OMEGA ZONE 8, ST HELENS

Omega St Helens Ltd / T J Morris Ltd

Document Title

ES Vol. 2 Appendix 13 Elements Scoped Out of Assessment

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Appendix 13.1

ELEMENTS SCOPED OUT OF THE MAJOR ACCIDENTS AND DISASTERS ASSESSMENT

The major accident(s) and/or disaster(s) event types shown in the table below are not considered to make the Proposed Development vulnerable to the risk of major accidents and disasters and have therefore not been considered further within the ES.

Major Accident(s) and/or Disaster(s) Group	Category	Type	Justification for Scoping Out
Natural Hazards	Geophysical	Earthquakes	Do not occur in Britain of a sufficient intensity owing to the motion of the Earth's tectonic plates causing regional compression. In addition, uplift from the melting of the ice sheets that covered many parts of Britain thousands of years ago can also cause movement. The British Geological Survey (BGS) acknowledges that on average, a magnitude 4 earthquake happens in Britain roughly every two years and a magnitude 5 earthquake occurs around every 10 to 20 years. As such the Cabinet Office National Risk Register of Civil Emergencies states that "Earthquakes in the UK are moderately frequent but rarely result in large amounts of damage. An earthquake of sufficient intensity (determined on the basis of the earthquake's local effect on people and the environment) to inflict severe damage is unlikely". The Proposed Development is not in or close to a seismically active area.
Natural Hazards	Geophysical	Volcanic Activity	The Proposed Development is not in a volcanically active area and it is highly unlikely that an ash cloud could significantly impact on any aspect of the Proposed Development.
Natural Hazards	Geophysical	Sinkholes	Landslides have not been recorded within the boundary of the Proposed Development and the Proposed Development does not involve the formation of deep cuts/high embankments. Considered by the geotechnical and highway engineering teams as a fundamental part of the Proposed Development design-development. In designing the Proposed Development to applicable standards, resources and receptors would not be put at a greater risk as a consequence of the Proposed Development. This is likely to be covered in the geotechnical design, and there are no examples of structures or infrastructure that have been affected by sinkholes in the study area to warrant taking this event forward.
Natural Hazards	Geophysical	Tsunamis	The Proposed Development is located inland, outside a tsunami's risk zone.
Natural Hazards	Hydrology	Coastal Flooding	The Proposed Development is located inland, outside a coastal area. The planning flood map does not highlight the Proposed Development in an area liable to coastal flooding.
Natural Hazards	Hydrology	Fluvial Flooding	The application site is predominantly located within Flood Risk Zone 1, as outlined on the Environment Agency Flood Zone for Planning Map. This rating indicates a low annual probability of flooding (<1 in 1000) at the application site. However, small parts of the application site on its western boundary do fall within Flood Risk Zone 2 (between 1 in 100 and 1 in 1000 annual probability of flooding) associated with the stream and ditch that run adjacent to the application site boundary. Based on the location of the Proposed Development and the delivery of the proposed drainage scheme, a surface water flooding event which would meet the definition of a major accident(s) and/or disaster(s) is not considered to be a credible scenario.
Natural Hazards	Hydrology	Pluvial Flooding	A desktop study of the Proposed Development indicated that there is a low probability of significant groundwater emergence within the Proposed Development and as such the groundwater flood risk is considered to be low.
Natural Hazards	Hydrology	Avalanches	Not considered relevant given the geographical location of the Proposed Development. The topography of the application site is relatively flat and therefore an avalanche will not occur.
Natural Hazards	Climatological and Metrological	Cyclones, hurricanes, typhoons, storms and gales	Cyclones, hurricanes and typhoons do not occur in the UK. The winter of 2015/2016 was the second wettest winter on record and a series of storms (including 'Desmond' and 'Eva') resulted in heavy and sustained rainfall. 17,600 UK properties were flooded and several bridges collapsed, disrupting access to and from local communities. Storms and gales could result in damage to structures and infrastructure; however, the risk is no different to similar developments in the locality.

Major Accident(s) and/or Disaster(s) Group	Category	Type	Justification for Scoping Out	
			This type of event could result in lightning strikes to temporary elevated structures during construction (e.g. tower cranes) and the elevated structures of the Proposed Development; however, the risk is no different to similar developments in the locality and specific measures are therefore not considered to be required as part of the Proposed Development.	
Natural Hazards	Climatological and Metrological	Wave surges	The Proposed Development is located sufficiently inland, and therefore is not subject to wave surges.	
Natural Hazards	Climatological and Metrological	Extreme temperatures: Heatwaves Low (sub-zero) temperatures and heavy snow	This type of event could give rise to changes in climatic conditions, with infrastructure and structures exposed to greater heat intensity and exposure to sunlight. Heavy snow could cause workers and road users to be trapped. In August 1990, the UK experienced heatwave conditions with temperatures reaching what was then a record 37.1°C in Cheltenham, England. In August 2003 a UK heatwave lasted 10 days and resulted in over 2,000 deaths. Temperatures reached what was then a record 38.5°C in Faversham, England and 33°C in Anglesey, Wales. High temperature records are now being broken with increasing frequency. The most widespread and prolonged low temperatures and heavy snow in recent years occurred from December 2009 to January 2010. Daytime temperatures were mostly sub-zero across the UK. At night, temperatures in England regularly fell to -5°C to -10°C. Snowfall across the UK lasted for some time, allowing 20cm to 30cm of snow to build up, closing schools and making it very difficult to travel. However, the risk is no different to similar developments in the locality and therefore specific measures are not considered to be required as part of the Proposed Development	
Natural Hazards	Climatological and Metrological	Droughts	Over the past 40 years or so England has experienced five long-duration droughts and two shorter periods of drought. During the 2010-12 drought, parts of eastern England recorded their lowest 18-month rainfall total in over 100 years. Considering the use of the Proposed Development its vulnerability to the major accidents and disasters due to drought is not considered to be significant risk.	
Natural Hazards	Climatological and Metrological	Severe Space Weather: Solar Flares	Solar flare events are known to interrupt radio and other electronic communications. Records from solar storms in 1921 and 1960 describe widespread radio disruption and impacts on railway signalling and switching systems. Therefore, taking into account the use of the Proposed Development it is considered irrelevant.	
Natural Hazards	Climatological and Metrological	Severe Space Weather: Solar Energetic Particles	Solar energetic particles which cause solar radiation storms, but only in outer space, so this major accident(s) and/or disaster(s) type can be scoped out.	N
Natural Hazards	Climatological and Metrological	Severe Space Weather: Coronal Mass Ejections	Coronal mass ejections (CME) cause geomagnetic storms. The geomagnetic storm in 2003 caused the UK aviation sector to lose some GPS functions for a day, however no known significant impact on road users or infrastructure. Therefore, taking into account the use of the Proposed Development it is considered irrelevant.	
Natural Hazards	Climatological and Metrological	Fog	Fog is one of the most common weather conditions in the UK, particularly throughout autumn and winter. Severe disruption to transport occurs when the visibility falls below 50m over a wide area. However, the risk for the Proposed Development should be no higher than the current baseline.	
Natural Hazards	Climatological and Metrological	Poor Air Quality	In April and May 2011 numerous wildfires broke out across the UK after unusually hot and dry weather. England received only 21% of its usual rainfall for April 2011. The Proposed Development is not located close to areas of significant woodland that could be at significant risk of wildfire events during hot, dry periods and/or fires initiated by construction related activities. During construction, standard control measures would be implemented by the appointed Principal Contractor to manage the risk of fire. During operation however, the risk is no different to similar structures or road users in the locality. Specific measures are therefore not considered to be required as part of the Proposed Development. In 2006 the UK experienced two periods of extended hot weather with associated elevated ozone and harmful airborne particles. In the spring of 2015, two particle pollution episodes caused widespread poor air quality throughout the UK, with multiple areas measuring ‘High’ on the Daily Air Quality Index and resulted in around 1,100 deaths due to exacerbation of pre-existing ill-health conditions. Summer 2015 also contained two elevated ozone episodes.	

Major Accident(s) and/or Disaster(s) Group	Category	Type	Justification for Scoping Out
			Construction: Construction effects would be temporary for the duration of the construction phase. Increased dust emissions from construction activities and traffic could lead to potential loss of amenity at sensitive receptors. It is anticipated that mitigation measures will be identified within the Air Quality Chapter of the ES and implemented as part of a Construction Environmental Management Plan (CEMP) such that the consequences would not meet the definition of a major accident(s) and/or disaster(s). **Operation**: The Proposed Development is expected to result in a change in local air quality caused by the traffic generated by the proposed development. It is anticipated that the proposed embedded mitigation will mitigate any potential impacts and therefore not significant in terms of major accident(s) and/or disaster(s).
Natural Hazards	Biological	Disease epidemics	The Proposed Development is located in a developed country where the population is in general good health. Furthermore, the use of the Proposed Development (commercial warehousing) should not give rise to any disease epidemics. Public Health England, the executive agency of the Department of Health is responsible for protecting the nation from public health hazards, preparing for and responding to public health emergencies. One of Public Health England's functions is to protect the public from infectious disease outbreaks and the Agency has produced a document providing operational guidance for the management of outbreaks of communicable disease, 'Communicable Disease Outbreak management: Operational Guidance'.
Natural Hazards	Biological	Animal Diseases:	Low and highly pathogenic avian influenza has been recorded in poultry in the UK several times in the last 10 years, most recently in the winter of 2016/17, although with no human cases reported. There was a devastating foot and mouth outbreak in 2001. The use of the Proposed Development is not going to be the source of any disease epidemics and spread would be controlled through containment of infected animals including prohibition of transportation.
Natural Hazards	Biological	Plants	It is not anticipated there being any identified dangerous/regulated plants based on previous agricultural use of the land and Phase 1 habitat survey carried out in April 2019. Standard control measures would be implemented by the appointed Principal Contractor during construction to handle and dispose of any diseased plants and/or injurious weeds, and prevent their spread.
Technological or Manmade Hazards	Societal	Extensive public demonstrations which could lead to violence and loss of life.	The Proposed Development is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts. The Proposed Development is not highly controversial and should not lead to high profile public demonstrations.
Technological or Manmade Hazards	Societal	Widespread damage to societies and economies.	The Proposed Development is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.
Technological or Manmade Hazards	Societal	The need for large-scale multi-faceted humanitarian assistance.	The Proposed Development is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.
Technological or Manmade Hazards	Societal	The hindrance or prevention of humanitarian assistance by political and military constraints.	The Proposed Development is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.
Technological or Manmade Hazards	Societal	Significant security risks for humanitarian relief workers in some areas.	The Proposed Development is located in a developed country that has steady, yet small population growth. England is politically stable with no direct border with countries experiencing conflicts.

Major Accident(s) and/or Disaster(s) Group	Category	Type	Justification for Scoping Out
Technological or Manmade Hazards	Societal	Famine	The Proposed Development is located in a developed country that produces its own crops and imports food. It is politically stable and not subject to hyperinflation and therefore food is available, whether produced within the UK or imported. Famine is not relevant to the use of the Proposed Development.
Technological or Manmade Hazards	Societal	Displaced population	There will be no displacement of population as part of the Proposed Development.
Technological or Manmade Hazards	Industrial and Urban Accidents	Major Accident Hazard Chemical sites	The Proposed Development does not fall within the consultation zone of any Control of Major Accident Hazard (COMAH) sites and there are none within a 2.5km radius around the Proposed Development.
Technological or Manmade Hazards	Industrial and Urban Accidents	Nuclear	Nuclear sites are designed, built and operated so that the chance of accidental releases of radiological material in the UK is extremely low. Last historical major accident in the UK was Windscale in 1957. No nuclear sites within a 2.5km radius around the Proposed Development.
Technological or Manmade Hazards	Industrial and Urban Accidents	Fuel storage	In December 2005 Europe's largest peacetime fire occurred at the Buncefield Oil Storage Terminal in Hemel Hempstead, England. The surrounding area was temporarily evacuated and some local businesses experienced long-term disruption to operations. There are no fuel storage sites within the study area.
Technological or Manmade Hazards	Industrial and Urban Accidents	Dam breaches	Dam breaches in the UK are rare; the last major breach was at the Cwm Eigiau dam in 1925, which caused 17 fatalities and widespread flooding. Environment Agency Flood Map for Planning indicates that the Proposed Development is not at risk of flooding from the potential failure of a dam.
Technological or Manmade Hazards	Industrial and Urban Accidents	Mines and storage caverns	Whilst the Proposed Development lies within a Coal Mining Reporting Area, it does not lie within an area classified as a 'high risk development area'. There are also no previous mine entries, abandoned mines or known/probable coal workings within the immediate vicinity.
Technological or Manmade Hazards	Industrial and Urban Accidents	Fires	Fires could be initiated by construction related activities which impact areas adjacent to the construction activities. During construction, standard control measures would be implemented by the appointed contractor to manage the risk of fire. Notwithstanding this, the risk of fires affecting the Proposed Development during operation is no greater than risks for existing developments in an urban environment.
Technological or Manmade Hazards	Transport accidents	Road	During construction there will be an increase in heavy construction plant and equipment on local road network which may increase the risk of traffic accidents. Potential for direct physical impacts based on routeing of construction and development phase traffic, however it is anticipated that they would not involve multiple fatalities requiring the triggering of the emergency services major incident response plan. The environmental effects posed by spillages of hazardous loads as a result of road accidents was considered by relevant specialist chapters at the scoping stage. However, it was anticipated that they would not trigger a major accident.
Technological or Manmade Hazards	Transport accidents	Rail	There are no railways within the application site.
Technological or Manmade Hazards	Transport accidents	Waterways	There are no waterways in the study area.
Technological or Manmade Hazards	Transport accidents	Aviation	Liverpool's John Lennon Airport is situated about 15km to the west and Manchester International Airport is located approximately 25km to the southeast. The application site lies within both the Liverpool John Lennon Airport and Manchester International Airport Civil Aviation Authority Safeguarding Zones. There have been no major air accidents in the UK since the Kegworth incident in 1989.

Major Accident(s) and/or Disaster(s) Group	Category	Type	Justification for Scoping Out
Technological or Manmade Hazards	Pollution accidents	Air	Construction activities may cause dust emissions which may contribute to poor air quality albeit on a temporary basis. Use of fossil fuelled mobile plant and equipment during the construction phase increase emissions. However, the emissions from mobile plant and equipment is covered under H&S and environmental legislation. The potential for this to initiate A major accident(s) and/or disaster(s) event is not considered a credible scenario. There are no significant industrial pollution sources within the study area.
Technological or Manmade Hazards	Pollution accidents	Land	During construction there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. During construction, standard control measures would be implemented by the appointed contractor to manage the risk of spillages and leaks.
Technological or Manmade Hazards	Pollution accidents	Water	The sensitivity of receptors at this development ranges from medium to low. Construction; there may be an increase in the risk of leaks and spillages of hazardous materials associated with the construction activities. Standard control measures would be implemented by the Contractor to manage the risk of spillages and leaks. Operation: Taking into consideration the use of the Proposed Development, it is not considered necessary to carry out a separate major accident(s) and/or disaster(s) assessment and the impacts of contaminated surface water from catchment surfaces will be considered in the water environment assessment within the ES.
Technological or Manmade Hazards	Utilities failures	Electricity	Instances of electricity failure (also referred to as power loss or blackout) can be caused by a number of things, such as severe weather (e.g. very strong winds, lightning and flooding) which damage the distribution network. These tend of be mainly specific place, local (e.g. metropolitan area) and less frequently regional (e.g. North East) as a result of severe winter storms and consequent damage to the distribution overhead line network. Underground and above-ground electrical transmission lines are present across the Proposed Development, the responsibilities of which lie with the relevant local operator or company should this infrastructure fail. Information regarding diversion works will be considered in the engineering design risk register and discussions with the operator (SPEN).
Technological or Manmade Hazards	Utilities failures	Gas	Underground and above-ground natural gas transmission pipelines are not present across the Proposed Development. No gas use associated with the Proposed Development.
Technological or Manmade Hazards	Utilities failures	Water supply	The Proposed Development does not require any water abstractions from local water resources, the effect on local water resources (in terms of water abstraction) has been 'scoped out' of this assessment.
Technological or Manmade Hazards	Utilities failures	Sewage system	Construction: Work will involve connections to the sewerage network. However, these will be managed in coordination with United Utilities. During construction phase temporary portable systems will be in place covered by H&S welfare requirements. Operation: The predicted impacts of the Proposed Development increase loading of foul and surface water will be considered as part of the water environment assessment and will not require a separate major accident(s) and/or disaster(s) assessment as the sewage undertaker will not accept the new connections unless the system has sufficient capacity to deal with peak loadings.
Technological or Manmade Hazards	Malicious Attacks	Unexploded Ordnance (UXO)	Measures would be undertaken during construction to brief operatives to raise awareness of this issue, and to define appropriate response strategies if UXO were to be discovered during the works. There would be a limited risk of unexploded ordnance affecting the Proposed Development, once operational but no greater than similar schemes. Strategic targets in the study area of the Proposed Development include Burtonwood Airbase and public utilities and infrastructure. Zetica Ltd report P7831-18-R1 dated Sept 2018 stated no records were found that indicated the Proposed Development area was bombed and no other significant UXO hazard was identified. Therefore, a low potential exists for encountering unexploded ordnance and further assessment should not be required.

Major Accident(s) and/or Disaster(s) Group	Category	Type	Justification for Scoping Out
Technological or Manmade Hazards	Malicious Attacks	Attacks Chemical Biological Radiological Nuclear	Extremists remain interested in Chemical, Biological, Radiological and Nuclear (CBRN) materials, however alternative methods of attack such as employing firearms or conventional explosive devices remain far more likely. Historical use has been in closed densely occupied structures (underground, buildings) or targeted at specific individuals. The Proposed Development is unlikely to be a target for this type of event due to the low number of exposed targets.
Technological or Manmade Hazards	Malicious Attacks	Transport systems	Potential systems would include (but are not limited to) railways, buses, passenger ferries, cargo vessels and aircraft. The Proposed Development is unlikely to be a target for this type of event due to the low number of exposed targets.
Technological or Manmade Hazards	Malicious Attacks	Crowded places	The Proposed Development does not fall within the definition of a crowed place, i.e. pedestrian routes and other thoroughfares as well as sports arenas, retail outlets and entertainment spaces. The Proposed Development is unlikely to be a target for this type of event due to the low number of exposed targets.
Technological or Manmade Hazards	Malicious Attacks	Cyber	Cyber attacks occur almost constantly on key national and commercial electronic information, control systems and digital industries. Technology which would be of potential interest is not proposed to be installed as part of the Proposed Development.
Technological or Manmade Hazards	Malicious Attacks	Infrastructure	Terrorists in the UK have previously attacked, or planned to attack, national infrastructure. Attempts were made to attack electricity substations in the 1990s. Bishopsgate, in the City of London, was attacked in 1993 and South Quay in London's Docklands in 1996. These attacks resulted in significant damage and disruption but relatively few casualties. The Proposed Development would have minimal impact on local infrastructure or be considered a high profile attack.
Technological or Manmade Hazards	Engineering accidents and failures	Bridge failure	Bridge works are not proposed as part of the Proposed Development.
Technological or Manmade Hazards	Engineering accidents and failures	Flood defence failure	The Proposed Development does not benefit from flood defences or flood storage areas.
Technological or Manmade Hazards	Engineering accidents and failures	Mast and tower collapse	There are no towers or masts in close proximity to the Proposed Development or being built as part of the Proposed Development
Technological or Manmade Hazards	Engineering accidents and failures	Property or bridge demolition accidents	The Proposed Development involves no demolition works to take down buildings and/or structures.
Technological or Manmade Hazards	Engineering accidents and failures	Tunnel failure/fire	There are no tunnel structures proposed as part of the Proposed Development.

Mount View
Standard Way Business Park
Northallerton
DL6 2YD

Appendix 13.2

MAJOR ACCIDENTS AND DISASTERS LEGISLATION & GUIDANCE

1. MAJOR ACCIDENTS AND DISASTERS LEGISLATION & GUIDANCE

1.1 LEGISLATIVE FRAMEWORK

HEALTH AND SAFETY AT WORK ETC. ACT 1974 (C. 37)

1.1.1. The Act provides the framework for the regulation of workplace health and safety in the UK. It places general duties on employers, people in control of premises, manufacturers and employees. The overriding principle is that foreseeable risks to persons will be reduced so far as is reasonably practicable and that adequate evidence will be produced to demonstrate that this has been done.

1.1.2. Provides a legal framework for the provision of safe plant and equipment and prevention of harm to people from occupational hazards present in a workplace, including emergencies which may affect those offsite, or visiting the site.

1.1.3. Developer, contractors and sub-contractors have to avoid foreseeable risks so far as is reasonably practicable by: eliminating hazards associated with all work-related activities associated with the Proposed Development throughout its lifecycle both to their employees and others arising out of or in connection with the activities of persons at work.

1.1.4. This is particularly relevant during the construction and maintenance phases

MANAGEMENT OF HEALTH AND SAFETY AT WORK REGULATIONS 1999 (SI 1999 NO. 3242)

1.1.5. The Regulations reinforce employer's duties to manage H&S and apply to all work activities. The principal of risk based assessment provides the cornerstone for management of H&S and all employers are required to undertake risk assessments. The regulations require the assessment and management of H&S risks and where required procedures for dealing with emergencies, which would include major accidents.

1.1.6. Many of the risks identified and managed would serve to eliminate or reduce the risk of a major accident (and therefore environmental consequence) occurring during the construction, operational and maintenance phases of the Proposed Development.

CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 (SI 2015 NO. 51)

1.1.7. These regulations place legal duties on almost all parties involved in construction work. The regulations place specific duties on clients, designers and contractors, so that health and safety is taken into account throughout the life of a construction project from its inception to its subsequent final demolition and removal. Under the CDM Regulations, designers have to avoid foreseeable risks so far as is reasonably practicable by: eliminating hazards from the construction, cleaning, maintenance, and proposed use and demolition of a structure, reducing risks from any remaining hazard, and giving collective safety measures priority over individual measures.

1.1.8. The Client, Designers and Contractors have to avoid foreseeable risks so far as is reasonably practicable by: eliminating hazards associated with the design, construction, operation and maintenance aspects of the Proposed Development.

1.1.9. Therefore, the regulations ensure that mechanisms are in place to continually identify, evaluate and manage safety risks throughout the design, construction and operation phases of the Proposed Development. Many of the risks identified and managed out at the design phase also serve to eliminate or reduce the risk of a major accident (and therefore environmental consequence) occurring during the construction, operational and maintenance phases.

OCCUPIER'S LIABILITY ACT 1984 (C.3)

1.1.10. This Act amends the law of England and Wales as to the liability of persons as occupiers of premises for injury suffered by persons other than their visitors.

1.1.11. Provides a legal framework for the prevention of harm to people from occupational safety and health hazards present on premises under the control of the Occupier, including to those visiting the premises.

1.1.12. The Proposed Development includes areas of land designated for marshalling of construction resources which attract visitors who could be impacted by Major Accidents and Disasters whilst on or crossing those controlled areas.

PIPE-LINES ACT 1962 (CHAPTER 58)

1.1.13. The purpose of the Act is to ensure the orderly construction of pipelines in such a way as to meet the requirements of the pipeline users, while at the same time minimising disturbance to farmers and land owners by careful planning of routes and by avoiding unnecessary duplication of pipelines. The provisions of the Act are substantially directed towards industrial pipelines except where these are already covered by existing legislation. Pipelines are divided in to two categories: local pipelines, which are those pipelines not exceeding 10 miles in length, and cross country pipelines, which are those which do exceed 10 miles in length. Section 7(1) of the 1962 Act provides that the construction of a pipeline not exceeding 10 miles in length as an addition to another pipeline is to be deemed to be the construction of a cross country pipeline (and not of a local pipeline) if the length of the two exceeds 10 miles. The Act provides that cross country pipelines may not be constructed without authorisation of the Secretary of State.

1.1.14. The Act requires minimising disturbance to other buried utility providers and land/property owners by careful planning of routes for the Gas Pipeline in the Proposed Development.

PIPELINE SAFETY REGULATIONS 1996 (SI 1996 NO.825)

1.1.15. The purpose of these Regulations is to ensure that pipelines are designed, constructed and operated properly to ensure their integrity and reduce environmental risks.

1.1.16. The Regulations require the preparation of a Safety Report which demonstrates that the risks associated with the Gas Pipeline passing under the Proposed Development and which is to be modified are ALARP and prevent/minimise a potential major accident prior to construction and operation.

1.1.17. Many of the risks identified and managed out at the design, pre-construction phases also serve to eliminate or reduce the risk of a major accident (and therefore environmental consequence) occurring during the construction, operational and maintenance phases of the Proposed Development.

1.2 GUIDANCE

DEFRA (2011) 'GREEN LEAVES III' GUIDELINES FOR ENVIRONMENTAL RISK ASSESSMENT AND MANAGEMENT

1.2.1. These guidelines provide generic guidance for the assessment and management of environmental risks. A cyclical framework for risk management is provided which identifies four main components of risk assessment:

- Formulating the problem;
- Carrying out an assessment of the risk;
- Identifying and appraising the management options available; and
- Addressing the risk with a risk management strategy.

1.2.2. A source-pathway-receptor model is suggested as a tool to assist in risk screening and an example is provided of applying the following filters to prioritise significant hazards for further investigation:

- The plausibility of linkages between the source of a hazard and a receptor;
- The relative potency of a hazard, availability of a pathway, or vulnerability of a receptor;
- The likelihood of an event, on the basis of historic occurrence or of changed circumstances; or
- A view on the performance of current risk management measures that, if they were to fail, may increase the potential for future harm.

THE INTERNATIONAL STANDARDS ORGANIZATION'S ISO 31000: 2009 RISK MANAGEMENT – PRINCIPLES AND GUIDELINES

1.2.3. This guideline identifies a number of principles that need to be satisfied to make risk management effective. If the standards are adopted and applied the management of any risk should help minimise losses, improve resilience, improve controls and improve the identification of opportunities and threats.

1.2.4. The ISO standard states that when defining risk criteria, the following factors should be considered:

- The nature and types of causes and consequences that can occur and how they will be measured;
- how likelihood will be defined;
- the timeframe(s) of the likelihood or consequence(s);
- how the level of risk is to be determined;
- the views of stakeholders;
- the level at which risk becomes acceptable or tolerable; and
- whether combinations of multiple risks should be taken into account and, if so, how and which combinations should be considered.

Dale House
Mount View
Standard Way Business Park
Northallerton
DL6 2YD

Appendix 13.3

RISK RECORD SCREENED IN MAJOR ACCIDENTS AND DISASTERS

This is an extract from the Major Events assessment process of all considered events.

Risk Record Entry Number	Section of Proposed Scheme	MAD Scoping Group & Category	Risk Event (high level)	Hazard Description	Applicable Phases (C=Construction, O=Operational, M=Maintenance)	Risk Description	Hazard sources and/or pathways	Documentation in which the event is/will be addressed	Reasonable worst consequence if event did occur and receptor(s)	Primary mitigation	Could this constitute a major accident or disaster?	Justification	Is this ALARP with existing mitigation?	Clarification
1	North-western corner and western edge of Proposed Development	Technological or Manmade Hazards: Industrial and Urban Accidents	Fire and / or explosion or release of harmful gas	Presence of underground NWEP pipeline	C	Fire, explosion or release of flammable vapour cloud	Presence of underground NWEP pipeline	CDM register Construction H&S plan NWEP Pipeline Safety Report. ESSAR document Easement INF-P-M20-05-03 - Standard Conditions for Work in to ESSAR (UK) LTD. Cross Country Pipelines	Fire and/or explosion affects construction works and/or members of the public using the adjacent M62	The pipeline should have been designed and constructed in accordance with British Standard 8010 – Code of Practice for Pipelines (BS 8010) and the Pipelines Act 1962. The layout of the Proposed Development has been designed to avoid buildings, plant and equipment being built within the 10m easement of the pipeline. Following discussions with the pipeline Operator, there will be 1m vertical clearance maintained between the top of the pipeline to the bottom of any excavation within the 10m zone. Prior to any work within the 10m zone, a risk assessment and method statement (RAMS) for the proposed work will be submitted to and agreed with the pipeline operator to ensure a safe system of work is in place. Close coordination & cooperation between all parties involved	Y	Could cause loss of life or permanent injury to multiple members of the public; or significant structural property damage.	Y	Assuming: - Development layout and design chosen to minimise loading over buried pipeline. - Route will be swept with a avoidance tool prior to breaking ground. - Construction Phase H&S plan.
2	North-western corner and western edge of Proposed Development	Technological or Manmade Hazards: Industrial and Urban Accidents	Fire and / or explosion or release of harmful gas	Presence of underground NWEP pipeline	O, M	Ground subsidence leading to loss of containment.	Presence of underground NWEP pipeline	CDM register NWEP Safety Report ESSAR document Easement INF-P-M20-05-03 - Standard Conditions for Work in to ESSAR (UK) LTD. Cross Country Pipelines Landlord's Safe Systems of Work	Fire and/or explosion affects neighbouring properties and/or those people in the immediate area.	1) Settlement assessment for built environment above NWEP pipeline curtilage. 2) Discuss, agree and Implement monitoring regime during operation with pipeline operator. 3) Implement mitigation measures as agreed with pipeline operator. Good engineering practice and requirements within the NWEP Operator's Standing Operating Procedures, Landlord's Safe Systems of Work Close coordination & cooperation between all parties involved.	Y	Could cause loss of life or permanent injury to multiple members of the public; or significant structural property damage.	Y	Assuming: - Development layout and design chosen to minimise loading over buried pipeline. - Route will be swept with an avoidance tool prior to breaking ground. - Construction Phase H&S plan.

Risk Record Entry Number	Section of Proposed Scheme	MAD Scoping Group & Category	Risk Event (high level)	Hazard Description	Applicable Phases (C=Construction, O=Operational, M=Maintenance)	Risk Description	Hazard sources and/or pathways	Documentation in which the event is/will be addressed	Reasonable worst consequence if event did occur and receptor(s)	Primary mitigation	Could this constitute a major accident or disaster?	Justification	Is this ALARP with existing mitigation?	Clarification
3	Eastern side of development	Technological or Manmade Hazards: Industrial and Urban Accidents	Harm to people	Over-Head High Voltage (HV) power lines cross the application site.	C	Need to put measures in place with respect to HV power cables with inherent risks to personnel	HV electricity	CDM register Method Statements	Death and/or injury to construction / maintenance workers.	HV overhead power lines do not need to be diverted. However, there is a potential need to provide protection measures during construction phase and also when maintenance work on overhead lines takes place.	N	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction /maintenance workers.	N/A	ALARP not considered as does not meet the criteria of a major accident
4	Development wide	Technological or Manmade Hazards: Industrial and Urban Accidents	Harm to people	Installing electrical connections to incoming power supplies.	C	Electrocution risk to personnel	Electricity	CDM register	Death and/or injury to construction workers.	Guidance provided by National Grid to be adhered to.	N	The reasonable worst consequence of this event does not meet the criteria of a major accident. The only potential receptors of harm are construction workers..	N/A	ALARP not considered as does not meet the criteria of a major accident

Mount View
Standard Way Business Park
Northallerton
DL6 2YD