

# IMMINGHAM EASTERN RO-RO TERMINAL



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# Immingham Eastern Ro-Ro Terminal

Environmental Statement: Volume 1  
Chapter 18: Land Use Planning

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## Document Information

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# 18 Land Use Planning

## 18.1 Introduction

- 18.1.1 This chapter provides an assessment of the potential significant risks of the proposed Immingham Eastern Roll On-Roll Off (Ro-Ro) Terminal (IERRT) on land use planning and human health. This chapter has been prepared by Kent Energies UK Ltd.
- 18.1.2 The main objective of the land use planning and human health assessment is to demonstrate that workers and users of the IERRT will not be exposed to unacceptable levels of risk from potential major accidents at the existing major hazard sites, pipelines, and explosives sites in the vicinity (i.e., all those installations whose off-site risks extend over any part of the proposed IERRT). The Health and Safety Executive (HSE) will be responsible for advising whether these risks are at an acceptable level.
- 18.1.3 Human health is also considered within other topic specific assessments as part of this Environmental Statement (ES), namely Ground Conditions including Land Quality (Chapter 12), Air Quality (Chapter 13), and Airborne Noise and Vibration (Chapter 14). Accidents and disasters are also considered in relation to Commercial and Recreational Navigation (Chapter 10), Coastal Protection, Flood Defence and Drainage (Chapter 11), including the vulnerability of the project to Climate Change (Chapter 19), and Traffic and Transport (Chapter 17).
- 18.1.4 Collectively the assessment contained in this chapter and the various topic specific assessments referred to in paragraph 18.1.3 above provide the information required by paragraph 5 of Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 on the likely significant effects of the proposed development resulting from risks to human health.
- 18.1.5 It is noted that section 4.15, and specifically paragraph 14.15.3, of the National Policy Statement for Ports (NPSfP), produced by the Department for Transport (DfT) (2012), requires that:
- “... The applicant should therefore consult the local planning authority at pre-application stage to identify whether its proposed site is within the consultation distance of any site with hazardous substances consent and, if so, should consult HSE for its advice on locating the particular development there.”*
- 18.1.6 The proposed development clearly lies within the consultation distances of a number of major hazard sites and pipelines (see Figure 18.12 of this ES), and so this has been a key factor which has been taken into account in the design of the IERRT, as described in Needs and Alternatives (Chapter 4 of this ES). The HSE has been consulted in order to ensure that its land use

planning requirements will be met, as described in the remainder of this chapter.

- 18.1.7 A number of figures support the assessment of risk for persons at the IERRT and are provided in Volume 2 of this ES (Application Document Reference number 8.3). Specifically, Figures 18.1 to 18.11 to this ES show the location of the latest available HSE land use planning zones for all the major hazard sites, pipelines, and explosive sites in the vicinity of the IERRT. These figures show the areas where there is increasingly strict control on any proposed new developments in order to ensure that the risks at those developments are acceptable. Figure 18.12 to this ES shows the combined HSE land use planning zones in relation to the layout of the IERRT, which is shown in more detail in Figure 1.3 to this ES.
- 18.1.8 There will be no storage or processing of hazardous substances at the IERRT. As a consequence, the IERRT will not require Hazardous Substances Consent (HSC), nor will it be subject to the Control of Major Accident Hazard (COMAH) Regulations. Hence, the IERRT itself will not pose any significant safety risks to people at other sites in the vicinity and, based on Advice Note Eleven, Annex G (Planning Inspectorate, 2018), there is no requirement to undertake a risk assessment for any risks associated with the proposed development. It is recognised that there may occasionally be some transit of dangerous substances through the IERRT, but this would only be a temporary presence for a few hours before being loaded onto a vessel. This would not require HSC or trigger the requirements of the COMAH Regulations.

## 18.2 Definition of the study area

- 18.2.1 The study area for this assessment includes all the nearby major hazard sites, pipelines, and explosives sites whose land use planning zones may encroach on any part of the IERRT project, as shown in Figures 18.1 to 18.12 to this ES.

## 18.3 Assessment methodology

- 18.3.1 Two complementary approaches have been adopted to assess the level of risk to people at the IERRT and the acceptability of these risks:
- The first approach follows the standard HSE land use planning methodology in which the sensitivity of each part of the development is assessed in relation to its location within the HSE land use planning zones for all the nearby major hazard sites and pipelines. This assessment provides an indication of whether there are any risks which would cause the HSE to advise against the development of the IERRT; and
  - The second approach is based on a high-level quantitative estimate of the risks, also based on the HSE land use planning zones and the use of HSE's risk criteria, in order to provide a more detailed understanding of the risks and precisely where they arise.

18.3.2 It is noted that the vessels themselves when berthed at the IERRT will sit beyond the low water mark and therefore they do not fall within the ambit of land use planning protocols and are, therefore, the regulatory responsibility of the Maritime and Coastguard Agency. Nevertheless, the level of risk at the vessels has still been assessed (see Section 18.10 of this chapter).

## Data and information sources

18.3.3 Desk-based studies have been undertaken to understand the existing sources of risk in the vicinity of the IERRT, and to assess the levels of risk to which workers and the public at the proposed development may be exposed. This assessment has been based on the following key guidance, data and information sources:

- HSE's Land Use Planning Methodology (HSE, 2022);
- Planning Practice Guidance (Hazardous Substances) (MHCLG, 2019);
- Advice Note Eleven, Annex G – The Health and Safety Executive (Planning Inspectorate, 2018);
- The latest HSE land use planning zones for all major hazard sites and pipelines in the vicinity; and
- The latest HSE safeguarding zones for the explosives sites in the vicinity.

18.3.4 In addition to the above, the HSE's publicly available land use planning web application has been consulted.

18.3.5 The HSE's Land Use Planning Team has also been formally consulted to provide detailed pre-application advice, as recommended by the HSE in preliminary discussions, which was subsequently provided on 4 November 2021 (HSE, 2021).

## Determining significance of risks

18.3.6 The significance of risks to people at the IERRT is based on the HSE's published land use planning methodology (HSE, 2022). This guidance describes how the HSE provides advice to Local Planning Authorities and other relevant decision makers in relation to proposed developments, such as the IERRT, in the vicinity of existing major hazard sites and pipelines.

18.3.7 The quantified estimates of risk have been assessed against the criteria adopted by the HSE, such as those defined in HSE's document Reducing Risk, Protecting People (HSE, 2003), known as 'R2P2' (see paragraph 18.10.9 of this chapter of the ES).

## 18.4 Consultation

18.4.1 Consultation with regard to the significance of the risks to persons at the IERRT has been undertaken with the HSE. The outcomes of the formal scoping process, as well as any feedback received in response to the statutory consultation and the publication of the Preliminary Environmental



Information Report (PEIR) and supplementary statutory consultation and the publication of the Supplementary Consultation Report, have also been taken into account to inform the assessment.

- 18.4.2 The outcome of the consultation that has been undertaken, along with how it has influenced the proposals and the land use planning and human health assessment, is provided in Table 18.1 to this chapter of the ES.

**Table 18.1 Summary of consultation**

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
HSE	Initial informal consultation with HSE on 20 July 2021.	<p>The HSE acknowledged that major hazard safety issues had been taken into account in the proposed design.</p> <p>The HSE did not identify any significant safety or major hazard issues but recommended obtaining formal pre-application advice from the HSE’s Land Use Planning Team.</p>	<p>A meeting with the HSE Land Use Planning Team was arranged and took place on 20 October 2021, in order to obtain formal pre-application advice (see details of this meeting below).</p>
HSE	<p>Formal consultation with the HSE’s Land Use Planning Team on 20 October 2021 and</p> <p>HSE’s written report of the meeting provided (see HSE, 2021).</p>	<p>HSE indicated two main concerns with the proposed development:</p> <p>1) The presence of drivers in the Development Proximity Zone (DPZ) was not entirely consistent with the HSE’s general guidance in SPC 43 (HSE, 2011). However, on balance, the HSE considered that the proposals were acceptable given the specific circumstances (i.e., a relatively small number of workers, briefly present, and spread over a large area); and</p> <p>2) Members of the public present could exceed 100 people in the Middle Zone, which the HSE would have to advise against.</p> <p>It was acknowledged that the dismantled acrylonitrile pipeline and Edward Nicholson Hazardous Substances Consent (T H Brown Ltd) should not be relevant, although their status should be confirmed.</p>	<p>Noted. The concerns of HSE are acknowledged.</p> <p>In response to the two specific concerns, the following measures will be adopted for the IERRT:</p> <p>1) The layout of the IERRT project has been designed to minimise the time that drivers spend within the DPZ – drivers will not take rest breaks in this area and there will be no associated structures or rest/recreational areas within the DPZ (please see the Need and Alternatives chapter (Chapter 4) for further detail); and</p> <p>2) The maximum number of members of the public present (waiting to board) at the IERRT at any one time will be limited to no more than 100 within the development Consent Order (DCO).</p> <p>Associated British Ports (ABP) is also seeking to expedite the revocation of the Hazardous</p>

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
			Substances Consent for the Edward Nicholson (T H Brown Ltd) site (which no longer exists, the tenant having vacated the site). The demolished acrylonitrile pipeline was formally denotified on 9 December 2021.
Planning Inspectorate (PINS)	Scoping Opinion October 2021. Table ID 4.14.1	The Inspectorate notes that the Health and Safety Executive (HSE) consultation identifies that the proposed development lies within multiple consultation zones of major accident hazard sites and major accident hazard pipelines. The ES should include an assessment of these matters, or the information referred to demonstrating agreement with the relevant consultation bodies and the absence of any likely significant effect.	The risks from nearby major hazard sites and pipelines are considered in Sections 18.9 and 18.10 of this Chapter 18 of the ES in terms of the implications for people at the proposed development.  Agreement has been reached with the HSE regarding the proposed development in terms of the numbers of persons present and the site layout in relation to the existing HSE land use planning zones associated with major hazard sites and major accident pipelines in the vicinity. The agreement is in line with what was discussed with the HSE at the meeting on 20 October 2021 as described in the note of the meeting (HSE, 2021), which evidences and demonstrates what has been agreed.
PINS	Scoping Opinion October 2021. Table ID 4.14.2	Risks to workers during construction will be managed by the requirements of the Health and Safety at Work Act and Construction (Design and Management) Regulations. This is expected to ensure that any temporary construction buildings are located in low risk areas. The Inspectorate is content to scope out this matter on this basis.	Noted. Any temporary construction buildings will be located in low-risk areas. Agreed that these matters are scoped out.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
PINS	Scoping Opinion October 2021  Table ID 4.14.3	The Scoping Report seeks to scope out consideration of other risks to human health other than those arising from major accidents etc. from this chapter of the ES on the grounds that other risks to human health will be considered elsewhere in the ES. The Inspectorate agrees with this approach but advises that the other relevant sections of the ES should be clearly signposted in this chapter.	Noted. Agreed that consideration of risks to human health other than those arising from major accidents etc. are scoped out of this Chapter 18, as they are considered elsewhere in this ES principally in the following chapters of this ES: Ground Conditions including Land Quality (Chapter 12); Air Quality (Chapter 13); Airborne Noise and Vibration (Chapter 14); Commercial and Recreational Navigation (Chapter 10); Coastal Protection, Flood Defence and Drainage (Chapter 11); Traffic and Transport (Chapter 17) and Climate Change (Chapter 19) as signposted in the introduction to this chapter at Section 18.1.
HSE	Scoping Opinion October 2021.  Appendix 2 HSE response.	Regulation 5(4) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires the assessment of significant effects to include, where relevant, the expected significant effects arising from the proposed development's vulnerability to major accidents. HSE's role on Nationally Significant Infrastructure Projects (NSIPs) is summarised in the following Advice Note Eleven Annex on the Planning Inspectorate's website - Annex G – The Health and Safety Executive. This document includes consideration of risk assessments on page 3.	Noted. The risks from nearby major hazard sites and pipelines are considered in Section 18.10 of this Chapter 18 of the ES in terms of the implications for people at the proposed development.  Hazardous Substances Consent is not required for the proposed development.  There is no requirement to undertake risk assessments based on Advice Note Eleven, Annex G. However, as indicated above, risks from nearby major hazard sites and pipelines have been considered.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
Humberside Fire and Rescue Service (PI3 & PI26)	Statutory Consultation 19 Jan – 23 Feb 2022	<b>Access for Fire Service</b> It is a requirement of Approved Document B5, Section 15 Commercial Properties or B5, Section 13 for Domestic Premises that adequate access for firefighting is provided to all buildings or extensions to buildings. Where it is a requirement to provide access for high reach appliances, the route and hard standing should be constructed to provide a minimum carrying capacity of 24 tonnes.	Noted. Adequate access for the Fire Service will be ensured. The whole site is being designed to be accessible for Heavy Goods Vehicle (HGVs) throughout and therefore there will be full access for the Fire Service to all buildings.
Humberside Fire and Rescue Service (PI3 & PI26)	Statutory Consultation 19 Jan – 23 Feb 2022.	<b>Water Supplies for Fire Fighting</b> Adequate provision of water supplies for firefighting appropriate to the proposed risk should be considered. If the public supplies are inadequate, it may be necessary to augment them by the provision of on-site facilities. Under normal circumstances hydrants for industrial unit and high-risk areas should be located at 90 m intervals. Where a building, which has a compartment of 280 m <sup>2</sup> or more in the area is being, erected more than 100 m from an existing fire hydrant, hydrants should be provided within 90 m of an entry point to the building and not more than 90 m apart. Hydrants for low risk and residential areas should be located at intervals of 240 m.	Noted. Adequate provision of water supplies for firefighting will be ensured. Additional mains will be provided within the development to provide both potable water and fire protection to both the northern and southern yards. The distances will be 80 m, which is referenced in Crown Fire Standards. These spacings are more onerous than those quoted by Humberside Fire and Rescue Service. Further information is provided on the general arrangement plans (Application Document Reference number 2.5).
HSE (PI12)	Statutory Consultation 19 Jan – 23 Feb 2022.	Based on the information on the development, HSE would not advise against the proposed IERRT. This is based on a comparison of the sensitivity levels of the constituent part of the	Noted that HSE would not advise against the proposed IERRT.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		development with the zone that the constituent part is located in, as set out in HSE's land use planning methodology ( <a href="https://www.hse.gov.uk/landuseplanning/methodology.htm">https://www.hse.gov.uk/landuseplanning/methodology.htm</a> ) and the consultation arrangements for large scale petrol storage sites ( <a href="https://www.hse.gov.uk/foi/intemalops/hidcircs/technical/general/spc_tech_gen43/index.htm">https://www.hse.gov.uk/foi/intemalops/hidcircs/technical/general/spc_tech_gen43/index.htm</a> ).	
HSE (PI12)	Statutory Consultation 19 Jan – 23 Feb 2022.	<b>Hazardous Substances Consent</b> The presence of hazardous substances on, over or under land at or above set threshold quantities (Controlled Quantities) requires Hazardous Substances Consent (HSC) under the Planning (Hazardous Substances) Act 1990 as amended. We note that the applicant has stated in Section 18.1.6 of the Preliminary Environmental Information (Land Use Planning chapter) that the proposed IERRT development will not involve the storage or processing of hazardous substances. Therefore, we consider that based on the information available the proposal will not require new Hazardous Substances Consents from the relevant Hazardous Substances Authority.	Noted that the HSE considers that the IERRT will not require Hazardous Substances Consent.
Ministry of Defence (PI25)	Statutory Consultation	Thank you for consulting Defence Infrastructure Organisation (DIO) on the above proposed development. This application	Noted that the MoD has no safeguarding concerns relating to the IERRT.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
	19 Jan – 23 Feb 2022	relates to a site outside of Ministry of Defence safeguarding areas. We can therefore confirm that the Ministry of Defence has no safeguarding concerns to this proposal.	
Exolum (PI28)	Statutory Consultation 19 Jan – 23 Feb 2022.	Concerns over new occupied buildings falling with the Exolum COMAH PIZ area.	The concerns raised over new occupied buildings falling with the Exolum COMAH Public Information Zone (PIZ) area have been considered. The HSE has also considered the proposed buildings, and the fact that they lie within the consultation zones of several existing major hazard sites, and they are content with the proposals for the purposes of land use planning (see HSE, 2021). There will be a requirement for future updates of COMAH reports to include consideration of the IERRT, but this is unlikely to be a significant issue, given that the buildings are only for workers and are not located in areas of high risk.
Associated Petroleum Terminals (APT) (PI30)	Statutory Consultation 19 Jan – 23 Feb 2022.	<p><b>4 IMPACTS OF THE PROPOSAL ON THE IOT - CONSTRUCTION PHASE</b></p> <p>(c) Impact on the Immingham Oil Terminal (IOT) Operators' COMAH safety case</p> <p>4.14 The IOT Operators consider that the increase in shipping movements in the area and the increased likelihood of allisions, contacts or collisions occurring during the construction phase may have an impact on the IOT Operators' COMAH safety case. This impact would require additional expenditure to reduce this risk and the IOT Operators do not</p>	It is normal for operators to update their COMAH safety cases to take account of developments in their vicinity. Regulation 10(1) of COMAH requires that ' <i>A safety report must be reviewed and, where it is necessary, revised by the operator</i> '. This is a duty on the operator. The HSE's guidance (HSE, 2015) states that issues to be considered during a COMAH report review include ' <i>changes in the land use of areas surrounding the establishment, including changes in population</i> '.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		<p>regard this as an expenditure that should be payable by the IOT Operators as a result of the IERRT Development. The risk should be adequately mitigated by the agent of change - the IERRT Development.</p> <p>4.15 More detail is required about the detailed impacts of the proposals on the IOT Operators' business before a conclusion can be reached on this matter. But any prejudicial impact on the COMAH safety case has the potential to cause severe detriment to its operations.</p>	<p>ABP has provided the IOT Operator with further information regarding the impacts of the IERRT project on the IOT Operators in respect of shipping movements and navigational safety at the Hazard Identification (HAZID) workshops and in recent correspondence with APT. A Navigational Risk Assessment (NRA) is also provided as an appendix to the Commercial and Recreational Navigation chapter (Chapter 10) of this ES, submitted as part of the DCO application.</p> <p>ABP will be pleased to provide further information on shipping movements to assist the IOT Operator in making the necessary safety demonstrations for their COMAH safety case.</p> <p>It is noted that HSE has not raised this as an issue and so it is reasonable to assume that the safety implications are not likely to be significant.</p>
APT (PI30)	Statutory Consultation 19 Jan – 23 Feb 2022.	<p><i>Construction vehicles</i></p> <p>4.20 The IOT Operators believe this increase in vehicle movements may impede access to the IOT's property. It will be essential for the IOT Operators to be satisfied that there will be continued access to the IOT's property so that vehicles can enter and leave as required. It will be particularly important for emergency vehicles and other essential vehicles for the</p>	<p>ABP will ensure that access to IOT's property is not significantly impeded.</p> <p>It should be noted that improvements will be provided for the Robinsons Road junction with warning (wig-wag) signals to stop Robinsons Road traffic and give priority to IOT traffic in the case of an emergency.</p>



Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		<p>operation of the IOT to be able to access the land. The IOT Operators need to be clear how the IERRT Development will impact emergency response times as this will have implications on its COMAH safety case. Access to the IOT will be required at all times from the main site entrance and from the jetty root sea wall gates from the Immingham Dock side. As noted in paragraph 2.2.3 of the PTA, the failure to allow for the efficient delivery of goods, and access by service and emergency vehicles would be contrary to the latest National Planning Policy Framework (the “NPPF”). ABP must therefore provide sufficient information for the IOT Operators to fully understand these impacts.</p>	<p>The IERRT project also includes improvements to the East Gate with the incorporation of an additional in lane as set out in Chapter 2 of the ES and the Traffic and Transport chapter (Chapter 17) of this ES.</p>
<p>APT (PI30)</p>	<p>Statutory Consultation 19 Jan – 23 Feb 2022.</p>	<p><b>5 IMPACTS OF THE PROPOSAL ON THE IOT - OPERATIONAL PHASE</b> (d) Impact on the IOT Operators' COMAH safety case 5.18 The IOT Operators consider that the increase in shipping movements in the area and the increased likelihood of allisions, contacts or collisions occurring during the operational phase may have an impact on the IOT Operators' Control of Major Accident Hazards (COMAH) safety case. This impact would require additional expenditure to reduce this risk and the IOT Operators do not regard this as an expenditure that should be payable</p>	<p>Please see above response to APT letter, paragraphs 4.14 and 4.15.</p>

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		by the IOT Operators as a result of the IERRT Development. The risk should be adequately mitigated by the agent of change - the IERRT Development.	
APT (PI30)	Statutory Consultation 19 Jan – 23 Feb 2022.	5.25 The IOT Operators believe the increase in vehicle movements may impede access to the IOT. It will be essential for the IOT Operators to be satisfied that there will be continued access to the IOT so that vehicles can enter and leave the property as required. It will be particularly important for emergency vehicles and other essential vehicles for the operation of the IOT to be able to access the land. The IOT Operators need to be clear how the IERRT Development will impact emergency response times as this will have implications on its COMAH safety case. Access to the IOT will be required at all times from the main site entrance and from the jetty root sea wall gates from the Immingham Dock side. As noted in paragraph 2.2.3 of the PTA, the failure to allow for the efficient delivery of goods, and access by service and emergency vehicles would be contrary the latest NPPF. ABP must therefore provide sufficient information for the IOT Operators to fully understand these impacts.	<p>ABP has had various meetings with APT to discuss these matters and the provision of any information required by APT.</p> <p>It should be noted that improvements will be provided for the Robinsons Road junction with wig-wag emergency lights to stop Robinsons Road traffic and give priority to IOT traffic in the case of an emergency.</p> <p>The IERRT project also includes improvements to the East Gate with the incorporation of an additional in lane based on the traffic analysis as set out in the Traffic and Transport chapter (Chapter 17) of this ES.</p>
NLC (PI38)	Statutory Consultation 19 Jan – 23 Feb 2022.	<b>Chapter 18 - Land Use Planning</b> Chapter 18 of the PEIR sets out that the overall impact the proposals will have on land use planning and human health.	Noted that NLC do not have any objections.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		Having considered this, (North Lincolnshire Council) NLC do not have any objections to the approach set out in the PEIR at this stage.	
UK Health Security Agency (PI37)	Statutory Consultation 19 Jan – 23 Feb 2022.	<p>Previous documents noted that developer will consider;</p> <ul style="list-style-type: none"> <li>• If the development will require a Hazardous Substance Consent (HSC) and therefore be considered a COMAH site;</li> <li>• If activities arising from the development or its operation may impact on other operations such as COMAH sites; or</li> <li>• If the development itself may be vulnerable to hazards posed by other sites or operations. The applicant should ensure that the risks to public health from potentially hazardous substances handled at the development are identified as previously proposed and control measures put in place if necessary.</li> </ul>	<p>The IERRT will not be a COMAH site and will not require Hazardous Substances Consent (HSC), as has been confirmed by the HSE in their response to the Statutory Consultation 19/01/22 -23/02/22.</p> <p>Activities at the IERRT will not impact on other operations such as COMAH sites.</p> <p>Operators and members of the public will be vulnerable to the risk of potential major accident events at some of the nearby existing major hazard sites. These risks have been identified and quantified in Section 18.10 of this ES, and the HSE has been consulted to ensure that levels of risk are acceptable, which they have confirmed.</p>
Ex16, Q94	Statutory Consultation 19 Jan – 23 Feb 2022.	Exolum asked if there will be any Hazardous products stored by the terminal operator when they take occupancy.	Hazardous products will not be stored at the IERRT.
Ex16, Q94	Statutory Consultation 19 Jan – 23 Feb 2022.	Exolum expressed concern re hazardous cargoes being handled (impact on COMAH plans), protective provisions for pipelines along the frontage, junction improvements for East Dock Road, marine accessibility to Eastern Jetty to remain as it is with no change to their	Any hazardous cargoes passing through the IERRT will only be present for a short time, and will comply with all necessary transport regulations, and therefore will not have a significant impact on COMAH plans.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		infrastructure (including mooring dolphin), tug mooring point to be moved, can East gate be widened to remove queuing risk.	Any Exolum pipelines along the frontage will have suitable protective provisions afforded to them in the DCO. It is noted that the final DCO application includes the necessary junction improvements following consultation and detailed transport analysis, including throughput enhancements to the East Gate. Marine accessibility to the Eastern Jetty will be maintained.
UK Health Security Agency (PI 8)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022.	The additional information supplied does not cause any changes to UKHSA’s previous responses to the request for Scoping Opinion, or the Public Consultation (Section 42) and, on this occasion, we have no additional comments to make.	Noted.
Ministry of Defence (PI 9)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022.	This application relates to a site outside of Ministry of Defence safeguarding areas. The Ministry of Defence has no safeguarding concerns to this proposal.	Noted.
HSE (PI 24)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	It is noted that the Supplementary Consultation Report outlines a few minor changes to the scope of the project which in effect slightly reduce the scope of the project. Therefore, I confirm that the advice previously given remains valid, based on the existing major accident hazard sites and pipelines.	Noted.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		HSE's Land Use Planning advice would be dependent on the location of areas where people may be present. When we are consulted by the Applicant with further information under Section 42 of the Planning Act 2008, we can provide full advice.	
HSE (PI 24)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	It is noted that in the PEIR it is stated that dangerous substances will not be stored or handled in relation to this project, however, should this change then further information on HSC should be sought from the relevant Hazardous Substances Authority.	Noted.
HSE (PI 24)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	Regulation 5(4) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires the assessment of significant effects to include, where relevant, the expected significant effects arising from the proposed development's vulnerability to major accidents. HSE's role on NSIPs is summarised in Advice Note 11. This document includes consideration of risk assessments on page 3.	Noted. The 'expected significant effects' are the risks to people at various parts of the IERRT, as described in Section 18.10 of this chapter. Paragraph 18.10.5 describes the most significant effects. Advice Note 11 states that only COMAH installations (which the IERRT is not) are required to undertake a risk assessment relating to the hazards. However, risk assessment will be required for work activities under the HSW Act 1974, and this is covered in paragraph 18.5.18.
HSE (PI 24)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	No comment to make with respect to explosive sites provided that the proposed development does not constitute as a 'vulnerable' building.	Noted.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
HSE (PI 24)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	No comment to make with respect to electrical safety from a panning perspective.	Noted.
Cadent Gas (PI 16)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	In respect of existing Cadent infrastructure, Cadent will require appropriate protection for retained apparatus including compliance with relevant standards for works proposed within close proximity of its apparatus. Cadent has identified the following apparatus within the vicinity of the proposed works: Intermediate Pressure (above 2 bar) Gas Pipeline and associated equipment; Medium Pressure (below 2 bar) Gas Pipeline and associated equipment; and Decommissioned apparatus.	Noted. Cadent's apparatus in close proximity of the works has been identified, and (whilst the precise terms are under negotiation) appropriate protective provisions will be put in place in the draft DCO.
Cadent Gas (PI 16)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	Where the Promoter intends to acquire land, extinguish rights, or interfere with any of Cadent's apparatus, Cadent will require appropriate protection for retained apparatus and further discussion on the impact to its apparatus and rights including adequate Protective Provisions. Operations within Cadent's existing easement strips are not permitted without approval and will necessitate a Deed of Consent or Crossing Agreement being put in place. Any proposals for work in the vicinity for Cadent's existing apparatus will require approval by Plant Protection under the	Noted. The draft DCO contains Protective Provisions, the precise terms of which are still under negotiation, for the benefit of Cadent so as to provide appropriate protection for Cadent's existing operational assets within the IERRT development site. In addition, mechanisms for necessary approvals are the subject of ongoing discussion with Cadent.

Consultee	Reference, Date	Summary of Response	How Comments have been Addressed in this Chapter
		Protective Provisions and early discussions are advised.	
Cadent Gas (PI 16)	Supplementary Statutory Consultation – 28 Oct – 27 Nov 2022	Cadent has a Deed of Grant of Easement for each pipeline, which prevents the erection of permanent/temporary buildings/structures, change to existing ground levels or storage of materials etc within the easement strip. Please be aware that written permission is required before any works commence within the Cadent easement strip and a Crossing Agreement may be required if any apparatus needs to cross the Cadent easement strip. All works in the vicinity of Cadent's asset shall be subject to review and approval from Cadent's plant protection team in advance of commencement of works on site.	Noted. As above, the draft DCO contains Protective Provisions which are designed to ensure that any necessary protections for Cadent are put in place prior to the commencement of any works which may affect Cadent interests or apparatus.

## 18.5 Implications of policy legislation and guidance

### Legislation

- 18.5.1 The legislation that is relevant to land use planning and human health which is referred to in this chapter is as follows:
- The Control of Major Accident Hazards Regulations 2015 (COMAH Regulations) – which regulates the operation of major hazard sites to ensure that risks to people and the environment are adequately controlled;
  - The Planning (Hazardous Substances) Regulations 2015 (as amended) – which requires sites with significant inventories of hazardous substances to obtain consent for holding those materials;
  - The Pipelines Safety Regulations 1996 (as amended) – which regulates the operation of pipelines and particularly major accident hazard pipelines;
  - The Infrastructure Planning (Environmental Impact Assessment Regulations 2017 (as amended) (EIA Regulations) – which defines the environmental impact assessment process;
  - Planning (Hazardous Substances) Act 1990 (as amended) – which implements a system of consents for sites that contain certain quantities of hazardous substances;
  - Planning Act 2008 – which regulates NSIPs and DCOs;
  - Health and Safety at Work etc. Act 1974 (HSW) – which ensures that all employers provide a safe working environment and ensure the health and safety of their employees; and
  - Management of Health and Safety at Work Regulations 1999 – which ensures that all employers are required to undertake risk assessments of the risks to the health and safety of their employees which they are exposed whilst they are at work.
- 18.5.2 All the major hazard sites in the vicinity of the IERRT have been granted Hazardous Substances Consents under the Planning (Hazardous Substances) Regulations 2015 and are regulated under the COMAH Regulations. The pipelines in the vicinity are regulated under The Pipelines Safety Regulations 1996.
- 18.5.3 The HSE is a consultation body, for the purposes of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (EIA Regulations). The HSE is a statutory consultee for all NSIPs in England.
- 18.5.4 The EIA Regulations (Schedule 4, paragraph 8) requires (where relevant) an ES to include - *“a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned”*.



## Policy

18.5.5 Section 4.15, and specifically paragraph 14.15.3, of the National Policy Statement for Ports (NPSfP), produced by the Department for Transport (DfT) (2012), requires that:

*“... The applicant should therefore consult the local planning authority at pre-application stage to identify whether its proposed site is within the consultation distance of any site with hazardous substances consent and, if so, should consult HSE for its advice on locating the particular development there.”*

18.5.6 The outcome of this consultation with the HSE is described in Section 18.4 of this Chapter 18 of the ES.

18.5.7 Section 4.16 of the NPSfP also requires consideration of the health, well-being and quality of life of the local population. These matters are dealt with in other chapters of this ES, as described in paragraph 18.1.3 above.

## Guidance

18.5.8 HSE’s Land Use Planning Methodology (HSE, 2022) describes the approach that HSE uses to decide what planning advice to provide to planning authorities regarding proposed developments, such as the IERRT, in the vicinity of existing major hazard sites and major accident hazard pipelines in order to ensure that the major accident hazard risks to people at the proposed development are acceptable.

18.5.9 Planning Practice Guidance on Hazardous Substances (MHCLG, 2019) explains planning controls relating to the storage of hazardous substances in England and how to handle development proposals around hazardous establishments.

18.5.10 Advice Note Eleven, Annex G (Planning Inspectorate, 2018) describes the role of the HSE in the planning process, which is summarised below.

## Role of the HSE

18.5.11 When an applicant requests an EIA Scoping Opinion from PINS in relation to a proposed EIA development, the HSE will be consulted and will provide their advice. This advice will be used by PINS to inform the Scoping Opinion which in turn will be used by the applicant to prepare their ES.

The HSE is also a prescribed statutory consultee in accordance with section 42 of the Planning Act 2008, providing public safety advice in respect of proposed NSIPs.

18.5.12 The two main considerations for HSE are:

- Does the proposed development have the potential to cause a major accident (e.g., does the development require an HSC, and in this context, will it be within the scope of the COMAH Regulations and if not, could the development impact on a COMAH site)?; and
- Is the proposed development vulnerable to potential major accidents (e.g., is it within a Consultation Distance (CD) around a major hazard site or pipeline)? It is noted that the CD corresponds to the HSE Outer Zone used for land use planning (see Section 18.9 of this chapter).

18.5.13 The IERRT will not handle significant quantities of any hazardous substances, so will not have the potential to be the cause of a major accident nor will its operations impact on nearby COMAH sites. The main concern is that the proposed development will lie within the consultation zone of a number of existing major hazard sites and pipelines, and hence there is a potential risk to safety for those at the proposed development site (see paragraphs 18.8.3 and 18.8.4 of this chapter for workers on site and members of the public respectively).

18.5.14 When the HSE prepares its statutory advice on NSIPs, as well as providing their views on the above considerations, the HSE will also highlight the following as appropriate:

- Whether the proposed development is on an existing major hazard site and as such could have significant consequences for major accident hazards;
- The need to consider if an application should be made to the Hazardous Substances Authority (HSA) for an HSC and/or whether extant HSC(s) need to be varied; and
- If there is a facility near to the proposed development where a licence exists under either the Explosive Regulations 2014 or the Dangerous Goods in Harbours Regulations 2016 (DGHR).

18.5.15 It is recognised that it is incumbent upon the applicant to identify and address all responses including those from statutory consultees in their Consultation Report to be submitted with each NSIP application – as well as taking those responses into account in the formulation of the ES. This process has therefore been followed, as described in this ES.

18.5.16 The HSE then uses the same criteria to ensure a consistent review of all relevant documentation under section 56 of the Planning Act 2008. However, HSE only raises a Relevant Representation (i.e., an indication that they wish to be involved in the DCO examination process) if they have outstanding concerns which require further scrutiny at the Examination stage of the process.

18.5.17 HSE may also choose to participate in the Examination when there have been unresolved issues, usually around those sites constrained by current consultation zones.

18.5.18 As the proposed development is not within the scope of the COMAH Regulations, the safety concerns related to any work activity will be addressed under the Health and Safety at Work etc. Act 1974 (HSW) and other relevant statutory provisions. In particular, this consideration should be discharged under a Management of Health and Safety at Work Regulations 1999 requirement to prepare a suitable and sufficient risk assessment for proposed activities, identifying hazards and taking appropriate measures to manage and control the risks. The site operator will be responsible for undertaking such risk assessments prior to the commencement of the work activity.

## 18.6 Description of the existing environment

18.6.1 The existing baseline environment involves all the current major hazard sites, pipelines and explosives sites where major accidents could impact on the area of the proposed development. Current major hazard sites and pipelines in the vicinity include:

- Phillips 66 Ltd – Immingham Pipeline Centre;
- Phillips 66 Ltd – Immingham Propylene Storage;
- Exolum (West) – previously Inter Terminal (West);
- Exolum (East) – previously Inter Terminal (East);
- ABP Immingham Bulk Park;
- Immingham Fertiliser Terminal;
- Associated British Ports Shed 2 and 3;
- Associated Petroleum Terminals (Immingham) Ltd;
- Origin Fertilisers;
- Tronox Pigment UK Ltd;
- ABP Port of Immingham Explosives Licenced Site; and
- Cadent Gas Ltd Pipeline.

For context, the current HSE land use planning zones for each of these sites are presented in Figures 18.1 to 18.10 to this ES and are individually identified in paragraph 18.9.1 to this chapter and are shown on a combined single diagram (provided by the HSE) at Figure 18.12 to this ES.

18.6.2 All of these sites have Consent under the Planning (Hazardous Substances) Regulations 2015 (as amended) and the pipelines have been notified under the Pipeline Safety Regulations 1996 (as amended).

18.6.3 It is noted that an HSC currently exists in the name of Edward Nicholson (T H Brown Ltd) for a site just west of the Associated Petroleum Terminals (Immingham) Ltd. This relates to an old 1992 deemed Consent, but the site as an operation no longer exists and ABP are, therefore, in the process of revoking the HSC, as discussed with the HSE.

18.6.4 It is also noted that there was until recently a notification for an acrylonitrile pipeline in the area, originally notified by Simon Storage, which became Immingham Storage Ltd, which later became Inter Terminals and is now Exolum. It has been confirmed (by Inter Terminals / Exolum) that this

pipeline has been demolished. The HSE confirmed on 9 December 2021 that this pipeline has now been formally denotified and so the HSE zones no longer apply.

- 18.6.5 Some of the sites and pipelines identified in the above list currently present varying degrees of major hazard risk to workers in the area where the IERRT will be located. The risks from each hazard are assessed in Sections 18.9 and 18.10 of this chapter.

## 18.7 Future baseline environment

- 18.7.1 The future baseline environment will still involve all the same major hazard sites, pipelines and explosives sites where major accidents could impact on the area of the proposed development.
- 18.7.2 It is not expected that there will be any significant changes at any of the nearby major hazard sites, pipelines, and explosives sites, and so the future baseline that would exist without the proposed development is expected to be similar to the current baseline. It is noted that the proposed Immingham Green Energy Terminal (IGET) will be located to the east of the port, and that it is anticipated to be an upper tier COMAH establishment due to the hazards associated with ammonia and hydrogen. Whilst these new hazards will add slightly to the risks for people at the IERRT, the current understanding indicates that the IGET proposal would not be such as to lead the HSE to advise against the granting of Hazardous Substances Consent for the IGET (i.e., the risks at any existing development in the vicinity of the IGET, including the IERRT, will not increase to an unacceptable level). This will need to be confirmed by the HSE when a formal Hazardous Substances Consent application is made for the IGET.

## 18.8 Basis of assessment

- 18.8.1 The issue considered in Sections 18.9 and 18.10 of this chapter is, therefore, simply whether the existing major hazard sites in the vicinity would pose an unacceptable risk to people at the IERRT.
- 18.8.2 The proposed development involves the following elements:
- Marine infrastructure (including approach jetty, linkspan bridge, floating pontoons, finger piers);
  - Parking and storage areas for unaccompanied freight (Ro-Ro trailers left by their drivers at the port and moved onto and off the vessel using specialised tractor units);
  - Waiting areas for accompanied freight (cabs and trailers driven onto and off the vessel by lorry drivers who will remain on board during the passage);
  - Waiting areas for occupied passenger vehicles;
  - Welfare building with basic facilities for lorry drivers and passengers;
  - Other buildings such as main terminal building, workshop, and gatehouse; and

- Internal bridge over ABP operated railway/road and access roads.
- 18.8.3 The IERRT will handle no more than 660,000 cargo units per year, with approximately 72% being unaccompanied freight and 28% being accompanied freight. Excluding lorry drivers embarking or dropping off cargo trailers at the terminal, the workforce (i.e., the number of staff on a shift on site) is expected to consist of approximately:
- 33 tractor/tug drivers;
  - 2 reach stackers;
  - 4 assistant operations managers;
  - 8 administrative staff;
  - 3 management staff; and
  - A small number of UK Border Force staff.
- 18.8.4 Any passenger use of the IERRT will be limited to ensure that there are no more than 100 members of the public present (waiting to board) at any one time (passengers will be in vehicles only – there will be no foot passengers). In order to ensure that this limit is met, there will be a daily limit of no more than 100 passengers departing on vessels by means of vehicular transport. Disembarking passengers will immediately drive off the port after a passport check. The north/south extent of East Riverside Road will be kept in place for emergency access to the new jetty and for the very occasional abnormal load, but passengers will be routed around the DPZ, not through it.

## 18.9 Application of standard HSE land use planning methodology

- 18.9.1 The current HSE land use planning zones for each of the existing major hazard sites in the vicinity are presented in Figures 18.1 to 18.10 to this ES, as follows:
- Figure 18.1 - Phillips 66 Ltd – Immingham Pipeline Centre;
  - Figure 18.2 - Phillips 66 Ltd – Immingham Propylene Storage;
  - Figure 18.3 - Exolum (West) [Previously Inter Terminal (West)];
  - Figure 18.4 - Exolum (East) [Previously Inter Terminal (East)];
  - Figure 18.5 - ABP Immingham Bulk Park;
  - Figure 18.6 - Immingham Fertiliser Terminal;
  - Figure 18.7 - ABP Port of Immingham Explosives Licenced Site;
  - Figure 18.8 - Associated Petroleum Terminals (Immingham) Ltd;
  - Figure 18.9 - Origin Fertilisers; and
  - Figure 18.10 - Tronox Pigment UK Ltd and Other Sites in the Vicinity.
- 18.9.2 All of the figures show the Outer (blue), Middle (green) and Inner (red) HSE land use planning zones, which correspond to areas where there are increasingly strict controls on any proposed development. Figures 18.3, 18.4 and 18.8 to this ES also show an orange hatched DPZ where the controls on development are even stricter than for the Inner Zone (see HSE, 2011). Figure 18.10 to this ES shows the HSE zones for Tronox Pigment

UK Ltd, which just reach the eastern part of the IERRT, and a number of other sites in the vicinity.

- 18.9.3 Installations which hold explosives licences may also have land use planning constraints around them based on safeguarding zones. ABP hold such an Explosives licence for the Port of Immingham. Safeguarding Zones are generally defined in Table 18.2.

**Table 18.2 Description of explosives safeguarding zones**

Colour	Description
Red	Extent of licensed site.
Black	Extent of ownership where this extends beyond the red line.
Green	Envelope of Class B (public traffic route) distances (SD1).
Yellow	Envelope of Class D (inhabited building) distances (SD2).
Purple	Envelope of Class E (buildings of vulnerable construction) distances (SD3).
Blue	Envelope of reference zone boundaries (if reduced distances apply to one or more buildings).

- 18.9.4 Figure 18.11 to this ES shows the current Safeguarding Plan zones for the Port of Immingham, based on the current ABP explosives licence, including the Green, Yellow and Purple (SD1, SD2 and SD3) zones. None of these Safeguarding Distances (SDs) extend far enough east to encroach on the IERRT. It can be concluded, therefore, that these zones have no safety implications for land use planning for the proposed development.
- 18.9.5 There is one major hazard pipeline in the vicinity, which is a high-pressure natural gas pipeline operated by Cadent Gas Ltd (known as the Thornton Curtis/Ciba Geigy gas pipeline), with HSE Inner, Middle and Outer zones distances of 17 m, 65 m, and 75 m from the pipeline, respectively. There was also an acrylonitrile pipeline running from Immingham to Grimsby, originally notified by Simon Storage (now Exolum), with HSE Inner, Middle and Outer zones of 240 m, 525 m, and 560 m from the pipeline, respectively. However, it has been confirmed that this acrylonitrile pipeline has been demolished and was formally denotified on 9 December 2021.
- 18.9.6 The HSE land use planning zones for all the above major hazard sites, pipelines and explosives sites have been combined in a single diagram (provided by the HSE) at Figure 18.12 to this ES. It is noted that this diagram still includes the denotified acrylonitrile pipeline, and also the HSE zones centred just west of Exolum East at Immingham Dock which are associated with a Consent in the name of Edward Nicholson (T H Brown Ltd), which is in the process of being revoked (the site no longer exists, but a deemed consent was granted in 1992). The zones in Figure 18.12 to this ES can be used to assess the IERRT using the HSE's land use planning methodology, as described below. It is noted from Figure 18.12 to this ES that most of the proposed development site lies within the HSE Inner Zone, with a small part lying within the DPZ and a small part within the HSE Middle Zone.

18.9.7 The HSE's land use planning methodology characterises all proposed developments, or parts of a development, as having one of nine Development Types, each of which is considered to have a Sensitivity Level of 1 to 4.

- Level 1 - Based on normal working population;
- Level 2 - Based on the general public (at home and involved in normal activities);
- Level 3 - Based on vulnerable members of the public (children, those with mobility difficulties or those unable to recognise physical danger); and
- Level 4 - Large examples of Level 3 and very large outdoor examples of Level 2.

18.9.8 The HSE calculates safety zones around major hazard installations known as Land Use Planning (LUP) zones. The location of any proposed development within these HSE LUP zones is determined and HSE's guidance is then based on the decision matrix shown in Table 18.3.

**Table 18.3 HSE decision matrix for land use planning**

Level of Sensitivity	Development in Inner Zone	Development in Middle Zone	Development in Outer Zone
1	DAA	DAA	DAA
2	AA	DAA	DAA
3	AA	AA	DAA
4	AA	AA	AA
DAA	Do not Advise Against development		
AA	Advise Against development		

18.9.9 The HSE's land use planning methodology characterises the majority of the IERRT area as a 'Workplace', i.e., Development Type 1.1, which is considered to be Sensitivity Level 1. Whilst the majority of the proposed development lies within the red Inner Zone in Figure 18.12 to this ES, the HSE decision matrix indicates that such Sensitivity Level 1 developments are not advised against in this area.

18.9.10 It is noted that members of the public may also use the IERRT. They would not be present within the Inner Zone area for long, therefore, such minor transport routes are not advised against in the Inner Zone. However, there could be larger numbers of members of the public present for some time in the Passenger/Accompanied Loads parking area whilst waiting for a ferry. The lanes for this Passenger/Accompanied Loads parking area are deliberately located in the Middle Zone where the risks are lower. This would be considered Development Type 2.5 'Outdoor use by public', which is Sensitivity Level 2, which is not advised against in the Middle Zone. However, if there could be more than 100 members of the public present at any one time then it would be characterised as Sensitivity Level 3, which would be advised against in the Middle Zone. The current intention is,

therefore, to limit the maximum number of members of the public to no more than 100 in the waiting area of the Terminal at any one time.

- 18.9.11 It is noted that Figure 18.12 to this ES shows that part of the IERRT lies within the DPZ. Whilst only a relatively small number of workers would be present for short periods in this area, it is recognised that the HSE guidance in SPC 43 (HSE, 2011) indicates that the level of occupancy would exceed the limits in the guidance. This has, therefore, been discussed with the HSE who have indicated that, in this specific case, they consider the situation to be acceptable because of the relatively small number of people involved, all of whom would be workers, only being present for short periods of time and spread over a relatively large area. It is emphasised that worker time in this area would be minimised – there would be no rest areas and no drivers spending time or sleeping in vehicles.
- 18.9.12 The construction of the IERRT project may be completed in a single stage, or it may be sequenced such that construction of the southernmost pier takes place at the same time as operation of the northernmost pier (see Chapter 3 of this ES). In the case of a sequenced construction, the duration of construction activity will be extended but it will not increase the scale of construction activity. However, all capital dredging (and associated disposal activity) will be undertaken together at one time, before operation of the northernmost pier commences. However, sequenced construction would not affect the accident risks to which users of the IERRT would be exposed and does not affect any of the assessment or conclusions in this chapter of the ES.
- 18.9.13 In summary, the plans for the IERRT are compliant with the requirements defined in HSE's land use planning methodology, and in pre-application discussions with the HSE, and hence it is understood that HSE will not advise against the proposed development on the grounds of safety.

## 18.10 Assessment of risk

- 18.10.1 Whilst the land use planning assessment in Section 18.9 of this chapter demonstrates that the IERRT would not be advised against by the HSE, which has been confirmed in consultation with the HSE, the assessment does not provide an assessment of any risks to which people may be exposed. This section, therefore, provides a quantitative assessment of the risks.
- 18.10.2 The level of risk at each part of the IERRT has been estimated based on the HSE land use planning zones for the sites and pipelines in the vicinity, as shown in Figures 18.1 to 18.11 to this ES. It is noted that the Inner, Middle and Outer zones typically correspond to individual risk levels of 10, 1 and 0.3 chances per million (cpm). However, it is noted that the zones for flammable and explosive hazards are set on a hazard basis, and so these risk values are only approximations, and that for sites with a DPZ the risk within the DPZ could be significantly higher (taken as 100 cpm).



18.10.3 As the risk levels are based on the HSE LUP zone diagrams, the risks associated with each hazard are defined as the annual risk of receiving a dangerous dose or worse for a typical member of a residential population (i.e., in a house) who is present for 100% of the time. The risk of fatality would typically be about a factor of 3 lower, depending on the hazard. The risk to people outdoors (e.g., from toxic risks) could be slightly higher, but if people are only present for a short time, then the risks would be correspondingly lower. All risks are quoted in units of cpm (chances per million), i.e., the probability of occurrence per million years.

18.10.4 It is emphasised that the risks in Table 18.4 to this chapter of the ES are subject to some uncertainty, and that risks may vary significantly across an area. Therefore, the values above are only intended to provide reasonable estimates for the purposes of the simple risk assessment in this chapter of the ES. The values in the final row titled 'Estimated true total risk' include some allowance for the uncertainties.

**Table 18.4 Estimated levels of risk (cpm) at parts of the Immingham Eastern Ro-Ro Terminal**

Major Hazard	North storage area	Central storage area	South storage area	New road to ferries (max)	Passenger/ accompanied loads waiting lanes	Moored ferries
Phillips 66 Ltd – Immingham Pipeline Centre	0	0	0	0	0	0
Phillips 66 Ltd – Immingham Propylene Storage	0	0	0	0	0	0
Exolum (West)	0.3	0.2	0.2	0.3	0.1	0.5
Exolum (East)	100	10	5	100	2	10
ABP Immingham Bulk Park	5	1	0.5	5	0.5	0.3
Immingham Fertiliser Terminal	0.3	0.3	30	5	0.5	0.3
ABP Shed 2 and 3	0.1	0.1	0.1	0.1	0.1	0.1
Associated Petroleum Terminals (Immingham) Ltd	30	0.1	0	100	0	0.3
Origin Fertilisers	3	30	30	30	8	0.1
Tronox Pigment UK Ltd	0.3	0.2	0.1	0.3	0.1	0.3
Cadent Gas Ltd Pipeline	0	0	0	0	0	0
Explosives sites	0	0	0	0	0	0
Total of risks above	139.0	41.9	65.9	240.7	11.3	11.9
<b>Estimated true total risk</b>	<b>150</b>	<b>50</b>	<b>80</b>	<b>250</b>	<b>15</b>	<b>15</b>

- 18.10.5 The risk at the north storage area is dominated by the risk of Buncefield type explosions associated with the storage of petrol at the Exolum (East) and the Associated Petroleum Terminals (Immingham) Ltd sites. There will also be a risk from major pool fires from these sites and a risk from toxic vapours in the event of a major spill or fire at Exolum (East).
- 18.10.6 The risk at the south storage area appears to be dominated by the risk of toxic combustion products (e.g., nitrogen dioxide) in the event of a major fire at Origin Fertilisers or at the Immingham Fertiliser Terminal. There may also be some explosion risk from these sites.
- 18.10.7 The risks for people waiting in the Passenger/Accompanied Loads waiting area are the lowest on site and are dominated by the risk of toxic combustion products (e.g., nitrogen dioxide) in the event of a major fire at Origin Fertilisers. There may also be some explosion risk from this site.
- 18.10.8 The risk for persons aboard the moored vessels is dominated by similar events to those described above for the north storage area, although the risk is at a lower level. In reality, persons aboard a large steel vessel are likely to be at a lower level of risk than those presented in the table above because of the protection offered by the vessel structure to any fire/explosion events.
- 18.10.9 The levels of risk predicted in Table 18.4 to this chapter of the ES can be compared with the typical risk criteria described by the HSE in R2P2 (HSE, 2003), which in terms of the risk of fatality for an individual can be summarised as shown in Table 18.5 to this chapter of the ES.

**Table 18.5 HSE Individual risk criteria**

Risk	Description
1000 cpm	Maximum individual risk for workers
100 cpm	Maximum individual risk for a member of the public
1 cpm	A level of individual risk below which risks are considered to be broadly acceptable for workers or the public

- 18.10.10 Situations where the risks are between the maximum and broadly acceptable levels should only be considered acceptable if they have been reduced to a level which is As Low As Reasonably Practicable (ALARP). It is noted that risk criteria used for land use planning (HSE, 1989a; 1989b) in relation to proposed new developments are slightly more complex than those quoted above from R2P2, and this is reflected in the HSE land use planning methodology (HSE, 2022).
- 18.10.11 The location where workers are at greatest risk is the north storage area. A worker would only be present in this area for a small fraction of the year and so their risk of fatality would be at least an order of magnitude less than the value in Table 18.4 to this chapter of the ES. Whilst this still represents a significant risk, it lies in the ALARP region where it can be

considered acceptable if there are no further reasonably practicable measures which can be put in place to reduce the risks any further.

18.10.12 The location where significant numbers of members of the public could be present for a significant time is at the Passenger/Accompanied Loads waiting area lanes. Even a regular traveller spending 3 hours waiting in this area 100 times per year would only have an occupancy of less than 4%, implying that the individual risk of fatality is well under 1 cpm.

18.10.13 Whilst the level of individual risk to workers and passengers at the IERRT is relatively low compared with HSE risk criteria, even for the most exposed individuals, it is recognised that there are also 'societal risk' concerns which take account of the number of people who may be affected in major accidents. The HSE (Carter, 1995) has developed methodologies for assessing these societal risks, including the Scaled Risk Integral (SRI), which is a simple measure which takes account of the number of people, the risk, the occupancy level, and the area of a development.

18.10.14 The SRI is calculated as:

$$\text{SRI} = P R T / A$$

Where: P = population factor, calculated using  $P = (n + n^2)/2$

n = number of persons at the development (adjusted for population type)

R = average estimated level of individual risk of receiving a dangerous dose or worse (cpm)

A = area of development (hectares)

T = occupation factor - proportion of time for which people are present

18.10.15 The HSE criteria used for interpreting the SRI value, based on HSE (1999), are presented in Table 18.6 to this chapter of the ES.

**Table 18.6 HSE SRI criteria**

SRI value	Description	Action
2,500	Significant risk	Presumption against if exceeded
35,000	Substantial risk	Incompatible if exceeded
500,000	Very high risk	Consider relevant call-in procedure if exceeded
750,000	Intolerable risk	Initiate relevant call-in procedure if exceeded

18.10.16 The value of the SRI is largely defined by the number of members of the public present. This is because the factor n is typically reduced by a factor of 4 for workers (as they are regarded as being less 'sensitive' than typical members of the public), and the n term is squared in the SRI calculation. Hence, a reasonable estimate of the SRI for the overall IERRT can be

derived by simply considering the members of the public. Considering each parameter in the SRI calculation:

- n = 100 (the maximum number of members of the public likely to present at any one time in the waiting area, e.g., immediately before boarding takes place)
- R = 15 cpm (average risk at Passenger/Accompanied Loads waiting area – see Table 18.7 of this chapter of the ES)
- A = 36.4 ha (approximate site area, not including area of jetty or ferries)
- T =  $3 \times 3 / (24 \times 7) = 0.054$  (based on assuming that significant numbers of members of the public (i.e., n = 100) are present at the IERRT on 3 days per week, and people are present for a total of 3 hours)

Hence,  $SRI = (100 + 100^2) / 2 \times 15 \times 0.054 / 36.4 = 112$

18.10.17 Based on Table 18.6 to this chapter of the ES, this result is well below the SRI value that is considered to be ‘significant’, and so would not normally be advised against. It is noted that even if the calculation were made more sophisticated, to take account of the workers on site and drivers for accompanied and unaccompanied loads, the associated SRI would still be significantly lower than the value calculated above for the public (as workers are considered to have a less significant population type for the purposes of the SRI). Hence, it is reasonable to conclude that the societal risks are not sufficiently significant to be a concern.

## 18.11 Mitigation measures

- 18.11.1 The key embedded mitigation measure that has been incorporated in the design of the IERRT to reduce the risks to people at the proposed development is simply to minimise the numbers of people who may be present in the areas of highest risk.
- 18.11.2 The area of highest risk is within the DPZ, and so only small numbers of workers would enter this area for a short period of time.
- 18.11.3 The largest numbers of people at the proposed development would be those waiting to board in the Passenger/Accompanied Loads waiting lanes/area, so this has been located in the area of lowest risk (see Figures 1.3 and 18.12 to this ES). In addition, it has been agreed with the HSE that the 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, and this will be secured by a restriction in the DCO limiting the numbers. This is to comply with a key concern raised by the HSE.

## 18.12 Limitations and assumptions

- 18.12.1 The assessment has been undertaken based on the following assumptions:
- The land use planning zone assessments undertaken by the HSE (i.e., the relevant regulator) for all the major hazard sites and pipelines in the vicinity provide a reasonable assessment of the levels of risk in their vicinity; and
  - All the major hazard sites and pipelines in the vicinity are operated in a manner which ensures that the risks from those facilities have been reduced to a level which is ALARP.
- 18.12.2 It is not envisaged that the limitations outlined above are significant in terms of the overall conclusions relating to safety and health.

## 18.13 Conclusions on safety and health

- 18.13.1 The risks to people at the IERRT from potential major accidents at major hazard sites, pipelines and explosives sites in the vicinity have been assessed. The approach that has been used is based on that adopted by the HSE for land use planning, with some additional quantitative risk analysis to provide a better understanding of the risks.
- 18.13.2 The assessment using the HSE methodology shows that, for most of the IERRT, the levels of risk are sufficiently low that HSE would not normally advise against the development on the grounds of safety. A possible exception related to the small number of workers within the DPZ, but this has been discussed with HSE who have advised that it is acceptable, in view of the small number of people (all workers), only present for a short time and spread over a large area. The assessment also emphasised the importance of there not being more than 100 members of the public present at any one time in the waiting area of the Terminal – which was highlighted by the HSE in pre-application discussions and has been adopted as a mitigation measure accordingly.
- 18.13.3 As part of the pre-application consultation with HSE, the HSE have indicated that there is no reason why they would advise against the IERRT development on the grounds of safety, provided that there are no more than 100 members of the public present at any one time in the waiting area of the Terminal.
- 18.13.4 The design and layout of the IERRT has been deliberately arranged in order to minimise major accident hazard risks as far as possible, by reducing the number of people in high-risk areas and ensuring that any areas with potentially significant numbers of members of the public are located in areas of the lowest risk.

- 18.13.5 In summary, this chapter of the ES demonstrates that the IERRT itself will not contribute to any risks to the safety and health of people, and that, with the mitigations in place, the risks to workers and members of the public at the IERRT are at a level which is considered acceptable by the HSE, who are the responsible regulator in this area.
- 18.13.6 The assessment reported in this chapter of the ES demonstrates that there will be no effects considered significant resulting from the proposed IERRT development in terms of land use planning or human health.

## 18.14 References

Carter, D.A. (1995). The Scaled Risk Integral - A Simple Numerical Representation of Case Societal Risk for Land Use Planning in the Vicinity of Major Accident Hazards, Loss Prevention and Safety Promotion in the Process Industries, Volume II, Elsevier.

Department for Transport (2012). National Policy Statement for Ports. [Online] Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/3931/national-policy-statement-ports.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3931/national-policy-statement-ports.pdf) (accessed November 2022).

Health and Safety Executive. (1989a). Quantified Risk Assessment: Its Input to Decision Making, HMSO.

Health and Safety Executive. (1989b). Risk Criteria for Land-Use Planning in the Vicinity of Major Industrial Hazards, HMSO.

Health and Safety Executive. (1999). Planning Case Assessment Guide – Chapter 8B: The Scaled Risk Integral, Version 9, 20 August 1999.

Health and Safety Executive. (2003). Reducing Risks, Protecting People - HSE's Decision-Making Process. [Online] Available at: <http://www.hse.gov.uk/risk/theory/r2p2.pdf> (accessed November 2022).

Health and Safety Executive. (2011). Land Use Planning Advice Around Large-Scale Petrol Storage Sites. SPC/Technical/General/43, Version 2. [Online] Available at: [http://www.hse.gov.uk/foi/internalops/hid\\_circs/technical\\_general/spc\\_tech\\_gen\\_43/](http://www.hse.gov.uk/foi/internalops/hid_circs/technical_general/spc_tech_gen_43/) (accessed November 2022).

Health and Safety Executive. (2015). A guide to the Control of Major Accident Hazards Regulations (COMAH) 2015. L111, Third Edition. [Online] Available at: <https://www.hse.gov.uk/pubns/priced/l111.pdf> (accessed November 2022).

Health and Safety Executive. (2021). Pre-Application Land Use Planning Advice - Proposal to develop Eastern RO/RO Terminal at the Port of Immingham. Richard Lomax, Project Number D1537, HSE Refs 4.2.1.6894., 4.2.1.6866, Revision 1, 4 November 2021.

Health and Safety Executive. (2022). HSE's Land Use Planning Methodology. [Online] Available at: <https://www.hse.gov.uk/landuseplanning/methodology.htm> (accessed November 2022).

Ministry of Housing, Communities and Local Government. (2019). Planning Practice Guidance – Hazardous Substances. [Online] Available at: <https://www.gov.uk/guidance/hazardous-substances> (accessed November 2022).

Planning Inspectorate (2018). Advice Note 11 - Annex G - The Health and Safety Executive. [Online] Available at:

<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2018/03/Advice-note-11-Annex-G.pdf> (accessed November 2022).

## 18.15 Abbreviations/Acronyms

<b>Acronym</b>	<b>Definition</b>
AA	Advise Against
ABP	Associated British Ports
ALARP	As Low As Reasonably Practicable
APT	Associated Petroleum Terminals
CD	Consultation Distance (equivalent to HSE Outer Zone)
COMAH	Control of Major Accident Hazards
cpm	Chances per million (years)
DAA	Don't Advise Against
DCO	Development Consent Order
DfT	Department for Transport
DGHAR	Dangerous Goods in Harbours Regulations
DIO	Defence Infrastructure Organisation
DPZ	Development Proximity Zone
EIA	Environmental Impact Assessment
ES	Environmental Statement
HAZID	Hazard Identification
HGV	Heavy Goods Vehicle
HSA	Hazardous Substances Authority
HSC	Hazardous Substances Consent
HSE	Health and Safety Executive
HSW	Health and Safety at Work
ID	Identification
IERRT	Immingham Eastern Ro-Ro Terminal
IGET	Immingham Green Energy Terminal
IOT	Immingham Oil Terminal
LUP	Land Use Planning
MHCLG	Ministry of Housing, Communities and Local Government
MoD	Ministry of Defence
NLC	North Lincolnshire Council
NPPF	National Planning Policy Framework
NPSfP	National Policy Statement for Ports
NRA	Navigational Risk Assessment



NSIP	Nationally Significant Infrastructure Projects
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PIZ	Public Information Zone
PTA	Preliminary Transport Assessment
R2P2	Reducing Risk, Protecting People (HSE document)
Ro-Ro	Roll On-Roll Off
SD	Safeguarding Distance
SPC	Semi Permanent Circular
SRI	Scaled Risk Integral
UK	United Kingdom

Cardinal points/directions are used unless otherwise stated.

SI units are used unless otherwise stated.

## 18.16 Glossary

<b>Term</b>	<b>Definition</b>
Consultation Distance	The area around a major hazard site or pipeline within which a local authority is required to seek the advice of the HSE for proposed new developments. It corresponds to the HSE Outer land use planning zone
Dangerous substance	A substance which presents flammable, toxic, or explosive hazards to people, or which is dangerous to the environment
Hazard	A substance, operation or piece of equipment which has the potential to cause harm to people or the environment
Individual risk	The likelihood of a specified level of harm occurring for a specified individual within a specified period of time
Land use planning	The approach used to ensure that proposed developments are not located in areas where the risks to people would be unacceptable
Major accident	An accident resulting in significant harm to people or the environment
Major hazard pipeline	A pipeline carrying a dangerous substance which could lead to harm to people or the environment
Major hazard site	An installation where the presence of one or more dangerous substances could lead to harm to people or the environment

Quantified risk assessment	A numerical assessment of the risks to people based on an assessment of the consequences/severity and likelihood of major accidents
Risk	The likelihood of a specified level of harm occurring within a specified period of time
Societal risk	The relationship between frequency and the number of people suffering from a specified level of harm in a given population from the realisation of specified hazards

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