

**2017-18 Half Year  
Progress Report**

**Somerset  
Rivers Authority**



# SOMERSET RIVERS AUTHORITY 2017-18 HALF YEAR PROGRESS REPORT

## CONTENTS

### **1. Introduction** (page 2)

### **2. Performance**

Delivery Progress Summary (pages 3-4), Finance Summary (pages 4-5)

### **3. Progress of Works in Detail**

Key Projects (pages 6-10), SRA 2017-18 Enhanced Programme (pages 11-??)

## **PART 1: INTRODUCTION**

This year Somerset Rivers Authority (SRA) has nearly £6million available to spend on actions designed to give Somerset extra flood protection and resilience. This Half Year Progress Report covers, as the name suggests, progress made between the start of the 2017-18 financial year in April and September.

Part 2 shows where money is coming from and how much of their budget allocation has been committed by the SRA's delivery partners, so far this year.

Part 3 of this report outlines progress where progress has been made. Where there is no news, no news is given. The aim here is to focus on what has actually been done. Part 3 opens with major projects, then moves on to smaller actions grouped according to SRA workstream – Dredging & River Management, Land Management, Urban Water Management, Resilient Infrastructure and Building Community Resilience.

For much more information about earlier years, works in progress and works coming up, visit the Flood Risk Work section of [www.somersetiversauthority.org.uk](http://www.somersetiversauthority.org.uk).

**A note on Somerset Rivers Authority:** *The SRA is a partnership between 11 of Somerset's existing flood risk management authorities: Somerset County Council, the five district councils, the Axe Brue and Parrett Internal Drainage Boards, the Environment Agency, Natural England and the Wessex Regional Flood & Coastal Committee. The SRA's purpose is to provide a higher standard of flood risk management than is affordable from the existing budgets of those flood risk management authorities.*

**Photographic credits:** *The front cover photograph by S Granger shows Natural Flood Management works in the grounds of Lufton Manor College on the outskirts of Yeovil, designed to create additional storage and flooding control for the benefit of downstream communities in places such as Martock. All photos copyright © Somerset Rivers Authority 2017, except for those used by kind permission of: p. 9, South Somerset District Council (Merriott); p.10, Environment Agency (Cannington); p.13, FWAG SW (Brompton Ralph & Buckland St Mary); p.14, FWAG SW (Wiveliscombe); p.16, Somerset Drainage Boards Consortium (all culverts & structures).*

## PART 2: PERFORMANCE - Delivery Progress Summary

In March 2017, the SRA Board approved an Enhanced Programme of works to be delivered through the 2017-18 financial year. The programme includes 23 different actions for delivery across the whole of Somerset, covering all SRA workstreams: see the pie chart below for details. A further 28 actions were also carried forward from previous years' Enhanced Programmes for delivery during 2017-18.

Table A below shows the overall status of actions as at September 2017, by funding source and year. The pie chart shows how much of their allocated budget has been committed by delivery partners, split by workstream.

Table A: Action Status Table			
Funding Source	No. of Actions* programmed for delivery 2017-18 including those brought forward <i>b/f</i>	Actions completed during First Half 2017-18	Previous years' Actions yet to be completed
<b>SRA Local Partners Funds**</b> 2017-18 Enhanced Programme	23	0	N/A
<b>SRA Local Partners Funds**</b> 2016-17 Enhanced Programme <i>b/f</i>	16	5	11
<b>Interim Funding***</b> 2015-16 Enhanced Programme <i>b/f</i>	6	0	6
<b>CLG Funding****</b> 2014-15 Actions <i>b/f</i>	6	0	6

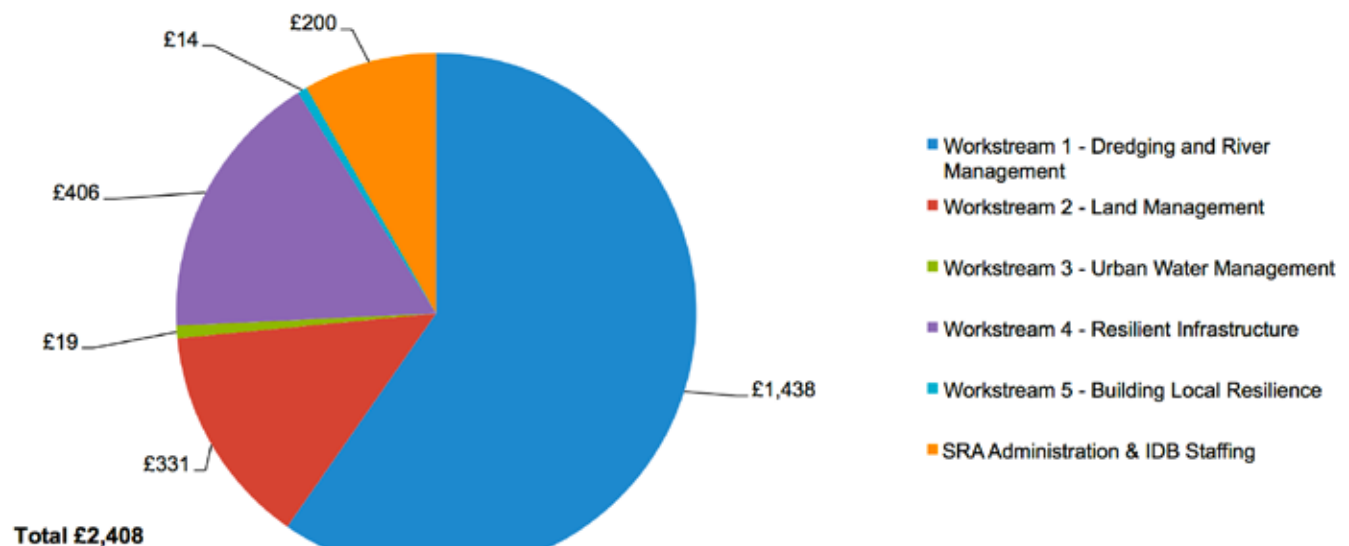
\* Excludes projects funded through Heart of the SW Local Enterprise Partnership (HotSWLEP) Growth Deal Fund. These projects are longer-term works stretching out towards 2020-21. See Part 3a of this report: Key Projects.

\*\* Local Partners Funds means council tax & contributions from the Axe Brue and Parrett Internal Drainage Boards (IDBs).

\*\*\* Interim Funding was supplied by Defra, Somerset County Council, the five district councils, and the two IDBs.

\*\*\*\* CLG Funding came from the Department for Communities & Local Government (CLG).

**First Half 2017-18 Committed\* by Workstream (£'000)\*\***



\* Committed: Means payments already made by delivery partners and/or contractual commitments to spend made by delivery partners.

\*\* Includes funding from HotSWLEP.

The 2017-18 Enhanced Programme has no actions planned for delivery within the first half of the year as this is time taken up with programming the delivery of the work, gaining landowner consent and procurement processes. However, some of the work programmed by SCC Highways on enhanced maintenance on gully emptying and drain jetting has been contracted and delivered.

Of the 16 actions carried forward from the 2016-17 Enhanced Programme, five have been completed during the first six months of this year. See Table A (*previous page*). These actions include the Flood Alleviation Scheme at Cannington to which the SRA contributed a substantial amount of its 2016-17 funding. Enhanced maintenance work on West Somerset Streams and flood relief and drainage assets within Sedgemoor has also been delivered. CCTV surveys of privately owned drains and community engagement work on building local resilience have been completed, however, work on both these actions continues into 2017-18 with further funds allocated. The remaining 11 actions are mainly from Workstreams 1 and 3. See Part 3b for further details on what has been achieved for each of these actions.

Out of an original 23 actions, six actions were brought forward into 2017-18 from the SRA's 2015-16 Enhanced Programme. These are drainage improvements from Old Cleeve to Blue Anchor Road, which have now progressed to the final design stage, and improvements at Frog Lane, Enmore, which still require landowner agreement for access before the work can be completed. The Riparian Enabling and Enforcement Officer started in mid-September. The three remaining actions are in Workstream 1. See Part 3b for what has been achieved so far this year.

The key projects being delivered by the SRA with Heart of the South West Local Enterprise Partnership (HotSWLEP) Growth Deal Funding are longer-term project works stretching out to 2020-21. Part 3a gives details of work delivered so far this year.

## **Finance Summary**

The total funding available in 2017-18 (excluding HotSWLEP Growth Deal Funding) is £5.947m. Table B (*next page*) shows the breakdown of the total funding for each annual enhanced programme. It also shows the amount committed by delivery partners during the first six months of this year, the remaining budget and the amount paid to delivery partners. The difference between the committed funds of £1,412k and the £769k claimed is due to the time lag between delivery partners receiving their contractor invoices and then raising a claim to the SRA.

SRA delivery partners have committed £279k of their 2017-18 budget allocation so far this year on SCC Highways enhanced maintenance for gully emptying and drain jetting, the SRA contribution towards the Taunton Strategic Flood Alleviations Improvements Scheme, silt monitoring, 'Slow the Flow' schemes and enhanced maintenance on flood relief and drainage assets within Sedgemoor. The bulk of the difference between the 2016-17 funding paid to delivery partners of £439k, and their committed spend of £881k, is the £300k contribution to the Cannington Flood Alleviation Scheme, now complete, although the money is yet to be claimed.

During the first half of 2017-18, £700k of HotSWLEP's Growth Deal funding has been paid to SRA delivery partners from a committed spend of £881k. These funds represent work being delivered on key projects such as the Sowey/King's Sedgemoor Drain (KSD) enhancement scheme, Bridgwater Tidal Barrier and individual Slow the Flow capital grant schemes. These funds are from the £13.049m awarded to the SRA.

**Table B: Somerset Rivers Authority First Half 2017-18 Financial Summary**

<b>Funding Source</b>	<b>Total 2017-18 budget</b>	<b>Committed* by delivery partners</b>	<b>Remaining budget</b>	<b>Paid to delivery partners</b>
	<b>£'000</b>	<b>£'000</b>	<b>£'000</b>	<b>£'000</b>
<b>Current year's actions</b>				
2017-18 Enhanced Programme	2,398	279	2,119	83
<b>Previous years' actions</b>				
2016-17 Enhanced Programme	1,626	881	745	439
2015-16 Enhanced Programme	406	133	275	118
Department of Communities & Local Government (CLG) Programme	176	34	142	13
<b>Other</b>				
Provision for Sowy/KSD and/or pioneer dredging	1,004	0	1,004	0
Contingency**	135	0	0	0
SRA Administration & Staffing	200	200	0	116
<b>Total</b>	<b>5,947</b>	<b>1,527</b>	<b>4,420</b>	<b>769</b>
<b>HotSWLEP Growth Deal Funding***</b>				
Sowy/KSD, Bridgwater Tidal Barrier, Slow the Flow		<b>881</b>		<b>700</b>
<b><u>Total Spent 2017-18****</u></b>				<b><u>1,469</u></b>
<p>* <i>Committed</i>: Means payments already made by delivery partners and/or contractual commitments to spend made by delivery partners.</p> <p>** <i>Contingency</i>: Amalgamation of all contingency funds.</p> <p>*** <i>HotSWLEP</i>: No 2017-18 budget is included as delivery will be over a 7-year period up to 2021, with no defined annual budget.</p> <p>**** <i>Spent</i>: Amount claimed by delivery partners from the SRA during the first half of 2017-18.</p>				

## **PART 3a: KEY PROJECTS – Main River Dredging**

**The meaning of Main River:** *Main Rivers are usually larger streams and rivers, but some are smaller watercourses of local significance. In England, Defra decides which watercourses are Main Rivers. The Environment Agency has powers to work on main rivers to manage flood risk. However, the Agency may enter into a Public Sector Cooperation Agreement (PSCA) with another risk management authority to enable works. So, for e.g., if a PSCA is agreed with Somerset Drainage Boards Consortium (SDBC), SDBC can apply for environmental permits, seek the agreement of landowners and procure works on Main River, for the SRA. SDBC comprises the Axe Brue and the Parrett Internal Drainage Boards (IDBs). Main River Dredging works listed below are being done on behalf of the SRA by the Environment Agency (using its powers) or the IDBs (via a PSCA).*

**Background:** After the floods of 2013-14, the Environment Agency spent £6million on the pioneer dredging of 8km of the Parrett and Tone. Since then, Somerset Rivers Authority has funded more pioneer dredging (750m downstream of Northmoor Pumping Station) and maintenance dredging between Westonzoyland Pumping Station and Burrowbridge, targeted to sections of the Parrett that were pioneer-dredged in 2014, where silt has built up most again along this tidal river. In Autumn 2016, trials of water injection dredging techniques were carried out as part of the SRA's development of a Dredging Strategy. This is establishing the most cost-effective methods, times and places for removing silt.

The SRA also funds de-silting work on watercourses additional to those currently de-silted by the Environment Agency and IDBs, through, for example, the Agency's existing Wessex De-Silt programme. The aim is to improve the ability of channels to carry water away from flooded and flood-prone areas and deliver it to pumping stations and outfalls more quickly. This reduces the frequency, duration and overall severity of flooding.

De-silting also adds ecological and amenity value to watercourses as it reduces the risk of

de-oxygenation in channels and of fish kills in small, heavily silted channels. It can reduce how often main rivers need to be weed-cut as part of routine Environment Agency work.

**Achieved:** 1) In 2016-17, the Environment Agency dredged 3.5km of the Westport Canal in Hambridge. The SRA funded the dredging of the remaining 700m in September 2017.

2) Work on Isle Brewers Mill Stream was deferred last year because dissolved oxygen levels in the water were too low. In September it was de-silted by the Environment Agency for the SRA.

**Progress so far this year:** The Parrett IDB, on behalf of the SRA, has applied for an environmental permit to carry out further dredging on the Parrett under a PSCA with the Environment Agency, using the water injection dredging techniques that were trialled in 2016 and the same expert contractors, Van Oord.

The aim of this year's dredging is to disperse around 35,000m<sup>3</sup> of silt from the pioneer-dredged reach below Burrowbridge, a length of around 5km. This is to preserve the benefits of the dredging work done over the last three years. Consecutive sets of high tides have been targeted for carrying out the work this winter.

Monitoring of the 2016 dredging trials showed that additional silt continued to be dispersed after the trial was completed. Further monitoring will be carried out this year to see whether that is again the case.

This year's work is focused downstream of Burrowbridge, but – in July – the Board of the SRA also made a commitment to dredge upstream from Burrowbridge to Oath, as soon as a legally compliant and affordable scheme can be found. A programme to achieve this has been developed and the remainder of this year will see the necessary preparatory work undertaken so that a costed proposal can be put before the Board in the summer of 2018-19.

**Upcoming:** 1) Earlier this year, the Environment Agency cleared 5,000 tonnes of silt from Witcombe Bottom, immediately upstream of Long Load Pumping Station, to enable more

efficient pumping. The silt was stockpiled locally for use in building up low banks of the River Yeo. SRA funding will now be used to build up Long Load flood banks, now that geo-technical analyses of the suitability of stockpiled material have been completed. A durable design is being produced. Better banks will help to reduce flooding and disruption caused by road closure.

2) Work on Hamp Brook and Stockmoor Rhyne was deferred last year because dissolved oxygen levels in the water were too low. It will now be done by the Environment Agency for the SRA this Autumn.

3) Huntworth Brook de-silting was postponed from 2016-17 because dissolved oxygen levels in the water were too low. Work is now scheduled for this Autumn, delivered by the Environment Agency, for the SRA.

## KEY PROJECTS – Sowy/King’s Sedgemoor Drain (KSD) Enhancement

**Background:** The Sowy is a man-made river, conceived after severe floods in 1960 as a relief channel to the River Parrett. The Sowy was built in 1969-72 but – to save money – only to 57% of the water-carrying capacity originally planned. During the floods of 2013-14, when the sluice at the head of the Sowy (Monk’s Leaze Clyse near Aller) was fully opened, flood water levels dramatically reduced, by 80cm in two days. With this in mind, Somerset’s 20 Year Flood Action Plan proposed a series of actions designed to improve the entire River Sowy/KSD system, while balancing a range of interests.

Major improvement works were completed during 2016-17 at **Beer Wall** on the A372 near Othery and at **Chedzoy Flap**. **Progress so far this year:** Bank repairs were required at Beer Wall because high flows eroded newly-cut river channels before grass was established.

At **Dunball**, during 2016-17, Somerset County Council removed obstructive masonry (popularly known as the “lump of concrete” from beneath Dunball Old Bridge to improve the capacity and flow of water through the final stretch of the King’s Sedgemoor Drain. **Progress so far this year:** In 2017-18, the Environment Agency has been monitoring river

flow to help assess the impact of this work. More channel widening is likely to be required to further smooth flow upstream.

Vegetation was cleared around **Dunball Rail Bridge and Parchey Bridge** during 2016-17, and surveying was done to see if de-silting work would be beneficial. **Upcoming:** The Environment Agency is planning to tender and award a contract for bridge clearance works at Parchey and Dunball early in 2018, with the job expected to be finished later in the year.

Finalising a major programme of **channel widening for the Sowy/KSD**, across 20km<sup>2</sup> of an already complex landscape, continues to be challenging. The aim is to increase the amount of water that can be evacuated through the Sowy/KSD system, thereby relieving pressures on the Parrett and Tone, and enabling upstream and downstream pumping stations to be operated earlier. This would benefit places such as Langport, Muchelney, Thorney, Moorland and Fordgate. **Progress so far this year:** A proposed scheme has been designed in outline. Environmental mitigation and monitoring strategies are being developed to ensure a scheme that is legally compliant. The interests of landowners are also of crucial importance, and an engagement plan is being developed.

## KEY PROJECTS – Bridgwater Tidal Barrier

The preferred location for a Bridgwater Tidal Barrier is between Express Park business park and Chilton Trinity village. The gate will be a double vertical lift gate, of proven reliability in silty places like the River Parrett. The aim is for a Barrier to be working by 2024. It will then protect around 10,000 properties and over 600 businesses for the next 100 years or more.

The Barrier scheme is being developed by the Environment Agency and Sedgemoor District Council, working with consultants from CH2M. The Barrier’s total estimated cost is £66 million, including 30% risk and contingency. Somerset Rivers Authority is using Growth Deal money from the Heart of the South West Local Enterprise Partnership to support only the initial development stages of this scheme. Funding for matters such as the Barrier’s construction will come from other sources.

## KEY PROJECTS – Taunton Strategic Flood Alleviation Improvements Scheme (TSFAIS)

**Progress so far this year:** An on-going programme of public **consultation** continued this summer with public drop-in sessions in Bridgwater and Chilton Trinity, plus events for Express Park businesses, NFU members and landowners. A Preliminary Environmental Information Report has been issued to stakeholders. The project team has also been working with stakeholders to identify wider opportunities and enhancements that could be delivered alongside the Barrier scheme, subject to funding and approvals.

Numerous **actions** have been taken to progress the scheme, including:

- developing proposals for flood defences downstream from the Barrier, such as maintaining the existing frontline defences and building a new secondary line of defences to better protect communities and infrastructure during extreme weather
- visiting the Hull Tidal Barrier to learn lessons from its operation and recent refurbishment
- appointing a Parliamentary Agent (Bircham Dyson Bell) with experience of delivering Boston and Ipswich tidal barriers
- consulting with Sedgemoor District Council as Harbour Authority on navigation clearances for the gates and impacts on current harbour legislation
- investigating options for securing approvals to deliver the scheme, including a Transport and Works Act Order, Environment Agency powers under the Water Resources Act and planning application
- meeting the Boston tidal barrier project team to learn lessons from their recent public inquiry
- liaising with the Environment Agency's Large Projects Review Group

**Next steps** include further consultation on the preferred option for the Barrier, and what it will look like, before a business case is submitted to the Environment Agency's Large Projects Review Group, so that approval can be secured for preparing a Transport and Works Acts Order.

SRA funding is helping the Environment Agency and Taunton Deane Borough Council, as partners, to develop a combination of vital improvements costing an estimated £36million. Ideas being investigated include a Bradford on Tone flood storage area, improvements to Taunton town centre flood defences, possible works at French and Firepool weirs, and further options for Taunton town centre and Bathpool.

**Progress so far this year:** Topographic surveying and ground investigation works have been carried out this autumn to help investigate options thoroughly. Some boreholes will be left in place for at least a year, so as to understand the water table. (A flood storage area could hold back up to 1.8 million cubic meters of water in the upper catchment of the River Tone, above Taunton, in times of flood, releasing this in a controlled and gradual fashion and reducing peak water levels downstream. The storage area would only be used during flood events: generally, it would be dry and could be maintained for agriculture.)

Also being investigated is an option known as "Taunton Town Centre Raised Walls with flood storage on the Sherford Stream". The aim is to determine what flood risk benefits this option gives to Taunton town centre, and to assess its performance and cost against the Bradford on Tone proposal. Having compared these single options, the next stage of analysis will be to investigate whether there is a better, cost-effective combination of the two.

Other steps so far this year include topographical, ecological and desk-based archaeological surveys in Taunton town centre; the appointment of a land evaluation expert by Taunton Deane Borough Council; and the finalising of a Stakeholder Engagement Plan.

The aim of this phase of TSFAIS is to progress to outline design of the preferred option(s), and secure full planning permission. The next phase will involve detailed design and construction. Taunton needs strategic flood alleviation improvements to protect existing properties and allow planned development to happen safely.

## W1 – Dredging and River Management

*Dredging and de-silting activities are covered in Key Projects (see pages 6-7).*

### **Pumping Station Repairs and Improvements:**

SRA funding enables extra resilience and security at permanent pumping stations. Plans include electrical upgrades to double pump capacity at Westonzoyland and a new trash screen that can be cleared automatically at West Sedgemoor. This protects pump equipment, by stopping material being sucked into the pumping mechanism. Preventing blockages also reduces flood risk locally by stopping water backing up. **Progress so far this year:** Site visits to scope works have been made to West Sedgemoor and Westonzoyland. An options report for Westonzoyland is expected by June 2018. A design and construction plan has been completed for roof repairs at North Drain Pumping Station but work has been delayed because of bats. As bats are legally protected, mitigation works are needed.

### **South Somerset Enhanced Maintenance:**

SRA funding enables smaller schemes that deal with local issues in a pro-active way that makes flood alleviation schemes work with extra effectiveness. Some unspent funding was carried forward from 2016-17. **Achieved:** Enhanced maintenance to repair bank erosion on Merriott's flood attenuation dam, upstream of Moorland Road (*pictured below*).

**West Somerset Streams:** As a high proportion of watercourses in West Somerset are classified as 'Rapid Response Catchments' and High Risk rivers (with a high risk to life), it is important to ensure that channel conveyance is maintained, leading to maximum flood water discharge capacity. SRA funding enables extra maintenance. **Achieved:** the final stage of works on the Bratton Stream through The Parks in Minehead, funded by the SRA Enhanced Programme 2016-17, was completed.

**Brue Tree Work:** Improving flow capacity between Hackness and North Drain Pumping Station by removing fallen trees and pruning obstructive trees. **Progress so far this year:** Specific location work schedules have been



prepared by Somerset Drainage Boards Consortium (SDBC), for the SRA. As this is Main River work (see p.6), SDBC now needs to make a Public Sector Cooperation Agreement with the Environment Agency.

**Cannington Flood Alleviation Scheme:**

Part of the SRA's Enhanced Programme for 2016-17, carried forward into 2017-18 after completion was delayed by the need to divert a gas main. An SRA contribution of £300,000 enabled a £4.5m scheme to go ahead, led by the Environment Agency in partnership with EDF, Cannington Parish Council, Wessex Water and Somerset County Council. **Achieved:** A new relief channel to divert flood water away from Cannington and better protect 200 homes and the A39 was completed in mid-July and a Hydro-Brake® flow control structure in late summer. As part of the re-modelling of the area, a new access has been created to The Grange (a large, historic complex of holiday accommodation). Some other final works (landscaping, planting, fencing, telemetry/ CCTV) are due to be finished this Autumn (*flow structure pictured below in June 2017*).

**Main River Asset Improvements:** The Environment Agency has many assets in Somerset; bids for national funding fall short of what is required to maintain and improve them all. Extra SRA funding enables a stronger operational response to flooding and potential flooding. 2017-18 work is focused on Mendip.

**Progress so far this year:** A contract was awarded in September for repairs to part of Frome's Flood Defence Scheme, which protects 300 properties. By Spring 2018, repairs are due to be completed to the River Frome's revetment - the fortified layer which protects earthen river banks (and properties and roads behind them) from high-flow erosion, especially on the bends where this shield is hit the hardest. **Carried forward from 2016-17 - Achieved:** A new electric canister pump has been installed at the Screech Owl outfall near Huntworth, close to Bridgwater, with supporting hydrometry designed to trigger the pump. The pump will be used to remove excess floodwater from around The Boat & Anchor Inn and from along Marsh Lane by the Huntworth Business Park (which includes operations such as an Argos distribution centre). *Pictured next page.*



Cannington, pictured in June 2017



Asset Improvements at Screech Owl, with contractors from Nomenca



New canister pump and cabinet



**Maintaining Resilience of Wet Grassland:** An investigation into how water levels and land can be managed to enable flood resilient farming and good environmental outcomes in flood prone areas. This will lead to recommendations and implementing suitable measures once agreed. **Progress so far this year:** Exploratory work has begun with visits to landowners in West Moor SSSI, located south of Langport at the River Isle / River Parrett junction. Grassland condition surveys and night-time bird surveys have been carried out with joint Internal Drainage Board and Natural England visits to assess current water level management arrangements. This is enabling research to clarify existing problems and the constraints and opportunities for future adaption. Next steps include scoping water level, land management and environmental possibilities, and identifying if – and where – they overlap.

**Ring banks:** After public consultation in 2015, the SRA Board commissioned further work in Chadmead and Moorland to see if greater consensus could be reached about possibilities that local people could choose to support or reject, given more information. As there was more initial consensus in Chadmead, a draft technical report was prepared by the Parrett IDB, suggesting three possible design options. **Progress so far this year:** Two meetings were held in August with local people, so they could decide for themselves what (if any) progress was desirable. Feedback from the meetings is currently being assessed.

**Step change in encouraging and enforcing riparian work:** After the 2013-14 floods, it was widely felt in Somerset that problems were exacerbated because too few riparian owners knew and carried out their responsibilities, particularly for maintenance. There was a need to be more pro-active. **Progress so far this year:** A Riparian Enabling and Enforcement Officer has now begun work. He is scoping his role and activities with the SRA and partners, including Somerset County Council, the Internal Drainage Boards and Environment Agency, as well as meeting key contacts.

**West Sedgemoor and Aller Moor Viewed Rhynes:** Previous funding regimes restricted maintenance on these moors, mostly to every

other year, resulting in reduced channel flow capacity and land recovering more slowly from flooding. **Progress so far this year:** Work started on West Sedgemoor in September, and is to due to begin on Aller Moor in November. Around 37,500m of additional channel maintenance (weed clearance and sediment removal) should be delivered by the Parrett IDB for the SRA by the end of February 2018.

**Sedgemoor District Council flood relief and drainage assets:** Additional SRA funding gives Sedgemoor DC greater capacity to deal with issues before they become problems and to put in enhancements, such as telemetry, that make flood defence schemes and infrastructure more efficient. **Achieved:** This summer telemetry equipment was installed at Blake Gardens, Bridgwater and Bays Pond, Cheddar. Real-time data will help flow regulation and barrier deployment. **Upcoming:** Sedgemoor's Land Drainage Engineer has been preparing schemes, such as CCTV surveys, culvert repairs and infrastructure improvements).

## W2 – Land Management

There are three main strands to this workstream in 2017-18: capital grants offered to farmers and landowners for projects that 'Slow the Flow' of water and reduce flooding risks across the county; soil husbandry to reduce surface runoff; and 'highways referrals' – that is, looking for answers to highway flooding problems in better management of land nearby.

Agreement has also been reached between the SRA, the Farming & Wildlife Advisory Group (FWAG) SW, RSPB, Somerset Wildlife Trust and the Royal Bath & West Society that the SRA should become a key partner of the Hills to Levels brand. This means, for example, that rather than Hills to Levels having its own separate website it will be included on the SRA's forthcoming new website.

Twenty-seven Natural Flood Management grants have been approved by the SRA this year, using money from the Heart of the SW Local Enterprise Partnership Growth Deal Fund. *(Pictured next page: Natural Flood Management works at Lufton Manor, Brompton Ralph and Buckland St Mary).*



Woody dams  
at Lufton Manor  
College



Brompton Ralph  
*before...*



Brompton Ralph  
*after...*  
with leaky pond



Buckland St Mary, restored pond

**Achieved:** Six schemes have been completed (using 16 grants). *West Somerset:* 1) Manor Farm, Brompton Ralph - Hillfarrance Brook, Tone catchment – cross-drain and leaky pond; 2) Compartment 28 and Tim Wood, upstream of Roadwater - tributary of Traphole Stream – woody dams. *South Somerset:* 1) Folly Farm, Buckland St Mary, River Ding and River Parrett catchment – multiple small-scale schemes across one farm – bunded scrape, de-silted old lime kiln and flow spreader, restored pond, ditch work, leaky dam, and floodplain scrape, field corner scrape, pair of bunded scrapes, woody dams; 2) Lufton Manor College, Brompton parish, Yeovil: Wellhams Brook, Parrett catchment – major pond de-silting, woody dams, new penstock. *Taunton Deane:* 1) Bickley Farm, Milverton – tributary of Hillfarrance Brook, Tone catchment – leaky pond storing up to 5000m<sup>3</sup> of floodwater; 2) Goulds Farm, near Hoccombe in Fitzhead parish – tributary of Halse Water, Tone catchment – leaky pond and bunded scrape.

**Achieved:** 26 Highways/Lead Local Flood Authority referral follow-up visits by FWAG SW. At every place listed below there have been consultations with farmers. At locations marked CS capital schemes of work have been carried out or are upcoming. LMC indicates land management changes introduced or planned. Sites include – *West Somerset:* Luxborough (Chargot Estate - LMC & CS), Monksilver (x2 - LMC x1), Old Cleeve (Binham Farm - LMC), Roadwater (LMC & CS), Stogumber (Rexton Farm - LMC); *Taunton Deane* – Lydeard St Lawrence (Nethercott Lane - LMC), North Curry (Lillesdon Court Farm), Wellington (Tone Dale - LMC), West Bagborough (Hurley Farm - CS), Wiveliscombe (Pyncombe Lane - LMC & CS); *Sedgemoor* – Cannington (Swang Farm - LMC), Charlynch (Gothelney Farm - LMC), Cossington (Bell Lane - CS); *South Somerset* – Charlton Mackrell (Priory Farm - LMC & CS), Compton Durville (Meadowlea Farm - CS), Curry Rivel (Northwing Nursery - CS), Fivehead (Swell Court - LMC & CS), Marston Magna (Easton Farm), Martock (Bower Hinton - LMC), North Cadbury, Odcombe (CS), South Petherton (Frogmary Green Farm - LMC & CS), Whitestaunton (Northay Lane). Over the border in West Dorset consultation visits have been made north of Sherborne (at Patson Hill – River

Yeo catchment) and to Leigh (Drummers Farm – Yeo catchment).

Other activities since April have included: making more than 100 farm visits; developing five new Natural Flood Management (NFM) schemes; researching a Maize Charter; running trials of cover crops such as mustard, radish, oats and rye grass at Thurloxtton (halfway between Taunton and Bridgwater), as part of research into post-harvest maize management; mapping Natural Flood Management and flooding hotspots; developing a soils discussion group, running half-field trials of different methods such as sub-soiling and holding small events with farmers to discuss and publicise results; developing delivery in new areas (Somerset Frome, Cale, Pitt, Upper Stour catchments); linking with the National Trust's Porlock Vale Streams project in West Somerset (part of the NT's national Riverlands initiative), so as to benefit from the evidence collected and the monitoring programme, and exchanging experience on NFM techniques.



Wiveliscombe  
landslip



Wiveliscombe  
new retaining wall

### **W3 – Urban Water Management**

**Sponge EU:** The SRA is contributing to the Somerset element of an international EU project known as Sponge to raise awareness of what can be done in urban areas to reduce run-off and hence flooding. The project is led locally by Somerset County Council (SCC) and Westcountry Rivers Trust (WRT). SCC is planning to develop a demonstration project to retrofit SuDS (Sustainable Urban Drainage Systems) into a retail parking area and/or industrial estate land. WRT is currently focused on residential SuDS in and around Taunton. **Progress so far this year:** In July, a training workshop was held in Taunton for all of the UK Sponge partners, and several participants from Holland. Sponge has been promoted in Somerset through a workshop for local stakeholders, presentations at meetings and attendance at events. Links are being developed with local groups and projects that may contribute to Sponge. SCC has been collaborating closely with WRT, so that (for example) the Trust's Ecosystems Services opportunity mapping for Taunton, used to identify potential residential areas to target, also feeds into SCC's retail/industrial area ambitions.

**Rain garden project:** A small demonstration project (half-funded by the SRA, half by Wessex Water) being delivered for the SRA and Wessex Water by Somerset County Council. The contractor is Westcountry Rivers Trust (WRT). The aim is to show the environmental and run-off reduction benefits of 'rain garden' techniques. So as to seek wider public benefits than would arise from funding work at privately-owned properties, SCC and WRT chose to collaborate with Taunton Deane Borough Council and focus on council-owned sheltered housing at Kilkenny and Middleway in Taunton. **Progress so far this year:** Contract awarded to WRT, after tendering, in April 2017. Meetings were held with residents in August to discuss their role in developing the project. SuDS designers, and WRT contacts who had previously worked on similar projects, were then consulted about further ideas and conceptual designs. At Kilkenny Court, the project team is also working with the intergenerational dementia-awareness project Reminiscence Learning, who have previously developed

'dementia gardens'. Ideas will be put into action this Autumn, with residents kept involved.

**SuDS Review:** A study into whether selected Somerset SuDS schemes were adequately designed, were constructed as designed, have any deficiencies, and are being adequately maintained. **Progress so far this year:** The project was tendered and awarded by Somerset County Council (SCC), for the SRA, to consultants JBA. The examination of 12 sites was envisaged, to begin with; a pilot review of two was undertaken. In July 2017, the SRA Board agreed to allocate extra funding so that the original list could be revised and a fuller picture obtained of SuDS performance in Somerset. In August, JBA prepared a revised brief and programme and an expanded list has been developed with input from SCC, Wessex Water, some Local Planning Authorities, district council drainage engineers, the Environment Agency and Somerset Drainage Boards Consortium. This initiative is attracting widespread interest from national professional bodies. Sites are being reviewed this Autumn (more than half done by the end of September).

**SuDS Inspection:** A large proportion of developer-constructed SuDS remain in private ownership for future maintenance. No authority is funded or resourced to inspect these assets during construction. **Progress so far this year:** A meeting was held this summer with district council drainage engineers to discuss ways to advance the project and test the service at selected developments. The service provider (SCC's Highway Development Supervision Team) is also now identifying sites for inspection. Further engagement is planned with Building Control and district council planners.

## W4 – Resilient Infrastructure

**Inspections and remedial works to culverts under roads in IDB areas:** SRA funding is being used to investigate and improve around 700 of the most vulnerable and strategically important culverts within Somerset Internal Drainage Board areas. Activities such as removing blockages and replacing structures which are broken beyond repair will improve the conveyance of water and help to prevent disruption to residents and road users.

**Progress so far this year:** More than 500 culverts have been inspected: the photos on this page show a few in Sedgemoor, Mendip and Taunton Deane districts. Funding for this enhanced flood risk management work began in 2016-17 and was given again in 2017-18.



Lipe Lane (near Ruishton)



Totney Drove (looking over Tealham Moor)



Catcott Broad Drove (near Catcott)



Knowle Moor Drove (near Bleadney)

**De-silting structures:** Somerset County Council's existing budgets only allow for the de-silting of structures such as bridges when there is a threat to the structure itself. Extra SRA funding enables de-silting where there is also a benefit to the watercourse and, therefore, a reduced risk of flooding to roads and nearby properties. **Progress so far this year:** Desilting of structures was completed in *Mendip* at Dean (on the A361 near Shepton Mallet) and Witham Friary. **Upcoming:** Further high-risk sites were selected for work at: *West Somerset* - Dunster, and Timberscombe (south of Minehead); *Taunton Deane* - near Wellington, Stoke St Gregory, and near Taunton; *Sedgemoor* - Cannington; *South Somerset* - near Castle Cary, Horton Cross (near Ilminster), *Mendip* - near Chewton Mendip. Pending results of discussions regarding Cannington, reserve schemes may be brought forward. **Carried forward from 2016-17 - Achieved:** *West Somerset* - Monksilver, near The Notley Arms.

**Gully emptying:** Somerset County Council's Highways Department empties gullies in flood-susceptible areas once a year. The SRA funds an additional six-month round for 17,800 of the highest-risk gullies in these at-risk areas. This work keeps roads open, makes them safer, preserves access for communities, and safeguards properties from flooding.

**Progress so far this year:** Hundreds of Somerset locations have benefited from this extra work. Places covered so far – listed by county council ward – include: Alcombe, Bishop's Hull, Bishop's Lydeard, Blackdown, Blackmoor Vale, Bradford on Tone, Bridgwater Eastover, Bridgwater Fairfax, Bridgwater Hamp, Bridgwater Victoria, Bridgwater Westover, Bruton, Brympton, Burrow Hill, Butleigh & Baltonsborough, Camelot, Cannington & Wembdon, Cary, Chewton Mendip & Ston Easton, Comeytrowe, Cranmore, Creech, Croscombe & Pilton, Doultling & Nunney, East Polden, Curry Rivel, Glastonbury St Benedict's, Glastonbury St Edmund's, Glastonbury St John's, Glastonbury St Mary's, Huntspill & Pawlett, King's Isle, Knoll, Langport & Huish, Martock, Milverton & North Deane, Minehead Central, Minehead South, Monument, North Curry & Stoke St Gregory, Moor, Neroche, North Petherton, Northstone, Norton Fitzwarren,

Postlebury, Puriton & Woolavington, Quantocks, Rodney & Westbury, Ruishton & Creech, Shepton East, Shepton West, South Petherton, Staplegrove, St Cuthbert Out North, Taunton Fairwater, Taunton Lyngford, Taunton Manor and Wilton, Taunton Pyrland & Rowbarton, The Pennards & Ditchat, Tower, Trull, Turn Hill, Wedmore & Mark, Wellington North, Wellington Rockwell Green & West, Wells Central, Wells St Thomas, Wessex, West Monkton, West Polden, Wiveliscombe & West Deane, Wookey & St Cuthbert Out West, Yeovil South.

**Drain Jetting:** Under existing budgets, Somerset County Council's Highways Dept can only afford to jet drains when a bad blockage has occurred. SRA funding allows for earlier preventative maintenance at locations known to suffer problems with flooding. Drain jetting sites feature on annual gully rounds; final selections are made using local knowledge and professional judgement.

**Progress so far this year / upcoming:** Locations have been selected. Listed mainly by parish, they include: *West Somerset* – Brompton Ralph, Brompton Regis, Brushford, Carhampton, Crowcombe, Dulverton, Exford, Exmoor, Holford, Luxborough, Old Cleeve, Luccombe, Porlock, Minehead, Monksilver, Sampford Brett, Stogumber, Winsford, Withycombe; *Taunton Deane* – Cotford St Luke, Durston, Fitzhead, Kingston St Mary, Langford Budville (Thorne St Margaret), Milverton, North Curry, Ruishton, Staple Fitzapaine, Stawley (Kittisford), Stoke St Mary, Taunton, Trull, Wellington, West Buckland, West Monkton Wiveliscombe; *Mendip* – Chilcompton, Clapton, East Pennard, Frome, Litton, Pilton, Pylle, Shepton Mallet, Upton Noble, Wookey; *Sedgemoor* – Berrow, Brean, Bridgwater, Cannington, Greinton, Lympsham, North Petherton, Spaxton, Westonzoyland, Woolavington; *South Somerset* – Ash, Barrington, Brewham, Bruton, Chilton Cantello, Drayton, Ilchester, Ilton, Limington, Mudford, North Barrow, Queen Camel, South Cadbury, Tatworth and Forton, Tintinhull, Yeovilton.

Reactive drain jetting has also been carried out in *South Somerset* at Charlton Mackrell, North Cadbury, Limington, Isle Abbots and Westport.

**Road sweeping:** SRA-funded road sweeping is delivered by Somerset County Council's Highways Dept and targeted primarily at flood-susceptible rural areas. SCC does no other sweeping. The aim of this extra SRA-funded work is to stop detritus entering and blocking drainage systems, thus reducing flood risks. Sweeping is done after trees have shed their leaves and is integrated with other preventative maintenance activities. Local knowledge and professional judgement are used in choosing sites.

**Upcoming:** Work begins in late Autumn. Sites have been selected. Listed primarily by parish, they include: *West Somerset* - Exford (seven roads, such as Muddicombe Lane), Nettlecombe & Old Cleeve (five roads - see one below near Roadwater), Withypool & Hawkridge; *Taunton Deane* - Kingston St Mary, North Curry / Fivehead (A378 Langport Road), Wiveliscombe (four roads); *South Somerset* - Bruton (B3081 Dropping Lane), Cudworth, Montacute, Tatworth & Forton, Winsham, Yeovilton; *Sedgemoor* - Brean, Broomfield, Compton Bishop, Spaxton, Wedmore; *Mendip* - Aswick (A37), Binegar (A37), Cranmore (A361), Evercreech, Kilmersdon (B3139), Upton Noble.



Steep-sided lane between Nettlecombe and Roadwater

**CCTV surveys:** Accurate information enables Somerset County Council's flood risk team to ask riparian owners to remedy problems, or to carry out enforcement. Survey results have addressed local issues, informed investigations and supported proposed schemes. **Achieved:** Surveys completed at Ilchester, Charlton Musgrove, Misterton, Wiveliscombe, Norton sub Hamdon, Cudworth, Pitminster, Old Cleeve. **Upcoming:** Future sites to include Enmore, Staplegrove, Curry Rivel, Westwood, Frome, Wookey, Glastonbury, North Newton, Cutcombe, Pitminster, Ilminster, Withypool.

**East Stoke, Stoke sub Hamdon flood alleviation scheme:** Upgrading a culverted watercourse will facilitate better capture, storage and removal of surface water runoff. It will help to prevent the flooding of 10 properties at East Stoke and the road between Stoke sub Hamdon and Montacute. **Progress so far this year:** Contractors Skanska began a CCTV survey, but could not complete it because of a significant blockage which needs to be investigated further and dealt with. A new manhole will have to be installed. When CCTV work has been completed in the New Year, a flood alleviation scheme will be designed using the information gathered.

**Drainage improvements on key highways:** The SRA is funding extra work to reduce flooding on two strategically important parts of Somerset's principal road network, and to stop a rural community being cut off during times of heavy rainfall. **Progress so far this year:** Plans have been drawn up for new and re-designed drainage systems and their installation, and highway re-profiling. All three schemes detailed below are on track to be awarded to contractors in January, with works completed by 31 March.

**A38 Rumwell:** The A38 is one of Somerset's busiest roads, giving access to and from Taunton, and carrying over 17,000 vehicles a day. It is the emergency diversion route if the M5 is closed. Flooding here frequently affects half of the carriageway, and sometimes the whole road is submerged; gridlock can very quickly result. The current drainage system is over 90 years old and cannot cope. Tied in with nearby SRA-funded scheme for A38 Chelston, scheduled for 2018-19.

### **A372 Pibsbury Corner at Huish Episcopi:**

The A372 is a strategically important part of Somerset's principal network, used by around 8,000 vehicles a day. Half the carriageway is regularly flooded, causing safety problems as vehicles negotiate their way round a blind corner. Flooding also affects four properties.

**Lower Bilbrook Lane:** Improving drainage along Lower Bilbrook Lane will stop around 10 residents in the West Somerset hamlet of Bilbrook from being cut off and preserve access for other road users. This SRA-funded scheme is additional to an earlier Somerset County Council project that helped to collect water from the small watercourse that joins into the highway system along Lower Bilbrook Lane. This new scheme is supported by the parish council.

**Local flood risk management measures:** For the SRA, Somerset County Council is tackling extra cases of property and/or highway flooding from surface water and ordinary watercourses.

**Progress so far this year:** 1) Design finalised for Frog Lane, Enmore. Work requires landowners' approval, which includes granting access. If this is given, construction will be programmed. 2) Old Cleeve to Blue Anchor: After a CCTV survey in 2016-17, a detailed design has been prepared while a traffic management review has confirmed the need for a full road closure. A construction programme is now being established.

### **W5 – Building Local Resilience**

The last half year has seen a change in focus of parts of the programme. Where before there was very close working with flood-affected communities on the Levels and Moors to help them develop their own community flood plans, groups are now well-established and communities have reached a point where they are self-determining. The programme's emphasis now is more on providing inspiration, support, advice, information and practical help to communities, households, businesses, and landowners across Somerset to encourage and enable them to become more resilient.

**Progress so far this year:** Communities across Somerset have been helped with resilience advice and information. The SRA has helped Chadmead and Moorland (*pictured below*) to access grants totalling £1,960, towards emergency equipment, from the SRA-funded Community Resilience in Somerset Partnership (CRiSP) fund. Holcombe Parish Council also got a CRiSP grant of £551 towards emergency equipment. In North Curry, Huntham and Curry Mallet the SRA has brought together several agencies to work with residents to help tackle local flooding issues.



**Training and awareness:** The SRA Community Resilience Officer has been working with Safe Southwest and the Environment Agency to refresh existing flood warden training materials before training sessions with communities this autumn. The SRA-backed CRiSP contributed £900 towards the cost of work books and other materials for this resilience training.

**Other work:** Activities in support of longer-term projects and developing links with Bridgwater College; analysis of communities at risk, based on historic flooding data and factors like recent engagement by communities in flood planning.

**Upcoming:** A resilience training event bringing together students from Bridgwater College and local communities; activities tied in with the Environment Agency's Flood Awareness Week in November; developing a demonstration project with businesses in a small town (probably Langport); developing individualised support packages for Small and Medium Enterprises (SMEs); revisiting Levels and Moors communities with messages about refreshing their plans and preparing for winter, and offering support if required.