

# CASE STUDY



## The Fen Ditching Company provide environmentally-friendly solution to help rural Cambridgeshire farm solve Summer irrigation problem

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**Andrew Dennis – Engineer**



# Reed Fen Farm Irrigation

**Reed Fen Farm is a 1,000 acre second-generation family farming business based in the rural village of Lakes End in Cambridgeshire and managed by Mr. John Hartley. The farm is run predominantly as an arable enterprise, growing a range of produce including potatoes, sugar beet, onions and peas - which form the break crops for the main cereal cropping. With the increase in the number of hot summers and the reduced rainfall which we have experienced over the past five years, John was concerned that crop yields will be affected in the future and that this would have a detrimental impact on the business. He needed some form of insurance to guarantee maintaining the top quality of the potatoes grown on the farm today.**

The most practical and efficient way to maintain a good supply of water is to create a reservoir within the farm, which can be filled during the Winter when rainfall is higher. This water can then be used over the Summer for crop irrigation, with no requirement to use water from any other less environmentally-beneficial source. The decision was taken to investigate the possibility of building such a reservoir, making sure that it was positioned correctly within the landscape to fit into the local natural environment.

Having calculated the amount of water required, it became apparent that a reservoir with a 10 million gallon capacity would be required. Not something that could be tackled without experience and the right equipment. So John Hartley needed to work with a specialist company who have many years experience of reservoir creation. As chairman of the Upwell Internal Drainage Board and a lifelong resident of the area, he had built up an excellent knowledge of local suppliers and decided from the start that his preferred choice would be the Wisbech-based Fen Ditching Company, whom John had known for 30 years.



However, before the project could commence it was necessary to apply for a funding grant from the European Union and to go through a detailed specification and tender process. For this, John involved consultant project manager Geoff Beel, who was responsible for the licensing of the scheme - and also engineer Andrew Dennis, an independent consultant with many years experience in reservoir design. Andrew takes up the story:

“I was first approached in December 2004 and after some lengthy discussions I prepared an initial set of drawings and a detailed specification of the project requirements. However, it was not until June 2006 that things progressed further. I understand that it was the EU grant which took the time, but by last Summer things were ready to move forward. I met with John Hartley and also with the project manager Geoff Beel at this time to discuss the feasibility, the design and the tender requirements. Then, after some adjustments to the drawings, I prepared a final specification and this went out to five potential suppliers, which had been selected by Geoff, including of course the Fen Ditching Company.”



Geoff managed the tender negotiations at this stage and then presented all of the options back to John for him to choose his preferred supplier. The Fen Ditching Company were successful in winning the tender, not only based on the existing relationship with John, but also due to their experience, their reputation and their quality of finish on other projects in the area. It was also convenient that they happened to be the most cost-effective supplier at the end of the day as well.

The project was due to commence in July 2006, but the start-date had to be delayed as there was an existing crop of potatoes on the land. Pre-contract and installation meetings involving Andrew, Geoff, John and FDC took place in early August, then Andrew and FDC worked together to peg out the site and FDC were finally able to start excavation works in early September after the potatoes were harvested. Andrew explains more about the construction of the reservoir:

**“This was a challenging project as the soil in that area is very poor for engineering purposes. Normally we would use all the excavated material to form embankments of up to 3.5m high, but in this case we were not able to go higher than 1.25m due to poor foundation conditions. To provide the required capacity of 10 million gallons the reservoir had to cover a much larger area than would normally be the case, as we could not make it as deep as we would ideally have liked. So in this case, the finished reservoir covers an area of 2.2 hectares (22,000m<sup>2</sup>).**

**In addition, as the poor-quality surplus soil which was removed could not be used for any form of land restoration activity, we had to use it around the edges of the reservoir as landscaping material. The project therefore extends to an area of 3.5 hectares (35,000m<sup>2</sup>), including the field fringes.”**

Once the work was under way, Andrew visited the site weekly to make sure that everything was on track - and to revise and renew the pegging wherever required, as the scheme progressed. He also acted as the main point of contact for FDC and generally oversaw the construction process from start to finish. The entire project would normally have taken two months, had it commenced as originally planned in the Summer. However, there were delays due to very bad Autumn and Winter weather.

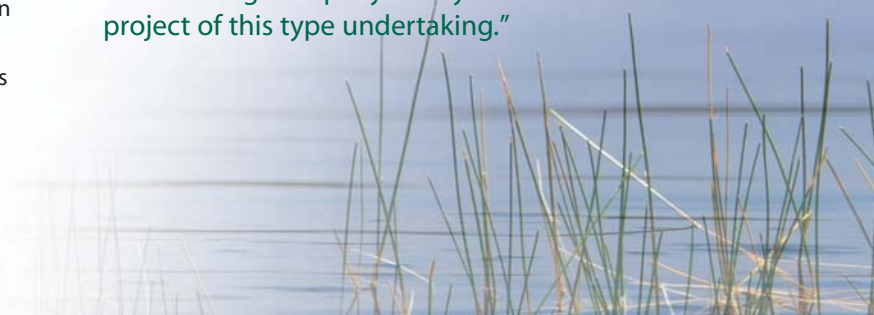


So although the main reservoir was completed and useable by December, the overall finishing of the project, including all surrounding landscaping, cannot now be finalized until Summer 2007 when the surplus soil is fully dried out.

It was vital that the reservoir could be filled with water during the Winter months, not only because this is when rainfall is higher, but also because the licensing agreement which John Hartley has with the Environment Agency dictates that the water can only be pumped from the nearby ditches between November and March. Fortunately he was able to do this and the reservoir is performing its required function, giving Reed Fen Farm the water it needs for irrigation in the Summer months. Andrew concludes:

**“FDC were the ideal choice for this project thanks to their local experience and their level of initiative. Many of their operators have been with the company long-term, through all of its developments and it is this experience which really makes the difference. They worked with us as a team to overcome obstacles and deal with any issues that arose. I was able to leave them to it between weekly visits and to know that it would be done properly.**

**It's a fabulous job which was carried out under difficult circumstances and it's now looking really smart. I would definitely recommend the Fen Ditching Company to anyone who needed a project of this type undertaking.”**



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