BIRD HAZARD RISK MITIGATION
Produced for Cuadrilla Resources Limited
In respect of safeguarding for Blackpool Airport

January 2013

ISOQAR REGISTERED
UKAS MANAGEMENT SYSTEMS 0026

Certificate Number 8401

ISO 9001

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INTRODUCTION

This Bird Hazard Risk Assessment has been produced on behalf of Cuadrilla Resources Limited CRL), in order to address a number of potential issues associated with proposed management practices at a site at Anna's Road, Westby, Lancashire.

The site

Lytham Moss. Land under and adjacent to the Approach to Runway 28 Blackpool Airport

Personnel

Ian Whittaker is the director of North West Bird Control Ltd.

Ian has been working as a Bird, Wildlife and Habitat Advisor for over 15 years. His current role is Bird, Wildlife and Habitat Manager at Blackpool Airport.

Ian has extensive experience of the bird life and behaviour on and around Blackpool Airport including Lytham Moss

1.0 BACKGROUND

1.0. This document is designed to highlight and provide solutions to the potential risks to aircraft which may be created by CRL's mitigation plan (Ecology Services UK Ltd (2012) *Impact Assessment and Method Statement – Anna's Road, Westby*. CRL).To summarise, it is proposed to provide supplementary feeding in the form of Potatoes, Carrots, and Grain in fields under and immediately adjacent to the aircraft approach for Runway 28 and the departure for runway 10 (fields 29 and 30).

This additional feeding will introduce a change to the food availability for this area of land and as a result, there is potential for an increase in the bird strike risk for aircraft using the airport. a Bird Hazard Risk Assessment (NWBC 2013) has been produced to examine the potential for an increase in bird strike risk as a result of this proposed change.

1.1. To summarise, the document proposes to provide additional feeding in the form of Potatoes, Carrots, and Grain in fields under and immediately adjacent to the aircraft approach for Runway 28 and the departure for runway 10.

This additional feeding changes the natural habitat for this area of land and potentially increases the bird strike risk for aircraft using the airport. The mitigation document outlines control measures which can reduce any increased risk, perceived or actual, back to the original level or to even further reduce it.

2.0 BIRD HAZARD MITIGATION MEASURES

2.0. The following are the critical elements of an effective bird hazard control programme appropriate to the operation at Blackpool Airport.

The measures start at the same time as the supplementary feeding and finish 7 days after the feeding stops. The additional 7 days are required to reduce bird strike risk caused by habituation to a new food source.

3.0. BIRD HAZARD SAFEGUARDING

3.0. Blackpool Airport has an established safeguarding consultation system with Fylde Borough Council that has been in operation for several years and includes bird hazards as defined in the Safeguarding Directions (ref needed). Each planning application received by Fylde Borough Council will be considered both on its own merits and in terms of its potential impacts on bird habitats, bird populations and bird behaviour in the local area as identified in the Blackpool Airport 13km Survey, a "live" document updated with local intelligence as it becomes available.

3.1. It is important that the background hazard level should not increase as a result of local planning decisions. The Airport recognises that a number of species receive protection through UK and EU legislation, that some areas of land are subject to statutory and non-statutory designations for nature conservation, and that where Airport activities affect these features this will need special consideration and liaison between the airport and organisations including the Local Planning Authority and also Natural England.

The Airport is also mindful of the fact that commercial, recreational and conservation developments are beneficial to local communities and businesses and that accommodations or compromises should always be given consideration.

3.2. The LPAs are advised of the importance of bird safeguarding in the context of the airport's requirements and statutory responsibilities and will seek to ensure that modified policies are written into local structure, minerals, waste, etc. plans, to reflect the importance of protecting the Airport against such developments. Local liaison with interested conservation bodies and significant landowners will also be sought where appropriate.

4.0. BIRD HAZARD CONTROL STRATEGY

4.00 This will include decisions on management structure, manning, training and equipment provision. This document will not include a detailed discussion of aerodrome bird control equipment and procedures, as these are described in detail in the CAA's current statement of best practice, and locally in the Bird Hazard Control Plan held on site at Blackpool airport. The techniques described in these documents have proven their long-term effectiveness in keeping the birdstrike hazard within acceptable levels at UK aerodromes as recommended by the CAA. The main bird hazards at Blackpool are those presented by the gull population associated with gulls feeding in surrounding areas and the presence of Curlew, Geese, Corvids, Lapwing and Oystercatcher flocks in the autumn and winter months. The main defence against gulls in the short term must be detection and warning (which will involve direct observation and communication between airport staff, Air Traffic Control and aircrew).

5. BIRD CONTROL OPERATIONS (BCO) & METHODOLOGY

5.1 Surveillance, Detection and Dispersal
5.2 Operating Area

The BCO operates from all accessible areas prior to aircraft movements to disperse target bird species and to reduce and, where possible, remove the risk from target bird species. When a specific acute bird hazard is anticipated by prior intelligence (e.g. flocks of birds attracted by feeding in the SFA near the active runway approach) additional resources can be made available to provide additional bird control off or on the airfield as required.
Wherever possible, in addition to surveillance of the airfield the BCO will actively look for concentrations of problem bird species in the fields immediately adjacent to the airport perimeter and disperse them when it is safe to do so. The fields in the approach and climb-out areas are particularly critical, and some bird activities in the runway approaches/undershoot areas may be extremely hazardous to landing aircraft. Birds may be dispersed from adjacent fields by the use of Falcons, pyrotechnics, distress calls, lasers or lures. This is a similar approach to the Queensway bird control plan, and will actually complement it.

It should be recognised that this plan is not to alter bird numbers in the Lytham Moss area, but simply to reduce concentrations of birds which would not naturally be there and to re balance these numbers so that their behaviour and flight lines which may be influenced by the supplementary feeding plans are reverted to normal levels.

5.3 Supplementary Feeding Area Patrol Pattern

- The BCO should be told of aircraft on a ten or twenty mile final by Air Traffic Control. The approach should have already been cleared, and the BCO's job will be to watch for incoming birds. The BCO should be out of the vehicle with binoculars and bird scaring equipment immediately to hand.
- These operations will further reduce the bird strike risk to arriving/departing aircraft by single or multiple transiting birds especially Gulls and Geese.

6. RECORD KEEPING

6.1 Bird Control Log

6.1.1 BCU maintains a continuous record of bird and wildlife activity on and around the airfield on daily bird count forms, and of bird control activity in a log diary, BCO's complete and submit online CA 1282 strike report forms for all `birdstrikes' as defined below. Completed CA 1282s are passed to ABCU for safekeeping and trend analysis. If identification of the species is not achievable, the BCC will send a sample/image of the bird struck to the contact listed on the 1282 form. All bird strikes occurring within the Airport boundary or in the immediate vicinity (up to 1 km outwith) will be reported to the CAA, however, Blackpool record `near misses' internally to aid trend analysis.

The BCU currently passes all information to ABCU Manager who assimilates all information and passes it to NWBC office for report compilation and forward to AOM and the Ops director.

6.1.2 A Bird Control Log sheet /diary system is maintained to record shift handover times, pyrotechnics/cartridges used, equipment unserviceabilities, grassland maintenance activities etc. together with any observations that the bird control operative considers to be relevant. All details are assimilated by the ABCC and produced as part of the reporting strategy.

6.2 Data Analysis and Reports

6.2.1 NWBC produces a quarterly report for the AOM (Airport Ops Manager?) and the Ops director based on bird count and diary records of bird control operations and an annual report based on more detailed analysis of bird count and bird strike data, monthly reports and log records.

6.3 Quality Assurance

6.3.1 Record keeping is a self-disciplining procedure for all staff involved in bird control operations. NWBC inspects bird control operations and records and, annually, analyses all records and produces a review report. Bird population trends and bird strikes provide long-term performance indicators. At least one internal audit per year of the Bird Control system will be carried out by a suitably trained person.

NWBC works to and is accredited to ISO 9001

7. EQUIPMENT

7.1 General

7.1.1 Prior to undertaking bird control duties, all staff engaged in active bird control receive appropriate training in the principles and use of specialist bird dispersal equipment.

Equipment consists of:

- Bird Control Vehicle
- Premier Distress call bio acoustics.
- Portable Goose call distress system.
- Falcons as needed.
- Falconers lure.
- Swarovski Day binoculars 10 x42
- 3rd Generation Night vision binoculars
- Modulated Laser system
- Blank firing pistols.
- Fixed remote control solar powered varied distress call system.

7.2 Bird Control Vehicle.

7.2.1 Four-wheel drive vehicles with good all-round visibility are provided for the purposes of performing bird control duties on the airport. The vehicles are fitted with the necessary radio equipment, distress call broadcast equipment and suitable storage and security facilities for weapons, ammunition and other equipment. Any alternate vehicle used for bird hazard control duties will be provided with a portable distress call system.

7.3 Distress Call Broadcast Equipment.

7.3.1 The Bird Control Unit is equipped with digital bird distress call broadcast equipment fitted in the vehicle and a portable unit as backup/supplementary equipment. All BCO's and FBCO's are trained in the use of this equipment.

7.4 Birdscaring Cartridges and Rockets.

7.4.1 The BCU is supplied with birdscaring cartridges (non-lethal bird scaring pyrotechnics) to the current CAA recommendation and a dedicated pistol to fire them. Spare pistols are also held. All personnel are trained in the efficient and safe use of these cartridges, and supplementary information is contained in the relevant Departmental Instruction Manual. Local arrangements have been made to ensure that all users are covered by the necessary firearms certification issued by the local Police Authority, and secure storage facilities have been arranged for the pistols and cartridges. A range of Personal Protective Equipment (PPE) is issued to all BCO's for the firing of birdscaring cartridges. This equipment is to be used whenever these cartridges are to be fired. A register of firearms and ammunition is kept, and weapons and ammunition are to be signed out (and back in) daily and transfers noted on shift handover. Weapons are to be cleaned after use and before returning them to storage, and serviced according to the servicing schedule. Any damage or defects are to be reported immediately.

7.4.2 The practical use of birdscaring cartridges is described in the training material provided, and in the Departmental Instructions, and will not be reproduced here. However, as with distress calls, certain considerations should be borne in mind when using, or intending to use, birdscaring cartridges: -

- They are potentially lethal to the user and other personnel, represent a significant fire risk, and can cause alarm, harm or distress to people or livestock. All safety procedures must be followed carefully, and birdscaring cartridges are not to be fired in the designated prohibited areas including fuel stores, passenger areas, etc. If you have any doubts, do not fire - unload the weapon.

- Because of the pyrotechnic "flare" component, there is a risk that birdscaring cartridges could cause distraction, or be mistaken for signal flares, by aircraft crew. To guard against this, birdscaring cartridges should not be fired in the vicinity of moving aircraft, or when aircraft are within 3 miles of the airport on landing approach, without first informing ATC.

- The pistol may cause alarm to observers, particularly passengers or members of the public. Consider this at all times.

- Birdscaring cartridges are very effective for rapid dispersal, and when time is short they are normally to be preferred over distress calls.

- Because the scaring stimulus can be directed, it is often possible to control dispersal direction and 'herd' flocks away from movement areas. Similarly, transiting birds can be turned back, and 'held' when they conflict with aircraft movements (taking care not to distract or alarm pilots). This directional control cannot normally be achieved by the use of distress calls.

7.5 Lasers.

Lasers to be used for bird control are built to NWBC’s specifications as regards modulation/frequency. These lasers are to be used in the same way regarding safety/operation as firearms.

7.6 Falcons and Lures

7.5.1 Falcons to be flown to scare not to kill.

8.0 Risk Reduction

Risk reduction

The aim of risk reduction is to reduce the risk to a tolerable level. To ensure that this is achieved, a risk assessment should be made taking into account the effect of the risk reduction measures. If the residual risk level remains unacceptable, further actions are necessary until the aim is achieved as proposed in the

The existing pattern of bird activity on Lytham Moss is managed by occasional intervention by the BCU to displace build-ups of problem bird species. To date, there have been no sources of bird strike problems which have been uncontrolled.

Judgements about BCU actions are also informed by the presence of whooper swans and Bewick's swans. The BCU and Blackpool Airport recognise that Lytham Moss is functionally linked to the Ribble and Alt Estuary SPA and Ramsar site as a result of the presence of estuary bird species, particularly whooper swans and Bewick's swans. Where possible, impacts on both swan species are avoided during activities used to control priority birdstrike species.

Monitoring

The distribution, movements and numbers of birdstrike priority species will be monitored daily by the BCO.

Birds to be monitored will include all large flocks of gulls, corvids, waders, geese, swans and starlings within the SFA, and adjacent fields. Monitoring will be undertaken in accordance with an agreed protocol to ensure that the information collected is consistent and fulfils the aim of the monitoring. The protocol is as follows:

9.0 Active Bird Control

This will be a staged approach.

- Continuous monitoring.
- Use of Lure
- Use of distress calls.
- Use of falcons.
- Use of Lasers.
- Use of blank firing pistols.

There may occasionally be circumstances where it is necessary to employ active bird control measures in or near to the CRL supplementary feeding area, just as bird control measures are already implemented within parts of the Lytham Moss when a bird hazard is present; these measures are normally provided by NWBC.

The aim is to deal with bird hazards promptly without disturbing non-target bird species unnecessarily; this would include avoiding whooper swans and Bewick's swan at all times and other species depending on the specific circumstances at the time.

Only certain types of bird control method will be acceptable on the CRL supplementary feeding area to ensure that swans are not damaged or disturbed as a consequence of controlling other birds near the flightpath. Bird control measures on Lytham Moss will be restricted to the use of a

lure, lasers, trained raptors and bio-acoustic methods (such as gull, Geese and corvid distress calls), as it has been demonstrated that these techniques can be employed without disturbing whooper and Bewick's swans (provide a reference for the evidence at this point). Non-selective bird scaring methods will only be used on the CRL supplementary feeding area if large flocks (state numbers for each bird species e.g. >gulls, >50 curlew, >1000 pink footed geese) of birds are present.

10.0 Appropriate active control methods

A range of different active bird control measures are available to the BCU to fulfil its obligations to safeguarding Blackpool Airport. The choice and use of control measures is determined on a case-by-case basis following detailed observations, and bearing in mind the requirement to avoid disturbance to swan species. The aim is to achieve maximum effective control of bird hazard priority species when and where active control is necessary. The following control methods may be used in different circumstances in different parts of Lytham Moss, including the CRL supplementary feeding area:

- Using a lure
- Raptors
- Bioacoustics
- Lasers
- Constant patrol
- Nightime monitoring.
- Shooting is not considered appropriate in the supplementary feeding area and the approach in this document does not include any use of such techniques.

The method that the BCO or land managers will employ to undertake effective bird control will be dictated by a sliding scale. This sliding scale assumes that when a bird hazard is first encountered the first control measures available will be restricted to either using a lure or using raptors. If using these control methods fails to deal with the bird hazard the BCO or land manager may then consider using bioacoustics which can be effective at displacing corvids and gulls provided that this method is not used too frequently.

Using a lure

Swinging a lure as a bird control method at Blackpool Airport has been proven to be a very effective method of moving bird hazard priority species away from the site. It is envisaged that this method will be the most commonly used active bird control measure within the CRL supplementary feeding area.

Raptors

Trained falcons can be very effective at clearing birds. Raptors have been successfully used at Blackpool Airport and on fields to the east of the Airport for a number of years.

Bioacoustics

Bioacoustics are recorded distress calls of various species which are played through a vehicle-mounted or hand-held speaker. The reactions of different species differ markedly, and an understanding of the likely reaction of the birds is essential. For instance, some birds will move towards the sound source before moving off, others will move back and forth across the sound before moving off and other will climb and form a tighter flock before moving.

If active bird control is introduced, bioacoustics would be essential to deter Corvids, Geese, Gulls and Starlings. Distress calls of other bird species can be safely be used without causing dispersal of swans (ref needed).

Lasers

Lasers are a recognised method of moving nuisance birds especially Geese. NWBC has been trialling different types of Lasers in Scotland for the last three years and has now perfected the type and the methodology with which to move most species of birds. This has the benefit of moving certain birds without disturbing others (e.g. Bishop, J. et al (2003)).

11.0. SPECIFIC BIRD HAZARDS AT THE CUADRILLA RESOURCES LIMITED SUPPLEMENTARY FEEDING AREA

Bird Hazard Risk Tolerability Matrix

CATASTROPHIC	Review	Unacceptable	Unacceptable	Unacceptable	Unacceptable
HAZARDOUS	Review	Review	Unacceptable	Unacceptable	Unacceptable
MAJOR	Acceptable	Review	Review	Review	Review
MINOR	Acceptable	Acceptable	Acceptable	Acceptable	Review
	EXTREMELY IMPROBABLE	**EXTREMELY REMOTE**	**REMOTE**	**REASONABLY PROBABLE**	**FREQUENT**

11.1. GULLS.

Although this cannot be taken as an indicator of future risk, in terms of the tolerability matrix above, the recent gull hazard and associated birdstrikes at Blackpool in this area would fall into the "review" category - incidents in the major/hazardous risk category occurring with "remote/reasonably probable" frequency levels. The supplementary feeding would move this into "unacceptable" as it is predicted to lead to flight lines which may well cause a bird strike risk to aircraft.

11.1.1 The mitigation as proposed in this document would move the Gull risk factor in the tolerability matrix into the "acceptable" category.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	Frequency level	Effect of supplementary feeding	Effect of proposed mitigation
Review	Remote/reasonably probable	Probable > unacceptable	Unacceptable > acceptable

It will be necessary to regularly employ active bird scaring methods on a proactive basis to displace gulls from the CRL supplementary feeding area. However it is recognised that during certain conditions, such as Supplementary feeding, wet weather or when a field has just been ploughed, gulls are more likely to concentrate in large flocks. These birds will be moved on a reactive basis.

Therefore the objectives of passive and active bird control measures for gulls on the CRL supplementary feeding area will be as follows.

Objectives of Bird Control:

- Communicate all significant movements of gulls across the Blackpool Airport flightpath immediately.
- Monitor the distribution of medium-large sized flocks (exceeding c.100 birds) within the CRL supplementary feeding area on a regular basis.
- Displace all medium-large sized gull flocks (i.e. >100 gulls) from any part of the CRL supplementary feeding area using active bird scaring methods

- Avoid disturbance to whooper and Bewick's swans.

12.0 GRASSLAND PLOVERS AND OTHER WADERS

Although this cannot be taken as an indicator of future risk, in terms of the tolerability matrix above, the recent review hazard and associated birdstrikes at Blackpool in this area would fall into the "review" category - incidents in the major/hazardous risk category occurring with "remote/reasonably probable" frequency levels.

The mitigation as proposed in this document would move the Plover/Wader risk factor in the tolerability matrix into the "acceptable" category.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	Frequency level	Effect of supplementary feeding	Effect of proposed mitigation
Review	Remote/reasonably probable	Probable > unacceptable	Unacceptable > acceptable

Objectives of Control Measures

It is envisaged that flocks of lapwing and curlew will use the CRL supplementary feeding area during the winter months. The objectives of passive and active bird control measures for waders on the CRL supplementary feeding area will be as follows.

Objectives of Bird Control:

- Communicate all significant movements of waders across the Blackpool Airport flightpath immediately.
- Monitor the distribution of waders within the CRL supplementary feeding area on a regular basis.
- Displace all large wader flocks (c. 200 waders +) from all parts of Lytham Moss where they may pose a risk to aircraft safety using active bird scaring methods
- Avoid disturbance to whooper and Bewick's swans.
- Avoid any bird control if this might result in displacement of waders into the Airport flightpath.

13.0. Corvids

Corvids are regularly present on Lytham Moss in large numbers - in excess of one thousand birds. There is a clear risk that any new food source would result in a behavioural and a flight line change and pull these birds into a localised area resulting in a behavioural change, as well as a flight line change. Large numbers of Corvids under the approach to 28 which may be easily scared into the path of an approaching or departing aircraft would increase the strike risk.

In terms of the tolerability matrix above, the hazard and associated birdstrikes at Blackpool in this area would fall into the "review" category - incidents in the major/hazardous risk category occurring with "remote/reasonably probable" frequency levels.

The mitigation as proposed in this document would move the Corvid risk factor in the tolerability matrix into the "acceptable" category.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	Frequency level	Effect of supplementary feeding	Effect of proposed mitigation
Review	Remote/reasonably probable	Probable > unacceptable	Unacceptable > acceptable

Objectives of Control Measures

It is envisaged based on the findings of the Bird Hazard Risk Assessment that it will be necessary to regularly employ pro and reactive bird scaring methods to displace corvids from the CRL supplementary feeding area. It is also recognised that during certain conditions, such as when land is being grazed by livestock or when a field has just been ploughed, corvids are more likely to concentrate in large flocks.

Therefore the objectives of passive and active bird control measures for corvids on the SFA will be as follows.

Objectives of Bird Control:

- Communicate all significant movements of corvids across the Blackpool Airport flightpath immediately.
- Monitor the distribution of large corvids flocks (exceeding c.100 birds) within the CRL supplementary feeding area on a regular basis.
- Displace all large corvid flocks (exceeding c.50 birds) from any part of the CRL supplementary feeding area located near the Blackpool Airport flightpath.
- Avoid disturbance to whooper and Bewick's swans.

14.0 RAPTORS

In terms of the current tolerability matrix above, the hazard and associated birdstrikes at Blackpool would fall into the "acceptable" category - incidents in the "minor" risk category occurring with low frequency levels.

The mitigation as proposed would keep the Raptor risk factor in the tolerability matrix into the “acceptable” category.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	**Frequency level**	**Effect of supplementary feeding**	**Effect of proposed mitigation**
Acceptable	Low	Acceptable > unacceptable	Unacceptable > acceptable

Objectives of Bird Control:

- Communicate all significant movements of Raptors across the Blackpool Airport flightpath immediately.
- Monitor the distribution of Buzzards soaring in the flight path on a regular basis.

15.00 Geese

Although this cannot be taken as an indicator of future risk, in terms of the tolerability matrix above, the current Goose hazard and associated birdstrikes at Blackpool would fall into the "review" category - incidents in the major/hazardous risk category occurring with "remote/reasonably probable” frequency levels.

The mitigation as proposed in this document would move the Goose risk factor in the tolerability matrix into the “acceptable” category.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	**Frequency level**	**Effect of supplementary feeding**	**Effect of proposed mitigation**
Review	Remote/reasonably probable	Probable > unacceptable	Unacceptable > acceptable

Objectives of Control Measures

The objectives of passive and active bird control measures for wildfowl on the CRL supplementary feeding area will be as follows.

Objectives of Bird Control:

- Communicate all significant movements of pink-footed geese across the Blackpool Airport flightpath immediately.
- Monitor the distribution of pink-footed geese within the CRL supplementary feeding area on a regular basis.
- Displace all pink-footed geese flocks from fields within and near the CRL supplementary feeding area.
- Avoid disturbance to whooper and Bewick's swans.
- Disturbance of wildfowl excepting Swans using the CRL supplementary feeding area.
- Scare all Geese which may cause an immediate hazard to aircraft safety due to flight line patterns or other factors.

16.0 STARLING

Although this cannot be taken as an indicator of future risk, in terms of the tolerability matrix above, the current Starling hazard and associated birdstrikes at Blackpool would normally fall into the "review" category - incidents in the major/hazardous risk category occurring with "remote/reasonably probable" frequency levels.

The mitigation as proposed in this document would move the Starling risk factor in the tolerability matrix into the "acceptable" category.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	Frequency level	Effect of supplementary feeding	Effect of proposed mitigation
Review	Remote/reasonably probable	Probable > unacceptable	Unacceptable > acceptable

Objectives of Control Measures

Based on the findings of this Bird Hazard Risk Assessment there will be an increase in the number of starlings using all parts of the CRL supplementary feeding area. It will therefore be necessary to employ active bird scaring methods to displace starlings from the CRL supplementary feeding area

Therefore the objectives of passive and active bird control measures for starlings on the CRL supplementary feeding area will be as follows.

Objectives of Bird Control:

- Communicate all significant movements of starlings across the Blackpool Airport flightpath immediately.
- Monitor the distribution of large starling flocks (exceeding c.100 birds) within the CRL supplementary feeding area on a regular basis.
- Displace all large starling flocks (exceeding c.100 birds) from any part of the CRL supplementary feeding area located near the Blackpool Airport flightpath.
- Avoid disturbance to whooper and Bewick's swans.

17.00 WOOD PIGEONS

Although this cannot be taken as an indicator of future risk, in terms of the tolerability matrix above, the Current Pigeon hazard and associated birdstrikes at Blackpool SFA would normally fall into the "review" category - incidents in the major/hazardous risk category occurring with "remote/reasonably probable" frequency levels.

The mitigation as proposed in this document would move the Wood pigeon risk factor in the tolerability matrix into the "acceptable" category.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	Frequency level	Effect of supplementary feeding	Effect of proposed mitigation
Review	Remote/reasonably probable	Probable > unacceptable	Unacceptable > acceptable

Objectives of Bird Control:

- Communicate all significant movements of Wood pigeons across Blackpool Airport flightpath immediately.
- Monitor the distribution of large Pigeon flocks (exceeding c.100 birds) within the SFA on a regular basis.
- Displace all large Pigeon flocks (exceeding c.100 birds) from any part of the SFA located near the Blackpool Airport flightpath.
- Avoid disturbance to whooper and Bewick's swans.

18.0 Whooper swan and Bewick's swan

Current Blackpool Airport Bird Hazard Risk Assessment

The 2009 Bird Hazard Risk Assessment does not specifically mention swans apart from saying that numbers of less than 100 swans have been recorded in adjacent fields.

Whooper and Bewick's swans are considered to be a lower risk in terms bird hazard than geese; this is because they tend to fly lower and do not get disturbed so readily. Their flight pattern is more predictable. They tend to remain in one flock of relatively low numbers.

Objectives of Control Measures

Whooper and Bewick's swans within the Lytham Moss tend not to disperse and will concentrate in a specific location each winter depending partly on where food is available. According to a recent research study undertaken by Cowrie, wild swans do not fly above 750 feet when undertaking flights between feeding and roosting areas; this is supported by observations of swan flights at Lytham Moss. Therefore it is not expected that whooper and Bewick's swans will present a birdstrike hazard for Blackpool Airport. Therefore no active bird control measures are proposed for whooper swan and Bewick's swan using the proposed CRL supplementary feeding area.

The objectives of passive bird control measures for swans on the CRL supplementary feeding area will be as follows.

Objectives of Bird Control:

- To avoid disturbance to Bewick's and Whooper Swans.
- To remove any heightened bird strike risk caused by supplementary feeding.

WHOOPER SWANS

Whooper Swans are the main target species for the supplementary feeding. These birds, although present in the area, are almost never seen from the airfield and rarely fly higher than 100 ft. which puts them under the approach height for all aircraft using 28 approach.
Although feeding them would localise and concentrate them, it would also help keep them in one area and reduce flight lines.

Although this cannot be taken as an indicator of future risk, in terms of the tolerability matrix at 7.0, the Current Swan hazard and associated birdstrikes at Blackpool would fall into the acceptable category - incidents in the major/hazardous risk category occurring with "remote" frequency levels. This would appear not be increased by supplementary feeding.

Summary of impact of supplementary feeding and mitigation measures

Tolerability matrix category	Frequency level	Effect of supplementary feeding	Effect of proposed mitigation
Acceptable	Remote	None	None

19.0 Monitoring, reporting and review

It is recognised that any activities that take place as part of safeguarding, particularly in a public area, need to be subject to careful planning and preparation (as outlined above and in the Bird Hazard Risk Assessment). In addition, all activities need to be subject to careful monitoring, detailed reporting and to a review process.

Monitoring and reporting

In addition to the comprehensive checks already in place for safeguarding, the following approach will be adopted as part of management of birdstrike risk associated with CRL projects and work areas:

Prior to entering land around CRL sites (at Anna's Road, this area is fields 25, 26, 29, 30, 31, 32 and 33), BCU personnel will advise CRL of their intention to undertake bird control activities. CRL will record this in the daily site log, advise of any issues that BCU need to aware of and, if available, deploy an Ecologist to observe the bird control activities. This will ensure that the bird control activities and their impact on bird species (in particular whooper and Bewick's swans) are observed by an objective third party. It is recognised that at times bird control activities will require quick action and that the notice available may therefore be limited.

Following bird control activities around CRL sites, the BCU will provide a report to CRL identifying the following information:

- The nature of the problem (e.g. priority birdstrike species involved, including details of numbers and behaviour)
- Personnel involved
- Methods deployed
- Results achieved

Following bird control activities around CRL sites, the Ecologist will provide a report to CRL identifying the following information:

- Bird species present in the area of bird displacement, including details of numbers and behaviour
- Bird displacement methods observed
- Impacts on bird behaviour, with specific reference to swan species

The reports from the BCU and the Ecologist will be combined into a single monthly document, which will be submitted to both Lancashire County Council and Natural England. A combined report will be submitted to both Lancashire County Council and Natural England on a monthly basis whether or not any bird control measures have been deployed.

Review

Using the monthly reports as a basis, the situation as regards bird control and impacts on non-target species (with a focus on, but not necessarily restricted to, whooper and Bewick's swans) will be reviewed monthly. The conclusion from the review will also be submitted to Lancashire County Council and Natural England on a monthly basis.

20. CONCLUSION/SUMMARY

The risk assessment shows that the Supplementary feeding as proposed by CRL has the potential to increase the bird strike risk in the CRL supplementary feeding area and surrounds under 28 approach from “review” as described in the CAA tolerability matrix to “unacceptable”

The mitigation as proposed in this document takes the risk factor from potentially “unacceptable” to “acceptable but under constant review”

The mitigation is proposed to run from the first day of supplementary feeding to 7 days after cessation of feeding.

The mitigation measures detailed in this document are designed to do four main things.

- To monitor the level of bird activity caused by supplementary feeding as detailed in Ecology Services UK Ltd (2012) *Impact Assessment and Method Statement – Anna’s Road, Westby*. CRL

- To remove, in a non lethal way, any birds apart from the Swans which are attracted by the feeding.

- To decrease the bird strike risk level to a level at or below that prior to any supplementary feeding being started in the area under or near to 28 approach.

- To carry out the bird control measures without disturbing Whooper or Bewick’s Swans or any other birds not seen as posing a bird strike risk.

References

Bishop, J. et al (2003) *Review of international research literature regarding the effectiveness of auditory bird scaring techniques and potential alternatives*.