WILDLIFE HAZARD MANAGEMENT PLAN FOR FOR DNATA CITY NORTH SOLAR ARRAY PROJECT, MANCHESTER AIRPORT

May 2025

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FILE NAME	2025_Dnata City North BHMP _MAN_1	
VERSION AND ISSUE DATE:	V1	16/05/2025



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Birdstrike Management Ltd.

Birdstrike Management Ltd. (BML) provides specialist safeguarding and wildlife hazard management planning advice in relation to planning applications that have the potential to affect aviation safety. Our team sit on the UK Civil Aviation Authority (CAA) Combined Aerodrome Safeguarding Team (CAST), have chaired the CAST Wildlife Focus Group and have written and edited International Civil Aviation Organisation (ICAO), European Union Aviation Safety Agency (EASA), UK Civil Aviation Authority (CAA) and Airport Operators Association (AoA) advice notes and guidance relating to wildlife management.

Our expertise therefore enables us to provide consultancy support to assist developers, civil and military airports and planning agencies to review hazards and develop options to reduce risks associated with applications. We work globally, throughout the UK and Europe, the Middle East, Central Asia, south-east Asia, India, Africa, Central and South America.

Our aim is to determine where developments can proceed without modification, where design changes or wildlife management plans may be required to mitigate risks or, where risks may not be suitable in an aerodrome situation, to advise on alternative development options that should be considered. Our over-arching objective is to ensure that the aviation industry is delivering and meeting best practice requirements, as stipulated by national and international regulations.

BML Mission Statement: *To consolidate as the market leader in providing expert advice and training to reduce wildlife risk/hazard for the aviation sector by delivering an independent, customer focused product.*

1 Background

Dnata Ltd contacted BML to provide an independent Wildlife Hazard Management Plan for the addition of a solar PV array on an existing building, dnata City North, adjacent to Manchester Airport (MAN), in order to mitigate potential for the addition of solar PV panels to increase numbers or movements of hazardous birds[1] in and around critical airspace at Manchester Airport. MAN has a statutory requirement to ensure that new developments within its vicinity do not have the potential to increase the birdstrike risk for aircraft operating out of the airport.

The site is located approximately 900m from north-west of the 05L runway centerline and therefore merits consideration in relation to species that have the potential to conflict with aircraft. Bird/Wildlife strikes are defined as collisions between aircraft and birds or other wildlife. Many of these have the potential to cause damage, with approximately 2500 confirmed birdstrike incidents occurring in the UK each year[2]. The costs and risks from strikes[3] can be significant with large and/or flocking species capable of causing catastrophic outcomes for aircraft.

It is a requirement, therefore, for aerodrome operators to remove or eliminate the risk from any developments within the surrounding environment (up to 13km from an aerodrome) from increasing birdstrike risks. Whilst all wildlife has the potential to result in risk, this development is unlikely to attract mammals, insects, reptiles, amphibians or wild/domestic animals that would influence air safety. As such, this report focuses on birds, which are more mobile and therefore more likely to cross from this site into critical airspace in the event of their presence.

The objective of this plan is to set out processes to ensure that the addition of the proposed PV solar arrays to the existing roof Dnata City North site near Manchester Airport does not result in an increased presence of birds hazardous to aircraft.

[1] Large and/or flocking bird species capable of causing damage to aircraft if struck
[2] BML (unpublished). Review of birdstrike data 2015-2019.
[3] The costs of bird strikes and bird strike prevention. Human Conflicts with Wildlife: Economic Considerations. Allan, J.R. (2000)

2 Plan Objectives

The plan will set out monitoring and management objectives for the site following the installation of the solar PV arrays. The key requirement will be to prevent roosting or successful nesting (fledging of young) of species that may be attracted to the site and result in risk to aircraft. This will include preventing roosting, loafing and nesting by species of concern to aviation at all times. The plan is to be in perpetuity and will be passed on to new owners in the event of a building sale or change of ownership.

Comments and recommendations in this birdstrike risk assessment are based on the following documents. –

- RPS-SI-XX-DR-A-7000_Site Plan_04 - Final Design Record_C06_0 (24).pdf
- 13808B - Solar Photovoltaic Glint and Glare Study.pdf
- DNATA Manchester REV S2C.1.pdf

This plan is specific to the addition of PV arrays on the roof of the existing Dnata City North building near Manchester Airport and the conclusions are not applicable to other developments or locations.

3 Wildlife Hazard Management Safeguarding Requirements

If a development provides feeding, roosting or breeding opportunities, or shelter and security, it may, depending on the siting of the development and the species which it attracts, increase the number of birds visiting or overflying an airport or the number of birds in the airspace used by aircraft. There is only limited scope for taking action by airports to counter these hazards and safeguarding may be the only effective means of reducing or mitigating the risk to aircraft in flight. As such, the primary aim of safeguarding requirements is to guard against new or increased hazards resulting from development.

Local planning authorities are required to consult the relevant consultee before granting planning permission for any development within the relevant radius of an officially safeguarded civil or military aerodrome which is likely to attract birds. Whether or not a development is likely to attract wildlife will depend on a range of factors. Airports need to consider whether the individual features of a proposed development will attract birds/wildlife, whether the species that are attracted could affect air safety and whether the location of the development could result in those species impacting air safety. This may include both the location itself, and consideration of the movements of hazardous species to existing sites that could create, for example, an overall increase in hazardous wildlife presence or bird flightlines across aircraft flightpaths etc.

Certain civil aerodromes, selected on the basis of their importance to the national air transport system, are classified as officially safeguarded aerodromes in order to protect their operations. Manchester Airport is an Officially Safeguarded civil aerodrome under the Town and Country Planning (safeguarded aerodromes, technical sites and military explosives storage areas) direction 2002. Updated 22 December 2016 (TCP).

The UK, as a signatory to the Convention on International Civil Aviation, Chicago 1944, has also adopted many of the provisions specified in relation to aerodrome wildlife hazard management. Annex 14, published by the International Civil Aviation Organization (ICAO), includes standards and recommended practices (SARPs) that address the risk of birdstrikes and potential increases in birdstrike risks due to the presence or development of bird-attractant features on, or in the vicinity of, an aerodrome (the term "in the vicinity" is defined as land or water within 13 km of an aerodrome).

Annex 14, states that: *“when a birdstrike hazard is identified at an aerodrome, the appropriate authority shall take action to decrease the number of birds constituting a potential hazard to aircraft operations by adopting measures for discouraging their presence on, or in the vicinity of, an aerodrome”.*

The UK Department of Transport has therefore provided guidance on safeguarding of aerodromes in the TCP direction; Annex 2: Arrangements for safeguarding aerodromes, technical sites and military explosives storage areas, which states that:

"Birdstrikes are one of the major controllable hazards to aviation. Common birds have caused catastrophic accidents to all types of aircraft. Most bird strikes occur on or near aerodromes but, because birds are very mobile, features far beyond an aerodrome boundary may increase the hazard. If a man-made development provides feeding, roosting or breeding opportunities, or shelter and security, it may, depending on the siting of the development and the species which it attracts, increase the number of birds visiting or overflying an aerodrome or the number of birds in the airspace used by aircraft. Gulls and starlings congregate in very large overnight roosts and travel long distances daily, while waterfowl are large and often fly in close formation. There is only limited scope for taking action on aerodromes to counter these hazards, and safeguarding may be the only effective means of reducing the risk to aircraft in flight.

The primary aim is to guard against new or increased hazards caused by development."

and

"A local planning authority will need to consider not only the individual potential bird attractant features of a proposed development but also whether the development, when combined with existing land features, will make the safeguarded area, or parts of it, more attractive to birds or create a hazard such as bird flightlines across aircraft flightpaths."

The UK Civil Aviation Authority (CAA) therefore requires all airports to take appropriate action to deter birds on and around aerodromes. CAA guidance is set out in a series of documents referred to as CAPs. CAP772 relates to Wildlife Hazard Management at Aerodromes, and CAP 738 relates to safeguarding at Aerodromes.

CAP772 provides the UK's Acceptable Means of Compliance under Regulation (EU) No. 139/2014 as retained (and amended in UK domestic law) under the EU (Withdrawal) Act 2018. CAP 772 states that:

"Virtually all land types and land uses (including natural habitats) attract wildlife in some way. Safeguarding should therefore address developments that could become wildlife attractants with the potential to increase the wildlife strike risk at a nearby aerodrome. ICAO recommends that the appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem."

The UK CAA then targets the use of the planning system (safeguarding) to guard against

"new or increased wildlife hazards caused by developments both on and in the vicinity of an aerodrome."

Actions are then required to ensure that "*the strike risk does not increase and, where practicable, is reduced."* The UK CAA then reiterates the process used via the TCP to ensure sites are controlled and monitored accordingly.

CAP738 (2020) also states that: *"The common aim of all safeguarding is to assess the implications of any development being proposed within the vicinity of an established aerodrome to ensure, as far as practicable, that the aerodrome and its surrounding airspace is not adversely impacted by the proposal, thus ensuring the continued safety of aircraft operating at the location.*

Applicants seeking advice may then rely upon various advice notes published via either CAST or The Airport Operators Association (AOA) that address Wildlife Hazards around Aerodromes and sets out factors that may be considered on how potential attractants can be mitigated. This includes confirmation that:

"Dependent on proximity or location in relation to other sites, the development may still be permissible or may require an appropriate Bird Hazard Management Plan (BHMP) to enable the development to gain planning permission."

Advice note 3 lists examples of developments that *may* impact birdstrike risk at an aerodrome. This includes developments including housing, industrial estates/units and flat and green roofs.

MAN therefore has a requirement to ensure that any new developments within their vicinity do not have the potential to increase the birdstrike risk for aircraft operating out of the airport and will seek to prevent any developments that increase background populations of hazardous species or result in such species entering operational airspace. The proposed addition of the PV array on the Dnata City North building is very close to the airport (relative to a 13km radius) and is within 900m of operational airspace. In relation to the development, Dnata are therefore seeking to ensure that any potential increase in the birdstrike risk at Manchester Airport is appropriately controlled though the development of a wildlife (bird) hazard management plan, in order to satisfy the airport operators that the application will not have the potential to increase the presence of or risk from hazardous bird species to aircraft operating out of MAN.

This management plan is therefore specifically targeted at minimising the potential for birds hazardous to aircraft to utilise the site and does not address other safeguarding aspects that may impact on the airport.

4 Location

The Dnata City North Rooftop is located on Pinfold Lane, 900m north-west of the 05L Manchester Airport runway centerline. It is approximately 1.05km northwest from the centerline of the northern runway, with the location shown in Figure 1.



Figure 1: Location of the proposed development (extracted from document 13808B)

Proposals are for the addition of 18 sets of 36 solar PV panel arrays to the existing NW sides of the building rooftop. There will be no change to the footprint of the buildings or any other features. The roof of the building has a shallow slope with the panels to be laid flat against the slope. The flat rooftop will provide a vantage point for resting birds at the current time. The addition of solar panels will not influence this situation but may increase the availability of nesting space and as such merits consideration to reduce any risks that may arise from the development.

The site is close enough to MAN operational airspace that an increase in the presence of hazardous species would be of concern to the airport operator. As such, any species of concern to air safety would need to have their risk controlled.

5 Potential for hazardous species

Large and / or flocking bird species are of the greatest concern to aircraft safety. Whilst many different species and numbers will be present within the vicinity of the aerodrome, not all will be attracted to or influenced by a development such as this. Common species groups are therefore considered in the context of the described addition of PV panels to the roof. Detailed below are the species that have been reported using roof mounted solar arrays in the UK and may, therefore, be deemed as potential risk species at this development. There is no evidence that other species are relevant to this proposal.

5.1 Gulls

Gull species can weigh upwards of 2kg and form flocks. As such they have been responsible for the majority of damaging strikes globally since the inception of aviation.

They can be found in a range of habitats, but typically roost on water or buildings, feed on invertebrates, reptiles and small mammals in agricultural land and will scavenge fish and waste food wherever available. Loafing and nesting is common for a variety of gull species on high structures such as rooftops. Large gull species (Herring Gull *Larus argentatus*, Lesser Black-backed Gull *Larus fuscus*, and Great Black-backed Gull *Larus marinus*) commonly nest on inland roof tops. They will typically nest on flat or shallow pitched roofs often showing a preference for nesting in gullies, against parapets or against rooftop protrusions (e.g. vents, solar panels etc.). The addition of PV solar arrays to the roofs can therefore provide a ledge against which gulls can lodge a nest as well as resulting in sheltered microclimates between the panels and as such the addition of PV arrays to the roof has the potential to increase the attraction of the space to roof nesting large gulls. Small gulls (e.g. Black-headed Gulls *Chroicocephalus ridibundus*) and Common Gulls *Larus canus*, typically breed in boggy areas and marshes, on islands or rafts in lakes and on dunes and salt marsh and do not commonly breed on rooftops in England. They will, however, roost and rest on rooftops in winter to use these as vantage points awaiting feeding opportunities.

All gull species can frequently be found on airfields, which typically have wide open views and, depending on the grass habitat, may provide suitable foraging for worms and other invertebrates. Therefore, any gulls attracted to breed, loaf or roost on rooftops have a high probability of crossing onto an airfield.

5.2 Pigeons

Pigeons weigh up to 540g and form flocks. They have also been responsible for many serious birdstrike events around the world including loss of life.

Feral Pigeons *Columba livia domesticus* are resident throughout urban areas and can form potentially large, dense flocks. They feed on a range of food items, but typically exploit discarded human food waste. They will nest in holes and crevices in buildings and have been found nesting under rooftop solar panels.

Wood Pigeons *Columba palumbus* are commonly found in both rural and urban areas and have occasionally been found nesting underneath PV panels. They feed on a broad range of foods, but primarily leaves, seeds and fruit, and can be found in open grassland feeding on broad leaved weeds.

Stock Doves *Columba oena* are a common resident species but are typically more shy than other pigeon species and are found in woods, parks and agricultural areas where they nest in tree holes. They usually avoid more built-up human environments and, like Wood Pigeons, they are predominantly found in open grassland feeding on broad leaved weeds.

The addition of PV arrays to the roof space will create suitable spaces underneath for Feral Pigeons (and potentially Wood Pigeons) to nest. Any such occurrences are likely to result in birds crossing onto the airfield and thus having the potential to increase risk.

5.3 Corvids

Corvids range in size from 220g to over 1kg and form flocks. Due to their nature they are infrequently struck at UK aerodromes but still have the potential to cause damage due to their size and flocking behaviour.

Corvids comprise of members of the crow family. The larger species include Rook *Corvus fruglilegus*, Carrion Crow *Corvus corone* and Jackdaw *Corvus monedula*. Rooks, Carrion Crows, Jays *Garrulus glandarius* and Magpies *Pica pica* nest in trees, with Rooks forming large colonies known as rookeries. Jackdaws nest in holes in trees or buildings. Ravens *Corvus corax*, are the largest of the corvid family and are becoming more frequent in the Manchester area. The larger corvids generally feed in open habitats, such as grassland or agricultural fields, although they will, to varying degrees, also feed on putrescible waste, such as on landfills or in unlidded bins or on dropped food waste.

Of the corvids, only Jackdaws are likely to nest underneath or in any gaps between PV panels if there is access. This species may feed on or around the aerodrome hence their presence could therefore have the potential to increase risk.

5.4 Starlings

Starlings weigh approximately 85g and, individually, are unlikely to pose a direct threat to civil airliners. Starlings do, however, form very large, dense flocks that have resulted in significant catastrophic accidents.

Common Starlings *Sturnus vulgaris* are a declining resident, winter visitor and abundant migrant. They nest in holes in trees and buildings and typically feed on invertebrates in short grassland and agricultural fields and make use of food sources such as garden bird feeders, discarded or improperly stored food waste. During the winter months Starlings may form large, dense night-time roosts across a variety of habitats on structures such as piers and bridges. Prior to going to roost they can also form large, dense murmurations, with many birds flying in tight formation. These murmurations can provide a significant risk to aircraft from this species as can an increased presence close to an aerodrome when birds depart a roost in a morning.

Starlings may attempt to roost on structures used to hold up ground based PV panels, and will attempt to nest underneath roof mounted panels if suitable access is available.

5.5 Other bird species

There is little evidence indicating any other species are likely to utilise roof mounted solar panels of this type in this location. Small passerines such as Pied Wagtails may attempt to nest underneath structures but are now known to result in damage to aircraft. There is no evidence of raptors, waterfowl and other hazardous species using such arrangements of solar panels on rooftops.

5.6 Mammals & Reptiles

Mammals and reptiles can be involved in strikes by aircraft if they are present on an airfield. Land based mammals will not be attracted by the addition of PV arrays to the roof although there is some evidence that UK bats may feed or rest under solar structures. There are no UK bat species that have resulted in damage to aircraft and no mammals or reptiles that could influence air safety at MAN. As such this development will not impact on the risk from mammals or reptiles at MAN.

5.7 Hazardous species of concern

The species therefore requiring consideration for the purposes of this development are:

Black-headed Gull	*Chroicocephalus ridibundus*
Common Gull	*Larus canus*
Herring Gull	*Larus argentatus*
Lesser black-backed Gull	*Larus fuscus*
Great Black-backed Gull	*Larus marinus*
Feral Pigeon	*Columba livia domesticus*
Wood Pigeon	*Columba palumbus*
Jackdaw	*Corvus monedula*
Common Starling	*Sturnus vulgaris*

6 Installation

The installation of the PV arrays on the roof space should not result in any additional attractant for hazardous birds. The presence of installers could result in an increased amount of food waste, but this will be controlled under the management plan proposed. General good housekeeping procedures will be followed with any food waste being properly disposed of.

7 PV design and proofing

The presence of any raised solar panels on the roof would result in ledges on which large gulls can build their nests against and Feral Pigeons, for example, could nest below.

Proofing the edges of individual panels that do not abut adjacent panels to remove gaps suitable for access below and the sides of any edge panels down to roof level with suitable netting (specified) will prevent access to spaces underneath the panels and will eliminate the risk of any of the above species using the installation to nest.

Any presence of birds resting on top of the panels would also reduce the generation rates of the panels via both shading and defecation hence it is not in the interests of the developer to attract birds.

The panels and spaces around and underneath will therefore be proofed to prevent access underneath by any of the bird species listed with, for example, mesh net (maximum of 28mm mesh size) or prongs which will form a full barrier to prevent access. If no gap between the panels and the roof surface occurs (flush fitting), there will be no difference from the existing rooftop and no proofing will be required.

There will, however, be safe access possible to all areas of the roof space to facilitate inspection and maintenance of any mesh and ongoing monitoring of hazardous birds that may otherwise utilise the panels.

8 Bird Management Plan Commitment

The measures set out in this management plan relate to the bird species most hazardous to aircraft, which have the potential to impact on flights due to their presence on or under the solar panels on the Dnata City North building. These include;

8.1 Target (Hazardous) Species

Black-headed Gull	*Chroicocephalus ridibundus*
Common Gull	*Larus canus*
Herring Gull	*Larus argentatus*
Lesser black-backed Gull	*Larus fuscus*
Great Black-backed Gull	*Larus marinus*
Feral Pigeon	*Columba livia*
Wood Pigeon	*Columba palumbus*
Jackdaw	*Corvus monedula*
Common Starling	*Sturnus vulgaris*

8.2 Monitoring program

A monitoring program will be initiated to record the presence of hazardous species on the roofs. The monitoring schedule will commence as soon as the PV arrays have been installed and will remain in perpetuity. Roofs will be checked fortnightly from the beginning of April to the end of June to monitor for evidence of the above species. Gulls may attempt to nest against the edges of the panels and may not, therefore, have been controlled by the above proofing. Monitoring can be undertaken directly from the roof space or from alternative vantage points provided line of sight and a clear view is possible. Similarly, monitoring via CCTV is acceptable as long as the entire roof spaces where solar panels are present are visible. If any species are recorded, access to the roof top to check whether maintenance of netting or proofing is required and to remove any nesting attempts by hazardous species will be implemented.

Outside of the breeding period the roofs will be checked at a frequency capable of identifying issues. The frequency can be changed over time in response to observations in agreement with Manchester Airport but will not be less than once a fortnight for the first year and, if no birds are recorded outside the breeding season, once a month thereafter.

The initial monitoring schedule is set out in table 1.

Species	**Monitoring frequency**	**Time of year**	**Areas to check**	**Reason**	**Action Required**
All species of concern	Fortnightly	Beginning of April to the end of June.	Under and adjacent to solar arrays	Nesting	Dispersal and removal of nests or eggs under licence.
All species of concern	Fortnightly	Early July to the end of March.	On under or adjacent to solar arrays	Roosting or Loafing	Dispersal.

Table 1: Summary of actions required

8.3 Record keeping

Records shall be kept which may be inspected by the airport, or their nominated representatives. These records shall include: -

1. The dates, times and name of location checked.
2. Number of any target species present (including recording of 0 birds present).

3. Bird activity, i.e. feeding, loafing, roosting, nesting.
4. Details of any nests or eggs removed if relevant.
5. Details of any dispersal actions taken.
6. Details of any maintenance required
7. If further action was required what were the results (e.g. 3 Feral Pigeons dispersed off rooftop).

An example of a log sheet is shown in Table 2.

Location Name:

Date	Time	Species	Number	Activity	Number Nests	Number of eggs	Dispersal Actions	Maintenance Actions	Results

Table 2: Example Record sheet

The log sheet will be available for inspection by MAN or an agent specifically appointed by MAN.

8.4 Actions

Should any target species be found attempting to nest on, under or adjacent to the solar panels, they will be promptly dispersed. If an aggregate of more than 20 target species are present at any other time of year then Manchester Airport Bird Control Unit will be informed to provide authorisation to disperse the birds, within an agreed period. If birds cannot be dispersed immediately (via access to the roof (human presence or the use of human operated bird dispersal equipment)), the Bird Control Unit will be informed and the deterrence actions continued until all birds have been dispersed.

Dispersal shall be defined as leaving the property and/or moving out of visual range. Monitoring will be undertaken the day after any dispersal actions have been carried out to confirm no returns. If birds return, then dispersal action will be repeated until no individuals are present and repeated again later in the day. Any records will be kept to confirm such actions are effective. Dispersal shall be carried out by a designated person and may use any suitable means (including human presence) that is legal and effective.

Should any nests and eggs be found they must be removed promptly by an authorised person, under the appropriate Natural England Class licence with details of the species, numbers of nests/eggs and date passed to the Wildlife Control Manager at MAN.

Removal will be by physical removal of any nests or eggs under Natural England Class Licence 12 (or equivalent) and will consider necessary PPE and H&S considerations prior to removal. Dispersal requirements will be by any appropriate means, including but not limited to, human presence, arm waving, hand-held acoustic deterrents such as distress calls, laser bird scaring torches or starter pistol/cap gun dispersals. Any use of equipment in this location close to the aerodrome will be by trained personnel only.

If consistent and concerted efforts at dispersal prove ineffective or fail to disperse hazardous birds, then measures such as proofing of the panels (e.g. edge spikes) will be undertaken, with advice sought from a suitable pest control company.

The frequency of monitoring should ensure that no young of any target bird species hatch. If this occurs, however, the Wildlife Control Manager at MAN will be informed in writing and a meeting called between the Site Operators and Manchester Airport to agree on measures going forward to remove the risk and ensure the situation does not reoccur.
Staff using any dispersal equipment will be trained in target bird identification and the relevant equipment and will be available to carry out active deterrence should hazardous species be present.

8.5 KPIs.

- A designated person will carry out the monitoring checks and will be responsible for communication with the Manchester Airport Bird Control Team.
- The log will confirm that checks have been carried out at least fortnightly for the first 12 months following installation.
- Where no birds are recorded using or adjacent to the solar arrays, a summary will be provided to the airport after one-year confirming such findings.
- Where any target species are found nesting on, under or adjacent to the solar arrays and the nests/eggs are removed, the airport shall be informed within one week.
- Where more than 20 target birds are present on, under or adjacent to the solar arrays the airport will be informed within 20 minutes and their presence dispersed in line with time frames agreed with the MAN BCU.

8.6 Airport contact details

The point of contact at Manchester Airport and accountable for Wildlife Management at Manchester for general queries regarding the management plan will be:

Airfield Operations Manager: (Currently (May 2025) Melanie Lawley)

……

The day-to-day point of contact with the Bird Control Team is:

The Airfield Operations Duty Manager (AODM-MAN@magairports.com) 01614893331 (option 5)

……

These contact details are correct at the time of writing, but they should be checked periodically and updated as necessary.

9 Review and Failure of the management plan

Failure of the management plan is defined as –

- An aggregate of 20 hazardous birds are detected and cannot be dispersed within an agreed period.
- Birds are attracted to or present on, under or adjacent to the panel arrays and require multiple dispersal actions within a 24-hour period.
- Target bird species nest successfully on, under or adjacent to the solar panels.
- Failure to comply with any additional reasonable bird control requests that MAN may make as a result of recording a birdstrike hazard or risk linked to the site.

Should any of these criteria occur, the airport should be informed in writing. In this instance, or if the management plan is found to be ineffective and the development site is attracting hazardous birds resulting in a proven risk to aircraft then additional measures may be necessary. These include further proofing of the arrays to mitigate the attraction, or more regular checks and further active bird deterrence including positioning a member of staff on the roof to prevent birds using the site.

Should it be deemed necessary, a meeting between the airport, the site owner and the Local Planning Authority will be convened at the earliest opportunity to discuss and agree how the situation can be resolved.

10 Inspection and site access

Manchester Airport or their nominated representatives will be allowed access to the site to evaluate the success of the Management Plan, have sight of the bird records to date, and to review any remaining birdstrike hazard. They may call at short notice, subject to relevant Health and Safety considerations. Periodic inspections will be expected and facilitated as necessary.

The management plan shall be subject to review to reflect changes in habitat or populations of bird species. Should the airport deem it necessary, a meeting between MAN, Dnata or the subsequent owner or site operator and/or the local planning authority will be convened at the earliest opportunity to discuss and agree any changes which may be necessary.

11 Long-term management

This Management Plan will remain enforceable by Manchester Airport, the local planning authority, or any successor to these bodies throughout the existence of the arrays. These obligations will be passed to any subsequent owners/operators of the site.

There will be a commitment to act as required by the airport in the event that a hazard is identified resulting from this development or should dispersal actions fail to be effective.

12 Future development and potential vacancy

If the site is to be changed or further developed in the future (including replacing or removing the PV arrays) this will trigger a review of the plan in conjunction with Manchester Airport to ensure that the plan remains relevant and current.

If the site is to become vacant the responsibilities set out in this plan would remain with the owner of the site or land on which it sits, until or unless otherwise agreed in writing with MAN.

13 Conclusion

The implementation of 18 arrays of 36 solar panels on the Dnata City North rooftop are unlikely to result in an attraction to hazardous bird species over and above that which already exists from the current rooftop. Never the less, the developer commits to proofing the panel arrays to prevent access by any hazardous species that could potentially be attracted underneath or between the panels and to monitor the success of this program on a regular basis. In the unlikely event that hazardous species do attempt to use the arrays a BHMP is in place to monitor for and remove any nesting attempts and to disperse any build-up of hazardous species in communication with the airport bird control unit.

There will be a commitment to further manage hazardous birds and / or adopt additional management actions for the duration of the development in order to mitigate the risk should any arise.

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