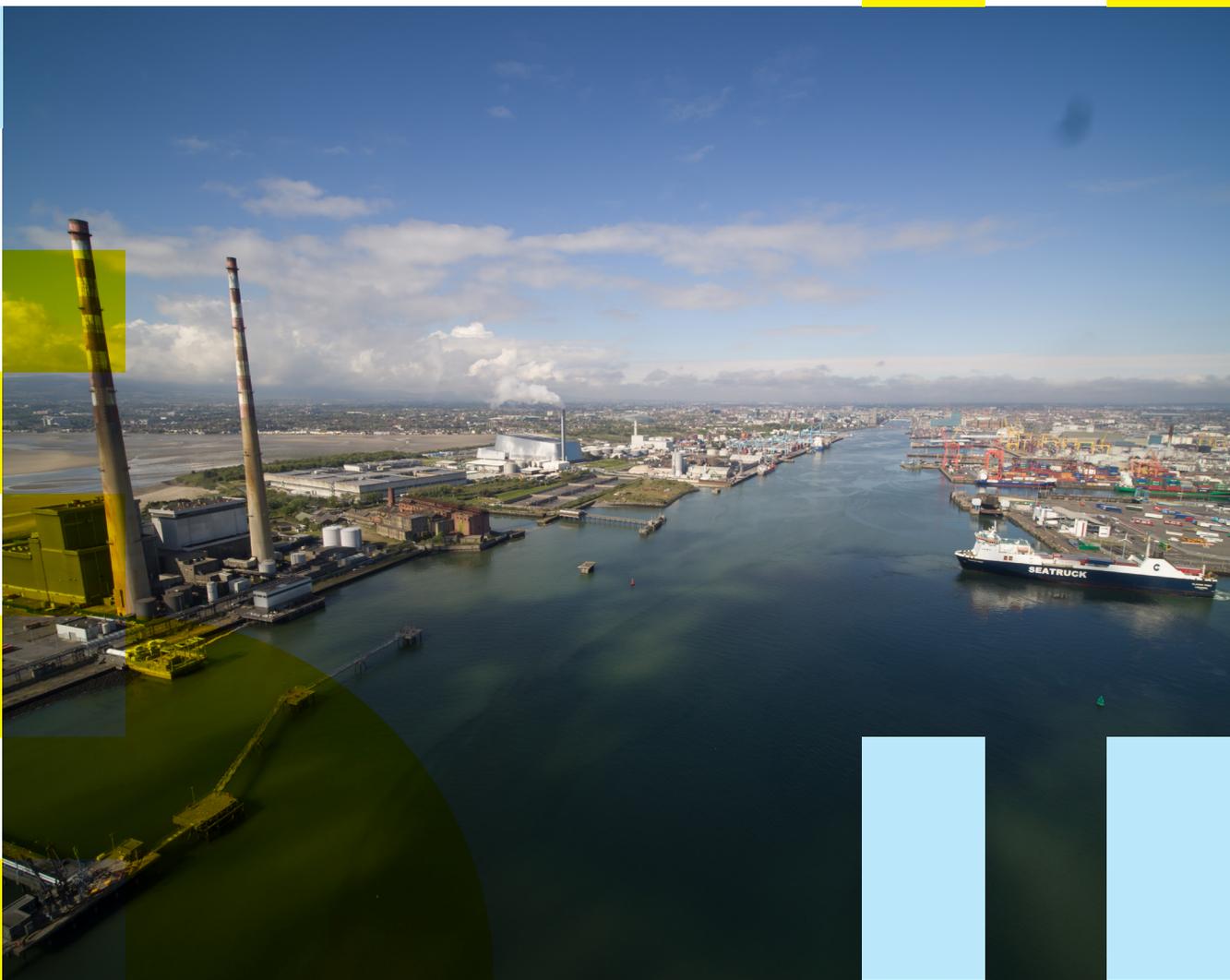


Environmental Impact Assessment Report

Chapter 6

Risk of Major Accidents and Disasters

Volume 2 Part 1



6 RISK OF MAJOR ACCIDENTS & DISASTERS

6.1 Introduction

This chapter of the EIAR describes the assessment undertaken of the potential individual and societal risk relevant to the 3FM Project. It also describes other events (natural and other external events) that could contribute to, cause, or exacerbate a major accident at an establishment covered by the Chemicals Act (Control of Major Accident Hazards) Regulations 2015 (S.I. 209/2015) (“COMAH Regulations”) within Dublin Port, or that could directly impact on the 3FM Project, as well as the potential for a major accident at the 3FM Project site to impact on the adjacent parts of Dublin Port and the COMAH establishments. In light of the nature of the activities that will take place at the 3FM Project site, and the nature of the surrounding environment, the most significant risks of major accidents and disasters are associated with the COMAH establishments and the ESB Poolbeg generating station (which does not qualify as a COMAH establishment).

The 3FM Project is within the vicinity of several establishments that fall within the scope of the COMAH Regulations, namely the National Oil Reserve Agency (NORA) petroleum product tank farms and the Dublin Bay Power establishments on the Poolbeg Peninsula.

Byrne Ó Cléirigh conducted a COMAH land use planning assessment for the 3FM Project, the purpose of which was to examine the development in the context of the Health and Safety Authority’s COMAH land use planning guidance, and to identify the types of development that may be compatible with the COMAH risk zones around the COMAH (and similar) establishments. Byrne Ó Cléirigh’s analysis was guided by an assessment of the likelihood of the occurrence of each perceived risk, supported by general and systemic risk assessments.

6.2 Context

6.2.1 COMAH Regulations

6.2.1.1 Overview

The COMAH Regulations have been made under the Chemicals Acts 2008 and 2010 to transpose Directive 2012/18/EU on the control of major accident hazards involving dangerous substances into Irish law. Directive 2012/18/EU superseded previous Council Directive 96/82/EC (“the SEVESO III Directive”). The purpose of the COMAH Regulations is to lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents when they occur, with the overall objective of providing a high level of protection in a consistent and effective manner.

The COMAH Regulations place an obligation on operators of establishments that store, handle, or process dangerous substances above certain thresholds to take all necessary measures to prevent major accidents and to limit the consequences for human health and the environment. Under the Regulations, an establishment may qualify as upper tier or lower tier, depending on the inventory of dangerous substances; sites that store,

handle, or process dangerous substances below a certain threshold do not qualify as establishments under the Regulations.

The types of dangerous substances that contribute to an establishment’s inventory include flammable substances (such as liquefied petroleum gas, gasoline/petrol, kerosene, and certain solvents), toxic substances, and substances that are hazardous to the aquatic environment. The types of establishments that may fall within the scope of the Regulations (depending on their inventories) include oil storage and distribution sites, LPG storage and distribution sites, pharmaceutical plants, and sites that manufacture and/or store certain types of fertiliser.

To assist the competent authorities in their consideration of the application for development consent in respect of the proposed development, a COMAH land use planning assessment of the development has been prepared in accordance with the HSA’s “Guidance on technical land-use planning advice” (2023) and is described in this chapter of the EIAR.

6.2.1.2 Establishments

The COMAH establishments within Dublin Port, south of the River Liffey, are listed in Table 6.1 and shown on the drawing in Appendix 6-1. All three establishments store petroleum products.

Table 6.1 COMAH Establishments in the vicinity of the 3FM Project¹

Establishment	Location	Tier	Activity	Consultation Distance
Synergen Power Ltd t/a ESB Dublin Bay Power	Pigeon House Road, Ringsend, Dublin 4	Lower	Oil storage (power generation)	300m
The National Oil Reserves Agency (NORA)	Shellybanks Road, Ringsend Dublin 4	Upper	Oil storage	300m
The National Oil Reserves Agency	Pigeon House Road, Ringsend, Dublin 4	Upper	Oil storage	300m

Note: The *Dublin City Development Plan 2022-2028* includes the consultation distances for the COMAH establishments.

The extent of the 3FM Project on the south side of Dublin Port is within the consultation distance of each of the three COMAH establishments in Table 6.1.

There are also six COMAH establishments on the north side of Dublin Port. Most of these establishments store petroleum products (four of the six establishments). Of the remaining two, one stores and distributes

¹ The HSA publishes details of upper tier and lower tier establishments on its website, www.hsa.ie.

LPG (Calor), and the other (Indaver) operates a hazardous waste facility. These establishments are listed in Table 6.2.

Table 6.2 COMAH Establishments in the vicinity of the 3FM Project²

Establishment	Location	Tier	Activity	Consultation Distance
Calor Teoranta	Tolka Quay Road, Dublin 1	Upper	LPG storage & distribution	600m
Circle K Ireland Holding Ltd	Promenade Road, Dublin Port, Dublin 3	Upper	Oil storage & distribution	400m & 300m
Indaver Ireland Ltd.	Tolka Quay Road, Dublin Port, Dublin 1	Upper	Hazardous waste	700m
Tedcastles Oil Products	Promenade Road, Parish of St. Thomas, Dublin Port, Dublin 1	Upper	Oil storage & distribution	400m
Valero Energy Ireland Ltd.	Alexandra Road, Dublin Port, Dublin 1	Upper	Oil storage & distribution	400m
Iarnród Éireann	Alexandra Road, North Wall, Dublin 1	Lower	Oil storage	300m

Note 1: The *Dublin City Development Plan 2022-2028* includes the consultation distances for the COMAH establishments.

Note 2: The HSA’s list of COMAH establishments and the Public Information notices under Regulation 25 (available on the HSA website) refer to the registered name of the operator as Iarnród Éireann.

The COMAH establishment on the north side of Dublin Port that is closest to the 3FM Project boundary is the Valero Energy Ireland Ltd. establishment on Alexandra Road. The oil storage tanks at this site (located close to its southern boundary) are approximately 500m from the northern boundary of the 3FM Project (Ro-Ro unaccompanied freight terminal), and therefore the 3FM Project lies outside the consultation distance (400m) for this establishment.

The COMAH establishments on the north side of Dublin Port with the largest consultation distances are the Calor Teoranta (600m) and Indaver Ireland Ltd. (700m) establishments. Both of these sites are located more than 1 km from the northern boundary of the 3FM Project.

Given the distance of the 3FM Project to the establishments in the North Port, the potential impacts from a major accident at any of these COMAH establishments are not considered significant to the 3FM Project. Therefore, they have not been considered further in this assessment.

² The HSA publishes details of upper tier and lower tier establishments on its website, www.hsa.ie.

NORA Ringsend & Poolbeg Tank Farms

The NORA Ringsend Tank Farm comprises nine above ground oil storage tanks, along with a ship pipeline connection and a truck loading facility. The tank farm is divided into two bunded areas: the northern bund contains four tanks; the southern bund contains the remaining five tanks. A ship pipeline connects the facility to the quayside north of the site. The truck loading area is located in the south-east of the site. The site stores diesel, a class³ III petroleum product.

NORA's Poolbeg facility comprises seven above ground oil storage tanks and two marker dye tanks. There are six diesel (class III petroleum product) tanks and one kerosene tank (class II petroleum product):

- A single kerosene tank in the northeast bund
- Four diesel/gas oil tanks in the northwest bund
- Two marker dye tanks in the southern bund (south of the diesel / gas oil bund)

The Poolbeg tank farm is served by the existing jetty at the neighbouring ESB station and also has road loading facilities.

In addition, the ESB Poolbeg CCGT (combined-cycle gas turbine) power station is located to the west of NORA Poolbeg. This station is supplied by a natural gas pipeline via an AGI (above ground installation). The Poolbeg CCGT does not qualify as an establishment under the COMAH Regulations; however, as it includes an AGI and a natural gas pipeline the aboveground gas infrastructure (pipeline) has been included in this assessment in line with the HSA's guidance.

Dublin Bay Power

Synergen Power Ltd. (Dublin Bay Power) stores class III petroleum (gas oil) as a back-up fuel for the natural gas fired power plant. Dublin Bay Power is supplied by a natural gas pipeline via an AGI at the southeast corner of the site.

6.2.1.3 Land Use Planning

The EU's guidelines on Land Use Planning⁴ (LUP) describe the ideal LUP technical advice system:

"In principle all risk assessment methods without regard to individual applications have the same relevant elements; these are:

- definition of scope, objectives and risk criteria,
- description of the object or area of concern,
- identification of hazards,
- identification of vulnerable targets,

³ Petroleum products are classified as class I, class II or class III depending on their flash point (the minimum temperature at which a liquid, under specific test conditions, gives off sufficient flammable vapour to ignite momentarily on the application of an ignition source). Class I products include gasoline / petrol, class II products include kerosene, and class III products include diesel / gas oil.

⁴ *Land use Planning Guidelines in the Context of Directives 96/82/EC and 105/2003/EC*

- assumption of source terms or hazardous incidents,
- development of escalation scenarios,
- estimation of consequences,
- estimation of likelihood,
- presentation of resulting risk and comparison with established tolerability criteria,
- identification of mitigation measures, and
- acceptance of result, modification or abandoning.

Besides these elements a proper risk assessment should furthermore ensure:

- a level of detail proportional to the severity of consequences,
- the use of acknowledged methods (or it must be demonstrated that these are equivalent),
- reliability of data and relevant information, and
- transparency of the process.”

The HSA has set out its policy and approach to conducting land use planning assessments in its Guidance on technical land-use planning advice document.

6.2.1.4 Planning Permissions

COMAH Establishments

Table 6.3 summarises the recent planning history for the current and prospective COMAH establishments and identifies COMAH-related developments for which planning applications have been submitted, or where planning permission has been granted but which have not yet commenced or are not yet operational.

Table 6.3 Planning for COMAH establishments and generating stations

Establishment	Reference	Description	Status
Dublin Bay Power	3646/20	<p>Planning permission for development on a c.3.5ha site to the south of the existing Dublin Bay Power Station. The development will consist of a 30 MW capacity battery energy storage system (BESS) facility within a secured compound and will include the following elements:</p> <ul style="list-style-type: none"> • up to 11 battery container unit arrangements comprising: <ul style="list-style-type: none"> - 6 concrete plinths typically supporting battery containers, air conditioning unit, inverter unit, battery transformer unit and ring main unit (RMU) - 5 concrete plinths typically supporting battery containers, air conditioning unit, inverter unit, battery transformer unit and ring main unit (RMU) • a control building • industrial/electrical plant including a SCADA communications mast, a fenced transformer compound, VAR support unit on a concrete plinth, four lightning monopoles, a banded house transformer, cable trays and associated service connections, and pole mounted security cameras • removal of existing fencing and gates, and installation of various boundary and internal fencing and gates including palisade, chainlink and wall mounted blunt top railing and gates • ancillary site clearance and development works including provision of areas of hardstanding, internal access roads, onsite drainage and attenuation, temporary construction laydown areas • connections to site services networks including telecommunications, electrical, water supply, surface water drainage / attenuation, and ancillary cabling (these encompass connections within Dublin Bay Power Station) <p>Access will be from South Bank Road on the southern boundary and via the existing access to the east from Shellybanks Road. A minor part of the application – being a minor area of land identified for use as a temporary construction laydown area and for access, relates to development in the</p>	Final grant of permission on 6 th August 2021

Establishment	Reference	Description	Status
		<p>Poolbeg West Strategic Development Zone (SDZ). An Environmental Impact Assessment Report (EIAR) which complies with the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. 296 of 2018) will be submitted to the Planning Authority with the application. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application.</p>	
<p>Dublin Bay Power</p>	<p>3647/20</p>	<p>Planning permission for development on a c.6.1ha site to the south of the existing Dublin Bay Power Station. The development will consist of a 75MWe (electrical output) aero derivative gas fired turbine for the generation of electricity and will include the following elements:</p> <ul style="list-style-type: none"> • an aero derivative gas fired turbine module • ancillary buildings including a demineralised water forwarding pumps building, plant control module (PCM), compressed air and fire suppression building, control & instrumentation (C&I) communications module, welfare facilities building, electrical equipment module, fuel forwarding pumps building, gas reducing building, gas compressor building, and continuous emissions monitoring system (CEMS) hut. • industrial/electrical plant including a liquid fuel forwarding skid, lube oil skid, demineralised water tank, transformer compound, emergency diesel generator, fire ring main, banded liquid fuel tank, gas compressor cooler, gaseous fire suppression cabinet, fin fan coolers, water wash cart, water injection skid, circuit breaker and banded house transformer • removal of existing fencing and gates, and installation of various boundary and internal fencing and gates with different treatments including securi-mesh, palisade, chainlink, and wall mounted blunt top railing and gates • ancillary site clearance and development works including provision of areas of hardstanding and car parking, internal access roads, pipe bridges, onsite drainage, temporary construction laydown area 	<p>Final grant of permission on 6th August 2021</p>

Establishment	Reference	Description	Status
		<ul style="list-style-type: none"> connections to site services including telecommunications, gas, electrical, liquid fuel, water supply, surface water drainage, and wastewater (these encompass connections within Dublin Bay Power Station). <p>Liquid fuel connections are also proposed including into the NORA Ringsend site, and between the Dublin Bay Power Station fuel oil storage tanks and the NORA Ringsend site. Access will be via the two existing access points located on the southern boundary, from South Bank Road.</p> <p>A minor part of the application – being a minor area of land identified for use as a temporary construction laydown area and for the construction of connections to site services, relates to development in the Poolbeg West Strategic Development Zone (SDZ). The proposed development is for the purposes of an activity requiring a licence from the Environmental Protection Agency under the Industrial Emissions Directive.</p>	
ESB Poolbeg Generating Station	3624/20	<p>The development will consist of a 75 MWe (electrical output) aero derivative gas fired turbine for the generation of electricity and will include the following elements:</p> <ul style="list-style-type: none"> an aero derivative gas fired turbine module ancillary buildings including a gas compressor building, liquid fuel forwarding pumps building; fire-fighting pumps building; water treatment plant building, gas reducing building, continuous emissions monitoring (CEMS) hut, electrical equipment module, control & instrumentation (C&I) communications module, plant control module (PCM, welfare facilities building fire suppression and compressed air system building; industrial/ electrical plant including an emergency diesel generator, gas compressor cooler, de-mineralised water tank, spare parts storage container, bunded liquid fuel tank, raw / fire water tank, fire suppression cabinet, liquid fuel forwarding skid, water wash cart, lube oil skid, transformer compound, generator circuit breaker, fin fan coolers, water injection skid, bunded house transformer; 	Final grant of permission on 22 nd June 2021

Establishment	Reference	Description	Status
		<ul style="list-style-type: none"> • various boundary and internal fencing and gates with different treatments including securi-mesh, palisade, and chainlink; • ancillary site clearance and development works including provision of areas of hardstanding and car parking, internal access roads, pipe bridges, onsite drainage and attenuation, temporary construction laydown area; and connections to site services networks including: telecommunications, gas, liquid fuel, electrical, water supply, surface water drainage/attenuation, and wastewater. <p>The primary access will be via the existing Poolbeg Generating Station entrance at Pigeon House Road with a temporary construction access via the existing entrance off the road immediately south of the site. The proposed development is for the purposes of an activity requiring a licence from the Environmental Protection Agency under the Industrial Emissions Directive.</p>	
ESB Poolbeg Generating Station	3625/20	<p>Planning permission for development on a c.5.3ha site located within the existing Poolbeg Generating Station. The development will consist of:</p> <ul style="list-style-type: none"> • The demolition of three existing disused modern buildings. • Works including: <ul style="list-style-type: none"> - remediation and cladding of exposed northern façade of redundant former administration building - cladding of exposed western façade of turbine hall building on eastern boundary of the development site - ancillary site clearance, grading and surfacing • Construction and operation of a 75 MW capacity battery energy storage system (BESS) facility within a secured compound including the following elements: 	Final grant of permission on 22 nd June 2021

Establishment	Reference	Description	Status
		<ul style="list-style-type: none"> - Up to 24 battery container unit arrangements comprising 24 concrete plinths typically supporting battery containers, air conditioning (A/C) unit, inverter unit, battery transformer unit, and ring main unit (RMU) - a control building; - industrial/ electrical plant including three lightning monopoles, SCADA communication mast, VAR support unit on concrete plinth, two banded house transformers, spare parts storage container, fenced transformer compound, cable trays (and associated service connections), and pole mounted security cameras <ul style="list-style-type: none"> • Removal of existing fencing and gates, and installation of: various boundary and internal fencing and gates with different treatments including palisade and chainlink specification • Ancillary development works including provision of areas of hardstanding, internal access roads, onsite drainage and attenuation, temporary construction laydown areas; and connections to site services networks including: telecommunications, electrical, water supply, surface water drainage/ attenuation, and ancillary cabling. <p>The primary access will be via the existing Poolbeg Generating Station entrance at Pigeon House Road with a temporary construction access via the existing entrance off the road immediately south of the Poolbeg Generating Station.</p>	
Adjacent to Dublin Bay Power	PWSDZ3074/23	<p>The proposed development will consist of the following elements:</p> <ul style="list-style-type: none"> • Demolition of two storage buildings and demolition of four oil tanks within the banded area of the NORA Ringsend oil farm. • Construction/installation of an open cycle gas turbine (OCGT) generating unit and associated plant and equipment, comprising the following main components: <ul style="list-style-type: none"> - Gas turbine air intake - Generator enclosure 	Final grant of permission on 13 th February 2024

Establishment	Reference	Description	Status
		<ul style="list-style-type: none"> - Gas turbine enclosure including gas turbine auxiliaries and loading/ rotor turning area - Exhaust diffuser and 40m high exhaust stack - Gas turbine power control and electrical control & instrumentation(C&I) module - 10 fin fan coolers - Main transformer and bund and auxiliary transformer and bund - Demineralised water treatment plant & water tank, Water supply / gas supply rack and cable joint chamber (underground), and raw/fire water tank - Fuel oil forwarding pumps - Combined fire-fighting and demineralised water forwarding pumphouse - Emergency diesel generator (250 kWe) - Generator circuit breaker - Gas conditioning compound, which includes a gas compressor and auxiliaries building, gas compressor reducing building, gas compressor cooler, gas compressor blast wall, continuous emissions monitoring system (CEMS), 220 kV indoor switchgear building and bolted connections. - Hydrogen storage compound - Containerised office building & storage • Construction of bund wall between the proposed OCGT and NORA oil farm. • Connection to the existing gas above ground installation (AGI). • All associated works to facilitate the development e.g. temporary construction compound, security fencing and gates, baffle walls, underground cables, new lighting arrangement, lightning and telecommunication masts, parking and surface water drainage network. 	

Establishment	Reference	Description	Status
<p>ESB Poolbeg Generating Station</p>	<p>3137/23</p>	<p>The proposed development will consist of:</p> <ul style="list-style-type: none"> • Demolition of the existing Babcock Store building, hydrogen tank, temporary control building and water tank within the NORA bunded area. • Construction/installation of an open cycle gas turbine (OCGT) generating unit and associated plant and equipment, comprising the following main components: <ul style="list-style-type: none"> - Exhaust stack - Gas turbine air intake - Generator enclosure - Gas turbine enclosure including gas turbine auxiliaries and loading / rotor turning area - Exhaust diffuser - Gas turbine power control and electrical control & instrumentation (C&I) module - Nine fin fan coolers - Main transformer, including a bund and blast walls - Auxiliary transformer, including a bund and blast walls - Demineralised water treatment plant - Demineralised water tank - Raw/fire water tank - 8,000 m3 distillate fuel (secondary oil tank), including baffle walls surrounding the tank - Fuel oil forwarding pump - Fire fighting pumphouse - <1 MW thermal output emergency diesel generator 250 kWe 	<p>Final grant of permission on 11th December 2023</p>

Establishment	Reference	Description	Status
		<ul style="list-style-type: none"> - Generator circuit breaker - Two water (replacement) firewater tanks for NORA - 3-bay 220 kV indoor switchgear building - Gas conditioning compound, including a gas compressor and auxiliaries building, gas compressor reducing building and gas compressor cooler - Hydrogen storage compound - Continuous emissions monitoring system (CEMS) - CCGT stores building - Workshop, stores and administration building • Connection to the existing AGI • Connection to the national grid via the existing 220 kV Poolbeg Substation • All associated works to facilitate the development, e.g., temporary construction compound, perimeter fencing, blast and baffle walls, above-ground pipe racks, underground cables, a new lighting arrangement, lightning and telecommunication masts, parking and surface water drainage network including a new stormwater outfall. 	
Adjacent to NORA Ringsend	WEB1509/24	The development will consist of a 220kV underground cable measuring approximately 4.0m in length, from the Ringsend Open Cycle Gas Turbine (OCGT) plant permitted under application ref: PWSDZ3074/23 and the existing Irishtown 220kV substation, to facilitate electricity generated to be transferred to the national grid, and includes all associated works to facilitate the development.	Declared invalid
Adjacent to the National Oil Reserve Agency (NORA), Ringsend oil farm	WEB1558/24	PERMISSION The development will consist of a 220kV underground cable measuring approximately 4.0m in length, from the Ringsend Open Cycle Gas Turbine (OCGT) plant permitted under application ref: PWSDZ3074/23 and the existing Irishtown 220kV substation, to facilitate	Applied

Establishment	Reference	Description	Status
		electricity generated to be transferred to the national grid, and includes all associated works to facilitate the development.	
Poolbeg 220kV Electrical Substation and adjacent land, Pigeon House Road	4057/23	The development will consist of construction of a new 220kV gas insulated switchgear (GIS) Switchboard building measuring 65.2 x 51.8m and 17m high; construction of 2no. new shunt reactor units (each within a 4.3m x 8.2m x 5.5m enclosure) and 1no. new series reactor unit (within a 4.7m x 12.7m x 16.6m enclosure), associated connections to the 220kV GIS switchboard building and decommissioning and removal of 2no. existing shunt reactors; an extension of the existing internal access road around the new GIS switchgear building and 4no. car parking spaces; all ancillary and associated works to facilitate the development including removal of existing perimeter berm and new 2.6m high boundary fence around extended substation compound, perimeter planting, 3m high lightning protection to new GIS switchboard building, surface water drainage network including an attenuation pond, lighting and laying of 2 temporary cable circuits for the construction and commissioning period connection the existing AIS building to the new GIS switchboard building and all other associated site excavation, raising of site levels, infrastructural and site development works above and below ground. Planning permission is sought for a period of 10 years. A Natura Impact (NIS) will be submitted to the Planning Authority with the application.	Final grant of permission on 29 th November 2023 First party appeal submitted to ABP on 4 th January 2024

Poolbeg West Strategic Development Zone

In May 2016, the Irish Government designated Poolbeg West as a Strategic Development Zone (SDZ) through the Planning and Development Act 2000 (Designation Of Strategic Development Zone: Poolbeg West, Dublin City) Order 2016. The designated area is for a mixed-use development which principally includes:

- residential development
- commercial and employment activities including office, hotel, leisure and retail facilities
- port related activities
- provision of educational facilities, transport infrastructure, emergency services, and community facilities

The extent of the SDZ is shown in Figure 6.1.

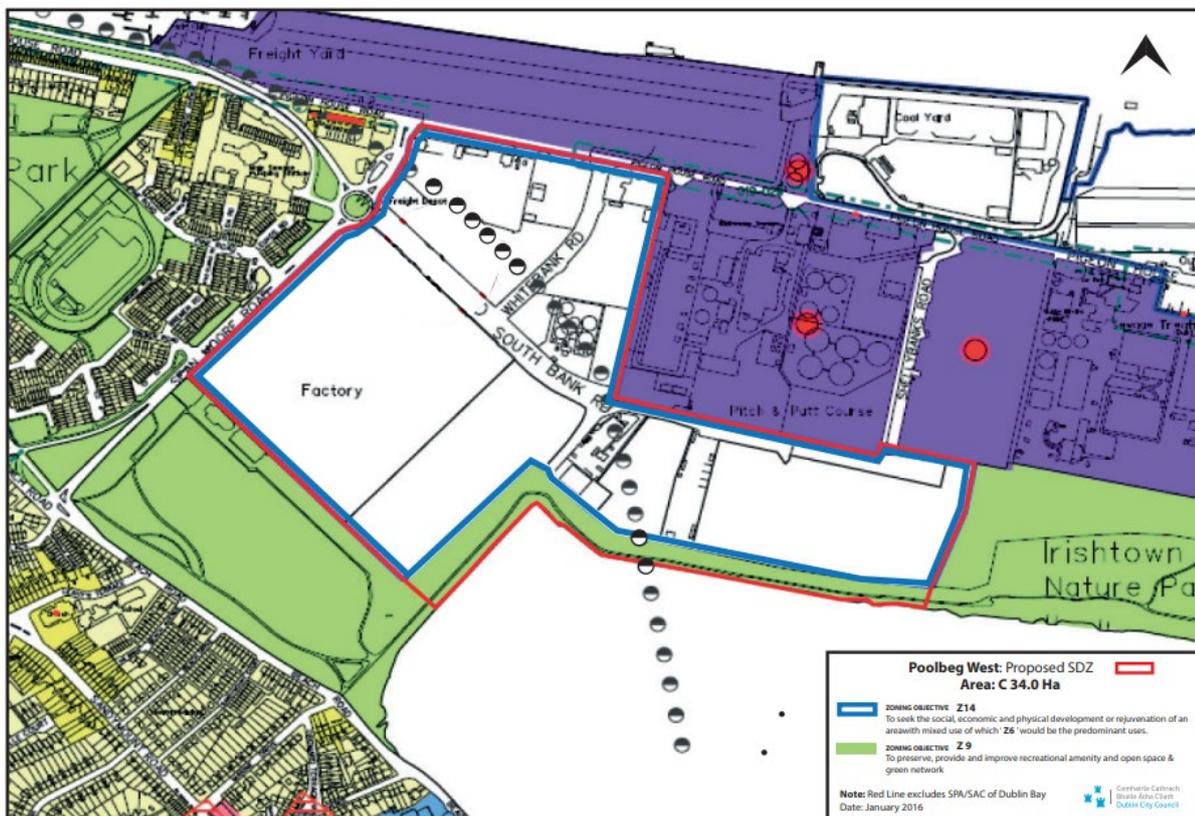


Figure 6.1 Poolbeg West SDZ

The planning scheme for this SDZ, together with modifications, was approved by An Bord Pleanála in April 2019. A summary of subsequent planning applications to Dublin City Council for developments within the SDZ, and changes to developments within the SDZ for which planning permission has been granted, is provided in Table 6.4.

Table 6.4 Summary of recent planning for Poolbeg West SDZ

Planning Reference	Registration Date	Description	Decision
PWSDZ3270/19	2019-11-25	The proposed development will consist of streets, transportation, water services and utilities infrastructure; public realm and public amenity spaces; and, temporary landscaping of a school site, to facilitate Phase 1 development as provided for under the approved <i>Poolbeg West SDZ Planning Scheme</i> .	Grant permission
PWSDZ3207/21	2022-01-28	<p>The proposed development will consist of amendments to Permission Register Reference PWSDZ3270/19 in those areas where the net site of 2.4ha overlaps with the boundaries of the earlier 4.3ha infrastructure permission.</p> <p>The proposed development will consist of the construction of a residential and mixed-use scheme, comprising four blocks to provide:</p> <ul style="list-style-type: none"> • 600 apartment units and associated residential amenity facilities (gym, lounge, meeting room, cinema room and other private amenities) • childcare facility (80 childcare places and outdoor play area) • café restaurant • two retail units • 166 car parking and 961 bicycle parking spaces • landscaped open spaces to comprise residential communal courtyards (incl. children's play areas), and roof terraces • three ESB substations 	Grant permission
PWSDZ3350/22	2022-02-23	Planning permission for the continuation of use of an existing concrete batching plant and associated facilities (previously granted under Reg Refs No 2482/19; 2209/13 & ABP Ref No PL29S.241965; 1420/04 & ABP Ref	Declared invalid

Planning Reference	Registration Date	Description	Decision
		No. PL29S.207144) for a temporary period of five years. The application site is located within the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme area.	
PWSDZ3469/22	2022-03-08	Planning permission for the continuation of use of an existing concrete batching plant and associated facilities (previously granted under Reg. Refs. No 2482/19; 2209/13 & ABP Ref. No PL29S.241965; 1420/04 & ABP Ref. No. PL29S.207144) for a temporary period of five years at South Bank Road, Irishtown, Dublin 4. The application is located within the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme area.	Grant permission
PWSDZ4121/21	2022-06-02	<p>The element of the scheme for which retention permission for development is sought consists of the removal of two sections of tree cover cumulatively, consisting of some 100 trees.</p> <p>The element of the scheme for which permission for development is sought will consist of amendments to the "Parent Permission" (PWSDZ3270/19) to temporarily provide three rows of tree cover and associated landscaping consisting of:</p> <ul style="list-style-type: none"> • 100 native trees; • native understory whip mix; • native wild flowers; • erection of rabbit-proof fencing; and • two maintenance access gates. 	Grant retention permission
PWSDZ4543/22	2022-07-25	Temporary permission for development (fewer than five years), to coincide with the duration of the Phase 1 Permission (7 May 2027, approximately), granted on 24 March 2022 (Reg. Ref. PWSDZ3207/21) to amend the Cultural Hub ("Meanwhile Uses") element of the Phase 1 Permission in order to facilitate the construction of an "Expanded Meanwhile Uses" facility.	Refused
PWSDZ3406/22	2022-12-06	Permission for development for a mixed use development (Referred to as Phase1B) on this site of 15.06ha including lands known as the former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4, focused	Grant permission

Planning Reference	Registration Date	Description	Decision
		<p>primarily, but not exclusively, on a net site area of 0.76ha (identified as within the A3 Lands) in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).</p> <p>The proposed Phase 1B development will consist of:</p> <ul style="list-style-type: none"> • 356 apartment units; • residential amenity facilities (to include a lounge, meeting area, and other private amenities); • retail space located on the ground floor; • 69 basement car parking spaces and 11 on-street car parking spaces; • 610 bicycle parking spaces; • plant rooms and resident storage spaces; • landscaped open spaces to comprise residential communal courtyards (incl. children’s play areas), and roof terraces; and • One ESB double substation and associated LV switch rooms. 	
PWSDZ4058/22	2023-04-03	<p>Permission for development for a mixed use development (Referred to as Phase 2) on this site of 15.06 hectares including lands known as the Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4, focused primarily on a net site area of 2.10 hectares (identified as within the A1 Lands) in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).</p>	Refused
PWSDZ4380/22	2023-04-14	<p>Development of an office and mixed-use scheme (Referred to as Phase A Commercial) on an infill site of c.15.08 hectares (with a net focused site area of c. 1.78 ha) of land within the former Irish Glass Bottle (IGB) and Fabrizia sites on Sean Moore Road, Dublin 4 (including some 198 sq metres of public domain on Southbank Road to accommodate vehicle and pedestrian access). The site is identified as within the A1 Lands in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).</p>	Refused

Planning Reference	Registration Date	Description	Decision
PWSDZ4217/23	2023-07-26	<p>Permission for development comprising modifications to a permitted mix-use scheme (referred to as phase 1B) at a site including lands known as the Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4. The site is identified as being within the A3 lands in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).</p>	Declared invalid
PWSDZ4341/23	2023-08-21	<p>Planning permission for development comprising modifications to a permitted mixed-use scheme (Referred to as Phase 1B) at a site including lands known as Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4. The site is identified as being within the A3 Lands in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).</p> <p>The proposed development consists of a change of plan and a change of unit types from that permitted under Dublin City Council Planning Reference PWSDZ3406/22. The proposed development will comprise a total of 324 no. residential units (as permitted).</p> <ul style="list-style-type: none"> The amendments related to the replacement of 8 no. 2 bed units with 8 no. 1 bed units resulting in an overall unit mix of 100 no. 1 beds, 166 no. 2 beds, and 58 no. 3 beds. These unit modifications are to facilitate the construction of additional stairs from the 10th to 17th storey within the permitted development to address fire safety requirements. The proposal will result in minor elevational changes. 	Grant permission
PWSDZ4276/23	2023-11-24	<p>Planning permission for development comprising modifications to a permitted mixed-use development (referred to as Phase 1 located at this site which is identified as being within the A3 lands in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019). The wider site also includes the lands known as the Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4. The amendments relate to the Block O tower of the development permitted under Dublin City Council Planning Reference PWSDZ3207/21 only. The proposed development consists of the following modifications:</p> <ul style="list-style-type: none"> 1. change of facade material from polished concrete to aluminium unitised panels on the permitted tower of Block O, 	Grant permission

Planning Reference	Registration Date	Description	Decision
		<ul style="list-style-type: none"> 2. partial reconfiguration of the basement and ground floor of block O to provide for additional residential amenity space, 3. alteration of the permitted entrance to Block O. 	
PWSDZ3074/23	2023-12-13	See Table 6.3.	Grant permission
PWSDZ3908/23	2023-12-18	Permission for development at existing molasses storage terminal at the Corner of South Bank Road and Whitebank Road, Ringsend, Dublin, D04 TC98. Site located in the Poolbeg West Strategic Development Zone. The development will consist of 6 no. additional liquid storage tanks, a loading gantry, 2 x 200mm fixed pipelines to extend from the subject site to the Liffey/port quay side and a new pipe bridge crossing the Pigeon House Road at ED&F Man Liquid Products Ireland Limited.	Grant permission ^{Note 1}
PWSDZ5054/23	2023-12-22	For the construction of a 6 storey structure to accommodate a multi-functional Community Hub and an Innovation Hub (12,556 sq m GFA) (referred to as Block P, accommodating community, innovation (office), leisure, cultural, artistic, café, educational, and library uses) on a site of 15.06 hectares (identified as 'Glass Bottle') including lands known as the Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4, focused primarily, but not exclusively, on a net site area of 0.4523 hectares in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).	Declared invalid
PWSDZ3062/24	2024-01-19	Pembroke Beach DAC intends to apply for permission for development for the construction of a 6 storey structure to accommodate a multi-functional Community Hub and an Innovation Hub (12,556 sqm GFA) (referred to as Block P, accommodating community, innovation (office), leisure, cultural, artistic, café, educational and library uses) on a site of 15.06 hectares (identified as 'Glass Bottle') including lands known as the Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4, focussed primarily, but not exclusively, on a net site area of 0.4523 hectares in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019). The overall site is bounded to the north-west by Sean Moore Road, to the north-east by South Bank Road, to the south-east by Dublin Port lands and Dublin Bay, and to the south-west by Sean Moore Park.	PWSDZ3062/24

Planning Reference	Registration Date	Description	Decision
		<p>The Block P structure is bounded to the north-west by the permitted Blocks O and M, to the north-east by the school site, to the south-east by the permitted Village Green and to the south-west by Clanna Gael Fontenoy CLG. The overall site subsumes the 4.3 hectare site of the Infrastructure Permission ('Parent Permission') (Reg. Ref. PWSDZ3270/19) for which Dublin City Council issued a Notification of Final Decision (10-year permission) on 28 January 2020. The infrastructure Permission (Reg. Ref. PWSDZ3270/19) permits: streets, transportation, water services and utilities infrastructure; public realm and public amenity spaces (including the Village Green and a Dog Park); and temporary landscaping of a school site, all to facilitate Phase 1 development as provided for under the approved Poolbeg West SDZ Planning Scheme.</p> <p>The proposed Block P development will consist of:</p> <ul style="list-style-type: none"> • Amendment of Permission Register Reference PWSDZ3270/19 in those areas where the net site of 0.4523 hectares overlaps with the boundaries of the earlier 4.3 hectare Infrastructure Permission (Reg. Ref. PWSDZ3270/19) to facilitate amendments to materials, urban tree locations and landscaping, and to facilitate the change in levels between the western edge of the permitted Village Green and the proposed Block P together with public realm and public amenity space; • Amendment of Permission Register Reference PWSDZ3207/21 at the permitted local street (side street) identified as Holbrook Street where the net site area of 0.4523 hectares overlaps with the boundaries of the earlier 4.46 hectares' focussed site area of the Phase 1 Permission (Reg. Ref. PWSDZ3207/21) to facilitate the provision of on-street bicycle parking; and • the construction of a multi-functional Community Hub and an Innovation Hub (12,556 sqm GFA) comprising a single 6-storey Block (with set-backs at Levels 3, 4 and 5 including set-back accessible roof terraces at 5th floor level, roof amenity space (including an enclosed basketball court) and roof level plant) to provide: community and educational uses (2,863 sqm GFA); a Community/Innovation Centre (including café) (1,785 sqm GFA), cultural uses (678 sqm GFA) including (20 No. Artists' Studios (13 No. individual Artists' Studios and 7 No.-equivalent Shared Artists' Studio/Exhibition Space)); Innovation Hub (office) (7,058 sqm GFA) (including bike storage and changing facilities); and ancillary back-of-house 	

Planning Reference	Registration Date	Description	Decision
		<p>spaces/facilities (172 sq m) including ESB substation and associated MV switchroom, tenant landlord switchroom, transformer room and telecom room; and bin stores).</p> <p>The proposed Block P development will also consist of:</p> <ul style="list-style-type: none"> the provision of 5 No. new on-street car parking spaces (incl. 2 No. Accessible car parking spaces) and 1 No. on-street loading/taxi bay; Provision of 219 No. bicycle parking spaces (147 No. long-stay standard bicycle parking spaces located at the Innovation Hub Bike Store; 70 No. short-stay standard bicycle parking spaces located on-street at surface level; and 2 No. cargo bicycle parking spaces located at surface level). <p>Access and servicing of the proposed Block P development will be by way of the permitted Local Street (Side Street) identified on the emerging Masterplan as “Holbrook Street” (as included in the Permitted Phase 1 (Reg. Ref. PWSZ3207/21) and Phase 1B (Reg. Ref. PWSZ3406/22) Schemes) and by the Coastal Link to be delivered as part of this development between Holbrook Street and the Village Green (permitted under the ‘Parent Permission’ (Reg. Ref. PWSZ3270/19). The proposed development will also consist of the provision of:</p> <p>hard and soft landscaping incl. Coastal Link Planting, and roof terraces; publicly-accessible roof amenity space; a mural on the south-east elevation; pedestrian and cycle links; boundary treatments; tree removal and tree planting; interim site hoarding; public lighting; green and blue roofs; piped site wide services; and all ancillary works and services necessary to facilitate construction and operation. This application will be accompanied by a Natural Impact Statement (NIS).</p>	
PWSZ3461/24	2024-03-28	<p>For development, comprising modifications to a permitted mixed-use development (referred to as Phase 1). The subject lands include two sites of c. 678 sq m and c. 25 sq m (identified, respectively, on the Site Layout Plan) and are identified as being within the A3 Lands in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019). The wider site also includes the lands known as the Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4. The modifications relate to the roof levels of Block K and Block M, permitted under Dublin City Council Planning Reference PWSZ3207/21 (and amended through Planning Reference</p>	Grant permission

Planning Reference	Registration Date	Description	Decision
		PWSDZ4276/23). The proposed development consists of the installation of air source heat pump plant on the roof of Block K (max height c. 0.83 m above roof parapet level), associated flue at the roof of Block M (max height c. c 0.63 m above roof parapet level), ancillary louvre screening, and all other associated and ancillary works.	
PWSDZ3468/24	2024-03-28	Planning permission for development comprising modifications to a permitted mixed-use development (referred to as Phase 1) located at this site of c. 0.15 ha and is identified as being within the A3 Lands in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019). The wider site also includes the lands known as the Former Irish Glass Bottle & Fabrizia Sites, Poolbeg West, Dublin 4. The modifications relate to Block M and the street referred to in the Planning Scheme as the "Coastal Link", permitted under Dublin City Council Planning Reference PWSDZ3207/21 (and amended through Planning Reference PWSDZ4276/23). The proposed development consists of modifications to the permitted Coastal Link including omission of Condition 25(b) attached to the PWSDZ3207/21 Grant of Permission, which requires a 1 m wide paved verge to be included on both sides of the street, and landscape alterations. The proposed modifications also include a change of use of the Block M ground floor level bins store, fronting the Coastal Link, from a bins store to a management suite to accommodate the Scheme's management team.	Grant permission
WEB1509/24	2024-04-26	See Table 6.3	Declared invalid
WEB1558/24	2024-05-07	See Table 6.3	Grant permission
PWSDZ3700/24	2024-05-16	<p>Pembroke Beach DAC intends to apply for permission for development for a mixed used development (referred to as Phase 2) on this site of 15.06 hectares including lands known as the Former Irish Glass bottle & Fabrizia Sites, Poolbeg West, Dublin 4, focused primarily on a net site area of 1.99 hectares (identified as within the A1 Lands) in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).</p> <p>The proposed Phase 2 development will consist of: amendment to permission Register Reference PWSDZ3270/19 and PWSDZ3207/21 in those areas where the net site of 1.99 hectares overlaps with the boundaries to the earlier permitted developments (including amendment to the urban tree plant along the Sean</p>	PWSDZ3700/24

Planning Reference	Registration Date	Description	Decision
		<p>Moore Road interface & minor amendment to permitted public realm at the junction between Central Boulevard and South Bank Link Road) and the construction of a residential and mixed use scheme comprising an above ground gross floor area (GFA) of C. 48,648 sq.m., together with a basement/undercroft area of c. 10,654 sq.m., comprising 5 no. blocks (identified as blocks D1, D2, E1, E2, E2A) to provide: 502 no. apartment units and associated residential amenity facilities; a childcare facility; 3 no. Retail/ Food & Beverage units; 3 no. Retail Units, 2 no. Food/ beverage units; Health Facility; basement carparking; together with associated infrastructural works on the overall site. The proposed development will also include provision of the South Bank Link Road as identified in the SDZ Planning Scheme.</p> <p>Access and servicing of the proposed Phase 2 development will be by way of the central boulevard as permitted (subject to compliance with Condition No. 24e) in the Phase 1 planning permission (PWSDZ3207/21) which also amends the infrastructure permission (Parent Permission) (Reg. Ref. PWSDZ3270/19) amongst other things. An additional access for emergency vehicles only with retractable bollards will be provided at the junction of Bloom Street and Sean Moore Road.</p> <p>The proposed Phase 2 development will consist of :</p> <ul style="list-style-type: none"> • 5 no. Blocks (D1, D2, E1, E2, E2A) ranging in height between 6 and 7 storeys with 8 storey setback over basement/undercroft to provide 502 no. apartment units (with balconies/terraces to be provided on all elevations at all levels for each residential block), consisting of: 216 no. 1-bedroom units; 245 no. 2-bedroom units and 41 no. 3-bedroom units (for the avoidance of doubt, Section 11.5.1 of the Planning Scheme clarifies the description of 'height' in Figure 11.3 to be taken from the constructed ground floor level; references to 'basement' and 'undercroft', respectively, are interchangeable given the changes in level across the site); • The provision of c.740 sq.m. of residential amenity facilities within Block E1 (to include a tenant reception with admin support spaces, shared workspace, Residents Lounge, Events space, Library/ Film Room, Dining Kitchen & meeting room); 	

Planning Reference	Registration Date	Description	Decision
		<ul style="list-style-type: none"> • A childcare facility (c. 412 sq.m) located at the ground floor of block D1 providing c. 92 no. childcare places and an outdoor play area of c. 199 sq.m; • A health centre at ground floor of Block D1 (c. 202 sq.m.); • 3 no. retail/food and beverages spaces & 1 no. retail spaces located at the ground floor of Blocks D1, D2 (total GFA c. 1,153 sq. m); • 2 no. retail spaces and 2 no. food and beverage spaces located at the ground floor of Blocks E1, E2, E2A (total GFA c. 1,249 sq. m); • A total of 139 no. car parking spaces; 121 car parking spaces located at basement level (incl. 7 no. accessible spaces (2 of which are accessible/EV spaces) & 21 no EV spaces, 8 no. car share parking spaces (2 of which are car share/EV spaces), 4 no. crèche parking spaces, 4 no. health centre parking space & 4 no. retail parking spaces located at basement level with vehicular access from the street level (Block D1/D2 south eastern elevation); the provision of 18 no. on street car parking spaces (incl. 5 no. EV on-street car parking spaces and 7 no. accessible spaces) and 5 no. loading bays. (Note that 6 no. surface car parking spaces along South Bank Link Road will not be accessible until vehicular access from South Bank Road is provided at a future date); • Provision of 906 no. bicycle parking spaces; 816 no. long stay stand bicycle parking spaces located at basement level (incl. 6 no. crèche, 24 no. retail, 20. no. cargo spaces and 28 no. e-bike spaces); 90 no. short-stay standard bicycle parking spaces located at surface level (70 no. residential (incl. 10 no. cargo bike spaces), 20 no. non-residential); • Plant rooms, resident storage spaces, bin stores, bicycle stores, water storage, sprinkler rooms. laundry located at basement level; • Landscaped open spaces to comprise residential communal courtyards incl. children's play areas (Block D1/D2 c. 815 sq. m & Blocks E1/E2 c.992 sq.m.); amenity terraces at 8th storey level on Blocks D1/D2 (totalling c. 900 sq.m.); amenity terraces at 8th storey level on Blocks E1/E2/E2A (totalling c. 1,798 sq.m); 	

Planning Reference	Registration Date	Description	Decision
		<ul style="list-style-type: none"> • 2 no ESB sub stations located at the ground floor level of blocks D1/D2 (totally c.48 sq.m) and 4 no. ESB sub stations located at the ground floor level of blocks E1/E2/E2A (totalling c. 42 sq. m); • 3 no. LV switch rooms located at ground floor level of Blocks D1/D2 (c. 66 sq.m) and 4 no. LV switch rooms at ground floor level of blocks E1/E2/E2A (totalling c. 57 sq.m); • Communal commercial bin stores located at ground floor of Block D2 (c. 40 sq. m) and at ground floor level of Block E2 (c. 30 sq.m); • Bin store and health waste bin store located on ground floor of Block D1 associated with the proposed health centre; • Ancillary storage spaces located at ground floor of blocks D2, E2; • Provision of public realm spaces including a portion of Glass Bottle Square, streets and public amenity spaces; • One new local /side street (Market Street) connecting to the permitted Central Boulevard; • The provision of the South Bank Link Road as identified in the SDZ Planning Scheme. Note that the proposed South Bank Link Road will include temporary bollards and fencing to restrict access until such time that a future connection/tie into South Bank Road is proposed and delivered. <p>The proposed development will include hard and soft landscaping, pedestrian and cycle links, boundary treatments, tree planting, interim site hoarding, public lighting, green/blue roofs, commercial and residential waste & recycling facilities, piped site-wide services and all ancillary works and services necessary to facilitate construction and operation.</p> <p>This application will be accompanied by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS).</p>	
PWSDZ3791/24	2024-05-30	See Table 6.3	Applied

Planning Reference	Registration Date	Description	Decision
PWSDZ3798/24	2024-05-31	<p>Planning permission for development of an office and mixed-use scheme (Referred to as Phase A Commercial) on an infill site of c. 15.08 hectares (with a net focused site area of c. 1.75 ha) of land within the former Irish Glass Bottle (IGB) and Fabrizia sites on Sean Moore Road, Dublin 4 (including some 198 sq metres of public domain on Southbank Road to accommodate vehicle and pedestrian access). The site is identified as within the A1 Lands in the Poolbeg West Strategic Development Zone (SDZ) Planning Scheme (April 2019).</p> <p>The overall site is bounded to the north-west by Sean Moore Road, to the north-east by South Bank Road, to the south-east by Dublin Port lands and Dublin Bay, and to the south-west by Sean Moore Park. The overall site subsumes the 4.3 hectares site of the infrastructure permission (Parent Permission) (Reg. Ref. PWSDZ3270/19) for which Dublin City Council issued a Notification of Final Decision (10-year permission) on 28 January 2020, permitting: streets, transportation, water services and utilities’ infrastructure; public realm and public amenity spaces; and temporary landscaping of a school site, to facilitate Phase 1 development as provided for under the approved Poolbeg West SDZ Planning Scheme.</p> <p>The proposed development will consist of an office and mixed-use scheme with a total GFA of 46,101 sq m (excl. basement / undercroft UC-02) comprising 2 No. blocks (identified as Blocks A and B).</p> <p>The proposed development will consist of: Block A (includes Block AA & AB) of 26,254 sq m and ranging in height from 5-7 storeys over basement/undercroft carparking to include double height (UC-01 & 00 Level) ground floor reception, office, a restaurant/ bar, bakery/ café and event space with the upper floors to be used as offices. The offices have been designed to be suitable for a single user or multiple users with subdivisions. Block B of 19,847 sq m, and ranging in height from 5-12 storeys over basement/undercroft car parking to include double height (UC-01 & 00 Level) ground floor reception, games bar and office with the upper floors to be used as offices. The offices have been designed to be suitable for a single user or multiple users with subdivisions.</p> <p>The UC-01 level of Block A includes café, sports and recreation area, collaborative office, storage and building services.</p> <p>The UC-01 level of Block B includes a collaborative office, management facilities and building services.</p>	Applied

Planning Reference	Registration Date	Description	Decision
		<p>Each office block has a number of amenity terraces including at 1st, 3rd, 4th, 5th, 6th and roof level in Block A and at 4th and 6th floor level in Block B.</p> <p>A total of 77 no. commercial car parking spaces (incl. 4 no. disabled access spaces & 16 no. EV spaces) and 4 no. motorbike spaces, located at basement level with vehicular access from the street level (Block A north eastern elevation), and the provision of 27 no. on-street car parking spaces (incl. 7 no. EV spaces and 6 no. disabled access spaces). Provision of 616 no. bicycle parking spaces located at basement level with bicycle ramp access from street level and 100 no. short-stay standard bicycle parking spaces located at surface level.</p> <p>Plant rooms, building services and energy centres, water tank, sprinkler rooms, tenant rooms, kitchenette, parcel/ courier store, archive store, bin stores, bicycle stores, lockers, showers, changing facilities, facilities management and games bar storage located at basement/ UC-01 level. Provision of public realm spaces including 1 no. public square (Pembroke Square), Glass Bottle Lane and public amenity spaces (totalling 1,920 sq m). Two new local/side streets (Pembroke Place & Glass Bottle Place) connecting to South Bank Road. The provision of the South Bank Link Road as identified in the SDZ Planning Scheme. The proposed development will include hard and soft landscaping, pedestrian and cycle links, boundary treatments, tree planting, public lighting, green roofs, solar panels, and all ancillary works and services necessary to facilitate construction and operation. The scheme also provides for an option which includes for temporary site hoarding, and cycle lane alongside Sean Moore Road, should the proposed development proceed ahead of the adjoining Phase 2 residential proposal commencing. This application will be accompanied by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS).</p>	

Note 1: Molasses is not classified as a dangerous substance under the COMAH Regulations and therefore this development is not included in, or relevant to, this COMAH land use planning assessment.

6.2.2 An Bord Pleanála

In December 2011, the HSA and An Bord Pleanála (ABP) signed a Memorandum of Understanding (MOU) to facilitate the co-operation between the two bodies in the processing of applications for planning permission under planning legislation, and in particular direct applications to ABP under the Planning and Development (Strategic Infrastructure) Act 2006 (the SIA⁵).

The MOU noted that the HSA is obliged to provide technical land use planning advice relating to developments that qualify as COMAH establishments, or relating to developments in the vicinity of COMAH establishments, and that this advice must be provided to ABP on request and within prescribed timeframes. It also recognised that assessments by the HSA of planning applications from COMAH establishments, or of developments in the vicinity of COMAH establishments, can take a considerable amount of time and therefore sufficient lead time should be afforded to the HSA to formulate its technical advice to ABP.

In this context, ABP undertook to ensure that details of any proposed planning applications under the SIA, and on which ABP may seek technical advice from the HSA, are made available to the HSA at the earliest opportunity. In addition, ABP noted that it will request that such details are provided to the HSA at the pre-application consultation stage by the (prospective) applicant.

6.2.3 Guidelines for Environmental Impact Assessment

6.2.3.1 European Commission

Section 1.3.3 of the European Commission's Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (2017) identifies two key considerations arising from Annex IV of Directive 2014/52/EU:

- “the Project’s potential to cause accidents and/or disasters, and
- the vulnerability of the project to potential disaster/accident”

The guidance notes that relevant information on these topics may be available from risk assessments pursuant to other EU legislation, such as the COMAH legislation on the control of major accident hazards involving dangerous substances.

6.2.3.2 Department of Housing, Planning and Local Government

Parts 4.28 to 4.30 of the Department of Housing, Planning and Local Government’s Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018) requires that an EIAR include:

“...the expected effects arising from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project. Where appropriate, the description of expected

⁵ Subsequently amended by the *Planning and Development (Amendment) Act 2010*

significant effects should include details of the preparedness for and proposed response to such emergencies.”

The guidelines note that there are two key considerations, namely:

- The potential of the project to cause accidents and / or disasters, including implications for human health, cultural heritage, and the environment.
- The vulnerability of the project to potential disasters / accidents, including the risk to the project of both natural disasters (e.g. flooding) and man-made disasters (e.g. technological disasters).

The guidelines also note that these considerations are separate to any assessment of the project required under the COMAH Directive (and corresponding Irish legislation), which is likely to include a detailed risk assessment.

6.2.3.3 Environmental Protection Agency

The Environmental Protection Agency (EPA) has produced Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (May 2022). In the context of major accidents and disasters, Section 3.7.1 describes the requirements for the impact assessment, noting that the EIAR should contain:

“A description of the likely significant effects of the project on the environment resulting from, inter alia:

d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);

The description of the likely significant effects on the [environmental] factors should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project.”

6.3 Port & Environs

6.3.1 Port Activities

The proposed 3FM Project is located mainly within the southern estate of Dublin Port within the Poolbeg Peninsula. The southern estate of Dublin Port is comprised of 58ha of land entirely within the ownership of Dublin Port Company. The entire Port Estate comprises 309ha, including the lands at the Dublin Inland Port.

The following activities and operations currently take place within the southern estate of Dublin Port:

- Container Terminal (Lift-on / Lift-off mode)
- Haulage and storage of empty containers
- Bulk Cargo facilities
- Molasses storage facilitates
- Storage facilities for petroleum products

- Waste management activities, including recycling and waste-to-energy
- Cement manufacturing
- Warehouse space
- Cruise liner operations
- Leisure craft mooring and movements
- Temporary site compounds

The 3FM Project will take place on the south side of the River Liffey, with a new bridge crossing downstream of the Tom Clarke Bridge, providing a Southern Port Access Route (SPAR).

6.3.2 Populations

6.3.2.1 Summary

The population within the south side of Dublin Port comprises:

- workers at the respective industrial and commercial sites (at both the COMAH establishments and non-COMAH facilities)
- vehicle traffic using the port road network, which includes:
 - workers commuting to and from their place of work within the port
 - goods vehicle drivers that operate to / from the port, including those associated with:
 - direct port activities (e.g. delivering / collecting cargo, such as containers or trailers, shipped to / from the port)
 - import / export related activities from facilities within the port
 - non-Port related activities that are located within the port estate
- other traffic that may access parts of the road network (primarily the eastern end of the port), for example those using the Shellybanks Car Park to access the Great South Wall and Poolbeg Lighthouse
- shipping traffic at the berths along the south quays
- cruise liner passengers (and crew) arriving at / departing from the South Port

There are also several residential areas to the west and south-west of the port estate, at Ringsend and Sandymount. These areas are approximately 550m to 650m from the nearest COMAH establishment.

To assess the societal risk presented by the COMAH establishments in the port it is necessary to quantify the population that may be exposed to potential major accidents.

For certain types of population, estimating the number of people that may be exposed is relatively straightforward, as the number of people is known (e.g. from census data) and there is little or no temporal or spatial variation (the population is present at a fixed location for a discernible proportion of time). The residential populations to the west and south-west of the port fall into this category, as do the populations at the commercial and industrial facilities to a lesser extent.

Other populations, however, are more difficult to characterise and quantify as they vary in terms of:

- the number of people present at any one time (e.g. the number of passengers on a cruise liner)
- the location of the people (e.g. people using the road network)
- when people are present, which can vary over the course of a day, week, and year (e.g. peak and off-peak traffic patterns, non-regular shipping)

Both the road traffic and, to a lesser extent, the shipping traffic, fall into this latter category, as these populations are both transient and mobile.

Nonetheless, for this assessment we have examined the population data available from Dublin Port and the Central Statistics Office, and have estimated the number of people that may be exposed to potential major accident hazards at the COMAH establishments.

In the following sub-sections, we describe the source of the population data we have used in our assessment, how we have characterised and quantified the populations, and our assessment of the conservative nature of the assumptions we have made. The objective of this exercise is to develop a representative population for the Port and surrounding area, rather than to develop a detailed population and transport model. The population data used in this assessment is summarised in Appendix 6-2.

6.3.2.2 Residential Areas

The closest residential areas to the west and southwest parts of the southern port are:

- to the west, in Ringsend along Pigeon House Road and the adjoining roads (approximately 550m from the western boundary of Dublin Bay Power). This area includes:
 - residential buildings (houses and apartments)
 - Ringsend Recycling Centre
 - 1st Port of Dublin, Ringsend Sea Scouts
 - Ringsend College (a multi denominational secondary school and further education college)
 - Irishtown Sports and Fitness Centre
 - Clanna Gael Fontenoy GAA Club
 - Poolbeg West SDZ developments
- to the southwest, in Sandymount (approximately 650m from the southern boundary of Dublin Bay Power).

The latest population data from the CSO is from the 2022 census, with population data available at a variety of geographic levels:

- Provinces
- Regional Authorities (NUTS3)
- Local Authorities
- Electoral Areas (2022)
- Electoral Divisions

- Small Areas
- Limistéir Pleanála Teanga (Language Planning Areas)

For the residential population around the port, data was used from the Small Areas; these are areas of population generally comprising between 80 and 120 dwellings and are designed as the lowest⁶ level of geography for the compilation of statistics. There are 18,919 Small Areas from the 2022 census, 11 of which are within approximately 1 km of Dublin Bay Power, the nearest COMAH establishments to residential areas in the South Port.

Of these 11 Small Areas, one covers the area of the Port on the north side of the river, and one covers the area of the Port on the south side of the river. The residential population within the Small Area on the north side of the river is approximately 2 km from the Synergen COMAH establishment and is outside the area that could be affected by any of the COMAH establishments on the south side of the river. The Small Area covering the area of the Port on the south side of the river includes both the Port (where there are no residences) and the residential area on Pigeon House Road; for this assessment, the population within the Small Area is assumed to be centred on the residential area, rather than the overall centre of the Small Area. These Small Areas have been used in this assessment.

In addition, we have conservatively included the residential population data from the proposed developments associated with the Poolbeg West SDZ for which planning permission has been applied for and/or granted (refer to Section 6.2.1.4).

6.3.2.3 Commercial & Industrial

Existing Population

Based on the 2016 census data, the CSO published data on the ‘day-time population’ of areas, referred to as workplace zones. The day-time population includes everyone who indicated they worked or studied in the area, along with persons in that area who do not work or study (and are therefore there during the day). These zones were created by the CSO by amalgamating and / or splitting the Small Areas output from the census.

Under the 2016 Census, there were three workplace zones covering the COMAH establishments and surrounding areas in the South Port estate. However, similar workplace zones were not developed under the 2022 Census. Therefore, while the 2016 workplace zones provide an indication of the population during daytime hours, they do not lend themselves to characterising the Port population to assess the societal risk as they cover too large an area. We estimate the commercial and industrial population using a variety of publicly available data sources.

3FM Future Population

The proposed landside developments associated the 3FM Project will result in changes to the commercial population in the South Port estate. An estimate of the additional number of works that are likely to be

⁶ The CSO describes Small Areas as “the lowest level of geography for the compilation of statistics in line with data protection”. In urban areas, with a relatively high population density, Small Areas also represent the *smallest* (in area) level of geography.

employed in each of the three main development areas – Area K, Area N, Area L and Area O – are set out in Table 6.5.

Table 6.5 Anticipated additional population arising from 3FM Project

Group	Area K	Area N	Area O	Area L
Management, administration and IT staff	8	42	1	10
Equipment maintenance and engineers	3	10	-	-
STS operators	-	6	-	-
RTG operators	4	12	-	-
Reach-stacker drivers	4	-	-	-
Shunter drivers	14	-	1	-
Crane drivers	-	-	-	6
Mobile equipment operators	-	20	1	2
Supervisors	6	6	-	2
Marshalls	4	4	1	2
Security	2	4	2	2
General operatives	2	-	-	2
Other contractors & operators	6	4	-	2
Visitors	2	-	-	-
Total	55	108	6	28

In addition, we have conservatively included the commercial population from the proposed developments associated with the Poolbeg West SDZ for which planning has been applied for and/or granted (refer to Section 6.2.1.4).

6.3.2.4 Road Traffic

In support of the application for planning permission for the development, vehicle flow and non-motorised user traffic surveys were undertaken in 2022, the results of which are shown in Table 6.6 and Table 6.7.

Table 6.6 24-hour vehicle flow survey

Location	Westbound	Eastbound
South Bank Road	1,916	2,066

Table 6.7 24-hour daily average non-motorised users

Location	Two-way average (school term)	Two-way average (summer holidays)
Pedestrian crossing between R131 and Pigeon House Road	216	203
Irishtown Nature Park Active Travel Path Location 1	1,347	1,538
Irishtown Nature Park Active Travel Path Location 2	Note	706
Note: Data not available.		

6.3.2.5 Shipping Traffic

Data from DPC⁷ for 2023 shows that there were approximately 7,300 vessel arrivals and departures (approximately 14,600 vessel movements, excluding movements between berths) in the Port in 2023, comprising RoRo passenger vessels (ferries); cruise liners; bulk carriers; container vessels; general, Ro-Ro & Lo-Lo cargo ships; oil & LPG tankers; vehicle carriers; and a wide range of other vessels. Passenger ferries accounted for approximately half of all vessel movements (52%), with RoRo cargo vessels accounting for approximately 21%, container vessels accounting for approximately 13%, oil/LPG tankers accounting for approximately 6.2%, and general cargo vessels accounting for approximately 3.6%. The population associated with the shipping traffic is summarised in Appendix 6-2.

For the berths on the southside of Dublin Port - MTL 41 to MTL 45 and Deep Water Berths 46 and 47 - the data shows that the majority of shipping traffic is from general cargo vessels and container ships. Table 6.8 provides a summary for these berths for 2023.

⁷ <http://booking.dublinport.ie/webx/>

Table 6.8 2023 summary for southside berths

Berth	No. of vessels	Occupancy (approximate)
Deep Water Berth 46	75	36.0%
Deep Water Berth 47	69	47.3%
MTL 41	2	0.03%
MTL 42	113	44.0%
MTL 43	0	0%
MTL 44	108	45.0%
MTL 45	79	18.9%

6.4 Natural Events

6.4.1 Introduction

As outlined in Section 6.1, there are risks other than from COMAH establishments that may impact on the 3FM Project, including natural events (such as earthquakes, lightning strikes, extreme weather events, etc.) and other external events (such as aircraft impacts) that may cause or exacerbate a major accident at a COMAH establishment, which may in turn impact on the 3FM Project. These events are outlined in the following subsections, both in the context of the 3FM Project and the individual COMAH establishments.

6.4.2 Earthquakes

The School of Cosmic Physics (part of the Dublin Institute for Advanced Studies – DIAS) operates the Irish National Seismic Network (INSN), which comprises a series of monitoring stations around the country. Figure 6.2 shows the location and magnitude of historic and recorded seismic events in Ireland since 1980. This shows that while there have been several recorded seismic events, they are all of low or very low magnitude (typically less than magnitude 1.9).

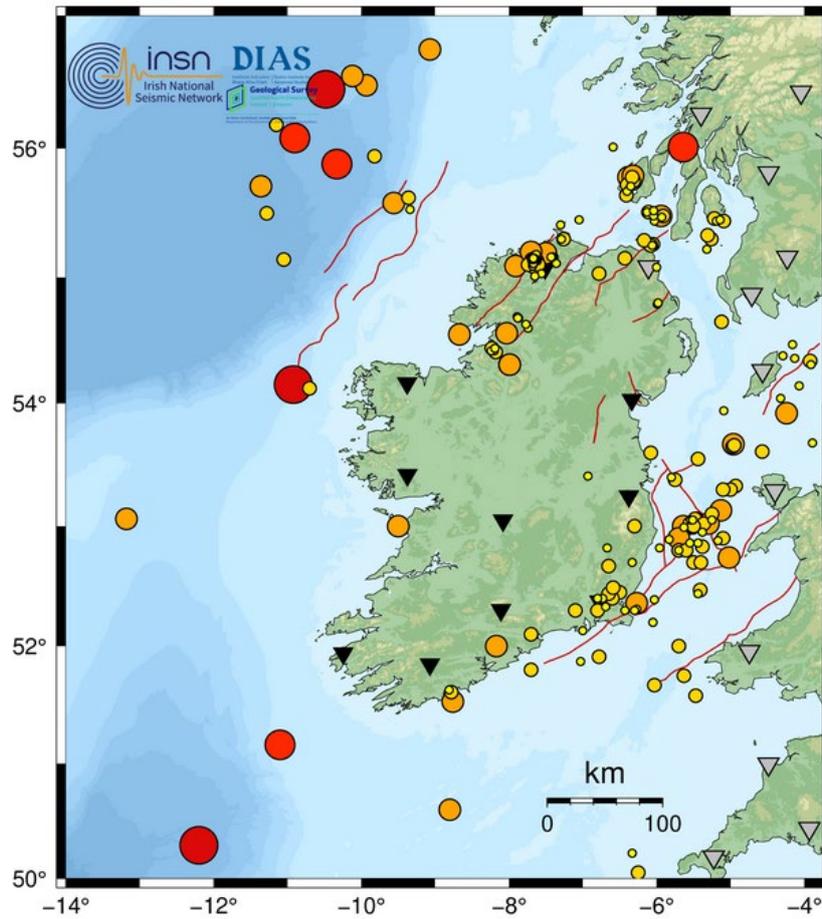


Figure 6.2 Historical & Recorded Seismic Events since 1980

The Seismic Hazard Harmonization in Europe (SHARE) project, comprising eighteen European partner institutions, has compiled two European Earthquake Catalogues, one for the period 1000 to 1899, and one for the period 1900 to 2006, which show the locations of seismic events across Europe. The map for the period 1900 to 2006 is shown in Figure 6.3. It indicates that there is relatively little seismic activity in Ireland.

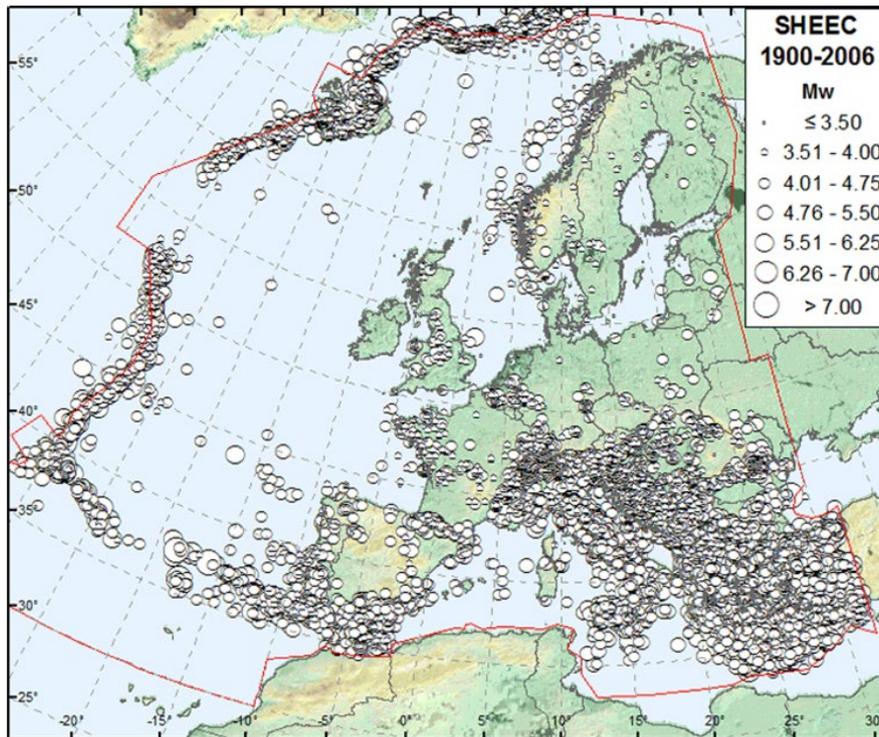


Figure 6.3 SHARE European Earthquake Catalogue (1900 to 2006)

The SHARE project has also developed a European Seismic Hazard Map, shown in Figure 6.4.

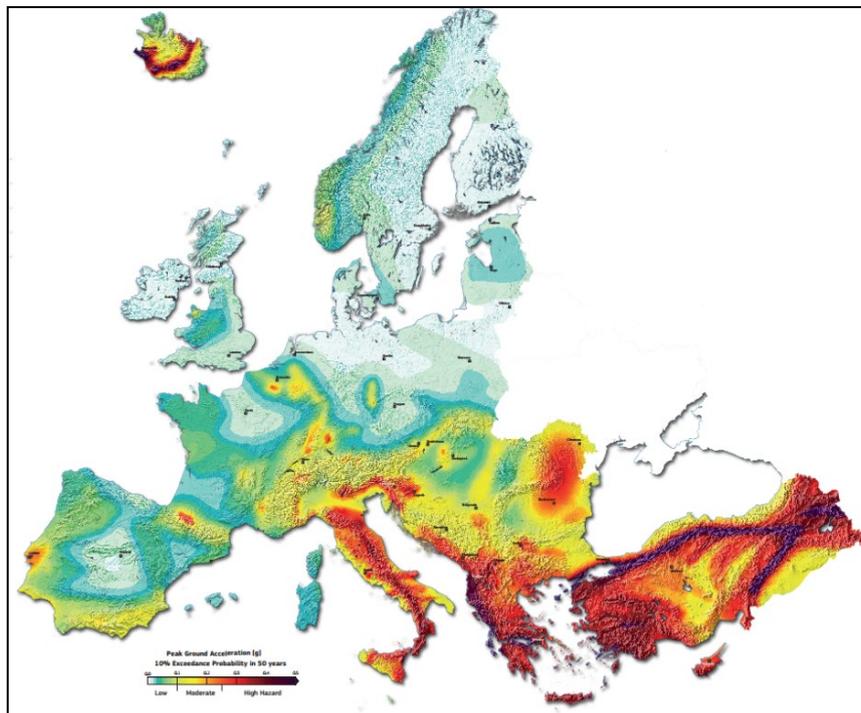


Figure 6.4 European Seismic Hazard Map

This shows the peak horizontal ground acceleration (measured in g – gravitational acceleration) predicted to be reached or exceeded with a 10% probability in 50 years. This corresponds to the average recurrence of such ground motions every 475 years, as prescribed by the national building codes in Europe for standard buildings. Low hazard areas ($PGA \leq 0.1$ g) are coloured in blue-green, moderate hazard areas in yellow-orange and high hazard areas ($PGA > 0.25$ g) in red. As can be seen from Figure 6.4, Ireland is a low hazard area.

6.4.3 Lightning Strikes

The UK Met Office has operated a lightning location network since 1987 (in its current form known as ATDnet), which allows for the detection of lightning activity across Europe and in turn the development of maps showing the density of lightning strikes. A 2020 research paper⁸ analysed the data from the network and produced the lightning flash density map shown in Figure 6.5. This shows that, in general, Ireland is an area of relatively low lightning activity, with the paper noting that:

Over the UK, Ireland and Scandinavia the densities are generally lower than the rest of Europe. Some of the lowest densities are observed over the Atlantic, North Sea and Baltic Sea.

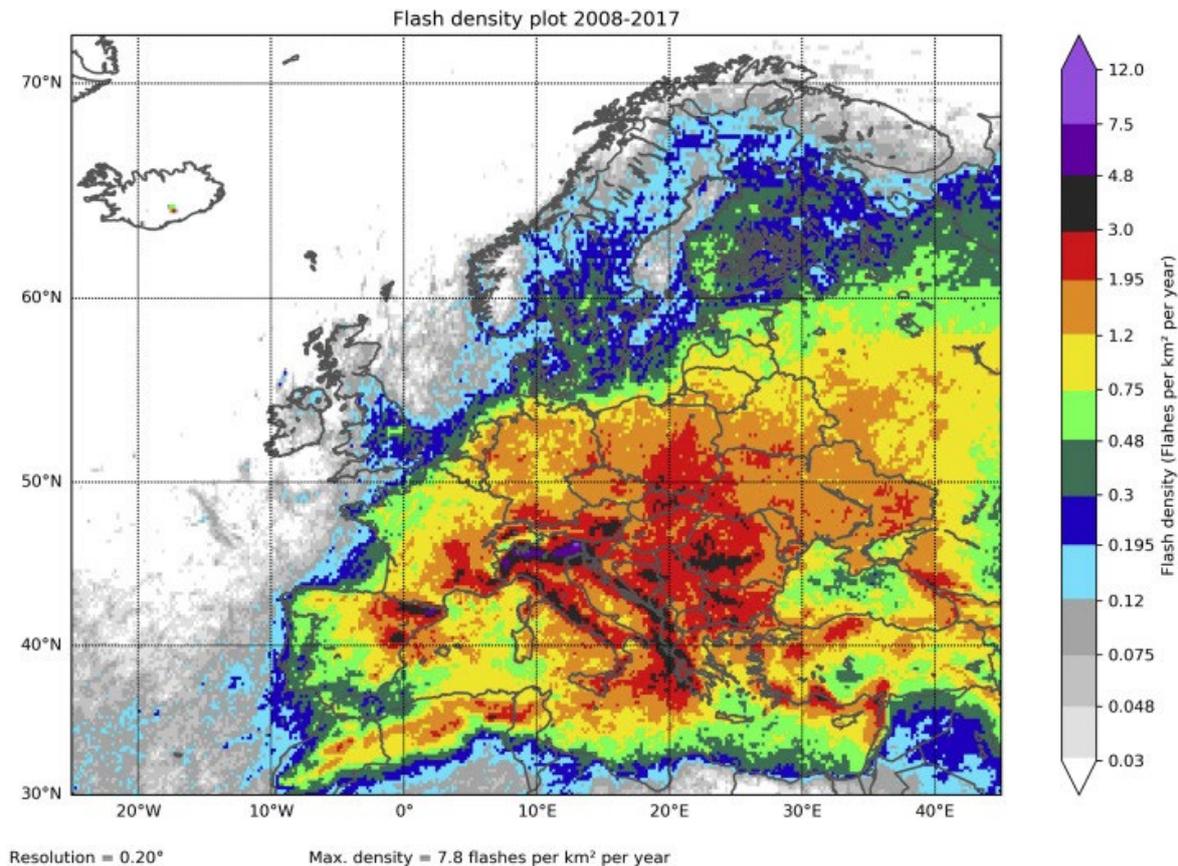


Figure 6.5 Annual Detected Lightning Flash Density (2008 – 2017)

6.4.4 Flooding

The Office of Public Works (OPW) National Flood Hazard Mapping system provides details of historic flooding incidents throughout the country. For the Dublin Port estate, the system identifies multiple flood events within approximately 2.5km of the Port, none of which are within the Port estate or in the vicinity of the 3FM Project. In the Dublin Port Masterplan 2040, reviewed in 2018, it is noted that several historic flood events have been recorded near to or in the vicinity of the Port estate, acknowledging that it is generally considered that flood risk will continue to increase in line with predicted climate change.

One of the outputs from the Eastern Catchment Flood Risk Assessment and Management (CFRAM) study is a series of flood maps that show the predicted flood extent for flood events with a range of estimated

⁸ Sven-Erik Enno, Jacqueline Sugier, Regina Alber, Mark Seltzer, Lightning flash density in Europe based on 10 years of ATDnet data.

probabilities of occurrence (0.1%, 0.5%, 1% Annual Exceedance Probability – AEP). The AEP represent the probability of an event of this, or greater, severity occurring in any given year. For the area of the 3FM Project and surrounding environment, flood maps are shown for both coastal and fluvial (river) events. The maps indicate that the area is not at risk from fluvial flood events, but that parts of it may experience flooding under the low probability (0.1% AEP) medium probability (0.5% AEP) and high probability (10% AEP) coastal flood events.

There is no history of flooding at the COMAH establishments on the southside of Dublin Port. If flooding did occur at a COMAH establishment, it is not expected to give rise to a major accident that could impact on the 3FM Project (or other areas of the Port), although it is likely that it would disrupt normal operational activities at the particular site for the duration of the event.

A Flood Risk Assessment for the 3FM Project is presented in Chapter 9 of this EIAR.

6.4.5 Extreme Weather Events

6.4.5.1 Temperature

The maximum daily air temperature at the Dublin Airport weather station over the period 2014 to 2023 (the latest 10-year period) was 29.1°C (occurring on 18th July 2022), with a minimum daily air temperature of -7.9°C (on 3rd February 2015). The largest daily temperature range over the period was 19.5°C, varying from a low of 5.5°C to a high of 25°C (on 2nd June 2020).

Met Éireann defines a heatwave as five consecutive days or more with a maximum temperature over 25°C. No heatwaves have been recorded at Dublin Airport in the last 30-years, although there have been several periods during which the maximum daily temperatures have been above 20°C for more than five days. There is no equivalent definition for a prolonged cold period ('cold spell'); over the period 2014 to 2023 there have been multiple periods of low minimum temperatures (less than 0°C) on consecutive days, the longest of which was over 9 days. This occurred on two occasions:

- 28th January to 5th February 2019
- 8th December to 16th December 2022

6.4.5.2 Wind

Wind data (speed and direction) from the Dublin Airport weather station is summarised in Table 6.9 and shown in Figure 6.6 for the period 2014 to 2023. This shows that the prevailing wind direction is from the west and southwest. The mean wind speed over the period was 10.1 knots (5.2m/s); the mean wind speed over the period 1981 to 2010 was 10.3 knots (5.3m/s).

Table 6.9 Wind Speed Data for Dublin Airport (2014 to 2023)

Direction (from)	All wind speeds	0 – 2 m/s (0 – 7.2 km/h)	2 – 5 m/s (7.2 – 18 km/h)	5 – 10 m/s (18 – 36 km/h)	> 10 m/s (> 36 km/h)
North	0.8%	2.7%	1.3%	0.0%	4.8%
North east	0.3%	2.7%	1.9%	0.1%	4.9%
East	1.0%	5.7%	3.0%	0.2%	10.0%
South east	1.1%	6.7%	4.4%	0.5%	12.6%
South	1.0%	4.3%	4.3%	0.5%	10.1%
South west	0.8%	9.2%	10.9%	1.3%	22.2%
West	1.0%	11.1%	13.5%	2.0%	27.7%
North west	0.7%	3.7%	3.1%	0.2%	7.6%
Total	6.8%	46.1%	42.4%	4.8%	100.0%

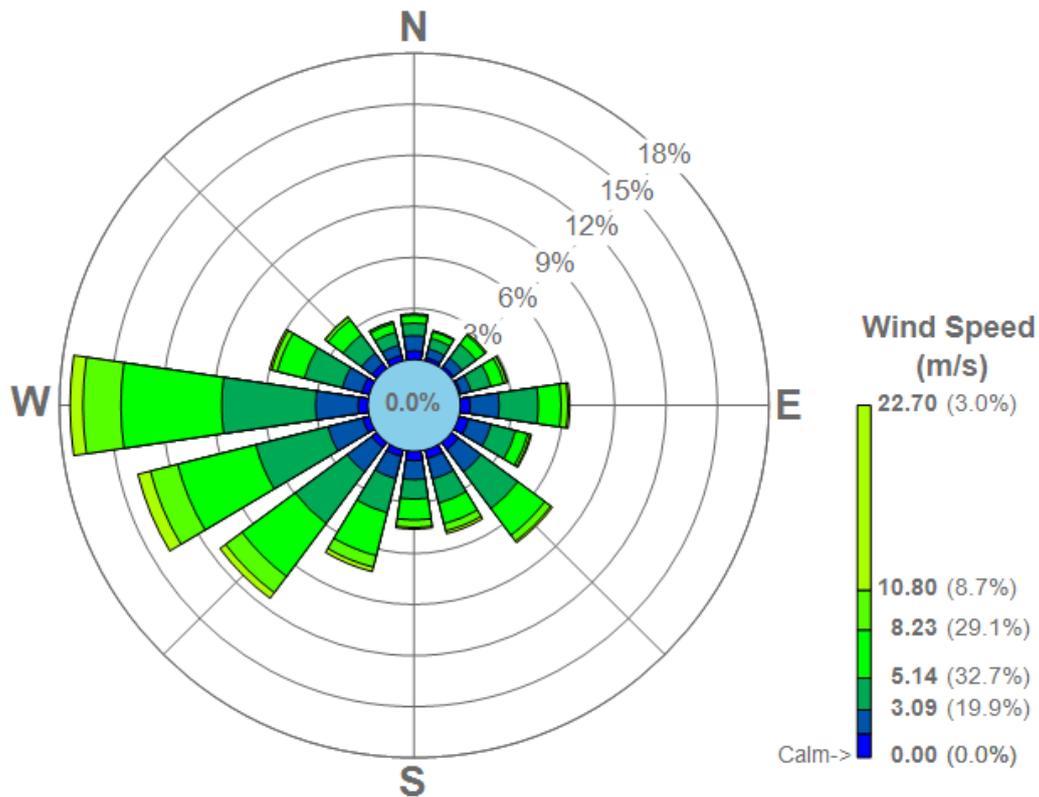


Figure 6.6 Wind Rose for Dublin Airport (2014 – 2023)

Data from Met Éireann shows that the typical maximum gust speeds for a 50-year return period are in the range up to 50m/s (180 km/h) depending on the location of the site in Ireland. For the Dublin Port estate, the estimated speed for this return period is 45m/s (160km/h). The historic meteorological data from the Dublin Airport weather station shows that the highest 10-minute mean wind speed over the period 2014 to 2023 was 48 knots (approximately 90km/h), with a maximum gust of 66 knots (approximately 120km/h).

6.4.5.3 Rainfall

The average annual rainfall at Dublin Airport over the last ten years (2014 to 2023) ranged from 661mm (in 2017) to 1,001mm (in 2023), with a 30-year annual average (1981 to 2010) of 758mm. The highest total daily rainfall over the last ten years was 84mm, recorded on 2nd August 2014, and the longest prolonged period of wet weather (days on which precipitation was recorded) was 23 days, which occurred between 24th November and 16th December 2018 during which 91mm of rainfall was recorded. The longest period during which no rainfall occurred was over a period of 24 days between 21st June and 14th July 2018.

6.4.6 Aircraft Impact

A 2005 ERM Report⁹ for the Department of Transport and the Department of the Environment, Heritage and Local Government identified the Public Safety Zones (PSZ) associated with Dublin Airport based on the calculated individual risk of fatality per annum. The Outer PSZ was defined as the area with an individual risk greater than 10^{-6} per annum. As can be seen in Figure 6.7, the proposed development is located outside the Outer PSZ for both runways at Dublin Airport.

There is no data available for the probability of aircraft impact at locations in Ireland not in the vicinity of airports. Crash statistics for fixed and rotary wing aircraft in Britain and Northern Ireland, between 1981 and 1992 indicate that the annual likelihood of impact in areas not in the vicinity of airports / airfields is approximately $6.3 \times 10^{-7} \text{ha}^{-1} \text{y}^{-1}$ (*A Method for Estimating the Risk Posed to UK sites by Civil Aircraft Accidents*, Civil Aviation Authority, 1993).

Since then, there have been several studies on aircraft crash rates in the UK, including a 2008 review by Atkinson & Thompson Review of Aircraft Crash Rates for the UK up to 2006 and a 2014 study by the Health & Safety Laboratory and Loughborough University A Review and Statistical Modelling of Accidental Aircraft Crashes within Great Britain. The 2008 study estimates the background crash rate for the UK at $3.87 \times 10^{-7} \text{ha}^{-1} \text{y}^{-1}$, while the 2014 study indicates that the background crash rate is approximately $3.52 \times 10^{-7} \text{ha}^{-1} \text{y}^{-1}$. However, the 2008 study includes data on military combat aircraft (at a crash rate of $0.41 \times 10^{-7} \text{ha}^{-1} \text{y}^{-1}$) and therefore the 2014 background rate, which does not include military aircraft, is considered to be more appropriate in an Irish context. The total area of the DPC estate is approximately 265 ha, yielding a probability of aircraft impact across the estate as a whole of 1.67×10^{-4} per annum.

⁹ Public Safety Zones – Cork, Dublin and Shannon Airports. ERM, February 2005.

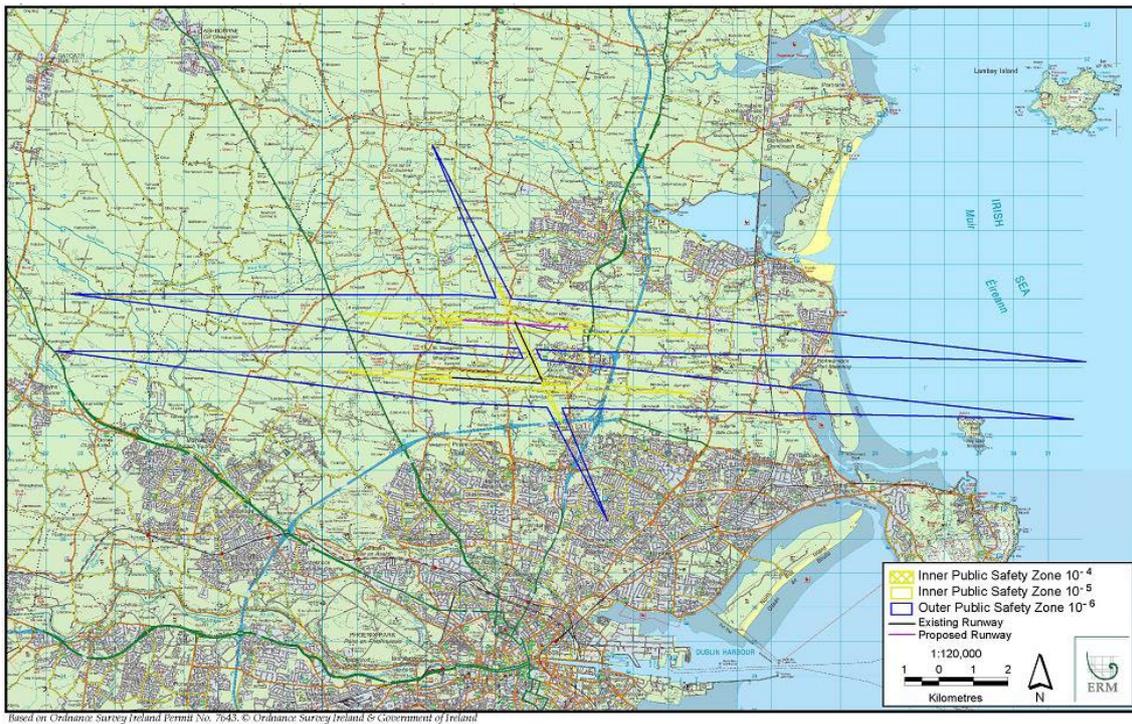


Figure 6.7 Public Safety Zones - Dublin Airport

Helicopters may overfly the port enroute to other destinations, or on occasions to or in the vicinity of the port. There was formerly a helipad to the west end of the port, at the junction of the port entrance, Promenade Road, and Bond Drive. However, the helipad is no longer in use, with the area occupied by a truck / HGV parking area. Nonetheless, any aircraft operating to or from the port, or over the port, are restricted from flying over the oil terminals and storage areas; all helicopter pilots must operate in accordance with the Irish Aviation Authority (Rules of the Air) Order.

In its guidance “Heliports – Guidelines for Heliport Site Owners/Occupiers and for Heliport Site-keepers”, the Irish Aviation Authority notes that the ‘Rules of the Air’ apply to all helicopter flights made over congested areas (such as Dublin Port) and non-congested areas by all types of helicopter, and that the height requirement under the Order (above) restricts single-engine helicopter flights over congested areas to a far greater extent than multi-engine helicopters.

6.4.7 Summary

Ireland is an area of relatively low seismic activity and low lightning activity, and in general is not subject to extreme weather events. In light of the nature of the hazards at the COMAH establishments, and the potential major accident scenarios, we do not consider that these natural events significantly increase the likelihood of a major accident arising at a COMAH establishment and impacting on the area of the 3FM Project. As noted in Section 6.5.3, the probability data that has been applied in this assessment is from the HSA’s guidance, which the HSA considers to be conservative, and it is not considered that the potential natural and external events that could occur within Dublin Port require the application of additional or different probability data.

Similarly, we do not consider that the events outlined in this sub-section present a significant risk to the 3FM Project. Nonetheless, if these events occurred, they could be disruptive to the normal operation within the Port

and may require implementation of a relevant mitigation measure (e.g. snow clearance, flood control, adjustment to the normal traffic management).

From a COMAH establishment perspective, we do not consider that the development of the 3FM Project introduces any new risks that could cause or exacerbate a major accident, nor do we consider that the 3FM Project significantly alters the current risks presented to the establishments from normal Port operations. However, an incident or accident at the 3FM Project, or generally within Dublin Port, could be disruptive to the COMAH establishments depending on the nature and location of the event and, if such an event coincided with a major accident, it may also be disruptive to the emergency response. Accordingly, Section 6.7.3 of this Chapter provides a description of Dublin Port’s Emergency Response Management Plan.

6.5 COMAH Events

6.5.1 Assessment Methodology

6.5.1.1 Context

For COMAH-related risks, the HSA’s policy and approach to conducting land use planning assessments is to adopt a conservative and consistent approach. In assessing the risk, the HSA examines both the individual and societal risk (described in Section 6.5.1.2). In both cases, the risk is estimated based on the HSA’s guidance and is compared against the HSA’s assessment criteria. In addition, the HSA’s new guidance now requires an assessment of major accidents to the environment, such as a release of petroleum products outside of a COMAH establishment.

6.5.1.2 Criteria

Individual Risk

The level of individual risk is assessed using a three-zone traffic light system shown in Table 6.10.

Table 6.10 Risk Based Contour Zones for Individual Risk

Zone	Risk of fatality per year		
Inner	1×10^{-5}	1 in 100,000	0.001%
Middle	1×10^{-6}	1 in 1 million	0.0001%
Outer	1×10^{-7}	1 in 10 million	0.00001%

The HSA provides its advice to planning authorities in the form ‘advises against’ or ‘does not advise against’ depending on which zone (from Table 6.10) the development lies within, as shown in Table 6.11 (a tick indicating ‘do not advise against’ and a cross indicating ‘advise against’).

Table 6.11 HSA Matrix for Land Use Planning Advice

Sensitivity Level	Individual Risk Zone (refer to Table 3)
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	Inner Zone	Middle Zone	Outer Zone
Level 1	✓	✓	✓
Level 2	x	✓	✓
Level 3	x	x	✓
Level 4	x	x	x

These three zones have been determined for the COMAH establishments in the south port based on the scenarios identified in Section 6.5.3, and on the results from the consequence assessment as described in Section 6.5.1.3.

The land use in each of the three zones is assessed against the four levels (categories) of development to assess whether the land use is ‘compatible’ with the level of risk. Level 1 type developments (comprising workplaces and car parks) are considered to be less sensitive to risk, with the sensitivity to risk increasing to Level 4 type developments (very large and / or sensitive land use, such as hospitals, schools, and sports stadia). These development sensitivity levels are described in Section 6.5.2.

Societal Risk

Overview

Societal risk is a measure of the risk of large numbers of people being affected in a single accident¹⁰. The HSA’s guidance notes that:

“...The advice matrix takes account, to a degree, of group risk and the varied receptor sensitivities. It is applicable for the specified developments ... that are located near a single COMAH establishment, and where the existing societal risk is well within the tolerable limit. However, there are times when the risk of multiple fatalities from an accident – societal risk – should be taken into account more explicitly. For example, this may include where an application relates to a proposed significant off-site population density, or where there is already a significant population residing/working within the risk zone, or where the risk is emanating from more than one establishment.”

There are several metrics that can be applied to estimate and assess societal risk; the two approaches described in the HSA’s guidance are:

- Expectation Value.
- FN curve.

¹⁰ Policy & Approach of the Health & Safety Authority to COMAH Risk-based Land-use Planning (19 March 2010)

Expectation Value

The Expectation Value (EV) is the product of the frequency of an accident (expressed in ‘chances per million’) and the number of people exposed to lethal effects as a result of that accident. The HSA’s guidance sets out several criteria for assessing the EV:

- between 100 and 10,000: it should be demonstrated that all practicable efforts have been made to reduce the risk to a level that is as low as reasonably practicable.
- greater than 10,000: should not be exceeded; if the EV exceeds 10,000, the TLUP advice to the planning authority will always be ‘advise against’.
- developmental EV value is greater than 450: an FN curve will be required as part of the demonstration that all practicable efforts have been made to reduce the risk to a level that is as low as reasonably practicable.
- greater than 2,000: for new developments near an establishment further assessment of societal risk will be required and the creation of an FN curve and calculation of the total EV will be necessary.

FN Curve

An FN curve shows the relationship between the frequency of an outcome and the cumulative severity of the outcome, typically plotted on a log-log scale to account for the range of values for both the frequency of occurrence and the severity of the outcome. It can take one of two forms¹¹:

1. Non-cumulative frequency basis: for these graphs, called f-N curves (lower case ‘f’), the value plotted on the y-axis is the discrete frequency of experiencing exactly N fatalities.
2. Cumulative frequency basis: for these graphs, called F-N curves (upper case ‘F’), the value plotted on the y-axis is the cumulative frequency of experiencing N or more fatalities.

When assessing whether the level of societal risk may be regarded as tolerable, it is necessary to select appropriate criteria. In its guidance, the HSA identifies two criterion lines for FN (cumulative frequency) curves:

- an upper criterion of 1 in 5,000 for 50 fatalities; and
- a lower criterion line of 1 in 100,000 for 10 fatalities.

Figure 6.8 shows the general format of an FN curve, with the number of (potential) fatalities, N , on the x-axis and the probability of at least N fatalities on the y-axis, F , together with the two criterion lines. The area above the upper criterion is considered to be the intolerable region and the area below the lower criterion line is considered to be the broadly acceptable region. The area between the two lines is generally considered to be the ALARP region, where the risk may be considered to be ‘tolerable’ provided that it is As Low As Reasonably Practicable (ALARP)¹².

¹¹ Guidelines for Developing Quantitative Safety Risk Criteria, Centre for Chemical Process Safety, 2009

¹² The UK HSE comments on the use of the terms *so far as is reasonably practicable* (SFAIRP) and *as low as reasonably practicable* (ALARP). It notes that SFAIRP is most often used in the context of workplace health and safety legislation and that ALARP is used by risk specialists. The HSE uses the term ALARP in its COMAH guidance and, in its view, considers that the two terms are (generally) interchangeable.

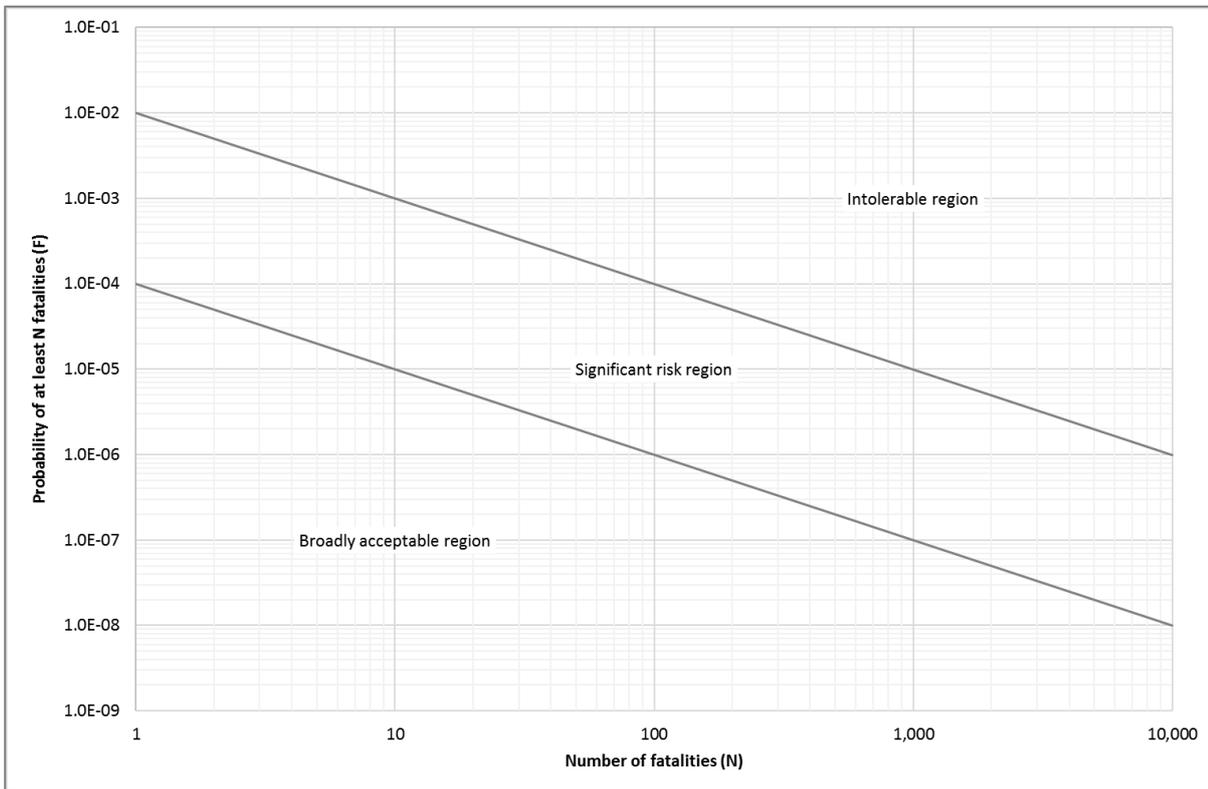


Figure 6.8 Criterion Lines for FN Curves

6.5.1.3 Consequences

Risk of Fatality

The risk of fatality arising from a major accident hazard can be related to the consequences of the event (e.g. exposure to thermal radiation, a blast overpressure, or a toxic substance) by means of probit functions and other derived relations.

As described in the UK HSE's Methods of approximation and determination of human vulnerability for offshore major accident hazard assessment, probits account for the variation in tolerance to harm for an exposed population, with the fatality rate of personnel exposed to harmful agents calculated using a probit function of the general form:

$$Y = k_1 + k_2 \ln(V)$$

where:

- Y is the probit, a measure of the percentage of the vulnerable resource that might sustain damage (the probability of fatality).
- k_1 & k_2 are constants depending upon the type of harm that the population is exposed to (thermal, pressure, toxic effects).
- V is the product of intensity (I) or concentration (C) of the received hazardous agent to an exponent n and the duration of exposure in seconds or minutes (t). In other words, $V = C^n \cdot t$.

The probit function can be used to calculate the risk to people exposed to the hazardous agent (thermal radiation, overpressure or concentration of toxic substance), expressed as a probability of lethal impacts, as follows:

$$Probability = \frac{1}{\sqrt{2\pi}} \int_{u=-\infty}^{u=Y-5} \exp\left(-\frac{u^2}{2}\right) du$$

For example, a probit value of 5 corresponds to a probability of fatality of 50%, while probit values of 3.72 and 6.28 correspond to probabilities of fatality of 10% and 90%, respectively.

Thermal Effects

The probit function for thermal effects is:

$$Y = -14.9 + 2.56 \cdot \ln\left(\frac{l^{4/3} \cdot t}{10}\right)$$

In this equation, l is the thermal flux expressed in kilowatts per square metre (kW/m^2) and the time t is expressed in seconds. For short duration fire events, such as a fireball from a BLEVE at an LPG facility, the time during which people may be exposed to the thermal radiation is set at the duration of the event. For longer duration events, such as bund and pool fires, the duration is set at 60 seconds to take account of the time required for people to escape from the area.

In accordance with the HSA's guidance, the bundled and unbundled fires have been modelled using the surface emissive powers set out in the two-zone model.

For people located indoors, the HSA advises that the building may provide some protection from the fire and that this should be taken into account.

- For exposure to fluxes in excess of 25.6kW/m^2 , the building is conservatively assumed to catch fire quickly and a 100% fatality risk is applied.
- For exposure to fluxes less than 12.7kW/m^2 , the people inside the building are assumed to be protected and a 0% fatality risk is applied.
- For exposure to fluxes in between these two values, people are assumed to escape outdoors and, therefore, have a risk of fatality corresponding to that outdoors.

Overpressure Effects

The probit function for overpressure effects is:

$$Y = 1.47 + 1.35 \cdot \ln(P)$$

Unlike the probit for thermal effects, the probit for overpressure effects is only related to the overpressure (P) expressed in pounds per square inch (psi).

Major Accidents to the Environment (MATTE)

The HSA's land use planning guidance provides the following advice on major accidents to the environment (MATTE):

“In the context of LUP, the prevention of MATTEs will be the primary objective and it is expected that accident pathways will be prevented. Where this is not practicable, or in the context of significant modifications at existing COMAH establishments, the assessment of major accidents to the environment focuses on the specific risks to sensitive receptors within the local environment, the extent of consequences to such receptors and the ability of such receptors to recover.”

Given that the 3FM Project will not result in any changes, or any increase in risk, at the COMAH establishments, we have not considered MATTE events as part of this assessment.

6.5.2 Development Sensitivity Levels

The HSA provides advice to the planning authorities, in accordance with the COMAH Regulations, using a similar system to that applied by the UK Health and Safety Executive (HSE), which is described in the HSE’s Land Use Planning Methodology. Different types of development are categorised under one of four sensitivity levels:

- Level 1: people at work, parking (workplaces and parking areas).
- Level 2: developments for use by the general public (housing, hotel / hostel / holiday accommodation, transport links, indoor use by the public, outdoor use by the public).
- Level 3: developments for use by vulnerable people (institutional accommodation and education, prisons).
- Level 4: very large and sensitive developments (institutional accommodation, very large outdoor use by the public).

Table 6.12 provides a summary of the sensitivity levels and examples of the types of development for each.

Table 6.12 Summary of development types for Land Use Planning Zones

Zone	Type	Description / Examples
Inner	Workplaces	Workplaces (non-retail) for less than 100 occupants in any building and fewer than three occupied storeys
	Parking area	Parking facilities (car park, truck park) with no other associated facilities (other than toilets)
	Estate & access roads	Single carriageway roads
	Members of the public not normally present, or present in small numbers and for a short time	Developments for indoor use by the public where total floor space is less than 250m ² (e.g. restaurants and cafés, shops, petrol filling stations, coach / bus stations, ferry terminals)

Zone	Type	Description / Examples
Middle	Large workplaces Transport links Indoor & outdoor areas for use by the general public	Workplaces (predominantly non-retail) providing for more than 100 occupants in any building, or three or more occupied storeys in height Major transport links (e.g. motorway, dual carriageway) Developments for indoor use by the general public where total floor space is from 250m ² up to 5,000m ²) Principally an outdoor development for use by the general public, i.e. developments where people will predominantly be outdoors and not more than 100 people will gather at the facility at any one time
Outer	Large developments for use by the general public Developments for use by vulnerable people	Developments for indoor use by the public where total floor space is greater than 5,000m ² Predominantly open-air developments likely to attract the general public in numbers greater than 100 people, but up to 1,000 people at any one time Institutional, educational and special accommodation for vulnerable people, or that provides a protective environment
Outside all zones	Very large outdoor use by the general public	Predominantly open-air developments where there could be more than 1,000 people present

The HSA provides its advice to planning authorities in the form ‘advises against’ or ‘does not advise against’ depending on which zone (from Table 6.12) the development lies within, as shown in Table 6.13 (a tick indicating ‘do not advise against’ and a cross indicating ‘advise against’).

Table 6.13 HSA Matrix for Land Use Planning Advice

Sensitivity Level	Individual Risk Zone (refer to Table 3)		
	Inner Zone	Middle Zone	Outer Zone
Level 1	✓	✓	✓
Level 2	×	✓	✓
Level 3	×	×	✓
Level 4	×	×	×

The development sensitivity levels applicable or analogous to the types of development associated with the 3FM Project are summarised in 6.5.4.2 (from the HSA’s guidance). The sensitivity levels relevant to the 3FM Project are described in more detail in Sections 6.5.4.2, based on the HSA’s guidance and, in the absence of

a direct comparison between the activities in the 3FM Project area and examples of a development type from the HSA's guidance, the principles (justification) outlined in the guidance (Table 6.14).

Table 6.14 Development Sensitivity Levels applicable or analogous to 3FM Project

Development Type	Example	Development Detail & Size	Justification
DT1.1 – workplaces	Offices, factories, warehouses, haulage depots, farm buildings, non-retail markets, builder’s yards.	Workplaces (predominantly nonretail), providing for less than 100 occupants in each building and less than 3 occupied storeys – Level 1	Places where the occupants will be fit and healthy, and could be organised easily for emergency action. Members of the public will not be present or will be present in very small numbers and for a short time.
	Exclusions		
	-	DT1.1×1 Workplaces (predominantly non-retail) providing for 100 or more occupants in any building or 3 or more occupied storeys in height – Level 2 (except where the development is at the major hazard site itself, where it remains Level 1).	Substantial increase in numbers at risk with no direct benefit from exposure to the risk.
DT1.2 – parking areas	Car parks, truck parks, lock-up garages	Parking areas with no other associated facilities (other than toilets) – Level 1	-
	Exclusions		
	Car parks with picnic areas, or at a retail or leisure development, or serving a park and ride exchange.	DT1.2×1 Where parking areas are associated with other facilities and developments the sensitivity level and the decision will be based on the facility or development.	-

Development Type	Example	Development Detail & Size	Justification
DT2.1 – housing	Houses, flats, retirement flats/ bungalows, residential caravans, mobile homes.	Developments up to and including 30 dwelling units and at a density of no more than 40 per hectare – Level 2	Development where people live or are temporarily resident. It may be difficult to organise people in the event of an emergency.
	Exclusions		
	Infill, backland development	DT2.1 ×1 Developments of 1 or 2 dwelling units – Level 1	Minimal increase in numbers at risk.
DT2.3 – transport links	Motorway, dual carriageway.	Major transport links in their own right; i.e. not as an integral part of other developments – Level 2	Prime purpose is as a transport link. Potentially large numbers exposed to risk, but exposure of an individual is only for a short period.
	Exclusions		
	Estate roads, access roads.	DT2.3×1 Single carriageway roads – Level 1	Minimal numbers present and mostly a small period of time exposed to risk Associated with other development
DT2.4 – indoor use by public	Food & drink: drive-through fast food. Retail: petrol filling station (total floor space based on shop area not forecourt), Assembly & leisure: coach / bus / railway stations, ferry terminals, airports.	Developments for use by the general public where total floor space is from 250m ² up to 5,000m ² – Level 2	Developments where members of the public will be present (but not resident) Emergency action may be difficult to co-ordinate.

Development Type	Example	Development Detail & Size	Justification
	Exclusions		
	-	DT2.4×1 Development with less than 250m ² total floor space (of all floors) – Level 1	Minimal increase in numbers at risk
DT2.5 – outdoor use by public	Assembly & leisure: coach / bus / railway stations, park & ride interchange, ferry terminals.	Principally an outdoor development for use by the general public i.e. developments where people will predominantly be outdoors and not more than 100 people will gather at the facility at any one time – Level 2	Developments where members of the public will be present (but not resident) either indoors or outdoors. Emergency action may be difficult to co-ordinate.
	Exclusions		
	Outdoor markets, car boot sales, funfairs. Picnic area, park & ride interchange, viewing stands, marquees.	DT2.5 ×1 Predominantly open-air developments likely to attract the general public in numbers greater than 100 people but up to 1,000 at any one time – Level 3	Substantial increase in numbers at risk and more vulnerable due to being outside
DT3.1 – institutional accommodation and education	Hospitals, convalescent homes, nursing homes. Housing for elderly with warden on-site or ‘on call’, sheltered housing. Nurseries, crèches. Schools and academies for children up to school-leaving age.	Institutional, educational and special accommodation for vulnerable people, or that provides a protective environment – Level 3.	Places providing an element of care or protection. Due to age, infirmity or state of health, the occupants may be especially vulnerable to injury from hazardous events.

Development Type	Example	Development Detail & Size	Justification
			Emergency action and evacuation may be very difficult.
	Exclusions		
	Hospitals, convalescent homes, nursing homes, sheltered housing.	DT3.1×1 24-hour care where the site on the planning application being developed is greater than 0.25 hectare – Level 4	Substantial increase in numbers of vulnerable people at risk.
	Schools, nurseries, crèches.	DT3.1×2 Day care where the site on the planning application being developed is greater than 1.4 hectares – Level 4	Substantial increase in numbers of vulnerable people at risk.

6.5.3 Major Accident Scenarios

6.5.3.1 Overview

The HSA's guidance sets out the types of major accident scenario to be considered as part of a COMAH land use planning assessment for the different types of establishment. For a site that stores flammable liquids (including petroleum products), such as the two NORA sites and Dublin Bay Power, the HSA's guidance identifies the corresponding loss of containment (LOC) scenarios and the relevant end events to be considered. In addition, the guidance sets out the approach to be taken for establishments where there is a significant major accident risk associated with releases from on-site natural gas pipelines, such as at Dublin Bay Power and ESB Poolbeg.

- Ignition category 3 substances (petroleum products)

The HSA's guidance advises that the types of end event relevant to class II and class III petroleum products (kerosene and diesel, the petroleum products stored at the three COMAH sites) are equivalent to ignition category 3 substance events.

The ignition probabilities for ignition category 3 substances are zero, and fire and explosion events are not considered credible unless they are located in the same bund as lower category (category 0, 1 or 2) substances; this is not applicable at the COMAH establishments in the South Port.

If an ignition category 3 substance overtops a bund and is released *outside* the establishment, it is conservatively assumed that it could ignite (as a pool fire) in the absence of the control measures (the controls on ignition sources) within the establishment boundary.

- Natural gas

The HSA's guidance advises that for establishments with underground or overground natural gas pipelines, pipeline rupture and pipeline leak scenarios need to be considered. The consequences associated with these loss of containment events are jet fires, flash fires, and vapour cloud explosions (VCEs).

6.5.3.2 Scenarios

The COMAH establishments included in this assessment, and the COMAH substances that may give rise to major accident scenarios, are summarised in Table 6.15, together with the non-COMAH ESB Poolbeg CCGT which is included by virtue of its natural gas infrastructure.

The loss of containment events, consequences and probabilities set out in the HSA's guidance are set out in Table 6.16 for category 3 liquid substances and Table 6.17 for natural gas.

Table 6.15 COMAH Establishments & Substances

Establishment	Location	Tier	COMAH Substances
NORA Ringsend Tank Farm	Shellybanks Road (Off Pigeon House Road), Ringsend, Dublin 4	Upper	Class III
NORA Poolbeg Tank Farm	Pigeon House Road, Dublin 4	Upper	Class II & III
Synergen t/a ESB Dublin Bay Power	Pigeon House Road, Ringsend, Dublin 4	Lower	Class III Natural gas ^{Note 1}
ESB Poolbeg CCGT	Pigeon House Road, Ringsend, Dublin 4	Note 2	Natural gas ^{Note 1}

Note 1: Natural gas is not stored at these sites, but the sites are supplied by a natural gas pipeline via an AGI (above ground installation) and therefore this substance is included in this assessment consistent with Section 3.5 of the HSA’s guidance.

Note 2: The ESB Poolbeg generating station is not a COMAH establishment. However, as it is supplied by a natural gas pipeline via an AGI it is included in this assessment, consistent with Section 3.5 of the HSA’s guidance.

For the COMAH establishments at the South Port, we have conservatively assumed that the following overtopping events could occur such that pools could extend offsite¹³.

- NORA Poolbeg
 - Kerosene tank bund: overtopping to the east and to the south under the current Port layout, and to the north under the future Port layout following construction of Area N
 - Diesel /gas oil tank bund: overtopping to the west under the current Port layout, and to the north under the future Port layout following construction of Area N
 - Dye tank bund: overtopping to the west, south, and east
- NORA Ringsend
 - North bund (four tanks): overtopping to the north, west, and east
 - South bund (five tanks): overtopping to the north (to the area east of the north bund), east, south and west
- Dublin Bay Power
 - Diesel / gas oil bund: overtopping to the north, east, south and west

¹³ The NORA Ringsend establishment includes tertiary containment in the tank farm bund to minimise potential overtopping in certain directions; for this COMAH assessment, we have adopted a conservative approach and discounted the benefit of the tertiary containment.

Table 6.16 Major Accident Scenarios for Kerosene and Diesel (Tanks)

Installation type	Establishment	Scenario	Loss of containment frequency (per annum)	Consequence	Ignition frequency (per annum)	HSA reference
Ignition Category 3 substances and mixtures (class II & III) (HSA §3.6.4)	NORA Poolbeg NORA Ringsend Dublin Bay Power	Instantaneous failure (overtop)	5×10^{-6}	Pool fire (unbundled)	5×10^{-8}	123

Table 6.17 Major Accident Scenarios for Aboveground Natural Gas Pipelines within an Establishment

Scenario	Frequency (per metre per annum)			HSA reference
	$\varnothing < 75\text{mm}$	$75\text{mm} \leq \varnothing \leq 150\text{mm}$	$\varnothing > 150\text{mm}$	
Pipeline rupture	1×10^{-6}	3×10^{-7}	1×10^{-7}	87
Pipeline leak of 0.1 \varnothing (max. 50mm)	5×10^{-6}	2×10^{-6}	5×10^{-7}	88

Note: The conditional probabilities for a flammable gas release from a pipeline (HSA §3.5.1) are as follows:

- Fireball / jet fire = 0.1
- Flash fire = 0.36
- Vapour cloud explosion = 0.54

6.5.4 Results

6.5.4.1 Individual Risk

The aggregated risk contours for the inner, middle, and outer zones around the COMAH establishments are shown in Appendix 6-3 for both the current and future layouts of the south Port. The risk contours show that two distinct sets of zones are formed: an eastern part, centred broadly at ESB Poolbeg and NORA Poolbeg, and a western part centred broadly at Dublin Bay Power and NORA Ringsend. The land use planning zones can be summarised as follows:

- Eastern part:
 - The inner and middle zones are formed over the natural gas installation at the AGI for the ESB Poolbeg CCGT.
 - The middle and outer zones extend over part of the new road development to the east of the proposed roundabout on Pigeon House Road.
 - The outer zone extends over the NORA Poolbeg establishment, as well as a small portion of the southern part of Area N.
- Western part:
 - The inner zone is formed over the natural gas installation at Dublin Bay Power.
 - The middle zone extends over the COMAH establishment at Ringsend (NORA oil storage facility) and Dublin Bay Power.
 - The outer zone extends over the proposed road upgrades along Shellybanks Road, South Bank Road, the new proposed road connecting South Bank Road and Pigeon House Road, the south-east corner of Area K, the north-west portion of Area O, and the north-east part of the proposed amenity area to the west of Area O.

6.5.4.2 Development Sensitivity Levels

Overview

The development sensitivity levels applicable or analogous to the types of development associated with the 3FM Project described in Section 6.5.4.2, based on the HSA's guidance and, in the absence of a direct comparison between the activities in the 3FM Project area and examples of a development type from the HSA's guidance, the principles (justification) outlined in the guidance.

However, before considering the development sensitivity levels associated with the individual areas of the 3FM Project, it is necessary to consider several groups of people that may be present in any of these areas, in particular:

- Professional drivers operating to, from and within the areas, whether delivering cargo to the Port for export, collecting cargo from the Port as an import, or as a passenger on a Ro-Ro vessel accompanying the cargo.
- Shunter drivers / crane drivers and other operatives working on the landside of the Port.
- Ship personnel / crew members on board vessels berthed at the Port.
- State services personnel.
- Members of the public using amenity areas.

Section 6.5.4.2 sets out our assessment of these groups in the context of the development sensitivity levels.

Sensitivity Levels for Specific Personnel

Professional Drivers

In our opinion, professional drivers operating to and from the port constitute workers, rather than members of the public. In this context, there are two broad categories of professional driver:

1. Dangerous Goods Vehicle Drivers

Drivers of heavy goods vehicle (HGV) and light goods vehicle (LGV) that transport dangerous goods are subject to the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR). As set out in the HSA's guidance on ADR:

“The ADR and current regulations on the carriage of dangerous goods by road require drivers of vehicles used for the carriage of dangerous goods by road to be trained to enable them to understand and be aware of hazards arising in the carriage of dangerous goods. The training must give drivers basic information indispensable for minimising the likelihood of an incident taking place and, in such an event, to enable them to take measures that may prove necessary for their own safety and that of the public and the environment, to limit the effects of such an incident.”

There is no explicit guidance on whether trained drivers should be classified as members of the public or as workers¹⁴, or whether the areas in which such drivers operate should be classified as workplaces under the COMAH land use planning guidance. It is therefore necessary to consider the principles (justification) set out by the HSA for the different sensitivity levels.

In general, Sensitivity Level 1 developments (which can be accommodated within the inner zone) are places where occupants will be fit & healthy and could be organised easily for emergency action. Workplaces fall within Sensitivity Level 1, as well as places where (very) small numbers of members of the public may be present for a short time.

¹⁴ HGV, LGV and other professional drivers may be classified as workers based on their occupation / employment status.

In this context, we consider that it is reasonable to classify drivers of dangerous goods vehicles as workers and the areas in which they operate as workplaces

- Drivers of dangerous goods vehicles are exposed to hazards similar to those present within the Port, and at COMAH establishments in general, and therefore they may be expected to have a greater awareness of the hazards within the Port and a greater capacity to respond in an emergency.
- Drivers of dangerous goods vehicles are workers, and by virtue of using the Port, the Port forms part of their workplace.
- Drivers of dangerous goods vehicles are required to undergo specialised training on ADR, in addition to their training as professional drivers.

3. Other Drivers

Drivers of goods vehicles that do not convey dangerous goods are not required to undergo specialised ADR training and therefore may not be as familiar with hazardous substances and the associated risks. However, while this class of driver may not have undergone ADR training, professional drivers operating within the EU are subject to the EU Directive on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers (2003/59/EC) and the corresponding national legislation. The Directive applies to drivers under licence categories C and D (LGV, HGV and passenger vehicles) and requires that drivers undergo specialised training:

- to know the regulations governing the carriage of goods: transport operating licences, international transport permits, crossing borders
- to make drivers aware of the risks of the road and of accidents at work: types of accidents at work in the transport sector, involvement of lorries / coaches, human, material and financial consequences.
- to assess emergency situations: behaviour in an emergency situation, assessment of the situation, avoiding complications of an accident, summoning assistance, assisting casualties and giving first aid, reaction in the event of fire, evacuation of occupants of a lorry / bus passengers, ensuring the safety of all passengers

While this training may not be specifically aimed at the hazards associated with COMAH establishments, it requires that professional drivers have a greater level of training than members of the public.

As in the case of drivers of dangerous goods vehicles, we consider that it is reasonable to consider that professional drivers of goods vehicles are workers and that the areas in which they operate are workplaces:

- All professional drivers are required to undergo specialised training, including training for emergency situations.
- Professional drivers are workers, and by virtue of using the Port, the Port forms part of their workplace.

Shunter Drivers / Crane Drivers

In our opinion, shunter drivers/crane drivers (and other 'ground' staff) may be classified as workers in the context of the COMAH land use planning guidance. The examples of workplaces provided in the HSA's (and HSE's) guidance include offices, factories, warehouses and haulage depots and are therefore not confined to COMAH workplaces. The areas in which trailers are parked and manoeuvred are analogous to warehouses and haulage depots (workplaces) or to truck parks (parking areas), both of which fall within Sensitivity Level 1 provided that there are no more than 100 occupants (workers) present.

Cargo Ship Personnel/Crew

In our opinion, ship personnel and crew (with the exception of cruise liners / passengers vessels) may be considered as workers (rather than members of the public) on a similar basis to professional drivers, and therefore both the ship at a berth, and the berth itself constitute workplaces for ship personnel.

It is not evident from the HSA's (or HSE's) guidance whether the limitation on the number of occupants for a DT1.1 workplace should apply to a ship temporarily berthed at a Ro-Ro / Lo-Lo / bulk carrier (or other) terminal. We understand that the typical complement of a cargo vessel may be up to (approximately) 40, and that it would not exceed 100. Therefore, even on the assumption that the limit of 100 occupants were to apply to a ship at a berthed, it would remain within Sensitivity Level 1.

If the passenger complement of a (cargo) vessel were also to be included in the number of occupants (which we consider to be a very conservative assumption), it may remain within Sensitivity Level 1 if the ship's complement plus the passenger complement does not exceed 100. However, we consider that a more reasonable application of the HSA's guidance would take into account both the temporary nature of the berthing (typically several hours) and the professional drivers that may be passengers on the ship and that are accounted for separately within the area.

Overall, based on the detailed assessments outlined above, it is our view that a cargo or container ship berthed in the South Port would fall within Sensitivity Level 1.

Area K and O: Ro-Ro Terminals

Replacement of the existing Lo-Lo container terminal, currently operated by Marine Terminals Limited (MTL), with a **new Roll-On Roll-Off (Ro-Ro) freight terminal** with an annual throughput capacity of 360,000 Ro-Ro units or 8.69m tonnes.

The Ro-Ro Terminal will consist of two main components:

- Terminal to be located at existing Berths 42 – 45 including provision of two berths, each with a single tier Ro-Ro ramp, plus associated cargo handling facilities (Dublin Port Masterplan Area K).
- Transit Ro-Ro trailer yard located on Port owned land on the southern side of the Poolbeg Peninsula (Dublin Port Masterplan Area O).

This combined terminal will accommodate larger Ro-Ro vessels of up to 240m length. primarily from Continental Europe.

In our opinion, each of these Ro-Ro Terminal elements are considered a “workplace” and therefore falls within development type DT1.1 (development sensitivity level), subject to the following constraints:

1. The number of occupants: the HSA’s guidance places a limit of 100 occupants in each building within a development.
2. Occupied storeys: there is a limit of 3 on the number of occupied storeys for a workplace building to fall within DT1.1.

Both constraints are satisfied in these areas of the proposed development (i.e. less than 100 occupants will be present in this area of the development and occupied buildings will be less than three storeys); therefore, we consider that all of the individual elements are Sensitivity Level 1 developments. As set out in Section 6.5.4.1, the eastern portion of Area K lies within the outer zone. In our opinion, the development of Sensitivity Level 1 developments within this zone would satisfy the HSA’s criteria under its land use planning guidance.

Areas L and N: Container Terminals

A new **Lift-on Lift-off (Lo-Lo) container terminal** with an annual throughput capacity of 550,000 Twenty-foot Equivalent Units (TEU) or 5.34m tonnes.

The Lo-Lo Terminal will consist of two main components:

- Terminal located north of the ESB’s Generating Station on the eastern end of Poolbeg Peninsula with 650m of deep water berthage dredged to a depth of -13.0m CD (Chart Datum), plus associated cargo handling areas (Dublin Port Masterplan Area N). This terminal will accommodate larger Lo-Lo vessels of up to 240m, primarily from Continental Europe.
- Transit container storage yard located on waterside land currently used for bulk cargo handling (Dublin Port Masterplan Area L).

In our opinion, each of these Lo-Lo Terminal elements are considered a “workplace” and therefore falls within development type DT1.1 (development sensitivity level), subject to the constraints on the number of occupants (no more than 100 occupants in any one building / or outdoors) and the number of occupied stories in buildings (less than 3).

If either constraint for DT1.1 workplaces is not satisfied, the workplace would fall within the first *exclusion* to DT1.1, namely DT1.1 ×1, which applies to workplaces with more than 100 occupants in *any* building, or with three or more occupied stories. Such a development type falls within development Sensitivity Level 2. As noted in Table 6.5, up to 108 individuals could be present in Area N during normal operations; however, given the nature of the activities undertaken by the different groups of individuals, it is highly unlikely that all will be present within a single building.

As set out in Section 6.5.4.1, a small portion of Area L lies within the risk contour outer zones. In our opinion, the development of Sensitivity Level 1 and 2 developments within this zone would satisfy the HSA’s criteria under its land use planning guidance.

South Bank Road & Pigeon House Road

Under the HSA's guidance, roads and other transport links generally fall within Sensitivity Level 2 (DT2.3), namely motorways, dual carriageways, and transport links in their own right (transport links that are not an integral part of other developments). Estate and access roads for minimal numbers of people present, (mostly) for a short period of time, and associated with other development, generally fall under exclusion DT.2.3 ×1 (Sensitivity Level 1).

As set out in Section 6.5.4.1, the western part of the outer zone extends over South Bank Road to the south of the Dublin Bay Power and NORA Ringsend establishments, and the eastern part of the middle and outer zones extend over part of the new road development to the east of the proposed roundabout on Pigeon House Road. In our opinion, Sensitivity Level 1 developments within these zones would satisfy the HSA's criteria under its land use planning guidance.

Community Gain Areas

The 3FM Project includes a community gain proposal to provide additional and enhanced public realm throughout the Poolbeg Peninsula by way of new parks and active travel infrastructure. This will include:

- a sailing, rowing, and maritime campus at the existing Berth 41 (Maritime Village).
- Port Park in the area of the Poolbeg West SDZ.
- active travel infrastructure.

The proposed routes and areas would be used by members of the public, with little (direct) control on either the numbers of people that may be present at any one time, or on the vulnerability of the people that may use it (e.g. elderly, infirm, young, or other sensitive populations).

Developments for indoor use by the public, e.g. restaurants/cafés in the proposed maritime village, where the total floor space is between 250m² and 5,000m² fall within DT2.4 (a Sensitivity Level 2 development). Neither the middle nor outer zone extends over this part of the 3FM Project development.

Developments for outdoor use by the public, e.g. picnic areas where less than 100 people gather at one time falls within DT2.5 (a Sensitivity Level 2 development). However, where numbers greater than 100 but less than 1,000 gather, the sensitivity increases to Sensitivity Level 3. The outer zone extends over the north-east portion of the proposed Port Park development, to the west of Area O. In our opinion, Sensitivity Level 2 and 3 developments within this zone would satisfy the HSA's criteria under its land use planning guidance.

6.5.4.3 Societal Risk

Expectation Value

The EV for Dublin Port South in its current layout, including the population associated with the Poolbeg West SDZ, is conservatively estimated at 109.9.

The EV for the South Port following the 3FM Project development is conservatively estimated at 111.3 (a marginal increase). The majority of the 3FM Project lies outside the COMAH land use planning zones, and is generally subject to relatively low risks associated with the three COMAH establishments (and the non-

COMAH generating station). The marginal increase in the EV is attributable, in general, to the increase in the number of people that will be present in the South Port associated with the 3FM Project, and the number of people that are expected to access the South Port.

Overall, the societal risk (expressed as an EV) for the 3FM Project satisfies the HSA's COMAH land use planning criteria as it does not exceed a value of 450. Nonetheless, given the extent of the 3FM Project boundary across Dublin Port South, we have further assessed the societal risk using an FN curve (refer to Section 6.5.4.3).

FN Curves

Current Port Layout

The conservative FN curve for the current layout of South Port estate is shown in Figure 6.9. This shows that the FN curve lies entirely within the broadly acceptable region.

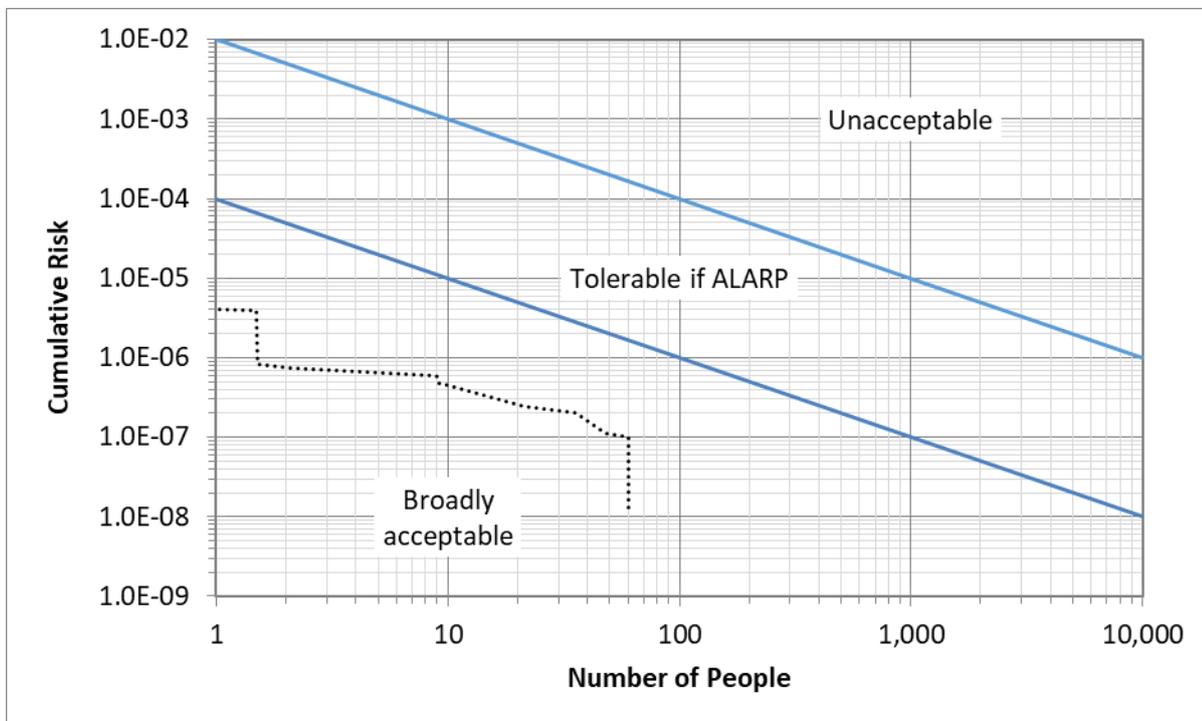


Figure 6.9 FN Curve for Current South Port estate Layout

3FM Project Development

The FN curve for future layout of Dublin Port South following the 3FM Project development is shown in Figure 6.10. Again, this shows that the curve lies entirely within the broadly acceptable region.

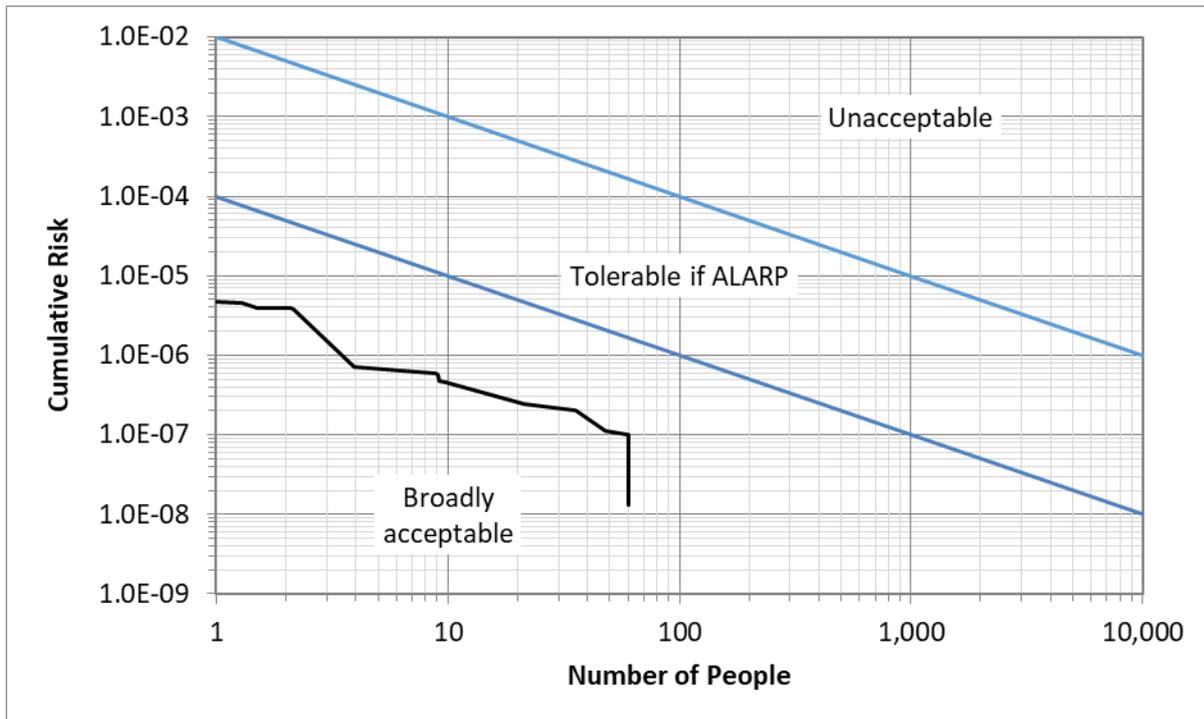


Figure 6.10 FN Curve for 3FM Project Development

Figure 6.11 combines the FN curves for the current layout and the future (3FM Project development) layout, and shows that there is a marginal increase in societal risk for events that could result in between 1 and 10 fatalities. As in the case of the EV assessment, the increase in societal risk estimated by means of an FN curve can be, broadly, attributable to the increase in the number of people that are expected to be present in the South Port area.

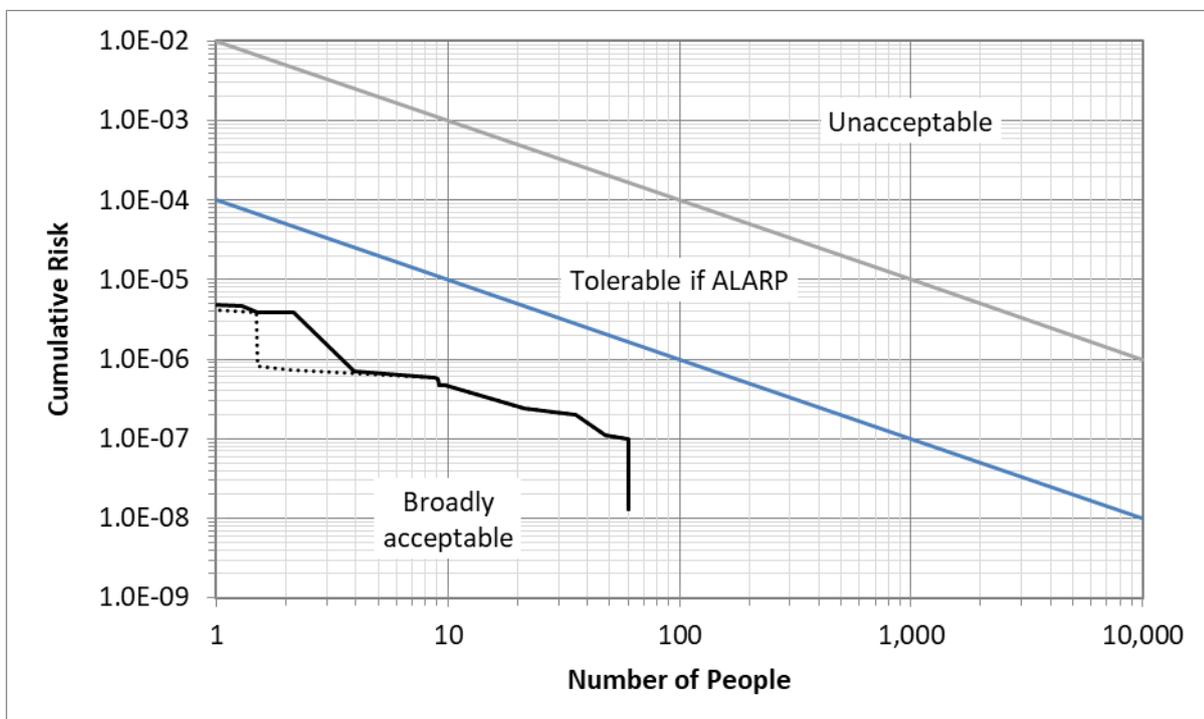


Figure 6.11 Comparison between FN Curves – Current Layout & 3FM Project Development

Overall, the societal risk (expressed on FN curves) for the 3FM Project satisfies the HSA's COMAH land use planning criteria, as the curves (both current and future) lie entirely within the broadly acceptable region.

6.6 Non-COMAH Events

6.6.1 Introduction

The COMAH Regulations only apply to establishments that store, handle or process dangerous substances above certain thresholds; the Regulations do not apply to either:

- the transport of dangerous substances by road, rail, internal waterways, sea or air outside establishments, including loading and unloading and transport to and from another means of transport at docks, wharves or marshalling yards; or
- the transport of dangerous substances in pipelines, including oil and natural gas pipelines, outside establishments.

As such, the HSA's guidance on COMAH land use planning does not apply to the transport of dangerous goods by road, or to pipelines conveying dangerous substances within the Port estate but outside establishments. The risks associated with these activities are considered in the following sub-sections.

6.6.2 Transport of Dangerous Substances by Road

A variety of dangerous substances are transported through the South Port estate on a daily basis, including:

- waste delivery trucks bringing waste to the Covanta Waste-to-Energy facility
- cement leaving the Ecocem production facility
- chemical deliveries to Ringsend wastewater treatment plant

In addition, substances that are stored and handled at the COMAH establishments are also transported to and/or from the establishments by road, albeit infrequently. The two NORA establishments are strategic oil storage terminals and, in general, movement of petroleum products in and out of these terminals is very infrequent. During emergency releases, petroleum products may be loaded into road tankers at the respective sites for distribution, with the road tankers making use of certain roads within the Port to get from the COMAH establishment to the main road network (outside Dublin Port). Petroleum products may be loaded on the southern part of the NORA Poolbeg establishment and the south-east part of the NORA Poolbeg establishment.

In general, vehicles exit the sites onto Pigeon House Road, onto Whitebank Road, ultimately exiting the port along South Bank Road.

All vehicles conveying dangerous substances by road are subject to the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), while dangerous goods conveyed by ship (either in containers or in trucks / tankers on ferries) are subject to The International Maritime Dangerous Goods (IMDG) Code. The ADR and IMDG both set out the requirements for packing, loading, filling, transporting and unloading dangerous goods, and the requirements for the performance of the containers, the segregation/separation of incompatible materials, the separation of dangerous goods from other goods and,

in the case of the IMDG, separation from passenger spaces, and the actions to be taken in the event of an emergency. In addition, dangerous substances within the Dublin Port estate are governed by the Dublin Port Bye-Laws - Dangerous Goods (Cargoes) 2014 (refer to Section 6.7.6).

Specialised vehicles that convey dangerous substances, such as road tankers for petroleum products, must be certified for the transport of dangerous goods on an annual basis. Therefore, in addition to holding a Commercial Vehicle Road Test certificate (either as a heavy or light commercial vehicle), these vehicles must also hold an ADR vehicle certificate. Drivers of vehicles conveying dangerous goods must hold a valid ADR Training Certificate, which requires completion of an approved basic and/or tanker specialisation driver training course and successful completion of an exam, which, in Ireland, is managed by the Chartered Institute of Logistics.

If a vehicle transporting a dangerous substance were involved in an incident giving rise to a major accident, the consequences would be similar in nature to those described for the COMAH establishments (e.g. a fire or release of potentially toxic material), albeit the quantities involved in the incident would generally be smaller. The traffic routes that such vehicles use generally coincide with the areas of the Port that may be impacted by events at the individual COMAH establishments, including in particular unbunded pool fires. The traffic routes for vehicles conveying dangerous substances also coincide, in part, with the routes used by other traffic within the port, including traffic to and from the area of the 3FM Project. As the same traffic will continue to access the South Port estate following the 3FM Project, there is no change in the risk to which such vehicles and occupants are exposed from the transport of dangerous goods by road.

6.6.3 Oil Pipelines

A system of pipelines transfers petroleum products from the oil berths to the various oil storage sites (the two NORA establishments and Dublin Bay Power). The oil distribution pipelines in Dublin Port south consist of two main routes:

- From the ESB jetty (Berth 48) into the northern part of the NORA Poolbeg establishment. This will be relocated further east as part of the proposed development for Area N.
- From Deep Water Berth 46 along the north and western boundary of the Dublin Bay Power bulk storage tanks, crossing beneath Pigeon House Road and continuing along the western boundary of the NORA Ringsend establishment.

The pipelines routes generally coincide with the areas of the port that may be impacted by events at the individual COMAH establishments, including in particular unbunded pool fires.

Pipeline relocation works will be undertaken at Poolbeg and construction activity will take place near the underground pipelines to the north of the Dublin Bay Power bulk storage tanks. Construction works near oil pipelines risk damaging the pipelines, which can result in a serious accident, e.g., unbunded pool fires. All construction activities near oil pipelines will be undertaken in accordance with relevant standards and codes of practice.

During normal operations, there is limited potential for 3FM Project activities to damage these pipelines. As the same traffic will continue to access Dublin Port south following the 3FM Project, and there is no change

proposed to the route of the natural gas pipelines within the South Port estate, there is no change in the risk to which such vehicles and occupants are exposed from these pipelines.

6.6.4 Natural Gas Pipelines

A Gas Networks Ireland underground transmission pipeline enters the South Port estate at the junction of Sean Moore Road and South Bank Road. It continues along South Bank Road, passing under hardstanding areas to the south of NORA Ringsend and Covanta before entering Irishtown Nature Park. As it reaches the end of the park, it turns northward along the eastern boundary of Ringsend wastewater treatment plant, continuing along Pigeon House Road until it reaches the ESB Poolbeg AGI. The transmission pipeline includes a northern spur which enters the AGI on the southside of Dublin Bay Power.

At the junction of South Bank Road and Whitebank Road, an underground distribution pipeline (connected to the transmission pipeline) continues along Whitebank Road onto Pigeon House Road, reconnecting with the transmission pipeline near the eastern boundary of Ringsend wastewater treatment plant.

Construction works near gas pipelines risk damaging the pipelines, which can result in a serious accident, e.g., it can fuel a fire, give rise to an explosive atmosphere or cause asphyxiation. All construction activities near natural gas pipelines will be undertaken in accordance with relevant standards and codes of practice, including those developed by Gas Networks Ireland and the HSA.

During normal operations, there is limited potential for 3FM Project activities to damage these pipelines, i.e., the pipelines are underground and therefore there is no potential for vehicular collisions damaging the pipelines. As the same traffic will continue to access Dublin Port south following the 3FM Project, and there is no change proposed to the route of the natural gas pipelines within the South Port, there is no change in the risk to which such vehicles and occupants are exposed from these pipelines.

6.7 Emergency Response Management

6.7.1 Introduction

Dublin Port's approach to Emergency Response Management is described in the following sub-sections, in the context of the potential for major accident hazards to arise at the COMAH establishments and, more generally, for other incidents and accidents that may arise across the Port estate.

6.7.2 Dublin Port Security

DPC operates its own Harbour Police & Port Security, which is present on the Port Estate 24 hours a day, seven days a week, 365 days a year. Two patrol vehicles operate at all times in conjunction with An Garda Síochána, and Dublin Port has a close working relationship with DCC, the operator of the Dublin Port Tunnel, and TII. In addition, DPC has a comprehensive CCTV system across the estate, with over 130 camera locations monitoring the complete road network and port infrastructure, with the system monitored by Harbour Police & Port Security at all times. Therefore, in the event of an incident on the road network, or an incident at a COMAH (or other facility) within the port requiring the diversion of traffic, DPC can respond immediately and co-ordinate directly with the relevant emergency services.

6.7.3 Dublin Port Emergency Management Plan

6.7.3.1 Summary

As set out in “A Framework For Major Emergency Management” (produced by the National Steering Committee for Major Emergency Management), the Harbours Act places responsibility on the Harbour Master for the safety of shipping and all activities within the defined port limits. The legislation also requires that emergency plans be prepared in respect of the major ports. These emergency plans are designed generally to deal with incidents, in the first place using the port’s own resources. Each port is also required to prepare an oil pollution plan to deal with oil pollution incidents, and responsibility for implementing the plan rests with the harbour master. Where COMAH establishments are located within a port (or harbour), the port authority is designated as a local competent authority and as such is included in the relevant external emergency planning process.

In this context, DPC has developed its Emergency Management Plan, the aim of which is to set out the structures and arrangements that will be used in response to an emergency to mitigate:

- loss of life or injury to employees, contractors, visitors and local residents,
- damage to the environment, and
- damage to the facilities, plant and equipment within the port, its commercial partners, tenant companies and neighbours.

The plan also aims to ensure that DPC emergency management structures and arrangements are compatible with the requirements of the Framework for Major Emergency Management.

The actions to be taken in an emergency are decided by the Emergency Management Team (EMT) and the plan itself may be activated by the Chief Executive Office, the Emergency Management Marine Coordinator (EMMC), or the Emergency Management Land Coordinator (EMLC), depending on the circumstances and severity of the incident.

The plan is designed to cater for both marine and land-based emergencies; land emergency scenarios may include:

- major fire within the general port area,
- major oil spill,
- major spill of hazardous material,
- a vehicle accident involving hazardous material,
- chemical incidents (e.g. toxic cloud), or
- major incident in an oil, gas or hazardous material storage facility.

The Dublin Port Emergency Management Plan also contains several scenario-specific sub plans for the individual types of emergency scenario, which focus on the immediate actions to be taken by internal sections of the Port Company.

6.7.3.2 Dublin Port Alarm

The DPC fire alarm panel system is located in the Harbour Police & Port Security Control Room, situated on the ground floor of the Port Operations Centre. The fire alarm system monitors approximately 21 sites, and break glass units are located throughout the port estate.

The fire alarm system can be activated manually or automatically from various points around the port directly linked to the system. When activated, the Harbour Police & Port Security are immediately alerted and investigate the alarm before deciding on what action is required. The port wide sirens are located at the ESB North Wall Generating Station, the oil jetties, and DP Warehousing. With the exception of alarm tests, all pumping stops immediately on sounding of the Port-wide siren. Fire Wardens on the oil jetties communicate with all users of the Dublin Port common oil pipeline (COP) by VHF radio.

For confirmed alarm activations, the affected site and Harbour Police & Port Security request the attendance of the emergency services, advising them of the nature of the emergency, name and location of the site affected using the ETHANE mnemonic:

- **E**xact location of the emergency.
- **T**ype of emergency (e.g. fire; hazardous material spill; road traffic accident).
- **H**azards (present and potential).
- **A**ccess route to the emergency.
- **N**umber and type of casualties (if known).
- **E**mergency Services (those present and those required).

Once confirmed, the Harbour Police & Port Security immediately open the emergency gates located at the western end junction of Tolka Quay Road and East Wall Road, and this immediate area operates as the emergency services rendezvous point. The Dublin Fire Brigade will be dispatched to the port to deal with the incident, whilst the Harbour Police / Port Security will implement a traffic control plan, with the support of An Garda Síochána, as required.

The Port-wide alarm system is a continuous wailing alarm sound. On hearing this alarm, port users should:

- Be aware that an incident is ongoing.
- Account for staff, visitors and contractors.
- Continue to operate as normal unless instructed otherwise, or individual company standard operating procedures indicate otherwise.
- Wait for further instructions from the Harbour Police & Port Security or the Principal Emergency Services¹⁵.

¹⁵ An Garda Síochána, the Ambulance Service and the Fire Service. A fourth principal emergency service, the Irish Coast Guard, is responsible for the initiation, control and co-ordination of maritime emergencies in the Irish territorial waters, harbours and coastline.

Port users should await further information from the Harbour Police & Port Security, whilst members of the public should tune in to a national radio station for updates.

6.7.3.3 Port Evacuation

During an emergency it may be necessary to evacuate the Port, or parts of the Port. As set out in the *Dublin Port Company Emergency Management Plan*, the Harbour Police / Port Security controls traffic flow throughout the port in the event of an evacuation of one or more areas.

6.7.4 Dublin City Council Major Emergency Plan

Dublin City Council, the relevant Garda Division and Health Service Executive District are the Principal Response Agencies (PRAs) charged with managing the response to emergency situations that arise within Dublin City Council's administrative boundary. The Dublin City Council Major Emergency Plan is supported by, and is compatible with, the major emergency plans of An Garda Síochána and the Health Service Executive. In certain circumstances, the local response may be escalated to regional level, thus activating the plan for regional level co-ordination. If this is activated, the management of the incident is coordinated from a regional perspective.

Several specific local plans, such as the response plan to flood emergencies, remain in place as standalone plans, which can be implemented under the general arrangements and structures set out in the plan. Certain types of emergency have a particular focus, thus enabling a hazard or site-specific plan to be activated. Sub-plans deal with a range of incidents, such as severe weather emergencies, large crowd events and hazardous substances storage sites (such as COMAH establishments).

In the Dublin City Council administrative area, interagency specific off-site plans have been prepared for the upper tier establishments notified to the HSA (including those within the Port). In addition, the port (which lies within the Dublin City Council administrative boundary) has prepared emergency plans and maintains emergency services commensurate with the hazards within the port boundary. Dublin Port authorities generally request the attendance of the principal emergency services at alerts, incidents and exercises at the facility. Where appropriate, a major emergency may be declared by the principal response agencies when responding to an incident in Dublin Port.

The Dublin Fire Brigade provides the primary response to emergencies in the city and to the port. The Council supports this response by providing amongst others, the following functions:

- coordinating the delivery of services from all council departments.
- making buildings such as leisure and community centres available to people displaced by the emergency.
- providing a volunteer civil defence organisation.
- providing advice and assistance with clean up after major flooding or pollution.
- assessing structural damage to buildings.
- co-ordinating and leading multi-agency meetings to plan community recovery.

Overall, and in accordance with the requirements of A Framework for Major Emergency Management, the Dublin City Council Major Emergency Plan has been prepared to facilitate the response to, and recovery from major emergencies as well as ensuring the Council's arrangements are coordinated with those of the other designated principal response agencies, the Health Service Executive and An Garda Síochána.

6.7.5 Emergency Response Exercises

DPC conducts regular emergency response exercises across its estate, covering incidents at the COMAH establishments in co-ordination with the operators of the establishments and with the emergency services, incidents at other facilities in the port, road traffic incidents including incidents outside the port estate that can have a knock-on effect on traffic within the port, and incidents at the ferry terminals or berths. These exercises test DPC's procedures, response actions and the resources that may be deployed (personnel and emergency response equipment), thereby ensuring that DPC is well prepared to respond to an incident or emergency.

6.7.6 Dublin Port Dangerous Cargoes Bye-laws

In addition to the obligations on operators of COMAH establishments under the COMAH Regulations, and on the obligations of vessels and goods vehicles transporting dangerous goods under the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) and the International Maritime Dangerous Goods (IMDG) Code, dangerous goods within the Port estate are governed by the Dublin Port Bye-Laws. The byelaws regulate the movement and storage of dangerous goods within the Port, including:

- arrival by sea in packaged form, in liquid bulk or in solid bulk,
- departure by sea,
- arrival by road or rail, and
- storage / staging in the Port estate.

In the context of storing / staging dangerous goods within the port, including at the COMAH establishments, the byelaws require that:

- develop and maintain a Dangerous Goods Storage and Emergency Response Plan,
- maintain a Dangerous Goods Inventory,
- hold and have readily available safety data sheets (SDS) for all dangerous cargoes stored at the site,
- conduct an annual exercise of the emergency response plan,
- employ a qualified dangerous goods safety advisor (DGSA),
- conduct and maintain a chemical risk assessment.

6.8 Cumulative Effects

6.8.1 Overview

Part 5 of Annex IV of Directive 2014/52/EU (amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment) identifies requirements for assessing the cumulative effects of other existing and/or approved projects:

“5. A description of the likely significant effects of the project on the environment resulting from, inter alia:

(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.”

As set out in Section 6.5.3.1, the HSA’s land use planning guidance sets out the types of major accident scenario to be considered as part of a COMAH land use planning assessment for the different types of establishment. As part of this cumulative effects assessment, we consider the developments at the COMAH (and non-COMAH) sites that have been granted and/or are awaiting planning permission (refer to Section 6.2.1.4) to assess any relevant major accident hazard implications.

The proposed open cycle gas turbine and connection to the existing AGI at Dublin Bay Power (ref: PWSDZ3074/23) and Poolbeg (3137/23), and the FlexGen developments¹⁶ at Ringsend (ref: 3647/20) and Poolbeg (ref: 3624/20) will include high pressure natural gas pipelines. The initiating and end events associated with these assets are described in Table 6.17. We assess the implications for individual and societal risk from these developments in the following subsections.

6.8.2 Changes to Individual Risk

The individual risk contours for the proposed developments that include natural gas pipelines are shown in Appendix 6-3. The map shows that there is a marginal increase in the contours around Dublin Bay Power, NORA Ringsend, ESB Poolbeg and two aspects of the 3FM Project (Area O and Port Park).

- The inner zone extends into the NORA Ringsend tank farm and over a wider area around the ESB Poolbeg AGI.
- The middle zone extends further south from Dublin Bay Power, moving closer to, but not extending as far as, the north side of South Bank Road. It also extends further north and east from the ESB Poolbeg AGI.
- The outer zone extends approximately 15-20m further south into Area O and Port Park.

¹⁶ These developments were subject to separate planning applications. In the case of the two FlexGen developments, the conclusion from the HSA was that it *does not advise against* the granting of planning permission in the context of major accident hazards.

The introduction of the new developments at Ringsend and Poolbeg does not materially change the size of the risk contours. As we have shown in Sections 6.5.4.1 and 6.5.4.2, the risk contours do not materially impact on the 3FM Project and, in our opinion, the sensitivity levels for the individual elements of the proposed development would satisfy the HSA’s criteria under its land use planning guidance. Therefore, the increase in the risk contours as a result of the proposed gas turbine developments are unlikely to materially impact on the 3FM Project and would not result in a significant cumulative impact.

6.8.3 Changes to Societal Risk

Figure 6.12 combines the FN curves for the 3FM Project development with and without the proposed OCGT developments at Dublin Bay Power and Poolbeg. The combined plot shows that there is a marginal increase in societal risk for events that could result in between one and ten fatalities. The increase in societal risk estimated by means of an FN curve can be, broadly, attributable to the increase in risk to individuals in close proximity to these gas turbine developments and would not result in a significant cumulative impact.

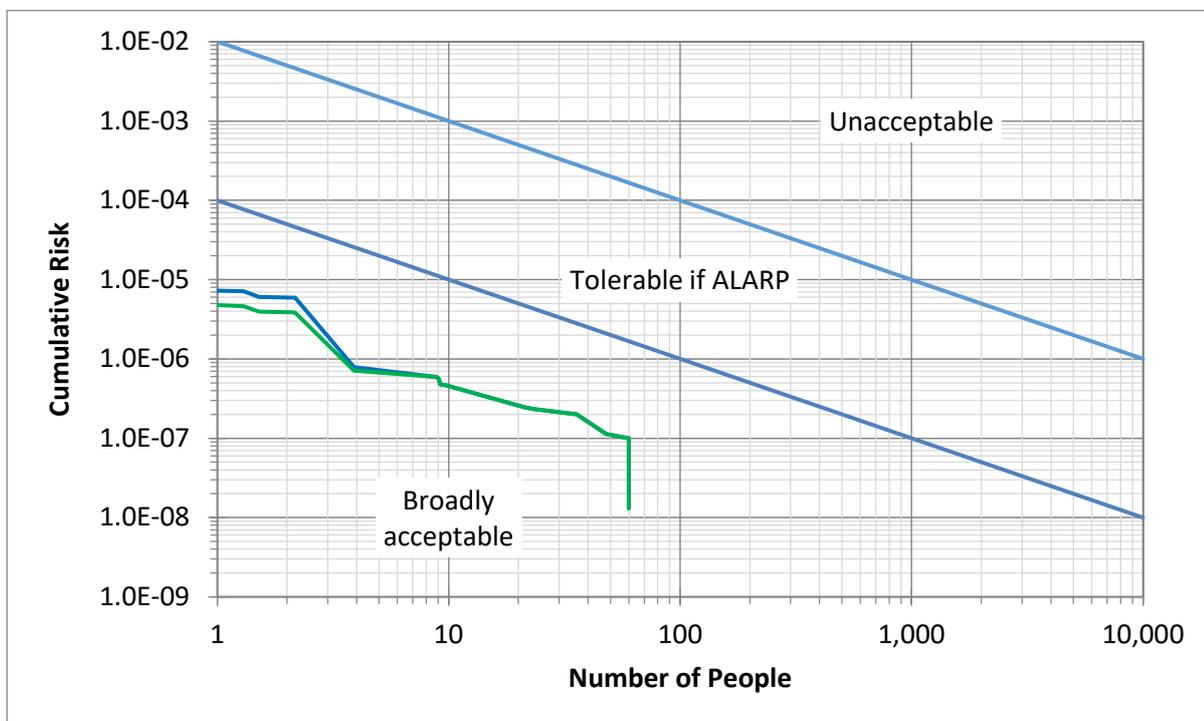


Figure 6.12 Comparison between FN Curves – 3FM Project Development (green) vs 3FM Project Development with gas turbine developments (blue)

6.9 Conclusions

Based on this conservative assessment, in our opinion the proposal for the 3FM Project within Dublin Port South satisfies the HSA’s criteria under its land use planning guidelines. For individual risk:

- No part of the proposed 3FM Project falls within the inner zone.
- The only element of the proposed development within the middle zone is part of the new road development to the east of the proposed roundabout on Pigeon House Road. This development may

be classified as sensitivity level 1, which would satisfy the HSA's criteria under its land use planning guidance.

- The elements of the proposed development within the outer zone may be classified as sensitivity level 1, 2 or 3 developments and are, therefore, consistent with the HSA's criteria for individual risk.

In the case of the societal risk criteria, there is no material change in Expectation Value, and the risk profiles for both the current port layout and following the 3FM Project lie within the broadly acceptable region, with the FN curve for the 3FM Project showing a marginal increase in the risk profile. In this context, and taking into account that the COMAH establishments are required to manage their establishments such that the risks are as low as reasonably practicable, in our opinion the societal risk satisfies the HSA's land use planning criteria.

It is concluded that the proposed gas turbine developments in the vicinity of Dublin Bay Power and ESB Poolbeg are unlikely to materially impact on the 3FM Project from either an individual or societal risk perspective.

It is also concluded that the natural events that could impact sites within the port, including on the 3FM Project, are no more significant than the potential impacts from the COMAH establishments and would not have a significantly different impact on the 3FM Project compared to the current layout of the terminals and surrounding area. Similarly, the potential impacts on the 3FM Project from an accident involving the transport of a dangerous substance either by road or by pipeline are not significantly different than those on the current port layout. Furthermore, the 3FM Project itself does not present any risks to other areas of the port that are different to, or greater than, the current risks within the port.

In addition, Dublin Port has developed a comprehensive emergency management plan that caters for the range of accident and emergency events that may occur within its estate (or that may occur outside the estate and that have a direct, knock-on effect), and this plan is provided to the other relevant stakeholders, including An Garda Síochána, Dublin City Council, Transport Infrastructure Ireland, and the Principal Response Agencies. In the event of an incident at a COMAH establishment that could impact on people at other facilities in the port, or on road traffic entering or exiting the port, DPC will activate its emergency management plan, in which case people would be directed away from the source of the hazard. As it is not possible to model the different combinations of major accidents and the corresponding emergency response actions within the societal risk assessments, the estimated societal risk is concluded to be conservative.

Accordingly, in our opinion, the potential major accident risks associated with the proposed 3FM Project satisfy the Health and Safety Authority's COMAH land use planning guidance and would not result in a significant impact.