

Clun Unmuddying the Waters Project

Activity Report - April 2020 to March 2021



Wetland restored to intercept sediment laden runoff, with trees planted to create new wet woodland.

Photo credit: Sarah Jameson

Prepared by Alison Jones, Clun Catchment Officer

March 2021

This Project is also supported by:



Summary

Clun Catchment Officer, Alison Jones, has continued to work in partnership with farmers and landowners on several holdings throughout the catchment, to progress existing projects to completion and initiate new ones. The projects all deliver practical solutions which not only contribute towards improving water quality and the conservation status of the River Clun SAC, but have also resulted in the creation and restoration of wetland and woodland habitats.

This year several major projects begun last year were completed. These include the highway drain diversion project at [REDACTED] Meadow, plus works on the holding adjacent to [REDACTED] Brook and in the sub catchment of the Redlake. Three new Rural Sustainable Drainage Schemes (RSuDs) were completed in the sub catchment of the Kemp along with the protection and enhancement of a significant length of riparian habitat on a minor watercourse in the small sub catchment of the Folly Brook.

Individual farmers and land managers collaborated in the planning and development of the projects on their holdings, and made in-kind contributions, helping to ensure they delivered for resource protection, flood alleviation and biodiversity.

The Clun valley was not as severely affected by rainfall as in previous years, but ground conditions were still problematic, resulting in delays to some works. In spite of this, our suppliers and contractors worked very hard to deliver on schedule.

Below is a summary of the outcomes from this year's project activity.

Site	Length of river enhanced (km)	Habitat creation/restoration	No of trees planted
[REDACTED] Meadow. Diversion of highway drain to wetland at Broadward Bridge, Clun SAC	Downstream impact for 3.5km	0.6ha swale / wetland created	N/A
[REDACTED]. New culvert & fencing on [REDACTED] Brook.	Downstream impact for 3.0km	0.25 new riparian woodland	336 trees & shrubs
[REDACTED]. De-culverting of tributary of River Redlake	Downstream impact for 0.55km.	0.2 ha wetland restored/enhanced	125 wetland species
[REDACTED]. Intercept track runoff to small wetland from tributary of River Kemp	Downstream impact for 4.3km	N/A	N/A
[REDACTED]. Intercept highway runoff into fenced wetland, from tributary of River Kemp	Downstream impact for 4.3km	0.2ha wetland restored/enhanced	N/A

██████████. Fenced riparian zone of tributary of Folly Brook, tributary of River Clun	Downstream impact for 2.9 km	0.65 ha of dingle woodland. 0.25 ha of wet grassland.	N/A
██████████. Fenced riparian zone on tributary of Folly Brook.	Downstream impact for 2.9 km.	0.1 ha of dingle woodland restored	N/A
██████████. Upgrade to crossing on Folly Brook.	Downstream impact for 2.9 km	N/A	N/A
██████████. New tree planting beside River Clun.	0.3km	0.3ha riparian & wet woodland created.	440

A detailed report follows, with photographs to illustrate the range of work completed throughout the catchment.

Deliverable 3. Highway drainage diverted into [REDACTED] Meadow.

Phase 2

1 [REDACTED] Farm

The issue

This holding is mainly arable, situated on sloping ground in the catchment of the Lower Clun, upstream of, and adjacent to, the Clun SAC/River Teme SSSI. Soil is mobilised from fields after heavy or prolonged rainfall and transported to the river, via streams, roads and highway drains. This is known to be contributing to the "unfavourable condition" of the Clun SAC.

Measures to address runoff and erosion are documented in "*A Proposal to Address Agricultural Runoff near [REDACTED] and [REDACTED]*". As documented in the "*Clun Unmuddying the Waters Activity Report – April 2019 to March 2020*", an agreement was reached between all interested parties, to intercept the main highway drain and reroute it under the road, to discharge into an existing wetland area. Plans included reprofiling the existing ditch to create a wide shallow swale, making it a more effective conduit to the wetland area. The expectation was that existing and regenerating vegetation would capture any sediment conveyed to site.

What Environment Agency funded

Phase 1 was completed in March 2020. See "*Clun Unmuddying the Waters Activity Report – April 2019 to March 2020*".

Phase 2 required dry ground conditions and was completed in July 2020. This involved:

1. Excavation of the swale or spillway.
2. Completion of backfilling the shuttered headwall, using material generated from swale.
3. Disconnection of existing highway drain & connection to new system.
4. Installation of permanent stock proof fencing and gates to protect headwall and swale.

What Shropshire Council funded

1. Re excavation of the roadside ditch alongside the B4385 was carried out in April 2020.



Swale & bund creation in progress. July 2020.



New outfall with headwall completed & backfilled. July 2020.



Swale fenced and gated with track access to headwall for maintenance & repair. July 2020.



Roadside ditch carrying road runoff to new swale. July 2020.



Top of swale. November 2020.



Water drawn to end of swale and disperses across lowest areas of meadow. November 2020.



Functioning swale close to capacity. February 2021.



View across Meadow towards swale, showing extent of wetland habitat. March 2021.
Photo credit: Jude Ward

Consents: None required.

Agri-environment status: This holding has a Mid-Tier Countryside Stewardship agreement.

Deliverable 6. Deliver fencing, erosion protection works, and provision of alternative drinking water systems identified during 2019-2020.

2 [REDACTED] Farm

The issue

This holding is in the sub catchment of [REDACTED] Brook, which flows into the River Clun at [REDACTED] village, immediately upstream of Recovery Site One (RS1).

5 crossings on this holding were identified in the *"River Clun Watercourse Crossing Survey - February 2017"*, as causing adverse impact on water quality. As documented in the *"WREN River Clun Recovery Project Activity Report, March 2019"*, one was upgraded, another culverted and a third closed altogether. In 2019, a bridge was constructed to replace a ford having a "Very High" overall impact. See the *"Clun Unmuddying the Waters Activity Report – April 2019 to March 2020"*. This year, a ford with "High" overall impact has been replaced by a culvert.

Regular use of this ford by vehicles, combined with stock access, has led to poaching and erosion of the banks, and siltation and faecal contamination of the watercourse. This is contributing to sediment laden runoff to the brook, and ultimately into the River Clun.



BEFORE. Crossing from right bank.



BEFORE. Crossing from left bank.



AFTER. View from right bank. Culvert installed, fenced & gated, plus pedestrian gate on PRow.



AFTER. Upstream view of new culvert.

White clawed crayfish are known to be present on this tributary, so work was completed between 1st July and 31st August, to minimise adverse impact on this protected species. The Accredited Agent of a local ecologist with a Crayfish Licence (issued by Natural England (NE)), carried out a hand search of the site prior to any work commencing. Any crayfish found would have been relocated further upstream, but none were found.

What Environment Agency funded

1. Installation of 1200mm pipe culvert, with headwalls and stone covered track over.
2. Associated fencing rails, netting and wire fencing and gates.
3. Replacement of stile with a pedestrian gate on Public Right of Way. The gate and posts were supplied by Shropshire Council.

Consents: An Ordinary Watercourse Consent was issued by Shropshire Council.

Hand search for White-clawed Crayfish carried out under NE Crayfish Licence.

The issue

Unlimited stock access to the stretch of [REDACTED] Brook between the new bridge and the new culvert has resulted in poaching and bank erosion and limited opportunities for natural regeneration of tree or shrub cover.

What Environment Agency funded

Coppicing and Willow pollarding was completed in December 2019, as per the Felling Licence. See *"Clun Unmuddying the Waters Activity Report – April 2019 to March 2020"*.

A condition of the felling licence is to protect the coppice regrowth, which can only be achieved here by excluding grazing livestock. Waterlogged ground conditions required that the fencing planned for early spring was postponed until May 2020. This has resulted in the closing of another crossing and stock watering point and created opportunity for the natural regeneration of trees and shrubs within the new fence lines.



BEFORE. Stock crossing and watering point.



AFTER. Crossing closed. Gate for emergency access only.



BEFORE. Stock access to brook resulting in poaching and bank erosion.



AFTER. Fenced buffer strip to protect existing trees and encourage natural regeneration.

What Woodland Trust funded

The bankside tree cover was limited to mature and over mature Alder, all showing signs of alder disease (*Phytophthora alni*), plus small numbers of Ash, Willow and Hazel. In order to increase species and structural diversity, and future proof against impact of future tree diseases, contractors planted a mix of trees and shrubs into the newly fenced riparian zones.



AFTER. Pollarded Willow and fenced riparian zone.



AFTER. Regenerating Willow pollard and new tree planting on both banks.

Consents: None required.

Agri-environment status: The holding is not in an agri-environment scheme.

The issue

This holding is in the sub catchment of the River Redlake, and a minor watercourse (unnamed), flows through the holding and into the Redlake. It is piped for most of its length, and the outfall empties into a small pool just within the holding boundary. This outfall was identified as a "red flag" site, in the *"Survey of the River Redlake Sub-Catchment Highway Drainage Network"*, completed in March 2017. It was considered to be causing a significant adverse impact, so the report recommendations were actioned in two phases:

Phase 1 was completed in early 2020:

1. Erecting a stockproof fence, to reduce grazing pressure on the site.
2. Installing a solar pump system to provide alternative water supply for stock.

See *"Clun Unmuddying the Waters Activity Report – April 2019 to March 2020."*

Phase 2 involved:

1. Deculverting through the extraction of 80 1metre long concrete pipes.
2. Excavation of channels and pools to encourage the outflow to disperse across the whole area.
3. Planting Alder, Willow, Downy birch and Alder buckthorn, to create new wet woodland.



Aerial view of wetland, showing extent of existing rush cover. November 2019.

Photo credit: Ken Bowen



Aerial view of wetland, after groundworks were completed. July 2020.

Photo credit: Ken Bowen

What Environment Agency funded

Since White-clawed Crayfish are known to be present close by in the River Redlake, it was essential to schedule the work between 1st July and 31st August, to minimise adverse impact on this protected species. It was also important to complete the work during a period of low flow, for reasons of site access and safe working.

The deculverting was carried out over a 5 day period in late July. Prior to any work starting, a hand search of the outfall into the pool was made, and a close observation made as the first pipe was lifted out of the channel. This was carried out by the Accredited Agent of a local

ecologist with an NE Crayfish Licence. Any crayfish found would have been relocated further upstream, but none were found.



Bespoke pipe extraction attachment on digger, in operation.



Existing channel plugged. Flow diverted to side channel and new pool. Silt mats placed in old channel to trap disturbed sediment.



New outfall after pipe removal. Large pool created to minimise impact during high flow.



Ground completely saturated at downstream end of site, by day 4.



Downstream (east) end of wetland. Side channel and pool creation. July 2020.



Side channel and pool. Shows extent of recovery & recolonization. September 2020.

Photo credit: Sarah Jameson

What Woodland Trust funded

50 Alder, 25 Downy birch, 25 Grey willow and 25 Alder buckthorn were supplied from a local nursery, along with strong stakes and tree shelters. These species are characteristic of wet woodland or “carr” and will thrive in the seasonally wet and waterlogged conditions resulting from the deculverting.

The planting plan agreed with the landowners included randomised spacing of trees and shrubs, to ensure a naturalistic effect and maintaining unplanted areas around newly created pools. Along with a number of volunteers from the Severn Tree Trust, the owners planned and planted the trees themselves in December 2020.



Setting out the stakes, to ensure randomised planting.

Photo credit: Sarah Jameson



Tree planting volunteers in action.

Photo credit: Sarah Jameson



Planted wetland – view looking east.

Photo credit: Sarah Jameson



Planted wetland – view looking west.

Photo credit: Sarah Jameson

Agri-environment agreement status: The holding is not in an agri-environment scheme.

Consents: An Ordinary Watercourse Consent was issued by Shropshire Council for the deculverting.

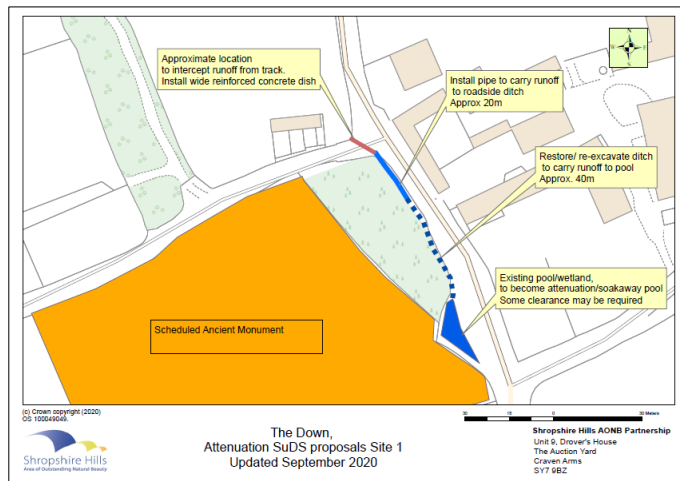
Hand search for White-clawed Crayfish carried out under NE Crayfish Licence.

This holding, in the sub catchment of the River Kemp, is situated mainly on sloping ground above a minor tributary of the Kemp.

Two locations were identified as "red flag" sites in the "*Survey of the Highway Drainage Network in the River Kemp Sub-Catchment*", carried out by Mike Kelly in March 2016. They were both considered to be causing a severe adverse impact on water quality.

Site 1. Track runoff

Sediment laden runoff was being transported from a well-used farm track onto the unclassified road, from where it flowed downhill and into a minor tributary of the Kemp.



Mapped proposals to intercept track runoff and divert via pipe & re-excavated ditch to existing pool.

What Environment Agency funded

1. Installation of a cross drain to intercept runoff.
2. Install catchpit with sump linked to pipe to carry runoff to outfall into ditch.
3. Re-excavate and regrade ditch to carry runoff away to existing pool.



Farm track showing sediment laden runoff being carried onto road.



Concrete dish cross drain built in situ to intercept track runoff.



Catchpit with sump showing pipe to be installed along roadside verge.



Pipe installed and outfall protected with stone headwall.



Open ditch from outfall showing silt settling out from the runoff.



Runoff flowing gradually towards pool, allowing sediment to settle out.

Site 2. Road runoff

The issue

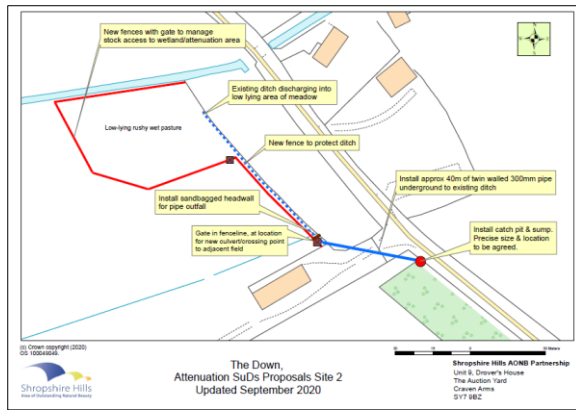
There is a cumulative effect of sediment laden runoff from multiple sources flowing from [REDACTED] to [REDACTED] and entering the watercourse beside [REDACTED] Lodge. See photographs below, taken from Highway Drainage Survey Report (see above).



Runoff, flowing downhill from [REDACTED], entering watercourse by [REDACTED] Lodge.



Overrun of road verges between [REDACTED] and [REDACTED].



Mapped proposals to intercept road runoff and divert into wet meadow.

What Environment Agency funded

1. Install catchpits with sumps, with piped inlets to capture flow from both roadside ditches.
2. Install pipe under road to link two catchpits.
3. Install underground pipe from catchpit to ditch. Protect outfall with bagged headwall.
4. Erect fence to protect ditch and wetland area into which the flow discharges.

What Shropshire Council funded

- Reinstatement of both roadside ditches, to effectively transport road runoff to catchpits.



Grid covered catchpit & sump, receiving runoff from restored roadside ditch.



Outfall into field ditch, protected by bagged headwall and new fences.



Ditch protected by stockproof fence. Gated access to adjacent field over pipe culvert.



New fence to control stock access to wetland.

Agri-environment agreement status: The holding is not in an agri-environment scheme.

Consents: None required.

5 [REDACTED] Farm

The issue

This holding is in the sub catchment of the River Kemp, where sediment laden runoff from the track alongside the farm buildings, was flowing onto the highway and into a ditch leading to a drain with an outfall into the River Kemp upstream of the bridge.

The outfall was identified as a "red flag" site, in the *"Survey of the Highway Drainage Network in the River Kemp Sub-Catchment"*, completed by Mike Kelly in March 2016. It was considered to be causing a disproportionate adverse impact. See photographs below, from survey report.



Runoff flowing onto highway and ditch



Pipe outfall to river, showing silt plume

In addition, the drain carrying roof runoff away from the adjacent buildings was damaged and discharging across the surface of the track.

What Environment Agency funded

A concrete based catchpit and swale had been constructed previously. This year, some improvements were made, to more effectively capture the track runoff.

1. Excavation of existing catchpit and swale and remove material from site.
2. Modification of headwall to improve holding capacity.
3. Installation of concrete channel at pipe inlet plus raised "periscope type" outlet to intercept more sediment.
4. Installation of tarmac sleeping policeman to improve interception of runoff into catchpit
5. Installation of catchpit to intercept roof runoff currently discharging across track and divert via pipe under track into swale. Fit a (non-return) clack valve to outfall. N.B. The landowner is making a financial contribution towards this element of the project.

What Shropshire Council funded

1. Replacement of broken sections of pipe carrying runoff from catchpit to outfall into river.
2. Repairs and upgrade to headwall of outfall.



Site preparation: clearing the catchpit, swale & trackside of accumulated sediment



Periscope type outlet connected to pipe outlet by concrete channel



Outlet to swale fitted with clack valve



Tarmac "sleeping policeman" to direct runoff into catchpit



Swale at capacity



Outfall to river with new brick headwall



Damaged pipe exposed



Existing pipe connected to new catchpit

Agri-environment agreement status: Not applicable.

Consents: None required.

██████████

This organic holding is in the sub catchment of the Folly Brook. A minor tributary, ██████████, flows through the holding, and much of the land either side is designated a Local Wildlife Site (SO28.31), for the diversity of grassland and wetland flora. Of particular note is Lemon scented fern (*Oreopteris limbosperma*), which grows on the watercourse banks. A number of species present in the wet pasture are indicative of good quality habitat.

The issue

Some of the Gutter is well fenced, but several sections of fencing are no longer stockproof, so cattle and sheep have direct access to the watercourse. Since the watercourse banks are all quite steep, this is contributing to soil erosion and runoff, and at the same time preventing the natural regeneration of tree, shrub and rough grass cover.

What Environment Agency funded

1. New and replacement fencing for a stretch of ██████████ above the farm, to exclude stock from an area of wet flushes, rough grassland and gorse scrub.
2. New and replacement fencing of ██████████ below the farm, to exclude stock from areas of wetland and from the steep sided dingle woodland.
3. New water troughs installed at 5 locations, to provide an alternative supply of drinking water for stock. They are connected to the existing pipe network, supplied by a borehole.

Agri-environment agreement status: The holding has a current Organic Higher Level Stewardship agreement.

Consents: None required.



BEFORE. Stock access to watercourse leading to soil erosion.



BEFORE. Unfenced habitat of wet flushes and gorse scrub.



Mixed habitat of wet flushes, rush pasture and gorse now fenced, to limit stock access.



Access track between fields now fenced & gated.



BEFORE. Unfenced steep sided dingle subject to bank erosion.



Open dingle woodland. Fenced to encourage regeneration and improve bank stability.



Crossing point. Heavily used by livestock and vehicles. Existing culvert is damaged.



Stock & vehicle crossing point now closed off, limiting gully erosion on bank.



Wetland. Fenced to limit stock access. Soil runoff reduced and plant diversity increased.



One of the troughs installed to provide water for cattle & sheep.

This holding is in the sub catchment of the Folly Brook and a minor tributary, [REDACTED].

The issues

As identified in the "*Soil and Water Feasibility Study*" drawn up by Fiona Gomersall in January 2020, there are opportunities to improve water quality by fencing watercourses. Two locations in particular were identified; a crossing on Folly Brook, and a track crossing on [REDACTED].

What Environment Agency funded

1. Upgrade to crossing over the Folly Brook, including the installation of bespoke river gates.
2. Fencing section of [REDACTED] to exclude stock from watercourse and dingle woodland.



BEFORE. Crossing on Folly Brook, in regular use by stock and farm vehicles.



AFTER. New fencing and made-to-measure river gates installed.



BEFORE. Track & bank vulnerable to erosion.



AFTER. Fenced track and woodland



AFTER. Steep bank fenced, to improve stability through regenerating tree and shrub cover.



AFTER. Woodland fenced, to encourage natural regeneration.

Agri-environment status: The holding has a Higher Level Stewardship agreement.

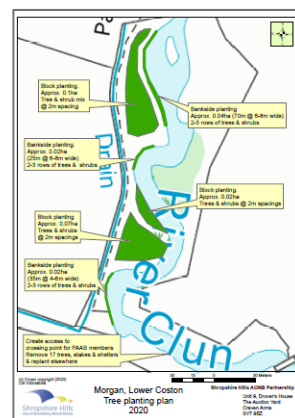
Consents: None required.

The issues

This smallholding on the River Clun, downstream of Aston on Clun, had poor quality riparian habitat due to unrestricted stock access, and soil loss through bank erosion. Coppicing and pollarding of bankside trees, revetment, livestock fencing and installation of a solar powered watering system, were completed in 2019. See "*WREN River Clun Recovery Project Activity Report, October 2018 to March 2019*".

What Woodland Trust funded

Planting of trees and shrubs by contractors to create new riparian woodland adjacent to vulnerable sections of the riverbank and create new wet woodland, to increase structural and habitat diversity. See *Tree Planting Plan 2020*.



2019. Live willow revetment installed.



November 2020. Riparian planting adjacent to vulnerable bank & live willow revetment.



December 2019. Limited natural regeneration due to stock access. Some Himalayan Balsam established.



November 2020. New riparian woodland establishing.

Consents. None required.

Agri-environment status. This holding is not in an agri-environment scheme.

Deliverable 1. Installation of alternative drinking water systems

When rivers and streams are fenced to exclude stock, and the watercourse is the only source of drinking water, sustainable drinking water systems are installed wherever practical to do so.

Riverside fencing was installed to improve riparian habitat on several landholdings on the Bush Farm Recovery Site. See *"WREN River Clun Recovery Project Activity Report, October 2018 to March 2019"* and *"WREN River Clun Recovery Project Activity Report, April to September 2018"*

The issue

On two landholdings, drinking bays were the landowners preferred option, rather than the provision of solar powered livestock drinking systems. The heavy and prolonged floods during the winter of 2019 to 2020 resulted in damage to the drinking bays and adjacent fencing.

9 [REDACTED] ([REDACTED] Farm Recovery Site 1)

The solution.

The landowner and land manager requested assistance with repairs, which was approved on this occasion.

What Environment Agency funded

- Repairs were completed to the drinking bay using existing materials, which had not been washed away.



Drinking bay damaged by flood debris.



Drinking bay repaired and fences reinstated, also protecting young trees.

10 [REDACTED] Farm ([REDACTED] Farm Recovery Site 1)

The solution.

After discussion with the landowner regarding the likelihood of further flood damage, and the need for repeated repairs, he accepted the offer of a solar pump system to provide a sustainable source of water for his livestock.

What Environment Agency funded

1. The installation of a solar pump kit plus galvanised water trough.
2. Installation of a gate to the drinking bay, for use in emergency situations only.



BEFORE. The newly completed drinking bay. July 2018.



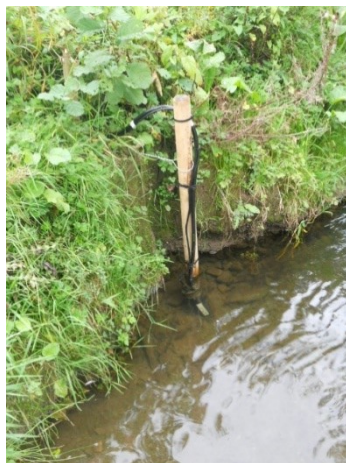
AFTER. The flood damaged drinking bay. September 2020.



60w solar panel on bespoke frame.



Trough secured to ground with service box to protect float switch.



Submersible pump in Clun, secured to fence post.



Drinking bay gated. Will only be used to access the river in an emergency.

11 What Happens Next?

Further funding for capital works in the Clun Catchment has yet to be confirmed. However, there are still opportunities for improvements to be made on holdings throughout the catchment. A number of potential projects have been identified over the last year, some of which are follow-up projects on holdings where works have already been completed. Other projects (opportunities) have been identified in the Soil and Water Feasibility Studies completed by Fiona Gomersall through the WEG TOC Project. All are subject to discussion with landowners and funding priorities and availability. Listed below is a selection of the types of projects identified.

- Replace existing culvert and upgrade crossing, subject to Ordinary Watercourse Consent.
- Install leaky dams / seepage barriers within channels through dingle woodland.
- Upgrade, improve or replace river crossings.
- Upgrade drinking bays or replace with sustainable system e.g. solar pump system.
- Relocate gateways and upgrade tracks acting as conduits for runoff.
- Riparian fencing/refencing plus new tree planting.
- Live willow or similar revetment of erosion bays.
- Reinstatement or re-naturalisation of minor watercourses.
- Wetland creation/restoration – of oxbow lake feature and flood meadows.

12 Other:

Learn more about our project

The project has a dedicated webpage on the AONB website:

<https://www.shropshirehillsaonb.co.uk/our-work/projects/unmuddying-the-waters>

This webpage showcases the work of the project and links to the River Clun strategies and reports undertaken by partner organisations. As the project builds the webpage will be updated. This is complemented by updates via Facebook and Twitter, both accessible via the Shropshire Hills AONB website.

Working in partnership

Our project is a partnership with the Environment Agency and their “Unmuddying the Waters” fund. We are working together to return the Clun to favourable condition, along with other organisations, including Shropshire Council, Woodland Trust, Natural England, Severn Rivers Trust and Shropshire Wildlife Trust.