



SPRING 2 Environmental Protection Scheme

Prescriptions for field and capital options

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Catchment Management

Catchment management began in Cambridge Water in 2016, to improve water quality, with a particular focus on metaldehyde.

SPRING 2 GRANT SCHEME

The SPRING 2 scheme is our grant scheme which offers both arable and livestock farms in our priority surface and groundwater catchments, up to £15,000, as a contribution to make on-farm infrastructural improvements, as well as invest in biodiversity options to increase the natural capital on their land. To read more about the scheme go to: www.cambridge-water.co.uk/environment/catchment-management/spring.

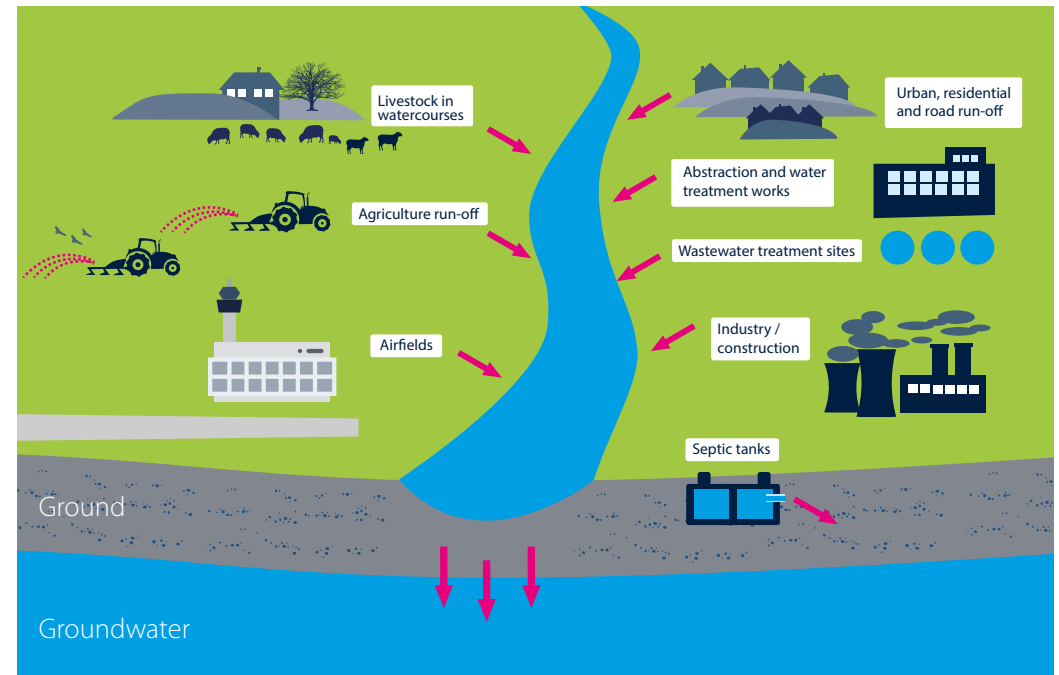
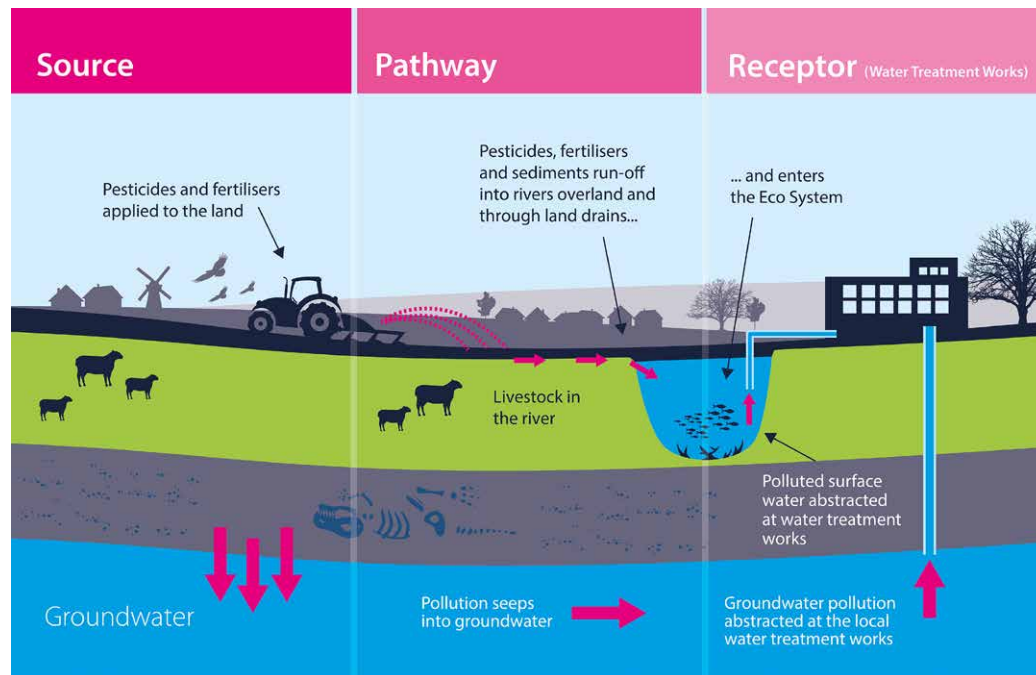
All photos on the options pages are taken by farmers themselves who have completed work under the scheme.

The scheme runs in line with the financial year, with applications opening 1st October and closing 31st January.

Capital works are paid as a one-off grant, and field options are paid yearly.

For all capital works we need before, during, and after photos.

To claim for works, you'll need to submit photos or relevant invoices.



4 – 6m buffer on Cultivated Land*

Aim: This option provides a buffer to protect ditches, water courses and ponds from farming operations. The margin will provide an unsprayed area and protect against the risk of spray drift. The grass cover will help to slow surface water flow, trap soil and aid the infiltration of water. This option will also support beneficial insects and ground nesting bird such as grey partridge.

Guidelines: Where an appropriate vegetation cover has not already been established on Agreement land, then:

In the first agreement year, sow a new grass margin using at least six grasses selected from the list below at a seed rate of not more than 20 kilograms/hectare with no one species comprising more than 20% of the seed rate.

Margins which abut field boundaries (hedges and ditches) should be measured to start from the crop edge of the cross-compliance margin or the current plough line where cross-compliance does not apply.

Mow the 2-3 metres next to the crop each year between September – February. Either cut and remove (e.g. bale) or mow to ensure cuttings are finely chopped to prevent the grass being smothered.

Leave 2-3 metres uncut alongside the field edge to act as a refuge for wildlife. This outer (hedge side) 2-3m margin should be left uncut, but one year in three it may be topped to prevent the encroachment of woody growth; this should be done on rotation, i.e. not all margins should be cut in this way in the same year.

Any existing sward wider than the required width may be ploughed back to the width required.



Seed Mix Options (clay/loamy clay/silts)

- Common Bent (*Agrostis capillaris*)
- Meadow Foxtail (*Alopecurus pratensis*)
- Sweet Vernal Grass (*Anthoxanthum odoratum*)
- Crested Dog's tail (*Cynosurus cristatus*)
- Sheep's Fescue (*Festuca ovina*)
- Meadow Fescue (*Festuca pratensis*)
- Red Fescue (*Festuca rubra*)

4 - 6m buffer on Intensive Grassland*

Aim: This option provides a buffer to protect ditches, water courses and ponds from farming operations. The margin will provide an area where artificial inputs are not applied. The unsprayed area will protect against the risk of spray drift and not using fertiliser will reduce the risk of nitrate and phosphate entering the water course.

Guidelines: Maintain a grass margin averaging at least 6 metres in width, around the boundaries or environmental features specified.

Margins which abut field boundaries (hedges and ditches) should be measured to start from the crop edge or the current plough line where cross-compliance does not apply.

Any existing sward wider than the required width may be ploughed back to the width required.



12 – 24m Buffer on Cultivated Land*

Aim: This option provides a buffer to protect ditches, water courses and ponds from farming operations. The margin will provide an unsprayed area and protect against the risk of spray drift. The grass cover will help to slow surface water flow, trap soil and aid the infiltration of water. This option will also support beneficial insects and ground nesting bird such as grey partridge.

Guidelines: Where an appropriate vegetation cover has not already been established on Agreement land, then:

In the first agreement year, sow a new grass margin using at least six grasses selected from the list below at a seed rate of not more than 20 kilograms/hectare with no one species comprising more than 20% of the seed rate.

Margins which abut field boundaries (hedges and ditches) should be measured to start from the crop edge of the cross-compliance margin or the current plough line where cross-compliance does not apply.

Mow the 2- 6 metres next to the crop each year between September – February. Either cut and remove (e.g. bale) or mow to ensure cuttings are finely chopped to prevent the grass being smothered.

Leave 2-3 metres uncut alongside the field edge to act as a refuge for wildlife. This outer (hedge side) 2-3m margin should be left uncut, but one year in three it may be topped to prevent the encroachment of woody growth; this should be done on rotation, i.e. not all margins should be cut in this way in the same year.

Treatments applied to adjacent arable land must not affect or encroach on the uncropped arable margin.

Margins must not be used for the storage of materials, be used as farm access tracks or be damaged by machinery or other means.

Invasive and injurious weeds such as Himalayan balsam, Japanese knotweed, thistle, dock and ragwort can be spot sprayed if required.



Seed Mix Options (clay/loamy clay/silts)

Common Bent (*Agrostis capillaris*)
Meadow Foxtail (*Alopecurus pratensis*)
Sweet Vernal Grass (*Anthoxanthum odoratum*)
Crested Dog's tail (*Cynosurus cristatus*)
Sheep's Fescue (*Festuca ovina*)
Meadow Fescue (*Festuca pratensis*)
Red Fescue (*Festuca rubra*)
Smooth Meadow Grass (*Poa pratensis*)
Yellow Oat Grass (*Trisetum flavescens*)
Small leaved Timothy (*Phleum pratense* - subspecies *bertolonii*)
Cocksfoot (*Dactylis glomerata*)
Timothy (*Phleum pratense*)

*Please note:

Treatments applied to adjacent arable land must not affect or encroach on the uncropped arable margin.

Margins must not be used for the storage of materials, be used as farm access tracks or be damaged by machinery or other means.

Invasive and injurious weeds such as Himalayan balsam, Japanese knotweed, thistle, dock and ragwort can be spot sprayed if required.

Arable Reversion into Grassland

Aim: To prevent loss of soil, reduce nutrient losses and buffer watercourses by establishing and maintaining grass cover in arable fields at risk of soil erosion or surface run-off.

Eligibility: This option is only available on cultivated land.

Guidelines: Where it is necessary to reseed, establish a grass sward by 1 October using an appropriate seed mixture for the site of at least 5 species.

Grass species:

- Timothy
- Cocksfoot
- Crested dogstail
- Red fescue
- Smooth stalked meadow grass

Floristic interest can be added by including: ox-eye daisy; black knapweed; bird's-foot-trefoil; common sorrel; wild red clover

[Where floristic interest is included it is recommended that a hay cut is taken from mid July – August is used to manage and promote the flowering species.]

From year 2, manage by grazing and /or cutting to achieve an average sward height of between 5cm and 15cm in November. Cut the sward after 15 July. Remove all cuttings.

Livestock manures may be applied to supply up to 100 kg/ha per year of total nitrogen. Where livestock manures are not used, nitrogen fertiliser can be used to supply no more than 50 kg/ha total nitrogen. You must not apply manure within 50 metres of a borehole, spring, reservoir or watercourse.

Do not apply any manure or fertiliser between 15 August and 1 February.

Exclude all livestock from 1 October to 15 March.

Do not supplementary feed except for mineral blocks (non-energy based). Mineral blocks should be moved regularly to prevent poaching and should not be located within 20 metres of a water course.

Only use pesticides, including herbicides, to spot-treat or weed-wipe for the control of injurious weeds, invasive non-natives, nettles or bracken.



Autumn Sown Cover Mix

Aim: To provide a break crop to arable systems with various benefits to soil and biodiversity while also performing as a viable blackgrass control method.

Guidelines: This is an annual field scale cover crop mix split into two crops. The first crop is to be drilled as soon as possible post harvest. An application of glyphosate is allowed before drilling if weed pressure is high to reduce competition. A light tillage is allowed to disturb the top few inches of soil before drilling.

The first mix should include a combination of Oats, Hairy Vetch, Linseed, Radish and Phacelia or a mix of a similar composition.

If this initial mix maintains a good quality it may be left in place for the full course of the year. If its condition has deteriorated over winter then a second mix should be direct drilled between the end of April and end of May. The previous crop may be destroyed with an application of glyphosate if blackgrass is a problem within the crop. If not then mowing or mob grazing is an acceptable destruction method.

The second mix should be composed of Phacelia, Buckwheat, Crimson Clover, Sunflowers, Berseem Clover, Camelina and Quinoa or a similar mix.

This should be maintained until the next crop is ready for drilling

Notes: No inputs can be applied to this crop. Permission must be granted by a Cambridge Water catchment advisor if the initial crop is to be maintained for the full duration. Spot spraying for injurious weeds is permitted if required. If any advice is required on the seed mix contact your Cambridge Water catchment advisor who can assist.

Beetle Bank

Aim: To create an in-field barrier to reduce the risk of surface water flow. This option will provide nesting and foraging habitat for insects (including those that feed on crop pests), bumblebees, small mammals and some farmland birds.

Guidelines: In the first Agreement year ridge up an earth bank during autumn/spring cultivation.

The bank should be at least 0.4 metres high by 2 metres wide and extend for the full length of the field, leaving a working gap at each end of no more than 30 metres.

Aim to cut the grass 3 times or more in the first year to prevent competition from annual weeds and to aid establishment.

Establish a grass sward on the bank using the following seed mix:

Species	Kg/Ha (spring)	Kg/Ha (autumn)
Cocksfoot (<i>Dactylis glomerata</i>)	10	7
Creeping red fescue (<i>Festuca rubra</i>)	6	5
Timothy (<i>Phleum pratense</i>)	5	4

Leave the beetle bank un-managed to develop a dense tussocky sward to encourage small mammals/invertebrates/nesting birds.

Banks should not be used for the storage of materials, be used as access tracks or be damaged by machinery or other means.

Cut if required, typically once every three years, to help to maintain grass cover.

Injurious weeds such as thistle, dock and ragwort can be spot sprayed if required.

Contour Cropping

Aim: To protect the soil and provide protection against loss of pollutants carried in surface run-off on land where cultivating and creating tramlines across the slope will significantly reduce the risk of soil and pesticides reaching water courses.

Guidelines: Undertake cultivations and drilling (including the establishment of tramlines) across the slope (along the contour). Subsequent in-crop operations such as spraying and fertiliser spreading must use the contour tramlines.

Headlands: where headland tramlines run up/down the slope drill the crop into the tramline [at regular intervals] to reduce the risk from surface run-off using the tramlines as channels and eroding soil.

This option should not be used on steep slopes where there is a risk of machinery overturning.

Coppicing Bankside Trees

Aim: To benefit bankside restoration by coppicing trees to reduce the risk of trees falling and so maintain the trees which help to stabilise the river bank.

Guidelines: Coppice trees in winter between 1 October and 1 March.

Trees must be cut cleanly between 7.5 cm and 15 cm above ground level and cuts must be angled so that they slope away from the centre of the stool and allow water to run off.

Where necessary regrowth must to be protected from livestock, deer and rabbits to allow the stool to re-grow.

Control the growth of nettle, thistle, dock, ragwort and other weed species. Any herbicide applications must be by spot treatment or weed wiping (herbicide to be agreed with your South Staffs Water Advisor - current guidance must be followed).

Do not burn larger (over 10cm in diameter) cut material on site. Either remove it from the site or stack it into piles to provide deadwood habitat (make sure it will not create an obstruction during if the waterbody floods).

Where material is burnt you must follow current regulations. Do not burn close to water courses where bare ground may cause erosion problems.

It is your responsibility to check if any protection orders (e.g. Tree Preservation Orders) exist and to apply for a felling licence if the volume being felled exceeds that specified in current regulations.



Cover Crop

Aim: To protect the soil and provide protection against loss of pollutants carried in surface run-off reduce nitrate leaching on land where soil would normally be left bare (typically in winter) before the next crop.

Guidelines: Establish a quick-growing cover crop by 15 September that will provide a dense cover and protect from soil erosion.

The cover crop can be a mixture of seeds, such as rye, vetch, phacelia, barley or mustard. When used over-winter the main components of the mix must be frost tolerant. The choice of cover crop will depend on herbicide selected and the rates of application for the previous crop. The crops grown in the rotation will also affect choice of cover crops. A suitable seed rate must be sown to provide a dense cover and protect from soil erosion.

Destroy the cover crop in late January or early February, a maximum of 6 weeks before establishing the following spring crop. When weather conditions delay establishment of a spring crop, the cover crop can be left until mid-March.



Flower Rich Margins

Aim: This option provides a buffer to protect a range of water courses and ponds from farming operations and in addition provides important nectar and pollen for threatened pollinators such as bumblebees. The margin will provide an unsprayed area and protect against the risk of spray drift.

Guidelines: Where an appropriate vegetation cover has not already been established on Agreement land, then:

In the first Agreement year sow a new margin using the flower-rich seed mixture set-out below.

Seed Mix [can be agreed with the customer]

Establish [a flower-rich margin or plot between 15 March to 31 May or 15 July to 15 October with the following composition at 20kg/ha:

Species	%	Species	%	Species	%
Common bent	5	Sheep's fescue	20	Ribwort Plantain	1
Sweet vernal grass	5	Yarrow	1	Yellow rattle	1
Smaller cat's-tail	10	Tufted vetch	1	Sorrel	2
Crested dog's-tail	10	Lady's bedstraw	1	Bird's-foot trefoil	2
Smooth-stalked meadow grass	15	Ox-eye daisy	1	Self heal	1
Red fescue	20	Black knapweed	2	Meadow buttercup	2

Or by using an existing flower-rich area that meets the flower density required as indicated by the above mix.

In the first year of establishment: if plot growth is more than 15 cm cut and remove to achieve a plant height of between 5 and 10 cm before 31 March.

Year 2 onwards: Cut plant growth (and remove if dense) if it is more than 15 cm in height before 31 March, to achieve a plant height of between 5 and 10 cm.

Cut (and remove if dense) or graze 90% of the area between [15 August and 31 October] to leave a plant height of between 10 cm and 20 cm. Leave 10% of the area uncut or ungrazed.

Margins which abut field boundaries (hedges and ditches) should be measured to start from the crop edge of the cross-compliance margin or the current plough line where cross-compliance does not apply.

Treatments applied to adjacent arable land must not affect or encroach on the uncropped arable margin.

Margins must not be used for the storage of materials, be used as farm access tracks or be damaged by machinery or other means.

Invasive and injurious weeds such as Himalayan balsam, Japanese knotweed, thistle, dock and ragwort can be spot sprayed if required.



Hedge Planting

Aim: To plant new hedges or restore former hedgerows to achieve a continuous length of hedge. A well-managed hedge can help water quality by maintaining a physical barrier against water features such as ditches. The hedge will help to aid the infiltration of water, prevent polluting fertilisers, pesticides and sediment from reaching water bodies.

Guidelines: Carry out work in the winter between 1 November and 31 March.

Prepare the ground along a 1.5 m wide strip to provide good soil conditions and as little competition from other vegetation as possible. You may apply glyphosate to the 1.5m wide strip in the August or September prior to planting, in order to facilitate establishment. Otherwise only use herbicide agreed in advance with your South Staffs Water advisor.

Plant two-year old transplants, at least 450-600 mm high and of native species, with no one species comprising more than 70% of the total.

Plant in a staggered double row 40 cm apart with a minimum of 6 plants per metre. Place spiral guards or similar on each plant to prevent damage e.g. from rabbits.

Replace all failures in the following planting season.

Keep plants clear of weeds until they are established (typically for the first 2 - 3 years).

Prevent damage from livestock and grazing animals. Set fencing at least 1.2 m from the centre of the hedge.

Check guards regularly and remove individual guards/tree shelters once the plants are established.

Trim the newly planted hedge in the first two years and then typically every other year at a slightly higher / wider distance than the previous allowing the hedge to become taller and wider at each cut to encourage bushy growth,.

Do not block or restrict Public Rights of Way. Do not restrict visibility splays on highways.



Hedge Restoration

Aim: To maintain or restore hedgerows by laying to achieve a continuous length of hedge. A well-managed hedge can help water quality by maintaining a physical barrier against water features such as ditches. The hedge will help to aid the infiltration of water, prevent polluting fertilisers, pesticides and sediment from reaching water bodies.

Guidelines: Hedge restoration will involve laying the hedge and re-planting gaps so as to create a continuous line of hedge; where existing hedge plants cannot be laid, e.g. too mature, then coppicing may be undertaken.

Work must be carried out in accordance with local best practice and done in the winter months between November and February

Remove old fencing and wire and properly dispose of off-farm (e.g. licensed scrap metal disposal / skip).

Cut and pull out bramble, clematis or other scrambling plants.

Cut out elder plants and prevent re-growth of stumps.

Retain all existing hedgerow trees.



Hedge Restoration (continued)

Advisory guidelines:

Use of herbicides – Use plant protection products safely. Always read the product label and product information before use.

Burning – It is preferable that cut material (brash etc.) is disposed of by chipping. If burning brash and off-cuts:

Do not burn larger (over 15cm (6 inch) in diameter) cut material on site. Either remove it from the site or stack it into piles to provide deadwood habitat (make sure it will not create an obstruction during if the waterbody floods).

Where material is burnt you must follow current regulations. Do not burn close to water courses where bare ground may cause erosion problems.

Felling Trees – It is your responsibility to check if any protection orders (e.g. Tree Preservation Orders) exist and to apply for a felling licence if the volume being felled exceeds that specified in current regulations.

Guidelines continued:

Chainsaw use: when working near to water courses biodegradable 'bio oil' (vegetable based oil) chain oil must be used.

Laying – Partially cut through stems near ground level, laying the pleachers (stems) over at an angle from horizontal to form a stock proof barrier. The uncut heel must be removed from each pleacher.

Keep pleachers in position by crooking, staking or staking and binding.

Do not lay hedges downhill. Pleachers should be finished so they slope in an uphill (upward-diagonal) direction to allow the sap to rise.

Coppicing – Cut stems down to ground level (less than 10 cm (4 inches)) to encourage vigorous re-growth from the base of the plant. Ensure a final 'clean cut' (i.e. no hinge). Angle cuts so that water can easily run off.

Prevent damage from livestock and grazing animals. Set fencing at least 1.2 m from the centre of the hedge or where a bank is present, as close to the base of the bank as possible.

Control weeds during the first growing season after laying / coppicing. Trim the hedge for three years after laying or coppicing, allowing the hedge to become taller and wider.

Gapping Up – Gaps more than 4m wide are to be planted up with at least 6 plants per metre length within one year of the hedge being coppiced or laid.

Before planting the ground must be prepared along a 1.5m (~1.5 yds.) wide strip to control existing vegetation and weeds and the hedge on either side cut back to healthy growth.

Weed control can be by chemical treatment (herbicide to be agreed with your South Staffs Water Advisor) or by cultivation.

Damage to surrounding vegetation must be kept to a minimum and must not extend beyond the strip.

Plant bare rooted nursery stock between November and March, when the ground is not frozen. These should be 2-year old transplants of native origin (UK mainland), 450-600 mm (~18 – 24 inches) high with no one species comprising more than 70% of the total. Alternatively good quality cell grown stock may be used. Planting must be in a staggered double row 40 centimetres (~16 inches) apart, with a minimum of 6 plants per metre.

Until the hedge has become established the plants are to be kept clear of competitive weeds in particular grass, elder, bramble, clematis, cleavers and other aggressive climbing growth. This can be by using a suitable mulch, an appropriate herbicide (to be agreed with your South Staffs Water Advisor) or by hand-pulling. Strimming is not recommended.

All dead plants must be replaced in the following planting season and at the end of the agreement there must be a living hedge for every metre of hedge that has been grant aided.

Protection – Protective fencing or individual guards will be required where it is necessary to prevent damage by livestock, deer, rabbits and other mammals. Spiral guards and tree shelters must be adequately supported and designed to last for five years. They must be removed once the plants have become established. Where protective fencing adjoins or is replaced alongside the restored hedge, this must be placed at least 1.2 metres (~4 ft.) from the centre of the hedge.

Herbal Ley

Aim: Herbal leys are temporary grasslands made up of legume, herb and grass species.

Benefits of herbal leys:

- Improve soil structure and fertility, and increase soil organic matter, resulting in lower input costs, and increasing crop yield and quality
- Reduces runoff
- Better food source for pollinators so improves biodiversity
- Helps control weeds in arable rotations
- Protects against adverse conditions like drought

Guidelines: Your seed supplier can help you choose a seed mix to best match your land, local conditions, and how you'll manage the ley.

Choose a seed mix which has at least:

- 5 species of grass
- 3 species of legumes
- 5 species of herbs or wildflowers

Legumes mixed with herbs or wildflowers need to make up at least 25% of the mix's weight.

Festulolium and perennial ryegrass combined should not make up more than 50% by weight of the total seed mix.

SOWING

Seedbed must be well-consolidated, firm, fine, level and weed-free. Can sow into seedbed or direct drill into stubble, no deeper than 1cm. Roll after sowing

MAINTAINING

Can maintain herbal leys by grazing, cutting or both.

Rest herbal leys from cutting and grazing for at least 5 weeks in the summer

Do not use any nitrogen on herbal leys

Can use spot sprayers to manage weeds

Grazing – lightly graze herbal ley in the first year after sowing. After first year, rotational grazing with rest periods is the best way to manage leys.

- Start grazing after rest period when the ley is around 0.5m to 1m high
- Graze until the vegetation height is halved
- Move livestock regularly to graze new areas of the ley and stop overgrazing
- Give enough time for the ley to recover between grazing periods
- Make sure vegetation is at least 8cm tall through the growing season

Cutting – cut as needed in the first year after sowing to control annual weeds and encourage plants to bush out. Cut can be used for silage and hay

Keep in for at least 2 years

2 Year Legume Fallow

Aim: To provide a biodiversity rich break crop which can also be used to manage blackgrass populations.

Guidelines: Between the summer, autumn or spring a mix of 6 flowering species should be established.

Seed mix recommendation:

Species	%
Alsike Clover	10
Bird's-foot trefoil	7
Black medick	5
Common vetch	50
Lucerne	15
Red clover	15

SOWING

Sow at approximately 15-20kg/ha, grasses such as cocksfoot or timothy may be added to this mix to help suppress blackgrass.

MAINTAINING

Within the first 12 months this should be cut at least twice (Between 1st March and 31st October) to prevent blackgrass heading. But these may be required frequently throughout the summer so as to maintain this prevention.

In the second-year cutting should occur until the end of March as necessary to control blackgrass, after this point the crop should be allowed to grow away until August.

The mown cuttings should be left in the field and not taken for forage.

The crop should be maintained until August of the second year of sowing.

Notes: No inputs may be applied to this. No grazing unless special permission granted by a catchment advisor. No spraying of the whole crop - spot spraying may be permitted for injurious weeds.

Low Input Permanent Grassland

Aim: To prevent loss of soil, reduce nutrient and pesticide losses and buffer watercourses by managing grassland under a very low input regime.

Eligibility:
This option is only available on permanent grassland.

Guidelines: Manage by grazing and / or cutting to achieve an average sward height of between 5cm and 15cm in November.

Cut the sward after 15 July. Wilt for at least 48 hours. Remove all cuttings.

Graze the aftermath in late summer / autumn to achieve the desired sward height.

Livestock manure in the form of well-rotted Farm Yard Manure (FYM) may be applied at a rate of up to 12t.5/ha (5t/ac) per year. Do not apply slurry or other forms of manure.

Do not apply FYM within 10 metres of a watercourse. You must not apply manure within 50 metres of a borehole, spring, or reservoir.

If applying artificial fertiliser, only apply up to 50-65kg/ha N total/year

Do not apply any manure between 15 August and 1 February.

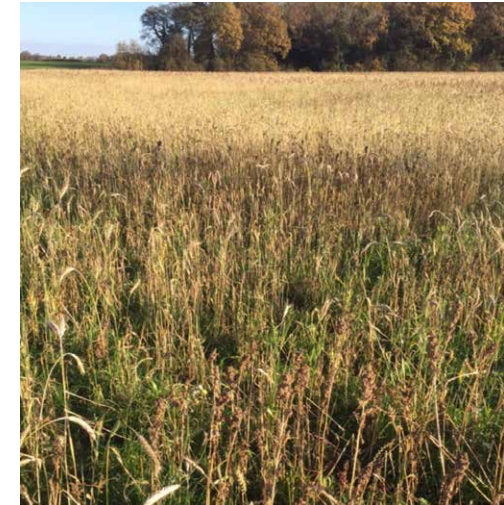
Exclude all livestock from 1 November to 15 March.

Do not supplementary feed except for mineral blocks (non-energy based). Mineral blocks must be moved regularly to prevent poaching and must not be located within 20 metres of a watercourse.

Field operations and stocking must not damage the soil structure. Take particular care when the land is waterlogged.

Maintain as grass. Do not plough, cultivate or re-seed.

Only use pesticides, including herbicides, to spot-treat or weed-wipe for the control of injurious weeds (e.g. thistle, common ragwort, etc.) and invasive non-natives.



Oats, Peas and Vetch

Aim: This option is an alternative fodder crop to maize, which is less reliant on chemicals, regarding pesticide and nitrogen usage. It increases the fertility status of depleted soils, by fixing N and scavenging P, which reduces the reliance on artificial fertilisers.

These mixtures can act as an excellent nurse crop to an under sown grass ley although for successful grass establishment, the arable silage mixture should be harvested no later than 10-12 weeks from sowing.

It provides an excellent feed, with a well-balanced combination of starch and protein. The crop requires fewer chemical and fertiliser inputs.

Guidelines: Established in April/May

Can be taken for silage in 10-12 weeks or left until 14-16 weeks to be harvested as whole crop.

For successful grass establishment, the arable silage mixture should be harvested no later than 10-12 weeks from sowing.

Suggested seed rate:

- 75-85kg per acre for oats, peas and vetch
- 50-60kg per acre for oats, peas and vetch, undersown with grass

Farmers wanting a legume dominant forage would need to further lower the oat seeding rate to no more than 15 kg/ha.

For direct drilled established crops increase seed rate by 10-20% depending on soil type

Abide by AHDB thresholds and increase beneficials.

Where organic manures are applied the crop can virtually be grown on no extra fertilisers, although crop can be fed with nutrient foliar spray to increase nodulation on the legume plant once the crop has established.

If using artificial N, no more than 100kg required

Phosphates and potash, according to soil indices and follow the requirements for oats.



Strip Tillage

Aim: Technique to reduce cultivation in cereal establishments.

By cultivating the strip into which the seed is planted, leaves a large proportion of the seed uncultivated, which reduces the costs required of establishing the crop, but also increases the infiltration rate of the soil and so reducing the likelihood of water running off. It also helps maintain organic matter levels in the soil, improving water-holding capacity and trafficability come harvest.

Guidelines: When preparing land using min-till, make sure machinery will not go deeper than 15cm or turn over the soil.

Leave ground for 24hrs to settle, after being cultivated.

Liquid digestate applied at 40cm³/ha directly in the furrow of the strip till machine.

Only use ploughs, heavy deep discs or power harrows if soil is compacted. Do not use them more often than every 3 or 4 years.

To improve weed control, you can lightly cultivate after harvest to create a stale seedbed. This will encourage weed germination. Spray these weeds with a non-selective herbicide before sowing.

Ask your agronomist for help in assessing your soil type, structure and suitability for strip tillage.



Take Field Corners Out of Management

Aim: This option protects ditches, water courses and ponds by slowing surface water flow, trapping soil and aiding the infiltration of water. Typically located in low lying filed corners where surface water is liable cause soil erosion.

This option will also support beneficial insects and ground nesting bird such as grey partridge.

Guidelines: Establishment in the first year:

Where an appropriate vegetation cover has not already been established on Agreement land, then:

In the first Agreement year sow a new grassy field corner using at least six grasses selected from the following list at a seed rate of not more than 20 kilograms/hectare with no one species comprising more than 20% of the seed rate. Mow / top the whole margin at a height of 75-100mm (3 – 4 inches) once or twice in the first year of establishment to control annual weeds and promote tillering.

Field corner areas which abut field boundaries (hedges and ditches) should be measured to start from the crop edge of the cross-compliance margin or the current plough line where cross-compliance does not apply.

Mow the 2- 6 metres next to the crop each year between September – February. Either cut and remove (e.g. bale) or mow to ensure cuttings are finely chopped to prevent the grass being smothered.

Leave the area nearest to the field boundary uncut alongside the field edge to act as a refuge for wildlife. This outer (hedge side) area should be left uncut, but one year in three it may be topped to prevent the encroachment of woody growth; this should be done on rotation, i.e. not all margins should be cut in this way in the same year.

Treatments applied to adjacent arable land must not affect or encroach on the uncropped field corner.

Field corner areas must not be used for the storage of materials, be used as farm access tracks or be damaged by machinery or other means.

Invasive and injurious weeds such as Himalayan balsam, Japanese knotweed, thistle, dock and ragwort can be spot sprayed if required.

Plant species

Common Bent (*Agrostis capillaris*)
Meadow Foxtail (*Alopecurus pratensis*)
Sweet Vernal Grass (*Anthoxanthum odoratum*)
Crested Dog's tail (*Cynosurus cristatus*)
Sheep's Fescue (*Festuca ovina*)
Meadow Fescue (*Festuca pratensis*)
Red Fescue (*Festuca rubra*)
Smooth Meadow Grass (*Poa pratensis*)
Yellow Oat Grass (*Trisetum flavescens*)
Small leaved Timothy (*Phleum pratense* - subspecies *bertolonii*)
Timothy (*Phleum pratense*)

Undersown Maize

Aim: To reduce soil, pesticides and nutrients losses entering watercourses by establishing and maintaining and undersown grass cover in a maize crop.

Eligibility:
This option is only to be used as part of an existing maize rotation.

Guidelines: Sow a maize crop, undersown with a grass or a grass/legume seed mix, between 15th April and 15th June.

The undersown seed mix must consist of a grass or mixture of grasses and white or broad/medium red clover may be included. Other legumes can be grown with prior approval from a South Staffs Water Advisor.

The grass seed mix should be sown at a seed rate of at least 12kg/ha (11lb/acre).

The grass mix can either be established at the same time the maize is drilled or post emergence, but no later than the 6 leaf stage of the maize.

The resulting undersown plant growth must be kept until the maize crop is harvested.

Any herbicides used must not damage the undersown grass mix and, as with all pesticides, must have approval from a BASIS qualified agronomist.

Records of pesticides used must be retained and copies may be requested by you South Staffs Water advisor.



Undersown Spring Cereal

Aim: To reduce soil, pesticides and nutrients losses entering watercourses by establishing and maintaining and undersown grass cover in spring cereals.

Guidelines: Sow a spring cereal crop, undersown with a grass/legume seed mix, between 14 February and 20 April.

The cereal crop should be sown at 100kg/ha (90lb/acre).

The undersown seed mix must consist of a grass or mixture of grasses and white or broad/medium red clover. Other legumes can be grown with prior approval from a South Staffs Water Advisor.

The seed mix should be sown at a seed rate of at least 12kg/ha (11lb/acre). This must include either 25% white clover or 33% broad/medium clover (by weight)

The resulting undersown plant growth must be kept until the cereal crop is harvested. This must not be before 1st July or before the cereal crop is fully ripe.

Do not destroy the grass ley before 15th July of the following year.

Wild Bird Seed Mix

Aim: To provide a buffer and /or an area to allow water to infiltrate into the soil whilst also delivering important food resources for farmland birds, especially in autumn and winter.

Guidelines: The wild bird mixture should not be situated immediately against water courses or sensitive features; ideally a grass buffer (margin) should be put in place and the wild bird mix can be planted against the grass buffer. Mixtures should be sown in strips at least 6 metres wide, and/or in blocks within arable fields.

The following seed mixture should be sown during the first year of your agreement at a seed rate of 35-50 kg/ha. Seed treatment to control seedling pests and diseases is permitted where appropriate for successful establishment.

Mixture or details of mixture specified here:

WM1 Wild Bird Seed Mixture	% by weight
Cereals (cereal mixture)	80
Kale (kale mixtures)	10
Quinoa	10

The wild bird seed area must be managed throughout the course of the agreement to provide winter ground cover and a continuing supply of food for seed-eating birds. The mixture should normally be re-sown every year or every other year (where Kale forms part of the mix and provides sufficient ground cover in year 2) in order to retain a productive seed mixture.

When the mixture is being re-established, removal of the plant cover and re-establishment should take place between the 1st March and 15th June.

Nitrogen fertiliser should be used to aid establishment and seed production. Phosphate (P) and Potassium (K) should be applied where its absence will jeopardise successful establishment and seed yield.

You may apply glyphosate as an overall spray immediately prior to spring re-sowing, in order to facilitate re-establishment. Otherwise only use herbicide agreed in advance with your South Staffs Water advisor.

Agreement land should not be used for the storage of materials, be used as farm access tracks or be damaged by machinery or other means. Do not graze.



Biofilter

Aim: A pesticide treatment system is an essential part of the pesticide sprayer wash-down area.

40% of pesticide losses occur at the pesticide wash-down or handling area on farms.

The implementation of specially designed and designated wash-down, handling and treatment areas can reduce the loss of pesticides through the reduction of accidental point source pollution.

Biofilters should comply with the Pesticide Handling and Biobeds Manual http://www.voluntaryinitiative.org.uk/media/635211/Design_manual_updated_922015.pdf

Guidelines: Construct a biofilter as described below and to meet the T32 exemption.

Construct the biofilter using 3 new chemical resistant impermeable containers, typically 1000 litre Intermediate Bulk Containers (IBCs) stacked vertically.

Use additional containers sited adjacent to the biofilter stack for initial storage of pesticide washings prior to treatment or for final storage of treated washings.

Alternatively the pesticide washings can be pumped directly from an underground storage tank used to collect washings from a pesticide handling area.

Cut the tops off the 3 containers, leaving corners intact.

Insert wire mesh lining in each container base, cover with a permeable membrane and install a layer (at least 10cm) of pea gravel over this to ensure the drainage outlet to the container below is not blocked.

Make the biomix material: mix one part peat-free compost, one part topsoil and two parts straw (wheat or barley) by volume. Allow the biomix to compost for 30 - 90 days before filling the containers.

Fill the containers with biomix, leaving a 10cm gap at the top for piping; allow to settle then top up to a volume of at least 0.5 m³ of biomix in each container.

Stack the 3 containers vertically into a tower, on a flat concrete base.

Replace the top of the uppermost container to prevent rainfall entering the biofilter if the biofilter is not located under cover.

Install necessary pumps, pipes and hose to pump pesticide washings from the initial storage tank to the top biofilter container and onto the biomix via a piped ring distribution system; then allow to flow by gravity via pipes to the containers below and finally pump discharge from the bottom container to a storage tank or direct irrigation via perforated hose on a vegetated area.

Construct a concrete bund at least 100 mm high around the biofilter.

Requirements:

Biofilter should not be located within 50m of any surface water, groundwater or clean watercourses or drains.

Location must not be within 250m of a potable water supply borehole.

Location must not be within a Source Protection Zone 1 or 2 <http://apps.environment-agency.gov.uk/wiyby/37833.aspx>

Maximum sprayer washings with the exclusion of rain water that can be treated is 15,000 litres.

You cannot use this item to treat more than 15,000 litres of pesticide washings, excluding rainfall, in any 12 month period.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up to date version.

Chemical Store

Aim: To provide a dedicated space for pesticides to be safely stored and protect pesticides from polluting in the event of any spills within the container.

Guidelines: Store all chemicals in an area where you can contain spills. Keep chemical containers within an impermeable secondary containment area (bund) that will hold liquids if the main containers leak or break.

Your bund should be able to contain at least 110% of the volume of the largest container or 25% of the total volume you are likely to store, whichever is greater.

Ensure the container is sited away from ponds, watercourses, wells, boreholes and areas liable to flooding.



Concrete Tracks

Aim: To build new farm tracks to prevent erosion problems caused by livestock or machinery movements with concrete adding surface which will last in areas of high use e.g. turning machinery or where it is desirable to clean/manage the surface.

Eligibility requirements:

- **New tracks must avoid historic or archaeological features or areas of existing wildlife interest.**
- **If the proposed route is a Public Right of Way you must consult the Local Highways Authority and submit a copy of their advice with your application.**
- **It is your responsibility to check if permissions such as planning permission is required.**

Guidelines: Excavate a trench 1.0 m wider than the widest machine that will use the track or a minimum of 2.4 m wide and at least 150 mm deep, or down to a naturally occurring hard surface.

Use the soil to profile the edge of the track.

If above excavation ends on sub-soil, overlay the excavation with a geotextile membrane and fill the trench with stone or hardcore to a depth of at least 150 mm and compact.

Aggregate/hardcore must be sourced quarried stone / gravel, not ungraded hardcore derived from construction/demolition.

Construct the surface of the track using a minimum of 150 mm thick concrete on at least 150 mm thickness of compacted and blinded hardcore.

Reinforce the slab to minimise cracking and distribute the loads exerted by livestock and/or farm vehicles.

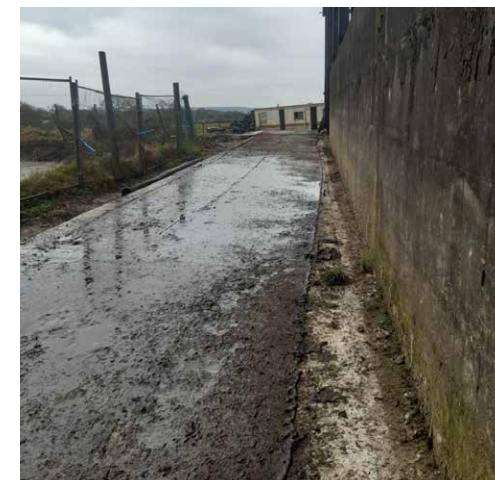
Lay the concrete in bays/sections and treat all joints with an appropriate sealant that is resistant to effluent attack.

Do not fully load concrete until it achieves its design strength (equivalent to 28 day strength).

Consider the installation of cross-drains (option SSW33) where there is a gradient on the track that will cause water to run-down it and may cause contaminated water to flow to sensitive sites such as a stream.

Direct any track run-off to a stable drainage outlet (e.g. soakaway), ditch or divert low flows onto grassland (you should agree this in advance with your South Staffs Water Advisor. Consider if the run-off will pose a risk (e.g. slurry) and deal with accordingly.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up to date version.



Concrete Yard

Aim: To improve or upgrade existing outdoor (uncovered) concrete, hardcore, tarmac or bare earth yard drainage to reduce foul drainage volumes, run-off and risk of water pollution.

Eligibility requirements:

- **The surface area must avoid historic or archaeological features or areas of existing wildlife interest.**
- **It is your responsibility to check if permissions, such as planning permission, are required.**

Guidelines: Consider the final slope/fall on the concrete and/or installation of drains or raised sections/edges (e.g. gateways) to keep dirty and clean water separate.

Direct any run-off to a suitable drainage outlet (e.g. soakaway), ditch or divert low flows onto grassland (you should agree this in advance with your South Staffs Water Advisor. Consider if the run-off will pose a risk (e.g. dirty water/slurry) and deal with accordingly e.g. direct flow to dirty water drains/slurry pit.

Excavate at least 150 mm deep, or down to a naturally occurring hard surface.

If above excavation ends on sub-soil, overlay the excavation with a geotextile membrane and fill the trench with stone or hardcore to a depth of at least 150 mm and compact.

Aggregate/hardcore must be sourced quarried stone / gravel, not ungraded hardcore derived from construction/demolition.

Construct the surface using a minimum of 150 mm thick concrete on at least 150 mm thickness of compacted and blinded hardcore

Reinforce the slab to minimise cracking and distribute the loads exerted by livestock and/or farm vehicles.

Lay the concrete in bays/sections and treat all joints with an appropriate sealant that is resistant to effluent attack.

Set proprietary kerbstones and/or construct vehicle departure/entry points to ensure that the edges of the concrete are not damaged through future use.

Do not fully load concrete until it achieves its design strength (equivalent to 28 day strength).

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up to date version.



Cross Drains

Aim: To intercept and take surface run-off away from farm tracks or farm yards to minimise soil erosion and reduce the risk of water pollution.

Guidelines: Position drains so that they catch water on the up-hill side of the track or yard and transfer it to an appropriate outfall where this new flow will not create new erosion or enhanced run-off problems.

Redirect water from the cross drains to a stable drainage outlet such as a ditch, culvert or other drainage outfall (such as a soakaway). Low flows can be directed to a field margin or field.

Do not direct any run-off towards, or otherwise damage, any features of wildlife, historic or archaeological interest.

Do not allow polluted water from the drains to reach a watercourse or pond.

Construct the cross drain by either, digging a partially covered channel to collect sediment and redirect surface water or by constructing a low hump to direct surface flows.

Maintain structures by emptying channels, drain outfalls or areas around humps through excavation of built up sediment or other clogging materials.

EITHER (for open channels)

For tracks, excavate a channel across the width of the track to a minimum depth of 100 mm and a width of 100-250 mm.

For yards, excavate a channel to a minimum depth of 100 mm and a width of 100-250 mm.

Line the channel with concrete, in accordance with the relevant British Standards, and install a gridded top which must be at least 150mm wide.

OR (for raised humps)

Excavate a foundation trench across the yard or track to a minimum depth of 300 mm.

Fill with concrete and key in kerbstones along the trench so that they protrude 60 – 100 mm above the surface. Concrete work must be carried out in accordance with the relevant British Standards.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up to date version.

Headwalls must be constructed at each end of the pipe to prevent the track surface and soil from washing / falling into the watercourse.

Fencing – Permanent Electric

Aim: Livestock accessing water courses erode banks resulting in an increase in nutrients in the water through silt and direct faecal contamination. Fencing allows prevents livestock access creating a buffer strip and allowing vegetation to grow which will help stabilise the bank.

Guidelines: All types of fencing must be erected to the standard required to prevent livestock from entering the watercourse. New fencing must be put up in straight lines, between strainer posts.

Remove all old fencing material before putting up a new fence.

The new fence must be a minimum of 1.5 metres from the top of the bank of the watercourse.

Only use timber that is fully peeled, coated with wood preservative and pressure treated or treated with an approved preservative. Untreated durable timber can be used as set out in the Forestry Commission's guide to forest fencing.

Erect wire fencing at least 1050 mm high using a minimum of 4 mild steel or high tensile plain wires. Attach wire using insulators.

Use straining posts at least 150 mm top diameter, 2150 mm long and space according to the type of wire used. Use struts at least 80 mm top diameter, 2100 mm long and notched into straining posts.

Use intermediate posts at least 63 mm top diameter, 1700 mm long and space according to the type of wire used.

Electric fencing gates, e.g. concertina / coil type, may be used for gateways.

Install a mains-operated energiser in accordance with the Institute of Electrical Engineers IEEE Regulations and manufacturers guidelines.

Do not attach the fence attached to trees or hedgerows.

Do not block or restrict access routes such as Public Rights of Way. Attach appropriate warning signs (e.g. "warning electric fence") in areas where there is public access.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant Standards and to use the most up to date version.



Fencing – Post and Wire

Aim: Livestock accessing water courses erode banks resulting in an increase in nutrients in the water through silt and direct faecal contamination. Fencing allows prevents livestock access creating a buffer strip and allowing vegetation to grow which will help stabilise the bank.

Guidelines: All types of fencing must be erected to the standard required to prevent livestock from entering the watercourse. New fencing must be put up in straight lines, between strainer posts.

Remove all old fencing material before putting up a new fence.

The new fence must be a minimum of 1.5 metres from the top of the bank of the watercourse.

Only use timber that is fully peeled, coated with wood preservative and pressure treated or treated with an approved preservative. Untreated durable timber can be used as set out in the Forestry Commission's guide to forest fencing

If possible, barbed wire should not be used where fencing runs alongside access routes. You must not block access routes.

Post and wire fencing

Wire fencing shall not be less than 1.05 metres high constructed using galvanised 4 mm mild steel plain or 2.5 mm barbed wire, or equivalent.

Straining posts should not be less than 125 mm top diameter, 2.1 metres long at a spacing not exceeding 150 metres.

Struts shall be 65 mm top diameter, 2.1 metres long and notched into the straining post.

Intermediate posts shall be 65 mm top diameter, 1.7 metres long and at a spacing not exceeding 3.5 metres (where high tensile wire is used wider post spacing can be agreed with your South Staffs Water Advisor).

Do not attach the fence to trees or hedgerows.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant Standards and to use the most up to date version.



Fencing – Sheep Netting

Aim: Livestock accessing water courses erode banks resulting in an increase in nutrients in the water through silt and direct faecal contamination. Fencing allows prevents livestock access creating a buffer strip and allowing vegetation to grow which will help stabilise the bank.

Guidelines: All types of fencing must be erected to the standard required to prevent livestock from entering the watercourse. New fencing must be put up in straight lines, between strainer posts.

Remove all old fencing material before putting up a new fence.

The new fence must be a minimum of 1.5 metres from the top of the bank of the watercourse.

Only use timber that is fully peeled, coated with wood preservative and pressure treated or treated with an approved preservative. Untreated durable timber can be used as set out in the Forestry Commission's guide to forest fencing.

Erect a steel wire mesh fence at least 1.05 metres high. Use additional strands of plain or barbed wire where extra height is needed. Use galvanised steel wire.

Use straining posts at least: 125 mm top diameter, or 100 mm x 100 mm cross-section sawn; 2.15 m long if not set in concrete, or 1.85 m if in concrete. Space strainer posts no more than 150 m apart where mild steel line wire is used, or 300 m apart for high tensile wire.

Use a straining post at every change of direction (horizontal or vertical) and at each end of the fence.

Use struts at least: 80 mm top diameter, or 75 mm x 75 mm if sawn; 1.9 m long if not set in concrete and at least 1.6 m where set in concrete. Notch struts into the straining post at an angle of no more than 45 degrees.

Use intermediate posts at least 65 mm top diameter, or 75 mm x 75 mm if sawn, 1.7 metres long. Space intermediate posts no further than 3.5 metres apart.

Do not attach the fence to trees or hedgerows.

Do not block or restrict access routes (e.g. public footpaths).

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant Standards and to use the most up to date version.



Fencing Supplement – Difficult Sites

Aim: To facilitate livestock management on steep, difficult to access locations. To be used in association with options preventing livestock accessing water courses or introducing livestock where new fencing is required.

Guidelines: This supplement can only be used in combination with the fencing capital items:

- SSW21 Fencing
- SSW23 Sheep netting
- SSW24 Permanent electric fencing

Complete the associated fencing to the relevant specification.

Agree a specification for the works with your South Staffs Water Advisor.

Complete the works as set out in the approved specification within the agreed timescale.

First Flush Rainwater Diverters / Filters for Downpipes

Aim: To reduce debris and contamination from harvested rainwater as part of preventing the discharge of clean storm water onto livestock yard areas and help minimise risk of water pollution.

Guidelines: Only to be used in association with diverting clean stormwater to a storage tank(s) as part of a rainwater harvesting system.

Install individual rainwater diverters and filters, or wall-mounted diverters or stand-alone diverters (depending on the volumes to be treated) according to the manufacturer's guidelines.

Do not divert contaminated water to a clean water drain or discharge to ditches or watercourses.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up-to-date version.

French Drain (for concrete tracks or yard)

Aim: To allow clean water run-off to be intercepted from concrete surfaces or to prevent clean water entering concrete yards or tracks.

This option must only be used for clean water.

Guidelines: A trench will be created at least 0.50 metres wide and 1.0 metre or more deep.

Line the trench with a geotextile membrane, leave a surplus strip that exceeds the width of the trench along the edge to fold over the top once filled with stone. Fill the lined trench to within 100mm – 150mm of the top with 20 – 40mm coarse, clean drainage stone; wrap the geotextile over the top and then add further gravel (on to the folded geotextile) to create a level finish.

Where there is a risk that the trench will drain to a single low point and create a wet area, then a series of trenches or cells should be created that are not linked.

The soakaway should only be connected to land drains or a ditch where there is absolutely no risk of contaminated water entering.

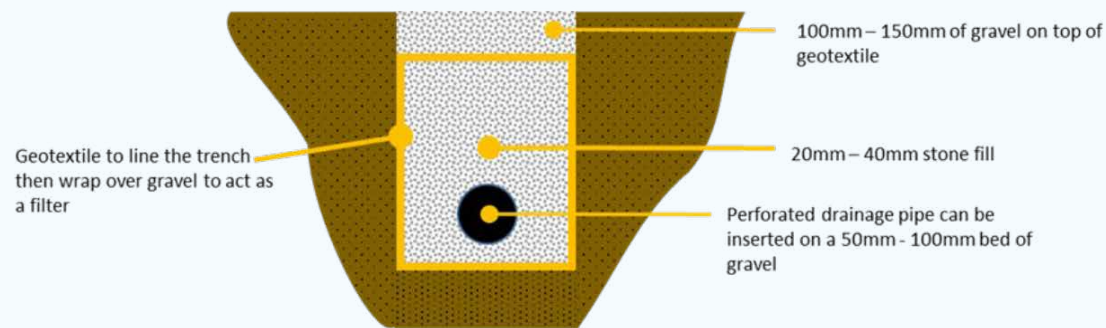
A perforated pipe may be located in the bottom of the trench on a 50mm -100mm bed of drainage stone

It is your responsibility to check if permissions such as planning permission is required.

This item can only be used with the agreement of a South Staffs Water Advisor.

This item can only be used in conjunction with the concrete track or yard option.

This item cannot be used within yards fouled by livestock.



Field Gate

Aim: To facilitate livestock management in association with preventing livestock accessing water courses or introducing livestock where new fencing is required.

Guidelines: This option is for field gates that are 3 metres wide or more.

These must be galvanised metal or be soundly constructed using wooden materials. All gates must correspond in height to the adjoining fence and be fitted with the appropriate fittings required for their operation.

Gates must be hung and clapped independently of the adjoining fence line i.e. the hanging post must not be used as an end strainer.

Gate posts shall either be set not less than 900 mm into the ground and surrounded with concrete not less than 450x450x600 mm deep; or, where ground conditions are suitable, may be erected without concrete surrounds and shall be set at least 1.1 metres below the ground surface with the soil well compacted around the posts.

The top of the posts should be weather capped.

Where possible and when creating new fence lines do not locate gateway at the lowest point of the field where it may become a pathway for surface water flow.

River gates

These are used to keep watercourses stock-proof and should be designed to float up/down as the water levels rise and fall. The gate must be made to fit the profile of the water course.

The optimum method of fixing to the fence line above is usually by chain, secured by shackles. The river gate can be constructed by using sawn timber rails 38 mm x 87 mm, nailed with galvanised nails.



Gateway Relocation

Aim: To relocate gates and gateways to eliminate run-off pathways and therefore reduce the potential for soil erosion and pollution.

Eligibility:

- This option can only be used for moving gateways used by farm traffic.

Guidelines: Use new hanging and shutting posts in the new gateway.

Leave the existing gate posts where they are.

Re-route the existing trackways associated with the gateway. Make good the disused sections – where required loosen and remove any wheel ruts or re-profile field edge to remove potential pathways for surface water.

Gap up the old gateway using materials that match the character of the rest of the boundary.

You may require consents and advice in the following circumstances:

- 1) From the Local Planning Authority where the new gateway gives access onto a highway or Byway Open to All Traffic (BOAT);
- 2) From the Highways Authority where a Public Right of Way passes through the existing or new gateway;
- 3) From a Historic Environment specialist where the gateway is on an historic routeway.

It is your responsibility to gain the necessary advice and consents should you require them.



Gateway Resurfacing

Aim: To reduce run-off through compacted and rutted gateways and therefore reduce the potential for soil erosion and pollution.

Guidelines: Excavate the full width of the gateway by the length of the gate into the field (opened at 90 degrees). Where a gate isn't being used, the entrance should be stoned area should be at least 2 metres wider than your widest vehicle and project at least 3 metres into the field or to the track / road if shorter unless otherwise agreed with your South Staffs Water Advisor.

Excavate to a minimum depth of 150 mm or down to a naturally occurring sub-base.

Remove the excavated soil from the immediate gateway area, spread it on the verges of the field track and profile as necessary to permit drainage.

Do not spread the soil on environmental, historic or archaeological features.

Overlay the excavation with a geotextile membrane and apply aggregate/hardcore to a minimum consolidated depth of 150 mm.

Aggregate / hardcore must be sourced quarried stone / gravel, not hardcore derived from construction / demolition waste.

You may require consents and advice in the following circumstances:

- 1) From the Highways Authority where a Public Right of Way passes through the existing or new gateway.

It is your responsibility to gain the necessary advice and consents should you require them.

Machinery Washdown Areas

Aim: To build a machinery wash-down area to contain and manage the silt that would otherwise enter storm drains and ultimately watercourses.

Eligibility:

- **New construction must avoid historic or archaeological features or areas of existing wildlife interest.**
- **It is your responsibility to check if permissions such as planning permission (Local Authority) or approvals (e.g. Environment Agency) are required.**

This is not to be used as a pesticide sprayer loading or wash-down area.

It is your responsibility to ensure:

- 1) The works must comply with relevant British Standards (BS).
- 2) It is your responsibility to examine copies of the relevant standards and use the most up to date version.
- 3) Any final discharge/disposal of effluent must meet current best practice and regulations.
- 4) Disposal of the sediment must meet current best practice and regulations.
- 5) The design, use and maintenance must meet Health and Safety requirements.

Guidelines: Concrete area

It is your responsibility to ensure that the wash-down area, including fittings, withstands expected loads.

Excavate an area 1.0 m wider than required and at least 150 mm deep, or down to a naturally occurring hard surface.

Soil/spoil must be disposed of in a responsible manner.

If excavation ends on sub-soil, overlay the excavation with a geotextile membrane and fill the trench with stone or hardcore to a depth of at least 150mm and compact.

Aggregate/hardcore must be sourced quarried stone/gravel, not ungraded hardcore derived from construction/demolition.

An impermeable membrane of a suitable grade should be installed (i.e. between the hardcore and the concrete).

Construct the surface of the wash-down area using a minimum of 150 mm thick concrete on at least 150 mm thickness of compacted and blinded hardcore.

Reinforce the slab to minimise cracking and distribute the loads exerted by vehicles.

Consider using concrete kerbs of an appropriate standard to protect the edge the concrete pad where machines enter/exit the area.

Lay the concrete in bays/sections and treat all joints with an appropriate sealant that is resistant to effluent attack and high pressure water from the pressure washer.

Do not fully load concrete until it achieves its design strength (equivalent to 28 day strength).

Direct run-off to a drain outlet e.g. heavy duty, hot dipped galvanised gratings which complies with slow moving wheel load bearing requirements and is rated to take in excess of the heaviest load.

Connect to a silt trap tank.

Install a silt trap tank that will allow sediment to be removed from the washings. Install as per the manufacturer's guidance. The silt trap will typically contain a number of chambers to slow the flow and allow silt to settle. The silt trap can be connected to a secondary holding tank.

Where pollutants such as oil are likely to enter the silt trap then you must amend the design accordingly to meet current best practice and regulations (see Environment Agency guidance).

This may be a closed system where the effluent and sediment is removed and either the treated water re-used, disposed of in accordance with current regulations or an outflow may be installed if this meets current best practice and regulations.

Ensure that appropriate access to maintain the tanks is installed.

Consider roofing the area/ making adjustments to minimise rainwater filling up the system.

Pesticide Sprayer Loading/Wash-down area

Aim: The aim of the pesticide sprayer wash-down area is to create a dedicated area for safe pesticide loading and for sprayer wash-down.

40% of pesticide losses occur at the pesticide wash-down or handling area on farms.

The implementation of specially designed and designated wash-down and handling areas can reduce the loss of pesticides through the reduction of accidental point source pollution.

Pesticide handling and wash-down areas should capture washings and spills from sprayers and should comply with the Pesticide Handling and Biobeds Manual. www.voluntaryinitiative.org.uk/media/635211/Design_manual_updated_922015.pdf

Eligibility:

- **Location must not be within 10m of any field drains, watercourses or water bodies. Location must not be within 50m of a borehole, spring or well.**
- **Area must not be vulnerable to lots of water ingress.**

Guidelines: Remove topsoil and excavate an area for the wash-down area and tank. Remove and divert any field drains that may cross the site.

Cover the excavated site with 140 mm to 160 mm of well compacted hardcore and at least 25 mm of sand blinding. Lay a damp proof membrane of at least 1200g weight. Then lay a reinforced concrete slab at least 150 mm thick to falls of not less than 1:100.

Install a new bunded impermeable concrete loading area, holding tanks, and any necessary fixed pumps and pipework for removing washings from the installed holding tank.

External edge concrete bunding needs to be at least 100mm high and 300mm wide.

Use an impermeable surface material with concrete joints being sealed with a proprietary sealant.

Concrete bunded area should accommodate for the sprayer transport width with an addition of 2m and length plus 1.5m. Remember to allow for larger sprayers e.g. contractor or should a larger machine be purchased in the future.

The bunded concrete slab must have a slotted cover type drain installed, which is connected to a silt trap with removable cover with a nominal capacity of 250 mm below inlet. Or, concrete must be laid sloping 4 ways to the centre of the slab where a drain is situated, with a silt trap within this drain.

Direct the drain with silt trap to a tank or chamber (tanks greater than 1500 litres must be agreed with the Environment Agency) from which the pesticide washings can be pumped and disposed.

The storage/holding tank may be made from seamless polyethylene, glass-reinforced plastic (GRP) or pre-cast concrete conforming to British Standards and should be sized according to the local rainfall and the area of concrete (if there is no roof or cover).

Pesticides washings will be pumped and directed to an approved pesticide treatment system such as a biobed or biofilter.



Piped Culvert Installation

Aim: To prevent livestock accessing water courses which can increase bank erosion, siltation and faecal contamination of the water course.

Eligibility:

- You may need to consult the Environment Agency (EA) before commencing any work as you may require a 'land drainage consent' to work in the watercourse. Retain a copy of their advice with together with a copy of any consents.
- You may need to consult the flood defence consenting authority in the case of an ordinary watercourse which is managed by a local authority and submit a copy of their advice and any consents with your application.
- You can check if EA or local authority permission is required at: www.gov.uk/permission-work-on-river-flood-sea-defence
- This option cannot be used where it would lead to damage to historic or archaeological features.
- This option cannot be used where it would restrict movement of migratory fish or eels.

Guidelines: Install a concrete pipe at least 450 mm in diameter following the manufacturer's instructions.

Pipes must have a positive joint to preserve alignment. Culverts must be constructed using concrete pipes that comply with BS 5911 and BS EN 1916, pipework must be laid in accordance with BS 8000.

The length of the pipes must provide a useable width at ground level for normal traffic using the crossing. The minimum width for a culvert used by wheeled traffic is 4 m.

Set the pipes on a firm bed and in true alignment. Pipe gradient must approximate to that of the ditch bed.

Ensure that the pipe invert at the upstream end is fractionally below the bottom of the true ditch bed.

Headwalls must be constructed at each end of the pipe to prevent the track surface and soil from washing / falling into the watercourse.

Rainwater goods

Aim: To prevent the discharge of clean storm water onto livestock yard areas and help minimise risk of water pollution.

Guidelines: Install new guttering and downpipes on existing farm yard buildings.

Direct clean water from new rainwater goods into a clean water drain

This option can also be used for the installation of new underground clean water pipe.

Where downpipes connect to underground pipework, the fittings must be seal and/or the receiving drains must stand proud of the finished yard surface by at least 50mm so as to prevent dirty yard water entering.

Inspection chambers should be positioned at regular intervals and at every change of direction to allow for access to rod / jet if required. Inspection covers must stand proud of the finished yard surface and/or seal so as to prevent the ingress of dirty water.

Pipework, chambers and inspection covers must meet required construction standard appropriate for the intended use (e.g. rated for weight of vehicle that may use the site).



Rainwater tanks – above ground*

Aim: To support the collection and storage of rainwater that can be used on farm for a range of purposes such as yard washing or filling sprayers.

Guidelines: Install a new above-ground storage tank on hardstanding, concrete or suitable support according to the manufacturer's instructions at a location agreed with your South Staffs Water Advisor.

Any surplus / overflow water must be directed to a dedicated clean storm water drain so as not to become contaminated with any yard washings.

Consider using in conjunction with a 'first flush diverter / filter' to prevent debris and contaminants entering the storage tank.



Rainwater tanks – below ground*

Aim: To support the collection and storage of rainwater that can be used on farm for a range of purposes such as yard washing or filling sprayers.

Guidelines: Install a tank and pump following the manufacturer's instructions at a location agreed with your Catchment Sensitive Farming Officer. Tanks must be made from glass-reinforced plastic (GRP) and/or pre-cast concrete.

Backfill with concrete to cover the tank and make good.

When using for clean storm water storage: consider using in conjunction with a 'first flush diverter / filter' to prevent debris and contaminants entering the storage tank.

*Please note

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up to date version.

You must check with your Local Planning Authority whether planning consent is required.

Roofing for Livestock

Aim: To prevent rainfall increasing the volumes of contaminated water that require management and treatment within, livestock gathering areas, manure storage areas, slurry and silage stores.

Guidelines: If any part of the roof supporting structure forms part of the silage or slurry store, consult the Environment Agency, obtain any necessary consents, and submit a copy of their advice, together with any consents, with your application.

Check with your Local Planning Authority whether planning consent is needed and submit a copy of their advice, together with a copy of any consent, with your application.

Build a roof structure impermeable to rainwater and include guttering and drains to direct all roof water away from the, livestock gathering area, manure store, slurry or silage store into a clean water drain.

Drainage works must comply with any building and local authority requirements.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up to date version.



Roofing for Pesticide / Sprayer Washdown area

Aim: The aim of the pesticide sprayer wash-down area is to create a dedicated area for safe pesticide loading and for sprayer wash-down.

40% of pesticide losses occur at the pesticide wash-down or handling area on farms.

The addition of roofing to a specially designed and designated wash-down and handling area will prevent rainwater from entering the preparation area where it could become contaminated and would add to the volume of washings having to be treated by a biofilter or biobed.

Guidelines: This option is available for roofing over a bunded concrete pad used as a pesticide handling area only where all pesticide washings drain to a holding tank (sump).

Check with your Local Planning Authority whether planning consent is needed and submit a copy of their advice, together with a copy of any consent, with your application.

Build a roof structure impermeable to rainwater and include guttering and drains to direct all roof water away from the wash-down area (and not onto yard areas which may become fouled).

The roof must cover the bunded area with an additional 1.5m overhang on all sides. This option does not pay for cladding the sides of the structure, but where the sides are clad with solid sheeting then, in discussion with you South Staffs Water advisor, the requirement for the overhang on the roof can be reduced.

Drainage works must comply with any building and local authority requirements.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant standards and use the most up to date version.

Solar Panel Water Pump

Aim: Livestock accessing the watercourse or poaching ground in/near to water courses can increase bank erosion, siltation and faecal contamination of the watercourse.

This option will provide a new drinking source where livestock currently access the watercourse to drink.

Guidelines: To be used for the provision of livestock drinking water for fields that are adjacent to a watercourse which livestock previously accessed to drink from.

Install as per manufacturer's guidance.

Should only be installed by watercourses that are fenced from livestock.

The water trough should be located on land not vulnerable to soil erosion, poaching or run-off, not located within 10 metres of a watercourse and cannot be located within 50 metres of a borehole or reservoir.

Avoid poaching around water trough – see the requirement for hardstanding in 'Additional Information' below.

The water trough and pump should be checked on a regular basis to ensure that the intake is clear/free from debris, there are no water leaks and that the pump is operating effectively.

Ensure that the pump and solar panel are secure from damage by stock and so as to reduce the risk of theft.

Additional information:

You are entitled to apply for one drinking trough (SSW30) per field and it is a requirement that there is an area of hard standing of the minimum width of 2.5 metres around the water trough; this hardstanding can be paid for through the Hard Bases for Livestock drinkers option (SSW29).

You may apply for a fencing option to exclude livestock from the watercourse.

This item cannot be used within buildings or yards.

Tracks for Livestock and Machinery

Aim: To build new farm tracks to prevent erosion problems caused by livestock or machinery movements.

Eligibility requirements:

- New tracks must avoid historic or archaeological features or areas of existing wildlife interest.
- If the proposed route is a Public Right of Way you must consult the Local Highways Authority and submit a copy of their advice with your application.
- It is your responsibility to check if permissions such as planning permission is required.

Guidelines:

HARDCORE TRACK

Excavate a trench 1.0 m wider than the widest machine that will use the track or a minimum of 2.4 m wide and at least 150 mm deep, or down to a naturally occurring hard surface.

Use the soil to profile the edge of the track.

If above excavation ends on sub-soil, overlay the excavation with a geotextile membrane and fill the trench with stone or hardcore to a depth of at least 150 mm and compact.

Aggregate / hardcore must be sourced quarried stone / gravel, not ungraded hardcore derived from construction / demolition.

A geotextile membrane is not required if the excavation lies on stone or chalk.

Finish the top of the track with a wearing course, 18 mm to dust, to a depth of 25 - 50 mm and compact it into a convex camber.

Consider the installation of cross-drains (option SSW33) on where there is a gradient on the track that will cause water to run-down it and may erode the surface.

Direct any track run-off to a ditch or other stable drainage outlet (e.g. soakaway), or divert onto grassland; you should agree this with your South Staffs Water Advisor.

TRACK USING CONCRETE SLEEPERS

As above apart from: Invert the concrete sleepers and lay slightly proud of the ground. Lay the sleepers directly onto a level firm surface, and butt them up against each other to form the track.



Troughs

Aim: To provide new troughs. Properly located troughs will protect water courses by preventing livestock from accessing or poaching ground near to water courses which can increase bank erosion, siltation and faecal contamination of the water course.

Eligibility requirements:

The trough must not be located:

- under housing or roof structures; or
- within 10 m of watercourses; or
- on areas vulnerable to soil erosion; or
- within 6 m of historical or archaeological features.

Guidelines: The trough must be of galvanised steel, concrete, spray-moulded glass-reinforced cement (GRC) or polyethylene, and have a ball valve and service box. Water troughs must comply with BS 3445.

The trough must be either connected to a water supply or supplied from a bowser on a regular basis. If you use a mains water supply, you must comply with The Water Supply (Water Fittings) Regulations 1999 (as amended).

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant Standards and to use the most up to date version.



Trough Hardbases

Aim: To provide new troughs that are located to prevent livestock from accessing or poaching ground near watercourses which can increase bank erosion, siltation, and faecal contamination of the watercourse.

Eligibility:

The trough must not be located:

- under housing or roof structures; or
- within 10 m of watercourses; or
- on areas vulnerable to soil erosion; or
- within 6 m of historical or archaeological features.

Guidelines: Excavate the soil to a minimum depth of 150 mm or down to a naturally occurring hard surface.

The excavated area around the drinking trough must extend to a minimum width of 2.5 m.

Lay a geotextile membrane over the excavated area.

Place hardcore on the membrane and compact well to a minimum depth of 150 mm.

Blind (apply a fine surface-stone layer) the finished hard-core area to a depth of at least 50 mm.

Edge the hard base with timber boards or concrete / concrete kerbs

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant Standards and to use the most up to date version.

Aggregate / hardcore must be sourced quarried stone / gravel, not hardcore derived from construction.



Trough Pipework

Aim: To provide pipework for new troughs. Properly located troughs will prevent livestock accessing or poaching ground near to water courses which can increase bank erosion, siltation and faecal contamination of the water course.

Eligibility:

The trough must not be located:

- under housing or roof structures;
- or
- within 10 m of watercourses; or
- on areas vulnerable to soil erosion;
- within 6 m of historical or archaeological features.

Guidelines: Pipework must be medium-density blue polyethylene (with a minimum external diameter of 25 mm).

All joints must be made of brass or plastic and be watertight.

Bury pipework below cultivation depth and to a minimum depth of 600 mm or as determined by your local water supplier.

When crossing open ditches, cover the pipe with a tubular steel guard or sleeve pipe and lay it 600 mm below the ditch to allow for ditch cleaning.

When crossing farm tracks, lay the pipe on a 75 mm bed of sand and then cover by a further 100 mm of sand before backfilling.

The works must comply with relevant British Standards (BS). It is your responsibility to examine copies of the relevant Standards and to use the most up to date version.

