

# Proposal for sediment trap/pond system for reduction of agricultural diffuse pollution and improved water quality.

Eavesford Farm, Whiston, Stoke-on-Trent, ST10 2JP

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## 1. Background information

The project for which prior approval is being requested involves the creation of a sediment trap/pond system that will reduce the impact of farming on the water environment by trapping sediments and nutrients that can arise from everyday agricultural operations.

Eavesford Farm, as for other agricultural businesses, must comply with the Prevention of Diffuse Pollution from Agriculture Regulations (Farming Rules for Water) and The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel oil) (England) Regulations 2010 (known as “The SSAFO Regs”). However, there is increasing need for farms to further reduce their impact on the environment, particularly on rivers and streams to ensure Water Framework Directive (WFD) objectives can be met.

The farm is situated in an area which is of medium priority for water quality under Countryside Stewardship, but in a catchment that is failing WFD targets, with the catchment classified as ‘Moderate’ status due to phosphate levels partly attributed to agriculture. It is understood that the area will come under a Catchment Sensitive Farming area soon with greater emphasis and targeting for water quality issues. The proposals outlined in this document will support initiatives for agriculture to play its part in improving water quality.

The project is being delivered as part of a partnership involving Churnet Valley Farmers, which is a facilitation group made up of over 40 farmers in the area and which is funded through Natural England’s Countryside Stewardship Facilitation Fund. Eavesford Farm is a member of Churnet Valley Farmers. The aim of the group is to bring together farmers, land managers and foresters to provide environmental benefits to the local area.

Funding for the sediment trap systems has been provided through the Water Environment Grant, which has been awarded to the group by the Environment Agency to deliver a project, “A Clean Water Approach for the Churnet Valley”. The project is aimed at providing advice to farms around diffuse pollution and the water environment and is supporting farms, including Eavesford Farm, to become more sustainable businesses.

The project is therefore being delivered through a partnership between Churnet Valley Farmers, Environment Agency and Natural England.

The proposal outlined in this document is to create sediment trap systems at Eavesford Farm that will reduce diffuse pollution arising from the farm. The design is based on an assessment of the farm’s current situation and management and have been informed by bespoke Farm Infrastructure Audits and guidance on such systems including the Wildfowl and Wetlands Trust, Constructed Farm Wetlands (March 2015) document. The installation of such features will support the farm’s continued development towards greater sustainable farming practices and land management.

## 2. About Eavesford Farm

Eavesford Farm is a commercial dairy enterprise with 175 acres (ca. 70 hectares) of land, which has been running as an agricultural business for over 20 years. The farm has a herd of dairy cattle which are typically housed from October through to April. The land is a mix of permanent grassland and short-term leys.

### 2.1. Location

Eavesford Farm is located in Whiston in Staffordshire Moorlands (Grid reference: **SK0341046740**) – see Figure 1.

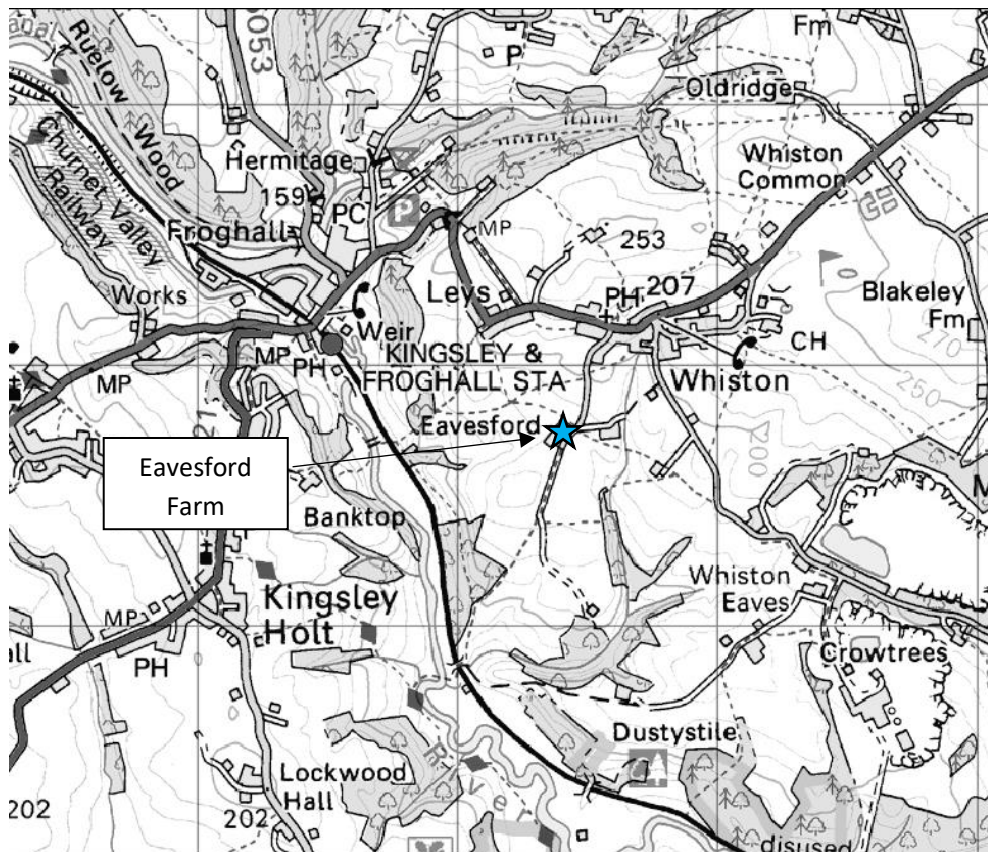


Figure 1. Location map of Eavesford Farm.

### 3. Description of work & proposal

The proposal involves the creation of a nature-based system that will support the agricultural business at Eavesford to be more sustainable and reduce its impact on the environment. The system is designed, through more natural processes, to remove pollutants and soil particles carried in surface water from the track and yard areas at the farm, which are currently at risk of contributing to pollution in adjacent watercourses. The systems will do this by intercepting runoff flow paths, breaking the flow of water and slowing it down, and allowing sediments to be attenuated.

The proposed system will consist of sediment ponds and reedbed 'cells' of varying sizes through which water will flow, enabling sediments to be trapped and nutrients removed using both the physical structure of the system, as described above, but also through planting with native species that are capable of stripping out nutrients. The system will therefore also provide ecological benefits, but the main benefits will be to the farm and is designed to mitigate the impacts of agriculture.

#### 3.1. Location of the sediment traps

The proposal includes one system consisting of 3 cells to maximise benefits and reductions in diffuse pollution arising from the farm. The system will be located to the west of the farm yard and is proposed to be of 170 m<sup>2</sup> in area. It will be created near to an existing gully to intercept runoff from areas where farm vehicles are regularly traveling and from the farm yard before it can enter the ditch network.



Figure 2. Proposed location of sediment trap to west of farm.

Figure 3 shows the location of the proposed systems and Figure 4 shows its location with aerial photography as background.

### 4. Details of proposals

The design of the system is given in Figure 5, along with cross sections and a summary of the proposals.

#### 4.1. Sediment trap

The sediment trap has been designed to take, and clean, surface water running from the track areas and from the farm yard before it enters the gully to the west.

The trap will be excavated to a maximum depth of 500 mm removing soil to reach clay. To aid settling out of sediments the depth will vary within the cell – see Figure 6 for an example of what this may look like.

Cells with a total area of 170 m<sup>2</sup> will be created.

Excavated soil will be used to create bunds for the cells.

### 5. Construction plan

Construction of the sediment trap systems will follow best practice to avoid any negative impacts on existing features.

- Work will be carried out in suitable conditions using machinery appropriate to the system being created and its location. It will also take place outside of the breeding season for birds and other wildlife.
- Spoil arising from the excavations will be used to create bunds and all spoil will remain on the farm. Using a depth of 0.5 m, the system is likely to generate 85 m<sup>3</sup>. All spoil will be used within the sediment traps to create structures such as bunding and freeboards.
- Work will not impact negatively on trees or hedgerows and all such features will be retained. Storage of spoil/machinery and access will similarly be undertaken to prevent damage to such features. The traps will be close to the hedge line but work will not take place within the root impact zone.
- The systems will not be connected to the existing gully until all work has been completed. This will ensure that any risk of soil erosion to the watercourses is avoided. Siltation traps will be used if considered necessary while the excavations are taking place.
- No work on existing ditches will take place other than to connect the sediment traps at appropriate locations.
- There are no archaeological features present.
- There are no Public Rights of Way that will be affected by the work.

### 6. Maintenance plan

Maintenance of the systems will follow best practice guidance:

Inlet and outlet pipes will be checked for blockages, vegetation build-up and debris (at least twice per year and following heavy rainfall) and cleared as necessary.

- Perimeter stock fencing will be checked for integrity / holes and repaired as required.
- Significant accumulated sediment at the inlet / outlet pipes will be removed as required.
- Repairs will take place of eroded or damaged areas of grass / plants as required to maintain design performance.

### 7. Benefits of the proposals

There will be a number of benefits from the proposals:

- A more sustainable farm and agricultural business at Eavesford Farm that is able to reduce its impact on the environment.
- Cleaner water and an improved water environment through reductions in sediments and eutrophication of watercourses, notably within the Churnet catchment which is currently failing on Water Framework Directive targets.
- Improved soil health and management of soils by preventing runoff entering crop fields, reducing risks of soil compaction and erosion.
- Habitat creation & benefits to wildlife through use of more nature-based interventions.

## 8. Context in the planning framework

The purpose for the sediment trap systems is principally for agricultural use and is similar in scope to other proposals where excavations are undertaken for agricultural purposes and come under General Permitted Development. An example for the excavation of reservoirs, taken from <https://www.gov.uk/guidance/when-is-permission-required> website indicates:

“Full planning permission is not usually required for smaller, on-farm reservoirs, where the waste material excavated to develop a reservoir remains on the farm. These may be developed under existing agricultural permitted development rights, such as Class A of Part 6 of Schedule 2 to the Town and Country Planning (General Permitted Development) (England) Order 2015, which set out the thresholds for excavation and mineral working where reasonably necessary for agricultural purposes. However, prior approval will be required from the local planning authority.

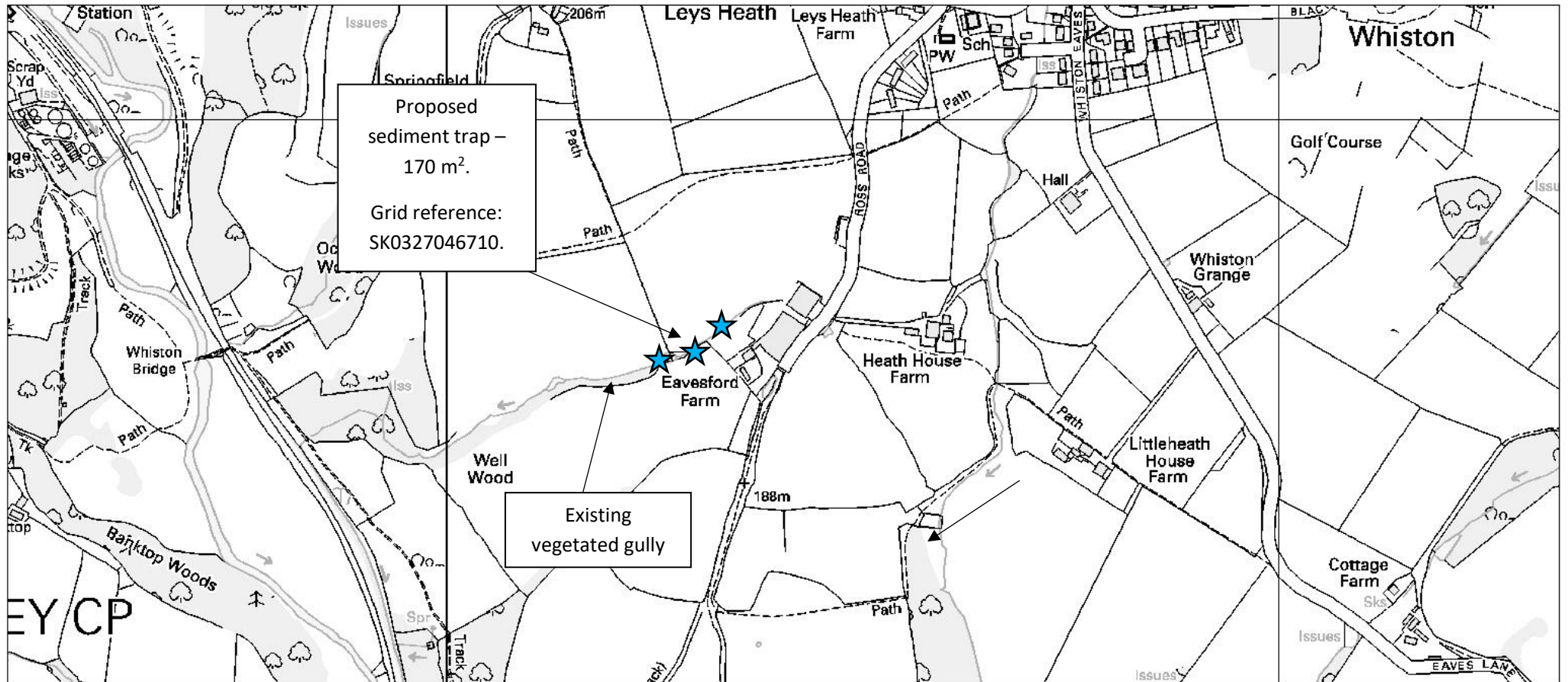
In considering either a prior approval application or a full planning application for the development of on-farm reservoirs, planning authorities should have regard to the increasing need for sustainability, importantly including the careful management of water, the benefits water storage adds in the sustainability of the farming activity and the contribution that it can also make to flood alleviation.”

In conclusion, the criteria for permitted development rights are met by the following elements for the sediment trap/pond systems outlined:

- This is a partnership project which fully involves and supports the farmer.
- There are ecological benefits to be derived within the agricultural unit.
- Sustainable soil management practices will result – intercepting and containing soil runoff for future field enrichment within the agricultural unit.
- It is a development that is consistent with agricultural management activity that will ensure the wellbeing and sustainability of the farm holding.

Based on this guidance we therefore request you to consider if these proposals constitute development, which is permitted by virtue of Schedule 2, Part 6, Class A of the Town and Country Planning (General Permitted Development) Order 2015 (as amended).

Eavesford Farm – Location of sediment traps in relation to the farm yard and farm buildings.



**Figure 3. Proposed locations of sediment trap systems at Eavesford Farm.**

## Eavesford Farm – Sediment trap plan



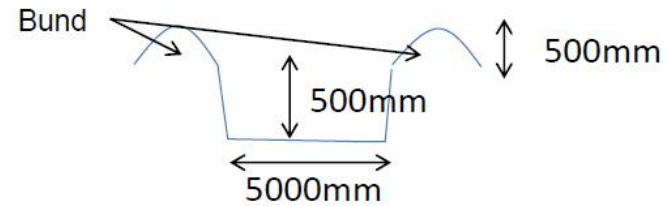
Figure 4. Location of sediment trap system with aerial photography.

## Eavesford Farm – Cross Sections

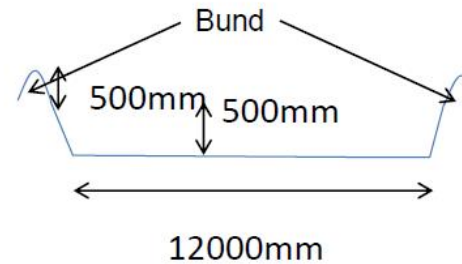


- Sediment trap system utilises natural gully that takes water from the farm track and runoff from farm yard
- no disturbance of existing trees is planned and will avoid tree root zones
- Materials excavated will be used to create the bunds
- Outfall into existing gully where further interventions are planned (small leaky woody debris dams).
- Total area = 170m<sup>2</sup>

### Cross section A



### Cross section B



### Cross section C

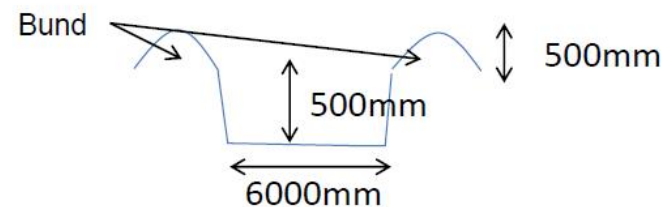


Figure 5. Proposed design and cross section of the sediment trap system.

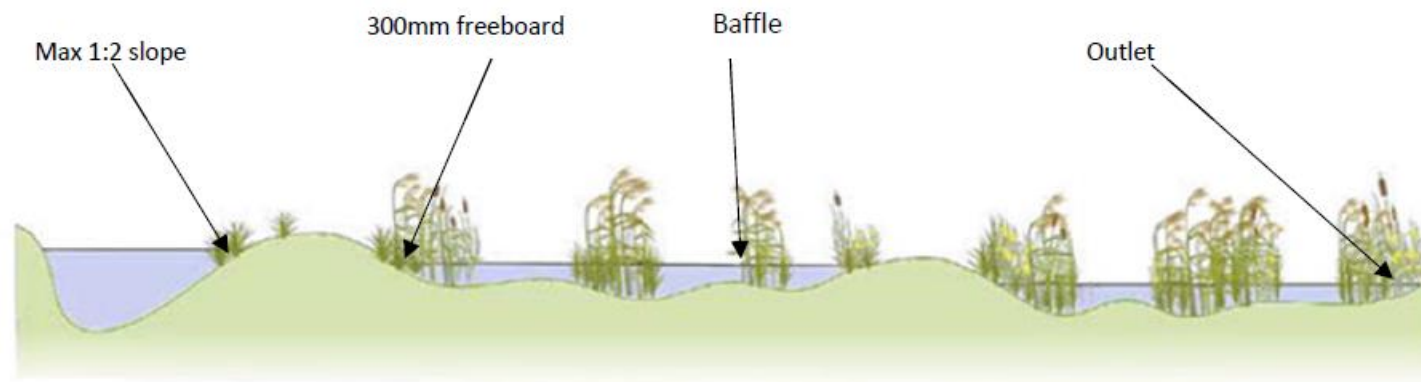


Figure 6. Image of an example design of a sediment trap/pond/reedbed system for filtering pollutants from surface water.