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## Achieving Nutrient Neutral Development in the River Axe Catchment

### Report summary:

In April 2022 Natural England advised East Devon District Council that because of the sensitivity of the River Axe, which is designated as a Special Area of Conservation, new planning permissions for new homes, and other developments providing overnight accommodation, should not be granted in the catchment of the river unless they can be shown to be “nutrient neutral”. It should be noted that a number of other planning authorities in England received the same advice in respect of designated sites and others were already subject to this advice.

This report seeks to highlight on-going work in trying to deliver suitable mitigation for new housing developments within the catchment of the River Axe where the discharge of phosphates into the River Axe SAC are detrimentally impacting on water quality. The report seeks to highlight a number of key options for delivering mitigation and the implications of these in terms of cost and resources. It seeks Members views on these options so that an approach to delivering mitigation can be agreed in the hope that new housing developments can then be granted consent and be delivered in the River Axe catchment area.

### Is the proposed decision in accordance with:

Budget Yes  No

Policy Framework Yes  No

### Recommendation:

That Members of Strategic Planning Committee:

1. Agree to provide financial support to the Environment Agency and West Country Rivers Trust Nutrient Trading Platform in the form of a £3k payment towards initial set up costs and £10k per annum for this financial year and the next two financial years towards establishing the mitigation measures and trading platform.
2. Agree to pursue potential water efficiency measures to the Council’s housing stock within the River Axe catchment and that a detailed proposal be brought to Members for consideration at a future meeting.
3. Agree to investigate council housing stock within the River Axe catchment that is not connected to mains drainage and consider whether upgrading drainage systems could reduce the discharge of phosphates.
4. That the guidance on thresholds for the significance of projects impacting on nutrient neutrality issues as agreed with Natural England be adopted by the Council and published on the Council’s website.

## Reason for recommendation:

To enable the further development of mitigation measures to enable the delivery nutrient neutral development within the catchment of the River Axe.

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Portfolio(s) (check which apply):

- Climate Action
- Corporate Services and COVID-19 Response and Recovery
- Democracy and Transparency
- Economy and Assets
- Coast, Country and Environment
- Finance
- Strategic Planning
- Sustainable Homes and Communities

**Equalities impact** Low Impact

**Climate change** Low Impact

**Risk:** Medium Risk; Risk associated with the advice from Natural England are explicitly linked to matters related to possible impacts of reduction in new house building. Until mitigation can be delivered new homes, including affordable homes for local people, might not be built in the River Axe catchment whilst there could be increased pressure for development elsewhere in East Devon. The advice from Natural England suggests possible increasing concerns over the water quality of the River Axe and if we do not follow that advice we would be failing to discharge the Council's duties under the Habitats Regulations.

**Links to background information** – See links in the body of this committee report.

**Link to [Council Plan](#):**

Priorities (check which apply)

- Outstanding Place and Environment
- Outstanding Homes and Communities
- Outstanding Economic Growth, Productivity, and Prosperity

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## 1 Background context

- 1.1 The River Axe, from upstream of Seaton to a point close to the Somerset border is designated as a Special Area of Conservation (SAC). This places the designated stretch of river in the highest tier of wildlife sites in the United Kingdom, such sites form the National Site Network (previously 'Natura 2000' classification). The river, through Natural England measurements, falls below required standards to fulfil designation status. The fundamental problem is that there are excessive levels of phosphates entering the river and these are resulting in adverse impacts on the biological make-up of the river and biodiversity value. Members of committee will be aware of these concerns noting that on the 23 February

2021, a report was presented on the River Axe Nutrient Management Plan work, see [Agenda for Strategic Planning Committee on Tuesday, 23rd February, 2021, 2.00 pm - East Devon](#) . Members were also advised in April 2022 that Natural England had advised that consent should only be granted for nutrient neutral developments that would not exacerbate the problem, see - [Agenda for Strategic Planning Committee on Tuesday, 5th April, 2022, 10.00 am - East Devon](#) .

- 1.2 Most phosphates entering the river come from agricultural activity including run-off from farmed land. This can amount to up to 70% of the total depending on location within the catchment. Throughout the catchment area livestock accounts for over 50% of the total phosphate loading into the river. A sizeable amount of the remainder is, however, a result of human activity that is associated with the houses we live in and business premises and buildings we use – or more precisely it is the wastewater that is generated. Most sewage and grey water coming from buildings is treated at sewage treatment plants and the post-treatment liquid emissions from these plants enters watercourses. Sewage treatment plants, and this applies to private and domestic scale systems as well as water company plants, will emit some phosphate into the water course, noting that treatment will strip some phosphates out. Below is a diagram illustrating the key sources of phosphates into the SAC; beneath that is an example of the breakdown on phosphate levels at one point within the catchment (Whitford):

*Figure 1: Schematic of a water catchment system (river or coastal) showing the pathway for impact (black line) from new residential development, as well as the current sources of nutrient pollution within catchments.*

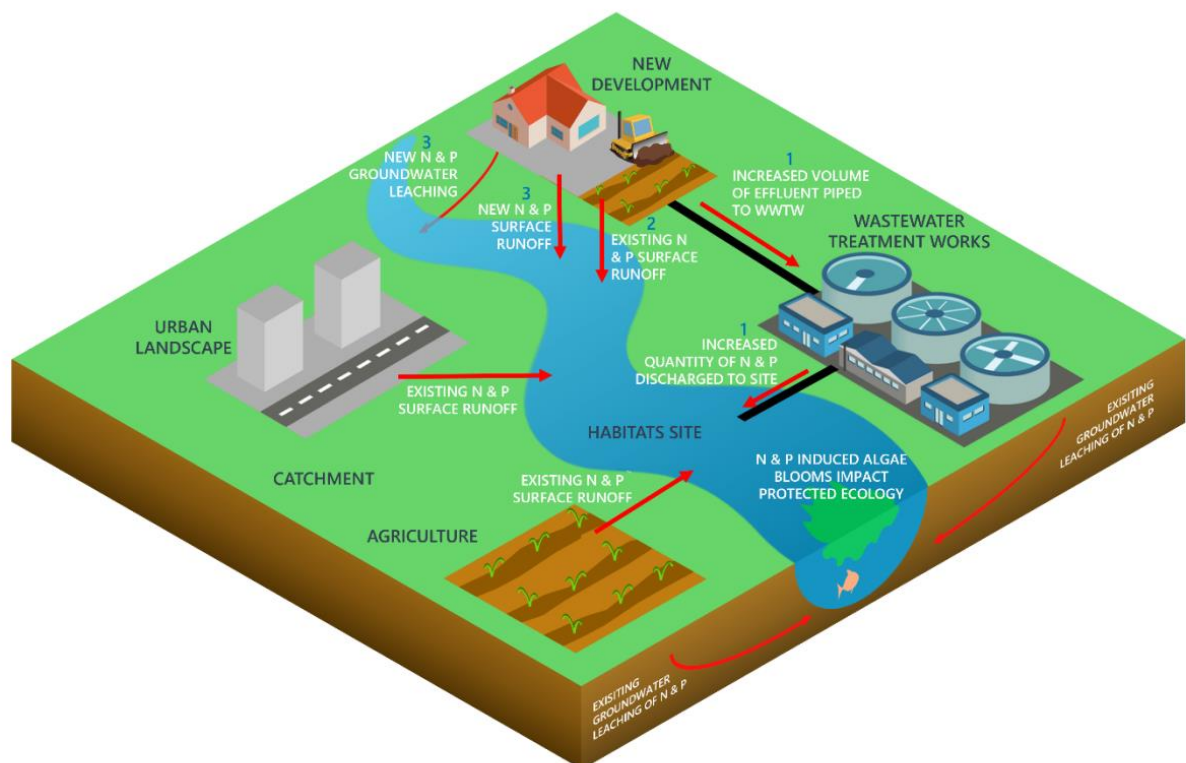
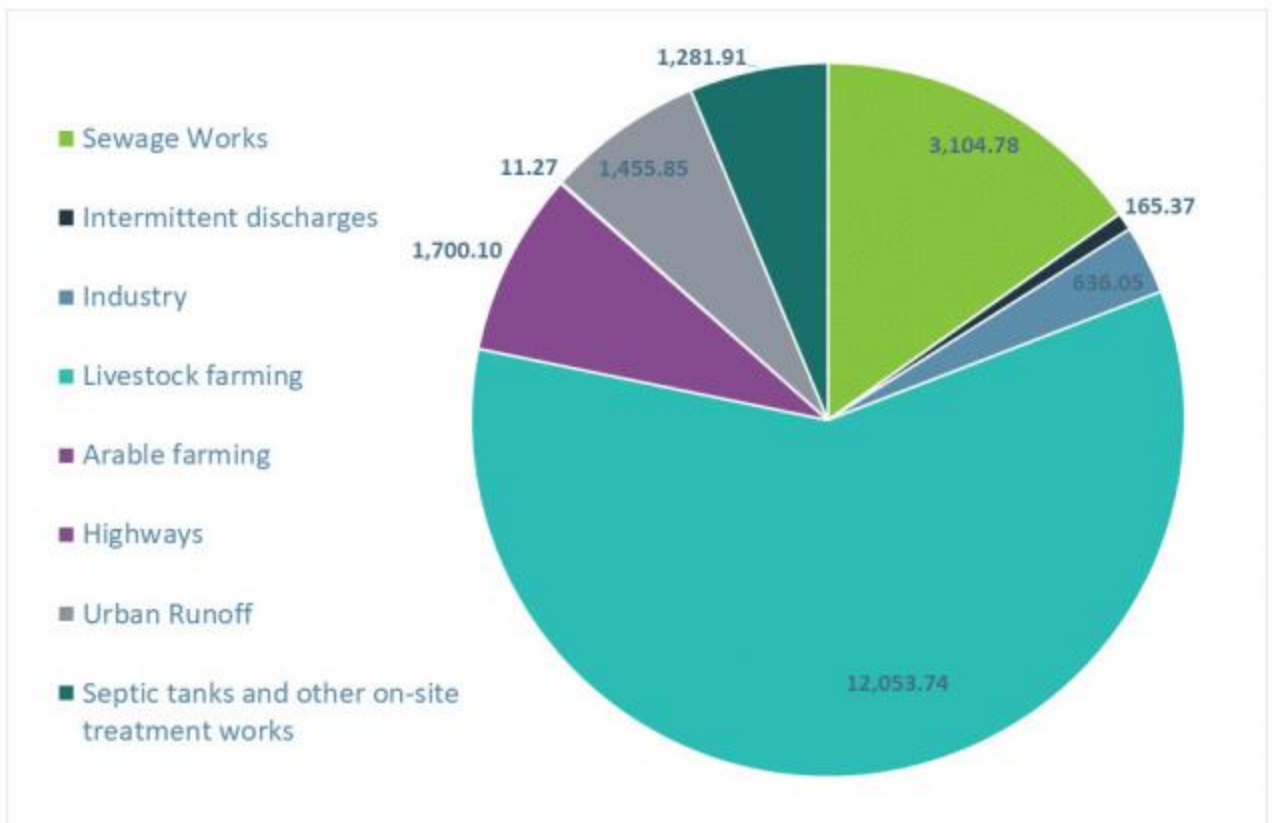


Figure 2.3 SAGIS Phosphate Source Apportionment, kg-P/yr, Axe at Whitford



1.3 There is a legal requirement for planning authorities, under the Habitat Regulations, to undertake assessment of any development scheme that could adversely impact on any of the highest tier of wildlife sites, those designated under the National Sites Network. In fact, the actual requirement applies to any competent authority (that is more than just planning authority) to undertake an assessment of any “plan, policy or proposal” that could lead to adverse impacts. Depending on the results of assessment it may be that planning permission should not be granted unless mitigation measures will be implemented to offset adverse impacts. Members will be aware of the fact that this council (with partners) is already delivering mitigation at and around the River Exe and Pebblebed Heaths (and in Teignbridge at Dawlish Warren) in respect of adverse impacts from recreational impacts on the National Sites and have produced guidance for developments that could affect Beer Quarry and Caves SAC.

1.4 In respect of the River Axe we have been aware of the need for mitigation for some time, but this has become a far more critical concern following receipt of communications from Natural England.

**2 Natural England advice – dated 16 March 2022**

2.1 On the 16 March 2022 this council received a lengthy communication from Natural England that set out their detailed concerns in respect of high nutrient levels in a number of rivers and watercourse in England that are designated within the National Site Network. The issue had previously been raised through production of the adopted Local Plan and is noted in Strategy 20 of the plan. Some work had already been undertaken to better understand these issues and how they could be mitigated through production of a Nutrient Management Plan.

- 2.2 Natural England's letter highlighted the need to follow the legal requirements set out under the Habitat Regulations when assessing planning applications and elevated nutrient impact considerations. The key nutrient concerns for the River Axe are increased phosphate levels, though for many water courses increased nitrate levels are more of a concern.
- 2.3 We are one of over 70 local authorities affected by this issue as can be seen on the map below of the areas in the country where Natural England have issued this advice.



European protected sites requiring nutrient neutrality strategic solutions  
**Nutrient neutrality SSSI catchments**

- SSSI subject to nutrient neutrality strategy
- Nutrient neutrality SSSI catchment

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### 3 Lead authority to plan for mitigation

3.1 It is highlighted that the River Axe and its catchment falls in 3 local planning authorities areas, including the new unitary authority in Somerset. Discharge of wastewater into the catchment of the Axe has the potential to impact on the SAC. The SAC designated stretch of river, however, falls entirely within East Devon and most development that could impact on the designated stretch is expected to occur in our district. As a consequence it was concluded that we would be the logical lead authority to plan for mitigation of the River Axe and Members previously agreed for us to act as lead authority.

3.2 The catchment of the Axe in relation to local authority boundaries can be seen on the map below:



European protected sites requiring nutrient neutrality strategic solutions  
**Component SSSIs of River Axe SAC**

- Local Authorities
- SSSI subject to nutrient neutrality strategy
- Nutrient neutrality SSSI catchment
- National Parks



- 3.3 The Council is in receipt of £100k of funding from government to help to resolve issues of nutrient neutrality across the River Axe catchment.
- 3.4 Even before the letter from natural England in March 2022 we had been working on options for mitigation and this report seeks to highlight the progress that has been made since that time and set out genuine options that could form part of a mitigation strategy for Members comments.

#### **4 Options for mitigation**

- 4.1 Nutrient neutrality (NN) mitigation measures typically takes the form of either temporary or permanent measures and need to be secured in perpetuity (80 years+) through legal agreements. NN measures typically take the form of habitat-based mitigation (wetland creation, woodland creation, buffer strips, land fallowing) or infrastructure related measures (improvement of package treatment plants, installation of water efficiency measures etc.). One of the challenges of delivering mitigation projects is the need to secure in perpetuity mitigation as many projects are more short term and while they would be beneficial they may not be Habitat Regulations compliant.
- 4.2 As part of the new local plan Water Cycle Study work package, Royal Haskoning DHV are creating a revised nutrient budget calculator for the Axe Catchment, to improve on the generic calculator provided by Natural England. They are also producing a revised catchment area, to provide a more accurate catchment boundary. This is expected to be delivered shortly and will be reported to Members in the Autumn.
- 4.3 We have been working to some overarching principles for delivery to ensure that we can make informed decisions on mitigation options. These are:
1. Learn from experiences of other LPAs, particularly Somerset, Cornwall and Dorset.
  2. Utilize external specialist knowledge and parties, such as Triple Axe, Westcountry Rivers Trust (WRT) and others.
  3. Try to realise multiple benefits at once from HRA mitigation (carbon savings and sequestration, cost savings, nature recovery, water quality (besides phosphates), potential Biodiversity Net Gain stacking, air quality, natural flood management etc.)

Once all the elements of a strategy are in place, a formal document can be produced, possibly as a Supplementary Planning Document (SPD).

- 4.4 In considering options we have looked at experience from elsewhere and would highlight the following main projects as examples of what has been achieved:

- **Hereford Council**

A multi million pound wetland scheme is being delivered, which is the logical choice in their situation as they have a large nutrient problem, in a large catchment with urban expansion and industrial agriculture (chicken farms). Details available at:

[Progress on journey to nutrient neutrality – Herefordshire Council](#)

[Nutrient Management Plan – Herefordshire Council](#)

- **Solent**

A multi authority nutrient trading pilot has been established, dealing with nitrates primarily, using land fallowing and habitat creation (woodland, wetlands, grassland). Details available at:

[Solent Nutrient Market - Partnership for South Hampshire \(push.gov.uk\)](https://push.gov.uk)

[Solent Nutrient Market Pilot](#)

- **Somerset**

Somerset are working on an interim phosphate mitigation strategy with phosphate credits (1 kg of phosphate removal) estimated to sell for c. £55k. They undertook a consultation exercise with all planning applications held in abeyance since the March 2022 guidance from Natural England with 97% of those applicants saying they would seek to use the scheme. It is estimated the proposed mitigation strategies in development will be unlikely to satisfy the existing demand of those applications held in abeyance with allocation of credits prioritising minor (C3) development proposals. They have also implemented water efficiency measures on housing stock to release nutrient credits, resulting in improvements to infrastructure paid for by developers, releasing other sustainability benefits alongside NN. Details available at:

[Somerset West and Taunton interim strategy: Phosphate Credit Scheme](#)

[INNOVATIVE ENVIRONMENTAL MARKET TACKLES NUTRIENT POLLUTION IN SOMERSET 1AUG2023 web version.pdf \(cdn-website.com\)](#)

- **Cornwall**

Cornwall Council are seeking expressions of interest from landholders in the catchment to help address the issue of phosphates in the Camel SAC in partnership with the Westcountry Rivers Trust and exploring grant funding replacement of septic tanks with efficient Package Treatment Plants (PTPs). Details available at:

[River Camel phosphates mitigation strategy and policy - Cornwall Council](#)

- **Private (non-LPA) nutrient trading**

Individual companies, as well as larger organisations such as Wessex Water are looking to carry out nutrient trading. Nutrient trading is usually an on-line platform where landowners offering to deliver mitigation projects can sell credits or a proportion of the mitigation benefits from their project to a developer, e.g., through replacing septic tanks or taking cattle yards out of use. One small private trading platform known as Environment Trading Platform are understood to be investigating projects in the River Axe catchment that would deliver mitigation. This is the only third party operating in the Axe that we know of at this stage.

- **Norfolk - Water efficiencies in housing stock, costed and credits sold.**

Fitting water efficient fittings such as cisterns and showers to reduce water usage within the housing stock and therefore discharge rates.

- **On-site/off-site mitigation by developers**

It is understood that some developers promoting large scale residential led developments in the area have been investigating the potential to deliver mitigation themselves either within the proposed development site or on other land acquired by them. There is potential for this to be achieved and projects such as wetland areas close to the river to provide natural mitigation measures.



## 5. Mitigation in the River Axe

- 5.1 From experience elsewhere and discussions with partner agencies we have identified two main mechanisms for delivering mitigation measures within the River Axe catchment. These are set out below:

### **A Joint Mitigation Strategy and Trading Platform**

- 5.2 The EA, Westcountry Rivers Trust (WRT) and Natural Capital Marketplace (part of the North Devon Biosphere Foundation) are incepting a joint NN mitigation scheme, which has opportunity for direct support from EDDC.
- 5.3 The scheme is based on creating multiple small to medium scale wetlands on farms, the managers of which already have involvement with the Triple Axe project and AONB work. The wetlands will be designed to provide NN mitigation, but also to provide other ecosystem benefits such as natural flood management and possibly biodiversity net gain. The project is to be marketed and monitored through the Natural Capital Marketplace in North Devon. The project is at an early stage, but the EA has gained funding for the initial set up work. An initial business case has been drawn up by the EA for this purpose. This was issued as a draft in early December 2022. EA and WRT have already secured partial funding from South West Water and hope to commence a trial/initial works this year.
- 5.4 Potential EDDC contributions (officer time or finance) have been proposed by the EA of £3,000 at project inception, and then £10,000/year for 3 years. These are initial, non-committal figures and could be revised.
- 5.5 This project presents an opportunity to deliver well planned NN measures in a reasonable timescale, through an existing collaboration of expert partners. This project will exist with or without EDDC input. Doing anything contrary to this scheme (i.e., setting up a separate mitigation scheme) is likely to result in direct competition, and would probably have slower implementation, due to lack of partnership working. There is not a substantial market predicted in the Axe catchment, and if too many schemes are established, EDDC risk having too many credits available in the catchment, which will remain unsold, resulting in wasted resource.
- 5.6 This project therefore provides EDDC with a unique (and well-timed) opportunity to invest in a trading platform and mechanism to deliver mitigation, which meets our objectives, with fairly minimal input. As with most options it faces the challenge of finding willing landowners to bring forward projects, however partnering with the EA and West Country Rivers Trust and using their contacts within the area would be beneficial. In terms of this project it may be that we just provide oversight (sitting on a steering group) and finance. The platform would then operate on a not for profit basis and enable developers to buy nutrient credits through the platform which would enable their developments to proceed as nutrient neutral in accordance with Natural England guidance. The funding would then be provided and the projects delivered. We would need to remain involved in some way to monitor this and ensure that mitigation is being provided in a timely manner but this should only need to be a light touch approach given the partner bodies whose aspirations align with those of the council with regard to the delivery of mitigation.
- 5.7 The need for further internal staff resource to be dedicated to this work needs to be kept under review as work progresses and the scope of potential projects is better understood.

Staff with the necessary expertise are in high demand and others have experienced difficulties in recruiting and so simply seeking to recruit a dedicated officer to lead on nutrient mitigation work may not be the best solution and more project based resource or further supporting the work others are leading on may be a better and more cost effective solution. There are also strong links with Bio-diversity Net Gain and Nature Recovery work that also need to be considered. This should therefore be kept under review and considered further in future reports.

### **Water efficiency measures**

- 5.7 Phosphate (P) discharge permit limits from Waste Water Treatment Works (WWTWs) are measured in mg-P/L (milligrams of phosphate per litre). Reducing the volume of water used in a property increases the concentration of P in effluent entering the WWTW. This means that the WWTW needs to remove more phosphate in order to meet its permit limit. In effect, this means that water efficiency measures installed to homes can result in a reduction of phosphate being discharged by WWTWs. This P saving can be calculated and could be sold back to parties who require phosphate mitigation as phosphate credits or used for Council developments, in order to allow development to be nutrient neutral, and be compliant.
- 5.8 Water efficiency measures also have multiple other benefits, including cost savings to tenants, gas savings (for the excess gas used to heat the excess water), and reduction in fossil fuel use (due to the carbon cost of producing clean water and heating excess water). Water efficiency measures therefore have a wide range of sustainability benefits, as well as inherent water quality, water neutrality, and nutrient neutrality benefits. Similar opportunities could also potentially be realised with social housing providers.
- 5.9 Somerset Council are implementing water efficiency measures to realise phosphate credit sales and improve council owned housing stock.
- Somerset are focusing on bathroom improvements (fitting water efficient fittings, cisterns and showers) - <https://democracy.somersetwestandtaunton.gov.uk/ieListDocuments.aspx?CId=461&MIId=3145>
- A housing association called Stonewater are also reportedly using a product called Cenergist Flow control units to generate phosphate credits. The product claims to work to reduce the flow of water into the home without affecting the user experience.
- 5.10 EDDC benefit from a large volume of council owned stock. Officers have collated a draft list of EDDC owned stock in the Axe SAC Catchment area. This totals 553 properties (houses, bungalows, flats, maisonettes). This was collated using parish boundaries and is likely to need some refinement following confirmation of the exact catchment boundary (ongoing work by Royal Haskoning DHV).
- 5.11 Cenergist is a company which has designed low maintenance flow regulators, which are simple and cost effective to install. An initial meeting has been held between Cenergist and the District Ecologist to discuss their units. Cenergist have a Natural England approved project with Stonewater Council, whereby they achieved nutrient credit creation through installation of water flow regulators to council owned housing stock. The fee from Cenergist to liaise with tenants, issues letters, installs the units and carry out some monitoring was understood to be £165/unit at the time of discussions. These are installed at the water meter/street connection and is a significantly less expensive and time consuming method of

achieving water savings compared to retrofitting stock with efficient taps, cisterns and showers.

- 5.12 Using the figures provided by Cenergist, as well as data from the River Axe Nutrient Management Plan (NMP) produced in 2021, a draft calculator has been created to calculate estimates of installation costs, phosphate reduction, cost per kg/P, carbon reduction and water savings. The initial outputs, assuming installation to every council managed house in the catchment, are 11.7 kg/P/year savings, savings of 13,088 tonnes of potable water saved per year, combined saving of £51,000/year on water bills for tenants, and 7.7 tonnes of CO<sub>2</sub> saved/year.
- 5.13 Another potential source of P credits is to investigate improvements to the package treatment plants (PTPs) which serve more remote, non-mains sewage connected housing stock. These are typically older and underperforming from a P processing perspective. This requires further investigation.

### **Other Mitigation Options**

- 5.14 Other options include delivering mitigation projects ourselves as a Council and then seeking contributions through planning obligations towards the delivery of these projects in a similar way to the delivery of habitat mitigation at the Exe Estuary and Pebblebed Heaths. This approach would rely on the Council being able to acquire land or reach agreements with landowners to bring forward projects within the area. Past experience shows that acquiring land can be challenging particularly as we would be competing with other interested parties some of which may be looking to deliver environmental projects themselves and then trade them through a trading platform for nutrient mitigation project, biodiversity net gain etc. Given that this can be a profitable exercise it may be difficult for the Council to be able to reach agreements with landowners and to do so at a suitable value to deliver projects on a cost recovery basis. In some respects it may be questioned as to whether there is a need to do this if others are able and willing to do so particularly if the joint project with the Environment Agency and West Country Rivers Trust referred to above can achieve the same goals.
- 5.15 Sewage treatment plant improvements – many sewage treatment plants already strip phosphates out of waste water as part of their treatment processes, amounts vary however from plant to plant depending on exact processes and technologies used. There is scope to upgrade many plants and the Government announced in 2022 that as part of the Levelling Up and Regeneration Bill there will be a new legal duty on water companies in England to upgrade wastewater treatment works by 2030 in ‘nutrient neutrality’ areas to the highest achievable technological levels. See: <https://www.gov.uk/government/news/government-sets-out-plan-to-reduce-water-pollution>

These upgrades offer scope to open-up some potential to allow for additional new homes to be built. However, it may take some time for projects to be designed and implemented and as such it is not an instant solution. Furthermore, some stripping technologies are understood to be quite energy intensive so may have adverse impacts in respect of carbon emissions.

### **Other Issues**

- 5.16 Since the initial advice was issued by Natural England in March 2022 further advice has been agreed with other authorities regarding thresholds that can be applied in relation to the likely significance of certain types of development to impact on nutrient issues within the SAC. These make it clear how projects that would usually fall within the scope of an appropriate assessment under the habitat regulations could be screened out where they will

not lead to any impact on the habitat or where it would maintain or reduce nutrient levels. It also sets out circumstances where a project may have such an insignificant impact on nutrient levels within the habitat either on its own or in combination with other projects that an appropriate assessment would not be necessary. These projects are those such as where a septic tank or package treatment plant is proposed that would discharge to ground through a drainage field. This is because percolation through the drainage field would remove phosphorous levels and reduce impacts to an insignificant level. This is based on a series of detailed design criteria being met. The detailed guidance is attached as Appendix 1 to this report. It is proposed that this guidance be adopted by the Council and post on our website as advice to applicants applying for planning permission.

## **6. Conclusions**

The above assessment of potential mitigation options hopefully provides a useful summary of the measures that could be incorporated into a mitigation strategy. These could at least form the first round of measures to be used to unlock the current position whereby permissions cannot be granted for new residential dwellings and other developments that would not be nutrient neutral within the catchment area. It is proposed that these measures be pursued with the requested contributions made to the Environment Agency and West Country Rivers Trust trading platform using funds received from government towards resolving this situation and that further work be undertaken to develop proposals for water efficiency measures to be applied to the Council's housing stock so that a detailed proposal and costing can be brought forward for Members future consideration.

### **Financial Implications**

The financial implications are contained within the body of the report. The £100k central government grant mentioned was placed in reserve in 2022 and will be utilised to fund associated expenditure if required.

### **Legal Implications**

The Council's legal obligations and the legal position are set out in the report, any specific schemes going forward will need to be approved and evaluated at the time that they are brought forward.