



Your Ref:  
Our Ref: Jubilee River/MWH/001

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For the Attention of Mr Ian Tomes – Flood Risk Manager

Dear Sir

#### **JUBILEE RIVER – MYRKE DITCH EMBANKMENT**

Please find below a summary of my assessment of the structural integrity of the Myrke Ditch embankment ("the defence") following a site visit with your Graham Croucher and Abhishek Sharma on Tuesday 27<sup>th</sup> October 2009.

#### **Background**

The defence was completed in December 2005 and comprises a reinforced soil embankment with 40° side slopes and 2metre wide crest. The soils used were selected excavated and mixed materials re-used from the removal of the original defence. Geofabric reinforcement was used with full wrap around facing.

The defence is constructed immediately adjacent to the Jubilee River. Rip-rap armouring is used to protect the lower riverbank slope against erosion whilst the interface between the rip-rap and defence is protected using a non-woven geofabric layer and reed planting.

The Myrke Ditch is located immediately to the rear of the defence. The ditch has been "naturalised" as part of the Phase 2 remedial works to the Jubilee River. This included the introduction of vegetation (mostly reeds) within the channel which protects the landward toe of the defence from erosion.

#### **Condition Assessment**

<i>Bank Crest</i>	The bank crest is in very good condition with good vegetation cover, no significant defects, no rutting and no sign of any significant total or differential settlement.
<i>Bank Slope – Riverside</i>	The river side slope is in very good condition. The vegetation is patchy with areas being bare and others being colonised with moss rather than grass but the underlying geofabric is intact and pliable with no significant defects and very little to no slumping of the individual wrap around sections making

	<p>up the slope.</p> <p>There is very good vegetation cover at the toe of the defence with no signs of erosion or undercutting.</p>
<p><i>Bank Slope – Ditch side</i></p>	<p>The ditch side slope is in good condition. The vegetation is patchy with significant areas being bare – especially those sections facing directly eastwards and at the top of the slope. Despite this, the underlying geofabric is intact* and pliable with no significant defects and little to locally modest slumping of the individual wrap around sections making up the slope.</p> <p>There is very good vegetation cover at the toe of the defence with no signs of erosion or undercutting.</p>

\* One animal burrow through the fabric was noted.

## Conclusion

As expected, given its age and nature, there are no signs of any significant defects or movements which would impact on the integrity or function of the defence.

The key vegetation, that is, vegetation at the exposed toe of the defence, is well established and functions as intended.

The superficial vegetation, that is, vegetation on the surface of the bank slope has not established. Whilst we understand the concerns raised relating to the condition of this vegetation, it should be emphasised that it has no purpose in maintaining or enhancing the integrity of the defence since the wrap detail ensures that the embankment structure is self contained (relying only on the protection afforded at the toe). It's only physical benefit is to reduce UV exposure to the geofabric to maintain its durability and long term pliability.

I hope you find the above clear and useful. Do not hesitate to contact me should you wish to discuss any of the matters raised or if you want Atkins to examine and propose measures for establishing and maintaining vegetation on the bank slopes.

Yours faithfully,  
for and on behalf of  
**Atkins Limited**



**Mike Hughes**  
Principal Engineer  
Rivers and Coastal (Wales)

cc. Rob Hall – Environment Agency  
Graham Croucher – Environment Agency  
Abhishek Sharma – Environment Agency  
Ian Padgett – Atkins  
Chris Sadler – Atkins