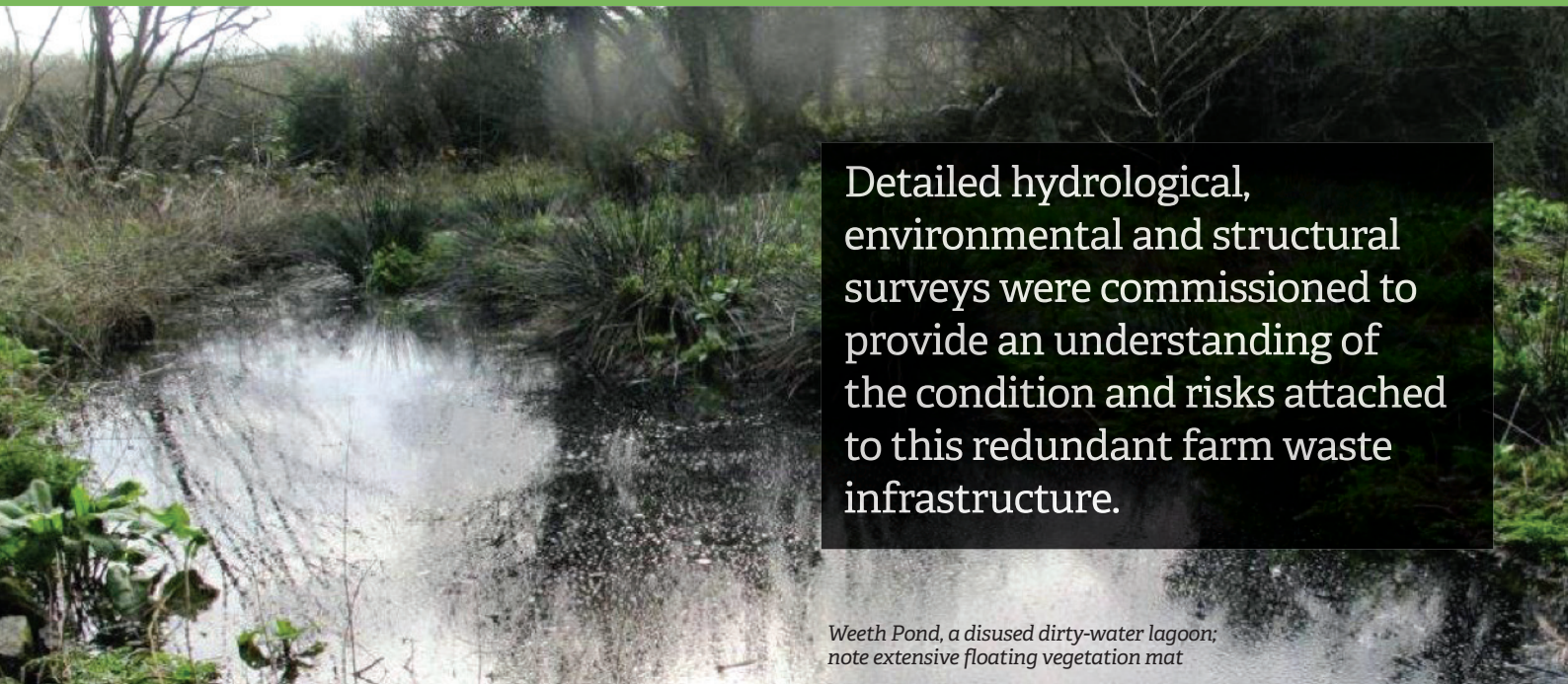


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Case Study

Weeth Pond, Penrose.



Detailed hydrological, environmental and structural surveys were commissioned to provide an understanding of the condition and risks attached to this redundant farm waste infrastructure.

Weeth Pond, a disused dirty-water lagoon; note extensive floating vegetation mat

Location: Penrose Estate, Helston

Water course: Penventon spring, feeding into the River Cober.

Ownership

Penrose, and this part of the Cober catchment, has been owned by The National Trust since 1974

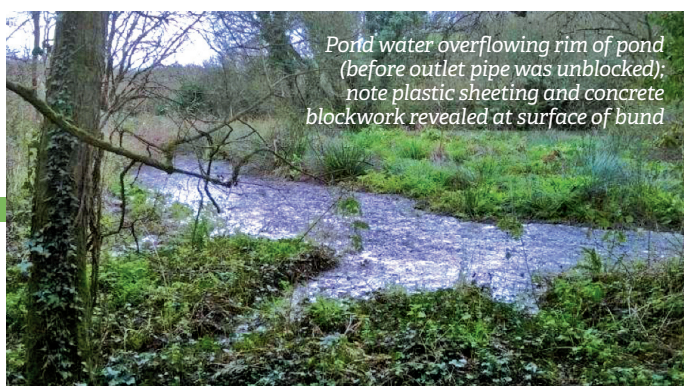
Access

The project site is not easily accessible from Public Rights of Way.

About the project

Detailed hydrological, environmental and structural surveys were commissioned to provide an understanding of the condition and risks attached to this redundant farm waste infrastructure.

Research identified the water quality benefits being provided by the pond, and practical works were completed to reduce the risk of overtopping and structural collapse, reduce safety risks, maintain habitat diversity and prevent stock access and damage.



Pond water overflowing rim of pond (before outlet pipe was unblocked); note plastic sheeting and concrete blockwork revealed at surface of bund

How it was achieved

In 2016, the National Trust, funded through the Cornwall Catchment Partnership, commissioned Chris Weedon Associates to undertake a site visit and ecological / hydrological assessment of the Pond and make recommendations for future management. The findings of the research were that the pond did not pose a pollution risk, and it was identified as providing a level of water quality improvement and protection to habitats downstream – including the Loe – from accidental escape or run-off of nutrient and/or toxic contaminants.

A more detailed structural survey was recommended, alongside topping of the pond retaining wall with earth, and gradual coppicing of trees growing in the constructed pond walls to prevent catastrophic damage from windthrow and to maintain habitat diversity around the site.

The structural survey was undertaken by PCA Consulting Engineers and highlighted that although the overall structure appeared sound, to reduce risks of overtopping in high rainfall periods the existing single 150mm drainage pipe should be replaced by two 450mm pipes, installed at a lower level in the retaining wall (thus reducing the risk of blockage and also any safety risk from deep water) Safety signs were also recommended.

Pond water overflowing rim of pond (before outlet pipe was unblocked); note plastic sheeting and concrete blockwork revealed at surface of bund

Practical works were completed by MH Groundworks for the National Trust during early May 2018.

Periodic monitoring of the pond and related infrastructure is undertaken by the Penrose NT Ranger team.



Cornwall Wildlife Trust



Environment Agency

Case Study 1 : Weeth Pond, Penrose

"A partnership approach to dealing with this potentially high risk site in a high risk location has enabled us to understand the issues and site conditions, and then deliver a benign solution that provides valuable water quality, risk management and wildlife benefits. This is a great example of the benefits of the Loe Pool Forum, as the sum of all these small but joined up actions over time around the catchment come together to produce tangible improvements in the local environment "

Mike Hardy

National Trust Lead Ranger, Penrose

Why this work was needed

As the National Trust had taken back a redundant element of farm waste infrastructure with little knowledge about it, good baseline information was required to inform actual versus perceived risks, and recommendations regarding management options for the future.

Originally constructed as a dirty-water lagoon serving Penventon Farm in the early 1980's, the pond became surplus to agricultural use and was taken back in hand by the National Trust in 2008.

Due to lack of information regarding its construction, concerns were raised regarding its structural integrity and longevity, health and safety issues regarding deep water and public safety and also potential latent pollution risks from its previous use for slurry storage.

Benefits

Through the surveys and resulting practical work, we now have a valuable element of low risk infrastructure which is providing a variety of ecosystem services. These include ;

- 'polishing' water from the catchment / spring source above the pond.
- providing an intercept / filter for any potential pollution risks in the future.
- a low risk, low maintenance waterbody providing a valuable wildlife habitat
- removal of risk from cattle access – safety, poaching, slurry etc.

Consents:

Liaison with EA undertaken re scale of works.

Construction data

2 x 4m long 450mm diameter corrugated plastic pipes
for improved drainage outlet

5 tonnes of sub soil
to provide a level bank to retaining wall and cover block construction.

60m of additional stock fencing
to prevent cattle access from neighbouring field.

Capital costs

Total contractor cost for labour and materials=
£2,500

Environmental survey = **£2,500**

Structural Survey = **£2,500**

Funded by the Cornwall Catchment Fund and the Environment Agency.

NT staff time (Project management and NT consultancy of **approximately 10 days** over project duration.



Network of watercourses flowing through woodland valley below (south-east) of holding pond