

10th June 2016

Planning Department Clare County Council.

I am writing requesting that you refuse the planning application P16/371 which involves the construction of a large wall structure on Doonbeg beach.

The application is being proposed to protect the Doonbeg Dune System from future storm erosion but I contend the proposed development would present a real threat to the same dune system.

I have attached separate notes from two ecologists, Dr Micheline Sheehy Skeffington of NUIG and Dr Evelyn Moorkens who have written in support of my request for refusal and who have a specific knowledge of the ecology of dune systems and of this particular site. My central contention is that interfering with the beach in the manner proposed will change the dynamic process within which dunes are constantly being formed in the normal interaction between sand and flora systems.

The proposed objective to protect the existing golf course can be better achieved by allowing the course adapt to the changing character of the dunes, as was allowed for in the original course design. I understand that additional and unused land areas were provided from the outset in the expectation the dune system would continue to adapt and evolve in a way that is characteristic of this system.

The submissions from Dr Sheehy Skeffington and Dr Moorkens provide clear evidence that the planned application will negatively affect the habitat of both the larger area and the Special Area of Conservation no. 002250 - Carrowmore Dunes, preventing regeneration of the dunes and habitat as a whole. The EU Habitat Directive places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation conditions. Specifically the directive outlines that:

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

It is our understanding that the application in question would not meet the criteria outlined above and that both the Carrowmore Dunes and threatened local fauna qualify as a "priority" habitat and species.

For these reasons I would strongly encourage that planning permission should not be granted.

Yours Sincerely,



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Doonbeg sand dunes and sand dune ecosystems

Background ecology

Sand dunes comprise a naturally dynamic system in that they are constantly building and mobile sand is intrinsic to their development. Therefore, an ample off-shore sand supply is essential to maintain a dune system and this is washed and blown up regularly onto the beach.

Dunes may also erode naturally and some may indeed be much damaged by extreme winter storms. But if there is a sand supply, this will result in the building of the dunes in the less stormy months. But this dune building may only (require to) be once every 20-30 years. It starts at the strand-line, where annual plants colonise the stranded seaweed which is rich in nutrients. They die every autumn (as annuals), but occasionally perennials get established such as the sea couch grass. All plants act as a barrier to the wind and, as this carries sand off the beach, it accumulates in heaps around the plants. These mounds remain if the perennials get established and the winter storms are not too severe. Eventually a full line of sand in a low ridge develops parallel to the existing front dune. This comprises the EU Habitats Directive Annex I 2110 Embryonic Shifting Dunes (Anon. 2008). Then marram grass gets established and it thrives on the instability of the mobile sand: it grows upward in response to being buried and has very extensive fibrous roots that stabilise the lower part of the developing ridge; it is the key component of this necessarily species-poor habitat. This is the Annex I 2120 Marram dunes habitat.

So the front of any dune system needs several things

- A sand supply
- A line of plants growing along the drift-line –some of which must be perennial and remain from year to year
- Marram grass to grow upwards enabling the sand to be heaped on it ever higher, building the fore-dune

But these dunes do not develop every year, but rather every 20-30 years. Even the Annex I 2110 Embryonic Shifting Dunes will not be present every year. That said, in eroding dune systems, this embryonic dune system may be rudimentary or absent.

Once the front dune develops to a sufficient height, it protects the dunes behind it and other plant species can colonise. These are not tolerant of massive sand movements, but can be buried by a thin layer of sand in winter: this enriches the soil in calcium. These calcium-rich well-drained soils encourage low-growing grasses such as red fescue and a wide variety of flowering plants and thus support a high species richness and biodiversity, providing *inter alia* pollinator services. These stabilized back-dunes are the priority habitat 2130 *Fixed dunes.

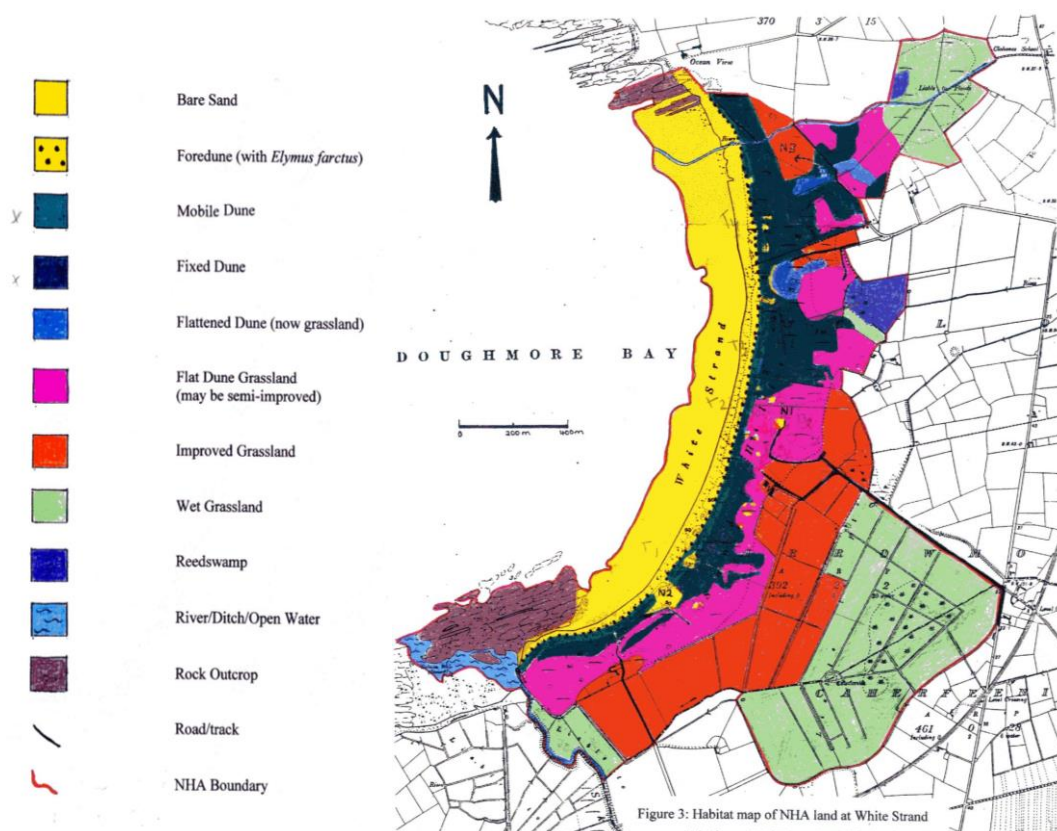
Potential effects of constructing a wall along the front of a dune system

If the sand supply from the beach is blocked by a wall running parallel to the shore, the dunes just inside the wall (the fore-dunes) will deteriorate for lack of renewed sand: the fore-dunes will erode, as the sand will be blown away eventually and will not be replenished from the beach. Once the mobile sand disappears, the marram grass will not thrive and the dune cannot build and will erode away. With strong storms, the land beyond and further inside the wall will no longer be protected by the fore-dune and it, in turn, could also be eroded by the wind.

The aerodynamic effect of such a wall may be such that, rather than preventing the wind from eroding the dunes, it will cause air currents that may deflect sideways and erode parts of the dune north and south of the central system.

The Doonbeg situation

Brief history of its conservation. In the 1990s, the dunes were designated a Natural Heritage Area, encompassing the whole dune system, since each part is dependent on the other for stability and integrity. Thus the marsh behind the dunes was also included, though not particularly species-rich and behind partially-eroded through sand excavation (the 'Flat' and 'Flattened dune' below).



Habitat map of Doonbeg dune system within the NHA. From: Bleasdale 1998 Report to The Heritage Council.

inevitable destruction of some of the foreshore, the previous owners had agreed to a managed retreat, accepting that some erosion would occur. For this reason, it is important to preserve the hinterland immediately behind the dunes.

Thus it is accepted that some coastal systems will erode as part of a natural erosion and in response to increasing winter storms that are part of the global warming effects (as per John Sweeney, NUI Maynooth). But to build a wall along the length of the beach will only exacerbate the erosion, paradoxically destabilizing the dunes immediately behind the wall, such that they may erode away. Only detailed predictive modeling will determine the extent of this.

Final personal comments

These views are based on my knowledge of the ecology of sand dune systems. I have not had time to make an in-depth study of the EIS, but would be cautious with comparing structures elsewhere with what is proposed for this site.

Comment re EIS: the Fixed dunes as describes in Section 7.2 (top of p. 75) is insufficient. No species of note is mentioned (e.g. dune pansy *Viola tricolor* ssp *curtisii*, primrose *Primula vulgaris*, orchids *Dactylorhiza* species, quaking grass *Briza media*, wild thyme, *Thymus praecox*, lady's bedstraw *Galium verum*, all present and typical of species-rich dry calcareous dune grassland; Anon 2008, Bleasdale 1998).

References

- Anon. (2008) The Status of EU Protected Habitats and Species in Ireland. Conservation Status in Ireland of Habitats and Species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC. National Parks and Wildlife Service Department of the Environment, Heritage and Local Government.
- Bleasdale, A. (1998) An Assessment of the Scientific Interest of the Dune System at White Strand, Doonbeg, Co. Clare. Prepared for The Heritage Council by Eco-Logic Environmental Consultancy. The Heritage Council, Kilkenny.
- Moorkens, E.A. & Gaynor, K. (2002) Doonbeg Annual Conservation Report for the development and maintenance of the golf links at Doonbeg, Co. Clare. Unpublished report for Doonbeg Golf Club Limited.
- Moorkens, E.A. & Killeen, I.J. (2011) Monitoring and Condition Assessment of Populations of *Vertigo geyeri*, *Vertigo angustior* and *Vertigo moulinsiana* in Ireland. *Irish Wildlife Manuals*, No. 55. National Parks and Wildlife Service, Department of Arts, Heritage and Gaeltacht, Dublin, Ireland.

The Conservation objectives for the SAC site are the basis for which all planning applications should be considered to be positive or negative. These have very clear conservation objectives to maintain the natural circulation of sediment and organic matter without physical barriers.¹

Appendix 6 of the application consists of a very brief Natura Impact Statement that provides no detail as to the detailed effects on the habitats that this proposed development would result in, provides no detail as to where a natural equilibrium would be achieved under a do-nothing scenario, and demonstrates very poor understanding of both fixed dune and *Vertigo angustior* habitat requirements by proposing that both habitats would improve by removing dynamic processes. On the contrary, both habitats rely on the dynamic processes that the application is designed to remove.

There are also a number of false statements, for example the NIS states: *"There is no evidence that the wetland SAC areas at Doonbeg have any value to V. angustior"*.

The evidence that the excellent function of this site for *V. angustior* is due to the interaction of the active dune system and the adjacent wetland was published by Moorkens and Gaynor (2003)²

The importance of the interaction between the wetland and SAC dunes and the SAC dune management by cattle grazing is also provided in the 2011 NPWS monitoring report.³

The report may have been misinterpreted, the rough areas of the golf course were considered to be favourable but needed monitoring in case they became too overgrown and may need occasional mowing as a once-off under strict management. This seems to have been misinterpreted by the applicants as the whole site can be mown and not grazed by cattle. There is NO site known for *Vertigo angustior* where the population persists in mown habitats.

The annual conservation reports have, over time, ensured that a natural dynamic system with appropriate conservation grazing has developed (Annual reports every year from 2000 to 2013). Over time erosion has been a problem, but soft measures have been successfully used to manage "normal" sand build-up and loss that is so important for a dynamic dune system function. The last annual conservation report is attached with some important elements highlighted, emphasising the "soft" dune protection, ongoing dynamics, and conservation grazing.⁴

There have been two previous applications for coastal protection against storm damage. The first was a storm beach augmentation application, much smaller

¹ http://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002250.pdf

² <https://drive.google.com/open?id=0B9hE2vbQ0q0iaEFITTA3VEILNVE>

³ <https://drive.google.com/open?id=0B9hE2vbQ0q0iN3k3UTcyYjBGS2M>

⁴ <https://drive.google.com/open?id=0B9hE2vbQ0q0iaVM2d19IdkpoRWc>

than the current application, with stronger rock zones lowering to smaller transition zones to no protection in front of the SAC to ensure that the dynamics of the SAC foredunes and grey dunes were able to continue. This application was refused on environmental grounds. A second application was granted in 2011 which consisted of a buried area of protected stone in front of the most vulnerable areas, where the dunes were replaced in front of the stone and managed using soft measures to maintain all active dune development on a year to year basis. The rock would only be exposed during a 1-in 50 year storm. The sand excavated to bury the stone would be stored and then could be used to rebuild the dunes after the storm event was over. This application was not used before the storm event of 2014.

In contrast, the current application differs in that it is a) much larger than the previous applications, b) much more extensive than the previous applications, and for the first time directly proposes to interfere with the SAC dunes and c) will be affecting the dune system 365 days a year, preventing the current dynamic regime.

The purpose of the application is to prevent wave action dynamics, which is essential to a healthy dune system and a conservation objective of the site. The result will be to fix the system, and thus totally change the nature of the physical soils, which will become compacted and eventually fill with soil as the plant litter decays and is not mobilised - and ecological, as over time the plants and animals living in the dunes will change to those of stable grassland. Mowing these areas will not change this, it may prevent scrub from developing but it will not be able to maintain the natural mosaic patches of active dune habitats.

The key argument of the applicants is that the “do-nothing” scenario will result in the loss of the SAC. This is not the case, the habitats will just move inland until a new equilibrium is found. The wetland sites and the favourable hydrology of the wider area provide very positive evidence that very good habitats would continue with an ongoing dynamic system. During the original application for the golf course in 1997 / 1998 a large site was purchased with space for change over time and space for ongoing nature conservation. One 18 hole course was designed in an area that could easily have fitted two courses because of the need to allow for movement and conservation of the wider site. The new application reflects an expectation that the economic value of the site rests with a very fixed unchanging golf course, and this is not compatible with the conservation objective of such an important SAC. This is rather obvious, and the convoluted efforts to try to justify a positive Natura Impact Assessment are unconvincing. In spite of the conservation objective to keep the site free of barriers and continue the dynamic activities on the front dunes, the NIS uses the fossilisation of the dunes to provide the positive conclusion that it would create more stable areas (e.g. more snail habitat, and retain more fixed dune). As both the snail species and the fixed dune priority habitat rely on free dynamic sand movement this argument is false and completely ignores the conservation objective. On another site the economic benefits could be used to outweigh the environmental damage, and an SAC could be allowed to

deteriorate through economic overriding public interest, with a compensatory package. However, there are two reasons why this argument could not be used. The first is that the Carrowmore Dunes SAC is of such high value, being the only remaining large dune system of this type between Kerry and Galway, thus no compensation for the site is possible while maintaining the range, and the second is that there is a qualifying interest for the priority habitat of grey dunes (Fixed Dunes (2130)), and priority habitats cannot be used for economic overriding public interest.

The much smaller beach augmentation application (2003) was refused because the integrity of the SAC could not be demonstrated to be protected by the proposed works. There are now much more detailed conservation objectives for the SAC, including ensuring no physical obstructions to the habitats. The application is much more invasive, includes artificial physical barriers, includes the frontage of the priority fixed dune SAC blocks, and confirms that it will prevent erosive processes. Using unbiased and expert scientific assessment, it is my opinion that the application could not be demonstrated to allow for the continued fulfilment of the conservation objectives of the site and therefore cannot pass the Appropriate Assessment process required by the competent planning authority. The application must therefore be refused.