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Boreas Environmental Consultancy

Summary Precognition

Golf & Leisure Resort

Menie Estate, Balmedie, Aberdeenshire



Public Inquiry

1.0 Introduction

My name is Thomas Dargie. I hold the degrees of Bachelor of Science and Doctor of Philosophy. I am a Member of the Institute of Ecology and Environmental Management (IEEM).

I have been a self-employed ecologist since 1988. I have worked on coastal ecosystems and peatlands since 1969.

I have an extensive publication list which includes reports relating to coastal habitats for UK national conservation agencies. I am the main author of the UK Machair Habitat Action Plan (HAP).

I have experience of dunes throughout Britain. I contributed to the Sand Dune Vegetation Survey of Great Britain. I undertook a near-complete survey of the remaining dunes and machair in Scotland under contract to SNH between 1994 and 2000. This has been published as the Sand Dune Vegetation Survey of Scotland.

Since 2000 I have undertaken vegetation mapping and monitoring studies on dunes at St. Fergus, on behalf of the St. Fergus Environmental Management Committee as well as work on dunes in England. I have surveyed all dunes at Sandwich Bay in Kent (2001), including Royal St George's (site of the British Open Championship in 2002). I have walked and mapped the habitats of every links course in Scotland as part of the SDVSS project. I am familiar with the way links golf courses in Scotland sit within and affect a dune habitat mosaic.

I have experience of very large habitat mitigation and environmental enhancement projects. This work has included the translocation of peat turf and restoration of damaged ground. The extent of restored ground is approximately 75 ha, of which habitat translocation amounts to about 50 ha.

2.0 My brief

My brief throughout has been to provide, explain and use habitat information. The course designers have been informed of areas to avoid if possible. I have explained to the applicant the reasons for deciding that much ground is high interest. I have also identified ground, of lower interest which could be used as part of mitigation. I have provided the applicant's teams with details of the direct impacts of the development upon habitats and species, in relation to an evolving course design. I have also maintained a rare species database for notable plants.

3.0 Scope of Precognition

The remainder of this precognition explains what I have done with my brief. This covers four components. Each component includes a focus on Foveran Links SSSI, to assist the Reporter in forming an opinion on likely impact on the SSSI.

4.0 Component 1: The habitat and species baseline

A habitat map based on the National Vegetation Classification (NVC) was required. I followed standard practice for NVC work apart from using a non-standard method to assess the accuracy of NVC identification.

My precognition material on habitats is supported by two productions. These update information included in the 2007 environmental statement.

The habitat content in production T4 contributes to the revised Hole-by-Hole Analysis submitted to the Inquiry. It includes tables which summarise the impacts on Menie dune habitats of golf development. Data were obtained by GIS overlay analysis using a digital version of the 2008 Hawtree Course submitted to the Inquiry.

Production T50 covers several matters. It reviews the accuracy of Menie habitat work, including the identification of NVC types. This is necessary to be confident on the amount and types of ground which will be affected by the development.

Menie sample data for key NVC types is assessed for accuracy using a non-standard method. This allows potential new NVC types to be objectively compared with published NVC types using all species in samples and the NVC tables. It identifies soil acidity and wetness as important factors affecting the key dune habitats at Menie.

Production T50 presents a revision of the 2006 habitats baseline which corrects some 2006 errors. A revised NVC habitat map is included in the document, including an enlargement of Foveran Links SSSI and Foveran Links SINS.

Production T50 presents strong evidence for extensive change due to land management in the Menie sector of Foveran Links SSSI. Eight examples are given of habitat change, mainly due to poor management of winter stock grazing. The scale of change due to excessive winter feeding of stock is probably sufficient to be classed as unfavourable declining and even partly destroyed, using JNCC Common Standards Monitoring Guidance. Ground south of the SSSI and SINS sectors is in generally good condition

5.0 Component 2: The valuation of habitats and species

This section considers the nature conservation value of habitats and species. Habitat interest is based on four types covered under Annex 1 of the EU Habitats Directive after aggregating NVC data.

I have calculated the extents for these habitats in the development area. I have then determined the level of nature conservation interest for each habitat set in each of the following five areas: Foveran Links SSSI (based on 1990 mapping); the Menie sector of the SSSI; Foveran Links SINS; Menie Development Area outwith SSSI-SINS; and Menie Development Area.

I have assessed the level of interest to be one of the following: local, site level, regional level, national level. My findings are as follows. They identify mobile dunes to be of National importance in all five area tests. Grey dunes are of Regional importance in all tests. Dune heath and dune slacks show more varied interest. They are weakest within Foveran Links SSSI. The best overall rankings of importance apply to the development area. This agrees with the finding in the 2007 environmental statement that ground south of the SSSI was also of SSSI quality on biological grounds.

A map of ground showing high, moderate and low nature conservation interest is presented in Figure 5 of Production T50. The result shows that ground of high interest is very extensive and forms a near-continuous block on the seaward side of the Menie development area.

I have updated the status and importance ranking of higher plant records. All higher plants are now given a national ranking.

6.0 Component 3: Direct and indirect impacts of the development

Calculating direct impacts of the golf development on habitats is difficult because the golf development plan is incomplete. Only a first course is nearly finalised in terms of detail, plus locations for a clubhouse, driving range and putting practice area. I can only report accurately to the Inquiry on the likely effects on habitats and species of this footprint. Additional golf development will involve a second shorter course with impacts smaller in scale. Overall effects will be less than double those of the first course.

Importantly, the development footprint to be applied in Foveran Links SSSI is near final.

For direct impacts on habitats I have compared the 2007 original golf course layout and the 2008 course on a like-for-like basis based only on greens, fairways and practice area. There is little difference in total area affected. The most important habitat difference between the two courses arises from the new position for Hole 15. It results in an increased loss of 0.7 ha of young slack.

I now consider the direct impacts of the Hawtree Layout on habitats. I start with impacts calculated for all of the development area. These calculations include the effect of stabilising the northern dome. Total direct impact is 41.7 ha, 15.8% of all habitat on blown sand in the Menie development area. This rounded 16% loss underestimates the proportion of key dune habitats affected (35.1 ha), which is 19% of all key dune habitats (182.8 ha).

I have examined losses as four Habitats Directive Annex 1 habitats, considered at four scales: local, dune site, dune region and all-Scotland. All four habitat types show significant loss at local, site and region scales. These results show a significant adverse effect at the regional scale for habitats of European importance.

The development involves a 0.7% loss for mobile dunes at the national scale. Development of the second golf course would probably double that figure to around 1.5%. This would produce a significant adverse effect at the national scale.

Direct impacts on the habitats of Foveran Links SSSI are calculated in two ways. The golf course footprint in the SSSI is 10.7% of the SSSI area. The overwhelming majority (89%) of the SSSI will be completely unaffected by the golf course. Using SSSI habitat extent, the golf footprint is 14.0% of the SSSI resource, with 86% of SSSI habitats unaffected.

This habitat analysis is applied the Menie sector of the SSSI. The golf course footprint is 32% of the Menie sector. Two thirds of this sector will be unaffected by direct impacts on habitats.

All calculations of percentage loss for the SSSI and the Menie sector of the SSSI represent a significant adverse effect, before taking account of mitigation.

Direct impacts on rare species and areas of lichen interest are shown using maps.

Within Foveran Links SSSI there are serious effects nationally important species for Hole 18. These are significant adverse.

Outside the SSSI there are direct effects upon nationally important species for Hole 1 and Hole 3. Large extents of lichen-rich grassland and dune heath will be affected by Holes 1, 2, 3, 5, 6 and 7. Changes to the course design cannot be made to avoid these impacts. The effects on rare plants and the area of lichen interest should be regarded as significant adverse.

Indirect effects of golf development

The conclusions regarding indirect effects of golf development which were reached in the 2007 environmental statement are retained. These are likely to be significant adverse.

7.0 Component 4: Mitigation

Under mitigation of effects I argue here that effective mitigation can be achieved for significant adverse effects to habitats and plant species.

I show that sufficient suitable ground is available within and outwith Foveran Links SSSI to re-establish all habitats likely to be lost to development. I propose habitat translocation of habitat turf as the main technique and this will also be used for species affected by development. I also propose habitat enhancement to restore ground in unfavourable condition. I estimate likely success on the basis of professional opinion and experience.

Habitat and species translocation is proposed as the main method of mitigation. This involves stripping turf from a donor area followed by transporting the turf to a receptor area which has a very similar environment to donor ground.

I accept that habitat translocation within an SSSI is not an acceptable alternative to maintained conservation within SSSI boundaries, a policy of the JNCC. There is a strong presumption against this method. The applicant is aware of this. It is proposed at Menie because there is no alternative if the golf development is approved. It is for the Reporter to decide if the method can be used in Foveran Links SSSI.

Habitat enhancement is also proposed as further mitigation. The applicant wishes to restore dune ground in unfavourable condition to favourable status. This will involve the Menie sector of Foveran Links SSSI.

I estimate the likely success of mitigation as follows. I am presuming that MEMAG will be adequately resourced to undertake its work and that funding for translocation and habitat enhancement work will be sufficient to use best practice. I regard much dune vegetation and most threatened species as resilient and capable of surviving translocation.

I therefore estimate that there would be at least 66% success for habitats established in receptor areas in the short term (1 – 5 years). Following remedial measures, I estimate that near-100% would be possible in the medium to long-term (5 – 25 years).

8.0 Conclusion

I conclude that residual direct effects on habitats will be reduced from severe (in the absence of mitigation) to moderate in the short term. This applies both in the Foveran Links SSSI and to ground further south. In the medium to long term I consider residual effects will be slight to moderate in the same areas.