17 RISK MANAGEMENT (MAJOR ACCIDENTS & DISASTERS)

17.1 Introduction

This chapter describes the Proposed Development in respect of its potential vulnerability to major accidents / disasters, and its potential to give rise to the same.

The assessment is carried out in compliance with the EIA Directive on the assessment of the effects of certain public and private projects on the environment that entered into force on 16 May 2017 which states the need to assess: -

> *"the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned"*

The underlying objective of this assessment is to ensure that appropriate precautionary actions are taken for those projects which *"because of their vulnerability to major accidents and/or natural disasters, are likely to have significant adverse effects on the environment."*

This chapter has been prepared by Stephen Little, Managing Director and Michael O'Sullivan, Senior Planner, of Stephen Little & Associates. Stephen has 29 years' professional experience of town planning in Ireland, is a Corporate Member of both the Irish Planning Institute and the Royal Town Planning Institute and holds a Diploma in EIA Management (UCD). Michael has 8 years' professional experience in the planning in both the public sector and private consultancy in Ireland, has a MPlan – Masters in Planning & Sustainable Development and is a Corporate Member of the Irish Planning Institute.

17.2 Assessment Methodology

The scope and methodology of this assessment is centred on the understanding that the Proposed Development will be designed, built and operated in line with best international current practice. As such, major accidents resulting from the Proposed Development would be very unlikely.

The scope and methodology presented in the following sections are based on the provisions of the EIA Directive, the draft EPA Guidelines, EU Commission guidance, as well as professional judgement.

A risk analysis-based methodology that covers the identification, likelihood and consequence of major accidents and / or disasters has been used for this assessment (Refer to Section 17.5 for further detail on this approach).

The assessment of the risk of major accidents and/or disasters considers all factors defined in the EIA Directive that have been considered in this EIAR, i.e. population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and the landscape.

17.2.1 Guidance and Legislation

17.2.1.1 Legislative Requirements

The following paragraphs set out the requirements of the EIA Directive in relation to major accidents and / or disasters. Recital 15 of the EIA Directive states that: -

> *"In order to ensure a high level of protection of the environment, precautionary actions need to be taken for certain projects which, because of their vulnerability to major accidents, and/or natural disasters (such as flooding, sea level rise, or earthquakes) are likely to have significant adverse effects on the environment. For such projects, it is important to consider their vulnerability (exposure and resilience) to major accidents and/or disasters, the risk of those accidents and/or disasters occurring and the implications for the likelihood of significant adverse effects on the environment. In order to avoid duplications, it should be possible to use any relevant information available and obtained through risk assessments carried out pursuant to Union legislation, such as Directive 2012/18/EU of the European Parliament and the Council and Council Directive 2009/71/Euratom, or through relevant assessments carried out pursuant to national legislation provided that the requirements of this Directive are met."*

It is clear from the EIA Directive that a major accident and / or disaster assessment is most readily applied to 'Control of Major Accident Hazards involving Dangerous Substances' (COMAH) sites or major industrial / energy installations. Notwithstanding, the assessment of major accidents and disasters for the Proposed Development has been carried out for completeness given the strategic nature of the Proposed Development.

Article 3 of the EIA Directive requires that the EIAR shall identify, describe and assess in the appropriate manner, the direct and indirect significant effects on population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and landscape deriving from (amongst other things) the *"vulnerability of the project to risks of major accidents and / or disasters that are relevant to the project concerned".*

The information relevant to major accidents and/or disasters to be included in the EIAR is set out in Section 8 of Annex IV of the EIA Directive as follows: -

> *"(8) A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies."*

17.2.1.2 Guidance Documents

A number of guidance documents and published plans have been reviewed and considered in order to inform this assessment, as described in the following sections.

- European Commission – Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (2017).
- Draft Environmental Protection Agency Guidelines (2017).
- Guidance on Assessing and Costing Environmental Liabilities (2014).
- A Framework for Major Emergency Management Guidance Document 1-A Guide to Risk Assessment in Major Emergency Management (2010).
- A National Risk Assessment for Ireland (2017).
- A Guide to Risk Assessment in Major Emergency Management (2010).

17.3 Receiving Environment

The subject site represents the next phase of a plan led phased development in this part of Portmarnock. It is located in an area identified for development under the Portmarnock South Local Area Plan, 2013 (as Extended) (LAP). The site is located in the townlands of Portmarnock and Maynetown, Portmarnock, Co. Dublin. The LAP lands are generally bounded by Station road to the north, Coast Road and the Baldoyle Road to the east, Moyne Road to the south and the Dublin – Belfast Train Line to the west.

The gross area of the application site in this case is approximately 11.05 Ha. The extent of the subject site for the 172no. proposed housing units is generally bounded by the permitted Phase 1C (ABP Ref. ABP-305619-19 refers) existing townland boundary hedgerow and agricultural land to the south, Moyne Road to the south and St. Marnock's Bay Development (referred to as Phase 1A), and Portmarnock Rail Station to the west.

The application site is zoned for Objective RA which is to *"provide for new residential communities in accordance with approved local area plans and subject to the provision of the necessary social and physical infrastructure".* Residential use is acceptable in principal.

A range of amenities including a supermarkets, restaurants, pharmacies, sports facilities and recreational facilities are within walking distance in Portmarnock Village (c. 850m northeast). Childcare facilities, restaurants and a bed and breakfast are located to the north of the site. Portmarnock Beach lies c. 2 km to east of the site.

The lands are serviced by a frequent, high quality train service, The DART line which connects Portmarnock to the city centre and South Dublin. The area is also serviced by 4no. bus routes.

The site is not within an Architectural Conservation Area (ACA), zone of archaeological interest and does not contain any Protected Structures or Sites of Archaeological Interest.

17.4 Characteristics of the Proposed Development

The Proposed Development(Phase 1D) will generally comprise: -

- 172no. residential units consisting of 22no. duplex / apartments and 150no. houses ranging in heights between 1.5 and 3 storeys.
- Provision of public open space including Skylark Park, extension to Railway Linear Park and extension of Townland Boundary Linear Parks.
- Vehicular access to serve the development is proposed off the existing / under construction access points on roads serving the St. Marnock's Bay development.
- A new vehicular road is proposed to serve the Proposed Development which will connect with Moyne Road. The permanent road includes the provision of a new junction with Moyne Road and associated ancillary works including SuDs features to control surface water run-off.
- Upgrade of existing temporary foul water pumping station and storage tank to increase capacity.
- All associated and ancillary site development, infrastructural, landscaping and boundary treatment works.

A full project description is provided in Chapter 3: Description of Proposed Development.

17.5 Potential Impact of the Proposed Development

17.5.1 Proposed Development

As discussed above, the scope and methodology of this assessment is centred on the understanding that the Proposed Development would be designed, built and operated in line with best international current practice and, as such, the vulnerability of the Proposed Development to risks of major accidents and / or disasters is considered low.

Current EIA practice already includes an assessment of some potential accidents and disaster scenarios such as pollution incidents to ground and watercourses as well as assessment of flooding events. These are described in detail in the relevant EIAR assessment Chapters (refer to Chapter 8: Water and Chapter 7: Land, Soil and Geology for further detail).

17.5.1.1 Site Specific Risk Assessment

A site-specific risk assessment identifies and quantifies risks focusing on: unplanned, but possible and plausible events occurring during the construction and operation of the Proposed Development. The approach to identifying and quantifying risks associated with the Proposed Development by means of a site-specific risk assessment is derived from the EPA guidance.

The criteria for categorising impact is derived from the DoEHLG guidance (Refer to below tables). The following steps were undertaken as part of the site-specific risk assessment: -

- Risk identification.
- Risk classification, likelihood and consequence.
- Risk evaluation.

Risk Identification

The identification of plausible risks has been carried out in consultation with relevant specialists. A Risk Register which was prepared during the design of the Proposed Development was also reviewed in order to inform the identification of risks for this assessment. The identification of risks has focused on non-standard but plausible incidents that could occur at the Proposed Development during the Construction and Operation.

In accordance with the European Commission Guidance risks are identified in respect of the developments: -

1) Potential vulnerability to disaster risks.

2) Potential to cause accidents and / or disasters.

Risk Classification

Having identified the potential risks, the likelihood of occurrence of each risk has been assessed. An analysis of safety procedures and proposed environmental controls was considered when estimating likelihood of identified potential risks occurring. Table 17.1 defines the likelihood ratings that have been applied.

The approach adopted has assumed a 'risk likelihood' where one or more aspects of the likelihood description are met, i.e. any risk to the Proposed Development less than extremely unlikely to occur has been excluded from the assessment. The likelihood rating assigned to each risk has assumed that all proposed mitigation measures and/or safety procedures are in place and have succeeded in reducing or preventing the major accident and/or disaster occurring.

Rating	Classification	Effect Description
1	Extremely Unlikely	May occur only in exceptional circumstances; once every 500 or more years.
2	Very Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or very few incidents in associated organisations, facilities or communicates; and / or little opportunity, reason or means to occur. May occur once every 100-500 years.
3	Unlikely	May occur at some time; and /or few, infrequent, random recorded incidents or little anecdotal evidence; some incidents in associated or comparable organisations worldwide; some opportunity, reason or means to occur; May occur once per 10-100 years.
4	Likely	Likely to or may occur; regular recorded incidents and strong anecdotal evidence and will probably occur once per 1-10 years.
5	Very Likely	Very likely to occur; high level of recorded incidents and/or strong anecdotal evidence. Will probably occur more than once a year.

Table 17.1: Risk Classification Table – Likelihood.

Classification of Consequence

The consequence rating assigned to each risk has assumed that all proposed mitigation measures and / or safety procedures have failed to prevent the major accident and / or disaster occurring. The consequence of the impact if the event occurs has been assigned as described in Table 17.2.

The consequence of a risk to the Proposed Development has been determined where one or more aspects of the consequence description are met, i.e. risks that have no consequence have been excluded from the assessment.

Ranking	Consequence	Impact	Description
1	Minor	Life, Health, Welfare Environment Infrastructure Social	Small number of people affected; no fatalities and small number of minor injuries with first aid treatment. No contamination, localised effects <€0.5M. Minor localised disruption to community services or infrastructure (<6 hours).
2	Limited	Life, Health, Welfare Environment Infrastructure Social	Single fatality; limited number of people affected; a few serious injuries with hospitalisation and medical treatment required. Localised displacement of a small number of people for 6-24 hours. Personal support satisfied through local arrangements. Simple contamination, localised effects of short duration €0.5-3M Normal community functioning with some inconvenience.
3	Serious	Life, Health, Welfare Environment Infrastructure Social	Significant number of people in affected area impacted with multiple fatalities (<5), multiple serious or extensive injuries (20), significant hospitalisation. Large number of people displaced for 6-24 hours or possibly beyond; up to 500 evacuated. External resources required for personal support. Simple contamination, widespread effects or extended duration. €3-10M. Community only partially functioning, some services available.
4	Very Serious	Life, Health, Welfare Environment Infrastructure Social	5 to 50 fatalities, up to 100 serious injuries, up to 2000 evacuated. Heavy contamination, localised effects or extended duration €10-25M. Community functioning poorly, minimal services available.
5	Catastrophic	Life, Health, Welfare Environment Infrastructure Social	Large numbers of people impacted with significant numbers of fatalities (>50), injuries in the hundreds, more than 2000 evacuated. Very heavy contamination, widespread effects of extended duration >€25M. Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.

Table 17.2: Risk Classification Table – Likelihood.

Risk Evaluation

In accordance with the DoEHLG 2010 Guidelines, the evaluated major accidents and natural disasters (MANDs) will be subject to a risk matrix to determine the level of significance of each risk for each scenario. These have been grouped according to 3 categories: -

- **High Risk**

  Scenarios that have an evaluation score of 12 – 25, as indicated by the Red Zones in Table 17.3.

- **Medium Risk**

  Scenarios that have an evaluation score of 8 – 11 as indicated by the Amber Zone in Table 17.3.

- **Low Risk**

  Scenarios that have an evaluation score 1 – 7, of as indicated by the Green Zones in Table 17.3.

Likelihood	5 – V. Likely					
	4 – Likely					
	3 – Unlikely					
	2 – V. Unlikely					
	Ext. Unlikely					
		1 Minor	2 – Limited	3 Serious	4 – V. Serious	5 – Catastrophic
	Consequence of Impact					

Table 17.3: Levels of Significance.

Significant effects resulting from MANDs are adverse effects that are described as 'Significant', 'Very Significant' or 'Profound' under the Draft EPA Guidelines (2017) and Volume 2, Section 2: The EIA Process of this report. Consequently, MANDs that fall within Amber or Red Zones ('Medium' or 'High' Risk Scenarios) are brought forward for further consideration and assessment for further mitigation.

17.5.1.2 Construction Phase

Risk ID	Potential Risk	Possible Cause	Requirement for Further Assessment?
Potential Vulnerability to Accidents and / or Disasters			
A	Flooding of site.	Extreme weather – periods of heavy rainfall, taking into account climate change, strong winds and tidal events.	No. The site is not at risk of flooding. The Proposed Development will have no impact on floodplain storage and conveyance and will also not increase flood risk off site during construction. Earthworks operations shall be carried out such that surfaces shall be designed with adequate falls, profiling and drainage to promote safe run-off and prevent ponding and flooding. Refer to the findings of the Flood Risk Assessment, prepared by JB Barry & Partners Consulting Engineers for further detail relating to the Proposed Development.

Potential to Cause Major Accidents and / or Disasters			
B	Fire / Explosion.	• Damage to unmapped services / utilities during earth works. • Vehicle and vehicle collision.	No. The Construction Phase of the Proposed Development will be carried out in accordance with all relevant health and safety guidance and legislation, as well as the provisions of the Construction & Environmental Management Plan (CEMP), prepared by Quintain Developments Ireland Limited.
C	Unplanned outages / disruption to services.	Damage to unmapped services / utilities during earth works.	No. Disruption to services not considered to constitute a 'major accident or disaster' for the purposes of this assessment.
D	Road traffic accidents resulting from construction phase traffic or temporary construction traffic management measures.	• Driver error. • Object on road. • Failure of vehicle control systems. • Public confusion.	No. The Construction Phase of the Proposed Development will be carried out in accordance with all relevant health and safety guidance and legislation, as well as the provisions of the CEMP, prepared by Quintain Developments Ireland Limited.
E	Contamination of the groundwater / surface water.	Construction phase spills or leakages.	No. The Construction Phase of the Proposed Development will be carried out in accordance with construction best-practise and provisions of the CEMP, prepared by Quintain Developments Ireland Limited.
Risk ID	**Potential Risk**	**Possible Cause**	**Requirement for Further Assessment?**
F	Falling debris from construction vehicles / cranes or cranes striking rail overhead cables or poles.	• Inadequate securing. • Overloading of vehicles.	No. The Construction Phase of the Proposed Development will be carried out in accordance with construction best-practise and provisions of the CEMP, prepared by Quintain Developments Ireland Limited.
G	Release of asbestos fibres to atmosphere or surface water.	• Inadequate handling and removal of Asbestos Containing Materials (ACMs). • Removal of un-surveyed ACM.	No. No demolition of structures containing asbestos is proposed as part of this development. The Construction Phase of the Proposed Development will be carried out in accordance with construction best-practise and provisions of the CEMP, prepared by Quintain Developments Ireland Limited.

Table 17.4: Risk Register – Construction Phase.

None of the potential Construction Phase risks considered have been identified as requiring further assessment.

17.5.1.3 Operational Phase

Risk ID	Potential Risk	Possible Cause	Requirement for Further Assessment?
Potential Vulnerability to Disaster Risks			
H	Flooding of site.	Extreme weather – periods of heavy rainfall, taking into account climate change, strong winds and tidal events.	No. The site is not at risk of flooding. The Proposed Development will have no impact on floodplain storage and conveyance. The likelihood of flooding is further minimised with adequate sizing of the on-site surface network and SuDS measures. Finished floor levels of the residential units are at minimum +8.75mOD to +14.9mOD (significantly above the recommended minimum finished floor levels of +4.73mOD. Refer to findings of the Flood Risk Assessment, prepared by JB Barry & Partners Consulting Engineers for the proposed development.
I	Incident at nearby SEVESO site resulting in off-site environmental impact.	• Fire / Explosion. • Equipment / Infrastructure failure.	No. A "consultation distance" is very broadly defined under Regulation 2 of the COMAH Regulations as *"a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment. The consultation distance for some types of COMAH facility ranges from 300m for establishments where the risk is from flammable non-pressurised materials, to 1 km for establishments where chemical processing involving flammable or toxic substances takes place, to 2km for establishments with bulk storage of pressurised or toxic substances, triggering an obligation on the Planning Authority to notify the HSA."* The consultation distance is included in *italics* after each listed SEVESO site. **Upper Tier Sites in Proximity: -** • Barclay Chemicals Manufacturing Ltd, T/A Barclay Corp Protection, Damastown Industrial Park, Mulhuddart, Dublin 15 *(1,000m from perimeter)* – c. 17.9 km from the Proposed Development. • Chemco (Ire) Ltd. T/A Macetown North, Damastown Industrial Estates, Mulhuddart, Dublin 15 *(700m from perimeter)* – c. 17.2 km from the Proposed Development. • Contract & General Warehousing Ltd. Westpoint Business Park, Navan Road, Mulhuddart, Dublin 15 *(700m from perimeter)* – c. 18.6 km from the Proposed Development. • Mallinckrodt Medical Imaging- Ireland T/A Convidien Damastown, Mulhuddart *(1,000m from perimeter)* – c. 15.7 km from the Proposed Development. **Lower Tier Sites in proximity:-** • Astellas Ireland Co., Ltd Damastown, Mulhuddart *(1,000m from perimeter)* – c. 18.2 km from the Proposed Development.

Risk ID	Potential Risk	Possible Cause	Requirement for Further Assessment?
			• Clarochem Ireland Ltd., (formally Helsinn) Damastown, Mulhuddart *(1,000m from perimeter)* - c. 18.5 km from the Proposed Development. • Gensys Power Ltd., T/S Huntstown Power Station, Hunstown Quarry, Finglas, D11 *(300m from perimeter)* – c. 12km from the Proposed Development. • Swords Laboratories, Watery Lane, Swords (1,000m from perimeter) – c. 7.5 km from t the Proposed Development. As can been seen from the list above, here are no COMAH sites within c. 18km of the Site.
Potential to Cause Accidents and / or Disasters			
J	Fire / Explosion.	• Equipment or infrastructure failure. • Act of terrorism. • Electrical problems.	No. The Proposed Development will be designed, built and operated in line with best international current practice, and will be compliant with all relevant Health and Safety and Fire regulation and guidance.
K	Collision of Aircraft.	• Failure of air traffic control systems. • Act of terrorism.	Yes.
M	Vehicle collisions on site.	• Public negligence. • Failure of vehicular operations.	No. The internal road network and car parking areas have been subject to a Road Safety Audit. Private car use is also minimised by a reduced car parking provision and ready access to high quality public transport. Further, individual accidents / incidents are not considered to constitute a 'major accident / disaster' for the purposes of this assessment.
N	Incident at nearby Portmarnock Train Station.	• Act of terrorism. • Explosion / Fire.	Yes.

Table 17.5: Risk Register – Operational Phase.

The potential Operational Phase risks identified for further assessment is **K** 'Collision of Aircraft' and **J** 'Incident at nearby Portmarnock Train Station'.

17.5.1.4 Risk Assessment

Risk ID	Potential Risk	Possible cause	Environmental Effect	Likelihood Rating	Consequence Rating	Risk Score (Consequence x Likelihood)
K	Collision of Aircraft.	• Failure of air traffic control systems. • Act of terrorism.	• Illness, injury or death • Air quality effects	1	5	5
Basis of Likelihood: A scenario where there is a failure of air traffic control systems or collision when approaching Dublin Airport is 'extremely unlikely risk', in that it may only occur in exceptional circumstances. The Irish Aviation Authority and Dublin Airport Authority are identified as a Prescribed Bodies as part of the An Bord Pleanála Opinion and will comment as required. This dialogue will continue prior to Construction and Operation Phase of the Proposed Development. Collision resulting from a potential act of terrorism is an 'extremely unlikely' scenario. **Basis of Consequence:** Should the collision of an aircraft occur on flight path to Dublin Airport and the aircraft comes down over the Proposed Development, a 'catastrophic' consequence is predicted. This is on the basis that a 'large numbers of people' would be impacted with 'significant numbers of fatalities (>50)'.						
N	Incident on Train at Portmarnock Train Station	• Fire / explosion. • Act of terrorism .	• Illness, injury or death • Air quality effects	1	5	5
Basis of Likelihood: Whilst the *National Risk Assessment 2019* has identified the risk to Ireland from both domestic and international terrorism, such an incident is considered 'very unlikely' in that there are no similar 'recorded incidents or anecdotal evidence' of an attack of this magnitude in Ireland. The location of the station is not within the city centre and therefore makes location less of a potential target. **Basis of Consequence:** Such an attack in Ireland could have significant impact in terms of public safety and security in the short term. Likewise, a breakdown in international peace and security arising from inter-state wars or other armed conflicts could have significant repercussions for Ireland and the EU, including potential impacts on energy supplies, transport routes or the environment**.** Thus, a 'very serious' consequence is identified in that such an even would result in numerous injuries and possibly fatalities, and there would be 'localised effects for an extended duration.'						

Table 17.6: Risk Assessment – Operational Phase.

This risk assessment in Table 17.6 categorises each of the potential risks by their 'risk score'. A corresponding risk matrix is provided in Table 17.7 which is colour coded in order to provide an indication of the critical nature of each risk. As outlined in Section 17.5.1.1, the red zone represents 'high risk scenarios', the amber zone represents 'medium risk scenarios' and the green zone represents 'low risk scenarios'.

Likelihood	5 – V. Likely					
	4 – Likely					
	3 – Unlikely					
	2 – V. Unlikely					
	1 – Ext. Unlikely					
		1 – Minor	2 – Limited	3 – Serious	4 – V. Serious	5 – Catastrophic
	Consequence of Impact					

Table 17.7: Levels of Significance.

17.5.1.5 Do-Nothing Impact

In the event that the Proposed Development does not proceed, the site would remain in its current undeveloped, greenfield state. In absence of an increased number of people residing, working or visiting the site, there would be no increase in the risk of major accidents occurring due to human interaction, should a disaster take place.

17.5.1.6 Construction Phase

None of the potential risks to be noted during the Construction Phase were identified as requiring further assessment.

17.5.1.7 Operational Phase

From examining the plausible risks presented in Table 17.6, the scenario with the highest risk score in terms of a major accident and / or disaster was identified as being 'Collision of Aircraft' or 'Incident on Trian at Portmarnock Train Station'.

These risks were both given a score of 5, indicating a scenario that is **'extremely unlikely'** to occur, but which would have **'catastrophic'** consequences should it do so. According to the risk matrix in Table 17.7, this indicates a **'low risk scenario'**.

The Global Terrorism Index (GTI) is a comprehensive study analysing the impact of terrorism for 163no. countries and which covers 99.7 per cent of the world's population. In 2018, Ireland ranked as the 65th country most impacted by terrorism of the 163no. countries. Whilst the National Risk Assessment 2019 has identified the risk to Ireland from both domestic and international terrorism, there are no similar 'recorded incidents or anecdotal evidence' of attacks of this magnitude in Ireland.

17.5.2 Cumulative

As outlined in sections 17.5.1.6 and 17.5.1.7 above, no likely risks of a major accident / disaster occurring are identified during the Construction Phase. A medium risk of major accident / disaster in respect of the Proposed Development during the Operational Phase. No cumulative effects are identified.

17.5.2.1 Construction Phase

The potential risk during the Construction Phase of the Proposed Development is the same as described under 17.5.1.6.

17.5.2.2 Operational Phase

The potential risk during the Operational Phase of the Proposed Development is the same as described under 17.5.1.6.

17.5.2.3 Do-Nothing Impact

The 'do-noting' impact of the Proposed Development will be the same as described under 17.5.1.5.

17.6 Mitigation Measures (Ameliorative, Remedial or Reductive Measures)

17.6.1 Rating of Major Accidents and Disasters Without Mitigation

17.6.1.1 Construction Phase

The mitigation measures relevant to each environmental factor outlined in chapters 5 – 17 of the EIAR, as well as the CEMP, will be implemented during the Construction Phase of the development and will collectively mitigate the risk of major accidents and disasters during this time.

The Construction Phase of the Proposed Development will be carried out in accordance with best practice site management measures relating to health and safety and emergency response. These measures are described in the CEMP.

17.6.1.2 Operational Phase

No mitigation or monitoring measures are proposed specific to reducing the risk of major accident / disaster during operation.

17.7 Residual Impact of the Proposed Development

The risk of a major accident and / or disaster during the Construction Phase of the Proposed Development is considered low.

The risk of a major accident and / or disaster during the Operational Phase of the Proposed Development is considered medium.

17.8 Monitoring

No monitoring associated with risks of major accidents and / or disaster is proposed during Construction or Operational Phases.

17.9 Reinstatement

No reinstatement measures are necessary during the Construction or Operational Phases of this development.

17.10 Difficulties Encountered

No difficulties were encountered during the assessment process.