



RSK

GROUP PLC

**MILL OF FOREST
STONEHAVEN**

**ECOLOGICAL
SURVEYS**

**Barratt East
Scotland Ltd**

February 2010

RSK GENERAL NOTES

Project No: P41221
Title: Mill of Forest, Stonehaven – Ecological Surveys
Client: Barratt East Scotland
Issue Date: 8th February 2010
Issuing Office: Aberdeen

Authorised by:  **Project Manager** **Date:** 25/01/10

Keith Ross

Authorised by:  **Project QA Rep** **Date:** 25/01/10

Mike Kelly

RSK Environment Ltd (RSK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSK. No other warranty, expressed or implied is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

No part of this report may be copied or duplicated without the express permission of RSK and the party for whom it was prepared.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the Quality Management System of RSK Environment Ltd.

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Objectives	1
1.2	Site Description	1
2	METHODOLOGY	2
2.1	Desk Study	2
2.2	Ecological Survey Methodology	2
2.2.1	<i>Phase 1 Habitat Survey</i>	2
2.2.2	<i>Protected Fauna Surveys</i>	2
2.3	Survey Limitations	3
3	RESULTS.....	4
3.1	Desk Study	4
3.1.1	<i>Protected Sites</i>	4
3.1.2	<i>National Biodiversity Network (NBN)</i>	4
3.2	Field Survey	5
3.2.1	<i>Phase 1 Habitat Survey</i>	5
3.2.2	<i>Fauna</i>	8
4	DISCUSSION	12
4.1	Habitat.....	12
4.2	Bats	12
4.3	Birds	13
5	CONCLUSIONS AND RECOMMENDATIONS.....	14
6	REFERENCES	16
	APPENDIX A – TARGET NOTES & MAPPING	17

1 INTRODUCTION

RSK Environment Ltd was commissioned by Barratt East Scotland to undertake ecological surveys at Mill of Forest, Stonehaven, Aberdeenshire. The surveys were to support a planning application for a mixed use development. The surveys included a Phase 1 habitat survey, badger survey, bat survey, bird survey, red squirrel and otter survey.

1.1 Objectives

The objective of the work was to determine the ecological value of the site and determine the presence or likely absence of protected species.

1.2 Site Description

The proposed development site is located at Mill of Forest, to the south-west of Stonehaven adjacent to the A90. The site is set in rural farmland (except to the east) surrounded by a mixture of arable and pastoral fields, scattered woodland and small wooded stream and river valleys. To the east of the site across the A90 is the outskirts of Stonehaven which consists of parkland, woodland, and scattered housing developments.

The site is completely bordered by transport infrastructure with:

- small rural roads to the south and western boundary;
- the main east coast rail line along the northern boundary; and
- the A90 along the eastern boundary.

The site comprises predominantly of arable fields with a small number of grassland pasture fields mainly clustered around Nether Toucks Farm. There is a small L-shaped area of mixed woodland, consisting of coniferous planting and some natural broad-leaved regeneration, in the south-east of the site adjacent to Toucks Burn. Two farms, Feathers and Nether Toucks, are located within the site area but both are out with the development boundary (see Figure 1).

2 METHODOLOGY

2.1 Desk Study

The Multi Agency Geographic Information for the Countryside website (www.magic.gov.uk) was used to search for designated sites on or adjacent to the site including Local Nature Reserves, National Nature Reserves, Sites of Special Scientific Interest and Special Areas of Conservation.

The National Biodiversity Network website (www.nbn.org.uk) was searched for records of the protected species to be surveyed within 2 km of the site.

Local Records Centres or Bat Groups have not been approached for records in relation to this site. Should the site require an application for a licence in regards to either European Protected Species (EPS) or National Protected Species (NPS) in the future, a thorough records search will be carried out covering a 5 km radius from the centre of the site.

2.2 Ecological Survey Methodology

The ecological field surveys were undertaken by Keith Ross & Josh Smithson of RSK Environment Ltd between 19th June and 29th July 2009.

2.2.1 *Phase 1 Habitat Survey*

A Phase 1 habitat survey was undertaken for the proposed development using the standard methodology as outlined in the Joint Nature Conservation Committee (JNCC) handbook, 1993.

2.2.2 *Protected Fauna Surveys*

The presence, or potential presence, of protected species of fauna was recorded and mapped for the proposed site.

Badger

The entire of the application site (and a 30m buffer where possible) was visually surveyed for badgers. Any signs of badger activity were noted if they were encountered, including setts, latrines, badger paths, foraging signs or tree scratching.

Bats

Activity surveys were conducted at dusk to determine the level of bat activity on the site. The surveys were conducted by walking transects through the woodland and along its edges using ultrasonic bat detectors.

Two separate activity surveys were undertaken using two qualified bat surveyors (Bat Survey Guidelines, Bat Conservation Trust 2007).

Due to the type of woodland present and the early stage of the planning process no attempt was made to record every potential bat roosts within tree holes, crevices etc on site. When a definitive road route is determined a follow up survey will determine if any of the trees proposed for removal has potential for bats.

Red Squirrel

The woodland areas were surveyed twice during daytime. The technique used was the Visual Survey – Basic Method 1. This method was slightly adapted to suit the small area by reducing the number and length of transects and the distance between stops. The presence of any dreys was also noted.

The method involved walking along predetermined survey lines, through or alongside woodland, recording all the squirrels seen. A single transect line was walked in each woodland area. Each line was between 250 m and 500 m long, and situated along rides or tracks, or between rows of trees within suitable squirrel habitat. A single observer walked the line on two separate days, starting as soon after first light as possible as this is the time when squirrels are most likely to be active. The observer stopped at 50 m intervals for 2–5 minutes, taking about 2 minutes to walk each intervening 50 m. Binoculars were used to aid surveying. All squirrel sightings were recorded, together with time and place seen and behaviour.

Surveys were only undertaken in suitable weather conditions. If the weather was unsuitable then the survey was postponed as squirrels are unlikely to be very active in heavy rain, strong winds or when it is very cold. The survey was repeated to take into account variations in weather and squirrel activity. The highest number of squirrels seen on a single visit was recorded.

Other animals, particularly those that are protected, UK Priority Species, Red Data Book Species and locally important species, observed during the survey were recorded.

Otter/Water Voles

The banks of the Touks Burn and on site ditches will be visually surveyed for evidence of water voles (feeding stations, latrines, burrows) and otters (spraints, feeding remains, footprints).

The survey will extend 250m from the edge of the proposed development (where possible).

Birds

A visual survey of all buildings, woodland, trees, scrub and hedgerows within the proposed development area was undertaken using binoculars to identify any bird nests or potential breeding sites. All birds identified during the survey were identified and their activity noted ie: singing, feeding, territory singing, commuting etc.

2.3 Survey Limitations

It has not been the aim of these surveys to record every species present on site since one survey acts as a snapshot, recording only those species present at the time. This evidence has been used to draw conclusions about the flora and fauna within the boundaries of the site and to provide an assessment of their ecological and nature conservation value. Where it is suspected that species of nature conservation importance have the potential to be present, further more detailed surveys have been undertaken or advised.

3 RESULTS

3.1 Desk Study

3.1.1 *Protected Sites*

There are no designated ecological protected sites within 2km of the proposed development.

3.1.2 *National Biodiversity Network (NBN)*

The NBN Gateway database provided records of the protected species covered by this survey within 2km of the proposed development site.

Bats

There are records of bats within 2km of the site. These are records of:

Daubentons bats – to south-east of site across A90 adjacent to Burn of Glaslaw

Brown long-eared bats – to north-west of site adjacent to Fetteresso Castle

Pipistrelle bats - to north-west of site adjacent to Fetteresso Castle

There are also records of bats throughout the Stonehaven area.

Otter

There are records of otter immediately to the north of the site at Fetteresso on Carron Water. These records are of regular sightings by the Scotland Otter Survey over many years (1970s-1990s). There are no other records of otter within 2km although there is a record of otter further upstream on Carron Water and otter are very common throughout the north-east of Scotland.

Badger

There are no records of badgers within 2km of the site although there are historical records of badgers in the Stonehaven area (1973).

Water Vole

There are no records of water vole within 2km of the site, although there are historical records of water voles in the Stonehaven area (1960s).

Red Squirrel

There is a record of Red Squirrel within the site boundary (adjacent to road on southern boundary) however this record dates from 1905, therefore can no longer be relied upon as accurate.

3.2 Field Survey

The field surveys were carried out between the 1st and 30th July 2009. The site was visited a total of seven times incorporating the habitat survey, bird, badger, water vole/otter, squirrel surveys and three bat surveys. All the site visits were conducted during optimum conditions for the ecological survey (ie warm (>10C), dry with little to light wind).

3.2.1 Phase 1 Habitat Survey

The mapping for the Phase 1 habitat survey is presented in **Appendix A** along with target notes for the survey.

The proposed development site is bordered on three sides by rural landscapes of arable and pastoral fields with occasional woodland and streams and to the east by a major road and beyond that the edge of the town of Stonehaven. Transport infrastructure runs around all sides of the site with the A90 to the east, small rural roads to the south and west and a railway line to the north.

The site is comprised of three distinct ecological areas. These are arable fields, an area of mixed woodland and improved grassland.

The improved grassland and arable field are of little ecological interest and shall not be discussed further in this report.

Photo 1 – View from woodland across centre of site (Nether Toucks farm on left)



The main feature of ecological interest on site is the crescent of woodland in the south-eastern section of the site. This is an area of mixed woodland of predominantly beech, pine, oak and ash with understorey (where it exists) of bracken, bramble and *juncus* in wetter areas. The southern section of the woodland (TN1) is reasonably wet due to overgrown ditches preventing good drainage into Toucks Burn. The mid section (TN2) is dominated by pine which grades into a mix of mainly pine and beech in the northern area (TN3).

Toucks Burn flows through the northern section of this woodland to the east, where the woodland is replaced by occasional trees and scrub (TN4) along the burn as it flows between an arable and pasture field until the A90. To the west of the woodland (upstream) Toucks Burn crosses an arable field and was dry (on day of survey), it is

likely that this stretch is wet during winter. The route of the burn has scattered gorse scrub (TN13) along part of its length.

Photo 2 – Target Note 13 Gorse along Toucks Burn



An intact hawthorn hedge (TN6) runs along the eastern site boundary along the top of the A90 embankment.

An area of long grass and ruderals (TN7) exists across the largest eastern field where a field boundary has previously been removed.

Photo 3 – Target Note 7



There is another small patch of woodland and scrub in the north-eastern corner of the site (TN9) although most of this area is off-site. This area is steeply banked down to Carron Water and contains a number of large mature trees including horse chestnut and ash.

Photo 4 –Target Note 9 at edge of embankment down to Carron Water

Two farms were present on site although neither will be part of the development. Feathers farm (TN11) is in the north-west of the site and no longer appears to be in use. It consists of a number of stone buildings with some mature trees and is likely to provide habitat for birds such as house martins as well as having potential for bat roosts.

Photo 5 - Feathers Farm

Nether Toucks farm (TN12) is in the south-west of the site and the farm buildings are generally of more modern construction although the farm house is stone built.

Photo 6 – Nether Toucks Farm



3.2.2 Fauna

3.2.2.1 Bats

One species of bats were recorded on site, which was the Common Pipistrelle (*Pipistrellus pipistrellus*).

It is also possible that Brown Long-eared bats (*Plecotus auritus*) are present on site within the woodland at the south-east corner as the habitat would suit them, although the road between the site and the adjacent woodland would act as a barrier. These bats are woodland specialists with very quiet echolocation calls, which can easily be missed during surveys.

The areas of bat activity recorded are shown on **Figure 2**.

Very little bat activity was recorded actually within the site, which is understandable as open arable and grassland fields do not provide optimal habitat for the bats found in the north-east of Scotland.

The main area of activity of the common pipistrelles was at the northern boundary of the site particularly adjacent to the rail bridge over the small road (not the viaduct, see Figure 2). The bats appeared to foraging in numbers between the bridges over the road and Carron Water (and it would be expected along the river as well). It is possible that either one or both of these bridges have bat roosts. Alternatively there are known roosts in the Fetteresso area directly across the river from this part of the site. It appeared that the railway embankment acted as a barrier with the bats rarely flying beyond the bridge onto the site itself.

It is estimated from the level of bat activity recorded on the bat detectors and the maximum number of bats seen at any one time that this area is an important foraging resource for the local common pipistrelle population.

Bats were also recorded further east along the northern boundary adjacent to the railway viaduct (TN10). These bats definitely did not emerge from the viaduct itself

but rather arrived from the direction of the river (Carron Water). Fewer bats were recorded in this location than by the road bridge with only approximately one bat recorded per five minutes.

Significant bat activity was also recorded at the south-east corner of the site at the road junction just off the A90. These bats were foraging and commuting around the woodland to the south of the site and crossing the road to the woodland on site.

It is estimated from the level of bat activity recorded on the bat detectors and the maximum number of bats seen at any one time that this area is an important foraging resource for the local common pipistrelle population.

Surprisingly few bats were recorded along the woodland in the south-east corner of the site with only two bats heard both close together adjacent to Toucks Burn. It is possible that this lack of results was down to the timing of transects arriving at this area as bats were heard adjacent to this area on all nights of survey.

The only other bat activity recorded on site was at Feathers farm, which is not actually part of the development, however will be completely surrounded by the proposals. Two bats were recorded foraging at this location. Given the isolated nature of this site which is not connected to any other suitable bat habitat it is likely that these bats were roosting on site.

The other farm that will be partially enclosed within the site although not part of the proposal is Nether Toucks. It was not possible to get an idea of bat use of this location as the site boundary was too far from the buildings to detect any bats.

No trees within the site were considered to be suitable for roosting bats, although large mature trees immediately off-site to the north-east (TN9) did have suitable features for bats.

No bats were seen or recorded leaving any of these trees however tree use by bats is very variable and tree roosts are very difficult to detect.

3.2.2.2 *Otter*

A single potential otter spraint was found at the edge of the south-eastern woodland (TN5). This spraint was very old and in poor condition, therefore it could not be confirmed as otter. Given its location at the edge of the woods and a reasonable distance from the stream it is considered most likely that this was a stoat scat or perhaps mink rather than otter.

3.2.2.3 *Badgers*

No evidence of badger activity was found within the site or within 30m of the boundary (where inspection was possible).

3.2.2.4 *Water Vole*

No evidence of water vole was found with the site

3.2.2.5 *Red Squirrel*

No evidence of red squirrel was found with the site.

3.2.2.6 *Birds*

During the survey, species identified are common on agricultural land and included:

Red List Species

- skylark
- starling
- linnet

Amber List

- mistle thrush
- dunnock

Green List

- blue tit
- great tit
- whitethroat
- chaffinch
- wood pigeon
- magpie
- blackbird
- robin
- rook
- jackdaw
- buzzard
- wren

The survey identified breeding activity within the woodland located at the south-east corner of the proposed development site. Breeding activity was noted for:

- blue tit;
- whitethroat;
- chaffinch;

- magpie;
- mistle thrush;
- blackbird;
- robin;
- wren;
- woodpigeon; and
- buzzard.

Breeding activity was primarily recorded as feeding, carrying food and young birds being identified within the ground layer of vegetation. Wood pigeon and magpie nests were identified within the woodland. An active buzzard nest was located to the north of the woodland with one chick, nearing fledging, identified within (see Figure 2).

Signs of breeding activity for wood pigeon, blue tit and great tit were identified within a small woodland located at the northern area of the site, as shown on Figure 2, Area 2.

Another pair of buzzard were identified within the woodland area to the north of the site (Figure 2, Area 1). A nest could not be identified within this woodland, an upon disturbing the pair, the breeding pair from the south of the site began to sound alarm calls suggesting this pair were intruding the territory of the known breeding pair of buzzards.

No further nesting activity was noted around the site.

4 DISCUSSION

4.1 Habitat

The majority of the development site consists of areas of low ecological value notably arable fields and improved grassland. The exception to this is the locations where roads may pass through the woodland belt. This woodland provides nesting habitat for buzzard as well as commuting and foraging habitat for bats.

The arable fields do provide a food resource for the local bird populations.

4.2 Bats

There was significant bat activity around the periphery of the site particularly to the north along Carron Water. These bats only accessed the site occasionally.

There was significant levels of bats activity to the south-east of the site adjacent to the on site woodland. Although bat activity on site was low this was considered an unrepresentative level of activity and it is expected that the on site woods are in fact used frequently by the local bat population.

It is unlikely that there are any bat roosts within the development boundary as the trees within the woodland crescent were considered too young or small to have suitable roosting features such as holes and crevices. There are a few exceptions and once the exact location of the road is determined, the proposed route should be checked to ensure that none of the trees to be felled have any features suitable for bats. If a potential roost is identified, then an aerial inspection should be carried out of any tree holes prior to any felling works. If bats are found then no tree works can take place until the relevant licence is obtained from the Scottish Government and suitable mitigation put in place.

The level of bat activity on site indicates that this site is adjacent to very important bat habitat, although it is under used due to being dominated by open arable field. It is therefore important that the site is designed to improve bat access and use and to provide connectivity between the two areas of bat activity.

This can be done by retaining as much of the woodland as possible, minimising the gaps created by the roads by measures such as maintaining tree overhangs or reducing road width through the woodland. Increased planting of woodland buffers around and across the site, particularly along the eastern and southern boundaries to connect the on site woodland to both Carron Water and the off-site woodland to the south-west. This will encourage bats to access and commute across the site.

Common pipistrelle bats are common in urban environments and will readily forage across domestic gardens (provided light levels are low) therefore replacing arable field with gardens may actually increase bat use of the site.

However as bats are sensitive to light levels, it is important that lighting is carefully designed on site both during and construction and particularly for the final design to avoid lighting impacts on the bat population.

4.3 Birds

While the proposed development, through proposed planting belts and provision of gardens will continue to provide both nesting and foraging habitats for small bird species there will be a loss of foraging habitat for the buzzards and its likely that they will move away from the site.

The mature trees, woodland and hedges provide valuable habitat for nesting birds. A safe working distance should be maintained from all woodland features to be retained to ensure that root systems are not damaged, which may affect the health of the tree. Also, any works that may affect the trees should be carried out outside the bird nesting season (March – August). If works are to be carried during this period then a nest search must be carried out immediately prior to works to establish the presence of any nests.

5 CONCLUSIONS AND RECOMMENDATIONS

On the basis of the information gained from the survey and desk study, it is unlikely that the proposed development of the site will have a significant impact on the local populations of species listed in this report.

However mitigation works are required on site due to the presence and potential presence of several protected species in order to ensure compliance with relevant wildlife legislation.

In addition, due to the site's location and the very limited scope of the proposed development it is highly unlikely to cause any habitat severance effects upon local wildlife populations.

As it is anticipated that there will be a significant time scale between this report and construction commencing it is recommended that extensive pre-construction surveys are undertaken.

Recommendations

- Pre-construction re-surveys will be required for all species.

Bats

- Sensitive design of roads and street lighting through and adjacent to woodland areas to minimise impacts upon bats where possible.
- Planting should be used to create wildlife corridors of woodland both around the site boundary and across the site to provide foraging habitat (domestic gardens will also be used by pipistrelle bats for foraging) and commuting routes for the local bat population. It is particularly important to maintain the connectivity of the crescent of woodland on site and increase its connections to the woodland adjacent to Carron Water in the north and the off-site woodland in the south-west.
- Due to bats sensitivity to light levels high powered security lights should not be used on site during construction between start of April and the end of October. During the winter months (November-March) bats are less likely to be present on site and therefore use of high powered lighting should have a minimal impact.
- Lighting for the completed housing development should also be designed to remove any potential impact upon the bats. Low level bollard type lighting for paths and security with a low lux level should be preferred over high powered spotlights. Lighting should be avoided close to the areas of woodland.
- Once the location of the road through the on site woodland is established an assessment of the trees to be removed will be conducted to determine their likelihood to contain bat roosts. If a potential roost is identified then an aerial inspection should be carried out of any tree holes prior to any felling works. If bats are found then no tree works can take place until the relevant licence is obtained from the Scottish Government and suitable mitigation put in place.

Trees, Woodland & hedgerows

- The mature trees, woodland and hedgerows provide valuable habitat for nesting birds. A safe working distance should be maintained from all mature trees, woodland and hedgerows to be retained to ensure that root systems are not damaged, which may affect the health of the tree. Also, any works that may affect the trees should be carried out outside the bird nesting season (March – August). If works must be carried during this period then a nest search must be carried out immediately prior to works to establish the presence of any nests

Birds

- See also trees and woodland recommendations;
- The woodland located within the south-east corner of the site be retained, incorporated within the development and protected from destructive due to its ability to provide suitable nest sites for a wide variety of birds, particularly the known breeding location of buzzards
- Bird friendly design be incorporated into the proposed development, inclusive of landscape design and vegetation; and
- Existing hedgerows be incorporated into the development to provide suitable nest sites for identified passerine species.

Vegetation

- Giant Hogweed (TN8) should be controlled through herbicidal treatment prior to works commencing due to its health and safety risk to staff and public.

Badgers

- No further survey or mitigation is required at this time, however further seasonal surveys should be undertaken to confirm their continued absence from the development site.

Squirrels

- No further survey or mitigation is required at this time.

Otters and Water Voles

- No further survey or mitigation is required at this time.

6 REFERENCES

Joint Nature Conservation Committee (1993). *Handbook for 1 Habitat Survey – A Technique for Environmental Audit.*

English Nature (2004) *Bat Mitigation Guidelines*

Scottish Natural Heritage (2001) *Badgers and Development*

Bat Conservation Trust (2007) *Bat Survey Guidelines*

APPENDIX A – TARGET NOTES & MAPPING

Phase 1 Habitat Survey – Target Notes

- TN1 - Mixed woodland. Very wet underfoot at this southern end with former ditches now overgrown. Species include pine, ash, beech, sycamore, occasional oaks. Understorey of bracken, bramble, some junco in wetter areas and some gorse around woodland edge.
- TN2 - Woodland changes to be dominated by pine with occasional beech. Considerably drier as progress north. Some deer tracks.
- TN3 - Pine section of woodland with little to no understorey except some limited scrub along stream.
- TN4 - Woodland opens out to small trees and scrub within cattle field along fast flowing section of stream.
- TN5 - Possible otter spraint. Very old and positive identification impossible. Given location at edge of woodland it is more likely to be mink or weasel.
- TN6 - Hawthorn hedge (Intact species poor)
- TN7 - Location of former field boundary and ditch. Now overgrown with common grasses, daisy, clover and occasional scrub.
- TN8 - Small patch of Giant Hogweed. This has Health and Safety implications for workers.
- TN9 - Area of mature trees and scrub in hollow. Trees include beech, ash and horse chestnut and are likely to have features suitable for bats.
- TN10 - Railway bridge. Possible Buzzard nest on bridge due to activity around. Also potential bat roost location.
- TN11 - Farm buildings. Not within current site boundary. Collection of farm buildings that provide potential bat roosts.
- TN12 - Farm buildings. Not within current site boundary. Collection of farm buildings that provide potential bat roosts.
- TN13 - Row of gorse along drainage ditch. Ditch was dry during surveys however may contain water during winter periods.