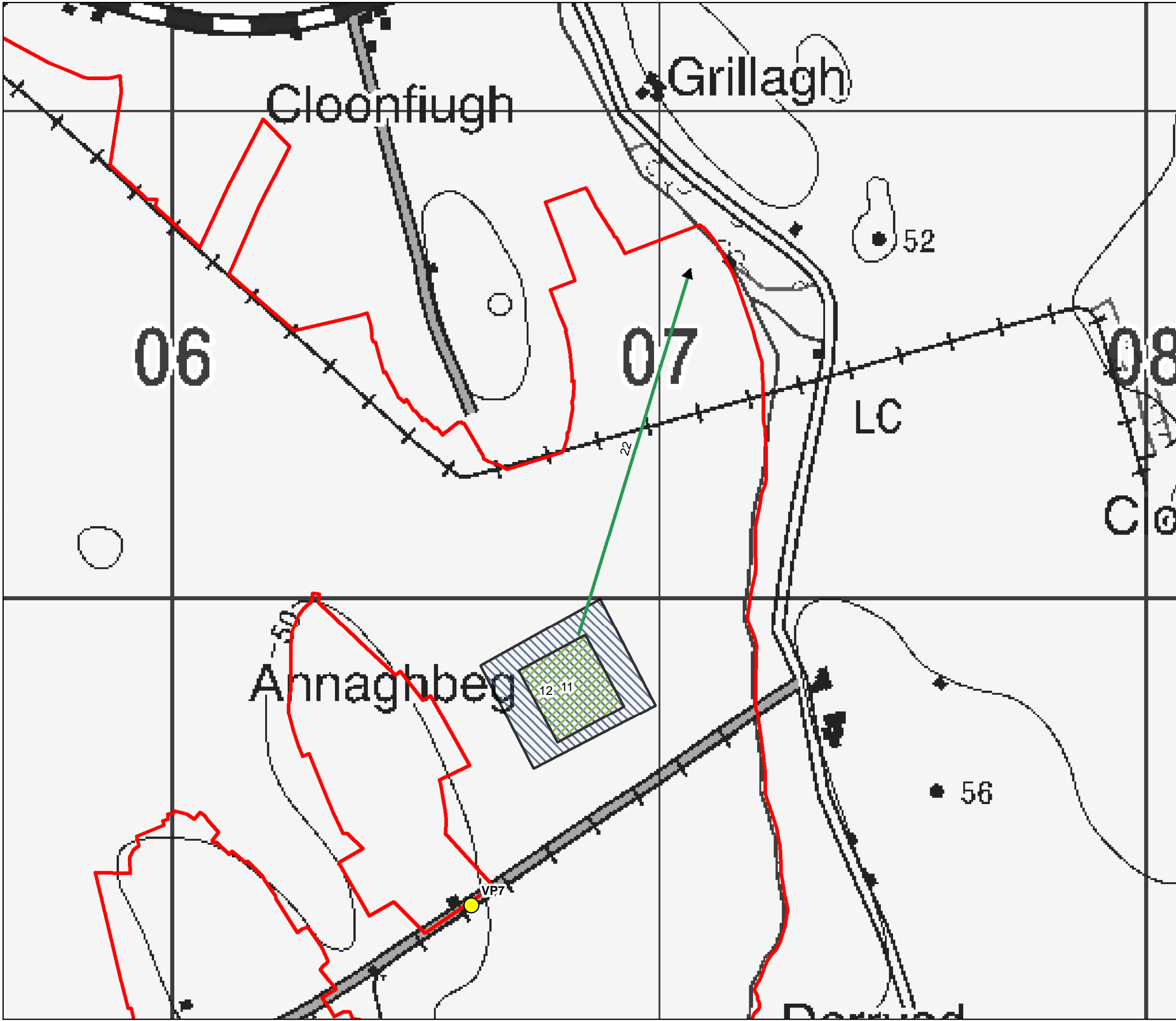
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 6.3



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Golden Plover - Sheet 4

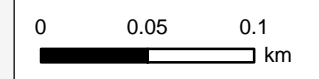
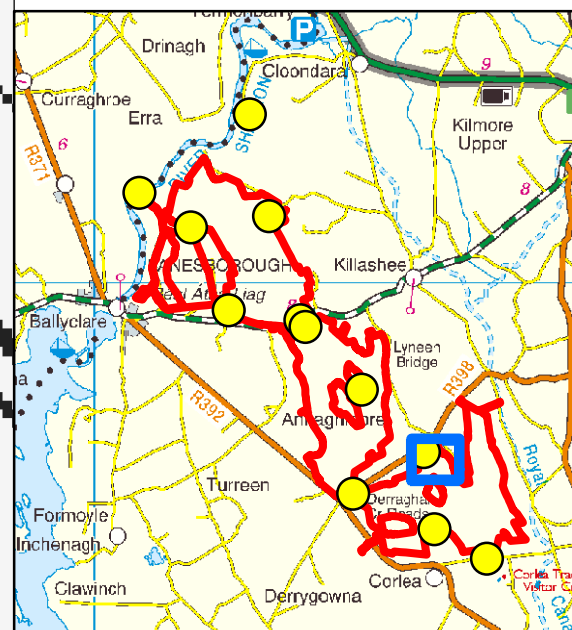
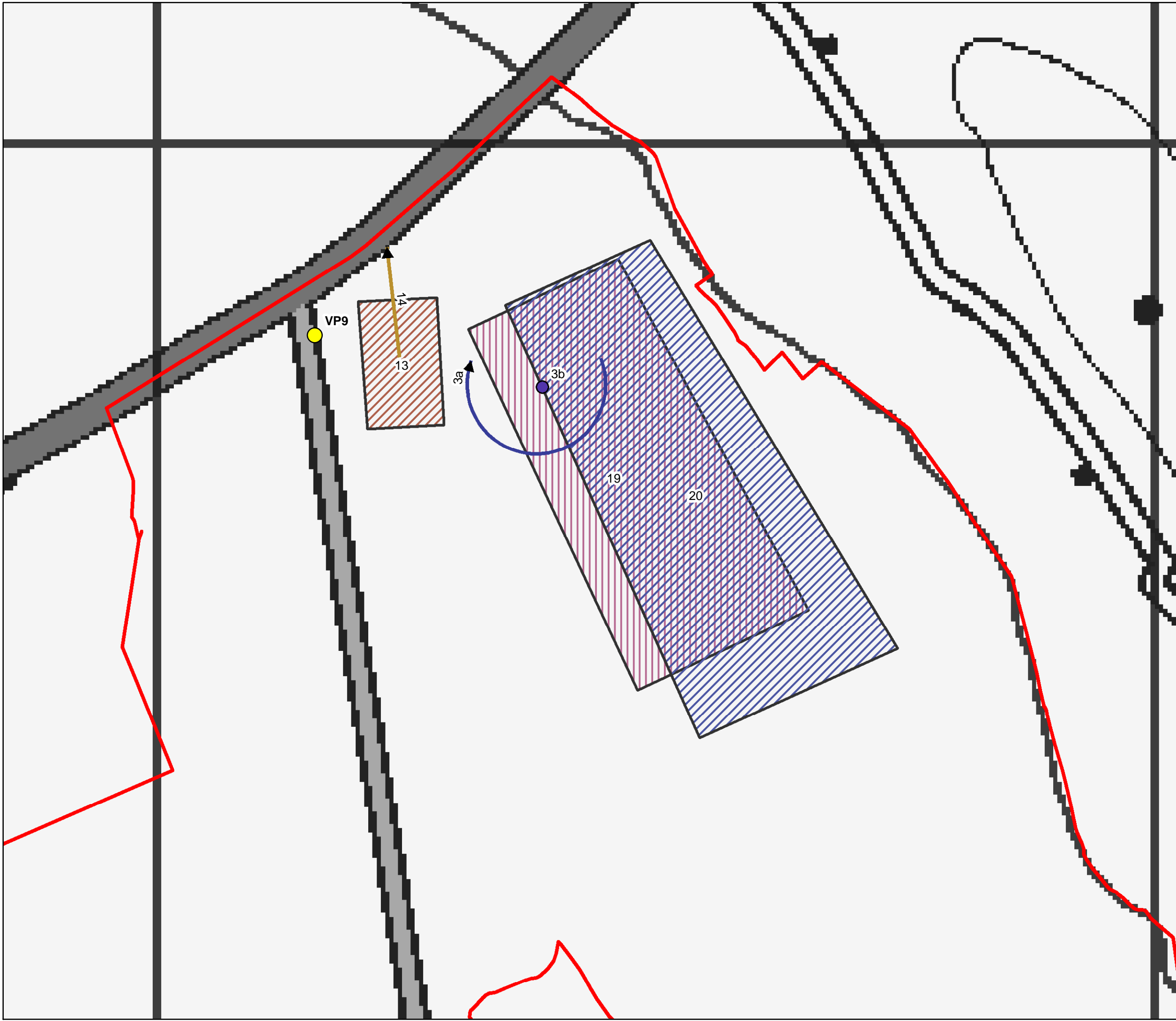
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 6.4



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Golden Plover - Sheet 5

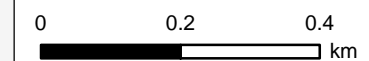
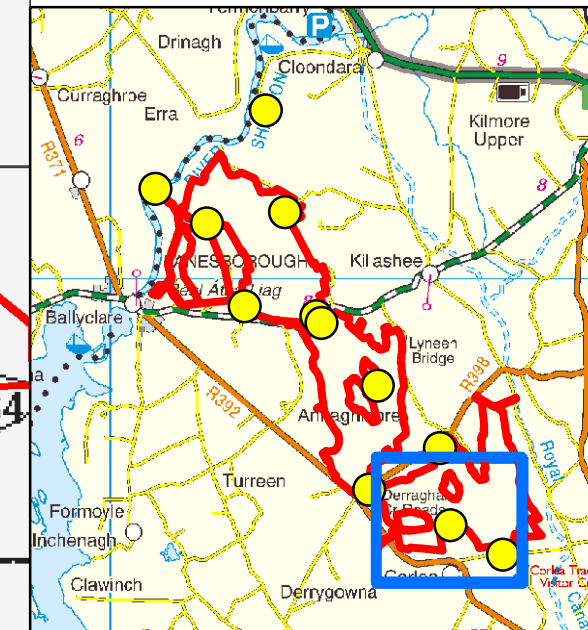
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

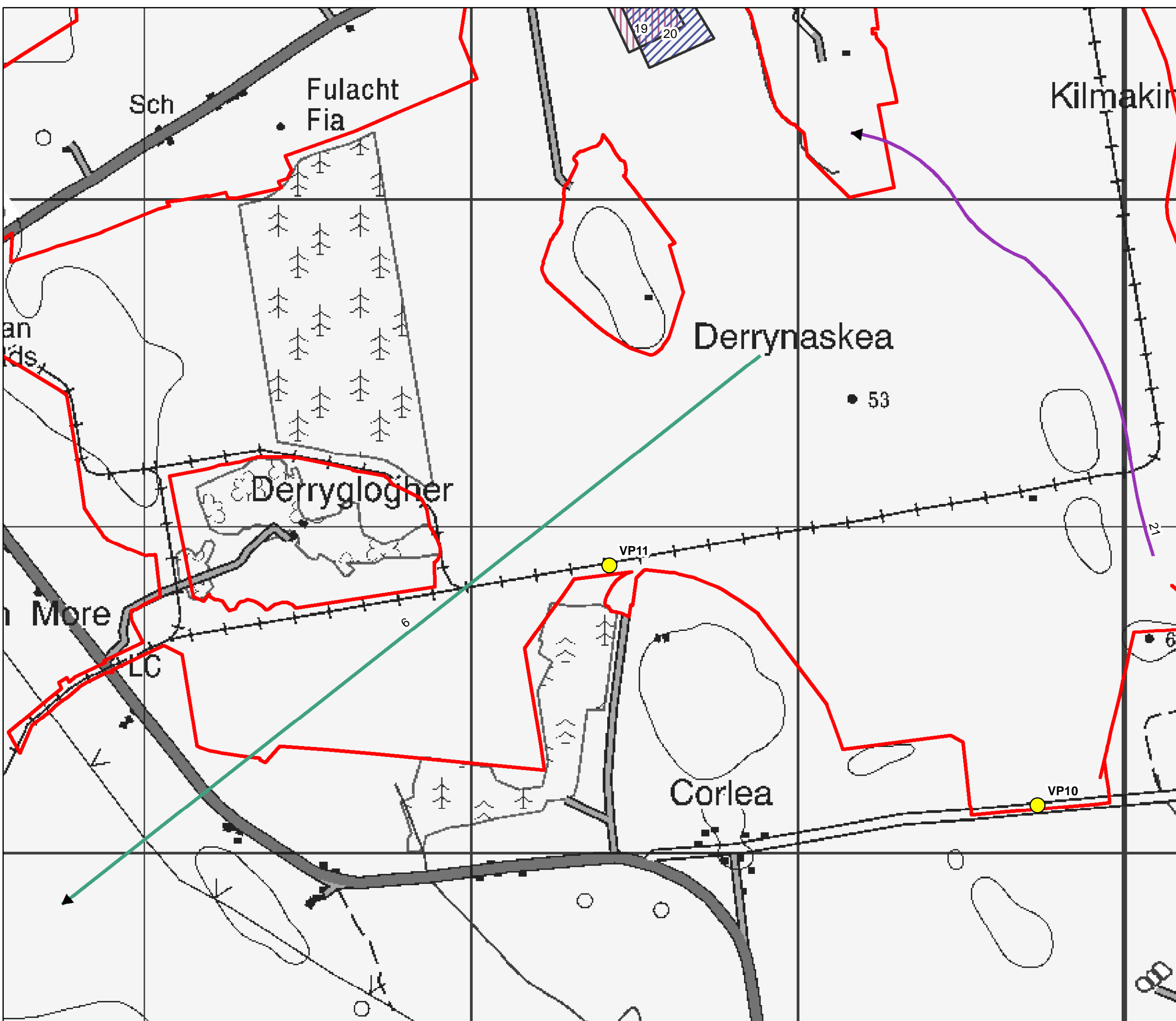
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 6.5



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Great-Crested Grebe

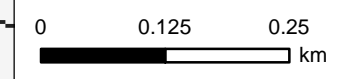
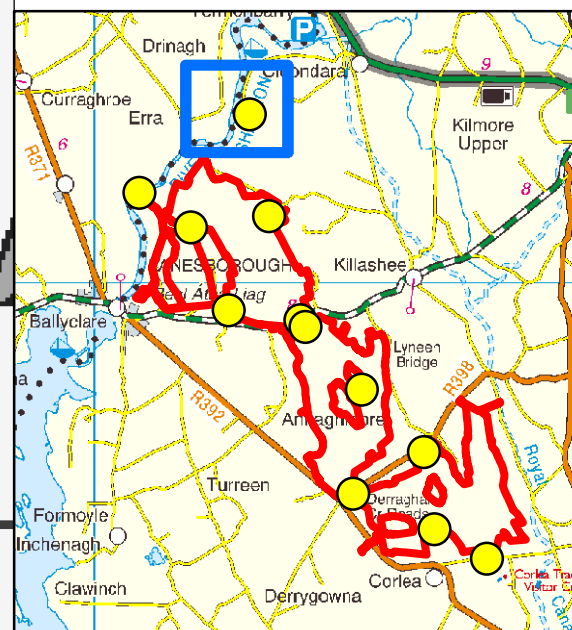
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

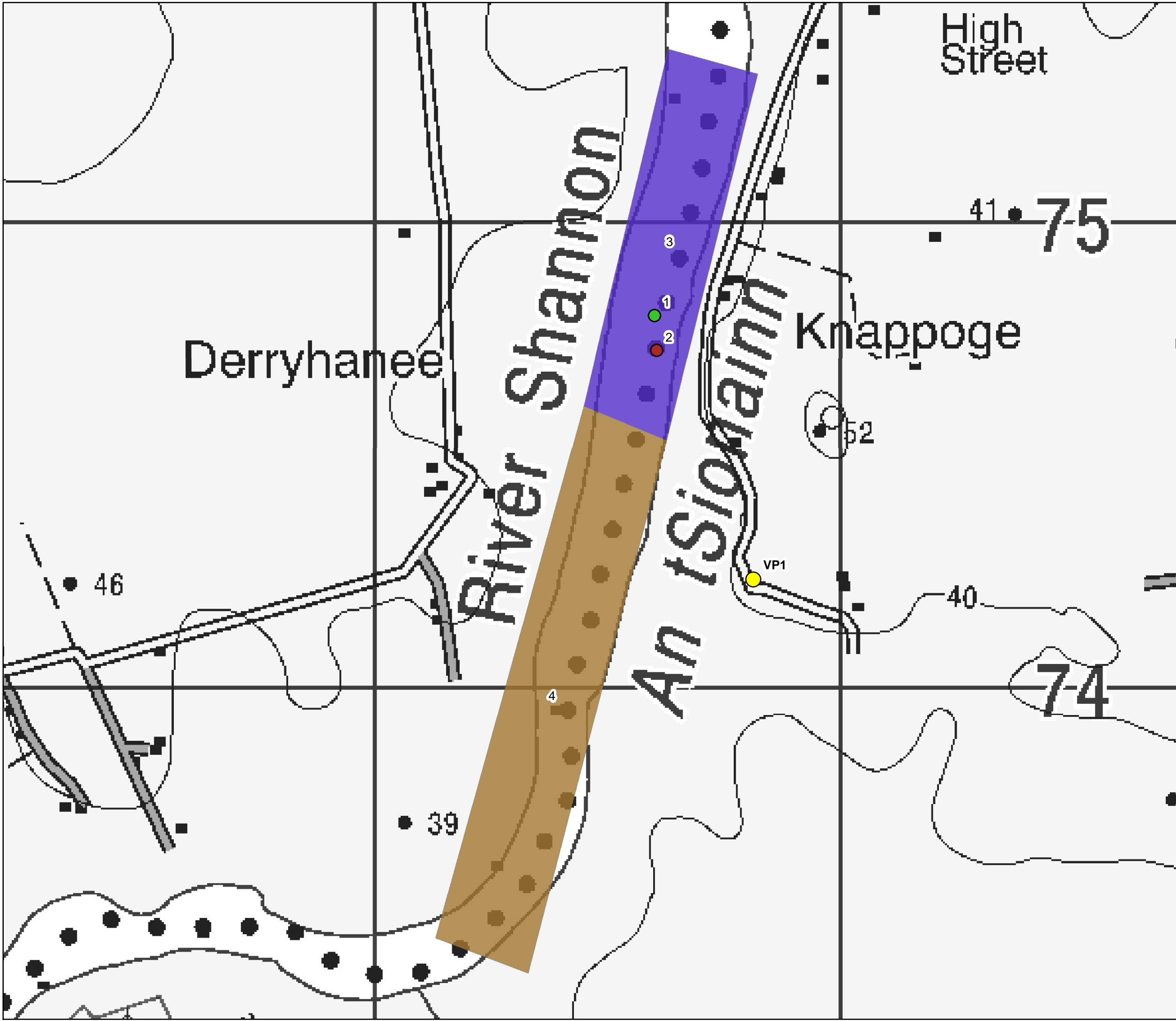
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 7.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Grey Heron Survey Data - Sheet 1

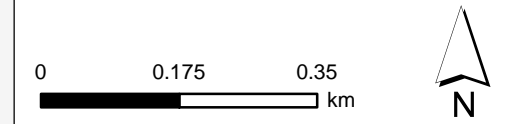
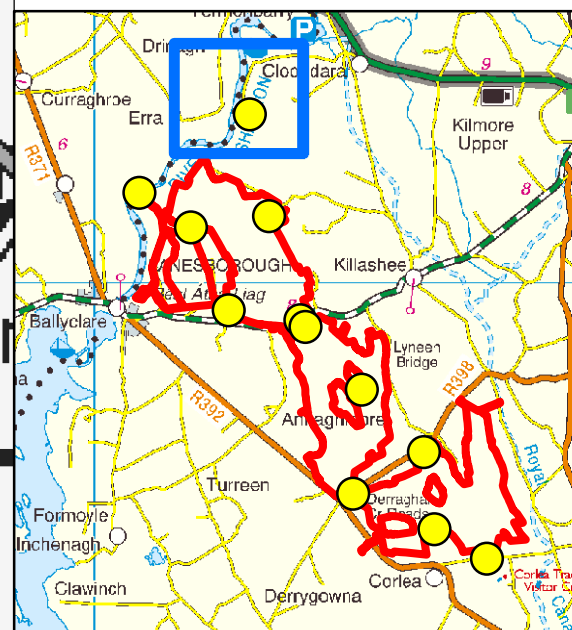
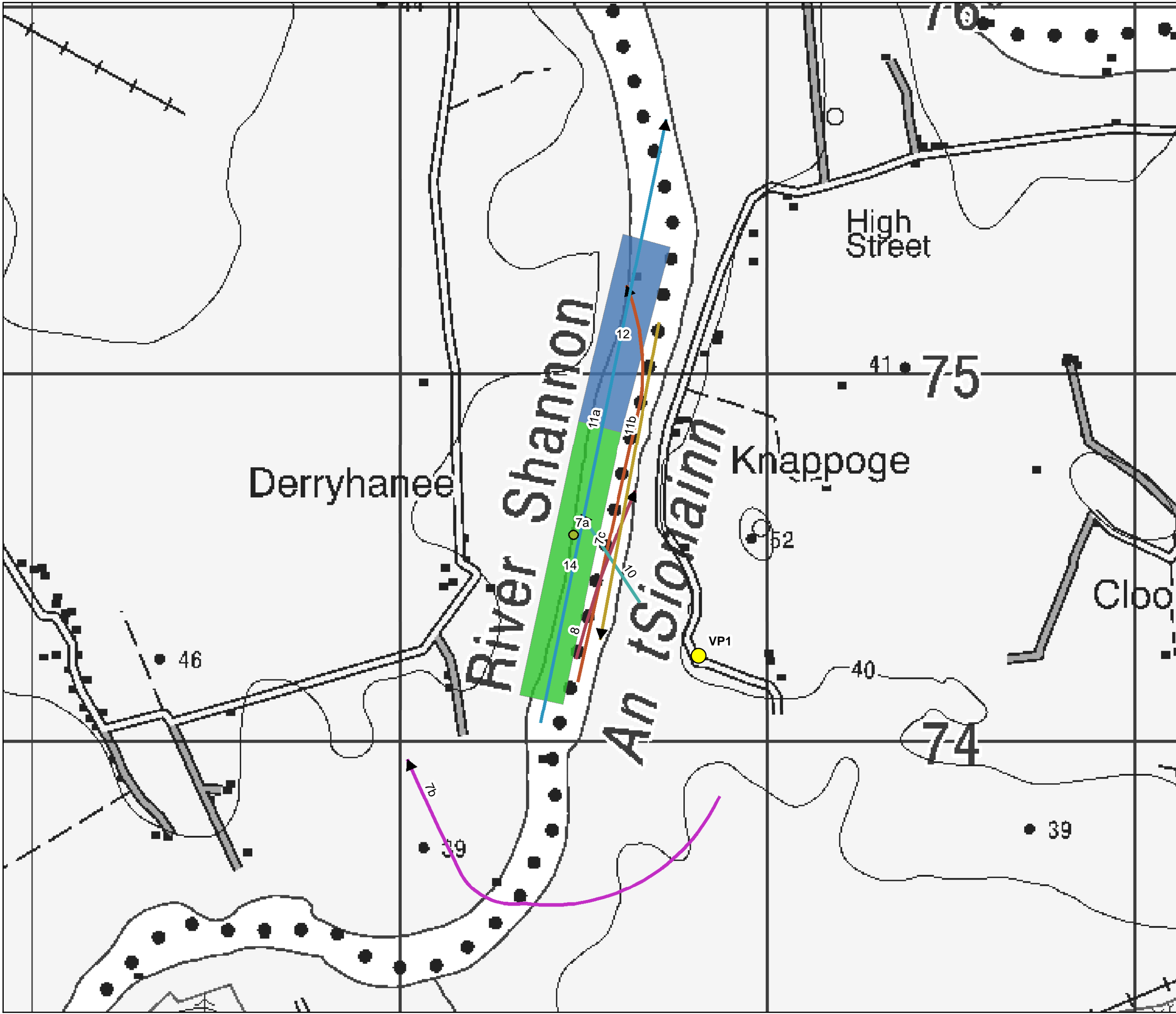
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 8.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Grey Heron Survey Data - Sheet 2

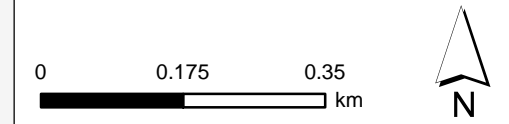
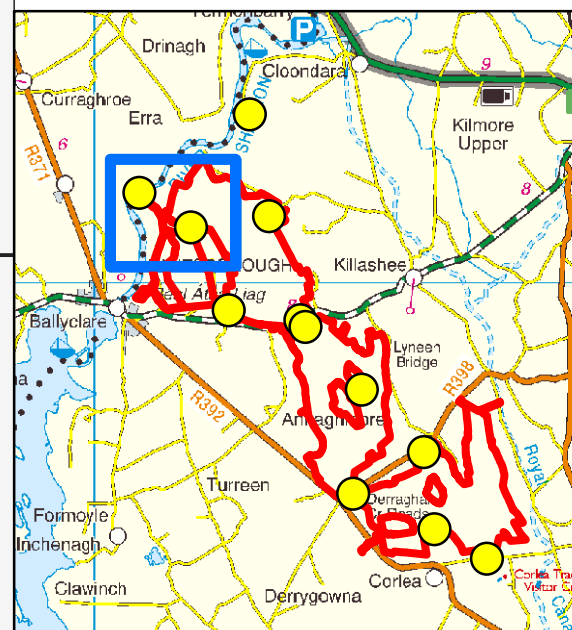
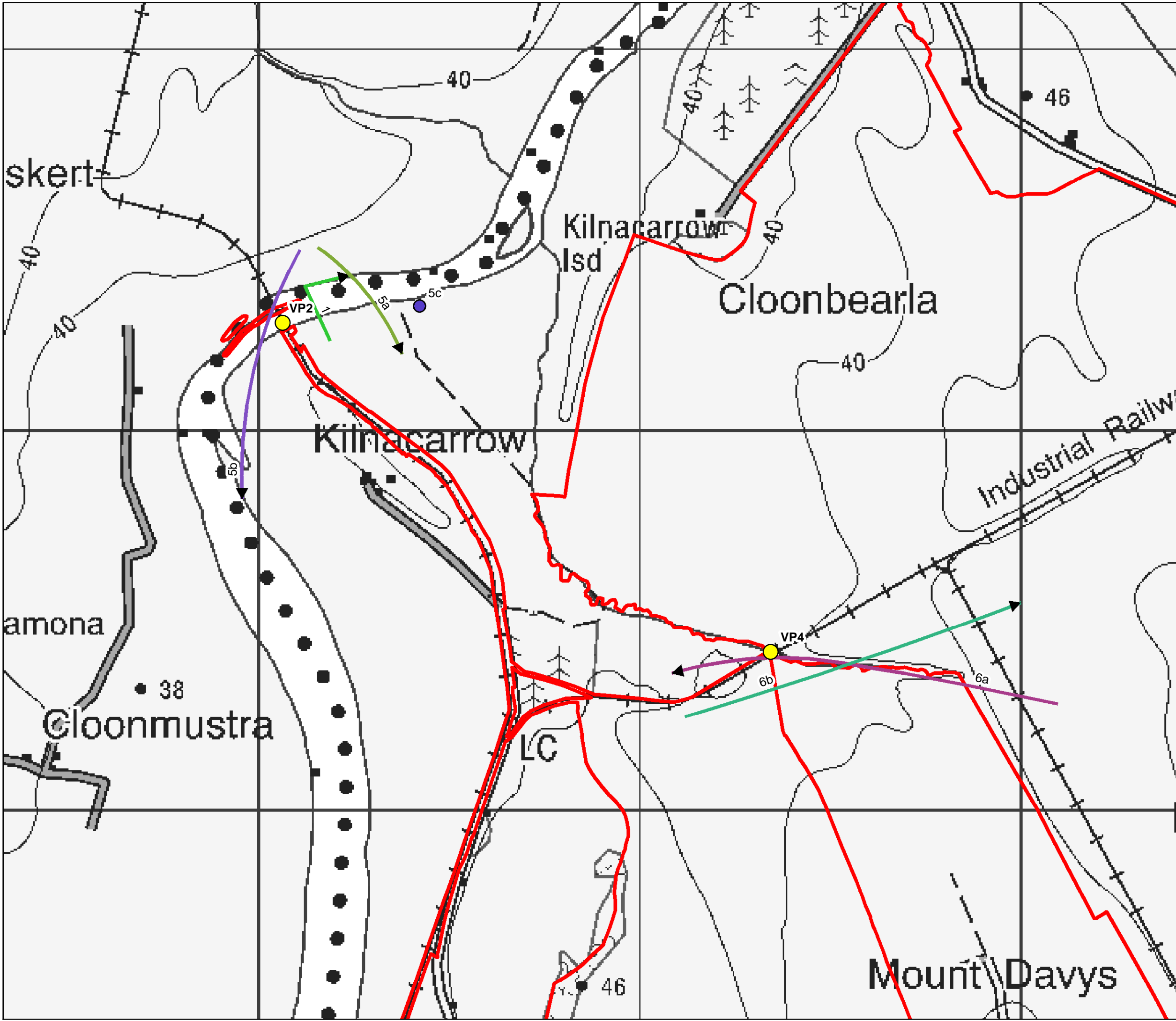
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 8.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Grey Heron Survey Data - Sheet 3

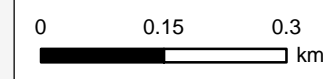
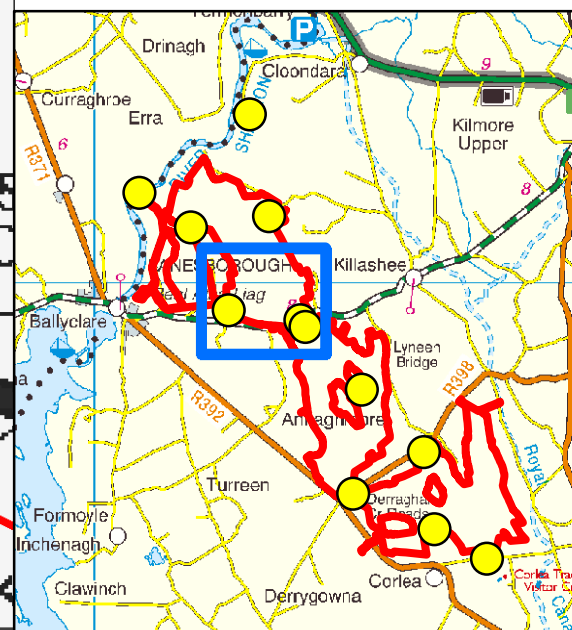
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

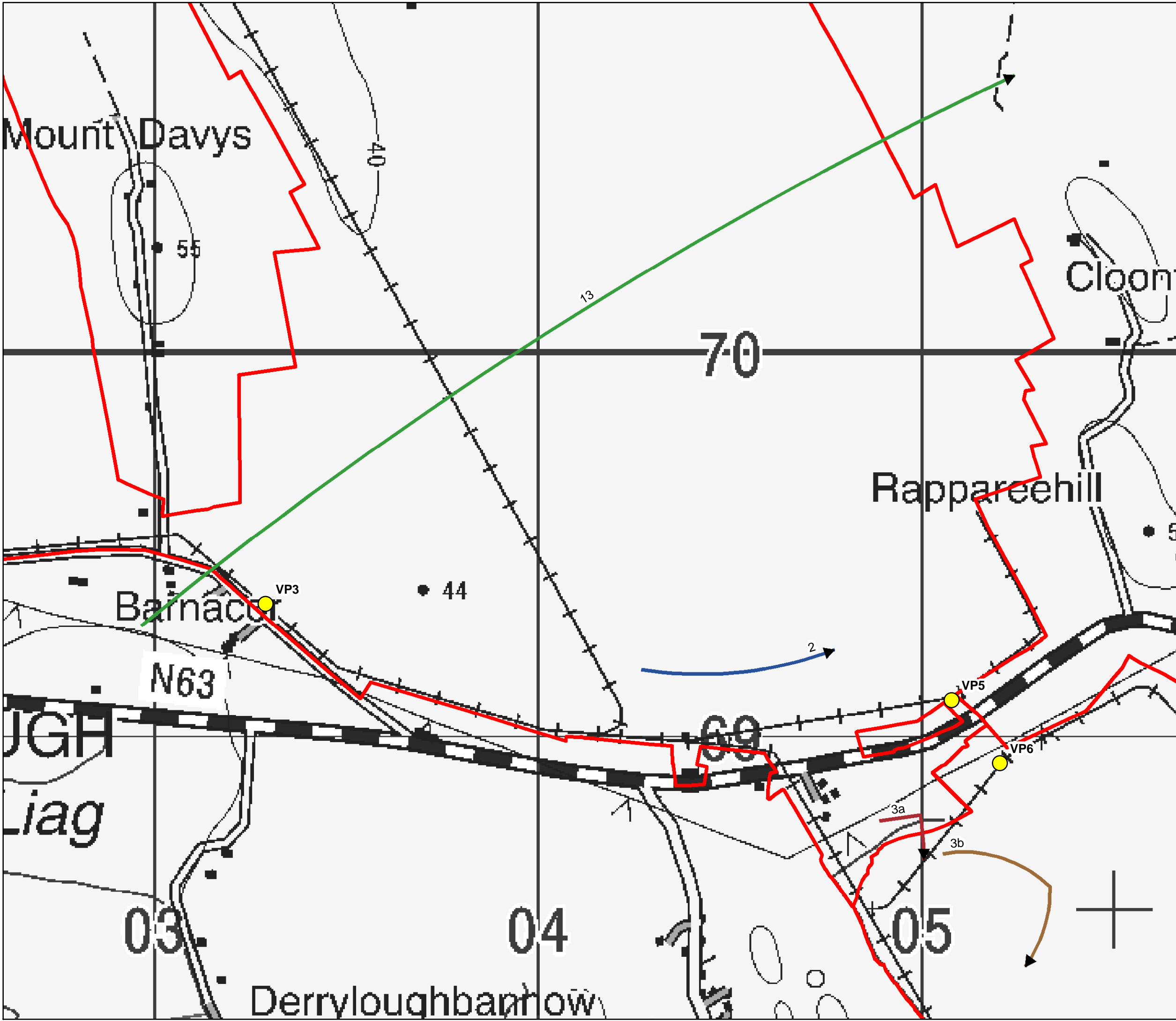
Legend

- Vantage Points
- Site Boundary

Map Ref - 8.3



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Grey Heron Survey Data - Sheet 4

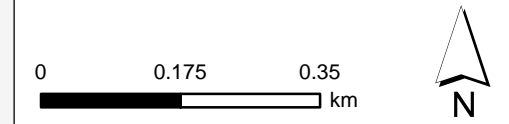
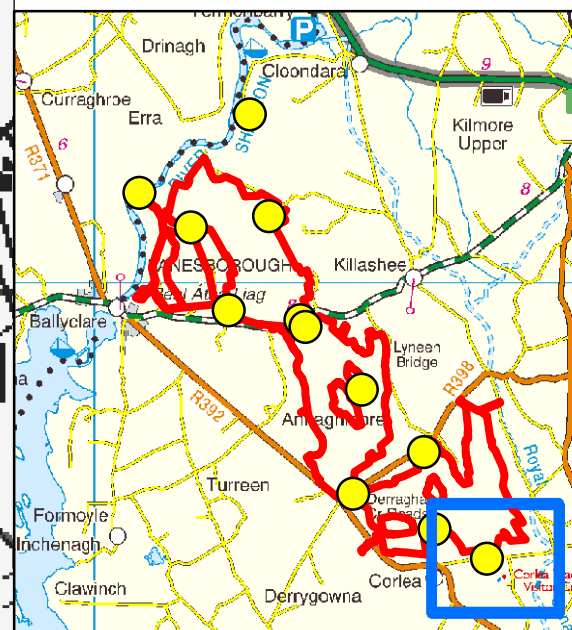
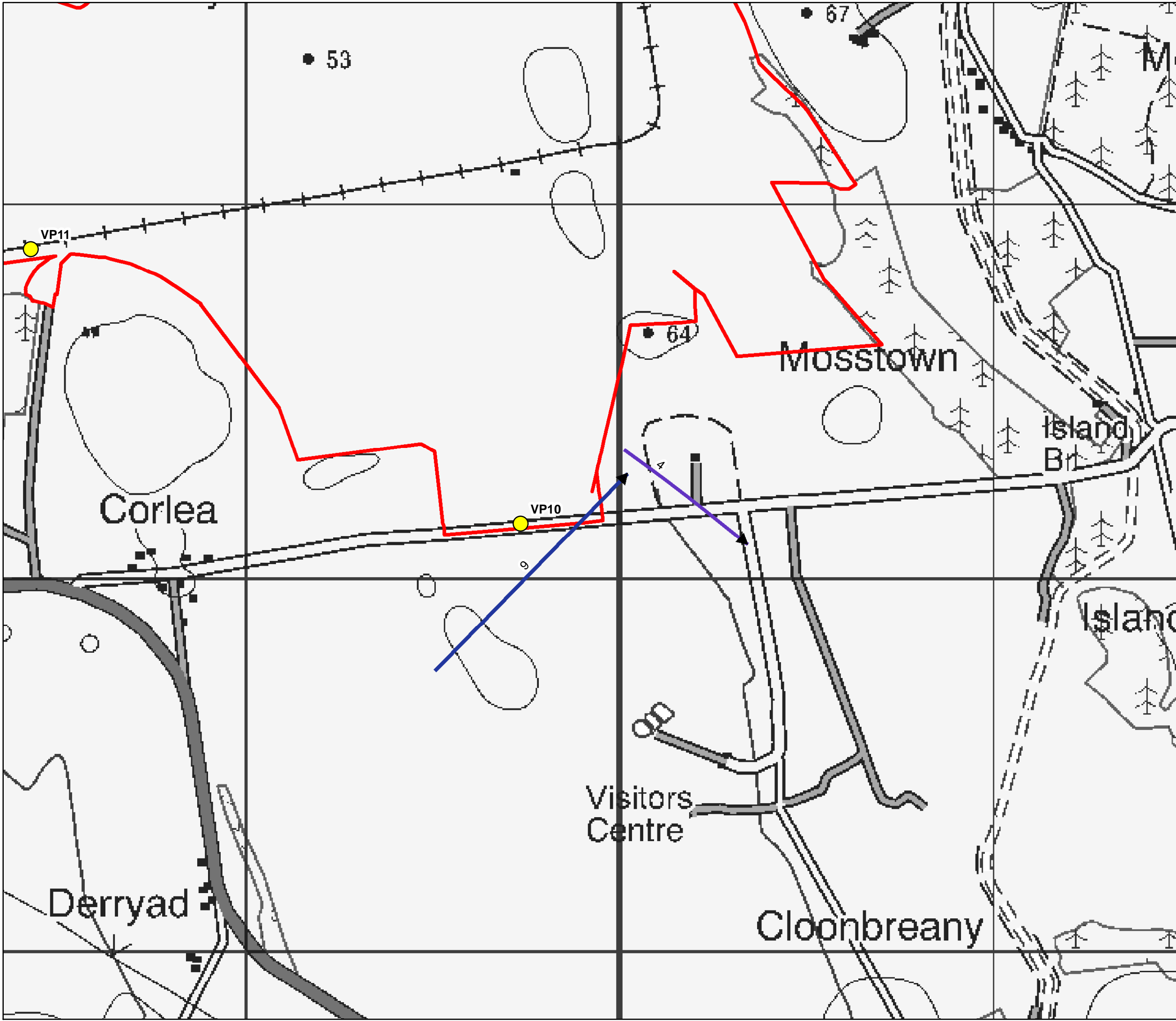
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 8.4



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Hen Harrier Survey Data

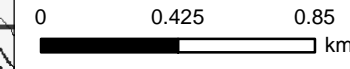
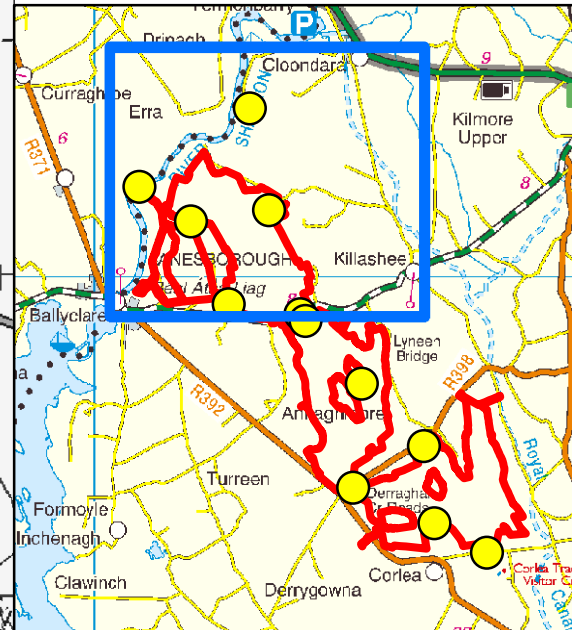
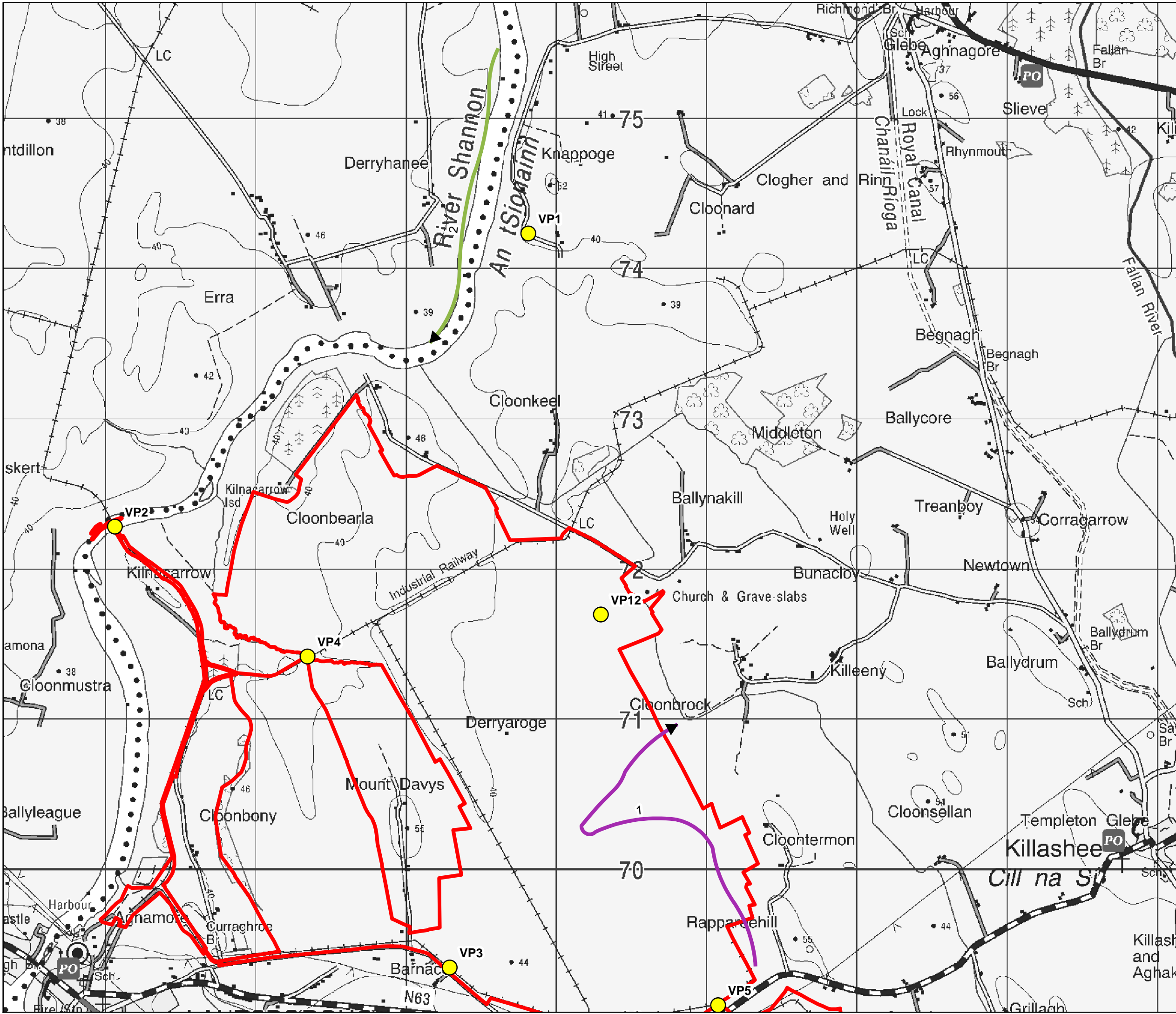
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 9.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Kestrel Survey Data - Sheet 1

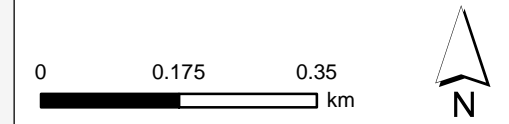
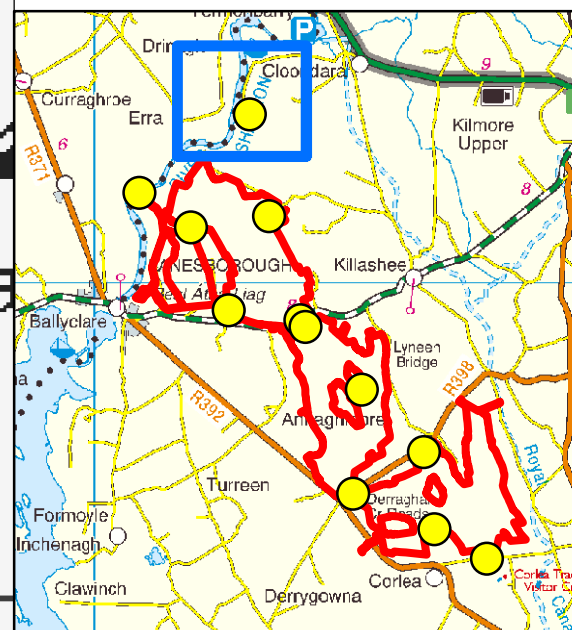
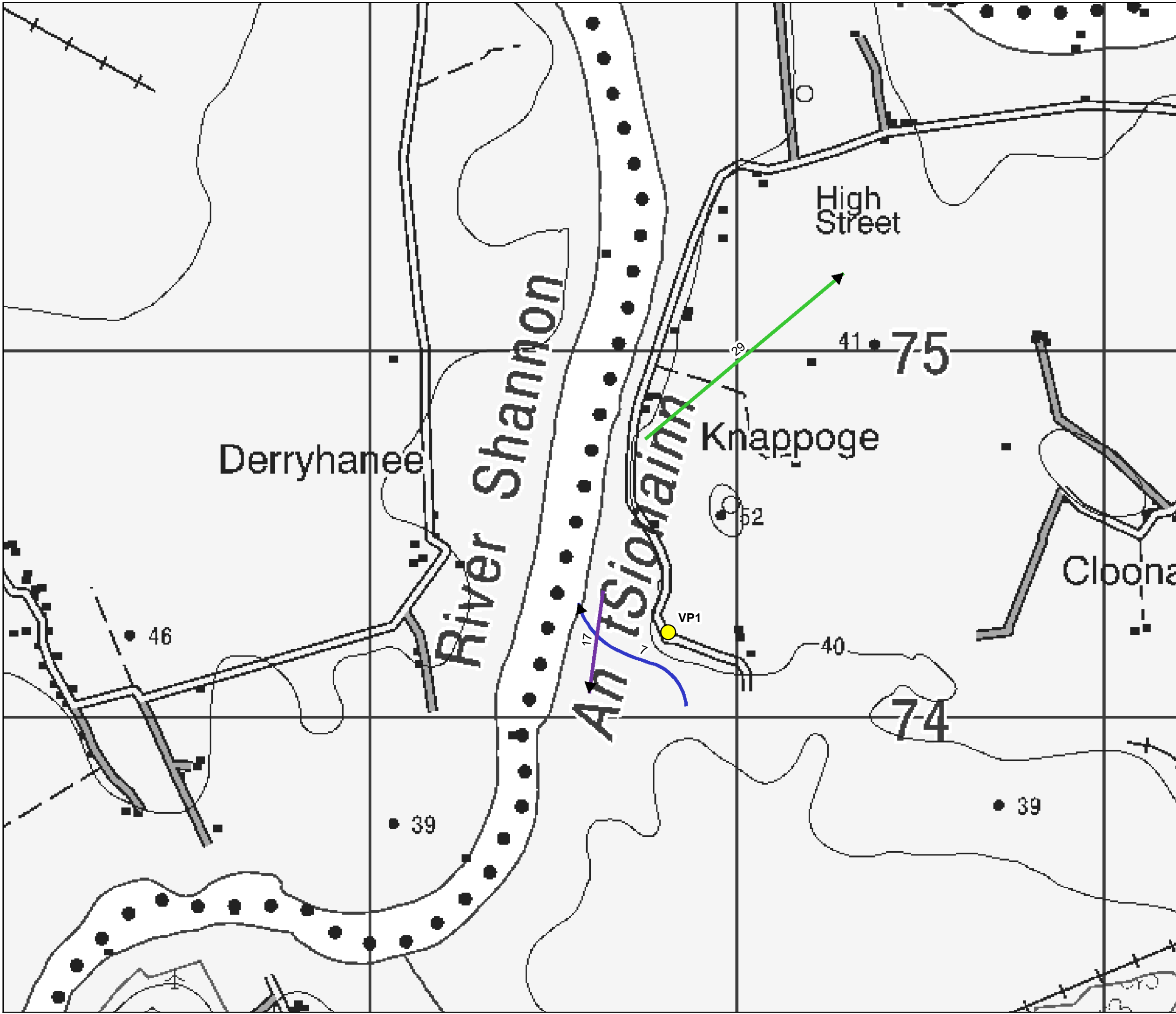
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 10.1



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Project Title:
Derryadd Winter Bird Survey

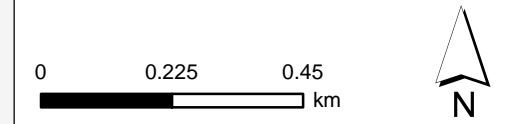
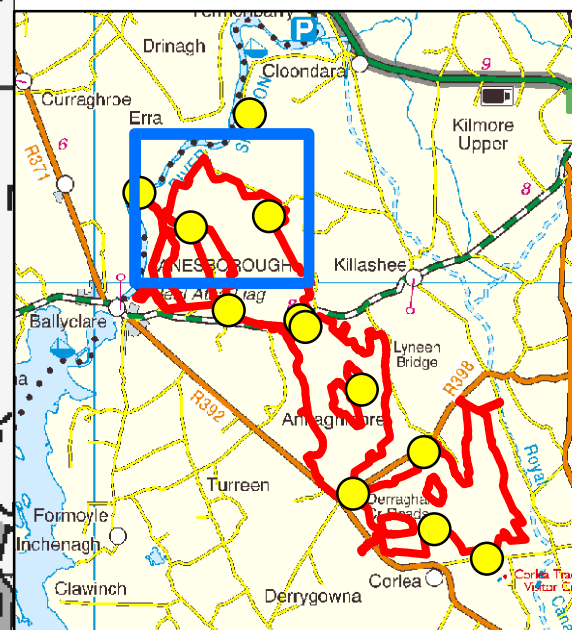
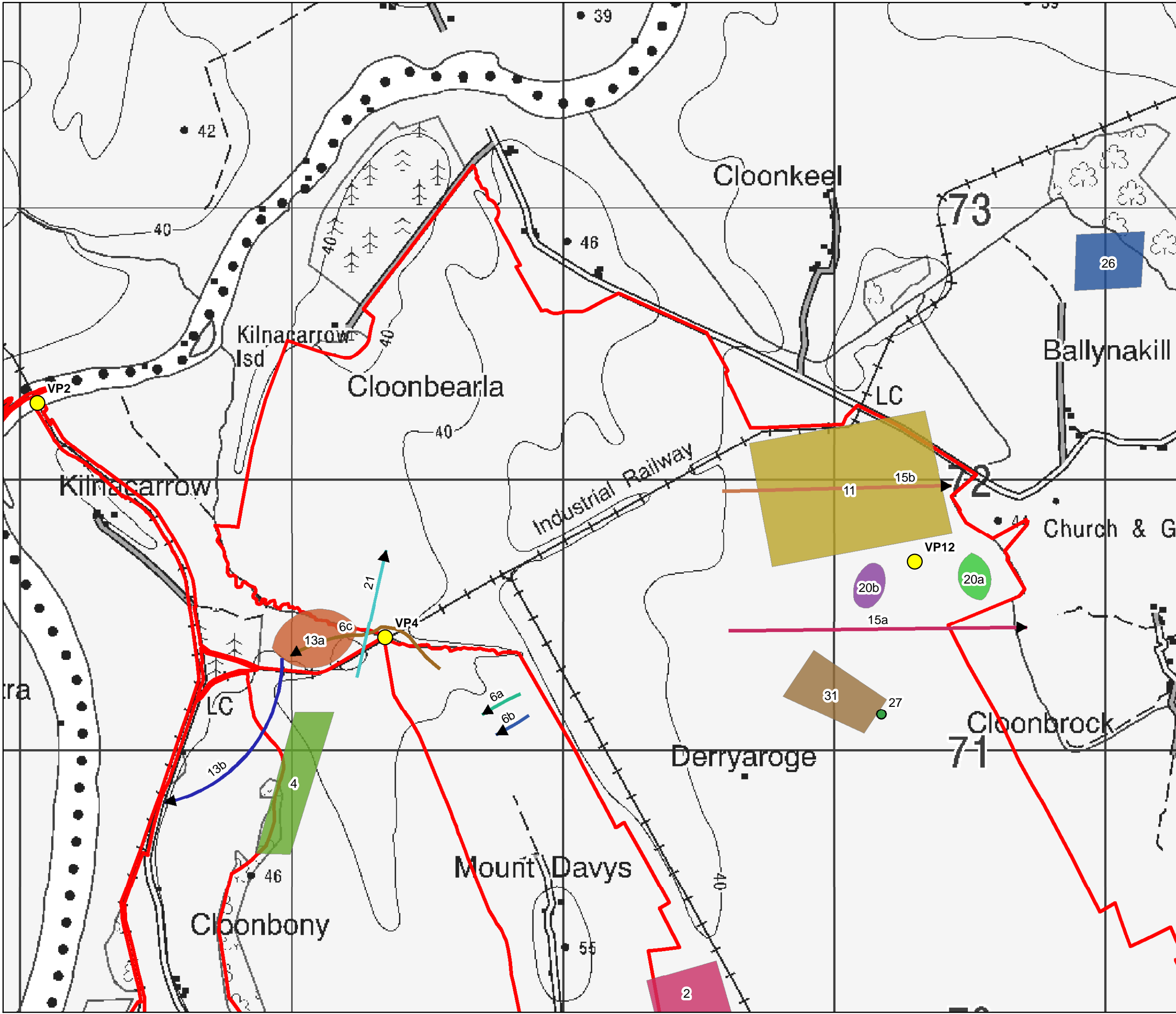
Drawing Title:
Kestrel Survey Data - Sheet 2

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend
● Vantage Points
▭ Site Boundary

Map Ref - 10.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Kestrel Survey Data - Sheet 3

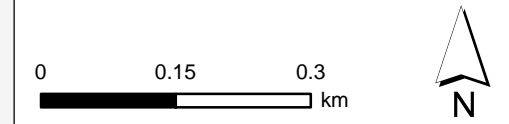
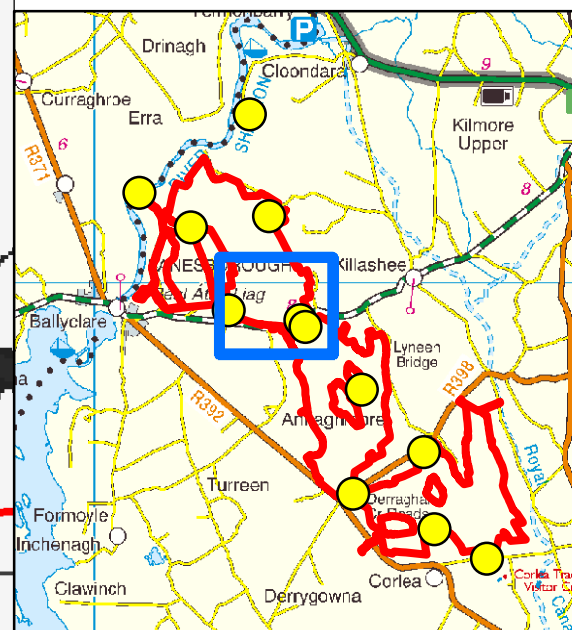
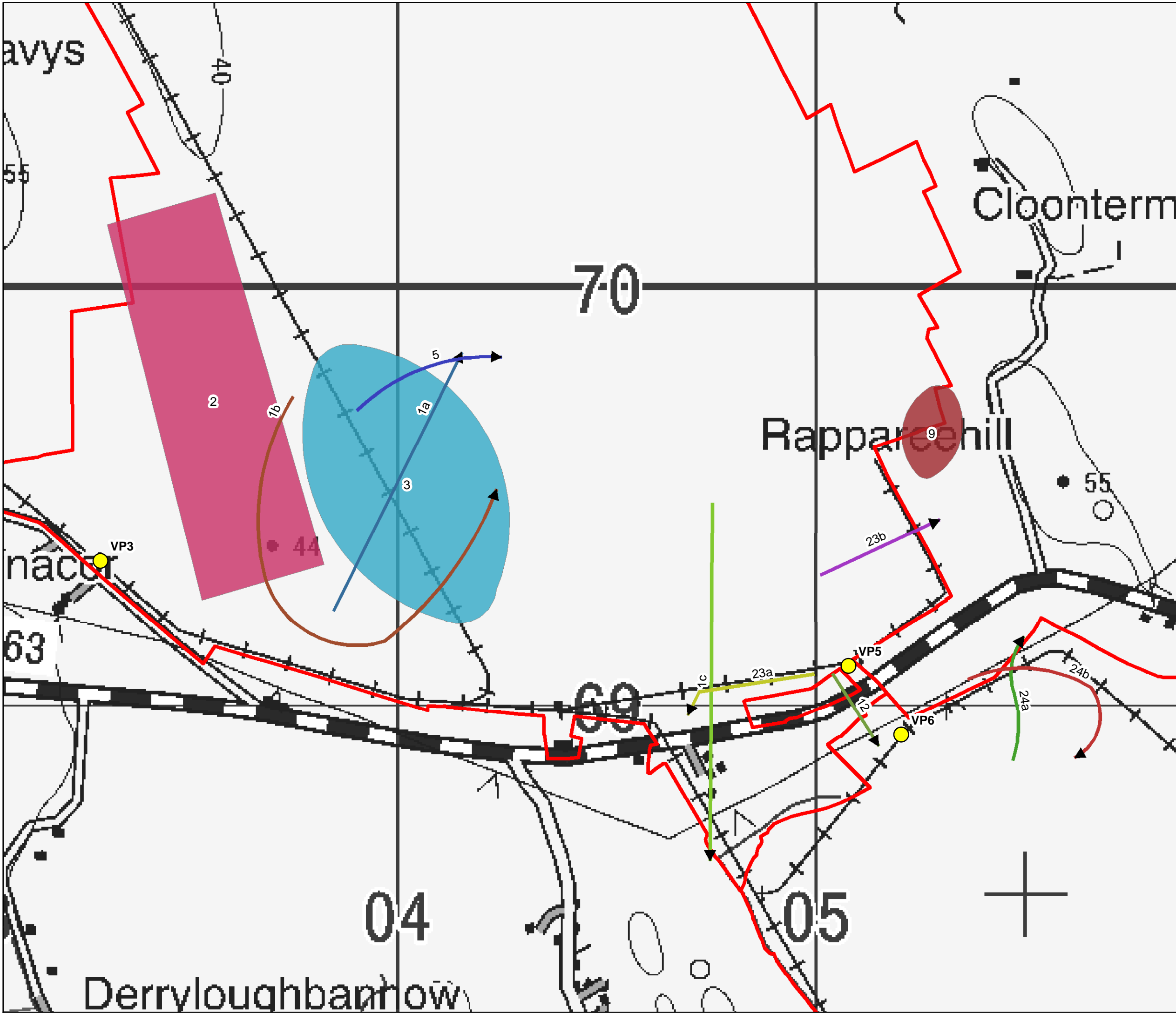
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 10.3



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Project Title:
Derryadd Winter Bird Survey

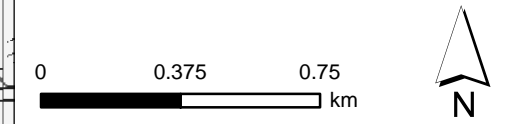
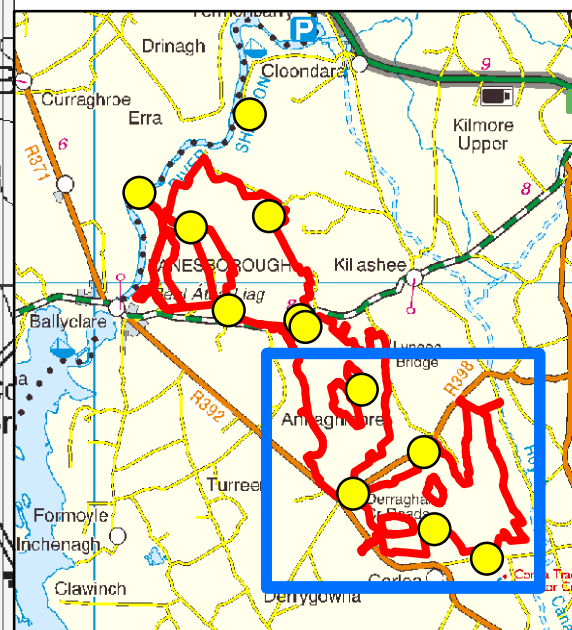
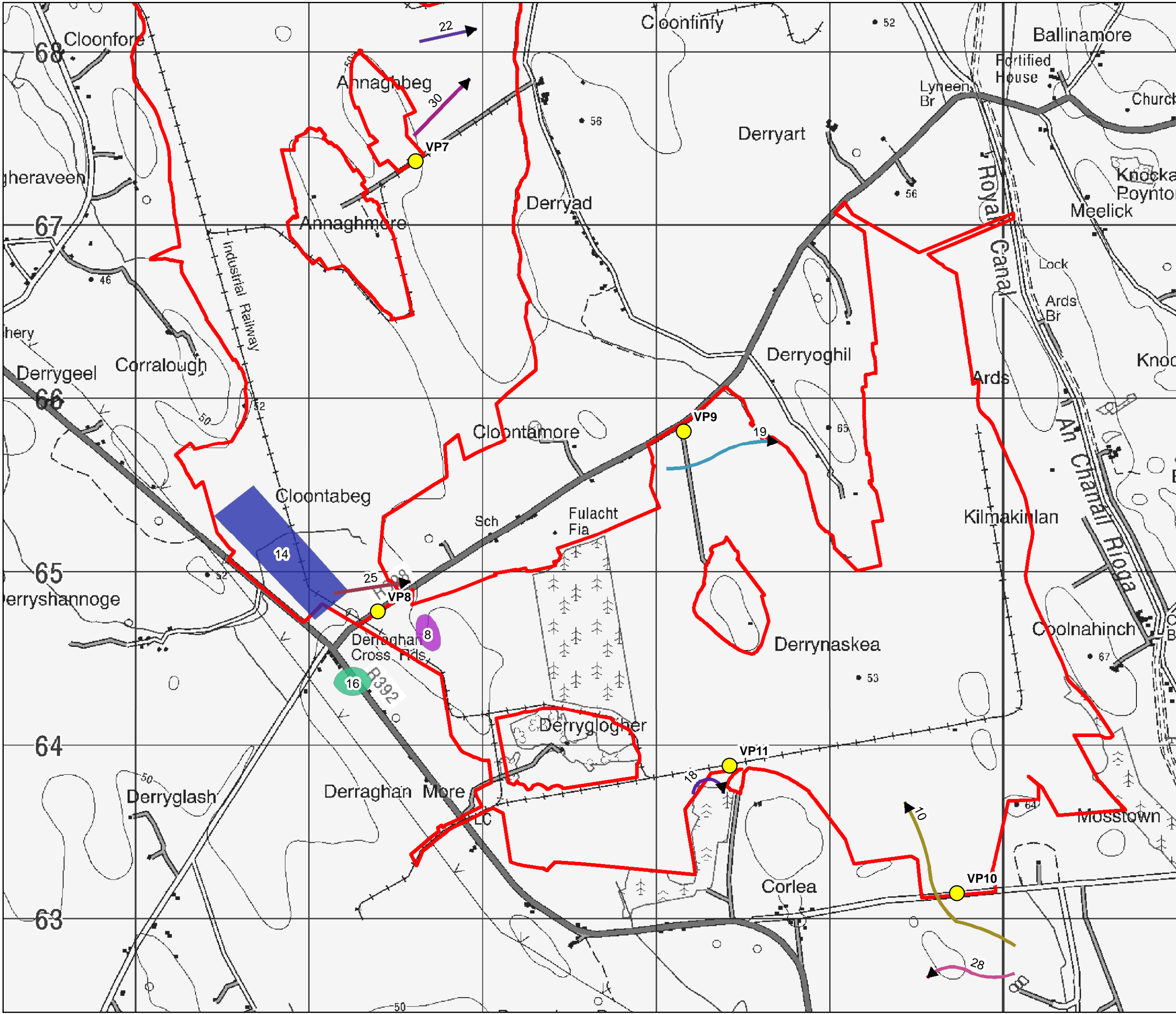
Drawing Title:
Kestrel Survey Data - Sheet 4

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend
● Vantage Points
□ Site Boundary

Map Ref - 10.4



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Lapwing Survey Data - Sheet 1

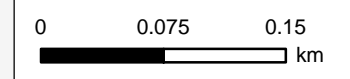
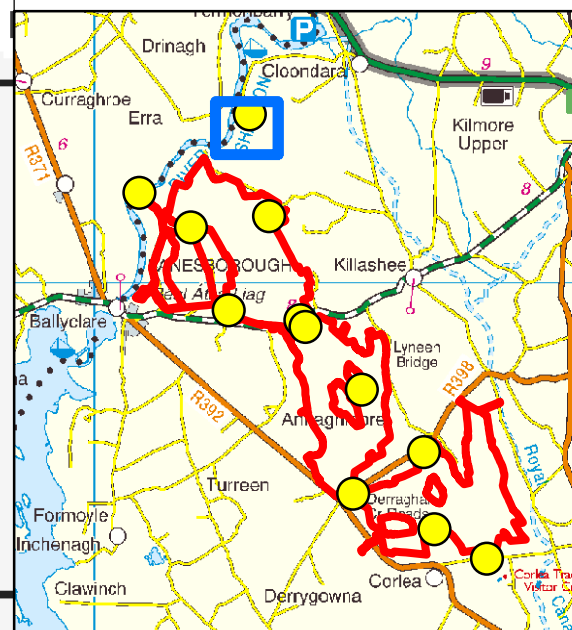
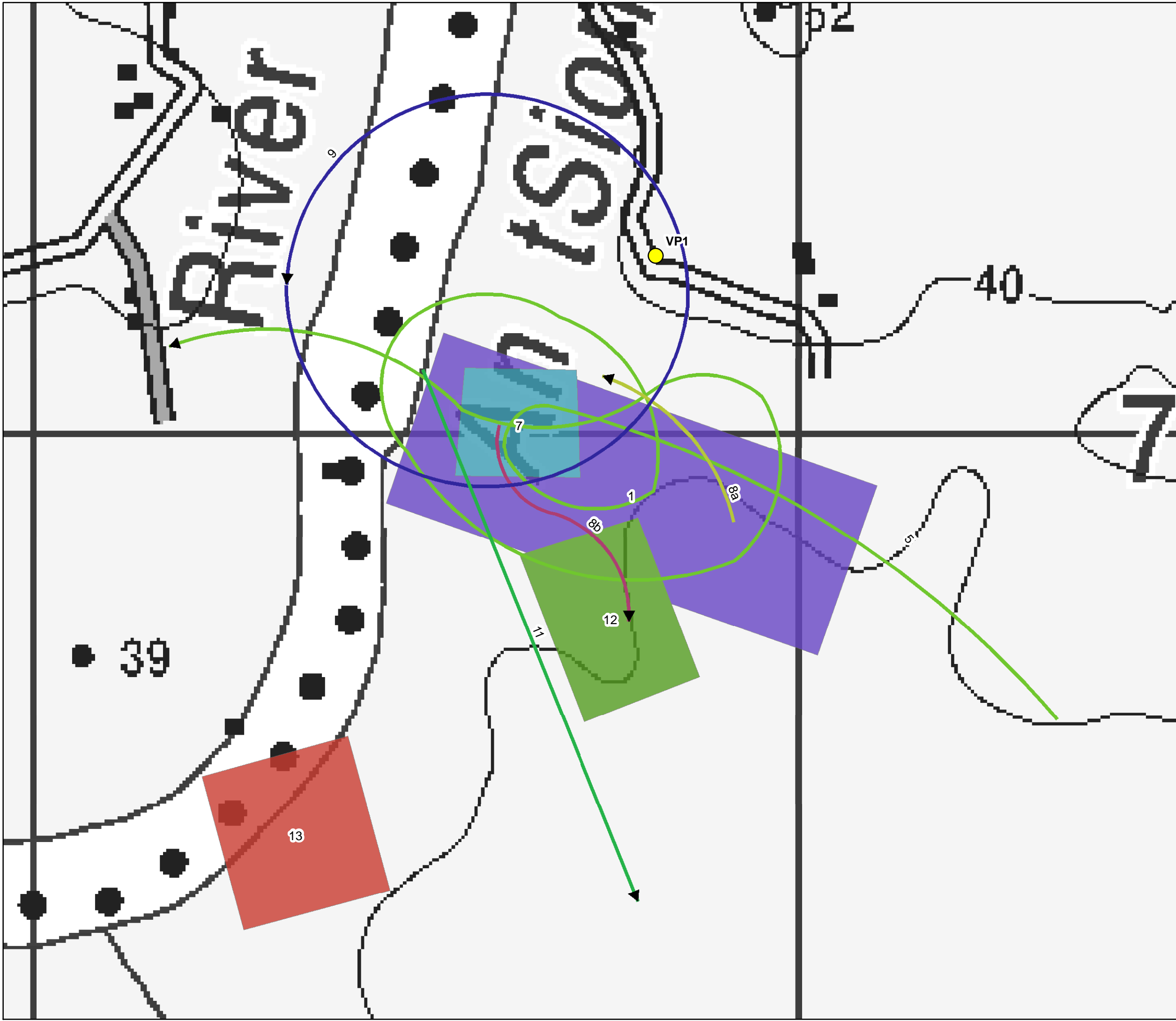
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 11.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Lapwing Survey Data - Sheet 2

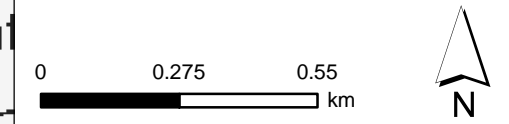
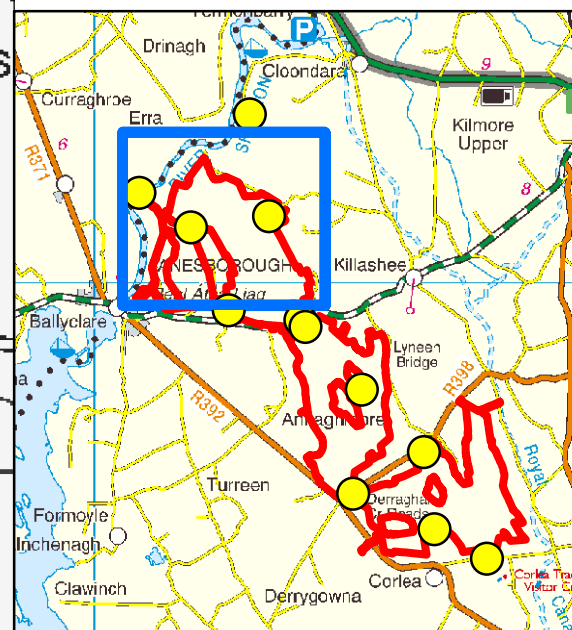
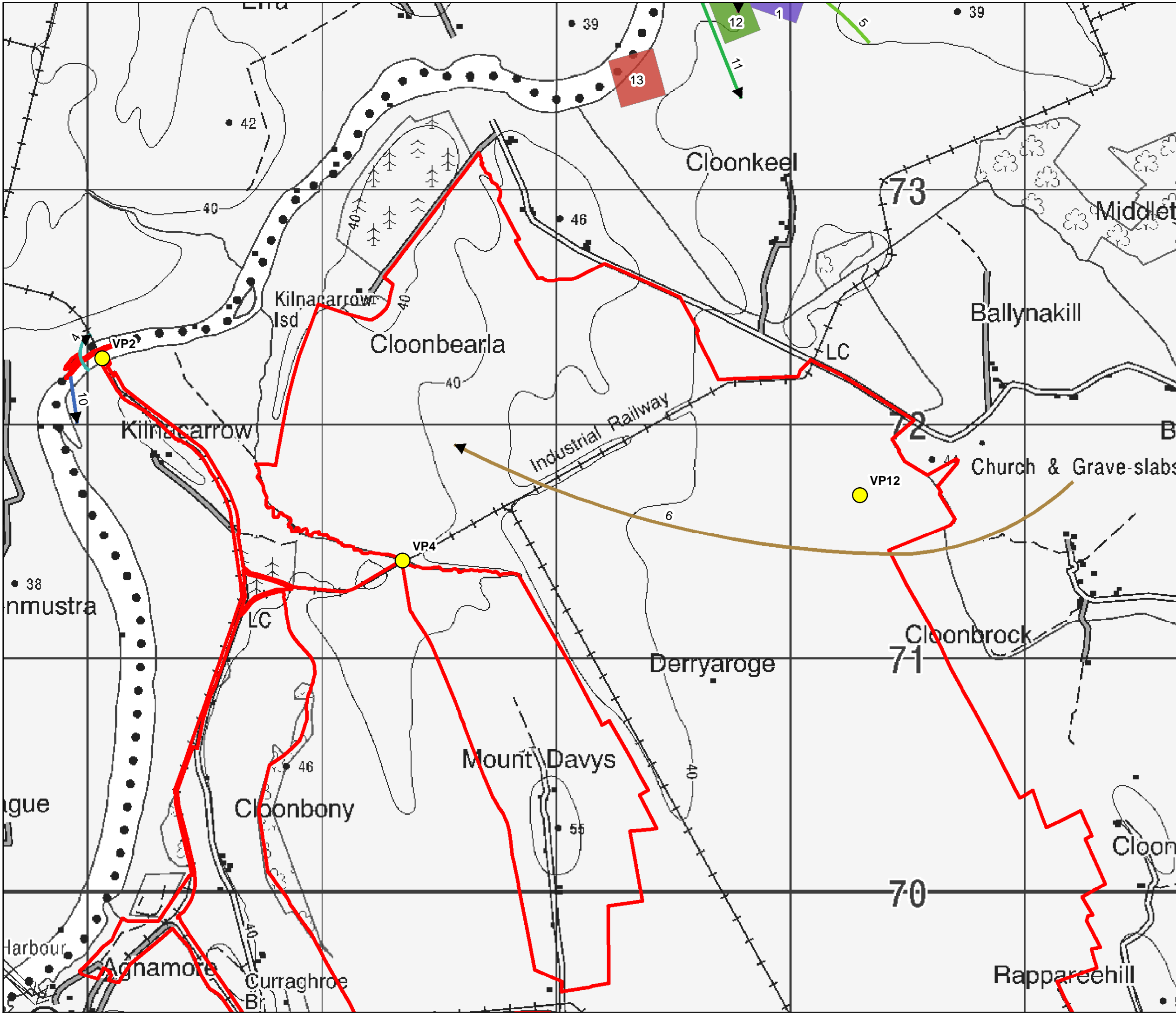
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Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

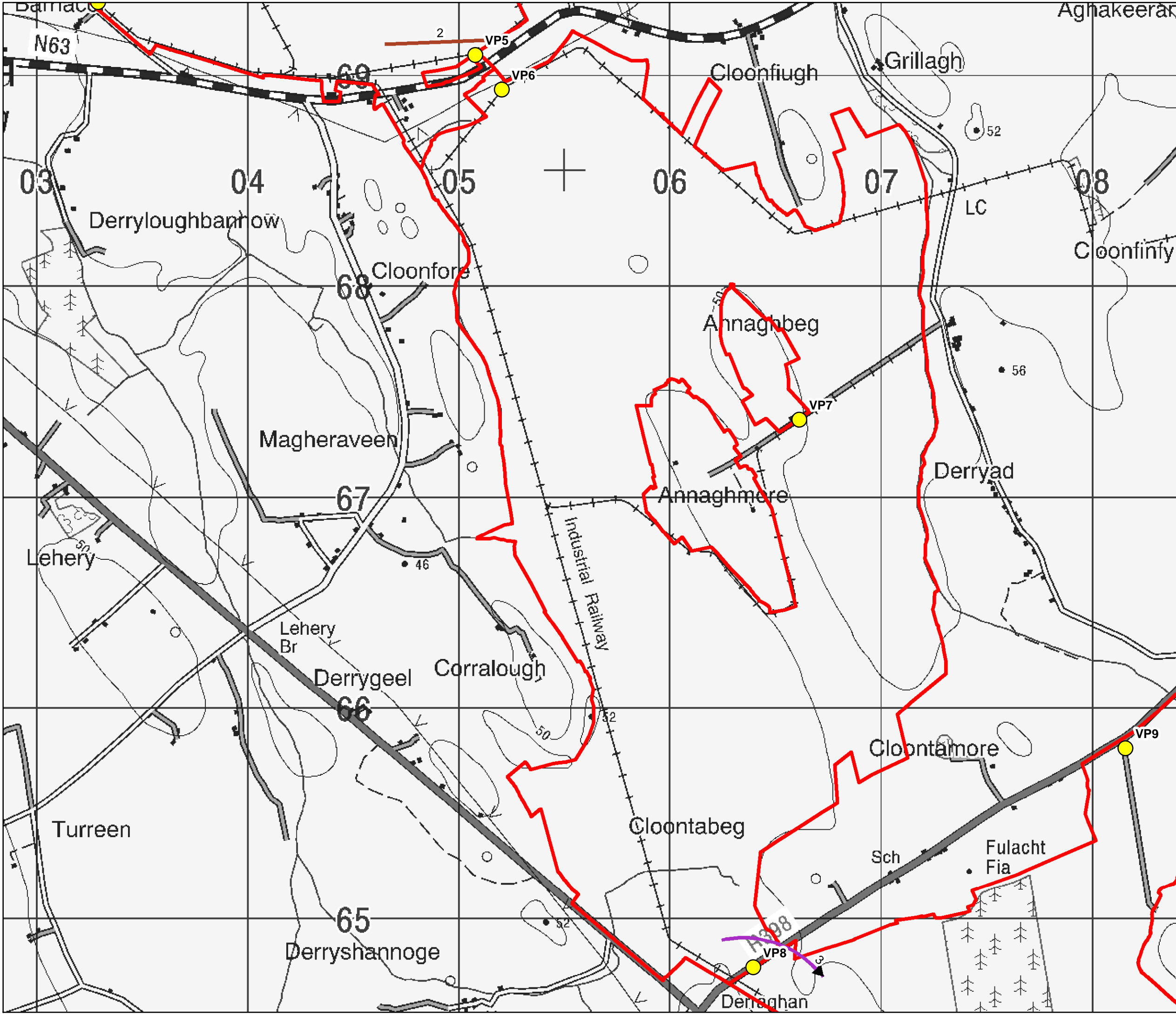
Legend

- Vantage Points
- Site Boundary

Map Ref - 11.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Lapwing Survey Data - Sheet 3

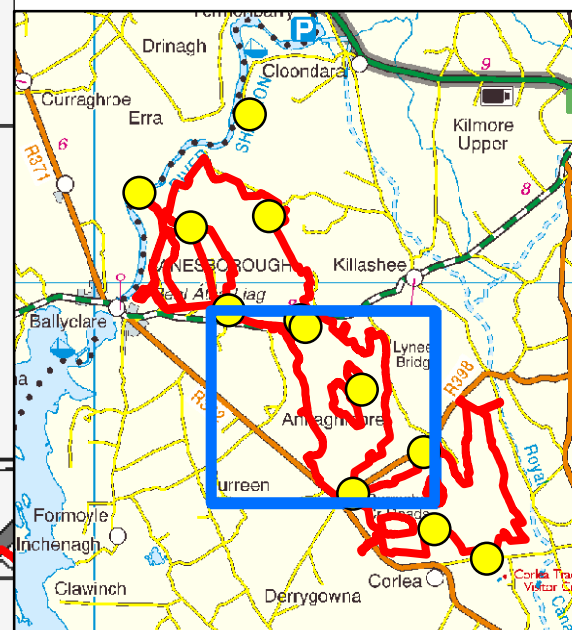
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- Site Boundary


Map Ref - 11.3



0 0.3 0.6 km

N

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Malachy Walsh and Partners
Engineering and Environmental Consultants

Project Title:
Derryadd Winter Bird Survey

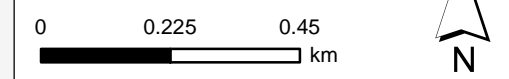
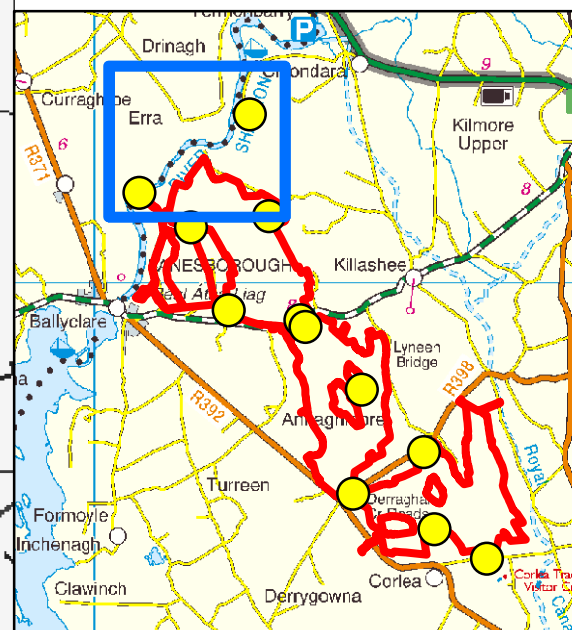
Drawing Title:
Lesser Black-Backed Gull
Survey Data - Sheet 1

Client: Bord na Móna

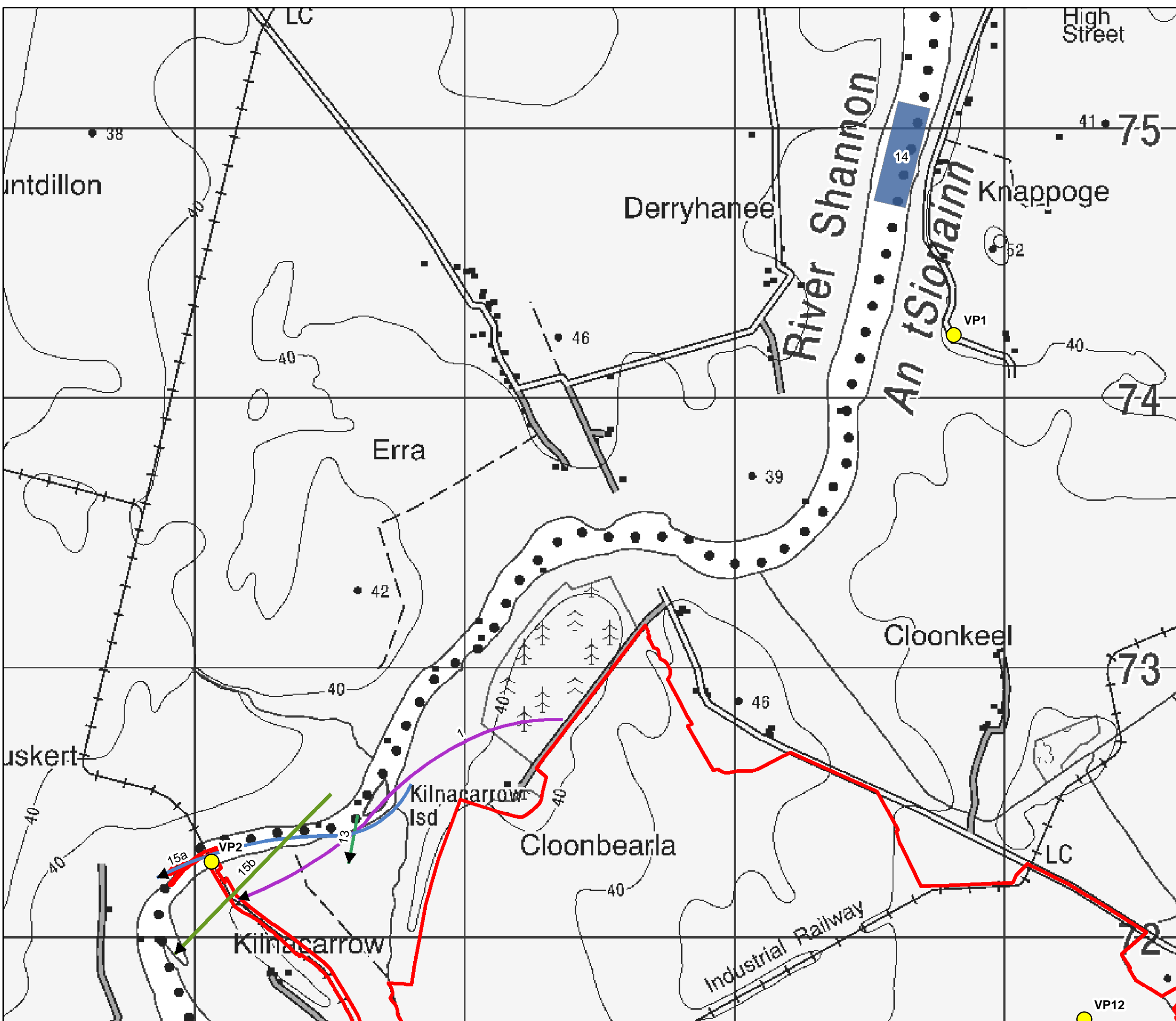
Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend
● Vantage Points
□ Site Boundary

Map Ref - 12.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Lesser Black-Backed Gull
Survey Data - Sheet 2

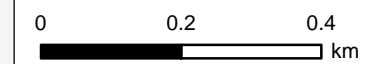
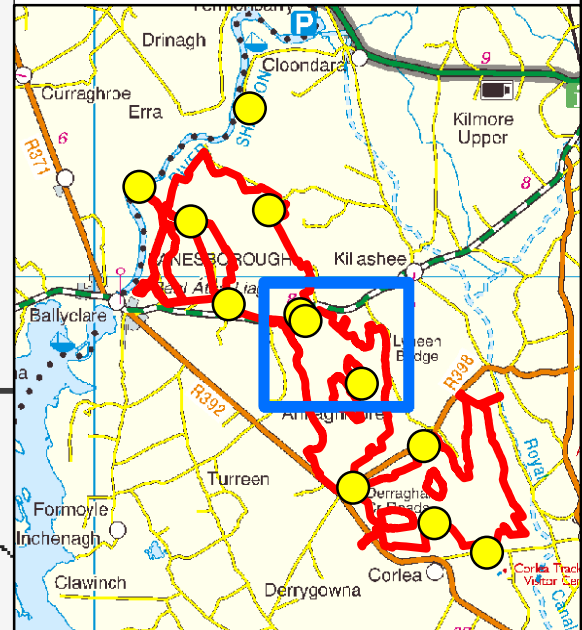
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

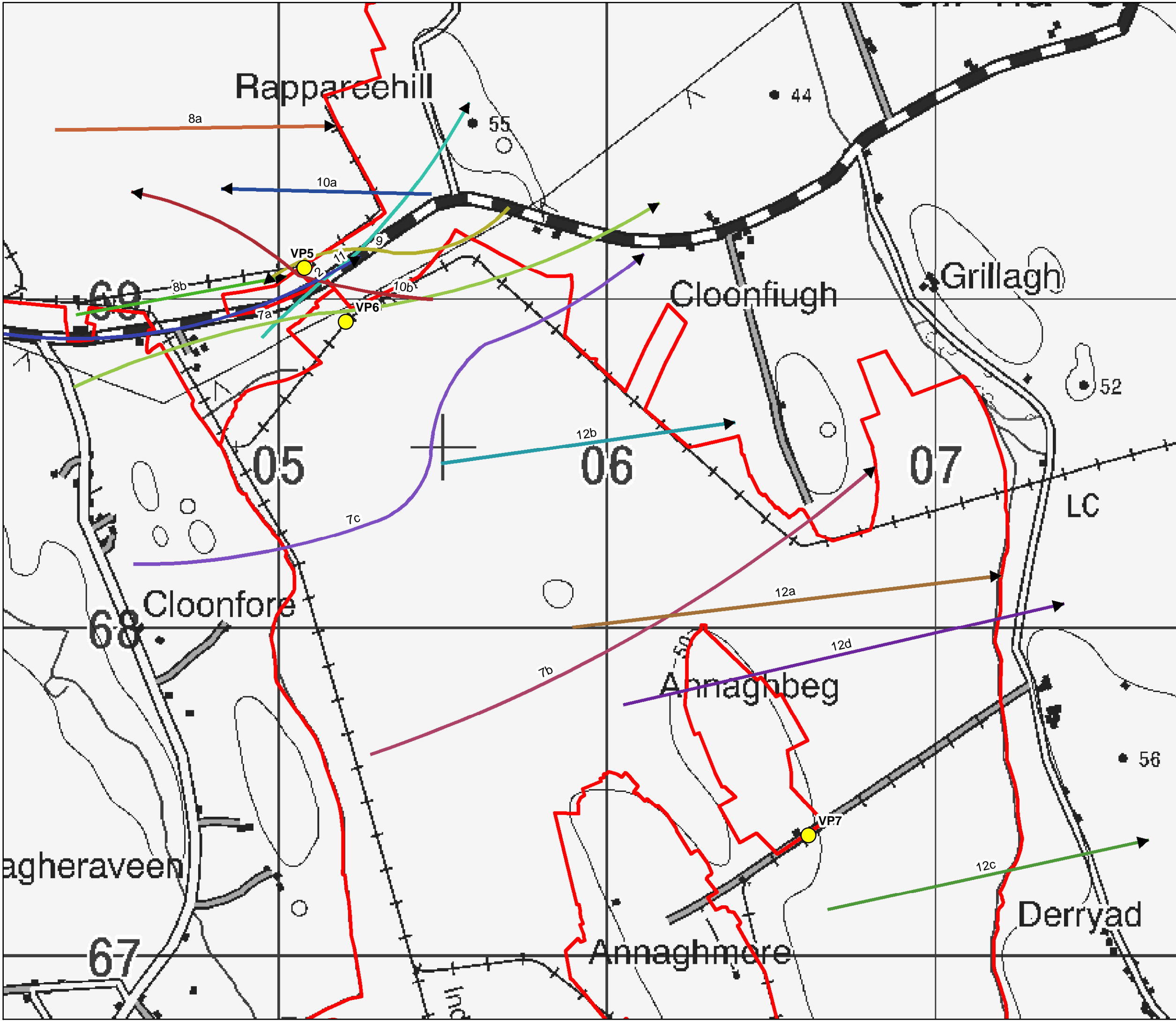
Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 12.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Lesser Black-Backed Gull
Survey Data - Sheet 3

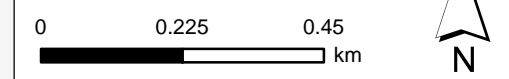
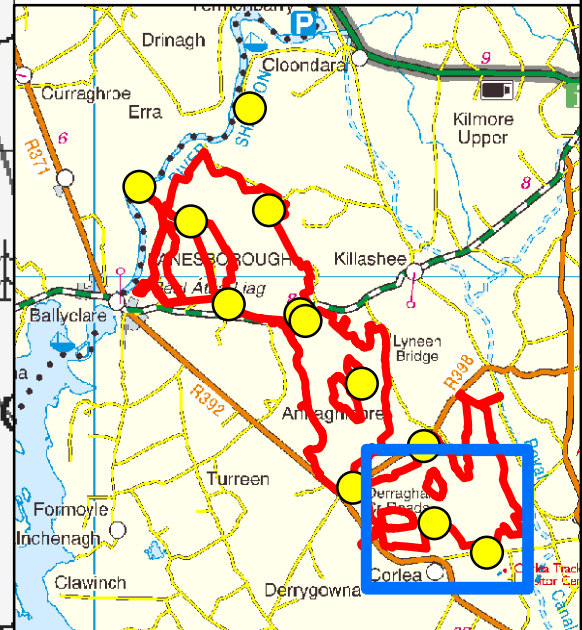
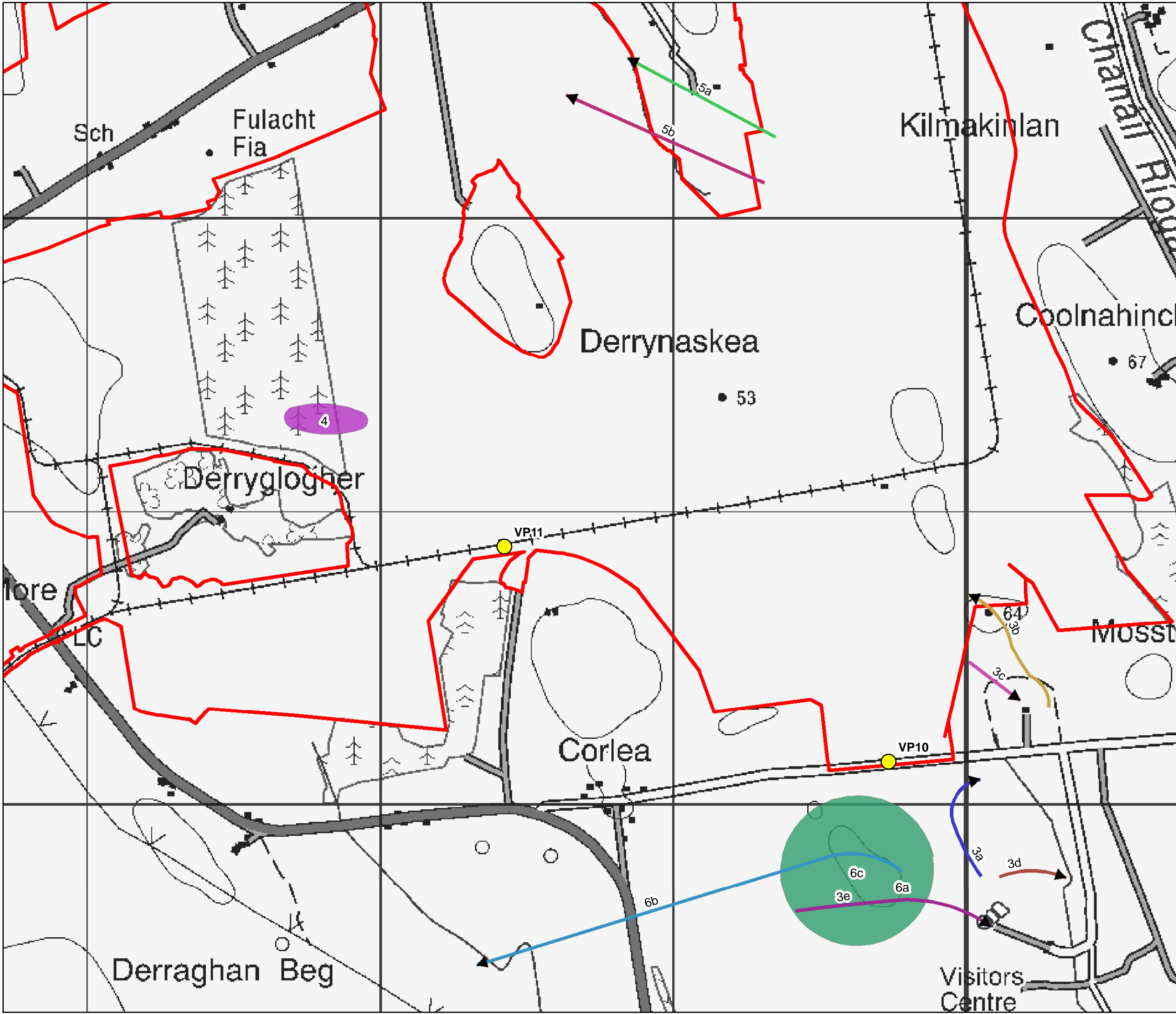
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 12.3



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Little Grebe Survey Data - Sheet 1

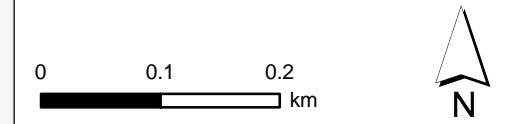
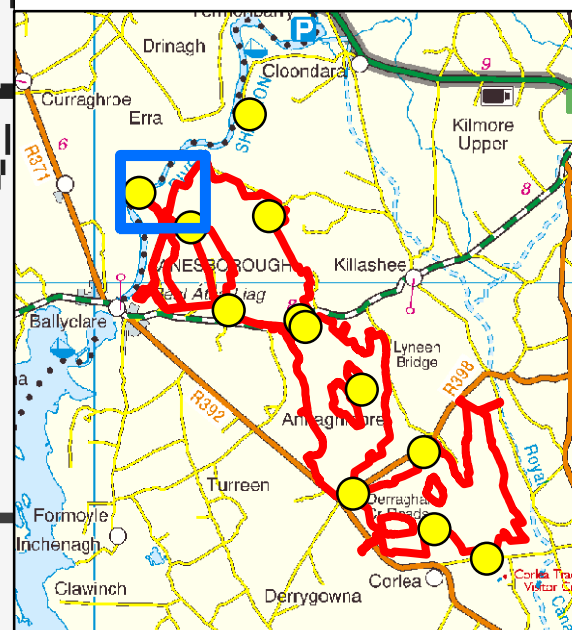
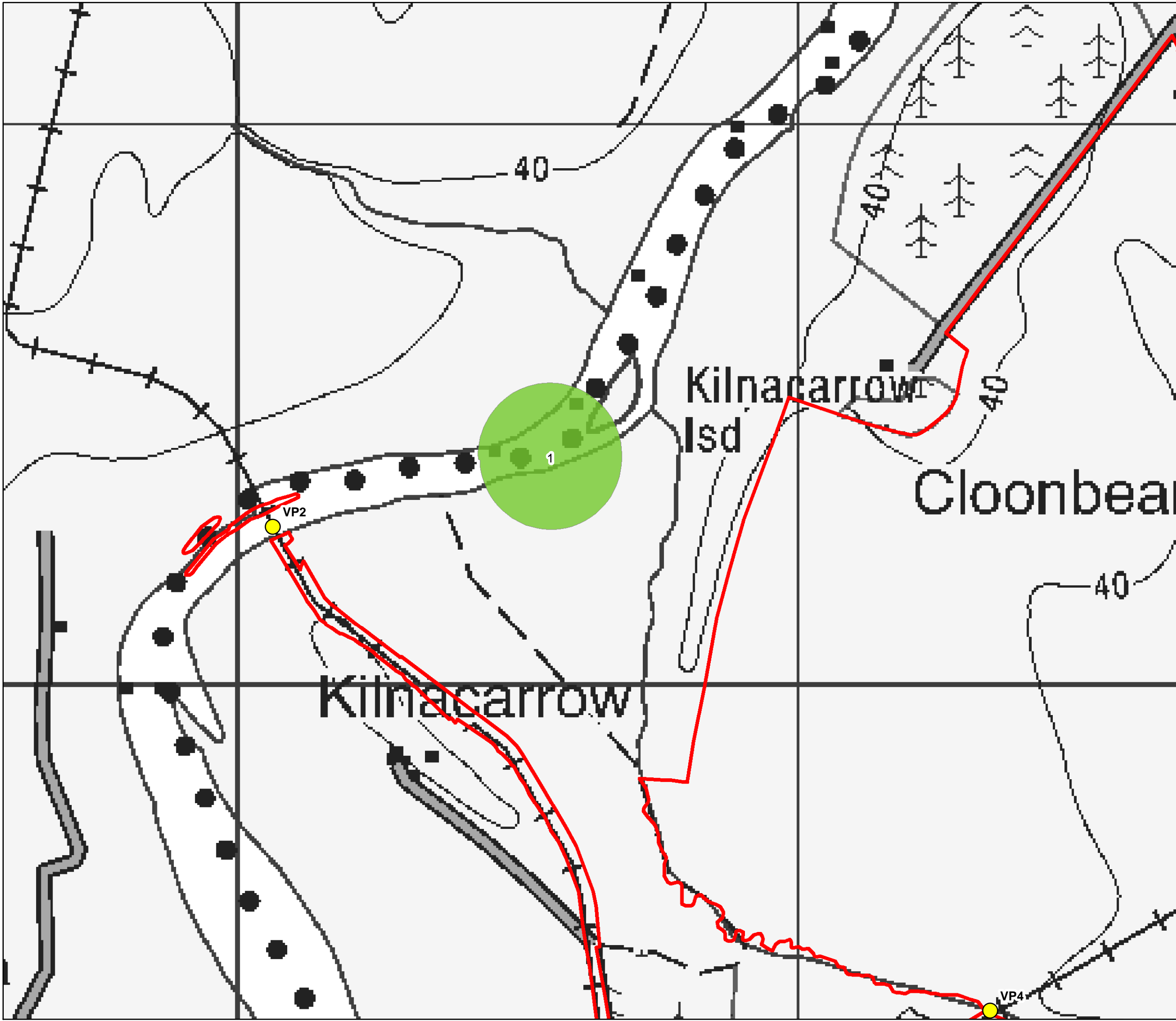
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 13.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Little Grebe Survey Data - Sheet 2

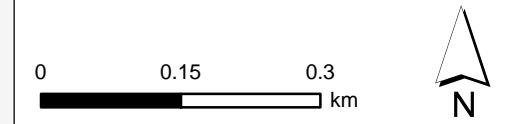
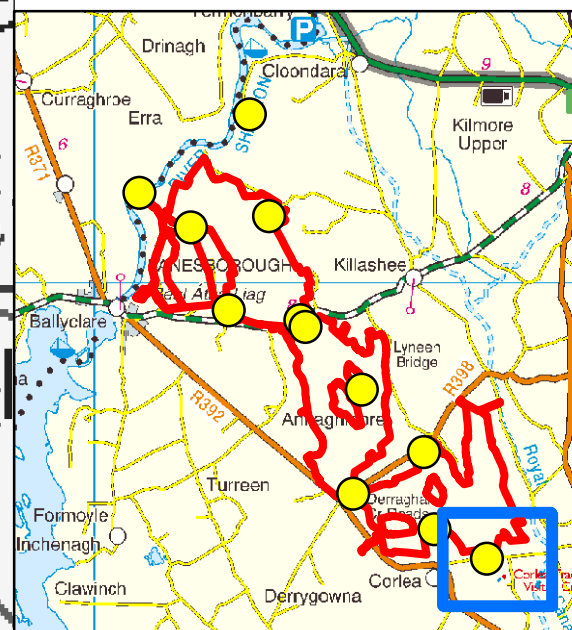
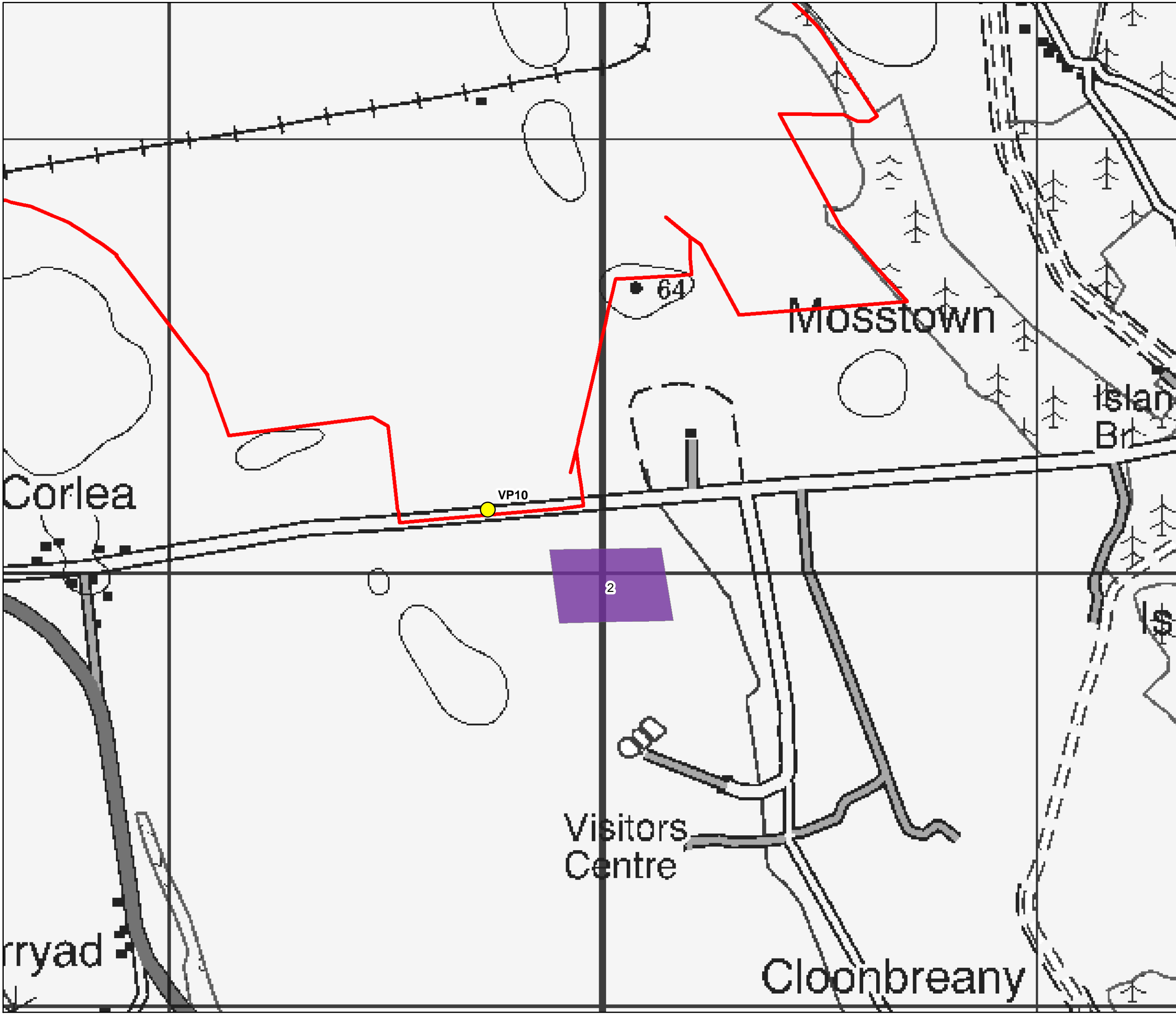
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 13.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Mallard Survey Data - Sheet 1

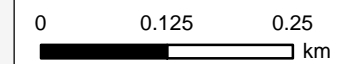
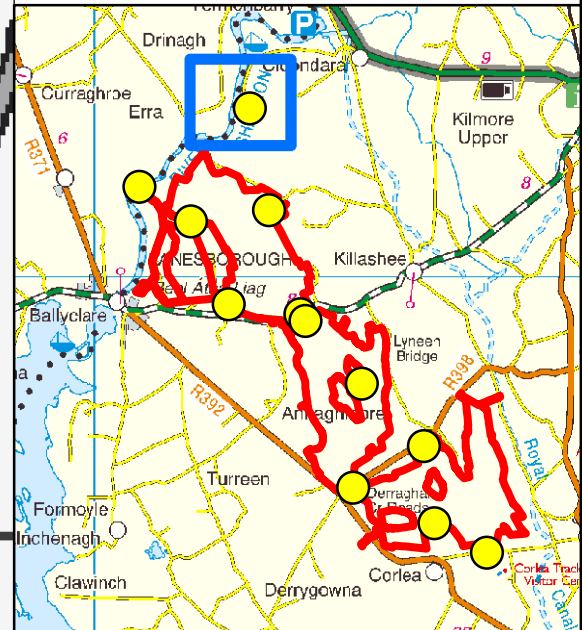
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

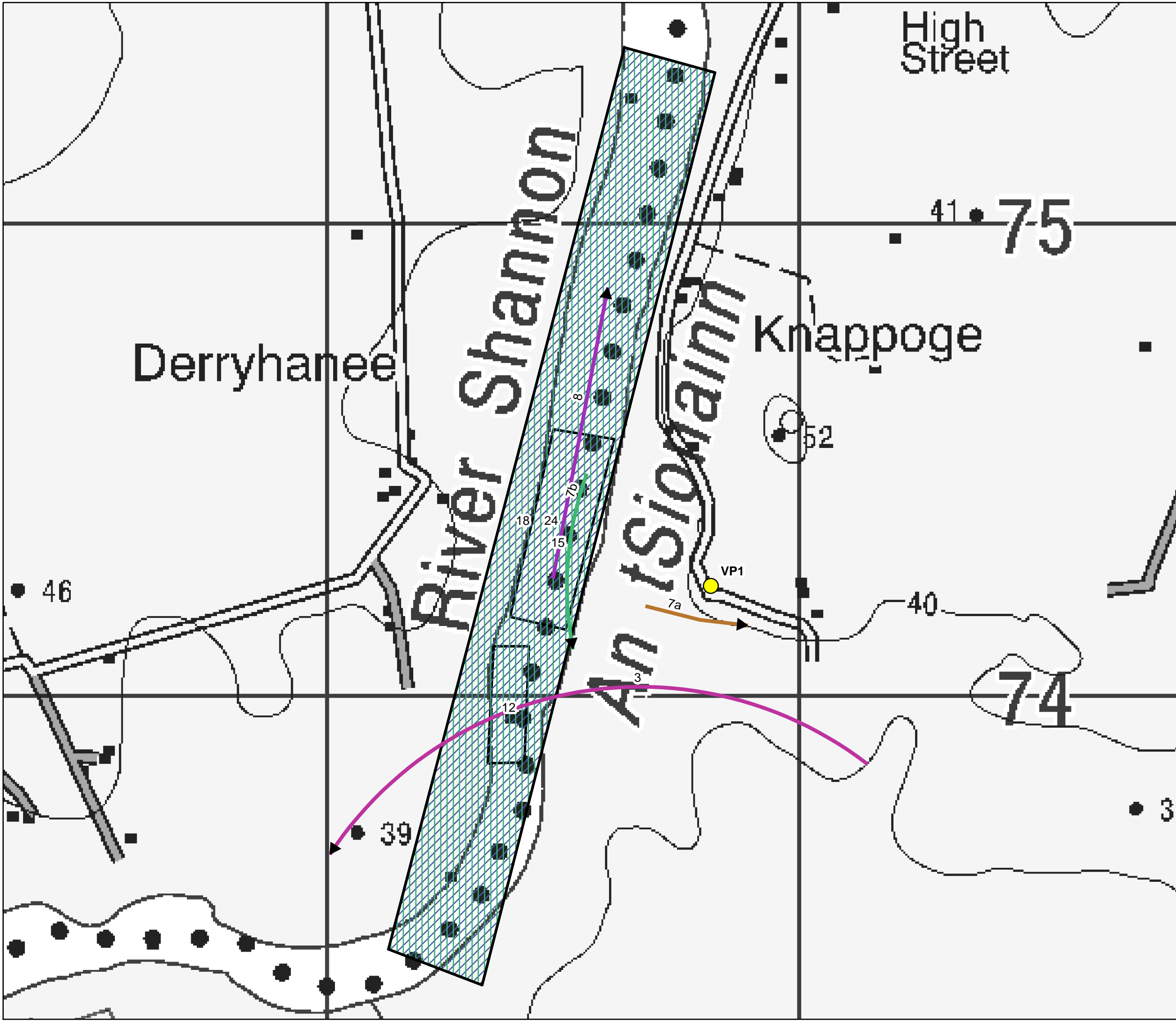
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 14.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Mallard Survey Data - Sheet 2

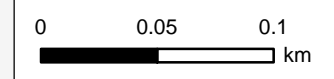
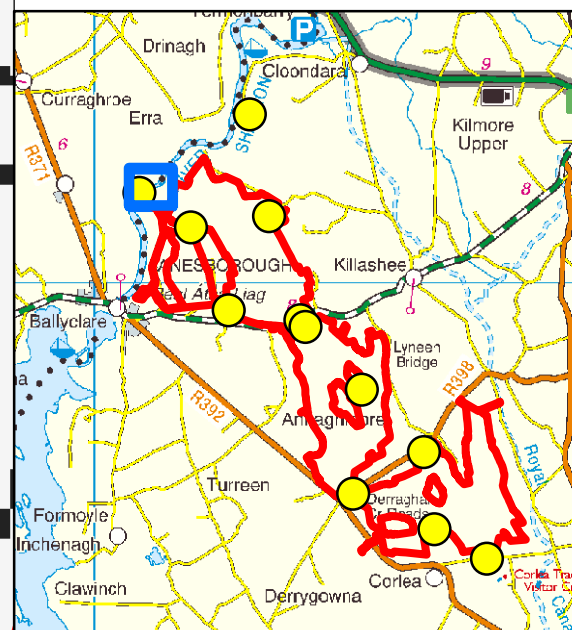
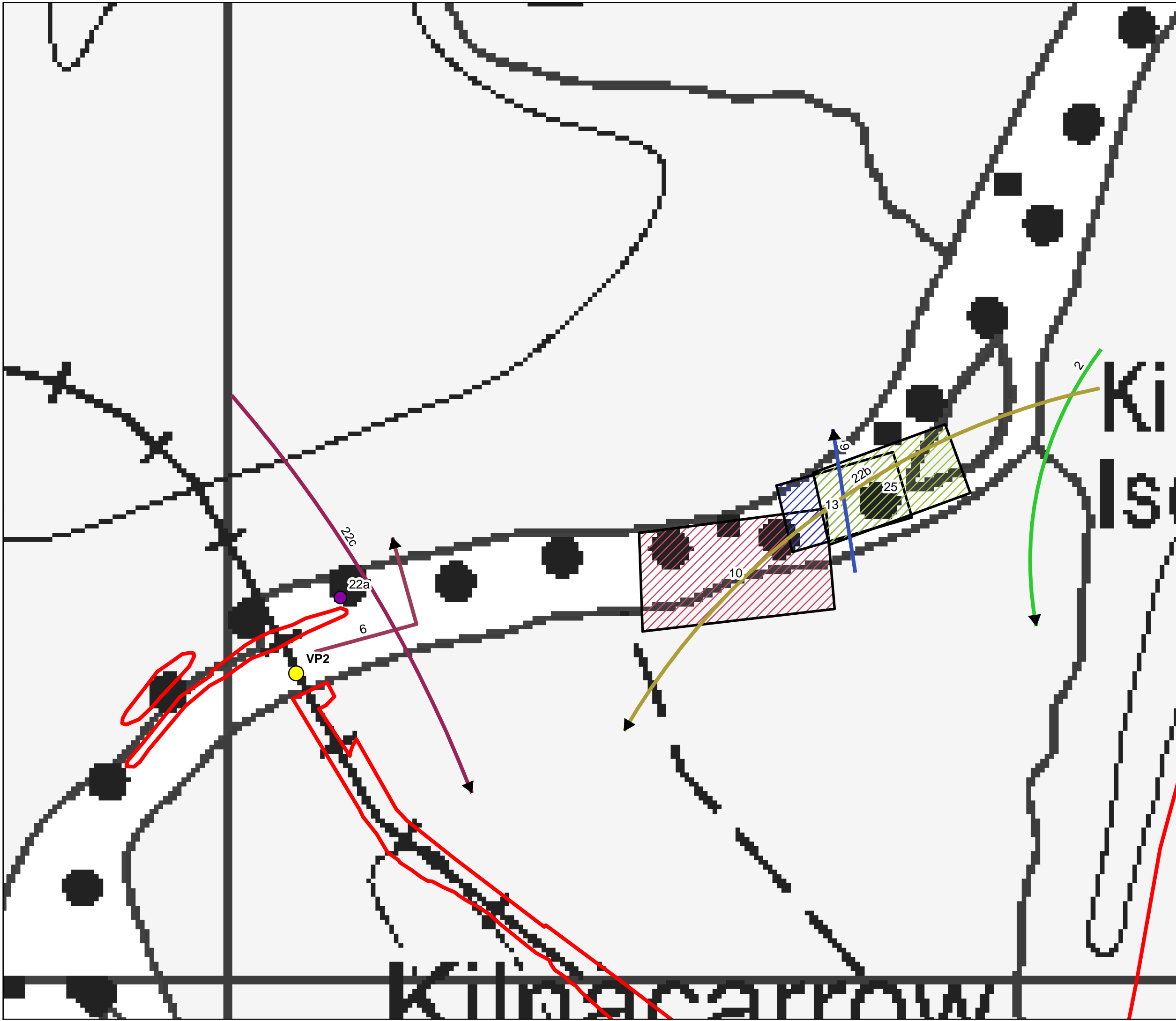
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

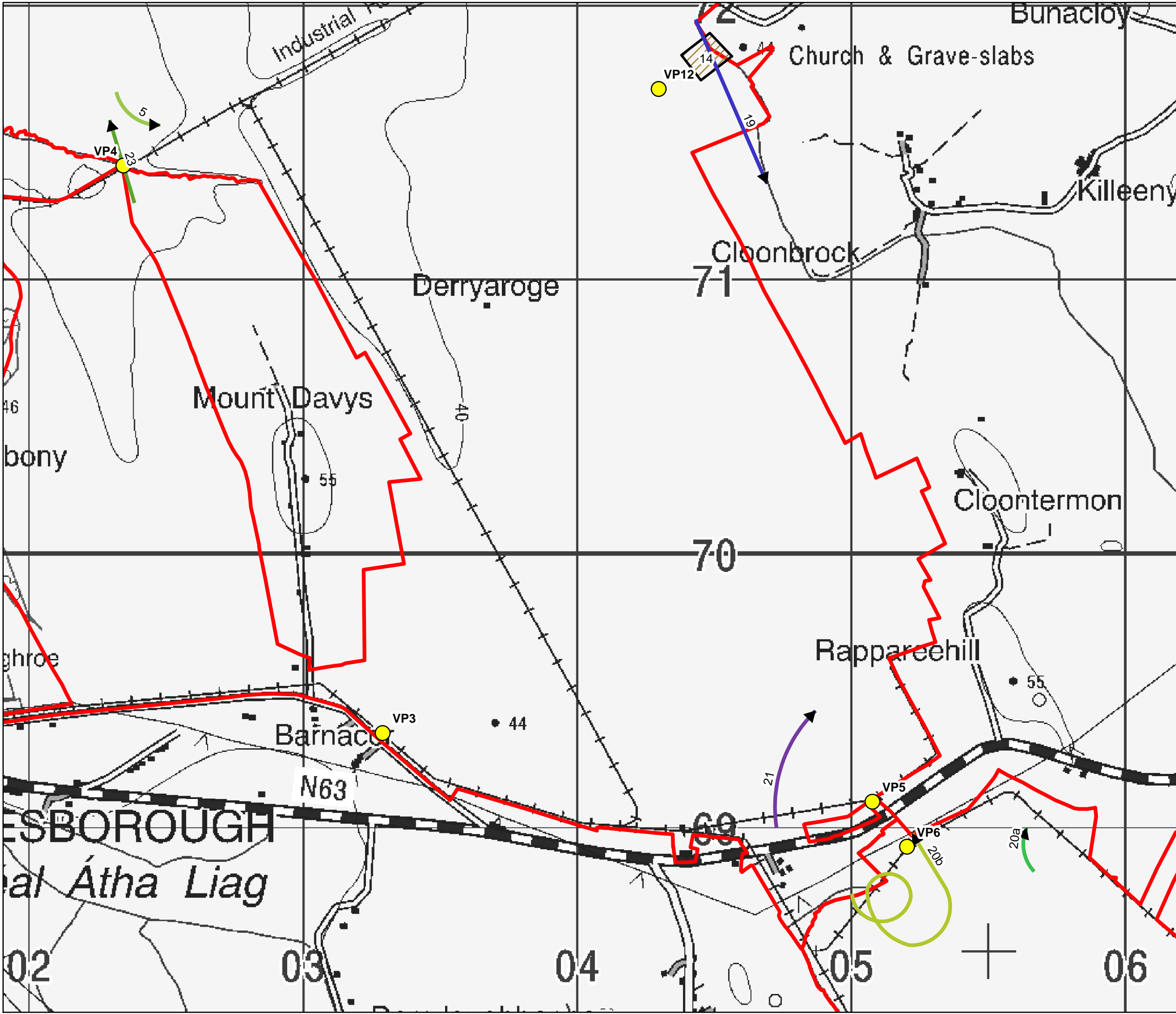
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 14.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Mallard Survey Data - Sheet 3

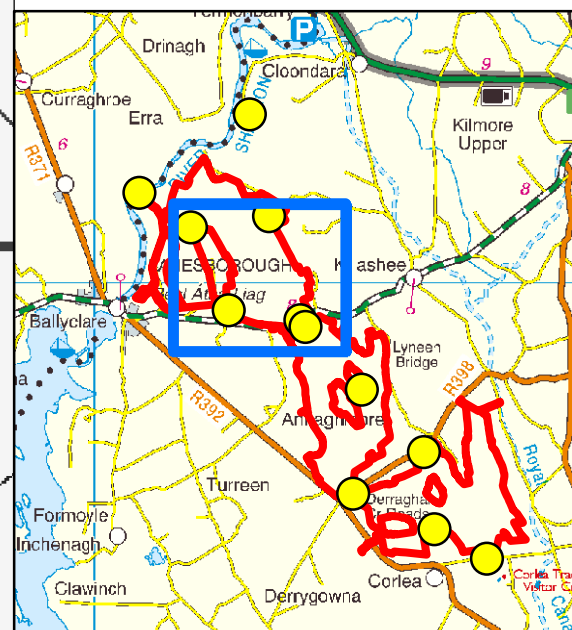
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- Site Boundary

Map Ref - 14.3



0 0.225 0.45 km

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Malachy Walsh and Partners
Engineering and Environmental Consultants



Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Mallard Survey Data - Sheet 4

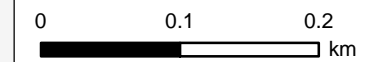
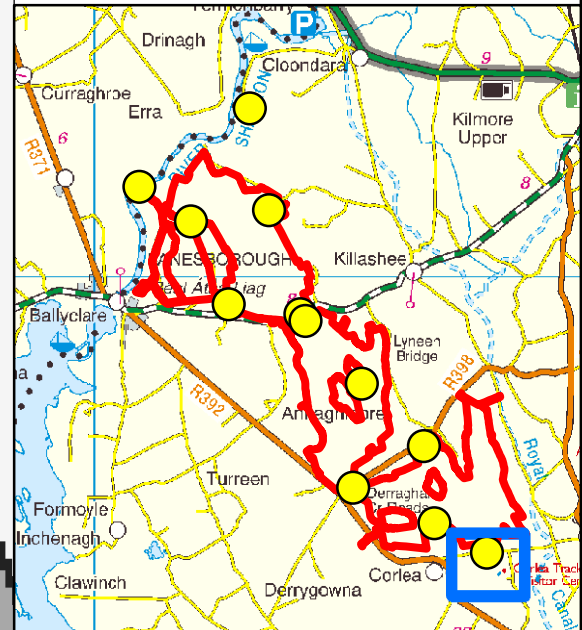
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

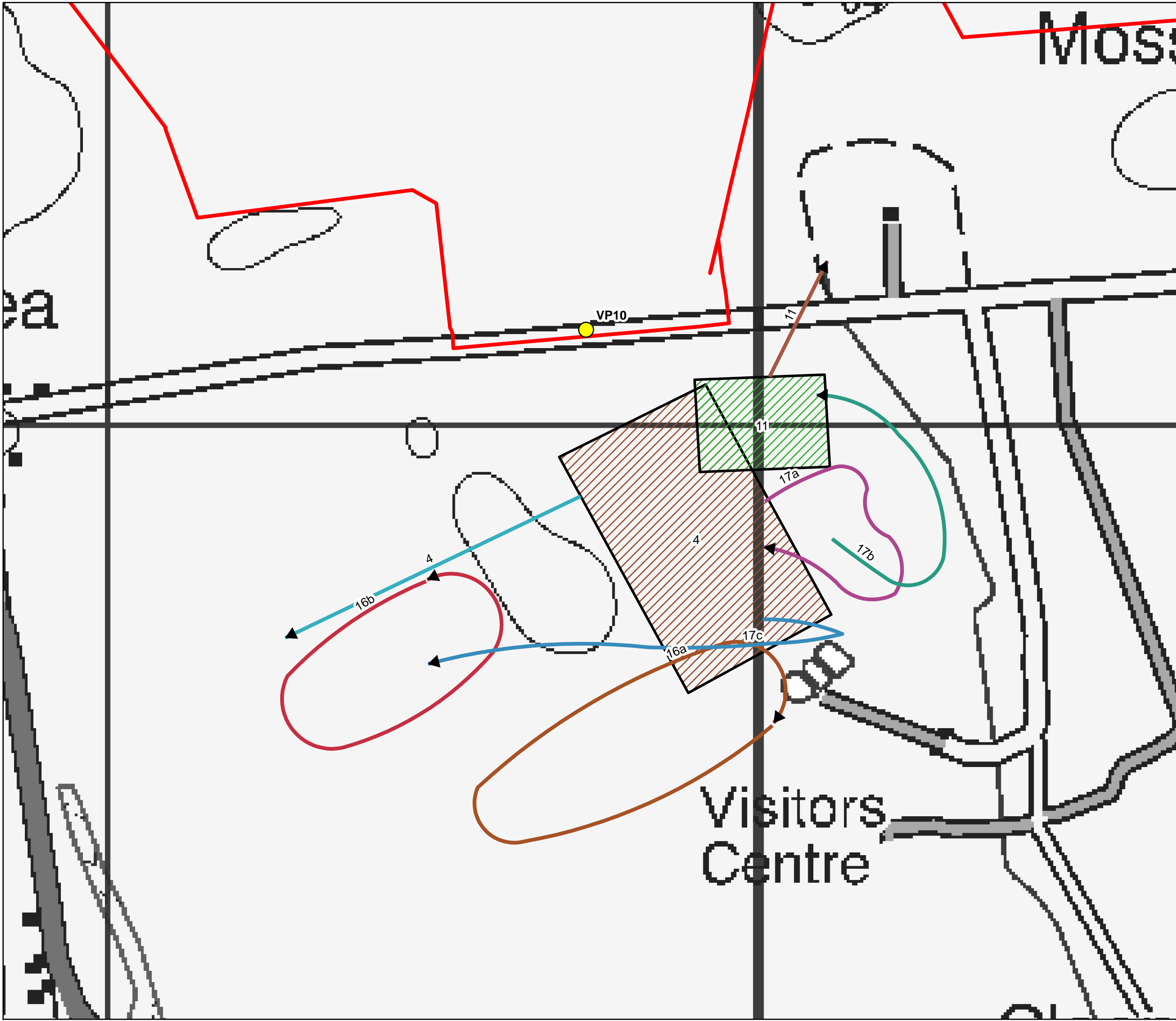
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 14.4



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Merlin Survey Data

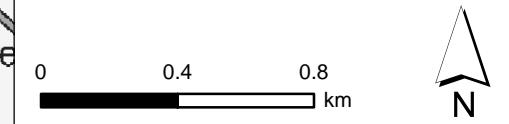
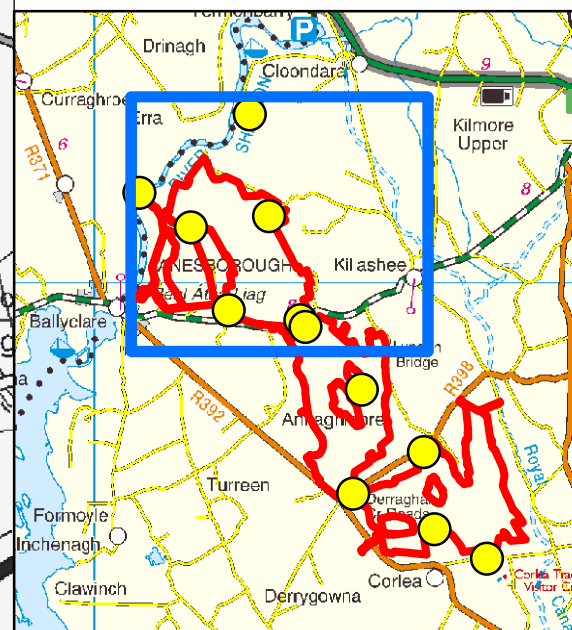
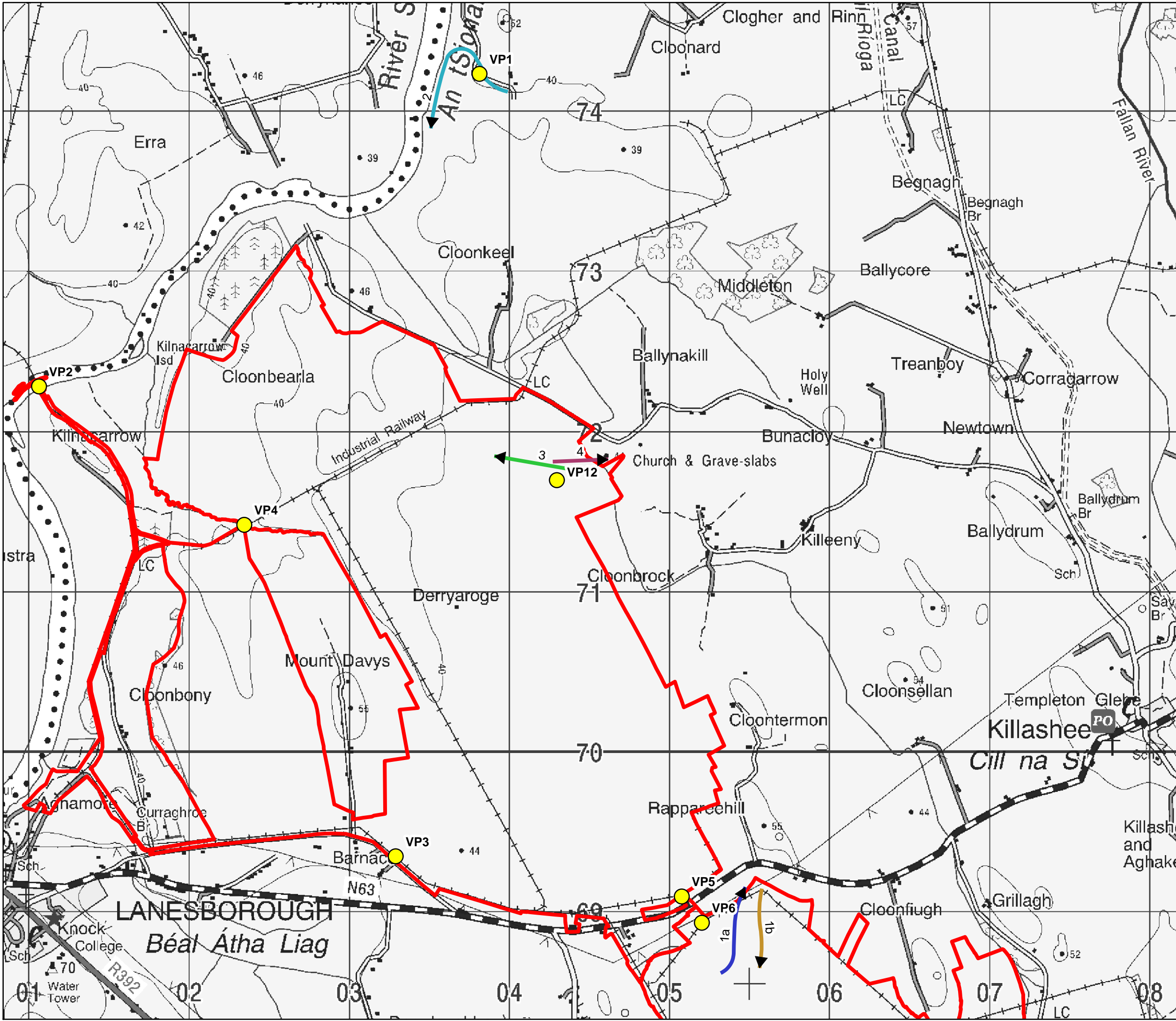
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 15.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Mute Swan Survey Data - Sheet 1

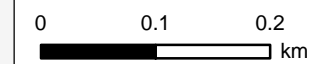
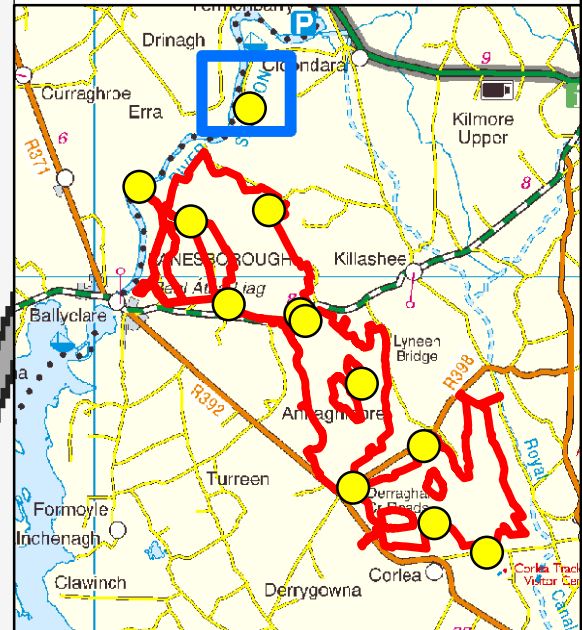
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

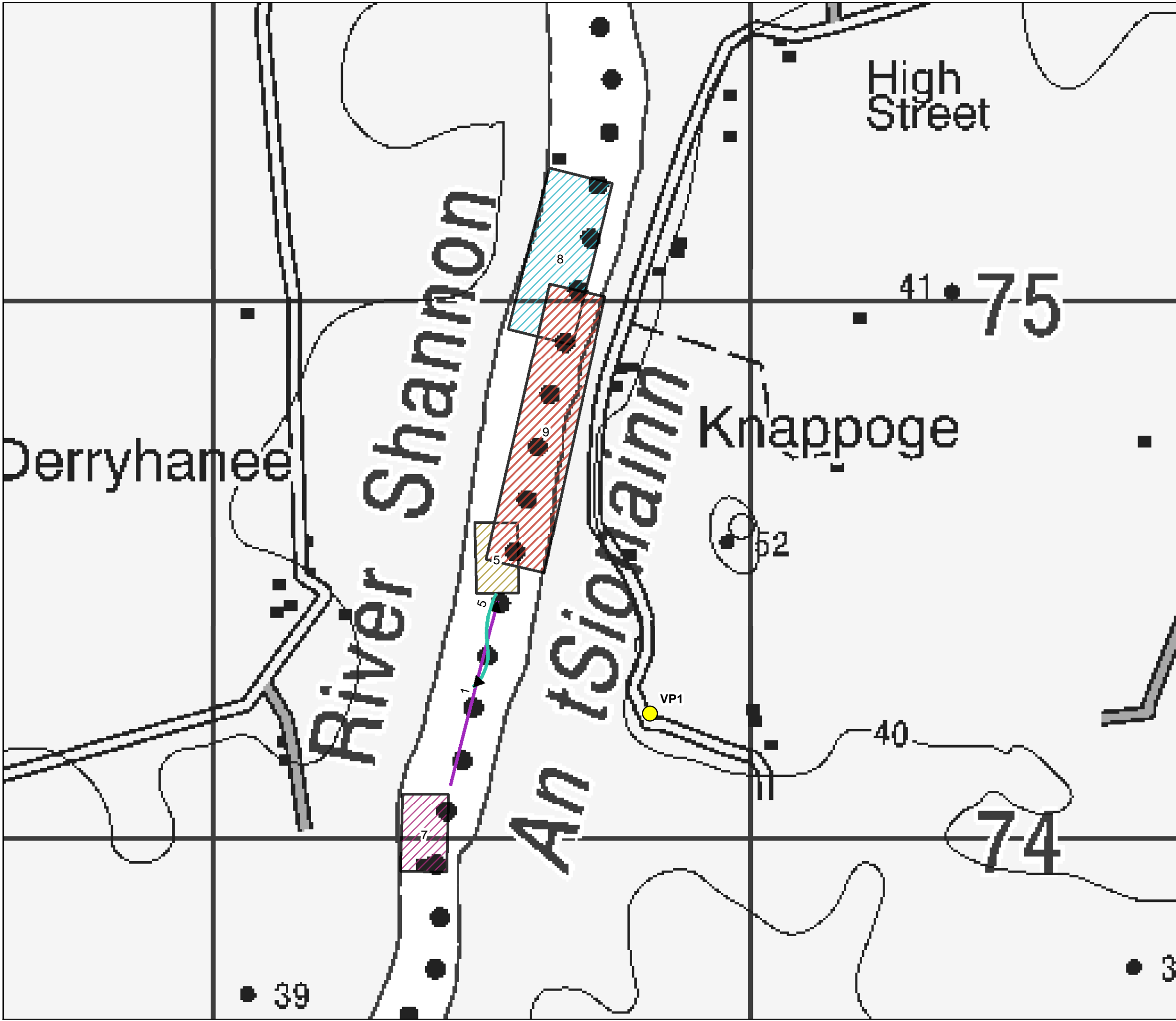
Legend

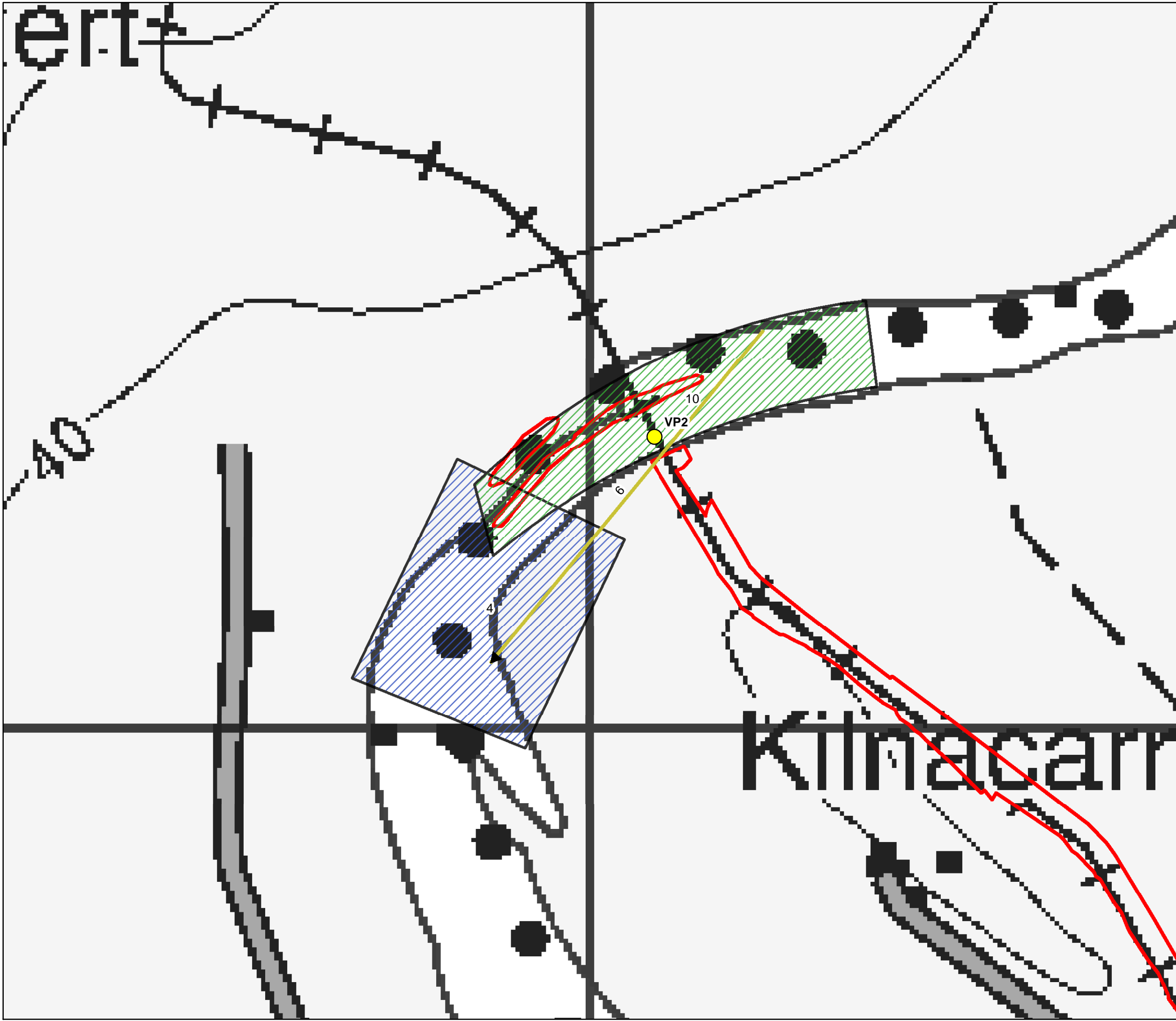
-  Vantage Points
-  Site Boundary

Map Ref - 16.1



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Project Title:
Derryadd Winter Bird Survey

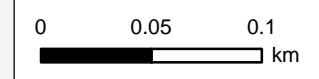
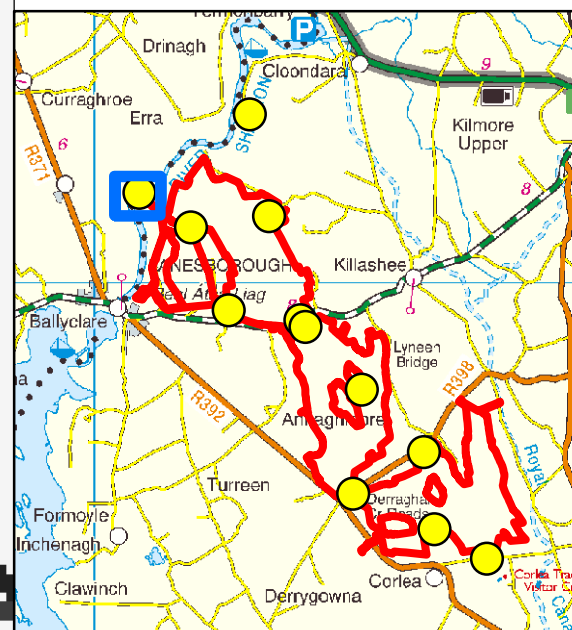
Drawing Title:
Mute Swan Survey Data - Sheet 2

Client: Bord na Móna

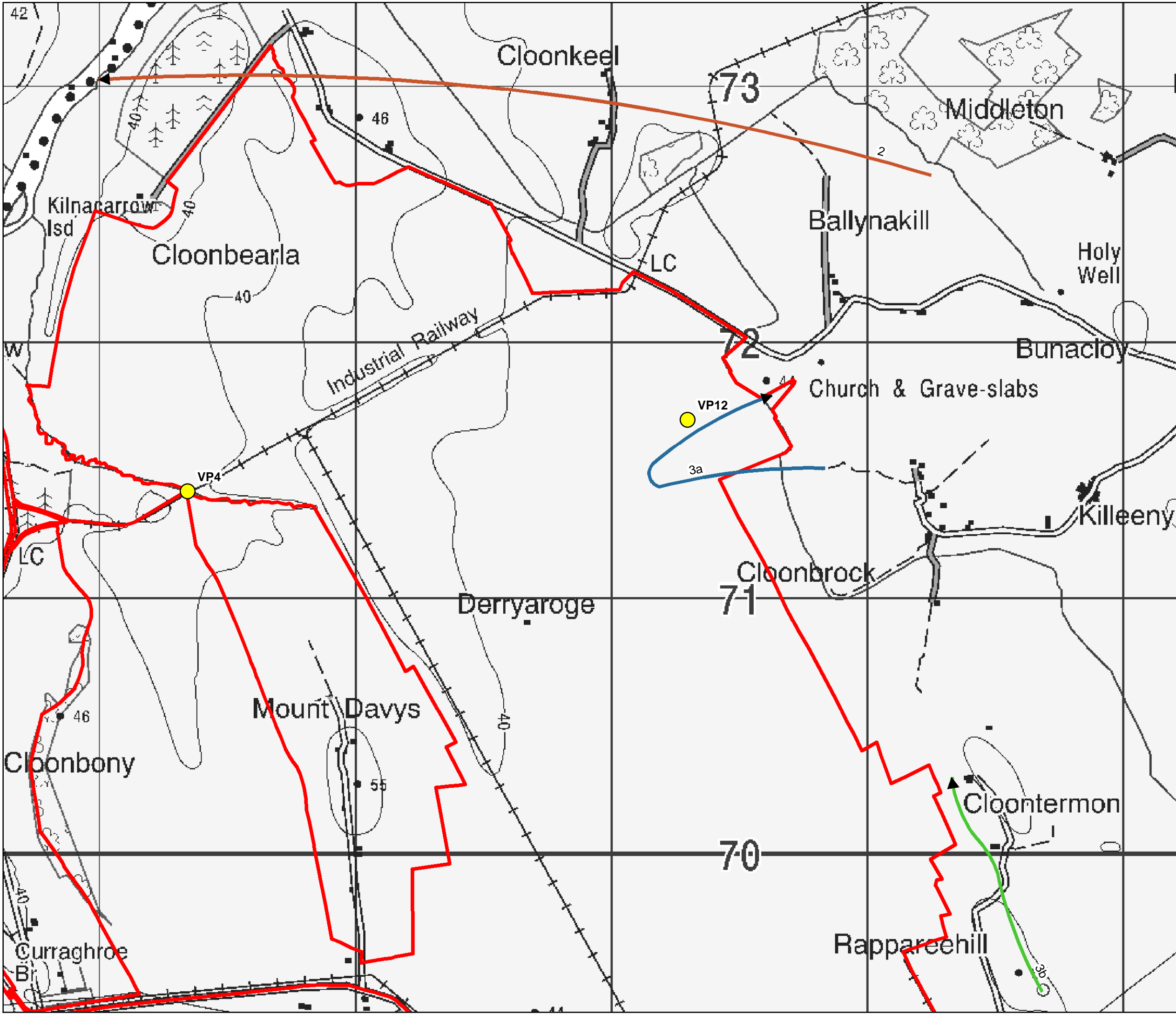
Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

- Legend
- Vantage Points
 - Site Boundary

Map Ref - 16.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Mute Swan Survey Data - Sheet 3

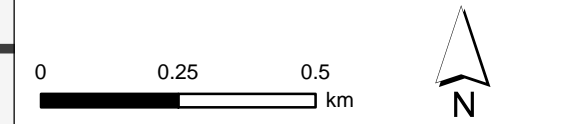
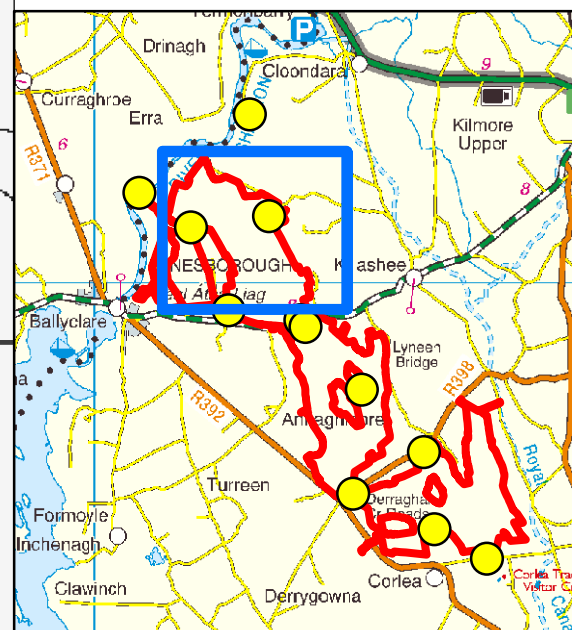
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- ▭ Site Boundary

Map Ref - 16.3



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Peregrine Survey Data

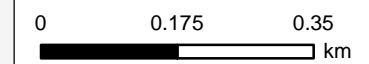
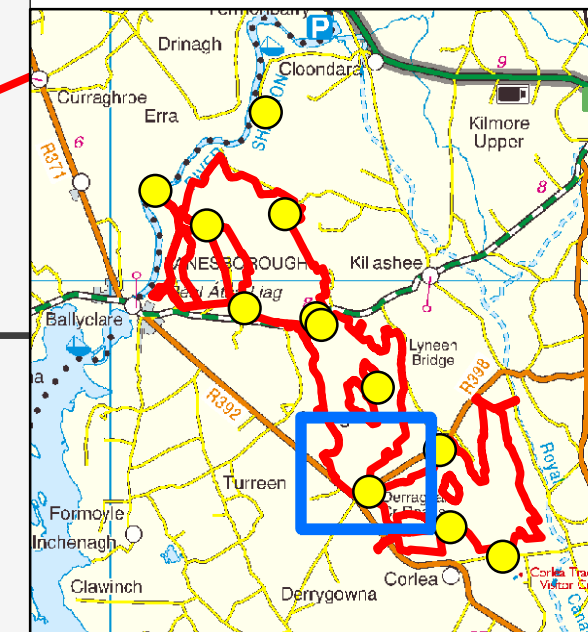
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

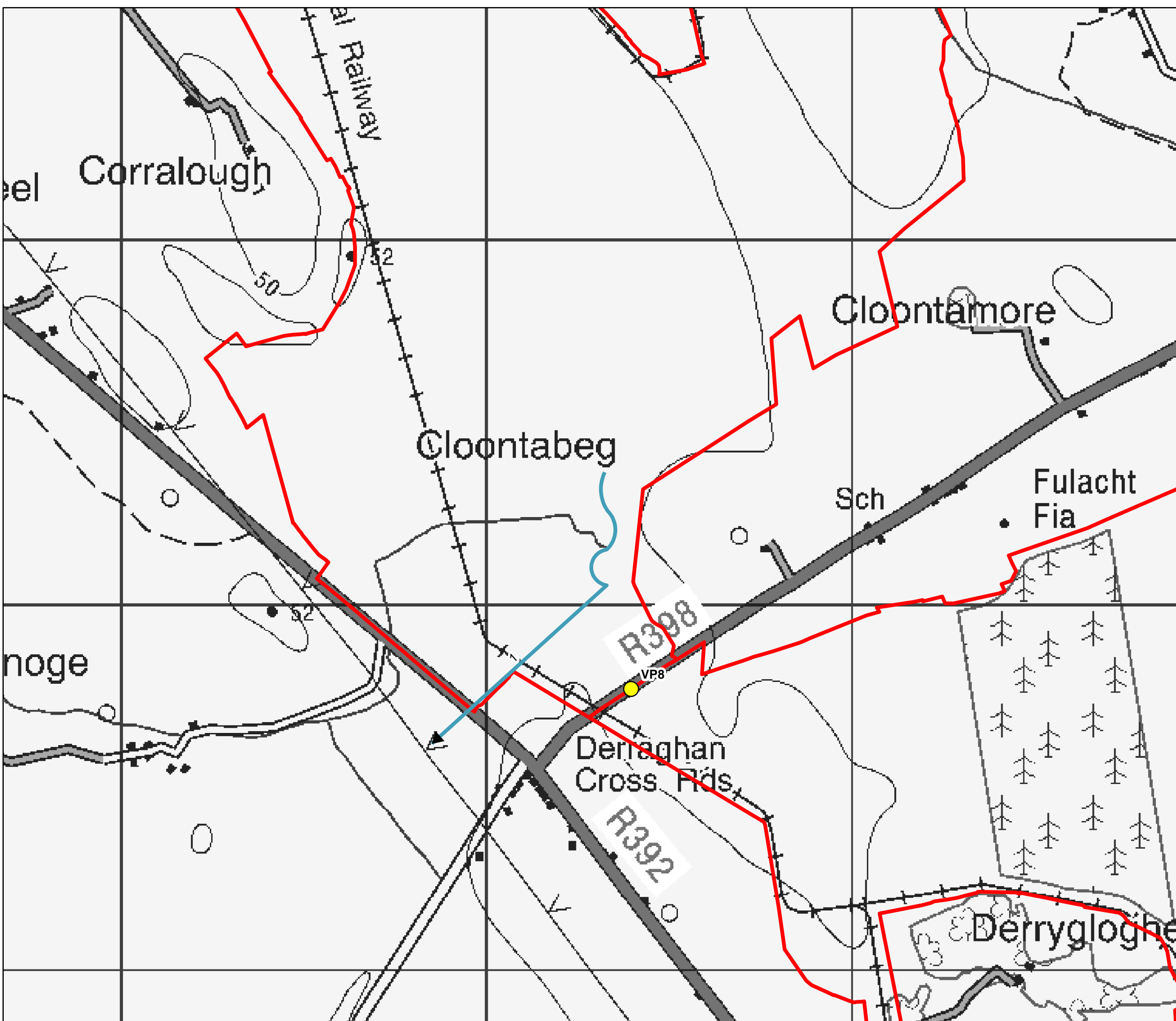
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 17.1



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Project Title:
Derryadd Winter Bird Survey

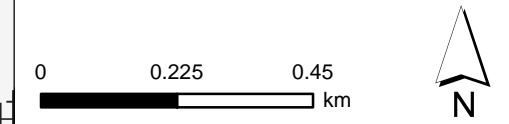
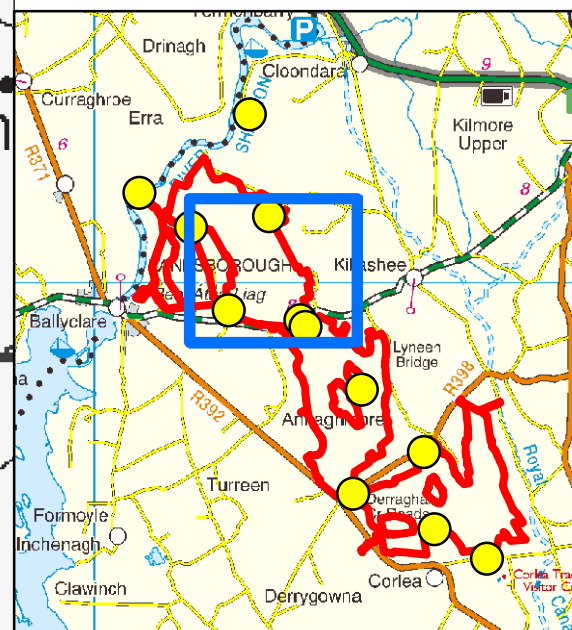
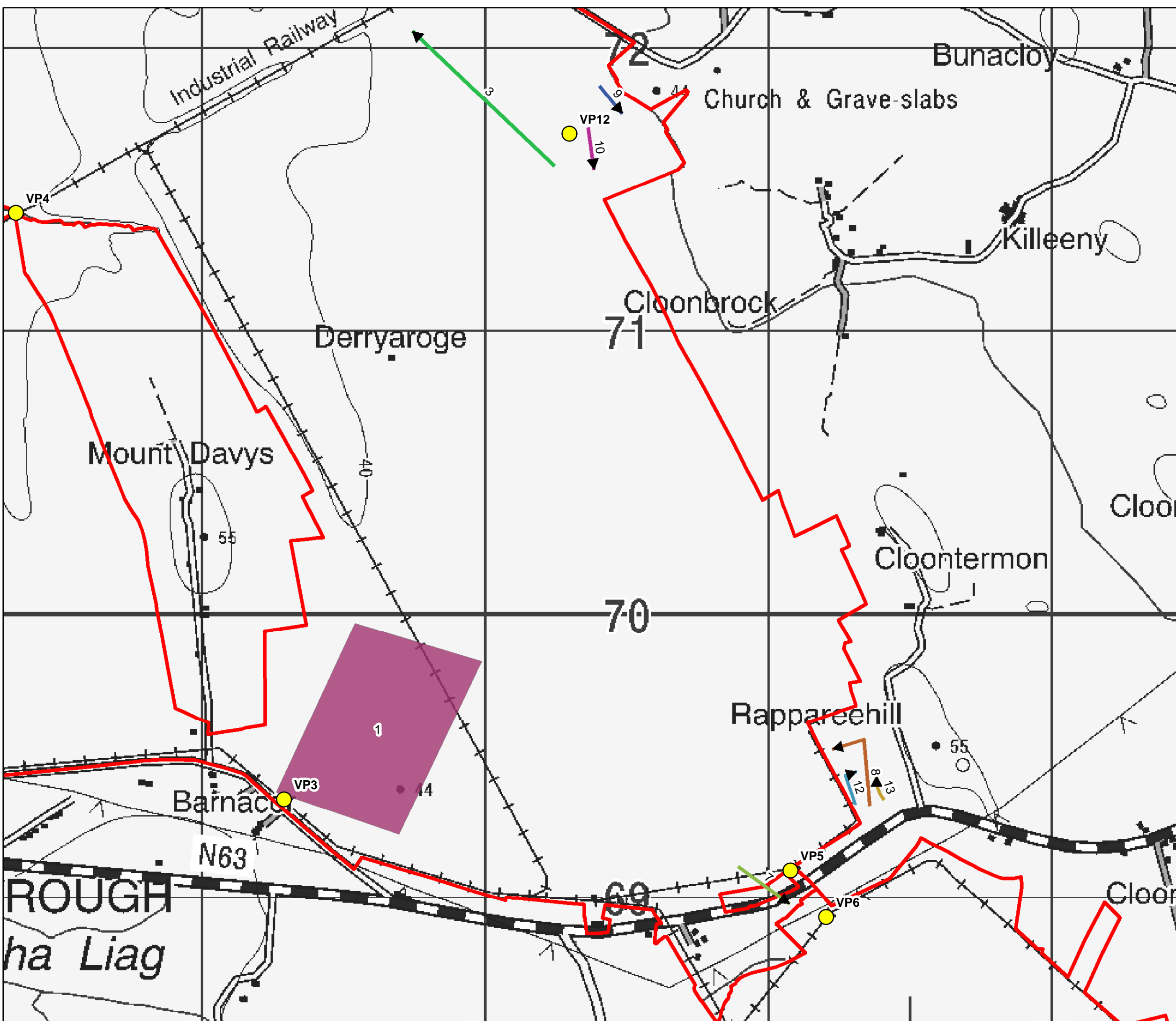
Drawing Title:
Snipe Survey Data - Sheet 1

Client: Bord na Móna

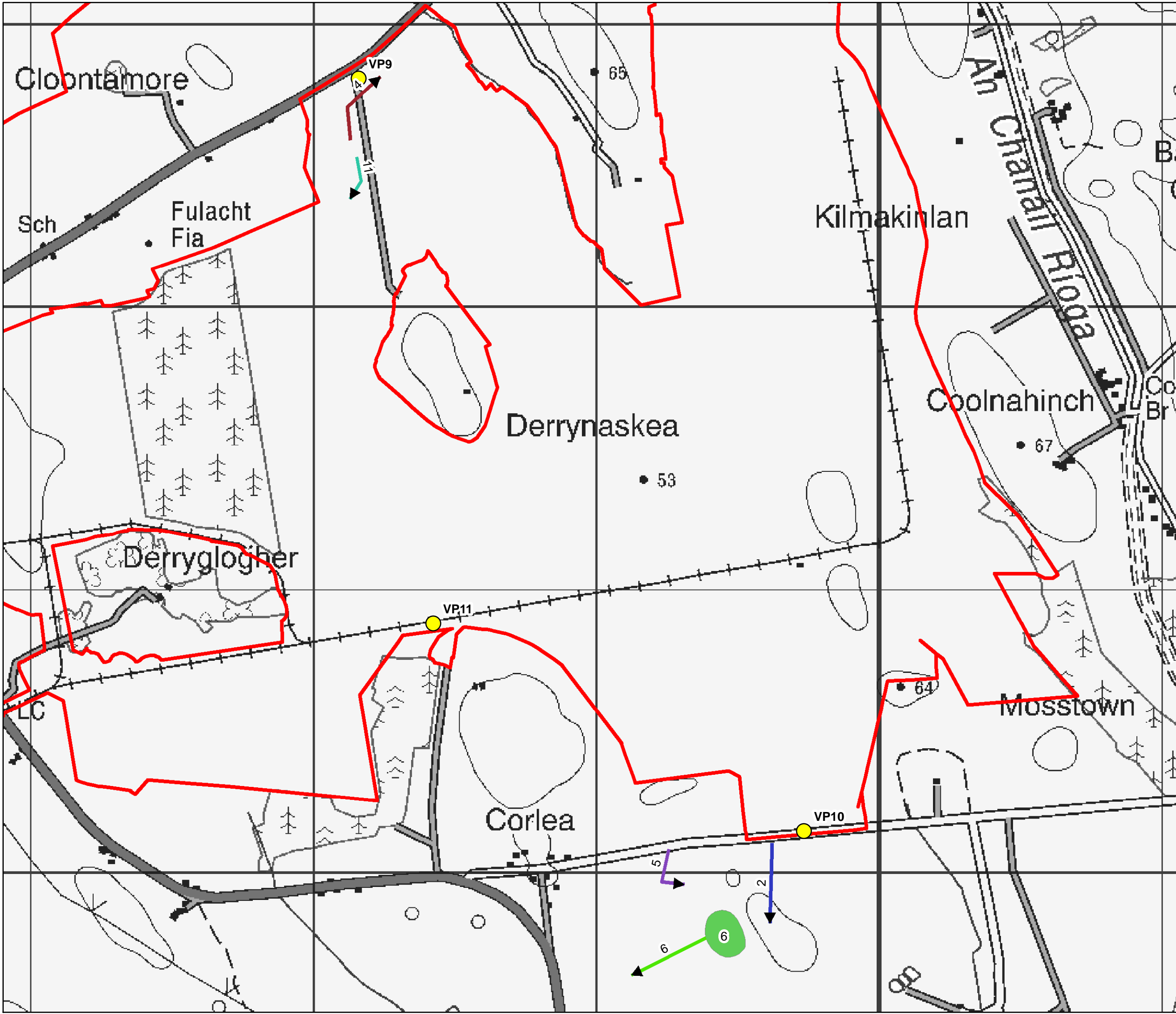
Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend
● Vantage Points
□ Site Boundary

Map Ref - 18.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Snipe Survey Data - Sheet 2

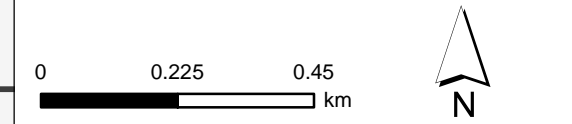
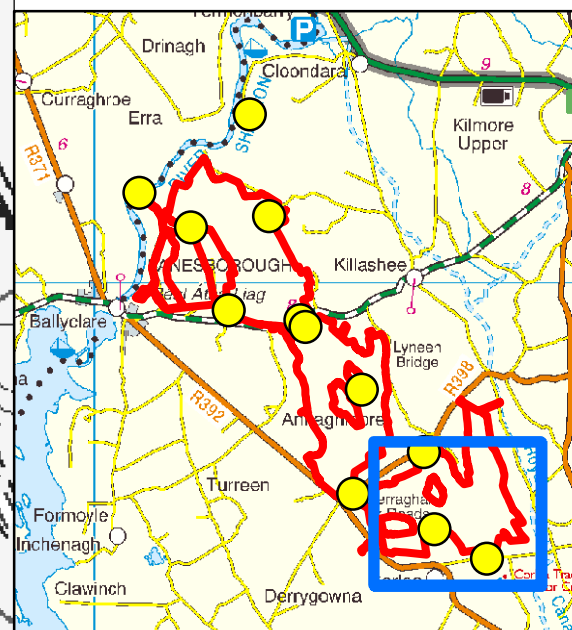
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- Site Boundary

Map Ref - 18.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Sparrowhawk Survey Data - Sheet 1

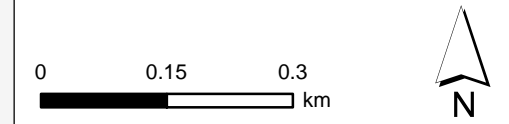
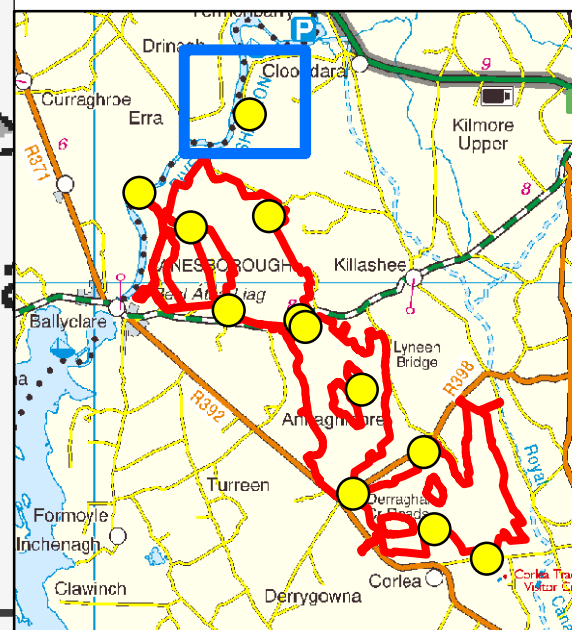
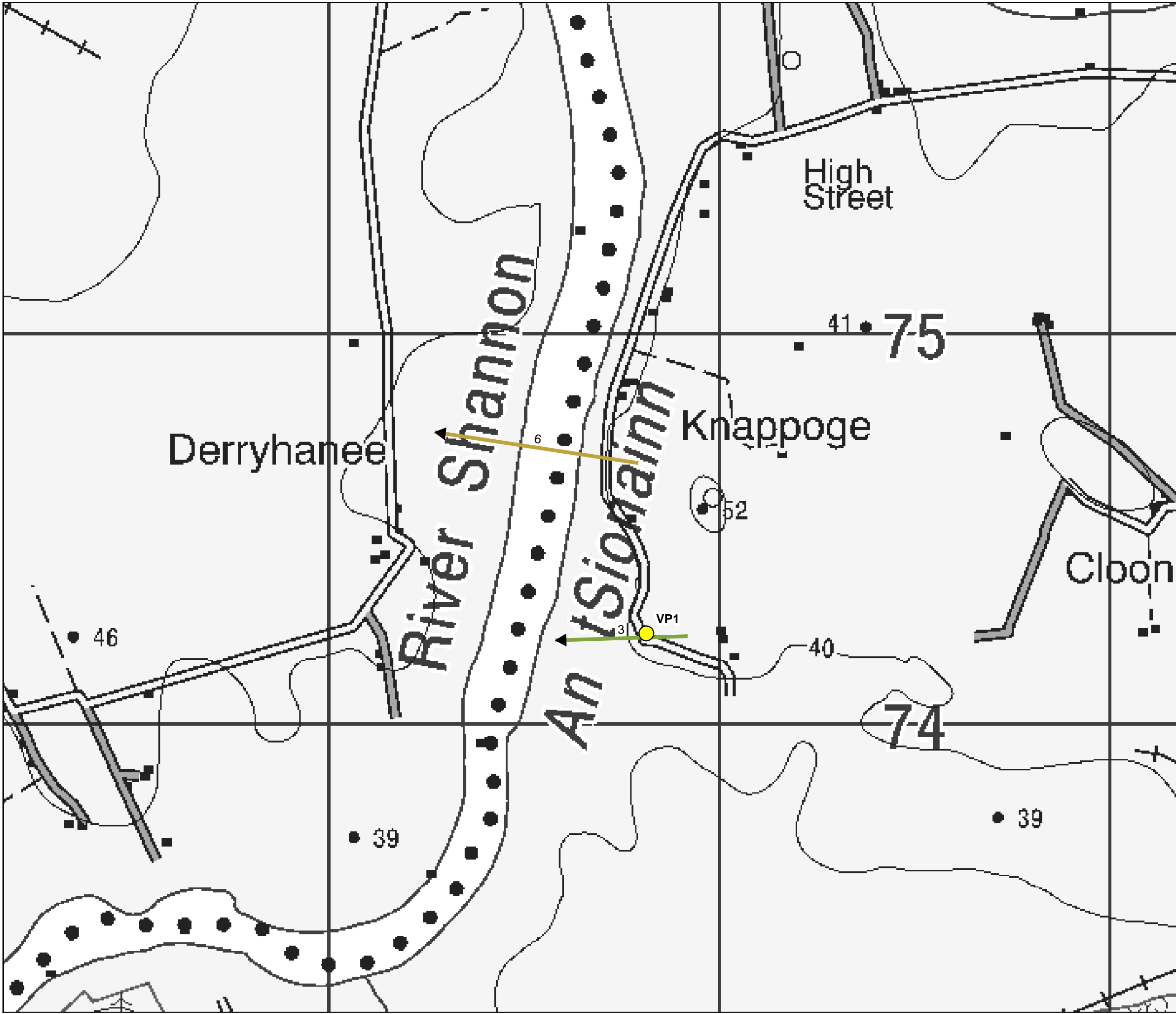
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 19.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Sparrowhawk Survey Data - Sheet 2

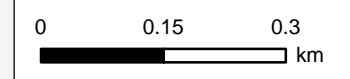
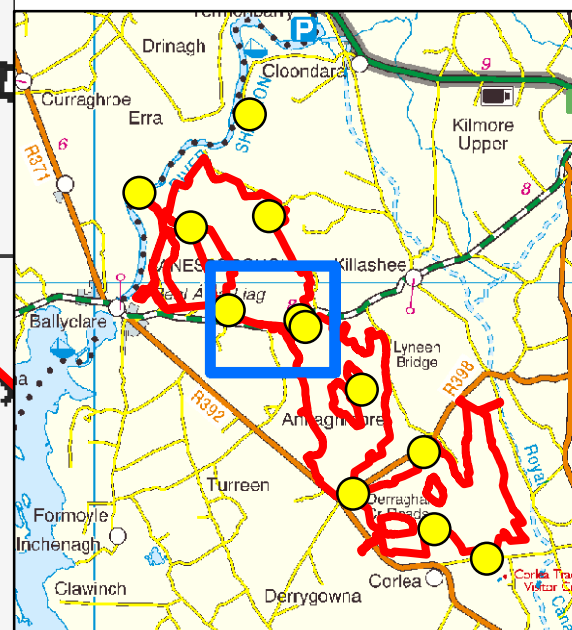
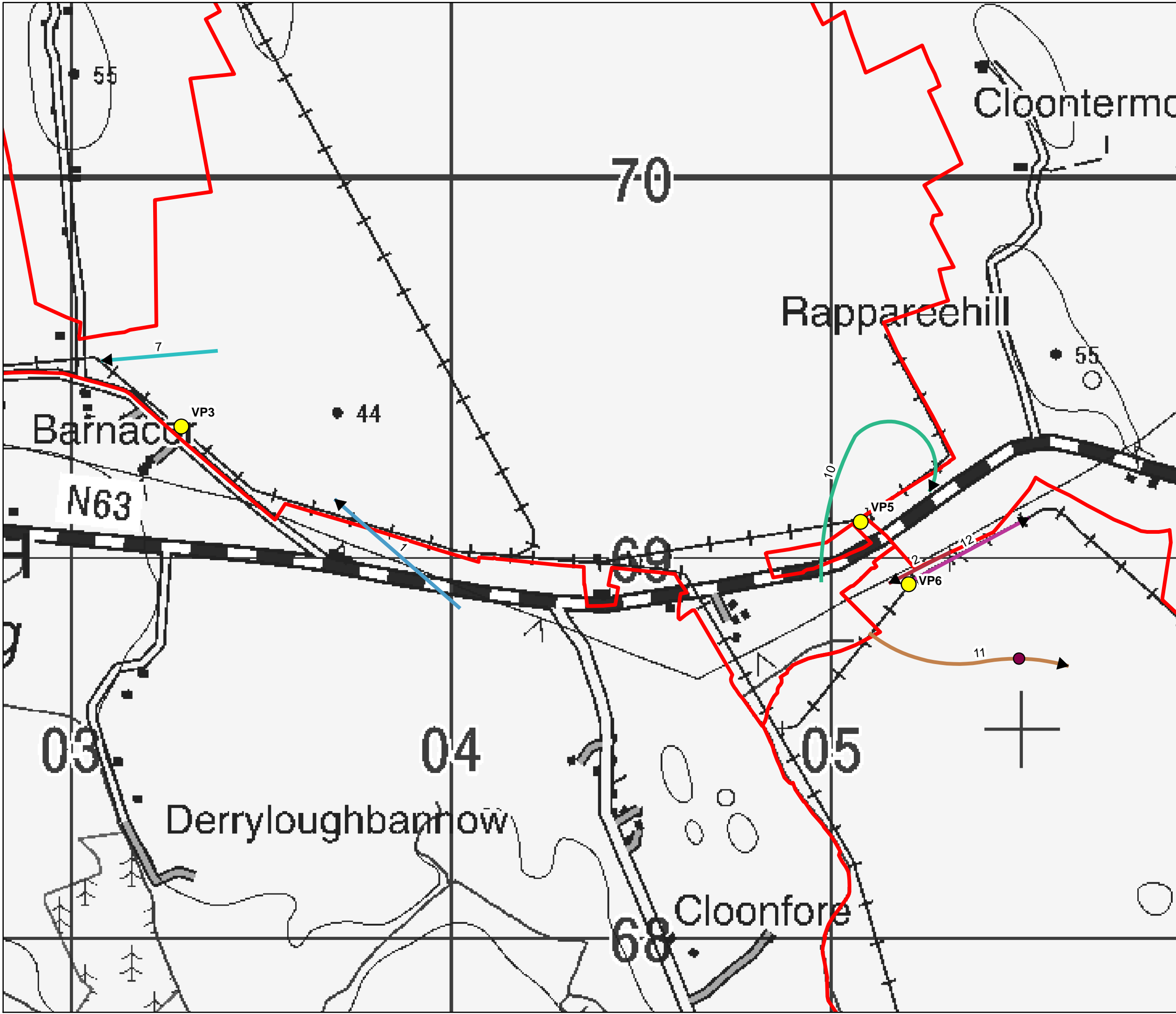
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

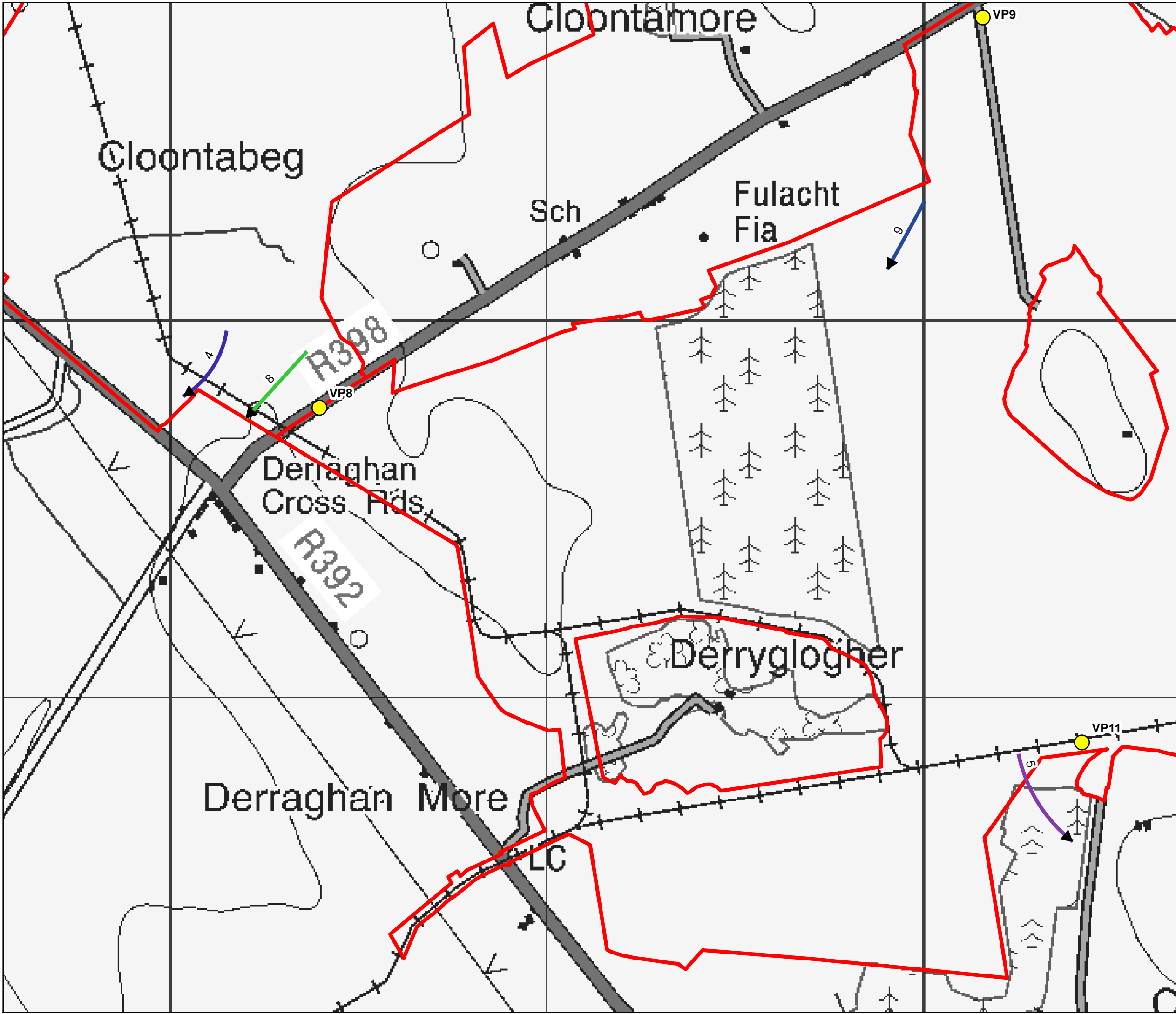
Legend

- Vantage Points
- Site Boundary

Map Ref - 19.2



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Sparrowhawk Survey Data - Sheet 3

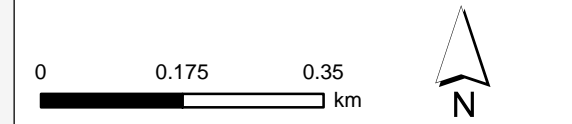
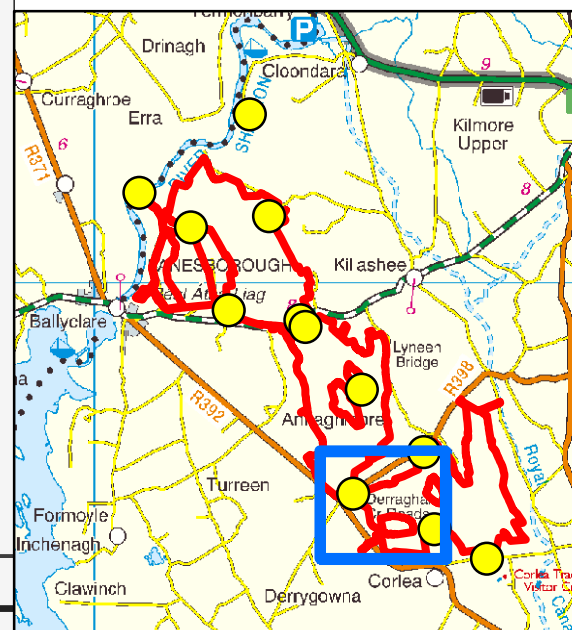
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

- Vantage Points
- Site Boundary

Map Ref - 19.3



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Project Title:
Derryadd Winter Bird Survey

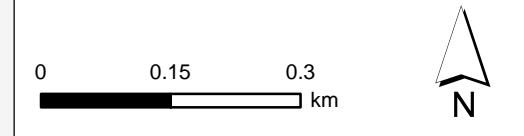
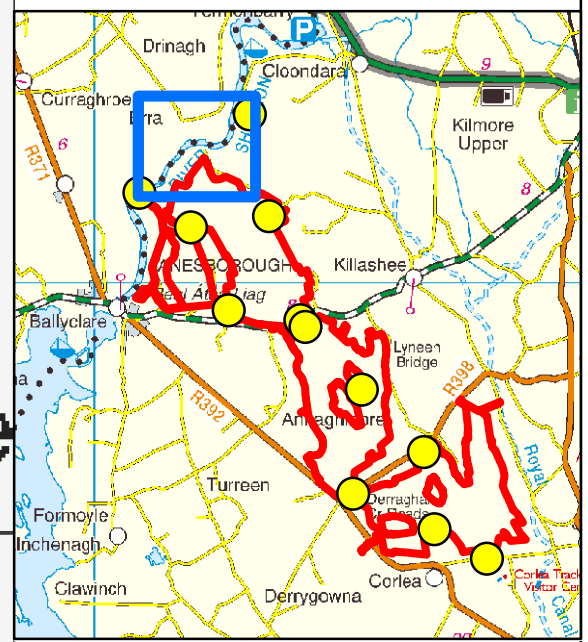
Drawing Title:
Teal Survey Data

Client: Bord na Móna

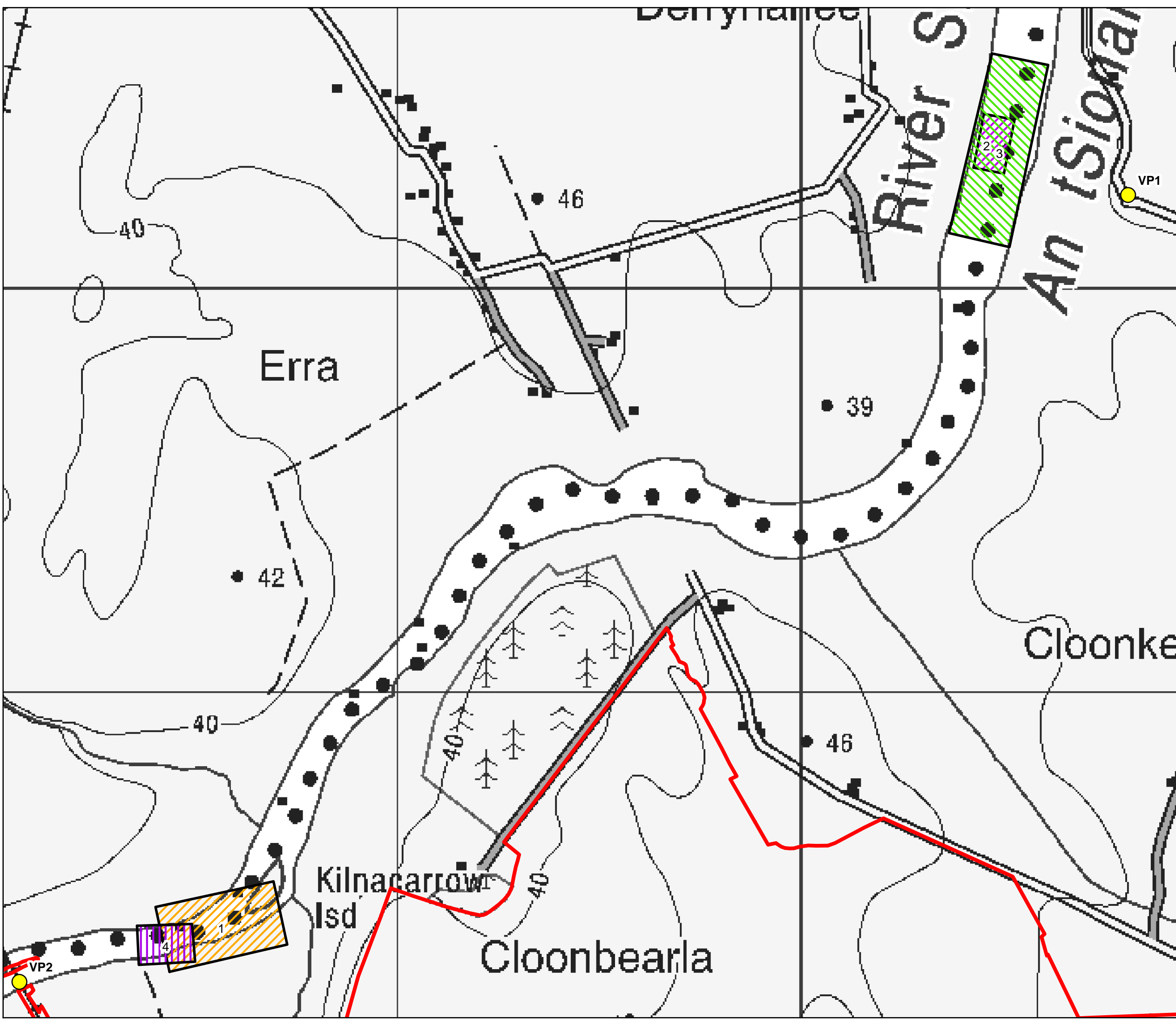
Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend
● Vantage Points
□ Site Boundary

Map Ref - 20.1



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Project Title:
Derryadd Winter Bird Survey

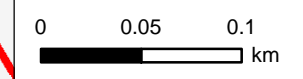
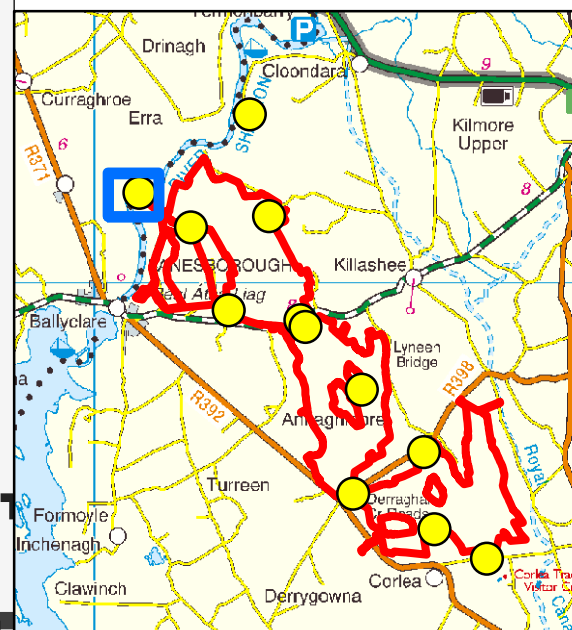
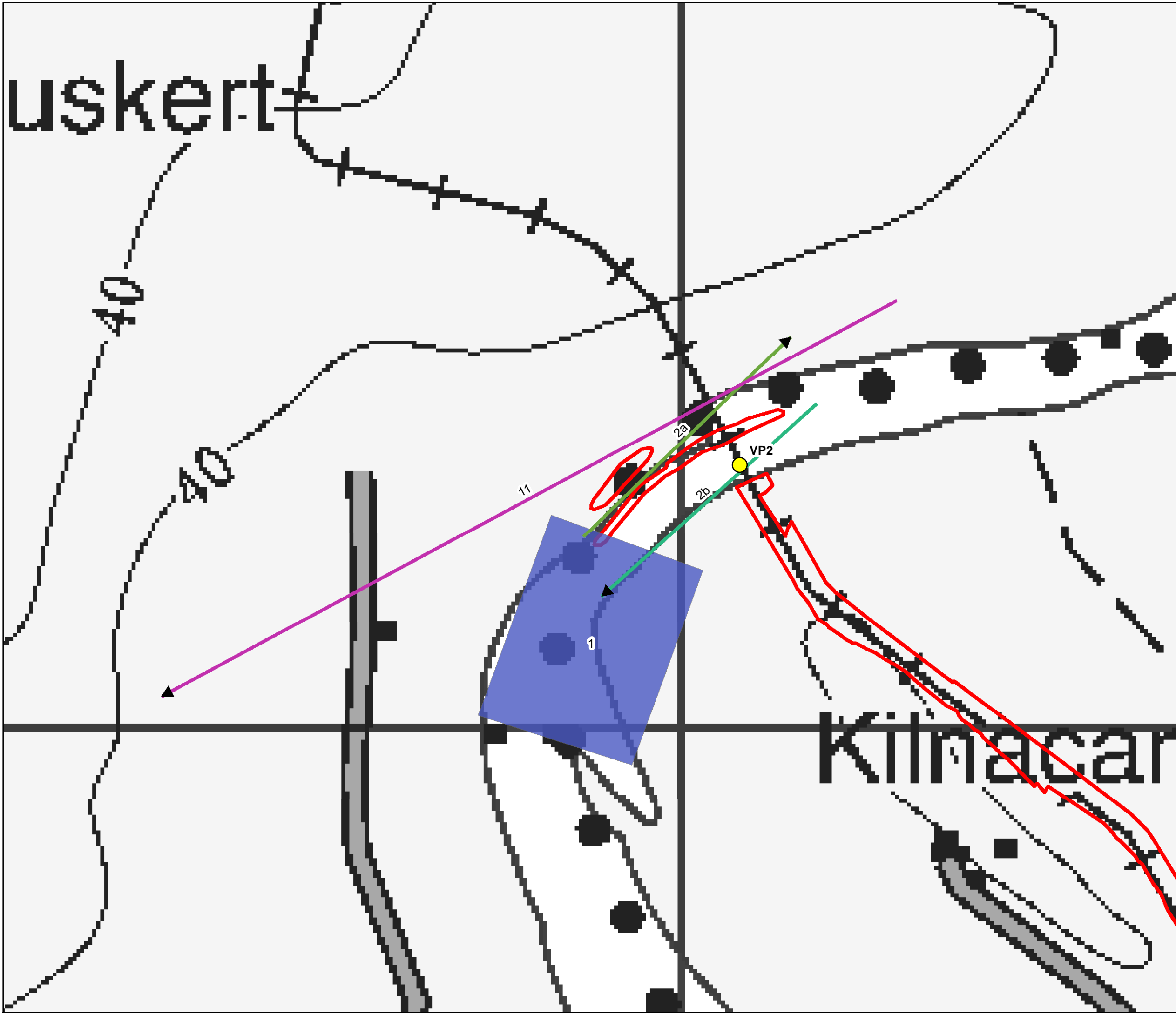
Drawing Title:
Whooper Swan Survey Data - Sheet 1

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend
● Vantage Points
□ Site Boundary

Map Ref - 21.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Whooper Swan Survey Data - Sheet 2

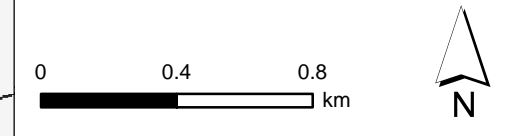
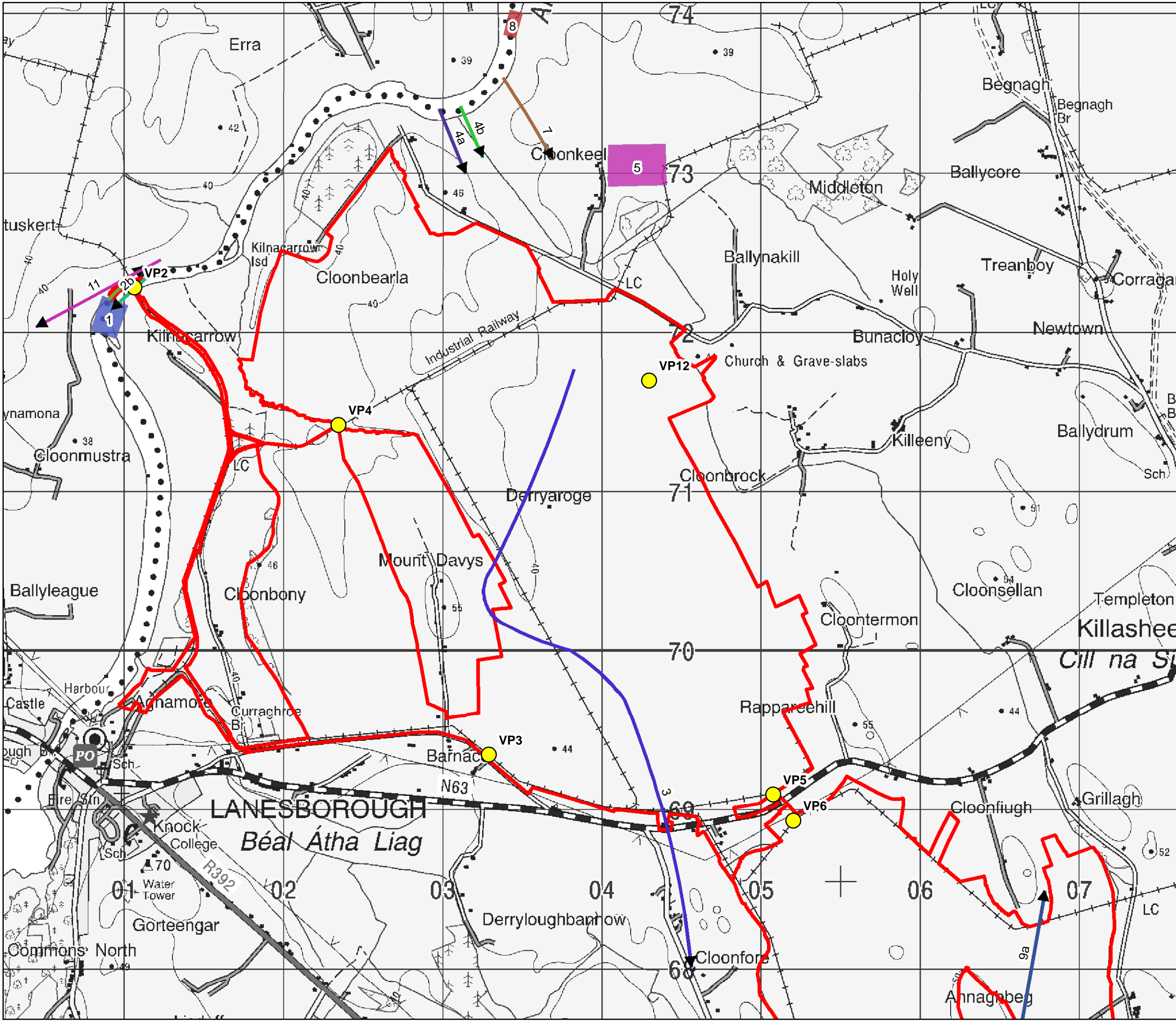
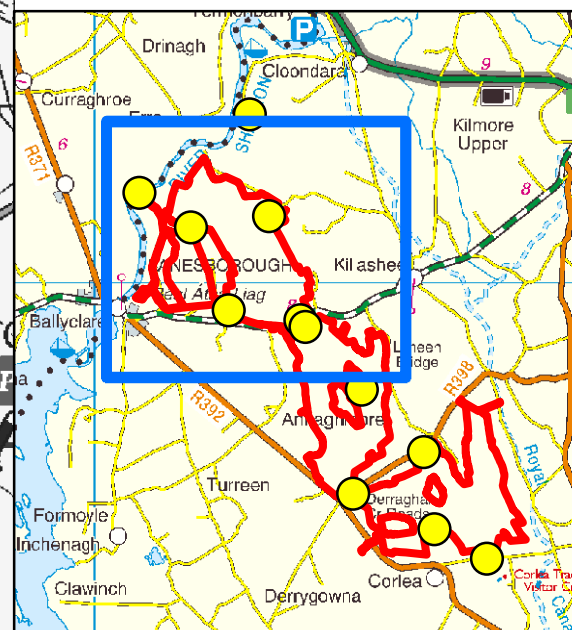
Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend

-  Vantage Points
-  Site Boundary

Map Ref - 21.2



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Project Title:
Derryadd Winter Bird Survey

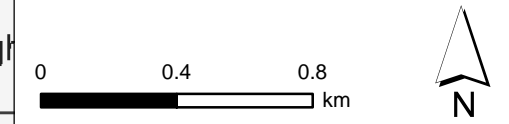
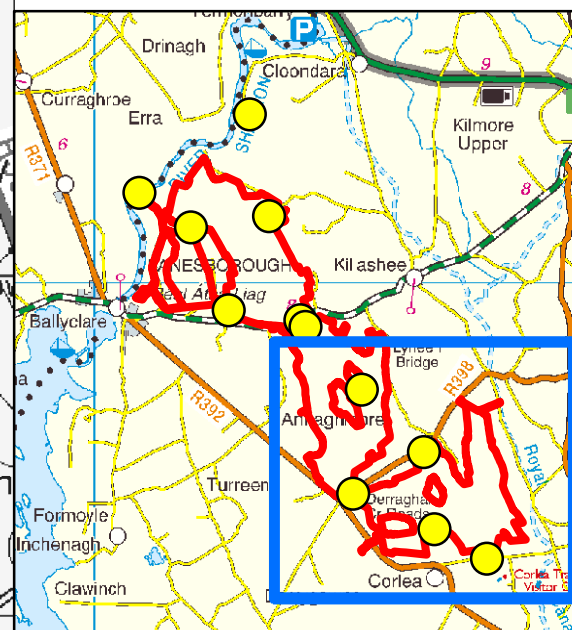
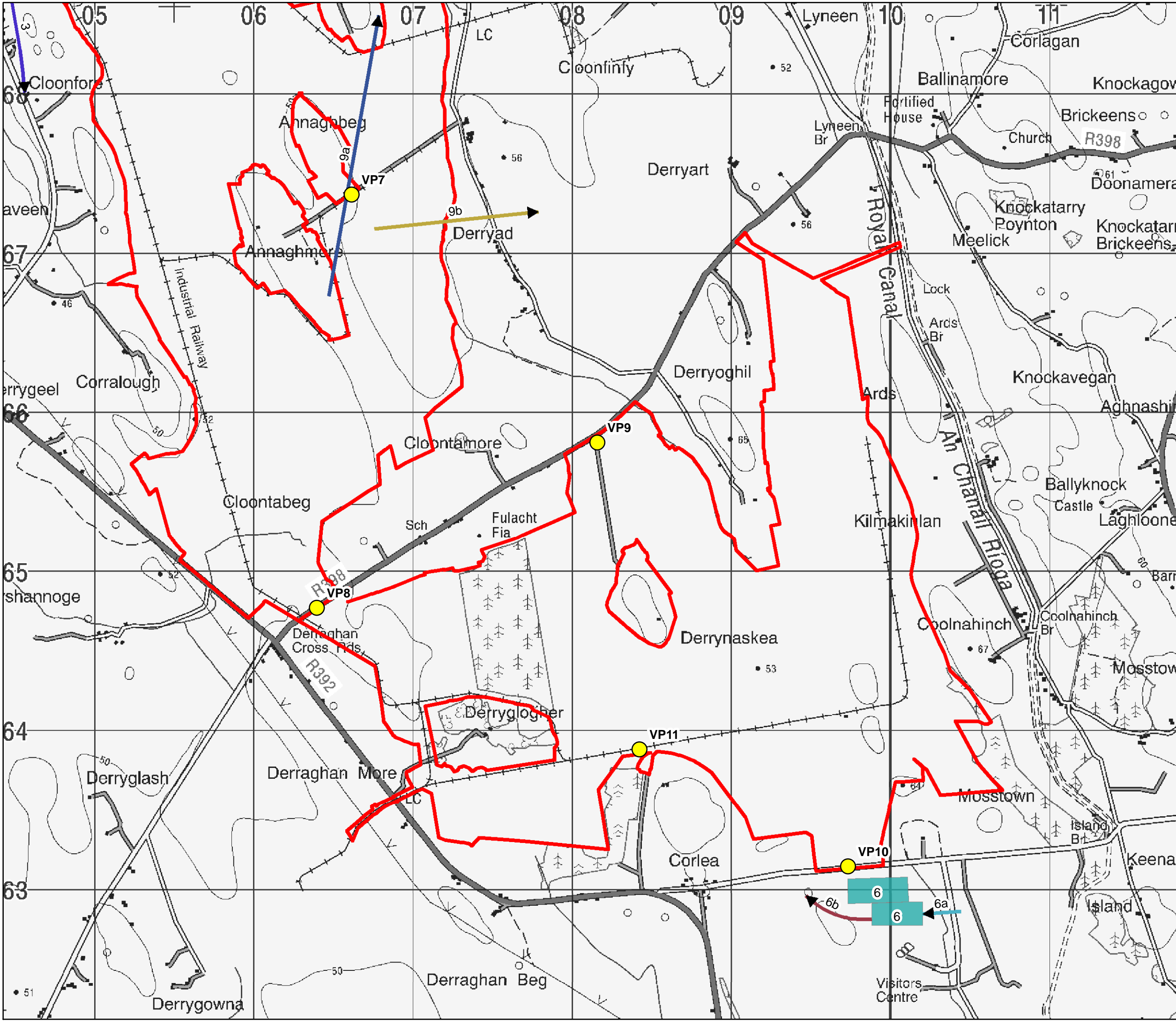
Drawing Title:
Whooper Swan Survey Data - Sheet 3

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

Legend
● Vantage Points
□ Site Boundary

Map Ref - 21.3



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Wigeon Survey Data - Sheet 1

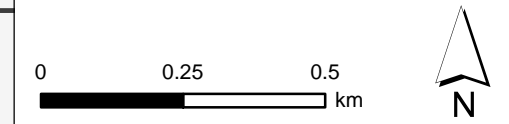
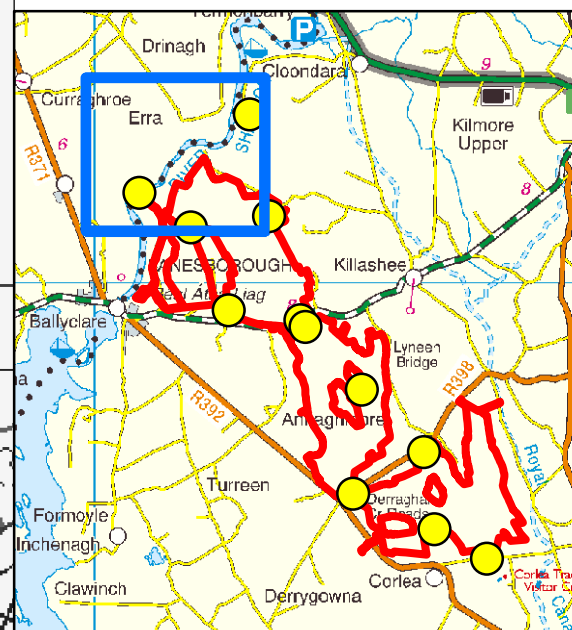
Client: Bord na Móna

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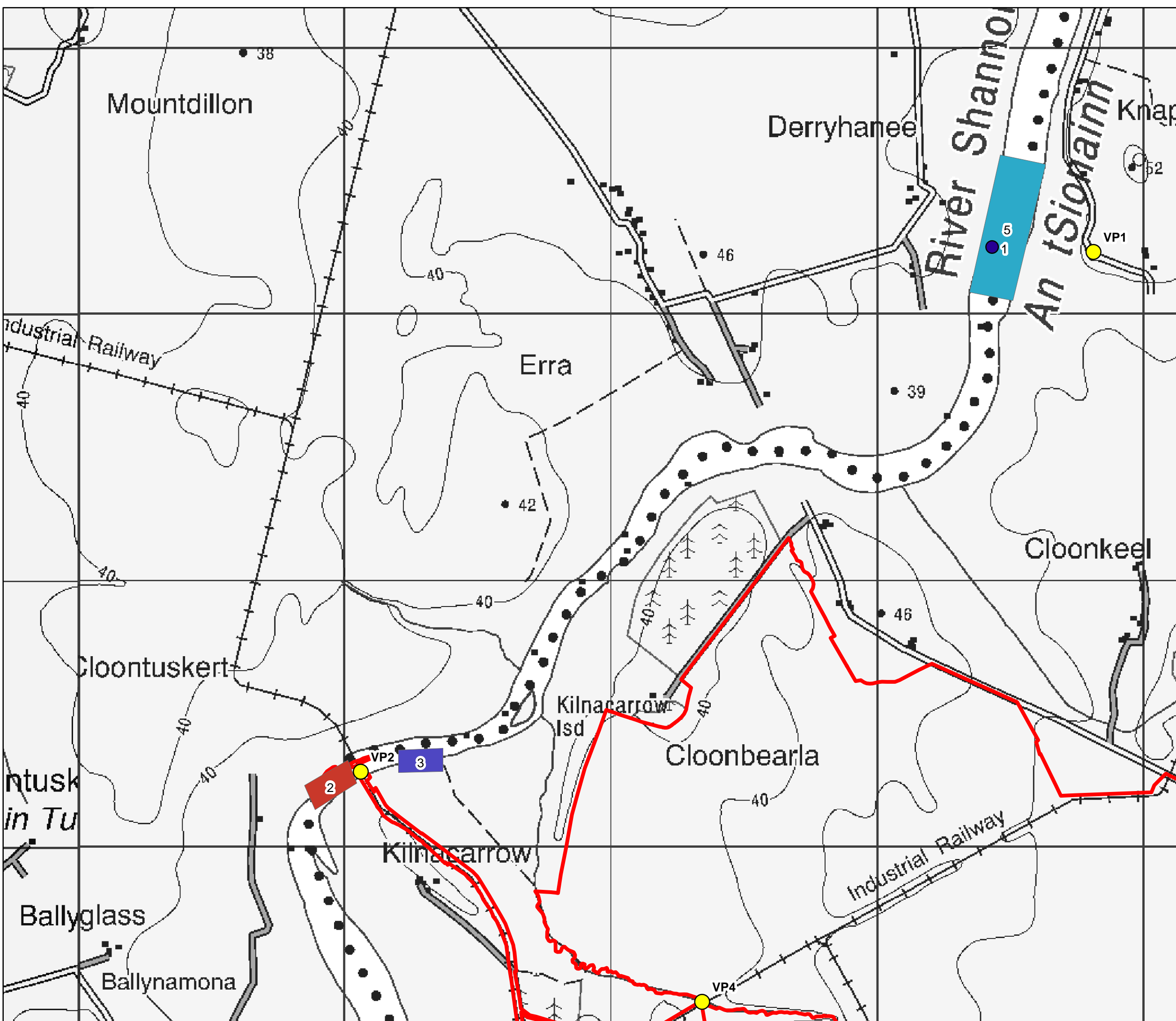
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 22.1



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Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Wigeon Survey Data - Sheet 2

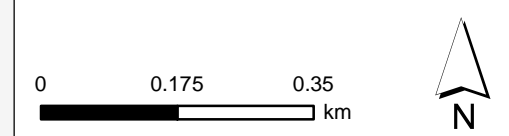
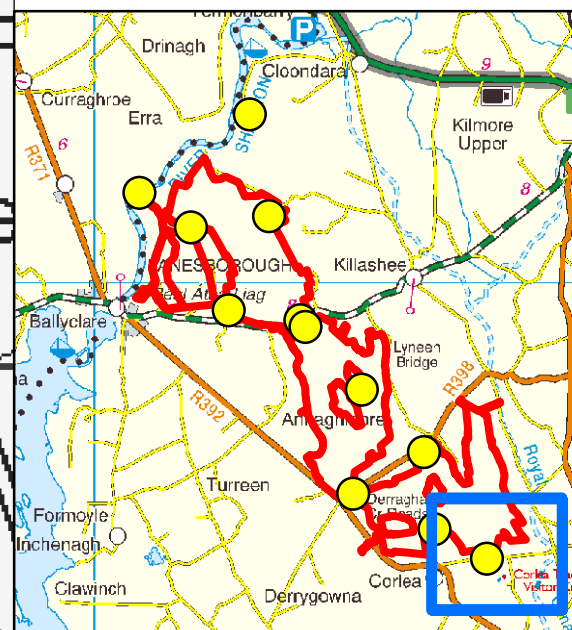
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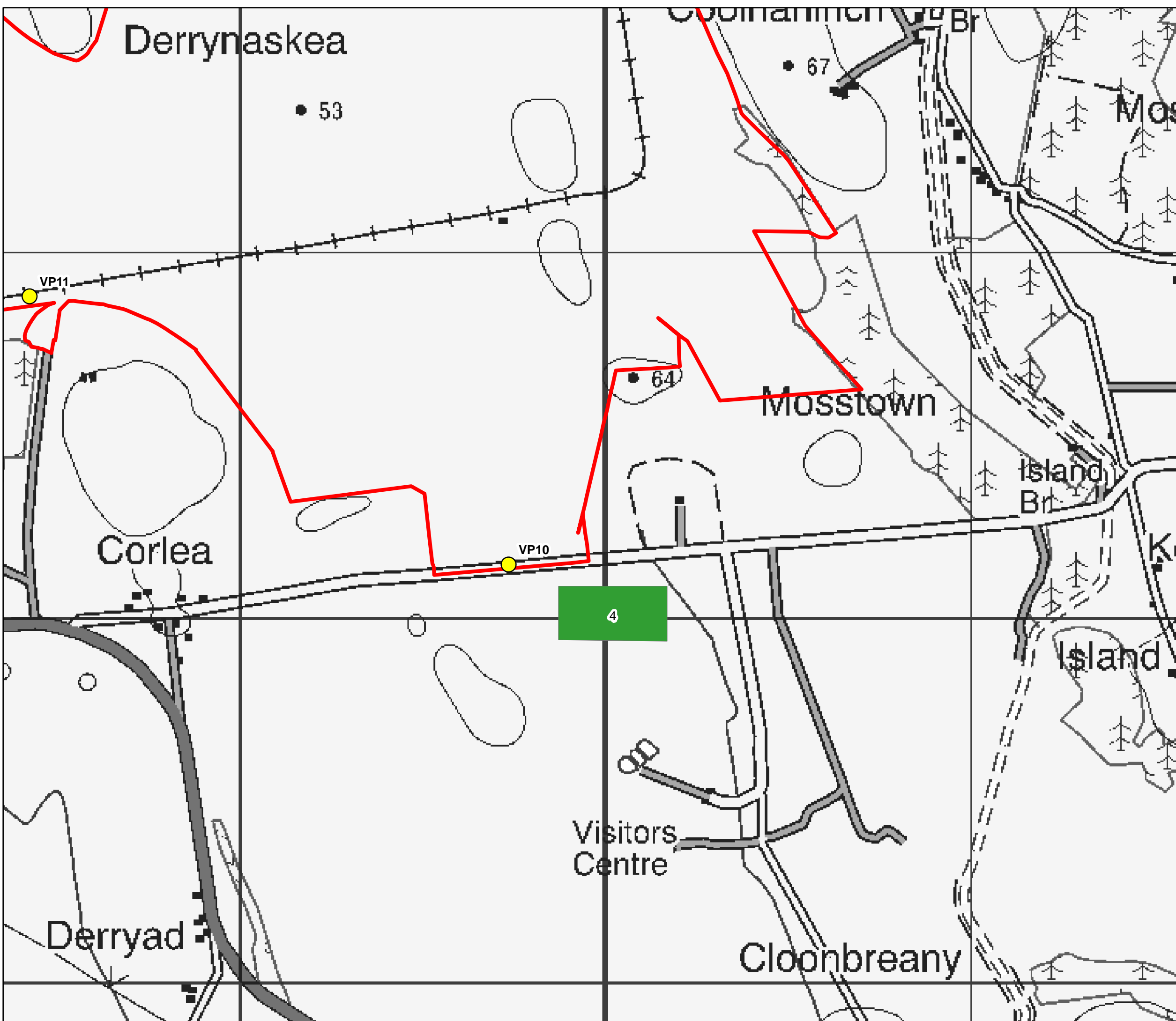
Legend

-  Vantage Points
-  Site Boundary

Map Ref - 22.2



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Appendix V

Transect Survey Summary Table

Transect No.	Date	Observer	Start Time	Finish Time	Weather
1	05/12/2017	JNM	10.30	11.00	Dry, cold morning, wind F1-2 SE, temp 6-8 C
2	05/12/2017	JNM	15.00	15.30	Dry, overcast dull afternoon, wind slack SE, temp 5-6 C
3	05/12/2017	JNM	14.00	14.30	Dry, cold dull day, wind slack SE, temp 5-6 C
4	05/12/2017	JNM	11.30	12.00	Dry, overcast dull afternoon, wind slack SE, temp 5-6 C
5	05/12/2017	JNM	12.30	13.00	Dry, overcast dull afternoon, wind slack SE, temp 5-6 C
6	18/11/2017	JNM	12.10	12.35	Cold and frosty, dry with some sunshine
7	18/11/2017	JNM	12.45	13.15	Cold and frosty, dry with some sunshine
8	05/12/2017	JNM	13.10	13.30	Dry, cold dull day with slack SE wind, temp 6-7 C
9	06/12/2017	JNM	9.30	10.00	Misty, damp wet morning, wind F1-2 S-SE, temp 9-12 C
10	06/12/2017	JNM	10.00	10.30	Misty, damp wet morning, wind F1-2 S-SE, temp 9-12 C
11	23/11/2017	AC	13.20	13.55	Clear, sunny, wind F0-1 NE, temp 6 C
12	23/11/2017	AC	12.15	13.05	Clear, sunny, wind F0-1 NE, temp 4 C
13	05/12/2016	JNM	15.45	16.20	Dry, overcast dull afternoon, wind slack SE, temp 6-8 C
14	23/11/2017	AC	9.10	9.55	Clear, sunny, wind F0-1 NE, temp 0 C
15	23/11/2017	AC	15.40	16.17	Clear, sunny, wind F0-1 NE, temp 4-6 C
16	23/11/2017	AC	15.05	15.35	Clear, sunny, wind F0-1 NE, temp 6 C
17	23/11/2017	AC	10.10	11.15	Clear, sunny, wind F0-1 NE, temp 1 C
18	16/11/2017	HD	12.08	12.50	Cloud 2/8, sunny, wind F0-1 SW temp 12 C
19	16/11/2017	MK	11.00	11.30	Dry, slack wind SW, temp 8 C
20	23/11/2017	AC	14.10	14.50	Clear, sunny, wind F0-1 NE, temp 6 C
21	23/11/2017	AC	11.28	11.56	Clear, sunny, wind F0-1 NE, temp 4 C
1	14/01/2017	AC	10.30	11.00	Cloud 8/8, light mist, wind F1-2 W, temp 6 C
2	13/01/2017	AC	10.50	11.20	Cloud 7/8, light snow shower, intermittent hazy sunshine, wind F1-3 NW, temp 2 C
3	13/01/2017	AC	11.40	12.10	Cloud 5/8, hazy sunshine, wind F1-3 NW, temp 3 C
4	13/01/2017	AC	13.15	13.55	Cloud 6/8, intermittent hazy sunshine, wind F1-3 NW, temp 4 C
5	13/01/2017	AC	14.10	14.45	Cloud 6/8, intermittent hazy sunshine, wind F1-3 NW, temp 4 C
6	11/01/2017	HD	13.25	13.55	Cloud 7/8, dull and cold, wind F3-5 W, temp 7 C
7	11/01/2017	MK	13.20	13.50	Cloud 7/8, squally showers, mostly dry, wind F3-5 NW, temp 7 C
8	14/01/2017	AC	10.05	10.20	cloud 7/8, wind F1-2 W, temp 5 C
9	13/01/2017	AC	15.00	15.30	Cloud 6/8, hazy sunshine, wind F1-3 NW, temp 4 C
10	13/01/2017	AC	13.45	16.15	Cloud 7/8, intermittent hazy sunshine, wind F1-3 W, temp 3 C
11	13/01/2017	JNM	13.30	14.00	Dry, cold, sunny, temp 1-6 C
12	13/01/2017	JNM	14.30	15.00	Dry, cold, sunny, temp 1-6 C
13	14/01/2017	AC	12.00	12.30	Cloud 7/8, rain showers, wind F2-4 NW, temp 6 C
14	14/01/2017	AC	12.35	13.10	Cloud 8/8, wind F1-2 W, temp 7 C
15	14/01/2017	AC	13.30	14.05	Cloud 6/8, wind F2-4 W, temp 7 C
16	14/01/2017	AC	11.30	11.55	Cloud 7/8, wind F2-4 W, rain showers, temp 6 C
17	13/01/2017	JNM	15.15	15.45	Dry and cold with sunshine, temp 1-6 C
18	12/01/2017	HD	12.00	12.40	Sunny, cold and bright, cloud 2-3/8, wind F1-4 W, temp 3C
19	12/01/2017	MK	12.00	12.30	Sunny, dry, cloud 3/8, wind F1 NW, temp 3 C
20	13/01/2017	JNM	13.00	13.30	Dry, sunny, cold, temp 1-6 C
21	13/01/2017	JNM	15.50	16.20	Dry, sunny, cold, temp 1-6 C
1	24/03/2017	AC	11.35	11.55	Cloud 1/8, sunshine, wind F1-3 NE, temp 8 C, visibility good
2	22/03/2017	JNM	15.30	16.20	Dry with sunny spells, wind increasing F4-5 NE, temp 5 C
3	23/03/2017	AC & MK	14.05	14.30	Cloud 7/8, clearing with hazy sunshine, wind F1-3 NE, visibility good
4	23/03/2017	AC	14.50	15.20	Cloud 6/8, hazy sunshine, wind F1-3 NE, temp 8 C
5	23/03/2017	MK	14.45	15.15	Cloud 6/8, hazy sunshine, wind F1-3 NE, temp 8 C
6	23/03/2017	AC & MK	13.10	13.40	Cloud 8/8, wind F2-4 NE, temp 8 C, visibility good
7	23/03/2017	AC	12.40	13.05	Cloud 8/8, wind F1-2 Ne, temp 7 C
8	23/03/2017	MK	12.25	12.45	Cloud 8/8, wind F1-2 Ne, temp 7 C
9	28/03/2017	AC	15.40	15.58	Cloud 8/8, hail, rain and thunder, wind F1-2 S, temp 12 C, visibility moderate
10	02/03/2017	JNM	11.50	12.30	Dry and cold, wind F2-3 SWW, temp 6-7 C
11	22/03/2017	JNM	13.45	14.15	Dry day with sunny spells, cold northerly wind
12	22/03/2017	JNM	14.20	14.45	Dry day with sunny spells, cold northerly wind
13	28/03/2017	AC	13.30	14.05	Cloud 8/8, wind F2-4 SE, temp 12 C, visibility good
14	28/03/2017	AC	12.50	13.20	Cloud 8/8, wind F1-2 SE, temp 10 C, visibility good

15	28/03/2017	AC	12.05	12.25	Cloud 8/8, wind F1-2 SE, temp 10 C, visibility good
16	28/03/2017	AC	14.10	14.30	Cloud 8/8, wind F2-4 SE, temp 12 C, visibility good
17	02/03/2017	JNM	15.00	15.40	Dry and cold, wind F2-3 SWW, temp 6-7 C
18	23/03/2017	MK	11.00	11.30	Cloud 8/8, wind F2-4 NE, temp 8 C, visibility good
19	23/03/2017	MK	11.35	12.00	Cloud 8/8, wind F2-4 NE, temp 8 C, visibility good
20	02/03/2017	JNM	10.20	11.00	Dry and cold, wind F2-3 SWW, temp 6-7 C
21	02/03/2017	JNM	11.05	11.40	Dry and cold, wind F2-3 SWW, temp 6-7 C

Appendix VI

Transect Survey Results Table

Transect Observations				
Map Ref No.	Species	Date	Transect No.	Notes
1	Snipe	23/11/2016	12	Snipe flushed and flew south-east over the bog at approx. 3m height for 4 seconds. Dropped back down out of view
2	Snipe	05/12/2016	13	Snipe flushed. Flew off low to the north
3	Kestrel	11/01/2017	6	Male kestrel hunting adjacent to local road (approx. 50m height for 17 seconds)
4	Black-headed Gull	13/01/2017	9	Two black-headed gulls observed flying in a north-westerly direction over site at approx. 25m height for 8 seconds
5	Snipe	13/01/2017	4	Four snipe flew north-west at approx. 10m height for 5 seconds before going out of view behind a tree-line
6	Mallard	23/03/2017	5	Two mallard flew north over transect
7	Lesser black-backed gull	23/03/2017	6	One bird flew north-west over transect
8	Lesser black-backed gull	23/03/2017	7	One bird flew west over transect
9	Lesser black-backed gull	23/03/2017	11	Seven birds flew generally eastwards through the site over southern end of transect before veering north-east
10	Golden plover	02/03/2017	17	Thirty-eight birds sitting on the bog to west of transect

Appendix VII

Transect Results Map

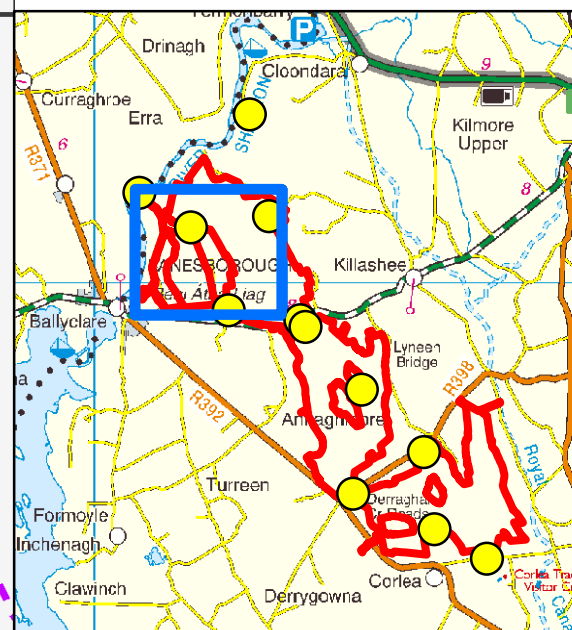
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Derryadd Winter Bird Survey

Drawing Title:
Target Species Transect Observations -
Sheet 1

Client: Bord na Móna

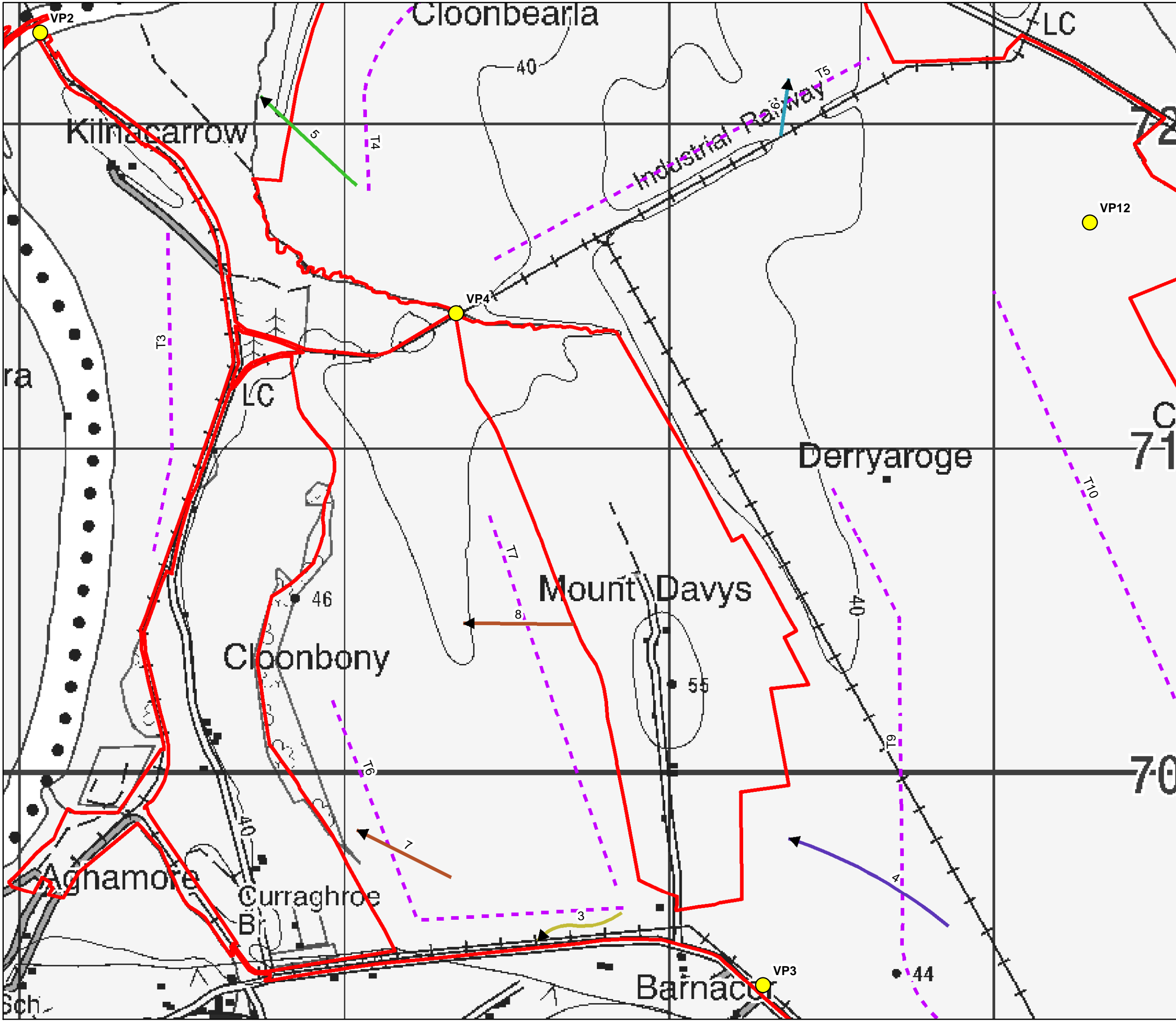
Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

- Legend
- Vantage Points
 - ← Black-Headed Gull
 - ← Kestrel
 - ← Lesser Black-Backed Gull
 - ← Mallard
 - ← Snipe
 - Golden Plover
 - Transects
 - Site Boundary



0 0.2 0.4 km

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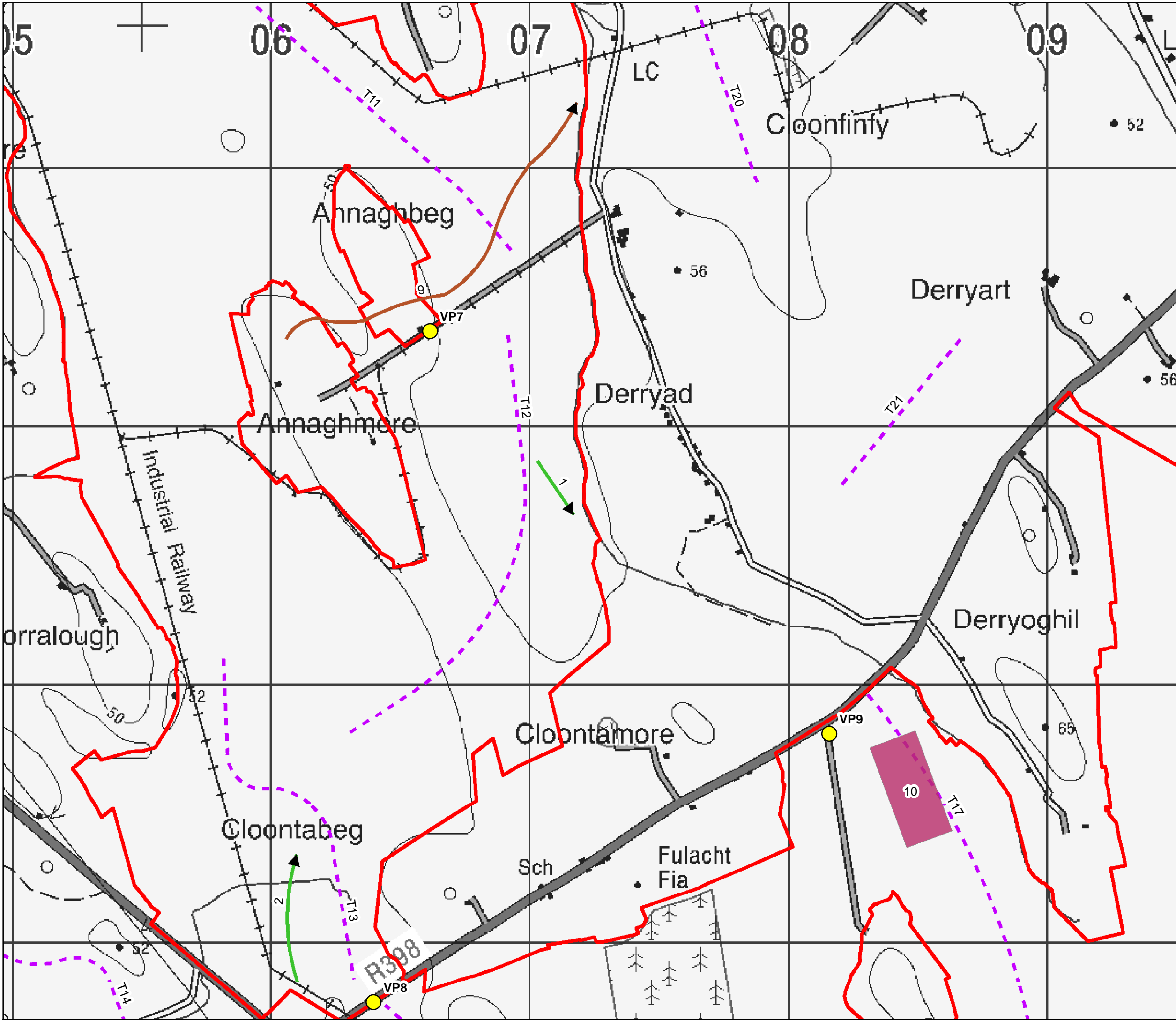
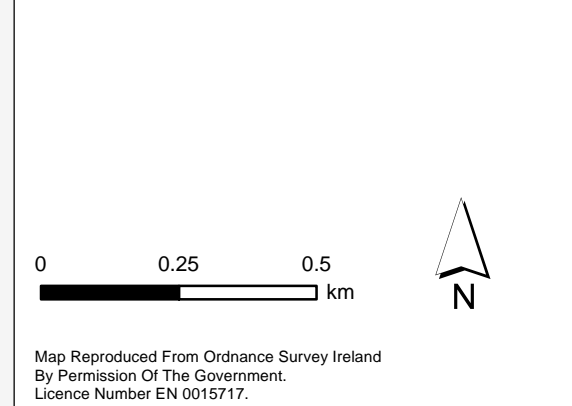
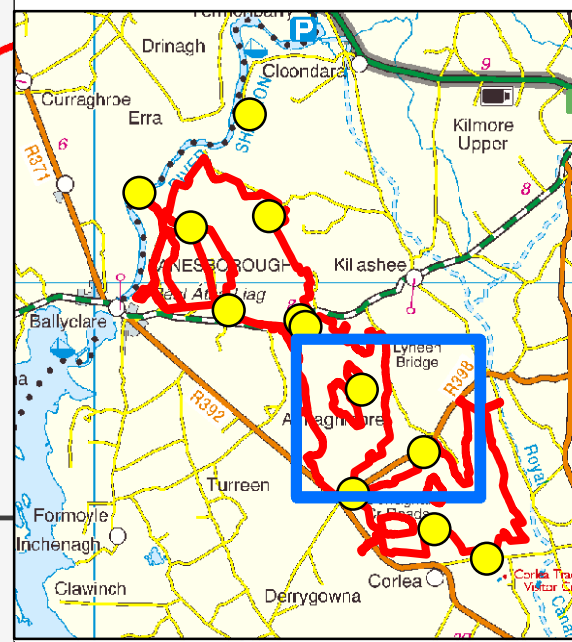
Project Title:
Derryadd Winter Bird Survey

Drawing Title:
Target Species Transect Observations -
Sheet 2

Client: Bord na Móna

Drawn by: JK
Checked by: HD
Drawing Date: 08/05/2017
Drawing Size: A3

- Legend
- Vantage Points
 - Species**
 - ← Black-Headed Gull
 - ← Kestrel
 - ← Lesser Black-Backed Gull
 - ← Mallard
 - ← Snipe
 - Golden Plover
 - - - Transects
 - Site Boundary



Appendix VIII

Wetland Bird Survey and Hinterland Bird Survey Counts

Species		Mountdillon Ponds			
		09/11/16	08/12/16	01/02/17	23/03/17
Red-listed	Lapwing	40	43	60	1
Amber-listed	Whooper Swan	5	6	4	-
	Little Grebe	5	-	-	6
	Mute Swan	5	-	1	6
	Teal	6	7	-	6
	Snipe	-	2	2	2
Green-listed	Grey Heron	1	2	1	-
	Mallard	14	15	7	30
	Moorhen	3	-	-	-
	Little Egret	-	5	2	-

Species		Cloonkeel	
		09/11/16	23/03/17
Red-listed	Black-headed Gull	-	1
	Wigeon	-	25
Amber-listed	Whooper Swan	3	-
	Lesser Black-backed Gull	-	4
	Coot	-	6
	Mute Swan	-	5
	Teal	-	20
	Snipe	-	1
	Grey Heron	1	-
Green-listed	Mallard	16	30
	Moorhen	-	4
	Little Egret	-	4

Species		Ballyleague			
		02/11/16	07/12/16	01/02/17	23/03/17
Red-listed	Black-headed Gull	20	10	28	20
	Curlew	-	6	42	-
	Dunlin	1	13	-	-
	Golden Plover	700	1200	50	-
	Lapwing	70	300	130	-
	Wigeon	40	120	60	-
	Tufted Duck	-	24	16	6
	Goldeneye	-	2	-	4
	Redshank	-	3	-	1
Amber-listed	Coot	3	10	4	-
	Cormorant	5	3	8	2
	Little Grebe	2	3	3	-
	Mute Swan	34	32	-	-
	Oystercatcher	1	1	-	2
	Teal	10	36	38	-
	Snipe	-	-	6	-
	Common Gull	-	2	12	12
Green-listed	Grey Heron	-	1	2	-
	Mallard	10	18	18	-
	Moorhen	-	5	6	1
	Little Egret	-	2	-	-

Species		Cordora Turlough					
		09/11/16	16/11/16	07/12/16	11/01/17	01/02/17	23/03/17
Red-listed	Black-headed Gull	-	-	-	-	5	10
	Curlew	-	40	-	40	-	-
	Golden Plover	-	-	-	-	60	-
	Lapwing	-	-	-	36	360	1
	Shoveler	-	20	30	90	88	90
	Wigeon	18	80	90	200	122	170
	Tufted Duck	-	-	-	-	-	12
	Redshank	-	-	-	-	5	-

Species		Cordora Turlough					
		09/11/16	16/11/16	07/12/16	11/01/17	01/02/17	23/03/17
	Pintail	-	-	-	4	12	4
Amber-listed	Whooper Swan	20	30	136	110	160	55
	Coot	-	-	-	-	-	10
	Little Grebe	-	-	-	-	-	12
	Mute Swan	2	2	2	4	2	2
	Teal	-	-	60	80	50	32
	Snipe	-	-	-	-	10	-
Green-listed	Canada Goose	-	-	7	-	-	-
	Grey Heron	-	-	1	2	2	1
	Mallard	-	-	40	70	40	25
	Moorhen	-	-	-	3	-	12
	Little Egret	-	-	2	-	-	3

Species		Fortwilliam Turlough (Commons South)						
		02/11/16	09/11/16	16/11/16	07/12/16	11/01/17	01/02/17	23/03/17
Red-listed	Black-headed Gull	42	-	9	-	5	12	40
	Curlew	20	20	2	-	18	21	6
	Dunlin	-	-	-	-	2	14	-
	Golden Plover	20	170	-	-	250	2000	2
	Lapwing	60	430	142	1	720	600	4
	Shoveler	20	16	12	-	4	-	-
	Wigeon	60	80	82	-	150	85	86
	Tufted Duck	-	-	-	-	4	4	16
	Redshank	-	-	-	-	2	8	2
Pintail	-	-	-	-	2	-	-	
Amber-listed	Whooper Swan	29	18	-	-	18	21	4
	Coot	-	-	-	-	-	4	24
	Little Grebe	-	-	-	-	4	2	8
	Mute Swan	-	-	-	-	4	2	2
	Teal	30	32	50	-	100	90	12
	Snipe	-	5	-	-	-	10	-
	Common Gull	-	-	-	-	-	4	15
	Lesser Black-backed Gull	-	-	-	-	-	-	8
Black-tailed Godwit	4	2	-	-	-	42	-	
Green-listed	Canada Goose	-	-	-	-	-	5	-
	Grey Heron	2	-	-	-	3	-	-
	Mallard	12	19	-	-	60	26	40
	Moorhen	7	2	-	3	5	8	10
	Little Egret	-	-	8	1	-	-	-

Species		Turreen Turlough
		23/03/17
Red-listed	Black-headed Gull	1
	Shoveler	12
	Wigeon	90
	Tufted Duck	8
Amber-listed	Whooper Swan	5
	Coot	2
	Little Grebe	1
	Mute Swan	4
	Teal	6
	Lesser Black-backed Gull	1
Green-listed	Mallard	4
	Moorhen	1

Species		Bunacloy Fields				
		04/11/2016	09/11/16	17/11/16	24/11/2016	25/11/2016
Red-listed	Golden Plover	-	-	-	100	-
	Lapwing	200	-	41	150	60
Amber-listed	Whooper Swan	12	68	72	191	162
	Greylag Goose	-	-	-	-	-

Species		Bunacloy Fields				
		05/12/16	13/12/16	11/01/17	14/01/17	23/01/17
Red-listed	Golden Plover	200	-	-	-	500
	Lapwing	80	-	-	-	300
Amber-listed	Whooper Swan	126	100	162	80	200
	Greylag Goose	-	-	3	3	3

Species		Bunacloy Fields				
		02/02/17	08/02/17	09/02/17	02/03/17	23/03/17
Red-listed	Golden Plover	-	-	-	-	-
	Lapwing	-	-	-	-	-
Amber-listed	Whooper Swan	191	183	168	109	19
	Greylag Goose	3	-	3	-	-

Species		Drinagh Fields	Carrow More/Aghavadden Fields		Killashee and Aghakeeran Fields
		13/01/2017	02/03/17	20/03/17	23/03/17
Red-listed	Black-headed Gull	-	-	-	4
Amber-listed	Whooper Swan	17	38	9	-
	Mute Swan	-	-	1	-
	Lesser Black-backed Gull	-	-	-	5