Northumberland
County Council

The introduction of nutrient neutrality for Lindisfarne SSSI and Special Protection Area
Guidance for applicants on completing a nutrient budget

Introduction

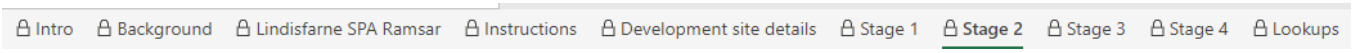
On 16 March 2022 the Government contacted Local Planning Authorities concerning a range of protected areas in England that are affected by nitrogen and phosphorus pollution, to explain that planning applications for developments likely to increase sewage discharges in the catchments of these protected areas must be accompanied by a nutrient budget showing how the level of phosphorus or nitrogen entering the protected area will change should the proposed development be implemented. It is only then possible to grant permission for the development if the nutrient budget shows that there will not be a net increase in nitrogen or phosphorus levels in the protected area as a result of the development.

The catchment of the Lindisfarne SSSI and Special Protection Area is one such catchment, due to the impact of excessive levels of nitrogen in the waters around Holy Island and in Budle Bay. This is causing the growth of extensive mats of filamentous green algae across the mudflats and sandflats in this area, preventing the wading birds for which the SSSI and SPA is designated from accessing the invertebrate food on which they depend.

Completing a Nutrient Budget

It is necessary for nutrient budgets to be submitted with planning applications for developments that could increase nitrogen levels in the Lindisfarne SSSI and SPA through increases in sewage discharges, whether these are going to a private sewage treatment plant or a Northumbrian Water sewage treatment works. Natural England has created a Nutrient Budget Calculator in the form of an Excel workbook that you will need to complete, and has provided a guidance document to help with this.

Start by making a copy of the ‘Lindisfarne Nutrient Budget Calculator’ workbook and ensure that you have the Natural England ‘Nutrient Budget Calculator Guidance Document’ and this note to hand. At the bottom of the workbook you will see a series of tabs, the first three of which provide some background information and the fourth of which provides instructions for completing the calculator. Subsequent tabs take you through the calculator stage by stage:



Development Site Details

This sheet is largely self-explanatory, although you won't yet have a planning application number if you are completing this to submit with an application, in which case that box can be left blank.

Stage 1

You will see that you have to enter a few details about the development here. The **average occupancy rate for residential dwellings** is set at 2.4, which is based on ONS data. Any change to this figure has to be supported by evidence and so please do not change it without the agreement of NCC Ecologists.

For tourism developments including campsites, static caravan parks, shepherd's huts and barn conversions, the average occupancy rate of 2.4 can be adjusted to reflect the lower occupancy rate for tourism developments. Northumberland Tourism data shows the average occupancy rate for self-catering accommodation in the county to be 56%, and therefore an occupancy rate of 1.34 can be used for tourism accommodation to reflect this. If the accommodation is closed for part of the year, a further proportionate reduction can be made, of one 1/12th for each month it is closed each year.

If your development is on mains sewerage you are asked to select which treatment works it is on, from a dropdown list. You will see from the final tab (called Lookups) that all of the sewage treatment works in the catchment have the same permit level for nitrogen, so don't worry if you don't know which treatment works your development will be connected to – you can just choose a nearby one as the result will be the same whichever you select.

If your development will rely on non-mains drainage, please select Package Treatment Plant or Septic Tank as appropriate. You must choose the default settings for these unless you know which make and model of treatment plant you have or will be installing and the level of **total nitrogen** (not just ammoniacal nitrogen or nitrate) it will be discharging. If you are buying a new one it is well worth comparing the performance of different models based on total nitrogen output and choosing one that minimises this by both nitrifying and denitrifying as part of the treatment process, as these can achieve a total nitrogen level of less than 10mg per litre, a figure that is several times lower than some other systems.

Stage 2

This involves inputting data concerning a range of characteristics of the development site including soil drainage type and annual average rainfall. To discover this information, click on the 'Instructions' tab and scroll down to the bottom of that sheet where you find 'Site specific data collection instructions'. These instructions provide links to the websites that will provide all necessary information for the location of your development site. It is important that the total area included at this stage matches the area within the red line of your planning application.

Stage 3

At stage 3 you identify all the land uses proposed for your development. Please see the table on page 13 of the 'Nutrient Budget Guidance Document' to identify the appropriate land use type. For example, if your development is a barn conversion with a garden, 'Residential urban land' should be chosen. Campsites for tents and touring caravans could be defined as 'greenspace' as long as fertilizers will not be used on the grassland and dog waste will be managed. For a static caravan park with a children's play area, the area occupied by caravans, roads, buildings etc would be 'residential urban land' and the area occupied by the children's play area would be 'open urban land'. It is important that the total area included at this stage matches the area within the red line of your planning application.

Stage 4

This sheet will show you the total additional nitrogen produced by your development per year. Unless this is zero or a minus number (which will only occur if a nitrogen-intensive land use is being changed to a less intensive one), this is the total nitrogen loading that requires offsetting to achieve neutrality overall.

Potential opportunities to achieve nutrient neutrality yourself

If you are applying for planning permission for a development that will increase nitrogen levels in Lindisfarne SSSI/SPA, there may be ways in which you can achieve nutrient neutrality, either by upgrading your sewage treatment system (if your site is not on the mains) or by changing the use of some land so that it produces less nitrogen. These are discussed below:

Upgrading a sewage treatment system

If your development site is currently served by a septic tank or package treatment plant there may be the opportunity to achieve nutrient neutrality by changing this to a type that is especially effective at reducing nitrogen levels. Systems that both nitrify (i.e. convert ammonia to nitrate) and denitrify (reduce the level of nitrate in the discharge) are especially good, with the best having total nitrogen discharge levels of less than 10mg per litre. The Graf One2Clean is one such example. It may also be possible to fund the replacement of a septic tank or package treatment plant elsewhere in the Lindisfarne catchment in order to achieve nutrient neutrality for your development.

Changes in land management

If you manage land that is currently farmed and are able to change its use to woodland, scrub and/or ponds you may be able to achieve nutrient neutrality that way. Research is currently underway concerning the most reliable measures that can be implemented reduce nitrogen runoff from the farmed environment itself and so we hope that a wider range of options will be available for land managers in due course.

If you would like to discuss the potential for achieving nutrient neutrality through upgrades to private sewage treatment plants or changes in land management please contact David Feige, County Ecologist (david.feige@northumberland.gov.uk).

If you are unable to achieve nutrient neutrality yourself

Northumberland County Council is working to create a strategic solution in the form of a land management project that will reduce nitrogen levels entering the Lindisfarne SPA/SSSI. Once this has been established, applicants will be able to purchase the requisite number of credits from this project to offset the increase in nitrogen arising from their development. Unfortunately it will inevitably take of some time to establish this; we don't know how long yet, but it will be some months.