Bringing water to life

Working to deliver better

Green Recovery Annual Report 2024 Appendix

Hi there 👏

I'm a talking river! Chat with me to share you thoughts

HELLO RIVER 13

07883 318 182

South West Water

Executive Summary

Delivering on improving public health, protecting the environment and addressing climate change



South West Water's Green Recovery Initiative, which was developed with and supported by our customers focuses on opportunities to make an even bigger environmental and societal contribution to the South West over and above our stretching 2020-25 business plan.

Driven by our values



We want you to bring your best every day. Be open and inclusive, work together and win as one team. Let your passion inspire those around you. Be authentic, make your mark and be you.



We want you to be the one we all look up to. Be trusted. Act with integrity and make good on your promises. Build trust, one relationship at a time. Be rock solid Be the FUT RE

We encourage you to be curious and challenge convention. Share ideas with confidence and purpose, and help share our future. Embrace change. Drive progress. Own the challenge. Be the future. This is the third year of our Green Recovery programme and it has seen a continued increase in activity in respect of each of the five core schemes.

Our plan, which was approved by the Regulator, Ofwat, in July 2021 commits to an investment of $c.\pm82m$ to deliver five schemes:

- Chapp Mill water treatment works advancement accelerating the upgrade of the Knapp Mill water treatment works near Christchurch
- Water resource grid enhancement increasing water supply resilience by supporting water transfers
- 3 Smarter, healthier homes trialling ways to help customers save water, protect customers from the cost of supply pipe failures, and reducing health risks from lead pipes
- **Storm overflows** reducing harm from storm overflows and improving river water quality
- 6 Catchment management using nature-based solutions to improve water quality and enhance natural habitats.

This year has included a further pick up in activity, with further land incorporated into intensive peatland and catchment management schemes, a further roll-out of smart metering and the commencement of multiple storm overflow assessment framework (SOAF) investigations.

Our performance in respect of our Green Recovery Initiative commitments has been subject to assurance, including 3rd party technical audits from Jacobs, our external technical assurer.

Certain early milestones for projects were delayed, we have revised plans to ensure these do not impact the overall programme delivery.

Summary Performance Delivering alongside our main business plan

On track for all initiatives

In 2023/24 SWW achieved the majority of its business plan performance commitments as described in our Annual Performance Report (with c. 70% met or within regulatory tolerances).

Alongside this momentum in our Green Recovery has picked up and we remain on track to deliver the committed benefits by 2025 (and where relevant 2026)

For certain aspects of our programme start-up issues have resulted in a slower than forecast start to some of our initiatives, and this has had an impact on benefits achieved so far in the programme

Knapp Mill water treatment works advancement

The project will upgrade the existing Knapp Mill Water Treatment Works domestic supply with a new innovative treatment process. This will provide a world class drinking water supply solution for the supply network serving Bournemouth Water customers, providing excellent water quality and long-term water supply security for the region.

2 Water resource grid enhancement

Both elements of this scheme, Roadford Pumped Storage and Prewley to Northcombe Transfer Mains, are under construction and on track to meet our GRP commitment dates. 12km of the 20km new 500mm diameter pipe has been installed on Prewley to Northcombe and 3.5km of the 4km new 900mm diameter pipe has been installed on Roadford Pumped Storage. Works on the new Roadford Pumped Storage abstraction site are due to start summer 2024 subject to a planning application that is due for determination April 2024. A temporary abstraction scheme at the new Gatherley site has been setup to prove operation of the new pipeline and provide short term resilience to Roadford reservoir whilst the permanent works are under construction.

3 Smarter, healthier homes

Our smart meter installation programme has continued in the year, and although to date we are behind the inital planned rollout, this following initial start-up issues, and we have reprofiled to ensure delivery by 2025. The Smart meter installation programme has progressed at pace over the last year and is on track for delivery by 2025. The retrofit upgrade is on track for early completion in summer 2024. The lead programme has continued at pace and customer engagement and take up has been good with nearly 2000 customers signed up. However, delivery has been slower than projected with 720 renewals completed to date.

4 Storm overflows

We have completed 33 of the 100 SOAF investigations by the end of the programme.

In respect of the Dart and Tavy River Bathing Waters Pilot, we are working collaboratively with local stakeholders and community groups which are planning to apply for inland bathing water status. We have commissioned detailed investigations to assess where and when our assets may influence water quality around these locations.

5 Catchment management

To date, we have successfully delivered our target for areas under catchment management across the our three workstreams, against a target of 3,000 ha. Thanks to the success of Green Recovery and our Upstream Thinking programme, we have again met the combined performance commitment for new land under active management and look forward to another successful year ahead.

Targets met/on track



🗿 2 Water resource grid enhancement O 3 Smarter, healthier homes O 👍 Storm overflows **5** Catchment management

Performance Key

Area of excellence Outperformance O On track X Marginal underperformance

× Area of focus

This key is used throughout the report.

Forecast and delivered performance commitment benefits from **Green Recovery Programme**

Performance commitment	Unit	2023/24 Actual	2023/24 Forecast
Biodiversity – enhancement*	Hectares	7,144	6,000
Installation of AMR meters	Number	1,530	25,825
Leakage*	MI/d	0.76	0.62
Per capita consumption	l/p/d	0.06	0.17
Operational carbon	Tonnes	NA: 20	024/25 commitment only

The benefits for these Green Recovery commitments are also included within the performance shown within our overarching annual commitment, whereas AMR meters installed and pcc impacts are excluded in the overarching commitment – see pages 200 to 204 of the APR



Overview

Green Recovery initiative

1 Knapp Mill water treatment works advancement

Agreed proposal

The objective of this project was to upgrade the existing Knapp Mill Water Treatment works with a new state of the art works with a Nominal Demand figure of 86 MI/d.

Amended proposal

The objective of the Knapp Mill WTW project has been amended to now provide a new treatment process to safeguard water quality and meet the requirements. of a DWI notice. The scope of the project is to install new ceramic membranes and Granular Active Carbon (GAC) filters after the existing slow sand filter process. The innovative ceramic membrane process will provide an absolute barrier to particles and pathogens present in the River Avon. The solution has recently been revised to maintain more existing assets and reduce the amount of new construction required, providing a more sustainable solution. The new design option reduces the need for chemical dosing and the requirement for much smaller amounts of GAC media replacement in the future. All of which has a dramatic effect on reducing our Carbon Footprint and whole life cost of how we treat our water at Knapp Mill WTW.

As this is a water non-infra, quality driven project, benefit will only be achieved once water is into supply from the new process (currently estimated as Mar-2026).

Progress

The project is currently at early works phase with contractors on site carrying out enabling works alongside discharging and number of planning conditions. There are also ongoing pilot trials with our supplier PWNT as the selected technology to optimise the solution and finalise design parameters.

The Planning Application for the project was submitted in May 2022 and has been subject to ongoing challenge from Natural England and was referred to the Secretary of State on 'Green Belt' reasons. The planning application was returned back from the Secretary of State unchallenged and subsequent approval granted by the planning authority in October 2023. Significant progress has been made on the design scope. The project is currently on track for completion by March 2026 (Ofwat ODI date and DWI Notice completion date), however the project milestones are being reassessed due to planning permission being granted later than orignally expected and the now required submission of a Section 73 planning application amendment.



68 MI/d Nominal demand figure

On track For March 2026 operational start

Activity	DWI milestone	Date	Cumulative spend (£m)
Planning Approval	0	12/10/2023	2.8
Complete Outline Design	0	26/09/2023	0.425
Complete enabling works activities	0	30/08/2024	Under review
	0	30/08/2024	Under review
Complete sufficient detailed design to enable construction to proceed	0	31/04/2025	Under review
Complete the planning, procurement, construction and installation of new treatment solution to enable wet commissioning	0	09/10/2025	Under review
Commission the new / replacement treatment solution into supply via a controlled blending scheme	0	09/10/2025 to 10/03/2026	Under review
Provide all treated water from Knapp Mill via the new treatment solution	0	31/03/2026	Under review



Future programme

- Outline design & ECI period
 25 May 2023
 Excelling and long load item
- Enabling and long lead item
 procurement
 10 January 2024
- Construction period & Commissioning
- 30 August 2024
- Provide domestic treated water from Knapp Mill via the new
- solution
- 31 March 2026

Spend £m 2021/22

1.190

2022/23

1.615

2023/24

9.711

Overview

I Green Recovery initiative continued

2 Water resource grid enablement

Agreed proposal

Our proposal accelerates plans to address supply risks affecting our Roadford supply area and advances our long-term water quality strategy for the North Devon area.

The investment includes:

- A new intake pumping station on the River Tamar to transfer raw water to Roadford reservoir
- New raw and treated water transfers between Prewley and Northcombe water treatment works (WTWs) providing a new strategic link between two key sources in the area.

The proposals will help address the growing pressure on both water resource availability and quality and support the transfer of water to areas in supply deficit across Southern England.

Progress

Prewley to Northcombe Transfer Mains scheme

The project started on site in May 2023 with the removal of approx. 50 hedgerows to enable the new twin 500mm diameter pipes to be laid. Our contractor has subsequently been working to install the twin pipeline with the halfway mark being reached at the end of 2023. Works are continuing with key road crossings underway with pipelaying works expected to be complete by the summer 2024, ahead of our commitment to complete date of March 2025. Following the completion of pipe installation, reinstatement of the land and hedges will proceed.

Roadford Pumped Storage scheme

The project started on site October 2023 with the removal of approx. 20 hedgerows to enable the new 900mm diameter pipe to be laid. Works have continued through the winter to lay the new pipeline and approx. 35km has been laid to March 2024. Temporary pipe has been installed at the ends to provide an operational system that enable us to provide more water to Roadford reservoir winters 2023-2024 and 2024-2025, as required, funded under our drought investment programme.

A planning application for the new permanent abstraction and pump house was submitted in December 2023 and approved in May 2024; submission of this planning application was delayed due to the need for a temporary scheme to be installed for operation winter 2023-2024. The new abstraction site, including a 40 x 20m pump house that has been designed to fit into the landscape, and work in the river has begun with a targetted completion by the end of summer 2025, ahead of the March 2026 commitment to complete. This will enable final commissioning and operation of the whole system from November 2025, following the granting of an EA abstraction licence. The EA has provided a 28 day commissioning abstraction licence on the River Tamar at the new Gatherley site and are currently determining a 30 MLD time-abstraction limited licence that we would seek to use winter 2024 – 2025 should Roadford need additional pumped storage. We have been in a pre-application phase with the EA on the permanent 111 MLD abstraction licence and are completing some final season-dependent surveys in 2024 before submitting for the permanent licence, that will be aggregate with an exsisting 148 MLD licence we already have on the River Tamar. The pre-app feedback advising of these additional surveys has resulted in a delay to when we expect to receive the permanent abstraction licence.

Land purchase for the new Gatherley abstraction site is agreed in principle and subject to planning and National Grid has committed to providing the required upgraded power supply by January 2025.









Raw water transfer capacity from Prewley to Northcombe WTW

🥘 27 Ml/d

Treated water transfer capacity from Northcombe WTW to Prewley WTW



Capacity infrastructure to recharge Roadford Lake from River Tamar

Future programme

Northcombe - Prewley

- Main contract award 31 May 2023
- Start on site (main construction) 1 July 2023
- Construction complete 30 September 2024
- Install a new raw water main connecting Meldon Reservoir with Northcombe works (DWI SWB-2021-00009 Prewley WTW) 31 March 2025
- Install a new treated water main from Northcombe works to Prewley works (DWI SWB-2021-00009 Prewley WTW)
 31 March 2025
- Commitment to complete under Green Recovery 31 March 2026

Future programme

Roadford Pump Storage

- Main Contract awarded
 30 June 2023
- Planning and Abstraction License granted
- 31 April 2024
- 31 July 2025
- Start on site (main construction)
 1 March 2024
 - Construction complete/ Commissioning 31 December 2025
- Commitment to complete under Green Recovery
 31 March 2026
- Spend £m

2021/22 0.123 2022/23 3.483 2023/24

Roadford

13.538

Green Recovery Initiative

Overviev

Activity	Ofwat milestone	Prewley to Northcombe Date	Roadford Pumped Storage Date	Northcombe Cumulative Spend (£m)	Pumped Storage Cumulative Spend (£m)	Total Cumulative Spend (£m)
OFWAT financial determination of GRP	0	31/07/2021	31/07/2021	0.00	0.00	0.00
Options appraisal complete	0	31/01/2022	31/01/2022	0.05	0.07	0.12
Outline design complete	0	31/03/2023	31/03/2023	1.26	2.22	3.48
Gatherley planning and abstraction licence granted	0		31/12/2023		2.50	2.50
Start on site (main construction)	0	01/07/2023	01/03/2024	1.50	3.00	4.50
Construction works complete	0	31/12/2024	31/12/2025	13.23	13.83	27.06
Required completion date under DWI Notice SWB-2021-00009 Prewley WTW	0	31/03/2025		13.23	13.83	27.06
Commitment to complete under Green Recovery	0	31/03/2026	31/03/2026	13.23	13.83	27.06

Smarter, healthier homes

Agreed proposal

Increased water usage and unexpected repair bills from leaking service pipes can result in acute financial pressures for individual customers and particularly for those who are financially vulnerable. Smarter, healthier homes focus on investment that directly benefits our customers.

This project is an integrated regional pilot to manage water efficiency, water quality and affordability for customers – in the North Devon region. It focuses on three key areas:

- Installation of smart meters enhancing customer engagement to help them manage their water use and bills more easily
- Supply pipe 'adoption' trial relieve the worry of sudden unplanned financial demands arising from leaking and/or failed service pipes
- Proactive lead pipe replacements take a significant step towards eliminating lead supplies across our region
- The programme unit rate costs are higher than the Green recovery determination therefore the overall delivery has been reduced to 2,600 external lead pipe replacements.

Progress

AMI Meter Installations

Progress on delivering the meter installations and the upgrades has been good in 2023-24 with 25,000 meters installed and 13,000 upgraded. The project is currently on track for delivery on time by March 2025. The data journey has proved more challenging but good progress has been made over the last 12 months. The communication network being built has continued to expand and key lessons around coverage have been learned and improved the overall coverage.

The overall coverage for North Devon is 76% which is below the 85% minimum, but this is an incomplete picture, the umbrella coverage that is initially put it place is then bolstered with the local densification needed for the higher connectively and once this layer is in place there are DMA's that are in the high 90% for coverage. This will continue to evolve and develop as the programme progresses. This element is on track. A lot of work has occurred to enable customers to engage with the new metering consumption data and the final trials and tests are taking place currently, with the aim of going live this summer.

Customer leakage repairs and renewals

The team are investigating and promoting leaks for repair and renewal as they come in but the forecast scale of the number of leaks have not been found nor have customers called them in. This project will continue but the forecast for the volumes will not be met because the leaks are not present.

Lead Renewal

This project has successfully built a good model with key lessons learned for the next regulatory period which was a core purpose of the project.

The customer journey and sign up has been tremendously successful and sign up has been good and continues to be so.

A wide variety of different property types, from terraced, to semi-detached to detached properties have been approached, in a wide variety of locations to build the understanding of the cost and engineering challenges of removing lead from a topographically diverse area. Short runs on the level into terraced properties, long drives to detached houses to houses set at height above the highway with levels and walls inbetween. This understanding will support the approach taken for the next regulatory period.

Delivery of the renewals has proven challenging, and to date 799 renewals have been completed.

In line with Ofwat's 'Green economic recovery: Final decisions' (pages 113 to 115) published in July 2021, we are required to provide additional reporting in respect of the classification and costs of new meters installed as well as benefits generated.

As reported in table 10A of South West Water's Annual Performance Report, all meters installed so far as part of the programme are the replacement of residential meters. As such our additional reporting this year is as follows:











Customers signed up for lead replacement



Metric	Unit	Value	Further comments
Number of existing basic meter installations replaced with AMI capable smart meters or upgraded to AMI functionality	Number, 000s	38,920	All meters are under the 'Replace external category'
Existing basic meter installations replaced with AMI capable smart meters or upgraded to AMI functionality – outturn costs	£, million	0.028	All costs are under the 'Replace external (domestic) category'
Percentage of household properties within our smart metering trial area covered by the company communication network	%	c60%	This percentage is based upon reporting gathered by the Company, based on the early phase of the trial so far and we will
Percentage of smart meter installations in the smart meter trial are providing a successful daily transmission of daily data	%	37	provide further analysis as the trial scales up in the forthcoming years

Future programme

- Full delivery element started
 January 2023
- Review of first 1,000m installation 1 April 2023
- Internal lead replacement starts May 2023
- Customer data available for them to view their water consumption Summer 2023
- AMI installation complete 31 March 2025
- Lead replacement programme complete
 31 March 2025

Spend £m

2021/22

2022/23

0.401

2023/24

4.941

Green Recovery Initiative

I Green Recovery initiative continued

Storm overflows

Agreed proposal

The demands and expectations on wastewater infrastructure, of the public nationally and regionally, has increased.

We are proposing three complementary projects which will inform our future strategy and business plans:

- Extend our overflow monitoring and investigations programme – install up to a further 414 event duration monitors (EDMs) and complete 100 additional investigations
- Develop an inland river bathing water pilot to test the implications, costs, and benefits of achieving bathing water designation and deliver specific asset enhancements
- Trialling surface water separation assessing the sustainability of this activity to reduce storm overflows during heavy rainfall.

Progress

Storm Overflow Assessment Framework (SOAF)

All Storm overflows have EDMs. The project is on track to meet the required SOAF investigations, with 106 stage 1, 109 stage 2, 8 stage 3 and 8 stage 4 investigations completed. A total of 18, of the required 25 SOAF investigations, have been completed in Dart and Tavy catchment as the two case study areas.

Dart and Tavy River Bathing Waters Pilot

The Dart & Tavy Inland Bathing Waters Project is a pilot study initiated by our Green Recovery programme to inform the potential long-term strategy of aligning rivers with the approach to water quality taken on coastal bathing waters. The Dart and Tavy Inland Bathing Waters Pilot aims to increase our understanding of the water quality of these two iconic rivers.

The Pilot also aims to build stronger relationships and collaborations with river users, local communities and stakeholders, to develop an approach that will inform our strategy for the designation of river bathing waters across the South West region.

The South West is already home to 15 designated coastal bathing waters and, in October 2023, Friends of the River Dart submitted four bathing water applications for Warfleet Creek, Dittisham, Stoke Gabriel and Totnes Steamer Quay. Alongside their application, they submitted numerous letters of support (including one from us) and a petition with ~7,000 signatories.

In February, all four were subjected to a short public consultation with those sites now designated for the furture. It has subsequently been confirmed that these estuarine sites, due to their saline conditions, will be classified as 'transitional water bathing waters', which means that they will be subject to the same regulations and monitoring process as coastal bathing waters and not inland bathing waters.



Investigations to assess the costs and benefits of inland river bathing water designations

We have developed an in-depth programme of water quality sampling and modelling (in consultation with the Environment Agency and other experts) to understand the river bathing water performance of key locations along the two rivers, and to identify and quantify sources of pollutants.

We have now completed the 2023/24 monitoring programme, which was targeted at the most popular swimming locations, which are along the lower Dart between Staverton and Dartmouth, and also to include the Bidwell Brook, which has the potential to impact water quality in the River Dart at Riverside (one of the most popular bathing locations on the Dart).

This water quality monitoring programme has focused on assessing the levels of microbial contaminants at key locations along both rivers (but now concentrated on the lower Dart to align with most popular bathing water locations and submitted applications for designation). By end of 2023, this had covered two bathing seasons, two scaled-back winter monitoring programmes, and included investigative sampling of various diffuse and point sources of pollution (rural land uses, CSOs, STWs, etc).

Our sampling techniques have included bacteriological spot sampling in popular inland bathing water locations, sampling in other waterbodies where non-water industry pollution sources dominate, STW effluent sampling, CSO flow and bacteriological sampling, and multi-parameter water quality sensors deployed across the two catchments. The ongoing deployment of in-situ water quality monitors in key locations across the catchments now comprises simplified sensors in estuarine situations, 2 fixed monitoring stations on the lower Dart and a sensor in the Bidwell Brook.

In addition, we have submitted ~50 bacteriological samples for Microbial Source Tracking Analysis to the National Laboratory Service (NLS) and are analysing the results.

The initial findings of this analysis shows that bacteria in the River Dart and its estuary are derived from a wide array of animal sources, including livestock, wildlife, dogs and humans, but this varies considerably depending on the site, the landscape upstream and weather conditions prior to the sample being taken.

In combination, these approaches have allowed us to take a 'forensic' approach to understanding catchment pollution dynamics – tracking events, identifying sources, assessing risk to bathers and to calibrate water quality and sewer network models (in combination with in-sewer level and flow sensors).

Water quality data collected has now been analysed and used to validate the source apportionment and 'exposure risk' model developed by Prof. Sean Comber. This model is able to predict with a high degree of accuracy the bacterial levels in the river at Dart Riverside (bottom of the catchment) based on rainfall, time of year, agricultural land use, SO event duration monitoring data and measurements taken by the inriver sensors (ammonium and turbidity).

The main focus of the pilot project to-date has been the detailed investigations into the function and performance of the 4 CSOs in Dartington that spill into the Bidwell Brook and are thought to have some impact on both the water quality in that stream and at the Riverside bathing location immediately downstream of its confluence with the Dart.

Under the pilot project, we also have a target to complete 25 SOAF studies across the two river catchments by 2025. As of March 2024, SOAF investigations have been undertaken for 3 of these Dartington CSOs and for around 12 others across the Dart and Tavy catchments. Bacteriological sampling and flow monitoring has also been undertaken on the discharges from these high-priority CSOs to determine the volume and bacterial load discharged during spills.

Development of partnerships, stakeholder and customer engagement

The pilot is undertaking studies to identify and quantify recreational users of both rivers, evaluate the economic benefits of any designations and complete risk appraisals to determine boundaries for any inland bathing water designation.

To support this objective, we have used the on-street engagement platform Hello Lamp Post to capture public perceptions of the river and to help local groups increase their understanding of river usage. HLP signs were installed throughout Dartington and at key locations along the Estuary from May 2023 and by 10/01/23, there had been 405 unique users of the HLP signs, leading to 1,922 interactions and 546 conversations. The most popular month was August (as expected), but interactions have continued on regular basis throughout the winter months. Signs with the most interactions are located by Dartmouth quayside and Totnes Riverside, immediately above Totnes Weir.

Responses are showing that perceptions of river health vary significantly, which highlights the importance of continued engagement and education, which has emerged as a critical enabler of our success in this project and across the DWMP delivery programme. Analysis of these data are ongoing.

To further support this work, we are planning to commission a holistic study into the benefits and risks associated with inland bathing water research and a research study to gain insights into the perceptions of customers in relation this issue.

Under the pilot, we have also been exploring how we might develop live and transparent reporting of spill data across these catchments. One idea proposed by stakeholders is the development and implementation of a trial data sharing platform and we are also capturing key learning and insights that have benefited the development of our WaterFit Live website. Building on a data and information 'user-requirements 'workshop held in Dartington in 2022, we are now working to establish a collaborative approach for the sharing of data, information and knowledge with our stakeholders. To this end, we held a data and information sharing meeting with Friends of the Dart in January 2024, with the aim of exploring how we can build a shared understanding of the challenges and solutions we face underpinned by the robust exchange of data, information and knowledge. We are now working to establish open and transparent relationships local river groups based on mutual trust and effective communication.

Also, with the development of our exposure risk model, we are getting closer to being able to provide information that supports risk-assessment and decision-making among recreational users of the river and we are keen to co-design any potential 'system' with our stakeholders in the catchments.

Throughout 2023/24, we have been actively supporting the various volunteer monitoring approaches that have recently emerged across the region.

Through this project and the newly established Natural Catchment Management Plans, we are working closely with our delivery partners and local stakeholders to explore how we can best support members of the public who want to help detect and report pollution through a citizen science-based engagement approach.

One way we are doing this is to support the development of catchment monitoring strategies through the provision of technical expertise, water quality sampling and evidence reviews. The key enablers of effective catchment monitoring programmes are a good understanding of catchment science among participants, a robust and usable data capture and sharing platform, a clearly defined set of monitoring objectives and a strategic framework that the various programmes feed into. We are actively working with our partners to put these enablers in place in 2024.

Another objective of the pilot is to develop and test customer engagement and education strategies to prevent disposal of plastic and other polluting matter (e.g., wet wipes, cotton buds) into the sewer system, and determine the impact on reducing aesthetic and plastic pollution.

We are working with our local delivery partners to design and deliver a broad communication, engagement and education programme designed to raise the awareness and understanding of water management challenges and solutions among our stakeholders.

We have also been in close collaboration with the South Devon Catchment Partnership and the Estuary Forums across South Devon, with particular focus on establishing good/best practice for water quality monitoring, surface water management and collaborative working.

We recognise that increased understanding of how the water system works and how it is managed represents a significant enabler of our new 'Green First' approach and the successful delivery of our Storm Overflow Action Plan. Stakeholder buy-in and support will be a critical enabler of success for these projects and by developing an education programme to support the Pilot in Dartington and Totnes during 2024, we aim to be well placed to extend this to other areas during our next regulatory period.

The first output from this new education programme is the development of an 'introductory course in catchment science and water quality' for adult learners, though which attendees will discover and learn about the dynamic world of rivers and their catchments. Over 6x online learning sessions trainees will gain a solid foundational knowledge in hydrology, geomorphology, river ecology, and environmental monitoring and assessment. Starting in April, the first running of the course already has ~20 people registered.



Storm overflows continued

We have also aligned the project with our integrated catchment management approach and develop options to support diffuse pollution reduction with a focus on the impact on bathing water parameters.

In addition to our ongoing engagement with community groups and stakeholders in the Dart catchment, we have extensive experience of working with landowners and land managers, in part through our network of trusted Upstream Thinking delivery partners.

We have extended the Upstream Thinking Catchment management scheme for the Dart and Tavy catchments (funded through Green Recovery) to include the Bidwell Brook catchment. Our delivery partners have begun to engage with farmers and to identify opportunities for catchment management solutions to deliver water management benefits across the catchment.

This work is also connected to the CastCo Ofwat Innovation Fund Project, for which the University of Exeter are undertaking CSO catchment assessment to determine the extent to which catchment management and nature-based solutions can contribute to storm overflow spill reduction.

In addition, the Dart has now been included as a pilot catchment for our new Natural Catchment Management Plans (NCMPs) programme. The NCMPs will be based on evidence and an assessment of potential risks to water quality within each catchment area. The review will be used to create a diagram or "storymap" of the water management issues and opportunities within the catchment and used as a basis for engaging local stakeholders, partners, landowners and land managers to identify actions and opportunities for local collaboration.

Collaborative Design of Solutuions with Stakeholders

We are piloting the 'Green First' approach to deliver water quality improvements – primarily through the reduction of SO spills, but also though catchment management, surface water management solutions and behaviour change activities. Initial focus on the 4 CSO's on Bidwell Brook in Dartington as a demonstration of how we can manage spills using a 'Green First' and collaborative approach.

On 17th January 2024 in Totnes, we have convened a collaborative planning workshop with ~60 of our stakeholders from the Dart Catchment. The aim of this co-creation workshop was to give stakeholders a full update on all our work so far (monitoring, engagement, storm overflow investigations), build their collective understanding of water quality issues in this area, and work together to explore the potential solutions (costs, benefits, trade-offs, barriers, etc).

The first half of the day consisted of presentations from South West Water, Stantec, and Plymouth University representatives, followed by a networking lunch. The format for the second half of the day was a carousel workshop, whereby attendees circulated six tables, each discussing a different set of water management solutions that could help reduce local storm overflow spills. There were facilitators on each table to guide the discussion on solution design, benefits, trade-offs, and opportunities. Overall, the workshop was highly successful in raising local stakeholder awareness and understanding of the challenges and solutions surrounding drainage and wastewater management. The workshop provided an excellent atmosphere for networking and collaboration between all stakeholders. In the feedback provided, the attendees found the workshop to be informative without being overwhelming, and an excellent opportunity for networking. The event helped them to develop an increased awareness and understanding of water management challenges and solutions.

Next steps

In addition to completing our investigations and stakeholder engagement programmes in year 3 of the pilot, we will also be continuing our comprehensive and detailed study of the drainage and wastewater system around the 4 CSOs on the Bidwell Brook and across the wider Totnes STWs catchment. This will include analysis of SO performance and function data, infiltration and impermeable area surveys, and hydrological modelling of surface water to map overland flow routes.

We have also begun to develop possible solutions and have commissioned an optioneering study using the Totnes network model. Using this information, we will develop and review a list of potential solutions applying the 'Green First' framework. In line with this decision-making framework, this assessment has included consideration of 'green-blue' solutions (such as nature-based solutions, natural flood management, wetlands, SuDS), drainage network solutions, rainwater capture solutions (e.g., rainwater harvesting), surface water separation and finally storage (grey) solutions.

For each solution, we will estimate the potential impact, assess confidence in outcomes and undertake high level cost-benefit assessment (CBA). We will then highlight the preferred notional solution mix and select solutions to progress to the design phase.

If the full potential benefits of this pilot are to be realised before the end of the project, it will be essential for our findings and the learning gathered to be effectively disseminated to stakeholders across the region. Our aim is to create a framework that supports the replication and upscaling of this approach to other catchments with potential inland bathing water designations around the region.

For further information about the Dart and Tavy River Bathing Waters Pilot contact: DartTavy@southwestwater.co.uk

Surface Water separation trials

The first site for surface water separation has been completed, providing 0.39 hectares.

Future programme

Summer 2022 into 2023

- River water quality monitors and storm overflow monitors deployed and data gathering begins
- Ongoing stakeholder and community engagement
- Trial of the Window on the Environment platform

Winter 2023 into 2024

- Full review of all our findings including cost benefit analysis
- Programmes to improve river water quality

Spring 2025

- Report on findings published
- If appropriate, following completion of the pilot, we would support bathing water designations on the Dart and Tavy rivers
- Monitoring, modelling and investigation

 water quality monitoring is ongoing
 on the Dart and key tributaries, such as
 the River Hems
- The designation of Steamer Quay in Totnes has triggered a statutory Bathing Water Investigation
- Stakeholder engagement stakeholder liaison continues with a stakeholder group meeting scheduled for late summer 2024
- Educational activities and community engagement are also continuing throughout 24/25
- Ongoing dialogue with local groups to develop data and information sharing processes
- Targeting and design of solutions work to design and begin delivery of solutions taking a Green First Approach will continue in 24/25
- Costed notional solutions are already developed and scoping work will continue as we move towards delivery
- SOAF work ongoing to complete the SOAF investigations programme

Spend £m

2021/22 0.089



5 Catchment management

Agreed proposal

Since 2010, we have been working with our project partners, farmers and landowners to deliver our innovative and award-winning land management programme Upstream Thinking. Our Green Recovery (GR) proposal provides us with an opportunity to further expand this programme across Dartmoor National Park and the surrounding landscapes. We will undertake 10,000 hectares of catchment management activities including:

- Peatland restoration on areas with some of the
- most severe damage and degradation on Dartmoor • Working for landowners and farmers - to protect
- raw Water quality and availability
 Natural flood management and nature recovery

 improving biodiversity and enhancing natural habitats.

-

Progress

Catchment Scheme

Good progress has been made this year delivering the catchment management side of the programme. Devon Wildlife Trust (DWT) and Westcountry Rivers Trust (WRT) continue their focus on implementing on-farm interventions, specifically aimed at mitigating catchment specific water quality risks, improving raw water quality whilst also creating biodiversity and natural flood management (NFM) improvements. Working with landowners and farmers to adapt farming practices to protect raw water quality and availability through reduced use of pesticides, changing land use and reducing risk from slurry storage and handling forms a core part of this delivery.

Multiple NFM projects have been completed this year by DWT and WRT with a further eight NFM focused projects in the pipeline. As an example, a GR capital grant funded the installation of a series of scrapes and pools to hold water on the Dart at Northway near Widecombe-In-The-Moor (Photograph 1). This nature based solution (NBS) will improve water quality and quantity whilst also improving biodiversity and providing NFM downstream. WRT are also in the process of delivering a NFM focused project near Lamerton, with the help of a GR capital grant. A farm yard manure store is being installed along with 0.89 ha of broadleaf trees planted to stabilise and retain soil. The farm will also see the installation of two new ponds strategically positioned, the restoration of an existing pond and the installation of three woody dams to slow the flow of water.

The programme offers free on-farm soil sampling in order to produce nutrient management plans. Results to date show that only 42% of fields are at the target pH indicating risk of nutrient losses from the remaining 58%. 24% of fields were also found to be at too high P index, indicating risk of phosphate loss from these fields. These results enable the strategic implementation of on-farm interventions to improve water quality. Integrated pest management plans and pesticide amnesties continue to also prove successful, with over 445kg of banned and/ or unwanted pesticides now removed from drinking water catchments.

On-farm interventions also provide a reduction on the capacity of wastewater network and catchments

and the reduction of catchment derived peak flows, resulting in improved storm overflow performance. Figure 1 below shows land in active management, delivered through the GR programme, overlayed with the Crowndale waste water catchment. Delivery is being recorded spatially surrounding Mortenhampstead, Tavistock and Buckfastleigh in order to compare against treatment works flow data, CSO event duration monitoring data and meteorological data to understand improvements attributable to on-farm interventions.

Peatland Restoration

The upland peatlands of the South West, like Dartmoor, exist in climatically marginal conditions and are recognised by the International Union for the Conservation of Nature (IUCN) as the most vulnerable in the UK to climate change. Historic human activity has meant that they are degrading and drying out, releasing carbon and showing a decline in associated biodiversity. Restoration of these peatlands is therefore critical. The South West Peatland Partnership (SWPP) is the delivery mechanism for achieving the target of 1,000 ha of intensive peatland restoration on Dartmoor, with SWW being the lead partner. This year the SWPP have completed 207 ha of peatland restoration with a forecast by end of 2025 financial year to reach a total of 841ha of peatland restoration. A total of 543 ha of degraded peatlands have been restored to date.

GR funding has enabled the extension of restoration works on Burrator and Hangingstone Hill from the original phase of works. Hangingstone Hill is strategically important as it sits at the headwaters of four catchments (West Okemont (Meldon), East Dart, Taw and Tavy). Peatland restoration has also taken place this year at Great Gnats Head and Tavy Head.

Dissolved organic carbon (DOC) in raw water supplies presents significant treatment challenges. By restoring degraded peatlands, the amount of organic carbon being washed into water courses and then entering the water treatment works will be reduced. Working with the University of Exeter, two monitoring catchments have been established on Dartmoor to investigate this question, being Hangingstone and Flat Tor Pan. To date monitoring has shown no statistically significant effect on DOC concentrations or water colour during base flow. However, the water was significantly paler and more hydrophilic and the total load of DOC leaving the mire during storm events was seen to have decreased by a third. This suggests a shift towards carbon from fresher plant litter as opposed to deeper older carbon within the peat and that it is taking longer for the peat to leave these areas. Peak storm flow was reduced by 49%, reducing the erosive power of rainfall events and the risk of further peat erosion. Research to date has shown that peatland restoration has lead to an average additional 7.3cm of permanent deep water storage in the peat soil with runoff through monitored gullies reducing by approximately 66%, post restoration. Further restoration at Flat Tor Pan has transformed the sparsely vegetated and bare peat areas within the dendritic erosion pathways into pools, increasing mean water tables from 0.3 cm below ground level pre restoration to 6.4 cm above ground level post restoration. In the surrounding areas, water tables

have stabilised and are now 6 cm closer to the surface during dry periods, decreasing the volume of peat that is able to oxidise.

Progress - Biodiversity Improvements on SWW Landholdings

Across SWW landholdings, South West Lakes Trust (SWLT) have created upwards of 25 leaky dams and 32 in-river woody debris dams in three different areas built on floodplains and small tributaries, slowing the flow and creating small boggy pools. These works will increase floodplain connectivity and create in-river habitats. A further two embankment breaches have been made to increase floodplain connectivity and improve adjacent wetlands.

SWLT held a local stakeholder event with around 40 guests, including local councillors, commoners, farmers, residents and local interest groups. Past and future works were discussed, encouraging open discussions between volunteers, staff and stakeholders. SWLT also hold regular one-to-one stakeholder meetings with representatives from DNPA, Dartmoor landscape recovery programme, DWT, WRT and neighbouring commoners. They are also working with Walkhampton landscape recovery team to ensure projects are connected to enable successful landscape scale delivery. Close consultations with DNPA Archaeologist have allowed SWLT to plan wood pasture planting and wet woodland planting in areas which will not only benefit water quality and biodiversity but also help protect the important archaeological features of Dartmoor.

Works completed by SWLT to enhance and restore habitats so far include 21.58 ha of thinning, coppicing and creation of glades to improve the health and biodiversity of broadleaved woodlands, 38.4 ha of

10,000 Hectares to be improved by 2025



As per the Green economic recovery: final decisions document published by Ofwat, biodiversity and leakage commitments reflect will reflect revisions to the original business plan commitment.

I Green Recovery initiative continued

5 Catchment management continued

INNS removal 1 ha of new orchards and 113 ha of forestry adjacent to rivers and wetlands, improving water retention, reducing soil runoff and improving biodiversity. A further 53.6 ha of forestry has been better protected from predators such as deer and straying stock, to allow increased natural regeneration. Tenant farmers have improved management by increasing shepherding in some areas, allowing the woodland to grow further up the valley sides and increase regeneration. Other areas have been fenced, or had fencing repaired, where livestock were consistently breaking through and predating saplings. Around 10 hectares of upland acid grassland will also see improved shepherding, reducing overgrazing and allowing upland acid grassland plants to thrive, improving invertebrate and bird populations. Leaky and woody debris river dams have created around 14 hectares of new or restored wetlands, with boggy pools and rewetted valleys now attracting more invertebrates, reptiles, amphibians and nesting birds.

In-house, our GR biodiversity officer has also been delivering works across SWW landholdings. At Avon water treatment works, an old sludge tank has been converted into a wetland with willow to develop into a wet woodland. Further bracken management, grassland management and woodland management works have taken place across Venford. Avon and Tottiford water treatment works. Bird, botany and fritillary surveys have been conducted throughout summer months with targeted species improvements to be implemented dependent on survey outcomes. This year has also seen 19 volunteers assist with planting 1,121 trees across various landholdings. This year, over 50 SWW landholdings were surveyed, of which 33 were identified for available improvements. Over 90% of these 33 sites have seen successful interventions implemented with the remaining 10% to be finished next year.

Delivery Summary

To date we have successfully delivered 7,144 ha of land into active management across all three workstreams, against a target of 6,000 ha, enabling SWW to achieve the combined performance commitment target of 109,209 ha for 2023/2024.

The programme has created 40 green jobs, attracting 47 volunteers and retaining four existing posts. The Nature for Climate Peatland Grant Scheme has also contributed an additional ~£3.8m to the programme, with additional funding from Natural England, Duchy of Cornwall and the National Trust. The programme has contracts with over 28 local businesses, contributing more than £2m to the local economy to date. Graduates, interns, apprentices and work experience students have also been hired as part of our commitment to facilitate wider skills, having approached 110 schools and colleges in the local area to date. SWW have been working in partnership with local NGO's and government agencies such as the Environment Agency (EA), Natural England, RSPB, Buckfastleigh West Commoners Association and Dartmoor Preservation Association to promote local employment and businesses.

We continue to chair quarterly meetings and produce quarterly progress reports for both the Upstream Thinking and GR programme, with quarterly reports being sent to multiple stakeholders and partners



and in active management overlayed with Crowndale waste water catchment

including the EA. A further meeting was held with the EA on December 12th 2023 to discuss delivery to date, future plans and obtain EA input to the programme. Further collaboration has taken place between delivery partners of SWW's AMP7 Burrator DrWPA WINEP scheme and GR delivery partners to ensure maximum delivery benefits, such as joining up wildlife corridors and shallow peatland restoration.

The expenditure in 2023/24 was low as this reflected rhe 'net' position with the programme recognising a significant proportion of third party funding in this year. Expenditure in future years will be naturally higher.



Scrapes and pools holding water on the Dart at Northway, Widecombe-In-The-Moor

Future programme

- Delivery partners delivered 366 ha of catchment management activities.
 31 March 2022
- Delivery partners delivered a further 3,414 ha of catchment management activities. 31 March 2023
- Delivery partners delivered a further 2,618 ha of catchment management activities.
 31 March 2024
- Delivery partners to deliver a further 4,000 ha of catchment management activities.
 31 March 2025

Spend £m



| Financial Expenditure by Green Recovery area

The following table shows actual expenditure to date for 2021/22 and 2022/23 as well as forecast expenditure profile for the delivery of the remaining three years of our Green Recovery programme. All values are in 2017/18 prices.

Knapp Mill WTW

Expenditure	2021/22 £m	2022/23 £m	2023/24 £m	2024/25 £m	Total £m
Capital expenditure	1.096	1.368	7.793	14.62	24.877
Operating expenditure	-	-	-	-	-
Totex	1.096	1.368	7.793	14.62	24.877
Determination	2.770	5.678	8.114	8.315	24.877
Difference	1.674	4.310	0.321	(6.305)	-

The project is on track to deliver the programme by March 2026, despite having a slower than expected start.

2 Grid enablement

Expenditure	2021/22 £m	2022/23 £m	2023/24 £m	2024/25 £m	Total £m
Capital expenditure	0.113	2.950	10.864	8.774	22.702
Operating expenditure	-	-	-	-	-
Totex	0.113	2.950	10.864	8.774	22.702
Determination	2.527	5.181	7.405	7.588	22.702
Difference	2.414	2.231	(3.459)	(1.186)	-

The project is on track to deliver the programme by March 2026, despite having a slower than expected start.

3 Smarter, healthier homes

Expenditure	2021/22 £m	2022/23 £m	2023/24 £m	2024/25 £m	Total £m
Capital expenditure	0.070	0.340	3.965	13.027	17.402
Operating expenditure	-	-	-	-	-
Totex	0.070	0.340	3.965	13.027	17.402
Determination	1.938	3.972	5.676	5.816	17.401
Difference	1.868	3.632	1.711	(7.211)	-

Smarter, Healthier Homes is on track to deliver the full programmes by March 2025. Whilst the projects and spend are now focussed into the final year, the delivery models are established and resourced to meet the programme outputs.

I Financial Expenditure by Green Recovery area continued

4 Storm Overflows

Expenditure	2021/22 £m	2022/23 £m	2023/24 £m	2024/25 £m	Total £m
Capital expenditure	0.082	2.959	1.043	3.558	7.642
Operating expenditure	-	-	-	-	-
Totex	0.082	2.959	1.043	3.558	7.642
Determination	2.137	3.043	1.231	1.231	7.642
Difference	2.055	0.084	0.188	(2.327)	-

The project is on track to deliver the programme by March 2025.

5 Catchment management

Expenditure	2021/22 £m	2022/23 £m	2023/24 £m	2024/25 £m	Total £m
Capital expenditure	0.853	3.042	0.222	4.883	9.000
Operating expenditure	-	-	-	-	-
Totex	0.853	3.042	0.222	4.883	9.000
Determination	1.002	2.054	2.936	3.008	9.000
Difference	0.149	(0.988)	2.714	(1.875)	-

The project is on track to deliver the programme by March 2025.

Net Zero

For details on our Net Zero programme and performance, please see pages 24 to 25 our 2022/23 Annual Performance Report (APR) here Report2024.

Assurance

Jacobs, our external technical ODI assurer, has provided assurance in conjunction with its 3rd party assurance programme of the performance commitment outturn as reported in our Annual Performance Report.

This has included:

- An audit of our performance in respect of forecast and delivered performance commitment benefits from the Green Recovery Programme (as shown on page 01)
- An independent engineering-based review of progress in respect of our five programmes
- Assurance in respect of progress in respect of completed milestones for the Knapp Mill water treatment improvements (noting the scheme is currently pending planning application approval)
- Assurance over the reporting of progress to date in the smarter, healthier homes
 scheme delivery requirements

Further assurance is being performed as part of the PR24 process, including but not limited to, the forecast of likely outturn position at the end of March 2025 for the Knapp Mill Water Treatment Works and completed milestones and likely outturn position at the end of March 2025 for the Water Resource Grid Enablement programme.