

# Briefing Note

## Fulney Lock (River Welland)

February 2016

### Background

Fulney Lock is located in Spalding on the River Welland, for which the Environment Agency is the navigation authority, and marks the boundary between the tidal and non-tidal sections of the River Welland. As a tidal lock, it provides defence against incoming tides (particularly surge tides) as well as allowing boat passage between the fluvial and tidal sections of the waterway.

Fulney Lock comprises of two pairs of downstream facing gates (flood doors) and one pair of upstream facing gates (ebb gates). The ebb gates, located between the two outer gates, retain the freshwater level when the level of tidal water is lower.



Fulney Lock is a 'manned lock', i.e. a lock keeper operates the lock, and passage must be booked in advance. Our internal procedures require double manning during lock passage, which is restricted to a rising tide as the ebb gates will close in an uncontrolled manner when tidal water level is lower than freshwater level.

### The problem

Fulney Lock suffers from the effects of silt deposition, from flooding events and at each high tide. As the lock is infrequently used for boat passage, the lock is 'flushed' by the lock keeper on a regular basis, approximately once a month. This involves fully opening the paddles in the ebb gates on an outgoing tide so that water is drawn through the lock to dislodge any silt build up.



Photograph showing the upstream and middle lock gates. The paddles in the middle (ebb) gates are permanently cracked open to maintain a flow of water through the lock. This helps to disperse silt laden water drawn down from the upstream reach.

There are no paddles in the upstream lock gates and those in the tidal gate are permanently sealed closed.

The Fulney lock-keeper, who has worked with this lock for many years, inspected the lock in late March 2015 in preparation for a planned campaign cruise by the Inland Waterways Association (IWA). He found that, whilst the lock had been operable at earlier inspections, it was then inoperable due to silt build up; we believe the high spring tides contributed to this.



The above photographs show siltation around the tidal lock gates.

We tried very hard to put in place emergency de-silting works which would enable the IWA campaign cruise planned for May 2015 to go ahead. Unfortunately, the environmental risk of carrying out de-silting when water temperatures were rising was just too great and the lock was subsequently closed to navigation; such works can significantly reduce oxygen levels in the water leading to fish mortalities and other damage to the river ecosystem. Whilst flushing operations can be carried out throughout the year, major de-silting works can have significant environmental impact.

### Planned Works

We carried out de-silting works at Fulney Lock in early February 2016 when water temperatures were cooler. The works include removal of silt to bed level from the lock pen and for approximately 5 metres upstream and 30 metres downstream of the structure; the work outside of the lock pen being to create silt traps. The upstream de-silting was constrained by the presence of an electricity cable that lies across the river bed. At the time of writing work is ongoing on the tidal area and will include the construction of a permanent ramp down from the bank immediately downstream of the lock to allow easier removal of tidal silt in front of the lock gates in future. The works have been managed by our Operations Delivery Team at Spalding who appointed a contractor to carry out the de-silting.

We will introduce a more robust monitoring and 'flushing' regime once the lock is re-opened following these works. Monitoring and recording how quickly the silt returns will help us to plan the timing of future de-silting works or possibly the development of a more effective way of preventing siltation of the lock. Ongoing routines may include, subject to water availability, more frequent 'flushing' and use of an air lance or water pump to dislodge any silt build up. We have asked the IWA if any of their volunteers could assist with this routine (full training to be provided); their response to date is that they are trying to organise resources to help us but cannot give a definite commitment at the moment.

### Boat registration requirements for the Tidal Glen and Welland in Lincolnshire

Boats which only use the tidal Glen and Welland pay for a reduced fee for their boat registration.

These boats only pay the minimum registration charge, currently £8.50. They must provide insurance details, but are exempt from providing a Boat Safety Scheme Certificate (BSSC) or Declaration of Conformity (DoC).

If at any point these boats travel on our non-tidal waterways they must pay the full annual charge for our non-tidal waterways. They must meet the registration requirements and provide evidence of a valid BSSC or DoC as well as insurance details before they can be registered for the non-tidal waterway. The Fulney lock keeper cannot permit passage through the lock onto the non-tidal water unless a boat has the minimum requirement of a visitor licence.

Fulney Lock is not well used by boaters, on average there has been less than one boat passage per annum during the past six-seven years. The Fulney lock keeper reports that most of these passages have been for the same boat, whose permanent mooring is on the tidal reach.

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*February 2016*

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