

18th July, 1941.

BOURNE SOUTH FEN & THURLBY FEN DRAINAGE.

The question of the disposal of flood water from the area under the control of the Bourne South Fen & Thurlby Fen Drainage Board has caused considerable anxiety for some considerable time.

The urgency of the question is amplified by the fact that the existing pump and engine have reached the limit of their useful life and very extensive overhauls and replacements are necessary.

At the present time the only outfall for the flood water from the Area is through the Sir Gilbert Heathcote's Tunnel. The Drainage from the Thurlby Fen Area is conveyed by three Main Drains, viz., The Pasture Drain, Middle Drain and Ready Honey Drain to the West Soke Drain which discharges by gravity directly into the Heathcote Tunnel.

The water from the Bourne South Fen Area is conveyed by three Main Drains, viz., Long Drove Drain, Tunnel Bank Drain, and Boundary Drain to a pumping station situated close to the Heathcote Tunnel. From this point it is lifted by means of an old paddle pump to the level of the West Soke Drain and thence flows into the tunnel.

After passing through the Tunnel the water is delivered into the Counter Drain, which is under the jurisdiction of the Deeping Fen Commissioners, and carries the water via Pode Hole to Vernatt's Drain which ultimately discharges into the River Nene.

When the Counter Drain is in flood condition and your pump is working, the effect is to raise the water level in the West Soke Drain to such an extent that it prevents the free flow of water through the Pasture Drain, Middle Drain and Ready Money Drain and causes flooding on land drained by these dykes. Also it is possible for the water at the higher level in this area to find its way into the Bourne South Fen District, and flow back to the Pumping Station by way of the Boundary Drain. Thus the water has no outlet and flows round in a circular route.

Many conferences between the interested parties have been held to discuss the matter and finally on March 4th, 1941, a conference was held at the offices of the Welland Catchment Board, Mr Leopold Harvey, Clerk to the Catchment was in the Chair, the other representatives being Capt. Roseveare, Chief Engineer to the Ministry of Agriculture, Mr. Tavernor, the Engineer to the Deeping Fen Drainage Commissioners, Mr. Bain, the Engineer to the Welland Catchment Board and Mr. Simpson, the Consulting Engineer to the Bourne South Fen and Thurlby Fen Drainage Board.

After a long discussion it was agreed that the only method which could overcome the objections of all parties was to pump the water from the Bourne South Fen and Thurlby Fen into the Counter Drain. It was pointed out that the structure of Heathcote's Tunnel was not sufficiently strong to receive a large volume of water under pressure, and therefore it was necessary to lay a pumping Main from the Pumping Station across the River Glen to the Counter Drain.

Mr Tavernor, the Engineer to the Deeping Fen Drainage Board pointed out that the pumping of the Bourne Fen water might have the effect of raising the water level in the Counter Drain to a dangerous extent, and that additional pumps might be necessary at Pode Hole to lift the water from the Counter Drain into Vernatt's Drain. Until this question is settled it was agreed that as a temporary measure the water could be pumped direct into the River Glen.

To enable this work to be carried out in a proper manner it is necessary to construct a new pumping station to the west of the existing Buildings and to the south of the Tunnel Bank Drain. This Building would be built of brick and of a suitable size to accommodate the pump and also to provide living accommodation for the pumping station Engineer. As the ground is not stable, it may be necessary to drive concrete piles to carry the Building. It is believed that a Gravel Foundation is to be reached approximately 15 feet below the surface and the piles would have to be driven into this gravel strata.

The pump proposed is of the axial flow type, driven by a heavy oil Engine, the pump is to be capable of lifting 2,700 cu. ft. of water per min. This figure being based on a "Run off" of 15 cu. ft per min. per 1000 acres. Detailed Specifications have already been prepared for this pump.

The water from the Pump would be discharged through an 18" dia. cast Iron Rising Main laid across the swamp to the bank of the River Glen. It would then be laid up the slope of the Bank and across the top and discharge on a concrete apron laid in the River Glen.

When the time arrives for the water to be pumped direct to the Counter Drain, it will be necessary to carry the Rising Main across the River Glen on concrete piers at a height above flood level.

To enable this plant to operate satisfactorily it will be necessary to provide a sluice across the drain leading to Heathcote's Tunnel, in order that the Flood Water from the Counter Drain cannot flow back into the Thurlby Fen drains. This sluice is shewn at Point "Y" on the plan.

A connection will have to be made between the West Soke Drain and low level drain of the Bourne South Fen, so that when the sluice at "Y" is closed the water from Thurlby Fen can reach the new pump. It is suggested that a new drain and sluice be constructed at point X on plan or alternatively a connection with a sluice be made where the present paddle is situated.

It is extremely difficult at the present time to give any accurate estimates of the cost, but approximate estimates have been prepared and are as follows:

Pumping Station Buildings, including piling if necessary	1600.	0.	0
Pump and Engine.	2750.	0.	0
Rising Main and Concrete apron to River Glen	275.	0.	0
No.2 Sluices and work on drains	200.	0.	0
Contingencies, Engineering etc.	825.	0.	0
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	£5630.	0.	0

It should be borne in mind that the above Estimate only includes for pumping the water into the River Glen.

To complete the Scheme, it will be necessary to drive piles into the Glen to carry the pipes across and to construct a proper outfall into the Counter Drain, and this will entail a further cost of approximately £800.

Accompanying this report is a copy of a drawing, showing the proposed Pumping Station and also a small block plan of the site.

Silcock & Simpson,
10, Park Row,
LEEDS, T.