

Development works at Ballymany,
Newbridge, Co Kildare (10/1112)

Appropriate assessment: Natura Impact Statement

Report prepared for Glan Developments Ltd

22nd October 2018

1. INTRODUCTION

The purpose of this report is to describe the ecology of the site at Ballymany proposed for development and also examine the possible ecological impacts of the project on the Pollardstown Fen candidate SAC (Site No 0396) or other Natura 2000 sites.

The report is written by Roger Goodwillie, a Member of the Chartered Institute of Ecology and Environmental Management and is part of the appropriate assessment procedure following the outline of the NPWS Guidance document (DoEHLG 2009). It begins with a short description of the site and its ecological value which is based on field examinations in January 2011 and November 2017.

Habitats are classified as in Fossitt 2000.

2. DESCRIPTION OF SITE

The site is located on the south-western side of Newbridge just north of the M7 motorway. It consists of an open field with a post-and-rail fence on the western boundary which curves around to enclose the site between it and existing housing estates. There is also an abandoned house and garden.

Topographically the site falls very gradually to the boundary fence though the slope increases beyond it into a shallow valley or linear basin with a pond-like drain at the base. Water flows in both directions from this feature, to the south under the M7 and a smaller flow to the north into the ground or to a roadside drain below the R445 (former N7). Neither branch is continuous; the southern one winds around several fields before disappearing on the south-western side (near the R413).

The soil is a grey-brown podzolic with a tendency to become gleyed, given the right conditions. There is some accumulation of water at the surface after wet weather, especially where trampled by animals, but no defined flows or springs.

2.1 Vegetation (see aerial photo at end, Figure 2)

All the grassland would be classified as improved agricultural grassland (GA1 in Fossitt 2000) though it differs from wet to dry areas. The northern part of the area is drier than the rest and has not been re-seeded as recently. The grasses here include cocksfoot *Dactylis glomerata*, crested dogstail *Cynosurus cristatus*, common bent *Agrostis capillaris* and red fescue *Festuca rubra* and there is a limited amount of ryegrass *Lolium perenne*. As one goes south the ground becomes less well-drained, there is more ryegrass but also Yorkshire fog *Holcus lanatus* and creeping bent *Agrostis stolonifera*. The moss *Calliergonella cuspidata* is ubiquitous. Close to the southeast corner hairy sedge *Carex hirta* plays a major role and there are temporary pools with

sweet grass *Glyceria fluitans*, marsh foxtail *Alopecurus geniculatus*, soft rush *Juncus effusus* and hard rush *J. inflexus*, species which are only scattered elsewhere.

The broad-leaved plants that occur are very few. They comprise

<i>Ranunculus repens</i>	creeping buttercup
<i>Trifolium repens</i>	white clover
<i>Rumex obtusifolius</i>	broad-leaved dock
<i>Senecio jacobaea</i>	ragwort
<i>Cirsium arvense</i>	creeping thistle
<i>Urtica dioica</i>	nettle

A small patch of distinct grassland occurs in an angle of the wall on the northeast boundary. Subsoil was dumped here from the adjacent development and it is developing a much greater species range. Based on crested dogstail it adds

<i>Potentilla reptans</i>	creeping cinquefoil
<i>Poa pratensis</i>	smooth meadowgrass
<i>Bellis perennis</i>	daisy
<i>Medicago lupulina</i>	black medick
<i>Trifolium pratense</i>	red clover
<i>T. dubium</i>	yellow trefoil
<i>Odontites verna</i>	red bartsia
<i>Scorzoneroideides autumnalis</i>	autumn hawkbit
<i>Ulex europaeus</i>	common gorse
<i>Carex flacca</i>	glaucous sedge
<i>Ranunculus acris</i>	meadow buttercup

Other marginal areas on this side support a few sycamore trees *Acer pseudoplatanus* and brambles and the ground beneath them has false oat *Arrhenatherum elatius*, nettle *Urtica dioica*, common mouse-ear *Cerastium glomeratum*, goosegrass *Galium aparine* and herb robert *Geranium robertianum*. The trees extend to form a hedge along the eastern edge of the site where ash *Fraxinus excelsior* is joined by elder *Sambucus nigra* and hawthorn *Crataegus monogyna* along with much bramble *Rubus fruticosus*, wild rose *Rosa canina* and field stitchwort *Stellaria graminea*.

The house and old garden is surrounded by a line of planted trees – cypress, beech and sycamore – and contains a few garden shrubs, for example laurel, snowberry and gooseberry. There are also one or two apple trees. The herbs associated with this area include wood avens *Geum urbanum*, nettle *Urtica dioica*, goosegrass *Galium aparine*, hogweed *Heracleum sphondylium* and cow parsley *Anthriscus sylvestris*.

2.2 Fauna

There were no signs of large mammals on site except for some old rabbit burrows around the abandoned garden. Hares (and foxes) also are likely to visit the field at times though there is no cover for breeding.

Bat habitat is extremely limited and there is little likelihood that these animals have a significant population on site. The main building is roofless – which has deprived any bats formerly present of a roost – while the adjacent farm buildings/stables off-site have metal roofs and are also unsuitable.

Two snipe were flushed from the field during the site visit while there were also starling (80), meadow pipit (5) and pied wagtail (3) feeding on the ground. Jackdaw, magpie and great tit were seen around the house.

3. EVALUATION

The site itself has nothing of significant ecological value and contains organisms which are frequent in any countryside area.

There is no likelihood of protected plant species being present.

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4. APPROPRIATE ASSESSMENT

4.1 Introduction

Appropriate assessment was introduced by the EU Habitats Directive as a way of determining if a planned project is likely to have a significant effect on one of the Natura 2000 sites so far designated (i.e. the candidate SAC's and SPA's), or their conservation objectives. In this case the main site is Pollardstown Fen, a spring and fen system of European interest.

Another Natura site, Mouds Bog cSAC (Code 2331), is located about 6km to the north while a proposed NHA (The Curragh) lies to the west. See map as Figure 3 at end.

Article 6(3) states

Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives....

In the Irish context this has been interpreted as a four-stage process. Firstly, a screening exercise (Stage 1) determines if a project could have significant effects on a Natura site. If it does or the situation is unclear a Natura Impact Statement (Stage 2) is provided to the planning or regulatory authority which then conducts an assessment of the information supplied. Examples of significant effects are loss of habitat area, fragmentation of the habitat, disturbance to species using the site and changes in water resources or quality. If such negative effects come to light in the assessment, alternative

solutions are investigated by the proponent (Stage 3) and modifications made unless the project is deemed to be driven by ‘imperative reasons of overriding public interest’ in its current form. If so, Stage 4 then deals with compensatory action.

4.2 Screening Matrix

1. Brief description of project	180 dwellings and access roadway
2. Brief description of the Natura 2000 site	Groundwater fen with annexed habitats and species
3. Individual elements of project (alone or in combination) likely to give rise to impacts on the Natura 2000 site by virtue of:	
Size and scale	Nett size of site 5.15ha; 0.85ha of public open space
land-take	6.5ha (size of total site)
distance from the Natura site or key features of site	1.38km
resource requirement (water abstraction etc)	Block and ready-mix
emissions (where disposed of)	On-site during construction
excavation requirement	Minor re-shaping
duration of construction, operation, decommissioning etc	Construction – 1.5 - 3 yrs Operation – thereafter
Other	n/a
4. Likely changes to site arising from	
reduction of habitat areas	None
disturbance to key species	None
habitat or species fragmentation	None
reduction in species density	None
changes in key factors of conservation value (e.g. water quality)	Potential for groundwater effect – reduction/pollution
climate change	None
5. Likely impacts on the Natura site as a whole in terms of	
interference with the key relationships that define the structure of the site	None
interference with the key relationships that define the functioning of the site	Potential adverse effects
6. Indicators of significance as a result of the above effects in terms of	
Loss	None
Fragmentation	None
Disruption	None
Disturbance	None
change to key elements of the site (water quality etc)	Potential but small scale
7. Elements of the project, alone or in combination with others, where the impacts are likely to be significant or where the scale and magnitude of impacts is not known	None

4.3 Conclusion

Since there is potential for some adverse impact on an SAC (Pollardstown Fen), further information is provided to assess the likelihood and significance of effects on all nearby Natura 2000 sites.

4.4 Project description

The development is located on 6.5ha at the SW edge of the Newbridge urban area. It consists of housing and an access road contained inside the existing fence. There will be 0.85ha of open space in three locations – at the entrance to the site and in two internal parks, one continuous with an existing space in the adjoining estate and the other at the eastern end. These will be landscaped areas with peripheral tree planting.

A total of 180 dwellings will be constructed of mixed types as indicated on the planning drawings.

Surface water drainage will be collected and piped to an attenuation pond to the south, beside the M7. All road drainage will be discharged through silt and oil traps.

Water supply and foul sewerage will be connected to the public systems.

4.5 Natura sites

There are three sites within 15km of the development as shown on the map at the end of this report.

Site name	Designation	Site code	Distance km
Pollardstown Fen	SAC	0396	1.4
Mouds Bog	SAC	2331	4.5
River Barrow and River Nore	SAC	2162	10.7

The only relevant site is Pollardstown Fen which is located 1.4km to the northwest. Mouds Bog, which is further away, is a raised bog with an independent water supply (rainfall) and cannot be affected by any effluent from this project. It is not considered further.

The Barrow system, in the form of the Boherbaun/Finnery River, could theoretically be influenced by development at Newbridge since there could be a groundwater connection through the Curragh gravels. However work by Misstear et al (2009) shows that the site is well within the Pollardstown catchment (see overleaf) and groundwater flow is most unlikely to go south-west to the Tully Stream or south to the Boherbaun/Finnery River.

Impacts on this SAC can also be discounted.

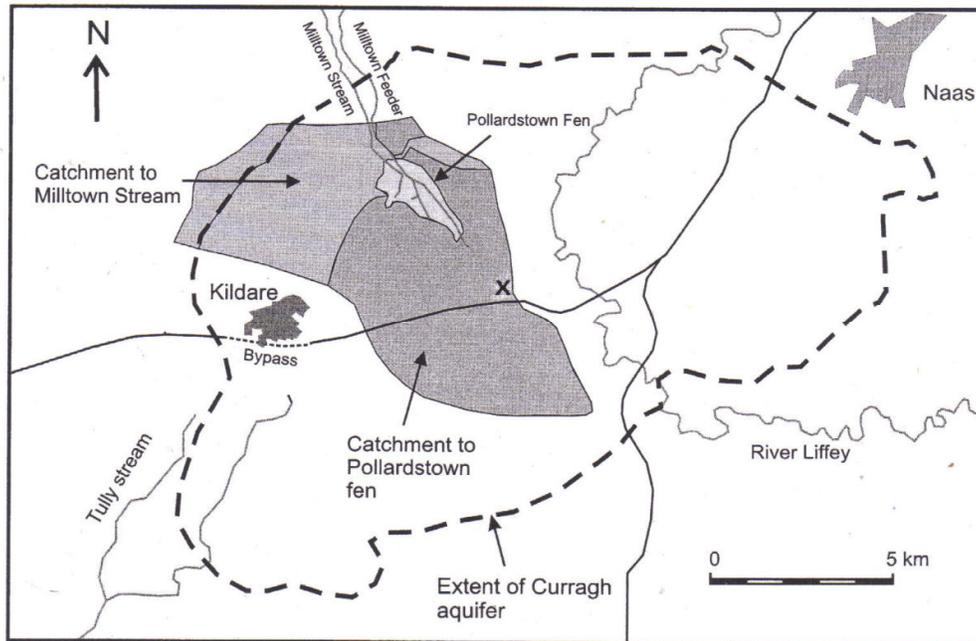


Figure 1. The catchment of Pollardstown Fen (after Misstear *et al* 2009). Development site is marked by X

4.5.1 Pollardstown Fen

Pollardstown Fen is probably the best-developed fen in the whole country, based on size and diversity. It contains examples of three Annex I habitats listed in the EU Habitats Directive and also supports five animal species from Annex II – the three *Vertigo* snails (*Vertigo geyeri*, *V. angustior*, *V. moulinsiana*), the otter and brook lamprey.

It is listed for its qualifying interests, two of which are priority (*)

- 7210 Calcareous fens with *Cladium mariscus* and species of the Caricion davallianae*
- 7220 Petrifying springs with tufa formation (Cratoneurion)*
- 7230 Alkaline fens
- 1013 Geyer's Whorl Snail *Vertigo geyeri*
- 1014 Narrow-mouthed Whorl Snail *Vertigo angustior*
- 1016 Desmoulin's Whorl Snail *Vertigo moulinsiana*

The site also supports a number of rare plants and insects (see site synopsis below) which require a relatively high watertable. The continuation of spring flow to the fen from the Curragh aquifer is critical to the environment.

4.6 Conservation objectives - Pollardstown Fen

To maintain or restore the favourable conservation condition of the Annex I habitats and/or the Annex II species for which the SAC has been selected, i.e.:

- [7210] * Calcareous fens with *Cladium mariscus* and species of the *Caricion davalliana*
- [7220] * Petrifying springs with tufa formation (*Cratoneurion*)
- [7230] Alkaline fens
- [1013] *Vertigo geyeri*
- [1014] *Vertigo angustior*
- [1016] *Vertigo moulinsiana*

The favourable conservation condition of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future
- the conservation status of its typical species is favourable.

The favourable conservation condition of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

4.7 Likely effects

The edge of the development is situated about 1.38km from Pollardstown Fen. It is within its catchment but is only connected through the groundwater; there is no overland flow. The paper by Misstear *et al* (op.cit.) indicates that most of the fen catchment is on the SW or Curragh side and that Ballymany is at the eastern edge, close to the divide with the Liffey catchment (Figure 1). However as mentioned above the flow from the ditch below the site disappears into the groundwater on the Curragh side of the valley beyond the M7 and does not escape to the Liffey system.

The proposals are for surface drainage to be discharged to an attenuation pond south of the development site within the same (Pollardstown Fen) catchment. In this way it will mirror the current state of affairs with only a slight deviation. A fraction may be evaporated from hard surfaces before collection but since none will be exported from the site there will be no significant effect on the watertable or flow into the fen.

The only influence the project can have is through pollution of the groundwater but this can be prevented. Normal precautions during construction will minimise any input of solids to the ditch water which anyway would be settled and filtered before reaching the groundwater because there is no direct link. Any oil fractions from roadways and paths (the only significant likely sources) will be trapped in the interceptors before discharge

In terms of groundwater eutrophication intensive agriculture is being replaced by urban development and the flow from roads and roofs will not be significantly richer than present values, if at all.

The headwaters of the River Barrow are also fed from groundwater in the Curragh but there is no likelihood that water from Ballymany would flow westwards in view of its proximity to low ground in Pollardstown.

Mouds Bog, the other cSAC within range has an independent water system, not related to groundwater and can suffer no impacts.

4.7.1 Required prevention measures

Oil and silt interceptors will be cleaned regularly so that they retain capacity.

5. CONCLUSION

Given the implementation of the prevention measures there is no likelihood of significant adverse impacts on the qualifying interests or integrity of Pollardstown Fen cSAC. The development will not change the pattern of groundwater movement, nor affect any springs feeding the fen.

The cumulative effect of this project with others nearby will not have a significant effect on the functioning of the SAC or the achievement of its conservation objectives.

There are no ecological connections between this site and the other designated areas (Mouds Bog, River Barrow) in the vicinity and there will be no effect upon them.

References

Dept of Environment, Heritage and Local Government (2009). Appropriate assessment of plans and projects in Ireland: guidance for planning authorities. Dublin.

National Parks & Wildlife Service (2011) Conservation Objectives: River Barrow & River Nore SAC 002162. Dept of Arts, Heritage and the Gaeltacht. Version 1 (website)

NPWS (2016) Conservation objectives for Pollardstown Fen SAC [000396]. Generic Version 5.0. Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.

Missteart, B.D.R., Brown, L. & Johnston, P.M. 2009. *Hydrogeological Journal* 17(3), 693-706.

SITE SYNOPSIS

SITE NAME : POLLARDSTOWN FEN

SITE CODE : 000396

Pollardstown Fen is situated on the northern margin of the Curragh of Kildare, approximately 3km west-north-west of Newbridge. It lies in a shallow depression, running in a north-west/south-east direction. About 40 springs provide a continuous supply of water to the fen. These rise chiefly at its margins, along distinct seepage areas of mineral ground above the fen level. The continual inflow of calcium-rich water from the Curragh, and from the limestone ground to the north, creates waterlogged conditions which lead to peat formation. There are layers of calcareous marl in this peat, reflecting inundation by calcium-rich water. This peat-marl deposit reaches some 6 m at its deepest point and is underlain by clay.

Pollardstown Fen is unusual in Ireland as it is an extensive area of primary and secondary fen peat, lacking scrub vegetation on its surface. The fen vegetation is generally from 0.5 - 1.5 m high and consists mainly of Saw Sedge (*Cladium mariscus*), Reed (*Phragmites australis*), Blunt-flowered Rush (*Juncus subnodulosus*) and a variety of Sedges (*Carex* spp.). The vegetation is quite varied and species-rich with numerous well-defined plant communities and several rare or scarce species, including Narrow-leaved Marsh Orchid (*Dactylorhiza traunsteineri*), Fly Orchid (*Ophrys insectifera*) and Broad-leaved Bog Cotton (*Eriophorum latifolium*). Of particular interest is the occurrence of the moss, *Homalothecium nitens* - a boreal relict species which is rare in Ireland. Species and communities characteristic of more nutrient-rich conditions occur on the fen margins where the water first emerges from the ground, while the central fen area is dominated by more uniform and less nutrient-demanding vegetation types.

Damp pastures occur on wet mineral soils and partly-drained peats on the fen margins. These are reasonably species-rich, with particularly good displays of orchids in some areas.

The fen has ornithological importance for both breeding and wintering birds. Little Grebe, Coot, Moorhen, Teal, Mallard, Mute Swan, Water Rail, Snipe, Sedge Warbler and Reed Bunting all breed annually within the fen vegetation. Reed Warbler and Garganey, both rare breeding species in Ireland, have been recorded at Pollardstown and may have bred. In recent years two very specialised bird species associated with fens, Marsh Harrier and Savi's Warbler, have been seen at Pollardstown.

An area of reclaimed land was reflooded in 1983 and has now reverted to open water, swamp and regenerating fen. Since the reflooding of the fen and the development of the shallow lake, wintering waterfowl have been attracted in increased numbers. Maximum counts during winter 1984/85 were as follows: Little Grebe 24; Teal 161; Mallard 220; Coot 81; Snipe 68.

Otter and Brook Lamprey (*Lampetra planeri*), two species listed in Annex II of the EU Habitats Directive, occur at Pollardstown.

Various groups of the invertebrate fauna have been studied and the system has been shown to support a true fen fauna. The species complexes represented are often rare in Ireland, with the sub-aquatic organisms particularly well represented. A number of internationally important invertebrates (mostly Order Diptera, i.e. two-winged flies) have been recorded from the site. Of particular conservation importance, however, is the occurrence of all three of the Whorl Snails (*Vertigo* spp.) that are listed on Annex II of the EU Habitats Directive. Pollardstown is the only known site in Ireland (or Europe) to support all three species (*Vertigo geyeri*, *V. angustior*, *V. moulinsiana*) and thus provides a unique opportunity to study their different habitat and hydrological requirements.

Much of the fen vegetation is now owned by the Office of Public Works and is a Statutory Nature Reserve.

Pollardstown fen is the largest spring-fed fen in Ireland and has a well developed flora and fauna. Owing to the rarity of this habitat and the numbers of rare organisms found there, the site is rated as of international importance.

6.8.2003

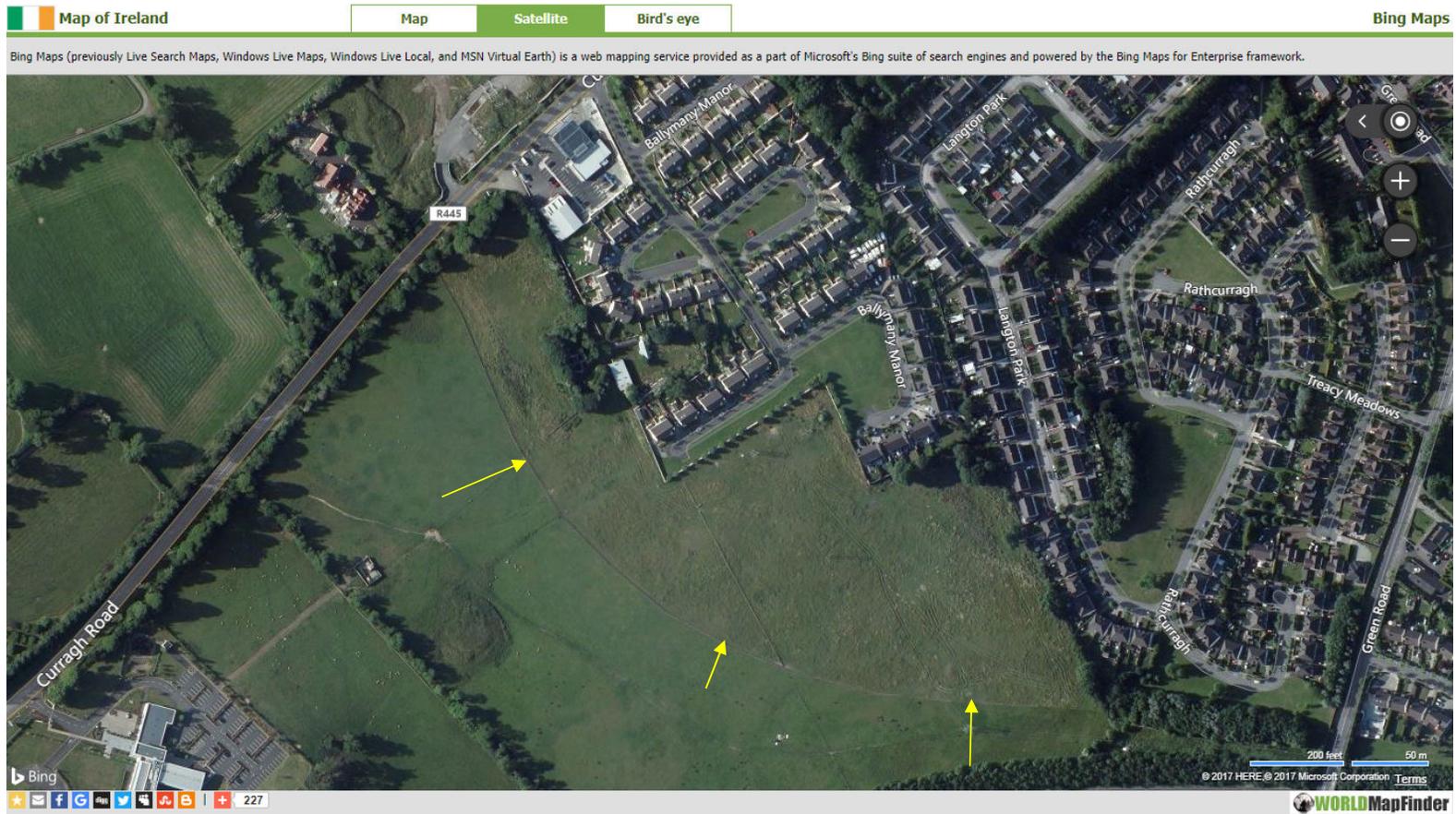


Figure 2. Development site is situated between the curving fence and the wall around the adjacent housing estate

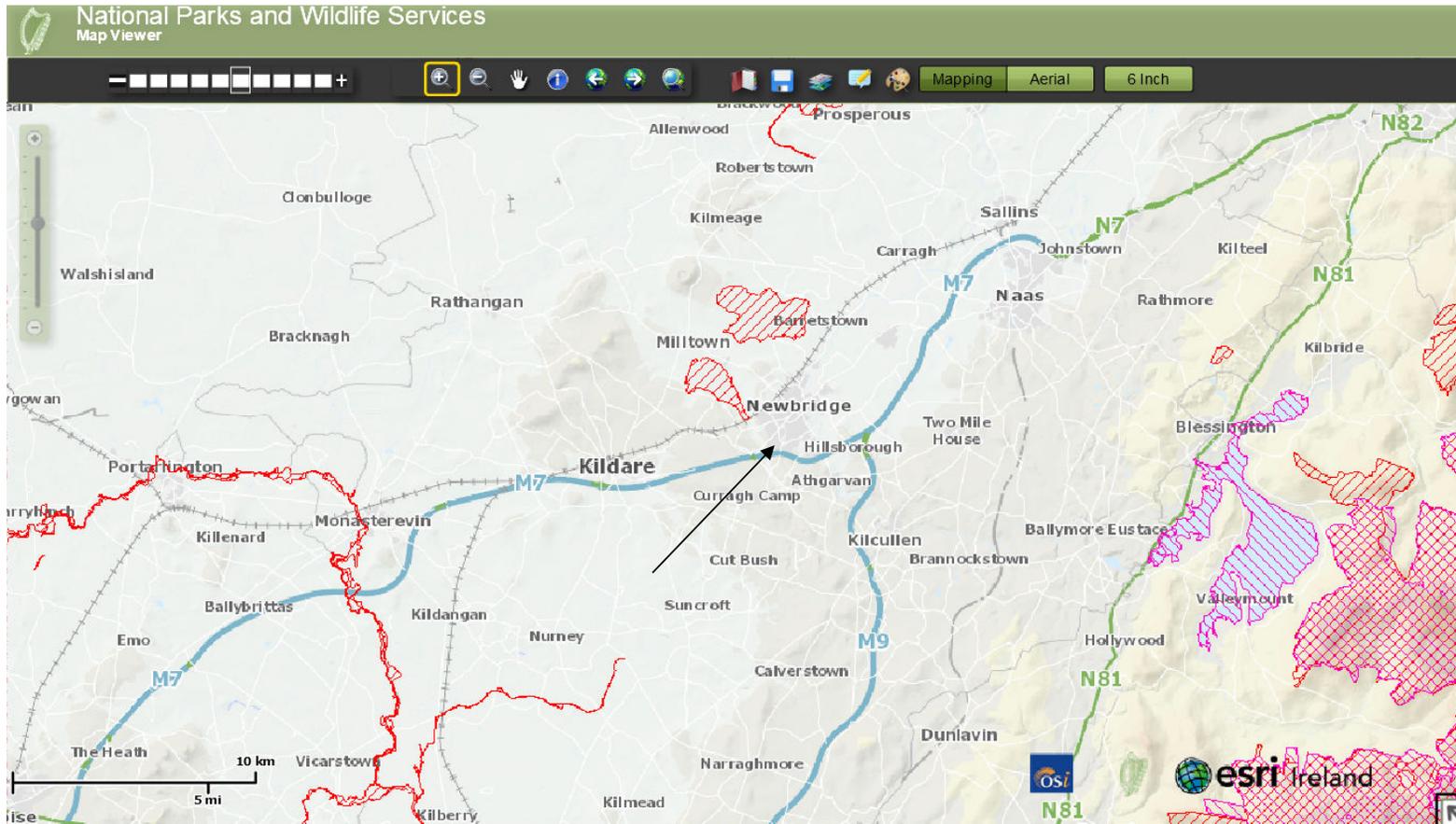


Figure 3. Development site (arrowed) in relation to regional Natura 2000 sites (red SAC, purple SPA)

