

# Appendix 6.1 Ornithology Technical Appendix

Proposed Rigghill Wind Farm – Avian Baseline Assessment: April  
2016 to March 2018

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# Introduction

## **Overview**

ITPEnergised Ltd (ITPE) was appointed by the Applicant to undertake a series of ornithological surveys in support of the proposed Rigg Hill Wind Farm in North Ayrshire ('Proposed Development'). The application boundary (hereafter referred to as the site") is located at centre point British National Grid 221492, 666156.

## **Site Description**

The site is located east of Skelmorlie, in North Ayrshire. It comprises of the western extent of Ferret of Keith Moor, the upper part of Skelmorlie Glen.. The majority of the site was utilised for the grazing of livestock and as such consisted predominantly of rough pasture. Renfrewshire Heights Special Protection Area (SPA/SSSi) lies immediately adjacent to the northern and eastern boundary of the Site and is statutorily designated under Article 4.1 by regularly supporting a breeding population of European importance of the Annex 1 species hen harrier (*Circus cyaneus*) (on average 2% of the UK population).

## **Aims**

This report presents the methods and results of the ornithological survey work and desk study undertaken in order to assess the avian baseline conditions at the Site. It also outlines the relevant legislation and policy context in relation to birds.

## **Objectives**

Collectively, the objectives of the surveys were to:

- Map the distribution of breeding birds, including scarce and protected species;
- Record the presence and abundance of other birds of conservation concern; and
- Quantify the level of flight activity by birds of potential conservation importance and considered to be at higher risk from wind farm developments.

# Legislation and Biodiversity

## **Legislation**

Relevant legislation and guidance documents have been reviewed and taken into account as part of this ecological assessment, as referenced in this report. A full description of pertinent nature conservation legislation is presented below.

Of particular legal, regulatory and conservation relevance are:

- Council Directive 2009/147/EC on the conservation of wild birds (the Birds Directive);
- The Ramsar Convention 1976;
- Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive);

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011 (as amended); and
- The Nature Conservation (Scotland) Act 2004 (as amended), which places a statutory duty on all public bodies to further the conservation of biodiversity through the Scottish Biodiversity Strategy, with Scottish priority species and habitats listed on the Scottish Biodiversity List (SBL), itself based on the former UK Biodiversity Action Plan (UKBAP), and regional biodiversity targets defined through an LBAP. The Local BAP of relevance to this report is the North Ayrshire LBAP.
- Eaton *et al.* (2015), Birds of Conservation Concern 4: the Population Status of Birds in the United Kingdom, Channel Islands and the Isle of Man.

#### The Birds Directive (2009/147/EC)

The European Union (EU) Directive on the Conservation of Wild Birds (2009/147/EC) was first adopted in 1979 and is the primary mechanism for delivering the EU's obligations under the Convention on Biological Diversity (CBD), and the Ramsar and Bonn Conventions. Collectively, the Birds and Habitats Directives require EU member states to take action in order to protect all bird species listed on Annex 1 of the Directive and their habitats, which includes the designation of Special Protection Areas (SPAs) for areas of particular importance.

#### Ramsar Convention

The Convention on Wetlands of International Importance (the Ramsar Convention) was adopted in Iran in February 1971 and came in to force in May 1976. The Convention considers the subject area of wetland conservation and comprises three elements of activity:

- the designation of wetlands of international importance as Ramsar sites;
- the promotion of the sustainable use of all wetlands in the territory of each country; and
- international co-operation with other countries to further the sustainable use of wetlands and their resource.

#### The Convention on Biological Diversity (CBD)

The CBD was adopted at the Earth Summit in Rio de Janeiro, Brazil in June 1992, and came into force in December 1993. It was the first global treaty to provide a legal framework for biodiversity conservation. The treaty has three primary goals:

- the conservation of biological diversity;
- the sustainable use of its components; and
- the fair and equitable sharing of the benefits arising from the use of genetic resources.

Signatories are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity.

The UK Government ratified the convention and published the UKBAP in 1994 and to compliment the UKBAP, separate biodiversity strategies for each of the devolved governments have been subsequently developed, including the Scottish Biodiversity Strategy, launched in 2004.

#### The Wildlife and Countryside Act

The Wildlife and Countryside Act 1981 (as amended) (WCA) is the principle mechanism for wildlife protection in the UK. Schedule 1 of the Act lists bird species that are afforded special protection. The principal designation established under the Act is the citation of Special Sites of Scientific Interest (SSSI).

The WCA also makes it an offence (with exception to species listed in Schedule 2) to intentionally:

- Kill, injure, or take any wild bird;
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Nature Conservation (Scotland) Act 2004); or
- Take or destroy an egg of any wild bird.

### The Habitats Regulations

In Scotland, the Habitats Directive is translated into National legal obligations by the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended in Scotland). This piece of legislation was most recently amended in Scotland in 2012 and is commonly referred to as the “Habitats Regulations”.

The Habitats Regulations cover the requirements for:

- Special Areas of Conservation (SACs) and SPAs, which are sites that are internationally important for threatened habitats and species; making a network of sites designated together and known collectively as the Natura2000 network;
- Species requiring strict protection – i.e. European Protected Species (EPS); and
- Other aspects of the Habitats Directive including the management, surveillance and reporting for sites in order to ensure the favourable status of species and habitats are maintained.

### Nature Conservation (Scotland) Act 2004

The Nature Conservation (Scotland) 2004 Act (NCSA) emphasise the conservation of biodiversity in Scotland and led to the development of the Scottish Biodiversity List (SBL) in order to meet the requirements of Section 2 (4) of the NCSA. This legislation obliged Scottish Ministers to derive a list of species of flora and fauna and habitats considered to be of principal importance for the purposes of biodiversity in Scotland.

Together, the WCA (1981) and NCSA (2004) safeguard all wild birds, their nests and eggs by as making it an offence to:

- intentionally or recklessly kill, injure or take any wild bird;
- intentionally or recklessly take, damage or destroy the nest of any wild bird while it is in use or being built;
- intentionally or recklessly take or destroy the egg of any wild bird; and
- intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building or is at (or near) a nest with eggs or young; or disturb the dependent young of such a bird without a Schedule 1 licence provided by SNH.

## ***Biodiversity***

### **Biodiversity Duty Report**

Under the Nature Conservation (Scotland) Act 2004, all public bodies are required to further the conservation of biodiversity when carrying out their public responsibilities and duties. Following an amendment to the Wildlife and Natural Environment (Scotland) Act 2011, public bodies are required to publish a publicly available report on the actions they have taken to meet this biodiversity duty.

### **Scottish Biodiversity List**

Scottish Ministers created the SBL in 2005 in order to satisfy the requirements under Section 2(4) of the Nature Conservation (Scotland) Act 2004 and to assist public bodies in carrying out conservation of biodiversity, and to provide the general public with information regarding conservation within Scotland. The list includes habitats, plants and species which are deemed to be of principal importance to the Scottish population and meet specific social and scientific criteria. This report focuses on SBL species included for their scientific value.

Species details, including a list of scientific criteria and reasoning for inclusion to the list, can be located within the Scottish Biodiversity List: Technical Report (Scottish Government, 2013).

### **Birds of Conservation Concern**

The Birds of Conservation Concern (BoCC) is a collaboration between Statutory Nature Conservation Bodies (SNCBs), Royal Society for the Protection of Birds (RSPB), British trust for Ornithology (BTO), Wildfowl and Wetlands Trust (WWT), Game and Wildfowl Conservation Trust (GWCT) and several other organisations. It uses an approach based on quantitative assessments against standardised criteria, in order to place individual bird species on 'Red', 'Amber' or 'Green' lists to indicate different levels of conservation concern. Red in the context of BoCC is not the same as IUCN's Red List, though IUCN status is one of the criteria used in BoCC assessment. Collectively, the changes in the numbers and proportions of species on Red, Amber or Green lists provide a gauge of the broad direction of status of UK birds and point to the degree of threat they face, as well as the efficacy of conservation measures taken. The most recent version is BoCC4 (Eaton *et al.* 2015).

Birds on the Red and Amber lists are subject to at least one of the factors listed below:

- Red - red list species are those that are globally threatened, have had an historical population decline in the UK from 1800 -1995, a rapid (> or = 50%) decline in UK breeding population over the past 25 years, or a rapid (> or = 50%) contraction of UK breeding range over the past 25 years;
- Amber - amber listed species have had a historical population decline from 1800-1995 but are recovering; population size has more than doubled over the past 25 years, a moderate (25-49%) decline in UK breeding population over the past 25 years, a moderate (25-49%) contraction of UK breeding range over the past 25 years, a moderate (25-49%) decline in UK non-breeding population over the past 25 years, or species with unfavourable conservation status in Europe also known as Species of European Conservation Concern (SPEC); and
- Green - green listed species have no identified threat to their population status.

### **The North Ayrshire Local Biodiversity Action Plan**

Formerly Ayrshire wide, the Ayrshire LBAP was first launched covering the period 2001-2005. Updated several times since, the most recent version is for North Ayrshire only and covers the period 2018-2022. Rather than outline a number of key species it concentrates on six habitats that are important to the area, along with actions that can be taken to protect them. The key habitat outlined in the North Ayrshire LBAP of relevance to this study is Farmland and includes a section relating to farmland birds.

## **Consultation**

### ***Statutory***

Consultation with Scottish Natural Heritage (SNH) was undertaken prior to the commencement of surveys in April 2016 which confirmed the scope of the ornithology surveys and agreed the locations of the vantage point (VP) and corresponding viewsheds which were used for the previous surveys at the site between 2011-2014.

Consultation with SNH in May and August 2019 confirmed that no further survey work was required and all the VP and breeding walkover data was up to date. They did though outline the requirement to undertake hen harrier modelling in order to assess the impacts of the site on Renfrewshire Heights SPA and breeding hen harriers. In order to establish baseline data for the SPA modelling SNH and South Strathclyde Raptor Study Group were contacted to access historic and recent data on breeding hen harrier within the SPA.

# Methods

## **Overview**

This section describes the methods used for the ornithological surveys, which comprised a combination of desk study and field survey.

### **Design Iteration**

It should be noted that the scheme Proposed Development has gone through a number of iterative design changes since the commencement of survey work in September 2011. The present design was used for all surveys undertaken between April 2016 and March 2018. Although the breeding bird survey results used are those that covered the earlier, larger survey area. The results of earlier surveys at the site will be discussed, where appropriate, within the report in order to confirm and contrast with the more recent survey work completed in 2018.

## **Desk Study**

An ornithological desk study was carried out to compile existing baseline data for the site and local area.

In terms of nature conservation designations, the desk study aims to identify international and national statutory ornithological designations, such as SPAs, Ramsar wetlands, SSSIs, National Nature Reserves (NNRs) or Marine Nature Reserves (MNRs) within 10 km of the site boundary. Only ornithological features are considered relevant to the present study. Any Local Nature Conservation Sites (LNCSs) or non-statutory designations, such as Local Biodiversity Sites, were identified within a 2 km distance of the site boundary.

Existing records that are freely available for commercial use of protected or otherwise notable species (e.g. SBL/LBAP priority species) were identified with a 5 km distance of the site boundary. Only records from the last 10 years were considered relevant to the study.

Data for protected/notable species and designated sites were obtained from the following databases:

- South West Scotland Environmental Information Centre (SWSEIC, 2019);
- Glasgow Museums Resource Centre (Glasgow Museums Resource Centre, 2019);
- National Biodiversity Network (NBN) Atlas;
- Scottish Natural Heritage (SNH) SiteLink;
- Scotland's Environment Interactive Map; and
- MAGIC: Nature on the Map (MAGIC, 2019).

In addition, the South Strathclyde Raptor Study Group (RSG) were contacted to obtain breeding records for hen harrier within the Renfrewshire Heights SPA in the past 10 years.

## **Field Surveys**

### **Vantage Point Scoping**

Pre-scoping consultation with SNH, combined with the results of the data study, identified that VP surveys would be required to account for the potential presence of 'scarce' diurnal raptors, waterfowl and wading bird species within and adjacent to the site.

Two VPs were established adjacent to the site boundary in March 2016 using GIS software combined with Ordnance Survey digital data. The VP locations and the corresponding viewsheds were survey points used for

previous surveys at the site (2011-2014) and as such had already been ground truthed. VP locations and bearings are provided in **Error! Reference source not found.** while the VP locations and corresponding viewsheds are presented in Figure 6.1.

**Table 1:VP Location and Orientation**

VP	Grid Reference	Bearing
5	NS 21481 64590	45°
8	NS 20515 66862	135°

### Diurnal Vantage Point Surveys

Surveys at the site commenced in April 2016 and carried on through to March 2018, during which information on bird flight activity was collected during timed watches using recommended guidance and methods as outlined by SNH (2013) and since updated in 2017. A total of two full years of data has been gathered in order to support an Ecological Impact Assessment (EclA) for the Proposed Development. Surveyors undertook the surveys in such a way as to minimise any impact on bird behaviour associated with their presence near the site, including arriving at the VP a minimum of 15 minutes prior to the commencement of the survey.

All surveys were stratified across three daylight periods (termed 'dawn' [i.e. starting at dawn], 'day' and 'dusk' [i.e. ending at dusk]) to allow for diurnal variation in activity rates. All surveys comprised watches lasting no more than three hours in duration with a minimum of 6 hours total survey time per VP per month.

All surveys were undertaken by a single observer in a wide range of weather conditions, but mainly in conditions of good ground visibility (> 2 km) and, within each survey season, were adjusted to account for changes in sunrise and sunset times.

During each VP watch, two methods of recording were used; focal sampling of target species and activity summaries of secondary species. Observations were recorded against four Height Bands (HB) which were determined against a generic 3 MW turbine specification (comprising a turbine hub height of 80 m with 45 m blade length):

- HB1: < 10 m;
- HB2:  $10 \geq < 34$  m;
- HB3:  $35 \geq < 125$  m; and
- HB4:  $\geq 125$  m.

Data were entered in the field onto recording sheets and later transferred to a Microsoft Excel spreadsheet for analysis. During each VP watch, target species flight data were also cross-referenced with maps of flightlines recorded on field survey maps.

The collision risk height with turbine blades is between 33m and 150 m (i.e. blade length of approx. 58.5m) and so the VP data were merged into three height bands for analysis:

- HB1: < 33 m;
- HB2:  $33 \geq < 150$  m (potential collision height); and
- HB3:  $\geq 150$  m.

The total number of survey hours over the year at the VP location comprised:

- VP5 – 2 x breeding season 72hrs, 2 x non-breeding season 84hrs (156hrs).
- VP8 – 2 x breeding season 72hrs, 2 x non-breeding season 84hrs (156hrs).

Full details of the survey dates and timings are shown in Appendix A: Table 4.



### Breeding bird walkover surveys

A Brown and Shepherd (B&S) type method of census for upland breeding wader populations (Brown and Shepherd, 1993) was used to survey the site and wider Study Area (defined here as 500 m extending from the site boundary) for breeding birds (as per Bibby *et al.*, 2000; Gilbert *et al.*, 2011).

A total of four breeding bird survey visits were undertaken between April and July 2018. Surveys took cognisance of SNH guidance (SNH, 2017) and were undertaken of open areas within the site and Study Area; focussing on identifying approximate numbers of breeding pairs of each target species including: Annex 1, Schedule 1, BoCC Red List, SBL and North Ayrshire LBAP species.

The standard methods for the B&S survey involve two complete mapping visits during the breeding season to allow for differences in detection rates between early and late breeding species, however, four surveys were undertaken, as recommended (SNH, 2017). The B&S survey was modified slightly so that visits were undertaken in line with recommended guidance and timed to avoid the main periods of rapidly changing bird activity at dawn and dusk and to account for species other than just breeding upland waders.

When individuals or pairs of birds were encountered, the ornithologist determined whether the bird(s) were different from any previous observations. This involved careful attention to the whereabouts and movements of birds, together with birds' sex and plumage characteristics. To minimise the risk of double counting, behaviour and location of birds were carefully observed so that previously encountered birds were not recorded twice. Surveys were not conducted in winds greater than Beaufort Force 5, persistent rain or when visibility was considered poor (i.e. less than 500 m). The survey visits are summarised in Table 3 below.

Table 2: Breeding Bird survey visits

Year	Visit	Dates
2013	1	April 25 <sup>th</sup> , 26 <sup>th</sup> and 27 <sup>th</sup> .
	2	May 10 <sup>th</sup> , 11 <sup>th</sup> , 16 <sup>th</sup> , 17 <sup>th</sup> and 18 <sup>th</sup>
	3	June 19 <sup>th</sup> , 20 <sup>th</sup> and 21 <sup>st</sup> .
	4	July 24 <sup>th</sup> , 25 <sup>th</sup> and 27 <sup>th</sup> .
2014	1	May 14 <sup>th</sup> – 16 <sup>th</sup> .
	2	May 30 <sup>th</sup> and 31 <sup>st</sup>
	3	July 3 <sup>rd</sup> , 4 <sup>th</sup> , 5 <sup>th</sup> and 6 <sup>th</sup>
	4	July 20 <sup>th</sup> -23 <sup>rd</sup>

Following consultation with SNH outlined there was no requirement for an updated winter walkover survey during surveys between 2016-2018 as the data was still considered to be valid and up to date as well as not being a necessary requirement in the more recent survey method guidelines.

### Breeding Raptor Surveys

Due to the potential presence of scarce diurnal raptor species, targeted diurnal breeding raptor surveys were undertaken between April and July in both 2016 and 2017 covering the current site and a wider 2 km buffer. The survey methods followed those recommended by SNH (2013), Hardey *et al.*, (2013) and Sim *et al.*, (2007). The survey followed a walkover approach while taking in all areas within the survey area to within 250m, where practicable. The survey area is continuously scanned for target species during the walkover, this includes stops at "mini" vantage points where the horizon is scanned for a period (usually 15-20 minutes) across suitable

habitat. Surveys for breeding raptors generally require four visits between April and July. The survey visits are summarised in Table 3 below.

Table 3: Breeding Raptor survey visits

Year	Visit	Dates
2016	1	April 29 <sup>th</sup> and May 3 <sup>rd</sup> 2016
	2	May 19 <sup>th</sup> -22 <sup>nd</sup> 2016
	3	June 18 <sup>th</sup> – 21 <sup>st</sup> 2016
	4	July 5 <sup>th</sup> , 6 <sup>th</sup> , 11 <sup>th</sup> and 12 <sup>th</sup>
2017	1	May 24 <sup>th</sup> – 26 <sup>th</sup>
	2	June 18 <sup>th</sup> , 20 <sup>th</sup> , 22 <sup>nd</sup> and 23 <sup>rd</sup>
	3	July 3 <sup>rd</sup> – 6 <sup>th</sup>
	4	August 3 <sup>rd</sup> , 4 <sup>th</sup> , 7 <sup>th</sup> and 8 <sup>th</sup>

### Winter Walkover Surveys

A winter walkover survey was carried out covering the original, larger site boundary and wider survey buffer between October 2013 and March 2014 to identify winter roosting and foraging bird populations within the Study Area. The surveys were carried out in line with methods detailed in Gilbert *et al.* (2011) and consisted of three visits undertaken on:

- Visit 1 - October 2013;
- Visit 2 - December 2013; and
- Visit 3 - January and February 2014.

As with the breeding walkover bird surveys, the winter walkover survey focused on identifying the presence and/or absence for each target species including Birds Directive Annex 1, Wildlife and Countryside Act 1981 (as amended) Schedule 1, BoCC Red List, SBL and North Ayrshire LBAP species.

As with the breeding bird survey, consultation with SNH outlined there was no requirement for an updated winter walkover survey during surveys between 2016-2018 as these data were still considered to be valid and up to date.

### Black Grouse Surveys

Black grouse (*Tetrix tetrix*) surveys were completed in 2013 4<sup>th</sup> and 5<sup>th</sup> April and were completed out to a 1.5 km survey buffer from the larger, earlier site boundary. No black grouse registrations were recorded during the surveys. The lack of any records from dedicated survey and the fact no black grouse were recorded throughout two full years of VP and breeding bird surveys meant dedicated black grouse surveys were not deemed necessary during 2016-2018 surveys.

### Owl Surveys

Owl surveys for guidelines outlined in Hardey *et al* (2013) were completed in 2014 and identified the presence of tawny owl (*Strix aluco*) with the survey area. Further nocturnal owl surveys were not deemed necessary during 2016-2018 surveys.

## Survey Limitations

All surveys were carried out according to current recommended guidelines and took place during appropriate time of year and with appropriate weather conditions. No access was taken into the steep sided gorge of the Skelmorlie Glen during walkover surveys, all of these areas were surveyed using binoculars and through bird song. As such, there are considered to be no limitations associated with the results.

# Baseline

## Desk Study

### Site Designations

As summarised in Table 4, and displayed on Figure 6.2, one international, two proposed international and five national nature conservation designations occur within 10 km of the site.

**Table 4- Nature Conservation Designations (bird related sites only) within 10 km of the site**

Site Name	Designation	Distance from Site	Biological Reasons for Designation
Renfrewshire Heights	SSSI and SPA	Directly adjacent to the site (east and south- east).	Designated for known hen harrier presence and breeding.

A single non-statutory RSPB Important Bird Area (IBA) is located within 2 km of the site boundary, detailed in 5 and shown on Figure 6.2.

**Table 5: Non -Statutory Nature Conservation Designations within 2 km of the Proposed Development**

Site	Designation	Distance to Site	Description
Renfrewshire Heights	RSPB IBA	Within site	Breeding population of hen harriers.

No Local Nature Conservation Sites (LNCS) designated for ornithology are located within 2km of the site.

### External Data

A total of 108 records of breeding, migratory and over-wintering bird species of conservation concern were provided by the desk study and of these 29 species are listed as Schedule 1 species and 27 are listed within Annex 1 of the Birds Directive. Of the species recorded, 38 are included on the BoCC Red list and a further 55 birds recorded within the search area were noted as Amber listed species while 28 were SBL species. 6 presents the higher conservation value species.

**Table 62: Desk Study Results - Bird Species of Higher Conservation Value**

Common Name	Scientific Name	Legal/Conservation Status	
		Annex 1	Schedule 1
Arctic Tern	<i>Sterna paradisaea</i>	X	
Barn Owl	<i>Tyto alba</i>		X
Barnacle Goose	<i>Branta leucopsis</i>	X	
Bar-tailed Godwit	<i>Limosa lapponica</i>	X	
Black-throated Diver	<i>Gavia arctica</i>	X	X
Brambling	<i>Fringilla montifringilla</i>		X

Common Name	Scientific Name	Legal/Conservation Status	
		Annex 1	Schedule 1
Common Scoter	<i>Melanitta nigra</i>		X
Common Tern	<i>Sterna hirundo</i>	X	
Corncrake	<i>Crex crex</i>	X	X
Crossbill	<i>Loxia curvirostra</i>		X
Dunlin (schinzii race)	<i>Calidris alpina schinzii</i>	X	
Fieldfare	<i>Turdus pilaris</i>		X
Firecrest	<i>Regulus ignicapilla</i>		X
Golden Eagle	<i>Aquila chrysaetos</i>	X	X
Golden Plover	<i>Pluvialis apricaria</i>	X	
Goshawk	<i>Accipiter gentilis</i>		X
Great Northern Diver	<i>Gavia immer</i>	X	X
Greenshank	<i>Tringa nebularia</i>		X
Hen Harrier	<i>Circus cyaneus</i>	X	X
Kingfisher	<i>Alcedo atthis</i>	X	X
Little Egret	<i>Egretta garzetta</i>	X	
Little Gull	<i>Hydrocoloeus minutus</i>		X
Little Ringed Plover	<i>Charadrius dubius</i>		X
Mediterranean Gull	<i>Larus melanocephalus</i>	X	X
Merlin	<i>Falco columbarius</i>	X	X
Osprey	<i>Pandion haliaetus</i>	X	X
Peregrine	<i>Falco peregrinus</i>	X	X
Red Kite	<i>Milvus milvus</i>	X	X
Red-throated Diver	<i>Gavia stellata</i>	X	X
Redwing	<i>Turdus iliacus</i>		X
Ruff	<i>Calidris pugnax</i>	X	X
Sandwich Tern	<i>Sterna sandvicensis</i>	X	
Scaup	<i>Aythya marila</i>		X
Short-eared Owl	<i>Asio flammeus</i>	X	
Snow Bunting	<i>Plectrophenax nivalis</i>		X
Storm Petrel	<i>Hydrobates pelagicus</i>	X	
Velvet Scoter	<i>Melanitta fusca</i>		X
Whimbrel	<i>Numenius phaeopus</i>		X
Whooper swan	<i>Cygnus cygnus</i>	X	X

### South Strathclyde RSG

#### Historical hen harrier records

Consultation with the South Strathclyde RSG confirmed that there are no records of breeding hen harrier within the Renfrewshire Heights SPA in the previous 10 years (i.e. 2009 - 2019).

## Field Survey Results

While all of the ornithological field survey findings are summarised in this Section, the survey details, times, weather conditions and results can be found in full in Table to Table , Appendix A: Ornithological Data. All target species flightlines and breeding bird territories are presented in Figure 6.3 to Figure 6.6.

## **Target Raptors and Owls**

Six species of raptor and owl were recorded during the ornithological surveys completed between April 2016 and March 2018: hen harrier; peregrine; merlin.; red kite; osprey and long-eared owl (*Asio otus*).

### Hen harrier

Hen harrier were recorded during VP surveys on a total of 14 flights, all of which were registered during the September 2016 and March 2017 winter season; nine registrations were of male birds, four of females while one was unsexed (Figure 6.3). The total flight time recorded was 1,215 seconds of which all but 30 seconds was recorded below 10 m with the remaining 30 seconds below 20m meaning all the flight time was below collision risk height.

The breeding raptor surveys found no evidence of breeding activity within the site and 2 km survey buffer.

### Long-eared owl

A single flight of an individual long-eared owl was registered on 20<sup>th</sup> July 2017 and was the only record of this species (Figure 6.4). The flight was recorded fully outwith the site and totalled 35 seconds and recorded below collision risk height. The breeding raptor surveys found no evidence of breeding activity within the survey area.

### Merlin

A single flight of an individual merlin was registered on 8<sup>th</sup> February 2018 and was the only record of this species from VP surveys (Figure 6.4). The flight time was 45 seconds all recorded within the site and below potential collision height, which is typical for this species. The breeding raptor surveys found no evidence of breeding activity within the survey area. Merlin were recorded on two occasions during winter walkover surveys for the earlier site design iteration during between October 2013 and February 2014.

### Osprey

Three flights of an individual osprey were registered on 15<sup>th</sup> and 16<sup>th</sup> August 2016, all flights were recorded during VP surveys (Figure 6.4). The total flight time for osprey was 645seconds all of which was recorded within the site at potential collision height. The breeding raptor surveys found no evidence of breeding activity for this species within the survey area.

### Peregrine

Four flights of individual peregrine were recorded from VP surveys: two flights on 31<sup>st</sup> May 2016, one on August 2016 and one in September 2017 (Figure 6.4). The total flight time was 462 seconds, all within the site, of which 392 seconds was recorded at potential collision height. The breeding raptor surveys found no evidence of breeding peregrine within the survey area. Peregrine were recorded once during winter walkover surveys for the previous site design iteration between October 2013 and February 2014.

### Red kite

A single flight of an individual red kite on 28<sup>th</sup> November 2018 was the only record for this species during VP surveys (Figure 6.4). The total flight time for red kite was 160 seconds of which 130 seconds was recorded at potential collision height. The breeding raptor surveys found no evidence of breeding activity within the survey area.

### Target Raptors and Owls: 2011 – 2014 VP Survey Results

A total of five Schedule 1 Raptor and owls (hen harrier, merlin, peregrine, osprey and short-eared owl) were recorded from VP surveys at the larger iteration of the site between October 2011 and September 2014. Although, as the earlier development area was significantly larger than the final site boundary, there was a total of six VP locations needed to cover the earlier development area increasing the likelihood of registering target species.

A total of 53 hen harrier flights were recorded during this survey period all of which consisted of individual birds, with the total flight time recorded as 4,109 seconds. All 53 flights were recorded between the months mid-August and mid-April indicating the birds were not breeding in the local vicinity. No breeding activity was recorded for hen harrier during the breeding raptor surveys.

A total of 13 merlin flights were recorded during the earlier surveys, all consisting of individual birds, with the total flight time recorded being 251 seconds. No breeding activity was recorded for merlin during the breeding raptor surveys.

A single osprey flight was recorded with a total flight time recorded of 55 seconds. No breeding activity was recorded for osprey during breeding raptor surveys.

A total of 31 peregrine flights were recorded during this earlier survey period, totalling 37 birds and a total flight time of 4,109 seconds. Breeding attempts for this species were recorded in the east of the 2013 and 2014 2 km survey buffer during breeding raptor surveys. This eerie location falls right on the 2km buffer for the current site boundary.

A total of seven short-eared owl flights were recorded in 2011 and 2012 during VP surveys. No breeding activity was recorded for this species during the breeding raptor surveys.

In addition to the above, a barn owl breeding attempt was identified in 2014 within the mid-eastern reach of the breeding raptor survey area.

#### **Non-schedule 1 Raptors and Raven**

Raven (*Corvus corax*), buzzard (*Buteo buteo*), kestrel (*Falco tinnunculus*) and sparrowhawk (*Accipiter nisus*) were commonly recorded within the site during both the VP surveys and the breeding bird survey.

Kestrel, raven and buzzard were recorded as breeding within the site and 2 km survey buffer during breeding raptor surveys.

#### **Waders**

##### Curlew

Curlew (*Numenius arquata*) were infrequently recorded within the site between April 2016 and March 2018. A total of seven flights were recorded during VP surveys, consisting of eleven birds. The total flight time recorded was 237 seconds, of which 170 seconds was recorded at collision risk height. A total of three probable and one possible breeding attempts for this species were recorded during breeding bird surveys in 2013 and 2014, three within the site and one in the 500 m survey buffer. Curlew were recorded on three occasions within the current site boundary during winter walkover surveys between October 2013 and February 2014.

##### Golden Plover

Golden plover (*Pluvialis apricaria*) were recorded within the site on four occasions during VP surveys, with a maximum of 25 individuals recorded in any one flock of birds on 28<sup>th</sup> February 2017. The total flight time for golden plover was 241 seconds of which 201 seconds was recorded at potential collision height. No breeding attempts for this species were recorded during breeding bird surveys in 2013 and 2014.

##### Snipe

Four flights totalling eleven snipe (*Gallinago gallinago*) were registered during the VP surveys, three of which were recorded on 27<sup>th</sup> October 2016. The total flight time recorded for snipe was 150 seconds, all recorded at potential collision height. Four probable and one possible territories for this species were recorded during breeding bird surveys. Snipe were also recorded on three occasions within the site during winter walkover surveys between October 2013 and February 2014.

### *2011 – 2014 VP Survey Results*

A total of five golden plover flights were recorded from VP surveys and were the only wader species recorded during surveys.

#### **Geese and Wildfowl**

##### Greylag goose

Greylag goose (*Anser anser*) were recorded on three occasions, with a total count of seven birds recorded (see Table and Figure 6.5). The total flight time for greylag goose was 405 seconds, of which 355 seconds was recorded at potential collision height.

##### Other wildfowl

Mallard (*Anas platyrhynchos*) and Canada goose (*Branta canadensis*) were both recorded occasionally from VP surveys.

##### Geese and Wildfowl: 2011 – 2014 Survey Results

During VP surveys, greylag goose were recorded on a total of 16 occasions totalling 187 individuals. Pink-footed goose (*Anser brachyrhynchus*) were recorded on four occasions and whooper swan on five occasions.

#### **Gulls**

Common gull (*Larus canus*), great black-backed gull (*Larus marinus*), herring gull (*Larus argentatus*) and lesser black-backed gull (*Larus fuscus*) were all recorded frequently during VP surveys, using the fields within the site and surrounding area as a roosting location. Herring gull were the most frequently recorded and numbers peaked at 600 in January 2017 with the maximum count of lesser black-backed gull recorded at 35 and common gull 27.

The gull roost sites were located in closely cropped improved grassland fields either side of south-west site boundary near Barr Farm and in improved grassland fields west of Fardens farm. All these fields are well away from the proposed turbine array and the flights were noted as being to and from the site towards the coast and not through the site itself.

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# Appendix A: Ornithological Data

**Table 7:– Vantage Point Survey Dates, Times and Meteorological Data**

Date	Vantage Point	Start time	Stop Time	Time (Hrs)	Wind Direction	Wind speed	Cloud cover	Rain	Snow	Frost
21-Apr-16	8	11:35	14:35	3	SW	3	0	0	0	0
02-May-16	5	12:30	15:30	3	SW	6	3	4	0	0
10-May-16	8	14:45	17:45	3	E	5	1	0	0	0
10-May-16	8	18:15	21:15	3	NE	5	1	0	0	0
12-May-16	5	14:50	17:50	3	E	5	0	0	0	0
12-May-16	5	18:20	21:20	3	E	4	2	0	0	0
31-May-16	8	12:35	15:35	3	SE	1	1	0	0	0
01-Jun-16	5	04:40	07:40	3	NE	1	0	0	0	0
01-Jun-16	5	08:10	11:10	3	NE	1	0	0	0	0
02-Jun-16	8	04:40	07:40	3	NE	2	2	0	0	0
09-Jun-16	8	04:35	07:35	3	NE	3	4	0	0	0
09-Jun-16	8	08:05	11:05	3	NE	2	8	0	0	0
04-Jul-16	8	19:06	22:06	3	NW	3	8	4	0	0
05-Jul-16	5	04:44	07:44	3	W	1	2	0	0	0
05-Jul-16	5	15:05	18:05	3	SW	3	5	0	0	0
05-Jul-16	5	19:05	22:05	3	SW	3	5	0	0	0
15-Aug-16	8	14:24	17:24	3	S	2	4	0	0	0
15-Aug-16	8	17:54	20:54	3	S	2	3	0	0	0
16-Aug-16	5	14:20	17:20	3	S	2	1	0	0	0
16-Aug-16	5	17:52	20:52	3	S	1	2	0	0	0
17-Aug-16	8	05:56	08:56	3	E	3	1	0	0	0
17-Aug-16	8	09:30	12:30	3	E	2	1	0	0	0
18-Aug-16	5	05:58	08:58	3	NE	2	3	0	0	0
18-Aug-16	5	09:30	12:30	3	NE	2	3	0	0	0
20-Sep-16	8	16:20	19:20	3	S	1	4	0	0	0
21-Sep-16	5	12:50	15:50	3	S	4	8	0	0	0
21-Sep-16	5	16:22	19:22	3	S	4	8	0	0	0
22-Sep-16	8	10:30	13:30	3	S	2	2	0	0	0
26-Oct-16	8	11:30	14:30	3	SW	5	8	3	0	0
27-Oct-16	5	08:15	11:15	3	S	4	8	3	0	0
27-Oct-16	5	11:45	14:45	3	SW	4	8	3	0	0
28-Oct-16	8	08:19	11:19	3	W	2	3	0	0	0
22-Nov-16	8	09:30	12:30	3	N	4	2	0	0	0
22-Nov-16	8	13:00	16:00	3	N	3	4	0	0	0
23-Nov-16	5	09:29	12:29	3	E	1	0	0	0	1
23-Nov-16	5	12:59	15:59	3	E	1	0	0	0	1
06-Dec-16	8	10:30	13:30	3	NE	1	8	1	0	0
07-Dec-16	5	08:35	11:35	3	S	5	8	1	0	0

Date	Vantage Point	Start time	Stop Time	Time (Hrs)	Wind Direction	Wind speed	Cloud cover	Rain	Snow	Frost
07-Dec-16	5	12:05	15:05	3	S	5	8	0	0	0
08-Dec-16	8	08:35	11:35	3	SW	1	8	0	0	0
17-Jan-17	8	13:22	14:22	1	S	2	8	0	0	0
18-Jan-17	5	09:40	12:40	3	S	2	8	0	0	0
18-Jan-17	5	13:24	16:24	3	S	3	8	0	0	0
19-Jan-17	8	09:25	12:25	3	SW	3	8	0	0	0
19-Jan-17	8	12:55	14:55	2	SW	2	8	0	0	0
14-Feb-17	8	10:45	13:45	3	E	5	1	0	0	0
17-Feb-17	8	07:41	10:41	3	SE	1	8	0	0	0
28-Feb-17	5	08:10	11:10	3	SE	2	8	1	1	2
28-Feb-17	5	11:40	14:40	3	SE	2	5	0	1	2
27-Mar-17	8	16:47	19:47	3	NE	3	1	0	0	0
28-Mar-17	5	13:19	16:19	3	SE	1	8	0	0	0
28-Mar-17	5	16:49	19:49	3	SE	1	8	3	0	0
29-Mar-17	8	10:35	13:35	3	S	3	8	4	0	0
22-May-17	8	08:40	11:40	3	SE	3	8	0	0	0
29-May-17	8	18:46	21:46	3	NE	3	8	1	0	0
30-May-17	8	15:20	18:20	3	W	4	4	0	0	0
30-May-17	8	18:50	21:50	3	W	3	2	0	0	0
31-May-17	5	15:21	18:21	3	S	2	2	0	0	0
31-May-17	5	18:51	21:51	3	S	2	8	0	0	0
28-Jun-17	5	04:36	07:36	3	NE	4	8	0	0	0
28-Jun-17	5	08:06	11:06	3	NE	4	7	0	0	0
30-Jun-17	8	04:36	07:36	3	N	2	8	0	0	0
30-Jun-17	8	08:06	11:06	3	N	1	7	0	0	0
18-Jul-17	5	10:40	13:40	3	SE	3	0	0	0	0
18-Jul-17	5	14:10	17:10	3	S	1	1	0	0	0
19-Jul-17	8	05:01	08:01	3	NE	5	4	0	0	0
19-Jul-17	8	08:31	11:31	3	E	5	5	0	0	0
20-Jul-17	5	05:00	08:00	3	SW	2	7	0	0	0
20-Jul-17	5	08:30	11:30	3	S	2	6	0	0	0
21-Jul-17	8	09:05	12:05	3	E	5	8	3	0	0
21-Jul-17	8	12:35	15:35	3	SE	5	8	4	0	0
09-Aug-17	8	10:30	13:30	3	N	3	1	0	0	0
09-Aug-17	8	14:00	17:00	3	N	2	2	0	0	0
10-Aug-17	5	14:25	17:25	3	SW	3	7	0	0	0
10-Aug-17	5	18:08	21:08	3	S	2	7	0	0	0
01-Sep-17	5	06:25	09:25	3	NW	1	7	0	0	0
01-Sep-17	5	10:00	13:00	3	NW	2	2	0	0	0
22-Sep-17	8	07:04	10:04	3	SSE	5	8	0	0	0
22-Sep-17	8	10:34	13:34	3	SSE	5	8	2	0	0
29-Sep-17	5	07:16	10:16	3	S	3	7	0	0	0
29-Sep-17	5	10:46	13:46	3	SW	4	7	0	0	0

Date	Vantage Point	Start time	Stop Time	Time (Hrs)	Wind Direction	Wind speed	Cloud cover	Rain	Snow	Frost
18-Oct-17	5	11:40	14:40	3	E	4	7	0	0	0
18-Oct-17	5	15:12	18:12	3	E	4	8	0	0	0
19-Oct-17	8	11:40	14:40	3	SE	4	8	0	0	0
19-Oct-17	8	15:10	18:10	3	SE	4	8	3	0	0
27-Nov-17	8	08:18	11:18	3	W	5	6	4	0	0
27-Nov-17	8	11:48	14:48	3	NW	4	5	0	0	0
28-Nov-17	5	08:20	11:20	3	NW	2	2	0	0	2
28-Nov-17	5	11:50	14:50	3	W	3	3	0	0	2
04-Dec-17	5	09:18	12:18	3	SW	3	8	3	0	0
04-Dec-17	5	12:48	15:48	3	SW	3	8	0	0	0
05-Dec-17	8	09:15	12:15	3	SW	5	8	0	0	0
05-Dec-17	8	12:47	15:47	3	SW	4	8	0	0	0
09-Jan-18	5	08:40	11:40	3	E	5	6	0	0	2
09-Jan-18	5	12:10	15:10	3	NE	3	8	0	0	2
10-Jan-18	8	08:45	11:45	3	NE	1	8	0	0	0
10-Jan-18	8	12:15	15:15	3	NE	2	5	0	0	0
08-Feb-18	8	10:38	13:38	3	SW	3	8	0	0	0
08-Feb-18	8	14:08	17:08	3	SW	3	8	0	0	0
15-Feb-18	5	10:53	13:53	3	SW	5	8	0	0	0
15-Feb-18	5	14:23	17:23	3	SW	5	8	4	0	0
19-Mar-18	8	08:00	11:00	3	NE	4	1	0	1	1
19-Mar-18	8	11:30	14:30	3	NE	4	1	0	1	0
20-Mar-18	5	11:15	14:15	3	SW	2	2	0	1	0
20-Mar-18	5	14:45	17:45	3	SW	2	2	0	1	0

**Meteorological Key:**

Wind speed	Wind speed	Wind speed	Wind speed	Wind speed
calm = 0	calm = 0	calm = 0	calm = 0	calm = 0
light air = 1	light air = 1	light air = 1	light air = 1	light air = 1
Light breeze = 2	Light breeze = 2	Light breeze = 2	Light breeze = 2	Light breeze = 2
Gentle Breeze = 3	Gentle Breeze = 3	Gentle Breeze = 3	Gentle Breeze = 3	Gentle Breeze = 3
Mod. Breeze = 4	Mod. Breeze = 4	Mod. Breeze = 4	Mod. Breeze = 4	Mod. Breeze = 4
fresh breeze = 5	fresh breeze = 5	fresh breeze = 5	fresh breeze = 5	fresh breeze = 5
strong breeze = 6	strong breeze = 6	strong breeze = 6	strong breeze = 6	strong breeze = 6
mod. gale = 7	mod. gale = 7	mod. gale = 7	mod. gale = 7	mod. gale = 7
fresh gale = 8	fresh gale = 8	fresh gale = 8	fresh gale = 8	fresh gale = 8
strong gale = 9	strong gale = 9	strong gale = 9	strong gale = 9	strong gale = 9

**Table 8: Vantage Point Survey: Species List - All Species**

Breeding Season	Non-breeding Season
Buzzard	Buzzard
Canada goose	Canada goose
Common gull	Common gull
Herring gull	Herring gull
Kestrel	Kestrel

Breeding Season	Non-breeding Season
Lesser black-backed gull	Lesser black-backed gull
Cormorant	Cormorant
Curlew	Curlew
Raven	Raven
Great black-backed gull	Sparrowhawk
Sparrowhawk	Mallard
Mallard	Peregrine falcon
Grey heron	Golden plover
Cuckoo	Hen harrier
Peregrine falcon	Snipe
Osprey	Greylag goose
Golden plover	Red Kite
Long-eared owl	Merlin
Unspec gull	

**Table 9: Vantage Point Survey: Flight Activity Expressed as Percentage Occurrence of Total Survey Time**

Species	Target or Secondary	Percentage Occurrence
Buzzard	Secondary	2.67%
Canada goose	Secondary	0.43%
Common gull	Secondary	0.27%
Cormorant	Secondary	0.27%
Cuckoo	Secondary	0.03%
Curlew	Target	0.27%
Golden plover	Target	0.11%
Great black-backed gull	Secondary	0.24%
Grey heron	Secondary	0.08%
Greylag goose	Target	0.08%
Hen harrier	Target	0.37%
Herring gull	Secondary	4.03%
Kestrel	Secondary	2.27%
Lesser black-backed gull	Secondary	4.33%
Long-eared owl	Target	0.03%
Mallard	Secondary	0.05%
Merlin	Target	0.03%
Osprey	Target	0.08%
Peregrine falcon	Target	0.11%
Raven	Secondary	6.36%
Red Kite	Target	0.03%
Snipe	Target	0.11%
Sparrowhawk	Secondary	0.64%
Unspec gull	Secondary	0.35%

**Table 10: Summary of Target Species Flight Time – 2016-2018 VP Surveys**

Species	No Individuals	Sum of Duration (Seconds)	Sum HB1 (<34m)	Sum HB2 PCH (34 ≥ < 150 m)	Sum HB3 (150m +)
Curlew	11	237	67	170	0
Golden plover	33	241	40	201	0
Greylag goose	7	405	50	355	0
Hen harrier	14	1215	1215	0	0
Long-eared owl	1	35	35	0	0
Merlin	1	45	45	0	0
Osprey	3	645	0	645	0
Peregrine falcon	4	462	70	392	0
Red Kite	1	160	30	130	0
Snipe	11	150	0	150	0

**Table 11: Flight Time: Curlew**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
10-May-16	8	1	U	19:19	20	5	15	0
27-Oct-16	5	1	U	13:38	10	10	0	0
27-Oct-16	5	2	U	13:45	5	5	0	0
30-May-17	8	1	U	20:44	35	35	0	0
30-Jun-17	8	1	U	10:00	75	0	75	0
30-Jun-17	8	1	U	10:01	80	0	80	0
22-Sep-17	8	4	U	12:58	12	12	0	0

**Table 12: Flight Time: Golden Plover**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
17-Aug-16	8	1	U	08:26	126	0	126	0
28-Feb-17	5	25	U	13:28	35	25	10	0
10-Jan-18	8	1	U	11:34	65	0	65	0
20-Mar-18	5	6	U	15:25	15	15	0	0

**Table 13: Flight Time: Greylag goose**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
22-Nov-16	8	3	U	15:05	310	0	310	0
08-Dec-16	8	3	U	08:45	30	0	30	0
29-Mar-17	8	1	U	10:45	65	50	15	0

**Table 14: Flight Time: Hen Harrier**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
20-Sep-16	8	1	F	17:21	60	60	0	0
21-Sep-16	5	1	F	17:35	170	170	0	0

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
26-Oct-16	8	1	M	13:00	250	250	0	0
26-Oct-16	8	1	M	13:51	15	15	0	0
27-Oct-16	5	1	M	09:03	120	120	0	0
22-Nov-16	8	1	M	11:51	15	15	0	0
23-Nov-16	5	1	M	11:45	30	30	0	0
23-Nov-16	5	1	M	12:07	75	75	0	0
23-Nov-16	5	1	M	12:14	220	220	0	0
08-Dec-16	8	1	M	09:59	85	85	0	0
29-Sep-17	5	1	U	07:44	25	25	0	0
27-Nov-17	8	1	M	13:53	65	65	0	0
20-Mar-18	5	1	F	15:59	70	70	0	0
20-Mar-18	5	1	F	16:06	15	15	0	0

**Table 3: Flight Time: Long-eared Owl**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
20-Jul-17	5	1	U	05:09	35	35	0	0

**Table 16: Flight Time: Merlin**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
08-Feb-18	8	1	U	15:22	45	45	0	0

**Table 417: Flight Time: Osprey**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
15-Aug-16	8	1	U	15:39	433	0	433	0
16-Aug-16	5	1	U	16:23	185	0	185	0
16-Aug-16	5	1	U	17:52	27	0	27	0

**Table 18: Flight Time: Peregrine**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
31-May-16	8	1	U	14:10	105	15	90	0
31-May-16	8	1	M	14:18	225	15	210	0
18-Aug-16	5	1	M	10:04	67	0	67	0
29-Sep-17	5	1	U	08:29	65	40	25	0

**Table 19: Flight Time: Red Kite**

Date	VP	Qty.	Sex	Time of Flight	Duration	Time HB1	Time HB2	Time HB3
28-Nov-17	5	1	U	10:13	160	30	130	0



**Table 20: Flight Time: Snipe**

<b>Date</b>	<b>VP</b>	<b>Qty.</b>	<b>Sex</b>	<b>Time of Flight</b>	<b>Duration</b>	<b>Time HB1</b>	<b>Time HB2</b>	<b>Time HB3</b>
27-Oct-16	5	6	U	09:46	20	0	20	0
27-Oct-16	5	3	U	09:47	10	0	10	0
27-Oct-16	5	1	U	09:35	45	0	45	0
19-Oct-17	8	1	U	17:20	75	0	75	0

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