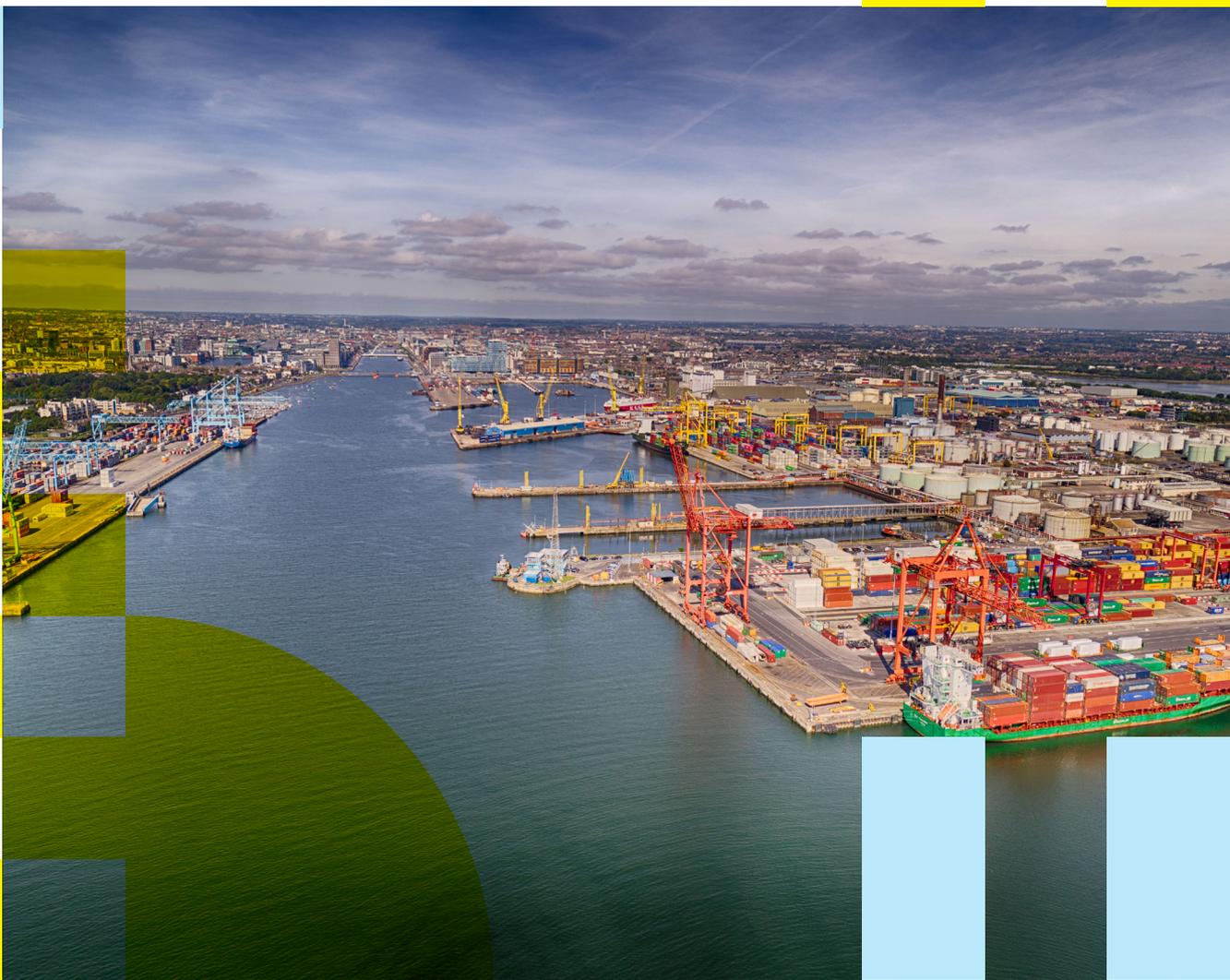


Environmental Impact Assessment Report

Chapter 15

Material Assets - Services

Volume 2 Part 5



15 MATERIAL ASSETS - SERVICES

15.1 Introduction

This chapter appraises the impact of the 3FM Project on existing and proposed utilities within the Poolbeg Peninsula and in the vicinity of proposed roadworks within the North Port Estate. The service requirements of the 3FM Project (water supply, wastewater and electricity supply) are also quantified to ensure the demand can be met and to ensure that there is no significant impact on other users or on the neighbouring communities.

15.2 Appraisal of the impact of the 3FM Project on existing and proposed Utilities

15.2.1 National Oil Reserves Agency (NORA) - Storage Tanks

15.2.1.1 Description of facilities

NORA is responsible for ensuring that Ireland meets its obligations under EU legislation and International Energy Agency rules to maintain a minimum of 90 days' stock of oil for use in the event of a shortage of supplies.

There are two key NORA facilities located on the Poolbeg peninsula:

- NORA Ringsend Facility located to the west of Shellybanks Road comprising of a number of tanks all containing winter grade diesel. To transfer the fuel between the tanks and the quays for import/export, a manifold is located underground within Area L under a protective steel sheet.
- NORA Poolbeg Facility adjacent to the ESB Generating Station comprising of a number of tanks containing winter grade diesel and Jet A1 fuel with one tank filled with water for fire-fighting purposes. The tanks are supplied via the Poolbeg Oil Jetty via overland pipelines. Other facilities include a control centre and loading area to transfer fuel to oil trucks for transport by road. The oil products arrive at Dublin Port using medium range (MR) oil tankers. The frequency of arrivals is low at one to two shipments per year on average. Both facilities must be able to transfer their product at any time in case of a national emergency. Such a national emergency would include a failure in the gas supply to the ESB Generating Station, which would then switch to oil and necessitate the replenishment of the two supporting oil tanks.

15.2.1.2 Potential impact of the 3FM Project and proposed mitigation measures

The 3FM Project will require the demolition of the existing Poolbeg Oil Jetty in order to construct a Lo-Lo Container Terminal at Area N and therefore has the potential to disrupt the supply of oil products to the NORA Poolbeg Facility. The potential for this disruption has been mitigated (by avoidance) by engineering design through the provision of dedicated works at the eastern end of the Lo-Lo Terminal comprising a dedicated manifold and above ground pipeline routes linking the manifold to the existing NORA site. Dedicated berthing facilities are also provided to allow an MR oil tanker to safely berth and discharge oil at

mid-ship. The construction sequence will ensure these oil transfer facilities are made operational before the demolition of the Poolbeg Oil Jetty to allow for the continuous operation of NORA.

15.2.1.3 Residual Impact

The 3FM Project will have no significant impact on the continuous operational requirements of NORA.

15.2.2 Uisce Éireann - Ringsend Wastewater Treatment Plant

15.2.2.1 Description of facilities

Ringsend Wastewater Treatment plant (WwTP) is located on the Poolbeg Peninsula and operated by Uisce Éireann. It currently provides 40% of Ireland's total wastewater treatment capacity.

Ringsend WwTP is currently being upgraded to increase capacity to a population equivalent of 2.5 million. The Capacity Upgrade Contract (CUC) began in 2014 and is scheduled to be completed by 2025/26. Further to completion of these works, Ringsend WwTP will have reached its maximum capacity with no spare land available for any additional expansion.

The main outfall channel for treated wastewater is shared with ESB's cooling water discharge from the ESB Generating Station. The maximum flow from the WwTP is 11.4m³. This is close to the maximum flow by which the hydraulic gradient allows the discharge from the WwTP to the outfall channel under gravity.

There is a storm overflow culvert located to the north-east of the existing storm water tanks which currently discharges partially treated wastewater to the Liffey during prolonged storm events in Dublin.

15.2.2.2 Potential impact of the 3FM Project and proposed mitigation measures

The 3FM Project will require the construction of a Lo-Lo Container Terminal at Area N and therefore has the potential to alter the dispersal characteristics of the main sewage discharge from Ringsend WwTP. The potential for this alteration has been mitigated through engineering design by making the form of construction of the Lo-Lo Terminal an open-piled wharf. This avoids any need to carry out infilling works and ensures that there will be no significant change to the existing tidal flow regime (see Chapter 13 Coastal Processes). The main outfall channel for treated wastewater will remain in place, largely unaffected by the construction of the wharf. Mitigation by avoidance can be achieved to ensure that the 3FM Project will have no significant impact on the hydraulic characteristics of the main treated sewage discharge.

The 3FM Project will also require the dredging of a Turning Circle in the vicinity of the existing storm overflow culvert. The 3FM Project will extend the storm overflow at its existing level and thereby enable its function to continue.

The ongoing construction works at Ringsend WwTP will be completed prior to commencement of the 3FM Project construction phase.

15.2.2.3 Residual Impact

The 3FM Project will have no significant impact on the continuous operational requirements of Ringsend Wastewater Treatment Plant.

15.2.3 Encyclis (formerly Covanta) - Waste to Energy Plant

15.2.3.1 Description of facilities

Encyclis operate a large Waste to Energy Facility on the Poolbeg Peninsula. All large transfer trailers arrive via the Dublin Tunnel. Normal refuse vehicles can also arrive from the south. Bottom ash (approximately 125,000 tonnes/year) and fly ash (approximately 30,000 tonnes/year) are exported via Dublin Port at Berths 46 & 47. There are plans to treat the ash in Ireland, whereby the ash will be transferred by road using the empty transfer trailers. The Encyclis Facility includes an area situated to the west of Shelley Banks Road which is comprised of maintenance buildings and parking yards.

There are plans for a District Heating System requiring pipework from the main Encyclis Building to an area in the vicinity of Area O where DCC proposes to construct a District Heating Energy Station.

The Waste to Energy plant draws cooling water from the Liffey and returns the cooling water to the discharge channel, shared with the Synergen Generating Station (Dublin Bay Power).

15.2.3.2 Potential impact of the 3FM Project and proposed mitigation measures

The 3FM Project will be of significant benefit to Encyclis by allowing use of the proposed SPAR, thereby taking all the large transfer trailers off the existing public road network at East Wall Road and the R131.

DPC is also making DPC-owned Land at Area O available to DCC for the proposed District Heating Energy Station in close proximity to the main Waste to Energy facility. The development of the proposed District Heating Energy Station does not, however, form part of the 3FM Project. That project will be the subject of a separate planning application by DCC.

15.2.3.3 Residual Impact

The 3FM Project will have no negative impact on the continuous operational requirements of the Waste to Energy Plant.

15.2.4 ESB Power Generation

15.2.4.1 Description of facilities

The Poolbeg Peninsula is of national importance for both power generation and power supply networks. There are two main blocks denoted on Figure 15.1 including:

- Poolbeg Block; and
- Ringsend Block.

These Blocks include the ESB and NORA Sites.



Figure 15.1 ESB and NORA Utility Sites proximate to the 3FM Project

Poolbeg Block

There are two existing generating stations within the ESB Poolbeg Block:

- A thermal station which is no longer operational.
- A combined cycle gas station which is located towards the eastern end of the site.

Cooling water is taken from the Liffey and discharged with the Wastewater from Ringsend Wastewater Treatment Plant via an open channel and discharge weir. New infrastructure (not related to the 3FM Project) is proposed within the Poolbeg Block as shown in Table 15.1.

Table 15.1 Proposed Infrastructure within the ESB Poolbeg Block

Project	Current Status
Poolbeg BESS (ESB -GT) DCC Ref: 3255/20 Note: BESS – Battery Storage	Planning Permission Granted –22.06.2021 Construction Phase Complete / Plant Operational
Poolbeg 75MW Flexgen (ESB - GT) DCC Ref: 3624/20 Note: Flexgen - Flexible Generation	Planning Permission Granted –22.06.2021 Construction Phase Complete –Q1 2024 Plant Operational –Q1 2024
Poolbeg 299MW OCGT (ESB -GT) DCC Ref: 3137/23	Planning Permission Granted –11.12.2023 Construction Phase –2024 -2026 Plant Operational –Q3 2026 (expected)
Poolbeg 220kV GIS Substation (Eirgrid) DCC Ref: 4057/23 Information obtained from Planning Submission to DCC	Planning Permission Decision –29.11.2023 Construction Phase -Assumed commencement Q1 2025 (36 Month Construction Programme Envisaged) Operation Phase –Assumed Q1/Q2 2028

Ringsend Block

There is one existing generating station within the ESB Ringsend Block:

- A combined cycle gas station which is located towards the eastern end of the site, operated by Synergen (Dublin Bay Power).

Cooling water is taken from the Liffey and discharged to an open cooling water lagoon located immediately south of Area L. The cooling water discharge is combined with the cooling water from the Encyclis (formerly Covanta) Waste to Energy Plant prior to discharge to the Liffey.

New infrastructure (not related to the 3FM Project) is proposed within the Ringsend Block as shown in Table 15.2.

Table 15.2 Proposed Infrastructure within the ESB Ringsend Block

Project	Current Status
SouthwallIBESS (ESB -GT) DCC Ref: 3646/20	Planning Permission Granted –18.06.2021 Construction Phase Complete Plant Operational –Q1 2024
Ringsend 75MW Flexgen (ESB -GT) DCC Ref: 3647/20	Planning Permission Granted –06.08.2021 Construction Phase Complete –Q1 2024 Operation Phase Commence –Q1 2024
Ringsend 299MW OCGT (ESB -GT) DCC Ref: PWSDZ3074/23	Planning Permission: DCC Decision: February 2024
Ringsend 299MW OCGT –Grid Connection (ESB -GT)	Not Submitted
Ringsend 110kV GIS Substation (ESB -Networks)	Not Submitted

15.2.4.2 Potential impact of the 3FM Project and proposed mitigation measures

The 3FM Project will require the construction of a Lo-Lo Container Terminal at Area N and has therefore the potential to alter the interaction between the thermal plume discharge and the cooling water intake at the ESB Poolbeg Generating Station. It is also important to make provision for a future increase in capacity of the intake and outtake system to account for the proposed new infrastructure in the area.

This has been mitigated through engineering design by making the form of construction of the Lo-Lo Terminal an open-piled wharf. This avoids any need to carry out infilling works and ensures there will be no significant change to the existing tidal flow regime (see Chapter 13 Coastal Processes).

There has been significant consultation between DPC and ESB during the 3FM Project design process which has ensured that there will be no significant impact on the existing and proposed ESB assets on the Poolbeg Peninsula. Engineering design has achieved significant mitigation by avoidance, for example, the development of Area L as a Lo-Lo transit container yard has been designed to avoid covering over any of the cooling water lagoon used by the Synergen Generating Station (Dublin Bay Power) which relies on its

surface area to reduce water temperature. DPC also intends to facilitate ESB's construction works by providing temporary site compounds within Port Owned Lands at Area O.

15.2.4.3 Residual Impact

The 3FM Project will have no significant impact on the continuous operational requirements of the existing and proposed electricity assets.

15.2.5 ESB Power Supply Networks

15.2.5.1 Description of facilities

The ESB 220kV power supply networks emanating from the ESB Generating Stations at Ringsend, Poolbeg and North Wall are shown in Table 15.3. There are a total of five cables, all of which have the potential to overlap with the 3FM Project.

Table 15.3 Existing 220kV cables

Existing 220kV Cable	Cable Length (km)
Poolbeg to Carrickmines	11.9 km
Poolbeg to Inchicore	14.5 km
Poolbeg to Inchicore (second cable)	14.5 km
Poolbeg to North Wall	4.6 km
North Wall to Finglas	11.3 km

Dublin's electricity infrastructure is ageing and reaching its end of life. EirGrid is therefore bringing forward plans to transform and modernise the city's electricity infrastructure, so that Dublin can continue to develop and thrive, while increasingly using power from renewable sources. The Dublin Replacement Underground Cable Programme is a critical programme that will strengthen key electricity infrastructure in the city and the surrounding areas, making the city 'renewable ready'. This programme is set to replace and upgrade the five 220kV circuits set out in Table 15.3 above.

EirGrid proposes to replace all the existing circuits with cross-linked polyethylene (XLPE) cable primarily on an offline route, to minimize power outages on the existing circuits. These XLPE cables are more efficient and robust, which will enable the grid to carry more power. Replacing the existing circuits in an offline route means the new circuit follows a separate route to the existing circuit. The advantage of this is that there are minimal disruptions to the existing circuit and no, or very few, planned outages would be needed during construction. The alternative to this is online replacement where the new circuit follows the existing circuit route. The old circuit is decommissioned as the new circuit is laid. For this method, a circuit outage of the existing circuit would be required for the entire construction period. Due to the electricity needs of Dublin, an online replacement is not feasible. For this reason, offline installation will be considered for the replacement of this circuit.

Priority is being given to replacing the Poolbeg to North Wall 220kV cable which crosses under the Liffey between Poolbeg Marina and North Wall Quay Extension as shown in Figure 15.2. The replacement cable will use an alternative crossing location. The construction works associated with this cable replacement in the vicinity of Poolbeg Marina is programmed to be completed in advance of the proposed 3FM Project

construction works in the vicinity of the cable crossing of the Liffey. No cumulative effect is therefore expected.

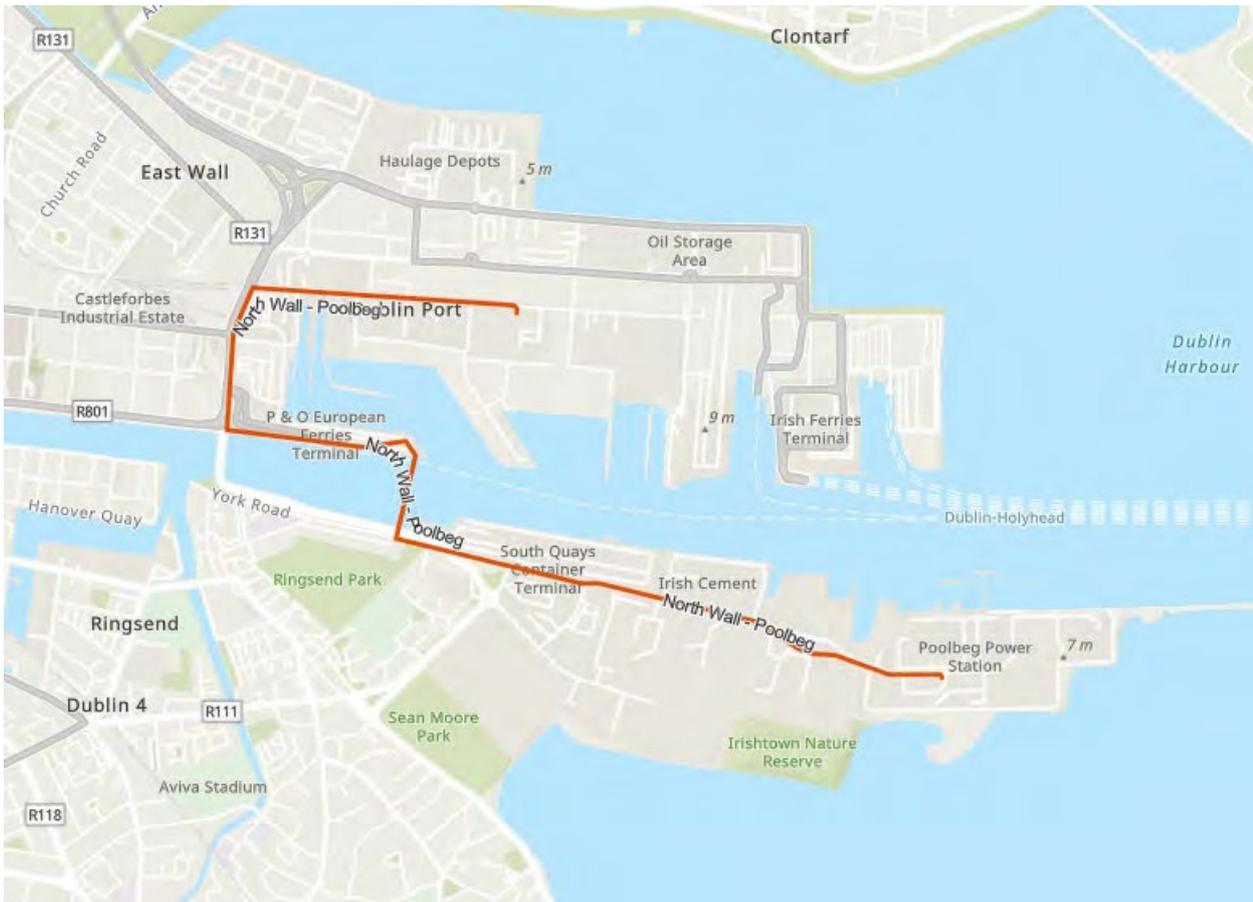


Figure 15.2 Route of the existing 220kV cable between Poolbeg and North Wall

15.2.5.2 Potential impact of the 3FM Project and proposed mitigation measures

A detailed assessment of the existing ESB HV and MV underground infrastructure within the redline boundary of the 3FM Project area was carried out as part of the preliminary engineering design.

This consisted of:

- Compilation of all available record drawings held by DPC and within ESB's database of electrical infrastructure in the area. From these a composite set of detailed drawings was compiled, which were then reviewed to identify potential impacts on the ESB Power Supply Network by the proposed 3FM Project.
- Following this, a series of meetings and informal discussions were held with DPC and ESB to review potential impacts and to discuss mitigation measures.

A summary of the findings of this process is as follows:

- The majority of the potential clashes identified, particularly with regard to MV cables, are not of concern, as these cables are either redundant, or will become redundant prior to the 3FM Project construction works proceeding;

- There are some local potential impacts on existing underground HV and MV lines but it is expected that these can be addressed without any significant impact to ongoing operations; and
- ESB advised that they have plans to carry out extensive modifications and upgrade of their infrastructure in the South Port area in the coming years. It was agreed that DPC and ESB would continue to liaise and collaborate on these issues, and that as part of the detailed design of the 3FM Project construction work, that efforts would be made to identify and provide adequate space and routes for new ESB underground services including the provision of spare ducts in specific zones in road verges etc.

15.2.5.3 Residual Impact

The 3FM Project will have no significant impact on the continuous operational requirements of the existing and proposed ESB Power Supply Networks.

15.2.6 Codling Wind Park – Site for Onshore Substation

15.2.6.1 Description of facilities

The Codling Wind Park Project is a proposed 1.45GW offshore windfarm off counties Dublin and Wicklow. The turbine arrays are in an area lying between approximately 13km and 22km off the County Wicklow coast, between Greystones and Wicklow Town. A maximum number of 100 turbines will be installed across the 125km² site. The Poolbeg peninsula is considered to be the preferred landfall for the export cable. Subject to all necessary permits and consents being received, Codling Wind Park could begin construction in 2026. Construction is expected to take two to three years to complete (2026-2028).

15.2.6.2 Potential impact of the 3FM Project and proposed mitigation measures

DPC aims to facilitate renewable energy by making land available to the Codling Wind Park Project for the construction of an onshore substation to facilitate the transmission and distribution of Offshore Renewable Energy from the Codling Bank to the National Transmission System.

This support is consistent with Government's policy objectives set out in the Climate Action Plans and following the decision by EirGrid to provide Codling Wind Park with a grid connection at Poolbeg.

DPC has co-operated with Codling Wind Park and identified a site on Port owned lands for an Onshore Substation at Masterplan Area M.

The site identified for the onshore substation lies adjacent to the proposed 3FM Project Turning Circle. Collaboration between DPC and Codling Wind Park has resulted in the development of a common combi-wall structure at the location where the two proposed projects adjoin (boundary between the Codling Wind Park Onshore Substation and the 3FM Project Turning Circle). The collaboration included the routing of cables and the provision of site compounds during construction to ensure no conflict between the two projects. Both parties also agreed to share site specific environmental data.

The planning approval for the Onshore Substation will be part of a separate planning application by Codling Wind Park and will not form part of the 3FM Project application.

The agreement of the common boundary between the 3FM Project and the Codling Wind Park Onshore Substation through the construction of a vertical piled combi wall has ensured that the marine environmental appraisals undertaken for the 3FM Project also take into account the Onshore Substation and therefore there are no additional cumulative impacts for this element of construction work. Mitigation measures include closed periods for piling to minimise the impact on nesting Terns and the migration of salmonids as described in Chapter 7.

15.2.6.3 Residual Impact

The 3FM Project in combination with the Codling Wind Park Project Onshore Substation, with mitigation in place, will have no significant residual impact on the marine environment within the Liffey.

15.2.7 Dublin City Council District Heating Scheme – Site for District Heating Energy Station

15.2.7.1 Description of facilities

Dublin City Council (DCC) is in the process of developing proposals for a District Heating System derived from heat generated from the Encyclis Waste to Energy Plant. The proposed District Heating System was endorsed by The Minister for Environment, Climate and Communications, Eamon Ryan, through a press release on 31st August 2023.

DCC's proposals are at an early stage of development but are likely to comprise the following elements:

- Connection Point to Encyclis – eastern side of plant.
- District Heating Energy Station.
 - Water tank required to pressurize the system.
 - Standby energy supply (gas or offshore wind).
 - Control room.
 - Potential Flue stack for standby energy generation, if required.
- Pipework to residential and commercial areas.

15.2.7.2 Potential impact of the 3FM Project and proposed mitigation measures

DPC aims to support DCC's proposed District Heating Scheme by making DPC-owned Land available for the District Heating Energy Station. Through discussions between DPC and DCC the final site selected for the District Heating Energy Station comprises a portion of Masterplan Area O adjacent to the Waste to Energy plant. This is DCC's preferred location for the District Heating Energy Station.

The planning approval for the District Heating Energy Station will be part of a separate planning application by Dublin City Council and will not form part of the 3FM Project application.

The 3FM Project communication process has resulted in a site selection process which enables the 3FM Project and the DCC District Heating Scheme to co-exist without the need for mitigation.

15.2.7.3 Residual Impact

The 3FM Project will have no significant impact on DCC's proposals for a District Heating Energy Station adjacent to the Encyclis Waste to Energy Plant.

15.3 Appraisal of the impact of the 3FM Project Service Requirements on existing and proposed Utilities

15.3.1 Water Supply

The supply of potable water to the Dublin Port Estate is provided by Uisce Éireann. Water is used in the port for a variety of uses including:

- Supply of water to passenger terminals and administration buildings; and
- Supply of water to vessels to re-stock their internal water tanks.

The water usage within the Dublin Port Estate in 2018 was circa 192,000m³. Following significant progress being made by DPC with respect to energy and water consumption under its obligations under the Climate Action Framework, this value has reduced to 159,189m³ in 2023. To put the water usage in perspective, it equates to population equivalent of circa 3,355 p.e. based on a usage of 130 litre per day per capita (Uisce Éireann Consumption Research Project - CER Reg_PP_IW_TPD_008).

The water usage by 2040 is predicted to be circa 350,000m³ in line with overall expected throughput of cargo. The population equivalent is therefore expected to increase to circa 7,400 p.e by 2040.

In comparison the population of Dublin in April 2021 was estimated to be 1.43 million persons, making the drawdown of potable water to the Dublin Port Estate insignificant.

It is recognised however that daily water demand will not be constant. A detailed analysis was therefore undertaken with respect to the 3FM Project.

The water supply for the 3FM Project is primarily required for redevelopment of DPC-owned land within the Poolbeg Peninsula. The existing sites all have existing water supply connections with the exception of the proposed Lo-Lo Terminal (Masterplan Area N) which will be constructed on existing foreshore immediately north of the ESB Poolbeg Generating Station. The nearest accessible public potable water infrastructure is located on Pigeon House Road, close the entrance of the ESB Poolbeg Power Station. The 3FM Project will extend the existing watermain network to the new Lo-Lo Terminal. The water supply demand is set out in Table 15.4.

Table 15.4 3FM Project Water Supply Demand

Location	Average Daily Demand (m³)	Peak Hour Demand (m³)
Lo-Lo Container Terminal (Masterplan Area N)	13.5	2.25
Lo-Lo Terminal Transit Storage Yard (Masterplan Area L)	3.25	0.54
Ro-Ro Freight Terminal (Masterplan Area K)	6.9	1.15
Ro-Ro Freight Terminal (trailer parking) (Masterplan Area O)	0.75	0.125
Maritime Village	56.8	11.8

Note: The Maritime Village Water Supply Demand includes Port Operations which is moving from the North Port to the Maritime Village. It therefore represents a redistribution of an existing water supply and not a new water supply.

The combined water supply demand in Table 15.4 equates to population equivalent of approximately 630 p.e. based on a usage of 130 litres per day per capita. The water supply demand, subject to a water supply connection agreement with Uisce Éireann, is not considered to be significant.

15.3.2 Wastewater

Separate foul and storm water drainage systems are in existence within the Dublin Port Estate. The existing set-up will continue within the footprint of the 3FM Project in that surface water will be directed to a storm water drainage system and wastewater will be directed to the existing sewerage network. The sewerage network is in turn connected to the municipal wastewater system for Dublin City which is operated and managed by Uisce Éireann.

It is proposed to collect storm water on the new hardstanding areas in closed systems and discharge via new silt traps and oil interceptor/separators to either the existing surface drainage system or via new storm water outfalls to the Liffey. Additional storm water attenuation tanks will be used at Area O to slow the rate of flow to enable storm water to use existing storm water outfalls thereby avoiding any new outfalls to South Dublin Bay. No construction works on the foreshore in South Dublin Bay are therefore required.

It is proposed to collect wastewater arising in closed sewerage networks under gravity, where possible, and to feed the sewage discharge to the existing Uisce Éireann sewerage network. There are sites, however, where there is insufficient gradient to make use of gravity flow. In these cases, package pumping stations and rising mains will be installed.

The volume of wastewater arising from the 3FM Project and the method to be used to connect to the municipal sewerage network is presented in Table 15.5. Overall, volume of the wastewater component of

the proposed discharge arising is similar to the potable water demand and equates to a population equivalent of approximately 630p.e. Note the overall flows per days as shown in Table 15.5 are larger than the daily water demands as shown in Table 15.4. This is due to the wastewater flows calculated to include a volume for infiltration, as per Uisce Éireann requirements.

Table 15.5 3FM Project Wastewater Requirements

Location	Design Foul Flow per Day (m³)	Method of connection to municipal sewerage network
Lo-Lo Container Terminal (Masterplan Area N)	38.9	Package Pumping Station
Lo-Lo Terminal Transit Storage Yard (Masterplan Area L)	9.4	Package Pumping Station
Ro-Ro Freight Terminal (Masterplan Area K)	6.1	Gravity Connection
Ro-Ro Freight Terminal (trailer parking) (Masterplan Area O)	2.2	Gravity Connection
Maritime Village	277.0	Gravity Connection

The wastewater will be treated at Ringsend WwTP. The volume of wastewater arising from the 3FM Project will be less than 0.03% of the Ringsend WwTP capacity. Based on this analysis, and subject to a water supply connection agreement with Uisce Éireann, the impact of the 3FM Project on wastewater utilities is not considered to be significant.

15.3.3 Discharge from commercial vessels

Ships arriving and departing from Dublin Port are strictly forbidden to discharge wastewater of any sort within the basins or approach waters to Dublin Port. This includes:

- Foul sewage;
- Bilge Water; and
- Ballast Water.

There are currently no pump-out facilities for commercial vessels at the port and there are no plans for same in the 3FM Project.

15.3.4 Natural Gas Supply

The 3FM Project does not require a connection to the natural gas network. The 3FM Project will therefore have no impact on the natural gas supply to the neighbouring communities.

15.3.5 Electricity Supply

The electricity supply to the Dublin Port Estate is provided by ESB Networks.

During meetings and discussions with ESB and DPC during the preliminary design period, it is apparent that ESB infrastructure in the overall south docks area is in need of upgrade, to meet current and expected future load requirements, not just for DPC but for other ESB customers in the area.

This issue is currently being addressed between DPC and ESB by quantifying the electrical load capacity of the overall Dublin Port Estate with a view to compiling a masterplan to deal with electrical load requirements in the medium and long term. The 3FM Project electrical load requirements will form a key element of this masterplan. The masterplan will take account of the energy efficiencies being achieved by DPC.

DPC's Total Primary Energy Requirement (TPER) was 14.1GWh in 2020 representing an energy efficiency of 38.9% against DPC's 2009 baseline. This equates to a consumption of 381kWh for every 1,000 tonnes of trade handled in 2020. By 2030 DPC expect to achieve a 50% improvement on energy efficiency versus the 2009 baseline. On this basis, the predicted TPER for 2040 is presented in Table 15.6.

DPC's Total Energy consumption is therefore expected to be 26.1 GWH by 2040. DPC's energy consumption comprises of 33% electricity, 54% transport fuels for vessels and vehicles and 13% for space heating.

Table 15.6 DPC's Total Primary Energy Requirement (TPER)

Year	2020	2040
Predicted annual throughput of cargo Tonnes (,000)	36,864	77,157
Energy Efficiency Target (%)	38.9%	50%
TPER (GWH)	14.1	26.1
kWh/1,000 tonnes	381	338

The 3FM Project intends to increase the use of electrification of port infrastructure including:

- Ship to Shore cranes;
- Rail Mounted Gantries / Rubber Tyred Gantries;
- Electrified Terminal Trackers;
- Provision of Shore to Ship Power;

The 3FM Project projected electrical load requirements are summarised in Table 15.7.

Table 15.7 3FM Project Electrical Load Requirements

Location	Estimated Max Demand (MVA)	Estimated Power Usage (MWhr P.A.)	Expected Grid Connection Method
Ro-Ro Freight Terminal (Masterplan Area K)	3.147	9,027	ESB 20kV U/G looped supply to on site dedicated ESB MV substation
Lo-Lo Terminal Transit Storage Yard (Masterplan Area L)	1.61	3,468	ESB 20kV U/G looped supply to on site dedicated ESB MV substation
Lo-Lo Container Terminal (Masterplan Area N)	5.65	14,832	ESB 20kV U/G looped supply to on site dedicated ESB MV substation
Ro-Ro Freight Terminal (trailer parking) (Masterplan Area O)	0.301	1,096	ESB 20kV U/G looped supply to on site dedicated ESB MV substation

The above figures are based on load calculations carried out for each plot area, based on the preliminary design and project equipment being installed. These figures include for the provision of ‘shore to ship’ power supplies which will become mandatory from 2030 onwards. The ‘shore to ship’ power requirements are very significant, making up circa 50% of the overall electrical loads.

DPC intend to liaise closely with ESB to ensure the 3FM Project’s Electrical Load Requirements are met in line with the operational timeframes envisaged for the 3FM Project. This will be greatly assisted by the proximity of the 3FM Project to a major hub of electricity generation:

- ESB Generating Station, Poolbeg.
- Synergen Generating Station (Dublin Bay Power), Poolbeg.
- Encyclis Waste to Energy Plant, Poolbeg.
- The North Wall Power Station is also located within the North Port Estate. It is currently not producing electricity but contains a significant substation served by 220 kV cables from the ESB Generating Station.

The required level of capacity will be met by feeding the proposed sub-stations from the existing network, with MV cables uprated locally where required. Therefore, there will be no impact on the electricity supply to tenants within the Dublin Port Estate or on the neighbouring communities.

15.4 Conclusion

This chapter has established that the 3FM Project will not have any significant residual impact on existing and proposed utilities within the Poolbeg Peninsula and in the vicinity of proposed roadworks within the North Port Estate. The utilities include:

- NORA facilities at Ringsend and Poolbeg,
- Uisce Éireann Ringsend Wastewater Treatment Plant;
- Encyclis Waste to Energy Plant;
- ESB Power Generation;
- ESB Power Supply Networks;
- Proposed Codling Wind Park Onshore Substation; and
- Propose Dublin City Council District Heating Scheme.

The service requirements of the 3FM Project (water supply, wastewater and electricity supply) have been quantified and an appraisal made to ensure the demand can be met and to ensure that there is no significant impact on other users or on the neighbouring communities.

15.4.1 Water Supply

The appraisal has shown that, subject to agreement with Uisce Éireann via the Pre-Connection Enquiry system, the level of demand associated with the 3FM Project will be more than capable of being supplied by the existing Uisce Éireann infrastructure within the subject area. No significant impact is therefore envisaged on other users or on the neighbouring communities.

15.4.2 Wastewater

The appraisal has shown that, subject to agreement with Uisce Éireann via the Pre-Connection Enquiry system, it is deemed that the level of demand associated with the 3FM Project will be more than capable of being supplied by the existing Uisce Éireann infrastructure within the subject area. No significant impact is therefore envisaged on other users or on the neighbouring communities.

15.4.3 Electricity Supply

The appraisal has shown that ESB infrastructure in the overall south docks area is in need of upgrade, to meet current and expected future load requirements, not just for DPS but for other ESB customers in the area.

This issue is currently being addressed between DPC and ESB by quantifying the electrical load capacity of the overall Dublin Port Estate with a view to compiling a masterplan to deal with electrical load requirements in the medium and long term. The 3FM Project electrical load requirements will form a key element of this masterplan. The masterplan will take account of the energy efficiencies being achieved by DPC.

DPC intend to liaise closely with ESB to ensure the 3FM Project's Electrical Load Requirements are met in line with the operational timeframes envisaged for the 3FM Project. This will be greatly assisted by the proximity of the 3FM Project to a major hub of electricity generation:

The required level of capacity will be met by feeding the proposed sub-stations from the existing network, with MV cables uprated locally where required. Therefore, there will be no impact on the electricity supply to tenants within the Dublin Port Estate or on the neighbouring communities.