

Working with an outdoor pig unit to reduce soil & water pollution

Wayland Farms, West Acre, Norfolk

1. Introduction

Sediment run-off had been occurring from an outdoor pig unit at West Acre, located in the River Nar Catchment (Figure 1). During intense rainfall events, the suspended sediment was coming off the field and onto a track, which provided a pathway for it to flow onto the road and into drains. These drains could feed the River Nar; an ecologically important chalk stream.

Wayland Farms had already worked with Norfolk Rivers Trust to implement various good practices for soil and water management. For example, field margins of at least 6m are left 'tussocky', high-risk gateways and wet areas have limited access for machinery and an area of woodland also buffers the site. However, since run-off had continued to occur, it was clear that intervention on a larger scale was required to intercept and reduce run-off.



Figure 1. Wayland Farms location.

The Nar Catchment

The River Nar is a small chalk stream which flows through the downs and fenland of north-west Norfolk. It has been designated as a Special Site of Scientific Importance (SSSI) due to its distinctive progression from chalk river to fenland river, giving the Nar high conservation value. The catchment area is mainly rural, with arable land dominating 75% of the total area. Pig farming has been increasing in the valley, which can be a threat to the ecology of the river due to sediment run-off. Therefore, promoting and ensuring best practice on pig units is particularly important to mitigate this risk.

Wayland Farms, West Acre

- ◆ **Size:** 45 hectares.
- ◆ **Land use:** Outdoor pig breeding unit containing approximately 1000 sows.
- ◆ **Catchment:** Nar.
- ◆ **Topography:** Long gentle slopes and undulations.
- ◆ **Soil type:** Newmarket 2. The soils consist of shallow lime-rich soils over chalk and are classed as 'loamy sand'. These are free-draining soils and are therefore suitable for keeping outdoor pigs on.
- ◆ **Designated zone:** Farm holding sits within a Nitrate Vulnerable Zone (NVZ) for surface and groundwater.

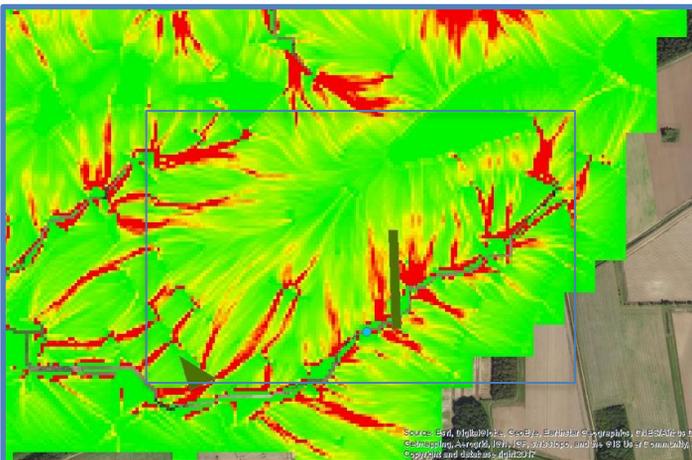


Figure 2. Diffuse pollution risk mapping (SCIMAP: red = high risk and green = low risk) of Wayland Farms (blue box).

2. Assessment of the issues

An assessment of the site - using mapping (Figure 2), visual observations during a walkover and farmer knowledge - was conducted to identify locations where runoff was likely to occur. The analysis takes into account land use, soil type, rainfall and connectivity through pathways to the receptor.

Since the field has a gentle slope, the run-off flows down to the farm track, which leads onto the B1153 road, where it could eventually reach the watercourse (Figure 3).

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Type of intervention	
1	Silt trap 
2	Track restoration 
3	Buffer strips 

Table 1. Intervention symbols.

Figure 3. Locations for silt traps, buffer strips and track humps.

3. Installation of buffer strips, silt traps and track work

It was decided that two silt traps would be installed at the site (Figures 3, 4 & 5) with grant funding through the Water Sensitive Farming initiative. The traps work by capturing and slowing down polluted run-off, which enables the sediment and suspended solids to settle out. This is important as the solids can have pollutants such as nitrates and phosphates attached to them.

A couple of buffer strips were also implemented to reduce run-off and provide an extra habitat. In addition, track restoration work also took place to trap run-off e.g. hump and cross-drain construction (Figure 3). The accumulated sediments are then returned to the field where it will benefit the farm.



Figure 4. Silt trap (1) installed in December 2017.



Figure 5. Silt trap (2) installed in December 2017, complete and capturing run off.

We thank Wayland Farms Ltd, Cranswick and West Acre Estate for their assistance during farm visits and construction.