

IMMINGHAM EASTERN RO-RO TERMINAL



Applicant's Reply to IOT Operators' Letters in [REP6-046] in response to ISH5 Action Point
10
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1. Executive Summary

1.1 This document provides the Applicant's response to IOT Operators' Letters in **[REP6-046]** – being a letter dated 13 November 2023 appending copies of their letters dated 16 October 2023 and 7 November 2023 in response to ISH5 Action Point 10.

1. Introduction

- 1.1 This document provides the Applicant's response to IOT Operators' Letters in **[REP6-046]** – being a letter dated 13 November 2023 appending copies of their letters dated 16 October 2023 and 7 November 2023 in response to ISH5 Action Point 10.

Applicant’s Reply to IOT Operators’ Letters in [REP6-046] in response to ISH5 Action Point 10

Table 1 – Response to IOT Operators’ Letter 13 November 2023

IOT Operators’ Letter 13 November 2023	ABP response
<p>1.1 We write with reference to Associated British Ports’ (“ABP”) application for the proposed Immingham Eastern Ro-Ro Terminal Development (“IERRT”) and to the ongoing DCO Examination. Where relevant we have referred to document references from the IERRT DCO Examination Library.</p>	<p>Noted.</p>
<p>1.2 As you will be aware, Associated Petroleum Terminals (Immingham) Limited and Humber Oil Terminals Trustee Limited (together the “IOT Operators”) have significant concerns regarding the potential navigation and shipping effects of the IERRT on the Immingham Oil Terminal (“IOT”). These have been set out in various consultation responses and correspondence to ABP [REP2-063] and in the Written Representation [REP1-062] and shadow Navigation Risk Assessment (“sNRA”) [REP1-064] submitted to the Examination on behalf of the IOT Operators. These concerns primarily relate to the Navigation Risk Assessment (“NRA”) submitted by ABP [APP-089] and the risk control measures proposed as part of the IERRT application.</p>	<p>The Applicant is aware of the IOT Operators concerns raised to date and confirms that it has been, and is continuing to, work proactively with IOT Operators to address the concerns as far as reasonably practicable. The Applicant has provided a response to the IOT Operators’ [REP1-064] submission at [REP3-012] and [REP6-031].</p>
<p>1.3 Recent discussions between the IOT Operators and ABP led to a letter being submitted to the</p>	<p>The Applicant wishes to clarify the position in response to paragraph 1.3 as it mischaracterises the nature of the Applicant’s letter of 28</p>

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<p>Examining Authority on 28 September 2023 [AS-020]. This set out that ABP intended to make a request to amend the DCO application in order to enable the delivery of mitigation measures required by the IOT Operators.</p> <p>The letter also stated that ABP would ensure that protective provisions substantially similar to the IOT Operators' amended protective provisions [REP1-039] would be included in the DCO. In light of the letter being submitted, the IOT Operators agreed not to engage in detail with navigation and shipping matters and NRA issues during Issue Specific Hearing 3 ("ISH3") on 27 and 28 September 2023 and these discussions were accordingly curtailed by the Examining Authority ("ExA").</p>	<p>September 2023 [AS-020]. The letter reports the Applicant's intention "<i>to work with the IOT Operators with a view to developing a scheme of marine infrastructure protection for the IOT</i>" (based generally on high level potential design for additional impact protection measures proposed by Beckett Rankine, albeit with possible refinements) without prejudice to the respective positions of the parties as to the need for such measures. It should be noted that the letter also makes the Applicant's position clear that its NRA process had concluded that impact protection measures are not required. As anticipated in the letter, the Applicant and the IOT Operators continued to engage with regard to the proposals for additional impact protection measures. Subsequently, the Applicant's request for changes to the project comprised four proposed changes, one of which - Change 4 – addressed marine infrastructure protection for IOT in the form of '<i>enhanced operational marine controls and the possible provision of additional marine impact protection measures</i>' - as explained in the Changes Request Report [AS-072].</p> <p>The Applicant confirms that it will be updating the dDCO in respect of the protective provisions for the benefit of the IOT Operators now that the Proposed Changes have been accepted into the Examination by the ExA. A revised dDCO will be submitted at Deadline 8. In the meantime, a substantive response to IOT Operators latest draft Protective Provisions is provided in Appendix 1 to the Applicant's Response to the Schedule of Changes to the DCO (document reference 10.2.70).</p>
<p>1.4 Since ISH3, the IOT Operators and ABP have been in ongoing discussions regarding the risk control measures which are required by the IOT Operators.</p>	<p>Noted.</p>

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<p data-bbox="203 236 465 268"><i>Change Request</i></p> <p data-bbox="203 300 963 411">1.5 The IOT Operators note that the Applicant has commenced consultation on 20 October on proposed changes to its DCO application. Those include:</p> <p data-bbox="203 443 963 707">Change 1: The Realignment of the Approach Jetty and Related Works – within the submitted limits of deviation but further away from the IOT Trunkway – with an increase in the number and repositions of the locations of piles required to support marine infrastructure, together with ancillary works to the pier infrastructure;</p> <p data-bbox="203 738 981 1050">Change 2: A realignment of the Internal Link Bridge and Consequential Works – between the Northern and Central Storage Areas resulting in an improvement of land holding for the Applicant's tenant and sub-tenants as well as a rationalisation and consequent increase in space within the Central Storage Area, albeit leading to a consequential amendment to the originally defined Limits of Deviation;</p> <p data-bbox="203 1082 974 1193">Change 3: The Rearrangement of the UKBF Facilities - to meet UKBF's requirements – within the original Limits of Deviation;</p> <p data-bbox="203 1225 981 1329">Change 4: Enhanced Management Controls and Options for the Potential Provision of Additional Impact Protection Measures – in conjunction with and subject</p>	<p data-bbox="1003 236 1272 268">Noted and agreed.</p>

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to enhanced navigational management controls for vessels entering or departing from the IERRT.	
<p>1.6 The IOT Operators wish to note their surprise and disappointment that the Applicant has made the proposed change request without:</p> <p>(a) providing the IOT Operators with a copy of the proposed changes prior to the materials being submitted and consulted on, given that they differ significantly from those attached to the letter of 27 September 2023 [AS-020] and are completely different to changes proposed and discussed in detail in the series of design meetings attended by the IOT Operators;</p> <p>(b) seeking the IOT Operators’ agreement to (or even comments on) those proposed changes; or</p> <p>(c) providing any details of the “enhanced management control” measures that the Applicant now intends to rely on.</p>	<p>Since ISH3 the Applicant and the IOT Operators continued to engage in ongoing discussions regarding the risk control measures through a series of meetings which included the Applicant’s marine architects and engineers in order to establish further the requirements of the IOT Operators. A number of the meetings were held on a without prejudice basis, however the Table 2.1 to the draft SoCG [REP6-013] records the open meetings which have taken place between the Applicant and IOT Operators and demonstrates that the Applicant has engaged continuously with IOT Operators in an attempt to resolve IOT Operators’ outstanding concerns and discuss the proposals.</p> <p>In response to (a) – (c):</p> <p>(a) Following ISH3, the Applicant continued to engage in ongoing discussions with IOT Operators seeking to establish their requirements for the proposed risk control measures through a series of meetings, which included the Applicant’s marine architects and engineers – a number of which were without prejudice.</p> <p>On 12 October 2023 - a week prior to the commencement of the changes consultation - the Applicant communicated to IOT Operators the conclusion of the feasibility assessment during a call – when it was explained that the infrastructure required to comply with IOT Operators’ design parameters was undeliverable.</p>

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	<p>Further, the Applicant's Change Notification was shared directly with IOT Operators on 19 October 2023, ahead of the formal submission to the ExA that day, and the start of consultation on 20 October 2023.</p> <p>(b) As detailed at (a) above the Applicant sought to engage with IOT Operators prior to the consultation, and confirms that engagement continued during the course of the consultation period on the proposed changes.</p> <p>(c) The proposed enhanced operational controls were shared with IOT Operators on 4 November 2023, ahead of a call to discuss the proposals which took place on 9 November 2023.</p>
<p>1.7 In its letter of 27 September 2023 [AS-020] the Applicant accepted the need for a change to be made to accommodate impact protection capable of mitigating (to an acceptable level) the risks identified by the IOT Operators' NRA. The IOT Operators have expended considerable efforts to help the Applicant identify the standard to which those mitigation measures should be designed, including providing details of that standard to the Applicant in a letter on 16 October, which appears as Appendix 1 to this document. That of course is work that the Applicant ought to have undertaken following the Statutory Consultation for the scheme in early 2022, and sought to agree with the IOT Operators at that time and well in advance of the DCO submission.</p>	<p>The Applicant does not accept this assertion, which amounts to a mischaracterisation of the commitment made in the letter of 28 September 2023 [AS-020]. The letter reports Applicant's intention <i>"to work with the IOT Operators with a view to developing a scheme of marine infrastructure protection for the IOT"</i> (based generally on high level potential design for additional impact protection measures proposed by Beckett Rankine, albeit with possible refinements) but on the basis that this was <i>"without prejudice to the respective positions of the Applicant and the IOT as to the need for such measures"</i>. It should be noted that the letter also makes the Applicant's position clear that its NRA process had concluded that impact protection measures are not required.</p> <p>The Applicant has expended significant effort in seeking to reach agreement with IOT Operators on the extent of any additional physical infrastructure impact protection measures. Extensive engagement and consultation was undertaken during the production</p>

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	of the NRA, in advance of the DCO application submission in early 2023.
<p>1.8 The IOT Operators are very disappointed to note that the Applicant has proposed a series of measures which fail to meet the standards identified by the IOT Operators as necessary to provide adequate protection to their significant interests. As the Applicant again appears to accept (through its actions if not its language) that further impact protection measures are required, it is not clear to the IOT Operators why measures of a standard which they have identified (and justified) have not been provided. An explanation why it is said to be difficult for the project to accommodate those standards is provided (at 3.27 of the change notification document), but that is very different to an explanation of why the level of protection reflected in the IOT Operators' standards should not be provided. If it is ABP's case that the provision of adequate measures is too expensive, then the proper response may be simply to conclude that ABP is unable to provide the necessary protective measures for the important IOT facilities and to accommodate the genuine risks created by its proposal with the consequential effects of that on the acceptability and grant of the DCO.</p>	<p>Again, the Applicant does not accept this assertion that any further impact protection measures are necessary, given the enhanced operational controls that will be applied to the operation of IERRT, as set out under Change 4 which has been accepted into Examination.</p> <p>There are multiple ways of providing the required protection, and as the Applicant has maintained throughout the Examination, and as concluded by the NRA undertaken for the SHA, additional physical impact protection measures are not deemed necessary to reduce the identified risks to tolerable and ALARP.</p> <p>It is not the Applicant's case that the provision of adequate protection measures are too expensive, it is that the additional protection measures proposed by APT are neither reasonable nor practicable, when considered in combination with the operational controls that will be applied. This is supported by the IOT Operator's own shadow NRA which indicates that the cost/benefit of an impact protection structure is marginal for low impact speeds (2 knots). The operational controls proposed to be employed will ensure a minimum of 1 tug is employed during all arrivals to berth 1. The risk of allision is mitigated by the use of tugs, as demonstrated by the navigational simulation undertaken on 15 November 2023 reported at [AS-071].</p>
<p>1.9 The IOT Operators also note that, in its letter submitted during ISH3 [AS-020], the Applicant</p>	<p>The letter of 28 September 2023 [AS-020] confirmed that appropriate protective provisions would be included in a draft amended DCO <u>if the proposed changes were accepted</u> - not at the time of making the</p>

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<p>accepted that protective provisions substantially in the form advanced by the IOT Operators [REP1-039] would be included in any change request. There is no reference to those protective provisions in the notification of the proposed change. The Applicant has to date not provided the IOT Operators with an updated SoCG or PADS, despite the indication that such matters would be addressed alongside its change request.</p>	<p>change request (made on 19 October 2023 [AS-026] and [AS-027]) - as per the extract from the letter copied below:</p> <p><i>“If the proposed changes are accepted the draft DCO will be amended (to include appropriate protective provisions for the benefit of the IOT Operators substantially in the form in REP1-039 but subject to the terms of this letter and which reflect the approved measures) to reflect this commitment and the IOT will withdraw its objection to the proposal.”</i></p> <p>The IOT Operators and their consultants are simply mischaracterising what was agreed. The Change Request was submitted on 29 November 2023 [AS-045] following the close of the consultation 20 November 2023, and ExA confirmed that the Proposed Changes were accepted into Examination on 6 December 2023 [PD-021]. The Applicant confirms that it will therefore now be updating the dDCO in respect of the protective provisions for the benefit of the IOT Operators now that the changes have been accepted. An updated dDCO will be submitted at Deadline 8. In the meantime, a substantive response to IOT Operators latest draft Protective Provisions is provided in Appendix 1 to the Applicant’s Response to the Schedule of Changes to the DCO (document reference 10.2.70).</p> <p>Regarding the updated SoCG, this is not correct. The Applicant had in fact sent an updated SoCG to IOT Operators on Friday 10 November 2023 prior to Deadline 6, in respect of which acknowledgement of receipt was received on behalf of IOT Operators. The Applicant received comments in response to the SoCG from IOT Operators on 4 December 2023. The Applicant will be submitting an updated SoCG at Deadline 8.</p>

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<p>1.10 Given the uncertainty around many aspects of the Applicant's change request, the IOT Operators wrote to the Applicant on 7 November seeking clarity on matters which are fundamental to the proposals. No response has been received to that letter, which appears at Appendix 2 to these submissions.</p>	<p>See responses to IOT Operators' letter of 7 November 2023 provided in Table 3.</p>
<p>2. IOT OPERATORS RESPONSE TO CHANGE REQUESTS</p> <p><i>Change 1: The Realignment of the Approach Jetty and Related Works – within the submitted limits of deviation but further away from the IOT Trunkway – with an increase in the number and repositions of the locations of piles required to support marine infrastructure, together with ancillary works to the pier infrastructure Restraint dolphins</i></p> <p>2.1 At para. 2.13 of the change request Restraint dolphins are included, which the Applicant ABP notes include up to two additional restraint dolphins for each of the landing pontoons to improve stability. These are identified in “<i>Figure 2 – Proposed realignment of the Approach Jetty and related works</i>” – see figure above with restraint dolphins identified by orange pecked line. At Section 3.1 of the Change Request, which describes the “Rationale and Need for the Changes”, restraint dolphins are conspicuous by their absence</p>	<p>The Applicant confirms that the introduction of an additional restraint dolphin was a result of design development and to ensure that the pontoons were provided with sufficient lateral stability under the full range of design conditions, including accidental vessel impact.</p> <p>The Applicant notes IOT Operator's comment regarding the justification for the restraint dolphins but would clarify that:</p> <ul style="list-style-type: none"> - the restraint dolphins were shown on the draft General Arrangement Plans [AS-029] which were subject to the Proposed Changes Consultation; and - the description and justification for the restraint dolphins set out in the Applicant's Change Application Request Report [AS-072] and shown on the accompanying General Arrangement Plans [AS-049] – which have now been accepted into Examination.

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and as such no details are provided by the Applicant justifying the need for restraint dolphins.	
2.2 The IOT Operator's sNRA identified the need and position of additional restraint dolphins within the sNRA – see Appendix D Para. 3.1.3 particularly bullet 2: <i>“proposed dolphins to stabilise on the pontoon are not in the optimum positions to resist such an impact. We would expect the dolphins to be on the opposite side to the berthed vessels to restrain the pontoons against the impact forces. The dolphins on the berthing face will be inefficient to resist these forces as essentially the load will be resisted by the connections between the dolphin and pontoon only.”</i>	Noted.
2.3 The IOT Operators welcome the inclusion of restraint dolphins in the change request, and the implicit acceptance that the IOT Operators sNRA findings in this regard is correct.	The Applicant would clarify that the inclusion of an additional restraint dolphin, whilst it serves positively with regard to the allision risk, is in connection with ensuring adequate restraint to the pontoon. The pontoon will be subjected to a range of dynamic motions due to the vessel ramp, linkspan loading, vehicular loading, wave and current forces and wind forces in a range of directions and combinations. Specialist contractors will undertake further and more refined and detailed analysis to inform the stability requirements and therefore number, shape and form of the restraint dolphins.
2.4 However, the IOT Operators' are not able to understand:	The Applicant responds as follows. (a) The design basis statement for the impact protection structures was provided to the IOT operators on 15 November 2023 and is appended at Appendix 1 for completeness.

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<p>(a) The calculations which have informed the design details which are being used in the Applicant's change request; or</p> <p>(b) Where any updated NRA has been carried out to understand the effectiveness of the proposed restraint dolphins to mitigate collision risk.</p>	<p>(b) The NRA was reviewed and updated following the closing of the consultation on 19 November 2023. An updated NRA was submitted at Annex C to the ES Addendum [AS-070] submitted in support of the Change Application Request. The overall assessment of this risk remains the same as that presented in the NRA [APP-089], as reported in the ES Addendum at paragraph 3.4.18 of [AS-070].</p>
<p>2.5 In its change request the Applicant does not explain the purpose of the additional restraint dolphins. The IOT Operators have repeatedly requested information and detail (from first engagement on the project in Feb 2022 through to Examination Deadline 5) on the design of the IERRT and its ability to withstand the collision of an errant IERRT vessel. Most recently, the IOT Operators have requested such detail during the three design workshops. During these design meetings, Ben Hodgkins (ABP Group Head of Projects) noted that details would be provided on the ability of the IERRT infrastructure to withstand an errant vessel in due course, however no details have yet been provided.</p>	<p>As explained above in response to paragraph 2.4, the design basis statement for the impact protection structures was provided to the IOT Operators on 15 November 2023 and is appended at Appendix 1 for completeness.</p> <p>Further, see the Applicant's response to paragraph 2.1 above regarding restraint dolphins.</p>
<p>2.6 Without the justification behind the design basis for the change to include additional restraint dolphins to the pontoons, the IOT Operators assume that the inclusion of the restraint dolphins, if constructed, would be to provide additional "implicit" impact</p>	<p>As explained above in response to paragraph 2.4, the design basis statement for the impact protection structures was provided to the IOT operators on 15 November 2023 and is appended at Appendix 1 for completeness.</p>

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<p>protection to the IERRT structure, and as such provide additional protection to the IOT Trunkway. Therefore, IOT Operators require both the engineering design and impact loading parameters to be provided showing what the effect the restraint dolphins have on mitigating allision of an IERRT vessel with the IOT Trunkway, and separately mitigate the risk of the pontoons from becoming detached such that they may collide with the IOT Trunkway. It is also noted that para. 2.210 of Appendix 1 notes that the pile size of the restraint dolphins is proposed to be increased from 1,422mm to 1,520mm.</p>	<p>Further, see the Applicant's response to paragraph 2.1 above regarding restraint dolphins.</p>
<p>2.7 Further, as this is an additional risk control measure (not included in the ES or NRA), then an update to the Applicant's NRA should be undertaken to confirm the effectiveness and justification for this additional risk control measure and subsequently issued for consultation. It is imperative that the IOT Operators are provided with this information in order to make an informed judgement on the effectiveness of the restraint dolphins as a risk control measure.</p>	<p>The Applicant would clarify that the additional restraint dolphins are not an additional control measure. They are intended to simply reinforce the previously identified position that the IERRT infrastructure provides an implicit level of additional impact protection to the IOT trunkway - significantly greater than that enjoyed by the facility today given the high volume of marine traffic on the Humber.</p> <p>The additional restraint dolphins were included in the ES Addendum [AS-070] submitted in support of the Changes Application Request which has now been accepted by the ExA.</p>
<p>2.8 In the event the Applicant accepts that these restraint dolphins are necessary, it is critical that controls are imposed on the dDCO which require their delivery prior to commissioning of the first berth. The Applicant notes in this regard that in [AS-020] the</p>	<p>The restraint dolphins will be constructed as part of the main works contract for the IERRT project and will be in place prior to commencement of operations of the IERRT.</p>

<p>IOT Operators’ Letter 13 November 2023</p> <p>Applicant has accepted that protective provisions “substantially in the form” included in the IOT Operators’ submissions REP1-039 would be included as part of any change request. The Applicant has provided a dDCO which includes such provisions, and should confirm that appropriate protective provisions will be included in the dDCO.</p>	<p>ABP response</p> <p>The restraint dolphins were included as part of the Proposed Change 1 as submitted to the ExA with the Changes Application Request which has now been accepted by the ExA.</p> <p>An updated dDCO will be submitted at Deadline 8.</p>
<p><i>IERRT Finger pier adjustments</i></p> <p>2.9 At para. 2.14 the Applicant notes that two additional piles to support mooring bollards have been added to improve mooring performance. The IOT Operators note that, as with the restraint dolphins, no details are provided by the Applicant to justify the inclusion of these additional piles. To date, no details other than the length, breadth and draught of the IERRT design vessels have been provided by the Applicant, despite the multiple requests by the IOT Operators. The exception to this is the displacement, which was provided in Design Meeting 1, which at 48,431 tonnes is more than twice the displacement of current Stena T-Class vessels and considerably larger than the DFDS vessel used in simulations. The IOT Operators note that there is an intrinsic relationship between design vessels and mooring requirements for a berth, and in specifying greater mooring infrastructure the Applicant must be rectifying a deficiency in the current IERRT design and must have</p>	<p>The additional mooring bollards are proposed following the completion of a refinement of the mooring analysis undertaken for the IERRT project. This looked at the full range of possible design vessel mooring line arrangements and identified an operational improvement could be achieved if an additional mooring point was provided.</p> <p>The rational and need for the additional piles to support mooring bollards is explained in the Applicant’s Change Application Request Report at section 3 [AS-072].</p> <p>The matter of design vessels was the subject of discussion at ISH5 and it was confirmed that the design basis statement for the impact protection structures was provided to the IOT operators that week (on 15 November 2023 after receipt of the IOT letter of 13 November 2023). A copy of the design basis statement is appended at Appendix 1 for completeness.</p>

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<p>conducted studies to support the need for additional piles – none of which has been provided to the IOT Operators or the Examination.</p>	
<p>2.10 The IOT Operators therefore seek that the Applicant provides, or is required to provide, evidence to support this change and, if it relates to navigation safety, then a commensurate update in the Applicant's NRA to address the change.</p>	<p>The Applicant confirms that this change is not related to navigational safety, rather ensuring operational flexibility in mooring line arrangements.</p> <p>Evidence to support this change was set out in the Applicant's Change Application Request Report [AS-072].</p>
<p><i>Change 4: Enhanced Management Controls and Options for the Potential Provision of Additional Impact Protection Measures – in conjunction with and subject to enhanced navigational management controls for vessels entering or departing from the IERRT. Need for further Impact Protection and Relocation of the Finger Pier</i></p> <p>2.11 The IOT Operators identified a need for additional impact protection, and the possibility that the IOT Finger Pier would need to be relocated, in its response to the statutory consultation to the IERRT proposals in early 2022. In light of the Applicant's failure to acknowledge the need for those mitigation measures, the IOT Operators have been put to the very considerable expense of submitted their own sNRA in response to the Applicant's proposals [REP2-064].</p>	<p>The Applicant reiterates its position that in light of the conclusion reached in its Navigational Risk Assessment [APP-089], impact protection measures are not required for the safe construction and operation of the Proposed Development. Change 4 was made by the Applicant entirely in response to the comments made by the stakeholders participating in the Examination. The Applicant has expended significant effort in engaging with the IOT Operators in seeking to reach agreement on the extent of any scheme of marine infrastructure protection.</p>

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<p>2.12 Whilst the Applicant has included the potential for some impact protection in its DCO Application, at no stage prior to the second set of hearings (in September 2023) has it acknowledged that such impact protection is necessary.</p>	<p>See response to paragraph 2.11 above. The Applicant, again, restates its position that impact protection structures are not necessary. Impact protection measures will continue to be included within the dDCO on the basis set out in Requirement 18 and new Requirement 18A. An updated dDCO including new Requirement 18A will be submitted at Deadline 8. In the meantime, details in this respect are provided in the Applicant's Response to the Schedule of Changes to the DCO (document reference 10.2.70).</p>
<p>2.13 During those hearings, and as explained in the introduction to this further consultation response on the Applicant's change request, it has now belatedly accepted that further impact protection measures are necessary and has undertaken to submit a change request to provide those measures. Whilst the Applicant maintains that such measures are not required, the reality of the situation is that it would not be promoting the change request if it did not accept that it was necessary.</p>	<p>This is a deliberate mischaracterisation of the need and justification for Change 4. As explained at response to paragraph 2.11 above, Change 4 was made by the Applicant entirely in response to the comments made by the stakeholders participating in the Examination. The Applicant maintains that impact protection measures are not required for the safe construction and operation of the Proposed Development, in accordance with its Navigational Risk Assessment (NRA) [APP-089]. Further, the Change Application was not limited to vessel impact protection measures, but included three other changes (Changes 1 to 3). Change 4 remains consistent and in accord with the conclusions of the Applicant's NRA but will enable the potential provision of additional protection measures to the finger pier.</p>
<p>2.14 The Applicant at paras 2.27 to 2.34 of the change notification [AS-027] maintains that there is no need for impact protection measures as part of its scheme.</p>	<p>Noted.</p>
<p>2.15 In response, the IOT Operators maintain the position advanced from the outset of their engagement with the Applicant and consistently maintained from</p>	<p>The Applicant's response to the IOT Operator's sNRA is set out in [REP3-012] and [REP6-031] and we do not propose to repeat our position here.</p>

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<p>that time. That is, that its sNRA clearly identifies the need for a comprehensive package of further mitigation measures to adequately address otherwise unacceptable safety concerns associated with the Applicant's proposals. That is explained at length in the IOT Operators' Written Representation [REP2-062] at Part 5.</p>	
<p>The Beckett Rankine design</p> <p>2.16 The Applicant has made repeated references to the Beckett Rankine impact protection designs in paragraphs 2.35 to 2.37. Those designs were developed by the IOT Operators' consultants Beckett Rankine as an early, indicative, design for the package of mitigation proposals identified as necessary by the IOT Operators in their Written Representation (and previous consultation responses), in the absence of any design work by the Applicant. That design work was provided at very short notice in the lead up to the Applicant's letter of 28 September 2023 [AS-020] and acknowledged that further impact protection was required. The design work was carried out with only the high-level information provided in the ES (which does not include details such as the IERRT Design Vessel's displacement).</p>	<p>The Applicant agrees that the Becket Rankine design was only undertaken at a high level, which is a reason why a number of challenges and second order consequences became apparent when the design was developed further by the Applicant in considering and finalising Change 4 – following further engagement with IOT Operators to ascertain definition and clarification of the IOT Operator's functional requirements. This is addressed in the Applicant's Change Application Request Report [AS-072] at paragraphs 3.20 onwards.</p>

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<p>2.17 The Applicant now appears to indicate, at paragraph 2.38 that “specific requirements” have been provided by the IOT Operators which go beyond those proposed by Beckett Rankine (and adopted by the Applicant in its letter of 28 September 2023). This is simply incorrect.</p>	<p>The consequences of the IOT’s requirements were not apparent at the time of receiving Beckett Rankine’s design, and further specific requirements were understood following further engagement with IOT Operators to ascertain definition and clarification of the IOT Operator’s functional requirements.</p> <p>This is addressed in the Applicant’s Change Application Request Report [AS-072] at paragraphs 3.24 onwards.</p>
<p>2.18 It is for the Applicant to design and promote its own scheme. That should include the design of accommodation or mitigation works required to protect existing infrastructure. The Applicant has failed to do so, but (very late in the day) has indicated that such measures are necessary. In the spirit of cooperation, the IOT Operators provided an indicative design to the Applicant in September. The Applicant’s letter [AS-020] by which it undertook to submit a change request recognised that as an indicative it was design subject to future design work between the relevant parties. The IOT operators then outlined what they considered necessary following a series of design meetings in their letter of 16 October, to assist the Applicant. The Applicant however has decided (without explaining why) that such specifications cannot be met, and is therefore now proposing an alternative design.</p>	<p>Again, the Applicant restates their position that additional impact protection structures are not necessary. Change 4 was made by the Applicant entirely in response to the comments made by the stakeholders participating in the Examination.</p> <p>The reasons why a solution that meets the IOT Operators’ requirements cannot be delivered is because of a number of significant issues that preclude a viable option being developed, which are set out in Applicant’s Change Application Request Report [AS-072] at paragraphs 3.27 onwards.</p>
<p>Applicant’s rationale and need for the changes</p>	<p>No comment.</p>

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<p>2.19 In the context of the position outlined above, the IOT Operators make the following comments on the content of part 3 of the change notification relating to Change 4.</p>	
<p>2.20 At Para. 3.21 the Applicant seems to remain of the view that, based on a flawed NRA, impact protection measures are not required. However, in meetings with the Applicant and its Harbour Authority (Humber Estuary Services), the consensus was that impact protection was required.</p>	<p>The Applicant maintains its position that impact protection measures are not required for the safe construction and operation of the Proposed Development, in accordance with its submitted NRA. The Applicant refutes the assertion that its Navigational Risk Assessment (NRA) [APP-089] was flawed.</p> <p>The Applicant queries to which meeting the IOT Operators are referring, and asks the IOT Operators to provide specific details to support their assertion, which is not recalled by the Applicant.</p>
<p>2.21 In reviewing both the NRA and the HASB meetings minutes of 12 December 2022 it is evident to the IOT Operators that a cost benefit analysis of the IOT Operators’ proposed mitigation measures was not undertaken and that the justification for not including impact protection was based on the results of HR Wallingford Simulations.</p>	<p>The Applicant refutes the assertion by IOT Operators that a cost benefit analysis of the IOT Operators’ proposed mitigation measures was not undertaken – the matter having been subject to considerable consideration at ISH5. Cost Benefit Analysis was undertaken as explained at para 5.14 of Applicant’s Response to IOT’s Deadline 5 Submission [REP6-028]. In addition, simulations also informed the decision making process. The Applicant has provided further detail in response to ISH5 Action Point 2 (document reference 10.2.62) submitted at Deadline 7.</p>
<p>2.22 At Para. 3.24 the Applicant states that the “high level” schematic does not meet the requirements of the IOT Operators. The purpose was to put forward an indicative approach that could address the unacceptable risk posed by the Applicant in proposing the IERRT development. The schematic is noted as</p>	<p>The Applicant appreciates that the indicative “high level” design put forward by IOT Operators was with the best of intentions, however, a number of primary and secondary impacts were identified during the design development process. The Applicant undertook an initial feasibility study in order to establish in principle the extent of infrastructure that would be required to meet such stated</p>

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<p>"indicative" and specifically states that "<i>Number and spacing of impact protection islands to be designed to meet minimum beam of existing / future IERRT vessels</i>" [AS-020]. Additionally, as noted above, the schematic issued was a proactive attempt by the IOT Operators (and its consultants) to address the complex issues of impact protection and relocation of the IOT Finger pier requirements, in the absence of design work which ought to have been carried out by the Applicant.</p>	<p>requirements, which concluded there were a number of significant issues that now preclude a viable option being developed to meet the IOT Operators' stated requirements, as is explained in the Change Application Request Report [AS-072] paragraph 3.26 onwards.</p>
<p>2.23 The Applicant asserts that the requirement of the IOT Operators has somehow changed, by stating "<i>that the IOT Operators are now stating as being required</i>". This is not correct: the IOT Operators' requirements have not changed since February 2022. It is for the Applicant to ensure that the potential impacts of the scheme are adequately mitigated. It is not for those parties potentially affected by the proposals (with potentially catastrophic impacts) to design their own mitigation measures.</p>	<p>See response to paragraph 2.22 above.</p>
<p>2.24 At Para. 3.25 the Applicant summarises their understanding of the IOT Operators' requirements in subparagraphs (a) to (g). The IOT Operators correct and/or clarify each subparagraph in the table below:</p>	<p>The IOT Operators requirements appeared to have been defined on the basis of the absence of any other form of control measure. An example is the requirement for any impact protection structure to be designed for a vessel impact speed of 4 knots, when in a real world situation, a vessel operating in a current of this speed would be assisted by tugs, therefore significantly reducing, if not eliminating, any potential impact speed.</p>

IOT Operators' Letter 13 November 2023		ABP response															
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<p>2.25 In relation to Para. 3.26 the IOT Operators require the results of the feasibility study to be shared. It is a continuing concern that to date no feasibility</p>	<p>The design basis statement for the impact protection structures was provided to the IOT operators on 15 November 2023 and is appended at Appendix 1 for completeness.</p>																

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<p>reports have been provided to justify the Applicant's position.</p> <p>2.26 Para. 3.27 seems to provide a summary of the feasibility assessment results. However, as this study has not been provided the efficacy and rigour of the assessment cannot be determined based on a summary of the key issues. This is not the first time that the Applicant has failed to share its data but has only revealed its own interpretation which cannot be accepted without verification. The IOT Operators have been clear that it is up to the Applicant to define and provide appropriate mitigation. Nevertheless, the IOT Operators note that there are issues with this summary:</p>	
<p>(a) Without substantiation of the future vessel sizes proposed for the IERRT and no details for the impact protection design calculations that have been undertaken to determine the required impact size it is difficult to comment on the conclusion regarding impact protection structure size. However, it is understood that the Applicant considers that an open structure is the only suitable impact protection type, and given this position it will result in large structural footprint. The IOT Operators consider that a closed cellular structure should be considered which is backfilled with gravel, as indicatively shown on the sketch produced by the IOT team, as this will have a</p>	<p>The design basis statement for the impact protection measures included in the Change Notification Request were shared with IOT Operators on 15 November 2023 (a copy of which is appended at Appendix 1 for completeness).</p> <p>The IOT Operators understanding is not correct. The requirement for open piled structure does not result in a large structural footprint. The initial calculations undertaken for a gravity structure indicated a footprint of approx. 45x25m would be required to achieve static equilibrium when designing for the impact speed specified by the IOT Operators. This is c. 4 x the size shown in the indicative plan.</p> <p>The impact force has been derived by following the governing codes – Eurocode 1, Pt 7 accidental actions, EN 1991-1-7, which makes</p>

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<p>smaller structural footprint than an open structure. It is not clear if any dampening effects have been considered due to vessel hull failure upon impact, however this would act to reduce the overall impact force if considered. Further to this, it is not clear if fendering systems have been considered to reduce the design impact force for the structure. The updated design proposals indicate an allowance for fenders, but there is no clarity or detail on what these fenders are, what forces they resist, and how these are incorporated into the impact protection design.</p>	<p>allowance for vessel hull failure, noting the codes primarily consider bow, rather than stern, impacts.</p> <p>The fenders provided are primarily to provide protection to the vessels using the nearby infrastructure, rather than to resist a vessel impact.</p>
<p>(b) We agree with the Applicant that a closed structural form, such as a cofferdam backfilled with gravel, would provide more strength against impact than an open piled structural solution. However, we disagree that a cofferdam structure would necessitate the need for 10m dredging depth of the silts. Alternative options such as silt treatment within the cofferdam should be explored. It should also be noted that settlement of backfill placed on silts would not be a main design concern.</p>	<p>The Applicant's position remains that the overall footprint of a gravity structure would need to be in the order of 45x25m. Construction of a cofferdam of this scale would be hugely disproportionate to address the extremely low level of residual risk.</p>
<p>(c) The question of the likely significant environmental effects of a change proposal are a matter for the Applicant to ensure are adequately assessed as part of any change request. In this subparagraph, the Applicant indicates that the catastrophic effects of an</p>	<p>It is correct it is for the Applicant to ensure, but the wider consequences and impacts of a proposal need to be assessed and taken in to account when weighing up the Proposed Changes, which have now been accepted into Examination. The Applicant contends that it has sufficiently assessed the likely significant environmental</p>

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<p>collision with the IOT Trunkway should not be adequately mitigated due to the envelope of the mitigation works required being materially different to those previously assessed. The IOT Operators' would observe that ensuring effective mitigation is secured, and subsequently assessing the likely significant effects of that mitigation, are different matters. The short point is that the Applicant simply has not carried out the necessary assessment work in good time, as it would have had the chance to do had it engaged with the mitigation proposals when first identified in early 2022. The fact that the Applicant has not carried out the necessary environmental assessment work is not a defensible justification for necessary mitigation measures to be omitted from its proposals.</p>	<p>effects of the Changes, as set out in the ES Addendum ES Addendum [AS-070].</p> <p>A cost benefit analysis should consider all 'cost' factors, including environmental impact. The Applicant has provided further detail regarding this consideration within the Supplementary Navigation Information Report (document reference 10.2.72) submitted at Deadline 7.</p>
<p>(d) It is for the Applicant to propose adequate mitigation for its scheme. The Applicant suggests that extending the IOT Finger Pier might accommodate the necessary mitigation, but then discounts it as impacting on the IERRT's navigational area. The Applicant appears to indicate that the design of its own scheme is inconsistent with the mitigation necessary to offset its (otherwise unacceptable) impacts. That is not a good reason for such mitigation not to be required. Rather, it is a reason for development consent not to be granted for the IERRT. Again, it is for the Applicant to adequately mitigate the impacts of its own design proposals. If that requires strengthening of the IOT Finger Pier and modifications</p>	<p>This would be the case if this was the only way to mitigate an identified risk to tolerable and ALARP, a position the Applicant clearly does not recognise given the extensive controls that will be put in place to avoid the risk of a collision with infrastructure.</p>

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to the pipework, that is not a justification for failure to provide those mitigation works.	
<p>The Applicant's alternative scheme</p> <p>2.27 At Para.3.28 & 3.29 the Applicant states that it has proposed an alternative scheme to the IOT Operators but in fact it has yet to provide any detail as to how the parameters of the alternative design have been justified. The IOT Operators raised a series of queries on these matters with the Applicant on 7 November 2023, and are yet to have a response. In the absence of a response to those queries, the following comments are made.</p>	<p>The Applicant has actively engaged with the IOT Operators, through a series of design workshops, to understand how it could develop a viable scheme that meets the IOT Operator's requirements, based on the high-level Beckett Rankine design proposal, as referenced in the 28 September 2023 letter.</p> <p>The Applicant considered this and engaged with the IOT Operators to understand the basis of design behind their proposals. The Applicant took it on good faith that the Beckett Rankine design had an engineering basis behind it but it became clear that the requirements outlined by IOT were not fully considered and it was not a viable proposition, as explained in the Change Application Request Report [AS-072]. The key findings from this assessment were:</p> <ol style="list-style-type: none"> 1. The size / footprint of the impact protection structures – driven by the requirement to design the structures for a vessel impact speed of 4 knots. This resulted in a plan dimension of c. 4x those shown on the Beckett Rankine sketch. This results in a number of secondary consequences with respect to navigation, hydrology and environmental impact. 2. The form of construction – the energy absorption required results in the need for a solid structure, with a footprint of approx. 45x25m (11,125m²) for each impact protection structure. 3. The environmental impact – structures of this size and construction would have a significant impact on the hydrodynamic flows within the river. 4. The overall length of the finger pier extension – Beckett Rankine sketch length of 240 vs 300m length required.

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	<p data-bbox="1048 236 1966 416">5. The extent of modification to the existing finger pier and topside infrastructure – extension of the finger pier required to accommodate new Marine Loading Arms, in comparison to the Beckett Rankine sketch which simply shows a walkway to a new dolphin.</p> <p data-bbox="1003 459 1951 600">A high level cost benefit analysis was undertaken by the Applicant, which clearly demonstrated the significant cost (c.£35m) for limited overall benefit, once taken in combination with the proposed enhanced operational controls.</p>
<p data-bbox="197 606 983 1118">2.28 The Applicant has taken an arbitrary approach to defining maximum design velocity of 2.9 knots. It is not clear where this has come from and no details of the “statistical analysis” is understood or agreed by the IOT Operators. The IOT Operators understand that this analysis relates to a vessel of less than the half the displacement of those proposed by the Applicant and at a velocity 35% lower than could be experienced (maximum tidal speed is 4.5knots). It is evident from the change request that the Applicant provides a resultant impact force for the IOT Operators requirements of 80MN, but doesn’t provide the same figures for the design they are actually proposing.</p>	<p data-bbox="1003 606 1906 751">As previously stated, the design basis statement for the impact protection measures was shared with IOT Operators on 15 November 2023 (a copy of which is appended at Appendix 1 for completeness).</p> <p data-bbox="1003 794 1895 895">The design basis states that the impact structures have been designed for a maximum impact speed of 2.5 knots for a Stena Transit Class vessel.</p>
<p data-bbox="197 1185 972 1375">2.29 The Applicant must adequately assess risk to an accepted standard and provide clear justification for ALARP judgements, including the detail of the proposed design and the parameters of any additional risk control measures, such as impact protection - the</p>	<p data-bbox="1003 1185 1984 1331">The NRA has been updated to reflect the changes and the definition of the enhanced operational controls, and was provided at Annex C to the ES Addendum [AS-070] submitted in support of the Change Application Request. The overall assessment of this risk remains the</p>

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Agent of Change principle is central and very clear to this requirement.	same as that presented in the NRA [APP-089], as reported in the ES Addendum at paragraph 3.4.18 of [AS-070].
2.30 Any additional control measures must be clearly defined and evidenced. To this end the IOT Operators have made the (obvious) point that impact protection must be sufficient to arrest an errant IERRT design vessel, thereby preventing allision of IERRT vessels with the IOT Trunkway, IOT Finger Pier and vessels alongside the IOT Finger Pier.	See response to paragraph 2.29 above.
2.31 In the context of the need to arrest an errant IERRT design vessel, the Applicant indicated at ISH3 that procedural controls would not be sought within the DCO and that the ABP statutory harbour authorities of either Humber Estuary Services or the Port of Immingham would be responsible for their management and imposition (noting the Applicant has not been consistent about which of its own authorities has control over the proposed IERRT development and vessel berthing). Since there is a lack of independence and independent scrutiny, as noted in the IOT Operators Deadline 5 submissions, the IOT Operators do not consider the reliance on the Applicant's own statutory authorities and employees acceptable to mandate or devise the necessary procedural controls. In this regard it should be noted that the Applicant's NRA only requires procedural controls for the operational phase of the IERRT to	The Applicant reiterates that it would not be appropriate for procedural controls to be provided within the DCO. The Secretary of State should not supplant the powers of the relevant harbour authorities in Marine DCOs. Control of navigation is the subject of a statutory regime, and the Harbour Master gave a lot of detail in ISH6 on the practical day to day operations of this. The basic principle of which being that, under the Port Marine Safety Code, the safe operation of the Harbour and Dock is governed by this and supplemented by the powers of the Harbour Master, the Dock Master and Statutory Harbour Authority to give force to any controls that they require.

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<p>address the un-acceptably high-risk hazards brought about by the IERRT development.</p>	
<p>Enhanced Navigational Management Controls</p> <p>2.32 The Applicant states at Para 2.42 that “Enhanced navigational management controls” will be developed with the IOT Operators but documents the “<i>vehicle for these enhanced controls will be either by the issue of a General Direction/Notice to Mariners or a revision to the Immingham Marine Operations Manual</i>” which are to be provided by the Statutory Harbour Authority – Humber Estuary Services or Port of Immingham. However, there appears to be no provision for these controls to be secured in the DCO to reassure the IOT Operators that they will be implemented. The only “Enhanced navigational management controls” seems to be related to the provision of tug assistance for IERRT vessels arriving to Berth 1 during an ebb tide. No details have been provided to the ExA to date by the Applicant on how this will work, or how any towage requirement would impact the available towage in the Humber Estuary and not result in a knock-on impact to tug availability for IOT vessels. No public consultation has been carried out by the Applicant on this element of its change request.</p>	<p>See response to paragraph 2.31 above as to the operation of controls.</p> <p>The Change Application Request Report [AS-072] explains that it is proposed that the Dock Master could publish a General Direction designed to regulate the management of vessels arriving at the IERRT berths with a consequent revision to the Immingham Marine Operations Manual. This is described in further detail in paragraphs 3.3.4 to 3.3.15 of the ES Addendum [AS-070].</p> <p>The enhanced operational marine management controls which were put forward were not in fact formally a “Change” to the DCO application as originally submitted - they were instead put forward in conjunction with the additional impact protection in the Change Application in order for them to be so noted, as such consultation in respect of them was not necessary.</p>

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<p>2.33 Elsewhere in the change document (e.g. at Para 3.29) the Applicant notes that “<i>operational limit for the deployment of tugs on the Humber, namely 2.5 knots</i>”. From that statement it appears that the towage control is no more than the current provision on the Humber Estuary for other terminals located in less navigationally onerous locations, with less sensitive receptors in the immediate vicinity. It is also notable that such towage was included when scoring hazard risk during stakeholder workshops. For the Applicant to then rely on this as an additional measure makes no sense, especially when the IERRT berths have been acknowledged to be challenging and it is accepted that the location is amongst the most difficult and challenging area of the Humber Estuary in the context of RoRo operations at all states of the tidal cycle.</p>	<p>The enhanced operational controls are explained in the Change Application Request Report [AS-072] and described in paragraphs 3.3.4 to 3.3.15 of the ES Addendum [AS-070].</p>
<p>Impact Control Measures: Linear Protection</p> <p>2.34 Regarding Para. 3.31 the IOT Operators have not passed any comment on the Linear protection to the IOT Trunkway and so do not understand the Applicant’s statement that it is a requirement of the IOT Operators to increase the number of piles from 20 to 25.</p>	<p>The Applicant confirms that the reference to a requirement to increase the number of piles was made in error. The linear protection to the IOT Trunkway requires 20 piles.</p>

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<p>2.35 In terms of the design of the linear protection, then to date no further details have been provided by the Applicant regarding its ability to withstand impact by an IERRT vessel and as such the IOT Operators remain in the dark as to what effect implementing this measure will do to reduce risk to the IOT Trunkway. As noted in the sNRA, the adequacy of the linear protection is at best questionable and at worst pointless.</p>	<p>The design basis statement for the impact protection structures was provided to the IOT operators on 15 November 2023 and is appended at Appendix 1 for completeness.</p> <p>The Applicant notes IOT Operators' comment that the sNRA notes that providing impact protection is "at best questionable and at worst pointless" which in fact appears to support the Applicant's position – which remains that impact protection measures are not necessary in light of the conclusion reached in its Navigational Risk Assessment [APP-089] – that impact protection measures are not required for the safe construction and operation of the Proposed Development.</p>
<p>2.36 It is also noted that Para. 2.5.2 of Appendix 1 indicates that the pile sizes of the linear impact protection measures is proposed to be increased from 1,422m to 1,520mm. However, there is no detail or basis provided for this design change and therefore the IOT Operators assume it is due to the Applicant's consideration of the need to provide sufficient impact protection measures to the IOT Trunkway which accounts for all vessel types, including future vessels. It is noted that the protection structure length has been proposed to be increased, but the fendering extent along the impact protection structure has not been altered. We therefore assume that the fenders do not act to limit or control impact protection forces.</p>	<p>The design basis statement for the impact protection structures was provided to the IOT operators on 15 November 2023 and is appended at Appendix 1 for completeness.</p> <p>The Change Application has not increased the length of the impact protection structure as noted in response to paragraph 2.34 above.</p>
<p>2.37 It is not clear in the proposals why the Applicant proposes to protect the IOT Trunkway but does not</p>	<p>As per the conclusions of the Navigational Risk Assessment [APP-089], trunk way impact scores higher in consequence than finger</p>

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<p>consider the protection of the southern berths of the finger pier to be necessary. There is no documentation provided to justify why the IOT Trunkway is considered to be at greater risk.</p>	<p>pier. The dolphin at the end of the finger pier would also reduce the risk further to any impact on the finger pier.</p>
<p>Impact Control Measures: Additional protection barrier to IOT Finger Pier</p> <p>2.38 The additional protection barrier proposed for the IOT Finger Pier is highlighted by purple pecked line in the figure above. It appears to be a sacrificial impact protection system that is not connected to the IOT Finger pier. Once again, the Applicant has failed to provide any details or characteristics of their proposal.</p>	<p>The design basis statement for the impact protection structures was provided to the IOT operators on 15 November 2023 and is appended at Appendix 1 for completeness.</p>
<p>2.39 The IOT Operators require that impacts on operations at the IOT Finger Pier brought about by the Additional protection barrier to IOT Finger Pier is assessed in full.</p>	<p>This has been considered in Chapter 10 of the Environmental Statement Addendum submitted alongside the Change Request [AS-070]. Simulations in this respect have been undertaken by the Applicant [AS-071] and were provided to the IOT Operators on 4 December. The simulations will be repeated for stakeholders at simulations on 13/14 December 2023, which the IOT Operators were invited to attend on 29 November 2023.</p>
<p>Simulations</p> <p>2.40 The IOT Operators note that the simulations proposed by the Applicant as requested by the ExA Action Point 17, do not include any provision to interrogate the effects of the change requests on the</p>	<p>The Applicant undertook navigational simulations on 7/8 November 2023 as requested by the ExA Action Point 17, which DFDS attended. A report of those simulations is provided at [REP6-035]</p> <p>Further to the simulations on 7/8 November, the Applicant invited the IOT Operators to attend further simulations on 15 December which included an objective to simulate the effect of the potential finger pier</p>

IOT Operators' Letter 13 November 2023	ABP response
IOT Operators confirm that the change requests meet the intended requirements.	impact protection structure on the IOT finger pier operations. The IOT, however, declined to attend these simulations.
<p>3. CONCLUSIONS</p> <p>3.1 The IOT Operators' views on the proposed change request are outlined in this letter and its appendices.</p> <p>3.2 The IOT Operators are disappointed to note that, despite the Applicant's commitment in its letter of 28 September 2023 [AS-020] to deliver the mitigation measures identified by the IOT Operators:</p> <p>(a) Insufficient information has been provided by the Applicant to demonstrate why it is advancing mitigation measures in the form proposed, rather than those outlined clearly by the IOT Operators in their letter of 16 October 2023 (Appendix 1); and</p> <p>(b) The mitigation measures which are being proposed by the Applicant appear (on the limited information provided) to be insufficient to adequately address the very serious risks identified in the IOT Operators' sNRA [REP1-064].</p> <p>3.3 In the absence of acceptable mitigation being provided, and the nature of the risks created, the IOT Operators reluctantly suggest that the DCO should not be confirmed.</p>	These points have been covered in the respective response to the various paragraphs above.

Table 2 – Response to IOT Operators’ Letter 16 October 2023

IOT Operators’ Letter 16 October 2023	ABP response
<p><u>Background</u></p> <p>1.1 We write with reference to Associated British Ports’ (“ABP”) application for the proposed Immingham Eastern Ro-Ro Terminal Development (“IERRT”) and to the ongoing DCO Examination. Where relevant we have referred to document references from the IERRT DCO Examination Library.</p>	<p>Noted.</p>
<p>1.2 As you will be aware, Associated Petroleum Terminals (Immingham) Limited and Humber Oil Terminals Trustee Limited (together the “IOT Operators”) have significant concerns regarding the potential navigation and shipping effects of the IERRT on the Immingham Oil Terminal (“IOT”). These have been set out in various consultation responses and correspondence to ABP [REP2-063] and in the Written Representation [REP1-062] and shadow Navigation Risk Assessment (“sNRA”) [REP1-064] submitted to the Examination on behalf of the IOT Operators. These concerns primarily relate to the Navigation Risk Assessment (“NRA”) submitted by ABP [APP-089] and the risk control measures proposed as part of the IERRT application.</p>	<p>Noted.</p>
<p>1.3 Recent discussions between the IOT Operators and ABP led to a letter being submitted to the Examining Authority on 28 September 2023 [AS-020]. This set out that (while each party notional retained its position on the NRA) ABP intended to make a request</p>	<p>See response above to paragraphs 1.2 and 1.3 of Table 1 (IOT Operators letter of 13 November 2023).</p>

IOT Operators' Letter 16 October 2023	ABP response
<p>to amend the DCO application in order to enable the delivery of mitigation measures required by the IOT Operators. The letter also stated that ABP would ensure that protective provisions substantially similar to the IOT Operators' amended protective provisions [REP1-039] would be included in the DCO. In light of the letter being submitted, the IOT Operators agreed not to engage in detail with navigation and shipping matters and NRA issues during Issue Specific Hearing 3 ("ISH3") on 27 and 28 September 2023 and these discussions were accordingly curtailed by the ExA.</p>	
<p>1.4 Since ISH3, the IOT Operators and ABP have been in ongoing discussions regarding the risk control measures which are required by the IOT Operators. The purpose of this letter is to set out what is required by the IOT Operators along with a clear justification for why such measures are needed.</p>	<p>Noted.</p>
<p><u>Risk Control Measures</u></p> <p>1.5 As set out in previous submissions (including the Written Representation and sNRA) and in the letter submitted on 28 September 2023, the IOT Operators require the following to ensure that the IOT can continue to operate safely in the event that the IERRT is constructed:</p> <p>(a) The IOT finger pier must be amended to accommodate two Coastal tankers to berth on the</p>	<p>IOT Operators requirements are noted.</p>

IOT Operators' Letter 16 October 2023	ABP response
<p>northern side of the finger pier and two barges to berth on the southern side of the finger pier.</p> <p>This will need to provide for two Coastal tankers of up to 105m in length with an additional 25m for bow / stern lines and 50m for bow and stern lines together on the northern face of the Finger Pier. On the southern face of the finger there will need to be two barge berths of up to 60m in length and 10m for bow and stern lines. As part of these measures, the accommodation works identified in the Appendix are also expected to be required to enable the revised IOT finger pier arrangement to operate.</p> <p>(b) Adequate impact protection should be delivered by ABP to protect the IOT from vessels using the IERRT.</p> <p>The IOT Operators require vessel impact protection islands to be provided to arrest errant vessels using the IERRT in order to protect the IOT finger pier and trunkway. The vessel impact protection should include a barge passageway with 25m navigable width. There should be no connection between the impact protection and the IOT finger pier to ensure that the finger pier remains operable if an impact occurs. The impact protection should be able to withstand the maximum vessels that will visit IERRT (which is understood to be vessels with a displacement of 48,431 tonnes) travelling at impact speeds of up to 4 knots speed over the ground which correlates to the</p>	

IOT Operators' Letter 16 October 2023	ABP response
<p>assumed maximum tidal velocity experienced in the vicinity of the IERRT. In addition, there should be roller fendering on the north east corner of the IOT finger pier and fendering to the impact protection itself for barges.</p> <p>(c) The IERRT itself should be constructed with adequate impact protection and will be sufficiently resilient to ensure that any vessel impacting the IERRT will not impact the IOT. The IERRT should therefore be able to withstand the same specification of vessel displacement and speed as identified above at 1.5(b).</p>	
<p>1.6 ABP will need to make a request to amend the DCO application in order to enable the delivery of these mitigation measures to the standard required by the IOT Operators. As set out in ABP's letter of 28 September 2023, the final design of the amended finger pier, impact protection and the offshore aspects of the IERRT will require the prior approval of the IOT Operators. Similar provisions are included in paragraph 5 of the protective provisions as amended by the IOT Operators [REP1-039] and is essential to ensure the measures adequately protect the IOT.</p>	<p>The Change Application, incorporating Change 4 in respect of the impact protection measures, has since been made and accepted into Examination by the ExA since IOT Operators' letter of 16 October 2023.</p> <p>The Applicant will be submitting an updated dDCO at Deadline 8. A substantive response to IOT Operators latest draft Protective Provisions is provided in Appendix 1 to the Applicant's Response to the Schedule of Changes to the DCO (document reference 10.2.70).</p>
<p>1.7 Should any of these measures result in any additional environmental effects to those assessed in ABP's Environmental Statement submitted with the IERRT application, ABP will need to submit additional environmental information to the Examination to</p>	<p>Details of the environmental effects assessed for the Changes Application are reported in the ES Addendum [AS-070] which was submitted in support of the Change Application.</p>

IOT Operators' Letter 16 October 2023	ABP response
confirm that such measures will not lead to any additional significant environmental effects (as the ExA itself highlighted during ISH3).	
1.8 In addition to these measures, the IOT Operators require a Marine and Liaison Plan to be developed by ABP in conjunction with the IOT Operators and other applicable stakeholders to cover the construction and operational phase of the IERRT.	As covered in the Applicant's response to ExQ2 NS.2.21 [REP4-008] , a port liaison officer is included as an additional applied control for the risk associated with a collision between a marine works craft and an operational vessel. There will be an important line of communication between the works contractor, the Dock Master, VTS, and Pilotage to ensure that the works are coordinated and carried out safely. The well-established operational management systems in place across the SHA and SCNA will allow the safe planning and execution of the construction works alongside operational movements. An example was raised in ISH5 in respect of the Grimsby River Terminal construction works. The Applicant explained that these works were well managed via the lines of communication and established working practices already in place, which ensured the works were undertaken safely and without impacting other port users or customers.
1.9 The need for a Marine and Liaison Plan for the construction phase is included in paragraph 5(2)(a) of the protective provisions as amended by the IOT Operators [REP1-039]. This confirms that the plan should be developed by ABP in consultation with the IOT Operators to set out details of the construction methodology and schedule of works for the IERRT. This should be delivered prior to commencement of the offshore works.	See response to 1.8 above. The Applicant will be submitting an updated dDCO at Deadline 8. A substantive response to IOT Operators latest draft Protective Provisions is provided in Appendix 1 to the Applicant's Response to the Schedule of Changes to the DCO (document reference 10.2.70).
1.10 The IOT Operators also consider that a Marine and Liaison Plan should be developed for the	See response to 1.8 above.

IOT Operators' Letter 16 October 2023	ABP response
<p>operational phase of the IERRT to develop and manage procedural controls related to the IERRT development. It is envisaged that this control measure will bring together several procedural controls, for the operational phase of the IERRT identified during the hazard workshops including berth limits, towage requirements and operational deconfliction. These procedural controls are necessary to ensure that the eventual use of the IERRT during the operational phase is consistent with the design parameters used to inform the measures set out in paragraph 1.5 of this letter. The required procedural controls are set out in further detail in paragraph 1.34 of Section F of the IOT Operators' Deadline 4 submission [REP4-025]. The IOT Operators therefore consider that the protective provisions should be amended further to include the productions of a Marine and Liaison Plan to cover the operational phase of the IERRT. A draft plan should be delivered and submitted prior to the end of Examination, to ensure that any procedural controls relied on by ABP are agreed prior to the end of the Examination process. A final plan should be agreed by APT prior to commissioning of any berth of the IERRT development.</p>	<p>The Applicant does not agree with the points raised by the IOT Operators at paragraph 1.34 of Section F of [REP4-035] on the basis that control of navigation is the subject of a statutory regime, and the Harbour Master Humber gave a lot of detail in ISH6 on the practical day to day operations of this. The basic principle of which being that, under the Port Marine Safety Code, the safe operation of the Harbour and Dock is governed by this and supplemented by the powers of the Harbour Master, the Dock Master and Statutory Harbour Authority to give force to any controls that they require.</p> <p>The Applicant has provided further responses to the IOT's submissions made at [REP4-035] in its Deadline 6 Submission [REP6-028].</p> <p>The Applicant reiterates that it would not be appropriate for procedural controls to be provided within the DCO – as is confirmed by the SCNA.</p>
<p>1.11 In order to deliver these risk control measures it will be necessary for ABP and the IOT Operators to agree consequential changes to the existing licence to use the IOT, which would also need to be agreed and secured as part of any change request.</p>	<p>The Applicant is not aware that any changes of licence arrangements will be required – it would have been helpful if the IOT Operators had indicated precisely what they had in mind rather than rely on unhelpful generalisation.</p>

IOT Operators' Letter 16 October 2023	ABP response
<p>1.12 The letter submitted by ABP to the Examining Authority on 28 September 2023 [AS-020] confirms that ABP will update the draft DCO to include protective provisions for the benefit of the IOT Operators substantially in the form included in REP1-039. Being in 'substantially' the same form as REP1-039 provides flexibility and enables appropriate amendments to be made to the protective provisions to take into account recent discussions and the measures set out in the letter.</p>	<p>The Applicant will be updating the dDCO in respect of the protective provisions for the benefit of the IOT Operators now that the Change Application has been accepted. An updated dDCO will be submitted at Deadline 8. In the meantime, a substantive response to IOT Operators latest draft Protective Provisions is provided in Appendix 1 to the Applicant's Response to the Schedule of Changes to the DCO (document reference 10.2.70).</p>
<p>1.13 The protective provisions will include an obligation to deliver the measures listed above in consultation with and to the reasonable satisfaction of the IOT Operators with the final design of the measures being subject to the approval of the IOT Operators (see paragraph 5 of [REP1-039]). In addition, the protective provisions include the following measures which are required by the IOT Operators to ensure that the IOT and the refineries which rely on the IOT are not prejudiced by the IERRT development:</p> <p>(a) Vessels using the IOT should be given priority over vessels using the IERRT due to tidal constraints on vessels arriving and departing from the IOT. In addition to the Marine and Liaison Plan for the operational phase of the IERRT, the IOT Operators wish to reserve the right to make any approval of IERRT offshore works subject to requirements to ensure the IOT Operators do not suffer more interference than is reasonably practicable and to</p>	<p>See response to paragraph 1.12 above.</p>

IOT Operators' Letter 16 October 2023	ABP response
<p>guarantee that vessels using the IOT are given priority over IERRT vessels. This is set out in paragraph 6 of the protective provisions as amended by the IOT Operators [REP1-039].</p> <p>(b) All offshore works forming part of the IERRT should only take place in accordance with the agreement of the IOT Operators (see paragraph 5(1) of [REP1-039]). In addition, details of any works to be undertaken in the vicinity of the IOT or that might otherwise adversely impact the IOT will need to be submitted to the IOT Operators for approval in advance of undertaking such works (see paragraph 4 of [REP1-039]).</p> <p>(c) The IOT Operators will need to be indemnified for any costs incurred or business losses suffered as a result of the IERRT development (see paragraphs 7 and 9 of [REP1-039]).</p>	
<p>1.14 Furthermore, the IOT Operators have requested that all costs incurred to date and all future costs in relation to the IERRT application should be paid by ABP. This is on the basis that concerns on the navigation and shipping effects of the IERRT have been consistently raised since the IOT Operators' first consultation response dated 22 February 2022 and the mitigation measures now being offered by ABP are based on what was included in the OIT Operators' letter dated 25 July 2022. There has been no material change in circumstances in the intervening period.</p>	<p>The Applicant reiterates its position that in light of the conclusion reached in its Navigational Risk Assessment [APP-089] that impact protection measures are not required for the safe construction and operation of the Proposed Development.</p> <p>The Applicant has acted entirely in response to the comments made by the stakeholders participating in the Examination in making Change 4 to allay their concerns. The Applicant would stress that it has expended significant effort in engaging with the IOT Operators in seeking to reach agreement on the extent of any scheme of marine infrastructure protection.</p>

IOT Operators' Letter 16 October 2023	ABP response
<p>Significant costs would have been saved had ABP engaged with the IOT Operators and offered the requested mitigation measures as part of the original IERRT DCO application and so avoided the need for the IOT Operators to participate in detail in the Examination.</p>	
<p><u>Conclusion</u></p> <p>1.15 For the reasons set out in this letter, and consistently with the letter ABP presented to the Examination during ISH3, the IOT Operators invite ABP to confirm that they will make a request to amend the DCO application which will enable the delivery of the measures outlined above to the required standard. The IOT Operators should continue to be consulted on whether proposals are capable of meeting that required standard as the change request is prepared.</p>	<p>The Change Application, incorporating Change 4 in respect of the impact protection measures, has since been made and accepted into Examination by the ExA since IOT Operators' letter of 16 October 2023.</p>
<p>1.16 Should ABP consider that any of the measures are to be delivered in a way that departs from the standards set out above, ABP will need to provide a clear justification for why a different approach has been taken.</p>	<p>The Change Application Request Report set out the need and justification of each of the Proposed Changes 1 to 4. The Change Application has - since IOT Operators' letter of 16 October 2023 – been accepted into Examination by the ExA.</p>


Table 3 – Response to IOT Operators’ Letter 7 November 2023

IOT Operators’ Letter 7 November 2023	ABP response
<p>1. In respect of Change 1: described as <i>“the Realignment of the Approach Jetty and Related Works - within the submitted limits of deviation but further away from the IOT Trunkway - with an increase in the number and repositions of the locations of piles required to support marine infrastructure, together with ancillary works to the pier infrastructure”</i>, please provide the <u>basis of design parameters</u> (including design vessel characteristics / velocity used and associated impact design loadings) for the following possible additional infrastructure in relation to arresting errant IERRT vessels:</p> <ul style="list-style-type: none"> a. Restraint dolphins b. IERRT finger pier adjustments. 	<p>The design basis statement for the impact protection structures was provided to the IOT operators on 15 November 2023 and is appended at Appendix 1 for completeness.</p>
<p>2. In respect of Change 4: described as <i>“Enhanced Management Controls and Options for the Potential Provision of Additional Impact Protection Measures - in conjunction with and subject to enhanced navigational management controls for vessels entering or departing from the IERRT”</i>, please provide the <u>basis of design parameters</u> (including design vessel characteristics / velocity used and associated impact design loadings) for the following possible additional infrastructure in relation to arresting errant IERRT vessels:</p> <ul style="list-style-type: none"> a. Enhanced Navigational Management Controls b. Impact Control Measures: 	<p>See response to paragraph 1 above.</p>

IOT Operators' Letter 7 November 2023	ABP response
<ul style="list-style-type: none"> i. Linear Protection ii. Additional protection barrier to IOT Finger Pier. 	
<p>3. In respect of the additional protection barrier: please confirm <u>what assessments</u> have been undertaken to address impacts on IOT operations at the IOT Finger Pier brought about by the additional protection barrier both in relation to its construction and operation (noting that the existing finger pier has a roller fender to aid berthing of coastal tankers which will likely be more needed due to amended tidal flow resulting from the blocking effect of the IERRT pontoons).</p>	<p>Details of the assessments undertaken are reported in the ES Addendum [AS-070] which was submitted in support of the Change Application.</p> <p>Simulations in this respect have been undertaken by the Applicant and are provided at [AS-071]. Whilst the IOT Operators were invited, they declined to attend. In light of this, the Applicant has agreed to repeat the simulations for stakeholders at simulations on 13/14 December 2023. The Applicant wrote to the IOT Operators on 29 November with a further invitation.</p>
<p>4. In respect of the ABP NRA: the above change requests (Changes 1 and 4) have seemingly been implemented to mitigate errant IERRT vessels alliding with IOT infrastructure (and tankers alongside) and as such constitute additional risk control measures. Please confirm that an assessment of residual navigation risk has been undertaken with these measures in place (including cost benefit analysis against defined standards of acceptability), and if so when the assessment (which we assume is an update to the IERRT NRA) will be shared.</p>	<p>The Applicant confirms that an updated NRA was prepared in respect of the Changes and is provided at Annex C to the ES Addendum [AS-070] which was submitted in support of the Change Application.</p>
<p>5. In respect of the proposed additional infrastructure: please confirm what assessments have been undertaken in relation to the IERRT construction and construction / operation phases, and</p>	<p>Details of the assessments undertaken are reported in the ES Addendum [AS-070] which was submitted in support of the Change Application.</p>

IOT Operators' Letter 7 November 2023	ABP response
<p>whether it is intended that the additional infrastructure will be constructed prior to IERRT becoming operational.</p>	
<p>6. In respect of protective provisions: ABP has agreed to incorporate protective provisions for the protection of the IOT Operators as part of its change request [REP1-039]. That agreement was recorded in the ABP letter of 28 September 2023 [AS-020]. An updated copy of the DCO demonstrating the incorporation of those protective provisions securing the benefit of the mitigation being proposed by ABP as part of its change request has not been provided. ABP is asked to urgently provide an updated draft DCO showing how it proposes to incorporate those protective provisions for the benefit of the IOT Operators.</p>	<p>The letter of 28 September 2023 [AS-020] confirmed that appropriate protective provisions would be included in a draft amended DCO if the proposed changes were accepted - not at the time of making the change request (made on 19 October 2023 [AS-026] and [AS-027]).</p> <p>The Change Request was submitted on 29 November 2023 [AS-045] and ExA confirmed that the Proposed Changes were accepted into Examination on 6 December 2023 [PD-021]. The Applicant confirms that it will therefore now be updating the dDCO in respect of the protective provisions for the benefit of the IOT Operators now that the Change Application has been accepted. An updated dDCO will be submitted at Deadline 8. In the meantime, a substantive response to IOT Operators latest draft Protective Provisions is provided in Appendix 1 to the Applicant's Response to the Schedule of Changes to the DCO (document reference 10.2.70).</p>

IOT Vessel Impact Protection Structures - Design Basis

Date:	14 November 2023	Aperture @ Pynes Hill, Rydon Lane
Project name:	Project Sugar	Exeter, EX2 5AZ
Project no:	B2460000	United Kingdom
Attention:	Daniel Landi	T +44 (0)139 226 9800
Company:	Associated British Ports Ltd	
Prepared by:	Duncan Riches	
Document no:	4021009-JAC-ZZ-01-TN-C-00001	

1. Introduction

1.1 Background

Associated British Ports (ABP), the owner and operator of the Port of Immingham, is proposing to construct a new roll-on/roll-off (Ro-Ro) facility within the Port to be known as the Immingham Eastern Ro-Ro terminal (IERRT). This facility is designed to service the embarkation and disembarkation of commercial wheeled cargo (i.e., Ro-Ro freight) carried either by accompanied trailer (where the Heavy Goods Vehicle (HGV) tractor unit and driver travel on the vessel with the trailer) or on unaccompanied trailers which are delivered to the embarkation port and then collected at the port of disembarkation by different HGV tractor units and drivers.

The project is needed to provide additional appropriate Ro-Ro freight capacity within the Humber Estuary in order to meet the growing and changing nature of demand, and thereby strengthen the estuary's contribution to an effective, efficient, competitive and resilient UK Ro-Ro freight sector.

1.2 Purpose of this Document

This design basis document sets out the functional, quality and performance requirements for construction of the Immingham Eastern Ro-Ro Terminal (IERRT) Vessel Impact Protection Structures (VIPS) arrangements.

The design of the VIPS shall be coordinated and align with the marine works requirements.

This document has been produced for the purpose of consultation with stakeholders.

2. VIPS Scope

The Vessel Impact Protection Structure works will include, but not be limited to, the design, construction, installation, testing, commissioning and remedying of defects of the following items:

- IOT Finger Pier VIPS dolphin
 - Positioned at the western end of the existing IOT finger pier and including for the removal of the 2no existing roller fender piles.
- IOT Trunkway Barrier
 - Positioned adjacent to the IOT trunk way.
- IERRT pontoons and associated restraint dolphins
 - For each pontoon, 1no Type 1 Dolphin and 3no Type 2 Dolphins.

The structures are identified in Figure 1

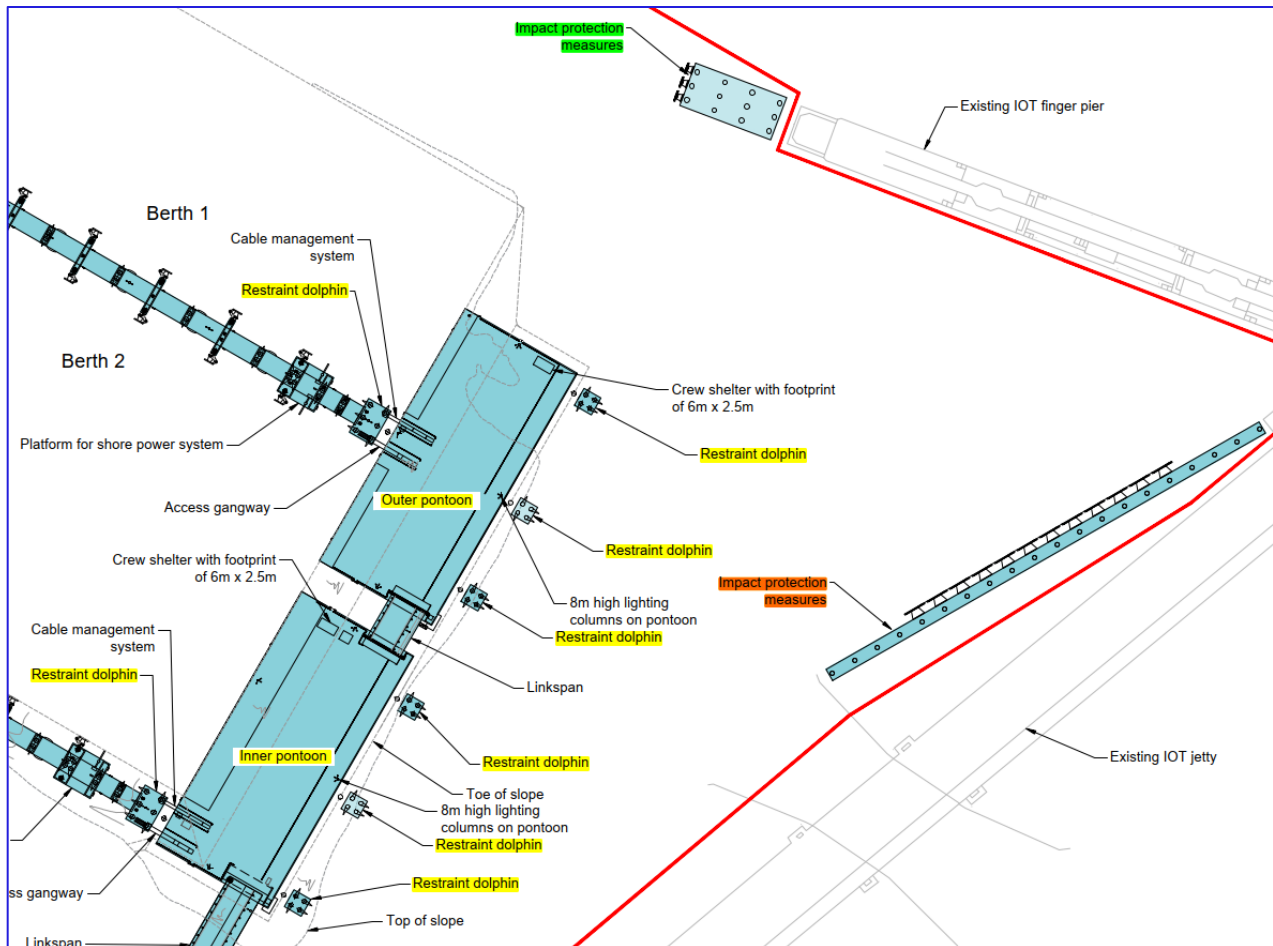


Figure 1 - Vessel Impact Protection Structures

3. Proposed Design Basis

3.1 Alignment of the VIPS with Marine Works

Except where specifically identified by this design basis, the Vessel Impact Protection Structures (VIPS) works are to be designed, constructed, installed, tested, commissioned and defects remedied in accordance with the Project Requirements.

3.1.1 Contractor’s Design – General Requirements

No change to existing project requirements except when in conflict with the requirements set out in Section 4, in which case the requirements set out in this document will prevail.

3.1.2 Site Specific Information

No change to existing project requirements except:

- when in conflict with the requirements set out in Section 4, in which case the requirements set out in this document will prevail.
- Provision of IOT Finger Pier Information identified below.

Folder	Files	Folder	Files
2008 Halcrow Report		Arup Condition report 2013	Condition Assessment Report Final 2 (1) (1).pdf
	DI-IOTS-001.pdf		
	DI-IOTS-100.pdf		
	DI-IOTS-101.pdf	Concrete inspection 2013	2013.07.11 PJRFSL04014 Inspection Concrete Defects (1).pdf
	DI-IOTS-102.pdf		
	DI-IOTS-103.pdf		
	DI-IOTS-104.pdf	As-built drawing	
	DI-IOTS-105.pdf		80439.2.pdf
	DI-IOTS-200.pdf		80439.522.pdf
	DI-IOTS-201.pdf		80439.523.pdf
	DI-IOTS-202.pdf		80439.525.pdf
	DI-IOTS-203.pdf		80439.531.pdf
	DI-IOTS-300.pdf		80439.532.pdf
	DI-IOTS-301.pdf		80439.533.pdf
	DI-IOTS-302.pdf		80439.535.pdf
	DI-IOTS-400.pdf		80439.536.pdf
	DI-IOTS-401.pdf		80439.537.pdf
	DI-IOTS-500.pdf		80439.538.pdf
	DI-IOTS-501.pdf		80439.539.pdf
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DI-IOTS-604.pdf	
Front Sheet.ppt	
IOT Report final.pdf	

3.1.3 Scheme Design Requirements

No change to existing project requirements except when in conflict with the requirements set out in Section 4, in which case the requirements set out in this document will prevail.

4. The VIPS Works

4.1 Function – General

- a) Provide impact protection from the IERRT design vessels that have lost steerage / power on an ebb tide.
- b) Provide impact protection from the IERRT design vessels at the defined impact speeds (refer to Table 4-2).
- c) The VIPS will not have a berthing or mooring function.

4.2 Function – Structure Specific Detail

4.2.1 IOT Finger Pier VIPS dolphin

- a) Protect the western end of the IOT Finger Pier from impact from an errant IERRT design vessel.
- b) Provide roller fenders and panels to protect the IOT Design Vessels approaching the IOT Finger Pier Berths.

4.2.2 IOT Trunkway Barrier

- a) Protect the western face of the IOT Trunk from an errant IERRT design vessel, landward of the Finger Pier, up to the existing navigation beneath the IOT Trunkway.

4.2.3 IERRT pontoons and associated restraint dolphins

- a) Protect the western face of the IOT Trunk from an errant IERRT design vessel, landward of the termination of the Trunkway Barrier.

4.3 Materials and Structural Form

4.3.1 IOT Finger Pier VIPS dolphin

- a) Tubular steel piles supporting a reinforced concrete pile cap.

4.3.2 IOT Trunkway Barrier

- a) Tubular steel piles connected by a reinforced concrete beam.

4.3.3 IERRT pontoons and associated restraint dolphins

- a) Pontoons positioned and restrained on guide piles.
- b) Restraint dolphins are tubular steel piles connected by a reinforced concrete pile cap.

N.B. The pontoons and restraint dolphins are defined by the Performance Specification for Pontoons and Restrain Dolphins (4021009-JAC-ZZ-01-SP-C-00107).

4.4 Dimensions and Layout

The DCO General Arrangement, has been evaluated in the Environmental Statement in respect to habitat loss, limits of deviation, and maximum pile diameter for vibration and noise assessments. The contractor's design will have to be shown to meet the DCO conditions in Stage 1 of the contract.

The Environmental Statement in the draft Development Consent Order identifies limitations and restrictions related to piles and piling including but not limited to; habitat loss, noise, vibration, maximum diameter, etc. the Contractor will take into consideration in the preparation of their design and the implementation of the works these limitations and restrictions.

4.4.1 IOT Finger Pier VIPS dolphin

- a) The Finger Pier VIPS Dolphin is to extend no further than 35m from the end of the existing IOT Finger Pier.
- b) The Finger Pier VIPS Dolphin is to be no wider than 14m.
- c) The dolphin is to be positioned within a parallel extension of the IOT Finger Pier berthing lines.
- d) There is to be an isolation gap of 5m between the existing IOT Finger Pier and the VIPS Dolphin, to allow for deformation of the VIPS.
- e) Provide an approach channel of not less the 86m between the IERRT structures and the IOT Finger Pier VIPS dolphin.
- f) Not limit or intrude upon the IOT Design Vessel berthing and mooring arrangements of the existing IOT Finger Pier.
- g) Have a finished deck level elevation not higher than +5.25mOD.

4.4.2 IOT Trunkway Barrier

- a) The Barrier is to be structurally isolated from the IOT structures.
- b) The Barrier is to align with, but not connect to the existing IOT impact barrier at the root of the Finger Pier. The distance off the IOT Trunkway will not be less than 5m.
- c) The Barrier will be up to 155m long and have a finished level 5.25mOD.
- d) The Barrier may extend up to, but not beyond the channel markers for the navigational arch, under the trunkway.
- e) Have a finished deck level elevation not higher than +5.25mOD.

4.4.3 IERRT pontoons and associated restraint dolphins

- a) The pontoons and restraint dolphins are defined by the Performance Specification for Pontoons and Restrain Dolphins (4021009-JAC-ZZ-01-SP-C-00107).

4.5 Design Criteria

- a) The working Design Life of the civil and structural elements is 50 years.
- b) Fenders are an acceptable component of the VIPS systems to absorb impact energy on the Barrier.

- c) Impact loads to be calculated using:¹
 - prEN 1991-1-7. Eurocode 1: Actions on structures - Part 1-7: General actions - Accidental actions (draft dated 07 September 2023). The Contractor may assume that the design vessels are 'non-ice-classed vessels'.
- d) The impact scenarios of the design vessels sailing at the speeds specified in this document are considered accidental design situations. It is accepted that the VIPs may no longer be serviceable if these accidental design situations, or more onerous ones, were to take place.
- e) The IOT Design Vessels are presented in Table 4-1:

Table 4-1 IOT Design Vessels

Vessel	LOA (m)	Beam (m)	Draft (m)	Displacement (t)
Thames Fisher	91.5	15.5	6	6000
Thun Grace	103.46	15	4.9	5000
Barge	60.8	7.6		
Tugs 25t (bollard pull)	30			

- f) Design to assume stern vessel impact.
- g) The Contractor may make use of numerical models to support their understanding of the energy dissipation mechanisms that take place during an impact scenario.

The IERRT Design Vessel particulars are presented in Table 4-2:

¹ The force derived from the methodology set out in prEN 1991-1-7 (80.33 MN) has been deemed the most appropriate due to the following reasons:

- The equation provided in the AASHTO guidance to calculate the impact force was derived from testing with minimum impact speeds of 8 knots. The guidance warns that the use of the equation "*for very low speed levels may underestimate the actual force levels*". Therefore, the difference in speeds (circa 2.5 knots vs. 8 knots) is used as a justification to discard the impact force calculated as per the AASHTO guidance.
- The procedure set out in prEN 1991-1-7 is an evolution of the calculation model contained in the current version of the standard, where a distinction between "ice classed vessels" and "non-ice classed vessels" is introduced. Assuming that the vessels operating at IERRT are "non-ice classed vessels", the magnitude of the impact force obtained following the methodology set out in the current version of the standard may be deemed as an overestimation.

Table 4-2 IERRT Design Vessel Particulars

Vessel Particulars		2000-A	3000-A	1500-A	Future vessel
Deadweight (DWT)	(t)	12,300	8,423	8,600	-
Displacement	(t)	23,372	21,451	27,900	48,431
Length overall (LOA)	(m)	195.16	212.0	239.7	240.0
Length between perpendiculars (LBP)	(m)	-	194.8	227.7	225
Beam (B)	(m)	25.6	26.7	27.8	35.0
Draft, laden	(m)	7.5	6.3	6.4	8.0
Draft, light/ballast	(m)	6.6	4.7	5.1	-
Impact speed of Vessel	(knots)	2.5	2.5	2.5	1.8
Impact speed of Vessel	(m/s)	1.29	1.29	1.29	0.93

4.6 Workmanship and Maintenance

4.6.1 Concrete Construction

Refer to the Specification for Concrete (4021009-JAC-ZZ-01-SP-C-00102).

4.6.2 Piling

Refer to the following:

- Specification for Steel for Piles (4021009-JAC-ZZ-01-SP-C-00116)
- Specification for Pile Installation (4021009-JAC-ZZ-01-SP-C-00104)
- Specification for Steelwork Coatings (4021009-JAC-ZZ-01-SP-C-00105)
- Specification for Cathodic Protection (4021009-JAC-ZZ-01-SP-C-00106).

4.6.3 Structural Steel

Refer to the following:

- Specification for Structural steel (4021009-JAC-ZZ-01-SP-C-00103)
- Specification for Steelwork Coatings (4021009-JAC-ZZ-01-SP-C-00105)
- Specification for Cathodic Protection (4021009-JAC-ZZ-01-SP-C-00106).

4.7 Access for topside inspection and maintenance

Topside access by ladder from works boats is to be provided for the IOT Finger Pier Dolphin and IOT Linear Barrier.

No access is to be provided to or from the IOT structures.

Access arrangements for the pontoons and associated restraint dolphins is to remain consistent with those defined by the Performance Specification for pontoons and Restrain Dolphins (4021009-JAC-ZZ-01-SP-C-00107).

4.8 Lighting

No lighting to be provided to the IOT Finger Pier Dolphin.

No lighting to be provided to the IOT Linear Barrier