From: **Derek Murphy, Cabinet Member for Economic Development**

Simon Jones, Corporate Director for Growth Environment and Transport

To: **Growth Economic Development and Communities Cabinet Committee – 22 March**

Subject: **Nutrient Neutrality**

Classification: **Unrestricted**

Past Pathway of report:

Future Pathway of report:

Electoral Division: Ashford Central, Ashford East, Ashford Rural East, Ashford Rural West, Ashford Rural South, Ashford South, Canterbury City North, Canterbury North, Canterbury City South, Canterbury South, Herne Village & Sturry, Herne Bay East.

Summary: Developments in the Stour catchment are required by Natural England to achieve nutrient neutrality i.e., that no additional nitrogen or phosphorus enters the river. This is due to the poor condition of Stodmarsh National Nature Reserve. Nutrient Neutrality is a requirement of the Conservation of Habitats and Species Regulations 2017. Nitrogen and phosphorus enter the river from wastewater treatment works, any new development in the Stodmarsh will increase the amount of these nutrients in the river. Until mitigation is secured, no new development can be approved.

Nitrogen and phosphorus are present in wastewater, including in the effluent after wastewater has been treated in wastewater treatment works. Achieving nutrient neutrality will require investment in infrastructure to remove nitrogen and phosphorus, either from the development directly or from the river.

The stakeholders in this issue have developed a strategy to manage nutrient neutrality in the Stour catchment.

Recommendation(s):
The committee is asked to note the report.

1. Introduction

1.1 In Summer 2020, Natural England (NE) issued advice to the local planning authorities in the catchment of the River Stour (Canterbury, Ashford, Folkestone and Hythe, Maidstone, and Dover), to inform them that new developments must not increase the level of nutrients nitrogen and phosphorus in the River Stour, as they are having a negative impact on Stodmarsh National Nature Reserve.

1.2 These nutrients are in the effluent from wastewater treatment works (WwTW). Any new development in the catchment of the WwTW will increase the amount effluent they discharge and therefore the amount of nutrients that enter the River Stour.

1.3 To meet planning requirements, proposed new developments with overnight accommodation must demonstrate that they can achieve nutrient neutrality prior to being given approval. This means that they must reduce or offset these nutrients so that the nutrient levels in the River Stour do not increase overall, i.e., they must achieve nutrient neutrality. Achieving nutrient neutrality is complex but planning authorities cannot approve planning permission for developments with overnight accommodation that cannot demonstrate this.

1.4 Ashford Borough Council and Canterbury City Council are not approving any planning applications for developments in the River Stour catchment that do not have an Appropriate Assessment (AA) that demonstrates nutrient neutrality.

1.5 This issue is potentially affecting the delivery of up to 50,000 homes in East Kent, including developments around Ashford, Canterbury, Herne Bay, Otterpool, and Lenham. The costs of mitigation options will potentially also affect the viability and deliverability of sites, which may require the need to renegotiate S106 agreements and ultimately, see less funding for key infrastructure and services delivered by KCC and other providers.

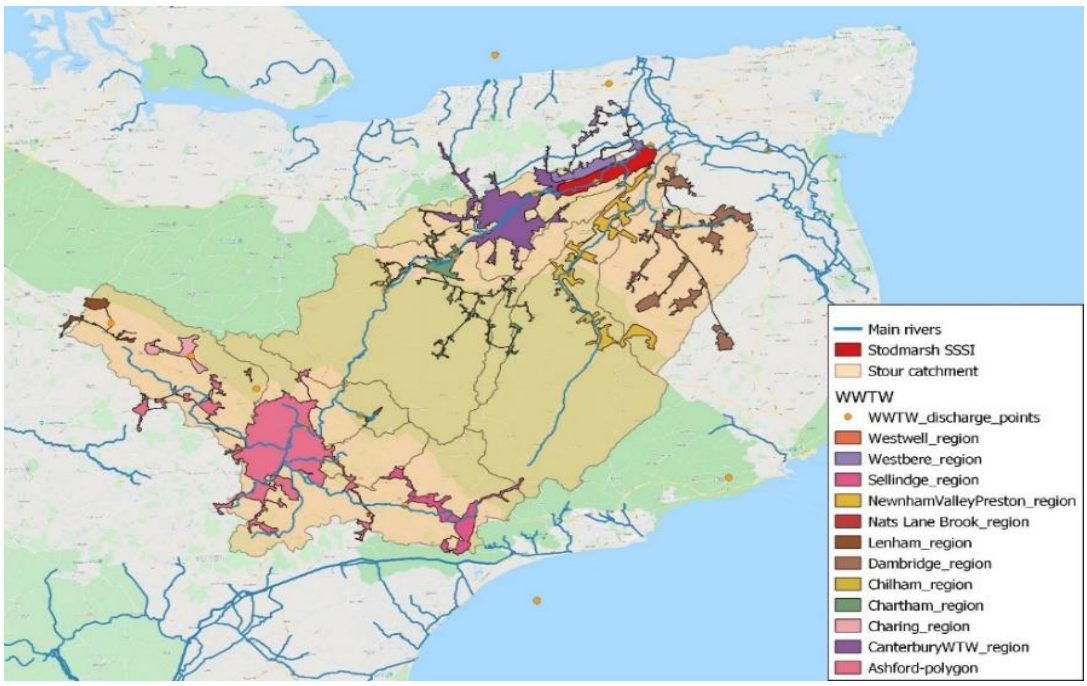
2. Background

2.1 Stodmarsh National Nature reserve is an important wildlife site that lies to the east of Canterbury that has a number of national and international habitat designations, including Site of Special Scientific Interest, Special Protection Area, Special Area of Conservation and Ramsar site. As a consequence of having these designations the site falls under the requirements of the Conservation of Habitats and Species Regulations 2017 (the regulations).

2.2 Natural England has advised that Stodmarsh is in an unfavourable condition due to elevated nutrient levels, nitrogen, and phosphorus, which are adversely affecting the diverse wildlife found there. The River Stour supplies water to the wetlands in Stodmarsh and nutrients in the River Stour will have a negative impact on the site. The regulations require that any project (including development) that has a potential negative effect on a designated site cannot progress until mitigation is secured.

2.3 Nitrogen and phosphorus are in wastewater, arising from human waste and the chemicals we use in our homes. The wastewater treatment works (WwTW) that serve the development will then contain these nutrients in the effluent they discharge. Any new development that is served by a WwTW that discharges to the River Stour will increase the level of nutrients at Stodmarsh.

2.4 A map of Stodmarsh, the River Stour catchment and the WwTW is shown below:



2.5 The Natural England advice applies to any development that increases overnight accommodation e.g., residential dwellings, care homes, and hotels. Commercial and tourist developments that do not include overnight accommodation are not affected by this.

3. Nutrient sources

3.1 Nitrogen comes from a variety of sources, including agriculture, as it is a key component of fertilisers and can be found in animal waste, as well as wastewater. The predominant source of Phosphorus is wastewater, as it is found in human waste and chemicals used in the home, such as dishwashing detergents. Phosphorus is also used in fertilisers, but it is used in lower concentrations than nitrogen.

3.2 WwTWs treat foul waste collected from homes and businesses and discharge it into a waterbody, rivers, or the sea. This discharge is consented by the Environment Agency (EA). All the WwTWs in the Stour catchment are compliant with their discharge consents; however, these consents do not reflect the current understanding of nutrient impacts in the catchment.

3.3 Water company investment is undertaken in five-year cycles which are regulated by OFWAT[1] and the EA. Prior to the start of each five-year investment period the water companies have to submit a business plan that sets out their investment plans and the impact on customer bills. The current investment cycle started in April 2020 and runs to April 2025. The plans for the next five-year cycle, 2025-30, will be reviewed by the regulators in 2024.

3.4 Some of the WwTW consents were reviewed in the last five-year cycle and there are plans for Southern Water to upgrade some small WwTW (Herne Bay, Charing, Lenham, Dambridge and Wingham) in the catchment in this cycle (2020-25) to improve Phosphorus treatment. There is also a project to assess the impact of nutrients from all WwTW in the catchment at Stodmarsh in this cycle. This plan will set out where WwTW will need to be upgraded to

[1] **Office of Water Standards**

remove more Phosphorus. Delivering these improvements is expensive and will need to be included in the business plan for the next five-year investment cycle (2025-30), so will not be delivered until the next cycle and most likely towards the end of this period.

3.5 It may be possible to bring investment forward, but to bring it into the current cycle something else of equivalent value that is planned and agreed to would have to be removed or OFWAT would have to agree to a price increase (that is a rise in customer bills). Altering the current investment plan would be difficult, as the schemes that have been agreed have been through the regulatory process and will only be in the plan as they are needed, removing anything from the plan will likely have consequences and meet resistance from other stakeholders.

3.6 Reductions in Nitrogen are not as economic from WwTW as the proportion that comes from WwTW is smaller. Nitrogen in watercourses predominantly arises from agricultural runoff and this is likely to be the best place to deal with it. Long-term plans to reduce nitrogen usage on agricultural land in the Stour catchment will help to reduce nitrogen in the river, however, this will require negotiations with farmers and may require funding for alternatives.

4. Nutrient neutrality

4.1 Natural England has issued a methodology to calculate the nutrient budget for proposed development sites. This takes account of the pre-development uses of the site, including different agricultural uses, the size of the development, the discharge consent at the treatment works that it will connect to and the other land uses on the site (as open space in the development will make a nutrient contribution to the watercourse).

4.2 It is complex to achieve nutrient neutrality for new residential developments. WwTW improvements are likely to take many years and interim solutions are required. Options include:

Wastewater transfer

4.3 Developments could be connected to WwTW in another catchment. Nutrient neutrality is not currently an issue in the neighbouring catchments. However, this is a very short-term solution and is only viable for a small number of sites in suitable proximity to another catchment to be economical.

4.4 This option has negative consequences. The additional nutrients may become an issue in the future given that Natural England is still assessing the implications of this new interpretation on other sites - the coastal sites in Kent may also have similar issues that are currently unknown. This would also discharge a large volume of fresh water out of the catchment which has implications for water resources (Kent is already one of the most water stressed environments in Europe).

Package treatment works

4.5 An alternative to using water company assets to treat wastewater is to build a bespoke treatment works on the development site, known as a package treatment, works. These are small self-contained facilities that treat the development's effluent, which can then be discharged into a wetland on site to further remove nutrients.

4.6 The space for the treatment works and the wetland will have to be provided on site, which developers may not have previously accounted for in preparing a planning application and this infrastructure will also have to be funded.

4.7 These works must be consented by the EA, who has a presumption against them where there is a water company owned alternative. This is because water company assets are managed and invested in through a regulated investment programme, therefore providing the EA with some assurance that the assets will not deteriorate and contribute to pollution issues in the future. There are currently no such guarantees with package treatment works.

NAVs

4.8 New Appointments and Variations (NAVs) are alternative water companies to the traditional geographical monopolies, such as Southern Water. They are regulated by OFWAT and subject to the same regulatory process as other water companies, but they have no specific geographical service area. They were introduced to the water market to provide competition.

4.9 NAVs offer an opportunity to developers to resolve the nutrient neutrality issue, as they can build a bespoke treatment works to the necessary standards that they own and run, including wetlands. NAVs are also able to offer a range of multiple benefits, including lower water consumption, Sustainable Drainage Systems (SuDS) adoption and integrated water management.

4.10 However, the infrastructure that NAVs deliver has to be funded - they cannot currently fund strategic investment, like treatment works, through the five-year investment plan the way other water companies can (so that the costs are spread across the whole water company customer base). Instead, the developer has to fund the infrastructure up front, which can be a barrier to the deployment of NAVs.

Agricultural offsetting

4.11 As agricultural land discharges nutrients, taking it out of production and using it differently provides a nutrient credit. The Solent, on the Hampshire coast, has recently had a similar issue with nitrogen levels, and options like this are being used, where a local environmental non-governmental organisation (NGO) manages the establishment of a woodland on a farm. Developers in the Solent will be able to buy nutrient credits equivalent to the nutrients their developments will introduce to offset their nitrogen contribution, which fund the running of the sites.

4.12 The disadvantage of this approach is that it does not provide significant phosphorus credits, as there is only a limited amount of phosphorus discharged from agricultural land in the Stour and it is unlikely to provide neutrality for phosphorus economically. For nitrogen it may be a cost-effective option and could be used in the Stour if phosphorus is managed with WwTW improvements and nitrogen is the only nutrient that needs to be neutral.

Wetlands

4.13 Wetlands remove nutrients, both nitrogen and phosphorus, as the plants in them use them up as they grow. They can be used to reduce nutrient loads. There are two main ways they can be used:

- by treating WwTW effluent before it is discharged to a waterbody; or
- by taking water out of a river that has high levels of nutrients and passing it through the wetland to reduce the nutrients before discharging it to back to the river.

4.14 The former option is the best in terms of nutrient removal as the nutrients are most concentrated so the wetland can be most effective, but they need to be situated between a WwTW and the waterbody it discharges to. This is most easily achieved with a new WwTW; therefore, this is most likely to be an option for new on-site treatment WwTW. In fact, they are likely to be necessary for any on-site treatment process, as nutrients cannot currently be reduced to levels low enough to achieve neutrality through WwTWs alone. There is a land-take for wetlands, so they will impact the development and need to be considered early in the design process.

4.15 The second option has the potential to be larger and provide headroom for development. However, land will have to be purchased to provide the wetland near a suitable river and the abstraction from the waterbody will require EA approval. The implications of the wetland on the waterbody will need to be considered, as there will likely be some loss of water, potentially causing other.

Housing improvements

4.16 Improving the water efficiency of existing housing stock also has the potential to reduce nutrient loads, though this only works in certain circumstances. Where a LPA has a large housing stock it controls this may be an option, though a large number of homes will need to be retrofitted to gain enough offsetting for a new home, so it is unlikely to be a significant opportunity.

5. Current progress

5.1 The issue crosses several LPAs although Ashford and Canterbury are most heavily impacted, but Folkestone and Hythe, Maidstone, Dover and perhaps Thanet are also impacted. Identifying solutions therefore requires strategic coordination across the catchment.

5.2 Improvements to the WwTW provide the best route to alleviate this issue, however these will take time to deliver, and other solutions are therefore urgently required in the interim.

5.3 Canterbury has led on the preparation of a strategic approach to the issue in the Stour. This is based on three principles:

- On-site treatment for large sites so that they achieve nutrient neutrality on-site.
- Using the planned upgrades to the WwTW for phosphorus to offset some phosphorus.

- Provide neutrality credits for through the management of off-site agricultural land.

5.4 There will be a cost to achieving this, on-site treatment will have to be funded by developers, which might impact viability and S106 payments. Purchasing agricultural land will also require funding and developers can be charged the costs for the neutrality credits they need, but this might also affect the delivery of other infrastructure. There will also need to be a trading platform to sell the nutrient credits. In order to meet the requirements of planning, the measures must be delivered in perpetuity (either 80 or 120 years) and the maintenance costs for this timeframe are substantial.

5.5 KCC wrote to the Secretaries of State for DLUHC and Defra in April 2021 asking for their opinions on the strategy, to expedite improvements to existing WwTWs and for funding for the costs to deliver nutrient neutrality. We received a response to this letter on 19 January 2022. The government is planning to fund the coordination of nutrient neutrality in each catchment up to £100k. Discussions about how this will be delivered in the Stour are ongoing.

5.6 The parties involved (LPAs, NE, EA, and Southern Water) are all working together to address this issue and resolve it as cost-effectively and quickly as possible.

5.7 Ashford has progressed with their own plan to deliver this strategy and determined that they need strategic wetlands to provide off-site nutrient neutrality for small sites and larger sites where on-site treatment cannot achieve neutrality alone. Ashford has begun discussions with the EA and other partners about this. Canterbury has also begun work on an off-site strategy.

5.8 The delivery of interim mitigation measures is likely to take several years due to the time to negotiate purchase of suitable land, agree the necessary permissions and to construct the measures. Once a strategy for implementing them has been agreed, it will be possible for LPAs to give planning permission if developments are consistent with the strategy.

5.9 KCC chairs an officer working group that includes all relevant parties that covers the technical challenges that will arise in achieving nutrient neutrality in Kent, including delivering interim mitigation measures.

5.10 There is a risk that this issue could be applied to other designated sites. At present it is only affecting Stodmarsh, but the Medway and Swale Estuary, and Pegwell Bay are also designated sites that could be affected by this issue.

6. Financial Implications

6.1 Nutrient neutrality may impact the viability of some developments in Kent, as the cost of measures to achieve nutrient neutrality have not been considered. Developers may not be able to afford some S106 contributions that they had committed to prior to nutrient neutrality requirements.

6.2 There is an opportunity for KCC to contribute to the provision of strategic solutions for nutrient neutrality. The costs of these measures will be recouped through selling nutrient credits to developers. KCC has not made any financial commitments at this stage.

7. Legal implications

7.1 There are no legal implications for KCC from nutrient neutrality.

8. Equalities implications

8.1 There are no equalities implications for KCC from nutrient neutrality.

9. Other corporate implications

9.1 There may be implications for S106 contributions from developments where nutrient neutrality measures have to be accommodated.

10. Governance

10.1 There are no governance issues.

11. Conclusions

11.1 The need for nutrient neutrality on the Stour is putting the delivery of up to 50,000 homes in east Kent at risk. Developments will need to demonstrate that they can achieve nutrient neutrality to be approved. Investment in WwTW is the simplest way to demonstrate this, however this is likely to take many years.

11.2 Other nutrient neutrality options are needed in the interim, however these are complex and will require funding. Work is ongoing to explore the options to deliver this across the catchment, which KCC is directly involved in.

11.3 There is an opportunity for KCC to be involved in the delivery of the neutrality options.

12. Recommendation

Recommendation(s):
The committee is asked to note the report

13. Background Documents

13.1 Advice on Nutrient Neutrality for New Development in the Stour Catchment in Relation to Stodmarsh Designated Sites - For Local Planning Authorities, November 2020, https://www.ashford.gov.uk/media/l3dgnfyu/stodmarsh-nutrient-neutral-methodology-november-2020.pdf

14. Contact details

Report Author:
Max Tant, Flood and Water Manager
03000 413466
Max.tant@kent.gov.uk

Relevant Director:
Stephanie Holt-Castle, Director of Growth and Communities
03000 412064
Stephanie.holt-castle@kent.gov.uk