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Images provided by NFM Construction grant recipients and Herefordshire Council

Herefordshire Natural Flood Management (NFM)

Construction Grant Scheme Guidance Guide

Version 7 (May 2025)

Herefordshire Council

Contents

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Version	Date of publication	Details
V1	December 2022	-
V2	February 2023	-
V3	February 2024	Updated rates and grant items
V4	May 2024	Updated rates
V5	July 2024	Addition of tree protection grant item (NFM16c)
V6	July 2024	Increased grant value for NFM17 Landowner innovation
V7	May 2025	Updated rates, document formatting updated to improve accessibility

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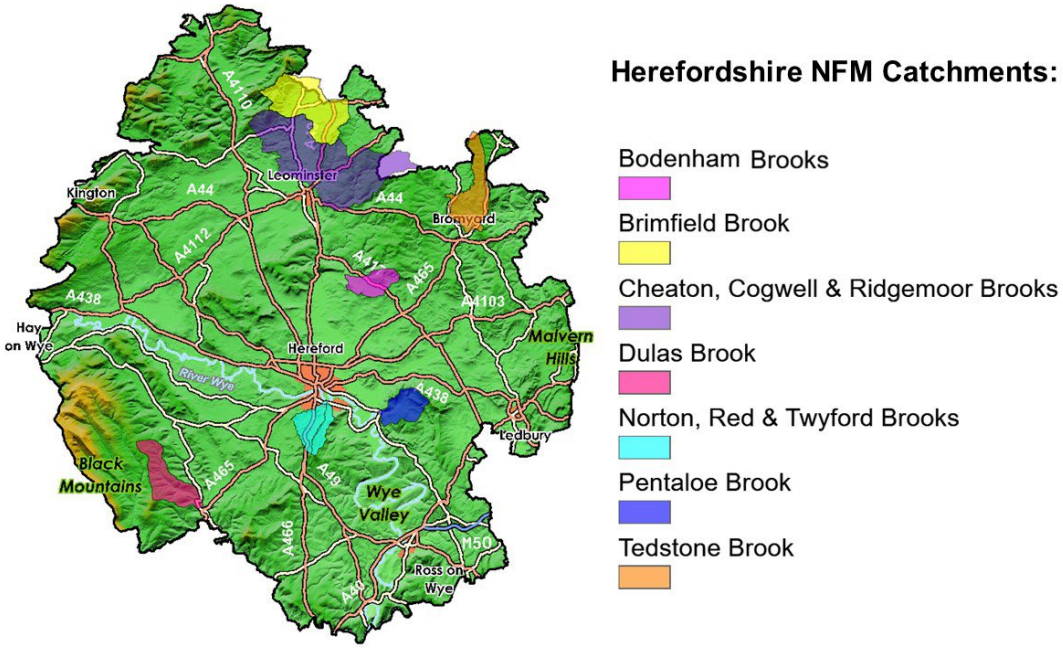
1. Introduction

Herefordshire Council is making grants available to support landowners and farmers in altering their land and water management practices to slow the flow of water and reduce flood risk to downstream communities. The Herefordshire NFM Construction Grant Scheme ('the scheme'), forms part of the Herefordshire NFM project ('the project') and is a continuation of the successful round of previous grants under the River Wye and Lugg Natural Flood Management (NFM) pilot project (2018 to March 2021). Grants are only available for NFM works delivered on land within the project's priority sub-catchments (Figure 1-1).

Figure 1.1 River Wye and Lugg NFM Project priority sub-catchments



More detailed catchment maps are available online.

1.1 Background

Grants issued under the scheme could help pay for the construction of features such as leaky dams and attenuation areas or contribute towards the cost of altering land management practices such as adopting better soil management practices. Whilst NFM will not resolve all flooding issues, NFM measures are part of the overall solution to reducing flood risk. They can help reduce the frequency and severity of flood events and also provide multiple benefits such as habitat creation and improved water quality.

2. What can be funded?

Table 2-1 details which NFM measures can be funded through the scheme, along with fixed unit costs for each item, the contribution rate offered and the maximum grant rate. Alternative items/ measures can also be proposed where there is a clear benefit to flood risk reduction (NFM17). Grant payments will only be released once we have received proof of satisfactory construction/ implementation and all supporting claim documentation (see Section 7). The technical specifications for the grant items are outlined in Section 9. **The NFM grants are competitive – not all applicants will be offered a grant.**

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Table 2-1 NFM grant costs and contribution rates (table over 2 pages)

Option Type	Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
Soil Management	NFM01	Grassland aeration	£35.11/ha [a]	50%	£17.56/ha
Soil Management	NFM02	Grassland sward lifting	£79.47/ha [a]	50%	£39.74/ha
Soil Management	NFM03	Arable subsoiling	£79.47/ha [a]	50%	£39.74/ha
Crop	NFM04	Catch/cover cropping	£129/ha [c]	75%	£96.75/ha
Crop	NFM05	Under sowing maize	£98.80/ha [d]	50%	£49.40/ha
In-field water storage	NFM06	Grass swales	£7.52/m^2 [c]	100%	£7.52/m^2
In-field water storage	NFM07	Sediment traps	£11.88/m^2 [c]	100%	£11.88/m^2
In-field water storage	NFM08	Attenuation ponds	£12/m^2 [d]	100%	£12/m^2
In-field water storage	NFM09	Earth bunds	£195.61/unit (100m of bund)[c]	100%	£195.61/unit (100m of bund)
In-field water storage	NFM10	Wetland area	£10/m^2 [d]	100%	£10/m^2
In-channel water storage	NFM11	In ditch seepage barriers	£198.14/barrier [c]	100%	£198.14/barrier
In-channel water storage	NFM12	Leaky dams	£85.29[c] - £764.42[b] /dam	100%	£85.29 - £764.42/dam
Fencing	NFM13a	Fencing – post, stock netting, 1 barb	£9.34/m [b]	100%	£9.34/m
Fencing	NFM13b	Permanent electric fencing	£5.66/m [c]	100%	£5.66/m
Fencing	NFM13c	Metal Field Gate	£340 each [b]	100%	£340 each
Fencing	NFM13d	Wooden field gate	£612 each [b]	100%	£612 each
Fencing	NFM13e	Gateway re-location	£369.59 each [c]	100%	£369.59 each
Trackway	NFM14	Cross drains	£750.26/unit [c]	100%	£750.26/unit
Tree planting	NFM15	Tree planting	£1.72/tree [b]	100%	£1.72/tree
Tree planting	NFM16a	Hedge planting	£22.97/m [c]	100%	£22.97/m
Tree planting	NFM16b	Standard hedgerow tree	£19.06/tree [c]	100%	£19.06/tree

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Option Type	Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
Tree planting	NFM16c	Tree shelter	£2.43/ shelter [b]	100%	£2.43/ shelter
Landowner innovation	NFM17	Landowner innovation	Up to £10,000*	TBC on application. 50-100%	Up to £10,000*
NFM Facilitation	NFM18a	Piped culverts	£376.23/unit [c]	TBC on application. 50-100%	Up to £2,500 total**
NFM Facilitation	NFM18b	Hard base for livestock drinkers	£179.15/base [c]	TBC on application. 50-100%	Up to £2,500 total**
NFM Facilitation	NFM18c	Livestock trough	£152.92 each [c]	TBC on application. 50-100%	Up to £2,500 total**
NFM Facilitation	NFM18d	Pipework associated with livestock troughs	£3.31/m [c]	TBC on application. 50-100%	Up to £2,500 total**

Consents/Permissions: Dealt with on a case-by-case basis. Funding is not guaranteed.

***NFM17 -** Larger grants may be available if it can be demonstrated that the scheme will deliver acceptable flood risk benefits
****NFM Facilitation NFM18a, 18b, 18c, 18d** – total combined maximum grant contribution of £2,500

Source of Rates – rates checked and correct on 6 May 2025:
a National Association of Agricultural Contractors (NAAC) Contracting prices.
b England Woodland Creation Offer (EWCO) rates.
c Countryside Stewardship rates.
d Based on local information and experience gathered through the Pilot Project or from our Project partners

Notes:

- The maximum grant rate is the maximum value payable for a specific grant item. i.e. for an attenuation pond, this would be 100% of the spend (to a total maximum of £12/m^2).
- National, published grant values have been used wherever possible. If this is not available, locally sourced values have been used (based upon information gathered through the Pilot Project or from our Project partners). Grant values may change and are subject to interim evaluations.
- If the cost of works exceeds the grant maximum, the landowner would be responsible to finance the excess cost.
- Works cannot be funded retrospectively.
- Any variations to the grant offer must be agreed in writing before works are undertaken – the council can only pay against what was offered and what was applied for.
- Whilst the cost of obtaining consents and permissions to deliver the NFM measures can be included within a grant application, their funding will be dealt with on a case-by-case basis and is not guaranteed.
- As the size, design and construction techniques for leaky dams are site specific, these grants will be dealt with on a case-by-case basis and require a quote. As a guide, the following national, published grant values exist for leaky dams; £85.29/ check dam, £461.39/ small leaky dam (1-2.99m wide) and £764.42/ large leaky dam (3-5 m wide). Additional information, including quotes detailing any associated costs are required.
- Applications for NFM Facilitation options (NFM18) are NOT guaranteed and will only be supported if they are integral to the successful delivery of a wider NFM scheme. The funding available for NFM18 NFM Facilitation will need to be proportionate to the overall cost of the substantive NFM project and will be dealt with on a case by case basis.

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3. Funding criteria

Works that CANNOT be funded include:

- Those already completed prior to grant approval
- Those funded from another grant scheme (such as the Countryside Stewardship Scheme, Sustainable Farming Incentive or England Woodland Creation Offer)
- Those relating to regulatory requirements (such as Farming Rules for Water)
- Those relating to statutory planning requirements

The following rules apply to applications:

1. They must be for NFM measures detailed within the NFM Construction Grant Scheme Guide (this document) that help to reduce flood risk within one of the seven priority sub-catchments (Figure 1-1). Detailed catchment maps are available.
2. They must be made by the landowner or by a consultant/ tenant acting on their behalf.
3. NFM measures funded by the scheme must be delivered within 18 months of the grant offer unless otherwise agreed in advance.
4. They must demonstrate achievement of best value for money.
5. Items must have a minimum design life of at least 5 years. Note grant items NFM01, NFM02, NFM03, NFM04, NFM05, NFM17 (case dependent) and NFM18 (case dependent) are excluded from this requirement.
6. Works must conform to all relevant health and safety legislation and British/ European Standards or equivalent.
7. Relevant permissions and consents must be obtained where appropriate. For further guidance, please see the NFM consenting flow charts which are available online.
8. They must meet the minimum monitoring requirements (see Section 11).
9. Flora and fauna must be protected in the delivery of NFM measures.
10. Photographs of the completed project must be supplied.
11. Quote/quotes must be provided for grant items: NFM12 and NFM17. Further information about quote requirements is contained within Appendix C.

4. Who can carry out the works?

Works funded through the scheme can be conducted by the applicant or by contractors engaged to complete the work and must be carried out in accordance with the specifications outlined in Section 9. It is the applicant's responsibility to ensure they follow appropriate health and safety procedures and obtain all relevant permissions and consents.

5. Maintenance requirements

Whilst it is anticipated that NFM structures require minimal/ no maintenance, over time the measures will alter naturally and may degrade. Note that NFM measures implemented through the Herefordshire NFM Project are designed to be low risk in the event of damage. In the event of any concerns or any queries, please contact Herefordshire Council's NFM Project Officer (nfm@herefordshire.gov.uk).
Applicants are responsible for ensuring NFM measures funded through the scheme are maintained and kept in good condition for at least 5 years after completion. Applicants are

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also responsible for carrying out any required repairs in a timely manner and for keeping records of any maintenance activities carried out (and any associated costs). Such information will help to inform future NFM activities.

The following grant items are excluded from this requirement: NFM01 (Grassland aeration); NFM02 (Grassland sward lifting); NFM03 (Arable subsoiling); NFM04 (Catch/cover cropping); NFM05 (Under sowing maize); NFM17 (Landowner innovation – case dependant); and NFM18 (NFM Facilitation – case dependant).

More details about recommended maintenance requirements can be found within Section 9.

6. Value added tax

Where the applicant is able to claim VAT, the grant will be paid at net. Where the applicant is unable to claim VAT, the grant will be paid at gross.

7. Application process

To apply for funding through the scheme, please follow the six steps:

Step 1: Eligibility Check

- ☐ Are the proposed NFM works within one of the seven priority sub-catchments (Figure 1-1)?
- ☐ Are you the landowner, or a consultant/tenant acting on their behalf?
- ☐ Will the proposed NFM measures help reduce flood risk?
- ☐ Is the application for an NFM measure detailed within this scheme (Table 2-1)?
- ☐ Will good value for money be achieved?
- ☐ Are you happy to commit to the Terms and Conditions detailed in Appendix A, including the minimum monitoring requirements?
- ☐ Will the proposed works be completed within 18 months of the grant offer unless otherwise agreed in advance?
- ☐ Is this the only funding source being used to deliver the proposed NFM?
- ☐ Is the application for works that are still to be implemented?
- ☐ Is the application for works that are not related to regulatory requirements (such as Farming Rules for Water)?
- ☐ Is the application for works that are not related to statutory planning requirements?

If the answer to all the questions detailed above is YES then please go to STEP 2. If not, please get in touch with Herefordshire Council's NFM Project Officer to discuss your application.

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Step 2: Make An Application

Complete the application form and send to delegatedgrants@herefordshire.gov.uk.

Assistance can be provided by the relevant Catchment Advisor or Herefordshire Council's NFM Project Officer.

1. **Note the following information will need to be provided as part of the application:**
   - ☐ Confirmation that:
     - You are not receiving other funding to deliver the items detailed within your grant offer.
     - The items detailed within the grant application are not related to regulatory requirements (such as Farming Rules for Water)
     - The items detailed within the grant application are not related to statutory planning requirements
   - ☐ Applicant details, including VAT status.
   - ☐ Brief description of the existing land use.
   - ☐ Map showing location, type and extent of proposed NFM measures.
   - ☐ Details as to how the proposed works will help reduce flood risk.
   - ☐ An overview of the proposed works, including details of who would carry out the work and a proposed timescale for delivery.
   - ☐ Photographs of the site before the NFM work has been implemented.
   - ☐ Additional information such as NFM advisory report, any consents/ permissions required, quotes for works (if relevant – quote requirements detailed in Appendix C), details of any known protected species present.
   - ☐ Maps showing the extent of any environmental designations or historic designation at or near the site/ proposed NFM.
   - ☐ Details of any additional benefits that would be delivered.

2. **Submit completed application forms to delegatedgrants@herefordshire.gov.uk highlighting any timing issues that require the application to be appraised urgently.**

Step 3: Application Review

- Applications that meet the scheme's eligibility criteria (Step 1) will be reviewed by Herefordshire Council's NFM Project Team.
- The Council may request additional information to fully assess an application (the application will be put on hold until the requisite information is provided).
- Please note that this is a competitive grants scheme – funding is not guaranteed to all applicants. The Council may decide to award funding for some (and not all) of the grant items applied for.

Step 4: Decision Issued On Grant Application

- The applicant will be notified by letter of the outcome of their application within 6 weeks of all relevant information having been received. The letter will detail the grant offer – including the value of grant funding allocated to eligible NFM grant items and any conditions related to the grant offer. The letter will also contain the grant claim form that needs to be submitted once the works are complete.

- **If successful, the applicant will be asked to sign and return a grant acceptance form which will include the Terms and Conditions of the grant (detailed in Appendix A).**
- **Acceptance forms should be sent to delegatedgrants@herefordshire.gov.uk**
- **Any variations to the grant offer must be agreed in writing before works are undertaken** – we can only pay against what was offered and what was applied for. If any variations to the offer are required, please contact nfm@herefordshire.gov.uk.

Step 5: Implement NFM Measures

- The applicant should complete the agreed NFM works in accordance with the scheme offer letter (ensuring any necessary permits/ consents are obtained before starting the work).
- Once the works are completed, the applicant should contact their Catchment Advisor to arrange for a post NFM implementation survey to be carried out.

Step 6: Get Paid For The NFM Works

1. Complete the grant claim form which was contained within the offer letter.

The following additional information is also needed to process grant claims:

- ☐ Completed grant claim form.
- ☐ Post NFM implementation survey – produced by Catchment Advisor
- ☐ Photographs of the site after the NFM work has been implemented.
- ☐ Invoices for works completed and relevant Bank Statements (for additional guidance see Appendix C)
- ☐ Details of any additional benefits that have been delivered.
- ☐ Additional information such as any information relating to specific grant conditions.
- ☐ Evidence of obtaining all relevant consents/ permissions.

Completed claim forms and supporting information should be sent to delegatedgrants@herefordshire.gov.uk

2. The council will review grant claims and make a recommendation for a payment to be made, subject to all relevant information and evidence being provided. Please note that should the council request additional information, the grant claim will be put on hold until the requisite information is provided.

3. **The council will arrange for a payment to be made in accordance with the grant offer.**

8. Key contacts

If you have any queries about the NFM Construction Grant Scheme or the Herefordshire NFM project, please contact Herefordshire Council's NFM Project Officer. Herefordshire Council's Delegated Grants Team are also available to provide support with specific grant applications (Table 8-1).

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Table 8-1 Key contacts

Contact	Contact details
NFM Project Officer/ Team, Herefordshire Council	01432 383 766 nfm@herefordshire.gov.uk
Delegated Grants Team, Herefordshire Council	delegatedgrants@herefordshire.gov.uk

9. Scheme item specifications

Funding for NFM measures covered by this grant scheme, including the design requirements, are as follows:

9.1 Soil management options

Description

Compacted soils are associated with reduced infiltration rates, meaning that during rainfall events, water is unable to drain into the ground effectively, resulting in higher volumes and velocities of surface water flowing across the land, increasing flood risk. Compacted soils are also associated with increased levels of soil erosion, which can result in increased sediment inputs into the watercourse, further increasing the flood risk.

The water holding capacity of the soil is also related to soil health (soil organic matter content/soil structure). Many techniques are available to try and reduce soil compaction and improve soil health including grassland aeration, sward lifting and arable subsoiling.

NFM Grant items

The scheme includes three soil management grant options:

Table 9-2 Soil management options available through the scheme

Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
NFM01	Grassland aeration	£35.11/ha [a]	50%	£17.56/ha
NFM02	Grassland sward lifting	£79.47/ha [a]	50%	£39.74/ha
NFM03	Arable subsoiling	£79.47/ha [a]	50%	£39.74/ha

Source of Rates:
a National Association of Agricultural Contractors (NAAC) Contracting prices.

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NFM01 Grassland aeration

Grassland aeration involves the use of specialist machinery to mechanically spike the topsoil (<10 cm depth), allowing air and water to permeate. This process helps reduce soil compaction at the surface as well as helping to oxidise the soil, encouraging better root growth and water infiltration into the soil.

Flood risk benefits:

- Reducing soil compaction helps to reduce overland flows of water
- Healthy soils are able to store more water
- Promotes strong root growth which improves the connectivity with groundwater

Agricultural benefits:

- Aerated soils promote the movement of nutrients, water and air through the soil profile.
- Reduced soil and nutrients losses
- Reduced waterlogging – increases number of available grazing days, improves access to field.
- Promotes strong root growth and efficient crop growth - reduces the need for fertiliser applications.

Design:

Soil tests and advice - A specialist soil husbandry advisory visit must be conducted to assess the soils prior to an application being made for this grant item. Project Catchment Advisors are able to conduct these visits and tests free of charge. Please contact your relevant advisor to arrange this visit. **Results from these soil tests must be submitted with your grant application.**

Maintenance: Low – No specific maintenance requirements, however care should be taken to prevent further soil compaction.

Figure 9.1 Grassland aeration – NFM Construction grant scheme recipient (2019)

Method:

- Expert advice should be sought on the use of appropriate machinery.
- The type of machinery required depends on the soil type, texture and the depth of compaction, but is likely to include shallow spiking.
- To maximise the benefit and avoid any further soil compaction, only use machinery when the soil is dry at the depth that is to be loosened. It is possible that this process may cause initial damage to the root system for grassland fields.

Consents: It is unlikely that you will need to obtain any permissions or consents in order to conduct grassland aeration, however if the land is on or near land which is protected by environmental designations, historic designations or is home to a protected species then it is possible consents will be required. Further guidance available in NFM Consenting Flow charts.

NFM Construction Grant Scheme funding: £35.11/ ha at 50% contribution rate (£17.56/ha)

Remember, you will need to make sure you comply with Farming Rules for Water.

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NFM02 Grassland sward lifting

Grassland sward lifters can be used to reduce soil compaction in the top soil (20 – 35 cm depth). The sward lifter has legs with shin plates which initially cut down below the soil compaction layer and then lift up through the soil profile, breaking up the layer of compaction. A packer roller typically follows the cutting legs on the surface, helping to close the soil openings, preventing soil moisture loss and leaving an even finish.

Flood risk benefits:

- Reducing soil compaction helps to reduce overland flows of water
- Healthy soils are able to store more water

Agricultural benefits:

- Improved soil structure promotes the movement of nutrients, water and air through the soil profile.
- Reduced soil and nutrients losses
- Reduced waterlogging – increases number of available grazing days, improves access to field.
- Improved crop yields

Design: Soil tests and advice - A specialist soil husbandry advisory visit must be conducted to assess the soils prior to an application being made for this grant item. Project Catchment Advisors are able to conduct these visits and tests free of charge. Please contact your relevant advisor to arrange this visit. **Results from these soil tests must be submitted with your grant application.**

Maintenance: Low – No specific maintenance requirements, however care should be taken to prevent further soil compaction.

NFM Construction Grant Scheme funding: £79.47/ ha at 50% contribution rate (£39.74/ha)

Figure 9.2 Sward Lifter (Scotland's Farm Advisory Service, Technical note TN739, 2020)

Method:

- Expert advice should be sought on the use of appropriate machinery, leg depth and spacing, and the timing for conducting the sward lifting (normally autumn).
- Sward lifting needs to be conducted in optimum soil moisture conditions to prevent damage to the soil structure.
- Work across slope where possible to reduce risk of erosion in channels.
- For several weeks after sward lifting the use of heavy machinery or grazing should be avoided in the field to prevent re-compaction and allow time for roots to re-establish.

Farm Advisory Service website has more guidance.

Consents: It is unlikely that you will need to obtain any permissions or consents in order to conduct grassland sward lifting, however if the land is on or near land which is protected by environmental designations, historic designations or is home to a protected species then it is possible consents will be required. Further guidance available in NFM Consenting Flow charts.

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NFM03 Arable sub-soiling

Arable sub-soiling involves the use of specialist machinery to penetrate the soil and break up the compacted layer within the soil. The machinery can be set to the specific depth of the soil compaction layer, helping ensure it is a targeted approach to management. Sub-soiling is often used in arable fields to reduce deep layers of compaction (> 35cm depth).

Flood risk benefits:

- Reducing soil compaction helps to reduce overland flows of water
- Healthy soils are able to store more water

Agricultural benefits:

- Improved soil structure promotes the movement of nutrients, water and air through the soil profile.
- Reduced soil and nutrients losses
- Reduced waterlogging – increases number of available grazing days, improves access to field.
- Improved crop yields

Design: Soil tests and advice - A specialist soil husbandry advisory visit must be conducted to assess the soils prior to an application being made for this grant item. Project Catchment Advisors are able to conduct these visits and tests free of charge. Please contact your relevant advisor to arrange this visit. **Results from these soil tests must be submitted with your grant application.**

Maintenance: Low – No specific maintenance requirements, however care should be taken to prevent further soil compaction.

Remember, you will need to make sure you comply with Farming Rules for Water.

Figure 9.3 Arable sub-soiling – NFM Construction grant recipient (2019)

Method:

- Expert advice should be sought on the use of appropriate machinery.
- The type of machinery required depends on the soil type, texture and the depth of compaction.
- To maximise the benefit and avoid any further soil compaction, only use machinery when the soil is dry at the depth that is to be loosened. It is possible that this process may cause initial damage to the root system for grassland fields.

Consents: It is unlikely that you will need to obtain any permissions or consents in order to conduct arable sub-soiling, however if the land is on or near land which is protected by environmental designations, historic designations or is home to a protected species then it is possible consents will be required. Further guidance available in NFM Consenting Flow charts.

NFM Construction Grant Scheme funding: £79.47/ ha at 50% contribution rate (£39.74/ha)

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9.2 Crop options

Description

Bare soils are prone to soil erosion, compaction and high volumes of surface water runoff, resulting in increased local flood risk as well as increased loss of nutrients. By ensuring a crop is established at all times in the year, it is possible to protect the soils from wind and water, helping to reduce the risk of soil erosion and nutrient losses.

The crop also helps to reduce flood risk by increasing the levels of water interception, helping to reduce surface water runoff and increasing soil infiltration rates.

NFM Grant items

The scheme includes two Cover crop grant options (Table 9-2).

Table 9-1 Cover crop options available through the scheme

Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
NFM04	Catch/Cover cropping	**£129/ha** [c]	**75%**	**£96.75/ha**
NFM05	Under sowing Maize	**£98.80/ha** [d]	**50%**	**£49.40/ha**

Source of Rates:
c Countryside Stewardship rates.
d Based on local information and experience gathered through the Pilot Project or from our Project partners

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NFM04 Catch/ cover cropping

To prevent soils being left bare, fast growing crops, known as catch or cover crops, can be planted in between crops. Catch crops are grown in between successive main crops to provide continuous soil cover, whereas cover crops are non-cash crops which are grown in between regular crop production e.g. during the autumn or winter.

Flood risk benefits:

- Reduce surface water runoff due to increased infiltration rates, interception and surface roughness.
- Improved conveyance of water within the watercourse as reduced inputs from soil and sediment erosion.
- Improved soil water holding capacity due to improved soil health and organic matter content.

Agricultural benefits:

- Reduced soil and nutrients losses
- Nitrogen fixing capabilities of certain crops
- The use of deep rooting crops will over time result in improved soil health and crop yields
- Potential source of feed for livestock

Design: It is recommended that you discuss this option with an agronomist, as well as your Catchment Advisor.

A variety of plant species can be used for cover / catch crops including legumes, grasses and brassicas. Advice should be sought on the best variety/ mix to use on your land.

Maintenance: Low – After initial sowing and establishment it is possible that some areas may need re-seeding to ensure a good cover is established.

Figure 9.4 Cover cropping – Herefordshire Council (2019)

Method:

- Cover crops should be sown early, no later than 15th September, to ensure they are well established prior to wet weather conditions.
- Ploughing is not permitted to establish a cover crop, the use of light cultivation techniques is recommended.
- Catch/ cover crop must provide good ground cover.
- The crop must remain in situ until immediately before the establishment of the next crop (must be after 31st January). After this point the crop can be grazed.

Consents: It is unlikely that you will need to obtain any permissions or consents in order to conduct catch/ cover cropping, however if the land is on or near land which is protected by environmental designations, historic designations or is home to a protected species then it is possible consents will be required. Further guidance available in NFM Consenting Flow charts.

NFM Construction Grant Scheme funding: £129.00/ ha at 75% contribution rate (£96.75/ha)

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NFM05 Under sowing maize

A grass seed mixture is sown under the maize crop, ensuring that the ground remains covered and protected over the winter, following the maize harvest. The grass is grown in between the rows of maize.

Flood risk benefits:

- Reduce surface water runoff due to increased infiltration rates, interception and surface roughness.
- Improved conveyance of water within the watercourse as reduced inputs from soil and sediment erosion.
- Improved soil water holding capacity due to improved soil health and organic matter content.

Agricultural benefits:

- Reduced soil and nutrients losses
- Once the maize has been harvested the grass provides opportunities for grazing.
- Improved soil structure and soil health.

Design: It is recommended that you discuss this option with an agronomist, as well as your Catchment Advisor.

Maintenance - Low – No specific maintenance requirements, however care should be taken to ensure good ground cover is maintained.

Consents: It is unlikely that you will need to obtain any permissions or consents in order to under sow maize, however if the land is on or near land which is protected by environmental designations, historic designations or is home to a protected species then it is possible consents will be required. Further guidance available in NFM Consenting Flow charts.

Figure 9.5 Under sowing maize – Herefordshire Council (2019)

Method:

- Under sowing of maize should take place in the month following drilling of maize.
- Optimum time for under sowing maize is at the 6-8 week leaf stage, or 1 week after last herbicide application. More info on the field options website.
- Plant the grass in rows in-between the maize as this helps reduce competition with the maize crop.
- The under sown grass must provide good ground cover.
- The grass cover should remain in-situ following the maize harvest and should remain until the next crop is planted.
- Directly drilling the grass into the ground has been found to be more successful compared to broadcasting.
- Seek advice from the Catchment Advisor on the different species that can be used for under sowing maize e.g. Italian ryegrass.

NFM Construction Grant Scheme funding:
£98.00/ ha at 50% contribution rate (£49.40/ha)

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9.3 In-field water storage options

Description

Surface water flow pathways exist throughout the catchment, transporting water from the upper reaches of the catchment into the watercourse. These flow pathways can be rapid, causing erosion, transporting sediment and nutrients into the watercourse and increasing the flood risk within the catchment. In-field water storage/retention options are measures designed to intercept and temporarily store some of the surface water flow within the catchment. Collectively, these measures help slow the flow of water and reduce the peak flow within the watercourse, helping to reduce the risk of flooding to downstream communities. In-field water retention measures should be implemented in combination with measures which help deflect and direct surface water flow pathways into the attenuation features (cross drains/bunds).

NFM Grant items

The scheme includes five in-field water storage grant options (Table 9-3).

Table 9-1 In-field water storage options available through the scheme

Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
NFM06	Grass swales	**£7.52/m^2** [c]	**100%**	**£7.52/m^2**
NFM07	Sediment trap	**£11.88/m^2** [c]	**100%**	**£11.88/m^2**
NFM08	Attenuation area	**£12/m^2** [d]	**100%**	**£12/m^2**
NFM09	Earth bund	**£195.61/unit (100m of bund)** [c]	**100%**	**£195.61/unit (100m of bund)**
NFM10	Wetland area	**£10.00/m^2** [d]	**100%**	**£10.00/m^2**

Source of Rates:
c Countryside Stewardship rates.
d Based on local information and experience gathered through the Pilot Project or from our Project partners

Herefordshire Council

NFM06 Grass swales

Swales are shallow vegetated linear depressions/ channels within the landscape which temporarily store water. They are designed to store water, promote infiltration, slow the flow of water as well as delivering other benefits such as the settlement of sediment which helps improve local water quality. They can also be used to direct flow into other attenuation features and can have check dams installed within them to slow the flow of water further.

Flood risk benefits:

- Intercept surface water flow pathways, helping slow the flow of water.
- Temporary storage provides opportunities for infiltration and evaporation, helping reduce the flood peak.
- Swales allow sediment to settle, helping improve channel conveyance of water within the watercourse.

Agricultural benefits:

- Reduced soil loss.
- Provide opportunities to treat polluted water.

Consents: It is possible that you will need to obtain permissions and consents to construct a swale. Further guidance available in NFM Consenting Flow charts.

Maintenance: Low – vegetation in the swale will need to be controlled/ managed (kept at approx. 100 mm high) and sediment will need to be removed periodically.

Sediment removed from the swale could be spread on site, away from the floodplain, in agreement with the Environment Agency.

See U10 Waste Exemption Environmental Permit for guidance.

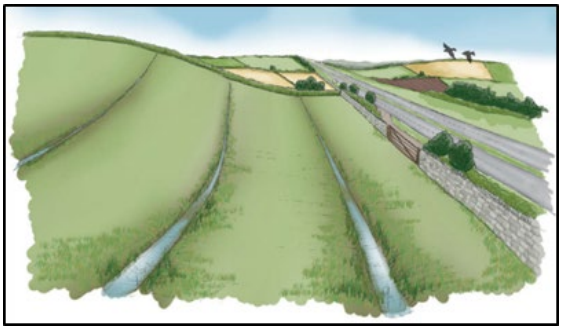

Figure 9.6 Cross-slope swales (Atkins Ltd, 2021)

Design:

- The swale should be designed to half empty within 24 hours following a rainfall event (CIRIA, 2022).
- Swales can be designed to have a wet base, which allows for the creation of wetland habitat, offering biodiversity and water quality benefits.
- Check dams can be installed across the swale to help slow the flow of water, reduce erosion and encourage sediment settlement. This works best in swales with a longitudinal slope greater than 3° (CIRIA, 2022).
- Vegetation within the swale helps slow down the flow of water, as well as encouraging infiltration, evaporation and the settlement of sediment.
- Design should take into account the slope of the land and follow contours.

Method:

- The swale should be excavated to a maximum depth of 750 mm.
- Topsoil should be stockpiled separately and used on the graded slopes and to replace the bottom 150-250 mm of soil in the swale.
- Side slopes should be no more than 1:3.

NFM Construction Grant Scheme funding:
£7.52/ m^2 at 100% contribution rate (£7.52/ m^2)

Herefordshire Council

NFM07 Sediment trap

Sediment traps are depressions within the landscape that are designed to interrupt surface water flow pathways, temporarily store water and provide opportunities for sediment and silt deposition, helping to maintain the capacity within the watercourse to manage flood water.

Flood risk benefits:

- Improved conveyance of water within the watercourse as reduced inputs from soil and sediment erosion.
- Temporarily store small volumes of water, helping reduce the flood peak.

Agricultural benefits:

- Helps maintain the capacity of downstream NFM measures, watercourses and ditches, meaning there's less maintenance needed.
- Top soil collected can be re-spread on land.
- Improves water quality.

Design:

- Locate on surface water flow pathway
- Can be used as pre-treatment for other NFM measures e.g. attenuation areas.
- Excavated area should have an inflow and outflow. It is advised that the outlet has some protection from erosion e.g. gravel or vegetation.
- Access will be required for dredging.
- Where conditions permit, water should be allowed to infiltrate into the ground.
- Work well as a series of features.

Figure 9.7 Sediment trap – Yorkshire Dales Rivers Trust - Tees Rivers Trust

Method:

- Excavate an area with gently sloping sides, which is located in a position which is capable of intercepting surface water flows.
- Excavated topsoil should be spread on the top of the embankments.
- For larger scale sediment traps, further advice should be sought from a qualified engineer.
- Inlets and outlets should be located 200-300 mm below mean water level. This helps to minimise re-suspension and disturbance.

For more information on sediment traps see Wildfowl and Wetlands Trust guide

Consents: It is possible that you will need to obtain permissions and consents to construct a sediment trap. Further guidance available in NFM Consenting Flow charts.

Maintenance: Low – Sediment will need to be removed periodically.

Removed sediment could be spread on site, away from the floodplain, in agreement with the Environment Agency.

See U10 Waste Exemption Environmental Permit for more information.

NFM Construction Grant Scheme funding: £11.88/ m^2 at 100% contribution rate (£11.88/ m^2)

Herefordshire Council

NFM08 Attenuation area

Attenuation areas are depressions within the landscape that temporarily store flood water, helping reduce peak flows and associated flood risk.

Flood risk benefits:

- Temporarily store water during storm events, helping reduce the flood peak.
- Improved conveyance of water within the watercourse as reduced inputs from soil and sediment erosion.

Agricultural benefits:

- Retained water can be useful for irrigation, as a water source for livestock and during times of drought.

Consents: It is likely that you will need to obtain permissions and consents to construct an attenuation area. Further guidance available in NFM Consenting Flow charts.

Maintenance: Medium – Sediment will need to be removed from the attenuation area periodically, vegetation managed and checks for blockages and erosion will need to be conducted and appropriate maintenance actions taken.

Removed sediment could be spread on site, away from the floodplain, in agreement with the Environment Agency.

See U10 Waste Exemption Environmental Permit for more information.

NFM Construction Grant Scheme funding: £12.00/ m^2 at 100% contribution rate (£12.00/ m^2)

Method: Excavated topsoil should be spread on the top of the embankments.

Figure 1 Attenuation area – Herefordshire Council (2020)

Design:

- Attenuation areas can be offline (located within the landscape and capture overland flow) or online (watercourse flows through them).
- Water should be released in a controlled way e.g. via a spillways or outflow control.
- A freeboard of at least 0.5 m should be provided to allow for additional flood storage.
- Erosion prevention methods may be needed at inlets and outlets.
- Option for attenuation area to either completely empty or permanently hold some water (creates additional habitat).
- Bank slopes should be no steeper than 1:3 to ensure safe egress from the attenuation area.
- Ability to have as a single feature or as a series of connected attenuation areas.
- Where possible water should be able to infiltrate through the base of the attenuation area.
- Varying water depths, slopes and islands can enhance biodiversity.
- Water levels should return to normal within 24 – 72 hours.

Herefordshire Council

NFM09 Earth bund

Earth bunds are shallow mounds of earth that have been constructed along the contour lines of a slope to both intercept surface water flow pathways and temporarily store small volumes of water within the landscape, helping to reduce the flood peak. They can also be used to direct flows of water into other attenuation features.

Flood risk benefits:

- Intercept surface water flow pathways, helping slow the flow.
- Reduce the volume of water reaching the watercourse by providing opportunities for infiltration and evaporation.
- Temporarily store water during storm events, helping reduce the flood peak.
- Improved channel conveyance as reduced inputs from soil and sediment erosion.

Agricultural benefits:

- Reduce soil erosion and diffuse pollution
- Can be designed to provide access to fields during times of flooding

Maintenance: Medium – Bunds should be inspected regularly e.g. after storm event, to ensure bund stability is maintained and to check for signs of erosion and blockages. Appropriate action should be taken following inspection.

Sediment will need to be removed periodically and vegetation managed e.g. seasonal grass cutting.

Removed sediment could be spread on site, away from the floodplain, in agreement with the Environment Agency.

See U10 Waste Exemption Environmental Permit for more information.

Figure 9.9 Earth bund retaining flood water – Chris Uttley, Stroud District Council, 2015

Design and method:

- Earth bunds should be sized based on the area of land draining into it.
- Should be located in a position that allows for surface water runoff to be intercepted.
- A section of the bund could be made lower to allow for flow exceedance.
- An outlet pipe at the base of the bund may be required to enhance drainage.
- Erosion prevention methods may be needed at outlets or overflow points.
- Bund must be made stable; base width should be a minimum of 3 times the height, constructed from damp compacted soil.
- A tussocky grass species should be planted on the banks which can withstand wet and dry conditions.
- Bank gradient should be no steeper than 1 in 3
- Ensure at least half the stored water drains away within 24 hours

Consents: It is likely that you will need to obtain permissions and consents to construct an earth bund. Further guidance available in NFM Consenting Flow charts.

NFM Construction Grant Scheme funding: £195.61/ unit (100m of bund) at 100% contribution rate (£195.61 / unit)

Herefordshire Council

NFM10 Wetland area

Wetlands are often shallow marshy areas or ponds which are almost entirely covered by vegetation. During rainfall events, they are able to act as temporary stores of water, helping to reduce the flood risk. By storing some water all year around they offer great habitats for a diverse range of plants and wildlife.

Flood risk benefits:

- Temporary water storage provides opportunities for infiltration and evaporation, helping reduce the flood peak.
- Wetlands allow sediment to settle, helping improve the conveyance of water within the watercourse.

Agricultural benefits:

- Reduced soil loss.
- Provide opportunities to treat polluted water.

Consents: It is possible that you will need to obtain permissions and consents to construct a wetland. Further guidance available in NFM Consenting Flow charts.

Maintenance: Low – Sediment may need to be removed from the wetland every few years. Vegetation around inflows and outflows should be cut back and checks for blockages and erosion will need to be conducted and appropriate maintenance actions taken.

Sediment removed from the wetland could be spread on site, away from the floodplain, in agreement with the Environment Agency.

See U10 Waste Exemption Environmental Permit for more information.

NFM Construction Grant Scheme funding: £10.00/ m^2 at 100% contribution rate (£10.00/ m^2)

For more info on wetlands please see Wildfowl and Wetlands Trust guide

Figure 9.10 Farm Wetland (Catherine McLIwraith, WWT, 2015)

Design:

- Wetland area must be designed with an additional storage capacity for flood water.
- Located in a position which enables surface water runoff to be captured.
- Wetland should be vegetated all year around. Vegetation can either be planted (species of local provenance) or left to colonise naturally.
- Ability to have as a single feature, as a series of connected wetlands or linked to other attenuation features.
- An impermeable clay substrate or artificial liner may be required in order to prevent contamination of groundwater or nearby waterbodies.
- Base of the wetland should be at least 0.5 m above water table if using an artificial liner and at least 1.0 m above the water table if using a natural liner.
- Outflow controls can be installed on the wetland. Note, suitable erosion prevention methods may be needed on the outflow.
- Side slopes should have a gradient, no more than 1 in 4.

Method: Excavated topsoil should be spread on the top of the embankments.

Herefordshire Council

9.4 In-channel water storage options

Description

During a rainfall event, the volume and velocity of flow within a watercourse increases, elevating the flood risk to downstream properties. By installing in-channel water storage/ retention features such as leaky dams and in-ditch seepage barriers, it is possible to slow the flow of water within the watercourse and deflect flood waters onto the adjacent floodplain, helping to reduce the flood peak and velocity of flow.

NFM Grant items

The scheme includes two in channel water storage/ retention grant options (Table 9-4).

Table 9-1 In-channel water storage options available through the scheme

Item Code	Description	Cost of Operation	Grant Contribution	Maximum Grant Rate
NFM11	In ditch seepage barriers	**£198.14/barrier [c]**	**100%**	**£198.14/barrier**
NFM12	Leaky dams	**£85.29[c] - £764.42[b] /dam**	**100%**	**£85.29[c] - £764.42[b] /dam**

Source of Rates:
b England Woodland Creation Offer (EWCO) rates.
c Countryside Stewardship rates.

As the size, design and construction techniques for leaky dams are site specific, these grants will be dealt with on a case-by-case basis and require additional supporting information to be submitted with the application, including; a detailed description of the proposed works and associated quote (further guidance on quotes available in Appendix C).

As a guide, the following national, published grant values exist for leaky dams; £85.29/ check dam, £461.39/ small leaky dam (1-2.99m wide) and £764.42/ large leaky dam (3-5 m wide).

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NFM11 In-ditch seepage barrier

In-ditch seepage barriers are designed to slow the flow of water travelling through a ditch. They can be constructed using natural materials such as lengths of timber, or can be installed in a more formal manner using wooden slats across the ditch.

Flood risk benefits:

- Slow the flow of water conveying through a ditch, increasing the length of time it takes for water to reach the main watercourse.
- Improved conveyance of water within the watercourse as reduced inputs from soil and sediment erosion.
- Temporarily store small volumes of water, helping reduce the flood peak.

Agricultural benefits:

- Can help prevent erosion of ditches
- Help improve water quality

Design:

- Locate within ditches or ephemeral channels – best suited to locations which have a fast flow during rainfall events.
- Barriers must allow water to flow/ seep through them
- Barriers can be constructed using natural materials e.g. lengths of timber or by installing wooden slats across the ditch, either vertically or horizontally, leaving gaps of 1-2 mm in between each slat.
- Natural barriers can comprise of timbers laid parallel in the ditch
- Work well as a series of features. The number of barriers required will vary depending on the gradient of the ditch, with steeper gradients benefitting from more barriers.

Figure 9.11 Natural in-ditch seepage barrier – Herefordshire Council (2020)

Method:

- Any purchased wood must not be treated with a chemical wood preservative product as these are toxic to aquatic life.
- In-ditch seepage barriers must be securely installed within the ditch e.g. with wooden pins, to ensure they do not move during periods of high flows.

Consents: It is possible that you will need to obtain permissions and consents to construct an in-ditch seepage barrier. Further guidance available in NFM Consenting Flow charts.

Maintenance: Low – The integrity of the features should be checked regularly e.g. after a flood event and appropriate maintenance undertaken. Sediment may need to be removed periodically.

Removed sediment could be spread on site, away from the floodplain, in agreement with the Environment Agency.

See U10 Waste Exemption Environmental Permit for more information.

NFM Construction Grant Scheme funding: £198.14 per barrier at 100% contribution rate (£198.14 per barrier)

Herefordshire Council

NFM012 Leaky dam

Constructed within the channel, leaky dams are permeable features which help to reduce the flood peak during high flow events by slowing the flow of water and pushing water onto the floodplain. Built using bankside materials, they come in varying sizes and designs.

Flood risk benefits:

- During high flow events, leaky dams help to slow the flow of water within the channel as well as providing opportunities for temporary water storage, helping reduce the flood peak.
- Ability to push floodwater onto floodplain, creating opportunities for additional storage.
- Ability to trap sediment, helping to improve channel conveyance.

Agricultural benefits:

- Can help improve water quality

Consents: You will need to obtain permissions and consents to construct a leaky dam. Further guidance available in NFM Consenting Flow charts.

Maintenance: Low – Leaky dams will degrade over time and naturally replenish, however replacement may be needed.

The integrity of the features should be checked regularly e.g. after a flood event and appropriate maintenance undertaken. Sediment may need to be removed periodically.

Removed sediment could be spread on site, away from the floodplain, in agreement with the Environment Agency. See U10 Waste Exemption Environmental Permit for more information.

For more info on leaky dams see: NFM Assessing the risks and CIRIA NFM manual

Figure 9.12 Leaky dam – River Wye and Lugg NFM pilot project participant (2019)

Design:

- Size, design and location are site specific.
- See EWCO Grant Manual and CIRIA C802 (2022) for typical examples and construction details.
- Constructed from locally sourced bankside natural materials e.g. timbers, live materials.
- Suitable for watercourses with a channel width less than 5 m, ideally < 3 m.
- Leaky dams should be made immobile e.g. through wedging, fixing using natural materials, keeping live or making them as wide as possible (timbers > channel width).
- Leaky dam should allow base flows and fish passage beneath them.
- Offer greater benefits if installed as a series.
- Dam height should not exceed 1 m.
- Most downstream leaky dam in a series should be designed to catch any debris washing out from upstream structures.
- Min. longitudinal spacing (m) = height of barrier (m) x watercourse slope (m/m) (CIRIA, 2022)

Method: Several different construction methods available e.g. pleaching and pinning using natural materials

NFM Construction Grant Scheme funding: £85.29 - £764.42/dam at 100% contribution rate (£85.29 - £764.42/dam).

Quote(s) for installing the leaky dams will need to be supplied with grant application.

Herefordshire Council

9.5 Fencing and gateway options

Description

Livestock access to watercourses can cause the erosion of riverbanks, resulting in increased levels of sediment in the channel which reduces the conveyance capacity of the watercourse, increasing the flood risk. Livestock access to the watercourse can also cause overgrazing of bankside vegetation, which reduces channel roughness and speeds up flows within the channel, resulting in an increased likelihood of bankside erosion and flooding. Negative impacts on water quality (bacteriological and nutrient contamination) have also been observed when livestock have direct access to the watercourse.

Fencing can be used to prevent livestock access to the watercourses, which will allow the establishment of a vegetated buffer strip adjacent to the watercourse. The buffer strip will help increase channel roughness, helping slow the flow of water. It will also improve bankside stability, reducing the likelihood of erosion. Newly planted trees and hedgerows (NFM15 and NFM16a, NFM16b) may also require fencing to protect them from livestock and wildlife until they are established and functioning as an NFM measure.

Gateways are an integral part to a fence, enabling stock management as well as providing access to areas of land for management activities or husbandry operations. Careful consideration should be given to the location of a gateway and where possible gateways should not be located across surface water flow pathways or on areas of land prone to flooding as the gateways will act as conduits for flowing water and sediment, increasing the flood risk. Land around gateways is also prone to compaction due to trafficking, increasing surface water runoff. Where possible, actions should be taken which help reduce gateway compaction e.g. using lighter machinery and avoiding travelling over the soil when it is wet.

NFM Grant items

The scheme includes five option for fencing and gateways (Table 9-5).

Table 9-1 Fencing and gateway options available through scheme

Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant Rate
NFM13a	Fencing – post, stock net & 1 barb	**£9.34/m**[b]	**100%**	**£9.34/m**
NFM13b	Permanent electric fencing	**£5.66/m** [c]	**100%**	**£5.66/m**
NFM13c	Metal Field Gate	**£340 each** [b]	**100%**	**£340 each**
NFM13d	Wooden field gate	**£612 each** [b]	**100%**	**£612 each**
NFM13e	Gateway re-location	**£369.59 each** [c]	**100%**	**£369.59 each**

Source of Rates:
b England Woodland Creation Offer (EWCO) rates.
c Countryside Stewardship rates.

Herefordshire Council

NFM013a - 13e Fencing, gates and gateway relocation

Fencing and associated gateways can be used to protect watercourses and NFM measures such as newly planted tree and hedges from livestock damage. Fencing adjacent to a watercourse (riparian fencing) helps prevent bankside erosion and allows the establishment of a vegetated buffer strip, helping slow the flow and reducing flood risk.

Flood risk benefits:

- Increased channel roughness, helping slow the flow of water.
- Protects NFM measures, enabling them to function and reduce flood risk.
- Interrupt surface water flow pathways, helping slow the flow of water.

Agricultural benefits:

- Stock management
- Reduced bankside erosion and loss of land

Consents: It is possible that you will need to obtain permissions and consents to construct a fence or gateway. Further guidance available in NFM Consenting Flow charts.

Maintenance: Low – Fences should be kept in good condition and breakages to the fences should be repaired as soon as possible to prevent further damage.

Riparian fencing can cause problems with invasive plants establishing in the buffer strip e.g. Himalayan balsam. Appropriate vegetation management should be undertaken to prevent this.

Remember, you will need to make sure you comply with Farming Rules for Water.

Figure 9.13 Riparian fencing – NFM Construction grant recipient (2019)

Design and method:

- Fences and gateways funded through this scheme MUST help deliver flood risk reductions e.g. in conjunction with a hedgerow across a surface water flow line.
- Riparian fencing should be located on stable ground at least 1.5 m from the top of the bank of the watercourse.
- Fencing must prevent animal access and be appropriate for the type of livestock present.
- Livestock drinking points on the watercourse are not permitted due to potential water quality issues. An alternative water supply should be sought if necessary.
- All materials used must meet the relevant British Standards.
- NFM13a fencing should be at least 1.05 m high and comprise posts, stock netting and 1 barb.
- NFM13b electric fencing should follow Countryside stewardship (CS) guidelines (FG3)
- Gateway design should follow CS guidelines (FG12, RP2) and should avoid surface water flow pathways. Where possible, existing gateways that are acting as conduits to flow should be re-located.

NFM Construction Grant Scheme funding: NFM13a £9.34/m, NFM13b £5.66/m, NFM13c £340 each, NFM13d £612 each, NFM13e £369.59 each at 100% contribution rate.

9.6 Trackway options

Description

Trackways can act as surface water flow pathways, transporting water and sediment quickly into the watercourse, increasing the flood risk. These surface water flows can also cause significant erosion problems, exacerbating the amount of sediment that enters the watercourse, resulting in a reduced channel capacity to convey water. By installing features such as cross drains on trackways, it is possible to slow down the flow of water and reduce the flood risk.

NFM Grant items

The scheme includes one option for improving trackways (Table 9-6).

Table 9-1 Trackway options available through NFM CGS

Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
NFM14	Cross drain	**£750.26/unit** [c]	**100%**	**£750.26/unit**

Source of Rates:
c Countryside Stewardship rates

Herefordshire Council

NFM014 Cross drain

Installed along trackways, cross drains are systems which are designed to intercept surface water flow pathways, diverting the water off the trackway into other areas of land e.g. sediment traps or areas of vegetation which promote infiltration. They help to slow the flow of water as well as reducing the amount of sediment and other pollutants that enter the watercourse.

Flood risk benefits:

- Intercept surface water flow pathways, helping to slow the flow and reduce the volume of water reaching the watercourse.
- Improved conveyance of water within the watercourse as reduced inputs from soil and sediment erosion.

Agricultural benefits:

- Trackways experience reduced erosion and therefore last longer

Consents: It is possible that you will need to obtain permissions and consents to construct a cross drain. Further guidance available in NFM Consenting Flow charts.

Maintenance: Low – The integrity of the features should be checked regularly e.g. after a flood event and appropriate maintenance undertaken. Sediment may need to be removed periodically.

Removed sediment could be spread on site, away from the floodplain, in agreement with the Environment Agency. See U10 Waste Exemption Environmental Permit for more information.

NFM Construction Grant Scheme funding: £750.26/ unit at 100% contribution rate (£750.26/ unit).

Method: It is likely that machinery will be required to construct the cross drain.

For more info on cross drains see the CIRIA NFM manual

Figure 2 Cross drain – NFM Construction grant recipient (2021)

Design:

- Cross drain should intercept a surface water flow pathway and extend the whole width of the track.
- They should be installed as a series, at intervals along a sloping track.
- The cross drain should divert water off the trackways and into other areas of land which promote infiltration or offer temporary water storage.
- A variety of materials can be used to construct a cross drain including concrete, metal, piping or natural materials such as timbers. Consideration should be given to the type of traffic using the track e.g. heavy machinery.
- When constructed as a channel, the cross drain should have a minimum depth of 100 mm and width of 100 mm to 250 mm (CIRIA, 2022).
- When constructed as a raised hump, a foundation trench at least 300 mm deep should be built, with the hump protruding 60 - 100 mm above ground level (CIRIA, 2022).
- Must meet relevant British Standards.

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9.7 Tree planting options

Description

Trees and hedgerows help to reduce flood risk in many ways. They physically intercept rainfall, providing opportunities for water to evaporate, as well as increasing the length of time it takes for water to reach the ground surface. Their root systems help to increase soil infiltration rates, and their presence in the landscape helps increase surface roughness which slows the flow of water. When located across surface water flow pathways, tree and hedge planting can prove an effective way of interrupting the flow of water, helping reduce the risk of flooding. Tree and hedge planting also offers multiple benefits such as carbon sequestration, providing shelter for livestock, reducing soil loss and providing habitats for wildlife.

NFM Grant items

The scheme includes three options for tree planting (Table 9-7).

Table 9-1 Tree planting options available through NFM CGS

Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
NFM15	Tree planting	**£1.72/tree** [b]	**100%**	**£1.72/tree**
NFM16a	Hedge planting	**£22.97/m** [c]	**100%**	**£22.97/m**
NFM16b	Standard hedgerow tree	**£19.06/tree** [c]	**100%**	**£19.06/tree**
NFM16c	Tree shelter	**£2.43/shelter** [b]	**100%**	**£2.43/shelter**

Source of Rates:
b England Woodland Creation Offer (EWCO) rates.
c Countryside Stewardship rates.

Source of Rates:
b England Woodland Creation Offer (EWCO) rates.
c Countryside Stewardship rates.

Figure 9.15 Left - Tree damaged by squirrels stripping the bark from it – Wye and Usk Foundation Catchment Advisor, 2024. Right, newly planted trees protected by tree guards – Herefordshire Council, 2024.

Herefordshire Council

Protecting trees and hedges

For the first 10 years of their growth, newly planted trees are susceptible to browsing (feeding on shoots, buds and foliage) by mammals such as deer, rabbits and livestock. The bark on trees can also be damaged by practices such as bark stripping (Figure 9-15) or rubbing (e.g. by livestock or deer). Species such as grey squirrel are known to strip the bark off trees, Often targeting 'faster growing pole-stage trees, usually between 10 and 40 years old' (Gill et al. 2019), with species such as beech, sycamore and oak being particularly susceptible.

It is therefore important that trees are protected to enable the successful development of new woodland or hedgerows. Approaches to protecting trees includes:

- **Installation of protective barriers**
  - Tree shelters/guards (see grant item NFM16c)
  - Fencing off area of woodland planting or hedgerow (deer/rabbit fencing, stock fencing – grant item NFM13a, electric fencing – grant item NFM13b))
  - Timber tree guards or mesh fencing around tree supported by a stake – helps protect tree against browsing from larger deer species. This technique is also good for use in low density woodland planting.
- **Over-planting of saplings -** helps reduce the impact of tree losses
- **Pest deterrents**
  - Discourage vole activity by removing/managing levels of tussocky grasses around trees
  - Application of lanolin-based spray-on deer deterrents to trees
- **Population control of 'pest' species**
  - Population control of 'pest' species – must be done humanely and at an appropriate scale. Guidance on grey squirrel population control is available in UK Forestry Standard Technical Note, Dec 2019 and guidance on deer population management is available from The British Deer Society.
  - Assist predatory species e.g. by erecting raptor perches and specialist nest boxes or having a tolerance for foxes, stoats and weasels, to enable the natural control of populations of voles and rabbits.
- **Natural re-generation** – by allowing trees to naturally spread their own seeds and grow (instead of planting trees), it is possible to develop woodlands which contain tree that are the offspring of those already adapted to and thriving in the local environment, meaning they are often more resilient to changes in climate, diseases and pests. The Woodland Trust website contains more information about natural re-generation.

More information on tree pests and tree protection is available on the following websites:

- Tree protection – thinking about risks and opportunities – Forestry Commission (blog.gov.uk)
- Management of grey squirrels - Forest Research

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NFM015 Tree planting

Planting the right tree in the right place can offer significant benefits in terms of reducing flood risk as well as delivering multiple benefits e.g. habitat creation and carbon sequestration. Throughout the catchment there are many opportunities for tree planting e.g. across slopes, adjacent to watercourses, on steep valley sides and on the floodplain.

Flood risk benefits:

- Intercept rainfall, providing opportunities for evaporation and infiltration, helping slow the flow of water and reducing the volume of water reaching the watercourse.
- Root systems help improve infiltration rates.
- Increase surface roughness within the catchment, helping slow overland flows.
- Riparian tree planting helps stabilise the banks of the watercourse, reducing erosion and helping maintain the channels capacity.

Agricultural benefits:

- Provide shade and shelter for livestock
- Help protect soils and crops from strong winds and rain, helping reduce erosion.

Consents: It is possible that you will need to obtain permissions and consents to plant trees. Further guidance available in NFM Consenting Flow charts.

Maintenance: Medium – Newly planted woodland will require regular weeding and the replacement of trees which have failed to grow.

Newly planted trees will need protecting from livestock and wildlife e.g. spiral guards, fencing or tree shelters. Protection methods will need maintaining. Spiral guards should be removed once the tree is big enough to no longer need protection.

Figure 9.16 Catchment tree planting – NFM Construction grant recipient (2021)

Design:

- It is recommended that a diverse selection of tree species are planted – please consult with your Catchment Advisor.
- Where possible, tree planting should link to existing areas of woodland and create wildlife corridors.
- Cross slope woodlands should be planted along contour lines and designed to intercept surface water flow pathways.
- Riparian woodland, planted on the banks of watercourses are best located in the middle and upper reaches of the catchment.
- Floodplain woodlands offer greatest benefits in the middle to lower reaches of the catchment.

Method:

- Trees should be planted between October and March (CIRIA, 2022).
- Newly planted trees will need protecting from wildlife e.g. with fencing and/ or tree guards.

NFM Construction Grant Scheme funding: £1.72/ tree at 100% contribution rate (£1.72/ tree).

For more info on tree planting see Woods and Water and Woodland Trust – Tree planting

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NFM016a Hedge planting and 16b standard hedgerow tree

Flood risk benefits:

- Intercept surface water flow pathways, helping slow the flow of water.
- Hedges trap sediment and soil contained within runoff, helping maintain the channels capacity to convey flood flows.

Agricultural benefits:

- Provide shade and shelter for livestock
- Long term field boundaries
- Provide a barrier to the spread of livestock diseases (animal to animal contact).

Consents: It is possible that you will need to obtain permissions and consents to plant hedges. Further guidance available in NFM Consenting Flow charts.

Maintenance: Medium – Newly planted hedges will require regular weeding and the replacement of trees which have failed to grow until they have reached a height of at least 1.5 m.

After this, hedges should be cut every 2 years. Cutting in a box shape will enhance the wildlife benefits of the hedge.

The hedge should be laid every 12-15 years to increase the health of the hedge and its wildlife benefits.

NFM Construction Grant Scheme funding: NFM16a £22.97/m at 100% contribution rate, NFM16b £19.06/tree at 100% contribution rate.

For more info on hedge planting see Countryside stewardship guidance

Figure 3 Hedge planting – NFM Construction grant recipient (2021)

Design:

- Hedges should be planted in locations which intercept surface water flow pathways.
- A variety of native species should be planted within the hedge – please consult with your Catchment Advisor.
- Hedges should be planted in two or three staggered rows, with a minimum width of 1.5 m and a planting density of 5 to 9 trees per meter respectively (CIRIA, 2022).
- Spacing between each tree should be a minimum of 20 – 30 cm (CIRIA, 2022).
- NFM16b - A standard tree should be allowed to grow at regular intervals within the hedge e.g. every 10 m.
- Hedges can be used to connect existing hedgerows to woodland areas, providing opportunities for wildlife corridors.
-

Method:

- Trees should be planted between October and March (CIRIA, 2022).
- Before planting, prepare the ground and clear any existing vegetation to reduce competition.
- Newly planted trees will need protecting from wildlife e.g. with fencing and/ or tree guards.

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NFM16c Tree shelter

Figure 4 Tree shelter – Forestry Research (2024)

Tree shelters/guards are widely used as an effective method of protecting young trees from browsing or bark damage caused by wildlife or livestock. The height of the tree shelter used should be tailored to the type of pest that is prevalent at your site, for example:

- Use 1.2m shelters to protect against roe, muntjac or Chinese water deer
- Use 1.8m shelters to protect against fallow, red or sika deer
- Use 1.2m shelters to protect against hares and rabbits

To be effective, the tree shelter must be robust enough to protect the tree during its establishment period (ranges from a few years to five years plus). You must replace, at your own expense, any shelters that fail before this. If using plastic (non-biodegradable) shelters, these should be recycled after use. Many organisations are conducting research and trials to assess the effectiveness of biodegradable tree shelters.

Further guidance on tree protection is available in the Forestry Commission's guide '*Tree protection: The use of tree shelters and guards*' and The Tree Council's '*Protecting young trees – How to make the best choice for your planting project*'.

NFM Construction Grant Scheme funding: NFM16c £2.43/shelter at 100% contribution rate (£2.43/shelter)

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9.8 NFM17 Landowner innovation

Figure 9.19 Landowner innovation applications: Under sowing maize drill, meadow creation and rainwater harvesting system – NFM Construction grant recipients (2019 and 2021)

Description

Land management practices and operations vary between farms, landscapes, businesses and holdings. The list of grants items offered in Table 2-1, may therefore not be suitable for all situations. The 'Landowner Innovation' item offers applicants an opportunity to suggest alternative and innovative solutions to reduce flood risk, improve infiltration and deliver multiple benefits such a reduced soil erosion and improved water quality. Some examples of this from the River Wye and Lugg NFM pilot project include; meadow creation, rainwater harvesting systems and financial support to purchase an under sowing maize drill and to conduct direct drilling.
If you are interested in meadow creation or restoration, Herefordshire Meadows have provided some additional guidance which is contained within Appendix B.

NFM Grant items

The scheme includes a landowner innovation option (Table 9-8).

Table 9-1 Landowner innovation options available through NFM CGS

Item Code	Description	Cost of total operation	Max. Grant contribution	Max. Grant rate
NFM17	Landowner innovation	**Up to £10,000***	**TBC on Application** **(50-100%)**	**Up to £10,000***

***NFM17 -** Larger grants may be available if it can be demonstrated that the scheme will deliver acceptable flood risk benefits

Specification

Landowner innovation applications can only be submitted with endorsement from your local Catchment Adviser or Herefordshire Council's NFM Project Officer, who should be consulted prior to making the application. Applications must meet the following criteria:

- Proposals must help to reduce flood risk.

- Proposal cannot be for items already detailed within this grant scheme (NFM01-NFM16b, NFM18).

Examples of items not eligible for funding include:

- Any works or infrastructure linked to complying with regulatory requirements.
- Clearing/ re-digging of ditches.
- Replacement or maintenance of items/ infrastructure.

Supporting information requirements

In order to help us assess your application, you will need to submit the following additional information alongside the standard information required on the application form (see Section 7):

- Detailed quotes for completing the proposed works. Further guidance on quote requirements can be found in Appendix C.
- Information quantifying the flood risk reduction that would be achieved by delivering the proposed works.

Consents

It is possible that you will need to obtain permissions and consents to implement the proposed works. Further guidance can be found in the NFM consenting flow charts which are available on the Council's NFM webpage.

9.9 NFM Facilitation

Description

In order to overcome some of the barriers to delivering NFM, limited funding has been made available to help facilitate the implementation of NFM schemes.

For example, a farmer plans to fence off a long section of watercourse flowing through their land in order to create a vegetated riparian buffer strip which contains a series of leaky dams within the channel of the watercourse. By fencing off the watercourse, the farmer needs to provide an alternative drinking source for his livestock. Through the NFM Construction grant scheme, the farmer would be able to receive grant funding to cover the costs associated with the fencing (NFM13a-NFM13e) and the leaky dams (NFM12). In this instance, the farmer would also be able to receive grant funding to cover the cost of supplying an alternative drinking source for their livestock (NFM18 NFM Facilitation, Table 9-9).

Note, applications for NFM Facilitation options (NFM18) are NOT guaranteed and will only be supported if they are integral to the successful delivery of a wider NFM scheme. The funding available for NFM18 NFM Facilitation will need to be proportionate to the overall cost of the substantive NFM project and will be dealt with on a case by case basis.

NFM Grant items

Table 9-9 details the various NFM Facilitation options included within this grant scheme.

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Table 9-2 NFM Facilitation options available through NFM CGS

Item Code	Description	Cost of total operation	Examples of when this grant item may be used
NFM18a	Piped culverts	**£376.23/unit** [c]	Piped culverts could form an integral part to a series attenuation areas e.g. linking attenuation areas. This option should only be supported when there is justified reasons for not using an open ditch/ channel. For more info see: Countryside stewardship guidance (RP6)
NFM18b	Hard base for livestock drinkers (LV3)	**£179.15/base** [c]	An alternative livestock drinking source may be required if the watercourse has been fenced off to create a riparian buffer strip. Note, livestock troughs should not be located within 10m of ditches, streams or waterways. For more info and guidance see: Countryside stewardship guidance (LV3, LV7 and LV8)
NFM18c	Livestock trough (LV7)	**£152.92 each** [c]	
NFM18d	Pipework associated with livestock troughs (LV8)	**£3.31/m** [c]	

Source of Rates:
c Countryside Stewardship rates.

Specification

NFM18 Facilitation applications can only be submitted with endorsement from your local Catchment Adviser or Herefordshire Council's NFM Project Officer, who should be consulted prior to making the application. Applications must meet the following criteria:

- Proposals must be integral to the successful delivery of a wider NFM scheme.
- Proposal cannot be for items that can be grant funded from other sources or grant schemes.

Please note, for NFM18 grant applications:

- The maximum grant contribution rate will be confirmed on application and will range from 50-100%.
- The maximum total grant rate for NFM18 items is £2,500.

Consents

It is possible that you will need to obtain permissions and consents to implement the proposed works. NFM consenting flow charts are available on the Council's NFM webpage.

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10. Protecting flora and fauna

When implementing NFM measures, it is vital that plants, animals and their habitats are protected and where possible enhanced. In order to achieve this, all applications to this grant scheme must ensure they comply with the following:

Bird nesting season

The bird-nesting season is from March until September (inclusive). Under 'The Wildlife and Countryside Act 1981' it is an offence to:

- intentionally kill, injure or take wild birds.
- take, damage or destroy a wild bird nest whilst it's in use or being built.
- take or destroy a wild bird's egg.
- disturb wild birds whilst they are nesting, building a nest, or in or near a nest that contains their young.
- disturb dependant wild bird young.

Trees containing active birds' nests must be avoided (birds may nest earlier or later than the official nesting season due to local conditions).

Ash dieback (Chalara)

Ash dieback causes leaf loss, crown dieback and bark lesions. Once a tree is infected, the disease is usually fatal, either directly, or indirectly by the tree becoming weak and susceptible to other pests and pathogens (Armillaria fungi, or honey fungus).

The fungus, which causes ash dieback (Hymenoscyphus fraxineus), is classified as a quarantined organism under national emergency measures. Any sightings of this disease must be reported. For more information about this disease, including how to report a sighting, please see the Forest Research webpage.

The **felling of living ash trees should be avoided**, as presently unaffected trees may be resistant to the disease and should therefore be preserved in the landscape.

Preventing the spread of non-native species & environmental diseases

To prevent the spread of non-native species and environmental diseases such as crayfish plague, the following 'Check, Clean, Dry' guidelines should be followed:

Source: Non-Native Species Secretariat (2022)

For more information on how to prevent the spread on non-native species, including identification guides, please visit the non-native species website

When delivering NFM measures, make sure all equipment is clean and dry for at least 48 hours prior to being used at a site and before being used in a different catchment. If you are unable to dry and clean your equipment, then all equipment must be disinfected with Virkon S disinfectant.

Protected species and habitats

Before NFM measures are implemented, it is important to establish whether there are protected species, habitats or features present at or near the site. If present, additional consents and precautions may be needed in order to undertake any NFM works at the site. The MAGIC Map website can be used to help identify designations or the presence of protected species which may affect your site. The GOV website also contains information about protected areas. Information on historic designations, such as Scheduled Ancient Monuments can be found on the Historic England website.
Guidance on how to avoid harming protected areas and species when undertaking construction work can be found on the GOV website.

11. Monitoring requirements

It is essential that we gather information on the NFM measures implemented through the project, collecting evidence that helps us develop our knowledge of NFM as well as helping us quantify the impact of the NFM delivered within the catchments.
In order to do this, the following information will be collected and reported on through the scheme**, minimum monitoring requirements:**

- **Location, type and extent of NFM measures to be mapped** – This information will allow the spatial coverage of the project to be assessed and provide an understanding of how the measures have been implemented across the county.
- **Cost of implementing NFM** – The cost of implementing the NFM measures will be collated within a project database, noting how the measure was funded. This information will help inform future decisions regarding NFM funding.
- **Maintenance requirements** – NFM measures require little/ no maintenance. However, we require that any maintenance conducted on the NFM measures, including any costs associated with this is recorded and reported back to the NFM Project Officer. This information will help inform future projects.
- **Photographs** – Photographs of the land before and after the NFM measures are required to support this application. These photographs will help show the effects NFM measures have on the landscape and how the NFM measures change over time.
- **Flood risk benefits** – It is important that we quantify the flood risk benefits achieved by delivering each NFM measure. Where possible, information will be gathered and recorded on the volume of water storage provided by individual NFM measures. Leaky dam surveys will form part of this data collection.

Please note, information collected about you and your land will be anonymised before it is included within any project reporting or monitoring assessments. Any maps produced that are publicly available will not be at a resolution that enables specific parcels of land to be identified. Any photographs that are taken, which are made publicly available, will not contain any Personal Identifiable Data.

This information is the minimum monitoring requirement.

The project's monitoring plan includes numerous other monitoring options (fixed-point photography studies of NFM features, habitat surveys, River MoRPh surveys and soil monitoring). To assist with delivering this monitoring plan, we are looking for volunteers to help capture the data and willing landowners to allow this additional monitoring to occur on their land. If you are interested in getting involved with this more detailed research, please speak to Herefordshire Council's NFM Project Officer.
For more information about the Herefordshire NFM Project's volunteer scheme, see Herefordshire Council's NFM Volunteer webpage

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Appendix A – Standard NFM Construction Grant Terms and Conditions

1. In order to claim the grant money and once the work has been completed, please contact the Catchment Advisor requesting a site visit to sign off the work. The Catchment Advisor will sign the Final Report confirming the works have been completed.
2. Once the project has ended, please complete and send your claim and/or report to **delegatedgrants@herefordshire.gov.uk** with
    - paid invoices and/or receipts
    - bank statements
    - evidence of outputs achieved e.g. photographs of works before, during and after completion
    - any other evidence as per your specific terms and conditions
3. You must submit your final report and claim by the deadline on page 1 of this offer letter.
4. The project cannot be funded retrospectively. **Any invoices dated or claims for work undertaken prior to that of the offer letter will be deemed ineligible.**
5. It is your responsibility to ensure that:
    - You are not receiving other funding to deliver the items detailed within your grant offer.
    - The grant offer does not fund works relating to regulatory requirements (such as Farming Rules for Water)
    - The grant offer does not fund works relating to statutory planning requirements.
6. Once the completed final report and claim is received by the Delegated Grants Team along with other evidence as requested, we aim to process payment within 7 days and issue a payment letter. A BACS payment will arrive 10 to 14 days later. Grant claims will be paid at the percentage specified in this offer letter against a claim for eligible expenditure. Eligible expenditure is detailed on the front of the offer letter. Any invoices for work undertaken by a contractor should be made out to the project applicant. (N.B. you must have paid for and received the goods or services prior to claiming).
7. It is your responsibility to ensure that you comply with your organisation's procurement rules and all necessary insurances, licences and permissions are obtained. Herefordshire Council will not take responsibility for any damage or injury caused by any act carried out by a third party. Work must comply with all relevant health and safety legislation and British Standards (BS) or equivalent
8. It is your responsibility to ensure that you take the necessary actions to protect flora and fauna. Further guidance on this is detailed within the Herefordshire Council Natural Flood Management (NFM) Construction Grant Scheme Guidance document, which is available on the Herefordshire Council website.
9. Each capital item must have a **minimum design life of at least 5 years**. Grant items: NFM01, NFM02, NFM03, NFM04, NFM05 and NFM17 (case dependant) are excluded from this requirement.
10. **Any changes to the project cannot take place without prior agreement in writing from the Delegated Grants team.** You must notify the team as soon as practically possible of any changes to: costs, income, timescales, contractors etc.

11. **Clawback event.** Herefordshire Council reserves the right to withhold any or all of the payments, and/or require part or all of the grant to be repaid if:
    - There is substantial change in the nature, scale, costs, ownership or timing of the project.
    - There is unsatisfactory progress towards meeting the outputs specified in the offer letter.
    - Any information provided in the application form, or other correspondence is found to be substantially incorrect or incomplete.
    - The applicant fails to comply with any condition in the offer letter.
    - During the life of the project, the grant is used for purposes other than those specified in the application.
    - Any equipment or measures supported with this funding are disposed of or dismantled within 5 years of the date of purchase/installation.
12. **Repayment of Grant**

    (i) The Grant Recipient acknowledges and agrees that on the occurrence of a Clawback Event the Council may seek repayment of the Grant. Paid under these Terms and Conditions.

    (ii) The Grant Recipient shall upon receipt of a notice from Council requiring repayment of the Grant paid under these Terms and Conditions repay all sums required to Herefordshire Council within 15 days of receipt of such notice.

    (iii) The liability to meet such demands pursuant to clause (i) and (ii) (the above clauses) shall be enforceable as a contractual debt. The Council may require the Grant Recipient to pay interest on any amount repayable under clause (i) which will accrue each day at 4% a year above the Bank of England's base rate from time to time but at 4% a year for any period when that base rate is below 0%.

13. We reserve the right for the Catchment Advisors and the Herefordshire Council Natural Flood Management Project Officer to visit the site to evaluate the effectiveness of the measures put in place.
14. The project will be required to acknowledge the funding from the Herefordshire Council Natural Flood Management (NFM) Construction Grant Scheme in any publicity. Projects may be used in further publicity generated by Herefordshire Council.
15. Herefordshire Council reserves the right to inspect the items purchased through this offer at any time or to ask for audited accounts which show the expenditure relating to the project.
16. All claims, including any invoices, receipts, bank statements and other documents, created or received by your project must be kept for 7 years from the end of your project. The scheme may be audited during this period.
17. The works carried out through this grant scheme must not be intentionally damaged or destroyed within 5 years of the grant payment date. Any damage should be restored by the applicant.

Appendix B – Guidance on meadow creation and restoration

Meadow creation/ restoration is one of the possible options available for an NFM17 Landowner Innovation application.
Well managed holistically grazed flower rich swards with long rest periods between grazing have deeper roots and build up soil organic matter levels to improve rainwater holding capacity.
The aim is to establish a diverse sward of native grasses and broad leaved grassland plants. The seed source should be local provenance/ 100% native seed for restoring permanent species poor swards.
Crop grown cultivars of native plants may be suitable for arable reversion or enhancement of former ryegrass leys.
Advice on seed selection and restoration method is available from Herefordshire Meadows.
Meadows not only help to reduce flood risk by helping to absorb and store water during times of flooding, they also help sequester carbon, offer excellent wildlife habitat and offer beautiful spaces for recreation.
The meadows help to reduce flood risk in a number of ways for example the vegetation increases the grounds roughness, which helps slow the flow of water.
The meadow habitat also helps create an excellent soil structure, which allows water to infiltrate and be stored within the soil, helping reduce the flood peak.

Herefordshire Meadows have kindly produced the following advice regarding meadow creation and restoration:

- On average, it costs £800 to £1200 per hectare for establishing flower rich grassland.

  This covers both arable reversion and enhancement of existing species poor grassland and varies according to the establishment method and seed source.

- Herefordshire Meadows can supply a tailored restoration plan, a baseline survey and assistance with the application.
  The minimum charge for this service is £250 and is project specific.

- Items that typically need to be funded include:

  - Weed control the summer before restoration.
  - Cultivating shallow seed bed (arable reversion) or shallow harrowing of existing grass swards to 2-3 cm depth to create 50% bare ground.
  - Seed purchase; either crop grown seed from seed supplier, brush harvested seed from local donor meadow or transport of green hay from local donor meadow.
  - Broadcasting seed or hay on meadow to be established.
  - Rolling or trampling with livestock.

Note that taking a hay cut annually and aftermath grazing to allow the new meadow to flourish is an ongoing management commitment and would not be funded.

Further information and guidance, including details of advisory visits to help plan your project can be found on the Herefordshire meadows website.

Table B-1 Wetlands and wet grassland – description and condition

Habitat Category: Wetlands and wet grasslands

Habitat description	Poor condition	Moderate condition	Good condition
Wetlands and wet grassland habitats include, flood plain wetland mosaics, reedbeds and bogs. They are found on flood plains, on the fringes of open water, in valleys, in basin-like depressions, and also around springs and flushes. They often have peat soils present (in either wet, dry or drained state and of any depth).Water regimes may be where the soil is waterlogged, with the water table close to or above the surface for most of the year or where periodic surface water flooding results in a distinctive wet grassland habitat or mosaic	Site shows signs of damaging management, low water levels (drying out or inappropriate drainage) or poor water quality. Few of the species you would expect to see in the habitat type present.	Management regime generally suitable for the site (includes no management where appropriate for the habitat), with no obvious/known sources of pollution. Water levels vary within expected ranges for the type of habitat. For existing habitats some, but not all of the expected species are found on the site, and evidence is provided that the habitat will continue to recover within the benefits period of the project. For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish within the benefits period of the project.	Management regime (includes no management where appropriate for the habitat) is optimal for the type of habitat and will continue for at least the benefits period. Water quality and quantity is optimal for the type of habitat. For existing habitats, most of the expected species are found on the site, and there is evidence that the habitat will recover within the benefits period of the project. For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish within the benefits period of the project.

Source: Information taken from Environment Agency (2020, Pg. 7, 8)

Appendix C – Frequently asked questions

1. What are the requirements for providing quotes?

Grant items NFM12 Leaky dams and NFM17 Landowner innovation require a quote (ideally more than one) to be submitted as supporting evidence to the grant application form.
Quotes should be:

- Dated
- On letter headed paper from a registered business. The following information should be included; business address, contact details and VAT number (if applicable)
- Providing a detailed breakdown of cost e.g. how many hours of labour, cost of each material

In circumstances when it is not possible to provide the above, we would need as a minimum:

- Detailed quote with name, address and contact details of supplier (doesn't have to be on letter headed paper)
- Provide a detailed breakdown of cost e.g. how many hours of labour, cost of each material
- Letter from applicant justifying why they are using this supplier e.g. they are the usual contractor for works on the farm, they are a specialist and are the only person locally who can deliver the proposed works.

2. When making my grant claim, what evidence of expenditure do I need to supply?

For auditing purposes, we are only able to make payments against grant claims which provide evidence of expenditure.
In order to evidence your expenditure, please provide the following evidence as part of your grant claim:

- Invoices related to the purchase of eligible materials e.g. seed invoice for NFM04 catch/ cover cropping.
- Invoices relating to payments to contractors for eligible services e.g. fencing contractor costs for NFM13a Fencing – post, stock netting, 1 barb.
- Redacted bank statement for all eligible invoiced expenditure. The statement must include: account name and number, and the amount of the transaction relating to the eligible expenditure
- If you have undertaken the works yourself, please provide an invoice detailing the costs incurred to yourself for undertaking the work. The invoice can be hand written and should include:
    - your name and address
    - date the work was undertaken
    - details of the work you have done e.g. 6 ha of conventional drilling related to NFM04 Cover Cropping
    - cost of undertaking the work – where possible please refer to national rates e.g. NAAC rate for labour is £19.40/ hour

Please note, other supporting information will also need to be submitted alongside evidence of expenditure including, but not limited to; Inspection Claim and Final Report Form, Post NFM implementation survey, photos of the completed works.