Government Property Agency

AtkinsRéalis



MANCHESTER DIGITAL CAMPUS

Environmental Statement

Volume 2 - Chapter 21: Major Accidents and Disasters

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Executive Summary

Considering Major Accidents and Disasters surrounding a development is crucial for identifying and mitigating risks, thereby protecting both human health and the environment. This helps developers plan resilient infrastructure and demonstrate a commitment to safety by addressing potential impacts. This comprehensive approach ensures the long-term sustainability and safety of a development.

The Institute of Environmental Management and Assessment (IEMA) Major Accidents and Disasters in EIA guidance was utilised, and the methodology adopted to identify relevant Major Accidents and Disasters includes three main stages:

- **Stage 1**: Compiling a long list of potential major events from various sources, including the UK Government's Risk Register of Civil Emergencies, and conducting an initial review of potential receptors.
- **Stage 2**: Screening the list to determine the relevance of each event to the Proposed Development within a 2 km radius.
- **Stage 3**: Assessing the consequences of relevant events and considering mitigation measures to determine if a major accident or disaster could occur

After undertaking these stages, the remaining issues include:

- Flooding
- Engineering / utility accidents / failures during construction
- Terrorist / crime / civil unrest
- Potential for Unexploded Ordnance (UXO)

Appropriate risk and environmental mitigation measures have been considered, developed and adopted through compliance with design standards, applicable legislation and best practice measures. As a result, no significant effects have been identified.

21. Major accidents and disasters

21.1. Introduction

21.1.1. This chapter of the Environmental Statement (ES) assesses the vulnerability of the Proposed Development to major accidents and disasters. The chapter also describes the assessment methodology, potential impacts and the mitigation measures required to prevent, reduce or offset any significant adverse impacts.

21.1.2. This chapter is supported by a technical appendix contained within ES (Volume 4) Appendix 21, which includes the following:

- ES (Volume 4) Appendix 21.1 Major accidents and disasters long list - which lists all of the major events considered in the assessment grouped into the relevant categories.

21.2. Relevant legislation and guidance

21.2.1. Table 21-1 below summaries the legislation and regulations applicable to Major accidents and disasters.

Table 21-1 – Legislation for major accidents and disasters

Legislation	Summary of requirements
Town and Country Planning (Environmental Impact Assessment) Regulations 2017[1]	Assess the expected significant effects on the environment arising from the vulnerability of the Proposed Development to '*major accidents or disasters that are relevant to that development*'.

21.2.2. Table 21-2 summaries the technical standards and guidance applicable to Major accidents and disasters.

Table 21-2 – Technical standard and guidance for Major accidents and disasters

Technical standards / guidance	Summary of requirements
Institute of Environmental Management and Assessment Major Accidents and Disasters in EIA: A Primer[2]	The primer establishes an assessment methodology and identifies key terminology for the major accidents and disasters topic.

21.3. Assessment methodology

21.3.1. The EIA Regulations require the assessment of the expected significant effects on the environment arising from the vulnerability of the Proposed Development to '*major accidents or disasters that are relevant to that development*'.

[1] The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (legislation.gov.uk)

[2] Institute of Environmental Management and Assessment (2020) Major Accidents and Disasters in EIA: A Primer [online]. https://www.iema.net/resources/blog/2020/09/23/iema-major-accidents-and-disasters-in-eia-primer

21.3.2. The general scope of the assessments covers:

- Vulnerability of the Proposed Development to risks of major accidents and/or disasters that are relevant to the Site (subsequently referred to as major events).
- Identification of any consequential significant adverse environmental effects from those major events.
- Measures to prevent or mitigate the significant adverse environmental effects of those major events and details of the preparedness for and response to such major events.

21.3.3. The assessment of major events:

- Identifies any major events that are relevant to and can affect the Proposed Development.
- Where major events are identified, describes the expected significant effects arising from the vulnerability of the Proposed Development to the events.
- Reports the conclusions of this assessment within this section.
- Clearly describes any mitigation measures and details of the preparedness for and proposed response to such emergencies, to provide an evidence base to support the conclusions and demonstrate that likely effects have been mitigated/managed to an acceptable level.

21.3.4. There is no clear definition of the term ‘major accident and / or disaster’ in the EIA Regulations therefore, the key terms used in the assessment are listed in Table 21-3:

Table 21-3 – Sensitivity and value criteria

Significance category	Typical descriptors of effect
Major accident	The Control of Major Accident Hazards (COMAH) 2015 regulations define a ‘major accident’ as an occurrence such as a major emission, fire, or explosion resulting from uncontrolled developments in the course of the operation of any establishment and leading to serious danger to human health or the environment (whether immediate or delayed) inside or outside the establishment and involving one or more dangerous substances.
Disaster	May be a natural hazard (e.g., earthquake) or a man-made / external hazard (e.g., act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.
Natural disaster	A naturally occurring event such as extreme weather (storm, flooding) or a ground related hazard event (subsidence, landslide, earthquake) with the potential to cause an event or situation that meets the definition of a major accident.
Risk	The likelihood of an impact occurring combined with the effect or consequence(s) of the impact on a receptor(s) if it does occur
Risk event	An identified unplanned event which is considered relevant to the Proposed Development and has the potential to be a major accident or natural disaster subject to the identification of its potential to result in a significant adverse effect on an environmental receptor.
Serious damage	Serious damage includes the loss of life, permanent injury and temporary or permanent damage/destruction of an environmental receptor.
Vulnerability	Describes the potential for harm as a result of an event, for example due to sensitivity or value of receptors. In the context of environmental risk assessment, the term refers to the ‘exposure and resilience’ of the Proposed Development to the risk of a major accident or natural disaster.

21.3.5. By the above definitions, a significant adverse effect is considered to mean the loss of life or permanent injury, and/or permanent or long-lasting damage to an environmental receptor. The significance of this effect considers the extent, severity and duration of harm and the importance and sensitivity of the receptor.

21.3.6. The methodology adopted in this ES follows the Institute of Environmental Management and Assessment (IEMA) Major Accidents and Disasters in EIA (herein referred to as the IEMA Primer) guidance.

21.3.7. The methodology adopted in this ES chapter includes three main stages, as follows:

- **Stage 1**: a long list of all possible major events was developed. This list drew upon a variety of sources, including the UK Government's Risk Register of Civil Emergencies. Major events with little relevance in the UK were not included. Stage 1 also included an initial review of potential receptors.
- **Stage 2**: a screening exercise was undertaken to review the long list of major events and to consider their relevance to the Proposed Development, and whether any major events required further consideration. The study area for relevant major events was identified to be within 2 km of the Proposed Development.
- **Stage 3**: for those major events requiring further consideration, the consequence was identified including consideration of any mitigation measures to identify if a major accident or disaster could occur.

21.4. Potential impacts

Stage 1

21.4.1. The long list of major events was collated and is presented in ES (Volume 4) Appendix 21.1 Major accidents and disasters long list. The major events categories considered included:

- Geological disasters, such as earthquakes, avalanches, volcanic eruptions, sinkholes, ground dissolution or instability.
- Hydrological disasters, such as tsunamis, storm surges, limnic eruptions and floods.
- Meteorological disasters, such as extreme weather events.
- Space disasters, such as geomagnetic storms, solar flares, and astronomical object collision.
- Transport, such as aircraft disaster, rail or road accidents and maritime disasters.
- Engineering accidents or failure, such as infrastructure and utilities failure.
- Industrial accidents, such as mining, chemical, energy or power industry.
- Terrorism/crime, civil unrest, and war.
- Disease, such as human or animal diseases.
- Unexploded Ordnance (UXO).

Stage 2

21.4.2. In general, major events, as they relate to the Proposed Development, fall into three categories:

- Events that could not realistically occur, due to the type of Proposed Development or its location.

- Events that could realistically occur, but for which the Proposed Development and associated receptors, are no more vulnerable than any other development.
- Events that could occur, and to which the Proposed Development is particularly vulnerable, or which the Proposed Development has a particular capacity to exacerbate.

21.4.3. A screening stage was undertaken in Stage 2 to identify this third group of major events, which then formed the list of events to be taken forward for further consideration.

Stage 3

21.4.4. Stage 3 of the assessment resulted in a list of major events to be considered further which is presented in Table 21-4. The remaining issues include:

- Flooding
- Engineering / utility accidents / failures during construction
- Terrorist / crime / civil unrest
- Potential for UXO

21.4.5. Table 21-4 provides a summary of the assessment of the four remaining issues including outlining their reason for consideration, the potential receptors and consequences if they were to occur and mitigation measures that have been included in the design to reduce any impacts.

21.4.6. Appropriate risk and environmental mitigation measures have been considered, developed and adopted through compliance with design standards, applicable legislation and best practice measures.

21.4.7. Flooding and measures to address the risk of encountering UXO have been considered in the relevant topic chapters (ES (Volume 2) Chapter 12 Ground Conditions and Contamination and ES (Volume 2) Chapter Water Resources and Flood Risk respectively). The risk of engineering failure or terrorism has been considered as part of the building design and has therefore been addressed by embedded mitigation measures.

21.4.8. Cumulative impacts have not been considered as part of this chapter and instead have been addressed in the relevant topic chapters within the ES referenced above. The issues surrounding engineering accidents / failures during construction and or terrorism are not applicable to cumulative impacts.

Table 21-4 – Major accidents and disasters

Category	Major event	Reason for consideration	Potential receptors	Consequence	Mitigation
Hydrological Disasters	Floods Major change to groundwater levels	Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding, are covered in the Flood Risk Assessment (FRA) and are also reported in Water Resources and Flood Risk ES chapter (Chapter 19). Both assessments have addressed the risk to the Site and increased risk due to the Site. The risk of surface water flooding indicates that there are areas at risk within the study area. There is a small pocket of 'low' risk of flooding within the Site from the River Medlock. The Site is partially located within Breach Zone A of Rochdale and Ashton Canals. There is a low risk of overtopping and bank breaches in the Rochdale and Ashton Canals, but there is a possibility of overtopping and breaching if a flood event occurs. The Site has not historically experienced flooding.	Workers, local community members buildings, surrounding environment	Casualties, damage to infrastructure and property, disruption to services	The Water Resources and Flood Risk ES chapter and the FRA, outline appropriate mitigation to avoid and reduce the flood risk during construction which will be detailed in the CEMP. Mitigation measures to limit potential adverse operational impacts will be incorporated into the design of the Proposed Development (for example, through the Drainage Strategy).
Engineering accidents or failures	Utilities failure (gas, electricity, water, sewage, oil, communications)	Various existing utilities cross the Site, including multiple electricity cables and two large diameter sewers. The as-built utilities include multiple electricity cables, foul and surface water drainage, telecoms, water supply and fire hydrant infrastructure. The Proposed Development design has ensured that all utility works are designed appropriately and follow approaches agreed with the statutory undertakers.	Workers, property, surrounding environment	Potential for fire/explosion, pollution incident, injury	Emergency plans have been written for the Proposed Development, which were agreed with Local Authority, statutory undertakers, and blue light authorities. All utility companies have plans and arrangements in place to deal with supply disruptions and failures.
Terrorism/ crime/ civil unrest	Attack on infrastructure	The new Manchester Digital Campus may become a target for terrorism, crime or civil unrest, due to functioning as a government building.	Workers, property, surrounding environment	Casualties, damage to property and disruption of services	Security has been a key consideration of the design, in line with government building requirements, the Proposed Development incorporates significant measures to minimise the risk of crime. A Crime Impact Statement is submitted alongside this planning application.
Other	UXO	The Ground Condition and Contamination ES (Volume 2) Chapter 12 states that a review of the online unexploded bomb risk maps by Zetica (August 2017) indicates that the Site is in a moderate risk for encountering UXO.	Workers, property, surrounding environment	Injury, death	A full assessment and zoning of the UXO hazard level and results of the GI will inform the design. No UXO survey is required based on the undertaken Detailed Unexploded Ordnance Threat and Risk Assessment by 6 Alpha Associates in 2018.

21.5. Summary

21.5.1. A three stage methodology was undertaken to identify Major Accidents and Disasters relevant to the Proposed Development, following IEMA guidance.

21.5.2. The identified issues include:

- Flooding
- Engineering / utility accidents / failures during construction
- Terrorist / crime / civil unrest
- Potential for UXO

21.5.3. Appropriate risk and environmental mitigation measures have been considered, developed and adopted through compliance with design standards, applicable legislation and best practice measures. As a result, no significant effects have been identified.

21.6. Glossary and acronyms

Table 21-5 – Glossary and acronyms

Term	Definition
COMAH	Control of Major Accident Hazards
ES	Environmental Statement
FRA	Flood Risk Assessment
IEMA	Institute of Environmental Management and Assessment
UXO	Unexploded Ordnance

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