

# Proposals for the Staplehurst (NFM) Wetland Creation (Highwood Meadows) Scheme



## **Project proposals for the Staplehurst (NFM) wetland creation (Highwood Meadows) scheme.**

**Mark Gallant- Senior Partnership Officer (Kent Countryside Management Partnerships/Kent County Council)**

### **Introduction**

The **Staplehurst (NFM) Wetland Creation (Highwood Meadows) scheme** involves the development of a 2.2 -hectare wetland on unproductive farmland that lies South of Carpenters Lane in Staplehurst.

A wetland creation scheme on this site would have multiply benefits in that it would assist in alleviating flood risk in the surrounding area whilst also providing valuable additional wetland habitat for biodiversity and recreational activities such as bird watching.

### **Background**

The Government's 25 Year Environment Plan (25YEP) highlights 'taking action to reduce the risk of harm from flooding, including greater use of natural flood solutions.

The Medway Flood Action Plan, published November 2017, identifies **Natural Flood Management (NFM)** as a key theme to manage or reduce the risk and impacts of flooding to benefit properties upstream of Allington Lock.

NFM is the alteration, restoration or use of landscape features to reduce flood risk to properties.

There are a wide range of techniques used in NFM including small 'leaky dams', new hedgerows, riverbank restoration, targeted tree planting and wetland creation to hold water temporarily on land to 'slow the flow', reduce and delay flood peaks and store more water away from homes.

As well as helping to reduce flood risk, NFM techniques also provide wider social and environmental benefits by improving our environment and wildlife for people to enjoy.

**Kent's Countryside Management Partnership`s** have been working in partnership with the **Environment Agency** and **KCC`s Flood & Water Management Team** to deliver a range of Natural Flood Management Projects throughout the county of Kent.

### **Background continued**

The **Staplehurst Surface Water Management Plan (SWMP)** (Final Report January 2017 -Kent County Council) identifies the Staplehurst catchments as being of significant risk of flooding.

According to the SWMP, the majority of these reported flood events are likely to occur in the winter months and it is highly probable that the Staplehurst catchment is prone to longer duration rainfall events.

However, the report also indicates that the Staplehurst catchments are also sensitive to short intensive rainfall events due to the underlying geology and urbanised imperious areas.

Evidence indicates that the intensity of these short intensive rainfall events is likely to increase significantly in future years because of increases in atmospheric temperatures which are occurring as a consequence of climate change.

The SWMP indicates that it is highly likely that the catchments within Staplehurst may be more sensitive to short intense rainfall events during periods when there are elevated main river levels.

Elevated main river levels. would exacerbate the surface water flooding as the excess surface water is unable to be cleared from the surface water drainage network.

Therefore, flooding within Staplehurst may be because of the inability to discharge excess surface water during main river flood events.

Recent flooding in the Staplehurst catchment is likely to have occurred because of a combination of surface water and sewer flooding as the drainage network within Staplehurst became overloaded with surface water.

This may have also been exacerbated by the elevated main river levels in the River Beult as the peak flood volumes would have prevented excess surface water from being passed through the drainage network (such as the Overbridge Farm Stream) within Staplehurst.

The **Staplehurst (NFM) wetland creation (Highwood Meadows) scheme** aims to assist in alleviating flood risk in the Staplehurst catchments by diverting excess water from the Overbridge Farm Stream during peak flows and safety storing it in the newly created 2.2-hectare wetland.

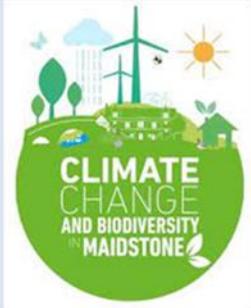
## The Staplehurst (NFM) wetland creation (Highwood Meadows) scheme

### Summary of benefits –

- Wetlands such as the one proposed in the **Staplehurst (NFM) wetland creation (Highwood Meadows) scheme** function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater, and flood waters.
- Trees, root mats and other wetland vegetation planted within the wetland also slow the speed of flood waters and distribute them more slowly over the floodplain. This combined water storage provides a braking action that lowers flood heights and reduces erosion.
- Wetlands within and downstream of urban areas and housing developments are particularly valuable, counteracting the greatly increased rate and volume of surface- water runoff from pavement and buildings.
- Restoring water bodies such as streams to their natural floodplains provide flood risk reduction benefits by slowing runoff and storing flood water, but it also has direct benefits to plants, invertebrates, birds, and animals which live on the banks, riparian, and floodplain zones.
- Other benefits include – Restoration of natural processes, including erosion and deposition
- Improvements to the aesthetic value of the landscape and improvements to its recreational value benefits local communities that can enjoy the wildlife attracted to these newly created wetland features.
- Wetland creation also Increases the potential for removal of fine silt from river and ditch systems – this increase water clarity which in turn benefits ecology.

The **Staplehurst (NFM) wetland creation (Highwood Meadows)** scheme also supports **Climate Change and Biodiversity in Maidstone**

- Implement a plan to increase tree cover by at least 46 hectares

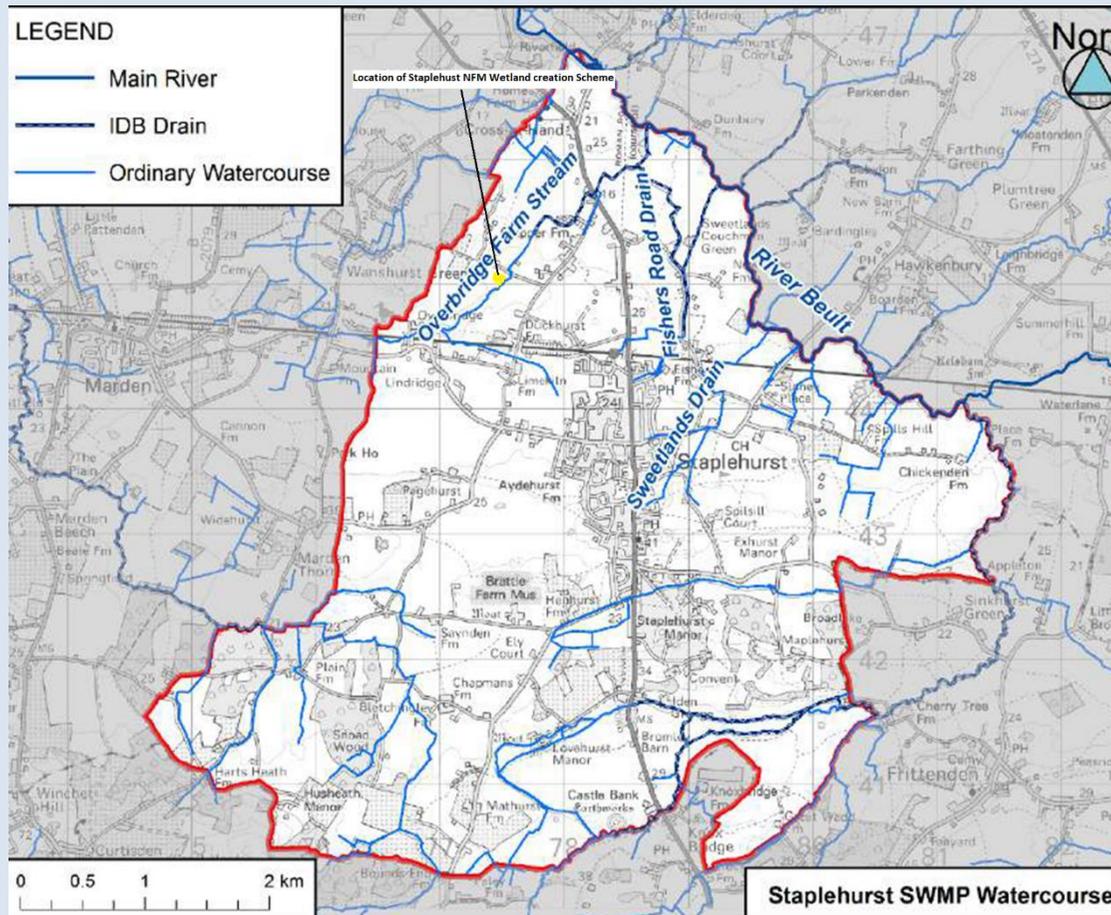


- Deliver at least one new wetland project each year
- Work with partners to implement a Nature Recovery Strategy
- Work with local landowners to deliver landscape scale biodiversity initiatives
- Assess potential of our land for enhancing biodiversity including allowing community groups to manage it to enhance biodiversity

## The Overbridge Farm Stream

The Staplehurst (NFM) wetland creation (Highwood Meadows) scheme is focused on a watercourse identified in the Staplehurst Surface Water Management Plan (Final Report KCC January 2017) as the **Overbridge Farm Stream**.

The Overbridge Farm Stream is a tributary of the River Beult, the water course rises from land south of Marden village [the Howland Road area], before flowing in a North Easterly direction across farmland. The stream joins the River Beult at Cross at Hand (Grid ref- TQ 578685 146265).



**Staplehurst (NFM) wetland creation (Highwood Meadows) scheme Project outline**

**Project Coordinator** – Mark Gallant, Senior Partnership Officer (Kent`s Country Management Partnership) ([mark.gallant@kent.gov.uk](mailto:mark.gallant@kent.gov.uk))

**Project Designer** – Dr. Matthew Simpson P.W.S Director and President Society of Wetland Scientists Europe ([matthew@35percent.co.uk](mailto:matthew@35percent.co.uk))

**Primary funder** – The Environment Agency Mason, ([lesley.mason@environment-agency.gov.uk](mailto:lesley.mason@environment-agency.gov.uk)).

**Landowners** – Lou & Richard Carpenter ([richard.lou.carpenter@gmail.com](mailto:richard.lou.carpenter@gmail.com))

**Address (nearest location)** – Hound Hurst Barn, Grave Lane, Staplehurst, Tonbridge, TN12 0JP

**Grid reference** – TQ 577408 145071

**Size of project** – Approx. 2.2 hectares

**Large scale map showing the location of the Carpenters Lane Proposed NFM Wetland Scheme.**

**Location of Carpenters Lane NFM Wetland site**



- Drains Offline
- Drains**
- FRM Indicative Main River
- Other Rivers
- Undefined

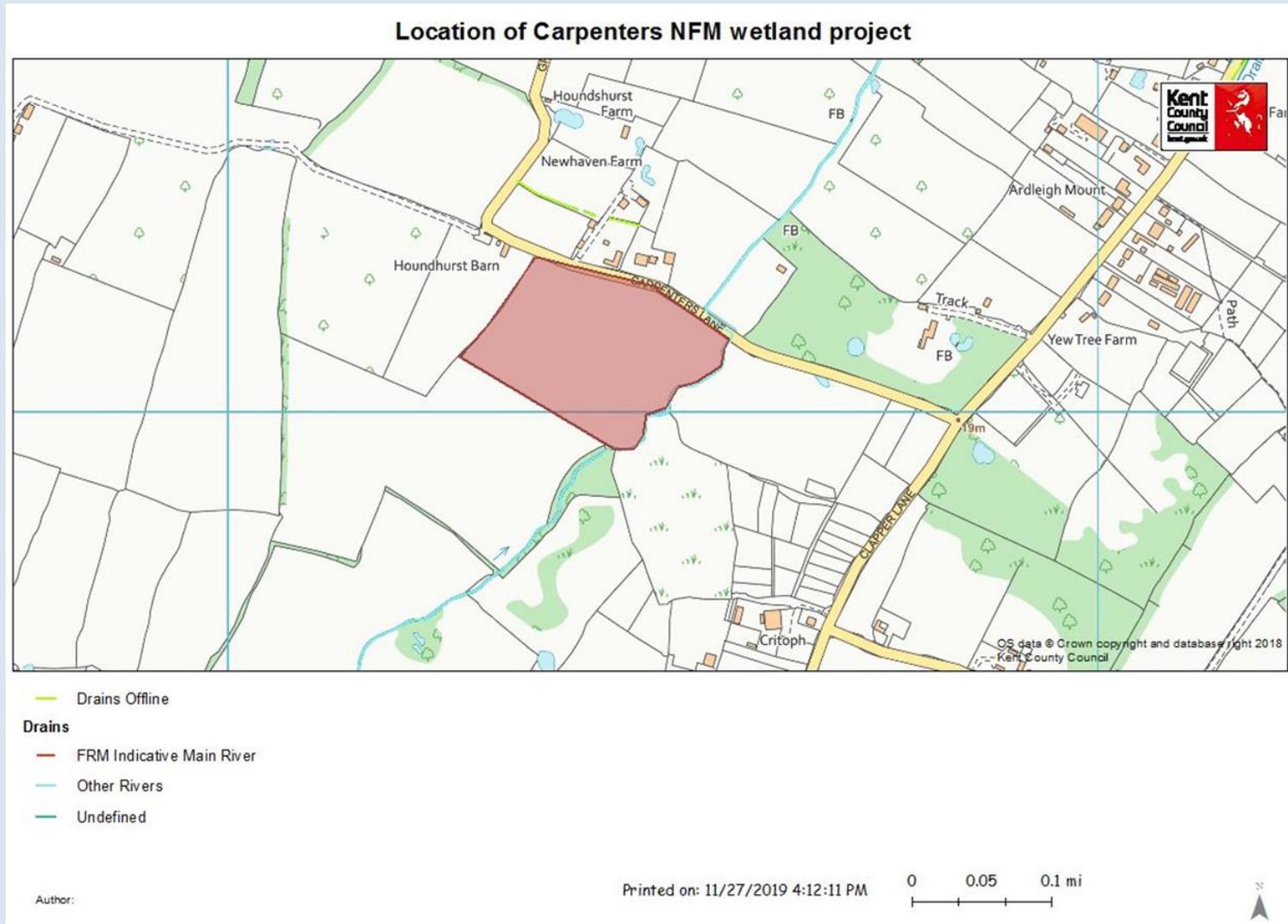
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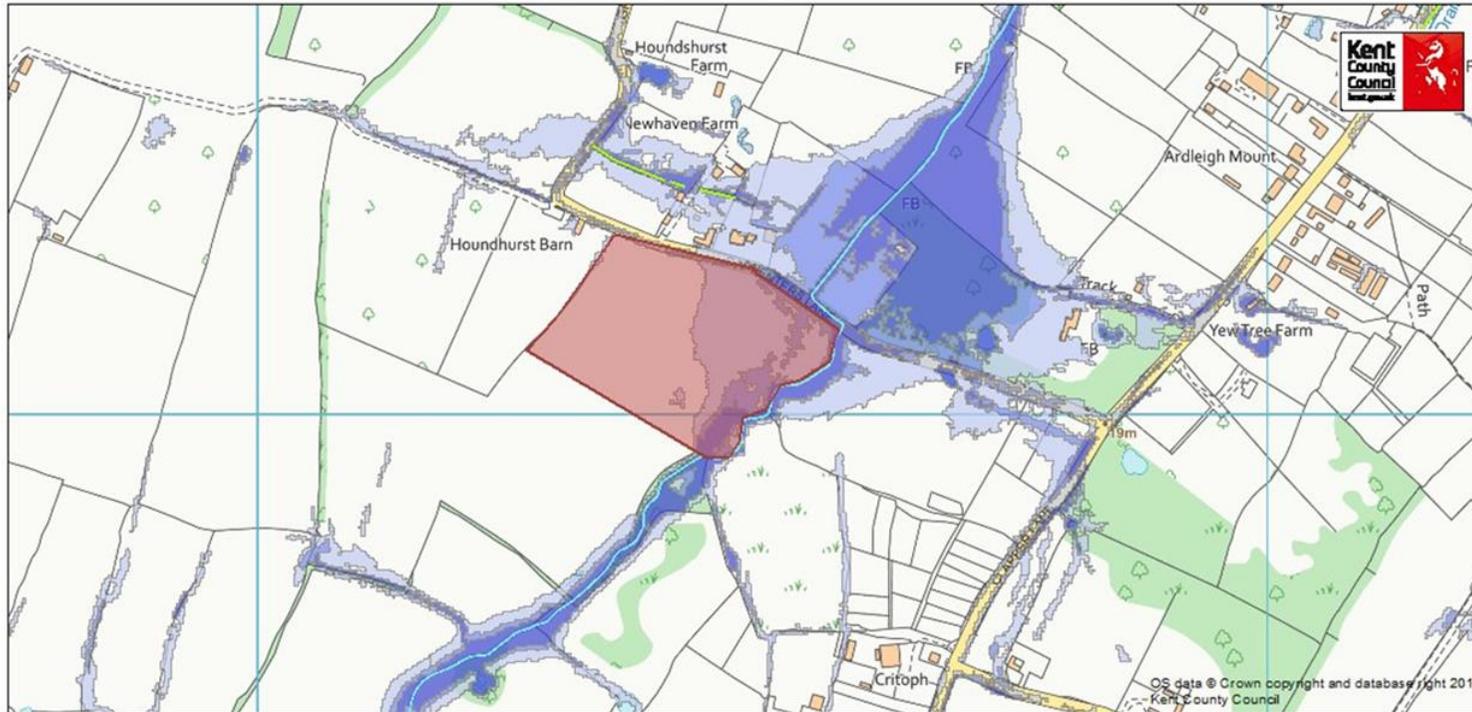


**Map showing the location of the Carpenters Lane Proposed NFM Wetland Scheme.**



Surface water flood map for the Carpenters Lane Wetland NFM Scheme

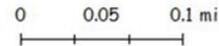
**Surface water flood map for Carpenters NFM wetland project**



- |   |  |
|---|--|
|  Drains Offline            | <b>Flood Map for Surface Water</b>   |
| <b>Drains</b>   |  High   |
|  FRM Indicative Main River |  Medium |
|  Other Rivers              |  Low    |
|  Undefined                 |  |

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### **Staplehurst (NFM) wetland creation (Highwood Meadows) scheme Project outline cont.**

The **Staplehurst (NFM) Wetland Creation (Highwood Meadows) Scheme** comprises of a series of online interconnected wetland features and habitats (scrapes, ephemeral ponds/pools, reedbeds, swales) excavated at different levels to accommodate differing amounts of water depending on the season and frequency of high intensity local rainfall events. (See general arrangements draft design created by Dr Matt Simpson).

A robust leaky dam structure will be constructed in the existing channel of the Overbridge Stream, this intervention would be designed to allow fish passage and low flows to pass beneath it unrestricted during normal conditions.

During peak flows, the structure would be designed to impound the flow, encouraging excess flood water to be diverted from the Overbridge Stream via a swale inlet and stored in the wetland area.

This 2.2 -hectare wetland area will be created at different levels and designed to incorporate a variety of different habitats (including scrapes, reedbed etc.) that would suit different species at different time of the year, whilst also providing the opportunity for flood storage.

A protective bund would be created around the perimeter of the wetland to protect neighbouring properties in Grave Lane from flooding and prevent water from flowing backwards in to surrounding arable fields.

This simple bund would be created using spoil from the creation of the main wetland area and sow with an appropriate wildflower seed mix and planted with native tree species.

The landowners Lou and Richard Carpenter are supportive of the project as the field is currently too waterlogged to be economically farmed as part of an arable rotation. (Current designation of field – Improved grassland – Arable & Horticultural (Kent Habitat Survey 2012))

In terms of flood alleviation, the project would allow for the storage of a considerable amount of water (Approx. 3,700 cubic metres, dependent on final design) and assist in reducing peak flows in the Overbridge Stream as it flows Northeast towards to the River Beult.

The scheme would also improve the throughput of water through the east of Marden village, and encourage flows away from the Hen & Duckhurst scheme.

**Budget and associated costs-**

Environment Agency funding - £46,398

Kent Countryside Management Partnerships (in kind volunteer contribution) - £2,400

**Costs to date –**

<b>Item</b>	<b>Supplier</b>	<b>Associated costs</b>
Environmental/Ecological reports	Kent & Medway Biological Records Centre	£280
Topographical survey	Canterbury City Council – Consultative Engineering dept.	£1,914
Wetland design	Dr Matt Simpson	£3,602
Reptile survey	Kent Countryside Management Partnerships	£198.80
Reptile survey materials (roofing felt)	Kent Countryside Management Partnerships	£40.00
Project coordinator	Kent Countryside Management Partnerships	£500
<b>Total of spend to date -</b>		<b>£6,534.80</b>
<b>Remaining funds available</b>		<b>£39,863.20</b>

**Projected project costs**

<b>Item</b>	<b>Supplier</b>	<b>Associated costs</b>
Planning permission fees etc.	Maidstone B.C.	£2,500
Community engagement events etc.	Kent Countryside Management Partnerships	£750
Additional input by Dr Matt Simpson	Dr Matt Simpson	£1,500
Coordination of planning permission	Kent Countryside Management Partnerships	£1,000
Ground works – excavation of wetlands (excavating, shaping & compacting for main wetland features, excavating for swales, earth bund construction & shaping, • Transport & welfare)	Costing`s based on a quote received from Hugh Pearl (land drainage) engineering Ltd	£40,000
Delivery project management	Kent Countryside Management Partnerships	£1,250

Materials for construction of leaky dam	Torryhill Fencing	£1,500
Design for leaky dam	Kent Countryside Management Partnerships	£500
Delivery of leaky dam construction	SWS Countryside	£2,500
Trees, sundries and wildflower seed	Emorsgate seeds etc.	£3,000
Planting and sowing of seed etc.	Kent Countryside Management Partnerships	£750
Reeds and marginal aquatic plants	British Flora	£2,000
Delivery of reed planting etc	Kent Countryside Management Partnerships	£500
Incidental materials	Various	£2,000
<b>Projected costs</b>		<b>£53,250</b>
<b>Additional funding required to manage shortfall in project costs</b>		<b>£13,352</b>

