TRANSPORT AND WORKS ACT 1992
TRANSPORT AND WORKS (INQUIRIES PROCEDURE) RULES 2004
TOWN AND COUNTRY PLANNING ACT 1990
BOSTON BARRIER ORDER

DOCUMENT EA/5/1

PROOF OF EVIDENCE

OF

CAPTAIN PETER MCARTHUR

NAVIGATION

FOR

ENVIRONMENT AGENCY

MARCH 2017
SUMMARY PROOF OF EVIDENCE

1 Qualifications and Experience

1.1 I am Captain Peter J McArthur MNM. I have been a professional Mariner since 1975 and can demonstrate extensive experience of a wide variety of vessels. I have been working as a Manchester Ship Canal pilot for 20 years. Since 2002 I have conducted independent research into vessel handling.

2 Scope and Structure of Evidence

2.1 My evidence will describe various aspects of boat handling.

2.2 My evidence covers the following:

2.2.1 Boathandling

2.2.2 Navigation in tidal waters

2.2.3 Mariner obligations and collision regulations (COLREGS)

2.2.4 Port and navigational control measures

2.2.5 Haven traffic, navigation and associated issues

2.2.6 Modelling and simulations

2.2.7 Response to Statement of Matters - 5(a), 12(iii), 13(a), 13(b), 14(a)

2.2.8 Response to objections raised related to the scope of my evidence

3 Introduction

3.1 As a former resident of North Lincolnshire, I come to this matter with a reasonable degree of local knowledge. I have attended navigation simulations at HR Wallingford, and have also set in place a range of meetings including practical excursions on the Haven for the purpose of vessel and district familiarisation.

4 Boathandling

4.1 The Haven is a tidal waterway and there are various risks inherent to navigating in such waters.

4.2 Experienced boat-handlers should have a working knowledge of how their craft perform under a range of circumstances and should be familiar with their craft’s manoeuvring parameters.

4.3 I have undertaken hydrodynamic calculations that provide figures for squat, reduction in under keel clearance and horizontal extension of hydrodynamic pressure fields for a range of craft that regularly operate on the Haven. It is my opinion that any concerns expressed relating to the hydrodynamic impact of barrier transits, as opposed to current river transits, are unfounded.
4.4 Navigation in a narrow channel or fairway should be carried out at low speed through the water. Techniques for maintaining control at slow speed are well-known and would be well within the capability of the Boston fishing fleet skippers, the Boston Belle and any of the small craft that frequent the Haven.

4.5 Per COLREG 9(f), mariners are aware that navigation on a bend requires careful positioning of the vessel prior to the turn and constant monitoring of the speed of the vessel and rate of turn. Experienced boat-handlers will use the ‘cant’ of the craft to considerable effect when manoeuvring and turning their vessel.

4.6 The exercise of common sense and the forethought that is expected under COLREG 2 as part of the ‘ordinary practice of seafarers’ would, in my opinion, render the barrier safe for all competent navigators.

5 Navigation in Rivers and Tidal Waters

5.1 The Maritime and Coastguard Agency (MCA) requires ALL mariners to make an appropriate passage plan when sailing in categorised waters such as the Haven. Failure to have such a plan in place would, in my experience, be construed as neglect with regard to COLREG 2.

5.2 Inshore fishermen may be regarded as both experienced and skilled and it could be reasonably assumed that they are sufficiently versed in the ways and rules of the sea and are competent within their particular sphere of operation.

5.3 Commercial tour boat skippers are experienced and skilled mariners. Skippers of small passenger vessels under 24 metres and carrying more than 12 passengers must hold a Boatmaster Licence issued by the MCA.

5.4 Those conducting and commanding private pleasure craft should have a knowledge of pilotage, boat handling, seamanship and navigation, sufficient to enable the skipper to take charge of a small yacht in familiar waters during daylight hours.

5.5 I would expect experienced boat operators who do not hold a formal qualification to, at least, have equivalent experience

5.6 Navigating through the proposed barrier should not be beyond the navigational or boat handling competencies of any mariner. There is a legal obligation on all mariners to ensure that they are competent to handle their craft in any conditions that they choose to take their craft into. It is therefore entirely reasonable to assume that any mariner navigating through the proposed barrier is capable of doing so.

6 International Regulations for Preventing Collisions at Sea 1972 (COLREGS)

6.1 Within the Haven and within the context of the proposed Boston Barrier Scheme, there are no vessels, no mariners and no navigational situations that are not covered by the COLREGS.

6.2 Mariners rarely disregard their obligations under the COLREGS.

6.3 The barrier and any associated works are a “special situation” that is anticipated within the meaning of the COLREGS.
With mariners following these rules, the barrier should present little, if any, difficulty to any boat-handler who frequents the Haven.

The Navigational Management Plan (NMP) incorporates a range of measures that will, so far as is reasonable, mitigate the risks from the very occasional ‘errant mariner’ who does not follow the rules.

I consider that the proposed barrier is inherently safe for navigation and the COLREGS prescribe sufficient control mechanisms. It is up to the master of any vessel to ensure their own safety and to give due consideration to all other craft. The NMP represents a ‘belt and braces’ approach to supplementing safety of navigation around the barrier and proposed works.

Port Navigational Control and Safety Measures

To comply with the Port and Marine Safety Code (PMSC), the Port of Boston is required to have systems in place to assess risks and to put control measures into action where dangers to navigation, infrastructure or other safety related concerns may exist.

The PMSC and port operational plan should allow for promulgation of appropriate navigational warnings. Thus, the location of, and any navigational restrictions associated with, the barrier should never come as a surprise to mariners.

For a competent boat-handler, navigating the new barrier should not present any significant navigational risk as all potential risks are predictable and should be anticipated and prepared for.

Navigation on the Haven

Grain ships currently moor on a regular basis at the Silo Berth just downstream of the proposed barrier location. This reduces the navigable width of the channel to approximately 24m and significantly reduces sight-lines for vessels navigating either side of the bend. This does not presently represent an insurmountable obstacle for mariners.

Navigation is also constrained at other locations in the Haven, for example the Swing Bridge. Only parts of the Haven are navigable, and then only with local knowledge of the changing mud banks.

My assessment of flows on the Haven has further convinced me that it will be possible to navigate the proposed barrier using the common sense, vessel handling and navigational skills that are expected of the ordinary mariner.

Modelling and Simulations

I undertook simulation runs at HR Wallingford for a fishing boat, the Boston Belle, a narrow canal boat and a wide beam canal boat.

It is my considered opinion that the HR Wallingford simulator provides a reasonably accurate representation of the vessel-related water dynamic that I have experienced in reality with the four types of vessels that I conducted during the simulations.
9.3 In most conditions, I was satisfied that safe navigation through the 18m wide cofferdam bypass channel was possible.

9.4 It is my conclusion that two-way navigation through the cofferdam channel is possible for the smallest vessels during an ebb tide, but that the fishing boats and the Boston Belle should be restricted to single vessel transit in all tidal conditions. Further, I would recommend against directionally unstable craft making the cofferdam transit.

9.5 The simulation study for the post construction phase entirely satisfied me that, within the scope of normal seafarer boat-handling skills, it is safe to navigate each of four vessels types tested through the 25m wide navigation channel located to the south side of the Haven.

9.6 Sight lines around the barrier are no worse than the existing situation when a grain ship is moored at the Silo Berth. In fact, the barrier will present a known quantity, whereas currently the sight lines may vary

10 Response to Statement of Matters

10.1 I have responded to the issues raised in the Statement of Matters that related to my proof of evidence.

11 Issues Raised in Objections

11.1 I have responded to the issues raised by objectors that related to my proof of evidence.

12 Conclusions

12.1 It is my considered opinion that the limiting factor for navigation in the Haven is not the barrier. Rather, it is the concatenated bends inbound of the railway bridge, and towards the Grand Sluice, that will eventually be the limiting factor for navigation in this district.

12.2 Having dealt with the issues of water-flow, navigational impact, lines of sight, traffic management, hydrodynamics, and extreme weather scenarios, I am convinced that that there are no real navigational issues that remain. Indeed, any residual concerns are, in my opinion, more than adequately addressed within the NMP.