

# IMMINGHAM EASTERN RO-RO TERMINAL



Schedule of Mitigation  
Document Reference 9.7  
APFP Regulations 2009 – Regulation 5(2)(o)  
PINS Reference – TR030007  
December 2022

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## Document Information

Document Information		
<b>Project</b>	Immingham Eastern Ro-Ro Terminal	
<b>Document Title</b>	Schedule of Mitigation	
<b>Commissioned by</b>	Associated British Ports	
<b>Document ref</b>	9.7	
<b>APFP Reg 2009</b>	Regulation 5(2)(o)	
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<b>Date</b>	<b>Version</b>	<b>Revision Details</b>
12/2022	01 Submission	N/A

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# 1 Introduction

- 1.1 This report provides a summary of the measures proposed to mitigate environmental effects identified in the Environmental Statement (ES) (Application Document Reference numbers 8.2-8.4) that are likely to result from the implementation of the Immingham Eastern Ro-Ro Terminal (IERRT).
- 1.2 A description of the proposed development is provided in Chapter 2 (Proposed Development) and Chapter 3 (Details of Project Construction and Operation) of the ES Volume 1 (Application Document Reference numbers 8.2.2 and 8.2.3 respectively). This schedule of environmental commitments draws on the ES chapters shown in Table 1 below.

**Table 1 - Chapters of the ES to which this Schedule of Mitigation relates**

Application Document Reference number	ES Chapter Number	ES Chapter Title
8.2.7	Chapter 7	Physical Processes
8.2.8	Chapter 8	Water and Sediment Quality
8.2.9	Chapter 9	Nature Conservation and Marine Ecology
8.2.10	Chapter 10	Commercial and Recreational Navigation
8.2.11	Chapter 11	Coastal Defence, Flood Risk and Drainage
8.2.12	Chapter 12	Ground Conditions
8.2.13	Chapter 13	Air Quality
8.2.14	Chapter 14	Noise and Vibration
8.2.16	Chapter 16	Socio-economic Receptors

- 1.3 The Environmental Impact Assessment (EIA) as set out in the ES has demonstrated that, wherever possible, environmental effects associated with the construction and operation of the proposed development have been avoided or minimised, as described in ES Chapter 21 (Impact Assessment Summary) of the ES (Application Document Reference number 8.2.21).
- 1.4 Table 2 below summarises the mitigation proposed for the IERRT and where it is secured.

**Table 2 - Mitigation Measures**

<b>Receptor</b>	<b>Source and type of effect</b>	<b>Mitigation</b>	<b>Where mitigation is secured</b>
<b>ES Chapter 7 – Physical Processes</b>			
Construction Phase			
Physical processes	Increased SSC and potential sedimentation as a result of the deposit of capital dredge material at a licensed offshore disposal site	The targeting of disposal loads in the central/deeper areas of the disposal sites (HU056 and HU060) will be undertaken to reduce depth reductions. This will minimise the initial reduction in water depth and any environmental changes at these disposal sites.	Requirement of the Construction Environmental Management Plan (CEMP) (Application Document Reference number 9.2)
<b>ES Chapter 8 – Water and Sediment Quality</b>			
Construction Phase			
Water and sediment quality	Changes to chemical water quality	Spillages/ leaks during construction will be avoided or minimised by ensuring that the construction methods, proposed design, and the contractual arrangements follow environmental management best practice	Requirement of the CEMP (Application Document Reference number 9.2)
<b>ES Chapter 9 – Nature Conservation and Marine Ecology</b>			
Construction Phase			
Benthic habitats and species	Changes to habitats and species as a result of sediment deposition during dredging and dredge disposal	Target disposal loads in the central/deeper area of the disposal sites to reduce depth reductions	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
	Introduction and spread of non-native species	Biosecurity control measures during and ABP's existing biosecurity management procedures will be followed during operation	Requirement of the CEMP (Application Document Reference number 9.2)
Fish	Underwater noise disturbance and vibration during piling, capital dredging and dredge disposal	<p>Apply soft start procedures during piling</p> <p>Use vibro piling where possible</p> <p>Seasonal piling restrictions (no percussive piling to take place within the waterbody between 1 April and 31 May inclusive in any calendar year, duration of percussive piling restricted within the waterbody from 1 June to 30 June and 1 August to 31 October inclusive in any year)</p> <p>Night-time piling restriction between sunset and sunrise between 1 March to 31 March, 1 June to 30 June and 1 August to 31 October inclusive (percussive piling operations that have already been initiated will, however, be completed where an immediate cessation of the activity would form an unsafe working practice)</p>	<p>Secured in the Deemed Marine Licence (DML) in Schedule 3 of the draft Development Consent Order (DCO) (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p>

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
Marine mammals	Underwater noise disturbance and vibration during piling, capital dredging and dredge disposal	<p>Apply soft start procedures during piling</p> <p>Use vibro piling where possible</p> <p>Marine Mammal Observer to follow JNCC protocol during percussive piling</p>	<p>Condition to the Deemed Marine Licence DML in Schedule 3 of the draft DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p>
Coastal waterbirds	Noise and visual disturbance	<p>Apply soft start procedures during piling</p> <p>Cold weather construction restriction whereby a temporary cessation of all construction activity is implemented following seven consecutive days of freezing (zero or sub-zero temperature) weather conditions (all construction activity)</p> <p>Winter marine construction restriction from 1 October to 31 March associated with the approach jetty, linkspan, innermost pontoon and the inner finger pier. This restriction applies until an acoustic barrier/visual screen has been installed on both sides of the semi-completed structure and</p>	<p>Condition to the Deemed Marine Licence DML in Schedule 3 of the draft DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p>



Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		<p>construction activity is then undertaken on the approach jetty itself, behind the screens. Construction activity associated with the seaward section of the approach jetty, linkspan, innermost pontoon and inner finger pier which can also occur two hours before and after high water, when works are approximately 200 m from the exposed mudflat</p> <p>Noise suppression system for percussive piling on the outer finger pier</p> <p>Acoustic barrier/screening on all marine construction barges</p>	
<b>Operational Phase</b>			
Coastal waterbirds	Disturbance of waterbirds during operation	Screening installed either side of the linkspan and approach jetty	<p>Condition to the Deemed Marine Licence DML in Schedule 3 of the draft DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p>
<b>ES Chapter 10 – Commercial and Recreational Navigation</b>			

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
Construction Phase			
Commercial and recreational navigation	Person overboard during dredge and construction works	Designated safety craft Constructor Risk Assessment Method Statement (RAMS)	Requirement of the CEMP (Application Document Reference number 9.2)
	Allision of dredger/construction vessel with IOT infrastructure	Tidal restrictions Marking construction area (exclusion zone) Site specific dredge plan	Requirement of the CEMP (Application Document Reference number 9.2)
	Allision of commercial vessel with marine works	Guard (support) vessel Project specific adaptive procedures Marking construction area (exclusion zone)	Requirement of the CEMP (Application Document Reference number 9.2)
	Collision of two craft associated with marine works	Contractor RAMS Marking construction area (exclusion zone)	Requirement of the CEMP (Application Document Reference number 9.2)
	Collision/allision of commercial vessel entering construction area	Marking construction area (exclusion zone) Project specific adaptive procedures Personnel management during tanker berthing Guard (support) vessel	Requirement of the CEMP (Application Document Reference number 9.2)
	Collision of dredger or barge with vessel at 'F' anchorage when disposing of dredge material	Project specific adaptive procedures Closure of 'F' anchorage	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
	Dredger grounding whilst engaged in operations	Project specific adaptive procedures	Requirement of the CEMP (Application Document Reference number 9.2)
	Hazardous chemical spill from construction vessels	Contractor RAMS Control of contractors through management	Requirement of the CEMP (Application Document Reference number 9.2)
	Construction vessel mooring failure	Guard (support) vessel	Requirement of the CEMP (Application Document Reference number 9.2)
	Component (equipment, material) dropped during construction	Incident Reporting - Dropped component Post Construction Hydrographic Survey	Requirement of the CEMP (Application Document Reference number 9.2)
	Construction vessel takes on water from excessive wash	Marking construction area (exclusion zone) Contractor RAMS Notices to mariners	Requirement of the CEMP (Application Document Reference number 9.2)
	Payload related incidents	Loading/Unloading Plan Contractor RAMS Harbour Master's consent of works	Requirement of the CEMP (Application Document Reference number 9.2)
<b>Construction and Operational Phase</b>			
Commercial and recreational navigation	Collision of construction vessel with Ro-Ro vessel	Contractor RAMS Port Liaison Officer Special Instructions issued to Ro-Ro not to berth unless area is clear of marine works craft	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
	Ro-Ro vessel mooring failure in vicinity of marine construction works	Berth specific weather parameters	Requirement of the CEMP (Application Document Reference number 9.2)
	Component (equipment, material) dropped during construction preventing Ro-Ro operations	Incident Reporting - Dropped component Post Construction Hydrographic Survey	Requirement of the CEMP (Application Document Reference number 9.2)
	Construction vessel takes on water from excessive wash from Ro-Ro vessel	Additional measures to ensure separation of marine works from Ro-Ro vessels proceeding to or departing IERRT Special Instructions issued to Ro-Ro not to berth unless area is clear of marine works craft	Requirement of the CEMP (Application Document Reference number 9.2)
	Allision of Ro-Ro vessel with IERRT infrastructure	Additional training to Pilotage Exemption Certificate (PEC) and Pilots on manoeuvring during the operation-construction phase Berthing criteria specific to operation-construction	Requirement of the CEMP (Application Document Reference number 9.2)
	Construction vessel mooring failure	Guard (Support) Vessel Barges cannot be moored in the vicinity of a berthing Ro-Ro	Requirement of the CEMP (Application Document Reference number 9.2)
	Ro-Ro vessel arriving/departing IERRT berth 2 with a tanker berthed on Eastern Jetty	Specific berthing criteria for each of the three berths A charted exclusion zone for vessels to remain clear of berthing procedures	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		Additional pilotage training/ familiarisation	
<b>Operational Phase</b>			
Commercial and recreational navigation	Allision of Ro-Ro vessel arriving/departing IERRT with tanker moored at IOT finger pier	Project specific adaptive procedures A charted exclusion zone for vessels to remain clear of berthing procedures Specific berthing criteria for each of the three berths	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a))
	Allision of tanker manoeuvring on/off IOT finger pier with IERRT on flood tide	Project specific adaptive procedures	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a))
	Allision of barge manoeuvring on/off IOT finger pier with IERRT of flood tide	Project specific adaptive procedures	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a))
	Allision of Ro-Ro vessel with IOT trunk way	Specific berthing criteria for each of the three berths Project specific adaptive procedures	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
			(Application Document Reference number 8.2.10 and 8.4.10(a))
	Allision of Ro-Ro vessel with IERRT infrastructure	Additional Training Specific berthing criteria for each of the three berths	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a))
	Collision of Ro-Ro vessel on passage to/from IERRT with another vessel	Risk assessed against relevant MSMS Risk considered as low as reasonably practicable (ALARP) with embedded controls	Mitigation embedded
	Ro-Ro vessel grounding whilst manoeuvring to IERRT berth 3	Specific berthing criteria for each of the three berths Marking safe water with Aids to Navigation (AtoN) Additional Training	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a))
	Ro-Ro vessel mooring failure	Berth specific weather parameters	Requirement of the CEMP (Application Document Reference number 9.2)
	Allision of Ro-Ro vessel arriving/departing IERRT	Specific berthing criteria for each of the three berths	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
	berth 2/3 with a tanker berthed on Eastern Jetty	A chartered exclusion zone for vessels to remain clear of berthing procedures Additional pilotage training/familiarisation	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 10 and Appendix 10.1 (Application Document Reference number 8.2.10 and 8.4.10(a))
<b>ES Chapter 11 – Coastal Defence, Flood Risk and Drainage</b>			
<b>Construction Phase</b>			
Human Health - Public and visitors to the site	Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences.	Site induction, including evacuation routes, safe refuge, access, and egress. Site will be included in the current Port of Immingham flood emergency response plan and will be registered with the Environment Agency Flood Warnings Direct Service. No visitors or access during periods of inclement weather.	Requirement of the CEMP (Application Document Reference number 9.2)
Human Health - Construction workers and operatives	Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences.	Construction works would be carried out in accordance with the CEMP, including the Flood Emergency Response Plan. Site induction will be attended, including evacuation routes, safe refuge, access, and egress. The site will be included in the current Port of Immingham flood response plan and will be registered with the	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		Environment Agency Flood Warnings Direct Service. No work onsite during a flood warning period.	
Flood Defences - On-site along the site frontage	Changes in tidal regime e.g. wave heights, water levels, erosion/ deposition due to dredging/ construction activities.	No mitigation measures are proposed beyond the ongoing inspection and maintenance programme undertaken by the Environment Agency.	Environment Agency inspection and maintenance programme (unrelated to the IERRT project) (embedded mitigation)
Flood Defences - Off-site around wider Port of Immingham frontage	Changes in tidal regime e.g. wave heights, water levels, erosion/deposition due to dredging/ construction activities.	No mitigation measures are proposed beyond the ongoing inspection and maintenance programme undertaken by the Environment Agency.	Environment Agency inspection and maintenance programme
Existing Development - On-site and wider Port of Immingham	Floodplain inundation from tidal flooding, overland flow from fluvial/surface water sources	Flood resilience and resistant measures embedded in design. Overland flow paths maintained and temporary drainage to control surface water discharge.	Requirement of the CEMP (Application Document Reference number 9.2)
Existing Development - Off-site (neighbouring sites)	Floodplain inundation from tidal flooding, impedance of overland flow routes, from fluvial/surface water sources	Overland flow paths maintained and temporary drainage to control surface water discharge.	Requirement of the CEMP (Application Document Reference number 9.2)
Surface Waterbodies - Habrough Marsh Drain	Changes in flow regime/water level due to surface water discharge	Temporary drainage facilities (swales etc) provided during the construction phase to control discharge of surface water run-off.	Requirement of the CEMP (Application Document Reference number 9.2)
Drainage Infrastructure	Increased rate and volume of surface water runoff due to impermeable surfacing/ compaction	Temporary drainage facilities (swales etc) provided during the construction phase to control discharge of surface water run-off.	Requirement of the CEMP (Application Document Reference number 9.2)



Receptor	Source and type of effect	Mitigation	Where mitigation is secured
Operational Phase			
Human Health - Public and visitors to the site	Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences.	Site induction, including evacuation routes, safe refuge, access, and egress. Site registered with the Environment Agency Flood Warnings Direct Service.	Environmental Statement Chapter 11 and Appendix 11.1 (Application Document Reference number 8.2.11 and 8.4.11)
Human Health - Site operatives and future workforce	Exposure to floodwater via flooding from predominantly tidal sources e.g. overtopping or breach of defences.	Flood Emergency Response Plan. Site induction, including evacuation routes, safe refuge, access, and egress. Site registered with the Environment Agency Flood Warnings Direct Service. No work onsite during a flood warning period.	Environmental Statement Chapter 11 and Appendix 11.1 (Application Document Reference number 8.2.11 and 8.4.11)
Flood Defences - On-site around the site frontage	Changes in tidal regime e.g. wave heights, water levels, erosion/deposition due to dredging/ construction activities.	No mitigation measures are required beyond the continuation of the current inspection and maintenance regime undertaken by the Environment Agency.	Environment Agency inspection and maintenance programme (unrelated to the IERRT project) (embedded mitigation)
Flood Defences - Off-site around wider Port of Immingham frontage	Changes in tidal regime e.g. wave heights, water levels, erosion/deposition due to dredging and offshore development.	No mitigation measures are required beyond the continuation of the current inspection and maintenance regime undertaken by the Environment Agency.	Environment Agency inspection and maintenance programme (unrelated to the IERRT project) (embedded mitigation)
Existing Development - On-site and wider Port of Immingham	Floodplain inundation from tidal flooding, new overland flow routes and from fluvial/ surface water sources	No additional mitigation is required beyond the flood resilience and resistant measures embedded in design. Drainage infrastructure designed in line with the Drainage Strategy	Environmental Statement Chapter 11 and Appendix 11.1 (Application Document Reference number 8.2.11 and 8.4.11)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		includes attenuation storage to manage climate change over the operation of the development.	Requirement of the DCO (Application Document Reference number 3.1)
Existing Development - Off-site (neighbouring sites)	Floodplain inundation from tidal flooding, new overland flow routes, flooding from fluvial/surface water sources	Drainage infrastructure designed in line with the Drainage Strategy includes attenuation storage to manage climate change over the operation of the development.	Requirement of the DCO (Application Document Reference number 3.1)
Surface Waterbodies - Habrough Marsh Drain	Changes in flow regime/water level due to increases in surface water discharge over the lifetime of the IERRT project.	Drainage infrastructure designed in line with the Drainage Strategy includes attenuation storage to manage climate change over the operation of the development and provides betterment over the current baseline drainage.	Requirement of the DCO (Application Document Reference number 3.1)
Drainage Infrastructure	Increased rate and volume of surface water runoff from impermeable surfaces over the lifetime of the IERRT project.	Drainage infrastructure designed in line with the Drainage Strategy including attenuation storage to manage climate change over the operation of the development.	Requirement of the DCO (Application Document Reference number 3.1)
<b>ES Chapter 12 – Ground Conditions</b>			
<b>Construction Phase (including demolition)</b>			
Human Health (Contamination) 1. Onsite workers 2. Site visitors	Direct contact with contamination (e.g. in soils).	Construction works would be carried out in accordance with the CEMP and environmental good practice on site.	Requirement of the CEMP (Application Document Reference number 9.2)
Human Health (Contamination) 3. Off-site workers	Inhalation of dust and/or soil derived vapours, and direct	Construction works would be carried out in accordance with the	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
4. Site visitors	contact with contamination in groundwater.	CEMP and environmental good practice on site.	
Human Health (Ground Gas) 5. Onsite workers 6. Site visitors	Migration and accumulation of ground gas	Entry into excavations or any other enclosed space on a construction site will comply with confined space legislation and be assessed prior to entry.	Requirement of the CEMP (Application Document Reference number 9.2)
Geology 7. Beach and Tidal Deposits (Undifferentiated) 8. Tidal Flat Deposits 9. Burnham Chalk Formation 10. Flamborough Chalk Formation	Lateral and vertical migration (including as a result of piling) of contamination	Construction works would be carried out in accordance with the CEMP. Location specific Piling Risk Assessments and environmental good practice on site.	Requirement of the CEMP (Application Document Reference number 9.2)
Soils 11. Beach and Tidal Deposits (Undifferentiated) 12. Tidal Flat deposits	Direct contact with contamination. Including spoil resulting from excavations and earthworks.	A GI has been undertaken in May 2022 to confirm baseline conditions. A confirmatory GI – to inform the detailed design - is being undertaken and will be completed prior to submission of the DCO application. The findings of the confirmatory GI will be assessed and detailed in an interpretative report. In the event that any geo-environmental risks are identified following receipt of the final factual report, which will include the results of the final round of monitoring, as well as the conclusion of the	Requirement of the DCO (Application Document Reference number 3.1)  Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		assessment then in accordance with guidance in LC:RM (EA, 2021), appropriate mitigation measures as necessary will be incorporated in the final remediation strategy for the project, the outline for which is provided as Appendix 12.4.	
<p>Groundwater (Bedrock Contamination)</p> <p>13. Burnham Chalk Formation Principal Aquifer</p> <p>14. Flamborough Chalk Formation Principal Aquifer</p>	<p>Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run off.</p>	<p>A GI has been undertaken in May 2022 to confirm baseline conditions and a risk assessment has been undertaken based on the GI data. A confirmatory GI – to inform the detailed design – is being undertaken and will be completed soon after submission of the DCO application. The findings of the confirmatory GI will be assessed and detailed in an interpretative report. In the event that any geo-environmental risks are identified following receipt of the final factual report, which will include the results of the final round of monitoring, as well as the conclusion of the assessment then in accordance with guidance in LC:RM (EA, 2021), appropriate mitigation measures as necessary will be incorporated in the final</p>	<p>Requirement of the DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p>

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		<p>remediation strategy for the project, the outline for which is provided as Appendix 12.4.</p> <p>Construction works would be carried out in accordance with the CEMP.</p> <p>Piling works would be planned in accordance with best practice guidance (Environment Agency, 2001). Piling operations would be subject to foundation works risk assessment and any potential to cause pollution to the aquifer would be covered by measures to be detailed in piling method statements.</p>	
<p>Groundwater (Superficial Contamination)</p> <p>15. Beach and Tidal Deposits (Undifferentiated) Secondary Undifferentiated Aquifer</p>	<p>Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run off.</p>	<p>A GI has been undertaken in May 2022 to confirm baseline conditions. A confirmatory GI – to inform the detailed design – is being undertaken and will be completed soon after submission of the DCO application. The findings of the confirmatory GI will be assessed and detailed in an interpretative report.</p> <p>Piling works will be assessed in accordance with best practice guidance (Environment Agency, 2001). Piling operations would be</p>	<p>Requirement of the DCO (Application Document Reference number 3.1)</p> <p>Requirement of the CEMP (Application Document Reference number 9.2)</p>

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		<p>subject to foundation works risk assessment and any potential to cause pollution to the aquifer would be covered by measures to be detailed in piling method statements.</p> <p>Construction works would be carried out in accordance with the CEMP.</p>	
<p>Surface Water (Contamination)</p> <p>16. Humber Estuary</p>	<p>Lateral and vertical migration of contamination through leachate, groundwater or surface run off.</p>	<p>Specific guidance relating to the control of water pollution from construction sites is discussed within Chapter 8 Water and Sediment Quality of the ES and the CEMP (see ES Chapter 8 – Water and Sediment Quality row of this table above).</p>	<p>Requirement of the CEMP (Application Document Reference number 9.2)</p>
<p>Surface Water (Contamination)</p> <p>17. North Beck Drain Catchment and associated Harborough Marsh Drain</p>	<p>Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run off.</p>	<p>Specific guidance relating to the control of water pollution from construction sites is discussed within Chapter 8 Water and Sediment Quality of the ES and the CEMP.</p>	<p>Requirement of the CEMP (Application Document Reference number 9.2)</p>
<p>Property</p> <p>18. Temporary buildings erected on site during construction.</p>	<p>Migration of ground gas (resulting in accumulation of ground gas)</p>	<p>Ground gas protection measures will be implemented into design and build of temporary structures.</p>	<p>Requirement of the CEMP (Application Document Reference number 9.2)</p>

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
Operational Phase			
Human Health (Contamination) 19. Future on-site workers	Direct Contact with contamination and inhalation of dust and/ or soil derived vapours	Maintenance workers will be required to adopt safe working practices under relevant health and safety legislation. Therefore, the significant effects are unlikely to arise.	Health and safety at work legislation (embedded mitigation)
Soils (Contamination)	Lateral and vertical migration (including as a result of piling) of contamination through leachate, groundwater or surface run-off. Impacts on soil quality could potentially occur during operation caused by accidental spills resulting from handling or leakage of fuels, lubricants, stored chemicals and processed liquids.	The IERRT project will be operated in accordance with existing environmental legislation, regulations and good practice.	Environmental legislation (embedded mitigation)
Controlled Waters (Contamination)	Lateral and vertical migration of contamination through groundwater and surface run-off. Impacts on groundwater and watercourses could potentially occur during operation caused by accidental spills resulting from handling or leakage of fuels, lubricants, stored	The IERRT project will have a managed surface drainage system (as set out in the Drainage Strategy at Annex C to Appendix 11.1, Application Document Reference number 8.4.11) and operated in accordance with existing environmental legislation, regulations and good practice.	Requirement of the DCO (Application Document Reference number 3.1) and embedded mitigation

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
	chemicals and processed liquids.		
Property - Building and Services	Direct contact with contamination in soil, leachate and groundwater	Buildings and services risks will be mitigated by using pipe material appropriate for any aggressive ground conditions.	Requirement of the CEMP (Application Document Reference number 9.2)
Property - Building and Services	Migration of ground gas	Ground gas protection measures appropriate to the site conditions will be implemented into design and build of structures.	Requirement of the CEMP (Application Document Reference number 9.2)
<b>ES Chapter 13 – Air Quality</b>			
<b>Construction Phase</b>			
Human health and amenity sensitive receptors	Onsite emissions sources (marine vessels, site plant and construction dust)	Dust mitigation based on those recommended by the Institute of Air Quality Management (IAQM)	Requirement of the CEMP (Application Document Reference number 9.2)
	Offsite emissions sources (road traffic movement emissions on local roads and SRN)	Standard trip and emissions reduction measures typically set out within a Construction Travel Plan and/or Construction Environmental Management Plan	Requirement of the CEMP (Application Document Reference number 9.2)
Nature conservation receptors	Onsite emissions sources (marine vessels, site plant and construction dust)	Dust mitigation based on those recommended by the IAQM	Requirement of the CEMP (Application Document Reference number 9.2)
	Offsite emissions sources (road traffic movement emissions on local roads and SRN)	Standard trip and emissions reduction measures typically set out within a Construction Travel Plan and/or CEMP	Requirement of the CEMP (Application Document Reference number 9.2)
<b>ES Chapter 14 – Noise and Vibration</b>			



Receptor	Source and type of effect	Mitigation	Where mitigation is secured
<b>Construction Phase</b>			
Residential Noise Sensitive Receptors (NSRs) on Queens Road and Kings Road	Construction Noise	Standard construction mitigation as set out in the CEMP. Section 61 application for construction works outside the standard construction hours.	Requirement of the CEMP (Application Document Reference number 9.2)
	Construction Traffic	Construction traffic management plan included in the CEMP.	Requirement of the CEMP (Application Document Reference number 9.2)
PAM building, (adjacent to IERRT site)	Construction Noise	<p>Embedded mitigation includes the screening and crusher plant being located a minimum of 250 m away from NSRs and temporary acoustic screening around construction plant or PAM building during construction works in the vicinity of the PAM building.</p> <p>In addition, measures will include standard construction noise mitigation included in the CEMP.</p>	Requirement of the CEMP (Application Document Reference number 9.2)
PK Construction Office and Nippon Gas Office buildings (on-site NSRs)	Construction Noise	<p>Embedded mitigation includes the screening and crusher plant being located a minimum of 250m away from NSRs.</p> <p>In addition, measures will include standard construction noise mitigation included in the CEMP as well as keeping all PK Construction Office and Nippon Gas Office</p>	Requirement of the CEMP (Application Document Reference number 9.2)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		external windows and doors facing the closed.	
IOT Jetty and PAM Building	Construction Vibration	Pre-construction condition surveys on nearby buildings and structures to be undertaken. Liaison protocol with local businesses/occupiers to be established. Verification of the construction vibration predictions once the piling methods and piling rig are known to confirm that there are no significant effects expected. Monitoring to verify the thresholds are not exceeded.	Requirement of the CEMP (Application Document Reference number 9.2)
<b>Operational Phase</b>			
Residential NSRs on Queens Road	On-site activities	Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site).	Environmental Statement Chapter 14 (Application Document Reference number 8.2.14)
Residential NSRs on Kings Road	On-site activities	Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site).	Environmental Statement Chapter 14 (Application Document Reference number 8.2.14)
PAM Building	On-site activities	Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site), together with keeping all PAM	Environmental Statement Chapter 14 (Application Document Reference number 8.2.14)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
		building external windows and doors facing the IERRT closed.	
PK Construction Office building	On-site activities	Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site).	Environmental Statement Chapter 14 (Application Document Reference number 8.2.14)
Nippon Gas Office building	On-site activities	Standard best practice for operational activities (e.g. prohibiting unnecessary engine idling on-site and enforcement of mandatory speed limits on-site), together with keeping all Nippon Gas Office external windows and doors facing the IERRT closed.	Environmental Statement Chapter 14 (Application Document Reference number 8.2.14)
Residential NSRs on Queens Road	Road traffic noise	Offer noise insulation to affected residential NSRs	Requirement of the DCO (Application Document Reference number 3.1)
<b>ES Chapter 15 – Marine Archaeology and Cultural Heritage</b>			
<b>Construction Phase</b>			
Known and potential seabed prehistory receptors	Direct disturbance to the seabed (from construction activities and dredging works) causing damage to receptors	Offsetting by means of geoarchaeological assessment of geotechnical surveys	Schedule 6 (Plans and Documents to be Certified) of the DCO. Environmental Statement Chapter 15 and Appendix 15.3 (Application Document Reference number 8.2.15 and 8.4.15(c))
Potential maritime and aviation receptors (i.e., A2 anomalies), Currently	Direct disturbance to the seabed (from construction	Written Scheme of Investigation (WSI) (and any supporting activity-specific Method Statements),	Requirement of the DCO (Application Document Reference number 3.1)

Receptor	Source and type of effect	Mitigation	Where mitigation is secured
unknown archaeological sites and artefacts	activities and dredging works) causing damage to receptors	implementation of Archaeological exclusion zone (AEZs) where deemed appropriate, and Protocol for Archaeological Discoveries (PAD)	
Known and potential seabed prehistory receptors, maritime receptors, and aviation receptors	Direct impact via use of jack-up barge legs by vessels	Written Scheme of Investigation (WSI) (and any supporting activity-specific Method Statements), implementation of Archaeological exclusion zone (AEZs) where deemed appropriate, and Protocol for Archaeological Discoveries (PAD)	Requirement of the DCO (Application Document Reference number 3.1)
<b>Operational Phase</b>			
No significant adverse effects have been identified during the operation of the IERRT project, and as such no mitigation is required.			
<b>ES Chapter 16 – Socio-economic Receptors</b>			
No significant adverse effects have been identified during the construction or operation of the IERRT project, only significant beneficial effects, and as such no mitigation is required.			
<b>ES Chapter 17 – Traffic and Transport</b>			
No significant adverse effects have been identified during the construction or operation of the IERRT project and as such no mitigation is required.			
<b>Chapter 18 – Land Use Planning</b>			
<b>Operational Phase</b>			
Human health and safety	Potential major accidents at major hazard sites, pipelines and explosives sites in the vicinity of the project	Maximum number of members of the public who may be present in the waiting area of the Terminal will not exceed 100 at any one time	Secured in the DCO (Application Document Reference number 3.1)
<b>ES Chapter 19 – Climate Change</b>			
No significant adverse effects have been identified during the construction or operation of the IERRT project.			

## 2 Glossary

**Table 3 - List of abbreviations**

<b>Abbreviation</b>	<b>Outlined in full</b>
AEZ	Archaeological exclusion zone
ALARP	As low as reasonably practicable
AtoN	Aids to Navigation
CEMP	Construction Environment Management Plan
DCO	Development Consent Order
ES	Environmental Statement
GI	Ground investigation
IAQM	Institute of Air Quality Management
NSR	Noise sensitive receptor
PAD	Protocol for Archaeological Discoveries
PEC	Pilotage Exemption Certificate
RAMS	Risk Assessment Method Statement
WSI	Written Scheme of Investigation

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