

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

**DOCUMENT EA/3/1
PROOF OF EVIDENCE
OF
PETER MALLIN
DESIGN AND ENGINEERING**

**FOR
ENVIRONMENT AGENCY**

MARCH 2017

SUMMARY PROOF OF EVIDENCE

1 INTRODUCTION

- 1.1 My name is Peter Mallin. I am currently employed as a Senior Project Manager within the Ports, Coastal and Offshore practice at Mott MacDonald and have 28 years' experience in engineering consultancy. 19 years of this has been specific to maritime engineering and construction. I am a qualified Engineer with a B. Eng (Hons) in Civil Engineering at Curtin University, Western Australia.
- 1.2 I have been part of Mott MacDonald's Boston Barrier Scheme project team since June 2016.

2 SCOPE OF EVIDENCE

- 2.1 My evidence is presented on behalf of the Environment Agency and provides my opinion on engineering aspects related to the infrastructure provided as part of the works to deliver the Boston Barrier Scheme for both the construction and operational phases.

3 SUMMARY OF PHASING AND CONSTRUCTION OF THE WORKS

- 3.1 The works associated with the Boston Barrier Scheme are:

3.1.1 Enabling works:

- (a) Demolition of the derelict Witham Wharf;
- (b) Diversion of 3no. 11kV electricity cables from the right bank to Wyberton Low Road;
- (c) Demolition and replacement of the existing Frontier Agriculture grain loader and conveyor system;
- (d) Upgrading works to the Port of Boston internal access roads;

3.1.2 Main construction works:

- (a) Capital dredging works for a temporary vessel bypass;
- (b) Temporary facilities to accommodate the Witham Sailing Club downstream of the PoB;
- (c) Temporary berth and back of berth facilities to enable the temporary relocation of the Boston Fishing Fleet to the existing PoB riverside berths;
- (d) Widening of the existing PoB wet dock entrance and installation of a vertical sector entrance gate;
- (e) Installation of a temporary cofferdam with an 18m minimum width navigable bypass;

- (f) Construction of approximately 1.35km of flood defences up to +7.55m Above Ordnance Datum (**AOD**) on the left and right banks;
- (g) Construction of a rising sector gate flood defence barrier providing a minimum navigable width of 25m and associated facilities;
- (h) Final capital dredging campaign upstream and downstream of the Barrier;
- (i) Placement of permanent scour protection; and
- (j) Installation of aids to navigation along the Haven.

3.2 The construction works are scheduled to last just over two years starting late 2017 with completion scheduled in late 2019.

3.3 The Environment Agency proposes to adopt a phased approach to the works to ensure that construction impacts are mitigated as far as reasonably practicable.

3.4 Temporary facilities are being provided downstream of the main barrier works for river users that are most affected by the works, namely the Boston Fishing Fleet and the Witham Sailing Club. For all other river users, an 18m minimum width navigable bypass past the barrier cofferdam will be provided to facilitate ongoing use of the river during construction.

3.5 I am satisfied that the phasing of the works combined with the temporary facilities provided will be effective in mitigating impacts on all rivers users during the construction phase.

4 NAVIGATION MANAGEMENT PLAN (NMP)

4.1 A draft NMP has been developed drawing on the information contained within the NIA and the outcome of the navigation simulations. The NMP has also been developed in consultation with the Port of Boston Limited.

4.2 The principal purpose of the NMP is to set out the procedures to be followed and aids to navigation to be provided to mitigate risks to navigation arising from the construction and operation of the Boston Barrier as far as reasonably practicable.

4.3 The Environment Agency, the Port of Boston Limited and the contractor, once appointed, would all have specific responsibilities in relation to the implementation of the proposed NMP. The Environment Agency has proposed that an additional planning condition be imposed on the grant of the deemed planning permission being sought.

5 FRONTIER AGRICULTURE LIMITED

5.1 The close proximity of the proposed barrier to the grain quay necessitates the demolition of the existing loader and conveyor situated on that quay. The Agency proposes to mitigate the effects of the proposed demolition through the provision of a new conveyor facility at a new location downstream along the quayside.

5.2 The Environment Agency has now entered into a legal agreement with the Port of Boston Limited and is not in a position to offer Frontier a replacement leasehold interest.

- 5.3 Detailed design work has not yet been undertaken. The Environment Agency has offered to work with Frontier in developing a detailed works specification for the replacement conveyor facility and for Frontier to review the detailed designs, once available.

6 UTILITY PROVIDERS

- 6.1 Three Western Power Distribution (WPD) 11kV electricity cables currently located on the right bank of the Haven will be affected by the proposed works to deliver the Scheme. Protections for WPD are contained within Schedule 7 to the Order and I understand that the Environment Agency has been engaged in detailed discussions with WPD with regards to the proposed diversionary works and that the nature of the works required have been agreed in principle.

- 6.2 Other than the private water distribution system within the PoB, I did not identify any of the main construction works occurring within the standard protective widths of any Anglian Water assets. There is one 600mm diameter ductile iron water main which passes beneath the Haven. Protections for Anglian Water are contained within Schedule 7 to the Order and the Environment Agency has been engaged in detailed discussions with Anglian Water.

7 ALTERNATIVES TO THE PROPOSED BOSTON BARRIER SCHEME

- 7.1 I have given consideration to the alternative locations considered by the Environment Agency and proposed by other interested parties.

- 7.2 With regards to the engineering aspects of design and construction, my evidence highlights many significant disadvantages of locating a barrier downstream of the preferred location.

- 7.3 The proposed sea lock proposal would require significantly more investment and would cause significantly more disruption to river traffic than the Boston Barrier Scheme proposed by the Environment Agency. The current Barrier Scheme in my opinion provides at least the same level of flood defence with considerably less investment and less impact on river traffic.

- 7.4 In my opinion, the proposed barrier location adjacent to the PoB is, with respect to engineering requirements and construction practicality is the most suitable location.

8 WATER LEVEL MANGEMENT

- 8.1 The use of the proposed barrier to facilitate water level management (WLM) does not form part of the proposed Boston Barrier Scheme. However, the Scheme has been designed in such a manner so as not to preclude the future delivery of WLM.

9 WORKS TO DOWNSTREAM RIVER BANKS

- 9.1 Consultants have been developing proposals for restoration of the existing left and right downstream embankments from the PoB to Hobhole. In the longer term, the Environment Agency will be raising the downstream embankments from the PoB to Hobhole to provide a 1 in 300 year standard of flood protection at the end of the 100 year horizon of the current Boston Barrier Scheme.

10 ISSUES RAISED IN OBJECTIONS

- 10.1 In my evidence I have responded to the matters raised by objectors which fall within my areas of knowledge and specialism.

11 STATEMENT OF MATTERS

- 11.1 My evidence addresses matters 2, 5(b), 5(d), 9(a) and 12 of those raised by the Secretary of State in so far as those matters fall within my areas of knowledge and specialism.

12 CONCLUSIONS

- 12.1 My evidence addresses the design and engineering aspects of the Boston Barrier Scheme and demonstrates that the proposed works:

12.1.1 satisfy the functional requirements of the tidal barrier and mitigates impacts on river users, the PoB and utility providers as far as reasonably practicable during both the construction and operational phases of the Scheme;

12.1.2 have been designed so as not to preclude the future delivery of WLM at a later date;

12.1.3 take full account of effects on navigation, including through the development of the proposed Navigation Management Plan;

12.1.4 take into account the needs of others including statutory undertakers and the local community: and

12.1.5 are proposed to be sited in the most appropriate location in terms of the engineering requirements of the Scheme when compared to alternative locations downstream of the Port of Boston.

- 12.2 I believe that the proposed outline design of the Scheme, including construction phasing proposals and mitigation measures, as set out in this evidence, adequately address the engineering requirements of the Boston Barrier Scheme and associated works and that the engineering case for the Scheme has been made.