

Nutrient neutrality



Nutrient neutrality is an issue that is increasingly affecting more areas of the UK. The topic cuts across planning, development and rural land management.

What does nutrient neutrality mean?

Nutrient neutrality means that new development in specific areas does not result in an increase in phosphate and nitrate levels in local watercourses beyond current levels. For a planning application to receive consent from the local planning authority, these developments need to prove they will be nutrient neutral.

What is the problem with nutrients?

If high concentrations of nutrients, for example nitrogen and phosphorous, leach into watercourses, this can cause excessive algae to grow, which depletes oxygen in the water and damages aquatic life. There are many causes of nutrient pollution including sewage treatment plant discharge, agricultural run-off, storm water run-off and discharge from industry.

Why is this affecting development?

Evidence suggests residential development contributes to high levels of nutrients in the water, due to the additional demands placed on the sewage treatment infrastructure in catchments.

If proposed development is within a catchment where the nutrient concentration in the watercourse is deemed too high and the wastewater from the development will directly impact an environmentally designated area, there is a new requirement for the developer to demonstrate the development is nutrient neutral. Any new development in affected areas which consists of overnight accommodation, including permitted development or even campsites, must be demonstrated to be nutrient neutral until such a time as water treatment infrastructure is upgraded to handle more nutrients. Until mitigation solutions are developed this effectively creates a moratorium on all new development that would discharge into a protected water system.

How do you achieve nutrient neutrality?

Developers have access to a nutrient load calculator which considers the number of houses within the development and the existing capacity of the local wastewater treatment works. Using this information the amount of excess nutrient that will discharge into the local watercourse is calculated, in other words, how much nutrient the development needs to find a neutrality solution for. Each water catchment has its own nutrient budget calculator.

It is possible to achieve nutrient neutrality onsite, via the creation of large-scale wetlands, woodlands and fallow habitats. However, in reality there is unlikely to be enough open space provision within development boundaries to achieve nutrient neutrality onsite, and land values may be a constraint too.

An alternative solution to nutrient neutrality is through offsite nutrient credits. Mitigation techniques are subject to negotiations with each local planning authority, but include the creation of wetlands, taking agricultural land out of production or the installation of package sewage treatment plants on private properties that do not comply with the General Binding Rules covering small sewage discharges. By purchasing credits from these sources, developers fund the implementation of these mitigation solutions.

The development of an offsite market for nutrient credits offers an opportunity for land managers who can generate credits and are willing to take on a long-term land use change commitment. Natural England has produced a table of nitrogen leaching rates for different agricultural land use types (see below). This can be used to calculate how much nitrogen leaching is reduced through a land use change. Equivalent calculators have been produced for phosphates and are catchment specific. The calculation is then ground-truthed using a hydrogeological conceptual site model, provided by a hydrologist. Natural England has stipulated that mitigation land is maintained for a minimum of 80 – 125 years. The mitigation site is also required to be located within the same river catchment area as the development. Proximity to the affected watercourse is advantageous, as the closer the offset site is to the watercourse, the faster the reduced leaching rate is actioned.

Alongside the private market Defra and the Department for Levelling Up, Housing and Communities announced on 21 July that a national Nutrient Mitigation Scheme will be established by Natural England in Autumn 2022. It will be open to all developers but with priority given to smaller builders who are most affected. The Natural England scheme

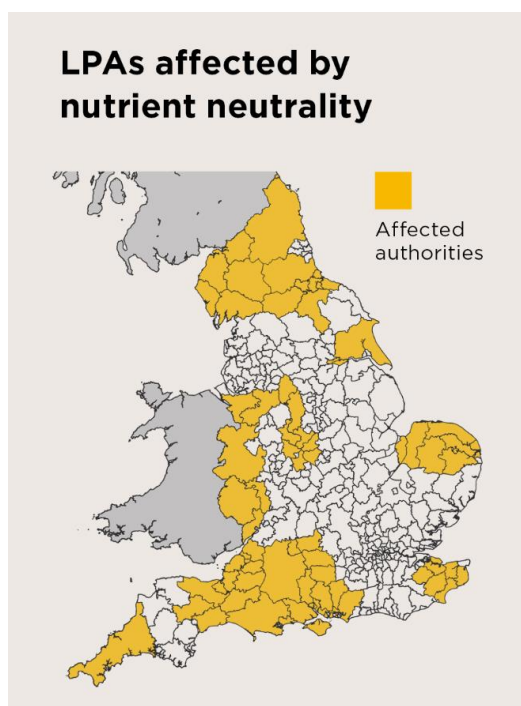
will invest in projects like new and expanded wetlands and woodlands to 'soak up' or mitigate the impacts of unavoidable nutrient pollution. Natural England intends to work with, not crowd out, new and existing private providers and markets for nutrient offsets. The nutrient credits its scheme offers will be generated in partnership with green groups and other privately led nutrient mitigation schemes; it is therefore another potential buyer for landowners to work with on their projects.

With this scheme and private markets working in tandem the government hopes to rapidly unlock homebuilding in affected areas. As a longer-term solution to nutrient pollution issues, a new legal duty will be placed on water companies in England to upgrade wastewater treatment works by 2030 in 'nutrient neutrality' areas to the highest achievable technological levels.

Which areas are impacted by nutrient neutrality?

In 2018, Natural England issued guidance preventing residential development surrounding the Solent, where river conditions were 'unfavourable', unless the local planning authority was certain the impact of the nutrients from the wastewater created onsite could be mitigated. This guidance has since expanded, initially to 32 local planning authorities and in March 2022, a further 42 (see map below).

Land use	Leaching rate (Nitrogen kg/Ha/Yr)
Urban development	14.3
Open space / greenfield	5.0
Woodland	5.0
Community food growing	26.9
Cereals	31.2
Dairy	36.2
General cropping	25.4
Horticulture	29.2
Pig farming	70.4
Lowland grazing	13.0
Mixed	28.3
Poultry farming	70.7



Taken from Nitrate Budget Calculator June 2020

What are the values for nutrient offsetting?

Comparables are hard to come by for nitrate credit trading, however as trading becomes more commonplace, we will see a marketplace establish. Indicative values for nitrate credits are around £2,500/kg - £3,000/kg paid to the landowner - please note this is a one-off fee, not an annual income. As of yet, the values for phosphate credits are less known, but a market is emerging.

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