

Technical report: Somerset Levels and Moors Phosphate Mitigation Solutions (2022)

Phosphates Planning Sub Committee – 24 March 2022

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1 Executive Summary/Purpose of the Report

- 1.1 The purpose of this report is to convey the key findings and recommendations of the consultants Mitigation Solutions Report (2022) to members to address the impact of development on the Somerset Levels and Moors Ramsar Site. The report to the Phosphates Planning Sub Committee is for information and noting as background evidence to support future work and development of planning guidance.
- 1.2 In collaboration with the other Somerset Authorities, consultants were appointed in May 2021 to provide further technical support and develop mitigation solutions following the Natural England letter received in August 2020 and to respond to the phosphate issue affecting the Somerset Levels and Moors Ramsar site. The purpose of the commission was to investigate a range of matters. These included the review of the geographical extent of the catchment area in Somerset, to make improvements to the phosphate calculator and provide information on potential mitigation options that could be delivered within the affected river catchments of the Rivers Tone, Parrett, and Brue.

2 Recommendations

- 2.1 That the Phosphates Planning Sub Committee notes:
 - a. The contents of the recently published technical report: Somerset Levels and Moors Phosphate Mitigation Solutions (2022) (attached as Appendix A).
 - b. The use of the revised boundary of the affected river catchment areas (attached as Appendix B).
 - c. The use of updated data sets for the phosphate calculator which will be used to update the information on the website.

3 Background to the Report

- 3.1 As previously reported, on 17 August 2020, all the Local Planning Authorities (LPAs) in Somerset received an advice note from Natural England (NE) concerning the unacceptable levels of phosphates in the Somerset Levels and Moors Ramsar site¹.
- 3.2 The result of a court judgment known as Dutch N, has meant that, Somerset West and Taunton Council (herein referred to as 'SWT') has not been able to grant

¹ Available to view at: <https://www.somersetwestandtaunton.gov.uk/media/2434/natural-england-advice-to-lpas-on-nutrients-in-the-somerset-levels-and-moors.pdf>

planning permission for new affected development within the catchment of the River Tone, unless it can be certain beyond reasonable doubt that it would not give rise to additional phosphate loads in combination with other plans and projects within the hydrological catchment of the Somerset Levels and Moors Ramsar Site.'

3.3 Through a competitive tender procurement process, on behalf of all the Somerset Local Authorities, consultants Royal Haskoning HDV were appointed by SWT in May 2021. The purpose of this commission was to investigate a range of matters. This included:

- The review of the geographical extent of the affected area.
- Recommending updates to the phosphate calculator.
- Identifying potential mitigation options that could be delivered within the affected river catchments of the Rivers Tone, Parrett, Brue, and Axe.

4 Somerset Levels and Moors Phosphate Mitigation Solutions (2022)

4.1 The consultants solutions report (attached as Appendix A) and the revised extent of the affected river catchment area (attached as Appendix B) were placed on the SWT website on the 15 March 2022. At the same time a statement outlining updates to the phosphate calculator was also placed on our website. All of these matters are also available on the other Somerset LPA websites.

4.2 The **solutions report** is a technical document which sets out:

- The quantum of phosphate to be mitigated against, for each river catchment, to deliver phosphate neutral development. For the River Tone, as set out in Table 5.8, it is estimated to be circa 1,200 kg/y for the period up to 2032. This equates to a mitigation requirement of approximately 110 kg/y.
- The potential solutions/options/costs that could be employed to address that quantum of phosphate mitigation. There are several potential phosphate management solutions that have been identified. These range from simple measures that could be implemented in the short term (e.g. following land), to more complex measures that would require considerable design, monitoring and consenting and therefore require longer lead-in times e.g. wetlands. Table 6.2 provides a useful summary of the short listed solutions and a cost per kg/y based on a review of the evidence to date.
- Further work that the Local Authorities should do in the future is set out, in section 6.2: Next Steps, within the solutions report.

4.3 The **attached maps** (Appendix B and C) are based on the “specialists” agreeing the local factors that ultimately determine hydrological connectivity to the Somerset Levels and Moors Ramsar site. It is the outcome of technical work involving officers from the consultants, the Somerset Local Authorities, Natural England, the Environment Agency, Wessex Water and the Internal Drainage Board. The reasoning behind the various major changes have also been documented and will need to be periodically reviewed.

4.4 As part of this commission, the consultants undertook a review of **the phosphate calculator**. The consultants recommend updating a number of data sets, including hydrological data associated with the revised sub-catchment areas. (e.g. Appendix B). The aim is to implement these changes on the SWT website before Easter, in a

coordinated way with the other Somerset Councils and with updated advice from Natural England.

5 Officer observations

- 5.1 Technical work has reduced the overall size of the area where the Natural England advice note applies. There are areas that now lie outside the affected area and are now not caught by the Natural England advice note. These locations are predominantly to the east of Bridgwater and around the environs of Glastonbury. Various smaller areas now fall within the affected area. Natural England support these changes. Furthermore, they will be updating their GIS layers on the Magic website (<https://magic.defra.gov.uk/MagicMap.aspx>) to reflect these amendments.
- 5.2 The report raises a number of issues around the significant cost of mitigation, large land take and timescales required for delivering nature-based solutions. (e.g. wetlands and buffer planting) for phosphate mitigation measures. As summarised in Table 6.2 temporary measures e.g. taking land out of agricultural production are the cheapest option (circa £2,400 kg/y). Longer term nature based solutions (e.g. wetlands) are likely to cost significantly more, in the region of £8,400 kg/y .
- 5.3 Thus the estimated costs per dwelling will be extremely variable. This is due to:
- The differing costs associated with the delivery of the various phosphate mitigation measures identified in the solutions report.
 - The amount of phosphate credits required per dwelling which differs depending on the permitting level of the Waste Water Treatment Works associated with the development. These can range from 1mg/p/l (where less phosphate credits are required and therefore the cost per dwelling is lower) to 5mg/p/l (where more phosphate credits are required to demonstrate phosphate neutrality and therefore the cost per dwelling is higher).
- 5.4 For SWT, previous reports have stated the situation of the number of homes currently held in abeyance and awaiting determination. Looking at this issue across the 4 districts of Somerset, the solution report estimates that 19,620 dwellings require mitigation, which is equivalent to 2,826.96 kg/yr of phosphate mitigation for the period 2022–2032. Given the quantum of housing development impacted by the phosphate situation in Somerset it is clear that nature-based solutions are not going to be the answer to unlocking all of our current planned growth.
- 5.5 In terms of what SWT is doing, as reported to this Sub Committee on 24 February 2022, the current focus is to progress work to deliver a package of interim measures to help unlock a small proportion of the impacted planned development. We also would welcome the opportunity to explore these options and potential measures in a catchment-based approach with partners to address the water quality issue.
- 5.6 The Council and Council officers will also continue to lobby central government - for improvements to waste water infrastructure and improvements in agriculture. Based on Wessex Water's fact sheet giving details of total phosphorus already removed from by upgrades to infrastructure (enclosed as Appendix D) we are seeking a response from Ministers and Natural England as to why the phosphate removed at the end of Asset Management Planning (AMP6) in Taunton and proposed measures

in AMP7 are not addressing the issue of the proposed planned growth in the adopted Taunton Deane Local Plan area.

6 Risk Assessment

- 6.1 Not relevant to this information report. The risks have been set out in previous reports to this sub-committee.

7 Links to Corporate Strategy

- 7.1 The Corporate Strategy and its Key Objectives are set out on the SWT website at: <https://www.somersetwestandtaunton.gov.uk/your-council/corporate-strategy/>
- 7.2 The solutions report attached as Appendix A, has links to various corporate priorities. In particular the Council's ambition to:

Our Environment and Economy

- Shape and protect our built and natural environment.
- Encourage wealth creation and economic growth.
- Support town centres.

Homes and Communities

- Increasing the number of affordable and social homes.

An Enterprising Council

- Ensure our land and property assets support the achievement of the council's objectives.

8 Finance/Resource Implications

- 8.1 None related directly to this report. Financial and resource implications have been set out in the body of previous reports.

9 Legal Implications

- 9.1 None related directly to this report. The legal and policy background to the 'phosphates issue' have been set out the body of previous reports.

10 Climate and Sustainability Implications

- 10.1 None related directly to this report.
- 10.2 The climate and sustainability implications of development proposals is a material planning consideration which will be assessed for each planning application which applies for P credits.

11 Safeguarding and/or Community Safety Implications

11.1 None related directly to this report.

12 Equality and Diversity Implications

12.1 The Public Sector Equality Duty has the following aims which the authority must have due regard to:

- Eliminate discrimination, harassment, victimisation.
- Advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it.
- Foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

12.2 None of the above relate directly to this report.

13 Social Value Implications

13.1 None directly related to this report.

13.2 The social value implications set out in the Full Council Report of 5th October 2021, remain applicable.

14 Partnership Implications

14.1 As set out in section 4.3 of this report, the Council will continue to work with the other Local Authorities in Somerset and other public bodies, (e.g. Natural England, the Environment Agency, and Wessex Water) to discuss potential interim solutions and strategic responses.

14.2 Liaison is also ongoing with local developers affected by this issue and representative bodies such as Home Builders Federation (HBF) to lobby central government for further support in addressing the overarching issue of water quality.

15 Health and Wellbeing Implications

15.1 None directly related to this report.

15.2 The Health and Wellbeing implications set out in the Full Council Report of 5th October 2021, remain applicable.

16 Asset Management Implications

16.1 None related directly to this report. The management of interim phosphate solutions on SWT owned sites will be passed to the External Operations team to manage in the long term.

17 Data Protection Implications

- 17.1 We may require information sharing agreements between the Council and any purchaser of phosphate (P) credits as part of the long-term implementation of sites for phosphate mitigation.

18 Consultation Implications

- 18.1 The Solutions Report enclosed as Appendix A is a technical document. There is no statutory requirement to carry out consultation on its contents. In the process of its production, a series of engagement events were scheduled with developers and a wide range of stakeholders.

Background Papers

Progress on the Interim Strategy and determination of planning applications held in abeyance: 24 February 2022

<https://democracy.somersetwestandtaunton.gov.uk/documents/s18828/Report%20to%20the%20Phosphates%20Planning%20Sub%20Committee%20-%20Progress%20on%20the%20Interim%20Strategy%20and%20determinatio.pdf>

Full Council Report of 5 October 2021

<https://democracy.somersetwestandtaunton.gov.uk/documents/s17540/Somerset%20Levels%20and%20Moors%20Phosphate%20Mitigation.pdf>

List of Appendices

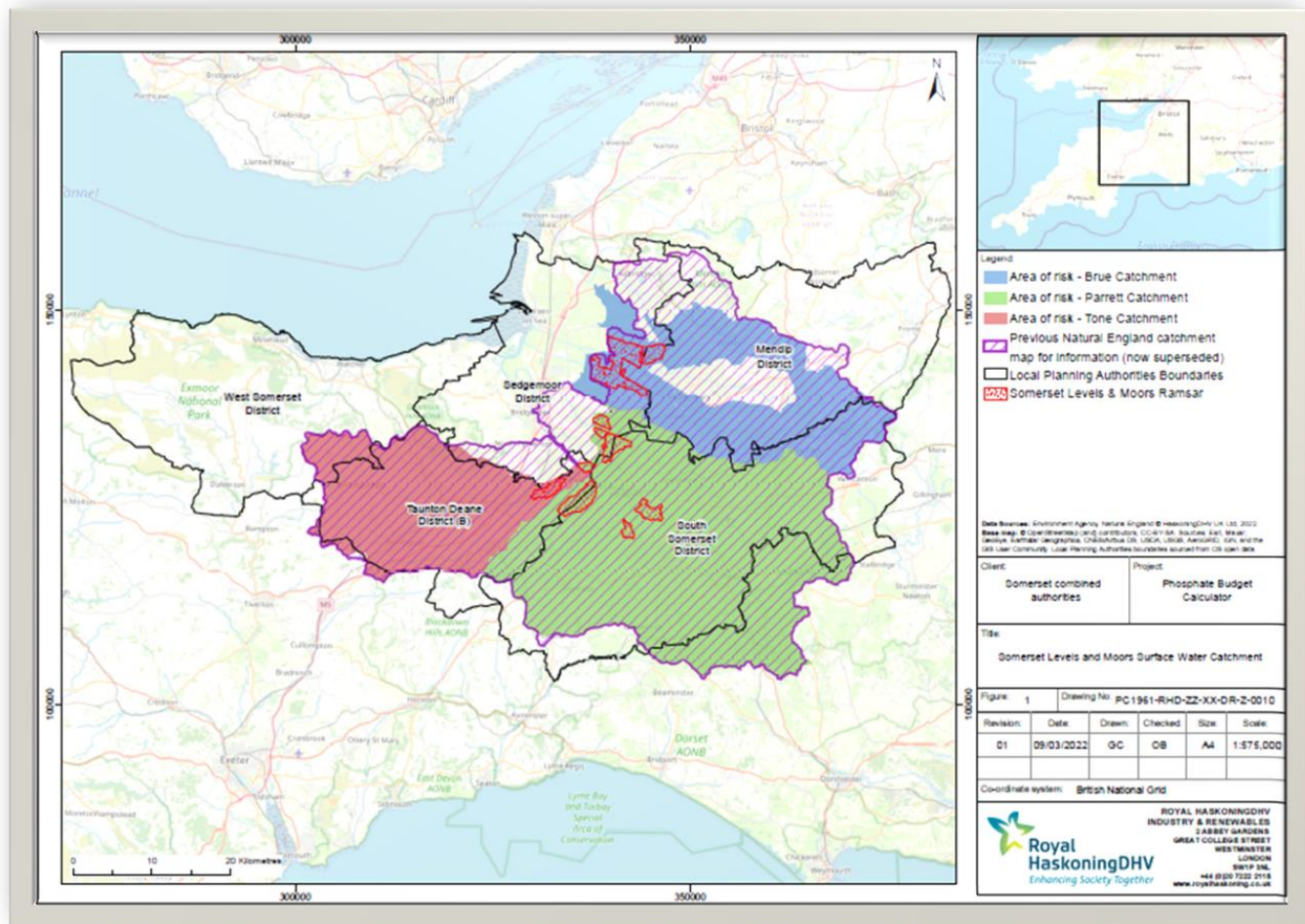
Appendix A	Somerset Levels and Moors Phosphate Mitigation Solutions (2022)
Appendix B	Somerset Levels and Moors: Catchment Areas Map
Appendix C	Somerset Levels and Moors: River Tone Catchment Area Map
Appendix D	Wessex Water Fact Sheet

Appendix A: Somerset Levels and Moors Phosphate Mitigation Solutions (2022)



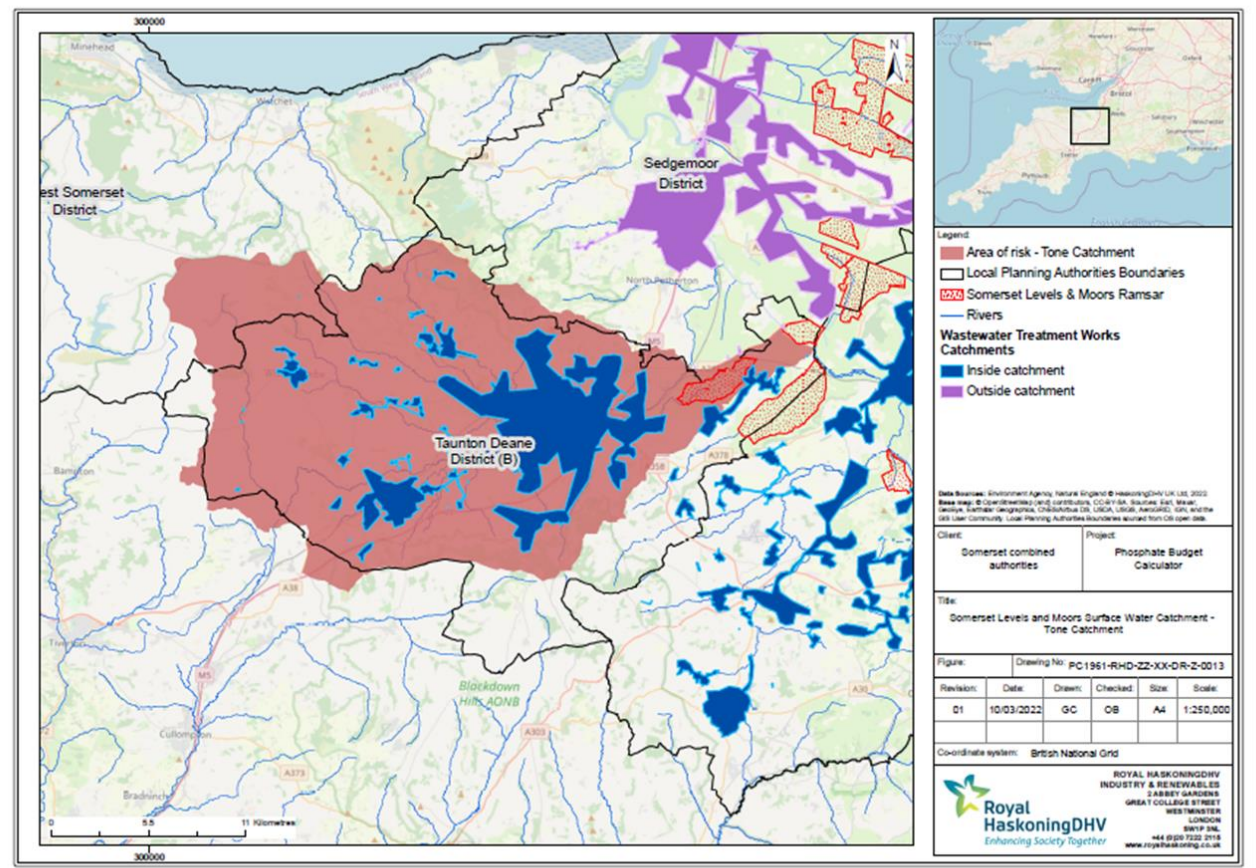
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Appendix B: •Somerset levels and Moors: Catchment Areas Map



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Appendix C: Somerset levels and Moors: River Tone Catchment Area Map



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SOMERSET CATCHMENTS - THE FACTS

Within the county of Somerset, we operate in several major hydrological catchments:

- The Parrett catchment.
- The Tone catchment.
- The West Somerset Coastal Streams catchment.
- The Bristol Avon, Brue and Axe catchments and the headwaters of the Otter and Stour catchments.

KEY ISSUES

Sewage treatment

Within the Somerset Catchment Partnership area, we operate 155 Water Recycling Centres (WRC, formerly known as sewage treatment works), 601 Sewage Pumping Stations and 311 Storm Overflows (SO).

Nutrients

One of the main issues to affect the Somerset catchments is the impact of nutrients in rivers and wetlands. This is primarily from phosphorus, although nitrogen can also have an effect particularly around our coasts and estuaries. Phosphorus causes eutrophication (where the nutrients cause excessive growth of plant life) in rivers and wetlands and is a particular problem for protected sites in the Somerset Levels.

Bathing waters

It is important to protect bathing water quality for recreational users of our seas and some inland waters. Water quality around the Somerset coast is affected by many factors, including our own discharges from treatment works and SOs, but also by diffuse pollution in river catchments upstream of bathing waters.

We have invested in upgrading our sewerage and sewage treatment infrastructure at various locations to improve bathing waters by:

- Increasing storage in our network (to reduce the number of discharges from SOs)
- Installing ultraviolet treatment to improve the quality of our discharges
- Installing monitoring equipment so that we understand when our SOs operate.

For example, at Burnham-on-Sea in 2019 we completed a £39 million scheme to upgrade infrastructure around the mouth of the River Parrett and in Bridgwater to help improve the bathing water quality of Burnham jerry.

Water supply

Within the catchment, we operate 11 water treatment centres and nearly 200 distribution sites (including 10 large surface reservoirs).

Pesticides and source protection

Land upstream of our large surface reservoirs has been designated as drinking water safeguard zones by the Environment Agency. Within these areas, certain substances must be managed carefully to prevent the pollution of the raw water sources (including fertilisers and pesticides).

We work with farmers in these zones to:

- raise awareness of surface water quality issues
- share results of water, soil, crop and manure testing that we have carried out for them
- provide advice and information
- compensate farmers (where appropriate) for adopting more water friendly alternative practices (such as buffer strips).

In AMP7 (2020-2025), we will extend our work with farmers in the River Tone catchment upstream of the abstraction point for Durlough Water Treatment Centre to reduce pesticide runoff from agricultural land.

Key investments completed to 2020

Nutrients

By the end of AMP6 (2020) we have installed phosphorus removal at:

Site	Approximate cost (£k)	Year	Approximate Phosphorus removed (tonnes/year)
Piton	700	2020	0.2
Bruzon	850	2020	1.1
Ilton	800	2020	0
Thornford	2,000	2020	0.9
Sparkford	750	2020	0.4
Ilchester	700	2020	0.5
Taunton	2,850	2019	44.3
Wellington	1,150	2018	4.1
Yeovil	3,700	2014	19.6
Sherrborne	1,400	2014	4.1
Wells	1,000	2014	7.8
Shepton Mallet	3,800	2013	5.1
Evercreech	1,400	2014	2.3
Glastonbury	2,000	2015	7.1

Environmental investment

- **Durlough Wetlands Project** - in 2019 we completed construction of a new large-scale wetland (at an approximate cost of £1 million) upstream of our reservoir at Durlough (Bridgwater) to remove heavy suspended sediments in the water entering the reservoir and prevent it silting up. We also improved habitats in the Durlough Brook and reverted eight hectares of arable land to biodiversity grassland.
- **Sutton Bingham, Durlough, Ashford, Hawkridge, Leigh and Lushay Catchment Biodiversity Projects** - we mapped priority habitats for wildlife within these catchments and provide advice and funding to landowners to make biodiversity improvements alongside steps to reduce risk of pollution.
- **Biodiversity Partners Programme** - provided more than £280,000 to projects within Somerset since 1998, including:
 - Somerset Floodplain & Catchment Woodland project (2010-2015 with FWAG SW)
 - Parrett Rivers Project (2002-2006 with Somerset Wildlife Trust & FWAG SW)
 - Somerset Biodiversity Partnership (2010-2015)
 - Ham Wall Reedbed (1998-2006, with the RSPB)
 - Westhay Reedbed and Heath (1998-2002, with Somerset Wildlife Trust)
 - Resource protection in the Parrett Catchment (2006-2010 with FWAG SW)
 - Brue Valley Living Landscapes Project (2006-2010 with Somerset Wildlife Trust)

- **Rowe Mead Nature Reserve Improvement Project and Blackwater & Brown hales projects (2015-2018, with Somerset Wildlife Trust)**
- **Conservation, Access and Recreation** - 26 projects delivering improvements for biodiversity and access on our sites, including: tree and bat roost assessments; management of woodland and scheduled ancient monuments; enabling beaver trials on the headwaters of the River Otter; improved visitor interpretation.
- **Streamclean team** - tackling sewerage misconnections.

24 investigations completed 2010-2020:

- **Lam Brook** - evaluating the impacts of our abstractions on the stream.
- **Cannington Stream, River Tone, Durlough Brook, River Tone & Yoo and Sutton Bingham Stream** - investigations into impacts associated with our reservoirs on these watercourses (including ecology) and implementation of measures to improve environmental quality at some locations.

- **Minehead, Burnham-on-Sea and Weston-super-Mare** - bathing water investigations to understand the influence of our discharges on bathing water quality.
- **South & West Wessex Catchments** - understanding phosphorus levels from our discharges on the receiving environment and also affecting our assets.
- **Sutton Bingham, Clatworthy and Durlough** - quantifying risk from grazing livestock around reservoirs as a potential option for managing grassland for biodiversity.
- **Somerton WRC** - investigation to discover the effectiveness of reed beds for sewage treatment and nutrient removal at Somerton WRC, and more widely at WRCs discharging to the Somerset Levels and Moors.
- **Nutscale, Clatworthy, Hole Bridge, River Yoo, Hawkridge, Durlough, Ashford, Bridgwater and Currypool** - eel investigations.

Somerset Catchment Partnership

We have supported the Somerset Catchment Partnership since its inception and provide £10,000 annual funding.

Planned investment 2020-2025

In addition to ongoing expenditure on our waste and water supply treatment and network assets, our business plan sets out the following key expenditure:

New phosphorus removal

Site	Approx Phosphorus removed (at 2020) (tonnes/year)	Additional Phosphorus removed by 2024 (tonnes/year)	Approximate Cost (£m)
Brue & Axe			
Upper Brue	2.3	0.6	8
Lower Brue	7.1	2.9	
Sheppay	12.9	5.6	
West Somerset Coastal Streams			
Stogursey Brook		0.4	0.8
Parrett			
Cary		6.0	44
Isle, Fivehead and West Sedgemoor		15.6	
Lower Parrett		3.5	
Lower Parrett/Wessex Streams		1.5	
Parrett Headwaters		14.4	
Yoo	25.5	14.5	
Parrett (Tone)			
Lower Tone	55.8		4
Northern Tone		3.7	
Upper Tone	4.1	1.4	
Total	107.7	70.1	56.8

Catchment nutrients

- **Catchment nutrient balancing** - within parts of the River Tone and Parrett catchments, we intend to work with farmers to reduce levels of phosphorus from their land management to balance the need to reduce phosphorus levels from our WRCs. This is a more sustainable and nature-based approach which combines nutrient reduction with other benefits, such as improvements for biodiversity and flooding.
- **Somerset Levels and Moors Wetland** - delivering water quality (nutrients) and biodiversity improvements to nationally and internationally important sites for nature conservation.

Environmental investigations

- **North Petherton WRC** - determine the impact of the WRC on the Petherton Stream.
- **Nitrogen and phosphorus reductions** - Durlough Reservoir.
- **Invasive non-native species (biosecurity improvements)** - at Nutscale, Clatworthy, Hawkridge, Currypool, Ashford, Durlough, Luxhay, Leigh and Sutton Bingham.
- **Invasive non-native species (raw water transfer risk assessments)** - at Albert Street, Currypool, Wimbleball, Hole Bridge and Otterhead.
- **Improvements to assets for Eel Passage** - Clifton Maybank (near Yeovil), Albert Street (Bridgwater).

Biodiversity

The following projects will be undertaken across the Wessex Water region, but are likely to include sites within Somerset:

- Maximising opportunities for birds at our water recycling centres.
- Priority habitat restoration and recreation.

FIND OUT MORE

You can access more information about our work in the Somerset catchments on our website - wessexwater.co.uk/environment

- Use our interactive investigations map to download more information on each investigation.
- Read more about our catchment management work.

- Find out about our Drainage and Wastewater Management Plans including the location and frequency of operation of our storm overflows.
- View sample results and flow data from our water recycling centres on our Marketplace website.
- Read our business plan for details of our investments over AMP7 (2020-2025).

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