

Ecology

The ecological assessments are one of the most significant pieces of the EIA process, particularly in developing site constraints and informing the layout design. The ecological assessments are broken down into terrestrial (plants, habitats, rivers) and avian components.

Consultation has been carried out with Northern Ireland Environment Agency (NIEA), and with Royal Society for the Protection of Birds (RSPB) for the avian component, in order to request any relevant environmental information on the site which may be held by the Department. NIEA Natural Heritage (NIEA NH) carried out a desktop search in response to the consultation and provided recommendations on the scope of works that they (NIEA NH) considered necessary for the Environmental Impact Assessment (EIA). The resulting Ecology and Nature Conservation aspects are described briefly in the following paragraphs.

Designated Sites

Nationally and European designated sites were considered as part of the desktop search and consultation process. The site at Doraville is hydrologically connected (upstream of both) the Owenkillew Special Area of Conservation/Area of Special Scientific Interest (SAC/ASSI) and the River Foyle & Tributaries SAC/ASSI. The proximity of these sensitive sites was considered at all times when designing the layout of the proposed Wind Farm (especially any river crossings) and 100m buffers have been provided to the two primary rivers on site (the Coneyglen Burn and Glenlark River).

Habitat Surveys

A Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Survey was carried out on the site. The JNCC Phase 1 Habitat Classification and associated field survey technique is a standardised system to record semi-natural vegetation and other wildlife habitats. The approach is designed to cover large areas of countryside relatively rapidly. It presents the user with a basic assessment of habitat type and potential importance for nature conservation.

The results of the Phase 1 Habitat Survey were used to identify areas which were likely to be of high nature conservation value or any habitats which are particularly vulnerable to impact from the proposed development. These were then subject to more detailed survey methodology (i.e. NVC Phase 2).

NVC Phase 2 Surveys were carried out of the Northern Ireland or European Priority Habitats which were identified during the Phase 1 Habitat Surveys. The National Vegetation Classification (NVC) is one of the key common standards developed for the country nature conservation agencies in the UK. The original project aimed to produce a comprehensive classification and description of the plant communities of Britain, each systematically named and arranged and with standardised descriptions for each. An example of an NVC habitat would be M17 Scirptus caespitosus – Eriophorum vaginatum which is a type of blanket bog common in Ireland.

Species Specific Surveys

A number of surveys have been carried out (under licence from NIEA) for species of interest, which include:

- Marsh fritillary butterfly (Euphydryas aurinia)
- Smooth newts (Lissotriton vulgaris)
- Common lizards
- Otter (Lutra lutra)
- Red squirrel (Sciurus vulgaris)
- Pine Marten (Martes martes)
- Badger (Meles meles)

Bat Surveys

During May to September (2012 and 2013) bat surveys were carried out across the site from May to September (inclusive). The surveys included transects – a combination of walked transects and automated monitoring – carried out on a monthly basis. Static detector units were also placed across the site in order to for bats at height.

Fisheries Surveys

The fisheries assessment has consisted of a general assessment of fish habitats in each stream connected to the site, a basic assessment of water chemistry and biological quality and a fish stock survey.

Summary findings are as follows:

- There are some excellent areas of fish habitat in both streams (Plates 1-3).
- Both streams are relatively low pH / low conductivity waters.
- Biological Quality is Moderate in Glenlark and Poor in Coneyglen.
- Both streams are well populated with brown trout (Plate 4) throughout with higher densities of fish in Coneyglen.
- Salmon spawn in the lower reaches of both streams but do not penetrate within the proosed site boundary.
- Although Freshwater pearl mussel are present in the Owenkillew, they do not occupy either stream.
- There is a serious problem with bank erosion and the collapse of peat banks on Coneyglen which may be related to land use practices. It is hoped that this may be addressed through remedial works as part of the construction programme.

Avian Surveys

Ornithological surveys have been ongoing at the site since November 2011, during which time two seasons of breeding bird (2012 and 2013) and wintering bird (2011/2012 and 2012/13) surveys have been completed.

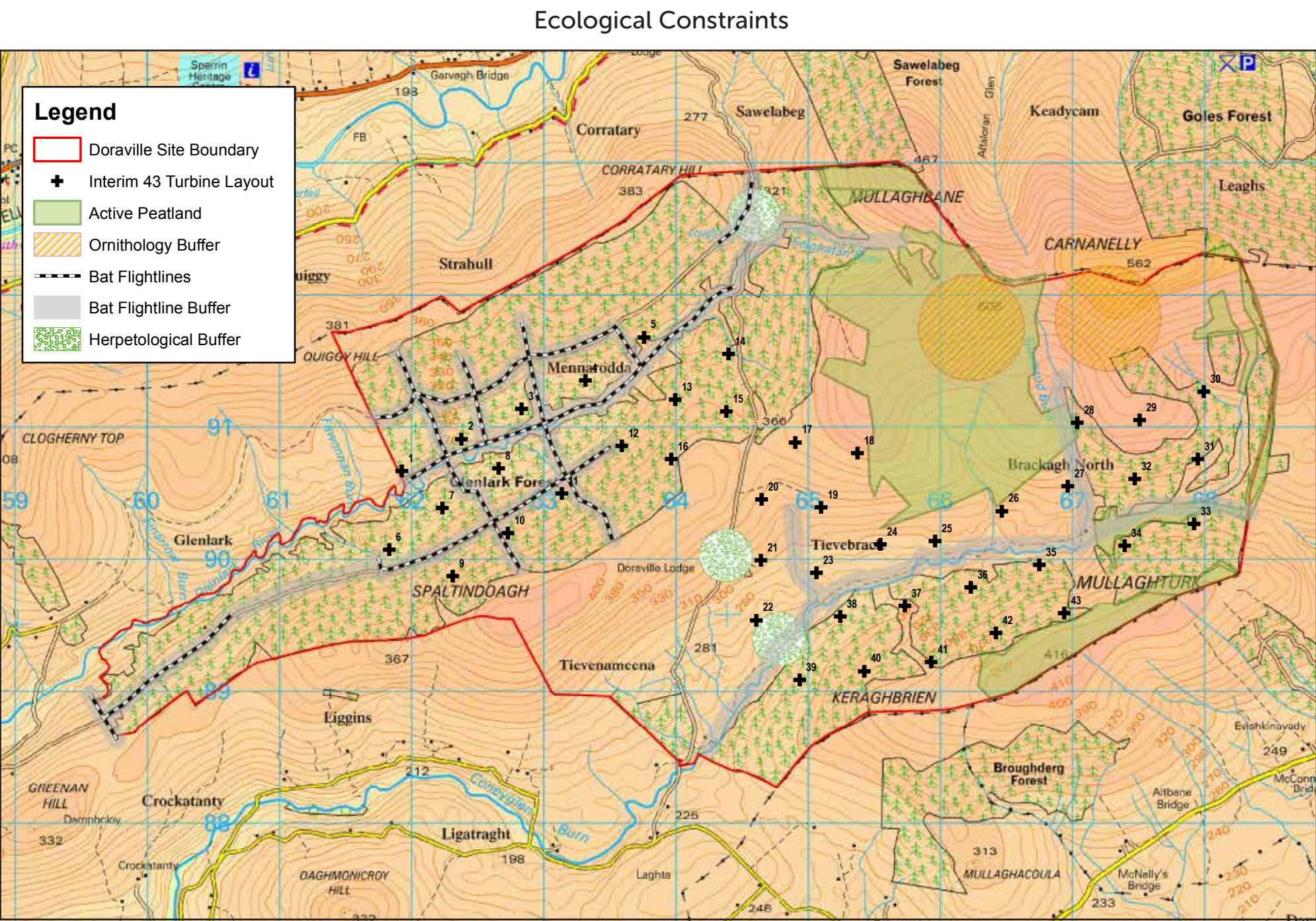
The surveys have focused on the development site plus a buffer zone of up to 2km. They have included vantage point surveys to assess flight activity within the site and walkover surveys to determine the assemblage of breeding and wintering species and to assess the potential presence of species that may be sensitive to wind farm developments ('target species'), enabling the appropriate assessment of impacts.

Further Work

Additional surveys will be carried out, as required, on the finalised layout.

Bird survey work in relation to the site area is ongoing. Detailed mitigation measures will be developed and agreed with NIEA Natural Heritage to protect Priority Habitat and Species using the site. A Habitat Management and Restoration Plan will be developed to restore and enhance Priority Habitats on the site for the 25 year lifetime of the wind farm. Ongoing monitoring will be conducted to ensure the success of the mitigation measures and habitat management/restoration during construction and operation of the development.

The results of the NVC survey were then used to identify areas of active peatland within the site. This is a key constraint for the development of the layout

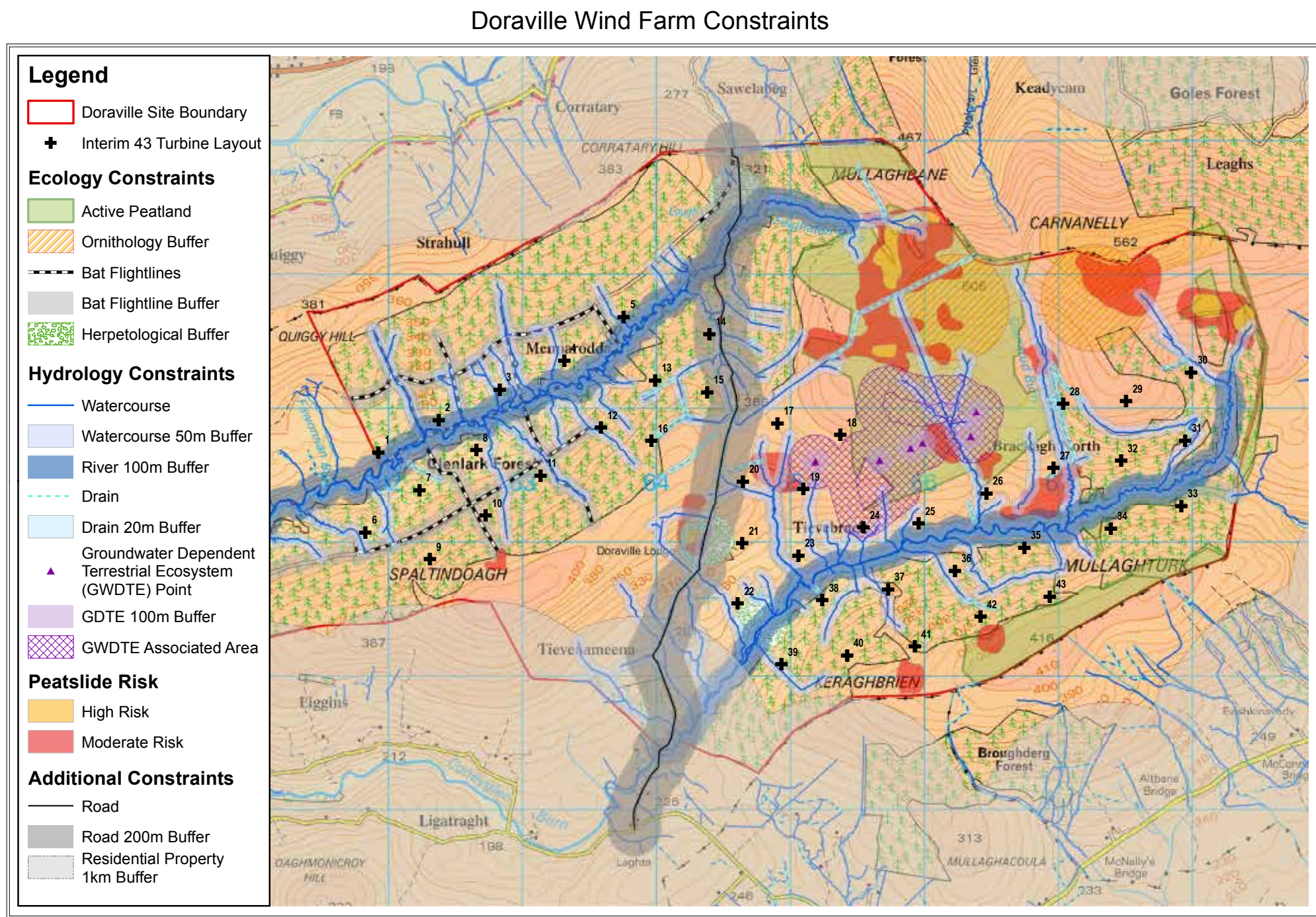


Key Constraints & Findings

The main constraints identified from both the desktop searches and surveys (for protected species and habitats) include:

- The Glenlark and Coneyglen Burn river corridors:
 - They are hydrologically linked to the Owenkillew SAC/ASSI and the River Foyle & Tributaries SAC/ASSI; and
 - They are used by commuting/foraging bats
- Forestry tracks/Rides being uses by bats (commuting and foraging)
- Blanket Bog (containing active peat)
- Ponds being used by NI Protected Species – Smooth Newt.
- Habitat being used by NI Protected Species – Common Lizard
- A number of Badger Setts
- Pine Marten are present on the site

Flight activity of target bird species within the site has been found to be low, and the numbers of breeding and wintering species has been found to be typical of such habitats. During the winter months golden plover occasionally frequent the site, with infrequent observations of hen harrier, merlin and peregrine. Red grouse is resident within the site and breeds in low numbers, with low numbers of snipe also breeding within the survey area.



Hydrology

Jacobs, an engineering and environmmetal consultancy, are undertaking an assessment of the potential impacts of the proposed wind farm on the local geology, hydrology and hydrogeology environments including peat, as part of the EIA process.

- The assessment of local geology, hydrology and hydrogeology environments have included an evaluation of potential impacts of the development on:
- Surface water course quality and quantity, including rivers and drains;
- Groundwater quality and quantity;
- Peat stability;
- Private water supplies; and
- Flood risk.

Detailed initial desktop surveys to assess these potential constraints were followed by site walkover surveys by the Jacobs hydrological and geotechnical teams during July and August 2013 to identify key hydrological features and areas of potential peat slide instability within the Doraville site.

Key Constraints and Findings

Surface Water

Watercourses on the site including the Coneyglen Burn and Owenkillew River and their associated tributaries have been designated by NIEA as having a ‘moderate’ water quality status. Adjacent to or within the site boundary, the Glenlark Burn and the Glenelly River have both been designated as having a ‘good’ water quality status, while further downstream, towards the west, the Glenelly River classification reduces to a ‘moderate’ status.

During the site walkover, observations were made regarding surface water quality. The water quality observations made regarding water qualiy ere characteristic of runoff from peat bogs. Low suspended solids concentrations are crucial in order to maintain the sensitive population of freshwater pearl mussels located downstream of the site in the Owenkillew River.

A 50m development free buffer zone around all surface watercourses will be implemented, and this will be increased to 100m in the case of the two larger rivers, in order to protect the quality and quantities of surface water flows onsite.

Groundwater

Groundwater beneath the site forms part of the Gortin groundwater body. According to NIEA the groundwater at the site has a ‘good’ quantitative status, a ‘good’ chemical status and a ‘good’ overall status.

Peat Stability

The peat land at Doraville has been extensively disturbed by commercial forestry activities over the past 40 to 50 years. The natural drainage characteristics of the area have been extensively affected by the introduction of manmade drainage channels and ditches associated with the forestry plantations. No evidence of peat slide activity was observed during the field surveys in these areas.

A comprehensive multi-factor approach was adopted to identify peat slide prone areas within the Development site. A total of 1405 positions on a 100m grid across the site were examined in detail and the results of the study were used to establish constraints to avoid areas identified as potentially vulnerable to ground movements.

Private Water Supplies (PWS)

Consultation with NIEA, the Drinking Water Inspectorate and local District Councils indicates that there are no registered public or private water supplies within the application boundary. Furthermore, there are no registered public or private supplies within 2km (1.2 miles) of the Development.

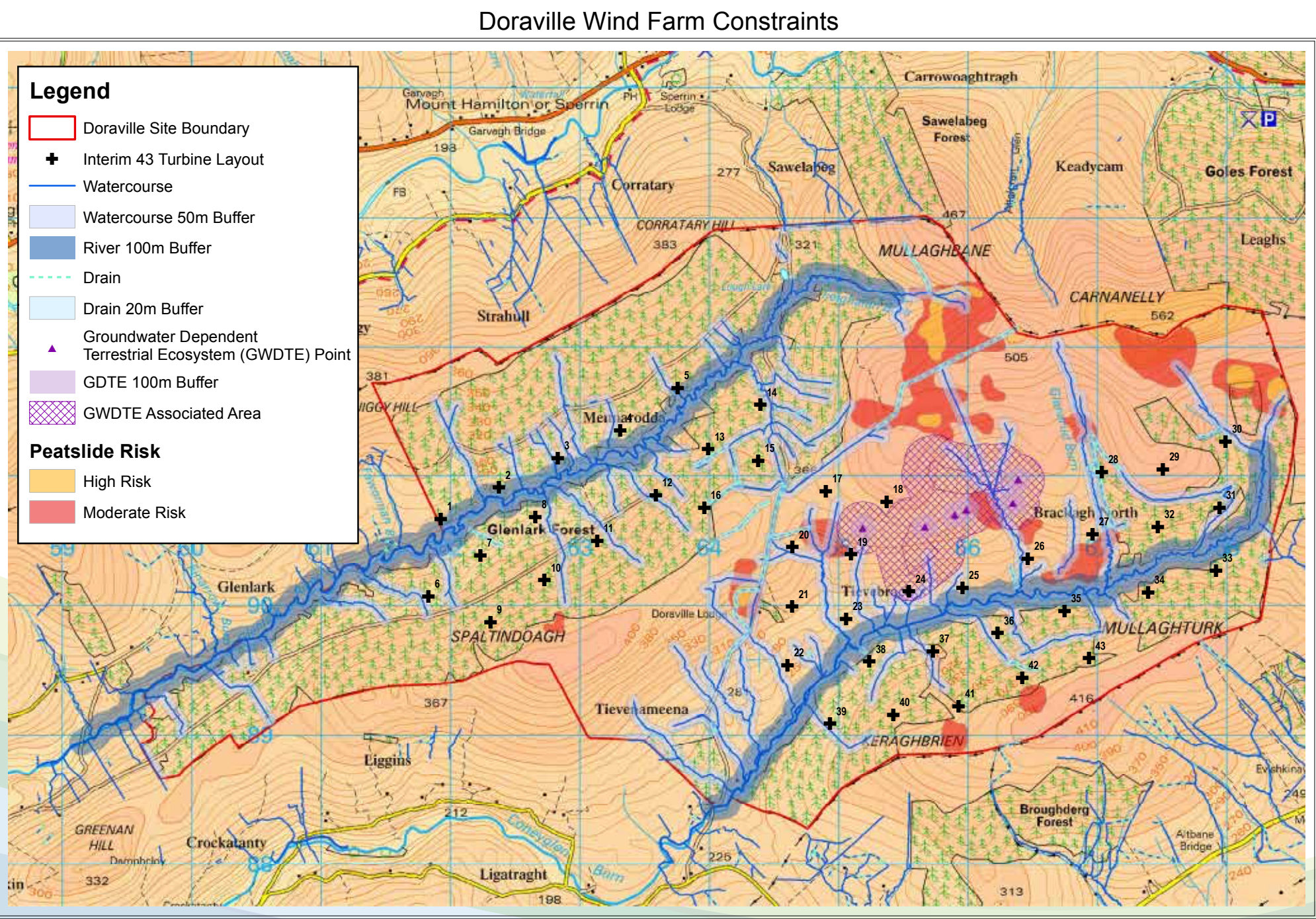
Ordnance Survey of Northern Ireland (OSNI) mapping indicates that there are several isolated properties within a few hundred metres of the site. These properties may potentially have a private water supply which is not registered with statutory authorities. Final confirmation of the use of PWS in the area will be investigated further through consultation with property owners.

Flooding

The Northern Ireland Strategic Flood Map indicates that the majority of the site is not at risk from fluvial flooding.



Photo showing bank erosion in the Coneyglen Burn



Further Work Required

Following the finalisation of the project layout design, Jacobs will complete the geology, hydrology and hydrogeology assessment.

Further public consultation with property owners surrounding the Development will be undertaken to determine the exact locations of any Private Water Supply which may be at risk from the proposed wind farm. A detailed assessment of any Private Water Supply will be carried out to assess supply vulnerability and, if required, adequate mitigation measures will be designed to protect these.

When the project design is finalised, the detailed peat slide risk assessment will be completed to assess the impacts of the proposal, and mitigation measures will be designed if necessary to minimise potential impacts of the project.

Civil Engineering & Roads

The proposed site is situated on Carnanelly Mountain between Glenlark Forest and the Broughderg Road. Access can be achieved via national primary and secondary roads before utilising local unclassified roads to access the site.

An unclassified public road passes north/south through the western part of Doraville, connecting the Davagh Road to the south with the Corramore Road to the north. Under current proposals delivery vehicles will be required to use this road to gain access to the site.

Turbine Delivery Route

At an early stage in the assessment of any wind farm development, it is necessary to establish a viable Turbine Delivery Route (TDR). This is because turbine delivery vehicles can be significantly longer than standard heavy goods vehicles (HGVs) and therefore exceed normal design standards for public roads.

