Great Yarmouth Third River Crossing

RYA's Narrative Case for Issue-Specific-Hearing (ISH-1) (Effect on Port Operations) (Tue-09:00-19-Nov-2019)

		Key Points quoted from pNRA	RYA's Comment	
1	2.2.5	The River Yare also provides access to the Norfolk Broads for recreational vessels via Breydon Water. These vessels have to pass two existing lifting bridges, the Haven Bridge and the Breydon Bridge, during a passage between the sea and the Broads.	The River at Gt.Yarmouth is the only natural outflow from The Broads. The older Haven Bridge is subject to frequent breakdown preventing vessels passing The newer Breydon bridge has higher air-draft and does not pose as large an issue	With a new bridge at only 4.5m air-draft, many craft will experience **triple delay** for passage between Broads and Sea
2	3.2.1 & 3.2.6 & 3.2.10	In order to ensure a robust risk assessment process Navigation Risk Assessment workshops have been held to which the principal marine stakeholders were invited	Neither RYA nor any other small-boat stakeholders were invited to workshops in March or September 2019	The Risk Assessment without widest participation cannot be considered "**Robust**"
3	4.5.8	Vessels with projections … are at greater risk when passing through	Bridge fendering shown as individual cones	Yachts in particular are at risk of catching rigging on individual fenders; **Continuous fenders** would provide mitigation
4	4.5.11	Changes to the patterns of current flow during and following construction of new structures can lead to changes in sediment deposition areas and rates with a subsequent reduction in accuracy of available navigation chart data. This will tend to increase the risk of groundings particularly for deeper draughted vessel	Boats will be expected to moor at waiting-pontoons at the edges of navigation and in the lee of bridge-buttresses where currents are minimised and therefore deposition of sediment is likely to be increased	Boats mooring close to buttresses may in time discover particularly **shallow patches** due to deposition of sediment. Addressing of this localised deposition has not been identified
5	5.1.5	Recreational vessels are those used by private individuals for personal or entertainment purposes; they are typically very small to small and can be either motor, sail or non-propelled (paddle)	This may include recreational vessels which are under contract for repair and maintenance by say, Goodchild Marine (Interested Party)	While visibly such vessel under maintenance may be identified as 'Leisure', it should more properly be deemed 'Commercial' through its contract nature. Will this be eligible for preferential Bridge-Lift treatment ?
6	7.3.5	To mitigate the potential effects of a bridge mechanism failure the operational procedures implemented for the bridge should take account of the alternative manoeuvres each vessel could take in the event of a failure to open …	Boats may be more subject to river currents and may have particularly poor 'astern' power	Operating procedures to cater for bridge-failure in respect of approaching small boats should be accordingly **modified**.

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7	App.B 2.1	Mouchel™ were asked to (i) Prepare a questionnaire for stakeholders and (ii) Schedule meetings with stakeholders	This did not happen in respect of Small-Boat stakeholders, being restricted to large commercial only	Similar to 2nd point above, a **Robust** study to inform an operational regime should have included all stakeholders. The Applicant is preparing a retrospective inclusive **HAZID session for Jan-2020** which may address issues not previously foreseen; will this possibly lead to re-appreciation or re-design ?
8	App.B 7.5	This report focuses on commercial vessel movements within the Haven, there are also movements of recreational vessels from within the Norfolk Broads to the North Sea, via the River Yare, and vice versa, which will have an effect on the frequency of operations of the bridge. The number of movements of these vessels is limited and they are currently controlled over the timings at which their passage through the port can occur. Discussions have taken place with Peel Ports over the requirements for staging pontoons for holding recreational vessels intending to traverse the Haven …	Para-1:- Similar to App.B 2.1 above, the main thrust has been for commercial, with recreational craft perceived as a minor incumbrance. Para-2:- Movements of recreational craft identified as "limited".	**Flotilla movements** of up to 20 craft moving together with same purpose has not been addressed; these are estimated as monthly throughout the season. If even such major movements have been omitted, where do others lie in general bridge-operational considerations.
9	App.C 2.4	The River Yare also provides access to the Norfolk Broads for recreational vessels via Breydon Water. These vessels have to pass two existing lifting bridges, the Haven Bridge and the Breydon Bridge, during a passage from the sea to the Broads		The notion of a **coordinated approach** for all 3 bridges to operate in harmony is proposed most strongly. During ISH-1 The Applicant agreed that it should become the intention for the new bridge control to become the single reporting point for any 3-bridge transit, despite different authorities' operations.
10	App.C 5.3	While the presence of the new bridge had a discernible effect on the navigation of vessels in the area, during slack water conditions the effects were small and did not appear to increase the risk to navigational safety		It is accepted that navigational safety for small boats only becomes high **risk at high current** flow rates. The issue being that exceptionally high rates of flow are anticipated for considerable periods (Env.Agency envisages >2 knots as exceptional; here <8 knots is calculated)
11	App.C 5.4.2.1	It should be noted that these manoeuvres were conducted with a 3 knots tidal stream. Streams have been known to reach 6 knots in extreme conditions within the River.	Why have only mid-range streams been modelled during simulations	During ISH-1 The Applicant stated that extremes of conditions had been simulated, then later admitted to the statement here that most simulations were at mid-range. RYA considers that a **broader regime of simulations** should have been considered

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12	App.C 5.4.2.2 & App.C 6.1	Lastly the tidal model used in the simulation was for a typical spring tide with a peak main stream velocity of 3.3 knots. The statement that flows can reach 6 knots in certain conditions is not known to apply to the whole of the River; indeed GYPC's General Port and Pilotage Information states "Out-going stream begins. Full flow normally 3 to 4 knots but can reach 6 knots with accelerated flows between the buttresses of Haven Bridge."	Highest flow rates (of 6-knots) were dismissed for simulation … because they occurred at a different part of the river, at Haven Bridge.	RYA estimates that building the new bridge with buttresses causing ~36% constriction of the river, compared to ~24% at Haven bridge will at least replicate those extreme conditions, if not exacerbate by 50% (36 ÷ 24); this notion was **summarily dismissed** during ISH-1, without explicit reference to data or modelling.
13	App.C 6.1	During the simulations, the average time that vessels overlapped the bridge was approximately 1.5 minutes	No small boats were simulated	RYA estimates that for certain ~75% flow rates the speed-over-ground for a small boat only capable of ~5 knots will be close to zero and therefore transit times will become exceedingly high. At SoCG (Applicant/RYA) it is agreed that special will be introduced to predict slow transit rates and therefore not release small boats from the waiting pontoons.
14	App.C 6.2	The effect of bridge narrowing was found to be velocity reduction and flow straightening	This statement was difficult to comprehend and appeared contradictory to all others	
		Departing and berthing difficulties were encountered for some larger vessels from certain quays under high current velocities		RYA considers this does not just appertain to large vessels, but to small boats also, and indeed as stated above may be exacerbated as boats are expected to more or depart across a very **steep velocity gradient** from zero behind a bridge buttress to maximum flow, within one hull length.
15	App.D 5.1	The narrowing of the river through the new bridge is expected to increase these rates by 60% or more, so that normal maxima may be in the order of 5 knots, while peak rates during surge or flood events could theoretically approach 8 knots or more, though it is predicted that due to the "throttling" effect of the bridge …	There is an apparent ipsative contradiction in stating a maximum flow rate, and then dismissing this because of "throttling" effect	RYA awaits **Environment Agency** broadening of scope in their flood-risk analysis, to take account of "throttling"; it is felt that "throttling" may create a 'step' in surface conditions which might be felt back upstream for considerable distance (similar to EA reported "Tidal Gate" effect which causes fresh-water flooding of higher reaches within the Broads basin).
		All bridge effects appeared very localised. The "Jet" stream of increased water flow seemed only to travel upstream 150 metres or so, and downstream of the bridge the effects (a funnelling toward the hole and acceleration), were apparent over perhaps only about 50 metres	This apparent 'localised' effect would appear to contradict EA's predicted "Tidal Gates"	**Await EA improved study**

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16	App.D 5.8	The abutments are also more abrupt than the bow or stern of a vessel, so the effects of the current through the bridge is expected to be more marked than present conditions, even when vessels are berthed on both side of the river. The acceleration of the flow and the change of direction near the abutments is also expected to be greater than that currently experienced. In short the bridge is likely to make Navigation more challenging than is currently experienced	Issues with acceleration of flow and change of direction are predicted within the immediate proximity of the abutments	This is exactly where waiting pontoons for small boats are envisaged. The **additional risks** identified here are nowhere else applied to small boats approaching or departing the waiting-pontoons.
17	App.D 6.5.1	Once the bridge opens, waiting yachts & pleasure craft should transit the bridge first to reduce obstructions on the waiting berths near the bridge.	The situation appears to consider waiting craft and passing ships both travelling in the same direction.	It is considered of increased risk for small boats and ships intending to transit in **opposite directions**. Proposed operating procedures do not appear to take this into account.
18	App.D 6.5.2	Consideration should be given to methods of reducing the rates of change of both current strength and direction close to the bridge	This is close to where the waiting pontoons are envisaged. Mitigation of risk for passing ships by streamlining the abutments is a consideration.	The consideration stated does not transfer to small boats; this is a **serious omission**
19	Simulations 3	The bridge has three spans comprising two fixed side spans and a central span with a twin leaf bascule, supported on two main piers. These are located with "knuckle" structures in the river, which are protected by fendering, in the form of super cone fender units as shown in Figure 3.2	Particularly, the abutment fendering is of an individual-cone system	Individual cones present an added risk especially for yachts which might catch their rigging; **continuous smooth** fendering would be preferable. This is addressed by The Applicant in the SoCG as a recommendation for consideration.
20	Run-15	Simulations: Runs-15 to -19	These runs would appear to put any vessel on the waiting pontoon at risk of sinking as excessive use of sideways thrusters is made	**unacceptable** risk. operating procedures should prevent such situations.